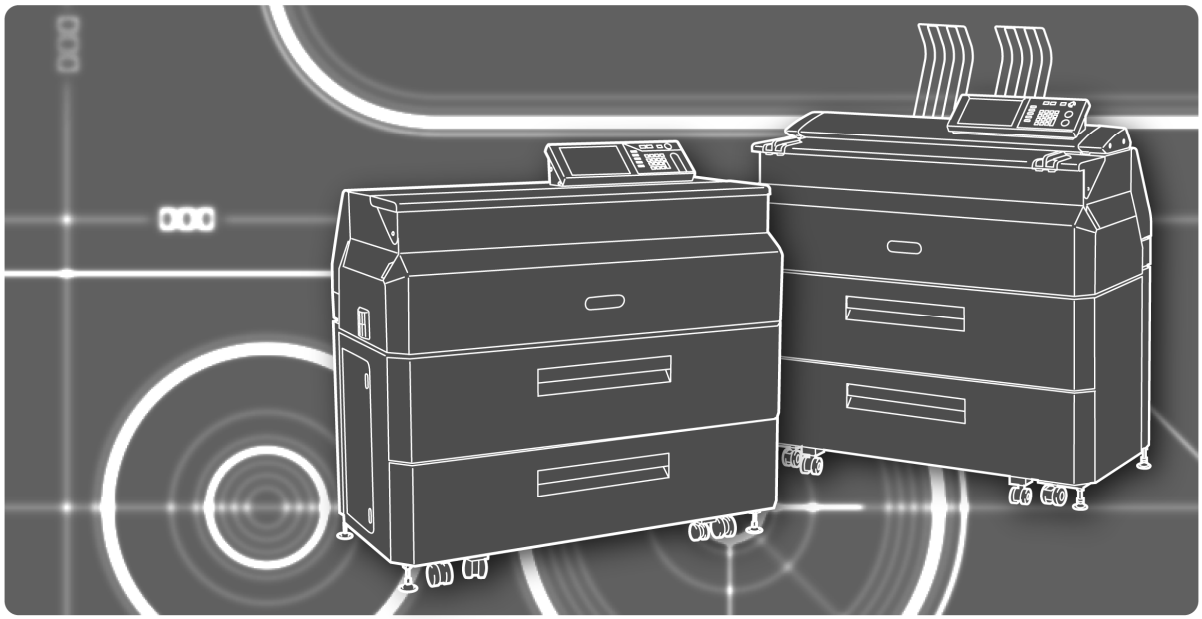
OKI

LP-2060/LP-2060-MF
Wide Format Multifunction Printer

Maintenance Manual

U10000139700 July, 2020 Rev.5



OKI DATA CORPORATION

U10000139700 July, 2020 Rev.5

Preface

This manual contains information required for field maintenance and troubleshooting of the LP-2060 Monochrome Raster Printer and the LP-2060-MF Network Multifunction Printer (hereinafter referred to as the Printer).

Before beginning any maintenance work be sure to read and understand the **Safety Notices** and **Cautionary Notes for 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 the LP-2060-MF Network Multifunction Printer if they do not differ from the method of operation and look of the other printers discussed in this manual.

The LP-2060 printer model may not be sold in some countries or regions.

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.

	**Warning**	If this information is ignored, and the Printer is handled incorrectly, it may result in serious injury or death.
	**Caution**	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

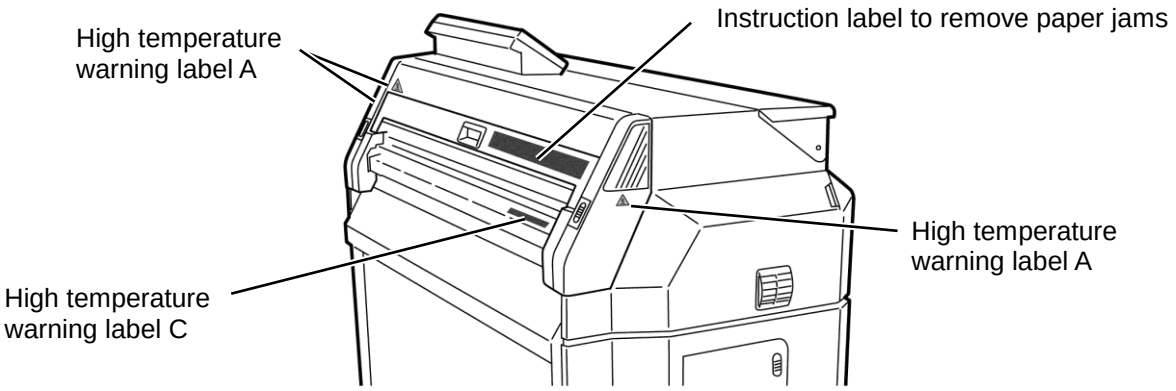
If toner gets into your eyes, do not rub your eyes, and wash the toner out. Visit a doctor immediately. If ink stains your skin or clothing, wash with soap and water immediately.

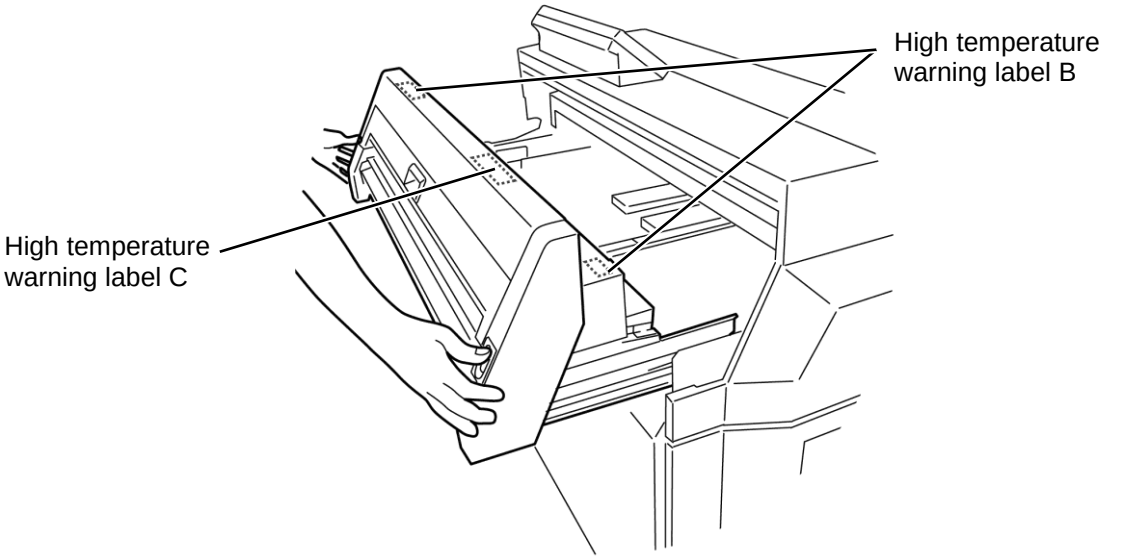
Be careful not to injure yourself or damage the Printer when working with box cutters, screwdrivers, or other tools.

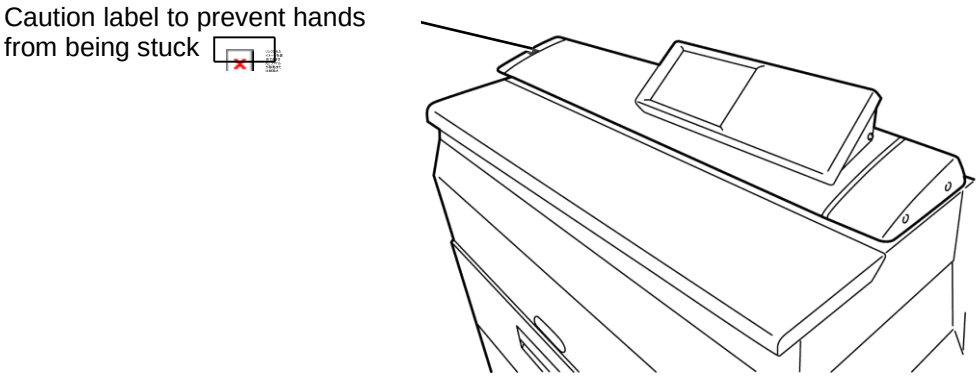
In addition to the items above, observe the warnings and precautions in each section of the manual.

Warning Labels

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.







(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.

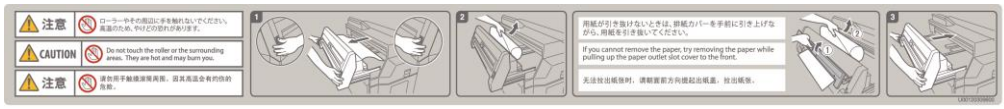
A 

B 

C 

(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.

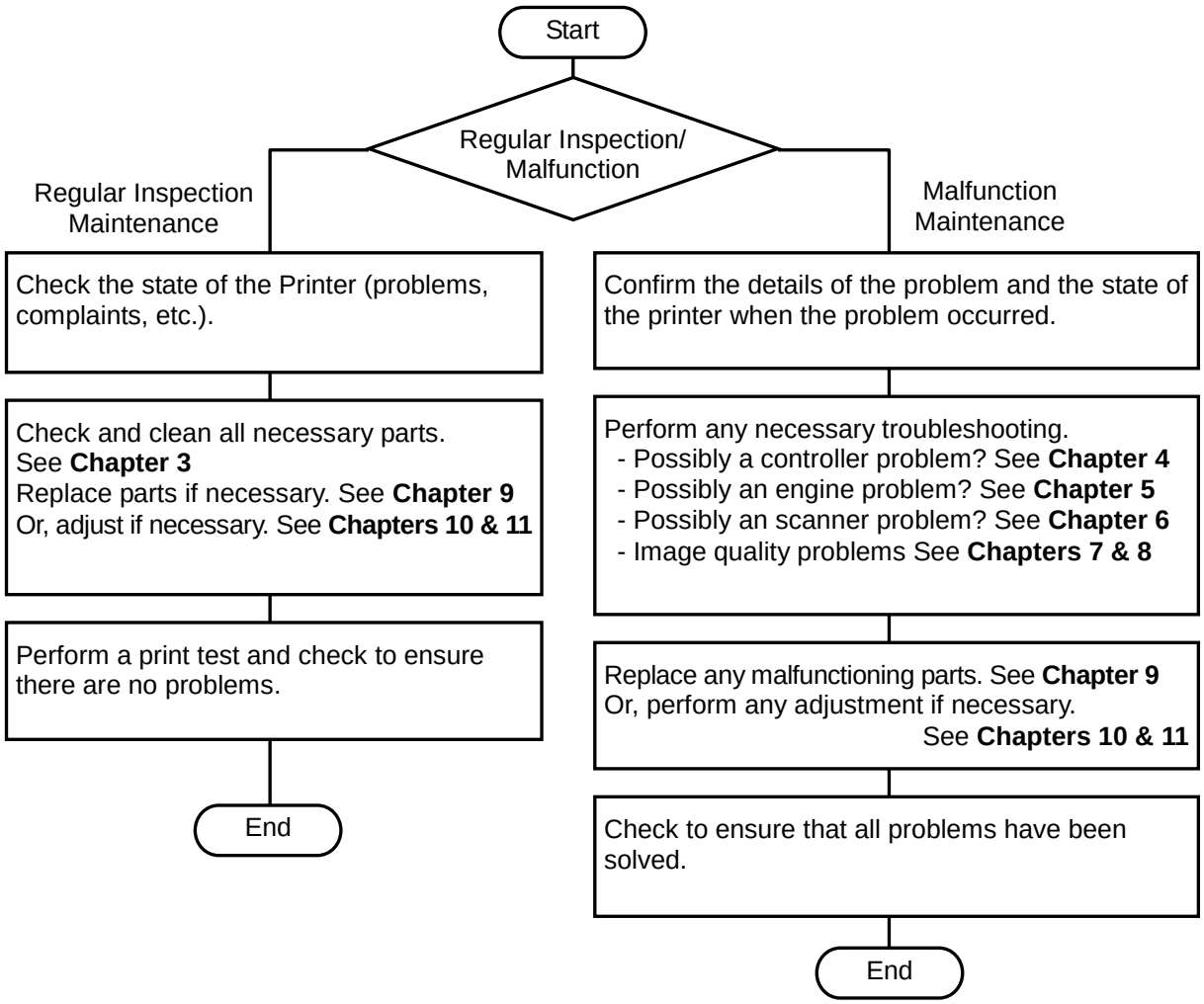


Figure 1.1 Maintenance Work Flow

1.2 Required Tools

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

Table 1-1 Required Tools

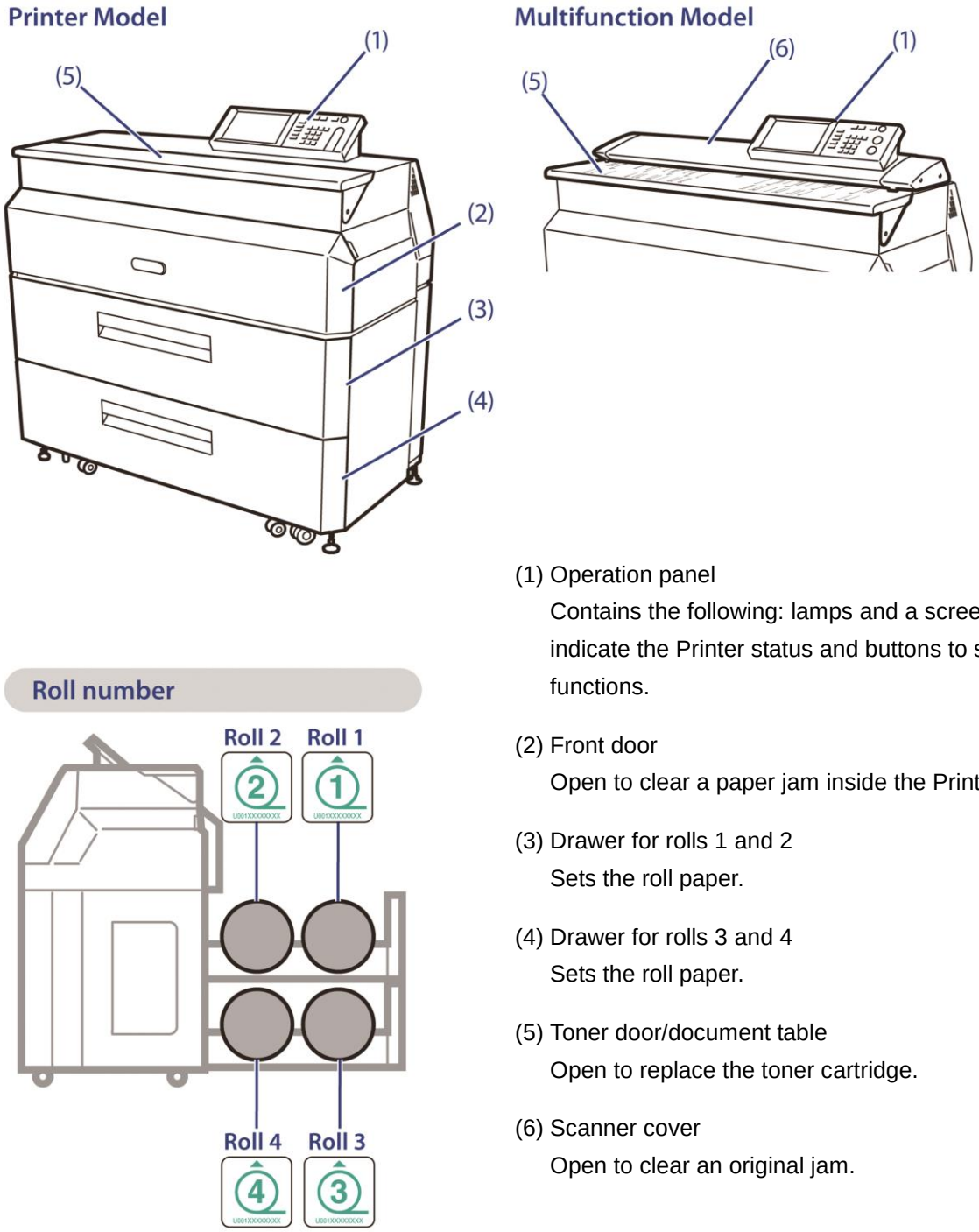
Name	Amt.	Notes
USB memory	1	For system firmware upgrade (USB 2.0)
Phillips screwdriver	1 each	Magnetic #2 (Shaft length = 100 mm (3.94 inches), 200 mm (7.87 inches)) Magnetic #3 Stubby screwdriver (Shaft length = 38 mm (1.50 inches))
Hex driver	1	Hex bit 5.5 mm type Hex bit 7.0 mm type, for LED focus adjustment
Flat head screwdriver	1	For E-ring removal and nip calibration
Screwdriver for voltage adjustment	1	Ceramic alingner 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 Used for cleaning the drum
H/R cleaner	—	For cleaning the fuser roller (heat) and roller (backup)
CONTACT GREASE	—	For lubricating the fuser ring (bias) Contact grease, FLOIL GE-676
HEATPROOF GREASE	—	For heat roller contact Heat resistant grease, FLOIL FG-65W
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
Contains the following: lamps and a screen to indicate the Printer status and buttons to set functions.

(2) Front door
Open to clear a paper jam inside the Printer.

(3) Drawer for rolls 1 and 2
Sets the roll paper.

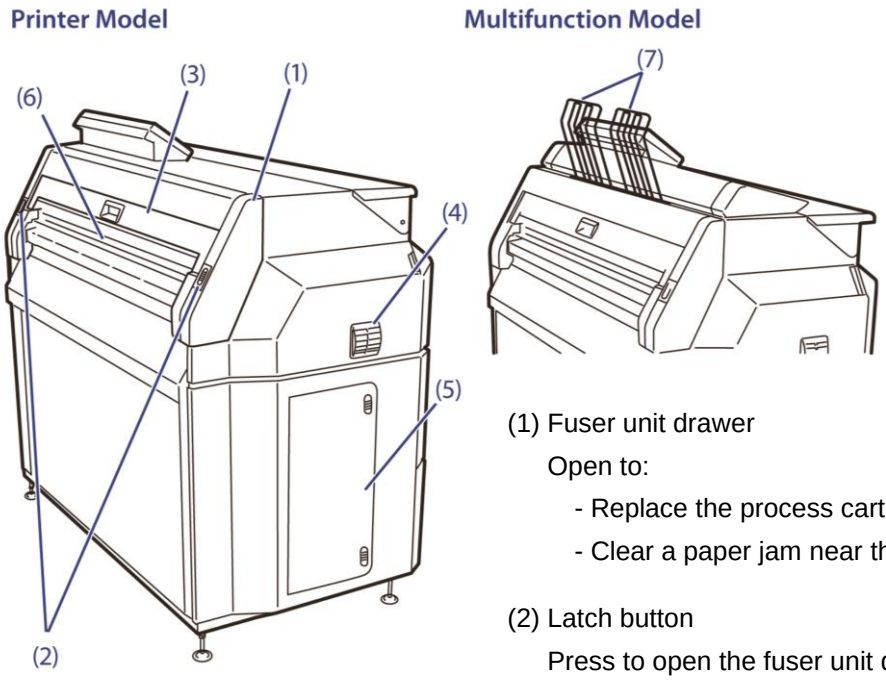
(4) Drawer for rolls 3 and 4
Sets the roll paper.

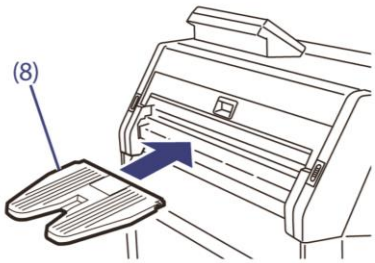
(5) Toner door/document table
Open to replace the toner cartridge.

(6) Scanner cover
Open to clear an original jam.

Figure 1.2 Part Names and Functions (Front Side)

1.3.2 Rear Side/Left Side





(1) Fuser unit drawer
Open to:
- Replace the process cartridge; or
- Clear a paper jam near the paper outlet.

(2) Latch button
Press to open the fuser unit drawer.

(3) Paper outlet cover
Open to clear a paper jam in the cutter unit.

(4) Filter cover
Remove to replace the large filter.

(5) Waste toner door
Open to replace a waste toner bottle.

(6) Paper outlet
Outputs paper.

(7) Original output guide
Guides the scanned original to the proper position.

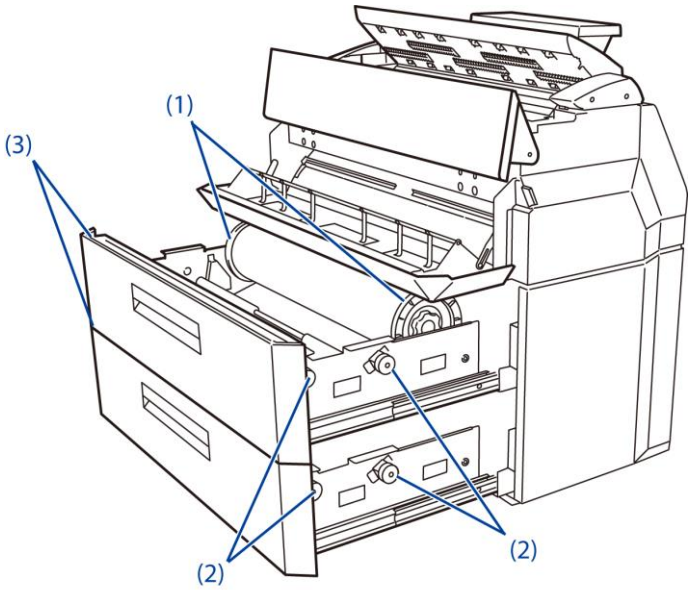
(8) Output tray
Stores output paper sized A3 or smaller.

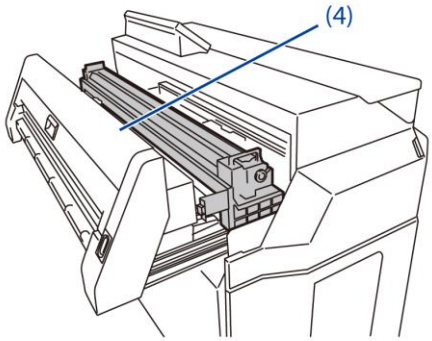
* A3 or smaller size paper is as follows.

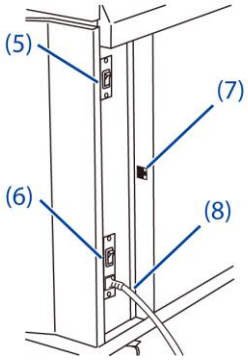
	Roll width	Print length
A:	279.4 - 310 mm x to (11 - 12.21 inches)	210 - 438.4 mm (8.27 - 17.26 inches)
B:	381 - 500 mm x to (15 - 19.69 inches)	210 - 353 mm (8.27 - 13.90 inches)

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

1.3.3 Inside







(1) Paper flange
Installs the roll paper.

(2) Paper feed knob
Feeds the end of the roll paper into the paper inlet.

(3) Cutter
Cuts the end of the paper.

(4) Process cartridge drawer
Open to replace a process cartridge.

(5) Heater switch
The switch for the heater.

(6) Main power switch
Turn on or off to supply power to the Printer.

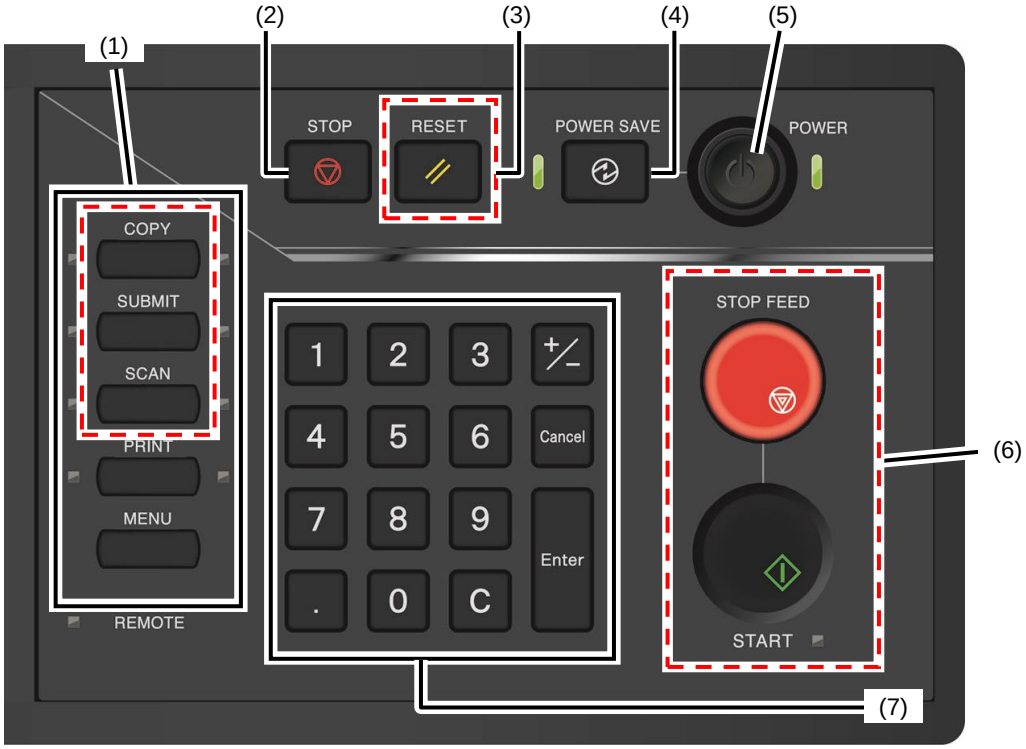
(7) Ethernet interface connector
The interface connector for 1000BASE-T, 100BASE-TX, and 10BASE-T.

(8) Power cord
Insert into a power outlet.

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.

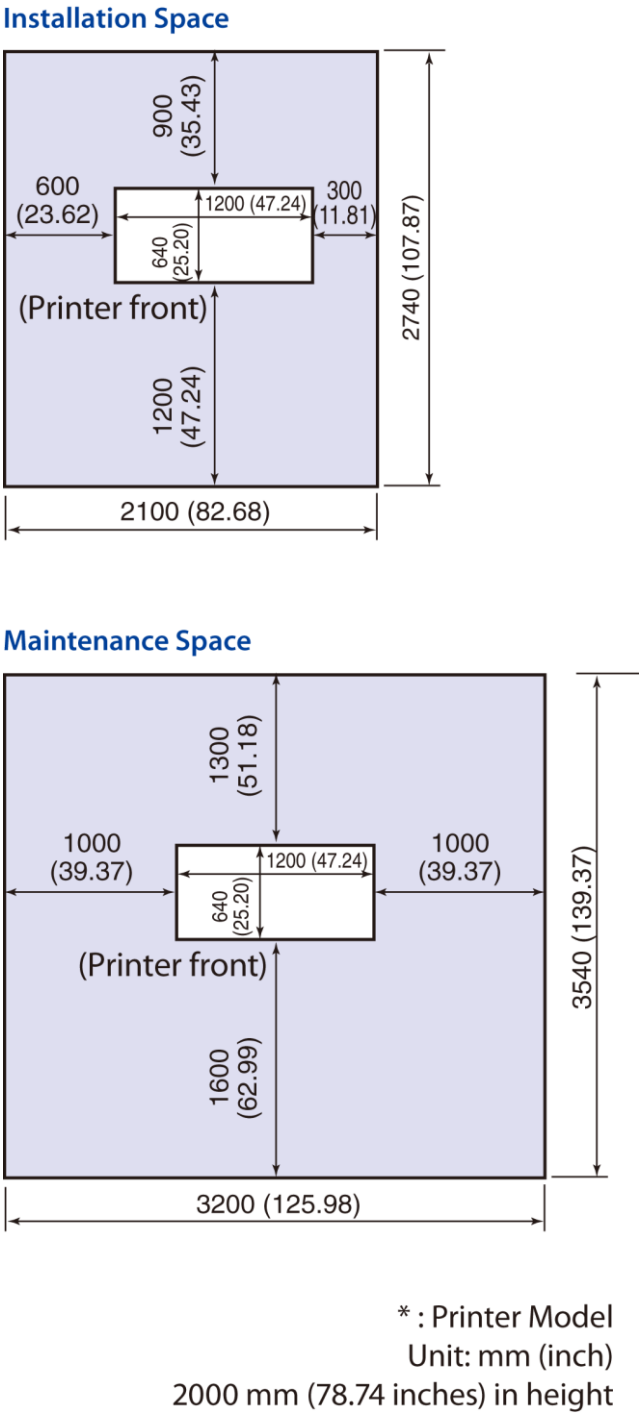


Figure 1.6 Installation/Maintenance Space

1.5 Compaticle Hardware

The following pieces of hardware are compatible with the LP-2060 model.

●ARC board

The ARC board cannot be used in common with the LP-2050/LP-1030 model.
Use an ARC board for the LP-2060/LP-1040 model.

●HDD

Use an HDD of 500 GB or higher.
The HDD can be used in common with the LP-2050/LP-1030 model as long as it is 500 GB or higher.

●ASC board

Use an ASC board whose first digit at the right of the serial number is 2 of higher.

Compatible ASC boards can also be used with the LP-2050/LP-1030 model.

1.6 Upgrading System Firmware

The following firmware applications are included in the supplied firmware package.

- Controller firmware
- Scanner firmware
- Controller unit boot ROM

You can use one of the following three methods to upgrade the firmware.

Upgrade using a USB drive (from the operation panel)

You can upgrade the firmware from the operation panel using a USB drive.
This method can be used for the controller firmware, the scanner firmware and the controller unit boot ROM.

Upgrade from a Web browser

You can upgrade the firmware from a Web browser using a computer.
This method can be used for the controller firmware, the scanner firmware and the controller unit boot ROM.

Upgrade using a USB drive (when restarting the printer)

This special upgrade method can be used as a method to reboot the printer when the printer is unable to start after it has been forcibly turned off during the upgrade process.
Generally, do not use this method to upgrade the firmware.
This method can be used to upgrade de controller firmware and the controller unit boot ROM, but cannot be used for the scanner firmware.

Notes

- ◇ **Always use the last version of the firmware.**
- ◇ **Do not downgrade the firmware.**
- ◇ **With the multifunction model, the firmware cannot be upgraded when the scanner is jammed with original documents. In such a case, remove the original documents before upgrading the firmware.**
- ◇ **“Upgrading…” may be displayed on the operation panel when restarting the Printer after upgrading the firmware.**
  Do not turn the Printer off when “Upgrading…” is displayed.
- ◇ **Upgrading the firmware may take 10 minutes or longer.**
  Do not turn the Printer off during the upgrading process.

1.6.1 System Firmware Format

The system firmware is supplied compressed in the ZIP format.

Example: t2e_v1.10.zip

- t2e: Firmware for the LP-2060/LP-1040 model.
- v1.10: Version

The supplied firmware is for the LP-2060/LP-1040 model.

Decompress the file to obtain the following system files.

TS_FW.BIN

File used to upgrade the firmware using a USB drive (from the operation panel) or using a Web browser.

RESCUE.SYS

File used to upgrade the firmware using a USB drive when restarting the Printer.

1.6.2 Product Key

Since the firmware is used for both LP-2060 and LP-1040 models, a product key of 20 digits (see below) must be set to the Printer to differentiate the printer models.

Example: 1206-2EEA-FDE6-2B83-1B57

The product key is a unique number different for each model and each serial number.
The product key is indicated at the following locations.

- The sticker at the rear side of the Printer.
- Under **Printer Information** in the **Menu** from the operation panel.
- The printout printed using **Print System Settings**.
- Printer Information screen of the Web function.

The product key is set by default to the Printer, but must be set again after the ARC or ASC board has been replaced.

The product key can be set:

- on the error screen that appears when the product key is not correct,
- under **Enter Product Key** in **Menu (1/2)** -> **Menu (2/2)** of the operation panel.

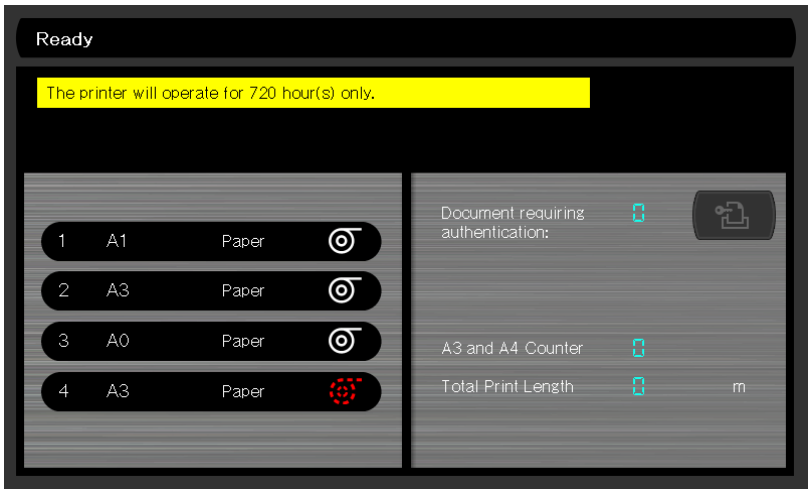
* The EEPROM must always be replaced after replacing the ARC or ASC board.

See p. 9-39 for the ARC board EEPROM replacement procedure.
See p. 9-46 for the ASC board EEPROM replacement procedure.

When the product key is not correct, the symbol * is added at the end of the serial number displayed

- under **Printer Information** in the **Menu** from the operation panel,
- on the printout printed using **Print System Settings**,
- on the Printer Information screen of the Web function.

Note also that when a highlighted sentence as shown below is displayed on the Ready screen, you will be able to use the Printer only for the time displayed.



When such a screen is displayed, enter the correct product key under **Enter Product Key** in **Menu (1/2)** -> **Menu (2/2)** of the operation panel.

* The screen above is also displayed if the EEPROM has not been replaced after replacing the ARC board.
  In such a case, replace the EEPROM of the ARC board.
  See p. 9-39 for the ARC board EEPROM replacement procedure.
  See p. 9-46 for the ASC board EEPROM replacement procedure.

1.6.3 About the USB Drive for Upgrade

To upgrade the firmware using a USB drive (from the operation panel or during restart), it is necessary to create a USB drive for upgrade.
A USB drive for upgrade is a commercially available USB drive to which system files have been saved.

The Printer supports the following USB drive formats.

- FAT16 and FAT32 formats.

Some USB drive models may have bad compatibility with the Printer and may be difficult to recognize.
When possible, use USB drive brands and models you know they have good compatibility with the Printer.
Save the system files to the USB drive for upgrade while paying attention to the following.

- Save the latest versions of both the TS_FW.BIN and RESCUE.SYS files to the root folder of the USB drive.
- It is possible to select the system files from multiple files to perform the upgrade when old versions of the system files are saved to the same USB drive.

  In case multiple system files are saved in the root folder, rename the old TS_FW.BIN file.
  You may also create a subfolder in the root folder and move the old TS_FW.BIN file into it.
- If you want to rename the system files or when you create the subfolder, use alphanumeric characters.

1.6.4 Upgrading Using the USB Drive (from the operation panel)

Follow the instructions below to upgrade the firmware from the operation panel using the USB drive for upgrade.

Note ◇ **With the multifunction model, the firmware cannot be upgraded when the scanner is jammed with original documents. In such a case, remove the original documents before upgrading the firmware.**

<Instructions>

(1) Turn the Printer off.

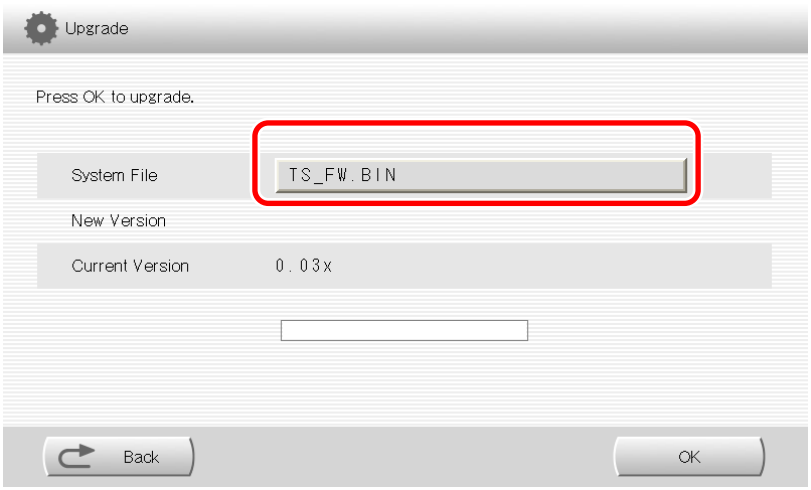
(2) Check that bits 3 and 4 of the SW3 DIP switch on the ARC board are both set to Off (usually the switches 1 to 4 are Off).

(3) Turn the Printer on.

(4) Connect the USB drive for upgrade to the USB port on the ARC board.

(5) Check the old version in **Menu** -> **Upgrade**, and then press the **OK** button to perform the upgrade.

To change the system files used for upgrade, you may press the button next the system files. Doing so displays the files saved in the USB drive and allows you to select the system files you want to use.



Press the **OK** button on the screen shown above to display the following pop-up window.

Press the **OK** button to close the window and start the upgrade process.

(6) Press the **OK** button again to confirm.
The state of the upgrade process is displayed with a progress bar. The message **Upgrade complete**. **Restart the printer**. is displayed when the upgrade is complete.

(7) Hold the **POWER** button pressed for 5 seconds to turn the printer off, and then remove the USB drive from the USB port on the ARC board.

(8) Turn the Printer on.

(9) Use the Print System Settings function to print the firmware version and check that it has been upgraded correctly.

1.6.5 Upgrading from a Web Browser

The TS_FW.BIN file is used to upgrade the firmware from a Web browser.
* Use the supplied TS_FW.BIN file.
Follow the instructions below.

Notes

- ◇ **The upgrading process takes 5 or 6 minutes. Never turn the Printer off during the process.**
  Turning the Printer off during the upgrading process may corrupt the flash memory used to save the firmware, which may cause the Printer to not be able to start correctly. In such a case where the Printer cannot start correctly, you can restore the system by upgrading the firmware with a USB drive during startup (see 1.6.6).
- ◇ **Use Internet Explorer 6.0 or later for the Web browser.**
- ◇ **With the multifunction model, the firmware cannot be upgraded when the scanner is jammed with original documents. In such a case, remove the original documents before upgrading the firmware.**

<Instructions>

(1) Prepare the system firmware file (TS_FW.BIN).
(Save the file to a folder in your computer.)
(2) Enter the address of the Printer on the Web browser and display the screen.
(3) Click **Maintenance** at the bottom left of the screen to display the maintenance screen.
(4) Click **6. Upgrade** on the maintenance screen.
(5) Click **Browse…** on the upgrade screen and select the folder where you have saved the system firmware file (TS_FW.BIN) in step 1.
(6) Check that the Printer is Ready (in standby), and then click **Send to Printer**.
After sending the system firmware file to the Printer, the firmware versions of both the system firmware already saved in the Printer and of the new system firmware are displayed.
(7) Check that the displayed versions are correct, and then click the **Start** button. The upgrade process starts and the Printer displays the Upgrading… screen. During the upgrade process, the REMOTE LED on the operation panel flashes.

When the upgrade process finishes, the Printer restarts automatically and the Web browser screen changes.

1.6.6 Upgrading Using USB Memory (at Startup)

If the controller firmware is corrupted, due to the Printer being turned off during the upgrade process or other operation, and the Printer cannot start, use the method below to restore the system.

TIP ◇ **This method should only be used to restore the system when the Printer cannot start. So do not use it as the normal method to upgrade the firmware.**

<Instructions>

(1) Turn Off the power to the Printer.

(2) 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.

(3) 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 starting the process

"System (from USB) loading..."

<2> When loading the firmware image

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

<3> When extracting the firmware image

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

<4> When installing Rip-FW

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

<5> 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.
```

<6> 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 1-19)

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 2.

<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.

(4) Confirm the information displayed in **<5> When completing the upgrade** and hold the **POWER** button on the operation panel for 5 seconds to turn off the Printer.

(5) Remove the USB memory used for upgrade from the USB connector on the ARC board.

(6) Set all bits of the ARC board SW3 DIP switch to Off.

(7) Turn On the power to boot up the Printer again.

The message The product key is required is displayed. Set the product key again referring to **1.6.2 Product Key** (page **1-11**).

(8) Use the Print System Settings function to print the firmware version and check that it is correct.

1.6.7 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 1-2 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. 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 1.6.6 to have the Printer recognize the USB memory. Use the correct upgrade USB memory and execute the upgrade process again. 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 1.6.6 to have the Printer recognize the USB memory. Use the correct upgrade USB memory (that includes the correct system image) and execute the upgrade process again. If the same error occurs again then replace, the ARC board.
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. 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). If the same error still occurs or if the Printer does not start, then replace the ARC board.

1.7 Replacing the ARC Board

Follow one of the procedures below to replace the ARC board.
After replacing the ARC board, upgrade the firmware to the latest version.

1.7.1 Replacing with a New ARC Board

Follow the procedure below when replacing the ARC board with a new one.

(1) Turn the Printer off.
(2) Remove the ARC board from the Printer.
(3) Replace the EEPROM on the new ARC board with the EEPROM from the old ARC board.
See p.**9-39** for the ARC board EEPROM replacement procedure.
See p.**9-46** for the ASC board EEPROM replacement procedure.
(4) Install the new ARC board to the Printer.
(5) Turn the Printer on.
The message **The product key is required** is displayed. Set the product key again referring to **1.6.2 Product Key** (page **1-11**).
(6) The Printer starts normally.
(7) Check that the Printer has started properly following the instruction in **1.8 Checks After Firmware Upgrade and Board Replacement**.

1.7.2 Replacing with a Used ARC Board

Follow the procedure below when replacing the ARC board with board already used.

(1) Turn the Printer off.
(2) Remove the ARC board from the Printer.
(3) Replace the EEPROM on the new ARC board with the EEPROM from the old ARC board.
See p.**9-39** for the ARC board EEPROM replacement procedure.
See p.**9-46** for the ASC board EEPROM replacement procedure.
(4) Install the new (used) ARC board to the Printer.
(5) Turn the Printer on.
The message **The product key is not correct, or the ARC board's EEPROM has not been replaced** may be displayed.
In such as case, enter the product key following the procedure in **4.6 The product key is not correct, or the ARC board's EEPROM has not been replaced error**.
(6) The Printer starts normally.
(7) If the message **The printer will operate for 720 hour(s) only** is displayed in yellow on the Ready screen on the operation panel, enter the product key following the procedure in **4.9 The printer will operate for 720 hour(s) only is displayed on the Ready screen**.
(8) Check that the Printer has started properly following the instruction in **1.8 Checks After Firmware Upgrade and Board Replacement**.

1.8 Checks After Firmware Upgrade and Board Replacement

The following checks must be performed after upgrading the firmware version, replacing the boards or replacing the EEPROM.

Execute **Menu** -> **Function** -> **Print System Settings**.

Check the following items.

(a) Printer information - Product name
Check that the product name is correct.

(b) Printer information - Product key
Check that the product key is correct.
The correct product key is written on the sticker at the rear of the Printer.

(c) Printer information - Serial number
Check that the serial number is correct.
If the * symbol is added at the end of the serial number, perform one of the following solutions.
If the product key is not correct:
Enter the correct product key from **Enter Product Key** on the menu screen.
If the EEPROM has not been replaced when replacing the ARC board:
Replace the EEPROM.
See p.**9-39** for the ARC board EEPROM replacement procedure.

(d) Printer information - MAC address
Check that the MAC address is correct.
The correct MAC address is written on the sticker at the rear of the Printer.
If the * symbol is added at the end of the MAC address, perform one of the following solutions.
If the product key is not correct:
Enter the correct product key from **Enter Product Key** on the menu screen.
If the EEPROM has not been replaced when replacing the ARC board:
Replace the EEPROM.
If the ARC board EEPROM is corrupted:
Ask for a new EEPROM.
See p.**9-39** for the ARC board EEPROM replacement procedure.

(e) Printer information - Version - Controller Firmware Version
Check that the correct version is displayed.

1.9 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 (7) 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 pieces of information below in the given order.

Diagnosis data
Select **Maintenance** -> **5.Acquire Maintenance Information**.
Click the **Start** button next to **Acquire Diagnosis Data**.

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

* The following data items without the passwords are obtained through diagnostic data acquisition.
- All settings
- Error log
- Job log
- Authentication log
- Engine log
- Printer 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.

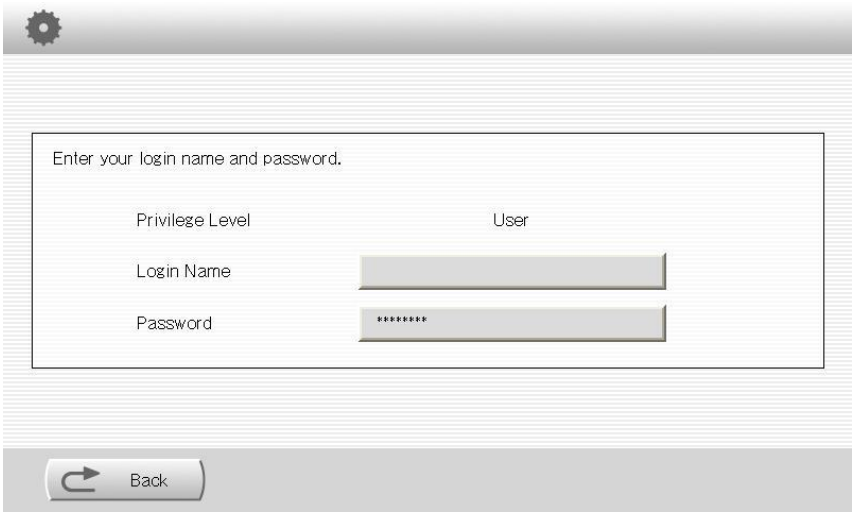


Figure 2.1 Password Input Screen

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 maintenance mode until it is returned to the standby screen.**

2.2 Maintenance Diagnostic Items Overview and How to Use Them

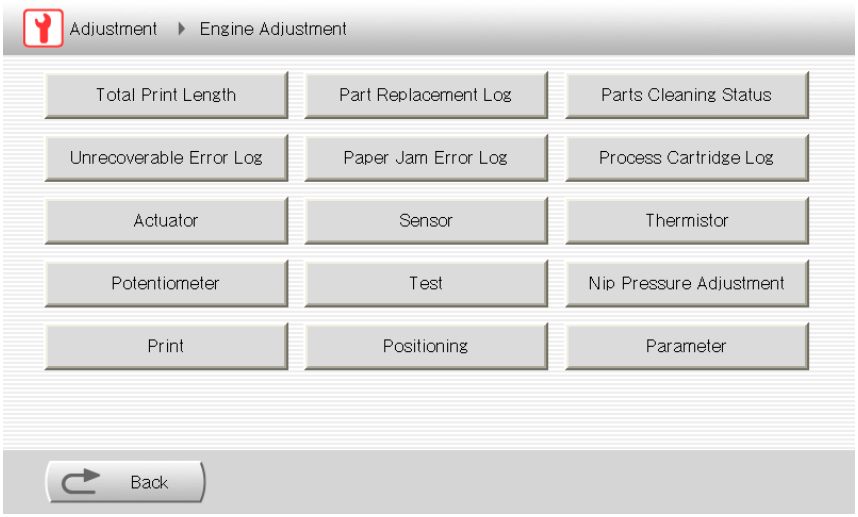
2.2.1 Maintenance Diagnostic Items

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. 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. 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. 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. 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.

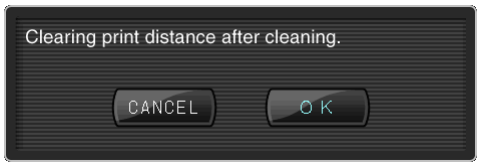
Operation	Description
Display Action	Display the current status.
Clear	Clears the cumulative print length related to the maintenance.
Change Setting	Change the current setting's value.
Execute	Execute the operation. Or, stop the currently executing operation.

(1) Display action

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

(2) Clear

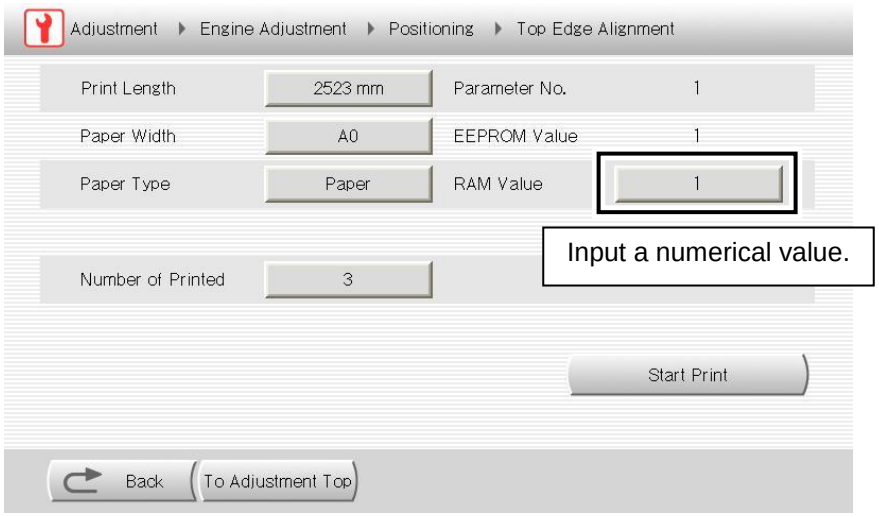
Clear the cumulative print length related to the maintenance. The information is cleared by clicking the **OK** button.



(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.

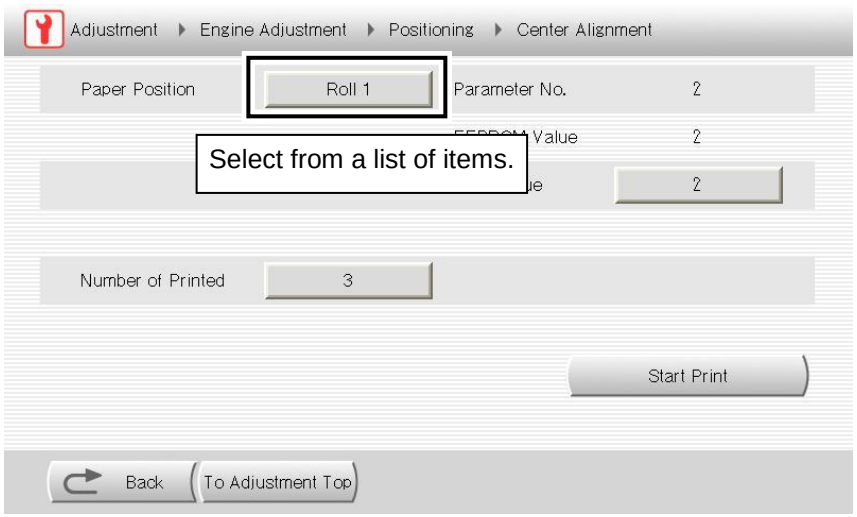


The table below shows the widths and the roll papers corresponding to each paper width.

Table 2-2　Correspondence between roll papers and paper widths

Paper width	Corresponding roll paper
A0	36"、910mm、900mm、880mm、34"、A0、30"
A1	707mm、700mm、620mm、24"、A1、22"
A2	500mm、18"、450mm、440mm、17"、A2、15"
A3	310mm、12"、A3、11"

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 2-3 Cumulative Print Length Items

Item	Meaning	Operation
Display Cumulative Print Length [m]/[ft]	←	Display Only
Roll x Cumulative Print Length [m]/[ft] (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 inch) 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 lengthand roll paper widthas shown in the table on next page.

Table 2-4 A3 and A4 counter's Count-Up Values on A1 and A3

Printout length			**Count-Up Value**	
[mm] (up to)	[inches] (up to)	[line] (up to)	Roll papers identified by the Printer as A3 width, e.g., with the following width: - 297 mm; - 310 mm; - 11 inch; or - 12 inch	Roll papers identified by the Printer as A1 width, e.g., with the following width: - 594 mm; - 610 mm; - 620 mm; - 700 mm; - 707 mm; - 22 inch; or - 24 inch
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 inch × 17 inch, 12 inch × 18 inch = one count-up
A1 (594 mm × 841 mm), 22 inch × 34 inch, 24 inch × 36 inch = three count-ups

Table 2-5 A3 and A4 counter's Count-Up Values on A2 and A0

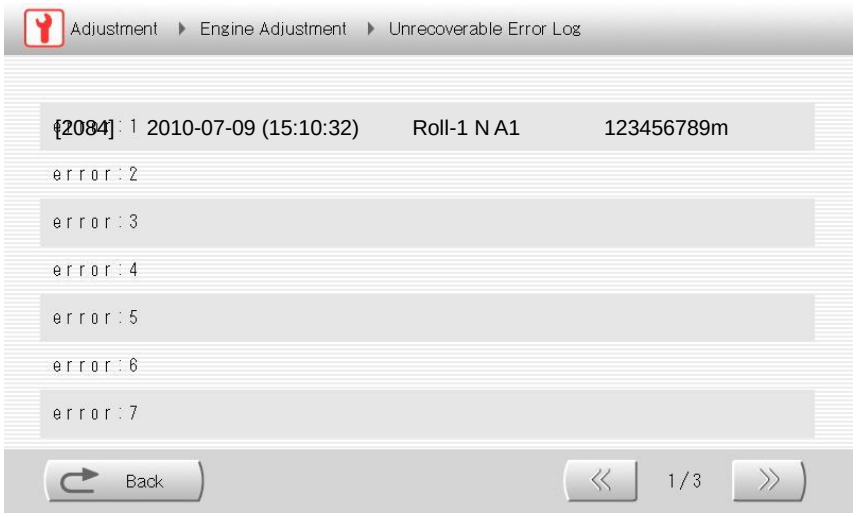
Printout length			**Count-Up Value**	
[mm] (up to)	[inches] (up to)	[line] (up to)	Roll paper identified as A2 width by the Printer - 420 mm; - 440 mm; - 450 mm; - 500 mm; - 17 inches; or - 18 inches	Roll paper identified as A0 width by the Printer - 841mm; - 880 mm; - 900 mm; - 910 mm; - 914 mm; - 30 inches; - 34 inches; or - 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 2-6 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 2-7 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 2-8 Unrecoverable Error Codes and Their Details

Error Code	Error Details
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	FM03 (Paper Feed Pulse Motor 3) Trouble
201A - 201C	FM04 (Paper Feed Pulse Motor 4) Trouble
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 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 2-9 Information and Its Contents on the type of paper used when an error occurred

First and Second Characters (Roll paper position)	Meaning
Rx (x: the roll number)	Roll position
	Roll paper position is unknown.

Third and Fourth Characters (Type of paper)	Meaning
N	Plain paper
T1	Tracing paper (Tracing Paper Mode 1)
T2	Tracing paper (Tracing Paper Mode 2)
F	Film
	Paper type is unkown.

Fifth and Sixth Characters (Paper width)	Meaning
A0	Roll papers identified by the Printer as A0 width (841 mm width), e.g., with the following width: 880 mm, 900 mm, 910 mm, 914 mm, 30 inch, 34 inch, 36 inch width roll paper, etc.
A1	Roll paper identified by the Printer as A1 width (594 mm width), e.g., with the following width: 610 mm, 620 mm, 700 mm, 707 mm, 22 inch, 24 inch width roll paper, etc.
A2	Roll paper identified by the Printer as A2 width (420 mm width), e.g., with the following width: 440 mm, 450 mm, 500 mm 15inch, 17 inch, 18 inch width roll paper, etc.
A3	Roll paper identified by the Printer as A3 width (297 mm width), e.g., with the following width: 310 mm, 11 inch, 12 inch, width roll paper, etc. 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 2-10 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 2-11 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 2-12 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 - 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

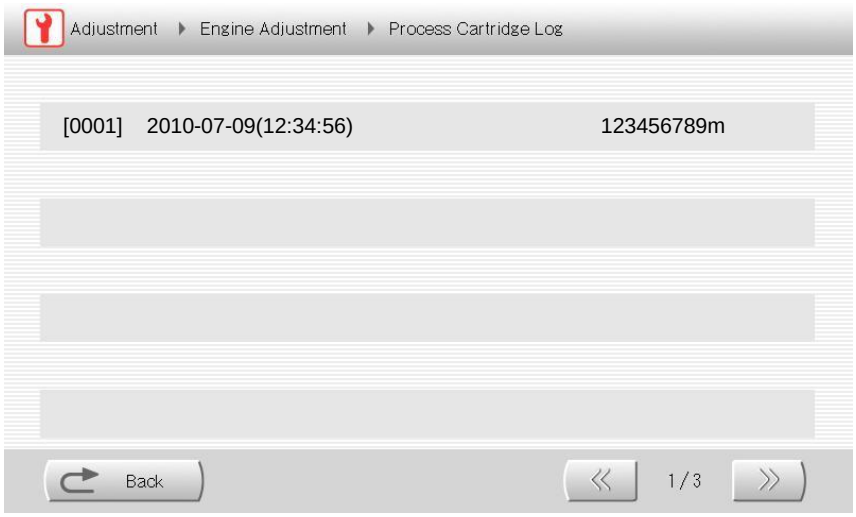
Or jam detected during printing of a single sheet

Even number codessuch 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] (1) 2010-07-09(12:34:56) (2) 123456789m (3)

Table 2-13 Process Cartridge Log Example

(1)	[0001]	Process cartridge number
(2)	2010-07-09(12:34:56 PM)	The date of last use. YYYY-MM-DD(HH:MM:SS)
(3)	123456789m	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 2-14 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 2-15 Part Replacement Data Details

No.	Replacement Part Name	Cumulative print length with which the part replacement is recommended		Reference Item
		Unit: m (inch)	Unit: ft	
1	Thermistor	100000 m (3937008 inches)	328084 ft	9.10.8
2	Detach needle	100000 m (3937008 inches)	328084 ft	9.17.2
3	Belt trans	100000 m (3937008 inches)	328084 ft	9.18.4
4	Spacer dev	100000 m (3937008 inches)	328084 ft	9.6.5
5	Roller TRA /Spacer TRA	100000 m (3937008 inches)	328084 ft	9.17.4/9.17.3
6	Roller heat	100000 m (3937008 inches)	328084 ft	9.10.13
7	Roller back up	100000 m (3937008 inches)	328084 ft	9.10.14
8	Peeler fu out	100000 m (3937008 inches)	328084 ft	9.10.11
9	Separator (BUR)	100000 m (3937008 inches)	328084 ft	9.10.12

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 2-16 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 2-17 Parts for Cleaning and Cleaning Cycle

No.	Part Name	Cleaning Cycle	
		Unit: m (inch)	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 ragistration Roller (PINCH 2)	10000 m (393700 inches)	32808 ft
13	Roller cutter Roller (PINCH 2)	10000 m (393700 inches)	32808 ft
14	Roller (PF) Roller (PINCH･PF)	10000 m (393700 inches)	32808 ft

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

2.3.7 Thermistor

Displays the state of the thermistors and the halogen heater.

Table 2-18 Thermistors and Halogen Heaters: Status and Meaning

Code	Category	Status and Meaning
TH02	Fuser temperature overheat sensor TH02's status	Normal: No overheating 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. On: The halogen heater is On.
FL02	Fuser unit halogen heater FL02's status	

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 2-19 Elements of Sensor Data

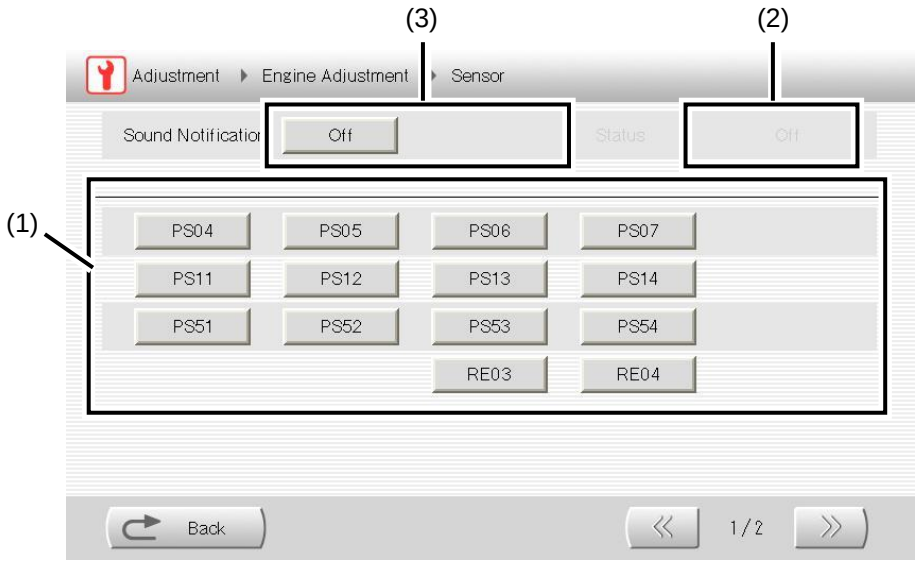
Item		Meaning	Operation
Sensor status	On/Off	Sensor Status (See table below)	Display only
Beep	On/Off	See the figures starting from the following page	Change setting

(1) Sensor status

Table 2-20 Sensor Status Messages

Selection Button	Function	Displayed Status and Meaning
PS04	Status of paper detection sensor under the cutter.	Off: No paper 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 On: Flange detected
PS16	Status of fuser unit drawer (door 5) open/closed sensor	Off: Closed On: Open
PS21	Status of drawer for roll 1, 2 open/closed sensor	
PS22	Status of drawer for roll 3, 4 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 On: Penetrate
INT3	Status of front door (door 6) open/closed sensor	Off: Closed 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 On: Cutter blade detected
RE04	Status of cutter blade detection sensor	
MS04	Status of toner cartridge detection sensor	Off: No cartridge On: Cartridge detected
MS05	Status of waste toner bottle detection sensor	
TS01	Status of toner sensor	Off: No toner On: Toner detected
TS02	Status of waste toner sensor	
V24V	Status for 24 V power supply	Off: Not supplied On: Supplied

(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 2-21 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

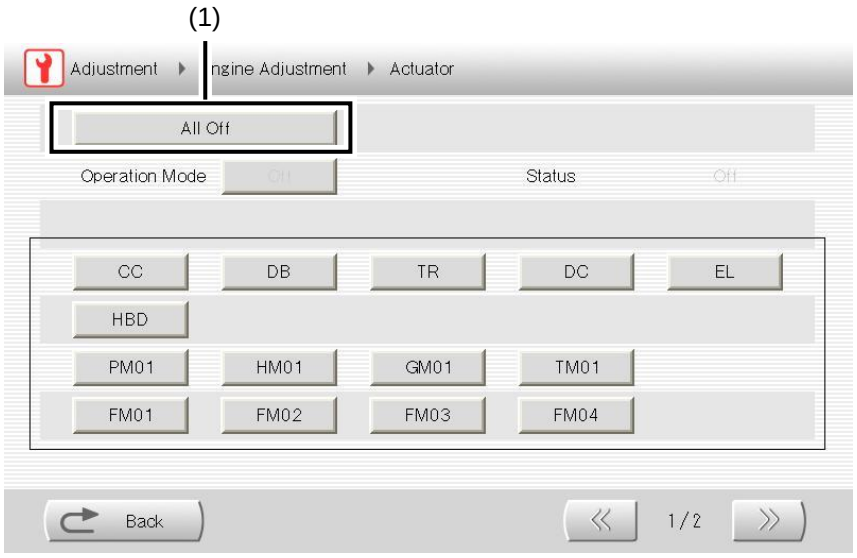
(1) Actuator status and action specification

Table 2-22 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. 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 motior is not operating. 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. On 1: The motor is rotating toward development function side. 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. On 1: The motor is rotating toward paper feed direction. On 2: The motor is rotating toward paper rewind direction.
FM01	Indicates or specifies FM01'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. On: The clutch is connected.
SL01	Indicates or specifies SL01's action status.	Off: The solenoid's status is off. 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. On: The solenoid's status is on.
BL01	Indicates or specifies BL01's action status.	Off: The blower is not operating. 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.

(2)　ALL action specification



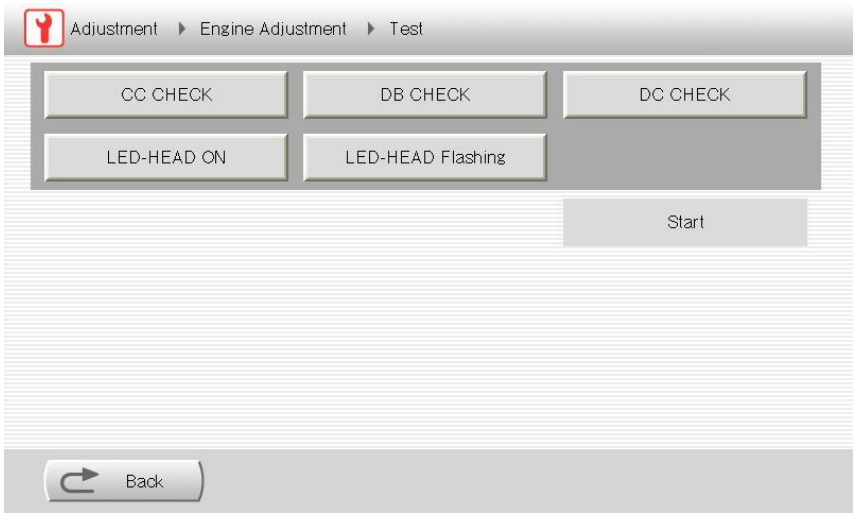
(1) Turn off all actuators' actions.

2.3.10 Test

Executes the test function.

Table 2-23 Test Items

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

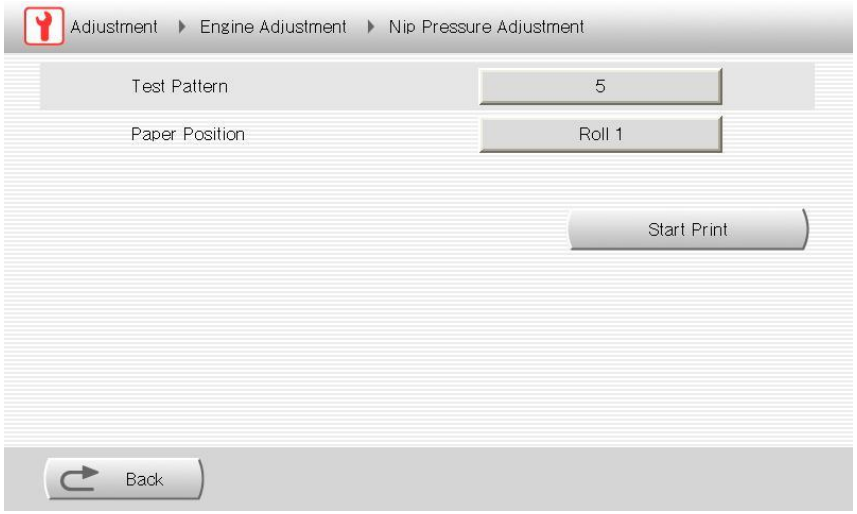


2.3.11 Nip Pressure Adjustment

Executes a print operation to adjust the fuser nip pressure.
Select a test pattern and Paper Postion to execute the print operation.

Table 2-24 Nip Pressure Calibration Parameters

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



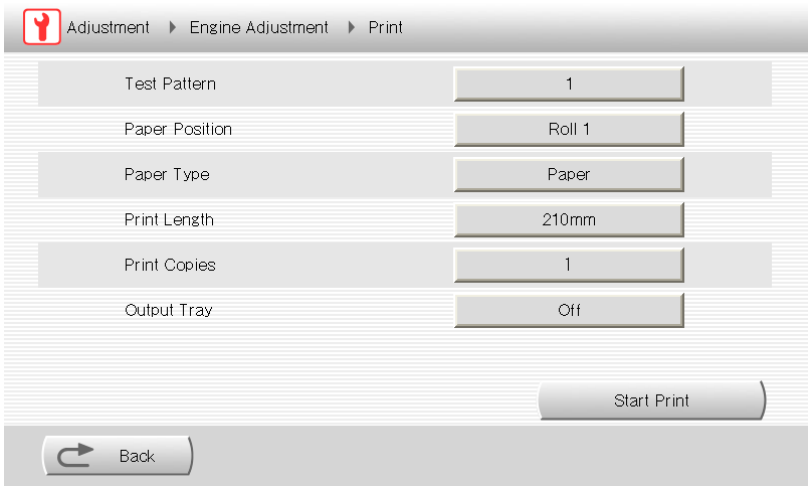
Though rolls that may not be available depending on the model are also displayed as paper position selection items, these items should be ignored.

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 2-25 Executable Items Overview Under the Print Menu

Item	Description	Operation
Test Pattern	See table below.	Select
Paper Postion	Roll x (x: the roll number)	Select
Paper Type	Paper/Tracing/Film	Select
Print Length	See table below.	Select
Print Copies	1- 99	Select
Output Tray	Off/Output Tray	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 2-26 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: - Black cells; - White cells; and - Grid-lined cells
	13	Grid, with a scale attachment
	14	Grid, with 1-dot width diagonal lines

Item Name	Selection	Meaning	
Test Pattern	15	Grid, with 2-dot width diagonal lines	
	16	Grid, with 1-dot width and 2-dot width diagonal 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)	Print C: Equivalent to 210 mm
	297 mm	297 mm = 11.69 inches (7016 lines)	Print B: Equivalent to 297 mm
	420 mm	420 mm = 16.54 inches (9921 lines)	Print A: 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)	Print X: 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)	Print C: 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)	Print B: Equivalent to 297 mm
	17"	17 inches = 431. 8 mm (10200 lines)	Print X: 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)	
Print Copies	1 - 99	Prints continuously for the input value (1-99)	
Output Tray	Off	The tray is not used.	
	Output Tray	The A3 tray is used.	

2.3.13 Positioning

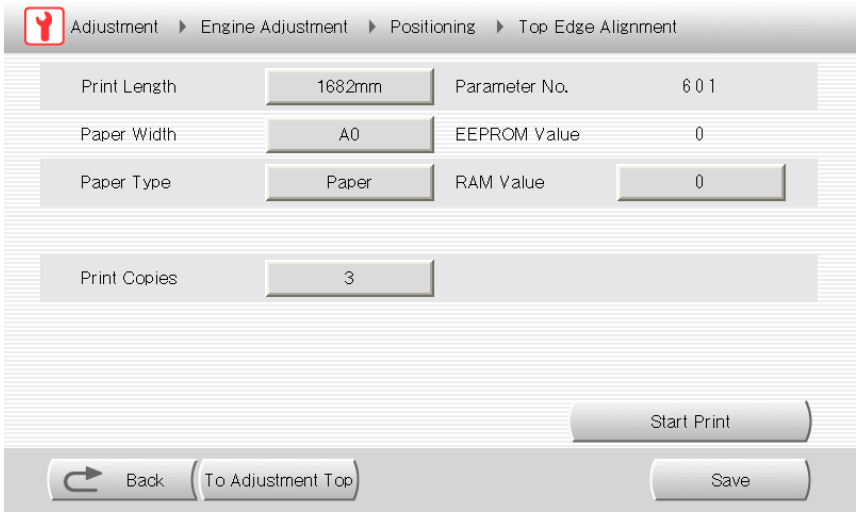
Executes the positioning functions shown in the table below.

Table 2-27 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 lignment.
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 2-28 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
	See the table **Correspondence between roll papers and paper widths** page **2-5** for the roll papers corresponding to each width.	
Paper Type	Paper	Plain paper
	Tracing	Tracing paper
	Film	Film
Print Copies	1	Print 1 page.
	2	Prints 2 pages continuously.
	3	Prints 3 pages continuously.

Note

When the printer contains two or more roll papers installed, the printer preferentially prints on the paper installed in the upper paper drawer.
The printer prints on the paper in the lower paper drawer only when detecting no paper in the upper paper drawer.

Table 2-29 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.

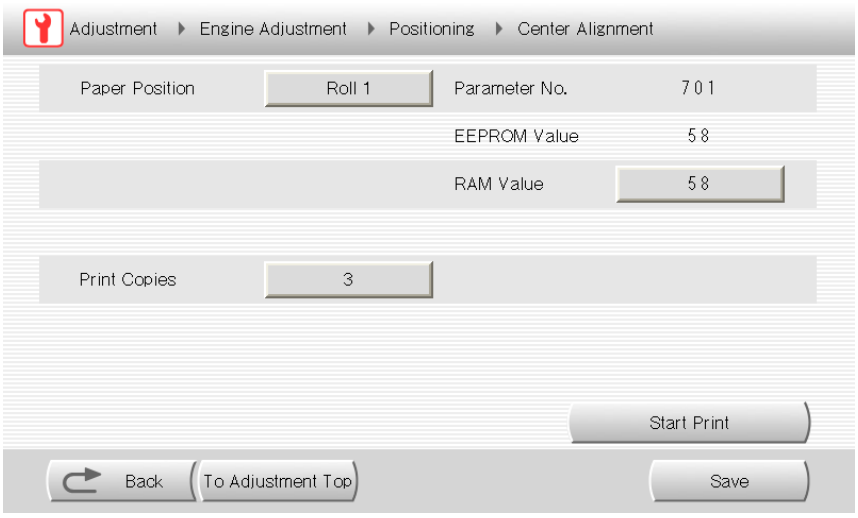
Table 2-30 Executable Items Under the Top Edge Alignment Menu (3)

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 Print Length, Paper Width, or Paper Type displays the EEPROM and RAM values of the corresponding engine control parameters for the top edge lignment.
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 2-31 Executable Items Under the Center Alignment Menu (1)

Item Name	Option	Meaning
Paper Position	Roll x	Roll x (x: the roll number)
Print Copies	1	Print 1 page.
	2	Prints 2 pages continuously.
	3	Prints 3 pages continuously.

Table 2-32 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.

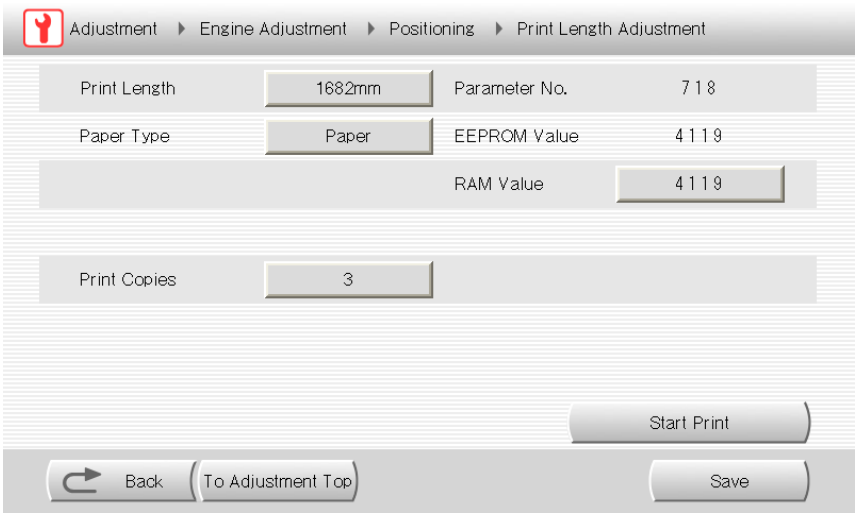
Table 2-33 Executable Items Under the Center Alignment Menu (3)

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, Paper Width, or Paper Type displays the EEPROM and RAM values of the corresponding engine control parameters for the top edge lignment.
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 2-34 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
Print Copies	1	Print 1 page.
	2	Prints 2 pages continuously.
	3	Prints 3 pages continuously.

Note

The Printer prints in priority on the paper installed in the upper paper drawer.
The printer prints on the paper in the lower paper drawer only when detecting no paper in the upper paper drawer.

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

Item Name	Display	Meaning
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.

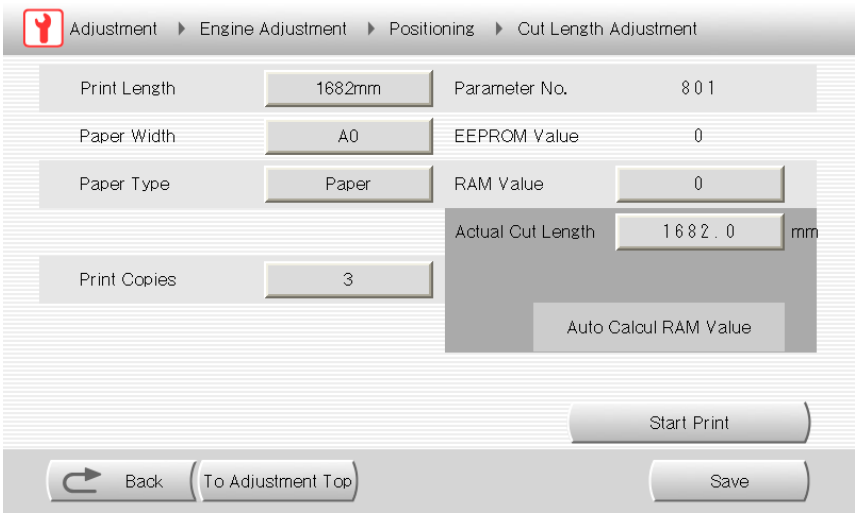
Table 2-36 Executable Items Under the Print Length Adjustment Menu (3)

Item Name	Recommended Input Range*	Meaning
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, Paper Width, or Paper Type displays the EEPROM and RAM values of the corresponding engine control parameters for the top edge lignment.
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 2-37 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
	See the table **Correspondence between roll papers and paper widths** page **2-5** for the roll papers corresponding to each width.	
Paper Ttype	Paper	Plain paper
	Tracing	Tracing paper
	Film	Film
Print Copies	1	Print 1 page.
	2	Prints 2 pages continuously.
	3	Prints 3 pages continuously.

Note

The Printer prints in priority on the paper installed in the upper paper drawer.
The printer prints on the paper in the lower paper drawer only when detecting no paper in the upper paper drawer.

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

Item Name	Display	Meaning
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 2-39 Executable Items Under the Cut Length Adjustment Menu (3)

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

*: Values between 0 and 65535 can be entered.

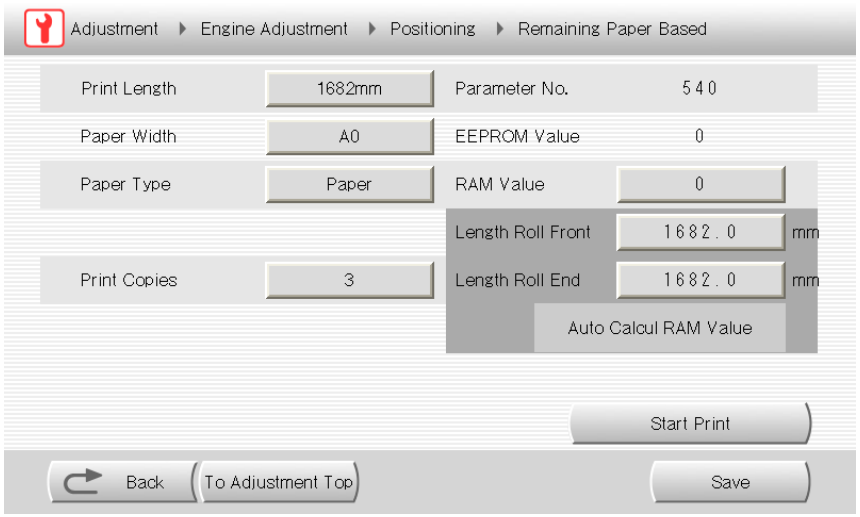
(5) Remaining Paper Based

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

<Preparation>

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**.



(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 2-40 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
	See the table **Correspondence between roll papers and paper widths** page **2-5** for the roll papers corresponding to each width.	
Paper Ttype	Paper	Plain paper
	Tracing	Tracing paper
	Film	Film
Print Copies	1	Print 1 page.
	2	Prints 2 pages continuously.
	3	Prints 3 pages continuously.

Note

The Printer prints in priority on the paper installed in the upper paper drawer.
The printer prints on the paper in the lower paper drawer only when detecting no paper in the upper paper drawer.

Table 2-41 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.

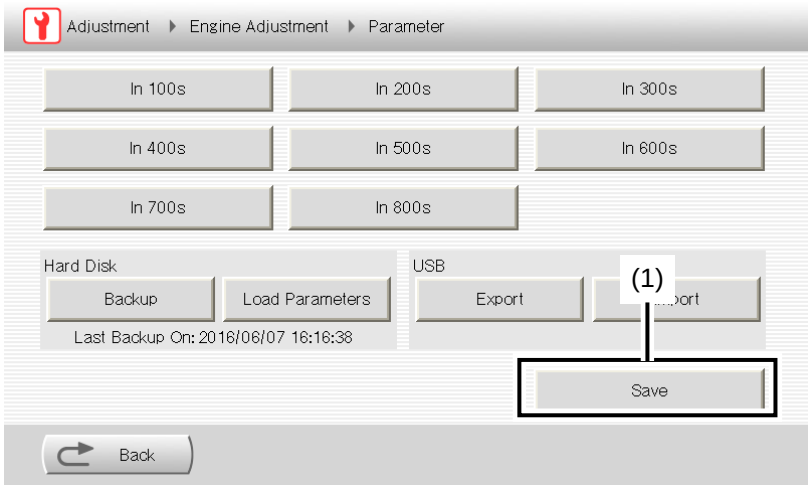
Table 2-42 Executable Items Under the Remaining Paper Based Menu (3)

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 2-43 Engine Control Parameters (200-299)

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


Adjustment ▸ Engine Adjustment ▸ Parameter ▸ In 600s
No. EEPROM Va RAM Value No. EEPROM Va RAM Value
601 1 1 607 7 7
602 2 2 608 8 8
603 3 3 609 9 9
604 4 4 610 10 10
605 5 5 611 11 11
606 6 6 612 12 12
Back
To Adjustment Top
1/6

Table 2-44 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 : Equivalent to 2523 mm (99.33 inches)	Roll paper identified as A0 width	Paper	830	Standard Value ± 100 **Unit** msec **Adjustment method** Increasing the value: The printing range moves towards the foot of the paper. Decreasing the value: The printing range moves towards the head of the paper. **Adjustment criteria** Increase by 100 to move the printing range about 8 mm (0.32 inches) in the direction of the foot of the paper. **Note** 1 msec equals about 0.08 mm (0.0032 inches). 1 mm (0.04 inches) equals about 12.5 msec. 100 msec equals about 8.0 mm (0.32 inches).
602		Roll paper identified as A1 width		830	
603		Roll paper identified as A2 width		830	
604		Roll paper identified as A3 width		830	
605		Roll paper identified as A0 width	Tracing	830	
606		Roll paper identified as A1 width		830	
607		Roll paper identified as A2 width		830	
608		Roll paper identified as A3 width		830	
609		Roll paper identified as A0 width	Film	830	
610		Roll paper identified as A1 width		830	
611		Roll paper identified as A2 width		830	
612		Roll paper identified as A3 width		830	
613	Print A : Equivalent to 841 mm (33.11 inches)	Roll paper identified as A0 width	Paper	830	
614		Roll paper identified as A1 width		830	
615		Roll paper identified as A2 width		830	
616		Roll paper identified as A3 width		830	
617		Roll paper identified as A0 width	Tracing	830	
618		Roll paper identified as A1 width		830	
619		Roll paper identified as A2 width		830	
620		Roll paper identified as A3 width		830	
621		Roll paper identified as A0 width	Film	830	
622		Roll paper identified as A1 width		830	
623		Roll paper identified as A2 width		830	
624		Roll paper identified as A3 width		830	
625	Print B : Equivalent to 297 mm (11.69 inches)	Roll paper identified as A0 width	Paper	630	
626		Roll paper identified as A1 width		630	
627		Roll paper identified as A2 width		630	
628		Roll paper identified as A3 width		630	
629		Roll paper identified as A0 width	Tracing	630	
630		Roll paper identified as A1 width		630	
631		Roll paper identified as A2 width		630	
632		Roll paper identified as A3 width		630	
633		Roll paper identified as A0 width	Film	630	
634		Roll paper identified as A1 width		630	
635		Roll paper identified as A2 width		630	
636		Roll paper identified as A3 width		630	
637	Print C : Equivalent to 210 mm (8.27 inches)	Roll paper identified as A0 width	Paper	630	
638		Roll paper identified as A1 width		630	
639		Roll paper identified as A2 width		630	
640		Roll paper identified as A3 width		630	
641		Roll paper identified as A0 width	Tracing	630	
642		Roll paper identified as A1 width		630	
643		Roll paper identified as A2 width		630	
644		Roll paper identified as A3 width		630	
645		Roll paper identified as A0 width	Film	630	
646		Roll paper identified as A1 width		630	
647		Roll paper identified as A2 width		630	
648		Roll paper identified as A3 width		630	

See the table **Correspondence between roll papers and paper widths** page **2-5** for the roll papers corresponding to each width.

Calibration to Identify Roll Width

Number	Description		Identified Value	Detected Value
649 650 651 652	The Printer detects the distance between the right and left flange guides and calibrates it to the identified value. 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	1000 - 1180
653 654 655 656	The Printer detects the distance between the right and left flange guides and calibrates it to the identified value. 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	3600 - 3790

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

Table 2-45 Engine Control Parameters (700-799)

Calibration for Center Alignment

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

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 = $1/(\text{LED head writing speed} \times 128) \times 10^9$
*LED head writing speed = $1/(\text{setting value} \times 128) \times 10^9$

Print Density Calibration

Number	Description		Standard Value	Input Range
728	Light-emitting strobe width	Head A	15	10 - 20
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 (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: Equivalent to 2523 mm (99.33 inches)	A0 width or equivalent roll paper	Paper	4660	Standard value±50 **Adjustment method** Decreasing the value: Faster Increasing the value: Slower **Adjustment criteria** If the value is changed by 10, the speed changes about 0.13mm (0.0051 inches)/sec.
742		A1width or equivalent roll paper		4650	
743		A2 width or equivalent roll paper		4640	
744		A3 width or equivalent roll paper		4630	
745	Print X: Equivalent to 2523 mm (99.33 inches)	A0 width or equivalent roll paper	Tracing paper	4650	
746		A1width or equivalent roll paper		4640	
747		A2 width or equivalent roll paper		4630	
748		A3 width or equivalent roll paper		4620	
749	Print A/B/C - Equivalent to 841 mm (33.11 inches) - Equivalent to 297 mm (11.69 inches) - Equivalent to 210 mm (8.27 inches)	A0 width or equivalent roll paper	Paper	4675	
750		A1width or equivalent roll paper		4665	
751		A2 width or equivalent roll paper		4655	
752		A3 width or equivalent roll paper		4645	
753	Print A/B/C - Equivalent to 841 mm (33.11 inches) - Equivalent to 297 mm (11.69 inches) - Equivalent to 210 mm (8.27 inches)	A0 width or equivalent roll paper	Tracing paper	4660	
754		A1width or equivalent roll paper		4650	
755		A2 width or equivalent roll paper		4640	
756		A3 width or equivalent roll paper		4630	
757	Print A/B/C - Equivalent to 2523 mm (99.33 inches) - Equivalent to 841 mm (33.11 inches) - Equivalent to 297 mm (11.69 inches) - Equivalent to 210 mm (8.27 inches)	A0 width or equivalent roll paper	Film	4610	
758		A1width or equivalent roll paper		4600	
759		A2 width or equivalent roll paper		4590	
760		A3 width or equivalent roll paper		4580	

See the table **Correspondence between roll papers and paper widths** page **2-5** for the roll papers corresponding to each width.

Table 2-46 Engine Control Parameters (800-899)

Cut Length Calibration

Number	Options			Standard Value	Input Range
	Print Length	Paper Width			
801	Print X: 1219mm or more	Paper	A0 width	700	Standard Value ± 200 **Adjustment metho** Decreasing the value: Increases the paper cut length. Increasing the value: Decreases the paper cut length. **Adjustment criteria** If increased 100, the paper cut length decreases by approximately 4 mm (0.16 inches). **Note** 1 line equals about 0.0423 mm (0.017 inches) 1 mm (0.039 inches) equals about 23.6 lines 100 lines equal about 4.23 mm (0.17 inches)
802			A1 width	700	
803			A2 width	700	
804			A3 width	700	
805		Tracing	A0 width	700	
806			A1 width	700	
807			A2 width	700	
808			A3 width	700	
809		Film	A0 width	700	
810			A1 width	700	
811			A2 width	700	
812			A3 width	700	
504	Print A0: 930mm or more	Paper	A0 width	700	
505			A1 width	700	
506			A2 width	700	
507			A3 width	700	
508		Tracing	A0 width	700	
509			A1 width	700	
510			A2 width	700	
511			A3 width	700	
512		Film	A0 width	700	
513			A1 width	700	
514			A2 width	700	
515			A3 width	700	
813	Print A1: 730mm or more	Paper	A0 width	700	
814			A1 width	700	
815			A2 width	700	
816			A3 width	700	
817		Tracing	A0 width	700	
818			A1 width	700	
819			A2 width	700	
820			A3 width	700	
821		Film	A0 width	700	
822			A1 width	700	
823			A2 width	700	
824			A3 width	700	
516	Print A2: 529mm or more	Paper	A0 width	700	
517			A1 width	700	
518			A2 width	700	
519			A3 width	700	
520		Tracing	A0 width	700	
521			A1 width	700	
522			A2 width	700	
523			A3 width	700	
524		Film	A0 width	700	
525			A1 width	700	
526			A2 width	700	
527			A3 width	700	

Number	Options			Standard Value	Input Range
	Print Length	Paper Width			
528	Print A3: 418mm or more	Paper	A0 width	700	Standard Value ± 200 **Adjustment metho** Decreasing the value: Increases the paper cut length. Increasing the value: Decreases the paper cut length. **Adjustment criteria** If increased 100, the paper cut length decreases by approximately 4 mm (0.16 inches). **Note** 1 line equals about 0.0423 mm (0.017 inches) 1 mm (0.039 inches) equals about 23.6 lines 100 lines equal about 4.23 mm (0.17 inches)
529			A1 width	700	
530			A2 width	700	
531			A3 width	700	
532		Tracing	A0 width	700	
533			A1 width	700	
534			A2 width	700	
535			A3 width	700	
536		Film	A0 width	700	
537			A1 width	700	
538			A2 width	700	
539			A3 width	700	
825	Print B: 280mm or more	Paper	A0 width	700	
826			A1 width	700	
827			A2 width	700	
828			A3 width	700	
829		Tracing	A0 width	700	
830			A1 width	700	
831			A2 width	700	
832			A3 width	700	
833		Film	A0 width	700	
834			A1 width	700	
835			A2 width	700	
836			A3 width	700	
837	Print C: 210mm or more	Paper	A0 width	700	
838			A1 width	700	
839			A2 width	700	
840			A3 width	700	
841		Tracing	A0 width	700	
842			A1 width	700	
843			A2 width	700	
844			A3 width	700	
845		Film	A0 width	700	
846			A1 width	700	
847			A2 width	700	
848			A3 width	700	

See the table **Correspondence between roll papers and paper widths** page **2-5** for the roll papers corresponding to each width.

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. When the back-end blank space is specified, the printout length is increased by the specified amount.	1	0 - 4500

The engine control parameters can be saved for backup in the Printer HDD.
The parameters saved for backup can be then loaded and restored.
To save the parameters for backup, press the **Backup** button.
To load and restore the parameters, press the **Load Parameters** button.
When the Printer is delivered, the HDD contains a backup of default parameters.

Engine control parameters can also be imported to and exported from a USB drive connected to the ARC board.

To export the parameters, press the **Export** button.
A file as shown below is exported to the root folder of the USB drive.
Example: LP2060_100.dat
LP2060: Model name
100: Serial number

To import parameters, save the files to import in the root folder of a USB drive and press the **Import** button.

Parameter import and export can be performed only with a printer of the same model and with the same serial number. This function cannot be used between printers of different models or with different serial numbers.

Parameter import and export can also be performed using the Web function with the following.
Maintenance -> 13. Printer Engine Maintenance

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).

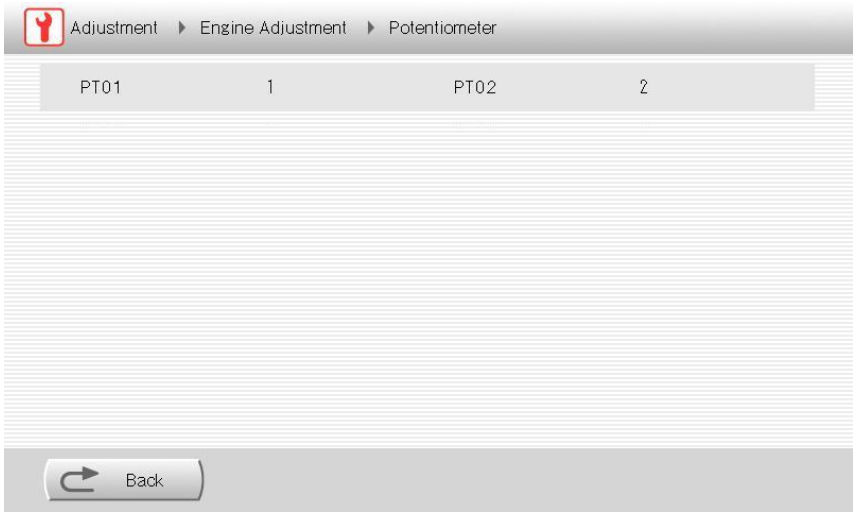


Table 2-47 Engine Control Parameter Numbers

Roll Number	Minimum Width Value	Maximum Width Value
Roll 1 (PT01)	649	653
Roll 2 (PT02)	650	654
Roll 3 (PT03)	651	655
Roll 4 (PT04)	652	656

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

Do not change these settings.

(3) 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 2-48 Items Initialized through HDD Format

Menu Item Category	Items Initialized	Items not Initialized
Menu settings	Paper settings Printer settings System settings Port settings PDL settings Administrator settings User authentication settings Standby display settings Technician menu items	Product key MAC address
Registration memory	Copy registration memory 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 Copy mode length Monochrome scan area Monochrome scan length Gray scan area Gray scan length Color scan area Color scan length Print mode area Print mode length PDC area PDC count Total print count Cumulative print length (m) Print count Port accounting information
Option key code		Option key code
Logs	Error log Job log Authentication log	
Administrator/supervisor registration information	Administrator registration information Supervisor registration information	
Jobs	Completed jobs Submission box PDC box	
Adjustment parameters		Engine adjustment parameters 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.

(4) Special Settings 3

How to launch: **Menu** -> **Printer Engine**
Do not change these settings.

(5) MAC Address

The MAC address must be changed, by entering the login name and password for technician, only when the * symbol is added at the end of the MAC address that appears on the Print System Settings printout or on the printer information screen.

How to launch: **Menu** -> **System** -> **Communication Parameters** -> **Network Settings** -> **Common Settings**
Function: Sets the MAC address
000000000000 to FFFFFFFFFFFF (in hex)
The * symbol may be added at the end of the MAC address when the ARC board has been replaced.
It happens in most of the cases because the EEPROM on the ARC board has not been replaced when replacing the board. In this case, replace the EEPROM.
However, the * symbol also appears if the EEPROM on the ARC board is corrupted. In such a case, the MAC address must be entered. The MAC address is a character string unique to each printer.
The MAC address of the Printer is written on the sticker at the rear of the Printer.
If the EEPROM is corrupted, the * symbol at the end of the MAC address will not disappear even if the correct MAC address is entered.
If the EEPROM is corrupted, ask for a new EEPROM and install it.
The * symbol at the end of the MAC address will disappear after you install a properly working EEPROM.

(6) Return to Default Settings

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

Function: Initializes the parameters of technician unlocked items.

Table 2-49 Return to Default Settings

Menu Item Category	Items Initialized	Items not Initialized
Menu settings	Paper settings Printer settings System settings Port settings PDL settings Administrator settings User authentication settings Standby display settings Technician menu items	Product key MAC address
Registration memory	Copy registration memory 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 Copy mode length Monochrome scan area Monochrome scan length Gray scan area Gray scan length Color scan area Color scan length Print mode area Print mode length PDC area PDC count Port accounting information	Total print count Cumulative print length (m) Print count
Option key code		Option key code
Logs	Error log Job log Authentication log	
Administrator/supervisor registration information	Administrator registration information	
	Supervisor registration information	
Jobs	Completed jobs Submission box PDC box	
Adjustment parameters		Engine adjustment parameters Scanner adjustment parameters

(7) 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 drive root directory.

ModelName_SerialNumber_Date_Time

(8) Print GateKeeper Compatible Mode

How to launch: **Menu** -> **User Authentication Settings** -> **Auth. Admin Settings**

Function: This function is for Japan only. Do not change the setting.

(9) Mutual Authentication

How to launch: **Menu** -> **Smart card settings**-> **Data Position** -> **FeliCa**

Function: Set to On to use mutual authentication when a FeliCa card is used. The function is available when **Smart card Auth. Settings** is set to **Smart card Auth. w/ spec. data**.

<Choices>

- On : Use mutual authentication
- Off : Do not use mutual authentication

(10) Service Code (setting when a FeliCa card is used)

How to launch: **Menu** -> **Smart card settings**-> **Data Position** -> **FeliCa**

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

Parameter: 0000 to FFFF (in hex)

(11) Block No. (setting when a FeliCa card is used)

How to launch: **Menu** -> **Smart card settings**-> **Data Position** -> **FeliCa**

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

Parameter: 0 to 31 (decimally)

(12) Start Position (setting when a FeliCa card is used)

How to launch: **Menu** -> **Smart card settings**-> **Data Position** -> **FeliCa**

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

Parameter: 0 to 15 (decimally)

(13) Read Data Length (setting when a FeliCa card is used)

How to launch: **Menu** -> **Smart card settings**-> **Data Position** -> **FeliCa**

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

Parameter: 0 to 15 (decimally)

(14) System Code (setting when a FeliCa card is used)

How to launch: **Menu** -> **Smart card settings**-> **Data Position** -> **FeliCa**

Function: Configure this parameter when **Mutual Authentication** is set to **On**.

Parameter: 0000 to FFFF (in hex)

(15) Area Code 1 to 4 (setting when a FeliCa card is used)

How to launch: **Menu** -> **Smart card settings**-> **Data Position** -> **FeliCa**

Function: Configure this parameter when **Mutual Authentication** is set to **On**.

Parameter: 0000 to FFFF (in hex)

(16) Group Service Key (setting when a FeliCa card is used)

How to launch: **Menu** -> **Smart card settings**-> **Data Position** -> **FeliCa**

Function: Configure this parameter when **Mutual Authentication** is set to **On**.

Parameter: 0000 to FFFF (in hex)

(17) User Service Key (setting when a FeliCa card is used)

How to launch: **Menu** -> **Smart card settings**-> **Data Position** -> **FeliCa**

Function: Configure this parameter when **Mutual Authentication** is set to **On**.

Parameter: 0000 to FFFF (in hex)

(18) Sector (setting when a MIFARE card is used)

How to launch: **Menu** -> **Smart card settings**-> **Data Position** -> **MIFARE**

Function: Specifies the sector when using a MIFARE card. The function is available when **Smart card Auth. Settings** is set to **Smart card Auth. w/ spec. data**.

Parameter: 0 to 31 (decimally)

(19) Block (setting when a MIFARE card is used)

How to launch: **Menu** -> **Smart card settings**-> **Data Position** -> **MIFARE**

Function: Specifies the block when using a MIFARE card. The function is available when **Smart card Auth. Settings** is set to **Smart card Auth. w/ spec. data**.

Parameter: 0 to 31 (decimally)

(20) Start Position (setting when a MIFARE card is used)

How to launch: **Menu** -> **Smart card settings**-> **Data Position** -> **MIFARE**

Function: Specifies the start position when using a MIFARE card. The function is available when **Smart card Auth. Settings** is set to **Smart card Auth. w/ spec. data**.

Parameter: 0 to 15 (decimally)

(21) Read Data Length (setting when a MIFARE card is used)

How to launch: **Menu** -> **Smart card settings**-> **Data Position** -> **MIFARE**

Function: Specifies the length of the read data when using a MIFARE card. The function is available when **Smart card Auth. Settings** is set to **Smart card Auth. w/ spec. data**.

Parameter: 0 to 15 (decimally)

(22) Key (setting when a MIFARE card is used)

How to launch: **Menu** -> **Smart card settings**-> **Data Position** -> **MIFARE**

Function: Specifies the key when using a MIFARE card. The function is available when **Smart card Auth. Settings** is set to **Smart card Auth. w/ spec. data**.

<Choices>

- Key A
- Key B

(23) Key code (setting when a MIFARE card is used)

How to launch: **Menu** -> **Smart card settings**-> **Data Position** -> **MIFARE**

Function: Specifies the key code when using a MIFARE card. The function is available when **Smart card Auth. Settings** is set to **Smart card Auth. w/ spec. data**.

Parameter: 000000000000 to FFFFFFFFFFFF (in hex)

(24) 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
- PDC area
- Print count
- PDC 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

(25) 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.

(26) Accounting Information Report Settings

How to launch: **Menu** -> **System** -> **Printer Settings** -> **Accounting Info Report**

Function: Configure the transfer of accounting information reports by e-mail.

You can configure the following parameters.

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 Port:	SMTP port number
SMTP User Name:	SMTP user name
SMTP Password:	SMTP password

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: **Setup** -> **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

Do not change these settings.

(3) Accounting Information Output

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

Function: Configures the accounting e-mails.

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 Port:	SMTP port number
SMTP User Name:	SMTP user name
SMTP Password:	SMTP password

(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.

Chapter 3 Regular Service Inspections

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. <Note> Be careful not to bend the secured plate spring. <Note> 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).	5 km (196850.39 inches)	100 km (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. <Note> The electrode is easily bent, so be careful when working around it.	5 km (196850.39 inches)	100 km (3937007.87 inches)	9.17.2
3	Suction belt	BELT TRANS	Check to ensure the belt is properly installed. <Note> Be careful not to break the belt's PS06 arm when performing this check.	5 km (196850.39 inches)	100 km (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. <Note> Do not touch the roller (magnetic) with your bare hands.	5 km (196850.39 inches)	100 km (3937007.87 inches)	9.6.5
5	Gap spacer & transfer roller	SPACER TRA ROLLER TRA 3565	Use a Ciegal cotton wipe to wipe dry the roller while rotating it. <Note> Do not hold the guide as it can easily break off.	5 km (196850.39 inches)	100 km (3937007.87 inches)	3.2.3 9.17.3 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. <Note> Wipe off with a dry Ciegal cotton wipe afterwards.	5 km (196850.39 inches)	100 km (3937007.87 inches)	9.10.13
7	Backup roller	ROLLER BACK UP	Use a Ciegal cotton wipe soaked in HR Cleaner (30790-0125) to clean the surface of the roller. <Note> Wipe off with a dry Ciegal cotton wipe afterwards.	5 km (196850.39 inches)	100 km (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.	10 km (393700.79 inches)	100 km (3937007.87 inches)	9.10.11

No.	Work Item	Part Name	Work Details	Cumulative Print Length for Cleaning Recommended	Cumulative Print Length for Part Replacement Recommended *	Reference Item
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.	10 km (393700.79 inches)	100 km (3937007.87 inches)	9.10.2
10	LED head (SLA)	LED HEAD	Clean the SLA (LED head lens) with a Ciegal cotton wipe. <Note> Wipe carefully, because the surface you are cleaning has a defogging film on it.	5 km (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. Use compressed air to blow away dirt.	5 km (196850.39 inches)	—	9.13.7
12	Transfer roller anterior to paper guide (top and bottom)	Top: GUIDE C Bottom: GUIDE (TRA)	Wet a cleaning cloth, wring it out thoroughly, and wipe away all toner on the paper guides (anterior to transfer and bottom) Be sure to let dry thoroughly.	5 km (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. Be sure to let dry thoroughly.	10 km (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. Be sure to let dry thoroughly.	10 km (393700.79 inches)	—	—
15	Paper feed roller & pinch roller	ROLLER (PF) 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. Be sure to let dry thoroughly. Do this for all paper feed units.	10 km (393700.79 inches)	—	—
16	Paer rewind roller & flange holder shaft	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. Be sure to let dry thoroughly. Do this for all paper feed units.	10 km (393700.79 inches)	—	9.14.3
17	Slitter cutter	CUTTER UNIT (AUTO) CUTTER UNIT (MANUAL)	Open the front door and remove all paper particles. Blow out small paper particles using compressed air. <Note> Be careful not to injure yourself on the cutter blade.	10 km (393700.79 inches)	—	—
18	Cleaner blade	BLADE (CLEANER)	If dirt is significant, moisten a Ciegal cotton wipe with alcohol and wipe the part clean.	5 km (196850.39 inches)	10 km (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.	5 km (196850.39 inches)	5 km (196850.39 inches)	3.2.2
20	Transfer roller	ROLLER (TRA-3565)	Clean with a Ciegal cotton wipe.	10 km (393700.79 inches)	—	3.2.3
21	Paper guides	PG-F2, PG-F3, PG-F4, PG-7	Remove all paper particles and blow the paper dust off. If the paper guides are very dirty, moisten a cleaning cloth with water, wring it, and then wipe them clean. Let dry thoroughly. Execute the same procedure for all levels of the paper feed unit.	100 km (3937007.8 inches)	—	3.2.4

* 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. If the dirt is significant, wipe with a neutral detergent soap. 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. 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. Be sure to let dry thoroughly. If the dirt is significant, wipe with a neutral detergent soap.	—	—	—
4	Original document securing roller	ROLLER-CIS-UP ROLLER-CIS-SP	Wet a cleaning cloth, wring it out thoroughly, and clean the surface of the roller. Be sure to let dry thoroughly. If the dirt is significant, wipe with a neural 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-CHARGER -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.	5 km (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.	5 km (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.	5 km (196850.39 inches)	3.3.3

3.2 Cleaning Methods

3.2.1 Cleaner Blade

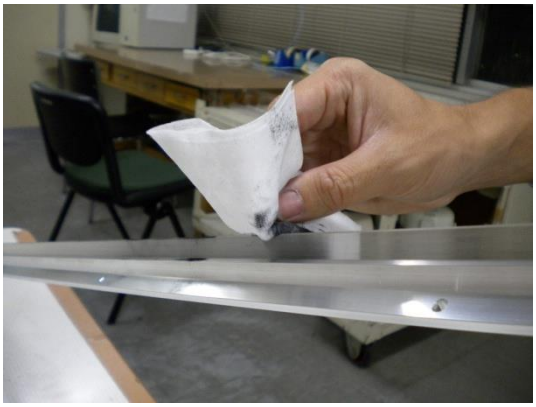
1. Remove the process cartridge from the Printer.
See **Replacing the Process Cartridge** in the ***User's Manual for Basic Printer Operation***.

2. Remove the SCOROTRON CHARGER UNIT (see p. **9-129**).

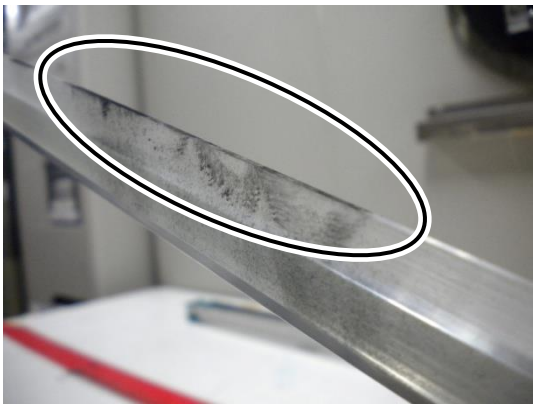
3. Remove the BLADE(CLEANER) (see p. **9-137**).

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 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.

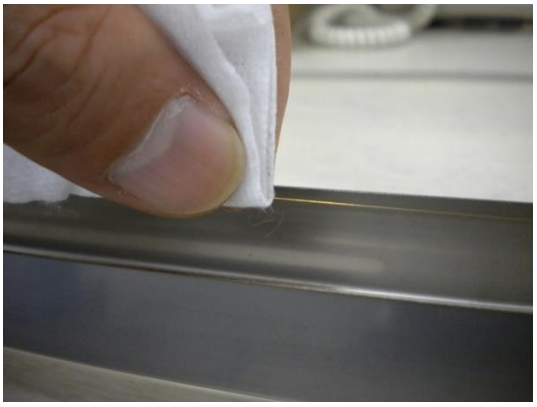
3.2.2 Charge Wire

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. **9-129**).

3. Remove the GRID(CHARGER) (see p. **9-133**).

4. Moisten a Ciegal cotton wipe with alcohol and wipe clean the back of each wire by going back and forth twice.



Note

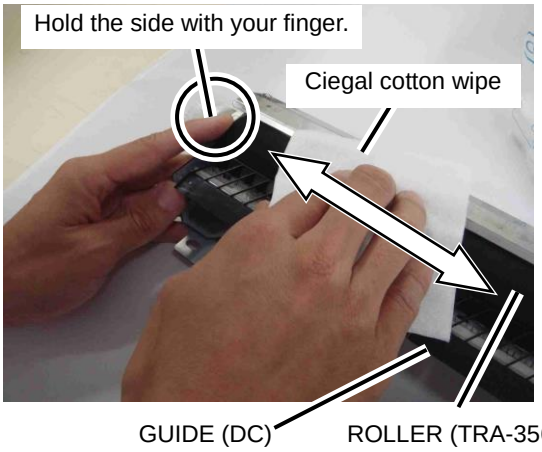
The charge wires may break if pulled excessively. Do not pull the charge wires more than 3 mm (0.12 inches) when cleaning.

5. Moisten a Ciegal 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. **9-207**).

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 Ciegal cotton wipe.
Wipe with the Ciegal cotton wipe in the longitudinal direction.
(c) When the all roller length has been cleaned, rotate the ROLLER (TRA-3565) adequately and repeat



Note

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

3.2.4 Paper Guides

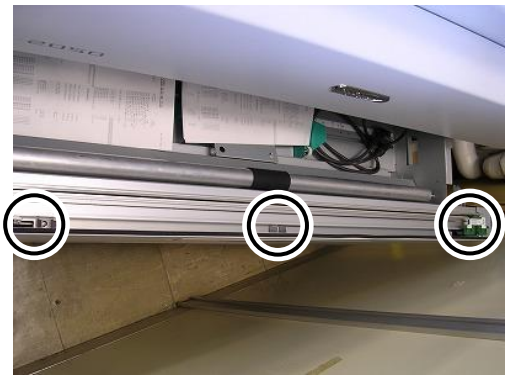
<Removal>

1. Remove the COVER-FRONT-ROL.

Open the roll paper drawers and remove the COVER-FRONT-ROLL attached with five 4x6 screws with teeth on each drawer.

COVER-FRONT-ROLL

<Screw locations>



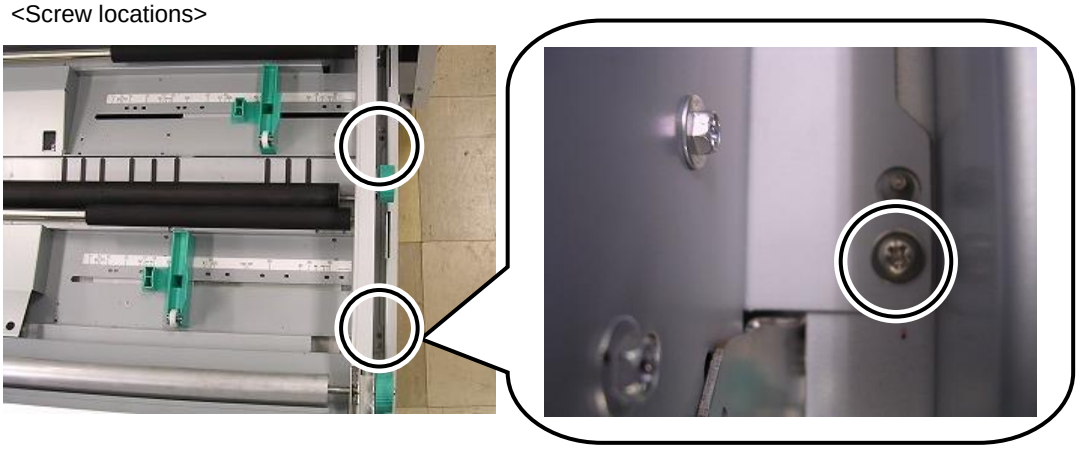
2. Remove the roll paper drawers.

Remove the four screws (WS 4x8) fixed to the slide rails of each roll paper drawer, and the remove the roll paper drawers while raising them.

Note

Remove the lower roll paper drawer earlier than the upper roll paper drawer.
If the upper drawer is removed earlier, the cutter on the lower drawer may be damaged.

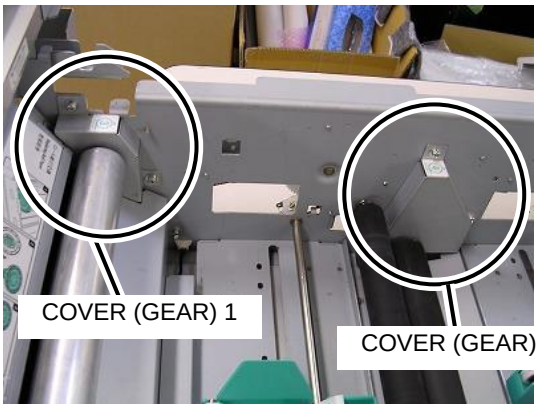
<Screw locations>

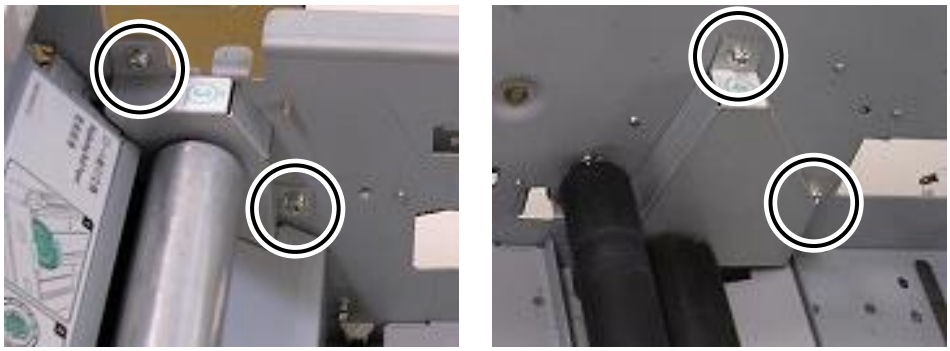


3. Remove the COVER (GEAR) 1 and COVER (GEAR) 2.

(a) Remove the COVER (GEAR) 1 with two WS 4x6 screws.

(b) Remove the COVER (GEAR) 2 with two WS 4x6 screws.



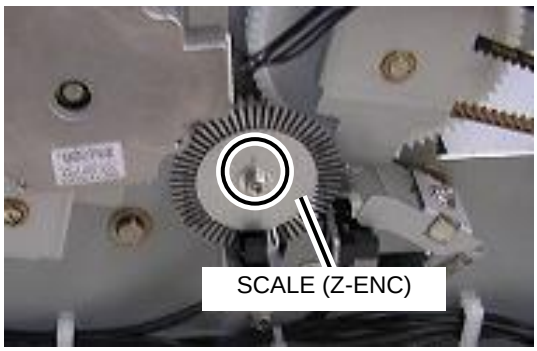


4. Remove the SCALE (Z-ENC) and related parts.

(a) Remove the SCALE (Z-ENC) with one WS 4x6 screw.

Note

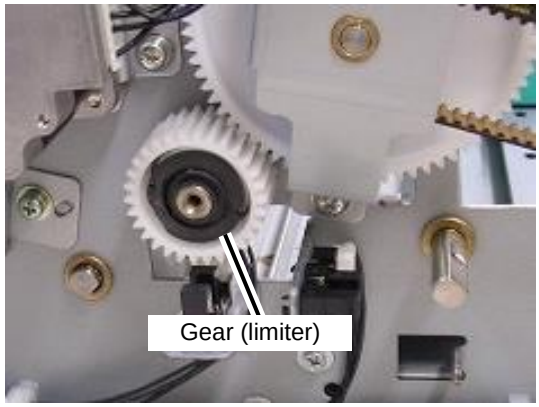
Be careful not to damage the encoder part (printing part).



(b) Remove the gear (limiter).

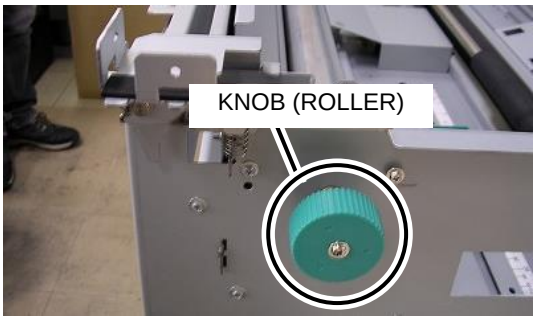
Note

Be careful not to lose the parallel pin inside the gear.

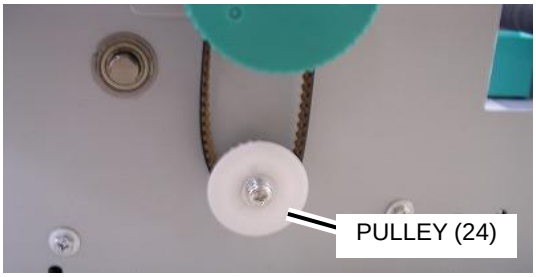


5. Remove the KNOB (ROLLER) and related parts.

(a) Remove the KNOB (ROLLER) with one M4 Sholdek screw.



(b) Remove the PULLEY (24) with one WS 4x6 screw.

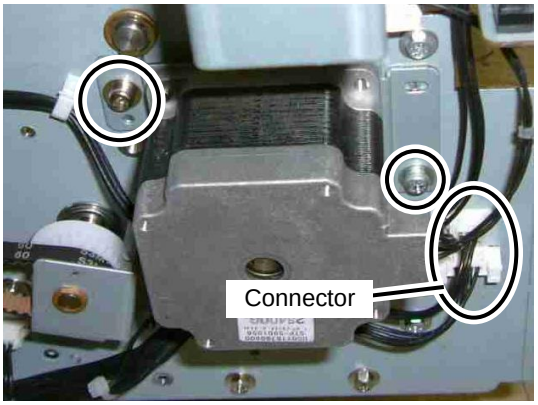


6. Remove the MOTOR(FM)-ASSY.

(a) Unplug the connectors connected to the MOTOR (FM).

(b) Remove the MOTOR(FM)-ASSY with two WS 4x6 screws.

* MOTOR(FM)-ASSY is the assembly comprising the BRACKET (MOTOR) with the MOTOR (FM) screwed on it.

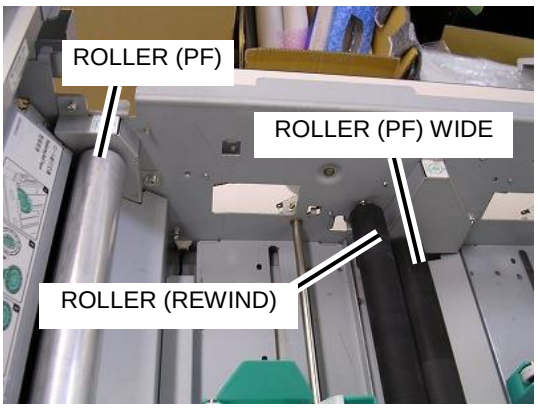


7. Remove the rollers.

(a) Remove the ROLLER (PF) with two E-rings (6) and two bearings A.

(b) Remove the ROLLER (PF) WIDE with two E-rings (6) and three bearings A.

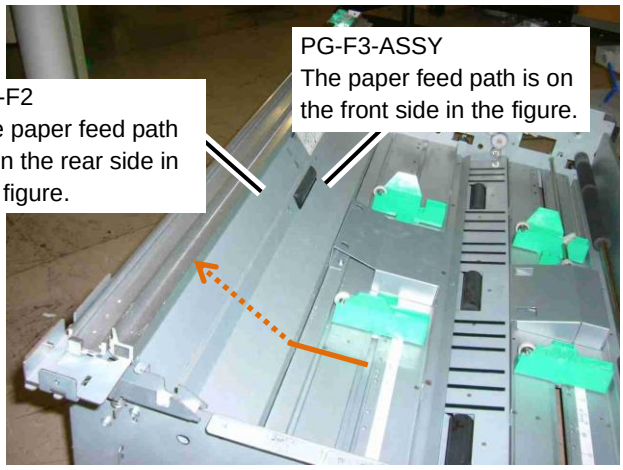
(c) Remove the ROLLER (REWIND) with two E-rings (6) and three bearings.



8. Remove the PG-F2 and PG-F3-ASSY.

(a) Remove the PG-F2 with four screws (S-TITE 4x8).

(b) Remove the PG-F3-ASSY with four 4x8 S-TITE screws.



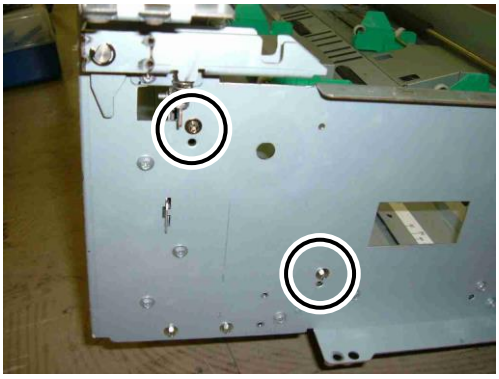
<PG-F2 screw locations>

Right side

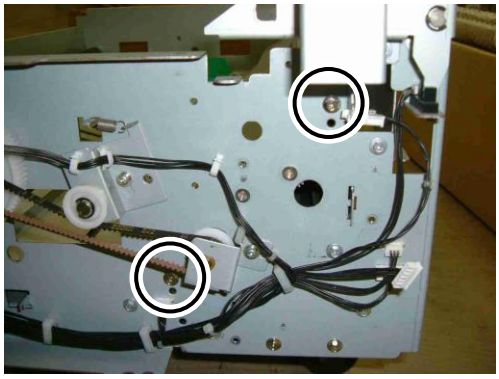
Left side

<PG-F3-ASSY screw locations>

Right side



Left side



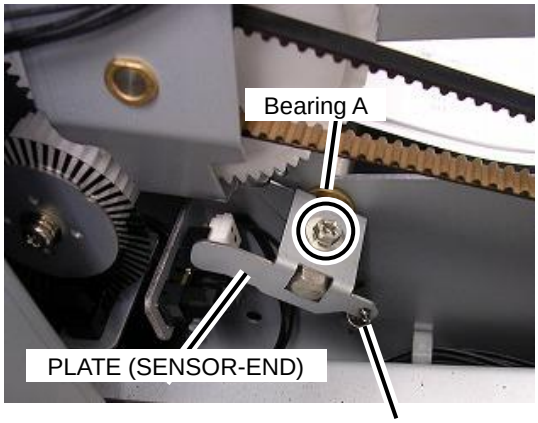
9. Remove the BASE (SLIDER)-FRONT-ASSY.

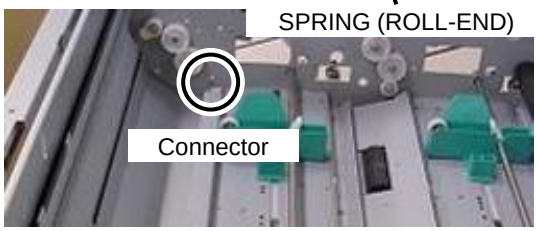
(a) Remove the PLATE (SENSOR-END) with one 4x8 TP screw.

(b) Remove the bearing A.

(c) Unplug the connector for the potentiometer.

(d) Remove the BASE (SLIDER)-FRONT-ASSY with four 4x8 S-TITE screws.



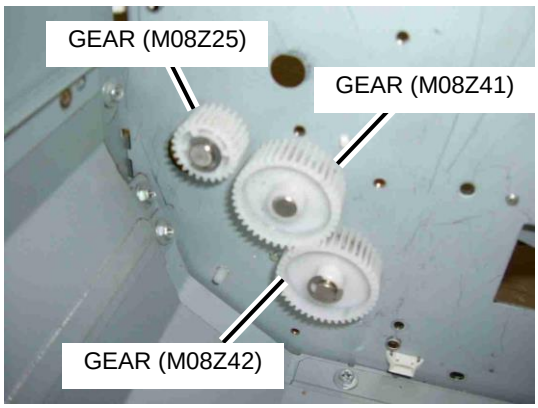


10. Remove the gears.

(a) Remove the GEAR (M08Z25) with one E-ring (6).

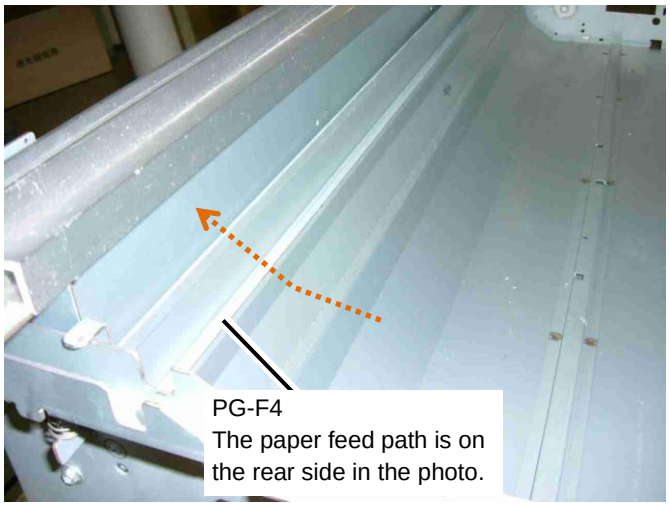
(b) Remove the GEAR (M08Z41).

(c) Remove the GEAR (M08Z42) with one E-ring (6).



11. Remove the PG-F4.

Remove the PG-F4 with six 4x8 S-TITE screws.



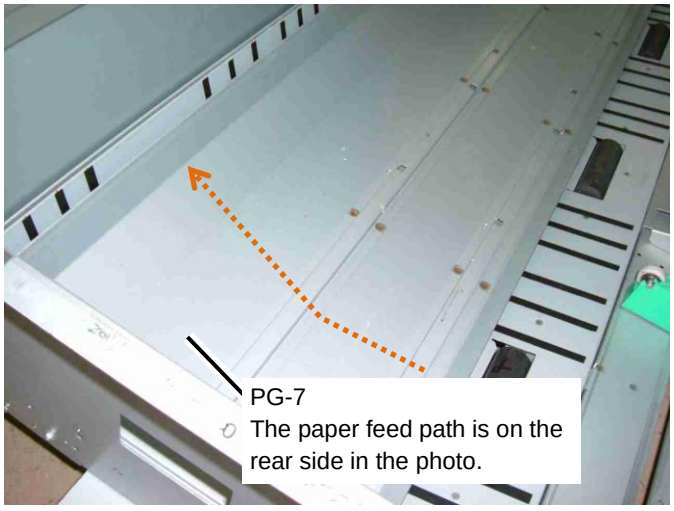
<PG-F4 screw locations>

Right side

Left side

12. Remove the PG-7.

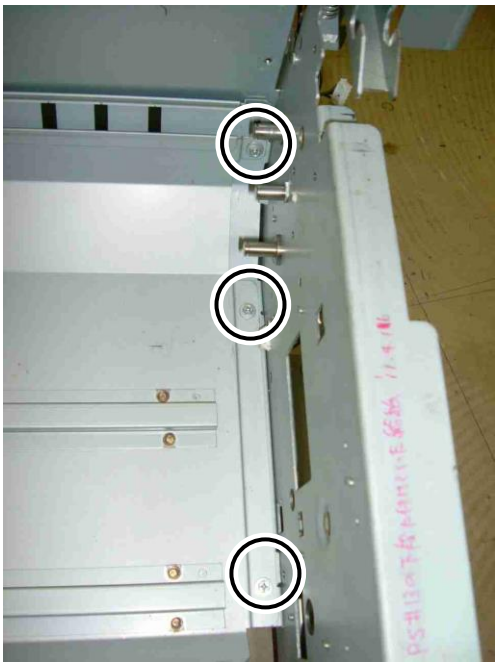
Remove the PG-7 with six screws (S-TITE 4x8).



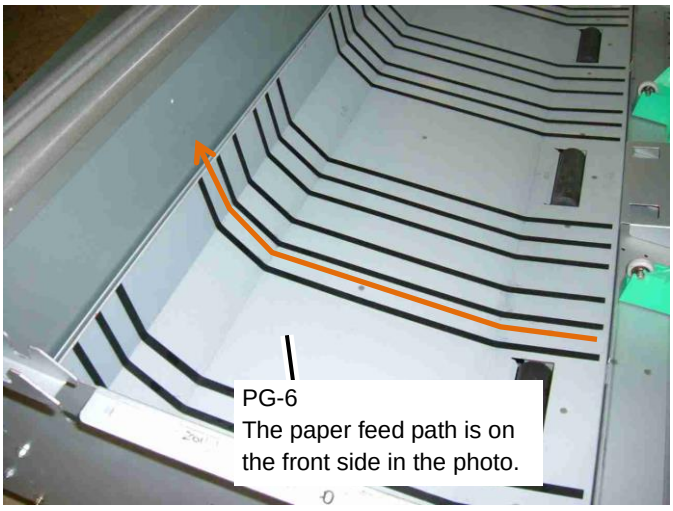
< PG-7 screw locations>

Right side

Left side



<With the PG-7 removed>



<Installation>

1. Install the PG-7 with six 4x8 S-TITE screws.
See the removal procedure, step 12.

2. Install the PG-F4 with six 4x8 S-TITE screws.
See the removal procedure, step 11.

3. Install the gears.
See the removal procedure, step 10.

(a) Install the GEAR (M08Z42) with one E-ring (6).

(b) Install the GEAR (M08Z41).

(c) Install the GEAR (M08Z25) with one E-ring (6).

4. Install the BASE (SLIDER)-FRONT-ASSY.
See the removal procedure, step 9.

(a) Install the BASE (SLIDER)-FRONT-ASSY with four 4x8 S-TITE screws.

(b) Attach the connector for the potentiometer.

(c) Install the bearing A.

(d) Install the PLATE (SENSOR-END) with one 4x8 TP screw.

(e) Install the SPRING (ROLL-END).

5. Installing the paper guides.
See the removal procedure, step 8.

(a) Install the PG-F3-ASSY with four 4x8 S-TITE screws.

(b) Install the PG-F2 with four 4x8 S-TITE screws.

6. Install the rollers
See the removal procedure, step 7.

(a) Install the ROLLER (REWIND) with two E-rings (6) and two bearings.

(b) Install the ROLLER (PF) WIDE with two E-rings (6) and two bearings A.

(c) Install the ROLLER (PF) with two E-rings (6) and two bearings A.

7. Install the MOTOR (FM)-ASSY.
See the removal procedure, step 6.

(a) Install the MOTOR (FM)-ASSY with two 4x6 WS screws.

(b) Attach the connectors to the MOTOR (FM).

8. Install the KNOB (ROLLER) and related parts.
See the removal procedure, step 5.

(a) Install the PULLEY (24) with one 4x6 WS screw.

(b) Install the KNOB (ROLLER) with one M4 Sholdek screw.

9. Install the SCALE (Z-ENC) and related parts.
See the removal procedure, step 4.

(a) Install the gear (limiter).

Note

Do not forget to insert the parallel pin in the ROLLER (REWIND) axis.

(b) Install the SCALE (Z-ENC) with one 4x6 WS screw.

10. Install the COVER (GEAR) 1 and 2.
See the removal procedure, step 3.

(a) Install the COVER (GEAR) 2 with two 4x6 WS screws.

(b) Install the COVER (GEAR) 1 with two 4x6 WS screws.

11. Install the roll paper drawers.
See the removal procedure, step 2.

Set the roll paper drawers on the slide rails and fix them with four 4x6 WS screws.

Note

Remove the upper roll paper drawer earlier than the lower roll paper drawer.
If the lower drawer is removed earlier, the cutter on the upper drawer may be damaged.

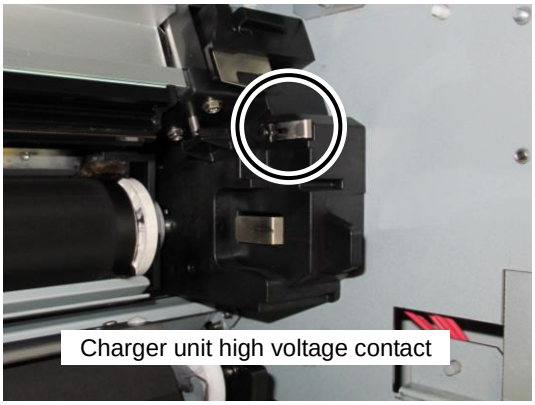
12. Install the COVER-FRONT-ROLL.
See the removal procedure, step 1.

Open the roll paper drawers and install the COVER-FRONT-ROLL to the upper and lower drawers with five 4x6 screws with teeth each.

3.3 How to Apply Grease

3.3.1 Charger Unit High Voltage Contact

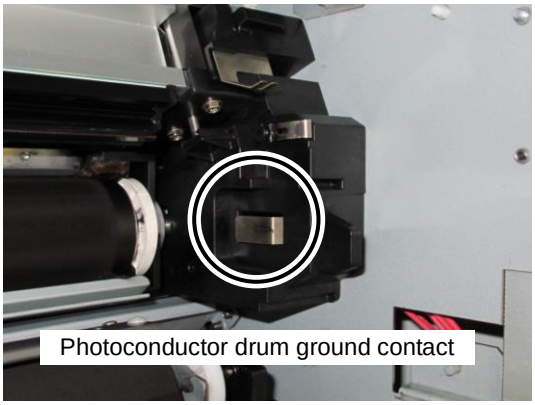
Apply approximately 1/8" sphere of contact grease with a Ciegal cotton wipe on all the front surface of the plate spring. The plate spring surface should blacken lightly.



Charger unit high voltage contact

3.3.2 Photoconductor Drum Ground Contact

Apply approximately 1/8" sphere of contact grease with a Ciegal cotton wipe on all the front surface of the plate spring. The plate spring surface should blacken lightly.

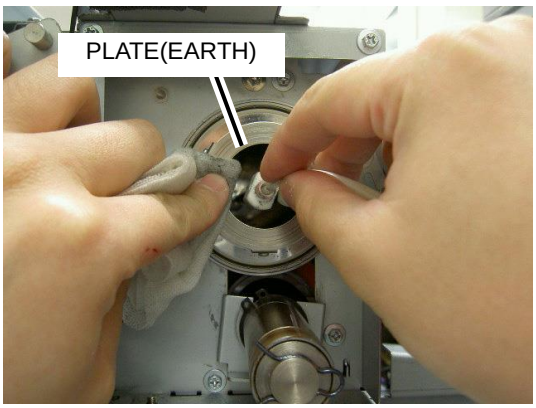


Photoconductor drum ground contact

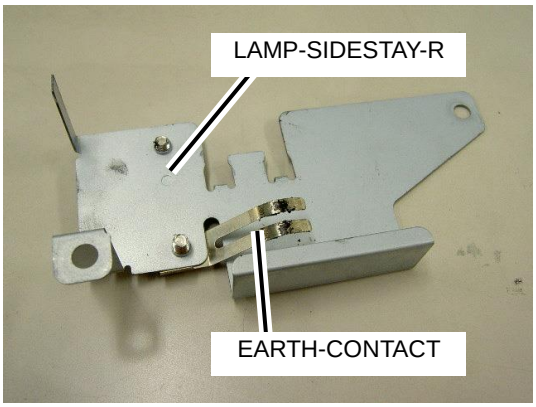
3.3.3 Heat Roller Contact

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).

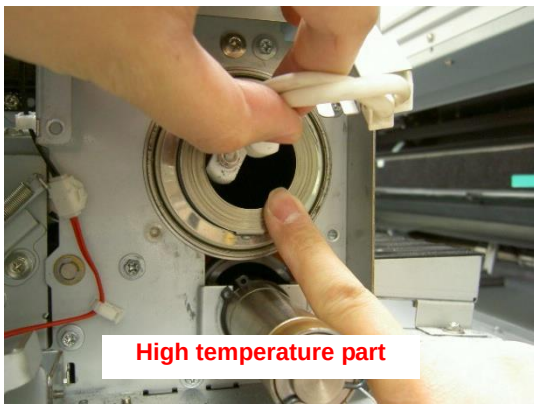


3. Remove EARTH-CONTACT from the LAMP-SIDESTAY-R.



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

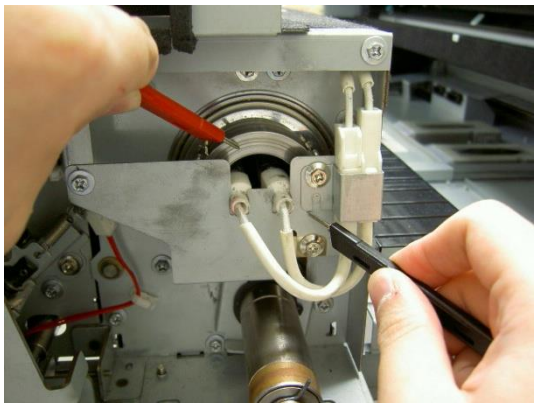
5. Apply a thin layer of heatproof grease on the entire PLATE(EARTH).



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.



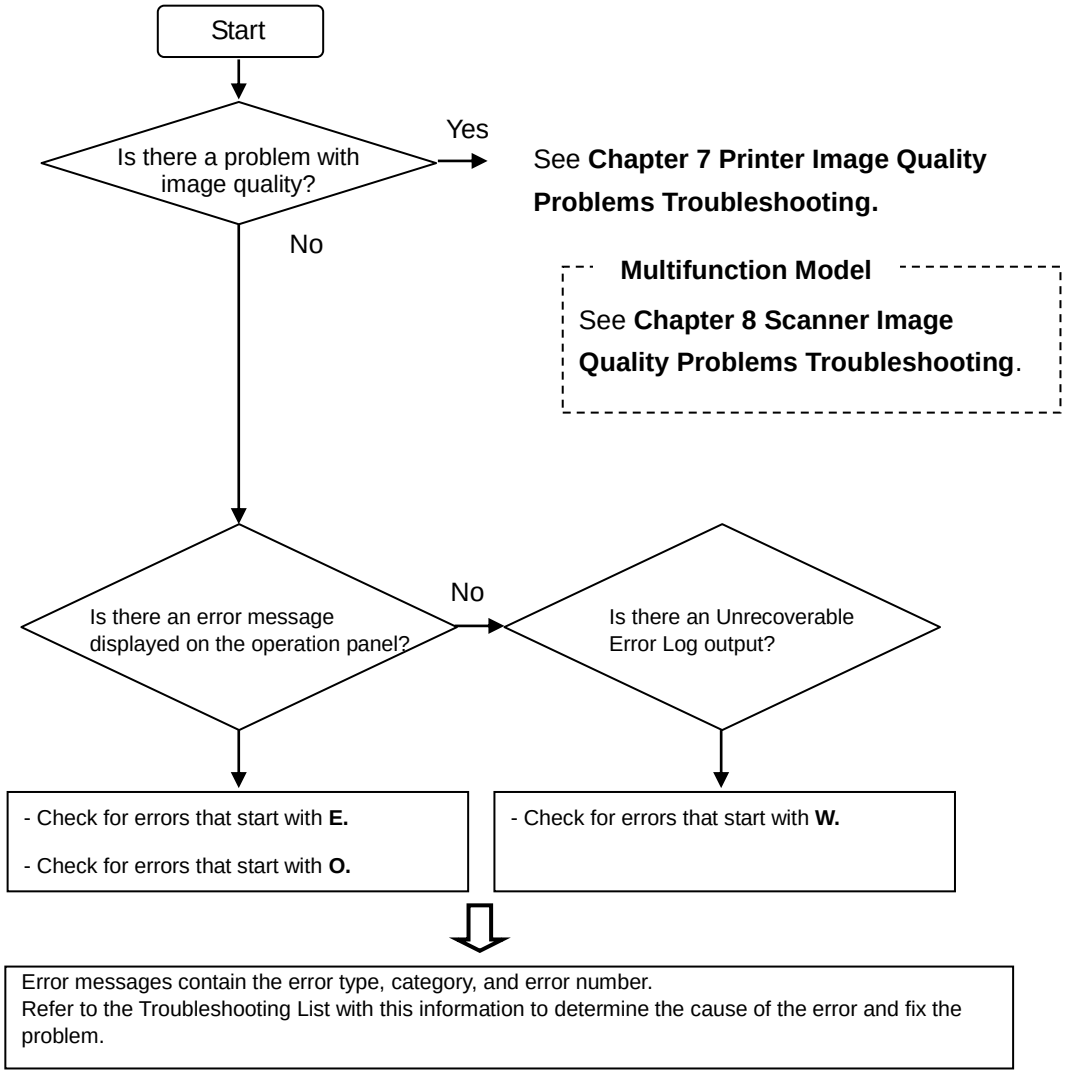
7. Reassemble the SIDE-COVER and external parts, and then execute a test print to complete the procedure.

Chapter 4 Controller Problems Troubleshooting

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. **4-20**.
- Errors that start with **O** -> See p. **4-35**.

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

x xx-nnnn (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 Chracters	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	Smart card reader
IG	Scanned image processing task
IN	Initialization task
JB	Job control task
JL	Job control library
LN	Print data reception task (netd)
JR	Job log task
LD	LDAP
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
PL	Print box log 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
SM	Serial number mismatch check task
SN	SNMP
SP	Data spool task
SS	Platform (CPU exception)
ST	Status library
SU	Import/Export All Settings
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 : XX
(1)

Log No.	Time	Job No.	Level	Category	Error No.	message
(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 **W**, **O**, **E** or **L**
(W: Warning, O: Operator Call, E: Service Call, L: Operation Log (this is not an error))
(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 (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. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
E	AC	2401	EEPROM port accounting information area access error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	AC	4001	Opening error with accounting aggregation request pipe	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	AC	4002	Opening error with accounting possible output inquiry pipe	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	AC	4003	Opening error with accounting possible output response pipe	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	AC	4004	MYKselect error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	AL	4001	Unable to open pipe	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	AL	5011	Unable to generate authentication log	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	AL	5013	Unable to register authentication log	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	BT	1000	Unable to secure reserved memory area	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	BT	1010	Unable to load module	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	BT	2200	USB memory read error (unable to use kernel boot from the USB memory)	- Restart the printer. - Upgrade the system to the latest. - Reformat the memory.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	BT	2300	Unable to recover from sleep	Restart the printer's main power.	- Check SATA cable. - Check PCB-ASSY-ARC.	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 4-39 (10) 🕮 P. 9-42 🕮 P. 9-39
E	BT	2500	Unable to write	—	- Check the printer's serial no. of the BOOT system. - Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39 🕮 P. 2-2 🕮 P. 2-49 (3)
E	BT	2510	Unable to read	—	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39 🕮 P. 2-2 🕮 P. 2-49 (3)
E	BT	2600	Unable to configure FLC	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	BT	2900	Unable to configure FRC	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	BT	7FF1	System not installed	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	BT	7FF2	Installed system error (the installed system is corrupted)	—	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CI	1100	Memory allocation error	- Restart the printer. - Check the SMB/CIFS settings on the Printer and/or PC. - Upgrade the firmware to the latest.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (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. - Check the SMB/CIFS settings on the Printer and/or PC. - Upgrade the firmware to the latest.	- Check SATA cable. - Check PCB-ASSY-ARC.	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 4-39 (10) 🕮 P. 9-42 🕮 P. 9-39
E	CI	4001	Unable to read spool file (size error)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 4-39 (10) 🕮 P. 9-42 🕮 P. 9-39
E	CI	4002	Unable to close spool file	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 4-39 (10) 🕮 P. 9-42 🕮 P. 9-39
E	CI	4100	Unable to start NBT background process	*ditto*	Check PCB-ASSY-ARC.	- PCB-ASSY-ARC	🕮 P. 9-39
E	CI	4200	Unable to acquire information from job library	*ditto*	*ditto*	- PCB-ASSY-ARC	🕮 P. 9-39
E	CI	4201	Job ID does not match the continuous output request for scan data	*ditto*	*ditto*	- PCB-ASSY-ARC	🕮 P. 9-39
E	CI	4300	Virtual interface opening error	*ditto*	*ditto*	- PCB-ASSY-ARC	🕮 P. 9-39
E	CI	6000	Unable to acquire setup information	*ditto*	- Check SATA cable. - Check PCB-ASSY-ARC.	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-37 (3) 🕮 P. 9-42 🕮 P. 9-39
E	CP	2781	IO error	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	2782	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	2783	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	2784	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	2785	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	2786	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	2787	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	2788	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	2789	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	278A	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	278B	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	278C	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	278D	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	2791	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	2792	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	2793	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	2794	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	2795	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	2796	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	2797	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	27A1	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	27A2	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	CP	27A3	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	EL	4001	Unable to open pipe	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	EL	5011	Unable to generate error log	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (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. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
E	HT	1100	Unable to acquire memory	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	HT	4000	MYKgetInterface has returned an error (HTTPD task → remote task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	HT	4001	MYKgetInterface has returned an error (remote task → HTTPD task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	HT	4002	MYKselect has returned an error during message reception	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	HT	4003	MYKrcvInterface has returned an error during message reception	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	HT	4004	MYKselect has returned an error during message sending	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	HT	4005	MYKrcvInterface has returned an error during message sending	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	HT	6001	Unable to acquire dynamic memory with DBdataAlloc function	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	IG	4000	Reception pipe opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	IG	4010	Response pipe opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	IG	4020	MYKselect abnormality	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	IG	B000	Undefined process request	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	IG	B010	Job library abnormal end	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	IN	2320	HDD error (HDD not recognized)	Restart the printer's main power.	- Check SATA cable. - Check PCB-ASSY-ARC.	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-37 (5) 🕮 P. 9-42 🕮 P. 9-39
E	IN	2321	Setup error (not recognized)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	IN	2322	Error log file error (not recognized)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	IN	2323	Job log file error (not recognized)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	IN	2324	Authentication log file error (not recognized)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	IN	2325	User information file error (not recognized)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	IN	2326	Common project information file error (not recognized)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	IN	2330	HDD error (partition not recognized)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	IN	2331	HDD error (unable to create partition)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	IN	2332	HDD error (unable to format partition)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	IN	2333	HDD error (unable to delete partition)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	IN	2340	HDD error (folder not recognized)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	IN	2400	EEPROM initialization error	Restart the printer.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
E	IN	2410	EEPROM format error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	IN	2A00	The bit 3 of DIP switch 4 on the ARC board is set to Off.	*ditto*	Check that the bit 3 of DIP switch 4 on the ARC board is set to On.	PCB-ASSY-ARC	🕮 P. 9-39
E	IN	2A01	Insufficient HDD space	*ditto*	Check that the HDD is 500 GB or more.	HDD	🕮 P. 1-8
E	IN	2E00	Unable to initialize Ethernet	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	IN	C000	Internal communication acquisition error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	IN	C010	HDD configuration error	Restart the printer's main power.	- Check SATA cable. - Check PCB-ASSY-ARC.	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	JB	1100	Memory acquisition error	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
E	JB	4001	Interface acquisition error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	JB	4002	MYKselect has returned an error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	JB	4003	Interface sending error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	JB	4004	Interface reception error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	JB	4101	Error when starting synchronization with spool	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	JB	4102	Error when ending synchronization with spool	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	JB	6001	Unable to acquire job information storage path	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	JB	6101	Unable to register job log	*ditto*	- Check SATA cable. - Check PCB-ASSY-ASC. - Check PCB-ASSY-ARC.	- HDD - PCB-ASSY-ASC - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 4-37 (4) 🕮 P. 9-46 🕮 P. 4-37 (1) 🕮 P. 9-39
E	JB	C001	Received command code error	*ditto*	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
E	JB	E001	Internal error (incorrect job type)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	JB	E004	Internal error (unable to save job ID)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	JB	E006	Internal error (job exhaustion)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	JB	E007	Internal error (multi page area exhaustion)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	JB	E009	Internal error (unable to save job information)	*ditto*	- Check SATA cable. - Check PCB-ASSY-ASC. - Check PCB-ASSY-ARC.	- HDD - PCB-ASSY-ASC - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 4-37 (4) 🕮 P. 9-46 🕮 P. 4-37 (1) 🕮 P. 9-39
E	JL	1200	Unable to generate semaphore	*ditto*	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
E	JL	4001	Interface acquisition error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	JL	4002	MYKselect has returned an error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	JL	4003	Interface sending error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	JL	4004	Interface reception error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	JL	4005	Error with ctlInterface	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	JL	5011	Unable to generate job log	Restart the printer.	- Check SATA cable. - Check PCB-ASSY-ARC.	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	JL	5013	Unable to register job log	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	JR	4001	Pipe opening error	*ditto*	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	JR	5011	Unable to generate job log	*ditto*	- Check SATA cable. - Check PCB-ASSY-ARC.	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	JR	5013	Unable to register job log	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	LP	2400	EEPROM access error	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
E	LP	4001	Opening error with local printing request pipe	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	LP	4002	Local printing request command error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	LP	4003	Local printing request function number error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OM	1100	Memory acquisition error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OM	1110	Child task starting error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OM	4000	MYKgetInterface has returned an error (job task → output main task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OM	4100	MYKgetInterface has returned an error (PM → output main task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OM	4110	MYKgetInterface has returned an error (output main task → PM)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OM	4200	MYKgetInterface has returned an error (print task → output main task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OM	4210	MYKgetInterface has returned an error (output main task → print task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OM	4300	MYKgetInterface has returned an error (external print task → output main task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OM	4310	MYKgetInterface has returned an error (output main task → external print task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OM	4400	MYKgetInterface has returned an error (CIFS task → output main task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OM	4410	MYKgetInterface has returned an error (output main task → CIFS task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OM	4500	MYKgetInterface has returned an error (TWAIN task → output main task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OM	4510	MYKgetInterface has returned an error (output main task → TWAIN task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OP	1100	Screen instance not generated	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OP	1101	Transition destination screen not generated	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OP	1102	Error screen not generated	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OP	1110	Page group not generated	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OP	1120	Unable to acquire frame buffer	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OP	1121	Unable to acquire memory for GEAL	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OP	1122	Unable to acquire memory for engine parameters	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OP	1130	Panel task initialization timeout	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OP	2400	Unable to save parameter	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OP	4000	Unable to operate semaphore	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	OP	4100	Unable to acquire job	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
E	OP	4110	Unable to acquire job code	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OP	4200	Unable to acquire part information	Restart the printer.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	OP	6000	Unable to acquire device status	- Restart the printer. - Upgrade the firmware to the latest.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OP	C000	Screen transition destination limit exceeded	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OP	C001	Pop-up parts display limit exceeded	Restart the printer.	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	OP	C010	Unable to register screen part	- Restart the printer. - Upgrade the firmware to the latest.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OP	C020	Unable to generate screen part	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OP	C030	Unable to register RadioControl part	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OP	C040	Operation undefined event received	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OP	C050	Operation undefined error received	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OP	C060	Undefined phase for calibration adjustment received	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	OP	C070	Print box Smart card info update error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PD	4180	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4181	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4182	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4280	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4281	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4283	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4680	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4681	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4682	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4780	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4781	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4783	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A80	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A81	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A82	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A83	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A84	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A85	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A86	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A87	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A88	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A89	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A8A	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A8B	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A8C	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A8D	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A8E	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A8F	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A90	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A91	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A92	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A93	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A94	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A95	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A96	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A97	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A98	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A99	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A9A	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A9B	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A9C	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A9D	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A9E	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4A9F	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4AA0	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	PD	4AA1	IO error	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	4AA2	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C380	Opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C381	Opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C382	Opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C383	Opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C384	Opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C385	Opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C386	Opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C387	Read error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C388	Read error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C389	Read error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C38A	Read error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C38B	Read error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C38C	Read error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C38D	Read error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C38E	Opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C38F	Opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C390	Internal memory error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C391	Internal memory error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C392	Internal memory error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C393	Internal memory error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C394	Internal memory error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C395	Internal memory error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C396	Internal memory error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C397	Internal memory error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C398	Internal memory error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C399	Internal memory error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C39A	Internal memory error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C39B	Internal memory error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C39C	Internal memory error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C39D	Internal memory error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C39E	Internal memory error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C39F	Internal memory error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C3A0	Opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PD	C3A1	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PE	1100	Error when starting engine control	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	PE	2300	Late image disk reading	*ditto*	- Check SATA cable. - Check PCB-ASSY-ARC.	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PE	2310	Cannot open virtual page	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PE	2311	Insufficient virtual page capacity	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PE	2312	Virtual page reading error	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PE	2313	Virtual page writing error	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PE	2910	Image transfer error	*ditto*	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PE	2920	Print parameter error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PE	2930	Mismatch in number of copies of print request and print results	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PE	2940	Mismatch in number of requested copies and print results	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PE	4000	Library reception pipe opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PE	4010	Library response pipe opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PE	4020	Opening error with library print engine event pipe	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PE	4030	Engine control reception pipe opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	PE	4040	Engine control response pipe opening error	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PE	4050	Opening error with engine control print engine event pipe	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PL	4001	Pipe opening error	Restart the printer.	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PL	5011	Unable to generate print box log	*ditto*	- Check SATA cable. - Check PCB-ASSY-ARC.	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PL	5013	Unable to register print box log	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	2310	Error log access error	- Restart the printer. - Upgrade the firmware to the latest.	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	2311	Job log access error	*ditto*	Check PCB-ASSY-ARC	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PM	2312	Authentication log access error	Restart the printer.	- Check SATA cable. - Check PCB-ASSY-ARC.	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	2313	Administrator registration information access error	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	2314	User registration information access error	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	2315	Print box log access error	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	2400	EEPROM access error	*ditto*	Check PCB-ASSY-ARC	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PM	2401	EEPROM format execution	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PM	2700	Scanner system error	*ditto*	- Check PCB-ASSY-ASC. - Check PCP-ASSY-ARC.	- PCB-ASSY-ASC - PCB-ASSY-ARC	🕮 P. 4-37 (4) 🕮 P. 9-46 🕮 P. 9-39
E	PM	2900	Engine, scanner synchronization control	*ditto*	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PM	4000	Job Lib access (job operation) error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PM	4101	Program failure (select starting process)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PM	4102	Program failure (select main process)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PM	4103	Program failure (sending process)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PM	4104	Program failure (reception process)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PM	4105	Program failure (I/F process)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PM	4106	Program failure (power saving HDD process)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PM	4107	Program failure (process parameter)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PM	6000	Setup generation error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PM	6010	Setup saving error (all areas before HDD sleep)	Restart the printer.	- Check SATA cable. - Check PCB-ASSY-ARC.	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	6011	Setup saving error (copy area)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	6012	Setup saving error (area specification)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	6020	Setup writing error (area specification)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	6021	Setup writing error (copy area)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	6030	Setup reading error (system area)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	PM	6031	Setup reading error (current copy area)	Restart the printer.	- Check SATA cable. - Check PCB-ASSY-ARC.	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	6032	Setup reading error (system area)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	6033	Setup reading error (authentication setting area)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	6034	Setup reading error (system area)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	6035	Setup reading error (system area unit setting)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	6036	Setup reading error (system area folder setting)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	6037	Setup reading error (system area valid series setting)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	6038	Setup reading error (scan information)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	6039	Setup reading error (system area)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	603A	Setup reading error (device area)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	6100	Status Lib access error	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PM	6200	Spool Lib access error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PM	7E11	Return to Def. Settings execution error	*ditto*	- Check SATA cable. - Check PCB-ASSY-ARC.	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	7E12	Device initialization execution error	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PM	7E13	HDD deletion execution error	Restart the printer.	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
E	PN	4000	Unable to operate semaphore (in panel task)	- Restart the printer. - Upgrade the firmware to the latest.	- Clean CBL-PNL contact - Check PCB-ASSY-ARC.	- PANEL ASSY - PANEL ASSY PL - PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 4-39 (11) 🕮 P. 9-42 🕮 P. 9-39
E	PR	4000	Reception pipe opening error	*ditto*	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PR	4010	Response pipe opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PR	4020	Opening error with print engine event pipe	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	PR	40F0	MYKselect abnormality	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	RM	4000	MYKgetInterface has returned an error (HTTPD task → remote task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	RM	4001	MYKgetInterface has returned an error (remote task → HTTPD task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	RM	4002	MYKselect has returned an error during message reception	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	RM	4003	MYKrcvInterface has returned an error during message reception	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	RM	4004	MYKselect has returned an error during message sending	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	RM	4005	MYKrcvInterface has returned an error during message sending	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	RM	4006	MYKgetInterface has returned an error (PM → remote task)	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	RM	4007	MYKgetInterface has returned an error (remote task → PM)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	RM	6000	Unable to acquire memory	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	RM	6001	Unable to acquire dynamic memory with DBdataAlloc function	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	2781	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	2782	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	2783	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	2784	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	2785	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	2786	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	2787	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	2788	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	2789	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	278A	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	278B	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	278C	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	278D	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	278E	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	278F	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	2791	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	2792	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	2793	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	2794	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	2795	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	2796	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	2797	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	2798	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	2799	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	27A1	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SC	27B1	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SG	2700	Error when starting scanner	*ditto*	- Clean CBLS-LVDS contact - Check PCB-ASSY-ASC. - Check PCB-ASSY-ARC. - Check CIS unit.	- PCB-ASSY-ASC - PCB-ASSY-ARC - CIS unit.	🕮 P. 8-6 🕮 P. 4-37 (1) 🕮 P. 9-39 🕮 P. 4-37 (4) 🕮 P. 9-46 🕮 P. 4-38 (6) 🕮 P. 9-167
E	SG	2710	Image transfer error	*ditto*	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SG	2720	SIO opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SG	2721	Scanner command reception error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	SG	2722	Scanner command resending number limit error	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SG	2723	Scanner command writing error	*ditto*	- Check PCB-ASSY-ASC. - Check PCB-ASSY-ARC. - Check CIS unit.	- PCB-ASSY-ASC - PCB-ASSY-ARC - CIS unit.	🕮 P. 4-37 (1) 🕮 P. 9-39 🕮 P. 4-37 (4) 🕮 P. 9-46 🕮 P. 4-38 (6) 🕮 P. 9-167
E	SG	2A00	ASC board not supported error	Restart the printer.	Check that the ASC board code is U00117174302 or higher.	PCB-ASSY-ARC	🕮 P. 1-8
E	SG	4000	Library reception pipe opening error	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SG	4010	Library response pipe opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SG	4020	Opening error with library print engine event pipe	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SG	4030	Scanner reception pipe opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SG	4040	Scanner response pipe opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SL	4001	Pipe opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SL	4002	Unable to generate semaphore	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SM	4001	Pipe opening error	Restart the printer.	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SM	4007	IO error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	SN	8800	Pipe opening error	Upgrade the RIP firmware to the latest.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SN	8801	Pipe read error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SN	8802	Pipe write error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SN	8803	Small pipe message (programing error)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	1101	Unable to hunt memory during initialization	- Restart the printer. - Upgrade the firmware to the latest.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	1401	Unable to generate real file Probably HDD failure	*ditto*	- Check SATA cable. - Check PCB-ASSY-ARC.	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-39 (10) 🕮 P. 9-42 🕮 P. 9-39
E	SP	1402	Unable to open real file Probably bug or HDD failure	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-39 (10) 🕮 P. 9-42 🕮 P. 9-39
E	SP	1403	Unable to close real file Probably bug or HDD failure	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-39 (10) 🕮 P. 9-42 🕮 P. 9-39
E	SP	1404	Unable to write real file Probably HDD failure	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-39 (10) 🕮 P. 9-42 🕮 P. 9-39
E	SP	1405	Unable to read real file Probably HDD failure	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-39 (10) 🕮 P. 9-42 🕮 P. 9-39
E	SP	1406	Unable to seek real file Probably HDD failure	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-39 (10) 🕮 P. 9-42 🕮 P. 9-39
E	SP	1407	Unable to remove real file Probably HDD failure	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-39 (10) 🕮 P. 9-42 🕮 P. 9-39
E	SP	1408	Unable to rename real file Probably HDD failure	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-39 (10) 🕮 P. 9-42 🕮 P. 9-39
E	SP	1409	Unable to save spool management file Probably HDD failure	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-39 (10) 🕮 P. 9-42 🕮 P. 9-39
E	SP	4001	Unable to open pipe during initialization	*ditto*	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	4002	Error with select	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	4003	Error with pipe sending	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	4004	Error with pipe reception	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	4005	Error with CntrlInterface	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	4102	Error with job library (jobEvent)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	4103	Error with job library (jobSetInfo)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	SP	4104	Error with job library (jobSetFinish)	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	4105	Error with job library (jobGetInfo)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	6001	Unable to acquire spool data storage path	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	6011	Unable to hunt memory block	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D001	Unable to generate spool data Probably HDD failure	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D002	Unable to open spool data Probably bug or HDD failure	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D003	Unable to close spool data Probably bug or HDD failure	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D004	Unable to write spool data Probably HDD failure	*ditto*	- Check SATA cable. - Check PCB-ASSY-ARC.	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-39 (10) 🕮 P. 9-42 🕮 P. 9-39
E	SP	D005	Unable to read spool data Probably HDD failure	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-39 (10) 🕮 P. 9-42 🕮 P. 9-39
E	SP	D006	Unable to seek spool data Probably HDD failure	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-39 (10) 🕮 P. 9-42 🕮 P. 9-39
E	SP	D011	Internal error No space in spool data	*ditto*	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D012	Internal error Maximum number of data items that can be opened at the same time	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D013	Internal error Spool data not found	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D021	Error with spool data cleanup	*ditto*	- Check SATA cable. - Check PCB-ASSY-ARC.	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-39 (10) 🕮 P. 9-42 🕮 P. 9-39
E	SP	D031	Incorrect reception command	*ditto*	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D041	Reception command parameter abnormality	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D042	Reception command parameter abnormality	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D043	Reception command parameter abnormality	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D044	Reception command parameter abnormality	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D045	Reception command parameter abnormality	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D046	Reception command parameter abnormality	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D047	Reception command parameter abnormality	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D048	Reception command parameter abnormality	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D049	Reception command parameter abnormality	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D04A	Reception command parameter abnormality	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D04B	Reception command parameter abnormality	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D04C	Reception command parameter abnormality	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D04D	Reception command parameter abnormality	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D04E	Reception command parameter abnormality	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D051	Reception command parameter abnormality	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	D052	Reception command parameter abnormality	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	E001	Internal error Spool number abnormality	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	SP	E002	Internal error Incorrect virtual FD	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	E003	Internal error Reception queue overflow	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	E004	Internal error Virtual FD exhaustion	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	E005	Internal error Multiple WriteOpen	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	E006	Internal error Write on ReadOpen data, read on WriteOpen data	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	E007	Internal error Incorrect real FD	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	E008	Internal error Incorrect seek parameter	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	E009	Internal error Unable to reopen	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	E00A	Internal error Data already existed when attempted to create new data	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SP	E00B	Internal error Reception state abnormality	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SS	F200	CPU exception: machine check exception	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SS	F300	CPU exception: DSI exception	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SS	F400	CPU exception: ISI exception	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SS	F600	CPU exception: Alignment exception	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SS	F700	CPU exception: Program exception	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	SS	F800	CPU exception: Invalid floating decimal point exception	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	TM	4000	I/F initialization error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
E	TW	4000	Fatal error when initializing communication between tasks	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	TW	4010	Fatal error in memory operation	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	TW	4020	Fatal error in socket operation	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	TW	4030	Setup information fatal error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	TW	4100	Fatal error during data lead from spool	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	TW	4200	Fatal error in communication with output main	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	TW	4210	Output main undefined command fatal error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	TW	40F0	Other fatal error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	VU	1100	Upgrade has been stopped because of insufficient printer memory	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	VU	2501	NAND - FLASH memory writing error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	VU	2701	Scanner - FW writing error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	VU	2702	Scanner - BOOT writing error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	VU	2703	Scanner - FPGA-FSC writing error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	VU	2704	Scanner - FPGA-FIC writing error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	VU	2705	Scanner - FPGA-FSG writing error	*ditto*	*ditto*		

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	VU	7F50	Scanner - FPGA-FSG writing error	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	VU	7F51	The system image in the USB memory is not for the printer. **Magic number does not match** or **Submagic number does not match**	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	VU	7F80	Incorrect card identification file (cardid.dat) in the USB memory	- Restart the printer. - Upgrade the firmware to the latest.	From the computer check cardid.dat file on the USB memory.		
E	VU	7F81	USB memory access error	Turn off the printer and reseat the USB memory. Then turn on the printer and again upgrade the firmware to the latest.	- While the touchpanel displays the error message, reseat 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. - Check PCB-ASSY-ARC.	- Several USB memories (different makers if possible) - PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
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. Bit 3: Off Bit 4: On Or, Bit 3: On Bit 4: On	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39

Table 4-3 Troubleshooting for controller-related warnings

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (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. - Upgrade the firmware to the latest.	–	–	–
W	AL	4003	Size of pipe lead message does not match the command	*ditto*	–	–	–
W	AL	4004	Undefined pipe lead message command	*ditto*	–	–	–
W	AL	4005	Regenerated authentication log generation	*ditto*	–	–	–
W	AL	5012	Small size of pipe lead message	*ditto*	–	–	–
W	BT	2C00	Dead battery (or there is no battery at all)			PCB-ASSY-ARC	🕮 P. 9-39
W	BT	2C01	Out of battery warning			PCB-ASSY-ARC	🕮 P. 9-39
W	CI	8401	NBT name registration denied	- Restart the printer. - Check SMB/CIFS settings. - Upgrade the firmware to the latest.	–	–	–
W	CI	8402	Unable to register NBT	*ditto*	–	–	–
W	CI	8403	Unable to connect to NBT session	*ditto*	–	–	–
W	CI	8404	Unable to perform SMB negotiation	*ditto*	–	–	–
W	CI	8405	Unable to setup SMB	*ditto*	–	–	–
W	CI	8406	Unable to connect to SMB tree	*ditto*	–	–	–
W	CI	8407	Unable to open/create SMB file	*ditto*	–	–	–
W	CI	8408	Unable to write SMB	*ditto*	–	–	–
W	CI	8409	Unable to close SMB file	*ditto*	–	–	–
W	CI	840A	Unable to disconnect from SMB tree	*ditto*	–	–	–
W	CI	840B	Unable to open SMB session handle	*ditto*	–	–	–
W	CI	840C	Unable to disconnect from NBT session	*ditto*	–	–	–
W	CI	840D	Connection parameter error	*ditto*	–	–	–
W	CI	840E	Output parameter error	- Restart the printer. - Check SMB/CIFS settings. - Upgrade the firmware to the latest.	–	–	🕮 ***User's Manual for Basic Printer Operation.*** 🕮 ***User's Manual for Multifunction Printer Operation.***
W	CI	840F	Parameter error	*ditto*	–	–	🕮 ***User's Manual for Basic Printer Operation.*** 🕮 ***User's Manual for Multifunction Printer Operation.***
W	EL	4002	Unable to perform pipe lead	- Restart the printer. - Upgrade the firmware to the latest.	–	–	–
W	EL	4003	Small size of pipe lead message	*ditto*	–	–	–
W	EL	4004	Size of pipe lead message does not match the command	*ditto*	–	–	–
W	EL	4005	Undefined message command read from the pipe	*ditto*	–	–	–

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (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. - 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. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
W	HT	9102	socket function return value error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	HT	9103	bind function return value error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	HT	9104	listen function return value error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	HT	2B00	Unable to open httpd.cnf	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	HT	2B01	Resource file opening error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IC	C001	Smart card reader is inserted				
W	IC	C002	Smart card reader is removed				
W	IC	9201	Communication error with Smart card reader				
W	IN	1001	Module start error (EEPROM driver)	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1002	Module start error (printer image transfer driver)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1003	Module start error (hardware button driver)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1004	Module start error (scanner SIO driver)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1005	Module start error (scanner image transfer driver)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1006	Module start error (JPEG driver)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1007	Module start error (engine control related driver)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1011	Module start error (trace library)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1012	Module start error (EEPROM library)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1013	Module start error (HDD configuration library)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1014	Module start error (system environment library)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1015	Module start error (virtual page disk library)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1016	Module start error (virtual library)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1017	Module start error (memory library)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1018	Module start error (spool library)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1019	Module start error (upgrade library)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	101A	Module start error (serial number check library)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (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. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	101C	Module start error (error log library)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	101D	Module start error (job log library)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	101E	Module start error (setup library)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	101F	Module start error (network settings library)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1020	Module start error (authentication log library)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1021	Module start error (user information library)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1031	Module start error (timer task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1032	Module start error (operation task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1033	Module start error (panel task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1034	Module start error (PM task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1035	Module start error (job task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1036	Module start error (network task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1037	Module start error (spool task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1038	Module start error (output main task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1039	Module start error (engine control related task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	103A	Module start error (scanner driver task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	103B	Module start error (printer driver task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	103C	Module start error (remote task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	103D	Module start error (scan task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	103E	Module start error (PDL main task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	103F	Module start error (local print task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	1040	Module start error (upgrade task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	2300	HDD error (partition rebuilding)	*ditto*	- Check SATA cable. - Check PCB-ASSY-ARC.	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
W	IN	2301	Setup rebuilding	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
W	IN	2302	Error log file rebuilding	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
W	IN	2303	Job log file rebuilding	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
W	IN	2304	Initial setting applied for setup limit exceeded	*ditto*	Check SATA cable.	- HDD - SATA cable	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
W	IN	2310	HDD error (folder rebuilding)	*ditto*	- Check SATA cable. - Check PCB-ASSY-ARC.	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
W	IN	2312	Spool partition formatting	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
W	IN	2313	Other partition formatting	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
W	IN	2314	Setup partition formatting	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (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. - Upgrade the firmware to the latest.	Check SATA cable.	- HDD - SATA cable	🕮 P. 4-37 (3) 🕮 P. 9-42
W	IN	2400	EEPROM rebuilding (all)	Restart the printer.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	2401	EEPROM rebuilding (RIP area only)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	IN	C000	Initialization process start 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. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
W	JB	D001	Deleted because of an overflow in authentication waiting jobs	—	—	—	—
W	JB	D002	E-mail size limit exceeded	Set Maximum E-mail Data Size in the E-mail Scan Data Settings to a higher value.	—	—	—
W	JB	D003	USB drive capacity exceeded	Use a USB drive with a larger capacity	—	—	—
W	JB	D004	USB drive not found	- Reconnect the USB drive - Use a different USB drive	—	—	—
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	5012	Regenerated job log generation	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
W	JL	C001	Parameter error (jobCreate)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	JL	C002	Parameter error (jobGetInfo)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	JL	C003	Parameter error (jobGetInfoWithPage)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	JL	C004	Parameter error (jobGetTopPrioSts)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	JL	C005	Parameter error (jobGetDisplayInfo)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	JL	C006	Parameter error (jobSetInfo)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	JL	C007	Parameter error (jobSetInfoWithPage)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	JL	C008	Parameter error (jobEvent)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	JR	4002	Unable to read from pipe	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	JR	4003	Size of the message read from the pipe is small	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	JR	4004	Size of message read from the pipe does not match the command	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	JR	4005	Undefined message command read from the pipe	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	JR	5012	Regenerated job log generation	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LD	9600	Timeout on the LDAP server 1	Check the server address 1 in the common authentication server settings	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LD	9601	Timeout on the LDAP server 2	Check the server address 2 in the common authentication server settings	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1201	select error	Restart the printer.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1202	Pipe reading error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1203	Pipe writing error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
W	LN	1301	XPT socket generation error	Restart the printer.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1302	XPT socket bind error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1303	XPT socket listen error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1304	XPT socket accept error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1305	XPT remote address acquisition error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1306	XPT setsockopt error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1307	XPT socket Read error	- Check connection cable. - Check printer driver. - Check network condition.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1308	XPT socket Write error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1311	LPR socket generation error	Restart the printer.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1312	LPR socket bind error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1313	LPR socket listen error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1314	LPR socket accept error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1315	LPR remote address acquisition error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1316	LPR setsockopt error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1317	LPR socket Read error	- Check connection cable. - Check printer driver. - Check network condition.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1318	LPR socket Write error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1321	FTP server socket generation error	Restart the printer.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1322	FTP server socket bind error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1323	FTP server socket listen error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1324	FTP server socket accept error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1325	FTP data socket generation error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1326	FTP data socket bind error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1327	FTP data socket connect error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1328	FTP data socket connect timeout	- Check connection cable. - Check printer driver. - Check network condition.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1329	FTP data socket connect refused	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	132A	FTP control socket Read error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	132B	FTP control socket Write error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	132C	FTP data socket Read error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	132D	FTP data socket Write error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	132E	FTP remote address acquisition error	Restart the printer.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	132F	FTP setsockopt error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1401	FTP file open error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1402	FTP file read error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	1403	FTP file write error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	4101	Error with job library (jobGetDisplayInfo)	- Restart the printer. - Upgrade the firmware to the latest.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	6001	Setup reading error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	6002	Setup value error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	6011	Memory block acquisition error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	8001	XPT port number overlap	Check the printer settings.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	8081	XPT reception timeout	- Check printer driver. - Check network condition. - Check application.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	8101	XPT port number overlap	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	8102	XPT reception timeout	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	8103	LPR parameter line format error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	8104	LPR parameter error (size)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
W	LN	8105	LPR parameter error (host name)	- Check printer driver. - Check network condition. - Check application.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	8181	LPR reception timeout	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	8201	Login operation with user name, **downloading** and incorrect password	*ditto*	—	—	—
W	LN	8202	Login operation with user name, **service** and incorrect password	*ditto*	—	—	—
W	LN	8203	Login operation with unknown user name	*ditto*	—	—	—
W	LN	8204	Incorrect FTP password	*ditto*	—	—	—
W	LN	8205	Successful login operation to the port for maintenance	*ditto*	—	—	—
W	LN	8211	FTP command format error	*ditto*	- Check error log. - Check transmission software.	—	—
W	LN	8212	Unknown command received by FTP	*ditto*	*ditto*	—	—
W	LN	8221	FTP command parameter error (PORT)	*ditto*	*ditto*	—	—
W	LN	8222	FTP command parameter error (TYPE)	*ditto*	*ditto*	—	—
W	LN	8223	FTP command parameter error (RETR)	*ditto*	*ditto*	—	—
W	LN	8224	FTP command parameter error (STOR)	*ditto*	*ditto*	—	—
W	LN	8225	FTP command parameter error (DELE)	*ditto*	*ditto*	—	—
W	LN	8226	FTP command parameter error (CWD)	*ditto*	*ditto*	—	—
W	LN	8227	FTP command parameter error (LIST)	*ditto*	*ditto*	—	—
W	LN	8228	FTP command parameter error (RNFR)	*ditto*	*ditto*	—	—
W	LN	8229	FTP command parameter error (RNTO)	*ditto*	*ditto*	—	—
W	LN	822A	FTP command parameter error (MKD)	- Check printer driver. - Check network condition. - Check application.	- Check error log. - Check transmission software.	—	—
W	LN	822B	FTP command parameter error (RMD)	*ditto*	*ditto*	—	—
W	LN	822C	FTP command parameter error (EPRT)	Check the state and application on the host where data has been transferred.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	LN	8281	FTP reception timeout	- Check printer driver. - Check network condition. - Check application on the host computer. - Check LAN connection cable.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	8282	FTP control connection reset	- Check printer driver. - Check network condition. - Check application.	- Check error log. - Check transmission software.	—	—
W	LN	8301	During data reception, the connection was forcedly cut.	*ditto*	*ditto*	—	—
W	LN	C001	Unable to open warning light driver	- Restart the printer. - Upgrade the firmware to the latest.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LN	C011	FTP reception timeout	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LT	2D01	FTP control connection reset	- Check the warning light model number to confirm it is a recommended product. - Check the serial cables connection. - Restart the Printer.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	LT	2D02	NAK reception from warning light	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
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.	—	—

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
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. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
W	ML	870D	SMTP server connection error (insufficient rights)	- Check printer-side mail settings. - Check SMTP-side mail settings.	- Check printer-side mail settings. - 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.	—	—
W	ML	8730	SMTP server protocol error (initialization process)	*ditto*	*ditto*	—	—
W	ML	8731	SMTP server protocol error (socket process)	*ditto*	*ditto*	—	—
W	ML	8732	SMTP server protocol error (connect process)	*ditto*	*ditto*	—	—
W	ML	8733	SMTP server protocol error (connection authorization and HELO process)	*ditto*	*ditto*	—	—
W	ML	8734	SMTP server protocol error (HELO authorization and MAIL process)	*ditto*	*ditto*	—	—
W	ML	8735	SMTP server protocol error (MAIL authorization and RCPT process)	*ditto*	*ditto*	—	—
W	ML	8736	SMTP server protocol error (RCPT authorization and CC or DATA process)	*ditto*	*ditto*	—	—
W	ML	8737	SMTP server protocol error (CC authorization and DATA process)	*ditto*	*ditto*	—	—
W	ML	8738	SMTP server protocol error (DATA authorization and data sending process)	*ditto*	*ditto*	—	—
W	ML	8739	SMTP server protocol error (data sending complete and QUIT process)	*ditto*	*ditto*	—	—
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)	*ditto*	*ditto*	—	—
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)	*ditto*	*ditto*	—	—
W	ML	8752	SMTP server protocol error (plain text authentication process)	*ditto*	*ditto*	—	—

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
W	ML	8753	SMTP server protocol error (authentication authorization and MAIL process)	Check SMTP server settings.	Check SMTP server settings.	—	—
W	ML	8761	SMTP server protocol error (login authentication and ID sending process)	*ditto*	*ditto*	—	—
W	ML	8762	SMTP server protocol error (ID authentication and password sending process)	*ditto*	*ditto*	—	—
W	ML	8763	SMTP server protocol error (password authentication and MAIL process)	*ditto*	*ditto*	—	—
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. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
W	ML	8781	Program failure (select timeout)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	ML	8782	Program failure (select error)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	ML	8783	Program failure (read error)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	OM	4600	MYKselect has returned an error during message reception	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	OM	4610	MYKselect has returned an error during message sending	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	OM	4700	MYKrcvInterface has returned an error during message reception from JOB	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	OM	4710	MYKrcvInterface has returned an error during message reception from PM	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	OM	4720	MYKrcvInterface has returned an error during message reception from print task	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	OM	4730	MYKrcvInterface has returned an error during message reception from external print task	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	OM	4740	MYKrcvInterface has returned an error during message reception from CIFS task	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	OM	4750	MYKrcvInterface has returned an error during message reception from TWAIN task	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	OM	4800	MYKsndInterface has returned an error during message sending	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	OP	C071	Print box UID warning	Restart the printer.	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	OP	EF00	Job ID mismatch Occurs when the status of a job displayed on the job operation screen is updated, and the correct job could not be controlled.	- Restart the printer. - Upgrade the firmware to the latest.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
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.	On the computer correct the error.	—	—	—
W	PD	A403	The Printer received: - A print command exceeding the supported range of the HP-GL or HP-GL/2 command parameters; or - A print command that used acharacter or characters not allowed in parameters	*ditto*	—	—	—
W	PD	A405	An unsupported HP-GL or HP-GL/2 character set command was received.	*ditto*	—	—	—
W	PD	A407	A polygon buffer size overflow error occurred.	*ditto*	—	—	—
W	PD	A408	No vaild 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. Note: This error does not occur with LP-2060.	—	—	—
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. Note: This error does not occur with LP-2060.	—	—	—
W	PD	A505	The spool memory has overflowed.	When the Centering is set to **On**, change to **Off**.	—	—	—
W	PD	A506	A polygon buffer size overflow error occurred.	On the computer correct the error. 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. 9-39
W	PD	A508	Program warning	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	PD	A509	Program warning	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	PD	A50A	Program warning	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
W	PD	A50B	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. 9-39
W	PD	A50C	Program warning	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	PD	A50D	Program warning	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	PD	A50E	Program warning	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	PD	A50F	Program warning	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	PD	A510	Program warning	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	PD	A511	Program warning	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	PD	A512	Program warning	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	PD	A513	Program warning	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
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.	—	—	—
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. 9-39
W	PD	A701	Controller internal format error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	PD	A702	Controller internal format error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	PD	A703	Controller internal format error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	PD	A704	Controller internal format error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	PD	A705	Controller internal format error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
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.	*ditto*	—	—	—
W	PD	A802	The value of a tag parameter in the TIFF data exceeds the supported range.	*ditto*	—	—	—
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	PL	4002	Unable to perform pipe lead	Restart the printer.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	PL	4003	Small size of pipe lead message	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	PL	4004	Size of pipe lead message does not match the command	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	PL	4005	Undefined message command read from the pipe	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	PL	5012	Regenerated print box log generation	*ditto*	- Check SATA cable. - Check PCB-ASSY-ARC.	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
W	PM	2300	HDD format execution	- Restart the printer. - Upgrade the firmware to the latest.	*ditto*	- HDD - PCB-ASSY-ARC	🕮 P. 4-39 (9) 🕮 P. 9-39 🕮 P. 9-42
W	PM	2313	Administrator registration information access error	*ditto*	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
W	PM	4001	Job information in the printer was deleted.	—	—	—	—
W	PM	7E01	Return to Def. Settings execution error	- Restart the printer. - Upgrade the firmware to the latest.	- Check SATA cable. - Check EEPROM. - Check PCB-ASSY-ARC.	- HDD - EEPROM - PCB-ASSY-ARC	🕮 P. 4-39 (9) 🕮 P. 9-39 🕮 P. 9-42
W	PM	7E02	Device initialization execution	*ditto*	*ditto*	- HDD - EEPROM - PCB-ASSY-ARC	🕮 P. 4-39 (9) 🕮 P. 9-39 🕮 P. 9-42
W	PM	7E03	Engine parameter saving	*ditto*	*ditto*	- HDD - EEPROM - PCB-ASSY-ARC	🕮 P. 4-39 (9) 🕮 P. 9-39 🕮 P. 9-42
W	PM	7E04	Engine parameter initialization	*ditto*	*ditto*	- HDD - EEPROM - PCB-ASSY-ARC	🕮 P. 4-39 (9) 🕮 P. 9-39 🕮 P. 9-42
W	PM	B800	Non-authenticated login	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
W	PM	B801	Smart card reading error	Restart the printer.	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	PM	C100	Internal communication parameter error	- Restart the printer. - Upgrade the firmware to the latest.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	PM	C200	Status mismatch	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	PM	C300	Internal process parameter error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
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. 9-39
W	PM	C405	Printer power was turned off.	—	—	—	—
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. 9-39
W	PM	C407	Device restart				
W	PM	C601	Print box Smart card info UID search error	Restart the printer.	- Check SATA cable. - Check PCB-ASSY-ARC.	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
W	PM	C602	Print box Smart card info update error	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
W	PM	C603	Print box Smart card info registration error (general)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
W	PM	C604	Print box Smart card info registration error (number of registration items per user exceeded)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
W	PM	C605	Print box Smart card info registration error (number of registration items exceeded)	*ditto*	*ditto*	- HDD - SATA cable - PCB-ASSY-ARC	🕮 P. 4-38 (5) 🕮 P. 9-42 🕮 P. 9-39
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. - Check PCB-ASSY-ARC.	- CBL-PNL - PANEL ASSY - PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 4-39 (11) 🕮 P. 9-39
W	PN	2610	Undefined command reception Occurs when an undefined command has been received from the panel. (in panel task)	*ditto*	*ditto*	- CBL-PNL - PANEL ASSY-PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 4-39 (11) 🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
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)	If the problem occurs frequently, upgrade the firmware to the latest.	- Check CBL-PNL. - Check PCB-ASSY-ARC.	- CBL-PNL - PANEL ASSY - PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 4-39 (11) 🕮 P. 9-39
W	PN	2630	The command has been discarded because the command from the panel suddenly expired. (in panel driver)	*ditto*	*ditto*	- CBL-PNL - PANEL ASSY - PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 4-39 (11) 🕮 P. 9-39
W	PN	2640	The command from the panel has been discarded because of a parent pipe overflow. (in panel driver)	*ditto*	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
W	PN	2650	Hardware button entry response error (in panel task)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	PN	C000	Undefined command reception Occurs when an undefined command has been received from operation. (in panel task)	*ditto*	- Check CBL-PNL. - Check PCB-ASSY-ARC.	- CBL-PNL - PANEL ASSY - PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 4-39 (11) 🕮 P. 9-39
W	RM	2B01	Resource file opening error	*ditto*	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
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. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
W	SM	4002	Unable to perform pipe lead	Restart the printer.	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	SM	4003	Small size of pipe lead message	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	SM	4004	Size of pipe lead message does not match the command	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	SM	4005	Undefined message command read from the pipe	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	SM	4006	Error with select	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	SN	6000	Setup access error	- Restart the printer. - Upgrade the firmware to the latest.	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SN	8810	The size of the received message is smaller than the message header.	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SN	8820	Message received while SNMP task has not started.	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SN	8821	CA command unknown by SNMP was received.	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SN	C000	MIB information build error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SN	C010	MIB information access error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SN	C020	Internal communication error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SP	4101	Unable to generate job	—	—	—	—
W	SP	A001	PJL entire size is too large	Check the port settings.	—	—	—
W	SP	A002	First line of PJL is too long	- Restart the printer. - Upgrade the firmware to the latest. - Reinstall the printer driver.	- Check received data. - Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
W	SP	A003	Incorrect PJL line head	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
W	SP	A004	Incorrect PJL command type	- Restart the printer. - Upgrade the firmware to the latest. - Reinstall the printer driver.	- Check received data. - Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
W	SP	A005	Incorrect PJL value type	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SP	A006	Incorrect PJL line format	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SP	A007	Incorrect PJL value	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
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. 9-39
W	SP	A102	Format automatic judgment failure	Check the port settings.	- Check received data. - Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
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.	*ditto*	—	—	—
W	SP	A110	No valid PDL was found at port %d.	*ditto*	—	—	—
W	SP	C001	Spool area overflow state (print spool)	—	—	—	—
W	SP	C002	Spool area overflow (submission document spool)	—	—	—	—
W	SP	C003	Spool area overflow (PDC 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 (PDC 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 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 Incorrect real FD when closing	—	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
W	SP	C802	Internal warning Write in overflow state	—	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	ST	C000	Function start (start process end)	—	—	—	—
W	ST	C001	EEPROM corruption error	—	—	—	—

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
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	ST	C008	MAC address input	—	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
W	SU	6001	The file cannot be imported	Check that the correct file has been selected for import	—	—	—
W	SU	6002	The file cannot be imported (ID file format error)	Check that the correct file has been selected for import	—	—	—
W	SU	6003	File that cannot be imported (unable to extract)	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
W	SU	6004	File system error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SU	6005	Unexpected programming error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SU	6006	Unable to export (unable to compress)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SU	6007	Unable to export (unable to output ID file)	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SU	6010	Unable to import user information DB	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SU	6011	Unable to import project information DB	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SU	6012	Unable to import smart card DB	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SU	6013	Unable to import setup	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SU	6014	Unable to export user information DB	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SU	6015	Unable to export project information DB	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SU	6016	Unable to export smart card DB	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SU	6017	Unable to export setup	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SU	6018	Unable to import NOR setup	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SU	6019	Unable to export NOR setup	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SU	6020	Could not completely import all settings	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SU	6021	Unable to import proxy user DB	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	SU	6022	Unable to export proxy user DB	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	TW	4000	Fatal error when initializing communication between tasks	—	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	TW	6000	Setup could not be read properly	- Restart the printer. - Initialize the setup. - Upgrade the firmware to the latest.	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	TW	8300	Socket general error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	TW	8301	Socket process error	- Restart the printer. - Initialize the setup. - Upgrade the firmware to the latest.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 9-39
W	TW	8302	Socket command error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	TW	8303	Socket read error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	TW	8304	Socket write error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 9-39
W	TW	8320	Network error	- Check communication with pint command. - Re-insert the network cable. - Check that the host computer has been turned on. - Check the printer's network settings. - Check the host computer's network settings. - Check the network condition and cable connections.	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	TW	8331	Network error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
W	TW	8333	Network error	- Check communication with pint command. - Re-insert the network cable. - Check that the host computer has been turned on. - Check the printer's network settings. - Check the host computer's network settings. - Check the network condition and cable connections.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	TW	8336	Network error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	TW	8337	Network error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	TW	8339	Network error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	TW	833C	Network error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	TW	833D	Network error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	TW	8341	Network error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	TW	8343	Network error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
W	TW	83FF	Other network error	*ditto*	*ditto*	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39

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

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (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	- Check that the roll paper is installed. - Check that the paper flange is fixed. - Check that the paper flange is installed correctly on the flange guide. - Check the roll paper's installation condition (see the ***User's Manual for Basic Printer Operation***, **Replacing the Roll Paper**). - Restart the printer.	- Check On/Off settings of PS11 to 12. - Check that CBL-RFU 11, 12, 22, and 31 are not shorted. - Check PS11 to 14 for the position and contact. - Check the position of flange guide. - Check that the paper flange is not deformed.	- PCB-ASSY-ARC - PCB-ASSY-AAC	🕮 P. 5-47 (4) 🕮 P. 9-39 🕮 P. 9-38
O			Front door	- Open and close the front door (see the ***User's Manual for Basic Printer Operation***, **Part Names and Functions** and **Removing a Paper Jam from Inside the Printer**). - Restart the printer.	- Check INT3 for position, contact, and On/Off setting. - Check CBL-INT1 for disconnection and contact. - Check CBL-INT3 for disconnection and contact. - Check that the actuator is not broken nor bent.	- PCB-ASSY-ARC - PCB-ASSY-AAC	🕮 P. 5-41 (1) 🕮 P. 9-39 🕮 P. 9-38
O			No toner	- Supply the toner (see the ***User's Manual for Basic Printer Operation***, **Replacing the Toner Cartridge**). - Restart the printer.	- Check remaining toner. - Check TS01 for On/Off setting. - Check CBL-DEV 1 and 2 for short circuit.	- PCB-ASSY-ARC - PCB-ASSY-AAC - Developer unit	🕮 P. 5-43 (2) 🕮 P. 9-39 🕮 P. 9-38 🕮 P. 9-20
O			Full waste toner bottle	- Replace the waste toner bottle (see the ***User's Manual for Basic Printer Operation***, **Part Names and Functions** and **Replacing the Waste Toner Bottle**). - Restart the printer.	- Check TS02 for On/Off setting. - Check the clearance between TS02 and waste toner bottle. - Check CBL-MECH1 for short circuit, removal, and disconnection. - Check CBL-TS02 for short circuit, removal, and disconnection. - Check that the waste toner bottle is not deformed.	- PCB-ASSY-ARC - PCB-ASSY-AAC	🕮 P. 5-45 (3) (b) 🕮 P. 9-39 🕮 P. 9-38
O			No waste toner bottle	- Reseat the waste toner bottle (see the ***User's Manual for Basic Printer Operation***, **Part Names and Functions** and **Replacing the Waste Toner Bottle**). - Restart the printer.	- Check MS05 for On/Off setting. - Check MS05 for contact. - Check MS05 position. - Check CBL-MECH1 for disconnection. - Check MS06-1 ASSY for disconnection. - Check that waste toner bottle is not deformed.	- PCB-ASSY-ARC - PCB-ASSY-AAC	🕮 P. 5-45 (3) (a) 🕮 P. 9-39 🕮 P. 9-38
			No process cartridge	- Open and close the fuser unit drawer. - Reseat the process cartridge (see the ***User's Manual for Basic Printer Operation***, **Part Names and Functions** and **Replacing the Process Cartridge**). - Restart the printer.	- Check PCB-ASSY-ACN1 for contact. - Check CBL-PRCS1 for open/short circuit. - Check PRCS1R for open/short circuit.	- Process cartridge - PCB-ASSY-ARC - PCB-ASSY-AAC	🕮 P. 9-129 🕮 P. 9-206 🕮 P. 9-39 🕮 P. 9-38
			Door opened Scanner cover	- Open and close the scanner cover (see the ***User's Manual for Basic Printer Operation***, **Part Names and Functions**, **When the Error Screen Appears**, and **Original Jam MF**). - Restart the printer.	- Check PSS09. - Check PCB-ASSY-ASC.	- PSS09 - PCB-ASSY-ASC - Scanner cover ASSY	🕮 P. 4-37 (4) 🕮 P. 9-165 🕮 P. 9-46 🕮 P. 9-160 (for reference)
			Door opened Fuser unit drawer	- Open and close the fuser unit drawer. - Restart the printer.	Check PS16 for On/Off setting.	PS16	🕮 P. 9-111
			Door opened Paper outlet cover	- Open and close the paper outlet cover. - Restart the printer.	- Check INT5 (MS06-1) for On/Off setting. - CBL-FUSER21/22/23 for open/short circuit.	- INT5(MS06-1) - CBL-FUSER21/ 22/23	🕮 P. 9-86
			Door opened Roll 1 Roll 2	- Open and close the drawer for rolls 1 and 2. - Check that the roll paper has been installed properly (see the ***User's Manual for Basic Printer Operation***, Part **Names and Functions** and **Replacing the Roll Paper**). - Restart the printer.	- Check PS21 for disconnection. - Check CBL-RFU 11 and 12 for contact and disconnection.	- PS21 - CBL-RFU11/12 - PCB-ASSY-ARC - PCB-ASSY-AAC	🕮 P. 5-41 (1) (b) (c) 🕮 P. 9-39 🕮 P. 9-38

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
			Door opened Roll 3 Roll 4	- Open and close the drawer for rolls 2 and 4. - Check that the roll paper has been installed properly (see the ***User's Manual for Basic Printer Operation***, **Part Names and Functions** and **Replacing the Roll Paper**). - Restart the printer.	- Check PS22 for disconnection. - Check CBL-RFU 31 and 12 for contact and disconnection.	- PS22 - CBL-RFU31/12 - PCB-ASSY-ARC - PCB-ASSY-AAC	🕮 P. 5-41 (1) (b) (c) 🕮 P. 9-39 🕮 P. 9-38
			No toner cartridge	- Check that toner cartridge has been installed. - Check that toner cartridge has been installed properly (see the ***User's Manual for Basic Printer Operation***, **Replacing the Toner Cartridge**). - Restart the printer.	- Check MS04 for On/Off setting. - Check MS04 for position and contact. - Check CBL-DEV 1 and 2 for short circuit. - Check that the toner cartridge is not deformed.	- PCB-ASSY-ARC - PCB-ASSY-AAC	🕮 P. 5-43 (2) 🕮 P. 9-39 🕮 P. 9-38
			No Folder connected	Check the Folder's power supply.	Check the Folder's connection cable.	- Folder's connection cable - PCB-ASSY-ARC - Board kept in the Folder	🕮 P. 9-39 🕮 P. 4-37 (1)
			Jam at scanner	- Following the panel indication, remove the jammed paper. - Open and close the scanner cover. - Restart the printer.	- Check PSS01 to 08, and PSS11 for position and On/Off setting. - Check CBLS-SENS1 and 2 for disconnection. - Check that PCB-ASSY-ASC CN3 is connected securely.	- PCB-ASSY-ASC - CIS unit	🕮 P. 6-6 (2) 🕮 P. 9-46
			Copy job box overflow	Restart the printer.	—	—	🕮 ***User's Manual for Basic Printer Operation*** 🕮 ***User's Manual for Multifunction Printer Operation***
			Submission job box overflow	*ditto*	—	—	🕮 ***User's Manual for Basic Printer Operation*** 🕮 ***User's Manual for Multifunction Printer Operation***
			Operation panel display abnormality	*ditto*	Clean CBL-PNL contact	- PANEL ASSY - PANEL ASSY PL - PCB-ASSY-ARC	🕮 P. 4-39 (11)

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

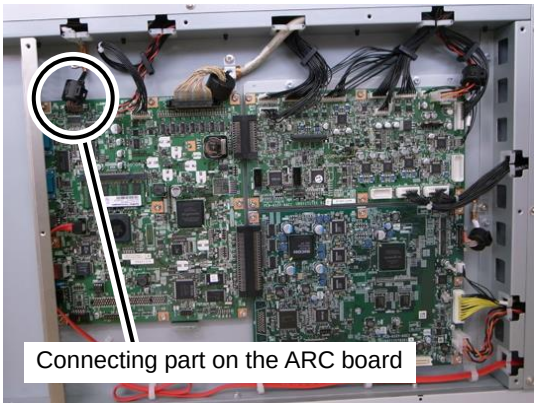
(11) Cleaning CBL-PNL contact

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 2060 MNT/PCB-ASSY-ARC2 MNT, [EEPROM] T2ARC-EEPROM MNT**)



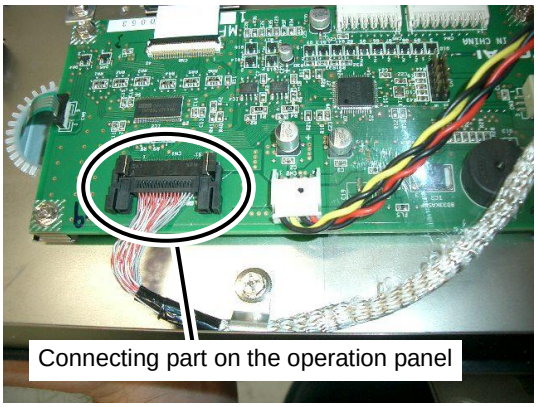
<Clean the connecting part on the ARC board with air>

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**)

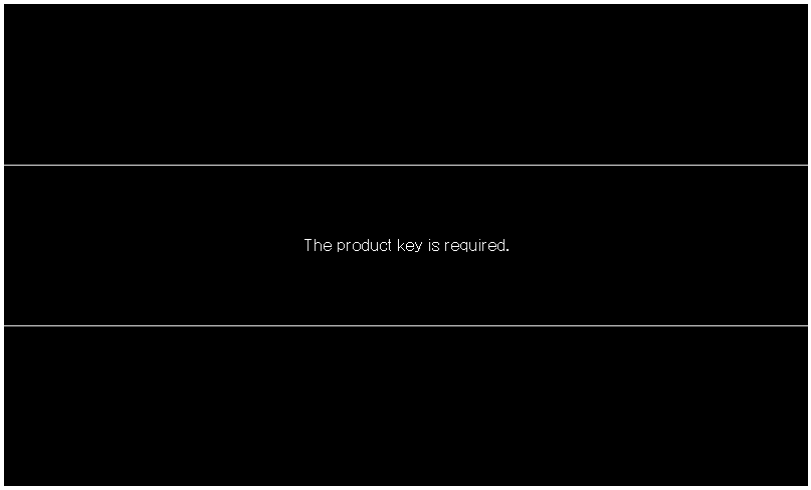


<Clean the connecting part on the operation panel with air>

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.

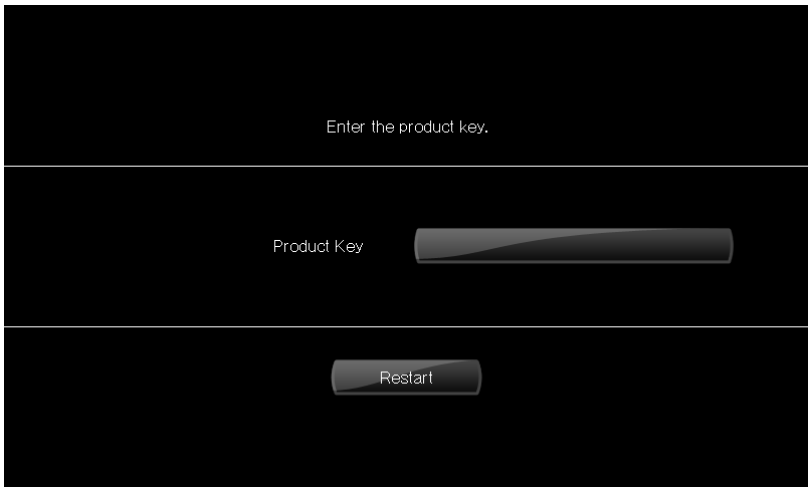
4.5 The product key is required error

The following screen may be displayed when the Printer starts.
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 product key for the Printer.



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

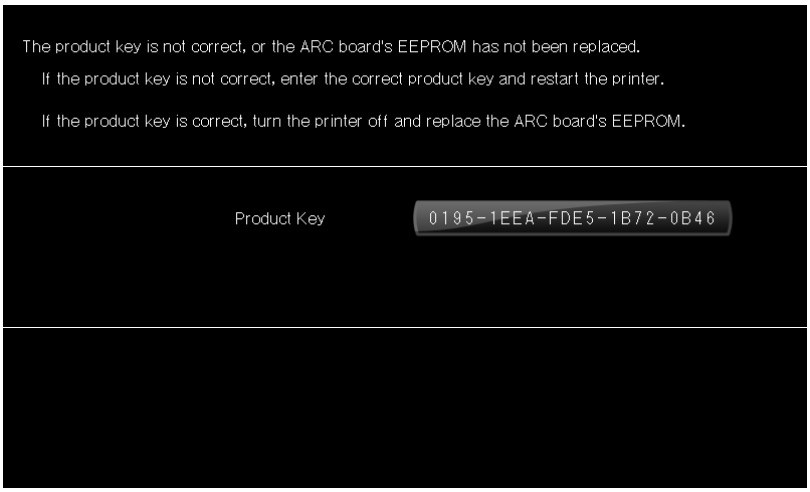
(1) Press **Enter** -> **Cancel** -> **Enter** -> **Enter**.
(2) The operation panel adjustment screen appears. Perform this adjustment.
(3) The maintenance mode password input screen appears. Input the login name and password.
(4) The product key setting screen appears. Input the product key.
Press the button next to Product Key to display a pop-up window that allows you to enter the product key.



(5) Once you input the product key, press the **Restart** button to restart the Printer.

4.6 The product key is not correct, or the ARC board's EEPROM has not been replaced error

The following error screen may be displayed when the Printer starts.



If the screen above is displayed, perform the following to solve the problem.

●If the product key displayed on the error screen is not correct.

<Instructions>

(1) Press the button next to **Product Key** on the error screen and enter the correct product key.

(2) Restart the Printer.

●If the ARC board EEPROM has not been replaced.

It is required to replace the EEPROM on the ARC board when replacing the ARC board.
See p.**9-39** for the ARC board EEPROM replacement procedure.

<Instructions>

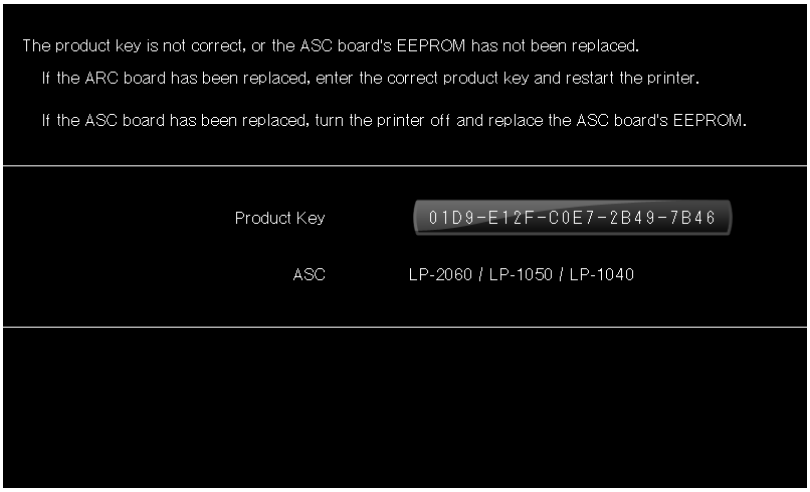
(1) Turn the Printer off.

(2) Replace the EEPROM of the newly installed ARC board with the EEPROM of the ARC board you have removed.

(3) Turn the Printer on.

4.7 The product key is not correct, or the ASC board's EEPROM has not been replaced error

The following error screen may be displayed when the Printer starts.



If the screen above is displayed, perform the following to solve the problem.

●If the error screen above is displayed when the Printer starts after the ARC board has been replaced.

<Instructions>

(1) Press the button next to **Product Key** on the error screen and enter the correct product key.

(2) Restart the Printer.

●If the error screen above is displayed when the Printer starts after the ASC board has been replaced.

It is required to replace the EEPROM on the ASC board when replacing the ASC board.

See p.**9-46** for the ASC board EEPROM replacement procedure.

<Instructions>

(1) Turn the Printer off.

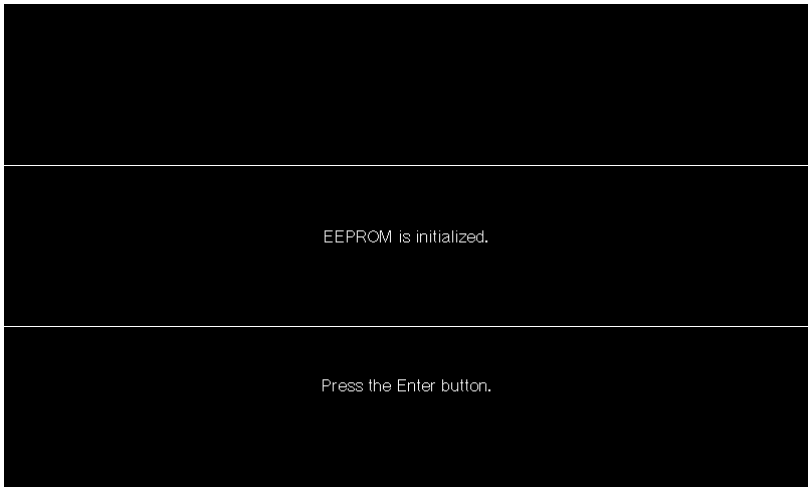
(2) Replace the EEPROM of the newly installed ASC board with the EEPROM of the ASC board you have removed.

(3) Turn the Printer on.

4.8 EEPROM is corrupted error

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) Press the **Enter** button when the screen below is displayed.
The Printer restarts after 10 to 20 seconds.



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

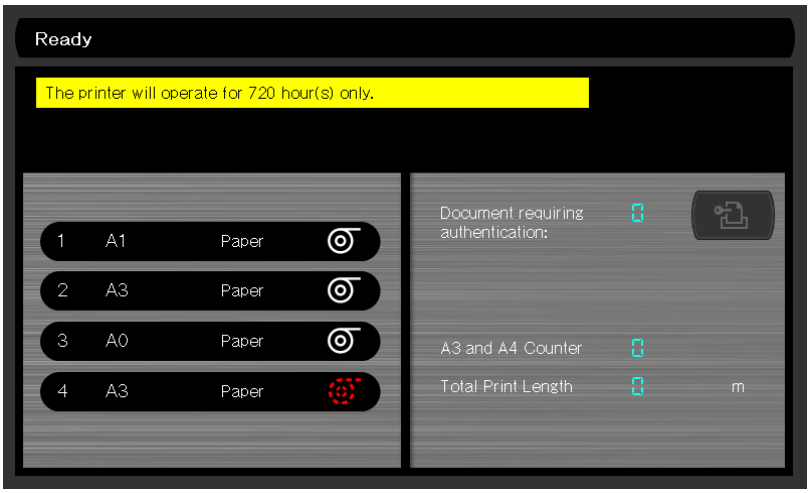
- Accounting information
- Options information
- Printer engine adjustment values

Note

- If the EEPROM is corrupted, you need to ask for a new EEPROM from the manufacturer.
- See **4.9 The printer will operate for 720 hour(s) only is displayed on the Ready screen**.

4.9 The printer will operate for 720 hour(s) only is displayed on the Ready screen

The message **The printer will operate for 720 hour(s) only** may be displayed highlighted in yellow on the Ready screen when the Printer starts.
When the message is displayed, the Printer may be used only for 720 hours.
After 720 hours, you will not be able to use the Printer anymore.
The number of hours remaining to use the Printer is displayed highlighted in yellow.



If the screen above is displayed, perform the following to solve the problem.

●If the EEPROM has not been replaced when replacing the ARC board.

When replacing the ARC board, if you have not replaced the EEPROM of the newly installed ARC board with the EEPROM of the ARC board you have removed, replace it.
See p.**9-39** for the ARC board EEPROM replacement procedure.

●If the product key is not correct.

Select **Menu** -> **Printer Information** on the panel to display the product key.
Check that the correct product key is set.

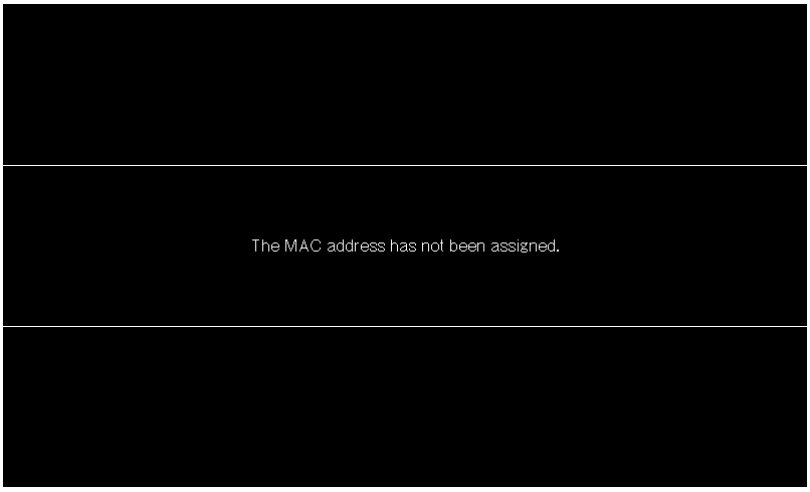
The correct product key is written on the sticker at the rear of the Printer.
If the product key is not correct, select **Menu (1/2)** -> **Menu (2/2)** -> **Enter Product Key**, and enter the correct product key.

●If the EEPROM is corrupted.

If the error screen displayed in **4.8 EEPROM is corrupted error** appears, you need to ask for a new EEPROM from the manufacturer.
Since you will be able to use the Printer only for 720 hours, ask for a new EEPROM and replace it within this period.
The time remaining to use the Printer is displayed on the panel.
Firmware options cannot be used until the EEPROM is replaced.
After replacing the corrupted EEPROM with the new EEPROM supplied, enter the option code again.

4.10 The MAC address has not been assigned error

The following error screen may be displayed on the panel when the Printer starts.

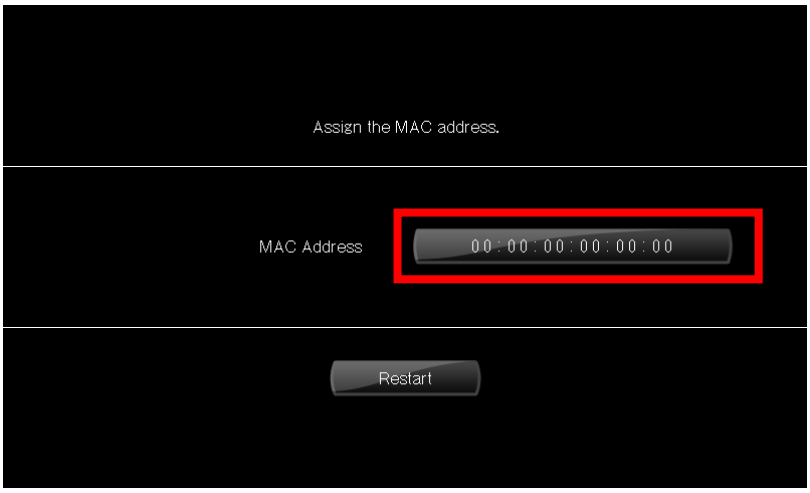


If the error above has occurred, perform the following to solve the problem.

(1) Press the **Enter** - **Cancel** - **Enter** - **Enter** buttons in the given order.

(2) On the password input screen for maintenance mode that appears, enter the login name and the password.

(3) The following screen where you can enter the MAC address is displayed.
Press the button next to **MAC Address** to display a pop-up window, and then enter the MAC address.



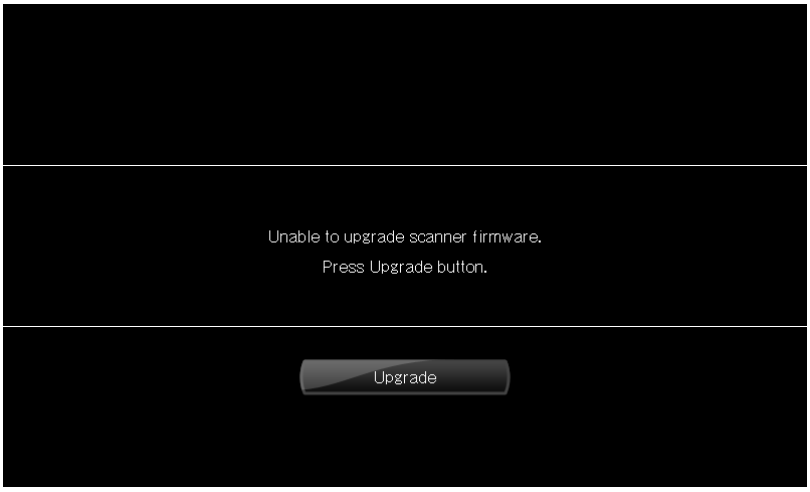
(4) Press the **Restart** button.
The Printer will restart after 10 to 20 seconds.

Note

This error screen may be displayed when the EEPROM has been damaged, due to ARC board replacement or other cause.
If the EEPROM is corrupted, you need to ask for a new EEPROM from the manufacturer.

4.11 Unable to upgrade scanner firmware error

The following error screen may be displayed on the panel when the Printer starts.



The error above is displayed when the scanner firmware has been damaged because the Printer has been turned off during firmware upgrade or other cause.
If the error above has occurred, perform the following to solve the problem.

(1) Connect the USB drive for upgrade to the ARC board.

(2) Press the **Upgrade** button on the error screen.

(3) The Upgrade screen is displayed. Perform the upgrade process.

(4) See **1.6.4 Upgrading Using the USB Drive (from the operation panel)** for details on how to upgrade the firmware on the Upgrade screen.

(5) After the upgrade process has finished, restart the Printer.

4.12 Error Log Reference

The error log also stores simple information on:

- the doors open/close status; and
- consumable conditions such as supply or replacement required.

Lists regarding such information are shown below.

An error number written in the log may appear until the related error is cleared. Consequently, combinations of error numbers and messages appearing in the log may differ from those listed below.

Table 4-5 Jam Error

Message	Error Description
jam 1 jam 2	Open the following door and clear the paper jam. Door 1: **Drawer for rolls 1 and 2**
jam 3 jam 4	Open the following door and clear the paper jam. Door 2: **Drawer for rolls 3 and 4**
jam 5	Open the following door and clear the paper jam. Door 5: **Fuser unit drawer** * Depending on the jam extent, you may also need to open Door 4: Paper outlet cover.
jam 6	Open the following door and clear the paper jam. Door 6: **Front door**
jam 7 jam 8	Open the following doors in the given order and clear the paper jam. Door 6: **Front door** Door 1: **Drawer for rolls 1 and 2**
jam 9 jam 10	Open the following doors in the given order and clear the paper jam. Door 6: **Front door** Door 2: **Drawer for rolls 3 and 4**

* In case of jam errors, the four-digit number displayed in the Error No column corresponds to a paper jam error code. Paper jam error codes are listed on the page 2-14.

Table 4-6 Door open

Error No.	Message	Error Description
1091	open Door 1	The following door is open. Door 1: **Drawer for rolls 1 and 2**
1092	open Door 2	The following door is open. Door 2: **Drawer for rolls 3 and 4**
1093	open Door 3	(Not displayed with the LP-2060)
1094	open Door 4	The following door is open. Door 4: **Paper outlet cover**
1095	open Door 5	The following door is open. Door 5: **Fuser unit drawer**
1096	open Door 6	The following door is open. Door 6: **Front door**
1097	open Door 7	The following door is open. Door 7: **Toner door/document table**

Table 4-7 Toner

Error No.	Message	Error Description
10A2	no Toner	No toner residue remains.
10A3	no TonerCartridge	No toner cartridge is installed.

Table 4-8 Waste Toner Bottle

Error No.	Message	Error Description
10A5	full Waste	The waste toner bottle is full.
10A6	no Waste Bottle	No waste toner bottle is installed.

Table 4-9 Process Cartridge

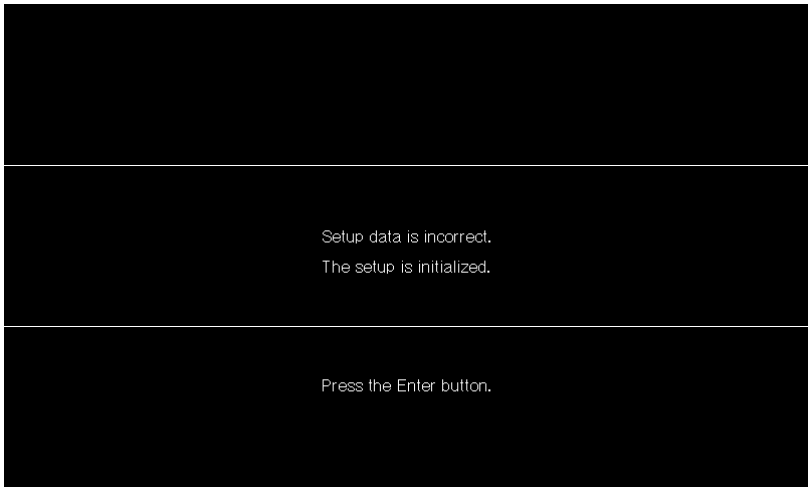
Error No.	Message	Error Description
10A9	no ProcessCartridge	No process cartridge is installed.

Table 4-10 Folder

Error No.	Message	Error Description
10B1	not Connect Finisher	- The Folder is turned off. - The communication cable is not connected.
10B2	jam Finisher	A paper jam has occurred in the Folder.
10B3	not Connect Finisher	The Folder is in service menu mode.
10B4	not Connect Finisher	The Folder is in manual mode.

4.13 Setup data is incorrect error

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 setup.

(2) After initialization has finished, the adjustment screen is displayed. Perform adjustment.

(3) After the adjustment is complete, the reboot screen is displayed and the printer restarts.

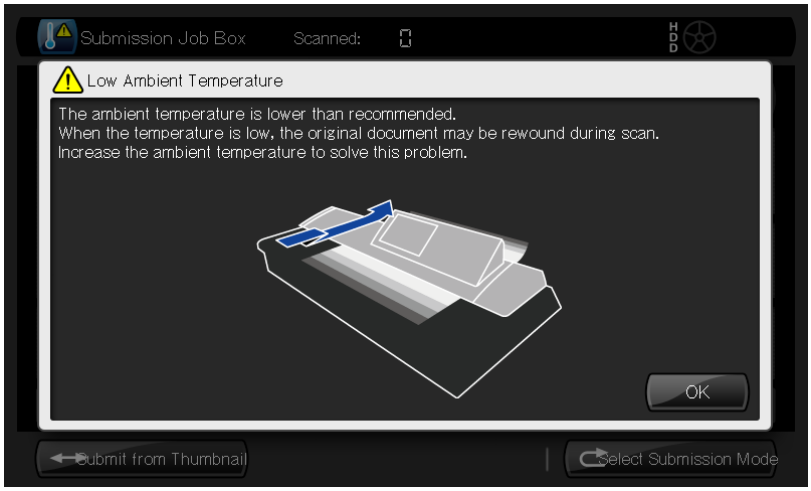
4.14 Low Ambient Temperature Warning

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.**

4.15 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
- Product key deletion (the product key should not be deleted unless expressly specified to do so)

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.**

4.15.1 How to Use Specific Operation

Only the hardware buttons are used.
Specific operations include HDD check, HDD format and product key deletion.
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
3. Delete Product Key
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
3. Delete Product Key
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
3. Delete Product Key
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.

4.15.2 Panel adjustment screen shortcut

If you cannot press the buttons you want on the panel because the touchpanel adjustment values are incorrect, perform the procedure below to display the panel adjustment screen and to adjust the panel again.

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

(2) Press the following physical buttons in the given order.

+/-, **Cancel**, **C**, **Enter**

(3) Perform panel adjustment on the adjustment screen that is displayed.

Chapter 5 Engine Problems Troubleshooting

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 help you 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 (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	EN	2010	FMxx (paper feed pulse motor x) trouble				
E	EN	2011	FM01 (paper feed pulse motor 1) trouble	- Restart the printer. - Open and close each door.	- Open and close the front door (see the ***User's Manual for Basic Printer Operation***, Part Names and Functions and Removing a Paper Jam from Inside the Printer). - Check MS18 for On/Off setting, position, and contact. - Check INT3 for On/Off setting, position, and contact. - Check CBL-INT1 for open/short circuit. - Check CBL-INT3 for open/short circuit. - Check CBL-RASDC for open/short circuit. - Check CBL-FUSER11 for open/short circuit. - Check CBL-FUSER12 for open/short circuit.	- MS18 - INT3 - CBL-RASDC - PSU-T2 - CBL-RFU11 - CBL-RFU12 - PCB-ASSY-AAC - PCB-ASSY-ARC	🕮 P. 5-15 (3) 🕮 P. 9-107 🕮 P. 9-48 🕮 P. 9-38 🕮 P. 9-39
E	EN	2012	*ditto*	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	2013	*ditto*	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	2014	FM02 (paper feed pulse motor 02) trouble	*ditto*	*ditto*	- MS18 - INT3 - CBL-RASDC - PSU-T2 - CBL-RFU22 - CBL-RFU11 - PCB-ASSY-AAC - PCB-ASSY-ARC	*ditto*
E	EN	2015	*ditto*	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	2016	*ditto*	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	2017	FM03 (paper feed pulse motor 03) trouble	*ditto*	*ditto*	- MS18 - INT3 - CBL-RASDC - PSU-T2 - CBL-RFU31 - CBL-RFU12 - PCB-ASSY-AAC - PCB-ASSY-ARC	*ditto*
E	EN	2018	*ditto*	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	2019	*ditto*	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	201A	FM04 (paper feed pulse motor 04) trouble	*ditto*	*ditto*	- MS18 - INT3 - CBL-RASDC - PSU-T2 - CBL-RFU31 - CBL-RFU22 - PCB-ASSY-AAC - PCB-ASSY-ARC	*ditto*
E	EN	201B	*ditto*	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	201C	*ditto*	*ditto*	*ditto*	*ditto*	*ditto*

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	EN	2021	HM01 (heat roller pulse motor) trouble	- Restart the printer. - Open and close the paper outlet cover. - Open and close the fuser unit drawer. - Open and close each door. - Reverse the SCOROTRON CHARGER UNIT. - Upgrade the firmware to the latest.	- Open and close the front door (see the ***User's Manual for Basic Printer Operation***, Part Names and Functions and Removing a Paper Jam from Inside the Printer). - Check INT5 (MS06-1, MS06-2) On/Off setting, position, and contact. - Check MS18 for On/Off setting, position, and contact. - Check INT3 for On/Off setting, position, and contact. - Check CBL-INT1 for open/short circuit. - Check CBL-INT3 for open/short circuit. - Check CBL-RASDC for open/short circuit. - Check CBL-FUSER11 for open/short circuit. - Check CBL-FUSER12 for open/short circuit.	- INT5 (MS06-1,MS06-2) - MS18 - INT3 - CBL-RASDC - PSU-T2 - CBL-FUSER11 - CBL-FUSER12 - PCB-ASSY-AAC - PCB-ASSY-ARC	🕮 P. 5-12 (1) 🕮 P. 9-86 🕮 P. 9-107 🕮 P. 9-48 🕮 P. 9-38 🕮 P. 9-39
E	EN	2022	*ditto*	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	2023	PM01 (process motor) trouble	- Restart the printer. - Open and close the paper outlet cover. - Open and close the fuser unit drawer. - Open and close each door. - Reverse the SCOROTRON CHARGER UNIT's right and left.	- Clean the contacts at both ends of the SCOROTRON CHARGER UNIT. - Check the contacts and clean the plate springs on the side and upper parts inside the Printer. - Check INT5 (MS06-1 and MS06-2) On/Off setting, position, and contact. - Check MS18 for On/Off setting, position, and contact. - Check INT3 for On/Off setting, position, and contact. - Check CBL-INT1 for open/short circuit. - Check CBL-INT3 for open/short circuit. - Check CBL-RASDC for open/short circuit. - CBL-PM for open/short circuit. - CBL-PMDC for open/short circuit. - Check CL04 operation. - Check visually for abnormal electrical discharge from the developing to the photoconductor drum.	- INT5 (MS06-1 and MS06-2) - MS18 - INT3 - CBL-RASDC - PSU-T2 - CBL-FUSER11 - CBL-FUSER12 - PCB-ASSY-AAC - PCB-ASSY-ARC - Developer unit	🕮 P. 5-13 (2) 🕮 P. 9-86 🕮 P. 9-107 🕮 P. 9-48 🕮 P. 9-38 🕮 P. 9-39
E	EN	2024	GM01 (developer unit pulse motor) trouble	- Restart the printer. - Open and close each door.	- Check MS18 for On/Off setting, position, and contact. - Check INT3 for On/Off setting, position, and contact. - Check CBL-INT1 for open/short circuit. - Check CBL-INT3 for open/short circuit. - Check CBL-RASDC for open/short circuit. - Check CBL-MECH3 for open/short circuit. - Check CBL-DEV2 for open/short circuit.	- MS18 - INT3 - CBL-INT1 - CBL-INT3 - CBL-RASDC - PSU-T2 - CBL-MECH3 - CBL-DEV2 - PCB-ASSY-AAC - PCB-ASSY-ARC	🕮 P. 5-12 (1) 🕮 P. 9-107 🕮 P. 9-48 🕮 P. 9-38 🕮 P. 9-39
E	EN	2025	GM01 (developer unit pulse motor) trouble	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	2026	GM01 (developer unit pulse motor) trouble	*ditto*	*ditto*	*ditto*	*ditto*

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	EN	2027	TM01 (paper feed pulse motor) trouble	- Restart the printer. - Open and close each door.	- Check MS18 for On/Off setting, position, and contact. - Check INT3 for On/Off setting, position, and contact. - Check CBL-INT1 for open/short circuit. - Check CBL-INT3 for open/short circuit. - Check CBL-RASDC for open/short circuit. - Check CBL-TM for open/short circuit.	- MS18 - INT3 - CBL-INT1 - CBL-INT3 - CBL-RASDC - PSU-T2 - CBL-TM - PCB-ASSY-AAC - PCB-ASSY-ARC	🕮 P. 5-12 (1) 🕮 P. 9-107 🕮 P. 9-48 🕮 P. 9-38 🕮 P. 9-39
E	EN	2028	TM01 (paper feed pulse motor) trouble (rewinding)	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	2029	TM01 (paper feed pulse motor) trouble (high speed)	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	202A	TM01 (paper feed pulse motor) trouble	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	202B	TM01 (paper feed pulse motor) trouble	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	2030	Power supply problem (problem with 50Hz/60Hz judgment value)	Restart the printer.	Check CBL-ARCCNT for open/short circuit.	- PSU-T2 - PCB-ASSY-ARC	🕮 P. 5-15 (4) 🕮 P. 9-39 🕮 P. 9-48
E	EN	2031	High voltage power supply problem (other than CH3: CC, DB, DC); too much load on high voltage output	- Restart the printer. - Reverse the SCOROTRON CHARGER UNIT's right and left.	- Clean the contacts at both ends of the SCOROTRON CHARGER UNIT. - Check the contacts and clean the plate springs on the side and upper parts inside the Printer. - Check that CH1, 2, 4 output normally. - Check the process cartridge wire for smear, foreign particles, and loose. - Check the contact between developer unit and developer bias terminal. - Check the transfer/detack corotron for smear, foreign particles, and loose. - Check CBL-HV1 for short circuit. - Check CBL-HV2 for short circuit. - Check CBL-HV21 for short circuit. - Check CBL-HV4 for short circuit. - Check CBL-HV41 for short circuit.	- SCOROTRON CHARGER UNIT - Process cartridge - Developer unit - Separator unit - PCB-ASSY-ARC - CBL-HV1 - CBL-HV2 - CBL-HV21 - CBL-HV4 - CBL-HV41	🕮 P. 5-13 (2) 🕮 P. 5-16 (5) 🕮 P. 9-20 🕮 P. 9-207 🕮 P. 9-53 🕮 P. 9-39
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. - Check the transfer/detack corotron roller for foreign particles. - Check that the transfer/detack corotron are installed properly. - Check CBL-HV31 for short circuit.	- Transfer/detack corotron - CBL-HV31	🕮 P. 5-17 (6) 🕮 P. 9-207 🕮 P. 9-53
E	EN	2035	LED head correction data transmission error (timeout)	*ditto*	- Check CBL-LEDHDC for disconnection or short circuit. - Check that the LED head 5V outputs normally.	- CBL-LEDH1 - CBL-LEDHDC - LED head - PSU-T2 - PCB-ASSY-ARC	🕮 P. 5-17 (7) 🕮 P. 9-204 🕮 P. 9-39 🕮 P. 9-48
E	EN	2036	Led head correction data transmission error （header error)	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	2037	LED head correction data transmission error (footer error)	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	203A	Power supply problem (problem with ZERO value)	- Restart the printer. - Upgrade the firmware to the latest.	Check CBL-ARCCNT for open/short circuit.	- Low-voltage power supply - PCB-ASSY-ARC	🕮 P. 5-15 (4) 🕮 P. 9-39 🕮 P. 9-48

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	EN	2081	TH02 (overheat thermistor) has detected overheating in the fuser.	Restart the printer.	- Check TH01 for installation, smear, and short circuit. - Check TH02 for short circuit. - Check CBL-FUSER21 for short circuit. - Check CBL-FUSER22 for short circuit. - Check CBL-FUSER23 for short circuit.	- TH01 - TH02 - CBL-FUSER21 - CBL-FUSER22 - CBL-FUSER23 - PCB-ASSY-ARC - PCB-ASSY-AAC - Fuser unit	🕮 P. 5-17 (8) 🕮 P. 9-80 🕮 P. 9-39 🕮 P. 9-38 🕮 P. 9-55
E	EN	2082	TH01 (fuser temperature control thermistor) problem. Extremely hot (possible cable short).	*ditto*	- Check TH01 for short circuit. - Check TH02 for short circuit. - Check CBL-FUSER21 for short circuit. - Check CBL-FUSER22 for short circuit. - Check CBL-FUSER23 for short circuit.	- TH01 - TH02 - CBL-FUSER21 - CBL-FUSER22 - CBL-FUSER23 - PCB-ASSY-ARC - PCB-ASSY-AAC	🕮 P. 5-18 (9) 🕮 P. 5-17 (8) 🕮 P. 9-80 🕮 P. 9-39 🕮 P. 9-38
E	EN	2083	TH01 (fuser temperature control exceeded the fuser's maximum allowed temperature.	*ditto*	- Check BL02 and 06 for rotation. - Check TH01 for short circuit. - Check TH04 for short circuit. - Check CBL-FUSER21 for short circuit. - Check CBL-FUSER22 for short circuit. - Check CBL-FUSER23 for short circuit. - Check that the ozone filter is not clogged.	- BL02 - BL06 - TH01 - TH04 - CBL-FUSER21 - CBL-FUSER22 - CBL-FUSER23 - Ozone filter	🕮 P. 5-18 (10) 🕮 P. 9-222 🕮 P. 9-80
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.	- Restart the printer. - Open and close the paper outlet cover. - Open and close the fuser unit drawer. - Open and close each door.	- Check for voltage reduction in user power supply. - Check INT5 (MS06-1 and MS06-2) On/Off setting, position, and contact. - Check MS18 On/Off setting, position, and contact. - Check INT3 On/Off setting, position, and contact. - Check that the halogen heater lights on. - Temperature fuse for continuity. - Check FL01/FL02 for continuity. - Check TH01 for connector quantity, paper particle, slight removal, bentness, smear, and open circuit. - Check TH02 for connector quantity, paper particle, slight removal, bentness, smear, and open circuit. - Check TH04 for connector quantity, paper particle, slight removal, bentness, smear, and open circuit. - Check CBL-FUSER11 for open circuit. - Check CBL-FUSER12 for open circuit. - Check CBL-FUSER21 for short circuit. - Check CBL-FUSER22 for short circuit. - Check CBL-FUSER23 for short circuit. - Check Cable (Halogen) for open circuit. - Check CBL-ARCCNT for open/short circuit.	- INT3 - INT5 (MS06-1 and MS06-2) - Halogen heater - Temperature fuse ASSY - MS18 - FL01 - FL02 - TH01 - TH02 - TH04 - CBL-FUSER11 - CBL-FUSER12 - PSU-T2 - PCB-ASSY-ARC - CBL-FUSER21 - CBL-FUSER22 - CBL-FUSER23 - PCB-ASSY-AAC - Cable (Halogen) - CBL-ARCCNT	🕮 P. 5-19 (11) 🕮 P. 9-70 🕮 P. 9-80 🕮 P. 9-48 🕮 P. 9-39 🕮 P. 9-38
E	EN	2085	TH03 (LED head temperature measurement thermistor) problem	Restart the printer.	- Check TH03 for short circuit. - Check CBL-MECH2 for short circuit.	- CBL-MECH2 - PCB-ASSY-ARC - PCB-ASSY-AAC - LED head	🕮 P. 5-20 (12) 🕮 P. 9-39 🕮 P. 9-38 🕮 P. 9-204
E	EN	2086	TH03 (LED head temperature measurement thermistor) has exceeded the maximum temperature of the LED head	*ditto*	- Check BL01 and 02 for rotation. - Check BL06 for rotation. - Check TH03 for short circuit. - Check CBL-MECH2 for short circuit. - Check that the ozone filter is not clogged.	- BL01 - BL02 - BL06 - CBL-MECH2 - LED head	🕮 P. 5-20 (13) 🕮 P. 9-54 🕮 P. 9-204

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	EN	2087	TH04 (fuser temperature control thermistor) problem. Extremely hot (possible cable short).	Restart the printer.	- Check TH01 for short circuit. - Check TH04 for short circuit. - Check CBL-FUSER21 for short circuit. - Check CBL-FUSER22 for short circuit. - Check CBL-FUSER23 for short circuit.	- TH01 - TH04 - CBL-FUSER21 - CBL-FUSER22 - CBL-FUSER23 - PCB-ASSY-ARC - PCB-ASSY-AAC - Halogen heater	🕮 P. 5-18 (9) 🕮 P. 9-80 🕮 P. 9-39 🕮 P. 9-38 🕮 P. 9-70
E	EN	2088	TH04 (fuser temperature control thermistor) has exceeded the fuser's maximum allowed temperature.	*ditto*	- Check BL02 and 06 for rotation. - Check TH01 for short circuit. - Check TH04 for short circuit. - Check CBL-FUSER21 for short circuit. - Check CBL-FUSER22 for short circuit. - Check CBL-FUSER23 for short circuit. - Check that the ozone filter is not clogged.	- BL02 - BL06 - TH01 - TH04 - CBL-FUSER21 - CBL-FUSER22 - CBL-FUSER23 - Ozone filter	🕮 P. 5-18 (9) 🕮 P. 5-18 (10) 🕮 P. 9-55 🕮 P. 9-80
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.	*ditto*	- Check that the halogen heater lights on. - Temperature fuse for continuity. - Check FL01/FL02 for continuity. - Check TH01 for connector quantity, paper particle, slight removal, bentness, smear, and open circuit. - Check TH02 for connector quantity, paper particle, slight removal, bentness, smear, and open circuit. - Check TH04 for connector quantity, paper particle, slight removal, bentness, smear, and open circuit. - Check CBL-FUSER11 for open circuit. - Check CBL-FUSER12 for open circuit. - Check CBL-FUSER21 for short circuit. - Check CBL-FUSER22 for short circuit. - Check CBL-FUSER23 for short circuit. - Check Cable (Halogen) for open circuit. - Check CBL-ARCCNT for open/short circuit.	- Halogen heater - Temperature fuse ASSY - FL01 - FL02 - TH01 - TH02 - TH04 - CBL-FUSER11 - CBL-FUSER12 - PSU-T2 - PCB-ASSY-ARC - CBL-FUSER21 - CBL-FUSER22 - CBL-FUSER23 - PCB-ASSY-AAC - Cable (Halogen) - CBL-ARCCNT	🕮 P. 5-19 (11) 🕮 P. 9-85 🕮 P. 9-70 🕮 P. 9-80 🕮 P. 9-48 🕮 P. 9-39 🕮 P. 9-38

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	EN	208A	The temperature difference between TH01 and TH04 is too large.	- Restart the printer. - Open and close the paper outlet cover. - Open and close the fuser unit drawer. - Open and close each door. - Upgrade the firmware to the latest.	- Check INT5 (MS06-1 and MS06-2) On/Off setting, position, and contact. - Check MS18 On/Off setting, position, and contact. - Check INT3 On/Off setting, position, and contact. - Check BL02 and 06 for rotation. - Check that the halogen heater lights on. - Temperature fuse for continuity. - Check FL01/FL02 for continuity. - Check TH01 for connector quantity, paper particle, slight removal, bentness, smear, and open/short circuit. - Check TH04 for connector quantity, paper particle, slight removal, bentness, smear, and open/short circuit. - Check CBL-FUSER11 for open circuit. - Check CBL-FUSER12 for open circuit. - Check CBL-FUSER21 for short circuit. - Check CBL-FUSER22 for short circuit. - Check CBL-FUSER23 for short circuit. - Check Cable (Halogen) for open circuit. - Check that the ozone filter is not clogged. - Check CBL-ARCCNT for open/short circuit.	- INT5 (MS06-1 and MS06-2) - BL02 - BL06 - Temperature fuseASSY - FL01 - FL02 - TH01 - TH04 - CBL-FUSER11 - CBL-FUSER12 - PSU-T2 - PCB-ASSY-ARC - CBL-FUSER21 - CBL-FUSER22 - CBL-FUSER23 - PCB-ASSY-AAC - Ozone filter - Cable (Halogen) - CBL-ARCCNT - PSU-T2 - PCB-ASSY-ARC	🕮 P. 5-19 (11) 🕮 P. 9-64 🕮 P. 9-86 🕮 P. 9-85 🕮 P. 9-70 🕮 P. 9-80 🕮 P. 9-48 🕮 P. 9-39 🕮 P. 9-38
E	EN	208B	TH05 (backup roller temperature measurement thermistor) problem	- Restart the printer. - Open and close the fuser unit drawer.	- Check TH05 for connector quantity, paper particle, slight removal, bentness, smear, and open/short circuit. - Check CBL-FUSER21 for open/short circuit. - Check CBL-FUSER22 for open/short circuit. - Check CBL-FUSER23 for open/short circuit.	- LED head - CBL-FUSER21 - CBL-FUSER22 - CBL-FUSER23 - PCB-ASSY-AAC - PCB-ASSY-ARC	🕮 P. 9-204 🕮 P. 9-39 🕮 P. 9-38
E	EN	208C	TH06 (humidity sensor unit temperature measurement thermistor) problem	*ditto*	Check CBL-MECH1 for open/short circuit.	- CBL-MECH1 - Hygrothermal sensor - PCB-ASSY-AAC - PCB-ASSY-ARC	🕮 P. 9-104 🕮 P. 9-39 🕮 P. 9-38
E	EN	208D	HU01 (humidity sensor) problem	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	20BF	No folding completion notice from the Folder	- Restart the printer. * This error may occur when printing with the Folder bridge in the upper position. - 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. 4-37 (1) 🕮 P. 9-39
E	EN	20C2	EEPROM checksum error (system parameter)	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	20C3	EEPROM checksum error (system parameter)	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	20C4	EEPROM checksum error (print distance after part replacement)	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	20C5	EEPROM checksum error (print distance after part cleaning)	*ditto*	*ditto*	*ditto*	*ditto*

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	EN	20C8	EEPROM checksum error (unrecoverable error log)	Restart the printer.	Check PCB-ASSY-ARC.	PCB-ASSY-ARC	🕮 P. 4-37 (1) 🕮 P. 9-39
E	EN	20C9	EEPROM checksum error (paper jam error log)	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	20CA	EEPROM checksum error (process cartridge usage log)	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	20D1	EEPROM checksum error with engine control parameter 100 to 199	- Restart the printer. - Upgrade the firmware to the latest.	- Check PCB-ASSY-ARC. - Check EEPROM.	- EEPROM - PCB-ASSY-ARC	🕮 P. 4-38 (8) 🕮 P. 9-39
E	EN	20D2	EEPROM checksum error with engine control parameter 200 to 299	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	20D3	EEPROM checksum error with engine control parameter 300 to 399	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	20D4	EEPROM checksum error with engine control parameter 400 to 499	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	20D5	EEPROM checksum error with engine control parameter 500 to 599	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	20D6	EEPROM checksum error with engine control parameter 600 to 699	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	20D7	EEPROM checksum error with engine control parameter 700 to 799	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	20D8	EEPROM checksum error with engine control parameter 800 to 899	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	2E40	Unable to complete the actuator communication initialization.	*ditto*	- Check PCB-ASSY-ARC for contact. - Check PCB-ASSY-AAC for contact.	- PCB-ASSY-ARC - PCB-ASSY-AAC	🕮 P. 5-21 (17) 🕮 P. 4-37 (1) 🕮 P. 9-39 🕮 P. 9-38
E	EN	2E50	Actuator communication's output port write error	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	2E51	Actuator communication's packet error	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	2E52	Actuator communication's parity error	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	2E53	Actuator communication's Communication timeout	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	2E54	Actuator communication's buffer overflow error	*ditto*	*ditto*	*ditto*	*ditto*
E	EN	2F01	FM01 Timeout	Restart the printer.	Check FM01	FM01	🕮 P. 2-22
E	EN	2F02	FM02 Timeout	*ditto*	Check FM02	FM02	🕮 P. 2-22
E	EN	2F03	FM03 Timeout	*ditto*	Check FM03	MF03	🕮 P. 2-22
E	EN	2F04	FM04 Timeout	*ditto*	Check FM04	FM04	🕮 P. 2-22
E	EN	2F11	HM01 Timeout	*ditto*	Check HM01	HM01	🕮 P. 2-22

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	EN	2F21	GM01 Timeout	Restart the printer.	Check GM01	GM01	P. 2-22
E	EN	2F31	TM01 Timeout	*ditto*	Check TM01	TM01	P. 2-22
E	EN	2F41	PM01 Timeout	*ditto*	Check PM01	PM01	P. 2-22

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

◆ 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).

No

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

Yes

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

No

Mechanical check

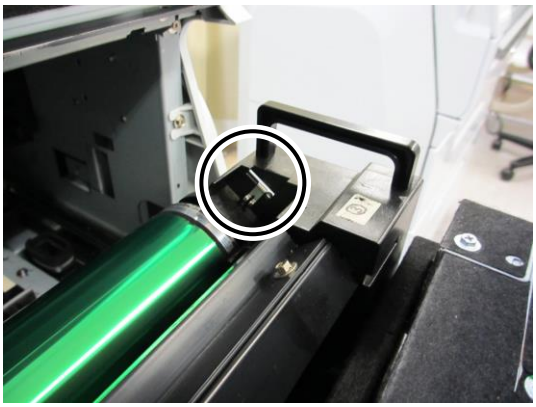
◆ Check the high voltage power system

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.

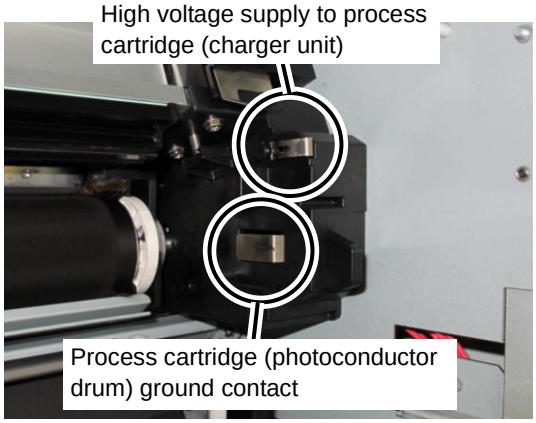
1. Grease at the high voltage supply contact with the charger unit inside the process cartridge.

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.



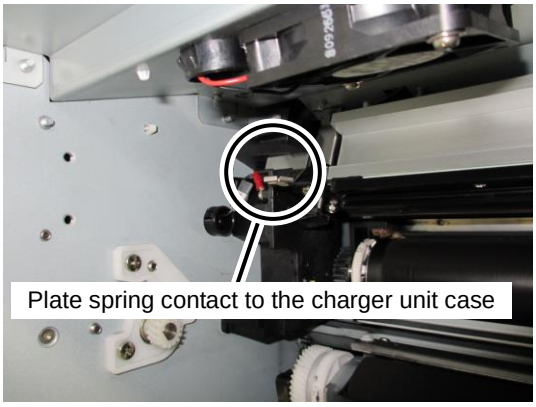
2. Grease at the high voltage supply and ground contacts with the process cartridge inside the Printer.

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(MS06).
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-RFU11 and CBL-RFU22 for a short or open circuit.
- FM03 Problem
  Check CBL-RFU31 and CBL-RFU12 for a short or open circuit.
- FM04 Problem
  Check CBL-RFU31 and CBL-RFU22 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 5-14.
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's Voltage and 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 (dirt or foreign matter on the needle electrode). (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's Voltage and 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 between the LED head's CN2-1 and CN2-2 +5VDC?

Yes

- ◆ Check CBL-LEDH1.

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

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.

(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 the problem persists, 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 the problem persists, 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 operates 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 the problem persists, 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 the problem persists, 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 the problem persists, 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 the problem persists, 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 (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 The Printer detects the cutter blade at neither right nor left home position.	- Open the roll paper drawer, and check that neither foreign particle nor paper particle is found around the cutter. - If the cutter is not at the right or left arrow position, move it to the position. - Check the paper type settings (see the ***User's Manual for Basic Printer Operation***). - Install the Oki Data official paper, or replace the current roll paper (see the ***User's Manual for Basic Printer Operation***). - Restart the printer.	- Check that neither foreign particle nor paper particle is found in the cutter unit. - Check the paper specifications. - Check RE03 for On/Off setting. - Check RE04 for On/Off setting. - Check for open/short circuit on CBL-CUT1 and CUT2. - Check the stop position of RE03 and -04 and cutter blade.	- PCB-ASSY-ARC - PCB-ASSY-AAC - Cutter unit - CBL-CUT1 - CBL-CUT2	🕮 P. 5-30 (3) 🕮 P. 9-39 🕮 P. 9-38 🕮 P. 9-18
	JAM	3043	Problem occurred when the cutter blade is moving The printer detected the cutter blade on the right and left home positions.	*ditto*	*ditto*	*ditto*	*ditto*
	JAM	3045	Problem occurred when the cutter blade is moving The cutter blade does not move from the home position.	*ditto*	*ditto*	*ditto*	*ditto*
	JAM	3046	Problem occurred when the cutter blade is moving After moving the cutter blade from one home position, the printer does not detect the cutter blade on the other home position.	*ditto*	*ditto*	*ditto*	*ditto*
	JAM	3047	Problem occurred when the cutter blade is moving After reaching the home position, the cutter blade did not stop on the home position.	*ditto*	*ditto*	*ditto*	*ditto*

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
	JAM	3401	The lead edge of the paper is reaching PS04 too quickly.	- Remove the paper particles following the operation panel indication. - Check that the paper flange is fixed. - Check that the paper flange is installed on the flange guide properly. - When the paper head edge is bent, folded, or burred, cut the paper edge. - Check that the roll paper is installed properly (see the ***User's Manual for Basic Printer Operation***, **Replacing the Roll Paper**). - Install the Oki Data official paper, or replace the current roll paper (see the ***User's Manual for Basic Printer Operation***). - Restart the printer.	- Check that the paper and paper flange are installed properly. - Check that no foreign particle is found on the paper feed roller's surface. - Check that the paper head edge is not bent, folded, or burred. Perform 3042-3047 problem analysis. - Check that PS04 is installed securely and its lever functions normally. - Check the paper delivery path to PS04.	- PS04 - Cutter unit - PCB-ASSY-ARC - PCB-ASSY-AAC	🕮 P. 5-30 (4) 🕮 P. 9-129 🕮 P. 9-39 🕮 P. 9-38 🕮 P. 9-18
	JAM	3402	The lead edge of the paper is reaching PS04 too quickly.	*ditto*	*ditto*	*ditto*	*ditto*
	JAM	3403	The lead edge of the paper is not reaching PS04.	*ditto*	- Check the paper is installed properly. - Check that no paper particle is found at PS04. - Check that the paper head edge is not bent, folded, or burred. Perform 3042-3047 problem analysis. - Check PS04 for On/Off setting. - Check CBL-CUT1 for open/short circuit. - Check that FM01 and 02 rotate. - Perform 2021 problem analysis.	- PS04 - MS18 - INT3 - HM01 - PCB-ASSY-AAC - PCB-ASSY-ARC - Cutter unit - CBL-CUT1	🕮 P. 5-31 (5) 🕮 P. 9-129 🕮 P. 9-110 🕮 P. 9-39 🕮 P. 9-38 🕮 P. 9-18
	JAM	3404	The lead edge of the paper is not reaching PS04.	*ditto*	*ditto*	*ditto*	*ditto*
	JAM	3491	When rewinding the roll paper, it is reaching PS04 too quickly.	*ditto*	- Check that the paper and paper flange are installed properly. - Check that the paper head edge is not bent, folded, or burred. Perform 3042-3047 problem analysis. - Check that PS04 is installed securely and its lever functions normally. - Check the paper delivery path from PS04 to PS05.	- PS04 - Cutter unit - PCB-ASSY-ARC - PCB-ASSY-AAC	🕮 P. 5-32 (6) 🕮 P. 9-129 🕮 P. 9-39 🕮 P. 9-38 🕮 P. 9-18
	JAM	3492	When rewinding the roll paper, it is reaching PS04 too quickly.	*ditto*	*ditto*	*ditto*	*ditto*
	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.	*ditto*	- Check the paper is installed properly. - Check that no paper particle is found at PS04. - Check that the paper head edge is not bent, folded, or burred. Perform 3042-3047 problem analysis. - Check PS04 for On/Off setting. - Check CBL-CUT1 for open/short circuit. - Check that FM01 and 02 rotate. - Check the pinch roller pressure. - Perform 2021 problem analysis.	- PS04 - MS18 - INT3 - HM01 - PCB-ASSY-AAC - PCB-ASSY-ARC - Cutter unit - CBL-CUT1	🕮 P. 5-33 (7) 🕮 P. 9-129 🕮 P. 9-110 🕮 P. 9-39 🕮 P. 9-38 🕮 P. 9-18

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace 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.	- Remove the paper particles following the operation panel indication. - Check that the paper flange is fixed. - Check that the paper flange is installed on the flange guide properly. - When the paper head edge is bent, folded, or burred, cut the paper edge. - Check that the roll paper is installed properly (see the ***User's Manual for Basic Printer Operation***, **Replacing the Roll Paper**). - Install the Oki Data official paper, or replace the current roll paper (see the ***User's Manual for Basic Printer Operation***). - Restart the printer.	- Check the paper is installed properly. - Check that no paper particle is found at PS04. - Check that the paper head edge is not bent, folded, or burred. Perform 3042-3047 problem analysis. - Check PS04 for On/Off setting. - Check CBL-CUT1 for open/short circuit. - Check that FM01 and 02 rotate. - Check the pinch roller pressure. - Perform 2021 problem analysis.	- PS04 - MS18 - INT3 - HM01 - PCB-ASSY-AAC - PCB-ASSY-ARC - Cutter unit - CBL-CUT1	🕮 P. 5-33 (7) 🕮 P. 9-129 🕮 P. 9-110 🕮 P. 9-39 🕮 P. 9-38 🕮 P. 9-18
	JAM	3501	The lead edge of the paper is reaching PS05 too quickly.	*ditto*	- Check that the paper and paper flange are installed properly. - Check that no foreign particle is found on the paper feed roller's surface. - Check that the paper head edge is not bent, folded, or burred. Perform 3042-3047 problem analysis. - Check that PS05 is installed securely and its lever functions normally. - Check the paper delivery path to PS05.	- PS05 - Cutter unit - PCB-ASSY-ARC - PCB-ASSY-AAC	🕮 P. 5-33 (8) 🕮 P. 9-129 🕮 P. 9-39 🕮 P. 9-38 🕮 P. 9-18
	JAM	3502	The lead edge of the paper is reaching PS05 too quickly.	*ditto*	*ditto*	*ditto*	*ditto*
	JAM	3503	The lead edge of the paper is not reaching PS05.	*ditto*	- Check that the paper and paper flange are installed properly. - Check PS05 for On/Off setting. - Check CBL-MECH2 and CBL-PS04 for short circuit. - Check that PS05 is installed securely and its lever functions normally. - Check the paper delivery path from PS04 to PS05. - Check the pinch roller pressure. - Perform 3042-3047 problem analysis.	- PS05 - Cutter unit - PCB-ASSY-ARC - PCB-ASSY-AAC - CBL-MECH2 - CBL-PS04	🕮 P. 5-34 (9) 🕮 P. 9-129 🕮 P. 9-39 🕮 P. 9-38 🕮 P. 9-18
	JAM	3504	The lead edge of the paper is not reaching PS05.	*ditto*	*ditto*	*ditto*	*ditto*
	JAM	3591	The tail edge of the paper is disengaging from PS05 too quickly.	*ditto*	- Check that no problem is found with the cutting condition at the paper tail edge. Perform 3042-3047 problem analysis. - Check that no foreign particle is found on the registration roller's surface. - Check that PS05 is installed securely and its lever functions normally. - Check paper delivery path to PS05. - Check the pinch roller pressure. - Check the motor TM01.	- PS05 - Cutter unit - PCB-ASSY-ARC - PCB-ASSY-AAC - Motor (TM01)	🕮 P. 5-34 (10) 🕮 P. 9-129 🕮 P. 9-39 🕮 P. 9-38 🕮 P. 9-18 🕮 P. 9-93
	JAM	3592	The tail edge of the paper is disengaging from PS05 too quickly.	*ditto*	*ditto*	*ditto*	*ditto*

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace 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.	- Remove the paper particles following the operation panel indication. - Check that the paper flange is fixed. - Check that the paper flange is installed on the flange guide properly. - When the paper head edge is bent, folded, or burred, cut the paper edge. - Check that the roll paper is installed properly (see the ***User's Manual for Basic Printer Operation***, **Replacing the Roll Paper**). - Install the Oki Data official paper, or replace the current roll paper (see the ***User's Manual for Basic Printer Operation***). - Restart the printer.	- Check that no paper particle is found on PS05. - Check that no problem is found with the cutting condition at the paper tail edge. Perform 3042-3047 problem analysis. - Check PS05 for On/Off setting. - Check CBL-MECH2 and CBL-PS04 for short circuit. - Check that PS05 is installed securely and its lever functions normally. - Check the CL04 operation. - Check paper delivery path after PS05. - Check the pinch roller pressure. - Check the motor TM01 operation. - Check PCB-ASSY-AAC.	- PS05 - Cutter unit - PCB-ASSY-ARC - PCB-ASSY-AAC - Motor (TM01) - CL04	🕮 P. 5-35 (11) 🕮 P. 9-129 🕮 P. 9-39 🕮 P. 9-38 🕮 P. 9-18 🕮 P. 9-93 🕮 P. 9-30
	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.	*ditto*	*ditto*	*ditto*	*ditto*
	JAM	3601	The lead edge of the paper is reaching PS06 too quickly.	*ditto*	- Check that no problem is found with the cutting condition at the paper tail edge. Perform 3042-3047 problem analysis. - Check that PS06 is installed securely and its lever functions normally. - Check that CL04 if installed securely and operates normally.	- PS06 - Cutter unit - PCB-ASSY-ARC - PCB-ASSY-AAC - CL04	🕮 P. 5-35 (12) 🕮 P. 9-214 🕮 P. 9-39 🕮 P. 9-38 🕮 P. 9-18 🕮 P. 9-30
	JAM	3602	The lead edge of the paper is reaching PS06 too quickly.	*ditto*	*ditto*	*ditto*	*ditto*
	JAM	3603	The lead edge of the paper is not reaching PS06.	*ditto*	- Check that the paper and paper flange are installed properly. - Check that no problem is found with the cutting condition at the paper tail edge. Perform 3042-3047 problem analysis. - Check PS06 for On/Off setting. - Check CBL-FUSER21 and -22 and CBL-PS06 for short circuit. - Check that PS06 is installed securely and its lever functions normally. - Check the paper delivery path. - Check that the belt is extended. - Check that the paper is not bubbled. - Check that the paper is separated from the drum. - Check the BL01 operation. - Check the ozone filter.	- PS06 - Cutter unit - PCB-ASSY-ARC - PCB-ASSY-AAC - BL01 - Ozone filter - CBL-FUSER21/22 - CBL-PS06	🕮 P. 5-36 (13) 🕮 P. 9-214 🕮 P. 9-39 🕮 P. 9-38 🕮 P. 9-18 🕮 P. 9-54
	JAM	3604	The lead edge of the paper is not reaching PS06.	*ditto*	*ditto*	*ditto*	*ditto*

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (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.	- Remove the paper particles following the operation panel indication. - Check that the paper flange is fixed. - Check that the paper flange is installed on the flange guide properly. - When the paper head edge is bent, folded, or burred, cut the paper edge. - Check that the roll paper is installed properly (see the ***User's Manual for Basic Printer Operation***, **Replacing the Roll Paper**). - Install the Oki Data official paper, or replace the current roll paper (see the ***User's Manual for Basic Printer Operation***). - Restart the printer.	- Check that no problem is found with the cutting condition at the paper head edge. Perform 3042-3047 problem analysis. - Check that PS06 is installed securely and its lever functions normally. - Check that the paper is not bubbled. - Check that the paper is separated from the drum. - Check the BL01 operation. - Check the ozone filter. - Check the paper cut length. - Check the motor TM01.	- PS06 - Cutter unit - PCB-ASSY-ARC - PCB-ASSY-AAC - Motor (TM01) - BL01	🕮 P. 5-37 (14) 🕮 P. 9-214 🕮 P. 9-39 🕮 P. 9-38 🕮 P. 9-18 🕮 P. 9-93 🕮 P. 9-54
	JAM	3692	The tail edge of the paper is disengaging from PS06 too quickly.	*ditto*	*ditto*	*ditto*	*ditto*
	JAM	3701	The lead edge of the paper is reaching PS07 too quickly.	*ditto*	- Check that no problem is found with the cutting condition at the paper head edge. Perform 3042-3047 problem analysis. - Check that PS07 is installed securely and its lever functions normally. - Check the paper delivery path. - Check PS07 for On/Off setting. - Check the fuser drive mechanism.	- PS07 - Cutter unit - PCB-ASSY-ARC - PCB-ASSY-AAC - FUSER UNIT	🕮 P. 5-38 (16) 🕮 P. 9-129 🕮 P. 9-39 🕮 P. 9-38 🕮 P. 9-18
	JAM	3702	The lead edge of the paper is reaching PS07 too quickly.	*ditto*	- Check that no problem is found with the cutting condition at the paper head edge. Perform 3042-3047 problem analysis. - Check that PS07 is installed securely and its lever functions normally. - Check the paper is fed normally. - Check PS07 for On/Off setting. - Check the fuser drive mechanism.	*ditto*	*ditto*
	JAM	3703	The lead edge of the paper is not reaching PS07.	*ditto*	- Check that no problem is found with the cutting condition at the paper head edge. Perform 3042-3047 problem analysis. - Check PS07 for On/Off setting. - Check CBL-FUSER21, -22, and -23 and CBL-PS07 for short circuit. - Check that PS07 is installed securely and its lever functions normally. - Check that the paper is fed normally. - Check the fuser drive mechanism. - Check the fuser separating claw. - Check the BL01 operation.	- PS07 - Cutter unit - PCB-ASSY-ARC - PCB-ASSY-AAC - FUSER UNIT - BL01 - CBL-FUSER21/ 22/23 - CBL-PS07	🕮 P. 5-39 (17) 🕮 P. 9-129 🕮 P. 9-39 🕮 P. 9-38 🕮 P. 9-18 🕮 P. 9-54
	JAM	3704	The lead edge of the paper is not reaching PS07.	*ditto*	*ditto*	- PS07 - Cutter unit - PCB-ASSY-ARC - PCB-ASSY-AAC - FUSERUNIT - BL01	*ditto*

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
	JAM	3791	The tail edge of the paper is disengaging from PS07 too quickly.	- Remove the paper particles following the operation panel indication. - Check that the paper flange is fixed. - Check that the paper flange is installed on the flange guide properly. - When the paper head edge is bent, folded, or burred, cut the paper edge. - Check that the roll paper is installed properly (see the ***User's Manual for Basic Printer Operation***, **Replacing the Roll Paper**). - Install the Oki Data official paper, or replace the current roll paper (see the ***User's Manual for Basic Printer Operation***). - Restart the printer.	- Check that no problem is found with the cutting condition at the paper head edge. Perform 3042-3047 problem analysis. - Check that PS07 is installed securely and its lever functions normally. - Check PS07 for On/Off setting. - Check that the paper is fed normally. - Check the fuser drive mechanism.	- PS07 - Cutter unit - PCB-ASSY-ARC - PCB-ASSY-AAC - FUSER UNIT	🕮 P. 5-40 (18) 🕮 P. 9-129 🕮 P. 9-39 🕮 P. 9-38 🕮 P. 9-18
	JAM	3792	The tail edge of the paper is disengaging from PS07 too quickly.	*ditto*	*ditto*	*ditto*	*ditto*
	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.	*ditto*	- Check that no paper particle is found on PS07. - Check that no problem is found with the cutting condition at the paper head edge. Perform 3042-3047 problem analysis. - Check that PS07 is installed securely and its lever functions normally. - Check PS07 for On/Off setting. - Check CBL-FUSER21, -22, and -23 and CBL-PS07 for short circuit. - Check the paper delivery path.	- PS07 - Cutter unit - PCB-ASSY-ARC - PCB-ASSY-AAC - CBL-FUSER21/ 22/ 23 - CBL-PS07	🕮 P. 5-40 (19) 🕮 P. 9-129 🕮 P. 9-39 🕮 P. 9-38 🕮 P. 9-18
	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.	*ditto*	*ditto*	*ditto*	*ditto*

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 check 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 (Jam Sensor Below Cutter)	- There is light shining into the sensor. - A short was detected between the frame and CBL-CUT1, CBL-CUT2, and/or CBL-PS04. - With CBL-CUT1, CBL-CUT2, and/or CBL-PS04, an unplugged connector is found or a cable disconnection is detected. - The sensor is not functioning.
Front door	PS05 (Registration sensor)	- There is light shining into the sensor. - The position between CBL-MECH2 or CBL-PS04 and the frame is shorted. - The connectors of CBL-MECH2 and CBL-PS04 are removed, or they are disconnected. - The sensor is not functioning.
Paper outlet cover or Fuser unit drawer	PS06 (Suction jam sensor)	- There is light shining into the sensor. - A short was detected between the frame and CBL-FUSER21, CBL-FUSER22, and/or CBL-PS06. - With CBL-FUSER21, CBL-FUSER22, and/or CBL-PS06, an unplugged connector is found or a cable disconnection is detected. - The sensor is not functioning.
	PS07 (Fuser jam sensor)	- There is light shining into the sensor. - A short was detected between the frame and CBL-FUSER21, CBL-FUSER22, CBL-FUSER23, and/or CBL-PS07. - With CBL-FUSER21, CBL-FUSER22, CBL-FUSER23, and/or CBL-PS07, an unplugged connector is found or a cable disconnection is detected. - The sensor is not functioning.

(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 occuring 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 Check** 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 and CBL-CUT2 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 and CBL-CUT2.
- ◆ 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, FM02, FM03, and FM04 with **On 1** (in paper feed direction).

Does FM01, FM02, FM03, and FM04 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 and CBL-CUT2.
- ◆ 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, FM02, FM03, and FM04 with **On 2** (in paper rewind direction).
Does FM01, FM02, FM03, and FM04 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 (ragistration).

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

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

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

- ◆ 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.

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 there are no problems, replace the PS07.

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

Did the error display on the operation panel go away?

Yes

- ◆ 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).

No

Select **Sensor** in Engine Maintenance mode.
Select INT3.
Is **On** displayed?

Yes

- ◆ 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.

No

- ◆ Check INT 3.

If there are no problems, 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, 2 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 3, 4 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-RFU31 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

No → Supply the toner.

Return the toner cartridge to the original position.

Does the error appear again after one minute?

Yes — No

No → Select **Sensor** in Engine Maintenance mode.
Select TS01.
Is **On** displayed?

Yes — No

No →
- ◆ Check TS01 (remaining toner sensor).
- ◆ Check for shorts on CBL-DEV1 and CBL-DEV2.
- ◆ Replace the part below:
  - PCB-ASSY-ARC (RIP board);
  - PCB-ASSY-AAC (actuator control board); or
  - Developer unit.

Yes →
- ◆ 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 the 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, PS12, PS13 and PS14.
Is **On** displayed?

Yes No

- ◆ Check PS11 (roll 1 detection sensor), PS12 (roll 2 detection sensor), Check PS13 (roll 3 detection sensor), PS14 (roll 4 detection sensor).
- ◆ Check for a problem with PS11, PS12, PS13 and PS14 signal contact or with PS11, and/or PS12 themselves.
- ◆ Check for shorts on CBL-RFU11, CBL-RFU12, CBL-RFU21, and CBL-RFU31.
- ◆ Check for any problems with the installation positions of PS11, PS12, PS13 and PS14.
- ◆ 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, PS12, PS13 and PS14.
- ◆ 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.
- ◆ Replace the GEAR LIMITTER MNT (see **9.14.2** for the replacement procedure).
- ◆ Replace the GEAR ONEWAY MNT (see **9.14.5** for the replacement procedure).

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

(5) Paper feed unit problem analysis

This problem analysis is used for problems caused by the paper feed unit.

Examples of problems:

- Paper is not fed
- Discrepancies in the paper cut length

Solutions:

- ◆ Replace the GEAR LIMITTER MNT (see **9.14.2** for the replacement procedure).
- ◆ Replace the GEAR ONEWAY MNT (see **9.14.5** for the replacement procedure).

Chapter 6 Scanner Troubleshooting

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.

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 (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	SE	0x1201	PCB-ASSY-ASC's EEPROM checksum error	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ASC.	- PCB-ASSY-ASC. If the problem is not solved even after replacing the PCB-ASSY-ASC, replace the EEPROM installed on it with a new one and calibrate the scanner parameters again.	🕮 P. 4-37 (4) 🕮 P. 9-46
E	SE	0x1202	*ditto*	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	0x1203	*ditto*	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	0x1301	*ditto*	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	0x1302	*ditto*	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	0x1401	AIC error	*ditto*	*ditto*	PCB-ASSY-ASC	*ditto*
E	SE	0x1501	*ditto*	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2101	SDRAM1 error (former)	*ditto*	*ditto*	*ditto*	*ditto*
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. - Check CIS unit for contact.	- PCB-ASSY-ASC - CIS unit	🕮 P. 4-37 (4) 🕮 P. 9-46 🕮 P. 9-185 🕮 P. 11-41
E	SE	2202	FIC FPGA configuration error	*ditto*	- Clean CBLS-LVDS contact. - Check PCB-ASSY-ASC. - Check CIS unit for contact.	*ditto*	🕮 P. 8-6 🕮 P. 4-37 (4) 🕮 P. 9-46 🕮 P. 9-185 🕮 P. 11-41
E	SE	2203	FSC register read/write error	*ditto*	Check PCB-ASSY-ASC.	PCB-ASSY-ASC	🕮 P. 4-37 (4) 🕮 P. 9-46
E	SE	2204	FIC register read/write error	*ditto*	- Check PCB-ASSY-ASC. - Check CIS unit for contact.	- PCB-ASSY-ASC - CIS unit	🕮 P. 4-37 (4) 🕮 P. 9-46 🕮 P. 9-185 🕮 P. 11-41
E	SE	2205	FSG FPGA configuration	*ditto*	Check PCB-ASSY-ASC.	PCB-ASSY-ASC	🕮 P. 4-37 (4) 🕮 P. 9-46
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*

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	SE	2426	White shading data acquisition command error	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ASC.	PCB-ASSY-ASC	P. 4-37 (4) P. 9-46
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	CISpaper width automatic detection start command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2449	Automatic background compensation start command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2450	Tone curve data configuration command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2451	Dither pattern data configuration command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2452	Scan parameter configuration command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2455	Black shading data configuration command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2456	White shading data configuration command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2460	Version data acquisition command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2461	Output line number acquisition command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2462	CIS paper width automatic detection data acquisition command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2463	Automatic background compensation data acquisition command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2465	Black shading data acquisition command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2466	White shading data acquisition command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	246F	Scan end timeout error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2480	Program load error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2481	Reset error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2482	Scan start command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2483	Scan stop command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2484	Shading reset command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2485	Black shading command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2486	White shading command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2488	CIS paper width automatic detection start command Error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2489	Automatic background compensation start command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2490	Tone curve data configuration command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2491	Dither pattern data configuration command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2492	Scan parameter configuration command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2495	Black shading data configuration command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2496	White shading data configuration command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24A0	CIS paper width automatic detection data acquisition command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24A1	Automatic background compensation data acquisition command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24A2	Black shading data acquisition command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24A3	White shading data acquisition command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24A5	Scan complete timeout error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24A6	Scan complete timeout error	*ditto*	*ditto*	*ditto*	*ditto*

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	SE	24AF	Version data acquisition command error	- Restart the printer. - Upgrade the firmware to the latest.	Check PCB-ASSY-ASC.	PCB-ASSY-ASC	🕮 P. 4-37 (4) 🕮 P. 9-46
E	SE	24C0	Output line number acquisition command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24C1	CIS paper width automatic detection data acquisition command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24C2	Automatic background compensation data acquisition command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24C3	Black shading data acquisition command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24C4	White shading data acquisition command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24C5	Scan complete timeout error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24C6	Program load error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24C8	Reset error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24C9	Scan start command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24D0	Scan stop command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24D1	Shading reset command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24D2	Black shading command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24D5	White shading command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24D6	CIS paper width automatic detection start command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24E0	Version data acquisition command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24E1	Output line number acquisition command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24E2	CIS paper width automatic detection data acquisition command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24E3	Automatic background compensation data acquisition command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24E5	Black shading data acquisition command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24E6	White shading data acquisition command error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	24EF	Scan complete timeout error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2501	EEPROM engine parameter sum error (both)	*ditto*	- Check PCB-ASSY-ASC. - Check PCB-ASSY-ARC	- PCB-ASSY-ASC - PCB-ASSY-ARC	🕮 P. 4-37 (4) 🕮 P. 9-39 🕮 P. 9-46 🕮 P. 11-41
E	SE	2601	RIP controller communication error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2700	Register read-write error	*ditto*	Check PCB-ASSY-ASC.	PCB-ASSY-ASC	🕮 P. 4-37 (4) 🕮 P. 9-46
E	SE	2701	*ditto*	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2702	*ditto*	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2703	*ditto*	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2704	FSG config data checksum error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2705	FSG FPGA configuration	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2706	FSG register read-write error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2707	FSG DRAM error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2708	F/W checksum error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2709	Table checksum error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	270A	FSC config data checksum error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	270B	FIC config data checksum error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	270C	FSC FPGA configuration	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	270D	FSC register read-write error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	270E	FSC DRAM error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	270F	EEPROM checksum error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2710	AIC error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2711	AIC error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2712	AIC error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2713	AIC error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2714	AIC error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2715	AIC error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2716	AIC error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2717	AIC error	*ditto*	*ditto*	*ditto*	*ditto*

Type	Category	Error No.	Cause	User Solution	Service Engineer Inspection (For inspection criteria, see Reference to Check/Replace Parts.)	Assumed Replacement Part	Reference to Check/Replace Parts
E	SE	2718	FIC FPGA configuration	- Restart the printer. - Upgrade the firmware to the latest.	- Clean CBLS-LVDS contact. - Check PCB-ASSY-ASC. - Check CIS unit for contact.	- PCB-ASSY-ASC - CIS unit	🕮 P. 8-6 🕮 P. 4-37 (4) 🕮 P. 9-46 🕮 P. 9-185 🕮 P. 11-41
E	SE	2719	FIC register read-write error	*ditto*	- Check PCB-ASSY-ASC. - Check CIS unit for contact.	*ditto*	🕮 P. 4-37 (4) 🕮 P. 9-46 🕮 P. 9-185 🕮 P. 11-41
E	SE	271A	AIC board EEPROM sum error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	271B	AIC board AFE register read-write error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	271C	AIC error	*ditto*	Check PCB-ASSY-ASC.	PCB-ASSY-ASC	🕮 P. 4-37 (4) 🕮 P. 9-46
E	SE	271D	AIC error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	271E	AIC error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	271F	AIC error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2801	AIC board EEPROM read/write error	*ditto*	- Check PCB-ASSY-ASC. - Check CIS unit for contact.	- PCB-ASSY-ASC - CIS unit	🕮 P. 4-37 (4) 🕮 P. 9-46 🕮 P. 9-185 🕮 P. 11-41
E	SE	2802	AIC board EEPROM read/write error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2803	AIC board FPGA communication error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2804	AIC board EEPROM sum error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2805	AIC board AFE register read/write error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2A01	Shading offset automatic adjustment error	*ditto*	Check PCB-ASSY-ASC.	PCB-ASSY-ASC	🕮 P. 4-37 (4) 🕮 P. 9-46
E	SE	2A02	Shading data write timeout error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2B00	Firmware check sum error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2B01	Tone curve data check sum error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2B02	Dither pattern data check sum error	*ditto*	Check PCB-ASSY-ASC.	PCB-ASSY-ASC	🕮 P. 4-37 (4) 🕮 P. 9-46
E	SE	2B03	Second tone curve data check sum error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2B06	FSC configuration data check sum error	*ditto*	- Check PCB-ASSY-ASC. - Check CIS unit for contact.	- PCB-ASSY-ASC - CIS unit	🕮 P. 4-37 (4) 🕮 P. 9-46 🕮 P. 9-185 🕮 P. 11-41
E	SE	2B07	FIC configuration data check sum error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2B08	FSG config data checksum error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2C00	SSIMC initial setting error	*ditto*	- Clean CBLS-LVDS contact. - Check PCB-ASSY-ASC. - Check CIS unit for contact.	*ditto*	🕮 P. 8-6 🕮 P. 4-37 (4) 🕮 P. 9-46 🕮 P. 9-185 🕮 P. 11-41
E	SE	2C01	SSIMC communication control timeout error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2C02	SSIMC single communication transmission timeout error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2C03	SSIMC single communication reception timeout error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2C04	SSIMC single communication packet w/o response error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2C05	SSIMC single communication parity error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2C06	SSIMC single communication packet number error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2C07	SSIMC single communication unable to read or w/o response error	*ditto*	*ditto*	*ditto*	*ditto*
E	SE	2C08	SSIMC single communication timeout error	*ditto*	*ditto*	*ditto*	*ditto*

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) Check 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-ARC1 (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

- ◆ Check PSS09.
- ◆ Check for a disconnection or faulty contact in CBLS-SENS1 and CBLS-SENS2.
- ◆ There is a problem 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.

- ◆ Check for a broken or bent left side lever on the cover.
- ◆ Check for any problems with the installation position of PSS09.

If there is a problem, replace the relevant part.

(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.

Chapter 7 Printer Image Quality Problems Troubleshooting

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**.

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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** (p2-26).

The Table 7-1 lists the engine test patterns and their evaluation items.

Table 7-1 Engine Test Pattern

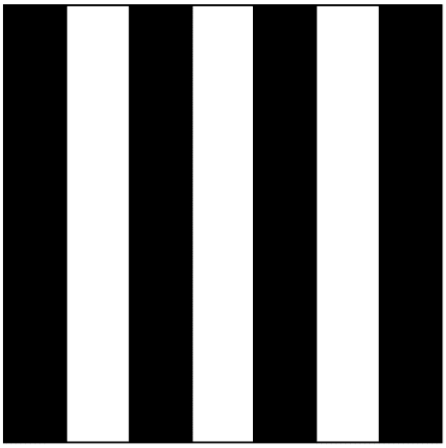
No.	Engine Test Pattern
Pattern #1	Vertical stripe, composed of 256-dot width black and white lines
Pattern #2	Checkerboard, composed of 256-dot width cells
Pattern #3	Horizontal stripe, composed of 256-dot width black and white lines
Pattern #4	Horizontal stripe, composed of 1-dot width black and 3-dot 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: - Black cells; - White cells; and - 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.

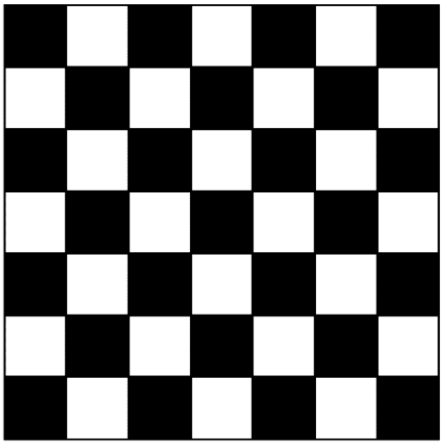
Notes

- ◇ **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, 5, 11, 17, 19, and 20 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.**

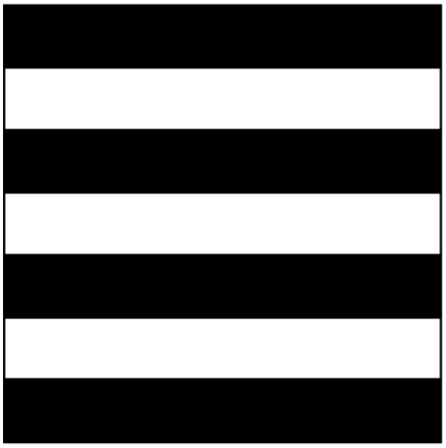
Pattern 1



Pattern 2

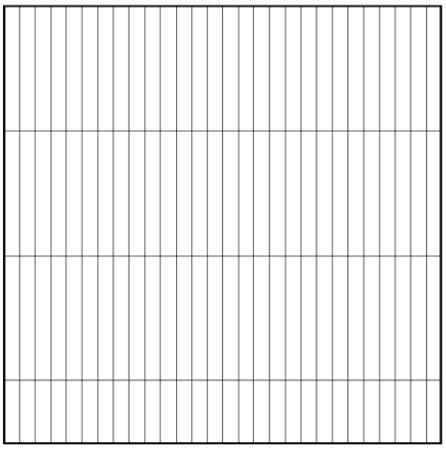


Pattern 3

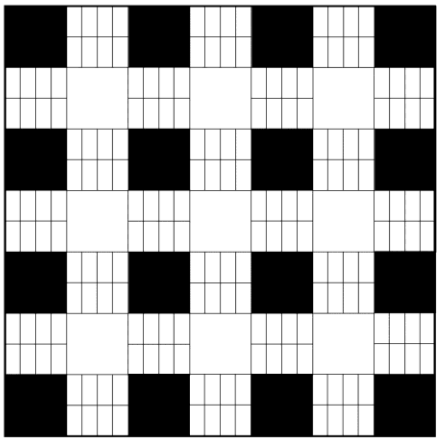


Pattern 17

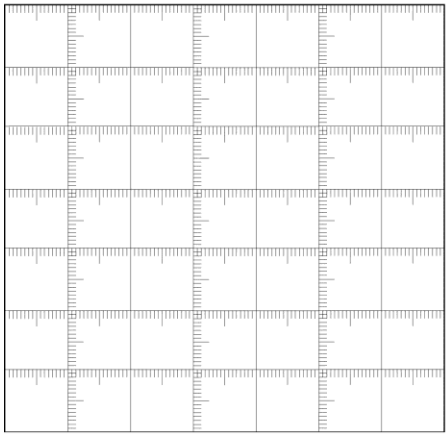
Pattern 8
Pattern 9
Pattern 10



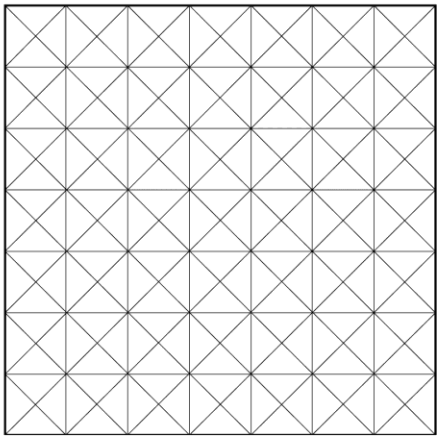
Pattern 12



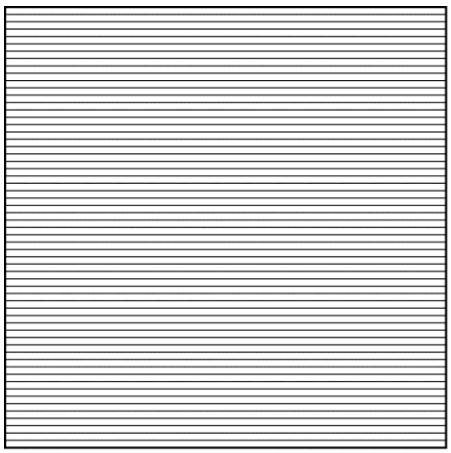
Pattern 13



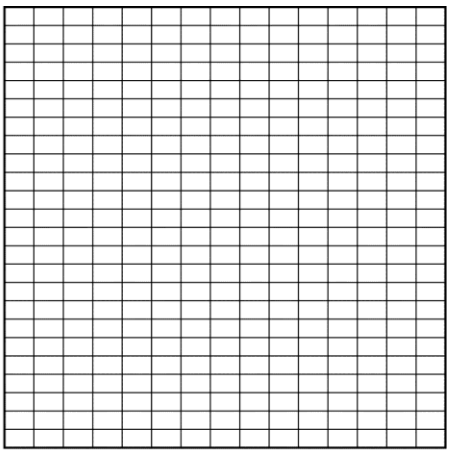
Pattern 14
Pattern 15
Pattern 16



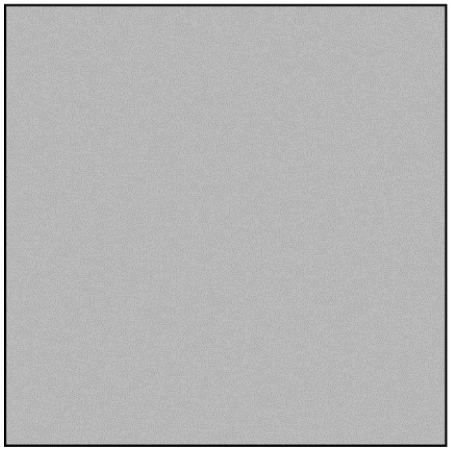
Pattern 6



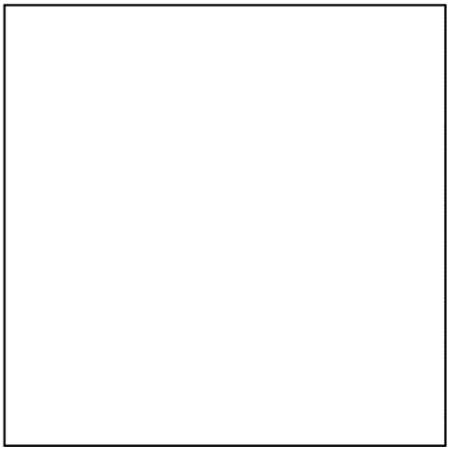
Pattern 7



Pattern 4
Pattern 5
Pattern 11
Pattern 19
Pattern 20



Pattern 18

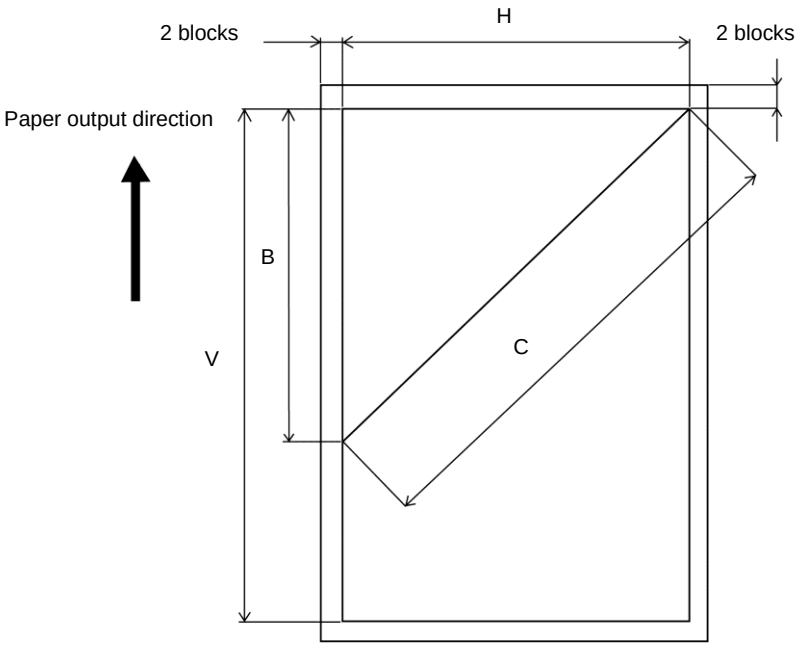


7.2 Troubleshooting Print Specification Problems

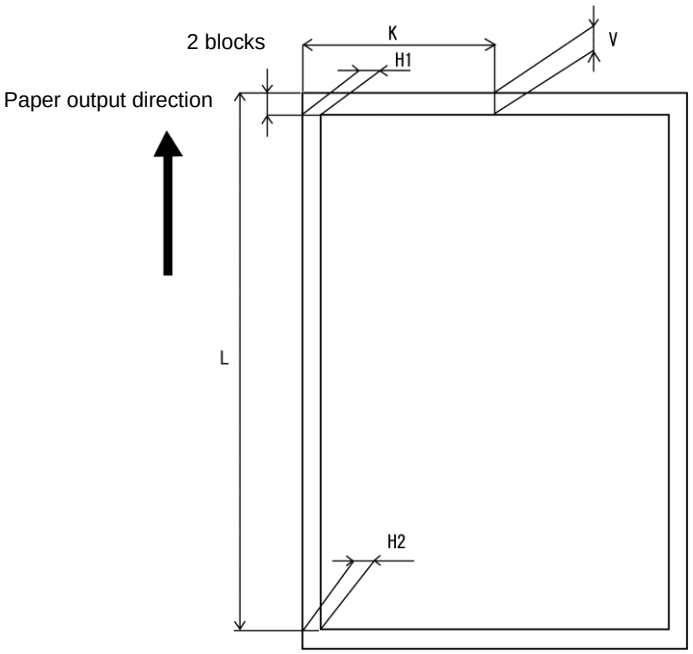
7.2.1 Print Specifications and How to Measure Them

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.**

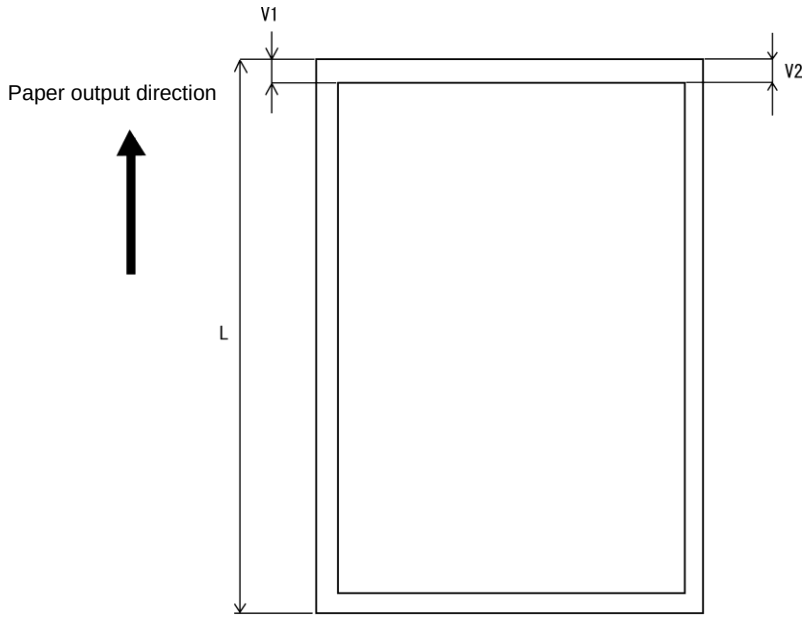
Item	Measurement Location	Standard Value	Notes
Print length accuracy	Main Scanning Direction: Measure the length H of 74 blocks in the horizontal direction, where 1 block is 10.837 mm (0.43 inches). Vertical Scanning Direction: Measure the length V of 104 blocks in the vertical direction, where 1 block is 10.837 mm (0.43 inches). **Note:** - Output three pages in a row, and measure the third page. - Measure at least 15 minutes after printing.	- Main scanning direction 802±0.5% (±4 mm (0.16 inches)) - Vertical scanning direction 1127.1±0.5% (±5.6 mm (0.22 inches))	Engine test pattern 15
Print squareness	Measure: - The length H, horizontal 74 blocks; - The length B, vertical 74 blocks; and - The diagonal length C, where 1 block is 10.837 mm (0.43 inches). Then use the following equation to calculate squareness. **Note:** - Output three pages in a row, and measure the third page. - Measure at least 15 minutes after printing. $\lvert (C-\sqrt{H^2+B^2})/\sqrt{H^2+B^2} \rvert \times 100$ * When outputting three pages in a row, measure the third page. * Measure at least 15 minutes after printing. * 1 block = 10.837 mm (0.43 inches)	±0.2%	Engine test pattern 15



Item	Measurement Location	Standard Value	Notes
Top edge alignment	Measure the length V with: - K block from the paper's right edge; and - 2 blocks from the paper's front edge, where 1 block is 10.837 mm, and K is: - 27 at A1 vertical; - 20 at A2 vertical; - 15 at A3 vertical: and - 15 at A4 vertical **Note:** - Output three pages in a row, and measure the third page. - Measure at least 15 minutes after printing.	- A1 vertical 21.7±3.0 mm (0.85±0.12 inches) - A2 vertical 21.7±3.0 mm (0.85±0.12 inches) - A3 vertical 21.7±3.0 mm (0.85±0.12 inches) - A4 horizontal 21.7±3.0 mm (0.85±0.12 inches)	Engine test pattern 15
Center alignment	Measure the length H1 with: - 2 blocks from the paper's right edge; and - 2 blocks from the paper's front edge, where 1 block is 10.837 mm. **Note:** - Output three pages in a row, and measure the third page. - Measure at least 15 minutes after printing.	- A1 vertical 21.7±3.0 mm (0.85±0.12 inches) - A2 vertical 21.7±3.0 mm (0.85±0.12 inches) - A3 vertical 21.7±3.0 mm (0.85±0.12 inches) - A4 horizontal 21.7±3.0 mm (0.85±0.12 inches)	Engine test pattern 15
Skew	Measure the length H2 with: - 2 blocks from the paper's right edge; and - L block from the paper's front edge, where L is: - 104 at A0 vertical; - 74 at at A1 vertical; - 50 at A2 vertical; - 33 at A3 vertical: and - 23 at A4 vertical Then obtain the difference between H1 and H2.	- A0 vertical ±5.6 mm (±0.22 inches) - A1 vertical ±4 mm (±0.16 inches) - A2 vertical ±2.7 mm (±0.11 inches) - A3 vertical ±1.8 mm (±0.07 inches) - A4 horizontal ±1.2 mm (±0.05 inches)	Engine test pattern 15



Item	Measurement Location	Standard Value	Notes
Cut length accuracy	Measure the length L below: - From the paper's front edge to the rear edge; and - At the right edge of the paper. **Note:** - Output three pages in a row, and measure the third page. - Measure at least 15 minutes after printing.	- A0 vertical 1189±6.0 mm (46.81±0.24 inches) - A1 vertical 841±4.0 mm (33.11±0.16 inches) - A2 vertical 594±3.0 mm (23.39±0.12 inches) - A3 vertical 420±3.0 mm (16.54±0.12 inches) - A4 horizontal 210±3.0 mm (8.27±0.12 inches)	Engine test pattern 15
Cut squareness	Measure the lengths V1 and V2 with: - 2 block from the paper's front edge; and - At the paper's right edge for V1 and left edge for V2. Then obtain the difference between V1 and V2. **Note:** - Output three pages in a row, and measure the third page. - Measure at least 15 minutes after printing.	- A0 vertical ±3.0/841 mm (±0.12/33.11 inches) - A1 vertical ±2.0/594 mm (±0.08/23.39 inches) - A2 vertical ±1.4/420 mm (±0.06/16.54 inches) - A3 vertical ±1.0/297 mm (±0.04/11.69 inches) - A4 horizontal ±1.0/297 mm (±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** (p.**10-9**) 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.

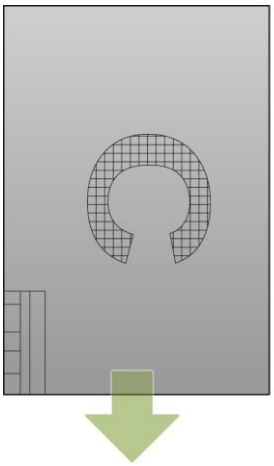
Table 7-2 Image Quality Problem Troubleshooting Item List

Item	Description
(1) Gray cast	The white parts on the printout are globally slightly tainted.
(2) Print density irregularities	Density irregularity or line width differnces 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. Characters or forms not present in the original are printed. Some bits are missing. Vertical 8-mm bands are missing. 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) *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) *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

Process cartridge

Check whether or not the process cartridge has been replaced in the process cartridge log (see p. 2-15).

The process cartridge has been replaced

No

Replace the process cartridge

Yes

Not solved

OK

End of procedure

Check and clean the charger unit high voltage contact and photoconductor drum ground contact (see p. 3-20 and 3-21)

NG

OK

End of procedure

Check the other possible problem locations

Developer unit

Ask the user

1. Has the toner been mixed with a different type?

2. Does the Printer contain some toner whose expiration date has expired?

Perform DB CHECK (see p. 2-24) five times and print the test pattern 2 (see p. 2-25)

Not solved

OK

End of procedure

Check and adjust the developer AC bias and DC bias (see p. 10-2 and 10-4)

Not solved

OK

End of procedure

Check and clean the developer unit contacts (see step 2 of p. 9-26)

Not solved

OK

End of procedure

Clean the developer blade (BLADE-S-DV)

Not solved

OK

End of procedure

Replace the developer unit (see p. 9-20)

Not solved

OK

End of procedure

Check the other possible problem locations

Transfer roller unit

Replace the transfer roller unit (see p. 9-207)

Not solved

OK

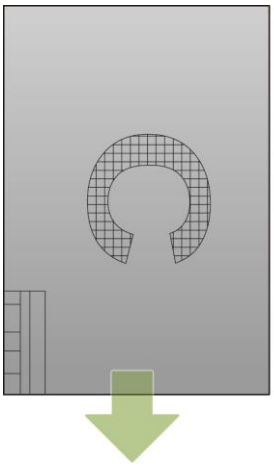
End of procedure

Check the other possible problem locations

(2) Print density irregularities

Density irregularity or line width differnces appear in a printout.

Print sample



Possible problem locations

- LED head
- Process cartridge
- Developer unit

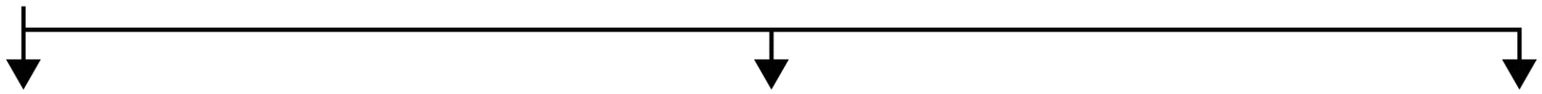
■Cause and solution

(a) Cause:
Lack of toner
Solution:
Supply the toner.

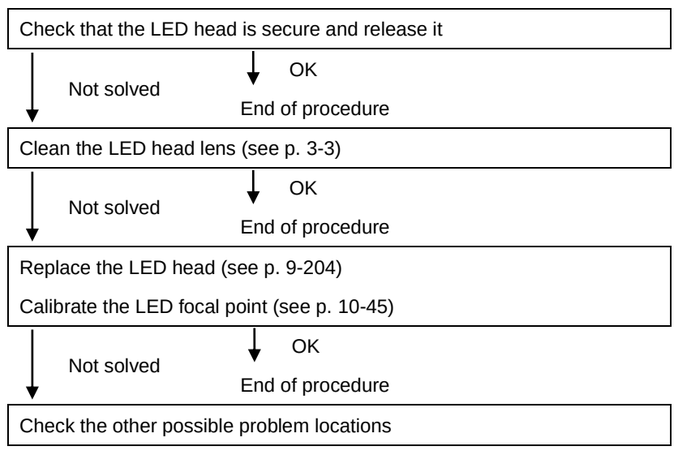
(b) Cause:
Photoconductor drum deterioration
Solution:
Replace the process cartridge.

■**Technician troubleshooting**

Check printing using the engine test pattern 15

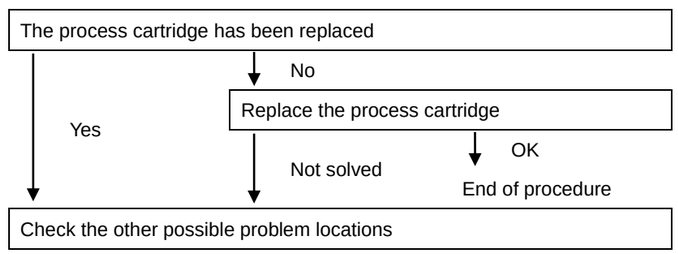


LED head

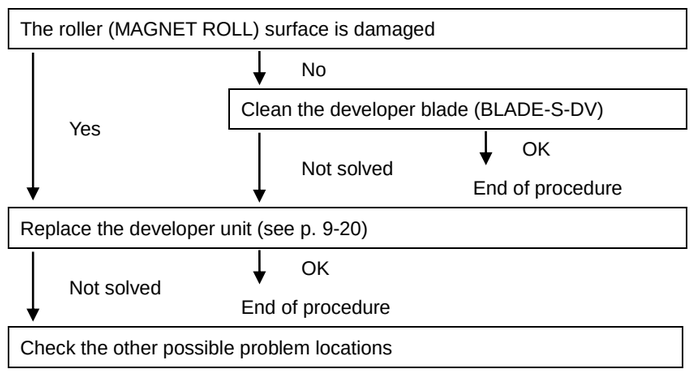


Process cartridge

Check whether or not the process cartridge has been replaced in the process cartridge log (see p. 2-15).



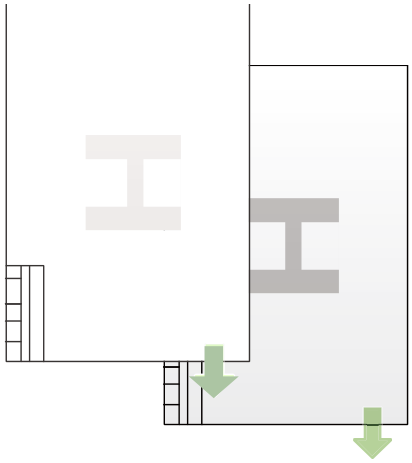
Developer unit



(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

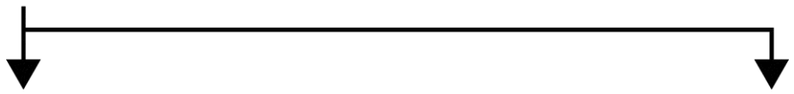
■Cause and solution

(a) Cause:
Lack of toner
Solution:
Supply the toner.

(b) Cause:
Photoconductor drum deterioration
Solution:
Replace the process cartridge.

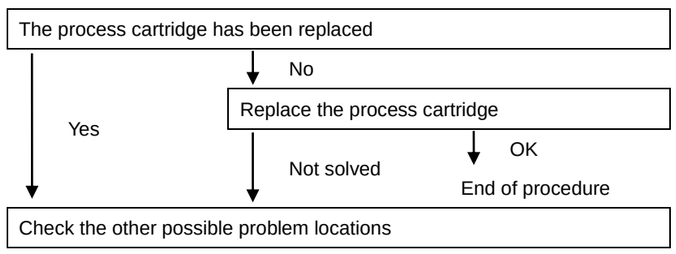
■**Technician troubleshooting**

Check printing using the engine test pattern 15

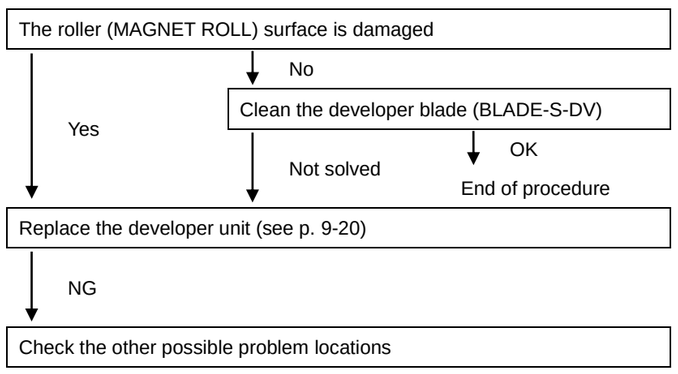


Process cartridge

Check whether or not the process cartridge has been replaced in the process cartridge log (see p. 2-15).



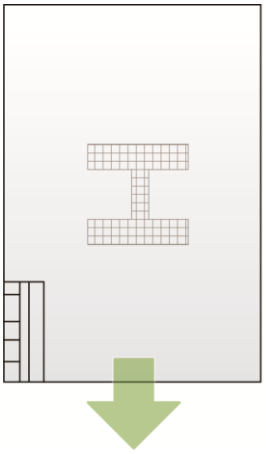
Developer unit



(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

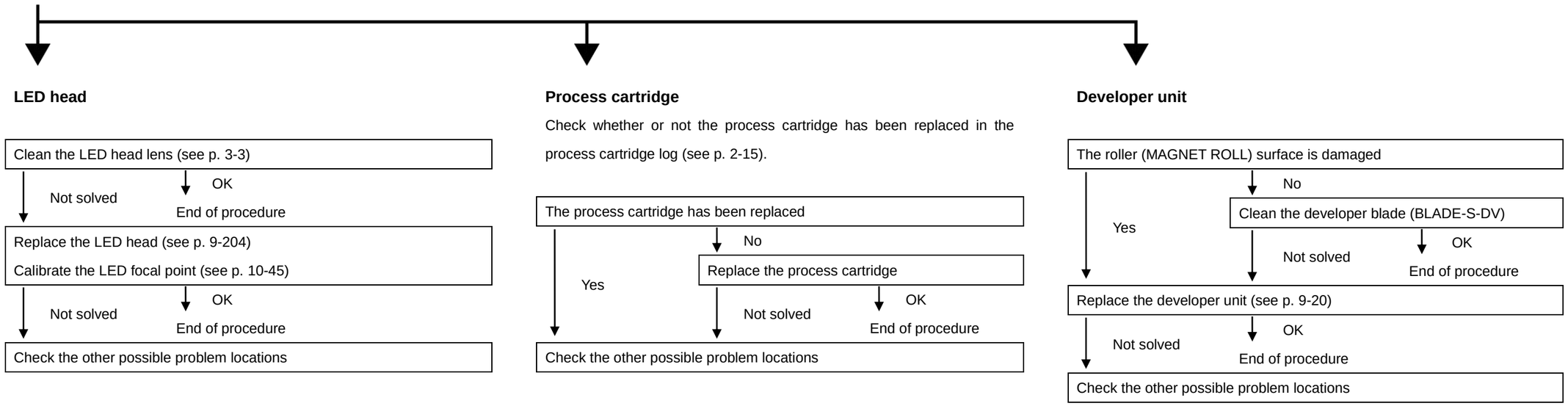
■Cause and solution

(a) Cause:
Lack of toner
Solution:
Supply the toner.

(b) Cause:
Photoconductor drum deterioration
Solution:
Replace the process cartridge.

■**Technician troubleshooting**

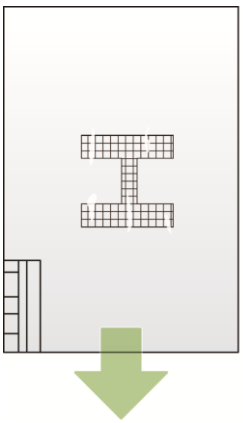
Check printing using the engine test pattern 15



(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

Transfer roller unit

Reinstall the GUIDE DC R and GUIDE DC L

Not solved / OK

Replace the transfer roller unit (see p. 9-207)

Not solved / OK

End of procedure

Check the other possible problem locations

Process cartridge

Check whether or not the process cartridge has been replaced in the process cartridge log (see p. 2-15).

The process cartridge has been replaced

No

Replace the process cartridge

Yes

Not solved / OK

End of procedure

Check the other possible problem locations

Fuser unit

The heat roller is damaged or deformed

No

Adjust the nip pressure (see p. 10-9), calibrate the skew/slack (see p. 10-13)

Yes

Not solved / OK

End of procedure

Replace the fuser unit (see p.9-55)

* After replacing the fuser unit, adjust the nip pressure (see p.10-9) and calibrate the skew/slack (see p. 10-13)

Not solved / OK

End of procedure

Check the other possible problem locations

Transport unit

Adjust the slope height

Not solved / OK

End of procedure

Replace the transport unit (see p. 9-221)

Not solved / OK

End of procedure

Check the other possible problem locations

Environment (temperature, humidity, and paper)

Turn the heater switch On or Off

*Leave the Printer for at least 2 hours after changing the setting

Not solved / OK

End of procedure

Replace the paper

Not solved / OK

End of procedure

Check the other possible problem locations

(6) Poor Image reproduction

The original and the printout differ.

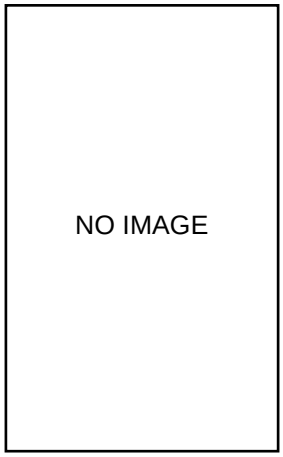
Characters or forms not present in the original are printed.

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

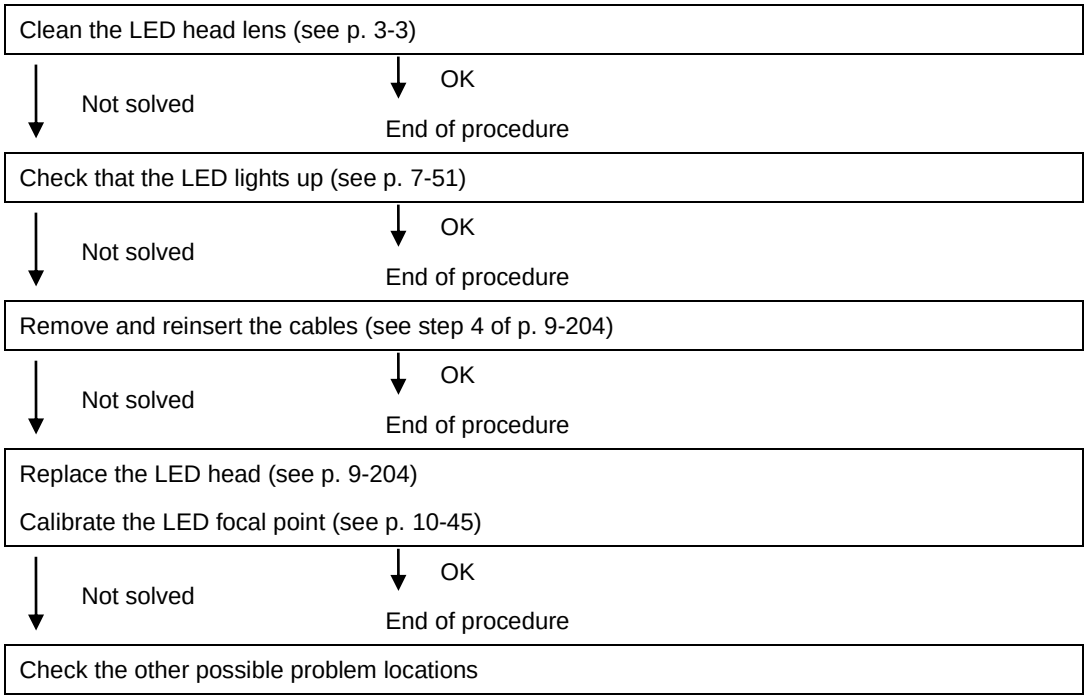
■Cause and solution

(a) Cause:
Controller malfunction
Solution:
Restart the Printer.

■Technician troubleshooting

Check printing using the engine test pattern 15

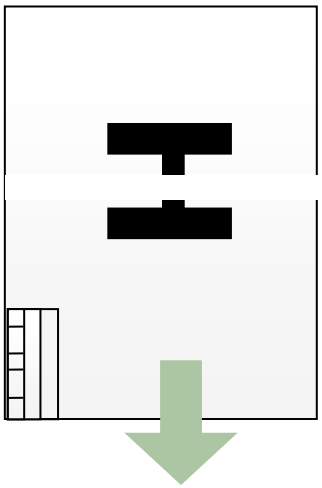
LED head



(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 patterns 5, 15 and 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).

Process cartridge

Check whether or not the process cartridge has been replaced in the process cartridge log (see p. 2-15).

- The process cartridge has been replaced
  - No → Replace the process cartridge
    - OK → End of procedure
    - Not solved → Check the other possible problem locations
  - Yes → Check the other possible problem locations

Developer unit

- Replace the developer unit (see p. 9-20)
  - OK → End of procedure
  - Not solved → Check the other possible problem locations

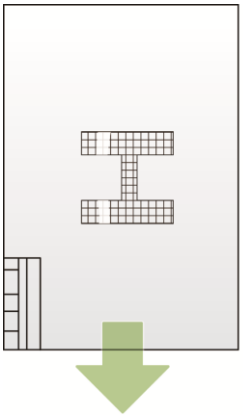
Transfer roller unit

- Replace the transfer roller unit (see p. 9-207)
  - OK → End of procedure
  - Not solved → Check the other possible problem locations

(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 patterns 5 and 15.

LED head

Clean the LED head lens (see p. 3-3)

Not solved / OK → End of procedure

Check that the LED lights up (see p. 7-51)

Not solved / OK → End of procedure

Remove and reinsert the cables (see step 4 to p. 9-204)

Not solved / OK → End of procedure

Replace the LED head (see p. 9-204)
Calibrate the LED focal point (see p. 10-45)

Not solved / OK → End of procedure

Check the other possible problem locations

Process cartridge

Check whether or not the process cartridge has been replaced in the process cartridge log (see p. 2-15).

The process cartridge has been replaced

Yes / No

Replace the process cartridge

Not solved / OK → End of procedure

Check the other possible problem locations

Developer unit

The roller (MAGNET ROLL) surface is damaged

No

Clean the developer blade (BLADE-S-DV)

Yes / Not solved / OK → End of procedure

Replace the developer unit (see p. 9-20)

Not solved / OK → End of procedure

Check the other possible problem locations

Environment (temperature, humidity, and paper)

Turn the heater switch On or Off

* Leave the Printer for at least 2 hours after changing the setting

Not solved / OK → End of procedure

Replace the paper

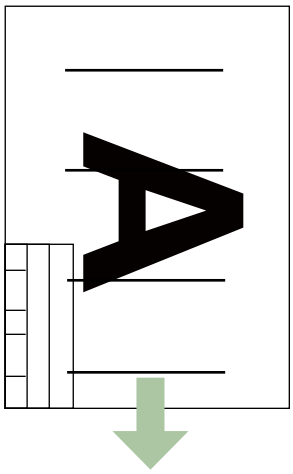
Not solved / OK → End of procedure

Check the other possible problem locations

(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

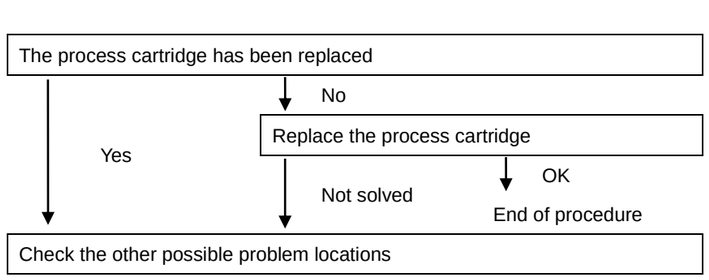
If you notice intervals in the occurrence of missing areas, determine the problematic part using the table below showing the part circumferential lengths (intervals), and then clean or replace the part.

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)

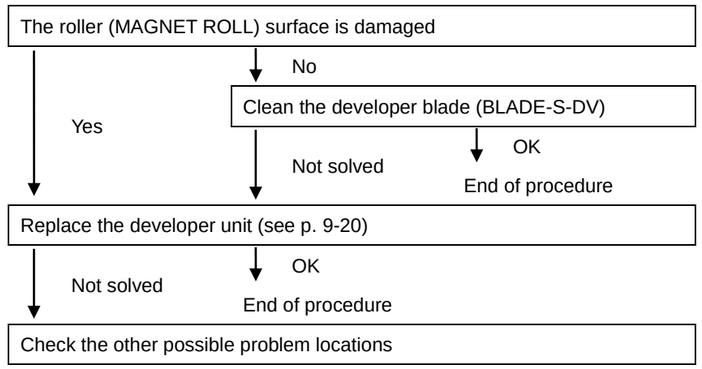
* The developing sleeve rotates twice as fast as the photoconductor drum, thus its circumferential length is half of 125.6 mm (4.95 inches) or 63 mm (2.48 inches).

Process cartridge

Check whether or not the process cartridge has been replaced in the process cartridge log (see p. 2-15).



Developer unit

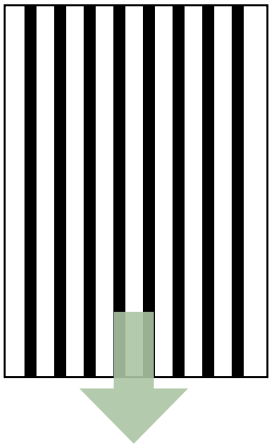


(10) Black lines (vertical) *Image not printed

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

Clean the LED head lens (see p. 3-3)

Not solved

OK
End of procedure

Check that the LED lights up (see p. 7-51)

Not solved

OK
End of procedure

Remove and reinsert the cables (see step 4 p. 9-204)

Not solved

OK
End of procedure

Replace the LED head (see p. 9-204)
Calibrate the LED focal point (see p. 10-45)

Not solved

OK
End of procedure

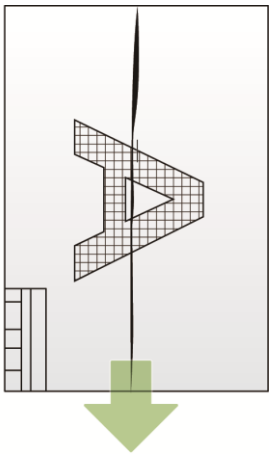
Check the other possible problem locations

(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

Process cartridge

Check whether or not the process cartridge has been replaced in the process cartridge log (see p. 2-15).

The process cartridge has been replaced
- No → Reverse or replace the charger unit
  - OK → End of procedure
  - Not solved → Replace the process cartridge
    - OK → End of procedure
    - Not solved → Check the charger unit installation
      - OK → End of procedure
      - Not solved → Clean the four contact areas of the process cartridge
        - OK → End of procedure
        - Not solved → Check the other possible problem locations
- Yes → Check the charger unit installation (same as above)

Fuser unit

The heat roller is damaged or deformed
- No → Clean the heat roller
  - OK → End of procedure
  - Not solved → Replace the heat roller
    - OK → End of procedure
    - Not solved → Replace the fuser unit (see p. 9-55)
      * After replacing the fuser unit, adjust the nip pressure (see p. 10-9) and calibrate the skew/slack (see p. 10-13)
      - OK → End of procedure
      - Not solved → Check the other possible problem locations
- Yes → Replace the heat roller (same as above)

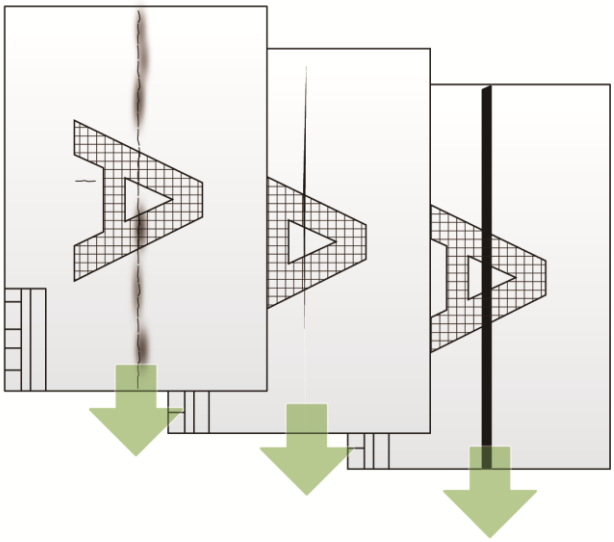
LED head

Clean the LED head lens (see p. 3-3)
- OK → End of procedure
- Not solved → Check that the LED lights up (see p. 7-51)
  - OK → End of procedure
  - Not solved → Remove and reinsert the cables (see step 4 to p. 9-204)
    - OK → End of procedure
    - Not solved → Replace the LED head (see p.9-204)
      * After replacing the LED head, calibrate the focal point (see p. 10-45)
      Calibrate the light-emitting strobe width (see p. 10-48)
      - OK → End of procedure
      - Not solved → Check the other possible problem locations

(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

Process cartridge

Check whether or not the process cartridge has been replaced in the process cartridge log (see p. 2-15).

- The process cartridge has been replaced
  - No → Reverse or replace the charger unit
    - OK → End of procedure
    - Not solved → Replace the process cartridge
      - OK → End of procedure
      - Not solved →
  - Yes →
- Check the charger unit installation
  - OK → End of procedure
  - Not solved →
- Clean the four contact areas of the process cartridge
  - OK → End of procedure
  - Not solved →
- Check the other possible problem locations

Fuser unit

- The heat roller is damaged or deformed
  - No → Clean the heat roller
    - OK → End of procedure
    - Not solved →
  - Yes →
- Replace the heat roller
  - OK → End of procedure
  - Not solved →
- Replace the fuser unit (see p. 9-55)
  * After replacing the fuser unit, adjust the nip pressure (see p. 10-9) and calibrate the skew/slack (see p. 10-13)
  - OK → End of procedure
  - Not solved →
- Check the other possible problem locations

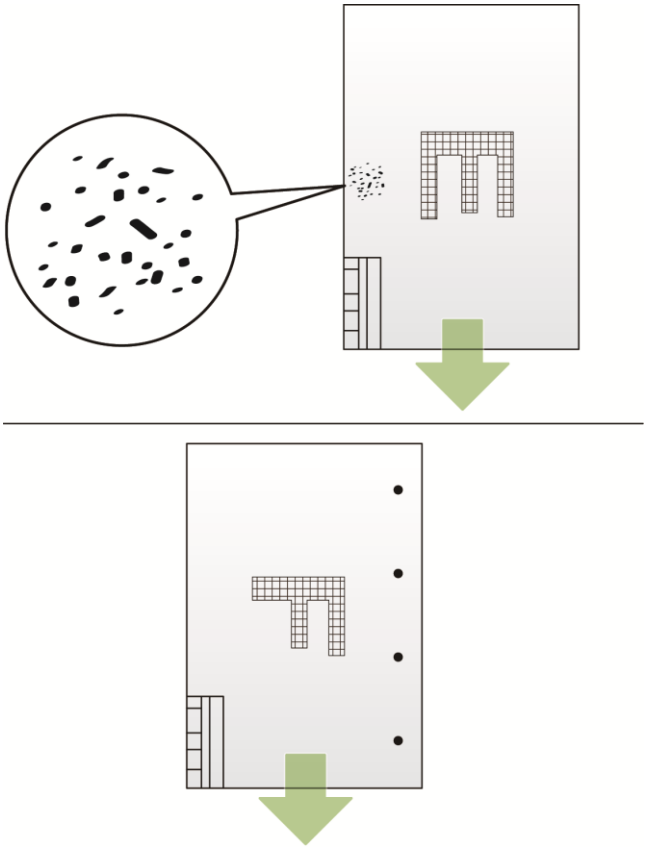
LED head

- Clean the LED head lens (see p. 3-3)
  - OK → End of procedure
  - Not solved →
- Check that the LED lights up (see p. 7-51)
  - OK → End of procedure
  - Not solved →
- Remove and reinsert the cables (see step 4 to p. 9-204)
  - OK → End of procedure
  - NG →
- Replace the LED head (see p. 9-204)
  * After replacing the LED head, calibrate the focal point (see p. 10-45)
  Calibrate the light-emitting strobe width (see p. 10-48)
  - OK → End of procedure
  - Not solved →
- Check the other possible problem locations

(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. 2-15).

The process cartridge has been replaced
→ No → Replace the process cartridge
→ OK → End of procedure
→ Not solved → Check the other possible problem locations
Yes → Check the other possible problem locations

Fuser unit

The heat roller is damaged or deformed
→ No → Clean the heat roller
→ OK → End of procedure
→ Not solved → Replace the fuser unit (see p.9-55)
* After replacing the fuser unit, adjust the nip pressure (see p. 10-9) and calibrate the skew/slack (see p. 10-13)
→ OK → End of procedure
→ Not solved → Check the other possible problem locations
Yes → Replace the fuser unit (see p.9-55)
* After replacing the fuser unit, adjust the nip pressure (see p. 10-9) and calibrate the skew/slack (see p. 10-13)

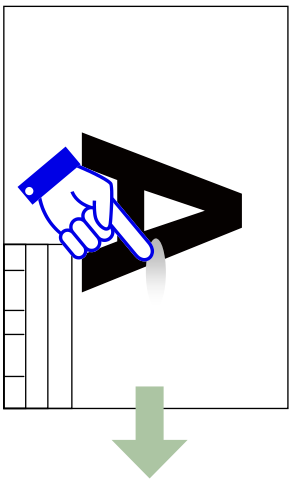
Developer unit

The roller (MAGNET ROLL) surface is damaged
→ OK → Clean the developer blade (BLADE-S-DV)
→ OK → End of procedure
→ Not solved → Replace the developer unit (see p. 9-20)
→ OK → End of procedure
→ Not solved → Check the other possible problem locations
Yes → Replace the developer unit (see p. 9-20)

(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

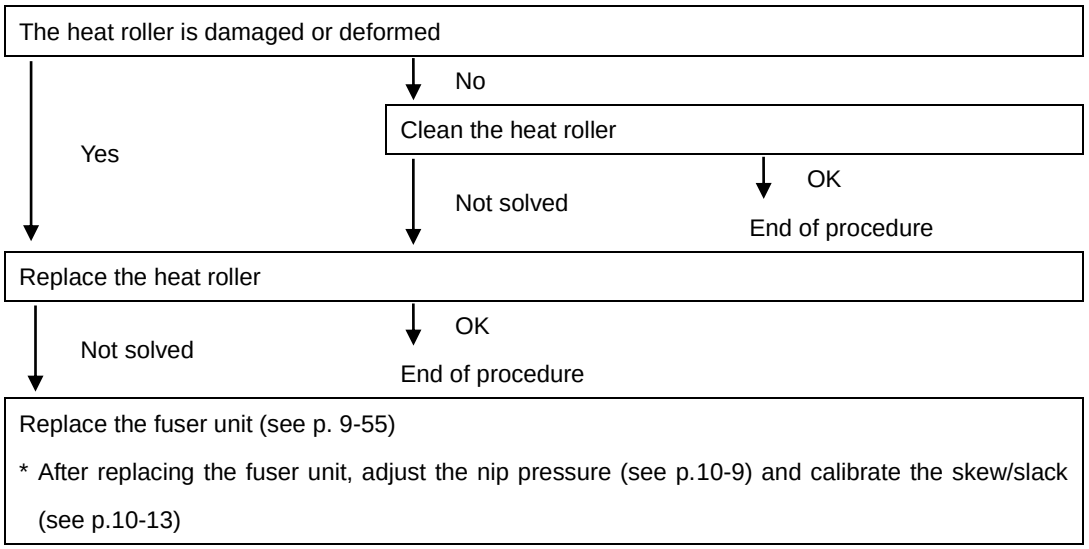
■Cause and solution

(a) Cause:
Incorrect paper
Solution:
Replace the paper.

■Technician troubleshooting

Check printing using the engine test pattern 15

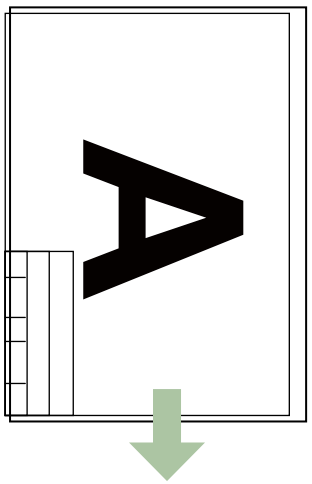
Fuser unit



(15) Positioning problem

The print position is incorrect either in the up/down or right/left direction.

Print sample



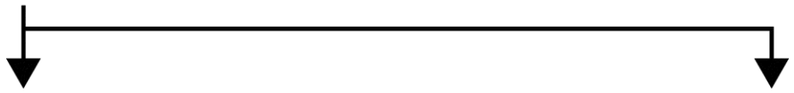
Possible problem locations
- CL04
- Torque limiter

■Cause and solution

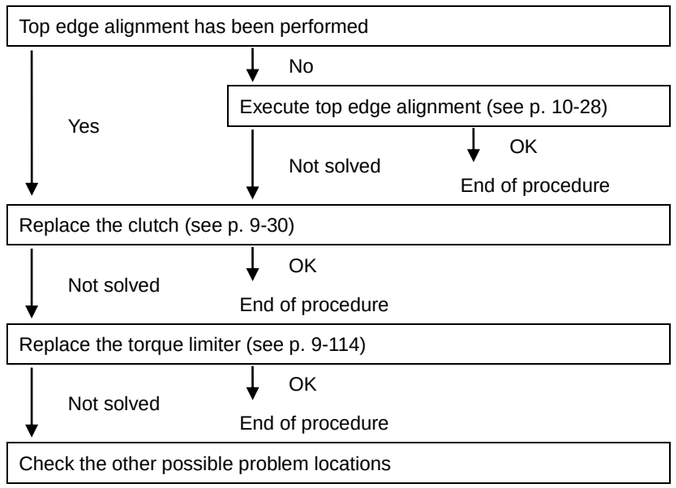
(a) Cause:
Photoconductor drum or holder malfunction
Solution:
Replace the process cartridge.

■**Technician troubleshooting**

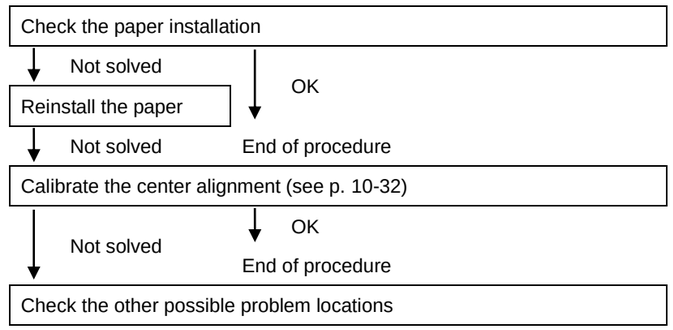
Check printing using the engine test pattern 13



Printout misaligned vertically



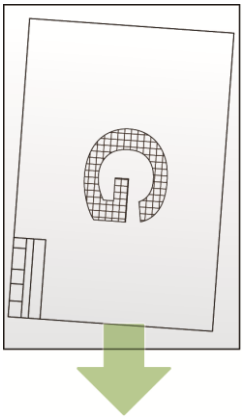
Printout misaligned horizontally



(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

Fuser unit

The heat roller is damaged or deformed

No → Adjust the nip pressure (see p. 10-9)
Calibrate the skew/slack (see p. 10-13)

Yes → Replace the heat roller

Not solved → Replace the fuser unit (see p. 9-55)
* After replacing the fuser unit, adjust the nip pressure (see p. 10-9) and calibrate the skew/slack (see p. 10-13)

Not solved → Check the other possible problem locations

OK → End of procedure

Each roller

A roller in the paper transport unit touches the paper unevenly

No → Clean

Yes → Replace the rollers

Not solved → Check the other possible problem locations

OK → End of procedure

Transfer roller unit

Deformation on the roller guide or roller (TRA)

No → Adjust the spacer transfer guide height

Yes → Replace the transfer roller unit (see p. 9-207)

Not solved → Check the other possible problem locations

OK → End of procedure

Transport unit

Transport unit belt is scratched or damaged

Yes → Replace the transport unit belt (see p. 9-224)

No → Clean the transport unit belt

Not solved → Adjust the slope height

Not solved → Replace the transport unit (see p. 9-221)

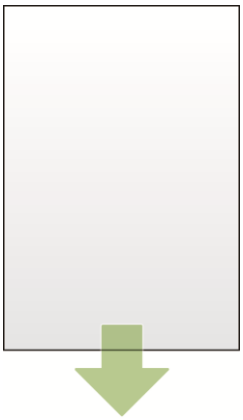
Not solved → Check the other possible problem locations

OK → End of procedure

(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

Process cartridge

Check whether or not the process cartridge has been replaced in the process cartridge log (see p. 2-15).

The process cartridge has been replaced

No

Replace the process cartridge

Yes

Not solved

OK

End of procedure

Check the other possible problem locations

Developer unit

Replace the developer unit (see p. 9-20)

Not solved

OK

End of procedure

Check the other possible problem locations

LED head

Check that the LED head is secure and release it

Not solved

OK

End of procedure

Clean the LED head lens (see p.3-3)

Not solved

OK

End of procedure

Check that the LED lights up (see p. 7-51)

Not solved

OK

End of procedure

Remove and reinsert the cables (see step 4 to p. 9-204)

Not solved

OK

End of procedure

Replace the LED head (see p. 9-204)

Calibrate the LED focal point (see p.10-45)

Not solved

OK

End of procedure

Check the other possible problem locations

Transfer roller unit

Replace the transfer roller unit (see p.9-207)

Not solved

OK

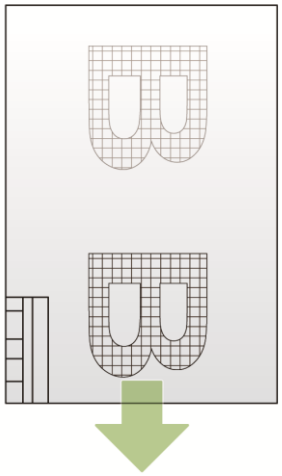
End of procedure

Check the other possible problem locations

(18) Repeat print

The same image is printed at intervals.

Print sample



Possible problem locations
- Process cartridge
- Fuser unit

■Cause and solution

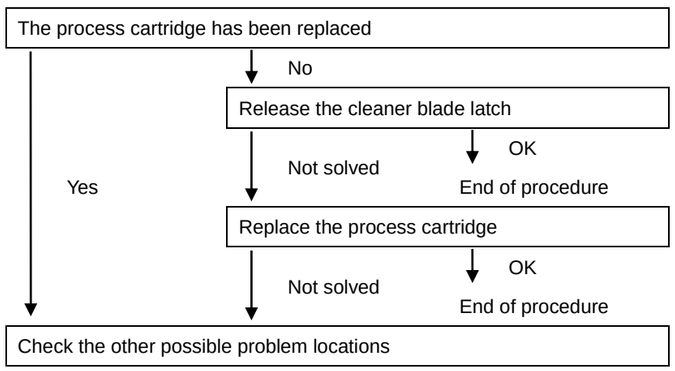
(a) Cause:
Cleaner blade malfunction
Solution:
Replace the process cartridge.

■**Technician troubleshooting**

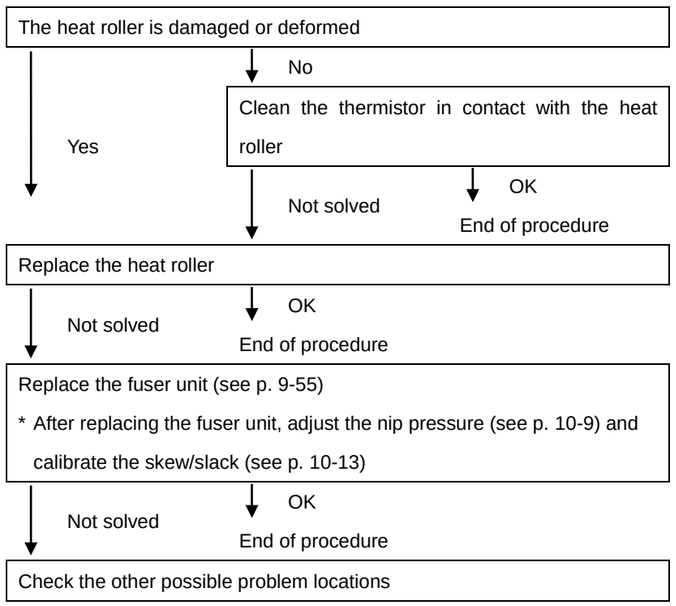
Check printing using the engine test pattern 2

Process cartridge

Check whether or not the process cartridge has been replaced in the process cartridge log (see p. 2-15).



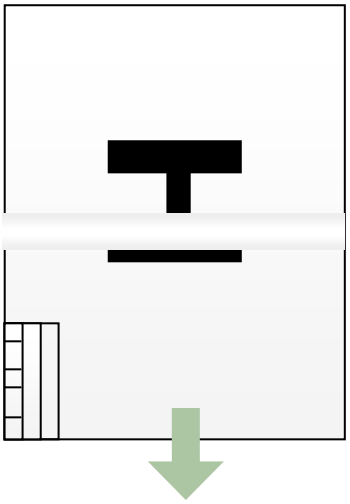
Fuser unit



(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.

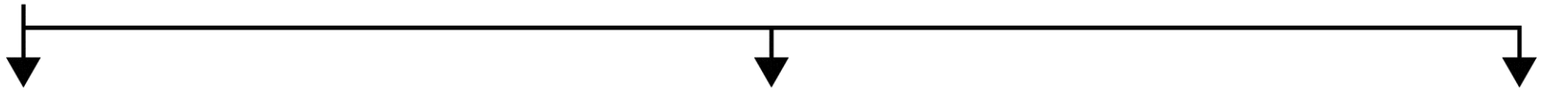
■Technician troubleshooting

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.

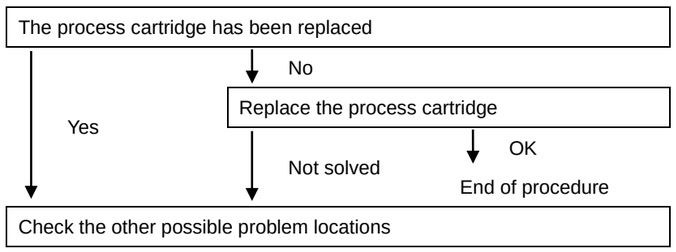
Part	External diameter	Circumferential length
Photoconductor drum	60 mm (2.36 inches)	188 mm (7.40 inches)
Heat roller	50 mm (1.97 inches)	157 mm (6.18 inches)
Backup roller	60 mm (2.36 inches)	188 mm (7.40 inches)
Developing sleeve	40 mm (1.58 inches)	63* mm (2.48 inches)

* 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).



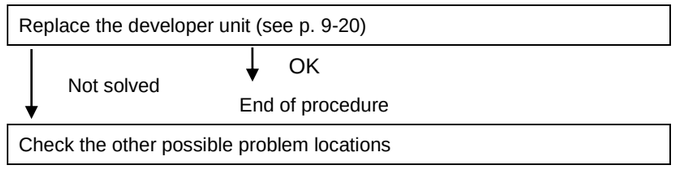
Process cartridge

Check whether or not the process cartridge has been replaced in the process cartridge log (see p. 2-15).

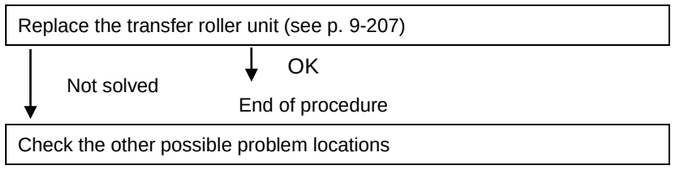


Developer unit

Ask the user



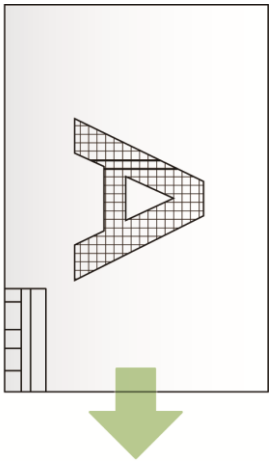
Transfer roller unit



(20) Smearing

Horizontal lines appear duplicated or smeared.

Print sample



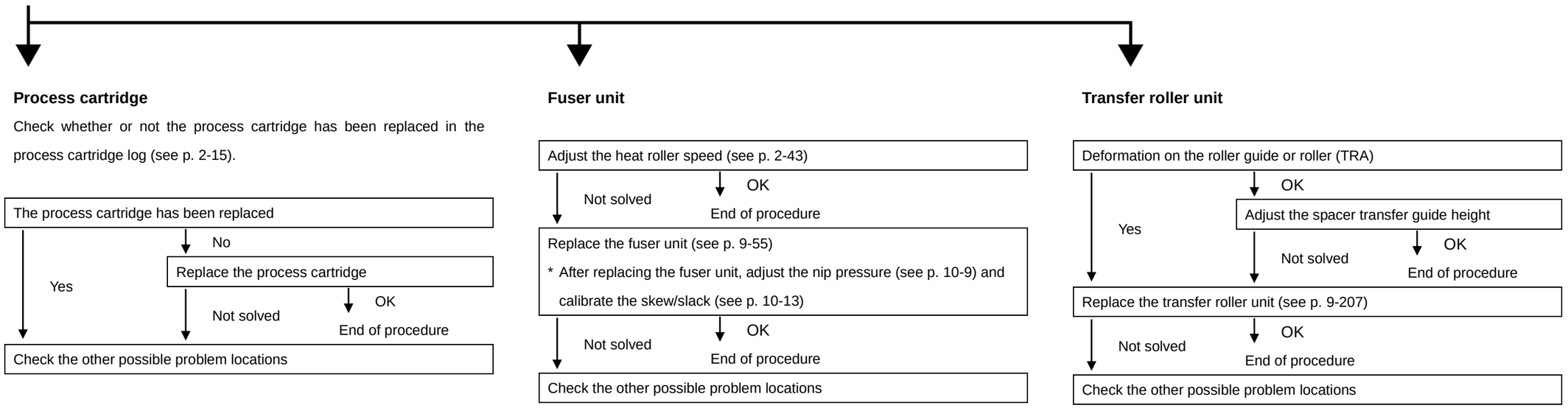
Possible problem locations
- Process cartridge
- Fuser unit
- Transfer roller unit

■Cause and solution

(a) Cause:
Photoconductor drum rotation problems due to clogged cleaner unit
Solution:
Replace the process cartridge.

■**Technician troubleshooting**

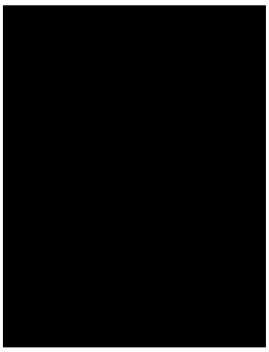
Check printing using the engine test pattern 5



(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

Process cartridge

Check whether or not the process cartridge has been replaced in the process cartridge log (see p. 2-15).

The process cartridge has been replaced

No

Replace the charger unit

OK

End of procedure

Not solved

Yes

Replace the process cartridge

OK

End of procedure

Not solved

Check the charger unit installation

OK

End of procedure

Not solved

Clean the four contact areas of the process cartridge

OK

End of procedure

Not solved

Check the four contacts of the process cartridge and repair any poor contact.

OK

End of procedure

Not solved

Check the voltage

OK

End of procedure

Not solved

Check the other possible problem locations

LED head

Remove and reinsert the cables (see step 4 to p. 9-204)

OK

End of procedure

Not solved

Replace the LED head (see p. 9-204)

OK

End of procedure

Not solved

Check the other possible problem locations

PSU-T2 MNT

The measured voltage corresponds to the specified value

OK

Replace the PSU-T2

OK

End of procedure

NG

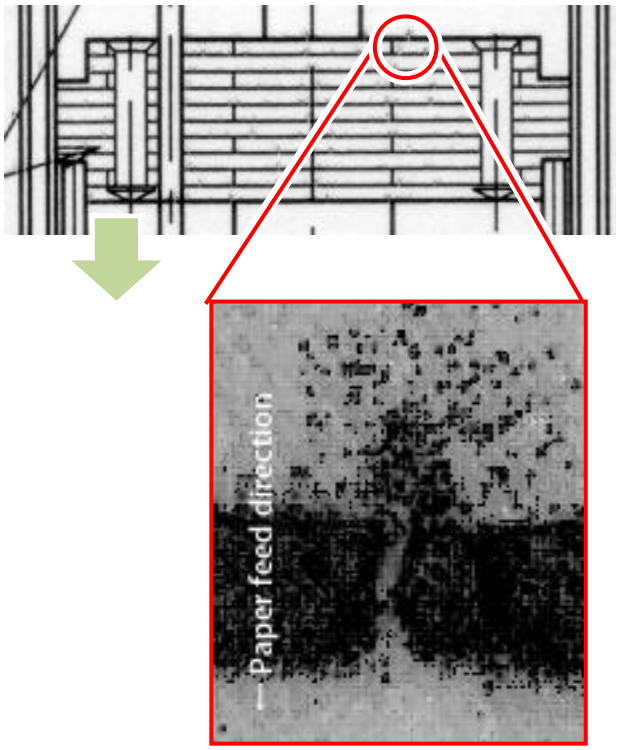
Not solved

Check the other possible problem locations

(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

(a) Solution:
Decrease the room humidity.

(b) Solution:
Set the heater switch to On.
* Leave the Printer for at least 2 hours after changing the setting.

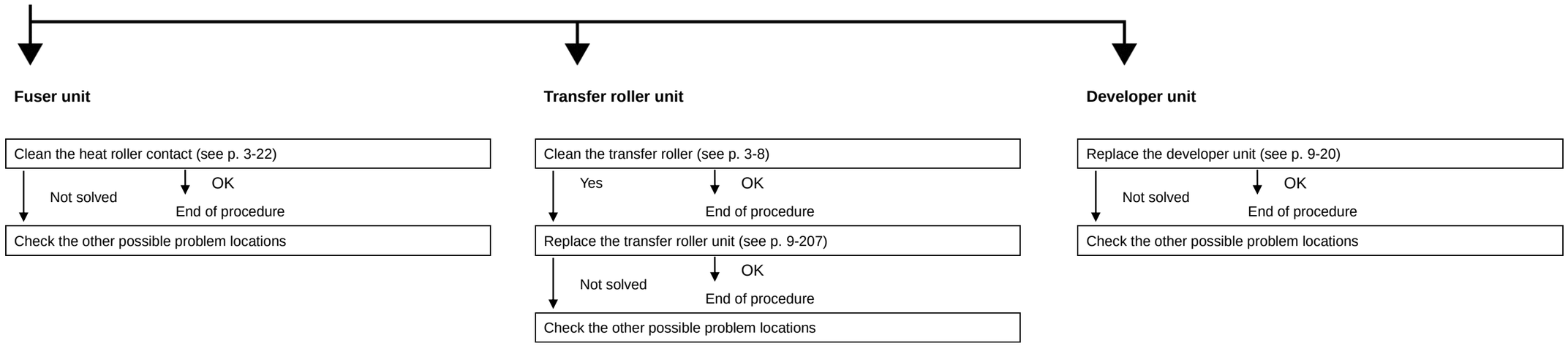
(c) Cause:
Incorrect paper
Solution:
Replace the paper.

(d) Cause:
Lack of toner
Solution:
Supply the toner.

(e) 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>

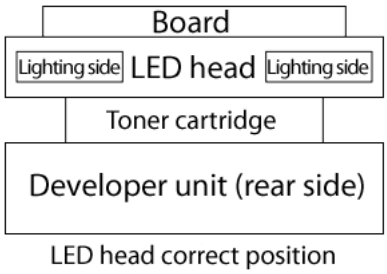
- Phillips screwdriver

<Check procedure>

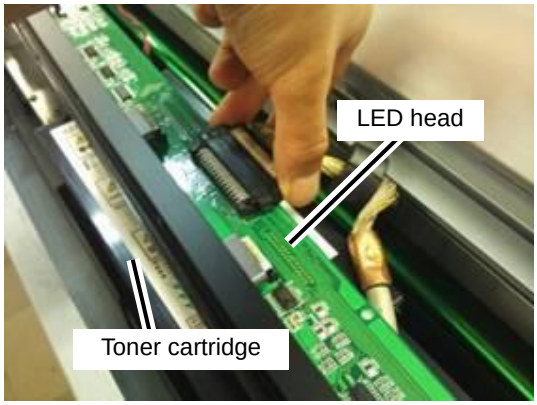
1. Remove the LED head from the Printer (see p. **9-204**).

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.)



LED head correct position



4. Connect all the four connectors (one signal cable, two power cables, one thermistor cable) to the LED head board.

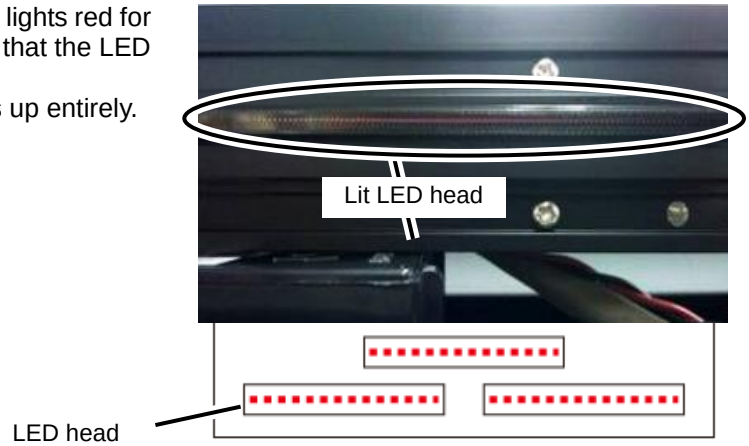
Note

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.

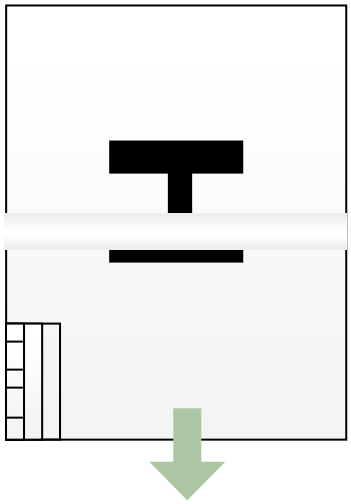


8. Replace the LED head back into the Printer.

Chapter 8 Scanner Image Quality Problems Troubleshooting

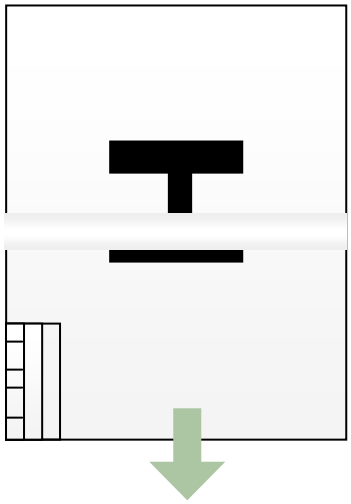
This chapter covers types of problems related to scanner image quality and possible solutions for those problems.

8.1 Image Misalignment (Top)

Print Sample	Problem Symptoms and Signs to Look For
	◆ The front registration is too large or too small, causing a difference between the printer and the copy functions.

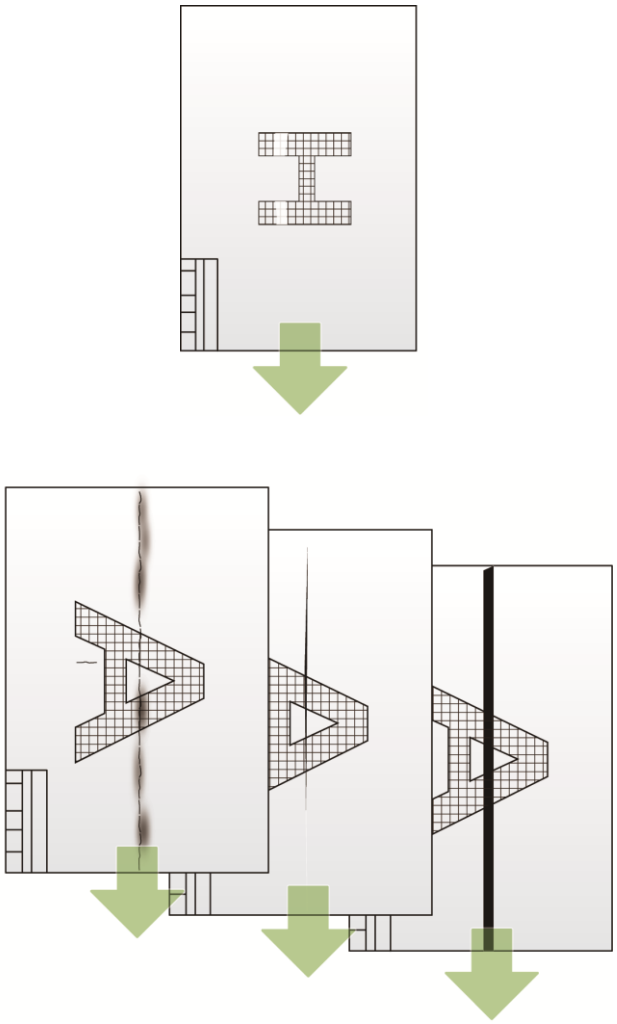
Symptom	Cause	Solution
The front registration is either too large or too small. This causes a difference between printouts and copies.	The value of the printer's front registration or the scanner's front registration is incorrect.	Identify which top edge alignment is misaligned, on the printer or on the scanner. 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. 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. Step 3: Calibrate the top edge alignment.

8.2 Image Misalignment (Center)

Print Sample	Problem Symptoms and Signs to Look For
	◆ The print position is largely misaligned despite inserting the original document correctly aligned with the original guide.

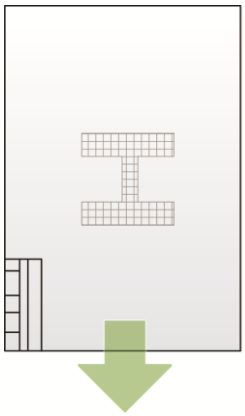
Symptom	Cause	Solution
The print position is largely misaligned despite inserting the original document correctly aligned with the original guide.	The printer's center alignment value or the scanner's right-side scan position is incorrect.	Check to see if the problem is with the printer or the scanner. 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. 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. Step 3: Adjust until the image shift is resolved.

8.3 Vertical Lines (Black or White)

Print Sample	Problem Symptoms and Signs to Look For
	◆ Black or white lines appear on copy output.

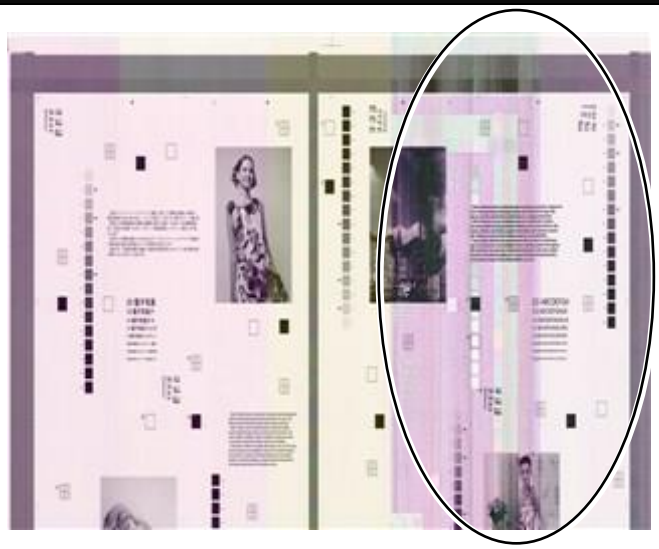
Symptom	Cause	Solution
Black or white lines appear on copy output.	There is a problem with the printer's printing. Or, there is some dirt or foreign particles on the surface of the scanner glass or shading guide.	Step 1: Check the printout of the printer by printing the engine test pattern 13. If there are any problems, perform the necessary steps to resolve them.(See **Troubleshooting** Image Quality Problems p. **7-8**) Step 2: Check to see if there are any problems with the scanner. Clean the scanner's shading guide and/or scanner glass. If these steps do not solve the problem, replace the CIS unit.

8.4 Density Irregularities

Print Sample	Problem Symptoms and Signs to Look For
	◆ Density irregularities occur at the CIS level.

Symptom	Cause	Solution
Density irregularities occur at the CIS level.	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.	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.

8.5 Other Problems

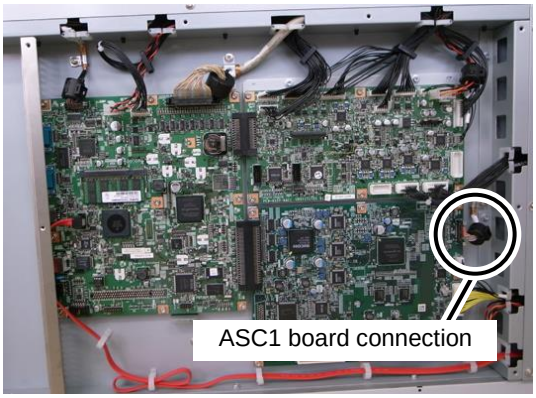
Print Sample	Problem Symptoms and Signs to Look For
	◆ Black belts appear in the sensor D vertical direction and past images appear diagonally.

	Symptom	Cause	Solution
	Black belts appear vertically. Past images appear horizontally or diagonally.	The CBLS-LVDS connector may not contact properly.	Clean the CBLS-LVDS connector contact.

◆How to clean the CBLS-LVDS connector contact

<Disconnect the CBLS-LVDS from the ASC1 board>

1. Disconnect the CBLS-LVDS from the CN5 connector on the ASC1 board.
(See **9.8.8 PCB-ASSY-ASC1 MNT**)



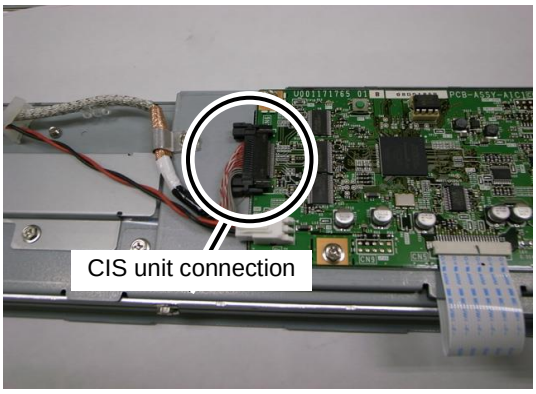
<Clean the ASC1 board connecting part with air>

2. Clean:
- the connector on the ASC1 board; and
- the connector on the harness side

with 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 side

with the air blow tool in order to remove any foreign particle from the connecting area.

Chapter 9 Parts Disassembly, Assembly, and Replacement

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**.

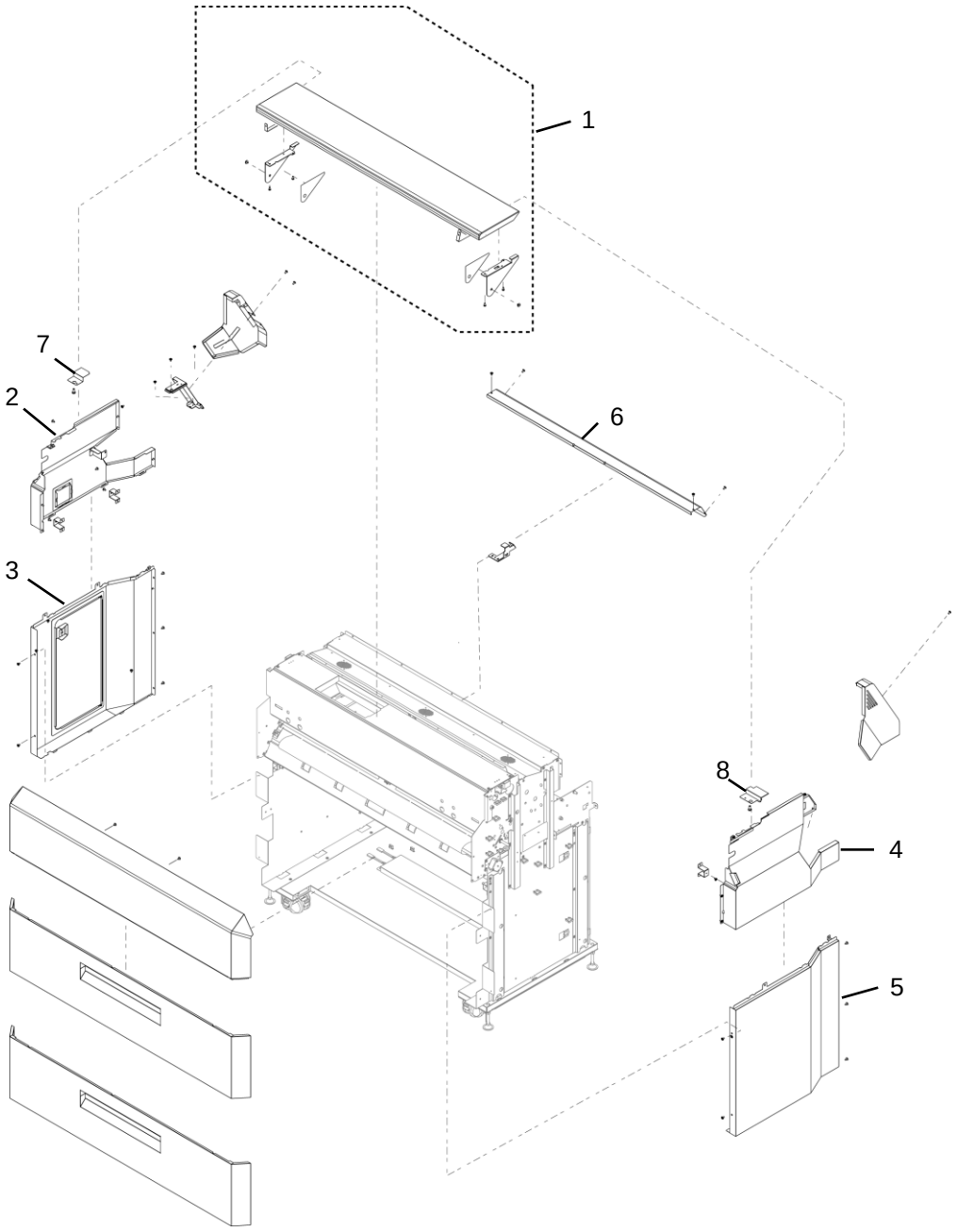
9.1.2 Removing External Parts

Instructions are given below for removing commonly removed parts (primarily covers) when disassembling or assembling the printer to replace parts.

Note

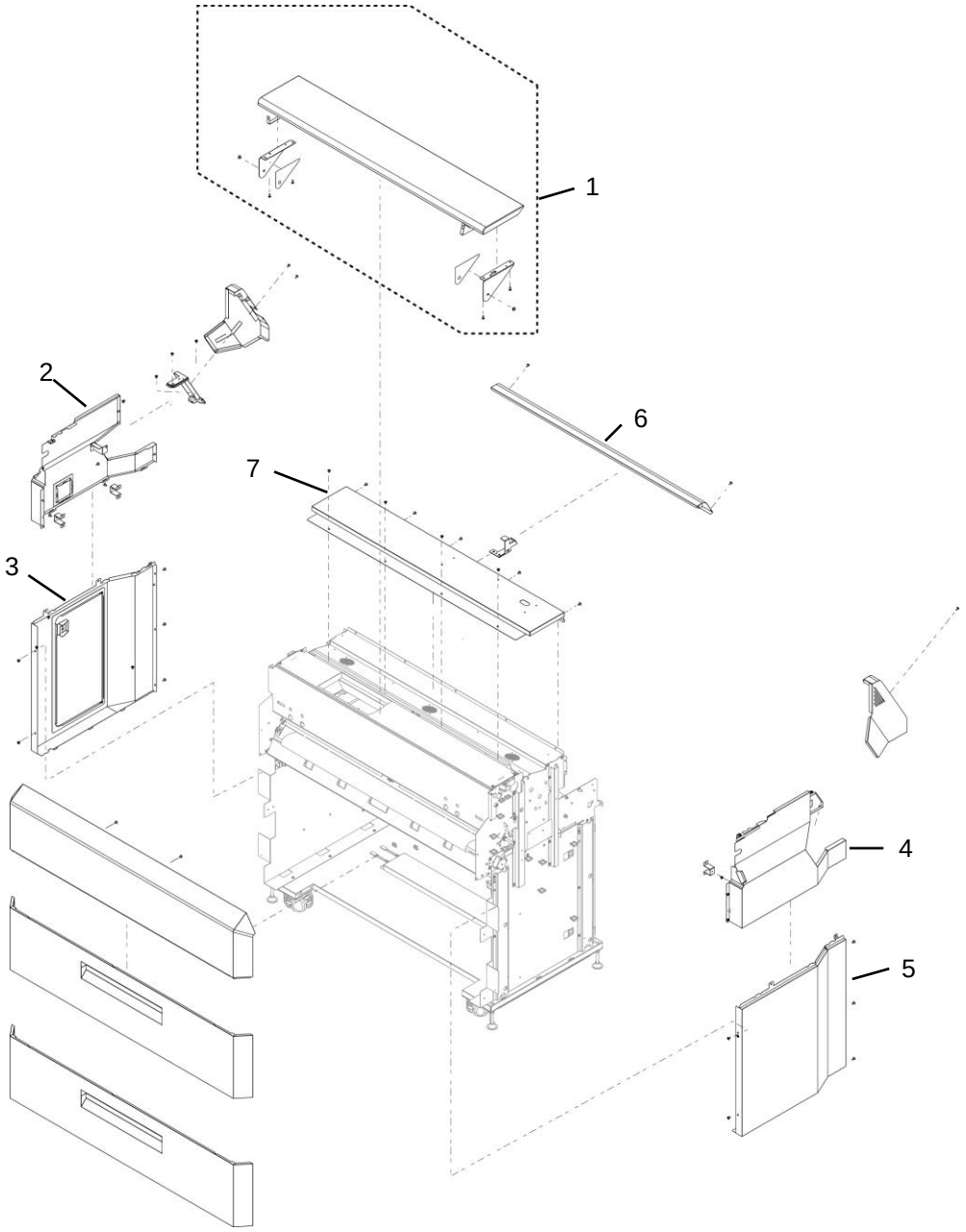
- Instructions for removing the document table of the multifunction model are omitted below. Depending on the situation, raise the document table when working.
- Though the official names for cover parts vary between models, we use their engineering names here for clarity

Screws securing plastic external parts should be tighten at 0.8 N·m (8 kg·cm) torque.



1: DOCUMENT-TABLE-UNIT(MF)-2060	→ 4 screws
2: COVER-SIDE-L2-2060	→ 5 screws
3: COVER-SIDE-L1-2060	→ 8 screws
4: COVER-SIDE-R2-2060	→ 5 screws
5: COVER-SIDE-R1-2060	→ 8 screws
6: COVER-FUSER-C1(MF)-2060	→ 4 screws
7: PLATE-BLINDFOLD-SCU-L-2060	→ 1 screw
8: PLATE-BLINDFOLD-SCU-R-2060	→ 1 screw

Figure 9.1 External Parts (Multifunction Model)



1: DOCUMENT-TABLE-UNIT(PL)-2060	→ 4 screws
2: COVER-SIDE-L2-2060	→ 5 screws
3: COVER-SIDE-L1-2060	→ 8 screws
4: COVER-SIDE-R2-2060	→ 5 screws
5: COVER-SIDE-R1-2060	→ 8 screws
6: COVER-FUSER-C1(PL)-2060	→ 2 screws
7: COVER-TOP-PL-2060	→ 9 screws

Figure 9.2 Printer Model

(1) Removal of the DOCUMENT-TABLE-UNIT(MF)-2060-2060 or DOCUMENT-TABLE-UNIT(PL)-2060-2060

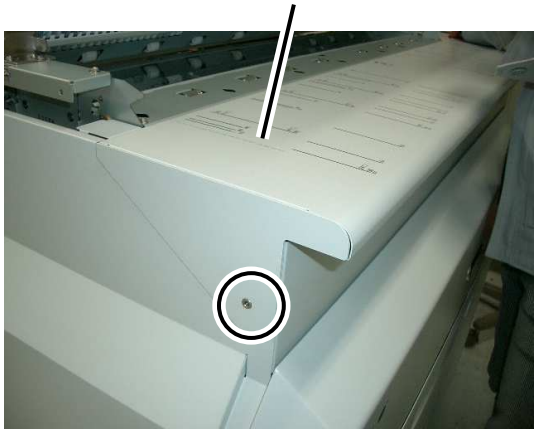
<Removal>

1. For the Multifunction Model, remove the original document guide.

2. Remove the one screw shown in the photo.

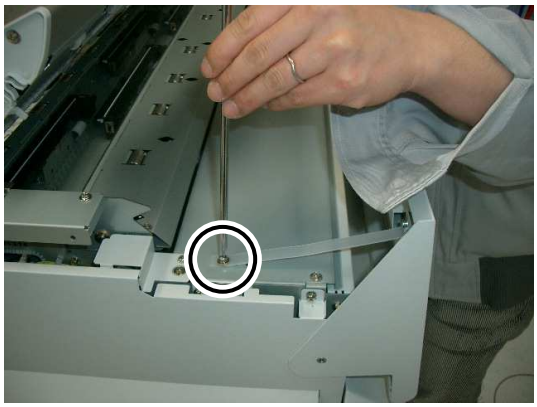
3. Similarly, remove one screw from the opposite side.

DOCUMENT-TABLE-UNIT(MF)-2060
or
DOCUMENT-TABLE-UNIT(PL)-2060



4. Remove the one screw shown in the photo.

5. Similarly, remove the one screw from the opposite side.



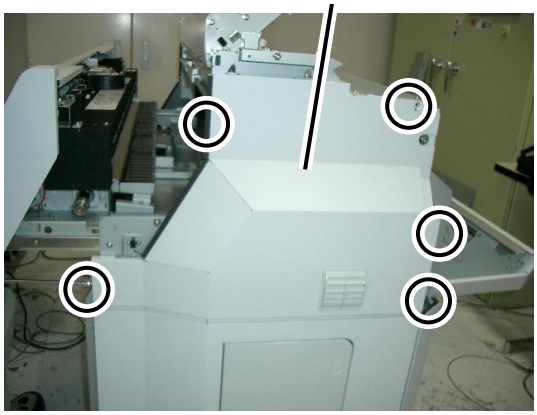
6. Hold the DOCUMENT-TABLE-UNIT(MF)-2060-2060 or DOCUMENT-TABLE-UNIT(PL)-2060-2060 with both hands and remove it.

(2) Removal of COVER-SIDE-L2-2060

<Removal>

1. Remove the five screws shown in the photo.
2. Remove COVER-SIDE-L2-2060.

COVER-SIDE-L2-2060

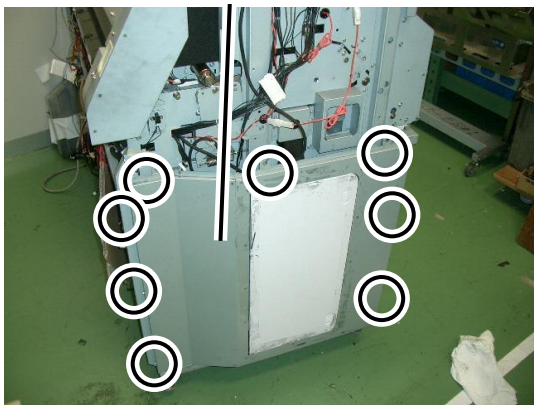


(3) Removal of COVER-SIDE-L1-2060

<Removal>

1. Remove COVER-SIDE-L2-2060.
2. Remove the eight screws shown in the photo.
3. Remove COVER-SIDE-L1-2060.

COVER-SIDE-L1-2060



(4) Removal of COVER-SIDE-R2-2060

<Removal>

1. Remove the five screws shown in the photo.
2. Remove COVER-SIDE-R2-2060.

(5) Removal of COVER-SIDE-R1-2060

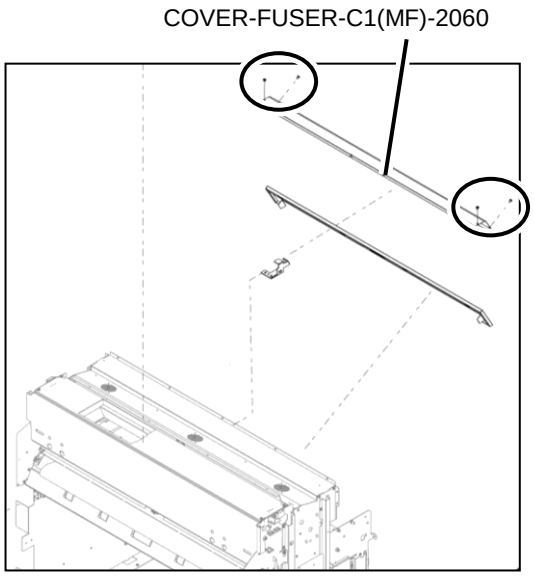
<Removal>

1. Remove COVER-SIDE-R2-2060.
2. Remove the eight screws was done for COVER-SIDE-L1-2060.
3. Remove COVER-SIDE-R1-2060.

(6) Removal of COVER-FUSER-C1(MF)-2060 (Multifunction Model only)

<Removal>

1. Remove the four screws shown in the photo.
2. Remove COVER-FUSER-C1(MF)-2060.

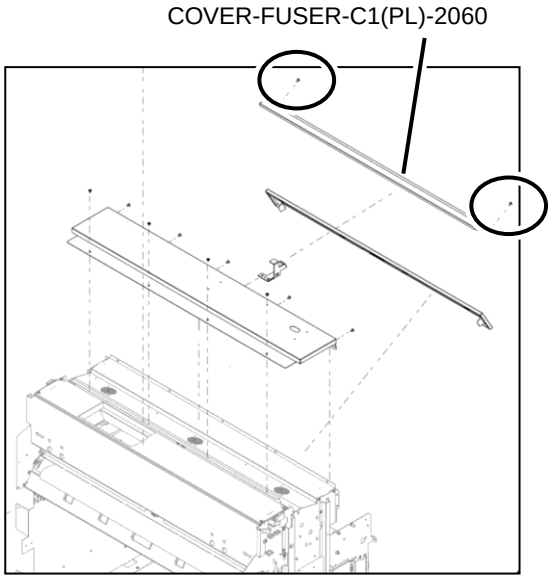


(7) Removal of COVER-FUSER-C1(PL)-2060 (Printer Model only)

<Removal>

1. Remove the two screws shown in the photo.

2. Remove COVER-FUSER-C1(PL)-2060.

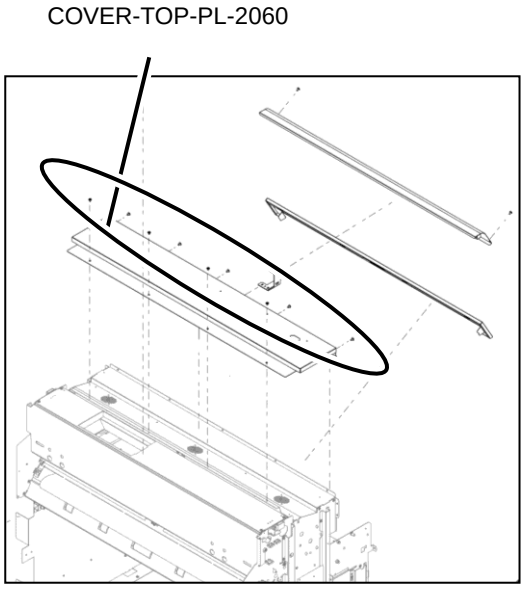


(8) Removal of COVER-TOP-PL-2060 (Printer Model only)

<Removal>

1. Remove the nine screws shown in the photo.

2. Remove COVER-TOP-PL-2060.



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

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
2	MF/PR	CUTTER UNIT MANUAL MNT	U001211264xx	1	9.5.2
3	MF/PR	SPACER CUTTER MNT	U001328477xx	50	10.11

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	MICRO SWITCH ,04,05,06-1 MNT	U001207438xx	5	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	PCB-ASSY-ARC1 2060 MNT	U100001695xx	1	9.8.3
3	PR	PCB-ASSY-ARC2 2060 MNT	U100001696xx	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*1	MF/PR	MAIN SWITCH 100V MNT	U001210803xx	5	9.8.6
7	MF/PR	MAIN SWITCH 120V 200V MNT	U001209330xx	3	9.8.6
8*2	MF/PR	AC INLET MNT	U001209352xx	20	9.8.7
9	MF	PCB-ASSY-ASC1 MNT	U001211905xx	1	9.8.8
10*1	MF/PR	PSU-T2(MID100) MNT	U001211815xx	1	9.8.9
11*2	MF/PR	PSU-T2 MNT	U001211826xx	1	9.8.9
12*1	MF/PR	HE RELAYS MNT	U001211940xx	1	9.8.10
13	MF/PR	BL05 ASSY MNT	U001209317xx	1	9.8.11
14	MF/PR	HV(4CH)-PSU-T2 A1 MNT	U001253788xx	1	9.8.12
15	MF/PR	T2ARC-EEPROM MNT	U001295987xx	1	9.8.3

*1: For Japan and North America (100 V/120 V)
*2: For Europe and China (200 V)

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,WITHOUT HEATER 2060,MNT	U100001621xx	1	9.10.1
2	MF/PR	BLOWER FAN,BL01,02,06 MNT	U001207618xx	1	9.10.2
3	MF/PR	SL01 MNT	U001209914xx	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*1	MF/PR	HALOGEN LAMP MAIN 100V MNT	U001207754xx	1	9.10.6
		HALOGEN LAMP SUB 100V MNT	U001207776xx	1	9.10.6
7*2	MF/PR	HALOGEN LAMP MAIN 120V MNT	U001207798xx	1	9.10.6
		HALOGEN LAMP SUB 120V MNT	U001207811xx	1	9.10.6
8*3	MF/PR	HALOGEN LAMP MAIN 230V MNT	U001207833xx	1	9.10.6
		HALOGEN LAMP SUB 230V MNT	U001207855xx	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	5	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
19	MF/PR	EARTH-CONTACT MNT	U001276290xx	20	3.3.3
20	MF/PR	FUS GEAR MNT	U001345318xx	1	9.10.16

*1: For Japan
*2: For North America
*3: For Europe and 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
		FA3L-BA22	2051429P2000	1	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 LIMITTER REGIST MNT	U001209238xx	1	9.11.9
9	MF/PR	T2-CBL-PNL	U00119489501	1	9.11.10

9.2.10 OPERATION PANEL UNIT

No.	Model	Part Name	Part Number	No. of packages per box	Reference Item
1	MF	PANEL ASSY T2E MNT	U100001618xx	1	9.12.1
2	PR	PANEL ASSY T2E PL MNT	U100001619xx	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 FINGER MNT	U001209003xx	3	—
4	MF/PR	DRUM FINGER W MNT	U001282937xx	3	9.13.3
5	MF/PR	WIRE(CHARGER)MNT	U000925514xx	1	9.13.4
6	MF/PR	ERASER ASSY MNT	U001209172xx	1	9.13.5
7	MF/PR	BLADE-CLEANER-SS002 MNT	U001237948xx	1	9.13.6
8	MF/PR	FILTER T2 MNT	U001209374xx	2	9.13.7
9	MF/PR	FILTER FUS MNT	U001209396xx	3	9.13.7

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	9.14.4
3	MF/PR	ROLLER REWIND LOW MNT	U001228792xx	1	9.14.3
4	MF/PR	GEAR ONEWAY MNT	U001209115xx	5	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	10	9.14.1

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	20	9.15.2
3	MF	REFLECTIVE PHOTOSENSOR MNT	U001209453xx	3	9.15.2 9.15.3
4	MF	ROLLER SC G ASSY MNT	U001316452xx	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	MF	PLATE SHADING ASSY MNT	U001253070xx	1	9.15.8
10	MF	T2-CBLS-LVDS	U00119488401	1	9.15.9

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 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	—	9.19.2
2	MF/PR	COTTON CIEGAL MNT	U001209273xx	—	9.19.1
3	MF	ADJUSTER KIT(SCANNER)	U001223640xx	—	9.19.4
4	MF/PR	OPC CLEANER	U001034706xx	—	9.19.3
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	—	9.19.9
10	MF/PR	AIR BLOW TOOL	U001307531xx	—	9.19.10
11	MF/PR	GEAR-SPACER MNT	U001282138××	100	9.19.11
12	MF/PR	PUSH-PULL GAUGE	U001280463××	1	9.19.12
13	MF/PR	Grease_EM-69L	U00132510300	—	9.19.13

9.3 COVER-UNIT

9.3.1 PUSH LATCH MNT

<Removal>

1. Open the waste toner door.

2. Insert your finger from the rear of the PUSH LATCH and push it out towards you.

9.4 WASTE TONER BOTTLE UNIT

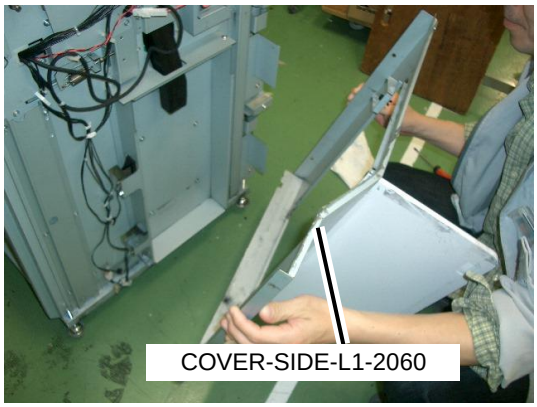
9.4.1 [TS02] WASTE TONER SENSOR,TS02 MNT

<Removal>

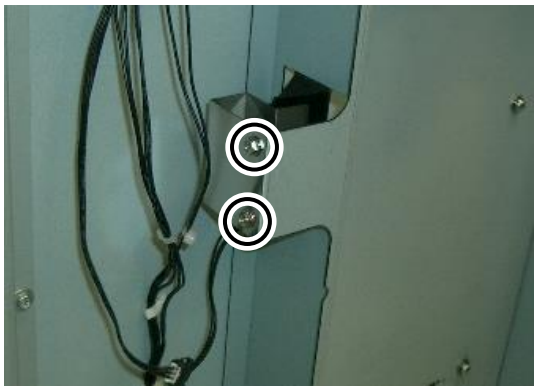
1. Remove the waste toner bottle.

2. For the Multifunction Model, remove DOCUMENT-TABLE-UNIT(MF)-2060 (see subsection **9.1.2**).
For the Printer Model, remove DOCUMENT-TABLE-UNIT(PL)-2060 (see subsection **9.1.2**).

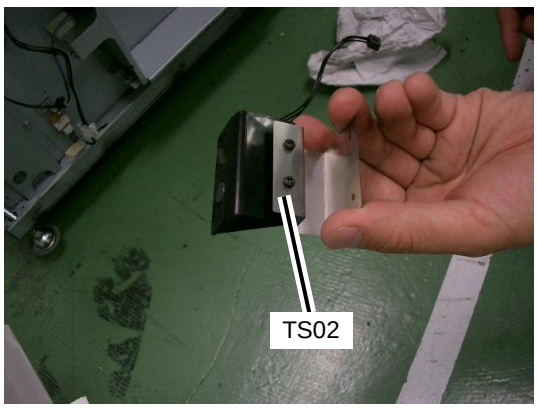
3. Remove COVER-SIDE-L2-2060 and COVER-SIDE-L1-2060 (see subsection **9.1.2**).



4. Remove the plate with the two screws at the location shown in the photo.



5. Remove the TS02 with the two screws from the plate removed previously.



9.4.2 [MS05] MICRO SWITCH,04,05,06-1 MNT

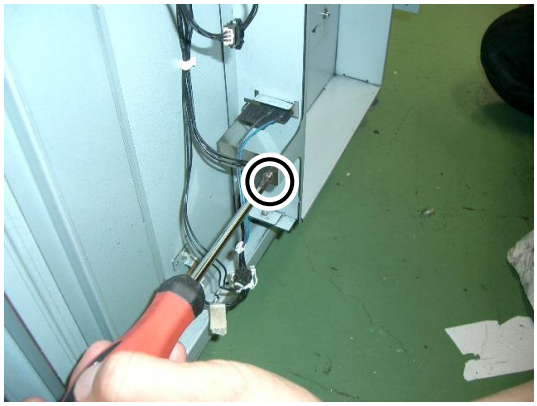
<Removal>

1. Remove the waste toner bottle.

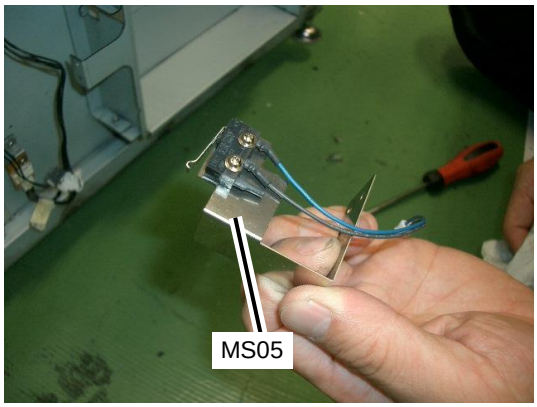
2. For the Multifunction Model, remove DOCUMENT-TABLE-UNIT(MF)-2060 (see subsection **9.1.2**).
For the Printer Model, remove DOCUMENT-TABLE-UNIT(PL)-2060 (see subsection **9.1.2**).

3. Remove COVER-SIDE-L2-2060 and COVER-SIDE-L1-2060 (see subsection **9.1.2**).

4. Remove the plate with the one screw at the location shown in the photo.



5. Remove the MS05 with the two screws from the plate removed previously.



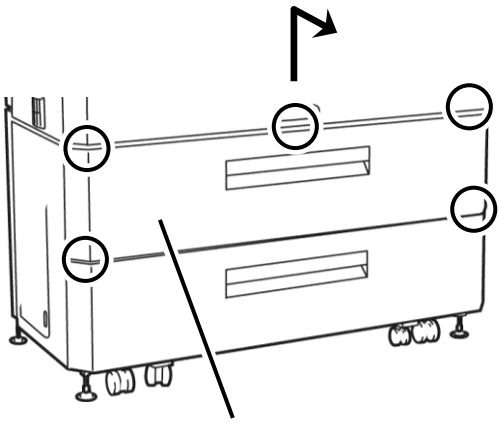
9.5 CUTTER-UNIT

9.5.1 CUTTER UNIT AUTO MNT

<Removal>

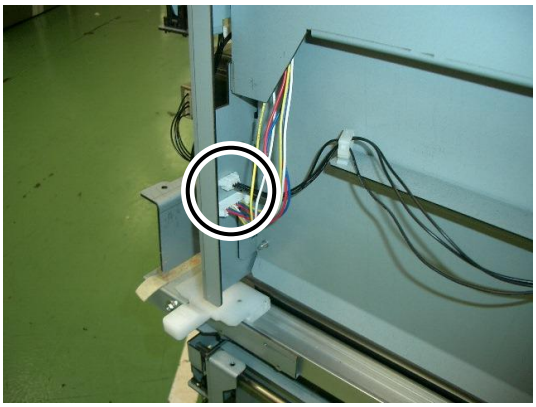
1. Remove the COVER-FRONT-ROLL with five screws.

Note that the central area of COVER-FRONT-ROLL is attached to the plate by a hook. Remove by pulling up slightly and pulling out towards you as designated by the arrow in the figure.



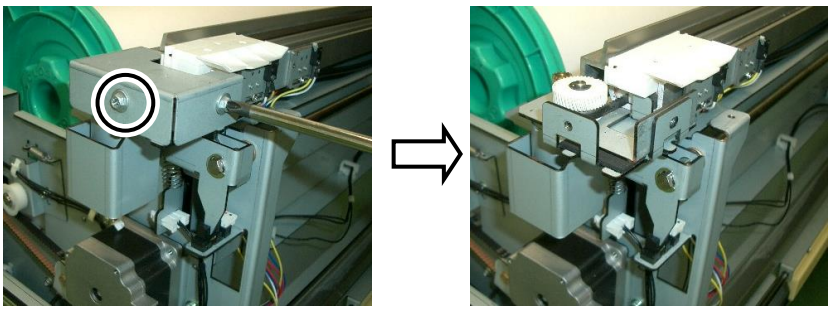
COVER-FRONT-ROLL

2. Unplug the two connectors.

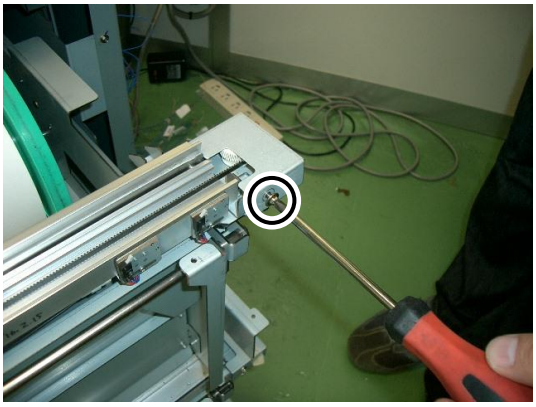


3. Unplug the connector of the motor attached to the cutter.

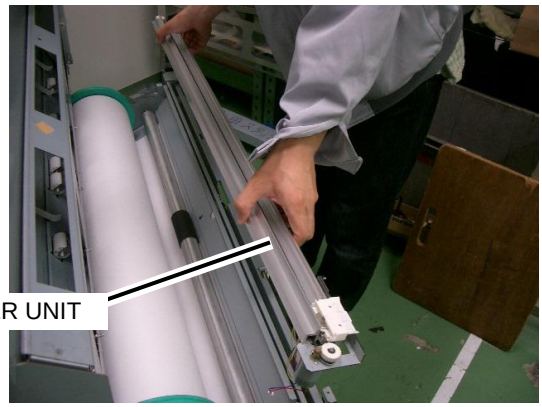
4. Remove the plate with the one screws at the location shown in the lower-left photo.



5. Remove the plate with the one screws at the location shown in the photo.



6. Pull out the CUTTER UNIT AUTO in an upwards direction.



9.5.2 CUTTER UNIT MANUAL MNT

<Removal>

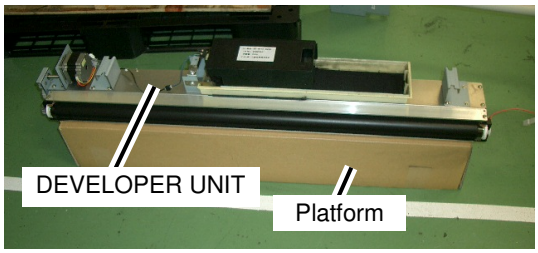
The instructions for removing the CUTTER UNIT MANUAL are the same as for the removal of the previous **CUTTER UNIT AUTO MNT**. However, omit the instructions for removing the connectors as it is a manual cutter without motor nor sensor.

9.6 DEVELOPER UNIT

9.6.1 DEVELOPER UNIT MNT

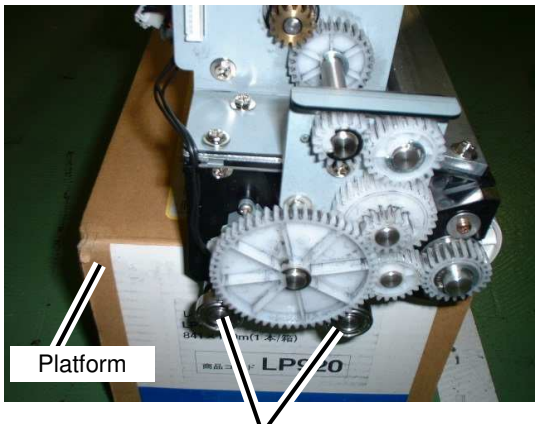
<Removal>

1. Prepare the platform for the DEVELOPER UNIT.



Note

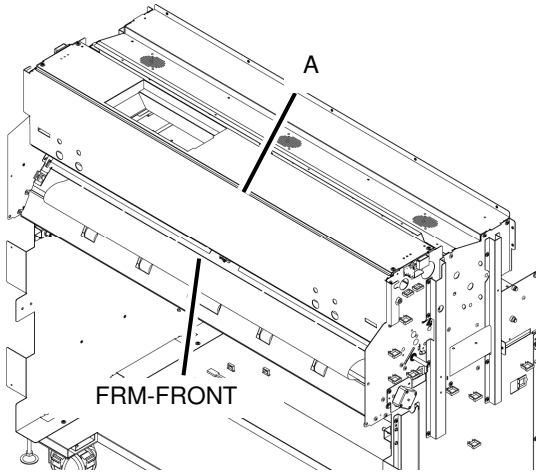
The DEVELOPER UNIT is supported by the two bearings on the right and left (for a total of four) of the unit.
Try to find a platform that will let those bearings free.
If such a platform is not available, place the unit down carefully in an appropriate location.



2. For the Multifunction Model, remove DOCUMENT-TABLE-UNIT(MF)-2060 (see subsection **9.1.2**).
For the Printer Model, remove DOCUMENT-TABLE-UNIT(PL)-2060 (see subsection **9.1.2**).

3. Remove COVER-SIDE-R2-2060 and COVER-SIDE-L2-2060 (see subsection **9.1.2**).

4. After removing the toner cartridge from the printer, remove the plate at the upper part of the toner cartridge with five screws, designated by A in the figure.



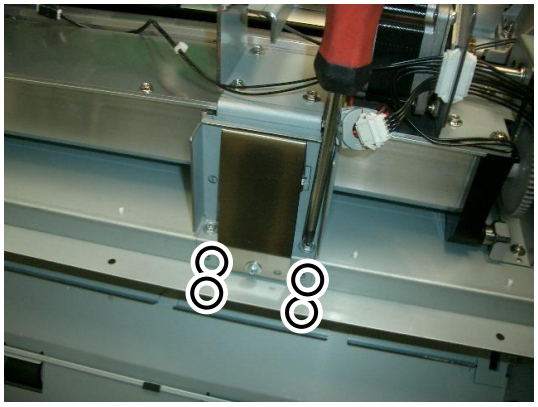
Note

When working on the Multifunction Model, be careful not to remove the gasket attached to the bottom part of the scanner.

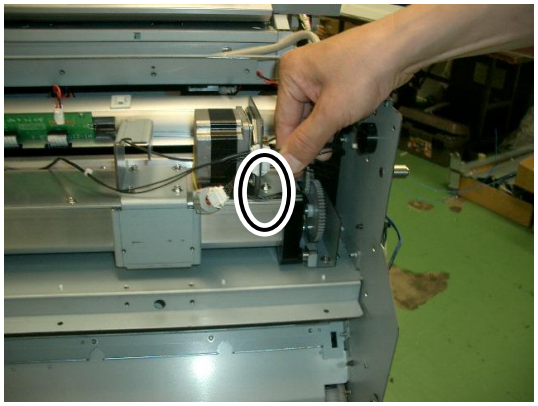
5. Remove FRM-FRONT (the plate on the front of the toner cartridge) with six screws.

6. Open the front door.

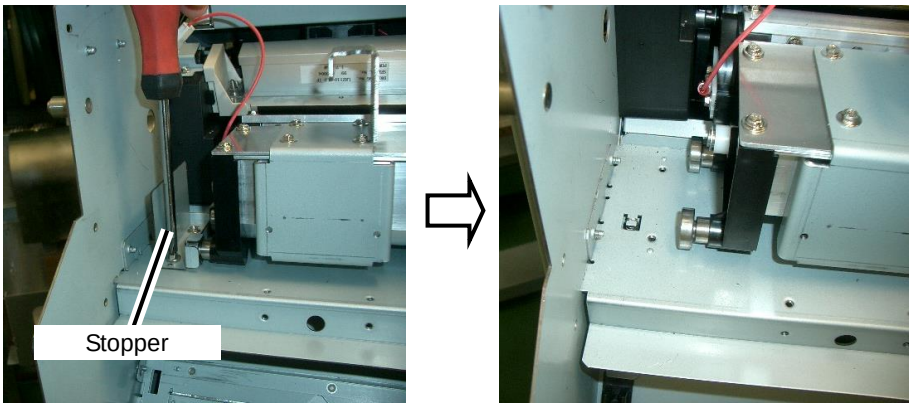
7. Remove the plate spring with the four screws and the plate with the four screws, shown in the photo.



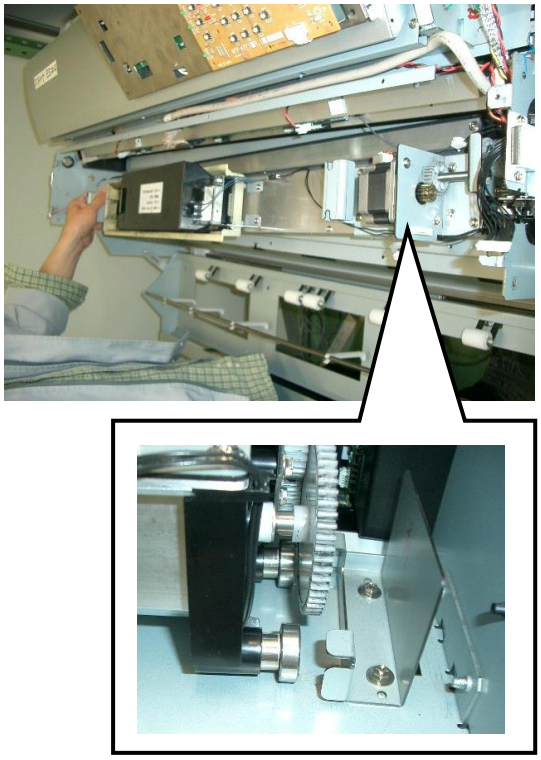
8. Unplug the motor cord connector, sensor cord connector, and high pressure cable.



9. Remove the stopper with the two screws on the left side of the DEVELOPER UNIT.



10. 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.

11. Place the DEVELOPER UNIT on the platform you prepared earlier.

9.6.2 [TS01] TONER SENSOR,TS01 MNT

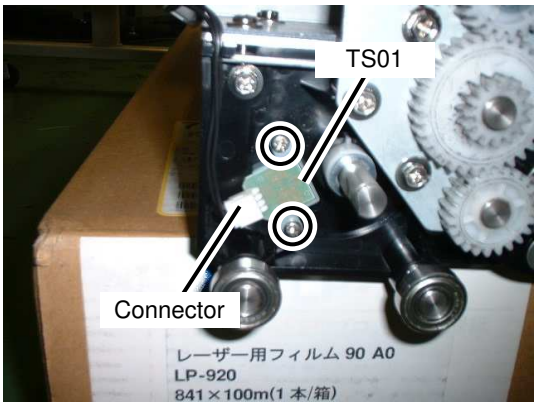
<Removal>

1. Remove the DEVELOPER UNIT (see p. **9-20**).

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

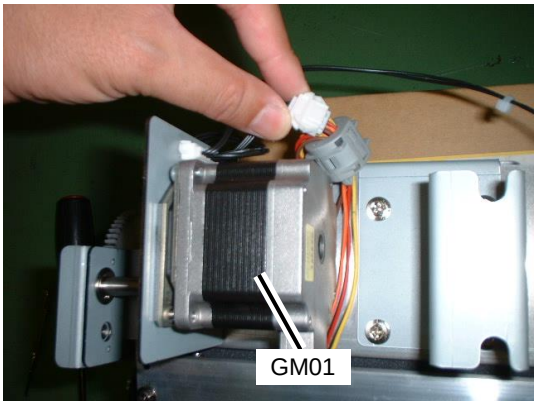
Some toner will spill out when removing the TS01. Be sure to cover the area with a cloth or other protective sheet before removing.

9.6.3 [GM01] MOTOR GM MNT

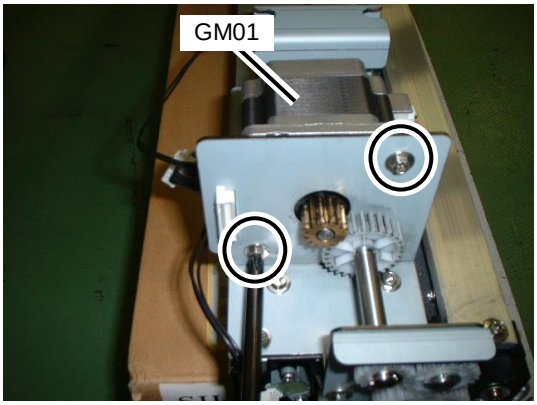
<Removal>

1. Remove the DEVELOPER UNIT (see p. **9-20**).

2. Unplug the connector for the cord connected to the motor.



3. Take out the two screws and remove the GM01.

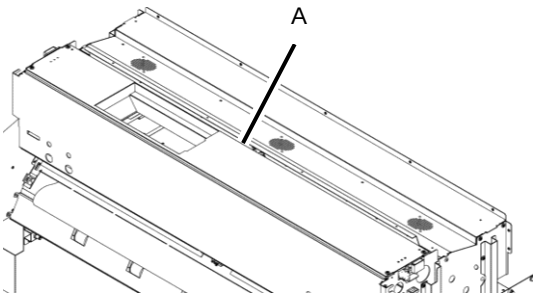


9.6.4 [MS04] MICRO SWITCH,04,05,06-1 MNT

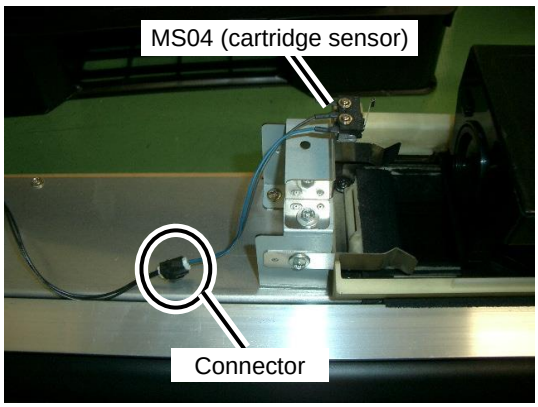
<Removal>

1. For the Multifunction Model, remove DOCUMENT-TABLE-UNIT(MF)-2060 (see subsection **9.1.2**).
For the Printer Model, remove DOCUMENT-TABLE-UNIT(PL)-2060 (see subsection **9.1.2**).

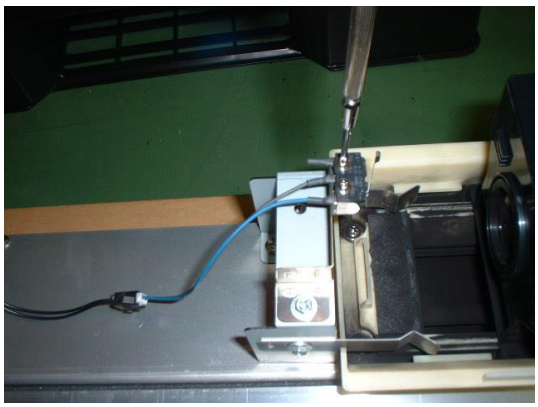
2. After removing the toner cartridge, remove the plate with the five screws at the upper part of the toner cartridge, designated by A in the figure.



3. Unplug the connector.



4. Take out the two screws and remove the MS04.

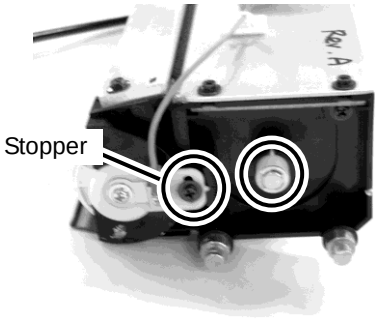


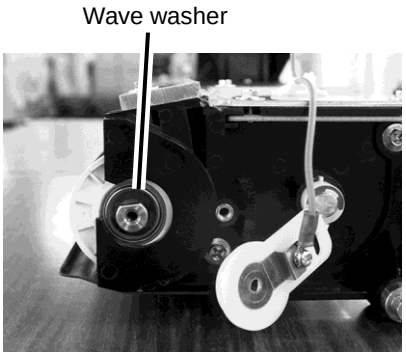
9.6.5 MAGNET ROLL MNT and SPACER DEV MNT

<Removal>

1. Remove the DEVELOPER UNIT (see p. **9-20**).

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.

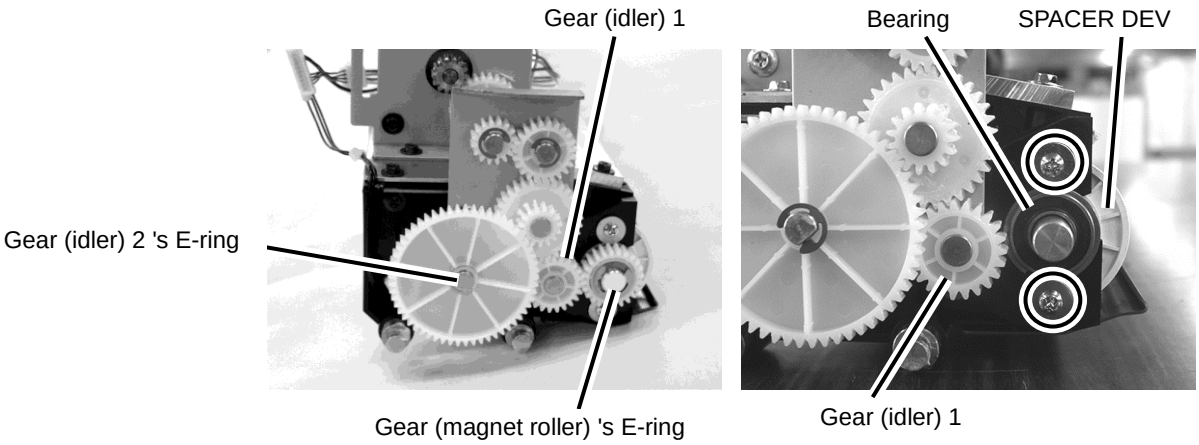
(c) Remove the E-ring from gear (magnet roller) and remove gear (magnet roller).

Cautionary Notes for Installation

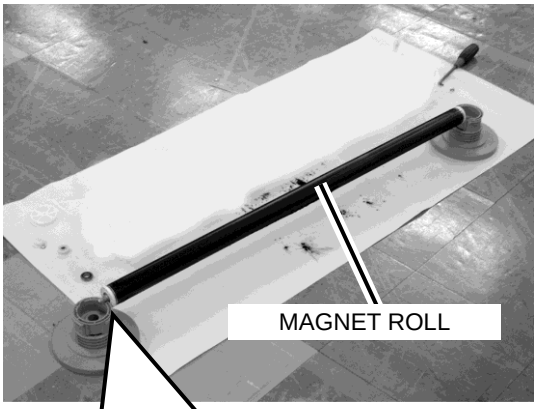
The gear (magnet roller) has a front and back side. When installing, be sure that the silver side is pointing to the outside.

(d) Remove the two screws.

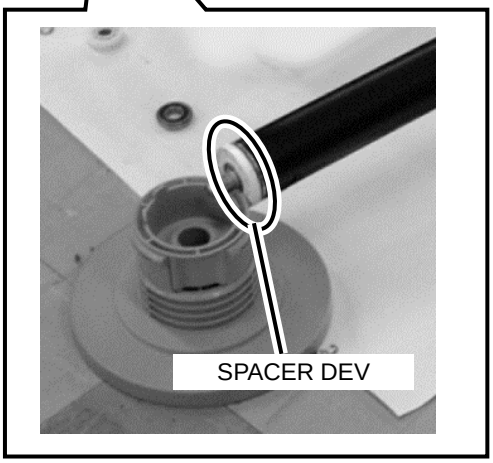
(e) Remove the bearing.



4. Remove the MAGNET ROLL.



5. Remove the SPACER DEV.



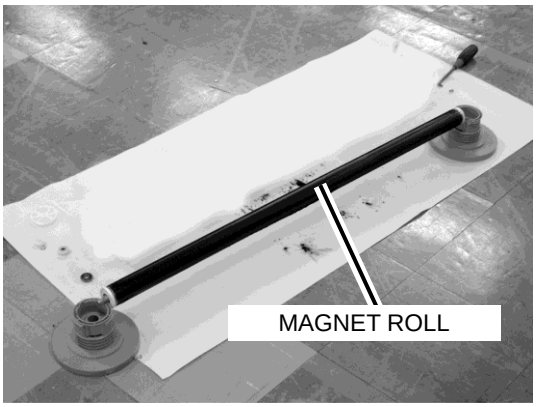
9.6.6 BLADE-S-DV MNT

Note

Toner may spill while you are working. Be sure to cover the area where you are working with some protective sheet.

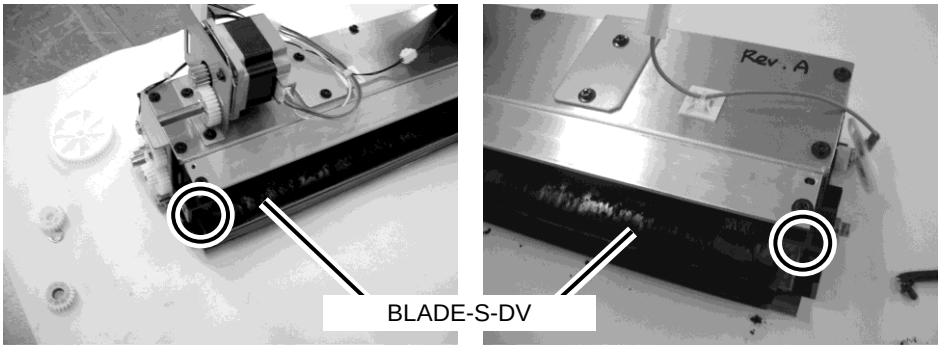
<Removal>

1. Remove the MAGNET ROLL (see p. **9-26**).



2. Remove the BLADE-S-DV.

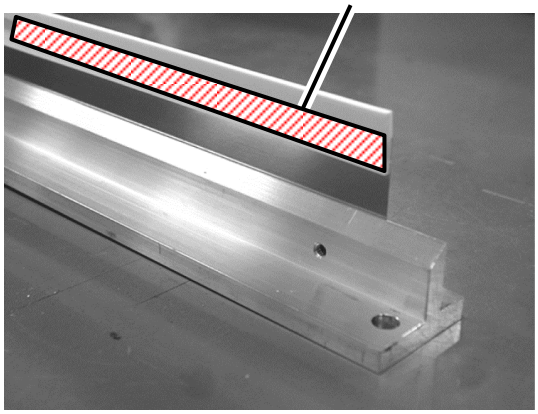
(a) Remove the screws (one each) on the right and left side of the BLADE-S-DV.



(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

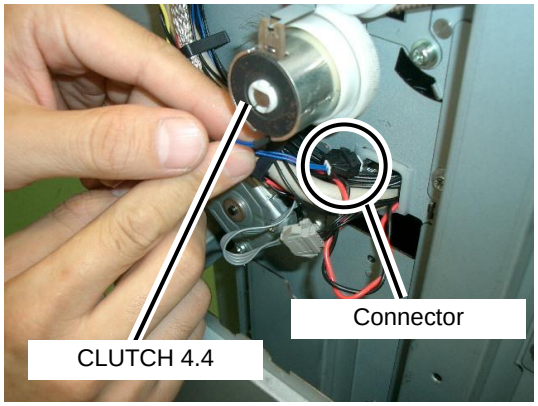
9.7.1 CLUTCH 4.4 MNT

<Removal>

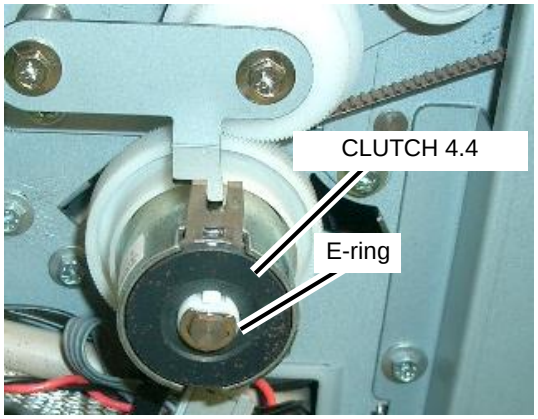
1. For the Multifunction Model, remove DOCUMENT-TABLE-UNIT(MF)-2060 (see subsection **9.1.2**).
For the Printer Model, remove DOCUMENT-TABLE-UNIT(PL)-2060 (see subsection **9.1.2**).

2. Remove COVER-SIDE-R2-2060 and COVER-SIDE-R1-2060 (see subsection **9.1.2**).

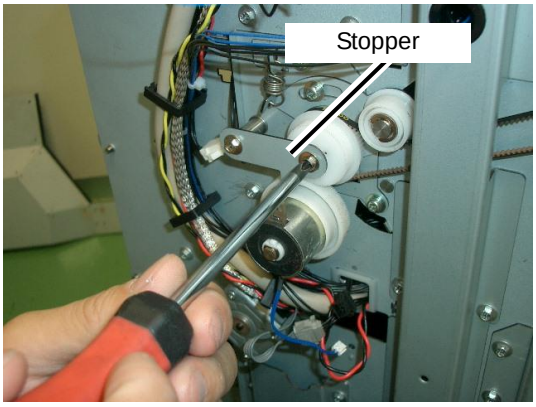
3. Unplug the connector connected to the CLUTCH 4.4.



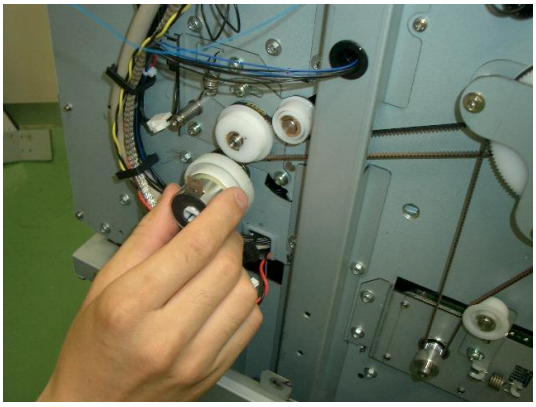
4. Remove the E-ring securing the CLUTCH 4.4.



5. Remove the stopper with the two screws.



6. Pull out the CLUTCH 4.4 from the shaft.



<Installation>

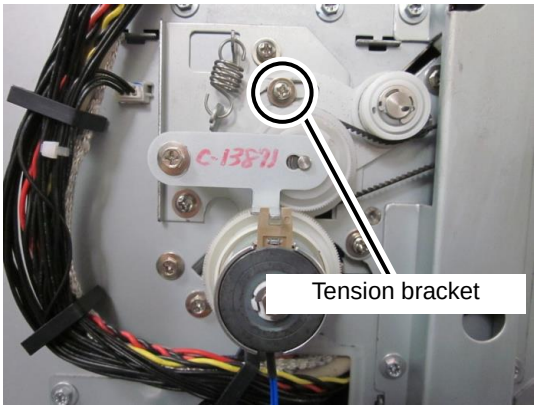
Cautionary Notes When Performing Installation

Adjust the gears engagement after replacing the CLUTCH 4.4.

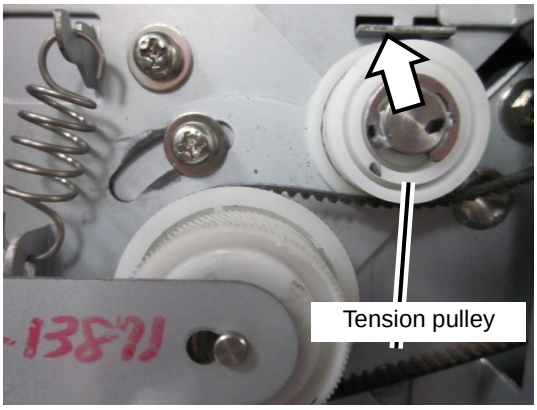
Required tools:
- Phillips screwdriver
- PUSH-PULL GAUGE: U001280463**

Required jig:
- GEAR-SPACER MNT: U001282138**

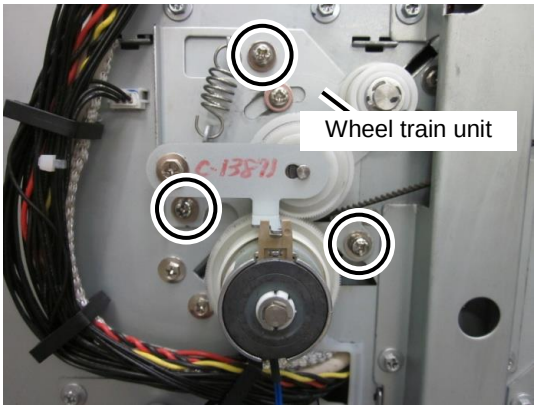
1. Loosen the tension bracket screw.



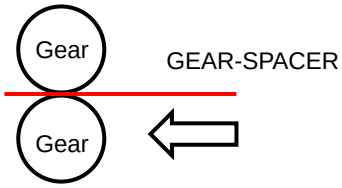
2. Lift the tension pulley in the direction of the arrow, decrease the tension of the timing belt, and tighten the screw loosened in step 1.



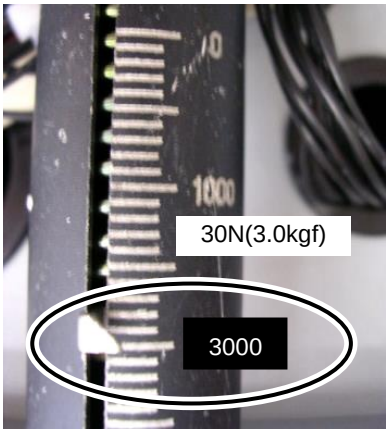
3. Loosen the three screws securing the wheel train unit.

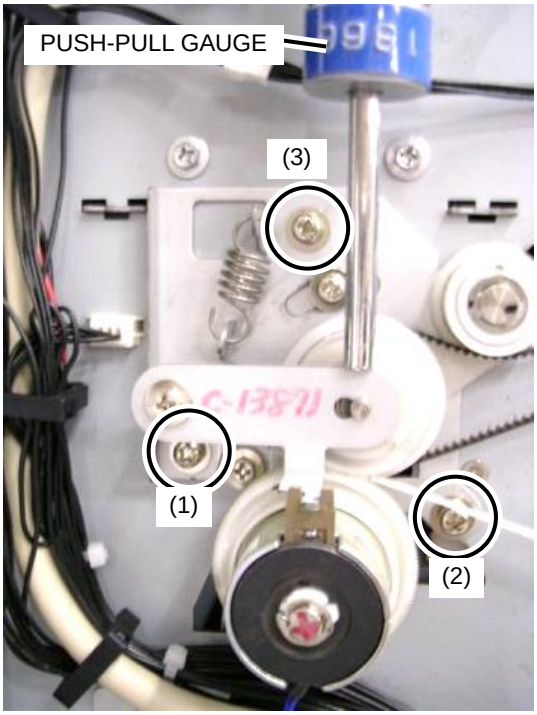


4. Insert the GEAR-SPACER between the gears.

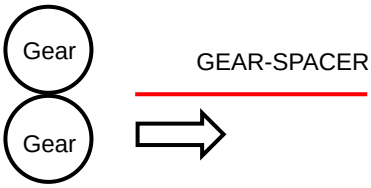


5. While pressing the PUSH-PULL GAUGE onto the wheel train unit shaft, tighten the screws (1) -> (2) -> (3) in that order.
* Apply the following pressure: 30 N (3.0 kgf)





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**).

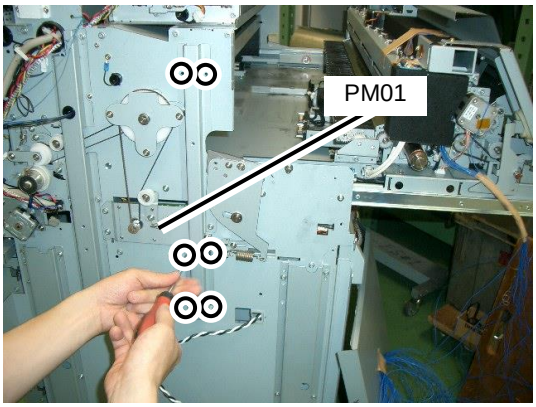
9.7.2 [PM01] MOTOR PM01 MNT

<Removal>

1. For the Multifunction Model, remove DOCUMENT-TABLE-UNIT(MF)-2060 (see subsection **9.1.2**).
For the Printer Model, remove DOCUMENT-TABLE-UNIT(PL)-2060 (see subsection **9.1.2**).

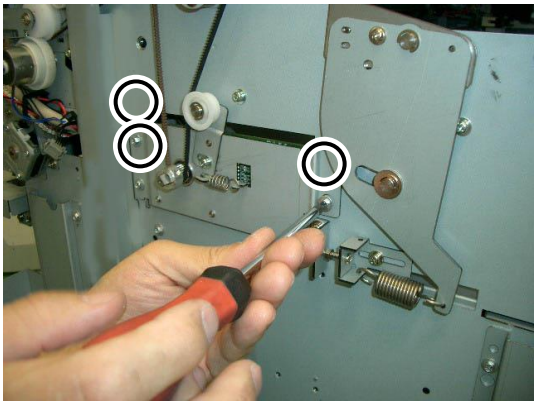
2. Remove COVER-SIDE-R2-2060 and COVER-SIDE-R1-2060 (see subsection **9.1.2**).

3. Remove the stay (SIDE_FRM_01_STAY) with six screws at the location shown in the photo.

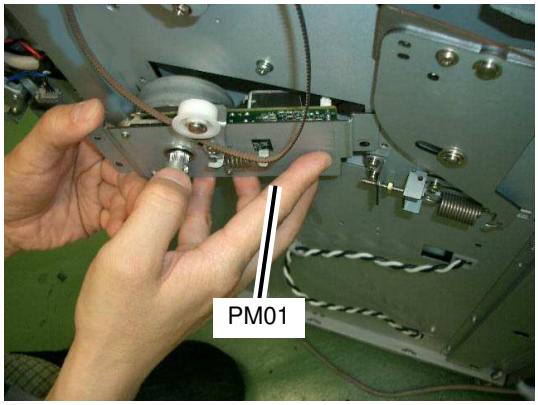


4. Loosen the tension pulley by loosening the screw shown at the location in the photo.

5. Remove the motor bracket with three screws.



6. Remove the timing belt and pull out the PM01 slightly.

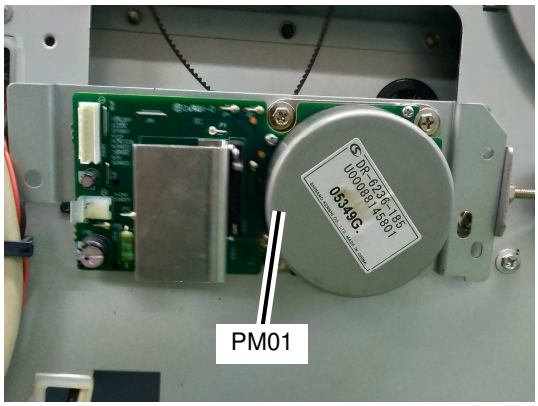


Notes

- Be careful not to unplug the cables in the area.
- Pull out while tilting as shown in the photo.

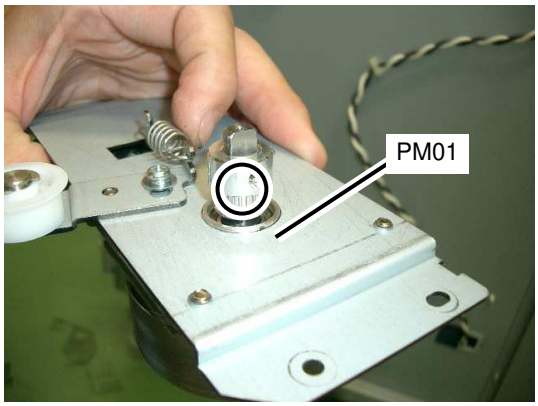
7. Unplug the connectors for the connected cables.

8. Remove the motor.



9. Loosen the screw shown in the photo and remove the PULLY (19P).

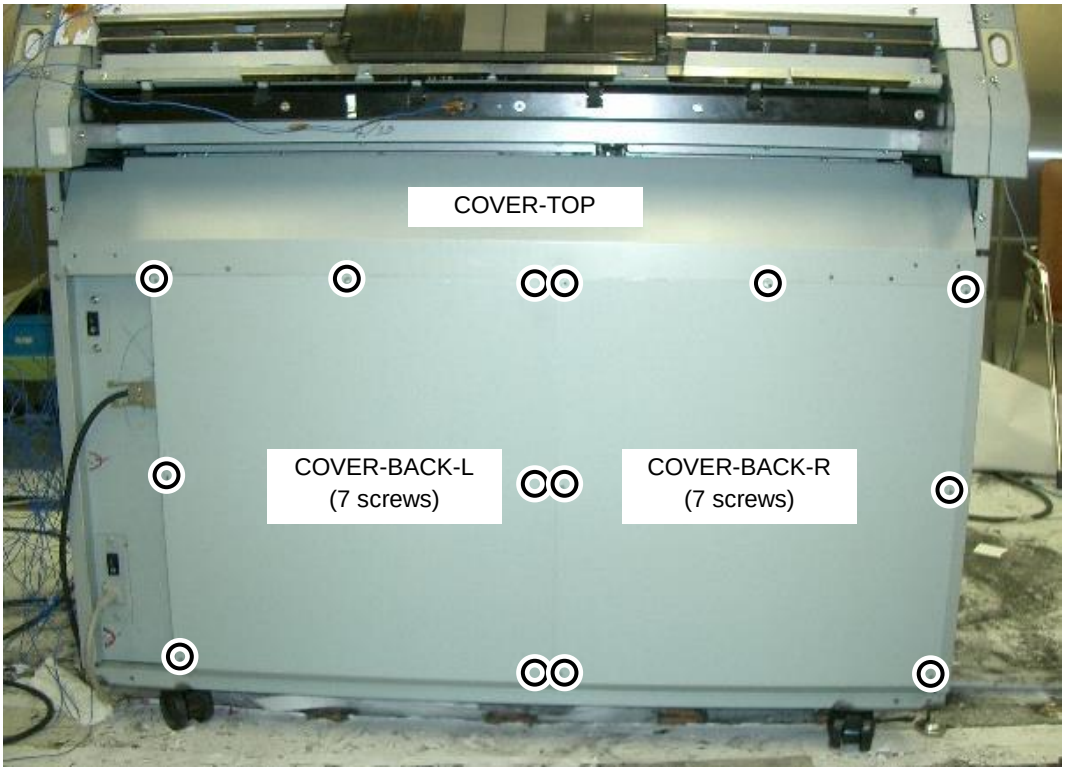
10. Remove PM01 with two screws from the motor bracket.



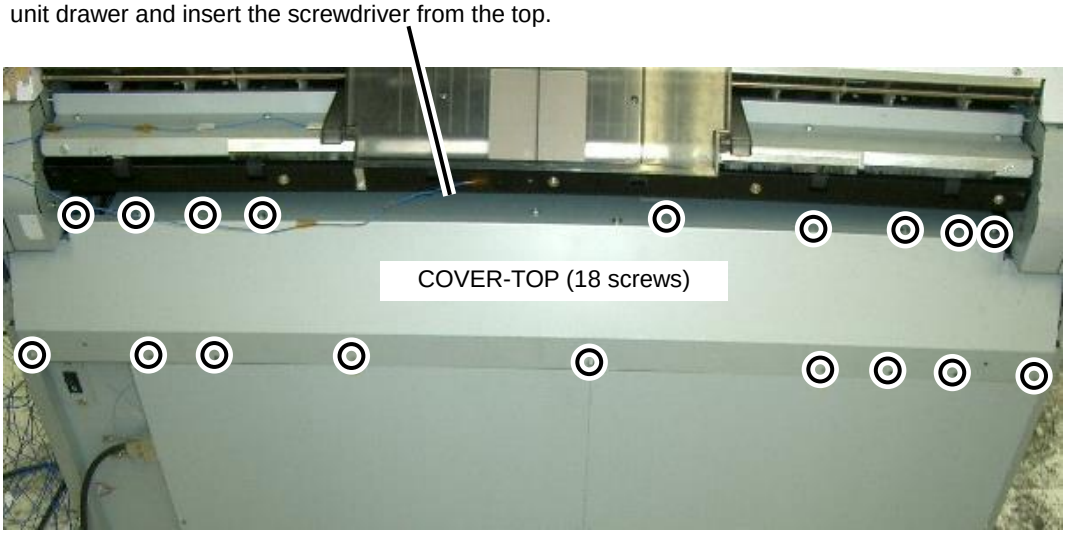
9.8 ELECTRICAL UNIT

9.8.1 EL BOX UNIT External Cover

The screw locations for the EL BOX UNIT's external cover are shown below.



To remove the screws on top of the COVER-TOP, open the fuser unit drawer and insert the screwdriver from the top.

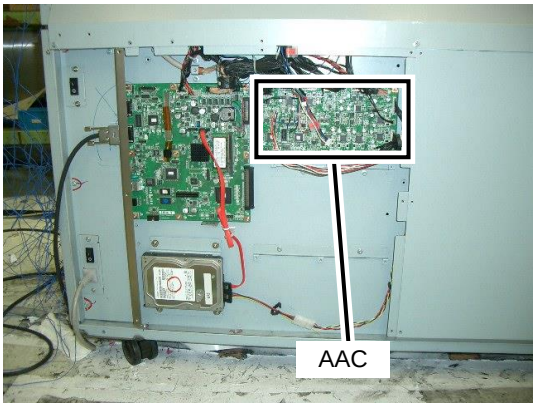


9.8.2 [AAC] PCB-ASSY-AAC1 MNT

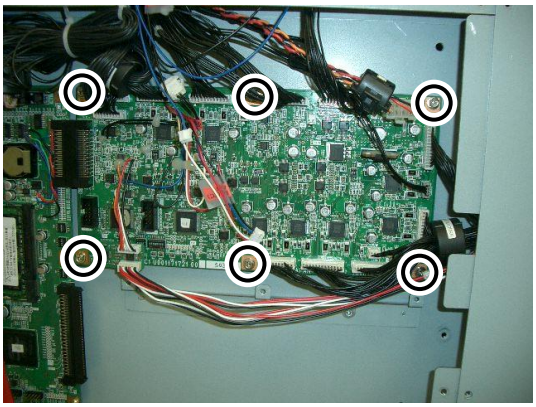
<Removal>

1. Remove the COVER-BACK-L (see subsection **9.8.1**).

2. Unplug all 16 connectors connected to AAC.



3. Remove the six screws securing the board and remove AAC.



Note

PCB-ASSY-AAC is connected to PCB-ASSY-ARC, so pay attention to the CN2 connector when removing the board.

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 2060 MNT/PCB-ASSY-ARC2 MNT, [EEPROM] T2ARC-EEPROM MNT

Note

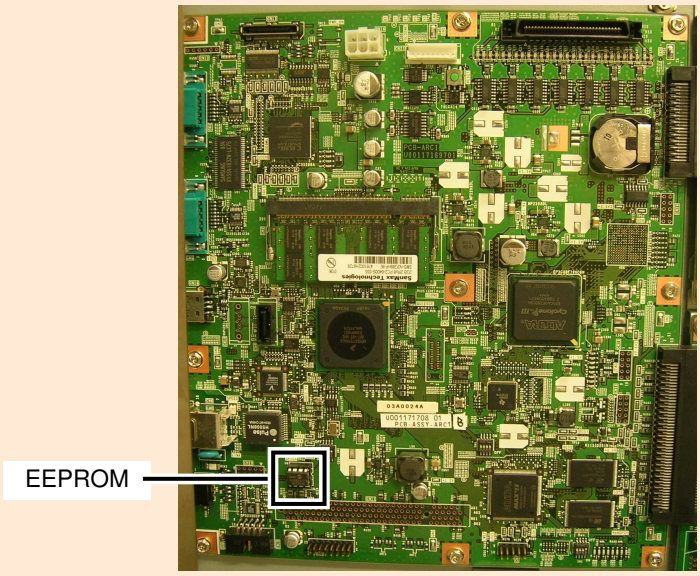
PCB-ASSY-ARC1 2060 MNT and PCB-ASSY-ARC2 2060 MNT are available as recommended parts for the ARC board. Pay attention when replacing the board as the PCB-ASSY-ARC1 can be replaced only with the PCB-ASSY-ARC1 2060 MNT, and the PCB-ASSY-ARC2 can be replaced only with the PCB-ASSY-ARC2 2060 MNT.
Since the replacement procedure is the same for both models, only the term PCB-ASSY-ARC is used in the procedure below.

Cautionary Notes for Replacement

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.
Replacing the board without replacing the EEPROM leads to the following problems.

- The message The printer will operate for 720 hour(s) only is displayed in yellow on the Ready screen on the operatioin panel.
  You will not be able to use the Printer after using it for the displayed time.
- Firmware options cannot be used.

* 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**)



Keep the USB port of the PCB-ASSY-ARC board open. Remove the metal plate if it has been installed.

After replacing the board, always upgrade the firmware (see p. **1-9**).
Reconfigure also the following items.

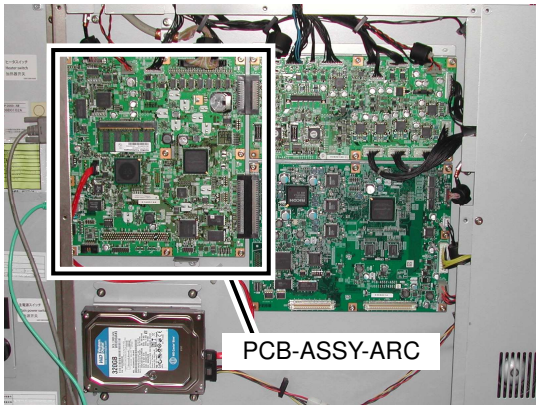
- Current time (**Menu (1/2)** -> **Menu (2/2)** -> **Date and Time Settings**)
- Product key (see p. **2-49**)

See also **1.7** and **1.8** when replacing the ARC board.

<Removal>

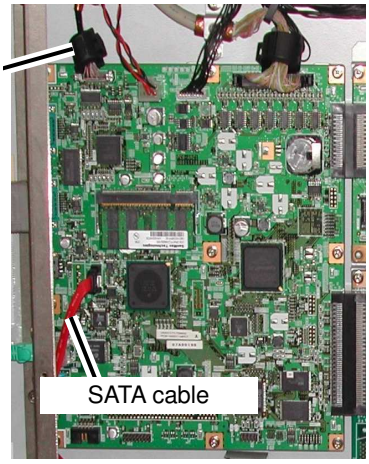
1. Remove the COVER-BACK-L (see subsection **9.8.1**).

2. Unplug the following.
   - All four connectors connected to ARC; and
   - SATA cable

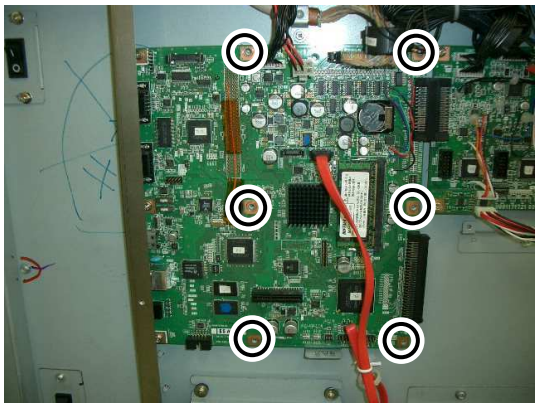


Cautionary Notes When Performing Installation

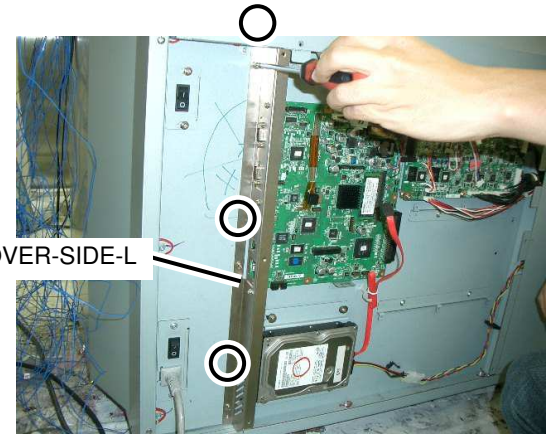
When installing the CBL-PNL, use the air blow tool in order to remove any foreign particle from the connecting part.



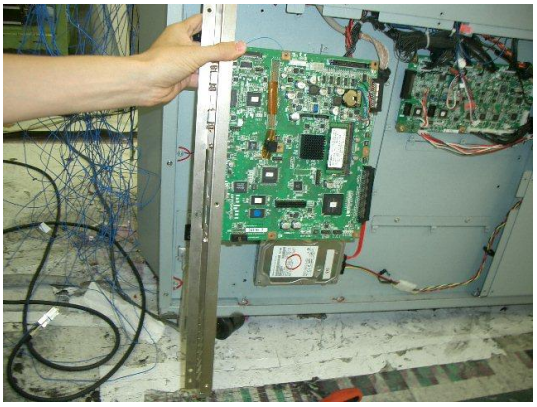
3. Remove the six screws shown in the photo.



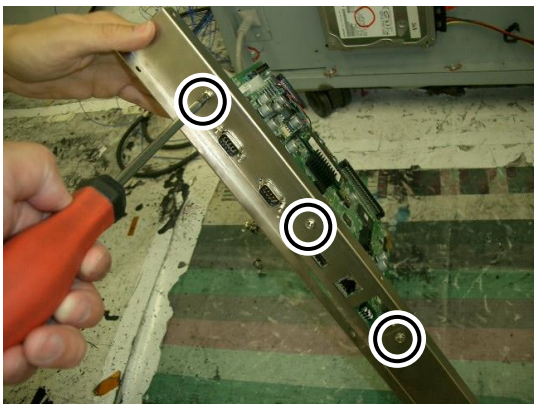
4. Remove the three screws securing COVER-SIDE-L.



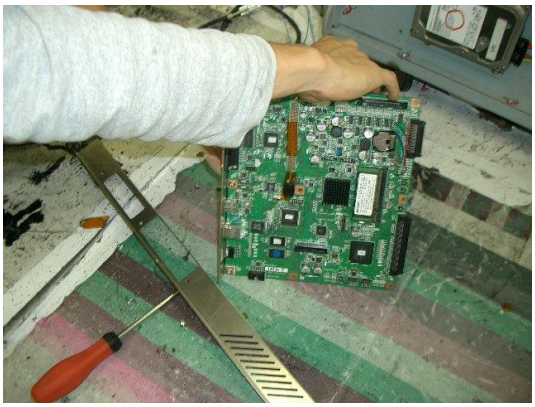
5. Slide ARC to the left together with COVER-SIDE-L and remove them both.



6. Remove the three screws securing ARC and COVER-SIDE-L.



7. Remove the COVER-SIDE-L.



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.

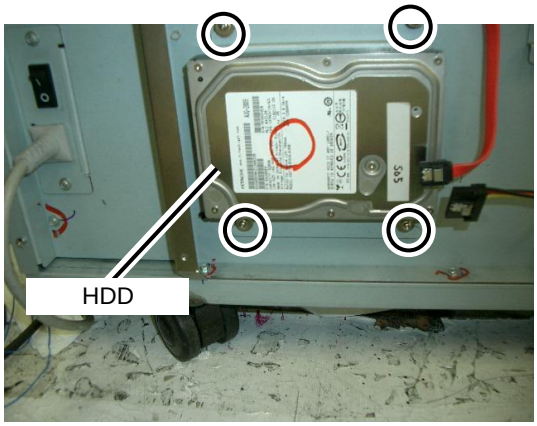
Note
When the Printer's HDD is replaced, it is logically formatted automatically when the Printer boots up. You can also perform a logical format manually from the menu in Maintenance Mode (**Menu**->**Function**->**HDD Format**).

<Removal>

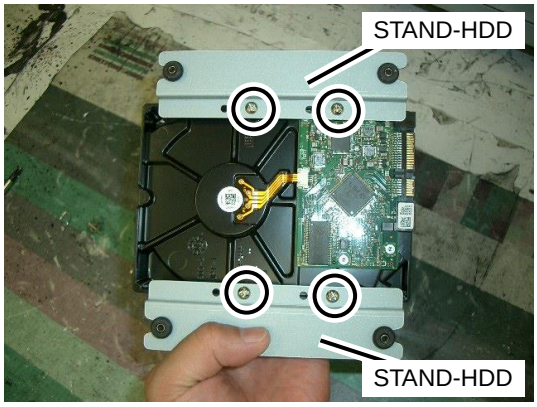
1. Remove the COVER-BACK-L (see subsection **9.8.1**).

2. Unplug the power cord and the SATA cable.

3. Remove the four screws shown in the photo.



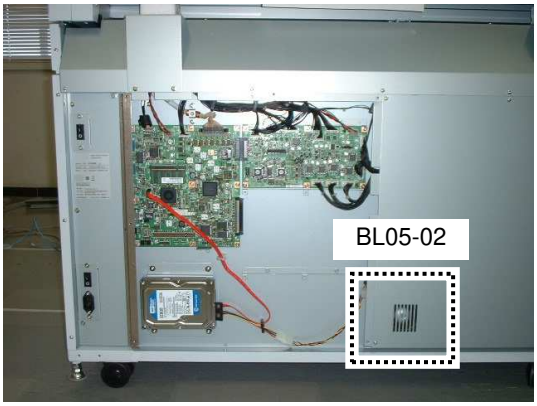
4. Remove the four screws shown in the photo, then remove the plate (STAND-HDD) from HDD.



9.8.5 [BL05-02] BLOWER FAN ASSY MNT

<Removal>

1. Remove the COVER-BACK-R (see subsection **9.8.1**).



2. Unplug the connector and unscrew the two screws to remove BL05-02.

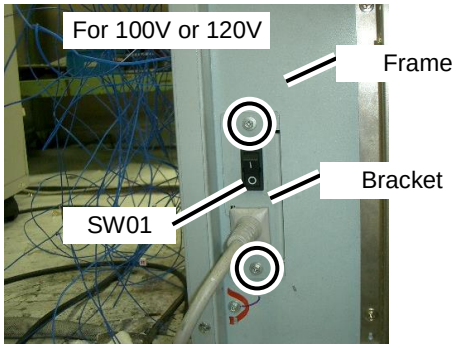
9.8.6 [SW01] MAIN SWITCH 100V MNT and MAIN SWITCH 120V 200V MNT

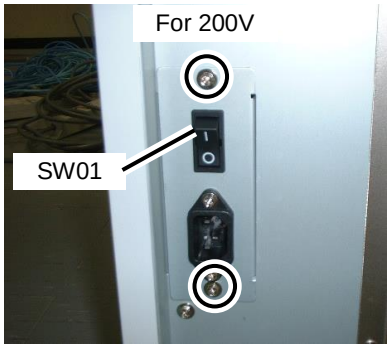
Note

- MAIN SWITCH 100V: Main switch for 100V AC power supply
- MAIN SWITCH 120V 200V: Main switch for 200V AC power supply

<Removal>

1. Remove the two screws shown in the photos.





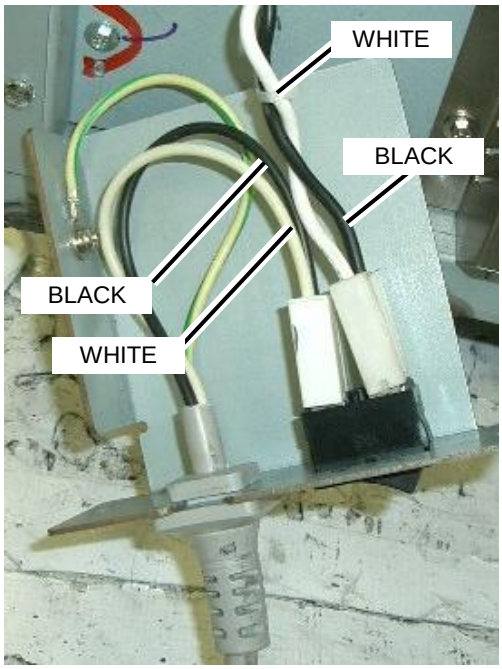
2. From the frame, remove the bracket with the swtch mounted.

3. From the switch pull out the four connectors shown in the photo below.

4. While pinching the fixing clamp, remove the SW01 from the bracket.

Note

When plugging the connectors, be sure to check the cable color, black or white and its position.



9.8.7 AC INLET MNT

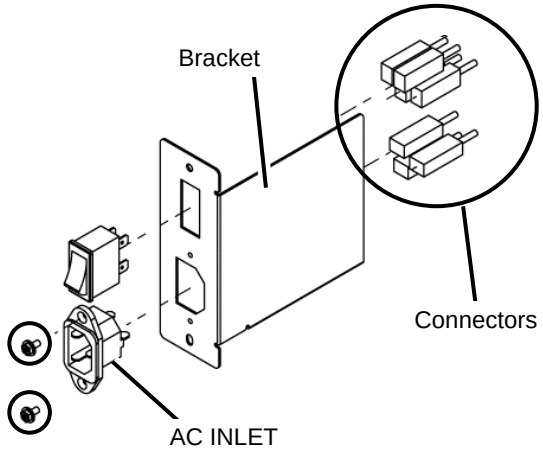
Note

This part is a maintenance part only used in 200V systems.

<Removal>

1. From the frame, remove the bracket with the swtch mounted (see the steps 1 to 2 of subsection **9.8.6**).

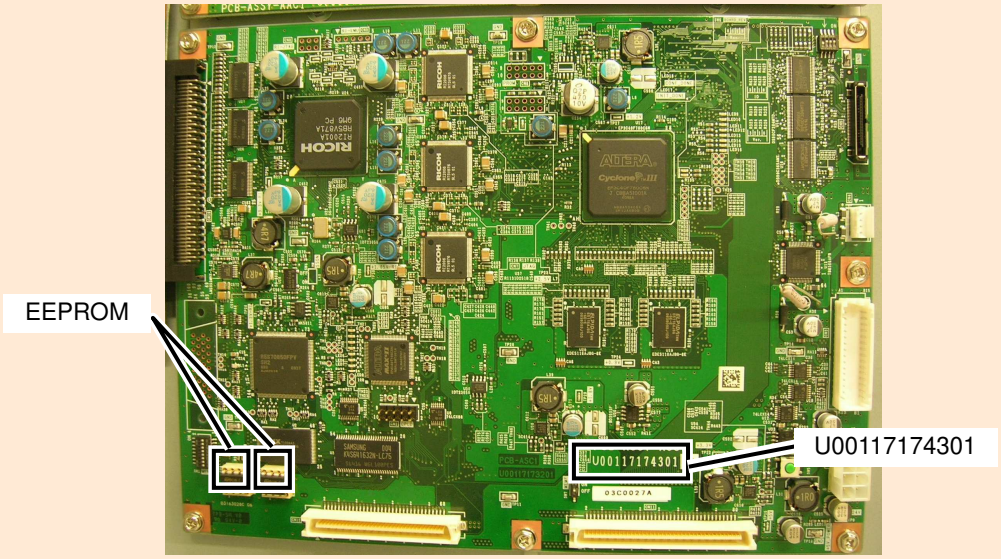
2. Remove the connectors and two screws, then remove the AC INLET.



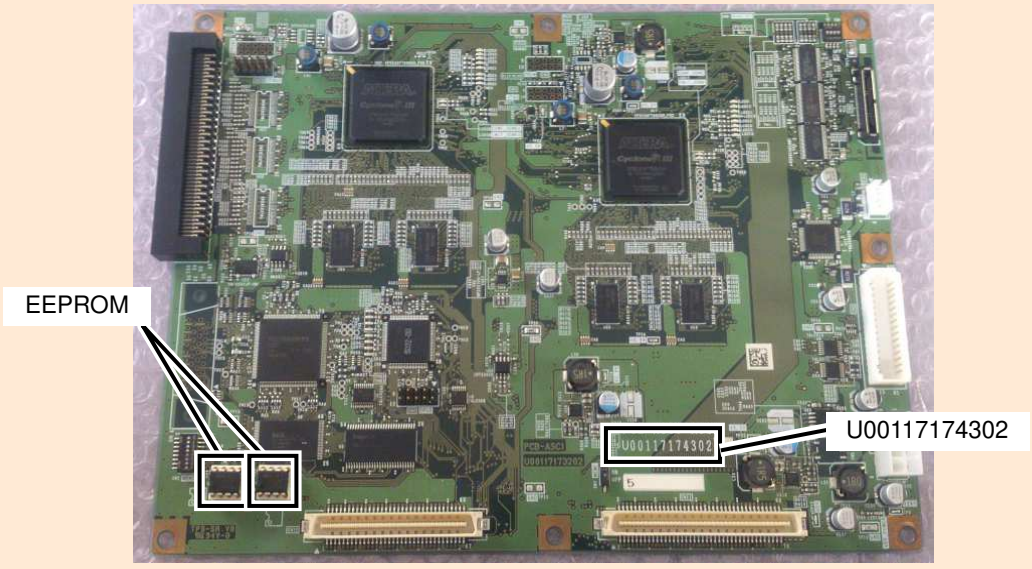
9.8.8 PCB-ASSY-ASC1 MNT

Cautionary Notes for Replacement

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. **1-9**).
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.



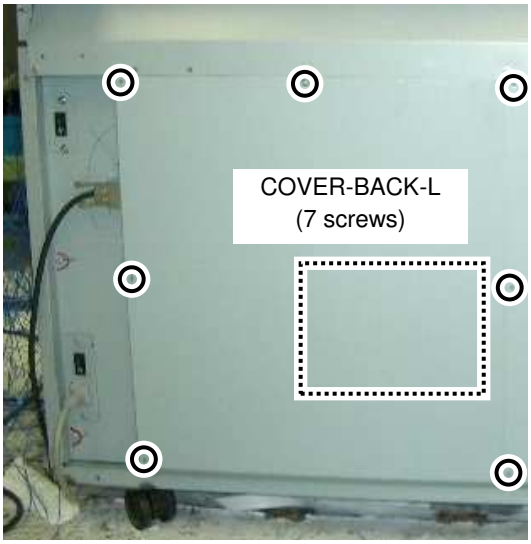
Code number	Firmware version (scanner firmware version
U00117174301	Any
U00117174302	8.11 or later (3.24 or later)

Note

This part is only found in Multifunction Models.

<Removal>

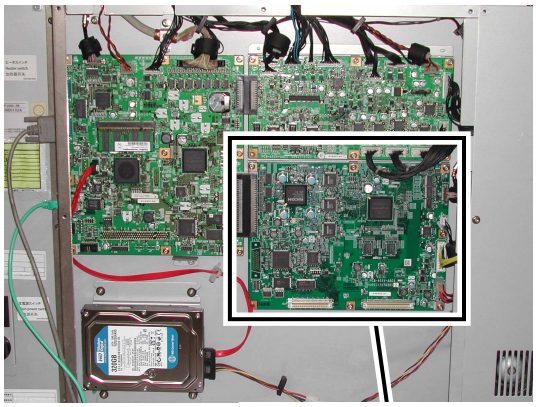
1. Remove the COVER-BACK-L (see subsection **9.8.1**).



2. Unplug all four connectors connected to PCB-ASSY-ASC1.

Cautionary Notes When Performing Installation

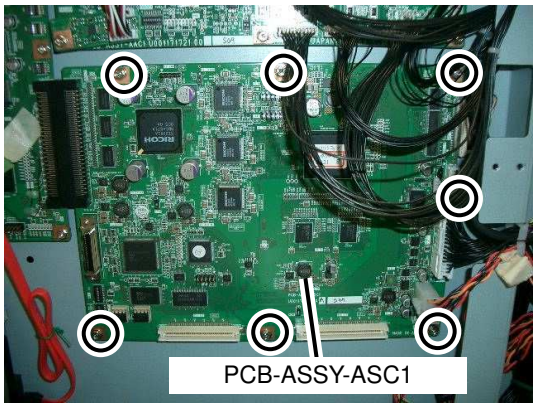
When installing the CBLS-LVDS, use the air blow tool in order to remove any foreign particle from the connecting part.



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(MID100) MNT and PSU-T2 MNT

Note

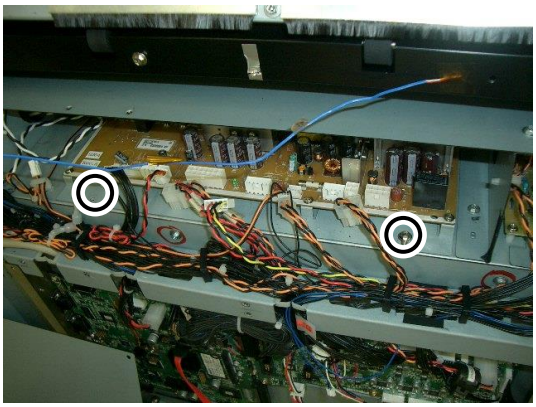
- Under the 100V specification, the Printer is equipped with a PSU-T2(MID100).
- Under the 200V specification, the Printer is equipped with a PSU-T2.

<Removal>

1. Remove COVER-TOP on the upper portion of the back of the Printer (see subsection **9.8.1**).

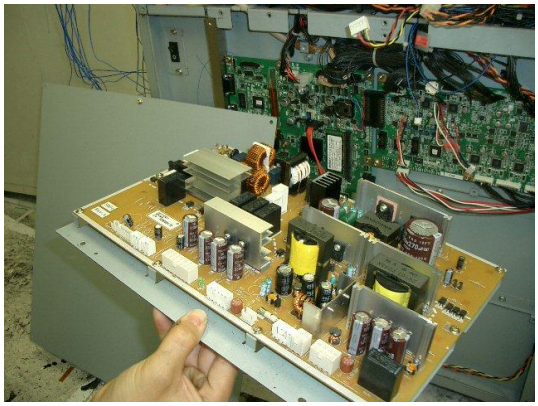
2. Unplug all the connectors at the front of the board.
Note that connectors at the rear of the board are unplugged in a later step.

3. Remove the two screws on the tray area shown in the photo.



4. Pull out the board about half-way, then unplug all connectors at the rear of the board.

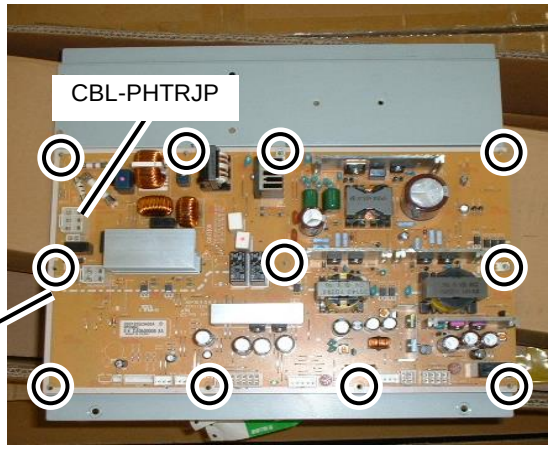
5. Remove the board along with the tray.



Note

Part of the tray is being secured by the grip on the printer side plate, so there will be some slight snagging. Therefore, it will be easier to remove by raising up on the tray slightly before pulling it out towards you.

6. Remove all screws securing the board to the tray and remove the LV-PS from the tray.

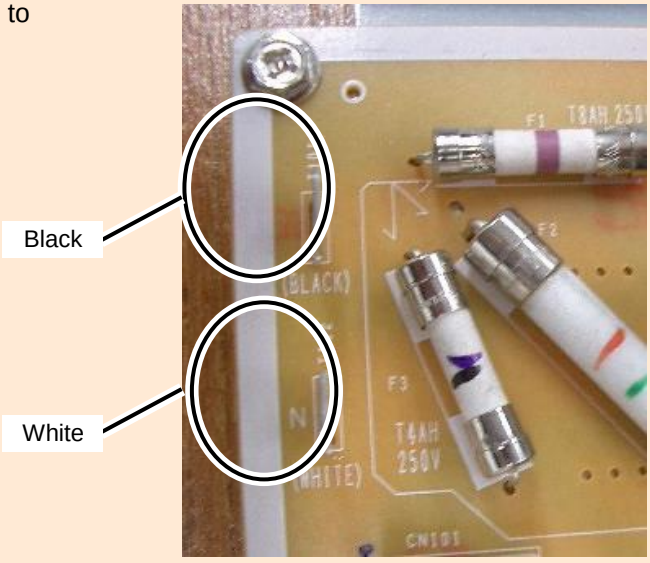


Note

When replacing the LV-PS, transfer the CBL-PHTRJP from the old board to the new. Otherwise, the paper heater will not function properly.

Cautionary Notes for 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 HE RELAYS MNT

Note

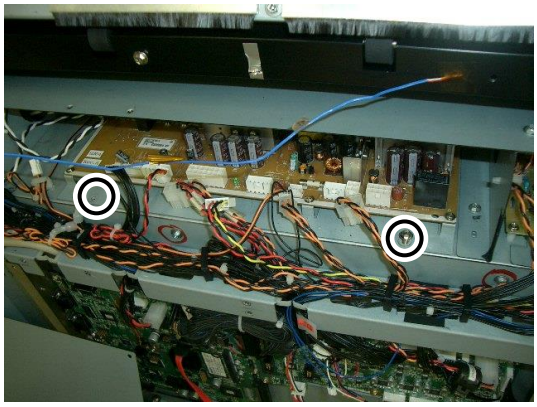
The HE RELAYS is only found on 100V specification models.

<Removal>

1. Remove COVER-TOP on the upper portion of the back of the Printer (see subsection **9.8.1**).

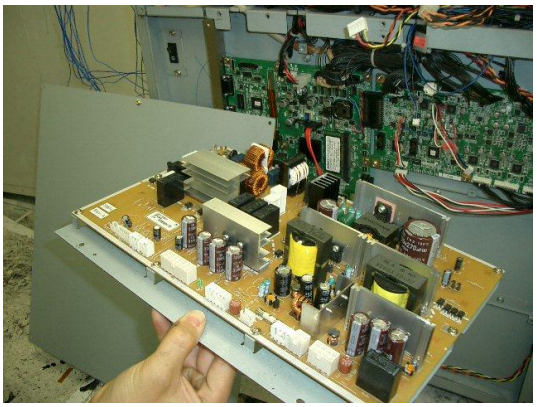
2. Unplug all the connectors at the front of the board.
Note that connectors at the rear of the board are unplugged in a later step.

3. Remove the two screws on the tray area shown in the photo.

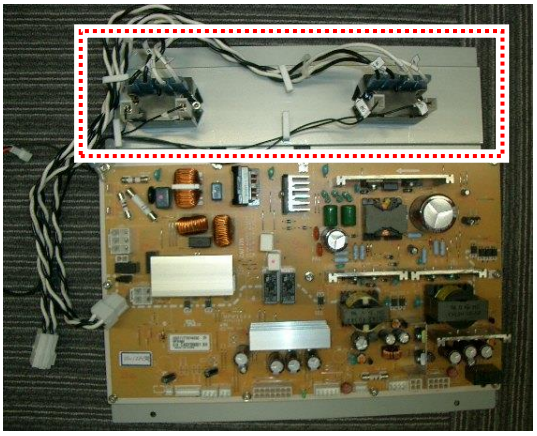


4. Pull out the board about half-way, then unplug all connectors at the rear of the board.

5. Remove the board along with the tray.



6. Remove the securing screw and remove HE RELAYS from the location shown in the photo.



200V specification plate and tray (reference)

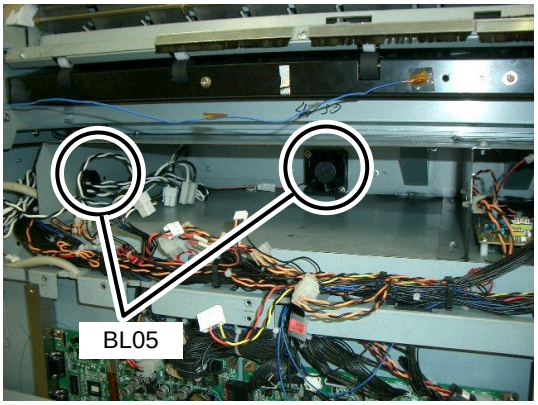
9.8.11 [BL05-01][BL05-03] BL05 ASSY MNT

Note

Note that the installation orientation of BL05 is different regarding the side and the back.

<Removal>

1. Remove the LVPS-ASSY (see p. **9-48**).



2. Unplug the connector from the fan you are about to replace, and unscrew the two screws to remove the unit.

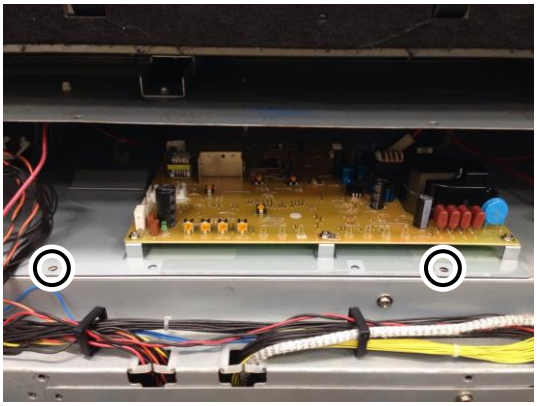
9.8.12 [HV-PS] HV(4CH)-PSU-T2 A1 MNT

<Removal>

1. Remove the COVER-TOP on the upper portion of the back of the Printer (see subsection **9.8.1**).

2. Unplug all cords and cables connected to the board you are about to remove.

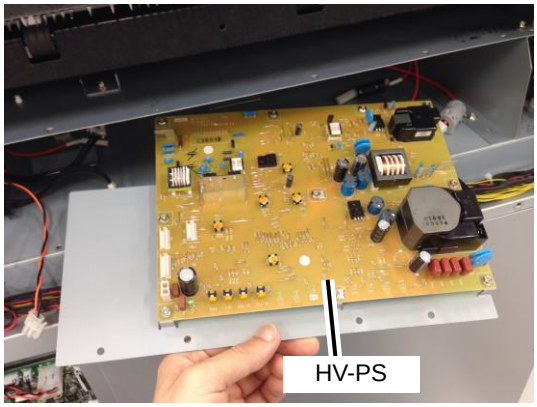
3. Remove the two screws shown in the photo.



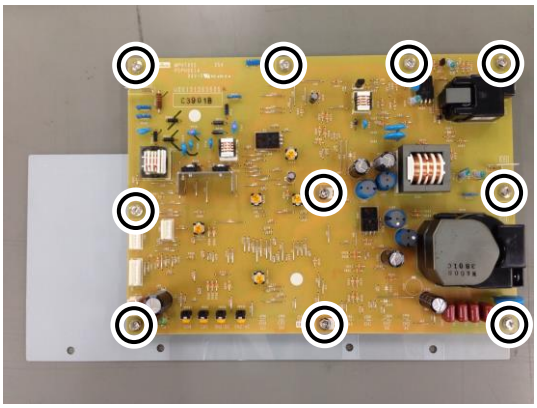
4. Pull the HV-PS out together with the tray.

Note

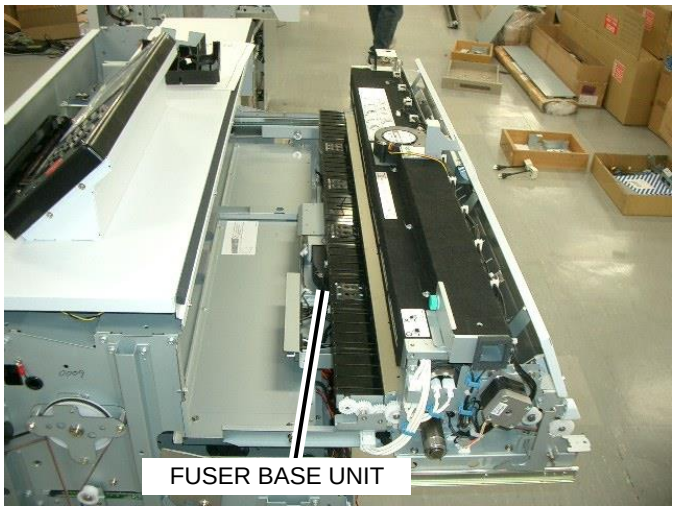
Pay attention not to bend the connectors when unplugging them.



5. If removing HV-PS, remove the 10 screws securing it.



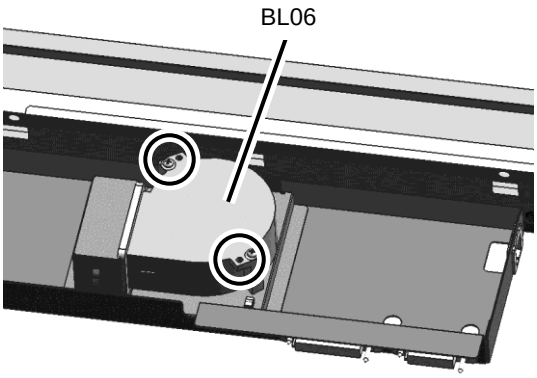
9.9 FUSER BASE UNIT



9.9.1 [BL06] BLOWER FAN,BL01,02,06 MNT

<Removal>

1. Open the fuser unit drawer.
2. Unplug the connector.
3. Remove the TRANSPORT UNIT (see p. **9-221**).
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

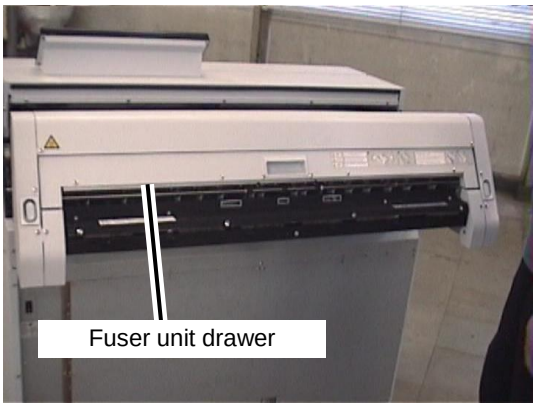
9.10.1 FUSER UNIT,WITHOUT HEATER 2060,MNT

Note

- Carry the FUSER UNIT,WITHOUT HEATER 2060,MNT with two persons or more.
- After disassembling this unit, perform the skew/slack calibration on page **10-13**.

<Removal>

1. Open the fuser unit drawer.

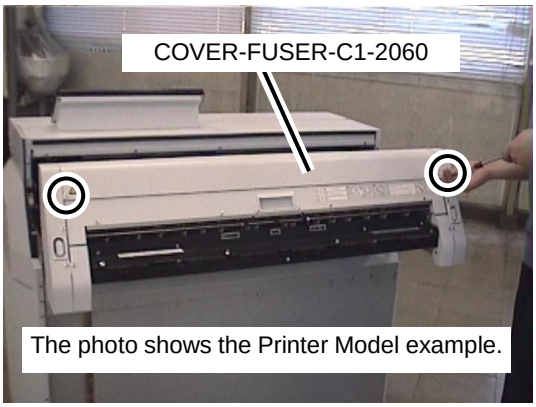


2. Remove the exterior cover around the fuser unit.

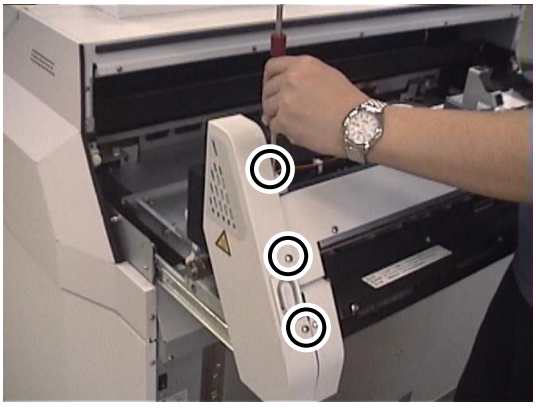
(a) Remove the COVER-FUSER-C1(MF/PL)-2060.

Note

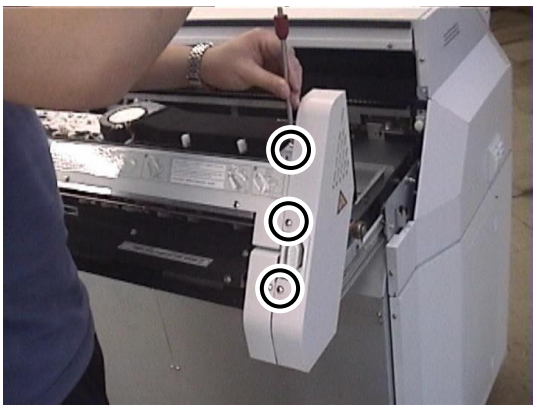
For the Multifunction Model, remove the COVER-FUSER-C1(MF)-2060 with upper two screws and lower two screws (total of four).
For the Printer Model, remove the COVER-FUSER-C1(PL)-2060 with two screws.



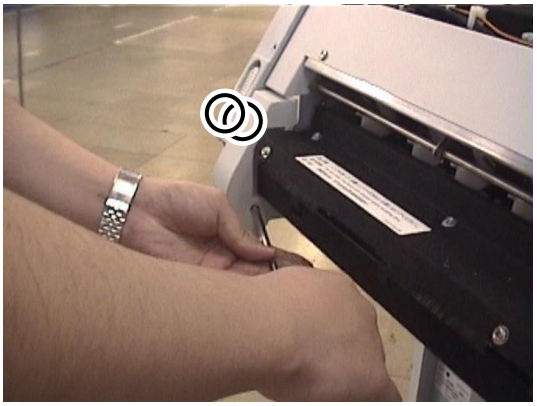
(b) Remove the COVER-FUSER-R with three screws.



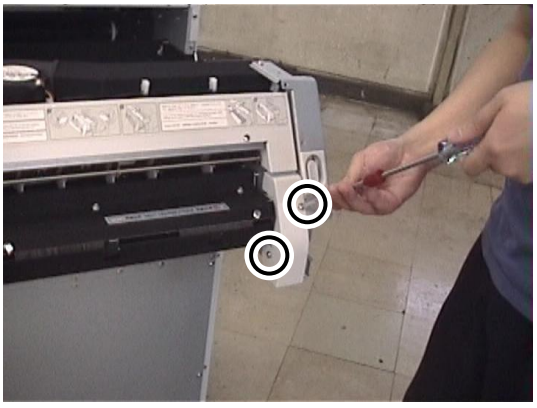
(c) Remove the COVER-FUSER-L with three screws.



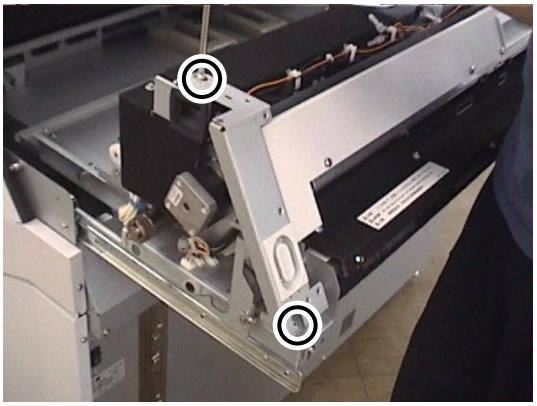
(d) Remove the COVER-FUSER-C3 with two screws.



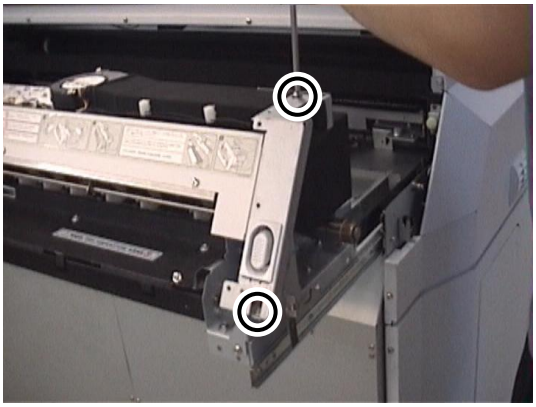
(e) Remove the COVER-FUSER-C4 with two screws.



(f) Remove the STAY-FUSER-COV-R with two screws.

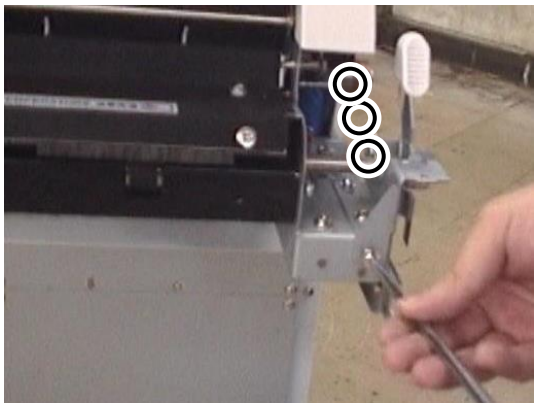


(g) Remove the STAY-FUSER-COV-L with two screws.

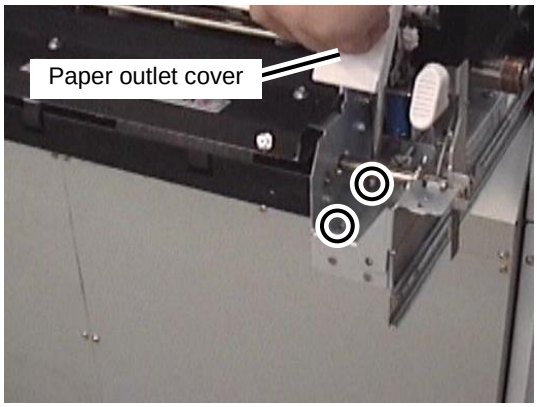


3. Remove the EXTENSION-PAPER OUT-KIT(MID).

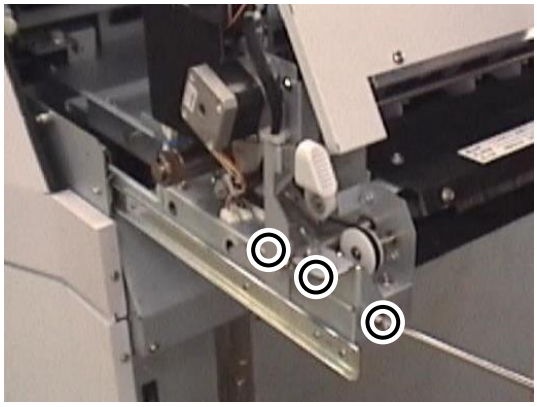
(a) Remove the three screws shown in the photo.



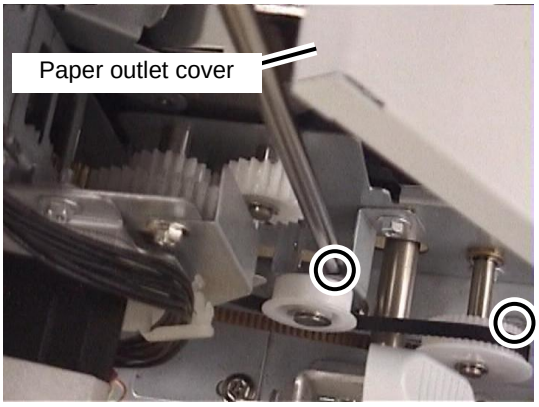
(b) Remove the two screws shown in the photo. Note that the screw in the rear side must be removed with the paper outlet cover lifted.



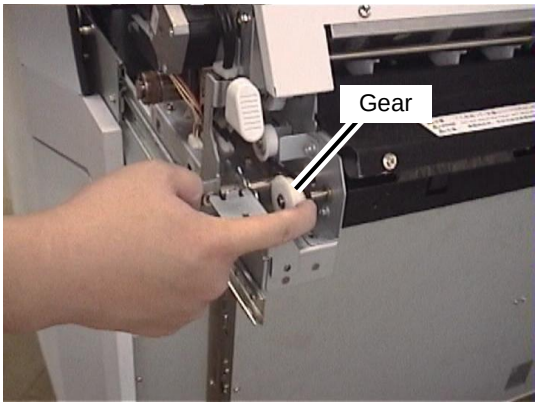
(c) Remove the three screws shown in the photo.



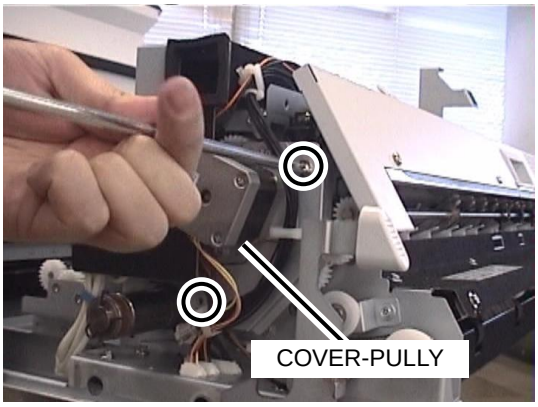
(d) Remove the two screws shown in the photo. Note that the screw in the rear side must be removed with the paper outlet cover lifted.



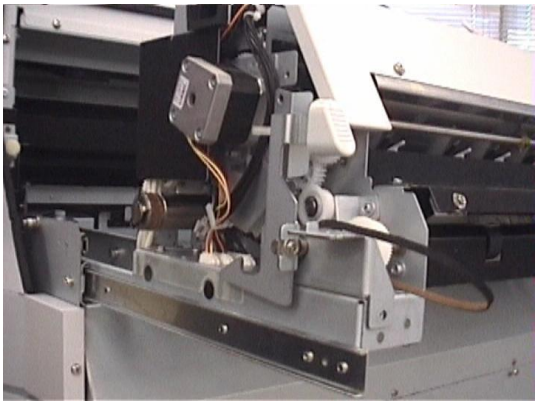
(e) Remove the timing belt from the gear in the EXTENTION-PAPER OUT-KIT(MID) side.



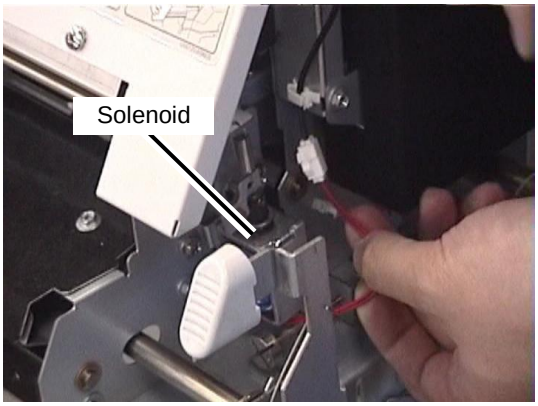
(f) Remove the two screws shown in the photo, and remove the COVER-PULLY.



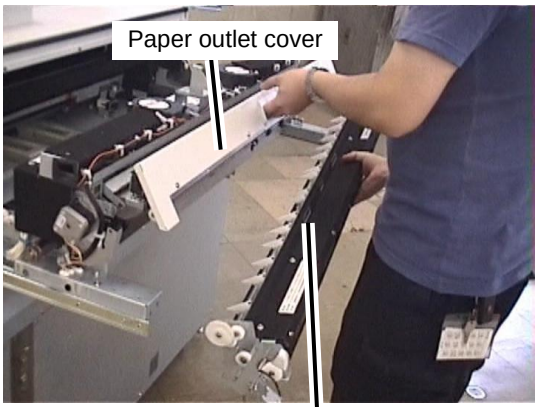
(g) Pull out the timing belt toward the EXTENTION-PAPER OUT-KIT(MID) side.



(h) Remove the connector from the solenoid's harness.



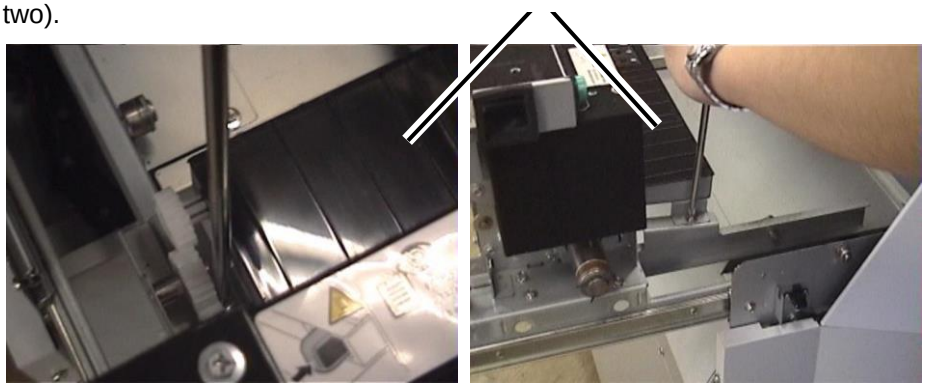
(i) While lifting the paper outlet cover, remove the EXTENTION-PAPER OUT-KIT(MID).



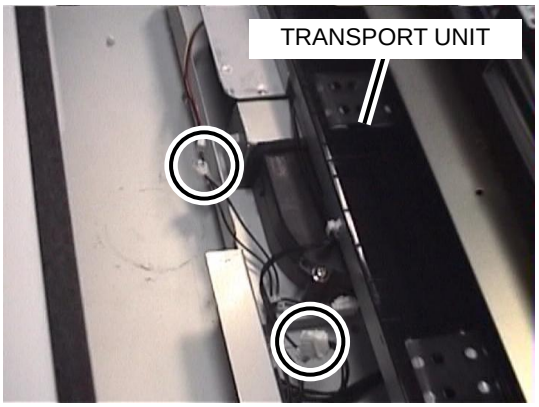
EXTENSION-PAPER OUT-KIT(MID)

4. Remove the TRANSPORT UNIT.

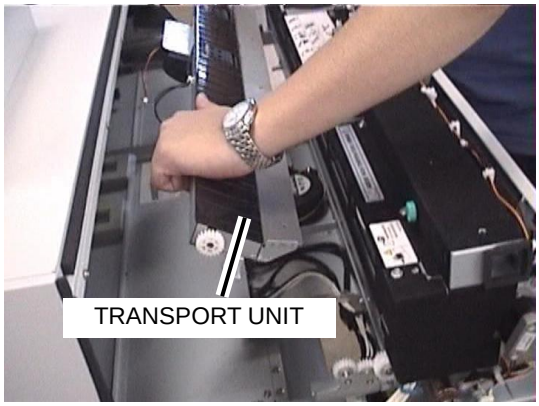
(a) Remove one screw each in the right and left (total of two).



(b) Unplug the connector from the fan and sensor.

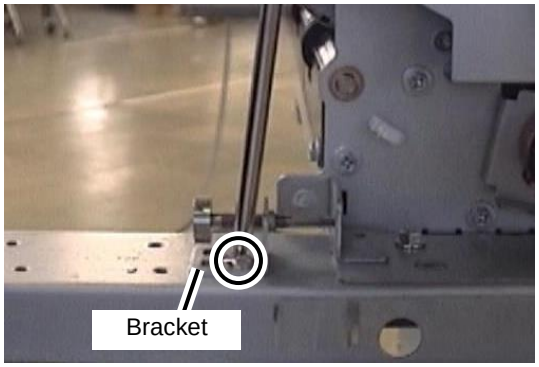


(c) Slide the TRANSPORT UNIT toward the fuser unit's motor side, then lift it to remove.

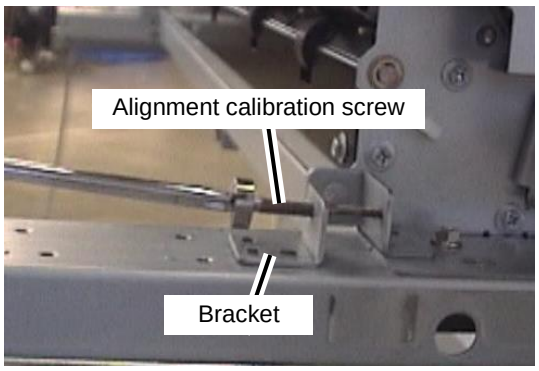


5. Remove the SHEET CARBON BR (see p. **9-99**).

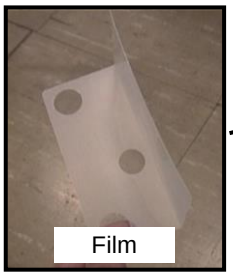
6. Remove the one screw fixing the alignment calibration screw's bracket.

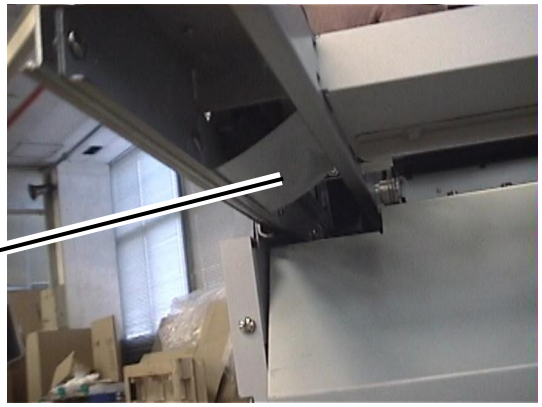


7. Rotate the alignment calibration screw, and remove it with the bracket.



8. Remove the filter to prevent the cables from hanging over. The film is under the motor-side connector.

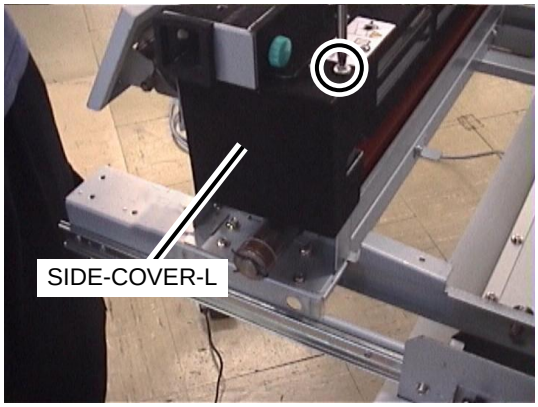




9. Remove the SIDE-COVER-L with one screw.

Note

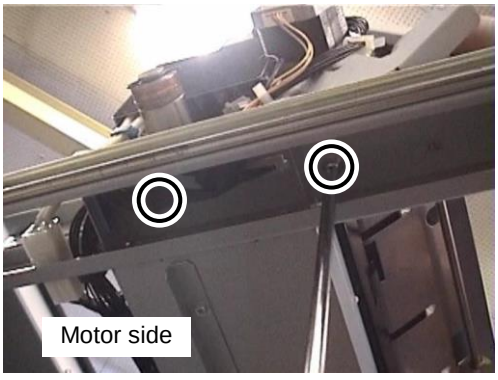
Depending on the printer's manufacturing date, the SIDE-COVER-L may be fixed with eight screws.

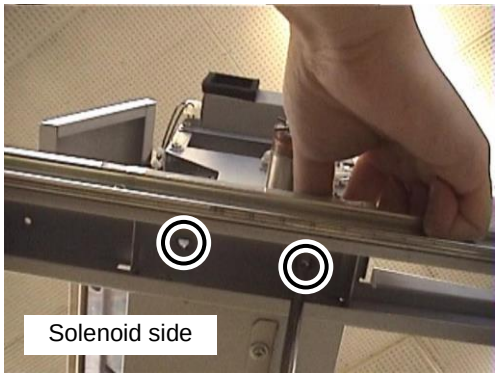


10. Remove the right and left screws (total of two) fixing the FUSER UNIT from its lower side.

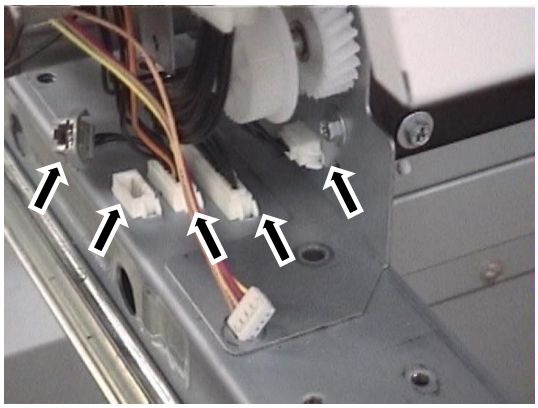
Note

Depending on the printer's manufacturing date, the FUSER UNIT may be fixed with eight screws. If such a unit is replaced, install a new FUSER UNIT with two screws each in the right and left screw holes (total of four).

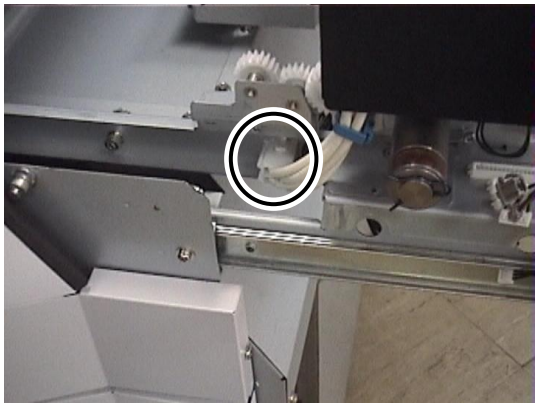




11. Unplug the all five connectors under the motor.



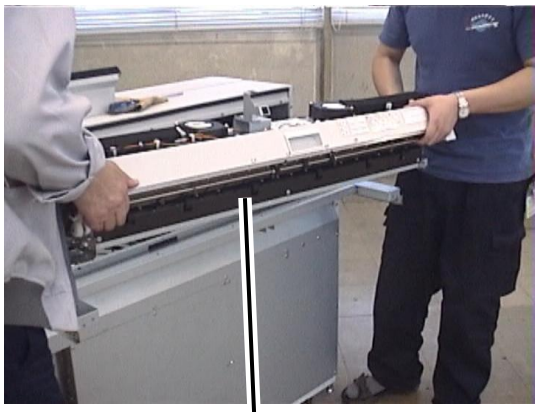
12. Remove the halogen heater's cable from the socket.



13. Remove the FUSER UNIT.

Note

Be sure to carry the unit with two or more persons.



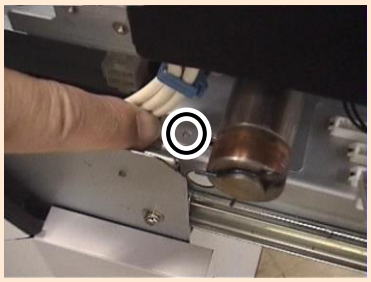
FUSER UNIT

<Installation>

Cautionary Notes for Installation

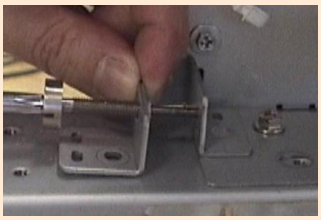
Install the FUSER UNIT(FUSER UNIT,WITHOUT HEATER,MNT) by reversing the removal procedure, considering the following notes.

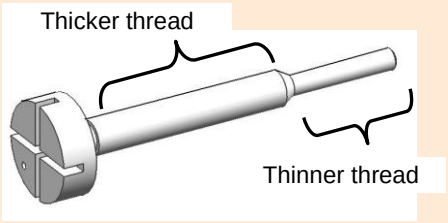
- Install the FUSER UNIT.
  Install the FUSER UNIT so that the printer's protrusion is inserted into its hole in the motor side.



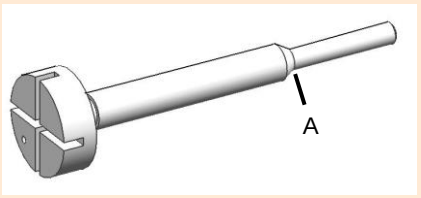
- Install the alignment calibration screw
  To simplify the alignment calibration screw, install the alignment calibration screw and its bracket with the procedure below.

  Allocate the bracket on its position. Then secure the alignment calibration screw so that its thicker thread and thinner thread are simultaneously inserted into their screw holes respectively.

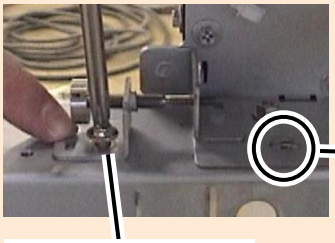


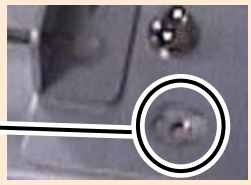


  When checking that the thicker thread's top slightly appears at the screw hole's top, rotate the screw additionally. Stop rotating when the position A shown in the figure below locates at the center between the two metal plates.



  Adjust the fuser unit's position so that the ellipsoidal hole shown in the photo locates at the center of the base unit side screw hole. Then fasten the bracket fixing screw.





Allocate the ellipsoidal hole at the center of the screw hole.

Bracket fixing screw

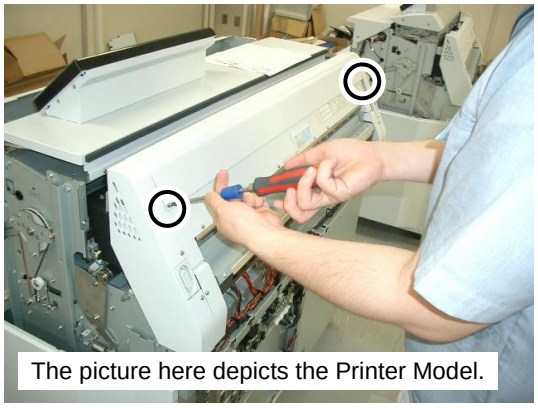
9.10.2 [BL-02] BLOWER FAN,BL01,02,06 MNT

<Removal>

1. Open the fuser unit drawer.

2. Remove COVER-FUSER-C1(MF/PL)-2060.

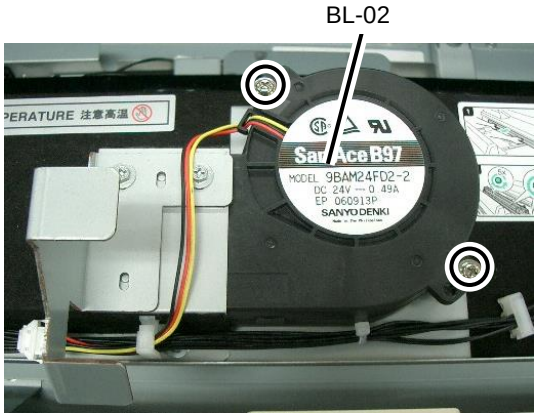
The Multifunction Model (COVER-FUSER-C1(MF)-2060) has four screws (two on top and two on the back). The Printer Model (COVER-FUSER-C1(PL)-2060) has two screws.



The picture here depicts the Printer Model.

3. Unplug the fan's connector.

4. Remove the BL-02 with two screws.



Cautionary Notes for Installation

Tighten the screws after connecting the BL-02 duct with the duct on the plate side.

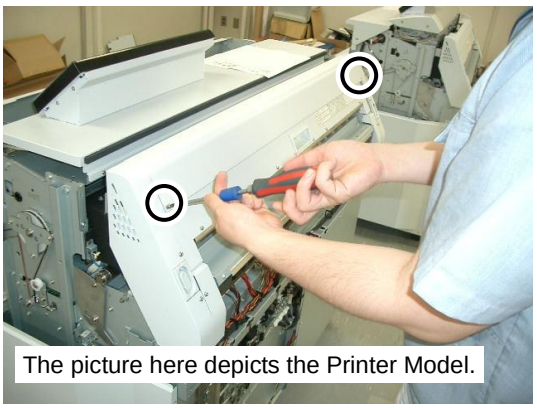
9.10.3 SL01 LOW MNT

<Removal>

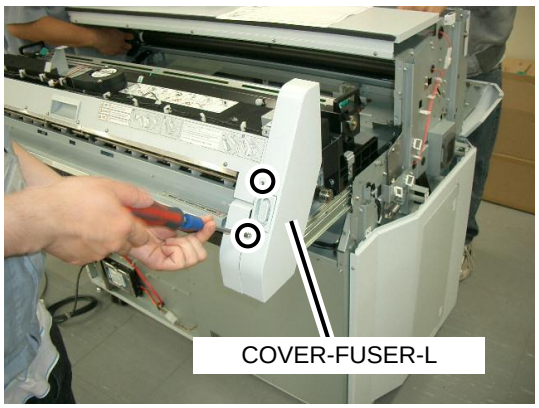
1. Open the fuser unit drawer.

2. Remove the COVER-FUSER-C1(MF/PL)-2060.

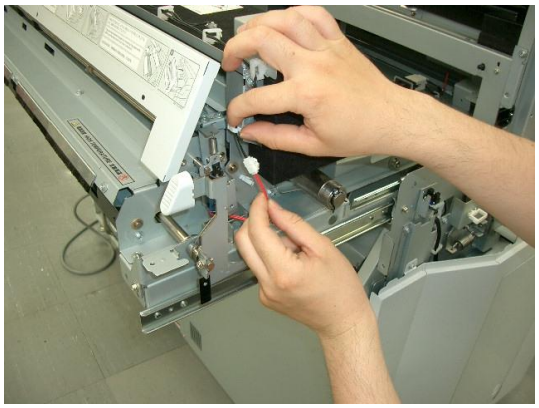
The Multifunction Model (COVER-FUSER-C1(MF)-2060) has four screws (two on top and two on the back). The Printer Model (COVER-FUSER-C1(PL)-2060) has two screws.


The picture here depicts the Printer Model.

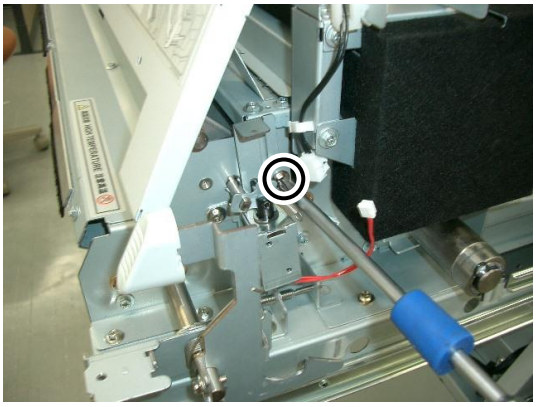
3. Remove the COVER-FUSER-L.


COVER-FUSER-L

4. Unplug the SL01 cord connectors.



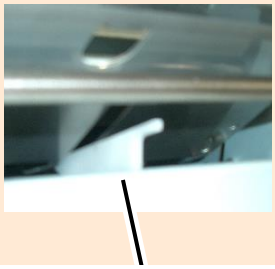
5. Remove the SL01 with two screws along with the bracket.



Cautionary Notes for Installation

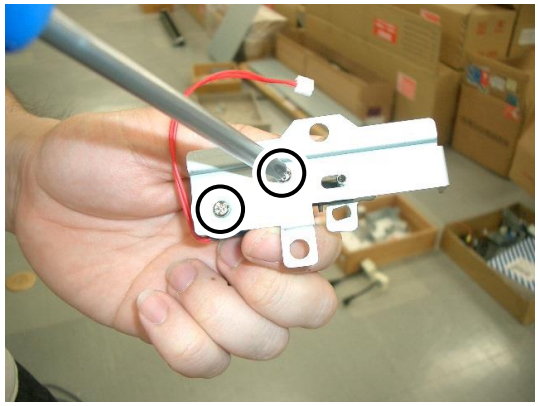
The two screws in this location should be adjusted when installing, and screw locking agent should be applied.

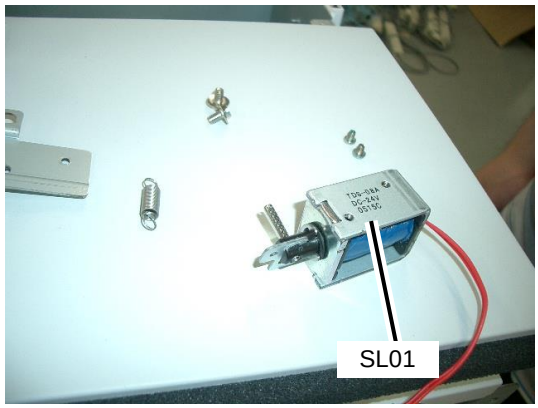
<Checking>
Print a engine test pattern, and check that the Printer outputs the paper normally based on the Shutter (output) operation.



If there are any problems, adjust the upper/lower position.

6. Remove the two screws and detach SL01 from the bracket.





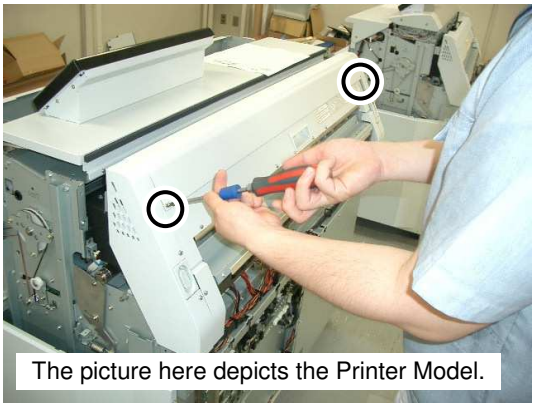
9.10.4 [HM01] MOTOR HM MNT

<Removal>

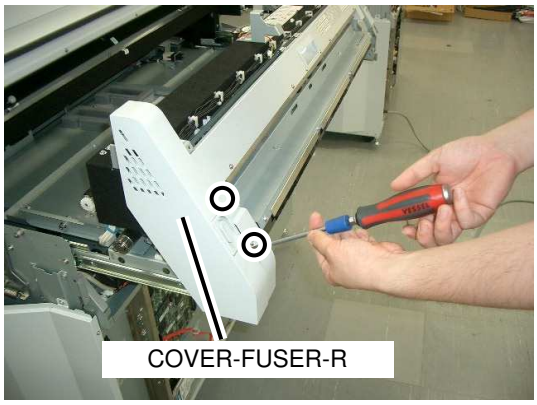
1. Open the fuser unit drawer.

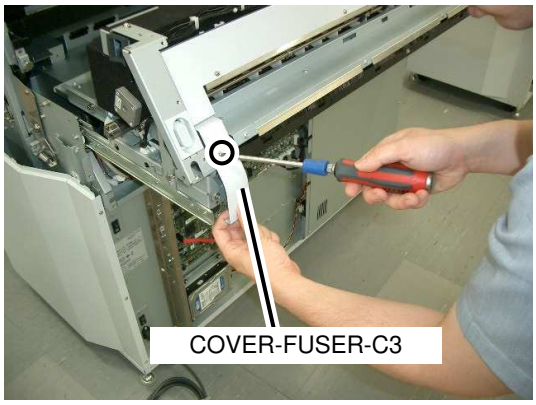
2. Remove the COVER-FUSER-C1(MF/PL)-2060.

Multifunction Model:
COVER-FUSER-C1(MF)-2060 has four screws
(two on top and two on the back).
Printer Model:
COVER-FUSER-C1(PL)-2060 has two screws.

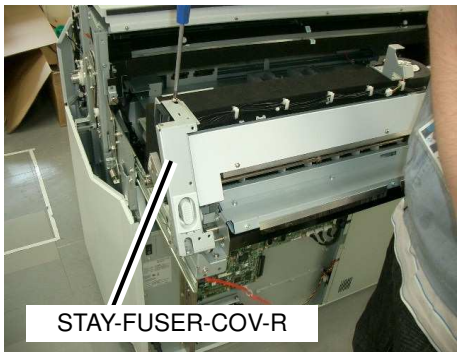

The picture here depicts the Printer Model.

3. Remove the COVER-FUSER-R and STAY-FUSER-C3.

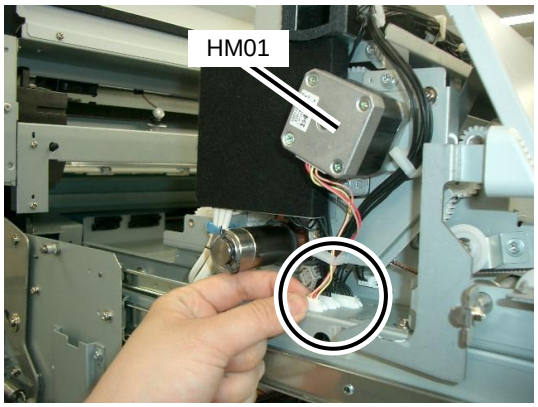

COVER-FUSER-R


COVER-FUSER-C3

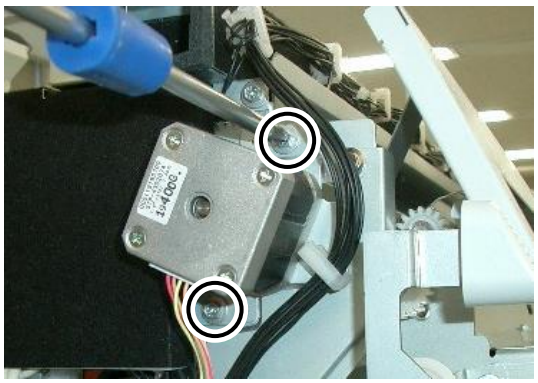
4. Remove the STAY-FUSER-COV-R.


STAY-FUSER-COV-R

5. Unplug the connector.

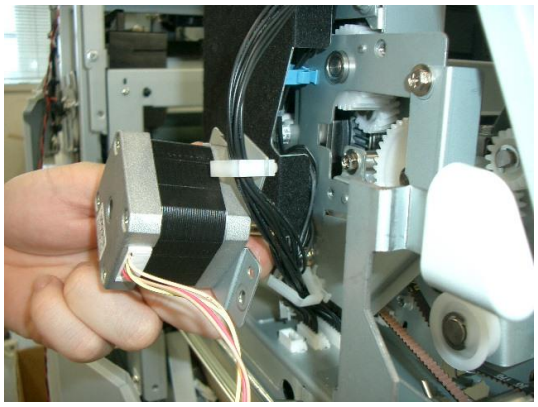


6. Remove the two screws.



7. Release all cords from the cable clamp.

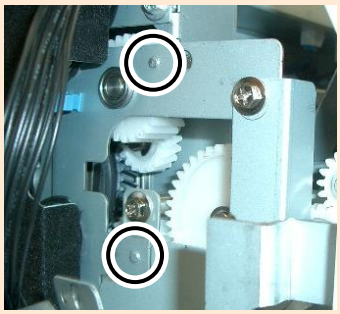
8. Remove the HM01 together with the bracket.



9. Remove the HM01 with the two screws from the bracket.

Cautionary Notes for 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 and remove the SPUR FUSER.

Note

Do not open up the plate spring rightward and leftward excessively.

9.10.6 [FL01][FL02] HALOGEN HEATER

Note

The HALOGEN LAMP 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.

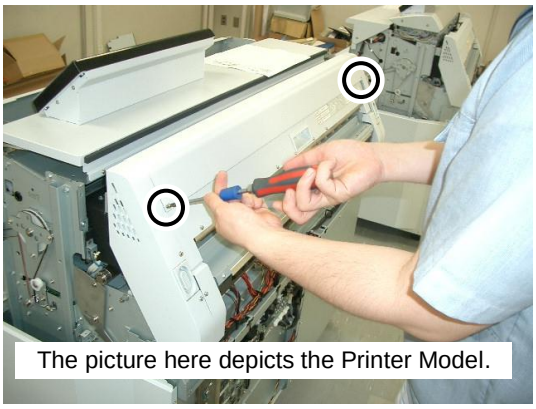
- Japan: HALOGEN LAMP MAIN 100V MNT and HALOGEN LAMP SUB 100V MNT
- North America: HALOGEN LAMP MAIN 120V MNT and HALOGEN LAMP SUB 120V MNT
- Europe/China: HALOGEN LAMP MAIN 230V MNT and HALOGEN LAMP SUB 230V MNT

<Removal>

1. Open the fuser unit drawer.

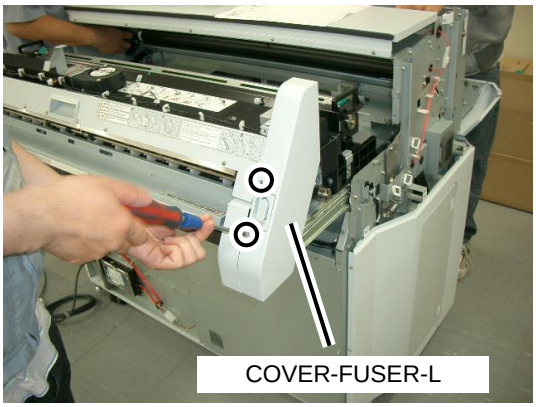
2. Remove the COVER-FUSER-C1(MF/PL)-2060.

Multifunction Model:
COVER-FUSER-C1(MF)-2060 has four screws
(two on top and two on the back).
Printer Model:
COVER-FUSER-C1(PL)-2060 has two screws.

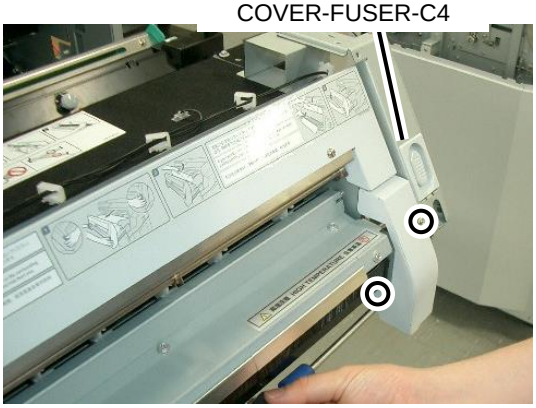


The picture here depicts the Printer Model.

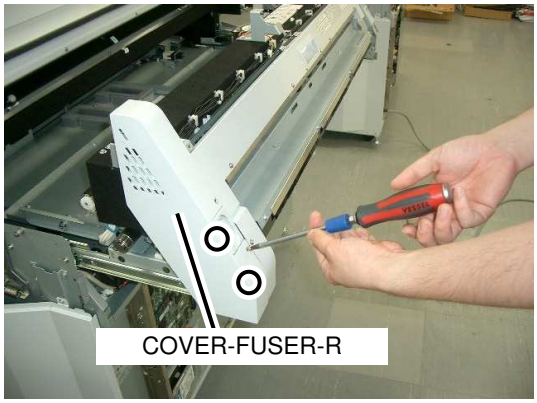
3. Remove the COVER-FUSER-L.

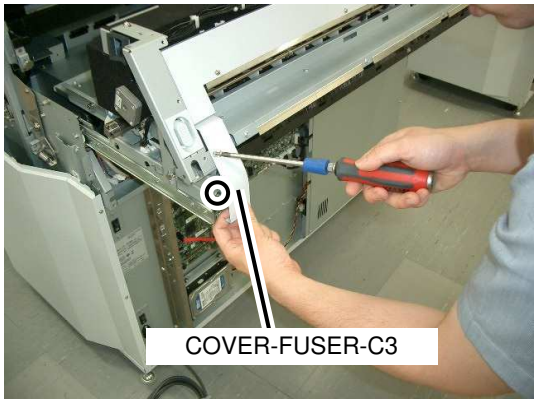


4. Remove the COVER-FUSER-C4 and STAY-FUSER-COV-L.

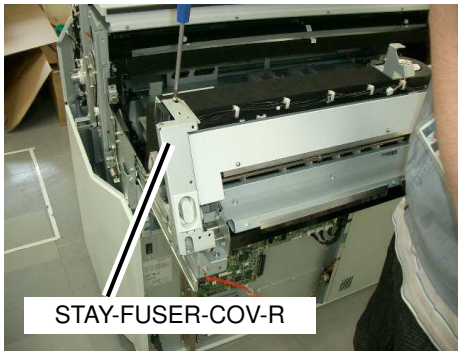


5. Remove the COVER-FUSER-R and COVER-FUSER-C3.

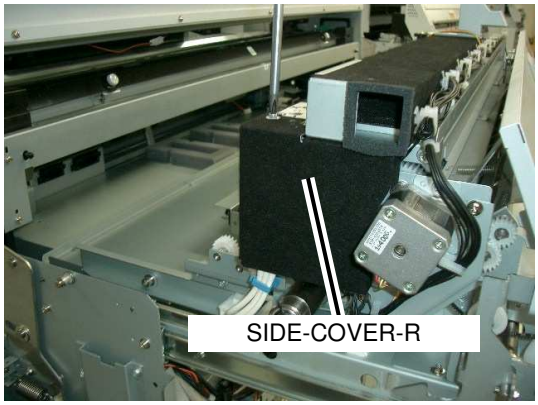




6. Remove the STAY-FUSER-COV-R.

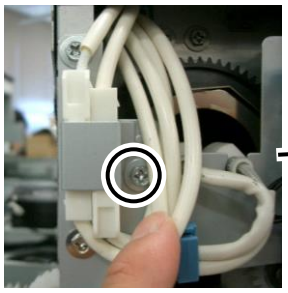


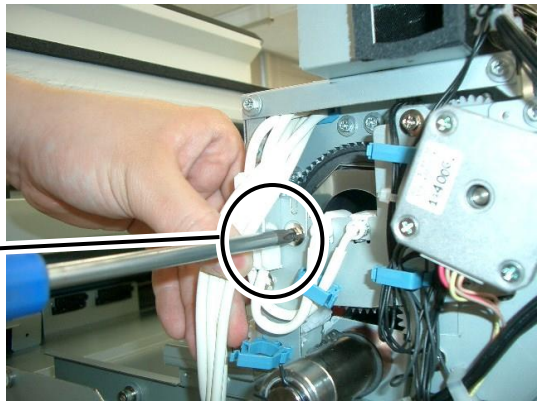
7. Remove the SIDE-COVER-R.



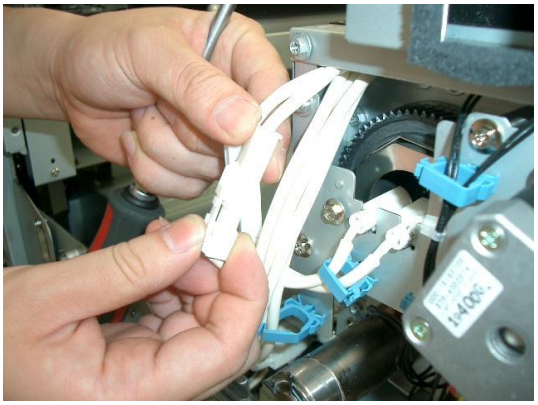
8. Release all halogen heater cables from all light blue cable clamps.

9. Loosen the one screw of the plate securing the connector, then remove the plate.



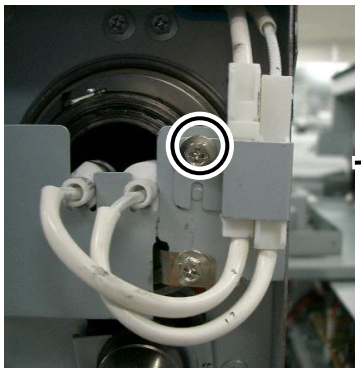


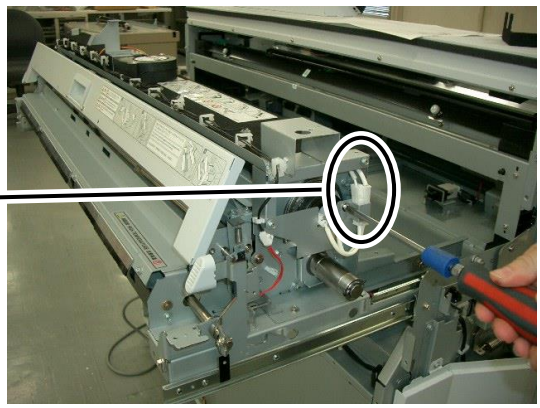
10. Unplug the connector.



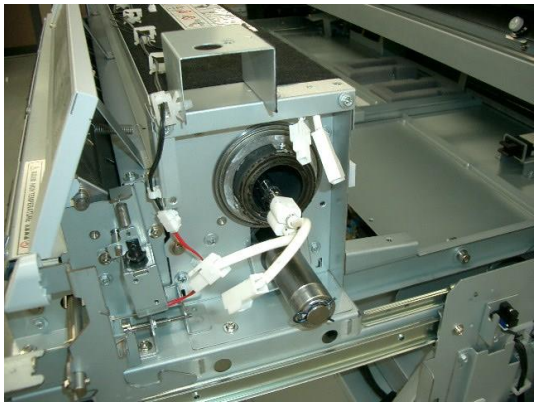
11. Move to the left side of the Printer and remove SIDE-COVER-L.

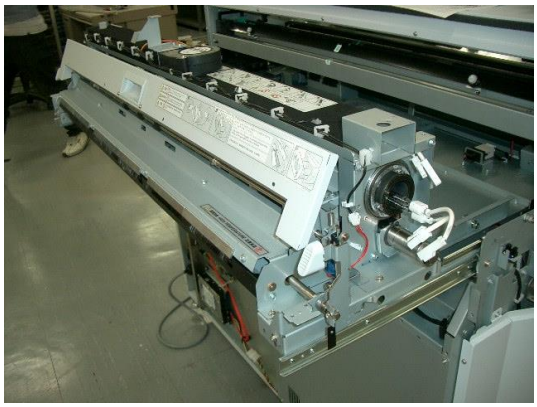
12. Loosen the one screw of the plate securing the connector, then remove the plate.



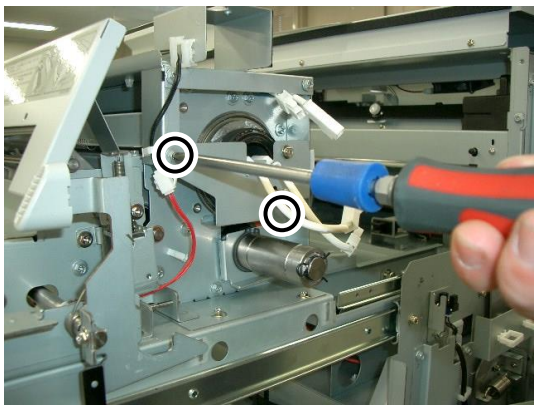


13. Unplug the connector.

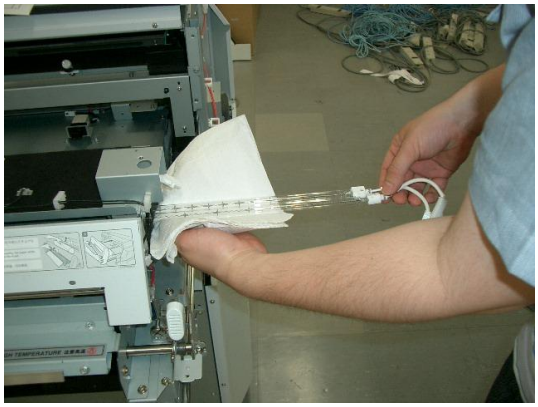




14. Remove the plate with two screws at the location shown in the photo.



15. Hold down the halogen heater portion with a non-woven fabric cloth and pull out both [FL01]MAIN and [FL02]SUB at the same time. Note that the two parts are located at the left side of the Printer, looking at the Printer from the front.



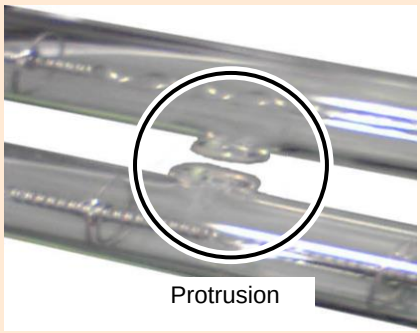
Note

- Handle the halogen heaters carefully, as they are very fragile.
- Remove the cables and connectors carefully, as they may snag easily on other parts.

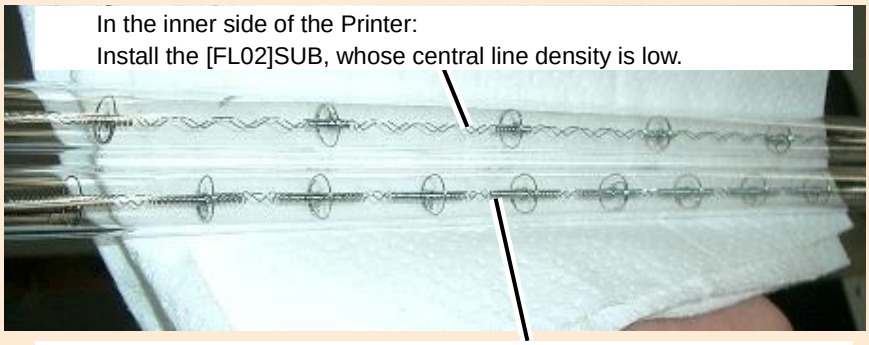
<Installation>

Cautionary Notes for Installation

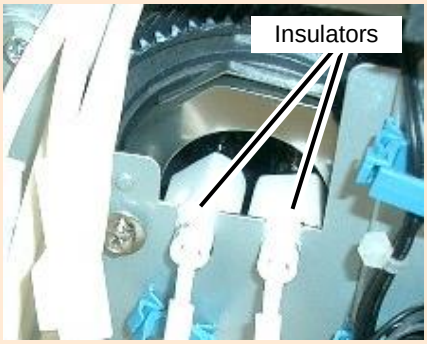
- Do not touch the transparent glass part of the halogen heater you are going to use for replacement. If touched, wipe off the surface of the glass with an alcohol based cleaner.
- Be careful not to let the protruding glass portions of the halogen heaters hit each other.



- Note that the central line density is different between the main and sub halogen heaters. When installing them, be careful of their installation position.



- 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.



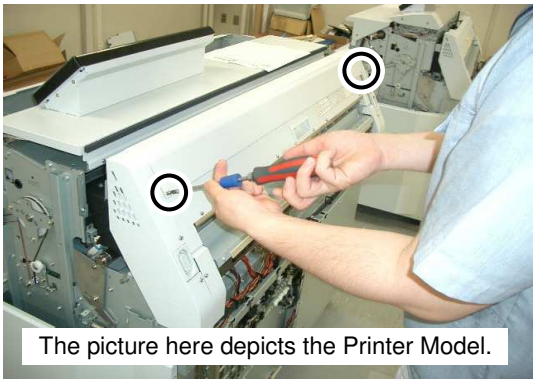
9.10.7 TORQUE LIMITER MNT

<Removal>

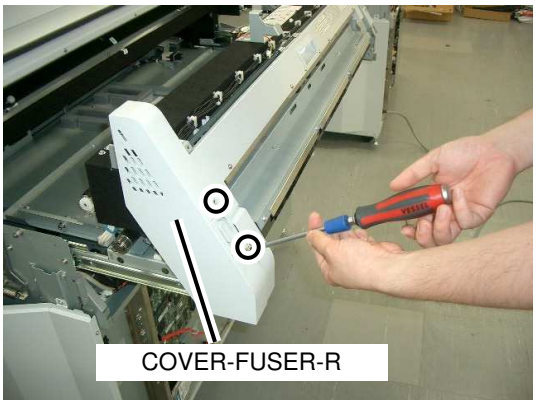
1. Open the fuser unit drawer.

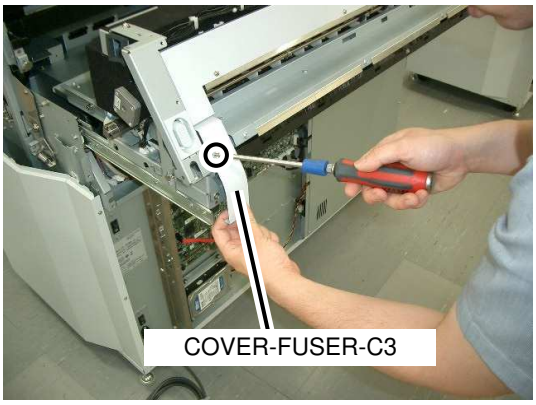
2. Remove the COVER-FUSER-C1(MF/PL)-2060.

Multifunction Model:
COVER-FUSER-C1(MF)-2060 has four screws
(two on top and two on the back).
Printer Model:
COVER-FUSER-C1(PL)-2060 has two screws.

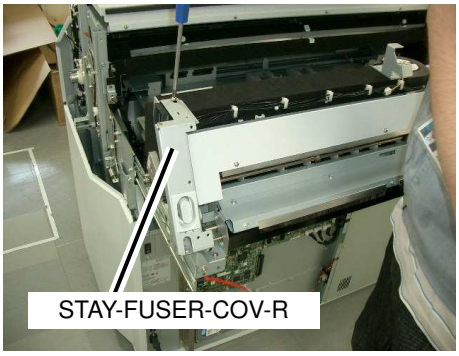

The picture here depicts the Printer Model.

3. Remove the COVER-FUSER-R and COVER-FUSER-C3.

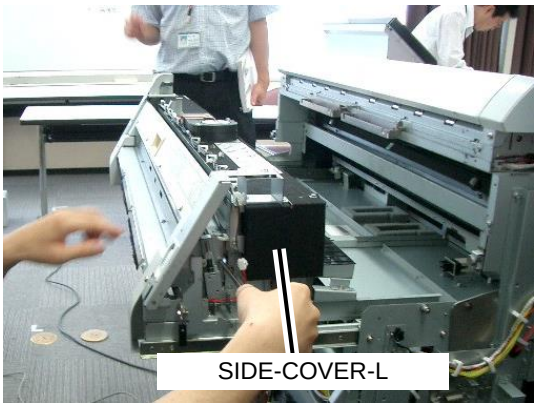

COVER-FUSER-R


COVER-FUSER-C3

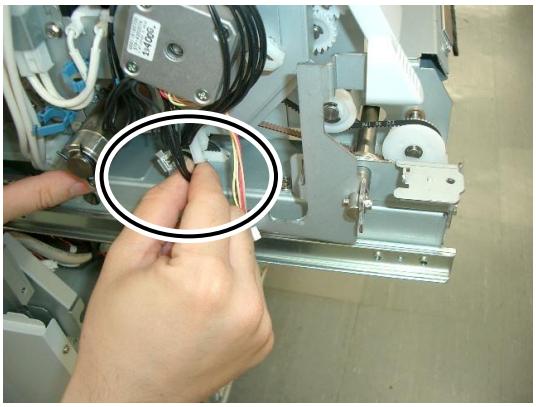
4. Remove the STAY-FUSER-COV-R.


STAY-FUSER-COV-R

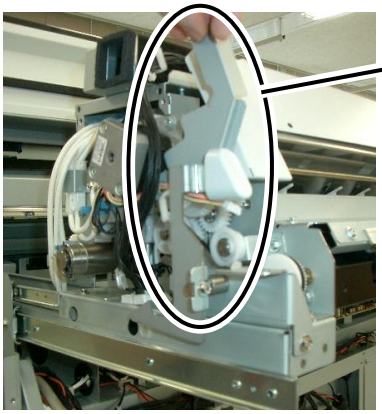
5. Remove the SIDE-COVER-R.

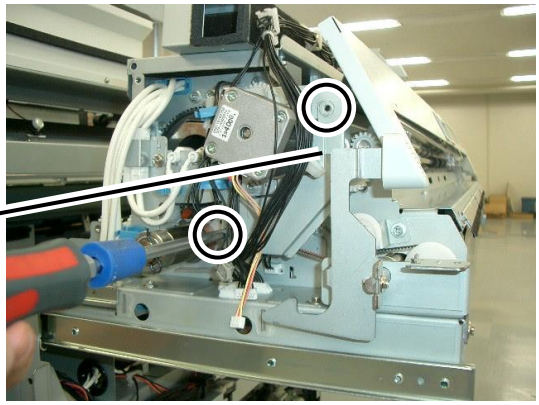


6. Unplug the connector shown in the photo.



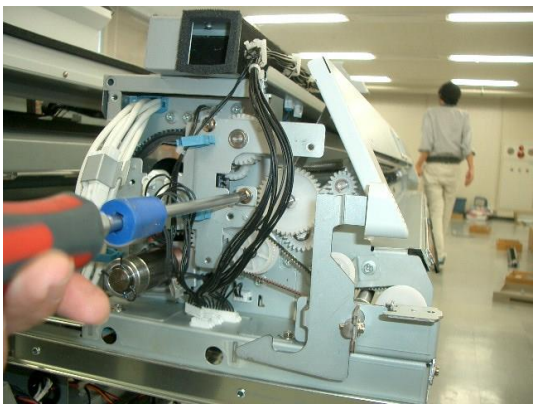
7. Remove the plate with two screws at the location shown in the photo.

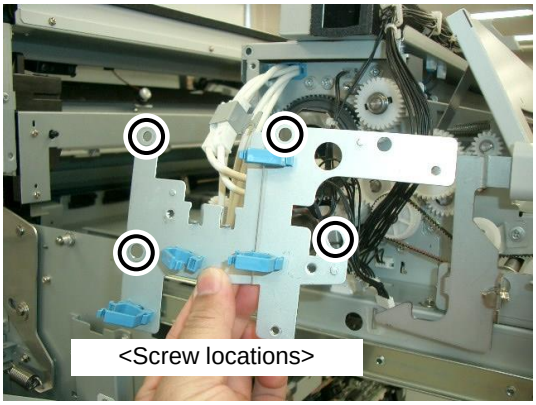




8. Remove the HM01 (see p. 9-67).

9. Remove the plate with four screws at the location shown in the photo.

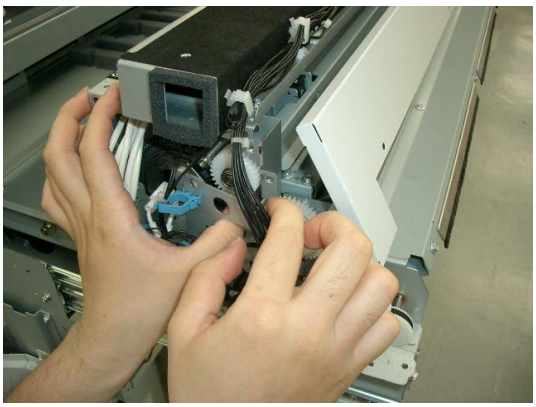




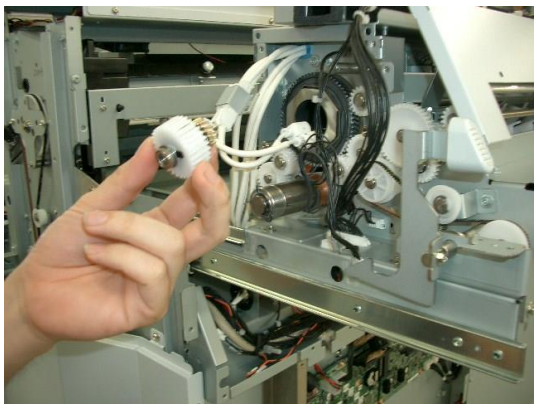
<Screw locations>

Note

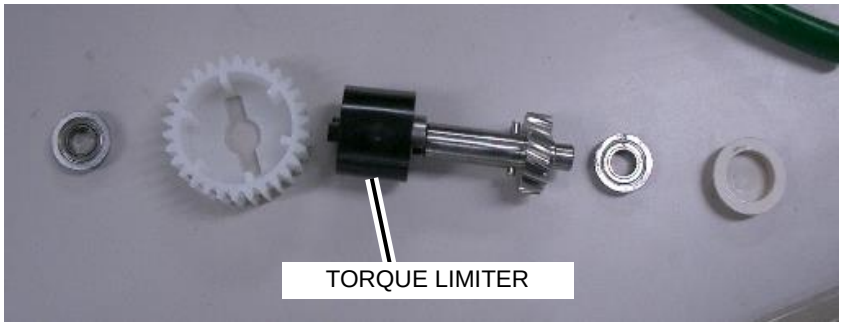
Hold on to the TORQUE LIMITER gear when removing the plate to prevent the gear from falling.



10. Remove the TORQUE LIMITER with the gear.



11. Separate the TORQUE LIMITER from the gear.



9.10.8 [TH01][TH02][TH04] THERMISTOR and TH01,02,04,05 MNT

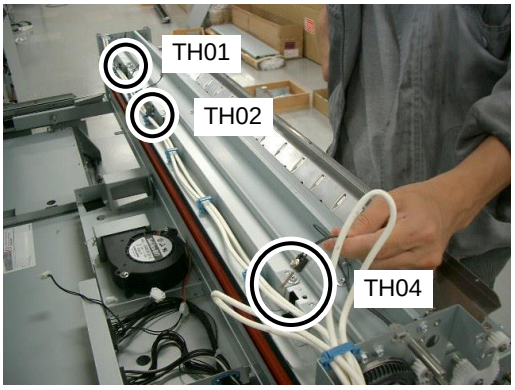
Note

Handle the TH01, TH02, TH04, and TH05 carefully, as they are easily bent. Be careful when handling.

<Removal at three locations below the UP FAN-FLAME>

Note

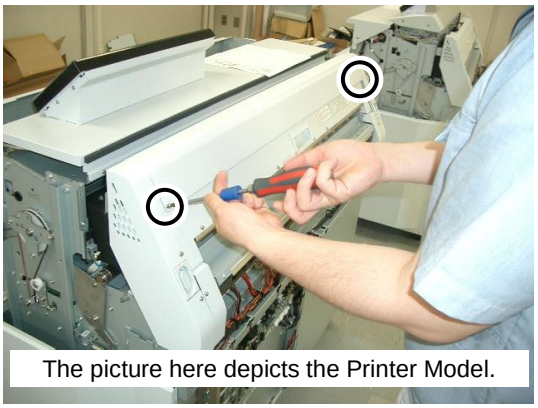
Remove the TH01, TH02, and TH04 in the three locations below the UP FAN-FLAME in the same way.



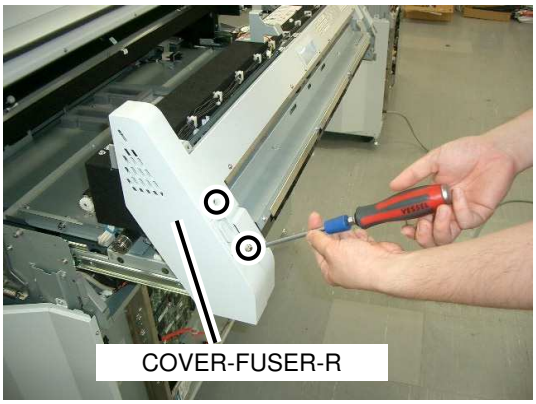
1. Open the fuser unit drawer.

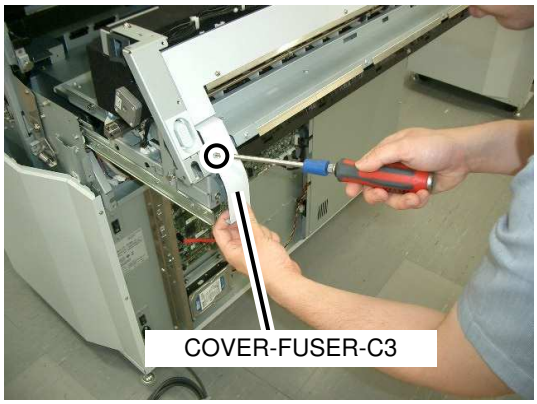
2. Remove the COVER-FUSER-C1(MF/PL)-2060.

   Multifunction Model:
   COVER-FUSER-C1(MF)-2060 has four screws
   (two on top and two on the back).
   Printer Model:
   COVER-FUSER-C1(PL)-2060 has two screws.

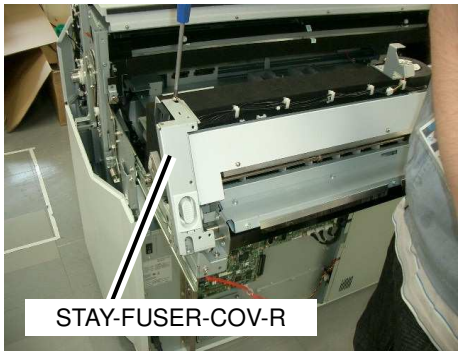

The picture here depicts the Printer Model.

3. Remove the COVER-FUSER-R and COVER-FUSER-C3.

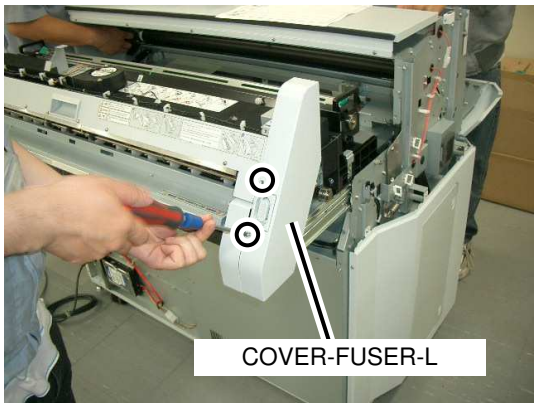


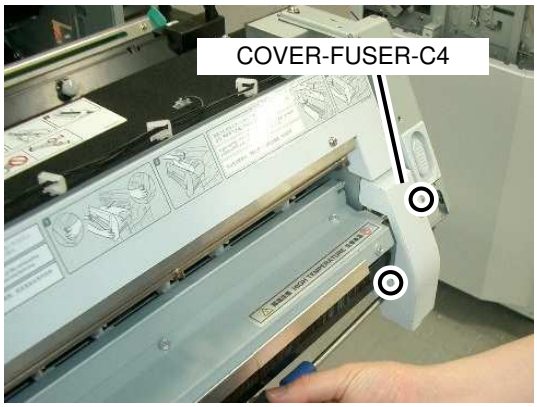


4. Remove the STAY-FUSER-COV-R.

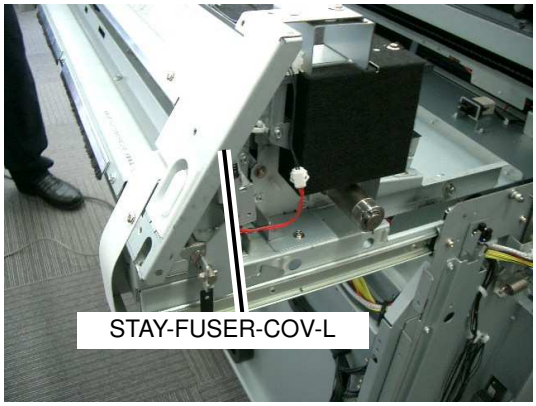


5. Remove the COVER-FUSER-L and COVER-FUSER-C4.



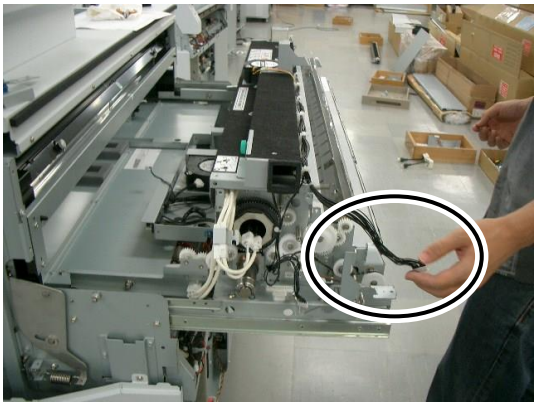


6. Remove the STAY-FUSER-COV-L.



7. Remove the SIDE-COVER-R and SIDE-COVER-L.

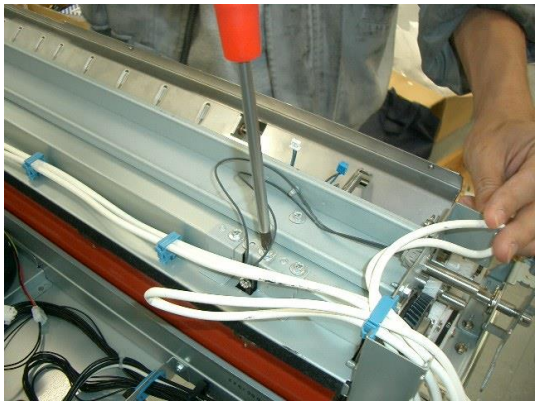
8. Unplug the two cable connectors shown in the photo.



9. With the UP FAN-FLAME half-open as shown in the photo, unplug all connected connectors from it.

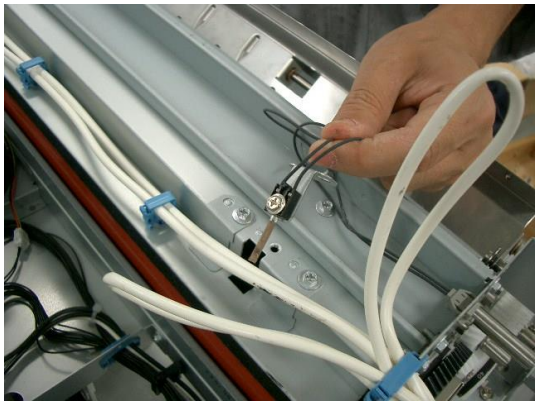
10. After unplugging all connectors, remove the UP FAN-FLAME.

11. Remove the connectors from the TH01, TH02, and TH04 you are to replace.



12. Remove the TH01, TH02, and TH04 with one screw, along with the bracket.

13. Remove the TH01, TH02, and TH04 with one screw, from the bracket.



Note

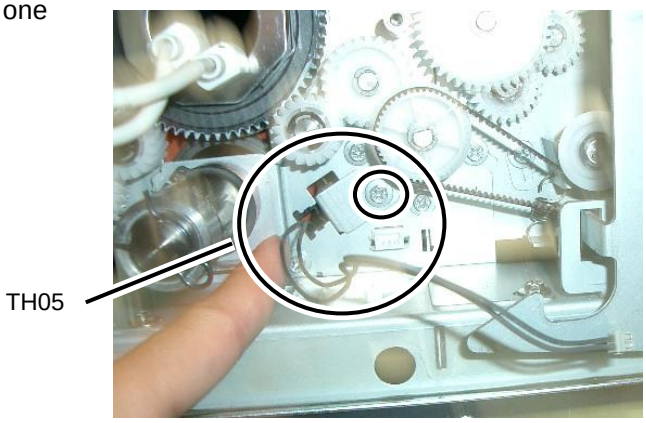
The TH01, TH02, and TH04 at all three locations can be removed in the same procedure.

<Removal of TH05>

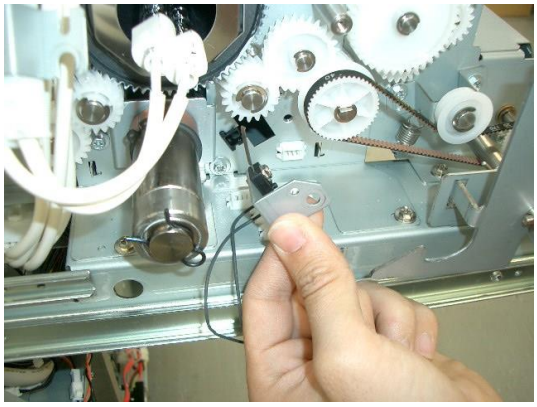
1. Repeat the steps 1 to 6 described in the Removal at three locations below UP FAN-FLAME above.

2. Remove the SIDE-COVER-R.

3. Remove the bracket with the TH05, with one screw.



4. Remove the TH05 from the bracket you removed in the previous step.



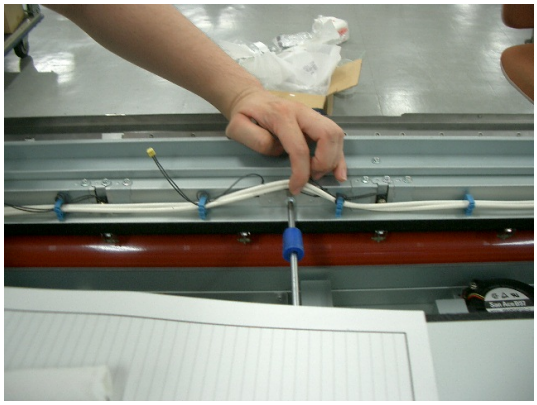
9.10.9 FUSE ASSY MNT

<Removal>

1. Repeat the steps 1 to 10 described in subsection **9.10.8**.

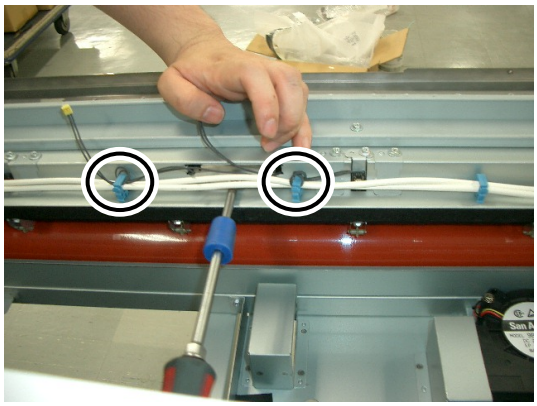
2. Remove the SIDE-COVER-R and SIDE-COVER-L (see steps 1 through 7 in **9.10.7 TORQUE LIMITER MNT**).

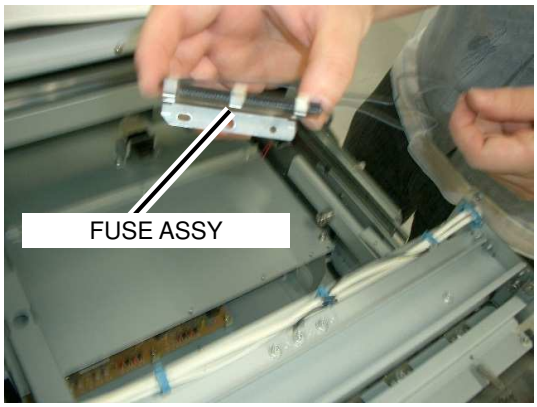
3. Follow the procedure to remove [TH01][TH02][TH04][TH05] THERMISTOR and TH01,02,04,05 MNT (see subsection **9.10.8**) to expose the halogen heater cables.



4. Remove the two cable clamps to release the halogen heater cables.

5. Remove the one screw from the FUSE ASSY mounted bracket.

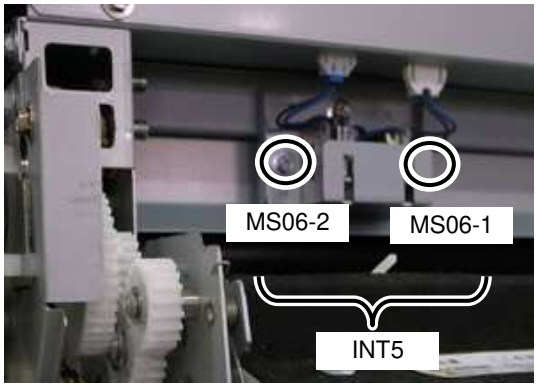




9.10.10 [MS06-1] MICRO SWITCH,04,05,06-1 MNT and [MS06-2] MICRO SWITCH,06-2 MNT

Note

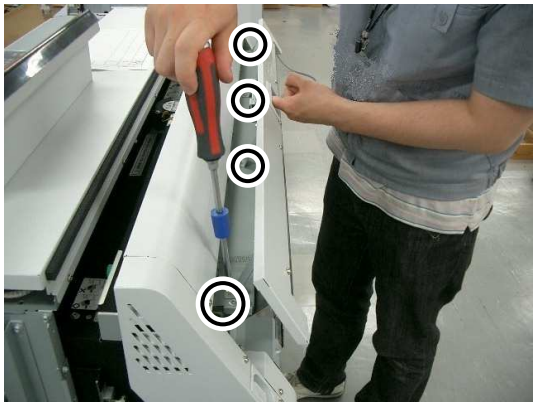
INT5 is made up of MS06-1 and MS06-2.



<Removal>

1. Remove the four screws shown in the photo.

2. Remove the outlet cover with four screws.

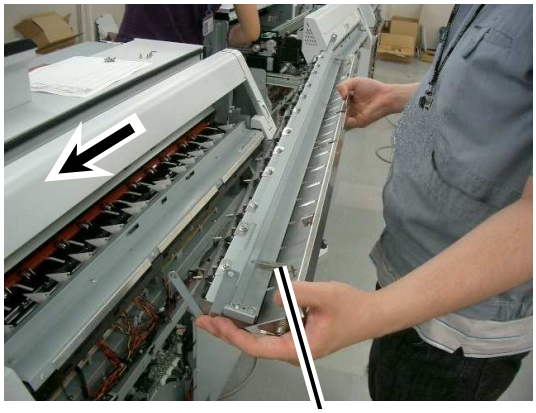


3. Remove the pin at the location shown in the photo.

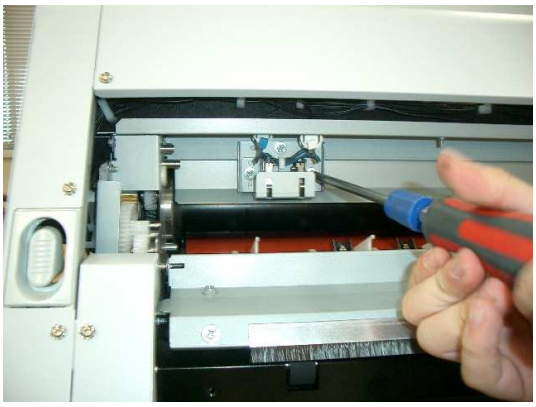
4. Remove the UPPER-PAPER-GUIDE-ASSY.

Note

Slide the UPPER-PAPER-GUIDE-ASSY in the direction of the arrow to remove.

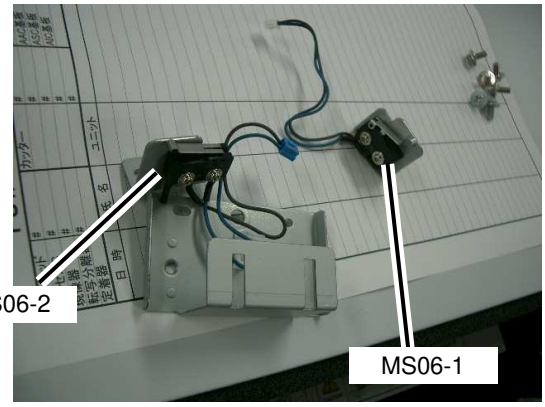


5. Remove the bracket with one screw with the parts below mounted:
- MS06-1;
  and
- MS06-2.



6. Remove the stays for each sensor.

7. Remove each sensor with two screws from their respective stay.



9.10.11 PEELER FU OUT MNT

<Removal>

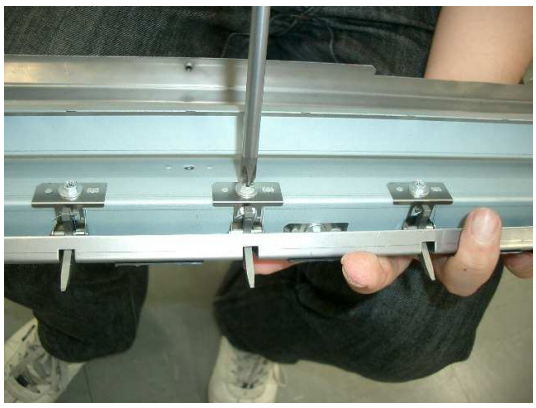
1. Remove the UPPER-PAPER-GUIDE-ASSY (see steps 1 through 4 in subsection **9.10.10**).

UPPER-PAPER-GUIDE-ASSY

Note

Slide the UPPER-PAPER-GUIDE-ASSY in the direction of the arrow to remove.

2. Remove the PEELER FU OUT with one screw.



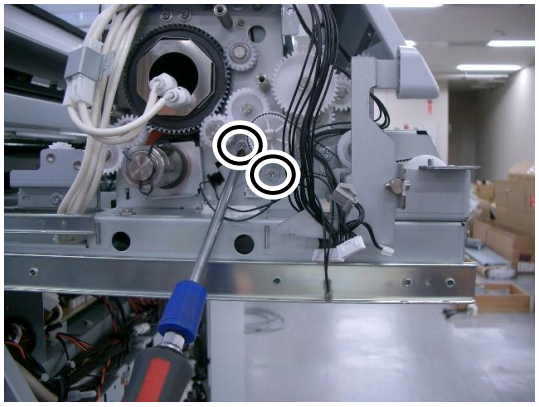
9.10.12 Separator (BUR) MNT

<Removal>

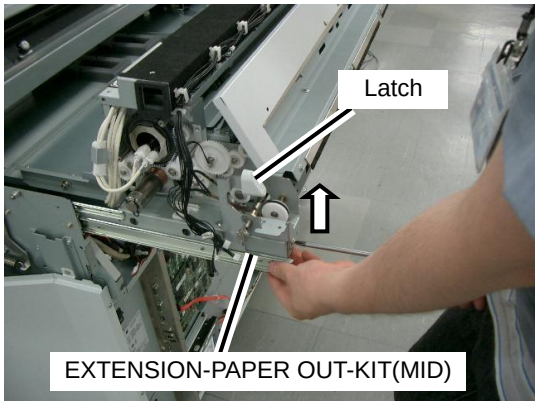
1. Remove the SIDE-COVER-R and SIDE-COVER-L (see steps 1 through 7 in **9.10.7 TORQUE LIMITER MNT**).

2. Remove the metal plate supporting the halogen heater.

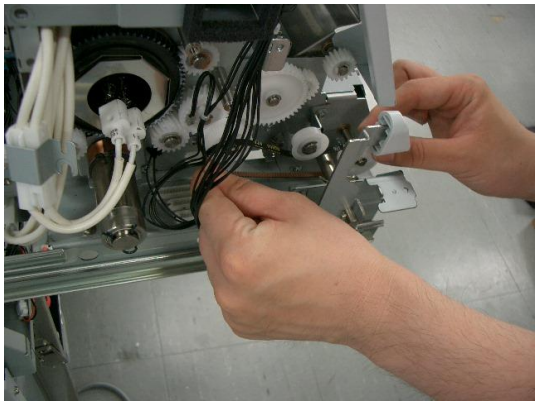
3. Remove the three screws shown in the photo.



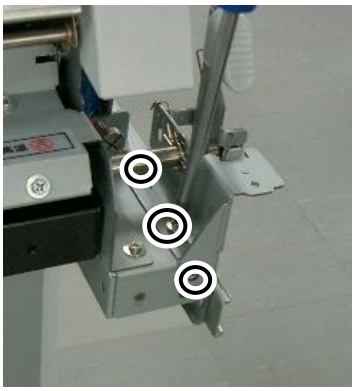
4. Remove the three latch screws while holding up EXTENSION-PAPER OUT-KIT(MID).



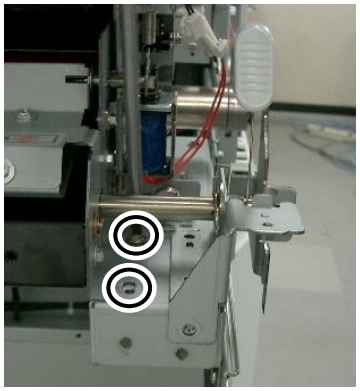
5. Remove the timing belt.



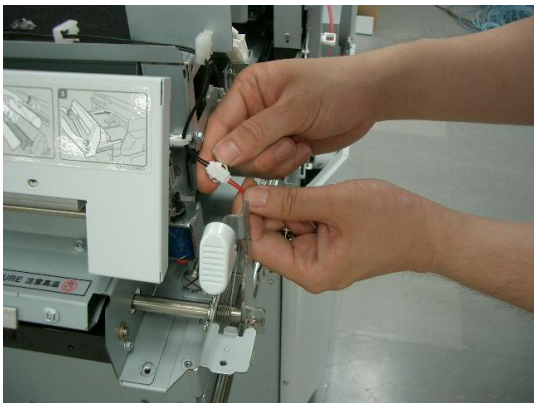
6. Remove the three screws for the latch on the left side as you did for the right side.



7. Remove the two screws shown in the photo.



8. Unplug the connector of SL01.



9. Remove the EXTENSION-PAPER OUT-KIT(MID).

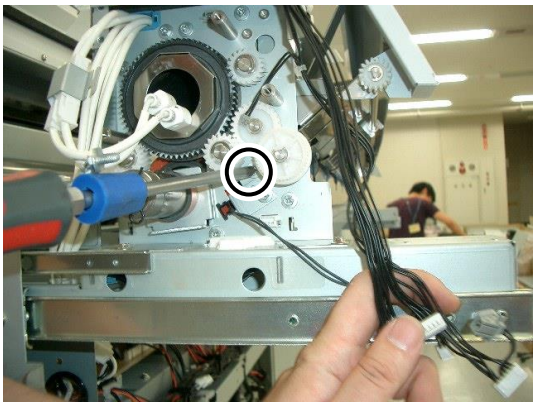
Note

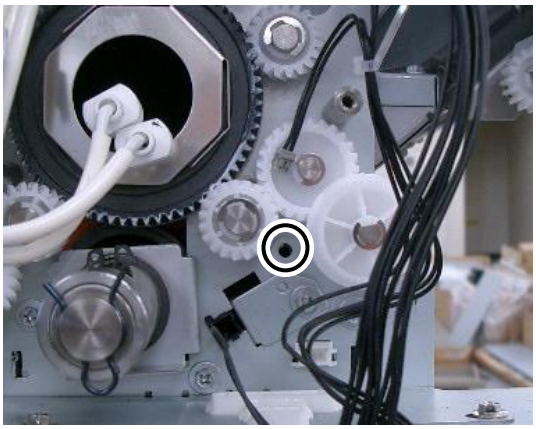
Note that the black cellophane at the part shown in the photo can break off easily.
To prevent the cellophane from being damaged, when setting down the EXTENSION-PAPER-OUT-KIT(MID), be sure to place it down so that it is parallel to the surface you are placing on.

10. Remove the three screws shown in the photo.

11. Remove the one screw shown in the photo.

12. Move to the left side of the Printer, looking at the Printer from the front.
Then remove the one screw shown in the photo.

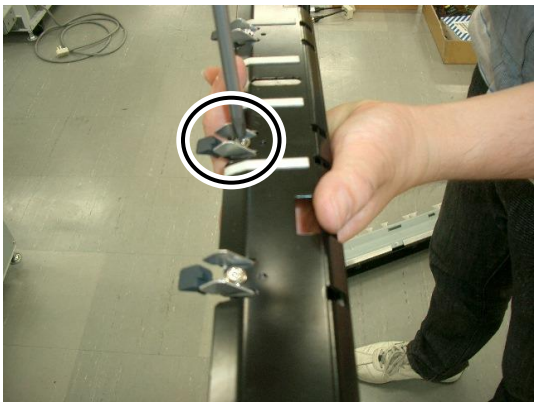




13. Remove the UNDER-PAPER-GUIDE.

UNDER -PAPER-GUIDE

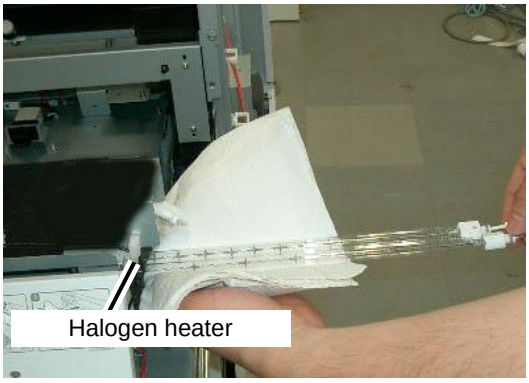
14. Remove the Separator(BUR) from UNDER-PAPER-GUIDE with one screw.



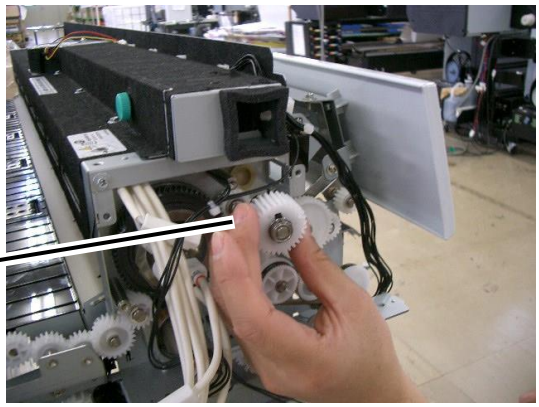
9.10.13 ROLLER HEAT MNT

<Removal>

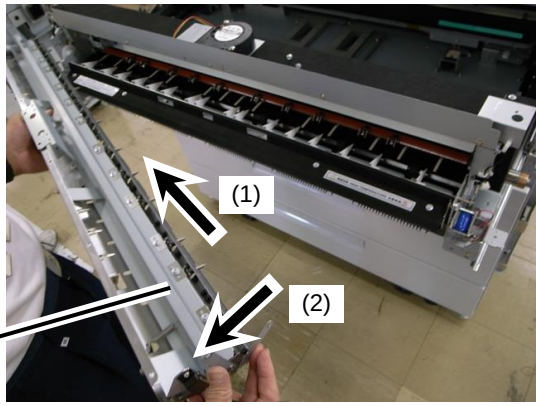
1. Perform the steps to remove the halogen heaters (see p. **9-70**).



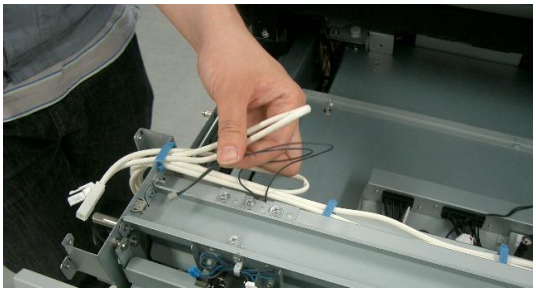
2. Perform the steps to remove the TORQUE LIMITER (see p. **9-76**). (You do not need to disassemble the gears.)



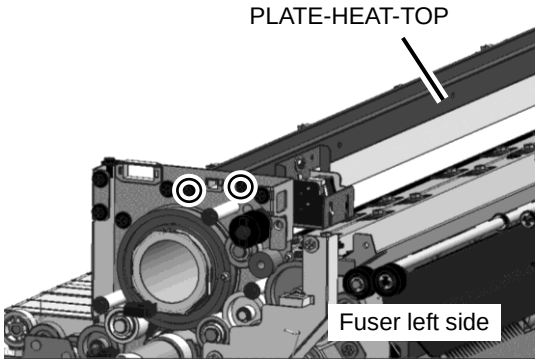
3. Remove the UPPER-PAPER-GUIDE-ASSY (see steps 1 to 3 on p. **9-86**).

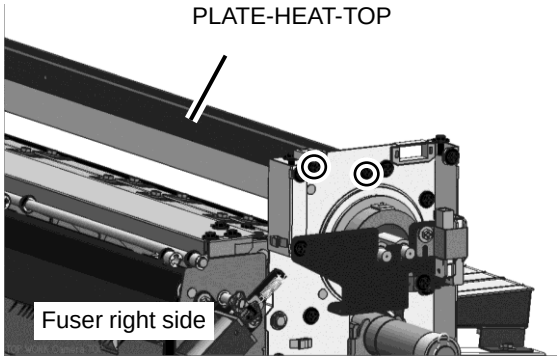


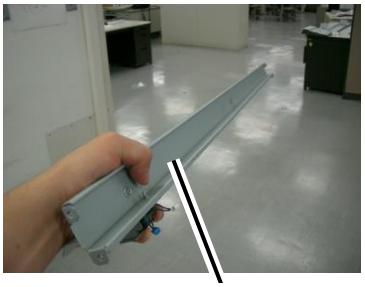
4. Follow the steps for removing the [TH01][TH02][TH04][TH05] THERMISTOR and TH01,02,04,05 MNT (see p. **9-80**) and disassemble until the TH01,TH02, and TH04 are exposed.



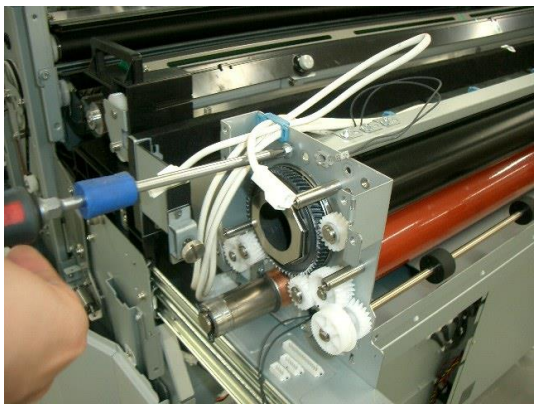
5. Remove the PLATE-HEAT-TOP.

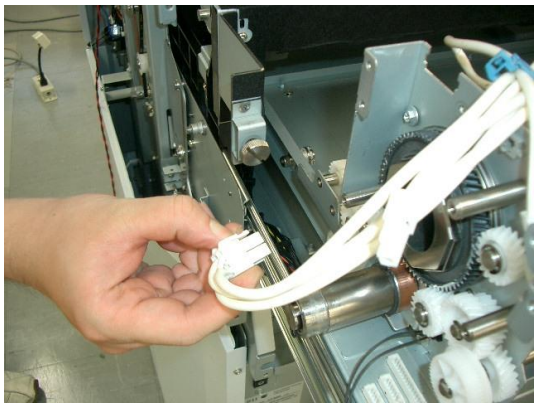






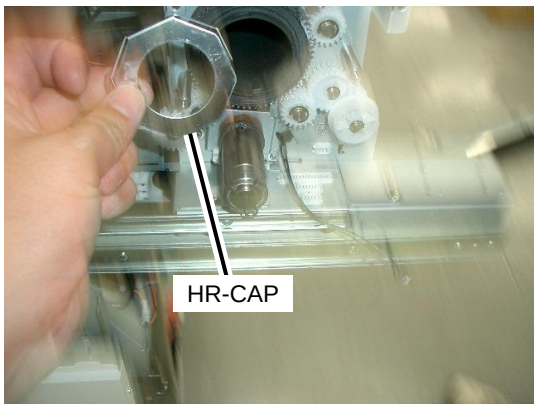
6. Remove the clamps securing the halogen heater cables above the plate and then unplug the cables' connectors.





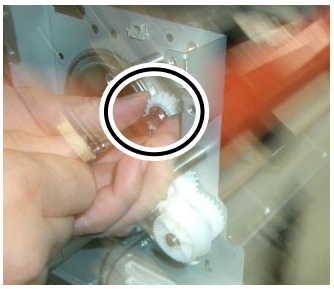
7. Remove the parts clamping the halogen cables shown in the photo.

8. Remove the HR-CAP on the left edge of ROLLER HEAT.



9. Remove the gear on the left edge of ROLLER HEAT.

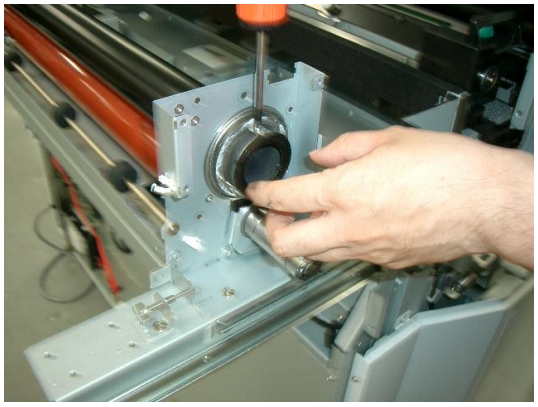
10. Remove the E-rings and gears at the location shown in the photo so that you can remove the bearings in step 12.



11. With a precision screwdriver, remove the PLATE(EARTH) with three screws on the right edge of ROLLER HEAT.

Note

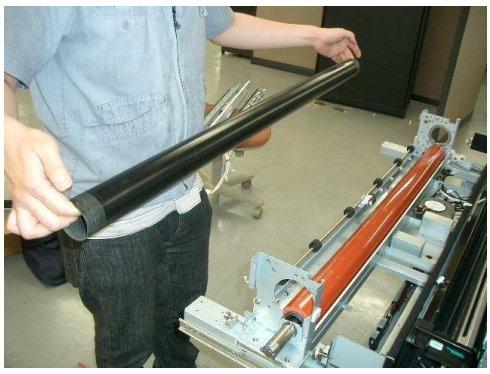
Dispose of the three screws you have removed. During reinstallation, use the new screws supplied with the ROLLER HEAT MNT.



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 the ROLLER HEAT.

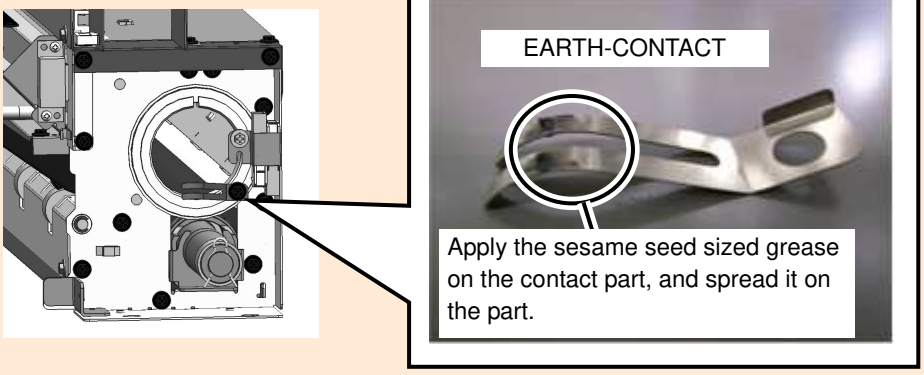


<Installation>

Cautionary Notes for Installation

As the figure below shows, apply the grease below on the EATTH-OCNTACT (U00119199300).

- Grease (U00121545000): HEATPROOF GREASE MNT

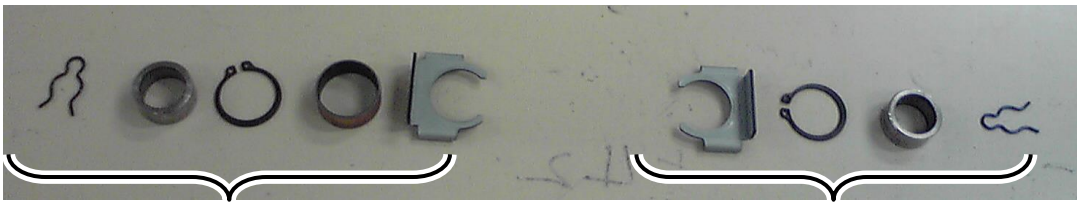


9.10.14 ROLLER BACK UP ST MNT

<Removal>

1. Remove the ROLLER HEAT
(see p. **9-93**).

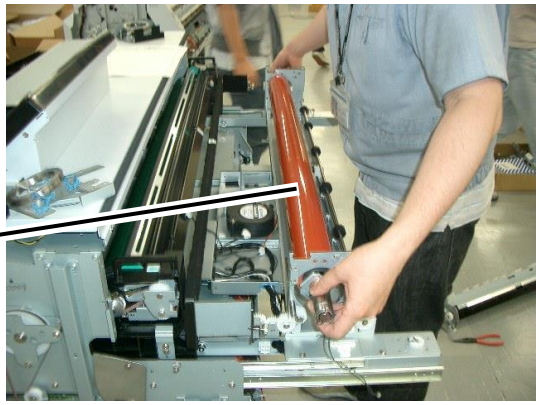
2. Remove all parts attached to both edges of the ROLLER BACK UP ST.



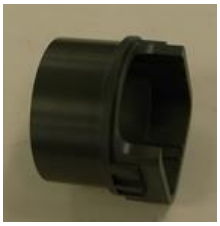
Parts on the right (the left-hand side from the working person's point of view)

Parts on the left (the right-hand side from the working person's point of view)

3. Remove the ROLLER BACK UP ST.



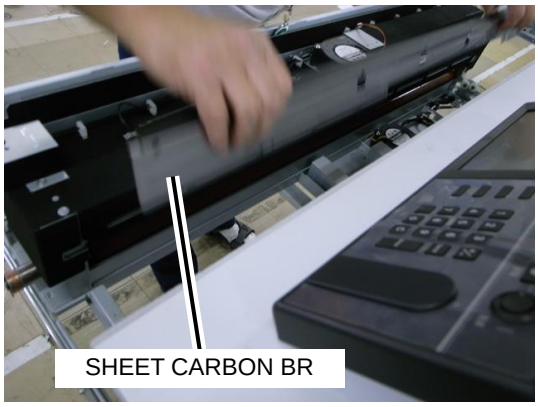
4. Remove the JIKUUKE(BR) on both edges of the ROLLER BACK UP ST.

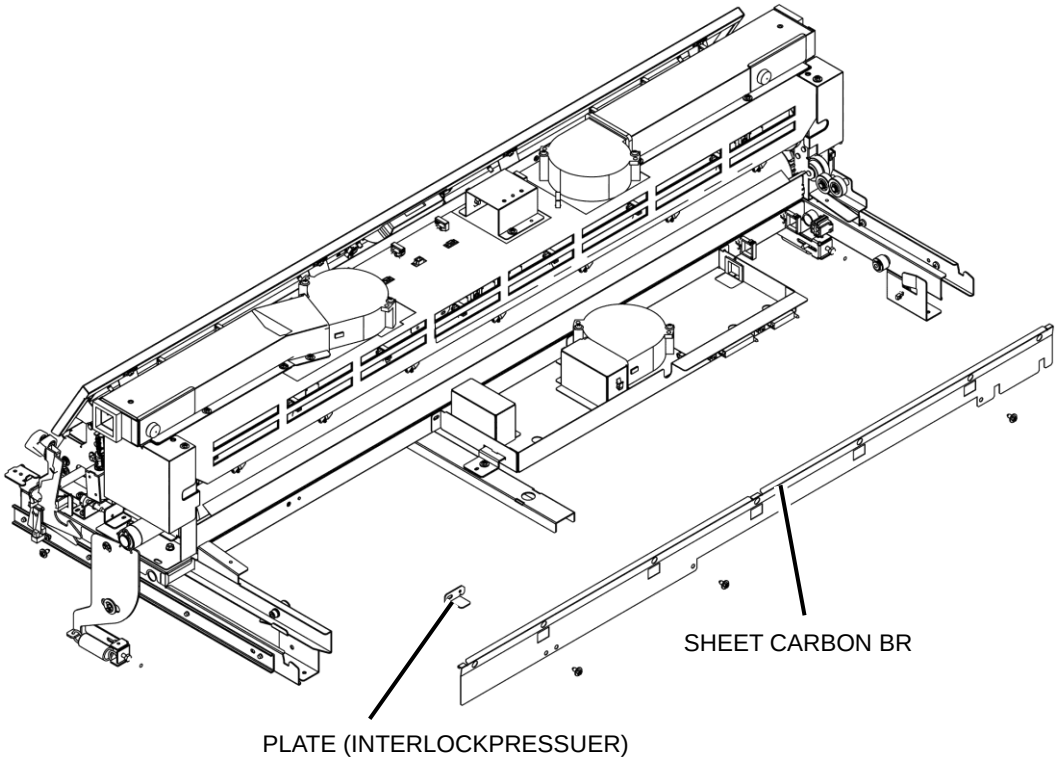


9.10.15 SHEET CARBON BR MNT

1. Open the fuser unit drawer.

2. Remove the SHEET CARBON MR with four screws as shown in the photo.





Cautionary Notes for Installation

Do not forget to install the PLAT(INTERLOCKPRESSUER) removed together with the SHEET CARBON BR in step 2.

9.10.16 FUS GEAR MNT

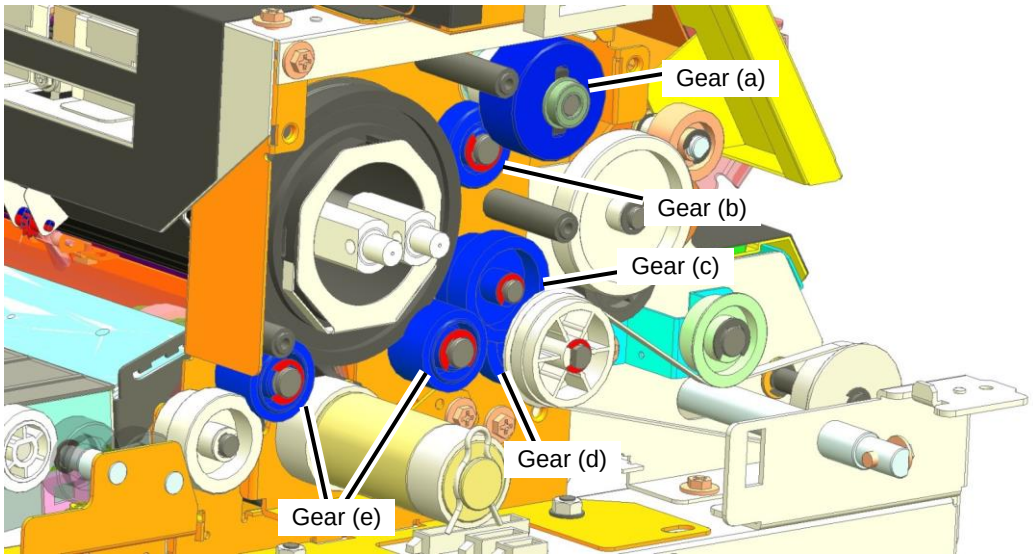
<Removal>

1. Perform the steps 1 to 9 of **9.10.7 TORQUE LIMITER MNT**. The state should be as shown on the right.

The gears to replace are shown below.

Note

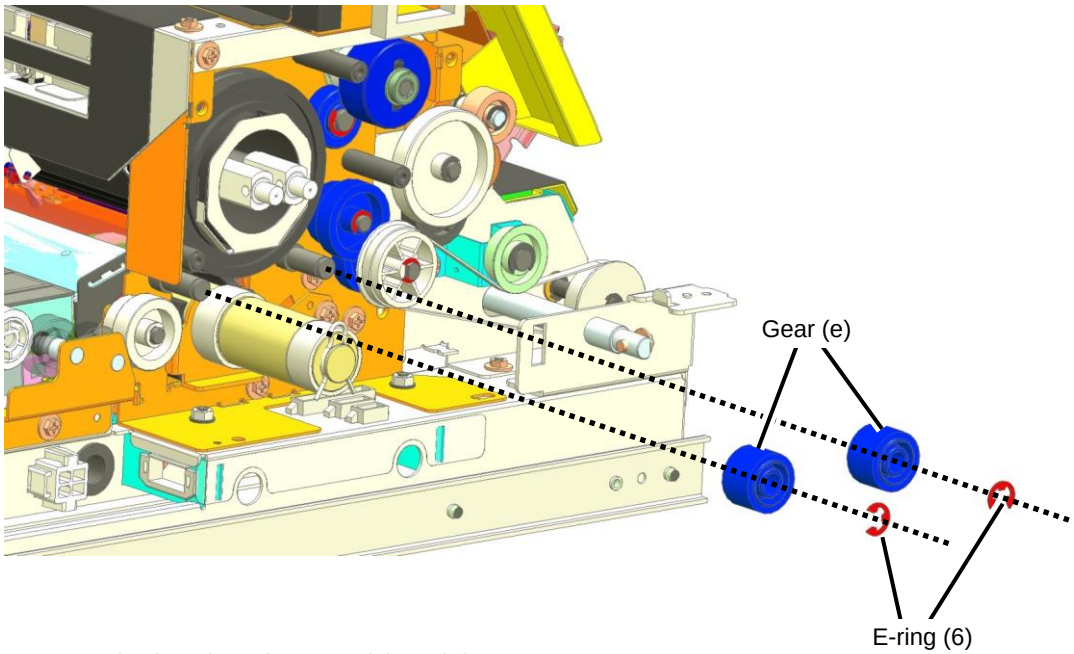
Do not reuse the E-rings you have removed. Use the new E-rings supplied.



2. Remove the E-rings (6) and the gears (e).

3. Clean the installation shaft of the gears (e) with a cleaning cloth and apply some heatproof grease (sesame seed size).

4. Install the new gears (e) and secure them with the E-rings (6).



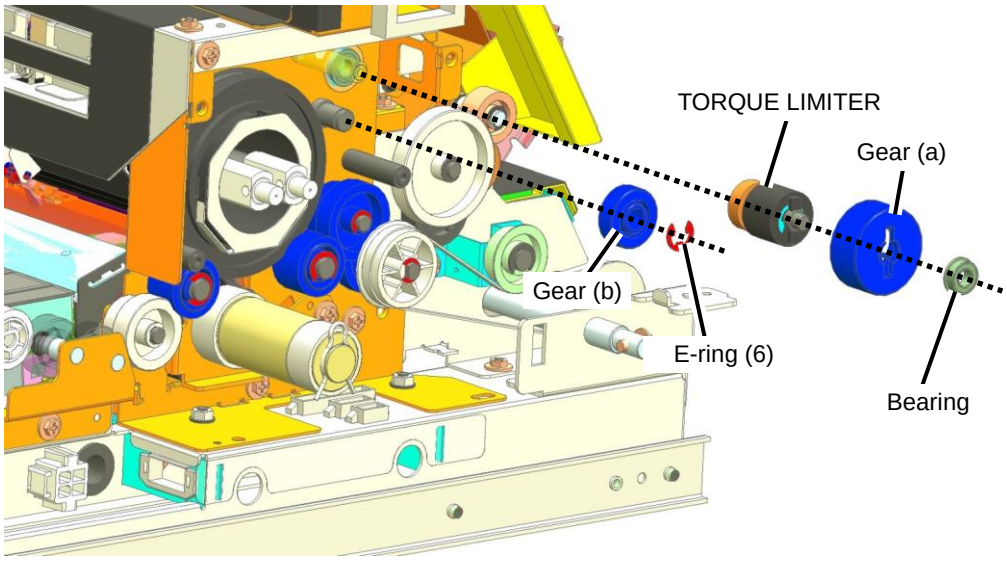
5. Remove the bearing, the gear (a) and the TORQUE LIMITER.

6. Remove the E-ring (6) and the gear (b).

7. Clean the installation shaft of the gear (b) with a cleaning cloth and apply some heatproof grease (sesame seed size).

8. Install the new gear (b) and secure it with the E-ring (6).

9. Replace the gear (a) with a new one, and reinstall the bearing and the TORQUE LIMITER.



10. Disengage the timing belt from the pulley.

11. Remove the E-ring (4), and remove the pulley.
Sometimes the pulley may contact the idler pulley and cannot be removed.
In such a case, remove the E-ring (4) and the idler pulley.

12. Remove the E-ring (4), and remove the gear (c).

13. Remove the E-ring (4), and remove the gear (d).

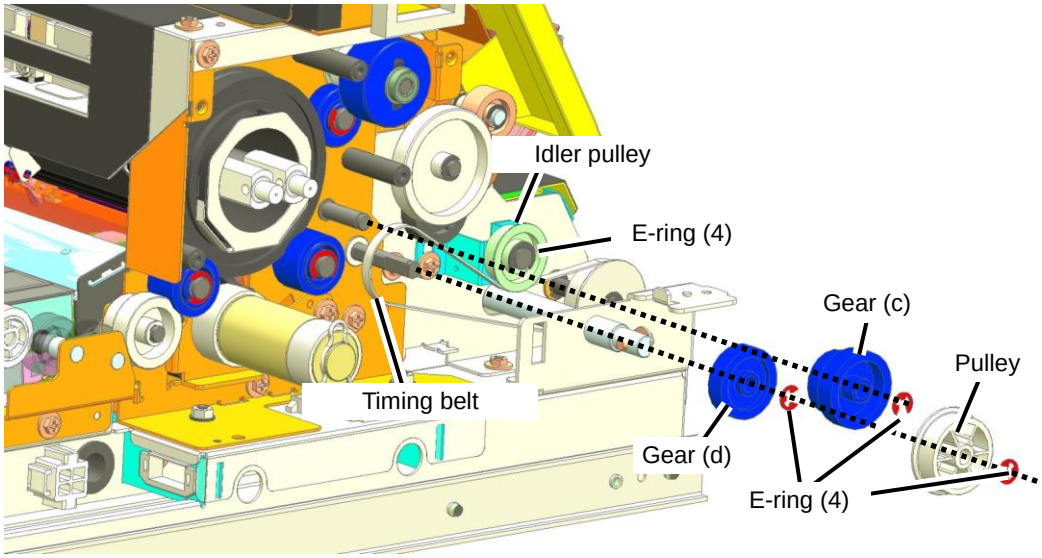
14. Install the new gear (d) and secure it with the E-ring (4).

15. Clean the installation shaft of the gear (c) with a cleaning cloth and apply some heatproof grease (sesame seed size).

16. Install the new gear (c) and secure it with the E-ring (4).

17. Install the pulley and secure it with the E-ring (4).

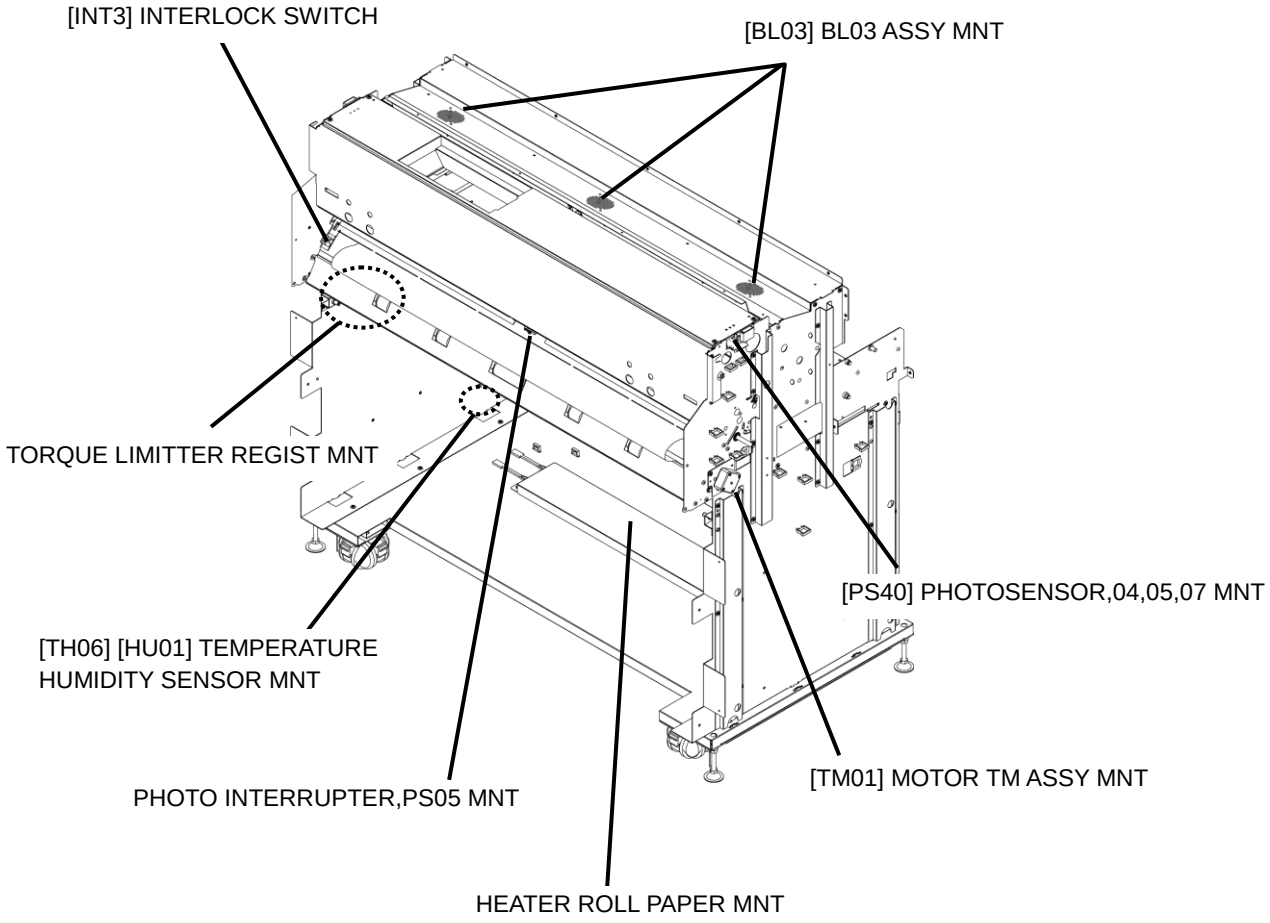
18. Reengage the timing belt on the pulley.



19. Apply some heatproof grease (sesame seed size) to the surface of the teeth of all the gears you have replaced.

9.11 MAIN FRAME UNIT

9.11.1 Major Recommended Parts Locations for MAIN FRAME UNIT

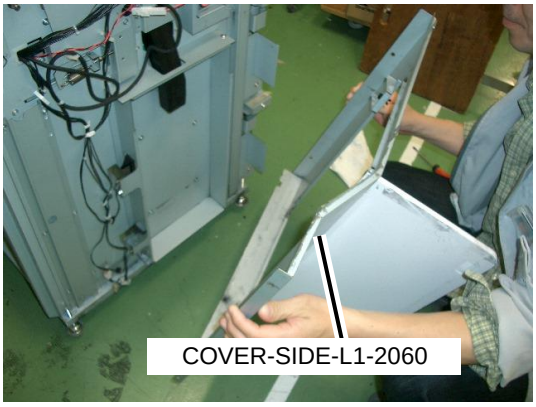


9.11.2 [TH06] [HU01] TEMPERATURE HUMIDITY SENSOR MNT

<Removal>

1. For the Multifunction Model, remove the DOCUMENT-TABLE-UNIT(MF)-2060 (see subsection **9.1.2**).
For the Printer Model, remove DOCUMENT-TABLE-UNIT(PL)-2060 (see subsection **9.1.2**).

2. Remove the COVER-SIDE-L2-2060 and COVER-SIDE-L1-2060 (see subsection **9.1.2**).



3. Unplug the connector at the location shown in the photo.

4. Remove TH06 and HU01 with one screw.

9.11.3 [TM01] MOTOR TM ASSY MNT

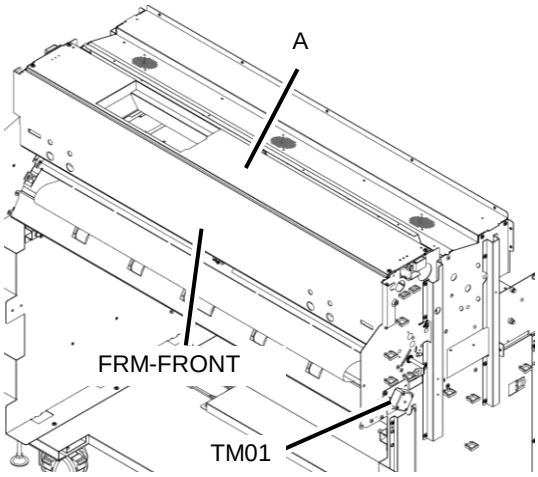
<Removal>

1. For the Multifunction Model, remove the DOCUMENT-TABLE-UNIT(MF)-2060 (see subsection **9.1.2**).
For the Printer Model, remove DOCUMENT-TABLE-UNIT(PL)-2060 (see subsection **9.1.2**).

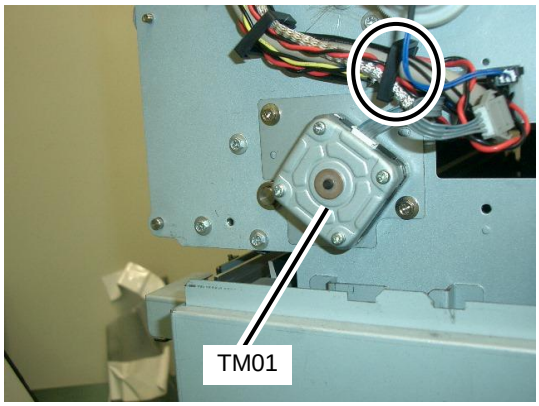
2. Remove the COVER-SIDE-R2-2060and COVER-SIDE-R1-2060 (see subsection **9.1.2**).

3. After removing the toner cartridge, remove the plate with five screws designated by A in the figure.

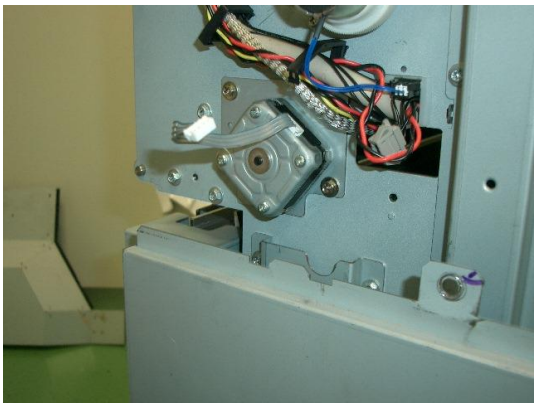
4. Remove the plate, FRM-FRONT on the front of the toner cartridge.



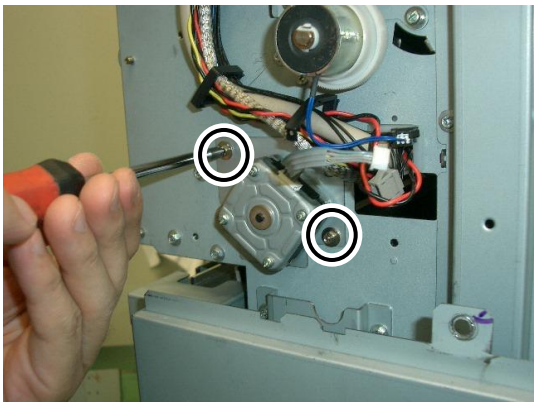
5. Remove the clamp at the location shown in the photo.



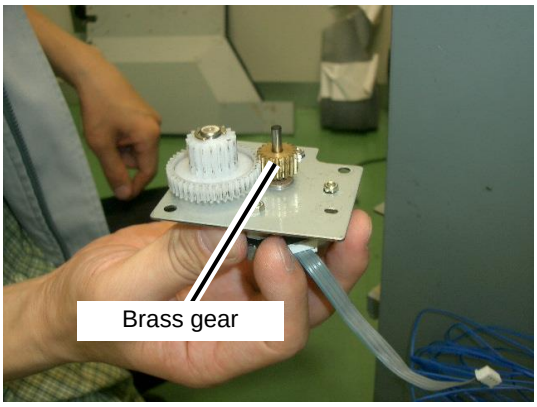
6. Unplug the connector.



7. Remove the two motor bracket screws.



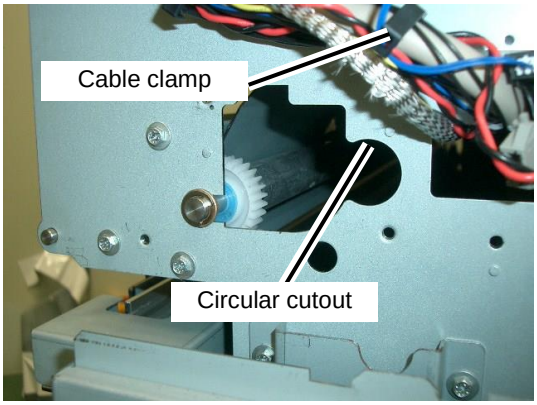
8. Remove the TM01.



Note

With the procedure below, remove the TM01 through the plate's cutout shown in the lowermost photo.

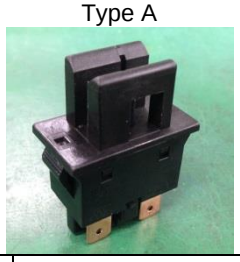
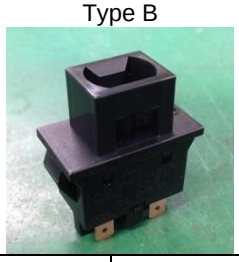
(1) Lift up the cable clamp shown in the photo so that the cutout appears entirely.
(2) Align the brass gear shown in the photo with the circular cutout.
Note that the motor's gear and the Printer's internal gear are interlocked, and the MOTOR TM ASSY MNT must be removed carefully to avoid the parts 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

Two different interlock switches (INT3 and MS18) are used depending on the manufacturing date of the Printer.

Since the switches are not interchangeable, check the shape of the switch already installed to make sure to replace the switch with the same type.

Type A		Type B	
			
Product number	U001200802xx	Product number	2051429P2000
Product name	INTAROKKUSUITCHI FA3L-CA22	Product name	FA3L-BA22

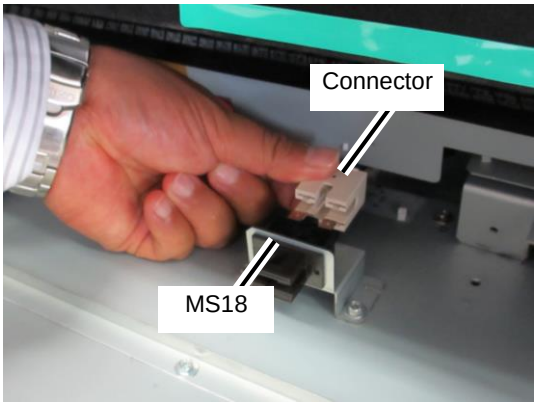
<Removal of INT3>

1. Open the front door.
2. Open the fuser unit drawer.
3. Look at the INT3 underneath the opened drawer for rolls 1 and 2, and confirm the location of the connector.
4. Insert your hand from the location shown in the photo and unplug the connector connected to the INT3.

5. Push out the INT3 from the back towards you to remove it.

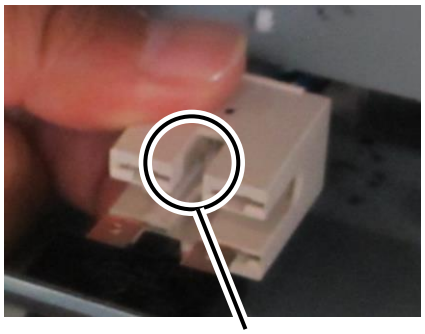
<Removal of MS18>

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 [PS40] PHOTOSENSOR,04,05,07 MNT

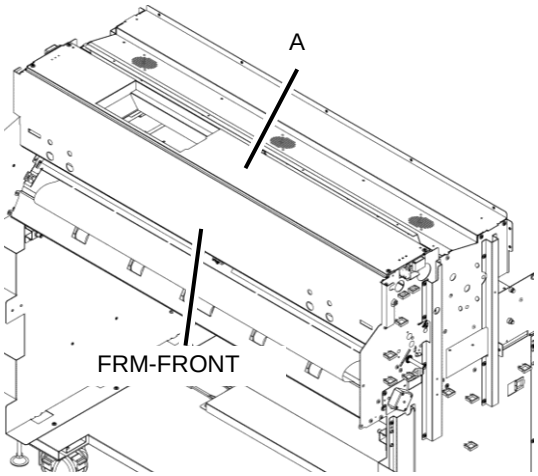
<Removal of PS40>

1. For the Multifunction Model, remove DOCUMENT-TABLE-UNIT(MF)-2060 (see subsection **9.1.2**).
For the Printer Model, remove DOCUMENT-TABLE-UNIT(PL)-2060 (see subsection **9.1.2**).

2. For the Multifunction Model, remove the small cover plate in the right and left.

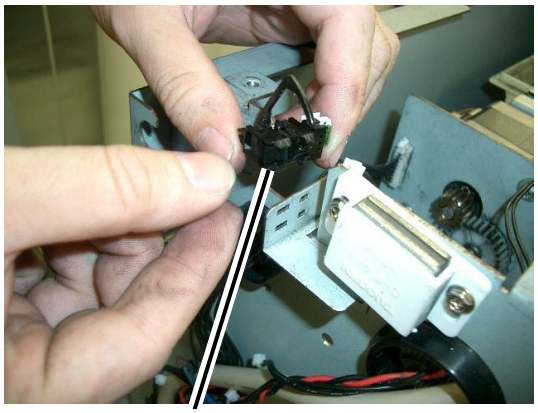
3. Remove the COVER-SIDE-R2-2060 and COVER-SIDE-R1-2060 (see subsection **9.1.2**).

4. After removing the toner cartridge, remove the plate with five screws designated by A in the figure.



5. Unplug the connector.

6. Release the 4 clamps and remove PS40 from the sensor case.



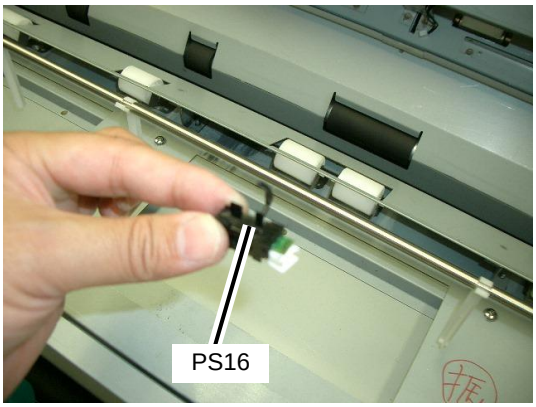
9.11.6 [PS16] PHOTOINTERRUPTER,PS16 MNT

<Removal>

1. Open the front door.

2. Remove the connector.

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. Unplug the connector from BL03.

3. With a short screwdriver or a flexible screwdriver, unscrew the two screws and remove BL03.

9.11.8 HEATER ROLL PAPER MNT

Note

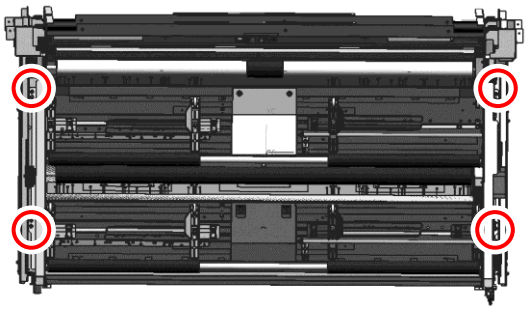
Always be at least 2 people when removing the drawer for rolls 1 and 2.

<Removal>

1. Remove the drawer for rolls 1 and 2.

(a) Open the drawer for rolls 1 and 2.

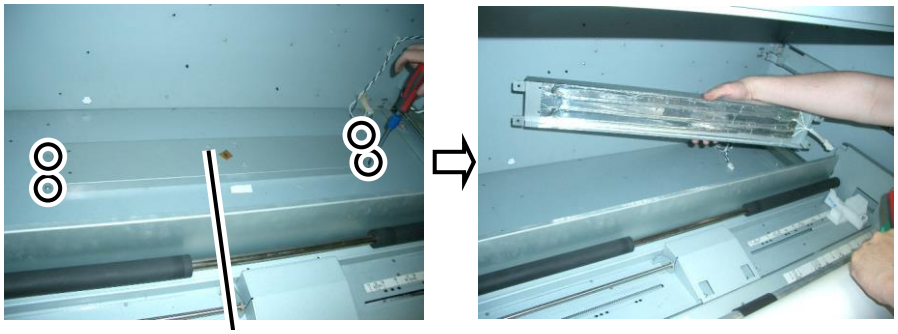
(b) Remove the four screws shown in the photo.



(c) Have one person holding each side (right and left) and lift upwards to remove.

2. Unplug all cables connectors connected to the HEATER ROLL PAPER.

3. Unscrew the four screws and remove the HEATER ROLL PAPER.



HEATER ROLL PAPER

9.11.9 TORQUE LIMITTER REGIST MNT

<Removal>

Note

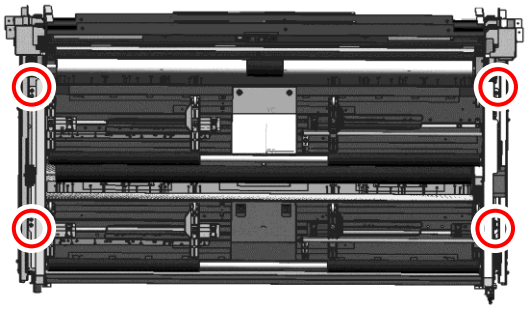
Always be at least 2 people removing the drawer for rolls 1 and 2.

<Removal>

1. Remove the drawer for rolls 1 and 2.

(a) Open the drawer for rolls 1 and 2.

(b) Remove the four screws shown in the photo.

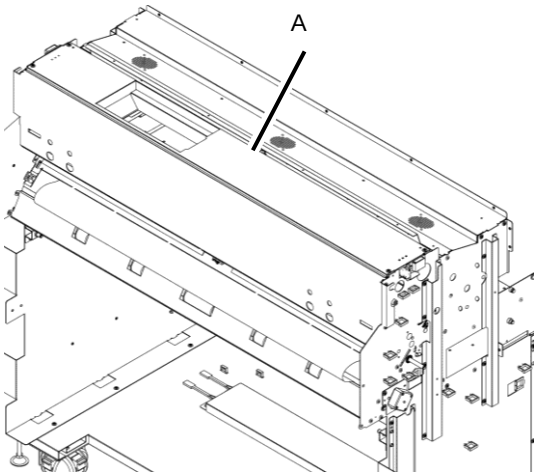


(c) Have one person holding each side (right and left) and lift upwards to remove.

2. For the Multifunction Model, remove the DOCUMENT-TABLE-UNIT(MF)-2060 (see subsection **9.1.2**).
For the Printer Model, remove the DOCUMENT-TABLE-UNIT(PL)-2060 (see subsection **9.1.2**).

3. Remove the following parts (see subsection **9.1.2**).
- COVER-SIDE-R2-2060
- COVER-SIDE-R1-2060
- COVER-SIDE-L2-2060
- COVER-SIDE-L1-2060
- Right and left cover plate (for Multifunction Model only)

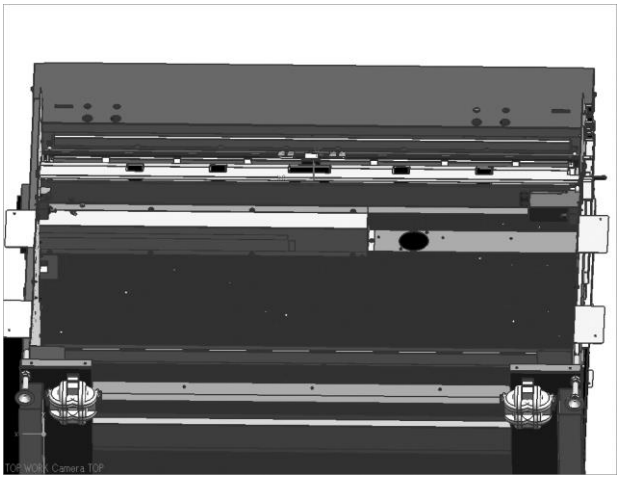
4. After removing the toner cartridge, remove the plate with five screws designated by A in the figure.



5. Remove the PL_PARTITION with four screws.Note that the PL_PARTITION is the plate below the shaft with TORQUE LIMITER REGIST mounted.

PL_PARTITIP

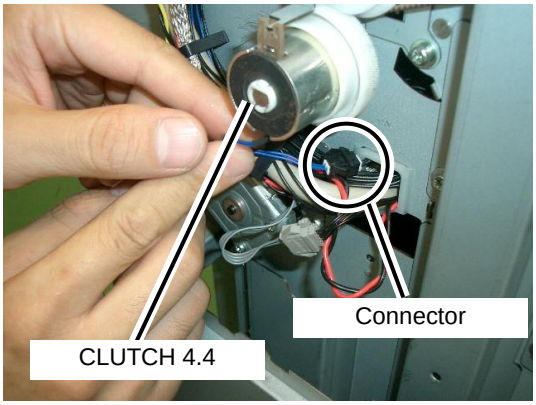
PL_PARTITION



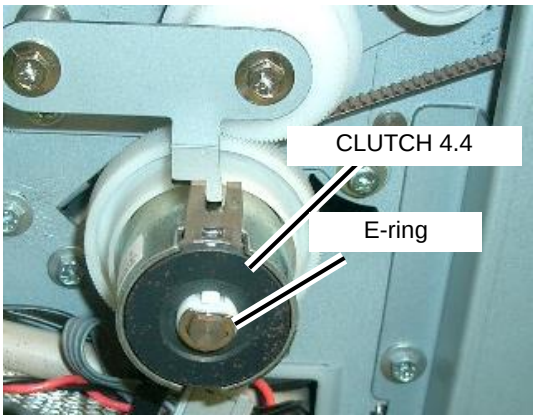
PL_PARTITION looking from the bottom

Removed PL_PARTITION

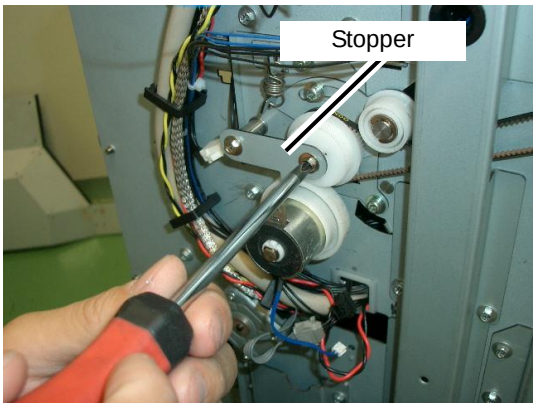
6. Unplug the connector connected to the CLUTCH 4.4.



7. Remove the E-ring securing the CLUTCH 4.4.

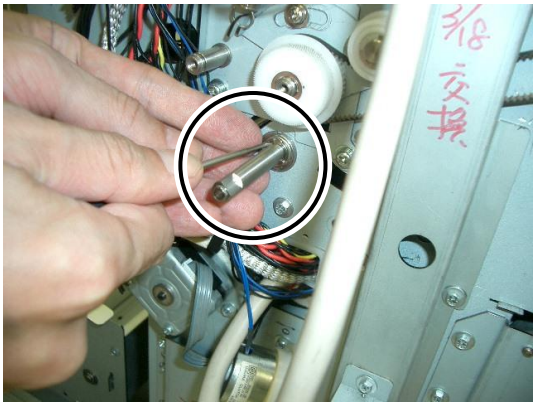


8. Remove the stopper with two screws.



9. Pull out the CLUTCH 4.4 from the shaft.

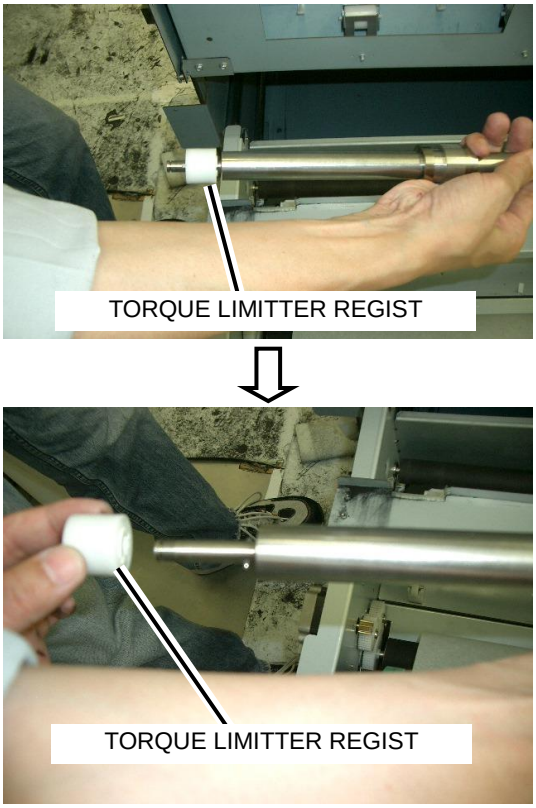
10. Remove the shaft's E-ring and remove the bearing.



11. On the right side of the Printer, remove the E-ring on the other side of the shaft, and remove the bearing.

12. Push the shaft lightly into the hole on the right side and pull the left side of the shaft out towards you.

13. Remove the TORQUE LIMITTER REGIST from the shaft.



9.11.10 T2-CBL-PNL

Note

Panel cables used in the printer are separated in two types: the cables with a silver cover (previous type) and the cables with a black cover (new type).

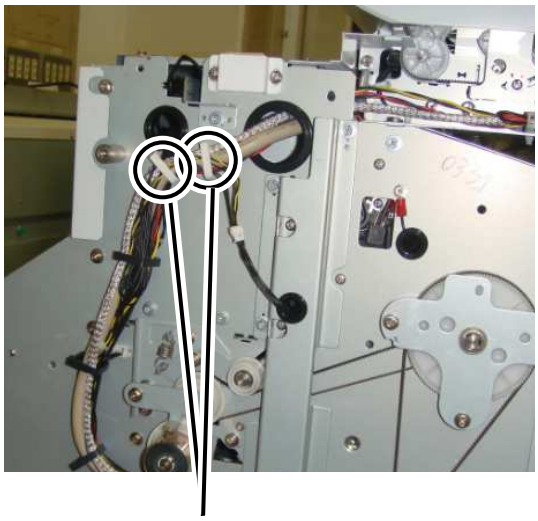
Note

Since the panel cable connectors are small, the connection can be easily affected by dust or other matter adhering to the connector. Do not remove the bag covering the cable when laying it, but only just before connecting the cable to the board.

<Removal>

1. Remove the COVER-BACK-L (see subsection **9.8.1**).
2. Remove the COVER-TOP (see subsection **9.8.1**).
3. Remove the DOCUMENT-TABLE-UNIT(MF) or the DOCUMENT-TABLE-UNIT(PL) (see subsection **9.1.2**).
4. Remove the COVER-SIDE-R2 (see subsection **9.1.2**).

With the Multifunction Model, since this part is used to support the scanner cover, reinstall the DOCUMENT-TABLE-UNIT(MF) after removing the COVER-SIDE-R2.



Open these two clamps before reinstalling the DOCUMENT-TABLE-UNIT(MF).

5. Remove the PANEL ASSY (see subsection **9.1.2**).

Note

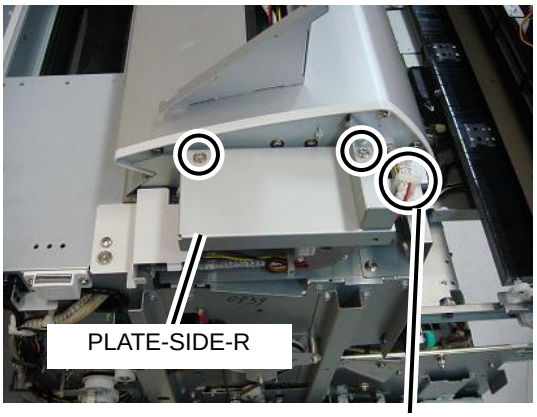
Do not dispose of the conductive clamps as they will be reused.

6. Disassemble the scanner cover (Multifunction Model only).

1) Remove the two screws and remove the COVER-SC-R.

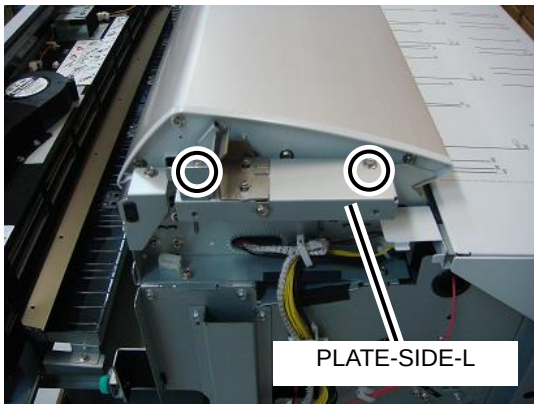
2) Remove the two screws and remove the COVER-SC-L.

3) Remove the two screws and remove the PLATE-SIDE-R.

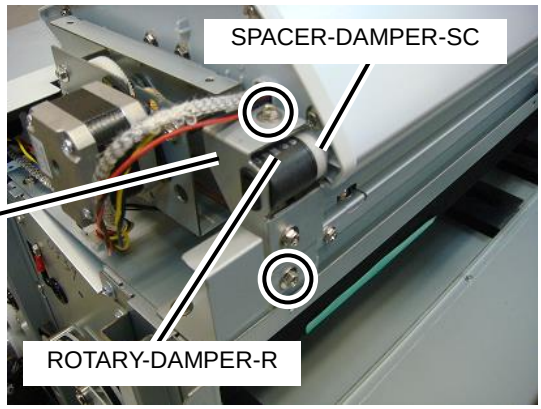


Open this clamp before removing the PLATE-SIDE-R.

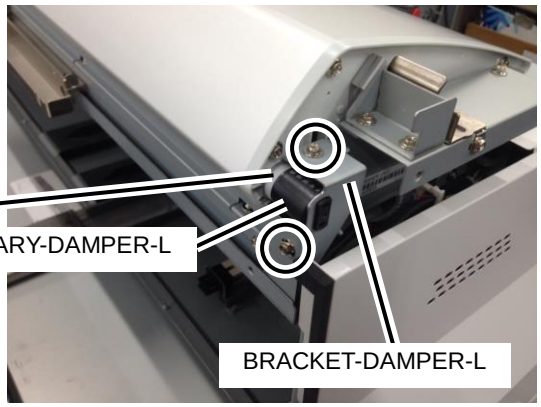
4) Remove the two screws and remove the PLATE-SIDE-L.



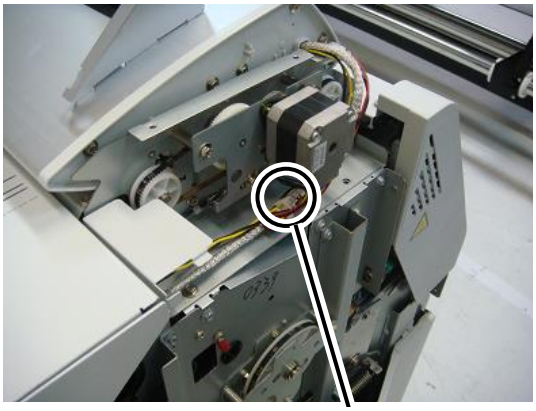
5) Remove the two screws and remove the BRACKET-DAMPER-R, the ROTARY-DAMPER-R, and the SPACER-DAMPER-SC.



6) Remove the two screws and remove the BRACKET-DAMPER-L, the ROTARY-DAMPER-L, and the SPACER-DAMPER-SC.

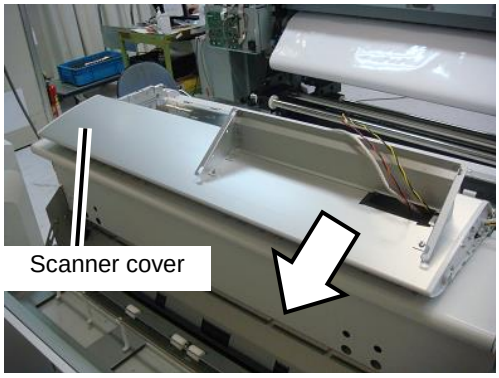


7) Remove the scanner cover.

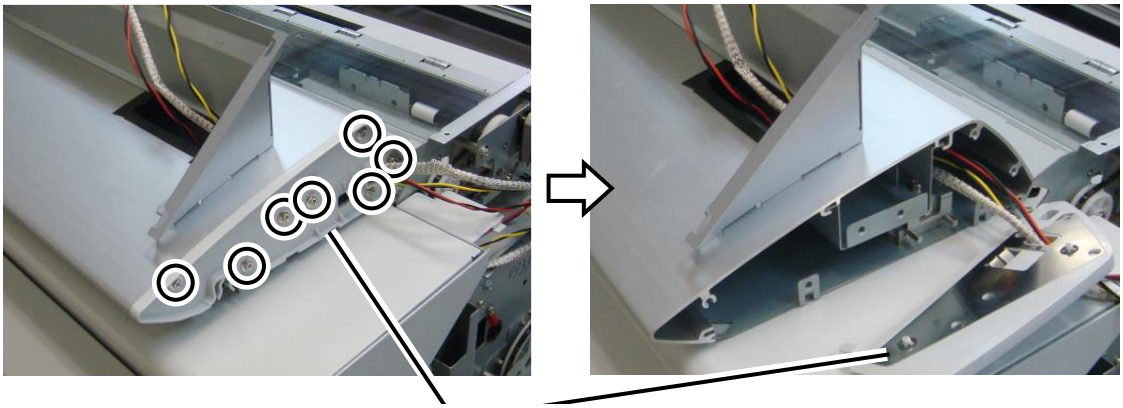


Open this clamp before removing the scanner cover.

Place the scanner cover you have removed on top of the DOCUMENT-TABLE. Before doing that, put some pieces of paper or some cushioning materials on the DOCUMENT-TABLE.

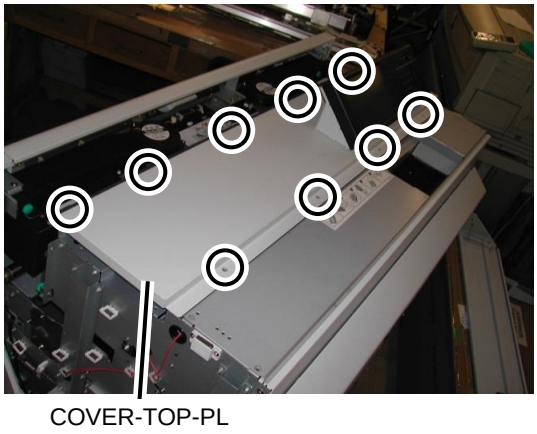


8) Remove the seven screws and remove the FRAME-PINCH-R.



6. Disassemble the upper part of the printer (Printer Model only).

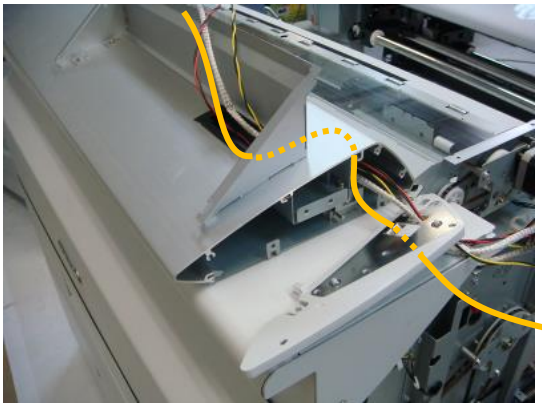
1) Remove the nine screws and remove the COVER-TOP-PL.



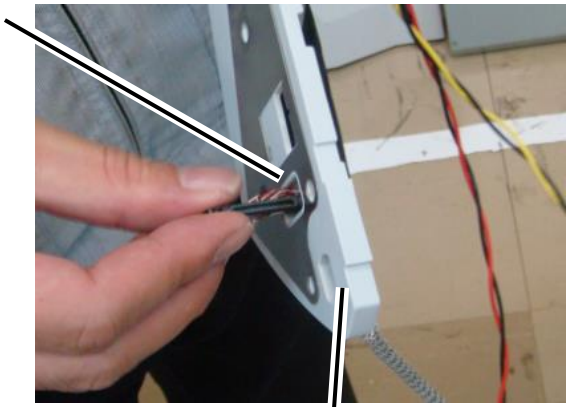
7. Remove the panel cable (T2-CBL-PNL).

1) Remove the cable passing through the upper electrical section of the printer.

[Multifunction Model]

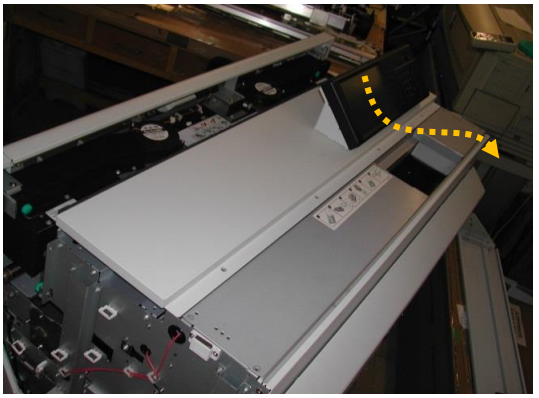


When passing the cable through the FRAME-PINCH-R hole, turn the cable plug horizontally.

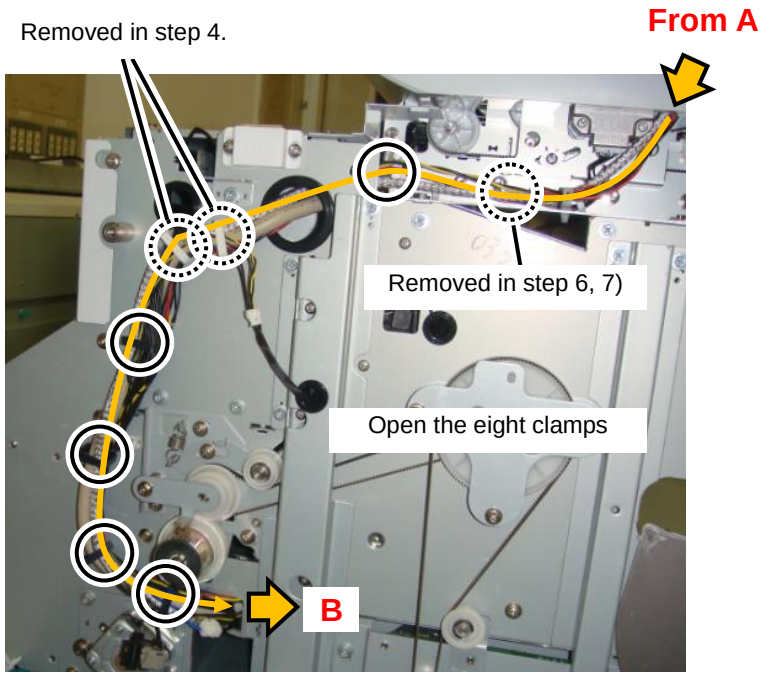


FRAME-PINCH-R

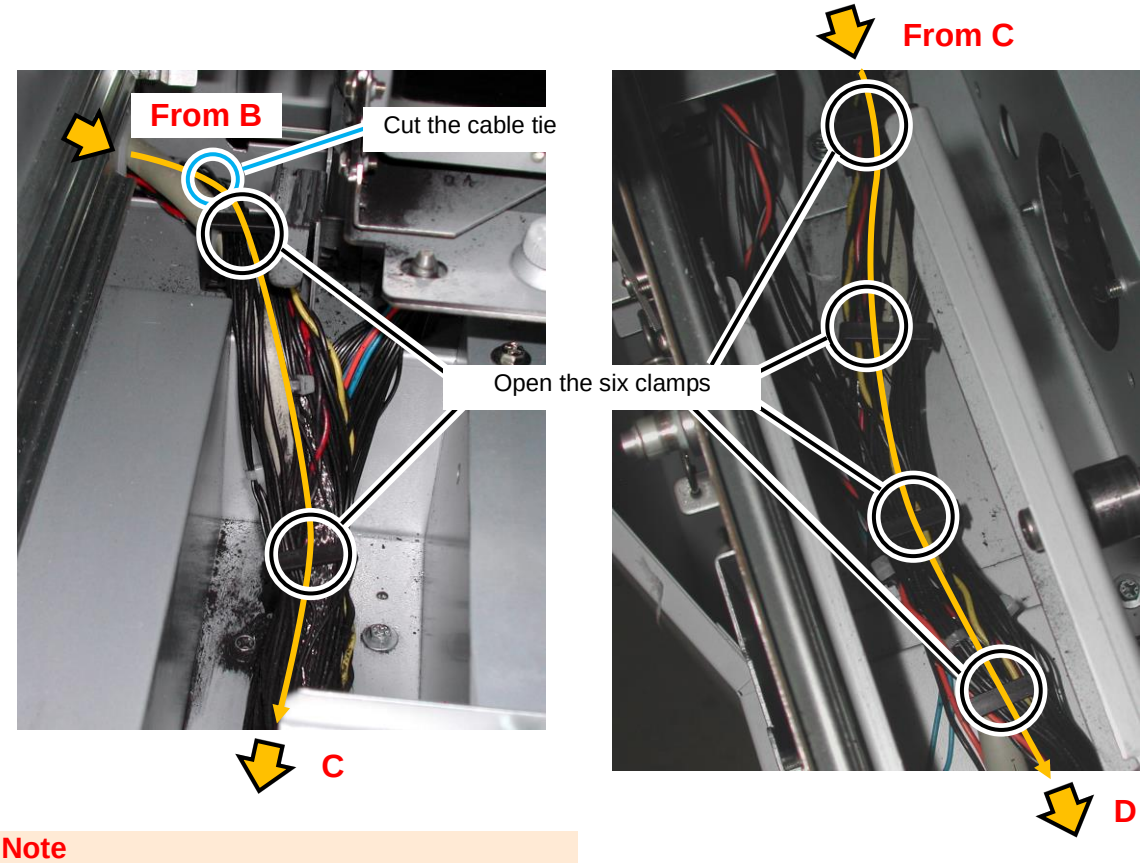
[Printer Model]



2) Remove the cable passing through the lateral electrical section of the printer.



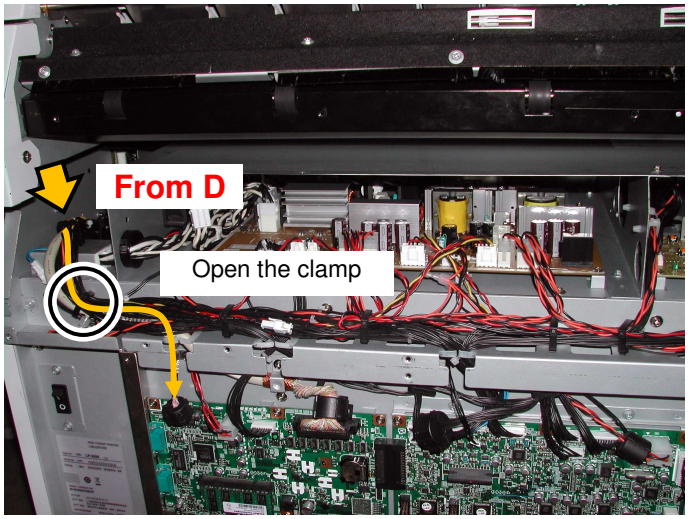
3) Remove the cable passing through the inner parts of the printer.

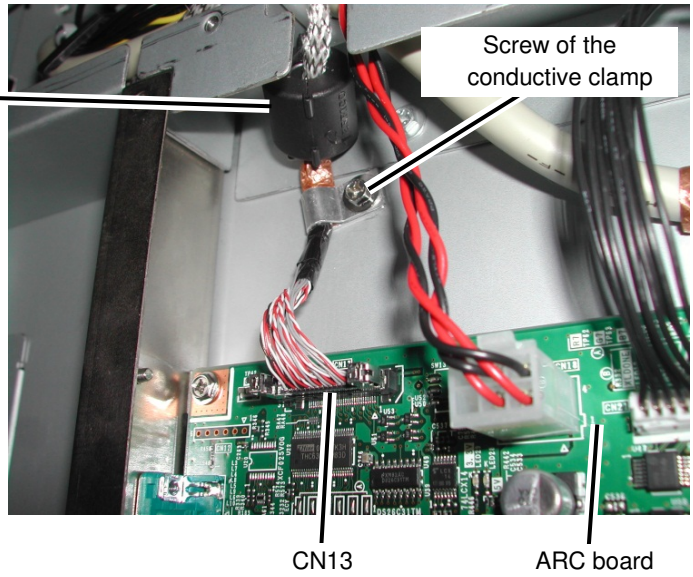


Note

Pay attention not to damage the cable when cutting the cable tie.

4) Remove the cable passing through the electrical box.





Disconnect the cable connected to the CN13 connector on the ARC board.

Note

Do not dispose of the conductive clamp and the ferrite core as they will be reused.

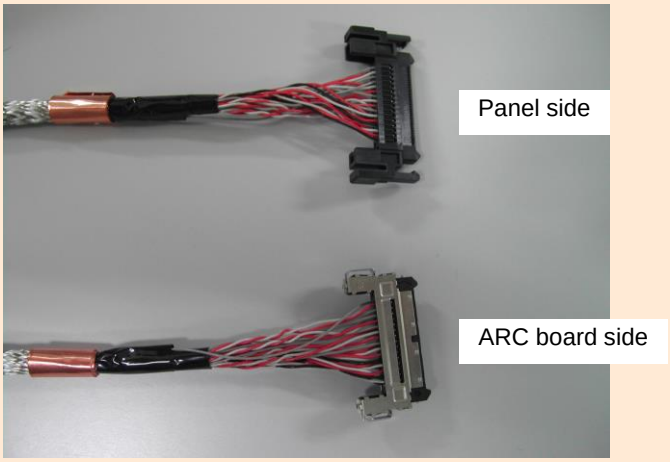
<New cable installation>

1. Place the new cable following the step 8 in the reverse order.

Notes

- Do not change the cable path.
- Place the cable so that it is not excessively bent or stretched.
- Use compressed air to clean the cable plug and the board connector from dust and dirt before connecting the cable.
- Use the same ferrite core and conductive clamps.

The shape of the plugs at both extremities of the cable differs. Pay attention to the cable orientation when connecting the cable.
If the cable is connected in the wrong orientation, information may not be displayed correctly on the panel or the panel may not work. (Refer to the picture below.)



Connect the plastic plug to the panel and the metal plug to the ARC board.

Note

Pay attention not to damage the cable when cutting the extremity of the cable tie.

9.12 OPERATION PANEL UNIT

9.12.1 PANEL ASSY MNT and PANEL ASSY PL MNT

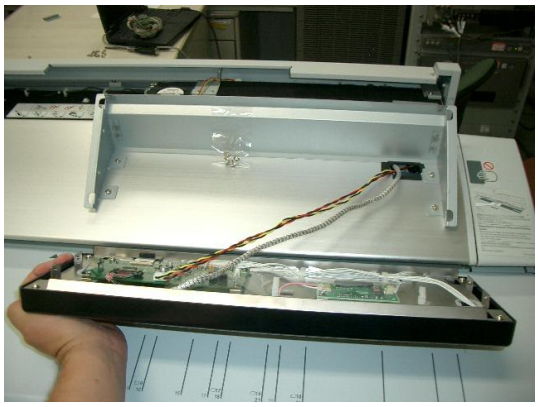
The procedures to remove:

- 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.

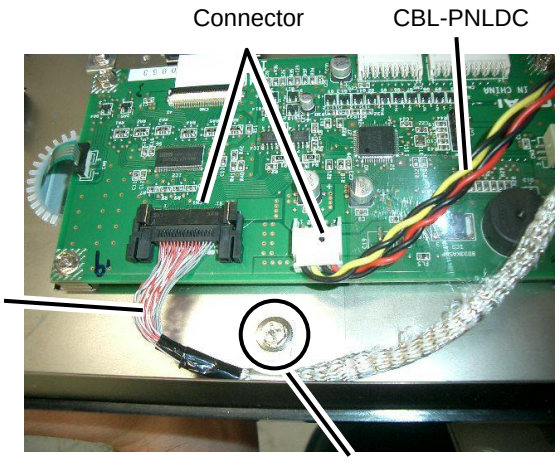
2. Hold both sides of the PANEL ASSY or PANEL ASSY PL PL and pull it out in the same direction as the operation panel surface. Once you have pulled it out, place it down temporarily on the document table.



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 connector

and 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 SCOROTORON CHARGER UNIT

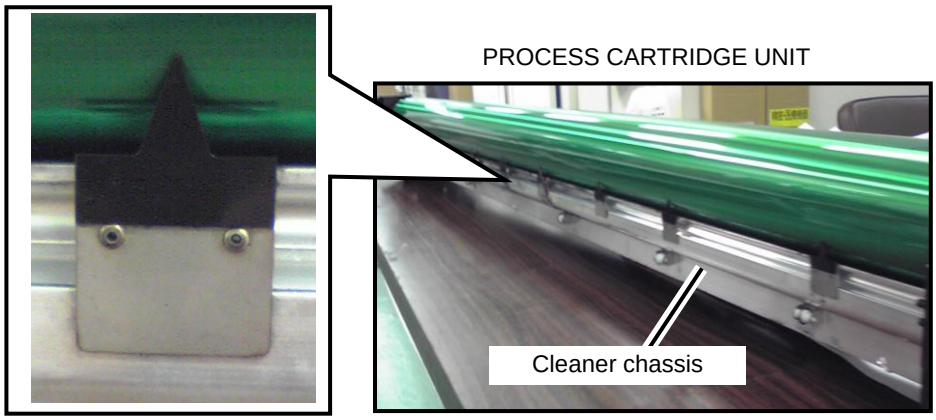
<Removal>

Grab the green tab shown in the photo with both hands and remove the SCOROTORON CHARGER UNIT.

9.13.3 DRUM FINGER W MNT

Note

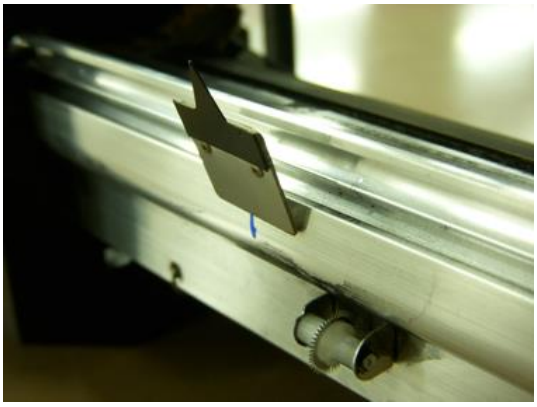
- Separating claws may be in a different shape depending on when they were shipped from the factory.
- Required tool: Ruler



<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.

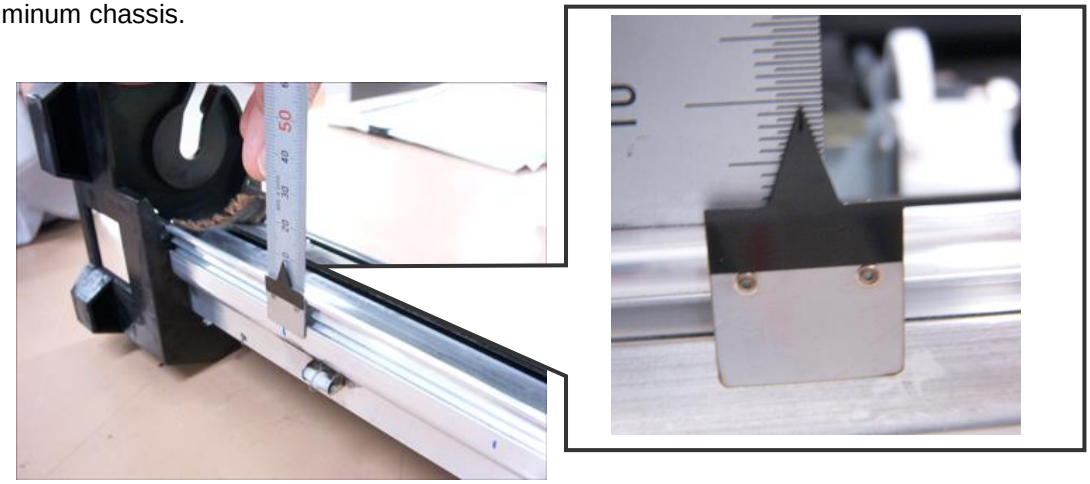


Note

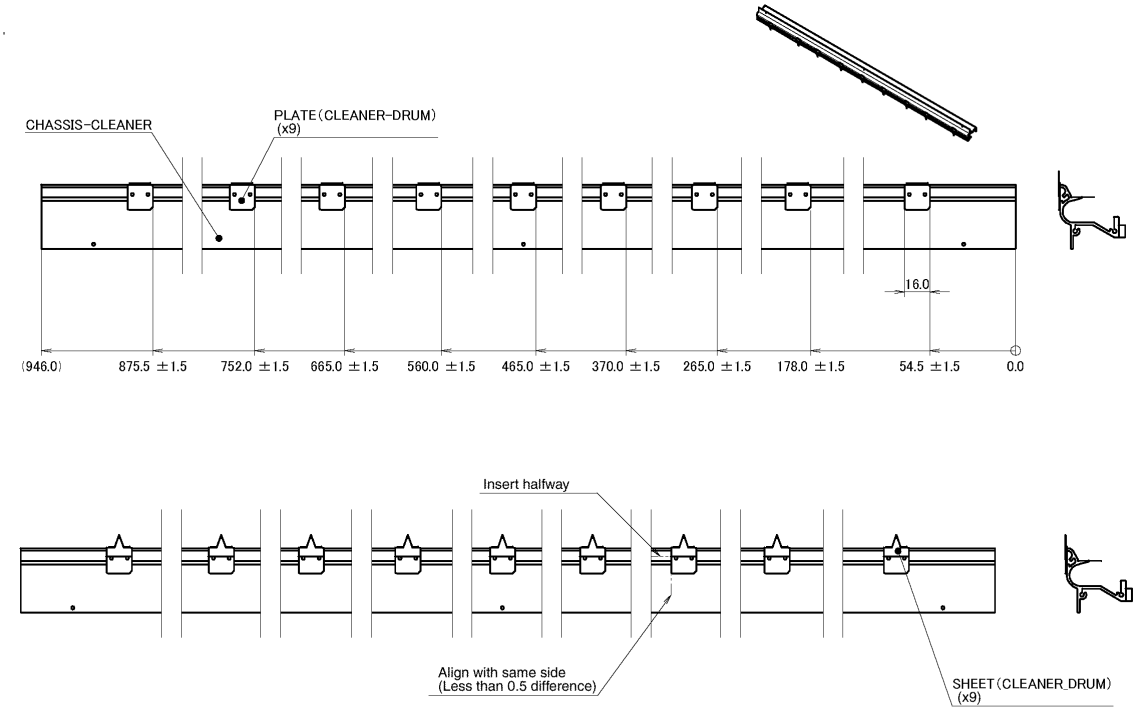
Remove all double-sided tape that is left on the cleaner chassis.

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) ± 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.

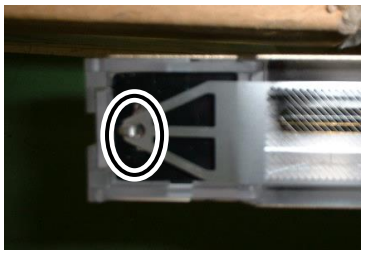
9.13.4 WIRE(CHARGER)MNT

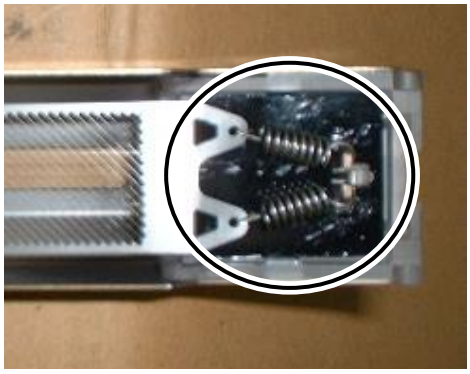
Note

- Be careful not to lose the spring.
- Do not pull the spring more than 5 mm (0.20 inches).

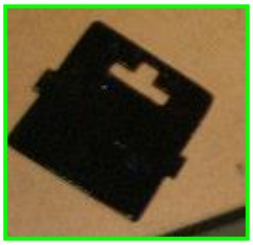
<Removal>

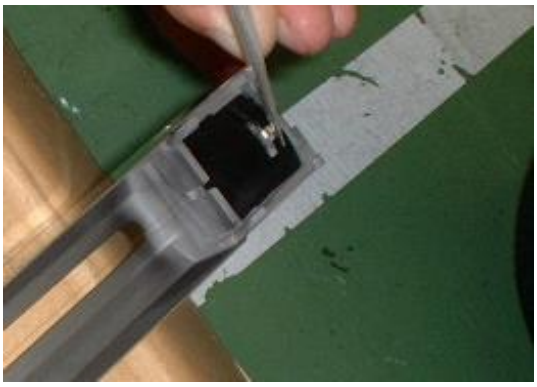
1. With a set of tweezers, remove the GRID(CHARGER) from the spring attached to the SCOROTORON CHARGER UNIT claw.



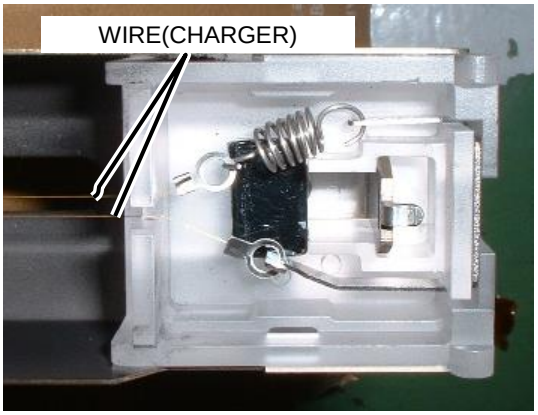


2. With a set of tweezers, remove the plastic parts both on the right and the left shown in the photo.





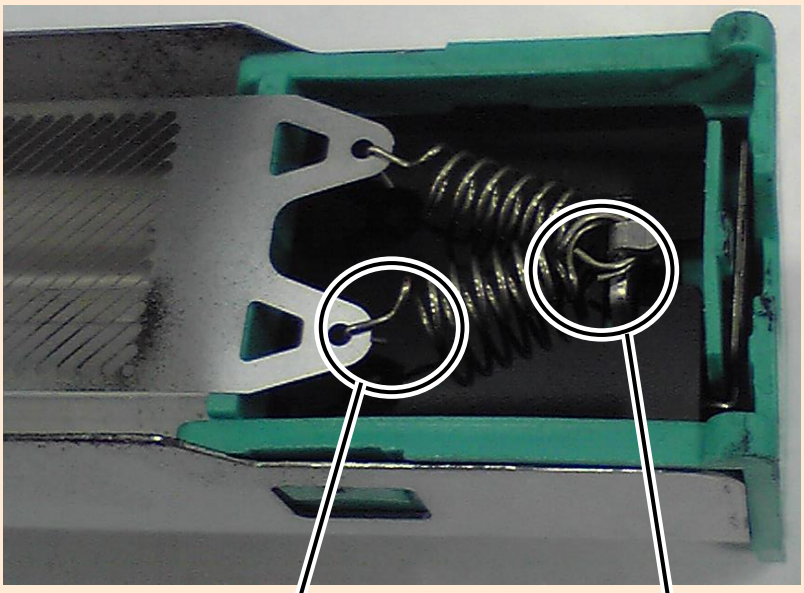
3. With a set of tweezers remove the spring-side ring, and remove the WIRE(CHARGER).



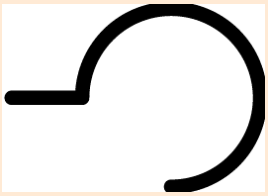
<Installation>

Cautionary Notes for 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.

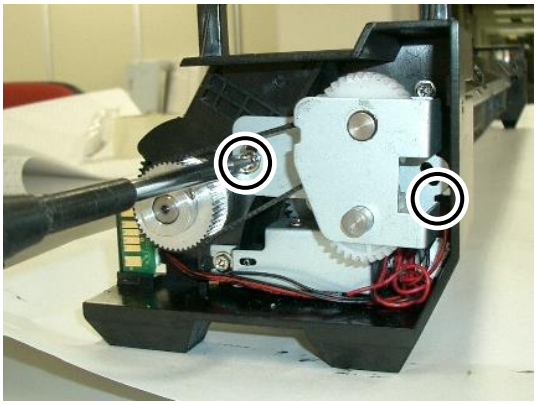


The rounded side must be attached on the hook side.

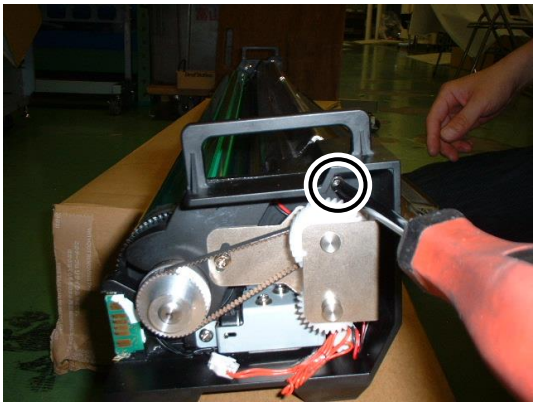
9.13.5 ERASER ASSY MNT

<Removal>

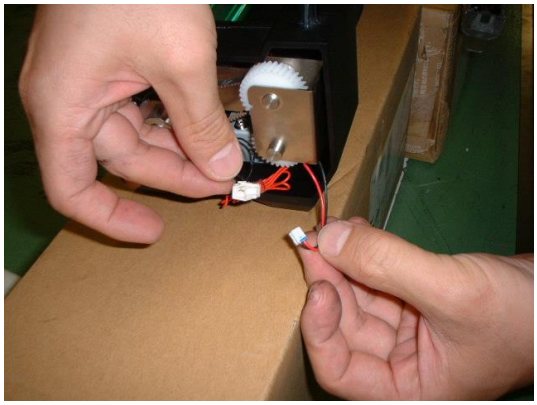
1. Loosen the two screws as shown in the photo.



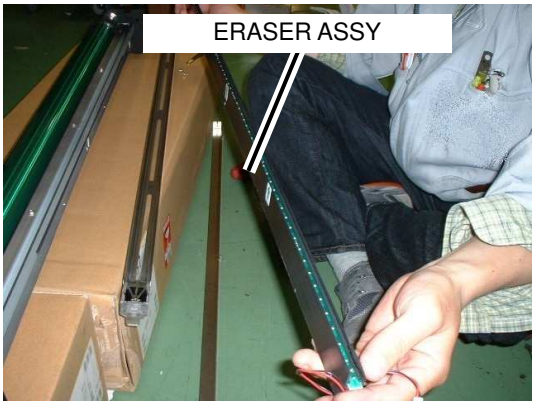
2. Remove the screws at the two locations shown in the photos.



3. Cut the cable tie and unplug the connector.



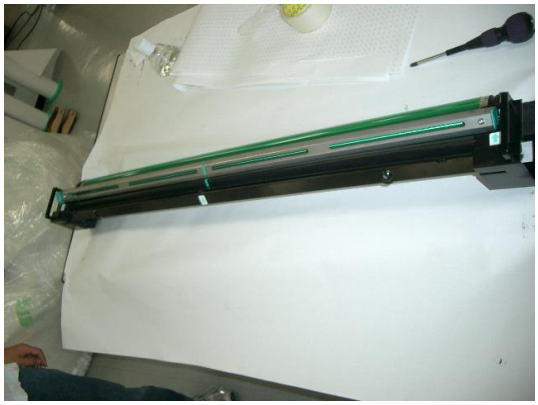
4. Remove the ERASER ASSY.



9.13.6 BLADE-CLEANER-SS002 MNT

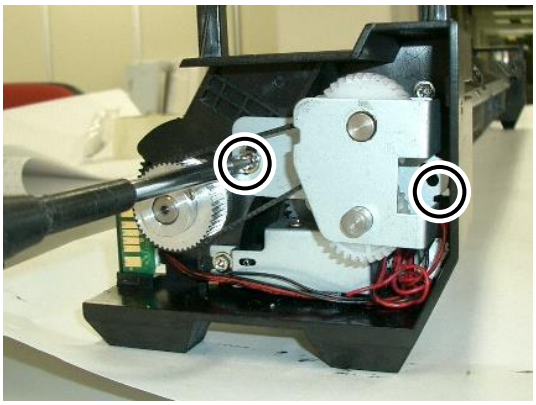
<Removal>

1. Remove the PROCESS CARTRIDGE UNIT. (See **Replacing the Process Cartridge** in the ***User's Manual for Basic Printer Operation***.)

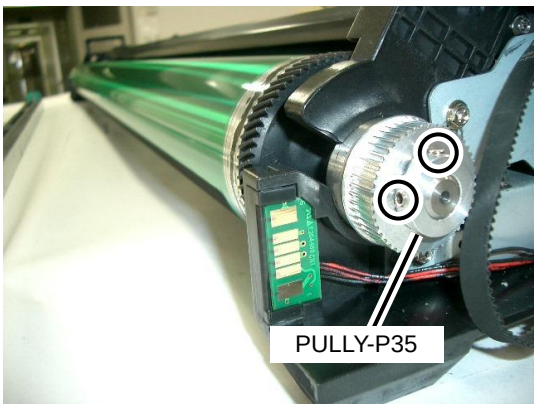


2. Remove the SCOROTRON CHARGER UNIT.

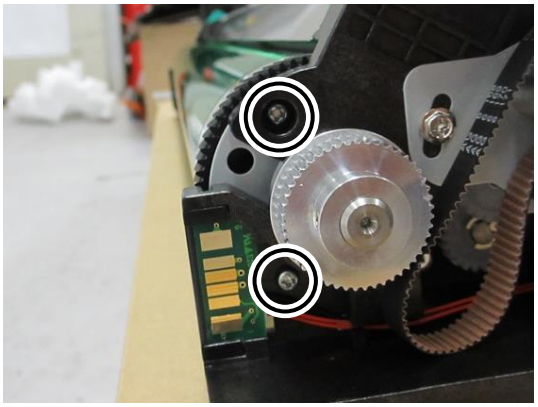
3. Loosen the two screws at the locations shown in the photo and remove the timing belt on PULLY-P35.



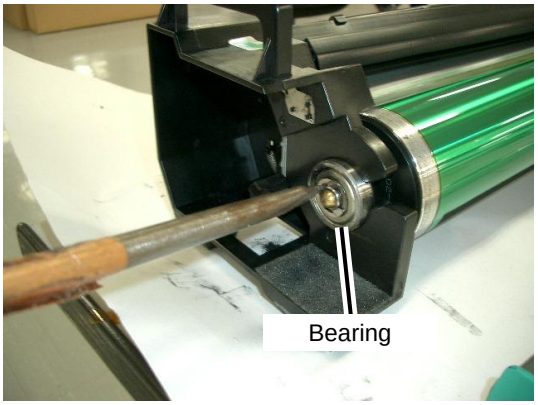
4. Loosen the two hexagon socket head set screws and remove the PULLY-P35.



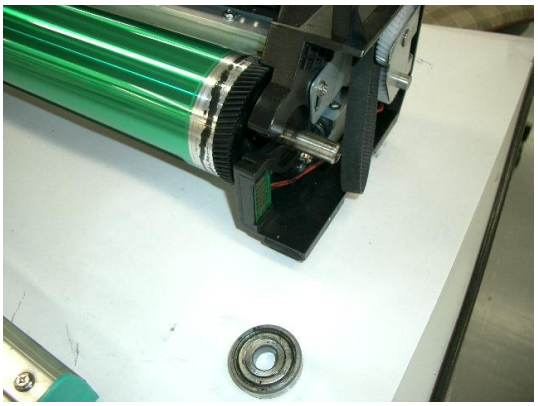
5. Remove the two hexagon plus socket head screws and remove the two PLATE-FRAME-PRC (on both right and left).



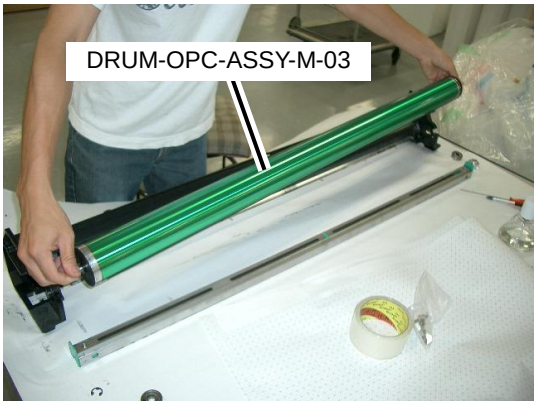
6. Remove the E-ring at the location shown in the photo and remove the bearing.



7. Remove the bearings on the opposite side (the wheel train side).



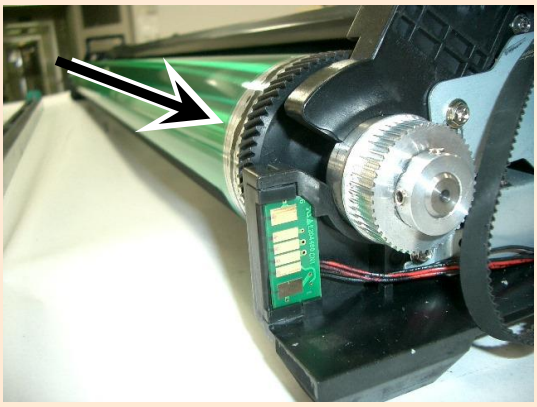
8. Remove the DRUM-OPC-ASSY-M-03.



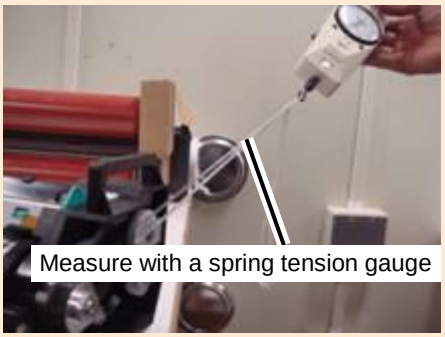
<Installation>

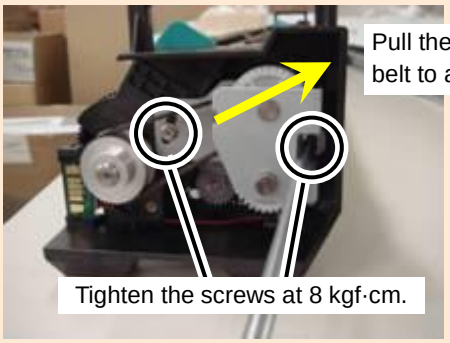
Cautionary Notes When Performing Installation

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.





9. Remove the DRUM-OPC-ASSY-M-03.

10. Remove the ERASER ASSY
(see p. 9-135).

11. Remove the BLADE(CLEANER) with five screws.

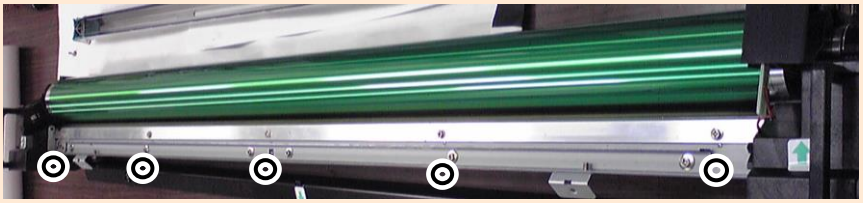
BLADE-CLEANER-SS002

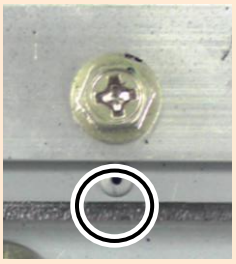
<Installation>

Notes

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.
- Apply some toner on the BLADE-CLEANER-SS002 (see **3.2.1 Cleaner Blade**).





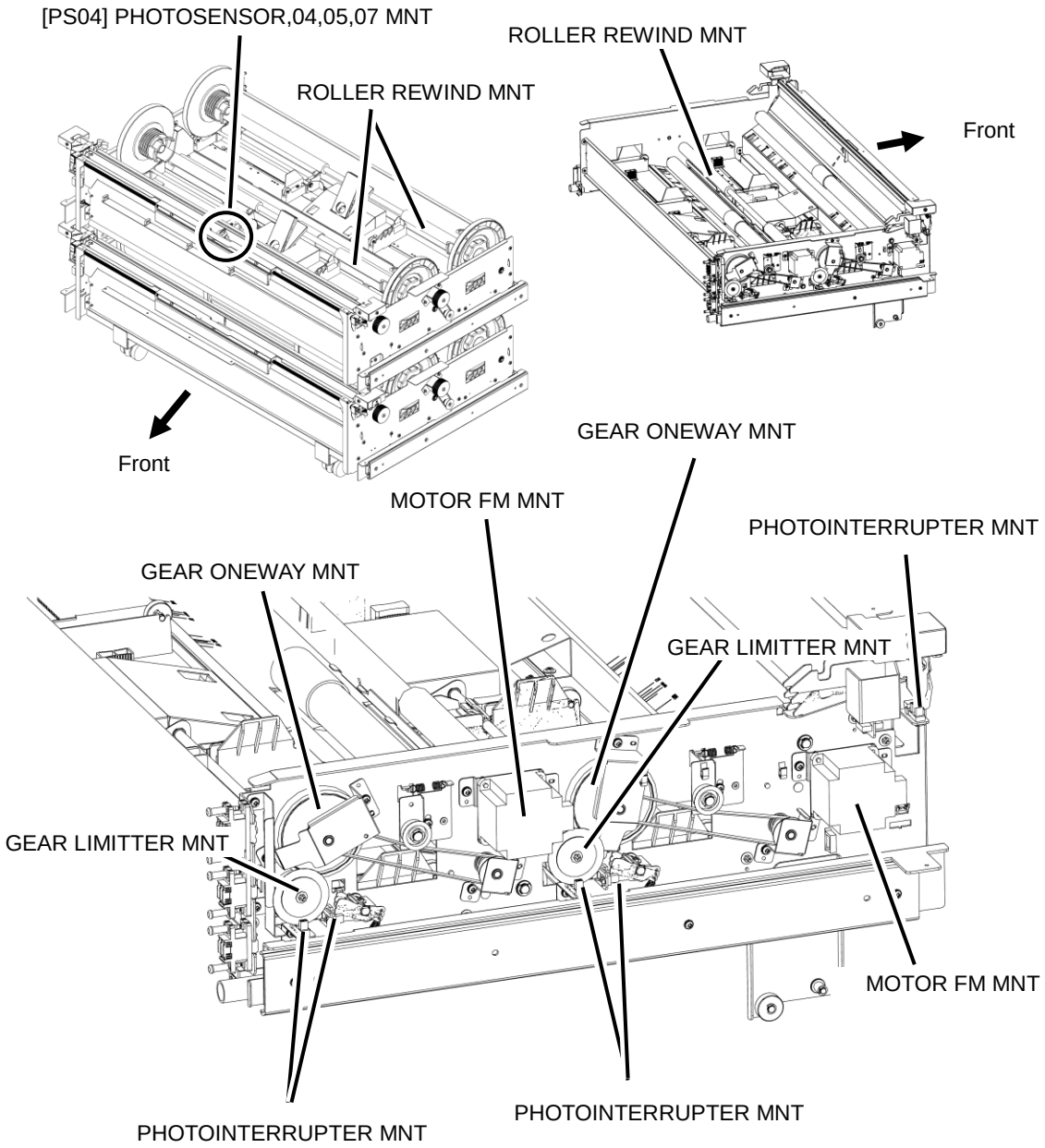
Protrusion

9.13.7 FILTER T2 MNT and 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***.

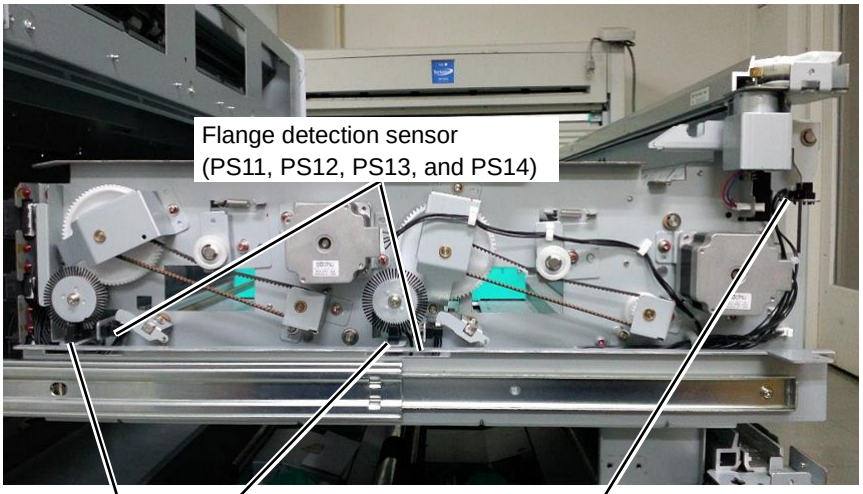
9.14 ROLL FEED UNIT

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.

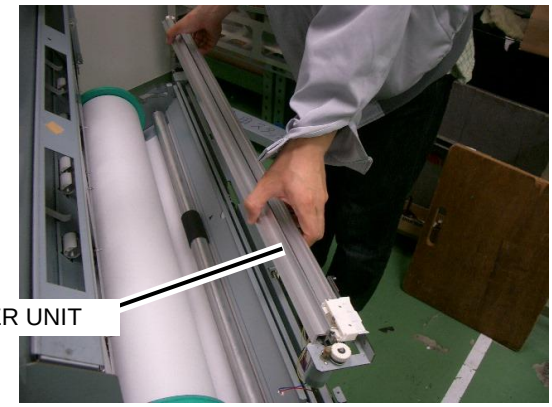
Roll feed unit's left side view



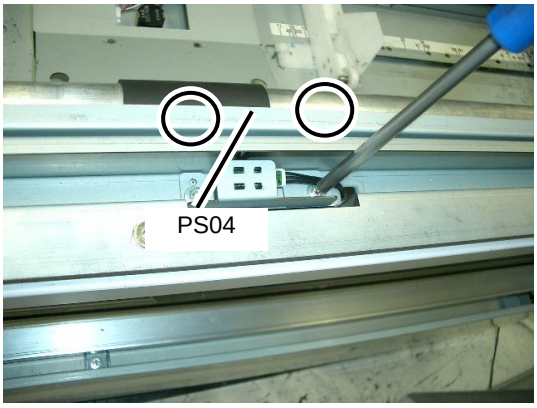
9.14.1 [PS04] PHOTOSENSOR,04,05,07 MNT

<Removal>

1. Remove the CUTTER UNIT AUTO (see p. **9.5.1**).

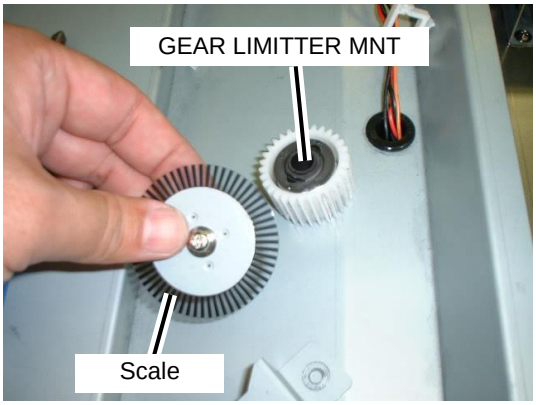


2. Remove the bracket to which PS04 is mounted with two screws.



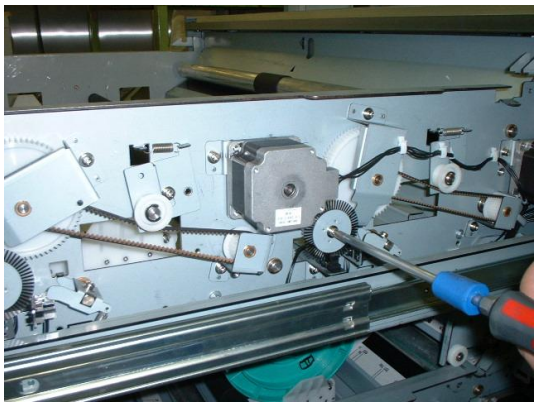
3. Press the clamp to remove the PS04.

9.14.2 GEAR LIMITTER MNT



<Removal>

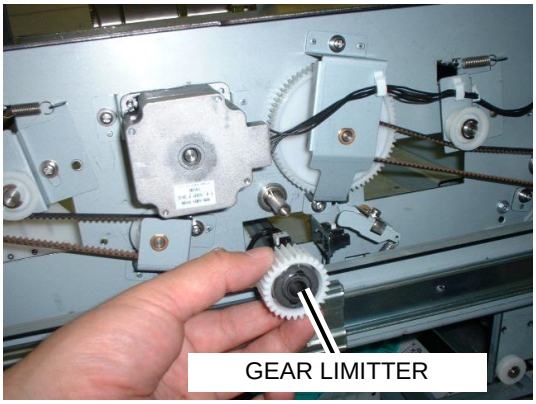
1. Remove the one screw at the location shown in the photo and remove the scale.



Note

Apply some force to the ROLLER REWIND so that the screw does not slip when turning.

2. Remove the GEAR LIMITTER.



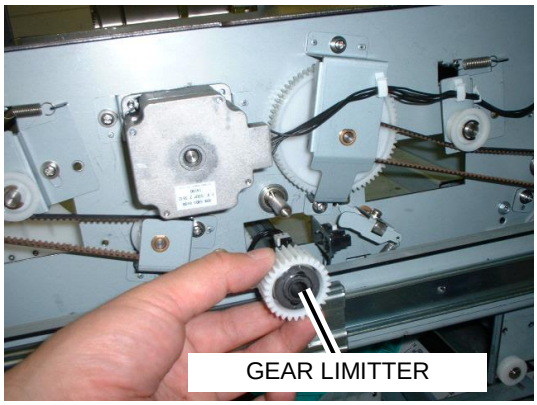
Note

Note that the parallel pin falls out when removing GEAR LIMITTER. Be careful not to lose it.

9.14.3 ROLLER REWIND MNT

<Removal>

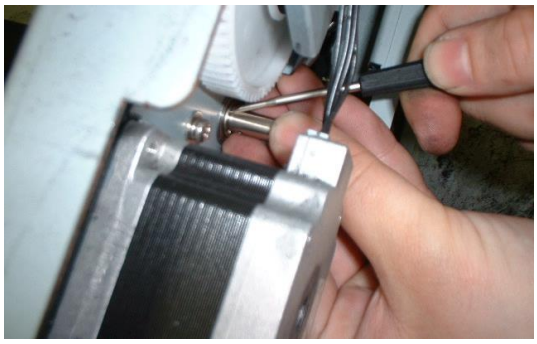
1. Remove the GEAR LIMITTER (see previous section).



2. Remove the shaft's E-ring and remove the bearing.

Note

When removing the E-ring, hold the shaft so that it does not rotate.



3. Also remove the E-ring on the other side of the shaft, then remove the bearing.

Note

When removing the E-ring, hold the shaft so that it does not rotate.

4. Remove the ROLLER REWIND.

ROLLER REWIND

9.14.4 [PS1x][PS2x][PS5x] PHOTOINTERRUPTER MNT

(1) PS1x Roll paper flange detection sensor

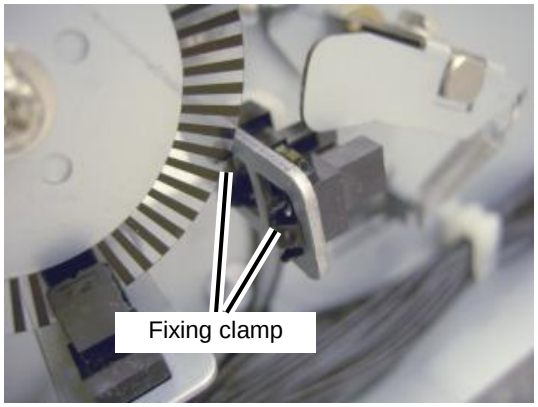
Note

The x in PS1x indicates the roll number.

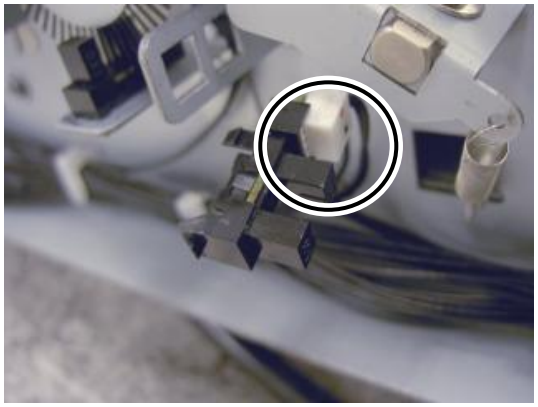
<Removal>

1. Open the roll paper drawer.

2. With tweezers remove the fixing clamp, and remove the PS1x.



3. Unplug the connector of the PS1x.



(2) PS2x Roll paper drawer open/close sensor

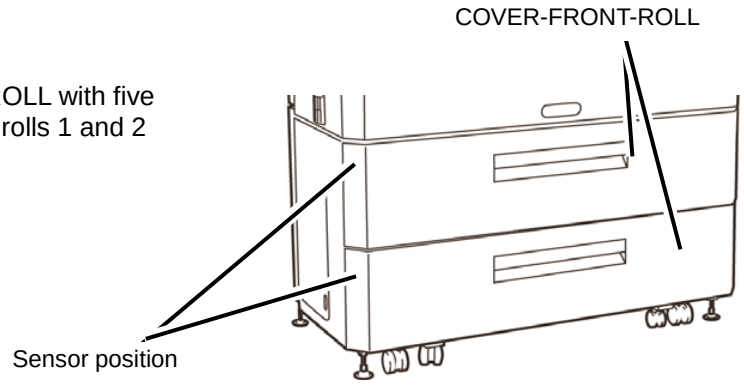
Note

The x in PS2x indicates the roll number.

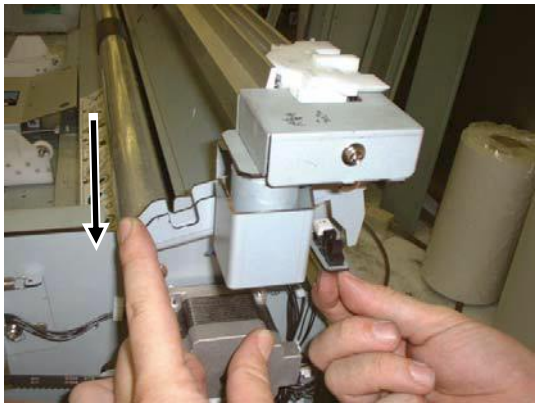
<Removal>

1. Open the roll paper drawer.

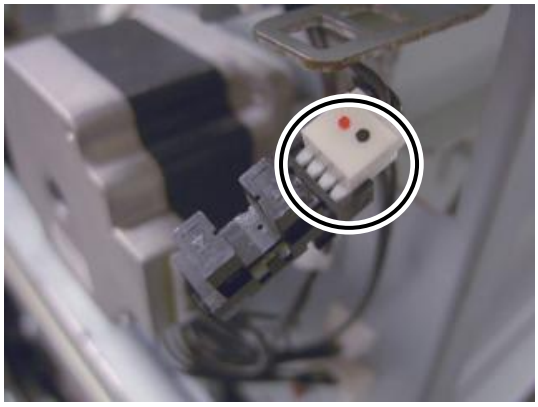
2. Remove the COVER-FRONT-ROLL with five screws from each of drawer for rolls 1 and 2 and drawer for rolls 3 and 4.



3. Lower the latch. Then remove the PS2x while pinching the fixing clamp.



4. Unplug the connector of the PS2x.



(3) PS5x Roll paper near end detection sensor (PS5x)

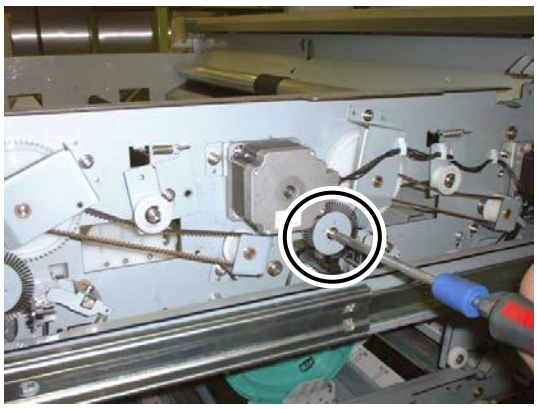
Note

The x in PS5x indicates the roll number.

<Removal>

1. Open the roll paper drawer.

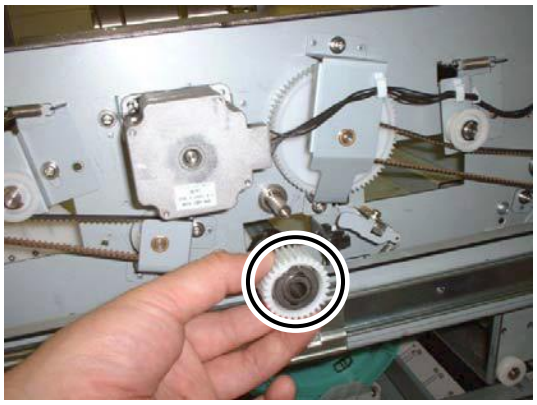
2. By unscrewing the screw shown in the photo below remove the scale.



Note

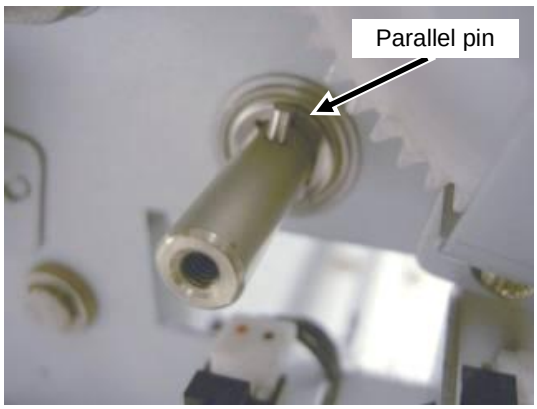
Apply some force to the ROLLER REWIND so that the screw does not slip when turning.

3. Remove the GEAR LIMITTER behind the scale.

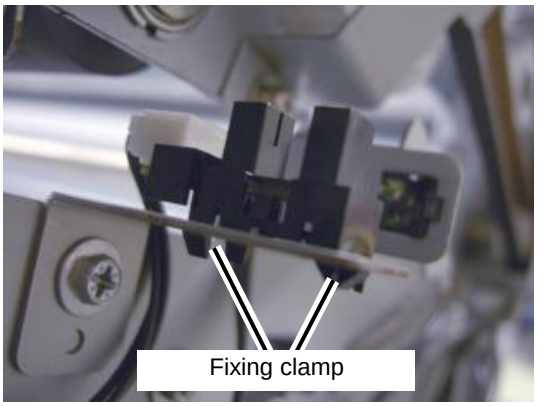


Note

The parallel pin will drop when removing the GEAR LIMITTER. Be sure to keep it with yourself.



4. With tweezers remove the fixing clamp, and remove the PS5x.

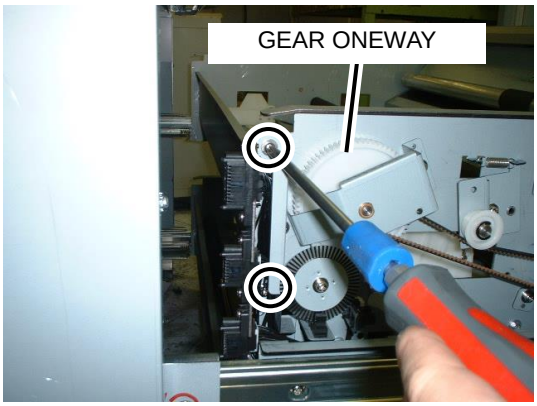


5. Unplug the connector of the PS5x.

9.14.5 GEAR ONEWAY MNT

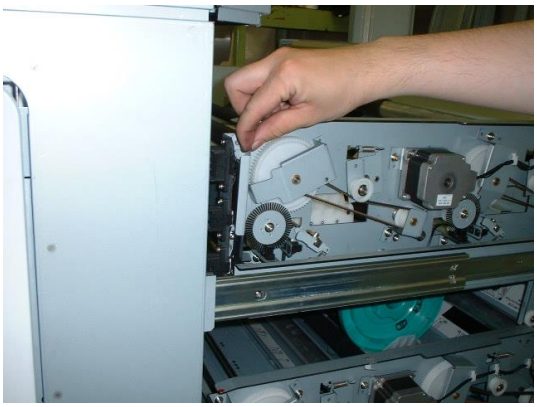
<Removal>

1. When removing the inner GEAR ONEWAY, remove the plate with two screws at the location shown in the photo.

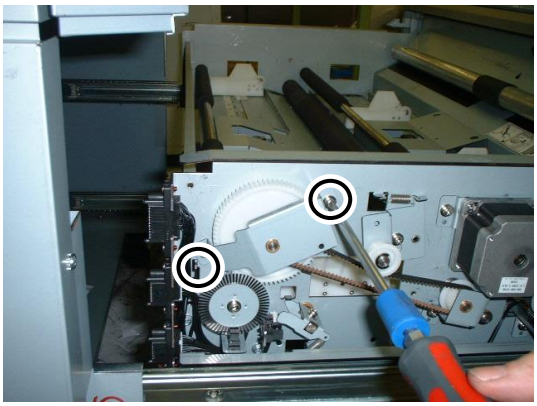


Note

This step is not necessary when removing the near-side GEAR ONEWAY.



2. Remove the plate with two screws above GEAR ONEWAY.

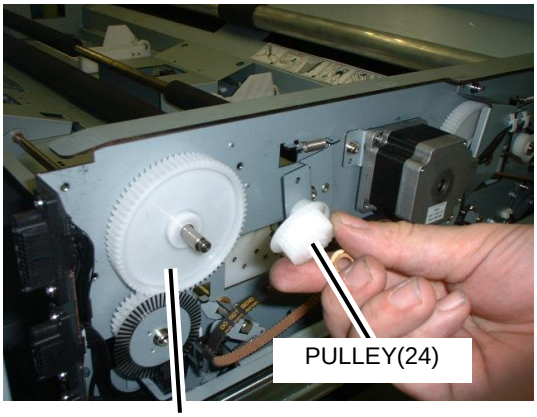


3. Remove the belt from the PULLEY(24).

4. Remove the PULLEY(24).

Note

When removing the PULLY(24), hold down GEAR ONEWAY.



5. Remove the GEAR ONEWAY.

Note

- Be careful when removing not to hit the scale.
- Be careful not to drop the bush.

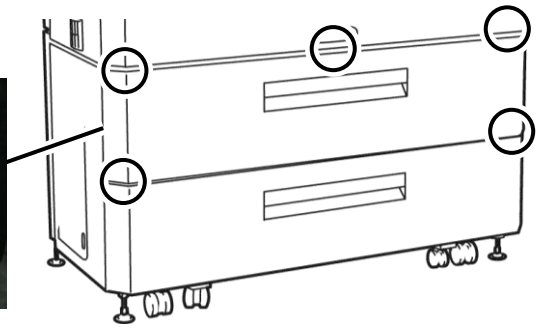
9.14.6 [FM0x] MOTOR FM MNT

Note

The x in FM0x indicates the roll number.

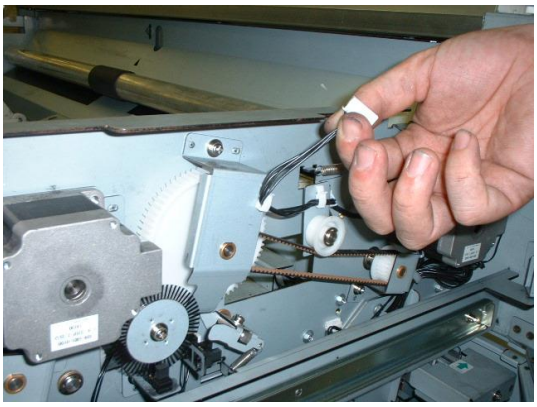
<Removal>

1. When removing the front-side MOTOR FM, remove the COVER-FRONT-ROLL.

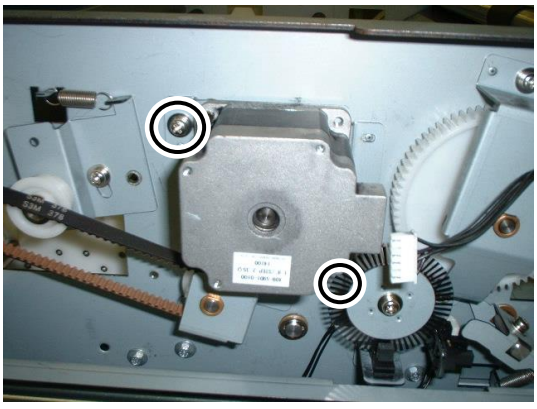


<For Upper COVER-FRONT-ROLL>

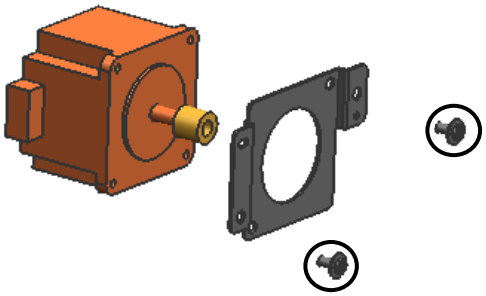
2. Unplug the connector.



3. Remove the bracket with MOTOR FM installed, with two screws.



4. Remove the MOTOR FM with two screws.



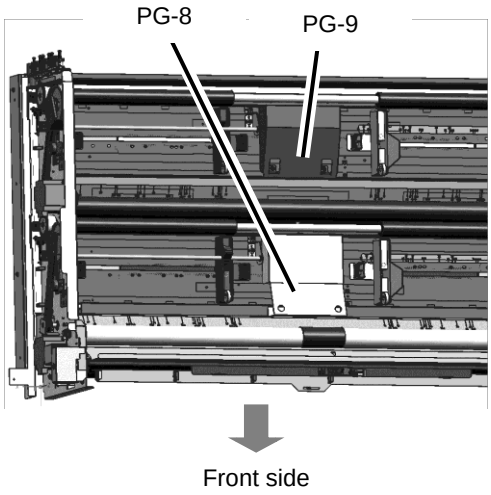
9.14.7 [PT0x] PTM ASSY MNT

Note

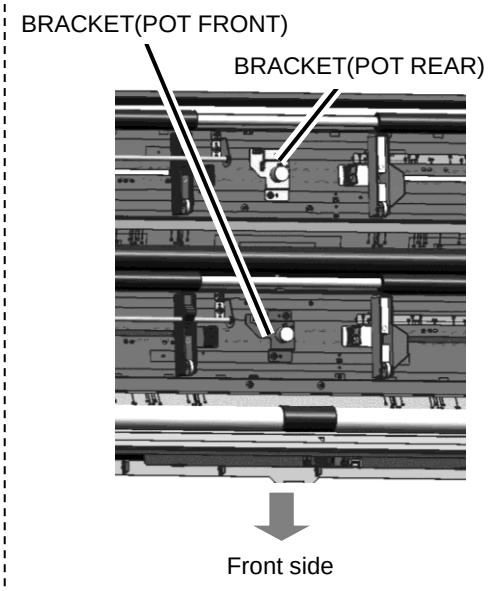
The x in PT0x indicates the roll number.

Totally four potentiometers, PTM ASSY are installed: two in the drawer for rolls 1 and 2, and two in the drawer for rolls 3 and 4.
The procedure to remove and install them is consistent though their positions and peripheral parts are different. This subsection explains the procedure taking the front-side PTM ASSY for an example.

The figure below shows the view with PG-8 and PG-9 installed.



The figure below shows the view with PG-8 and PG-9 removed.

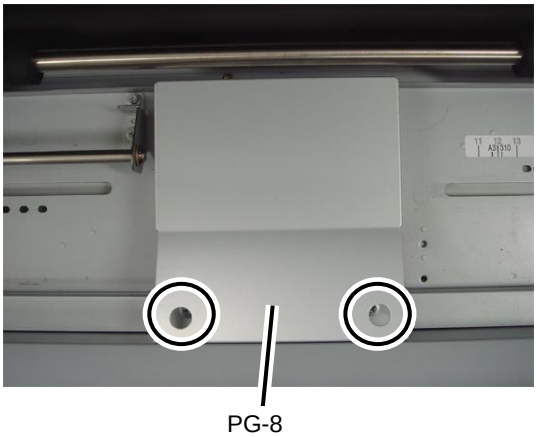


<Removal>

1. Remove the PG-8 with two screws.

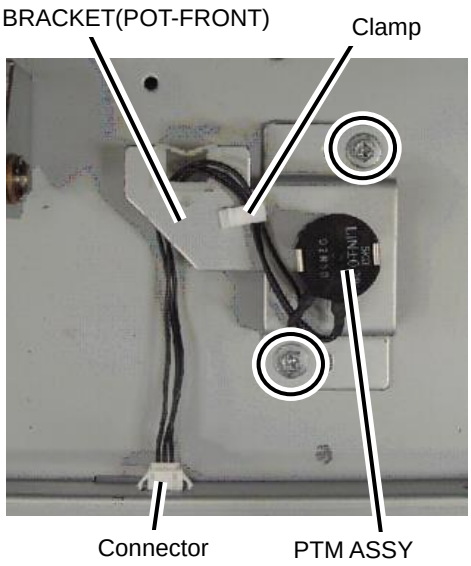
Note

In the rear side, the part name is PG-9.



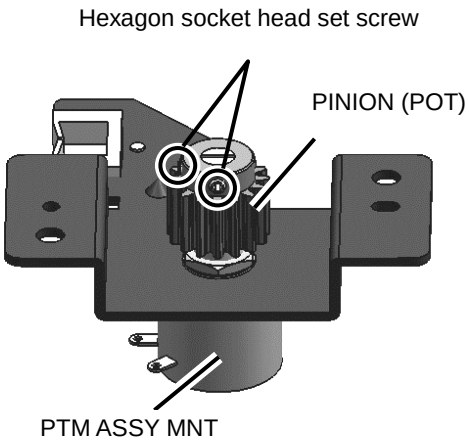
2. Unplug the cord connected to the PTM ASSY from the clamp, and remove the connector.

3. Remove the BRACKET(POT-FRONT) with two screws.

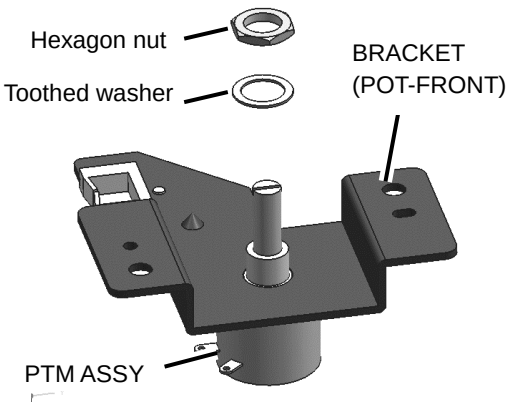


> **Note**
>
> In the rear side, the part name is BRACKET(POT-REAR).

4. Loosen the two hexagon socket head set screws, and remove the PINION(POT).

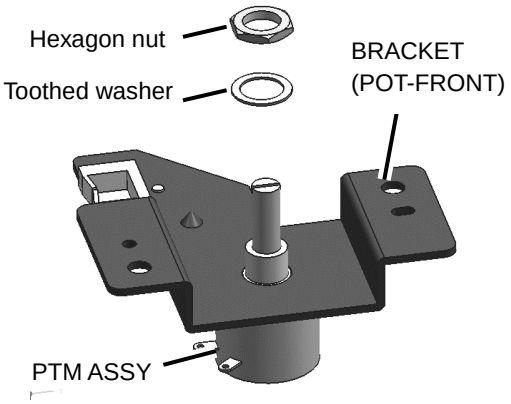


5. Remove the hexagon nut and toothed washer, and remove the PTM ASSY.



<Installation>

1. Install the PTM ASSY on the BRACKET(POT-FRONT).

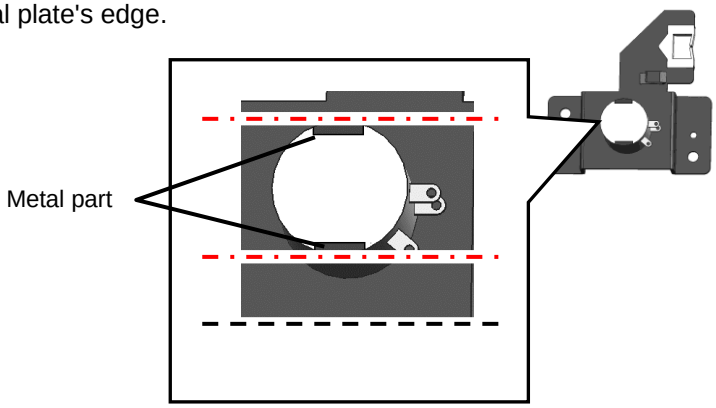


Note

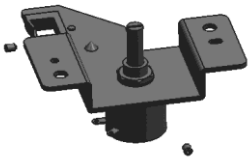
In the rear side, the part name is BRACKET(POT-REAR).

2. Allocate the hexagon nut and toothed washer, and secure them temporarily.

3. Adjust the PTM ASSY position so that its metal part is parallel to the metal plate's edge. Then fasten the hexagon nut.



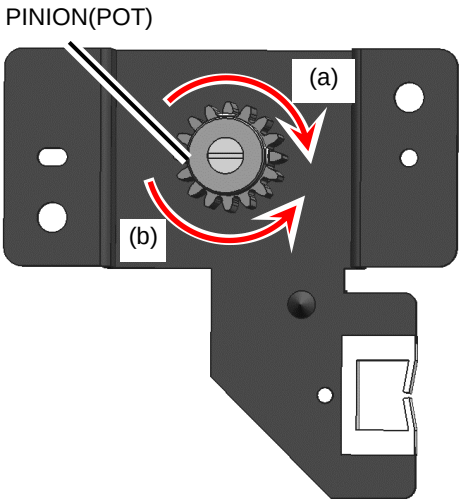
4. Install the PINION(POT) with two hexagon socket head set screws.



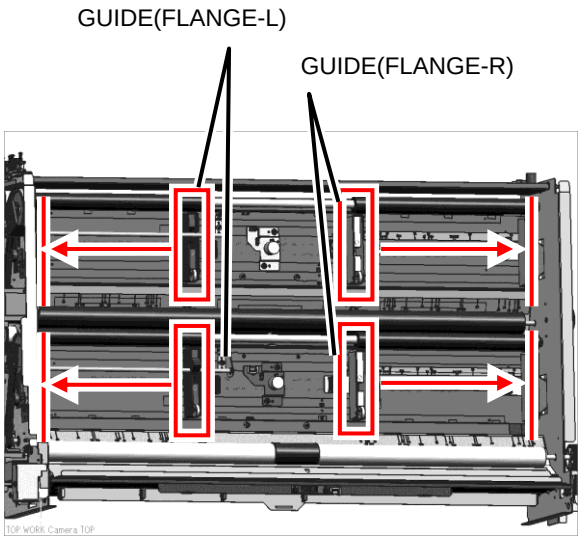
5. Initialize the potentiometer.

(a) Rotate the PINION(POT) clockwise until it stops.

(b) Rotate the PINION(POT) counterclockwise for one full rotation.



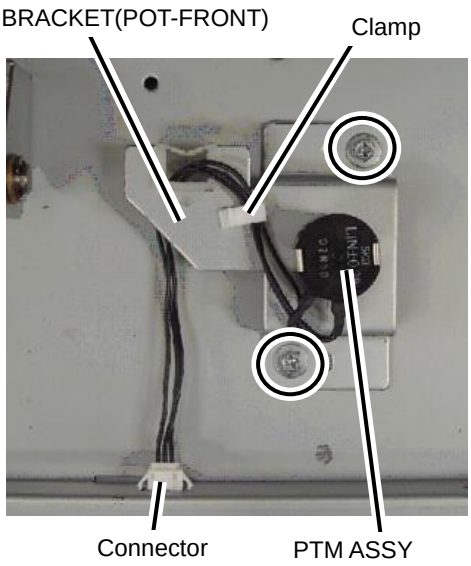
6. In the front side or rear side where the potentiometer was initialized, move the GUIDE(FLANGE-R) and GUIDE(FLANGE-L) to the right and left edges.



7. Install the BRACKET(POT-FRONT) with two screws.

Note

In the rear side, the part name is BRACKET(POT-REAR).

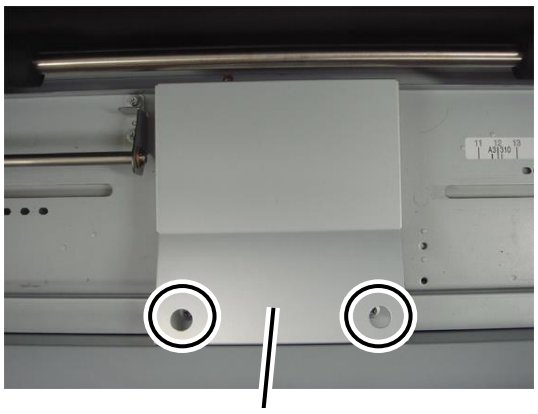


8. Pass PTM ASSY cord through the clamp, and plug the connector.

9. Install the PG-a with two screws.

Note

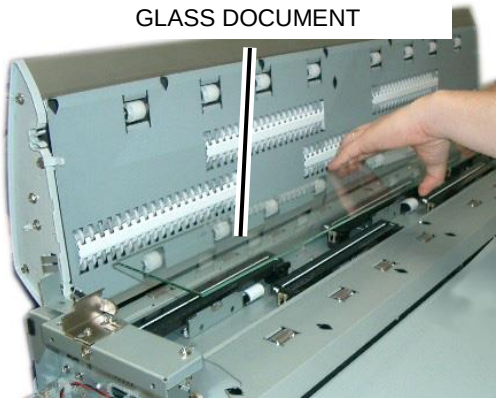
In the rear side, the part name is PG-9.



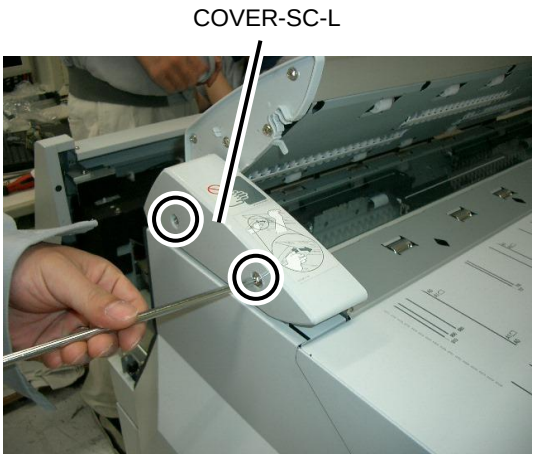
10. After replacement, correct the potentiometer (see **2.3.15 Potentiometer**).

9.15 SCANNER UNIT (Multifunction Model Only)

9.15.1 GLASS DOCUMENT MNT



<Removal>



1. Remove the COVER-SC-L with two screws.
2. Also remove the right-side COVER-SC-R with two screws.

3. Remove:
- DOCUMENT-TABLE-UNIT(MF)-2060; or
- DOCUMENT-TABLE-UNIT(PL)-2060

(see subsection **9.1.2**).

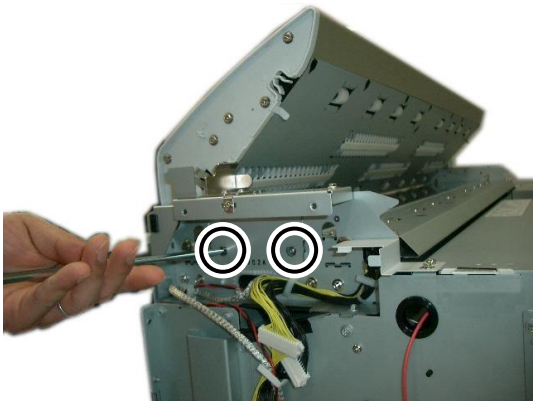
DOCUMENT-TABLE-UNIT(MF)-2060

4. Open the front door.

5. Remove:
- COVER-SIDE-L2-2060; and
- COVER-SIDE-R2-2060

(see subsection **9.1.2**).

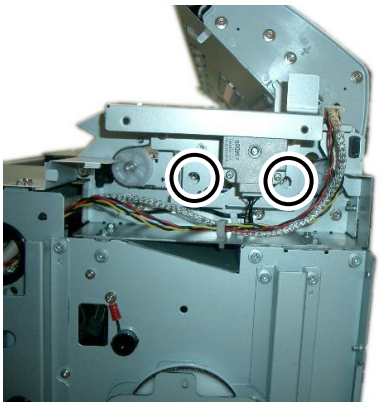
6. Loosen the two screws securing the glass on the left side of the scanner cover shown in the photo.



Note

Do not remove the screws.

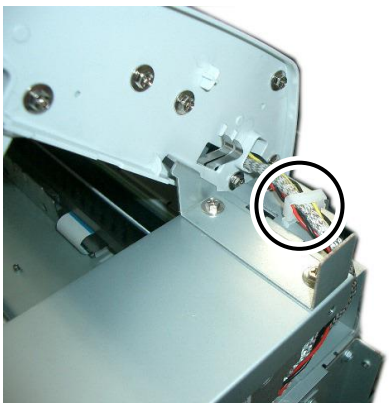
7. Loosen the two screws securing the glass on the right side of the scanner cover shown in the photo.



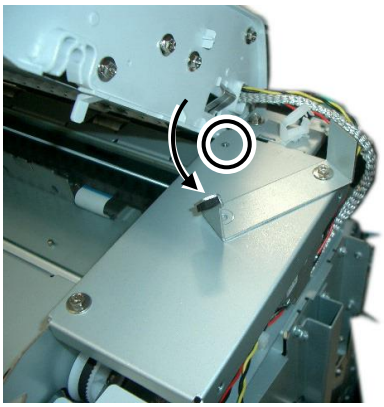
Note

Do not remove the screws.

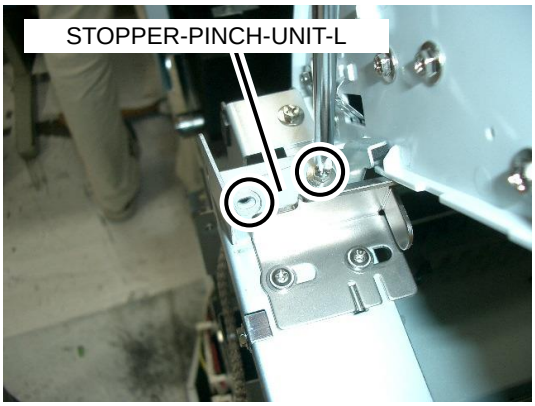
8. Remove the clamp at the location shown in the photo.



9. 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.

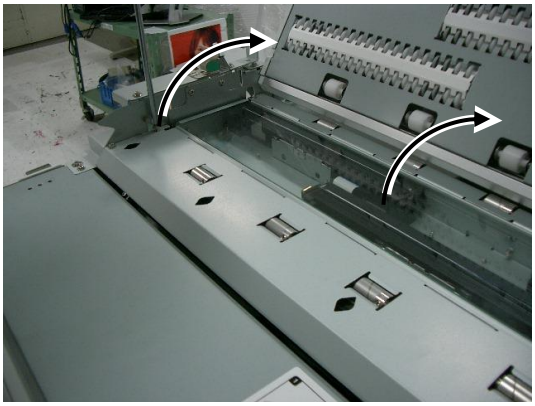


10. Remove the screw on the outside of STOPPER-PINCH-UNIT-L, which is located on the left side of the scanner cover. Loosen the screw on the inside.



11. 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.

12. Slowly tilt the scanner cover to the rear and let go of it only when it stops moving any further.

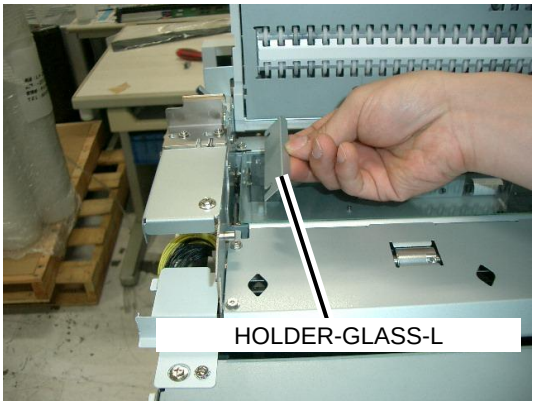


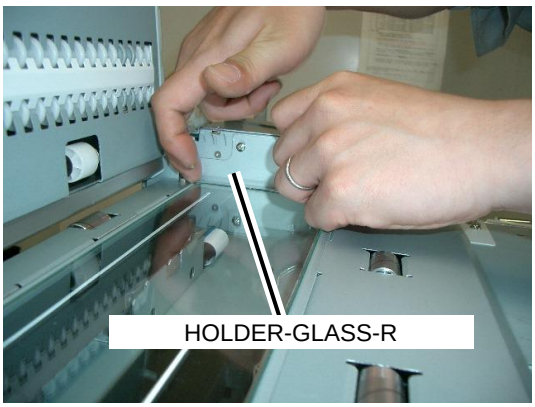
Notes

- 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.

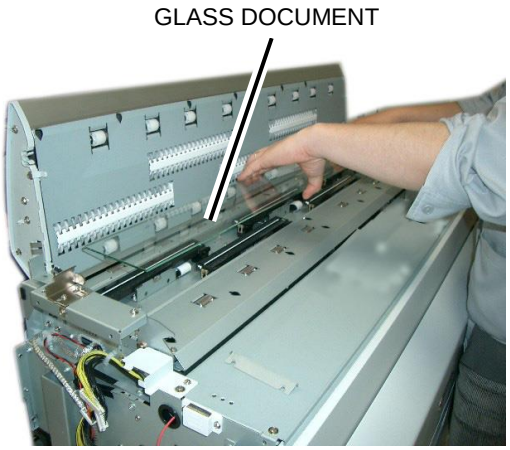
13. Pull upwards to remove the right ad left plates:
- HOLDER-GLASS-L; and
- HOLDER-GLASS-R

that secure the scanner glass (GLASS DOCUMENT).





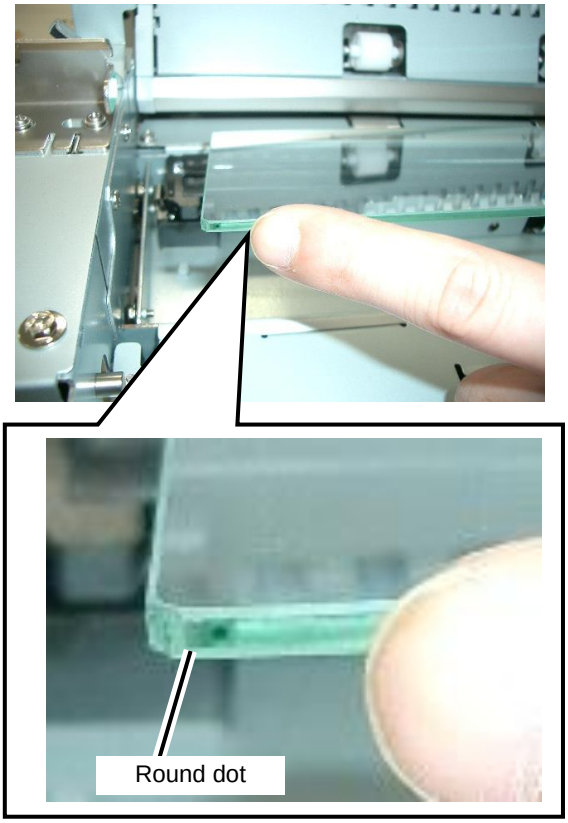
14. Remove the GLASS DOCUMENT.



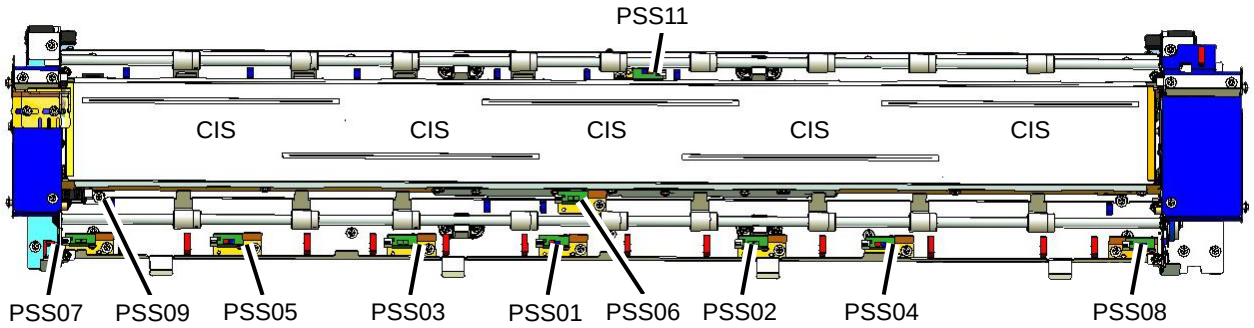
Cautionary Notes for Installation

- 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.

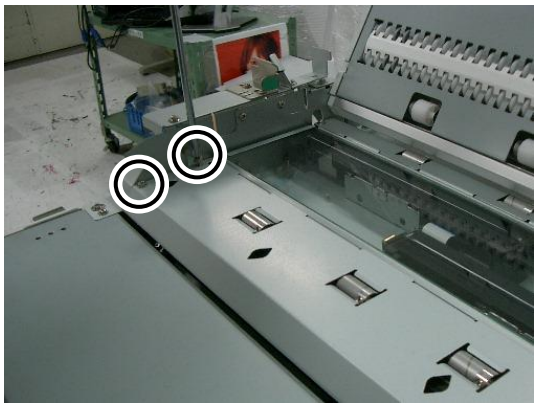


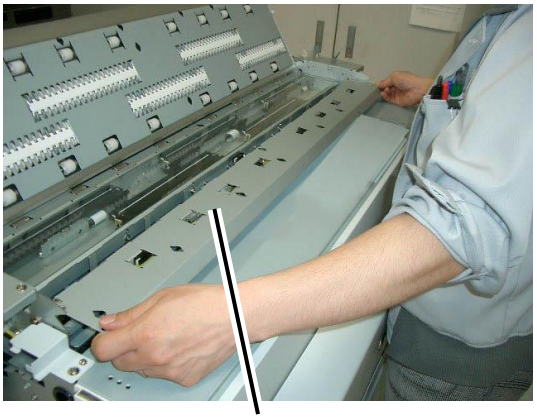
9.15.2 [PSS01 to 08] REFLECTIVE PHOTOSENSOR MNT (CIS unit front side) and [PSS09] PHOTOINTERRUPTER MNT (cover open/close sensor)



<Removal>

1. Remove the GUIDE-FRONT-SC with four screws.



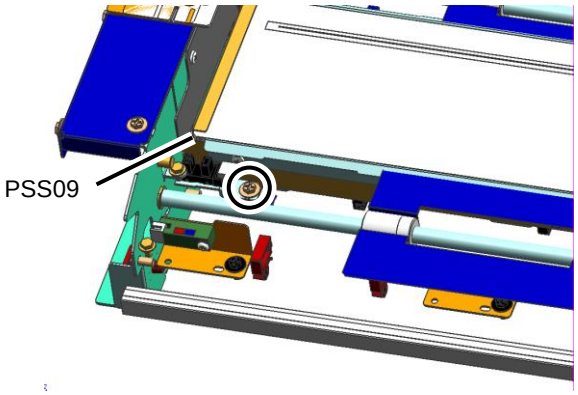


2. Remove the reflective photosensors PSS01 to 08 by removing each one's connector and screw.

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 PHOTOSENSOR MNT (behind CIS unit)

<Removal>

1. Close the scanner cover.

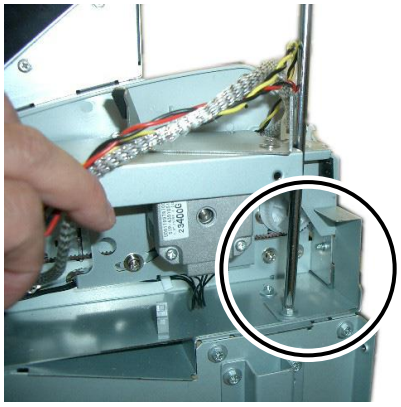
Note

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.

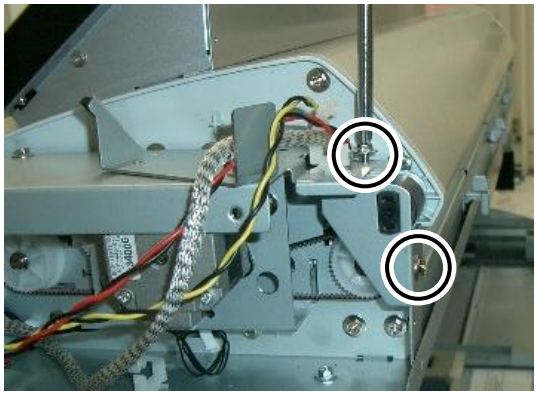
The misalignment may occur when installing the REFLECTIVE PHOTOSENSOR MNT.

2. Release the cables on the right side of the scanner cover from the cable clamp.

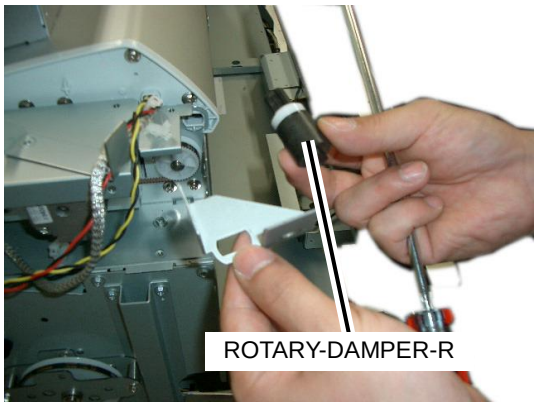
3. Remove the cover plate with two screws at the location shown in the photo.



4. Remove the two screws of the plate securing ROTARY-DAMPER-R, shown in the photo.



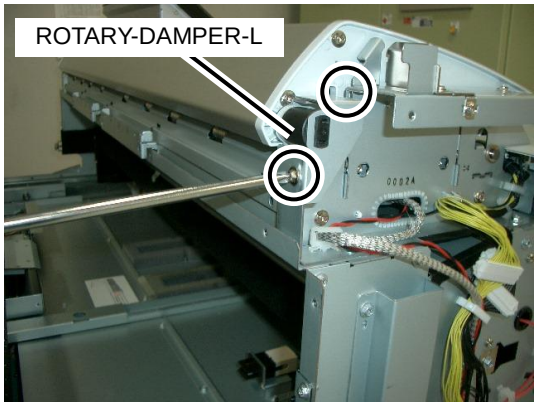
5. Remove the ROTARY-DAMPER-R.



6. Remove the two screws from the plate securing ROTARY-DAMPER-L, then remove ROTARY-DAMPER-L.

Note

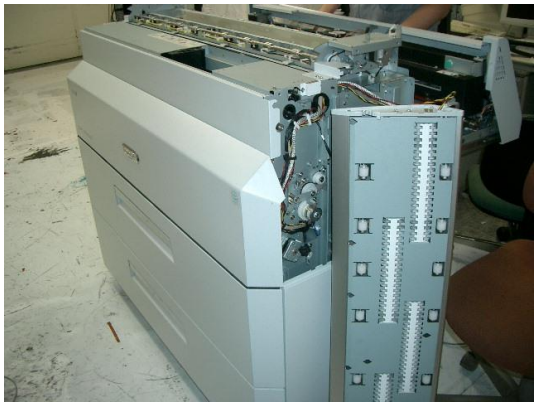
There is no cover plate on the left side.



7. Remove the scanner cover, then stand it up to the right side of the Printer.

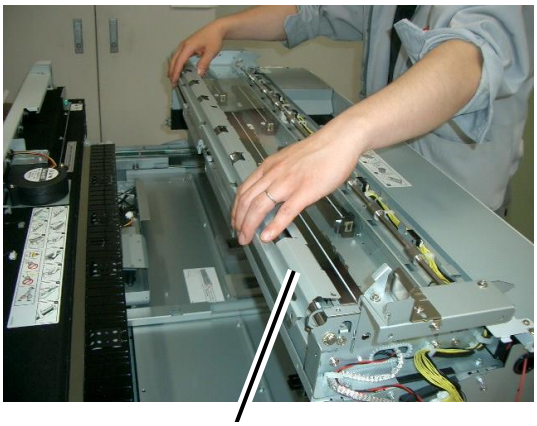
Note

Be careful not to knock over the scanner cover while working.



8. Remove the five screws securing FRAME-BOTTOM-REAR:
- Two screws on top; and
- Three screws on the back side.

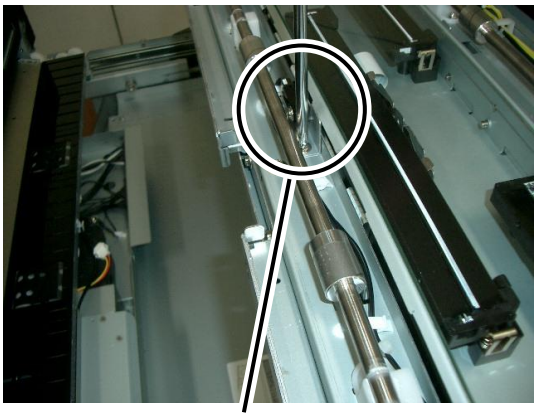
Then remove FRAME-BOTTOM-REAR.



FRAME-BOTTOM-REAR

9. Unplug the connector connected to PSS11.

10. Remove the bracket with one screw securing PSS11.



PSS11 (At the rear of the CIS unit)

11. Remove PSS11 with one screw from the bracket.

9.15.4 ROLLER SC ASSY MNT

This section provides instructions for the removal of the front side roller, out of the two ROLLER SC ASSY MNT rollers in the SCANNER UNIT.

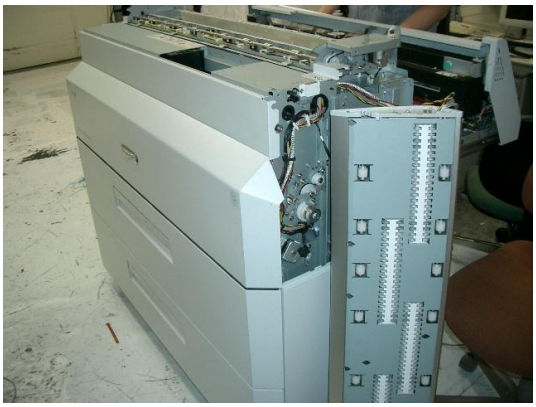
Remove the rear side roller by following the same procedure.

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 instructions for removing the [PSS11] REFLECTIVE PHOTOSENSOR MNT (behind CIS unit) in the previous section, remove the scanner cover and stand it up beside the Printer.

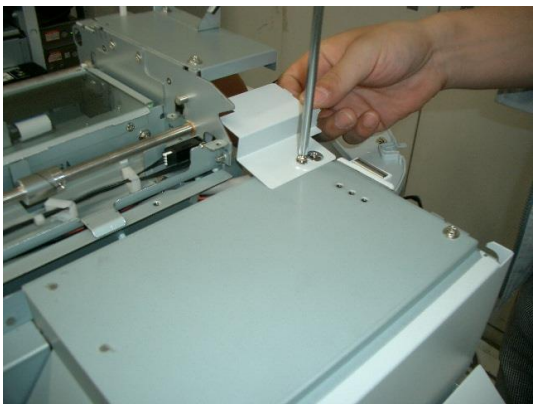


Note

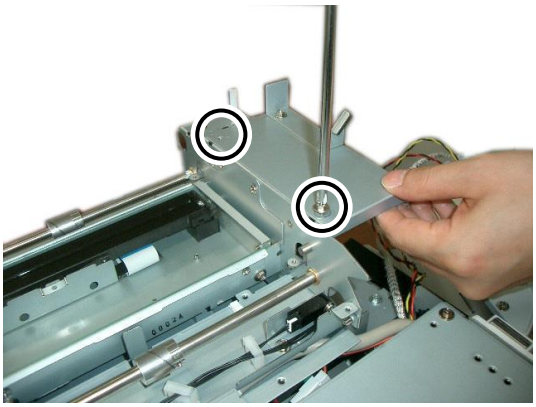
Be careful not to knock over the scanner cover while working.

2. Remove the plate with one screw from the left side of the Printer at the location shown in the photo.

3. Remove the plate with one screw from the right side of the Printer at the location shown in the photo.

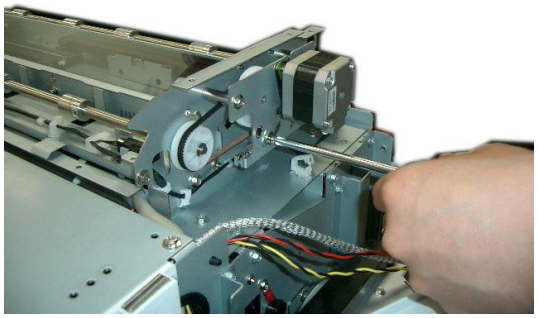


4. Remove the plate with two screws from the right side of the Printer at the location shown in the photo.

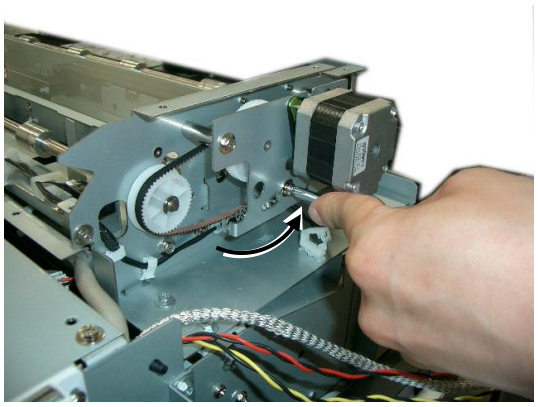


5. Remove the timing belt from the pulley.

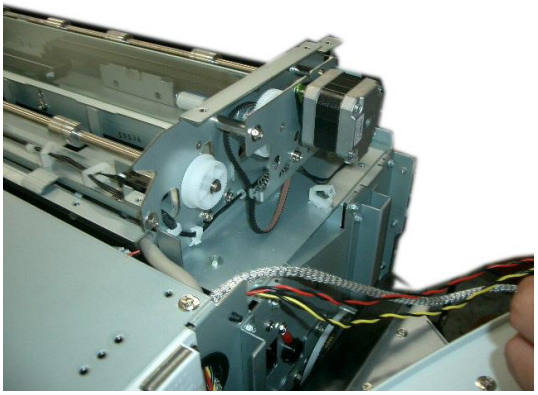
(a) Loosen the screw shown in the photo.



(b) Move the loosened screw to the right side of the guide and tighten it temporarily.

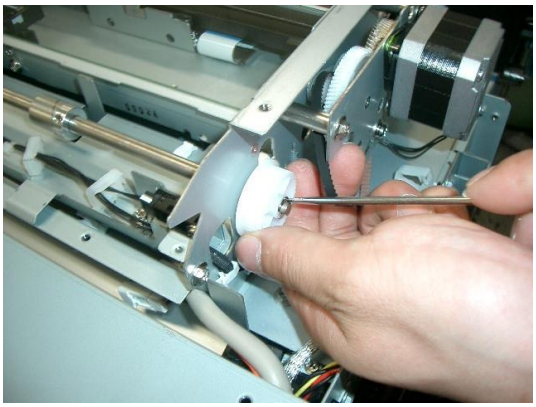


(c) Remove the timing belt from the pulley.

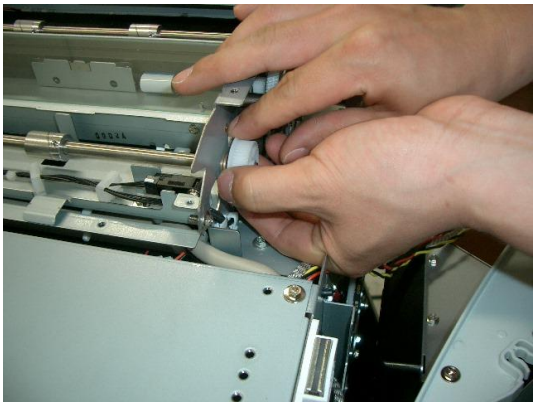


6. Remove the following parts from the right side of the ROLLER SC ASSY shaft.

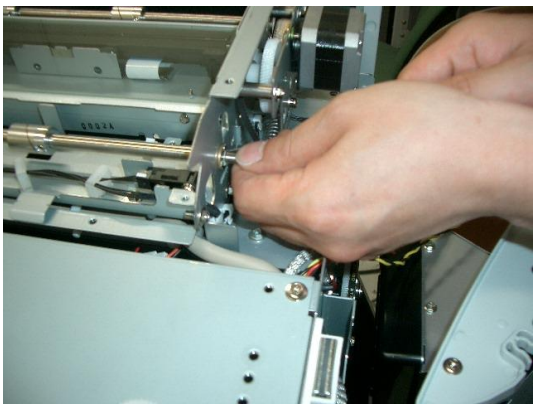
(a) E-ring



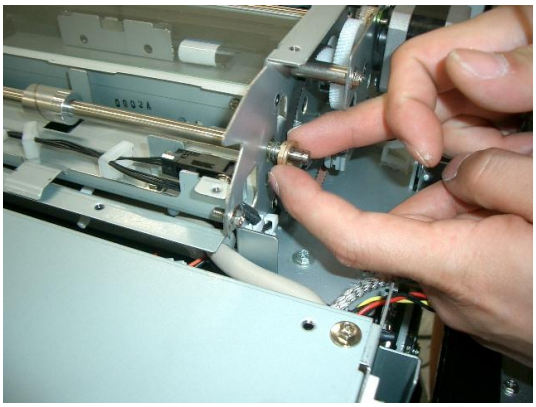
(b) Pulley



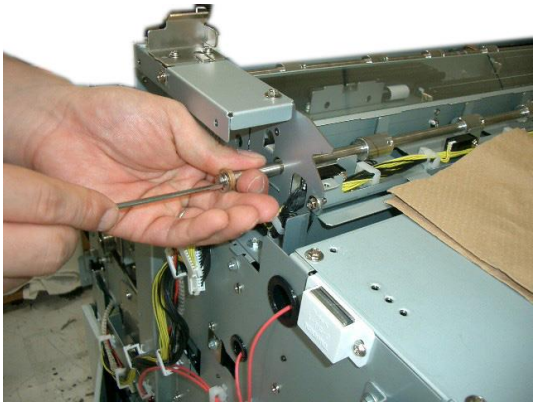
(c) E-ring



(d) Bush



7. Remove the E-ring and bush from the left side of ROLLER SC ASSY shaft.



8. Remove the 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.

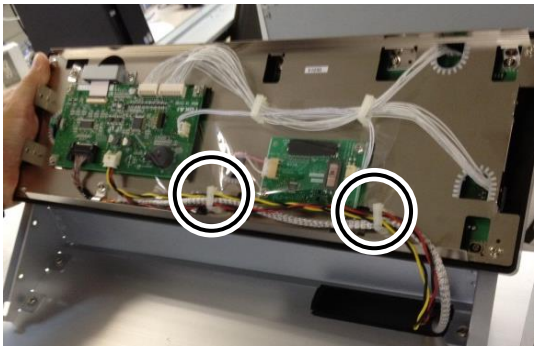
<LCD panel removal>

1. Remove the four screws securing the LCD panel.

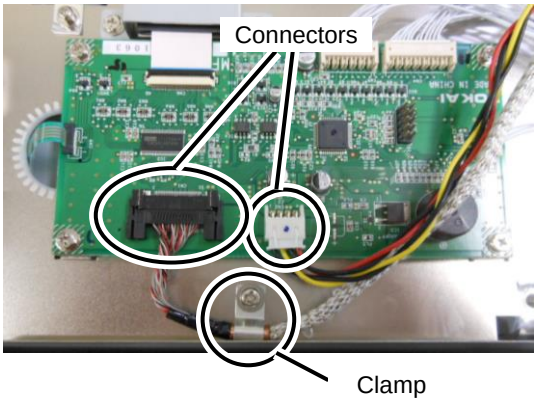
2. Raise the LCD panel and remove the harness from the two clamps.

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 form the clamp.
Keep carefully the LCD panel until the next time you will use it.



<SC-TOP-COVER removal>

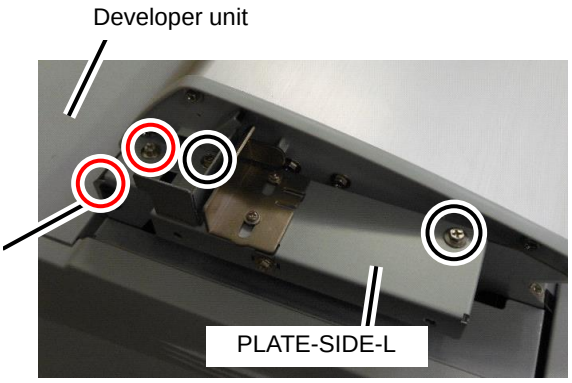
1. Remove the OVER-SC-R and the COVER-SC-L with four screws.

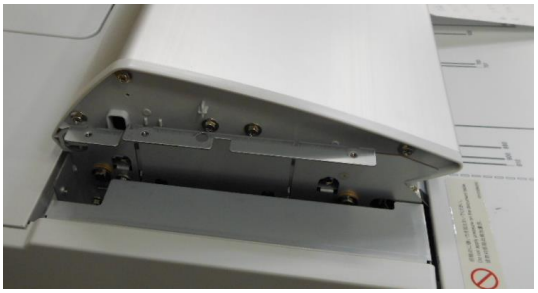
2. Remove the side cover (upper left) (see p. **9-6**).

3. Remove the side cover (upper right) (see p. **9-7**).

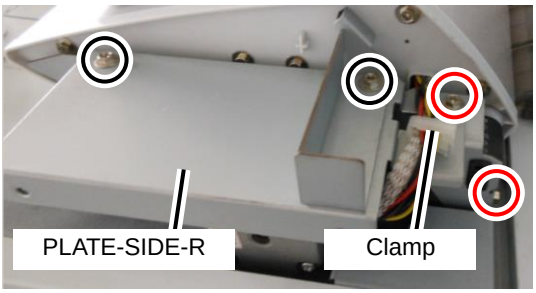
4. Remove the PLATE-SIDE-L with two screws (circled in black) and the ROTARY-DAMPER-L with two screws (circled in red).

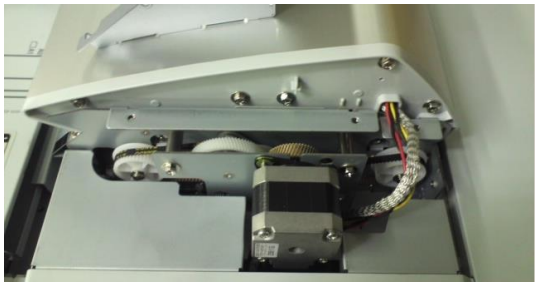
Remove the developer unit cover if you have difficulties removing these screws.



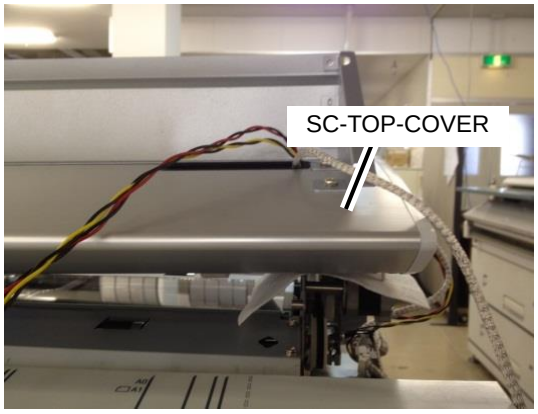


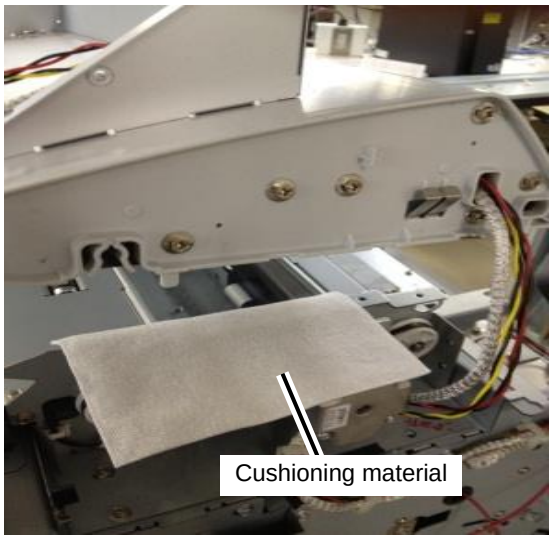
5. Remove:
- the PLATE-SIDE-R with two screws (circled in black);
- the harness from the clamp; and
- the ROTARY-DAMPER-R with two screws (circled in red)..



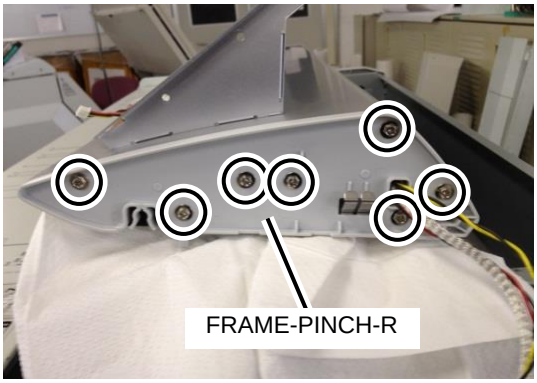


6. Lay cushioning material to prevent damage to the shading guide, and place the SC-TOP-COVER as shown in the picture.

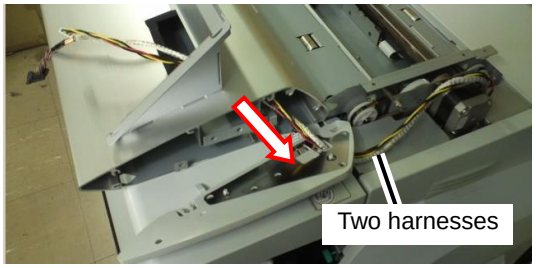




7. Remove the FRAME-PINCH-R with seven screws.



8. Pull the two harnesses out in the direction of the arrow.

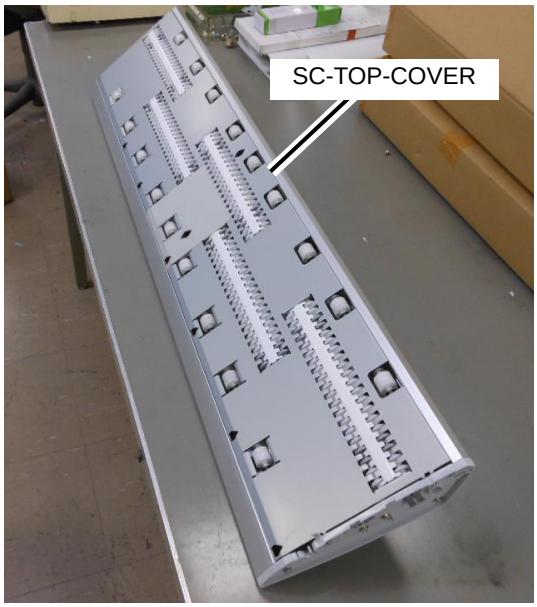


Note

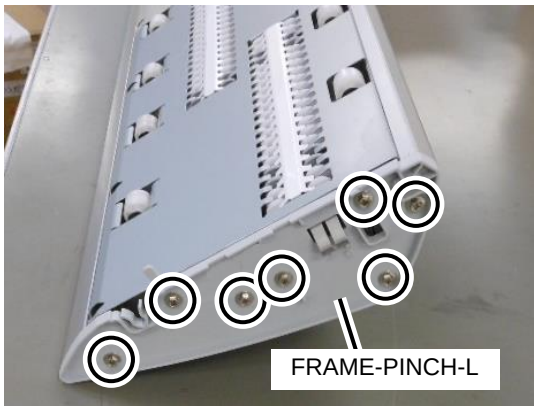
Pay attention not to damage the harnesses when pulling them.

<ROLLER PINCH replacement>

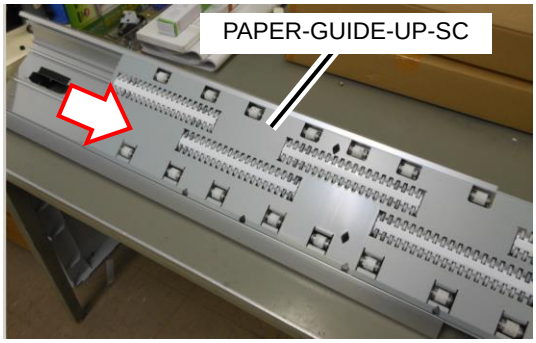
1. Place the SC-TOP-COVER on a table.



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.

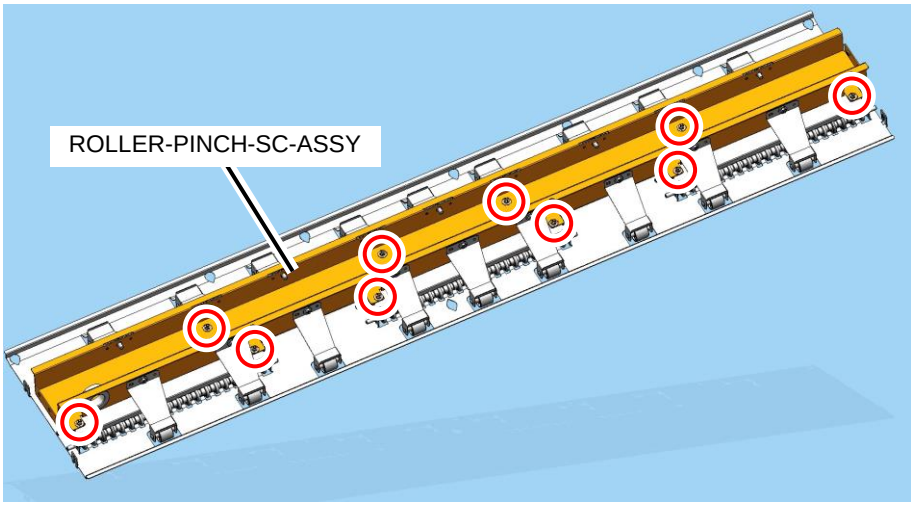


4. Place the PAPER-GUIDE-UP-SC onto the bubble warp.

Note

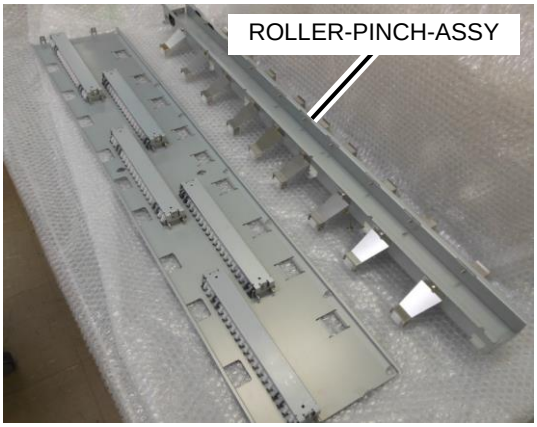
The bubble warp will prevent damage to the PAPER-GUIDE-UP-SC.

5. Remove the ROLLER-PINCH-SC-ASSY with 10 screws.

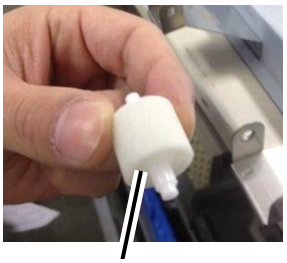


Note

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-KK and install the new ROLLER-PINCH-KK.



ROLLER-PINCH-KK

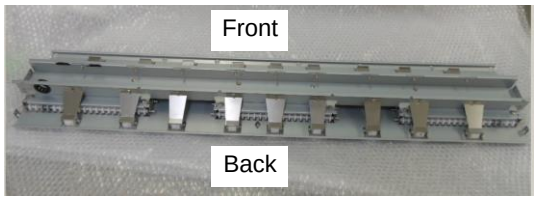
Note

Pay attention not to deform the plate springs. After the installation, check that the ROLLER-PINCH-KK rotates smoothly.

<SC-TOP-COVER installation>

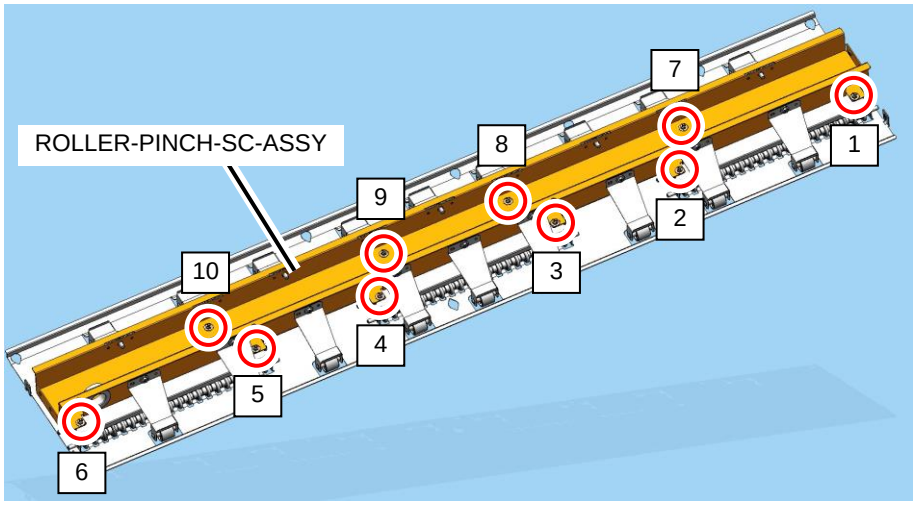
1. Install the ROLLER-PINCH-SC-ASSY

First tighten the screws temporarily before tightening them definitively.
Tighten the screws in the order shown below.



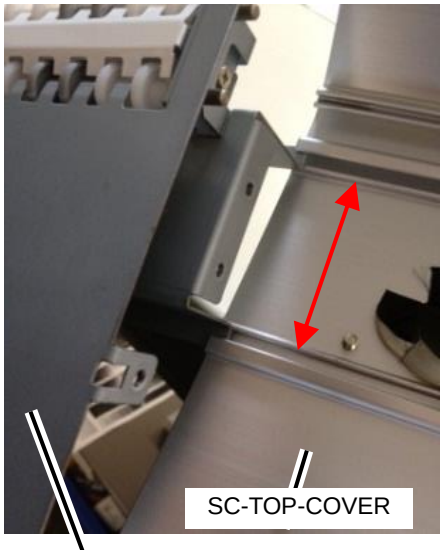
Note

Do not apply strength onto the ROLLER-PINCH-ASSY when tightening the screws. Otherwise the plate springs may deform.



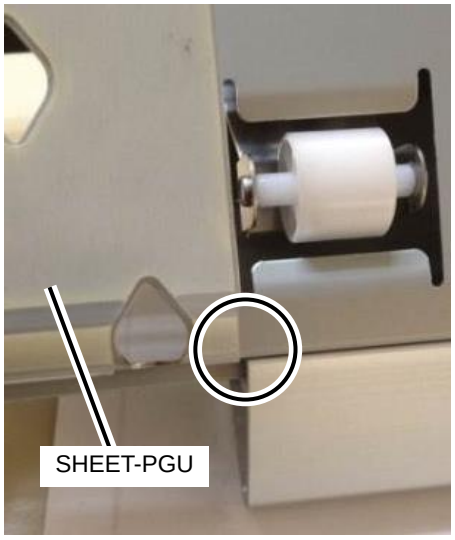
2. Insert the assembled PAPER-GUIDE-UP-SC into the SC-TOP-COVER.

(a) Insert it in the narrow side.

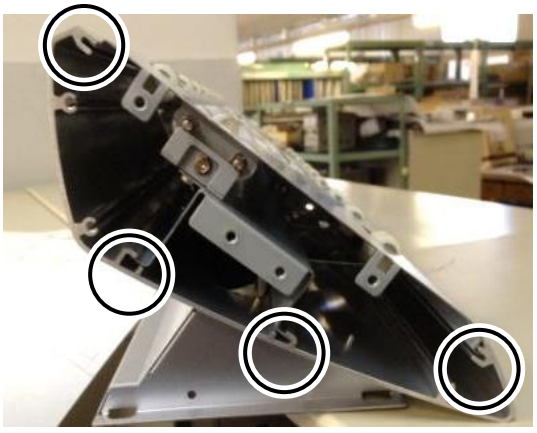


(b) Insert it in the wide side.

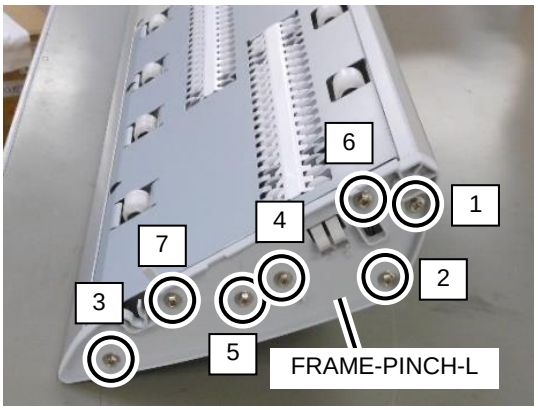
(c) Slide the PAPER-GUIDE-UP-SC so that the SHEET-PGU does not turn over.



(d) Check that the PAPER-GUIDE-UP-SC is inserted in all the guides.



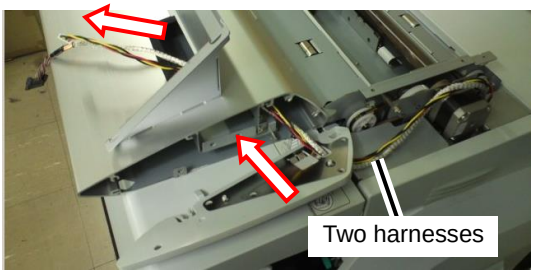
3. Secure temporarily the FRAME-PINCH-L to the SC-TOP-COVER with screws, then tighten the seven screws in the order shown in the picture.



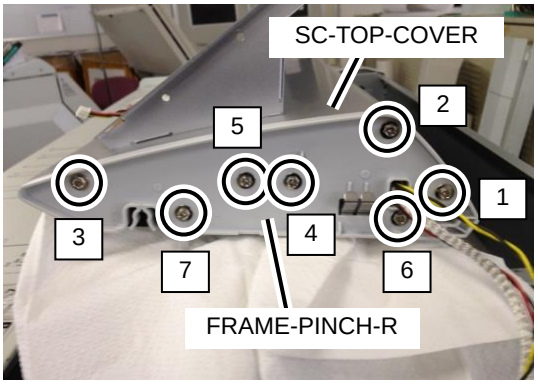
4. Insert the two harnesses in the direction of the arrow.

Note

Pay attention not to damage the harnesses when inserting them.



5. 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.

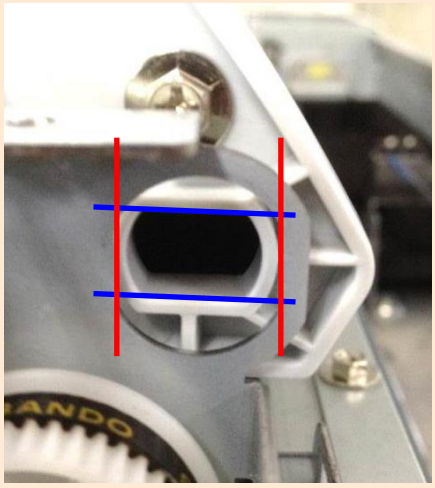


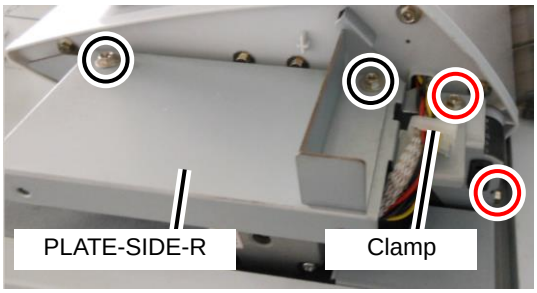
<SC-TOP-COVER installation>

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).

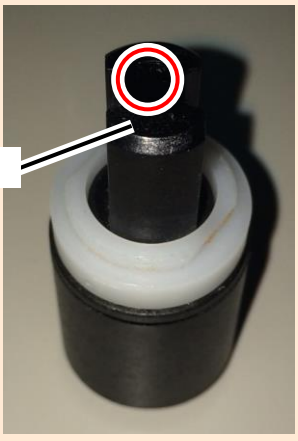




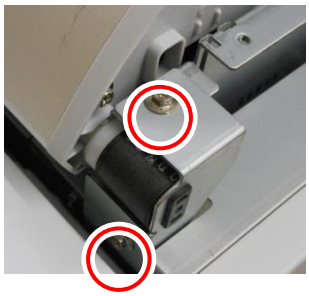
Note

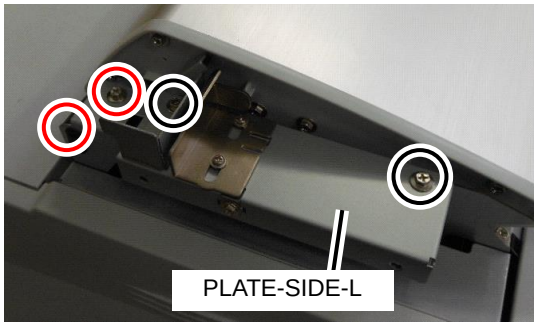
Before installing the dampers, check the damper type. The ROTARY-DAMPER-R must be installed to the right side, and the ROTARY-DAMPER-L to the left side.
How to check the type:
Check the imprint circled in red in the picture on the damper shaft.
The damper can be recognized with the imprinted characters.

- 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

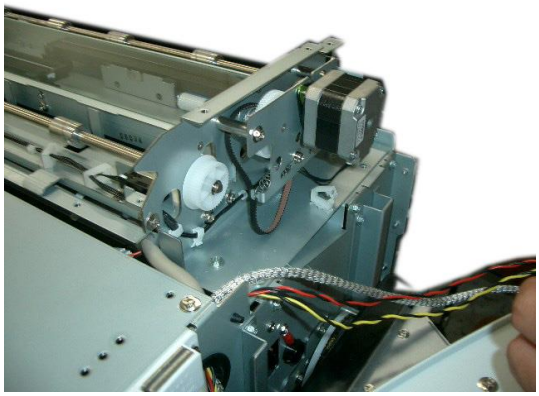
(b) Document advance calibration (motor speed calibration)

(c) Sensor connection calibration in main scanning and subscanning directions (CIS connection calibration)

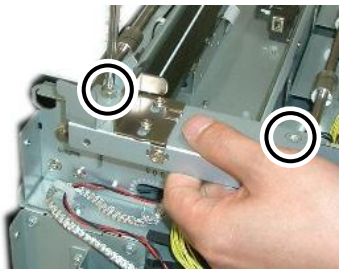
9.15.6 CIS UNIT MNT and PCB-ASSY-AIC1 MNT

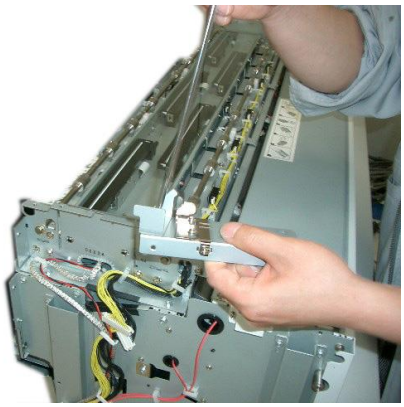
<Removal>

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).

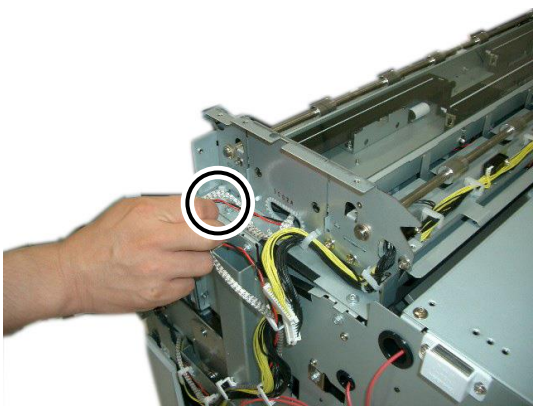


2. Remove the plate with two screws at the location shown in the photo.

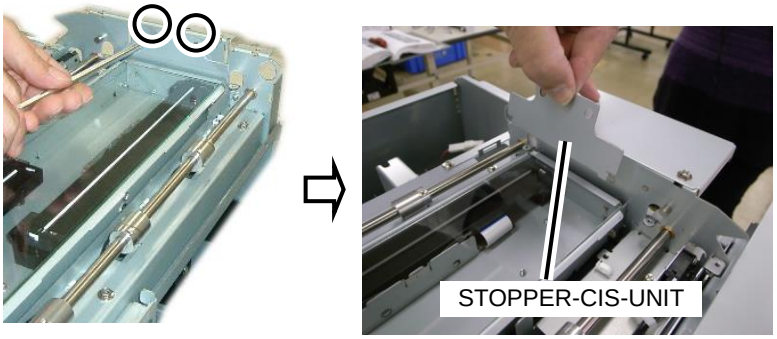




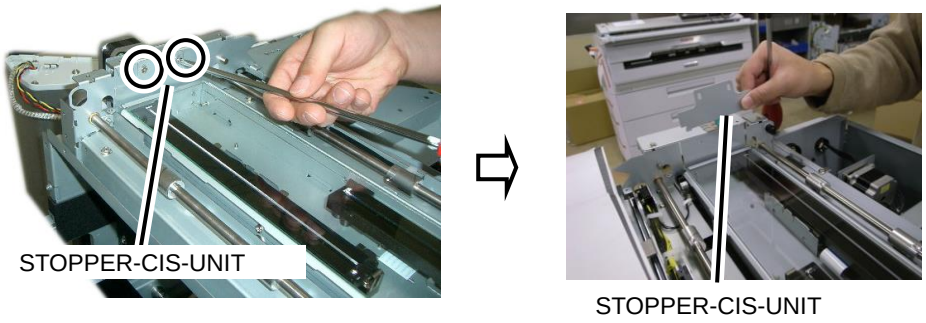
3. Remove the wiring from the cable clamps at the four locations shown in the photo.



4. Remove the STOPPER-CIS-UNIT with two screws on the left side.

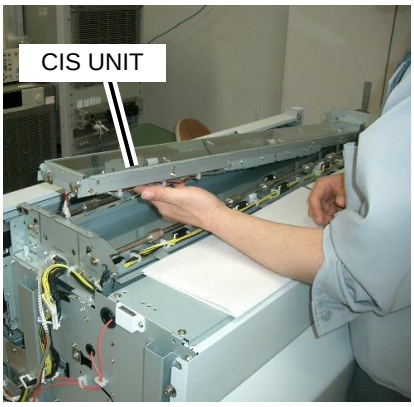


5. Remove the STOPPER-CIS-UNIT with two screws on the right side.



6. 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.

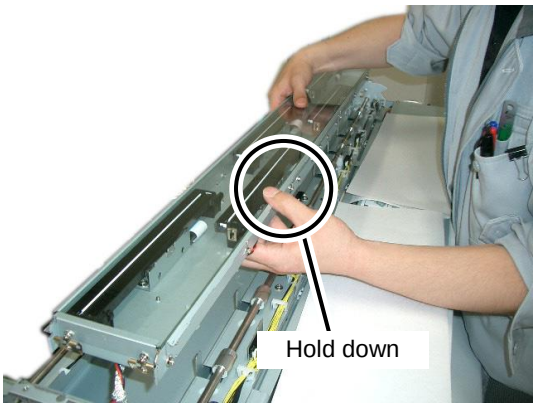
7. Lift up CIS UNIT, starting with the left side first.



8. Remove the 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.

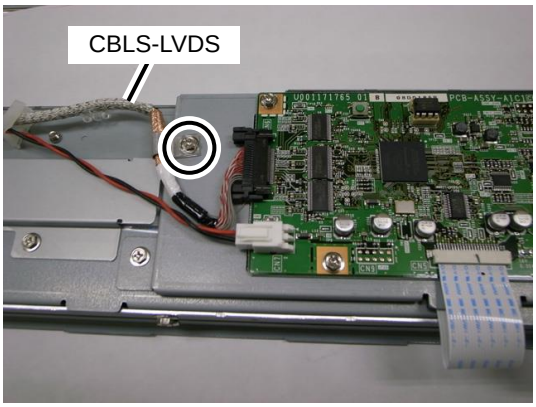


9. While holding down the center area of the scanner glass, put the glass surface facing down and place the CIS UNIT down on the paper you prepared earlier.

10. Remove the CBLS-LVDS clamp with one screw.
Unplug the connector at the same time.

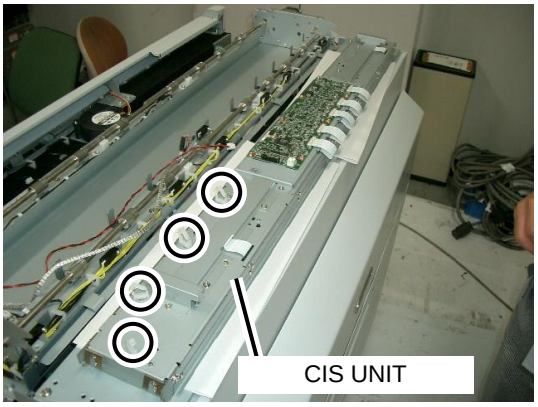
Cautionary Notes When Performing Installation

When installing the CBLS-LVDS, use the air blow tool in order to remove any foreign particle from the connecting part.

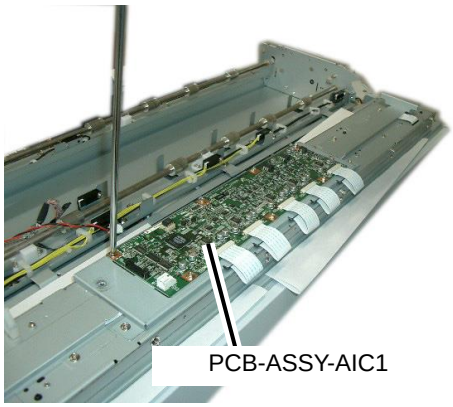


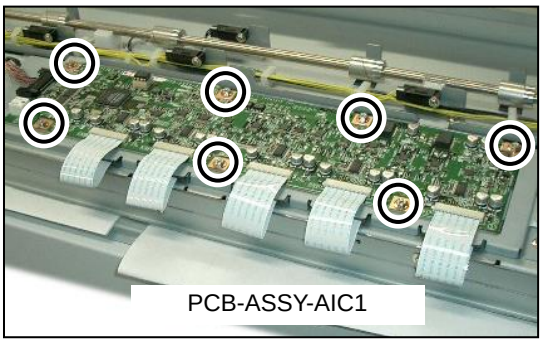
11. Unlock all cable clamp locks and remove all cables.

The completion of this step concludes the removal of CIS UNIT.



12. When removing PCB-ASSY-AIC1, unplug all FFCs and remove the PCB-ASSY-AIC1 with seven screws.



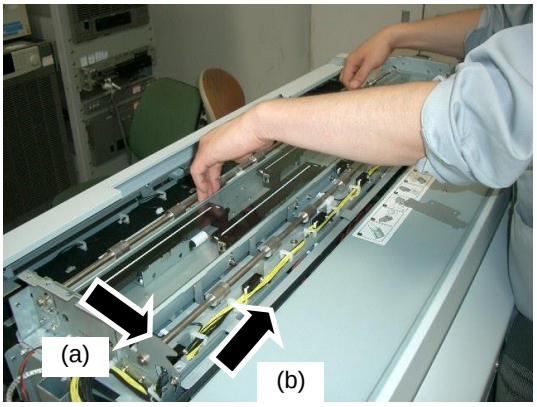


<Installation>

Note

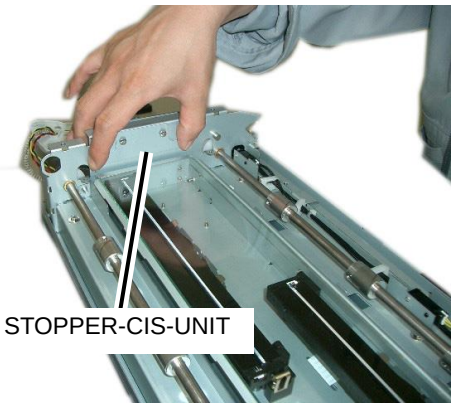
When installing CIS UNIT and/or ROLLER SC ASSY, always perform position alignment using the procedure explained below.
Any other steps required for installation are the same as those for removal, only in the opposite order.

1. Once you have set the CIS UNIT on its position, (a) pull it towards you and (b) move it against the right side.

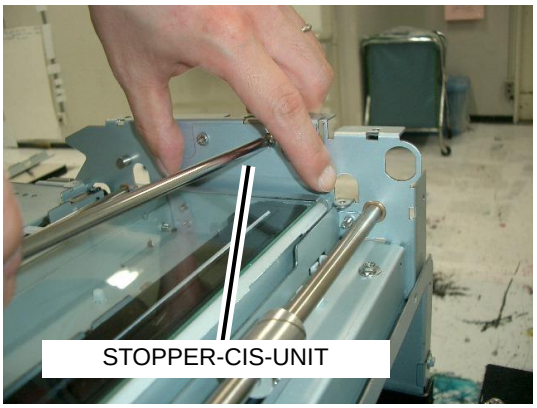


2. Temporarily secure the STOPPER-CIS-UNIT on the right side with two screws.

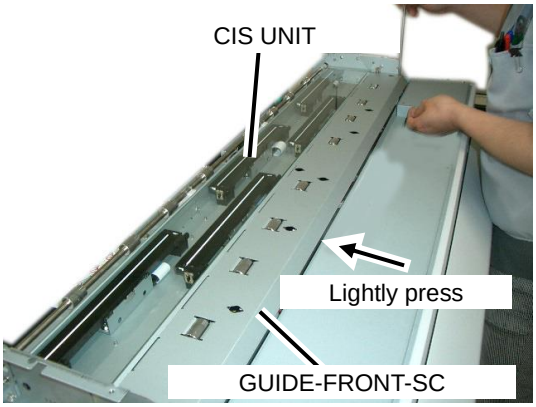
3. With pressing the STOPPER-CIS-UNIT downward, also press it toward you so that the STOPPER-CIS-UNIT is attached firmly to the printer's internal bottm and front side. Then fully tighten the two screws.

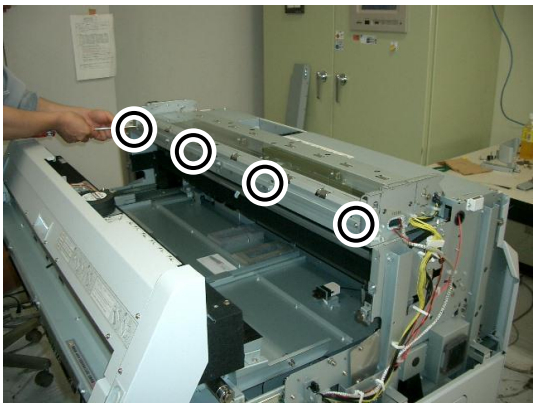


4. Perform this same procedure for the STOPPER-CIS-UNIT on the left side. After lightly tightening the two screws, move the STOPPER-CIS-UNIT downwards and pull it towards you, then securely tighten the two screws.

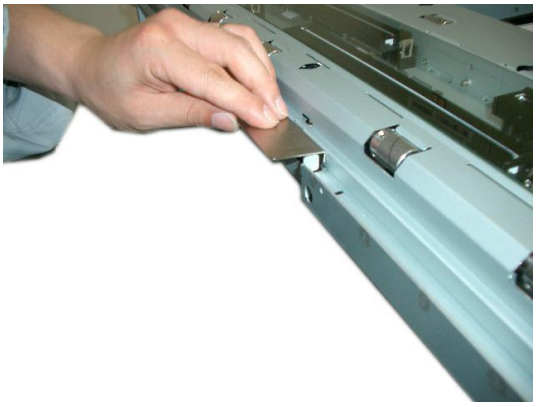


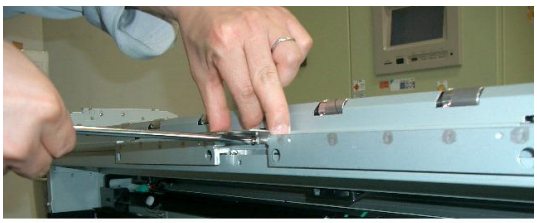
5. After installing the front-side guide plate (GUIDE-FRONT-SC) on its position, secure the four screws while applying a light amount of pressure to the CIS UNIT.





6. Only after aligning the edges of the part in the photo with the part which is to be fastened together with, secure the two screws.



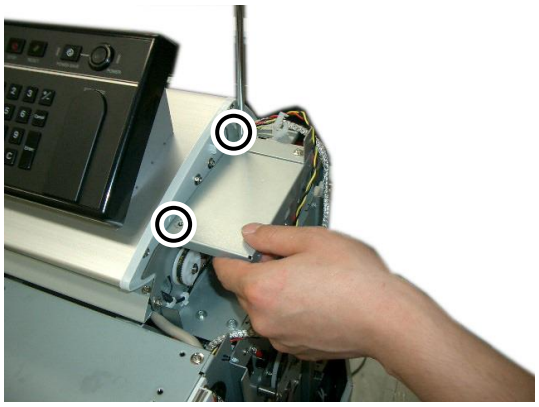


9.15.7 MOTOR SC MNT

<Removal>

1. Remove the COVER-SIDE-R2-2060 (see subsection **9.1.2**).

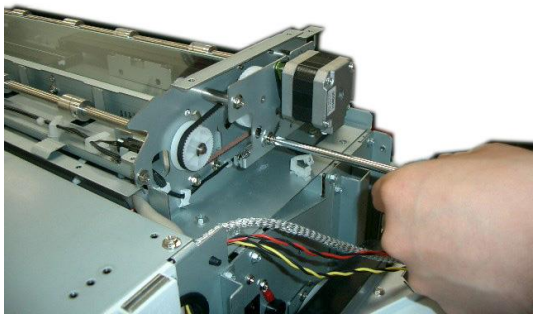
2. Remove the plate with two screws at the location shown in the photo.



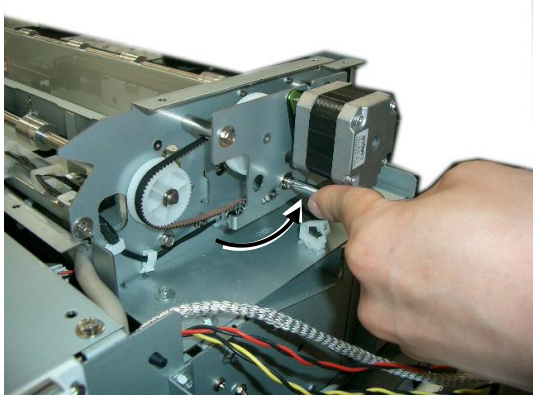
3. Release the cables from the multiple clamps securing them.

4. Loosen the timing belt.

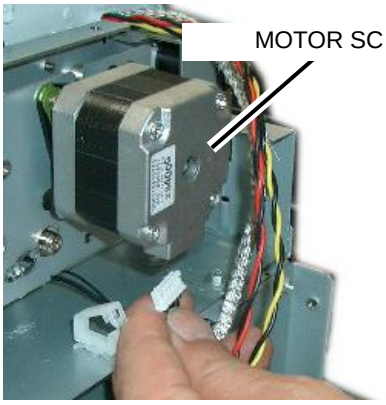
(a) Loosen the screw shown in the photo.



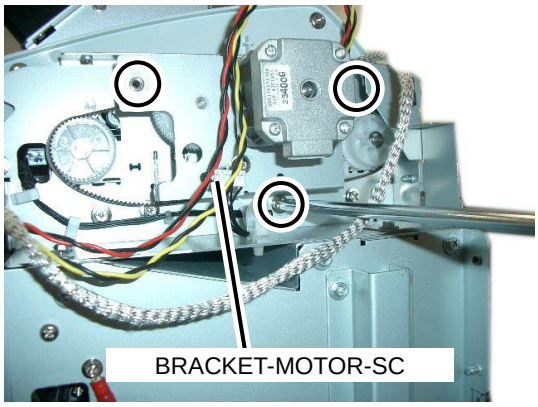
(b) Move the loosened screw to the right side of the guide and tighten it temporarily.



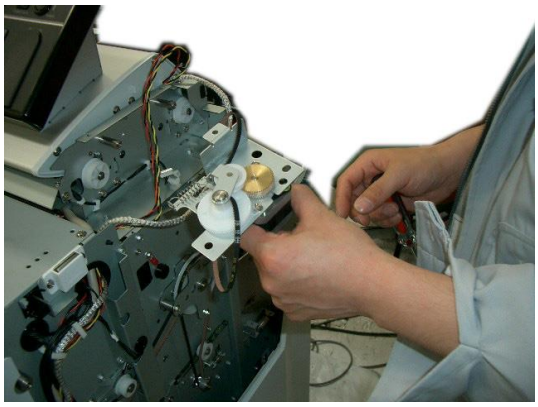
5. Unplug the connector for the power cable connected to MOTOR SC.



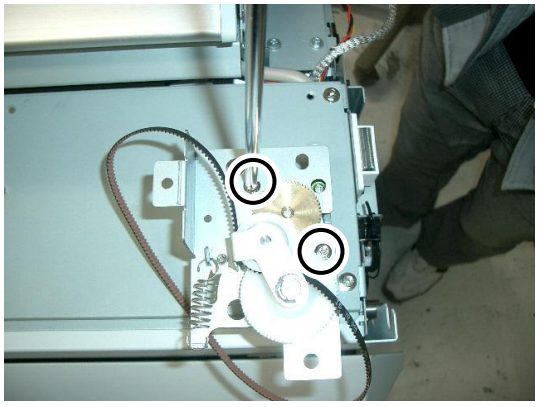
6. Remove the three screws securing BRACKET-MOTOR-SC.



7. Carefully keeping the timing belt from interfering with any other parts, remove BRACKET-MOTOR-SC.



8. Remove the MOTOR SC with two screws from BRACKET-MOTOR-SC.



Cautionary Notes for Installation

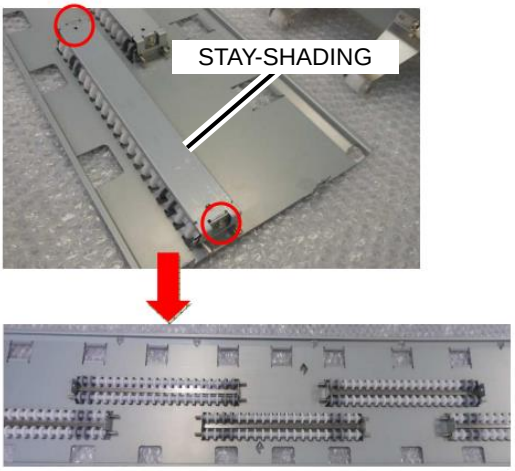
Install MOTOR SC on BRACKET-MOTOR-SC so that the MOTOR SC connector is at the bottom.

9.15.8 PLATE SHADING ASSY MNT

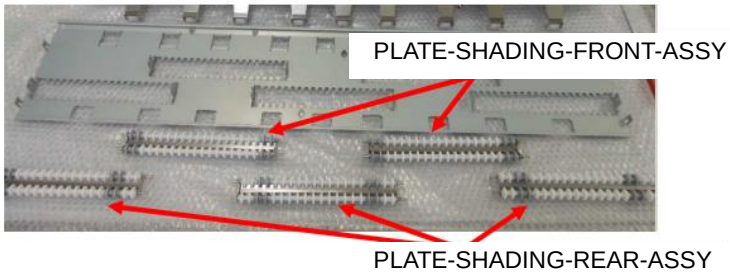
<Removal>

1. Perform the steps 1 to 3 of LCD panel removal and steps 1 to 5 of SC-TOP-COVER removal in **9.15.5 ROLLER PINCH KK MNT**.

2. Remove the STAY-SHADING with 10 screws.



3. Remove the PLATE-SHADING-FRONT-ASSY and the PLATE-SHADING-REAR-ASSY.



4. Install the new PLATE-SHADING-FRONT-ASSY and the new PLATE-SHADING-REAR-ASSY.

PLATE-SHADING-FRONT-ASSY

The first and second rollers of both sides of the PLATE-SHADING-FRONT-ASSY are grey.

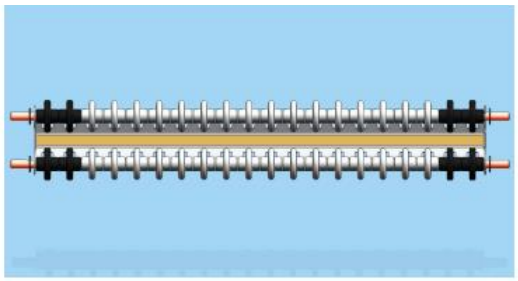
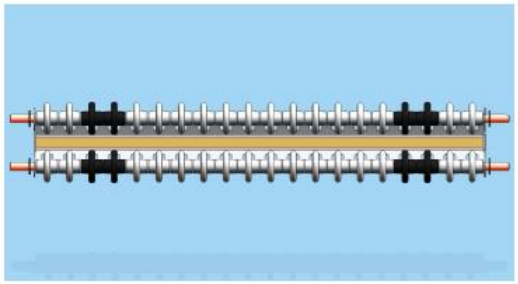
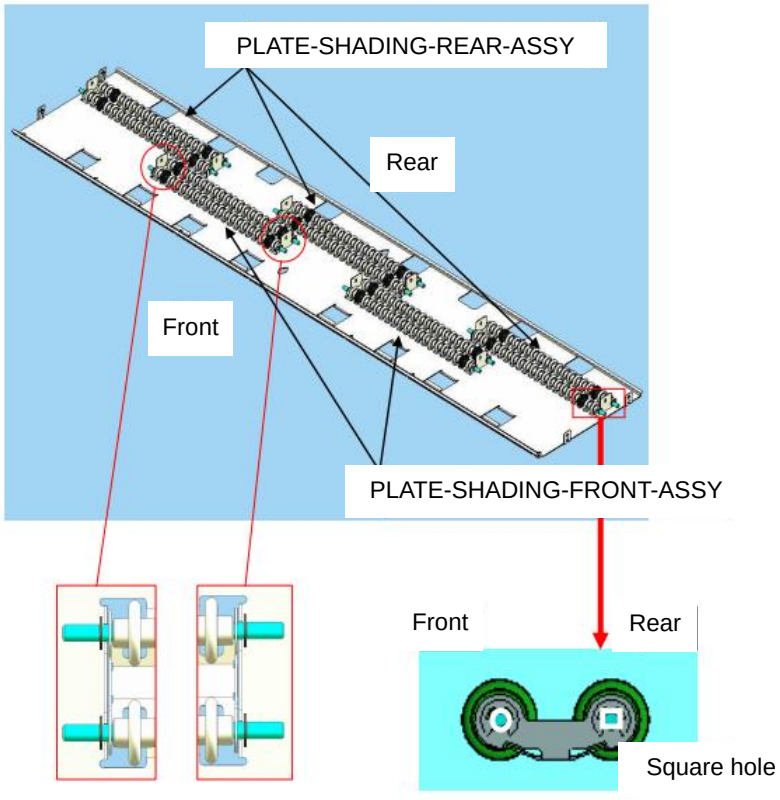


PLATE-SHADING-REAR-ASSY

The third and fourth rollers of both sides of the PLATE-SHADING-REAR-ASSY are grey.





The E-rings are on the outer side of the metal plates.

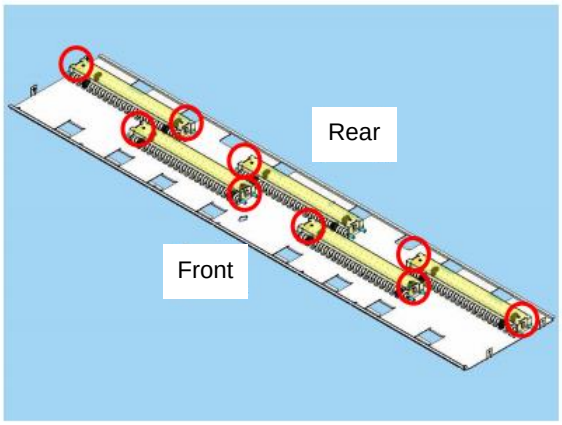
The square hole is on the rear side.

Notes

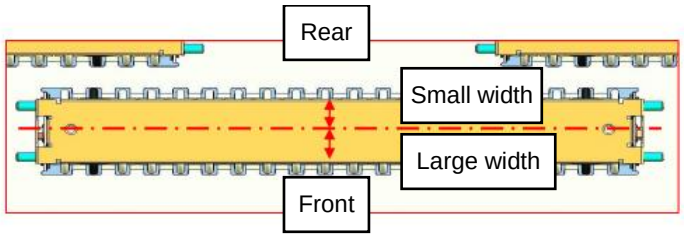
- Pay attention to the installation location of the PLATE-SHADING-FRONT-ASSY and the PLATE-SHADING-REAR-ASSY.
- When replacing the PLATE-SHADING-ASSY, replace all the five plates.

<Installation>

1. Install the STAY-SHADING with 10 screws.



Installation orientation of STAY-SHADING



2. Reinstall the removed parts following the procedure from SC-TOP-COVER installation in **9.15.5 ROLLER PINCH KK MNT**.

9.15.9 T2-CBLS-LVDS

Note

Panel cables used in the printer are separated in two types: the cables with a silver cover (previous type) and the cables with a black cover (new type).

Note

Since the panel cable connectors are small, the connection can be easily affected by dust or other matter adhering to the connector. Do not remove the bag covering the cable when laying it, but only just before connecting the cable to the board.

<Removal>

1. Remove the COVER-BACK-L and the COVER-BACK-R (See subsection **9.8.1**).

2. Remove the COVER-TOP (see subsection **9.8.1**).

3. Remove the DOCUMENT-TABLE-UNIT(MF) (see subsection **9.1.2**).

4. Remove the COVER-SIDE-R2 (see subsection **9.1.2**).

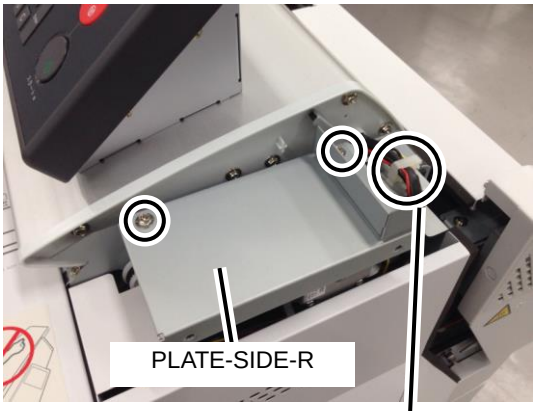
   Since this part is used to support the CIS unit, reinstall the DOCUMENT-TABLE-UNIT(MF) after removing the COVER-SIDE-L2.

5. Disassemble the scanner cover.

   1) Remove the two screws and remove the COVER-SC-R.

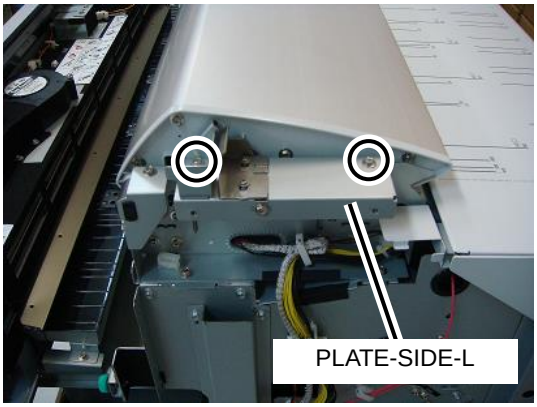
2) Remove the two screws and remove the COVER-SC-L.

3) Remove the two screws and remove the PLATE-SIDE-R.

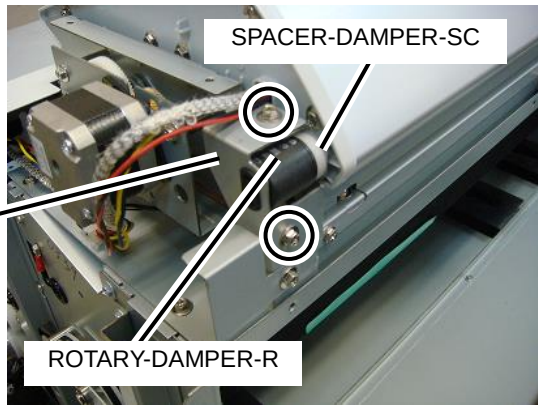


Open this clamp before removing the PLATE-SIDE-R.

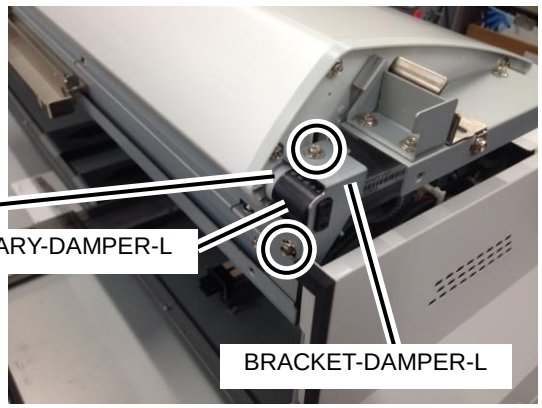
4) Remove the two screws and remove the PLATE-SIDE-L.



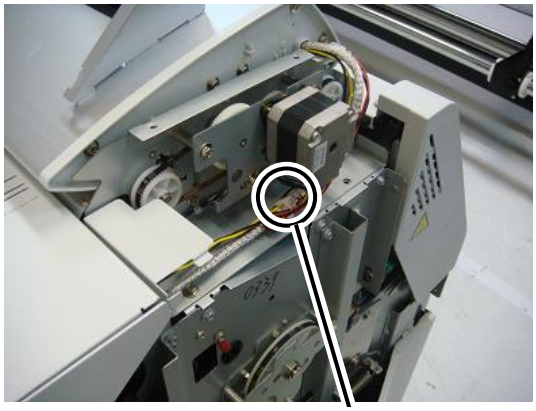
5) Remove the two screws and remove the BRACKET-DAMPER-R, the ROTARY-DAMPER-R, and the SPACER-DAMPER-SC.



6) Remove the two screws, and remove the BRACKET-DAMPER-L, the ROTARY-DAMPER-L, and the SPACER-DAMPER-SC.



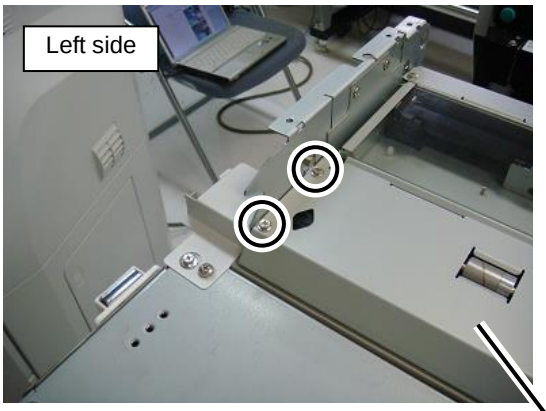
7) Remove the scanner cover.

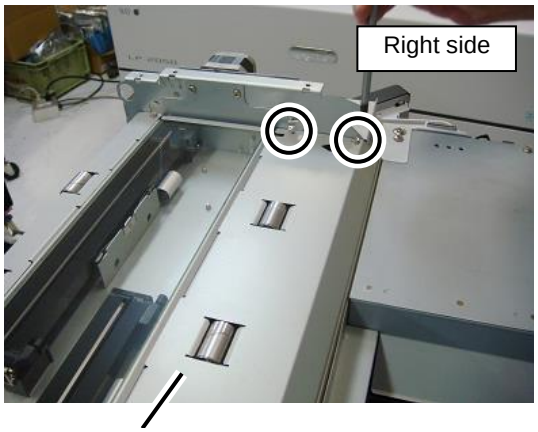


Open this clamp before removing the scanner cover.

After removing the scanner cover, hang it vertically on the right side of the printer.

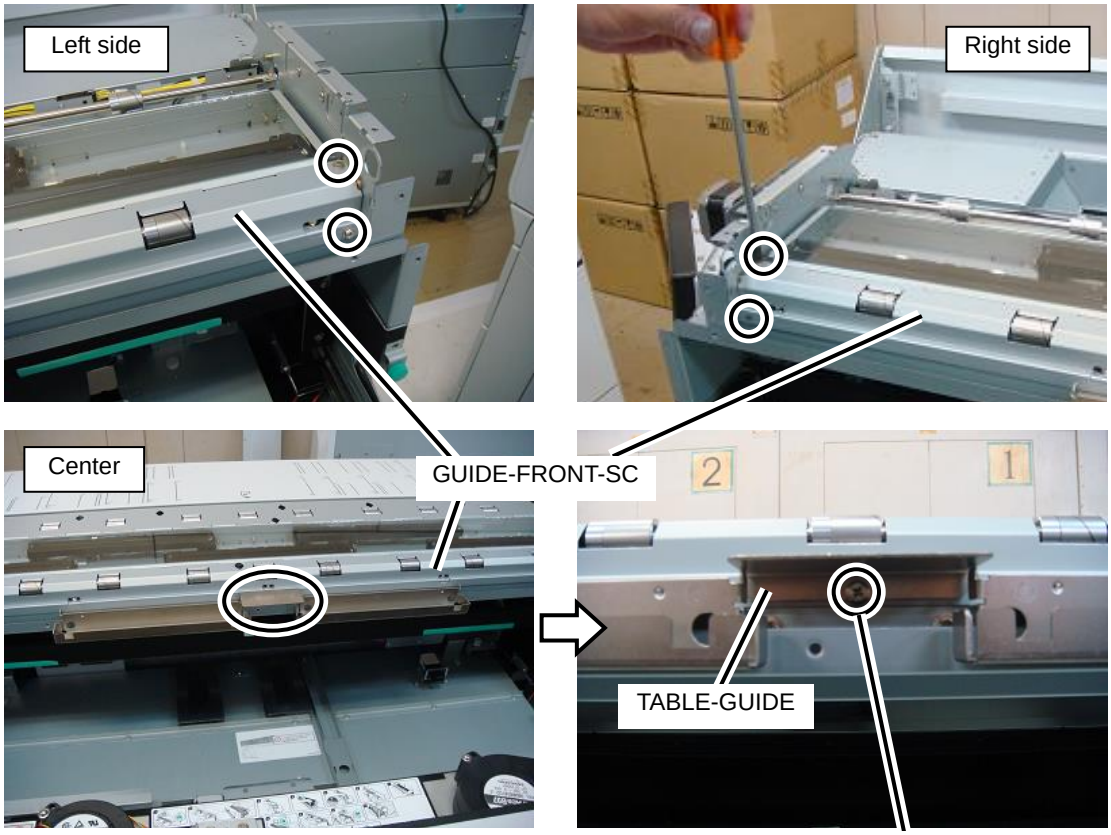
8) Remove the four screws and remove the GUIDE-FRONT-SC.





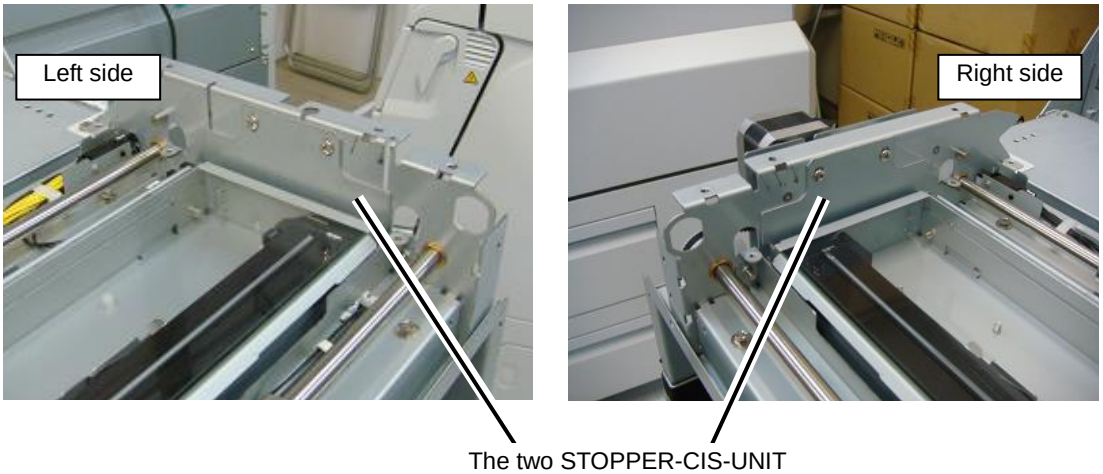
GUIDE-FRONT-SC

9) Remove the five screws and remove the GUIDE-REAR-SC.



This screw is screwed also to the TABLE-GUIDE.

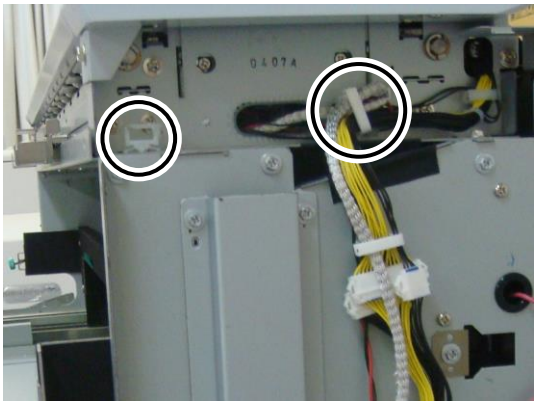
10) Remove the four screws (two for each part) and remove the two STOPPER-CIS-UNIT.

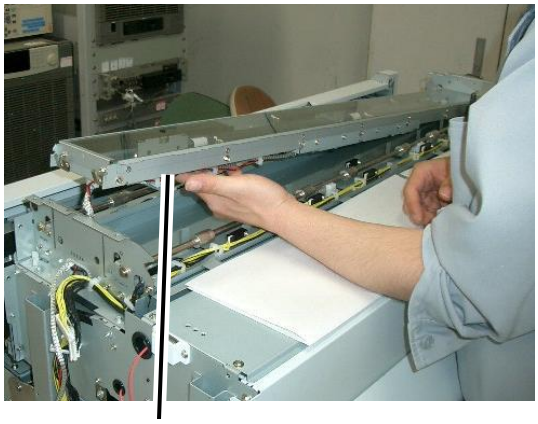


The two STOPPER-CIS-UNIT

11) Remove the CIS-UNIT.
Before doing that, place some pieces of paper or some cushioning materials on the DOCUMENT-TABLE.

Before removing the CIS-UNIT, open the clamps to loosen the cables.



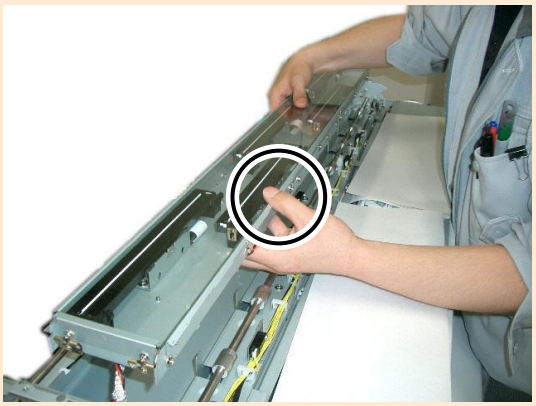


Lift the left side of the CIS UNIT first.

While holding the center of the scanner glass, turn the glass surface upside down and place it on the pieces of paper or the cushioning materials you have prepared in a previous step.

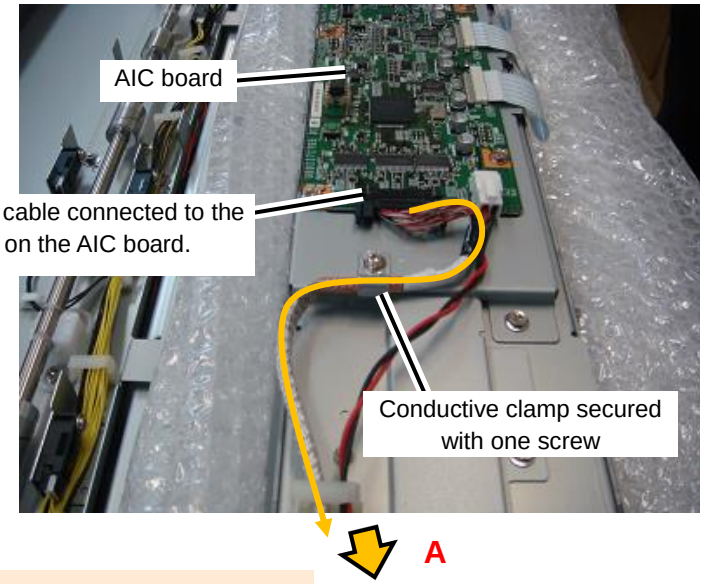
Note

Be sure to hold the glass since the spacer inside the bend of the glass may easily fall when turning the CIS UNIT upside down.



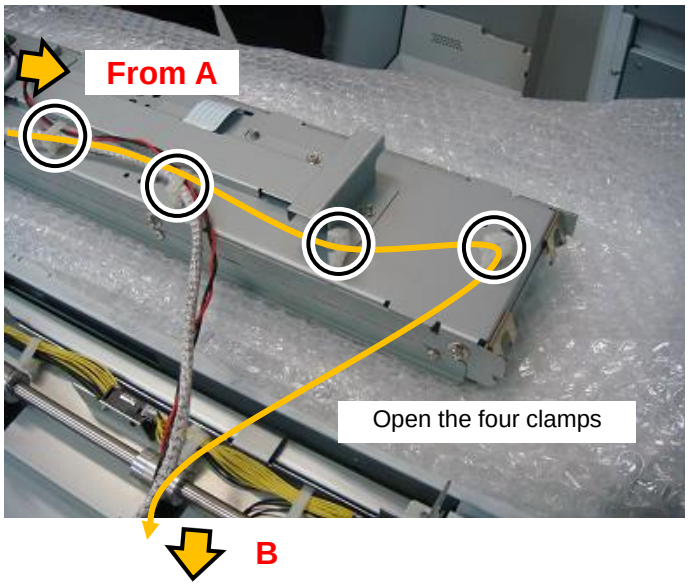
6. Remove the scanner cable (T2-CBLS-LVDS).

1) Remove the cable inside the scanner.

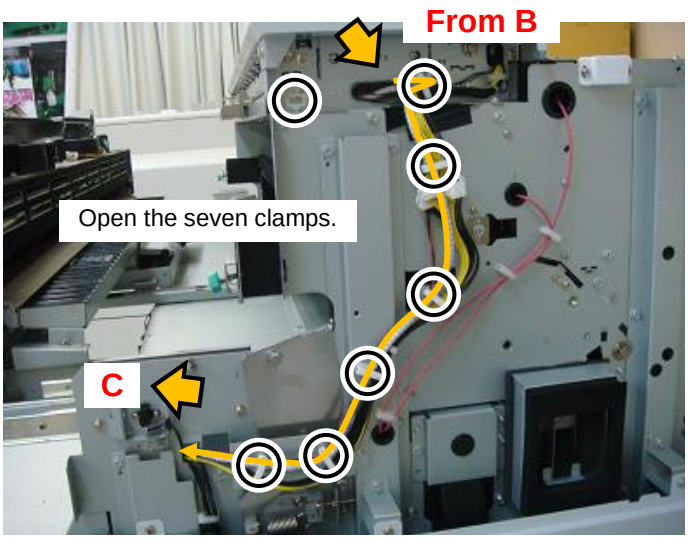


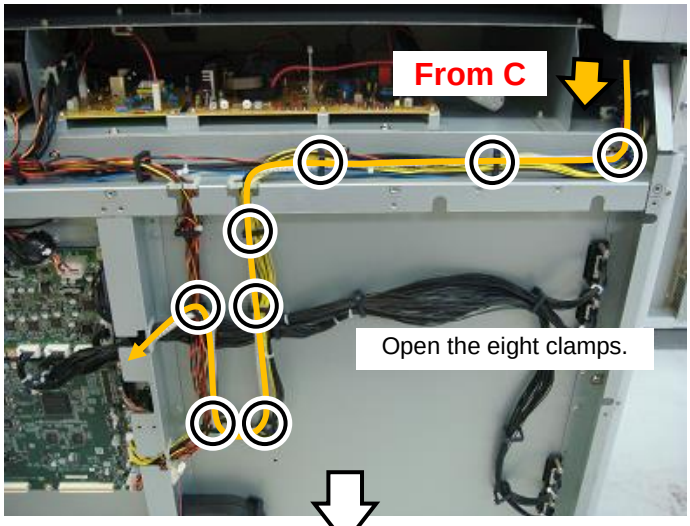
Note

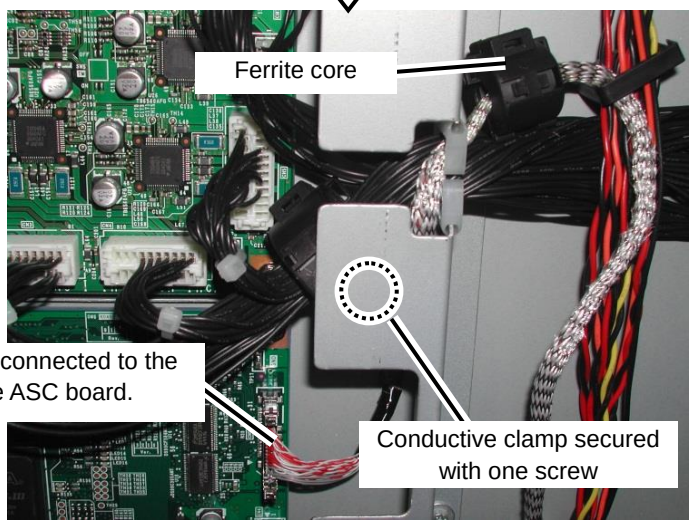
Do not dispose of the conductive clamp as it will be reused.



2) Remove the cable inside the electrical section.







Note

Do not dispose of the conductive clamp and the ferrite core as they will be reused.

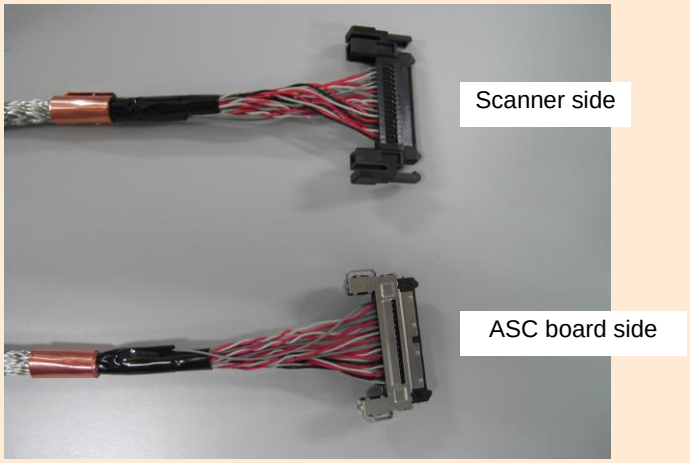
<New cable installation>

1. Place the new cable following the step 6 in the reverse order.

Note

- Do not change the cable path.
- Place the cable so that it is not excessively bent or stretched.
- Use compressed air to clean the cable plug and the board connector from dust and dirt before connecting the cable.
- Use the same ferrite core and conductive clamps.

The shape of the plugs at both extremities of the cable differs. Pay attention to the cable orientation when connecting the cable.
If the cable is connected in the wrong orientation, a scanner error may occur. (Refer to the picture below.)



Connect the plastic plug to the scanner and the metal plug to the ASC board.

2. Reassemble the scanner (See page **9-189** for how to assemble the CIS-UNIT.).

9.16 SUB FRAME UNIT

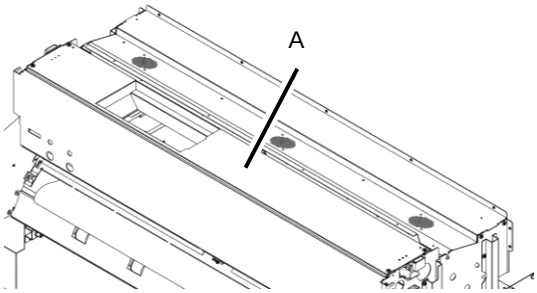
9.16.1 LED HEAD MNT

<Removal>

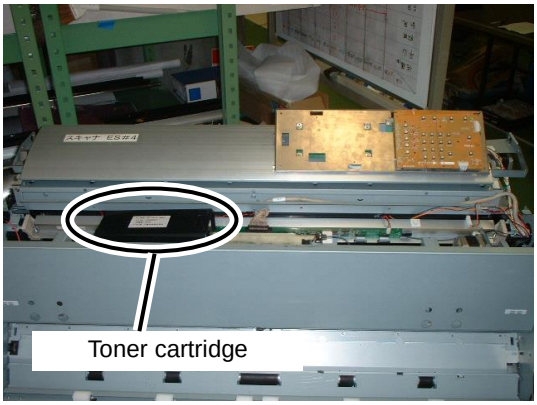
1. For the Multifunction Model, remove the DOCUMENT-TABLE-UNIT(MF)-2060 (see subsection **9.1.2**).
For the Printer Model, remove the DOCUMENT-TABLE-UNIT(PL)-2060 (see subsection **9.1.2**).

2. For the Multifunction Model, remove the right and left small cover plates.

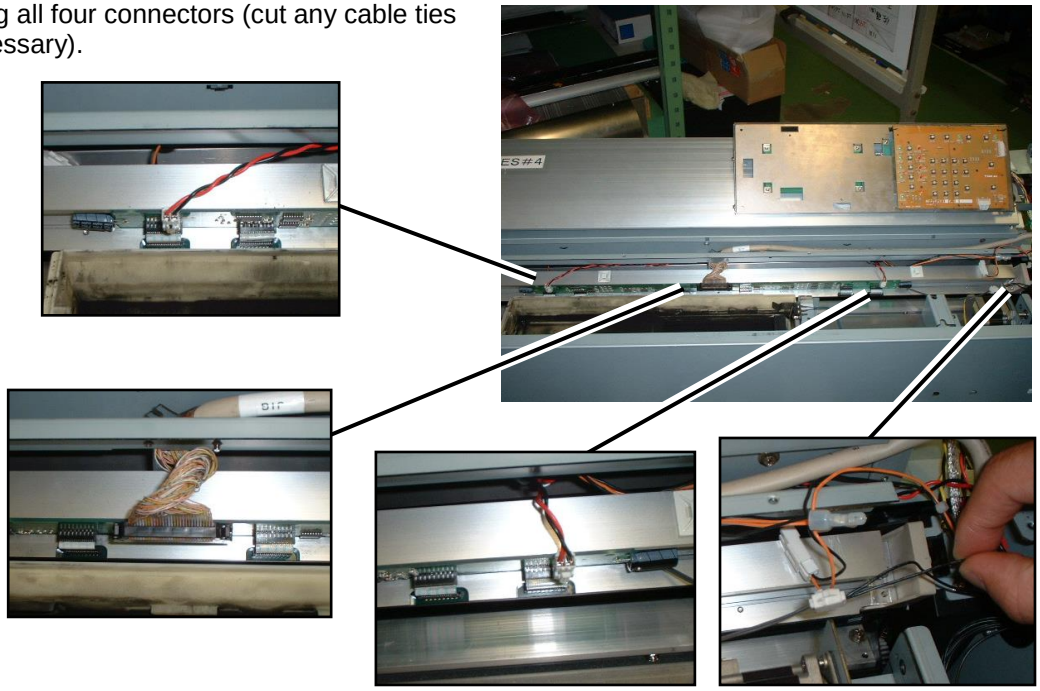
3. Remove the plate with five screws, on the upper part of the toner cartridge, designated by A in the photo.



4. Remove the toner cartridge.

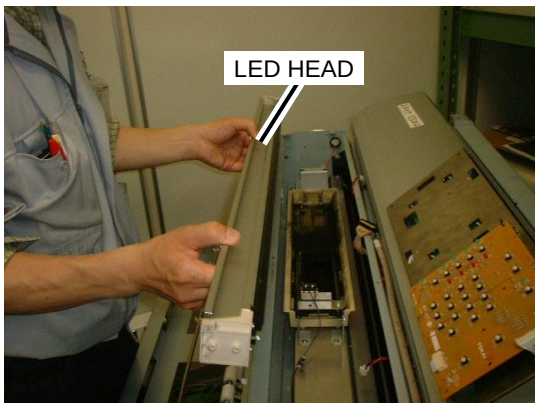


5. Unplug all four connectors (cut any cable ties if necessary).

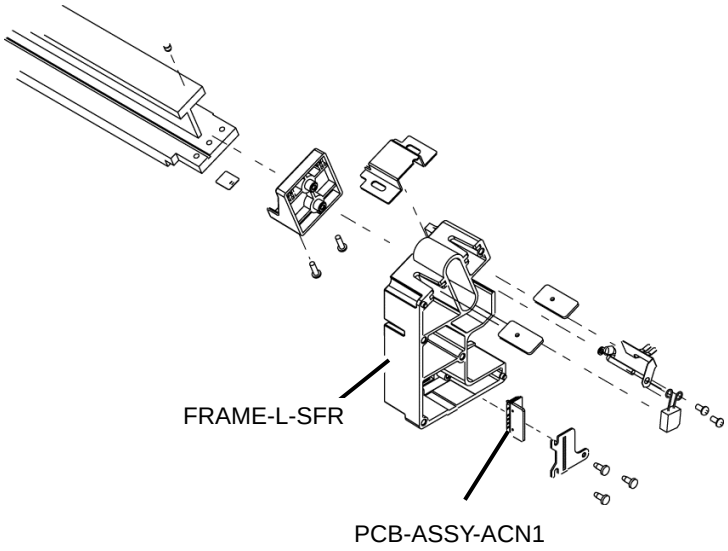


6. Use a flat head screwdriver to remove the signal wire core.

7. Pull out LED HEAD towards you to remove it.



9.16.2 PCB-ASSY-ACN1 MNT

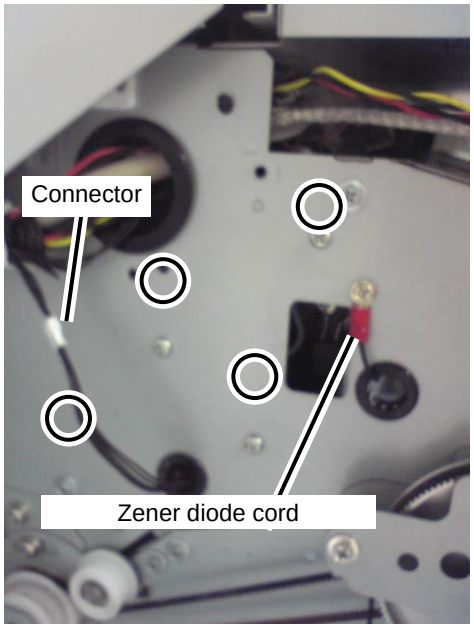


<Removal>

1. Remove the LED HEAD (see p. **9-204**).

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 TRANSFER ROLLER UNIT MNT

<Removal>

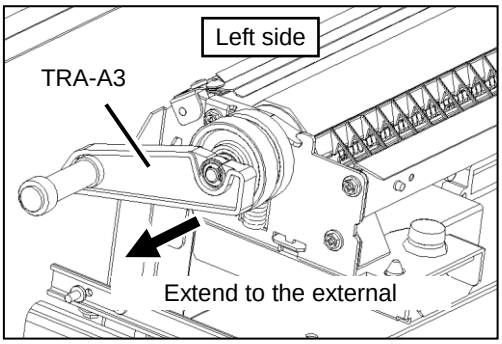
1. Open the fuser unit drawer.

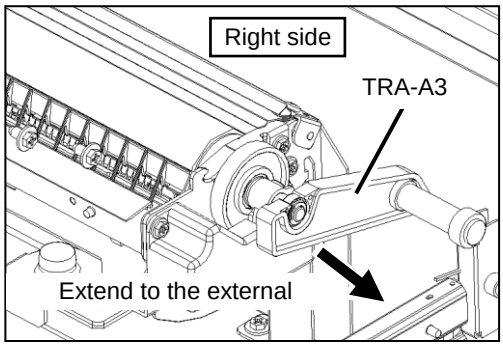
2. Remove the PROCESS CARTRIDGE UNIT. (See **Replacing the Process Cartridge** in the ***User's Manual for Basic Printer Operation***.)

3. Remove the TRANSFER ROLLER UNIT.

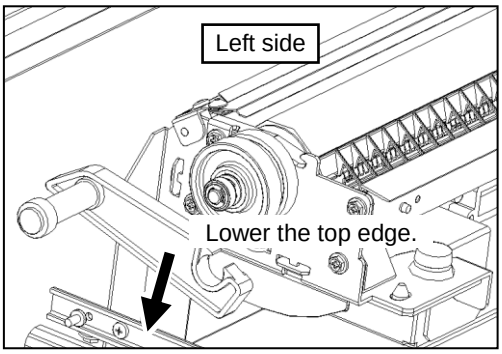
(a) Remove the right and left TRA-A from the bearing part.

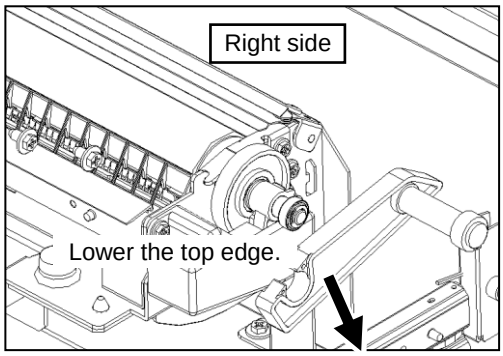
(i) While extending the TRA-A3 to the external direction, remove the right and left TRA-A from the bearing.





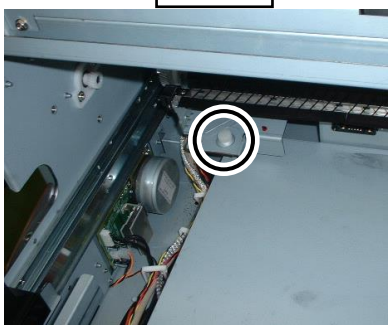
(ii) After removing the TRA-A3s from bearings, place them on the table so that the top edge is lowered more than the other part. To simplify the TRANSFER ROLLER UNIT installation, avoid placing them with the top edge upper than the other part.



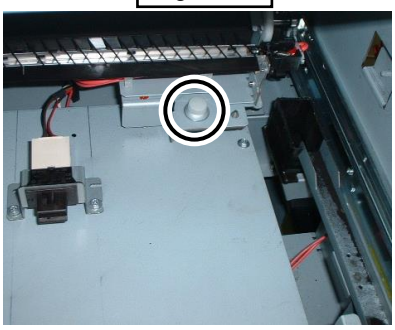


(b) Loosen the painted screws on both ends.

Left side



Right side



(c) Remove the TRANSFER ROLLER UNIT.

Note

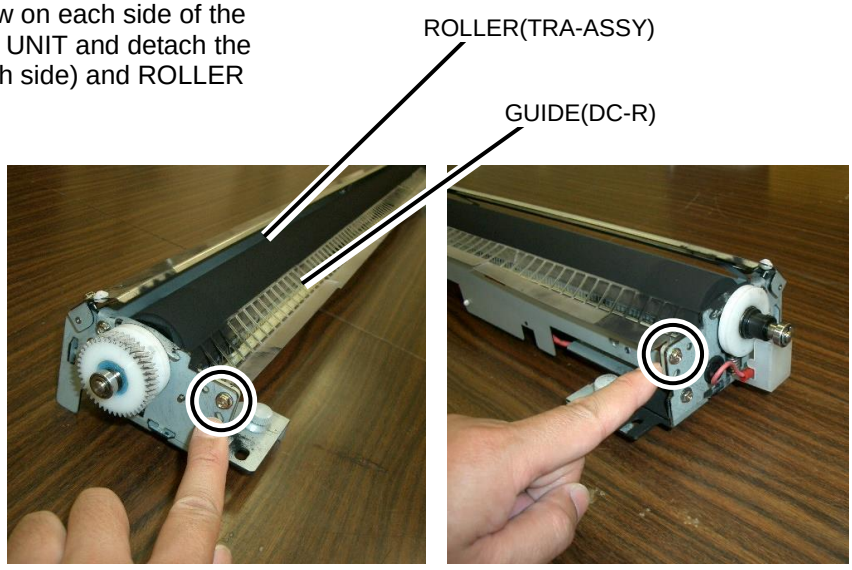
Support or carry the TRANSFER ROLLER UNIT carefully following the cautions described in the first part of this section.

4. Place the unit on a platform covered with newspapers or some other type of protective sheeting.

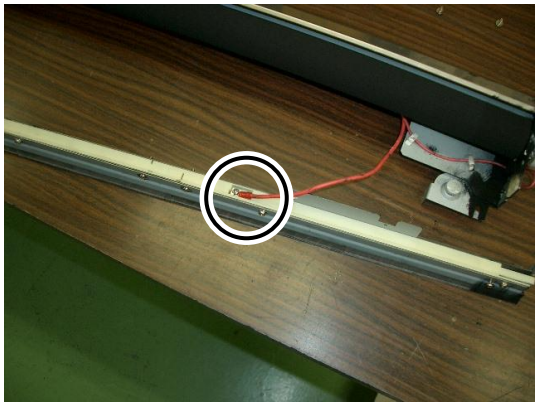
9.17.2 GUIDE DC R MNT, GUIDE DC L MNT, and DETACH NEEDLE

<Removal>

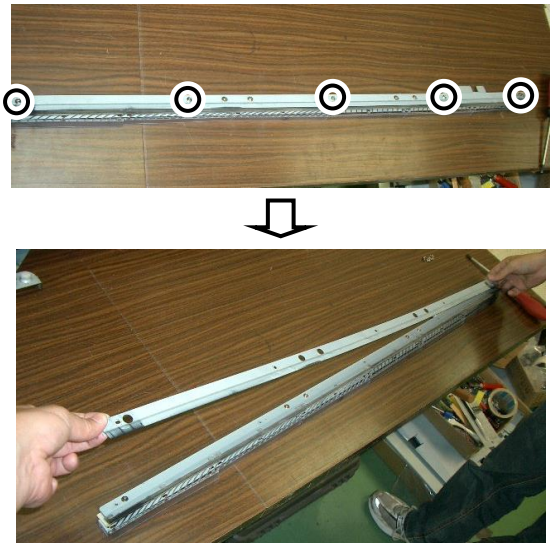
1. Remove the one screw on each side of the TRANSFER ROLLER UNIT and detach the GUIDE (DC-R) (detach side) and ROLLER (TRA-ASSY).



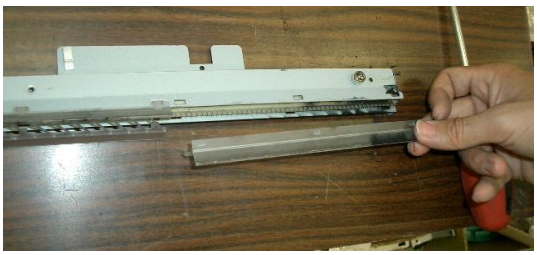
2. Remove the set screw from the red high voltage cable.



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.

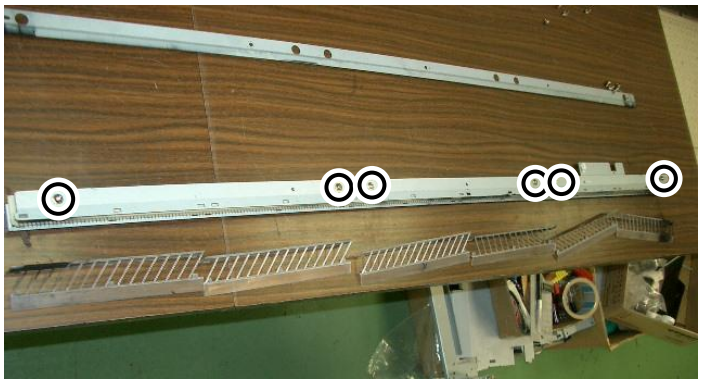


Note

Be careful not to prick your finger on a sharp part (DETACH NEEDLE) in this area.

<Removing the DETACH NEEDLE>

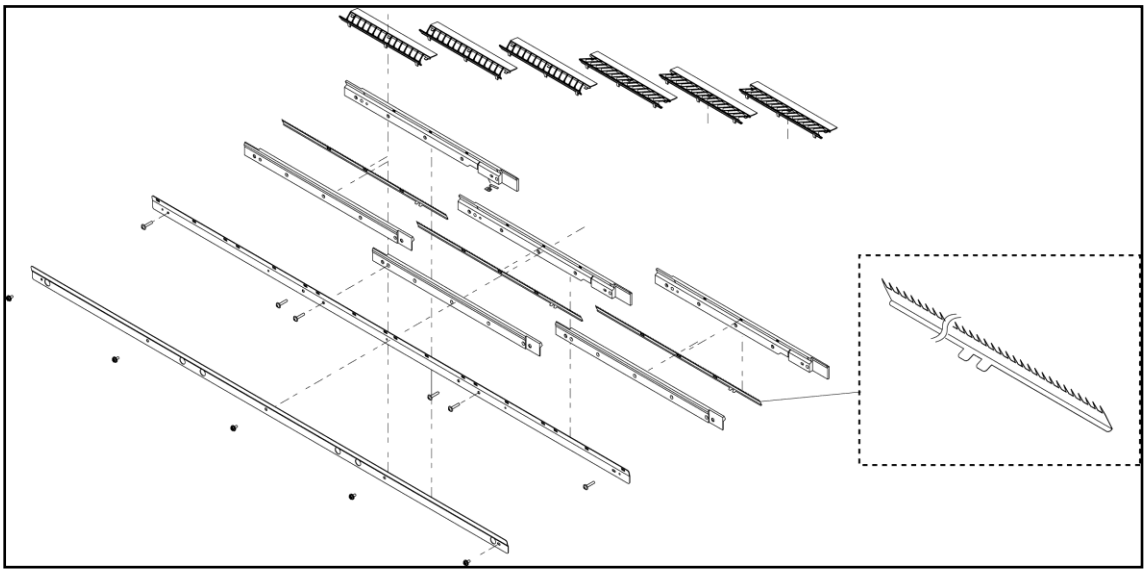
1. Unscrew the six screws at the location shown in the photo and remove the plate.



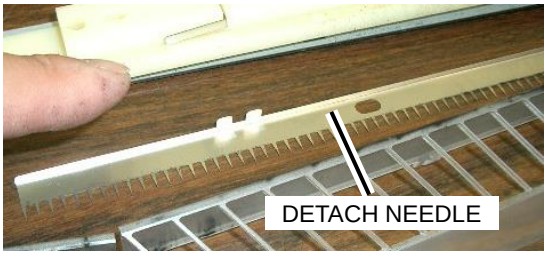
2. Remove the plastic parts on either side of the DETACH NEEDLE.

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.

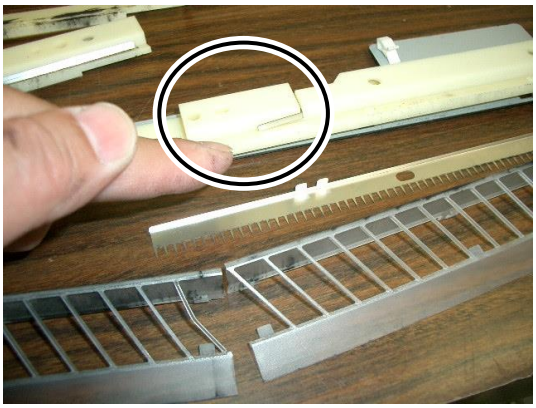


3. Remove the DETACH NEEDLE.



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

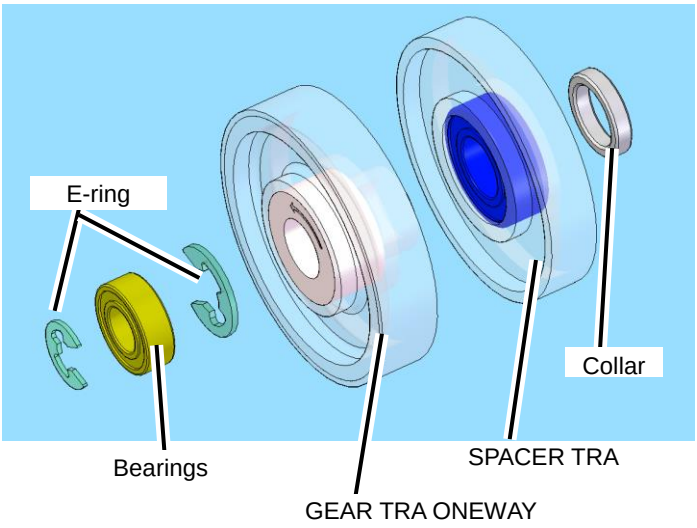
<Removal at Left Side of ROLLER TRA 3565>

1. Remove the E-ring.
2. Remove the bearing.
3. Remove the E-ring.
4. Remove the GEAR TRA ONEWAY.

Note

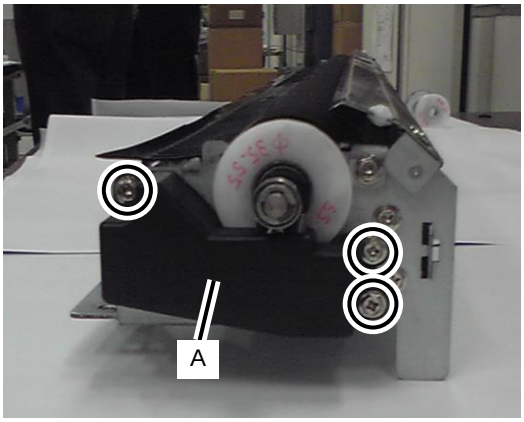
The direction that the GEAR TRA ONEWAY faces is important. Before removing it, make a note of the direction it is installed in.

5. Remove the SPACER TRA.



<Removal at Right Side of ROLLER TRA 3565>

1. Remove the part with three screws designated in A.

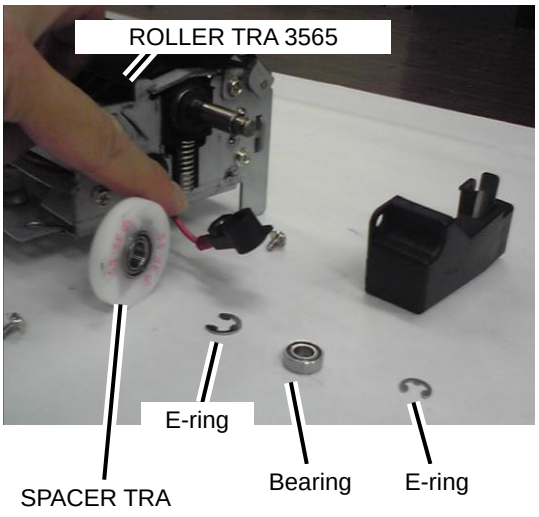


2. Remove the E-ring.

3. Remove the bearing.

4. Remove the E-ring.

5. Remove the SPACER TRA.



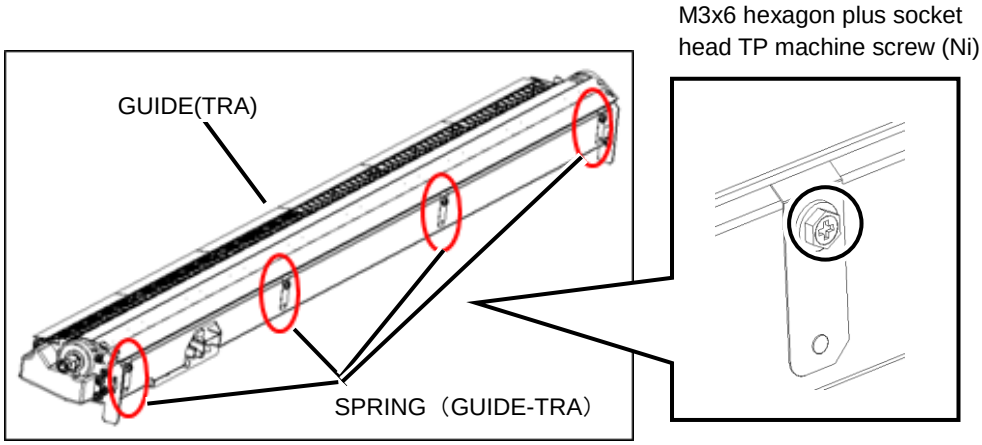
9.17.4 ROLLER TRA 3565 MNT and SHEET TRA MNT

<GUIDE (TRA) removal>

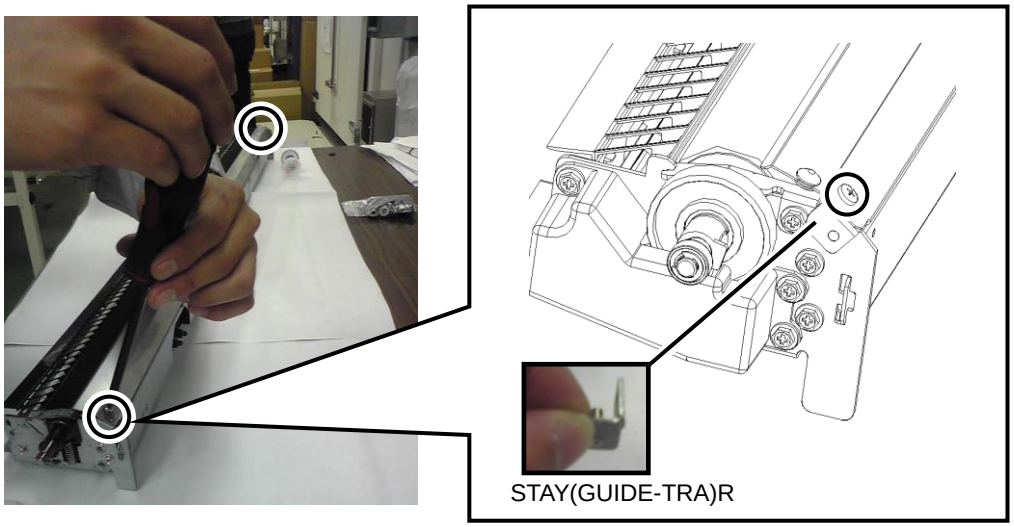
1. Remove the TRANSFER ROLLER UNIT (see p. **9-207**).

2. Remove the GUIDE(TRA).

(a) Remove the SPRING(GUIDE-TRA) at the four positions.



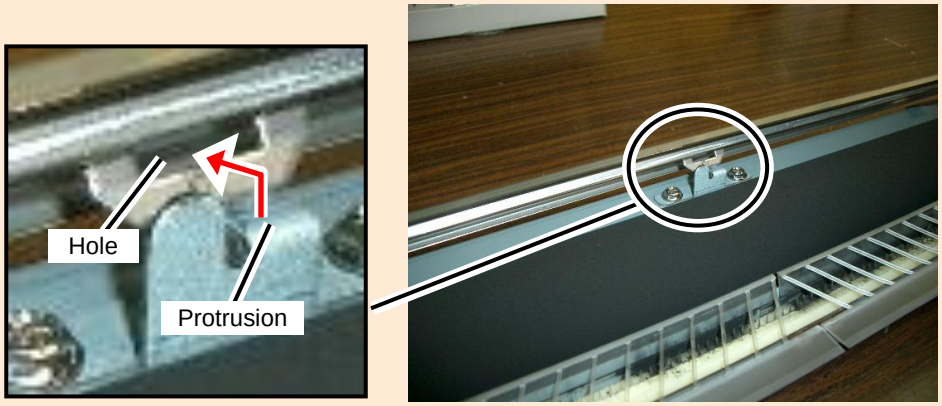
(b) Remove the STAY(GUIDE-TRA)R with one screw. Then remove the STAY(GUIDE-TRA)L with one screw in the opposite side.



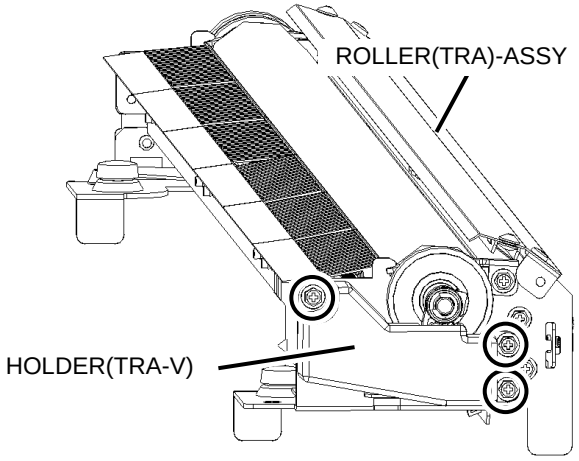
(c) Remove the GUIDE(TRA).

Cautionary Notes for Installation

When installing GUIDE(TRA), align and insert the plate's protrusion with the hole in the center of GUIDE(TRA).



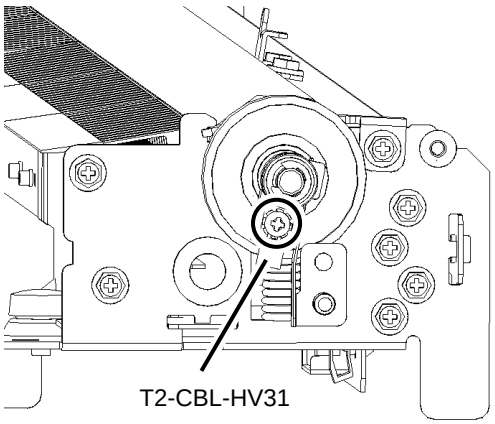
3. Remove the HOLDER(TRA-V) with three screws.



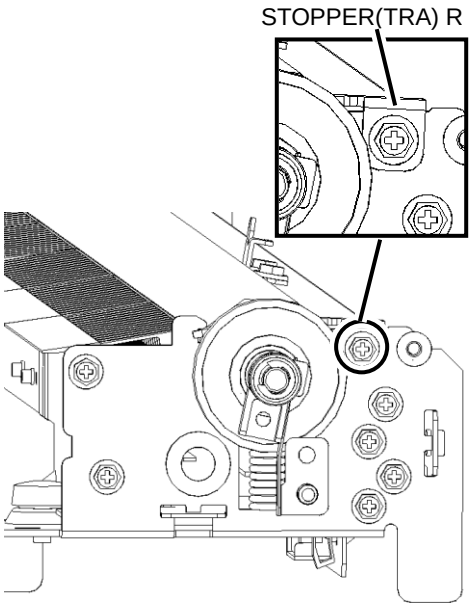
4. Remove the one screw and one M3 hexagon nut securing the T2-CBL-HV31.

Note

Do not lose the hexagon nut as the screw is secured with the nut.



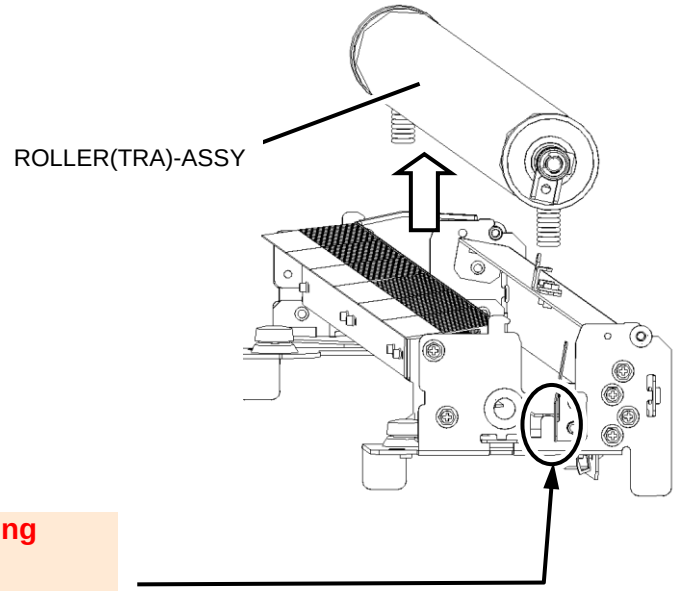
5. Remove the STOPPER(TRA)R with one screw. Then remove the STOPPER(TRA)L with one screw in the opposite side.



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>**.

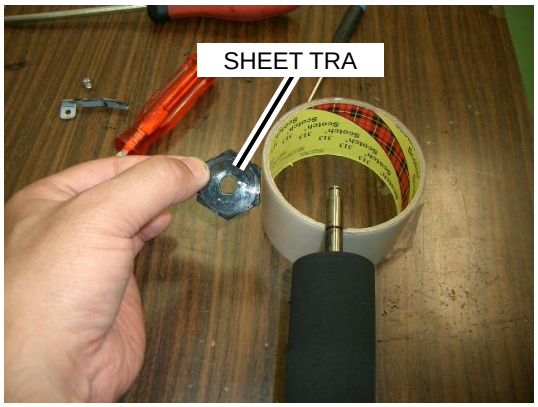
8. Hold on to the shaft of ROLLER TRA 3565 MNT with both hands, and remove the ROLLER TRA 3565.

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.

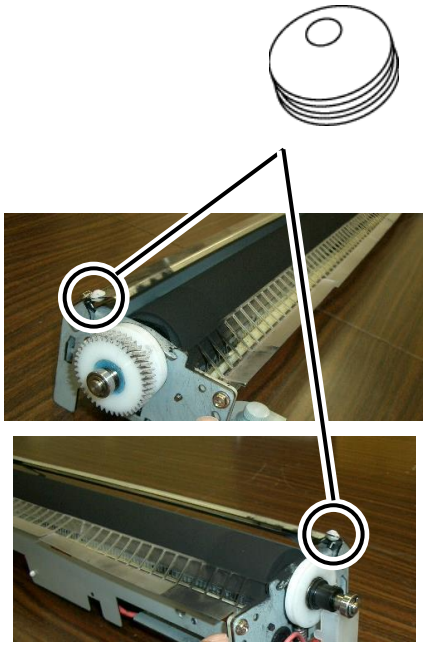
9. Remove the bearing holder and the bearing from the ROLLER TRA 3565 shaft.

10. Remove the SHEET TRA from the ROLLER TRA 3565 shaft.



9.17.5 SPACER TRANSFER GUIDE MNT

<Removal>



1. Remove the TRANSFER ROLLER UNIT (see p. **9-207**).

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.

Purpose

This part is used to adjust the GUIDE(TRA) height.
You can install this part upside down to change the gap of the paper path and the insertion angle to the photoconductor.

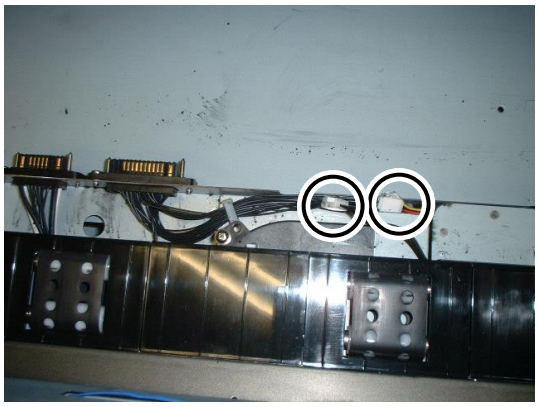
9.18 TRANSPORT UNIT

9.18.1 TRANSPORT UNIT MNT

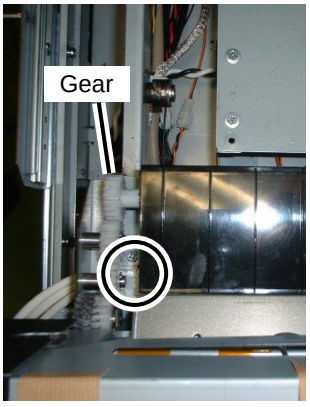
<Removal>

1. Open the fuser unit drawer.

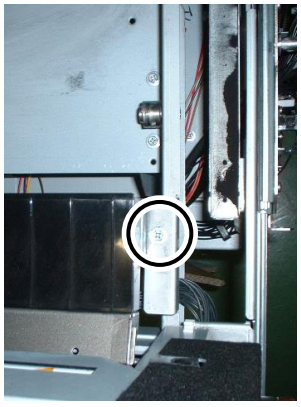
2. Unplug the two connectors.



3. Remove the two screws at each end of the unit.

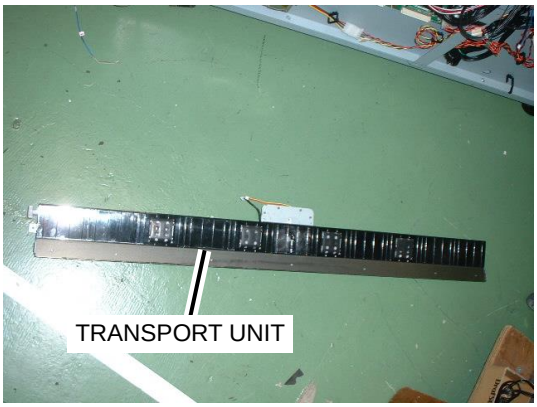


<TRANSPORT UNIT Left side>



<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.



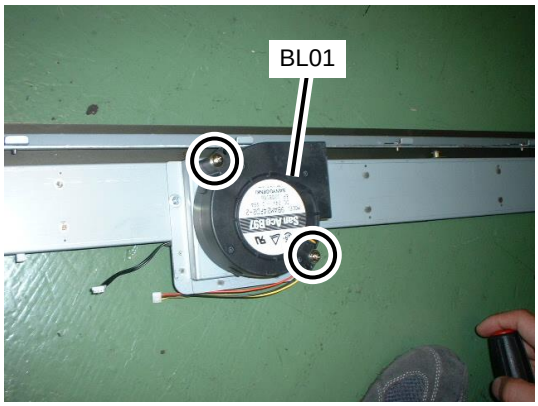
9.18.2 [BL01] BLOWER FAN,BL01,02,06 MNT

<Removal>

1. Remove the TRANSPORT UNIT (see p. **9-221**).

2. Turn it so that the bottom side is facing the front.

3. Unscrew the two screws at the location shown in the photo and remove the BL01.

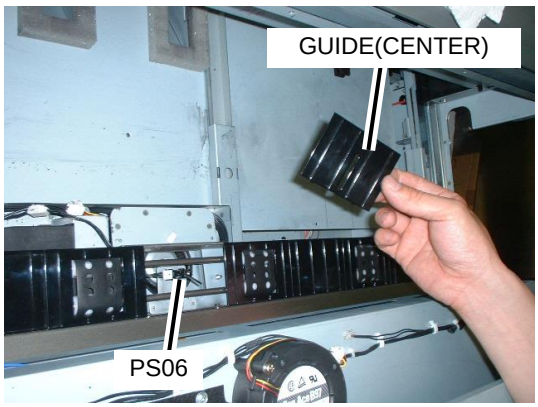


9.18.3 [PS06] PHOTOSENSOR,06 MNT

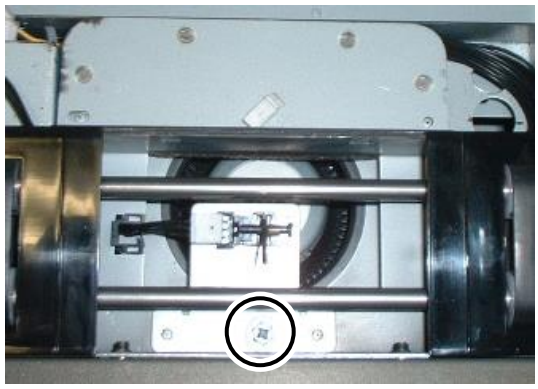
<Removal>

1. Open the fuser unit drawer.

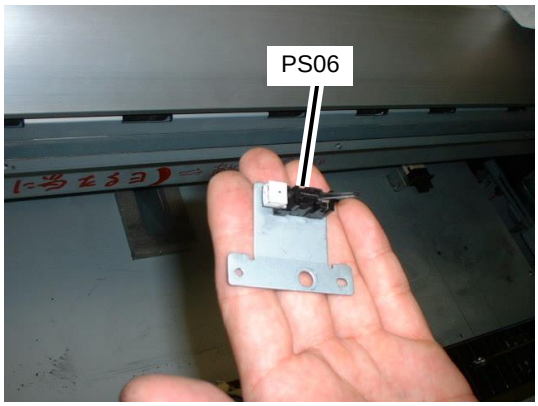
2. Remove the GUIDE(CENTER).



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

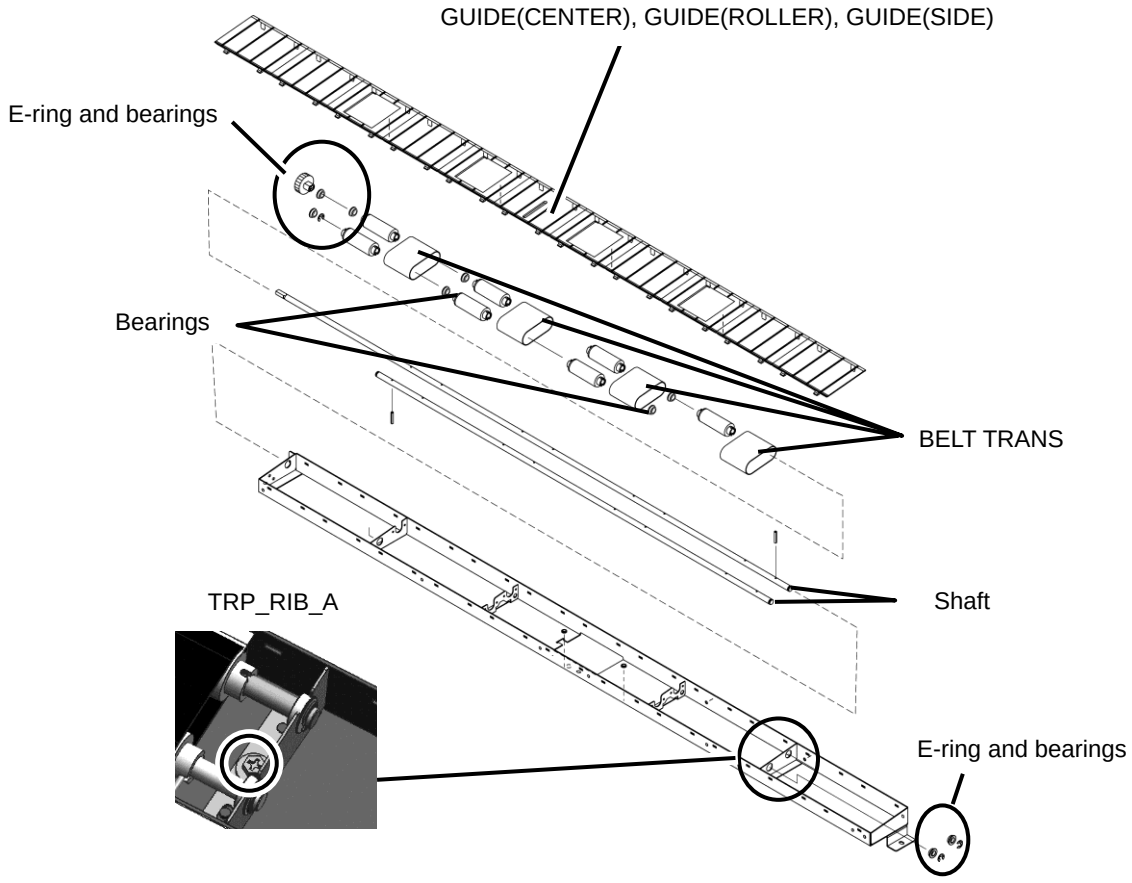
<Removal>

1. Remove the TRANSPORT UNIT
(see p. **9-221**).

2. Remove all of the following parts.
- GUIDE(CENTER) x1
- GUIDE(ROLLER) x4
- GUIDE(SIDE) x6

Note

The figure below shows the parts configuration.



3. Remove the TRP_RIP_A with one screw.

4. Slide the shaft to the left side, and remove it with the other parts such as E-rings, bearings, and gears installed.

5. Remove the BELT TRANS.

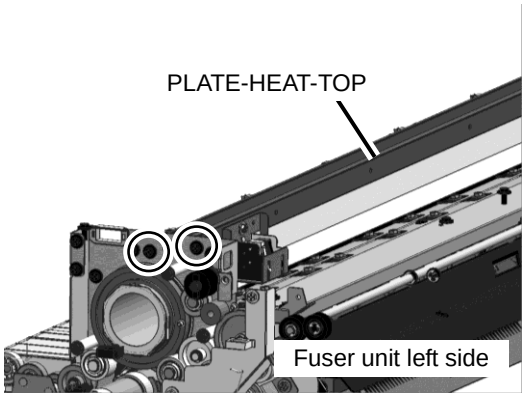
9.19 Jigs

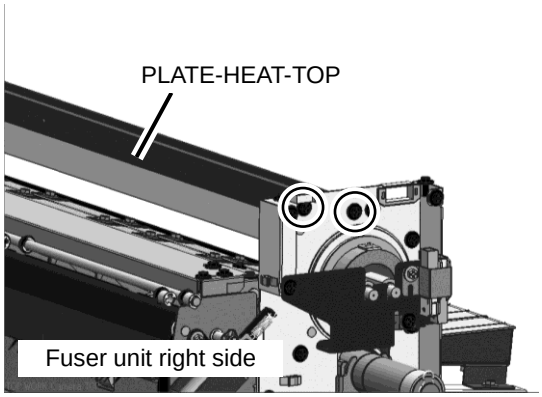
9.19.1 COTTON CIEGAL MNT

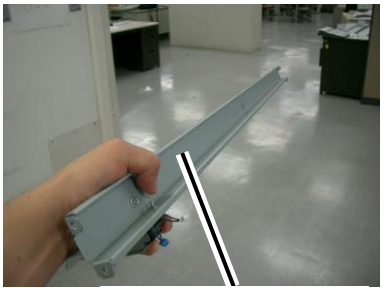
9.19.2 HR CLEANER

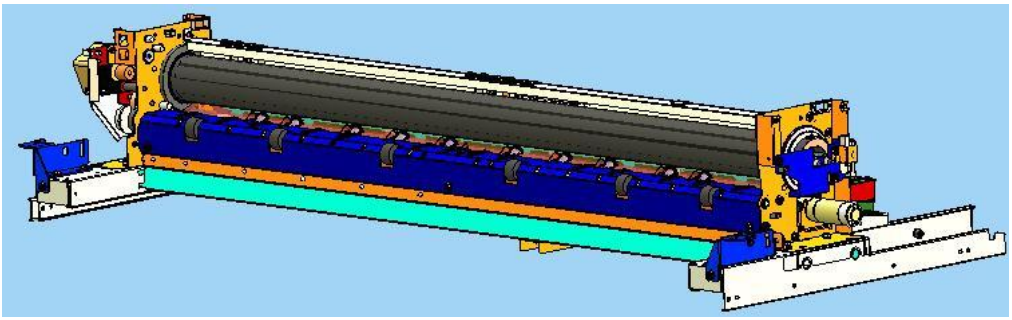
How to use

1. Follow the steps 3 through 5 in **9.10.13** ROLLER HEAT MNT. Then go to step 4.

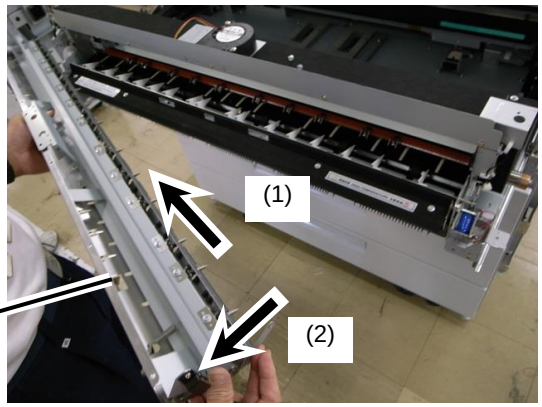




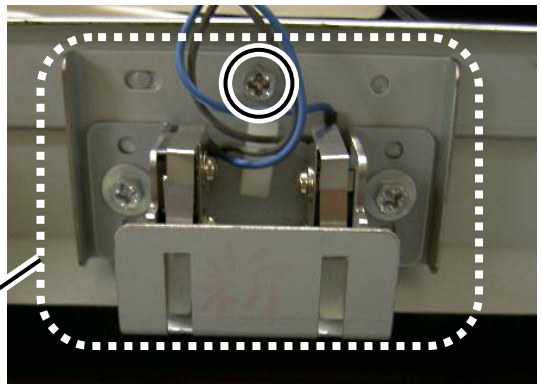




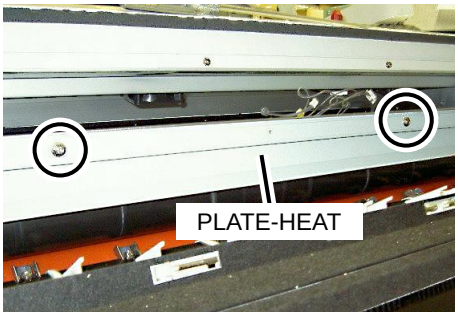
2. Follow the removal procedure in **9.10.13 ROLLER HEAT MNT** until you remove the UPPER-PAPER-GUIDE-ASSY in step 3.

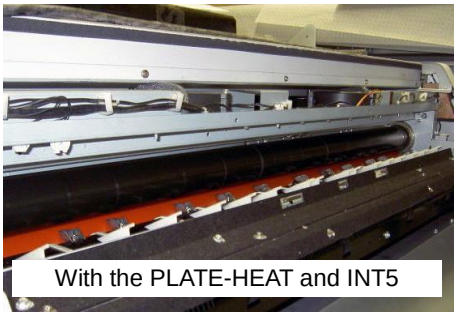


3. Remove the INT5 with one screw.



4. Remove the PLATE-HEAT with two screws.





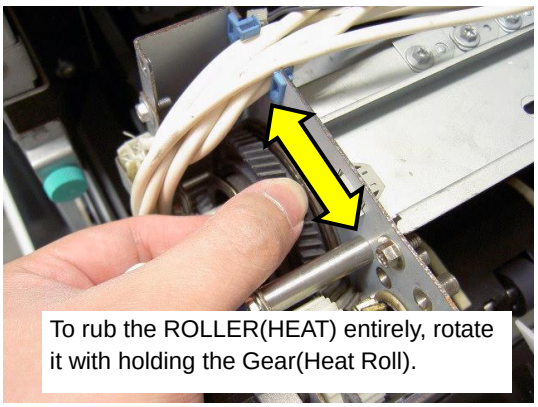
5. Clean the ROLLER(HEAT) with some HR cleaner.
Shake the HR cleaner sufficiently to make it homogenous before use.

Shake until it becomes homogenous before use.

6. Moisten a Ciegal 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.



7. When the ROLLER(HEAT) has been entirely rubbed, the cleaning procedure is complete. Reassemble the FUSER UNIT.

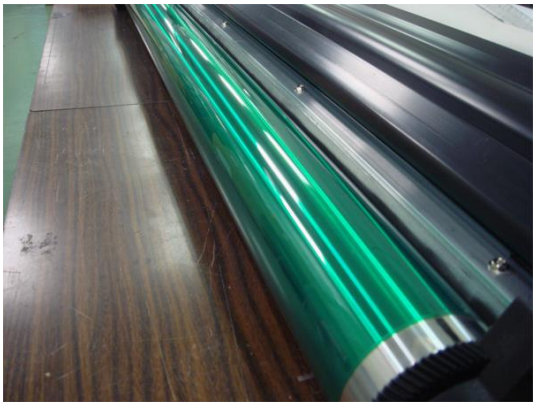
9.19.3 OPC CLEANER

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.

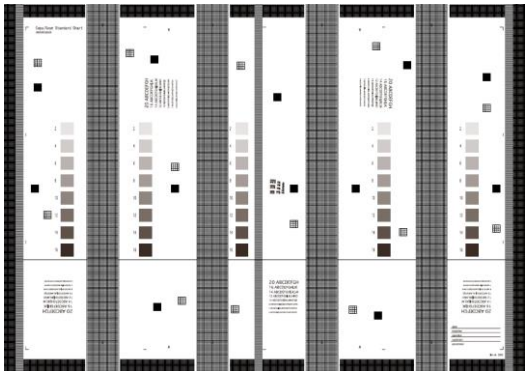
7. Make the photoconductor drum rotate entirely to check that all dirt has been removed.

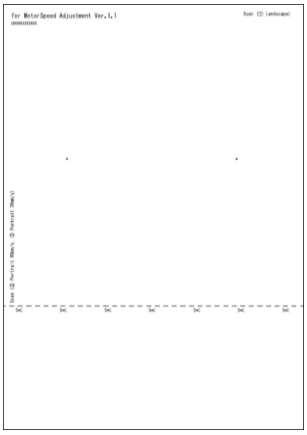
8. Reinstall the process cartridge to the Printer.

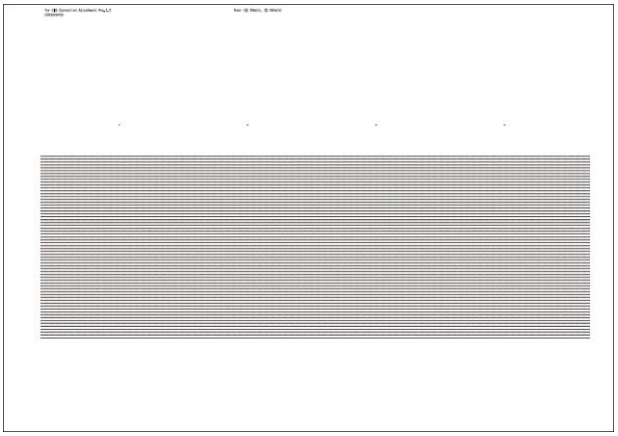
9.19.4 ADJUSTER KIT(SCANNER)

How to use

See **Chapter 11 Scanner Calibration**.



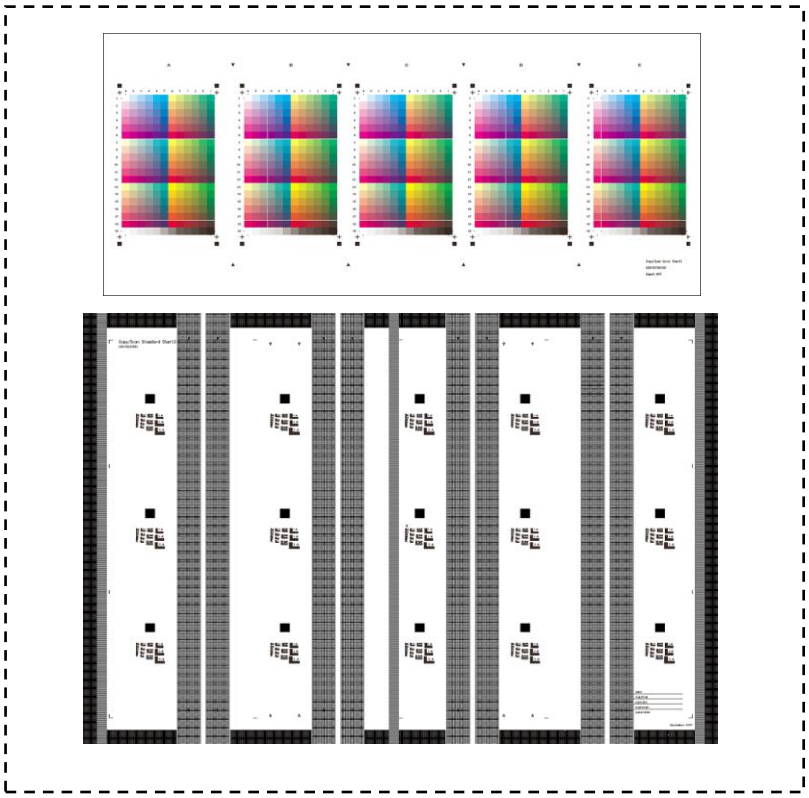




9.19.5 ADJUSTMENT KIT(COLOR SCANNER)

How to use

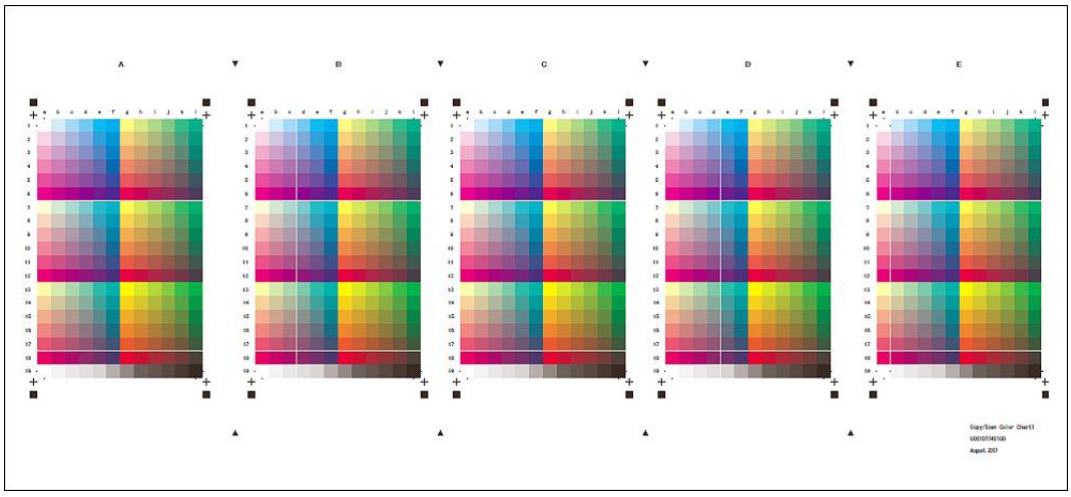
See **Chapter 11 Scanner Calibration**.



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**.

With hook-and-loop

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.

9.19.12 PUSH-PULL GAUGE

How to use
See **9.7.1 CLUTCH 4.4 MNT**

9.19.13 Grease_EM-69L

How to use
Used for gears, shafts and around other rotating parts.
(*Use the HEATPROOF GREASE MNT for the fuser unit.)

Chapter 10 Printer Calibration

This chapter explains how to calibrate each part of the Printer's engine.

10.1 High-Voltage Power Supply's Voltage and 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.

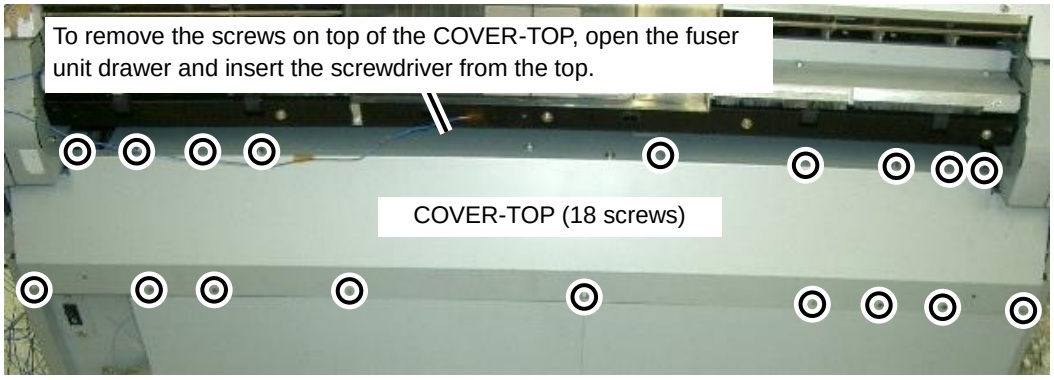
Note

Use a digital multimeter that meets the following specifications when adjusting this item.

- Input impedance: 10 megaohms or higher
- Frequency band: 10 kHz or higher
- With effective value measurement

10.1.1 Primary Charger Load Current Calibration

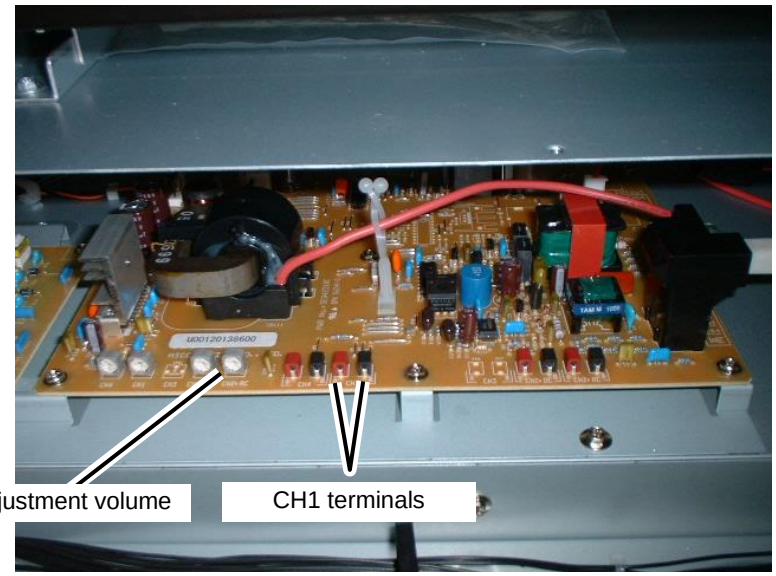
1. Remove the COVER-TOP.



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 100μA.

3. If calibration is required, rotate the CH1 adjustment volume with a screwdriver for voltage calibration.



Setting range: -865 to -935 μA (digital multimeter reading = 0.865 to 0.935 V)

Ideal value: -900 μA (digital multimeter reading = 0.9V)

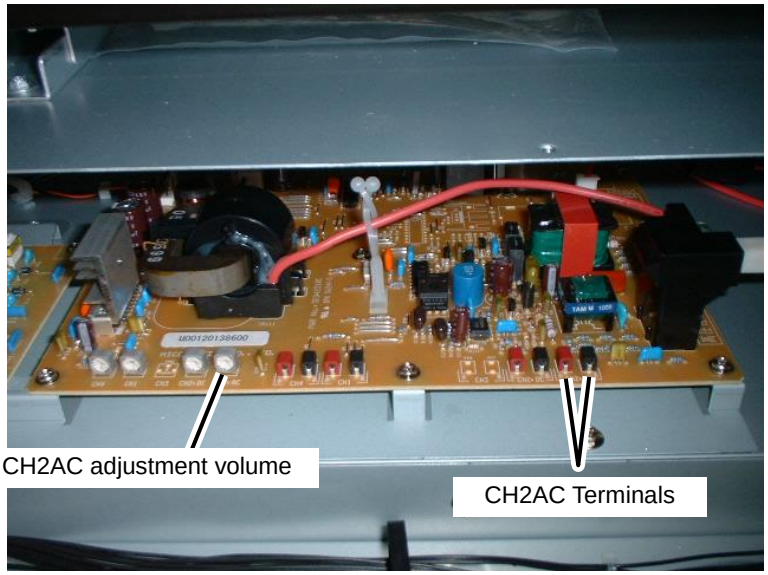
10.1.2 Developer AC Bias

1. Remove the COVER-TOP (see step 1 in subsection **10.1.1**).

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 Vdba.

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: 1.45kV_{P-P} (digital multimeter reading = 0.65V)

10.1.3 Developer DC Bias

Note

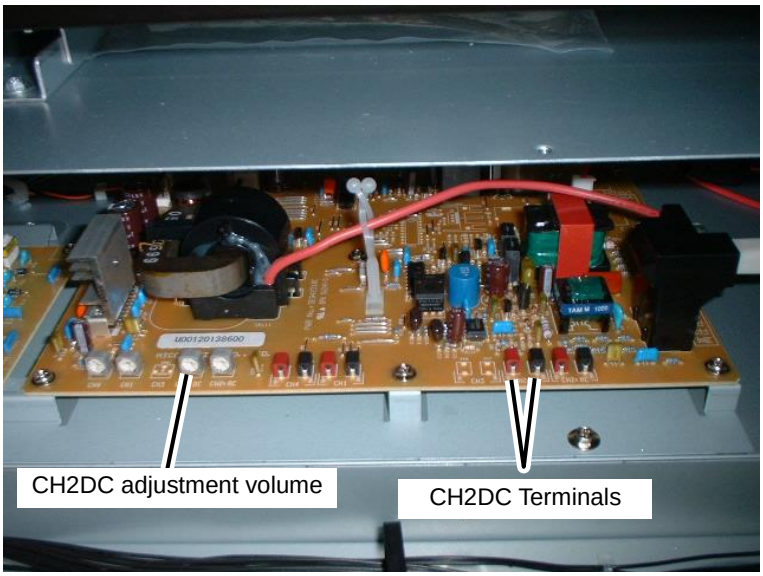
Before calibrating the developer DC bias, be sure to calibrate the developer AC bias.

1. Remove the COVER-TOP (see step 1 in subsection **10.1.1**).

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)

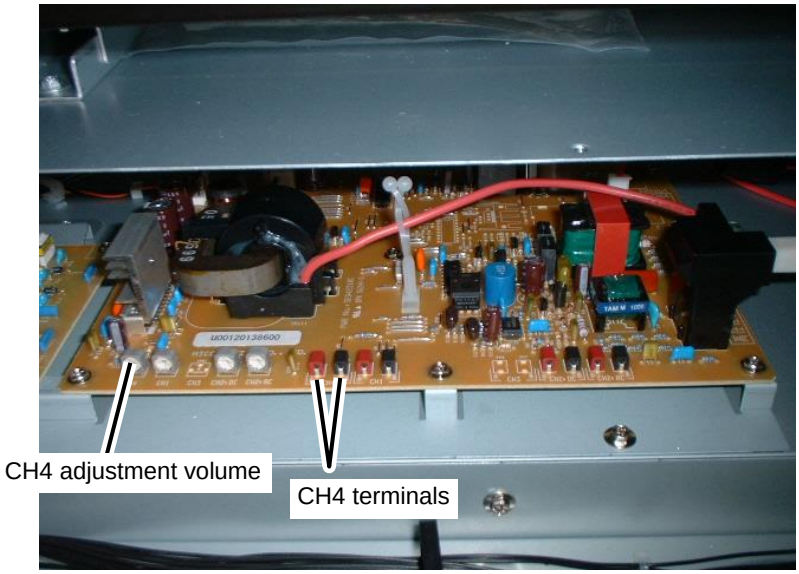
10.1.4 Separator AC Bias

1. Remove the COVER-TOP (see step 1 in subsection **10.1.1**).

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.



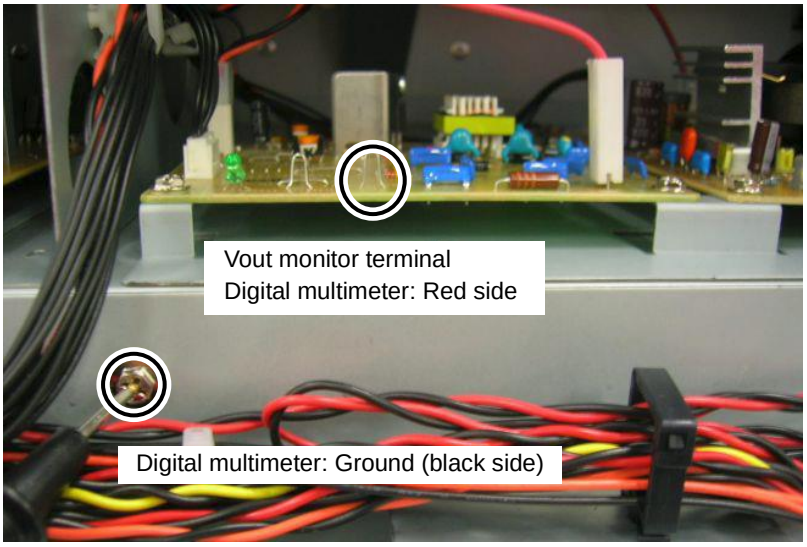
Setting range: 8.25 to 8.75kV_{P-P} (digital multimeter reading = 2.9 to 3.1V)
Ideal value: 8.5kV_{P-P} (digital multimeter reading = 3.0V)

10.1.5 Checking the Transfer Unit Voltage

1. Remove the COVER-TOP (see step 1 in subsection **10.1.1**).

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's 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

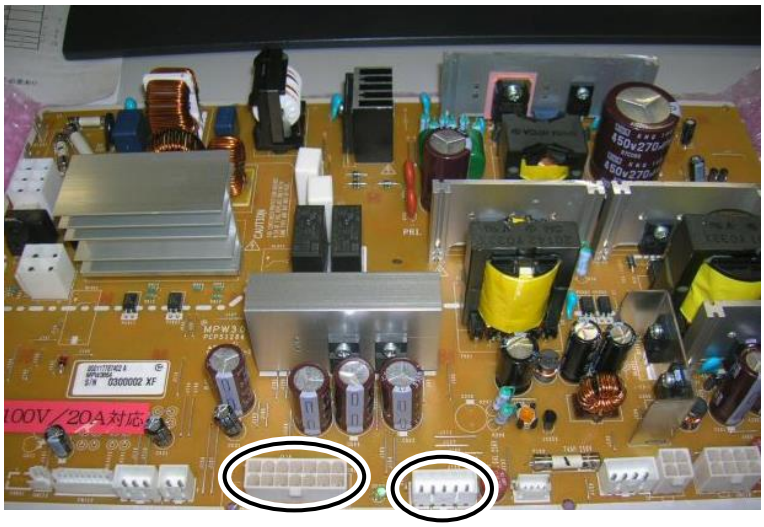
1. Perform the first procedure of **10.1.1 Primary Charger Load Current Calibration** on p. **10-2** so that the front power supply unit is visible.

2. Start up the Printer and confirm that no error message is detected.

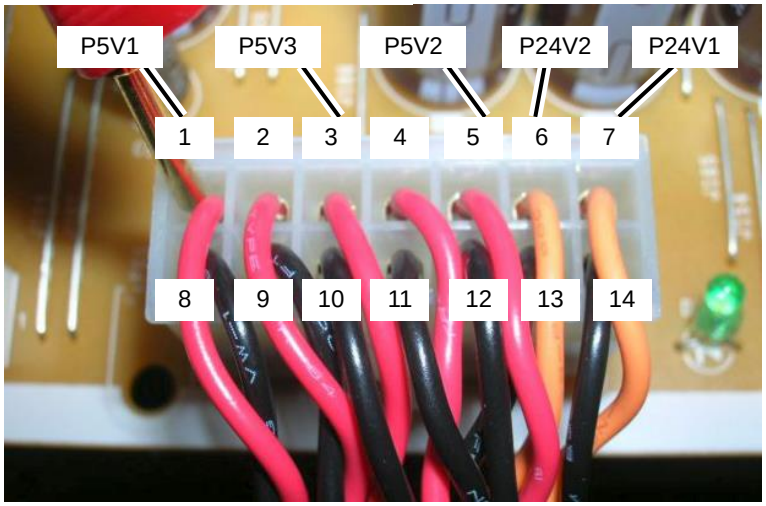
Note

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.



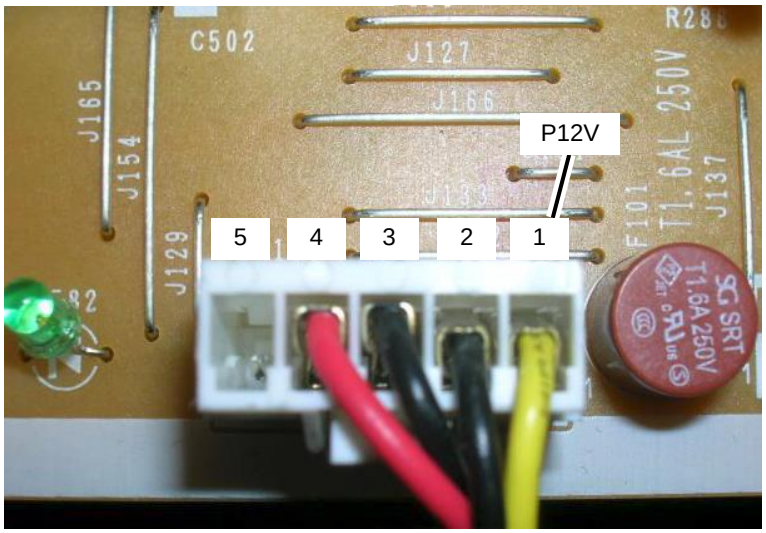
CN111's measurement position



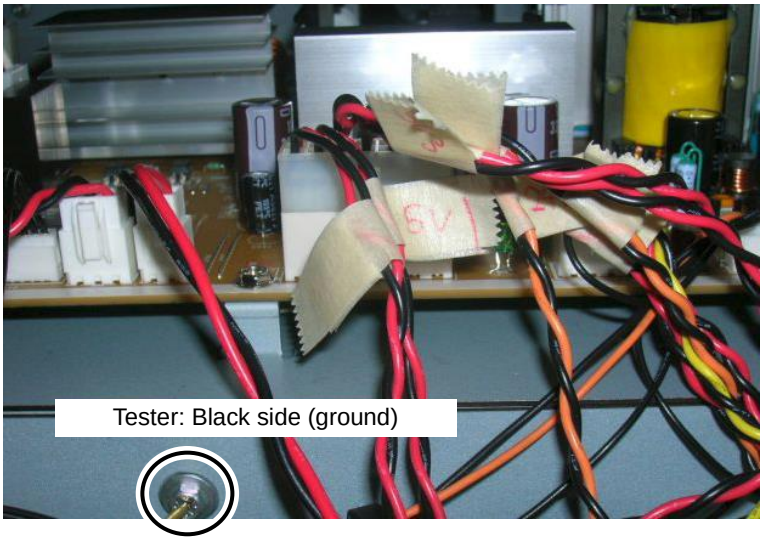
Pin Number	Name
1	P5V1
3	P5V3
5	P5V2
6	P24V2
7	P24V1

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. **7-5**) 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 **10.3.1 Fuser Unit's Nip Pressure Calibration** (p. **10-9**)				
Skew/slack calibration	Fuser Position	1189mm (46.81 inches)	A0	Plain paper	No.15
	Calibration: See **10.3.2 Skew/Slack Calibration** (p. **10-13**)				
Cut squareness	Cutter Installation Height	1189mm (46.81 inches)	A0	Plain paper	No.15
	Calibration: See **10.3.3 Cut Squareness Calibration** (p. **10-19**)				
Cut length accuracy*	—	1189mm (46.81 inches)	A0	Plain Paper/ Tracing Paper (75g (0.17 lb))/Film	No.15
	—	297mm (11.69 inches)	A0	Plain Paper/ Tracing Paper (75g (0.17 lb))/Film	
	—	210mm (8.27 inches)	A0	Plain Paper/ 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)). Calibration: See **10.3.4 Cut Length Accuracy Calibration** (p. **10-21**)				
Print length accuracy*	—	1189mm	A0	Plain paper	No.15
	Note: Increasing this value decreases the print length. For a change of ±5 Hz, 841 mm lowers by approximately ±2.2 mm (0.09 inches). Calibration: See **10.3.5 Print Length Accuracy Calibration** (p. **10-24**)				
Top edge alignment*	—	1189mm (46.81 inches)	A0	Plain Paper/ Tracing Paper (75g (0.17 lb))/Film	No.15
	—	297mm (11.69 inches)	A0	Plain Paper/ Tracing Paper (75g (0.17 lb))/Film	
	—	210mm (8.27 inches)	A0	Plain Paper/ 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)). Calibration: See **10.3.6 Top Edge Alignment Calibration** (p. **10-28**)				
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)). Calibration: See **10.3.7 Center Alignment Calibration** (p. **10-32**)				
Skew check	Fuser unit position	1189mm (46.81 inches)	A0	Plain paper	No.15
	Calibration: See **10.3.2 Skew/Slack Calibration** (p. **10-13**)				

* 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.

10.3.1 Fuser Unit's Nip Pressure Calibration

Warning

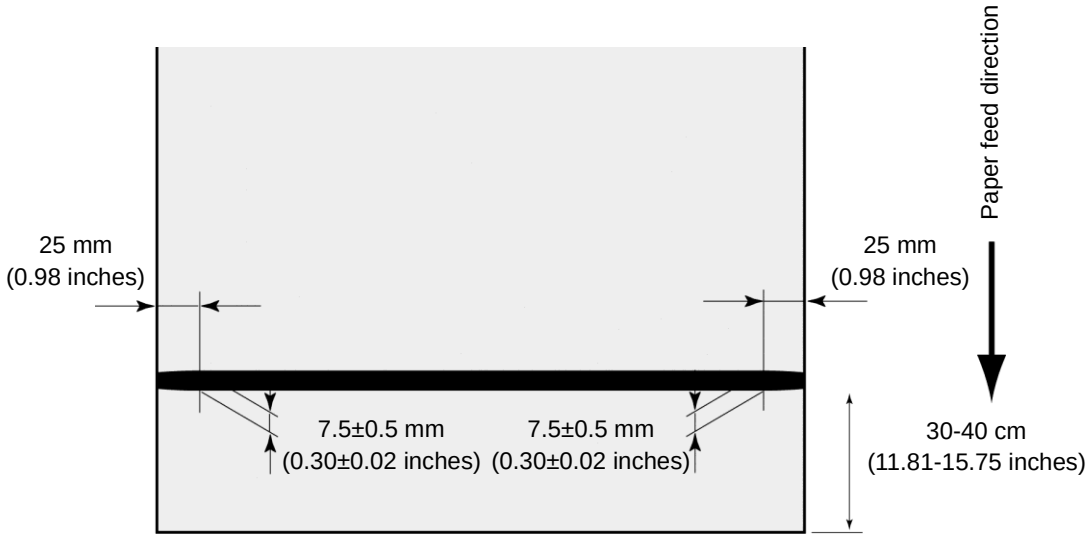
- Do not touch the fuser unit as it is extremely hot after the operation. Burn injuries may result.
- Be careful not to burn yourself at these adjustments.

1. Install A0 plain roll paper at Roll 1.

2. Enter Engine Maintenance mode and execute **2.3.11 Nip Pressure Adjustment** (see p. **2-25**).

   A test print is output.

3. Measure both sides of the black banded area about 30-40 cm (11.81-15.75 inches) from the top of the test print (see the figure below).



Standard value:
Black band width = 7.5±0.5 mm (0.30±0.02 inches)
Right/Left Difference = ±0.5 mm (0.02 inches) or less

Notes

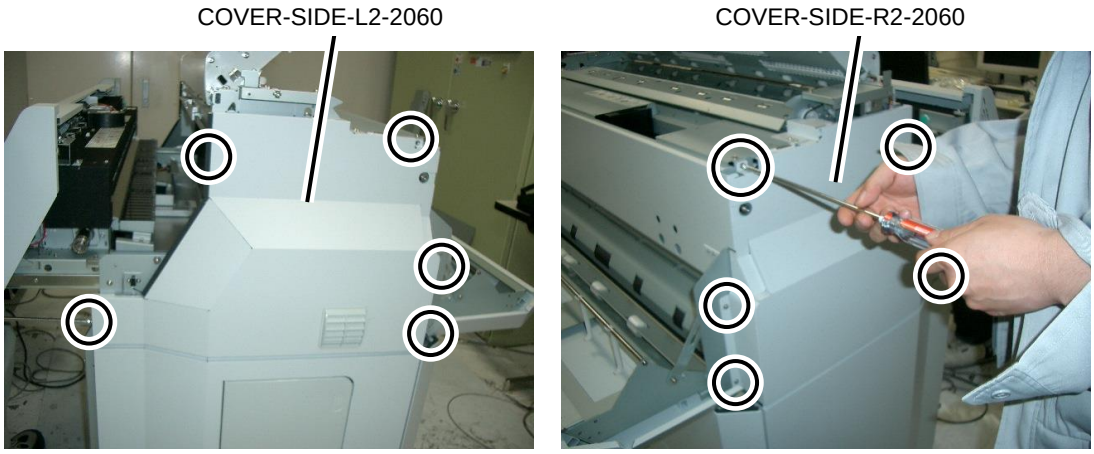
- To thicken the black bands, increase the nip pressure by rotating the calibration screw clockwise.
- As a guideline, three rotations of the calibration screw equals about 1 mm (0.04 inches) of change.

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.

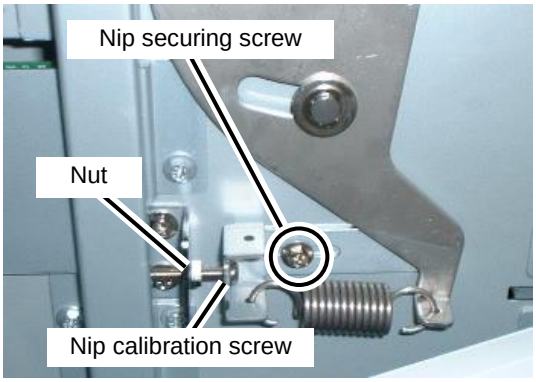
(a) Open the fuser unit drawer.

(b) Remove the document table below with four screws:
- DOCUMENT-TABLE-UNIT(MF)-2060; or
- DOCUMENT-TABLE-UNIT(PL)-2060

(c) Remove the COVER-SIDE-L2-2060 and COVER-SIDE-R2-2060.



(d) Loosen the screw securing the nip on both the right and the left.



(e) 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.

(f) 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.

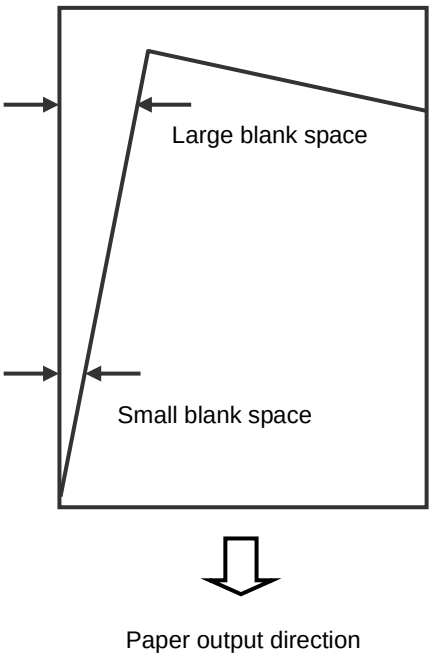
1. Install A0 plain roll paper at Roll 1.

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. **10-9**).

3. Enter Engine Maintenance mode and print the engine test pattern 5 three times (see **Chapter 2**).

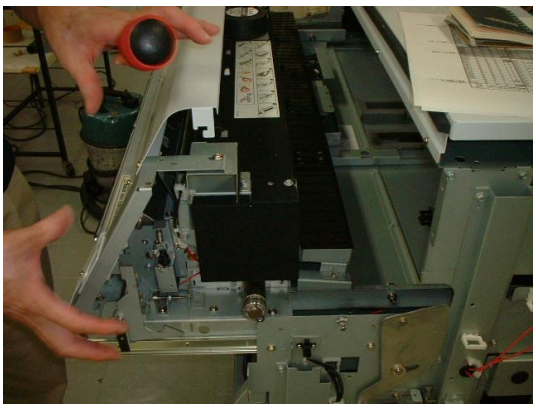
If the print sample is skewed as shown in the figure

-> Look at the fuser unit from the paper output direction and press the right side in towards the interior of the Printer. Then turn the alignment calibration screw to the right.

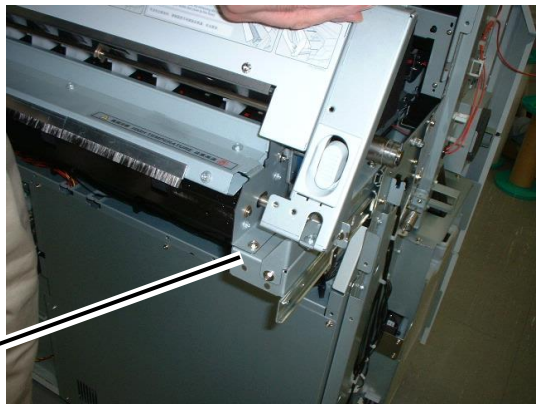


(a) Open the fuser unit drawer.

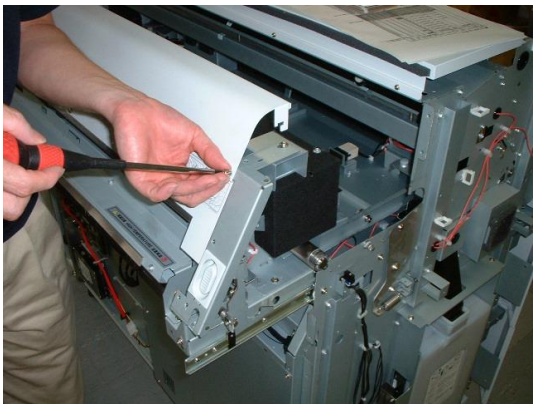
(b) Remove the cover at the location shown in the photo.



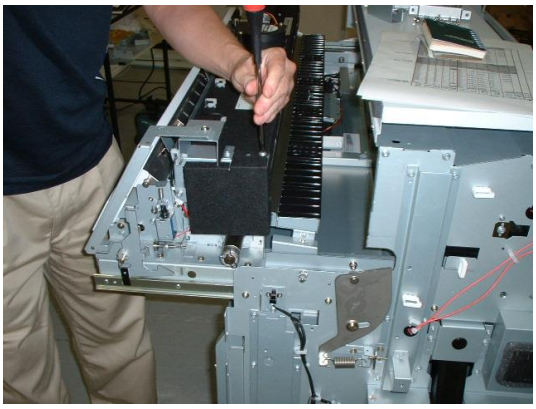
(c) Remove the plate at the location shown in the photo (both right and left).



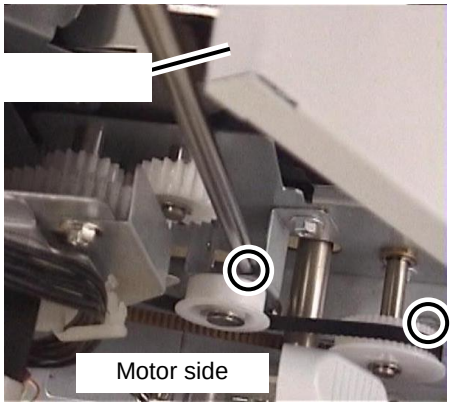
(d) Remove the cover at the location shown in the photo.

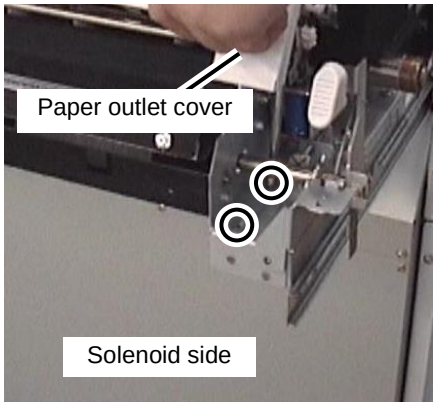


(e) Remove both the right and left black covers (SIDE-COVER-R and SIDE-COVER-L) at the location shown in the photo.



(f) Loosen the EXTENSION-PAPER OUT-KIT(MID)'s four securing screws (two on the right and two the left).





(g) Mark the following:

- the fuser unit's securing screws you are about to loosen in the next step; and
- fuser unit's current position.

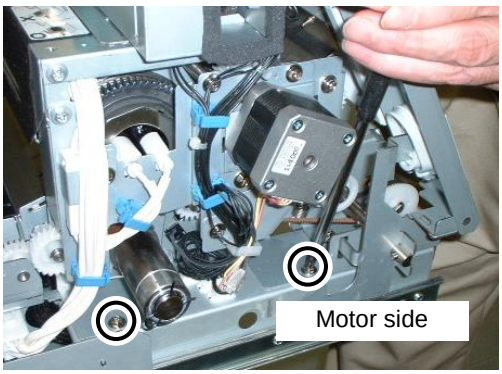
(h) Loosen the fuser unit's four securing screws (two on the right and two on the left).

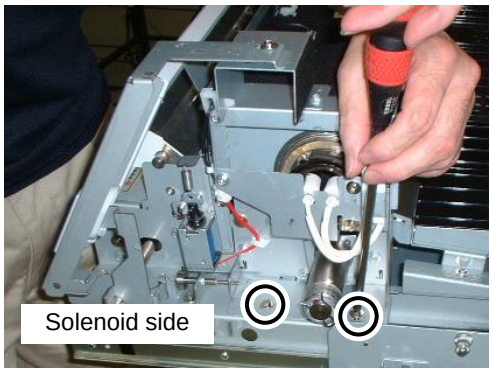
Note

The fuser unit's securing screw direction differs depending on the printer's manufacturing date as follows.

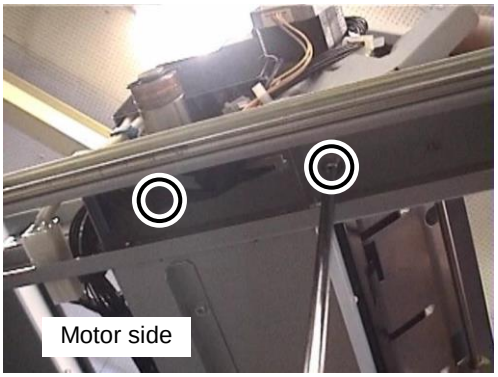
- Type A
  The fuser unit is fixed with the four screws mounted from upper side; or
- Type B
  The fuser unit is fixed with the four screws mounted from lower side.

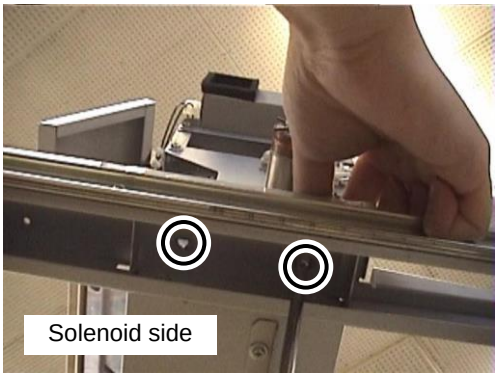
Type A: Fuser unit fixed with four screws mounted from upper side.



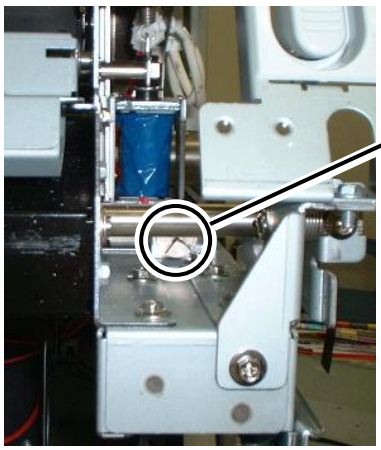


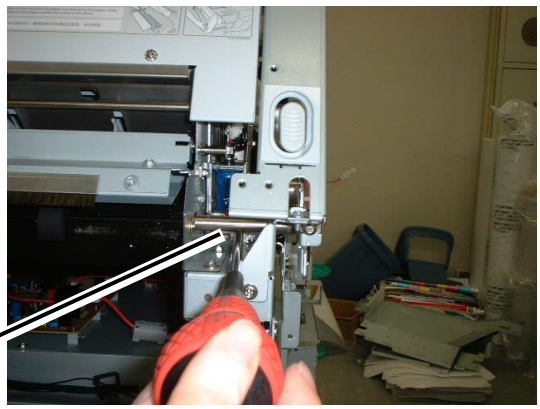
Type B: Fuser unit fixed with four screws mounted from lower side.





(i) Turn the alignment calibration screw and move the fuser unit until the horizontal smear lines move to the left side. (While it depends on the amount of smearing, try moving about 1 mm from the initial position.)





(j) Mark the screw position when the horizontal smear lines moved to the left side.

(k) 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 (±10 or ±20 from its initial value). For more details, execute **2.3.14 Parameter** in Engine Maintenance mode (see p. **2-38**). For information about engine control parameters, see the table **Engine Control Parameters** in that same section.

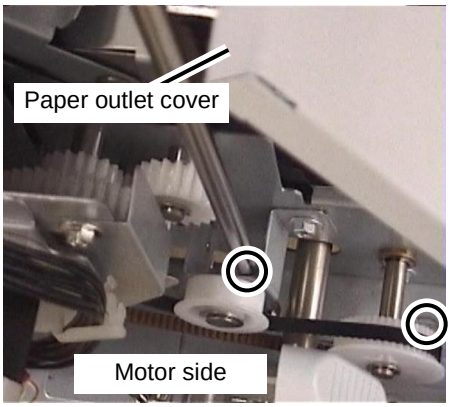
4. Repeat these steps of adjusting the position of the fuser unit and printing until the skew of the blank spaces becomes equal in test No. 5. Then, check that the skew is still equal in test No. 14 for a final test.
* Normally you will have finished skew/slack calibration using test pattern No.5, so 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.

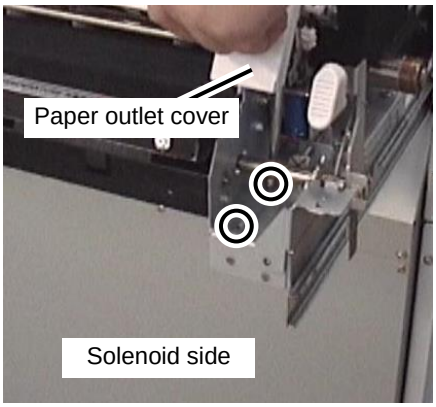
5. Tighten the fuser unit securing screws.

6. Fix the EXTENSION-PAPER OUT-KIT(MID) with four screws.

Note

Secure the four screws while pressing the EXTENSION-PAPER OUT-KIT(MID) to the fuser unit.





7. 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

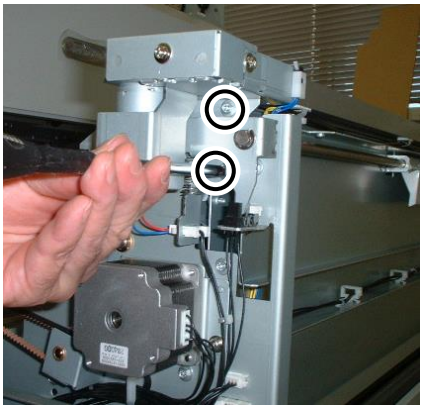
1. Install A0 plain roll paper at Roll 1, upper drawer's your side.

2. Enter Engine Maintenance mode and print the engine test pattern 15 (see **2.3.12 Print** on p. **2-26**).

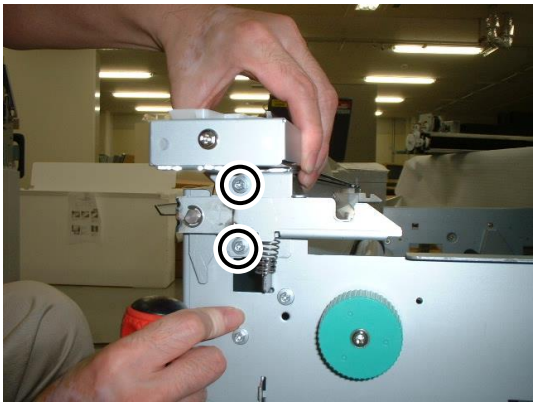
3. Measure the cut squareness.

   Refer to **Item 7 Cut Squareness** in **7.2 Troubleshooting Print Specification Problems** (p. **7-5**) for more information about measuring methods and standard values.

4. If the cut squareness does not fall within the standard value range, remove the roll paper drawer cover and loosen the two screws on the right and left sides of the cutter mounting plate.

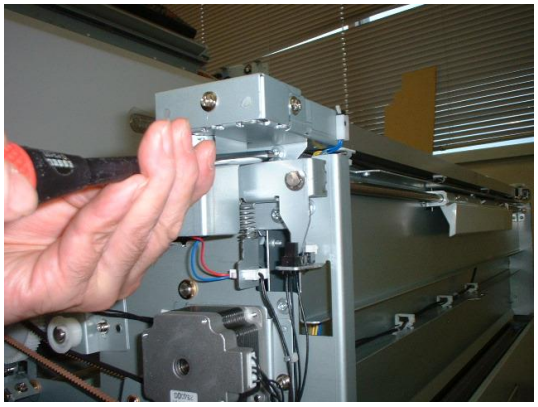


Screws to loosen (left side)



Screws to loosen (right side)

5. Move the right and left sides of the cutter mounting plate up or down (as best you can see) to adjust the installation height.



6. Tighten and secure the screws.

7. Repeat steps 2 through 6 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 thespecific steps required in Engine Maintenance mode, see:
2.3.13 Positioning (p. **2-28**);
2.3.14 Parameter (p. **2-38**); or
2.5 Technician Menu Functions (p. **2-49**).

(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.

Notes

- For the first test plot, leave the configured correction value at its default value.
- When the printer contains two or more roll papers installed, the printer preferentially prints on the paper installed in the upper paper drawer. The printer prints on the paper in the lower paper drawer only when detecting no paper in the upper paper drawer.

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. **7-5**) 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 mm (46.54 inches) – 1189 mm (46.81 inches) = -7 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 lines or -165 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 lines - 165 lines = 135 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. **2-28**).
See **7.2.1 Print Specifications and How to Measure Them** (p. **7-5**) 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 thespecific steps required in Engine Maintenance mode, see:
2.3.13 Positioning (p. **2-28**);
2.3.14 Parameter (p. **2-38**); or
2.5 Technician Menu Functions (p. **2-49**).

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.

Notes

- For the first test plot, leave the configured correction value at its default value.
- When the printer contains two or more roll papers installed, the printer preferentially prints on the paper installed in the upper paper drawer. The printer prints on the paper in the lower paper drawer only when detecting no paper in the upper paper drawer.

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. **7-5**) 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)±0.5%

Paper length = 1122.8 mm (44.21 inches)

(a) Find the difference from the standard value.

1122.8 mm (44.21 inches) - 1127.1 mm (44.37 inches) = -4.3 mm (0.16 inches)

(b) Determine the percent difference that represents from the standard value.

-4.3 ÷ 1127.1 = -0.00382 (approximately 0.38% short)

(c) Check the values saved in the EEPROM, then convert them into a write speed.

Initial value = 3137 -> 1 / (3137 x 128) x 10^9 = 2490.4 (lines/sec)
Initial value = 4119 -> 1 / (4119 x 128) x 10^9 = 1896.7 (lines/sec)

(d) Calculate the amount to increase/decrease to return to the standard value.

2490.4 x (-0.00382) = -9.5 (lines/sec)
1896.7 x (-0.00382) = -7.2 (lines/sec)

(e) Calculate the write speed from the increase or decrease in value.

2490.4 - 9.5 = 2480.9 (lines/sec)
1896.7 - 7.2 = 1889.5 (lines/sec)

(f) Convert the write speed into a correction value (setting value), the set that correction value.

$1/(2480.9\times128) \times 10^9 = 3149$
$1/(1889.5\times128) \times 10^9 = 4135$

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 mm (44.56 inches) - 1127.1 mm (44.37 inches) = 4.7 mm (0.19 inches)

(b) Determine the percent difference that represents from the standard value.

4.7 ÷ 1127.1 = 0.00417 (approximately 0.42% long)

(c) Check the values saved in the EEPROM, then convert them into a write speed.

Initial value = 3137 -> 1 / (3137 x 128) x 10^9 = 2490.4 (lines/sec)
Initial value = 4119 -> 1 / (4119 x 128) x 10^9 = 1896.7 (lines/sec)

(d) Calculate the amount to increase/decrease to return to the standard value.

2490.4 x (0.00417) = 10.4 (lines/sec)
1896.7 x (0.00417) = 7.9 (lines/sec)

(e) Calculate the write speed from the increase or decrease in value.

2490.4 + 10.4 = 2500.8 (lines/sec)
1896.7 + 7.9 = 1940.6 (lines/sec)

(f) Convert the write speed into a correction value (setting value), the set that correction value.

$1/(2500.8\times128) \times 10^9 = 3124$
$1/(1940.6\times128) \times 10^9 = 4102$

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. **2-28**).
See **7.2.1 Print Specifications and How to Measure Them** (p. **7-5**) No. 6 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 thespecific steps required in Engine Maintenance mode, see:
2.3.13 Positioning (p. **2-28**);
2.3.14 Parameter (p. **2-38**); or
2.5 Technician Menu Functions (p. **2-49**).

(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.

Notes

- For the first test plot, leave the configured correction value at its default value.
- When the printer contains two or more roll papers installed, the printer preferentially prints on the paper installed in the upper paper drawer. The printer prints on the paper in the lower paper drawer only when detecting no paper in the upper paper drawer.

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. **7-5**) 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) ±3mm (0.12 inches)
Paper length = 18.2 mm (0.72 inches)

(a) Find the difference from the standard value.

18.2 mm (0.72 inches) - 21.7 mm (0.85 inches)＝-3.5 mm (0.13 inches)

(b) By converting that difference into a process speed you can find out how many seconds that equals.
Process speed = 80 mm (3.15 inches)/sec

-3.5 ÷ 80 = -0.04375 (sec)
which indicates that printing starts 43.75 msec sooner.

(c) Calculate the amount to increase/decrease to return to the standard value.

1 step = 1.0 msec
43.75 ÷ 1 = 43.75or 44 (steps)

(d) Check the value saved to the EEPROM.

Default value = 400 * steps
* The default value varies depending on the print length and roll paper specifications.

(e) Calculate and set the correction value.

400 + 44 = 444 (steps)

Example 2:

The top edge alignment value is too long, when
Standard value = 21.7mm (0.85 inches) ±3mm (0.12 inches)
Measured value = 25.7 mm (1.01 inches)

(a) Find the difference from the standard value.

25.7 mm (1.01 inches) - 21.7 mm (0.85 inches)＝4.0 mm (0.16 inches)

(b) Convert the difference to the process speed, by calculating how many seconds are equal to the difference.

Process speed = 80mm (3.15 inches)/sec
4.0 ÷ 80 = 0.05 (sec)
which indicates that printing starts 50 msec later.

(c) Calculate the amount to increase/decrease to return to the standard value.

1 step = 1.0 msec
50.0 ÷ 1 = 50.0 or 50 (steps)

(d) Check the value saved to the EEPROM.

Default value = 400 * steps
* The default value varies depending on the print length and roll paper specifications.

(e) Calculate and set the correction value.

400 -50 = 350 (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. **2-28**).
See **7.2.1 Print Specifications and How to Measure Them** (p. **7-5**) No.6 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 thespecific steps required in Engine Maintenance mode, see:
2.3.13 Positioning (p. **2-28**) ;
2.3.14 Parameter (p. **2-38**) ; or
2.5 Technician Menu Functions (p. **2-49**).

(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. **7-5**) 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) ±3 mm (0.12 inches)
Measurement value = 18.2 mm (0.72 inches)

(a) Find the difference from the standard value.

18.2 mm (0.72 inches) - 21.7 mm (0.85 inches)＝-3.5 mm (0.13 inches)

(b) Convert the difference to the number of pitches, by calculating how many dots are equivalent to the difference.

1 pitch = 0.508 mm (0.02 inches)
-3.5 ÷ 0.508 = -6.9 (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 step = 1 pitch
6.9 ÷ 1 = 6.9 or 7 (steps)

(d) Check the value saved to the EEPROM.

Default value = 50 (steps)

(e) Calculate and set the correction value.

50 + +7 = 57 (steps)

Example 2:

The center alignment value is too long, when
Standard value = 21.7 mm (0.85 inches) ±3 mm (0.12 inches)
Measured value = 25.7 mm (1.01 inches)

(a) Find the difference from the standard value.

25.7 mm (1.01 inches) - 21.7 mm (0.85 inches)＝4.0mm (0.16 inches)

(b) Convert the difference to the number of pitches, by calculating how many dots are equivalent to the difference.

1 pitch = 0.508 mm (0.02 inches)
4.0 ÷ 0.508 = 7.9 (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 step = 1 pitch
7.9 ÷ 1 = 7.9 or 8 (steps)

(d) Check the value saved to the EEPROM.

Default value = 50 steps

(e) Calculate and set the correction value.

50 -8 = 42 (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. **2-28**).
See **7.2.1 Print Specifications and How to Measure Them** (p. **7-5**) No. 6 for measuring methods and standard values.

10.4 Lead Edge Dead Space Adjustment

The Printer has 3 mm 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**.

Notes

- 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 ÷ 0.042333 = 23.62 or 24 lines

4. Save the value to the EEPROM.

5. Turn the printer Off, then On again to restart it.

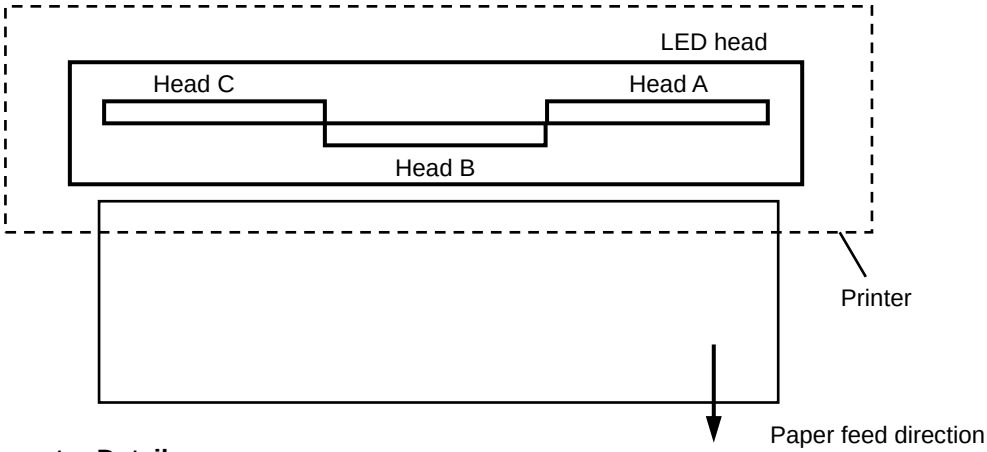
6. From the computer you can now send the printer data that prints at the tip of the tail edge of the paper to test if it can be printed correctly.

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) **Parameter** - **In 700s** - **709**: Used for fine adjustment of connection between head A-B
(Setting range: 0 to 65)

(b) **Parameter** - **In 700s** - **710**: Used for fine adjustment of connection between head C-B
(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 µm.

(c) **Parameter** - **In 700s** - **711**: Used for fine adjustment of connection between head A-B
(Setting range: 87 to 93)

(d) **Parameter** - **In 700s - 712**: Used for line adjustment of connection between head A-B
(Setting range: 87 to 93)

Adjust in units of lines. An adjustment value of **1** will cause a shift of 42.3 µm.
To find the initial print shift position, temporarily set
Parameter - In 700s - 711; and
Parameter - In 700s – 712
to 98.

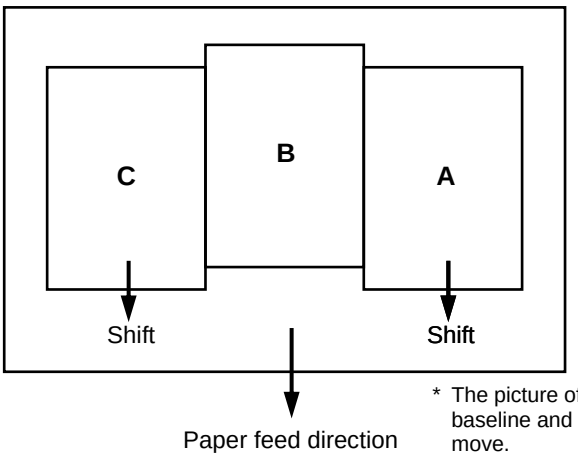
(3) Basic Operations

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

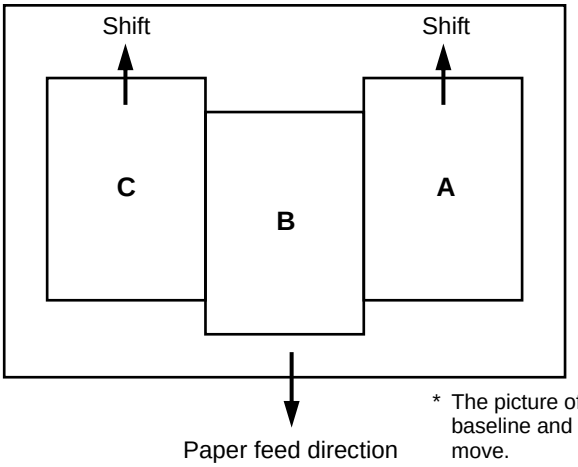
Moves in the paper feed direction, using the picture of B as a baseline.



* The picture of B serves as a baseline and therefore it does not move.

(ii) When the value is increased

Moves in the opposite of the paper feed direction, using the picture of B as a baseline.

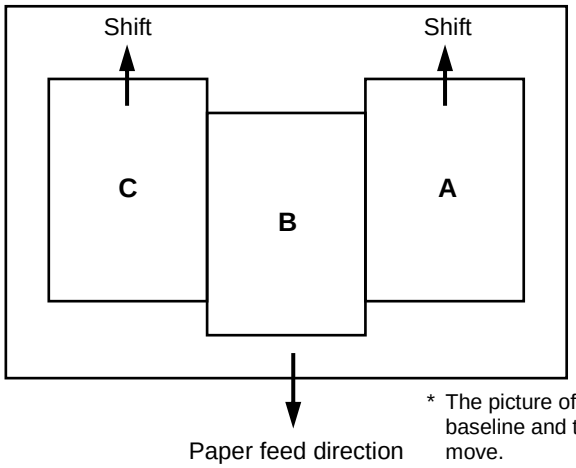


* The picture of B serves as a baseline and therefore it does not move.

(b) **Parameter - In 700s - 711 and Parameter - In 700s - 712**

(i) When the value is decreased

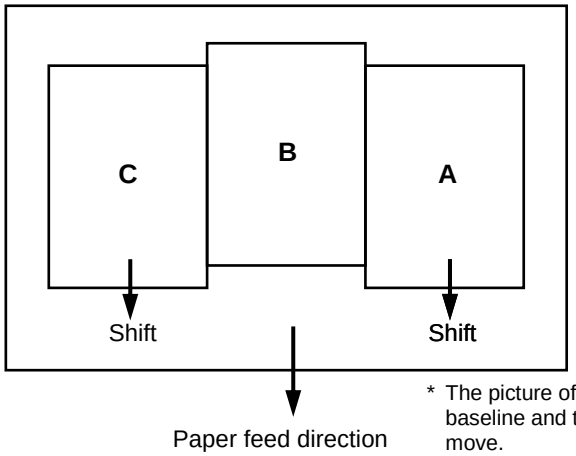
Moves in the opposite of the paper feed direction, using the picture of B as a baseline.



* The picture of B serves as a baseline and therefore it does not move.

(ii) When the value is increased

Moves in the paper feed direction, using the picture of B as a baseline.



* The picture of B serves as a baseline and therefore it does not move.

(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.

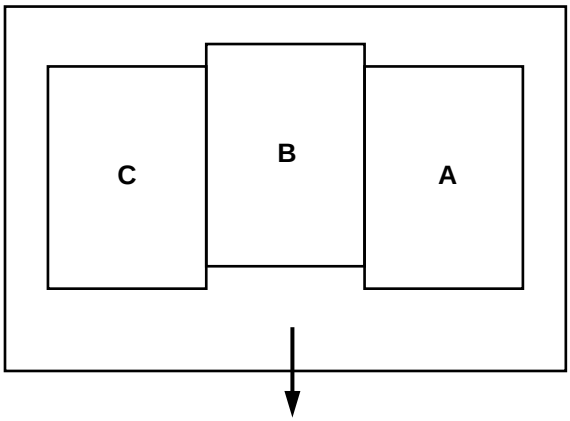
Parameter - **In 700s** - **709** to 0

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

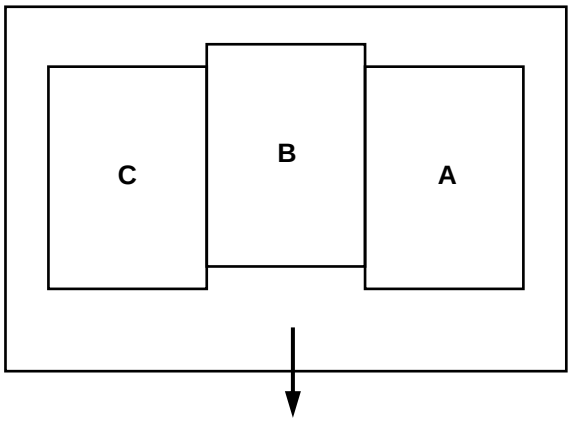
Increase the values for:

Parameter - In 700s - 709; and
Parameter - In 700s - 710.

(An adjustment value of 1 will cause a shift of 0.64 µm.)

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

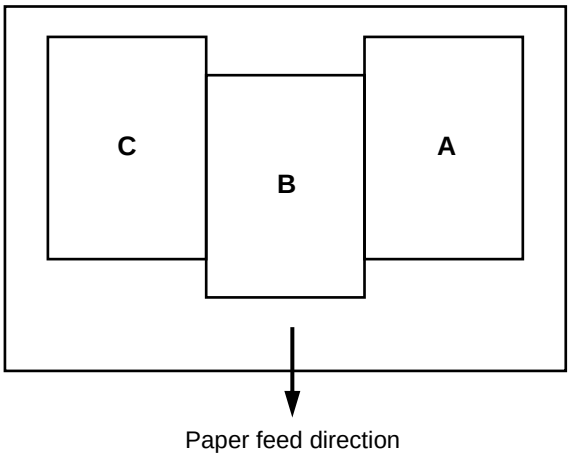
Parameter - In 700s - 710

(An adjustment value of 1 will cause a shift of 0.64 µm.)
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:

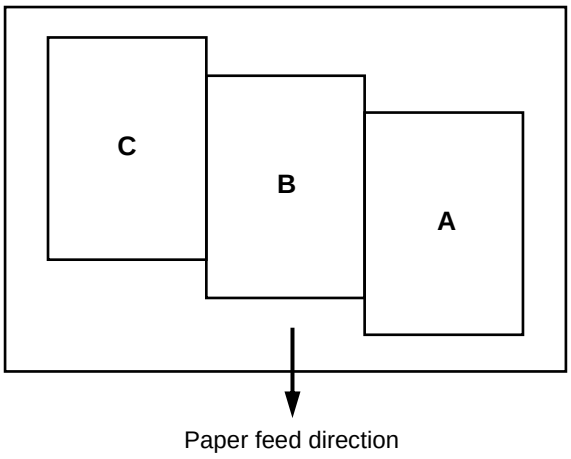
Parameter - In 700s - 710

(An adjustment value of 1 will cause a shift of 0.64 µm.)

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

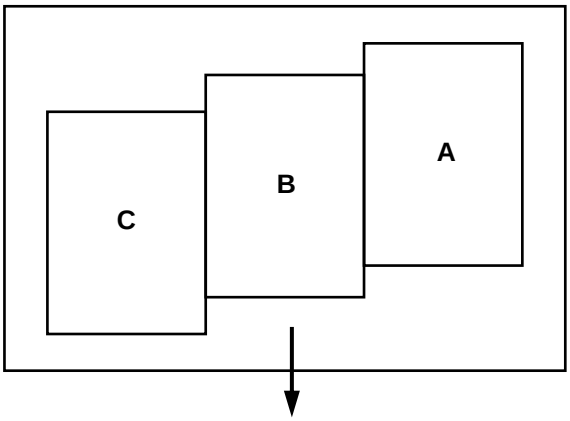
(An adjustment value of 1 will cause a shift of 0.64 µm.)

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. **2-49**).

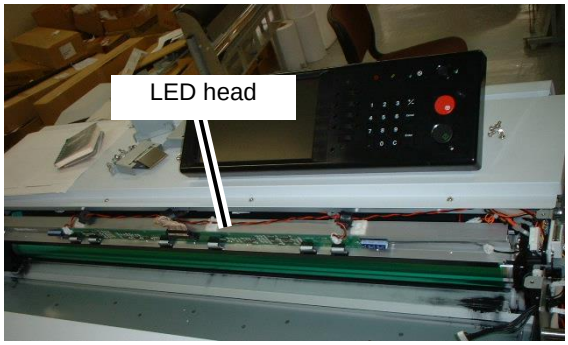
10.6 LED Focal Point Calibration

Calibrates the focal point of the LED.
This calibration is necessary whenever you are replacing a LED head.

Note

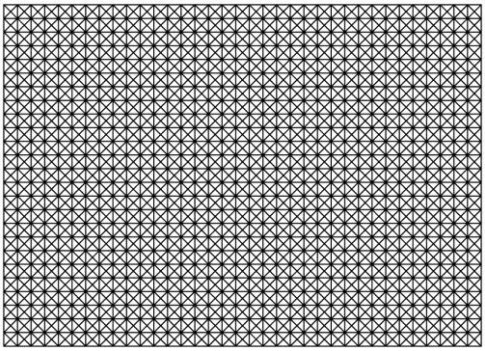
First, get a 7-mm box wrench and a flat head screwdriver.

1. To start the LED head adjustment, perform the steps 1 to 3 on the page **9-204**.

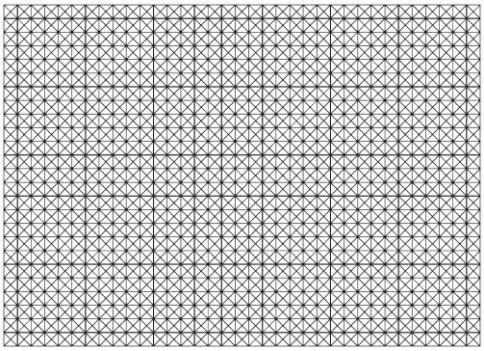


2. Print the engine test pattern 14.

3. Check the print results visually.

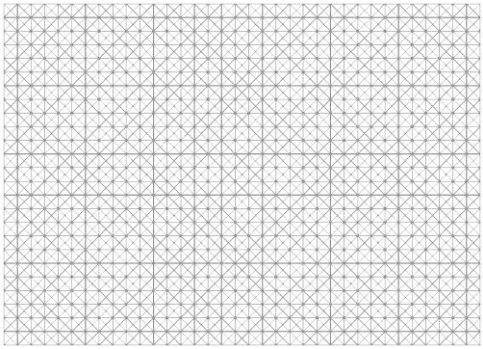


Focal point is aligned.



Focal point is not aligned.
(The printout is slightly light)

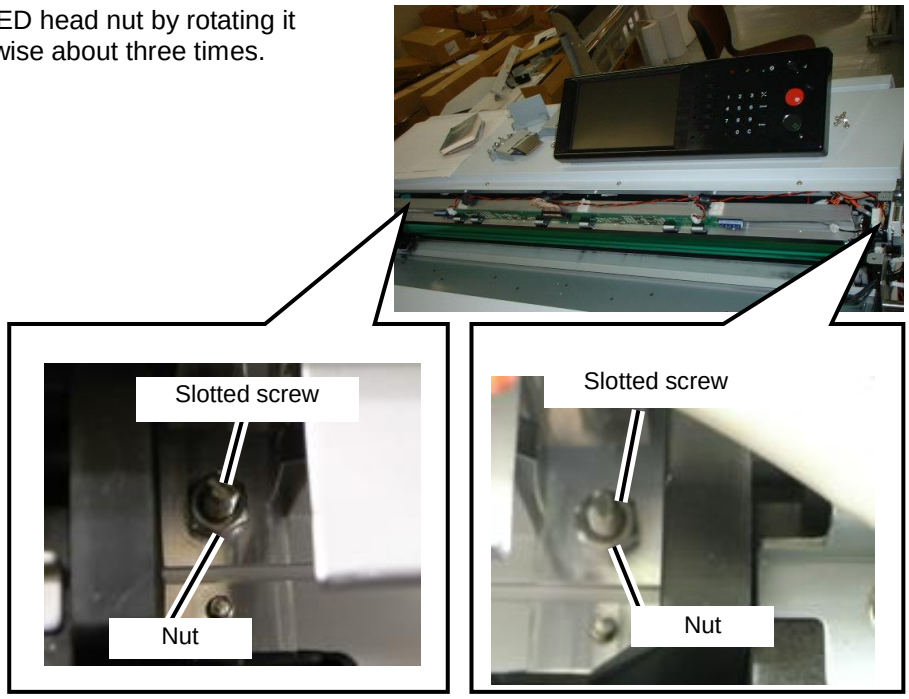
Paper feed direction



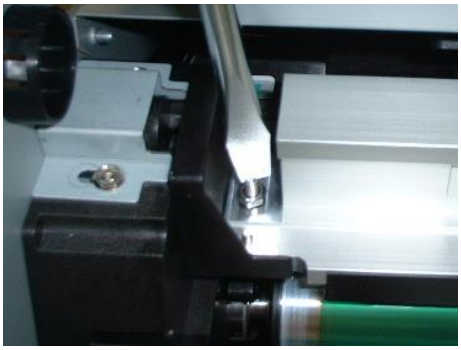
Focal point is not aligned.
(The printout is light)

4. If the focal point is not aligned (the printout is light or slightly light), calibrate it with the following procedure.

(a) Loosen the LED head nut by rotating it counterclockwise about three times.



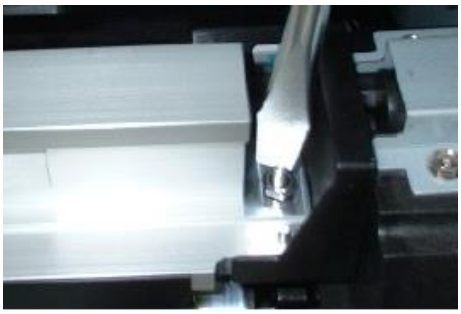
(b) Adjust the focal point by rotating the flat head screw with the following procedure.



Notes

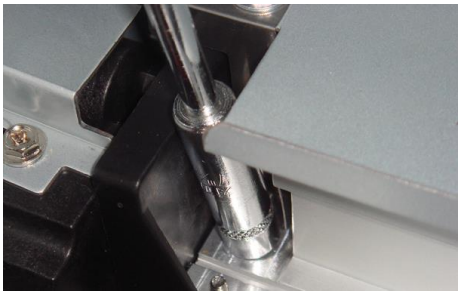
- Rotating clockwise separates the LED head from the photoconductor drum (rotating to the counterclockwise brings it closer).
- For every one rotation of the flat head screw, the LED head moves 0.5 mm (0.0197 inches).

(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..

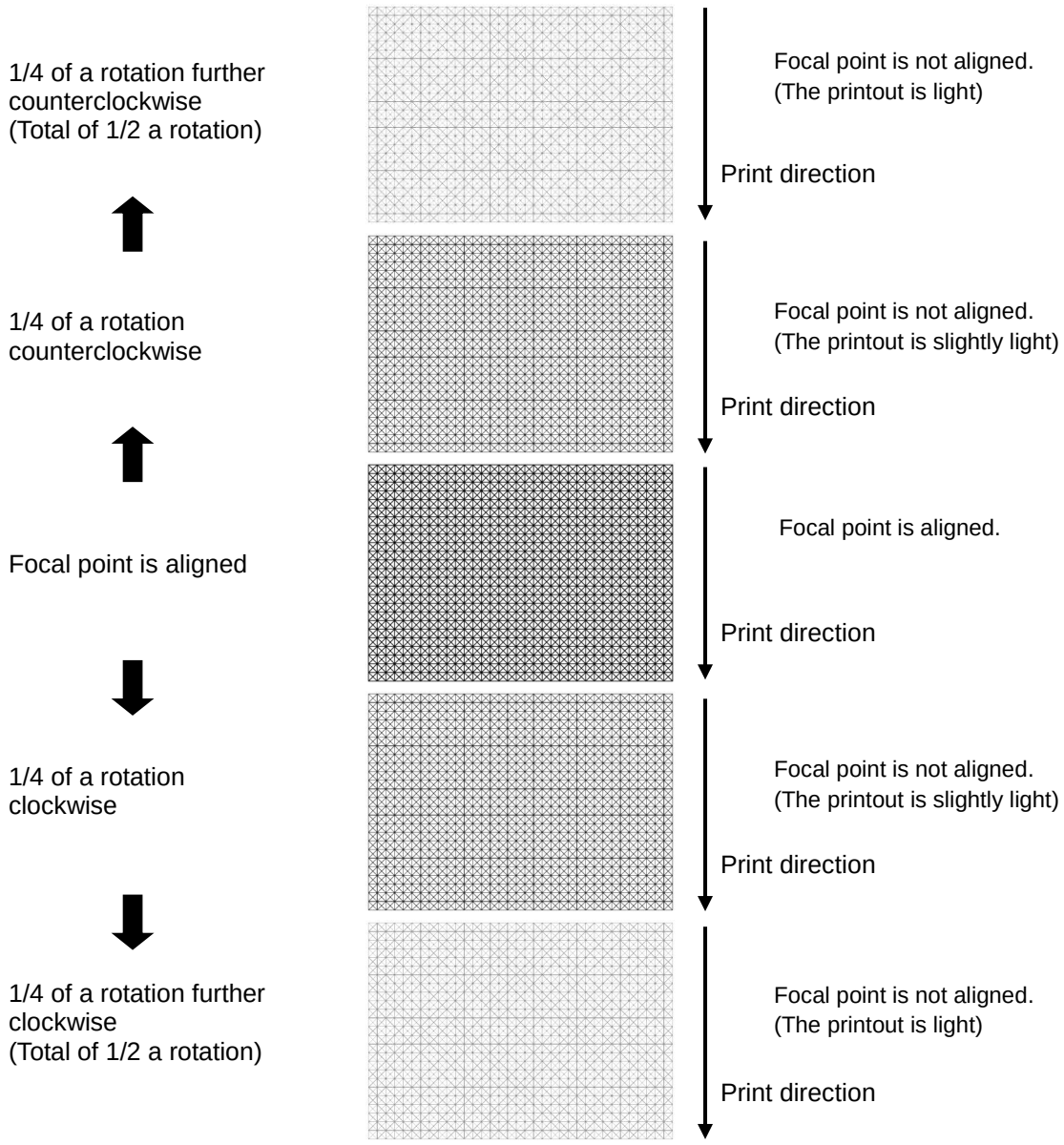


(d) Next, adjust the focal point by turning the screws 1/8 of a rotation each time.

(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 µW, 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. **2-38**) for details about the setting procedure.

Table 10-2 LED head light-emitting strobe width and density change calibration value

Average light intensity [µW]	Light-emitting strobe width		Density change calibration value	
	Strobe width setting value	Strobe width [µs]	Strobe width setting value	Strobe width [µs]
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

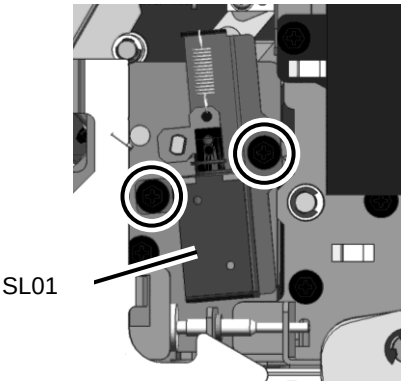
Strobe width [µs] = Strobe width setting value x 0.128 µs (128 ns)

Strobe width setting value can be set from 1 to 255 (128 ns to 32.64 µs).

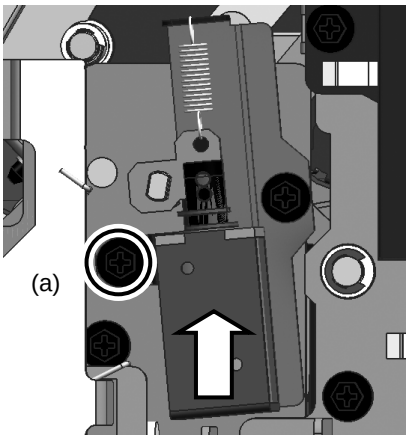
10.8 Adjusting Paper Outlet Shutter Solenoid (SL01)

Adjust the installation angle of the paper outlet shutter solenoid (SL-01) so that upper and lower paper outlets are switched normally.

1. Loosen the two screws of the metal plate fixing the solenoid.



2. With setting the SL01 at the highest position, temporarily secure the screw (a).

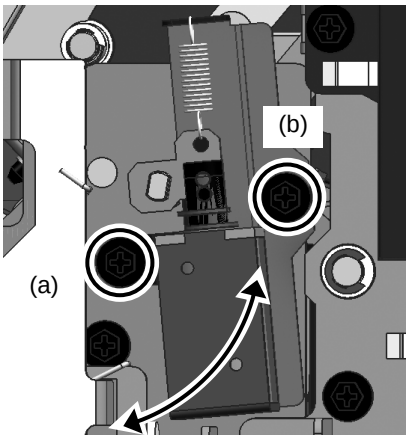


3. With setting the temporarily fixed screw (A) to the center, rotate the SL01 within the screw (b)'s screw hole allowance so that the SL01's angle is adjusted.

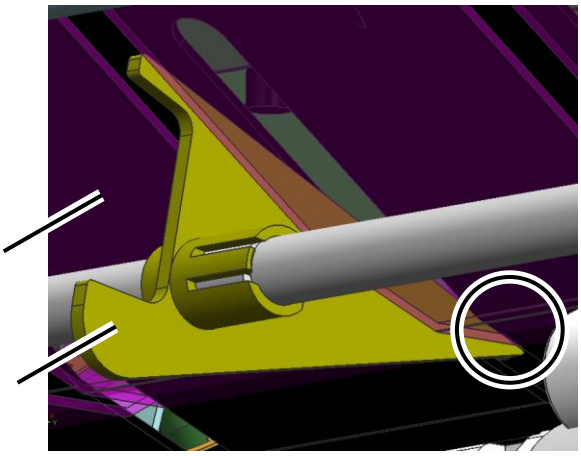
With the SL01 installation angle changed, paper outlet shutter's top position changes.

(a) SL01's counter clockwise rotation raises the paper outlet shutter's top.

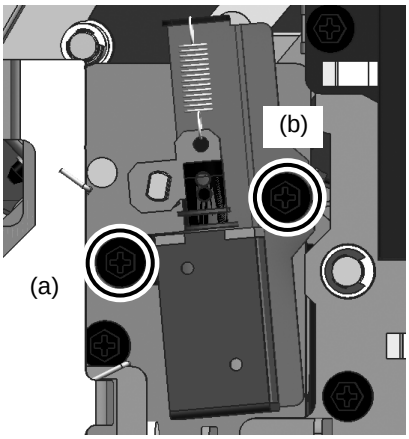
(b) SL01's clockwise rotation lowers the paper outlet shutter's top.



(c) Adjust the positions of all paper outlet shutters' top so that they are set at the positions 2 to 3mm higher than the UPPER-PAPER-GUIDE's slit.



4. After determining the angle, fully tighten the screws (a) and (b). Then fix the metal plate with the SL01 fixed.



5. 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.

6. Reverse the steps 1 to 3 to install the covers on their original positions.

7. 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. **9-221**).

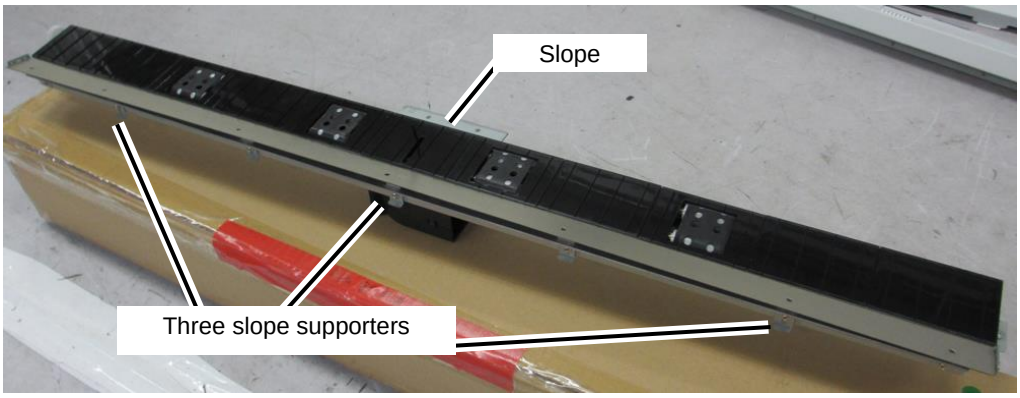
Cause 1: The height of the transport unit slope is not suitable (either too high or too low)

-> 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 three slope supporters in thereference positions, and adjust the slope to the suitable height.

TRANSPORT UNIT



Reference positions for each slope supporter

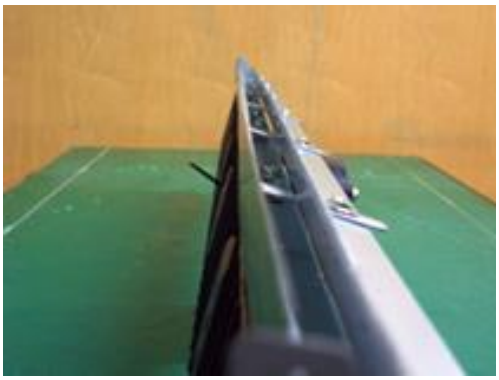
- Central supporter

  Median position between the third and the fourth graduations from the bottom.

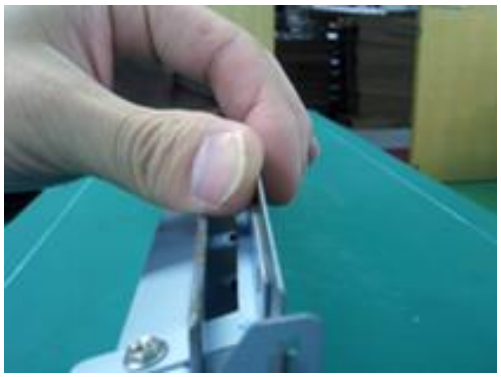
- Second supporters from the center

  Third graduation from the bottom.

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).

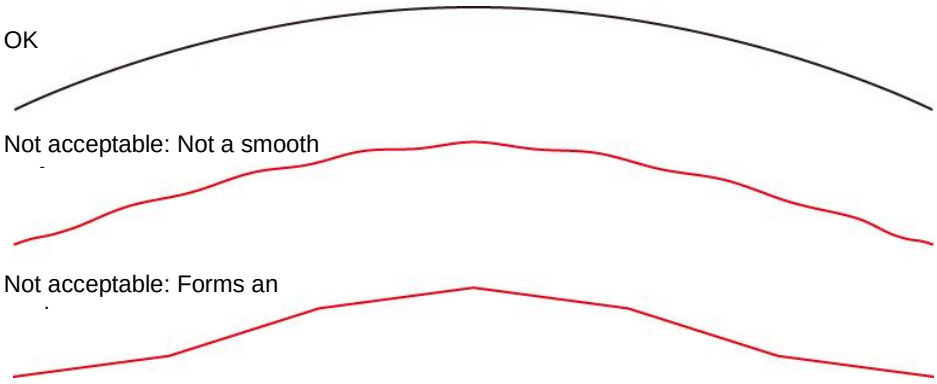


Slope viewed from an end



Adjust the shape with your fingers

- The slope must be symmetrical in the longitudinal direction.
- No protruding or hollowed areas must not be found.



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.

- Central supporter — Adjust to the fourth graduation from the bottom.
- Second supporters from the center — Adjust to the median position between the third and the fourth 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 **2-43** 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-2060)	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. (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>

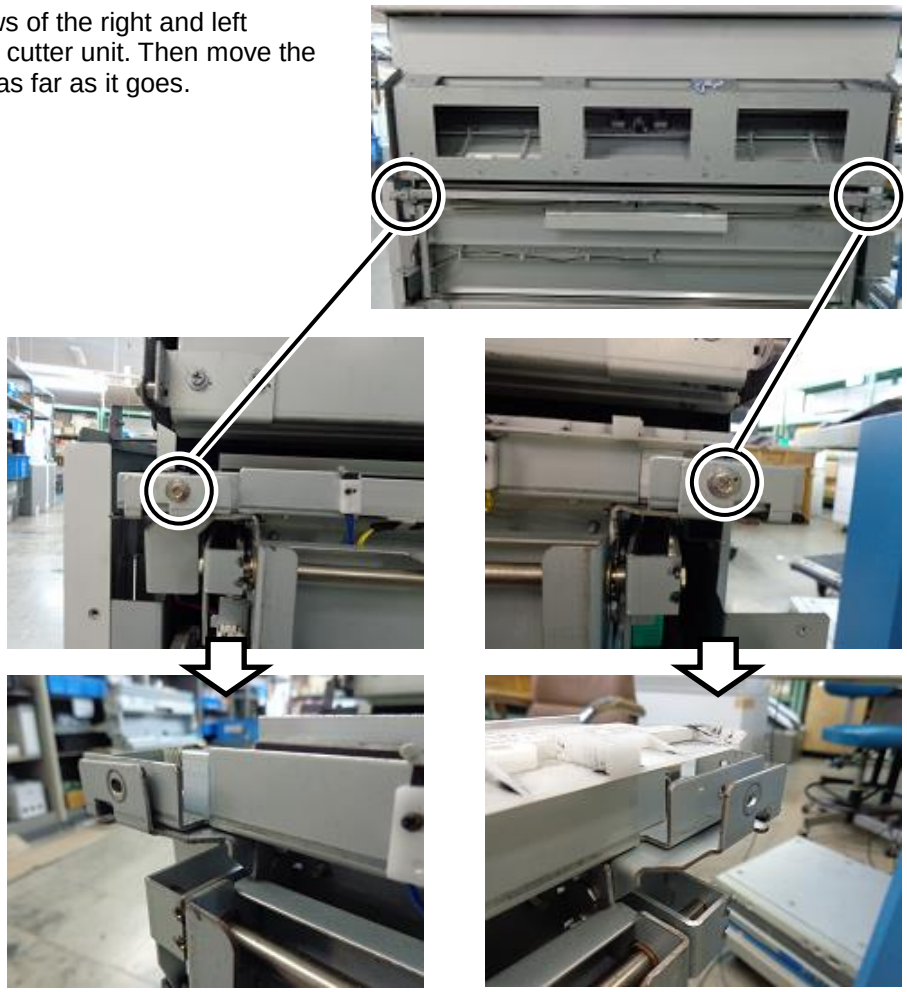
- SPACER CUTTER MNT, U00132847700, 50 pcs/set.

Note

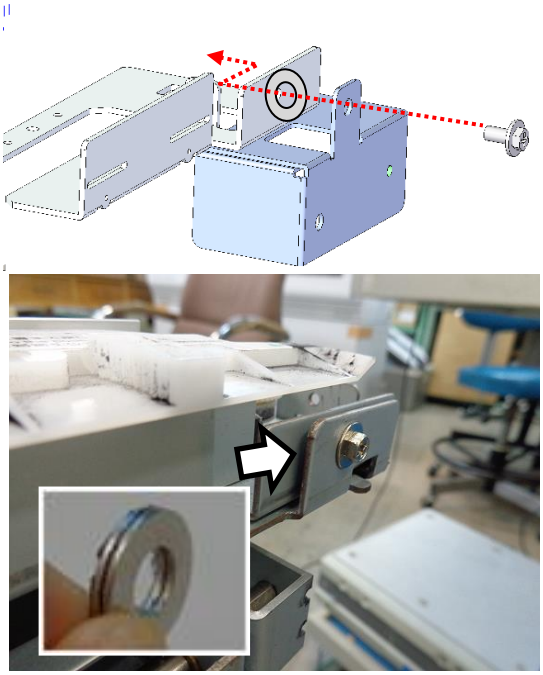
One printer needs two SPACER CUTTERs.
(The left picture shows one SPACER CUTTER.)

1. From the upper roll paper drawer, remove the COVER FRONT ROLL and COVER(CUTTER-(L/R)).

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. Remove the release paper, insert the SPACER CUTTERs between the cutter unit and the brackets on the right and left, and then secure them with screws.



Tip

To prevent the SPACER CUTTER from dropping, follow the procedure below.

(a) Attach the SPACFER CUTTER on the bracket with two-sided adhesive tape so that the screw passes through the SPACER CUTTERs' hole.

(b) Install the SPACER CUTTER.

4. Install the COVER FRONT ROLL and COVER(CUTTER-(L/R)) removed at the 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. **9-231** of the ***Maintenance and Troubleshooting Manual***).

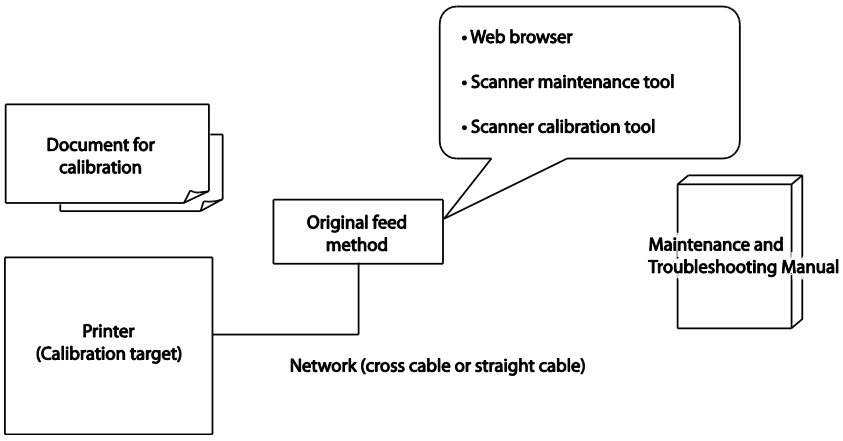


Figure 11.1 Equipment Needed for Calibration

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

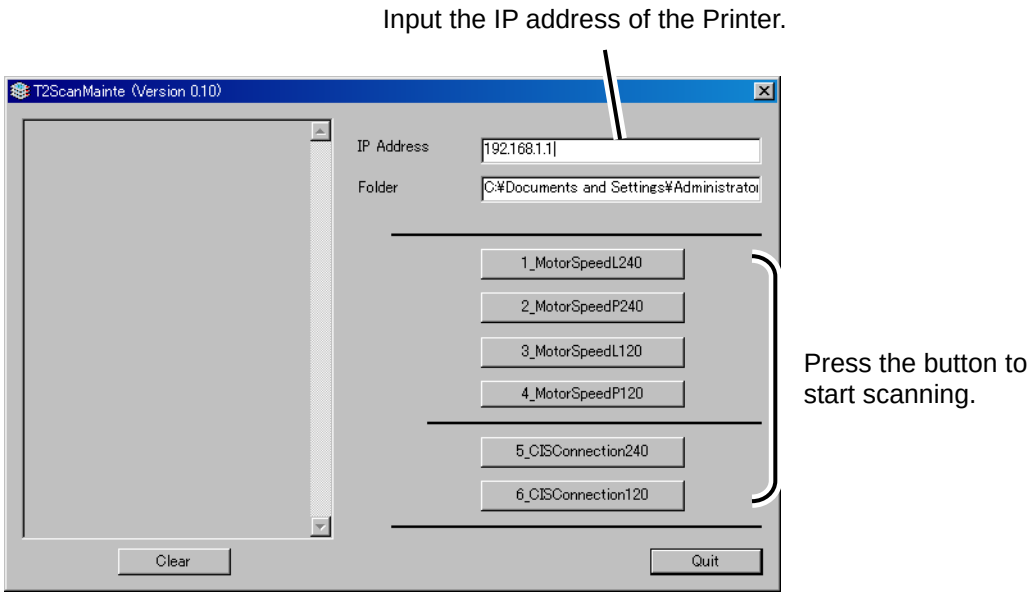
11.1.3.1 Calibration PC Requirements

The PC for the calibration must meet the following requirements.

- Windows 7/8.1/10
- 2 GB RAM 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)

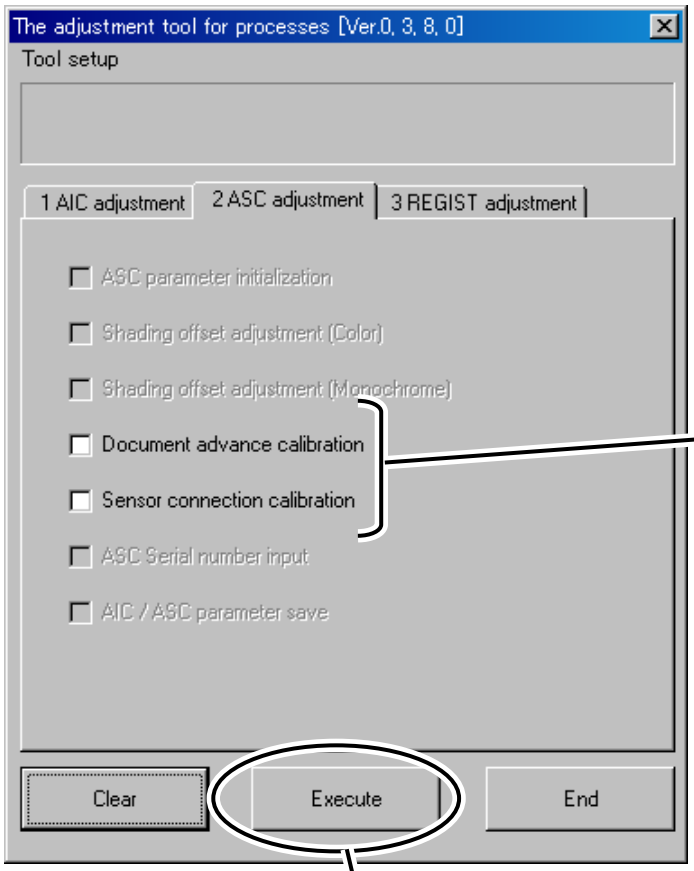
11.1.3.2 Scanner Maintenance Tool (ScanMainte.exe)

This tool scans with specific scan conditions for calibration.
Works under Windows 7/8.1/10.
Double click ScanMainte.exe to launch the tool.
The scanner operates via the Printer's **Scan** function.



11.1.3.3 Scanner Calibration Tool (MFTool.exe)

This tool calculates calibration values from the BMP image scanned with the scanner maintenance tool.
Works under Windows 7/8.1/10.
Double click MFTool.exe to launch the tool.



On finishing, the tool puts a check in the box.

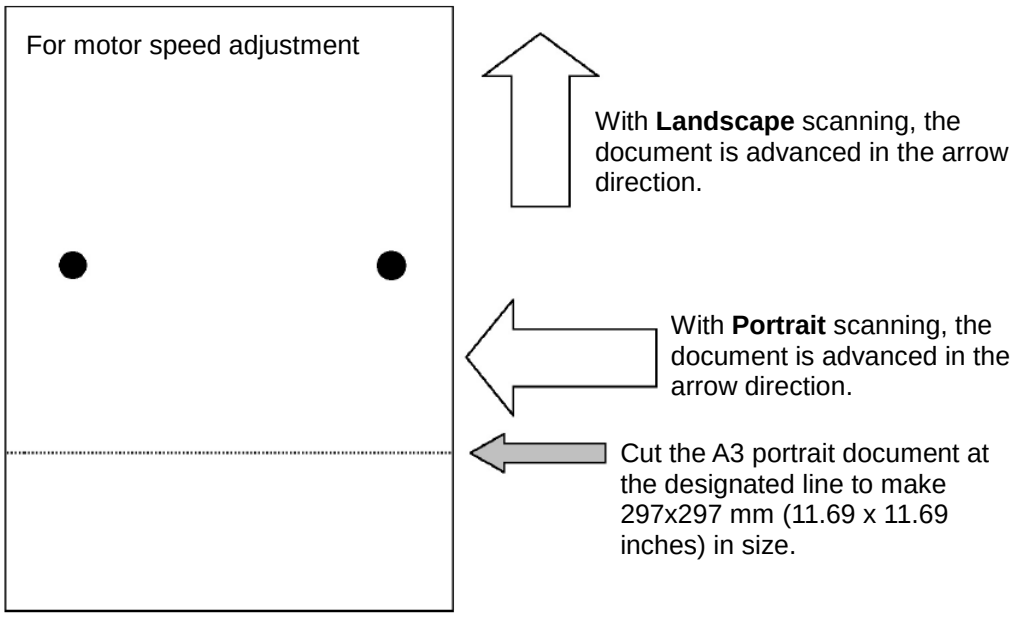
Click this button to move to each calibration screen.

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)

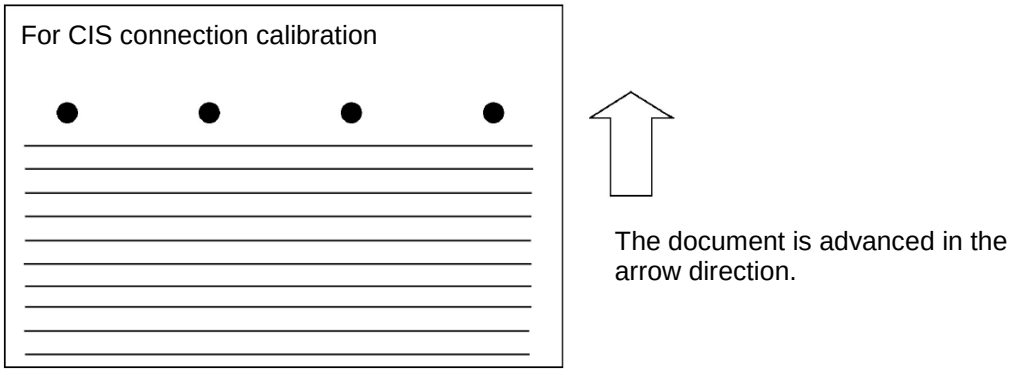
With the document below, calibrate the motor speed to feed the document.



Size: 297x297 mm
(11.69 x 11.69 inches)

(2) For Sensor Connection Calibration (CIS Connection Calibration)

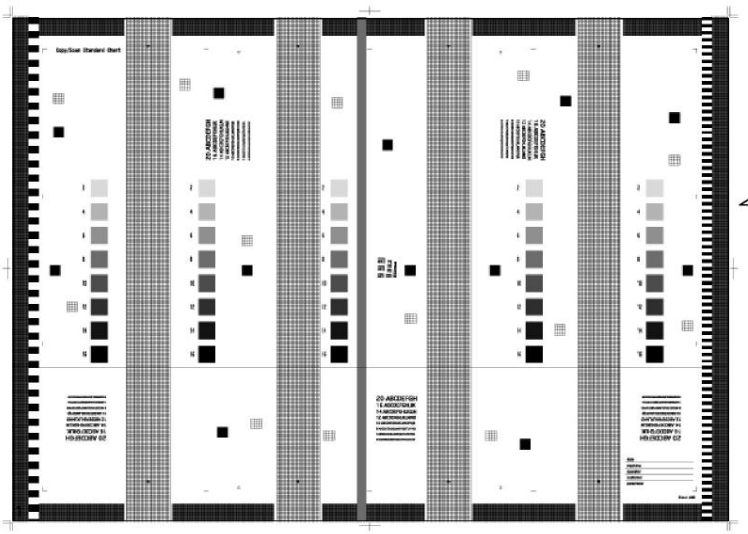
With the document below, calibrate the CIS sensor connection.



Size: A1 horizontal

(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.

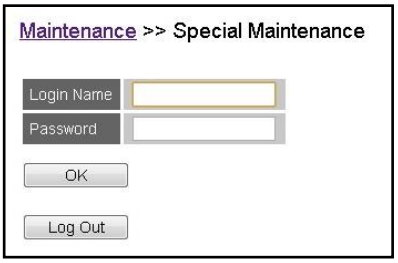
(ii) When the main page for the printer's web tool appears in the browser, click **Maintenance** in the list on the left side of the page. Then, click **8. Special Maintenance**.

(iii) Enter the following login name and password.

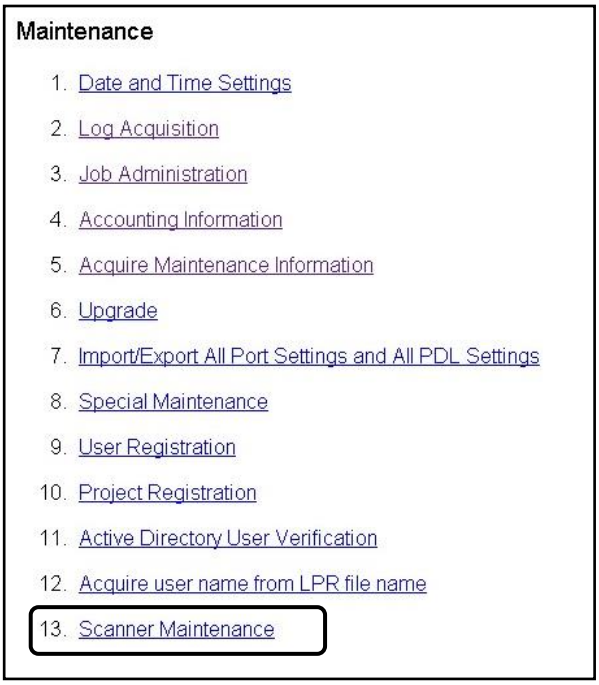
Login name: **maintenance**
Password for maintenance: **tktk2010**

or

Login name: **t2t2**
Password for maintenance: **12325802**

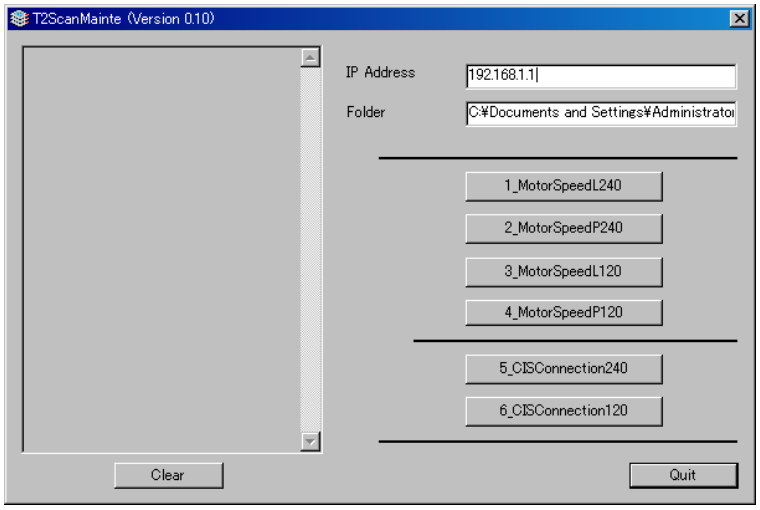


(iv) Click the **Scanner Maintenance** link on the maintenance page and open the **Scanner Parameter** page.

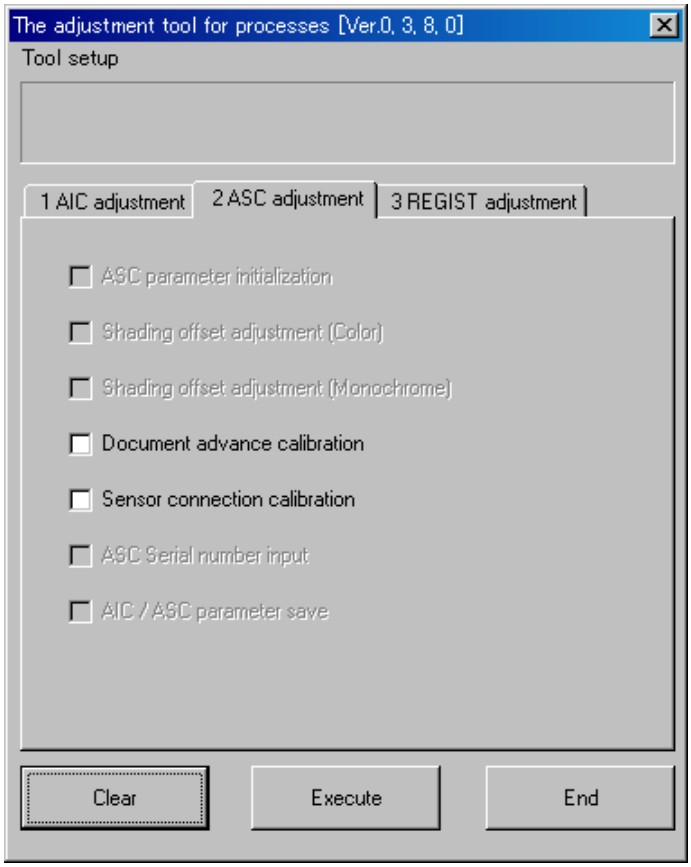


* For easier operation, you are recommended to open this link in a new window.

(b) Launch the scanner maintenance tool

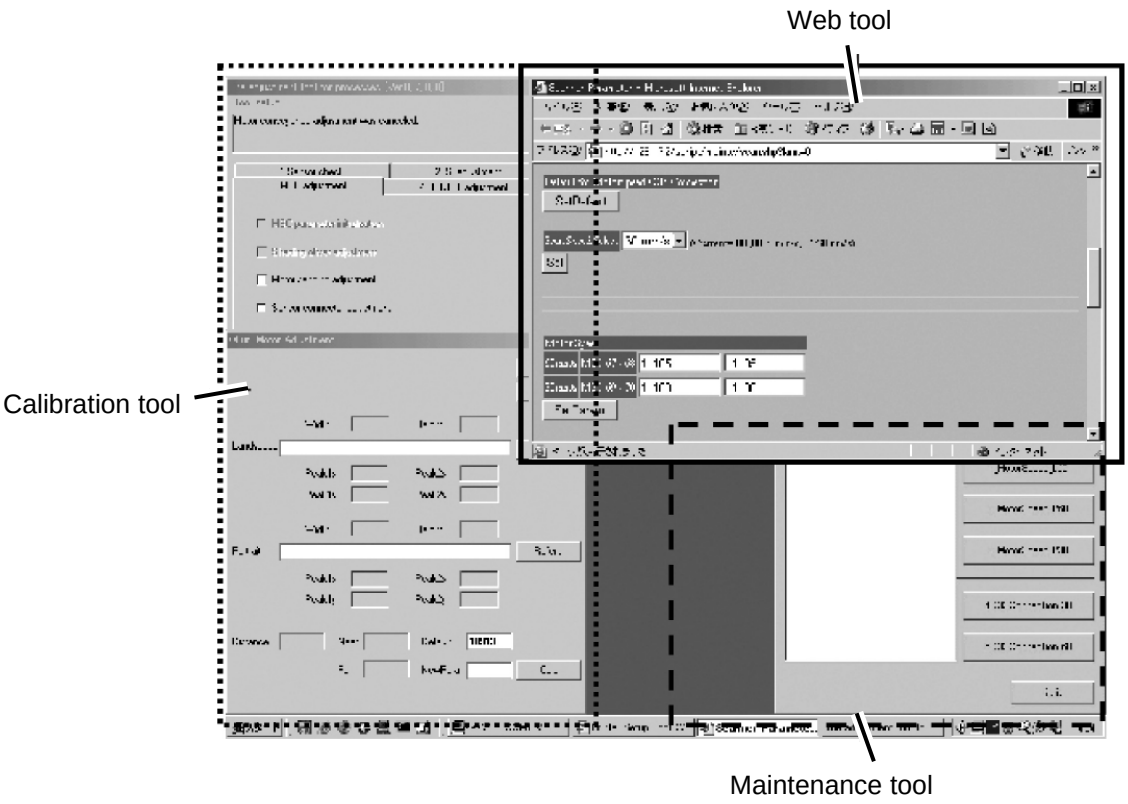


(c) Launch the scanner calibration tool



(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

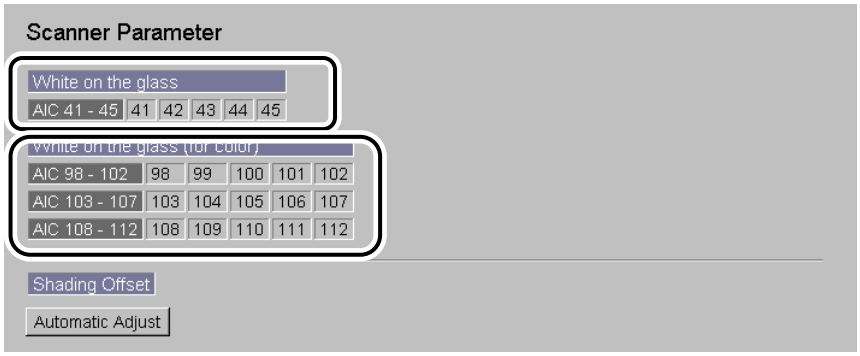
(1) Turn on the Printer.

(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.

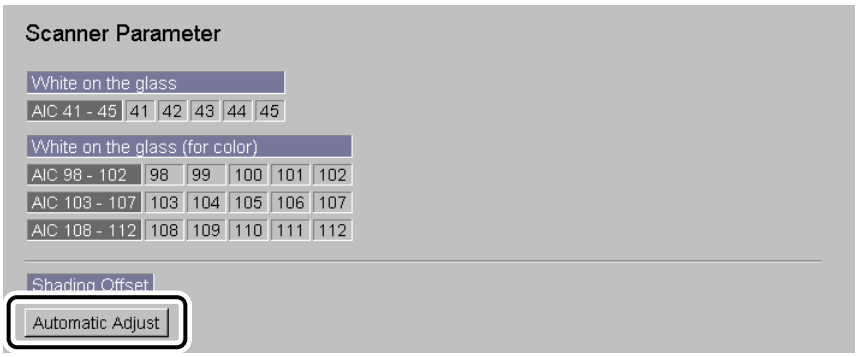


(3) Click the Automatic Adjust button below White on the glass on the Scanner Parameter page.

Note:

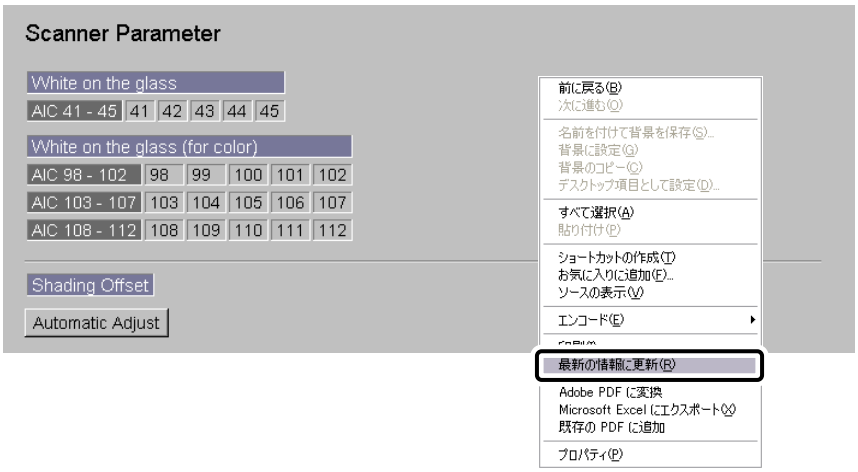
(a) It takes a few seconds from the time the button is pressed until it finishes.

(b) Only the values for Shading Offset and Shading Offset (for color) are eligible for automatic adjustment.

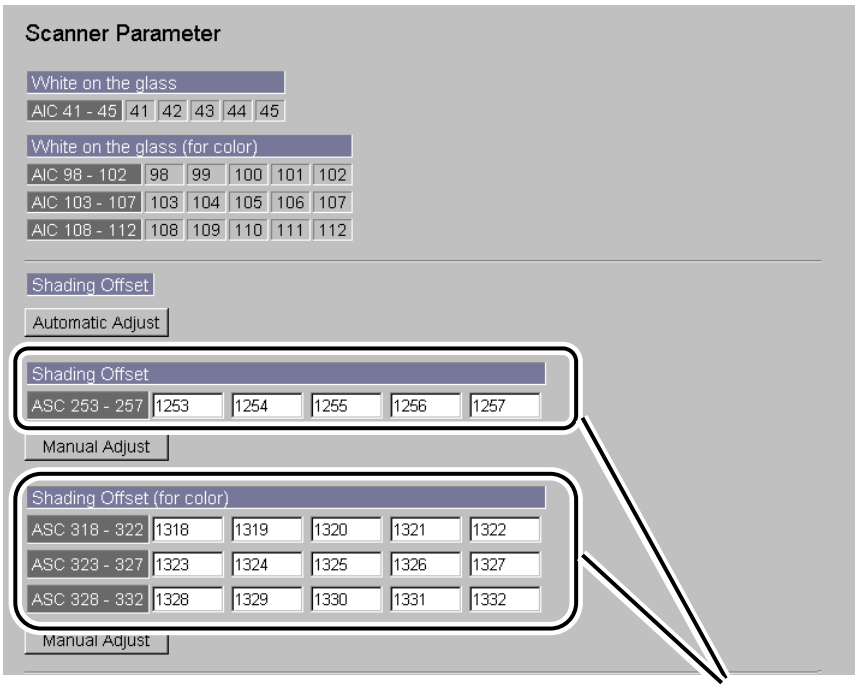


Press the button to perform the calibration.

(4) When the calibration is finished, reload the **Scanner Parameter** page.



(5) Check to confirm that the **Shading Offset** calibration value has been updated.

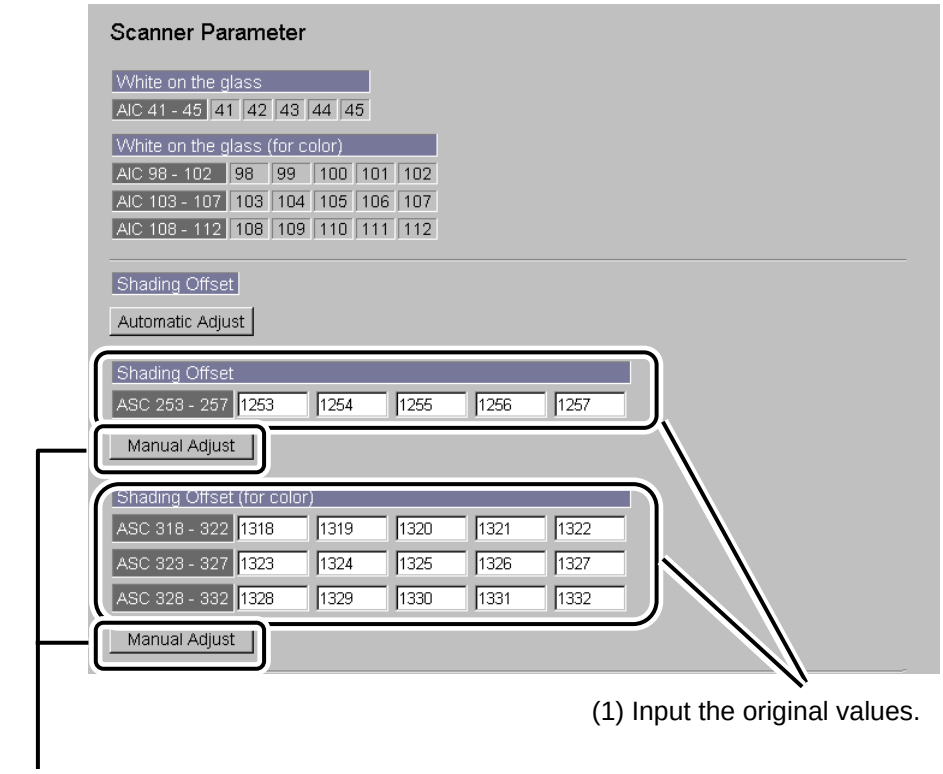


Calibration results are shown here.

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.



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

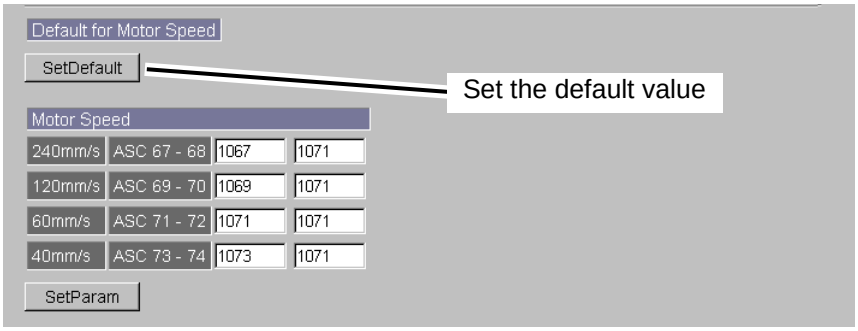
Note:

The higher the value is, the faster the document advance speed is and the more the scan image shrinks in the main scanning direction.

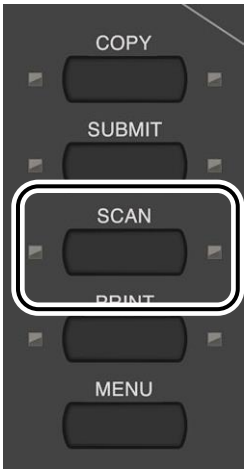
Calibration Instructions

(1) Turn on the Printer.

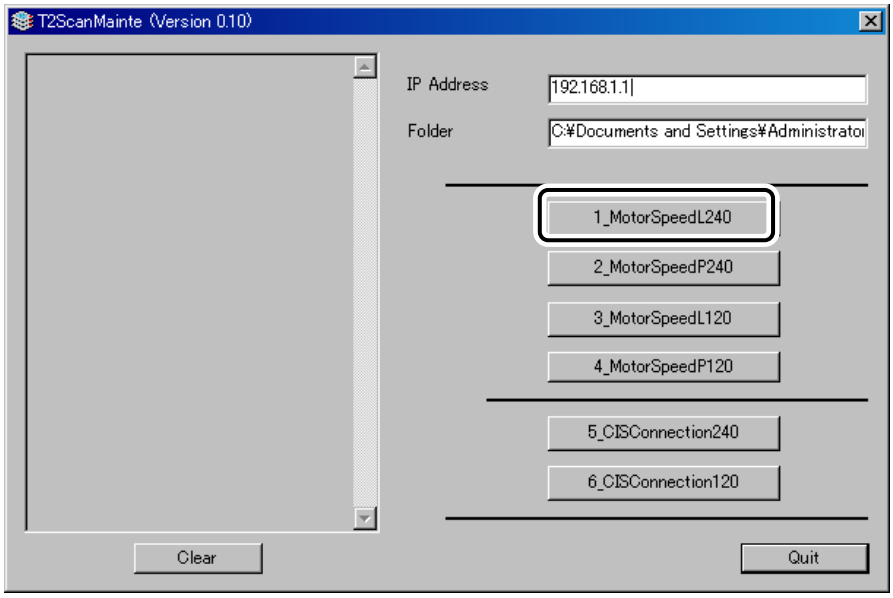
(2) To set the default value for calibration, click **Set Default** under **Default for Motor Speed** on the web interface's **Scanner Parameter** page.



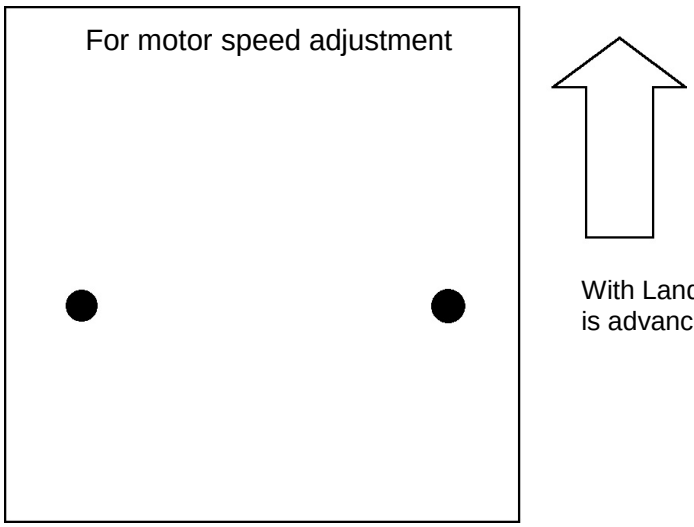
(3) Switch the Printer to **Scan** mode.



(4) Click the **1_MotorSpeedL240** button in the scanner maintenance tool.



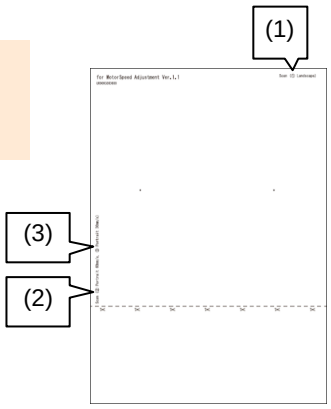
(5) When the operation panel displays **Load the original**., place the calibration document in the landscape orientation, the direction noted in (a).



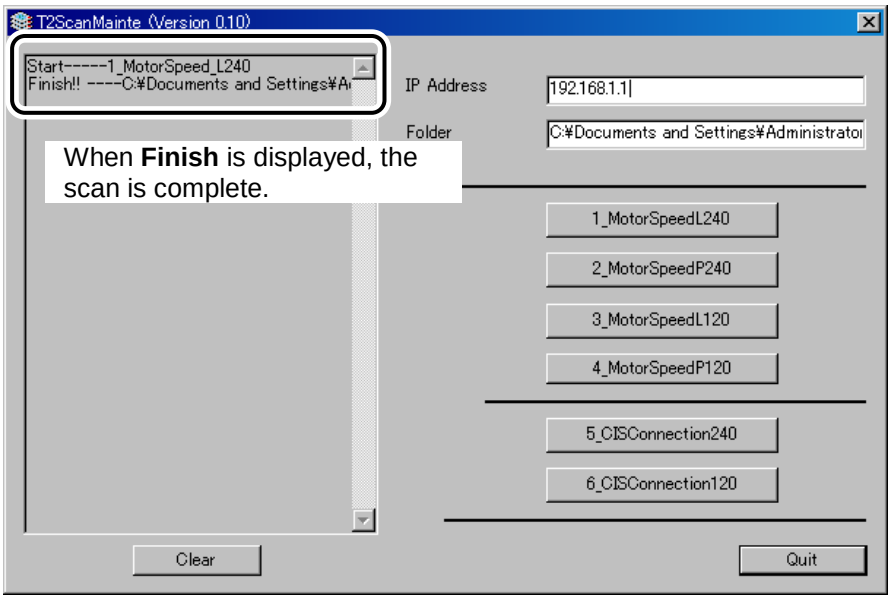
With Landscape scanning, the document is advanced in the arrow direction (a).

Note

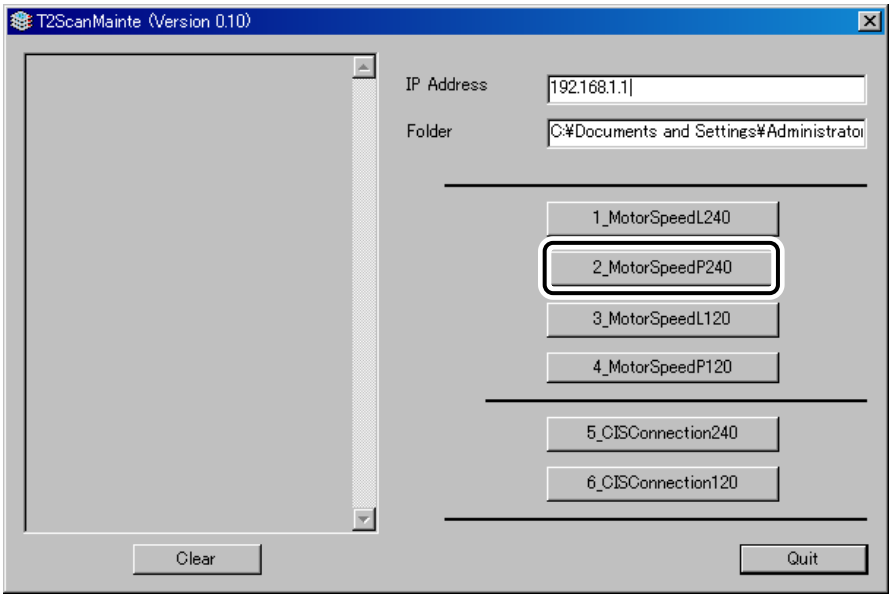
Ignore the numbers (1), (2), and (3) marked in the document for the adjustment and check.



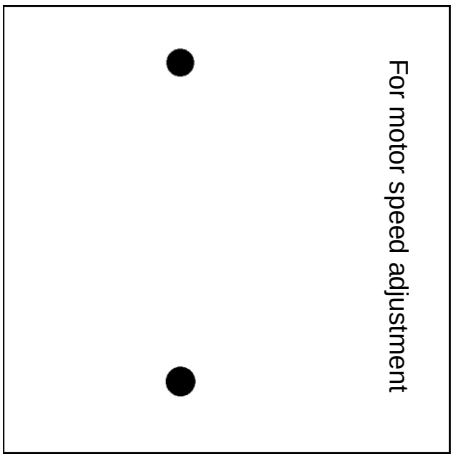
(6) Once the original document has been scanned, check that the file **1_MotorSpeed_L240.bmp** has been created in the scanner maintenance tool folder.



(7) Next, click the **2_MotorSpeedP240** button in the scanner maintenance tool.

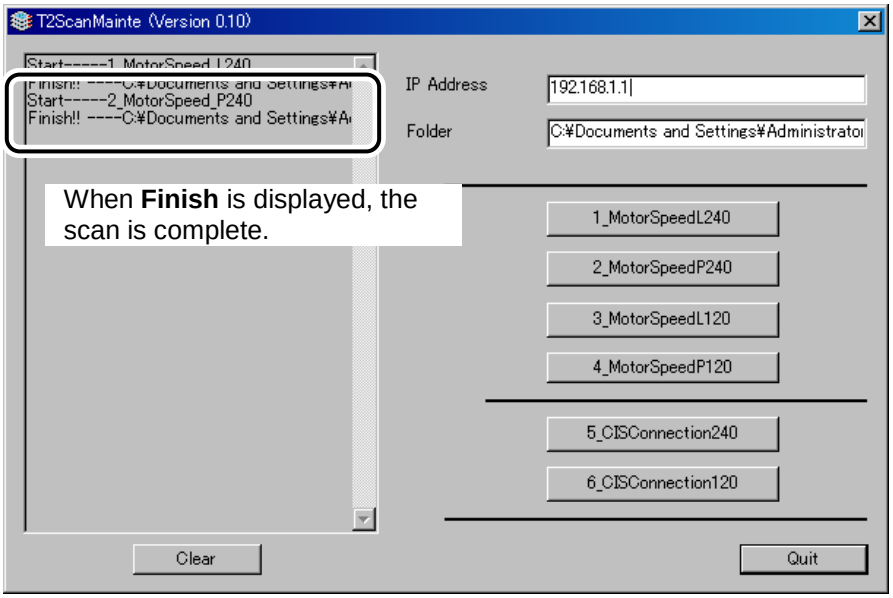


(8) When the operation panel displays **Load the original**., place the calibration document in the landscape orientation, the direction noted in (c).

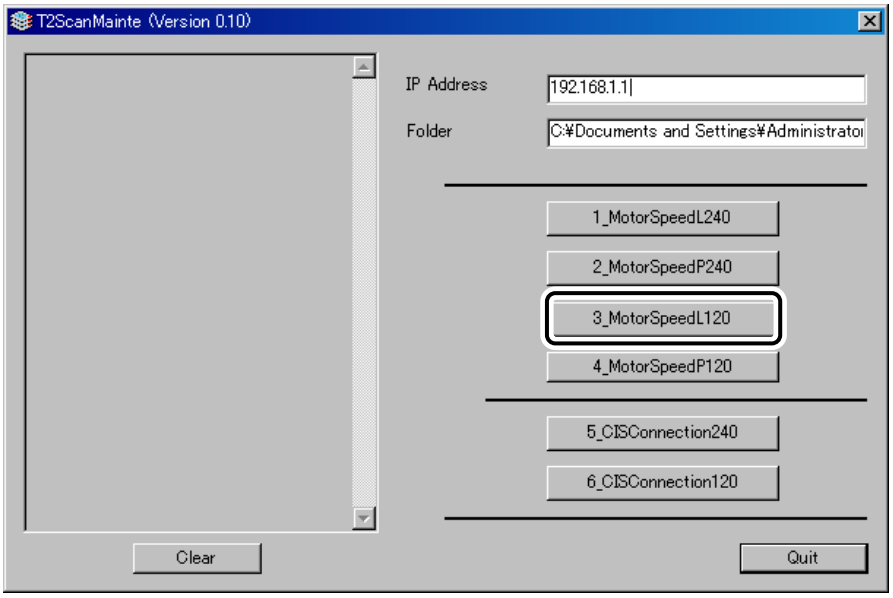


With **Landscape** scanning, the document is advanced in the arrow direction (c).

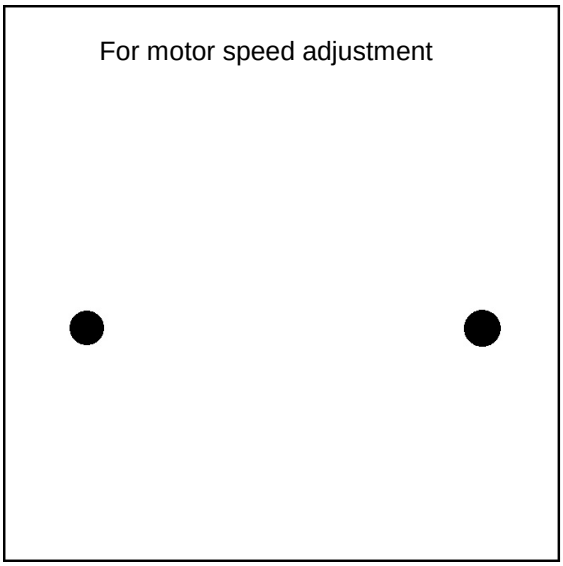
(9) Once the original document has been scanned, check that the file **2_MotorSpeed_P240.bmp** has been created in the scanner maintenance tool folder.

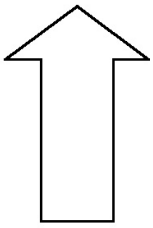


(10) Click the **3_MotorSpeedL120** button in the scanner maintenance tool.



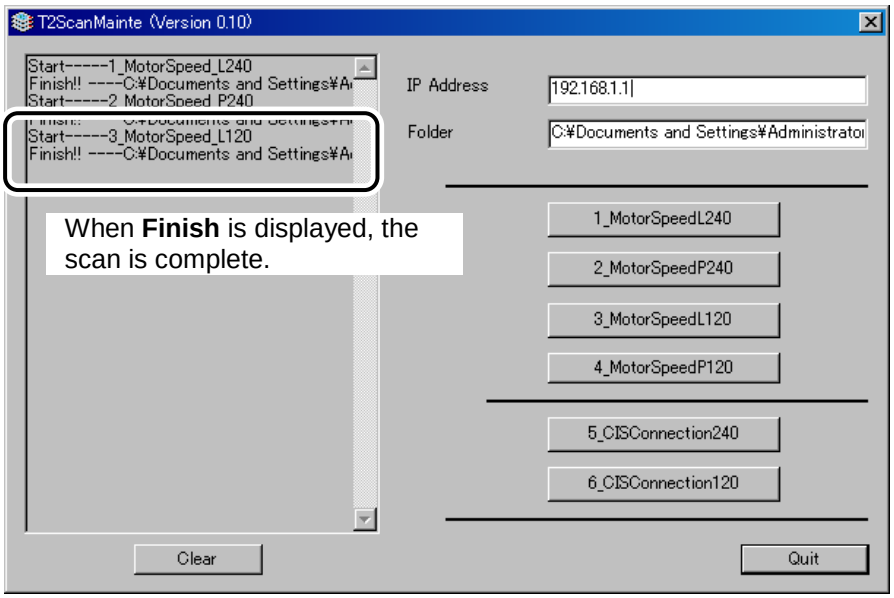
(11) When the operation panel displays **Load the original**., place the calibration document in the portrait orientation, the direction noted in (d).



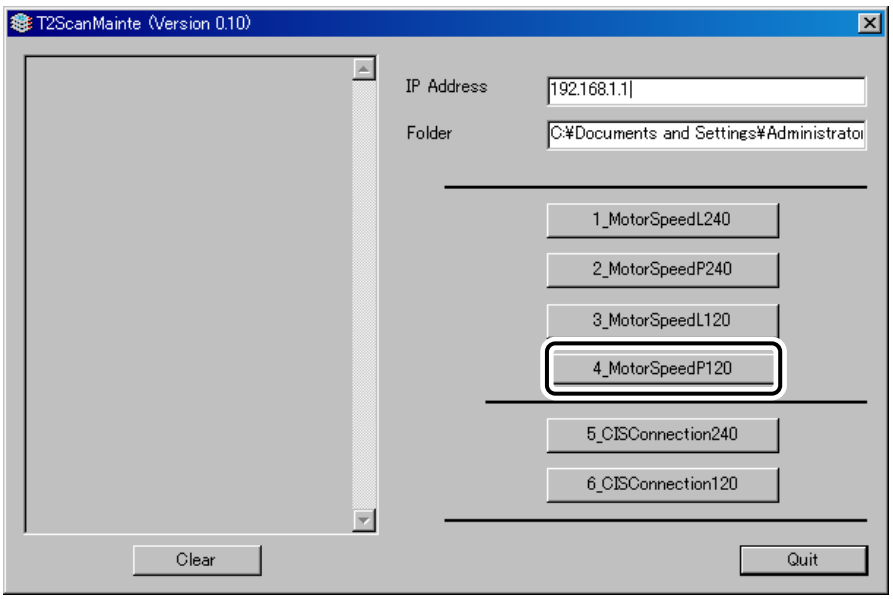


With **Portrait** scanning, the document is advanced in the arrow direction (d).

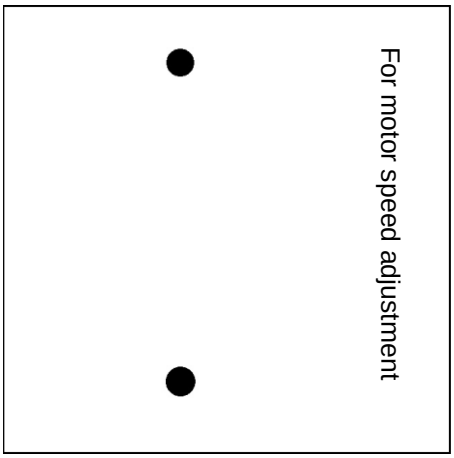
(12) Once the original document has been scanned, check that the file **3_MotorSpeed_L120** has been created in the scanner maintenance tool folder.



(13) Click the **4_MotorSpeedP120** button in the scanner maintenance tool.

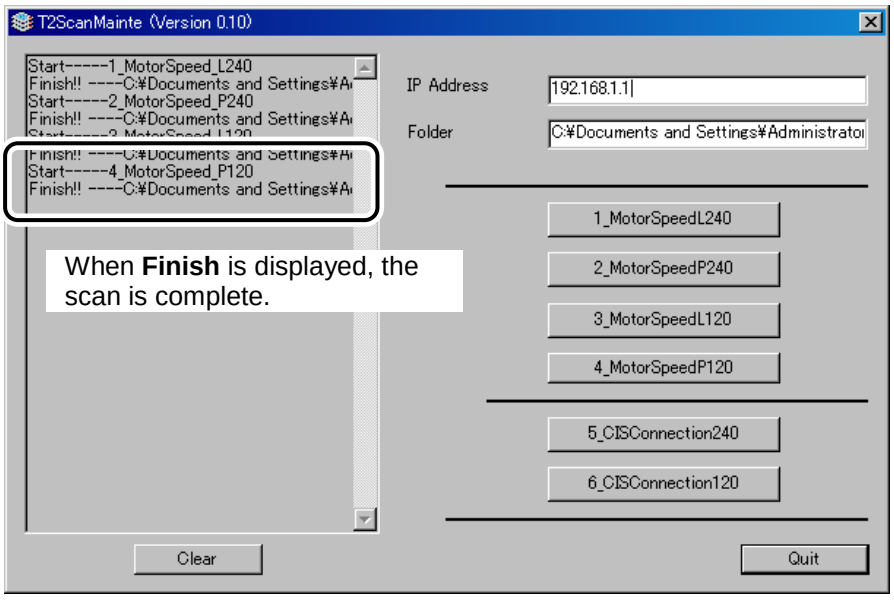


(14) When the operation panel displays **Load the original**., place the calibration document in the portrait orientation, the direction noted in (d).

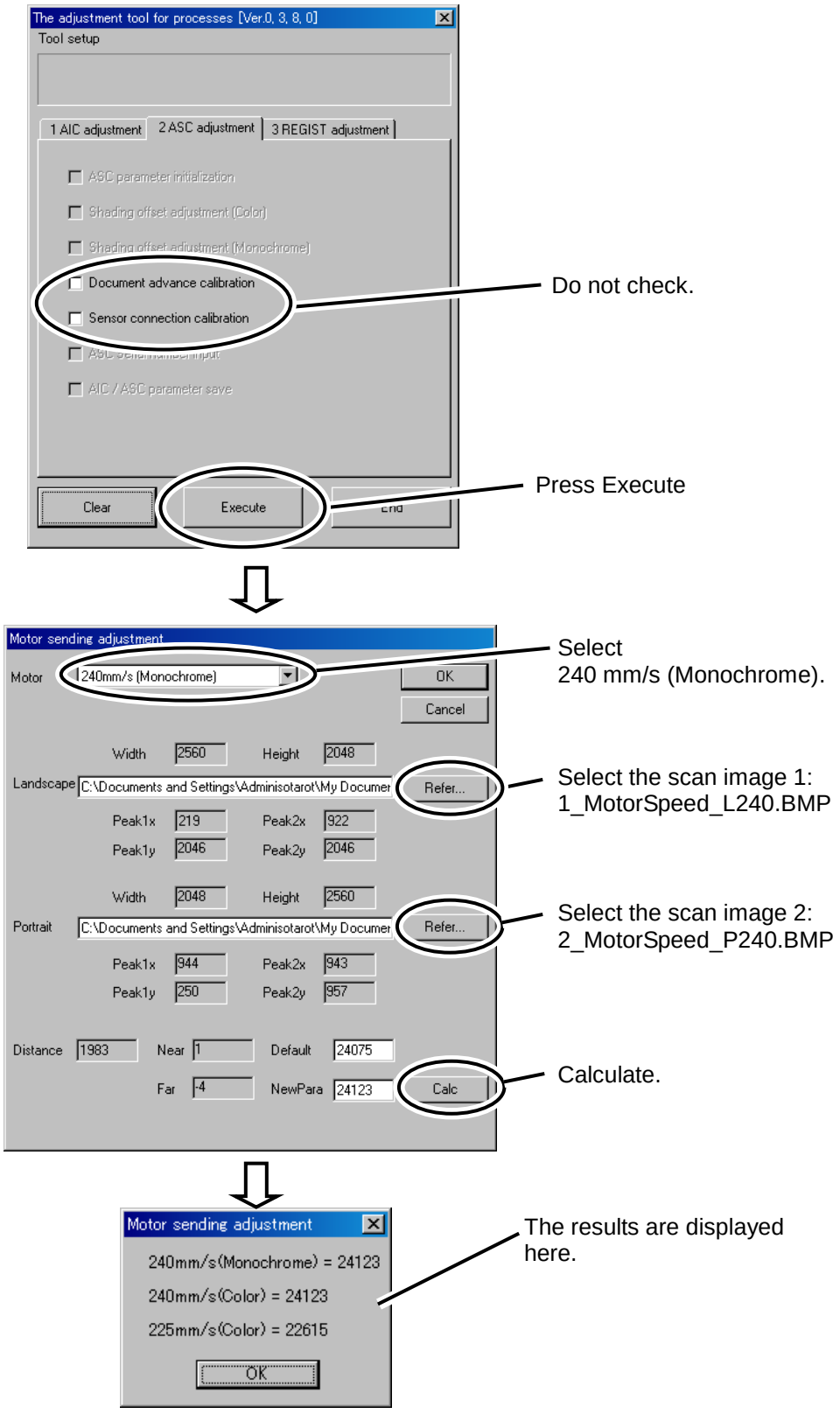


With **Portrait** scanning, the document is advanced in the arrow direction (d).

(15) Once the original document has been scanned, check that the file **4_MotorSpeedP120.bmp** has been created in the scanner maintenance tool folder.



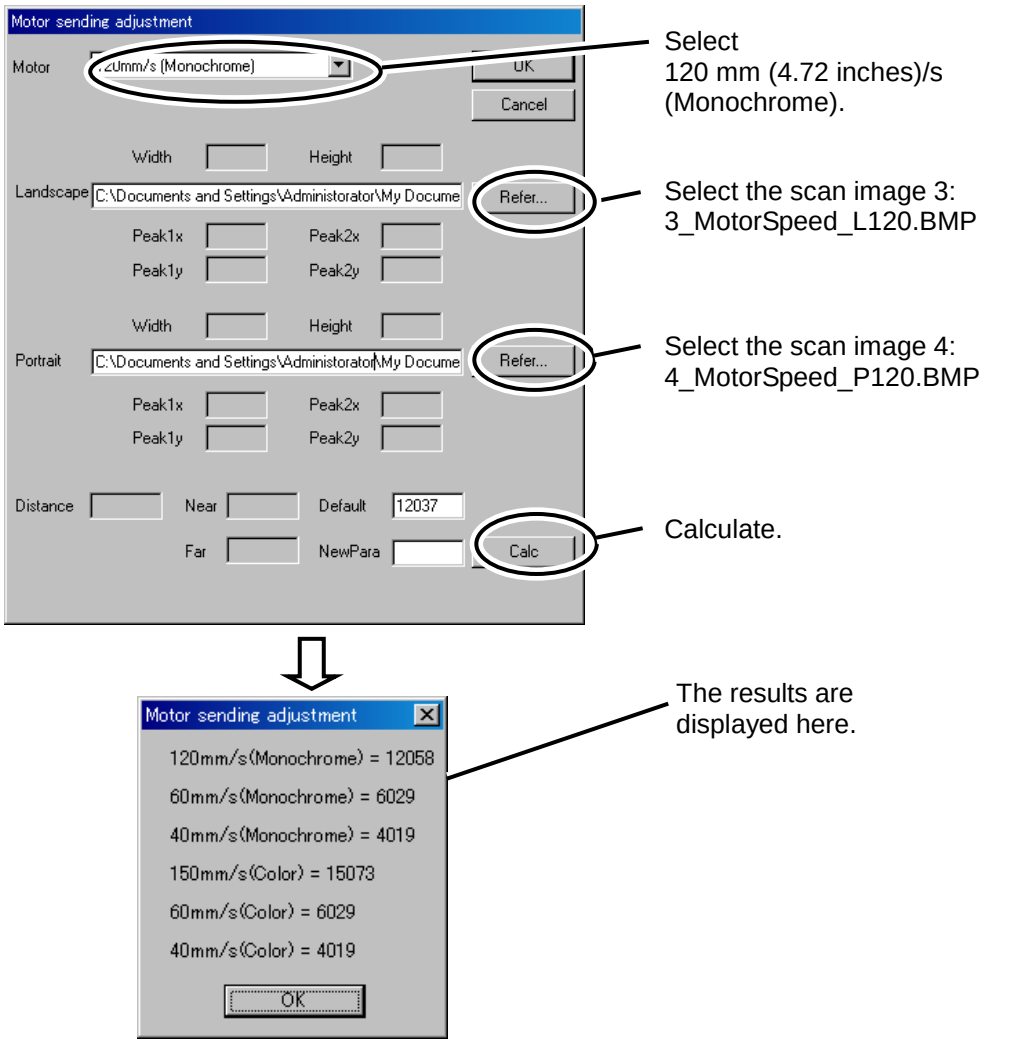
(16) Open **Document Advance Calibration** under **ASC Adjustment** in the scanner calibration tool. Now have the tool calculate the values for the scanned images 1 and 2 for 240 mm/s. Click **Calc**and after a few moments the calibration parameter for 240 mm (9.45 inches)/s is displayed on the screen. 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.



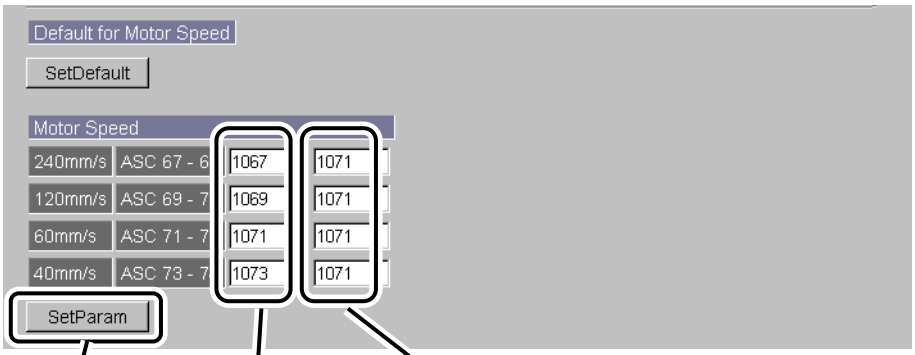
Notes ◇ The PrintScreen key (for taking a screenshot) can be handy for remembering the calculated parameters.

◇ 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)

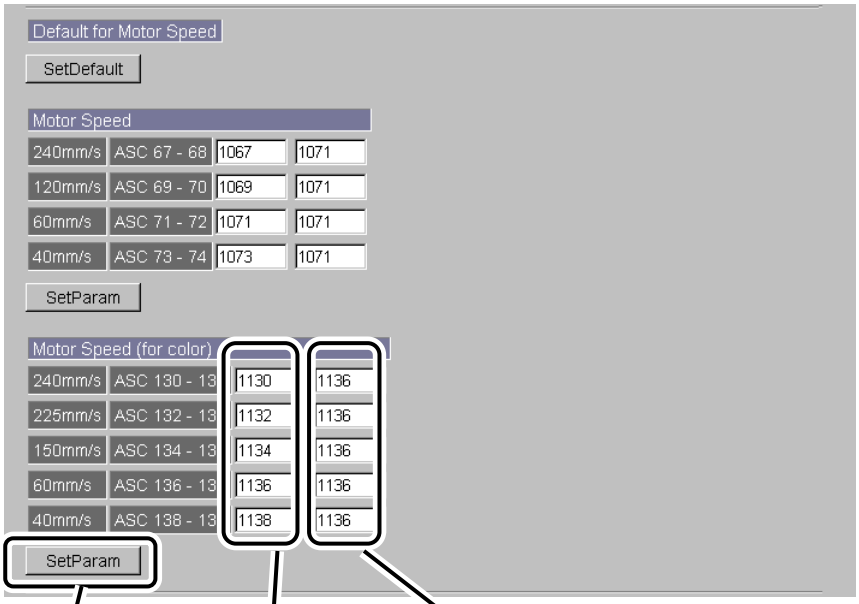


After entering the values, press the button to set them.

Set the following value: Result of the scan images 3 and 4, at Monochrome 6 0mm/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)



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)

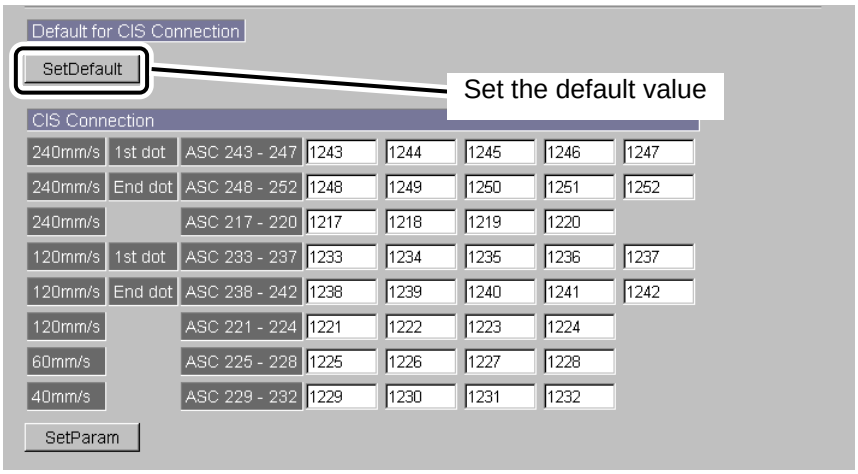
Number	Units	Range	Meaning
ASC-298	Line	-32 to 32	Standard C and A's positional difference (in lines) at 240mm/s
ASC-299	Line	-1168 to 1232	Standard C and B's positional difference (in lines) at 240mm/s
ASC-300	Line	-1168 to 1232	Standard C and D's positional difference (in lines) at 240mm/s
ASC-301	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:

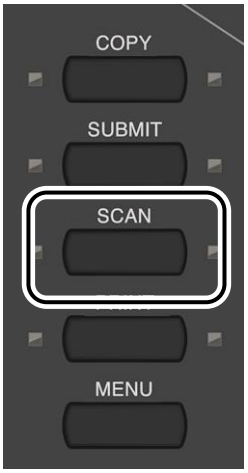
Specify how many lines off the sensors A, B, D, and E are in the subscanning direction, with the CIS(C) position 0 as a baseline.

Calibration Instructions

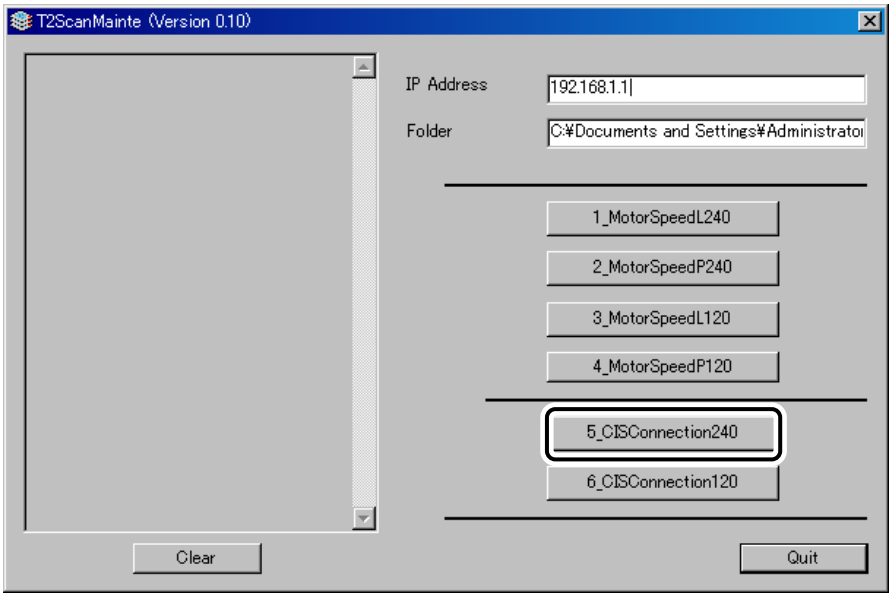
(1) To set the default value for calibration, click Set Default under Default for CIS Connection on the web interface's Scanner Parameter page.



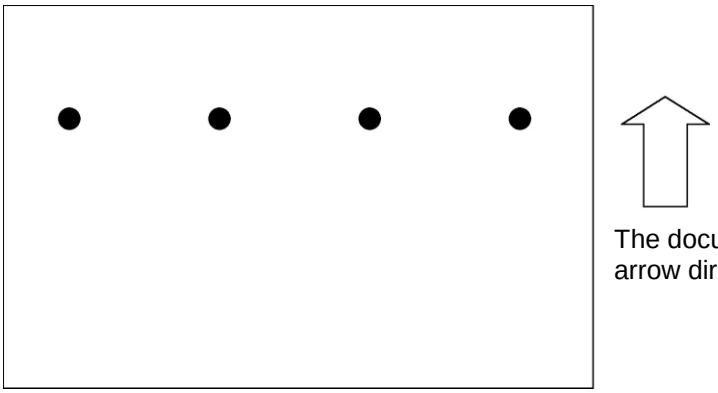
(2) Switch the Printer to **Scan** mode.



(3) Click the **5_CISConnection240** button in the scanner maintenance tool.

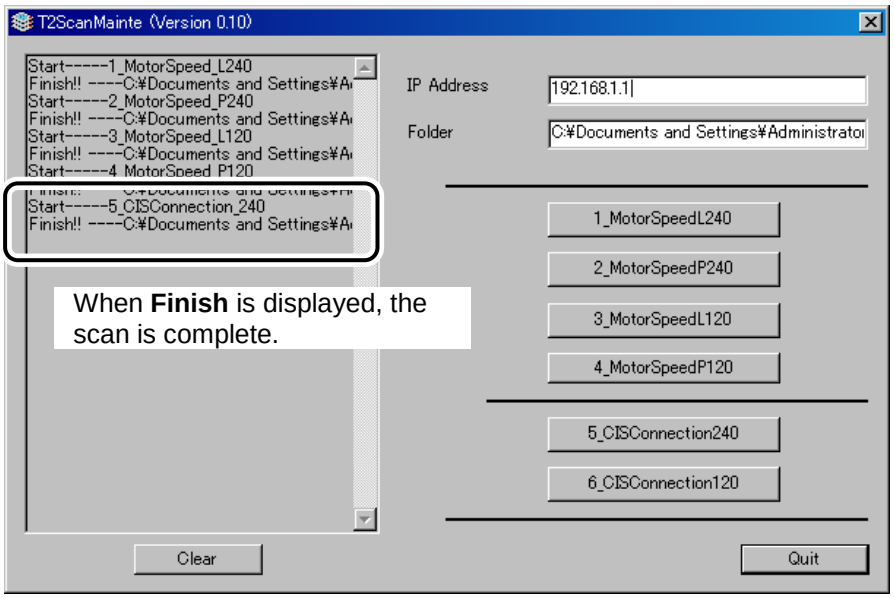


(4) When the operation panel displays Load the original., place the calibration document for scanning in the orientation shown in (e).

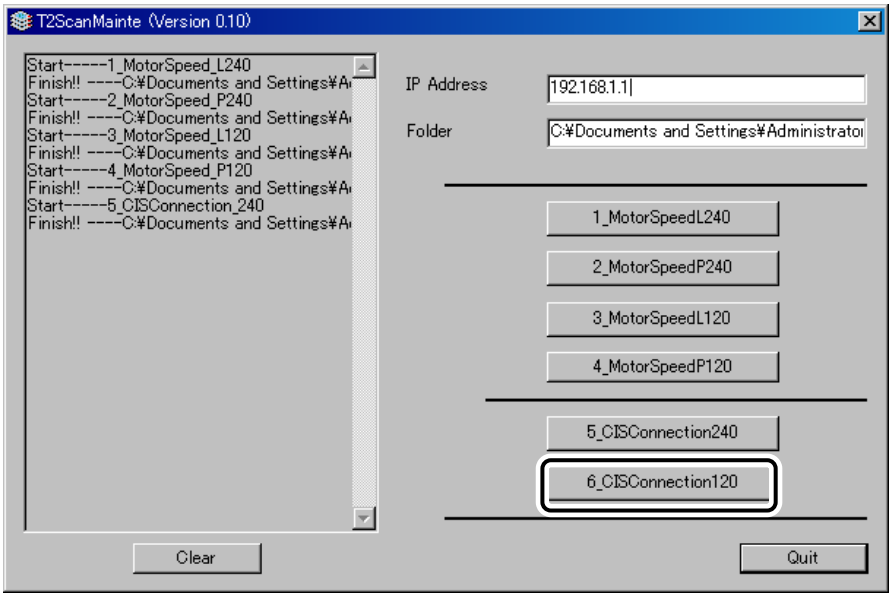


The document is advanced in the arrow direction (e).

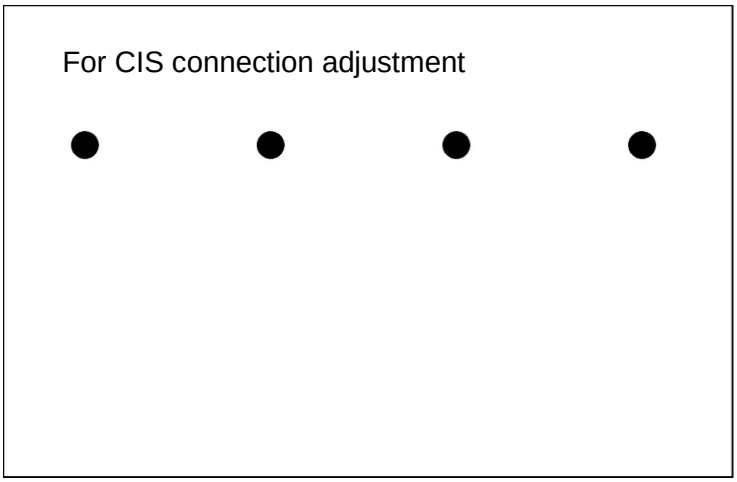
(5) Once the original document has been scanned, check that the file **5_CISConnection_240.bmp** has been created in the scanner maintenance tool folder.



(6) Click the **6_CISConnection120** button in the scanner maintenance tool.

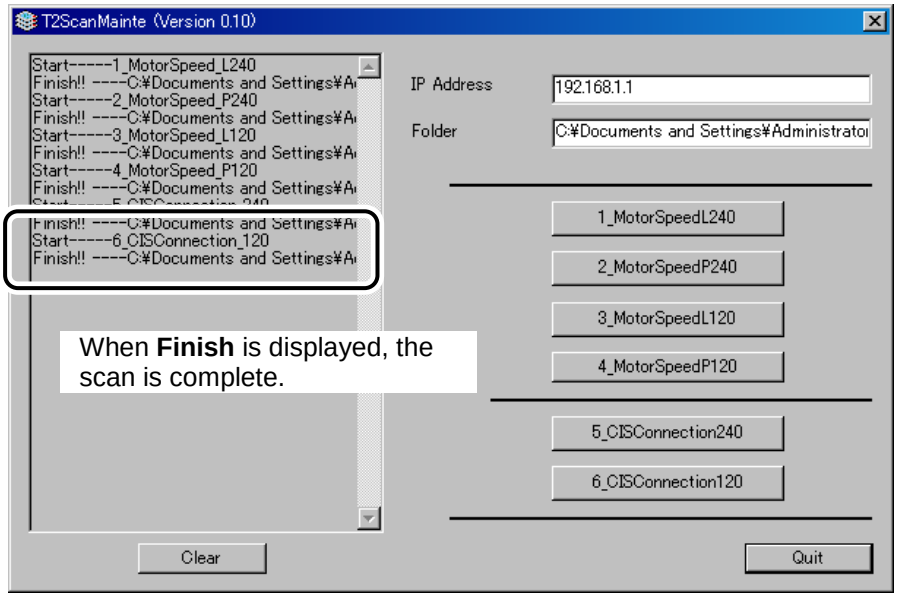


(7) When the operation panel displays **Load the original**., place the calibration document for scanning in the orientation shown in (f).

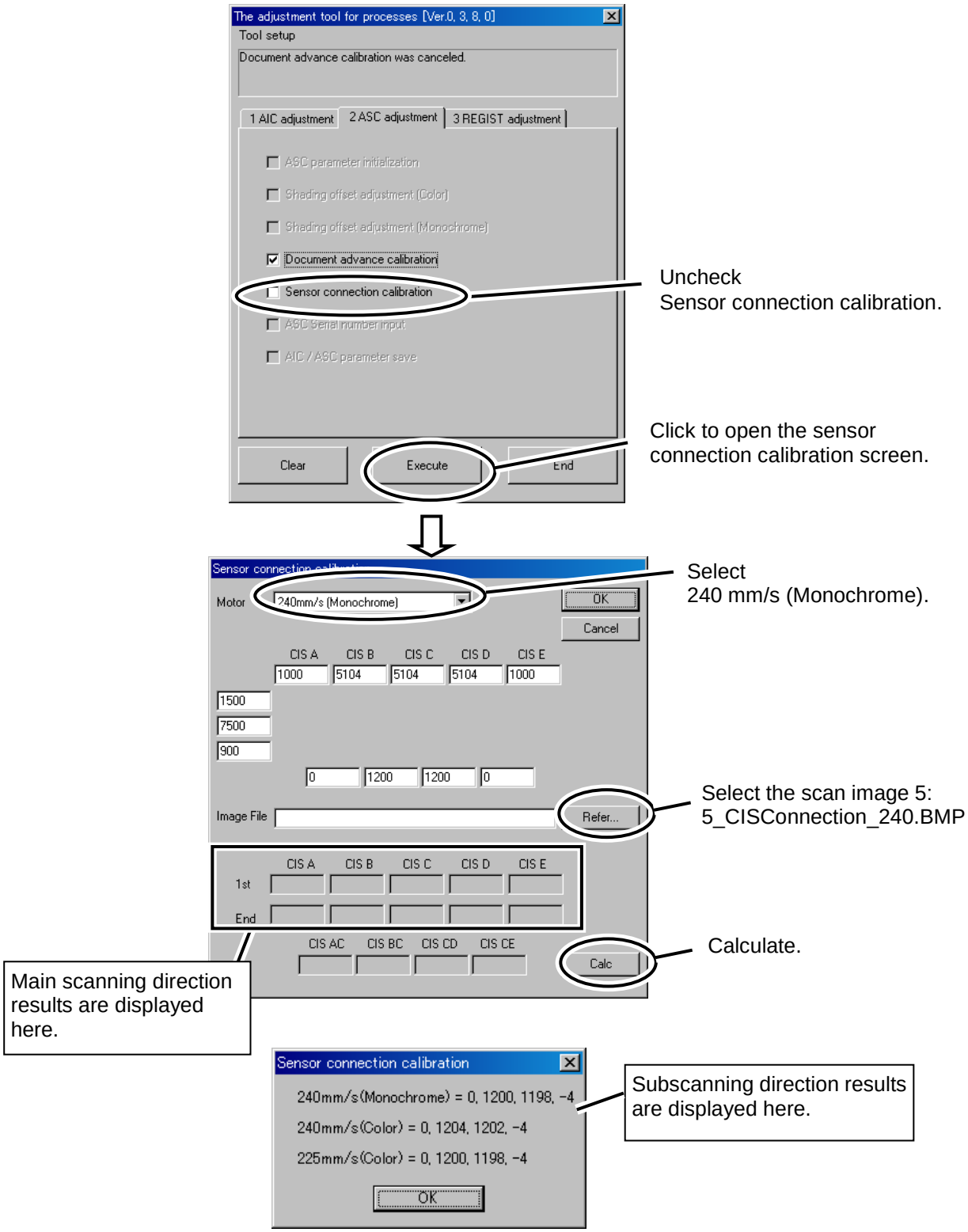


The document is advanced in the arrow direction (f).

(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.



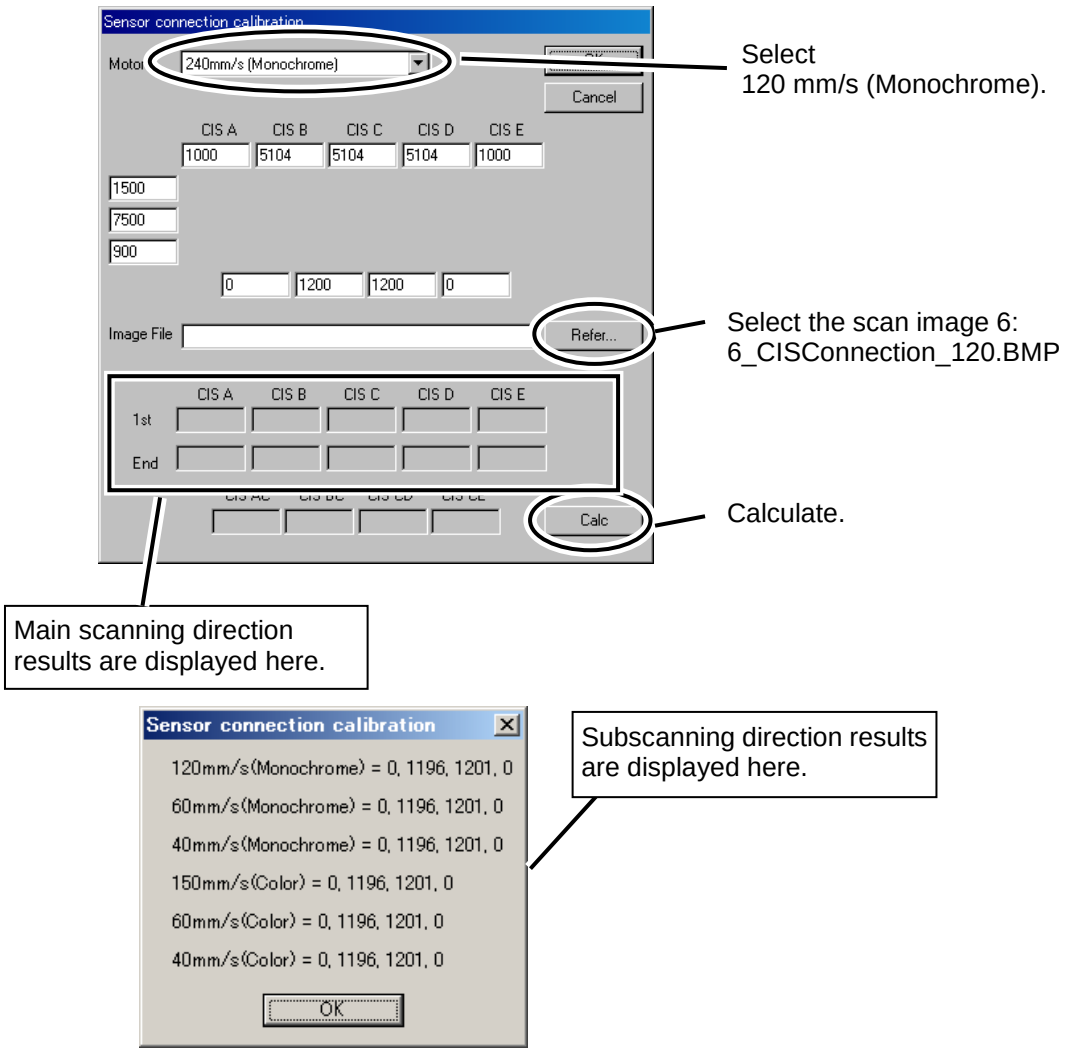
(9) Open **Sensor connector adjustment** under **ASC Adjustment** in the scanner calibration tool. Now have the tool calculate the value for the scanned image 5 for 240 mm/s. Click **Calc** and after a few moments the four calibration parameters for 240 mm/s are displayed on the screen. Write down these values.



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.

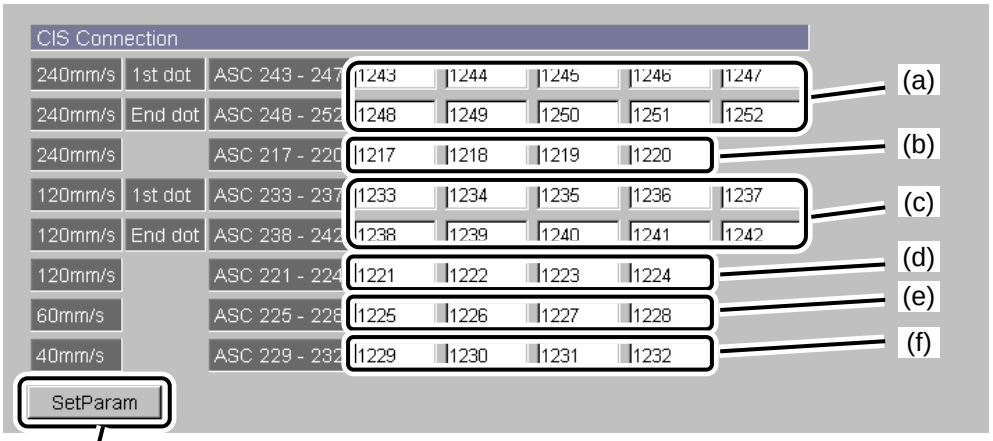


TIP ◇ The PrintScreen key (for taking a screenshot) can be handy for remembering the calculated parameters.

◇ 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**.

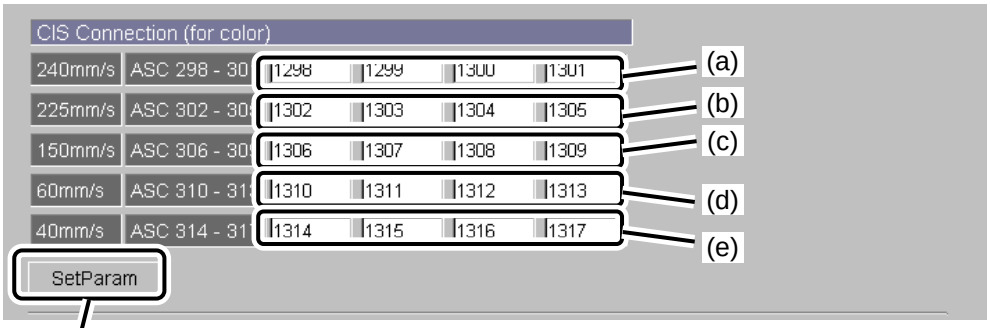


After entering the values,
press the button to set them.

(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 ragistration 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 ragistration 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 ragistration 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 ragistration 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 ragistration 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 ragistration 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 ragistration 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 ragistration 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 ragistration 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 (dot) = 60 (mm/sec) × [R (msec)/1000] × [600 (dpi) /25.4 (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 (msec) = 1000/60 (mm/sec) × [25.4 (mm/inch) /600 (dpi)] ×N (dot) = 25.4/36×N (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.

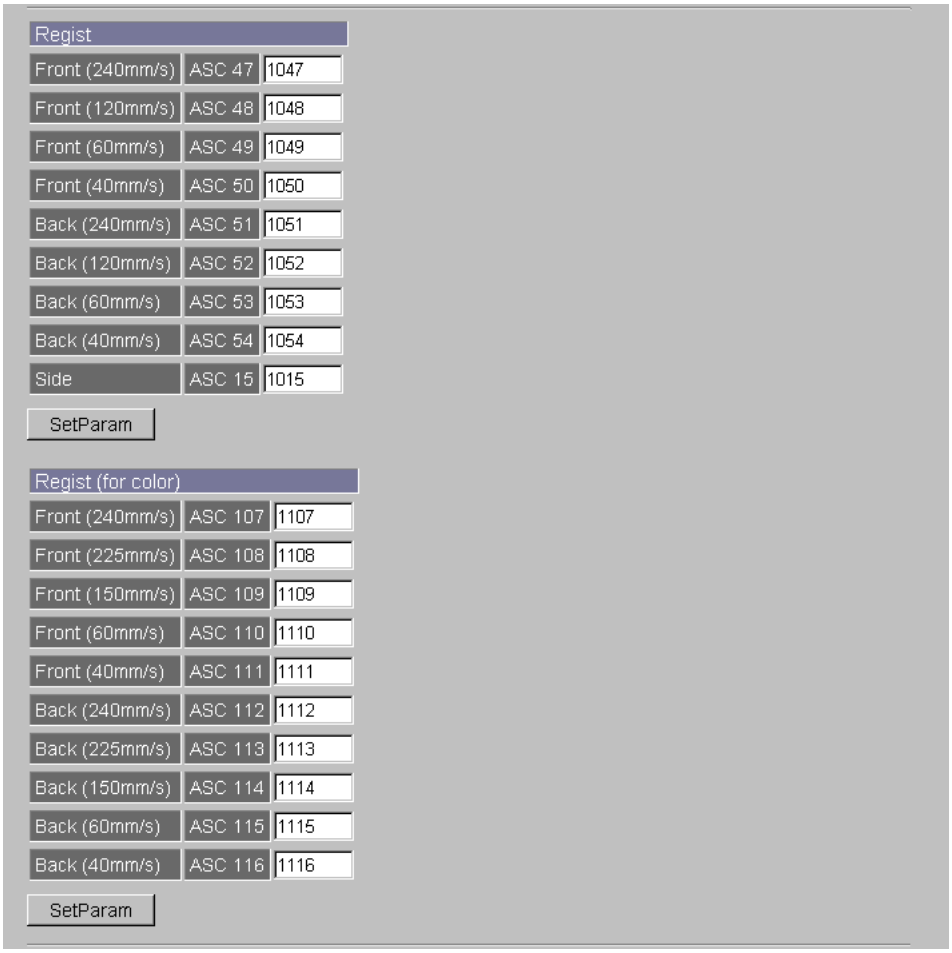
11.1.8.4 Bottom Scan Edge Adjustment

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.

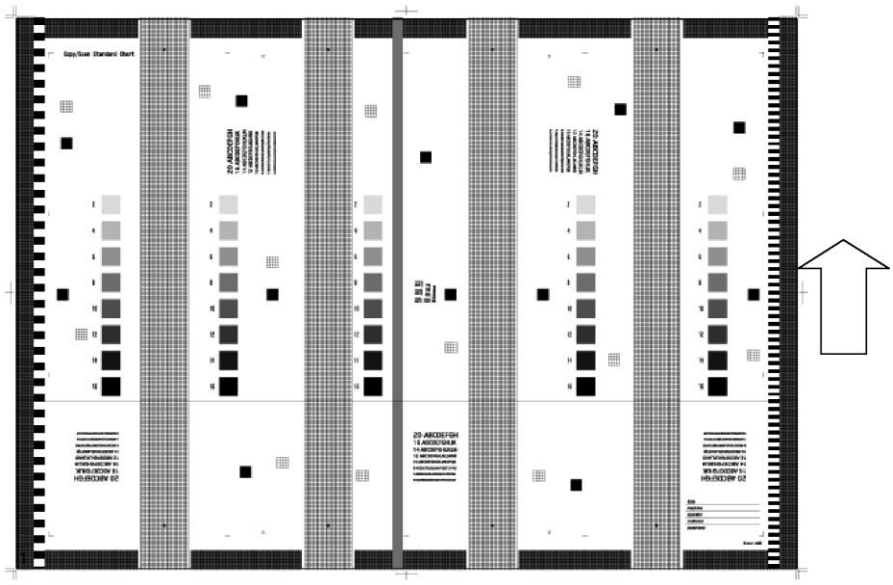
When the bottom edge of the original document is not included in the scanned image, increase the value.
When too much blank space appears in the bottom edge of the scan image, decrease the value.



* 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

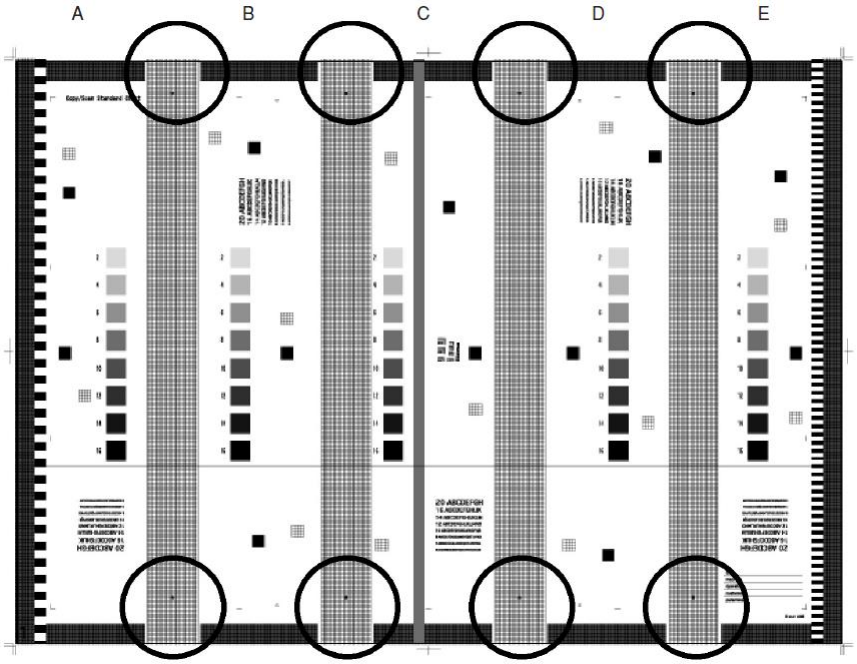
(1) Subscanning direction grid chart's top and bottom edges: Eight positions

<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.



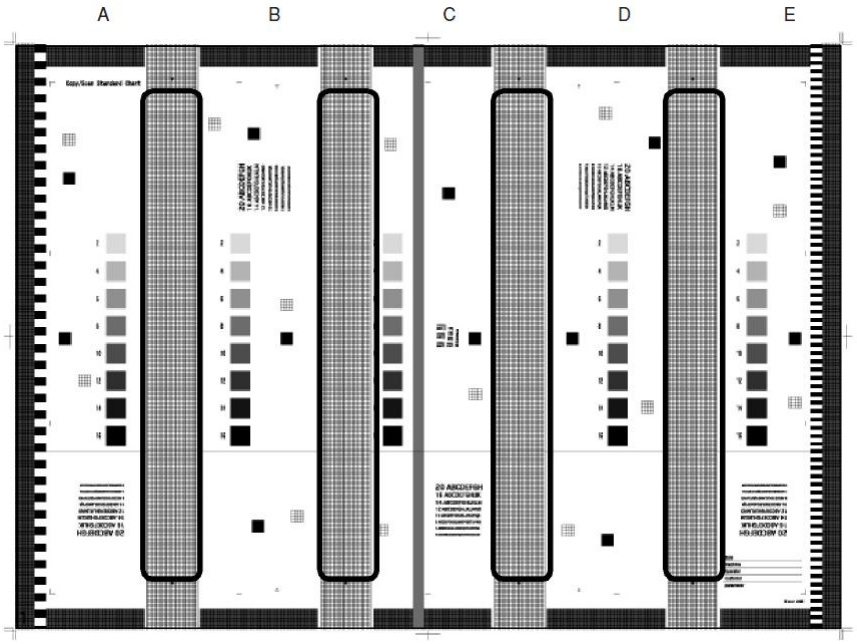
(2) Subscanning direction grid chart's center: Four positions

<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

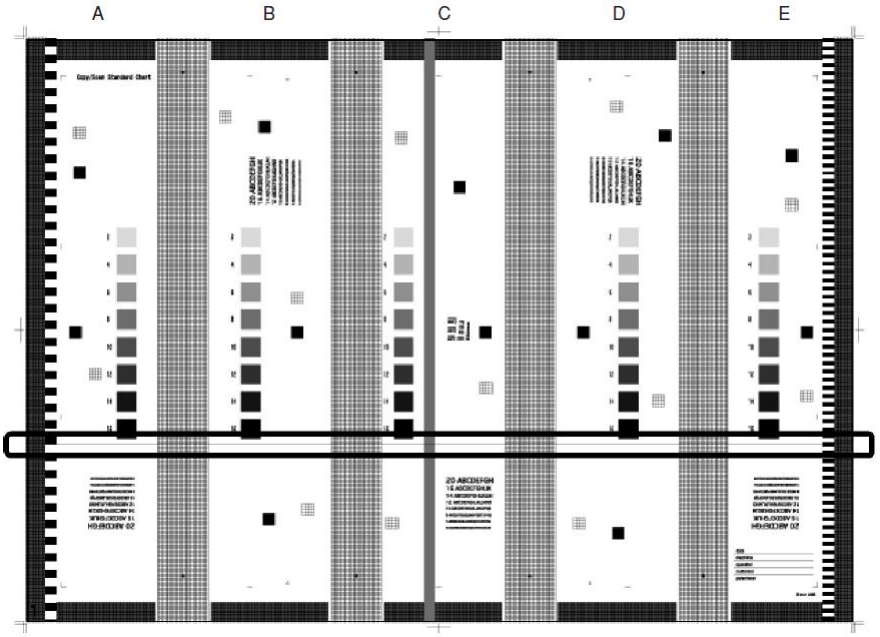
<Items to Check>

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

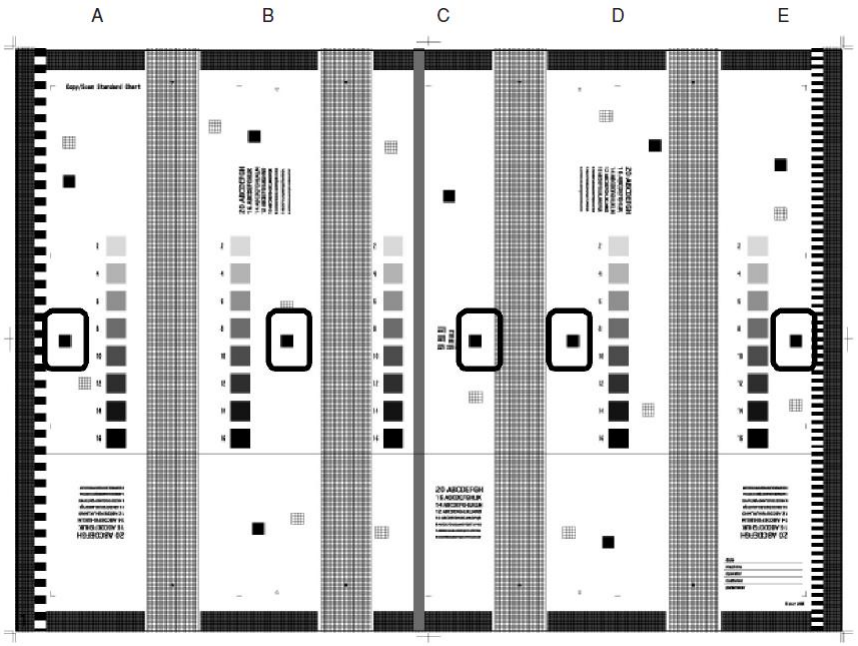
<Items to Check>

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>

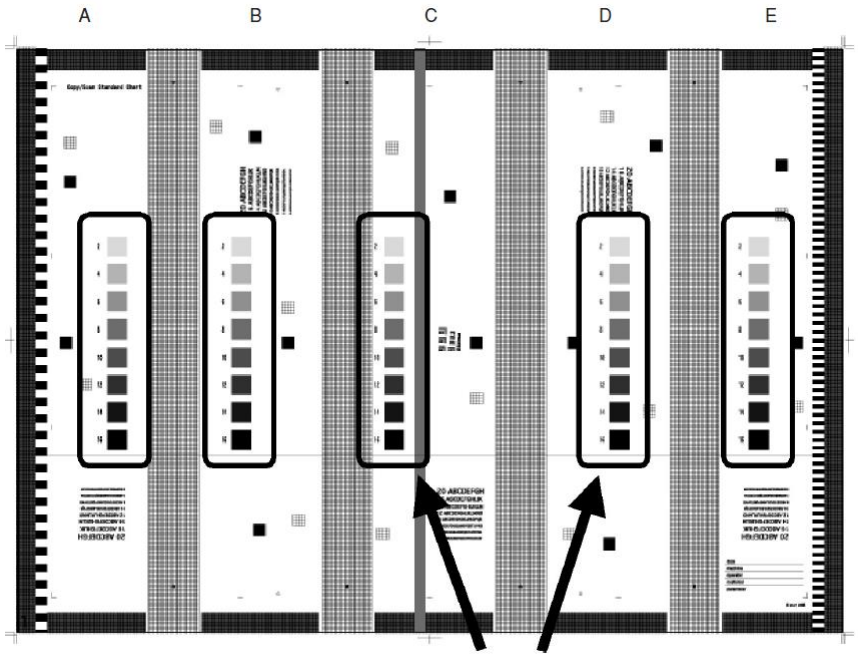
- For low density patch
  Check that the 2-density patch is printed.
  When any of the 2-density patch is printed, the results are OK. If the 2-density patch is missing completely, the results are negative.

- 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 deinsity 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)

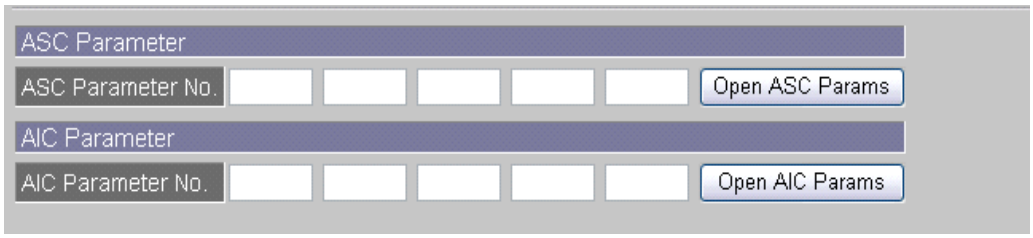
Sensor connection calibration (Main scanning direction) Adjustment parameters at 240 mm/s					
	CIS(A)	CIS(B)	CIS(C)	CIS(D)	CIS(E)
first					
end					

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.



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 60: 60 mm/s 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 0: On 1: Off	—	
4	0	—	0 to 1	Scanning with/without motor/sensor 0: Motor/sensor enabled、 1: Motor/sensor disabled	—	
5	0	—	0 to 1	Switch sensor connection processing 0: On 1: Off	—	
6	0	—	0 to 1	Switch tone curve 0: Use the specified curve 1: Use the linear curve	—	
7	0	—	0 to 1	Switch motor advance 0: Use the specified parameter 1: Use the initial value	—	
8	0	—	0 to 1	Switch connection adjustment 0: Use connection adjustment value 1: Use initial value for adjustment	—	
9	0	—	0 to 2	Switch light intensity calibration (for front LED) 0: Use after-calibration parameter 1: Use initial value for calibration 2: Use **value = 0**	—	
10	0	—	0 to 2	Switch light intensity calibration (for rear LED) 0: Use after-calibration parameter 1: Use initial value for calibration 2: Use **value = 0**	—	

Evaluation parameters

No.	Initial Value	Unit	Range	Meaning	Changes after Calibration	Note
11	4	—	0 to 6	Select sensor connection correction overlapping (2^(2+N)pixels connection)	—	For 600 dpi mode
12	3	—	0 to 6	Select sensor connection correction overlapping (2^(2+N)pixels connection)	—	For 300 dpi mode
13	0	—	0 to 1	Switch convergence correction function 0: Enabled 1: Disabled	—	For color only
14	0	—	0 to 1	Switch sensor hue correction function 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 ragistration sensor On and CIS(C) scan start (top edge alignment) -> Estimated time for the original top edge to reach CIS(C) from the ragistration sensor	—	At 240 mm/s
48	748	msec	—	Time between ragistration sensor On and CIS(C) scan start (top edge alignment) -> Estimated time for the original top edge to reach CIS(C) from the ragistration sensor	—	At 120 mm/s
49	1496	msec	—	Time between ragistration sensor On and CIS(C) scan start (top edge alignment) -> Estimated time for the original top edge to reach CIS(C) from the ragistration sensor	—	At 60 mm/s
50	2244	msec	—	Time between ragistration sensor On and CIS(C) scan start (top edge alignment) -> Estimated time for the original top edge to reach CIS(C) from the ragistration sensor	—	At 40 mm/s
51	2081	line	—	Number of scan lines after the original rear edge passed the ragistration 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 ragistration 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 ragistration 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 ragistration 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 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) The Printer stops when the value is exceeded.	—	No.59 and No.60 are combined and used as one parameter Parameter = No.59 x16384 + No.60
60	6476	pulse	—	Maximum advance length setting (maximum motor pulse count from original presence detection to absence detection) The Printer stops when the value is exceeded.	—	No.59 and No.60 are combined and used as one parameter Parameter = No.59 x16384 + No.60
61	11873	pulse	—	After scan started, motor pulse count from the time the original top edge passes the ragistration 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 Full step: 1 Half step: 2 Micro step (1/8): 8 Micro step (1/16): 16	—	At 240 mm/s
64	8	—	—	Switch motor step mode Full step: 1 Half step: 2 Micro step (1/8): 8 Micro step (1/16): 16	—	At 120 mm/s
65	8	—	—	Switch motor step mode Full step: 1 Half step: 2 Micro step (1/8): 8 Micro step (1/16): 16	—	At 60 mm/s
66	8	—	—	Switch motor step mode Full step: 1 Half step: 2 Micro step (1/8): 8 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: Rotational speed when feeding the original forward at 240 mm/s	—	
80	6019	pps	—	Initial value for adjustment: Rotational speed when feeding the original backward at 240 mm/s after scanning	—	
81	12037	pps	—	Initial value for adjustment: 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: Rotational speed when feeding the original backward at 120 mm/s after scanning	—	
83	6019	pps	—	Initial value for adjustment: Rotational speed when feeding the original forward at 60 mm/s	—	
84	6019	pps	—	Initial value for adjustment: Rotational speed when feeding the original backward at 60 mm/s after scanning	—	
85	4013	pps	—	Initial value for adjustment: Rotational speed when feeding the original forward at 40 mm/s	—	
86	6019	pps	—	Initial value for adjustment: Rotational speed when feeding the original backward at 40 mm/s after scanning	—	
87	3009	pps	—	Initial value for adjustment: Rotational speed when feeding the original forward at 30 mm/s	—	
88	6019	pps	—	Initial value for adjustment: 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 -> The length the registration roller draws the original (until original top edge is in the specified position) * 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 ragistration sensor until the send pulse motor (SM01) starts decelerating -> 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 -> 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 ragistration sensor until the send pulse motor (SM01) starts decelerating -> Motor pulse count from the time the original rear edge passes the registration sensor until the running motor outputs the original from the rear 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	—	[Effevtive when the original is nipped only in the registration roller] Correction amount of delayed scan count during busy control	—	At 240 mm/s
96	-160	pulse	—	[Effevtive when the original is nipped in both the registration and exit rollers] Correction amount of delayed scan count during busy control	—	At 240 mm/s
97	-160	pulse	—	[Effevtive when the original is nipped only in the exit roller] Correction amount of delayed scan count during busy control	—	At 240 mm/s
98	-160	pulse	—	[Effevtive when the original is nipped only in the registration roller] Correction amount of delayed scan count during busy control	—	At 120 mm/s
99	-160	pulse	—	[Effevtive when the original is nipped in both the registration and exit rollers] Correction amount of delayed scan count during busy control	—	At 120 mm/s
100	-160	pulse	—	[Effevtive when the original is nipped only in the exit roller] Correction amount of delayed scan count during busy control	—	At 120 mm/s
101	-160	pulse	—	[Effevtive when the original is nipped only in the registration roller] Correction amount of delayed scan count during busy control	—	At 60 mm/s
102	-160	pulse	—	[Effevtive when the original is nipped in both the registration and exit rollers] Correction amount of delayed scan count during busy control	—	At 60 mm/s
103	-160	pulse	—	[Effevtive when the original is nipped only in the exit roller] 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	—	[Effevtive when the original is nipped only in the registration roller] Correction amount of delayed scan count during busy control	—	At 40 mm/s
105	-160	pulse	—	[Effevtive when the original is nipped in both the registration and exit rollers] Correction amount of delayed scan count during busy control	—	At 40 mm/s
106	-160	pulse	—	[Effevtive when the original is nipped only in the exit roller] 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) −> 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) −> 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) −> 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) −> 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) −> 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 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) The Printer stops when the value is exceeded * No.121 and No.122 are combined and used as one parameter 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) The Printer stops when the value is exceeded * No.121 and No.122 are combined and used as one parameter 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 Full step: 1 Half step: 2 Micro step (1/8): 8 Micro step (1/16): 16	—	At 240 mm/s
126	8	—	—	Switch motor step mode Full step: 1 Half step: 2 Micro step (1/8): 8 Micro step (1/16): 16	—	At 225 mm/s

No.	Initial Value	Unit	Range	Meaning	Changes after Calibration	Note
127	8	—	—	Switch motor step mode Full step: 1 Half step: 2 Micro step (1/8): 8 Micro step (1/16): 16	—	At 150 mm/s
128	8	—	—	Switch motor step mode Full step: 1 Half step: 2 Micro step (1/8): 8 Micro step (1/16): 16	—	At 60 mm/s
129	8	—	—	Switch motor step mode Full step: 1 Half step: 2 Micro step (1/8): 8 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: Value that decides the rotational speed when feeding the original forward at 240 mm/s	—	
141	6019	pps	—	Initial value for adjustment: Rotational speed when feeding the original backward at 240 mm/s after scanning	—	
142	22570	pps	—	Initial value for adjustment: Value that decides the rotational speed when feeding the original forward at 225 mm/s	—	
143	6019	pps	—	Initial value for adjustment: Rotational speed when feeding the original backward at 225 mm/s after scanning	—	

No.	Initial Value	Unit	Range	Meaning	Changes after Calibration	Note
144	15047	pps	—	Initial value for adjustment: Value that decides the rotational speed when feeding the original forward at 150 mm/s	—	
145	6019	pps	—	Initial value for adjustment: Rotational speed when feeding the original backward at 150 mm/s after scanning	—	
146	6019	pps	—	Initial value for adjustment: Value that decides the rotational speed when feeding the original forward at 60 mm/s	—	
147	6019	pps	—	Initial value for adjustment: Rotational speed when feeding the original backward at 60 mm/s after scanning	—	
148	4013	pps	—	Initial value for adjustment: Value that decides the rotational speed when feeding the original forward at 40 mm/s	—	
149	6019	pps	—	Initial value for adjustment: 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 -> 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 form 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 -> 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 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	—	[Effevtive when the original is nipped only in the registration roller] Correction amount of delayed scan count during busy control	—	At 240 mm/s
155	31	pulse	—	[Effevtive when the original is nipped in both the registration and exit rollers] Correction amount of delayed scan count during busy control	—	At 240 mm/s
156	31	pulse	—	[Effevtive when the original is nipped only in the exit roller] Correction amount of delayed scan count during busy control	—	At 240 mm/s
157	32	pulse	—	[Effevtive when the original is nipped only in the registration roller] Correction amount of delayed scan count during busy control	—	At 225 mm/s
158	32	pulse	—	[Effevtive when the original is nipped in both the registration and exit rollers] Correction amount of delayed scan count during busy control	—	At 225 mm/s
159	32	pulse	—	[Effevtive when the original is nipped only in the exit roller] Correction amount of delayed scan count during busy control	—	At 225 mm/s
160	33	pulse	—	[Effevtive when the original is nipped only in the registration roller] Correction amount of delayed scan count during busy control	—	At 150 mm/s
161	33	pulse	—	[Effevtive when the original is nipped in both the registration and exit rollers] Correction amount of delayed scan count during busy control	—	At 150 mm/s
162	33	pulse	—	[Effevtive when the original is nipped only in the exit roller] Correction amount of delayed scan count during busy control	—	At 150 mm/s
163	34	pulse	—	[Effevtive when the original is nipped only in the registration roller] Correction amount of delayed scan count during busy control	—	At 60 mm/s
164	34	pulse	—	[Effevtive when the original is nipped in both the registration and exit rollers] Correction amount of delayed scan count during busy control	—	At 60 mm/s
165	34	pulse	—	[Effevtive when the original is nipped only in the exit roller] Correction amount of delayed scan count during busy control	—	At 60 mm/s
166	35	pulse	—	[Effevtive when the original is nipped only in the registration roller] 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	—	[Effevtive when the original is nipped in both the registration and exit rollers] Correction amount of delayed scan count during busy control	—	At 40 mm/s
168	35	pulse	—	[Effevtive when the original is nipped only in the exit roller] 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: Misalignment amount between reference C and A (number of lines)	—	
178	1200	line	—	Initial value for adjustment: Misalignment amount between reference C and B (number of lines)	—	
179	1200	line	—	Initial value for adjustment: Misalignment amount between reference C and D (number of lines)	—	
180	0	line	—	Initial value for adjustment: Misalignment amount between reference C and E (number of lines)	—	
181	0	dot	—	Initial value for adjustment: CIS(A) main scanning direction first dot position	—	For 600 dpi mode
182	5104	dot	—	Initial value for adjustment: 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: CIS(C) main scanning direction first dot position	—	For 600 dpi mode
184	15312	dot	—	Initial value for adjustment: CIS(D) main scanning direction first dot position	—	For 600 dpi mode
185	20416	dot	—	Initial value for adjustment: CIS(E) main scanning direction first dot position	—	For 600 dpi mode
186	5104	dot	—	Initial value for adjustment: CIS(A) main scanning direction end dot position	—	For 600 dpi mode
187	10208	dot	—	Initial value for adjustment: CIS(B) main scanning direction end dot position	—	For 600 dpi mode
188	15312	dot	—	Initial value for adjustment: CIS(C) main scanning direction end dot position	—	For 600 dpi mode
189	20416	dot	—	Initial value for adjustment: CIS(D) main scanning direction end dot position	—	For 600 dpi mode
190	25520	dot	—	Initial value for adjustment: CIS(E) main scanning direction end dot position	—	For 600 dpi mode
191	0	dot	—	Initial value for adjustment: CIS(A) main scanning direction first dot position	—	For 300 dpi mode
192	2552	dot	—	Initial value for adjustment: CIS(B) main scanning direction first dot position	—	For 300 dpi mode
193	5104	dot	—	Initial value for adjustment: CIS(C) main scanning direction first dot position	—	For 300 dpi mode
194	7656	dot	—	Initial value for adjustment: CIS(D) main scanning direction first dot position	—	For 300 dpi mode
195	10208	dot	—	Initial value for adjustment: CIS(E) main scanning direction first dot position	—	For 300 dpi mode
196	2552	dot	—	Initial value for adjustment: CIS(A) main scanning direction end dot position	—	For 300 dpi mode
197	5104	dot	—	Initial value for adjustment: CIS(B) main scanning direction end dot position	—	For 300 dpi mode
198	7656	dot	—	Initial value for adjustment: CIS(C) main scanning direction end dot position	—	For 300 dpi mode
199	10208	dot	—	Initial value for adjustment: CIS(D) main scanning direction end dot position	—	For 300 dpi mode
200	12760	dot	—	Initial value for adjustment: 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: CIS(A to E) front LED Lighting time (T_LED): R	—	
2	500	× 172.4 nsec	—	Initial value for adjustment: CIS(A to E) rear LED Lighting time (T_LED): R	—	
3	500	× 172.4 nsec	—	Initial value for adjustment: CIS(A to E) front LED l Lighting time (T_LED): G	—	
4	500	× 172.4 nsec	—	Initial value for adjustment: CIS(A to E) rear LED Lighting time (T_LED): G	—	
5	500	× 172.4 nsec	—	Initial value for adjustment: CIS(A to E) front LED Lighting time (T_LED): B	—	
6	500	× 172.4 nsec	—	Initial value for adjustment: CIS(A to E) rear LED 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 (TS_LED)	—	
11	600	× 172.4 nsec	—	CIS(A) front LED lighting time (T_LED): R	Yes	
12	600	× 172.4 nsec	—	CIS(A) rear LED lighting time (T_LED): R	Yes	
13	300	× 172.4 nsec	—	CIS(A) front LED lighting time (T_LED): G	Yes	
14	300	× 172.4 nsec	—	CIS(A) rear LED lighting time (T_LED): G	Yes	
15	200	× 172.4 nsec	—	CIS(A) front LED lighting time (T_LED): B	Yes	
16	200	× 172.4 nsec	—	CIS(A) rear LED lighting time (T_LED): B	Yes	
17	600	× 172.4 nsec	—	CIS(B) front LED lighting time (T_LED): R	Yes	
18	600	× 172.4 nsec	—	CIS(B) rear LED lighting time (T_LED): R	Yes	
19	300	× 172.4 nsec	—	CIS(B) front LED lighting time (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: CIS(A to E) front LED Lighting time (T_LED): R	—	
59	500	× 172.4 nsec	—	Initial value for adjustment: CIS(A to E) rear LED Lighting time (T_LED): R	—	
60	500	× 172.4 nsec	—	Initial value for adjustment: CIS(A to E) front LED Lighting time (T_LED): G	—	
61	500	× 172.4 nsec	—	Initial value for adjustment: CIS(A to E) rear LED Lighting time (T_LED): G	—	
62	500	× 172.4 nsec	—	Initial value for adjustment: CIS(A to E) front LED Lighting time (T_LED): B	—	
63	500	× 172.4 nsec	—	Initial value for adjustment: CIS(A to E) rear LED 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)	—	

No.	Initial Value	Unit	Range	Meaning	Changes after Calibration	Note
68	1500	× 172.4 nsec	—	CIS(A) front LED lighting time (T_LED): R	Yes	
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	

No.	Initial Value	Unit	Range	Meaning	Changes after Calibration	Note
95	700	× 172.4 nsec	—	CIS(E) rear LED lighting time (T_LED): G	Yes	
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 (TerioStation2)

Color difference analyzing tool (Patch Reader 2)

Install TerioStation2 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. **9-232**)
- **Copy/Scan Color Chart1 Set: U001083903**** (see p. **9-232**)

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 7/8.1/10
- 2 GB RAM or higher 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 (TerioStation2)
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.

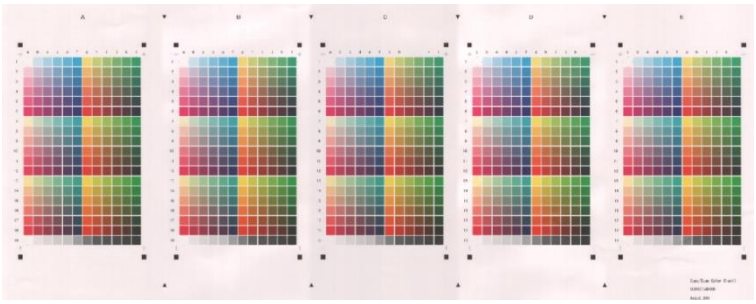
11.2.4 Verification Originals

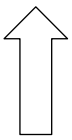
Make sure that the original is not heavily curled and that there are no folds or wrinkles.

Handle the original with care.

(1) Original for color difference verification (Copy/Scan Color Chart1)

The original used to verify the color differences.



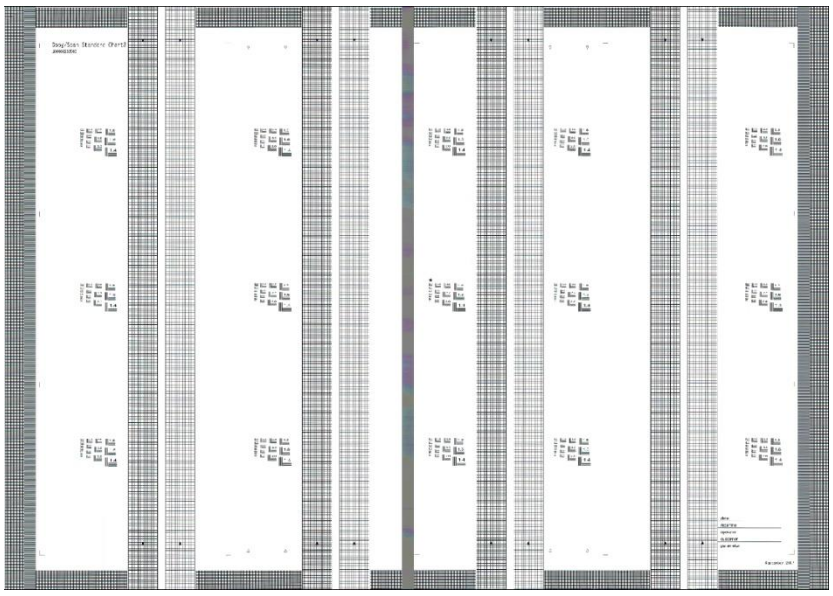


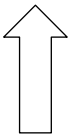
Original feed direction

Size: 914 mm×420 mm

(2) Original for connection verification (Copy/Scan Standard Chart3)

The original used to verify CIS connections.





Original feed direction

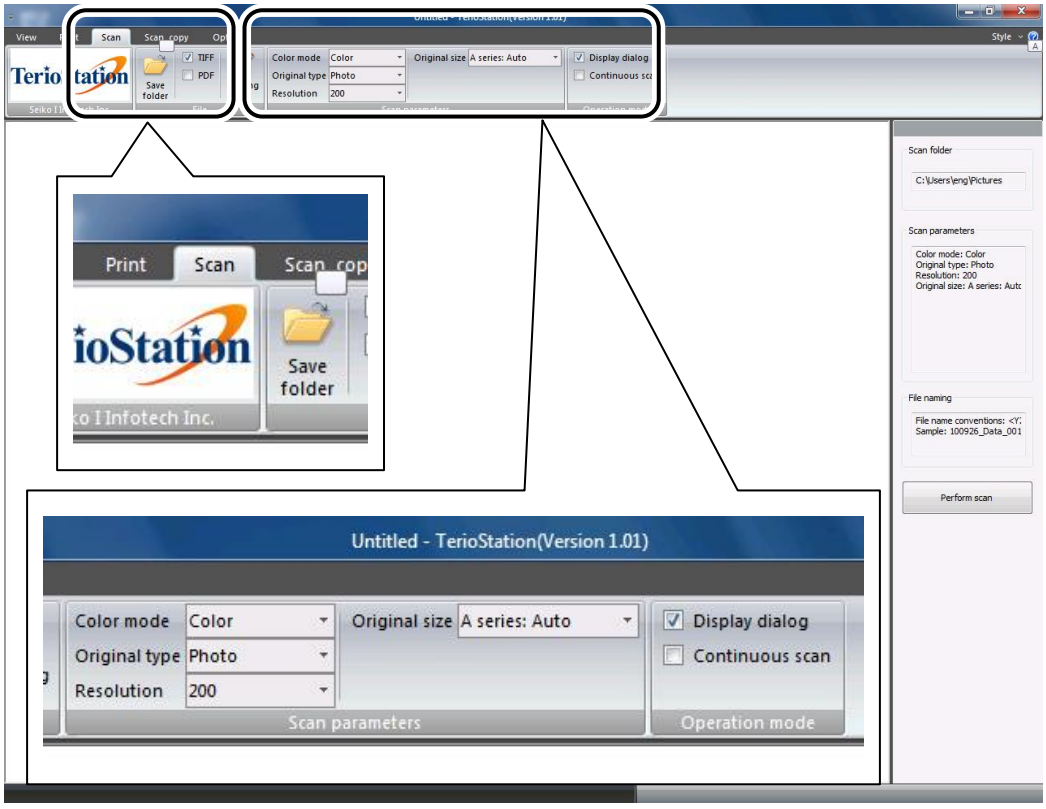
Size: A1 (landscape)

11.2.5 Color Difference Verification Procedure

11.2.5.1 Color original scanning

(1) Launch **TerioStation2** and make the following settings.

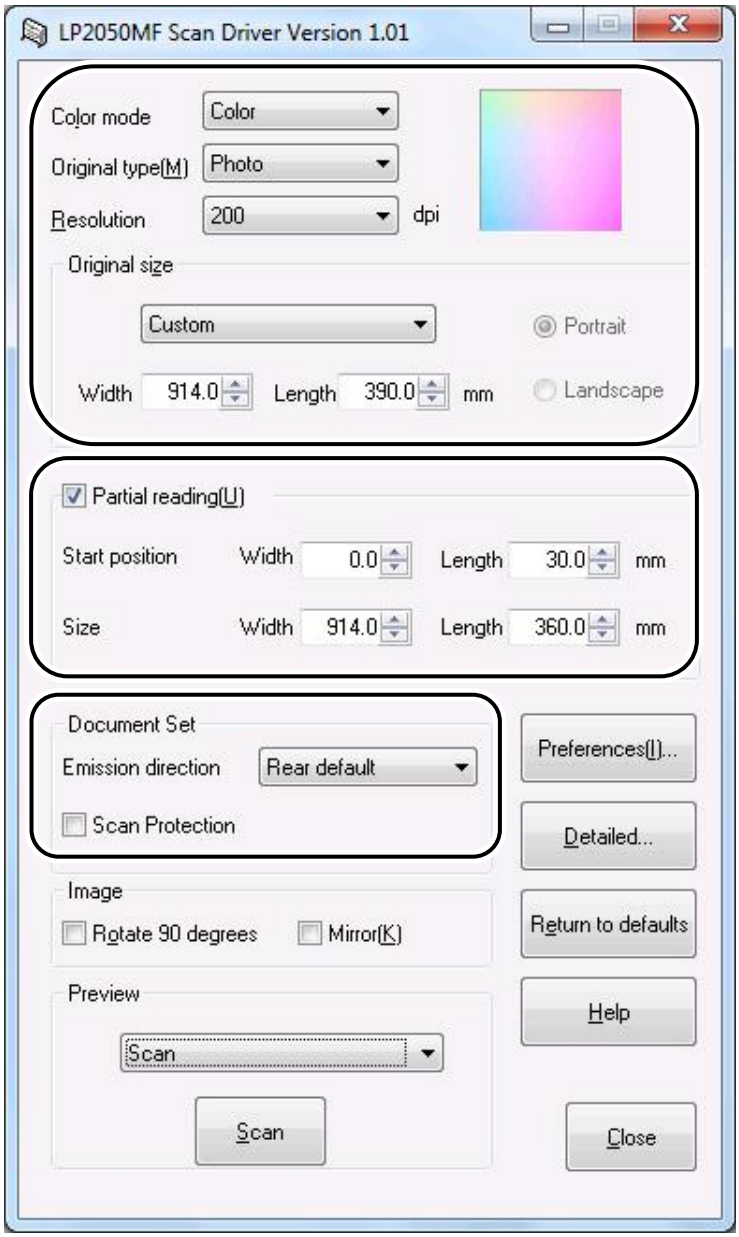
Select the **Scan** tab.
Check the **TIFF** check box.
Color mode: Color
Original type: Photo
Resolution: 200
Check the **Display dialog** check box.



See the ***TerioStation installation guide***.

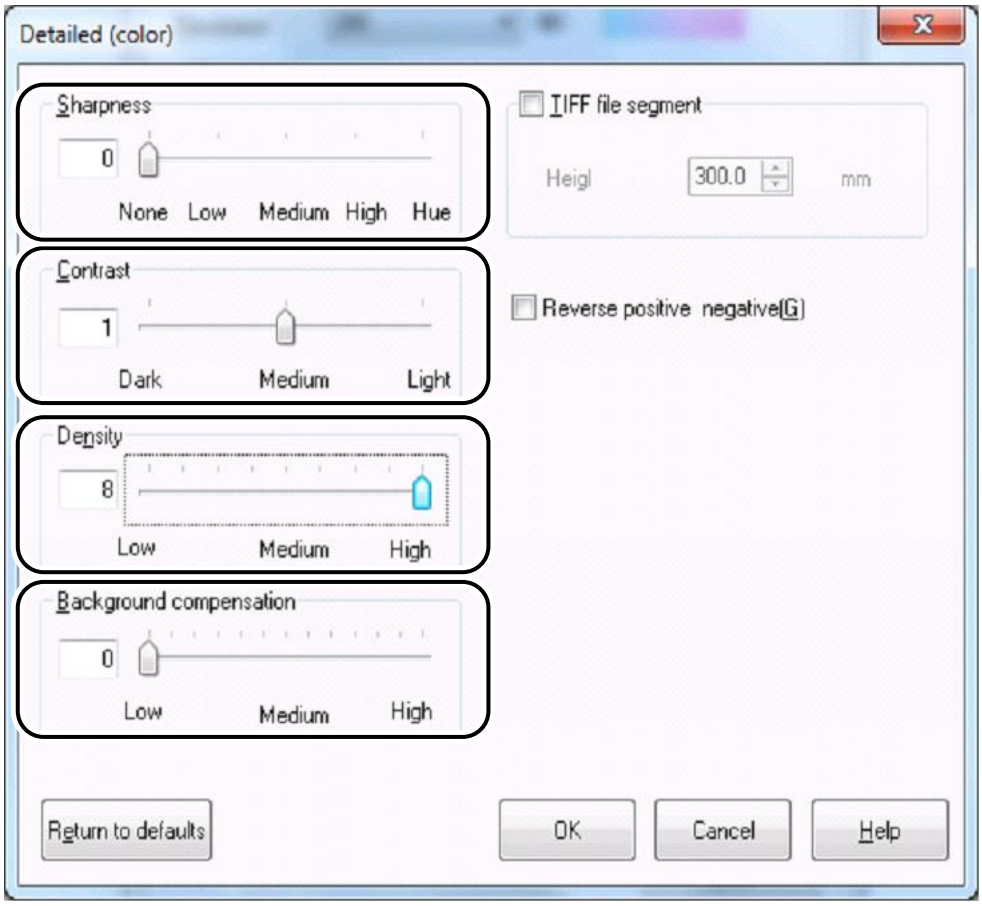
(2) Click **Perform scan** and configure the Scan Driver as follows.

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



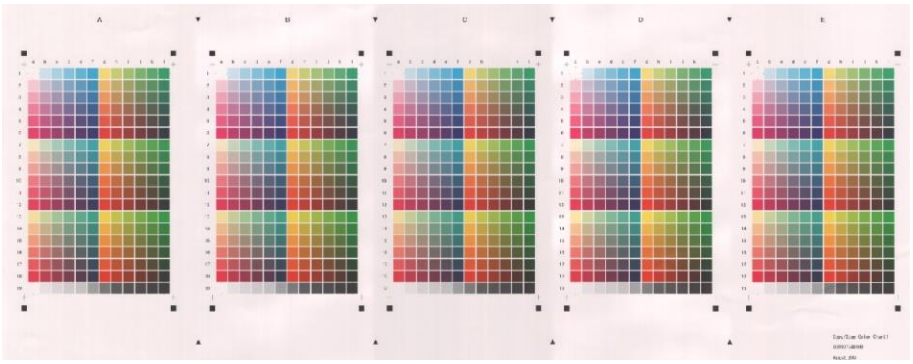
(3) Click **Detailed** and configure the settings as follows.

Sharpness: None
Contrast: Medium
Density: Higt
Background compensation: Low

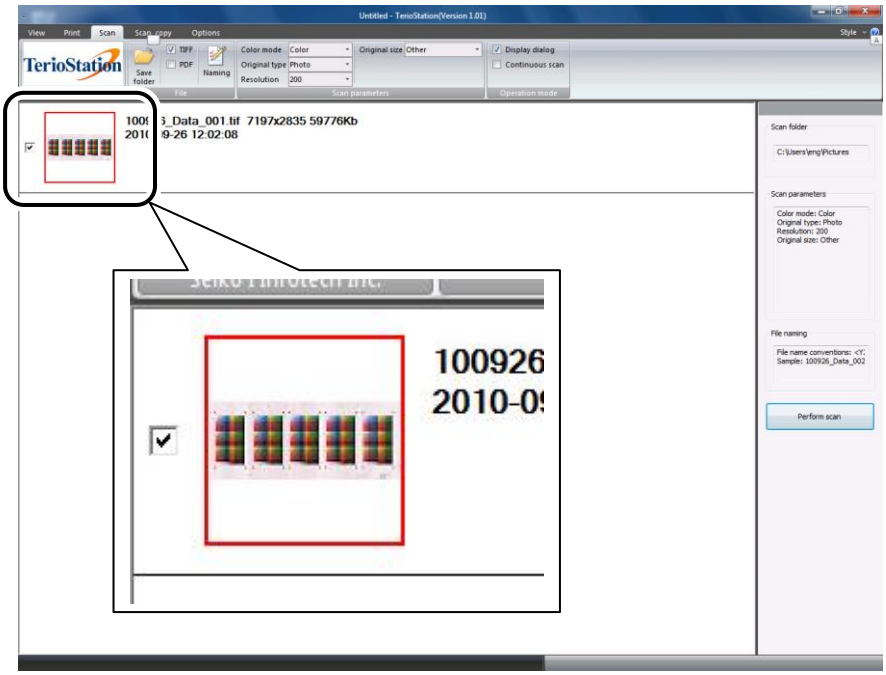


(4) Click **Scan** and set the Copy/Scan Color Chart1 original to the “914” mark on the right of the multifunction printer document table to start scanning.

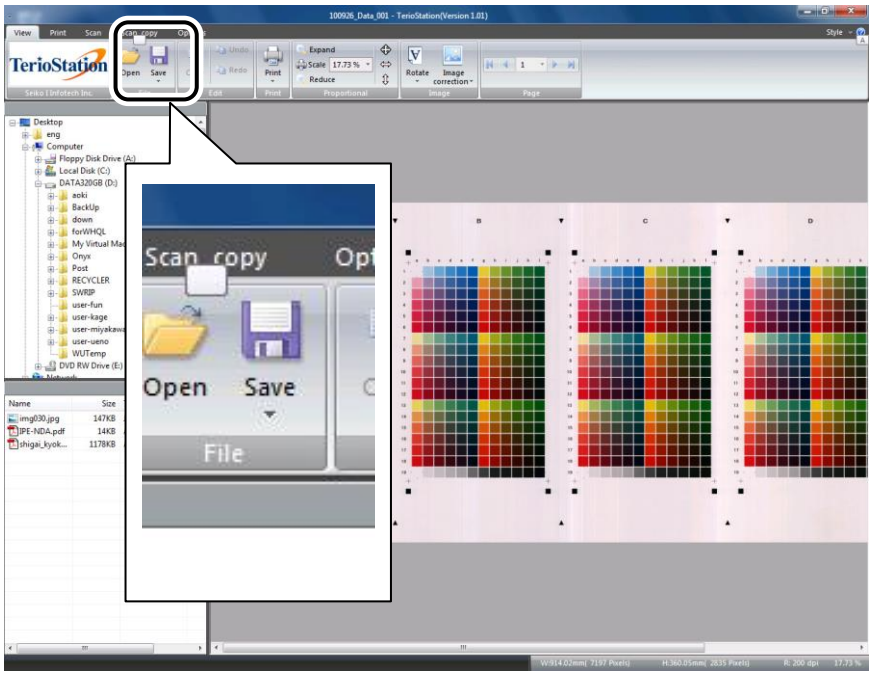
Copy/Scan Color Chart1 is the original used to check the color differences.



(5) Double click on the thumbnail image.



(6) Click **Save** and select **Change format and save** to save in BMP format.



(7) Click **Close**.

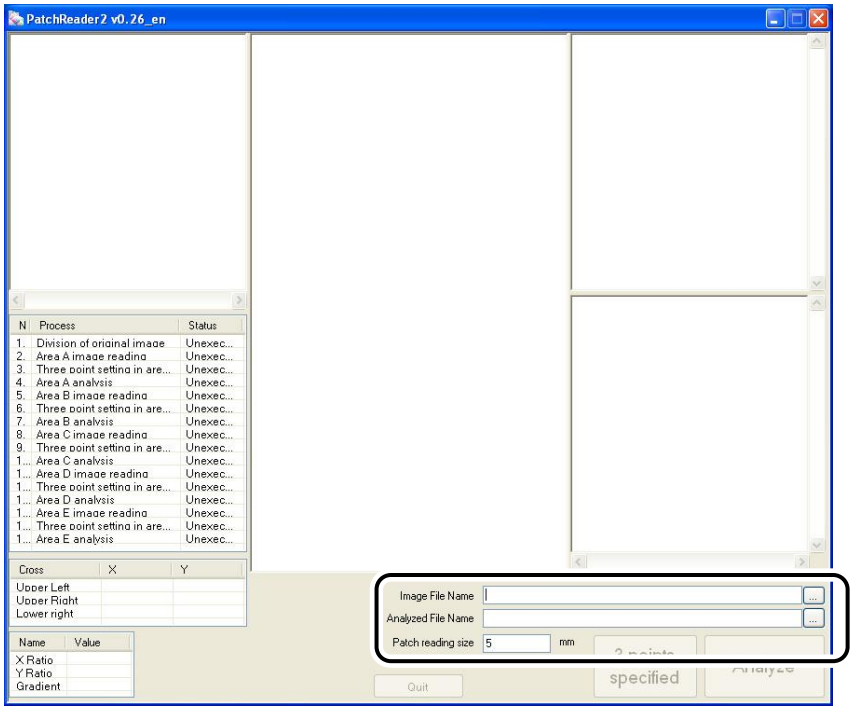
(8) The scanned image is saved in the folder specified in step (6), and change its file name to the CIS unit's 5-digit serial number.

Example: In case of **#101**, the file name is changed to **00101**.

11.2.5.2 Color analysis

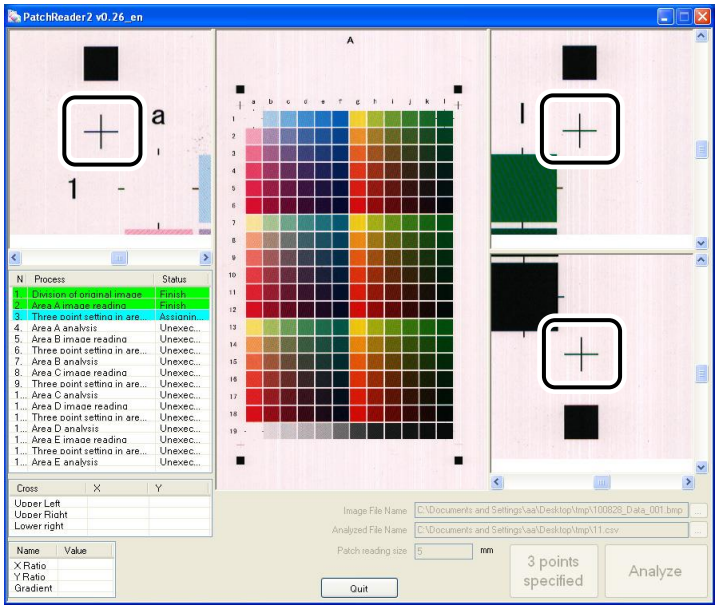
(1) Launch Patch Reader2 and select the scanned image saved in the previous subsection.

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.

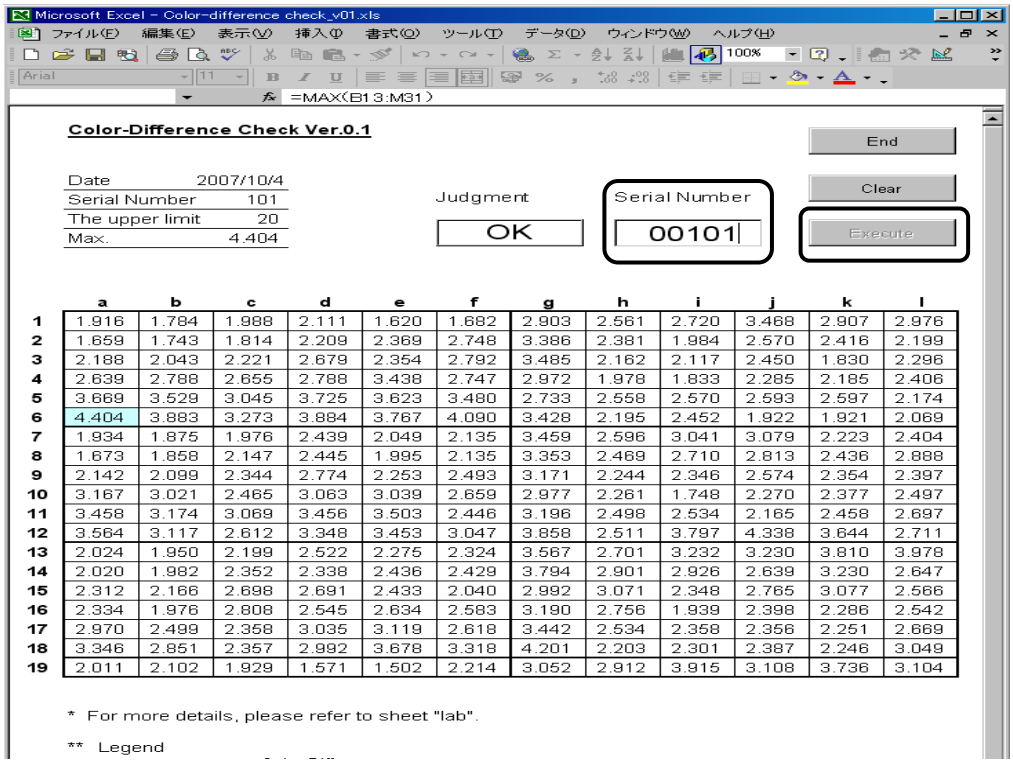
(5) Repeat the steps (3) and (4) for CIS_B to CIS_E (5 times in total).

(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.



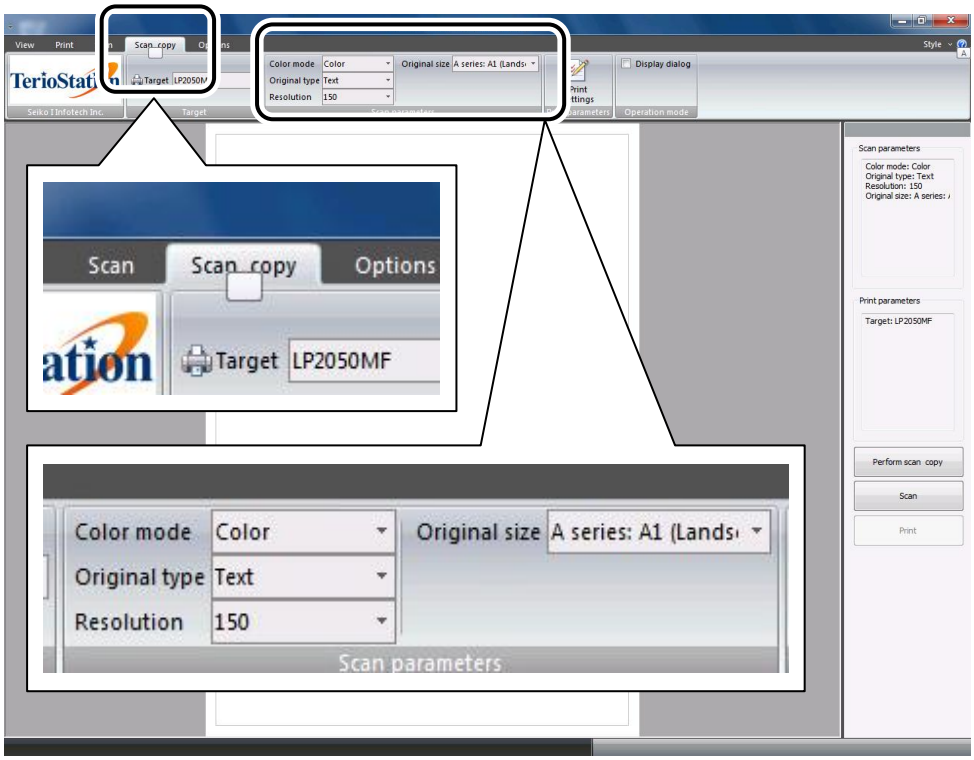
	a	b	c	d	e	f	g	h	i	j	k	l
1	1.916	1.784	1.988	2.111	1.620	1.682	2.903	2.561	2.720	3.468	2.907	2.976
2	1.659	1.743	1.814	2.209	2.369	2.748	3.386	2.381	1.984	2.570	2.416	2.199
3	2.188	2.043	2.221	2.679	2.354	2.792	3.485	2.162	2.117	2.450	1.830	2.296
4	2.639	2.788	2.655	2.788	3.438	2.747	2.972	1.978	1.833	2.285	2.185	2.406
5	3.669	3.529	3.045	3.725	3.623	3.480	2.733	2.558	2.570	2.593	2.597	2.174
6	4.404	3.883	3.273	3.884	3.767	4.090	3.428	2.195	2.452	1.922	1.921	2.069
7	1.934	1.875	1.976	2.439	2.049	2.135	3.459	2.596	3.041	3.079	2.223	2.404
8	1.673	1.858	2.147	2.445	1.995	2.135	3.353	2.469	2.710	2.813	2.436	2.888
9	2.142	2.099	2.344	2.774	2.253	2.493	3.171	2.244	2.346	2.574	2.354	2.397
10	3.167	3.021	2.465	3.063	3.039	2.659	2.977	2.261	1.748	2.270	2.377	2.497
11	3.458	3.174	3.069	3.456	3.503	2.446	3.196	2.498	2.534	2.165	2.458	2.697
12	3.564	3.117	2.612	3.348	3.453	3.047	3.858	2.511	3.797	4.338	3.644	2.711
13	2.024	1.950	2.199	2.522	2.275	2.324	3.567	2.701	3.232	3.230	3.810	3.978
14	2.020	1.982	2.352	2.338	2.436	2.429	3.794	2.901	2.926	2.639	3.230	2.647
15	2.312	2.166	2.698	2.691	2.433	2.040	2.992	3.071	2.348	2.765	3.077	2.566
16	2.334	1.976	2.808	2.545	2.634	2.583	3.190	2.756	1.939	2.398	2.286	2.542
17	2.970	2.499	2.358	3.035	3.119	2.618	3.442	2.534	2.358	2.356	2.251	2.669
18	3.346	2.851	2.357	2.992	3.678	3.318	4.201	2.203	2.301	2.387	2.246	3.049
19	2.011	2.102	1.929	1.571	1.502	2.214	3.052	2.912	3.915	3.108	3.736	3.104

See the ***Color-Difference Check instruction manual*** for details on Color-Difference Check operations.

11.2.6 CIS Connection Verification Procedure

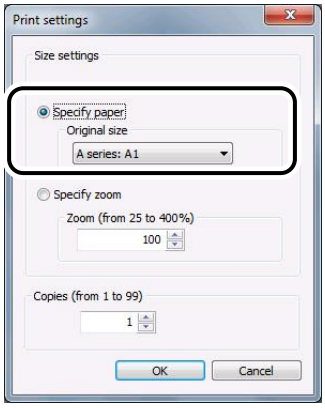
(1) Launch **TerioStation2** and make the following settings.

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.

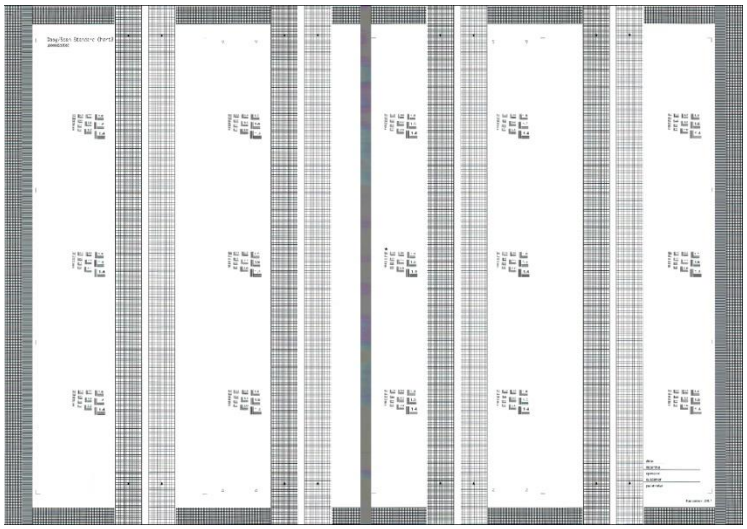
Check the **Specify paper** check box.
Original size: A series: A1



(3) Click **Perform scan & copy** to scan the Copy/Scan Standard Chart3 original.

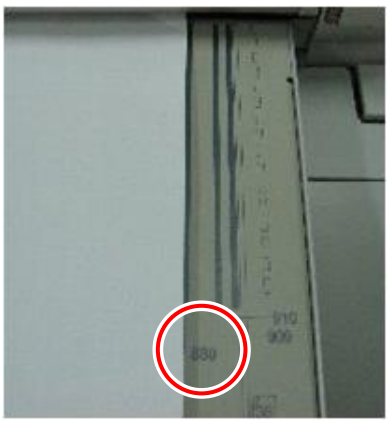
Open the Driver window, and scan with the settings below.
Original size: A0
Partial scan: Unchecked

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.

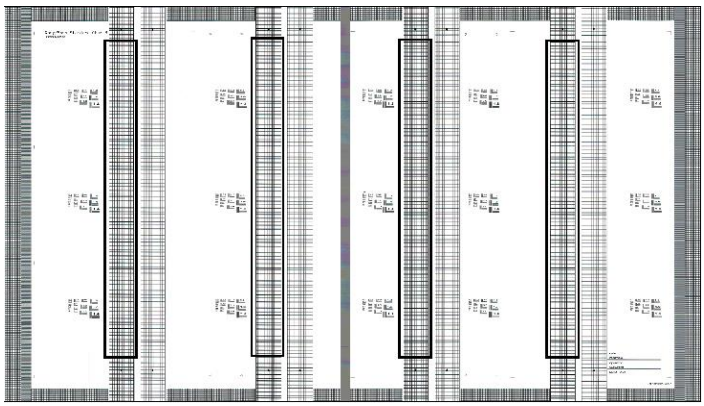
* To scan in 600 dpi resolution, set the original to the **880** mark on the right of the multifunction printer document table.



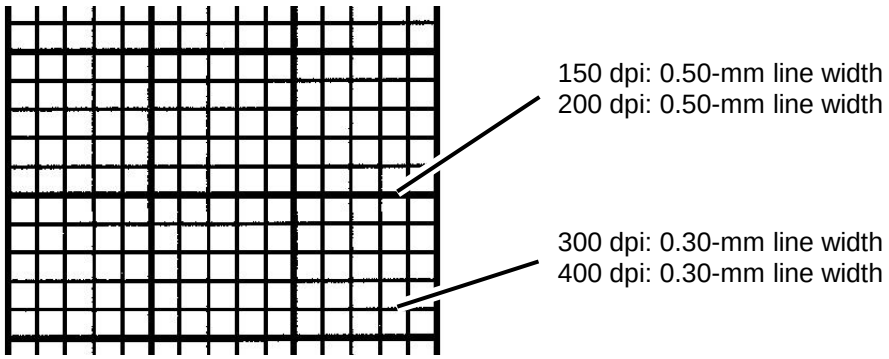
(4) The printout is automatically output after a while. Confirm and assess the results using the following criterion.

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.)

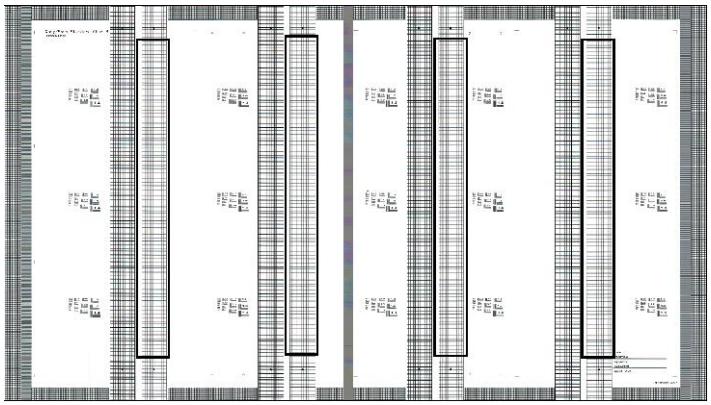
* To scan in 150, 200, 300, and 400 dpi resolutions, set the original to the **880** mark on the left of the multifunction printer document table.



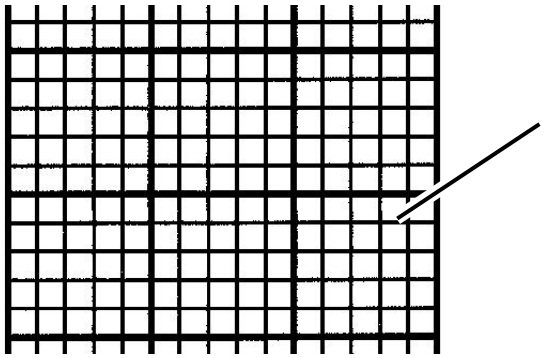
* Check locations with 150, 200, 300, and 400 dpi resolutions.



* 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.

Chapter 12 Printer Operation Guide

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, rear side paper output
- 2 level drawer style for 4 roll paper feeds

(2) Lightweight, compact, and cost effective engine

(3) Stable and reliable printing thanks to the a monocomponent development method

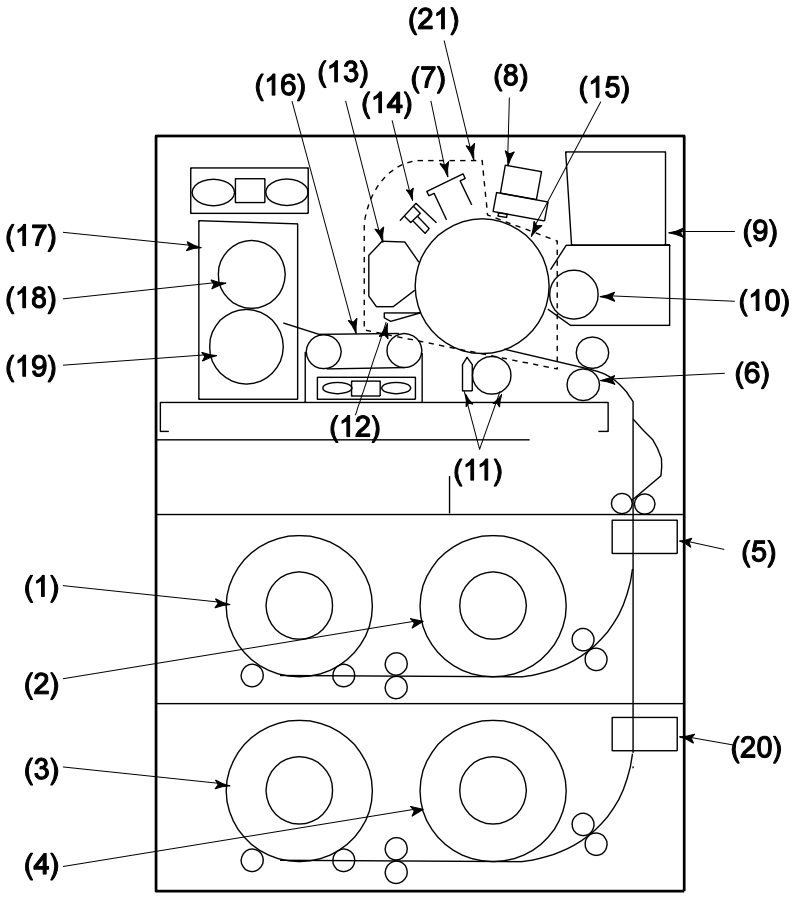
12.2 Engine Specifications Outline

(1) Style	Floor type		
(2) Recording method	Dry-type electrophotographic method		
	Photoconductor:	OPC drum (φ60)	
	Charger:	Scorotron (negative charge printing, grid control)	
	Exposure:	36-inch 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-2060-MF	105 mm (4.13 inches)/sec	
	LP-2060	105 mm (4.13 inches)/sec	
(5) Process cartridge durability	Approximately 10 km (393700 inches)		
(6) Paper	Media	Plain paper (high quality paper), recycled paper, tracing paper, and Matte film	
	Paper feed style	F2 level 4 roll automatic feed, with cutter / A0, front side paper feed	
	Paper output style:	Printout with the rear side facing upward Original document output from Printer's rear side Printout kept in tray, optional bucket, or optional stacker	
	Effective recording width:	926.48 mm (36.48 inches) for A0 size printing) Guaranteed Within 5 mm (0.20 inches) at top and bottom edges Within 3 mm (0.12 inches) at right and left edges	
	Long scale printing:	15 m (49 feet) (with A0/A1 roll paper printed on)	
(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-2060-MF	255 kg (562.18 lb)	
	LP-2060	230 kg (507.06 lb)	
(10) Power Consumption	1950 W		

(11) Warming up time	LP-2060-MF	180 seconds or less (at 23°C (73.4 °F))
	LP-2060	180 seconds 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:	53 dB(A) or less
(14) Lifetime	LP-2060-MF	500 km (19685039 inches)
	LP-2060	500 km (19685039 inches)

12.3 Paper Flow and Part Names

Paper flow and part names are shown in the figure below.



(1) Roll 1
(2) Roll 2
(3) Roll 3
(4) Roll 4
(5) Slittercutter
(6) Ragistration roller
(7) Primary charger
(8) LED head
(9) Developer unit
(10) Developer sleeve
(11) Transfer/detack corotron
(12) Separating claw
(13) Cleaner
(14) Discharge unit
(15) Photoconductor drum
(16) TRANSPORT UNIT
(17) Fuser unit
(18) Heat roller
(19) Backup roller
(20) Manual cutter
(21) Process cartridge (does not include (8) LED head)

Figure 12.1 Paper Flow path 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.

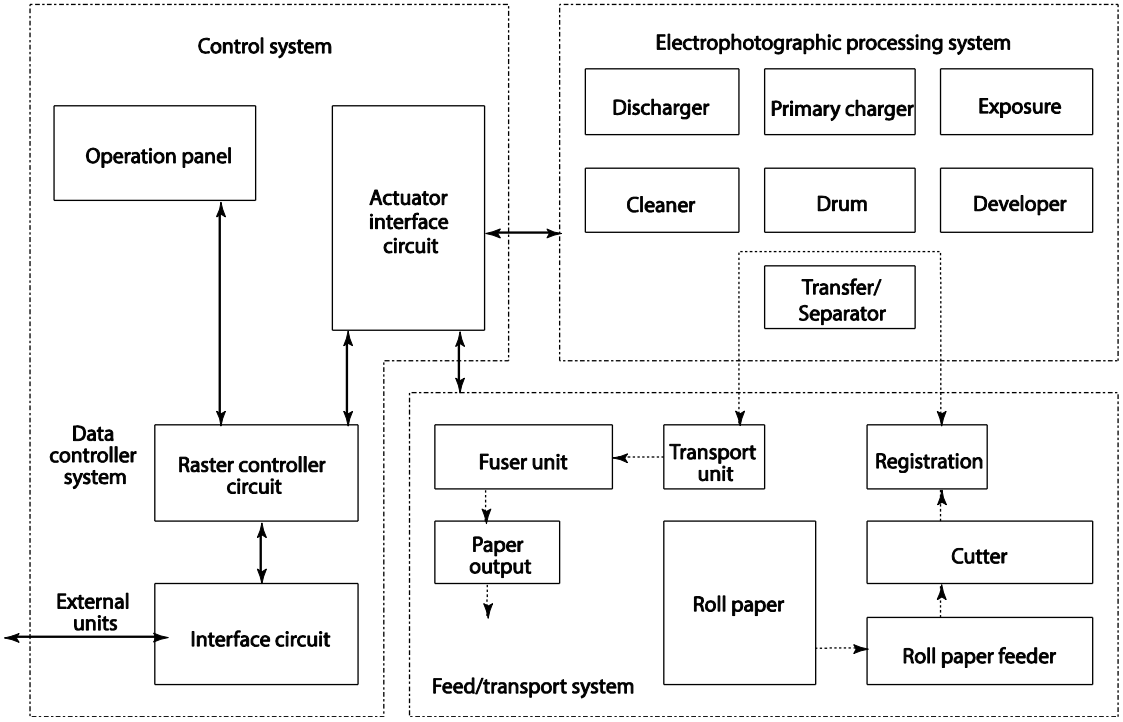


Figure 12.2 Basic Layout Block Diagram

12.4.2 Outline of Printer Components

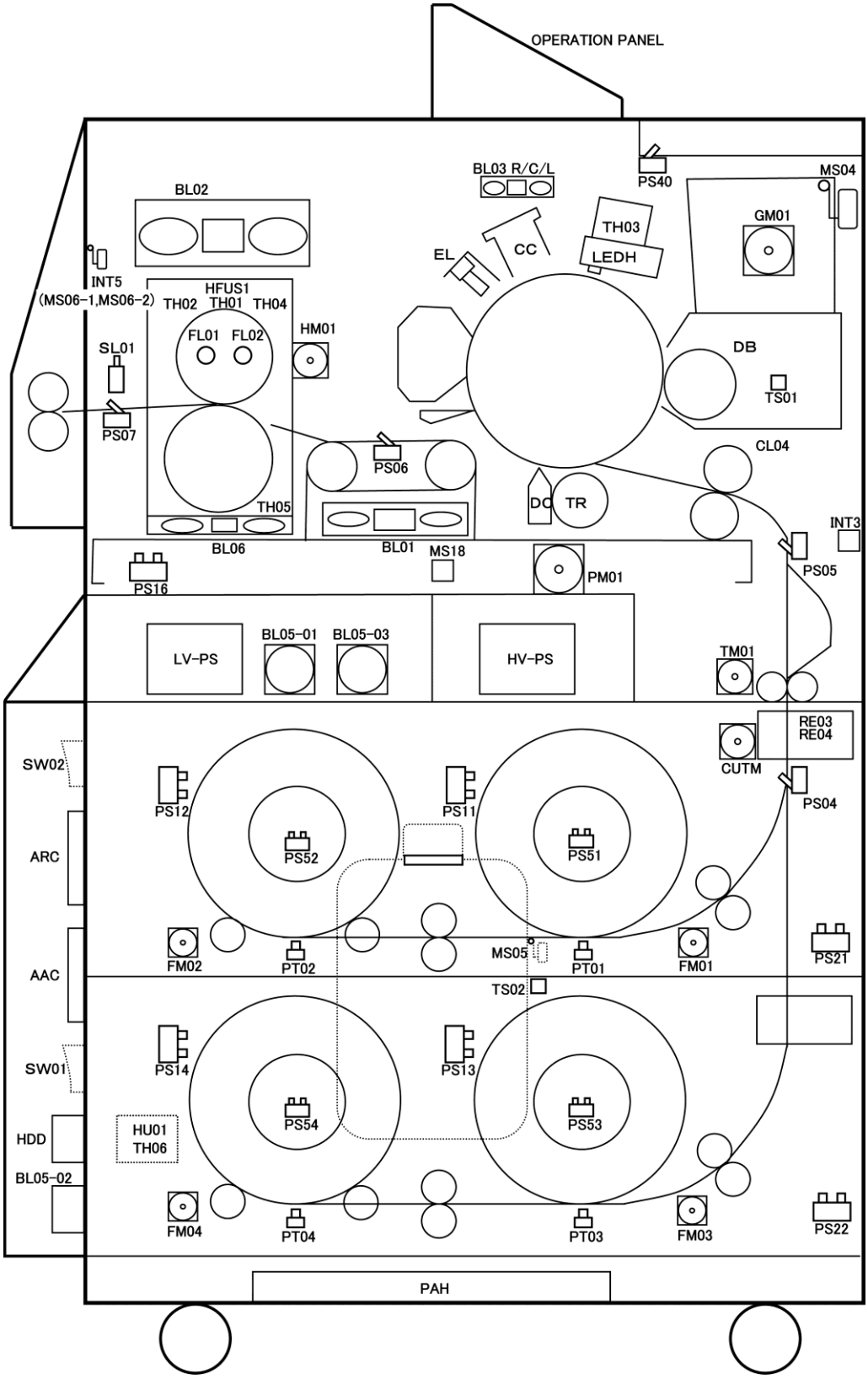


Figure 12.3 Outline of Printer Components

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 1	FM01
Paper feed pulse motor 2	FM02
Paper feed pulse motor 3	FM03
Paper feed pulse motor 4	FM04
Cutter motor	CUTM
Ragistration roller clutch	CL04
Suction fan	BL01
Fuser unit upper fan	BL02
Charger unit fan	BL03
Circuit board cooling fan	BL05-01,02,03
Fuser unit lower fan	BL06
Paper output shutter solenoid	SL01
Fuser unit halogen heater	FL01
Fuser unit halogen heater (for both sides)	FL02
Front door open/close switch	INT3
Paper outlet cover open/close switch	INT5(MS06)
Slitter cutter blade brake (inner side right edge) switch	RE03
Slitter cutter blade brake (inner side left edge) 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 (ragistration)	PS05
Paper detection sensor (suction)	PS06
Paper detection sensor fuser)	PS07
Roll 1 flange detection sensor	PS11
Roll 2 flange detection sensor	PS12

Name	Code
Roll 3 flange detection sensor	PS13
Roll 4 flange detection sensor	PS14
Fuser unit drawer (right side) open/close sensor	PS16
Paper feed door 1 open/close sensor	PS21
Paper feed door 2 open/close sensor	PS22
Toner door open/close sensor	PS40
Roll 1 paper near end detection sensor	PS51
Roll 2 paper near end detection sensor	PS52
Roll 3 paper near end detection sensor	PS53
Roll 4 paper near end detection sensor	PS54
Roll 1 paper width detection sensor	PT01
Roll 2 paper width detection sensor	PT02
Roll 3 paper width detection sensor	PT03
Roll 4 paper width detection sensor	PT04
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.

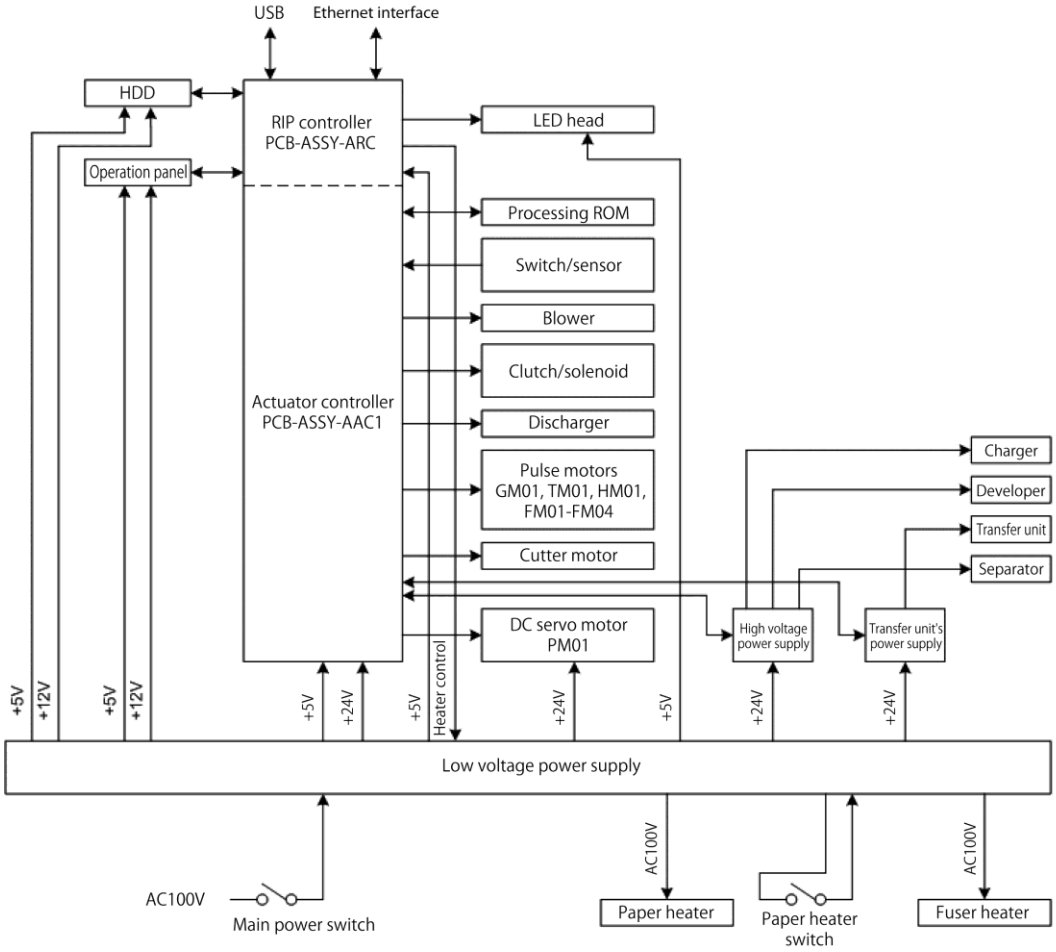


Figure 12.4 Circuitry Layout Block Diagram

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, and discharge unit are turned On so that 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 ragistration 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 unit completes operation 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

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 μA 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 scorotoron 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 ± AC -> 0V -> ± 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

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 is emitted.

SELFOC lens

(a) Basis, production method
Glass wire is created by using compound materials including grated 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 grated 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 retainment 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 μm to 0.5 μm 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 μm 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 μm 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

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 using a transfer unit, 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

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 ragistration roller, drum, cleaner auger, and transfer roller.
The ragistration 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 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 7.0 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 ragistration 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 0.8 seconds (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) Ragistration roller

The ragistration 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 (STB 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, the lamp 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

2GB

(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 hardware is given below.

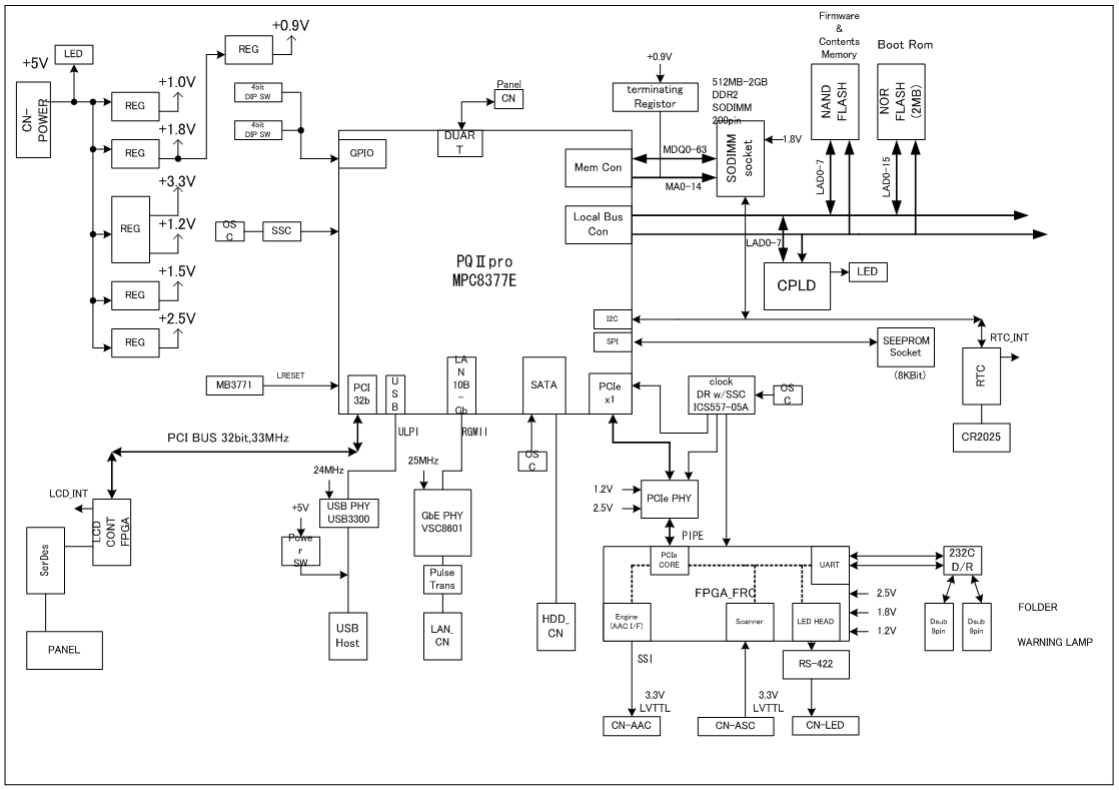


Figure 12.5 Controller Block Diagram (ARC Block)

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: 182 mm (7.17 inches), Maximum Width: 914 mm (35.98 inches)
Scan length	Maximum: 15 m (49 feet) *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 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: ±4 dots Other area: ±3 dots
Environmental requirement	Temperature range (in Operation): 15 to 35 degrees C
	Storage: -5 to 40 degrees C
	Humidty range (in Operation): 20% RH to 80% RH (no condensation)
	Storage: 10% RHto 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.

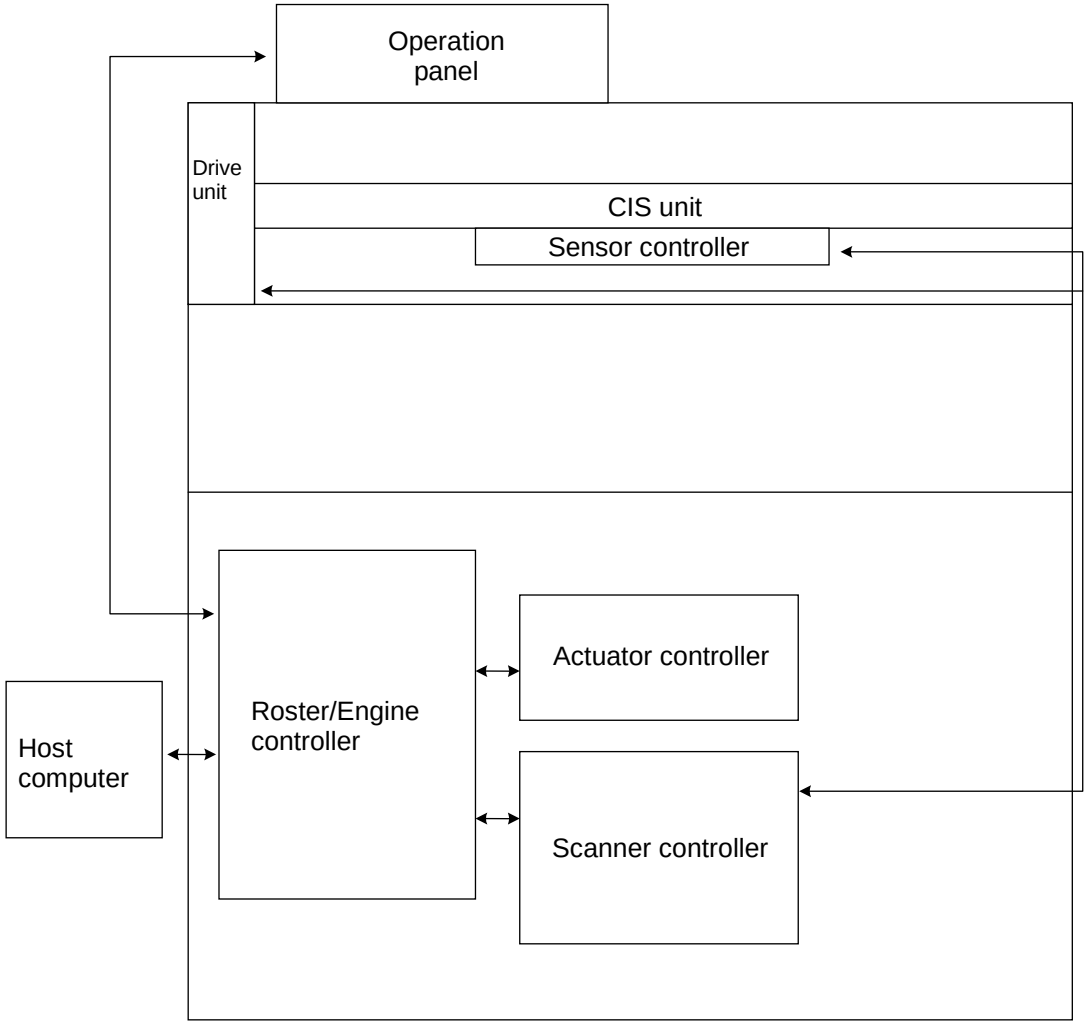


Figure 13.1 Basic Layout Block Diagram (scanner unit)

13.3.2 Outline of Printer Configuration

An outline of the overall structure of the scanner unit is shown in the figure below.

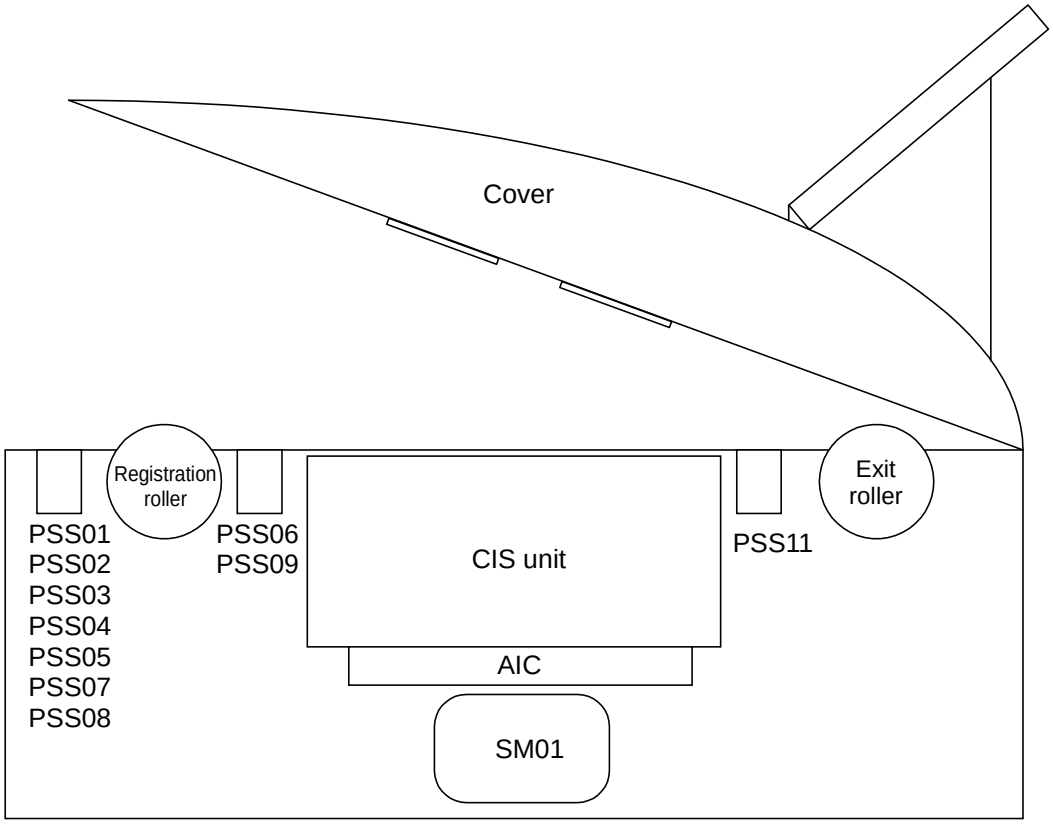


Figure 13.2 Scanner Side View

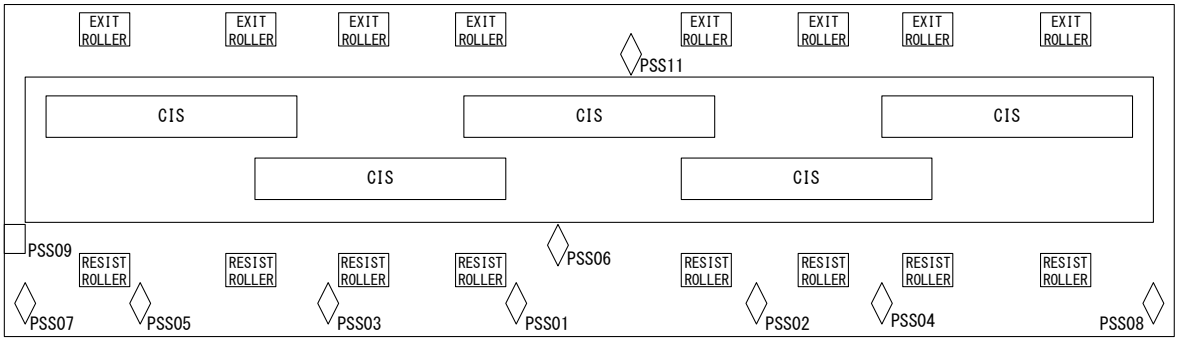


Figure 13.3 Scanner Top View

Table 13-4 lists the scanner's component parts and their engineering name.

Table 13-4 Scanner Component Parts and Engineering Names

Component Parts	Oki Data Engineering Name
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
Ragistration 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.

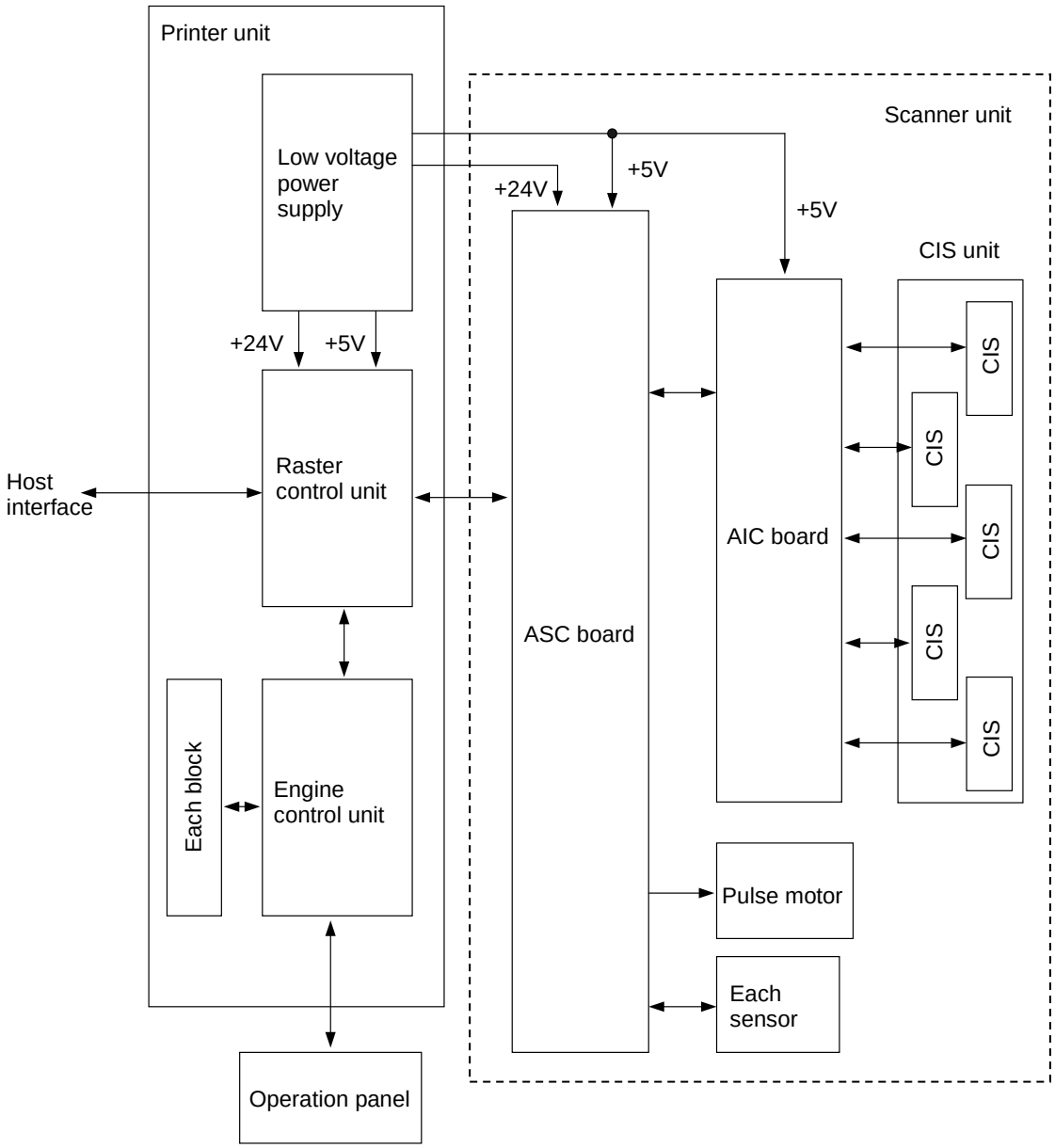


Figure 13.4 Circuitry Layout Block Diagram (scanner unit)

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 ragistration 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 uni.

(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.

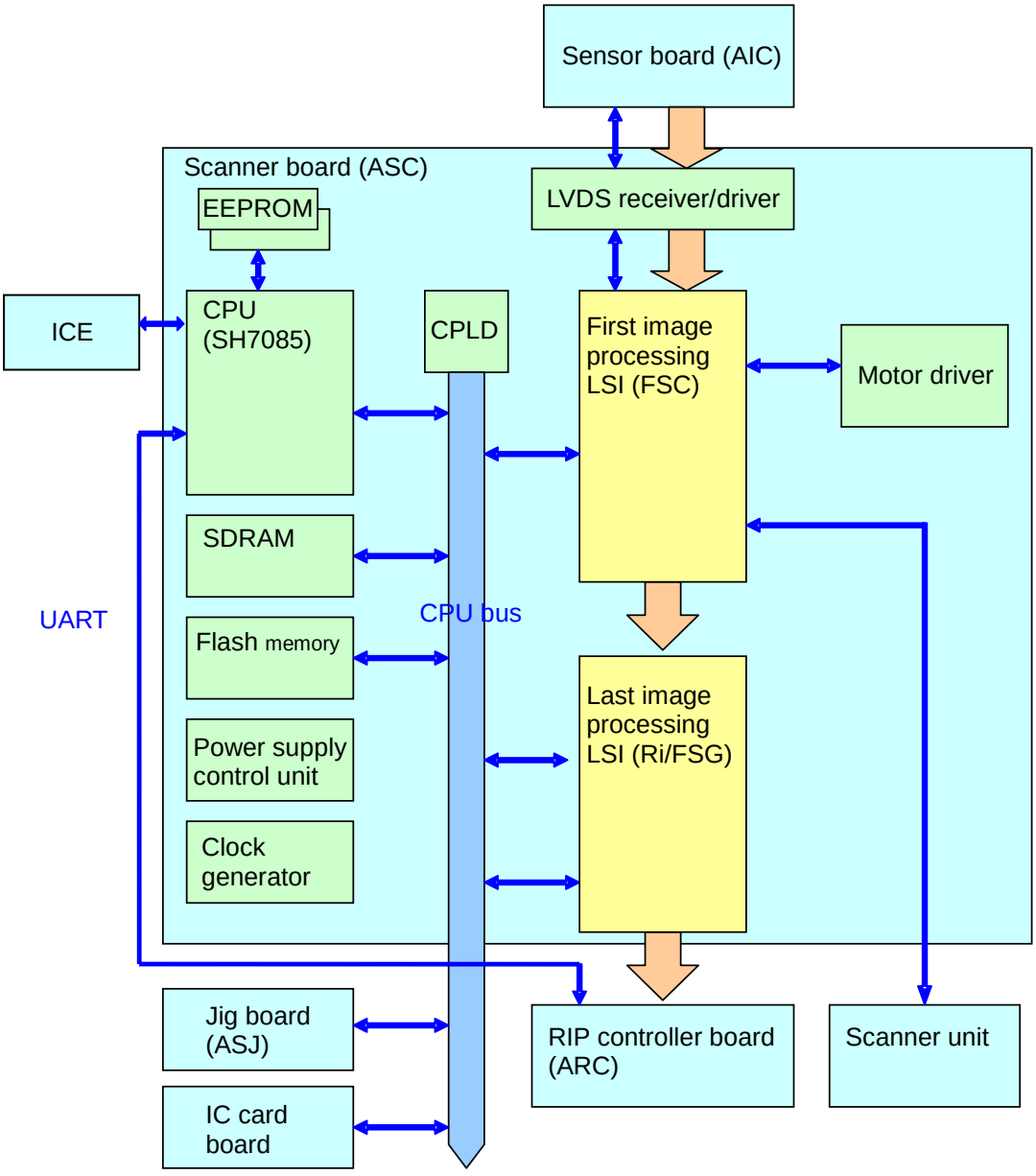


Figure 13.5 Scanner Controller Block Diagram

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.

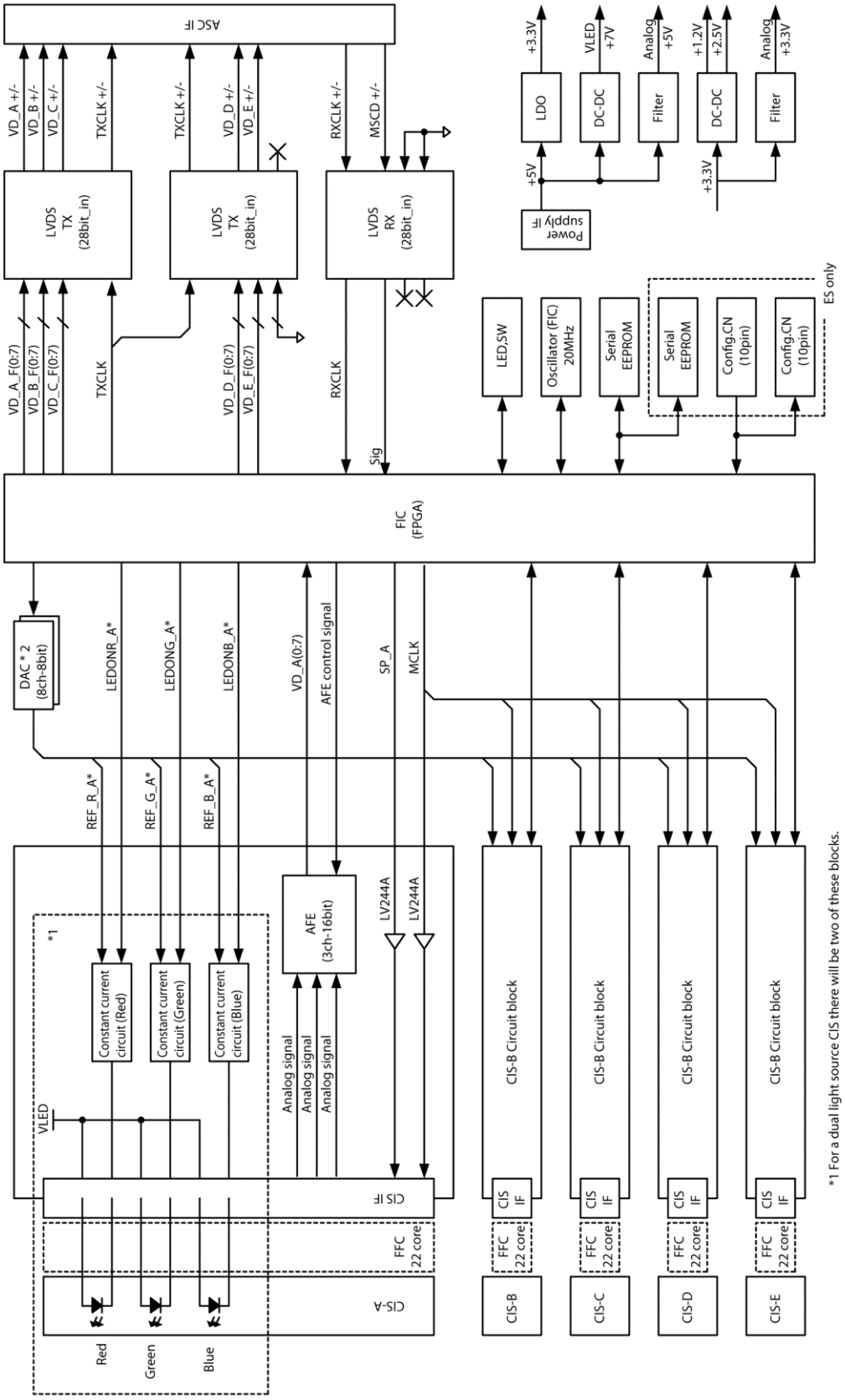
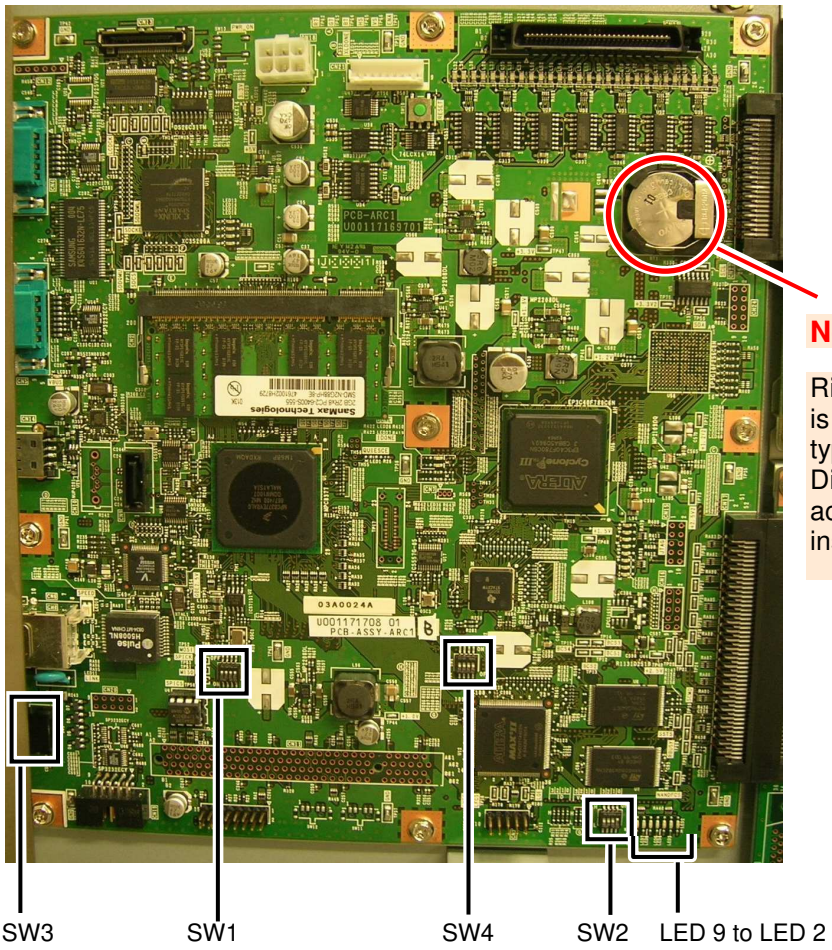


Figure 13.6 CIS Unit Block Diagram

Annex A ARC1/ARC2 Board Configuration and Display



Note

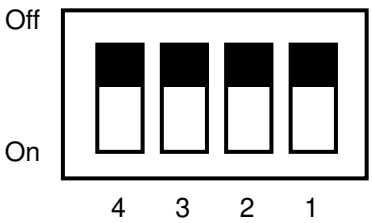
Risk of explosion if battery is replaced by an incorrect type.
Dispose of used batteries according to the instructions.

A.1 DIP Switch Settings

DIP switch settings on the ARC1 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.

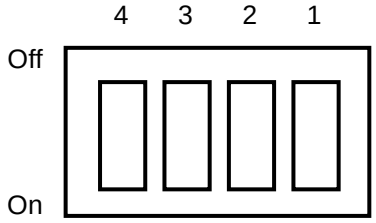
A.1.1 ARC1/ARC2 Circuit Board's SW1 DIP Switch Setting

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

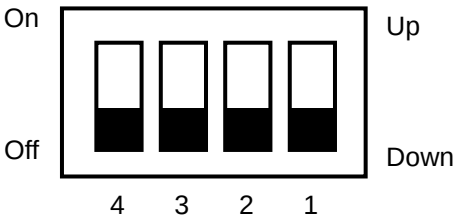
Make sure that the SW2 settings corresponds to the circuit board revision.



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

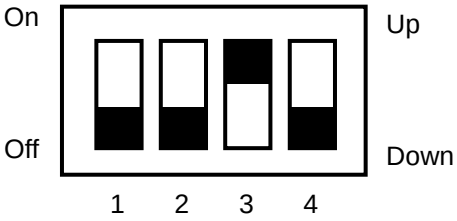
All bits of the DIP switch SW3 should be set to the Off side, that is, Down side.



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.1.4 ARC1/ARC2 Circuit Board's SW4 DIP Switch Setting

The bit 3 of the DIP switch SW4 should be set to On (up side), and the other bits should be set to Off (down side).



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 thep power

9 2
○●○●○●○●

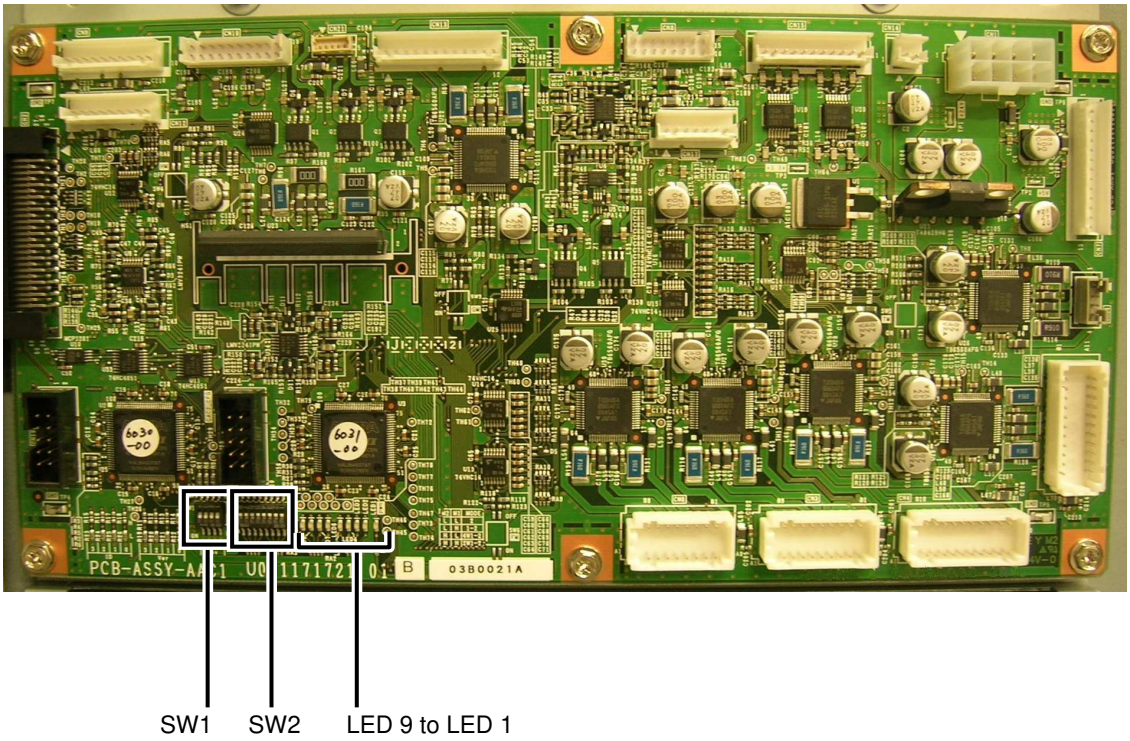
(2) LED display during standard operation

9 2
●●●●●●●☆

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

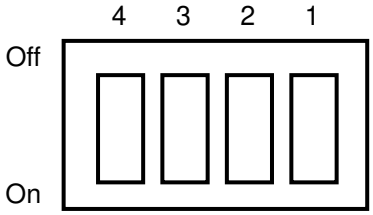


B.1 DIP Switch Settings

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

B.1.2 AAC1 Circuit Board's SW2 DIP Switch Setting

Normally, set all the bits of the DIP switch SW2 on the AAC1 board to OFF (upper position).

Bit	Meaning when set to On position	Meaning when set to Off position	Normal Position
DIP switch-1	—	—	Off
DIP switch-2	—	—	Off
DIP switch-3	—	—	Off
DIP switch-4	—	—	Off
DIP switch-5	—	—	Off
DIP switch-6	—	—	Off
DIP switch-7	—	—	Off
DIP switch-8	1 roll model	2 roll model	Off

Note:
When shipped from the factory, all DIP switches are set to their standard positions.

B.2 AAC1 Board LED Display

The following section explains how to read the LED display on the AAC1 board.
The status of the LED is represented by the following icons.

○: On
☆: Flashing
●: Off
×: Indefinite
—: Non-discussed LED

(1) LED display immediately after turning On the power

9 1
●○●○●○●○○

(2) LED display during standard operation

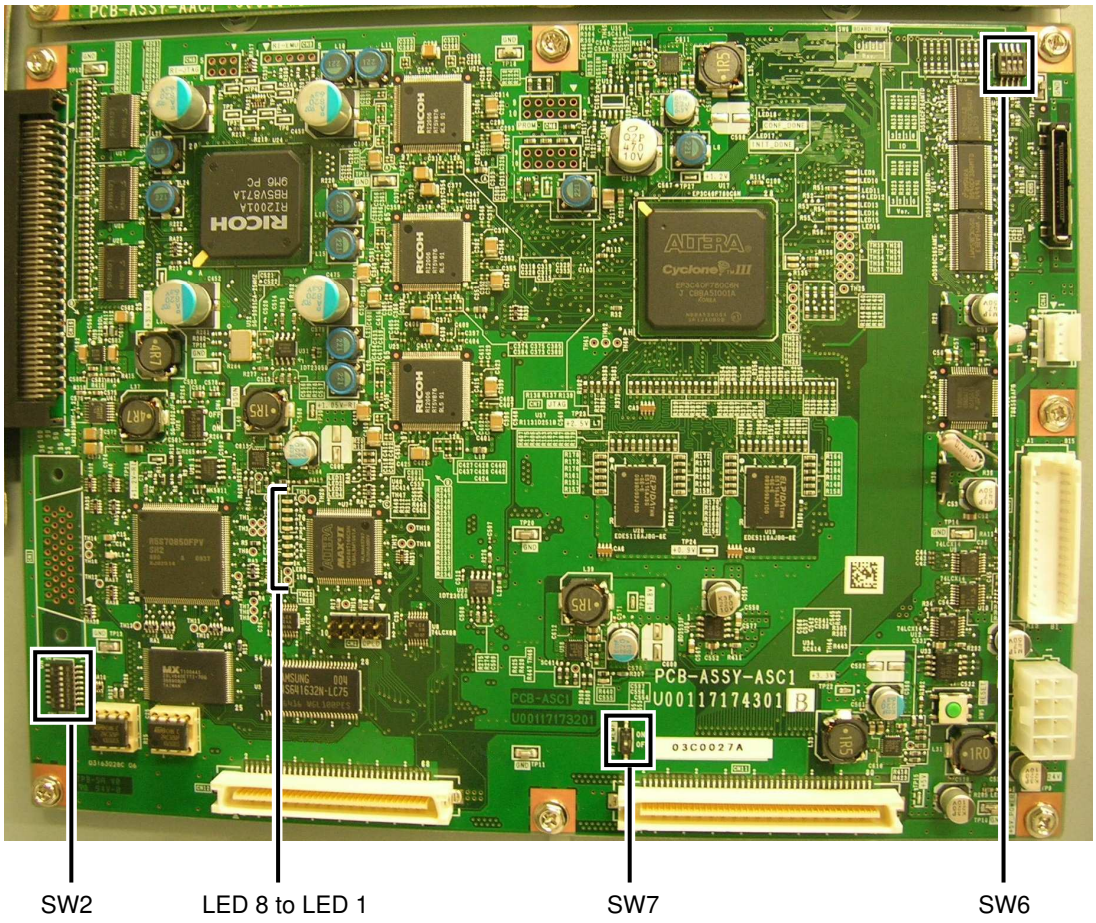
When the check performed at power on completes without any problems, the display for each LED is as shown below.

○ : On
☆ : Flashing
● : Off
△ : Lit at a print request, and not lit at no request
× : Indefinite
— : Non-discussed LED

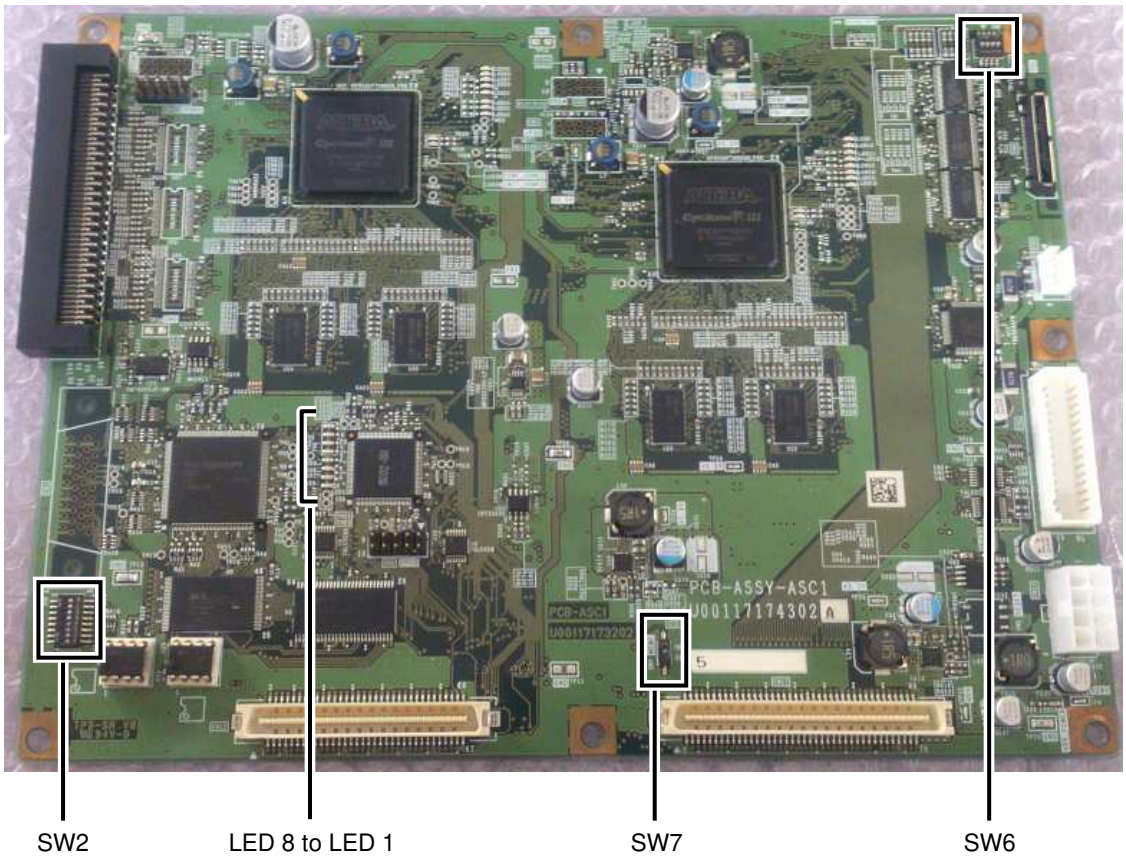
9	8	7	6	5	4	3	2	1		
—	—	—	—	—	—	—	—	○	LED1 lit	AAC1 board on
—	—	—	—	—	—	—	☆	○	LED2 flashing (1 second interval)	Program running
—	○	—	—	—	—	—	☆	○	LED8 lit	Print request present

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



The appearance of the board may be as follows depending on the manufacturing date.

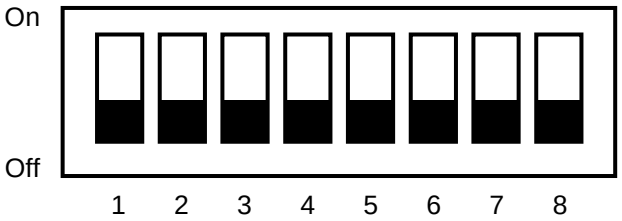


C.1 DIP Switch Settings

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 DIP Switch Setting

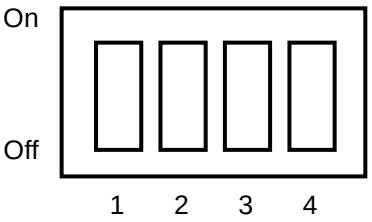
All bits of the SW2 settings should be set to the Off side.



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 DIP Switch Setting

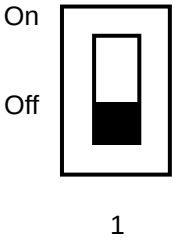
Make sure that the SW6 settings corresponds to the circuit board revision.



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 DIP Switch Setting

The bit of the DIP switch SW7 should be set to the Off side.



C.2 ASC1 Board and LED Display

The following section explains how to read the LED display on the ASC1 board.
The status of the LED will be represented by the following icons.

○: On
☆: Flashing
●: Off

C.2.1 ASC1 Circuit Board's LED Display

(1) LED display immediately after turning On the power

1 8
●●●●●●●●

(2) LED display during standard operation

1 8
☆●●●●●●●

(3) LED display for all other errors

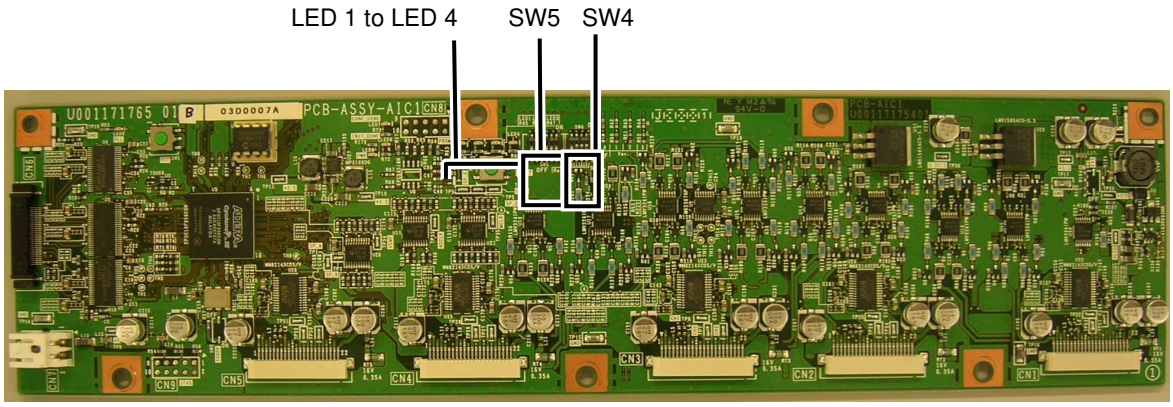
1 8

☆●●●☆●●●	POC Error - ASC(1) Problem
☆●●●●☆●●	POC Error - ASC(2) Problem
☆●●●●●☆●	POC Error - AIC(1) Problem
☆●●●●●●☆	POC Error - AIC(2) Problem
●●○●●●●☆	RIP Control Error

C.3 ASC1 Circuit Board's Reset Switch (SW5)

Pressing reset switch SW5 resets the ASC1 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 D AIC1 Board Configuration and Display



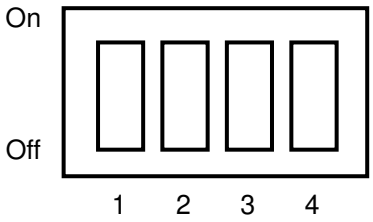
The AIC1 board is a circuit board only found in the LP-2060-MF.

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

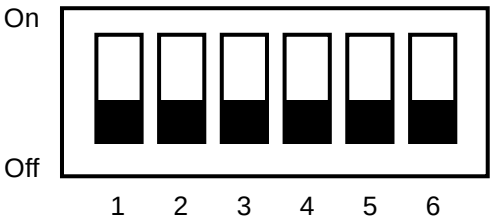
Make sure that the SW4 settings corresponds to the circuit board revision.



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 dipswitch 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.

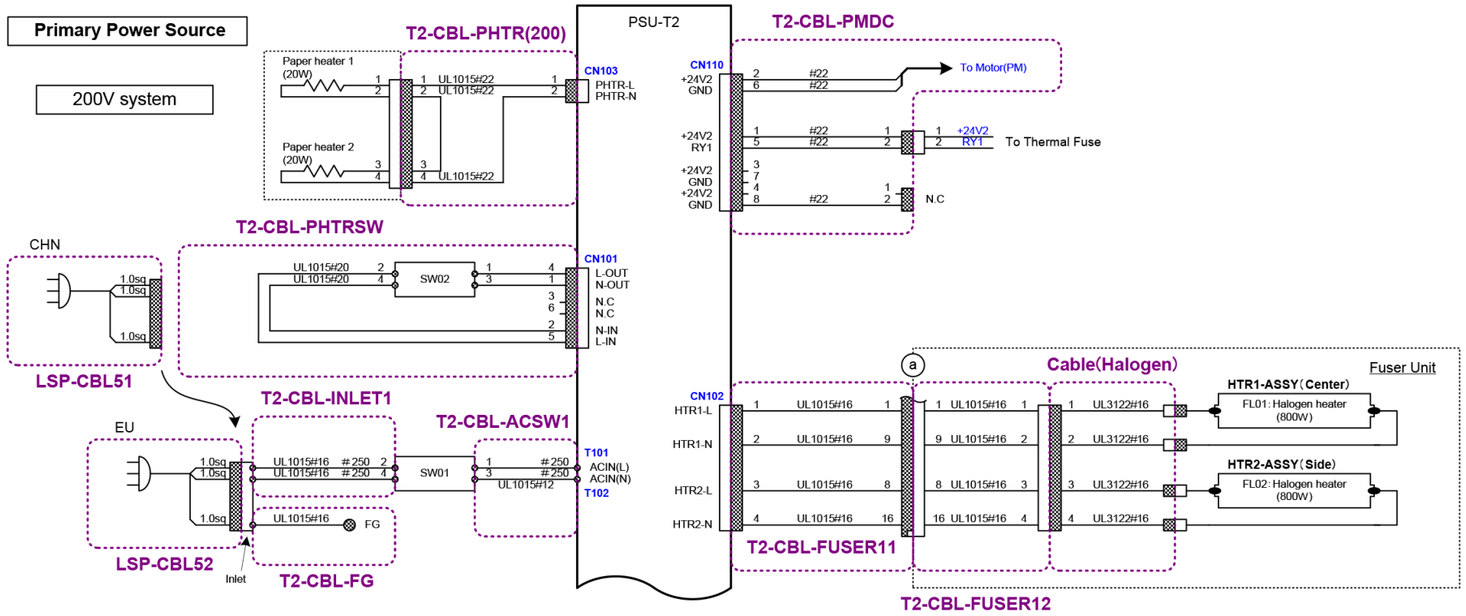
○○: On
☆: Flashing
●●: Off

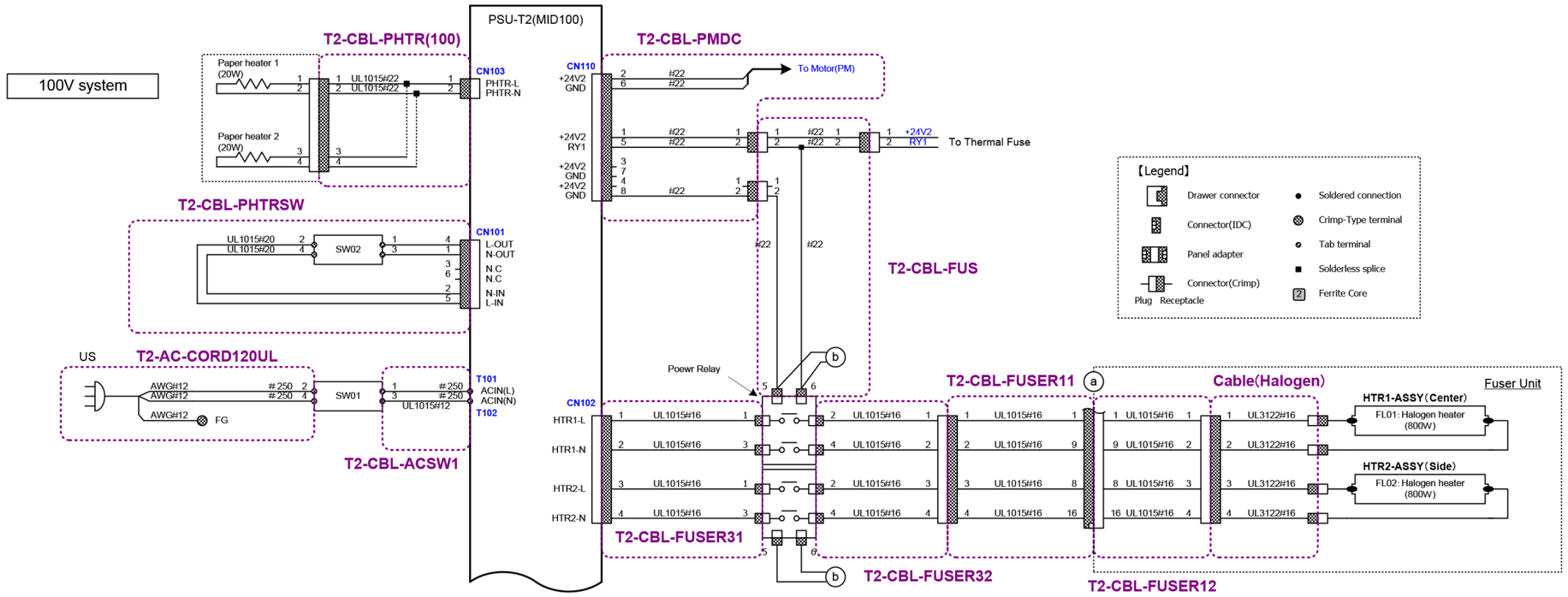
D.2.1 ASC1 Circuit Board's LED Display

1 4
○○●○ Scanning
●○●○ Standby

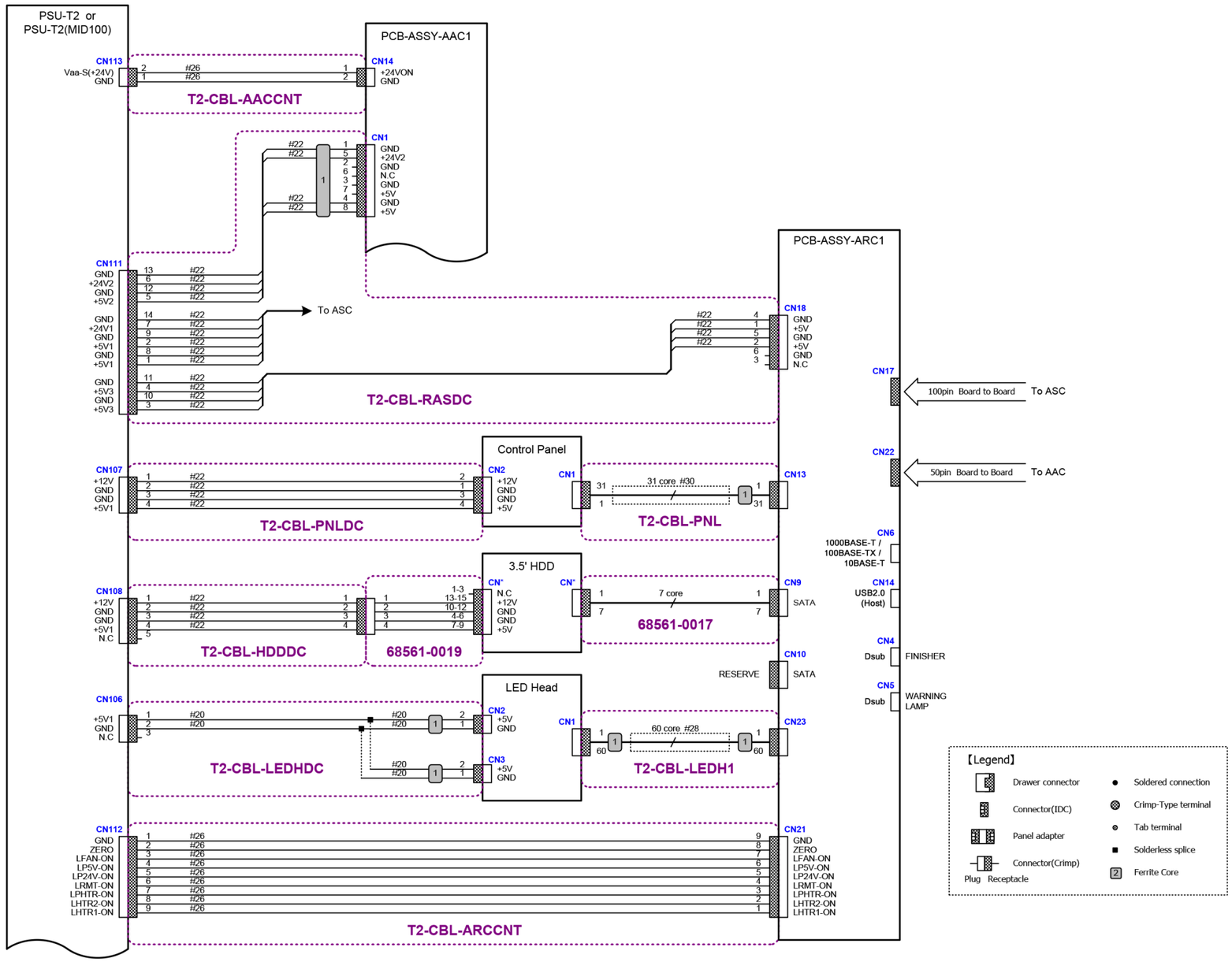
Annex E Wiring Schematic

The wiring schematic of the Printer is as follows.

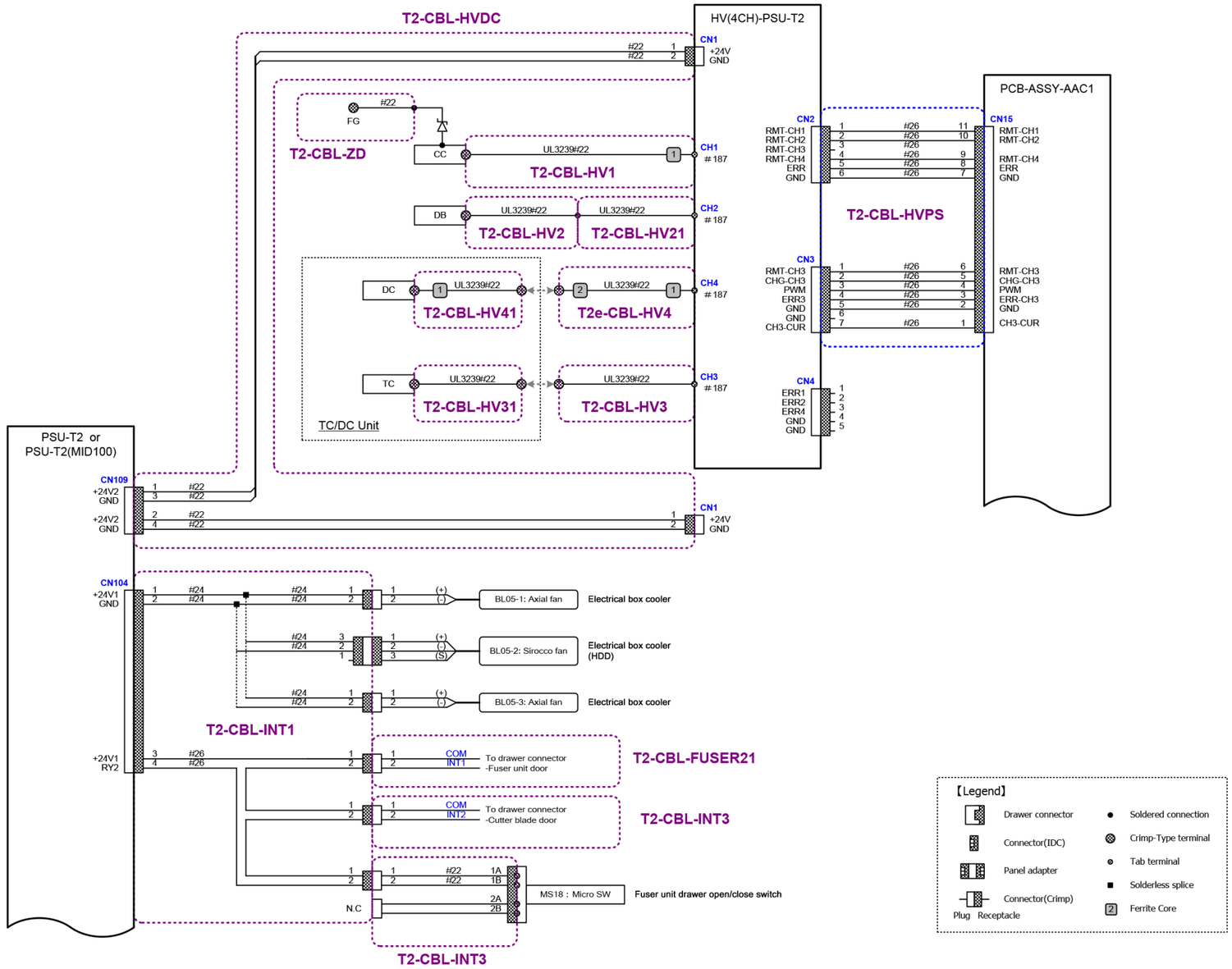

Primary Power Source
200V system
PSU-T2
T2-CBL-PHTR(200)
Paper heater 1 (20W)
Paper heater 2 (20W)
UL1015#22
CN103
PHTR-L
PHTR-N
T2-CBL-PMDC
CN110
+24V2
GND
RY1
#22
To Motor(PM)
To Thermal Fuse
N.C
T2-CBL-PHTRSW
CHN
1.0sq
LSP-CBL51
UL1015#20
SW02
CN101
L-OUT
N-OUT
N.C
N-IN
L-IN
T2-CBL-INLET1
EU
T2-CBL-ACSW1
UL1015#16
#250
SW01
UL1015#12
T101
T102
ACIN(L)
ACIN(N)
FG
LSP-CBL52
Inlet
T2-CBL-FG
CN102
HTR1-L
HTR1-N
HTR2-L
HTR2-N
T2-CBL-FUSER11
a
Cable(Halogen)
Fuser Unit
UL3122#16
HTR1-ASSY(Center)
FL01:Halogen heater (800W)
HTR2-ASSY(Side)
FL02:Halogen heater (800W)
T2-CBL-FUSER12


100V system
PSU-T2(MID100)
T2-CBL-PHTR(100)
Paper heater 1 (20W)
Paper heater 2 (20W)
UL1015#22
CN103
PHTR-L
PHTR-N
T2-CBL-PMDC
CN110
+24V2
GND
RY1
#22
To Motor(PM)
To Thermal Fuse
T2-CBL-FUS
T2-CBL-PHTRSW
UL1015#20
SW02
CN101
L-OUT
N-OUT
N.C
N-IN
L-IN
US
T2-AC-CORD120UL
AWG#12
#250
SW01
UL1015#12
T101
T102
ACIN(L)
ACIN(N)
FG
T2-CBL-ACSW1
Poewr Relay
a
b
CN102
HTR1-L
HTR1-N
HTR2-L
HTR2-N
T2-CBL-FUSER31
T2-CBL-FUSER11
T2-CBL-FUSER32
Cable(Halogen)
Fuser Unit
UL3122#16
HTR1-ASSY(Center)
FL01:Halogen heater (800W)
HTR2-ASSY(Side)
FL02:Halogen heater (800W)
T2-CBL-FUSER12
【Legend】
Drawer connector
Connector(IDC)
Panel adapter
Connector(Crimp)
Plug Receptacle
Soldered connection
Crimp-Type terminal
Tab terminal
Solderless splice
Ferrite Core

Secondary Power Source



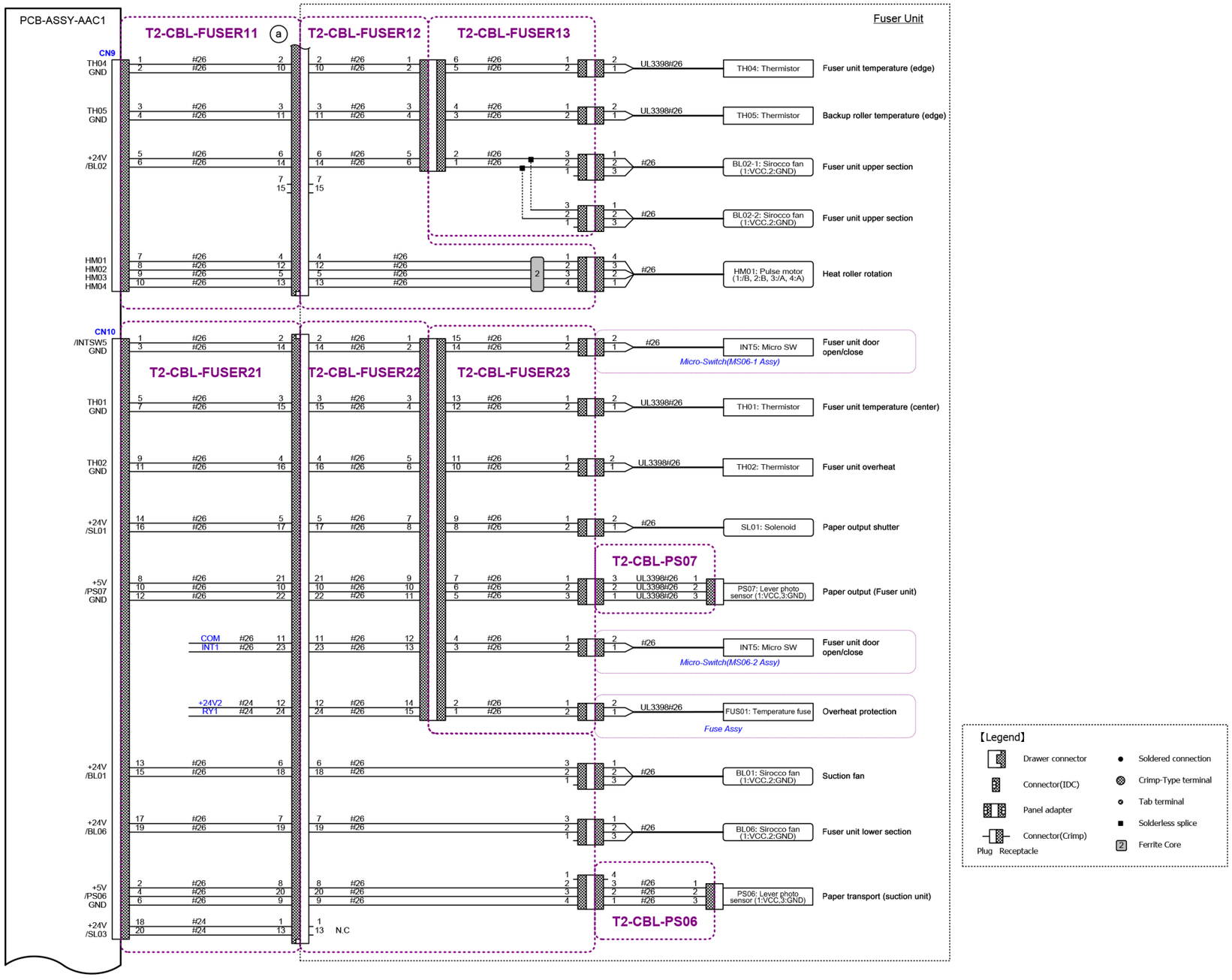
High-voltage Power Supply



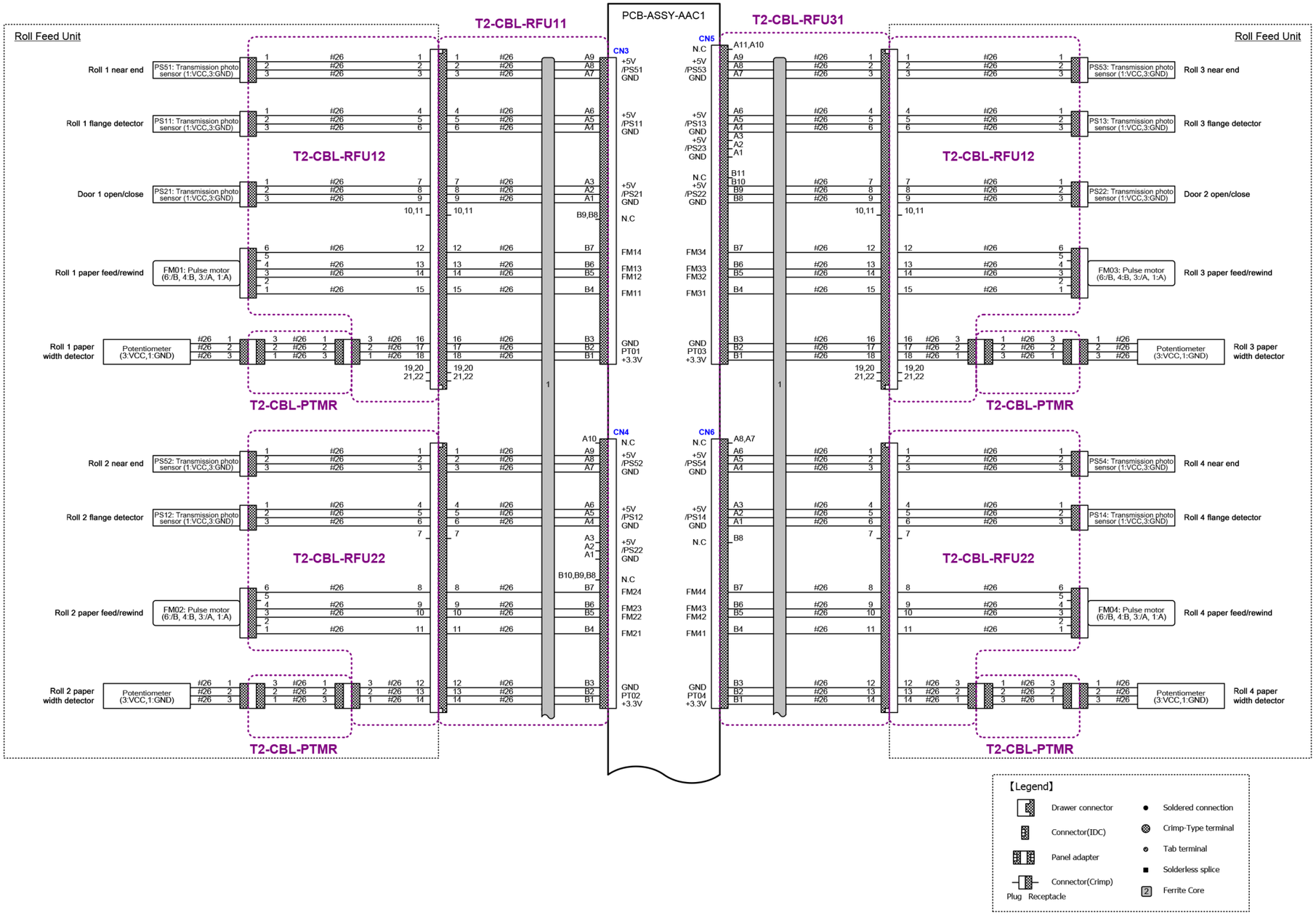
【Legend】

- Drawer connector
- Connector(IDC)
- Panel adapter
- Connector(Crimp) Plug Receptacle
- Soldered connection
- Crimp-Type terminal
- Tab terminal
- Solderless splice
- Ferrite Core

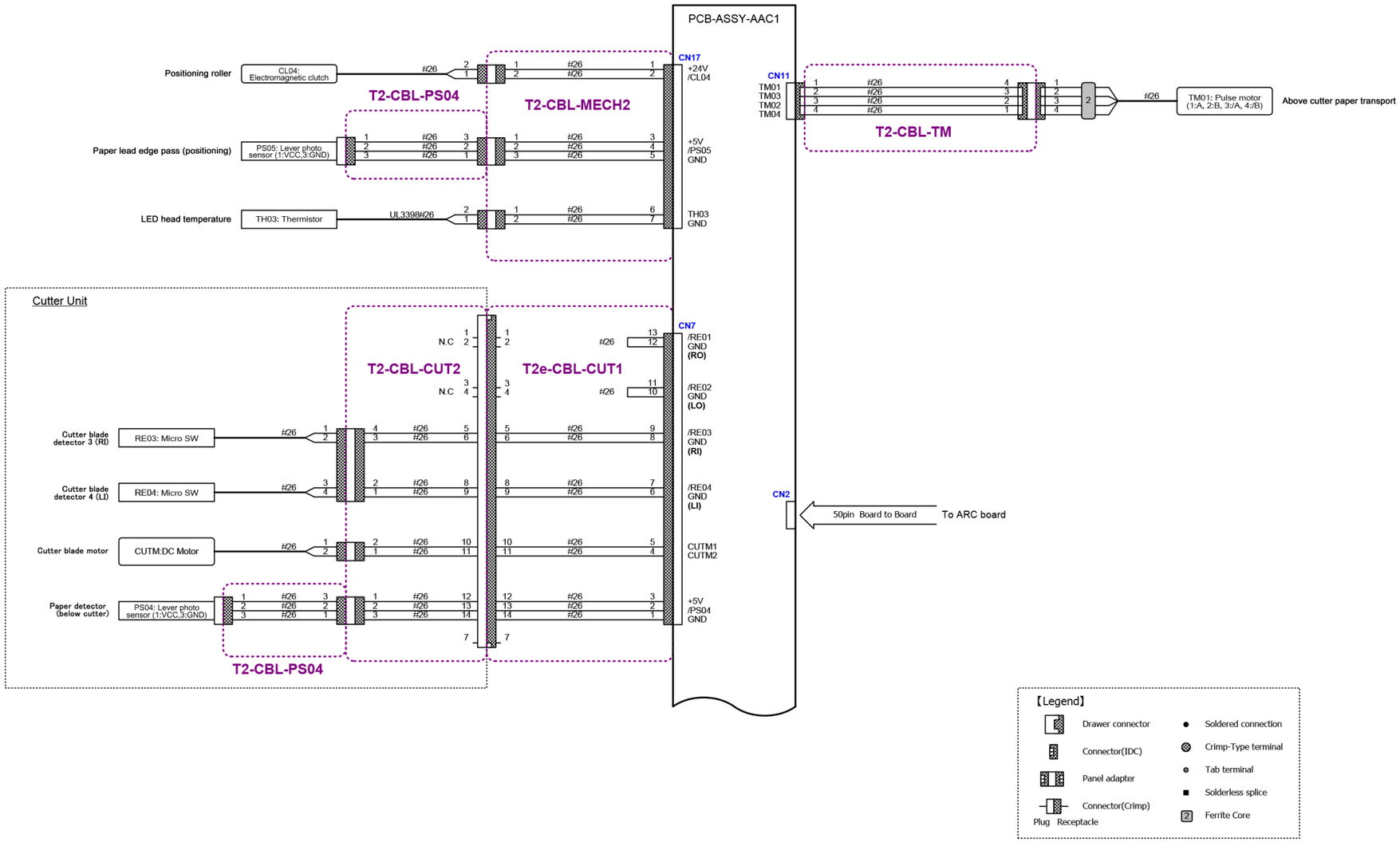
Fuser Unit


PCB-ASSY-AAC1
Fuser Unit
T2-CBL-FUSER11
T2-CBL-FUSER12
T2-CBL-FUSER13
T2-CBL-FUSER21
T2-CBL-FUSER22
T2-CBL-FUSER23
T2-CBL-PS07
T2-CBL-PS06
CN9
CN10
TH04: Thermistor
Fuser unit temperature (edge)
TH05: Thermistor
Backup roller temperature (edge)
BL02-1: Sirocco fan (1:VCC,2:GND)
Fuser unit upper section
BL02-2: Sirocco fan (1:VCC,2:GND)
Fuser unit upper section
HM01; Pulse motor (1:/B, 2:B, 3:/A, 4:A)
Heat roller rotation
INT5: Micro SW
Micro-Switch(MS06-1 Assy)
Fuser unit door open/close
TH01: Thermistor
Fuser unit temperature (center)
TH02: Thermistor
Fuser unit overheat
SL01: Solenoid
Paper output shutter
PS07: Lever photo sensor (1:VCC,3:GND)
Paper output (Fuser unit)
INT5: Micro SW
Micro-Switch(MS06-2 Assy)
Fuser unit door open/close
FUS01: Temperature fuse
Fuse Assy
Overheat protection
BL01: Sirocco fan (1:VCC,2:GND)
Suction fan
BL06: Sirocco fan (1:VCC,2:GND)
Fuser unit lower section
PS06: Lever photo sensor (1:VCC,3:GND)
Paper transport (suction unit)
N.C
【Legend】
Drawer connector
Connector(IDC)
Panel adapter
Connector(Crimp)
Plug Receptacle
Soldered connection
Crimp-Type terminal
Tab terminal
Solderless splice
Ferrite Core

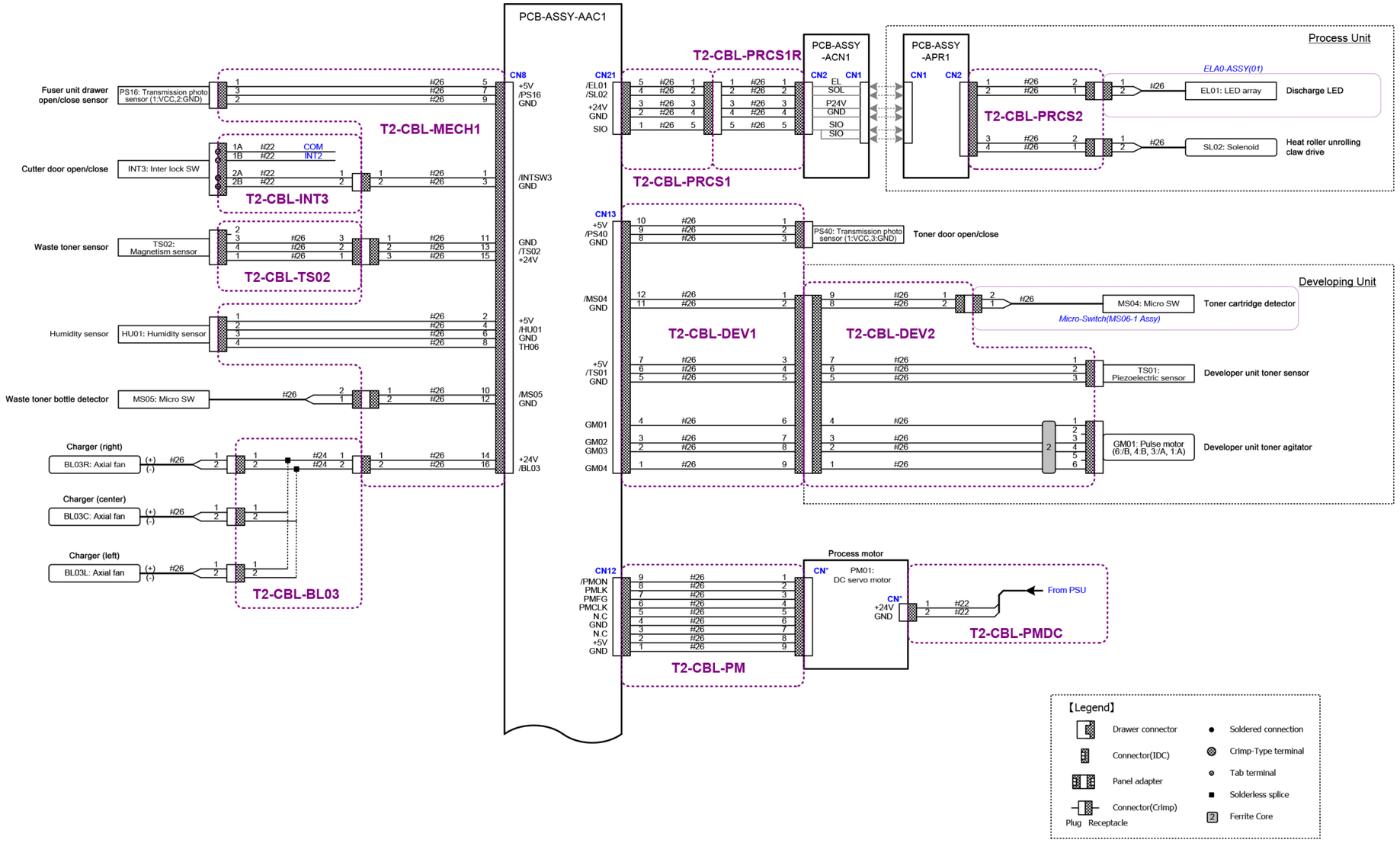
Roll Feed Unit



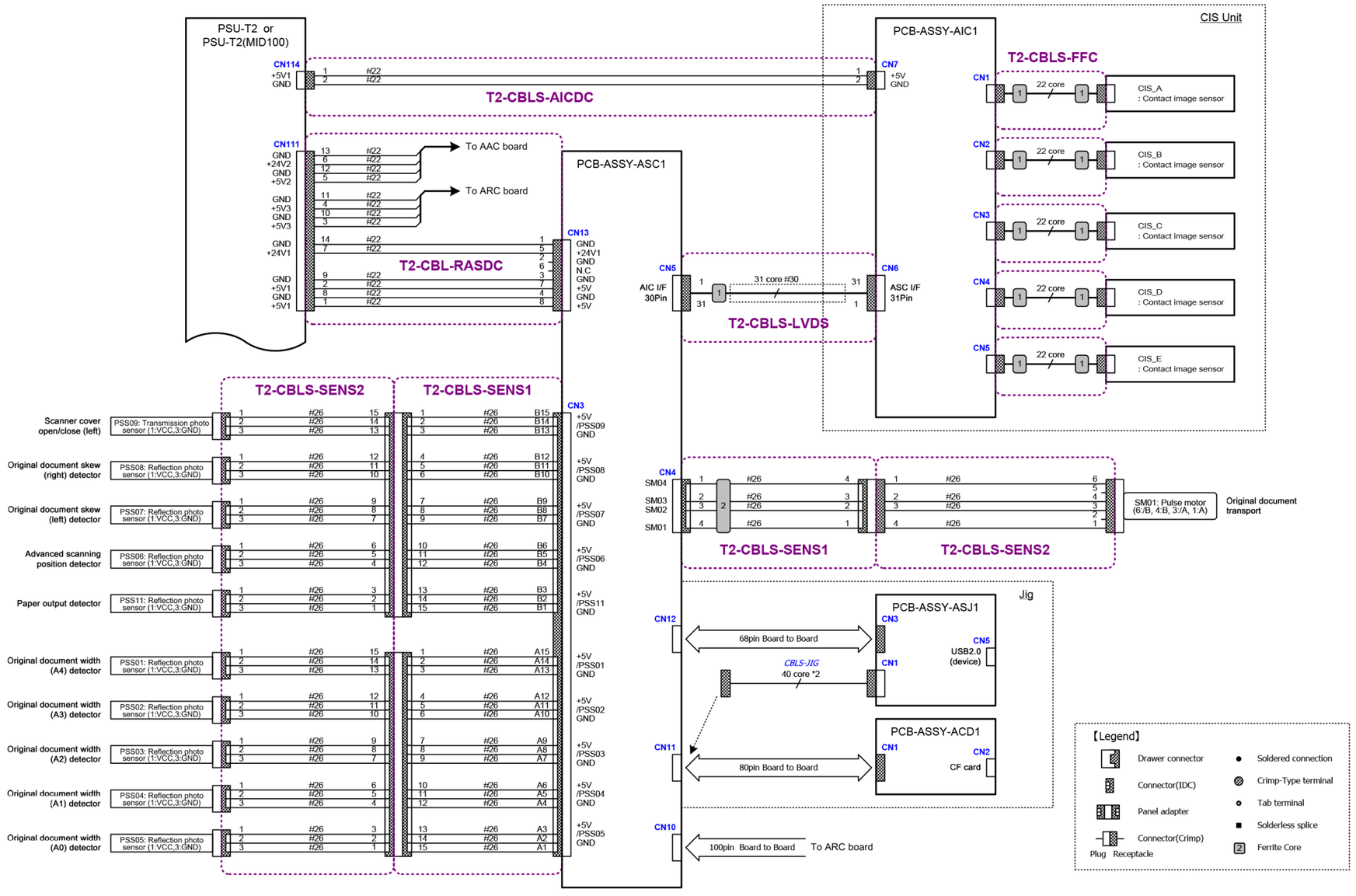
Actuator 1


PCB-ASSY-AAC1
Positioning roller
CL04: Electromagnetic clutch
#26
T2-CBL-PS04
T2-CBL-MECH2
CN17
+24V
/CL04
Paper lead edge pass (positioning)
PS05: Lever photo sensor (1:VCC,3:GND)
+5V
/PS05
GND
LED head temperature
TH03: Thermistor
UL3398#26
TH03
GND
CN11
TM01
TM03
TM02
TM04
T2-CBL-TM
TM01: Pulse motor (1:A, 2:B, 3:/A, 4:/B)
Above cutter paper transport
Cutter Unit
T2-CBL-CUT2
T2e-CBL-CUT1
CN7
N.C
/RE01
GND
(RO)
/RE02
GND
(LO)
Cutter blade detector 3 (RI)
RE03: Micro SW
/RE03
GND
(RI)
Cutter blade detector 4 (LI)
RE04: Micro SW
/RE04
GND
(LI)
Cutter blade motor
CUTM:DC Motor
CUTM1
CUTM2
Paper detector (below cutter)
PS04: Lever photo sensor (1:VCC,3:GND)
+5V
/PS04
GND
T2-CBL-PS04
CN2
50pin Board to Board
To ARC board
【Legend】
Drawer connector
Connector(IDC)
Panel adapter
Connector(Crimp)
Plug Receptacle
Soldered connection
Crimp-Type terminal
Tab terminal
Solderless splice
Ferrite Core

Actuator 2

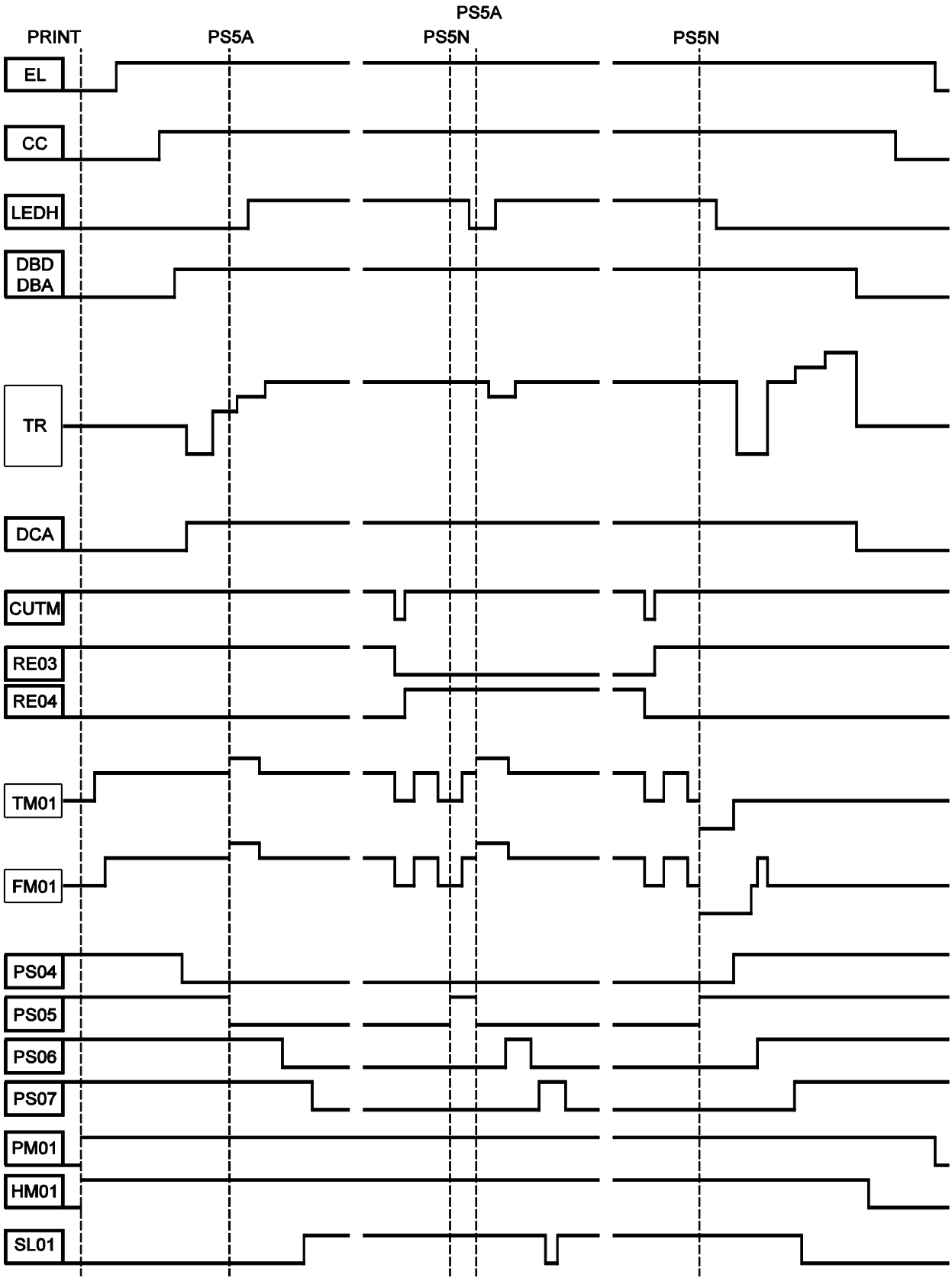

PCB-ASSY-AAC1
CN8
Fuser unit drawer open/close sensor
PS16: Transmission photo sensor (1:VCC,2:GND)
+5V
/PS16
GND
T2-CBL-MECH1
Cutter door open/close
INT3: Inter lock SW
COM
INT2
/INTSW3
GND
T2-CBL-INT3
Waste toner sensor
TS02: Magnetism sensor
GND
/TS02
+24V
T2-CBL-TS02
Humidity sensor
HU01: Humidity sensor
+5V
/HU01
GND
TH06
Waste toner bottle detector
MS05: Micro SW
/MS05
GND
Charger (right)
BL03R: Axial fan
Charger (center)
BL03C: Axial fan
Charger (left)
BL03L: Axial fan
+24V
/BL03
T2-CBL-BL03
T2-CBL-PRCS1R
PCB-ASSY -ACN1
CN21
/EL01
/SL02
+24V
GND
SIO
EL
SOL
P24V
GND
SIO
SIO
T2-CBL-PRCS1
PCB-ASSY -APR1
CN1
CN2
Process Unit
ELA0-ASSY(01)
T2-CBL-PRCS2
EL01: LED array
Discharge LED
SL02: Solenoid
Heat roller unrolling claw drive
CN13
+5V
/PS40
GND
PS40: Transmission photo sensor (1:VCC,3:GND)
Toner door open/close
Developing Unit
/MS04
GND
MS04: Micro SW
Toner cartridge detector
Micro-Switch(MS06-1 Assy)
T2-CBL-DEV1
T2-CBL-DEV2
+5V
/TS01
GND
TS01: Piezoelectric sensor
Developer unit toner sensor
GM01
GM02
GM03
GM04
GM01: Pulse motor (6:/B, 4:B, 3:/A, 1:A)
Developer unit toner agitator
Process motor
CN*
PM01: DC servo motor
From PSU
+24V
GND
T2-CBL-PMDC
CN12
/PMON
PMLK
PMFG
PMCLK
N.C
GND
N.C
+5V
GND
T2-CBL-PM
【Legend】
Drawer connector
Connector(IDC)
Panel adapter
Connector(Crimp)
Plug Receptacle
Soldered connection
Crimp-Type terminal
Tab terminal
Solderless splice
Ferrite Core

Scanner Unit



Annex F Timing Diagram

■Two continuous prints (print A sequence)



Wide Format Multifunction Printer Maintenance Manual
Errata

Table 1

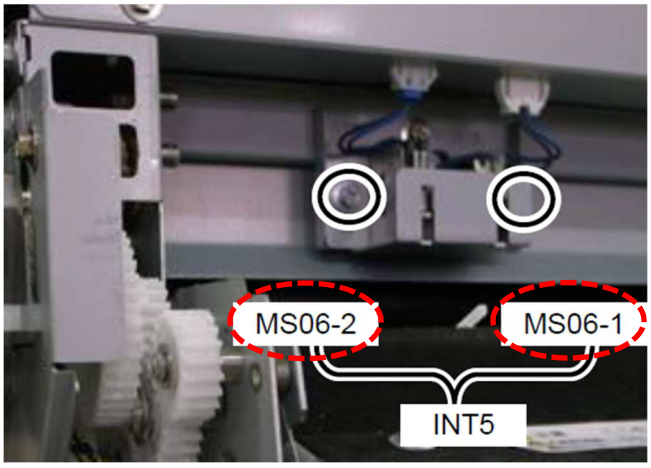
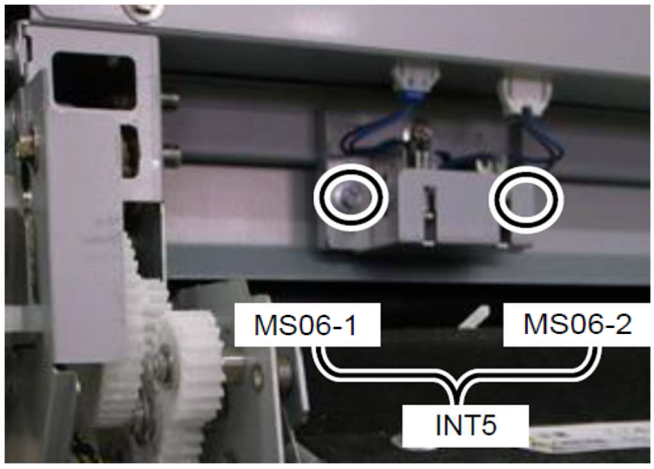
Page	(Document Title)
9-86	(LP-2060/LP-2060-MF Wide Format Multifunction Printer Maintenance Manual)
Before Correction	After Correction
	

Table 2

Page	(Document Title)
9-87	(LP-2060/LP-2060-MF Wide Format Multifunction Printer Maintenance Manual)
Before Correction	After Correction