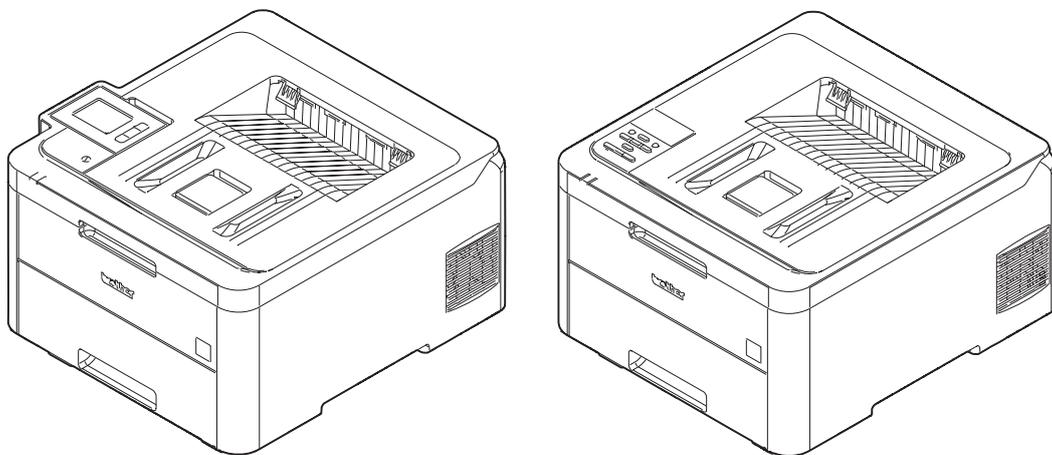# Brother Laser Printer
SERVICE MANUAL

MODEL

HL-3160CDW/3190CDW/L3210CW
HL-L3230CDN/L3230CDW/L3270CDW

Read this manual thoroughly before maintenance work.
Keep this manual in a convenient place for quick and easy reference at all times.

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SAFETY INFORMATION

■ Definitions of Warnings, Cautions, Notes and Memos

The following conventions are used in this manual:

Mark	Contents
⚠	WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injuries.
⚠	CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injuries.
❗	IMPORTANT indicates a potentially hazardous situation which, if not avoided, may result in damage to property or loss of product functionality.
⊘	Prohibition icons indicate actions that must not be performed.
⚡	Electrical Hazard icons alert you to possible electrical shock.
🔥	Fire hazard icons alert you to the possibility of fire.
♨	Hot Surface icons warn you not to touch product parts that are hot.
Note	Notes tell you how you should respond to a situation that may arise or give tips about how the operation works with other features.
Memo	Memo tells you bits of knowledge to help understand the machine.

■ To use the Machine Safely

Please keep these instructions for later reference and read them before attempting any maintenance. If you do not follow these safety instructions, there is a possibility of a fire, electrical shock, burn or suffocation.

⚠️ **WARNING**
⚡ ELECTRICAL HAZARDS Failure to follow the warnings in this section may create the risk of an electrical shock. In addition, you could create an electrical short, which may create the risk of a fire.
⚡ There are high voltage electrodes inside the product. Before you access the inside of the product, including for routine maintenance such as cleaning, make sure you have unplugged the power cord from the AC power outlet, as well as Ethernet (RJ-45) cables (Network models only) from the product. Never push objects of any kind into this product through cabinet slots, since they may touch dangerous voltage points or short out parts.
⚡ DO NOT handle the plug with wet hands.
⚡ DO NOT use this product during an electrical storm.
🔥 Always make sure the plug is fully inserted. DO NOT use the product or handle the cord if the cord has become worn or frayed.
⚡ 🔥 DO NOT allow this product to come into contact with water.
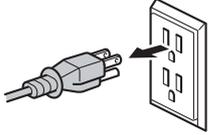
⚡ 🔥

This product should be connected to an AC power source within the range indicated on the rating label. DO NOT connect it to a DC power source or inverter.

⚡ 🔥

Power Cord Safety:
- This product is equipped with a grounded plug. This plug will only fit into a grounded power outlet. This is a safety feature. DO NOT defeat the purpose of the grounded plug.

- Use only the power cord supplied with this product.

- DO NOT allow anything to rest on the power cord. DO NOT place this product where people can walk on the cord. DO NOT place this product in a position where the cord is stretched or strain is otherwise put on the cord. Doing so may cause the cord to become worn or frayed.

- We DO NOT advise using an extension cord.

⚡ 🔥

- DO NOT put a toner cartridge, a toner cartridge and drum unit assembly, or a waste toner box into a fire. It could explode, resulting in injuries.

- DO NOT use flammable substances, any type of spray, or an organic solvent/liquid containing alcohol or ammonia to clean the inside or outside of the product.
  Doing so could cause a fire or electrical shock. Instead, use only a dry, lint-free cloth.

🔥
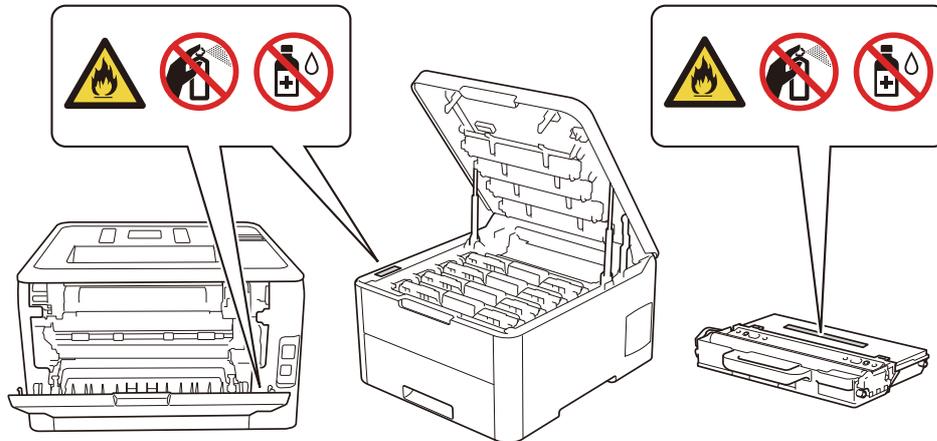
DO NOT attempt to operate this product with a paper jam or with stray pieces of paper inside the product. Prolonged contact of the paper with the fuser unit could cause a fire.

🔥

DO NOT use a vacuum cleaner to clean up scattered toner. Doing this might cause the toner dust to ignite inside the vacuum cleaner, potentially starting a fire. Please carefully clean the toner dust with a dry, lint-free soft cloth and dispose of it according to local regulations.

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⚠ 〰 HOT SURFACE

Immediately after using the product, some internal parts of the product will be extremely hot. Wait at least 10 minutes for the product to cool down before you touch the internal parts of the product.
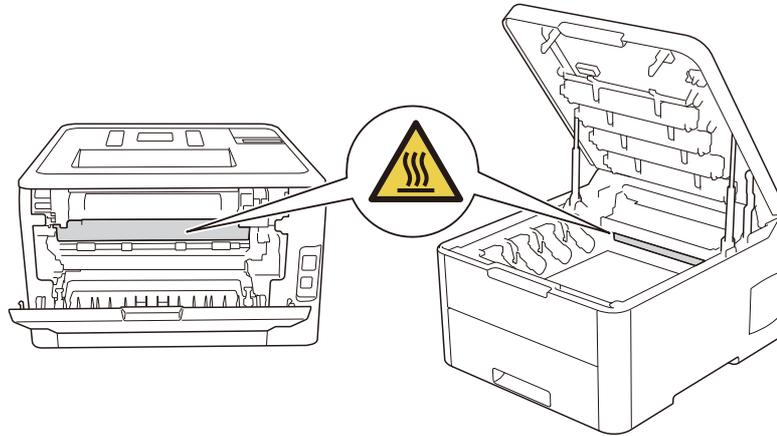
CHAPTER 1   SUPPLEMENTAL SPECIFICATIONS

1.   GENERAL

The function comparative table for models as described in this Service Manual are shown below.

Model		HL-3160CDW	HL-L3210CW	HL-L3230CDN	HL-L3230CDW	HL-L3270CDW	HL-3190CDW
Wired/Wireless LAN		Wired/ Wireless	Wireless	Wired	Wired/Wireless		
Auto Duplex Print		✓	N/A	✓			
LCD	Type	16 characters x 1 line				Touch panel	
	Dimension (W x L)	1.85 x 0.20 inch				54.0 mm x 40.5 mm (2.13 x 1.59 inch)	
Setting Lock		✓					
Secure Function Lock		✓ (Version.3.0) (100 registerable users)					
USB Host (front)		N/A					
USB Host (rear)		N/A					
NFC		N/A				✓	
PCL/PS		✓					
Paper Input	Standard Tray	250 sheets					
	Manual Feed Slot	1 sheet					
Paper Output		150 sheets face down (80 g/m^2) 1 sheet face-up (straight paper path)					
Warm Up Time	From Sleep Mode	Less than 24 sec. at 73.4F (23°C/50%)	Less than 28 sec. at 73.4F (23°C/50%)	Less than 24 sec. at 73.4F (23°C/50%)			
	From Power ON	Less than 25 sec. at 73.4F (23°C/50%)	Less than 29 sec. at 73.4F (23°C/50%)	Less than 25 sec. at 73.4F (23°C/50%)			

Specifications are subject to change without notice.

Model		HL-3160CDW	HL-L3210CW	HL-L3230CDN	HL-L3230CDW	HL-L3270CDW	HL-3190CDW
First Print Time	From Ready Mode	Less than 14/14 secs (Mono/Color) at 73.4F (23°C)	Less than 15.5/15.5 secs (Mono/Color) at 73.4F (23°C)		Less than 14/14 secs (Mono/Color) at 73.4F (23°C) (For US and OCE) Less than 15.5/15.5 secs (Mono/Color) at 73.4F (23°C) (For EU)	Less than 14/14 secs (Mono/Color) at 73.4F (23°C)	
	From Sleep Mode	Less than 30/30 secs (Mono/Color) at 73.4F (23°C)	Less than 32/32 secs (Mono/Color) at 73.4F (23°C)		Less than 30/30 secs (Mono/Color) at 73.4F (23°C) (For US and OCE) Less than 32/32 secs (Mono/Color) at 73.4F (23°C) (For EU)	Less than 30/30 secs (Mono/Color) at 73.4F (23°C)	
Mono Print Speed (A4/Letter)		Up to 24/25 ppm (Quiet Mode: Up to 12/12 ppm)	Up to 18/19 ppm (Quiet Mode: Up to 12/12 ppm)		Up to 24/25 ppm (Quiet Mode: Up to 12/12 ppm) (For US and OCE) Up to 18/19 ppm (Quiet Mode: Up to 12/12 ppm) (For EU)	Up to 24/25 ppm (Quiet Mode: Up to 12/12 ppm)	
Full Color Print Speed (A4/Letter)		Up to 24/25 ppm (Quiet Mode: Up to 12/12 ppm)	Up to 18/19 ppm (Quiet Mode: Up to 12/12 ppm)		Up to 24/25 ppm (Quiet Mode: Up to 12/12 ppm) (For US and OCE) Up to 18/19 ppm (Quiet Mode: Up to 12/12 ppm) (For EU)	Up to 24/25 ppm (Quiet Mode: Up to 12/12 ppm)	
CPU		800 MHz					

Specifications are subject to change without notice.

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Model		HL-3160CDW	HL-L3210CW	HL-L3230CDN	HL-L3230CDW	HL-L3270CDW	HL-3190CDW
Dimensions (W x D x H)	Carton Size	600 x 560 x 372 mm 23.6 x 22.0 x 14.6 inch	589 x 513 x 372 mm 23.2 x 20.2 x 14.6 inch			589 x 532 x 372 mm 23.2 x 20.9 x 14.6 inch	600 x 560 x 372 mm 23.6 x 22.0 x 14.6 inch
	Machine Size	410 x 461 x 252 mm 16.1 x 18.1 x 9.9 inch				439 x 461 x 252 mm 17.3 x 18.1 x 9.9 inch	
Weights	With Carton	22.0 kg / 48.4 lb	20.6 kg / 45.5 lb (For US) 20.8 kg / 45.8 lb (For BRA and ASA) 20.7 kg / 45.5 lb (For EU and OCE)	21.6 kg / 47.6 lb (For LTN) 21.9 kg / 48.4 lb (For ASA)	21.5 kg / 47.5 lb (For US and Russia) 21.6 kg / 47.7 lb (For Eastern and Western Europe) 21.6 kg / 47.5 lb (For OCE)	22.1 kg / 48.7 lb (For US) 22.3 kg / 49.2 lb (For LTN) 22.1 kg / 48.8 lb (For EU and OCE) 22.5 kg / 49.6 lb (For ASA)	22.2 kg / 49.0 lb
	Without Carton, with toner/ drum	18.1 kg / 39.8 lb	17.1 kg / 37.8 lb (For US) 17.2 kg / 37.9 lb (For BRA and ASA) 17.2 kg / 37.8 lb (For EU and OCE)	18.0 kg / 39.8 lb (For LTN) 18.3 kg / 40.3 lb (For ASA)	18.0 kg / 39.7 lb (For US) 18.0 kg / 39.8 lb (For EU) 18.1 kg / 39.8 lb (For OCE)	18.3 kg / 40.3 lb (For US, EU and OCE) 18.4 kg / 40.6 lb (For LTN) 18.5 kg / 40.8 lb (For ASA)	18.3 kg / 40.3 lb
	Without Carton nor toner/ drum	13.6 kg / 29.9 lb	12.7 kg / 27.9 lb	13.6 kg / 29.9 lb		13.8 kg / 30.4 lb	

Specifications are subject to change without notice.

2. NETWORK CONNECTIVITY

Model	HL-3160CDW	HL-L3210CW	HL-L3230CDN	HL-L3230CDW	HL-L3270CDW	HL-3190CDW
Wired Network	NC-9400h	N/A	NC-9400h			
Wireless Network	NC-8900w		N/A	NC-8900w		

Specifications are subject to change without notice.

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3. SERVICE INFORMATION

Model	All models
Machine Life	100,000 pages (A4 / LTR) or 5 years
MTBF	4,000 hours
MTTR	0.5 hours
Maximum Monthly Print Volume	Up to 30,000 pages
Periodical Maintenance Parts — Fuser Unit	50,000 pages (2 pages/job)
Periodical Maintenance Parts — PF Kit	50,000 pages

Specifications are subject to change without notice.

4. SUPPLIES

Model		HL-3160CDW	HL-L3210CW	HL-L3230CDN	HL-L3230CDW	HL-L3270CDW	HL-3190CDW
Toner Cartridge	Starter Toner	BK: Approx. 1,400 pages in accordance with ISO/IEC 19798 CMY: Approx. 1,300 pages in accordance with ISO/IEC 19798	BK: Approx. 1,000 pages in accordance with ISO/IEC 19798 CMY: Approx. 1,000 pages in accordance with ISO/IEC 19798				BK: Approx. 1,400 pages in accordance with ISO/IEC 19798 CMY: Approx. 1,300 pages in accordance with ISO/IEC 19798
	Standard Toner	BK: Approx. 1,400 pages in accordance with ISO/IEC 19798 CMY: Approx. 1,300 pages in accordance with ISO/IEC 19798	BK: Approx. 1,400 pages in accordance with ISO/IEC 19798 CMY: Approx. 1,300 pages in accordance with ISO/IEC 19798 (For US, BRA, NZ and ASA) BK: Approx. 1,000 pages in accordance with ISO/IEC 19798 CMY: Approx. 1,000 pages in accordance with ISO/IEC 19798 (For Eastern and Western Europe)	BK: Approx. 1,400 pages in accordance with ISO/IEC 19798 CMY: Approx. 1,300 pages in accordance with ISO/IEC 19798	BK: Approx. 1,400 pages in accordance with ISO/IEC 19798 CMY: Approx. 1,300 pages in accordance with ISO/IEC 19798 (For US and Russia) BK: Approx. 1,000 pages in accordance with ISO/IEC 19798 CMY: Approx. 1,000 pages in accordance with ISO/IEC 19798 (For Eastern and Western Europe) CMY: Approx. 1,300 pages in accordance with ISO/IEC 19798 (For OCE)	BK: Approx. 1,400 pages in accordance with ISO/IEC 19798 CMY: Approx. 1,300 pages in accordance with ISO/IEC 19798 (For US, LTN and ASA) BK: Approx. 1,000 pages in accordance with ISO/IEC 19798 CMY: Approx. 1,000 pages in accordance with ISO/IEC 19798 (For Eastern and Western Europe) CMY: Approx. 1,300 pages in accordance with ISO/IEC 19798 (For ARL)	BK: Approx. 1,400 pages in accordance with ISO/IEC 19798 CMY: Approx. 1,300 pages in accordance with ISO/IEC 19798

Specifications are subject to change without notice.

Model	HL-3160CDW	HL-L3210CW	HL-L3230CDN	HL-L3230CDW	HL-L3270CDW	HL-3190CDW
Toner Cartridge / High Capacity Toner	BK: Approx. 3,000 pages in accordance with ISO/IEC 19798 CMY: Approx. 2,300 pages in accordance with ISO/IEC 19798	BK: Approx. 3,000 pages in accordance with ISO/IEC 19798 CMY: Approx. 2,300 pages in accordance with ISO/IEC 19798 (For US, BRA, EU, NZ and ASA)	BK: Approx. 3,000 pages in accordance with ISO/IEC 19798 CMY: Approx. 2,300 pages in accordance with ISO/IEC 19798	BK: Approx. 3,000 pages in accordance with ISO/IEC 19798 CMY: Approx. 2,300 pages in accordance with ISO/IEC 19798 (For US and EU) BK: Approx. 2,500 pages in accordance with ISO/IEC 19798 CMY: Approx. 2,300 pages in accordance with ISO/IEC 19798 (For ARL)	BK: Approx. 3,000 pages in accordance with ISO/IEC 19798 CMY: Approx. 2,300 pages in accordance with ISO/IEC 19798 (For US, LTN, EU and ASA) BK: Approx. 2,500 pages in accordance with ISO/IEC 19798 CMY: Approx. 2,300 pages in accordance with ISO/IEC 19798 (For ARL)	BK: Approx. 3,000 pages in accordance with ISO/IEC 19798 CMY: Approx. 2,300 pages in accordance with ISO/IEC 19798

When printing A4/Letter size one-sided pages in accordance with ISO/IEC 19798
Shelf life: 2 years without opening (6 months after opening)

Drum Unit	Life expectancy: Approximately 18,000 pages (1 page/job) The life expectancy varies according to the use condition. Shelf life: 2 years without opening (6 months after opening)

The shelf life of toner cartridge and drum unit is guaranteed under the normal condition as below;
(Temperature) Normal condition: 0 to 40°C
* Storage condition at the temperature of 40 to 50°C: Up to 5 days
* Storage condition at the temperature of -20 to 0°C: Up to 5 days
(Humidity) Normal condition: 35 to 85%RH (without condensation)
* Storage condition at the humidity of 85 to 95%RH: Up to 5 days (without condensation)
* Storage condition at the humidity of 10 to 35%RH: Up to 5 days (without condensation)

Belt Unit	Approx. 50,000 pages (2 pages/job)
Waste Toner Box	Approx. 50,000 pages (5 pages/job)

Specifications are subject to change without notice.

CHAPTER 2   ERROR INDICATION AND TROUBLESHOOTING

1.   INTRODUCTION

Troubleshooting is the countermeasure procedures that the service personnel should follow if an error or malfunction occurs with the machine. It is impossible to anticipate all of the possible troubles which may occur in future and determine the troubleshooting procedures, so this chapter covers some sample troubles. However, those samples will help the service personnel pinpoint and repair other defective elements.

1.1   Precautions

Be sure to observe and follow all the precautions to prevent any secondary problems from happening during troubleshooting.

(1) Always turn OFF the power and unplug the power cable before removing any covers or PCBs, adjusting the machine and so on. If you need to take voltage measurements with the power switched on, take the greatest of care not to receive an electric shock.

(2) When connecting or disconnecting cable connectors, make sure that you hold the connector body and not the cables.

(3) Static electricity charged in your body may damage electronic parts. Before handling the PCBs, touch a metal portion of the machine to discharge static electricity charged in your body. When transporting PCBs, be sure to wrap them in conductive sheets.
When replacing the PCBs, put on a grounding wrist band and perform the job on a antistatic mat. Also take care not to touch the conductor sections on the flat cables.

(4) Follow the warning by all means.
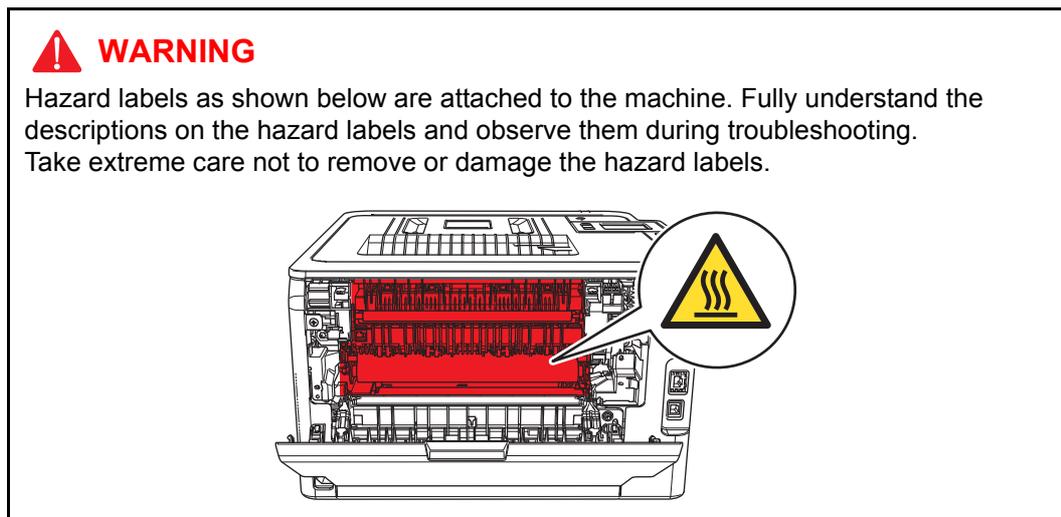
⚠ **WARNING**

Hazard labels as shown below are attached to the machine. Fully understand the descriptions on the hazard labels and observe them during troubleshooting.
Take extreme care not to remove or damage the hazard labels.

> ⚠ **WARNING**
>
> **DO NOT** use any flammable spray or flammable solvent such as alcohol, benzine, or thinner in or around the machine. Otherwise a fire or electric shock may result.
>
>

(5) Check again that the portions and parts repaired or removed during the repair work function properly when the repair is completed.

A certain interface or function could be set to invalid to serve the needs of customers. Ask sales representative if this is the case before performing the check.

1.2 Checks before Commencing Troubleshooting

Check the following items before attempting to repair the machine.

■ Operating environment

(1) The machine is placed on a flat, stable surface.

(2) The machine is used in a clean environment where the temperature is between 10 °C (50 °F) and 32 °C (89.6 °F) and the relative humidity is maintained between 20 % and 80 %.

(3) Ensure the machine is not exposed to direct sunlight, excessive heat, moisture, or dust.

(4) Keep the machine horizontal when you carry it. To prevent injuries when moving or lifting this machine, make sure to use at least two people.

■ Power supply

(1) The AC input power supply described on the rating plate of the machine should be within ±10 % of the rated voltage.

(2) The AC input power supply is within the regulated value.

(3) The cables and harnesses are connected correctly.

(4) The fuses are not blown.

■ Paper

(1) A recommended type of paper is being used.

(2) The paper is not damp.

(3) The paper is not short-grained paper or acid paper.

■ Consumable parts

(1) The drum unit (including the toner cartridge) is installed correctly.

(2) The belt unit and the waste toner box are installed correctly.

■ Others

(1) Condensation

When the machine is moved from a cold place into a warm room, condensation may occur inside the machine, causing various problems as listed below.

- Condensation on the surface of optical devices such as the LED ASSY, lens, reflecting mirror, and protection glass, etc., may cause light print image.
- If the exposure drum is cold, the electrical resistance of the photosensitive layer is increased, making it impossible to obtain the correct contrast when printing.
- Condensation on the charge unit may cause corona charge leakage.
- Condensation on the plate and separation pad ASSY may cause paper feed problems.

If condensation has occurred, leave the machine for at least two hours to allow it to reach room temperature.

(2) Low temperature

The motor may not drive normally under the low temperature environment. This is due to there being too much load to drive each unit. In this case, increase the room temperature.

■ Cleaning

Use a soft dry lint-free cloth.

> ### ⚠ WARNING
>
> **DO NOT** use any flammable spray or flammable solvent such as alcohol, benzine, or thinner to clean the machine. **DO NOT** use these articles near the machine.

2. OVERVIEW

2.1 Cross-section Drawing

LED ASSY (Black)
LED ASSY (Cyan)
LED ASSY (Magenta)
LED ASSY (Yellow)

Exposure drum (Black)
Exposure drum (Cyan)
Exposure drum (Magenta)
Exposure drum (Yellow)

Belt unit

<Back side>

<Front side>

Eject roller 3

Eject roller 2

Heat roller

Eject roller 1

Eject/fuser cover actuator

Pressure roller

Registration rear actuator

Registration roller

Manual feed slot

Manual feed paper actuator

Registration front actuator

T1 paper feed actuator

T1 separation roller

T1 separation pad ASSY

Registration mark sensor ASSY

Duplex tray

Belt cleaning roller

Duplex paper feed roller

Waste toner box

T1 pick-up roller

Fig. 2-1

2.2 Paper Feeding

<Back side>   <Front side>

Manual feed
paper feed path

Eject to back side

Duplex path

Paper feed path

Fig. 2-2

2.3 Operation of Each Part and Location of Parts

Part name	Operation
T1 separation roller, T1 separation pad ASSY	Separates paper fed from the T1 into single sheets.
T1 paper feed actuator (T1 paper feed sensor)	Detects the T1 (open / closed). Detects paper jams in the T1. Determines whether paper is fed from the T1.
Registration front actuator (Registration front sensor)	Detects the front edge of the paper to control the registration roller drive. Detects paper jams in the front section of the machine. Determines whether paper is fed from the T1.
Registration roller	Corrects the paper alignment when the paper makes contact with the stopped registration roller. After the correction, it rotates to feed the paper to the belt unit.
Registration rear actuator (Registration rear sensor)	Detects paper pass and adjusts the writing start position for the paper. Detects paper jams in the front or center section of the machine. Detects the rear edge of the paper to determine the paper size.
Belt unit	Feeds the paper to the drum unit and transfers toner on the paper.
Heat roller, Pressure roller	Fuses the toner transferred to paper by heat and pressure, and feeds paper to the eject roller 1.
Eject actuator (Eject sensor)/ Fuser cover actuator (Fuser cover sensor)	Detects whether or not paper is ejected from the fuser unit. In the case of the 2-sided printing, detects the rear edge of paper and adjusts the timing of the eject roller 2 and 3 switching. Detects paper jam in the rear section of the machine. Detects open fuser cover.
Eject roller 1	Feeds the paper ejected from the fuser unit to eject roller 2.
Eject roller 2	Feeds the paper to the eject roller 3. In the case of the 2-sided printing, after the front of the sheet is printed and the paper is fed to the eject roller 3 up to a certain point, the eject roller 2 rotates conversely and feeds the paper fed from the eject roller 3 to the duplex tray.
Eject roller 3	Ejects the paper to the face-down output tray. In the case of the 2-sided printing, after the front of the sheet is printed and the paper is fed up to a certain point, the eject roller 3 rotates conversely, and the paper is fed to the eject roller 2.
Duplex paper feed roller	Feeds the paper passing through the duplex tray to the registration roller
Belt cleaning roller	Feeds the collected waste toner to the belt unit.
Top cover sensor	Detects open / closed top cover.
Back cover sensor	Detects open / closed back cover.
Registration mark sensor L/R	Checks a phase of each color.
Develop release sensor	Detects the develop roller is separated from the exposure drum.

Part name	Operation
New toner sensor x4 (Inside of the high-voltage power supply PCB)	When exchange to the new toner cartridge, detects the kinds of toner and add 1 to the reset of the developing bias and to the exchange count.
Toner sensor x4 (Inside of the high-voltage power supply PCB)	Detects the toner cartridge is set.
Waste toner sensor	Detects a certain amount of waste toner in the waste toner box.
External temperature/humidity sensor	Detects external temperature and humidity around the machine.
T1 pick-up clutch	Drives the T1 pick-up roller at the timing of paper feeding.
Registration clutch	Controls the activation of the registration roller for the paper alignment adjustment.
Develop release clutch	Controls the disengagement of the develop roller (all colors).
Develop release clutch K	Controls the rotation of the develop roller.

■ Location of sensors and clutches
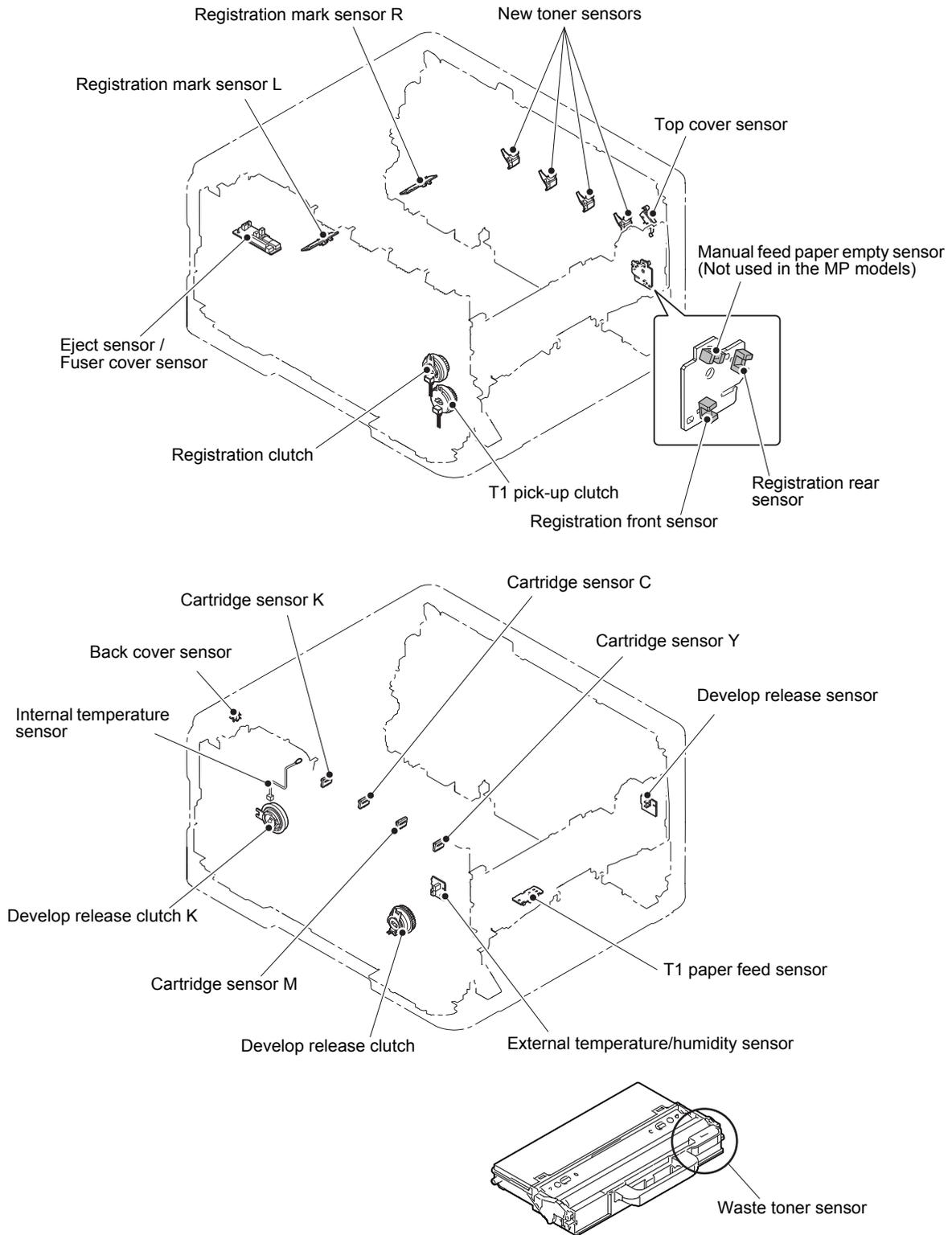
Fig. 2-3

2.4 Block Diagram
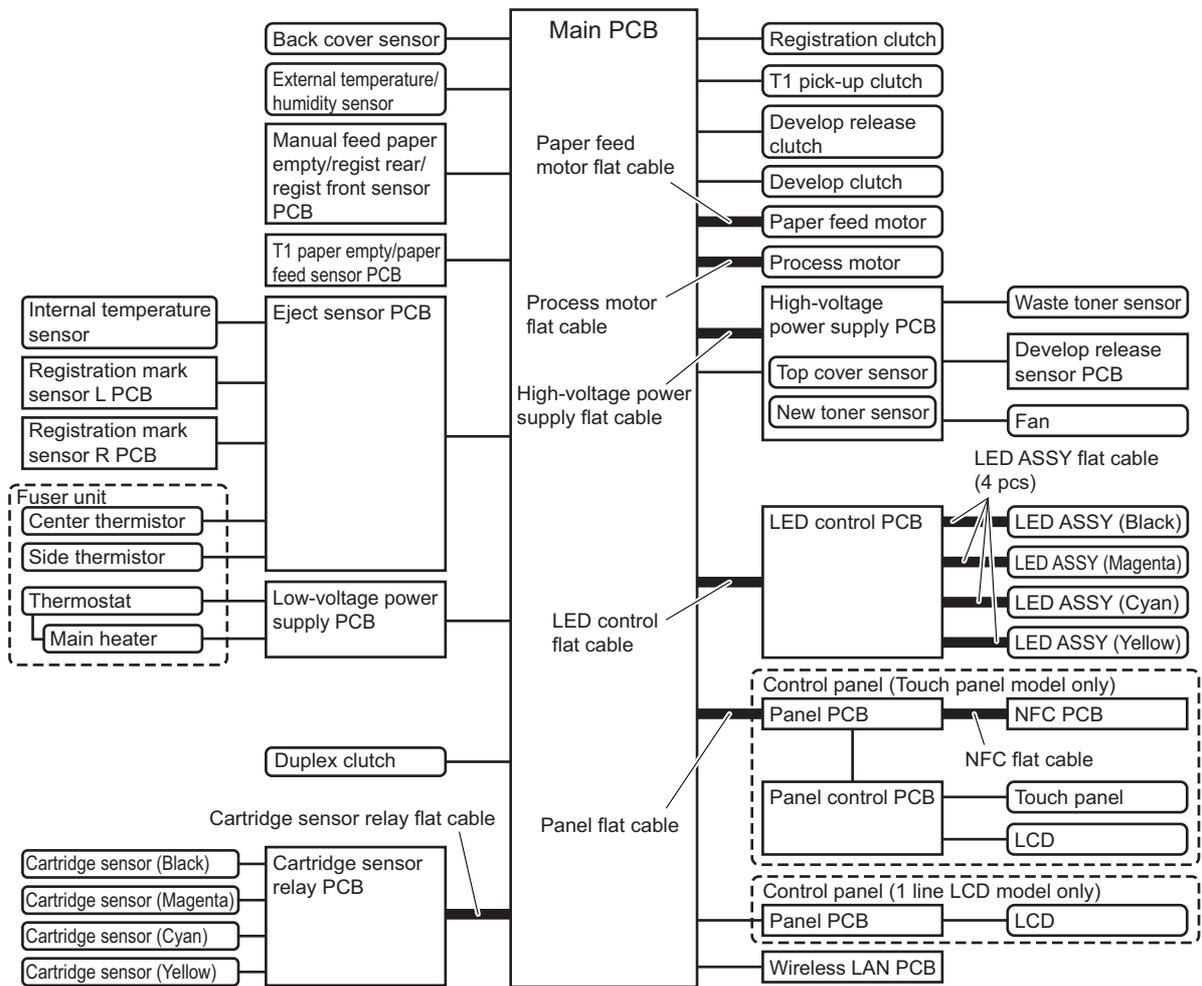
Fig. 2-4

2.5 Main Components
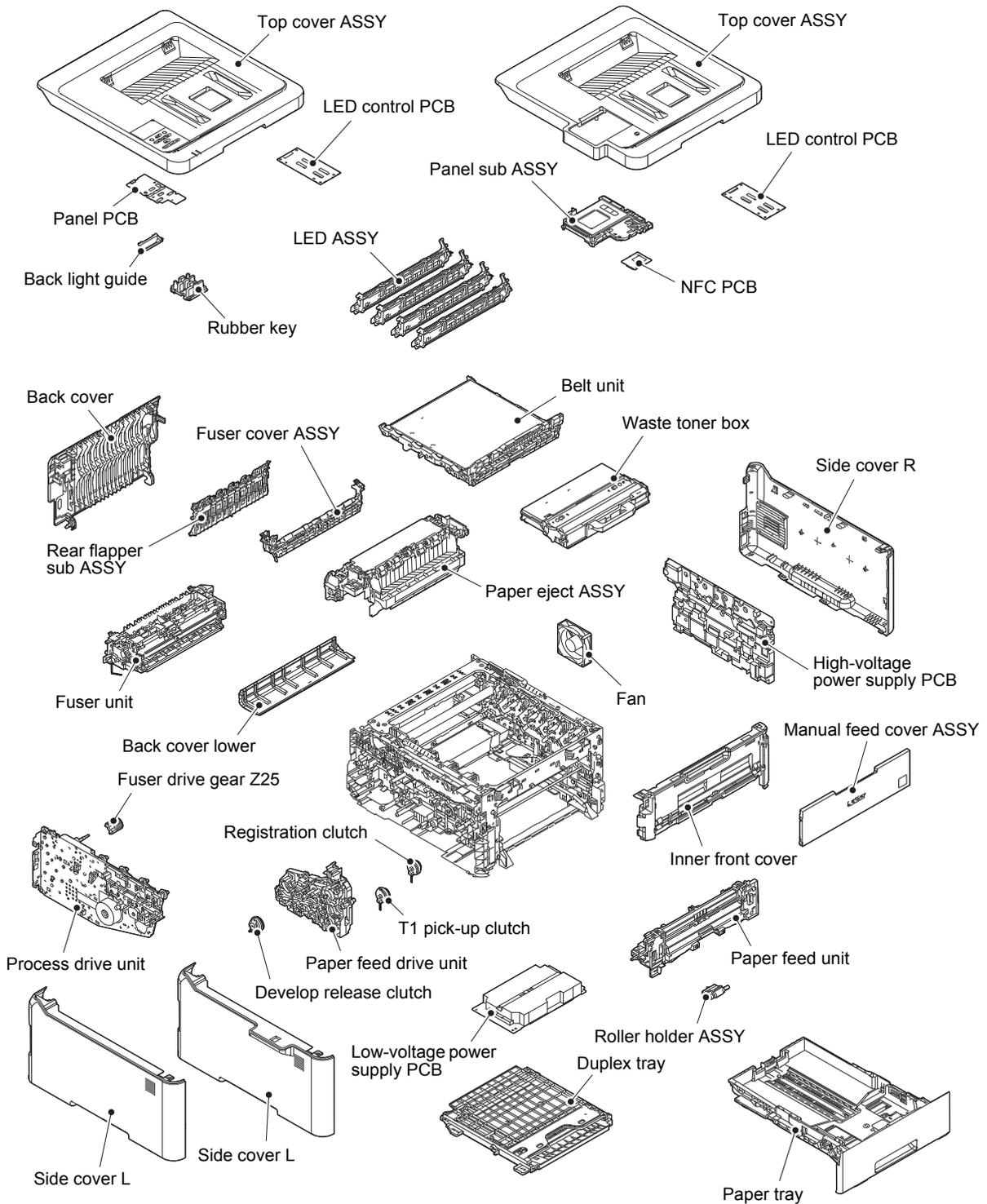
Fig. 2-5

3. ERROR INDICATIONS

This machine includes a self-diagnosis function. If the machine does not work normally it judges that an error has occurred, and indicates the corresponding error message on the LCD, which in turn helps the service personnel to quickly find out the problem.

3.1 Error Codes

*1 The shaded errors hardly occur under normal use. They may be caused by noise around the installation site, variation in power supply voltage, or software failure.
The errors are reset by plugging in or unplugging the AC cord if they have occurred.
If an error occurs repeatedly, please contact Brother distributors.

Error Codes	Description	Refer to:	Error Codes	Description	Refer to:
0101	ASIC error or motor driver error occurred.	2-48	0508	*1	
0102	*1		050A	The hardware detected a temperature error through the center thermistor or the side thermistor of the fuser unit.	2-50
0201	Cannot detect the synchronized signal of the paper feed motor. The speed of the paper feed motor does not stabilize within the specified time.	2-48	050B	When the center thermistor of the fuser unit was lower than the idle temperature, the side thermistor detected a temperature higher than the specified temperature.	2-50
0202	Cannot detect the synchronized signal of the process motor. The speed of the process motor does not stabilize within the specified time.	2-48	050C	When the center thermistor of the fuser unit was higher than the idle temperature, the side thermistor detected a temperature lower than the specified temperature.	2-50
0203	*1		050D	*1	
0300	*1		050F	*1	
0305	*1		0800	An error occurred in the internal temperature sensor.	2-50
0401	*1		0900	Detected irregular power supply for more than 100 times.	2-51
0402	*1		0A01	*1	
0405	*1		0A02	Detected a fan failure.	2-51
0501	The center thermistor of the fuser unit has not reached the specified temperature within the specified time.	2-49	0A03	*1	
0502	The center thermistor of the fuser unit has not reached the specified temperature within the specified time after it was heated normally to the certain level.	2-49	0B01	An error occurred in the high-voltage power supply PCB while operating.	2-52
0503	The center thermistor of the fuser unit detected a temperature higher than the specified value.	2-49	0B02	An error occurred in the high-voltage power supply PCB when the machine was in the ready state.	2-52
0504	After the heat unit was heated normally, the center thermistor of the fuser unit detected a temperature lower than the specified value.	2-49	0C00	An error occurred in the density sensor.	2-52
0505	The center thermistor of the fuser unit detected a temperature rise greater than the specified value within the specified time.	2-49	0D01	*1	
0506	The center thermistor of the fuser unit detected a temperature fall greater than the specified value within the specified time.	2-49	0D02	*1	

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Error Codes	Description	Refer to:	Error Codes	Description	Refer to:
0D03	*1		1E01	Main PCB and LED control PCB cannot access each other.	2-54
0D04	*1		1E02	Cannot read/write in the main PCB and LED control PCB.	2-54
0E00	An error occurred during the high-voltage power supply PCB ID check.	2-52	1F00	*1	
1003	The registration mark sensor R is dirty and cannot normally receive reflected light.	2-53	1F02	*1	
1004	The registration mark sensor L is dirty and cannot normally receive reflected light.	2-53	2000	*1	
1100	*1		2001	*1	
1200	*1		2002	*1	
1300	*1		2003	*1	
			2100	Toner cartridge other than black is installed.	2-54
1400	Condensation occurred in the machine.	2-53	2101	Toner cartridge other than yellow is installed.	2-54
1500	*1		2102	Toner cartridge other than cyan is installed.	2-54
1701	*1		2103	Toner cartridge other than magenta is installed.	2-54
1801	*1		2200	Cartridge sensor detected that the toner cartridge does not support black was installed.	2-55
1802	*1		2201	Cartridge sensor detected that the toner cartridge does not support yellow was installed.	2-55
1803	*1		2202	Cartridge sensor detected that the toner cartridge does not support cyan was installed.	2-55
1808	*1		2203	Cartridge sensor detected that the toner cartridge does not support magenta was installed.	2-55
1901	*1		2400	Black toner cartridge is not recognized by the cartridge sensor.	2-55
1A01	*1		2401	Yellow toner cartridge is not recognized by the cartridge sensor.	2-55
1B01	*1		2402	Cyan toner cartridge is not recognized by the cartridge sensor.	2-55
1C00	*1		2403	Magenta toner cartridge is not recognized by the cartridge sensor.	2-55
1D01	A communication error occurred in the LED ASSY (black).	2-54	2500	Black toner cartridge could not communicate with the cartridge sensor.	2-56
1D02	A communication error occurred in the LED ASSY (yellow).	2-54	2501	Yellow toner cartridge could not communicate with the cartridge sensor.	2-56
1D03	A communication error occurred in the LED ASSY (magenta).	2-54	2502	Cyan toner cartridge could not communicate with the cartridge sensor.	2-56
1D04	A communication error occurred in the LED ASSY (cyan).	2-54	2503	Magenta toner cartridge could not communicate with the cartridge sensor.	2-56

Error Codes	Description	Refer to:	Error Codes	Description	Refer to:
2601	*1		3002	*1	
2602	*1		3003	*1	
2603	*1		3102	*1	
2604	*1		3202	*1	
2605	*1		3301	*1	
2701	*1		3302	*1	
2702	*1		3401	*1	
2703	*1		3402	*1	
2801	*1		3501	*1	
2802	*1		3601	*1	
2803	*1		3701	*1	
2804	*1		3702	*1	
2805	*1		3703	*1	
2806	*1		3801	A temperature error occurred in the external temperature/humidity sensor.	2-56
2901	*1		3802	*1	
			3900	*1	
2902	*1		3A00	A communication error occurred between the controller and engine in main PCB.	2-57
2903	*1		3B01	*1	
2904	*1		3B02	*1	
2905	*1		3B03	*1	
2906	*1		4000	*1	
2A01	*1		4001	Number of the black drum unit rotations reaches the upper limit soon.	2-57
2A02	*1		4002	Number of the yellow drum unit rotations reaches the upper limit soon.	2-57
2A03	*1		4003	Number of the magenta drum unit rotations reaches the upper limit soon.	2-57
2B01	*1		4004	Number of the cyan drum unit rotations reaches the upper limit soon.	2-57
2B02	*1		4200	*1	
2C01	*1		4201	Number of the black drum unit rotations has reached the upper limit.	2-57
2C02	*1		4202	Number of the yellow drum unit rotations has reached the upper limit.	2-57
2D01	*1		4203	Number of the magenta drum unit rotations has reached the upper limit.	2-57
2E00	Could not communicate with the cartridge sensor on the machine side.	2-56	4204	Number of the cyan drum unit rotations has reached the upper limit.	2-57
2E01	*1		4209	*1	
2E02	Cartridge sensor on the machine side does not work.	2-56	4300	Number of pages printed with the belt unit will reach the upper limit soon. (90%)	2-58
2E03	*1		4400	Number of pages printed with the belt unit has reached the upper limit.	2-58
2E04	Cartridge sensor version on the machine side is not available.	2-56	4500	Number of used pages for the fuser unit has reached the upper limit.	2-58
2F01	*1		4600	*1	
2F03	*1		4700	The waste toner sensor detected that the waste toner box is almost full.	2-58
3001	*1		4800	After the waste toner sensor detected that the waste toner box was almost full, pages more than the specified number have been printed.	2-58

Error Codes	Description	Refer to:	Error Codes	Description	Refer to:
4900	*1		5003	*1	
4A00	*1		5004	*1	
4B01	Dot counter of the toner cartridge (black) or develop roller counter reaches the upper limit soon.	2-59	5005	*1	
4B02	Dot counter of the toner cartridge (yellow) or develop roller counter reaches the upper limit soon.	2-59	5006	*1	
4B03	Dot counter of the toner cartridge (magenta) or develop roller counter reaches the upper limit soon.	2-59	5100	*1	
4B04	Dot counter of the toner cartridge (cyan) or develop roller counter reaches the upper limit soon.	2-59	5200	*1	
4B06	*1		5301	*1	
4C01	Dot counter of the toner cartridge (black) or develop roller counter has reached the upper limit was detected.	2-59	5302	*1	
4C02	Dot counter of the toner cartridge (yellow) or develop roller counter has reached the upper limit was detected.	2-59	5401	*1	
4C03	Dot counter of the toner cartridge (magenta) or develop roller counter has reached the upper limit was detected.	2-59	5402	*1	
4C04	Dot counter of the toner cartridge (cyan) or develop roller counter has reached the upper limit was detected.	2-59	5406	*1	
4C05	During printing, dot counter of color toner cartridge or develop roller counter has reached the upper limit was detected.	2-59	5502	*1	
4C06	*1		5602	*1	
4D01	*1		5702	*1	
4E01	*1		5801	*1	
4F01	The new toner sensor of the toner cartridge (black) could not detect a new cartridge properly.	2-60	5802	*1	
4F02	The new toner sensor of the toner cartridge (yellow) could not detect a new cartridge properly.	2-60	5902	*1	
4F03	The new toner sensor of the toner cartridge (magenta) could not detect a new cartridge properly.	2-60	5A02	*1	
4F04	The new toner sensor of the toner cartridge (cyan) could not detect a new cartridge properly.	2-60	5B02	*1	
4F05	*1		5C02	*1	
5001	*1		5D02	*1	
5002	Number of used pages for the PF kit 1 has reached the upper limit.	2-60	5E00	*1	

Error Codes	Description	Refer to:	Error Codes	Description	Refer to:
6001	The top cover sensor detected that the top cover was open.	2-60	6300	The electrodes of the high-voltage power supply PCB detected that no waste toner box was set.	2-64
6002	*1		6400	The registration mark sensor detected that no belt unit was set.	2-64
6003	*1		6602	*1	
			6701	*1	
6004	The eject sensor detected that the fuser cover was open.	2-61	6801	The internal temperature sensor detected a temperature higher than the specified value.	2-64
6007	*1		6802	*1	
6101	Developing terminal voltage detected that the toner cartridge (black) was not installed.	2-61	6901	Some fuser unit errors occurred at power-ON or upon recovery from sleep mode.	2-65
6102	Developing terminal voltage detected that the toner cartridge (yellow) was not installed.	2-61	6902	After the error was detected at the fuser unit, power was turned ON again and the error is being checked. (If power is turned OFF and ON after error code 6901 occurred, this code is displayed for about 15 minutes.)	2-65
6103	Developing terminal voltage detected that the toner cartridge (magenta) was not installed.	2-61	6A00	Electric discharge that may be caused by dirt on the corona wire of the drum unit was detected.	2-66
6104	Developing terminal voltage detected that the toner cartridge (cyan) was not installed.	2-61	6B01	Electric discharge was detected when the number of the black drum unit rotations had become more than twice of the upper limit.	2-66
6106	*1		6B02	Electric discharge was detected when the number of the yellow drum unit rotations had become more than twice of the upper limit.	2-66
6200	*1		6B03	Electric discharge was detected when the number of the magenta drum unit rotations had become more than twice of the upper limit.	2-66
6201	GRID terminal signal detected that the black drum unit was not installed.	2-62	6B04	Electric discharge was detected when the number of the cyan drum unit rotations had become more than twice of the upper limit.	2-66
6202	GRID terminal signal detected that the yellow drum unit was not installed.	2-62	6B0A	*1	
6203	GRID terminal signal detected that the magenta drum unit was not installed.	2-62	6C01	*1	
6204	GRID terminal signal detected that the cyan drum unit was not installed.	2-62	6C02	*1	
6208	*1		6C03	*1	
6209	*1		6C04	*1	
620A	Electrified terminal or GRID terminal signal detected that the black drum was not installed when the machine was turned ON.	2-62	6D00	*1	
620B	Electrified terminal or GRID terminal signal detected that the yellow drum was not installed when the machine was turned ON.	2-62	6E00	The develop release sensor detected the develop roller disengagement or engagement failure.	2-66
620C	Electrified terminal or GRID terminal signal detected that the magenta drum was not installed when the machine was turned ON.	2-62	6F00	Detected that supply power is unstable (less than 100 times).	2-67
620D	Electrified terminal or GRID terminal signal detected that the cyan drum was not installed when the machine was turned ON.	2-62	7000	After the registration rear sensor detects paper pass, the eject sensor does not detect paper pass.	2-67

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Error Codes	Description	Refer to:	Error Codes	Description	Refer to:
7001	*1		7900	When feeding from the manual feed slot, the registration rear sensor does not detect the paper pass within the specified time after the manual feed paper empty sensor detected the paper pass. Or the registration rear sensor detected the paper pass within the specified time after the manual feed paper empty sensor detected the paper pass.	2-69
7002	*1		7A01	*1	
7003	*1		7A02	*1	
7004	*1		7B01	*1	
7100	After the registration rear sensor detects the end of paper pass and the specified period of time has passed, the eject sensor continues to detect paper pass.	2-68	7B02	*1	
7101	*1		7B03	*1	
7102	*1		7B04	*1	
7103	*1		7B05	*1	
7104	*1		7C00	*1	
7105	*1		7D00	*1	
7106	*1		7E00	*1	
7200	*1		7F00	*1	
7300	*1		8000	*1	
7301	*1		8100	*1	
7302	When printing from the T1, the registration front sensor does not detect paper pass within the specified time after the T1 paper feed sensor detected paper pass.	2-68	8401	*1	
7400	*1		8402	*1	
7401	*1		8403	*1	
7402	*1		8501	The T1 paper feed sensor detected that the T1 is open when printing from the T1 (before the registration of printing in the engine).	2-70
7500	*1		8502	*1	
7501	*1		8503	*1	
7502	*1		8504	*1	
7601	*1		8505	The T1 paper feed sensor detected that the T1 is open when printing from the T1 (after the registration of printing in the engine).	2-70
7602	*1		8506	*1	
7701	*1		8507	*1	
7702	*1		8508	*1	
7800	After the first side is printed in 2-sided printing, the registration front sensor does not detect paper pass after a set period of time.	2-69	8601	*1	
7801	*1		8602	*1	
7802	*1		8603	*1	
7803	*1		8604	*1	
7804	*1		8701	*1	
7805	*1		8702	*1	

Error Codes	Description	Refer to:	Error Codes	Description	Refer to:
8703	*1		8F01	*1	
8708	*1		8F02	*1	
8709	*1		8F03	*1	
870A	*1		9001	*1	
870B	*1		9002	The size of paper loaded in the T1 and the one specified from the driver are not same when printing from the T1.	2-72
870C	*1		9003	*1	
870D	*1		9004	*1	
870E	*1		9005	*1	
870F	*1		9006	*1	
8801	*1		9102	*1	
8802	*1		9103	*1	
8808	*1		9104	*1	
8809	*1		9105	*1	
880A	*1		9200	*1	
			9201	*1	
8901	*1		9202	When printing from the T1, paper type setting in the machine does not match the setting in the driver.	2-72
8902	*1		9203	*1	
8903	The back cover sensor detected the open state when 2-sided printing is started (before the registration of printing in the engine).	2-70	9204	*1	
8904	The back cover sensor detected the open state during 2-sided printing (after the registration of printing in the engine).	2-70	9205	*1	
8A01	The registration rear sensor detected that the fed paper was larger or smaller than the specified size in 2-sided printing.	2-71	9206	*1	
8A02	*1		9301	*1	
8B01	*1		9302	When printing from the T1, the T1 paper feed sensor detected that no paper was in the T1.	2-73
8C00	There is no paper in the manual feed slot when printing from the manual feed slot.	2-71	9303	*1	
8D01	The registration rear sensor detected that the paper loaded in the T1 was smaller than the specified size.	2-71	9304	*1	
8D02	The paper size indicated for printing data while the back cover is closed was under the specified value.	2-72	9305	*1	
8E01	*1		9306	*1	
8E02	*1		9309	*1	

Error Codes	Description	Refer to:	Error Codes	Description	Refer to:
9501	*1		9C02	*1	
9502	*1		9C03	*1	
9503	*1		9C06	*1	
9504	*1		9C07	*1	
9505	*1		9D02	*1	
9601	*1		9D03	*1	
9608	*1		9D04	*1	
9701	For 2-sided printing, paper size setting of the printer driver that was not supported by 2-sided printing was selected.	2-73	9D05	*1	
9702	When printing from the T1, the size of paper specified from the driver set the size which was not supported by the T1.	2-73	A000	*1	
9703	*1		A200	*1	
9704	*1		A300	*1	
9705	*1		A400	*1	
9706	*1		A500	*1	
9801	An error occurred with the value measured during color density adjustment performed from the control panel.	2-74	A600	*1	
9802	Dot counter or develop roller counter of color toner has reached the upper limit during color density adjustment performed from the control panel.	2-74	A700	*1	
9803	Density patch measurement ended unsuccessfully during color density adjustment performed from the control panel.	2-75	A800	*1	
9804	An error occurred with the value measured during density sensor sensitivity calibration.	2-75	A900	*1	
9901	An error occurred with the value measured during manual color registration performed from the control panel.	2-76	AB00	*1	
9902	Dot counter or develop roller counter of color toner has reached the upper limit during auto color registration performed from the control panel.	2-76	AC00	*1	
9903	An error occurred during patch data printing in manual color registration performed from the control panel.	2-77	AD00	*1	
9A01	An error occurred with the value measured during auto color registration performed from the control panel.	2-78	AE00	*1	
9A02	Dot counter or develop roller counter of color toner has reached the upper limit during auto color registration performed from the control panel.	2-78	AF00	*1	
9A03	An error occurred during patch data printing in auto color registration performed from the control panel.	2-79	B000	*1	
9B01	*1		B700	*1	
9B02	*1		B800	*1	
9B03	*1		B900	*1	
9B04	*1		BB00	*1	
9B05	*1		BC00	*1	
9B06	*1		BD00	*1	
9C01	*1		BF00	*1	

Error Codes	Description	Refer to:	Error Codes	Description	Refer to:
C001	Timeout occurred with access request sent to server due to incorrect server address, network disconnection, or inactive server.	2-80	E000	An error occurred in the ROM check sum.	2-81
C002	User authentication is unavailable due to incorrect user name, incorrect password, or asynchronous date and time between the machine and server.	2-80	E001	*1	
			E002	*1	
C003	Access to a file is unavailable due to incorrect directory name, no write permission on directory, file write lock, or no write permission on file.	2-80	E100	Program error	2-81
C004	Cannot acquire current time which is required for user authentication because the time has not been acquired.	2-80	E500	An error occurred during access to the DRAM in the main PCB.	2-81
C100	*1		E600	Write error in the EEPROM of the main PCB	2-81
C700	The memory is insufficient to expand the data of PC-Print.	2-80	E701	System error in the flash ROM	2-81
C800	The memory used to store secure print data exceeded the memory size for secure print data.	2-80	E702	Read error in the flash ROM	2-81
C900	Storage memory was full and data could not be saved.	2-80	E900	An error occurred while initializing the NFC.	2-81
CA00	*1		EC00	*1	
D100	*1		ED00	*1	
D200	*1		EE00	*1	
D800	An error occurred while initializing the touch panel.	2-81	F900	The spec code was not entered correctly.	2-82
D900	*1		FA01	*1	
DA00	*1		FA02	*1	
DB00	A communication error occurred between the main ASIC and the recording ASIC.	2-81	FA03	*1	

3.2 Error Message

The error messages displayed on the LCD of the machine and their descriptions are shown in the table below.

3.2.1 Non touch panel models

Error message		Description	Error codes	Refer to:
First line	Second line			
Belt End Soon	**-**	Number of pages printed with the belt unit will reach the upper limit soon.	4300	2-58
Calibrate	**Calibration failed. Insufficient Toner for Calibration.**	Dot counter or develop roller counter of color toner has reached the upper limit during color density adjustment performed from the control panel.	9802	2-74
	Calibration failed. Press Go.	Density patch measurement ended unsuccessfully during color density adjustment performed from the control panel.	9803	2-75
		An error occurred with the value measured during density sensor sensitivity calibration.	9804	2-75
	Calibration failed. Turn the power off and then back on again.	An error occurred with the value measured during color density adjustment performed from the control panel.	9801	2-74
Cannot Detect	**Put the Toner Cartridge back in.**	Black toner cartridge is not recognized by the cartridge sensor.	2400	2-55
		Yellow toner cartridge is not recognized by the cartridge sensor.	2401	2-55
		Cyan toner cartridge is not recognized by the cartridge sensor.	2402	2-55
		Magenta toner cartridge is not recognized by the cartridge sensor.	2403	2-55

Error message		Description	Error codes	Refer to:
First line	**Second line**			
Cartridge Error	**Open the Top Cover. Check color and position of toner cartridges**	Toner cartridge other than black is installed.	2100	2-54
		Toner cartridge other than yellow is installed.	2101	2-54
		Toner cartridge other than cyan is installed.	2102	2-54
		Toner cartridge other than magenta is installed.	2103	2-54
	Put the Black (BK) Toner Cartridge back in.	The new toner sensor of the toner cartridge (black) could not detect a new cartridge properly.	4F01	2-60
	Put the Cyan (C) Toner Cartridge back in.	The new toner sensor of the toner cartridge (cyan) could not detect a new cartridge properly.	4F04	2-60
	Put the Magenta (M) Toner Cartridge back in.	The new toner sensor of the toner cartridge (magenta) could not detect a new cartridge properly.	4F03	2-60
	Put the Yellow (Y) Toner Cartridge back in.	The new toner sensor of the toner cartridge (yellow) could not detect a new cartridge properly.	4F02	2-60
Condensation	**Leave switched ON. Fully open the Top cover. Wait 30 minutes, switch OFF and close cover, then switch ON.**	Condensation occurred in the machine. * Error message of second line is incorrect and "Turn the power switch off" is unnecessary. This will be corrected by Firmware version up later on.	1400	2-53
Cooling Down	**Wait for a while**	The internal temperature sensor detected a temperature higher than the specified value.	6801	2-64
Cover is Open	**Close the Top Cover.**	The top cover sensor detected that the top cover was open.	6001	2-60
	Close the Back Cover of the machine.	The eject sensor detected that the fuser cover was open.	6004	2-61

Error message		Description	Error codes	Refer to:
First line	Second line			
Drum !	**Slide the Green tab on Drum Unit.**	Electric discharge that may be caused by dirt on the corona wire of the drum unit was detected.	6A00	2-66
	Slide the Green tab on Drum Unit. Black(BK)	Electrified terminal or GRID terminal signal detected that the black drum was not installed when the machine was turned ON.	620A	2-62
	Slide the Green tab on Drum Unit. Cyan(C)	Electrified terminal or GRID terminal signal detected that the cyan drum was not installed when the machine was turned ON.	620D	2-62
	Slide the Green tab on Drum Unit. Magenta(M)	Electrified terminal or GRID terminal signal detected that the magenta drum was not installed when the machine was turned ON.	620C	2-62
	Slide the Green tab on Drum Unit. Yellow(Y).	Electrified terminal or GRID terminal signal detected that the yellow drum was not installed when the machine was turned ON.	620B	2-62
Drum End Soon:BK	-	Number of the black drum unit rotations reaches the upper limit soon.	4001	2-57
Drum End Soon:C	-	Number of the cyan drum unit rotations reaches the upper limit soon.	4004	2-57
Drum End Soon:M	-	Number of the magenta drum unit rotations reaches the upper limit soon.	4003	2-57
Drum End Soon:Y	-	Number of the yellow drum unit rotations reaches the upper limit soon.	4002	2-57

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Error message		Description	Error codes	Refer to:
First line	Second line			
Drum Stop	**Replace the Drum Unit. Black (BK)/ Cyan (C)/ Magenta (M)/ Yellow (Y).**	Electric discharge was detected when the number of the black drum unit rotations had become more than twice of the upper limit.	6B01	2-66
		Electric discharge was detected when the number of the cyan drum unit rotations had become more than twice of the upper limit.	6B04	2-66
		Electric discharge was detected when the number of the magenta drum unit rotations had become more than twice of the upper limit.	6B03	2-66
		Electric discharge was detected when the number of the yellow drum unit rotations had become more than twice of the upper limit.	6B02	2-66
Ignore Data	**-**	Detected undecodable data during printing. Received undecodable PS data.	---	4.11.1
Jam 2-sided	**Pull out Tray 1 completely. Check inside the machine or open the Back Cover to remove the jammed paper.**	After the first side is printed in 2-sided printing, the registration front sensor does not detect paper pass after a set period of time.	7800	2-69
Jam Inside	**Open the Top Cover, pull out the Drum Unit completely and remove the jammed paper.**	After the registration rear sensor detects paper pass, the eject sensor does not detect paper pass.	7000	2-67
Jam Manual Feed	**Pull out the jammed paper from Manual Feed and press Go.**	When feeding from the manual feed slot, the registration rear sensor does not detect the paper pass within the specified time after the manual feed paper empty sensor detected the paper pass. Or the registration rear sensor detected the paper pass within the specified time after the manual feed paper empty sensor detected the paper pass.	7900	2-69

Error message		Description	Error codes	Refer to:
First line	Second line			
Jam Rear	**Open the Back Cover and remove the jammed paper, then press Go.**	After the registration rear sensor detects the end of paper pass and the specified period of time has passed, the eject sensor continues to detect paper pass.	7100	2-68
Jam Tray 1	**Remove the jammed paper from Tray 1.**	When printing from the T1, the registration front sensor does not detect paper pass within the specified time after the T1 paper feed sensor detected paper pass.	7302	2-68
Log Access Error	**Authentication Error, contact your administrator.**	User authentication is unavailable due to incorrect user name, incorrect password, or asynchronous date and time between the machine and server.	C002	2-80
	File Access Error, contact your administrator.	Access to a file is unavailable due to incorrect directory name, no write permission on directory, file write lock, or no write permission on file.	C003	2-80
	Server Timeout, contact your administrator.	Timeout occurred with access request sent to server due to incorrect server address, network disconnection, or inactive server.	C001	2-80
	Wrong Date&Time, contact your administrator.	Cannot acquire current time which is required for user authentication because the time has not been acquired.	C004	2-80
Machine Error F9	**-**	The spec code was not entered correctly.	F900	2-82
Manual Feed	**Load XXXX paper.**	There is no paper in the manual feed slot when printing from the manual feed slot.	8C00	2-71
Media Mismatch	**Reload correct paper in Tray 1, then press Go.**	When printing from the T1, paper type setting in the machine does not match the setting in the driver.	9202	2-72
No Belt Unit	**Open the Top Cover, pull out all 4 Drum Units completely and install the Belt Unit.**	The registration mark sensor detected that no belt unit was set.	6400	2-64

Error message		Description	Error codes	Refer to:
First line	Second line			
No Drum Unit	**Open the Top Cover, then install the Drum Unit. Black(BK)**	GRID terminal signal detected that the black drum unit was not installed.	6201	2-62
	Open the Top Cover, then install the Drum Unit. Cyan(C)	GRID terminal signal detected that the cyan drum unit was not installed.	6204	2-62
	Open the Top Cover, then install the Drum Unit. Magenta(M)	GRID terminal signal detected that the magenta drum unit was not installed.	6203	2-62
	Open the Top Cover, then install the Drum Unit. Yellow(Y)	GRID terminal signal detected that the yellow drum unit was not installed.	6202	2-62
No Paper T1	**Reload paper in Tray 1.**	There is no paper set in the T1.	9302	2-73
No Toner	**Open the Top Cover, then install Toner Cartridge.**	Black toner cartridge could not communicate with the cartridge sensor.	2500	2-56
		Yellow toner cartridge could not communicate with the cartridge sensor.	2501	2-56
		Cyan toner cartridge could not communicate with the cartridge sensor.	2502	2-56
		Magenta toner cartridge could not communicate with the cartridge sensor.	2503	2-56
	Open the Top Cover, then install Toner Cartridge. Black(BK).	Developing terminal voltage detected that the toner cartridge (black) was not installed.	6101	2-61
	Open the Top Cover, then install Toner Cartridge. Cyan(C).	Developing terminal voltage detected that the toner cartridge (cyan) was not installed.	6104	2-61
	Open the Top Cover, then install Toner Cartridge. Magenta(M).	Developing terminal voltage detected that the toner cartridge (magenta) was not installed.	6103	2-61
	Open the Top Cover, then install Toner Cartridge. Yellow(Y).	Developing terminal voltage detected that the toner cartridge (yellow) was not installed.	6102	2-61

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Error message		Description	Error codes	Refer to:
First line	Second line			
No Tray T1	**Reinstall Tray 1**	The T1 paper feed sensor detected that the T1 is open when printing from the T1 (before the registration of printing in the engine).	8501	2-70
		The T1 paper feed sensor detected that the T1 is open when printing from the T1 (after the registration of printing in the engine).	8505	2-70
No Waste Toner	**Install the Waste Toner Box.**	The electrodes of the high-voltage power supply PCB detected that no waste toner box was set.	6300	2-64
Out of Memory	**Press Go for 2 seconds.**	The memory is insufficient to expand the data of PC-Print.	C700	2-80
Print Data Full	**Print Data is full. Press Cancel and delete the previously stored data.**	The memory used to store secure print data exceeded the memory size for secure print data.	C800	2-80
Print Unable 01	**Turn the power off and then back on again.**	ASIC error or motor driver error occurred.	0101	2-48
Print Unable 02	**Turn the power off and then back on again.**	Cannot detect the synchronized signal of the paper feed motor. The speed of the paper feed motor does not stabilize within the specified time.	0201	2-48
		Cannot detect the synchronized signal of the process motor. The speed of the process motor does not stabilize within the specified time.	0202	2-48
Print Unable 05	**Turn the power off and then back on again.**	Detected the fuser unit temperature error.	0501	2-49
			0502	2-49
			0503	2-49
			0504	2-49
			0505	2-49
			0506	2-49
			050A	2-50
			050B	2-50
			050C	2-50

Error message		Description	Error codes	Refer to:
First line	Second line			
Print Unable 08	**Turn the power off and then back on again.**	An error occurred in the internal temperature sensor.	0800	2-50
Print Unable 09	**Turn the power off and then back on again.**	Detected irregular power supply for more than 100 times.	0900	2-51
Print Unable 0A	**Turn the power off and then back on again.**	Main PCB detected the fan failure.	0A02	2-51
Print Unable 0B	**Turn the power off and then back on again.**	An error occurred in the high-voltage power supply PCB while operating.	0B01	2-52
		An error occurred in the high-voltage power supply PCB when the machine was in the ready state.	0B02	2-52
Print Unable 0C	**Turn the power off and then back on again.**	An error occurred in the density sensor.	0C00	2-52
Print Unable 0E	**Turn the power off and then back on again.**	An error occurred during the high-voltage power supply PCB ID check.	0E00	2-52
Print Unable 10	**Turn the power off and then back on again.**	The registration mark sensor R is dirty and cannot normally receive reflected light.	1003	2-53
		The registration mark sensor L is dirty and cannot normally receive reflected light.	1004	2-53
Print Unable 1D	**Turn the power off and then back on again.**	A communication error occurred in the LED ASSY (black).	1D01	2-54
		A communication error occurred in the LED ASSY (yellow).	1D02	2-54
		A communication error occurred in the LED ASSY (magenta).	1D03	2-54
		A communication error occurred in the LED ASSY (cyan).	1D04	2-54
Print Unable 1E	**Turn the power off and then back on again.**	Main PCB and LED control PCB cannot access each other.	1E01	2-54
		Cannot read/write in the main PCB and LED control PCB.	1E02	2-54

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Error message		Description	Error codes	Refer to:
First line	Second line			
Print Unable 2E	**Turn the power off and then back on again.**	Could not communicate with the cartridge sensor on the machine side.	2E00	2-56
		Cartridge sensor on the machine side does not work.	2E02	2-56
		Cartridge sensor version on the machine side is not available.	2E04	2-56
Print Unable 38	**Turn the power off and then back on again.**	A temperature error occurred in the external temperature/ humidity sensor.	3801	2-56
Print Unable 3A	**Turn the power off and then back on again.**	A communication error occurred between the controller and engine in main PCB.	3A00	2-57
Print Unable E0	**Turn the power off and then back on again.**	An error occurred at the ROM check sum in the firmware.	E000	2-81
Print Unable E1	**Turn the power off and then back on again.**	Program error	E100	2-81
Print Unable E5	**Turn the power off and then back on again.**	An error occurred during access to the DRAM in the main PCB.	E500	2-81
Print Unable E6	**Turn the power off and then back on again.**	Write error in the EEPROM of the main PCB	E600	2-81
Print Unable E7	**Turn the power off and then back on again.**	Detected an error in main PCB.	E701	2-81
			E702	2-81
Print Unable E9	**Turn the power off and then back on again.**	An error occurred while initializing the NFC.	E900	2-81
Print Unable ZC	**Turn the power off and then back on again.**	Detected that supply power is unstable (less than 100 times).	6F00	2-67

Error message		Description	Error codes	Refer to:
First line	Second line			
Registration	**Registration failed. Insufficient Toner for Registration.**	Dot counter or develop roller counter of color toner has reached the upper limit during auto color registration performed from the control panel.	9A02	2-78
	Registration failed. Press Go.	Dot counter or develop roller counter of color toner has reached the upper limit during auto color registration performed from the control panel.	9902	2-76
		An error occurred during patch data printing in manual color registration performed from the control panel.	9903	2-77
		An error occurred during patch data printing in auto color registration performed from the control panel.	9A03	2-79
	Registration failed. Turn the power off and then back on again.	An error occurred with the value measured during auto color registration performed from the control panel.	9A01	2-78
		An error occurred with the value measured during manual color registration performed from the control panel.	9901	2-76
Replace Belt	-	Number of pages printed with the belt unit has reached the upper limit.	4400	2-58
Replace Drum: BK	-	Number of the black drum unit rotations has reached the upper limit.	4201	2-57
Replace Drum: C	-	Number of the cyan drum unit rotations has reached the upper limit.	4204	2-57
Replace Drum: M	-	Number of the magenta drum unit rotations has reached the upper limit.	4203	2-57
Replace Drum: Y	-	Number of the yellow drum unit rotations has reached the upper limit.	4202	2-57
Replace Fuser	-	Number of used pages for the fuser unit has reached the upper limit.	4500	2-58

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Error message		Description	Error codes	Refer to:
First line	Second line			
Replace PF Kit1	**-**	Number of used pages for the PF kit 1 has reached the upper limit.	5002	2-60
Replace Toner	**Open the Top Cover, replace Toner Cartridge. Black (BK).**	Dot counter of the toner cartridge (black) or develop roller counter has reached the upper limit was detected.	4C01	2-59
	Open the Top Cover, replace Toner Cartridge. Cyan (C).	Dot counter of the toner cartridge (cyan) or develop roller counter has reached the upper limit was detected.	4C04	2-59
	Open the Top Cover, replace Toner Cartridge. Cyan (C)/ Magenta (M)/ Yellow (Y).	During printing, dot counter of color toner cartridge or develop roller counter has reached the upper limit was detected.	4C05	2-59
	Open the Top Cover, replace Toner Cartridge. Magenta (M).	Dot counter of the toner cartridge (magenta) or develop roller counter has reached the upper limit was detected.	4C03	2-59
	Open the Top Cover, replace Toner Cartridge. Yellow (Y).	Dot counter of the toner cartridge (yellow) or develop roller counter has reached the upper limit was detected.	4C02	2-59
Replace WT Box	**Replace the Waste Toner Box inside the machine.**	After the waste toner sensor detected that the waste toner box was almost full, pages more than the specified number have been printed.	4800	2-58
Self-Diagnostic	**Turn the power off, then on again. Leave the machine for 15 min.**	Some fuser unit errors occurred at power-ON or upon recovery from sleep mode.	6901	2-65
	Will Automatically Restart within 15 minutes.	After the error was detected at the fuser unit, power was turned ON again and the error is being checked. (If power is turned OFF and ON after error code 6901 occurred, this code is displayed for about 15 minutes.)	6902	2-65
Short paper	**Open the Back Cover and then press Go.**	The registration rear sensor detected that the paper loaded in the T1 was smaller than the specified size.	8D01	2-71

Error message		Description	Error codes	Refer to:
First line	Second line			
Size Error	**Specify the correct paper size for Tray 1.**	When printing from the T1, the size of paper specified from the driver set the size which was not supported by the T1.	9702	2-73
Size Error DX	**Press Go for 2 seconds. Specify the correct paper and load the same size paper as the Printer driver setting.**	For 2-sided printing, paper size setting of the printer driver that was not supported by 2-sided printing was selected.	9701	2-73
	Specify the correct paper and press Go.	The registration rear sensor detected that the fed paper was larger or smaller than the specified size in 2-sided printing.	8A01	2-71
Size mismatch	**Load XXXX paper in Tray 1 and press Go.**	The size of paper loaded in the T1 and the one specified from the driver are not same when printing from the T1.	9002	2-72
Small paper	**Open the Back Cover and then press Go.**	The paper size indicated for printing data while the back cover is closed was under the specified value.	8D02	2-72
Storage Full	**There is no space in the Flash Memory.**	Storage memory was full and data could not be saved.	C900	2-80
Toner Error	**One or more Toner Cartridges are not detected. Pull out and reinsert all 4 Toner Cartridges.**	The develop release sensor detected the develop roller disengagement or engagement failure.	6E00	2-66
Toner Low: BK	-	Dot counter of the toner cartridge (black) or develop roller counter reaches the upper limit soon.	4B01	2-59
Toner Low: C	-	Dot counter of the toner cartridge (cyan) or develop roller counter reaches the upper limit soon.	4B04	2-59
Toner Low: M	-	Dot counter of the toner cartridge (magenta) or develop roller counter reaches the upper limit soon.	4B03	2-59

Error message		Description	Error codes	Refer to:
First line	Second line			
Toner Low: Y	**-**	Dot counter of the toner cartridge (yellow) or develop roller counter reaches the upper limit soon.	4B02	2-59
Wrong Toner	**Open the Top Cover, then install Toner Cartridge.**	Cartridge sensor detected that the toner cartridge does not support black was installed.	2200	2-55
		Cartridge sensor detected that the toner cartridge does not support yellow was installed.	2201	2-55
		Cartridge sensor detected that the toner cartridge does not support cyan was installed.	2202	2-55
		Cartridge sensor detected that the toner cartridge does not support magenta was installed.	2203	2-55
WT Box End Soon	**-**	The waste toner sensor detected that the waste toner box is almost full.	4700	2-58
2-sided Disabled	**Close the Back Cover of the machine.**	The back cover sensor detected the open state when 2-sided printing is started (before the registration of printing in the engine).	8903	2-70
		The back cover sensor detected the open state during 2-sided printing (after the registration of printing in the engine).	8904	2-70

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3.2.2 Touch panel models

Error message		Description	Error codes	Refer to:
First line	Second line			
Calibration	**Calibration failed. Insufficient Toner for Calibration.**	Dot counter or develop roller counter of color toner has reached the upper limit during color density adjustment performed from the control panel.	9802	2-74
	Calibration failed. Press [OK].	Density patch measurement ended unsuccessfully during color density adjustment performed from the control panel.	9803	2-75
		An error occurred with the value measured during density sensor sensitivity calibration.	9804	2-75
	Calibration failed. Turn the power off and then back on again.	An error occurred with the value measured during color density adjustment performed from the control panel.	9801	2-74
Cannot Detect	**Put the Toner Cartridge back in.**	Black toner cartridge is not recognized by the cartridge sensor.	2400	2-55
		Yellow toner cartridge is not recognized by the cartridge sensor.	2401	2-55
		Cyan toner cartridge is not recognized by the cartridge sensor.	2402	2-55
		Magenta toner cartridge is not recognized by the cartridge sensor.	2403	2-55

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Error message		Description	Error codes	Refer to:
First line	Second line			
Cartridge Error	**Open the Top Cover. Check color and position of toner cartridges.**	Toner cartridge other than black is installed.	2100	2-54
		Toner cartridge other than yellow is installed.	2101	2-54
		Toner cartridge other than cyan is installed.	2102	2-54
		Toner cartridge other than magenta is installed.	2103	2-54
	Put the Black (BK) Toner Cartridge back in.	The new toner sensor of the toner cartridge (black) could not detect a new cartridge properly.	4F01	2-60
	Put the Cyan (C) Toner Cartridge back in.	The new toner sensor of the toner cartridge (cyan) could not detect a new cartridge properly.	4F04	2-60
	Put the Magenta (M) Toner Cartridge back in.	The new toner sensor of the toner cartridge (magenta) could not detect a new cartridge properly.	4F03	2-60
	Put the Yellow (Y) Toner Cartridge back in.	The new toner sensor of the toner cartridge (yellow) could not detect a new cartridge properly.	4F02	2-60
Condensation	**Leave switched ON.Fully open the top cover. Wait 30 minutes, switch OFF and close cover, then switch ON.**	Condensation occurred in the machine.	1400	2-53
Cooling Down	**Wait for a while**	The internal temperature sensor detected a temperature higher than the specified value.	6801	2-64
Cover is Open	**Close the Top Cover**	The top cover sensor detected that the top cover was open.	6001	2-60
	Close the Fuser Cover which can be found behind the Back Cover of the machine.	The eject sensor detected that the fuser cover was open.	6004	2-61

Error message		Description	Error codes	Refer to:
First line	Second line			
Drum !	**Open the Top Cover. Pull out the drum unit and toner cartridge. Slide the Green tab on Drum Unit.**	Electric discharge that may be caused by dirt on the corona wire of the drum unit was detected.	6A00	2-66
	Open the Top Cover. Pull out the drum unit and toner cartridge. Slide the Green tab on Drum Unit.	Electrified terminal or GRID terminal signal detected that the black drum was not installed when the machine was turned ON.	620A	2-62
		Electrified terminal or GRID terminal signal detected that the yellow drum was not installed when the machine was turned ON.	620B	2-62
		Electrified terminal or GRID terminal signal detected that the magenta drum was not installed when the machine was turned ON.	620C	2-62
		Electrified terminal or GRID terminal signal detected that the cyan drum was not installed when the machine was turned ON.	620D	2-62
Drum Stop	**Replace the Drum Unit. Refer to the instructions in the carton of the new drum.**	Electric discharge was detected when the number of the black drum unit rotations had become more than twice of the upper limit.	6B01	2-66
		Electric discharge was detected when the number of the yellow drum unit rotations had become more than twice of the upper limit.	6B02	2-66
		Electric discharge was detected when the number of the magenta drum unit rotations had become more than twice of the upper limit.	6B03	2-66
		Electric discharge was detected when the number of the cyan drum unit rotations had become more than twice of the upper limit.	6B04	2-66
Ignore Data	**Press Stop[x].**	Detected undecodable data during printing. Received undecodable PS data.	---	4.11.1
		Undecodable PS data is received.		

Error message		Description	Error codes	Refer to:
First line	Second line			
Jam 2-sided	**Pull the paper tray completely. Check inside the machine. Or open the Back Cover to remove the jammed paper.**	After the first side is printed in 2-sided printing, the registration front sensor does not detect paper pass after a set period of time.	7800	2-69
Jam Inside	**Open the Top Cover. Pull out all four drum and toner cartridge assemblies. Remove the jammed paper**	After the registration rear sensor detects paper pass, the eject sensor does not detect paper pass.	7000	2-67
Jam Manual Feed	**Pull out the jammed paper from Manual Feed and press [Retry].**	When feeding from the manual feed slot, the registration rear sensor does not detect the paper pass within the specified time after the manual feed paper empty sensor detected the paper pass. Or the registration rear sensor detected the paper pass within the specified time after the manual feed paper empty sensor detected the paper pass.	7900	2-69
Jam Rear	**Open the Back Cover and remove the jammed paper, then press [Retry].**	After the registration rear sensor detects the end of paper pass and the specified period of time has passed, the eject sensor continues to detect paper pass.	7100	2-68
Jam Tray 1	**Pull the paper tray completely out of the machine and remove the jammed paper**	When printing from the T1, the registration front sensor does not detect paper pass within the specified time after the T1 paper feed sensor detected paper pass.	7302	2-68

Error message		Description	Error codes	Refer to:
First line	Second line			
Log Access Error	**Authentication error, contact your administrator.**	User authentication is unavailable due to incorrect user name, incorrect password, or asynchronous date and time between the machine and server.	C002	2-80
	File Access Error, contact your administrator.	Access to a file is unavailable due to incorrect directory name, no write permission on directory, file write lock, or no write permission on file.	C003	2-80
	Server Timeout, contact your administrator.	Timeout occurred with access request sent to server due to incorrect server address, network disconnection, or inactive server.	C001	2-80
	Wrong Date&Time, contact your administrator.	Cannot acquire current time which is required for user authentication because the time has not been acquired.	C004	2-80
Machine Error F9	**-**	The spec code was not entered correctly.	F900	2-82
Maintenance	**Replace Fuser**	Number of used pages for the fuser unit has reached the upper limit.	4500	2-58
	Replace PF Kit 1	Number of used pages for the PF kit 1 has reached the upper limit.	5002	2-60
Manual Feed	**Load paper**	There is no paper in the manual feed slot when printing from the manual feed slot.	8C00	2-71
Media Type Mismatch	**Reload correct paper in Tray1, then press [Retry].**	When printing from the T1, paper type setting in the machine does not match the setting in the driver.	9202	2-72
No Belt Unit	**Open the Top Cover, pull out all 4 Drum Unit completely and install the Belt Unit.**	The registration mark sensor detected that no belt unit was set.	6400	2-64

| Error message | | Description | Error codes | Refer to: |
First line	Second line			
No Cartridge	**Put the Toner Cartridge back in.**	Black toner cartridge could not communicate with the cartridge sensor.	2500	2-56
		Yellow toner cartridge could not communicate with the cartridge sensor.	2501	2-56
		Cyan toner cartridge could not communicate with the cartridge sensor.	2502	2-56
		Magenta toner cartridge could not communicate with the cartridge sensor.	2503	2-56
No Drum Unit	**Open the Top Cover, then install the Drum Unit. Black**	GRID terminal signal detected that the black drum unit was not installed.	6201	2-62
	Open the Top Cover, then install the Drum Unit. Cyan	GRID terminal signal detected that the cyan drum unit was not installed.	6204	2-62
	Open the Top Cover, then install the Drum Unit. Magenta	GRID terminal signal detected that the magenta drum unit was not installed.	6203	2-62
	Open the Top Cover, then install the Drum Unit. Yellow	GRID terminal signal detected that the yellow drum unit was not installed.	6202	2-62
No Paper	**No Paper T1**	Detected that there was no paper set in the T1 when printing from the T1.	---	4.2.1
No Paper Tray1	**Reload paper in Tray 1.**	When printing from the T1, the T1 paper feed sensor detected that no paper was in the T1.	9302	2-73

Error message		Description	Error codes	Refer to:
First line	Second line			
No Toner	**Open the Top Cover, then install Toner Cartridge. Black.**	The toner amount detection sensor detected that no toner cartridge (black) was set.	6101	2-61
	Open the Top Cover, then install Toner Cartridge. Cyan.	The toner amount detection sensor detected that no toner cartridge (cyan) was set.	6104	2-61
	Open the Top Cover, then install Toner Cartridge. Magenta.	The toner amount detection sensor detected that no toner cartridge (magenta) was set.	6103	2-61
	Open the Top Cover, then install Toner Cartridge. Yellow.	The toner amount detection sensor detected that no toner cartridge (yellow) was set.	6102	2-61
No Tray T1	**Reinstall Tray1.**	The T1 paper feed sensor detected that the T1 is open when printing from the T1 (before the registration of printing in the engine).	8501	2-70
		The T1 paper feed sensor detected that the T1 is open when printing from the T1 (after the registration of printing in the engine).	8505	2-70
No Waste Toner	**Install the Waste Toner Box.**	The electrodes of the high-voltage power supply PCB detected that no waste toner box was set.	6300	2-64
Out of Memory	**Press Stop[x].**	The memory is insufficient to expand the data of PC-Print.	C700	2-80
Print Data Full	**Secure Print Data is full. Press Stop[x] and delete the previously stored data.**	The memory used to store secure print data exceeded the memory size for secure print data.	C800	2-80
Print Unable 01	**Turn the power off and then back on again.**	ASIC error or motor driver error occurred.	0101	2-48

Error message		Description	Error codes	Refer to:
First line	Second line			
Print Unable 02	**Turn the power off and then back on again.**	Cannot detect the synchronized signal of the paper feed motor. The speed of the paper feed motor does not stabilize within the specified time.	0201	2-48
		Cannot detect the synchronized signal of the process motor. The speed of the process motor does not stabilize within the specified time.	0202	2-48
Print Unable 05	**Turn the power off and then back on again.**	Detected the fuser unit temperature error.	0501	2-49
			0502	2-49
			0503	2-49
			0504	2-49
			0505	2-49
			0506	2-49
			050A	2-50
			050B	2-50
			050C	2-50
Print Unable 08	**Turn the power off and then back on again.**	An error occurred in the internal temperature sensor.	0800	2-50
Print Unable 09	**Turn the power off and then back on again.**	Detected irregular power supply for more than 100 times.	0900	2-51
Print Unable 0A	**Turn the power off and then back on again.**	Main PCB detected the fan failure.	0A02	2-51
Print Unable 0B	**Turn the power off and then back on again.**	An error occurred in the high-voltage power supply PCB while operating.	0B01	2-52
		An error occurred in the high-voltage power supply PCB when the machine was in the ready state.	0B02	2-52
Print Unable 0C	**Turn the power off and then back on again.**	An error occurred in the density sensor.	0C00	2-52
Print Unable 0E	**Turn the power off and then back on again.**	An error occurred during the high-voltage power supply PCB ID check.	0E00	2-52

Error message		Description	Error codes	Refer to:
First line	Second line			
Print Unable 10	**Turn the power off and then back on again.**	The registration mark sensor R is dirty and cannot normally receive reflected light.	1003	2-53
		The registration mark sensor L is dirty and cannot normally receive reflected light.	1004	2-53
Print Unable 1D	**Turn the power off and then back on again.**	A communication error occurred in the LED ASSY (black).	1D01	2-54
		A communication error occurred in the LED ASSY (yellow).	1D02	2-54
		A communication error occurred in the LED ASSY (magenta).	1D03	2-54
		A communication error occurred in the LED ASSY (cyan).	1D04	2-54
Print Unable 1E	**Turn the power off and then back on again.**	Main PCB and LED control PCB cannot access each other.	1E01	2-54
		Cannot read/write in the main PCB and LED control PCB.	1E02	2-54
Print Unable 2E	**Turn the power off and then back on again.**	Could not communicate with the cartridge sensor on the machine side.	2E00	2-56
		Cartridge sensor on the machine side does not work.	2E02	2-56
		Cartridge sensor version on the machine side is not available.	2E04	2-56
Print Unable 38	**Turn the power off and then back on again.**	A temperature error occurred in the external temperature/ humidity sensor.	3801	2-56
Print Unable 3A	**Turn the power off and then back on again.**	A communication error occurred between the controller and engine in main PCB.	3A00	2-57
Print Unable DB	**Turn the power off and then back on again.**	A communication error occurred between the main ASIC and the recording ASIC.	DB00	2-81
Print Unable E0	**Turn the power off and then back on again.**	An error occurred at the ROM check sum in the firmware.	E000	2-81
Print Unable E1	**Turn the power off and then back on again.**	Program error	E100	2-81
Print Unable E5	**Turn the power off and then back on again.**	An error occurred during access to the DRAM in the main PCB.	E500	2-81

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Error message		Description	Error codes	Refer to:
First line	Second line			
Print Unable E6	**Turn the power off and then back on again.**	Write error in the EEPROM of the main PCB	E600	2-81
Print Unable E7	**Turn the power off and then back on again.**	Detected an error in main PCB.	E701	2-81
			E702	2-81
Print Unable E9	**Turn the power off and then back on again.**	An error occurred while initializing the NFC.	E900	2-81
Print Unable ZC	**Turn the power off and then back on again.**	Detected that supply power is unstable (less than 100 times).	6F00	2-67
Registration	**Registration failed. Insufficient Toner for Registration.**	Dot counter or develop roller counter of color toner has reached the upper limit during auto color registration performed from the control panel.	9A02	2-78
	Registration failed. Press [OK]	Dot counter or develop roller counter of color toner has reached the upper limit during auto color registration performed from the control panel.	9902	2-76
		An error occurred during patch data printing in manual color registration performed from the control panel.	9903	2-77
		An error occurred during patch data printing in auto color registration performed from the control panel.	9A03	2-79
	Registration failed. Turn the power off and then back on again.	An error occurred with the value measured during manual color registration performed from the control panel.	9901	2-76
		An error occurred with the value measured during auto color registration performed from the control panel.	9A01	2-78

Error message		Description	Error codes	Refer to:
First line	Second line			
Replace Toner	**Open the Top Cover.** **Pull out the drum unit with toner to be replaced.** **Press the green lever.** **Replaced toner.**	Dot counter of the toner cartridge (black) or develop roller counter has reached the upper limit was detected.	4C01	2-59
		Dot counter of the toner cartridge (yellow) or develop roller counter has reached the upper limit was detected.	4C02	2-59
		Dot counter of the toner cartridge (magenta) or develop roller counter has reached the upper limit was detected.	4C03	2-59
		Dot counter of the toner cartridge (cyan) or develop roller counter has reached the upper limit was detected.	4C04	2-59
		During printing, dot counter of color toner cartridge or develop roller counter has reached the upper limit was detected.	4C05	2-59
Replace WT Box	**Replace the Waste Toner Box inside the machine.**	After the waste toner sensor detected that the waste toner box was almost full, pages more than the specified number have been printed.	4800	2-58
Screen Init. Fail	**Remove any material which is on the touchscreen.**	An error occurred while initializing the touch panel.	D800	2-81
Self-Diagnostic	**Turn the power off, then on again. Leave the machine for 15 min.**	Some fuser unit errors occurred at power-ON or upon recovery from sleep mode.	6901	2-65
	Will automatically restart within 15 minutes.	After the error was detected at the fuser unit, power was turned ON again and the error is being checked. (If power is turned OFF and ON after error code 6901 occurred, this code is displayed for about 15 minutes.)	6902	2-65
Short paper	**Open the Back Cover and then press [Retry].**	The registration rear sensor detected that the paper loaded in the T1 was smaller than the specified size.	8D01	2-71
Size Error	**Specify the correct paper size for Tray 1.**	When printing from the T1, the size of paper specified from the driver set the size which was not supported by the T1.	9702	2-73

Confidential

Error message		Description	Error codes	Refer to:
First line	Second line			
Size Error 2-sided	**Press Stop[x]. Specify the correct paper and load the same size paper as Printer driver setting.**	For 2-sided printing, paper size setting of the printer driver that was not supported by 2-sided printing was selected.	9701	2-73
	Specify the correct paper and press [Retry].	The registration rear sensor detected that the fed paper was larger or smaller than the specified size in 2-sided printing.	8A01	2-71
Size mismatch	**Reload correct paper in Tray1, then press [Retry].**	The size of paper loaded in the T1 and the one specified from the driver are not same when printing from the T1.	9002	2-72
Small paper	**Open the Back Cover and then press [Retry].**	The paper size indicated for printing data while the back cover is closed was under the specified value.	8D02	2-72
Storage Full	**There is no space in the Flash Memory.**	Storage memory was full and data could not be saved.	C900	2-80

Error message		Description	Error codes	Refer to:
First line	Second line			
Supplies	**Belt End Soon**	Number of pages printed with the belt unit will reach the upper limit soon.	4300	2-58
	Drum End Soon: Black	Number of the black drum unit rotations reaches the upper limit soon.	4001	2-57
	Drum End Soon: Cyan	Number of the cyan drum unit rotations reaches the upper limit soon.	4004	2-57
	Drum End Soon: Magenta	Number of the magenta drum unit rotations reaches the upper limit soon.	4003	2-57
	Drum End Soon: Yellow	Number of the yellow drum unit rotations reaches the upper limit soon.	4002	2-57
	Replace Belt	Number of pages printed with the belt unit has reached the upper limit.	4400	2-58
	Replace Drum: Black	Number of the black drum unit rotations has reached the upper limit.	4201	2-57
	Replace Drum: Cyan	Number of the cyan drum unit rotations has reached the upper limit.	4204	2-57
	Replace Drum: Magenta	Number of the magenta drum unit rotations has reached the upper limit.	4203	2-57
	Replace Drum: Yellow	Number of the yellow drum unit rotations has reached the upper limit.	4202	2-57
	Toner Low: BK	Dot counter of the toner cartridge (black) or develop roller counter reaches the upper limit soon.	4B01	2-59
	Toner Low: C	Dot counter of the toner cartridge (cyan) or develop roller counter reaches the upper limit soon.	4B04	2-59
	Toner Low: M	Dot counter of the toner cartridge (magenta) or develop roller counter reaches the upper limit soon.	4B03	2-59
	Toner Low: Y	Dot counter of the toner cartridge (yellow) or develop roller counter reaches the upper limit soon.	4B02	2-59
	WT Box End Soon	The waste toner sensor detected that the waste toner box is almost full.	4700	2-58

Confidential

Error message		Description	Error codes	Refer to:
First line	Second line			
Toner Error	**One or more Toner Cartridges are not detected. Pull out and reinsert all 4 Toner Cartridges.**	The develop release sensor detected the develop roller disengagement or engagement failure.	6E00	2-66
Tray removed	**Current Tray 1 Settings Change the settings?**	T1 has not been closed yet.	---	4.11.3
Wrong Toner Cartridge	**Open the Top Cover, then install Toner Cartridge.**	Cartridge sensor detected that the toner cartridge does not support black was installed.	2200	2-55
		Cartridge sensor detected that the toner cartridge does not support yellow was installed.	2201	2-55
		Cartridge sensor detected that the toner cartridge does not support cyan was installed.	2202	2-55
		Cartridge sensor detected that the toner cartridge does not support magenta was installed.	2203	2-55
2-sided Disabled	**Close the Back Cover of the Machine**	The back cover sensor detected the open state when 2-sided printing is started (before the registration of printing in the engine).	8903	2-70
		The back cover sensor detected the open state during 2-sided printing (after the registration of printing in the engine).	8904	2-70

4. TROUBLESHOOTING

4.1 Error Cause and Remedy

■ Error code 0101

ASIC error or motor driver error occurred.

Step	Cause	Remedy
1	Main PCB failure	Replace the main PCB.

■ Error code 0201

Cannot detect the synchronized signal of the paper feed motor. The speed of the paper feed motor does not stabilize within the specified time.

Step	Cause	Remedy
1	Connection failure of the paper feed motor flat cable	Reconnect the paper feed motor flat cable.
2	Connection failure of the low-voltage power supply harness	Reconnect the low-voltage power supply harness.
3	Paper feed motor flat cable failure	Replace the paper feed motor flat cable.
4	Damaged parts in paper feed drive unit	Replace the paper feed drive unit.
5	Damaged parts in process drive unit	Replace the process drive unit.
6	Damaged fuser unit	Replace the fuser unit.
7	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB.
8	Main PCB failure	Replace the main PCB.

■ Error code 0202

Cannot detect the synchronized signal of the process motor. The speed of the process motor does not stabilize within the specified time.

Step	Cause	Remedy
1	Connection failure of the process motor flat cable	Reconnect the process motor flat cable.
2	Connection failure of the low-voltage power supply harness	Reconnect the low-voltage power supply harness.
3	Process motor flat cable failure	Replace the process motor flat cable.
4	Damaged parts in process drive unit	Replace the process drive unit.
5	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB.
6	Main PCB failure	Replace the main PCB.

■ Error code 0501

The center thermistor of the fuser unit has not reached the specified temperature within the specified time.

Error code 0502

The center thermistor of the fuser unit has not reached the specified temperature within the specified time after it was heated normally to the certain level.

Error code 0503

The center thermistor of the fuser unit detected a temperature higher than the specified value.

Error code 0504

After the heat unit was heated normally, the center thermistor of the fuser unit detected a temperature lower than the specified value.

Error code 0505

The center thermistor of the fuser unit detected a temperature rise greater than the specified value within the specified time.

Error code 0506

The center thermistor of the fuser unit detected a temperature fall greater than the specified value within the specified time.

<User Check>

• Turn OFF the power switch. After several seconds, turn ON the power again and check that this error is reset.

Step	Cause	Remedy
1	Connection failure of the center or side thermistor harness of the fuser unit	Reconnect the center or side thermistor harness of the fuser unit.
2	Connection failure of the fuser unit heater harness	Reconnect the fuser unit heater harness.
3	Connection failure of the eject sensor harness	Reconnect the eject sensor harness.
4	Connection failure of the low-voltage power supply harness	Reconnect the low-voltage power supply harness.
5	Eject sensor PCB failure	Replace the eject sensor PCB.
6	Fuser unit failure	Replace the fuser unit.
7	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB.
8	Main PCB failure	Replace the main PCB.

■ Error code 050A

The hardware detected a temperature error through the center thermistor or the side thermistor of the fuser unit.

Error code 050B

When the center thermistor of the fuser unit was lower than the idle temperature, the side thermistor detected a temperature higher than the specified temperature.

Error code 050C

When the center thermistor of the fuser unit was higher than the idle temperature, the side thermistor detected a temperature lower than the specified temperature.

<User Check>

• Turn OFF the power switch. After several seconds, turn ON the power again and check that this error is reset.

Step	Cause	Remedy
1	Connection failure of the center or side thermistor harness of the fuser unit	Reconnect the center or side thermistor harness of the fuser unit.
2	Connection failure of the fuser unit heater harness	Reconnect the fuser unit heater harness.
3	Connection failure of the eject sensor harness	Reconnect the eject sensor harness.
4	Connection failure of the low-voltage power supply harness	Reconnect the low-voltage power supply harness.
5	Eject sensor PCB failure	Replace the eject sensor PCB.
6	Fuser unit failure	Replace the fuser unit.
7	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB.
8	Main PCB failure	Replace the main PCB.

■ Error code 0800

An error occurred in the internal temperature sensor.

Step	Cause	Remedy
1	Connection failure of the internal temperature sensor harness	Reconnect the internal temperature sensor harness.
2	Connection failure of the eject sensor harness	Reconnect the eject sensor harness.
3	Eject sensor PCB failure	Replace the eject sensor PCB.
4	Main PCB failure	Replace the main PCB.

■ Error code 0900

Detected irregular power supply for more than 100 times.

Step	Cause	Remedy
1	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB. Refer to "1.3.28 Reset counters for consumable parts (Function code 88)" in Chapter 5 to reset the irregular power supply detection counter after the replacement.
2	Main PCB failure	Replace the main PCB.

Note:

The irregular power supply detection error (Error code 0900) of the low-voltage power supply PCB occurs when there is a large distortion in the power supply voltage supplied to the machine. In this case, if the same power supply is used, the same error might occur again even if the low-voltage power supply PCB is replaced. For this reason, be sure to ask the user to rearrange the installation environment.

■ Error code 0A02

Detected a fan failure.

Step	Cause	Remedy
1	Connection failure of the fan harness	Reconnect the fan harness.
2	Connection failure of the high-voltage power supply flat cable	Reconnect the high-voltage power supply flat cable.
3	Fan failure	Replace the fan.
4	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.
5	Main PCB failure	Replace the main PCB.

■ **Error code 0B01**

An error occurred in the high-voltage power supply PCB while operating.

Error code 0B02

An error occurred in the high-voltage power supply PCB when the machine was in the ready state.

<User Check>

- Slide the green tab of the drum unit to left and right for two to three times to clean the corona wire for all the four colors.

- There is a possibility of condensation. Turn the power switch OFF and ON, then open the top cover and the back cover and leave the machine more than 30 minutes.

- Replace the drum unit.

Step	Cause	Remedy
1	Dirt on the machine, the drum unit, the belt unit and the waste toner box terminal.	Clean the machine, the drum unit, the belt unit and the waste toner box terminal. (Refer to Fig. 2-6 (P2-63), Fig. 2-7 (P2-63), Fig. 2-11 (P2-94) and Fig. 2-12 (P2-98).)
2	Connection failure of the high-voltage power supply flat cable	Reconnect the high-voltage power supply flat cable.
3	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.
4	Main PCB failure	Replace the main PCB.

■ **Error code 0C00**

An error occurred in the density sensor.

Step	Cause	Remedy
1	Connection failure of the registration mark sensor L harness	Reconnect the registration mark sensor L harness.
2	Eject sensor PCB failure	Replace the eject sensor PCB.
3	Registration mark sensor L PCB failure	Replace the registration mark sensor L PCB.
4	Main PCB failure	Replace the main PCB.

■ **Error code 0E00**

An error occurred during the high-voltage power supply PCB ID check.

Step	Cause	Remedy
1	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.
2	Main PCB failure	Replace the main PCB.

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■ Error code 1003

The registration mark sensor R is dirty and cannot normally receive reflected light.

<User Check>

• Clean the dirt on the belt unit or replace the belt unit.

• Replace the waste toner box.

Step	Cause	Remedy
1	Dirt on the registration mark sensor R	Clean the registration mark sensor R part of the registration mark sensor R PCB.
2	Dirt by toner inside the machine	Clean inside of the machine.
3	Registration mark sensor R PCB failure	Replace the registration mark sensor R PCB.
4	Main PCB failure	Replace the main PCB.

■ Error code 1004

The registration mark sensor L is dirty and cannot normally receive reflected light.

<User Check>

• Clean the dirt on the belt unit or replace the belt unit.

• Replace the waste toner box.

Step	Cause	Remedy
1	Dirt on the registration mark sensor L	Clean the registration mark sensor L part of the registration mark sensor L PCB.
2	Dirt by toner inside the machine	Clean inside of the machine.
3	Registration mark sensor L PCB failure	Replace the registration mark sensor L PCB.
4	Main PCB failure	Replace the main PCB.

■ Error code 1400

Condensation occurred in the machine.

<User Check>

• Open the top and back covers and leave them for 30 minutes or more with the power ON. After that, close the top and back covers and turn OFF and ON the power switch.

Step	Cause	Remedy
1	Main PCB failure	Replace the main PCB.

■ **Error code 1D01**

A communication error occurred in the LED ASSY (black).

Error code 1D02

A communication error occurred in the LED ASSY (yellow).

Error code 1D03

A communication error occurred in the LED ASSY (magenta).

Error code 1D04

A communication error occurred in the LED ASSY (cyan).

Step	Cause	Remedy
1	Connection failure of an LED ASSY flat cable	Reconnect an LED ASSY flat cable.
2	Connection failure of the LED control flat cable	Reconnect the LED control flat cable.
3	An LED ASSY flat cable failure	Replace an LED ASSY flat cable.
4	LED control PCB failure	Replace the LED control PCB.
5	An LED ASSY failure	Replace an LED ASSY.
6	Main PCB failure	Replace the main PCB.

■ **Error code 1E01**

Main PCB and LED control PCB cannot access each other.

Error code 1E02

Cannot read/write in the main PCB and LED control PCB.

Step	Cause	Remedy
1	Connection failure of the LED control flat cable	Reconnect the LED control flat cable.
2	LED control PCB failure	Replace the LED control PCB.
3	Main PCB failure	Replace the main PCB.

■ **Error code 2100**

Toner cartridge other than black is installed.

Error code 2101

Toner cartridge other than yellow is installed.

Error code 2102

Toner cartridge other than cyan is installed.

Error code 2103

Toner cartridge other than magenta is installed.

<User Check>

• Install the toner cartridge on the specified place.

• Use the genuine toner cartridge.

Step	Cause	Remedy
1	Main PCB failure	Replace the main PCB.

■ Error code 2200

Cartridge sensor detected that the toner cartridge does not support black was installed.

Error code 2201

Cartridge sensor detected that the toner cartridge does not support yellow was installed.

Error code 2202

Cartridge sensor detected that the toner cartridge does not support cyan was installed.

Error code 2203

Cartridge sensor detected that the toner cartridge does not support magenta was installed.

<User Check>

• Reinstall the toner cartridge.

• Use the genuine toner cartridge.

Step	Cause	Remedy
1	Main PCB failure	Replace the main PCB.

■ Error code 2400

Black toner cartridge is not recognized by the cartridge sensor.

Error code 2401

Yellow toner cartridge is not recognized by the cartridge sensor.

Error code 2402

Cyan toner cartridge is not recognized by the cartridge sensor.

Error code 2403

Magenta toner cartridge is not recognized by the cartridge sensor.

<User Check>

• Reinstall the toner cartridge.

• Use the genuine toner cartridge.

Step	Cause	Remedy
1	Main PCB failure	Replace the main PCB.

■ Error code 2500

Black toner cartridge could not communicate with the cartridge sensor.

Error code 2501

Yellow toner cartridge could not communicate with the cartridge sensor.

Error code 2502

Cyan toner cartridge could not communicate with the cartridge sensor.

Error code 2503

Magenta toner cartridge could not communicate with the cartridge sensor.

<User Check>

• Reinstall the toner cartridge.

• Use the genuine toner cartridge.

• Replace the toner cartridge with a new one.

Step	Cause	Remedy
1	Dirt on a cartridge sensor	Clean a cartridge sensor terminal.
2	Connection failure of a cartridge sensor harness	Reconnect a cartridge sensor harness.
3	Connection failure of the cartridge sensor relay flat cable	Reconnect the cartridge sensor relay flat cable.
4	Main PCB failure	Replace the main PCB.

■ Error code 2E00

Could not communicate with the cartridge sensor on the machine side.

Error code 2E02

Cartridge sensor on the machine side does not work.

Error code 2E04

Cartridge sensor version on the machine side is not available.

Step	Cause	Remedy
1	Main PCB failure	Replace the main PCB.

■ Error code 3801

A temperature error occurred in the external temperature/humidity sensor.

Step	Cause	Remedy
1	Connection failure of the external temperature/humidity sensor harness	Reconnect the external temperature/humidity sensor harness.
2	Main PCB failure	Replace the main PCB.

■ Error code 3A00

A communication error occurred between the controller and engine in main PCB.

Step	Cause	Remedy
1	Main PCB failure	Replace the main PCB.

■ Error code 4001

Number of the black drum unit rotations reaches the upper limit soon.

Error code 4002

Number of the yellow drum unit rotations reaches the upper limit soon.

Error code 4003

Number of the magenta drum unit rotations reaches the upper limit soon.

Error code 4004

Number of the cyan drum unit rotations reaches the upper limit soon.

Error code 4201

Number of the black drum unit rotations has reached the upper limit. (Printing does not stop.)

Error code 4202

Number of the yellow drum unit rotations has reached the upper limit. (Printing does not stop.)

Error code 4203

Number of the magenta drum unit rotations has reached the upper limit. (Printing does not stop.)

Error code 4204

Number of the cyan drum unit rotations has reached the upper limit. (Printing does not stop.)

<User Check>

• Prepare a new drum unit.

Step	Cause	Remedy
1	Replace the drum unit with a new one and reset the drum counter. If the error display is not cleared, the main PCB is faulty.	Replace the main PCB.

■ Error code 4300

Number of pages printed with the belt unit will reach the upper limit soon. (90%)

Error code 4400

Number of pages printed with the belt unit has reached the upper limit. (Printing does not stop.)

<User Check>

• Prepare a new belt unit.

Step	Cause	Remedy
1	Replace the belt unit with a new one and reset the belt counter. If the error display is not cleared, the main PCB is faulty.	Replace the main PCB.

■ Error code 4500

Number of used pages for the fuser unit has reached the upper limit. (Printing does not stop.)

Step	Cause	Remedy
1	End of life of the fuser unit	Replace the fuser unit. Refer to "1.3.28 Reset counters for consumable parts (Function code 88)" in Chapter 5 to reset the fuser unit counter after the replacement.
2	Replace the fuser unit with a new one and reset the fuser unit counter. If the error display is not cleared, the main PCB is faulty.	Replace the main PCB.

■ Error code 4700

The waste toner sensor detected that the waste toner box is almost full.

Error code 4800

After the waste toner sensor detected that the waste toner box was almost full, pages more than the specified number have been printed.

<User Check>

• Replace the waste toner box.

Step	Cause	Remedy
1	Connection failure of the high-voltage power supply flat cable	Reconnect the high-voltage power supply flat cable.
2	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.
3	Main PCB failure	Replace the main PCB.

■ Error code 4B01

Dot counter of the toner cartridge (black) or develop roller counter reaches the upper limit soon.

Error code 4B02

Dot counter of the toner cartridge (yellow) or develop roller counter reaches the upper limit soon.

Error code 4B03

Dot counter of the toner cartridge (magenta) or develop roller counter reaches the upper limit soon.

Error code 4B04

Dot counter of the toner cartridge (cyan) or develop roller counter reaches the upper limit soon.

<User Check>

• Prepare a new toner cartridge.

Step	Cause	Remedy
1	Main PCB failure	Replace the main PCB.

■ Error code 4C01

Dot counter of the toner cartridge (black) or develop roller counter has reached the upper limit was detected.

Error code 4C02

Dot counter of the toner cartridge (yellow) or develop roller counter has reached the upper limit was detected.

Error code 4C03

Dot counter of the toner cartridge (magenta) or develop roller counter has reached the upper limit was detected.

Error code 4C04

Dot counter of the toner cartridge (cyan) or develop roller counter has reached the upper limit was detected.

Error code 4C05

During printing, dot counter of color toner cartridge or develop roller counter has reached the upper limit was detected.

<User Check>

• Replace the toner cartridge whose counter reached the upper limit.

Step	Cause	Remedy
1	Replace the toner cartridge with a new one and reset the toner counter. If the error display is not cleared, the main PCB is faulty.	Replace the main PCB.

■ Error code 4F01

The new toner sensor of the toner cartridge (black) could not detect a new cartridge properly.

Error code 4F02

The new toner sensor of the toner cartridge (yellow) could not detect a new cartridge properly.

Error code 4F03

The new toner sensor of the toner cartridge (magenta) could not detect a new cartridge properly.

Error code 4F04

The new toner sensor of the toner cartridge (cyan) could not detect a new cartridge properly.

<User Check>

- Replace the toner cartridge with a new toner cartridge again.

- If the machine is on the uneven surface, place it on a level surface.

Step	Cause	Remedy
1	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.
2	Main PCB failure	Replace the main PCB.

■ Error code 5002

Number of used pages for the PF kit 1 has reached the upper limit. (Printing does not stop.)

Step	Cause	Remedy
1	End of life of the PF kit 1	Replace the PF kit 1. Refer to "1.3.28 Reset counters for consumable parts (Function code 88)" in Chapter 5 to reset the PF kit 1 counter after the replacement.
2	If the error display is not cleared after the PF kit 1 counter has been reset, the main PCB is faulty.	Replace the main PCB.

■ Error code 6001

The top cover sensor detected that the top cover was open.

<User Check>

- Close the top cover.

Step	Cause	Remedy
1	Connection failure of the high-voltage power supply flat cable	Reconnect the high-voltage power supply flat cable.
2	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.
3	Main PCB failure	Replace the main PCB.

■ Error code 6004

The eject sensor detected that the fuser cover was open.

<User Check>

• Close the fuser cover.

Step	Cause	Remedy
1	Eject actuator coming off or caught in some sections of the machine	Reattach the eject actuator.
2	Fuser cover attachment failure	Reattach the fuser cover.
3	Connection failure of the eject sensor harness	Reconnect the eject sensor harness.
4	Eject sensor PCB failure	Replace the eject sensor PCB.
5	Main PCB failure	Replace the main PCB.

■ Error code 6101

Developing terminal voltage detected that the toner cartridge (black) was not installed.

Error code 6102

Developing terminal voltage detected that the toner cartridge (yellow) was not installed.

Error code 6103

Developing terminal voltage detected that the toner cartridge (magenta) was not installed.

Error code 6104

Developing terminal voltage detected that the toner cartridge (cyan) was not installed.

<User Check>

• Set the toner cartridge correctly.

Step	Cause	Remedy
1	Dirt on the developing terminal of the machine	Clean the developing terminal of the machine. (Refer to Fig. 2-6 (P2-63).)
2	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.
3	Main PCB failure	Replace the main PCB.

■ Error code 6201

GRID terminal signal detected that the black drum unit was not installed.

Error code 6202

GRID terminal signal detected that the yellow drum unit was not installed.

Error code 6203

GRID terminal signal detected that the magenta drum unit was not installed.

Error code 6204

GRID terminal signal detected that the cyan drum unit was not installed.

Error code 620A

Electrified terminal or GRID terminal signal detected that the black drum was not installed when the machine was turned ON.

Error code 620B

Electrified terminal or GRID terminal signal detected that the yellow drum was not installed when the machine was turned ON.

Error code 620C

Electrified terminal or GRID terminal signal detected that the magenta drum was not installed when the machine was turned ON.

Error code 620D

Electrified terminal or GRID terminal signal detected that the cyan drum was not installed when the machine was turned ON.

<User Check>

• Set the drum unit correctly.

Step	Cause	Remedy
1	Dirt on the electrified (corona wire) terminals or GRID terminals of the drum unit and those of the machine	Clean the electrified (corona wire) terminals or GRID terminals of the drum unit and those of the machine. (Refer to Fig. 2-6 (P2-63) and Fig. 2-7 (P2-63).)
2	Dirt on the high-voltage power supply PCB terminal	Clean the high-voltage power supply PCB terminal.
3	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.
4	Main PCB failure	Replace the main PCB.

■ Electrodes location of main body

Grid

Charging (Corona wire)

Drum cleaner

Belt transfer roller

Belt common

Waste toner box common

Waste toner sensor

Waste toner box cleaning roller

Fig. 2-6

■ Electrodes location of the drum unit
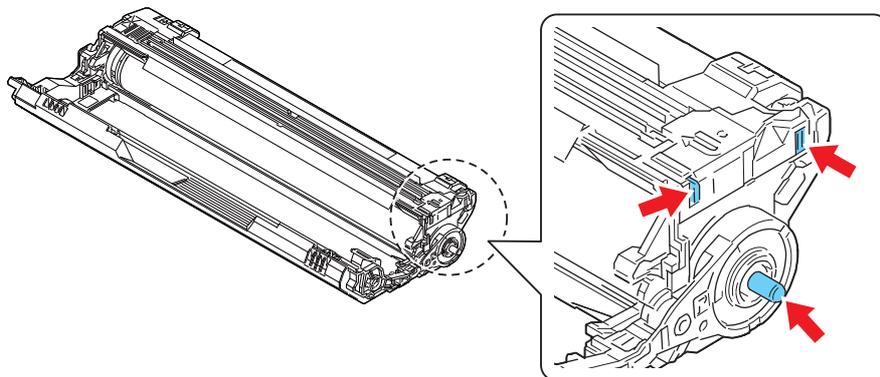
Fig. 2-7

■ Error code 6300

The electrodes of the high-voltage power supply PCB detected that no waste toner box was set.

<User Check>

• Re-insert the waste toner box in the correct position.

Step	Cause	Remedy
1	Dirt on the electrodes of the waste toner box and those of the machine	Clean the electrodes of the waste toner box and those of the machine. (Refer to Fig. 2-6 (P2-63).)
2	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.
3	Main PCB failure	Replace the main PCB.

■ Error code 6400

The registration mark sensor detected that no belt unit was set.

<User Check>

• Re-insert the belt unit.

Step	Cause	Remedy
1	Connection failure of the registration mark sensor L harness	Reconnect the registration mark sensor L harness.
2	Registration mark sensor L PCB failure	Replace the registration mark sensor L PCB.
3	Main PCB failure	Replace the main PCB.

■ Error code 6801

The internal temperature sensor detected a temperature higher than the specified value.

<User Check>

• Lower the room temperature.

• Keep the machine away from heating appliances.

• Check that the fan is not clogged.

Step	Cause	Remedy
1	Connection failure of the internal temperature sensor harness	Reconnect the internal temperature sensor harness.
2	Main PCB failure	Replace the main PCB.

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■ Error code 6901

Some fuser unit errors occurred at power-ON or upon recovery from sleep mode.

Error code 6902

After the error was detected at the fuser unit, power was turned ON again and the error is being checked. (If power is turned OFF and ON after error code 6901 occurred, this code is displayed for about 15 minutes.)

Step	Cause	Remedy
1	Connection failure of a fuser unit harness	Reconnect the fuser unit harness.
2	Connection failure of the eject sensor harness	Reconnect the eject sensor harness.
3	Fuser unit failure	Replace the fuser unit.
4	Eject sensor PCB failure	Replace the eject sensor PCB.
5	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB.
6	Main PCB failure	Replace the main PCB.

Note:

- Turn OFF the power switch. After the fuser unit has cooled sufficiently, turn ON the power switch again and leave the machine for 15 minutes. This problem may then be cleared.
- To release the fuser unit error after taking appropriate measures, enter the maintenance mode once and quit it with the function code 99.

■ **Error code 6A00**

Electric discharge that may be caused by dirt on the corona wire of the drum unit was detected.

Error code 6B01

Electric discharge was detected when the number of the black drum unit rotations had become more than twice of the upper limit.

Error code 6B02

Electric discharge was detected when the number of the yellow drum unit rotations had become more than twice of the upper limit.

Error code 6B03

Electric discharge was detected when the number of the magenta drum unit rotations had become more than twice of the upper limit.

Error code 6B04

Electric discharge was detected when the number of the cyan drum unit rotations had become more than twice of the upper limit.

<User Check>

• Slide the green tab of each drum unit to left and right for two to three times to clean the corona wire.

• Clean the electrode of each drum unit. (Refer to Fig. 2-7 (P2-63).)

• Replace each drum unit.

Step	Cause	Remedy
1	Dirt on the GRID terminals of the machine	Clean the GRID terminals of the machine. (Refer to Fig. 2-6 (P2-63).)
2	Dirt on the high-voltage power supply PCB terminal	Clean the high-voltage power supply PCB terminal.
3	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.
4	Main PCB failure	Replace the main PCB.

■ **Error code 6E00**

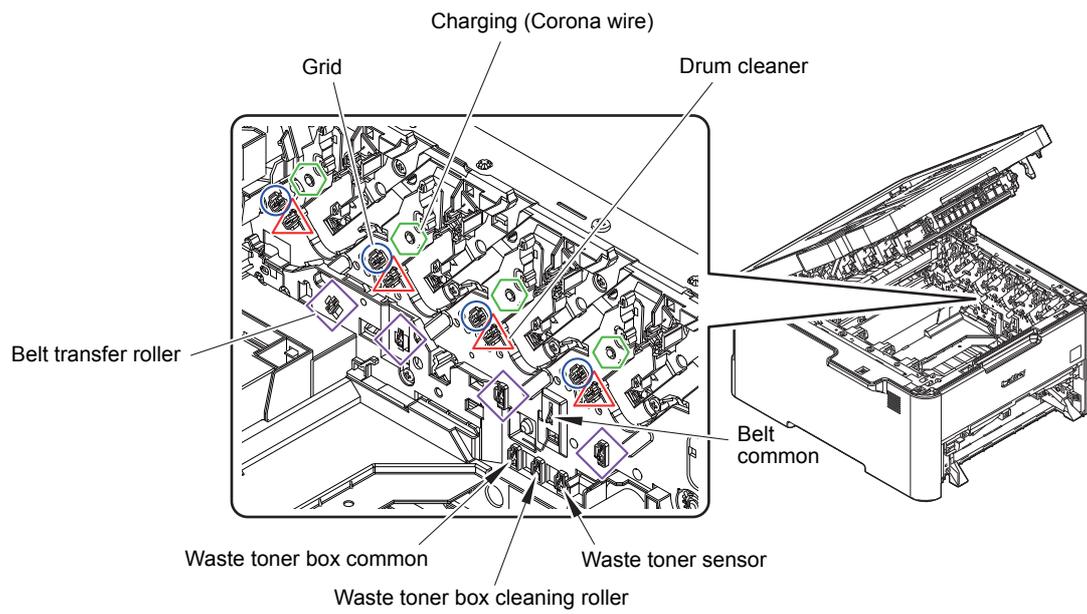The develop release sensor detected the develop roller disengagement or engagement failure.

Step	Cause	Remedy
1	Develop release clutch attachment failure	Refer to "P3-63 Assembling Note" to assemble the develop release clutch.
2	Connection failure of the develop release sensor harness	Reconnect the develop release sensor harness.
3	Develop release sensor failure	Replace the develop release sensor PCB.
4	Develop release clutch failure	Replace the process drive unit.
5	Main PCB failure	Replace the main PCB.

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■ Error code 6F00

Detected that supply power is unstable (less than 100 times).

<User Check>

• Turn the power switch OFF and then back ON again.

• Use a noise filter on the power supply.

Step	Cause	Remedy
1	The power supply waveform is incorrect	Install a voltage stabilizer in the power supply part.

■ Error code 7000

After the registration rear sensor detects paper pass, the eject sensor does not detect paper pass.

<User Check>

• Remove the jammed paper.

Step	Cause	Remedy
1	Foreign object inside the machine	Remove the foreign object.
2	Eject actuator coming off or caught in some sections of the machine	Reattach the eject actuator.
3	Fuser cover attachment failure	Reattach the fuser cover.
4	Connection failure of the eject sensor harness	Reconnect the eject sensor harness.
5	Damaged fuser drive gear Z25	Replace the fuser drive gear Z25.
6	Damaged gears in the process drive system	Replace the process drive unit.
7	Damaged gears in the paper feed drive unit	Replace the paper feed drive unit.
8	Eject sensor failure	Replace the eject sensor PCB.
9	Fuser unit failure	Replace the fuser unit.
10	Main PCB failure	Replace the main PCB.

■ Error code 7100

After the registration rear sensor detects the end of paper pass and the specified period of time has passed, the eject sensor continues to detect paper pass.

<User Check>

• Remove the jammed paper.

• Check if the back cover is open during 2-sided printing.

Step	Cause	Remedy
1	Foreign object in the rear of the machine	Remove the foreign object.
2	Eject actuator caught in some sections of the machine	Reattach the eject actuator.
3	Fuser cover attachment failure	Reattach the fuser cover.
4	Back cover attachment failure	Reattach the back cover.
5	Eject sensor failure	Replace the eject sensor PCB.
6	Back cover failure	Replace the back cover.
7	Paper eject ASSY failure	Replace the paper eject ASSY.
8	Damaged gears in the paper feed drive unit	Replace the paper feed drive unit.
9	Fuser unit failure	Replace the fuser unit.
10	Main PCB failure	Replace the main PCB.

■ Error code 7302

When printing from the T1, the registration front sensor does not detect paper pass within the specified time after the T1 paper feed sensor detected paper pass.

<User Check>

• Remove the jammed paper.

• Add the paper properly using the T1 paper guide.

Step	Cause	Remedy
1	Foreign object in the front of the machine	Remove the foreign object.
2	Registration front actuator attachment failure	Reattach the registration front actuator.
3	Connection failure of the manual feed paper empty/regist rear/regist front sensor harness	Reconnect the manual feed paper empty/regist rear/regist front sensor harness.
4	Manual feed paper empty/regist rear/regist front sensor PCB failure	Replace the paper feed unit.
5	Damaged gears in the paper feed drive unit	Replace the paper feed drive unit.
6	Main PCB failure	Replace the main PCB.

■ Error code 7800

After the first side is printed in 2-sided printing, the registration front sensor does not detect paper pass after a set period of time.

<User Check>

- Remove the jammed paper.

- Close the back cover correctly.

Step	Cause	Remedy
1	Foreign object in the rear of the machine or duplex tray	Remove the foreign object.
2	Connection failure of the duplex clutch harness	Reconnect the duplex clutch harness.
3	Duplex clutch failure	Replace the paper feed unit.
4	Paper eject roller failure	Replace the paper eject ASSY.
5	Duplex unit failure	Replace the duplex unit.
6	Main PCB failure	Replace the main PCB.

■ Error code 7900

When feeding from the manual feed slot, the registration rear sensor does not detect the paper pass within the specified time after the manual feed paper empty sensor detected the paper pass. Or the registration rear sensor detected the paper pass within the specified time after the manual feed paper empty sensor detected the paper pass.

<User Check>

- Remove the jammed paper.

- Set the paper individually in the manual feed slot.

Step	Cause	Remedy
1	Foreign object in the rear of the machine or manual feed slot	Remove the foreign object.
2	Manual feed cover ASSY attachment failure	Reattach the manual feed cover ASSY.
3	Registration rear actuator attachment failure	Reattach the registration rear actuator.
4	Connection failure of the manual feed paper empty/regist rear/regist front sensor harness	Reconnect the manual feed paper empty/ regist rear/regist front sensor harness.
5	Manual feed paper empty/regist rear/regist front sensor PCB failure	Replace the paper feed unit.
6	Main PCB failure	Replace the main PCB.

■ Error code 8501

The T1 paper feed sensor detected that the T1 is open when printing from the T1 (before the registration of printing in the engine).

\<User Check\>

• Close the T1 correctly.

Step	Cause	Remedy
1	T1 paper feed actuator coming off or caught in some sections of the machine	Reattach the T1 paper feed actuator.
2	T1 paper feed sensor failure	Replace the paper feed unit.
3	Main PCB failure	Replace the main PCB.

■ Error code 8505

The T1 paper feed sensor detected that the T1 is open when printing from the T1 (after the registration of printing in the engine).

\<User Check\>

• Close the T1 correctly.

Step	Cause	Remedy
1	Main PCB failure	Replace the main PCB.

■ Error code 8903

The back cover sensor detected the open state when 2-sided printing is started (before the registration of printing in the engine).

Error code 8904

The back cover sensor detected the open state during 2-sided printing (after the registration of printing in the engine).

\<User Check\>

• Close the back cover correctly.

Step	Cause	Remedy
1	Connection failure of the back cover sensor harness	Reconnect the back cover sensor harness.
2	Back cover sensor attachment failure	Reattach the back cover sensor.
3	Breakage of boss that presses the back cover sensor	Replace the back cover.
4	Main PCB failure	Replace the main PCB.

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■ Error code 8A01

The registration rear sensor detected that the fed paper was larger or smaller than the specified size in 2-sided printing.

<User Check>

• Use specified paper.

Step	Cause	Remedy
1	Registration rear actuator caught in some sections of the machine	Reattach the registration rear actuator.
2	Registration rear sensor failure	Replace the paper feed unit.
3	Main PCB failure	Replace the main PCB.

■ Error code 8C00

There is no paper in the manual feed slot when printing from the manual feed slot.

<User Check>

• Load paper to the manual feed slot.

Step	Cause	Remedy
1	Manual feed actuator caught in some sections of the machine	Reattach the manual feed actuator.
2	Connection failure of the manual feed paper empty/regist rear/ regist front sensor harness	Reconnect the manual feed paper empty/ regist rear/regist front sensor harness.
3	Manual feed paper empty sensor failure	Replace the paper feed unit.
4	Main PCB failure	Replace the main PCB.

■ Error code 8D01

The registration rear sensor detected that the paper loaded in the T1 was smaller than the specified size.

<User Check>

• Open the back cover and print using the straight paper path.

• Length of the paper is 114 mm or more.

Step	Cause	Remedy
1	Registration rear actuator caught in some sections of the machine	Reattach the registration rear actuator.
2	Registration rear sensor failure	Replace the paper feed unit.
3	Main PCB failure	Replace the main PCB.

■ Error code 8D02

The paper size indicated for printing data while the back cover is closed was under the specified value.

<User Check>

• Length of the paper is 114 mm or more.

Step	Cause	Remedy
1	Registration rear actuator caught in some sections of the machine	Reattach the registration rear actuator.
2	Registration rear sensor failure	Replace the paper feed unit.
3	Main PCB failure	Replace the main PCB.

■ Error code 9002

The size of paper loaded in the T1 and the one specified from the driver are not same when printing from the T1.

<User Check>

• Change the driver setting to be matched with the size of the paper set in the T1.

Step	Cause	Remedy
1	Registration rear actuator caught in some sections of the machine	Reattach the registration rear actuator.
2	Registration rear sensor failure	Replace the paper feed unit.
3	Main PCB failure	Replace the main PCB.

■ Error code 9202

When printing from the T1, paper type setting in the machine does not match the setting in the driver.

<User Check>

• Use the same paper type setting for the machine and driver.

Step	Cause	Remedy
1	Malfunction of the main PCB	Install the latest main firmware.
2	Main PCB failure	Replace the main PCB.

■ **Error code 9302**

When printing from the T1, the T1 paper feed sensor detected that no paper was in the T1.

<User Check>

• Set paper in the T1.

Step	Cause	Remedy
1	Connection failure of the T1 paper empty/paper feed sensor harness	Reconnect the T1 paper empty/paper feed sensor harness.
2	Connection failure of the T1 pick-up clutch harness	Reconnect the T1 pick-up clutch harness.
3	T1 pick-up clutch failure	Replace the T1 pick-up clutch.
4	Abrasion of the PF kit 1	Replace the PF kit 1.
5	T1 paper feed sensor failure	Replace the paper feed unit.
6	Damaged gears in the paper feed drive unit	Replace the paper feed drive unit.
7	Paper feed motor failure	Replace the process drive unit.
8	Main PCB failure	Replace the main PCB.

■ **Error code 9701**

For 2-sided printing, paper size setting of the printer driver that was not supported by 2-sided printing was selected.

Error code 9702

When printing from the T1, the size of paper specified from the driver set the size which was not supported by the T1.

<User Check>

• Select the specified paper size in the driver and set paper with the same size to the specified T1.

Step	Cause	Remedy
1	Main PCB failure	Replace the main PCB.

■ Error code 9801

An error occurred with the value measured during color density adjustment performed from the control panel.

<User Check>

- Check if the toner cartridges are set in the correct order of colors.
- Replace the toner cartridge.
- Replace the drum unit.
- If the belt unit has a scratch, replace it.
- If "WT Box End Soon" is displayed on the LCD and the belt unit has dirt, replace the waste toner box.

Step	Cause	Remedy
1	Dirt on the registration mark sensor L	Clean the registration mark sensor L.
2	Failure in printed measurement	If failure occurs when printing "K/W/Y/M/C" in "Function code 71", refer to "4.3 Troubleshooting for Image Defects" in this chapter and take a measure.
3	Connection failure of the registration mark sensor L harness	Reconnect the registration mark sensor L harness.
4	Density sensor failure	Replace the registration mark sensor L PCB.
5	Main PCB failure	Replace the main PCB.

■ Error code 9802

Dot counter or develop roller counter of color toner has reached the upper limit during color density adjustment performed from the control panel.

<User Check>

- Replace the corresponding toner cartridge.

Step	Cause	Remedy
1	Main PCB failure	Replace the main PCB.

■ **Error code 9803**

Density patch measurement ended unsuccessfully during color density adjustment performed from the control panel.

Error code 9804

An error occurred with the value measured during density sensor sensitivity calibration.

<User Check>

• Check if the toner cartridges are set in the correct order of colors.

• Replace the toner cartridge.

• Replace the drum unit.

• If the belt unit has a scratch, replace it.

• If "WT Box End Soon" is displayed on the LCD and the belt unit has dirt, replace the waste toner box.

Step	Cause	Remedy
1	Dirt on the registration mark sensor L	Clean the registration mark sensor L.
2	Failure in printed measurement	If failure occurs when printing "K/W/Y/M/C" in "Function code 71", refer to "4.3 Troubleshooting for Image Defects" in this chapter and take a measure.
3	Connection failure of the registration mark sensor L harness	Reconnect the registration mark sensor L harness.
4	Density sensor failure	Replace the registration mark sensor L PCB.
5	Main PCB failure	Replace the main PCB.

■ Error code 9901

An error occurred with the value measured during manual color registration performed from the control panel.

<User Check>

- Check if the toner cartridges are set in the correct order of colors.

- Replace the toner cartridge.

- Replace the drum unit.

- If the belt unit has a scratch, replace it.

- If "WT Box End Soon" is displayed on the LCD and the belt unit has dirt, replace the waste toner box.

Step	Cause	Remedy
1	Dirt on the registration mark sensor L / registration mark sensor R	Clean the registration mark sensor L / registration mark sensor R.
2	Connection failure of the registration mark sensor L / registration mark sensor R harness	Reconnect the registration mark sensor L / registration mark sensor R harness.
3	Failure in printed measurement	If failure occurs when printing "K/W/Y/M/C" in "Function code 71", refer to "4.3 Troubleshooting for Image Defects" in this chapter and take a measure.
4	Registration mark sensor L or registration mark sensor R failure	Replace the registration mark sensor ASSY.
5	Main PCB failure	Replace the main PCB.

■ Error code 9902

Dot counter or develop roller counter of color toner has reached the upper limit during auto color registration performed from the control panel.

<User Check>

- Replace the corresponding toner cartridge.

Step	Cause	Remedy
1	Main PCB failure	Replace the main PCB.

■ Error code 9903

An error occurred during patch data printing in manual color registration performed from the control panel.

<User Check>

- Check if the toner cartridges are set in the correct order of colors.
- Replace the toner cartridge.
- Replace the drum unit.
- If the belt unit has a scratch, replace it.
- If "WT Box End Soon" is displayed on the LCD and the belt unit has dirt, replace the waste toner box.

Step	Cause	Remedy
1	Dirt on the registration mark sensor L / registration mark sensor R	Clean the registration mark sensor L / registration mark sensor R.
2	Connection failure of the registration mark sensor L / registration mark sensor R harness	Reconnect the registration mark sensor L / registration mark sensor R harness.
3	Failure in printed measurement	If failure occurs when printing "K/W/Y/M/C" in "Function code 71", refer to "4.3 Troubleshooting for Image Defects" in this chapter and take a measure.
4	Registration mark sensor L or registration mark sensor R failure	Replace the registration mark sensor ASSY.
5	Main PCB failure	Replace the main PCB.

■ Error code 9A01

An error occurred with the value measured during auto color registration performed from the control panel.

<User Check>

- Check if the toner cartridges are set in the correct order of colors.

- Replace the toner cartridge.

- Replace the drum unit.

- If the belt unit has a scratch, replace it.

- If "WT Box End Soon" is displayed on the LCD and the belt unit has dirt, replace the waste toner box.

Step	Cause	Remedy
1	Dirt on the registration mark sensor L / registration mark sensor R	Clean the registration mark sensor L / registration mark sensor R.
2	Connection failure of the registration mark sensor L / registration mark sensor R harness	Reconnect the registration mark sensor L / registration mark sensor R harness.
3	Failure in printed measurement	If failure occurs when printing "K/W/Y/M/C" in "Function code 71", refer to "4.3 Troubleshooting for Image Defects" in this chapter and take a measure.
4	Registration mark sensor L or registration mark sensor R failure	Replace the registration mark sensor ASSY.
5	Main PCB failure	Replace the main PCB.

■ Error code 9A02

Dot counter or develop roller counter of color toner has reached the upper limit during auto color registration performed from the control panel.

<User Check>

- Replace the corresponding toner cartridge.

Step	Cause	Remedy
1	Main PCB failure	Replace the main PCB.

■ Error code 9A03

An error occurred during patch data printing in auto color registration performed from the control panel.

\<User Check\>

- Check if the toner cartridges are set in the correct order of colors.

- Replace the toner cartridge.

- Replace the drum unit.

- If the belt unit has a scratch, replace it.

- If "WT Box End Soon" is displayed on the LCD and the belt unit has dirt, replace the waste toner box.

Step	Cause	Remedy
1	Dirt on the registration mark sensor L / registration mark sensor R	Clean the registration mark sensor L / registration mark sensor R.
2	Connection failure of the registration mark sensor L / registration mark sensor R harness	Reconnect the registration mark sensor L / registration mark sensor R harness.
3	Failure in printed measurement	If failure occurs when printing "K/W/Y/M/C" in "Function code 71", refer to "4.3 Troubleshooting for Image Defects" in this chapter and take a measure.
4	Registration mark sensor L or registration mark sensor R failure	Replace the registration mark sensor ASSY.
5	Main PCB failure	Replace the main PCB.

■ **Error code C001**

Timeout occurred with access request sent to server due to incorrect server address, network disconnection, or inactive server.

Error code C002

User authentication is unavailable due to incorrect user name, incorrect password, or asynchronous date and time between the machine and server.

Error code C003

Access to a file is unavailable due to incorrect directory name, no write permission on directory, file write lock, or no write permission on file.

Error code C004

Cannot acquire current time which is required for user authentication because the time has not been acquired.

<User Check>

• Refer to the online User's Guide to set the network again.

• Check the LAN cable routing.

• Check the wireless LAN settings.

Step	Cause	Remedy
1	Connection failure of the wireless LAN PCB connector	Reconnect the wireless LAN PCB connector.
2	Wireless LAN PCB failure	Replace the wireless LAN PCB.
3	Main PCB failure	Replace the main PCB.

■ **Error code C700**

The memory is insufficient to expand the data of PC-Print.

Error code C800

The memory used to store secure print data exceeded the memory size for secure print data.

Error code C900

Storage memory was full and data could not be saved.

<User Check>

• Print the print data stored in the memory.

• Divide the print data and print them separately.

• Organize data inside the storage memory.

Step	Cause	Remedy
1	Main PCB failure	Replace the main PCB.

■ **Error code D800**

An error occurred while initializing the touch panel.

Step	Cause	Remedy
1	Connection failure of the panel flat cable	Reconnect the panel flat cable.
2	Touch panel ASSY failure	Replace the touch panel ASSY.
3	Panel PCB failure	Replace the panel PCB.
4	Main PCB failure	Replace the main PCB.

■ **Error code DB00**

A communication error occurred between the main ASIC and the recording ASIC.

Error code E000

An error occurred in the ROM check sum.

Error code E100

Program error

<User Check>

• Install the latest main firmware.

Step	Cause	Remedy
1	Main PCB failure	Replace the main PCB.

■ **Error code E500**

An error occurred during access to the DRAM in the main PCB.

Error code E600

Write error in the EEPROM of the main PCB

Error code E701

System error in the flash ROM

Error code E702

Read error in the flash ROM

Step	Cause	Remedy
1	Main PCB failure	Replace the main PCB.

■ **Error code E900**

An error occurred while initializing the NFC.

Step	Cause	Remedy
1	Connection failure of the NFC flat cable	Reconnect the NFC flat cable.
2	NFC PCB failure	Replace the NFC PCB.
3	Main PCB failure	Replace the main PCB.

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■ Error code F900

The spec code was not entered correctly.

Step	Cause	Remedy
1	The power was turned OFF while function code 74 was running.	Reenter the spec code. (Refer to "1.3.22 Configure for country/region and model (Function code 74)" in Chapter 5.)
2	Main PCB failure	Replace the main PCB.

4.2 Troubleshooting for Paper Feeding Problems

Problems related to paper feeding are end user recoverable if following the User Check items. If the same problem occurs again, follow each procedure in the order of the number described in the Step column in the tables below.

4.2.1 No paper feeding from T1

<User Check>

- Check that the paper is set in the T1 correctly.
- Check that there is not too much paper set in the T1.
- Flip over the paper in the T1 or rotate the paper 180°.
- Check that the thickness of the paper is 60 to 163 g/m^2.
- Check if the paper feeding from the T1 is set.
- Flip through the paper and reset it in the T1.
- Clean the T1 pick-up roller.

Step	Cause	Remedy
1	Dirt on the paper dust cleaning roller of the T1	Refer to the figure below to clean the paper dust cleaning roller and inside of the paper dust cleaning roller cover.
2	T1 roller holder ASSY attachment failure	Reattach the T1 roller holder ASSY correctly.
3	Connection failure of the T1 paper empty/paper feed sensor harness	Reconnect the T1 paper empty/paper feed sensor harness.
4	Abrasion of the T1 pick-up roller	Replace the PF kit 1.
5	Damaged gears in the paper feed drive unit	Replace the paper feed drive unit.
6	Paper feed motor failure	Replace the process drive unit.
7	Paper feed unit failure	Replace the paper feed unit.
8	Damaged fuser unit	Replace the fuser unit.
9	Main PCB failure	Replace the main PCB.

Paper dust cleaning roller

Hook

Paper dust cleaning roller cover

Hook
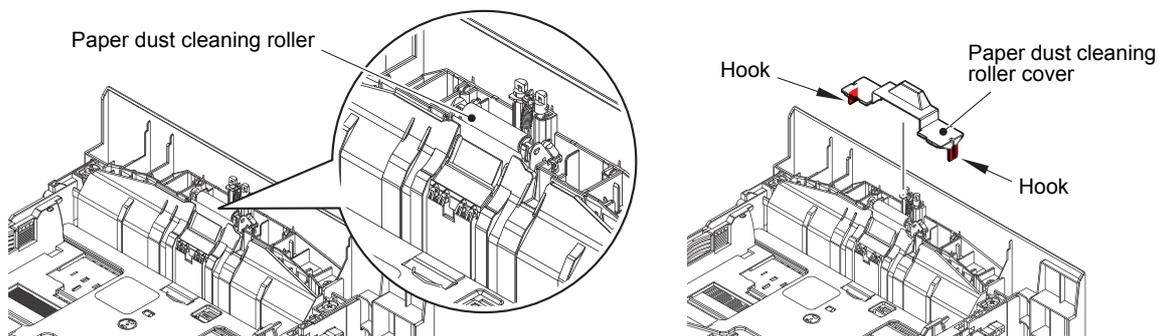
Fig. 2-8

4.2.2 No paper feeding from manual feed slot

<User Check>

- Check that the paper is set into the deepest part of the manual feed slot.

- Check that multiple sheets of paper are not set in the manual feed slot.

- Check that the thickness of the paper is 60 to 163 g/m^2.

- Check that the T1 is not set as the pick-up tray.

- Check that the T1 is closed correctly.

Step	Cause	Remedy
1	Manual feed paper actuator coming off	Reattach the manual feed paper actuator.
2	Connection failure of the manual feed paper empty/regist rear/regist front sensor harness	Reconnect the manual feed paper empty/regist rear/regist front sensor harness.
3	Manual feed paper empty/regist rear/regist front sensor PCB failure	Replace the paper feed unit.
4	Paper feed drive unit failure	Replace the paper feed drive unit.
5	Damaged fuser unit	Replace the fuser unit.
6	Main PCB failure	Replace the main PCB.

4.2.3 Multiple sheets of paper are fed

<User Check>

- Check that there is not too much paper set in the T1.

- Check that the paper is set in the T1 correctly.

- Flip over the paper in the T1 or rotate the paper 180°.

- Check that the thickness of the paper is 60 to 163 g/m^2.

- Flip through the paper and reset it in the T1.

Step	Cause	Remedy
1	Abrasion of the separation pad ASSY	Replace the PF kit 1.

4.2.4 Paper becomes wrinkled

<User Check>

- Check that the paper is set in the T1 correctly.
- Flip over the paper in the T1 or rotate the paper 180°.
- Adjust each paper guide according to each paper size.
- Check that the thickness of the paper is 60 to 163 g/m^2.
- Check that the paper is not damp.
- Check that there is no dust stuck to the heat roller or pressure roller of the fuser unit.
- Check that the type of paper is appropriate.
- Check that the right and left envelope levers of the fuser unit are not set in the different positions.

Step	Cause	Remedy
1	Paper eject ASSY failure	Replace the paper eject ASSY.
2	Fuser unit failure	Replace the fuser unit.

4.2.5 Paper is fed at an angle

<User Check>

- Check that the paper is set in the T1 correctly.
- Flip over the paper in the T1 or rotate the paper 180°.
- Adjust each paper guide according to each paper size.
- Check that the thickness of the paper is 60 to 163 g/m^2.
- Check that there is not too much paper set in the T1.
- Check that the type of paper is appropriate.
- Clean each paper pick up roller.
- Check that the green envelope lever of the fuser cover is not lowered on only one side.

Step	Cause	Remedy
1	One-side abrasion of the paper pick up rollers	Replace the appropriate PF kit 1.
2	Paper feed unit failure	Replace the paper feed unit.

4.2.6 Paper curls

<User Check>

- Change the driver setting to be matched with the size of the paper set in the T1.
- Select "Reduce Paper Curl" in the driver.
- Check that the paper is set in the T1 correctly.
- Open the back cover and try printing with straight paper ejection mode.

Step	Cause	Remedy
1	Fuser unit failure	Replace the fuser unit.
2	Main PCB failure	Replace the main PCB.

4.2.7 Unable to perform 2-sided printing

<User Check>

- Close the back cover completely.
- Close the T1 completely.
- Set the driver setting to 2-sided printing.
- Use A4 or Letter paper specified by the manufacturer.

Step	Cause	Remedy
1	Eject actuator coming off	Reattach the eject actuator.
2	Back cover failure	Replace the back cover.
3	Duplex clutch failure	Replace the paper feed unit.
4	Duplex unit failure	Replace the duplex unit.
5	Eject sensor failure	Replace the eject sensor PCB.
6	Paper eject ASSY failure	Replace the paper eject ASSY.
7	Main PCB failure	Replace the main PCB.

4.2.8 Paper jam

■ Paper jam at the T1

<User Check>

- Check that the paper is set in the T1 correctly.
- Flip over the paper in the T1 or rotate the paper 180°.
- Adjust each paper guide according to the paper size.
- Check that there is not too much paper set.
- Check that the thickness of the paper is 60 to 163 g/m^2 for T1.
- Flip through the paper and reset it in the T1.

Step	Cause	Remedy
1	Foreign object around the T1	Remove the foreign object.
2	Paper dust cleaning roller attachment failure	Reattach the paper dust cleaning roller.
3	Paper feed actuator coming off	Reattach the paper feed actuator.
4	Registration front actuator coming off	Reattach the registration front actuator.
5	Connection failure of the manual feed paper empty/regist rear/regist front sensor harness	Reconnect the manual feed paper empty/regist rear/regist front sensor harness.
6	Connection failure of the registration clutch harness	Reconnect the registration clutch harness.
7	Connection failure of the T1 paper empty/paper feed sensor harness	Reconnect the T1 paper empty/paper feed sensor harness.
8	Damaged gears in the paper feed drive unit	Replace the paper feed drive unit.
9	Paper feed motor failure	Replace the process drive unit.
10	Paper feed unit failure	Replace the paper feed unit.
11	Damaged fuser unit	Replace the fuser unit.
12	Main PCB failure	Replace the main PCB.

■ Paper jam at the manual feed slot

<User Check>

- Check that the paper is set in the manual feed slot correctly.
- Flip over the paper in the manual feed slot or rotate the paper 180°.
- Adjust the paper guide according to the paper size.
- Check that multiple sheets of paper are not set.
- Check that the thickness of the paper is 60 to 163 g/m^2.

Step	Cause	Remedy
1	Foreign object around the manual feed slot	Remove the foreign object.
2	Registration front actuator coming off	Reattach the registration front actuator.
3	Connection failure of the registration clutch harness	Reconnect the registration clutch harness.
4	Damaged gears in the paper feed drive unit	Replace the paper feed drive unit.
5	Paper feed motor failure	Replace the process drive unit.
6	Damaged fuser unit	Replace the fuser unit.
7	Main PCB failure	Replace the main PCB.

■ Paper jam at the paper feeding section at the center of the machine

<User Check>

- Check that the paper is set in the T1 correctly.
- Flip over the paper in the T1 or rotate the paper 180°.
- Adjust each paper guide according to the paper size.
- Check that there is not too much paper set in the T1.
- Check that the thickness of the paper is 60 to 163 g/m^2.
- Flip through the paper and reset it in the T1.
- Check that the belt unit is installed correctly.
- Replace the drum unit.
- Replace the belt unit.

Step	Cause	Remedy
1	Foreign object inside the machine	Remove the foreign object.
2	Eject actuator coming off	Reattach the eject actuator.
3	Connection failure of the eject sensor harness	Reconnect the eject sensor harness.
4	Fuser cover attachment failure	Reattach the fuser cover.
5	Damaged fuser drive gear	Replace the fuser drive gear.
6	Eject sensor failure	Replace the eject sensor PCB.
7	Registration rear sensor failure	Replace the paper feed unit.
8	Paper feed motor or process motor failure	Replace the process drive unit.
9	Damaged fuser unit	Replace the fuser unit.
10	Main PCB failure	Replace the main PCB.

■ Paper jam at the eject section

<User Check>

- Check that the paper is set in the T1 correctly.
- Flip over the paper in the T1 or rotate the paper 180°.
- Adjust each paper guide according to the paper size.
- Check that there is not too much paper set in the T1.
- Check that the thickness of the paper is 60 to 163 g/m^2.
- Flip through the paper and reset it in the T1.

Step	Cause	Remedy
1	Foreign object in the rear of the machine	Remove the foreign object.
2	Eject actuator coming off	Reattach the eject actuator.
3	Connection failure of the eject sensor harness	Reconnect the eject sensor harness.
4	Fuser cover attachment failure	Reattach the fuser cover.
5	Eject sensor failure	Replace the eject sensor PCB.
6	Paper feed motor or process motor failure	Replace the process drive unit.
7	Paper eject unit failure	Replace the paper eject unit.
8	Damaged fuser unit	Replace the fuser unit.
9	Main PCB failure	Replace the main PCB.

■ Paper jam at the duplex tray

<User Check>

- Flip over the paper in the T1 or rotate the paper 180°.
- Check that the thickness of the paper is 60 to 163 g/m^2 for the duplex tray.
- Flip through the paper and reset it in the T1.
- Use A4 or Letter paper specified by the manufacturer.

Step	Cause	Remedy
1	Foreign object in the duplex paper feeding system	Remove the foreign object.
2	Fuser cover attachment failure	Reattach the fuser cover.
3	Back cover failure	Replace the back cover.
4	T1 duplex paper feeding system failure	Replace the T1.
5	Duplex clutch failure	Replace the paper feed unit.
6	Duplex unit failure	Replace the duplex unit.
7	Main PCB failure	Replace the main PCB.

4.3 Troubleshooting for Image Defects

4.3.1 Image defect examples

Light on the whole page (2-92)

One color is light (2-93)

Faulty registration (2-95)

Dark (2-95)

Poor fixing (2-96)

Completely blank (2-96)

Image distortion (2-97)

All one color (2-97)

Dirt on back side of paper (2-98)

Vertical streaks (2-99)

Vertical streaks in a dark background (2-100)

Horizontal stripes (2-100)

Light vertical streaks and bands on one color image (2-101)

White horizontal stripes on one color image (2-101)

Faint print (2-102)

White spots on one color image (2-103)

One color spots or dirt (2-104)

One color band (2-105)

Downward fogging of solid color (2-107)

Horizontal lines (2-107)

Ghost (2-108)

Inter-color position alignment (2-108)

Fogging (2-108)

Unstable color density (2-109)

Hollow print (2-109)

Print crease (2-110)
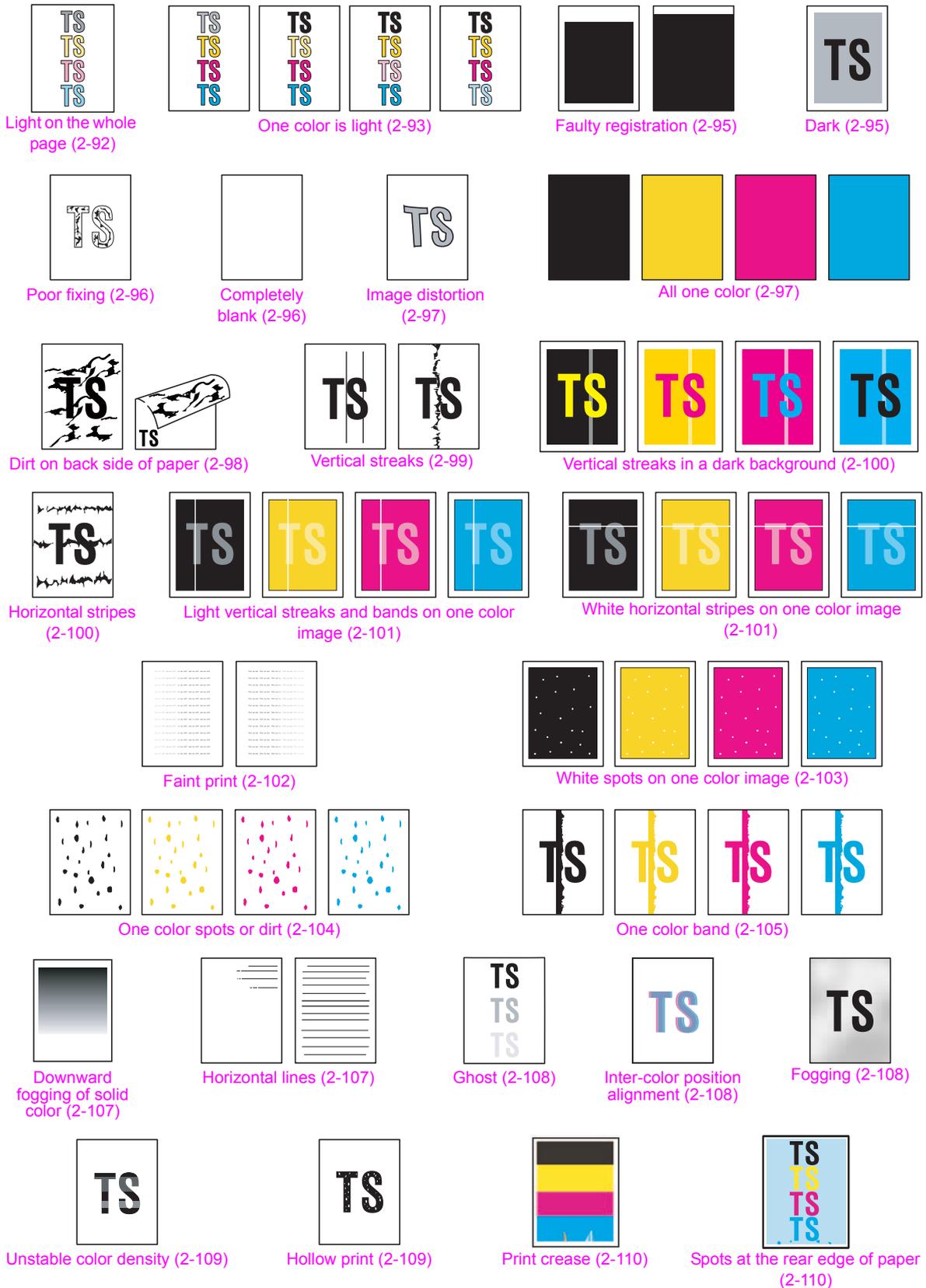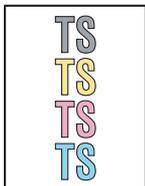
Spots at the rear edge of paper (2-110)

Fig. 2-9

4.3.2 Troubleshooting image defect

Image defect related problems are end user recoverable if following the User Check items. If the same problem occurs again, follow each procedure in the order of the number described in the Step column in the tables below.
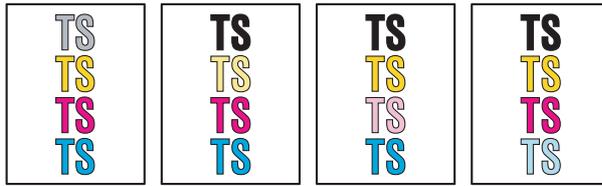
■ Light on the whole page

<User Check>
- Check the usage environment of the machine. Using the machine in hot-humid or cold-dry conditions can cause this problem.
- If the whole page is light, toner save mode may be ON. Turn OFF the toner save mode.
- Adjust the color calibration from the control panel.
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.
- Replace the belt unit with a new one.
- Turn ON the power switch, and leave the machine for a while (condensation).
- Check if paper is not damp.
- Use specified paper.

Step	Cause	Remedy
1	Dirt on the electrodes of the drum unit and those of the machine	Clean the electrodes of the drum unit and those of the machine. (Refer to Fig. 2-6 (P2-63) and Fig. 2-7 (P2-63).)
2	Dirt on the electrodes of the high-voltage power supply PCB and those of the machine	Clean the electrodes of the high-voltage power supply PCB and those of the machine.
3	Dirt on the density sensor	Clean the registration mark sensor L.
4	Density sensor failure	Replace the registration mark sensor L PCB.
5	Fuser unit failure	Replace the fuser unit.
6	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.
7	Main PCB failure	Replace the main PCB.

■ One color is light

<User Check>

- Check the usage environment of the machine. Using the machine in hot-humid or cold-dry conditions can cause this problem.

- Adjust the color calibration from the control panel.

- Replace the drum unit with a new one.

- Replace the toner cartridge with a new one.

- Wipe the LED ASSY with a soft, lint-free cloth. (Refer to the figure below.)

- Use specified paper.

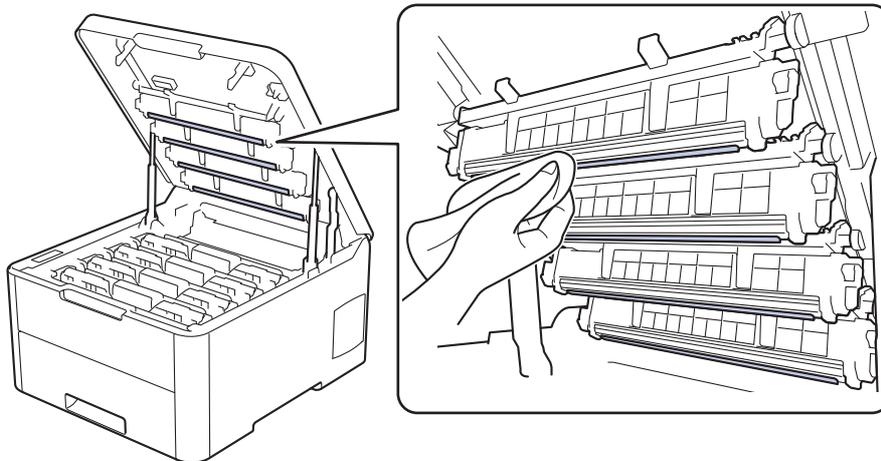| Step	Cause	Remedy
1	Dirt on the electrodes of the drum unit and those of the machine	Clean the electrodes of the drum unit and those of the machine. (Refer to Fig. 2-6 (P2-63) and Fig. 2-7 (P2-63).)
2	Dirt on the electrodes of the belt unit and those of the machine	Clean the electrodes of the belt unit and those of the machine. (Refer to Fig. 2-6 (P2-63) and Fig. 2-11 (P2-94).)
3	Dirt on the electrodes of the high-voltage power supply PCB	Clean the electrodes of the high-voltage power supply PCB.
4	Density sensor failure	Replace the registration mark sensor L PCB.
5	Fuser unit failure	Replace the fuser unit.
6	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.
7	LED ASSY failure	Replace the appropriate LED ASSY.
8	Main PCB failure	Replace the main PCB.

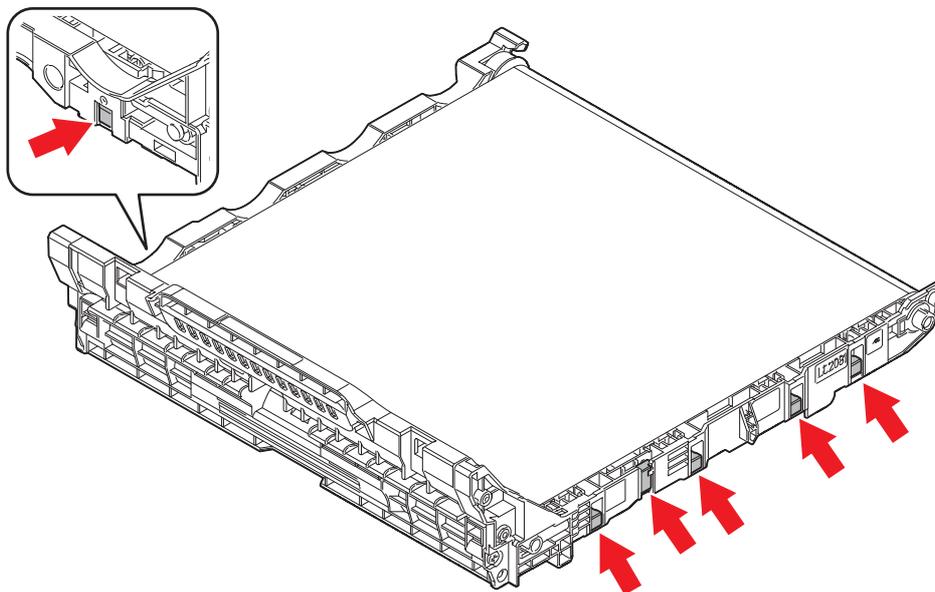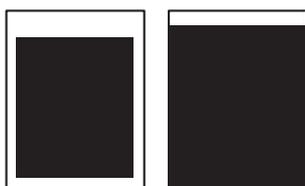**Fig. 2-10**

■ Electrodes location of belt unit

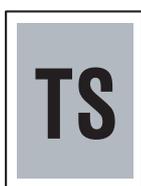**Fig. 2-11**

■ Faulty registration

<User Check>
- Check whether appropriate paper type is selected on the driver.
- Install the latest main firmware.

Step	Cause	Remedy
1	Registration rear actuator coming off	Reattach the registration rear actuator.
2	Main PCB failure	Replace the main PCB.

■ Dark

<User Check>
- Check the usage environment of the machine. Using the machine in hot-humid or cold-dry conditions can cause this problem.
- If a new toner cartridge has been detected, check that it was not replaced with another toner cartridge.
- Execute density adjustment from the control panel.
- Clean the corona wire of the drum unit.
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.
- Replace the belt unit with a new one.

| Step	Cause	Remedy
1	Dirt on the electrodes of the drum unit and those of the machine	Clean the electrodes of the drum unit and those of the machine. (Refer to Fig. 2-6 (P2-63) and Fig. 2-7 (P2-63).)
2	Dirt on the electrodes of the belt unit and those of the machine	Clean the electrodes of the belt unit and those of the machine. (Refer to Fig. 2-6 (P2-63) and Fig. 2-11 (P2-94).)
3	Dirt on the electrodes of the high-voltage power supply PCB	Clean the electrodes of the high-voltage power supply PCB.
4	Density sensor failure	Replace the registration mark sensor L PCB.
5	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.
6	Main PCB failure	Replace the main PCB.

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■ **Poor fixing**
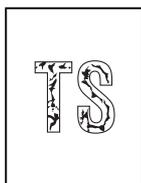
<User Check>
- Check the usage environment of the machine. Using the machine in hot-humid or cold-dry conditions can cause this problem.
- Clean the corona wire of the drum unit.
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.
- Replace the belt unit with a new one.

Step	Cause	Remedy
1	Dirt on the electrodes of the drum unit and those of the machine	Clean the electrodes of the drum unit and those of the machine. (Refer to Fig. 2-6 (P2-63) and Fig. 2-7 (P2-63).)
2	Dirt on the electrodes of the belt unit and those of the machine	Clean the electrodes of the belt unit and those of the machine. (Refer to Fig. 2-6 (P2-63) and Fig. 2-11 (P2-94).)
3	Fuser unit failure	Replace the fuser unit.
4	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.
5	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB.
6	Main PCB failure	Replace the main PCB.

■ **Completely blank**
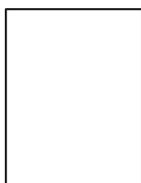
<User Check>
- Clean the corona wire of the drum unit.
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.
- Install the latest main firmware.

Step	Cause	Remedy
1	Dirt on the electrodes of the drum unit and those of the machine	Clean the electrodes of the drum unit and those of the machine. (Refer to Fig. 2-6 (P2-63) and Fig. 2-7 (P2-63).)
2	Dirt on the electrodes of the belt unit and those of the machine	Clean the electrodes of the belt unit and those of the machine. (Refer to Fig. 2-6 (P2-63) and Fig. 2-11 (P2-94).)
3	Connection failure of the LED control flat cable	Reconnect the LED control flat cable.
4	LED control flat cable failure	Replace the LED control flat cable.
5	Dirt on the electrodes of the high-voltage power supply PCB and those of the machine	Clean the electrodes of the high-voltage power supply PCB and those of the machine.
6	Main PCB failure	Replace the main PCB.

■ Image distortion
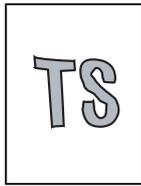
<User Check>

• Replace the belt unit with a new one.

Step	Cause	Remedy
1	Main PCB failure	Replace the main PCB.

■ All one color

<User Check>

• Clean the corona wire of the drum unit.

• Replace the drum unit with a new one.

Step	Cause	Remedy
1	Dirt on the electrodes of the drum unit and those of the machine	Clean the electrodes of the drum unit and those of the machine. (Refer to Fig. 2-6 (P2-63) and Fig. 2-7 (P2-63).)
2	Dirt on the electrodes of the belt unit and those of the machine	Clean the electrodes of the belt unit and those of the machine. (Refer to Fig. 2-6 (P2-63) and Fig. 2-11 (P2-94).)
3	LED control flat cable failure	Replace the LED control flat cable.
4	Dirt on the electrodes of the high-voltage power supply PCB and those of the machine	Clean the electrodes of the high-voltage power supply PCB and those of the machine.
5	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.
6	LED ASSY failure	Replace the appropriate LED ASSY.
7	Main PCB failure	Replace the main PCB.

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■ **Dirt on back side of paper**

<User Check>

- This problem may disappear after printing multiple sheets of paper.
- Replace the drum unit with a new one.
- Replace the belt unit.
- Replace the waste toner box.

Step	Cause	Remedy
1	Dirt in the paper feed system	Wipe dirt off.
2	Dirt on the electrodes of the belt unit and those of the machine	Clean the electrodes of the belt unit and those of the machine. (Refer to Fig. 2-6 (P2-63) and Fig. 2-11 (P2-94).)
3	Dirt on the electrodes of the waste toner box and those of the machine	Clean the electrodes of the waste toner box and those of the machine. (Refer to Fig. 2-6 (P2-63) and below.)
4	Dirt on the fuser unit	Replace the fuser unit.
5	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.

■ **Electrodes location of waste toner box**
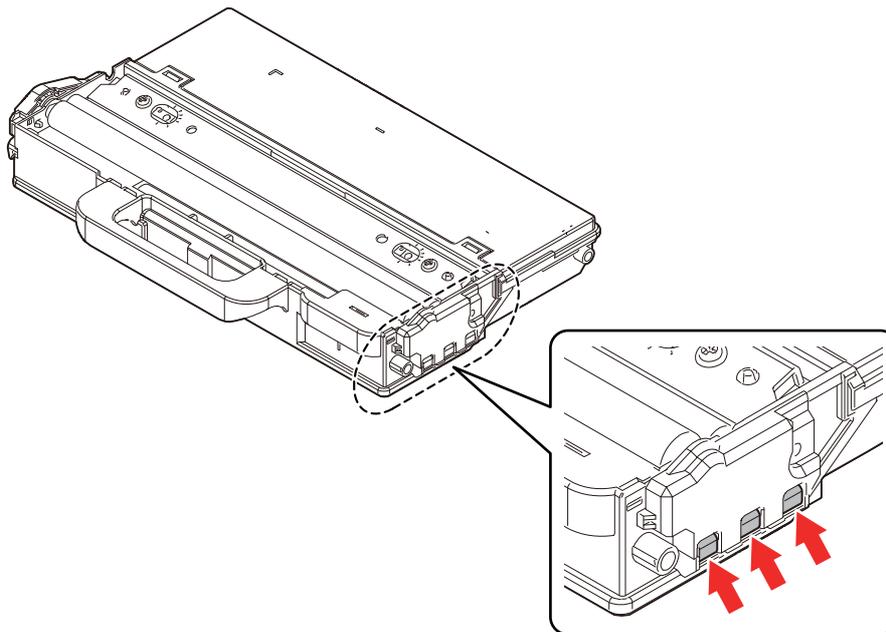
Fig. 2-12

■ Vertical streaks
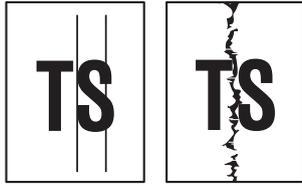
<User Check>
- Clean the corona wire of the drum unit.
- Return the corona wire cleaning tab to the "▲" position.
- This problem may disappear after printing multiple sheets of paper.
- Refer to <How to clean the drum unit> to remove the dirt from the exposure drum using a cotton applicator.
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.
- Wipe the LED ASSY with a soft, lint-free cloth. (Refer to Fig. 2-10 (P2-93).)

Step	Cause	Remedy
1	Dirt in the paper feed system	Wipe dirt off.
2	A ground wire or ground plate installation failure (Grounding is not performed correctly.)	Retighten the screws of each ground wire or ground plate. Repair the bend of the tray ground spring of the T1. (Refer to the figure below.)
3	Dirt on the fuser unit	Replace the fuser unit.
4	LED ASSY failure	Replace the appropriate LED ASSY.

Tray ground spring

<Bottom of paper tray>

Paper tray
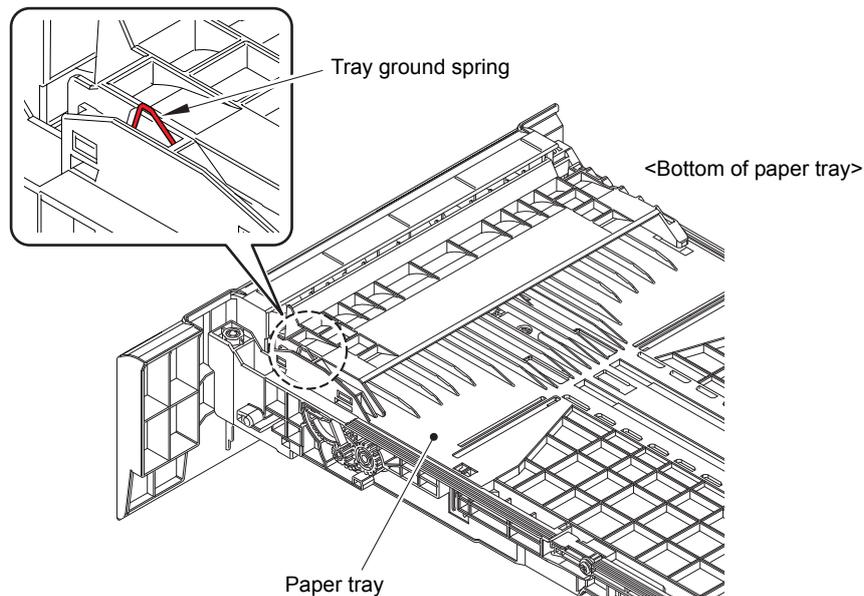
Fig. 2-13

■ Vertical streaks in a dark background
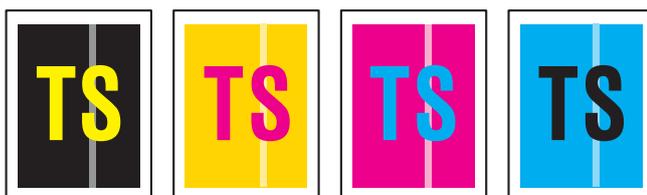
<User Check>

- Clean the corona wire of the drum unit.

- This problem may disappear after printing multiple sheets of paper.

- Refer to <How to clean the drum unit> to remove the dirt from the exposure drum using a cotton applicator.

- Turn ON the power switch, and leave the machine for a while (condensation).

- Wipe the LED ASSY with a soft, lint-free cloth. (Refer to Fig. 2-10 (P2-93).)

- Replace the drum unit with a new one.

- Replace the toner cartridge with a new one.

Step	Cause	Remedy
1	Dirty charge electrodes	Clean the electrodes of the drum unit and those of the machine. (Refer to Fig. 2-6 (P2-63) and Fig. 2-7 (P2-63).)
2	LED ASSY failure	Replace the appropriate LED ASSY.

■ Horizontal stripes

<User Check>

- Clean the corona wire of the drum unit.
- This problem may disappear after printing multiple sheets of paper.
- Refer to <How to clean the drum unit> to remove the dirt from the exposure drum using a cotton applicator.
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.

Step	Cause	Remedy
1	Dirty charge electrodes	Clean the electrodes of the drum unit and those of the machine. (Refer to Fig. 2-6 (P2-63) and Fig. 2-7 (P2-63).)
2	A ground wire or ground plate installation failure (Grounding is not performed correctly.)	Retighten the screws of each ground wire or ground plate. Repair the bend of the tray ground spring of the T1. (Refer to Fig. 2-13 (P2-99).)
3	Scratch or dirt on the fuser unit	Replace the fuser unit.
4	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.

■ **Light vertical streaks and bands on one color image**

<User Check>
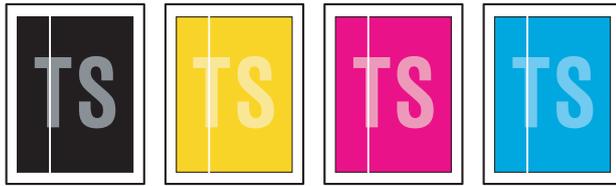
- Clean the corona wire of the drum unit.

- Check that there is no dust on the toner cartridge.

- Refer to <How to clean the drum unit> to remove the dirt from the exposure drum using a cotton applicator.

- Wipe the LED ASSY with a soft, lint-free cloth. (Refer to Fig. 2-10 (P2-93).)

- Replace the drum unit with a new one.

- Replace the toner cartridge with a new one.

Step	Cause	Remedy
1	Dirty charge electrodes	Clean the electrodes of the drum unit and those of the machine. (Refer to Fig. 2-6 (P2-63) and Fig. 2-7 (P2-63).)
2	LED ASSY failure	Replace the appropriate LED ASSY.

■ **White horizontal stripes on one color image**

<User Check>

- This problem may disappear after printing multiple sheets of paper.

- Replace the drum unit with a new one.

- Replace the toner cartridge with a new one.

Step	Cause	Remedy
1	Dirty charge electrodes	Clean the electrodes of the drum unit and those of the machine. (Refer to Fig. 2-6 (P2-63) and Fig. 2-7 (P2-63).)
2	Scratch or dirt on the fuser unit	Replace the fuser unit.
3	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.

■ Faint print

<User Check>
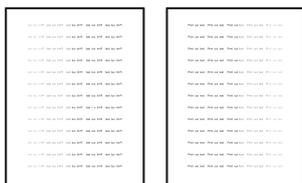
- Check that the machine is positioned on a level surface.
- Wipe the LED ASSY with a soft, lint-free cloth. (Refer to Fig. 2-10 (P2-93).)
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.

Step	Cause	Remedy
1	LED ASSY failure	Replace the appropriate LED ASSY.
2	Main PCB failure	Replace the main PCB.

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■ White spots on one color image

\<User Check\>
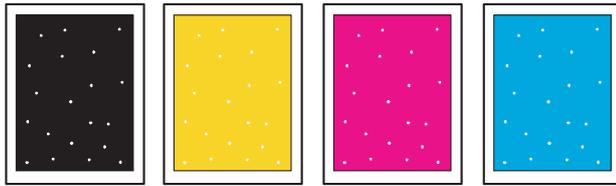
- Check that the fan is not clogged.
- Refer to \<How to clean the drum unit\> to remove the dirt from the exposure drum using a cotton applicator.
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.
- Replace the belt unit with a new one.

Step	Cause	Remedy
1	Dirt on the paper dust cleaning roller of the T1	Refer to the Fig. 2-8 (P2-83) to clean the paper dust cleaning roller.
2	Clogged filter	Clean the filter.
3	Scratch or dirt on the fuser unit	Replace the fuser unit.
4	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.

Note:

Image defects which appear periodically may be caused by failure of rollers. Refer to the table below and determine the cause based on the pitch at which defects appear on the image.

\<Pitches on images caused by rollers\>

Part name	The pitch which appears in the image
Develop roller of the toner cartridge	29 mm
Exposure drum of the drum unit	94.5 mm
Heat roller of the fuser unit	78.5 mm
Pressure roller of the fuser unit	78.5 mm

■ One color spots or dirt

\<User Check\>
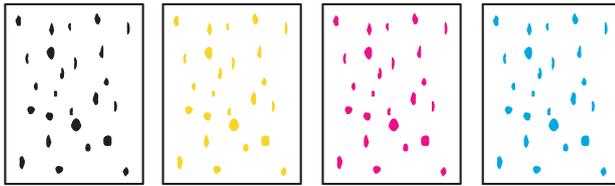
- Check if damp paper is used.
- Refer to \<How to clean the drum unit\> to remove the dirt from the exposure drum using a cotton applicator.
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.
- Replace the belt unit with a new one.

Step	Cause	Remedy
1	Dirt on the paper dust cleaning roller of the T1	Refer to the Fig. 2-8 (P2-83) to clean the paper dust cleaning roller.
2	Clogged filter	Clean the filter.
3	Scratch or dirt on the fuser unit	Replace the fuser unit.
4	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.

Note:

Image defects which appear periodically may be caused by failure of rollers. Refer to \<Pitches on images caused by rollers\> and determine the cause based on the pitch at which defects appear on the image.

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■ One color band

\<User Check\>

- Clean the corona wire of the drum unit.
- Clean the corona wire by sliding the green tab of the drum unit to the left end.
- This problem may disappear after printing multiple sheets of paper.
- Refer to \<How to clean the drum unit\> to remove the dirt from the exposure drum using a cotton applicator.
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.

Step	Cause	Remedy
1	A ground wire or ground plate installation failure (Grounding is not performed correctly.)	Retighten the screws of each ground wire or ground plate. Repair the bend of the tray ground spring of the T1. (Refer to Fig. 2-13 (P2-99).)
2	LED ASSY failure	Replace the appropriate LED ASSY.

\<How to clean the drum unit (the shape of the drum is different from the actual one)\>

(1) Remove the appropriate toner cartridge from the drum unit. Check where the image distortion occurs by placing the print sample in front of the drum unit.
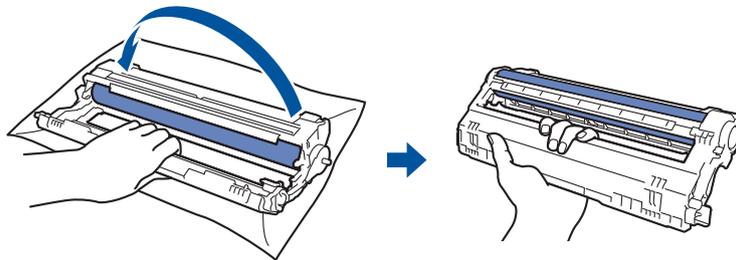
Fig. 2-14

< Examples of image distortion >

White dots repeat in A mm distance on the black page with printed images.

Black dots repeat in A mm distance on the page.
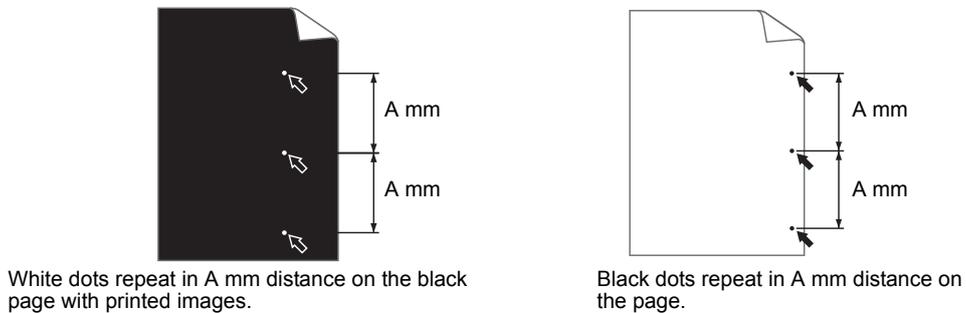
Fig. 2-15

Refer to the table \<Pitches on images caused by rollers\> for what represents the value A.

(2) Turn the drum unit gear by hand so that the glued exposure drum surface comes to the front.
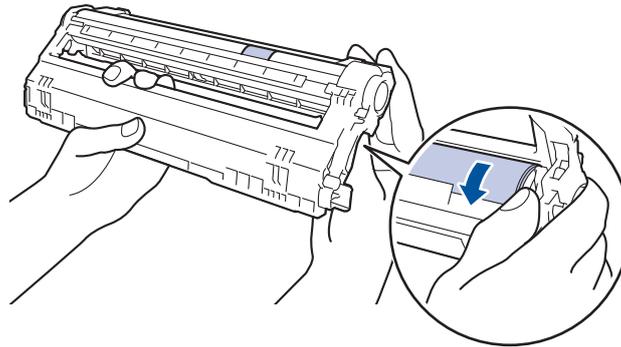
Fig. 2-16

(3) If the position of the dirt on the drum and the dots on the print sample matches, wipe the exposure drum surface with a cotton bud until the dirt and paper dust comes off.
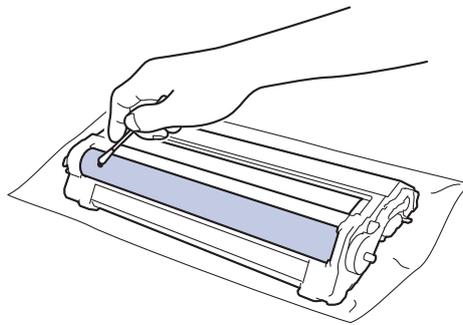
Fig. 2-17

Note:

Do not clean the exposure drum surface with anything sharp like a ball pointed pen.

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■ **Downward fogging of solid color**

<User Check>
- Replace the toner cartridge with a new one.

Step	Cause	Remedy
1	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.
2	Main PCB failure	Replace the main PCB.

■ **Horizontal lines**

<User Check>
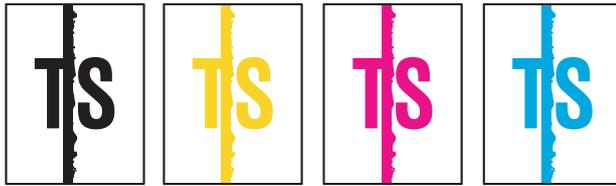- This problem may disappear after printing multiple sheets of paper.
- Refer to <How to clean the drum unit> to remove the dirt from the exposure drum using a cotton applicator.
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.

Step	Cause	Remedy
1	Dirty charge electrodes	Clean the electrodes of the drum unit and those of the machine. (Refer to Fig. 2-6 (P2-63) and Fig. 2-7 (P2-63).)
2	Scratch or dirt on the fuser unit	Replace the fuser unit.
3	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.

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■ Ghost

<User Check>
- Check the usage environment of the machine. Using the machine in hot-humid or cold-dry conditions can cause this problem.
- Check whether appropriate paper type is selected on the driver.
- Select "Improve Toner Fixing" in the driver.
- Make a print in the color mode.
- Replace the drum unit with a new one.

Step	Cause	Remedy
1	Scratch or dirt on the fuser unit	Replace the fuser unit.
2	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.

■ Inter-color position alignment

<User Check>
- Implement the adjustment of color registration (adjustment of inter-color position alignment).
- Replace the belt unit with a new one.
- Replace the drum unit with a new one.
- Replace the waste toner box with a new one.

Step	Cause	Remedy
1	Registration mark sensor L or registration mark sensor R failure	Replace the registration mark sensor ASSY.
2	Main PCB failure	Replace the main PCB.

■ Fogging

<User Check>
- Check the usage environment of the machine. Using the machine in hot-humid or cold-dry conditions can cause this problem.
- Check if the acid paper is not used.
- This problem may disappear after printing multiple sheets of paper.
- Replace the toner cartridge with a new one.
- Replace the drum unit with a new one.

Step	Cause	Remedy
1	Main PCB failure	Replace the main PCB.

Note:

This problem tends to occur when the life of the drum unit or toner cartridge is expiring.

■ Unstable color density

<User Check>
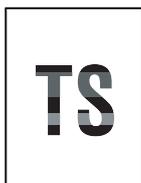
- Make a print on a different type of paper.
- Replace the belt unit with a new one.
- Replace the waste toner box with a new one.
- Replace the toner cartridge with a new one.
- Replace the drum unit with a new one.

Step	Cause	Remedy
1	Dirt on the electrodes of the drum unit and those of the machine	Clean the electrodes of the drum unit and those of the machine. (Refer to Fig. 2-6 (P2-63) and Fig. 2-7 (P2-63).)
2	Dirt on the electrodes of the belt unit and those of the machine	Clean the electrodes of the belt unit and those of the machine. (Refer to Fig. 2-6 (P2-63) and Fig. 2-11 (P2-94).)
3	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.
4	LED ASSY failure	Replace the appropriate LED ASSY.
5	Main PCB failure	Replace the main PCB.

■ Hollow print
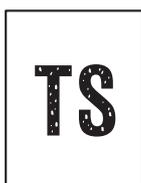
<User Check>

- Check the usage environment of the machine. Using the machine in hot-humid or cold-dry conditions can cause this problem.
- Refer to <How to clean the drum unit> to remove the dirt from the exposure drum using a cotton applicator.
- Replace the toner cartridge with a new one.
- Replace the drum unit with a new one.

Step	Cause	Remedy
1	Dirt on the paper dust cleaning roller of the T1	Refer to the Fig. 2-8 (P2-83) to clean the paper dust cleaning roller.
2	Scratch or dirt on the fuser unit	Replace the fuser unit.
3	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.

■ Print crease

\<User Check\>
- Check the usage environment of the machine. Using the machine in hot-humid or cold-dry conditions can cause this problem.
- Change the paper to thick paper.
- Check if paper is not damp.
- Check if the thickness of the paper is properly set in the driver.
- For Plain paper, check whether the envelope levers are at the top. Even so, if print wrinkles occur, lower the envelope levers to the position "B" to perform printing. (Refer to the figure below.)

Step	Cause	Remedy
1	Fuser unit failure	Replace the fuser unit.

\<Back side\>
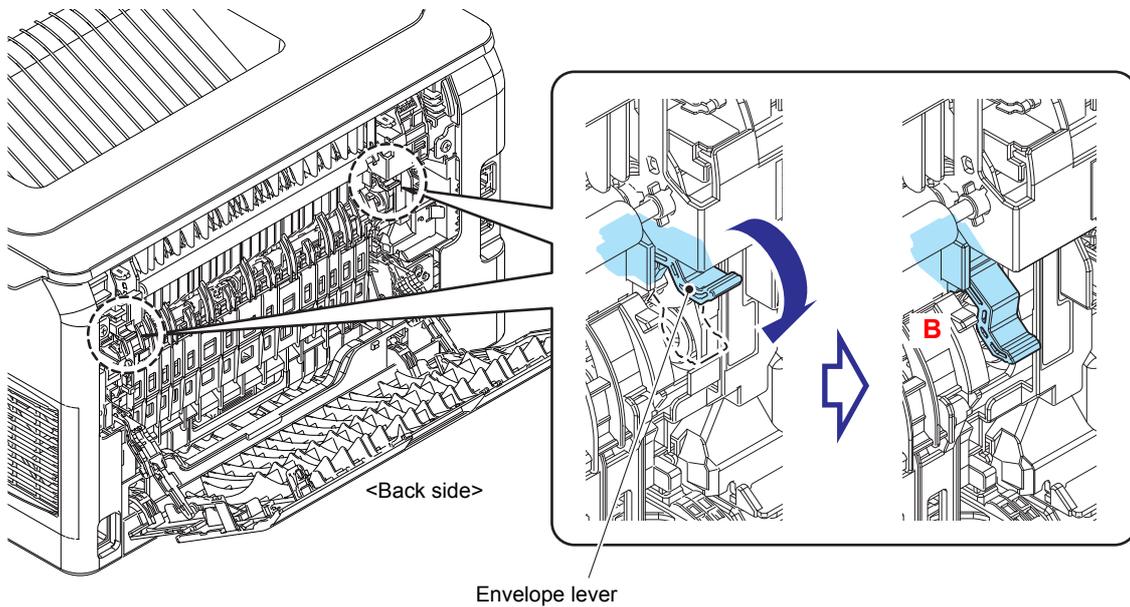
Envelope lever

Fig. 2-18

■ Spots at the rear edge of paper

\<User Check\>
- Check the usage environment of the machine. Using the machine in hot-humid or cold-dry conditions can cause this problem.
- For thick paper such as Thick paper or Envelope, perform printing with the envelope levers lowered to the bottom; for non-thick paper such as Plain paper, perform printing with the envelope levers lowered to the position "B". (Refer to the figure above.)

Step	Cause	Remedy
1	Fuser unit failure	Replace the fuser unit.

4.4 Troubleshooting for Software Problems

The end user can solve problems pertaining to software, for instance, print cannot be made from a computer although test print and printer setting print can be made from the machine, by following the User Check items. If the same problem occurs again, follow each procedure in the order of the number described in the Step column in the tables below.

4.4.1 Unable to receive data

<User Check>

- Check that the USB cable or LAN cable is not damaged.

- When using an interface switch, check that the correct machine is selected.

- Check the relevant section in the online User's Guide.

- Check the driver settings.

- Reset the machine to the default settings.

Step	Cause	Remedy
1	Machine connection	For Macintosh, check the Product ID*. When it is wrong, update the firmware.
2	Main PCB failure	Replace the main PCB.

* Follow the procedures below to verify the product ID in Macintosh.

(1) Select [About This Mac] from the [Apple] menu.

(2) Click the [More Info...] in the [About This Mac] dialog box.

(3) Select [USB] under the [Hardware] in [Contents] on the left side.

(4) Select the machine [HL-XXXX] from [USB Device Tree].

(5) Check [Product ID] in [HL-XXXX].

■ **Product ID (Hexadecimal)**

HL-3190CDW   : 00A5h

HL-3160CDW   : 00A7h

HL-L3270CDW : 00A4h

HL-L3230CDW : 00A6h

HL-L3230CDN : 00A8h

HL-L3210CW   : 00A9h

4.5 Troubleshooting for Network Problems

4.5.1 Cannot make a print through network connection

<User Check>

- Check the relevant section in the Network Setting Guide.
- Check the network connection.
- Reset the network.
- Check the LAN cable.

Step	Cause	Remedy
1	Connection failure of the wireless LAN PCB connector	Reconnect the wireless LAN PCB connector.
2	Wireless LAN PCB failure	Replace the wireless LAN PCB.
3	LAN terminal pin deformation Main PCB failure	Replace the main PCB.

4.5.2 Cannot connect to access point

<User Check>

- Check the wireless LAN settings.
- Check the access point settings.
- Change the machine installation location.
- Set the access point manually.

Step	Cause	Remedy
1	Wireless LAN PCB failure	Replace the wireless LAN PCB.
2	Main PCB failure	Replace the main PCB.

4.6 Troubleshooting for Control Panel Problems

4.6.1 Nothing is displayed on the LCD

<User Check>

• Turn the power switch OFF and then back ON again.

• Unplug the AC cord and then plug it again.

Step	Cause	Remedy
1	Connection failure of the panel flat cable/harness*	Reconnect the panel flat cable/harness*.
2	Connection failure of the low-voltage power supply harness	Reconnect the low-voltage power supply harness.
3	Connection failure of the high-voltage power supply flat cable	Reconnect the high-voltage power supply flat cable.
4	AC cord failure	Replace the AC cord.
5	Panel flat cable/harness* failure	Replace the panel flat cable/harness*.
6	Panel PCB failure	Replace the panel PCB.
7	LCD failure	Replace the LCD.
8	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB.
9	Main PCB failure	Replace the main PCB.

* Panel flat cable (Touch panel models) / Panel harness (Non-touch panel models)

4.6.2 Nothing is displayed on the LED

<User Check>

• Turn the power switch OFF and then back ON again.

Step	Cause	Remedy
1	Connection failure of the panel flat cable/harness*	Reconnect the panel flat cable/harness*.
2	Panel PCB failure	Replace the panel PCB.
3	Main PCB failure	Replace the main PCB.

* Panel flat cable (Touch panel models) / Panel harness (Non-touch panel models)

4.6.3 Unable to perform panel operation

<User Check>

• Turn the power switch OFF and then back ON again.

Step	Cause	Remedy
1	Connection failure of the low-voltage power supply harness	Reconnect the low-voltage power supply harness.
2	Panel flat cable/harness* failure	Replace the panel flat cable/harness*.
3	Panel PCB failure	Replace the panel PCB.
4	Touch panel ASSY failure	Replace the touch panel ASSY.
5	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB.
6	Main PCB failure	Replace the main PCB.

* Panel flat cable (Touch panel models) / Panel harness (Non-touch panel models)

4.7 Troubleshooting for Toner Cartridge and Drum Unit Problems

4.7.1 New toner not detected

<User Check>

• Check if the supplied toner cartridge is installed.

• Be sure to set a new toner cartridge.

• Check that the genuine toner cartridge is set.

Step	Cause	Remedy
1	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.
2	Main PCB failure	Replace the main PCB.

4.7.2 Toner cartridge not detected

<User Check>

• Re-assemble the toner cartridge.

• Replace the toner cartridge with a new one.

Step	Cause	Remedy
1	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.
2	Main PCB failure	Replace the main PCB.

4.7.3 Toner replacement message displayed on LCD is not cleared

<User Check>

• Be sure to set a new toner cartridge.

• Check that the genuine toner cartridge is set.

Step	Cause	Remedy
1	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.
2	Main PCB failure	Replace the main PCB.

4.7.4 Drum error

<User Check>

• Clean the corona wire of the drum unit.

• Replace the drum unit with a new one.

Step	Cause	Remedy
1	Dirt on the electrodes of the drum unit and those of the machine	Clean the electrodes of the drum unit and those of the machine. (Refer to Fig. 2-6 (P2-63) and Fig. 2-7 (P2-63).)
2	Dirt on the electrodes of the high-voltage power supply PCB and those of the machine	Clean the electrodes of the high-voltage power supply PCB and those of the machine.
3	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB.
4	Main PCB failure	Replace the main PCB.

4.7.5 Drum replacement message displayed on LCD is not cleared

<User Check>

• Reset the drum counter according to the manual.

Step	Cause	Remedy
1	Main PCB failure	Replace the main PCB.

4.8 Troubleshooting for Fuser Unit Problems

4.8.1 Fuser unit failure

Step	Cause	Remedy
1	Connection failure of the center thermistor harness	Reconnect the center thermistor harness.
2	Connection failure of the side thermistor harness	Reconnect the side thermistor harness.
3	Connection failure of the heater harness	Reconnect the heater harness.
4	Connection failure of the eject sensor harness	Reconnect the eject sensor harness.
5	Eject sensor PCB failure	Replace the eject sensor PCB.
6	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB.
7	Fuser unit failure	Replace the fuser unit.
8	Main PCB failure	Replace the main PCB.

Note:

- Turn the power switch OFF and then ON again. Leave the machine for 15 minutes. This problem may then be cleared.

- The machine may recover from the error, when the test printing of the maintenance mode for service personnel is started. However, conducting this operation while the heater has not yet cooled may cause the fuser unit to melt. Be careful.

4.9 Troubleshooting for LED ASSY Problems

4.9.1 LED ASSY failure

<User Check>

- Turn ON the power switch, then open the top cover and the back cover. Leave the machine for a while to remove condensation.

Step	Cause	Remedy
1	LED ASSY attachment failure	Reattach an LED ASSY.
2	Connection failure of the LED ASSY flat cable	Reconnect an LED ASSY flat cable.
3	Connection failure of the LED control flat cable	Reconnect the LED control flat cable.
4	LED ASSY flat cable failure	Replace an LED ASSY flat cable.
5	LED control flat cable failure	Replace the LED control flat cable.
6	LED control PCB failure	Replace the LED control PCB.
7	LED ASSY failure	Replace an LED ASSY.
8	Main PCB failure	Replace the main PCB.

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4.10 Troubleshooting for PCB Problems

4.10.1 Main PCB failure

<User Check>

- Turn the power switch OFF and then back ON again.

- Install the latest main firmware.

- Check the print limit ID.

- Check that the print data is not damaged.

Step	Cause	Remedy
1	Main PCB failure	Replace the main PCB.

4.10.2 Full memory

<User Check>

- Print the accumulated data.

- Reduce the amount or resolution of the data.

Step	Cause	Remedy
1	Main PCB failure	Replace the main PCB.

4.11 Troubleshooting for Other Problems

4.11.1 Cannot make print

<User Check>

- Turn the power switch OFF and then back ON again.
- Check that the USB cable is connected to the host correctly.
- Check that the LAN cable is connected to the host correctly.
- Replace the USB cable.
- Replace the LAN cable.
- Check that the maximum printable page number has not been exceeded.
- Check that the PC-Print is not forbidden.
- Check the print limit ID.
- Check the network connection.
- Check the relevant section in the Network Setting Guide.
- Check that the print data is not damaged.
- Install the latest main firmware.
- Match the document size with the one specified in the driver.

Step	Cause	Remedy
1	Connection failure of the wireless LAN connector	Reconnect the wireless LAN connector.
2	Wireless LAN PCB failure	Replace the wireless LAN PCB.
3	Main PCB failure	Replace the main PCB.

4.11.2 Cannot update firmware

\<User Check\>

- Make sure that there is no other function running.

- Turn the power switch OFF and then back ON again.

Step	Cause	Remedy
1	Firmware version does not match	Reinstall the latest sub firmware and main firmware in this order.
2	In case of update failure by interruption, the firmware might not correctly written in the ROM	Update the firmware again by the following procedure.* (Touch panel model) 1) Turn OFF the machine. 2) Turn ON the machine while pressing the . 3) Double-click the "Filedg32.exe" to start, and select "Brother Maintenance USB Printer". 4) Drag and drop the firmware (upd file) in the FILEDG32 screen. Update is started.
3	Main PCB failure	Replace the main PCB.

* By the above update procedure, the other models firmware can be updated to the machine. Check that the firmware is right and update correctly. If the other models firmware was updated by mistake, the machine may repeat power ON/OFF or not powered ON. In such case, replace the main PCB.

4.11.3 "Tray removed" message does not disappear

\<User Check\>

- Close the tray correctly.

Step	Cause	Remedy
1	Paper feed actuator coming off	Reattach the paper feed actuator.
2	Paper feed sensor failure	Replace the paper feed unit.
3	Main PCB failure	Replace the main PCB.

CHAPTER 3   DISASSEMBLY/REASSEMBLY

1.   SAFETY PRECAUTIONS

To avoid creating secondary problems by mishandling, follow the warnings and precautions below during maintenance work.

> ⚠ **WARNING**
>
> Some parts inside the machine are extremely hot immediately after the machine is used. When opening the Top cover or Back cover to access any parts inside the machine, never touch the shaded parts shown in the following figures.
>
>
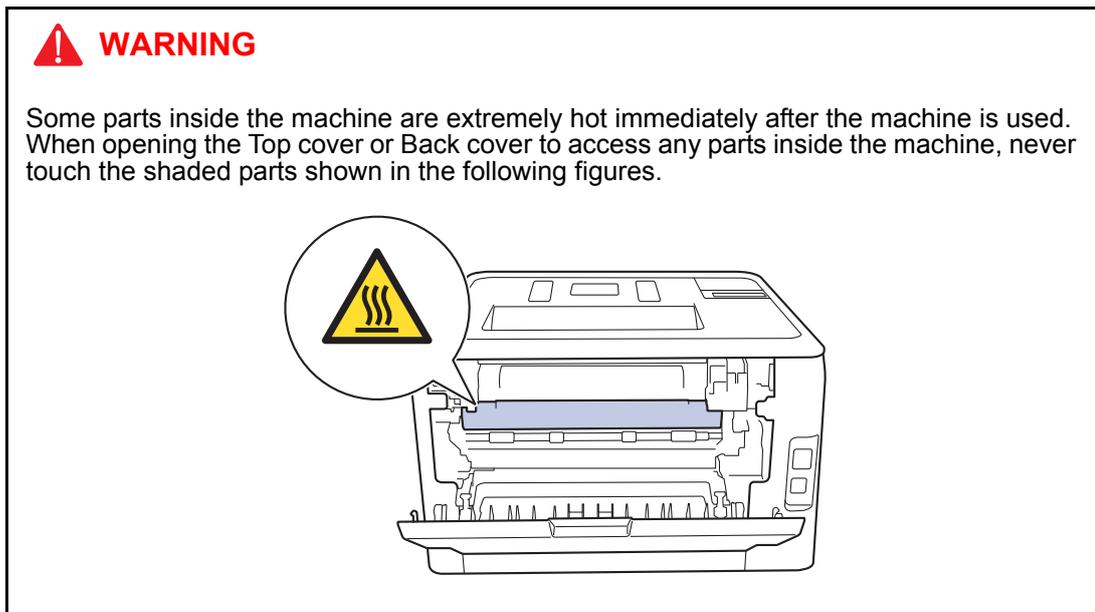
- Be careful not to lose screws, washers, or other parts removed.
- Be sure to apply grease to the applicable positions specified in this chapter.
- When using soldering irons or other heat-generating tools, take care not to accidentally damage parts such as wires, PCBs and covers.
- Static electricity charged in your body may damage electronic parts. When transporting PCBs, be sure to wrap them in conductive sheets.
- When replacing the PCBs and all the other related parts, put on a grounding wrist band and perform the job on a static mat. Also take care not to touch the conductor sections on the flat cables or on the wire harnesses.
- After disconnecting flat cables, check that each cable is not damaged at its end or shortcircuited.
- When connecting flat cables, do not insert them at an angle. After insertion, check that the cables are not at an angle.
- When connecting or disconnecting harnesses, hold the connector body, not the cables. If the connector has a lock, release the connector lock first to release it.
- After a repair, check not only the repaired portion but also harness treatment. Also check that other related portions are functioning properly.
- There must be no damage in the Insulation sheet.
- After a repair, update the firmware to the latest version.
- Violently closing the Top cover without mounting the Toner cartridge and the Drum unit can damage the machine.
- When replacing the PCBs, check that there is no foreign object on the parts surface of the PCBs or on the soldering surface.

2. PACKING

Option carton upper

Pad upper L

Pad upper R

Option carton front

Pad lower

Carton

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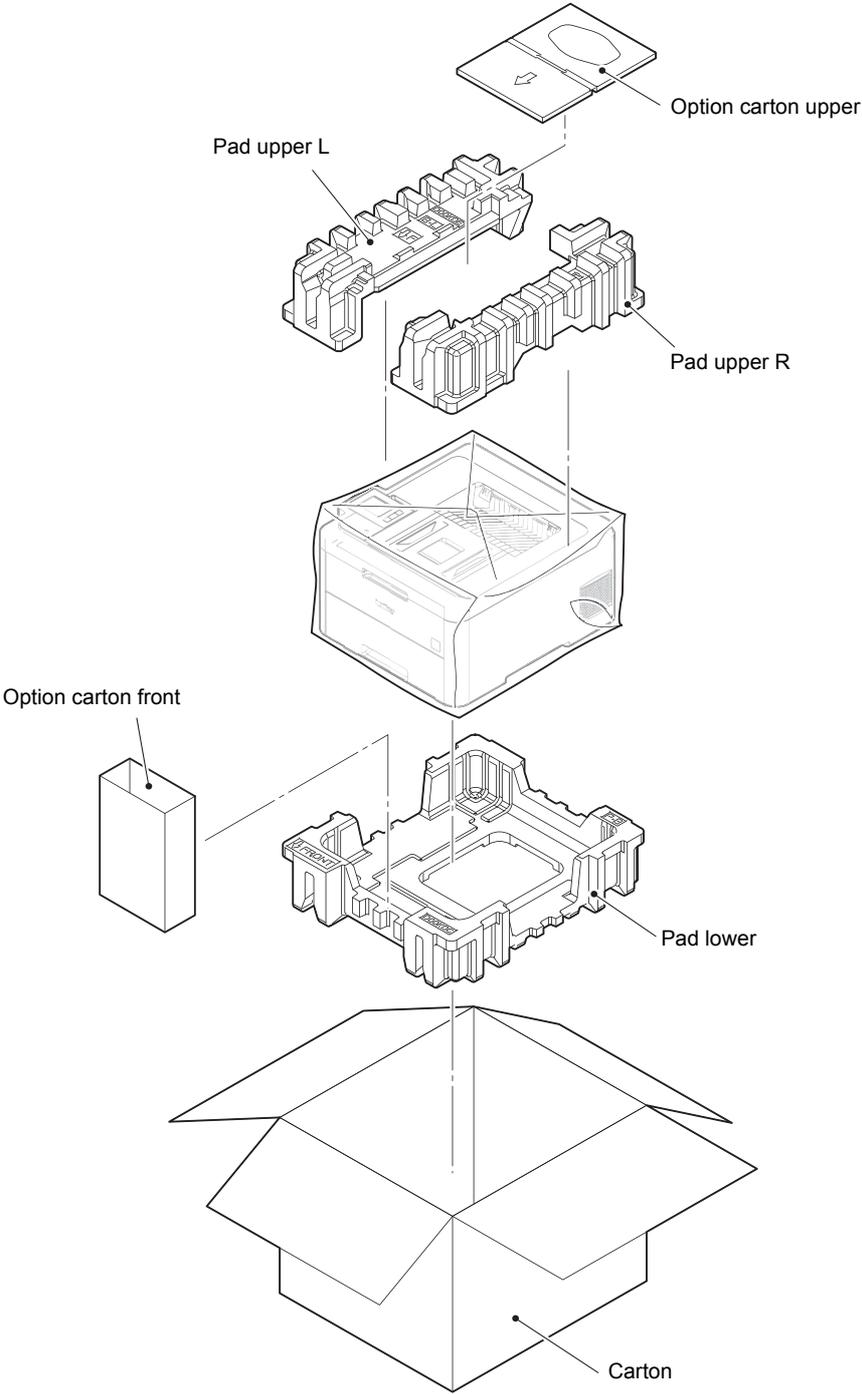
3. SCREW CATALOGUE

Taptite bind B
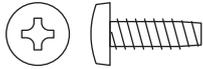
Taptite bind B M4x12	
Taptite bind B M3x10	

Taptite bind S

Taptite bind S M3x5	

Taptite pan (washer)

Taptite pan (washer) B M4x12 DA	

Taptite cup B

Taptite cup B M3x8	

Screw cup
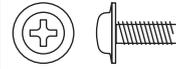
Screw cup M3x8	
Screw cup M3x8 SR	

Taptite cup S

Taptite cup S M3x6 SR	
Taptite cup S M3x8 SR	

Taptite pan (S/P washer)

Taptite pan (S/P washer) B M3x10	

Screw pan

Screw pan M4x8	

4. SCREW TORQUE LIST

Location of screw	Screw type	Q'ty	Tightening torque N·m (kgf·cm)
Fuser cover L	Taptite bind B M3x10	1	0.5±0.05 (5±0.5)
Fuser cover R	Taptite bind B M3x10	1	0.5±0.05 (5±0.5)
Fuser unit	Taptite pan (washer) B M4x12DA	2	0.7±0.1 (7±1)
Side cover L	Taptite bind B M4x12	2	0.8±0.1 (8±1)
Side cover R	Taptite bind B M4x12	2	0.8±0.1 (8±1)
Main shield cover plate ASSY	Screw cup M3x8 (black)	4	0.45±0.05 (4.5±0.5)
LED ground wire	Taptite pan (washer) B M4x12DA	1	0.75±0.05 (7.5±0.5)
TC lock arm guide	Taptite bind B M4x12	2	0.5±0.1 (5±1)
Damper hinge R	Taptite bind B M4x12	1	0.8±0.1 (8±1)
LED unit	Taptite bind B M4x12	7	0.8±0.1 (8±1)
Panel ground wire	Taptite cup B M3x8	1	0.45±0.1 (4.5±1)
	Taptite pan (S/P washer) B M3x10	1	0.45±0.1 (4.5±1)
Panel FFC holder	Taptite bind B M3x10	2	0.45±0.1 (4.5±1)
Panel sub ASSY	Taptite bind B M3x10	2	0.45±0.1 (4.5±1)
Panel lower	Taptite bind B M3x10	1	0.45±0.1 (4.5±1)
LED PCB shield plate	Screw cup M3x8 SR	3	0.4±0.05 (4±0.5)
LED control PCB	Screw cup M3x8 SR	2	0.4±0.05 (4±0.5)
HVPS ground plate front	Taptite pan (washer) B M4x12DA	1	0.75±0.05 (7.5±0.5)
	Taptite cup S M3x8 SR	1	0.75±0.05 (7.5±0.5)
HVPS ground plate rear	Taptite pan (washer) B M4x12DA	1	0.75±0.05 (7.5±0.5)
High-voltage power supply PCB	Taptite bind B M4x12	2	0.75±0.05 (7.5±0.5)
Main PCB	Screw cup M3x8 (black)	3	0.45±0.05 (4.5±0.5)
Cartridge sensor relay PCB	Screw cup M3x8 (black)	1	0.45±0.05 (4.5±0.5)
DEV clutch cover	Taptite cup S M3x8 SR	1	0.75±0.05 (7.5±0.5)
Process drive unit	Taptite cup S M3x8 SR	2	0.75±0.05 (7.5±0.5)
	Taptite pan (washer) B M4x12DA	1	0.75±0.05 (7.5±0.5)
	Taptite bind B M4x12	7	0.75±0.05 (7.5±0.5)
Paper feed drive unit	Taptite bind B M4x12	5	0.7±0.1 (7±1)
Paper feed unit	Taptite bind B M4x12	4	0.8±0.1 (8±1)

Location of screw	Screw type	Q'ty	Tightening torque N·m (kgf·cm)
Paper eject ASSY	Taptite bind B M4x12	1 (Side)	0.8±0.1 (8±1)
		2 (Top)	1.1±0.1 (11±1)
DX drive cover	Taptite bind B M4x12	1	0.8±0.1 (8±1)
Duplex tray	Taptite bind B M4x12	2	0.8±0.1 (8±1)
Wire cover	Taptite bind B M4x12	1	0.75±0.05 (7.5±0.5)
Cover plate	Taptite pan (washer) B M4x12DA	1	0.75±0.05 (7.5±0.5)
	Taptite cup S M3x8 SR	1	0.75±0.05 (7.5±0.5)
	Taptite bind B M4x12	2	0.75±0.05 (7.5±0.5)
LVPS ground wire	Screw pan M4x8	1	0.5±0.1 (5±1)
LVPS plate lower ASSY	Taptite pan (washer) B M4x12DA	4	0.75±0.05 (7.5±0.5)
	Taptite cup S M3x8 SR	2	0.5±0.05 (5±0.5)
Low-voltage power supply PCB	Taptite cup S M3x6 SR	3	0.6±0.05 (6±0.5)
Registration mark sensor ASSY	Taptite bind S M3x5	1	0.5±0.1 (5±1)

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5. LUBRICATION

The kind of the lubricating oil (Maker name)	Lubrication point	Quantity of lubrication
FLOIL BG-10KS (Kanto Kasei)	T1 pick-up clutch	1.5 mm dia. ball (BG1.5)
	Registration clutch	1.5 mm dia. ball (BG1.5)
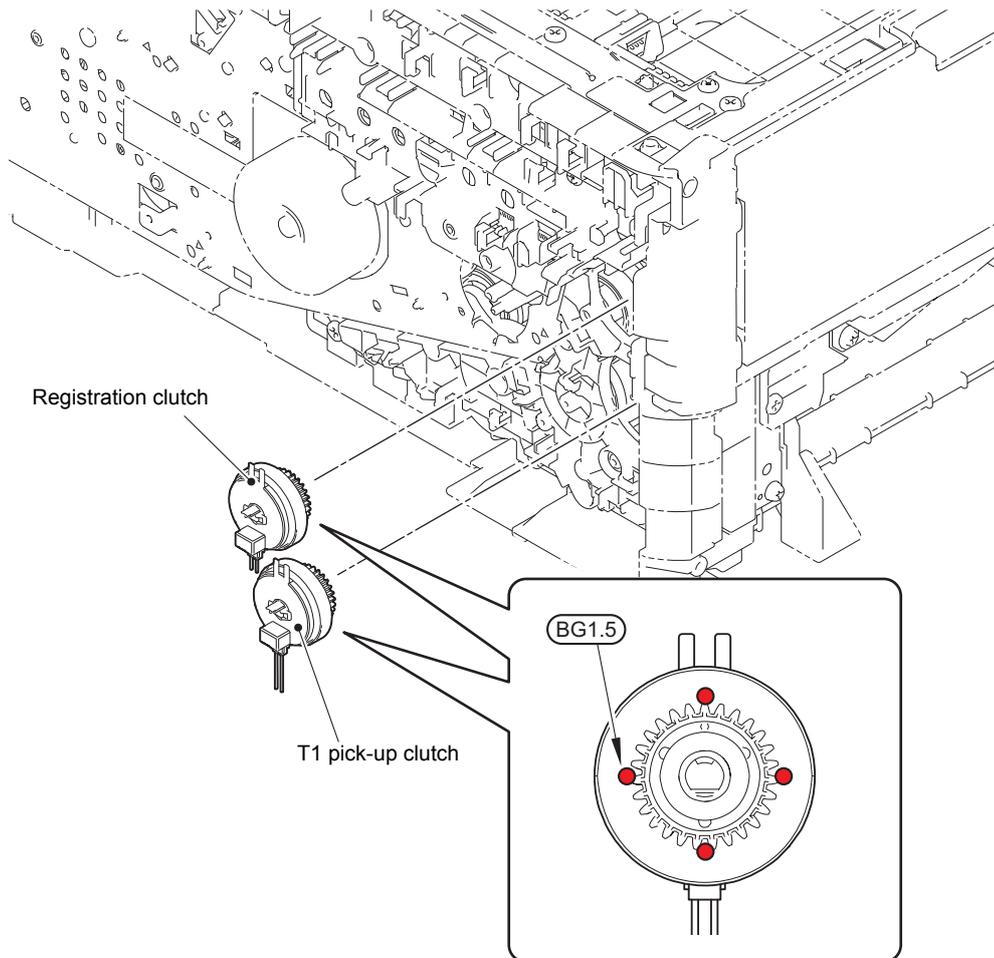
BG1.5: FLOIL BG-10KS (1.5 mm dia. ball)

6. OVERVIEW OF GEARS

When ordering repair parts, refer to the parts reference list.

<Layout view>

<Development view>

<Name of gears>
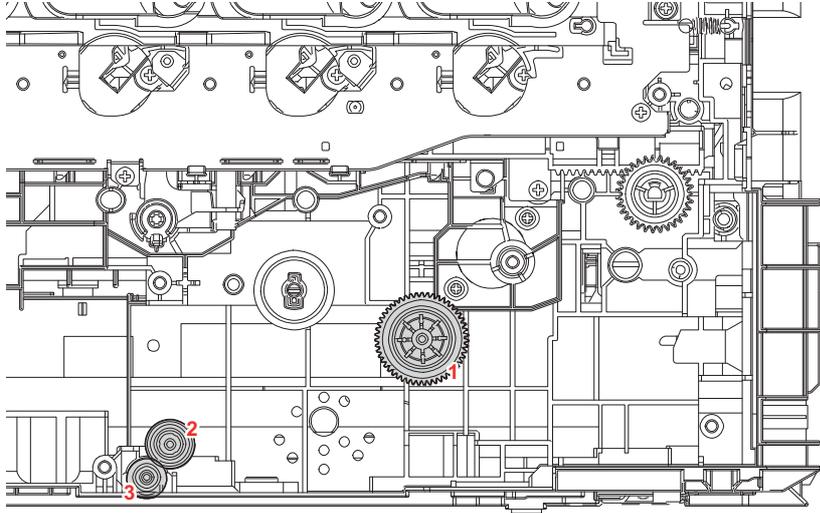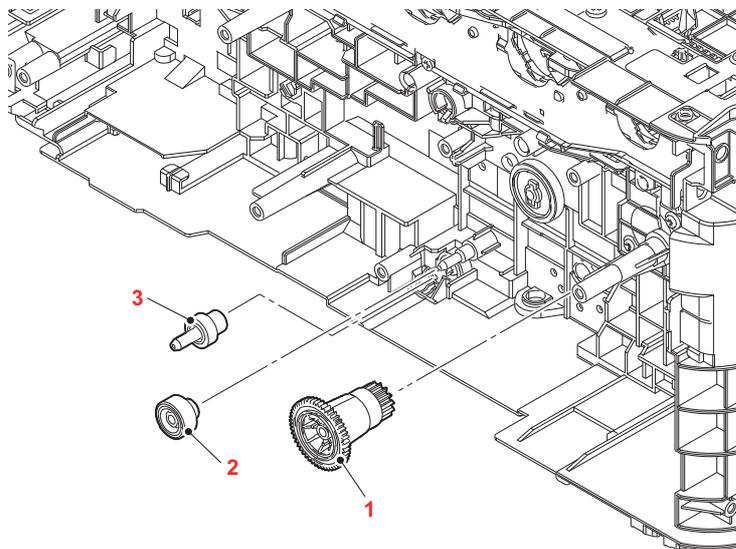
1	LY6131	PP gear Z14-51
2	D009RS	DX joint gear Z19
3	D009SV	DX input gear Z15

* These parts are subject to change without notice.

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7. HARNESS ROUTING

1	Top cover ASSY

<Touch panel models>

Panel flat cable

NFC flat cable

Panel relay PCB

Panel relay flat cable

Panel ground wire (BL)

<Non-touch panel models>

Panel harness (WH)

LCD flat cable

Panel PCB

Harness colors are subject to change for some reason.

Panel flat cable
(For Touch panel models)

LED control flat cable

Cartridge sensor relay flat cable

Cartridge sensor harness K (RD, BK, WH, PU)

Cartridge sensor harness C (RD, BK, WH, PU)

Cartridge sensor harness M (RD, BK, WH, PU)

Cartridge sensor harness Y (RD, BK, WH, PU)

HVPS harness (WH)

External temperature/ humidity sensor harness (WH)

Registration clutch

Registration clutch harness (WH)

T1 pick-up clutch

T1 pick-up clutch harness (WH)

Develop release clutch harness (BL)

Duplex clutch harness (BL)

Paper feed motor flat cable

High-voltage power supply flat cable

Low-voltage power supply harness (BK, WH, BK)

Eject sensor harness (WH)

Process motor flat cable

Develop release clutch K harness (BL)

T1 paper empty/ paper feed sensor harness (WH)

Main PCB

Manual feed paper empty/ regist rear/regist front sensor harness (WH)

Cartridge sensor relay PCB

Back cover sensor harness (WH)

Panel harness (WH) (For Non-touch panel models)

Harness colors are subject to change for some reason.

3 High-voltage power supply PCB, Fan harness, LED ground wire
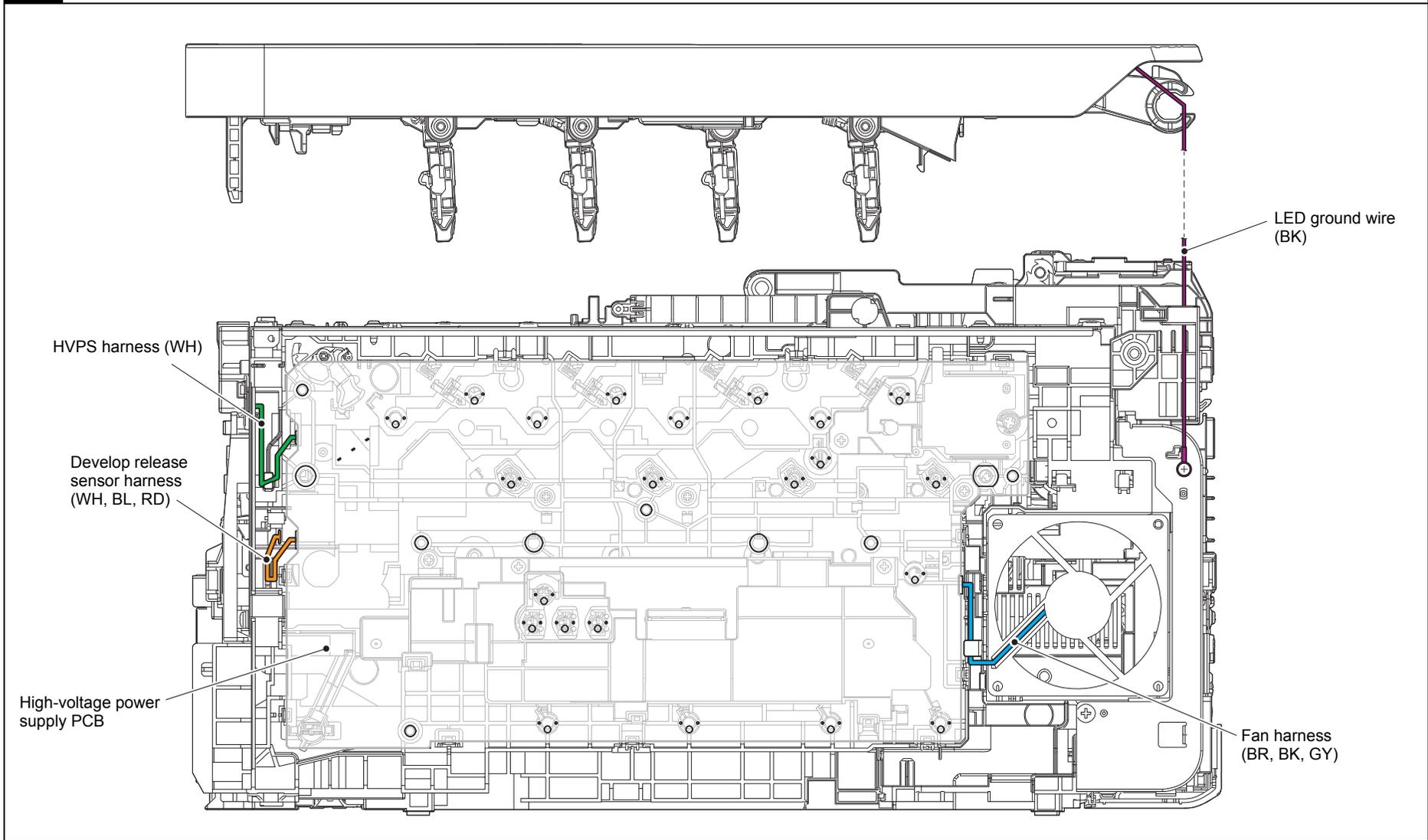
LED ground wire (BK)

HVPS harness (WH)

Develop release sensor harness (WH, BL, RD)

High-voltage power supply PCB

Fan harness (BR, BK, GY)

Harness colors are subject to change for some reason.

LED ASSY flat cable Y

LED ASSY flat cable K

LED ASSY flat cable C

LED control PCB

LED control flat cable

LED ASSY flat cable M

3-11
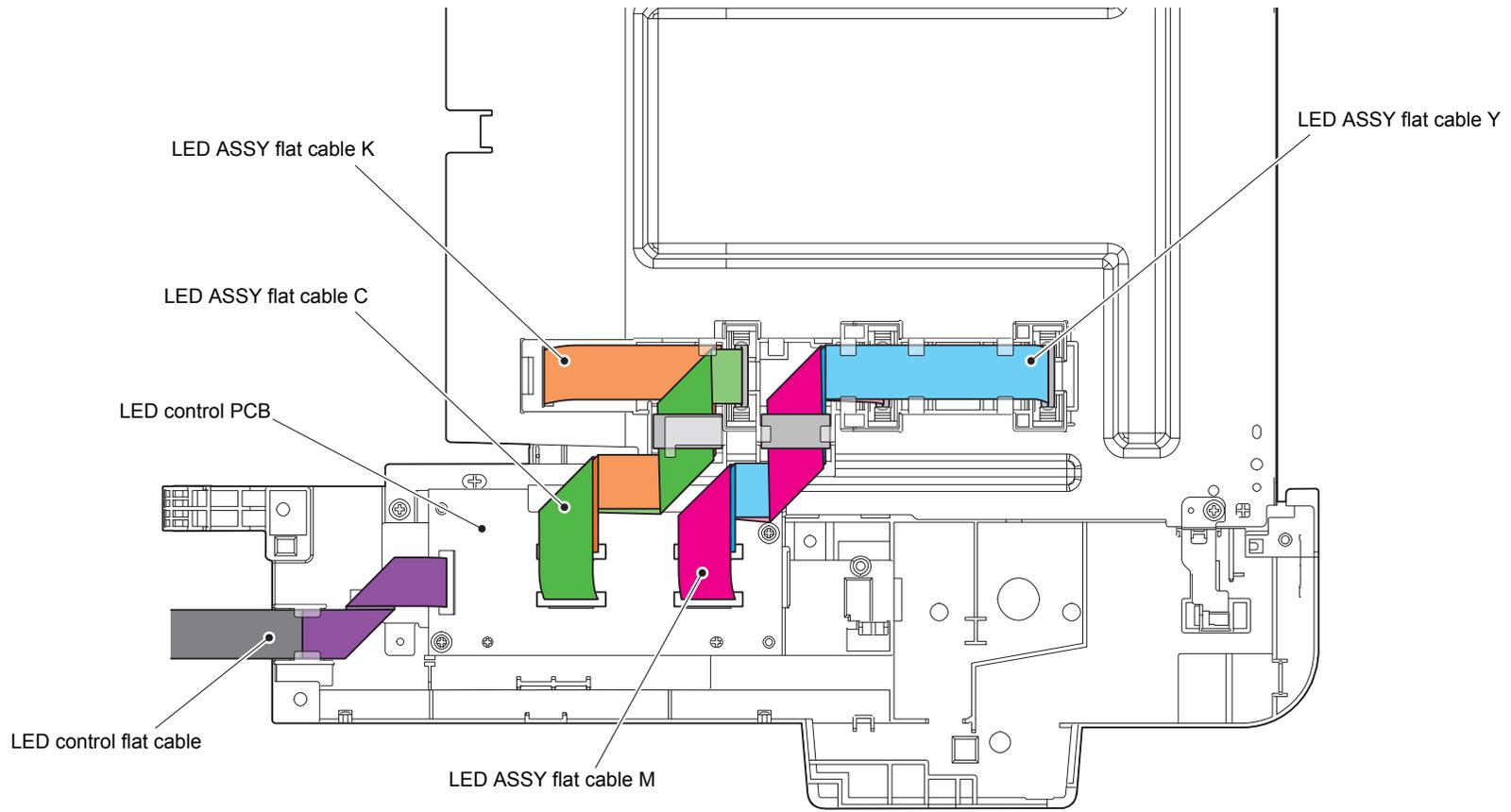
5 High-voltage power supply flat cable

High-voltage power
supply flat cable

Paper feed motor flat cable

3-13

7 | Registration mark sensor ASSY, Eject sensor PCB

Registration mark sensor R PCB

Registration mark sensor L harness
(RD, BK, BL, YW, WH)

Registration mark
sensor ASSY

Registration mark sensor R harness
(RD, BK, BL, YW)

Registration mark sensor L PCB

Registration mark sensor L harness
(RD, BK, BL, YW, WH)

Eject sensor PCB

Registration mark sensor R harness
(RD, BK, BL, YW)

Harness colors are subject to change for some reason.

3-14

8 Front side of the machine

HVPS harness (WH)

T1 paper empty/paper
feed sensor harness (WH)

Manual feed paper empty/regist rear/
regist front sensor harness (WH)

Harness colors are subject to change for some reason.

3-15

<A view>

LVPS heater harness
(BK, YW, WH)

<A view>

<B view>

<C view>

Low-voltage power
supply harness (WH)

Inlet harness ASSY (BL, BR)

<B view>

<C view>

LVPS ground wire (YW/GR)

Harness colors are subject to change for some reason.

8. DISASSEMBLY FLOW

```
┌─────────────────┐  ┌─────────────────┐              ┌─────────────────┐              ┌─────────────────┐
│ 9.2 T1 separation│  │ 9.22 Roller holder│            │ 9.7 Side cover R│              │ 9.3 Back cover  │
│   pad ASSY      │  │    ASSY         │              │  H: 10 / S: 2   │              │  H: 0 / S: 0    │
│  H: 2 / S: 0    │  │  H: 0 / S: 0    │              └─────────────────┘              └─────────────────┘
└─────────────────┘  └─────────────────┘                                                       │
                                                                                                ▼
                          ┌─────────────────┐              ┌─────────────────┐       ┌─────────────────┐
                          │ 9.6 Side cover L│              │ 9.13 High-voltage│       │ 9.4 Rear flapper sub│
                          │  H: 10 / S: 2   │              │ power supply PCB │       │    ASSY         │
                          └─────────────────┘              │  H: 11 / S: 5   │       │  H: 0 / S: 0    │
                                                           └─────────────────┘       └─────────────────┘

┌─────────────────┐  ┌─────────────────┐              ┌─────────────────┐       ┌─────────────────┐   ┌─────────────────┐
│ 9.17 Cartridge sensor│ 9.15 WLAN PCB  │              │ 9.8 Back cover lower│    │ 9.13 Develop release│ │ 9.5 Fuser cover │
│  relay flat cable│  │  H: 4 / S: 0    │              │  H: 3 / S: 0    │       │  sensor PCB     │   │ ASSY / Fuser unit│
│  H: 1 / S: 1    │  └─────────────────┘              └─────────────────┘       │  H: 1 / S: 0    │   │  H: 0 / S: 4    │
└─────────────────┘                                                             └─────────────────┘   └─────────────────┘

┌─────────────────┐  ┌─────────────────┐              ┌─────────────────┐       ┌─────────────────┐   ┌─────────────────┐
│ 9.18 Develop release│ 9.16 Main PCB  │              │ 9.9 Top cover ASSY│      │ 9.14 Fan        │   │ 9.20 Eject sensor│
│   clutch        │  │  H: 0 / S: 3    │              │  H: 9 / S: 15   │       │  H: 2 / S: 0    │   │     PCB         │
│  H: 5 / S: 1    │  └─────────────────┘              └─────────────────┘       └─────────────────┘   │  H: 1 / S: 0    │
└─────────────────┘                                                                                   └─────────────────┘
                                                                                                       ┌─────────────────┐
                                                                                                       │ 9.27 Registration│
                                                                                                       │ mark sensor L PCB /│
                                                                                                       │ Registration mark │
                                                                                                       │ sensor R PCB    │
                                                                                                       │  H: 1 / S: 1    │
                                                                                                       └─────────────────┘

┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐
│ 9.18 Process drive│  │ 9.19 T1 pick-up│  │ 9.11 LED control│  │ 9.10 LCD panel  │  │ 9.25 Duplex tray│
│   unit          │  │ clutch / Registration│ flat cable / LED│  │    ASSY         │  │  H: 0 / S: 3    │
│  H: 1 / S: 10   │  │   clutch        │  │  control PCB    │  │  H: 22 / S: 7   │  └─────────────────┘
└─────────────────┘  │  H: 2 / S: 0    │  │  H: 0 / S: 5    │  └─────────────────┘
                     └─────────────────┘  └─────────────────┘

┌─────────────────┐                       ┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐
│ 9.19 Paper feed drive│                   │ 9.12 LED ASSY   │  │ 9.24 Paper eject│  │ 9.26 Low-voltage │
│   unit          │                       │ (Y/M/C/K) / LED │  │     ASSY        │  │ power supply PCB │
│  H: 3 / S: 5    │                       │ ASSY flat cable │  │  H: 0 / S: 3    │  │  H: 0 / S: 15   │
└─────────────────┘                       │  (Y/M/C/K)      │  └─────────────────┘  └─────────────────┘
                                          │  H: 7 / S: 0    │
                                          └─────────────────┘
        ┌─────────────────┐
        │ 9.21 Manual feed│
        │   cover ASSY    │
        │  H: 2 / S: 0    │
        └─────────────────┘
                │
                ▼
        ┌─────────────────┐
        │ 9.23 Paper feed unit│
        │  H: 2 / S: 4    │
        └─────────────────┘
```
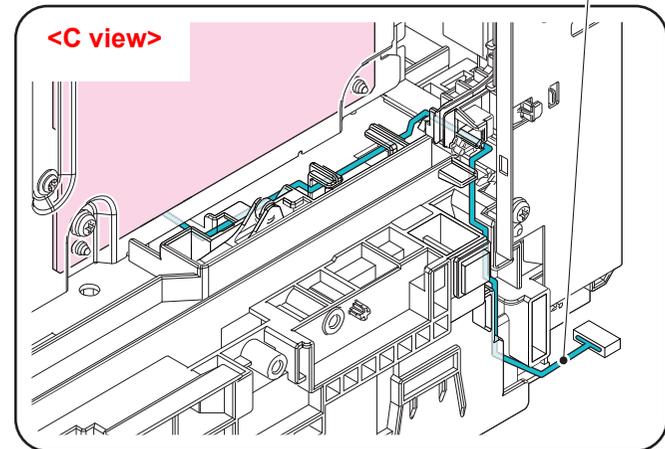
9. DISASSEMBLY PROCEDURE

9.1 Preparation

■ **Disconnecting cables and removing accessories**

Prior to proceeding with the disassembly procedure,

(1) Unplug
- the AC cord, and
- the LAN cable, if connected.

(2) Remove
- the Toner cartridge & Drum unit,
- the Belt unit,
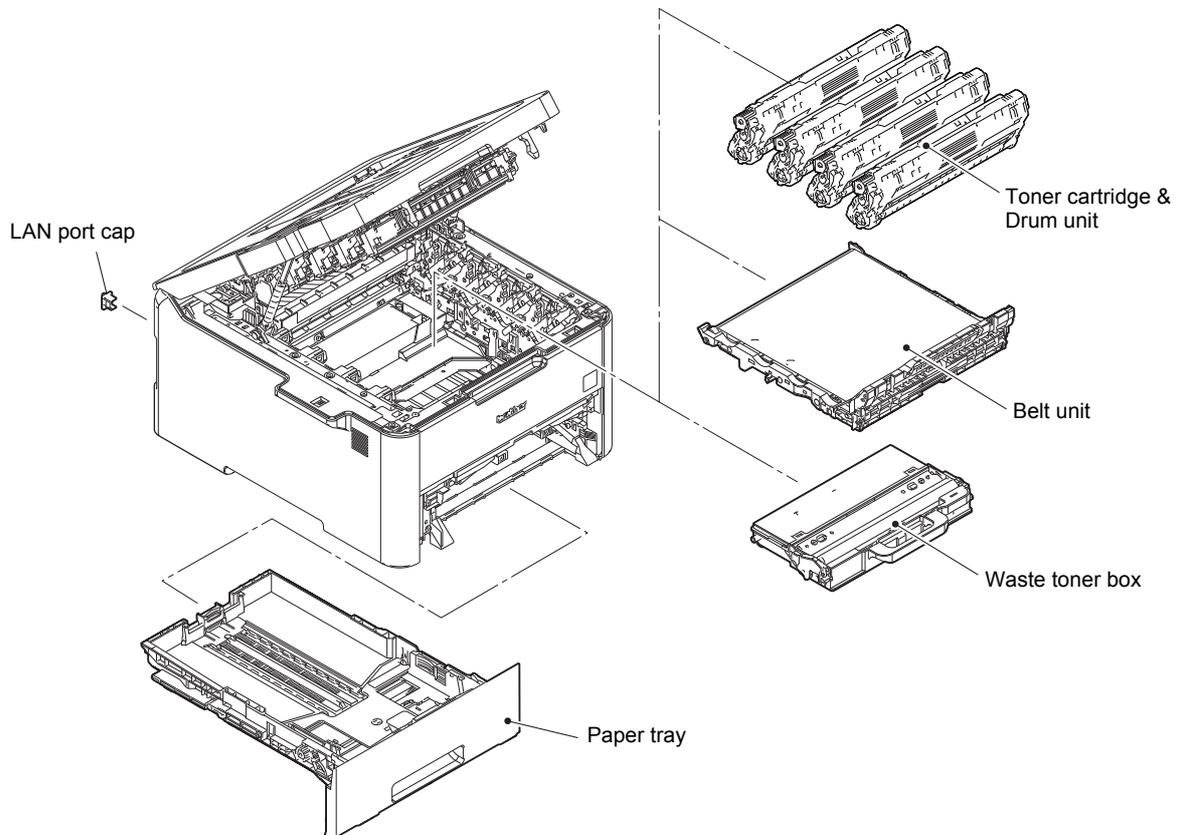- the Waste toner box,
- the Paper tray, and
- the LAN port cap.

Fig. 3-1

9.2 Paper tray / T1 separation pad ASSY

(1) Release each Hook of the T1 separation pad ASSY from the Paper tray.

(2) Push both side Arms on the T1 separation pad ASSY inwards to remove the Pins, and remove the T1 separation pad ASSY from the Paper tray.
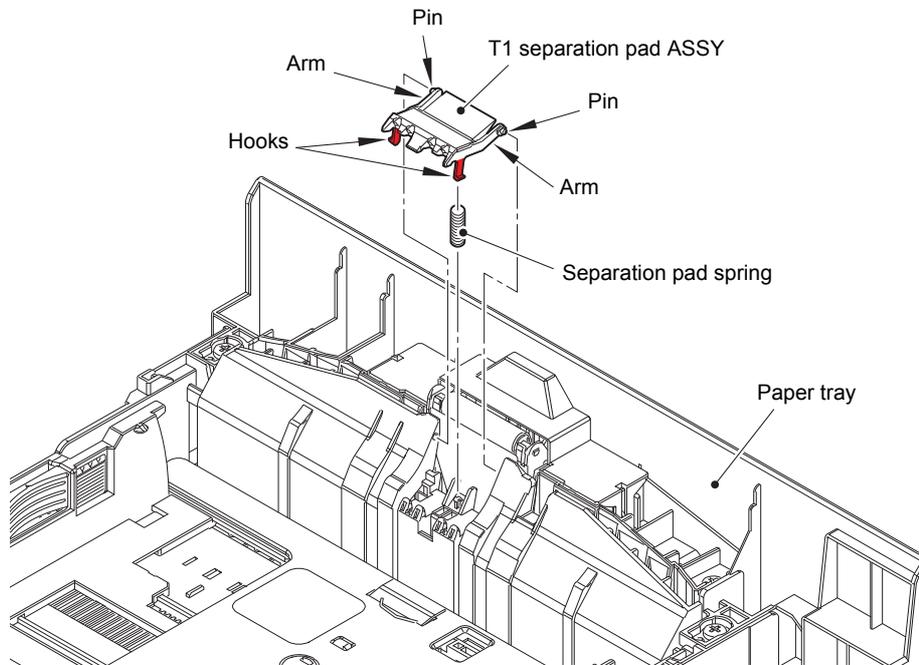
(3) Remove the Separation pad spring from the Paper tray.

Fig. 3-2

9.3 Back cover

(1) Open the Back cover ASSY.

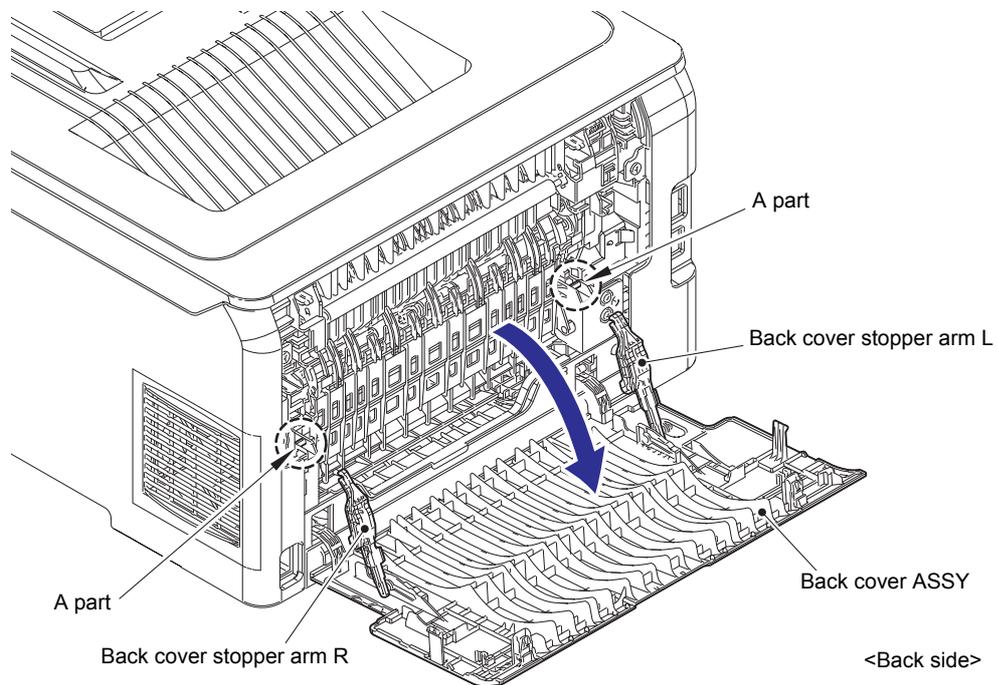(2) Remove the Back cover stopper arm L/R from the A part.

Fig. 3-3

(3) Release the Boss of the Back cover ASSY from the Bush on the Frame L to remove the Back cover ASSY. (3a → 3b)
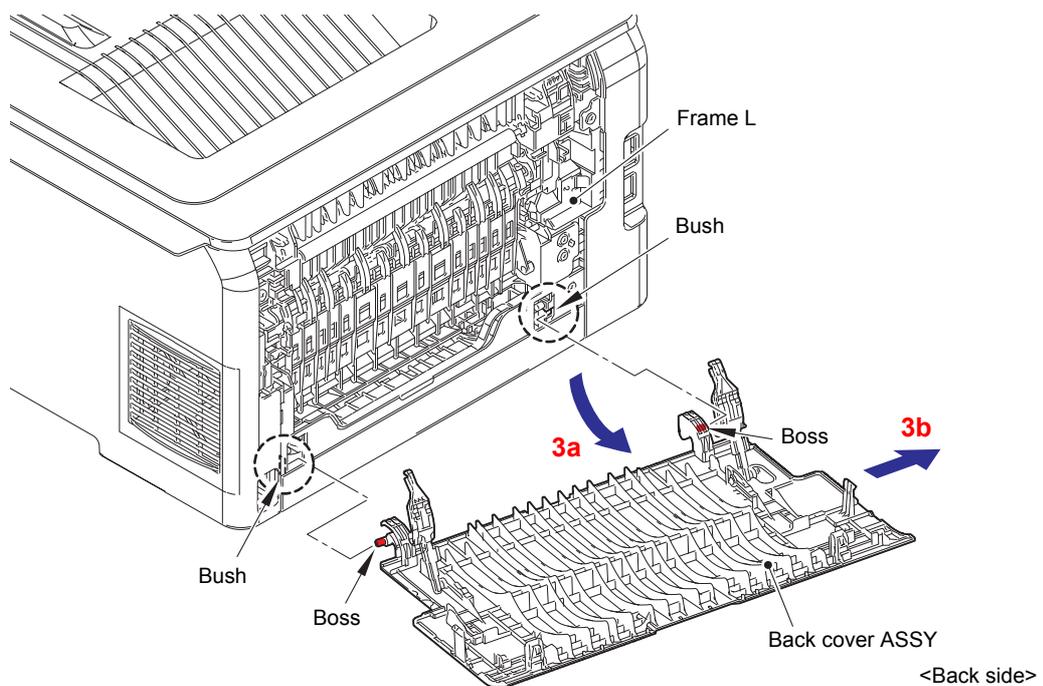

Fig. 3-4

Confidential

(4) Remove the Collar 5 to remove the Back cover stopper arm L from the Back cover.

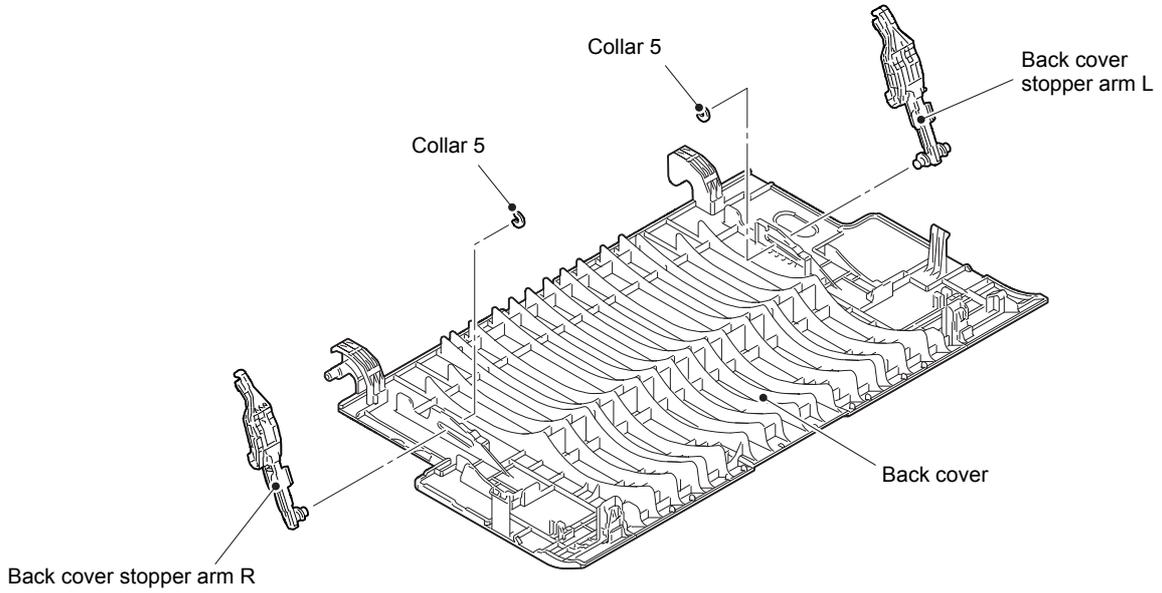(5) Remove the Collar 5 to remove the Back cover stopper arm R from the Back cover.

Collar 5

Back cover
stopper arm L

Collar 5

Back cover

Back cover stopper arm R

Fig. 3-5

9.4 Rear flapper sub ASSY

(1) Remove the Rear flapper sub ASSY from each Boss.
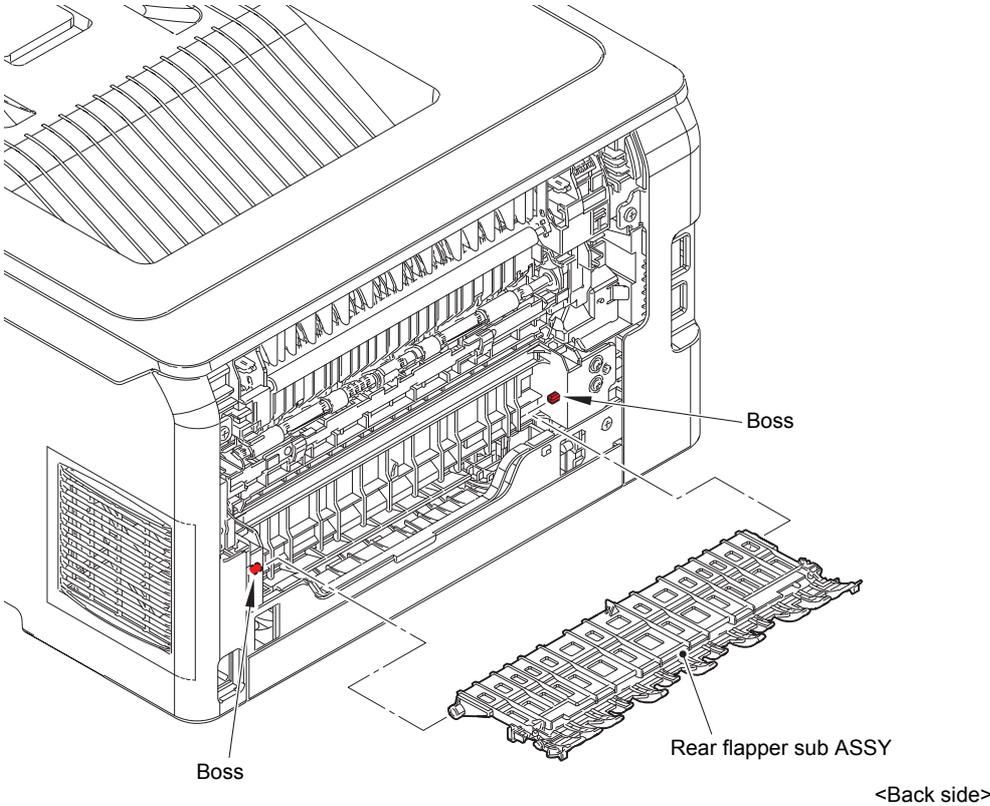

Boss

Boss

Rear flapper sub ASSY

<Back side>

Fig. 3-6

9.5 Fuser cover ASSY / Fuser unit

(1) Remove the Taptite bind B M3x10 screw to remove the Fuser cover L.

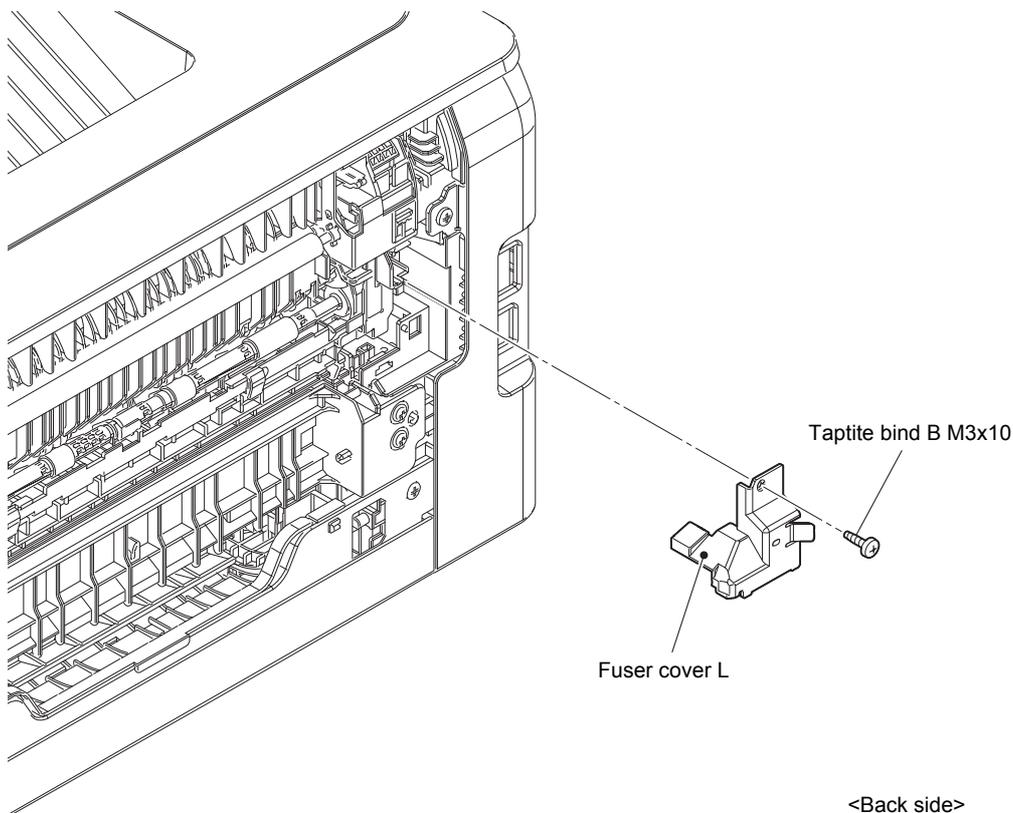Taptite bind B M3x10

Fuser cover L

<Back side>

Fig. 3-7

Assembling Note:

• When attaching the Fuser cover L, tighten the screw while pushing the Fuser cover L in the direction of the arrow. When the Fuser cover L is attached without pushing it, the Boss of the Frame L may come off.
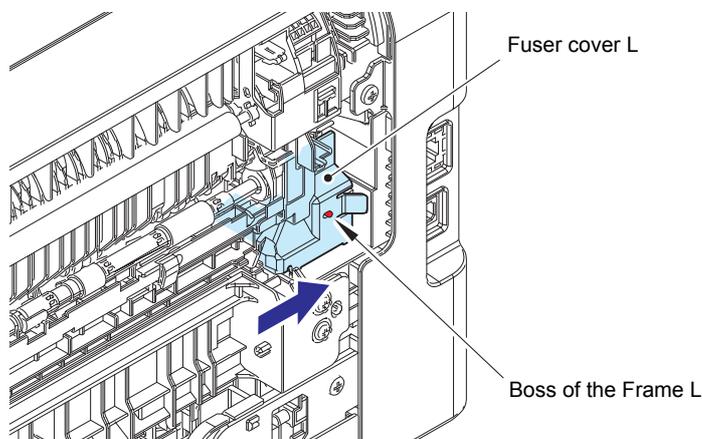

Fuser cover L

Boss of the Frame L

Fig. 3-8

Confidential

(2) Release the lock of the Fuser cover lock lever L/R to open the Fuser cover ASSY.

Fuser cover
lock lever L

Fuser cover ASSY

Fuser cover lock lever R

<Back side>
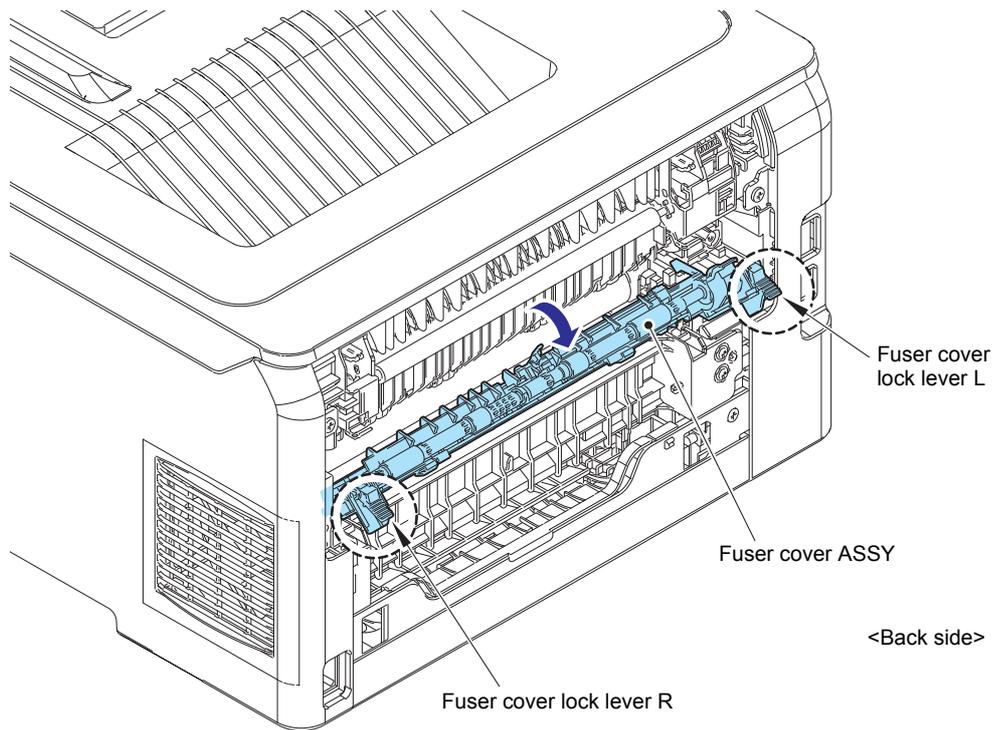
Fig. 3-9

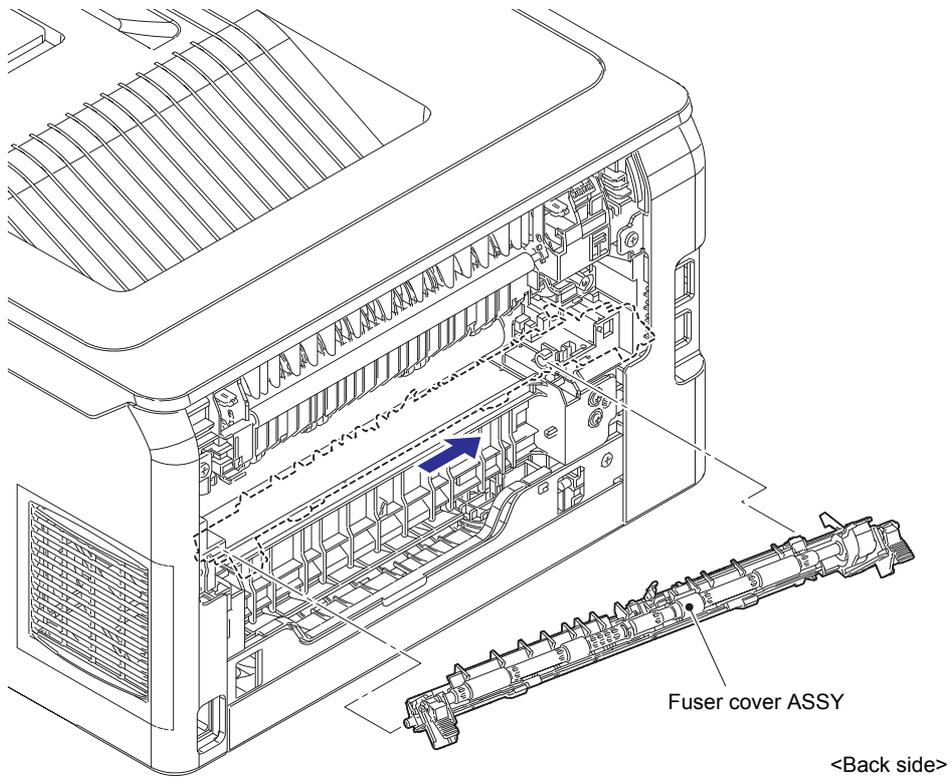(3) Slide the Fuser cover ASSY in the direction of the arrow and remove it to the front.

Fuser cover ASSY

<Back side>

Fig. 3-10

Confidential

(4) Remove the Taptite bind B M3x10 screw to remove the Fuser cover R.

Fuser cover R

Taptite bind B M3x10

<Back side>

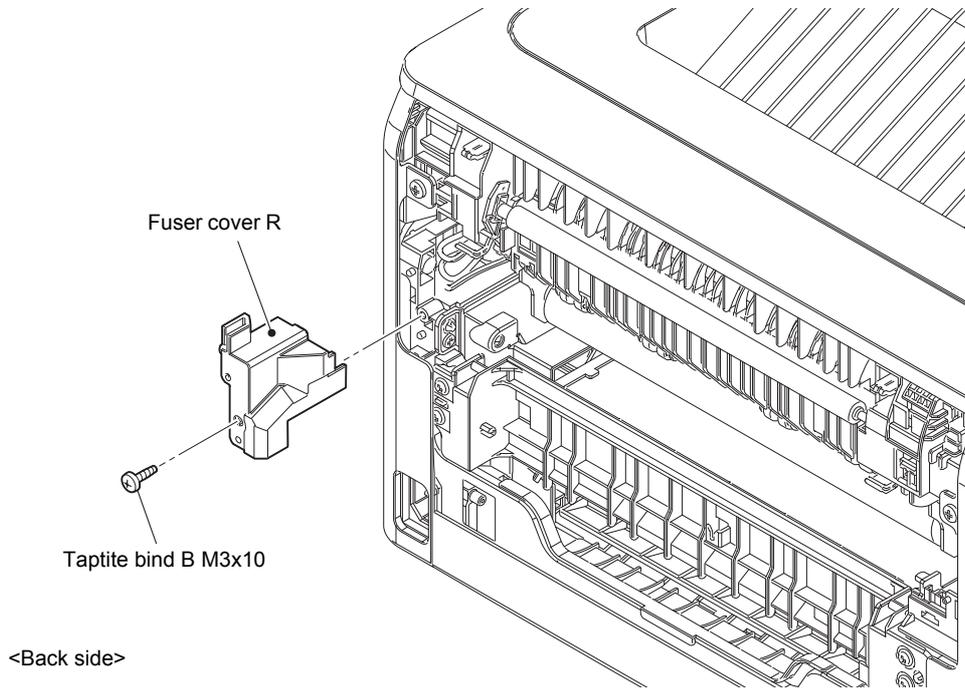**Fig. 3-11**

(5) Disconnect the Center thermistor harness and the Side thermistor harness from the Eject
sensor PCB.

Side thermistor harness

Center thermistor harness

Eject sensor PCB

<Back side>
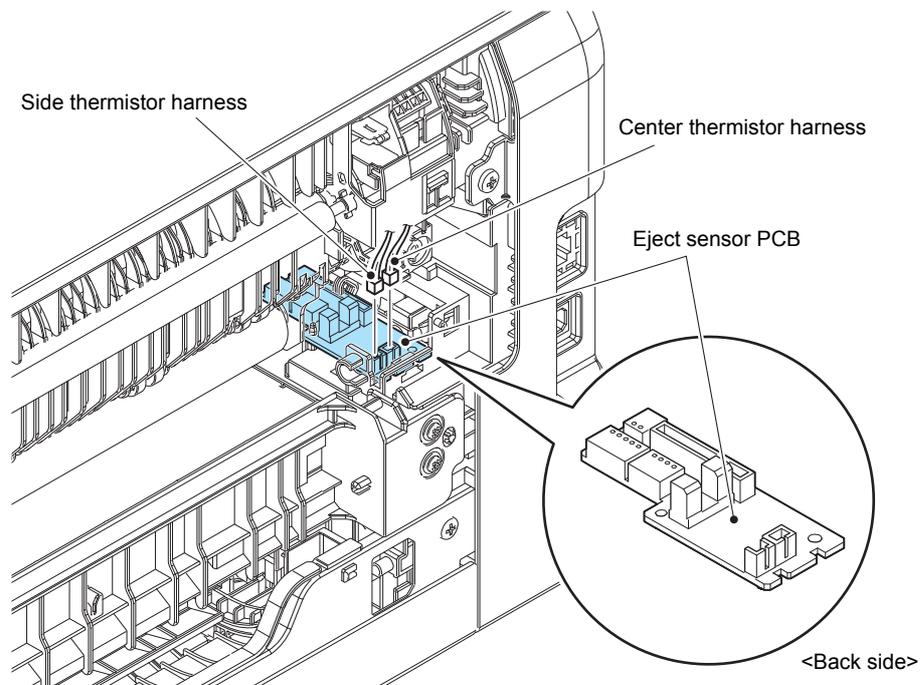
Fig. 3-12

(6) Remove the two Taptite pan (washer) B M4x12DA screws. Pull out the Fuser unit on the Frame L side in the direction of arrow 6a and then remove it in the direction of arrow 6b.

(7) Disconnect the Heater harness of the Fuser unit from the LVPS heater harness.
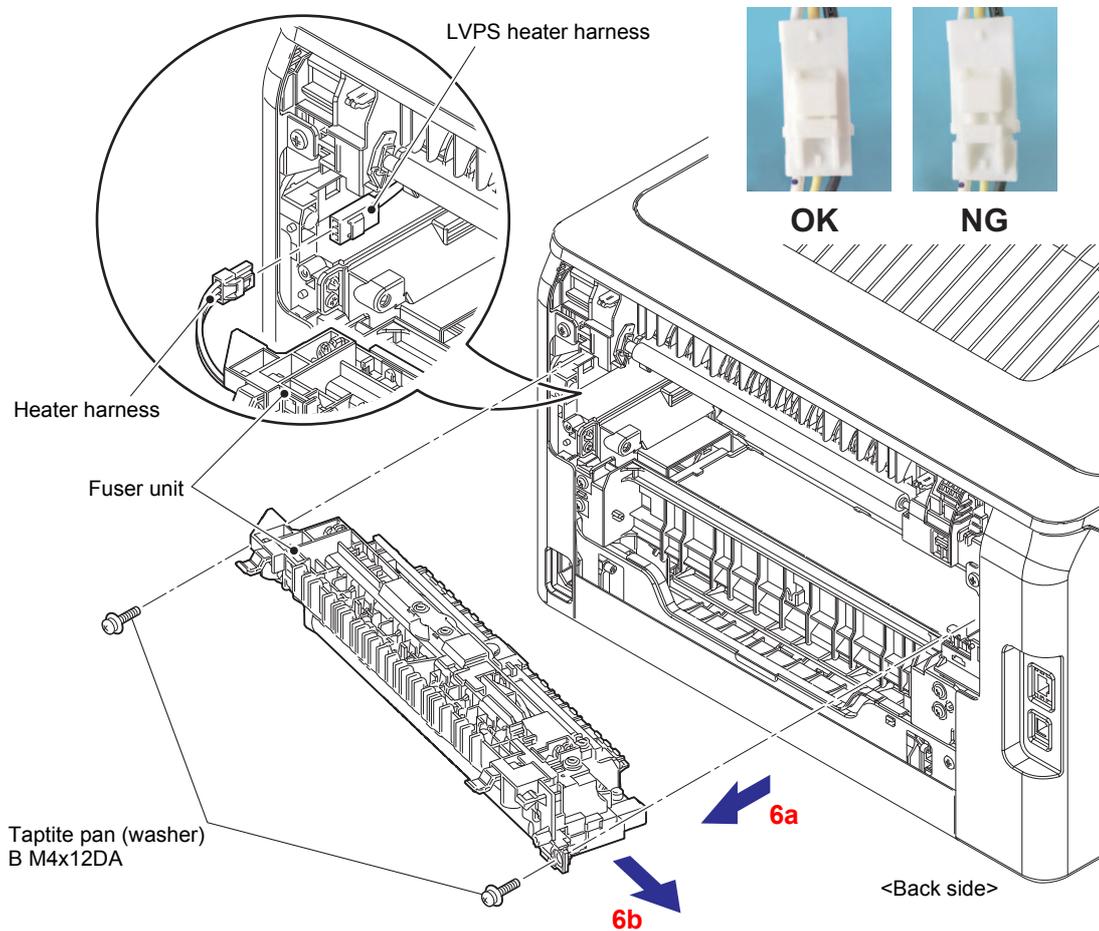
Fig. 3-13

Assembling Note:

• After connecting the Heater harness, pull the Connector on the Heater harness side while holding the Connector on the LVPS heater harness side to make sure it is locked.

Note:

• Do not apply a physical impact or vibration to the Fuser unit.

Assembling Note:

• After connecting the Heater harness of the Fuser unit to the LVPS heater harness, the Heater harness is housed so that it does not come out of the Frame R.

LVPS heater harness

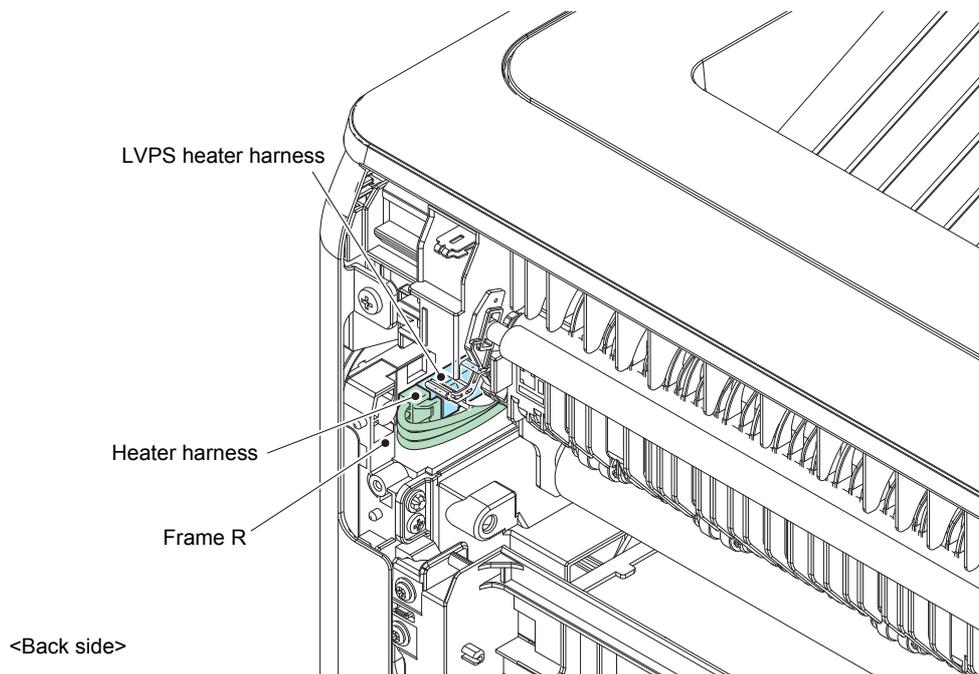Heater harness

Frame R

<Back side>

Fig. 3-14

9.6 Side cover L

(1) Open the Top cover and Manual feed slot.

(2) Remove the two Taptite bind B M4x12 screws.

(3) Release the Hooks A, B, C, and the Hook D in order of arrow A to C, and remove the Side cover L.

> **Note:**
> • Release the Hooks B while pushing them by using a flat-blade screwdriver or similar tool.

Fig. 3-15

9.7 Side cover R

(1) Remove the two Taptite bind B M4x12 screws.

(2) Release the Hooks A, B, C, and the Hook D in order of arrow A to C, and remove the Side cover R.

> **Note:**
> • Release the Hooks B while pushing them by using a flat-blade screwdriver or similar tool.

Taptite bind B M4x12
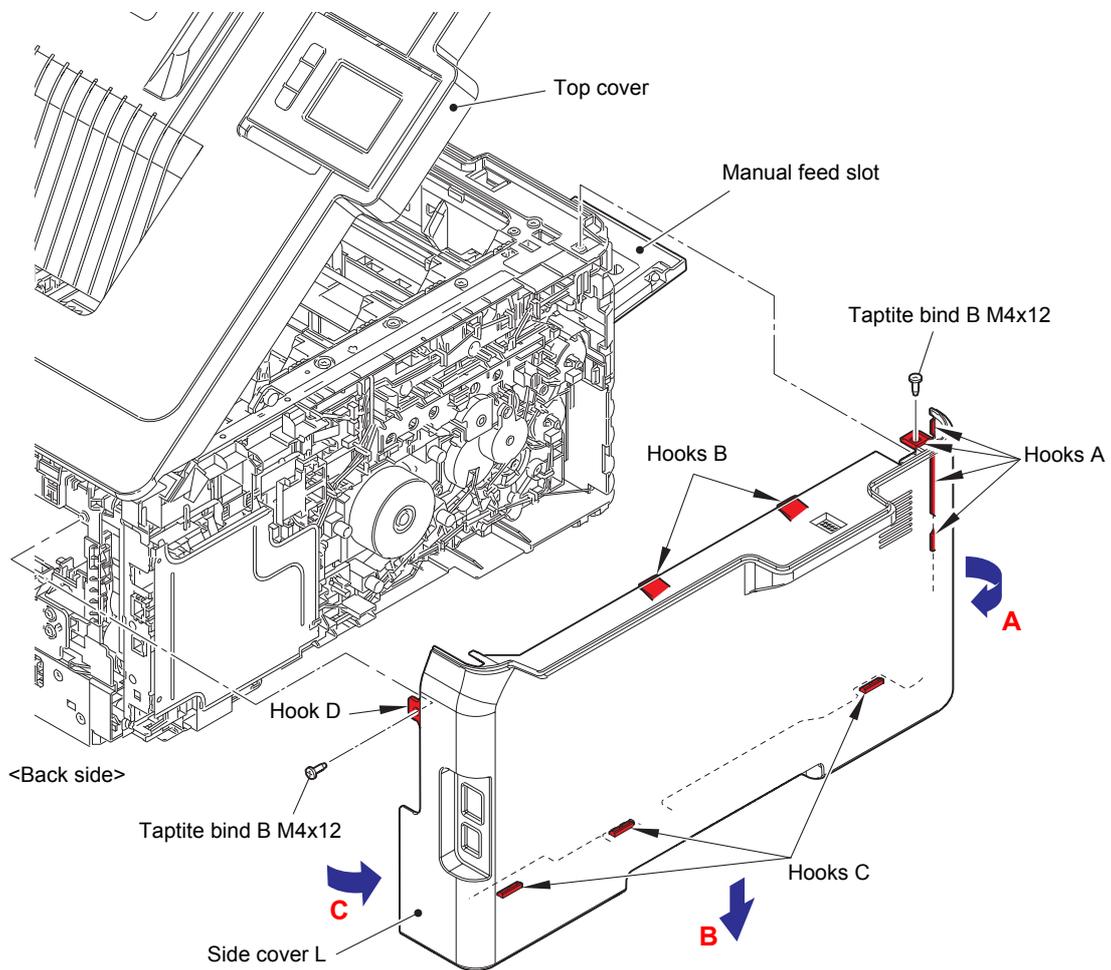
Hooks A

Hooks B

A

Hooks C

B

Hook D

Taptite bind B M4x12   <Back side>

C

Side cover R
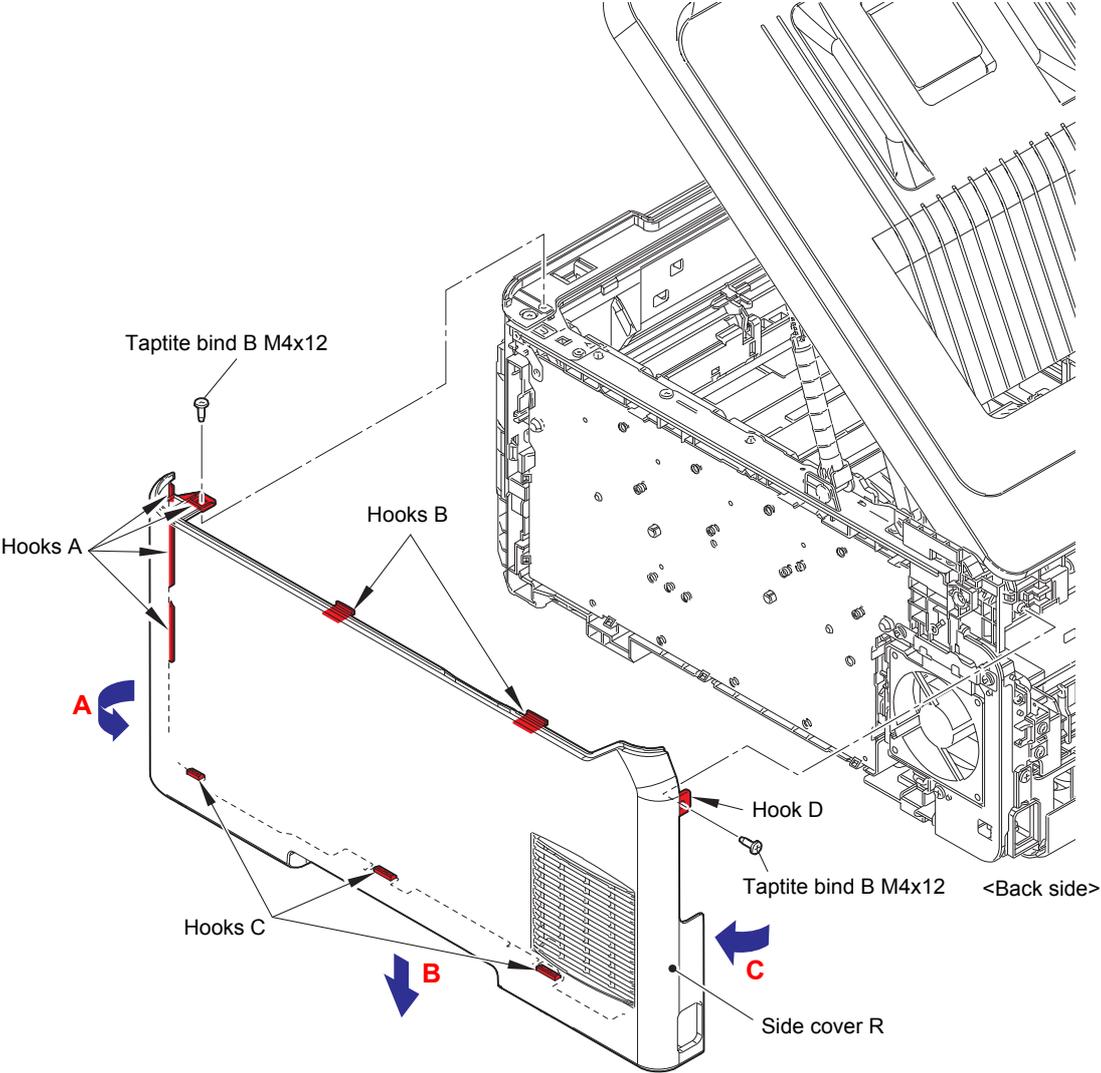
Fig. 3-16

(3) Close the Manual feed slot.

9.8 Back cover lower

(1) Release each Hook to remove the Back cover lower.
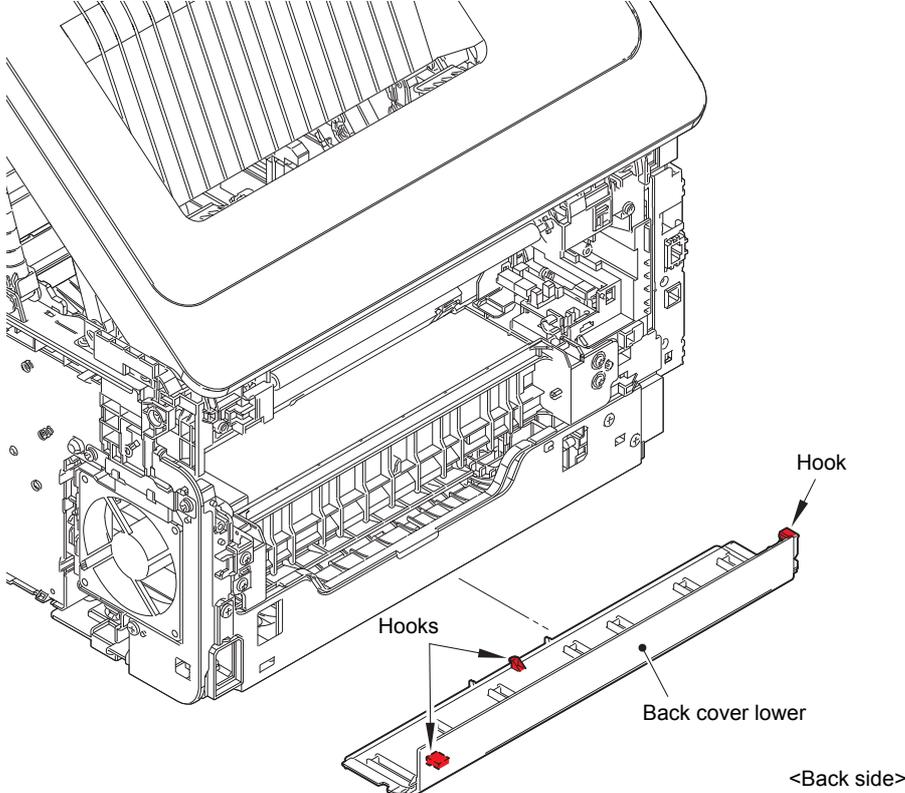
Fig. 3-17

9.9 Top cover ASSY

(1) Remove the four Screw cup M3x8 (black) screws to remove the Main shield cover plate ASSY.

(2) Disconnect the Panel flat cable (for Touch panel models) or the Panel harness (for Non-touch panel models) and the LED control flat cable from the Main PCB, and then release them from the securing fixtures.

Panel flat cable (For Touch panel models)

Panel harness (For Non-touch panel models)

LED control flat cable

Main PCB

Main shield cover plate ASSY

Screw cup M3x8 (black)
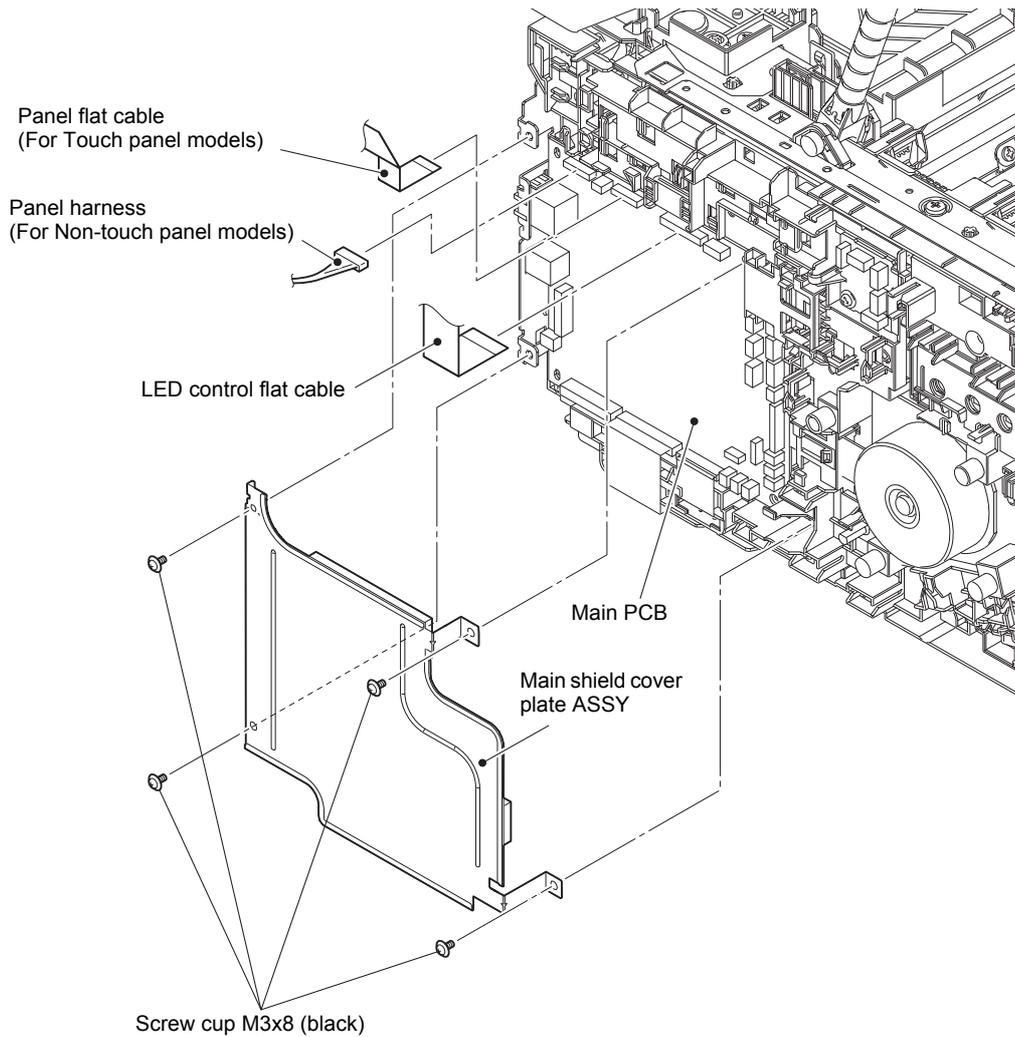
Fig. 3-18

Harness routing: Refer to "2. Main PCB, Cartridge sensor relay PCB".

(3) Remove the Taptite pan (washer) B M4x12DA screw to remove the LED ground wire. Pull out the LED ground wire through the Hole of the Side frame R.
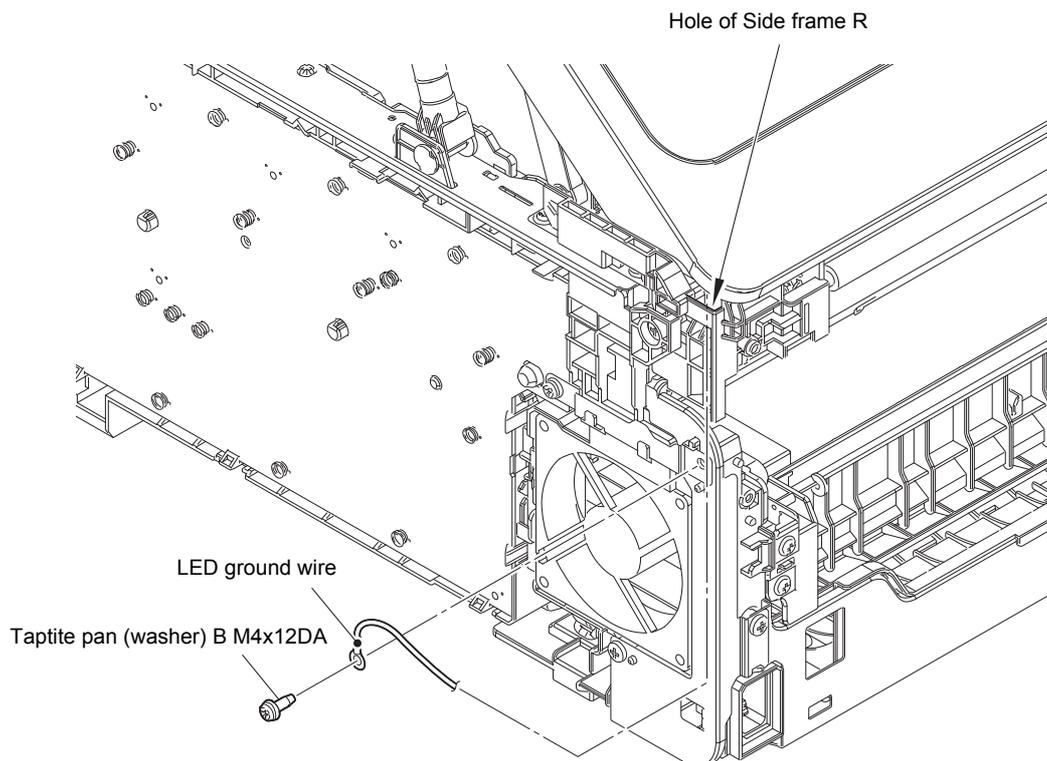
Fig. 3-19

Harness routing: Refer to "3. High-voltage power supply PCB, Fan harness, LED ground wire".

(4) Release each Hook to remove the Damper stopper from the Top cover ASSY. (Two locations)

Fig. 3-20

Confidential
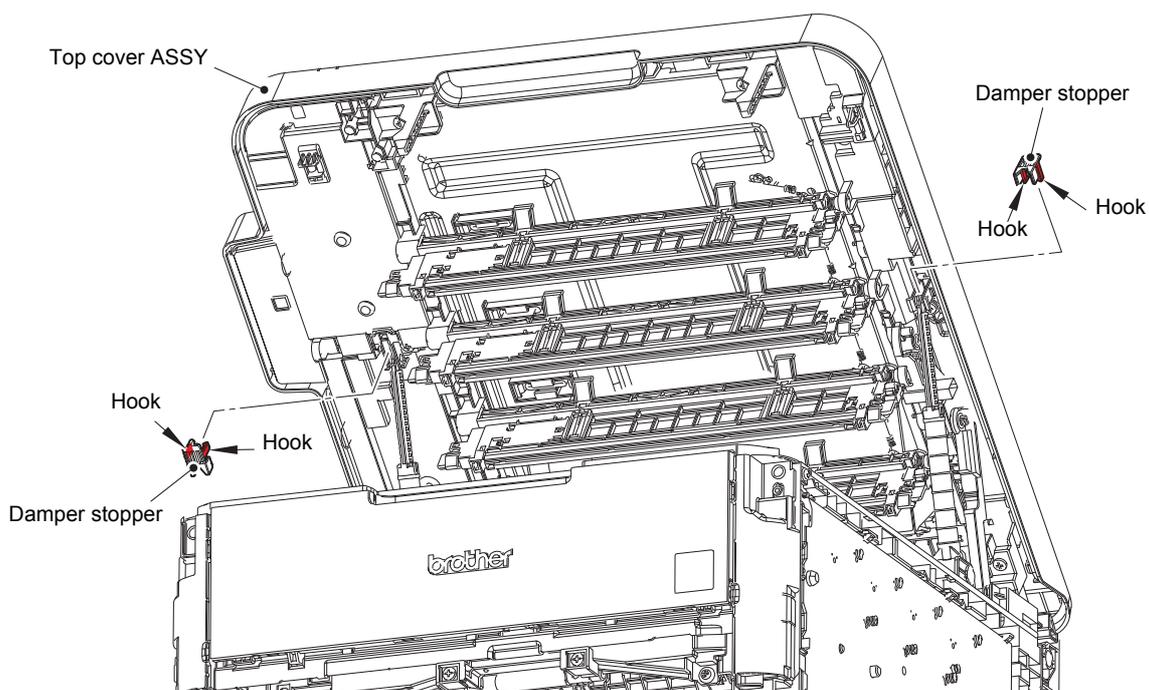
(5) Release each Boss to remove the Damper L ASSY from the Top cover ASSY.

Bosses

Top cover ASSY

Damper L ASSY
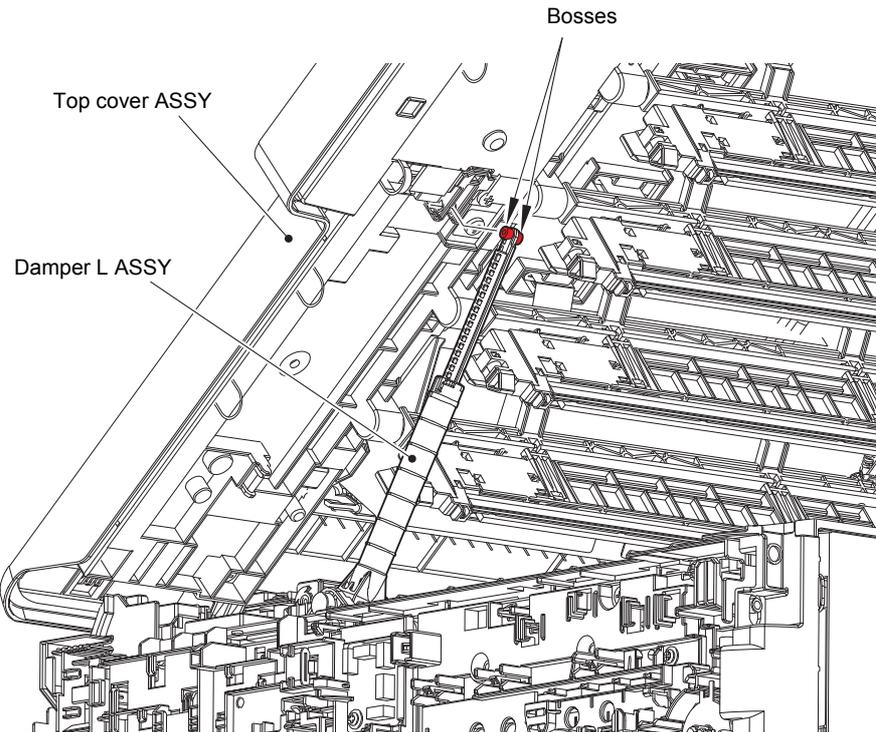
Fig. 3-21

(6) Release each Boss to remove the Damper R ASSY from the Top cover ASSY.

Bosses

Top cover ASSY

Damper R ASSY
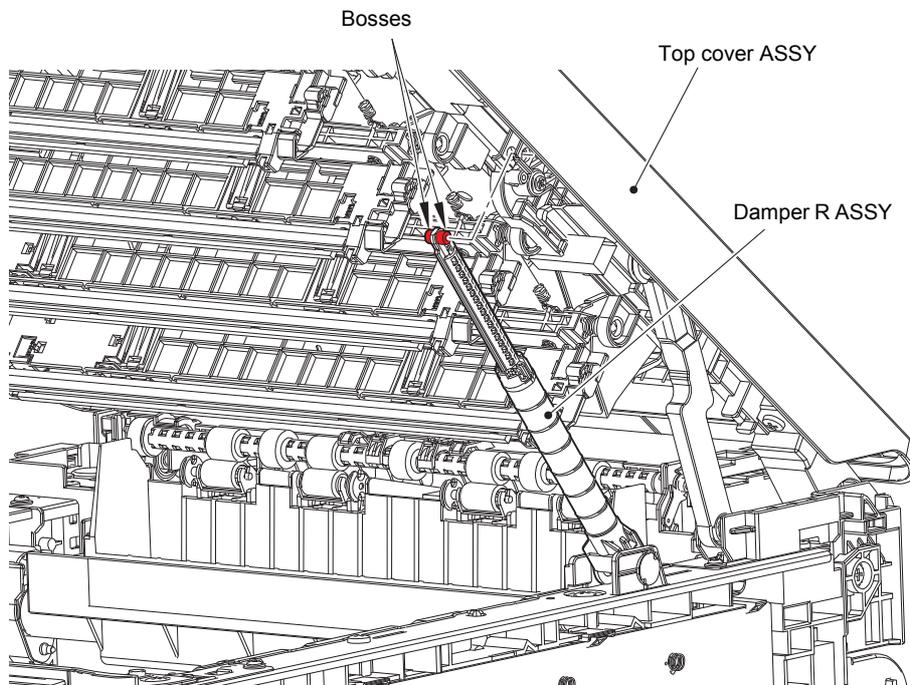
Fig. 3-22

(7) Release each Hook to remove the Arm R from the Top cover ASSY.

Hooks

Top cover ASSY

Arm R
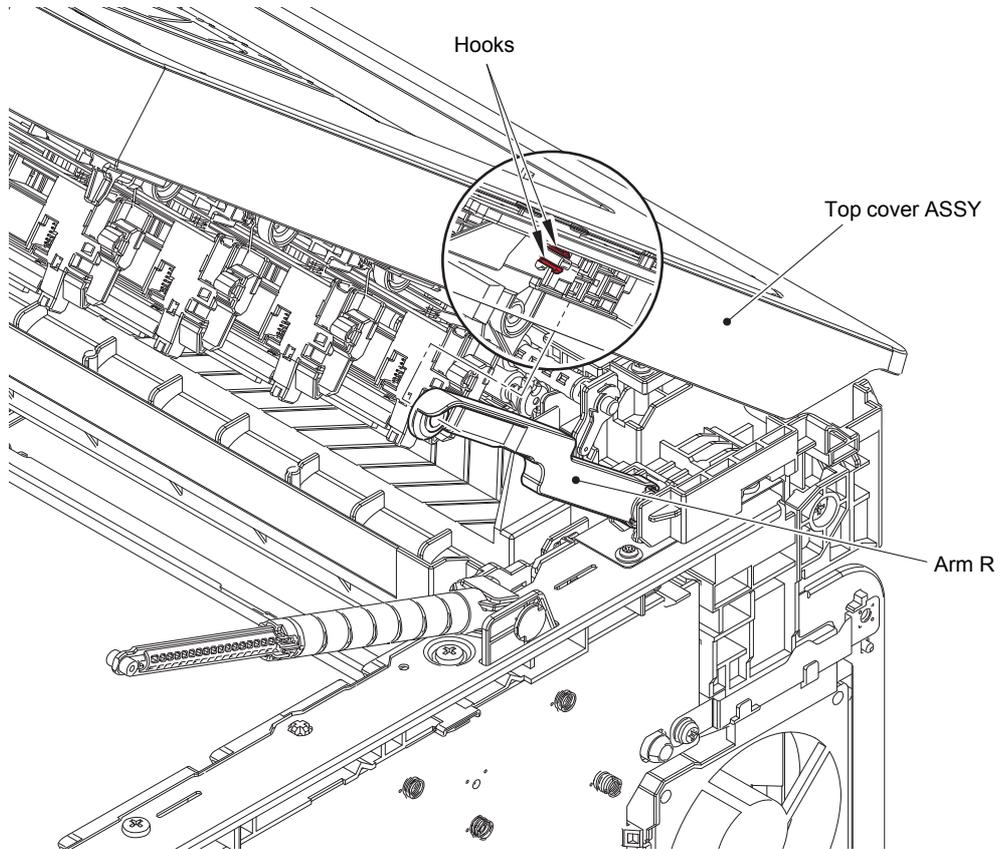
Fig. 3-23

(8) Open the Top cover ASSY at 90 degrees to remove it upward.

(9) Remove the Paper stopper from the Top cover ASSY.
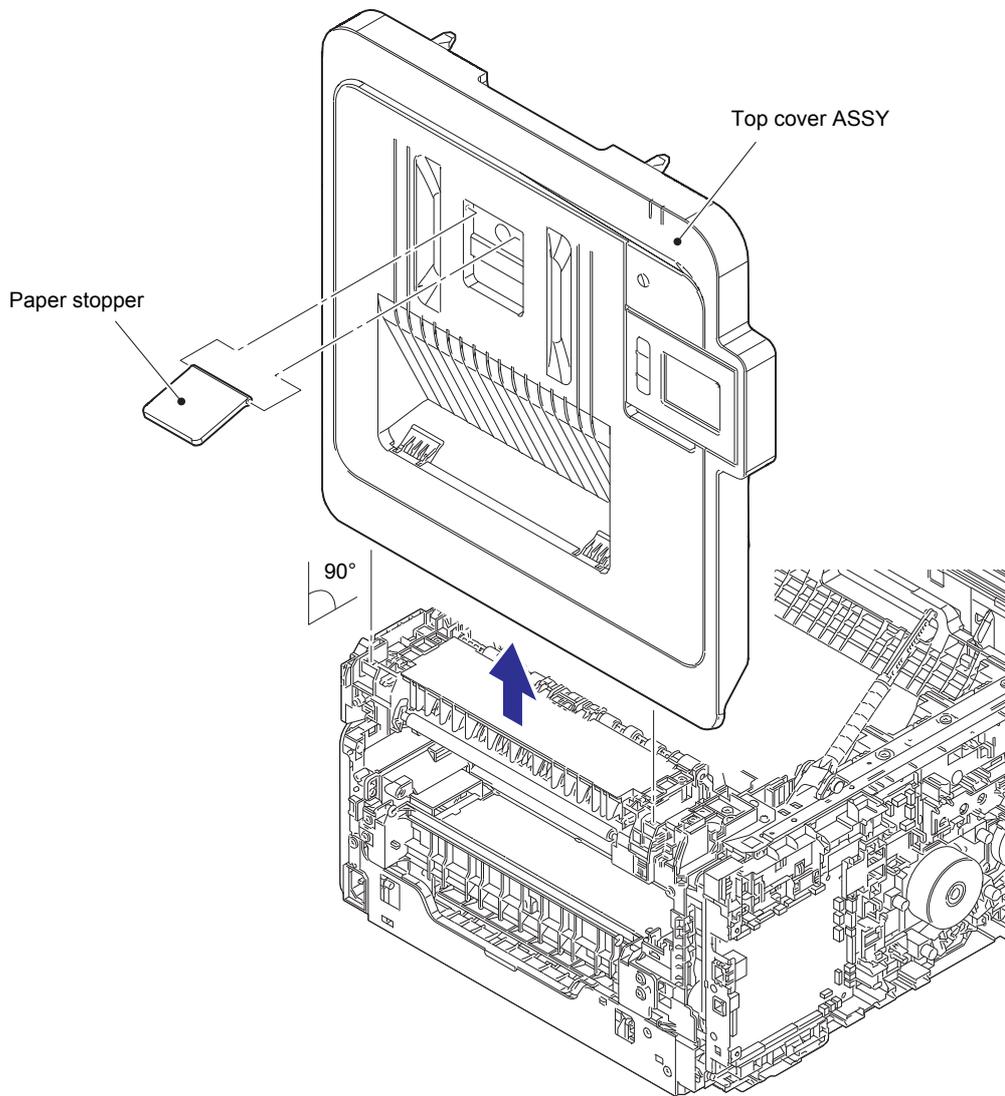
Fig. 3-24

(10) Slide the Push arm in the direction of the arrow to raise the LED ASSYs.

(11) Remove the two Taptite bind B M4x12 screws to remove the two TC lock arm guides from the Top cover ASSY.

(12) Remove the Taptite bind B M4x12 screw. Release the Hook to remove the Damper hinge R from the Top cover ASSY.
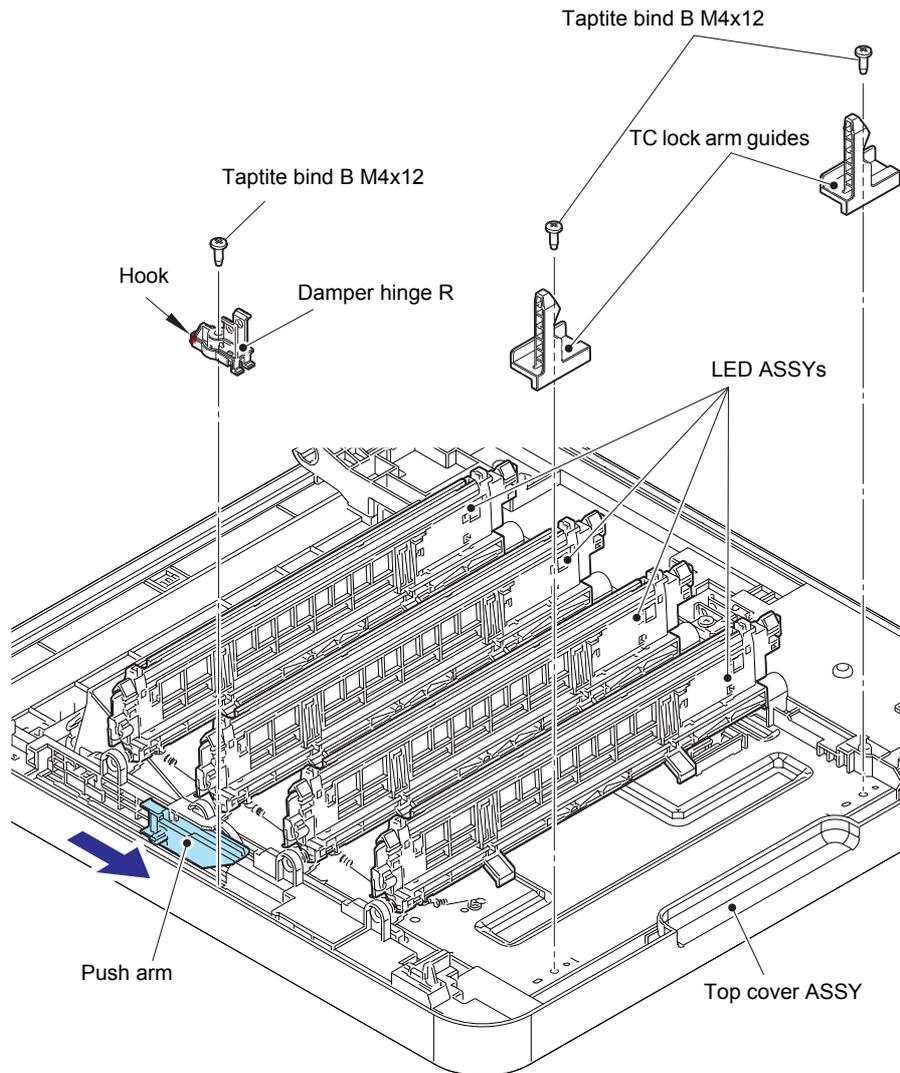
Fig. 3-25

(13) Release the LED ground wire from the Hook of the Top cover ASSY.

(14) Remove the seven Taptite bind B M4x12 screws. Release the Hook to remove the LED unit from the Top cover ASSY.
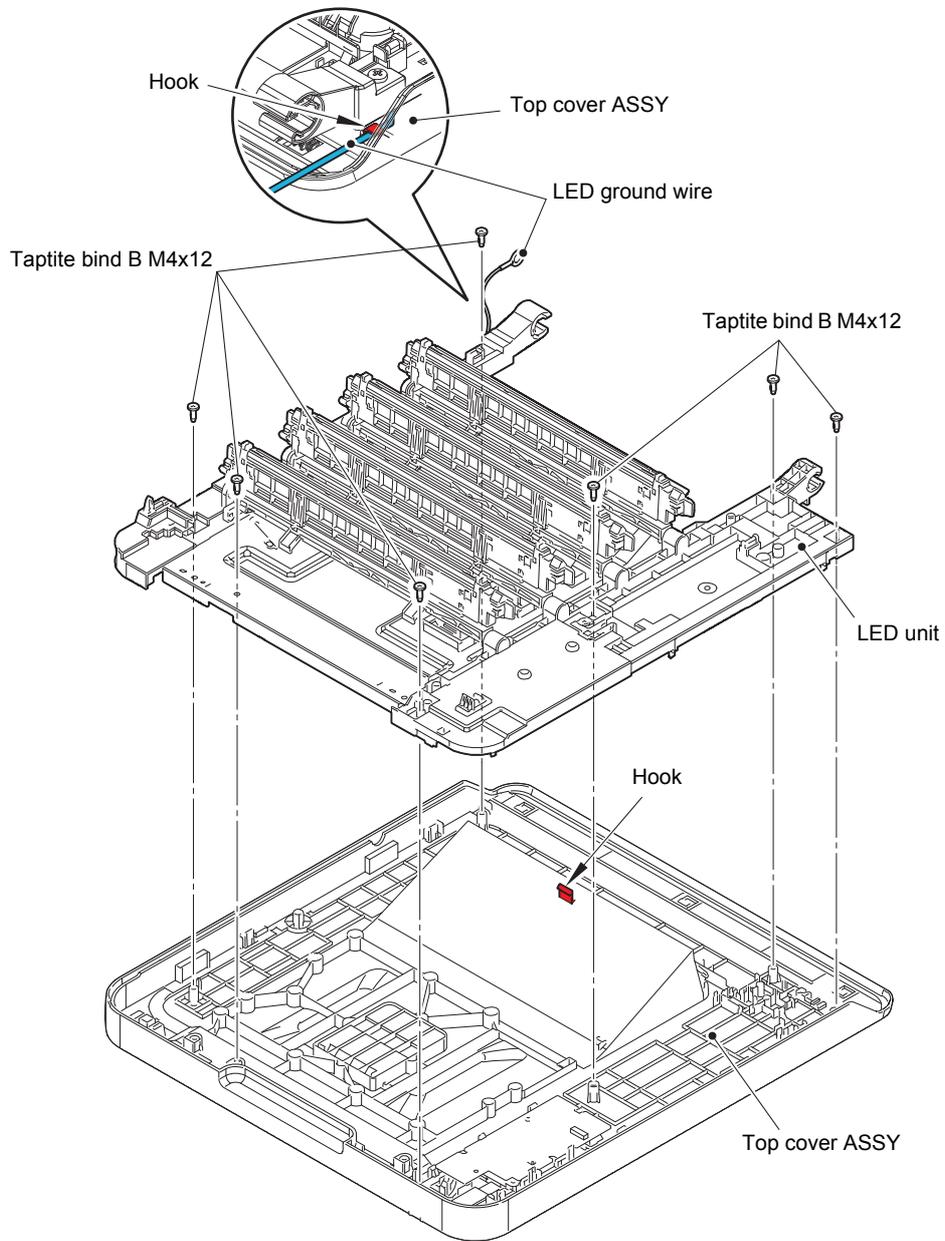
Fig. 3-26

9.10 LCD panel ASSY

■ For Touch panel models

(1) Remove the Panel flat cable from the Double-sided tape to release it from the securing fixtures. Disconnect the Panel flat cable from the Panel relay PCB.

> **Note:**
> • Be sure to replace the Double-sided tape with a new one after removing the Panel flat cable from the Double-sided tape.

(2) Disconnect the NFC flat cable and the Panel relay flat cable from the Panel relay PCB.

(3) Remove the Taptite cup B M3x8 screw, and release the Panel ground wire from the securing fixtures.

(4) Remove the Antistatic spring 2 from the Panel case ASSY. Release the Hook to remove the Relay ground plate from the Panel case ASSY.
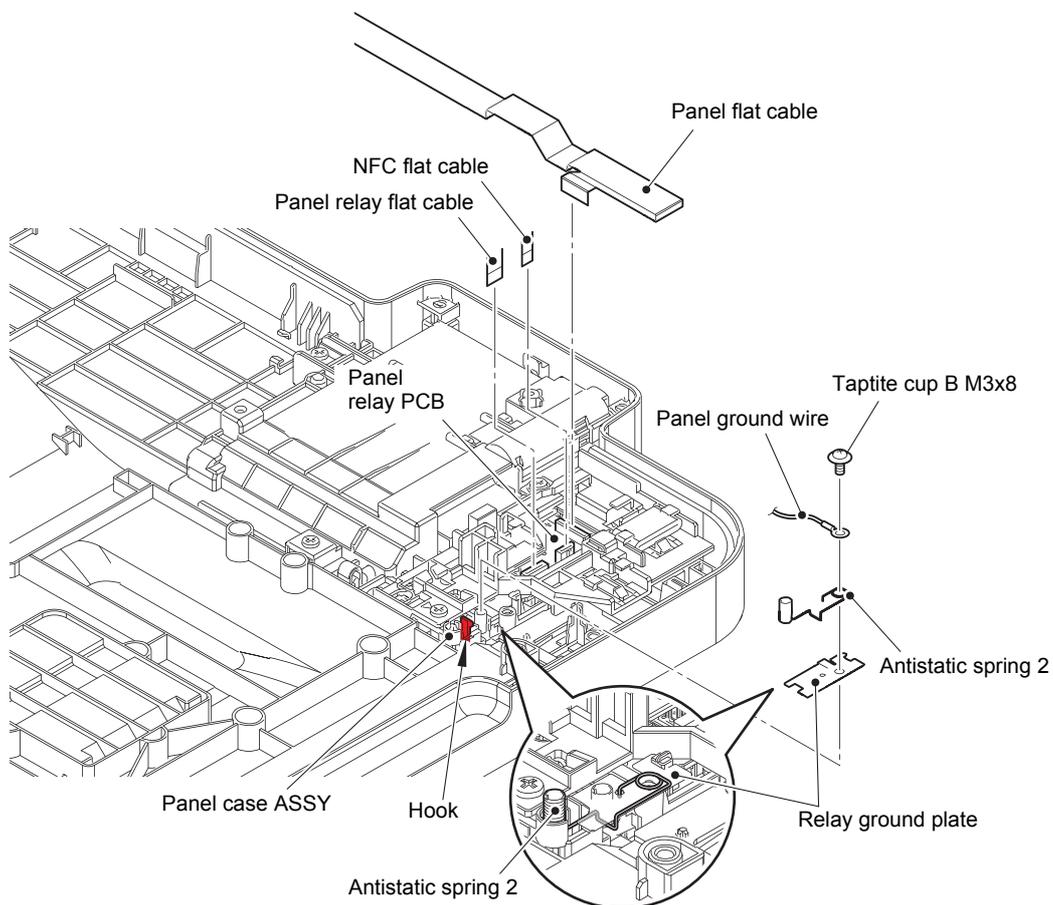
Fig. 3-27

Harness routing: Refer to "1. Top cover ASSY".

Confidential

Assembling Note:

• Fold the Panel flat cable at the positions described below.

<Non-touch panel model>

Main PCB side

Reinforcing plate surface

10±1 47±1 65±1 101±1 184±1 205±1

45°

Sponge

0.5 to 2

45° 12±1

80

45°

568

45° 5±1

231±1 509±1 554±1 576±1

135±1

Reinforcing plate surface

67±1

Panel PCB side

<Touch panel model>

Main PCB side

Reinforcing plate surface

15±1 40±1 60±1 99±1 201±1 232±1

45°

45°

21±1

0 to 1.5

Sponge

45°

45° 45°

0.5 to 2

12±1

80

45°

535

45° 6±1

195±1 472±1 521±1 542±1

109±1

8±1 37±1

Panel PCB side

——— Mountain fold   - - - - - - - Valley fold

Fig. 3-28

Confidential
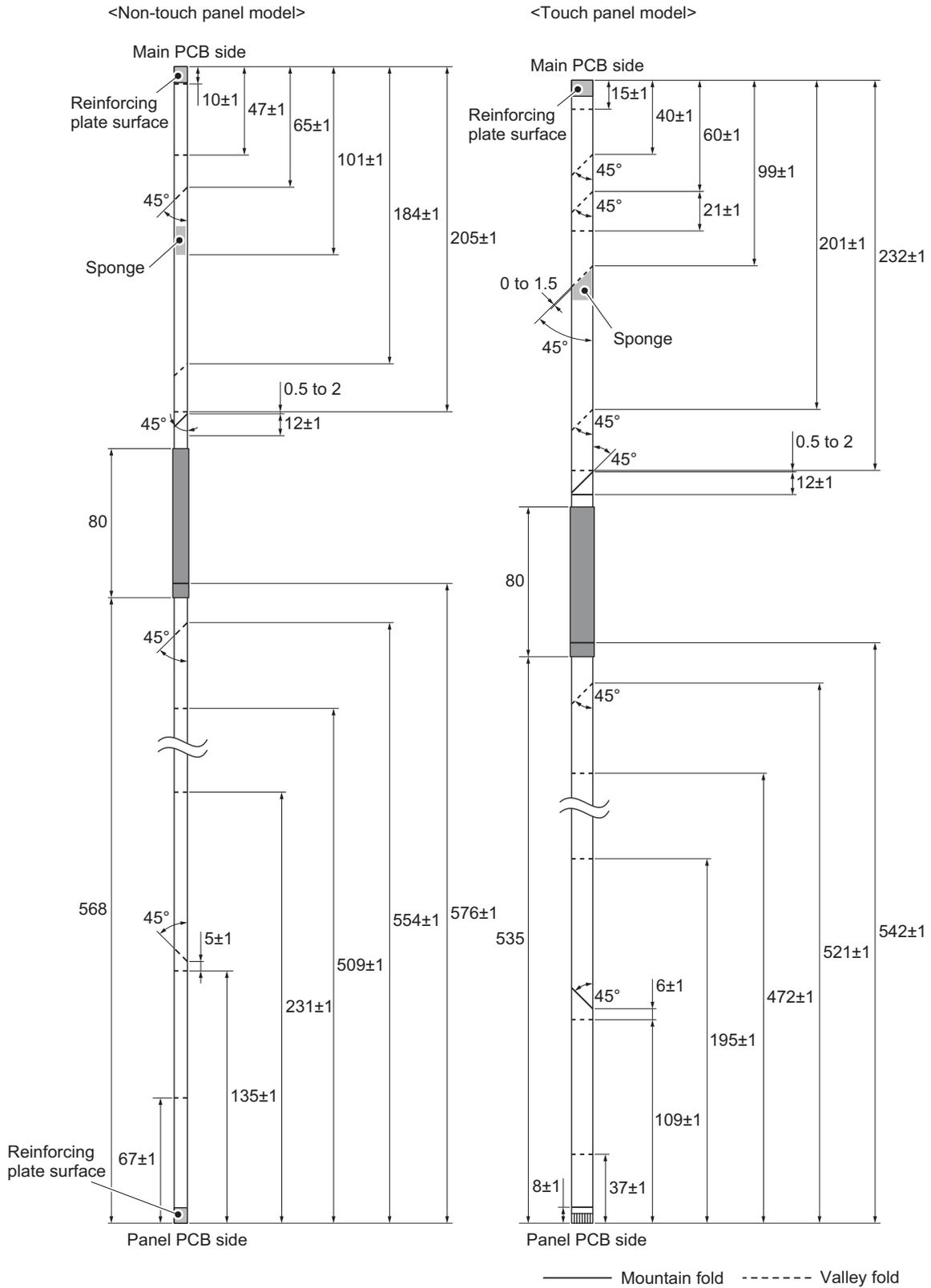
(5) Remove the two Taptite bind B M3x10 screws to remove the Panel FFC holder from the Panel sub ASSY.

(6) Release the Hook to remove the NFC PCB from the Top cover ASSY.

Taptite bind B M3x10

Panel FFC holder

NFC PCB

Top cover ASSY

Hook
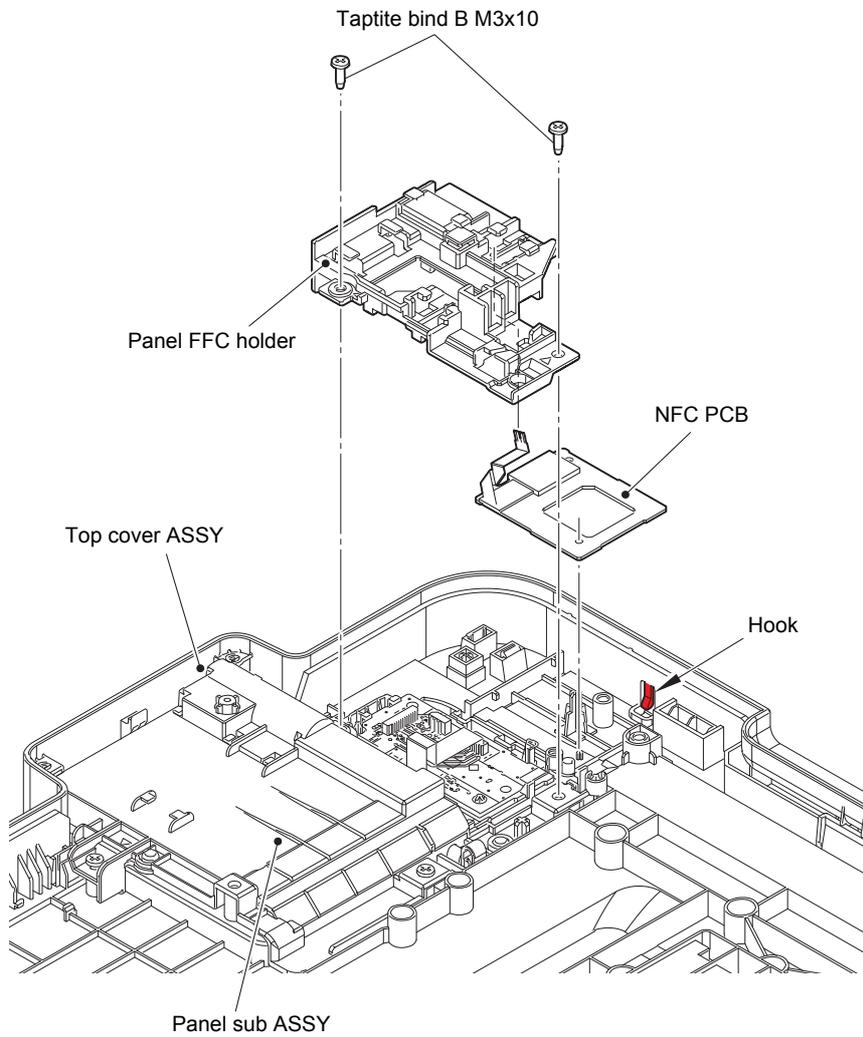
Panel sub ASSY

Fig. 3-29

(7) Remove the two Taptite bind B M3x10 screws. Open the Panel sub ASSY in the direction of the arrow. Release each Boss to remove the Panel sub ASSY from the Top cover ASSY.

Note:
• As the Power light guide tends to come off, be careful not to lose it.

Taptite bind B M3x10

Bosses

Panel sub ASSY

Top cover ASSY

Power light guide
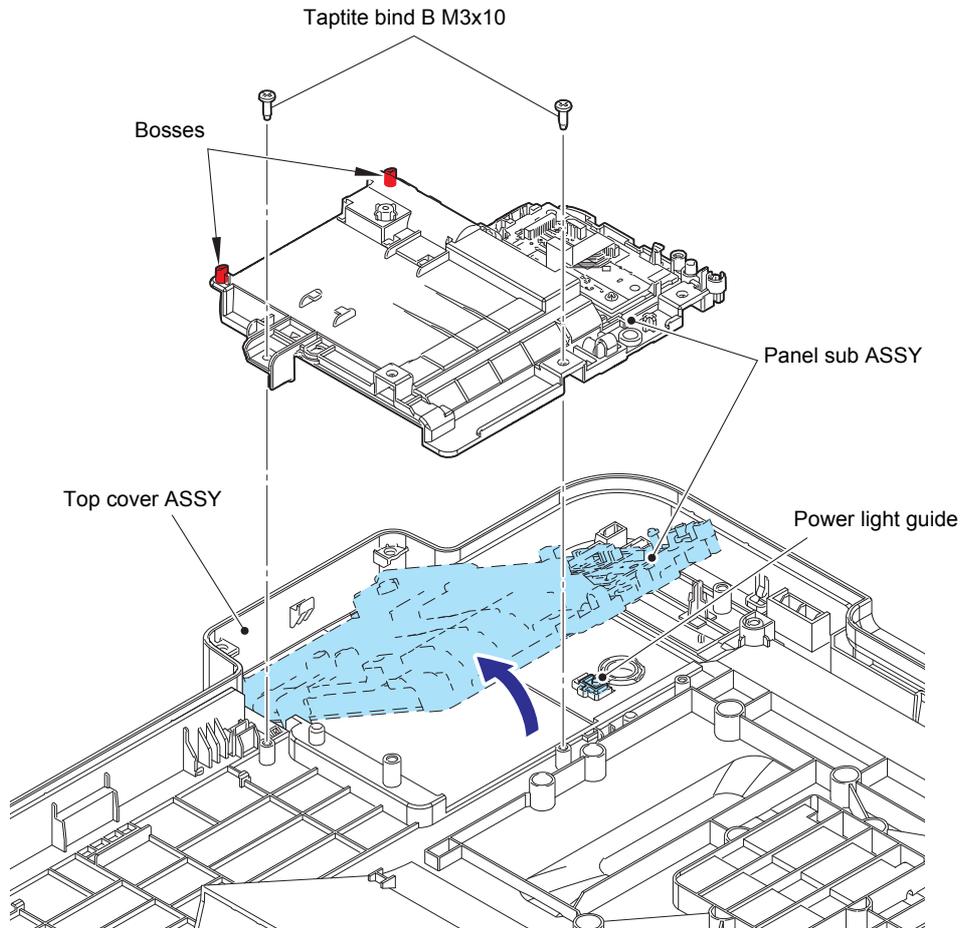
Fig. 3-30

(8) Release the Hook to remove the LCD panel ASSY from the Panel sub ASSY.
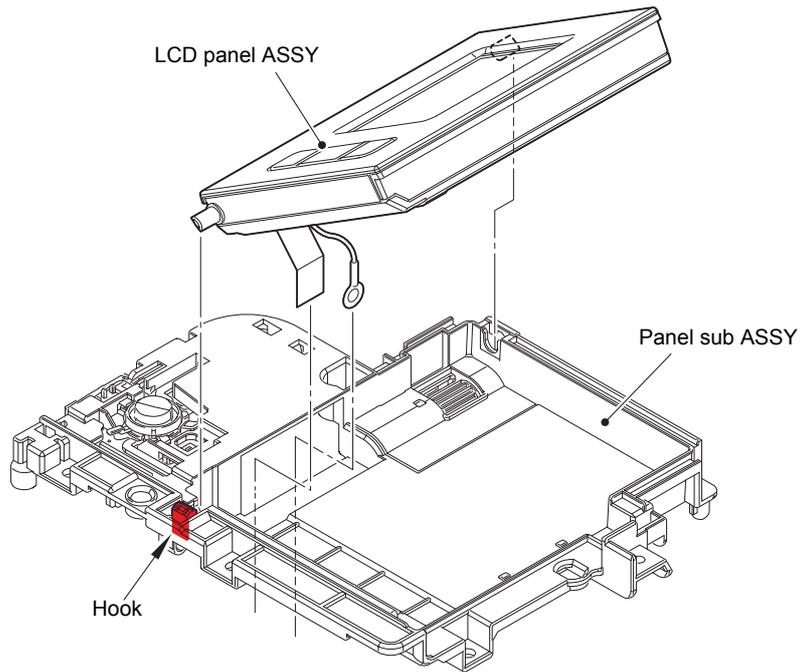
Fig. 3-31

(9) Remove the Taptite bind B M3x10 screw. Release each Hook to remove the Panel lower from the LCD panel upper. Pull out the Panel relay flat cable through the Hole of the Panel lower.

(10) Remove the Taptite pan (S/P washer) B M3x10 screw to remove the Panel ground wire and the Antistatic spring 1 from the LCD panel upper.
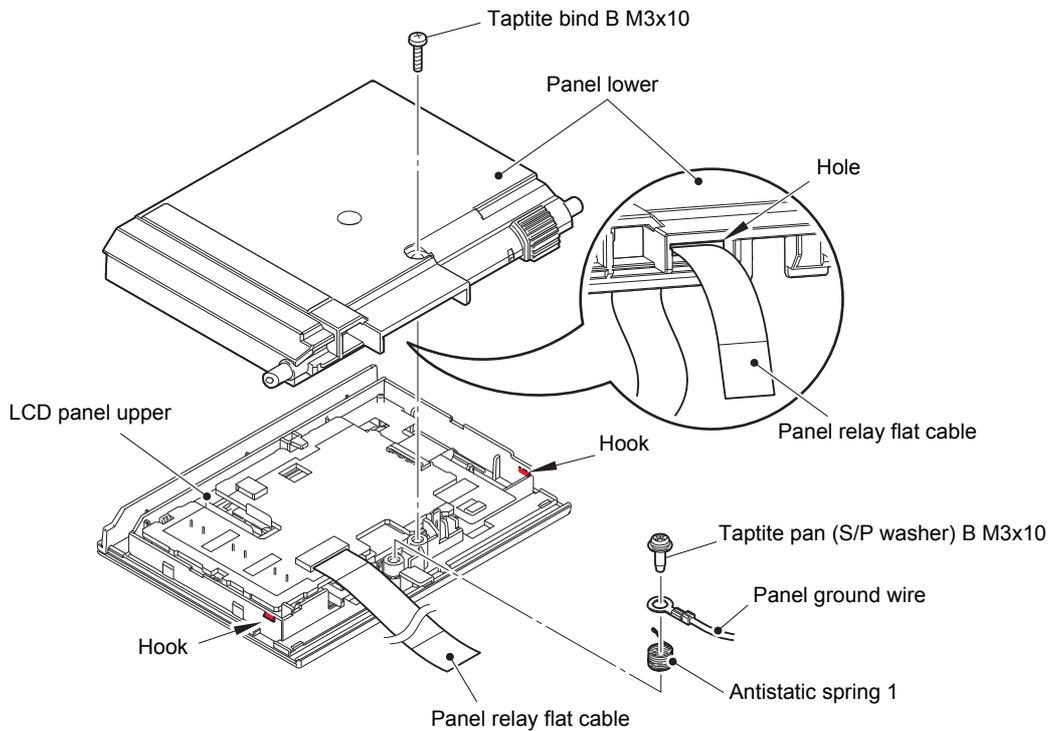
Fig. 3-32

(11) Release the Lock to disconnect the Panel relay flat cable from the Panel PCB.

(12) Release the Lock to disconnect the LCD flat cable from the Panel PCB.

(13) Disconnect the Touch panel flat cable from the Panel PCB.
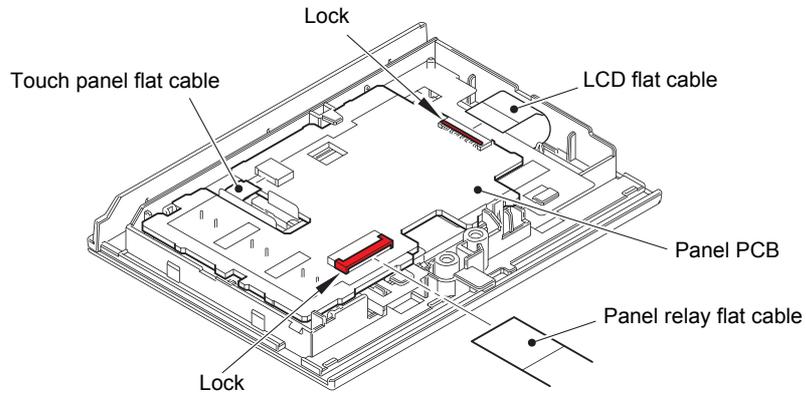
Fig. 3-33

(14) Release the Hook to remove the Panel PCB from the LCD panel upper.

(15) Remove the LCD back film from the LCD panel upper.
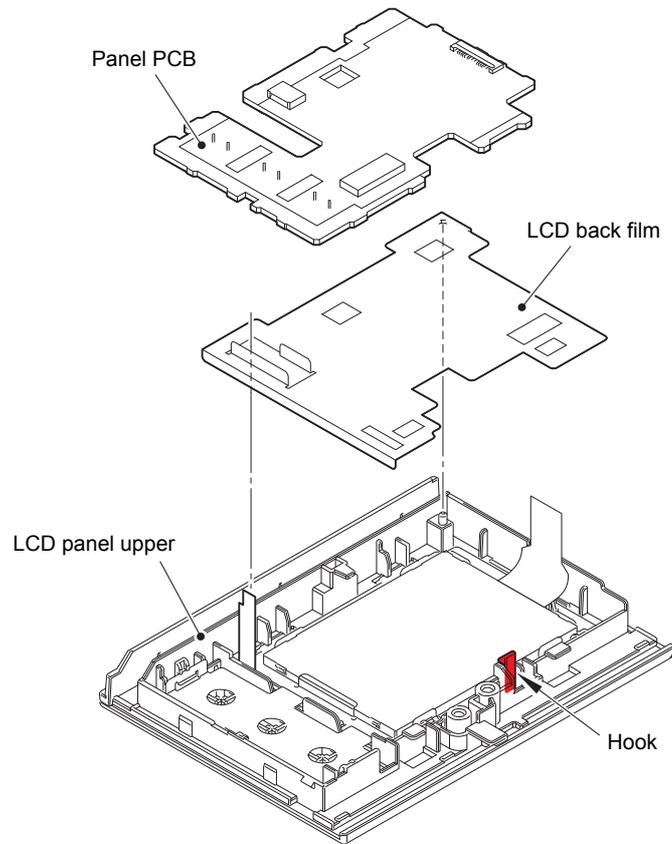
Fig. 3-34

(16) Release each Hook to remove the LCD from the Touch panel plate.

(17) Release each Hook to remove the Touch panel plate from the LCD panel upper.

(18) Remove the LCD film from the LCD panel upper.

(19) Remove the Touch panel from the LCD panel upper.

LCD

Hooks

Hooks

Touch panel plate

Hooks

LCD film

Touch panel

LCD panel upper

Hooks

Hooks
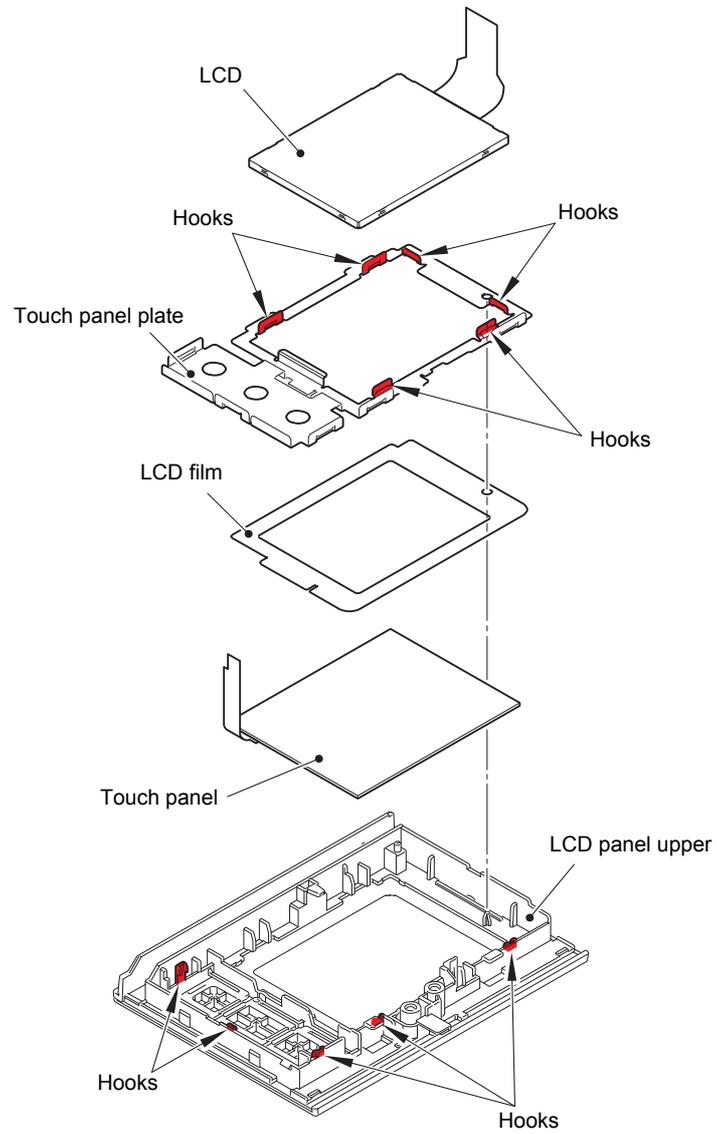
Fig. 3-35

■ For Non-touch panel models

(1) Release the Panel harness from the securing fixtures.

(2) Remove the tape. Release each Hook to remove the Panel PCB from the Top cover ASSY.

(3) Release the Lock to disconnect the LCD flat cable from the Panel PCB.

(4) Release each Hook to remove the Back light guide from the Top cover ASSY.

(5) Remove the LCD sheet from the Top cover ASSY.

(6) Remove the LCD from the Top cover ASSY.

(7) Remove the Rubber key from the Top cover ASSY.

Note:

• Make sure that the Positioning pins are inserted to the Rubber key.
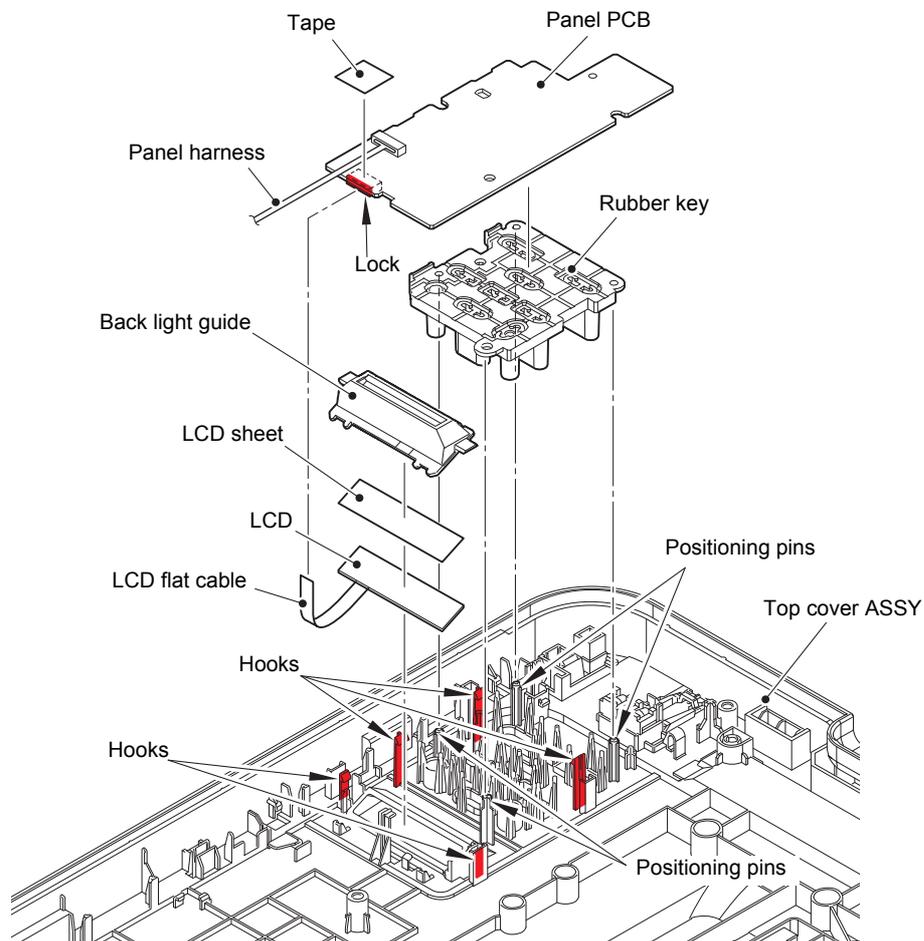
Fig. 3-36

9.11 LED control flat cable / LED control PCB

Note:
- When disassembling/assembling the LED unit, attach it to the machine to prevent breakage of the LED ASSYs.

(1) Remove the three Screw cup M3x8 SR screws to remove the LED PCB shield plate.
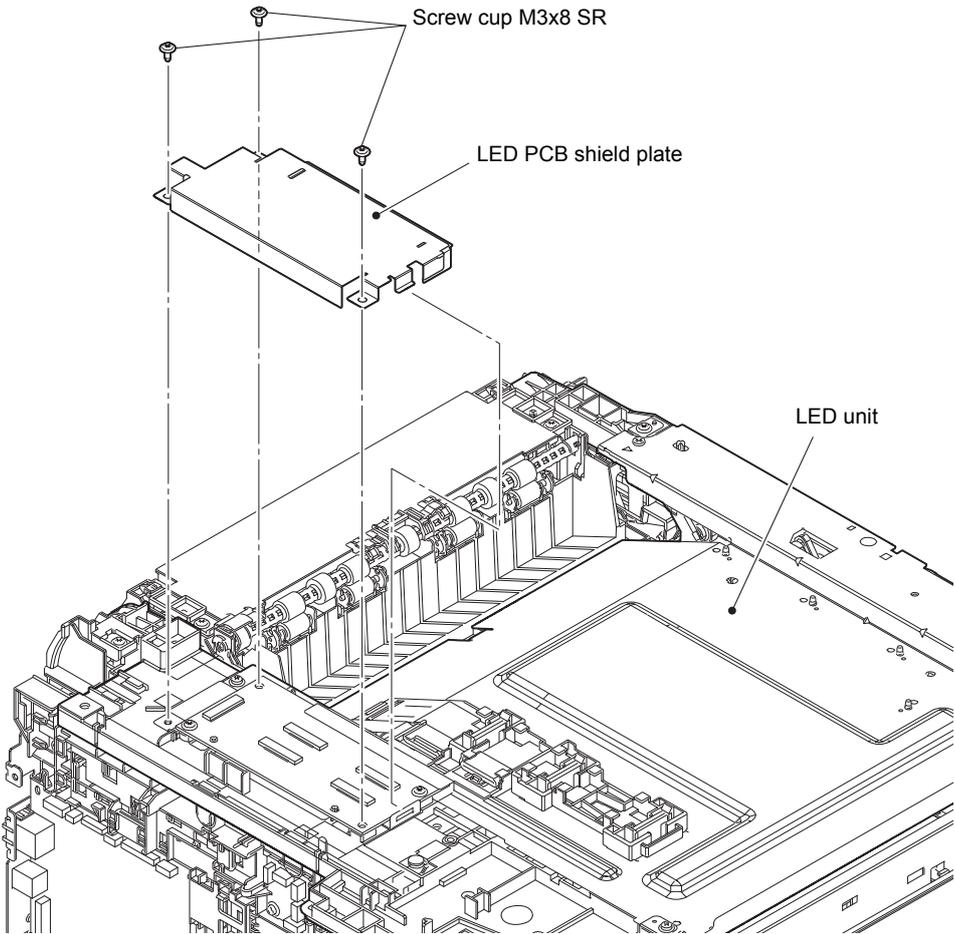
Fig. 3-37

(2) Release the Lock to disconnect the LED control flat cable from the LED control PCB. Remove the LED control flat cable from the Double-sided tape to release it from the securing fixtures.

(3) Release each Lock to disconnect the LED ASSY flat cable C, the LED ASSY flat cable K, the LED ASSY flat cable M, and the LED ASSY flat cable Y from the LED control PCB. Release each LED ASSY flat cable from the securing fixtures.

> **Note:**
>
> • Remove the LED ASSY flat cable K from the Double-sided tape.

(4) Remove the two Screw cup M3x8 SR screws to remove the LED control PCB and the LED PCB insulation sheet from the LED unit.

(5) Remove the LED unit from the machine.
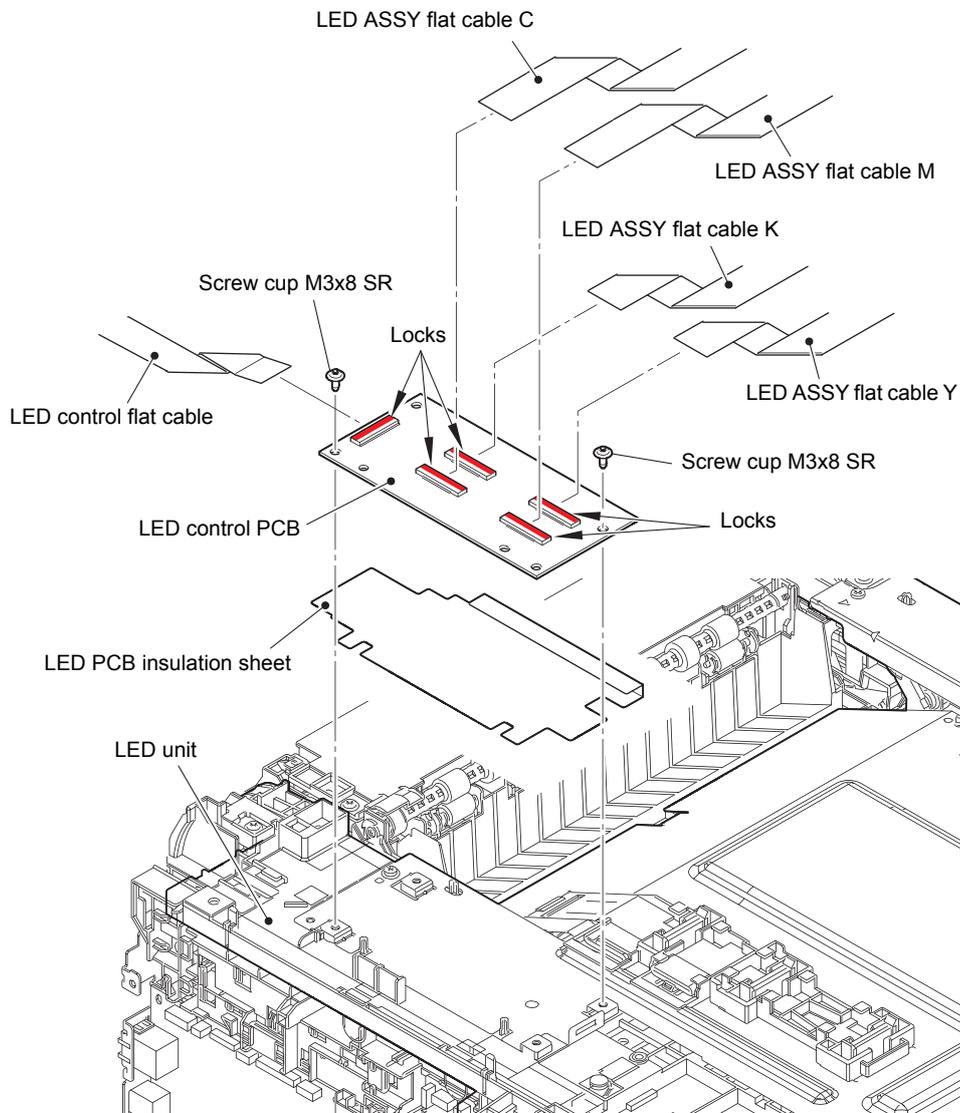
Fig. 3-38

Harness routing: Refer to "4. LED unit".

Assembling Note:

• Fold the LED control flat cable at the positions described below.

LED control PCB side

Reinforcing plate

86±1

136±1

45°

45°

31±1

1±1

Double-sided tape

45°

2±1

4±1

19±1

45°

45°

123±1

82±1

Reinforcing plate

15±1

Main PCB side

——— Mountain fold

- - - - - Valley fold

Fig. 3-39

Confidential
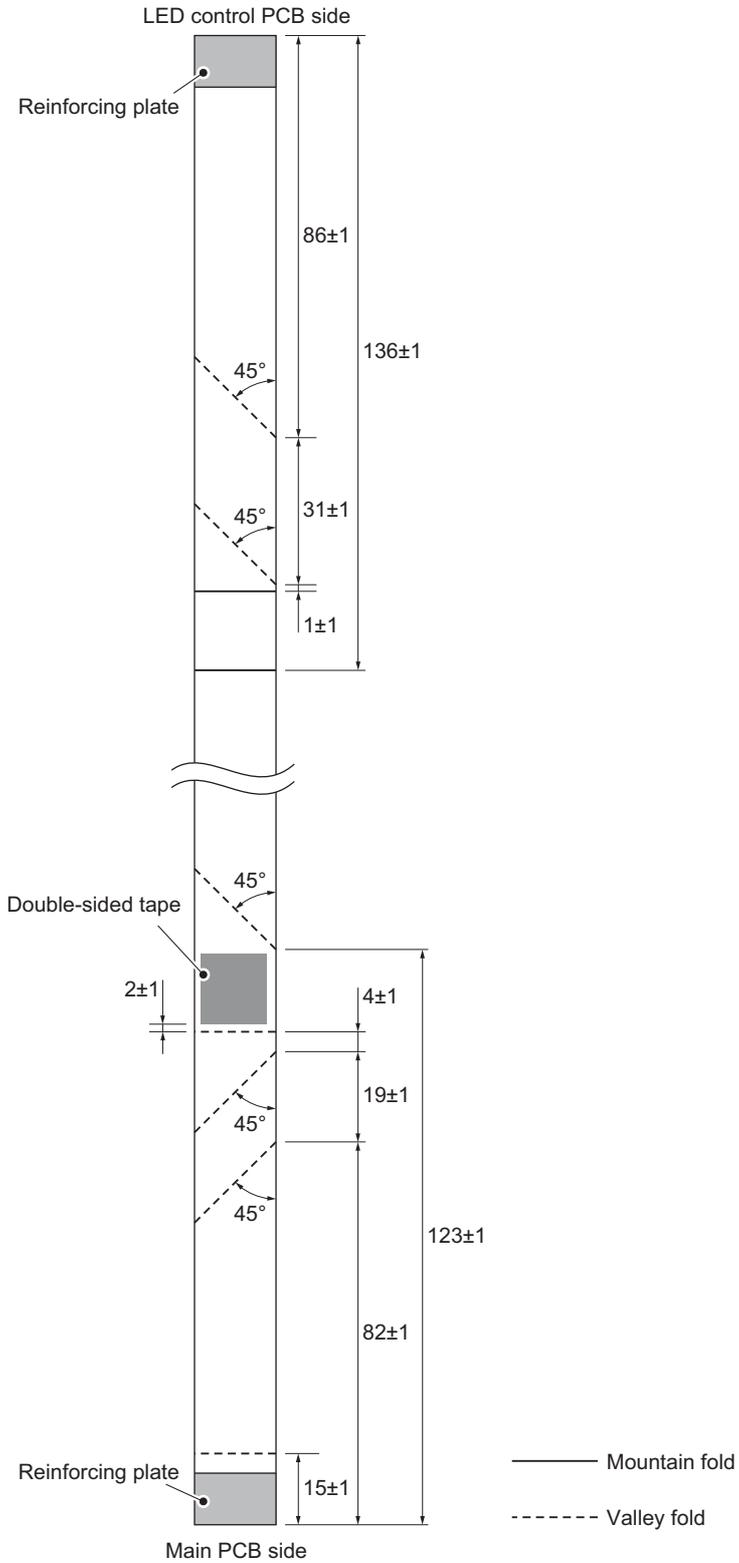
9.12 LED ASSY (Y/M/C/K) / LED ASSY flat cable (Y/M/C/K)

(1) Release each Hook to remove the two Holder hooks from the LED ASSY.

> **Assembling Note:**
>
> • When assembling the Holder hook, make sure to insert the Hook A of the Holder hook into the groove of the LED ASSY first, and then assemble the Hook B of the Holder hook.
>
> • After assembling, make sure to check that the Hook A is firmly engaged to the LED ASSY. If the Holder hook is not engaged firmly, it might cause an image failure.

(2) Remove the LED ASSY, and pull out the LED ASSY flat cable through the Flat core on the LED unit.

> **Note:**
>
> • The LED ASSY flat cable K does not pass through the Flat core.

> **Assembling Note:**
>
> • When assembling the LED ASSY, insert the two Springs A into each Boss of the LED ASSY and insert the tip end of Spring B in the Hole of the LED ASSY.
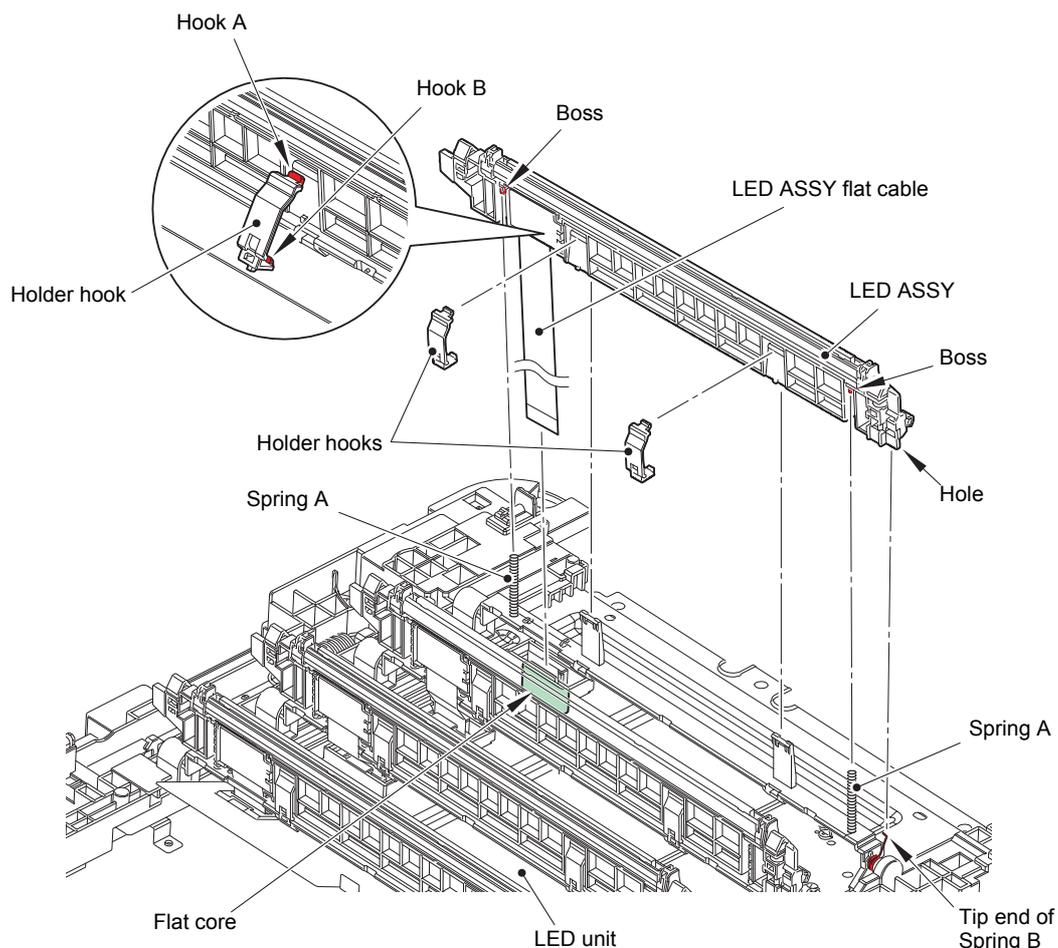
Fig. 3-40

(3) Release each Hook to remove the FFC cover from the LED ASSY.

(4) Release the Lock to disconnect the LED ASSY flat cable from the LED ASSY.
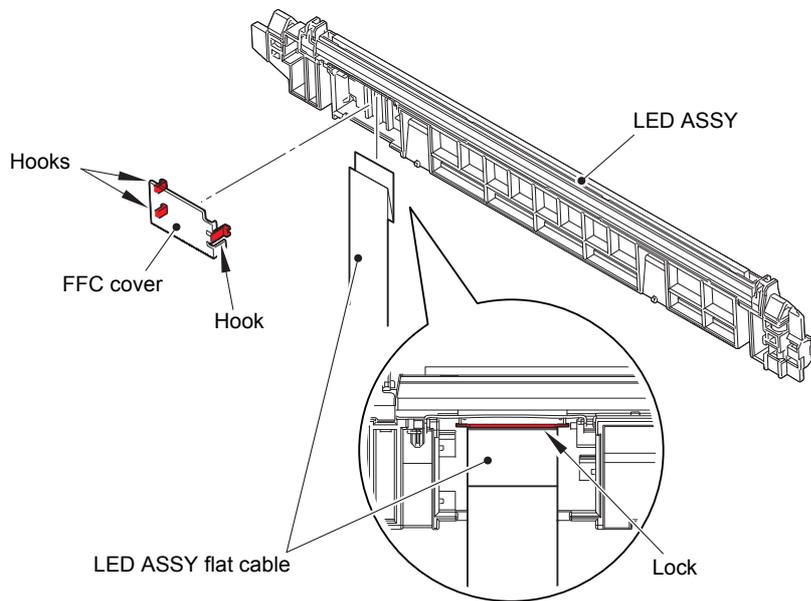
Fig. 3-41

Assembling Note:

- The LED parts of the LED ASSY for replacement are covered with protection tapes. Make sure not to remove the protection tapes until assembling of the LED ASSY is completed. After it is assembled, make sure to remove the protection tapes.

- If the LED parts get smeared, make sure to wipe smears on the LED parts with a clean and soft cloth.

Assembling Note:

• Fold each LED ASSY flat cable at the positions described below.

—————— Mountain fold

- - - - - - Valley fold

LED ASSY side <LED ASSY flat cable Y> 4±1 LED control PCB side

45° 45° 45°

21±2 17±2 44±2 33±2 38.5±2

Conductor <LED ASSY flat cable M> 4±1 Conductor

45° 45° 45°

21±2 17±2 44±2 37±2 61±2

<LED ASSY flat cable C> 4±1

45° 45° 45°

21±2 17±2 48±2 45±2 55±2

<LED ASSY flat cable K> 4±1

45° 45° 45°

21±2 17±2 5±2 48±2 40±2 39±2

Fig. 3-42

Confidential
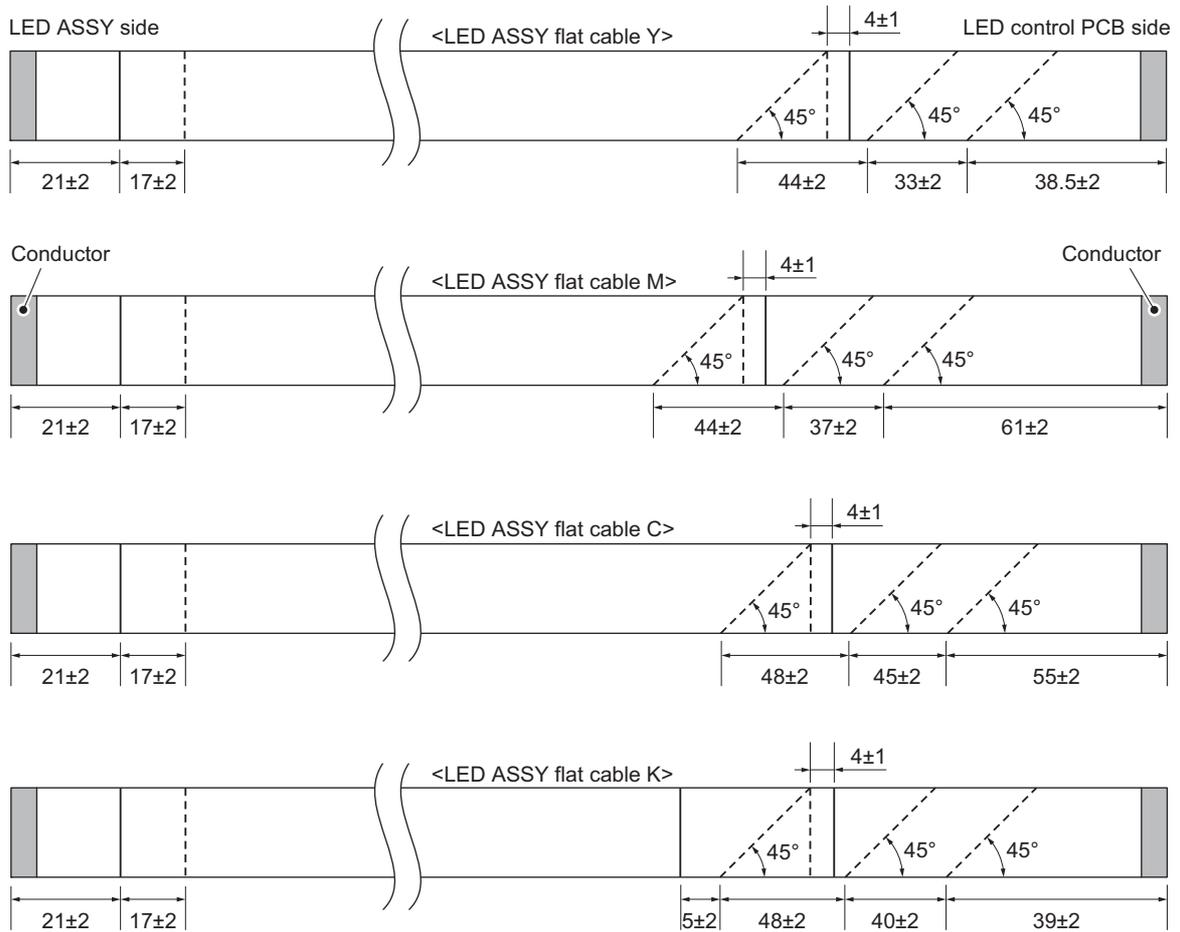
9.13 High-voltage power supply PCB / Develop release sensor PCB

(1) Release the Hook to slide the HVPS FFC cover in the direction of arrow A, and release each Rib to remove the HVPS FFC cover in the direction of arrow B.
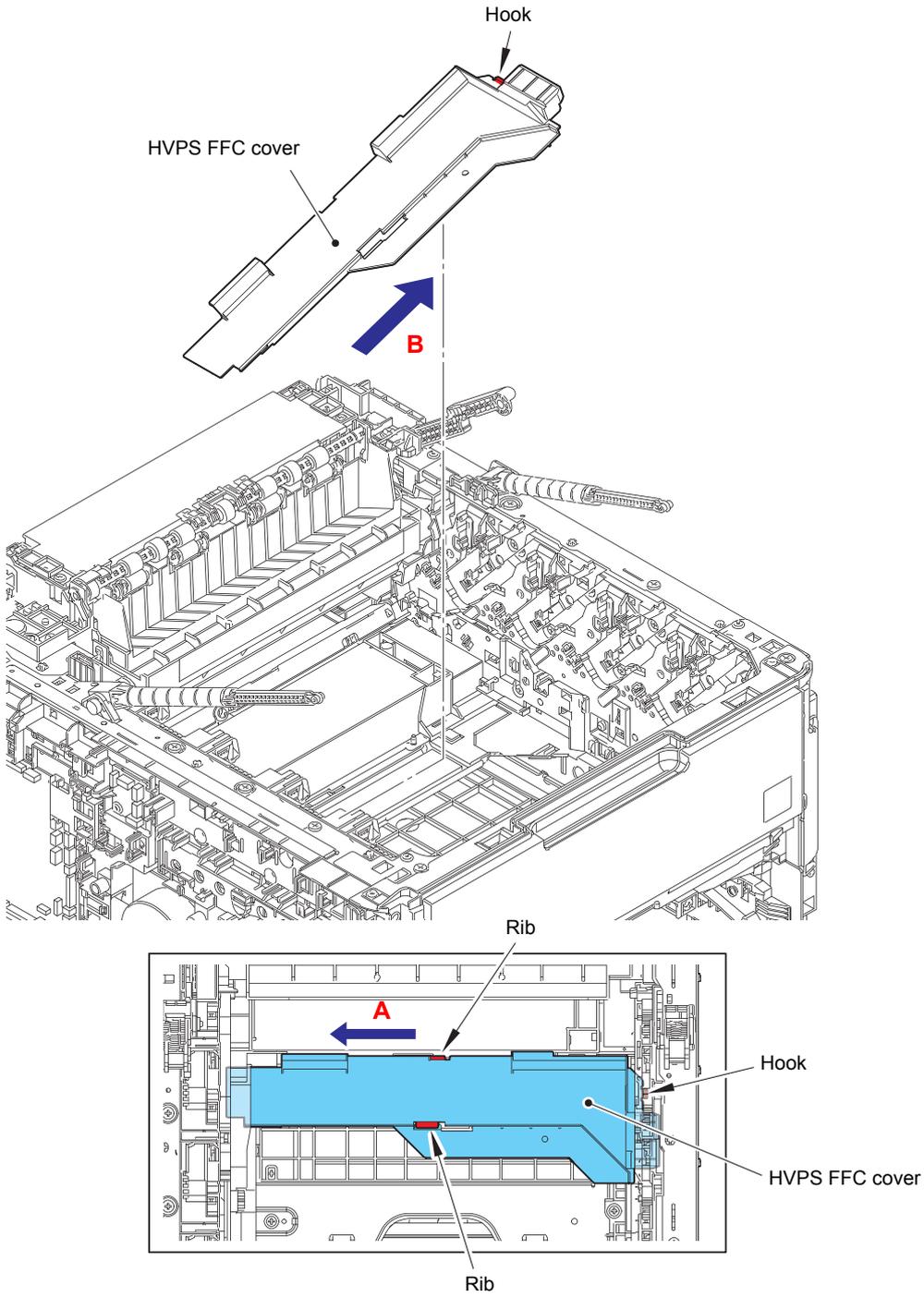
Fig. 3-43

(2) Remove the four HVPS chips.

(3) Remove the Taptite pan (washer) B M4x12DA screw and the Taptite cup S M3x8 SR screw to remove the HVPS ground plate front.

(4) Remove the Taptite pan (washer) B M4x12DA to remove the HVPS ground plate rear.

Fig. 3-44

Confidential
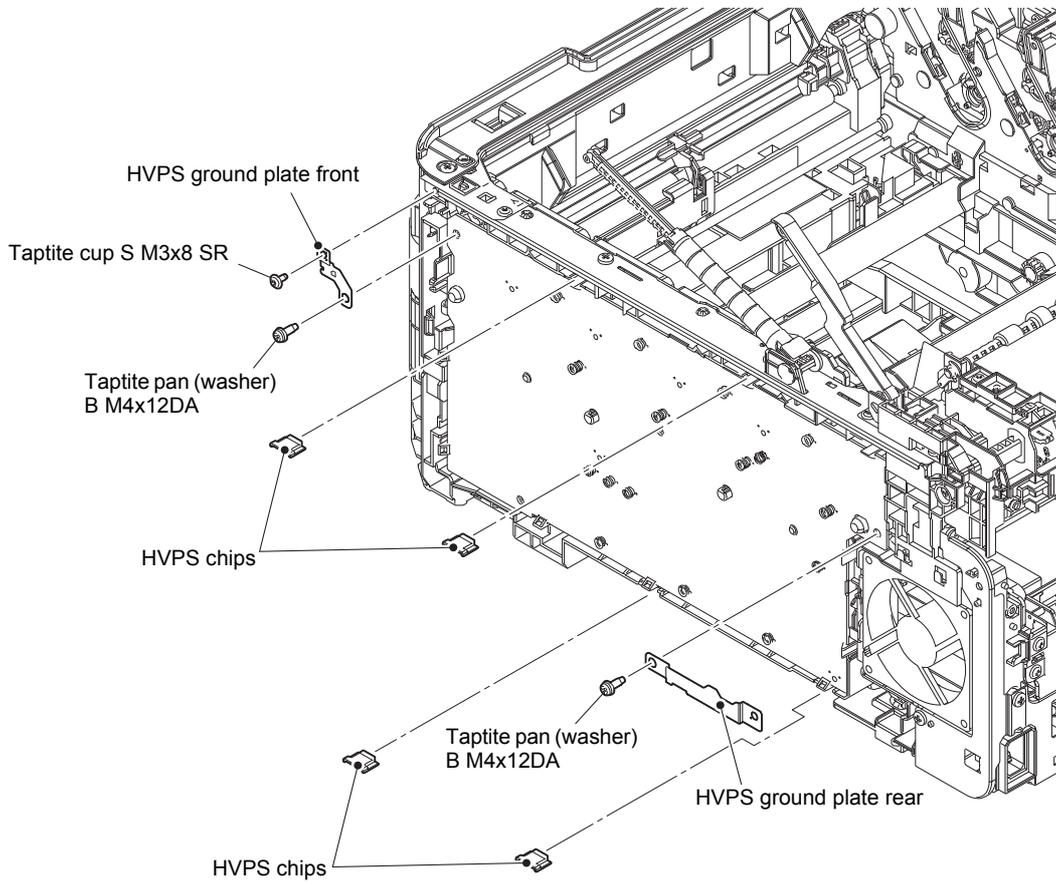
(5) Release the High-voltage power supply flat cable from the securing fixtures inside the machine and extend the folds. Remove the two Taptite bind B M4x12 screws. Release each Hook to remove the High-voltage power supply PCB. Disconnect the HVPS harness, the Develop release sensor harness, and the Fan harness from the High-voltage power supply PCB. Disconnect the High-voltage power supply flat cable from the High-voltage power supply PCB.

(6) Release the Hook to remove the Develop release sensor PCB.
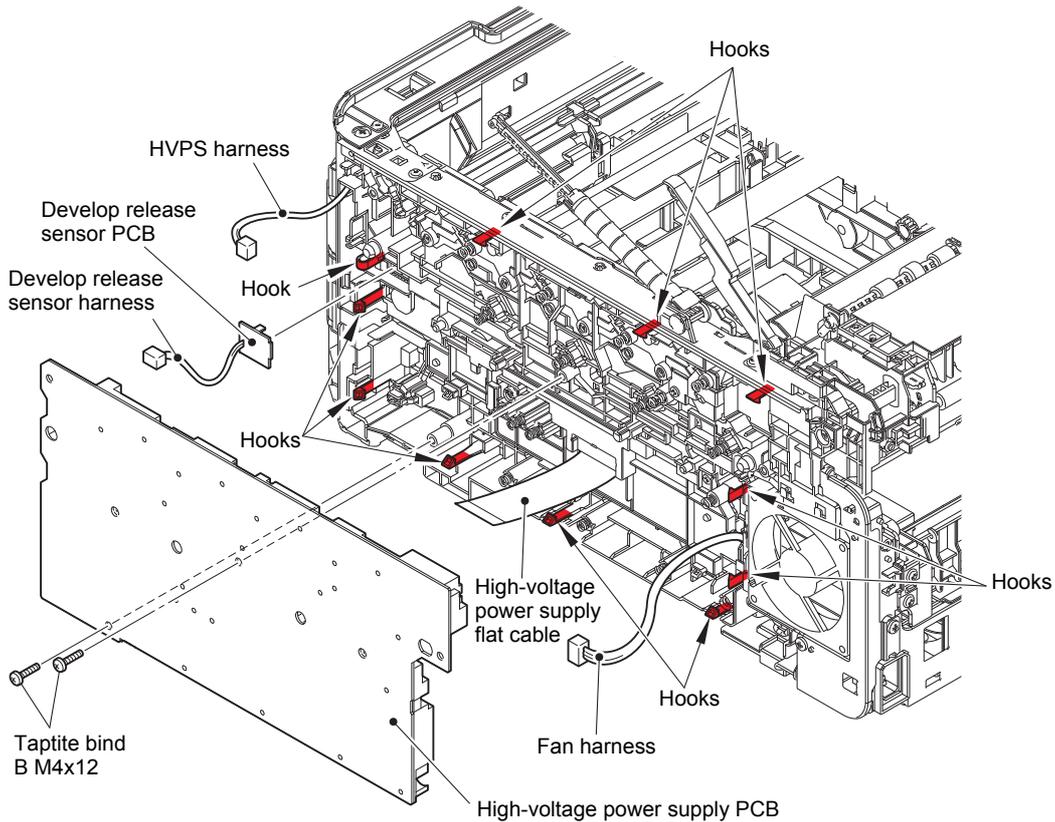
Fig. 3-45

Harness routing: Refer to "3. High-voltage power supply PCB, Fan harness, LED ground wire".

Assembling Note:
- After attaching the High-voltage power supply PCB, check whether the Electrodes inside the machine are not dropping or not get caught by pushing the Electrodes inside the machine.
- When connecting the High-voltage power supply flat cable, pull out the High-voltage power supply flat cable from the machine and then connect it to the High-voltage power supply PCB. Then, attach the High-voltage power supply PCB to the machine while pulling the High-voltage power supply flat cable to the machine side (Refer to "5. High-voltage power supply flat cable".)

9.14 Fan

(1) Release the Fan harness from the securing fixtures. Release each Hook to remove the Fan.

<Right side>

Fan

Fan harness

Label

Hooks
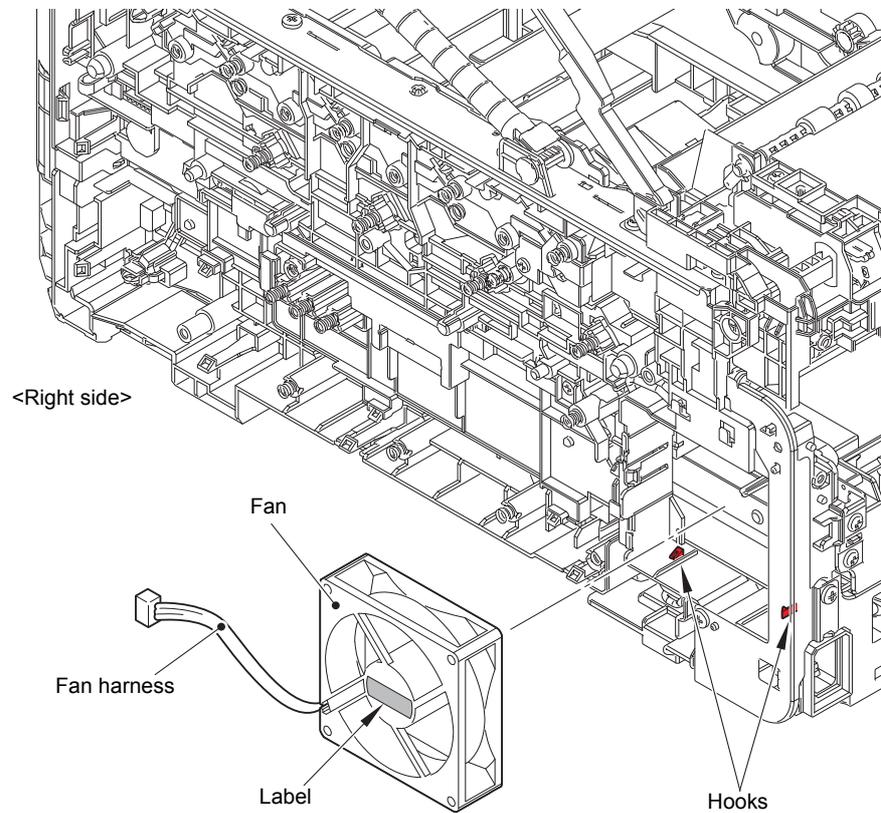
Fig. 3-46

Harness routing: Refer to "3. High-voltage power supply PCB, Fan harness, LED ground wire".

Assembling Note:
- When assembling the Fan, be sure to assemble it in a way that the Label side faces out.

Confidential

9.15 WLAN PCB

(1) Release each Hook to remove the WLAN cap from the Line holder upper.

(2) Disconnect the WLAN PCB from the Main PCB.

Main PCB

Hooks

Line holder upper

Hook

WLAN PCB

WLAN cap

Hook
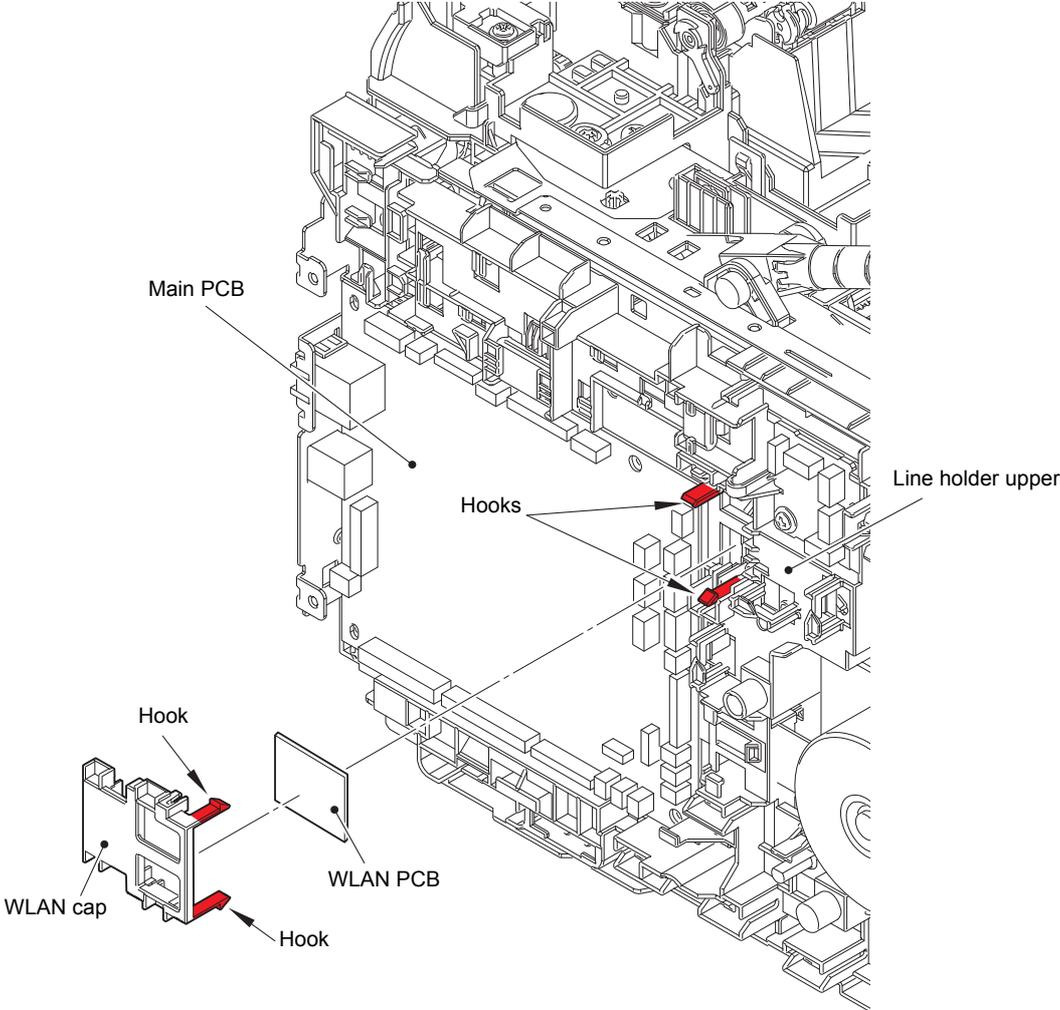
Fig. 3-47

9.16 Main PCB

(1) Disconnect all the Harnesses and all the Flat cables that are connected to the Main PCB.

Back cover sensor harness
Cartridge sensor relay flat cable
Main PCB
External temperature/ humidity sensor harness
Manual feed paper empty/regist rear/regist front sensor harness
T1 paper empty/paper feed sensor harness
Develop release clutch K harness
Process motor flat cable
Eject sensor harness
HVPS harness
Duplex clutch harness
Low-voltage power supply harness
Paper feed motor flat cable
Registration clutch harness
T1 pick-up clutch harness
High-voltage power supply flat cable
Develop release clutch harness

Fig. 3-48

Harness routing: Refer to "2. Main PCB, Cartridge sensor relay PCB".

(2) Remove the three Screw cup M3x8 (black) screws to remove the Main PCB from the Process drive plate.

(3) Remove the Main PCB insulation sheet from the Process drive plate.

Process drive plate

Main PCB insulation sheet

Screw cup
M3x8 (black)

Main PCB
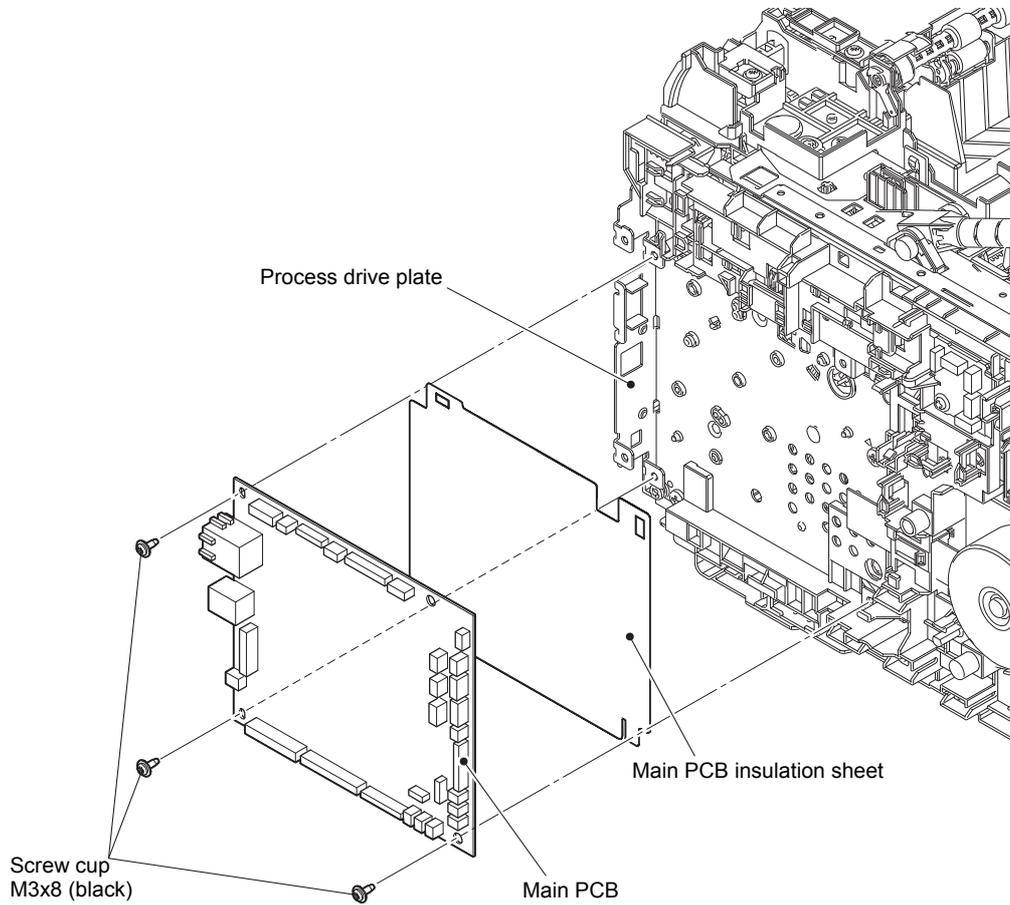
Fig. 3-49

9.17 Cartridge sensor relay flat cable

(1) Release the Cartridge sensor relay flat cable from the securing fixtures. Disconnect the Cartridge sensor relay flat cable from the Cartridge sensor relay PCB.

(2) Disconnect all the Harnesses that are connected to the Cartridge sensor relay PCB.

(3) Remove the Screw cup M3x8 (black) screw. Release the Hook to remove the Cartridge sensor relay PCB from the Line holder upper.

Line holder upper

Hook

Cartridge sensor relay flat cable

Screw cup M3x8 (black)

Cartridge sensor relay PCB

Cartridge sensor harness K

Cartridge sensor relay flat cable

Cartridge sensor harness Y

Cartridge sensor harness M

Cartridge sensor relay PCB

Cartridge sensor harness C
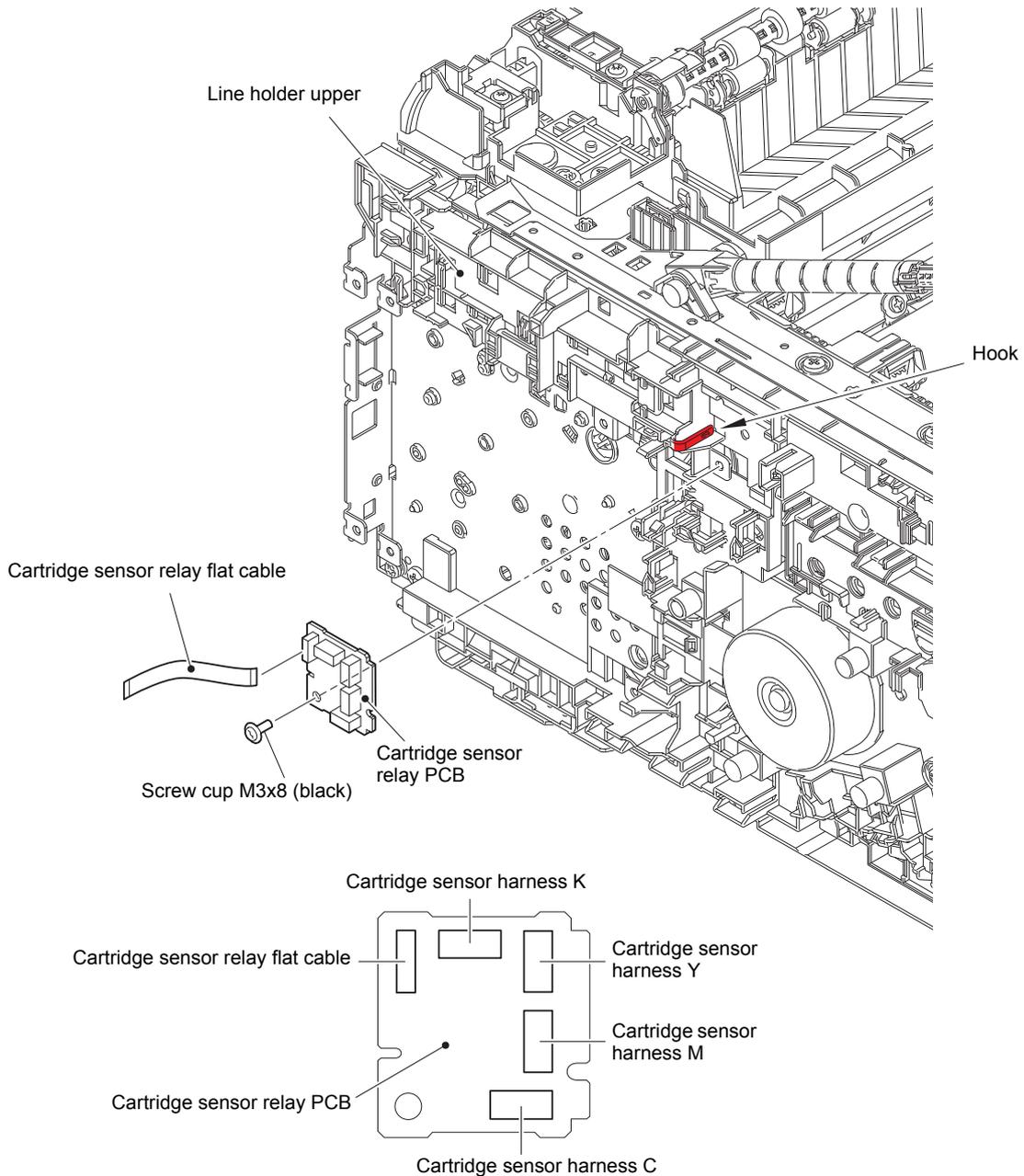
Fig. 3-50

Harness routing: Refer to "2. Main PCB, Cartridge sensor relay PCB".

Confidential

9.18 Develop release clutch / Process drive unit / High-voltage power supply flat cable / Process motor flat cable / Paper feed motor flat cable

(1) Release the Back cover sensor harness, the Cartridge sensor harness K, the Develop release clutch K harness, the External temperature/humidity sensor harness, the T1 paper empty/paper feed sensor harness, and the Manual feed paper empty/regist rear/regist front sensor harness from the Line holder upper.

(2) Release each Hook to remove the Line holder upper in the direction of the arrow.
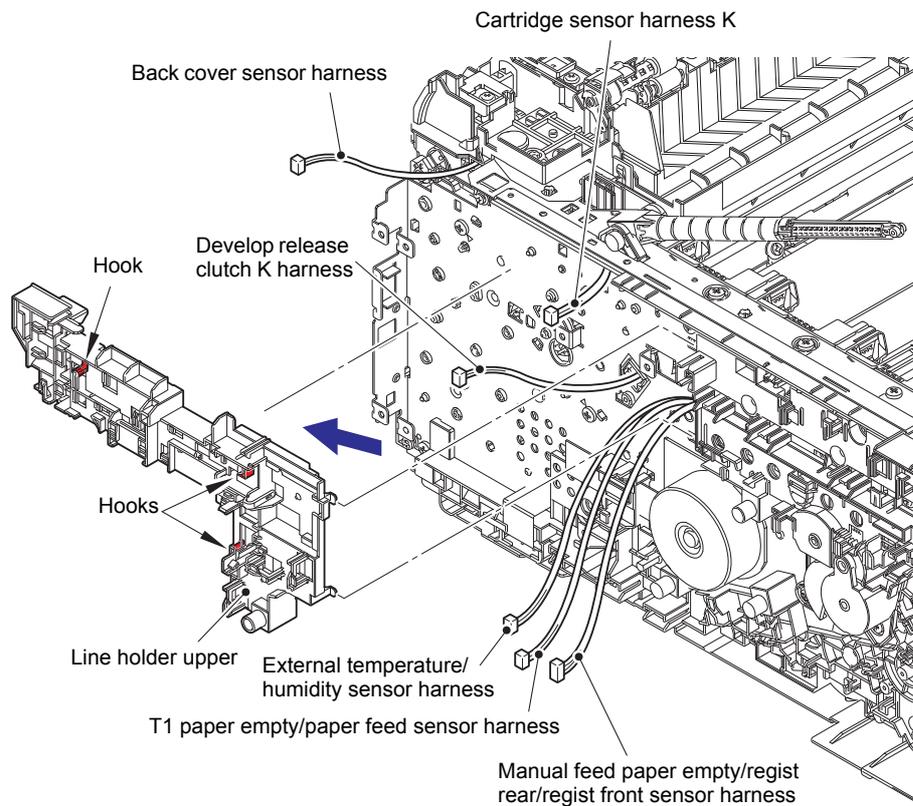
Fig. 3-51

Harness routing: Refer to "2. Main PCB, Cartridge sensor relay PCB".

Confidential

(3) Release the Duplex clutch harness, the Develop release clutch harness, the HVPS harness, the T1 pick-up clutch harness, and the Registration clutch harness from the Line holder lower.

Assembling Note:
- When wiring the Duplex clutch harness, make sure that the clutch connection part of the Duplex clutch harness does not stretch by pulling too much.

(4) Release the Hook to remove the Line holder lower in the direction of the arrow. Pull out the Process motor flat cable and the Paper feed motor flat cable through each Flat core on the Line holder lower.
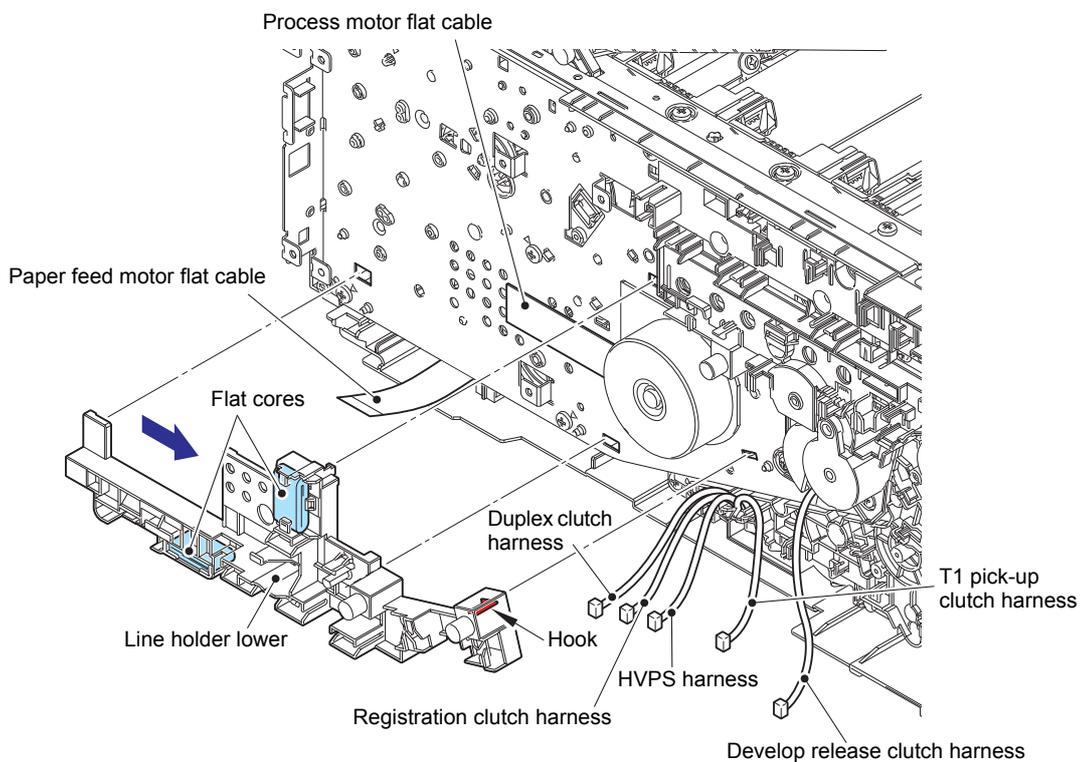
Fig. 3-52

Harness routing: Refer to "2. Main PCB, Cartridge sensor relay PCB".

(5) Remove the Taptite cup S M3x8 SR screw. Release the Hook to remove the DEV clutch cover. Remove the DEV release drive gear Z33 and the Develop release clutch.

Develop release clutch

Taptite cup S
M3x8 SR

DEV clutch cover

Hook

DEV release drive gear Z33
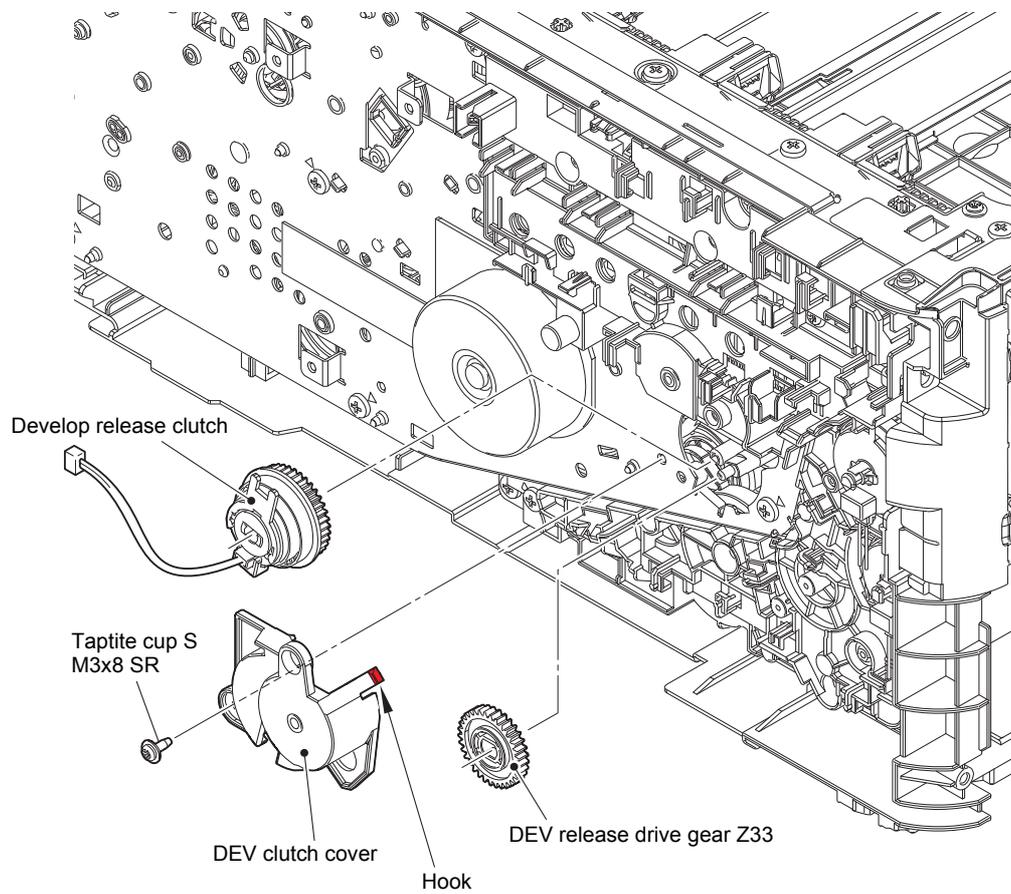
Fig. 3-53

Assembling Note:

• Raise the Damper L ASSY. Rotate the DEV release gear Z34 counterclockwise until it stops. Align the end of the DEV clutch cam with the reference line of the DEV cam cover, and then attach the DEV release drive gear Z33. If you neglect to do this, the error code 6E00 occurs.

Damper L ASSY

Reference line of DEV cam cover

DEV clutch cam

DEV release gear Z34
(The shaft part in the center)

DEV release drive gear Z33

\<Left side\>

Fig. 3-54

Confidential
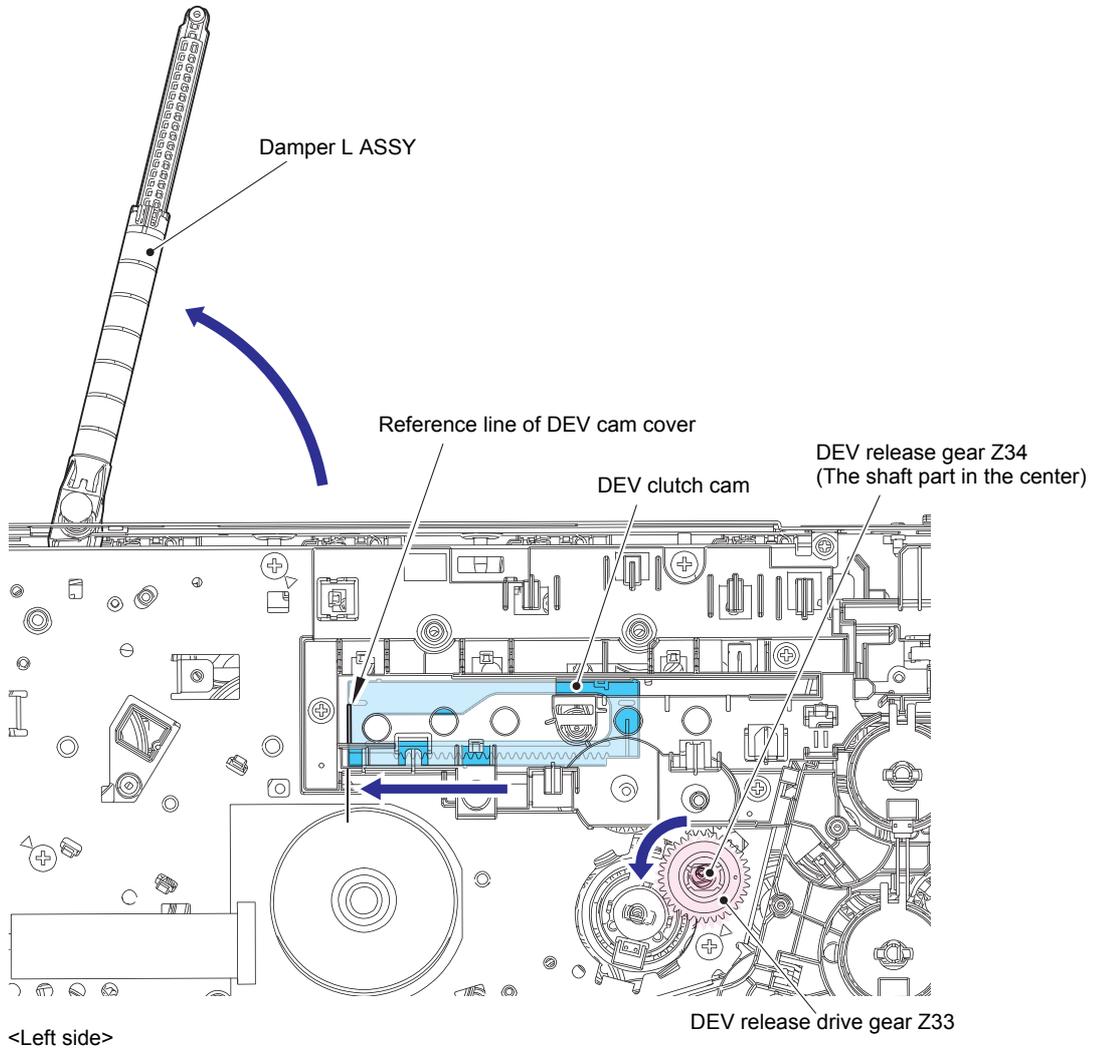
(6) Release the Cartridge sensor harness C/M/Y, the HVPS harness, the External temperature/ humidity sensor harness, the T1 paper empty/paper feed sensor harness, and the Manual feed paper empty/regist rear/regist front sensor harness from the securing fixtures.

(7) Remove the two Taptite cup S M3x8 SR screws, the Taptite pan (washer) B M4x12DA screw, the six Taptite bind B M4x12 (A) screws, and the Taptite bind B M4x12 (B) screw.

(8) Raise the Damper L ASSY to remove the Process drive unit.

(9) Release the High-voltage power supply flat cable from the securing fixtures and then remove it from the machine.

(10) Release the Lock to disconnect the Process motor flat cable from the Process motor.
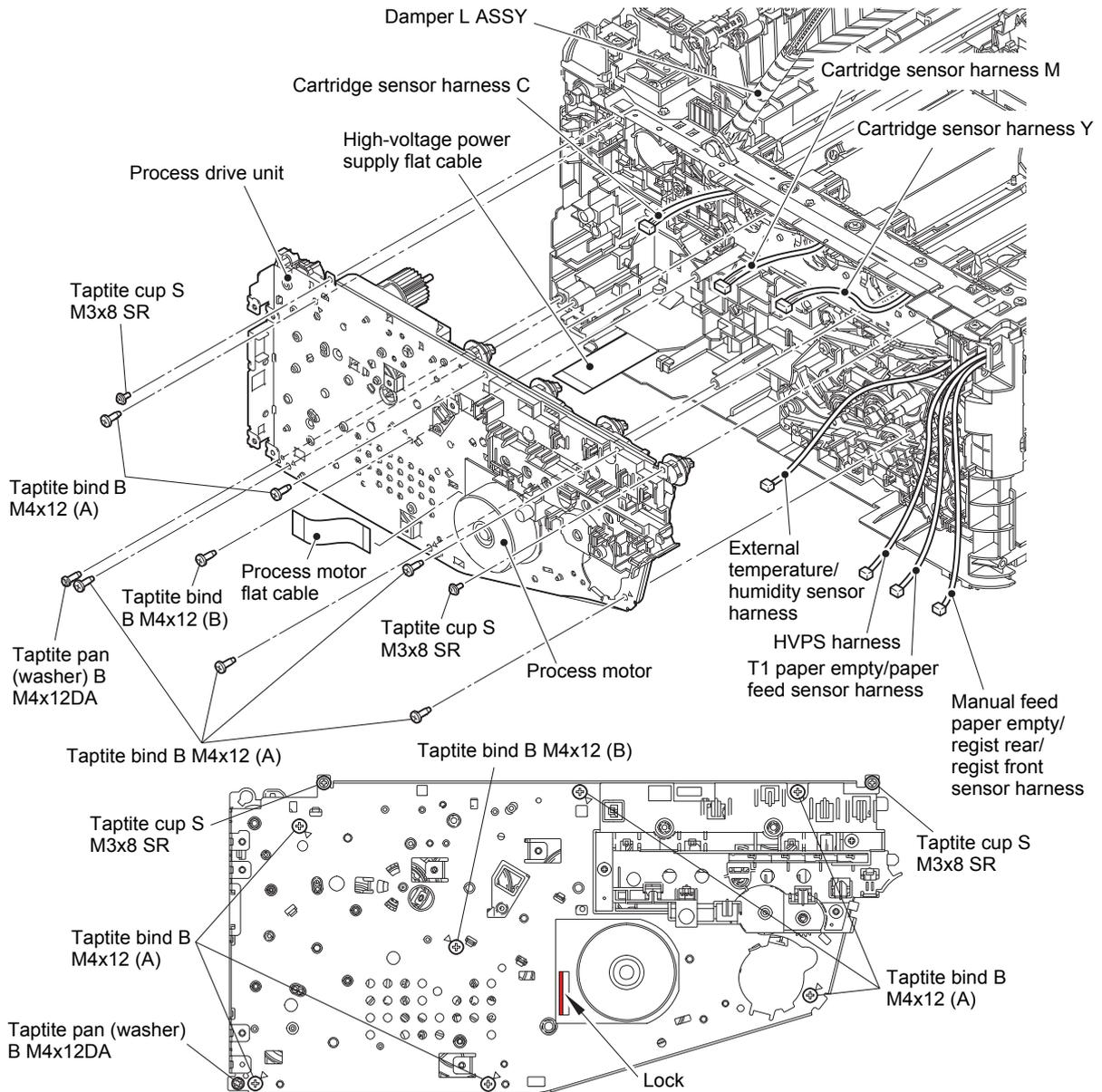
Fig. 3-55

Harness routing: Refer to "2. Main PCB, Cartridge sensor relay PCB, 5. High-voltage power supply flat cable".

Assembling Note:

• When attaching the Process drive unit, tighten the Taptite bind B M4x12 (B) screw first.

Assembling Note:
- Fold the High-voltage power supply flat cable at the positions described below.

High-voltage power supply PCB side

26±1
41±1
75±1
107±1
337±1
445±1
45°
45°

300±1
265±1
196±1
172±1
132±1
75±1
45°
45°
45°
45°

——— Mountain fold
- - - - - - - Valley fold

Main PCB side
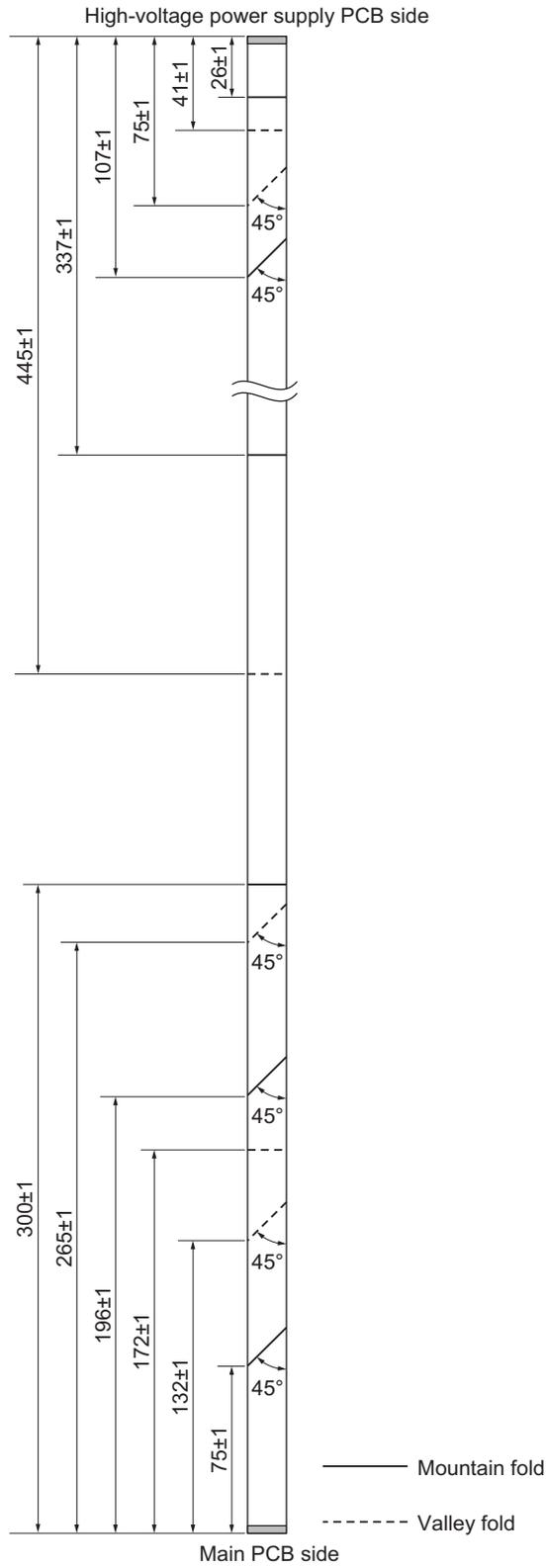
Fig. 3-56

Assembling Note:

• If you removed the Process drive unit while the Fuser unit was attached on the machine, remove the Fuser unit once (refer to "9.5 Fuser cover ASSY / Fuser unit") and reattach it after attaching the Process drive unit.
The Conductive leaf spring of the Fuser unit may be deformed by the Calking shaft.

Calking shaft

Conductive leaf spring

Fuser unit

Fig. 3-57

Confidential
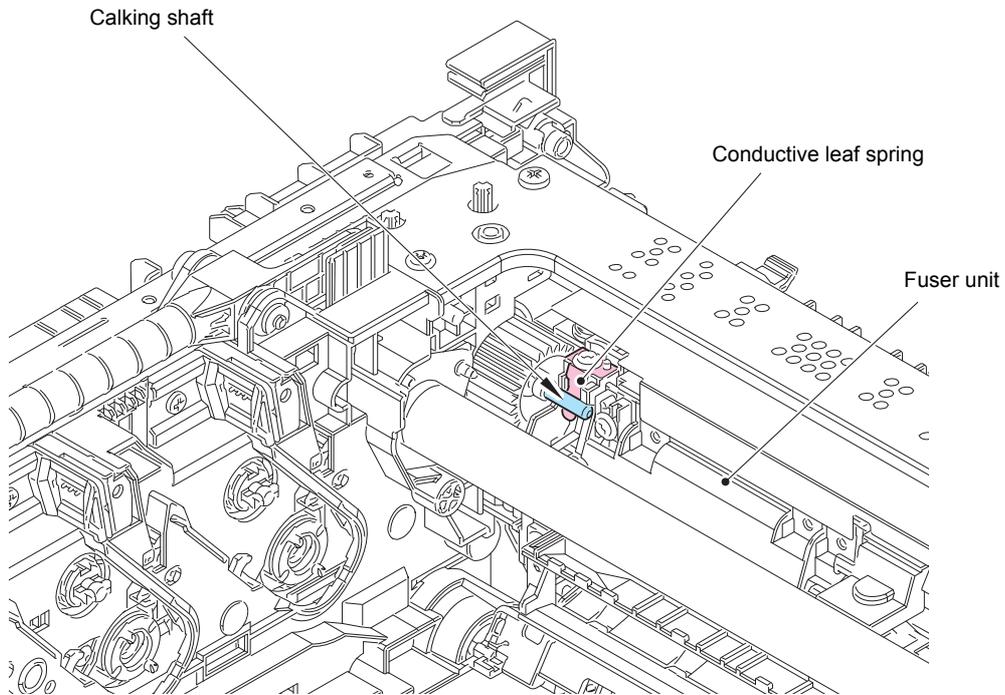
(11) Release the Hook to remove the Fuser drive gear Z25 from the Process drive unit.

(12) Release the Hook to open the Paper feed motor FFC holder. Release the Paper feed motor flat cable from the securing fixtures. Release the Lock to disconnect the Paper feed motor flat cable from the Paper feed motor.
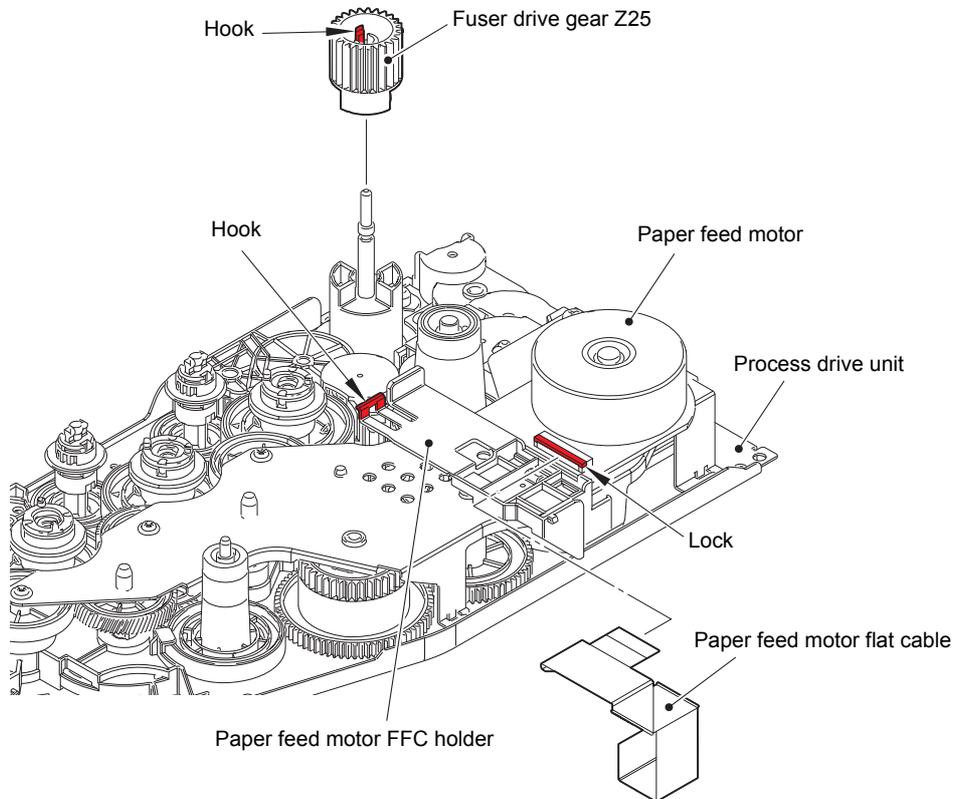
Fig. 3-58

Harness routing: Refer to "6. Process drive unit".

Assembling Note:

• Fold the Paper feed motor flat cable at the positions described below.

Main PCB side

45°

45°

45°

129±2

103±2

79±2

42±2

15±2

——— Mountain fold

- - - - - Valley fold

Paper feed motor side
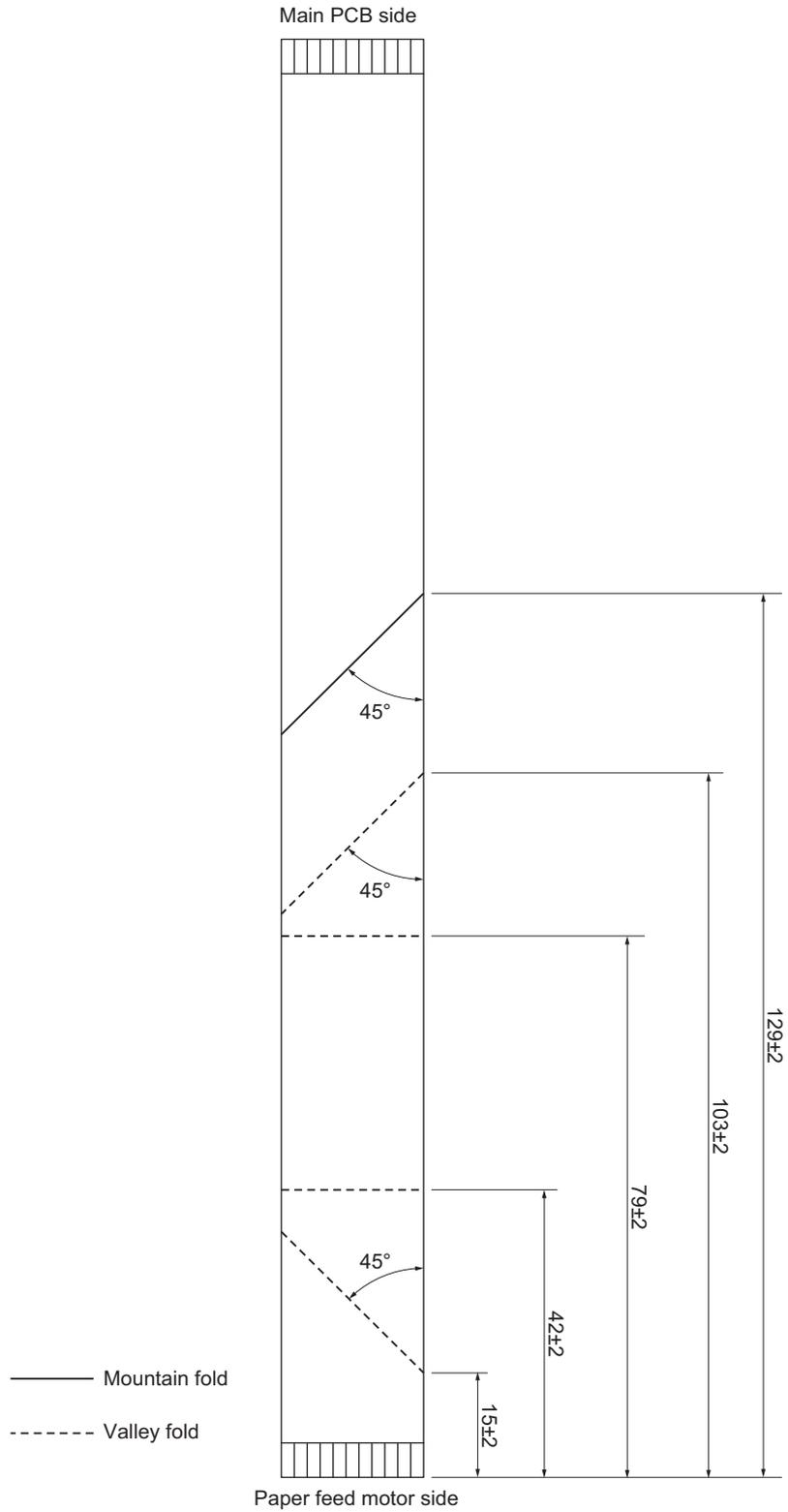
Fig. 3-59

9.19 T1 pick-up clutch / Registration clutch / Paper feed drive unit

(1) Release the T1 pick-up clutch harness from the securing fixtures. Release the Hook to remove the T1 pick-up clutch.

(2) Release the Hook of the T1 bearing 6, and then rotate it in the direction of the arrow to pull out the Sep roller drive joint. Remove the T1 bearing 6 from the Sep roller drive joint.

(3) Release the Registration clutch harness from the securing fixtures. Release the Hook to remove the Registration clutch.

(4) Release the Hook of the Regi joint bearing, and then rotate it in the direction of the arrow to pull out the PF regi drive joint. Remove the Regi joint bearing from the PF regi drive joint.

(5) Release the Hook to remove the PF bearing 5. Pull out the Feed roller drive shaft.
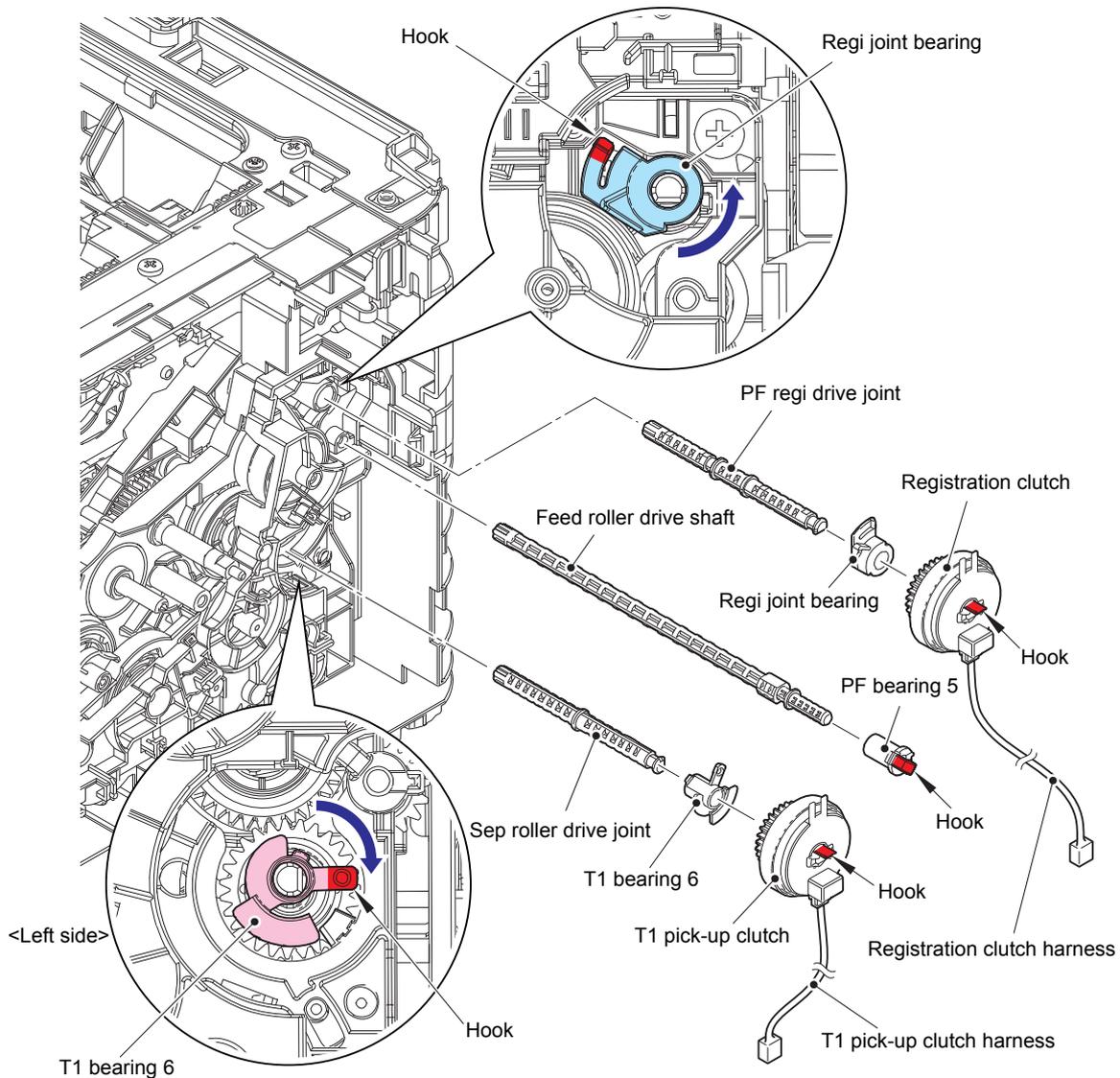
Fig. 3-60

Harness routing: Refer to "2. Main PCB, Cartridge sensor relay PCB".

Assembling Note:

• When wiring the T1 pick-up clutch harness and the Registration clutch harness, make sure that the clutch connection part of each harness does not stretch by pulling too much.

(6) Remove the five Taptite bind B M4x12 screws to remove the Paper feed drive unit.

(7) Release the hook to remove the External temperature/humidity sensor PCB from the Paper feed drive unit.

Paper feed drive unit

Hook

External temperature/ humidity sensor PCB

Taptite bind B M4x12

Taptite bind B M4x12

Taptite bind B M4x12
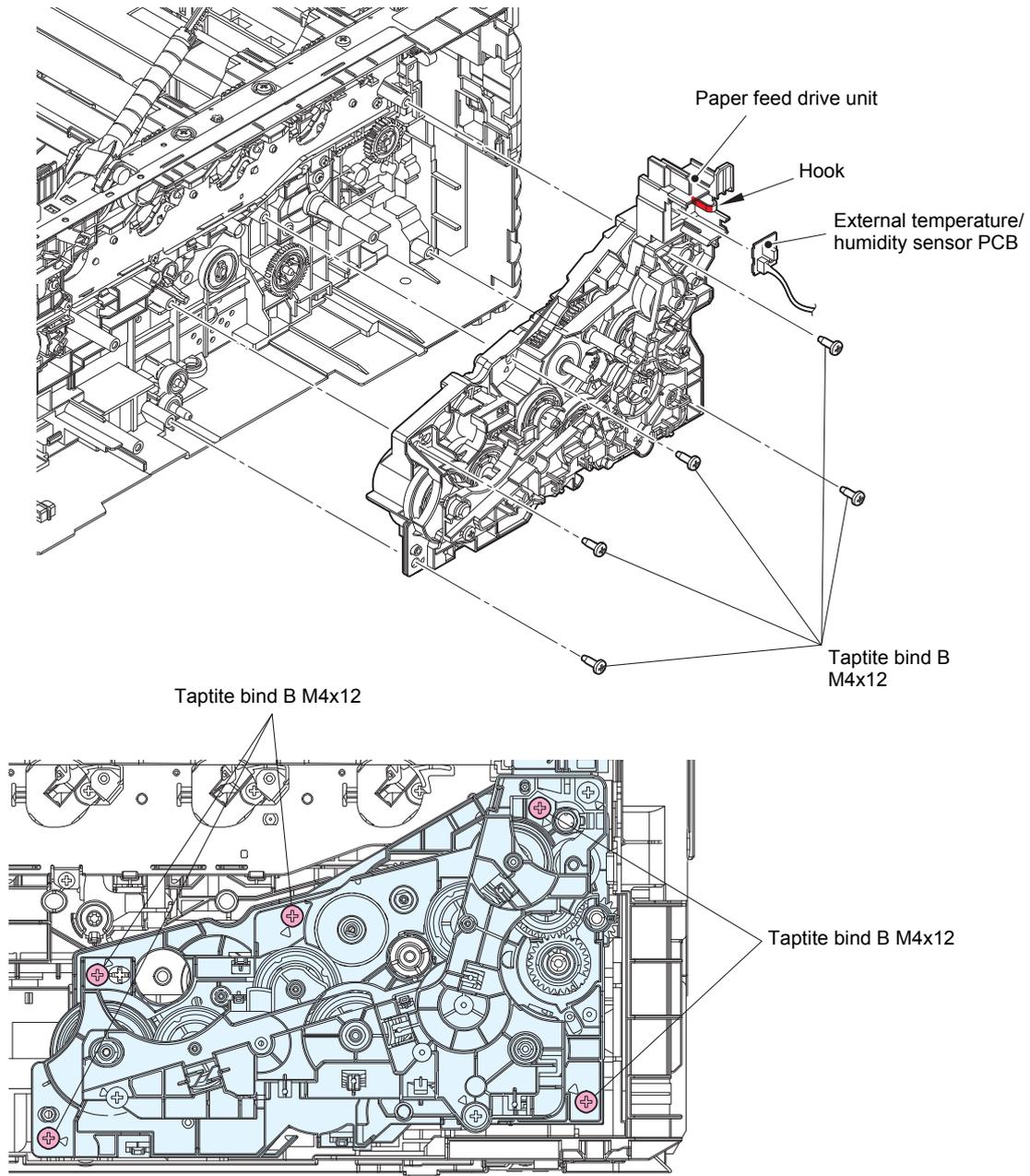
Fig. 3-61

9.20 Eject sensor PCB

(1) Disconnect the Registration mark sensor L harness, the Registration mark sensor R harness, and the Internal temperature sensor harness from the Eject sensor PCB.

(2) Release the Eject sensor harness from the securing fixtures. Release the Hook to remove the Eject sensor PCB. Disconnect the Eject sensor harness from the Eject sensor PCB.
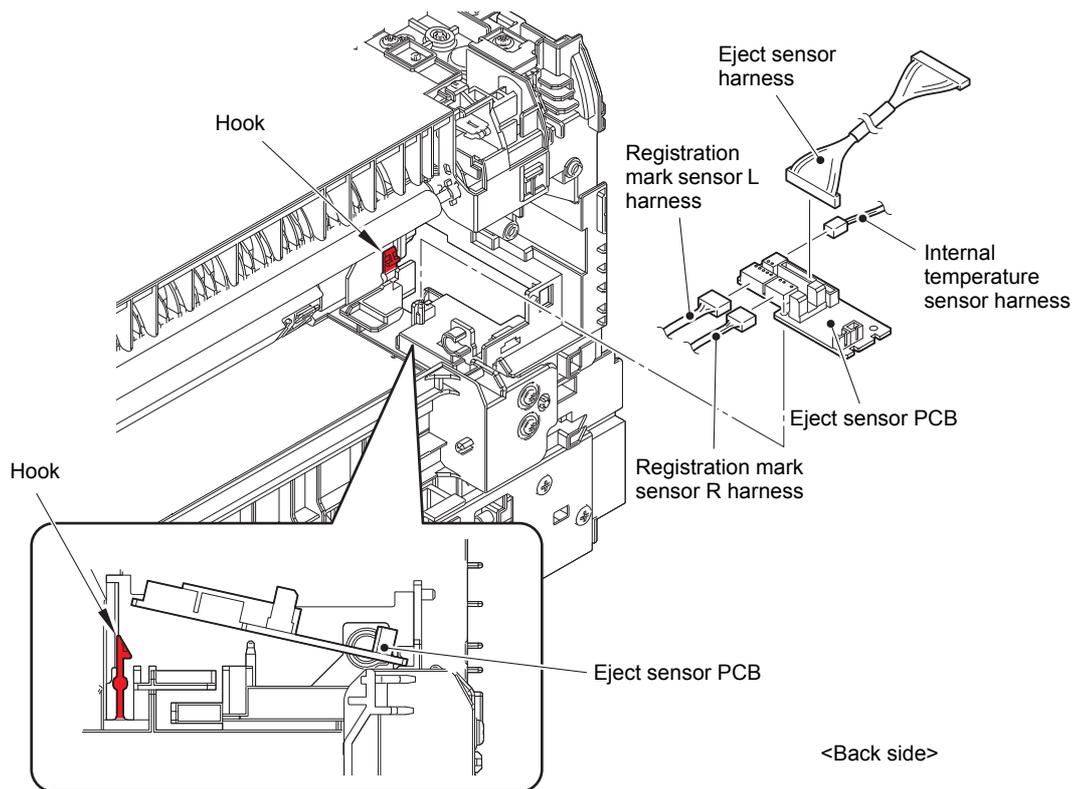
Fig. 3-62

Harness routing: Refer to "7. Registration mark sensor ASSY, Eject sensor PCB".

Confidential

9.21 Manual feed cover ASSY

(1) Release each Hook to remove the Inner front cover from the Bosses of the machine.
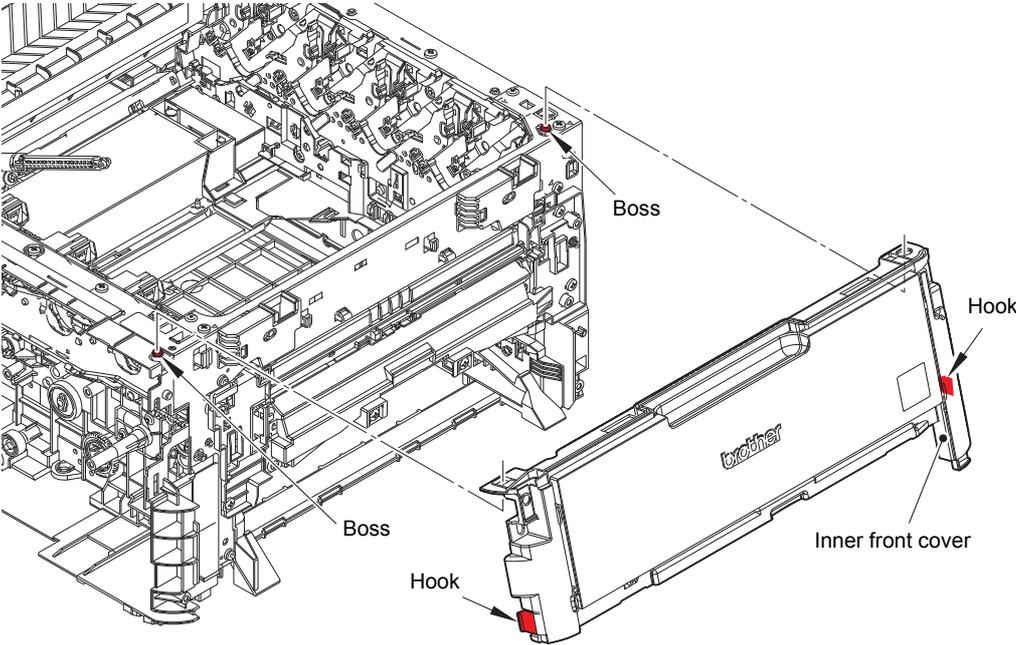
Fig. 3-63

(2) Open the Manual feed cover ASSY. Release each Boss to remove the Manual feed cover ASSY from the Inner front cover.
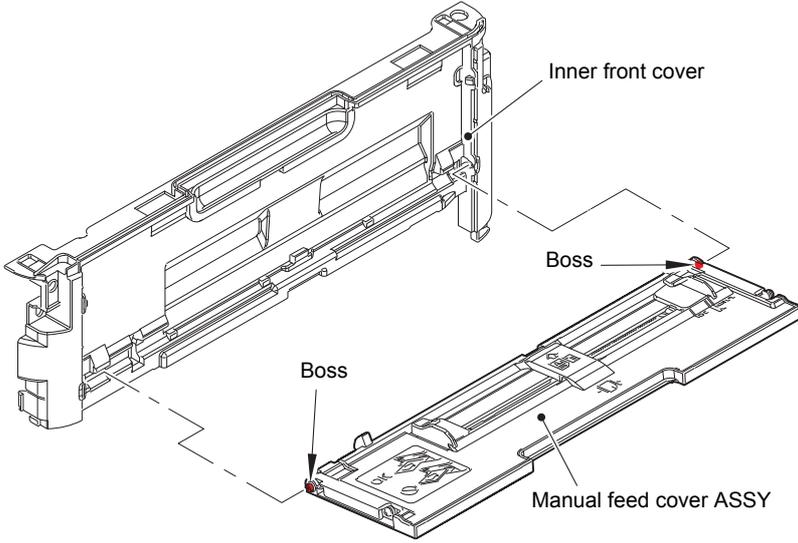
Fig. 3-64

9.22 Roller holder ASSY

(1) Turn the machine upside down.

> **Note:**
> - When turning the machine upside down, make sure to lay down the Damper L/R ASSY to prevent breakage of the Damper L/R ASSY.

(2) Push the Lift arm in the direction of arrow A, and rotate the Roller holder ASSY to release the Boss. Slide the Roller holder ASSY in the direction of arrow B to remove it from the Shaft, and remove the Roller holder ASSY from the machine.
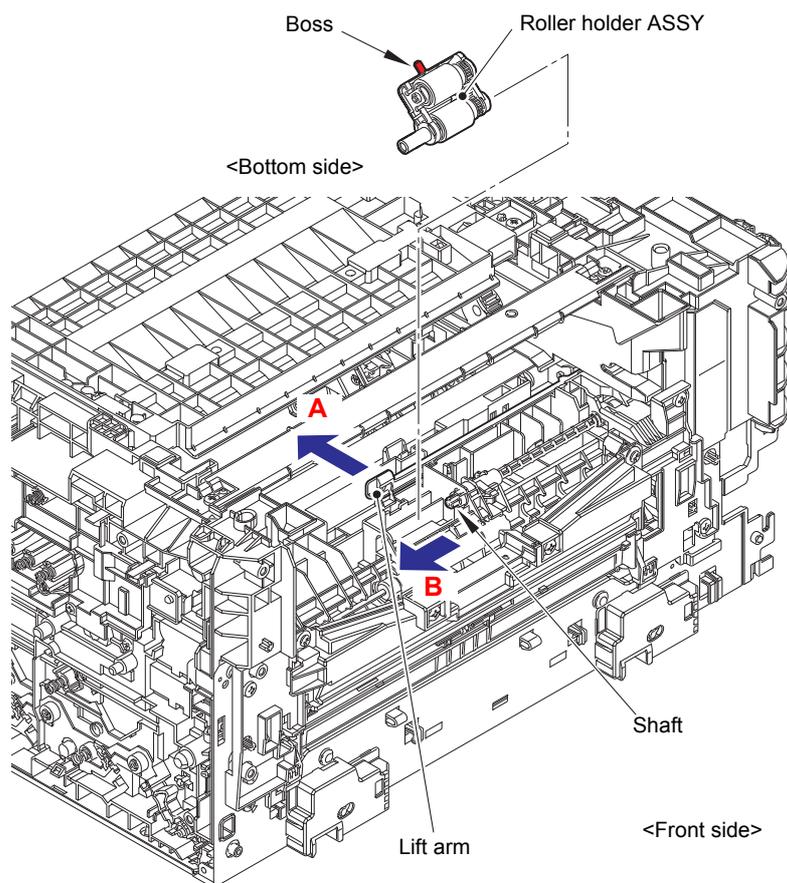
Fig. 3-65

9.23 Paper feed unit

(1) Remove the Lift arm from the Boss while bending it in the direction of arrow 1a to slide the Lift arm in the direction of arrow 1b.

Lift arm

Boss

1a

1b
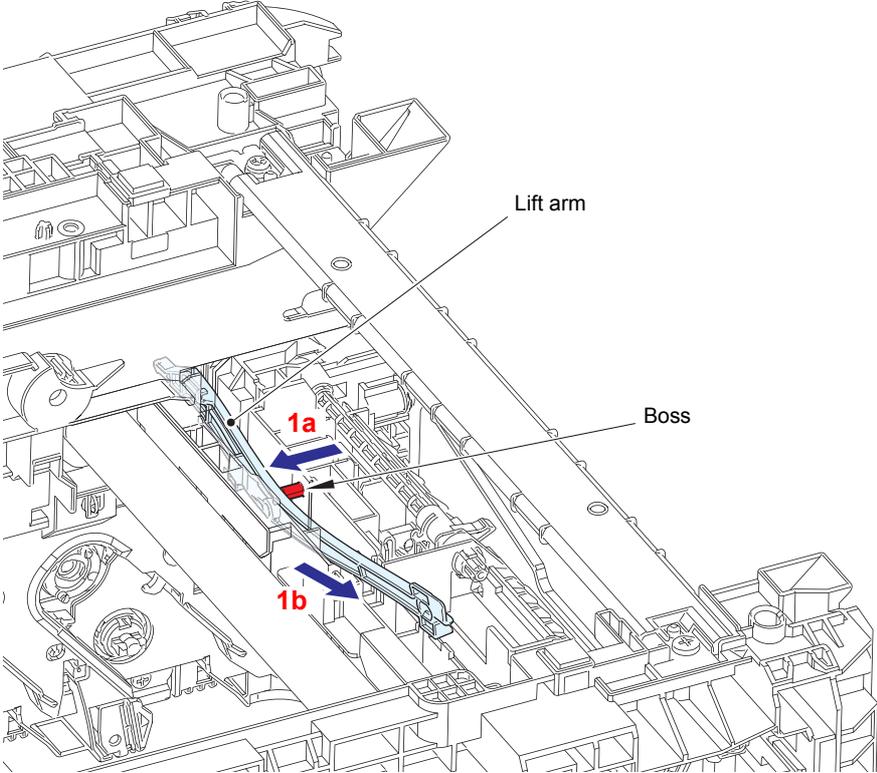
Fig. 3-66

(2) Turn the machine face up.

(3) Release the HVPS harness from the Hook A and the Hook B.

(4) Release the T1 paper empty/paper feed sensor harness and the Manual feed paper empty/regist rear/regist front sensor harness from the Hook A.

(5) Remove the four Taptite bind B M4x12 screws to remove the Paper feed unit.
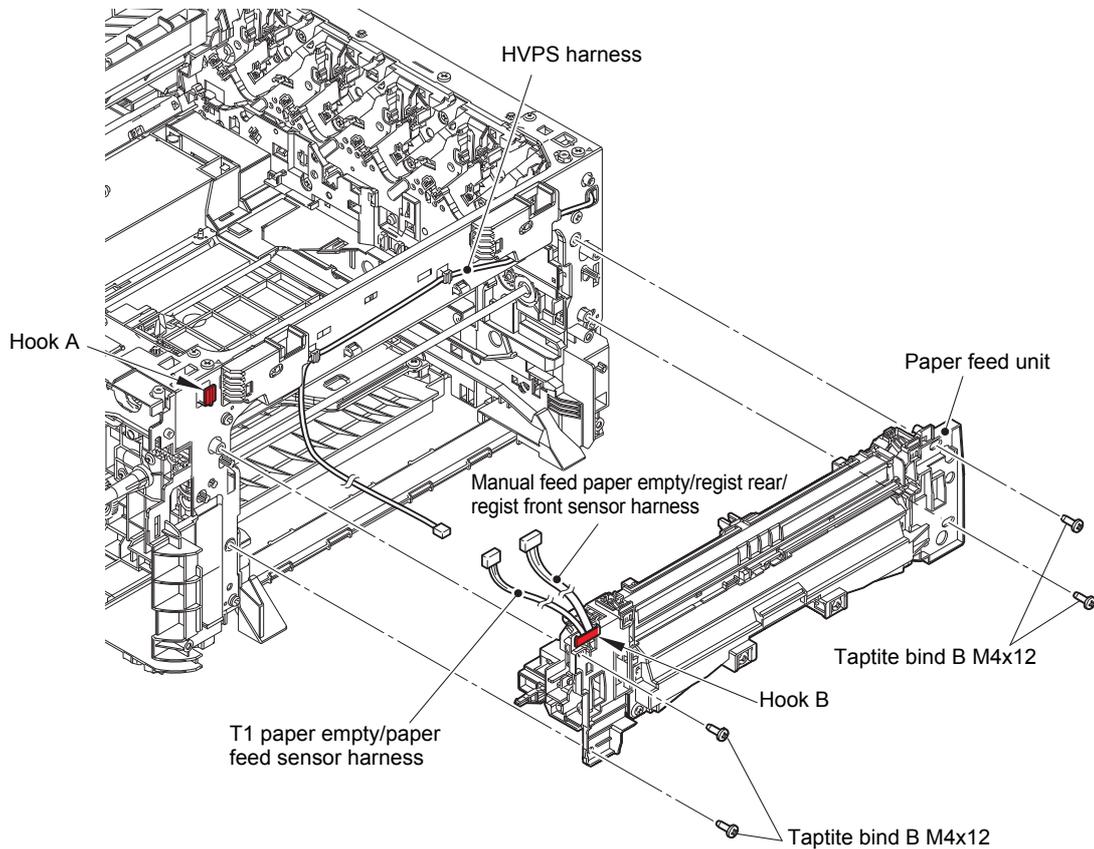
Fig. 3-67

Harness routing: Refer to "8. Front side of the machine".

9.24 Paper eject ASSY

(1) Raise the Arm R approximately 135 degrees to remove it from the Paper eject ASSY.

(2) Pull out the Eject gear shaft.

(3) Remove the three Taptite bind B M4x12 screws. As shown in the figure, use a screwdriver to release the Boss on the right of the Paper eject ASSY, and then remove the Paper eject ASSY.
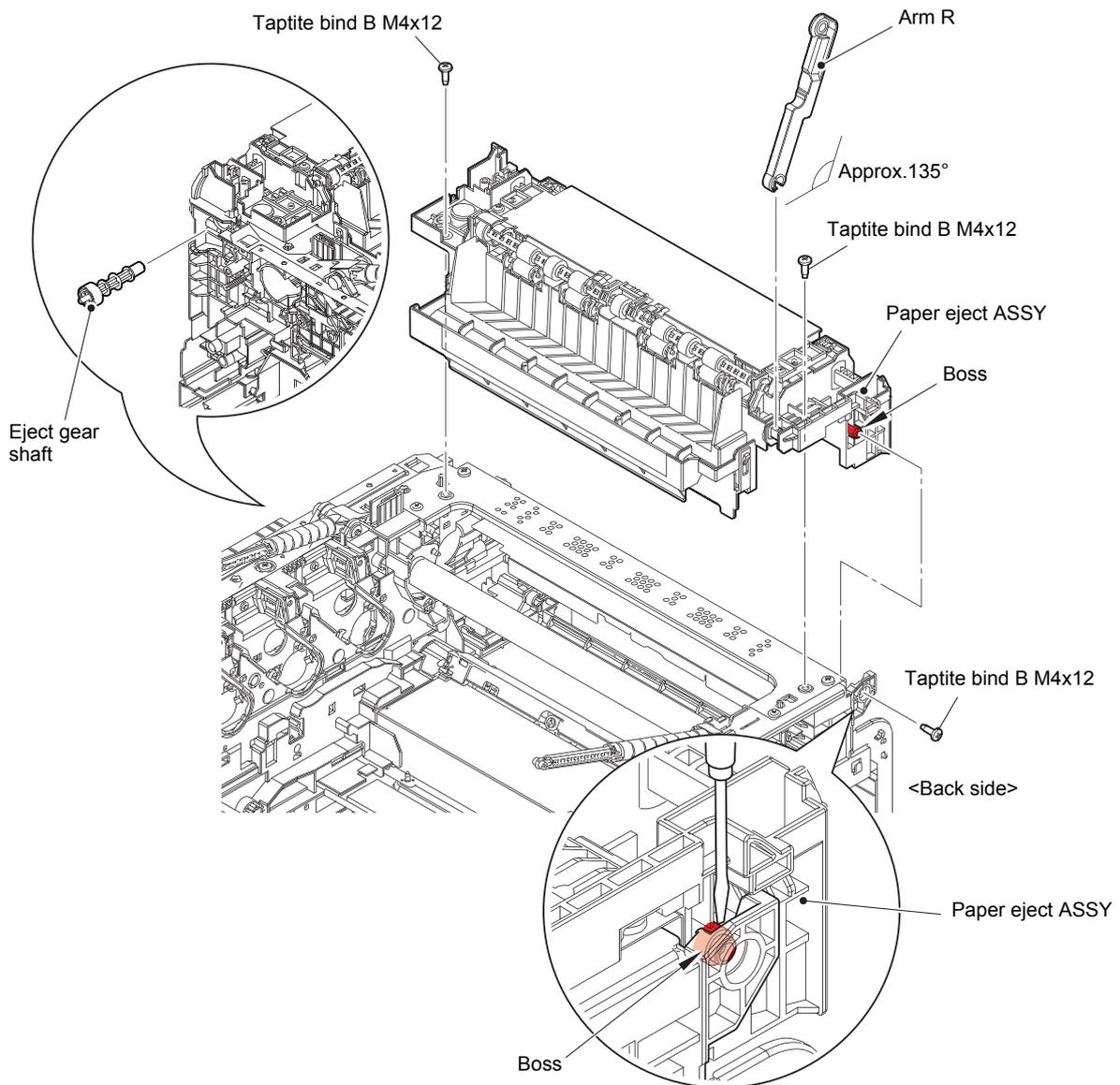
Fig. 3-68

9.25 Duplex tray

(1) Turn the machine upside down.

> **Note:**
> • When turning the machine upside down, make sure to lay down the Damper L/R ASSY to prevent breakage of the Damper L/R ASSY.

(2) Remove the Taptite bind B M4x12 screw to remove the DX drive cover.

(3) Slide the DX input gear Z15 and the DX drive coupling in the direction of the arrow a.

(4) Remove the two Taptite bind B M4x12 screws. Lift the A part of the Duplex tray to remove it in the direction of arrow b.
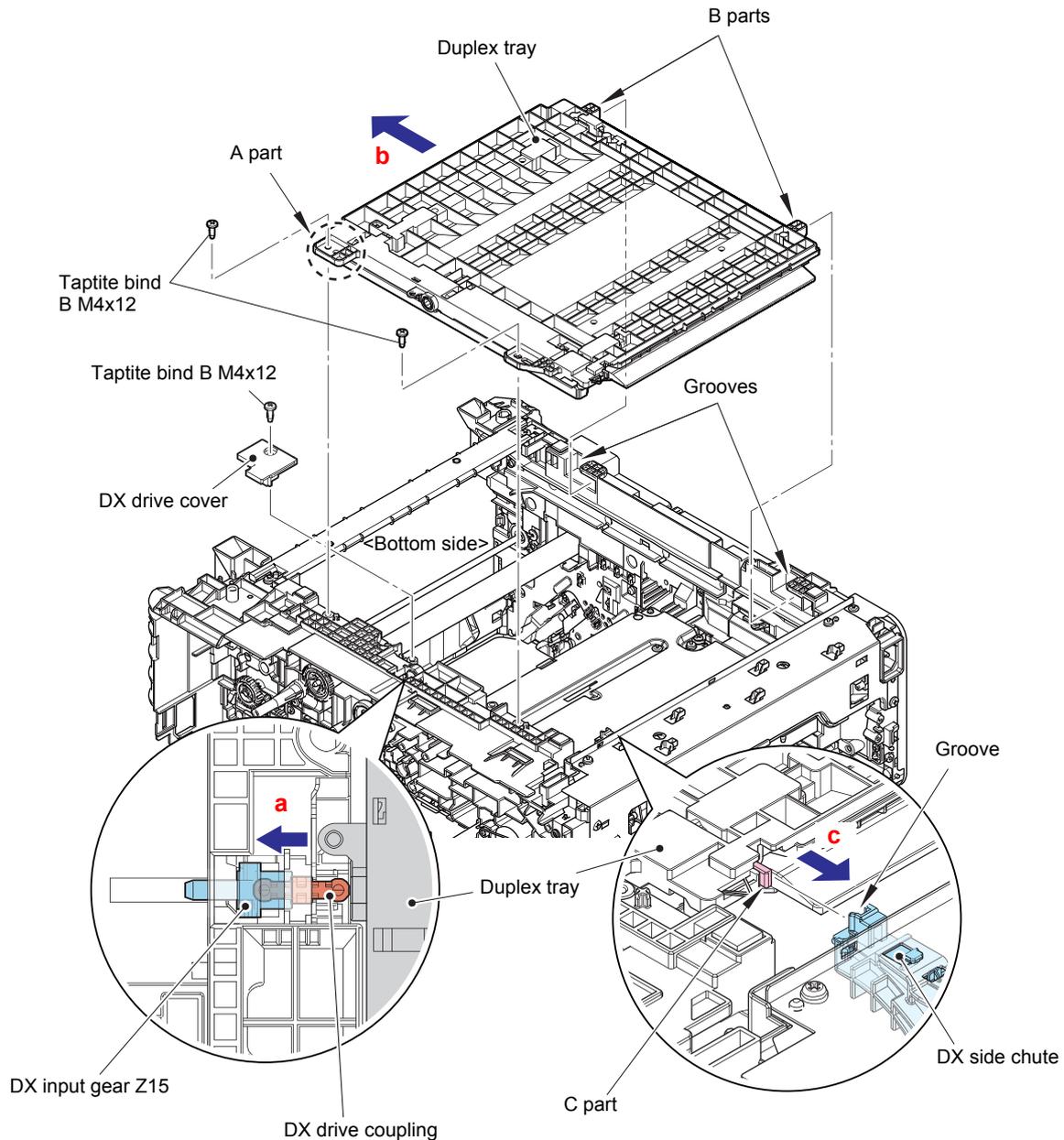
Fig. 3-69

> **Assembling Note:**
> • When assembling the Duplex tray, engage the two B parts with the two grooves of the machine and slide the Duplex tray in the direction of arrow c, and then insert the C part into the groove of the DX side chute.

Confidential

9.26 Low-voltage power supply PCB

> ⚠️ **WARINING** When removing the Low-voltage power supply PCB, do not touch it within 3 minutes after disconnecting the AC cord as it may cause an electric shock due to the electric charge accumulated in the capacitor.

(1) Remove the Taptite bind B M4x12 screw to remove the Wire cover.

(2) Remove the Taptite pan (washer) B M4x12DA screw, the Taptite cup S M3x8 SR screw, and the two Taptite bind B M4x12 screws to remove the Cover plate.

(3) Open the two Ribs outward to remove the Wire cap.
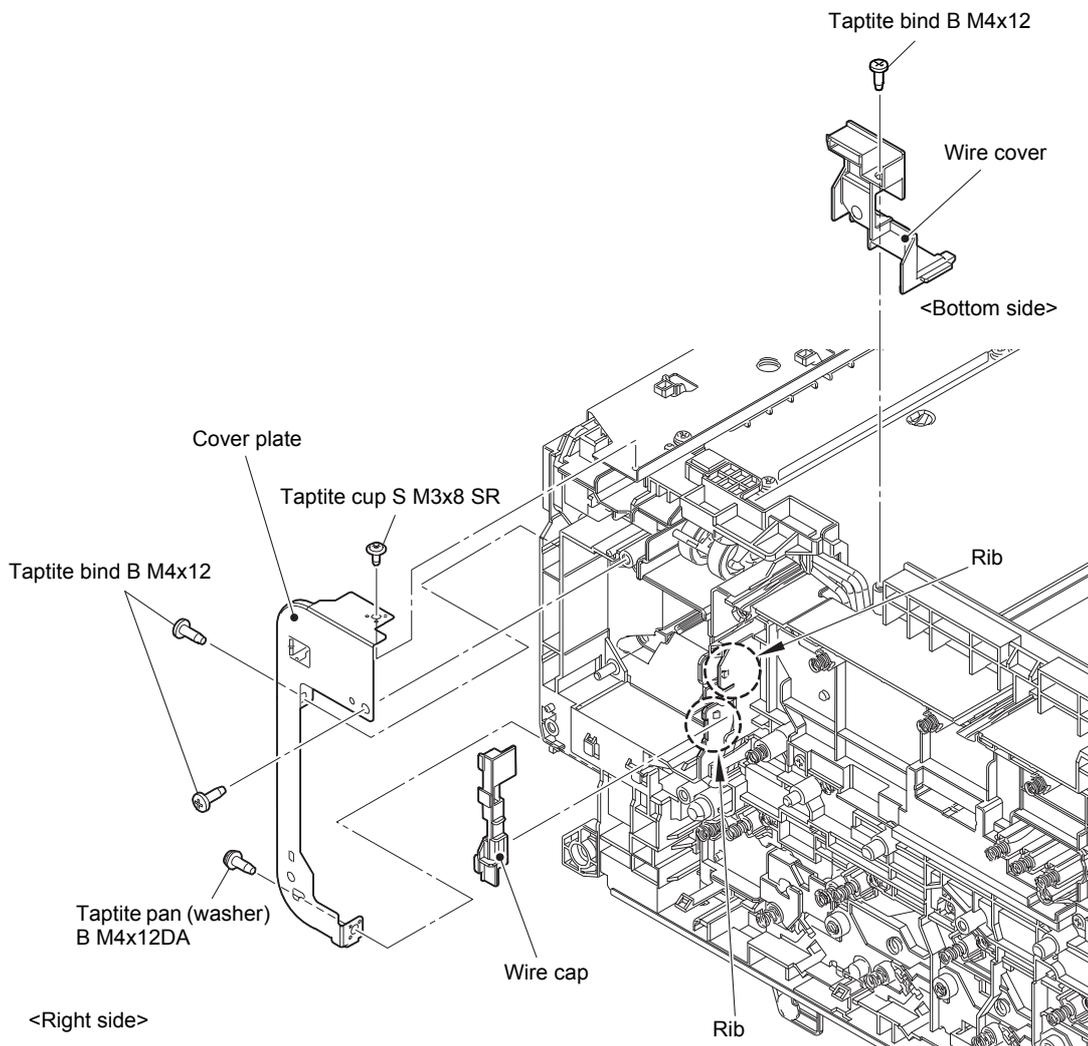
Fig. 3-70

(4) Remove the Screw pan M4x8 screw, the Washer spring 2-4, and the Washer 5 to remove the LVPS ground wire from the LVPS plate lower ASSY.

(5) Remove the Inlet to release the Inlet harness ASSY from the securing fixtures.

(6) Release the LVPS heater harness from the securing fixtures.

(7) Remove the four Taptite pan (washer) B M4x12DA screws and the two Taptite cup S M3x8 SR screws from the LVPS plate lower ASSY.
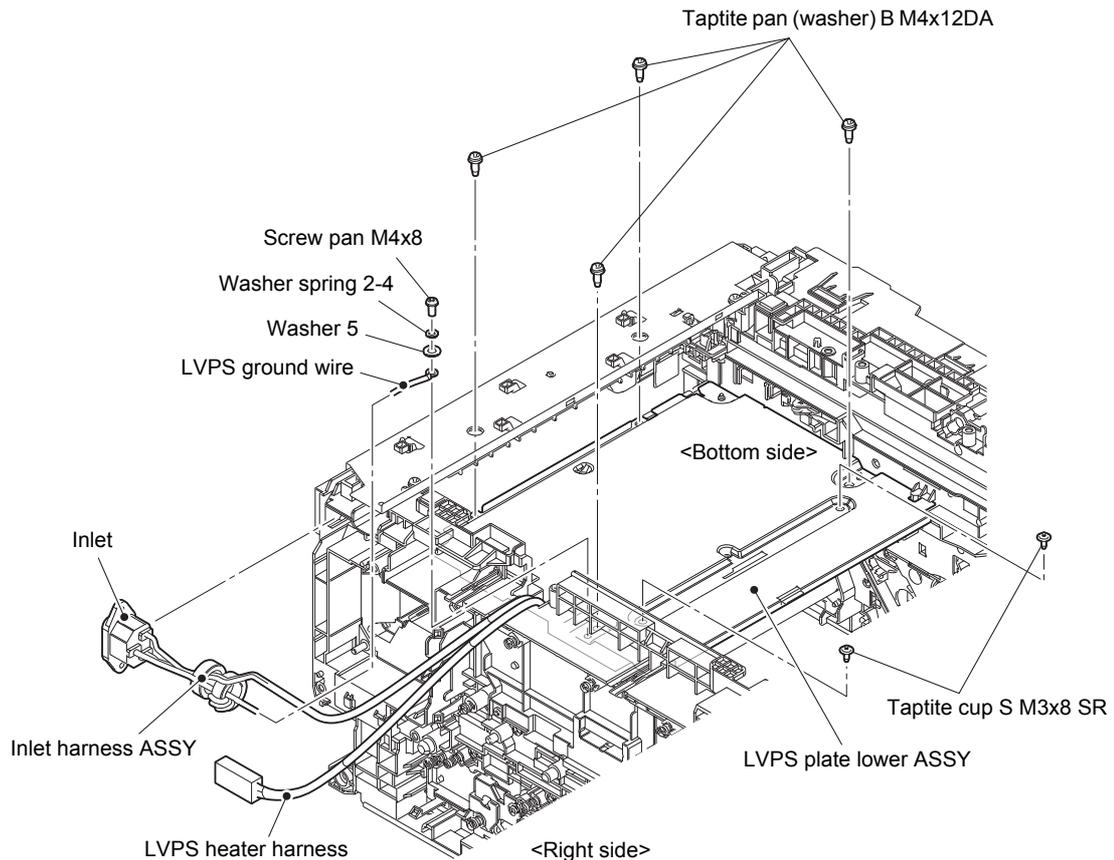
Fig. 3-71

Harness routing: Refer to "9. LVPS".

Assembling Note:

• For safety purposes, follow the figure above to attach the Washer spring 2-4 and the Washer 5 and secure them with the screw properly.

(8) Release the Low-voltage power supply harness from the securing fixtures.

(9) Remove the LVPS plate lower ASSY.
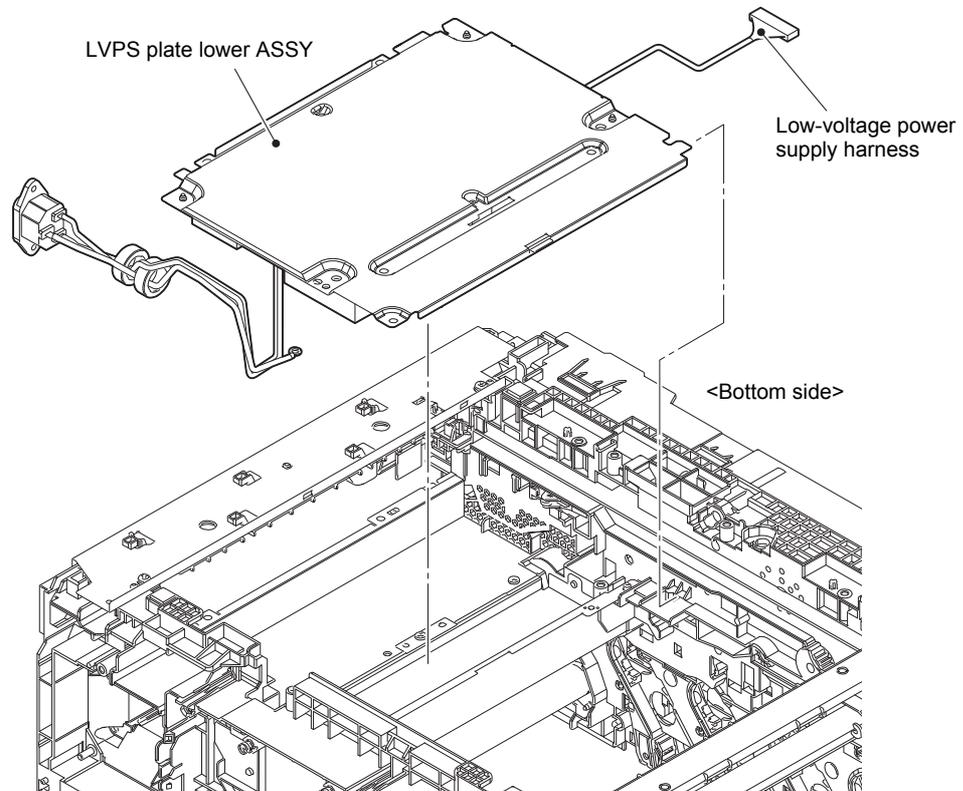
Fig. 3-72

Harness routing: Refer to "9. LVPS".

(10) Disconnect the Low-voltage power supply harness from the Low-voltage power supply PCB.

(11) Remove the three Taptite cup S M3x6 SR screws to remove the Low-voltage power supply PCB and the LVPS insulation sheet from the LVPS plate lower ASSY.

Taptite cup S M3x6 SR

Low-voltage power supply harness

Low-voltage power supply PCB

LVPS insulation sheet

LVPS plate lower ASSY
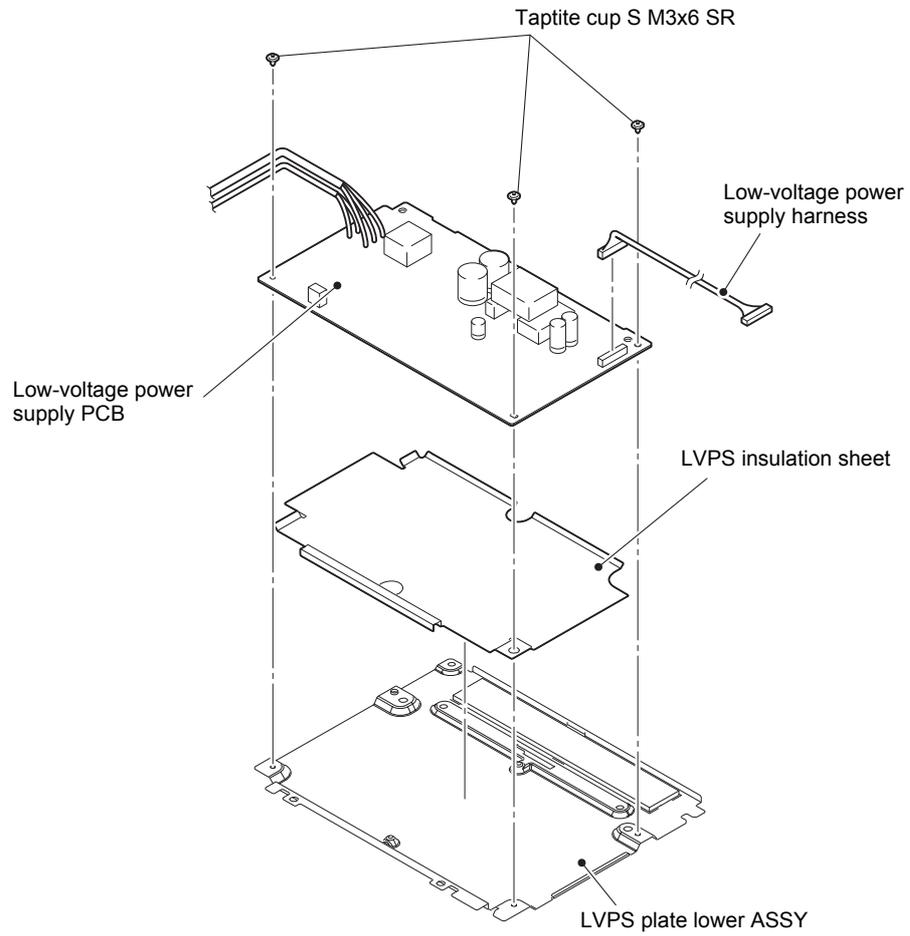
Fig. 3-73

9.27 Registration mark sensor L PCB / Registration mark sensor R PCB

(1) Turn the machine face up.

(2) Release the Registration mark sensor L harness and the Registration mark sensor R harness from the securing fixtures.

(3) Release the Hook, and then remove the REGI stopper from the Registration mark sensor ASSY in the direction of the arrow.

(4) Remove the Taptite bind S M3x5 screw to remove the Registration mark sensor ASSY.
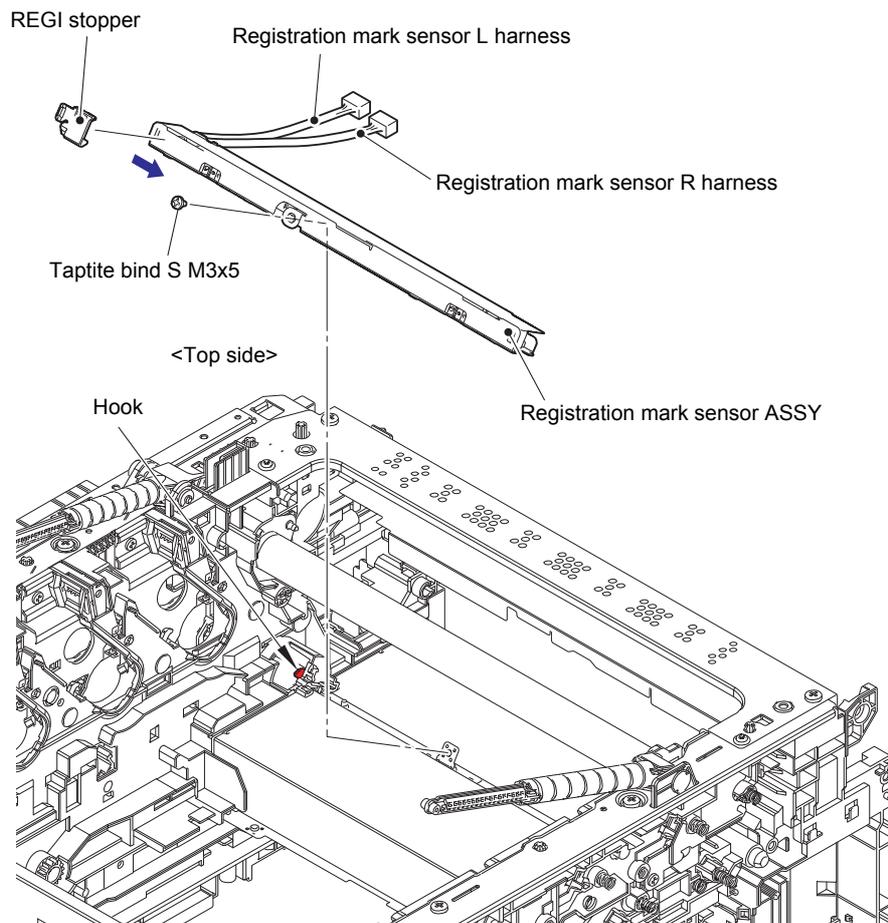
Fig. 3-74

Harness routing: Refer to "7. Registration mark sensor ASSY, Eject sensor PCB".

(5) Slide the Registration sensor film in the direction of the arrow to remove it from the Registration mark sensor ASSY.

(6) Release the Registration mark sensor L harness from the securing fixtures. Slide the Registration mark sensor L PCB in the direction of the arrow while pushing the Boss to remove it from the Registration mark sensor ASSY.

(7) Release the Registration mark sensor R harness from the securing fixtures. Slide the Registration mark sensor R PCB in the direction of the arrow while pushing the Boss to remove it from the Registration mark sensor ASSY.
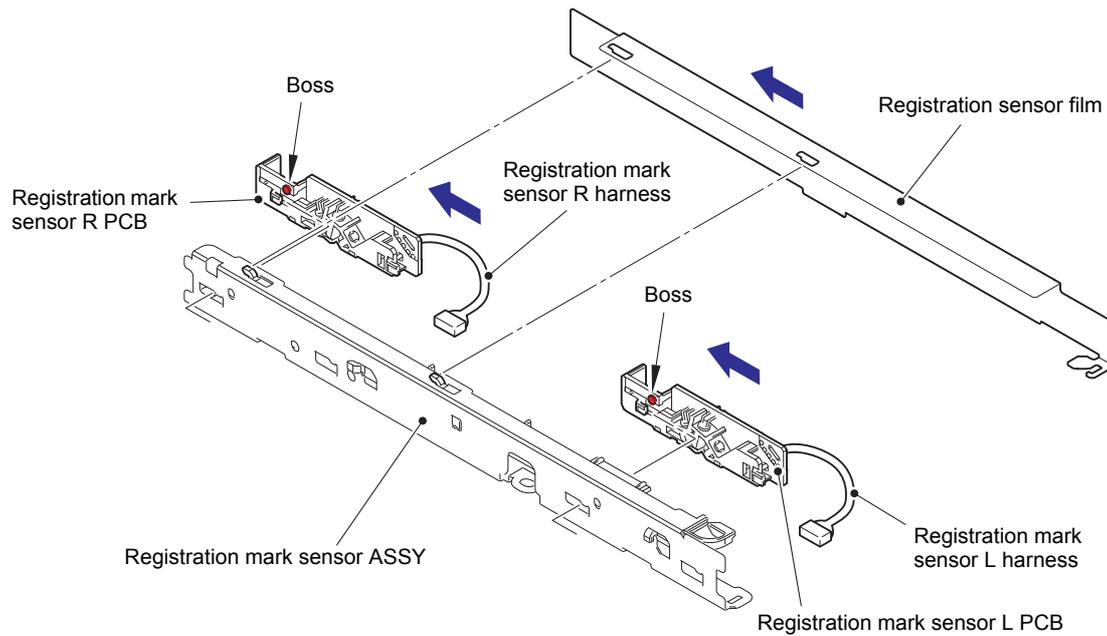
Fig. 3-75

Harness routing: Refer to "7. Registration mark sensor ASSY, Eject sensor PCB".

CHAPTER 4 ADJUSTMENTS AND UPDATING OF SETTINGS, REQUIRED AFTER PARTS REPLACEMENT

1. IF YOU REPLACE THE MAIN PCB

■ **What to do after replacement**

- Configure for Country/Region and Model (Function code 74)

- Installing the Firmware (Sub Firmware and Main Firmware)

- Initializing the EEPROM of the Main PCB (Function code 01)

- Adjusting Touch Panel (Function code 61) (Touch panel models only)

- Continuous Adjustments of Density and Registration Sensor (Function code 73)

- Setting the Serial Number (Function code 80)

■ **What you need to prepare**

(1) One USB cable

(2) Create a temporary folder on the C drive of the computer (Windows® XP or later).

(3) Service setting tool (SvSettingTool)
     (Only when setting the Serial Number using computer.)
     Copy it into the temporary folder that has been created in the C drive.

(4) Download utility (Filedg32.exe)
     Copy it into the temporary folder that has been created in the C drive.

(5) Maintenance printer driver (Maintenance_driver.zip)
     When the maintenance printer driver is not installed, copy this file into the temporary folder created on the C drive, and extract the copied file. Refer to "APPENDIX 3 INSTALLING THE MAINTENANCE PRINTER DRIVER" to install the driver.

(6) Firmware

Sub firmware	djf file (ex. ******_A.djf)
Main firmware	djf file (ex. ******_A.djf)

(7) Touch pen

(8) Memory access tool (MemoryAccessTool.exe) (only for using SvSettingTool.)

1.1 Configure for Country/Region and Model (Function code 74)

Perform settings for a country/region as described in "1.3.22 Configure for country/region and model (Function code 74)" in Chapter 5.

1.2 Installing the Firmware (Sub Firmware and Main Firmware)

1.2.1 Checking firmware version

Check whether the firmware installed on the machine is the latest version. If it is the latest version, there is no need to install the firmware. If it is not, be sure to install the firmware to the machine as described in "1.2.2 Installing firmware" in this chapter.

<How to check firmware version>

When the supply PCB is replaced with a new one, the machine automatically enters maintenance mode by turning it ON so the procedure below to enter the maintenance mode is not necessary.

For models without touch panel

(1) Press the [OK] and then [Go] while the machine is in the ready state. Then, press the [▲] four times to enter the maintenance mode.

(2) Press the [▲] or [▼] to display "MAINTENANCE 25" on the LCD, and press the [OK]. "MAIN:Ver*.**" is displayed on the LCD.

(3) Change the displayed item by pressing the [Go], [▲] or [▼] to check all firmwares.

For models with touch panel

(1) Press and hold the [🏠] for approximately five seconds while the machine is in the ready state.

(2) Press the blank field at the bottom on the LCD.

(3) Press the [*], [2], [8], [6], and [4] on the LCD in this order to enter the maintenance mode.

(4) Press the [2] and [5] in this order. The main firmware version information is displayed on the LCD.

(5) Press the [Mono Start] and check the sub firmware version information displayed on the LCD.

Memo:

You can also check the Sub firmware and Main firmware version by implementing "Print maintenance information (Function code 77)" (refer to "1.3.23 Print maintenance information (Function code 77)" in Chapter 5).

Confidential

1.2.2 Installing firmware

> **Memo:**
> - Be sure to reinstall the sub firmware and then the main firmware in this order.
> - Do not disconnect the power cord or USB cable from the machine or computer during installing.

<Operating procedure>

(1) If the computer and machine are connected with a USB cable, disconnect the USB cable and enter the maintenance mode. (Refer to "1.1 How to Enter Maintenance Mode" in Chapter 5.) When the supply PCB is replaced with a new one, the machine automatically enters maintenance mode by turning it ON so the procedure to enter the maintenance mode is not necessary.

(2) Connect the computer to the machine with the USB cable.

(3) Open the temporary folder, double-click the "Filedg32.exe" to start, and select "Brother Maintenance USB Printer".

(4) Drag and drop a necessary program file (ex: ******_$.djf) located in the same folder to the Brother Maintenance USB Printer icon located within the FILEDG32 screen. The files are sent to the machine and installation into the flash ROM is started.

(5) When installation is completed, the machine reboots and returns to the ready state.

(6) Turn OFF the power of the machine, and repeat the procedures (1) to (5) to install necessary firmware. However, when the supply PCB is replaced with a new one, the machine automatically enters maintenance mode by turning it ON so the procedure (1) to enter the maintenance mode is not necessary.

(7) Turn OFF the power of the machine, and disconnect the USB cable.

<Firmware installation failure>

If the firmware installation fails due to "a power blackout during installing" or "the USB cable was disconnected during installing", turn OFF the machine and turn it back on. Then repeat the procedure from (1) of <Operating procedure> above.

1.3 Initializing the EEPROM of the Main PCB (Function code 01)

Initialize the EEPROM of the main PCB in accordance with "1.3.1 Initialize EEPROM parameters (Function code 01, 91)" in Chapter 5.

1.4 Adjusting Touch Panel (Function code 61) (Touch panel models only)

Perform adjustment of touch panel in accordance with "1.3.13 Adjust touch panel (Function code 61)" in Chapter 5.

1.5 Continuous Adjustments of Density and Registration Sensor (Function code 73)

Perform continuous adjustments of density and registration sensor in accordance with "1.3.21 Continuous adjustments of density / registration sensor (Function code 73)" in Chapter 5.

1.6 Setting the Serial Number (Function code 80)

<Operating procedure>

(1) Press the [8], and then the [0] in the initial state of maintenance mode. "MACERR_01:****" is displayed on the LCD.

(2) Press the [Go] several times until "USB:*************" is displayed on the LCD.

(3) Press the [9], [4], [7], and [5] in this order to enter the edit mode.

(4) Use the keypad to enter the first digit of the serial number. The second digit starts to flash. Enter the second digit to the 15th digit similarly.

Memo:	Keypad	Assigned characters
When you enter alphanumeric characters other than A, B, C, D, E and F, see the right table and press the corresponding key until the desired character is displayed.	4	4 → G → H → I
	5	5 → J → K → L
	6	6 → M → N → O
	7	7 → P → Q → R → S
	8	8 → T → U → V
	9	9 → W → X → Y → Z

(5) Press the [SET], and the new serial number is saved. The machine returns to the initial state of maintenance mode.

Serial number can also be configured through the service setting tool (SvSettingTool.exe). Follow the procedure below:

(1) Enter the maintenance mode.

(2) Connect the machine to your computer using the USB cable.

(3) Open the temporary folder and double-click "MemoryAccessTool.exe". The screen shown on the right appears.

(4) Click the [Execute] and close the Maintenance Exception Tool screen. Wait for five seconds or longer and then proceed to the next step.
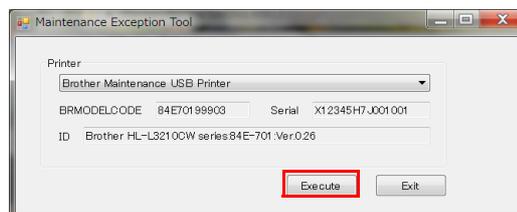
Note:

• If the [Execute] on the Memory access tool is pressed once, the serial number written to the machine is valid as long as the machine does not quit the maintenance mode.

• If the BRMODELCODE, the Serial, and the ID fields display abnormally, quit the maintenance mode and then restart from step (1). When they display abnormally, the machine is still in the state that the serial number cannot be written even if the [Execute] is clicked.

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(5) Open the temporary folder and double-click the "SvSettingTool.exe".
The screen shown on the right appears.

(6) Check that the USB port connected with the machine is displayed in the box (A).

(7) Enter the model name in the box (B) and press the [Find a model]. Series name and model name are displayed in the box (C).
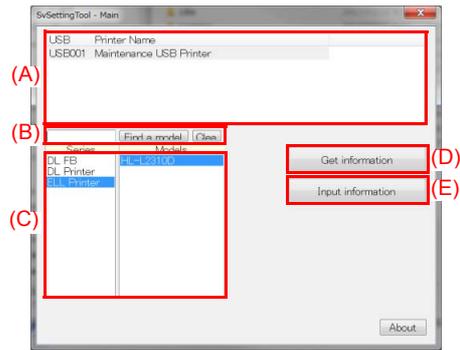
(8) Click the [Input information] shown as (E). The Input Information screen shown on the right appears.

(9) Click the [Serial No.] in the box (F). Set Serial No. screen appears.
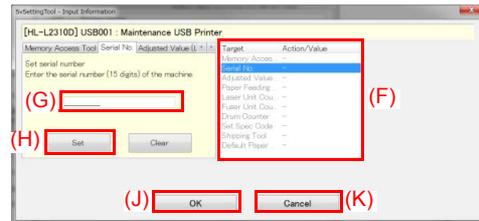
(10) Enter the serial number (15 digits) of the machine in the box (G), and click the [Set] shown as (H). "Set[***************]" and entered value appear on the [Serial No.] line in the box (F). ("***************" indicates the serial number entered.)

(11) Click the [OK] shown as (J).
The Execute Setting screen shown on the right appears and the serial number is written to the machine.
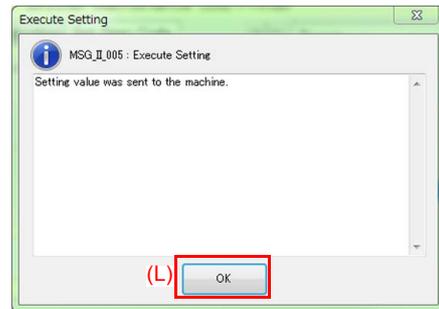
(12) Click the [OK] shown as (L) and close the Execute Setting screen.

(13) Click the [Cancel] shown as (K) and close the Input Information screen.

(14) Click the [Get information] shown as (D).
The Get Information screen shown on the right appears.

Memo:

You can check the serial number you entered even if function code 80 is executed.
Refer to "1.3.25 Display machine log information (Function code 80)".

(15) Click the [display data] shown as (M).
The machine maintenance information appears.

(16) In the maintenance information, check that the serial number in the [Serial] field is same as the value entered in the procedure (10).

(17) Click the [Cancel] shown as (N) and close the Get Information screen.

(18) Turn OFF the power switch of the machine and disconnect the USB cable from the machine and computer.

Memo:

Refer to "APPENDIX 1 SERIAL NUMBERING SYSTEM" for how to check the serial number.

2. IF YOU REPLACE THE REGISTRATION MARK SENSOR ASSY OR LED ASSY

■ **What to do after replacement**

• Continuous Adjustments of Density and Registration Sensor (Function code 73)

■ **What you need to prepare**

None

2.1 Continuous Adjustments of Density and Registration Sensor (Function code 73)

Perform continuous adjustments of density and registration sensor in accordance with "1.3.21 Continuous adjustments of density / registration sensor (Function code 73)" in Chapter 5.

3. IF YOU REPLACE THE LOW-VOLTAGE POWER SUPPLY PCB

■ **What to do after replacement**

• Resetting Irregular Power Supply Counter of the Low-voltage Power Supply PCB (Reset counters for consumable parts (Function code 88))

■ **What you need to prepare**

None

3.1 Resetting Irregular Power Supply Counter of the Low-voltage Power Supply PCB (Reset counters for consumable parts (Function code 88))

Refer to "1.3.28 Reset counters for consumable parts (Function code 88)" in Chapter 5 to reset the irregular power supply counter of the low-voltage power supply PCB.

4. IF YOU REPLACE THE TOP COVER ASSY, LCD, LCD PANEL ASSY OR PANEL PCB

■ **What to do after replacement**

• Adjusting Touch Panel (Function code 61) (Touch panel models only)

• Checking LCD Operation (Function code 12)

■ **What you need to prepare**

(1) Touch pen

4.1 Adjusting Touch Panel (Function code 61) (Touch panel models only)

Adjust the touch panel as described in "1.3.13 Adjust touch panel (Function code 61)" in Chapter 5.

4.2 Checking LCD Operation (Function code 12)

Check LCD operation as described in "1.3.5 Check LCD operation (Function code 12)" in Chapter 5.

5. IF YOU REPLACE THE FUSER UNIT

■ **What to do after replacement**

- Resetting Printed Pages Counter of the Fuser Unit
  (Reset counters for consumable parts (Function code 88))

■ **What you need to prepare**

None

5.1 Resetting Printed Pages Counter of the Fuser Unit (Reset counters for consumable parts (Function code 88))

Refer to "1.3.28 Reset counters for consumable parts (Function code 88)" in Chapter 5 to reset the printed pages counter of the fuser unit.

6. IF YOU REPLACE A PF KIT

■ **What to do after replacement**

- Resetting Printed Pages Counter of a PF Kit
  (Reset counters for consumable parts (Function code 88))

■ **What you need to prepare**

None

6.1 Resetting Printed Pages Counter of a PF Kit (Reset counters for consumable parts (Function code 88))

Refer to "1.3.28 Reset counters for consumable parts (Function code 88)" in Chapter 5 to reset the printed pages counter of the appropriate PF kit.

CHAPTER 5 SERVICE FUNCTIONS

1. MAINTENANCE MODE

Maintenance mode is exclusively designed for checking, setting and adjusting the machine using the keys on the control panel. Using maintenance mode functions, you can conduct operational checks of sensors or test printing, display the log information or error codes, and change the worker switches (WSW) etc.

1.1 How to Enter Maintenance Mode

1.1.1 Method of entering maintenance mode for service personnel

< Operating Procedure >

For models with touch panel

(1) Press and hold the 🏠 for approximately five seconds while the machine is in the ready state. The display shown on the right appears on the LCD.

```
1. Serial No
                          123456789012345
2. ROM Version
                          403071112:F97B
```

(2) Press the blank field at the bottom on the LCD. The display shown on the right appears on the LCD.

```
1    2    3    4    Stop   Mono
                                Start
5    6    7    8    *      Color
                                Start
≪    9    0    SET  #      ≫
```
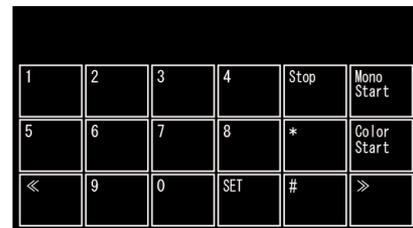
(3) Press the [*], [2], [8], [6], and [4] in this order. The display shown on the right appears on the LCD, and the machine enters into maintenance mode.

(4) To select any of the maintenance mode functions shown in the "1.2 List of Maintenance Mode Functions", use the keypad to enter the maintenance mode function code to be executed.

```
■■MAINTENANCE■■■
1    2    3    4    Stop   Mono
                                Start
5    6    7    8    *      Color
                                Start
≪    9    0    SET  #      ≫
```
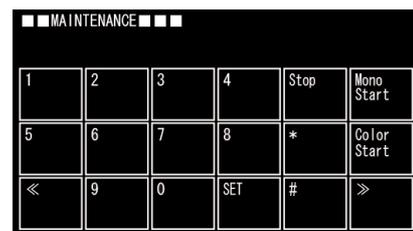
For models without touch panel

(1) Press the [OK] and then the [Go] while the machine is in the ready state. Then, press the [▲] four times. "■■MAINTENANCE■■■" appears on the LCD and the machine enters the maintenance mode.

(2) Press the [▲] or [▼] to display any of the maintenance mode functions shown in the "1.2 List of Maintenance Mode Functions" on the LCD and select it by pressing the [OK].

1.1.2 Method of entering end-user accessible maintenance mode

The maintenance mode functions should only be accessed by service personnel. However, end users are allowed to use some of these functions under the guidance of service personnel over the phone. End users can only use the functions shaded in the table "1.2 List of Maintenance Mode Functions" (Function code 09, 10, 11, 12, 25, 45, 61, 66, 68, 71, 72, 77, 80, 82, 91).

< Operating Procedure >

For models with touch panel

(1) Press and hold the 🏠 for approximately five seconds while the machine is in the ready state. The display shown on the right appears on the LCD.

```
1. Serial No
                        123456789012345
2. ROM Version
                        403071112:F97B
```
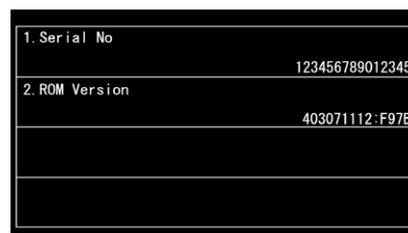
(2) Press the blank field at the bottom on the LCD. The display shown on the right appears on the LCD.

(3) Press the [*], [0], and [#] on the LCD in this order. The machine enters into ready state to accept function code entry, so press the function code you want to execute.

1	2	3	4	Stop	Mono Start
5	6	7	8	*	Color Start
≪	9	0	SET	#	≫

(4) Each time the selected maintenance mode function is completed, the machine returns to the ready state automatically.

For models without touch panel

(1) Press the [OK], [Go], and [OK] in this order while the machine is in the ready state. "0" is displayed on the LCD.

(2) Press the [▲] or [▼] to display the function code you want to execute on the LCD and press the [OK].

(3) Each time the selected maintenance mode function is completed, the machine returns to the ready state automatically. However, for function codes 12, 25, 45, 80, and 82, pressing the [Stop/Exit] returns the machine to the ready state.

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1.2 List of Maintenance Mode Functions

Function code	Function	Refer to:
01	Initialize EEPROM parameters	1.3.1 (5-4)
03	Transition to shipping state	1.3.2 (5-5)
09	Monochrome print quality test pattern	1.3.3 (5-7)
10	Set worker switches (WSW)	1.3.4 (5-8)
11	Print worker switch (WSW) setting data	1.3.4 (5-10)
12	Check LCD operation	1.3.5 (5-11)
13	Check control panel key operation	1.3.6 (5-13)
25	Display software version	1.3.7 (5-14)
32	Check sensor operation	1.3.8 (5-15)
33	Display LAN connection status	1.3.9 (5-17)
45	Change USB No. return value / Switching dither pattern / Switching of timing to execute auto registration / Adjust left-end print position / Adjust upper-end print position / Change of the transfer current setting / Change of ghost reduction setting / Change of function switch / Change of drum developing bias correction value in endurance deterioration of drum / Switching of black toner discharge compensation	1.3.10 (5-18)
46	Adjust printable range for each speed level	1.3.11 (5-25)
57	Check consumables function	1.3.12 (5-27)
61	Adjust touch panel	1.3.13 (5-30)
66	Adjustment of color registration (Adjustment of inter-color position alignment)	1.3.14 (5-31)
67	Continuous print test	1.3.15 (5-35)
68	LED ASSY test pattern print	1.3.16 (5-39)
69	Print frame pattern (1-sided printing)	1.3.17 (5-40)
70	Print frame pattern (2-sided printing)	1.3.18 (5-41)
71	Color test pattern	1.3.19 (5-42)
72	Sensitivity adjustment of density sensor	1.3.20 (5-45)
73	Continuous adjustments of density / registration sensor	1.3.21 (5-46)
74	Configure for country / region and model	1.3.22 (5-47)
77	Print maintenance information	1.3.23 (5-49)
78	Check fan operation	1.3.24 (5-51)
80	Display machine log information	1.3.25 (5-52)
82	Display machine error code	1.3.26 (5-56)
83	Developing bias voltage correction	1.3.27 (5-57)
88	Reset counters for consumable parts	1.3.28 (5-58)
91	Initialize EEPROM parameters	1.3.1 (5-4)
99	Quit maintenance mode	1.3.29 (5-58)

* The maintenance mode functions shaded in the table can be used by end users.

1.3 Details of Maintenance Mode Functions

1.3.1 Initialize EEPROM parameters (Function code 01, 91)

< Function >

This function is used to initialize the setting values for operation parameters, user switches, and worker switches (WSW) registered in the EEPROM. Entering function code 01 initializes most EEPROM areas. Entering function code 91 initializes only the specified areas as shown in the table below.

Data item	01	91
Printer switch (Counter information)	Areas not to be initialized	Areas not to be initialized
Error history		
Mac Address (Ethernet Address)		
Continuity counter		
Password for control panel operation lock	Areas to be initialized	
Worker switches		
Secure function lock		
User switches (items initialized when Factory Reset is executed)		Areas to be initialized
Function settings except user switches (settings not subject to "Factory Reset") • Language • Interface		
LAN setting		
PCL core area (Emulation setting values)		

< Operating Procedure >

(1) <u>For models with touch panel</u>
Press the [0], and then the [1] (or press the [9], and then the [1] as required) in the initial state of maintenance mode. "SELECT 01?" (or "SELECT 91?") is displayed on the LCD.
<u>For models without touch panel</u>
Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 01" (or "MAINTENANCE 91" as required) on the LCD, and press the [OK]. "SELECT 01?" (or "SELECT 91?") is displayed on the LCD.

(2) Press the [Mono Start] or [OK]. "PARAMETER INIT" is displayed on the LCD.

(3) When initializing parameters is completed, the machine returns to the initial state of maintenance mode.

Note:
Function code 01 is for service personnel. Function code 91 is for user support.

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1.3.2 Transition to shipping state (Function code 03)

This function contains display soft switch Check SUM, change ON/OFF setting of special function at start up and transfer to the shipping state. Display soft switch Check SUM is function for sales correspondence or production process and not used for the service. Only change ON/OFF setting of special function at start up and transfer to the shipping state can used for the service.

■ Display soft switch Check SUM

< Function >

This function is to display soft switch check SUM such as FSW/USW/WSW etc. Only for soft switch display and not used for the service.

This function is displayed on LCD after enter function code 03 as "1.SWSUM?".

■ Change ON/OFF setting of special function at start up

< Function >

When this parameter is [FUNC_DISABLE], perform switching the shipping state from OFF to ON ("■ Transfer to the shipping state"). When this parameter is [FUNC_ENABLE], the shipping state cannot be switched to ON. Originally, during product manufacturing, this function switches whether to enable or disable the menu function displayed by the special function at start up, and it is invalid ([FUNC_DISABLE]) when the users use the machine.

< Operating Procedure >

(1) For models with touch panel
Press the [0], and then the [3] in the initial state of maintenance mode. "1.SWSUM?" is displayed on the LCD.
For models without touch panel
Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 03" on the LCD, and press the [OK]. "1.SWSUM?" is displayed on the LCD.

(2) Press the [▲] or [▼] to select "2.PowerOnFunc ?" and then press the [Mono Start] or [OK]. "FUNC_ENABLE" or "FUNC_DISABLE" is displayed on the LCD.

(3) When "FUNC_DISABLE" is displayed on the LCD, the machine is at the disable state of special function at start up. Press the [X] or [Cancel] to return to the initial state of the maintenance mode.
When "FUNC_ENABLE" is displayed on the LCD, press the [▲] or [▼] to select "FUNC_DISABLE" and then press the [SET] or [OK].
"1.SWSUM?" is displayed on the LCD, and the machine returns to the initial screen of the function code 03.

■ Transfer to the shipping state

< Function >

This function is to transfer the machine to the shipping state when used new spare Main PCB for repair, etc. When not perform this function to the new spare Main PCB and leave, some software will be unavailable such as MPS applications or BrAdmin tool. Also, the machine keeps poor state of security such as risk of leaking private information. Do not forget to perform this function after replacing the new spare Main PCB. However, this product does not have function for place back to the pre-shipping state from the shipping state.

< Operating Procedure >

Note:

Be careful that if the special function at start up in the preceding item is a valid state ([FUNC_ENABLE]), it is unable to transfer the machine to the shipping state.
Be sure to operate after changing to an invalid state ([FUNC_DISABLE]).

(1) For models with touch panel
    Press the [0], and then the [3] in the initial state of maintenance mode. "1.SWSUM?" is displayed on the LCD.
    For models without touch panel
    Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 03" on the LCD, and press the [OK]. "1.SWSUM?" is displayed on the LCD.

(2) Press the [▲] or [▼] to select "3.ShippingStat?" and then press the [Mono Start] or [OK]. "ON" or "OFF: Change OK?" is displayed on the LCD.

(3) When "ON" is displayed on the LCD, the machine is at shipping state. Press the [X] or [Cancel] to return to the initial state of the maintenance mode.
    When "OFF: Change OK?" is displayed on the LCD, press the [SET] or [OK]. The machine will transfer to the shipping state and returns to the initial state of the maintenance mode.

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1.3.3 Monochrome print quality test pattern (Function code 09)

< Function >

This function is used to print test patterns to check any missing image and print quality.

< Operating Procedure >

(1) For models with touch panel

Press the [0], and then the [9] in the initial state of maintenance mode. "MAINTENANCE 09" is displayed on the LCD, and the machine starts printing the monochrome print quality test pattern (refer to the figure below).

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 09" on the LCD, and press the [OK]. "MAINTENANCE 09" is displayed on the LCD, and the machine starts printing the monochrome print quality test pattern (refer to the figure below).

(2) When printing is completed, the machine returns to the initial state of maintenance mode.
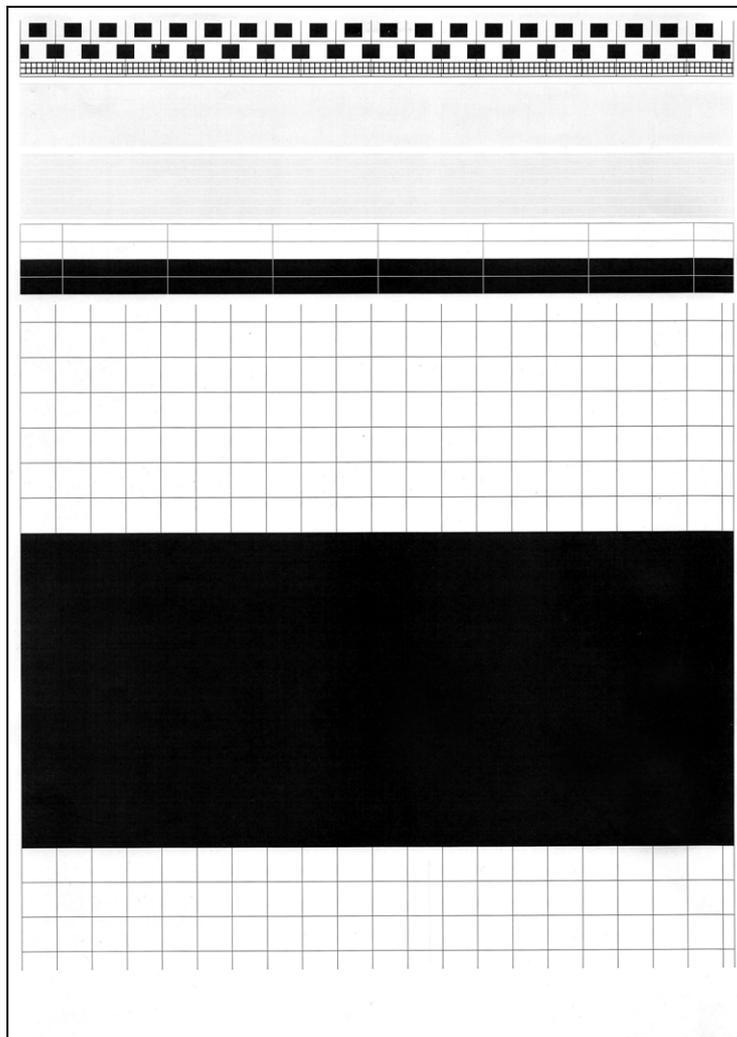
Fig. 5-1

Note:

This print is available even Cyan, Magenta and Yellow toner cartridge is empty or "No toner" status.

1.3.4 Set worker switches (WSW) and print worker switch setting data (Function code 10, 11)

[1] Set worker switches (Function code 10)

< Function >

The worker switches shown in the table below can be used to set the function to satisfy various requirements. These switch settings can be changed using the keys on the control panel.
The worker switches are factory set to conform to the laws and regulations of the country the machine is shipped to. Do not change these settings unless necessary.

WSW No.	Function
WSW17 selector 5	Change time display method (American: MM/DD/YY or European: DD/MM/YY)
WSW47 selector 8	Change USB High/Full Speed
WSW49 selector 7	Change paper size select method at PDF printing
WSW55 selector 1-8	Change the Developing bias voltage correction interval
WSW56 selector 6	Change coverage type display
WSW56 selector 7	Change ON/OFF setting for PCL emulation function
WSW59 selector 1	Change ON/OFF setting for USB serial number sending
WSW63 selector 3	Change time display method (Japanese: YY/MM/DD or others)
WSW63 selector 8	Change ON/OFF setting for Israeli font support
WSW64 selector 1-6	Language setting
WSW64 selector 7-8	Default paper size
WSW65 selector 1-2	Default media type
WSW65 selector 3	Change ON/OFF setting for Bond Paper support
WSW65 selector 4	Change ON/OFF setting for Postcard support
WSW65 selector 6	Change ON/OFF setting for Label support
WSW65 selector 7	Change ON/OFF setting for Glossy paper support
WSW81 selector 1	Change ON/OFF setting for models with PS emulation function.
WSW81 selector 2	Change ON/OFF setting for models with PCL emulation function.

* Refer to the separate manual for details of worker switches.

< Operating Procedure >

<u>For models with touch panel</u>

(1) Press the [1], and then the [0] in the initial state of maintenance mode. "WSW00" is displayed on the LCD.

(2) Enter the worker switch number that you want to change the setting.
The following display appears on the LCD.

<div align="center">
Selector No.1   Selector No.8
↓   ↓
WSWXX = <u>0</u> 0 0 0 0 0 0 0
</div>

(3) Press the [◄] or [►] to move the cursor to the desired selector, and change the setting by pressing the [1] or [0].

(4) When changing the setting is completed, press the [SET]. The new selector setting value is stored in the EEPROM, and the LCD returns to the ready state for worker switch number entry ("WSW00").

(5) When all switch setting is completed, press the [X] to return the machine to the initial state of maintenance mode.

<u>For models without touch panel</u>

(1) Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 10" on the LCD, and press the [OK]. "WSW00" is displayed on the LCD. The LCD enters into the ready state for worker switch number entry.

(2) Press the [▲] or [▼] to display the worker switch number that you want to change the setting on the LCD.

(3) Press the [OK]. The following display appears on the LCD.

<div align="center">
Selector No.1   Selector No.8
↓   ↓
WSWXX = <u>0</u> 0 0 0 0 0 0 0
</div>

(4) Pressing the [▲] enters "1" and pressing the [▼] enters "0". Press the button of the number that you want to enter to Selector No.1. The underline cursor moves to the next digit.

(5) Use the [▲] or [▼] to keep entering numbers until the Selector No.8 is entered in the procedures from (2) to (5).

(6) After entering the Selector No.8, press the [OK]. The new selector setting value is stored in the EEPROM, and the LCD returns to the ready state for worker switch number entry ("WSW00").

(7) When all switch setting is completed, press the [Cancel] to return the machine to the initial state of maintenance mode.

[2] Print worker switch (WSW) setting data (Function code 11)

< Function >

This function is used to print the worker switch settings and details.

< Operating Procedure >

(1) For models with touch panel

Press the [1] twice in the initial state of maintenance mode.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 11" on the LCD, and press the [OK].

(2) "PRINTING" is displayed on the LCD, and printing the CONFIGURATION LIST (refer to the figure below) starts.

(3) When printing is completed, the machine returns to the initial state of maintenance mode.


```
                    CONFIGURATION LIST

                                   MODEL  : 84E-755
                                   REV.C  : U1802270121
                                   PCI    : 5.00
                                   SUM    : A844
                                   SER.#  : X12345L7N100180

   WSW01 = 00000010
      1-8. DON'T CHANGE
   WSW02 = 11111010
      1-8. DON'T CHANGE
   WSW03 = 10110000
      1-8. DON'T CHANGE
   WSW04 = 00010110
      1-8. DON'T CHANGE
   WSW05 = 00000110
      1-8. DON'T CHANGE
   WSW06 = 00101100
      1-8. DON'T CHANGE
   WSW07 = 01001100
      1-8. DON'T CHANGE
   WSW08 = 01100111
      1-8. DON'T CHANGE
   WSW09 = 00000000
      1-8. DON'T CHANGE
   WSW10 = 00010100
      1-8. DON'T CHANGE
   WSW11 = 01011000
      1-8. DON'T CHANGE
   WSW12 = 10011011
      1-8. DON'T CHANGE
   WSW13 = 00011010
      1-8. DON'T CHANGE
   WSW14 = 01100110
      1-8. DON'T CHANGE
   WSW15 = 00000100
      1-8. DON'T CHANGE
   WSW16 = 01000010
      1-8. DON'T CHANGE
   WSW17 = 00100011
      1-4. DON'T CHANGE
      5.   DATE DISPLAY              : USA
      6-8. DON'T CHANGE
   WSW18 = 10001010
      1-8. DON'T CHANGE
   WSW19 = 11100000
      1-8. DON'T CHANGE
   WSW20 = 10011111
      1-8. DON'T CHANGE
   WSW21 = 00101000
      1-8. DON'T CHANGE
   WSW22 = 00100000
      1-8. DON'T CHANGE
   WSW23 = 00001110
      1-8. DON'T CHANGE
   WSW24 = 01000010
      1-8. DON'T CHANGE
   WSW25 = 00011010
      1-8. DON'T CHANGE
   WSW26 = 00010100
      1-8. DON'T CHANGE
   WSW27 = 00100001
      1-8. DON'T CHANGE
   WSW28 = 00000000
      1-8. DON'T CHANGE
   WSW29 = 01101001
      1-8. DON'T CHANGE
   WSW30 = 10000000
      1-8. DON'T CHANGE
   WSW31 = 10100101
      1-8. DON'T CHANGE
   WSW32 = 01010000
      1-8. DON'T CHANGE
```

Fig. 5-2

1.3.5 Check LCD operation (Function code 12)

< Function >

This function is used to check that the LCD on the control panel is operating normally.

< Operating Procedure >

For models with touch panel

(1) Press the [1], and then the [2] in the initial state of maintenance mode. LCD displays shown as the chart below.

(2) Press the [⏻] to switch the display column A and display column B.

By pressing the [⌂], LCD moves to the next display of the each column according to the chart. When you press the [⌂] at the Display B-7 of the each column, LCD returns to display B-1. Press the [↩] to return to the last LCD display.

> **Note:**
>
> At <Display A-7>, you cannot switch the display to column B even press the [⏻].

(3) When you press the [X] at the Display A-7 or B-1 to 7, the machine returns to the initial state of the maintenance mode.
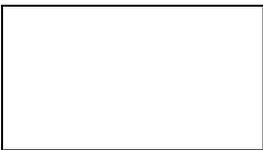
<Display A-1> all white		<Display B-1> bright point/ down point	
<Display A-2> all black		<Display B-2> bright point	
<Display A-3> all gray		<Display B-3> white gradual	
<Display A-4> all red		<Display B-4> red gradual	
<Display A-5> all green		<Display B-5> green gradual	
<Display A-6> all blue		<Display B-6> blue gradual	
<Display A-7> picture data		<Display B-7> Displays BMP file in the Media by rotation	
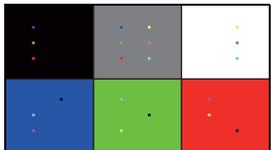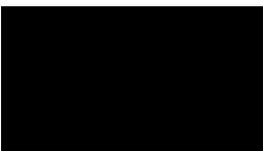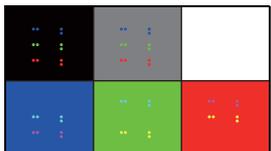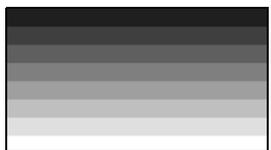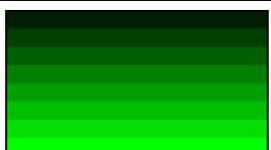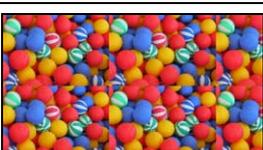
Fig. 5-3

For models without touch panel

(1) Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 12" on the LCD, and press the [OK]. A screen as shown in the figure below appears on the LCD.

(2) Each press of the [Go] cycles through the displays as shown in the figure below.

(3) Regardless of the display status, press the [Cancel] to return the machine to the initial state of maintenance mode.

China model   Non-China model

Display 1   ∨ Displays "C"   Display 1   ∨ Displays "ч"

CCCCCCCCCCCCCCCC   чччччччччччччччч

Display 2   ∨ Displays all dots   Display 2   ∨ Displays all dots

Display 3   ∨ Displays 16 frames in a line   Display 3   ∨ Displays 16 frames in a line

Display 4   ∨ Displays Lattice   Display 4   ∨ Displays Lattice

Display 5   ∨ Displays no dots   Display 5   ∨ Displays no dots

Fig. 5-4

Confidential
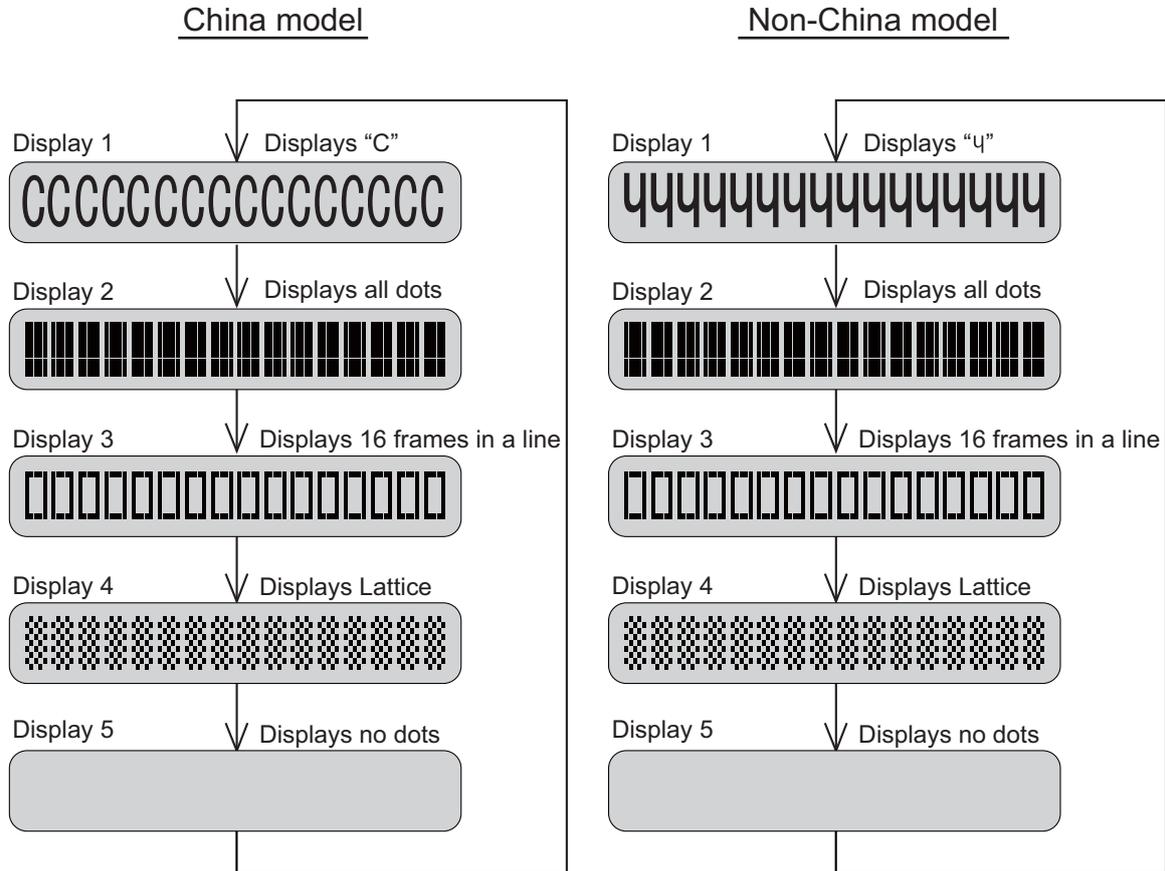
1.3.6 Check control panel key operation (Function code 13)

< Function >

This function is used to check that keys on the control panel are operating normally.

< Operating Procedure >

(1) For models with touch panel

Press the [1], and then the [3] in the initial state of maintenance mode. "00" is displayed on the LCD.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 13" on the LCD, and press the [OK]. "00" is displayed on the LCD.

(2) Press the keys on the control panel according to the numbers provided in the figure below. Each time the key is pressed, the corresponding figure is displayed on the LCD in decimal notation. Check that the number displayed on the LCD matches the number assigned to the key that has been pressed. If the keys are pressed in the incorrect order, "INVALID OPERATE" is displayed on the LCD.
Press the [X] or [Cancel] and try again with the correct key.

(3) When the key operation is normal, the machine returns to the initial state of maintenance mode when the last key is pressed. To cancel operation and return to the initial state of maintenance mode, press the [X] or [Cancel].

■ **Order of pressing keys**

Fig. 5-5

1.3.7 Display software version (Function code 25)

< Function >

This function is used to check the version information of the firmwares and programs, or check sum information.

< Operating Procedure >

(1) For models with touch panel

Press the [2], and then the [5] in the initial state of maintenance mode. "MAIN: Ver*.**" is displayed on the LCD.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 25" on the LCD, and press the [OK]. "MAIN: Ver*.**" is displayed on the LCD.

(2) Pressing the [Mono Start], [OK], [▲], or [▼] changes the display to the next item.

(3) Press the [X] or [Cancel], and the machine returns to the initial state of maintenance mode.

LCD	Description
MAIN: Ver1.00 (A) [*1]	Main firmware version information ((A): Revision information)
SUB1 : Ver1.00 (P) [*1]	Sub firmware version information ((P): Identifier for PCL/PS) [*2]
ENG : Ver1.00	Engine program version information
NET : Ver1.00	Network program version information
SUB5 1.00(1.00a)	Sub 5 firmware version information
B1712312359:1234 [*1]	Boot program creation date and check sum information
U1712312359:1234 [*1]	Main firmware creation date and check sum information
C1706021159:1234	UI custom data version information and check sum information
P1712271602:BD40 [*1]	Sub firmware (PCL/PS) creation date and check sum information
e1712312359: 1234	Sub 5 firmware creation date and check sum information
ROM Check Sum	Check sum self-diagnosis function [*3]

[*1] How to display the check sum information
You can check the check sum information by pressing the [SET] or [OK] while each version is displayed. When the [SET] or [OK] is pressed again, the LCD returns to the version display.

[*2] (P), (G), or (-) is displayed at the place of (P).
(P): Supports PCL/PS, (G): Supports GDI, (-): Unrecognized

[*3] There are two types of check sum information that can be checked with this function. This function checks if the two types of check sum information match each other. When the [SET] or [OK] is pressed while "ROM Check Sum" is displayed, check is automatically conducted for each ROM of each software part. When the check sum matches, "OK" is displayed on the LCD. When all ROMs result in "OK", "ROM Check Sum OK" is displayed at the end, and the operation is finished. When the check sum of any ROM does not match, "NG" is displayed, and the display stops.

1.3.8 Check sensor operation (Function code 32)

< Function >

This function is used to check whether the sensors are operating normally.

< Operating Procedure >

(1) <u>For models with touch panel</u>

Press the [3], and then the [2] in the initial state of maintenance mode. Following example is displayed on the LCD.

<u>For models without touch panel</u>

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 32" on the LCD, and press the [OK]. Following example is displayed on the LCD.

e.g.) RCCVC1MPMRPORMRA

(2) Pressing the [Mono Start] or [Go] changes the display to the next item.

(3) Change the conditions subject to sensor detection shown below and check that the display on the LCD changes depending on the sensor status. For example, feed the paper through the registration front/rear sensor, open the top cover or back cover, remove the toner cartridge, or create paper jam at the exit.

(4) Press the [X] or [Cancel], and the machine returns to the initial state of maintenance mode.

<Sensor check>

The table below summarizes the displays on the LCD, sensor names and detection status.

LCD	Sensor name	Detection status	
		With display	No display
RC	Back cover sensor	Back cover closed	Back cover open
CV	Top cover sensor	Top cover closed	Top cover open
C1	T1 paper feed sensor	T1 closed	T1 open
MP	Manual feed paper empty sensor	No paper	Paper set
PO	Eject sensor	No paper	Paper set
RM	Registration front sensor	No paper	Paper set
RA	Registration rear sensor	No paper	Paper set
MACxx	Internal temperature sensor	XX °C	NG
OTxx	External temperature sensor	XX °C	NG
OHxx	External humidity sensor	XX%	NG

Note:

If the temperature/humidity sensor detects the unusual value, the machine displays "NG" on the LCD.

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■ Location of sensors

Top cover sensor

Manual feed paper empty sensor
(Not used in the MP models)

Eject sensor /
Fuser cover sensor

Registration rear
sensor

Registration front sensor

Back cover sensor

Develop release sensor

Internal temperature
sensor

T1 paper feed sensor

External temperature/
humidity sensor
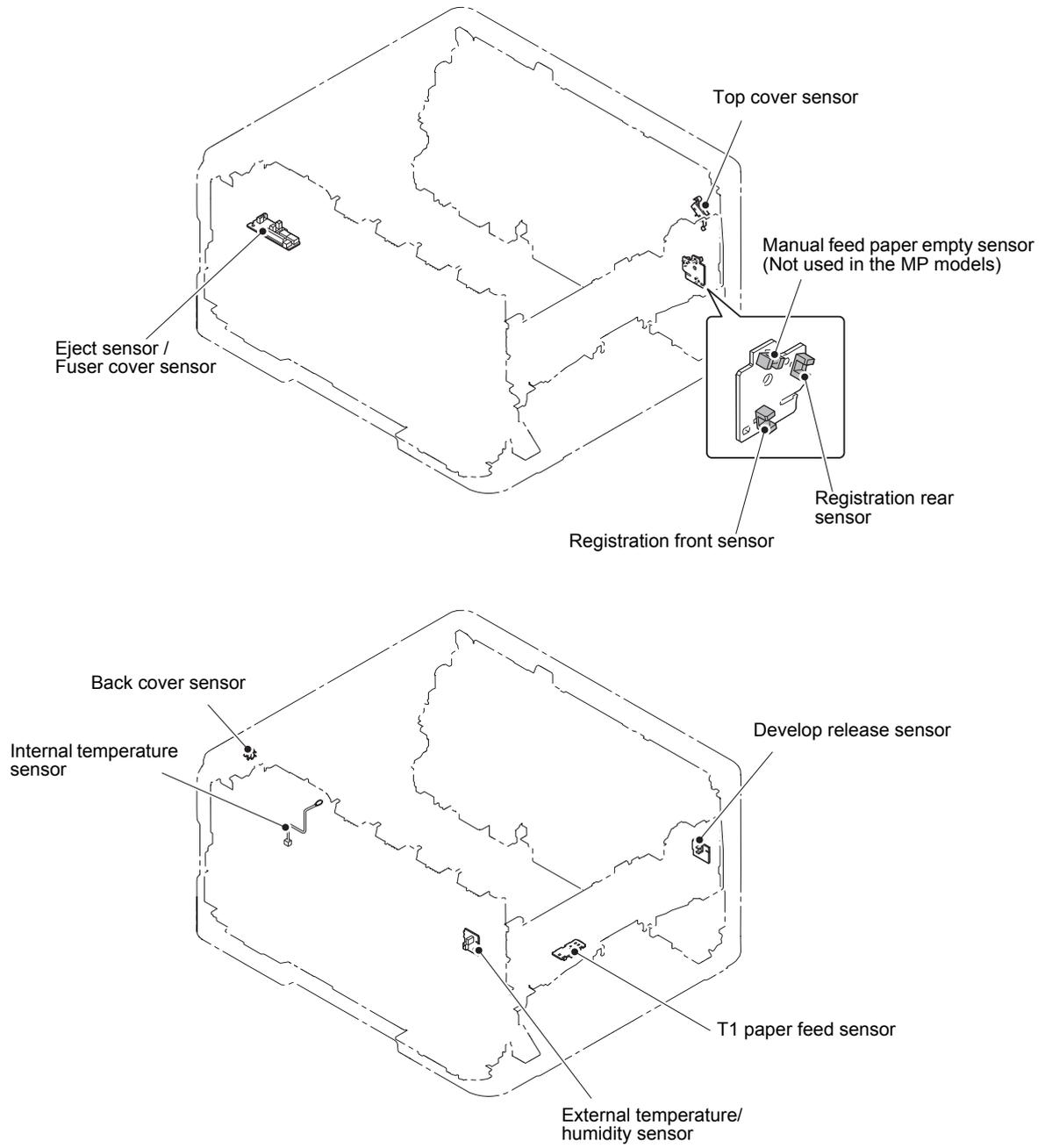
Fig. 5-6

1.3.9 Display LAN connection status (Function code 33)

< Function >

This function is used to check the connection status of the wired LAN.

< Operating Procedure >

(1) <u>For models with touch panel</u>

Press the [3] twice in the initial state of maintenance mode.

<u>For models without touch panel</u>

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 33" on the LCD, and press the [OK].

(2) One of the items in the following table is displayed on the LCD depending on the wired LAN connection of the machine.

(3) Press the [X] or [Cancel], and the machine returns to the initial state of maintenance mode.

LCD	LAN connection status
Active 100B-FD	100B-FD
Active 100B-HD	100B-HD
Active 10B-FD	10B-FD
Active 10B-HD	10B-HD
Inactive	Not connected

1.3.10 Change USB No. return value / Switching dither pattern / Switching of timing to execute auto registration / Adjust left-end print position / Adjust upper-end print position / Change of the transfer current setting / Change of ghost reduction setting / Change of function switch / Change of drum developing bias correction value in endurance deterioration of drum / Switching of black toner discharge compensation (Function code 45)

■ Change USB No. return value

< Function >

When the operating system (OS) installed on the computer is Windows Vista®, and the machine is connected to this computer using USB2.0FULL, the OS may not be able to obtain the USB device serial number depending on the computer and USB device. If the serial number cannot be obtained, the number of devices increases each time the device is connected to the computer. To avoid this problem, set this function to "USBNo.=ON" and fix the USB No. return value to "0".

LCD	Description
USBNo. =ON	Returns the serial number of the machine. (default)
USBNo. =OFF	Returns "0".

The setting currently selected is marked "*" at the end of the display.

< Operating Procedure >

(1) <u>For models with touch panel</u>

Press the [4], and then the [5] in the initial state of maintenance mode. "USBNo." is displayed on the LCD.

<u>For models without touch panel</u>

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 45" on the LCD, and press the [OK]. "USBNo." is displayed on the LCD.

(2) Press the [Mono Start], [SET] or [OK]. "USBNo.=OFF" is displayed on the LCD.

(3) Press the [▲] or [▼] to select "USBNo.=ON" or "USBNo.=OFF", and then press the [Mono Start], [SET] or [OK].

(4) "Accepted" is displayed on the LCD, and the machine returns to the initial state of maintenance mode.

(5) Turn the power switch OFF.

> **Note:**
> This setting is applied after the power switch is turned OFF and then ON again.

■ Switching dither pattern

< Function >

This function is to switch the dither pattern when printed letters and/or slanted lines are not smooth, and thin lines are rough or uneven.

LCD	Description
PS.DitherType=0	Dither Pattern 0 is selected. (A dither pattern which improves roughness of letters and slanted lines) (default)
PS.DitherType=1	Dither Pattern 1 is selected. (A dither pattern which alleviates banding)

"*" is displayed at the end of the currently specified function in the LCD display.

< Operating Procedure >

(1) For models with touch panel

Press the [4], and then the [5] in the initial state of maintenance mode. "USBNo." is displayed on the LCD.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 45" on the LCD, and press the [OK]. "USBNo." is displayed on the LCD.

(2) Press the [▲] or [▼] to display "PS.DitherType" on the LCD, and press the [Mono Start], [SET] or [OK].

(3) Press the [▲] or [▼] to select "PS.DitherType = 0" or "PS.DitherType = 1" on the LCD, and press the [Mono Start], [SET] or [OK].

(4) "Accepted" is displayed on the LCD, and the machine returns to the initial state of maintenance mode.

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■ Switching of timing to execute auto registration

< Function >

Relative displacement between Cyan, Magenta, Yellow, and Black is detected using the registration mark sensor, and the Auto Registration is executed at the timing when the displacement value exceeds the stipulated threshold value.

This function is to switch the threshold value which is used as the timing to execute Auto Registration. The threshold value can be switched in three phases between High, Mid, and Low.

LCD	Description
Regi Freq=Mid	The frequency to execute Auto Registration is middle. (default)
Regi Freq=High	The frequency to execute Auto Registration is high.
Regi Freq=Low	The frequency to execute Auto Registration is low.

"*" is displayed at the end of the currently specified function in the LCD display.

Note:

It can be set regardless of the Auto Registration switching function in the function menu. Even if this function is switched, it does not affect the timing to execute Auto Registration in the function menu.

< Operating Procedure >

(1) For models with touch panel

Press the [4], and then the [5] in the initial state of maintenance mode. "USBNo." is displayed on the LCD.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 45" on the LCD, and press the [OK]. "USBNo." is displayed on the LCD.

(2) Press the [▲] or [▼] to display "Regi Freq" on the LCD, and press the [Mono Start], [SET] or [OK].

(3) Press the [▲] or [▼] to select "Regi Freq = Mid", "Regi Freq = High" or "Regi Freq = Low" on the LCD, and press the [Mono Start], [SET] or [OK].

(4) "Accepted" is displayed on the LCD, and the machine returns to the initial state of maintenance mode.

■ Adjust left-end print position

< Function >

In the event that the left-end print start position deviates, use this function to adjust the position left and right. The adjustable range is -100 to 750 (1 unit = 0.084 mm = 300 dpi).

< Operating Procedure >

(1) For models with touch panel

   Press the [4], and then the [5] in the initial state of maintenance mode. "USBNo." is displayed on the LCD.

   For models without touch panel

   Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 45" on the LCD, and press the [OK]. "USBNo." is displayed on the LCD.

(2) Press the [▲] or [▼] to display "X Adjust" on the LCD, and press the [Mono Start], [SET] or [OK]. "XAdjust MP" is displayed on the LCD.

(3) Refer to <Adjustment option table> in the table below, press the [▲] or [▼] to select from the adjustment options, and press the [SET] or [OK]. "XAdj. **= 0*" is displayed on the LCD. (Selected option is shown for **.)

(4) To shift the writing start position to the left, press the [▼] to decrease the value. To shift the position to the right, press the [▲] to increase the value.

(5) Press the [Mono Start], [SET] or [OK] after adjusting the value. "Accepted" is displayed on the LCD.

(6) Press the [X] or [Cancel], and the machine returns to the initial state of maintenance mode.

<Adjustment option table>

1-sided printing

Adjustment option	LCD
N/A (disabled)	X Adjust MP
T1 first side	X Adjust T1
N/A (disabled)	X Adjust DX
N/A (disabled)	X Adjust DXMP
N/A (disabled)	X Adjust DXT1

2-sided printing

Adjustment option	LCD
N/A (disabled)	X Adjust MP
T1 second side	X Adjust T1
*1	X Adjust DX
N/A (disabled)	X Adjust DXMP
T1 first side	X Adjust DXT1

[*1] Adjusts first side print start position of the T1. Value of X Adjust DX is added to each tray adjustment value.
For example, when printing from the T1, it adjusts as "X Adjust DXT1 value" + "X Adjust DX value" and print. Besides, when the added value is over than the adjustable range (-100 to 750), adjusted value will be for minimum -100 and maximum 750 and does not become out of adjustable range.

■ Adjust upper-end print position

< Function >

In the event that the upper-end print start position deviates, use this function to adjust the position up and down. Adjustable range is -50 to 50 (1 unit = 0.084 mm = 300 dpi).

< Operating Procedure >

(1) For models with touch panel

Press the [4], and then the [5] in the initial state of maintenance mode. "USBNo." is displayed on the LCD.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 45" on the LCD, and press the [OK]. "USBNo." is displayed on the LCD.

(2) Press the [▲] or [▼] to display "Y Adjust" on the LCD, and press the [SET] or [OK]. "YAdjust MP" is displayed on the LCD.

(3) Refer to <Adjustment option table> in the table below, press the [▲] or [▼] to select from the adjustment options, and press the [SET] or [OK]. "YAdj. **= 0*" is displayed on the LCD. (Selected option is shown for **.)

(4) To shift the writing start position down, press the [▲] to increase the value. To shift the position up, press the [▼] to decrease the value.

(5) Press the [SET] or [OK] after adjusting the value. "Accepted" is displayed on the LCD.

(6) Press the [X] or [Cancel], and the machine returns to the initial state of maintenance mode.

<Adjustment option table>

1-sided printing

Adjustment option	LCD
N/A (disabled)	Y Adjust MP
T1 first side	Y Adjust T1
*1	Y Adjust TRAY
N/A (disabled)	Y Adjust DX
N/A (disabled)	Y Adjust DXMP
N/A (disabled)	Y Adjust DXT1

2-sided printing

Adjustment option	LCD
N/A (disabled)	Y Adjust MP
T1 second side	Y Adjust T1
*2	Y Adjust TRAY
*1	Y Adjust DX
N/A (disabled)	Y Adjust DXMP
T1 first side	Y Adjust DXT1

*1 Adjusts first side print start position of the T1. Value of Y Adjust TRAY and Y Adjust DX is added to each tray adjustment value.
For example, when printing from the T1, it adjusts as "Y Adjust T1 value" + "Y Adjust TRAY value" or "Y Adjust DXT1 value" + "Y Adjust DX value" and print. Besides, when the added value is over than the adjustable range (-50 to 50), adjusted value will be for minimum -50 and maximum 50 and does not become out of adjustable range.

*2 Adjusts second side print start position of the T1. Value of Y Adjust TRAY is added to each tray adjustment value.
For example, when printing from the T1, it adjusts as "Y Adjust T1 value" + "Y Adjust TRAY value" and print. Besides, when the added value is over than the adjustable range (-50 to 50), adjusted value will be for minimum -50 and maximum 50 and does not become out of adjustable range.

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■ Change of the transfer current setting (Only for Japan models)

< Function >

Dots appeared when hagaki printing is performed can be alleviated by changing the transfer current setting.

< Operating Procedure >

(1) For models with touch panel

Press the [4], and then the [5] in the initial state of maintenance mode. "USBNo." is displayed on the LCD.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 45" on the LCD, and press the [OK]. "USBNo." is displayed on the LCD.

(2) Press the [▲] or [▼] to display "Special Printing" on the LCD, and press the [Mono Start], [SET] or [OK]. "default" is displayed on the LCD.

(3) Press the [▲] or [▼] to change the setting, and press the [Mono Start], [SET] or [OK]. There are four setting options: "default", "HAGAKI1", "HAGAKI2", and "HAGAKI3". ("*" is displayed at the end of the currently specified function in the LCD display. The initial value is "default".)

(4) "Accepted" is displayed on the LCD, and the machine returns to the initial state of maintenance mode.

(5) Perform hagaki printing again to check if the dot symptom is improved.

(6) If not, repeat the steps (1) to (4) to set an optimum option, and then perform hagaki printing.

■ Change of ghost reduction setting

< Function >

This function is a mode to reduce the level of ghost when it appears in low temperature and high humidity environment. If this function is turned ON, however, spots and dirt may appear on print.

LCD	Description
ON	Turn ON the ghost reduction function.
OFF	Turn OFF the ghost reduction function. (default)

"*" is displayed at the end of the currently specified function in the LCD display.

< Operating Procedure >

(1) For models with touch panel

Press the [4], and then the [5] in the initial state of maintenance mode. "USBNo." is displayed on the LCD.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 45" on the LCD, and press the [OK]. "USBNo." is displayed on the LCD.

(2) Press the [▲] or [▼] to display "Ghost Reduction" and then press the [Mono Start], [SET] or [OK].

(3) Press the [▲] or [▼] to select "ON" or "OFF", and press the [Mono Start], [SET] or [OK].

(4) "Accepted" is displayed on the LCD, and the machine returns to the initial state of maintenance mode.

■ Change of function switch

< Function >

This function is used to stop the soft switch function, so it is the function that is not used for the service but for the designers.

■ Change of drum developing bias correction value in endurance deterioration of drum

< Function >

When the print image becomes light at the end of use of the drum unit, changes the setting value and responses it. Resetting the drum counter returns to the default (Normal).

< Operating Procedure >

(1) For models with touch panel

Press the [4], and then the [5] in the initial state of maintenance mode. "USBNo." is displayed on the LCD.

For models without touch panel

Press the [▲] or [▼] to display "MAINTENANCE 45" on the LCD, and press the [OK]. "USBNo." is displayed on the LCD.

(2) Press the [▲] or [▼] to display "light band" on the LCD, and press the [SET] or [OK]. "Normal*" is displayed on the LCD.

(3) Press the [▲] or [▼] to select any level, and press the [SET] or [OK]. "Accepted" is displayed on the LCD, and the machine returns to the initial state of maintenance mode.

■ Switching of black toner discharge compensation

< Function >

When this setting is ON, in order to improve the fogging of the black printing, if a certain number of sheets are printed after replacing the black toner cartridge, the black toner is discharged at the next printing and before printing. When this setting is OFF, the discharge is not executed.

< Operating Procedure >

(1) For models with touch panel

Press the [4], and then the [5] in the initial state of maintenance mode. "USBNo." is displayed on the LCD.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 45" on the LCD, and press the [OK]. "USBNo." is displayed on the LCD.

(2) Press the [▲] or [▼] to display "Purge K toner" on the LCD, and press the [SET] or [OK]. "PurgeKtoner ON*" or "PurgeKtoner OFF*" is displayed on the LCD.

(3) Press the [▲] or [▼] to select "PurgeKtoner ON" or "PurgeKtoner OFF" on the LCD, and press the [Mono Start], [SET] or [OK]. "Accepted" is displayed on the LCD, and the machine returns to the initial state of maintenance mode.

1.3.11 Adjust printable range for each speed level (Function code 46)

< Function >

This function is to adjust the printing position in horizontal / vertical direction.
Position can be adjusted in 11 steps from -0.5% to 0.5% (Printing width gets smaller when the value is negative).

< Operating Procedure >

(1) For models with touch panel

Press the [4], and then the [6] in the initial state of maintenance mode. "MAIN SIZE SET" is displayed on the LCD.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 46" on the LCD, and press the [OK]. "MAIN SIZE SET" is displayed on the LCD.

(2) Press the [▲] or [▼] to display "PRINT TEST PTN" on the LCD, and press the [SET] or [OK]. "PRINTING" is displayed on the LCD, and the print adjustment test pattern (refer to the next page) is printed on a sheet of paper.

(3) Adjust the line so that the width is 10 mm in horizontal / vertical direction. Press the [▲] or [▼] to display desired direction on the LCD.

- Horizontal direction
  → "MAIN SIZE SET"

- Vertical direction
  → "SUB SIZE SET"

Press the [SET] or [OK]. "SET: 0.0 %" is displayed on the LCD.

(4) To make the print width smaller, press the [▼] to decrease the value. Press the [SET] or [OK] after adjusting the value.

(5) After adjustment, repeat the procedure (2) to check if the adjustment was correctly done. When you want to return to the factory shipping state, press the [▲] or [▼] to display "RESET PARAMETER" on the LCD, and press the [SET] or [OK].

(6) Press the [X] or [Cancel] to return the machine to the initial state of maintenance mode after adjusting the value.
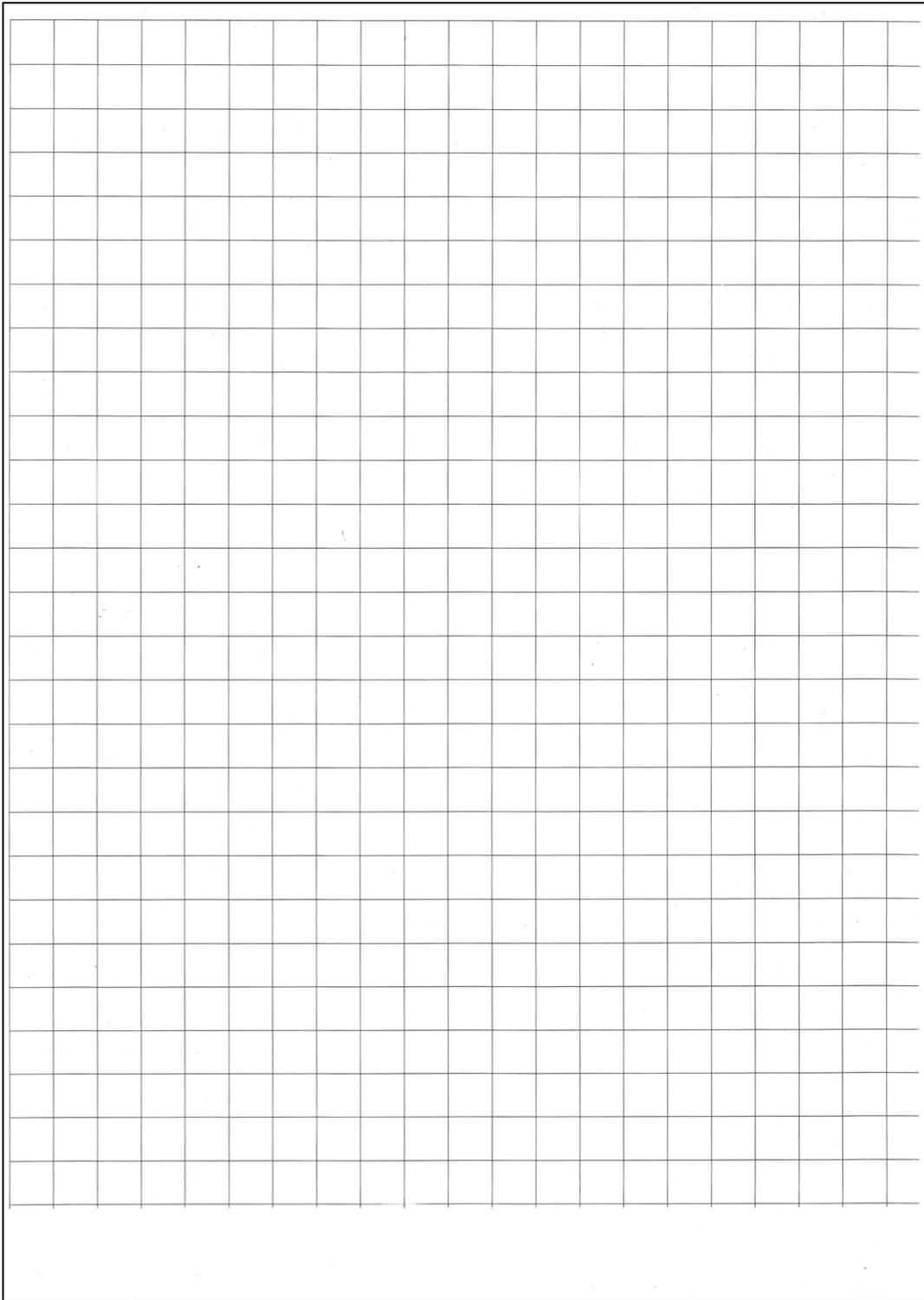
■ Print adjustment test pattern

Fig. 5-7

1.3.12 Check consumables function (Function code 57) (Models with cartridge sensor only)

< Function >

This function is used to acquire the toner cartridge data and check whether the country code is right and it is compatible with the machine and capacity. Also checks the toner cartridge version and the continuity (contact).

< Operating Procedure >

■ **Compatibility check**

(1) For models with touch panel

Press the [5], and then the [7] in the initial state of maintenance mode. "IC_ACT ALL" is displayed on the LCD.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 57" on the LCD, and press the [OK]. "IC_ACT ALL" is displayed on the LCD.

(2) Press the [▲] or [▼] to select and display the desired toner color on the LCD.

(3) Press the [Mono Start] or [Go]. Perform the compatibility check with the machine. If it is compatible, "IC_ACT OK" is displayed on the LCD. If it is not compatible, an error in the <Error display> table below is displayed on the LCD.

<Error display>

LCD	Description
NG0 to 99	Cartridge sensor on the machine is faulty. Cartridge sensor PCB has to be replaced with a new one.
NG100 to 199	Could not communicate with the cartridge sensor on the toner cartridge. Cartridge sensor contact is faulty or broken. Toner cartridge without the cartridge sensor is installed.
NG200 to 299	Communication between the toner cartridge and cartridge sensor shows error. Toner cartridge may not be a genuine product.
NG300 to 399	Communication and authentication of the cartridge sensor was performed successfully but the cartridge information was deemed incompatible. Toner cartridge may not be installed correctly.

■ **Color check**

(1) For models with touch panel

Press the [5], and then the [7] in the initial state of maintenance mode. "IC_ACT ALL" is displayed on the LCD.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 57" on the LCD, and press the [OK]. "IC_ACT ALL" is displayed on the LCD.

(2) Press the [SET] or [OK]. "IC_COL ALL" is displayed on the LCD.

(3) Press the [▲] or [▼] to select and display the desired toner color on the LCD.

(4) Press the [Mono Start] or [Go]. Perform the destination check. If it is compatible, "IC_COL OK" is displayed on the LCD. If it is not compatible, an error in the <Error display> table above is displayed on the LCD.

■ Destination check

(1) <u>For models with touch panel</u>

Press the [5], and then the [7] in the initial state of maintenance mode. "IC_ACT ALL" is displayed on the LCD.

<u>For models without touch panel</u>

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 57" on the LCD, and press the [OK]. "IC_ACT ALL" is displayed on the LCD.

(2) Press the [SET] or [OK] several times. "IC_AREA ALL" is displayed on the LCD.

(3) Press the [▲] or [▼] to select and display the desired toner color on the LCD.

(4) Press the [Mono Start] or [Go]. Perform the destination check. If it is compatible, "IC_AREA OK" is displayed on the LCD. If it is not compatible, an error in the <Error display> table on the previous page is displayed on the LCD.

■ Capacity check

(1) <u>For models with touch panel</u>

Press the [5], and then the [7] in the initial state of maintenance mode. "IC_ACT ALL" is displayed on the LCD.

<u>For models without touch panel</u>

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 57" on the LCD, and press the [OK]. "IC_ACT ALL" is displayed on the LCD.

(2) Press the [SET] or [OK] several times. "IC_SIZE ALL" is displayed on the LCD.

(3) Press the [▲] or [▼] to select and display the desired toner color on the LCD.

(4) Press the [Mono Start] or [Go]. Perform the destination check. If it is compatible, "IC_SIZE OK" is displayed on the LCD. If it is not compatible, an error in the <Error display> table on the previous page is displayed on the LCD.

■ Version information check

(1) <u>For models with touch panel</u>

Press the [5], and then the [7] in the initial state of maintenance mode. "IC_ACT ALL" is displayed on the LCD.

<u>For models without touch panel</u>

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 57" on the LCD, and press the [OK]. "IC_ACT ALL" is displayed on the LCD.

(2) Press the [SET] or [OK] several times. "IC_VER ALL" is displayed on the LCD.

(3) Press the [▲] or [▼] to select and display the desired toner color on the LCD.

(4) Press the [Mono Start] or [Go]. Perform the destination check. If it is compatible, "IC_VER **" is displayed on the LCD. ("**" indicates the version information) If it is not compatible, an error in the <Error display> table on the previous page is displayed on the LCD.

■ Continuity (contact) check

(1) For models with touch panel

Press the [5], and then the [7] in the initial state of maintenance mode. "IC_ACT ALL" is displayed on the LCD.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 57" on the LCD, and press the [OK]. "IC_ACT ALL" is displayed on the LCD.

(2) Press the [SET] or [OK] several times. "IC_TX ALL" is displayed on the LCD.

(3) Press the [▲] or [▼] to select and display the desired toner color on the LCD.

(4) Press the [Mono Start] or [Go]. Perform the destination check. If it is compatible, "IC_ TX OK" is displayed on the LCD. If it is not compatible, an error in the <Error display> table on 5-27 is displayed on the LCD.

1.3.13 Adjust touch panel (Function code 61)

< Function >

This function is used to adjust the touch panel.

> **Note:**
>
> This adjustment requires a touch pen with a thin tip. A commercially available touch pen designed for electronic dictionaries or personal digital assistance (PDA) can be used. If one is not available at hand, order a "Touch pen" from Brother's parts list.

< Operating Procedure >

(1) Press the [6], and then the [1] in the initial state of maintenance mode. The adjustment screen shown below appears on the LCD.

(2) Use a touch pen and touch the center on the mark at the upper left corner of the screen. The mark disappears when touched, then touch the mark at the lower left. Similarly touch the mark at the lower right, upper right and center.

> **Note:**
>
> - Do not use any tools other than a touch pen. In particular, never use a pointed tool (e.g., screwdriver). Using such a tool will damage the touch panel.
>
> - Do not touch the touch panel with your fingers. The contact area of a finger is too large to adjust the touch panel precisely.
>
> - If no operation is performed for one minute or the [X] is pressed, the machine returns to the initial state of maintenance mode.
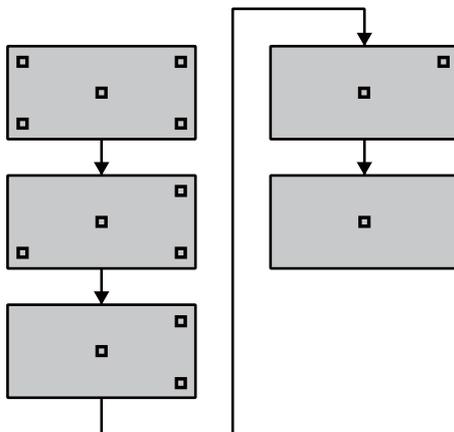
Fig. 5-8

(3) When the center (the 5th mark) is touched, "OK" is displayed on the LCD if the specified area is adjusted correctly. The machine returns to the initial state of maintenance mode.

> **Note:**
>
> If "NG" is still displayed on the LCD even after this operation is repeated two to three times, check the connection of the touch panel flat cable. If the LCD keeps displaying "NG" even there is no problem, replace the LCD panel ASSY.

1.3.14 Adjustment of color registration
   (Adjustment of inter-color position alignment) (Function code 66)

< Function >

This function allows service personnel to forcibly activate the adjustment of color registration (adjustment of inter-color position alignment) function which is usually executed automatically under a specified condition. If adjustment of inter-color position alignment (auto) fails because toner reaches its life, etc., you can adjust inter-color position alignment manually. The end users are allowed to perform "Adjustment of inter-color position alignment without registration sensor calibration (auto)" only.

> **Note:**
> If an error occurs after executing function code 66, upgrade the firmware to the latest one. (Refer to "1.2 Installing the Firmware (Sub Firmware and Main Firmware)" in Chapter 4.) After upgrading the firmware, execute function code 66 again.

This function has the following functions.

Function	Description	LCD
Adjustment of inter-color position alignment without registration sensor calibration (auto)	Automatically correct misregistration between colors that occurs as the number of printed pages increases and time passes.	REGISTRATION
Adjustment of inter-color position alignment (manual)	Using the chart, manually correct misregistration between colors that occurs as the number of printed pages increases and time passes. This is performed when automatic adjustment fails.	SET REGISTRATION
Printing of misregistration correction chart	Print the chart that you check for an input value when manually correcting misregistration between colors.	PRINT CHART
Adjustment of inter-color position alignment including registration sensor calibration (auto)	After the sensitivity adjustment of registration sensor, correct misregistration between colors that occurs as the number of printed pages increases and time passes.	ADD REGISTRATION

■ **Adjustment of inter-color position alignment without registration sensor calibration (auto)**

< Operating Procedure >

(1) For models with touch panel

   Press the [6] twice in the initial state of the maintenance mode. "REGISTRATION" is displayed on the LCD.

   For models without touch panel

   Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 66" on the LCD, and press the [OK]. "REGISTRATION" is displayed on the LCD.

(2) Press the [SET] or [OK]. "PLS WAIT 66-1" is displayed on the LCD, and adjustment of inter-color position alignment is automatically done.

(3) When this operation is completed without an error, "COMPLETED" is displayed on the LCD.

(4) Press the [X] or [Cancel], and the machine returns to the initial state of maintenance mode.

> **Note:**
> If the Adjustment of inter-color position alignment without registration sensor calibration (auto) fails while being in process, "ERROR 66-1" is displayed on the LCD. Press the [▼] to see the details of the error, and refer to the error message list in the table on next page for the troubleshooting.

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■ Error message list

Error message	Remedy
FAILED REGIST	Press the [Mono Start] or [Go] to clear the error. Perform the Adjustment of inter-color position alignment (auto) again. If the error recurs, clean the belt unit and the drum unit and then perform the adjustment again. If the error still recurs, replace the belt unit and the drum unit.
TONER EMPTY # *	Replace the empty toner cartridge and press the [Mono Start] or [Go] to clear the error. Perform the Adjustment of inter-color position alignment (auto) again.
NG L:C080 R:M105	Press the [Mono Start] or [Go] to clear the error. Perform the Adjustment of inter-color position alignment (auto) again.
NG R-L:C030	
NG PWM L120 R180	
NG PWM R-L:080	
NG CNT R100 L100	
NG S-POSI R:080	
NG SKEW:C0120	
NG PWM R-P L:080	
NG XMARGIN:M191	
Cover is Open	Close the top cover.

* # indicates the toner color (Y, M, or C) of which cartridge became empty.

■ Adjustment of inter-color position alignment (manual)

< Operating Procedure >

(1) <u>For models with touch panel</u>

Press the [6] twice in the initial state of the maintenance mode. "REGISTRATION" is displayed on the LCD.

<u>For models without touch panel</u>

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 66" on the LCD, and press the [OK]. "REGISTRATION" is displayed on the LCD.

(2) Press the [▲] or [▼] to display "SET REGISTRATION" on the LCD.

(3) Press the [SET] or [OK]. "1. MAGENTA=0" is displayed on the LCD. Using the misregistration correction chart printed by "■ Printing of misregistration correction chart", identify the numeric value whose color is the darkest in the pattern of ① (Magenta Left). Press the [▲] or [▼] to display the identified numeric value.

(4) Press the [SET] or [OK], and enter each numeric value of the patterns ② to ⑨ in the same way.

(5) When you enter the numeric value of the pattern ⑨ (Yellow Right), "COMPLETED" is displayed on the LCD.

(6) Press the [X] or [Cancel], and the machine returns to the initial state of maintenance mode.

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■ Printing of misregistration correction chart

< Operating Procedure >

(1) <u>For models with touch panel</u>

Press the [6] twice in the initial state of the maintenance mode. "REGISTRATION" is displayed on the LCD.

<u>For models without touch panel</u>

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 66" on the LCD, and press the [OK]. "REGISTRATION" is displayed on the LCD.

(2) Press the [▲] or [▼] to display "PRINT CHART" on the LCD.

(3) Press the [SET] or [OK]. "PRINTING" is displayed on the LCD, and misregistration correction chart (see the figure below) is printed. When printing is finished, "PRINT CHART" is displayed on the LCD.

(4) Press the [X] or [Cancel], and the machine returns to the initial state of maintenance mode.
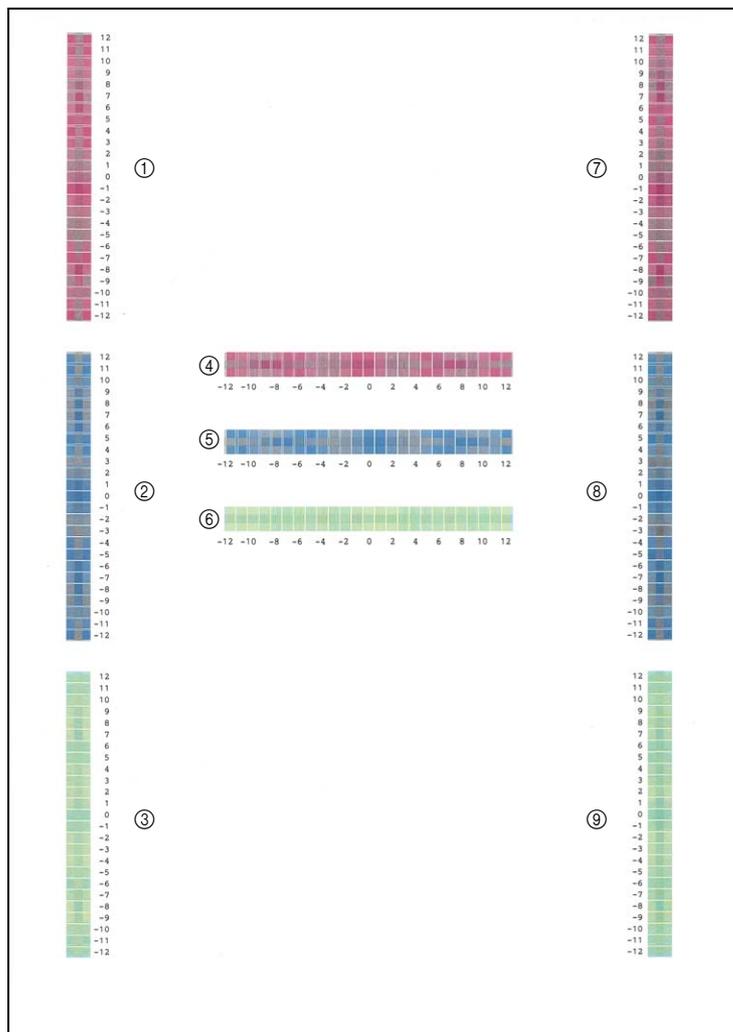
■ Misregistration correction chart

Fig. 5-9

■ **Adjustment of inter-color position alignment including registration sensor calibration (auto)**

< Operating Procedure >

(1) For models with touch panel

Press the [6] twice in the initial state of the maintenance mode. "REGISTRATION" is displayed on the LCD.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 66" on the LCD, and press the [OK]. "REGISTRATION" is displayed on the LCD.

(2) Press the [▲] or [▼] to display "ADD REGISTRATION" on the LCD.

(3) Press the [SET] or [OK]. "PLS WAIT 66-1" is displayed on the LCD and sensitivity adjustment of registration sensor and adjustment of inter-color position alignment are performed automatically.

(4) When this operation is completed without an error, "COMPLETED" is displayed on the LCD.

(5) Press the [X] or [Cancel], and the machine returns to the initial state of maintenance mode.

Note:

If the Adjustment of inter-color position alignment including registration sensor calibration (auto) fails while being in process, "ERROR 66-1" is displayed on the LCD. Press the [▼] to display the details of the error. Refer to the error message list on 5-32 for the troubleshooting.

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1.3.15 Continuous print test (Function code 67)

< Function >

This function is used to conduct paper feed and eject tests while printing patterns.

< Operating Procedure >

(1) For models with touch panel

Press the [6], and then the [7] in the initial state of maintenance mode. "SELECT: K 100%" is displayed on the LCD.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 67" on the LCD, and press the [OK]. "SELECT: K 100%" is displayed on the LCD.

(2) Refer to the <Print pattern> table, press the [▲] or [▼] to select the print pattern, and press the [SET] or [OK]. "SELECT: A4" is displayed on the LCD.

(3) Refer to the <Paper size> table, press the [▲] or [▼] to select the paper size, and press the [SET] or [OK]. "SELECT: PLAIN" is displayed on the LCD.

(4) Refer to the <Print specification> table, press the [▲] or [▼] to select the media specification, and press the [SET] or [OK]. "SELECT: TRAY1 SX" is displayed on the LCD.

(5) Refer to the <Print type> table, press the [▲] or [▼] to select the print type, and press the [SET] or [OK]. "SELECT:1 PAGE" is displayed on the LCD.

(6) Refer to the <Print page> table, press the [▲] or [▼] to select the pages printing, and press the [SET] or [OK]. For intermittent pattern printing, "SELECT: 1P/JOB" is displayed on the LCD. For other printings, or move on to the procedure (8).

(7) Refer to the <Number of pages per job> table, press the [▲] or [▼] to select the number of pages for 1 job, and press the [SET] or [OK]. (Only for intermittent pattern printing)

(8) "PAPER FEED TEST" is displayed on the LCD, and printing test pattern starts using the selected conditions.

(9) When you press the [X] or [Cancel], test pattern printing is stopped, and the machine returns to the initial state of maintenance mode.

<Print pattern>

LCD	Description
SELECT: K 100%	Black 100% solid print
SELECT: C 100%	Cyan 100% solid print
SELECT: M 100%	Magenta 100% solid print
SELECT: Y 100%	Yellow 100% solid print
SELECT: W 100%	White 100% solid print
SELECT: R 100%	Red 100% solid print
SELECT: G 100%	Green 100% solid print
SELECT: B 100%	Blue 100% solid print
SELECT: KCMY1%	Black/Cyan/Magenta/Yellow 1% intermittent pattern print *
SELECT: KCMY5%	Black/Cyan/Magenta/Yellow 5% intermittent pattern print *
SELECT: Lattice	Lattice print
SELECT: Total	Total pattern print

* Up to 500 sheets in 1-sided printing and 1,000 sheets in 2-sided printing in the case of job printing.

<Paper size>

LCD	Description
SELECT: A4	A4
SELECT: LETTER	Letter
SELECT:ISOB5	ISO B5
SELECT:JISB5	JIS B5
SELECT:A5	A5
SELECT:A5L	A5L
SELECT:JISB6	JIS B6
SELECT:A6	A6
SELECT:EXECUTE	Executive size
SELECT:LEGAL	Legal size
SELECT:FOLIO	Folio size
SELECT:HAGAKI	Postcard size *

* Supports only for TRAY1 SX and AUTO SX.

<Print specification>

LCD	Description
SELECT: PLAIN	Plain paper
SELECT: THIN	Plain paper (thin)
SELECT: THICK	Plain paper (thick)
SELECT:THICKER	Plain paper (thicker)
SELECT:RECYCLED	Recycled paper
SELECT:BOND	Bond paper
SELECT:LABEL	Label
SELECT:ENVELOPE	Envelope
SELECT:ENVTHIN	Envelope (thin)
SELECT:ENVTHICK	Envelope (thick)
SELECT:GLOSSY	Glossy paper
SELECT:HAGAKI	Postcard *

* Display appears on LCD, but it is not available.

<Print type>

LCD	Description
SELECT: TRAY1 SX	1-sided printing from T1
SELECT: MP SX	1-sided printing from MP tray (Display only for MP models)
SELECT: MF SX	1-sided printing from manual feed slot (Display only for manual feed slot models)
SELECT: TRAY1 DX *	2-sided printing from T1
SELECT: MP DX *	2-sided printing from MP tray (Display only for MP models)
SELECT: MF DX *	2-sided printing from manual feed slot (Display only for manual feed slot models)
SELECT: AUTO SX	1-sided printing to automatically selected tray
SELECT: AUTO DX *	2-sided printing to automatically selected tray

* Supports paper size only for A4, Letter, Legal and Folio.

<Print page>

LCD	Description
SELECT: 1PAGE	1-page printing
SELECT: CONTINUE	Continuous printing
SELECT: JOB	Intermittent printing per job *

* Selectable only when the printing pattern is set to "KCMY1%" or "KCMY5%", and the print type is not set to the manual feed slot.

<Number of pages per job> (Only for intermittent pattern printing)

LCD	Description
SELECT: 1P/JOB	Prints 1 page per job [1]
SELECT: 2P/JOB	Prints 2 pages per job [1]
SELECT: 5P/JOB	Prints 5 pages per job [1]
SELECT: 10P/JOB	Prints 10 pages per job [1]
SELECT: 2I/JOB	Prints 2 images per job [2]
SELECT: 5I/JOB	Prints 5 images per job [2] [3]
SELECT: 10I/JOB	Prints 10 images per job [2]
SELECT: 20I/JOB	Prints 20 images per job [2]

[1] Selectable only when SX is selected as print type.

[2] Selectable only when DX is selected as print type.

[3] 1-sided printing for the 5th page.

■ Print pattern

SELECT: K 100%   SELECT: C 100%   SELECT: M 100%   SELECT: Y 100%

SELECT: W 100%   SELECT: R 100%   SELECT: G 100%   SELECT: B 100%

SELECT: KCMY1%   SELECT: KCMY5%   SELECT: Lattice

SELECT: Total (When Print type is SX)   SELECT: Total (When Print type is DX)
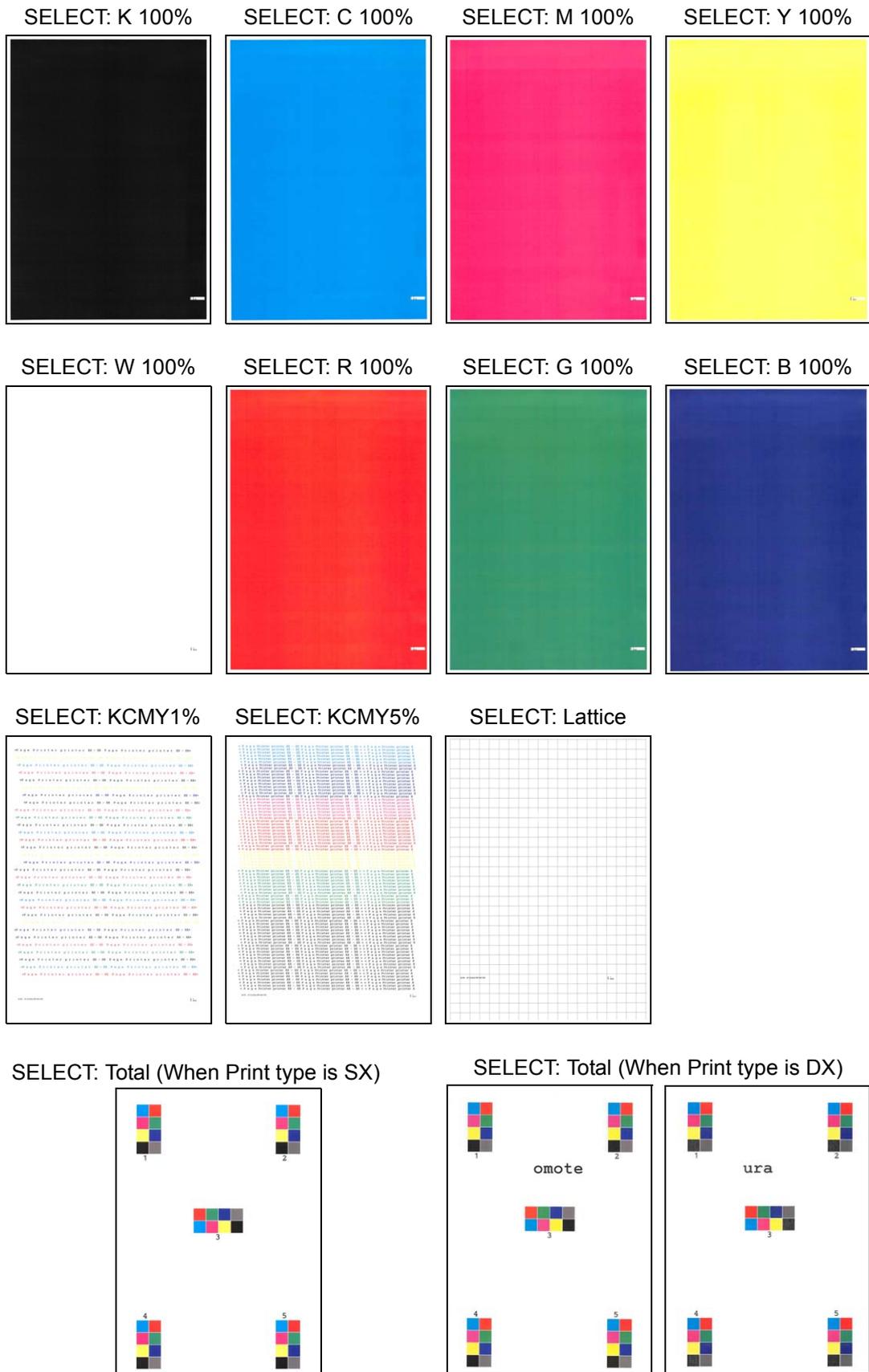

Fig. 5-10

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1.3.16 LED ASSY test pattern print (Function code 68)

< Function >

This function is used to print the LED ASSY test patterns and check if there is any failure in the LED ASSY.

< Operating Procedure >

(1) For models with touch panel

Press the [6] and [8] in this order in the initial state of the maintenance mode. "PRINTING" is displayed on the LCD, and one LED ASSY test pattern (see the figure below) is printed.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 68" on the LCD, and press the [OK]. "PRINTING" is displayed on the LCD, and one LED ASSY test pattern (see the figure below) is printed.

(2) When this operation is completed without an error, "OK" is displayed on the LCD.

(3) Press the [X] or [Cancel], and the machine returns to the initial state of maintenance mode.

> **Note:**
>
> When printing fails, the following error indications are displayed on the LCD. When the error factors are removed, press the [Mono Start] or [Go], and the machine automatically recovers to the re-executable state. "PRINTING" is displayed on the LCD, and the LED ASSY test pattern is printed on a sheet.

Error display	Remedy
Replace Toner #*	Replace the toner cartridge and press the [Mono Start] or [Go] to release the error.
Cover is Open	Close the top cover.
No Paper	Refill the paper, close the T1 and press the [Mono Start] or [Go] to release the error.
Jam Tray1	Remove the jammed paper, then close the T1 and all covers,
Jam Rear	press the [Mono Start] or [Go] to release the error.

* # indicates the toner color (K, Y, M, or C) of which cartridge became empty.

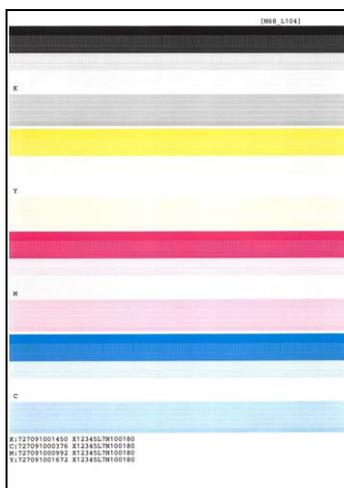### ■ LED ASSY test pattern

Fig. 5-11

1.3.17 Print frame pattern (1-sided printing) (Function code 69)

< Function >

This function is used to print the frame pattern on single side of the paper to check for printing flaws and omission.

< Operating Procedure >

(1) Set the paper specified in the default paper settings (A4 or Letter) to the T1.

(2) For models with touch panel

Press the [6], and then the [9] in the initial state of maintenance mode. "PRINTING" is displayed on the LCD, and the frame pattern (refer to the figure below) is printed on single side of the paper.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 69" on the LCD, and press the [OK]. "PRINTING" is displayed on the LCD, and the frame pattern (refer to the figure below) is printed on single side of the paper.

(3) When printing is completed, "WAKU SX" is displayed on the LCD.

(4) Press the [X] or [Cancel], and the machine returns to the initial state of maintenance mode.

Note:

If printing fails, printing is stopped with displaying any of the errors shown in the table below. To retry printing, refer to the "Remedy" in the table below and eliminate the error cause and press the [Mono Start] or [Go]. "PRINTING" is displayed on the LCD, and the frame pattern is printed on a single sheet of paper.

| Error display	Remedy
Replace Toner	Replace the toner cartridge and press the [Mono Start] or [Go] to release the error.
Cover is Open	Close the top cover.
No Paper	Refill the paper, close the T1 and press the [Mono Start] or [Go] to release the error.
Jam Tray1	Remove the jammed paper, then close the T1 and all covers, press the [Mono Start] or [Go] to release the error.
Jam Rear	

■ **Frame pattern**
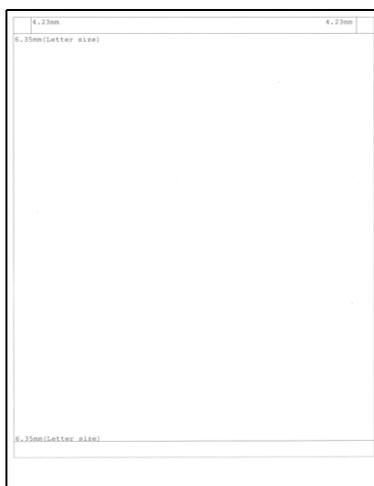
Fig. 5-12

1.3.18 Print frame pattern (2-sided printing) (Function code 70)

< Function >

This function is used to print the frame pattern on both sides of the paper to check for printing flaws and omission.

< Operating Procedure >

(1) Set the paper specified in the default paper settings (A4 or Letter) to the T1.

(2) <u>For models with touch panel</u>

Press the [7], and then the [0] in the initial state of maintenance mode. "PRINTING" is displayed on the LCD, and the frame pattern (refer to the figure below) is printed on both sides of the paper.

<u>For models without touch panel</u>

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 70" on the LCD, and press the [OK]. "PRINTING" is displayed on the LCD, and the frame pattern (refer to the figure below) is printed on both sides of the paper.

(3) When printing is completed, "WAKU DX" is displayed on the LCD.

(4) Press the [X] or [Cancel], and the machine returns to the initial state of maintenance mode.

> **Note:**
>
> If printing fails, printing is stopped with displaying any of the errors shown in the table below. To retry printing, refer to the "Remedy" in the table below and eliminate the error cause and press the [Mono Start] or [Go]. "PRINTING" is displayed on the LCD, and the frame pattern is printed on both sides of a sheet of paper.

| Error display	Remedy
Replace Toner	Replace the toner cartridge and press the [Mono Start] or [Go] to release the error.
Cover is Open	Close the top cover.
No Paper	Refill the paper, close the T1 and press the [Mono Start] or [Go] to release the error.
Jam Tray1	Remove the jammed paper, then close the T1 and all covers, press the [Mono Start] or [Go] to release the error.
Jam Rear	
Jam Duplex	
Duplex Disabled	Refill the paper, then close the T1 and all covers, press the [Mono Start] or [Go] to release the error.

■ **Frame pattern**
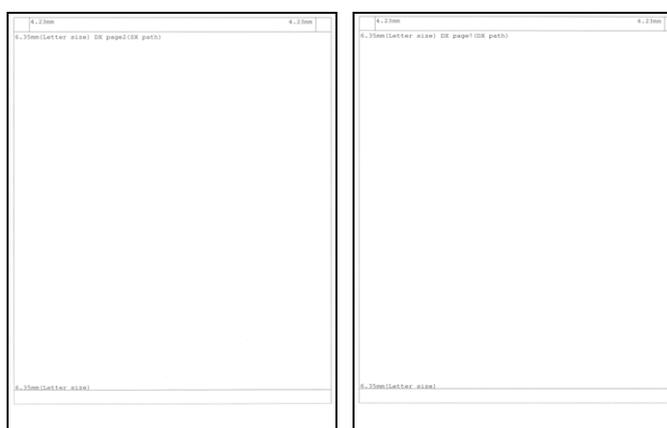
Fig. 5-13

1.3.19 Color test pattern (Function code 71)

< Function >

This function is used to print the test pattern to check whether the develop roller or exposure drum is dirty or damaged.

< Operating Procedure >

(1) For models with touch panel

Press the [7], and then the [1] in the initial state of maintenance mode. "K/W/Y/M/C" is displayed on the LCD.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 71" on the LCD, and press the [OK]. "K/W/Y/M/C" is displayed on the LCD.

(2) Refer to the <Print pattern> table, press the [▲] or [▼] to select the desired print pattern and press the [SET] or [OK]. When "K/W/Y/M/C" is selected, "PRINTING" is displayed on the LCD and test pattern printing is started. When a print pattern other than "K/W/Y/M/C" is selected, "SELECT: LETTER" is displayed on the LCD. (Following steps (3) to (6) described below, select an option in each item and perform test pattern printing.)

(3) Refer to the <Paper size> table, press the [▲] or [▼] to select the paper size, and press the [SET] or [OK]. "SELECT: PLAIN" is displayed on the LCD.

(4) Refer to the <Print specification> table, press the [▲] or [▼] to select the media specification, and press the [SET] or [OK]. "SELECT: SX" is displayed on the LCD.

(5) Refer to the <Print type> table, press the [▲] or [▼] to select the print type, and press the [SET] or [OK]. "SELECT: 1PAGE" is displayed on the LCD.

(6) Refer to the <Print page> table, press the [▲] or [▼] to select the pages printing, and press the [SET] or [OK]. "PRINTING" is displayed on the LCD, and printing test pattern starts using the selected conditions.

(7) When printing is completed, "OK" is displayed on the LCD. When performing this again, return to the printing pattern display by pressing the [Mono Start] or [Go].

(8) Press the [X] or [Cancel], and the machine returns to the initial state of maintenance mode.

Note:

If printing fails, printing is stopped with displaying any of the errors shown in the <Error display> table. To retry printing, refer to the "Remedy" in the table, eliminate the error cause and press the [Mono Start] or [Go]. "PRINTING" is displayed on the LCD, and the test pattern is printed.

\<Print pattern\>

LCD	Description
K/W/Y/M/C	Total five sheets of one sheet for each color with full page print mode
M	Magenta
K	Black
C	Cyan
Y	Yellow
MCYK H	4-color horizontal band
MCYK V	4-color vertical band

\<Paper size\>

LCD	Description
SELECT: LETTER	Letter
SELECT: A4	A4
SELECT:ISOB5	ISO B5
SELECT:JISB5	JIS B5
SELECT:A5	A5
SELECT:A5L	A5L
SELECT:JISB6	JIS B6
SELECT:A6	A6
SELECT:EXECUTE	Executive size
SELECT:LEGAL	Legal size
SELECT:FOLIO	Folio size
SELECT:HAGAKI	Postcard size

\<Print specification\>

LCD	Description
SELECT: PLAIN	Plain paper
SELECT: THICK	Plain paper (thick)
SELECT: THIN	Plain paper (thin)
SELECT:THICKER	Plain paper (thicker)
SELECT:RECYCLED	Recycled paper
SELECT:BOND	Bond paper
SELECT:LABEL	Label
SELECT:ENVELOPE	Envelope
SELECT:ENVTHIN	Envelope (thin)
SELECT:ENVTHICK	Envelope (thick)
SELECT:GLOSSY	Glossy paper
SELECT:HAGAKI	Postcard

\<Print type\>

LCD	Description
SELECT:SX	1-sided printing from T1
SELECT:DX *	2-sided printing from T1

* Supports paper size only for A4, Letter, Legal, and Folio in 2-sided printing.

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<Print page>

LCD	Description
SELECT: 1PAGE	1-page printing
SELECT: CONTINUE	Continuous printing *

  * Press the [Cancel] or [Stop] to end the continuous printing.

<Error display>

Error display	Remedy
Replace Toner	Replace the toner cartridge and press the [Mono Start] or [Go] to release the error.
Cover is Open	Close the top cover.
No Paper	Refill the paper, close the T1 and press the [Mono Start] or [Go] to release the error.
Jam Tray1	Remove the jammed paper, then close the T1 and all covers,
Jam Rear	press the [Mono Start] or [Go] to release the error.

■ Color test pattern

K/W/Y/M/C
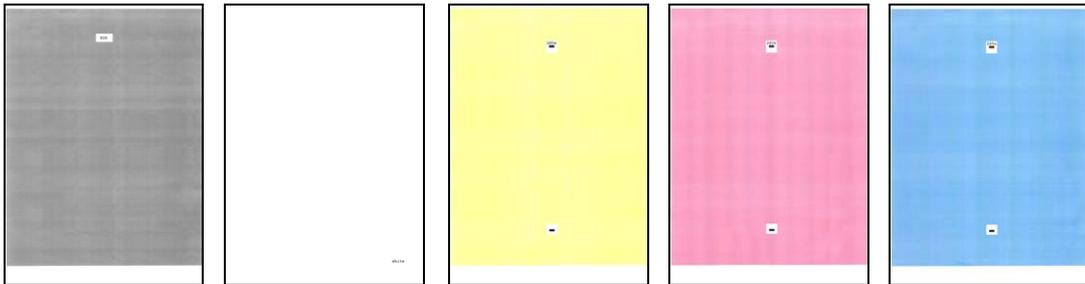
M   K   C   Y

MCYK H   MCYK V

Fig. 5-14

1.3.20 Sensitivity adjustment of density sensor (Function code 72)

< Function >

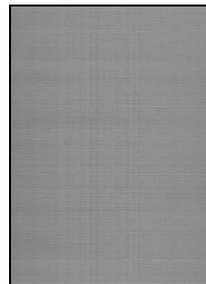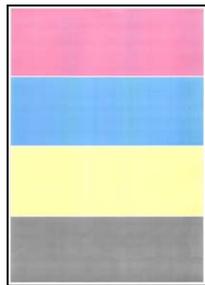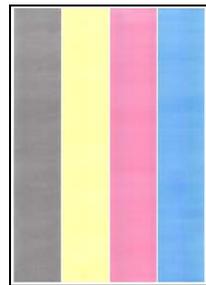This function is used to print the patch data for density sensor sensitivity adjustment on the belt unit and measure the density with the density sensor. The characteristics of the density sensor are calculated based on the value measured by the density sensor, and the parameter for correcting developing bias voltage is adjusted.

< Operating Procedure >

(1) For models with touch panel

Press the [7] and [2] in this order in the initial state of the maintenance mode. "PLS WAIT 72" is displayed on the LCD and performs the sensitivity adjustment of the density sensor.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 72" on the LCD, and press the [OK]. "PLS WAIT 72" is displayed on the LCD and performs the sensitivity adjustment of the density sensor.

(2) When this operation is completed without errors, "OK" is displayed on the LCD.

(3) Press the [X] or [Cancel], and the machine returns to the initial state of maintenance mode.

> **Note:**
> If the sensitivity adjustment of the density sensor fails, "ERROR 72" is displayed on the LCD. Display the error message by pressing the [▼], and take the following remedy that corresponds to the error message.

Error display	Remedy
dens_l_drk_err	• Reconnect the harness of the eject sensor PCB. • Replace the registration mark sensor ASSY. • Replace the main PCB.
belt_err	• Replace the belt unit. • Replace the waste toner box. • Replace the registration mark sensor ASSY. • Replace the main PCB.
dens_pat_err dens_calc_err	• Check if the toner cartridges are set in the correct order of colors. • Replace the toner cartridges and drum unit. • Replace the registration mark sensor ASSY. • Replace the main PCB.
dens_led_adj_err	• Replace the belt unit. • Replace the waste toner box. • Replace the registration mark sensor ASSY. • Replace the main PCB.
lph_calc_err	• Replace the toner cartridges and drum unit. • Securely close the top cover. • Wipe the LED ASSY with a soft, lint-free cloth. (Refer to Fig. 2-10 (P2-93).) • Re-assemble the LED ASSY.
TONER EMPTY # *	Replace the empty toner cartridge and press the [Mono Start] or [Go] to clear the error. Perform the sensitivity adjustment of the density sensor again.
Cover is Open	Close the top cover.
Replace Toner	Replace the black toner cartridge and press the [Mono Start] or [Go] to clear the error.

* # indicates the toner color (Y, M, or C) of which cartridge became empty.

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1.3.21 Continuous adjustments of density / registration sensor (Function code 73)

< Function >

This function is used to perform the following functions consecutively:

Sensitivity adjustment of density sensor (Function code 72), Developing bias voltage correction (Function code 83), and Adjustment of color registration (Adjustment of inter-color position alignment) including registration sensor calibration (Function code 66).

< Operating Procedure >

(1) For models with touch panel

Press the [7] and [3] in this order in the initial state of the maintenance mode. "72/83/66-1" is displayed on the LCD.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 73" on the LCD, and press the [OK]. "72/83/66-1" is displayed on the LCD.

(2) Press the [SET] or [OK]. "PLS WAIT 72" is displayed on the LCD and each adjustment is performed in the following order.

1) Sensitivity adjustment of density sensor (Function code 72)
LCD: PLS WAIT 72

2) Developing bias voltage correction (Function code 83)
LCD: PLS WAIT 83

3) Adjustment of color registration (Adjustment of inter-color position alignment) including registration sensor calibration (Function code 66)
LCD: PLS WAIT 66-1

(3) When all operations are completed, "COMP" is displayed on the LCD. Pressing the [▼] and [X] or [Cancel] in this order and the machine returns to the initial state of the maintenance mode.

> **Note:**
> If each adjustment fails, "ERROR **" is displayed on the LCD and the adjustment is stopped. If you press the [▼] with "ERROR **" displayed, the details of the error are shown. "**" in "ERROR **" displayed on the LCD indicates corresponding function code number. Make sure to take an appropriate remedy after checking the remedy provided in each function code.

1.3.22 Configure for country/region and model (Function code 74)

< Function >

This function is used to customize the machine according to language, function settings, and worker switch settings.

< Operating Procedure >

For models with touch panel

(1) Press the [7], and then the [4] in the initial state of maintenance mode. The spec code currently set is displayed on the LCD.

(2) Enter the spec code (four digits) you want to set.

(3) Press the [Mono Start] to save the new setting, and "PARAMETER INIT" is displayed on the LCD. The machine then returns to the initial state of maintenance mode.

For models without touch panel

(1) Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 74" on the LCD, and press the [OK]. The spec code currently set is displayed on the LCD.

(2) Enter the first two digits of the spec code. Press the [▲] or [▼] to select the first digit, and press the [OK]. The cursor moves to the second digit. Press the [▲] or [▼] to select the second digit, and press the [OK]. The cursor moves to the fourth digit.

(3) Press the [▲] or [▼] to select the third digit and the fourth digit (skip the invalid number selected), and press the [OK].

(4) Press the [Go] to save the new setting, and "PARAMETER INIT" is displayed on the LCD. The machine then returns to the initial state of maintenance mode.

■ **Setting by spec code list**

MODEL	Country Code		Country Code (Detail)	
HL-3160CDW	China	0320	---	---
HL-3190CDW	China	0020	---	---
HL-L3210CW	Brazil	0042	---	---
	Canada	0001	---	---
	CEE-General	0003	---	---
	France/Belgium/Netherlands	0003	---	---
	Germany	0003	---	---
	Gulf	0041	---	---
	Italy/Iberia	0003	---	---
	Korea	0044	---	---
	New Zealand	0027	---	---
	Pan-Nordic	0003	---	---
	Switzerland	0003	---	---
	U.S.A	0001	---	---
	UK	0003	---	---
HL-L3230CDN	Argentina	0136	---	---
	Singapore	0140	---	---

MODEL	Country Code		Country Code (Detail)	
HL-L3230CDW	Australia	0306	---	---
	Canada	0301	---	---
	France/Belgium/Netherlands	0203	---	---
	Germany	0203	---	---
	Italy/Iberia	0203	---	---
	Pan-Nordic	0203	---	---
	Russia	0248	---	---
	Switzerland	0203	---	---
	U.S.A	0301	---	---
	UK	0203	---	---
HL-L3270CDW	Australia	0006	---	---
	Canada	0001	---	---
	CEE-General	0003	---	---
	Chile	0036	---	---
	France/Belgium/Netherlands	0003	---	---
	Germany	0003	---	---
	Gulf	0041	---	---
	India	0045	---	---
	Italy/Iberia	0003	---	---
	Pan-Nordic	0003	---	---
	Philippines	0021	---	---
	Singapore	0040	---	---
	Switzerland	0003	---	---
	Taiwan	0023	---	---
	U.S.A	0001	---	---
	UK	0003	---	---

Note:

• If there is no entry for one minute or longer, the machine returns to the initial state of maintenance mode automatically, regardless of the display status.

• The spec code list above is current as of March 2018.

• Please contact Brother distributors for the latest information.

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1.3.23 Print maintenance information (Function code 77)

< Function >

This function is used to print the maintenance information, such as remaining amount of consumables, the number of replacements, and counter information.

< Operating Procedure >

(1) For models with touch panel

Press the [7] twice in the initial state of maintenance mode. Printing maintenance information starts.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 77" on the LCD, and press the [OK]. Printing maintenance information starts.

(2) When printing is completed, the machine returns to the initial state of maintenance mode.

■ **Maintenance information**

```
MAINTENANCE
①HL-L3270CDW series②Serial No.=X12345L7N100180 ③Model=84E-755④Country=0001 ⑤SW CheckSum=A6 /NG
⑥Main ROM: Ver.1.08 U1802270121 ⑦ROM ChkSum: A844   ⑭NG00   74000000FF  00  00000000  00000000
⑧Sub ROM: Ver.1.05 P1802261608                       ⑮OKNG   0000000001
⑨Sub5 ROM: Ver.0.10 e1710181420
⑩Boot ROM: B1712251406
⑪Engine Version: 1.05(0.10b)
⑫USB Prod.ID: 00A4            ⑬RAM Size =  256Mbyte ⑯001D 0006 000A 0003 000E 000C 0100


 Remaining life of :
⑰*Toner Cartridge       ⑱**Drum Unit              ⑲ Belt Unit: 48866 (98%)
   Cyan(C): 83%            Cyan(C): 17132 (96%)   ⑳ Fuser Unit( ): 49406 (99%)
   Magenta(M): 83%         Magenta(M): 17132 (96%) ㉑ PF Kit 1: 49448 (99%)
   Yellow(Y): 85%          Yellow(Y): 17132 (96%)
   Black(BK): 42%          Black(BK): 17132 (96%)
   <Device Status(Total/2-sided)>        ㉗<Error History (last 10 errors)>      Page (C)   %
㉒Total Page Count: 591/66                1:
   Color: 504/35        Mono: 87/31       2:
㉓PC-Print Count: 515/35                  3:
   Color: 496/35        Mono: 19/0        4:
㉔Other Count: 76/31                      5:
   Color: 8/0           Mono: 68/31       6:
  ***Average Coverage(Total)             7:
㉕C: 11.48%  M: 10.07%  Y: 12.03%  K: 5.87% 8:
  ***Average Coverage(Current)*          9:
㉖C: 10.46%  M: 9.14%   Y: 8.46%   K: 5.43% 10:
  ***Average Coverage(Previous)          ㉘<Replace Count>
㉗C: 11.72%  M: 10.29%  Y: 12.90%  K: 7.04%  Toner Cartridge           Drum Unit
  ***Average Coverage(Latest)             C: 0 (0)#               Cyan(C): 0
㉘C: 0.00%  M: 0.00%   Y: 0.00%   K: 5.09%   M: 0 (0)#               Magenta(M): 0
㉙<Drum Information (Page/Count)>            Y: 0 (0)#               Yellow(Y): 0
   (C): 868/17368       (Y): 868/17368       K: 0 (0)#               Black(BK): 0
   (M): 868/17368       (BK): 868/17368     Belt Unit: 0     Fuser Unit: 0/0
㉚<Developing Roller Count(Current/Previous)> Waste Toner: 0    PF Kit 1: 0
   (C): 2982/13593      (Y): 2982/13593
   (M): 2982/13593      (BK): 12602/20617  ㉟<Developing Bias: C:0V M:0V Y:0V K:0V>
㉛<Total Pages>          594               ㊵<Engine Sensor Log>
   Manual Feed: 8       2-sided: 34          KO: 000195/002070    MN: 000390/002065
   Tray 1: 552          Std.Output: 559      RS: 000775/002175    EJ: 003265/002160
   A4/Letter: 590       Envelope: 0        ㊶<Status Log>
   Legal/Folio: 0       A5: 0                830100  830100  830100  853731  830100
   B5/Executive: 0      Others: 1            834003  834303  834203  834103  830100
   Plain/Thin/Recycled: 591
   Thick/Thicker/Bond: 0                    ㊷<Temperature> 22 degrees(C)  (MAX:27 MIN:17)
   Envelope/Env.Thick/Env.Thin: 0          ㊸<Humidity> 52%               (MAX:56 MIN:19)
   Label Paper: 0       Hagaki: 0          ㊹<Power On Time: 0 hours> <Power On Count: 2>
   Glossy: 0                               ㊺<First Date PC Prn: 12/19/17>
㉜Toner(Current/Previous)                  ㊻<Last Media Type: Plain>
   C: 98/406            Y: 98/406
   M: 98/406            K: 430/161         ㊼1:4,6:685,0,0,0,0,0,0,0:1
㉝Waste Toner: 591                            2:3,6:685,0,0,0,0,0,0,0:1
㉞Developing Roller Count(Current/Previous)  3:2,6:685,0,0,0,0,0,0,0:1
   (C): 1866/9201       (Y): 1866/9201       4:1,6:685,0,0,0,0,0,0,0:1
   (M): 1866/9201       (BK): 8980/18582
   NGC: 0

㉟<Total Paper Jams: 0>                    *   Remaining life will vary depending on the types of documents printed,
   Jam Tray 1: 0       Jam Rear: 0             their coverage and device usage.
   Jam ManualFeed: 0   Jam Inside: 0      **  Based on A4/Letter printing.
   Jam 2-sided: 0                         *** Calculated coverage.
㊱<Function Info: 0000000000 0000000000>
```

Fig. 5-15

1	Model name	25	Accumulated average coverage by each toner cartridge
2	Serial number	26	Average coverage by current each toner cartridge
3	Model code	27	Average coverage by the previous each toner cartridge
4	Spec code	28	Latest job average coverage by each toner cartridge
5	Switch check sum (factory use) and comparison of default / current value	29	Drum page count / Rotations of the drum
6	Main firmware version	30	Total rotations of the develop roller (currently use / previously used toner cartridge)
7	ROM check sum	31	Total printed pages per paper tray / paper size / paper type
8	Sub firmware version	32	Printed pages per toner cartridge (current / previous)
9	Sub 5 firmware version	33	Number of pages printed from the waste toner box
10	Boot ROM version	34	Total rotations of the develop roller (currently use / previously used toner cartridge)
11	Engine archive version	35	Total number of paper jams / Paper jams by sections of the product
12	USB ID code	36	Function for designer, not used by serviceman.
13	RAM size	37	Machine error log / Total pages printed at the time of the error / Temperature and humidity
14	Result of function code 72 / Main PCB serial number / Wireless LAN setting by country / Wireless LAN output peak / WLAN Setup YES/NO setting / Product inspection ID / Toner type CMYK (current) / Toner type CMYK (previous)	38	Number of times each consumable has been replaced
15	Main PCB inspection log / High voltage inspection log / The number of times that the discharge error / Fuser unit error / Irregular power supply detection error occurred / Next Power On setting for Power Button	39	Each developing bias voltage value
16	Counter associated with image quality correction	40	Engine sensor log (Not necessary for maintenance)
17	Estimated remaining toner amount	41	Status log (Not necessary for maintenance)
18	Remaining life of drum unit	42	Current temperature / Highest and lowest temperature in the past
19	Remaining life of belt unit	43	Current humidity / Highest and lowest humidity in the past
20	Remaining life of fuser unit	44	Total power distribution time / The number of times that the power is turned ON
21	Remaining life of PF kit 1	45	Start date for machine operation
22	Total printed pages Color / Mono (Total / Duplex)	46	Latest paper type used
23	Total PC printed pages Color / Mono (Total / Duplex)	47	New toner cartridge detection log
24	Total pages printed by other methods Color / Mono (Total / Duplex)		

1.3.24 Check fan operation (Function code 78)

< Function >

This function is used to check that the fan is operating normally. Switch the setting among rotation speed 100%, 67%, 50%, and OFF.

LCD	Name	Description
F	Fan	Emits the heat in the fuser unit.

< Operating Procedure >

(1) For models with touch panel

Press the [7], and then the [8] in the initial state of maintenance mode. "F100" is displayed on the LCD and the fan rotates at 100% speed.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 78" on the LCD, and press the [OK]. "F100" is displayed on the LCD and the fan rotates at 100% speed.

(2) By pressing the [Mono Start] or [Go], "F67" is displayed on the LCD and the fan rotates at 67% speed.

(3) By pressing the [Mono Start] or [Go], "F50" is displayed on the LCD and the fan rotates at 50% speed.

(4) By pressing the [Mono Start] or [Go], "F 0" is displayed on the LCD and the fan stops.

(5) Press the [X] or [Cancel], and the machine returns to the initial state of maintenance mode.
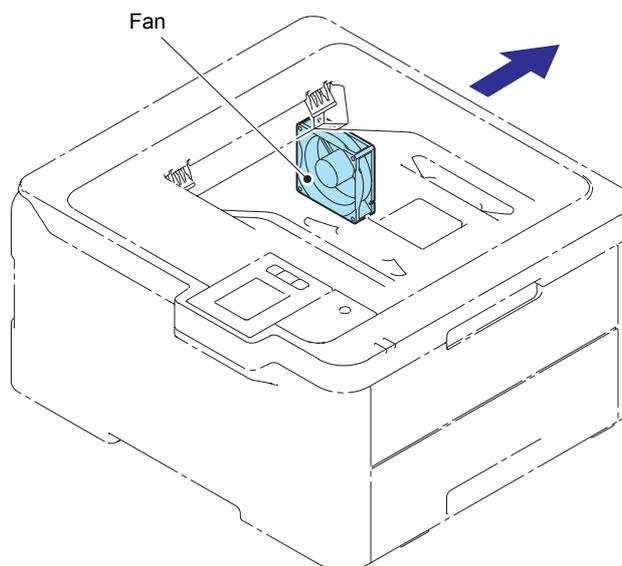
■ **Location of fan**

Fan

Fig. 5-16

1.3.25 Display machine log information (Function code 80)

< Function >

This function is used to display the log information on the LCD.

< Operating Procedure >

(1) <u>For models with touch panel</u>

Press the [8], and then the [0] in the initial state of maintenance mode. "MACERR_01:****" is displayed on the LCD (**** indicates error code).

<u>For models without touch panel</u>

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 80" on the LCD, and press the [OK]. "MACERR_01:****" is displayed on the LCD (**** indicates error code).

(2) Press the [Mono Start] or [Go], then the next item is displayed. Press the [▲] to go back to the previous item.

(3) Press the [X] or [Cancel], and the machine returns to the initial state of maintenance mode.

■ Maintenance information

LCD	Description
MACERR_##:0000	Machine error log (last ten errors) [1]
USB:000G8J000166	Serial number [2]
MAC:008077112233	MAC address
PCB:	Main PCB serial number [3]
FSR:12345678A	Fuser unit serial number
CTN_ERM:78%	Amount of remaining cyan toner estimated from coverage
CTN_RRM:67%	Amount of remaining cyan toner estimated from the number of develop rotations
MTN_ERM:78%	Amount of remaining magenta toner estimated from coverage
MTN_RRM:67%	Amount of remaining magenta toner estimated from the number of develop rotations
YTN_ERM:78%	Amount of remaining yellow toner estimated from coverage
YTN_RRM:67%	Amount of remaining yellow toner estimated from the number of develop rotations
KTN_ERM:87%	Amount of remaining black toner estimated from coverage
KTN_RRM:67%	Amount of remaining black toner estimated from the number of develop rotations
CDRM_PG:00000000	Printed pages for cyan drum unit
MDRM_PG:00000000	Printed pages for magenta drum unit
YDRM_PG:00000000	Printed pages for yellow drum unit
KDRM_PG:00000000	Printed pages for black drum unit
PFK1_PG:00000000	Pages fed from PF kit 1
FUSR_PG:00000000	Printed pages on fuser unit
BELT_PG:00000000	Printed pages on belt unit
TTL_PG:00000000	Total number of pages printed
DX_PG:00000000	Paper input for duplex tray
TTL_CO:00000000	Total number of color pages printed
TTL_MO:00000000	Total number of monochrome pages printed

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LCD	Description
DX_CO:00000000	Total number of two-sided color pages printed
DX_MO:00000000	Total number of two-sided monochrome pages printed
TTLPCPT:00000000	Total number of pages printed via PC
DX_PCPT:00000000	Total number of two-sided pages printed via PC
CL_PCPT:00000000	Total number of color pages printed via PC
MN_PCPT:00000000	Total number of monochrome pages printed via PC
DX_CPCP:00000000	Total number of two-sided color pages printed via PC
DX_MPCP:00000000	Total number of two-sided monochrome pages printed via PC
TTL_OTH:00000000	Total number of pages printed by other methods
DX_OTH:00000000	Total number of two-sided pages printed by other methods
CL_OTH:00000000	Total number of color pages printed by other methods
MN_OTH:00000000	Total number of monochrome pages printed by other methods
DX_COTH:00000000	Total number of two-sided color pages printed by other methods
DX_MOTH:00000000	Total number of two-sided monochrome pages printed by other methods
CCVRGUSI:4.32%*	Average coverage by the current cyan toner cartridge
CCVRGACC:3.47%	Accumulated average coverage of cyan toner cartridge
MCVRGUSI:4.32%*	Average coverage by the current magenta toner cartridge
MCVRGACC:3.47%	Accumulated average coverage of magenta toner cartridge
YCVRGUSI:4.32%*	Average coverage by the current yellow toner cartridge
YCVRGACC:3.47%	Accumulated average coverage of yellow toner cartridge
KCVRGUSI:4.32%*	Average coverage by the current black toner cartridge
KCVRGACC:3.47%	Accumulated average coverage of black toner cartridge
CDRUM:00000000	Number of cyan drum rotations
MDRUM:00000000	Number of magenta drum rotations
YDRUM:00000000	Number of yellow drum rotations
KDRUM:00000000	Number of black drum rotations
CTN_RND: 00000000	Number of cyan develop roller rotations
MTN_RND: 00000000	Number of magenta develop roller rotations
YTN_RND: 00000000	Number of yellow develop roller rotations
KTN_RND: 00000000	Number of black develop roller rotations
MP_PG:00000000	Paper input for MP tray (Display only for MP models)
MN_PG:00000000	Paper input for manual feed (Display only for manual feed slot models)
TR1_PG:00000000	Paper input for T1
DX_PG:00000000	Paper passed through duplex tray
A4+LTR:00000000	Total paper input for A4 and Letter
LG+FOL:00000000	Total paper input for Legal and Folio
B5+EXE:00000000	Total paper input for B5 and Executive
ENVLOP:00000000	Paper input for Envelope
A5 :00000000	Paper input for A5 (including A5 Landscape)
OTHER :00000000	Paper input for other sizes
PLTNRE:00000000	Total printed pages of plain, thin, and recycled paper
TKTRBD:00000000	Total printed pages of thick, thicker, and bond paper
ENVTYP:00000000	Total printed pages of envelope, thick envelope, and thin envelope
COLOR:00000000	Full-color printed pages
LTHD:00000000	Printed pages on letter head
LABEL:00000000	Printed pages on label
HAGAKI:00000000	Printed pages on postcard

LCD	Description
GLOSSY:00000000	Printed pages on glossy paper
TTL_JAM:00000000	Total paper jams that have occurred
MP_JAM:00000	Paper jams that have occurred in MP tray (Display only for MP models)
MN_JAM:00000000	Paper jams that have occurred in manual feed (Display only for manual feed slot models)
TR1_JAM:00000000	Paper jams that have occurred in T1
IN_JAM:00000000	Paper jams that have occurred in the machine
RE_JAM:00000000	Paper jams that have occurred at the ejecting section or back cover
DX_JAM:00000000	Paper jams that have occurred in the duplex tray
POWER:00000375	Total power distribution time (unit: hour)
PWRCNT:00000001	Number of times that the power is turned ON
CTN_CH:0000	Number of times that the cyan toner cartridge has been replaced [4]
MTN_CH:0000	Number of times that the magenta toner cartridge has been replaced [4]
YTN_CH:0000	Number of times that the yellow toner cartridge has been replaced [4]
KTN_CH:0000	Number of times that the black toner cartridge has been replaced [4]
CDRM_CH:0000	Number of times that the cyan drum unit has been replaced [4]
MDRM_CH:0000	Number of times that the magenta drum unit has been replaced [4]
YDRM_CH:0000	Number of times that the yellow drum unit has been replaced [4]
KDRM_CH:0000	Number of times that the black drum unit has been replaced [4]
WTNR_CH:0000	Number of times that the waste toner box has been replaced [4]
BELT_CH:0000	Number of times that the belt unit has been replaced [4]
FUSR_CH:0000	Number of times that the fuser unit has been replaced [4]
PFK1_CH:0000	Number of times that the PF kit 1 has been replaced [4]
CTN_PG1:00000000	Number of pages printed from the currently installed cyan toner cartridge
CTN_PG2:00000000	Number of pages printed from the previous installed cyan toner cartridge
MTN_PG1:00000000	Number of pages printed from the currently installed magenta toner cartridge
MTN_PG2:00000000	Number of pages printed from the previous installed magenta toner cartridge
YTN_PG1:00000000	Number of pages printed from the currently installed yellow toner cartridge
YTN_PG2:00000000	Number of pages printed from the previous installed yellow toner cartridge
KTN_PG1:00000000	Number of pages printed from the currently installed black toner cartridge
KTN_PG2:00000000	Number of pages printed from the previous installed black toner cartridge
WTNR_PG:00000000	Number of pages printed with the current waste toner box
CDEV_BIAS:400V	Cyan developing bias voltage
MDEV_BIAS:400V	Magenta developing bias voltage
YDEV_BIAS:400V	Yellow developing bias voltage
KDEV_BIAS:400V	Black developing bias voltage value
ENGERR##:000000	Engine error log (last ten errors) [5]
HODN_ER:0000	The number of discharge errors occurred
FUSR_ER:0000	The number of fuser unit errors occurred
DEVSTATUS ##:00	Log for design analysis [6]
FUNC1:0000000000	Function information

[1] 01 to 10 will be displayed for "##" in chronological order. Pressing the [SET] or [OK] while the machine error log is displayed shows "PGCNT:00000000" (total pages printed at the time of the error) on the LCD, and pressing the [SET] or [OK] again shows "TMP:000 HUM:000" (TMP: temperature at the time of the error (°C), HUM: humidity at the time of the error (%)) on the LCD. Pressing the [SET] or [OK] again returns the LCD display to machine error log.

*2 Last 12 digits of the serial number are displayed.
The serial number can be changed according to the procedures below.

For models with touch panel

1) While the serial number is displayed, press the [9], [4], [7], and [5] in this order to enter the edit mode.

2) Use the keypad to enter the first digit of the serial number. The second digit starts to flash. Enter the second digit to the 15th digit similarly.

<Entry method of alphanumeric characters>

See the table below and press the corresponding key until the desired character is displayed.

Keypad	Assigned characters
2	2 → A → B → C
3	3 → D → E → F
4	4 → G → H → I
5	5 → J → K → L
6	6 → M → N → O
7	7 → P → Q → R → S
8	8 → T → U → V
9	9 → W → X → Y → Z

3) Press the [Mono Start]. The serial number is saved and the machine returns to the initial state of maintenance mode.

For models without touch panel

1) While "USB:********" is displayed on the LCD, press the [▲] or [▼] to display "9".

2) Press the [OK]. "USB:********" is displayed on the LCD again.

3) Repeat the procedures 1) and 2) to enter "4", "7", and "5" respectively.

4) When a cursor appears at the first digit of the serial number on the LCD display, the edit mode is entered.

5) Press the [▲] or [▼] to enter the first digit of the serial number.

6) Press the [OK]. The cursor moves to the second digit. Likewise, repeatedly enter the 15-digit serial number from the second digit to the last.

7) Press the [Go]. The serial number is saved and the machine returns to the initial state of maintenance mode.

*3 Pressing the [SET] or [OK] while "PCB:" is displayed shows the serial number of the main PCB on the LCD.

*4 Pressing the [SET] or [OK] while the number of each consumable part had replaced is displayed shows "DATE_XX:000000" (XX: each consumable part) and the replaced date on the LCD.

*5 01 to 10 will be displayed for "##" in chronological order. Pressing the [SET] or [OK] while the engine error log is displayed shows "TM:00000 BT:000" (TM: the minutes passed from the previous error, BT: the number of times that the power is turned ON/OFF) on the LCD. Pressing the [SET] or [OK] again returns the LCD display to engine error log.

*6 01 to 10 will be displayed for "##" in chronological order. Pressing the [SET] or [OK] while log for design analysis is displayed shows "PGCNT:00000000" (total pages printed at the time of the error) on the LCD. Pressing the [SET] or [OK] again returns the LCD display to log for design analysis.

1.3.26 Display machine error code (Function code 82)

< Function >

This function is used to display the latest error code on the LCD.

< Operating Procedure >

(1) For models with touch panel

Press the [8], and then the [2] in the initial state of maintenance mode. "MACHINE ERR XXXX" is displayed on the LCD.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 82" on the LCD, and press the [OK]. "MACHINE ERR XXXX" is displayed on the LCD.

(2) Press the [X] or [Cancel], and the machine returns to the initial state of maintenance mode.

1.3.27 Developing bias voltage correction (Function code 83)

< Function >

This function performs developing bias voltage correction to fix the density of each color toner when printed color is not correct.

> **Note:**
> Before this function is performed, there is a need that the "1.3.20 Sensitivity adjustment of density sensor (Function code 72)" in this chapter has been done more than once. When performing this function code 83 after replacing the main PCB, make sure to perform the "1.3.20 Sensitivity adjustment of density sensor (Function code 72)" first.

< Operating Procedure >

(1) For models with touch panel

Press the [8] and [3] in this order in the initial state of the maintenance mode. The machine displays "PLS WAIT 83" on the LCD and starts the developing bias voltage correction.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 83" on the LCD, and press the [OK]. The machine displays "PLS WAIT 83" on the LCD and starts the developing bias voltage correction.

(2) When developing bias voltage correction is completed, "MODE KYMC ****" is displayed on the LCD. When you press the [Mono Start] or [Go], the machine returns to the initial state of the maintenance mode.
(* represents any number from 0 to 3.)

> **Note:**
> If developing bias voltage correction fails, "ERROR 83" is displayed on the LCD. Display the error message by pressing the [▼], and take the following remedy that corresponds to the error message.

Error display	Remedy
FAILED DEVBIAS	Remove the error cause with the following operations and press the [Mono Start] or [Go] to clear the error. • Re-insert the toner cartridge in the correct position. • Replace the toner cartridge. • Replace the drum unit. • Replace the waste toner box. • Replace the belt unit. • Replace the registration mark sensor ASSY.
TONER EMPTY # *	Replace the empty toner cartridge and press the [Mono Start] or [Go] to clear the error. After the sensitivity adjustment of the density sensor (Function code 72) is performed, the developing bias voltage value is compensated again.
Cover is Open	Close the top cover.
Replace Toner	Replace the black toner cartridge and press the [Mono Start] or [Go] to clear the error. After the sensitivity adjustment of the density sensor (Function code 72) is performed, the developing bias voltage value is compensated again.

* # indicates the toner color (Y, M, or C) of which cartridge became empty.

1.3.28 Reset counters for consumable parts (Function code 88)

< Function >

This function is performed to reset the counter for each consumable part in the main PCB after that has been replaced.

< Operating Procedure >

(1) For models with touch panel

Press the [8] twice in the initial state of maintenance mode. "Reset-Fuser Unit" is displayed on the LCD.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 88" on the LCD, and press the [OK]. "Reset-Fuser Unit" is displayed on the LCD.

(2) Press the [▲] or [▼] to display the part with the counter to be reset on the LCD, and press the [Mono Start] or [Go].
Enter the type selection of fuser unit only when the "Reset-Fuser Unit" is selected. After selecting the "Reset-Fuser Unit", press the [▲] or [▼] to select the last digit value of the serial number of fuser unit, and press the [OK] or [Go].

(3) "*******OK?" is displayed on the LCD. Press the [Mono Start] or [Go] to reset the counter for the selected part and return the display to the procedure (2). (******* represents the name of the selected part)

(4) Press the [X] or [Cancel], and the machine returns to the initial state of maintenance mode.

Selectable parts are shown in the table below.

Error display	Part name	Counter to be reset
Reset-Fuser Unit	Fuser unit	Printed pages counter
Reset-PF Kit T1	PF kit 1	Printed pages counter
Reset-LVPS	Low-voltage power supply PCB	Irregular power supply detection counter

1.3.29 Quit maintenance mode (Function code 99)

< Function >

This function is used to quit the maintenance mode, restart the machine, and return it to the ready state. Also forcefully close the fuser unit error.

< Operating Procedure >

(1) For models with touch panel

Press the [9] twice in the initial state of maintenance mode. The machine quits the maintenance mode and returns to the ready state.

For models without touch panel

Press the [▲] or [▼] in the initial state of maintenance mode to display "MAINTENANCE 99" on the LCD, and press the [OK]. The machine quits the maintenance mode and returns to the ready state.
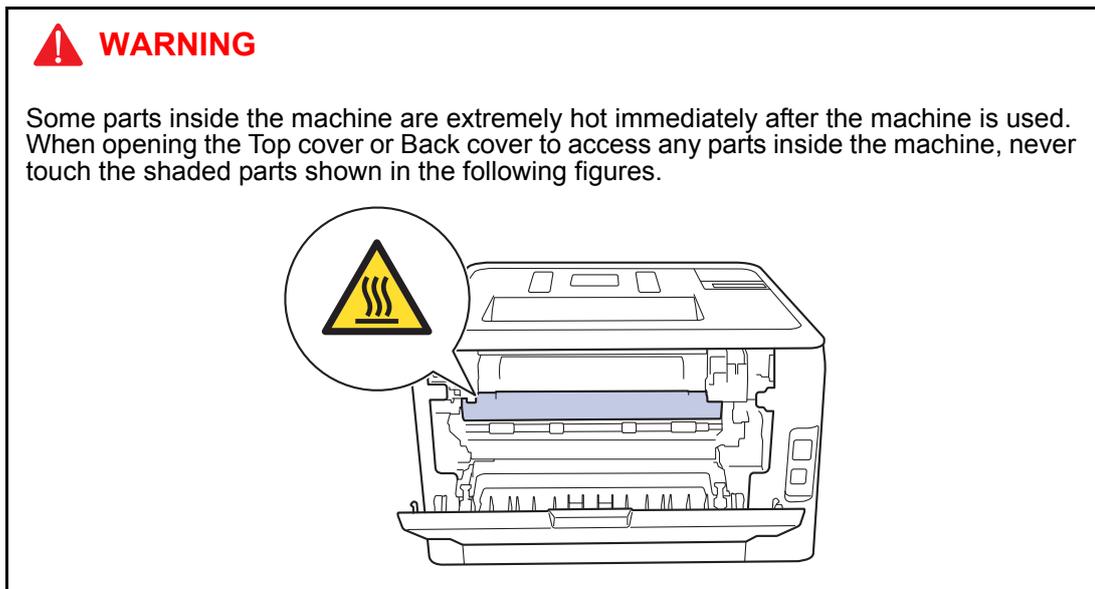
CHAPTER 6   WIRING DIAGRAM

1.   WIRING DIAGRAM
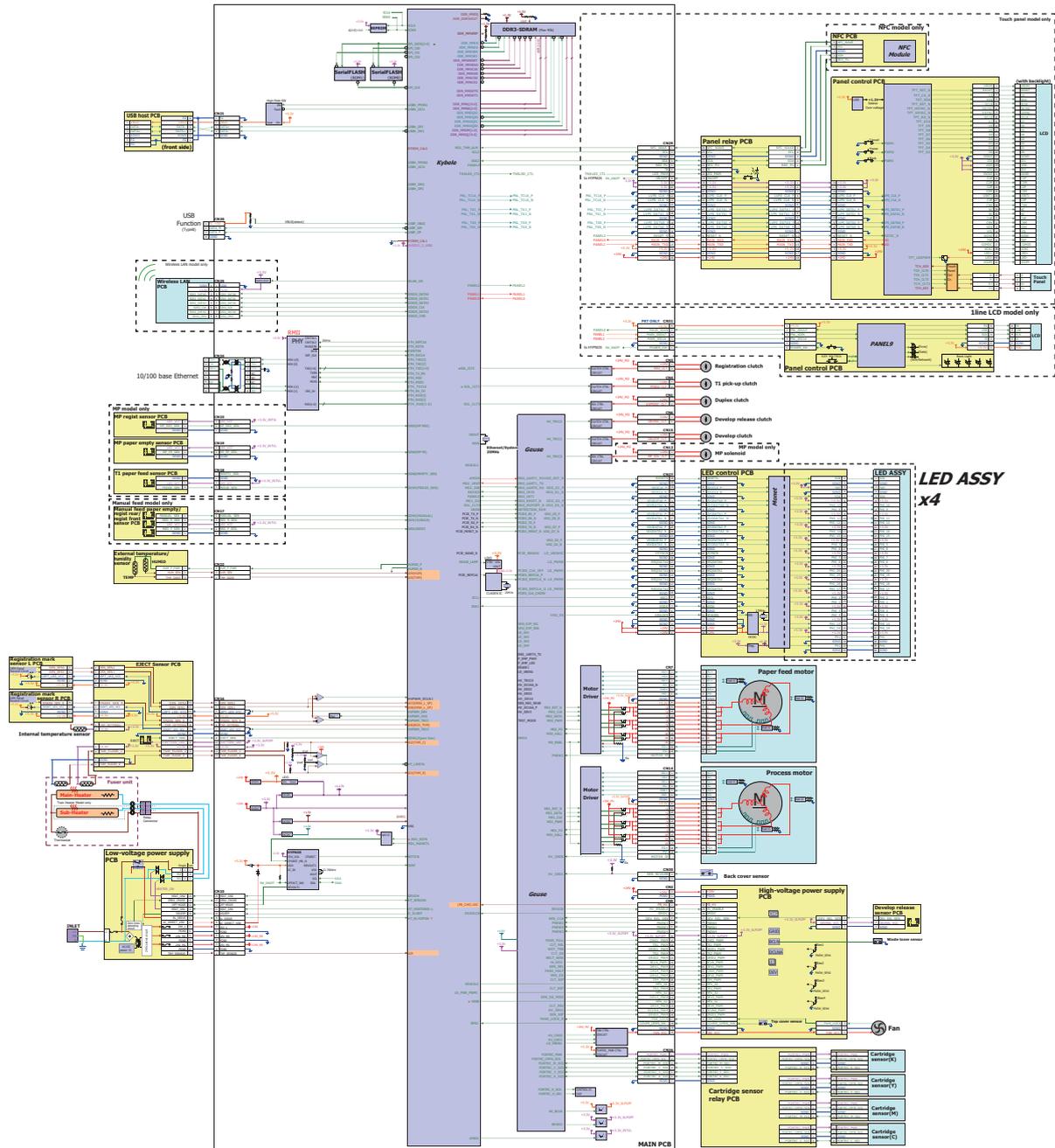
CHAPTER 7   PERIODICAL MAINTENANCE

1.   PRECAUTIONS

To avoid creating secondary problems by mishandling, follow the warnings and precautions below during maintenance work.

> ⚠️ **WARNING**
>
> Some parts inside the machine are extremely hot immediately after the machine is used. When opening the Top cover or Back cover to access any parts inside the machine, never touch the shaded parts shown in the following figures.

- Be careful not to lose screws, washers, or other parts removed.
- Be sure to apply grease to the applicable positions specified in Chapter 3.
- When using soldering irons or other heat-generating tools, take care not to accidentally damage parts such as wires, PCBs and covers.
- Static electricity charged in your body may damage electronic parts. When transporting PCBs, be sure to wrap them in conductive sheets.
- When replacing the PCBs and all the other related parts, put on a grounding wrist band and perform the job on a static mat. Also take care not to touch the conductor sections on the flat cables or on the wire harnesses.
- After disconnecting flat cables, check that each cable is not damaged at its end or shortcircuited.
- When connecting flat cables, do not insert them at an angle. After insertion, check that the cables are not at an angle.
- When connecting or disconnecting harnesses, hold the connector body, not the cables. If the connector has a lock, release the connector lock first to release it.
- After a repair, check not only the repaired portion but also harness treatment. Also check that other related portions are functioning properly.
- There must be no damage in the Insulation sheet.
- After a repair, update the firmware to the latest version.
- Violently closing the Top cover without mounting the Toner cartridge and the Drum unit can damage the machine.
- When replacing the PCBs, check that there is no foreign object on the parts surface of the PCBs or on the soldering surface.

2. PERIODICAL REPLACEMENT PARTS

2.1 Preparation

■ **Disconnecting cables and removing accessories**

Prior to proceeding with the disassembly procedure,

(1) Unplug
- the AC cord, and
- the LAN cable, if connected.

(2) Remove
- the Toner cartridge & Drum unit,
- the Belt unit,
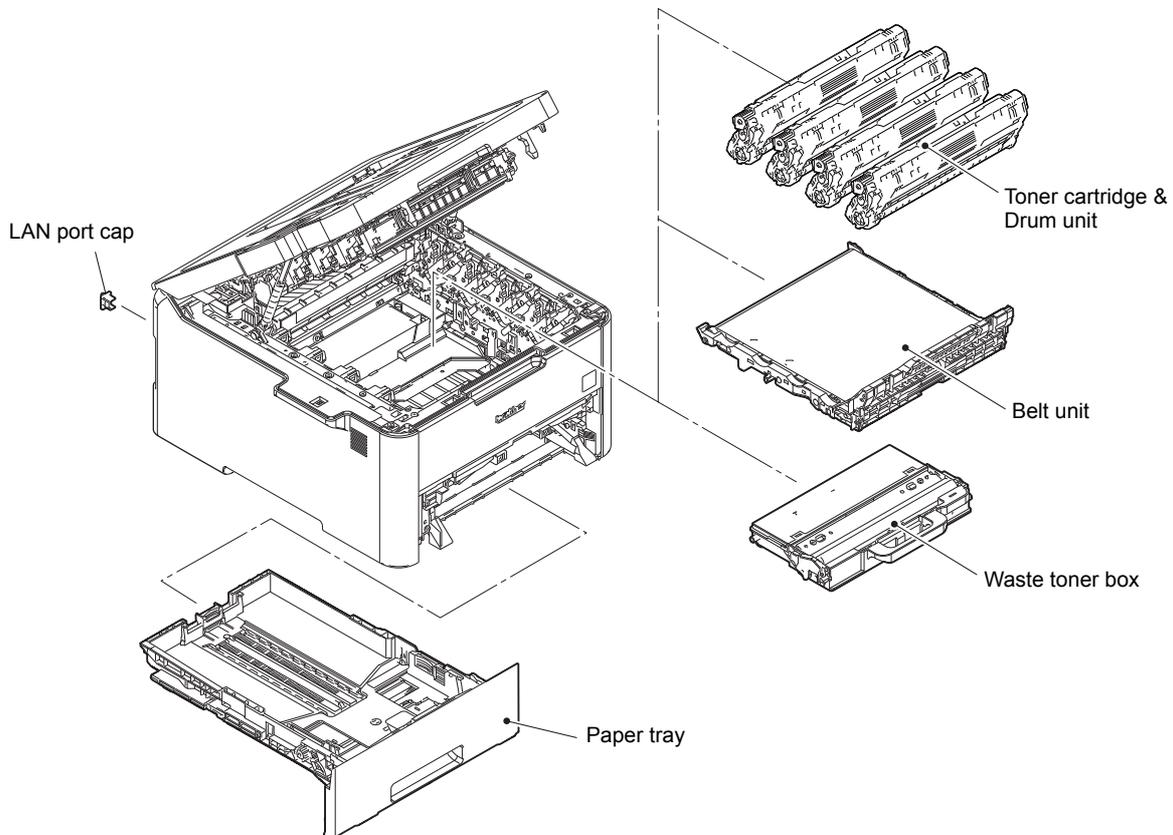- the Waste toner box,
- the Paper tray, and
- the LAN port cap.

Fig. 7-1

2.2 Fuser unit

(1) Open the Back cover ASSY.
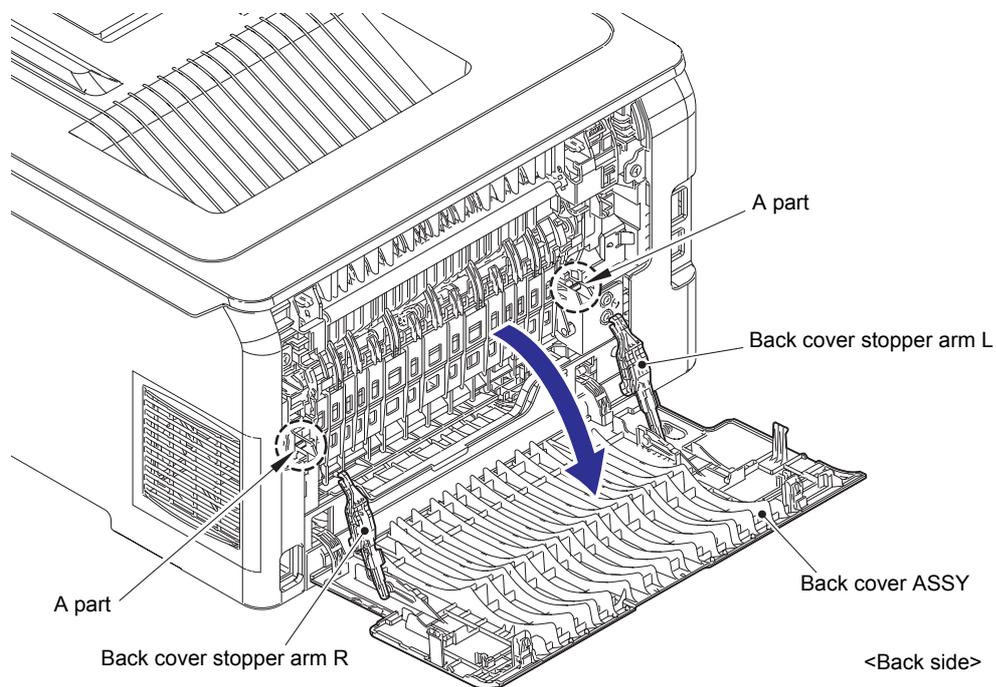(2) Remove the Back cover stopper arm L/R from the A part.

A part

Back cover stopper arm L

A part

Back cover stopper arm R

Back cover ASSY

<Back side>

Fig. 7-2

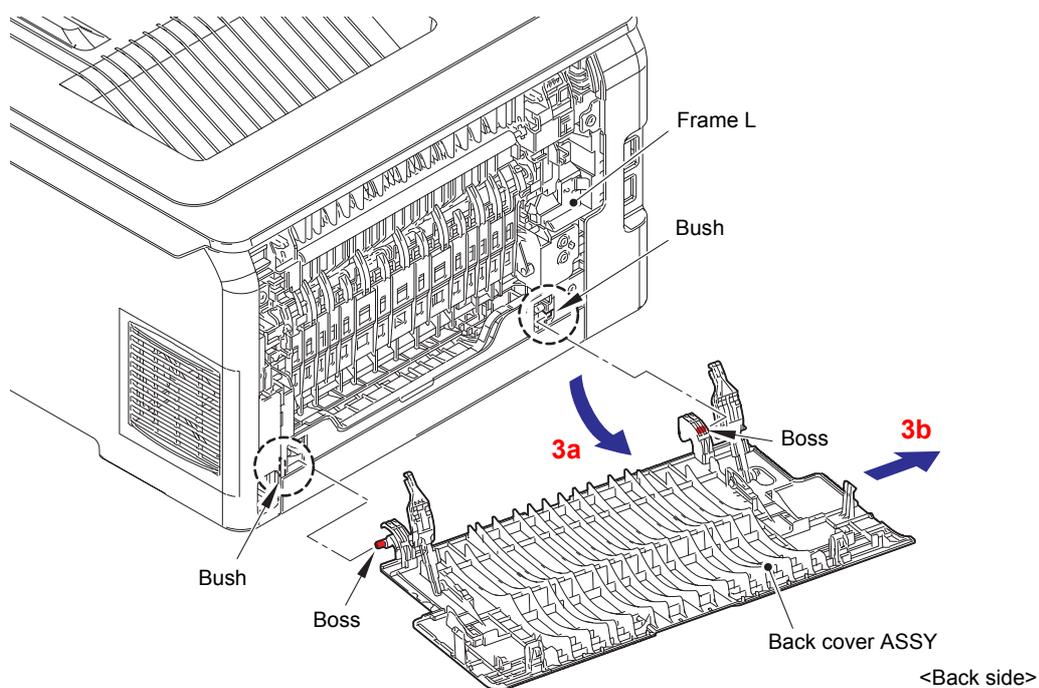(3) Release the Boss of the Back cover ASSY from the Bush on the Frame L to remove the Back cover ASSY. (3a → 3b)

Frame L

Bush

3a

3b

Boss

Bush

Boss

Back cover ASSY

<Back side>

Fig. 7-3

Confidential

(4) Remove the Rear flapper sub ASSY from each Boss.

Boss

Rear flapper sub ASSY

Boss

<Back side>

Fig. 7-4

Confidential

(5) Remove the Taptite bind B M3x10 screw to remove the Fuser cover L.
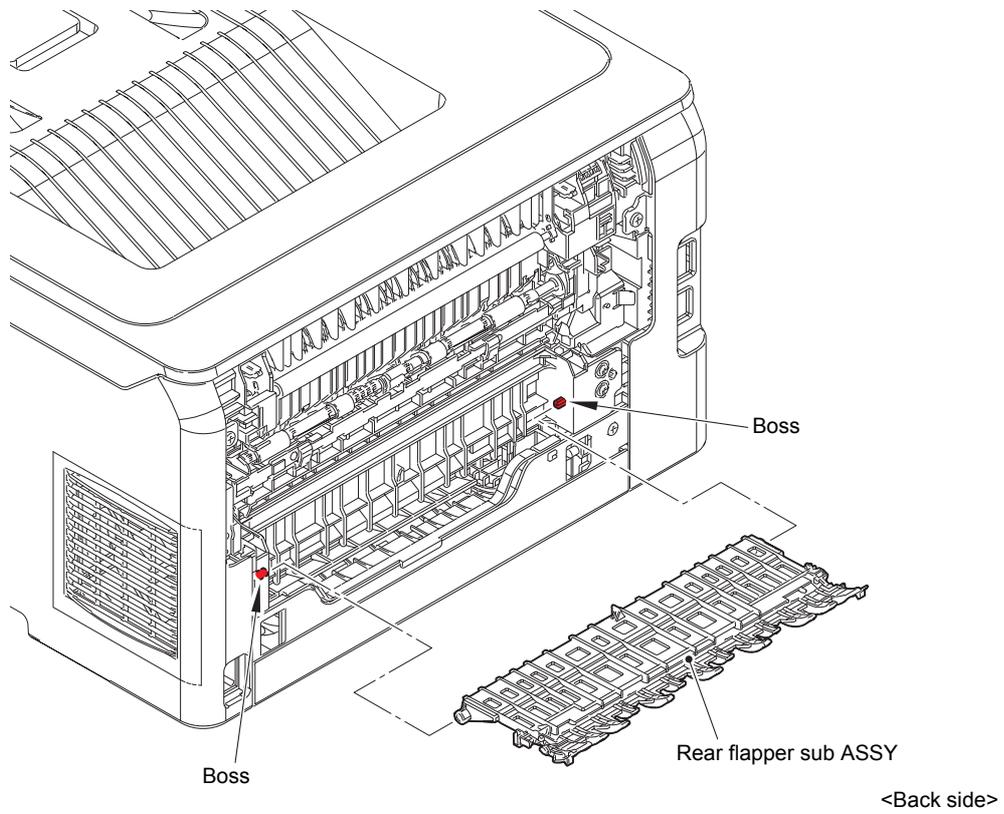
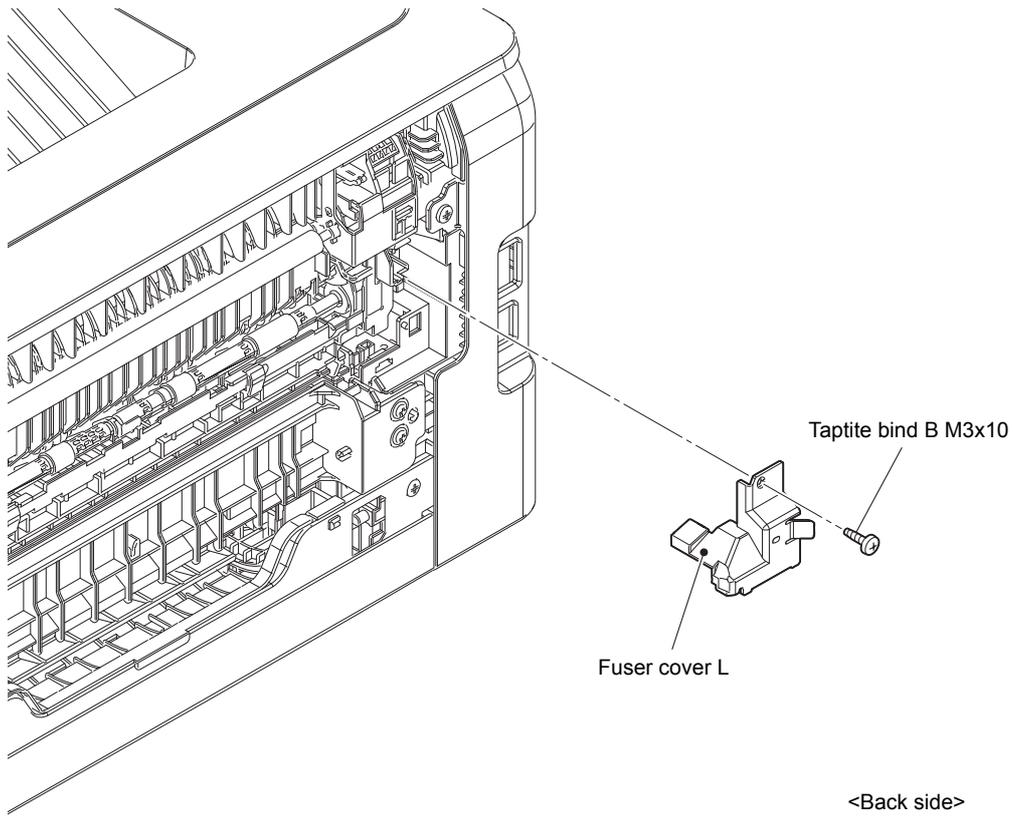Taptite bind B M3x10

Fuser cover L

<Back side>

Fig. 7-5

Assembling Note:
- When attaching the Fuser cover L, tighten the screw while pushing the Fuser cover L in the direction of the arrow. When the Fuser cover L is attached without pushing it, the Boss of the Frame L may come off.
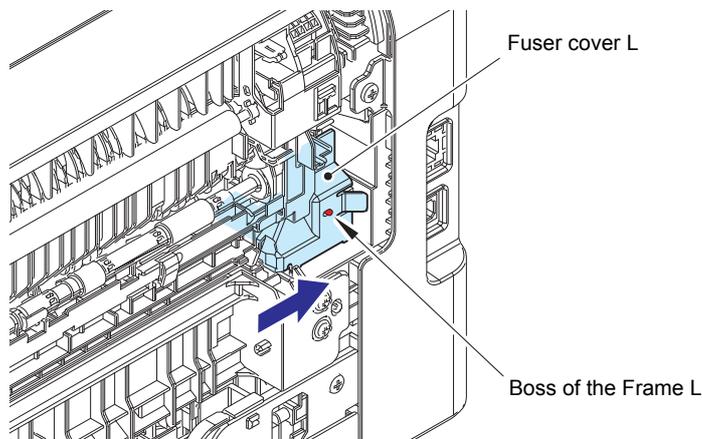

Fuser cover L

Boss of the Frame L

Fig. 7-6

Confidential

(6) Release the lock of the Fuser cover lock lever L/R to open the Fuser cover ASSY.
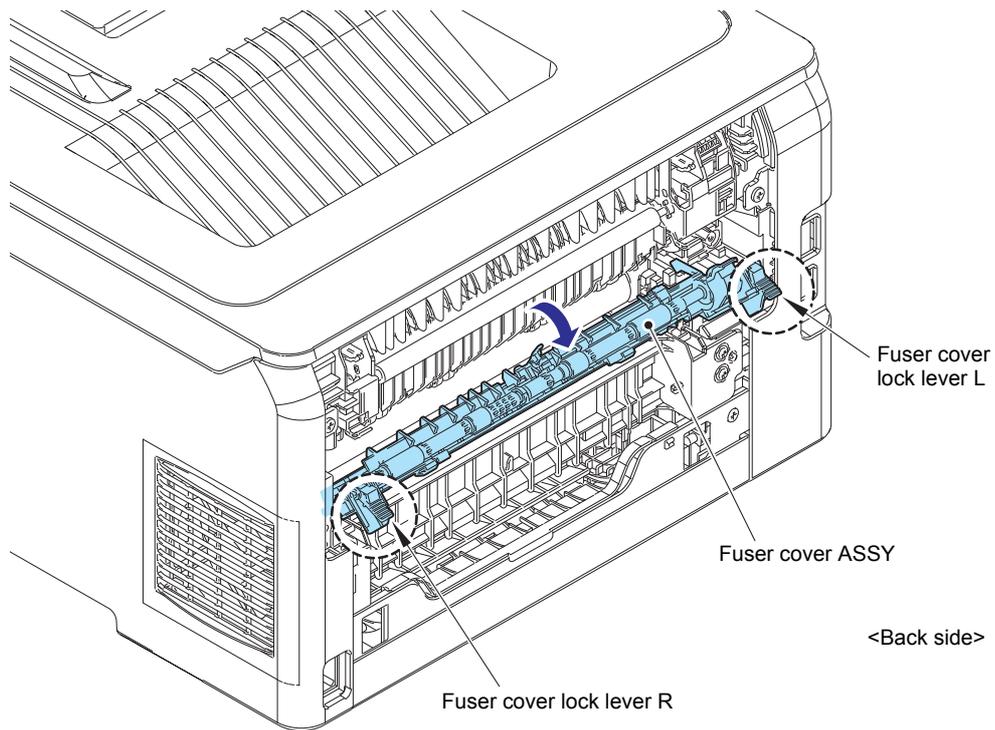

Fig. 7-7

(7) Slide the Fuser cover ASSY in the direction of the arrow and remove it to the front.
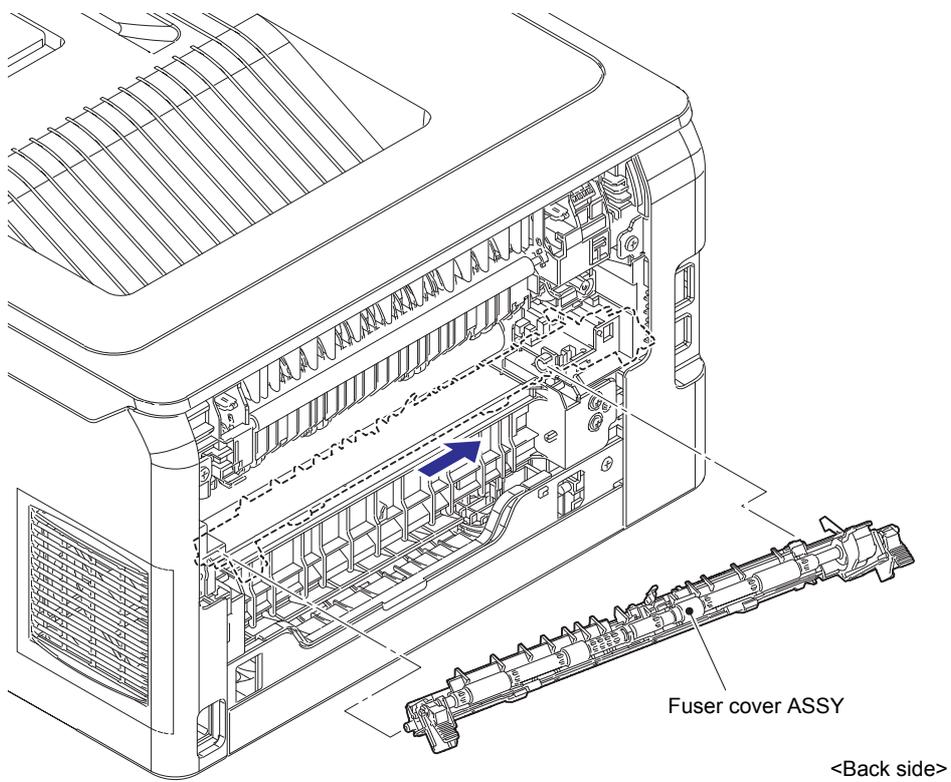

Fig. 7-8

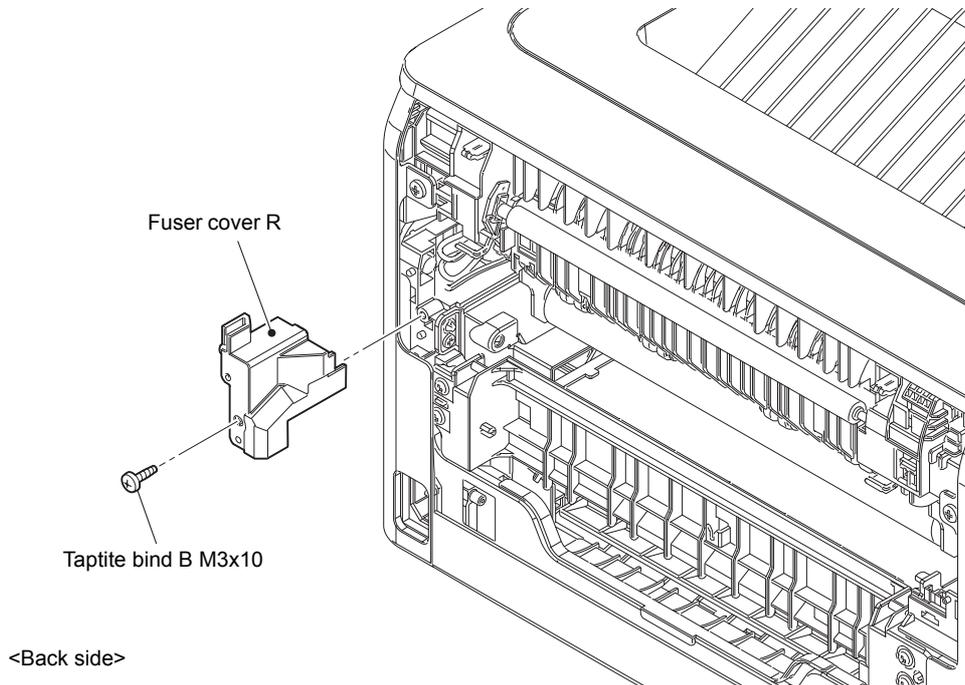(8) Remove the Taptite bind B M3x10 screw to remove the Fuser cover R.

Fuser cover R

Taptite bind B M3x10

<Back side>

Fig. 7-9

(9) Disconnect the Center thermistor harness and the Side thermistor harness from the Eject sensor PCB.

Side thermistor harness

Center thermistor harness
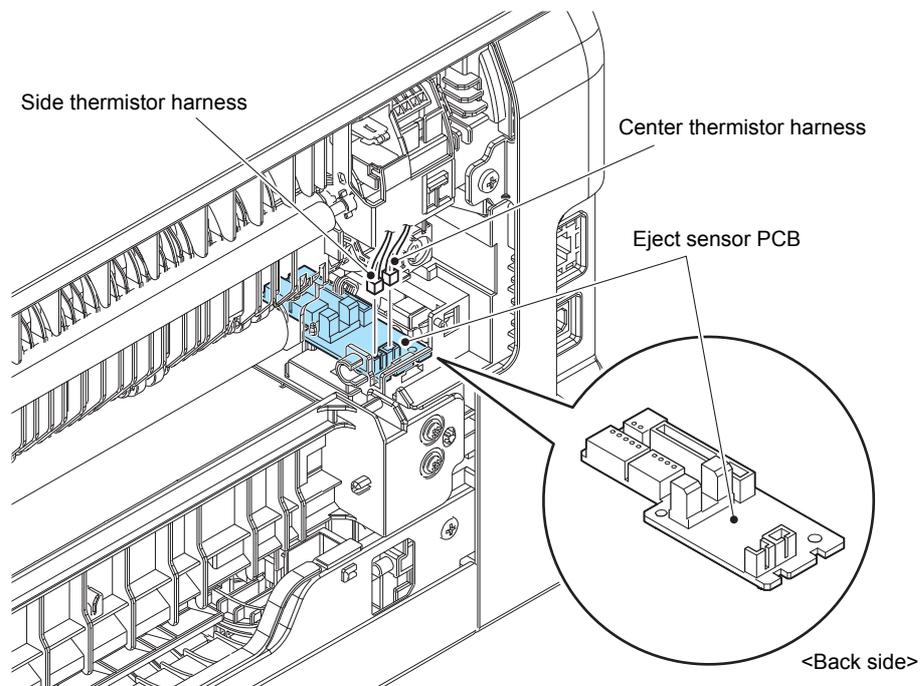
Eject sensor PCB

<Back side>

Fig. 7-10

Confidential

(10) Remove the two Taptite pan (washer) B M4x12DA screws. Pull out the Fuser unit on the Frame L side in the direction of arrow 10a and then remove it in the direction of arrow 10b.

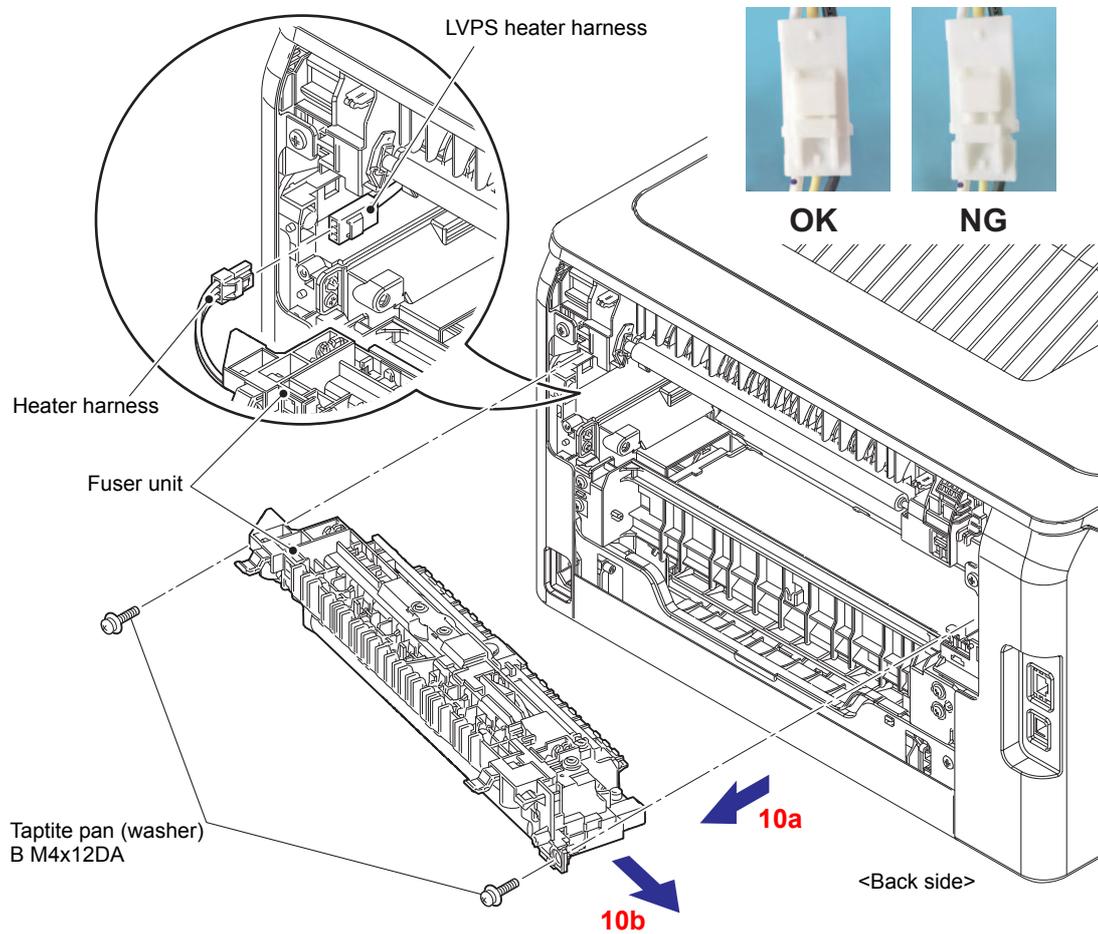(11) Disconnect the Heater harness of the Fuser unit from the LVPS heater harness.

LVPS heater harness

OK NG

Heater harness

Fuser unit

Taptite pan (washer) B M4x12DA

10a

10b

<Back side>

Fig. 7-11

Assembling Note:

• After connecting the Heater harness, pull the Connector on the Heater harness side while holding the Connector on the LVPS heater harness side to make sure it is locked.

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Note:

• Do not apply a physical impact or vibration to the Fuser unit.

Assembling Note:

• After connecting the Heater harness of the Fuser unit to the LVPS heater harness, the Heater harness is housed so that it does not come out of the Frame R.
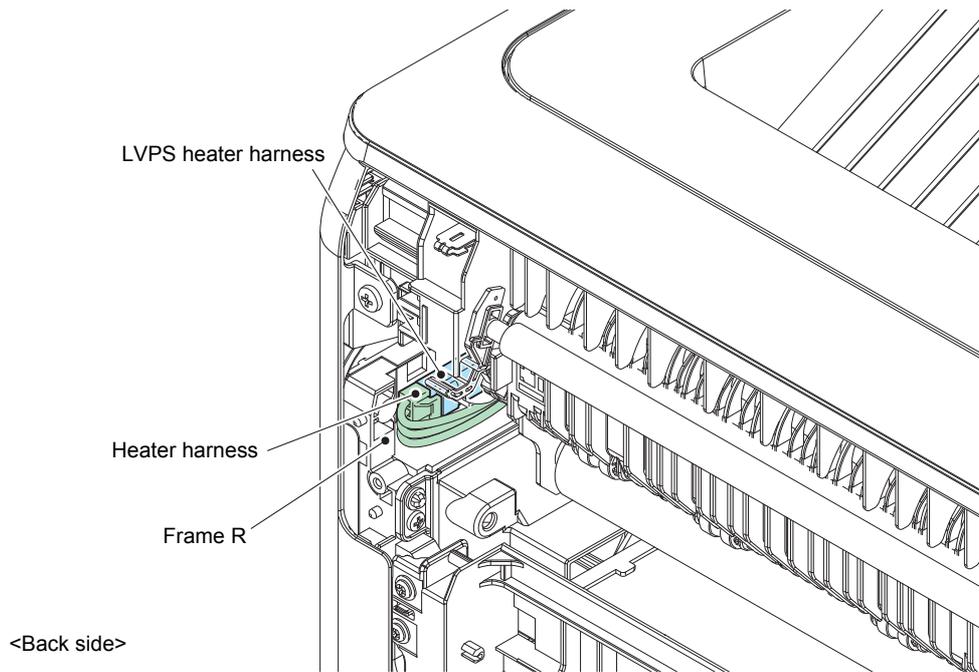

LVPS heater harness

Heater harness

Frame R

<Back side>

Fig. 7-12

(12) After replacing the Fuser unit, reset the counter.
  (Refer to "1.3.28 Reset counters for consumable parts (Function code 88)" in Chapter 5.)

2.3 PF kit 1

(1) Release each Hook of the T1 separation pad ASSY from the Paper tray.

(2) Push both side Arms on the T1 separation pad ASSY inwards to remove the Pins, and remove the T1 separation pad ASSY from the Paper tray.
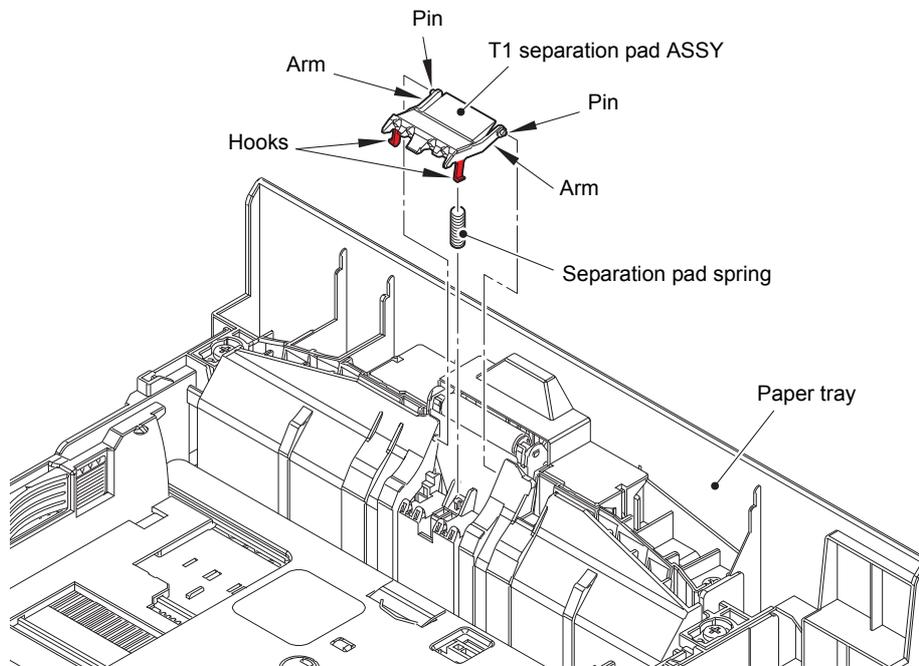
(3) Remove the Separation pad spring from the Paper tray.

Fig. 7-13

(4) Push the Lift arm in the direction of arrow A, and rotate the Roller holder ASSY to release the Boss. Slide the Roller holder ASSY in the direction of arrow B to remove it from the Shaft, and remove the Roller holder ASSY from the machine.
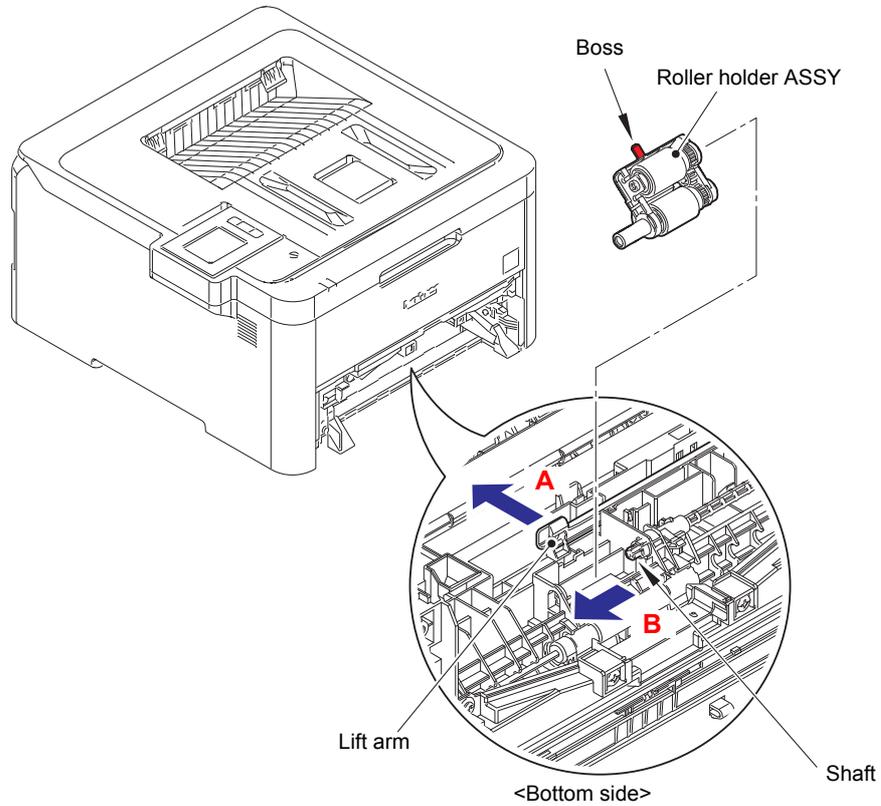

Fig. 7-14

(5) After replacing the PF kit 1, reset the counter.
(Refer to "1.3.28 Reset counters for consumable parts (Function code 88)" in Chapter 5.)

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APPENDIX 1 SERIAL NUMBERING SYSTEM

■ **Serial number labels on the printer**

brother	MODEL MODÈLE			FC	℅UL us	I.T.E. 1T22
---	---				LISTED	N
SER.NO.						
NO DE SÉRIE				CAN ICES-3(B)/NMB-3(B)		
MADE IN VIETNAM FABRIQUÉ(E) AU VIETNAM D00XAE001 >PS<		Contains FCC ID:B3QT77H505 Contains IC/Contient IC:1112C-T77H505		110V-120V∼ 50/60Hz 9.6A BROTHER INDUSTRIES, LTD.		

Serial number

* * * * * * A 8 N 1 1 1 1 0 1

Model number

Serial number (6-digit)

Manufacturing factory No.

Year of manufacture
* : 201*
(e.g., 8 : 2018)

Month of manufacture

A: January	E: May	J: September
B: February	F: June	K: October
C: March	G: July	L: November
D: April	H: August	M: December

Fig. App 1-1

\<Location\>

Serial number label

Fig. App 1-2

Confidential
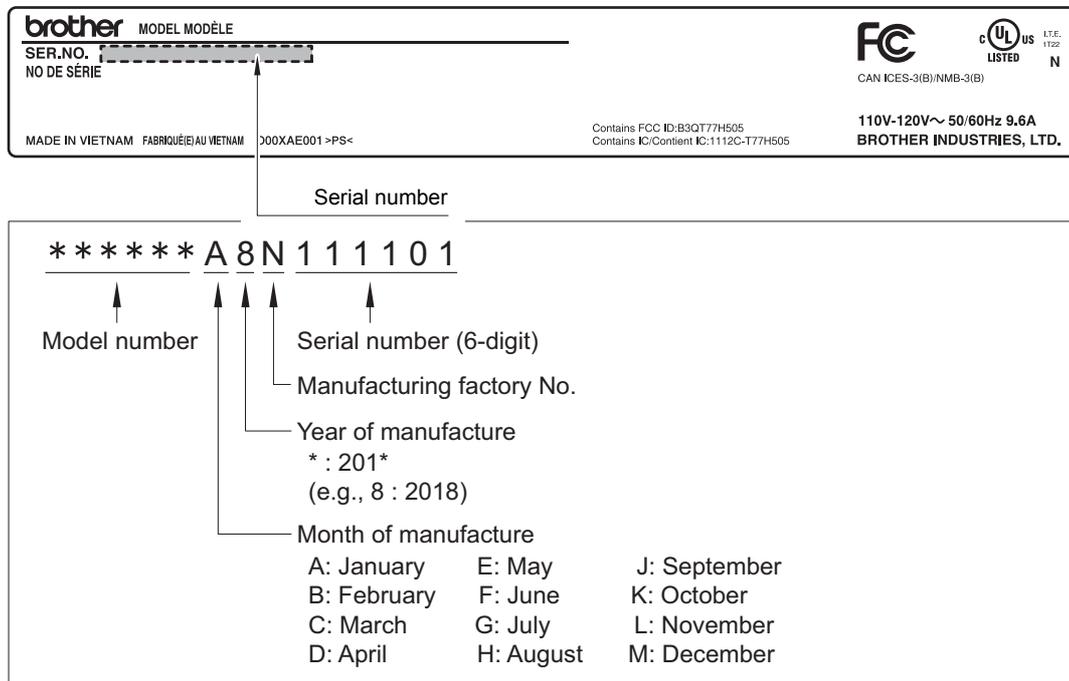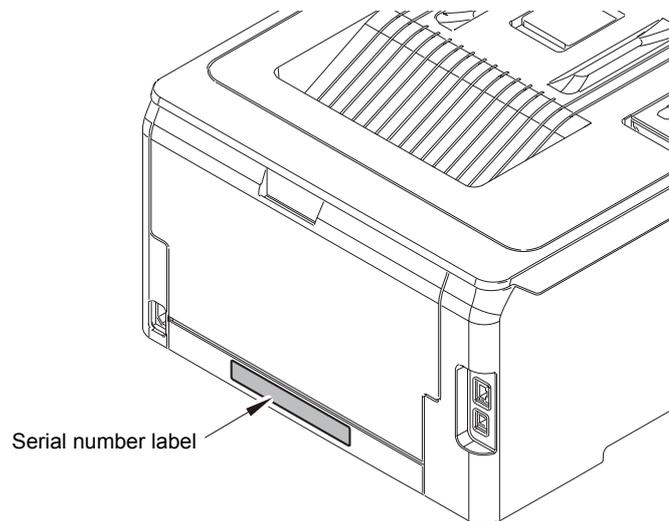
APPENDIX 2 DELETING USER SETTING INFORMATION

The user setting information for the machine is stored in the main PCB. You can return this to the default settings by following the procedure below.

<Operating Procedure>

HL-L3210CW/HL-L3230CDN/HL-L3230CDW (For models without touch panel)

(1) Press the [▲] or [▼] to select the "Initial Setup" option, and then press the [OK].

(2) Press the [▲] or [▼] to select the "Reset" option, and then press the [OK].

(3) Press the [▲] or [▼] to select the "Machine Reset" option, and then press the [OK].

(4) Press the [▲] to select the "Reset".

(5) Press the [▲] to restart the machine.

HL-L3270CDW (For models with touch panel)

(1) Press the [Settings] > [All Settings] > [Initial Setup] > [Reset] > [Machine Reset].

(2) You will be asked to reboot the machine. Press the option in the table to reboot the machine or to exit the process.

Option	Description
Press Yes for 2 seconds	Reboot the machine. The machine will begin the reset.
No	The machine will exit without rebooting.

Note:

If you do not reboot your machine, the reset process will not finish and your settings will remain unchanged.

(3) Press the .

APPENDIX 3 INSTALLING THE MAINTENANCE PRINTER DRIVER

To identify machines connected via USB direct interface, the computer requires the corresponding driver for the virtual USB device. If you connect any number of machines to your computer, the same number of virtual USB devices will be automatically configured on your computer. To prevent many virtual USB devices from being configured, use the unique driver installation procedure described below that enables your computer to identify terminals via one single virtual USB device.

Note:

• Once this installation procedure is carried out for a computer, no more driver/software installation will be required for that computer to identify machines. If the Brother Maintenance USB Printer driver has been already installed to your computer according to this procedure, skip this section.

• Before proceeding to the procedure given below, make sure that the Brother Maintenance USB Printer driver is stored in your computer.

■ **Windows 7/Windows 8/Windows 8.1/Windows 10**

(1) Check that the AC cord of the machine is unplugged from the electrical outlet. Disconnect the USB cable that connects the machine with your computer.

(2) Turn ON your computer.

(3) Double-click Setup.exe inside the Brother Maintenance USB Printer folder that was saved in a temporary folder. The following screen appears. Click the [Next] button.

The following screen is displayed during installation.
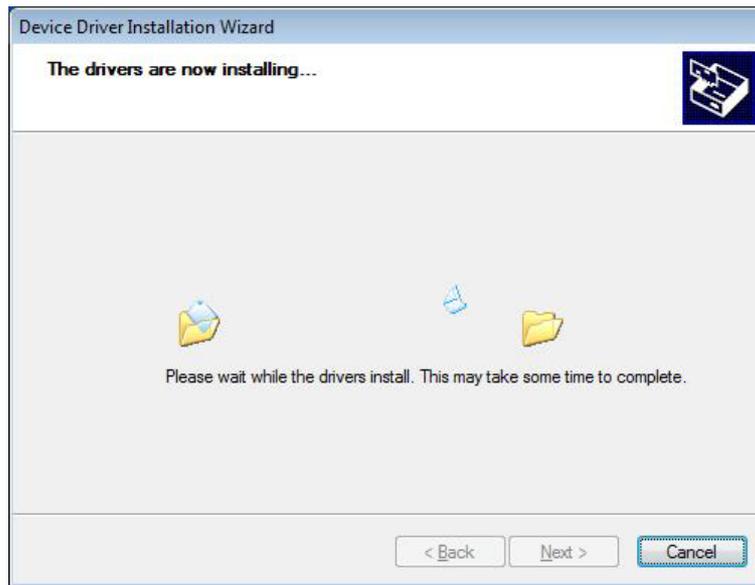
(4) Wait for the following screen to appear and click [Finish].

(5) Plug the AC cord of the machine into an electrical outlet.

(6) Enter the maintenance mode.
(Refer to "1.1 How to Enter Maintenance Mode" in Chapter 5.)

(7) Connect the machine to your computer using a USB cable and the installation will be performed automatically.