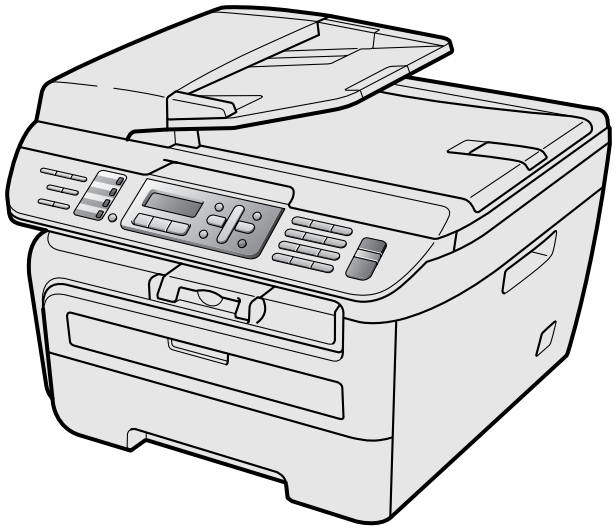
brother

Laser Multi-Function Center

SERVICE MANUAL

MODEL:

DCP-7030/7040/7045N
MFC-7320/7340/7440N/7450/
7840N/7840W



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

Jan 2008
SM-FAX088
8C5C
(2)

Compilation and Publication:

This manual has been complied and published, under the supervision of Brother Industries Ltd., covering the latest product descriptions and specifications. The contents of this manual and the specifications of this product are subject to change without notice. Brother reserves the right to make changes without notice in the specifications and materials contained herein and shall not be responsible for any damages (including consequential) caused by reliance on the materials presented, including but not limited to typographical and other errors relating to the publication. This product is designed for use in a professional environment.

PREFACE

This service manual contains basic information required for after-sales service of the Laser Multi-Function Center (hereinafter referred to as "the machine"). This information is vital to the service personnel to maintain the high printing quality and performance of the machine.

This service manual covers the **DCP-7030/7040/7045N, MFC-7320/7340/7440N/7450/7840N/7840W machines**.

This manual consists of the following chapters:

CHAPTER 1: TROUBLESHOOTING

Details of error messages and codes that the incorporated self-diagnostic function of the machine will display if any error or malfunction occurs. If any error message appears, refer to this chapter to find which parts should be checked or replaced.

The latter half of this chapter provides sample problems that could occur in the main sections of the machine and related troubleshooting procedures.

CHAPTER 2: PERIODICAL MAINTENANCE

Details of consumable parts and periodical maintenance parts. This chapter also covers procedures for disassembling and assembling periodical maintenance parts.

CHAPTER 3: DISASSEMBLY AND ASSEMBLY

Details of procedures for disassembling and assembling of the machine together with related notes. The disassembly order flow provided enables you to see at a glance the quickest way to get to parts involved.

At the start of a disassembly job, you can check the disassembly order flow that guides you through a shortcut to get to the object parts.

This chapter also covers screw tightening torques and lubrication points to which the specified lubrications should be applied during assembly jobs.

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

Details of adjustments and updating of settings, which are required if the main PCB and some other parts have been replaced. This chapter also covers how to update the firmware.

CHAPTER 5: SERVICE FUNCTIONS

Describes the maintenance mode which is exclusively designed for the purpose of checking the settings and adjustments using the keys on the panel.

This chapter also covers hidden function menus, which activate settings and functions or reset the parts life.

CHAPTER 6: CIRCUIT DIAGRAMS, WIRING DIAGRAM

Provides the Circuit Diagrams and Wiring Diagram for the connections of the PCBs.

APPENDIX 1: WORKER SWITCH Settings (WSW)

APPENDIX 2: DELETION OF PERSONAL INFORMATION

APPENDIX 3: SERIAL NUMBERING SYSTEM

APPENDIX 4: SCREW CATALOGUE

APPENDIX 5: GLOSSARY

APPENDIX 6: REFERENCES

Information in this manual is subject to change due to improvement or redesign of the product. All relevant information in such cases will be supplied in service information bulletins (Technical Information).

A thorough understanding of this machine, based on information in this service manual and service information bulletins, is required for maintaining its print quality performance and for improving the practical ability to find the cause of problems.

There is the service reference manual as well. This service reference manual contains “SPECIFICATIONS”, “THEORY OF OPERATION”, “TONER CARTRIDGE WEIGHT INFORMATION”, “REFERENCES”, and “GLOSSARY”.

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REGULATION

<For Europe and Other countries>

■ Radio interference (220 to 240 volt model only)

This machine follows EN55022 (CISPR Publication 22)/Class B.

■ IEC 60825-1 specification (220 to 240 volt model only)

This machine is a Class 1 laser product as defined in IEC 60825-1 specifications. The label shown below is attached in countries where it is needed.

This machine has a Class 3B laser diode which produces invisible laser radiation in the laser unit. You should not open the laser unit under any circumstances.

Caution

Use of controls or adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

For Finland and Sweden

LUOKAN 1 LASERLAITE

KLASS 1 LASER APPARAT

Varoitus!

Laitteen käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

Varning

Om apparaten används på annat sätt än i denna Bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.

■ Internal laser radiation

Maximum radiation power:	10 mW
Wave length:	780 - 800 nm
Laser class:	Class 3B

■ EU Directive 2002/96/EC and EN50419

(European Union only)

This equipment is marked with the recycling symbol below. It means that at the end of the life of the equipment you must dispose of it separately at an appropriate collection point and not place it in the normal domestic unsorted waste stream. This will benefit the environment for all. (European Union only)

<For USA and Canada>

■ Federal Communications Commission (FCC) Declaration of Conformity (For USA)

Responsible Party: Brother International Corporation
100 Somerset Corporate Boulevard
P.O. Box 6911
Bridgewater, NJ 08807-0911
USA
Telephone: (908) 704-1700

declares, that the products

Product name: Laser Multi Function Center DCP-7030/7040/7045N, MFC-7320/7340/7440N/7450/7840N/7840W

complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the end user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Important

A shielded interface cable should be used to ensure compliance with the limits for a Class B digital device. Changes or modifications not expressly approved by Brother Industries, Ltd. could void the user's authority to operate the equipment.

■ Industry Canada Compliance Statement (For Canada)

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

■ Laser Safety (110 to 120 volt model only)

This machine is certified as a Class 1 laser product under the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. This means that the machine does not produce hazardous laser radiation.

Since radiation emitted inside the machine is completely confined within protective housings and external covers, the laser beam cannot escape from the machine during any phase of user operation.

■ FDA Regulations (110 to 120 volt model only)

The U.S. Food and Drug Administration (FDA) has implemented regulations for laser products manufactured on and after August 2, 1976. Compliance is mandatory for products marketed in the United States. The following label on the back of the machine indicates compliance with the FDA regulations and must be attached to laser products marketed in the United States.

MANUFACTURED:

Brother Technology (Shenzhen) Ltd.
NO6 Gold Garden Ind., Nanling Buji, Longgang, Shenzhen, China
This product complies with FDA performance standards for laser products except for deviations pursuant to Laser Notice No.50, dated Jun 24, 2007.

■ Internal laser radiation

Maximum radiation power:	10 mW
Wave length:	780 - 800 nm
Laser class:	Class 3B

SAFETY INFORMATION

■ Caution for Laser Product (WARNHINWEIS fur Laser drucker)

CAUTION: When servicing the machine and it is operated with the cover open, the regulations of VBG 93 and the performance instructions for VBG 93 are valid.

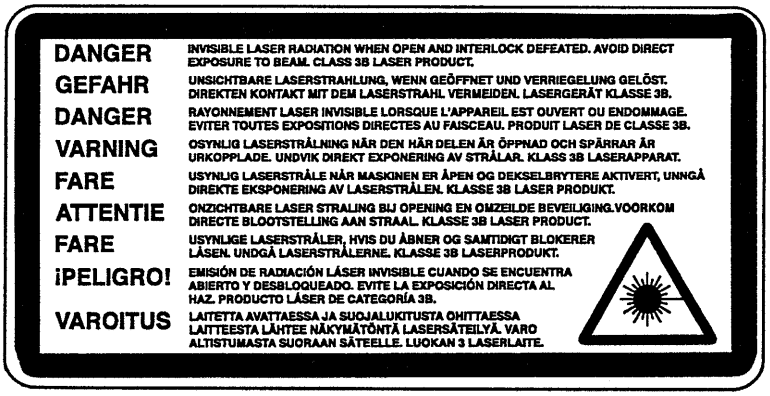
CAUTION: In case of any trouble with the laser unit, replace the laser unit itself. To prevent direct exposure to the laser beam, do not try to open the enclosure of the laser unit.

ACHTUNG: Im Falle von Störungen der Lasereinheit muß diese ersetzt werden. Das Gehäuse der Lasereinheit darf nicht geöffnet werden, da sonst Laserstrahlen austreten können.

■ Additional Information

When servicing the optical system of the machine, be careful not to place a screwdriver or other reflective object in the path of the laser beam. Be sure to take off any personal accessories such as watches and rings before working on the machine. A reflected beam, though invisible, can permanently damage the eyes.

Since the beam is invisible, the following caution label is attached on the laser unit.



■ Definitions of Warnings, Cautions, Notes and Memos

The following conventions are used in this manual:

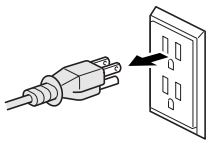
Mark	Contents
	Warnings tell you what to do to prevent possible personal injury.
	Electrical Hazard icons alert you to a possible electrical shock.
	Hot Surface icons warn you not to touch machine parts that are hot.
	Cautions specify procedures you must follow or avoid to prevent possible damage to the machine or other objects.
Note	Notes tell you useful tips when servicing the machine.
Memo	Memo tells you bits of knowledge to help understand the machine.

■ Safety Precautions

Please keep these instructions for later reference and read them before attempting any maintenance.

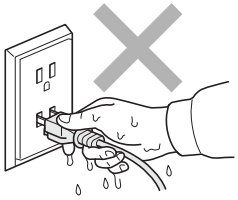
WARNING

There are high voltage electrodes inside the machine. Before you clean the inside of the machine, make sure you have unplugged the telephone line cord first and then the power cord from the AC power outlet (See Routine maintenance on page 115.)



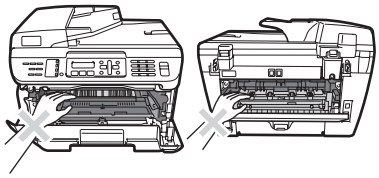
DO NOT use flammable substances or any type of spray to clean the inside or outside of the machine. Doing this may cause a fire or electrical shock. Refer to Routine maintenance on page 115 for how to clean the machine.

DO NOT handle the plug with wet hands. Doing this might cause an electrical shock.

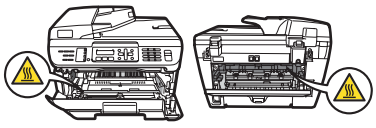


Always make sure the plug is fully inserted.

After you have just used the machine, some internal parts of the machine will be extremely hot. When you open the front or back cover of the machine, DO NOT touch the shaded parts shown in the illustration.

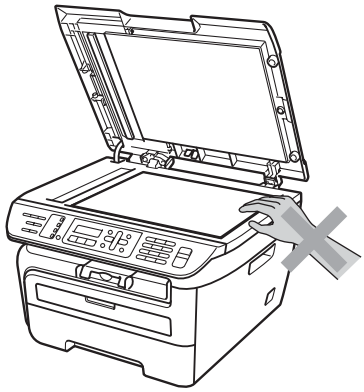


The fuser unit is marked with a caution label. Please DO NOT remove or damage the label.

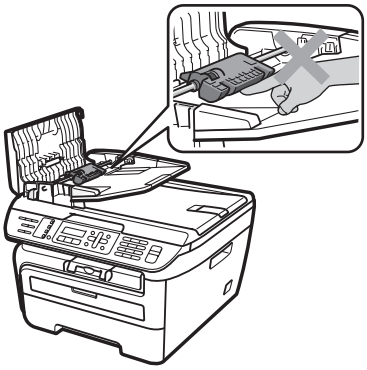


WARNING

To prevent injuries, be careful not to put your hands on the edge of the machine under the document cover or scanner cover.



To prevent injuries, be careful not to put your fingers in the area shown in the illustration.



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 cloth and dispose of it according to local regulations.

When you move the machine, grasp the side hand holds that are under the scanner.

Use caution when installing or modifying telephone lines. Never touch telephone wires or terminals that are not insulated unless the telephone line has been unplugged at the wall jack. Never install telephone wiring during a lightning storm. Never install a telephone wall jack in a wet location.

This product must be installed near an AC power outlet that is easily accessible. In case of an emergency, you must disconnect the power cord from the AC power outlet to shut off the power completely.

To reduce the risk of shock or fire, use only a No. 26 AWG or larger telecommunication line cord.

CAUTION

Lightning and power surges can damage this product! We recommend that you use a quality surge protection device on the AC power line and on the telephone line, or unplug the cords during a lightning storm.

WARNING

IMPORTANT SAFETY INSTRUCTIONS

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to people, including the following:

1 DO NOT use this product near water, for example, near a bath tub, wash bowl, kitchen sink, washing machine, or in a wet basement or near a swimming pool.

2 Avoid using this product during an electrical storm. There may be a remote risk of electric shock from lightning.

3 DO NOT use this product to report a gas leak in the vicinity of the leak.

4 Use only the power cord provided with the machine.

5 DO NOT dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.

SAVE THESE INSTRUCTIONS

CHAPTER 1 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 problems which may occur in future and determine the troubleshooting procedures, so this chapter covers some sample problems. However, these 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.

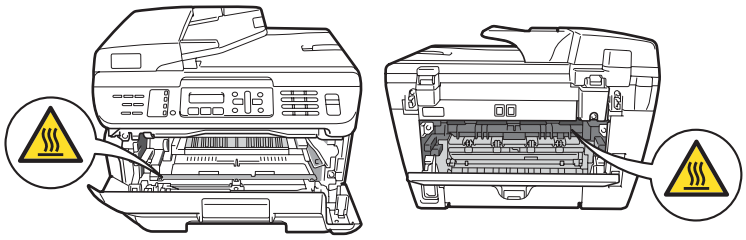
(1) Always turn off the power and unplug the power cable before removing any covers or PCBs, adjusting the machine and so on. If you need to take voltage measurements with the power switched on, take the greatest of care not to receive an electric shock.

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

(3) Electronic devices are sensitive to static build up; make sure that you touch a metal portion of the machine to discharge yourself before accessing the PCBs.
Handle PCBs with care when repairing them.

(4) Ensure all Warnings are followed.

The fuser unit becomes extremely hot during operation. Wait until it has cooled down sufficiently before replacing consumable items. DO NOT remove or damage the caution label located on or around the fuser.



(5) Verify again that the repaired portion works properly.

1.2 Part names

■ Printer part

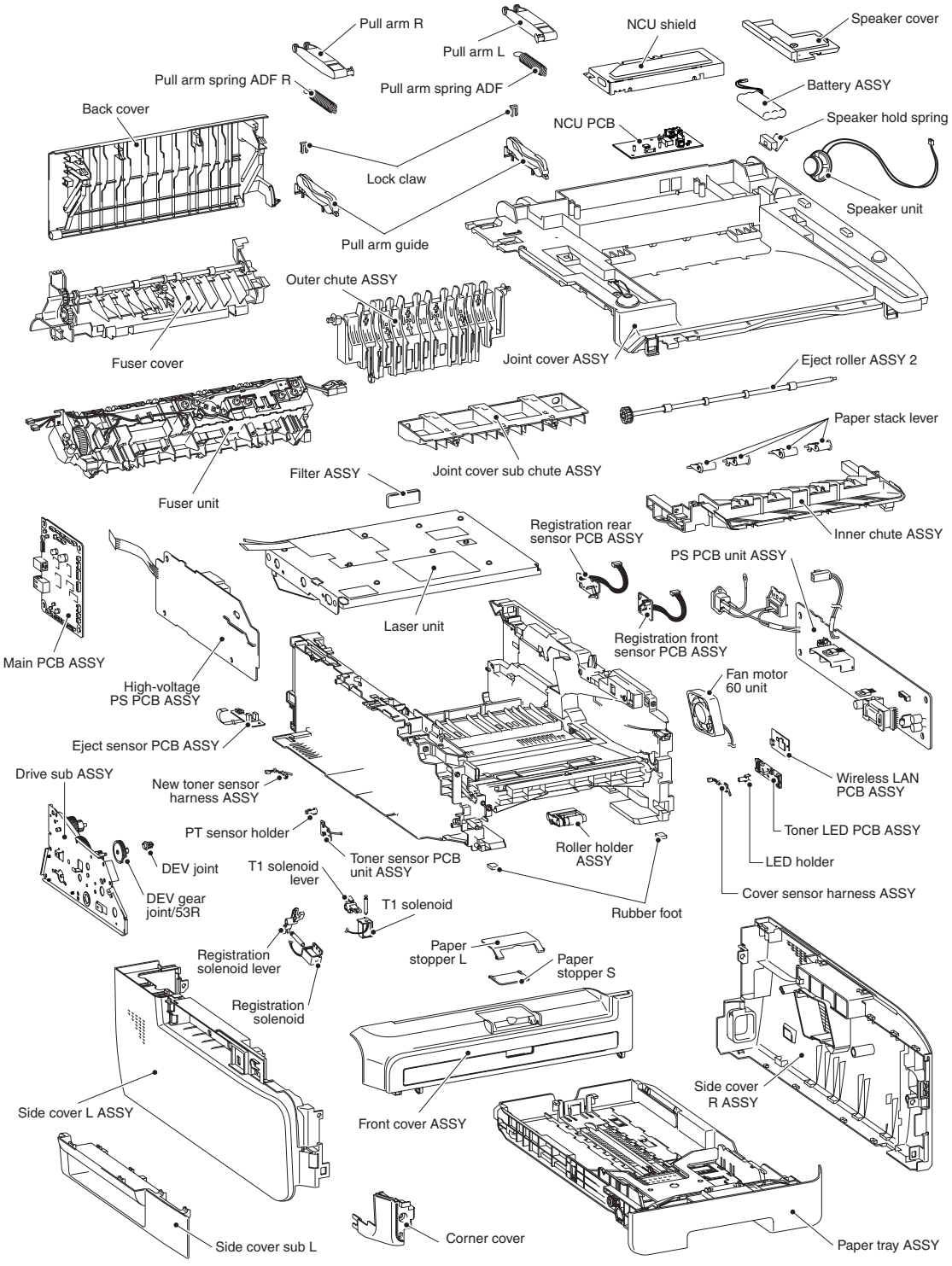


Fig. Ref. 1-1

■ ADF / FB part

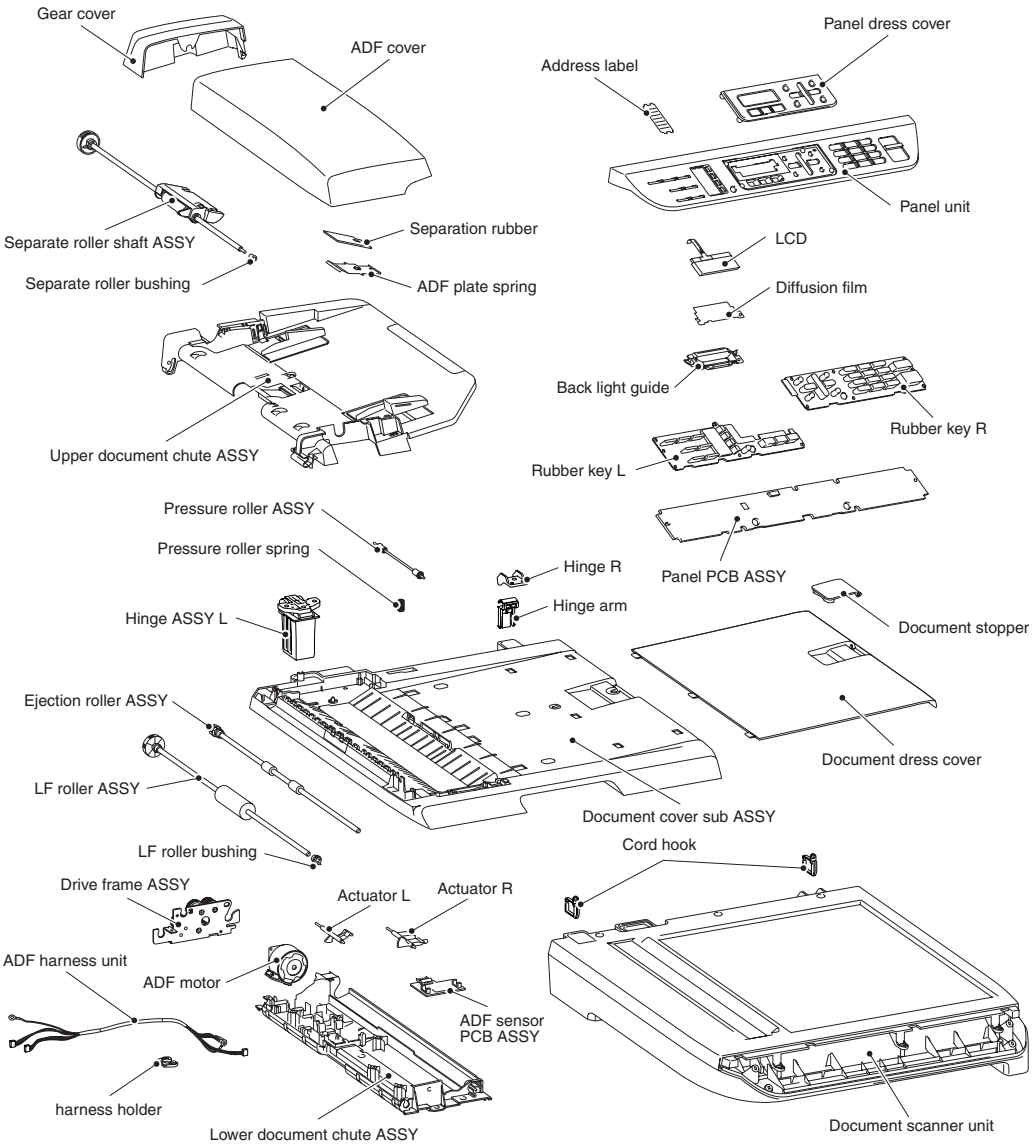


Fig. Ref. 1-2

1.3 Initial Check

Check the following items before attempting to repair the machine.

■ Operating Environment

(1) Put your machine on a flat, stable surface such as a desk that is free of vibration and shocks.

(2) Use the machine in a well-ventilated room; use the machine within the following ranges of temperature and humidity: temperature between 10°C and 32.5°C (50°F to 90.5°F), and the relative humidity is maintained between 20% and 80%.

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

■ 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.
(Refer to "2.6 Paper", Reference 1 of the Service Reference Manual.)

(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.

■ 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 optical surfaces such as the scanner window, lenses, the reflection mirror and the protection glass may cause the print image to be light.
- 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 may cause paper feed failures.

If condensation has occurred, leave the machine for at least 2 hours to allow it to reach room temperature.

If the drum unit is unpacked soon after it is moved from a cold place to a warm room, condensation may occur inside the unit which may cause incorrect images. Instruct the end user to allow the unit to come to room temperature before unpacking it. This will take one or two hours.

(2) Cleaning

Use a soft dry cloth.

CAUTION:

DO NOT use flammable substances or any type of spray to clean the inside or outside of the machine. Doing this may cause a fire or electrical shock.

2. ERROR CAUSE

This machine includes a self-diagnosis function. If the machine does not work normally it judges that an error has occurred (For example: Print Unable 6A), and indicates the corresponding error message on the LCD, which in turn helps the end user to quickly identify the problem.

The error code is possible to display by the Maintenance mode 82 (Refer to "1.4.19 Error Code Indication (Function code 82)" in Chapter 5).

2.1 Error indication

The error codes **shaded** in the table below are recoverable errors if you follow the User Check items.

Error codes	Problem	Refer to:	Error codes	Problem	Refer to:
50	Replacement time of the drum unit	1-7	7B	Main PCB failure	1-13
56	Fuser cover opened	1-8	7D	Dirt on drum unit	1-14
58	Fuser unit failure (Stand ready in the given time)	1-8	7F	Fax paper setting mismatch	1-14
59	Fuser unit failure	1-8	80	Fax paper size is small	1-14
5A	HVPS PCB ASSY failure	1-9	84	Paper jam in rear of the machine	1-16
5B	New toner detecting lever malfunction	1-9	88	Paper jam inside the machine	1-16
63	Toner cartridge is at the end of life.	1-10	8A	Paper jam in Tray 1 (T1)	1-17
67	Toner of the toner cartridge is low	1-7	8D	Paper jam near paper eject tray	1-17
68	Fuser unit failure	1-11	9F	Paper empty	1-18
69	Fuser unit failure	1-11	A1	Front cover open	1-18
6A	Fuser unit failure	1-11	A2	Document is too long.	1-18
6B	Fuser unit failure	1-11	A3	Document rear sensor is not turned on when feeding the document.	1-19
6C	Fuser unit failure	1-11	A5	Fax scanning error (First warning only)	1-19
6D	Fuser unit failure	1-11	A6	Fax scanning error (The second warning that the same error with A5 occurs again)	1-19
6E	Fuser unit failure	1-11	AD	DMA transfer error	1-19
6F	Fuser unit failure	1-11	AF	FB unit home position failure	1-20
71	Polygon motor failure	1-12	B0	Harness for scanning is not connected correctly.	1-20
72	BD beam detecting sensor malfunction	1-12	B7	Detection error of scanner	1-20
75	Machine cooling down inside	1-7	B9	Scanning light adjustment error.	1-20
76	Fuser unit failure	1-12	BB	White level data error	1-21
77	Fuser unit failure	1-12	E6	NVRAM error on main PCB	1-21
78	Fuser unit failure	1-13	EC	Fan performance malfunction	1-21
79	No detection of the internal temperature thermistor	1-13	F8	Battery connection failure	1-21
7A	No detection of main motor lock signal	1-13	F9	Maintenance mode 74 Non-decision	1-22

2.2 Error Code Cause and Remedy

2.2.1 Recoverable User Check Errors

These errors are recoverable by following the message indicated on the LCD or following the items indicated in User Check.

■ Error code 67

```
Toner Low
Prepare New Toner Cartridge
```

The toner of the toner cartridge is low. (The toner sensor delects the nearly empty.)

User Check

- Prepare a new toner cartridge. If the toner is empty, Replace it.

■ Error code 75

```
Cooling Down
Wait for a while
```

The machine is cooling down inside for protection.
The machine indicates "Cooling Down" in one of the conditions below.

(1) The temperature inside the machine is too high.

(2) Both ends of the heat roller are at different temperatures.

(3) The paper media is replaced with different Paper size media.

User Check

- After having passed for a while with having turned the power supply on.

2.2.2 Service Call Error

Check the User Check items first. If the same problem occurs follow each procedure in the order of the number described in the Step column in the table below.

■ Error code 50

```
Drum End Soon
```

Replacement time of the drum unit. (The drum counter reached the upper limit.)

User Check

- Replace the drum unit with a new one.

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

■ Error code 56

```
Cover is Open
Close the Fuser Cover.
```

Fuser cover opened

User Check

- Check if the Fuser cover is closed correctly.

Step	Cause	Remedy
1	Harness connection failure of back cover switch ASSY	Check the harness connection of the back cover switch ASSY and reconnect it.
2	Eject actuator failure	Re-assemble the eject actuator
3	Eject sensor PCB ASSY failure	Replace the eject sensor PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

■ Error code 58

```
Fuser Error
Turn the power off, then on again. Leave the machine for 15 min.
```

Error code 59

```
Self-Diagnostic
Will Automatically Restart within 15 minutes.
```

If the same error is detected again 15 minutes later, the message below is indicated.

```
Print Unable 6A
See Troubleshooting and routine maintenance chapter in User's Guide.
```

Fuser unit failure *It occurs with either of 68, 69, 6A, 6B, 6C, 6D, 6E, 6F, 76 and 78.

Step	Cause	Remedy
1	Harness connection failure between fuser unit and eject sensor PCB	Check the harness connection between the fuser unit and eject sensor PCB, and reconnect it.
2	Fuser unit failure	Replace the fuser unit.
3	LVPS PCB failure	Replace the LVPS PCB unit.
4	Eject sensor PCB ASSY failure	Replace the eject sensor PCB ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

■ Error code 5A

```
Print Unable 5A
See Troubleshooting and routine maintenance chapter in User's Guide.
```

HVPS PCB failure (Developing bias voltage failure)

Step	Cause	Remedy
1	HVPS PCB ASSY harness connection failure	Check the harness connection between the HVPS PCB and main PCB. Then, reconnect them.
2	HVPS PCB failure	Replace the HVPS PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

■ Error code 5B

```
Cartridge Error
Put the Black Toner Cartridge back in.
```

New toner detection lever malfunction

User Check

- Check if the toner cartridge is attached.

Step	Cause	Remedy
1	New toner detection switch harness connection failure	Check the harness connection of the new toner detection switch. Then, reconnect it.
2	New toner detection switch failure	Replace the new toner harness ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

■ Error code 63

```
Toner Life End
Replace Toner Cartridge.
```

Toner cartridge is at the end of its life.
(The toner sensor detects the nearly empty, or the drum counter reached the upper limit.)

User Check

- Gently shake the toner cartridge from side to side and install it again.
- Replace the toner cartridge.

Step	Cause	Remedy
1	Harness connection failure of new toner sensor harness ASSY.	Check the sensor performance following the procedure described in "Maintenance mode 32". If any problem occurs, check the harness connection of the new toner sensor harness ASSY, then reconnect it.
2	Harness connection failure of toner sensor PCB unit ASSY.	Check the sensor performance following the procedure described in "Maintenance mode 32". If any problem occurs, check the harness connection of the toner sensor PCB unit ASSY, then reconnect it.
3	New toner sensor harness ASSY failure (Toner empty)	Replace the new toner sensor harness ASSY.
4	Toner sensor PCB unit ASSY failure.	Replace the toner sensor PCB unit ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

■ Error code 68

```
Print Unable 68
See Troubleshooting and routine maintenance chapter in User's Guide.
```

Fuser unit failure (The side thermistor detects higher temperature than the specified value.)

Error code 69

```
Print Unable 69
See Troubleshooting and routine maintenance chapter in User's Guide.
```

Fuser unit failure (The side thermistor detects lower temperature than the specified value.)

Error code 6A

```
Print Unable 6A
See Troubleshooting and routine maintenance chapter in User's Guide.
```

Fuser unit failure (The side thermistor does not detect 60°C within the specified time.)

Error code 6B

```
Print Unable 6B
See Troubleshooting and routine maintenance chapter in User's Guide.
```

Fuser unit failure (The center thermistor does not detect 100°C within the specified time.)

Error code 6C

```
Print Unable 6C
See Troubleshooting and routine maintenance chapter in User's Guide.
```

Fuser unit failure (The center thermistor detects higher temperature than the specified value.)

Error code 6D

```
Print Unable 6D
See Troubleshooting and routine maintenance chapter in User's Guide.
```

Fuser unit failure (The center thermistor detects lower temperature than the specified value.)

Error code 6E

```
Print Unable 6E
See Troubleshooting and routine maintenance chapter in User's Guide.
```

Fuser unit failure (The center thermistor does not detect temperature rising within the specified time.)

Error code 6F

```
Print Unable 6F
See Troubleshooting and routine maintenance chapter in User's Guide.
```

Fuser unit failure (The center and side thermistors detect extremely high temperature.)

Step	Cause	Remedy
1	Fuser unit harness connection failure	Check the harness connection of the fuser unit and reconnect it.
2	Fuser unit failure	Replace the fuser unit.
3	LVPS PCB unit failure	Replace the LVPS PCB unit.
4	Main PCB failure	Replace the main PCB ASSY.

■ Error code 71

```
Print Unable 71
See Troubleshooting and routine maintenance chapter in User's Guide.
```

Laser unit Polygon mirror motor failure
(Cannot detect the period signal of the polygon mirror motor.)

Error code 72

```
Print Unable 72
See Troubleshooting and routine maintenance chapter in User's Guide.
```

BD beam detect sensor malfunction

Step	Cause	Remedy
1	Laser unit harness connection failure	Check the two harness connections of the laser unit and reconnect them.
2	Laser unit failure	Replace the laser unit.
3	Main PCB failure	Replace the main PCB ASSY.

■ Error code 76

```
Print Unable 76
See Troubleshooting and routine maintenance chapter in User's Guide.
```

Fuser unit failure (The center thermistor detects rapidly rising temperature.)

Step	Cause	Remedy
1	Fuser unit harness connection failure	Check the harness connection of the fuser unit and reconnect it.
2	Fuser unit failure	Replace the fuser unit.

■ Error code 77

```
Print Unable 77
See Troubleshooting and routine maintenance chapter in User's Guide.
```

Fuser error code failure (The error history of the fuser unit is deleted.)

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

■ Error code 78

```
Print Unable 78
See Troubleshooting and routine maintenance chapter in User's Guide.
```

Fuser unit failure (The temperature sensor of the fuser unit is broken.)

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

■ Error code 79

```
Print Unable 79
See Troubleshooting and routine maintenance chapter in User's Guide.
```

No detection of the internal temperature thermistor.

Step	Cause	Remedy
1	Harness connection failure of internal temperature thermistor	Check the harness connection of the internal temperature thermistor, and reconnect it.
2	Internal temperature thermistor failure	Replace the internal temperature thermistor.
3	Main PCB failure	Replace the main PCB ASSY.

■ Error code 7A

```
Print Unable 7A
See Troubleshooting and routine maintenance chapter in User's Guide.
```

No detection of the main motor lock signal.

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

■ Error code 7B

```
Print Unable 7B
See Troubleshooting and routine maintenance chapter in User's Guide.
```

Main PCB failure

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

■ Error code 7D

```
Drum Error
Open the front cover, then clean the corona wire of drum unit
according to the label.
```

Dirt on drum unit

User Check

- Clean the corona wire of the drum unit.
- Replace the drum unit with a new one.

Step	Cause	Remedy
1	Dirt or dust on drum unit electrodes	Clean the electrodes on the drum unit. (Refer to Fig. 1-1.)
2	HVPS PCB failure	Replace the HVPS PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

■ Error code 7F

```
Size mismatch
Fax received. Set correct paper size in menu.
```

Fax paper setting mismatch (The setting paper becomes besides the A4/Letter/Legal/Folio.)

User Check

- Set the A4/Letter/Legal/Folio using the paper size setting in menu.

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

■ Error code 80

```
Size mismatch
Reload correct paper, then press Start.
```

Fax paper size is incorrect
(The registration rear sensor detected the paper that is smaller than the letter size.)

User Check

- Set the paper of A4 or LETTER-size on the paper tray.

Step	Cause	Remedy
1	Registration front actuator catching in some position	Re-assemble the registration front actuator.
2	Main PCB failure	Replace the main PCB ASSY.

■ Electrodes location on the drum unit

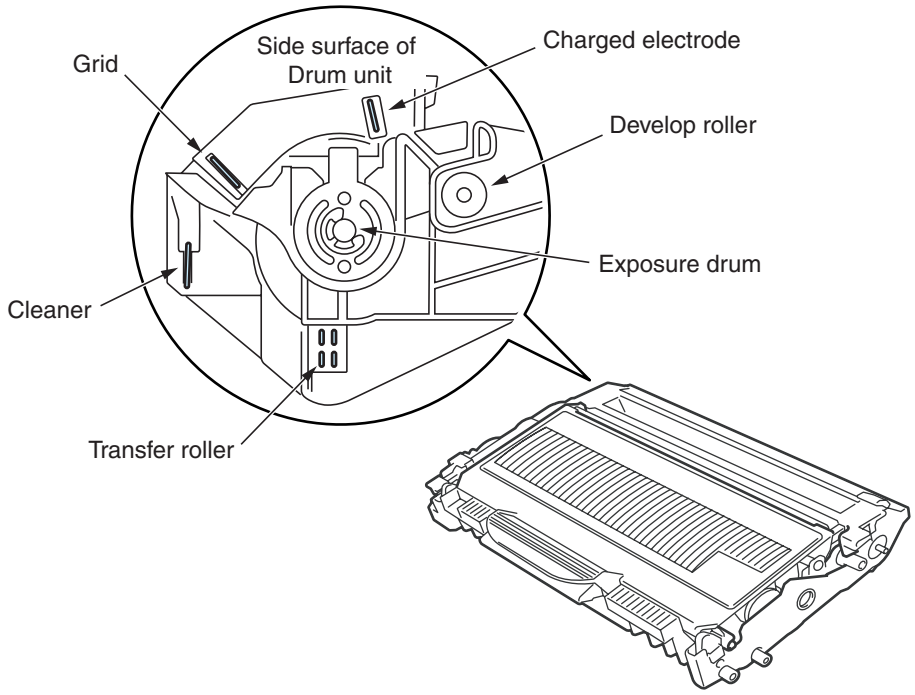


Fig. 1-1

■ Electrodes location on the machine

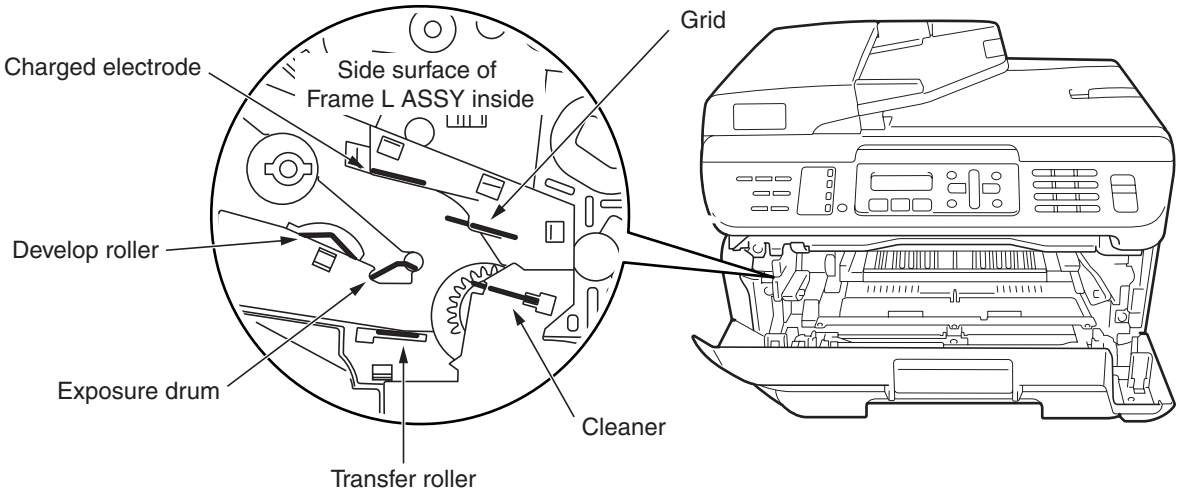


Fig. 1-2

■ Error code 84 (Jam Rear)

```
Jam Rear
Open the Back Cover and remove the jammed paper.
```

Paper jam in the rear of the machine (It is detects by the eject sensor)

Error code 88 (Jam Inside)

```
Jam Inside
Open the Front Cover, pull out the Drum Unit completely and remove
the jammed paper.
```

Paper jam inside the machine (It is detects by the registration rear sensor)

User Check

- Check if the paper is jammed. If there is any jammed paper, remove it.

Step	Cause	Remedy
1	Harness connection failure of registration front sensor PCB ASSY, registration rear sensor PCB ASSY or paper eject sensor PCB ASSY	Check the harness connections of the registration front sensor PCB ASSY, registration rear sensor PCB ASSY and paper eject sensor PCB ASSY, and reconnect them.
2	Registration front actuator, registration rear actuator or paper eject actuator not operating smoothly or catching in some position.	Ensure smooth operation of the registration front actuator, registration rear actuator or paper eject actuator and ensure they are not catching in any positions.
3	Paper eject sensor PCB failure	Check the sensor performance following the procedure described in "Maintenance mode 32". If any problem occurs, replace the eject sensor PCB ASSY.
4	Registration front sensor PCB failure	Check the sensor performance following the procedure described in "Maintenance mode 32". If any problem occurs, replace the registration front sensor PCB ASSY.
5	Registration rear sensor PCB failure	Check the sensor performance following the procedure described in "Maintenance mode 32". If any problem occurs, replace the registration rear sensor PCB ASSY.
6	Registration ground spring failure	Re-assemble the registration ground spring. (Refer to Fig. 1-3.)
7	Main PCB failure	Replace the main PCB ASSY.

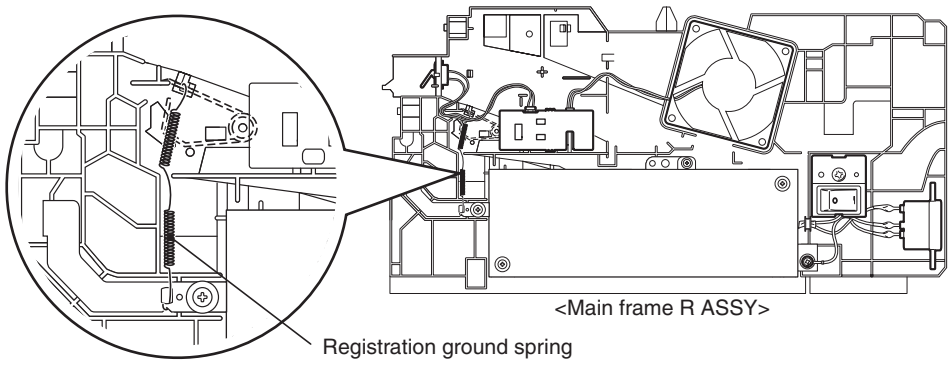


Fig. 1-3

■ Error code 8A

```
Jam Tray
Remove the jammed paper from Tray.
```

Paper jam in Tray 1 (T1) (It is detects by the registration front sensor)

User Check

- Check if the paper is jammed in the tray. If jammed, remove it.
- Adjust the paper guide corresponding to the paper size.
- Check if too much paper is loaded in the tray.

Step	Cause	Remedy
1	Harness connection failure of registration front sensor PCB ASSY	Check the harness connection of the registration front sensor PCB ASSY in the appropriate tray, and reconnect it.
2	Paper feed roller worn out	Replace the paper feed roller.
3	Registration front sensor PCB failure	Check the sensor performance following the procedure described in "Maintenance mode 32". If any problem occurs, replace the registration front sensor PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

■ Error code 8D

```
Cover is open
Open the Back cover and remove the jammed paper, or close the
Fuser Cover.
```

Paper jam near paper eject tray (When power on, it is detects by the eject sensor.)

User Check

- Remove the jammed paper near the paper eject tray or the back cover.
- Close the fuser cover.

Step	Cause	Remedy
1	Paper eject actuator not operating smoothly catching in some position.	Re-assemble the paper eject actuator. Ensure the paper eject sensor operates smoothly.
2	Eject sensor PCB ASSY failure	Replace the eject sensor PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

■ Error code 9F

```
No paper
Reload paper, then press start.
```

Paper empty (It is detects by the registration front sensor)

User Check

- Replenish the paper in the paper tray.

Step	Cause	Remedy
1	Registration front actuator catching in some position	Re-assemble the registration front actuator.
2	Registration front sensor PCB harness connection failure	Check the harness connection of the registration front sensor PCB and reconnect it.
3	Registration front sensor PCB failure	Replace the registration front sensor PCB.
4	Main PCB failure	Replace the main PCB ASSY.

■ Error code A1

```
Cover is open
Close the Front Cover.
```

Front cover open

User Check

- Close the front cover.

Step	Cause	Remedy
1	Harness connection failure of cover sensor harness ASSY.	Check the harness connection of the cover sensor harness ASSY, and reconnect it.
2	Cover sensor harness ASSY failure	Replace the cover sensor harness ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

■ Error code A2

```
Document Jam.
Clear the scanner jam, then press the Stop Key.
```

The document is too long. (During scanning, 90 cm or longer of a document is detected.)

User Check

- Check if the document is jammed in the ADF. If it is jammed, remove it.

Step	Cause	Remedy
1	Document rear actuator not operating smoothly or catching in some position.	Ensure smooth operation and that there is no catching of document rear actuator.

■ Error code A3

```
Document Jam.
Clear the scanner jam, then press the Stop Key.
```

Document rear sensor is not turned on when feeding the document.

User Check

- Check if the document is jammed in the ADF. If it is jammed, remove it.

Step	Cause	Remedy
1	Document rear actuator not operating smoothly or catching in some position.	Ensure smooth operation and that there is no catching of document rear actuator.
2	Document rear sensor failure.	Replace the document rear sensor.
3	ADF motor failure	Replace the ADF motor.

■ Error code A5

```
Scan Unable A5
Remove the original document. Turn the power off, then on again.
```

Fax scanning error (First warning only)

Step	Cause	Remedy
1	Scanning failure	Turn the power switch off and on. Then, try scanning again.

■ Error code A6

```
Scan Unable A6
Remove the original document. Turn the power off, then on again.
```

Fax scanning error (After the A5 error occurs, the same problem occurs again even after turning the power off and on.)

Step	Cause	Remedy
1	FB unit failure	Replace the FB unit.
2	Main PCB failure	Replace the main PCB ASSY.

■ Error code AD

```
Scan Unable AD
Remove the original document, Turn the power off, then on again.
```

DMA transfer error

Step	Cause	Remedy
1	FB unit failure	Replace the FB unit.
2	Main PCB failure	Replace the main PCB ASSY

■ Error code AF

```
Scan Unable AF
Remove the original document. Turn the power off, then on again.
```

FB unit home position failure

Step	Cause	Remedy
1	FB unit failure	Replace the FB unit.
2	Main PCB failure	Replace the main PCB ASSY.

■ Error code B0

```
Scanner Error
```

Harness for scanning is not connected correctly.
* This error is indicated on the LCD in the maintenance mode.

Step	Cause	Remedy
1	Scanner harness not connected correctly.	Reconnect the scanner harness correctly.
2	Scanner harness broken	Replace the FB unit.
3	Main PCB failure	Replace the main PCB ASSY.

■ Error code B7

```
Scanner Error
```

Detection error of scanner (Scanning reference voltage adjustment malfunction.)
* This error is indicated on the LCD in the maintenance mode.

Step	Cause	Remedy
1	FB unit failure	Replace the FB unit.
2	Main PCB failure	Replace the main PCB ASSY.

■ Error code B9

```
Scanner Error
```

Scanning light adjustment error is detected.
* This error is indicated on the LCD in the maintenance mode.

Step	Cause	Remedy
1	FB unit failure	Replace the FB unit.
2	Main PCB failure	Replace the main PCB ASSY.

■ Error code BB

```
Scanner Error
```

White level data error
* This error is indicated on the LCD in the maintenance mode.

Step	Cause	Remedy
1	FB unit failure	Replace the FB unit.
2	Main PCB failure	Replace the main PCB ASSY.

■ Error code E6

```
Init Unable E6
See Troubleshooting and routine maintenance chapter in User's Guide.
```

NVRAM error on main PCB

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

■ Error code EC

```
Print Unable EC
See Troubleshooting and routine maintenance chapter in User's Guide.
```

Fan performance malfunction

Step	Cause	Remedy
1	Harness connection failure of fan motor	Check the harness connection of the fan motor, and reconnect it.
2	Fan motor failure	Replace the fan motor.
3	Main PCB failure	Replace the main PCB ASSY.

■ Error code F8

```
Machine Error F8
```

Battery connection failure

Step	Cause	Remedy
1	Battery harness connection failure	Reconnect the battery harness.
2	Battery exhausted	Replace the battery.
3	Main PCB failure	Replace the main PCB ASSY.

■ Error code F9

```
Machine Error F9
```

Maintenance mode 74 Non-decision (Inputting omission of the customizing code.)

Step	Cause	Remedy
1	Turn the power off, when the Maintenance mode 74 is in progress.	Implement the Maintenance mode 74 again.

3. 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.

3.1 No Feeding

Step	Cause	Check	Result	Remedy
1	Edge actuator catching in some position	Does the edge actuator move smoothly?	No	Re-assemble the edge actuator and ensure smooth operation.
2	Roller holder ASSY catching in some position	Does the roller holder ASSY move smoothly?	Yes	Re-assemble the roller holder ASSY and ensure smooth operation.
3	Registration front sensor failure	Is the problem solved after replacing the registration front sensor PCB ASSY?	Yes	Replace the registration front sensor PCB ASSY.
4	Paper feeding kit failure	Is the surface of the separation pad or the pickup roller dirty or worn out?	Yes	1) Clean the surface of the separation pad or pickup roller. 2) Replace the separation pad or pickup roller.
5	Pressure plate gear damage	Is the pressure plate gear damaged?	Yes	Replace the paper tray.
6	T1 solenoid failure	Does the T1 solenoid work correctly?	No	Replace the T1 solenoid
7	T1 solenoid Circuit of the high-voltage power supply PCB broken	Is the problem solved after replacing the high-voltage power supply PCB ASSY?	Yes	Replace the high-voltage power supply PCB ASSY.
8	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.
9	Main motor failure	Is the problem solved after replacing the drive sub ASSY?	Yes	Replace the drive sub ASSY.

3.2 Double Feeding

Step	Cause	Check	Result	Remedy
1	Paper feeding kit is abrasion	Is the surface of the separation pad worn out?	Yes	Replace the paper feeding kit.

3.3 Paper Jam

■ Paper jam in the paper tray and front cover

Step	Cause	Check	Result	Remedy
1	Registration front actuator/edge actuator catching in some position	Does the registration front actuator/edge actuator move smoothly?	No	Re-assemble the registration front actuator/ edge actuator and ensure smooth operation.
2	Registration front sensor PCB (registration front actuator/edge actuator failure)	Does the registration front sensor move smoothly? (Check it following the procedure described in "Operational Check of Sensors (Function code 32)" in Chapter 5)	No	Replace the registration front sensor PCB ASSY.
3	Registration solenoid failure	Is the problem solved after replacing the registration solenoid?	Yes	Replace the registration solenoid.
4	Toner LED PCB ASSY failure	Is the problem solved after replacing the toner LED PCB ASSY?	Yes	Replace the toner LED PCB ASSY.
5	High-voltage power supply PCB failure	Is the problem solved after replacing the High-voltage power supply PCB ASSY?	Yes	Replace the High-voltage power supply PCB ASSY.
6	Registration ground spring loose	Is the registration ground spring fitted correctly?	No	Fit the registration ground spring correctly. (Refer to Fig. 1-3.)
7	Main PCB failure	Is the problem solved after replacing the Main PCB ASSY?	Yes	Replace the Main PCB ASSY.

■ Paper jam in the back cover and paper eject section

Step	Cause	Check	Result	Remedy
1	Foreign object around fuser unit	Is there a foreign object around the fuser unit?	Yes	Remove the foreign object.
2	Paper eject actuator failure	Does the paper eject actuator move smoothly? Is it damaged?	No	Replace the paper eject actuator.
3	Fuser cover ASSY loose	Is the fuser cover ASSY fitted correctly?	No	Fit the fuser cover ASSY correctly.
4	Outer chute ASSY loose	Is the outer chute ASSY fitted correctly?	No	Fit the outer chute ASSY fitted correctly.
5	Eject roller 2 malfunction	Is each pinch roller of the inner chute ASSY attached to each eject roller 2 of top cover ASSY properly?	No	Replace the inner chute ASSY.
6	Paper eject sensor PCB failure	Is the problem solved after replacing the paper eject sensor PCB?	Yes	Replace the paper eject sensor PCB ASSY.

3.4 Dirt on Paper

User Check

- Check if the paper is loaded into the paper tray correctly.
- Turn over the stack of paper in the paper tray, or try rotating the paper 180° in the paper tray.

Step	Cause	Check	Result	Remedy
1	Fuser unit dirty	Is there dirt around the entrance of the fuser unit?	Yes	Clean the entrance of the fuser unit.
		Is the pressure roller ASSY dirty?	Yes	Clean the pressure roller ASSY.

3.5 Wrinkles or creases

User Check

- Check if the paper is loaded into the paper tray correctly.
- Turn over the stack of paper in the paper tray, or try rotating the paper 180° in the paper tray.

Step	Cause	Check	Result	Remedy
1	Fuser unit dirty	Is there dirt around the entrance of the fuser unit?	Yes	Clean the entrance of the fuser unit.
2	Fuser unit failure	Is the problem solved if new fuser unit is replaced?	Yes	Replace the fuser unit.

3.6 Waves in the paper / folds in the paper at the eject roller 2

User Check

- Check that the problem is solved if new paper is used.

Step	Cause	Check	Result	Remedy
1	Foreign object around eject roller 2	Is there a foreign object around the eject roller 2?	Yes	Remove the foreign object.
2	Eject roller 2 failure	Is the problem solved after replacing the new eject roller 2?	Yes	Replace the top cover ASSY.

3.7 Curl in the paper

Step	Cause	Check	Result	Remedy
1	Fuser unit pressure is high	Is the problem solved by changing the position of the pressure roller?	Yes	Change the position of the pressure roller.

(1) Turn the Nip release lever of right and left to the direction of the arrow.

(2) Hold and turn the PR stopper plate of right and left.

(3) Print it again, and check that the curl in the paper occurs.

(4) When there seems to be still the curl, replace the position of the pressure roller again.

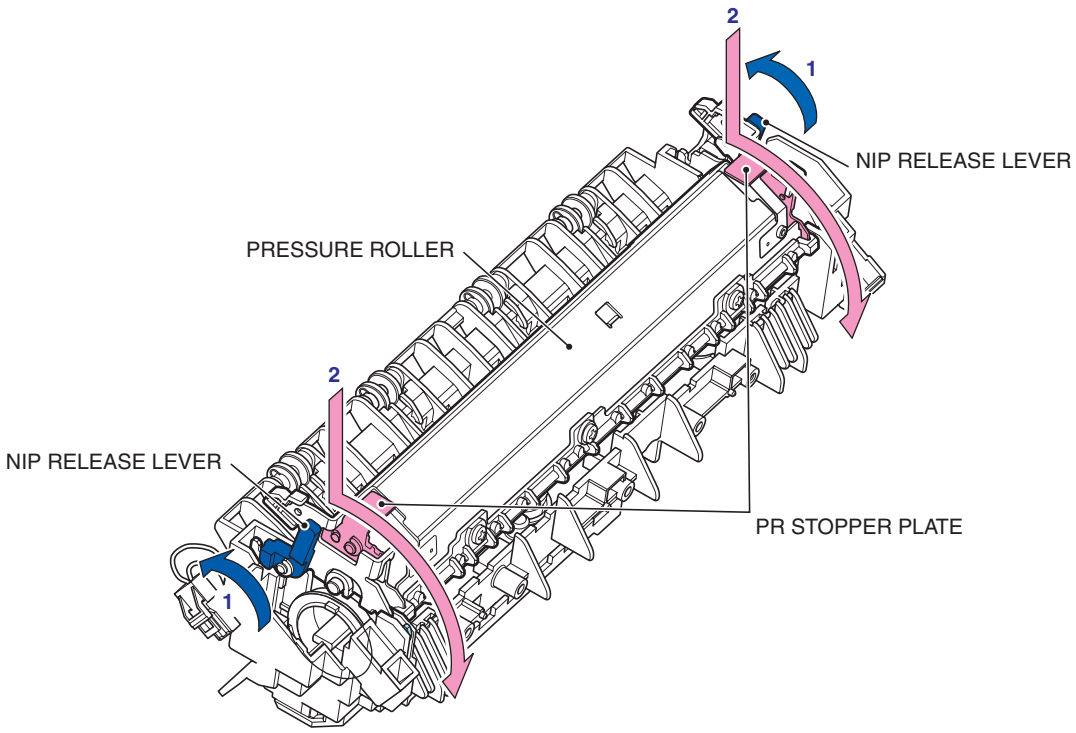


Fig. 1-4

4. TROUBLESHOOTING OF DOCUMENT FEEDING

Problems related to document 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.

4.1 No Feeding

User Check

- Check if the document is inserted correctly to the depths of the ADF unit. (If the document is inserted, the LCD indication is changed.)

Step	Cause	Check	Result	Remedy
1	Document front actuator not operating smoothly or catching	Does document front actuator move smoothly?	No	Re-assemble document front actuator.
2	Foreign object around paper feed roller	Is there a foreign object around the paper feed roller?	Yes	Remove the foreign object.
3	Paper feed roller failure	Is the surface of the paper feed roller worn out?	Yes	Replace the separate roller shaft ASSY.
4	ADF sensor PCB	Is the problem solved by replacing the ADF sensor PCB?	Yes	Replace the ADF sensor PCB.
5	ADF motor failure	Is the problem solved by replacing the ADF motor?	Yes	Replace the ADF motor.
6	Drive frame ASSY failure	Is the problem solved by replacing the drive frame ASSY?	Yes	Replace the drive frame ASSY.
7	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

4.2 Double feeding

Step	Cause	Check	Result	Remedy
1	Separation rubber failure	Is the surface of the separation rubber worn out?	Yes	Replace the separation rubber.

4.3 Paper Jam

User Check

- Check if the paper is loaded into the ADF tray correctly.
- Check if do not use the crimpy or torn paper.

Step	Cause	Check	Result	Remedy
1	Document rear actuator not operating smoothly or catching	Does document rear actuator move smoothly?	No	Re-assemble the document rear actuator.
2	Foreign object around feed roller / paper eject roller actuator	Is there a foreign object around the feed roller / paper eject roller actuator?	Yes	Remove the foreign object.
3	Pinch roller of feed roller failure	Is pinch roller of feed roller remove?	Yes	Re-assemble the pinch roller of the feed roller.
4	Pinch roller of paper eject roller failure	Is pinch roller of paper eject roller remove?	Yes	Re-assemble the pinch roller of the paper eject roller.
5	Pressure roller film unstick	Does pressure roller film unstick?	Yes	Replace the pressure roller film.
6	ADF sensor PCB	Is the problem solved by replacing the ADF sensor PCB?	Yes	Replace the ADF sensor PCB.
7	ADF motor failure	Is the problem solved by replacing the ADF motor?	Yes	Replace the ADF motor.
8	Drive frame ASSY failure	Is the problem solved by replacing the drive frame ASSY?	Yes	Replace the drive frame ASSY.
9	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

5. IMAGE DEFECT TROUBLESHOOTING (Defect Of the Print)

5.1 Image Defect Examples

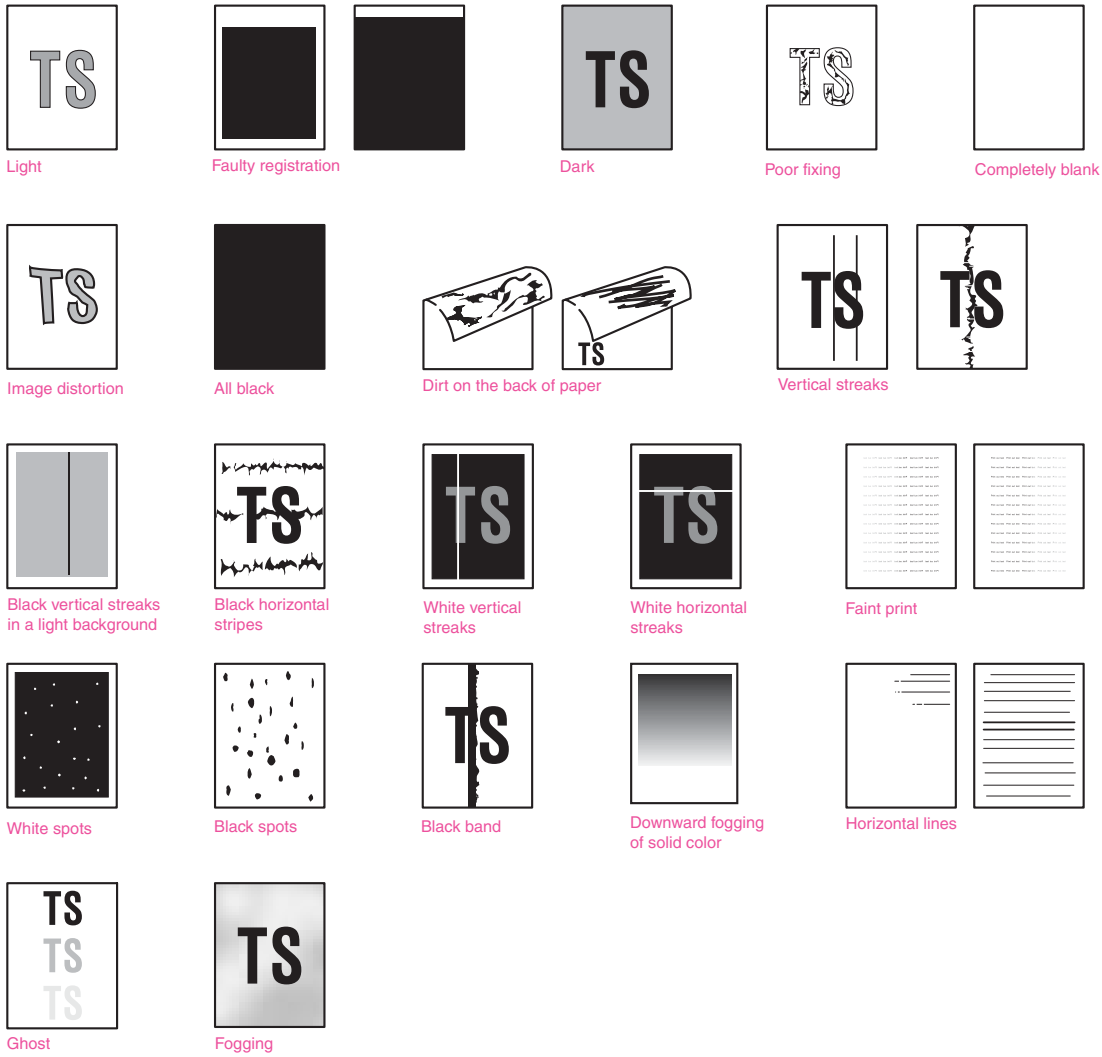


Fig. 1-5

CAUTION:

The image defect at the copy might have the cause in the scanning.
When the failure does not reproduce by print the test pattern “MAINTENANCE 09” or PC print, refer to "6. TROUBLESHOOTING OF SCANNIG".

5.2 Diameter of Rollers

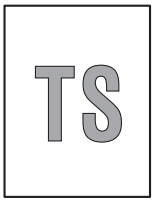
Image defects which appear periodically may be caused by failure of a roller. Specify the cause referring to the diameter of the rollers or pitch which appears in the image as shown in the table below.

No.	Parts name	Diameter	The pitch which appears in the image
1	Develop roller	Ø20.0 mm	40.6 mm
2	Exposure drum	Ø24.0 mm	75.0 mm
3	Heat roller in the fuser unit	Ø25.0 mm	78.5 mm
4	Pressure roller ASSY in the fuser unit	Ø25.0 mm	78.5 mm

5.3 Troubleshooting Image Defect

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

■ Light



User Check

- Check the machine's environment. Low temperature and low humidity conditions can cause this problem.
- If the whole page is light, toner save mode may be on.
- Replace the toner cartridge or drum unit with a new one.

Step	Cause	Check	Result	Remedy
1	Dirt on exposure drum electrode	Are the electrodes of the drum unit and machine body dirty?	Yes	Clean both electrodes. (Refer to Fig. 1-1, Fig. 1-2.)
2	Dirt on scanner windows of the laser unit	Is the scanner windows of the laser unit dirty?	Yes	Wipe the dirt off with a soft, clean, lint free cloth. (Refer to Fig. 1-6.)
3	Toner sensor failure	After replacing the toner cartridge with a new one, does the same problem occur even after printing several pages?	Yes	Replace the toner cartridge.
4		Does the machine start printing even after removing the toner cartridge from the drum unit?	Yes	Clean the toner sensor. (receiving light side) Check the harness connection of the toner LED PCB ASSY. (luminescence side) Replace the toner sensor PCB ASSY or toner LED PCB ASSY.
5	Between the HVPS PCB/Main PCB connection failure	Is the harness of the HVPS PCB ASSY and main PCB ASSY connected correctly?	No	Reconnect the harness of the HVPS PCB ASSY and main PCB ASSY.
6	HVPS PCB failure	Is the problem solved after replacing the HVPS PCB ASSY?	Yes	Replace the HVPS PCB ASSY.
7	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.
8	Laser unit failure	Is the problem solved after replacing the laser unit?	Yes	Replace the laser unit.

<Location of the laser beam window>

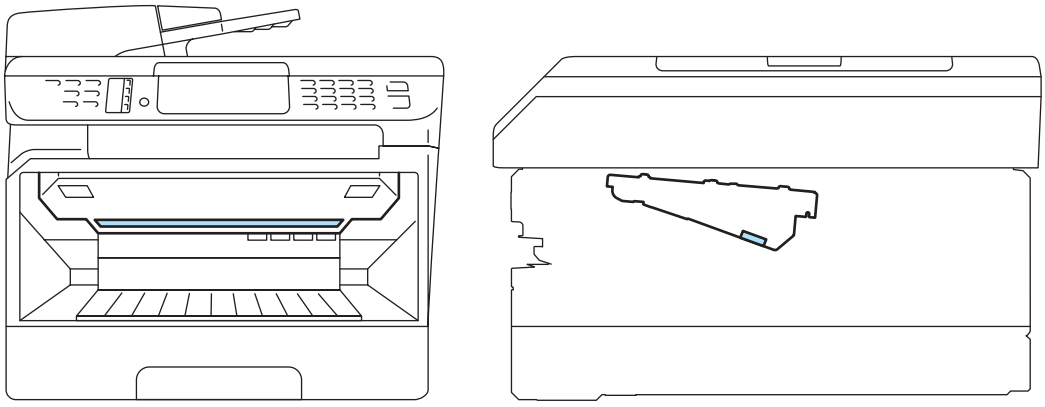
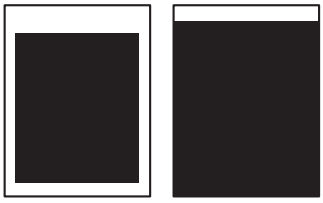


Fig. 1-6

■ Faulty registration



User Check

- Check that the appropriate media type is selected in the printer driver.

Step	Cause	Check	Result	Remedy
1	Registration rear actuator catching in some position	Does the registration rear actuator move smoothly?	No	Re-assemble the registration rear actuator and ensure smooth operation.

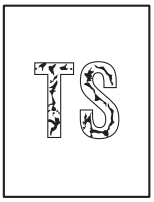
■ Dark

User Check

- Check the machine's environment. High temperature and high humidity conditions can cause this problem.
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.

Step	Cause	Check	Result	Remedy
1	The developing bias voltage failure	Is the problem solved after resetting the developing bias counter?	Yes	Reset the developing bias counter. (Refer to "2.2 Resetting the developing bias voltage counter" in Chapter 5)
2	HVPS PCB failure	Is the problem solved after replacing the HVPS PCB ASSY?	Yes	Replace the HVPS PCB ASSY.
3	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

■ Poor fixing

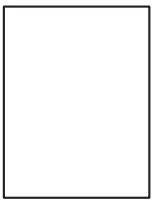


User Check

- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.

Step	Cause	Check	Result	Remedy
1	Fuser unit pressure is high	Is the problem solved after replacing the position of the pressure roller?	Yes	Replace the position of the pressure roller. (Refer to Fig. 1-4.)
2	Fuser unit failure	Is the problem solved after replacing the fuser unit?	Yes	Replace the fuser unit.
3	LVPS PCB failure	Is the problem solved after replacing the LVPS PCB unit?	Yes	Replace the LVPS PCB unit.
4	HVPS PCB failure	Is the problem solved after replacing the HVPS PCB ASSY?	Yes	Replace the HVPS PCB ASSY.
5	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

■ Completely blank

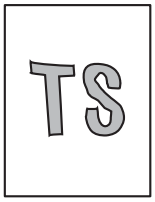


User Check

- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.

Step	Cause	Check	Result	Remedy
1	Developing bias voltage conduction failure	Are the electrodes on the drum unit and machine body dirty?	Yes	Clean both electrodes. (Refer to Fig. 1-1, Fig. 1-2.)
2	Scanner harness of the laser unit connection failure	Is the scanner harness of the laser unit connected securely?	No	Reconnect the scanner harness of the laser unit.
3	Laser unit failure	Is the problem solved after replacing the laser unit?	Yes	Replace the laser unit.
4	HVPS PCB failure	Is the problem solved after replacing the HVPS PCB ASSY?	Yes	Replace the HVPS PCB ASSY.
5	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

■ Image distortion

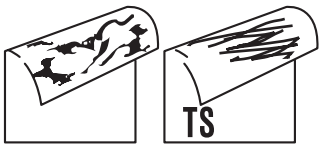


Step	Cause	Check	Result	Remedy
1	Laser unit not assembled correctly	Is the laser unit assembled into the machine securely? (Check if there is no gap.)	No	Assemble the laser unit correctly and secure the screw.
2	Incorrect radiation angle of scanner diode of laser unit. Scanner motor rotation failure	Is the problem solved after replacing the laser unit?	Yes	Replace the laser unit.
3	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

■ All black

Step	Cause	Check	Result	Remedy
1	Corona wire failure	Are the electrodes on the drum unit and machine body dirty?	Yes	Clean both electrodes. (Refer to Fig. 1-1, Fig. 1-2.)
2		Is the corona wire damaged?	Yes	Replace the drum unit.
3	Under FG wire not assembled correctly	Is the under FG wire connected securely?	No	Re-assemble the under FG wire.
4	Scanner harness of the laser unit connection failure	Is the scanner harness of the laser unit connected securely?	No	Reconnect the scanner harness of the laser unit.
5	FG harness ASSY connection failure	Is the FG harness ASSY between the laser unit and main PCB ASSY connected securely?	No	Reconnect the FG harness ASSY between the laser unit and main PCB ASSY securely.
6	HVPS PCB failure	Is the problem solved after replacing the HVPS PCB ASSY?	Yes	Replace the HVPS PCB ASSY.
7	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.
8	Laser unit failure	Is the problem solved after replacing the laser unit?	Yes	Replace the laser unit.

■ Dirt on the back of paper



Step	Cause	Check	Result	Remedy
1	Scratch or Dirt on the fuser unit	Is the pressure roller ASSY dirty?	Yes	Print approximate 10 pages.
		Is any other area in the machine dirty?	No	Replace the fuser unit.
2	Scratch or Dirt in the paper feed system	Is the paper feed system dirty?	Yes	Wipe dirt off.

■ Vertical streaks

User Check

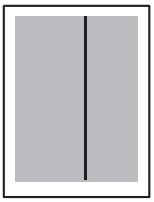
- This problem may occur with noise which is caused by dirt on the corona wire in the drum unit. In this case, clean the corona wire with the wire cleaner.
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.

Step	Cause	Check	Result	Remedy
1	Scratch or Dirt in the paper feed system	Is the paper feed system dirty?	Yes	Wipe dirt off.
2	Scratch or Dirt on the exposure drum	Are there scratch and dirt on the surface of the exposure drum?	Yes	Replace the drum unit.
3	Scratch or Dirt on the heat roller	Are there scratch and dirt on the surface of the heat roller?	Yes	Replace the fuser unit.

CAUTION:

If the machine prints the same pattern, especially vertical streaks, continuous, black vertical streaks may appear on the paper as the electrostatic performance of the drum is decreased.

■ Black vertical streaks in a light background



User Check

- Clean the inside of the machine and the corona wire in the drum unit.
- Replace the toner cartridge with a new one.

Step	Cause	Check	Result	Remedy
1	Drum unit failure	Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit.

■ Black horizontal stripes

User Check

- Clean the inside of the machine and the corona wire in the drum unit.
- Replace the drum unit with a new one.

Step	Cause	Check	Result	Remedy
1	Dirt on the charge electrode	Are the electrodes on the drum unit and machine body dirty?	Yes	Clean both electrodes. (Refer to Fig. 1-1, Fig. 1-2.)
2	Paper tray ground terminal located in the machine body	Is the paper tray ground terminal bent, which is located in the machine body? (Refer to Fig. 1-7.)	Yes	Correct the bending of paper tray ground terminal.
3	Toner attached on the develop roller	Are the horizontal stripes at 40.6 mm (develop roller circumference) intervals?	Yes	This problem will disappear by printing approximate 10 pages. If the same problem occurs, replace the toner cartridge.
4	Scratch and Dirt on the exposure drum	Are the horizontal stripes at 75.0 mm (exposure drum circumference) intervals?	Yes	Replace the drum unit.
5	Scratch and Dirt on the heat roller	Are the horizontal stripes at 78.5 mm (heat roller circumference) intervals?	Yes	Replace the fuser unit.
6	HVPS PCB failure	Is the problem solved after replacing the HVPS PCB ASSY?	Yes	Replace the HVPS PCB ASSY.
7	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

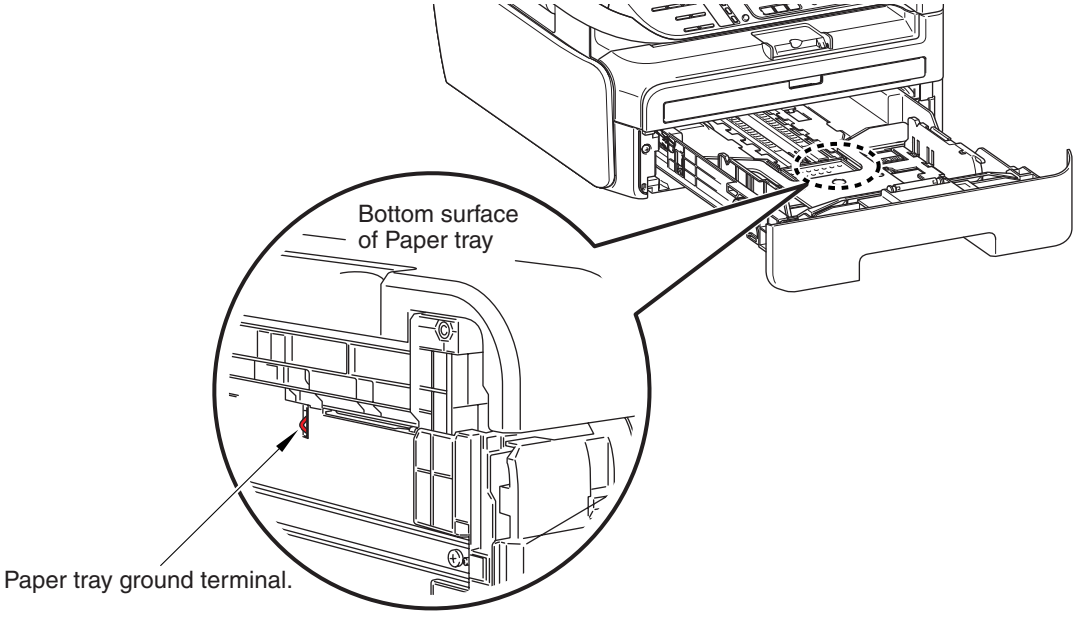


Fig. 1-7

■ White vertical streaks

User Check

- Clean the scanner windows of the laser unit with a soft lint-free cloth. (Refer to Fig. 1-6.)
- Replace the toner cartridge with a new one.
- Check the machine's environment. High temperature and high humidity conditions can cause this problem.
- Damp (wet) paper might be used. Try to change to freshly unpacked paper.
- Check there is no dust in the gap between the toner cartridge and drum frame.

Step	Cause	Check	Result	Remedy
1	Condensation	Has condensation occurred inside the machine?	Yes	Try to print several pages or leave the machine 2 hours to allow it to reach room temperature.
2	Dirt on scanner windows	Is the scanner windows dirty?	Yes	Clean the scanner windows.
3	Transfer failure	Is the transfer roller scratched?	Yes	Replace the drum unit.
4	Scanner window of laser unit failure	Is the problem solved after replacing the laser unit?	Yes	Replace the laser unit.

■ White horizontal streaks

User Check

- Check that the appropriate media type is selected in the printer driver.
- The problem may disappear by itself. Try printing multiple pages to clear this problem especially if the machine has not been used for a long time.
- The drum unit may be damaged. Replace the drum unit with a new one.

Step	Cause	Check	Result	Remedy
1	Toner cartridge electrode connection failure	Are the electrodes on the toner cartridge and machine body dirty?	Yes	Clean both electrodes. (Refer to Fig. 1-1, Fig. 1-2.).
2	Drum unit electrode connection failure	Are the electrodes on the drum unit and machine body dirty?	Yes	Clean both electrodes. (Refer to Fig. 1-1, Fig. 1-2.).

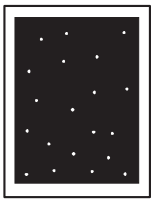
■ Faint print

User Check

- Check that the machine is installed on a level surface.
- Replace the toner cartridge with a new one.
- Clean the scanner windows of the laser unit with a soft cloth. (Refer to Fig. 1-6.)

Step	Cause	Check	Result	Remedy
1	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.
2	Laser unit failure	Is the problem solved after replacing the laser unit?	Yes	Replace the laser unit.
3	Toner empty sensor failure	Is the "Toner Life End" message indicated on the LCD after replacing the current toner cartridge with the empty toner cartridge?	No	Replace the toner sensor PCB ASSY.

■ White spots



User Check

- Toner may be empty. Replace the toner cartridge with a new one.
- If the problem is not solved after printing a few pages, the drum unit may have glue from label stuck on the exposure drum surface. Refer to the next page, and wipe it off gently with a cotton swab.
- The drum unit may be damaged. Replace the drum unit with a new one.

Step	Cause	Check	Result	Remedy
1	Toner attached on the develop roller	Are the white spots at 40.6 mm (develop roller circumference) intervals?	Yes	This problem will disappear by printing approximate 10 pages. If the same problem occurs, replace the toner cartridge.
2	Scratch and Dirt on the exposure drum	Are the white spots at 75.0 mm (exposure drum circumference) intervals?	Yes	Replace the drum unit.
3	Drum unit connection failure	Are the electrodes on the drum unit and machine body dirty?	Yes	Clean both electrodes. (Refer to Fig. 1-1, Fig. 1-2.).
4	HVPS PCB failure	Is the problem solved after replacing the HVPS PCB ASSY?	Yes	Replace the HVPS PCB ASSY.
5	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

<Clean the drum unit as follows>

If you have print quality problems, clean the drum unit as follows:

(1) Put the print sample in front of the drum unit, and find the exact position of the poor print.

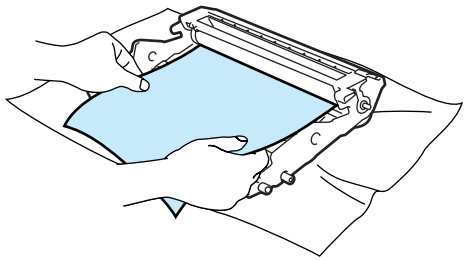


Fig. 1-8

(2) Turn the drum unit gear to the direction of the arrow of the figure by hand while looking at the surface of the exposure drum.

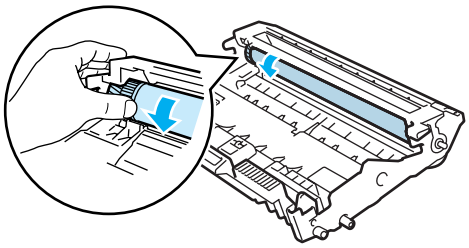


Fig. 1-9

(3) When you have found the mark on the drum that matches the print sample, wipe the surface of the exposure drum with a dry cotton swab until the dust or glue on the surface comes off.

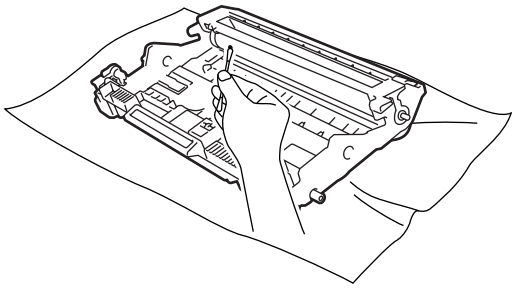
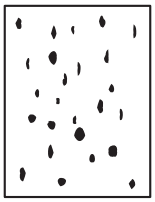


Fig. 1-10

CAUTION:

DO NOT clean the surface of the exposure drum with a sharp object.

■ Black spots



User Check

- Damp (wet) paper might be used. Try to change to freshly unpacked paper.
- Toner may be empty. Replace the toner cartridge with a new one.
- If the problem is not solved after printing a few pages, the drum unit may have glue from label stuck on the exposure drum surface. Refer to the previous page, and wipe it off gently with a cotton swab.
- The drum unit may be damaged. Replace the drum unit with a new one.

Step	Cause	Check	Result	Remedy
1	Toner attached on the develop roller	Are the black spots at 40.6 mm (develop roller circumference) intervals?	Yes	This problem will disappear by printing approximate 10 pages. If the same problem occurs, replace the toner cartridge.
2	Scratch and Dirt on the exposure drum	Are the black spots at 75.0 mm (exposure drum circumference) intervals?	Yes	Replace the drum unit.
3	Drum unit connection failure	Are the electrodes on the drum unit and machine body dirty?	Yes	Clean both electrodes (Refer to Fig. 1-1, Fig. 1-2.).
4	Scratch and Dirt on the heat roller	Are the black spots at 78.5 mm (heat roller circumference) intervals?	Yes	Replace the fuser unit.
5	HVPS PCB failure	Is the problem solved after replacing the HVPS PCB ASSY?	Yes	Replace the HVPS PCB ASSY.
6	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

■ Black band

User Check

- Clean the inside of the machine and the corona wire in the drum unit. If the same problem occurs after cleaning, replace the drum unit with a new one.
- The paper tray ground terminal located in the machine body may be dirty. Clean the contact with a dry cloth.

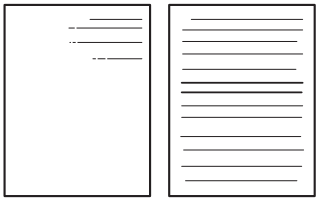
■ Downward fogging of solid color

User Check

- Toner may be empty. Replace the toner cartridge with a new one.

Step	Cause	Check	Result	Remedy
1	HVPS PCB failure	Is the problem solved after replacing the HVPS PCB ASSY?	Yes	Replace the HVPS PCB ASSY.
2	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

■ Horizontal lines



User Check

- The paper tray ground terminal located in the machine body may be dirty. Clean the contact with a dry cloth.

Step	Cause	Check	Result	Remedy
1	Dirt on charge electrode	Are the electrodes on the drum unit and machine body dirty?	Yes	Clean both electrodes. (Refer to Fig. 1-1, Fig. 1-2.)
2	Paper tray ground terminal located in machine body	Is the paper tray ground terminal bent, which is located in the machine body?	Yes	Correct the bending of paper tray ground terminal.
3	Laser unit failure	Is the problem solved after replacing the laser unit?	Yes	Replace the laser unit.

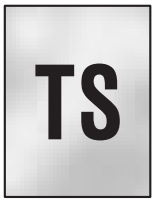
■ Ghost

User Check

- Check the machine's environment, conditions such as high or low humidity may cause this situation to occur.
- Check that the appropriate media type or size is selected in the printer driver.
- Replace the drum unit with a new one.

Step	Cause	Check	Result	Remedy
1	Dirt on cleaner electrode	Are the electrodes of the drum unit and machine body dirty?	Yes	Clean both electrodes. (Refer to Fig. 1-1, Fig. 1-2.)
2	HVPS PCB failure	Is the problem solved after replacing the HVPS PCB ASSY?	Yes	Replace the HVPS PCB ASSY.

■ Fogging



User Check

- Replace the toner cartridge with a new one.
- Replace the drum unit with a new one.
- Do not use acid paper.
- Check if there is dust or paper powder in the machine.

Step	Cause	Check	Result	Remedy
1	Toner sensor failure (Machine body)	Is the toner sensor performed normally by following the procedure in "Maintenance mode 32" (Chapter 5).	No	Replace the toner sensor PCB unit ASSY and the toner LED PCB ASSY.
2	HVPS PCB failure	Is the problem solved after replacing the HVPS PCB ASSY?	Yes	Replace the HVPS PCB ASSY.
3	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

CAUTION:

This problem often occurs when the drum unit or toner cartridge is nearly at the end of life.

6. TROUBLESHOOTING OF SCANNIG

6.1 Cannot scan the document in the FB unit. (If scan the document, it is completely white or black.)

User Check

- Check if there is the scanning surface of the FB unit scanning document in the lower side.

Step	Cause	Check	Result	Remedy
1	Document front actuator not operating smoothly or catching	Does document front actuator move smoothly?	No	Re-assemble the document front actuator.
2	Each harnesses of FB unit connection failure	Is the each harnesses of FB unit connected securely?	Yes	Reconnect the each harnesses of FB unit.
3	FB unit failure	Is the problem solved by replacing the FB unit?	Yes	Replace the FB unit.
4	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

6.2 Cannot scan the document in the ADF unit. (If scan the document, it is completely white or black.)

User Check

- Check if there is the scanning surface of the ADF unit document in the upper side.

Step	Cause	Check	Result	Remedy
1	Each harnesses of FB unit connection failure	Is the each harnesses of FB unit connected securely?	No	Reconnect the each harnesses of FB unit.
2	FB unit failure	Is the problem solved by replacing the FB unit?	Yes	Replace the FB unit.
3	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

6.3 Print of the scanning document is light or dark

User Check

- Check if the ADF or FB glass is not stained.

Step	Cause	Check	Result	Remedy
1	Setting of white level scanning area malfunction	Is the problem solved after setting the white level of scanning?	Yes	Set the white level scanning area. (Function code 55)
2	FB unit failure	Is the problem solved by replacing the FB unit?	Yes	Replace the FB unit.
3	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

6.4 Vertical streaks (White or Black vertical streaks)

User Check

- Check if the ADF or FB glass is not stained.

Step	Cause	Check	Result	Remedy
1	Setting of white level scanning area malfunction	Is the problem solved after setting the white level of scanning?	Yes	Set the white level scanning area. (Function code 55)
2	FB unit failure	Is the problem solved by replacing the FB unit?	Yes	Replace the FB unit.

6.5 Poor fixing

User Check

- Check if the ADF or FB glass is not stained.

Step	Cause	Check	Result	Remedy
1	FB unit failure	Is the problem solved by replacing the FB unit?	Yes	Replace the FB unit.

6.6 Image distortion

Step	Cause	Check	Result	Remedy
1	FB unit failure	Is the problem solved by replacing the FB unit?	Yes	Replace the FB unit.

7. SOFTWARE SETTING PROBLEMS

The machine may not print the data correctly if there are incorrect software settings.

User Check

- Check that the USB cable and the network cable is not damaged or broken.
- Check that the correct machine is selected if you have an interface switching device.
- Check the descriptions on the software setting in the user's guide.
- Try resetting the factory settings.

Step	Cause	Check	Result	Remedy
1	Failure inside the machine	Does the machine print "Test Pattern (Function code 09)" ?	No	Identify the error type, and then refer to the specified section of this chapter.
2	Machine connection	For Macintosh, has the product ID been verified?	No	Verify the product ID. Product ID: DCP7030 : 01EA DCP7040 : 01E9 DCP7045N : 01E8 MFC7320 : 01EB MFC7340 : 01E7 MFC7440N : 01E6 MFC7450 : 01EE MFC7840N : 01ED MFC7840W : 01E5
3	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

8. NETWORK PROBLEMS

User Check

- Check the descriptions in the network user's guide.
- Try resetting the factory settings.

Step	Cause	Check	Result	Remedy
1	Wireless LAN PCB failure (MFC7840W)	Is the problem solved after replacing the wireless LAN PCB ASSY?	Yes	Replace the wireless LAN PCB ASSY.
2	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

9. TROUBLESHOOTING OF THE COMMUNICATIONS ERROR

If a communications error occurs, the machine

(1) Gives an alarm (intermittent bleep) for approximately four seconds.

(2) Indicates the appropriate error message on the LCD.

(3) Prints the transmission report during fax transmission.

■ Definition of error codes on the communications list

(1) Calling

Code 1	Code 2	Causes
10	08	Wrong number called.
11	01	No dial tone detected before start of dialing.
11	02	Busy tone detected before dialing.
11	03	2nd dial tone not detected.
11	05	No loop current detected. *
11	06	Busy tone detected after dialing or called.
11	07	No response from the remote station in sending.
11	10	Unobtainable tone detected after dialing.
17	07	No response from the calling station in receiving.

* Available in German models only.

(2) Command reception

Code 1	Code 2	Causes
20	01	Unable to detect a flag field.
20	02	Carrier was OFF for 200 ms or longer.
20	03	Abort detected ("1" in succession for 7 bits or more).
20	04	Overrun detected.
20	05	A frame for 3 seconds or more received.
20	06	CRC error in answerback.
20	07	Error command received.
20	08	Invalid command received.
20	09	Command ignored once for document setting or for dumping-out at turn-around transmission.
20	0A	T5 time-out error
20	0B	CRP received.
20	0C	EOR and NULL received.

(3) Communication code compatibility [checking the NSF and DIS]

Code 1	Code 2	Causes
32	01	Remote terminal only with V.29 capability in 2400 or 4800 bps transmission.
32	02	Remote terminal not ready for polling.
32	10	Remote terminal not equipped with password function or its password switch OFF.
32	11	Remote terminal not equipped with or not ready for confidential mailbox function.
32	12	Remote terminal not equipped with or not ready for relay broadcasting function.
32	13	No confidential mail in the remote terminal.
32	14	The available memory space of the remote terminal is less than that required for reception of the confidential or relay broadcasting instruction.
32	18	Remote terminal not equipped with color function.

(4) Instructions received from the remote terminal [checking the NSC, DTC, NSS, and DCS]

Code 1	Code 2	Causes
40	02	Invalid coding system requested.
40	03	Invalid recording width requested.
40	05	ECM requested although not allowed.
40	06	Polled while not ready.
40	07	No document to send when polled.
40	10	Nation code or manufacturer code not correct.
40	13	Polled by any other manufacturers' terminal while waiting for secure polling.
40	17	Invalid resolution selected.
40	20	Invalid full color mode selected.

(5) Command reception [checking the NSF and DIS after transmission of NSS and DCS]

Code 1	Code 2	Causes
50	01	Vertical resolution capability changed after compensation of background color.

(6) ID checking

Code 1	Code 2	Causes
63	01	Password plus "lower 4 digits of telephone number" not compatible.
63	02	Password not correct.
63	03	Polling ID not correct.

(7) DCN reception

Code 1	Code 2	Causes
74		DCN received.

(8) TCF transmission/reception

Code 1	Code 2	Causes
80	01	Fallback impossible.

(9) Signal isolation

Code 1	Code 2	Causes
90	01	Unable to detect video signals and commands within 6 seconds after CFR is transmitted.
90	02	Received PPS containing invalid page count or block count.

(10) Image signal reception

Code 1	Code 2	Causes
A0	03	Error correction sequence not terminated even at the final transmission speed for fallback.
A0	11	Receive buffer empty. (5-second time-out)
A0	12	Receive buffer full during operation except receiving into memory.
A0	13	Decoding error continued on 500 lines or more.
A0	14	Decoding error continued for 10 seconds or more.
A0	15	Time-out: 13 seconds or more for one-line transmission.
A0	16	RTC not found or carrier OFF detected for 6 seconds.
A0	17	RTC found but no command detected for 60 seconds or more.
A0	19	No video data to be sent
A8	01	RTN, PIN, or ERR received at the calling terminal. *
A9	01	RTN, PIN, or ERR received at the called terminal. *
AA	18	Receive buffer full during receiving into memory.

* Available in German models only

(11) General communications-related

Code 1	Code 2	Causes
B0	02	Unable to receive the next-page data.
B0	03	Unable to receive polling even during turn-around transmission due to call reservation.
B0	04	PC interface error.
BF	01	Communication canceled by pressing the **Stop/Exit** button before establishment of FAX communication*.
BF	02	Communication canceled by pressing the **Stop/Exit** button after establishment of FAX communication*.
BF	03	Transmission canceled due to a scanning error caused by no document or document feed problem in ADF scanning in real time transmission.

* Establishment of FAX communication:
FAX communication is established when the calling station receives a DIS (reception capability) signal from the called station and the called station receives a NSS or DCS (communications test) signal from the calling station.

(12) Maintenance mode

Code 1	Code 2	Causes
E0	01	Failed to detect 1300 Hz signal in burn-in operation.
E0	02	Failed to detect PB signals in burn-in operation.

(13) Equipment error

Code 1	Code 2	Causes
FF	X X	Equipment error (For X X, refer to "2.1 Error indication")

10. Troubleshooting of the control panel

■ Nothing is displayed on the LCD.

User Check

- Verify if the power switch is turned off.

Step	Cause	Check	Result	Remedy
1	Connection between main PCB and control panel PCB	Are the main PCB and control panel PCB connected properly?	No	Reconnect the connector properly.
2	Connection between main PCB and LVPS PCB unit	Are the main PCB and LVPS PCB unit connected properly?	No	Reconnect the connector properly.
3	LCD	Is the problem solved after replacing the LCD?	Yes	Replace the LCD.
4	Control panel PCB	Is the problem solved after replacing the control panel PCB?	Yes	Replace the control panel PCB.
5	LVPS PCB unit	Is the problem solved after replacing the LVPS PCB unit?	Yes	Replace the LVPS PCB unit.
6	Main PCB	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

■ The control panel does not work.

Step	Cause	Check	Result	Remedy
1	Key sticking	Is a key on the control panel stuck?	Yes	Clean the panel cover, or remove the any burrs from the panel cover and panel keys.
2	Connection between main PCB and control panel PCB	Are the main PCB and control panel PCB connected properly?	No	Reconnect the connector correctly.
3	Harness between main PCB and control panel PCB	Is the harness damaged?	Yes	Replace the harness with a normal one.
4	Rubber Key	Is the problem solved after replacing the rubber key?	Yes	Replace the rubber Key.
5	Control panel PCB	Is the problem solved after replacing the control panel PCB?	Yes	Replace the control panel PCB.
6	Main PCB	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

11. Troubleshooting of fax functions

■ FAX can't be sent.

User Check

- Verify that the telephone cord is securely connected.

Step	Cause	Check	Result	Remedy
1	Dial mode Setting	Can a dialing signal (PB or DP) be heard normally in each mode? (Use telephone line emulator if required.)	Yes	Check the dialing mode setting at customer's again. Check the telephone line cord between machine and socket.
2	Connection between main PCB and NCU PCB	Are the main PCB and NCU PCB connected correctly?	No	Reconnect the connector.
3	Connection between main PCB and control panel PCB	Are the main PCB and control panel PCB connected correctly?	No	Reconnect the connector.
4	Contact of rubber keys	Does the rubber keys work correctly?	No	Replace the rubber Keys.
5	NCU PCB	Is the problem solved after replacing the NCU PCB ASSY?	Yes	Replace the NCU PCB ASSY.
6	Control panel PCB	Is the problem solved after replacing the control panel PCB?	Yes	Replace the control panel PCB.
7	Main PCB	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

■ Speed dialing and One-touch dialing can't be used.

Step	Cause	Check	Result	Remedy
1	Speed dialing keys or one-touch dialing keys	Can a fax transmission be made using the numeric keys?	Yes	Replace the main PCB ASSY.
2	Dial mode Setting	Can a dialing signal (PB or DP) be heard normally in each mode? (Use telephone line emulator if required.)	Yes	Check the dialing mode setting at customer's again. Check the telephone line cord between machine and socket.
3	Connection between main PCB and NCU PCB	Are the main PCB and NCU PCB connected correctly?	No	Reconnect the connector.
4	Connection between main PCB and control panel PCB	Are the main PCB and control panel PCB connected correctly?	No	Reconnect the connector.
5	Contact of rubber keys	Is the problem solved after replacing the rubber keys?	No	Replace the rubber Keys.
6	NCU PCB	Is the problem solved after replacing the NCU PCB ASSY?	Yes	Replace the NCU PCB ASSY.
7	Control panel PCB	Is the problem solved after replacing the control panel PCB?	Yes	Replace the control panel PCB.

■ FAX can not be received.

User Check

- Verify that the telephone cord is securely inserted.

Step	Cause	Check	Result	Remedy
1	Receive mode setting	Is the receive mode set to automatic receive mode?	No	Set the receive mode to automatic receive mode.
2	NCU PCB	Is the problem solved after replacing the NCU PCB ASSY?	Yes	Replace the NCU PCB ASSY.
3	Main PCB	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

■ No ringing sound.

Step	Cause	Check	Result	Remedy
1	Ring delay	Ring delay is set to "0".	Yes	Change the ring delay settings to another value.
2	Ring volume	Ring volume is set to "OFF".	Yes	Change the ring volume setting to another value.
3	Connection between main PCB and NCU PCB	Are the main PCB and NCU PCB connected correctly?	No	Reconnect the connector.
4	Speaker	Is the problem solved after replacing the speaker?	Yes	Replace the Speaker.
5	NCU PCB	Is the problem solved after replacing the NCU PCB ASSY?	Yes	Replace the NCU PCB ASSY.
6	Main PCB	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

■ Speaker is silent during on-hook dialing.

Step	Cause	Check	Result	Remedy
1	Connection between main PCB and speaker	Are the main PCB and speaker connected correctly?	No	Reconnect the connector.
2	Speaker	Is the problem solved after replacing the speaker?	Yes	Replace the Speaker.
3	Connection between main PCB and NCU PCB	Are the main PCB and NCU PCB connected correctly?	No	Reconnect the connector.
4	Connection between main PCB and control panel PCB	Are the main PCB and control panel PCB connected correctly?	No	Reconnect the connector.
5	NCU PCB	Is the problem solved after replacing the NCU PCB ASSY?	Yes	Replace the NCU PCB ASSY.
6	Main PCB	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

■ Dialing function does not switch between "tone" and "pulse".

Step	Cause	Check	Result	Remedy
1	Connection between main PCB and NCU PCB	Are the main PCB and NCU PCB connected correctly?	No	Reconnect the connector.
2	NCU PCB	Is the problem solved after replacing the NCU PCB ASSY?	Yes	Replace the NCU PCB ASSY.
3	Main PCB	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

12. OTHERS PROBLEMS

■ The machine is not turned on, or the LCD indication does not appear.

Step	Cause	Check	Result	Remedy
1	Harness connection failure of panel PCB	Is the harness of the panel PCB ASSY connected correctly?	No	Reconnect the panel PCB ASSY harness.
2	Panel PCB failure	Is the problem solved after replacing the panel PCB ASSY?	Yes	Replace the panel PCB ASSY.
3	LCD failure	Is the problem solved after replacing the LCD?	Yes	Replace the LCD.
4	LVPS PCB failure	Is the problem solved after replacing the LVPS PCB unit?	Yes	Replace the LVPS PCB unit.
5	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

■ The fan does not work.

Step	Cause	Check	Result	Remedy
1	Harness connection failure of the fan motor 60 ASSY.	Is the harness of the fan motor 60 ASSY connected correctly?	No	Reconnect the harness of the fan motor 60 ASSY correctly.
2	Toner LED PCB ASSY failure	Is the problem solved after replacing the toner LED PCB ASSY?	Yes	Replace the toner LED PCB ASSY.
3	Main PCB failure	Is the problem solved after replacing the main PCB ASSY?	Yes	Replace the main PCB ASSY.

■ Pickup function of paper tray does not work.

Step	Cause	Remedy
1	Link arm not operating smoothly or catching.	Make sure correct movemet of the link arm.
2	Pickup roller holder ASSY not operating smoothly or catching.	Make sure correct movement of the pickup roller holder ASSY.
3	Roller holder ASSY failure	Replace the roller holder ASSY.
4	Main motor failure	Replace the main motor.
5	Main PCB failure	Replace the main PCB ASSY.

■ A new toner cannot be detected.

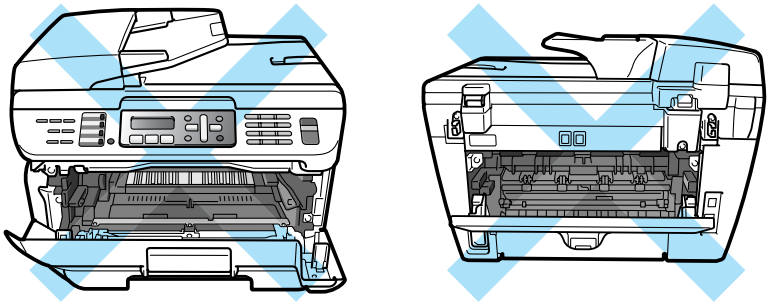
Step	Cause	Remedy
1	New toner actuator does not operate smoothly or is catching.	Make sure correct movement of the new toner actuator.
2	New toner actuator damaged	Replace the new toner actuator.
3	Main PCB failure	Replace the main PCB ASSY.
4	New toner sensor harness ASSY failure	Replace the new toner sensor harness ASSY.

CHAPTER 2 PERIODICAL MAINTENANCE

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

WARNING

- Always turn off the power switch and unplug the power cord from the power outlet before accessing any parts inside the machine.
- When opening the front cover or back cover to access any parts inside the machine, never touch the shaded parts shown in the following figures.



1. CONSUMABLE PARTS

The consumable parts described in this section are parts which are subject to deterioration or damage and should be replaced at least once during the period of warranty of the product if any printing quality problem appears.

Parts Name		Approximate Life
Toner Cartridge	Starter cartridge	Approx. 1,000 pages A4/Letter pages *1
	Standard cartridge	Approx. 1,500 pages A4/Letter pages *1
	High yield cartridge	Approx. 2,600 pages A4/Letter pages *1
Drum Unit		Approx. 12,000 pages A4/Letter pages (1 page/job)

*1 Approx. cartridge yield is declared in accordance with ISO/IEC 19752. (Letter/A4)

2. PERIODICAL PEPLACEMENT PARTS

There are no parts to be replaced periodically.

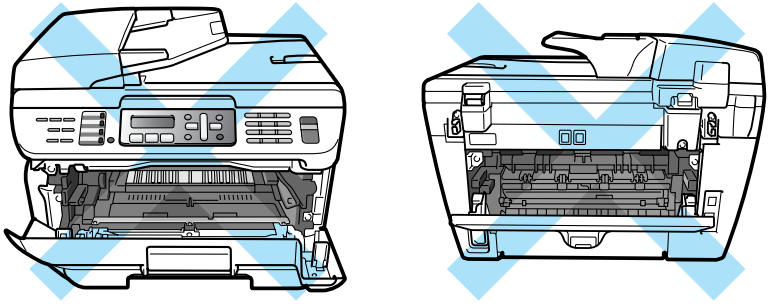
CHAPTER 3 DISASSEMBLY AND ASSEMBLY

1. SAFETY PRECAUTIONS

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

WARNING

- Always turn off the power switch and unplug the power cord from the power outlet before accessing any parts inside the machine.
- When opening the front 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 gears and 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 PCB 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 harness.
- When connecting or disconnecting cable connectors, 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 all connectors. Also check that other related portions are functioning properly before operational checks.
- After disconnecting flat cables, check that each cable is not damaged at its end or short-circuited.
- When connecting flat cables, do not insert them at an angle. After insertion, check that the cables are not at an angle.

2. PACKING

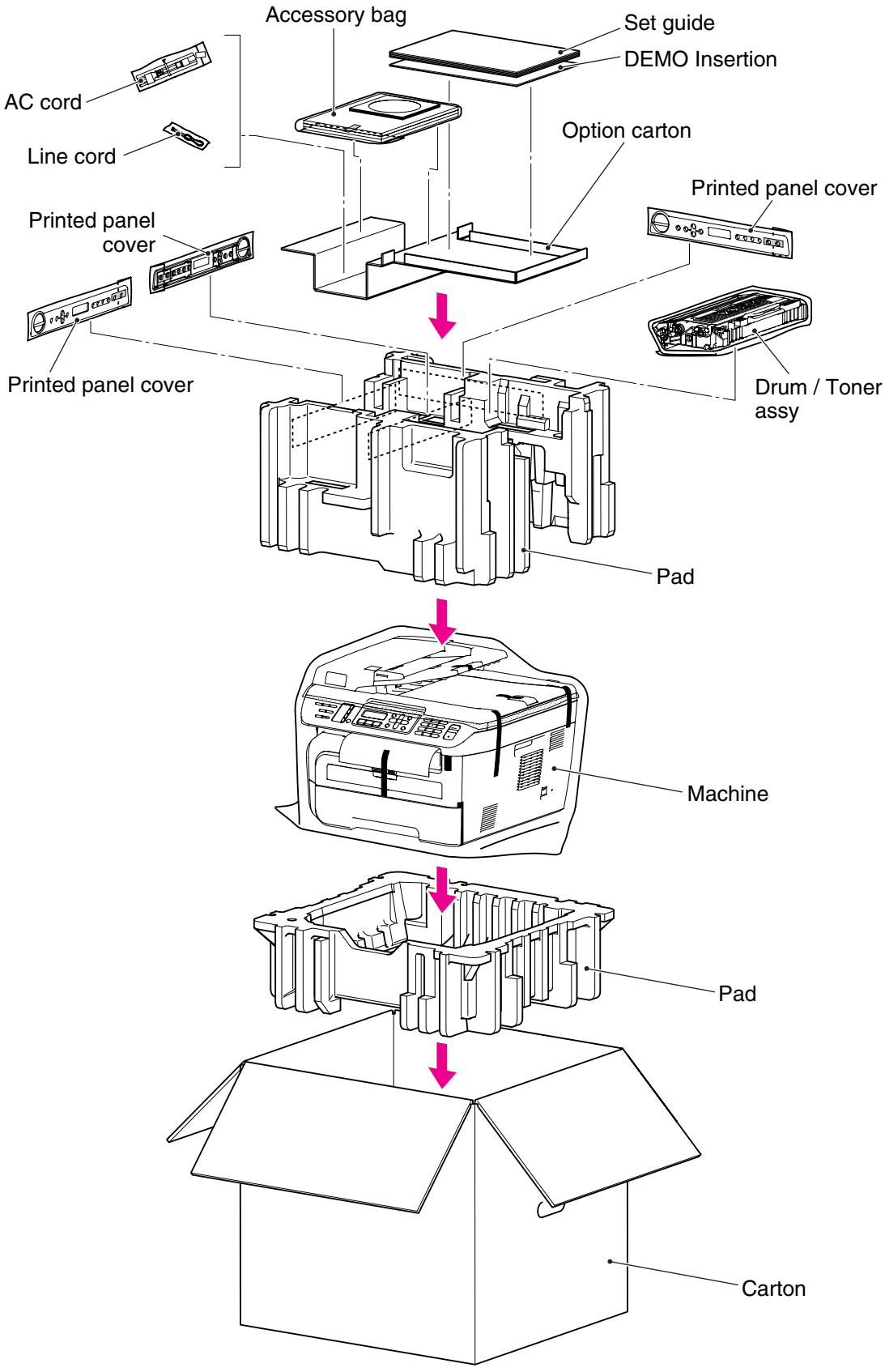


Fig. 3-1

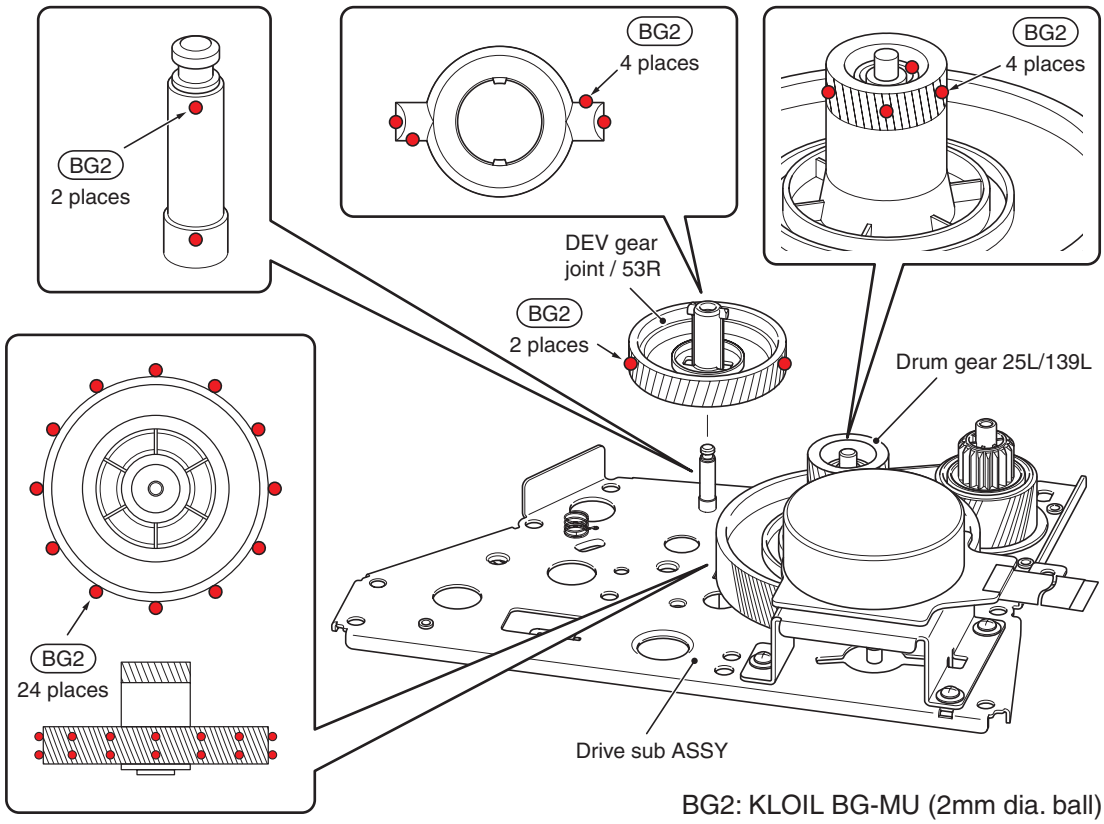
3. SCREW TORQUE LIST

Location of screw		Screw type	Q'ty	Tightening torque N m (kgf · cm)
JOINT COVER SUB CHUTE ASSY		Taptite bind B M4x12	2	0.8±0.1 (8±1)
INNER CHUTE ASSY		Taptite bind B M4x12	2	0.6±0.1 (6±1)
FUSER UNIT		Taptite pan B M4x14	2	0.8±0.1 (8±1)
CONER COVER / SIDE COVER L ASSY		Taptite bind B M4x12	3	0.8±0.1 (8±1)
SIDE COVER SUB L		Taptite bind B M4x12	1	0.8±0.1 (8±1)
MAIN SHIELD COVER PLATE		Taptite cup S M3x6 SR	1	0.9±0.05 (9±0.5)
	FG are tightened together	Taptite cup S M3x6 SR	2	0.55±0.05 (5.5±0.5)
ADF UNIT		Taptite bind B M4x12	1	0.8±0.1 (8±1)
HINGE ARM		Taptite bind B M4x12	1	0.8±0.1 (8±1)
HINGE ASSY L		Taptite cup S M3x12	1	0.8±0.1 (8±1)
		Taptite cup B M3x10	2	0.5±0.1 (5±1)
UPPER DOCUMENT CHUTE ASSY		Taptite cup B M3x10	4	0.5±0.1 (5±1)
LOWER DOCUMENT CHUTE ASSY		Taptite cup B M3x10	2	0.5±0.1 (5±1)
DRIVE FRAME ASSY		Taptite cup B M3x10	2	0.5±0.1 (5±1)
ADF harness unit (FG)		Taptite cup S M3x6 SR	1	0.8±0.1 (8±1)
ADF MOTOR		Taptite bind B M3x6	1	0.8±0.1 (8±1)
DOCUMENT DRESS COVER		Taptite cup B M3x8	1	0.5±0.1 (5±1)
CORD HOOK		Taptite cup B M3x8	2	0.5±0.1 (5±1)
PANEL UNIT		Taptite cup B M3x10	4	0.5±0.1 (5±1)
PRINTED PANEL COVER		Taptite cup B M3x8	4	0.4±0.1 (4±1)
NCU SHIELD		Taptite bind B M4x12	2	0.8±0.1 (8±1)
		Screw pan (S/P washer) M3.5x6	1	0.5±0.05 (5±0.5)
NCU PCB		Taptite cup S M3x6 SR	2	0.5±0.1 (5±1)
SPEARKER COVER		Taptite bind B M4x12	1	0.8±0.1 (8±1)
SIDE COVER R ASSY		Taptite bind B M4x12	2	0.8±0.1 (8±1)
MAIN PCB ASSY		Taptite cup S M3x6 SR	4	0.6±0.1 (6±1)
JOINT COVER ASSY		Taptite bind B M4x12	5	0.8±0.1 (8±1)
HIGH-VOLTAGE PS PCB ASSY		Taptite cup S M3x6 SR	2	0.8±0.05 (8±0.5)
		Taptite bind B M4x12	2	0.8±0.05 (8±0.5)
LASER UNIT	Left side of Main frame and back of the right side.	Taptite cup S M3x6 SR	3	0.8±0.05 (8±0.5)
	Front of the right side of Main frame	Taptite pan (S/P washer) S M3x8	1	0.8±0.05 (8±0.5)
AIR DUCT		Taptite cup S M3x6 SR	2	0.9±0.05 (9±0.5)
LV SHIELD PLATE COVER		Screw pan (S/P washer) M3.5x6	1	0.5±0.05 (5±0.5)
		Taptite cup S M3x6 SR	2	0.5±0.05 (5±0.5)
SW HOLDER		Taptite bind B M4x12	1	0.8±0.1 (8±1)

Location of screw		Screw type	Q'ty	Tightening torque N m (kgf · cm)
INLET HARNESS ASSY		Screw pan (S/P washer) M3.5x6	1	0.5±0.05 (5±0.5)
		Taptite flat B M3x10	2	0.45±0.05 (4.5±0.5)
LVPS PCB UNIT		Taptite cup S M3x6 SR	2	0.5±0.05 (5±0.5)
LV SHIELD PLATE 2		Taptite bind B M4x12	2	0.8±0.1 (8±1)
	Back Side	Taptite cup S M3x6 SR	1	0.6±0.1 (6±1)
	Front chute ground plate side	Taptite cup S M3x6 SR	1	0.5±0.05 (5±0.5)
ACTUATOR HOLDER ASSY		Taptite bind B M3x10	2	0.5±0.1 (5±1)
REGISTRATION FRONT SENSOR PCB ASSY		Taptite bind B M3x10	1	0.5±0.1 (5±1)
REAR ACTUATOR HOLDER ASSY		Taptite bind B M3x10	2	0.5±0.1 (5±1)
REGISTRATION REAR SENSOR PCB ASSY		Taptite bind B M3x10	1	0.5±0.1 (5±1)
UNDER FG WIRE		Taptite bind B M4x12	1	0.8±0.1 (8±1)
		Taptite cup S M3x6 SR	1	0.8±0.05 (8±0.5)
DRIVE SUB ASSY		Taptite cup S M3x6 SR	1	0.6±0.1 (6±1)
		Taptite bind B M4x12	9	0.8±0.1 (8±1)
TONER SENSOR HARNESS ASSY		Taptite bind B M3x10	1	0.5±0.1 (5±1)
REGISTRATION SOLENOID		Taptite bind B M3x10	1	0.5±0.1 (5±1)
T1 SOLENOID		Taptite bind B M3x10	1	0.5±0.1 (5±1)
FU FRONT PAPER GUIDE		Taptite bind B M3x10	3	0.5±0.1 (5±1)
CHUTE GROUND PLATE		Taptite cup S M3x6 SR	2	0.6±0.1 (6±1)
MAIN SHIELD PLATE		Taptite bind B M4x12	3	0.8±0.1 (8±1)
MAIN FRAME L ASSY		Taptite bind B M4x12	4	0.8±0.1 (8±1)
		Taptite cup S M3x6 SR	2	0.7±0.1 (7±1)

4. LUBRICATION

The kind of the lubricating oil (Maker name)	Lubrication point	Quantity of lubrication
FLOIL BG-MU (Kanto Kasei)	Dev gear joint/53R Drive sub ASSY Drum gear 25L/139L	2mm dia. ball (BG2)
MOLYKOTE EM-D110 (Dow Corning Toray)	Separation pad ASSY	2mm dia. ball (EM2)
BDX313(A) (Kanto Kasei)	Hinge ASSY L	2mm dia. ball (BD2)
FLOIL GE-676 (Kanto Kasei)	LF roller ASSY Ejection roller ASSY Drive frame ASSY	2mm dia. ball (GE2)

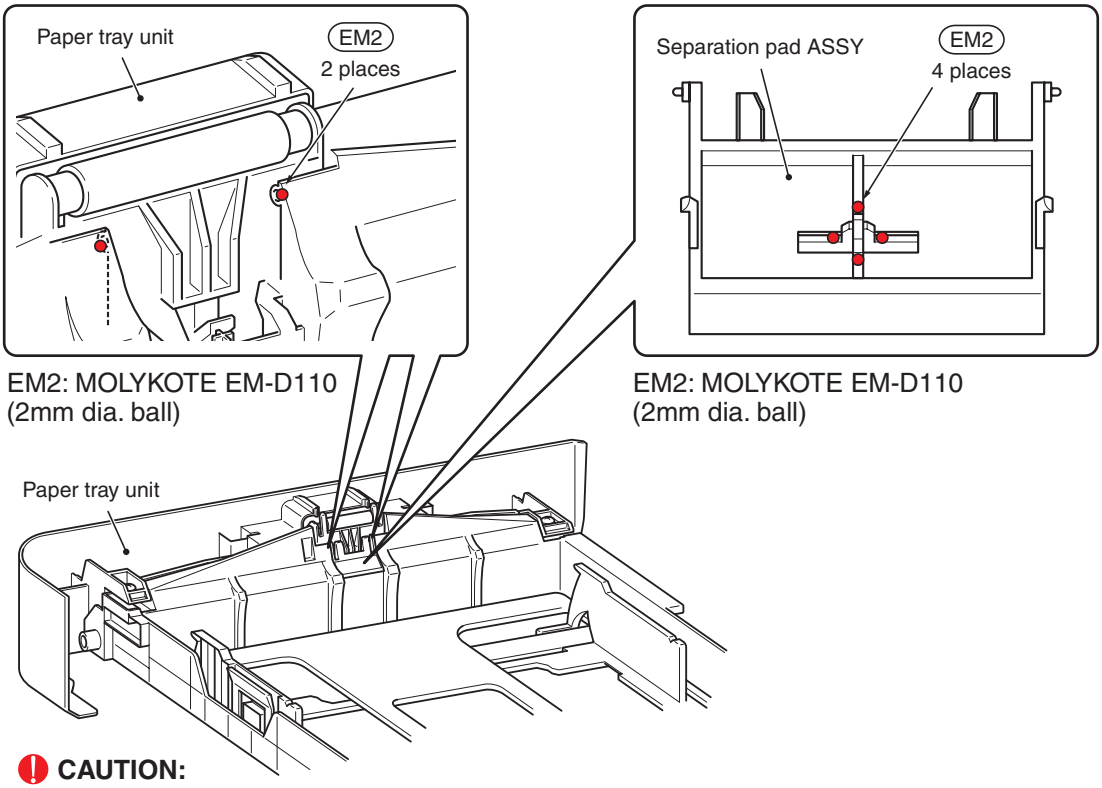


BG2: KLOIL BG-MU (2mm dia. ball)

Fig. 3-2

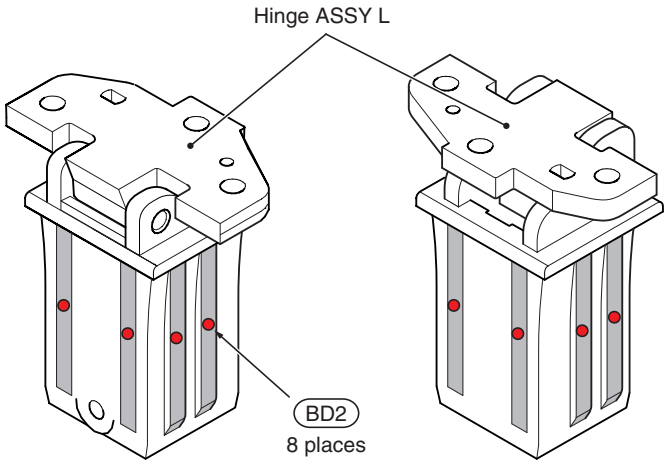
CAUTION:

Be careful not to put lubricants on the surface through which papers are fed.



CAUTION:

Be careful not to let lubricants touch the opposite side of the Separation pad ASSY.

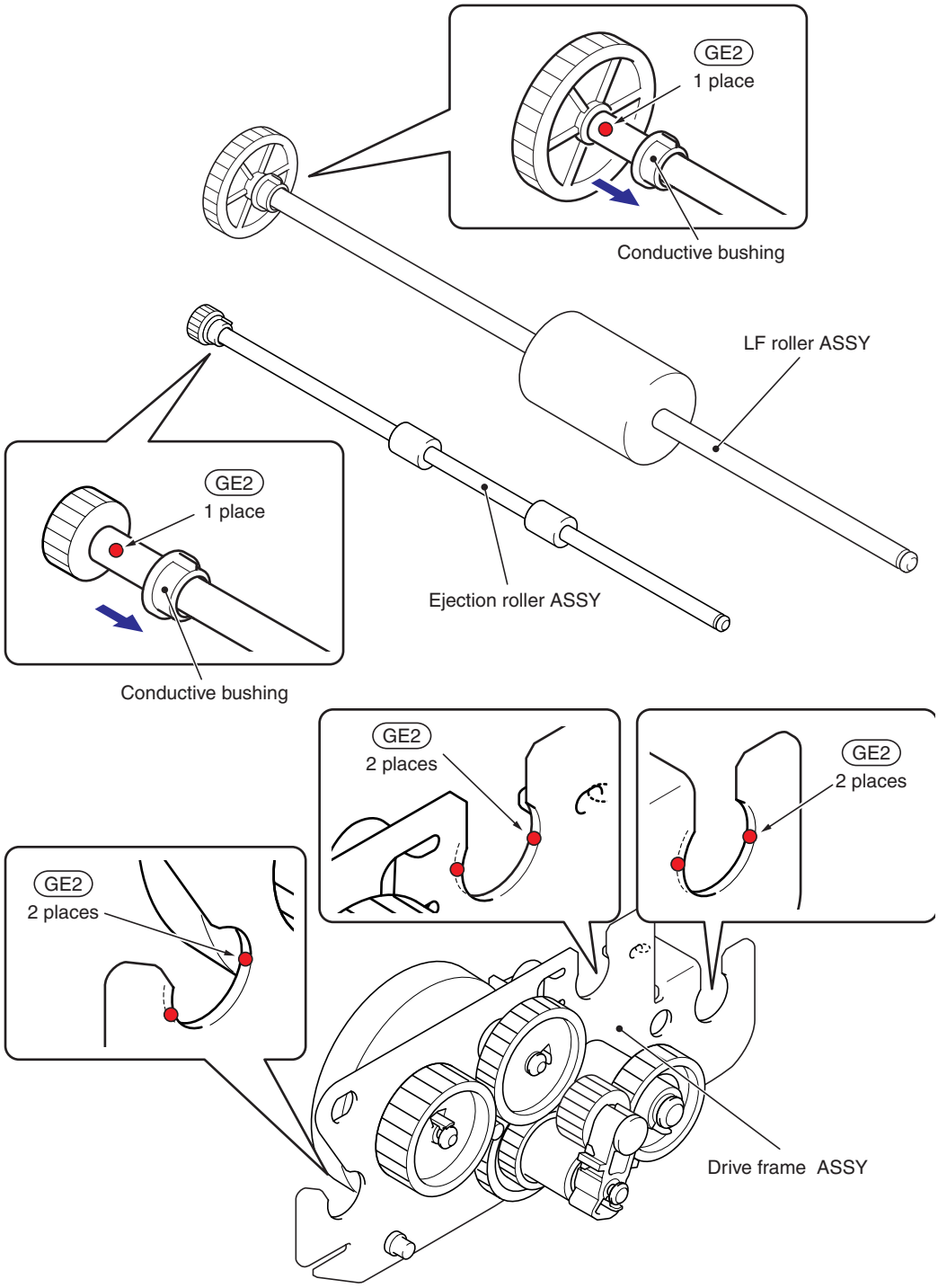


BD2: BDX313(A) (2mm dia. ball)

CAUTION:

Apply to all surfaces of ▭ part by the brush.

Fig. 3-3



GE2: FLOIL GE-676 (2mm dia. ball)

Fig. 3-4

5. OVERVIEW OF GEARS

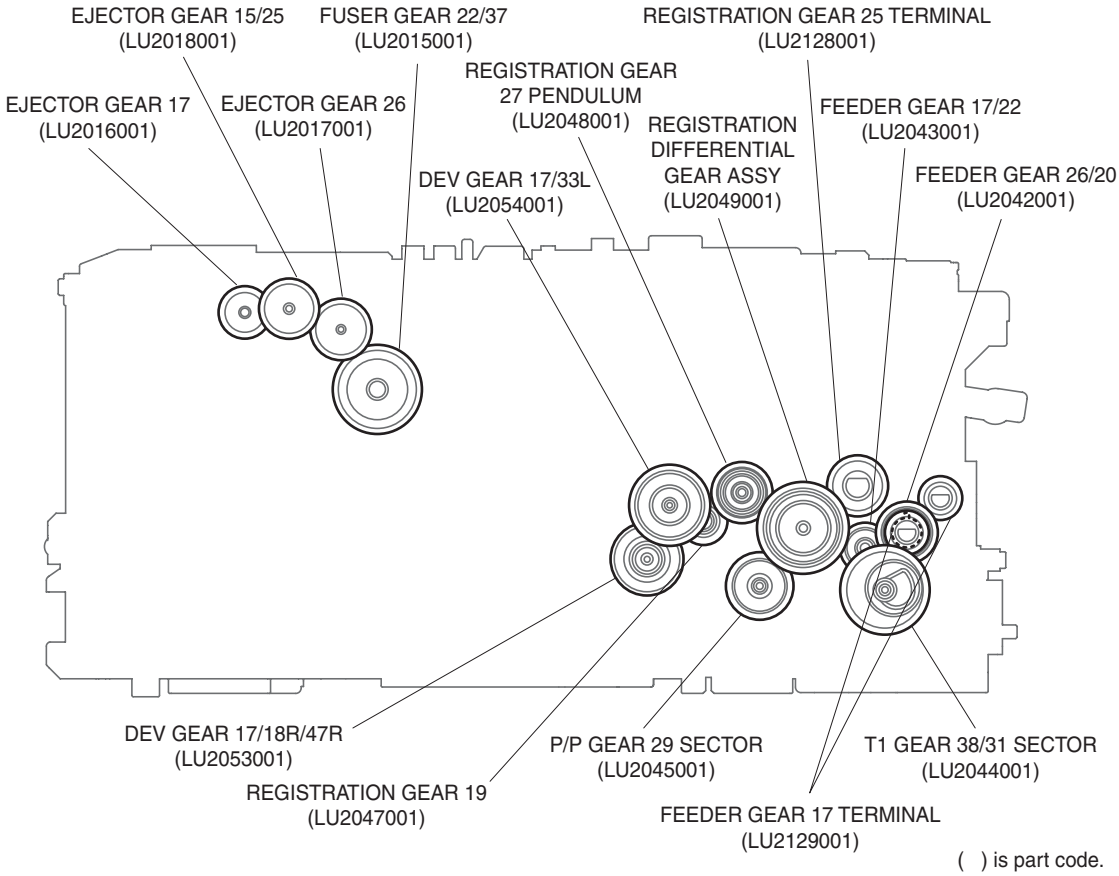


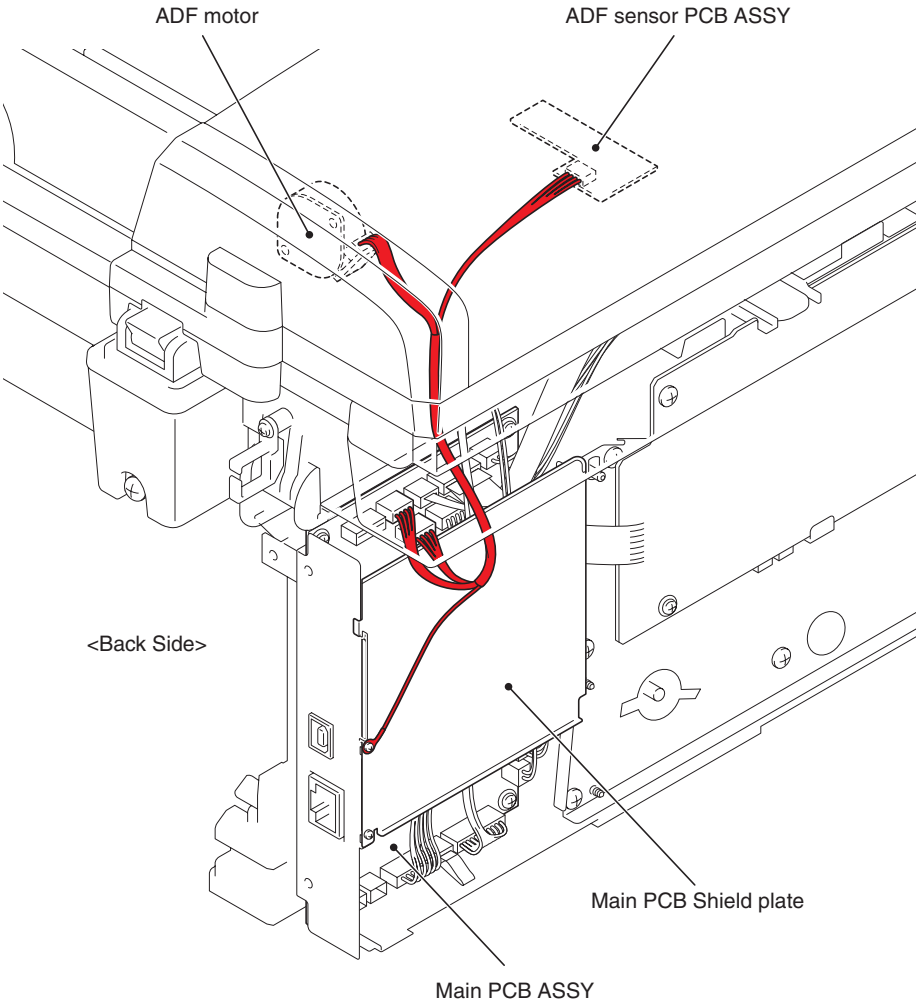
Fig. 3-5

CAUTION:

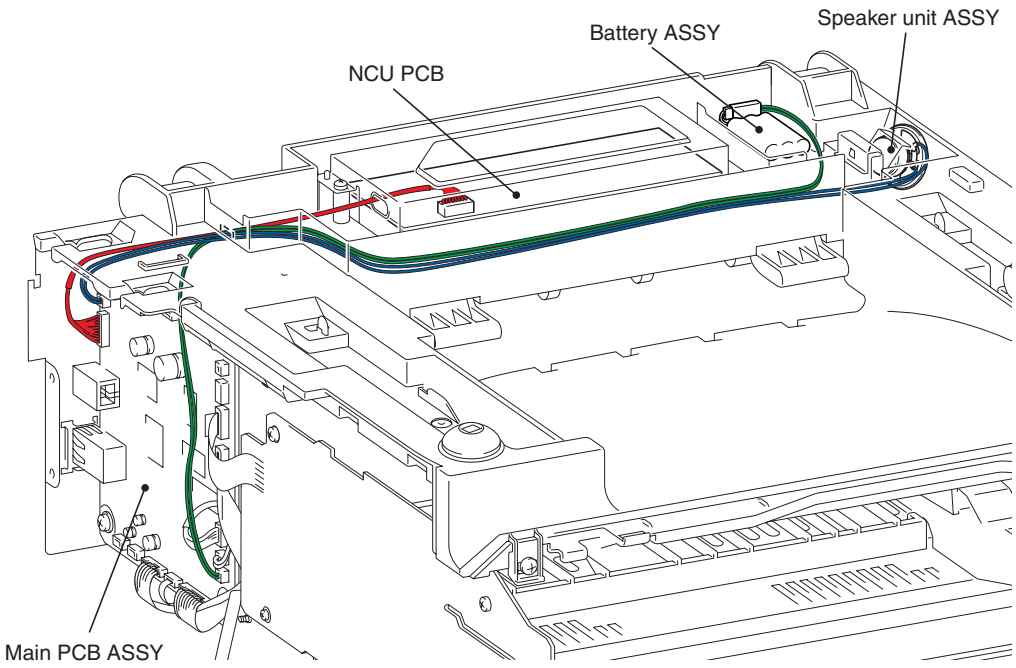
The part codes of gears are subject to change without notice.

6. HARNESS ROUTING

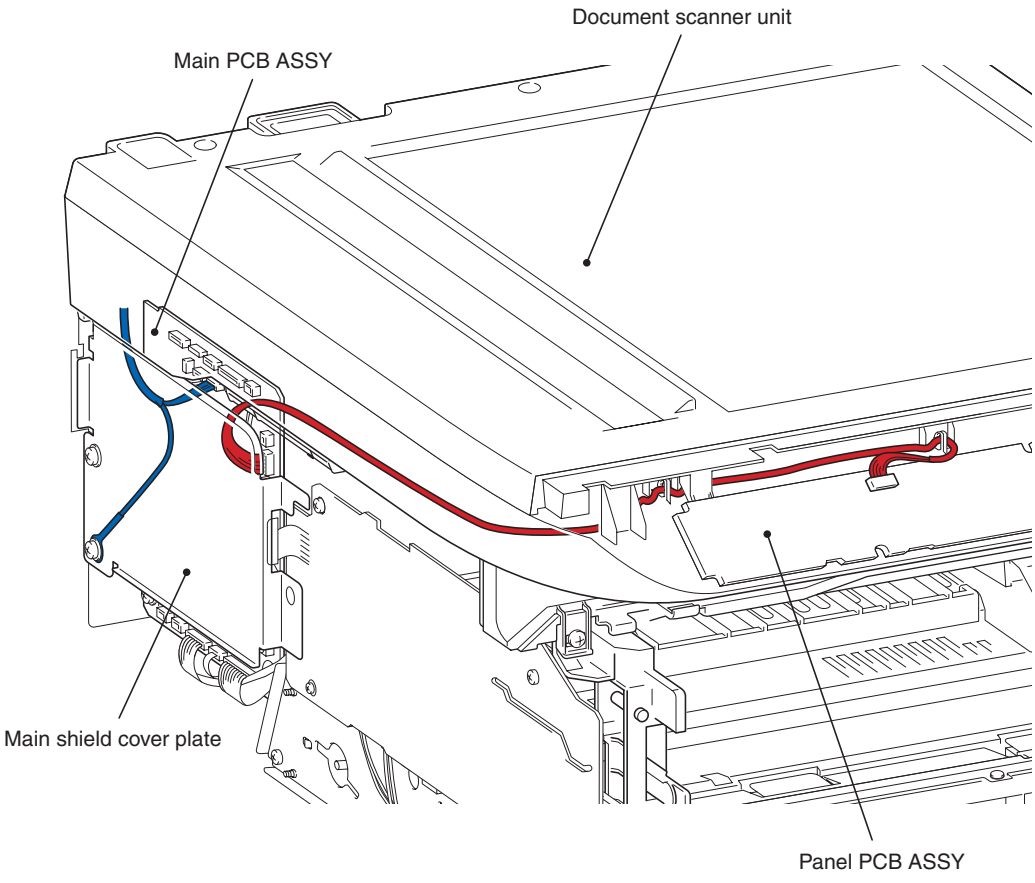
1 ADF motor, ADF sensor PCB ASSY to Main PCB ASSY



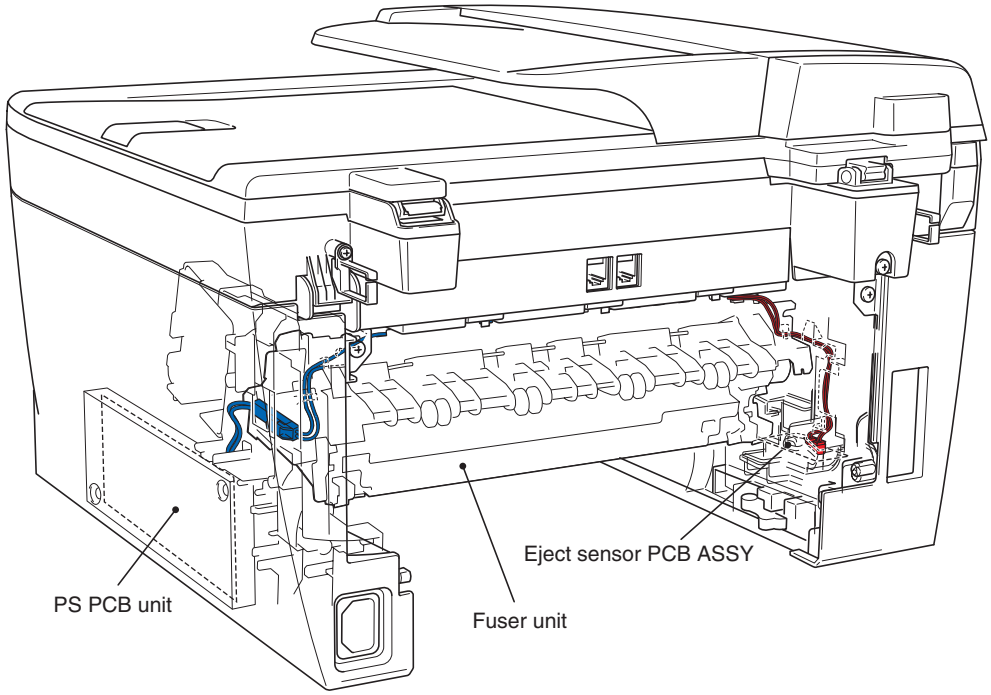
2 NCU PCB, Battery ASSY, Speaker unit ASSY to MAIN PCB ASSY



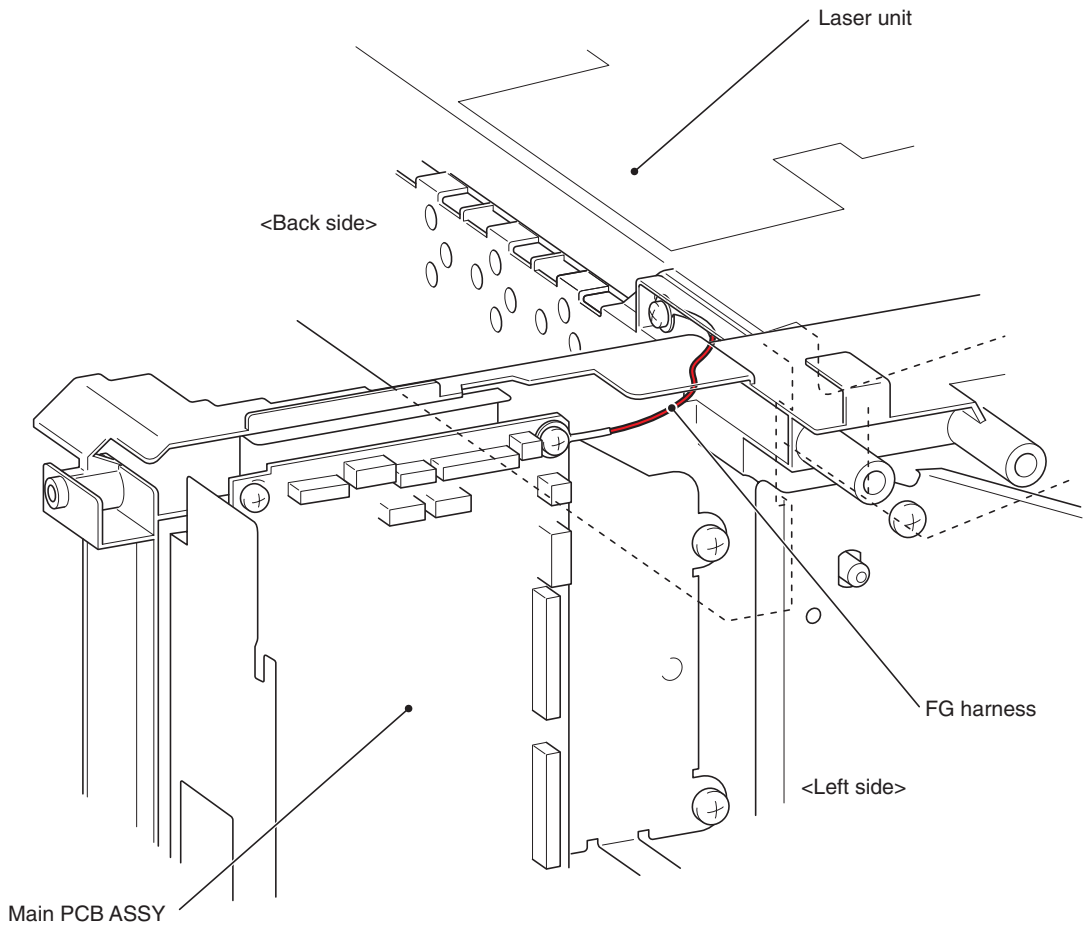
3 Document scanner unit, Panel PCB ASSY



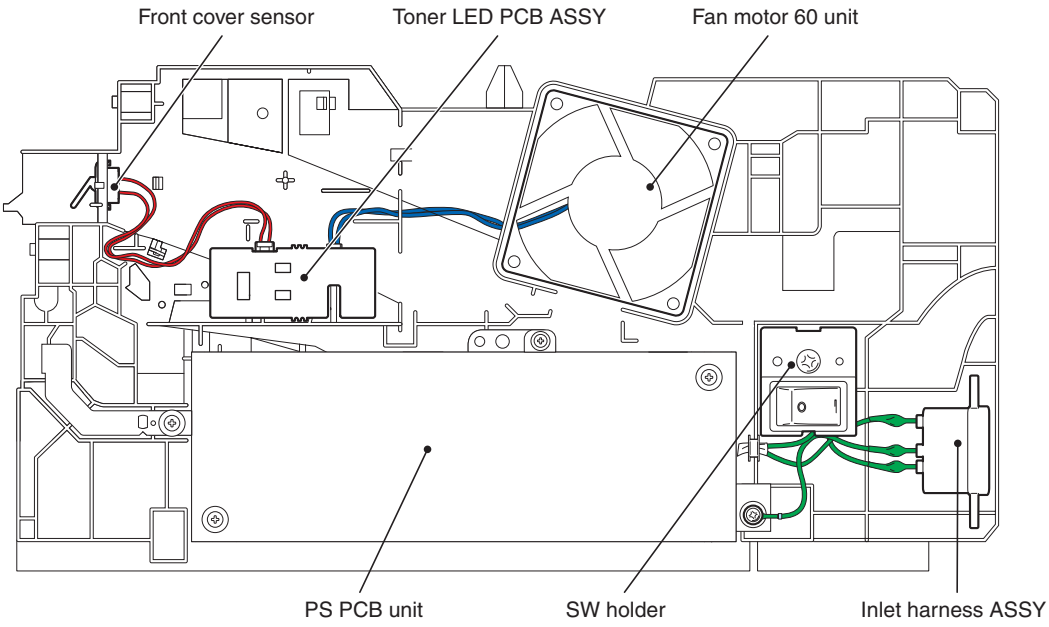
4 FUSER UNIT



5 FG HARNESS

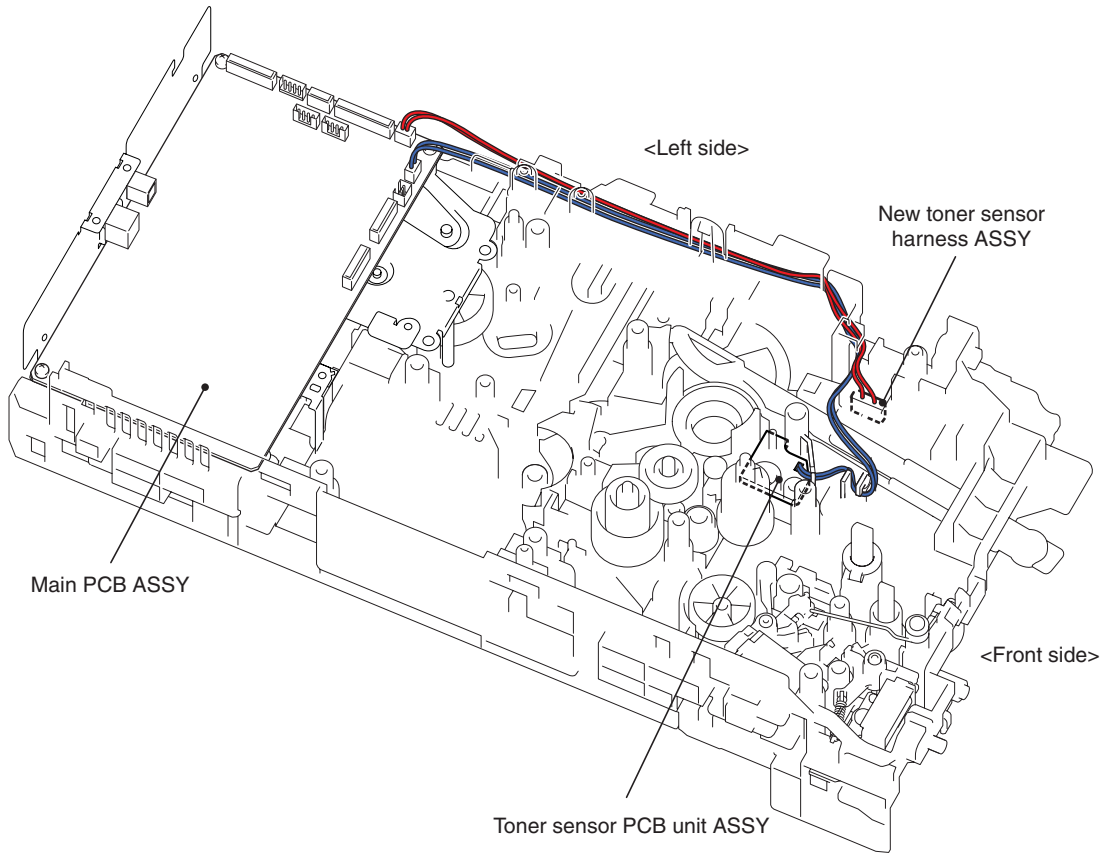


6 MAIN FRAME R ASSY

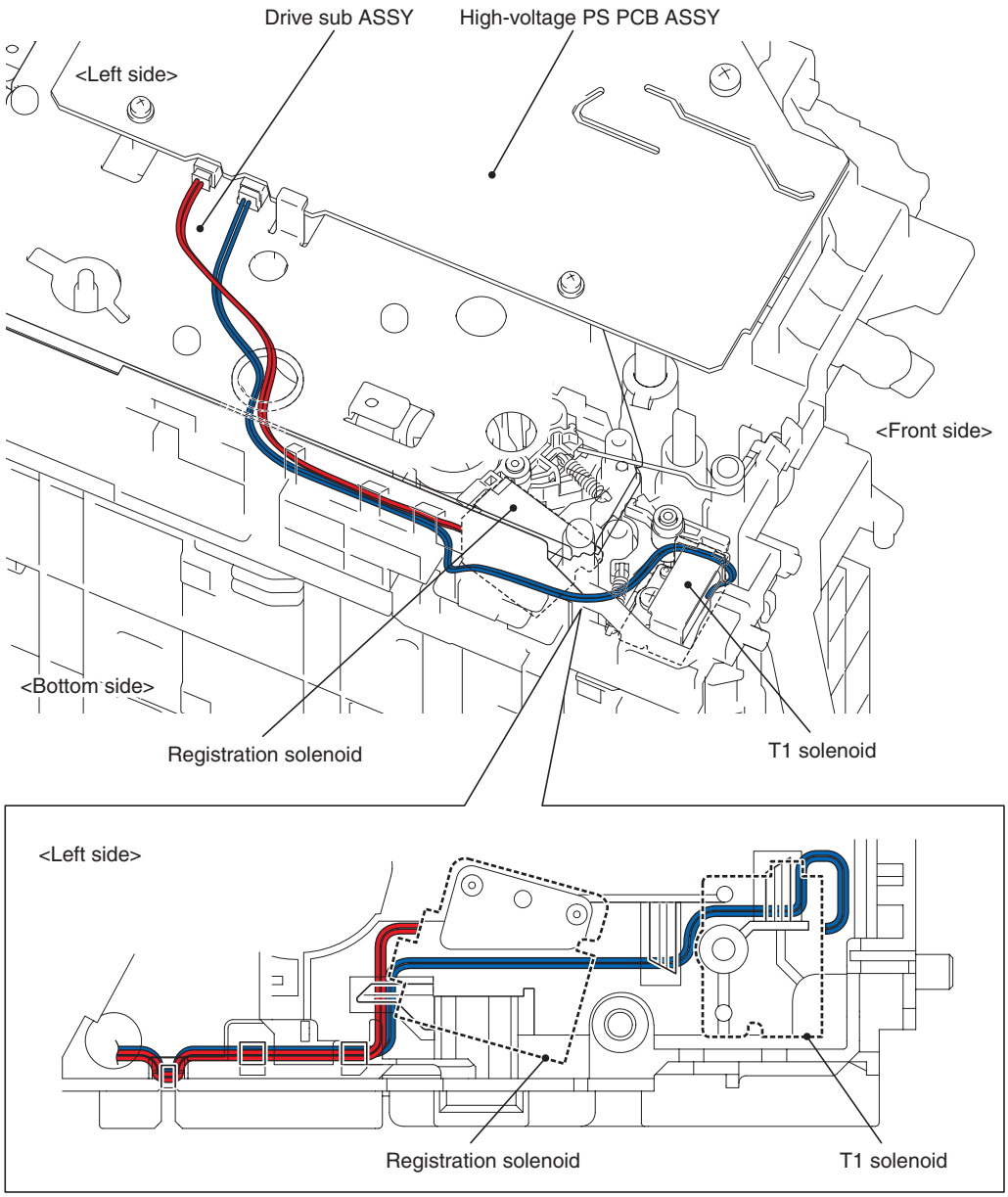


7 WIRELESS LAN PCB ASSY (only MFC7840W) / TONER LED PCB ASSY / LVPS PCB UNIT / MAIN PCB ASSY/ REGISTRATION FRONT SENSOR PCB ASSY / REGISTRATION REAR SENSOR PCB ASSY

8 TONER SENSOR PCB UNIT ASSY / NEW TONER SENSOR HARNESS ASSY



9 HIGH-VOLTAGE PS PCB / REGISTRATION SOLENOID / T1 SOLENOID



7. DISASSEMBLY FLOW

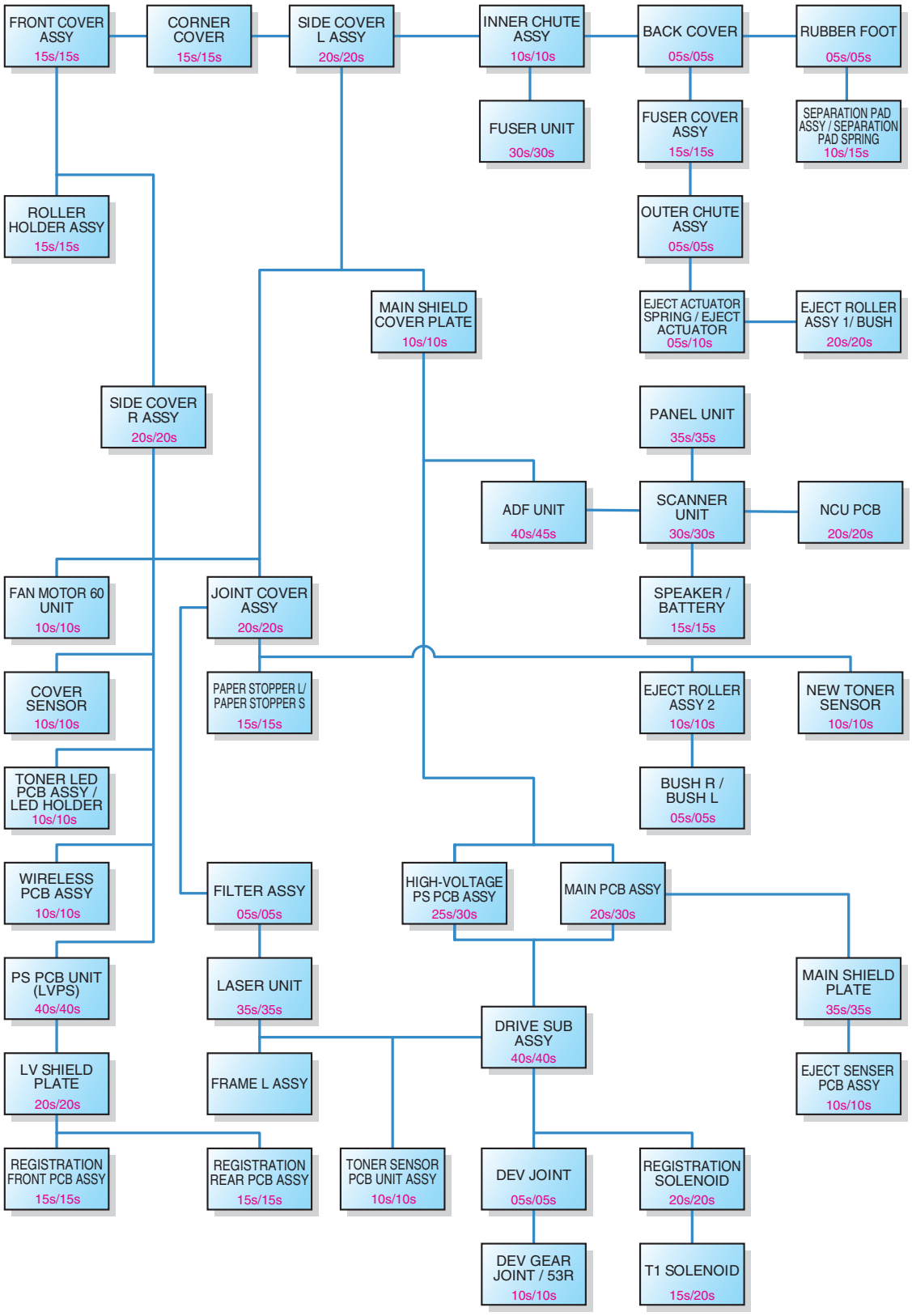


Fig. 3-6

8. DISASSEMBLY PROCEDURE

■ Preparation

Prior to proceeding with the disassembly procedure,

(1) Unplug

- the AC cord,
- the modular jack of the telephone line,
- the USB cable, if connected,
- the LAN cable, if connected,
- the modular jack of the external telephone set if connected.

(2) Remove

- the Paper tray,
- the Toner cartridge and Drum unit

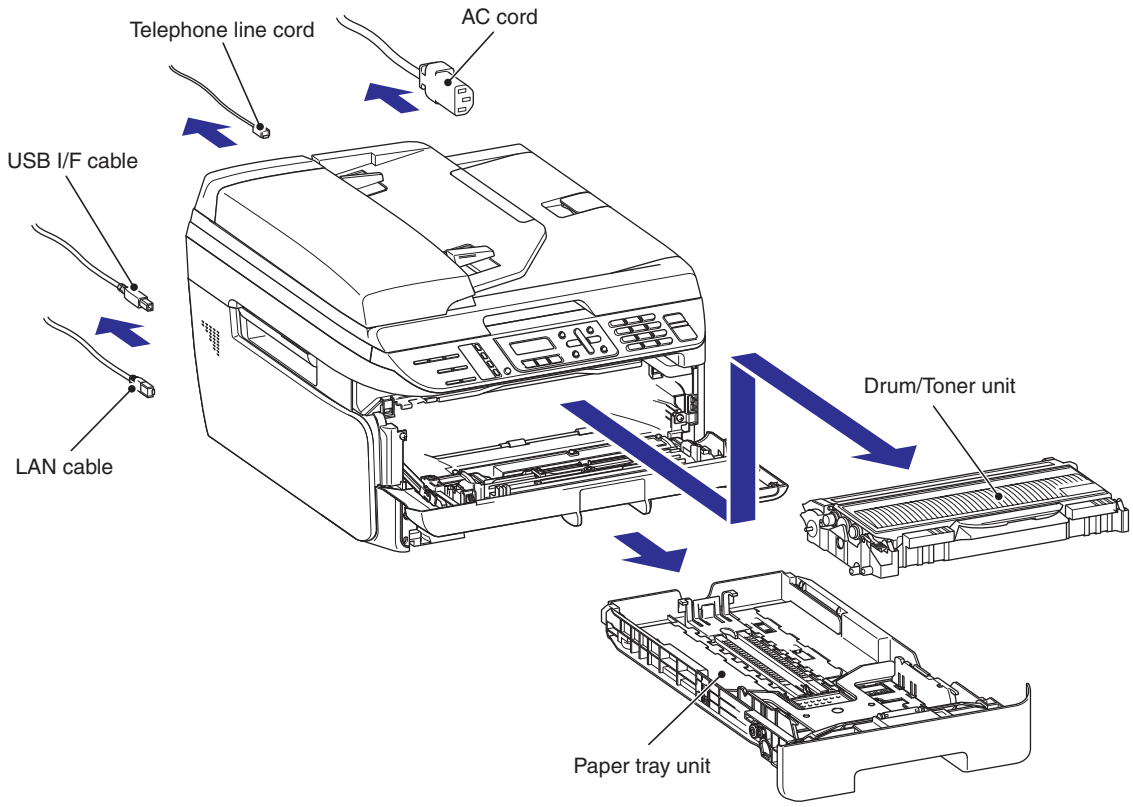


Fig. 3-7

8.1 SEPARATION PAD ASSY

(1) Lift up the Separation pad ASSY.

(2) Release the Boss to remove the Separation pad ASSY from the Paper tray unit.

(3) Remove the Separation pad spring from the Paper tray unit.

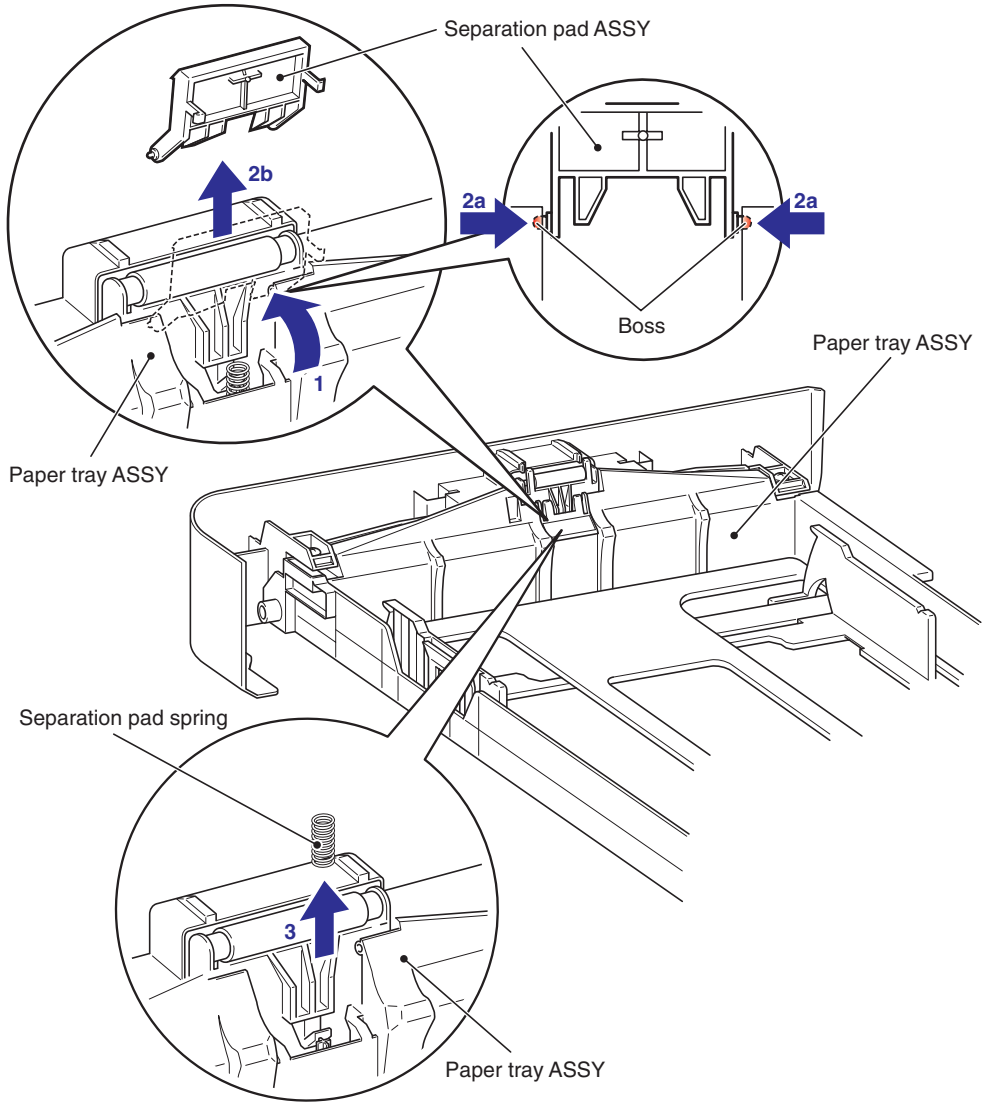


Fig. 3-8

8.2 FRONT COVER ASSY

8.2.1 FRONT COVER ASSY

(1) Open the Front cover ASSY.

(2) Release the Hook to remove the DEV joint link from the Front cover ASSY.

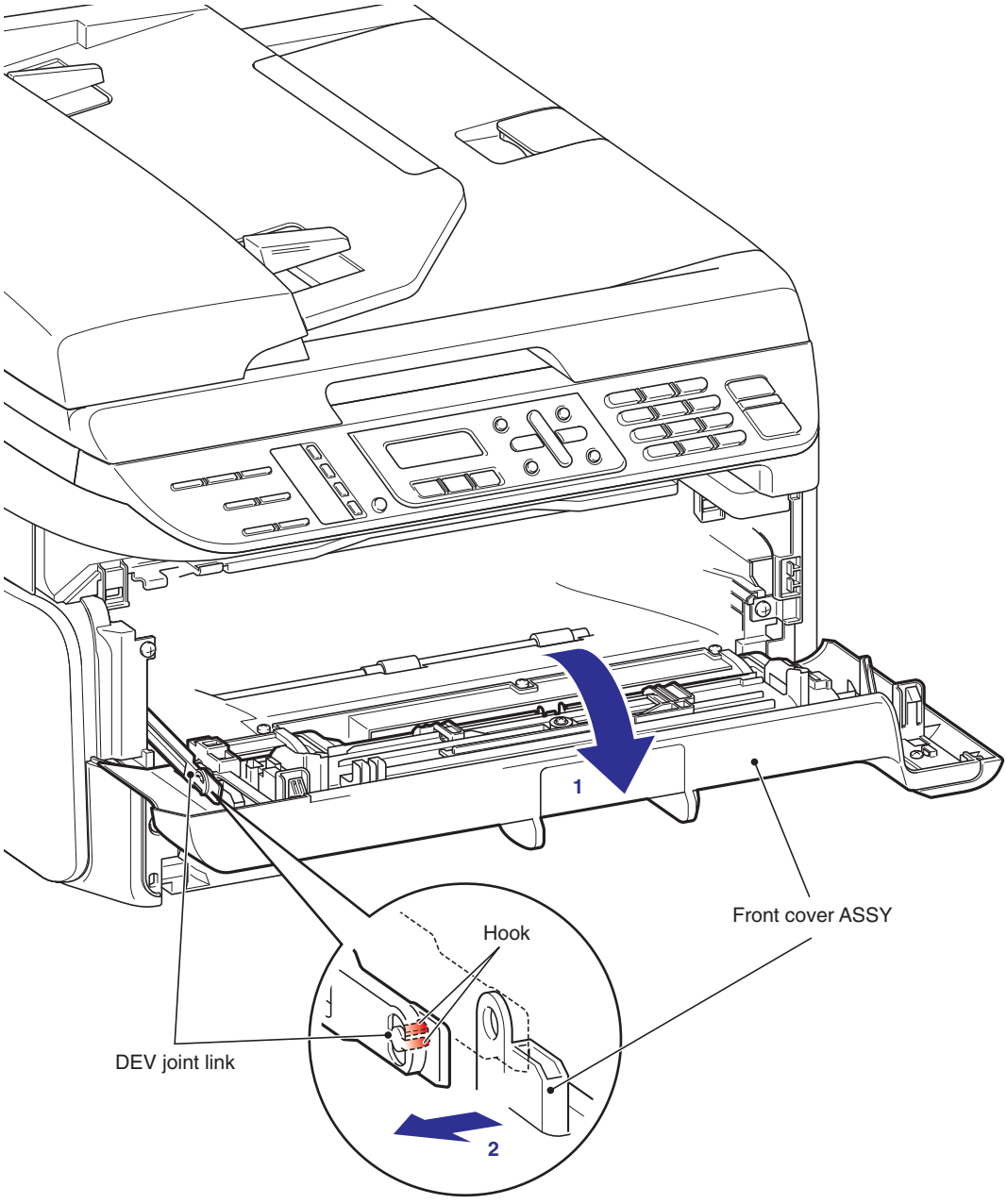


Fig. 3-9

(3) Release the Hook of the Front cover ASSY from the Front cover top.

(4) Remove the Boss of the Front chute ASSY, and then remove the Front cover ASSY from the Main body.

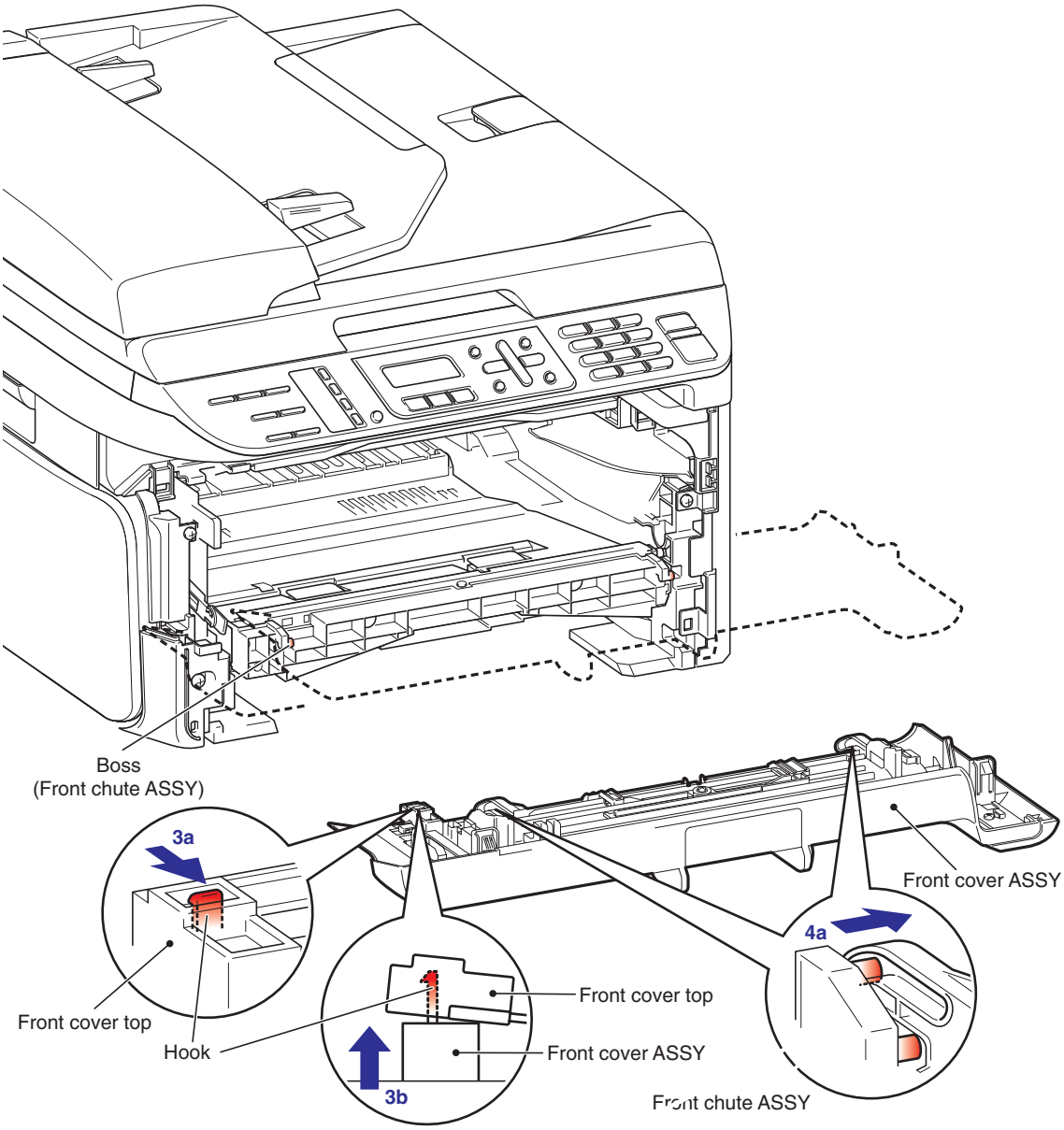


Fig. 3-10

8.2.2 PAPER STOPPER L / PAPER STOPPER S

(1) Release the Boss to remove the Paper stopper L from the Front cover ASSY.

(2) Release the Boss to remove the Paper stopper S from the Paper stopper L.

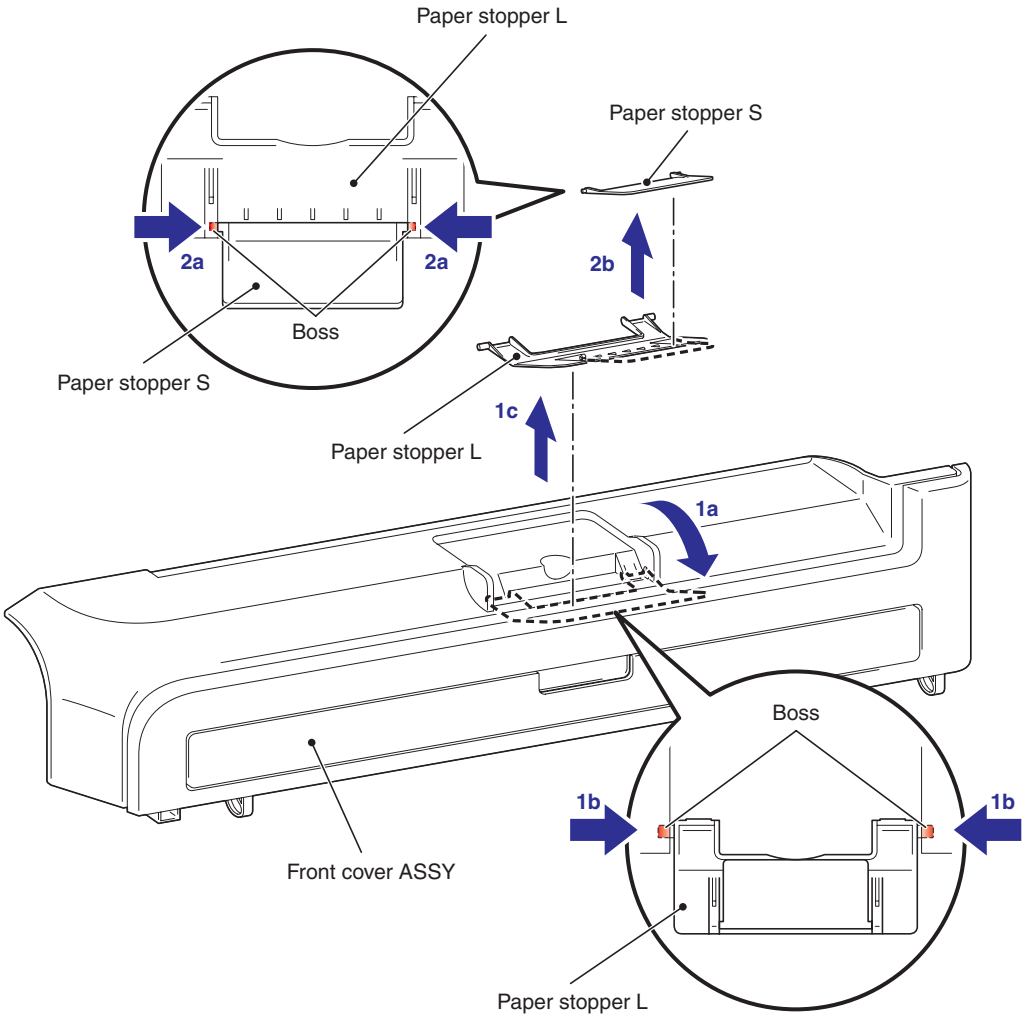


Fig. 3-11

8.3 BACK COVER / OUTER CHUTE ASSY

8.3.1 BACK COVER

(1) Open the Back cover.

(2) Release the Boss of the Outer chute ASSY from the Back cover.

(3) Release the Hook from the Side cover R ASSY.

(4) Slide the Back cover from the Main body, and remove it.

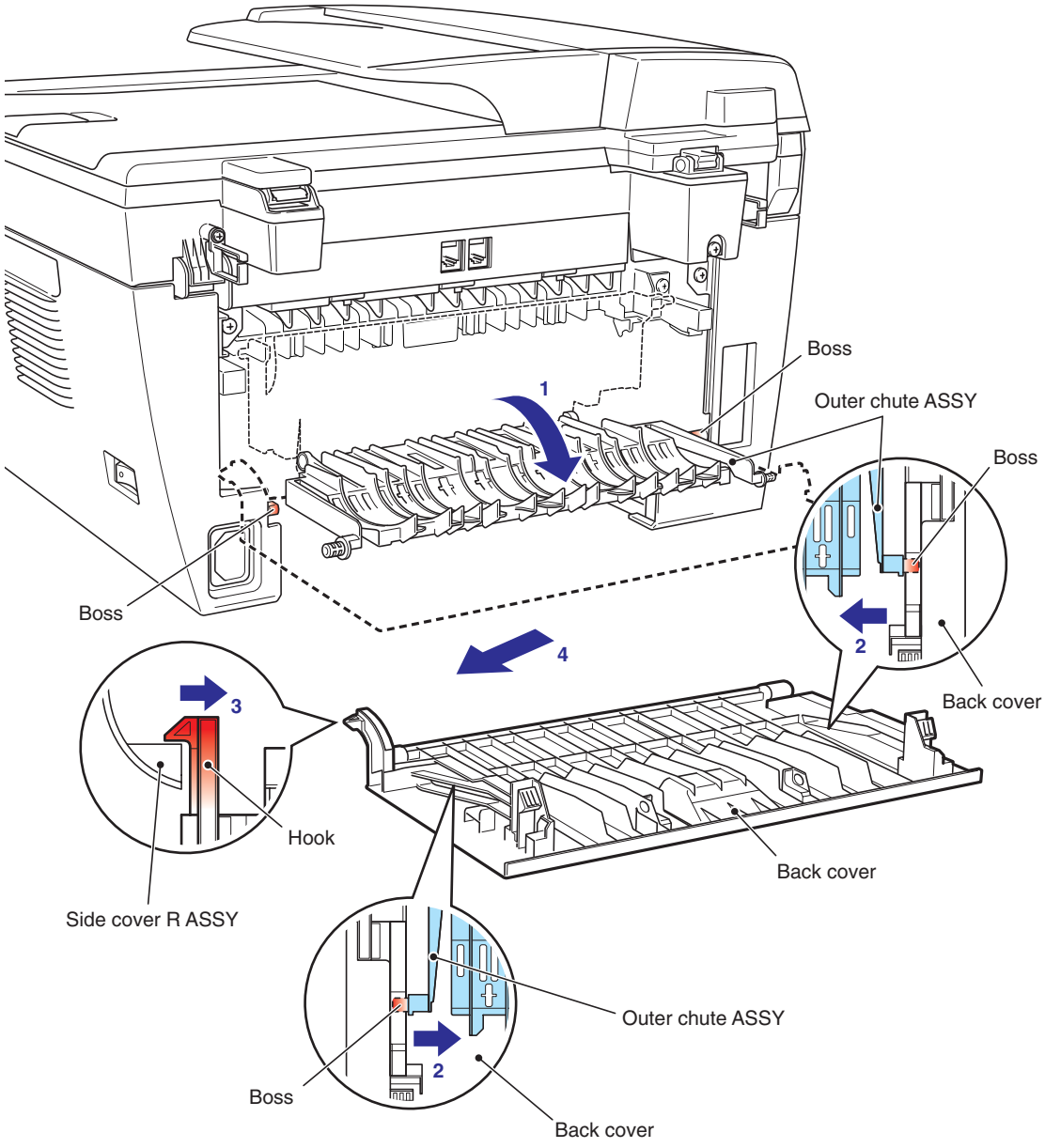


Fig. 3-12

8.3.2 OUTER CHUTE ASSY

(1) Release the Boss to remove the Outer chute ASSY from the Main body.

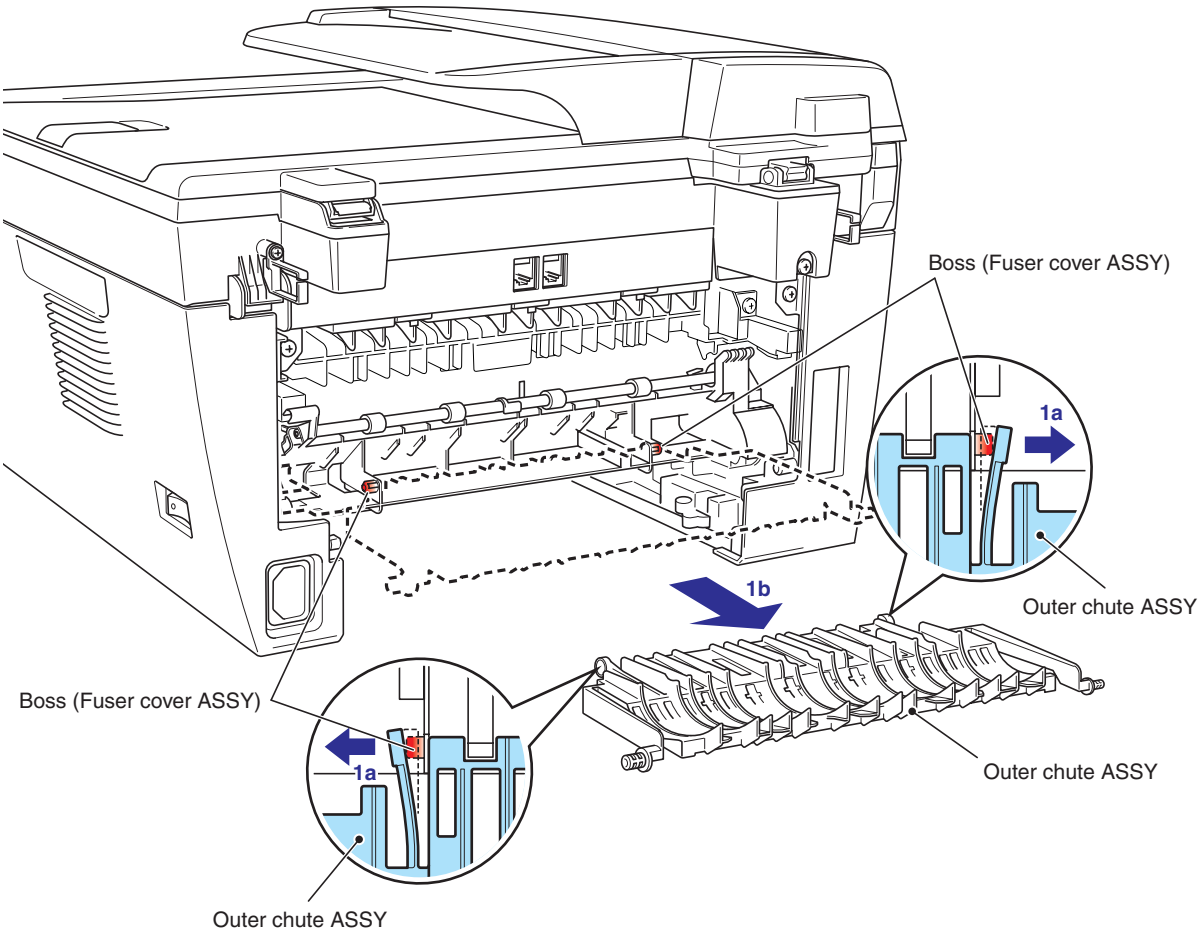


Fig. 3-13

8.4 FUSER COVER ASSY

8.4.1 FUSER COVER ASSY

(1) Pull down the Fuser cover ASSY.

(2) Remove the Fuser cover ASSY from the Main body.

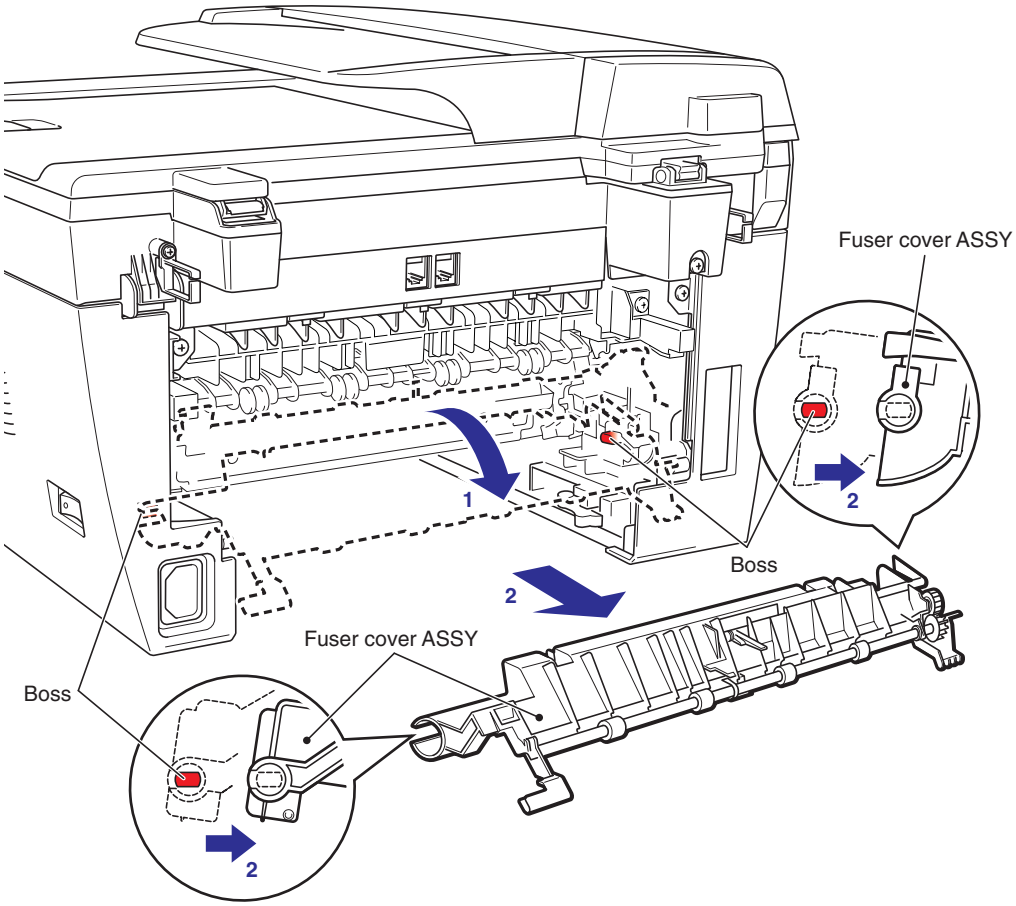


Fig. 3-14

8.4.2 EJECT ACTUATOR / EJECT ACTUATOR SPRING

(1) Release the Hook to slide the Eject actuator, and then remove the Eject actuator from the Fuser cover ASSY.

(2) Remove the Eject actuator spring from the Eject actuator.

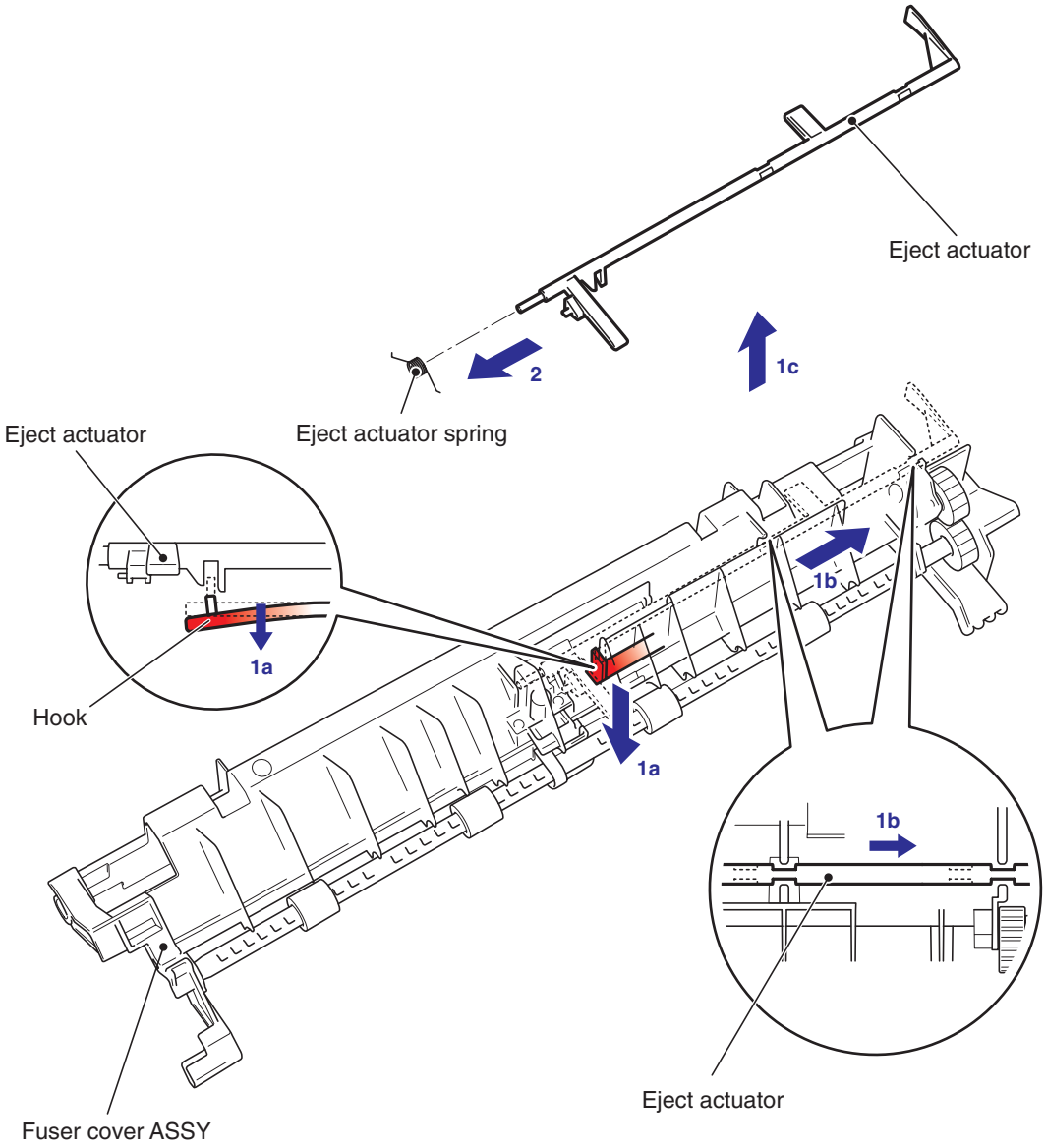


Fig. 3-15

8.4.3 EJECT ROLLER ASSY 1 / BUSH C / BUSH R / BUSH L

(1) Release the Hook of the Bush C from the Fuser cover ASSY.

(2) Remove the Eject roller ASSY 1 from the Fuser cover ASSY.

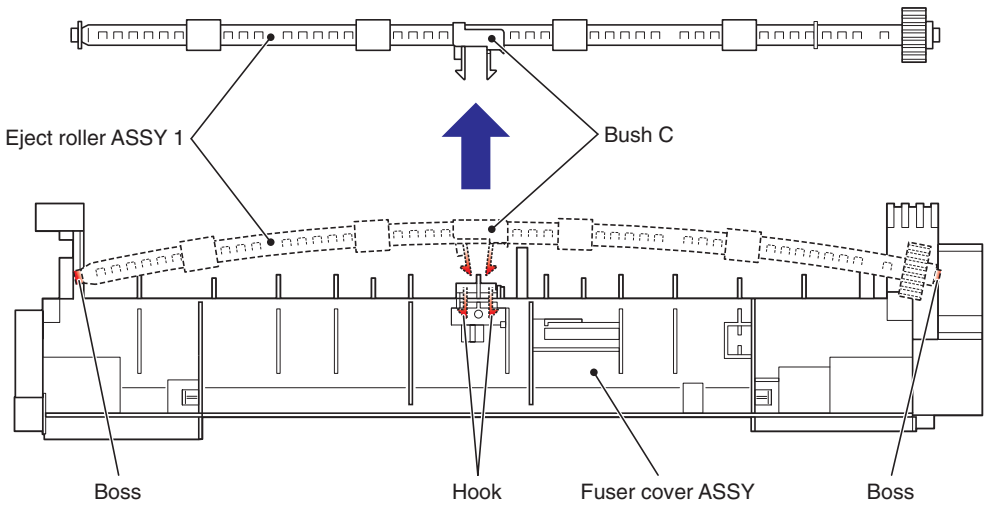


Fig. 3-16

(3) Remove the Bush C, the Bush R and the Bush L from the Eject roller ASSY 1.

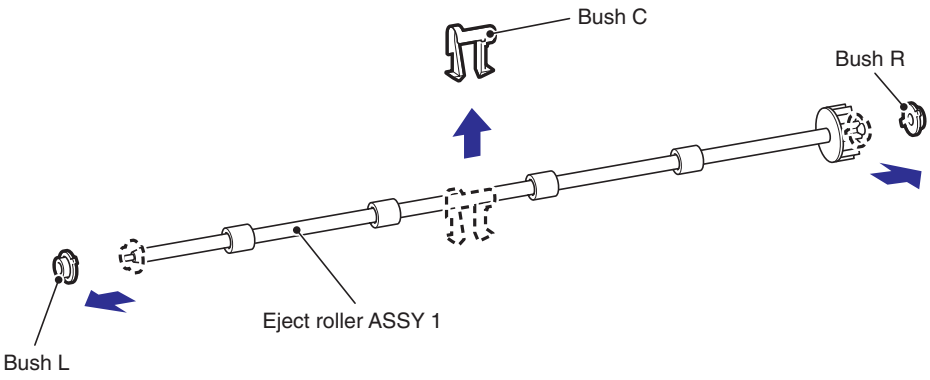


Fig. 3-17

8.5 JOINT COVER SUB CHUTE ASSY

(1) Remove the two Taptite bind B M4x12 screws, and then remove the Joint cover sub chute ASSY from the Main body.

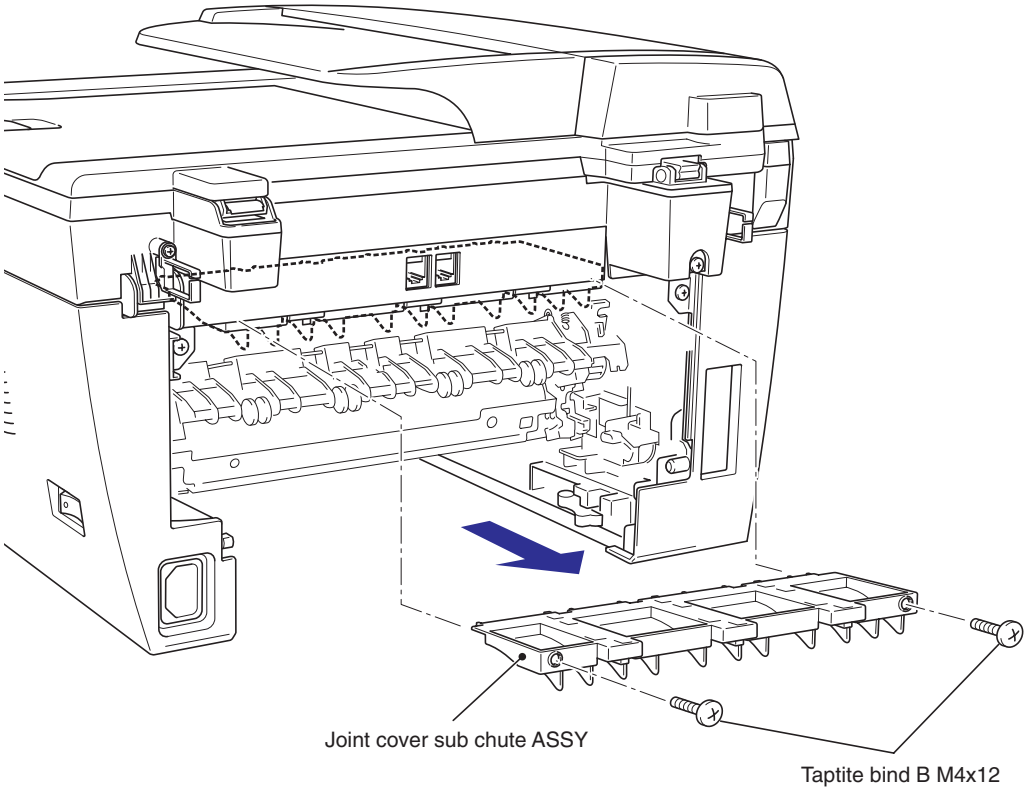


Fig. 3-18

8.6 INNER CHUTE ASSY

(1) Remove the two Taptite bind B M4x12 screws, and then remove the Inner chute ASSY from the Main body.

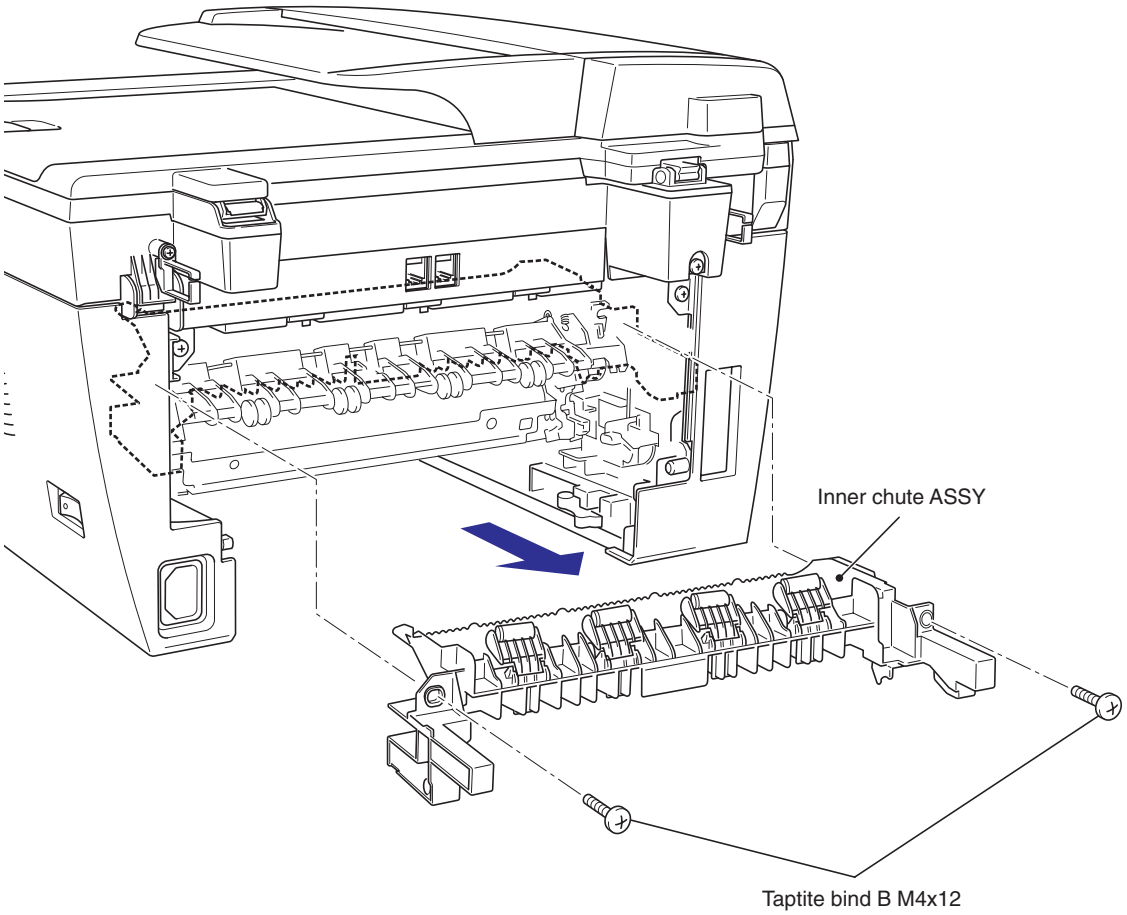


Fig. 3-19

8.7 FUSER UNIT

(1) Disconnect the Connector.

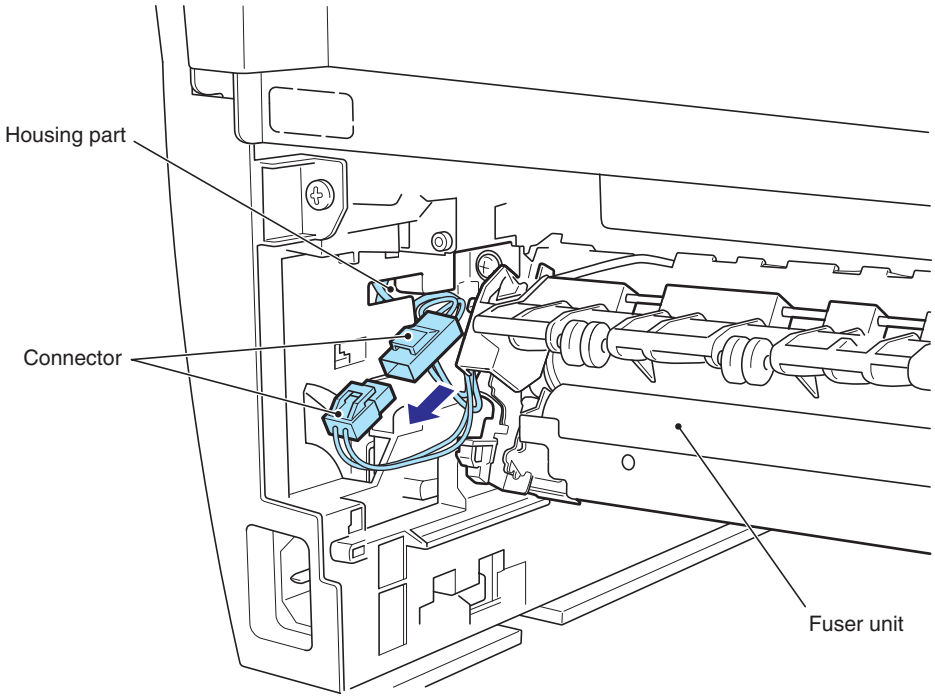


Fig. 3-20

CAUTION:
Pull out the Connector from the Housing part of the Main body left side.

(2) Disconnect the two Connectors from the Eject sensor PCB ASSY.

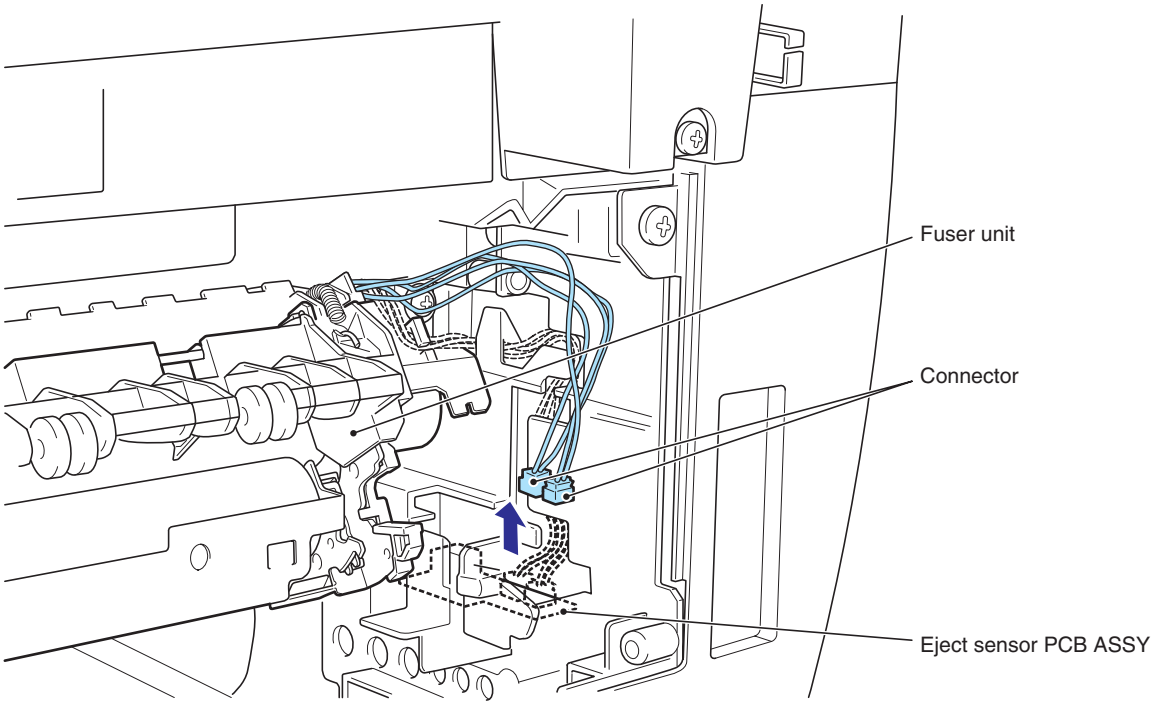


Fig. 3-21

(3) Remove the two Taptite pan B M4x14 screws, and then remove the Fuser unit from the Main body.

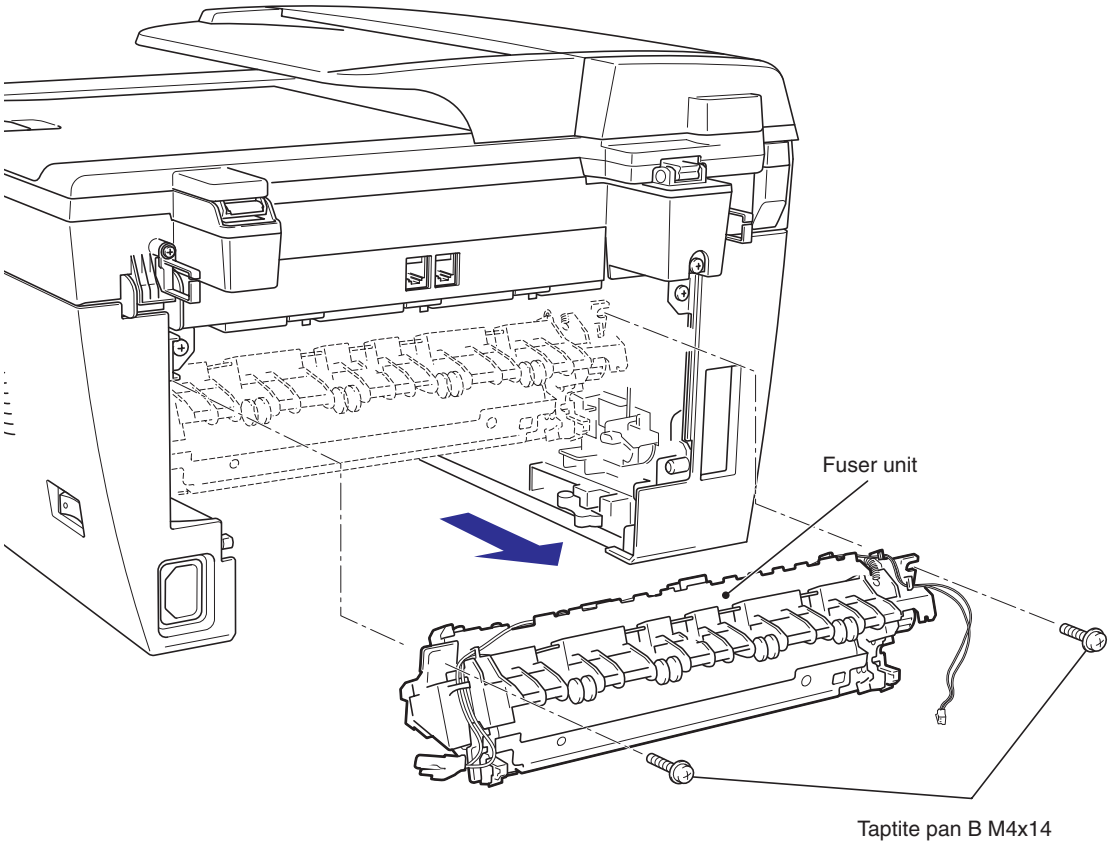


Fig. 3-22

8.8 CORNER COVER

(1) Remove the Taptite bind B M4x12 screw.

(2) Release the Hook to remove the Corner cover from the Main body.

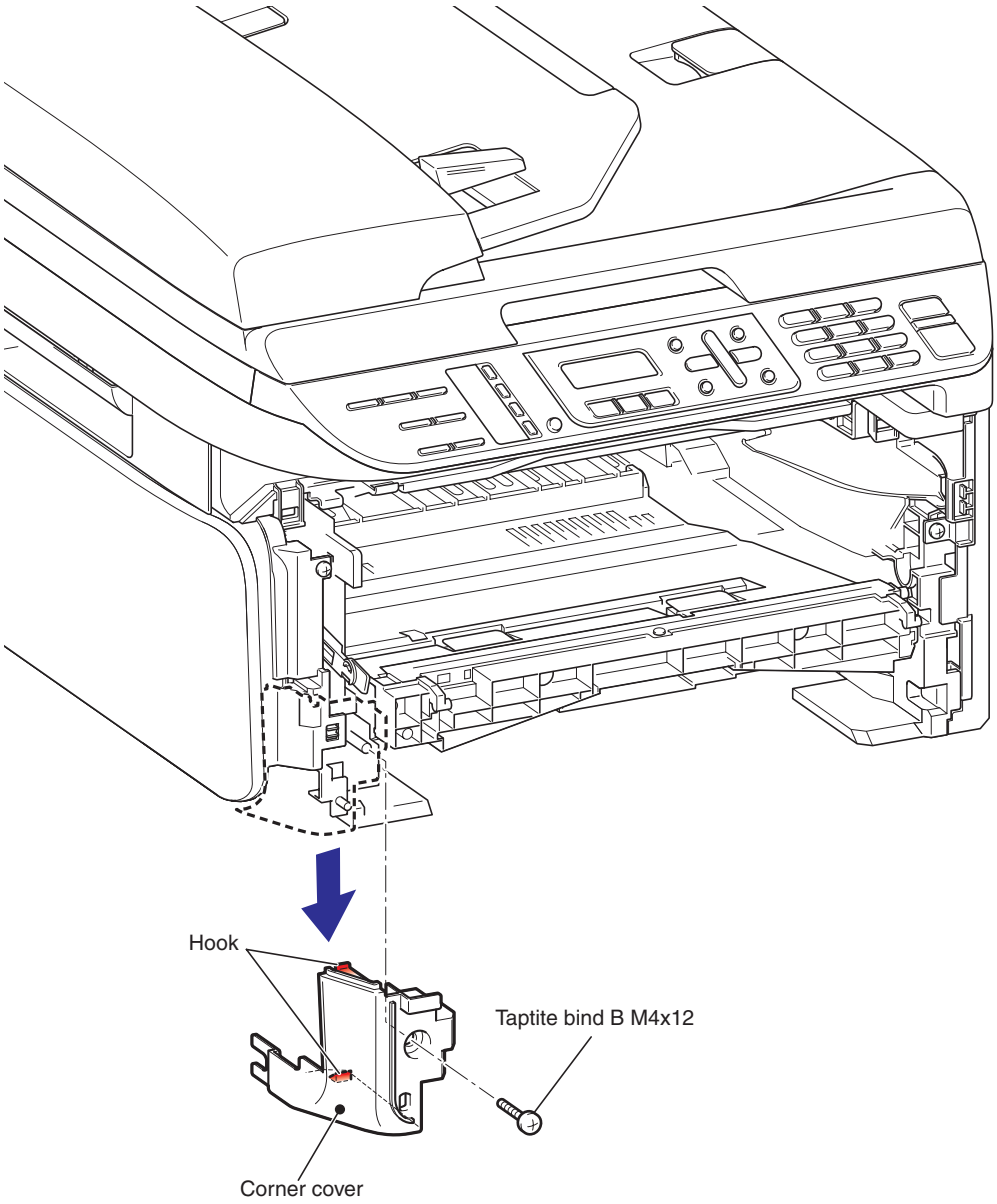


Fig. 3-23

L ASSY / SIDE COVER SU

. ASSY

two Taptite bind B M4x12 screws

Hook to remove Side cover L AS n the Main body.

8.9.2 SIDE COVER SUB L

(1) Remove the Taptite bind B M4x12 screw.

(2) Release the Hook to remove the Side cover sub L from the Side cover L ASSY.

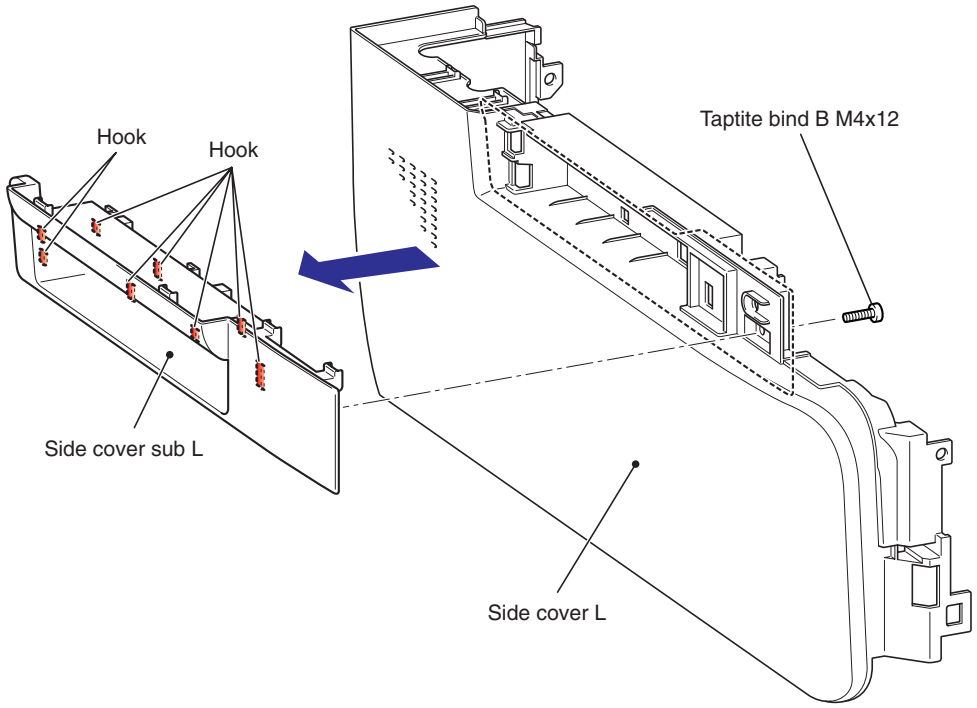


Fig. 3-25

8.10 MAIN SHIELD COVER PLATE

(1) Remove the two Taptite cup S M3x6 SR screws, and then remove the two FG harness from the Main body.

(2) Remove the Taptite cup S M3x6 SR screw, and then remove the Main shield cover plate from the Main body.

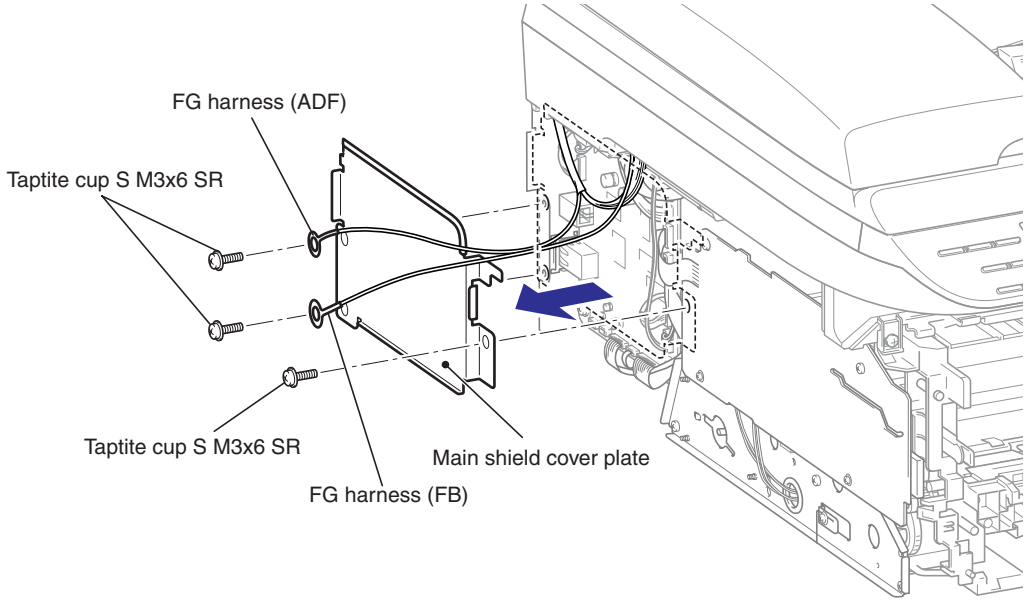


Fig. 3-26

8.11 ADF UNIT

8.11.1 ADF UNIT

(1) Remove the two Connectors from the Main PCB ASSY.

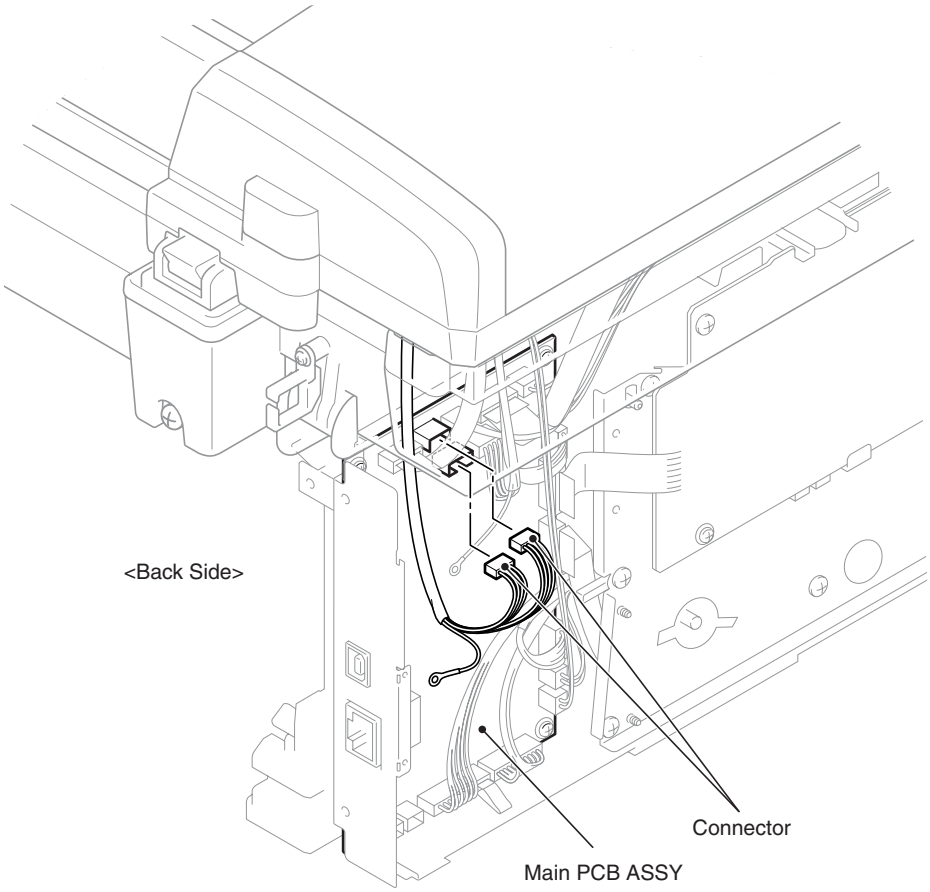


Fig. 3-27

(2) Open the ADF unit.

(3) Remove the Taptite bind B M4x12 screw from the Hinge ASSY L.

(4) Release the Hook of the Hinge R to remove the ADF unit from the Main body.

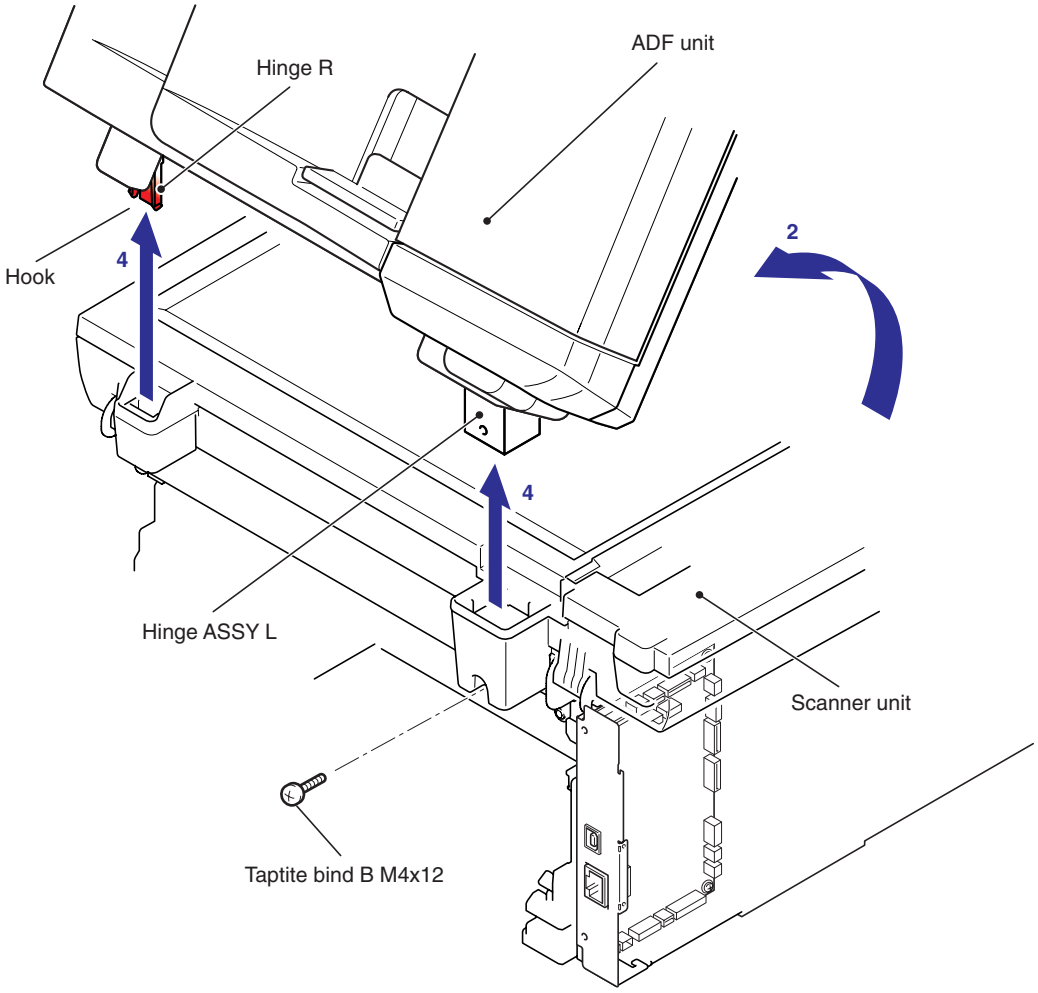


Fig. 3-28

8.11.2 HINGE R / HINGE ARM / HINGE ASSY L

(1) Remove the Hinge R from the Hinge arm.

(2) Remove the Taptite bind B M4x12 screw, and then remove the Hinge arm from the ADF unit.

(3) Remove the two Taptite cup B M3x10 screws and the Taptite cup S M3x12 screw, and then remove the Hinge ASSY L from the ADF unit.

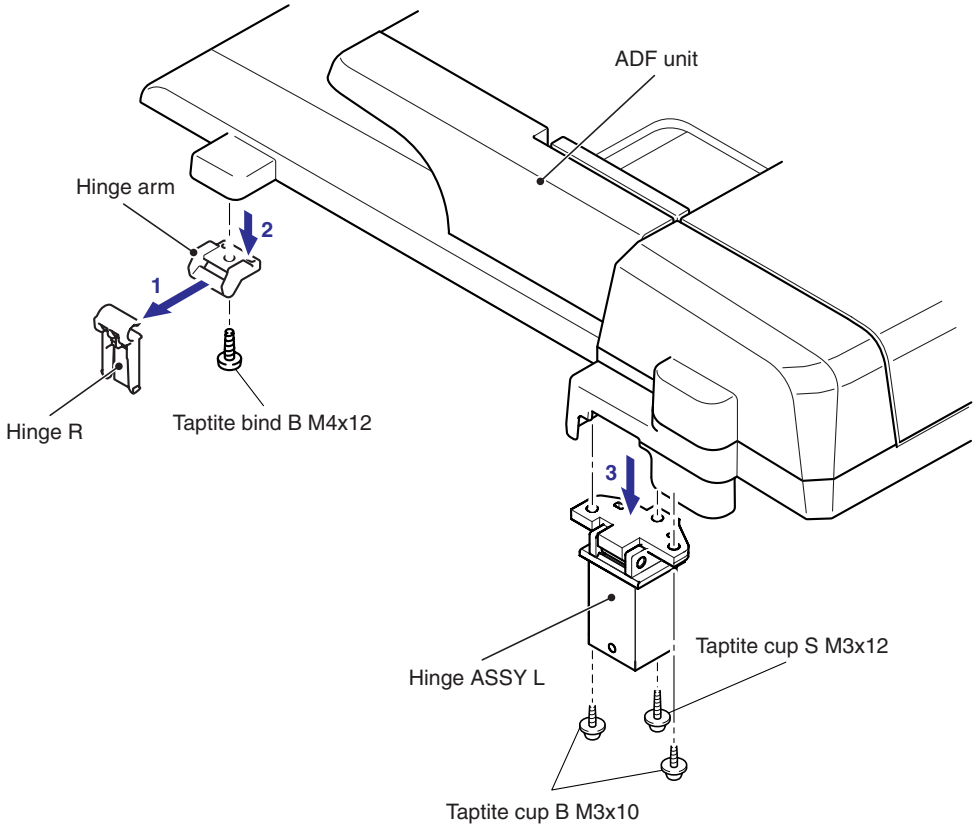


Fig. 3-29

8.11.3 ADF COVER ASSY

(1) Open the ADF cover.

(2) Release the Boss to remove the ADF cover from the ADF unit.

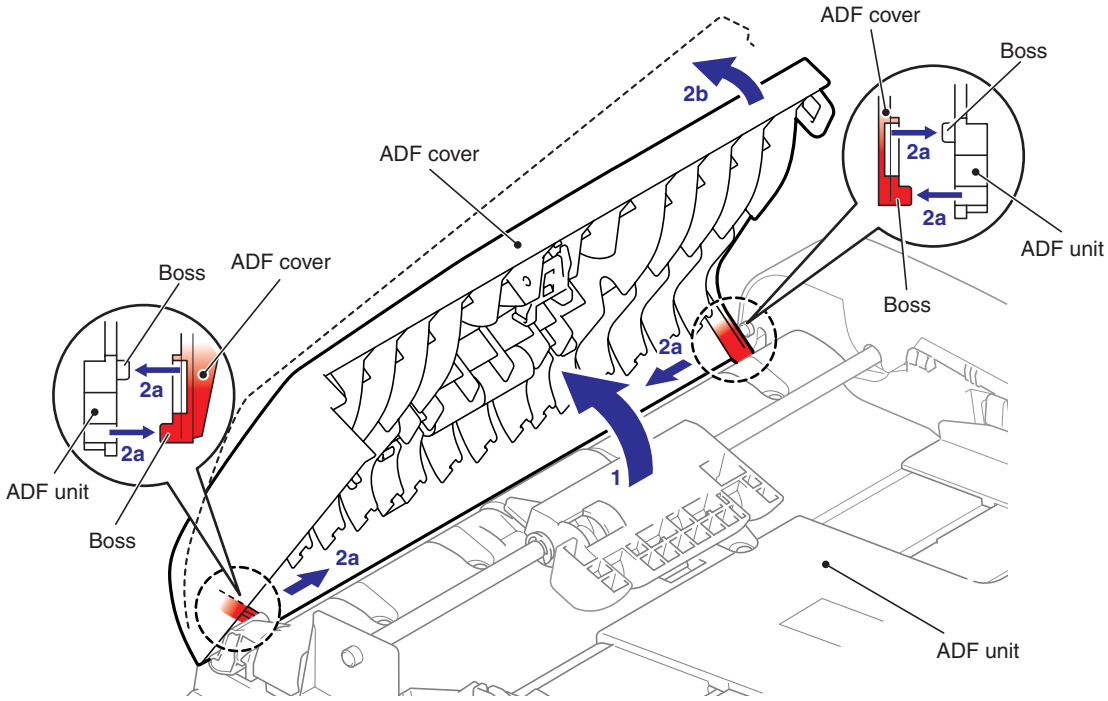


Fig. 3-30

8.11.4 GEAR COVER

(1) Release the Hook to remove the Gear cover from the ADF unit.

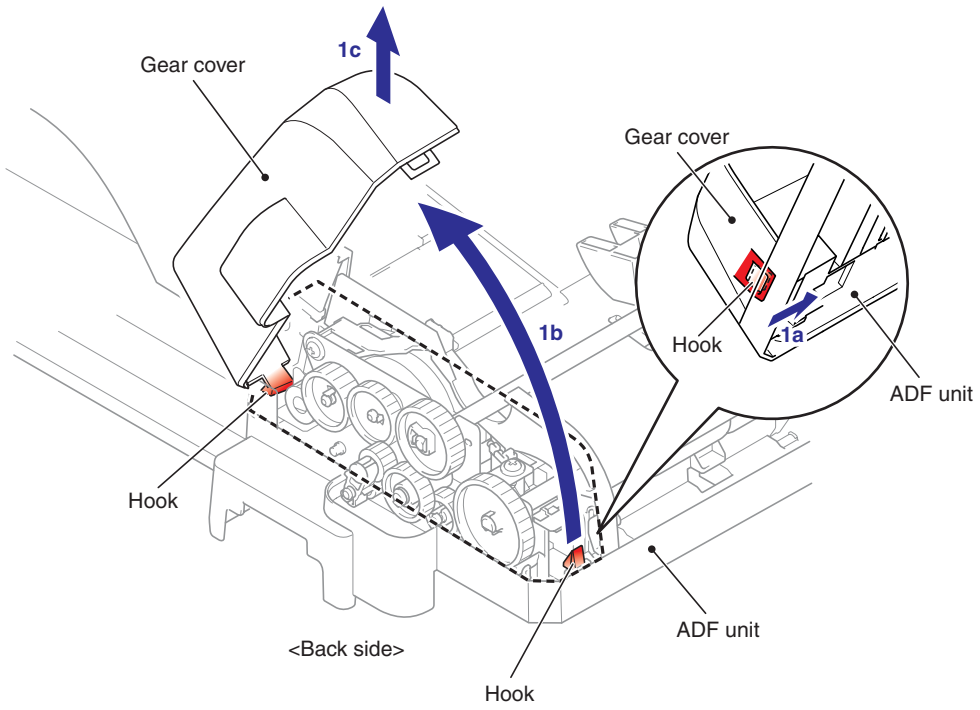


Fig. 3-31

8.11.5 DOCUMENT SEPARATOR ROLLER SHAFT ASSY

(1) Remove the Separator roller shaft ASSY from the ADF unit.

(2) Remove the Separator roller bushing from the Separator roller shaft ASSY.

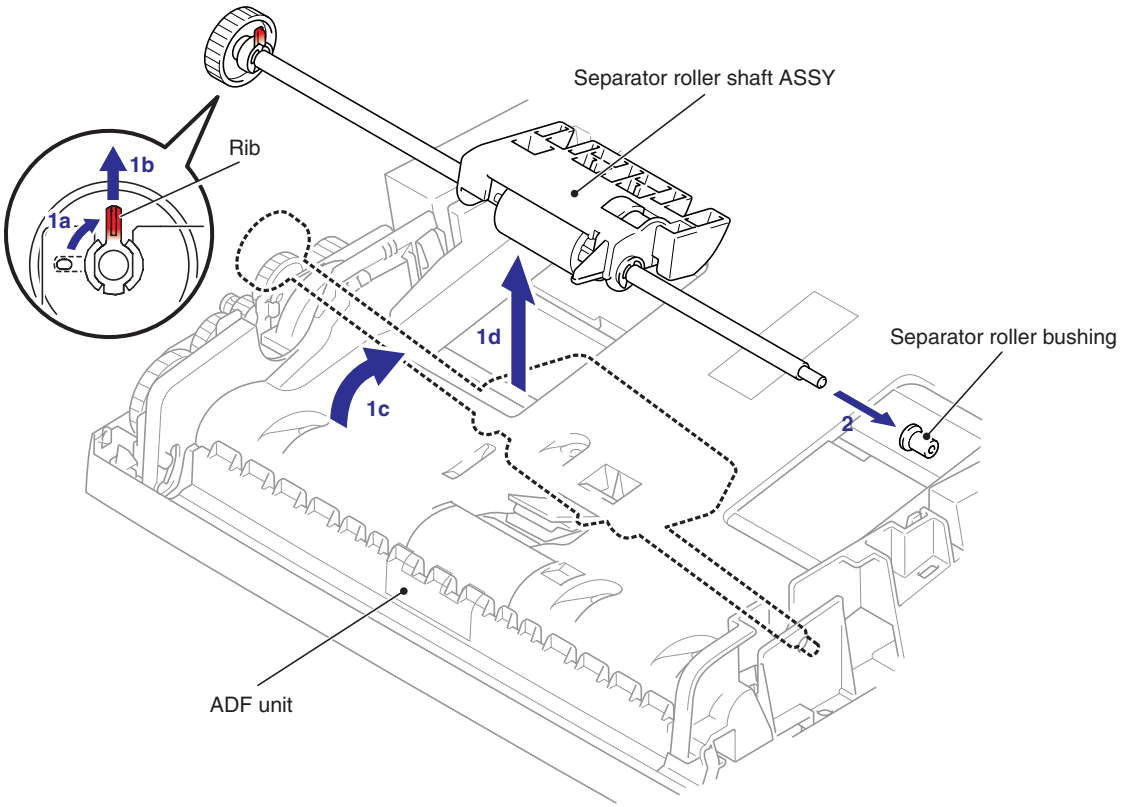


Fig. 3-32

8.11.6 UPPER DOCUMENT CHUTE ASSY

(1) Remove the four Taptite cup B M3x10 screws.

(2) Release the Hook to remove the Upper document chute ASSY from the ADF unit.

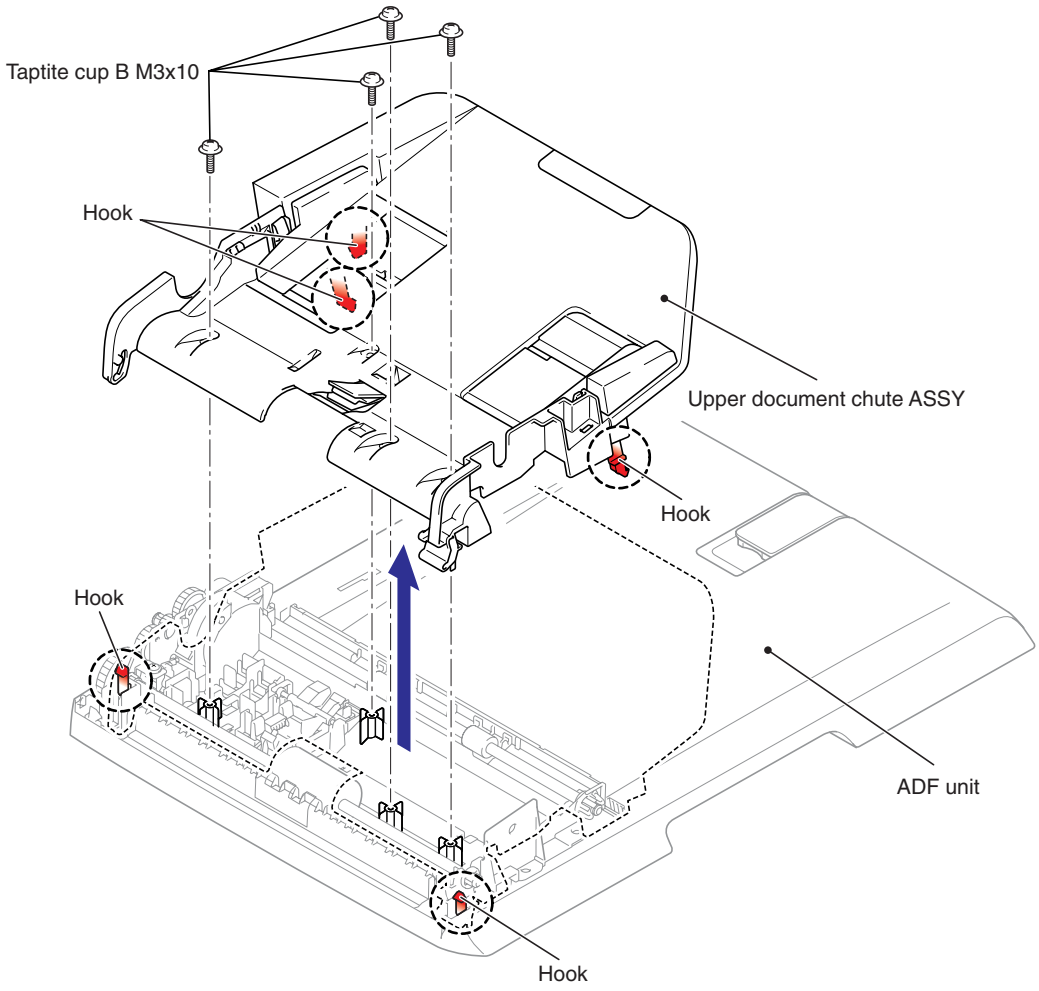


Fig. 3-33

(3) Release the Hook to remove the ADF plate spring and the Separation rubber ASSY from the Upper document chute ASSY.

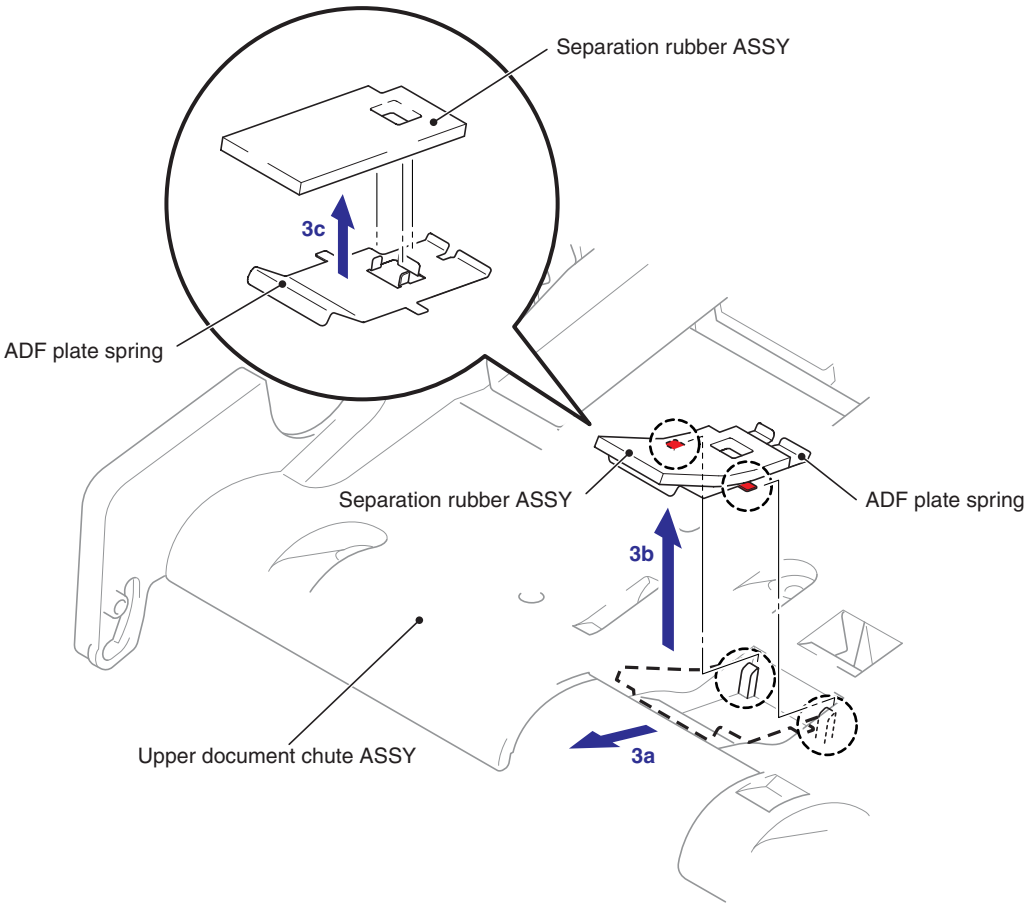


Fig. 3-34

8.11.7 LOWER DOCUMENT CHUTE ASSY

(1) Remove the two Taptite cup B M3x10 screws, and then remove the Lower document chute ASSY from the Document cover sub ASSY.

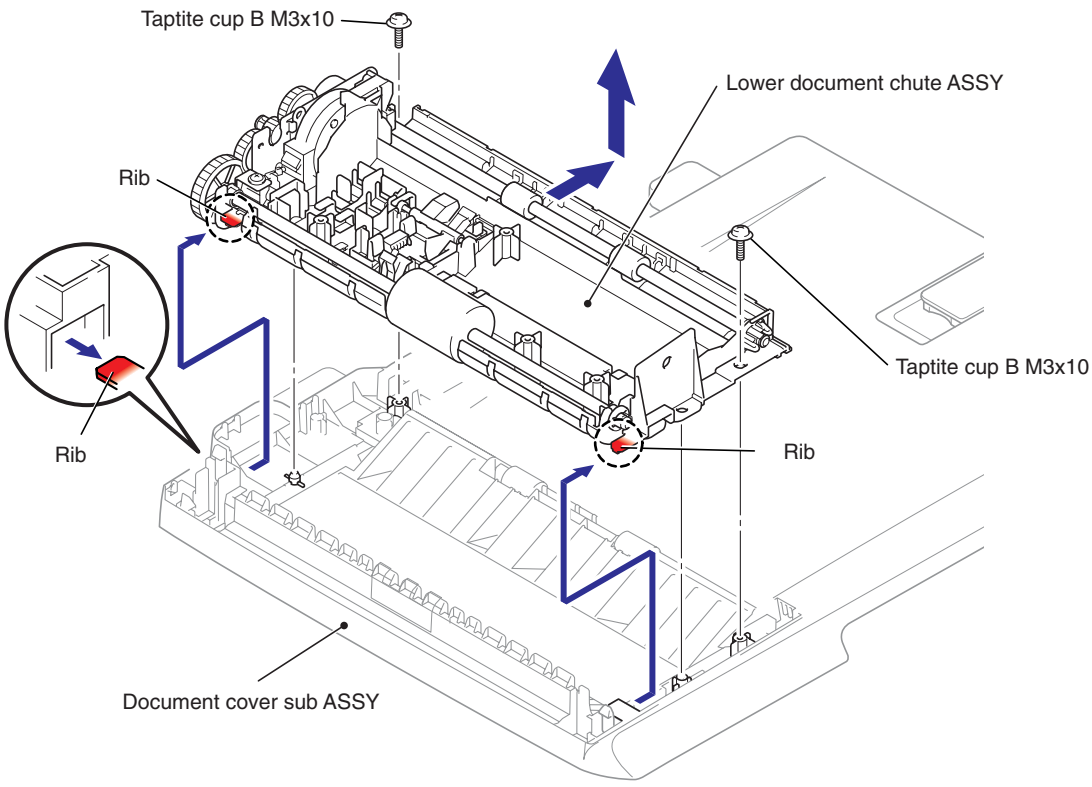


Fig. 3-35

8.11.8 ADF SENSOR PCB ASSY

(1) Pull the Hook to slide the Document front actuator.

(2) Remove the Document front actuator from the Lower document chute ASSY.

(3) Pull the Hook to slide the Document rear actuator.

(4) Remove the Document rear actuator from the Lower document chute ASSY.

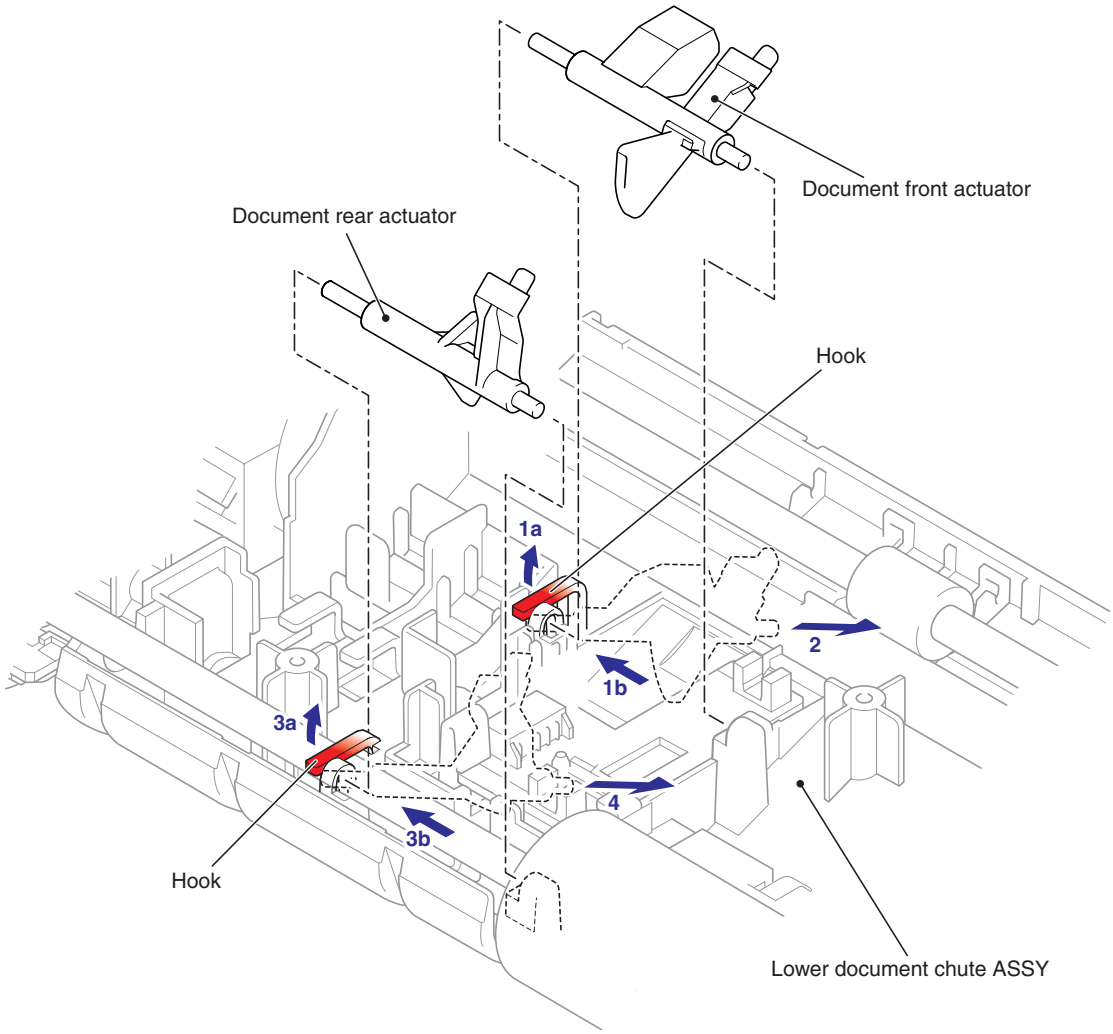


Fig. 3-36

(5) Release the Hook to remove the ADF sensor PCB ASSY from the Lower document chute ASSY.

(6) Disconnect the Connector from the ADF sensor PCB ASSY.

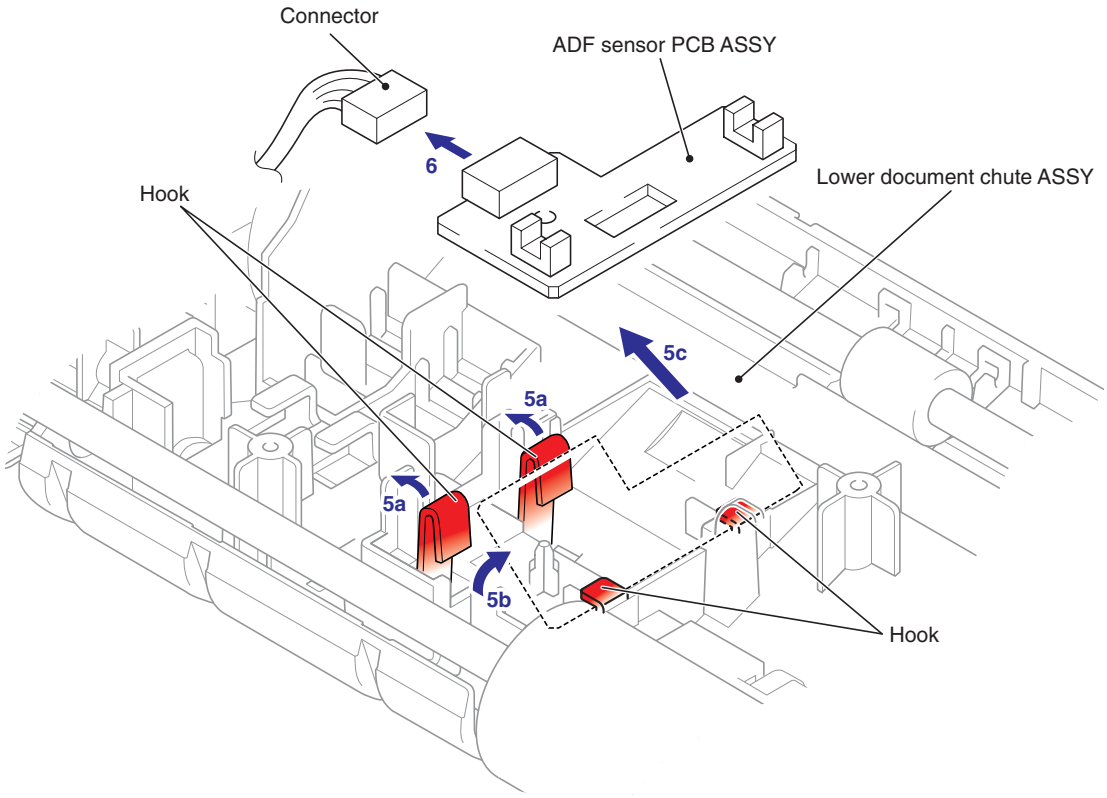


Fig. 3-37

8.11.9 LF ROLLER ASSY

(1) Release the Hook to remove the LF roller bushing from the Lower document chute ASSY.

(2) Remove the LF roller ASSY from the Lower document chute ASSY.

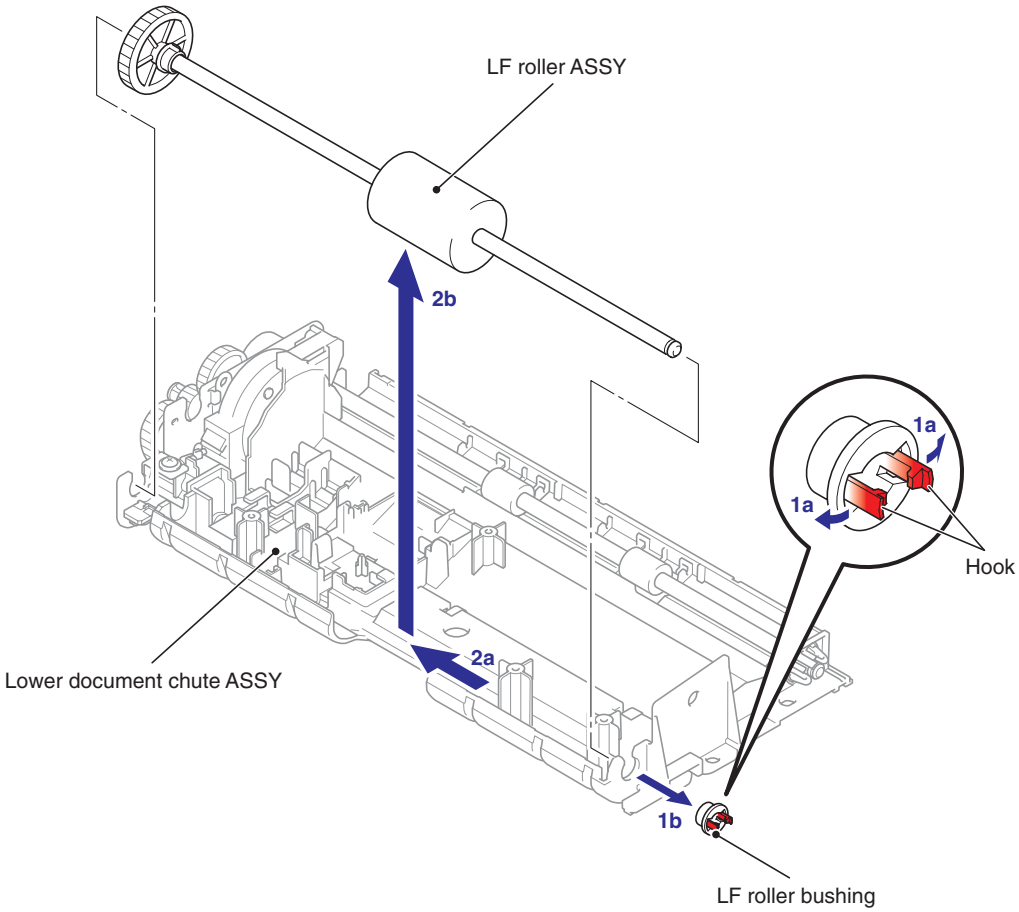


Fig. 3-38

CAUTION:

Be careful not to get grease on the roller.

8.11.10 EJECTION ROLLER ASSY

(1) Release the Hook of the Ejection roller bushing, and then slide the Ejection roller ASSY to remove the Ejection roller ASSY from the Lower document chute ASSY.

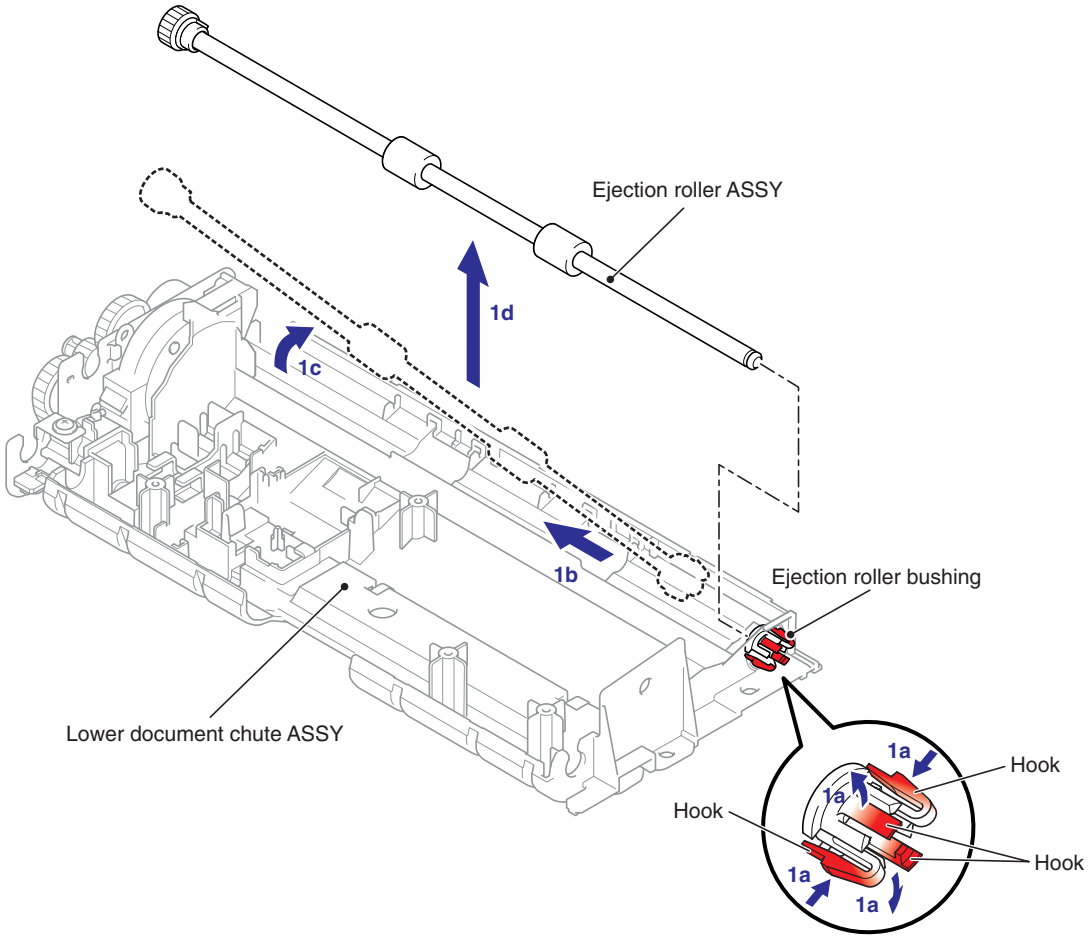


Fig. 3-39

CAUTION:

Be careful not to get grease on the roller.

8.11.12 ADF MOTOR

(1) Remove the Taptite bind S M3x6 screw, and then remove the ADF motor from the Drive frame ASSY.

(2) Remove the ADF harness unit from the ADF motor.

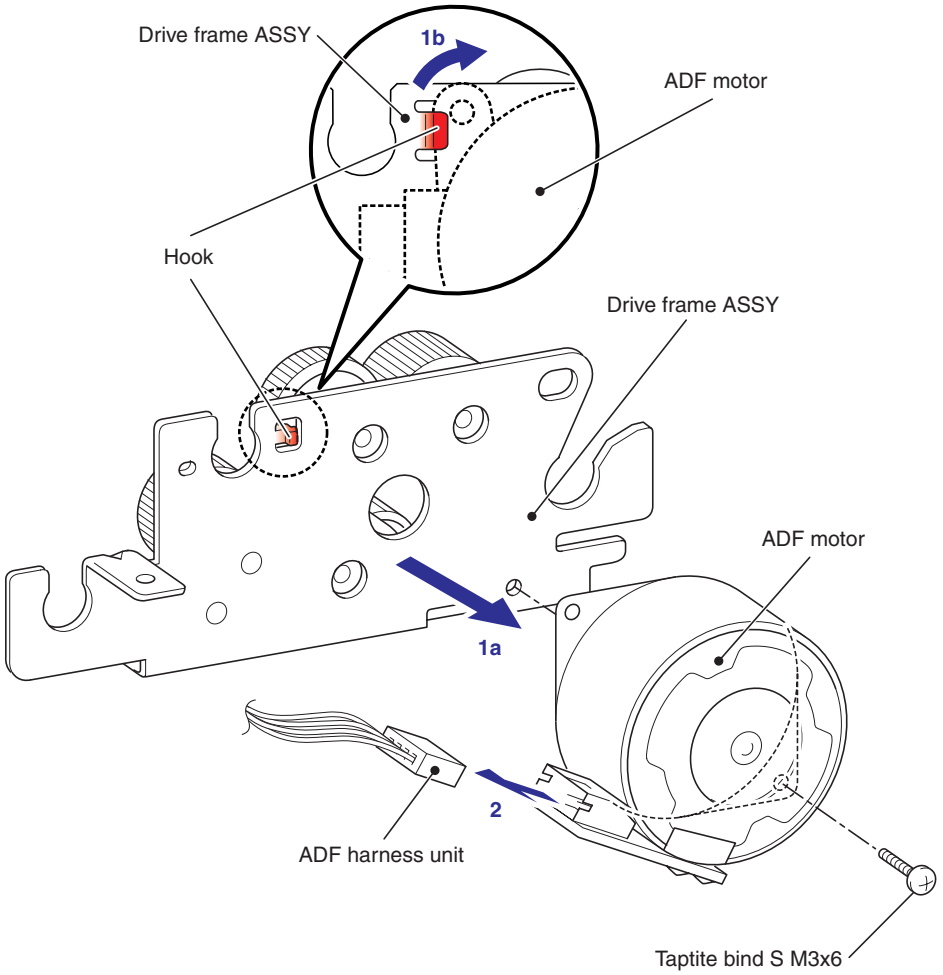


Fig. 3-41

8.11.13 PRESSURE ROLLER ASSY

(1) Release the Hook to remove the Pressure roller ASSY from the Document cover sub ASSY.

(2) Remove the two Pressure rollers from the Pressure roller shaft.

(3) Remove the Pressure roller spring from the Document cover sub ASSY.

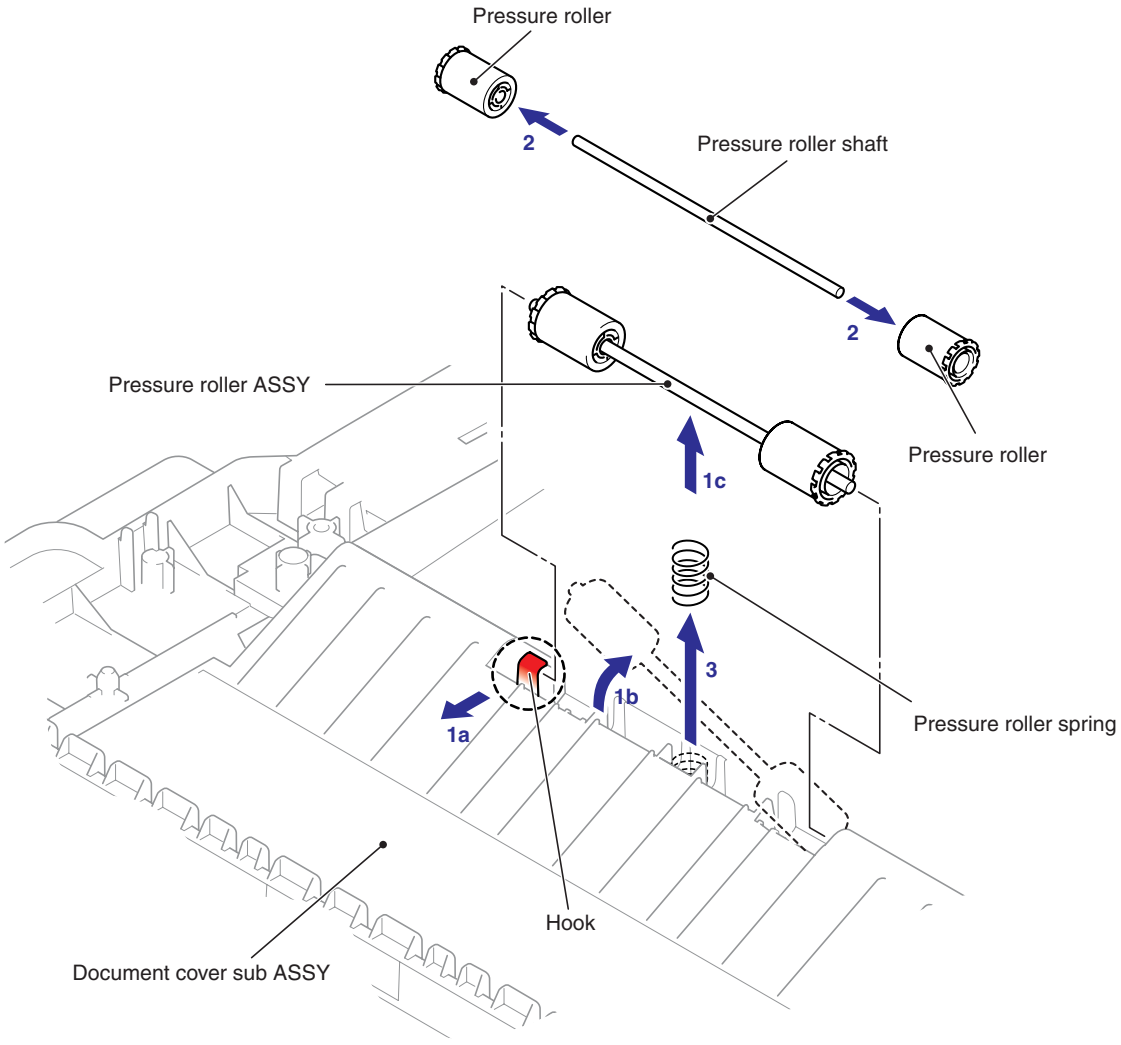


Fig. 3-42

CAUTION:

Be careful not to get grease on the roller.

8.11.14 DOCUMENT STOPPER

(1) Open the Document stopper.

(2) Release the Boss to remove the Document stopper from the Document dress cover.

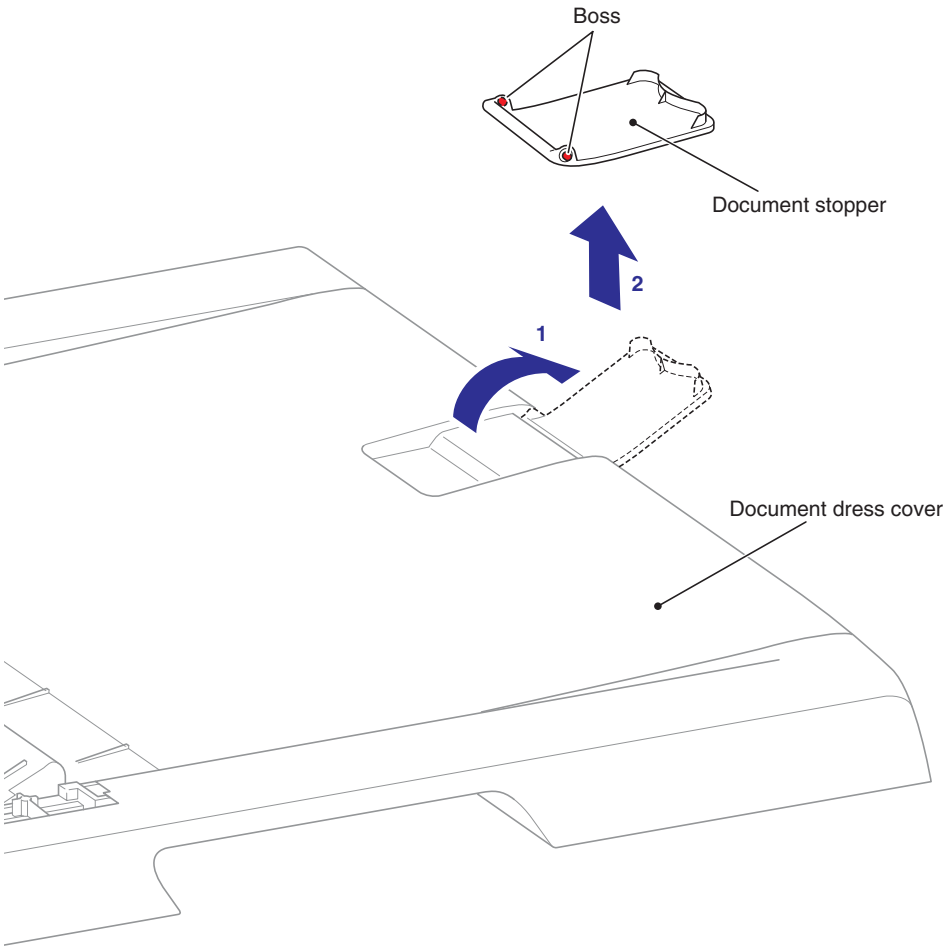


Fig. 3-43

8.11.15 DOCUMENT DRESS COVER

(1) Remove the Taptite cup B M3x8.

(2) Release the Boss of the Document dress cover from the Document cover sub ASSY.

(3) Release the Hook to remove the Document dress cover from the Document cover sub ASSY.

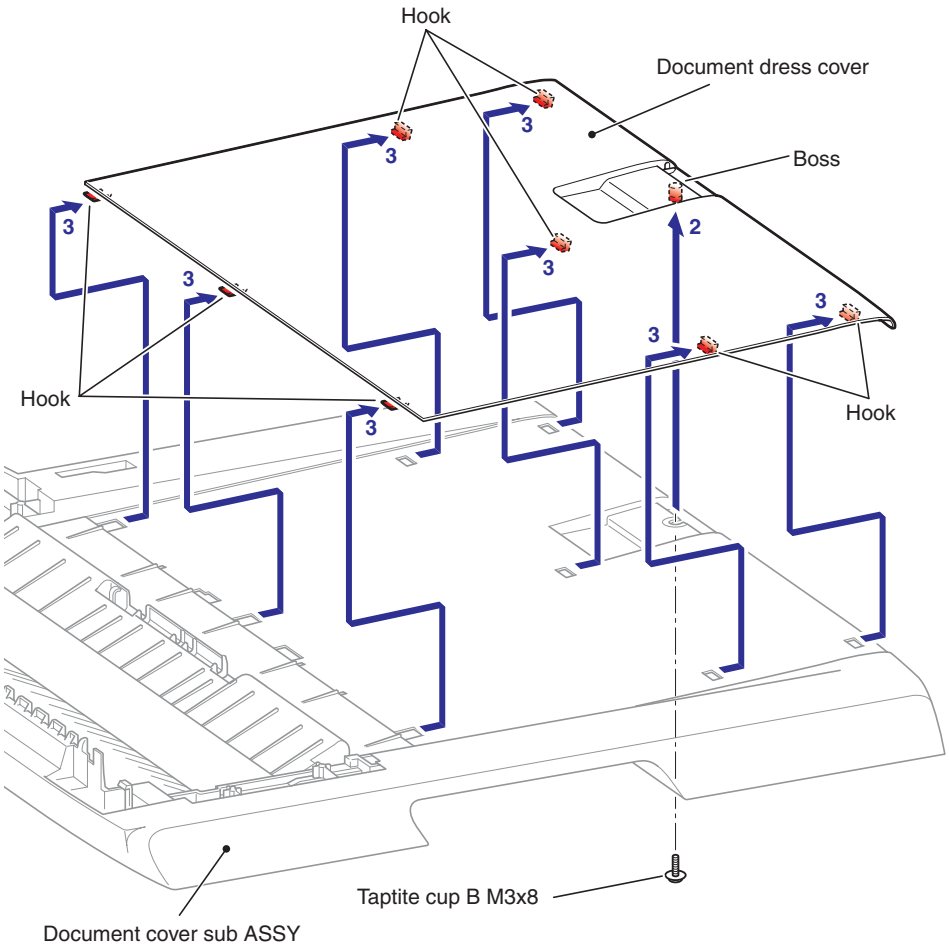


Fig. 3-44

8.12 DOCUMENT SCANNER UNIT

8.12.1 DOCUMENT SCANNER UNIT

(1) Disconnect the two connectors and FFC from the Main PCB ASSY.

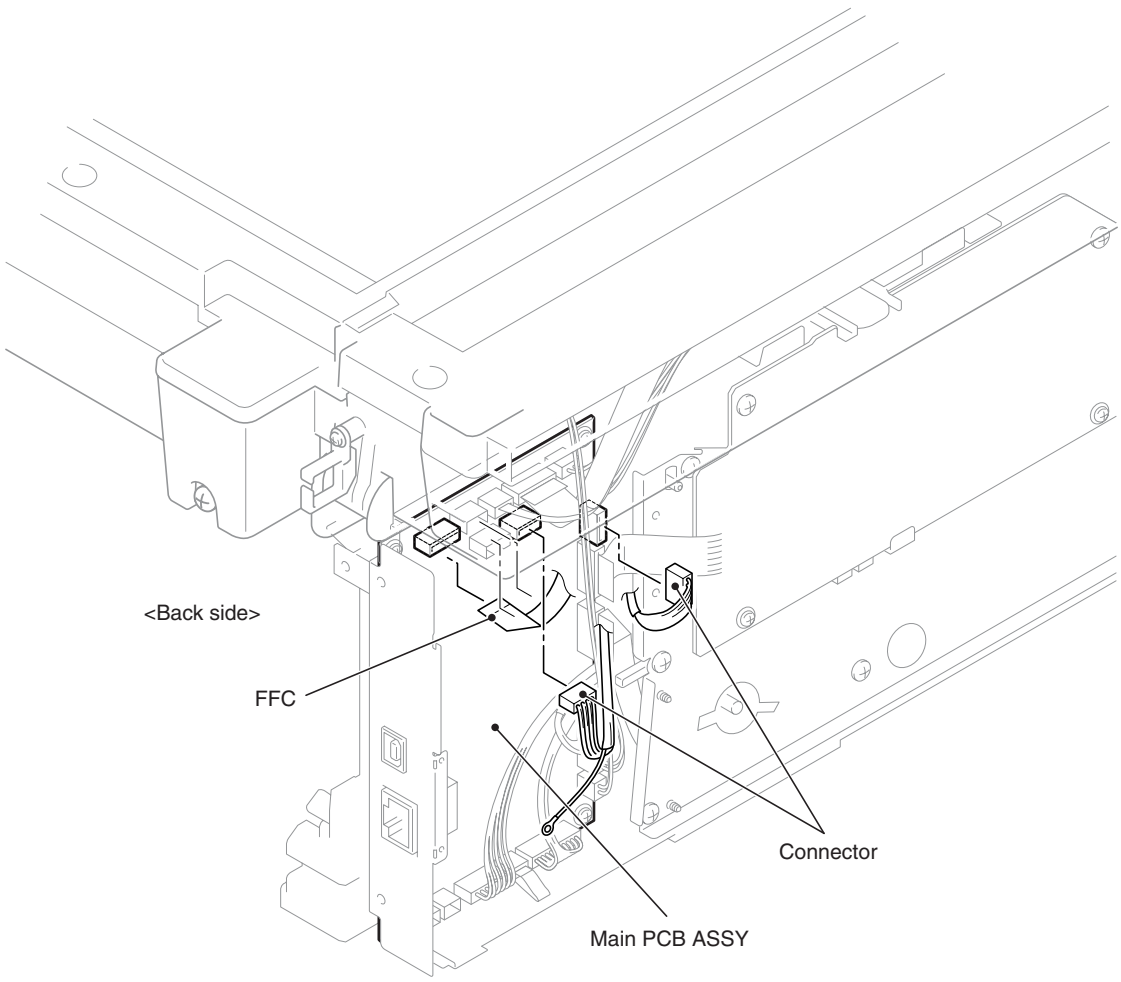


Fig. 3-45

Note:

- After disconnecting the flat cable(s), check that each cable is not damaged at its end or short-circuited.
- When connecting the flat cable(s), do not insert it at an angle. After insertion, check that the cable is not at an angle.

(2) Open the Document scanner unit.

(3) Remove the Pull arm L and the Pull arm R from the Boss of the Document scanner unit.

(4) Remove the Document scanner unit from the Main body.

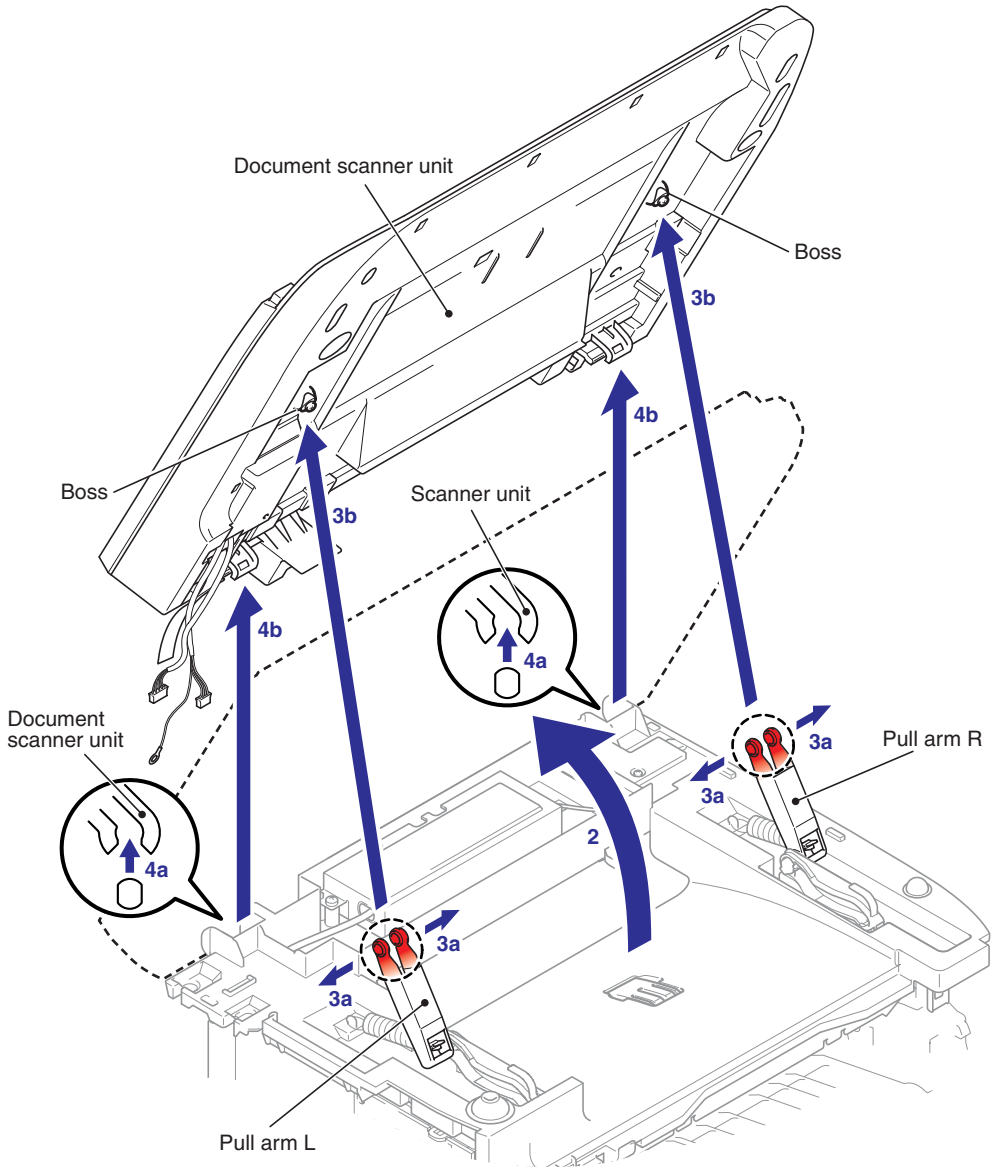


Fig. 3-46

8.12.2 CORD HOOK

(1) Remove the two Taptite cup B M3x8 screws, and then remove the two cord hooks from the Document scanner unit.

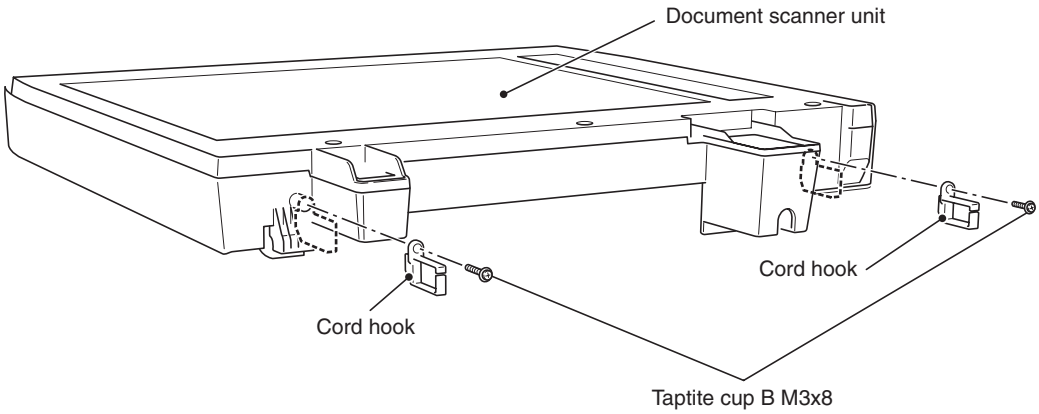


Fig. 3-47

8.12.3 PANEL UNIT

(1) Remove the four Taptite cup B M3x10 screws.

(2) Release the Hook to remove the Panel unit from the Document scanner unit.

(3) Disconnect the connector from the Panel PCB ASSY.

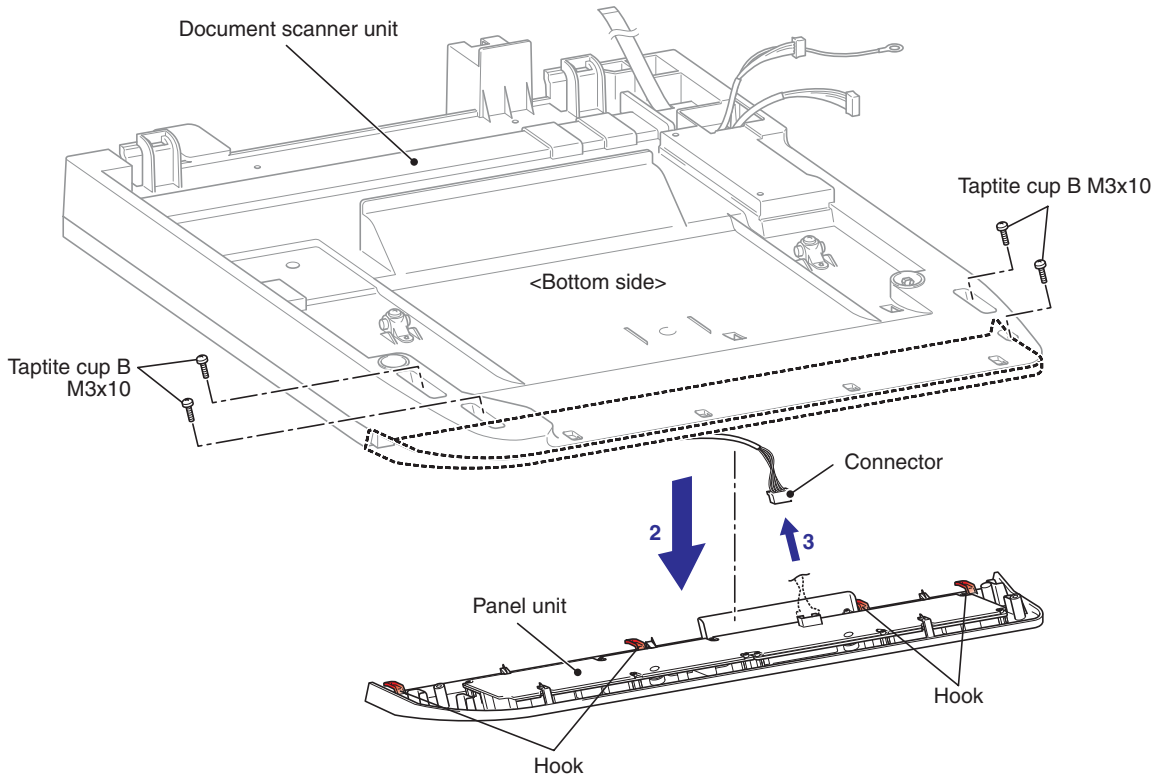


Fig. 3-48

8.12.4 PANEL PCB ASSY

(1) Release the Hook to remove the Panel PCB ASSY from the Panel unit.

(2) Release the Lock to remove the FFC from the Panel PCB ASSY.

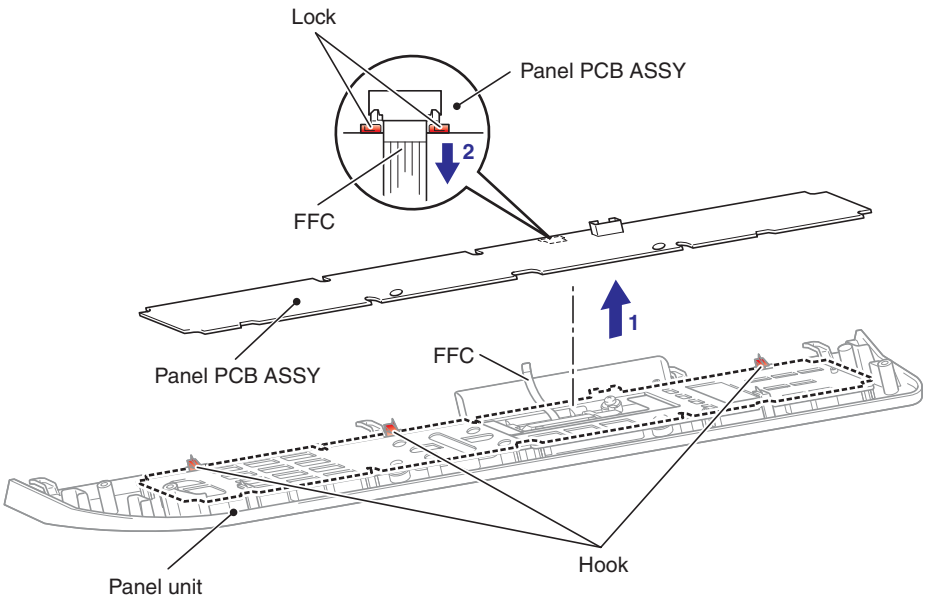


Fig. 3-49

Note:

- After disconnecting the flat cable(s), check that each cable is not damaged at its end or short-circuited.
- When connecting the flat cable(s), do not insert it at an angle. After insertion, check that the cable is not at an angle.

8.12.5 RUBBER KEYS L/R

(1) Remove the Rubber keys R and the Rubber keys L from the Panel unit.

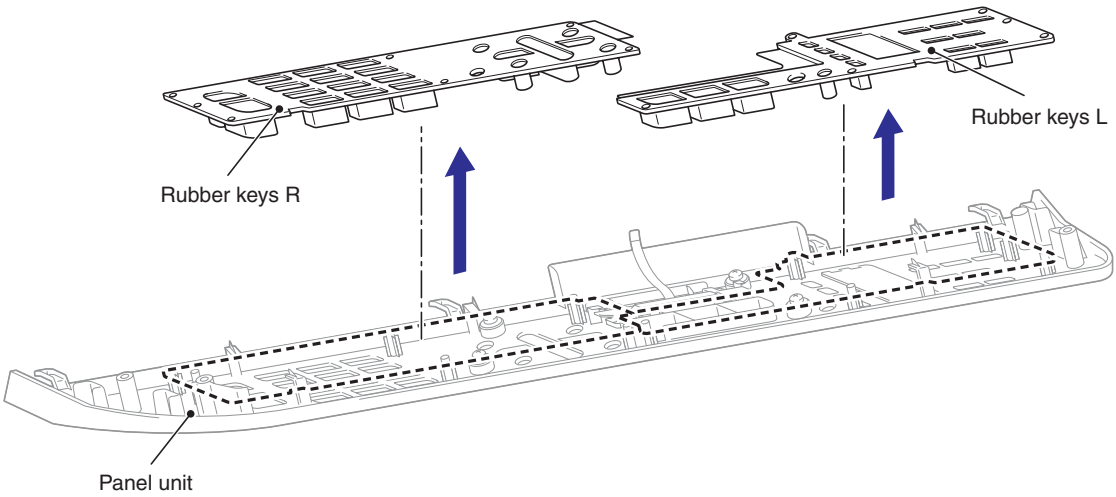


Fig. 3-50

8.12.6 LCD

(1) Release the Hook to remove the Back light guide from the Panel unit.

(2) Remove the Diffusion film from the Panel unit.

(3) Remove the LCD from the Panel unit.

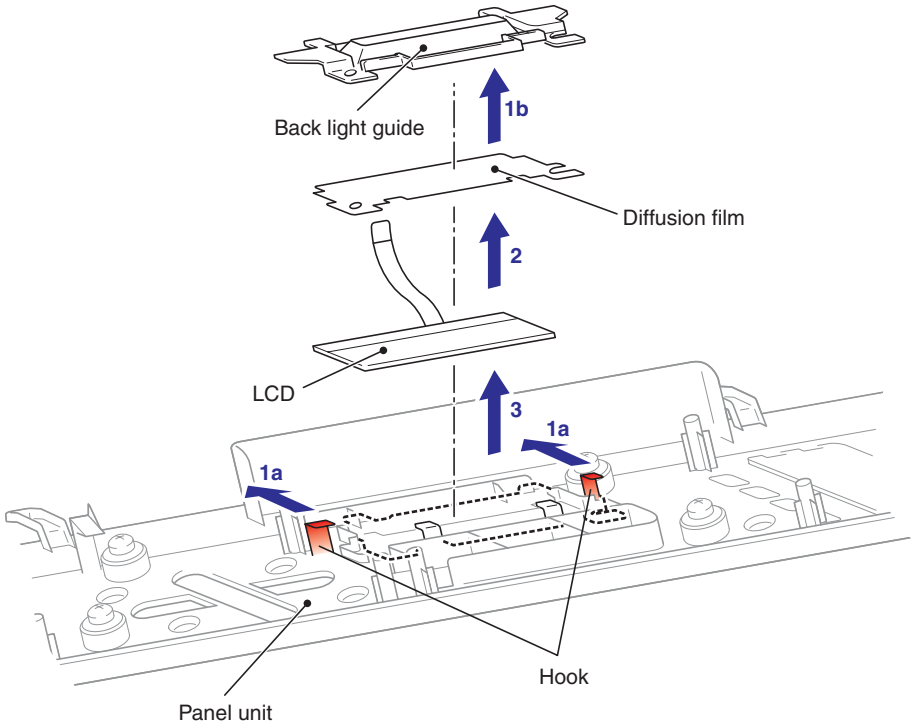


Fig. 3-51

8.12.7 PANEL DRESS COVER

(1) Remove the four Taptite cup B M3x8 screws, and then remove the Panel dress cover from the Panel unit.

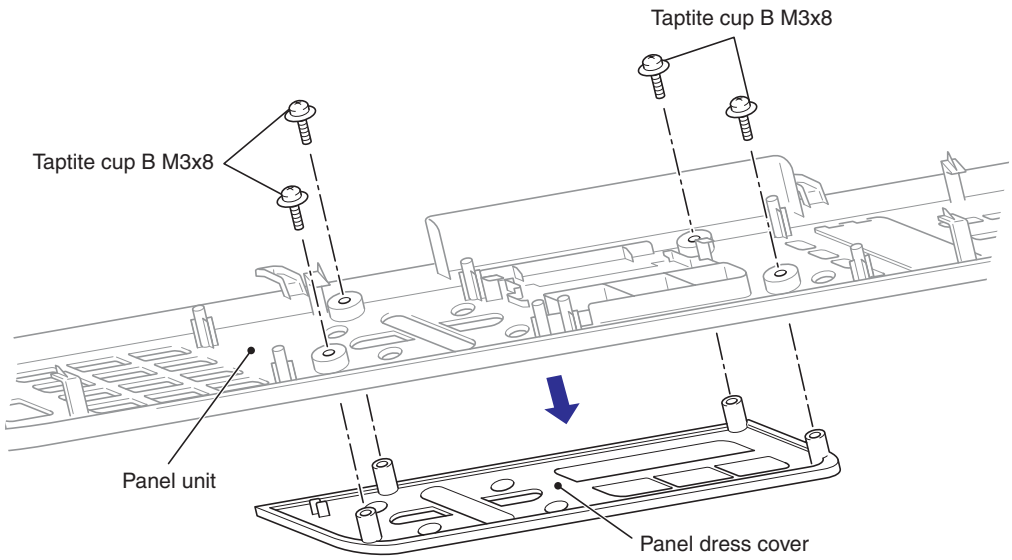


Fig. 3-52

8.12.8 ADDRESS LABEL

(1) Remove the Address label from the Panel unit.

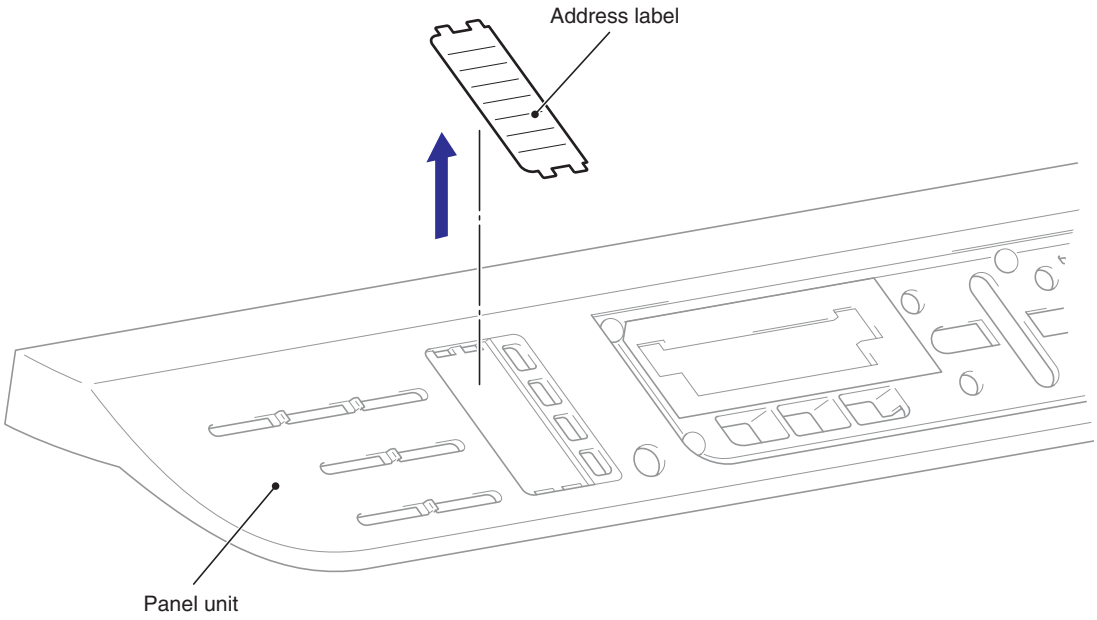


Fig. 3-53

8.13 PULL ARM L/R

(1) Remove the Pull arm spring ADF L and the Pull arm L from the Joint cover.

(2) Remove the Pull arm spring ADF R and the Pull arm R from the Joint cover.

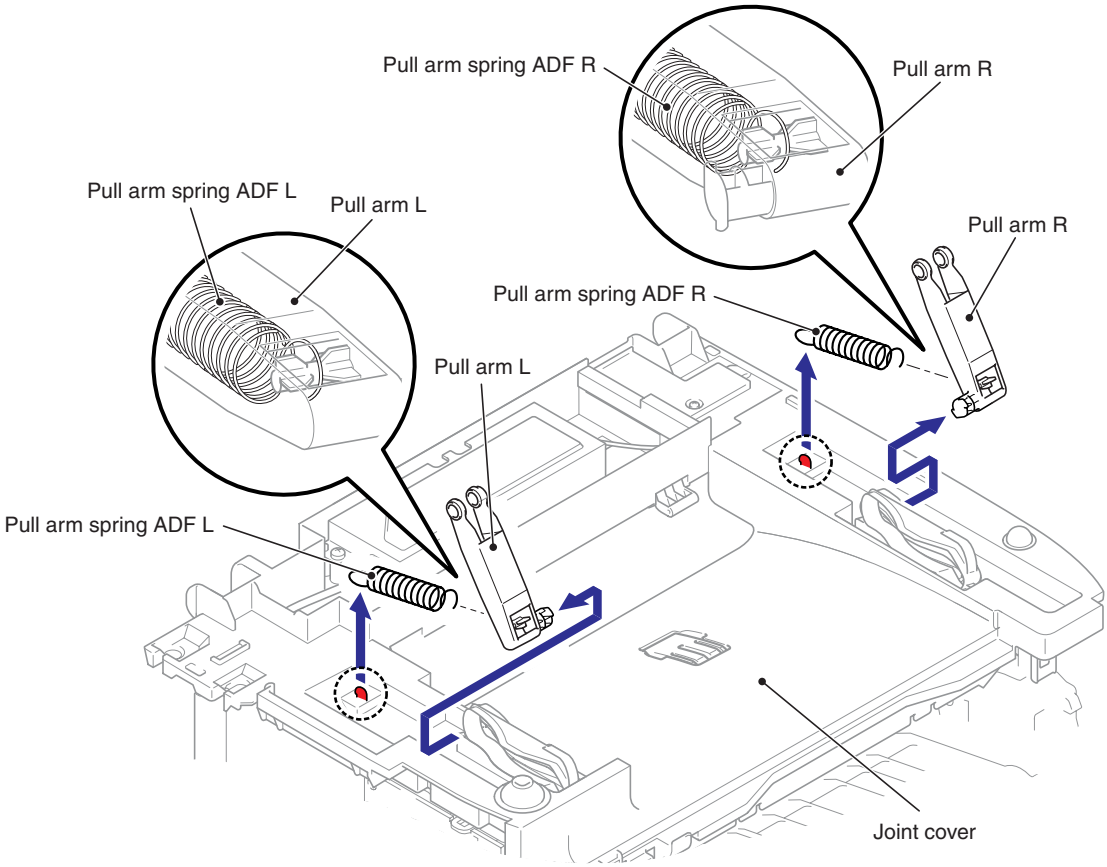


Fig. 3-54

8.14 PULL ARM GUIDE

(1) Remove the two Lock claws to remove the two Pull arm guides from the Joint cover.

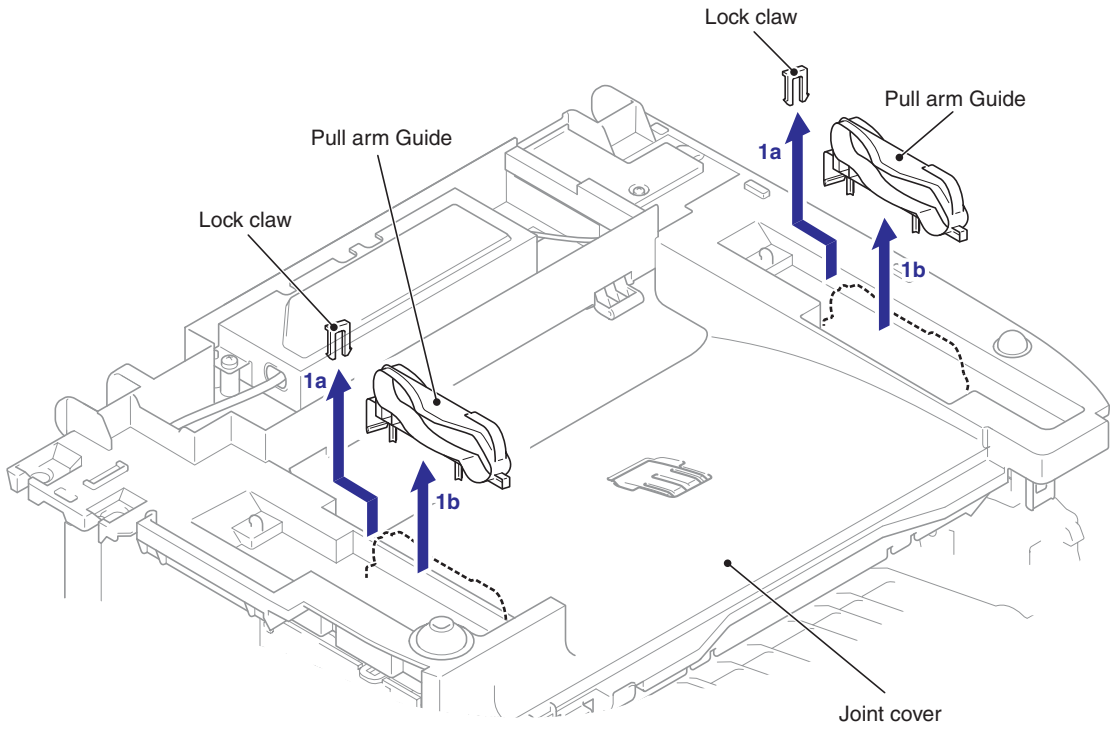


Fig. 3-55

8.15 NCU PCB

(1) Remove the Screw pan (S/P washer) M3.5x6 screw, and then remove the FG harness from the NCU shield.

(2) Remove the two Taptite bind B M4x12 screws, and then remove the NCU shield from the Joint cover.

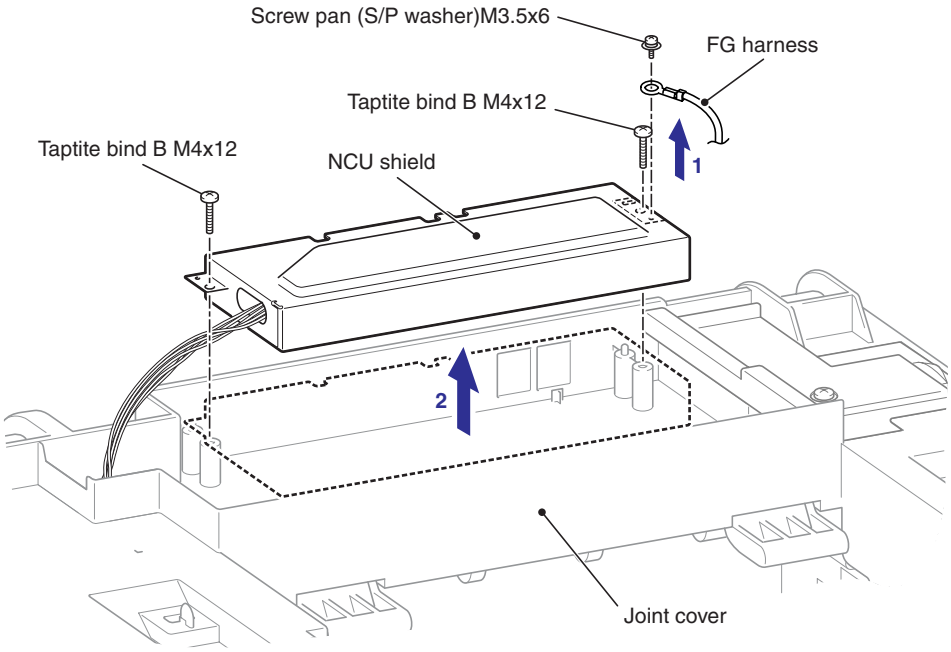


Fig. 3-56

(3) Turn over the NCU housing.

(4) Remove the two Taptite cup S M3x6 SR screws, and then remove the NCU PCB from the NCU housing.

(5) Disconnect the Connector from the NCU PCB, and then pull out the Connector from the NCU housing.

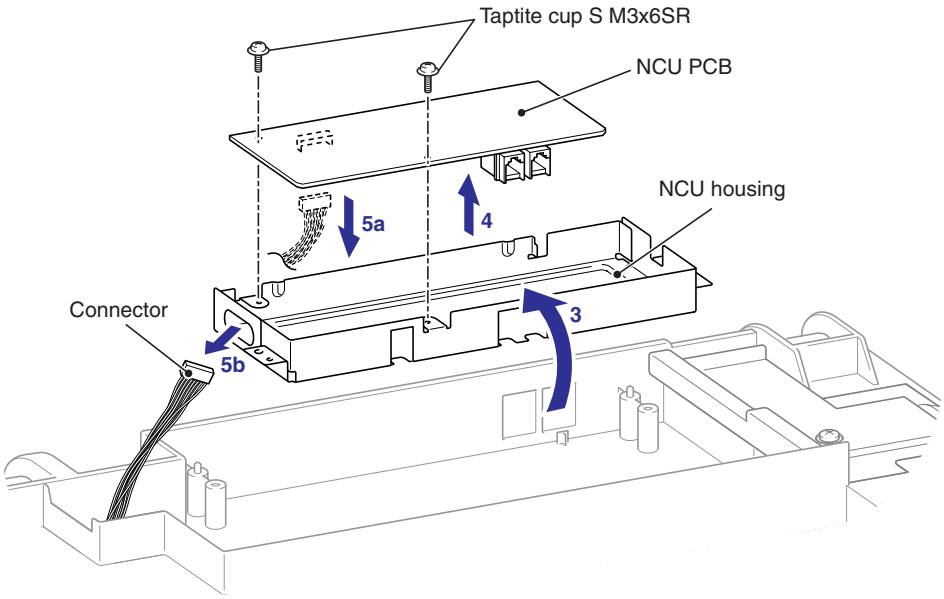


Fig. 3-57

8.16 SPEAKER UNIT

(1) Disconnect the Connector of the Speaker unit from the Main PCB ASSY.

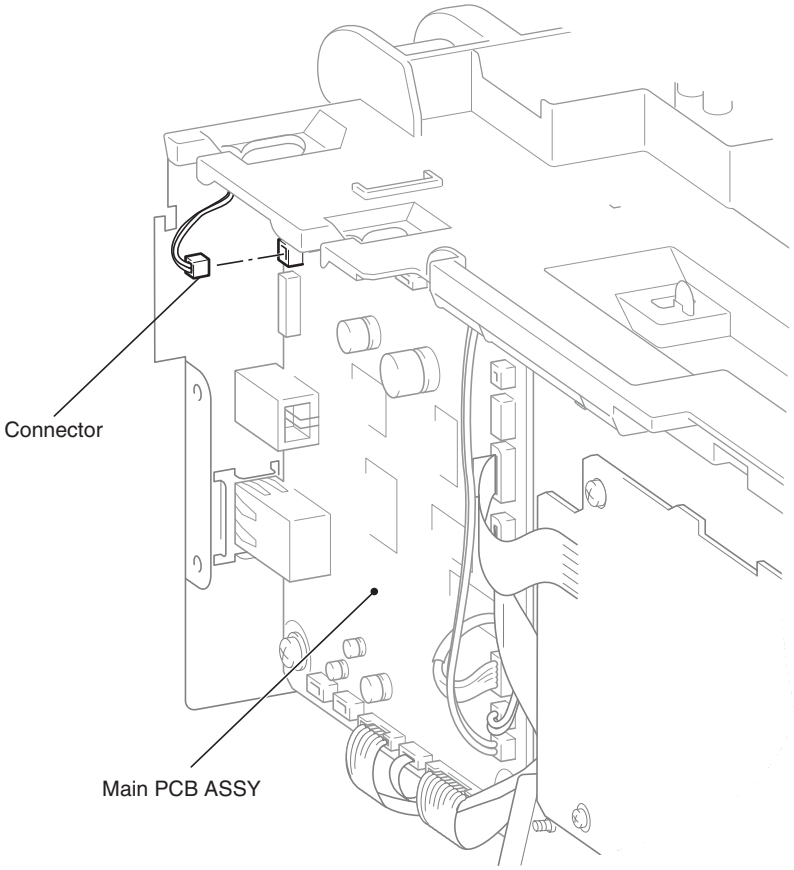


Fig. 3-58

(2) Remove the Taptite bind B M4x12 screw, and then remove the Speaker cover from the Joint cover.

(3) Release the Hook to remove the Speaker hold spring from the Joint cover.

(4) Remove the Speaker unit from the Joint cover.

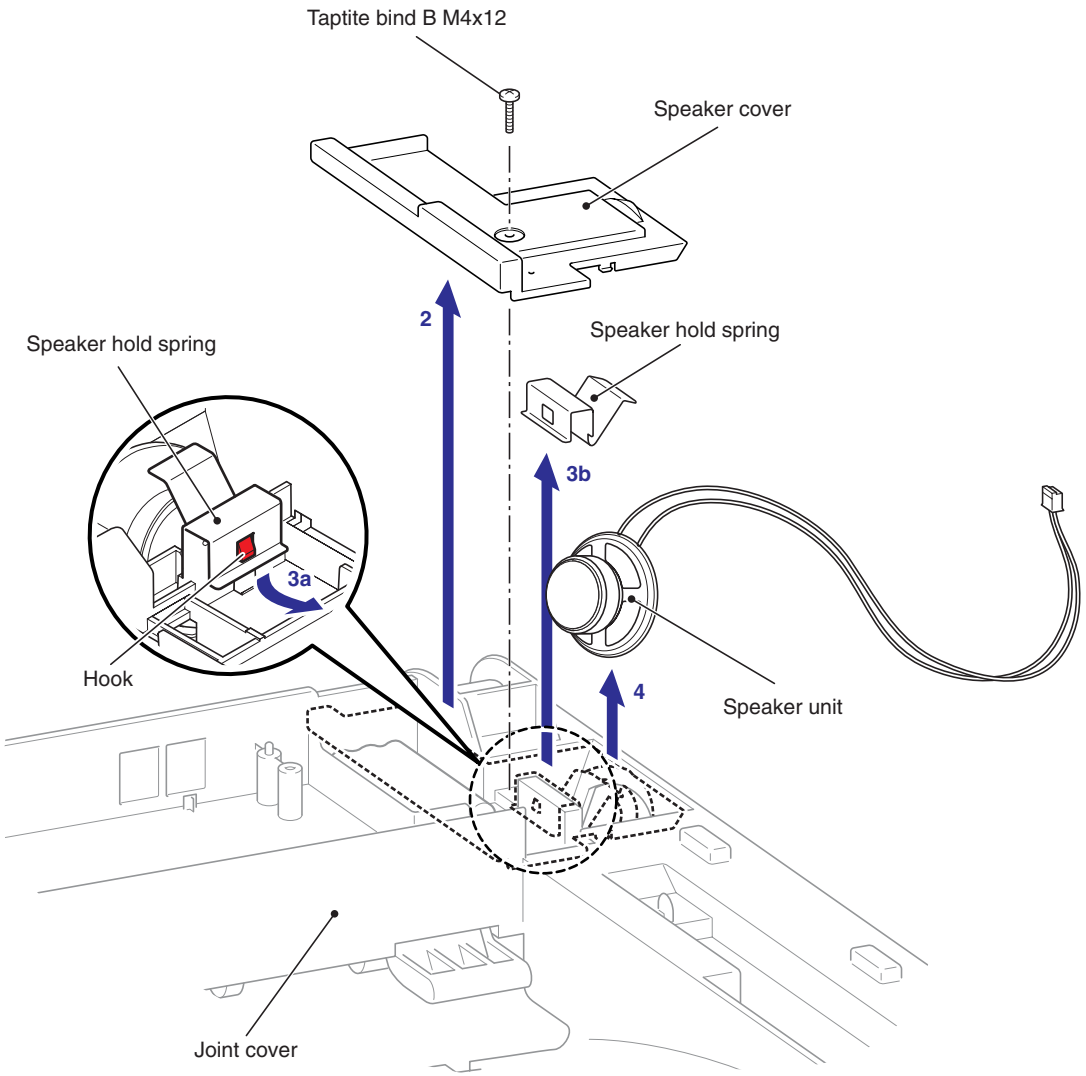


Fig. 3-59

8.17 BATTERY ASSY

(1) Disconnect the connector, and then remove the Battery ASSY from the Joint cover.

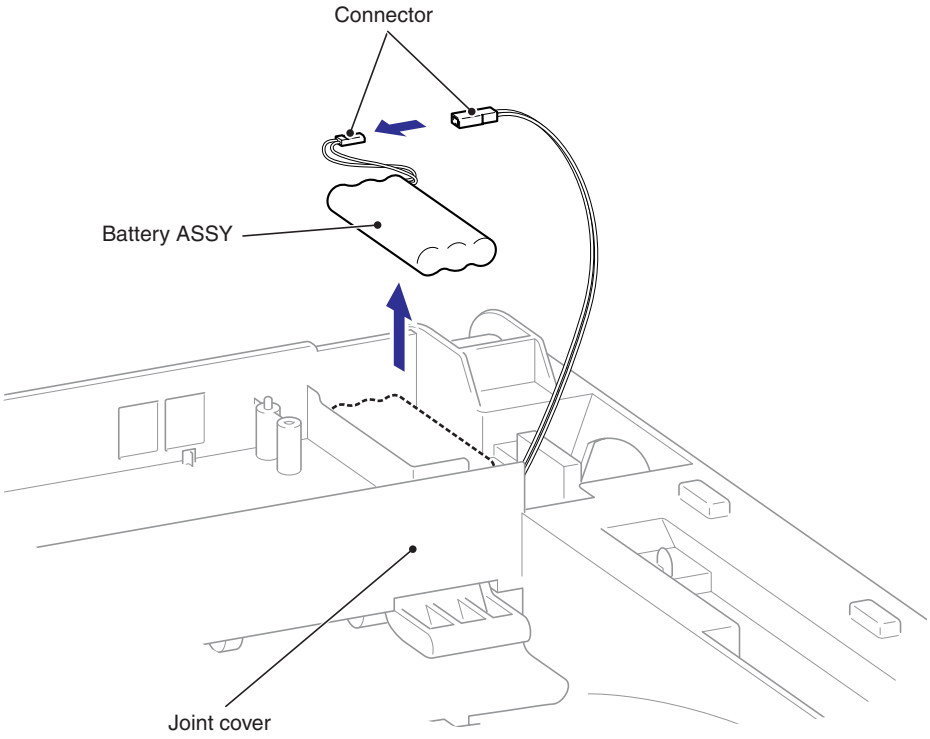


Fig. 3-60

CAUTION:

- There is a danger of explosion if the battery is incorrectly replaced.
- Do not disassemble or recharge the battery.
- Do not dispose of the battery in fire.
- Used batteries should be disposed of according to the local regulations.

8.18 SIDE COVER R ASSY

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

(2) Release the Hook to remove the Side cover R ASSY from the Main body.

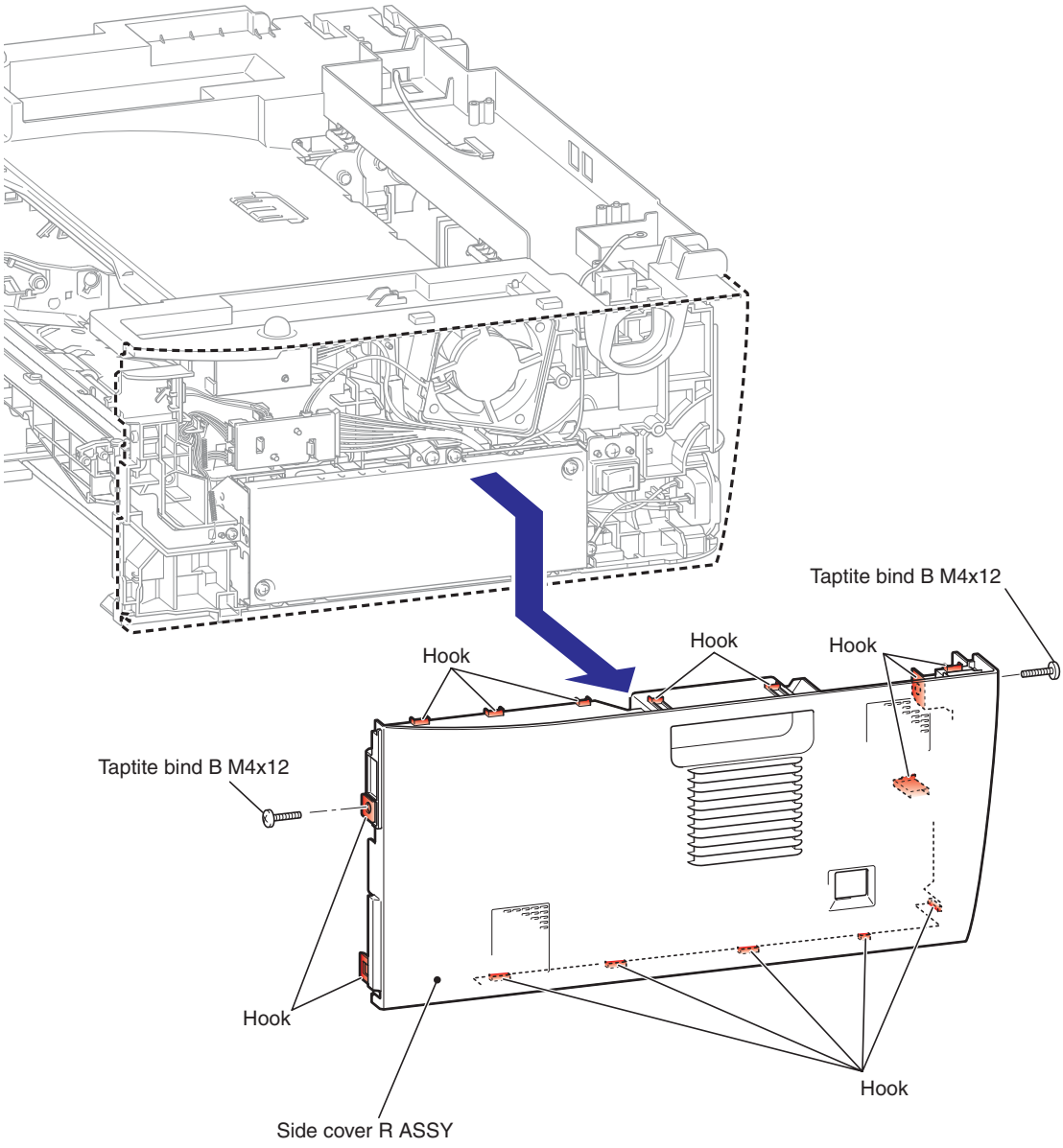


Fig. 3-61

8.19 REGISTRATION GROUNDING SPRING

(1) Remove the Registration grounding spring from the Main body.

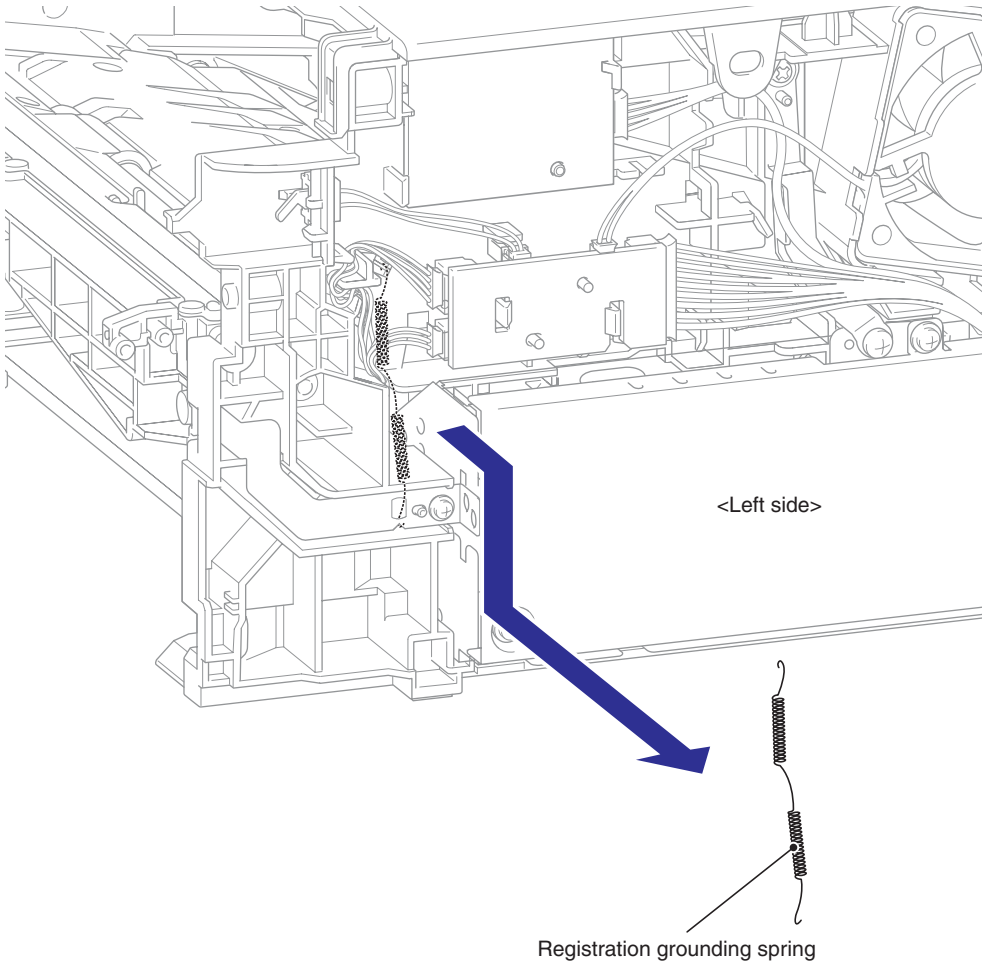


Fig. 3-62

8.20 ROLLER HOLDER ASSY

(1) Release the Boss of the Roller holder ASSY from the Link arm.

(2) Press the Rib of the Paper feed frame, then slide the Separation R shaft bush.

(3) Remove the Roller holder ASSY from the Main body.

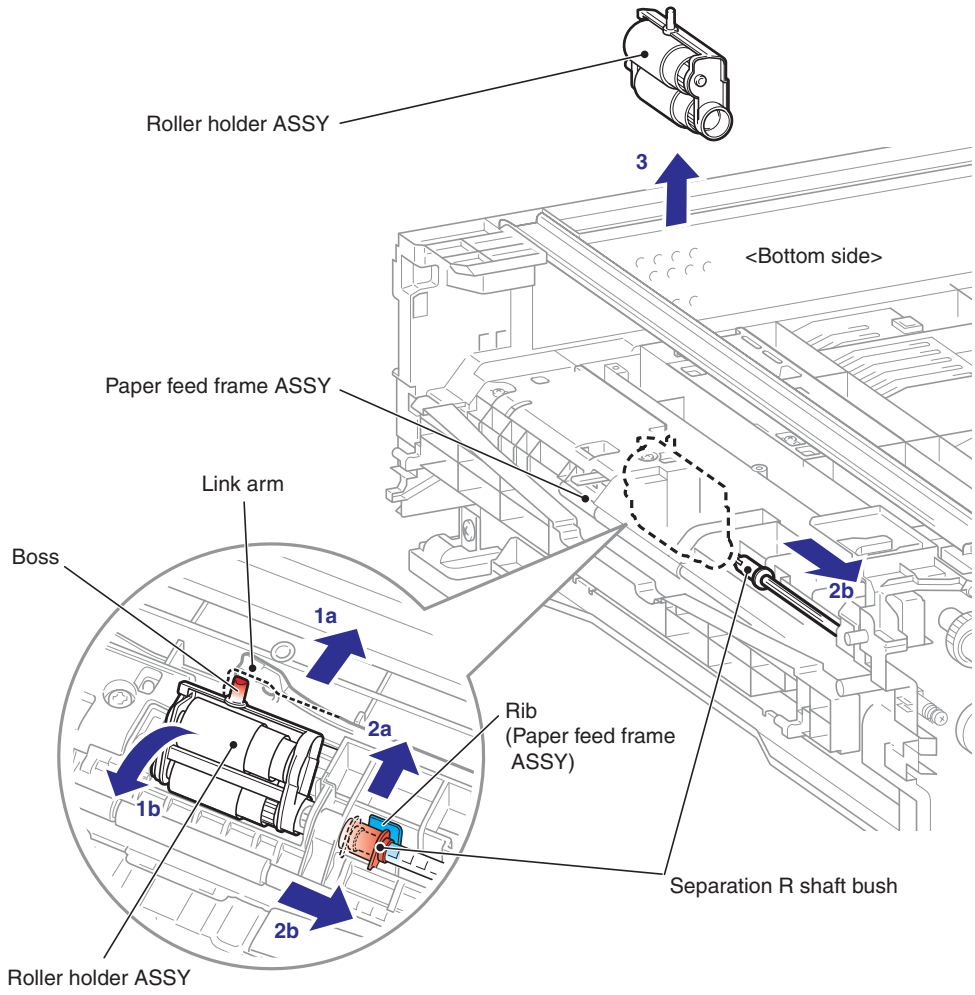


Fig. 3-63

Assembling Note:

When assembling the Roller holder ASSY to the Main body, note the assembling method referring to the figure below.

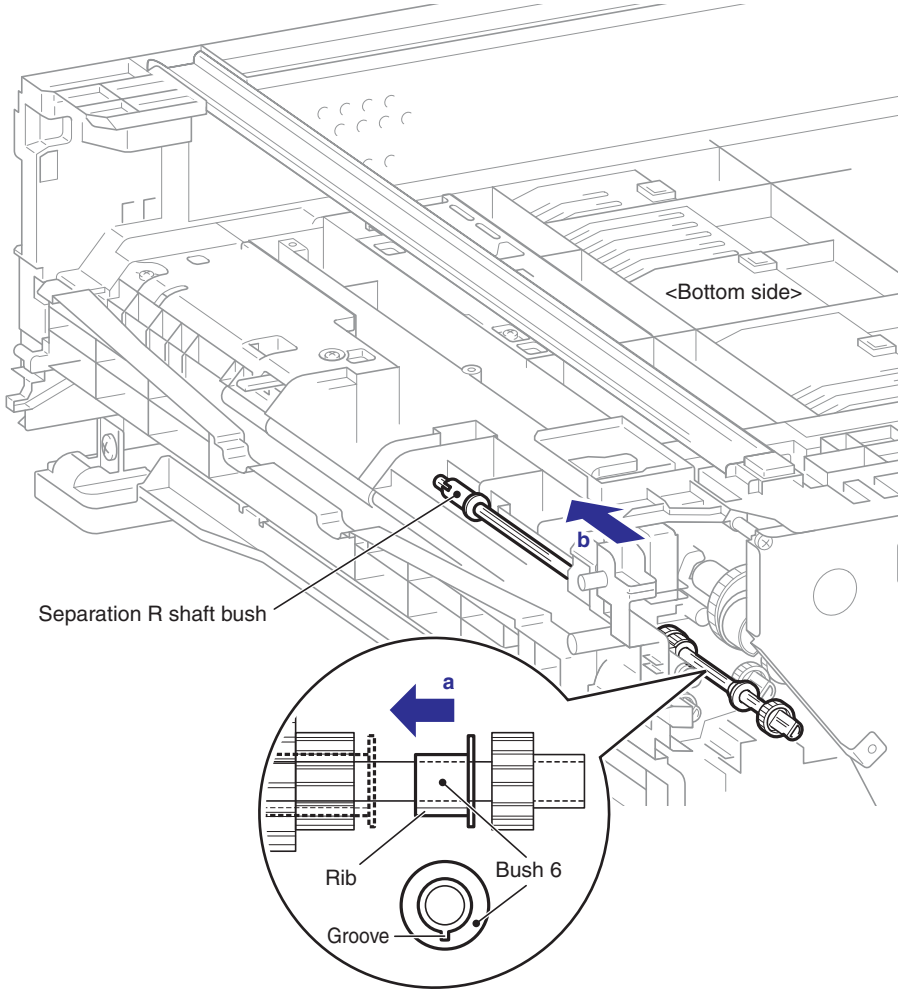


Fig. 3-64

CAUTION:

When the Separation R shaft bush does not slide across correctly, place the Rib of the Bush 6 while aligning with the Groove of the Main body shaft hole from the Main frame L ASSY side.

8.21 WIRELESS LAN PCB ASSY (only MFC7840W)

(1) Disconnect the Connector from the Wireless LAN PCB ASSY.

(2) Release the Hook to remove the Wireless LAN PCB ASSY from the Main body.

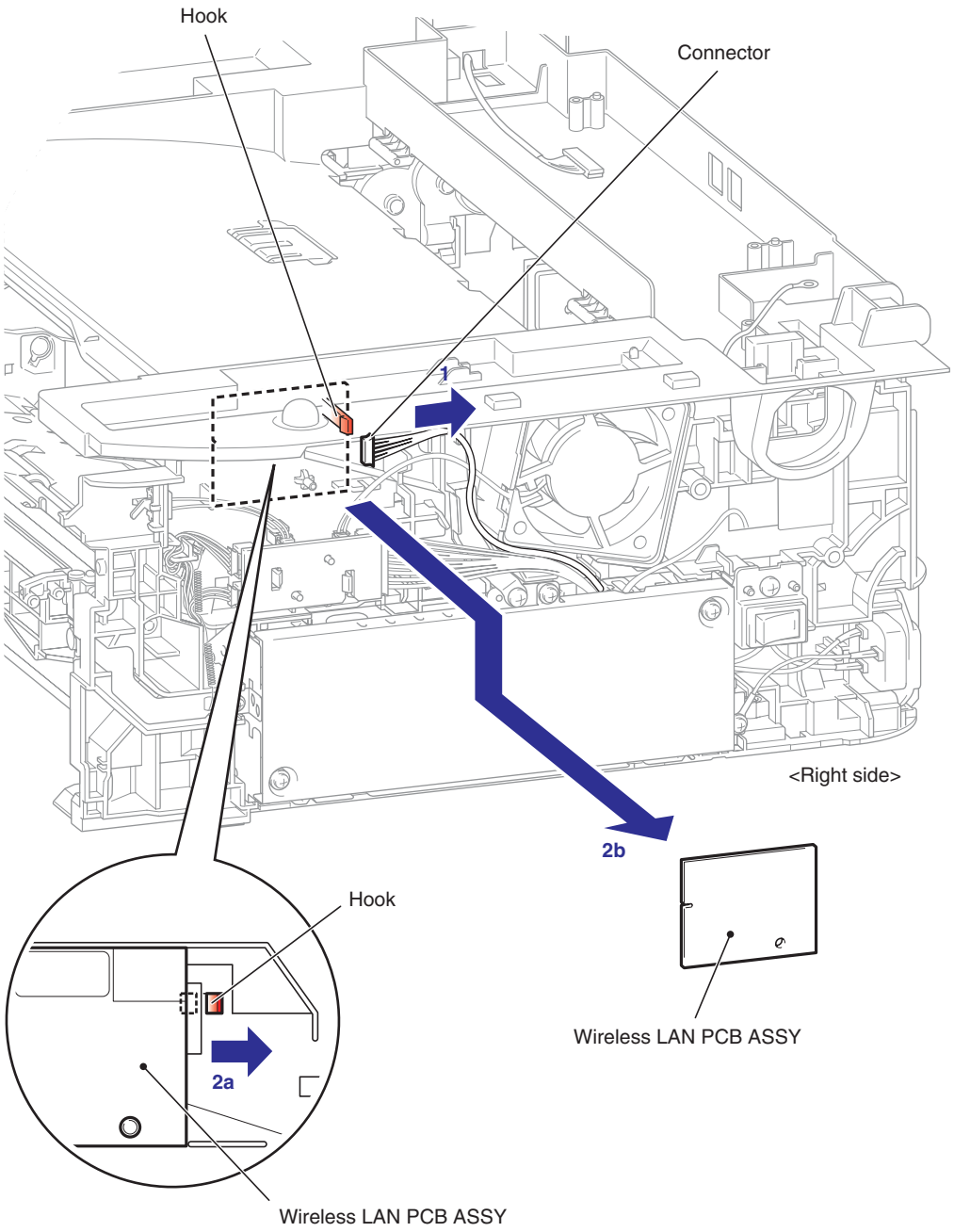


Fig. 3-65

8.22 MAIN PCB ASSY

(1) Disconnect the five FFCs and the eight Connectors from the Main PCB ASSY.

(2) Remove the four Taptite cup S M3x6 SR screws, and then remove the FG harness ASSY and the Main PCB ASSY from the Main body.

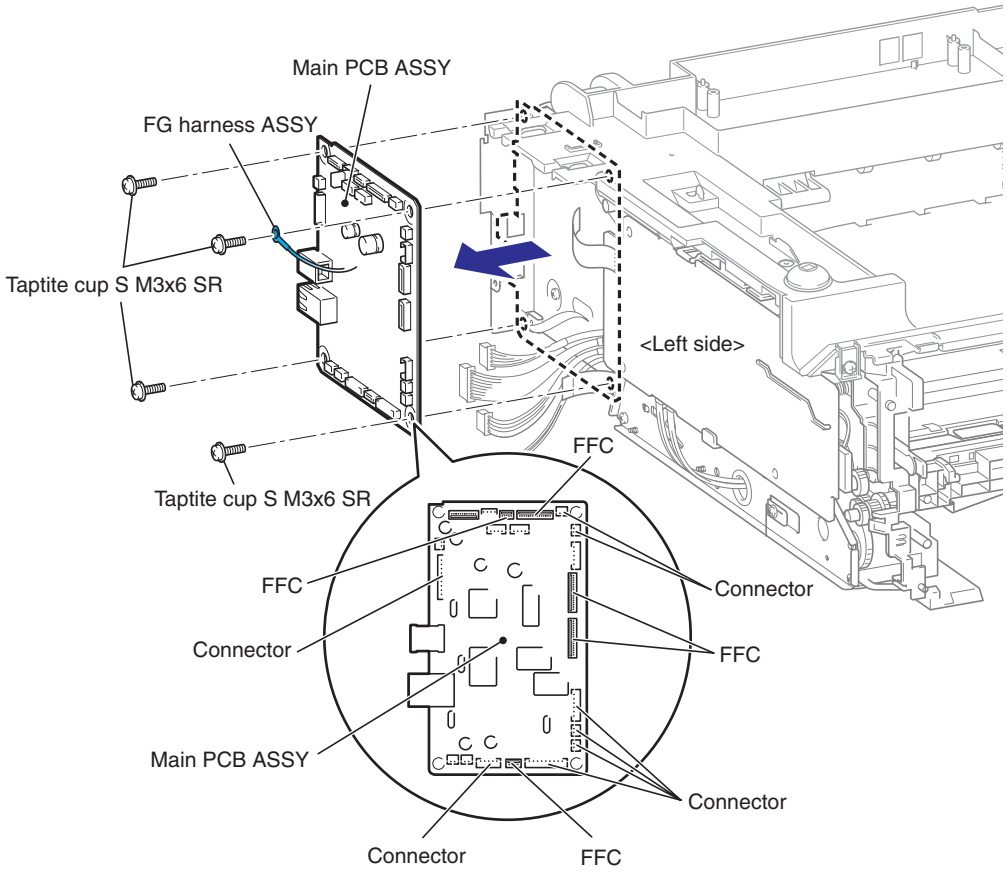


Fig. 3-66

Note:

- After disconnecting the flat cable(s), check that each cable is not damaged at its end or short-circuited.
- When connecting the flat cable(s), do not insert it at an angle. After insertion, check that the cable is not at an angle.

Assembling Note:

- If the FG harness ASSY which comes from the Laser unit is not connected, the Laser unit may break down or not function correctly.

Replacement Main PCB Note:

When replace the main PCB, the function of the I FAX disappears.

Contact the customer to download the I FAX again.

8.23 JOINT COVER ASSY / PAPER SUPPORTER

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

(2) Release the Hook to remove the Joint cover ASSY from the Main body.

Fig. 3-67

(3) Release the Boss to remove the Paper supporter from the Joint cover ASSY.

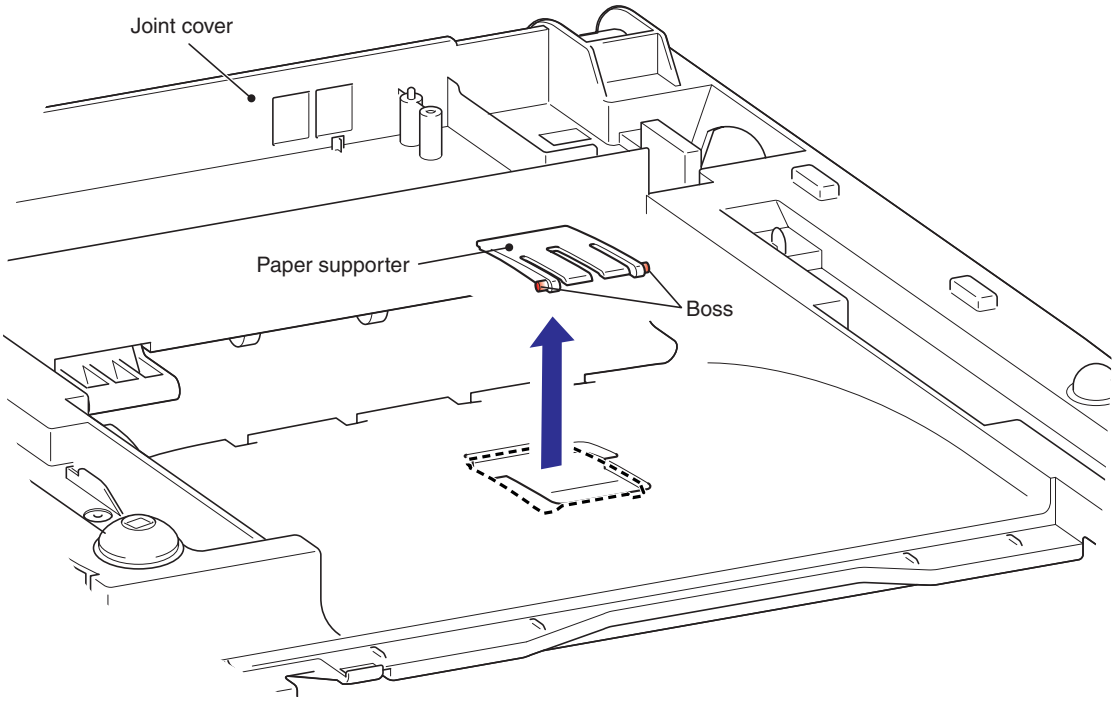


Fig. 3-68

8.24 EJECT ROLLER ASSY 2

(1) Remove the Eject roller ASSY 2 from the Joint cover ASSY.

(2) Remove the Bush R and the Bush L from the Eject roller ASSY 2.

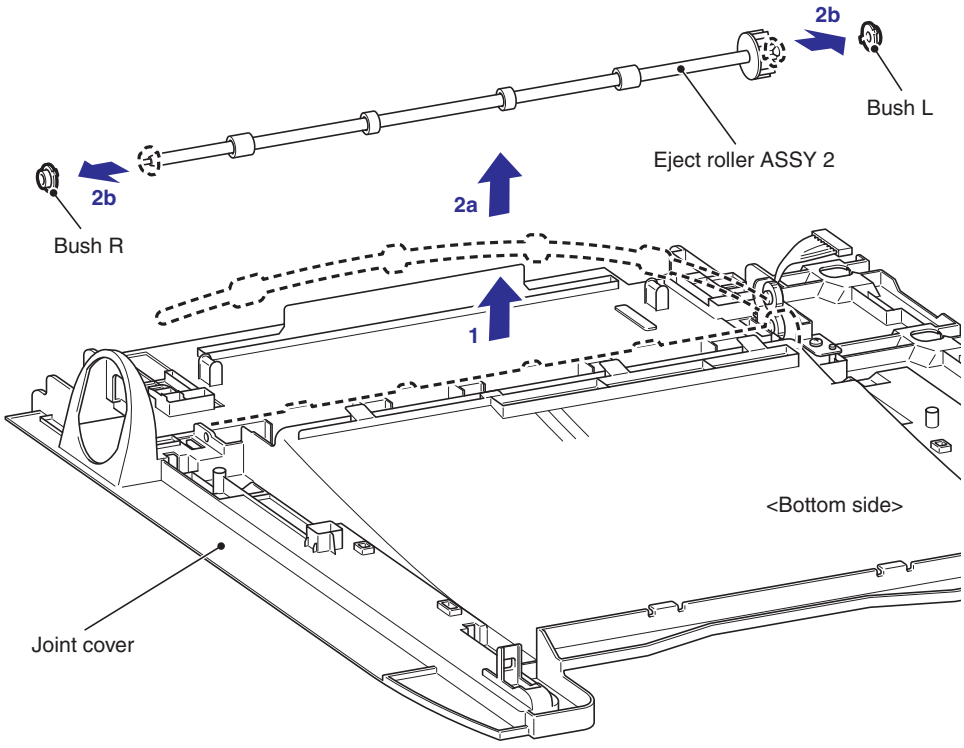


Fig. 3-69

8.25 HIGH-VOLTAGE PS PCB ASSY

(1) Disconnect the two Connectors from the High-voltage PS PCB ASSY.

(2) Remove the two Taptite cup S M3x6 SR screws and the two Taptite bind B M4x12 screws.

(3) Release the Hook to remove the High-voltage PS PCB ASSY from the Drive sub ASSY.

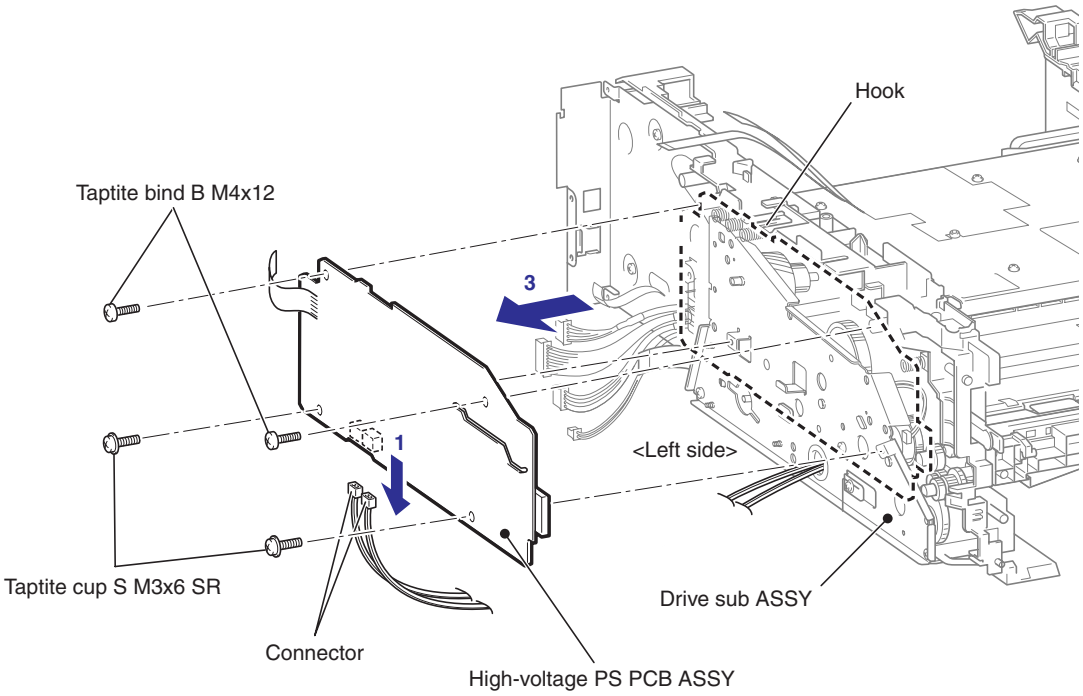


Fig. 3-70

Note:
There are procedures for disassembling Main frame L ASSY after this procedure.
(8.40 MAIN FRAME L ASSY)

8.26 NEW TONER SENSOR HARNESS ASSY

(1) Release the Hook to remove the New toner sensor harness ASSY from the Main body.

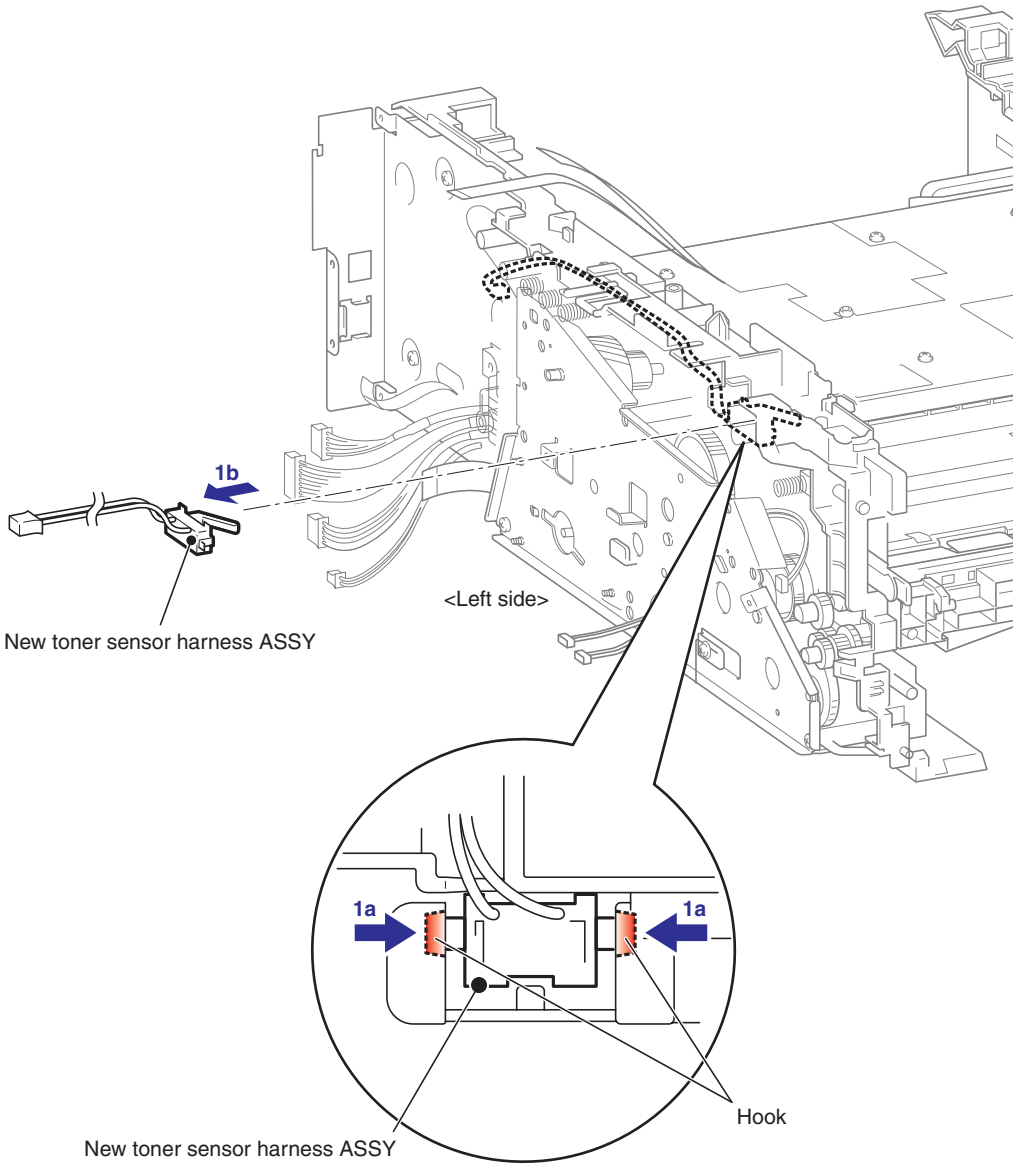


Fig. 3-71

CAUTION:

Be careful not to damage the Hook of the New toner sensor harness ASSY.

8.27 FILTER ASSY

(1) Remove the Filter ASSY from the Main body.

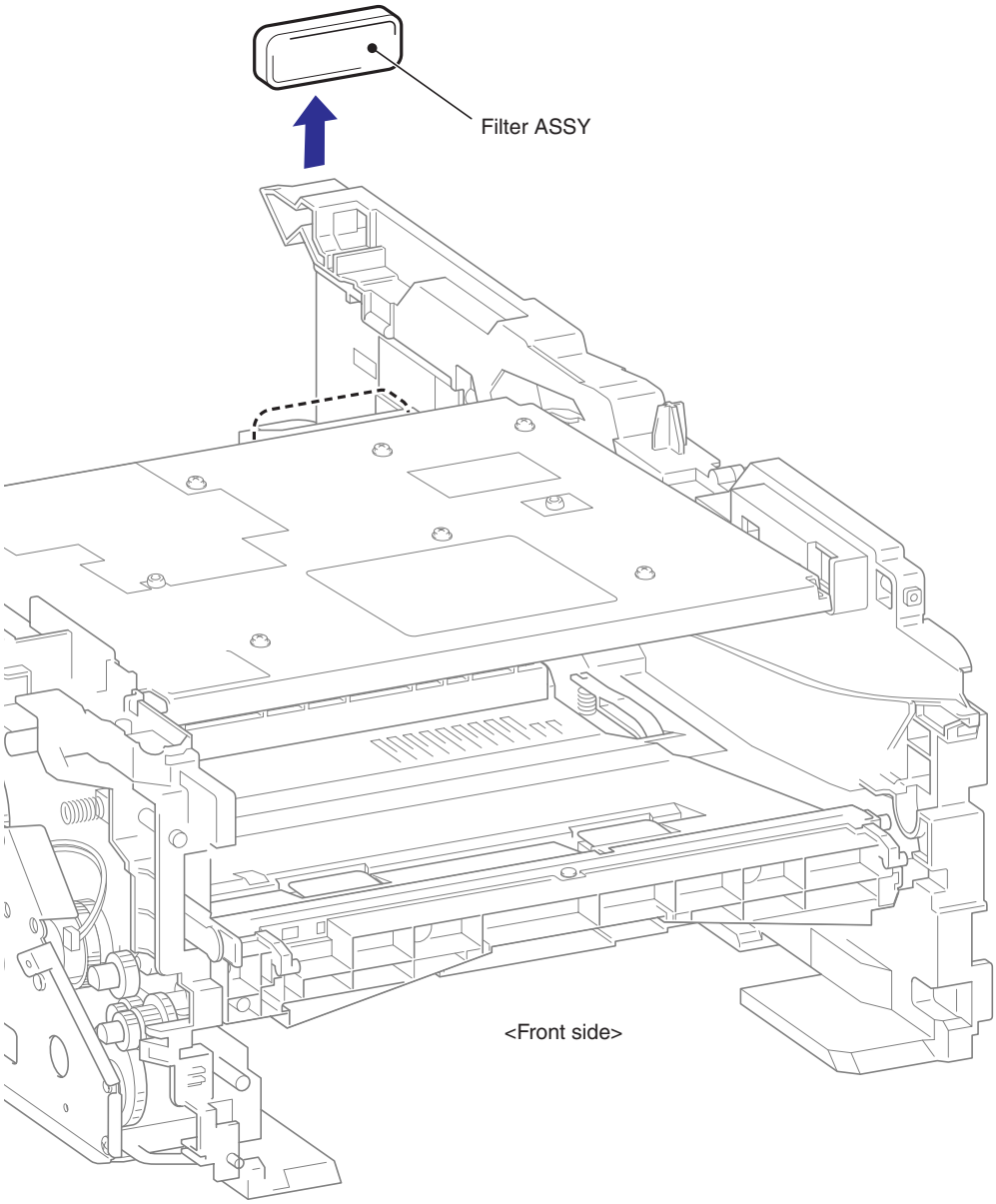


Fig. 3-72

8.28 LASER UNIT

(1) Remove the three Taptite cup S M3x6 SR screws and the Taptite pan (S/P washer) S M3x8 screw, and then remove the Laser unit from the Main body.

Memo :

- Ensure when you remove the Laser unit that the DEV joint link is pulled out.

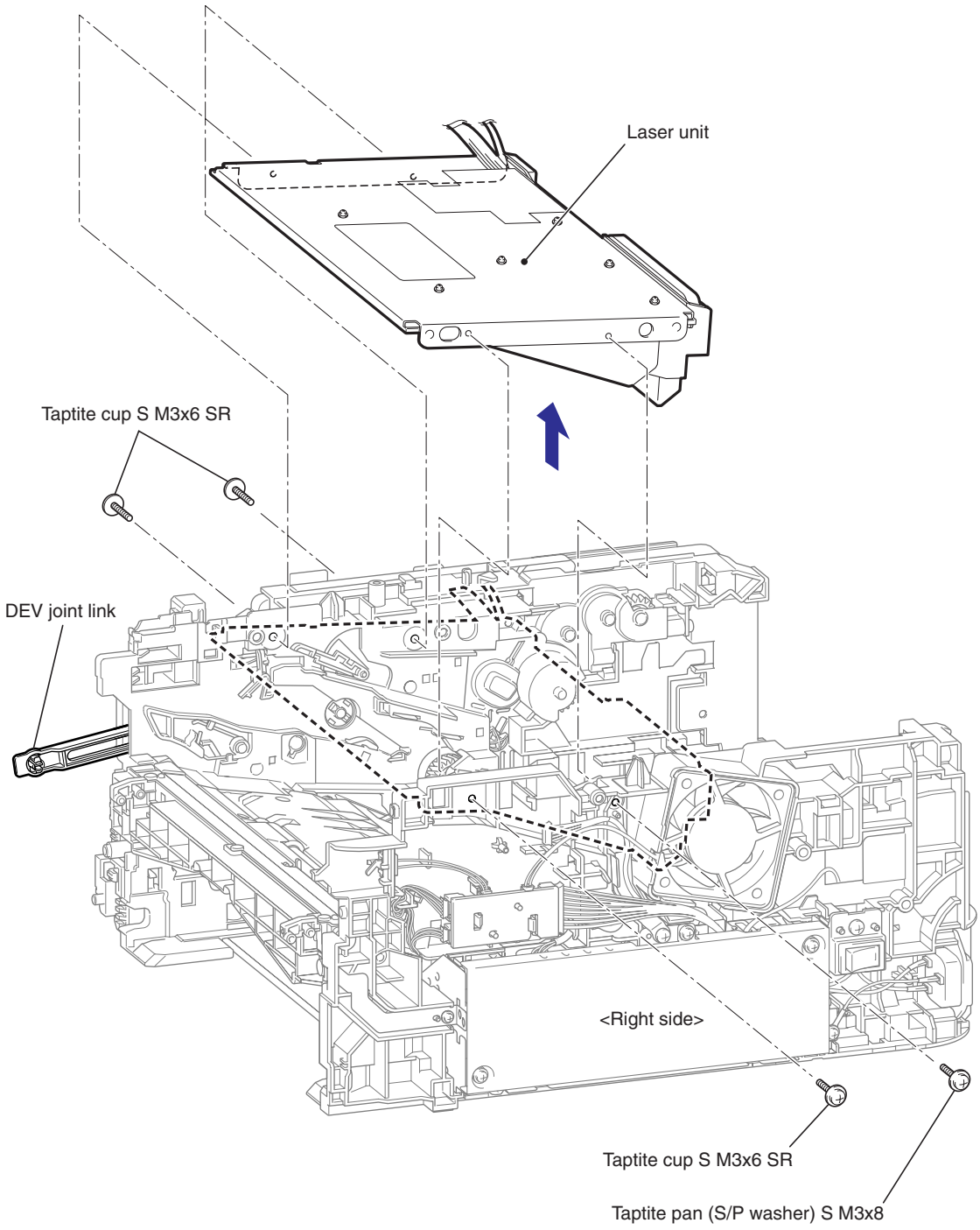


Fig. 3-73

(2) Remove the Taptite cup S M3x6 SR screw, and then remove the FG harness ASSY from the Laser unit.

(3) Remove the Taptite cup S M3x6 SR screw, and then remove the Air duct from the Laser unit.

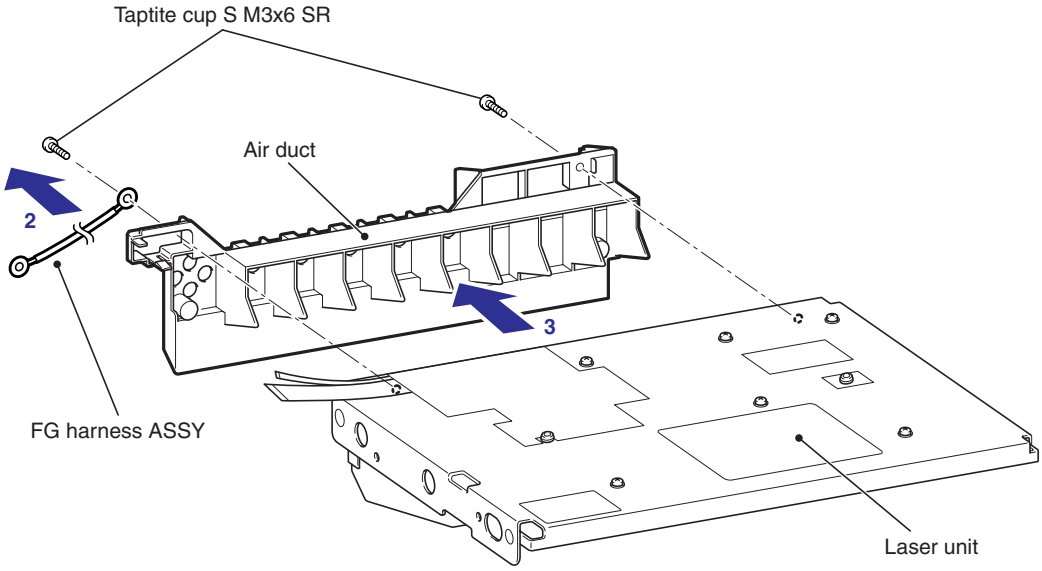


Fig. 3-74

CAUTION:

When replacing the Laser unit, replace the Serial label attached on the Drive sub ASSY with the new one supplied with a new Laser unit. If an extra Serial label is supplied with a new unit as spare. Make sure to throw the spare label away after replacing the Laser unit, *** it is necessary to input the new Laser unit characteristics information.*** (Refer to "3. IF YOU REPLACE THE LASER UNIT" in Chapter 4.)

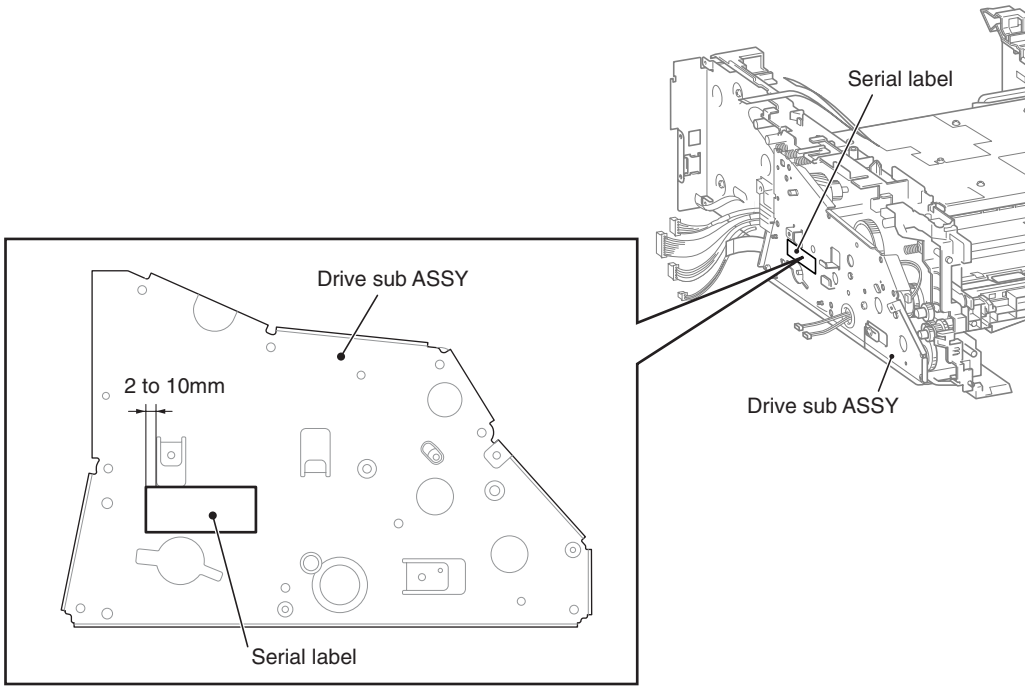


Fig. 3-75

8.29 FAN MOTOR 60 UNIT / COVER SENSOR HARNESS ASSY / TONER LED PCB ASSY

8.29.1 FAN MOTOR 60 UNIT

(1) Disconnect the Connector from the Toner LED PCB ASSY.

(2) Remove the Fan motor 60 unit from the Main body.

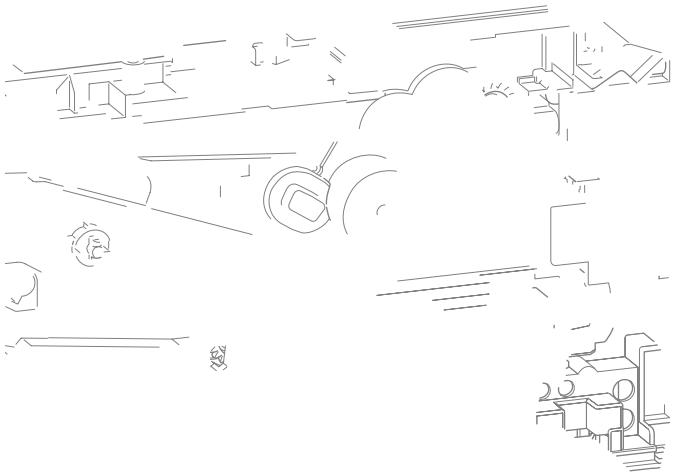


Fig. 3-76

Assembly Note:

When installing the Fan motor 60 unit, place it so that the attached Label faces outwards.

8.29.2 COVER SENSOR HARNESS ASSY

(1) Disconnect the Connector from the Toner LED PCB ASSY.

(2) Release the Hook to remove the Cover sensor harness ASSY from the Main body.

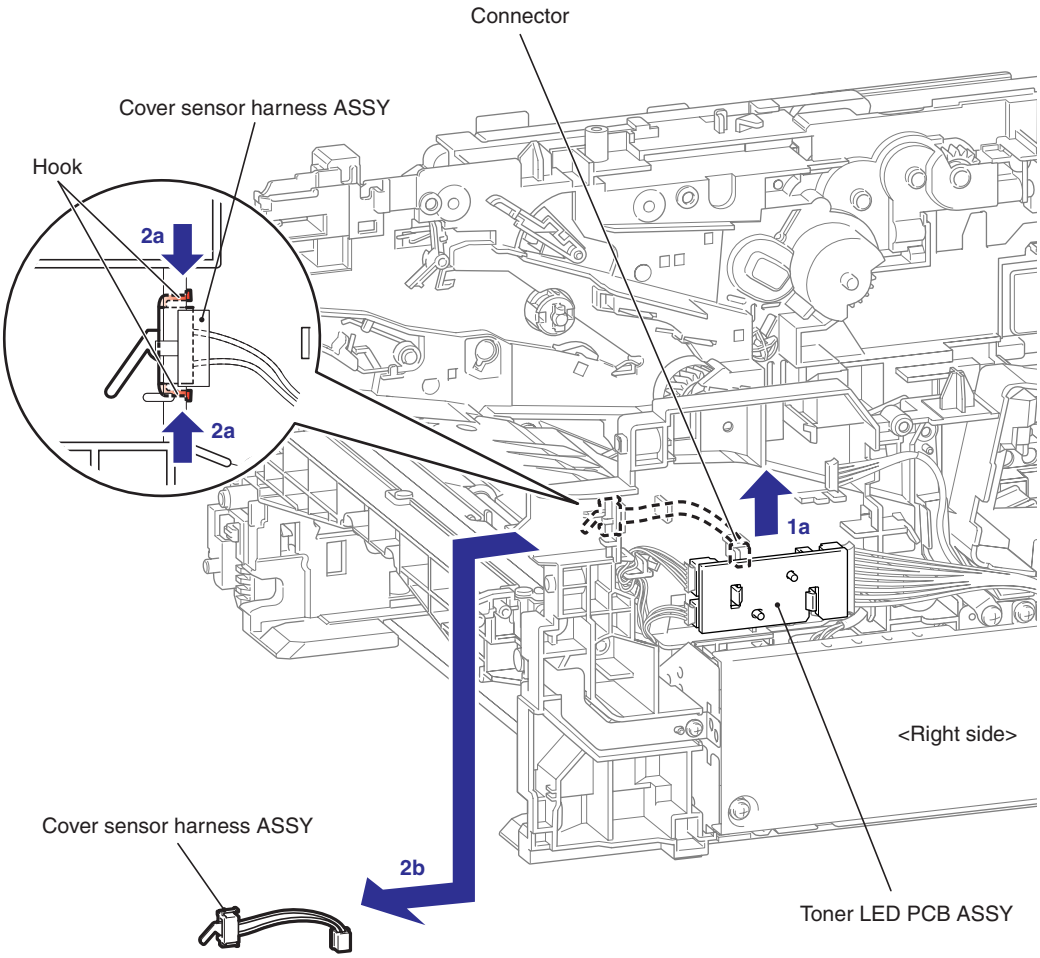


Fig. 3-77

CAUTION:

When removing the Cover sensor harness ASSY, remove it as shown in the direction of the allow 2b. Be careful not to damage the Hook.

8.29.3 TONER LED PCB ASSY

(1) Disconnect the three Connectors from the Toner LED PCB ASSY.

(2) Release the Hook to remove the Toner LED PCB ASSY from the Main body.

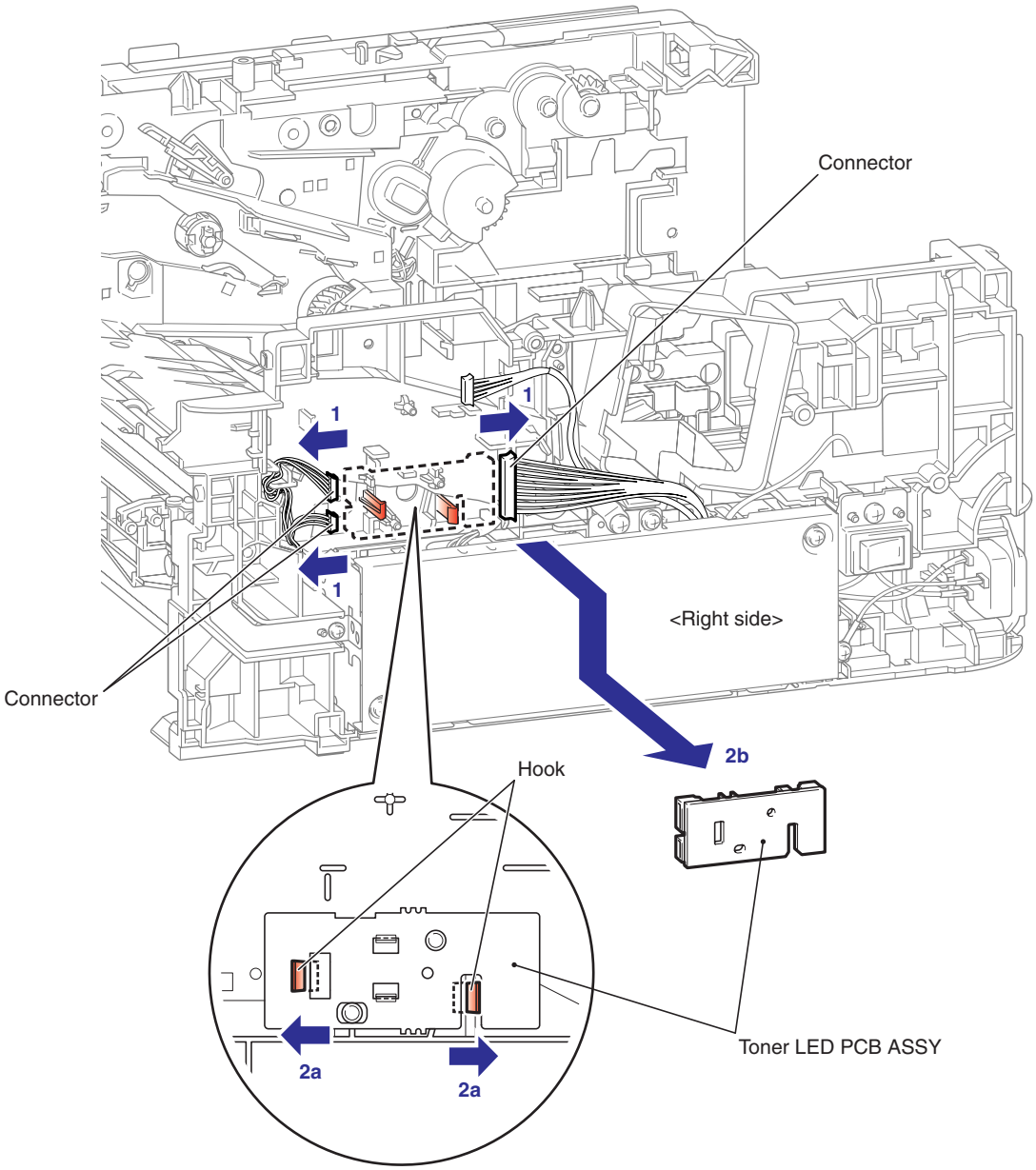


Fig. 3-78

(3) Release the Hook to remove the LED holder from the Toner LED PCB ASSY.

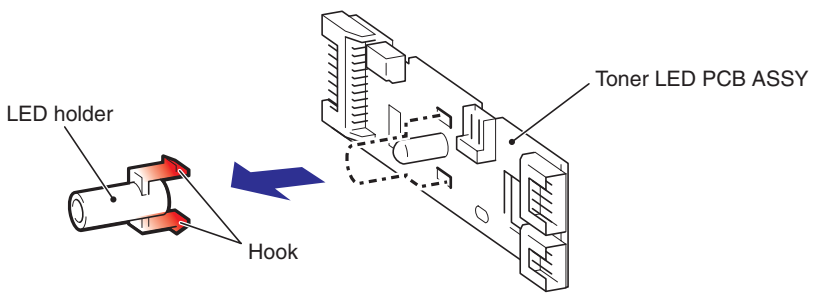


Fig. 3-79

8.30 LVPS

8.30.1 LVPS PCB UNIT

(1) Remove the Taptite pan (S/P washer) M3.5x6 screw and the two Taptite cup S M3x6 SR screws, and then remove the LV shield plate cover and the LV insulation sheet from the LV Shield plate 2.

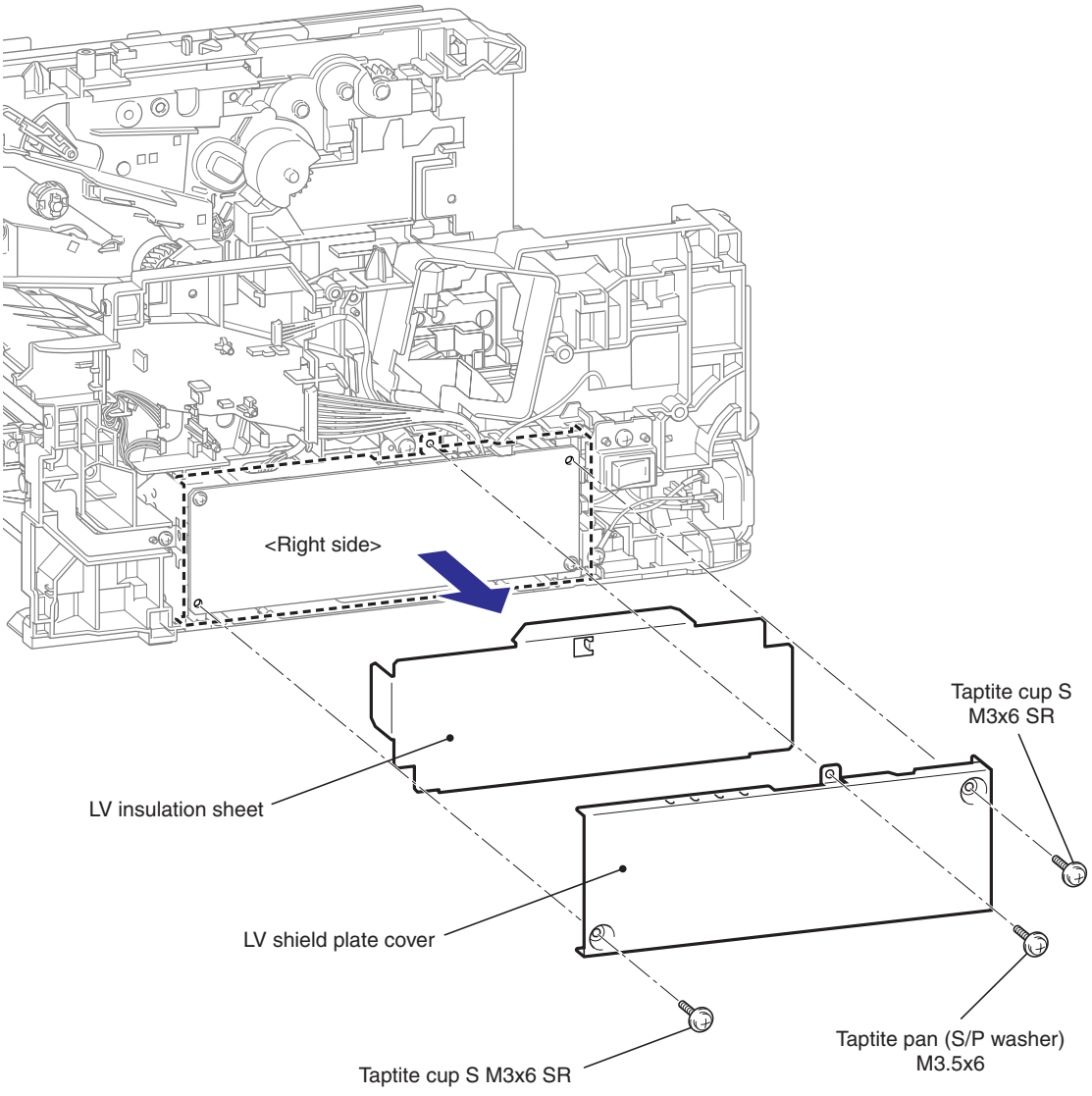


Fig. 3-80

8.30.2 LV SHIELD PLATE 2

(1) Remove the two Taptite bind B M4x12 screws and the two Taptite cup S M3x6 SR screws, and then remove the LV shield plate 2.

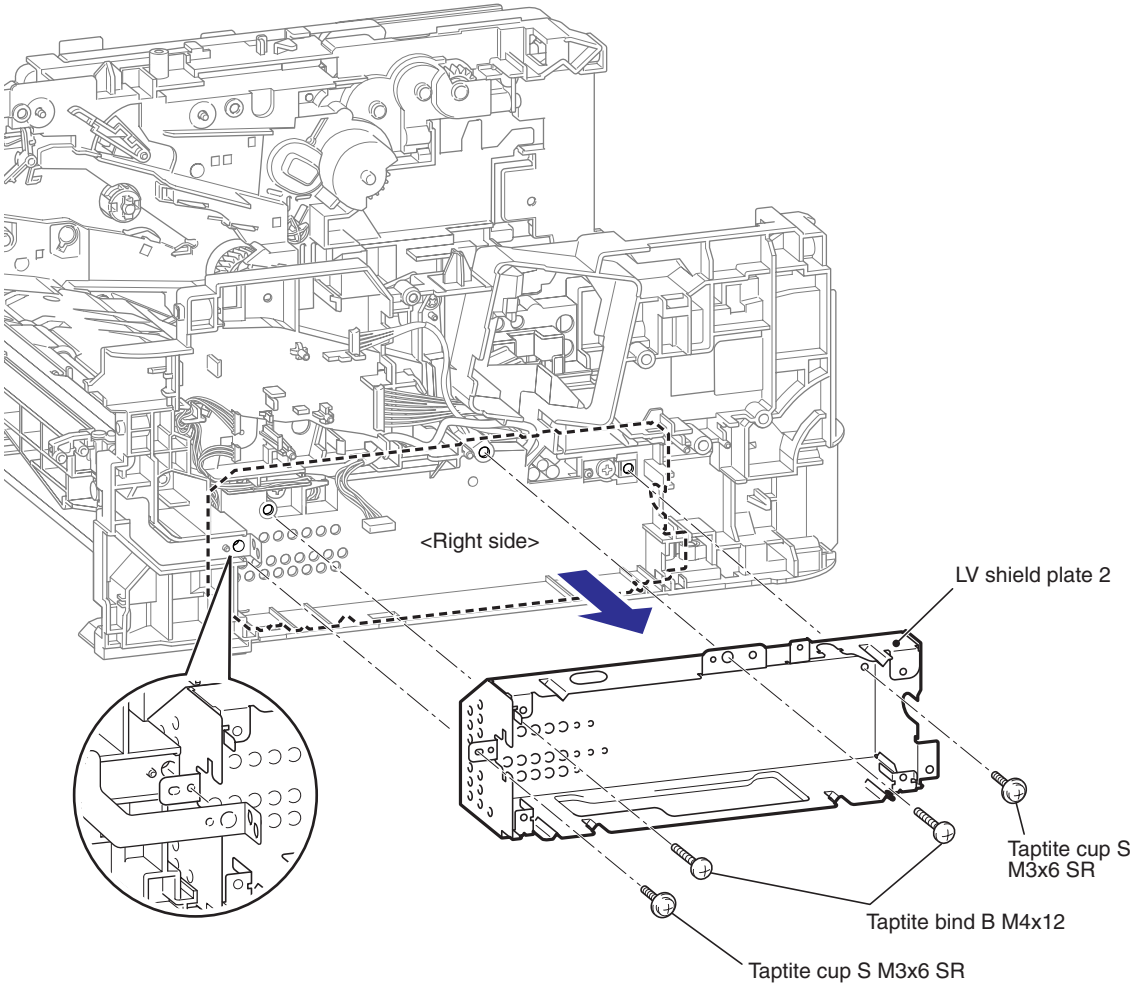


Fig. 3-82

8.31 REGISTRATION FRONT SENSOR PCB ASSY

(1) Remove the Harness of the Registration front sensor PCB ASSY and the Registration rear sensor PCB ASSY from the Guide part of the Main body.

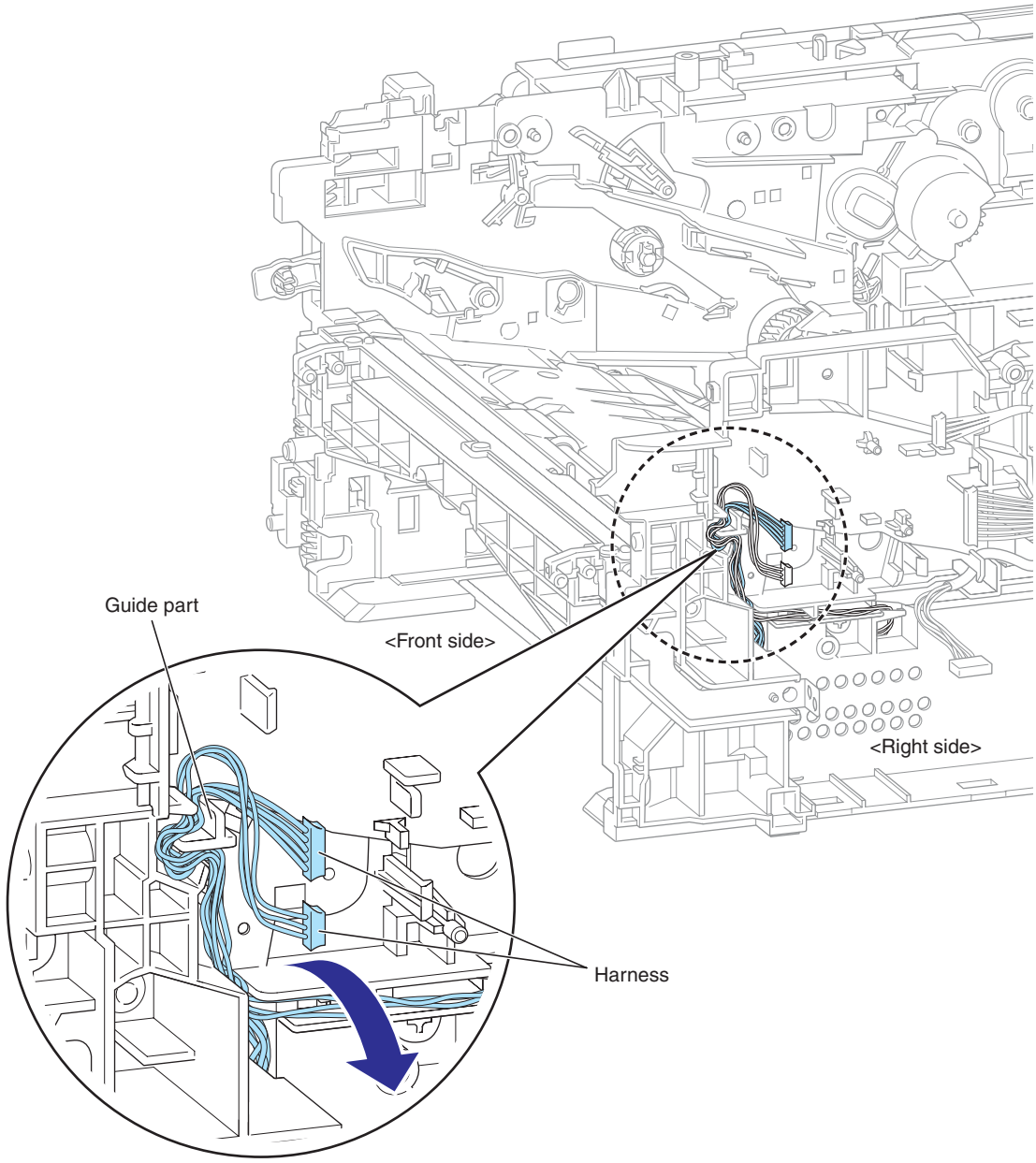


Fig. 3-83

(2) Remove the two Taptite bind B M3x10 screws, and then remove the Actuator holder ASSY from the Main body.

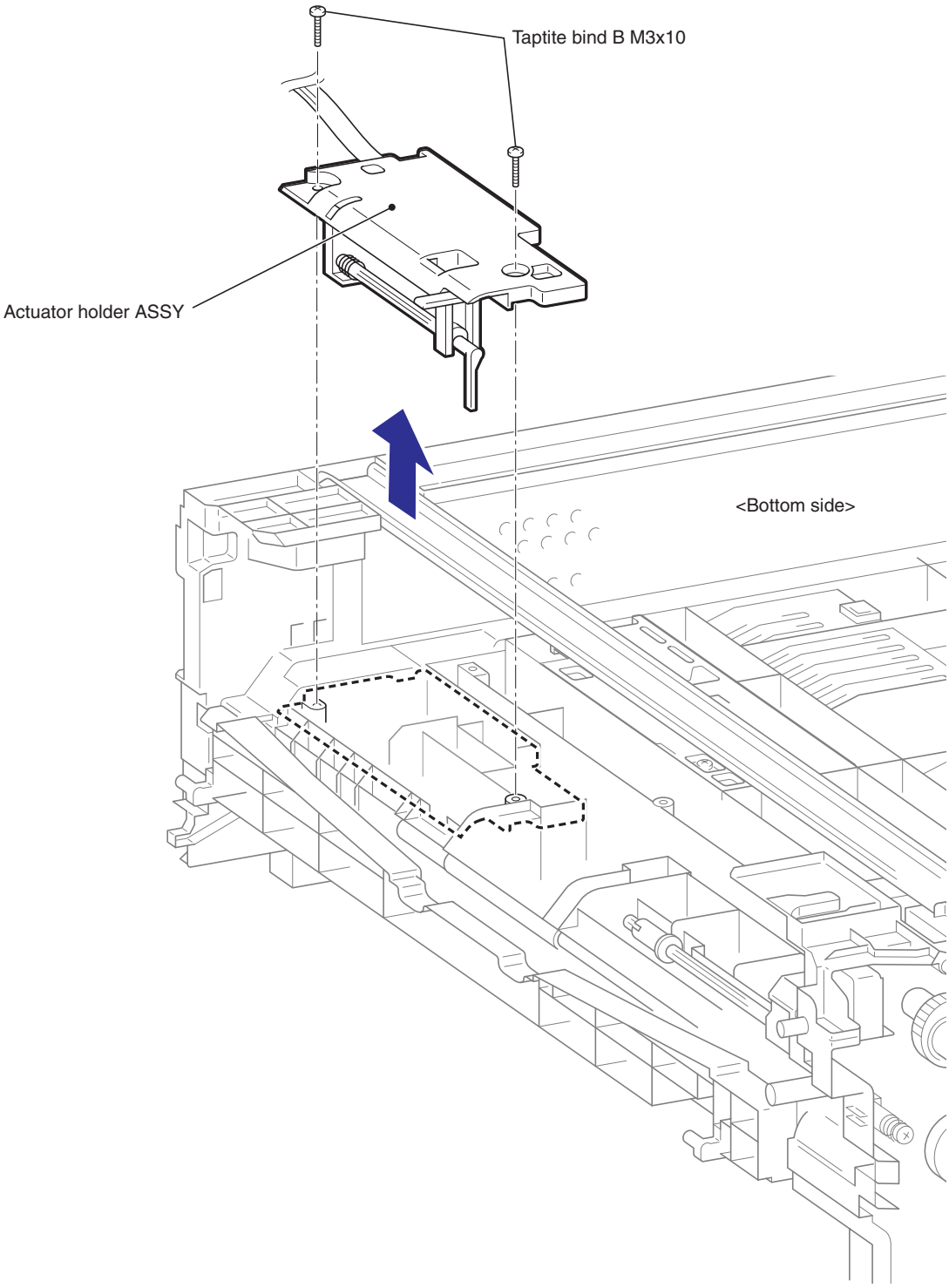


Fig. 3-84

(3) Remove the Registration actuator spring from the Hook part.

(4) Turn the Registration front actuator at 90 degrees in the direction of counterclockwise as the arrow 4 shown below.

(5) Slide the Registration front actuator to remove the Registration front actuator from the Actuator holder ASSY.

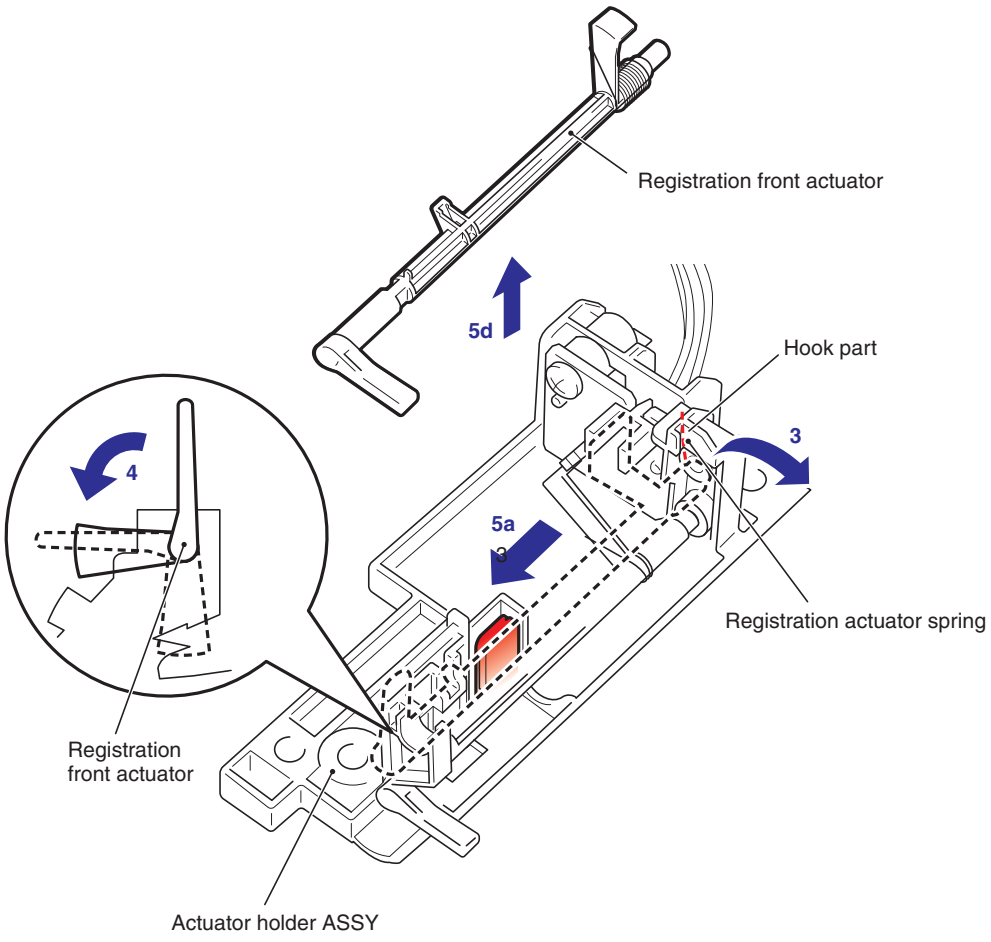


Fig. 3-85

(6) Loosen the tip of the Edge actuator spring from the Actuator holder ASSY.

(7) Release the Hook and Slide the Edge actuator to remove the Edge actuator from the Actuator holder ASSY.

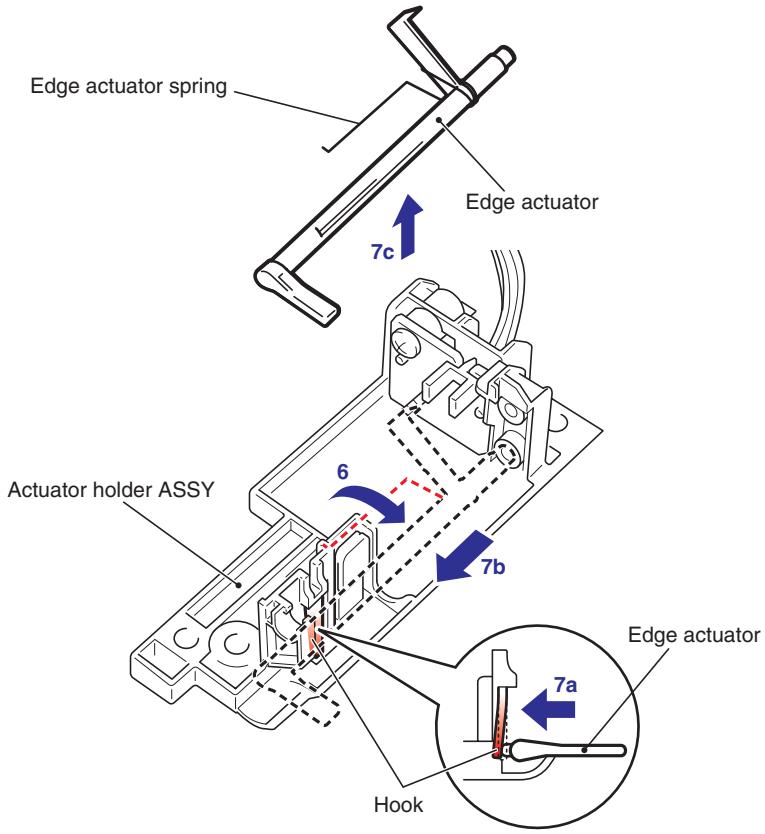


Fig. 3-86

(8) Remove the Taptite bind B M3x10 screw, and then remove the Registration front sensor PCB ASSY from the Actuator holder ASSY.

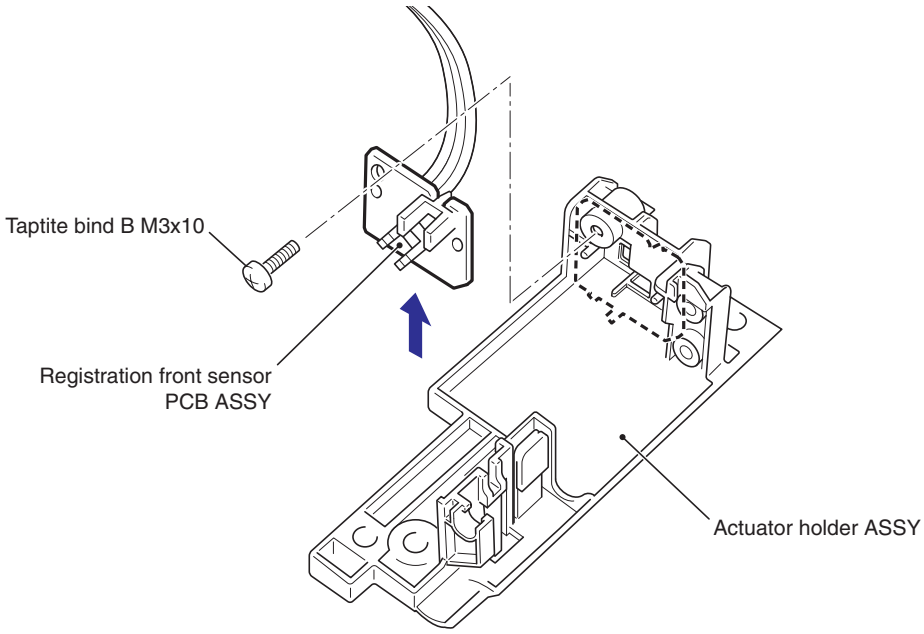


Fig. 3-87

8.32 REGISTRATION REAR SENSOR PCB ASSY

(1) Remove the Harness of the Registration rear sensor PCB ASSY from the Guide part of the Main body.

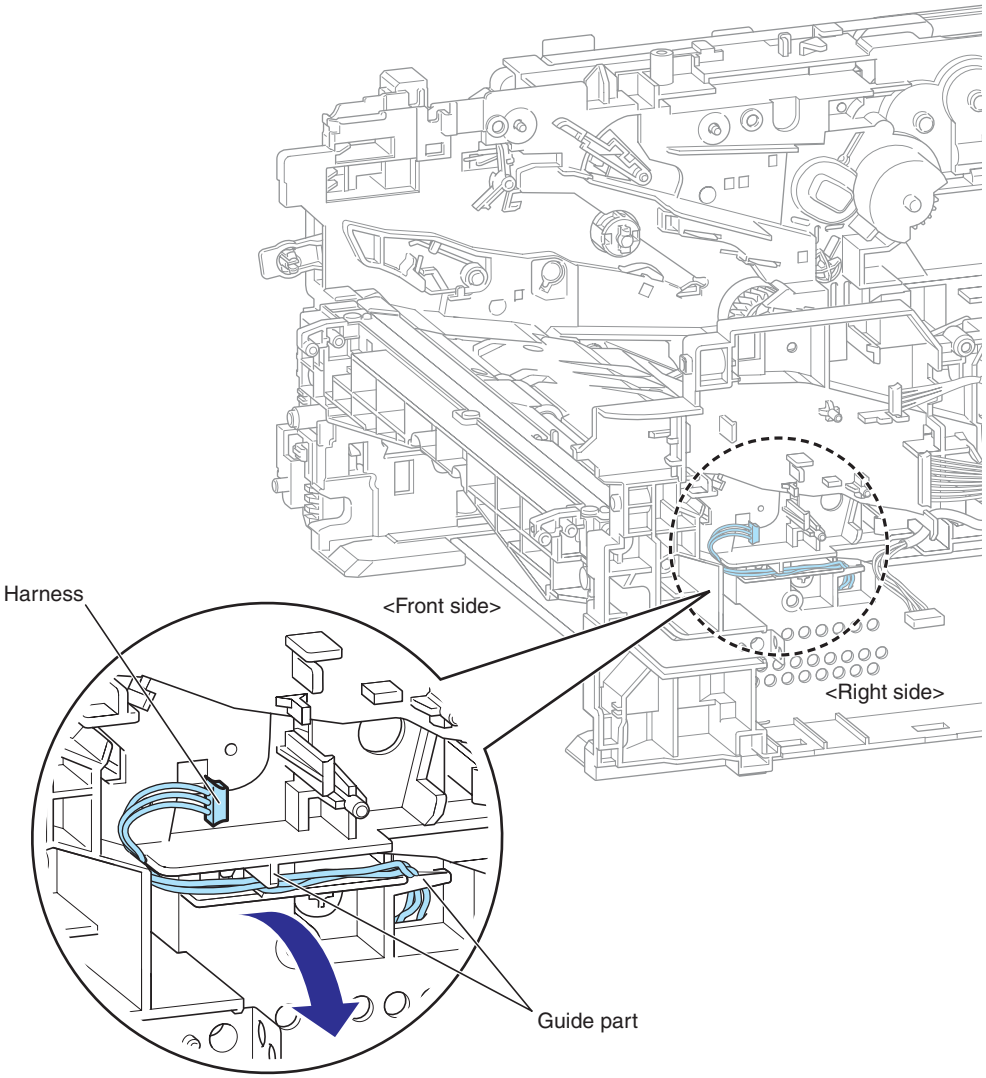


Fig. 3-88

(2) Remove the two Taptite bind B M3x10 screws, and then remove the Rear actuator holder ASSY from the Main body.

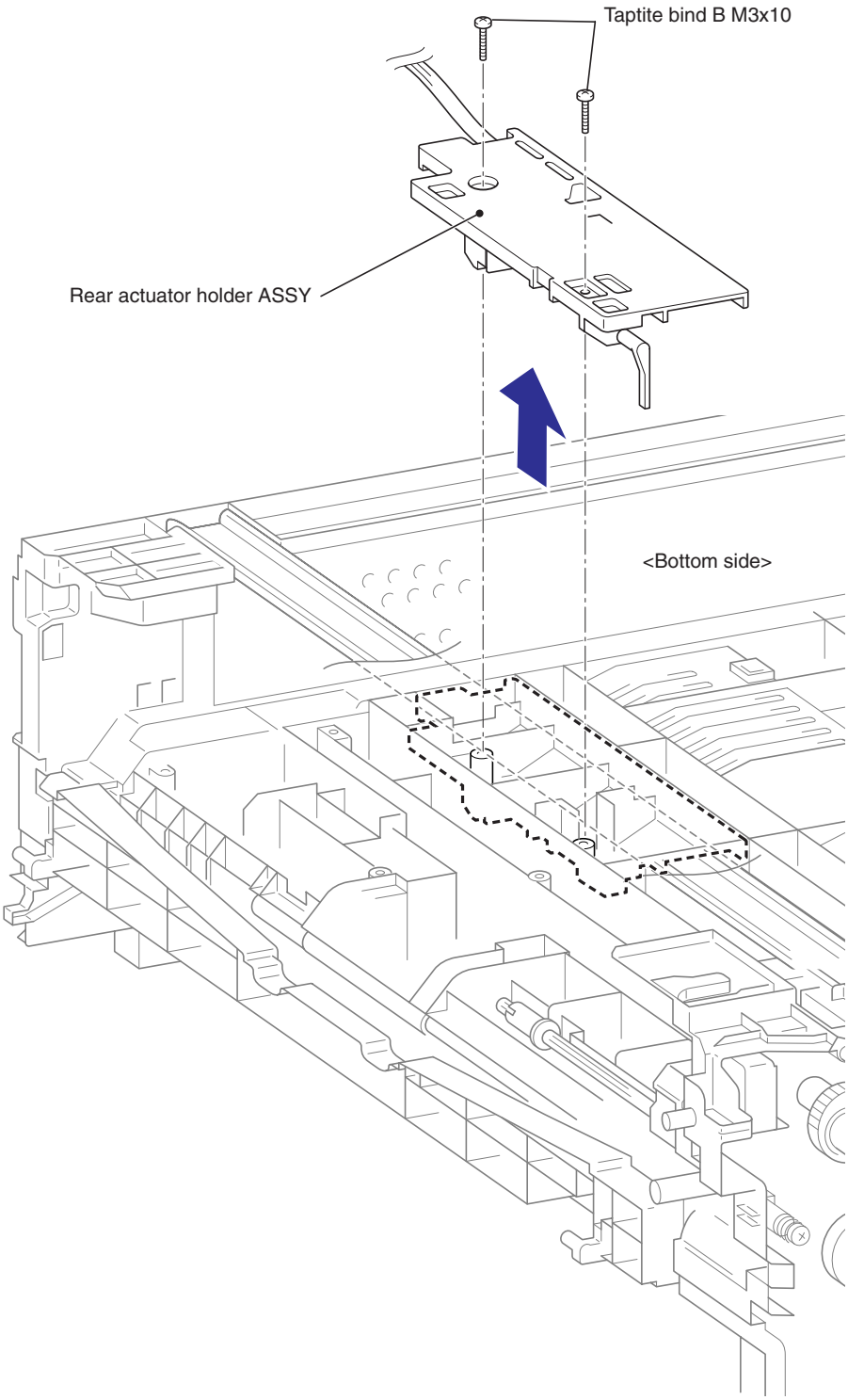


Fig. 3-89

(3) Remove the Actuator spring rear from the Hook part.

(4) Turn the Registration actuator rear.

(5) Slide the Registration actuator rear to remove the Registration actuator rear from the Rear actuator holder ASSY.

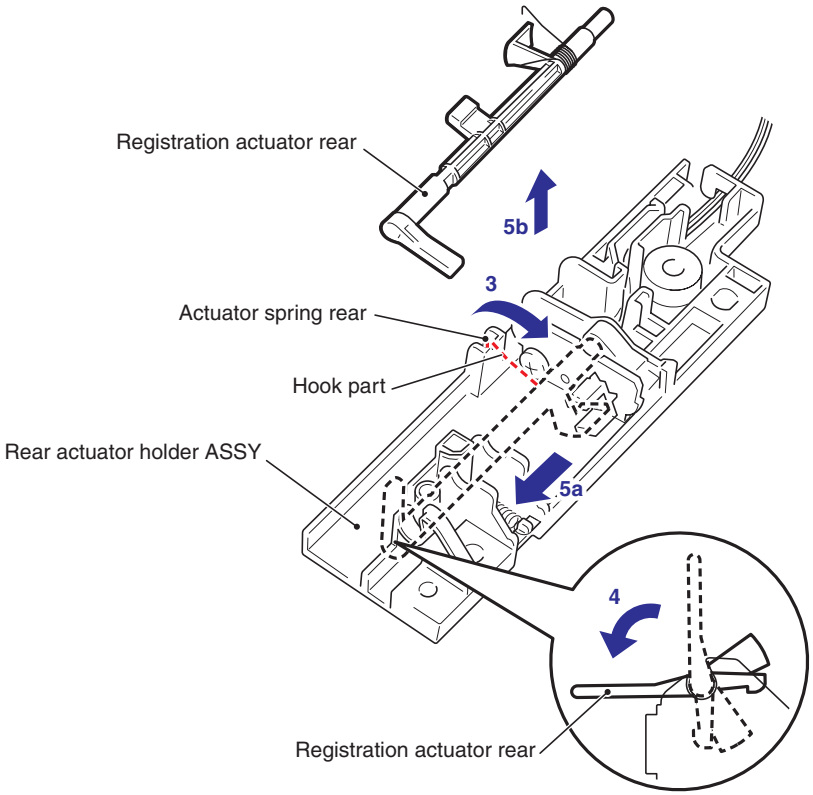


Fig. 3-90

(6) Remove the Taptite bind B M3x10 screw, and then remove the Registration rear sensor PCB ASSY from the Rear actuator holder ASSY.

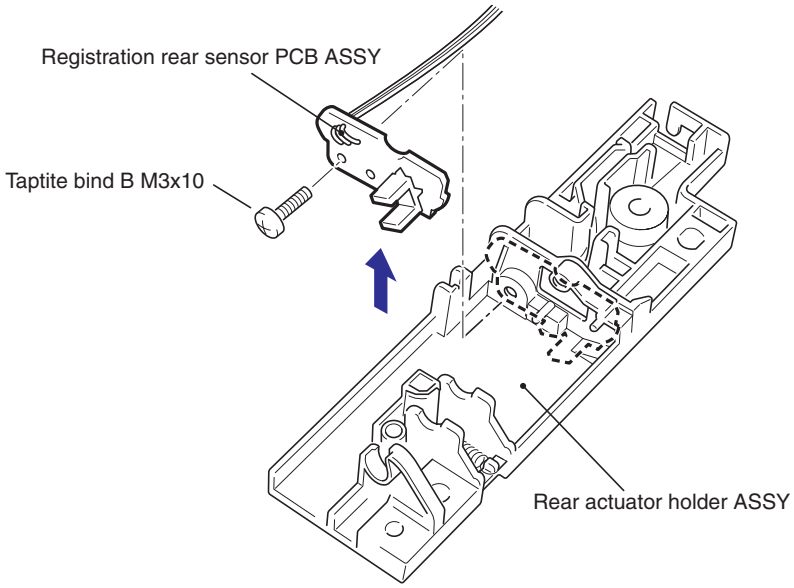


Fig. 3-91

8.33 DRIVE SUB A

(1) Remove the
remove the l

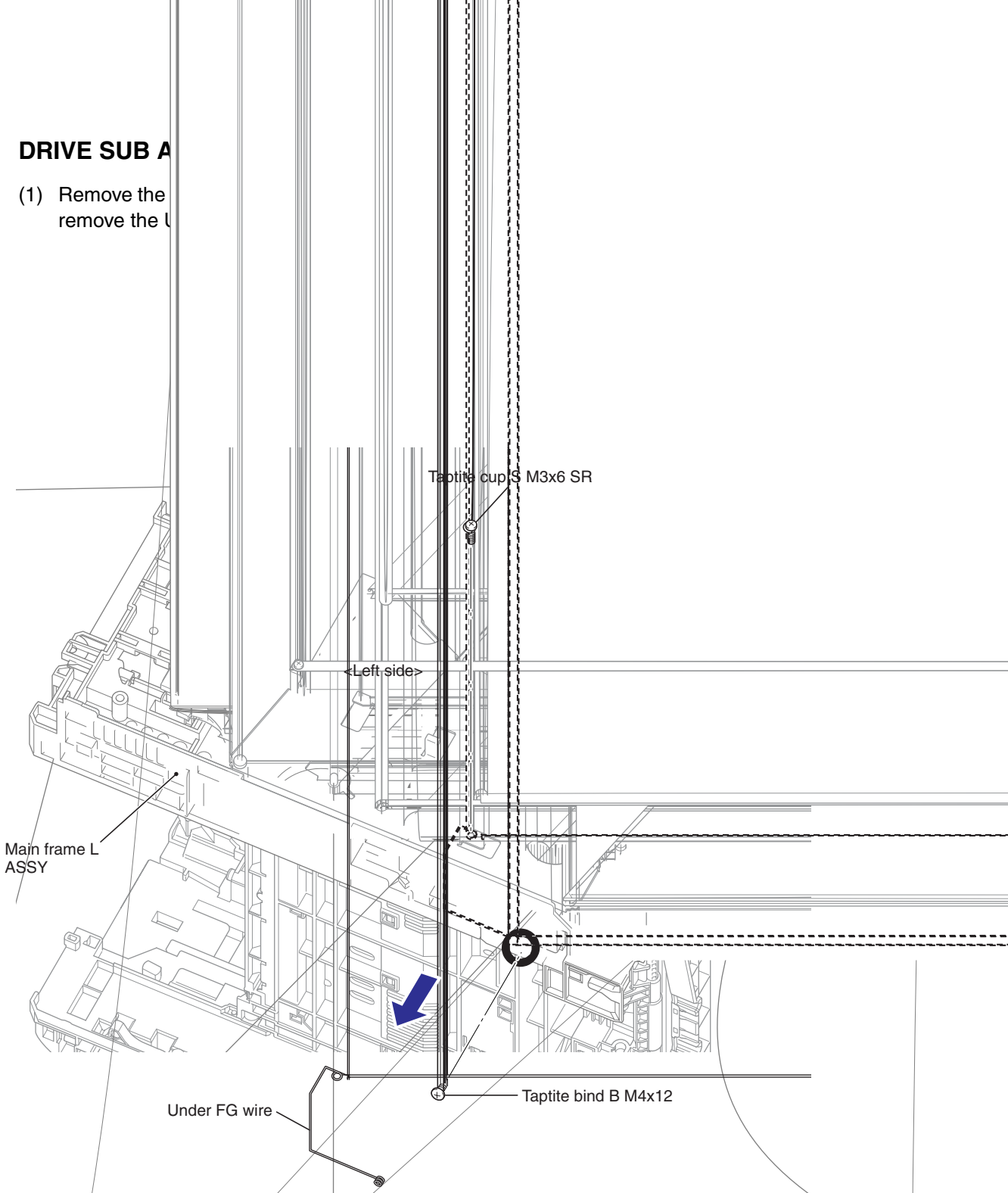


Fig. 3-92

(2) Remove the Taptite cup S M3x6 SR screw and the nine Taptite bind B M4x12 screws, and then remove the Drive sub ASSY from the Main body.

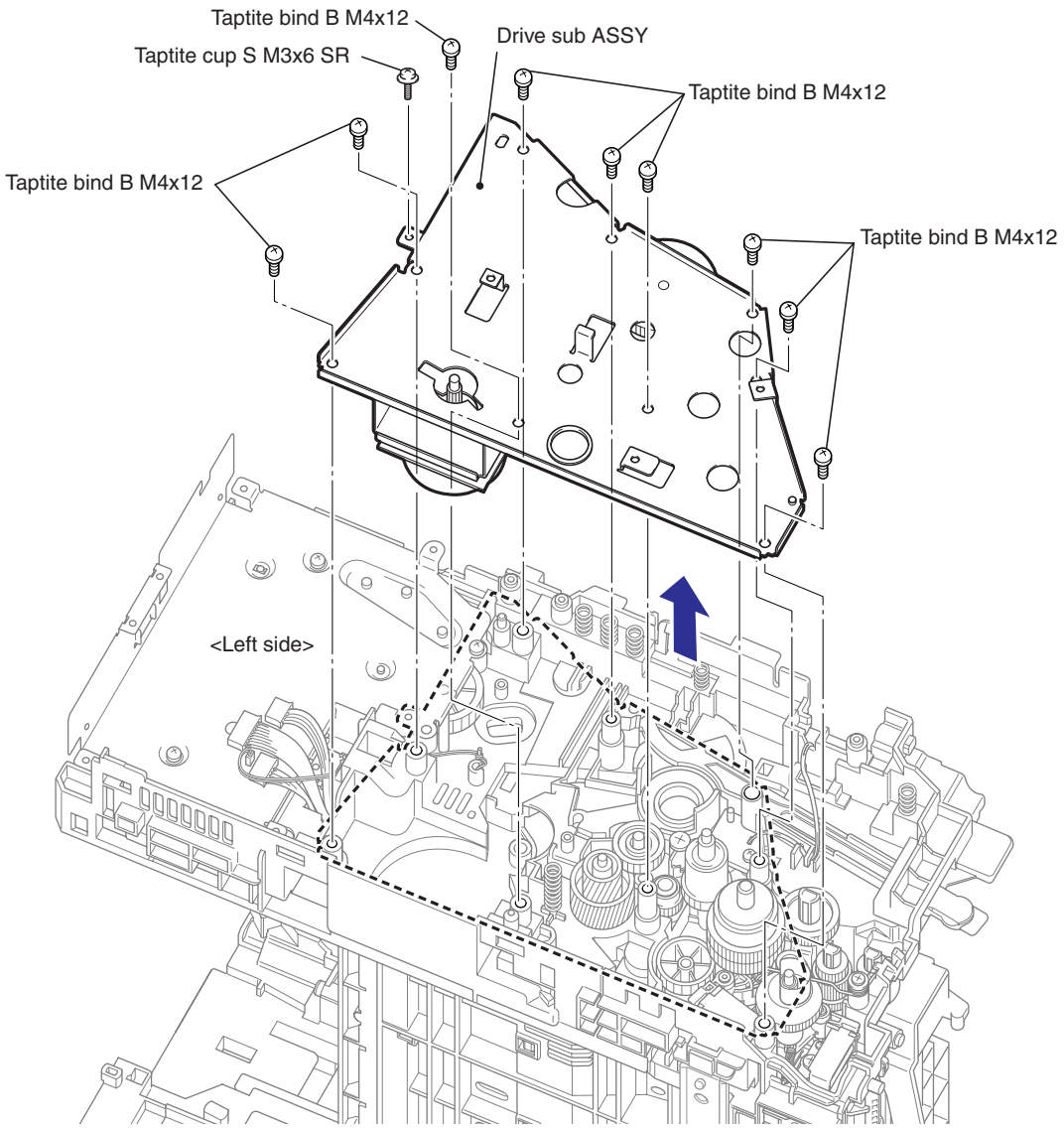


Fig. 3-93

CAUTION:

When removing the Drive sub ASSY, Ensure the left side of the Main body is at the top as shown in the above figure because there is the risk of the gears falling off.

8.34 DEV JOINT / DEV GEAR JOINT/53R / REGISTRATION PENDULUM GEAR SPRING

(1) Remove the DEV joint and the DEV joint spring from the DEV gear joint/53R.

(2) Remove the DEV gear joint/53R from the Drive sub ASSY.

(3) Remove the Registration pendulum gear spring from the Drive sub ASSY.

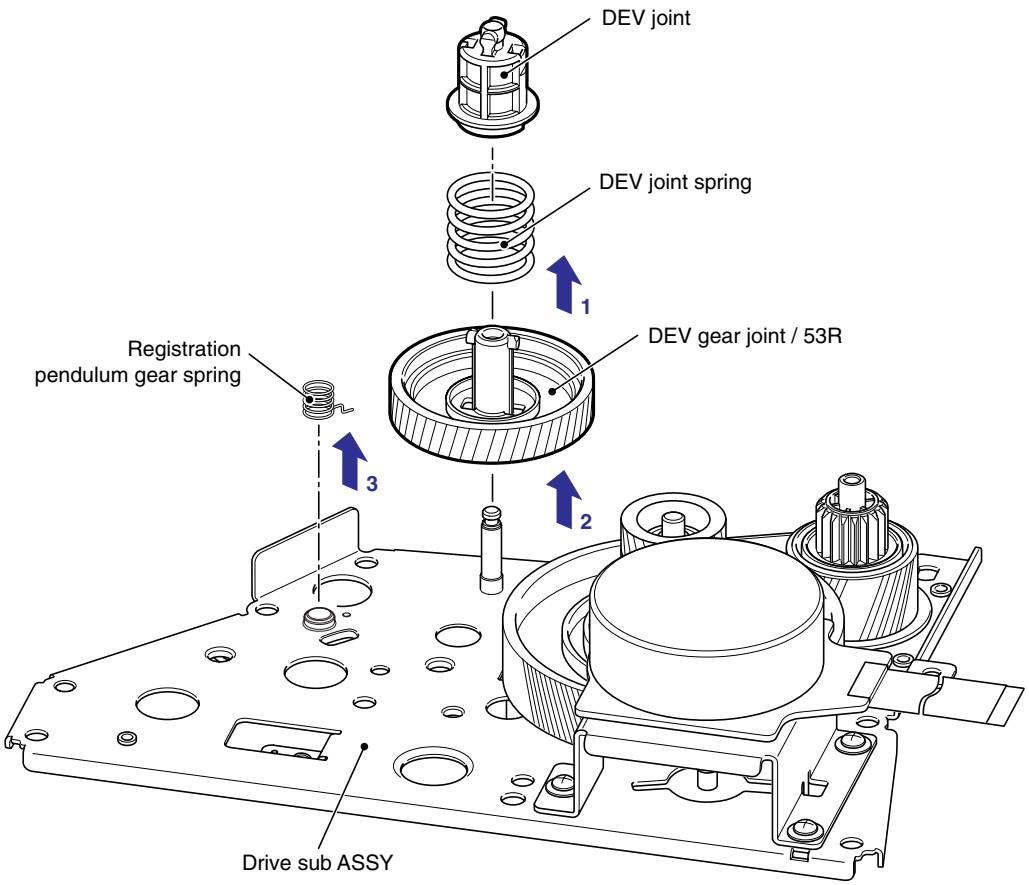


Fig. 3-94

8.35 THERMISTOR HARNESS UNIT

(1) Remove the Thermistor harness unit from the Main body.

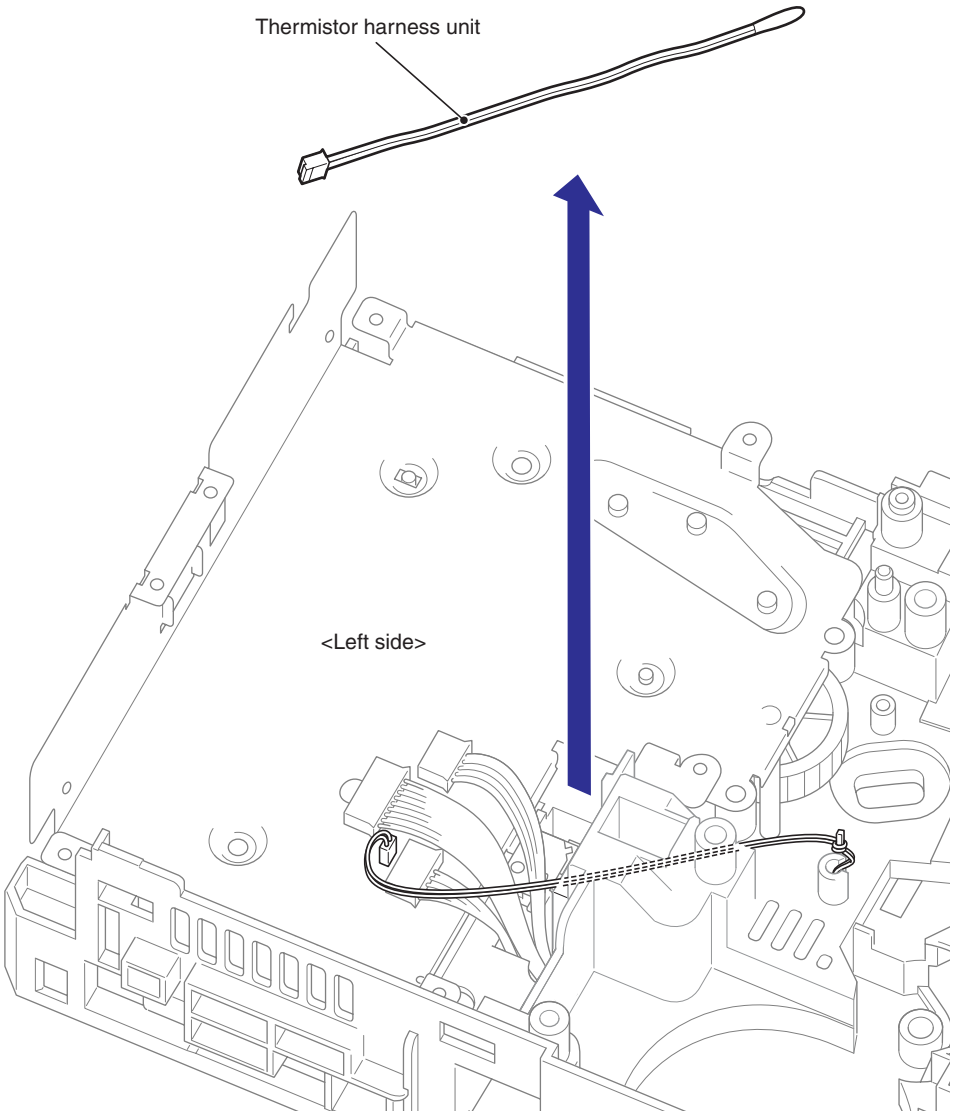


Fig. 3-95

8.36 TONER SENSOR PCB UNIT ASSY

(1) Remove the Taptite bind B M3x10 screw, and then remove the Link stopper and the Toner sensor PCB unit ASSY from the Main body.

(2) Remove the PT sensor holder from the Toner sensor PCB unit ASSY.

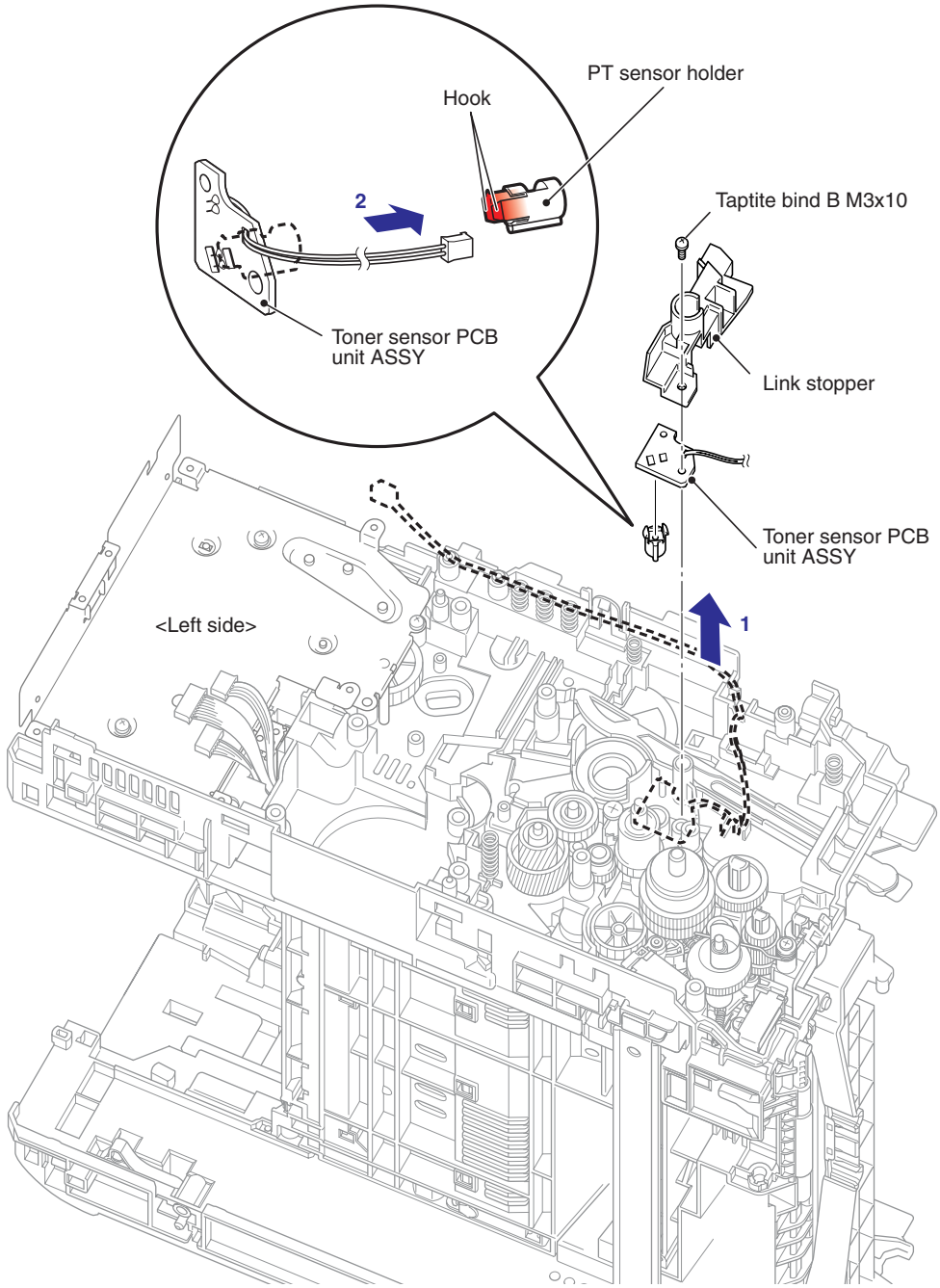
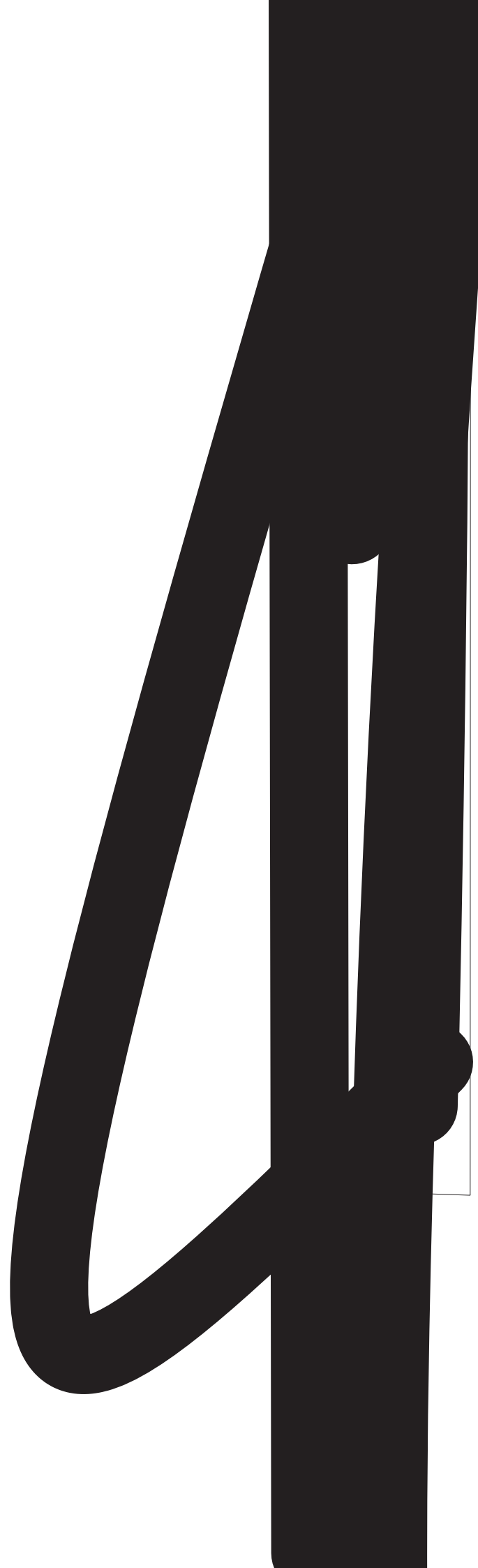


Fig. 3-96



(5) Remove the Registration solenoid lever spring from the Main body and the Registration solenoid lever.

(6) Remove the Harness from the Guide part of the Main body.

(7) Remove the Taptite bind B M3x10 screw, and then remove the Registration solenoid from the Main body.

(8) Remove the Registration solenoid lever from the Registration solenoid.

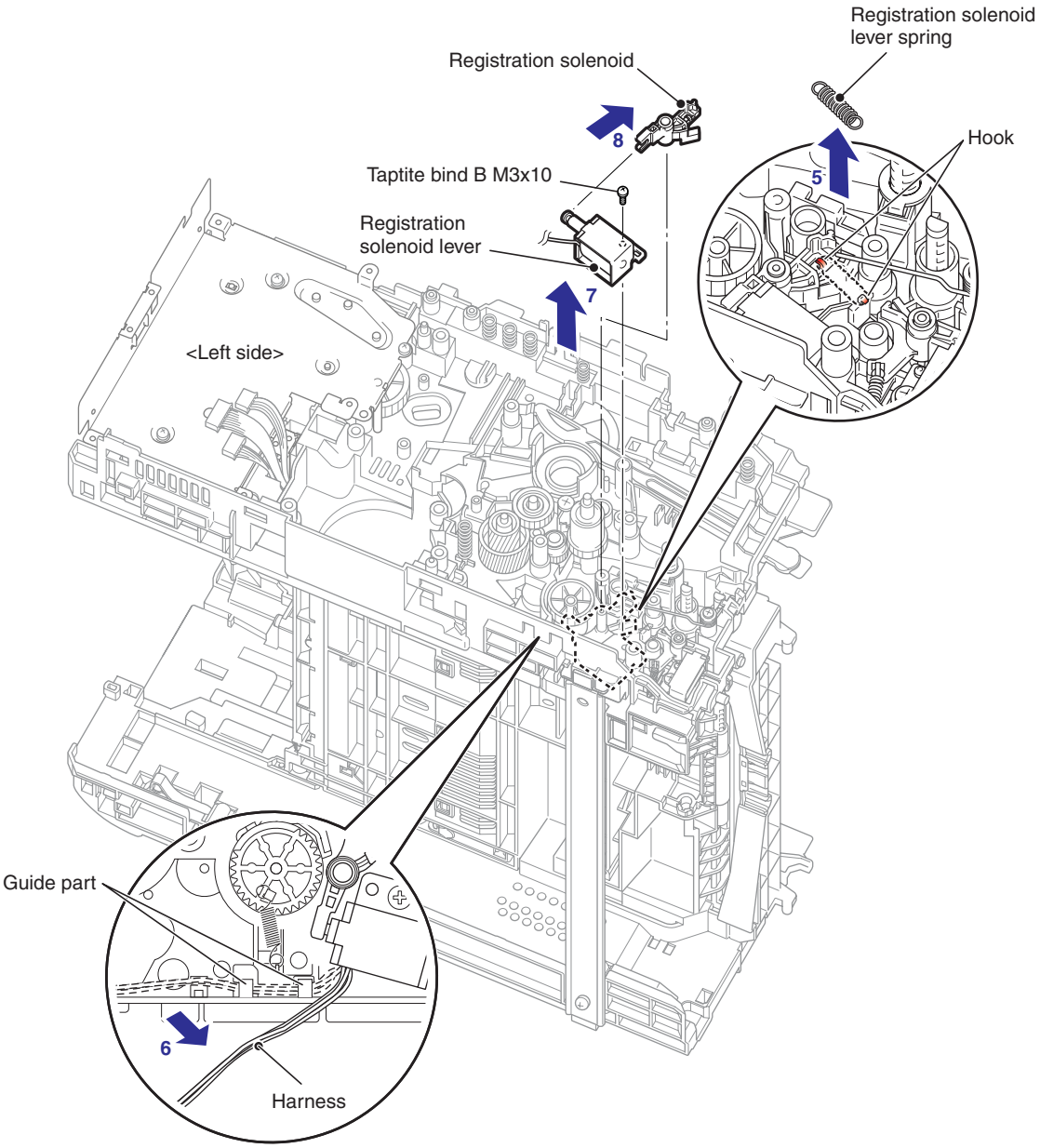


Fig. 3-98

8.37.2 T1 SOLENOID

(1) Remove the T1 solenoid lever spring from the Main body and the T1 solenoid lever.

(2) Remove the Harness from the Guide part of the Main body.

(3) Remove the Taptite bind B M3x10 screw, and then remove the T1 solenoid from the Main body.

(4) Remove the T1 solenoid lever from the T1 solenoid.

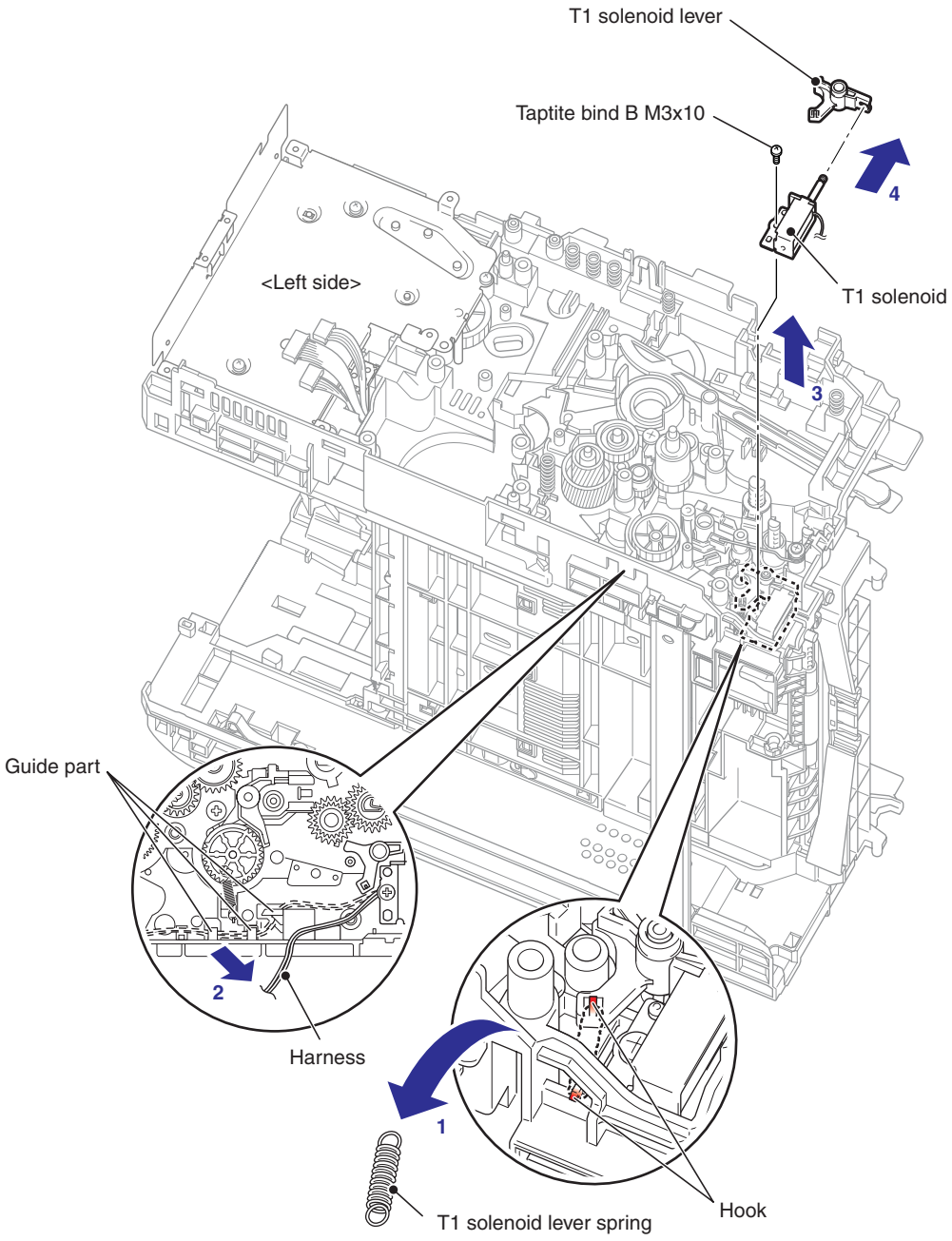


Fig. 3-99

8.38 MAIN SHIELD PLATE / EJECT SENSOR PCB ASSY

(1) Remove the three Taptite bind B M3x10 screws, and then remove the FU front paper guide from the Main body.

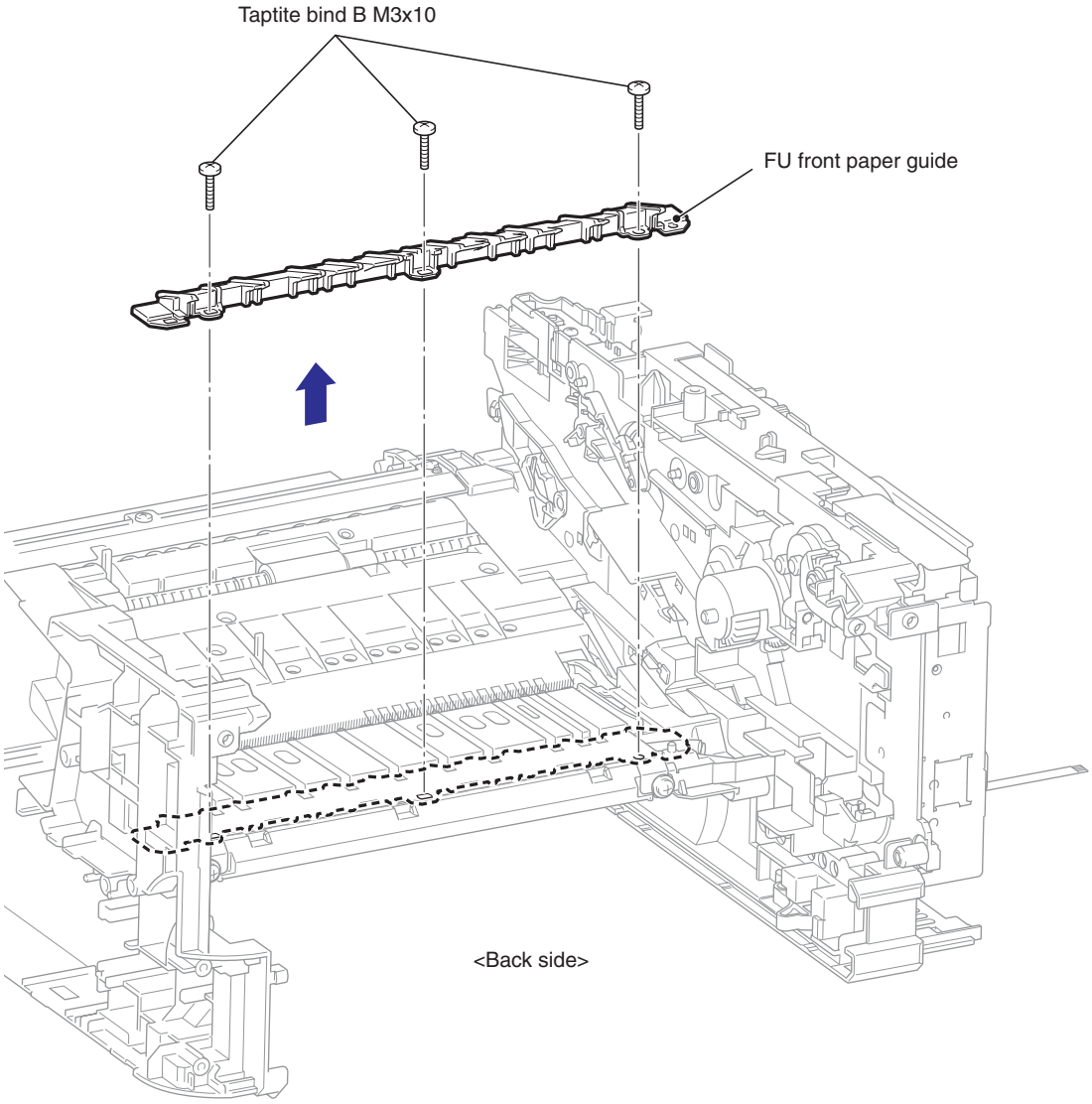


Fig. 3-100

(2) Remove the two Taptite cup S M3x6 SR screws, and then remove the Chute ground plate from the Main body.

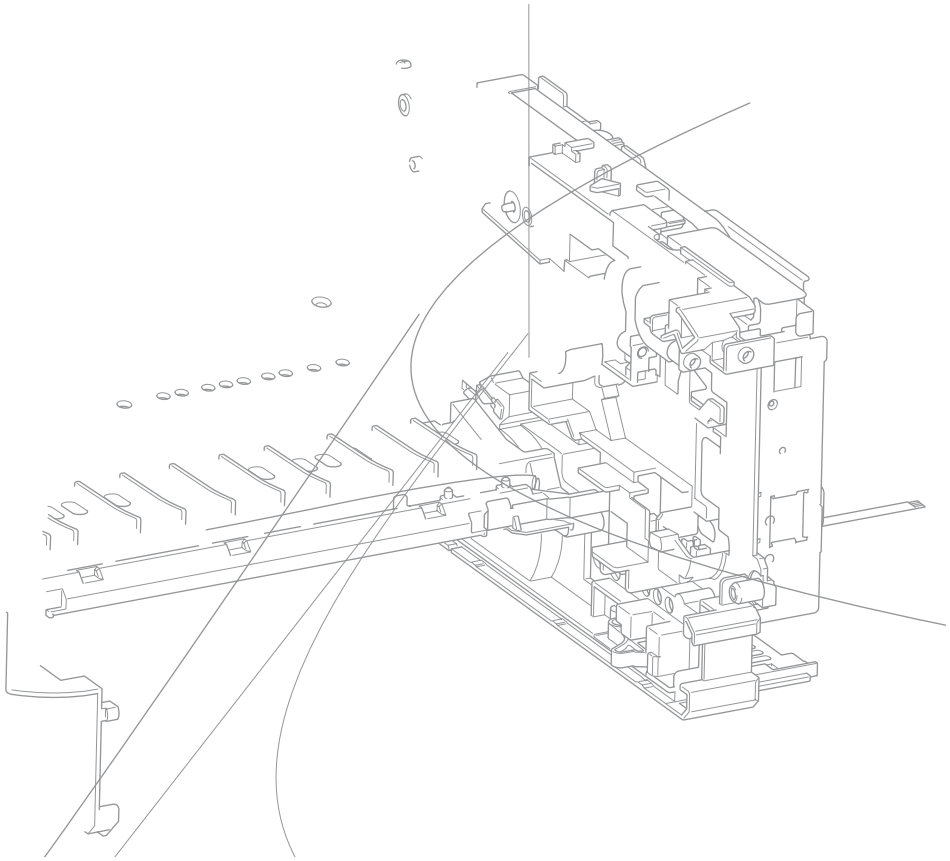


Fig. 3-101

(3) Remove the Main PCB sheet from the Main shield plate.

(4) Remove the three Taptite bind B M4x12 screws, and then remove the Main shield plate from the Main body.

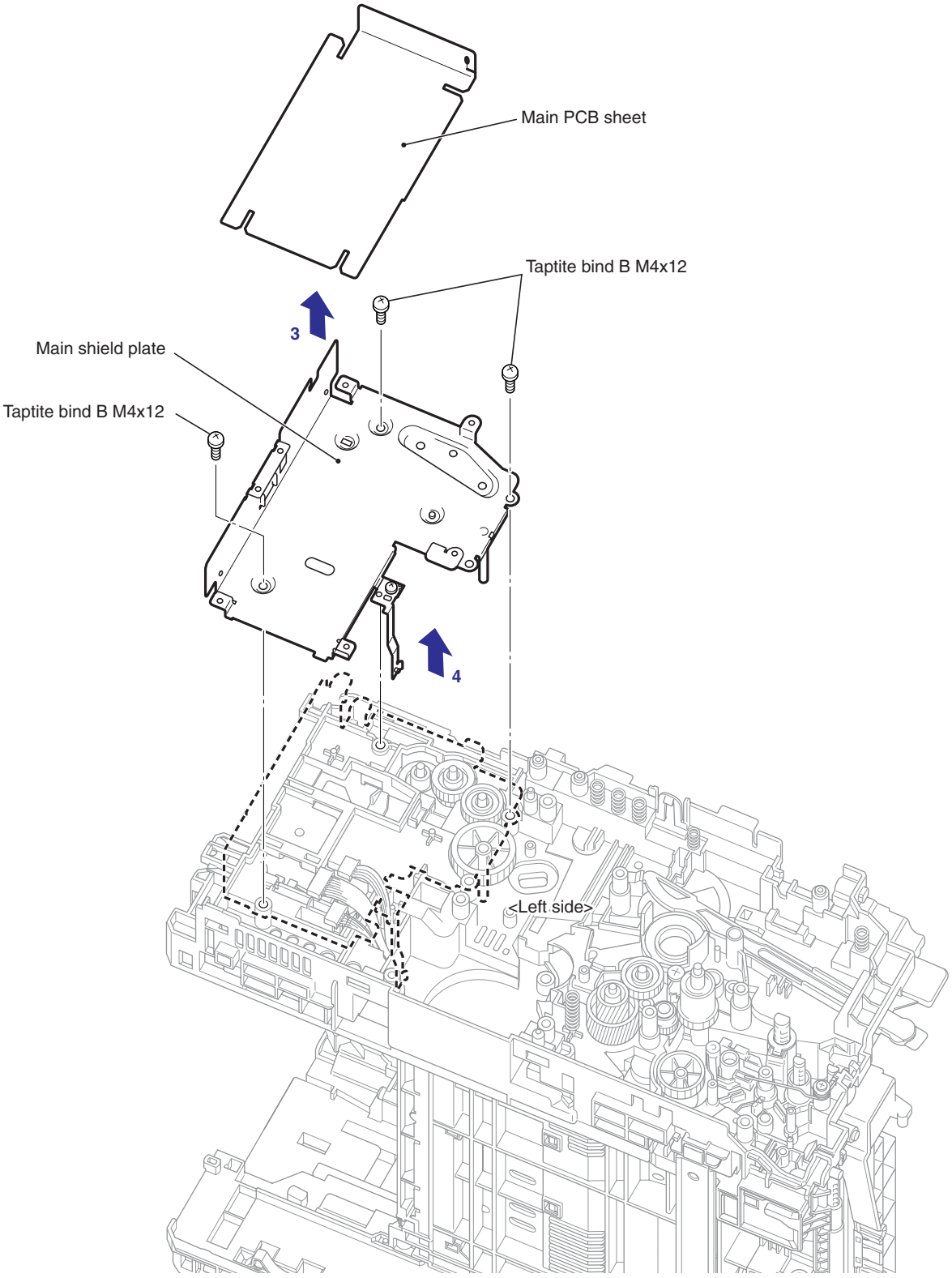


Fig. 3-102

(5) Release the Hook to remove the Eject sensor PCB ASSY from the Main body.

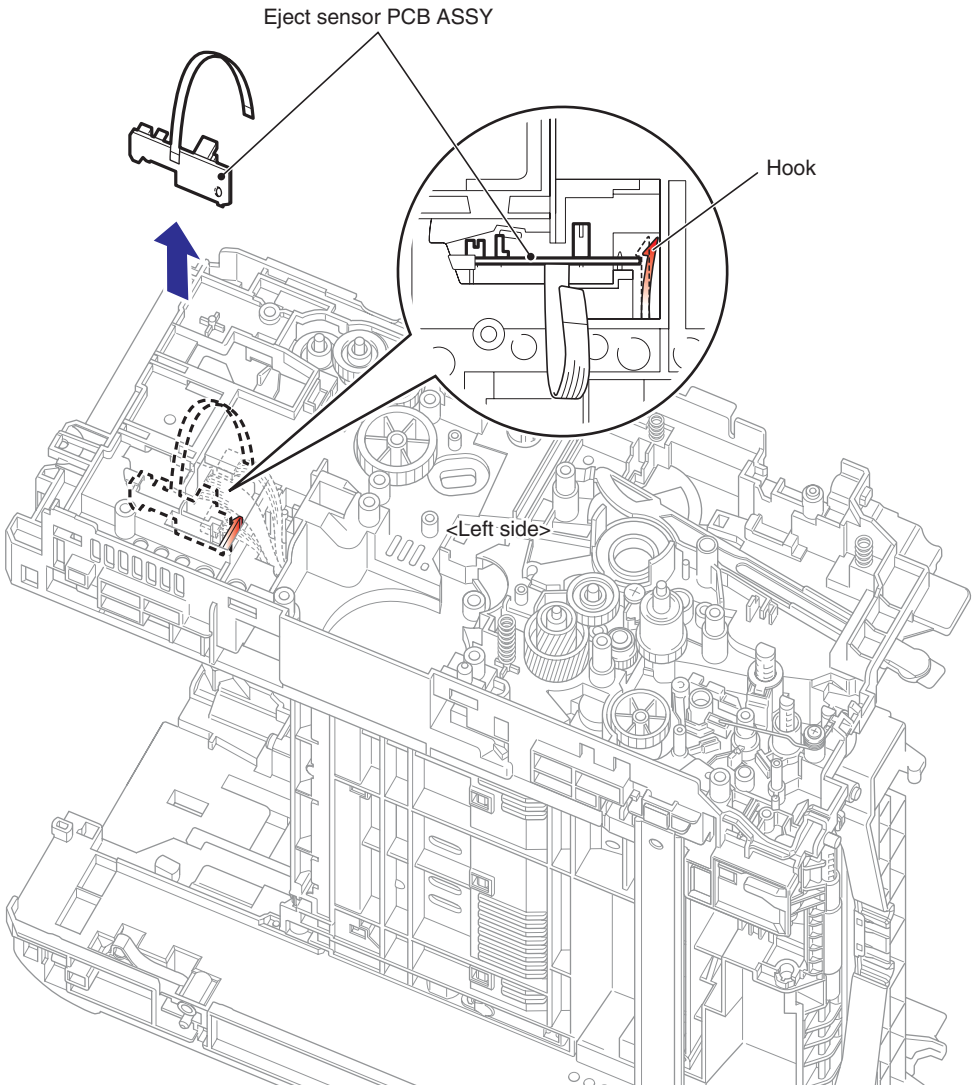


Fig. 3-103

8.39 RUBBER FOOT

(1) Remove the two Rubber feet from the Main body.

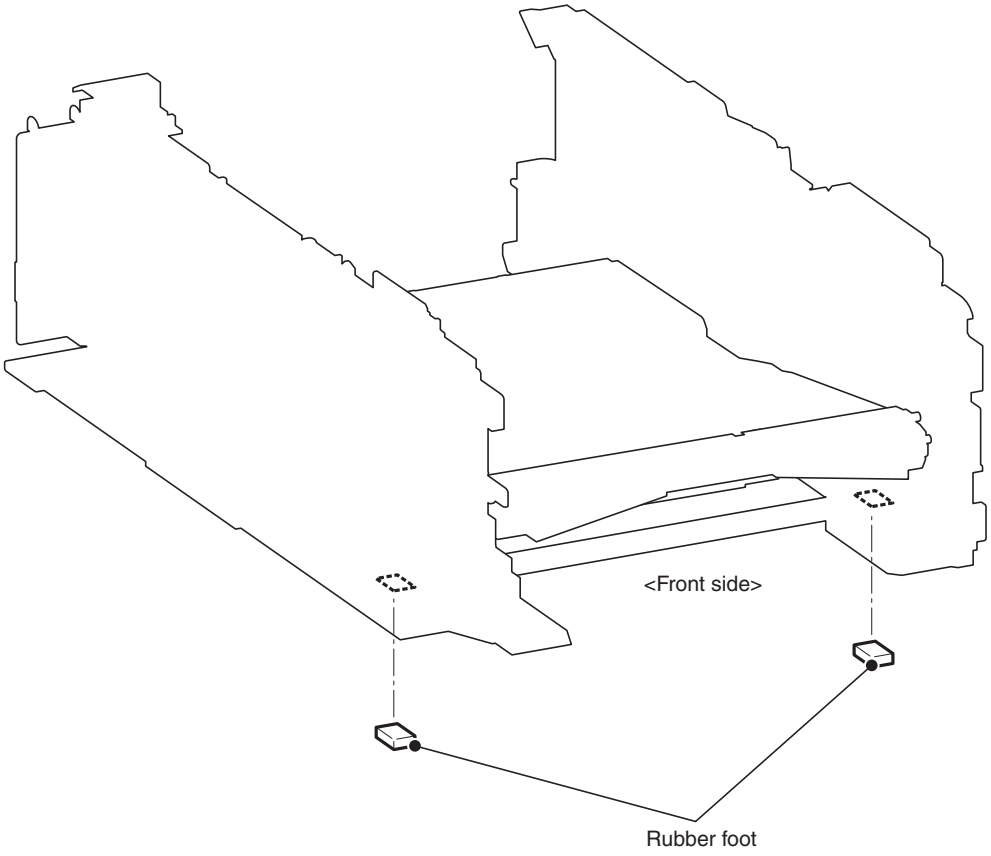


Fig. 3-104

Note:
The procedure for disassembling the Main frame L ASSY as mentioned after "8.25 HIGH-VOLTAGE PS PCB ASSY" is described below.

8.40 MAIN FRAME L ASSY

(1) Remove the three Taptite bind B M3x10 screws, and then remove the FU front paper guide from the Main body.

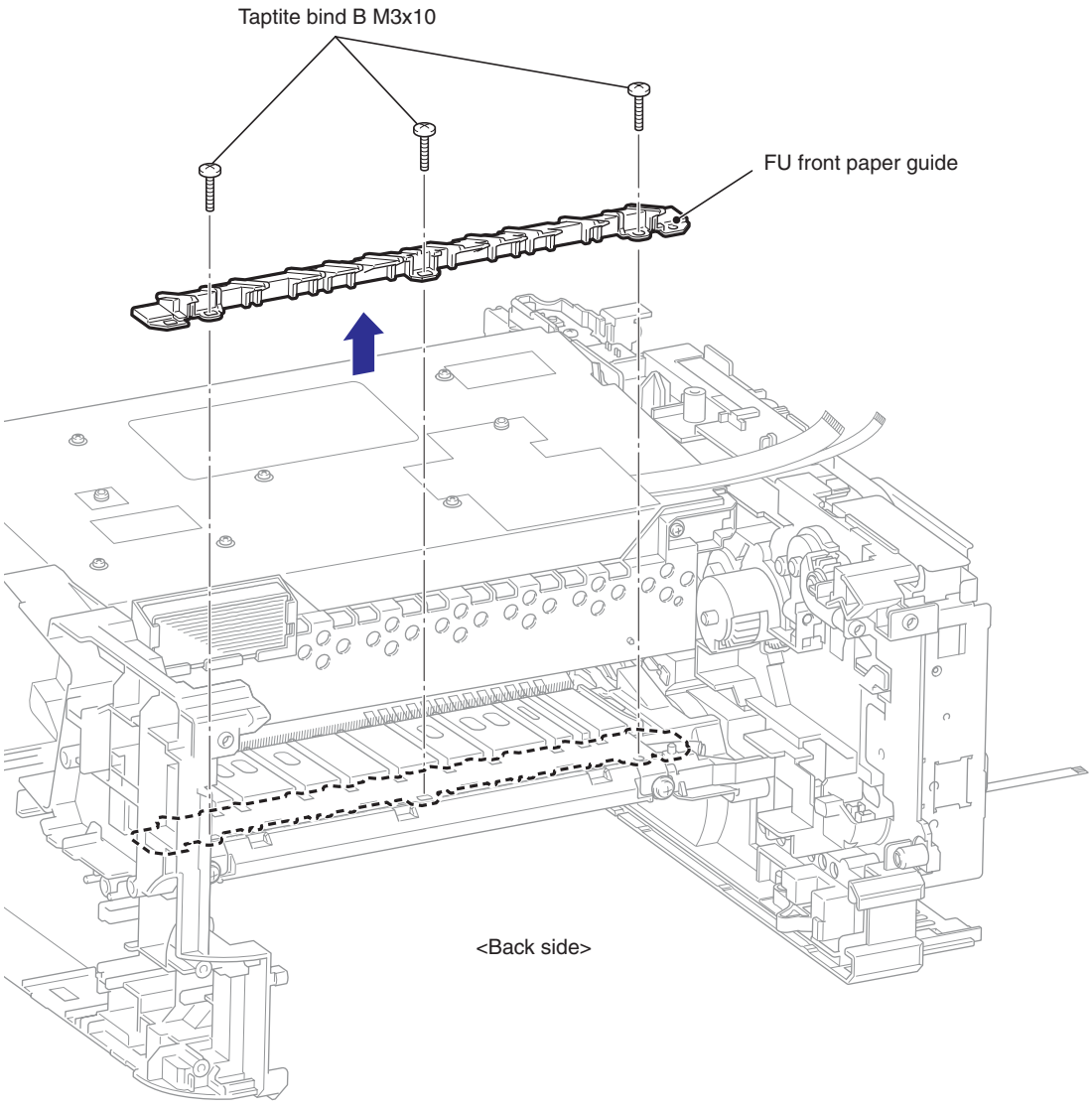


Fig. 3-105

(2) Remove the two Taptite cup S M3x6 SR screws, and then remove the Chute ground plate from the Main body.

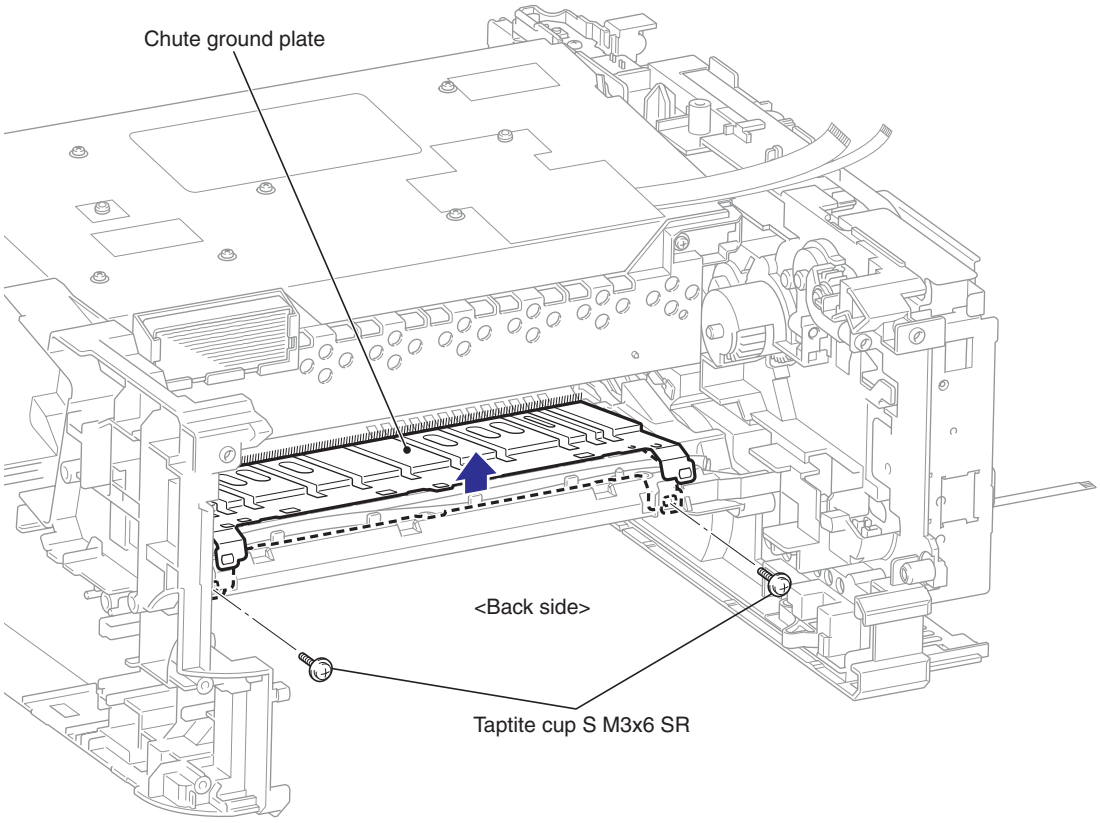
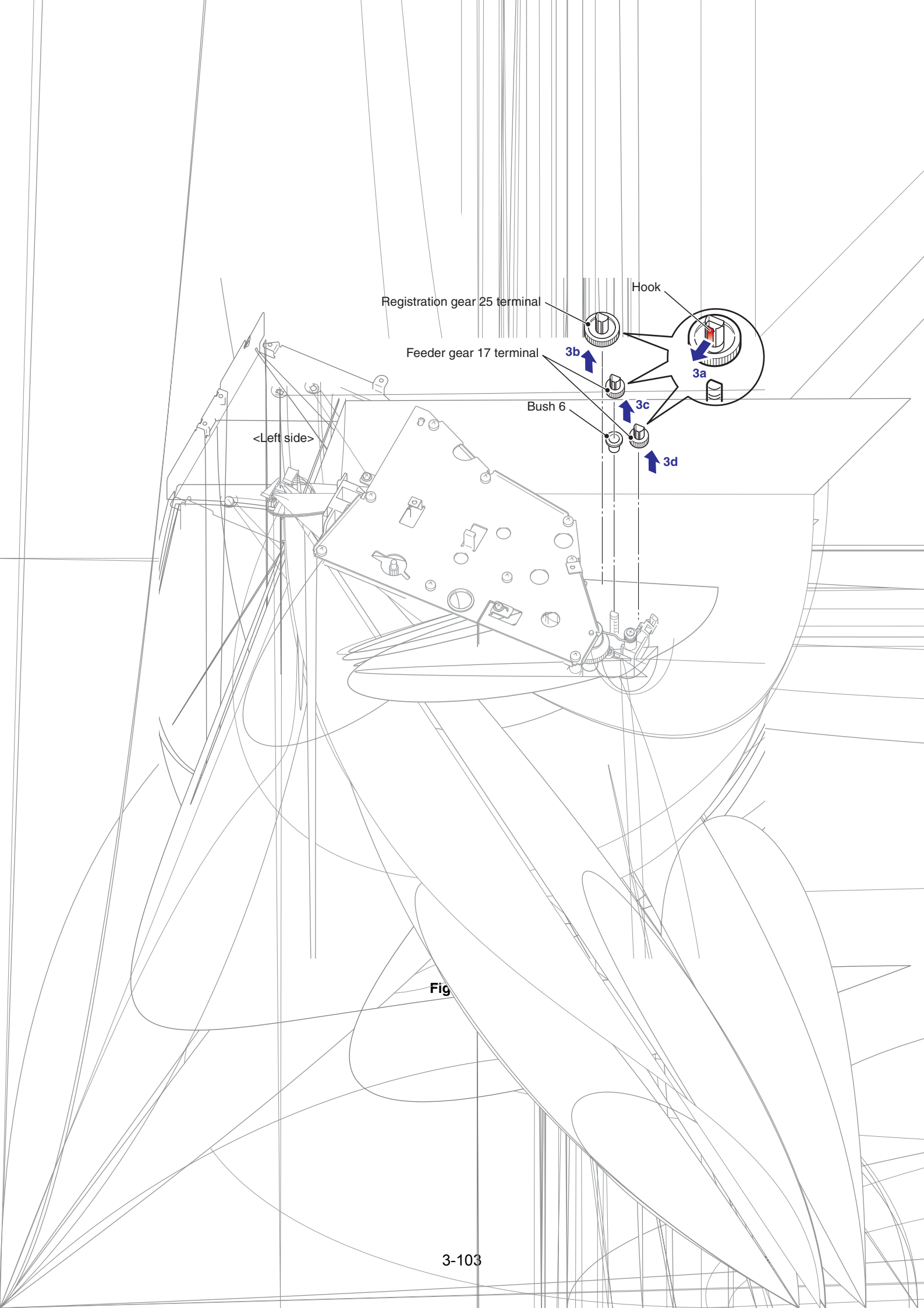


Fig. 3-106


Hook
Registration gear 25 terminal
Feeder gear 17 terminal
3b
3a
3c
Bush 6
<Left side>
3d

Fig

(4) Remove the Taptite cup S M3x6 SR screw and the Taptite bind B M4x12 screw, and then remove the Under FG wire from the Main body.

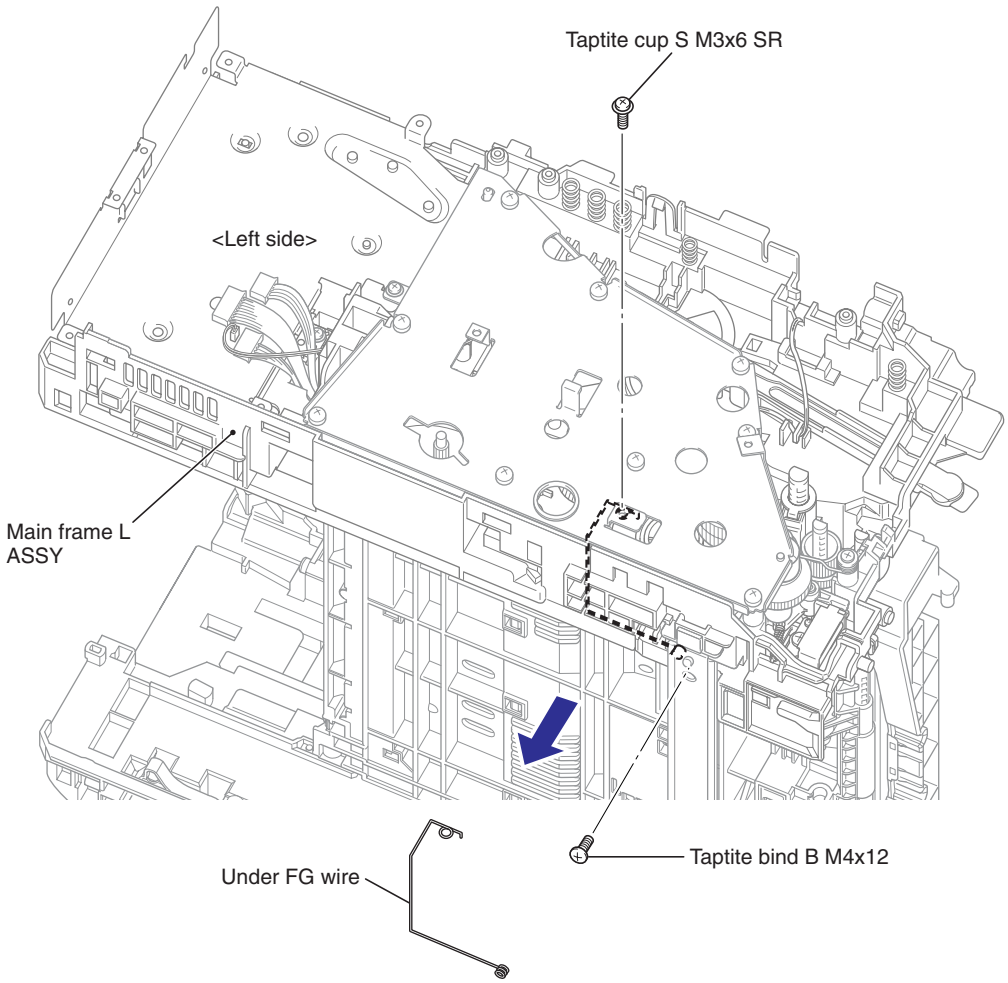


Fig. 3-108

(5) Remove the four Taptite bind B M4x12 screws and the two Taptite cup S M3x6 SR screws, and then remove the Main frame L ASSY from the Main body.

Memo :

- Ensure you remove the Main frame L ASSY with the DEV joint link pulled out (as shown).

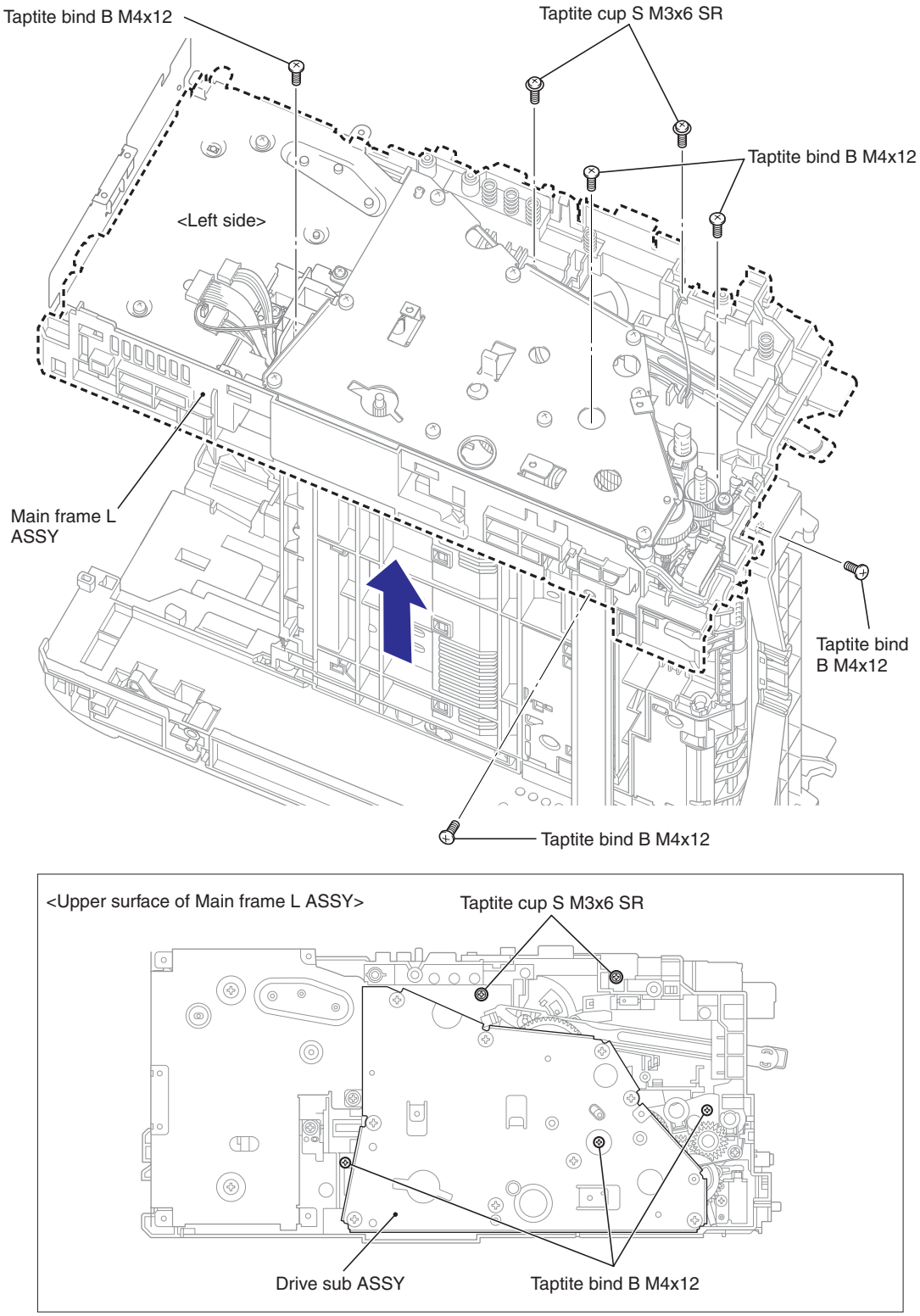


Fig. 3-109

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

1. IF YOU REPLACE THE MAIN PCB

Note :

When replace the main PCB, the function of the I FAX disappears. Contact the customer to download the I FAX again.

<What to do when replacing the main PCB>

- Rewriting the firmware (Main firmware / Sub firmware)
- EEPROM Parameter Initialization of Main PCB (Maintenance Mode: Code 01)
- Operational Check of Control Panel Button (Maintenance Mode: Code 13)
- Operational Check of Sensors (Maintenance Mode: Code 32)
- Acquisition of White Level Data and Set the CIS Scanner Area (Maintenance Mode: Code 55)
- EEPROM Customizing of Main PCB (Maintenance Mode: Code 74)
- Setting the serial number
- Inputting the adjusted value of the laser scanner
- Setting the toner cartridge type
- Backup to the Main PCB of the Wireless LAN PCB Information (MFC7840W only)

<What you need to prepare>

(1) Computer (Windows® XP or later)
Create folder, for example "ALL2" folder on the C drive.

(2) Firmware

Main Firmware : LZXXXX_$.upd	LZXXXX: First six digits are the parts number of the firmware. $: Alphabet represents the revision of the firmware
Sub Firmware (PCL/PS) : LZXXXX_$.dif (MFC7840W, DCP7045N only)	

(3) Maintenance Tool (MAINTE.zip)
Copy it into the "ALL2" folder that has been created on the C drive. Extract the copied file and run "brmainte.exe" file by double-clicking.

(4) USB cable (one piece)

(5) Download Utility (FILEDG32.EXE)
Copy it into the "ALL2" folder that has been created on the C drive.

(6) Brother Maintenance USB Printer Driver
Copy it into the "ALL2" folder that has been created on the C drive. Extract the copied file.

Refer to the following pages for the next procedures.

■ Rewriting the firmware (Main firmware / Sub firmware)

<Installing the maintenance printer driver>

To identify terminals connected via USB interface, the PC requires the corresponding virtual USB devices to be implemented by the driver. If you connect a number of machines to your PC, the same number of virtual USB devices will be automatically configured on your PC. To prevent virtual USB devices from being configured limitlessly, use the unique driver installation procedure described below that enables your PC to identify terminals via single virtual USB device.

Once this installation procedure is carried out for the PC, no more driver installations will be required for that PC to identify machines. If BHL2 Maintenance Driver is already installed to your PC, fully uninstall the BHL2 Maintenance Driver before installing Brother Maintenance USB Printer Driver.

(1) Check that the power switch of the machine is turned off. Disconnect the USB cable that connects the machine with PC.

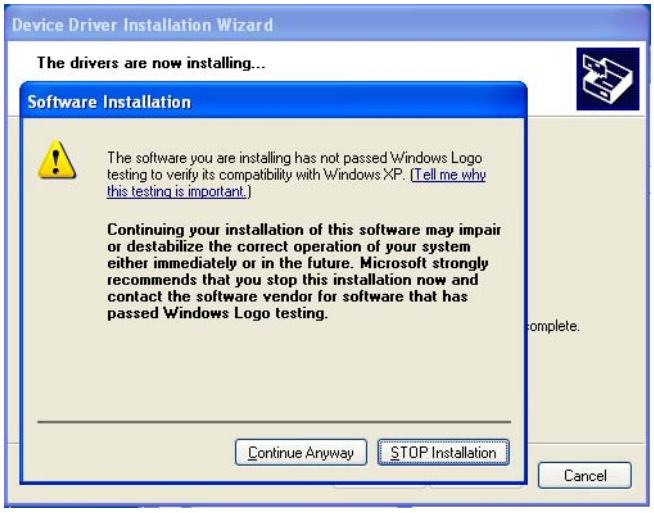
(2) Turn on your PC and machine.

(3) Press the buttons in the following order Menu, Start and the ▲ button four times to make the machine enter the maintenance mode. (Refer to "1.1 How to Enter the Maintenance Mode" in Chapter 5.)

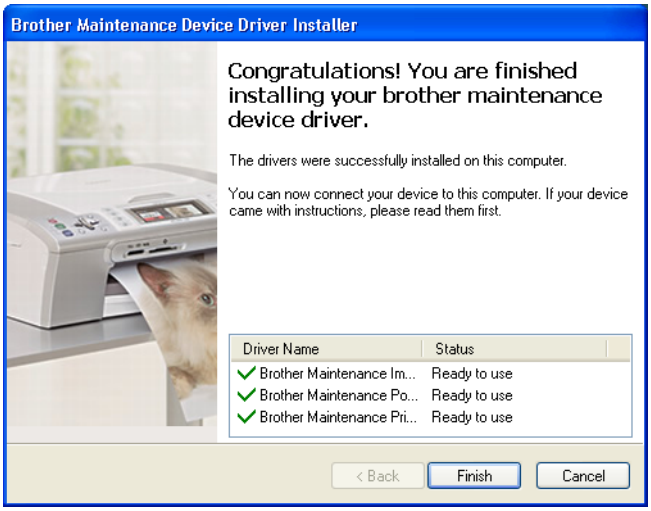
(4) Click the “maintenance.exe” of the Printer Maintenance Driver which has been copied in the “ALL2” folder to start.

(5) The following screen appears, indicating the detection of device installation wizard. Click Next to proceed.

(6) An alert warning message of WHQL appears three times. Click Continue Anyway to proceed.

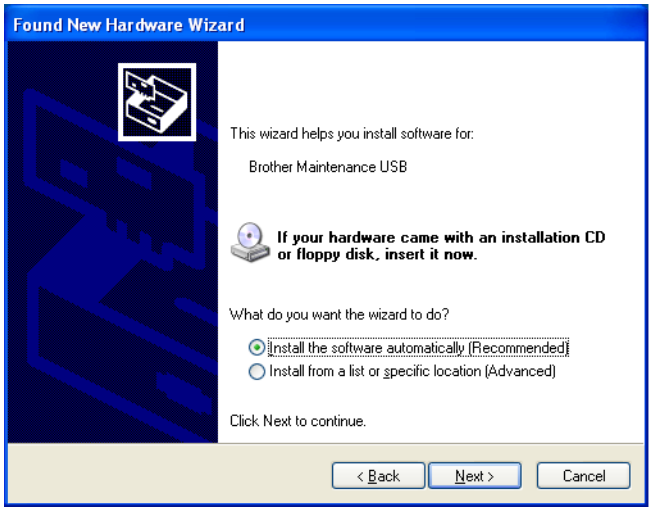


(7) If the device driver is successfully installed, the following message screen appears. Click Finish to return.

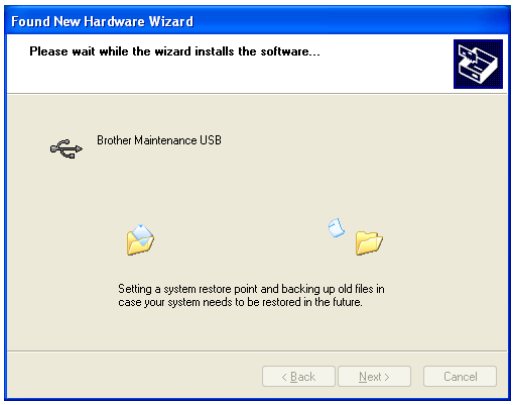


(8) Connect the machine to your PC using the USB cable.

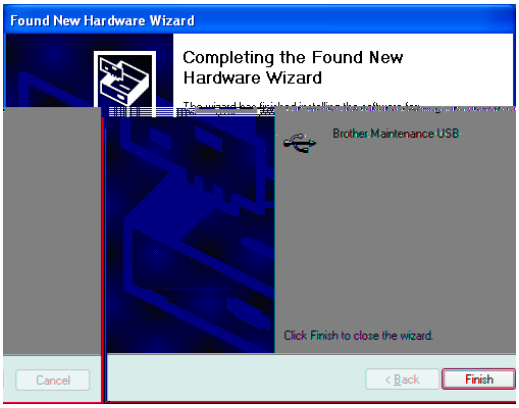
(9) Select “Install the software automatically (Recommended)” and click Next.



(10) An alert warning message of WHQL appears. Click Continue Anyway to proceed.



(11) If the Brother Maintenance USB Printer driver is successfully installed, the following message screen appears. Click Finish to return.



<Procedures>

After the installation procedure of the Brother Maintenance USB Printer driver is completed, refer to the following steps for the detailed procedures to rewrite the program files (Main Firmware, Sub Firmware (PCL/PS)). If the Brother Maintenance USB Printer Driver has already been installed to your PC, continue to start to rewrite the program files.

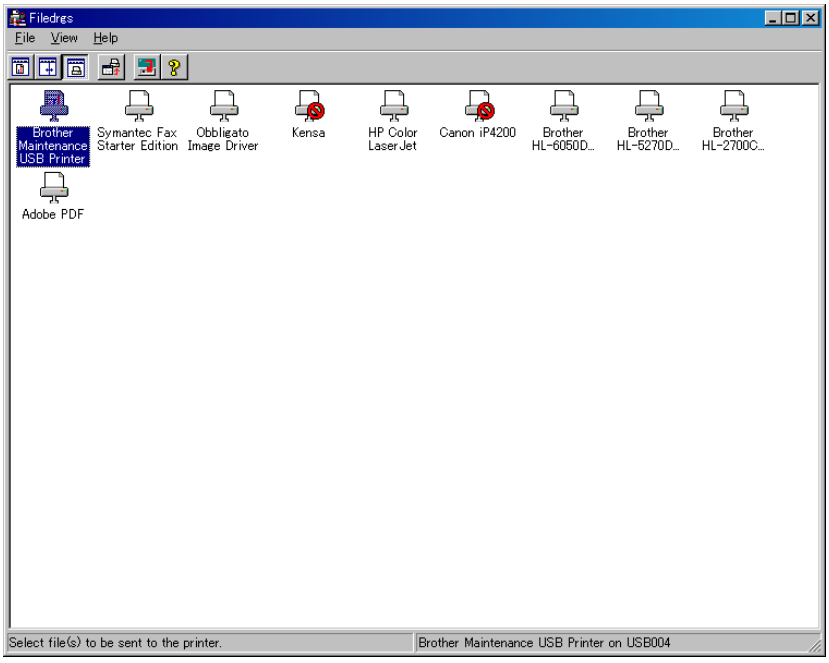
■ Rewriting the Sub Firmware (PCL/PS) (MFC7840W, DCP7045N only)

(1) Press the **Menu** and **Black Start** buttons. Next press the ▲ button four times to make the machine enter the maintenance mode. (Refer to "1.1 How to Enter the Maintenance Mode" in Chapter 5.)

TIP:
FAX models equipped with numerical keypads can enter the maintenance mode in the same way as conventional models; that is, by pressing the **Menu**, *****, **2**, **8**, **6** and **4** buttons in this sequence.

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

(3) Double-click the “FILEDG32.EXE” to start. The following screen appears.



(4) Drag the necessary firmware program file such as LZ2234_A.djf and drop it onto the Brother Maintenance USB Printer icon. “Program Updating” will appear on the LCD.

(5) Upon completion of rewriting, the machine is rebooted and returns to the Ready state automatically.

■ Rewriting the Main Firmware

(1) Turn the power supply of the machine off.

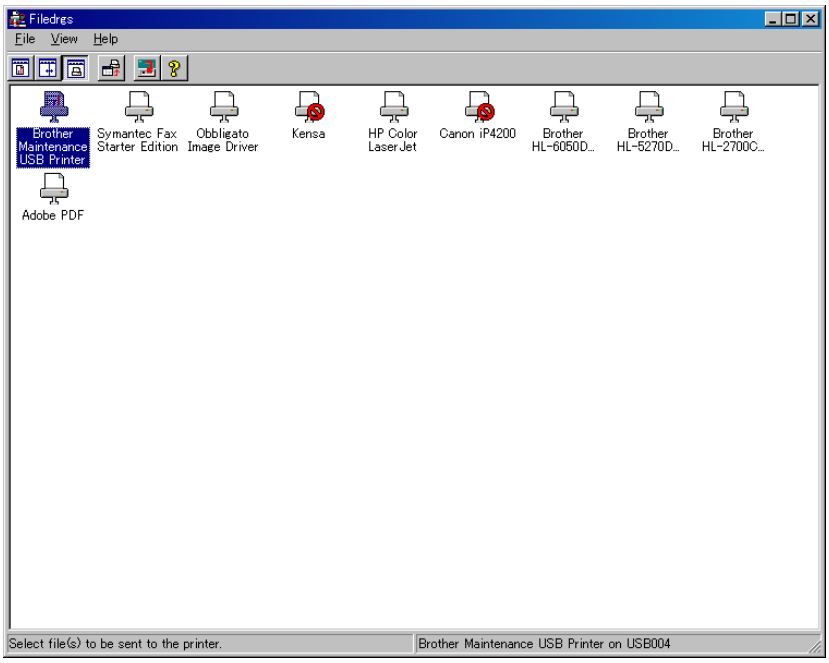
(2) Connect the PC and machine with the USB cable.

(3) MFC 7840W/7840N/7450/7440N/7340/7320
Turn the power switch on while pressing the 5 button.

DCP 7045N/7040/7030
Turn the power switch on while pressing the Enlarge/Reduce button.
The black and white pattern will appear on the LCD.

(4) Start the PC. When doing this operation for the first time, the Plug & Play program is performed, and the driver is installed. Open the “ALL2” folder.

(5) Double-click the FILEDG32.EXE icon to start. Make sure that there is the printer icon of the connected machine, and that no error occurs.



(6) Click the Brother Maintenance USB printer driver in FILEDG32 to select.

(7) Drag the firmware (LZXXXX_$.upd) in the same folder and drop it onto the icon of the Brother maintenance USB printer driver in FILEDG32.
The firmware files are sent to the machine and they are written into the flash ROM automatically. When the download starts, the machine makes an intermittent bleep. Upon completion of rewriting, the machine is rebooted and returns to the ready state automatically. Be sure not to disconnect the USB cable or turn off the power supply of the machine or PC before the rewriting is completed.

(8) Turn the power supply of the machine off.

■ EEPROM Parameter Initialization of Main PCB (Maintenance Mode: Code 01)

Refer to "1.4.1 EEPROM Parameter Initialization (Function code 01, 91)" in Chapter 5, and perform the EEPROM parameter Initialization of main PCB.

■ EEPROM Customizing of Main PCB (Maintenance Mode: Code 74)

Refer to "1.4.16 EEPROM Customizing (Function code 74)" in Chapter 5, and perform the EEPROM Customizing.

For models in France and surrounding countries, Pan-Nordic, Oceania or Iberia, implement the setting for Code 74 in Maintenance mode first. Then, implement more detailed settings for Code 52.

■ Operational Check of Control Panel Button (Maintenance Mode: Code 13)

Refer to "1.4.8 Operational Check of Control Panel Button (Function code 13)" in Chapter 5, and perform the operational check of control panel PCB.

■ Operational Check of Sensors (Maintenance Mode: Code 32)

Refer to "1.4.10 Operational Check of Sensors (Function code 32)" in Chapter 5, and perform the operational check of sensors.

■ Acquisition of White Level Data and Set the CIS Scanner Area (Maintenance Mode: Code 55)

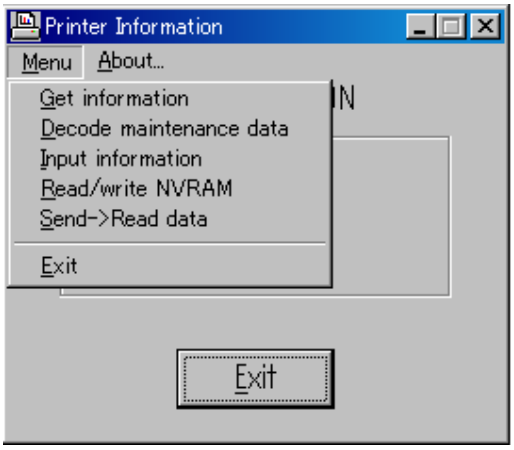
Refer to "1.4.14 Acquisition of White Level Data (Function code 55)" in Chapter 5, and perform the acquisition of white level data and CIS scanner area setting.

■ Setting the serial number

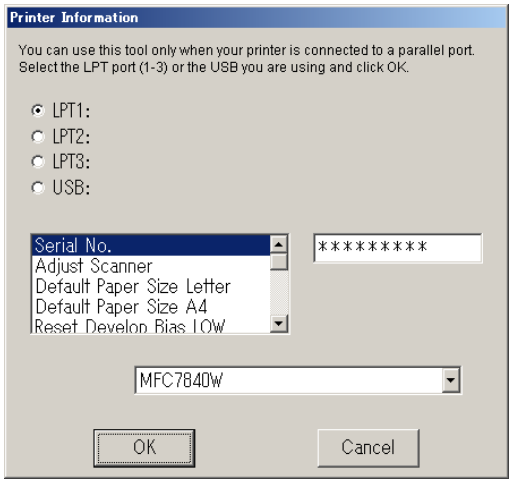
<Procedures>

(1) Connect the PC and machine with the USB cable.

(2) Double-click the brmainte. EXE file (maintenance utility) which has been copied in the “ALL2” folder to start.
Select Input Information from Menu. Select the applicable model name.



(3) Check the port (USB) which the machine is connected through and click “Serial No.” in the lower box.



Enter the serial number (the last nine digits) of the machine into the box at the right hand side, and click the OK button.
The serial number is shown in the window, and check that it is correct.

CAUTION:

Refer to APPENDIX 3 to know how to read the serial number of the machine.

■ Inputting the adjusted value of the laser scanner

<Procedures>

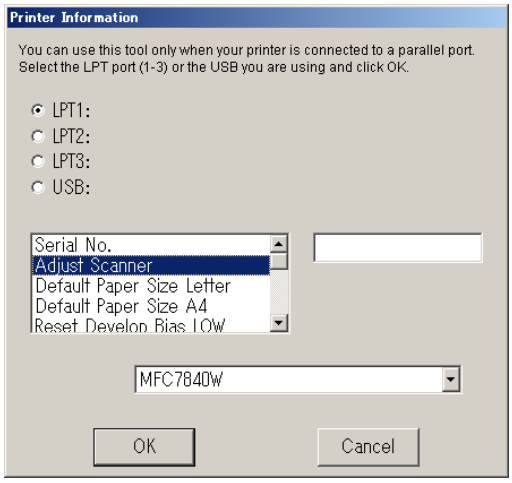
(1) Double-click the brmainte. EXE file (maintenance utility) to start.
Select Input Information from Menu. Select the applicable model name.

(2) Select “Adjust Scanner” from Menu.

(3) Check the port (USB) that the machine is connected through.

(4) Enter the figures (the last four digits) shown on the label attached on the chassis at the right hand side of the main PCB into the box at the right hand side.

(5) Click the OK button.



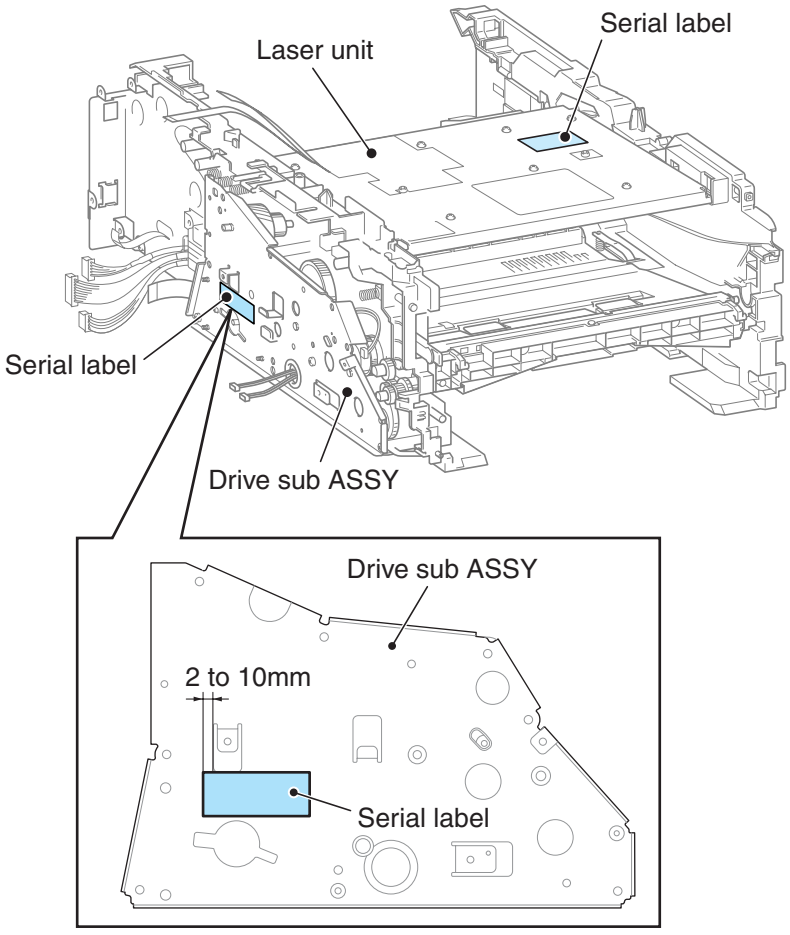


Fig. 4-1

■ Setting the toner cartridge type

The “Toner Life End” message is displayed according to the upper limit value of the developing roller rotation. The upper limit value is different between the starter toner cartridge, standard one and high-capacity one.
Therefore, it is necessary to set the conformable value to the toner cartridge installed in the machine following the steps below.

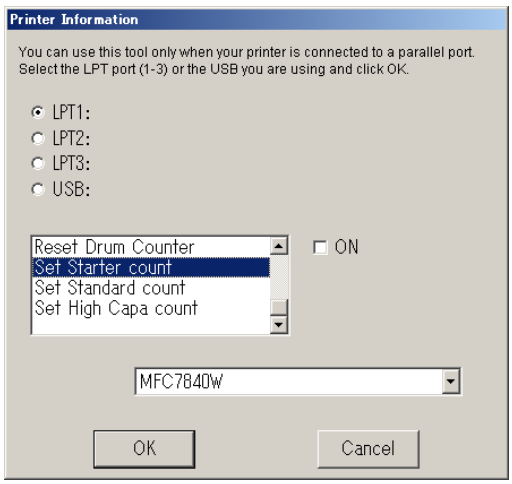
<Procedures>

(1) Select “Set Starter count” , “Set Standard count” or “Set High Capa count” from Menu according as the currently used toner cartridge.

Note :

- It is impossible to set more than two types of the toner cartridge.
- If selecting more than two types, the NG message is displayed.

(2) Check ON in the check box at the right hand side.
Click the OK button. All of the settings are completed.
Turn off the power supply of the machine.



■ Backup to the Main PCB of the Wireless LAN PCB Information (MFC7840W only)

(1) Turn the power supply of the machine on while pressing the ▲ and OK button at the same time. (Hold on the ▲ and OK button while pressing it.) “PLEASE WAIT” is displayed on the LCD. When continue pressing the ▲ and OK button, “CHECK START” is displayed on the LCD. AT this time, release the two buttons.

(2) After having passed for a while, “WLAN MODULE OK” is displayed on the LCD. Turn the power supply of the machine off after two indications are displayed.

2. IF YOU REPLACE THE WIRELESS LAN PCB

<What to do when replacing the wireless LAN PCB>

- Backup to the Main PCB of the Wireless LAN PCB Information (MFC 7840W only)

<Which parts to use>

WIRELESS LAN PCB ASSY

■ Backup to the Main PCB of the Wireless LAN PCB Information (MFC 7840W only)

The main PCB stores a part of the information of EEPROM on the wireless LAN PCB. It is necessary to write the information of EEPROM on the wireless LAN PCB.

(1) Turn the power supply of the machine on while pressing the ▲ and OK button at the same time. (Hold on the ▲ and OK button while pressing it.) “PLEASE WAIT” is displayed on the LCD. When continue pressing the ▲ and OK button, “CHECK START” is displayed on the LCD. AT this time, release the two buttons.

(2) After having passed for a while, “WLAN MODULE OK” is displayed on the LCD. Turn the power supply of the machine off after two indications are displayed.

3. IF YOU REPLACE THE LASER UNIT

■ Inputting the adjustment value of the laser unit

Note :

- When replace the laser unit, attach the serial label with the provided the new laser unit to the driver sub ASSY.
- The input of following the correction value of the laser unit enter the serial label number with the provided the new laser unit.

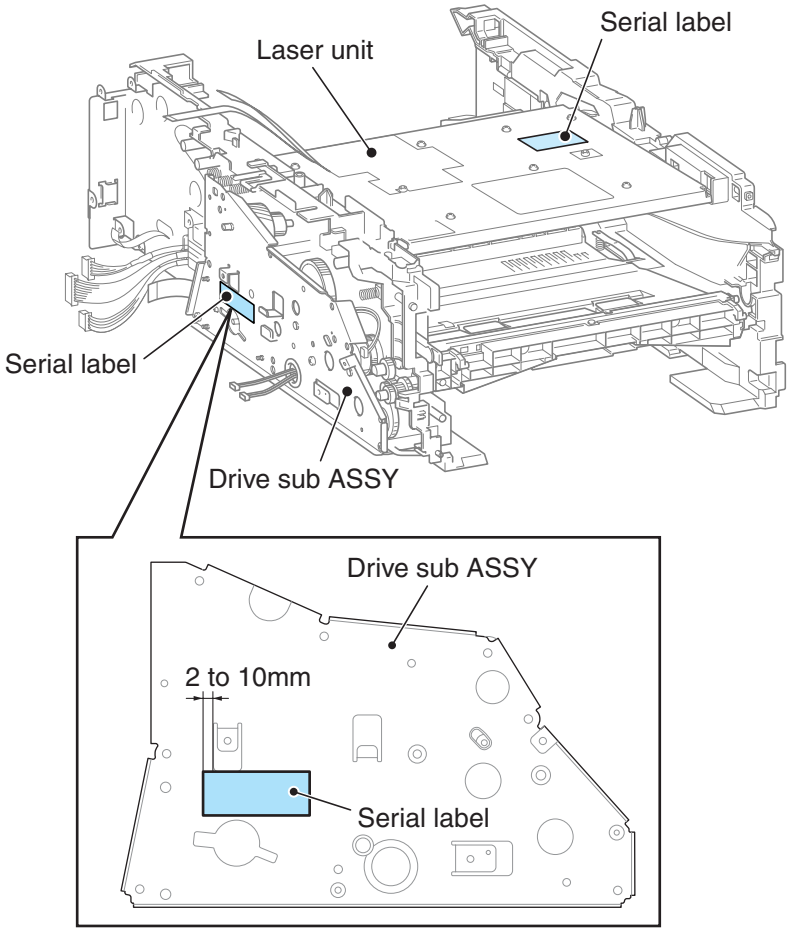


Fig. 4-2

(1) Double-click the brmainte.EXE file (maintenance utility).

(2) Select “Input Information” from Menu. Select the applicable model name.

(3) Check the port (USB) that the machine is connected through.

(4) Select “Adjust Scanner” from Menu. Enter the serial number (the last four digits) which is affixed to chassis of the right side of the Main PCB into the box on the right hand side.

(5) Click the OK button.

4. IF YOU REPLACE THE FB UNIT

■ Acquisition of White level data and set the CIS scanner area

(1) Press the buttons in the following order Menu, Start and the ▲ button four times to make the machine enter the maintenance mode. (Refer to "1.1 How to Enter the Maintenance Mode" in Chapter 5.)

(2) MFC 7840W/7840N/7450/7440N/7340/7320
Press the 5 button twice.
DCP 7045N/7040/7030
Press the ▲ or ▼ button several times. "MAINTENANCE 55" appears on the LCD, and then press the OK button. "Press START" appears on the LCD.

(3) Press the Start button.
The white level data will be acquired automatically.

(4) If the procedure is completed, the machine will automatically return to the initial stage of the maintenance mode.

CHAPTER 5 SERVICE FUNCTIONS

1. MAINTENANCE MODE

The maintenance mode is exclusively designed for the checking, setting and adjustment of the machine by using the buttons on the control panel. You can customize the EEPROM according to the shipment destination of the machine concerned. In addition, you can perform operational checks of the LCD, control panel PCB and sensors, perform a print test, display the log information and error codes, and modify worker switches (WSW).

1.1 How to Enter the Maintenance Mode

Press the buttons in the following order Menu, Start and the ▲ button four times to make the machine enter the maintenance mode.

TIP :

This machine can enter the maintenance mode in the same way as conventional models; that is, by pressing in order the Menu, *, 2, 8, 6, 4 buttons with in 2 seconds.

The machine beeps for approx. one second and displays "▮▮ MAINTENANCE ▮▮▮ " on the LCD, indicating that it is placed in the initial stage of the maintenance mode, a mode in which the machine is ready to accept entry from the buttons.

Note :

- In the case of the model with the numeric keys; To exit from the maintenance mode and switch to standby, press the 9 button twice in the initial stage of the maintenance mode. In the case of the model without the numeric keys; Press the ▲ or ▼ button. The "MAINTENANCE 99" appears on the LCD. Then press the OK button, and the machine returns to the standby state.
- Pressing the Stop/Exit button after entering only one digit restores the machine to the initial stage of the maintenance mode.
- If an invalid function code is entered, the machine beeps for one second and returns to the initial stage of the maintenance mode.

1.2 How to Enter the End User-accessible Maintenance Mode

The maintenance-mode functions listed on the next page should be accessed by service personnel only. However, you can allow end users to access some of these under the guidance of service personnel by phone.

The end user-accessible functions are shaded in the table given on the next page. (codes 06, 09, 10, 11, 12, 25, 45, 52, 53, 54, 80, 82, 87 and 91)

Function code 10 accesses the worker switches, each of which has eight selectors. You should not allow end users to access all of those selectors, but you can allow them to access user-accessible selectors which are shaded in the worker switch tables in Appendix 1.

The service personnel should instruct the end users to follow the procedure given below.

(1) Press in the following order the Menu, Start, Menu, and ▲ button. The "MAINTENANCE 06" appears on the LCD.

(2) To access any other function code, call up the desired code using the ▲ and ▼ buttons or numerical buttons. Then press the OK button.

To switch the machine back to the standby state, press the Stop/Exit button. When each of the user-accessible functions is completed, the machine automatically returns to the standby state.

1.3 List of Maintenance-mode Functions

Function Code	Function	Refer to:
01	EEPROM Parameter Initialization	1.4.1 (5-3)
05	Printout of Scanning Compensation Data	1.4.2 (5-4)
06	Placement of CIS Unit Position for Transportation	1.4.3 (5-6)
08	ADF Performance Test	1.4.4 (5-6)
09	Test Pattern	1.4.5 (5-7)
10	Worker Switch (WSW) Setting	1.4.6 [1] (5-9)
11	Printout of Worker Switch Data	1.4.6 [2] (5-12)
12	Operational Check of LCD	1.4.7 (5-13)
13	Operational Check of Control Panel Button	1.4.8 (5-14)
25	ROM Version Check	1.4.9 (5-15)
32	Operational Check of Sensors	1.4.10 (5-16)
43	PC print function setting (PCL PS)	1.4.11 (5-18)
53	Received Data Transfer Function	1.4.12 (5-22)
54	Fine Adjustment of Scan Start/End Positions	1.4.13 (5-24)
55	Acquisition of White Level Data	1.4.14 (5-26)
67	Paper Feeding and Ejecting Test	1.4.15 (5-26)
74	EEPROM Customizing	1.4.16 (5-27)
78	Operational Check of Fans	1.4.17 (5-29)
80	Display of the Machine's Log	1.4.18 (5-31)
82	Error Code Indication	1.4.19 (5-33)
87	Output of Transmission Log to the Telephone Line	1.4.20 (5-33)
91	EEPROM Parameter Initialization	1.4.1 (5-3)
99	Exit from the Maintenance Mode	1.4.21 (5-34)

* The functions shaded in the table above are user-accessible.

1.4 Detailed Description of Maintenance-mode Functions

1.4.1 EEPROM Parameter Initialization (Function code 01, 91)

<Function>

The machine initializes the parameter, user switches, worker switches and assurance mode switch settings registered in the EEPROM, to the initial values. Entering function code 01 initializes almost all of the EEPROM areas, but entering 91 does not initialize some areas, as listed below.

Data item \ Function code	01	91
Maintenance-mode functions User switches Worker switch (Refer to Appendix 1.)	All of these will be initialized.	These will be initialized.
Remote activation code Registered message for cover page comment Forwarding / paging number, PIN number Outside line number Telephone function registration One-touch dialing Speed dialing Group dialing Various LAN setting (Only the model with network)		These will not be initialized.

Note:

If you replace the main PCB with the one used for any other machine, carry out this procedure and then customize the EEPROM
(maintenance-mode function code 74 in Section 1.4.16).

<Operating Procedure>

(1) MFC7840W/7840N/7450/7440N/7340/7320
Press in order the 0 and 1 buttons (or the 9 and 1 buttons according to your need) in the initial stage of the maintenance mode.
DCP7045N/7040/7030
Press the ▲ or ▼ button. "MAINTENANCE 01" or "MAINTENANCE 91" appears on the LCD, and then press the OK button.
The "PARAMETER INIT" will appear on the LCD.

(2) Upon completion of parameter initialization, the machine beeps for one second and returns to the initial stage of the maintenance mode.

Note:

When turn power supply of the machine off after upon completion of EEPROM parameter initialization, turn off after waiting more than three seconds after returns to the initial stage of the maintenance mode.

The LAN setting data might not be initialized.

1.4.2 Printout of Scanning Compensation Data (Function code 05)

<Function>

The machine prints out the black and white level data for scanning compensation.

<Operating Procedure>

Do not start this function merely after powering on the machine but start it after carrying out a sequence of scanning operation. Unless the machine has carried out any scanning operation, this function cannot print out correct scanning compensation data. This is because at the start of scanning operation, the machine initializes black and white level data and takes in the scanning compensation reference data.

(1) Take a black and white copy.

(2) MFC7840W/7840N/7450/7440N/7340/7320
Press in order the 0 and 5 buttons in the initial stage of the maintenance mode.
DCP7045N/7040/7030
Press the ▲ or ▼ button. "MAINTENANCE 05" appears on the LCD, and then press the OK button.
The "PRINTING" will appear on the LCD.

(3) The machine prints out the scanning compensation data list containing the following:

■ **Black and white scanning**

a) LED PWM data	1Byte
b) LED pulse data (G)	2Byte
c) REFH (PWM) data	1Byte
d) Background color compensated data	1Byte
e) Black level data	Depends on the number of pixels of the previous scanning
f) White level data	Depends on the number of pixels of the previous scanning

(4) Upon completion of recording of the compensation data list, the machine beeps for one second and returns to the initial stage of the maintenance mode.

Note:

If an incorrect value is found, the machine prints out the data with the reversal format (white on black).

■ Print sample

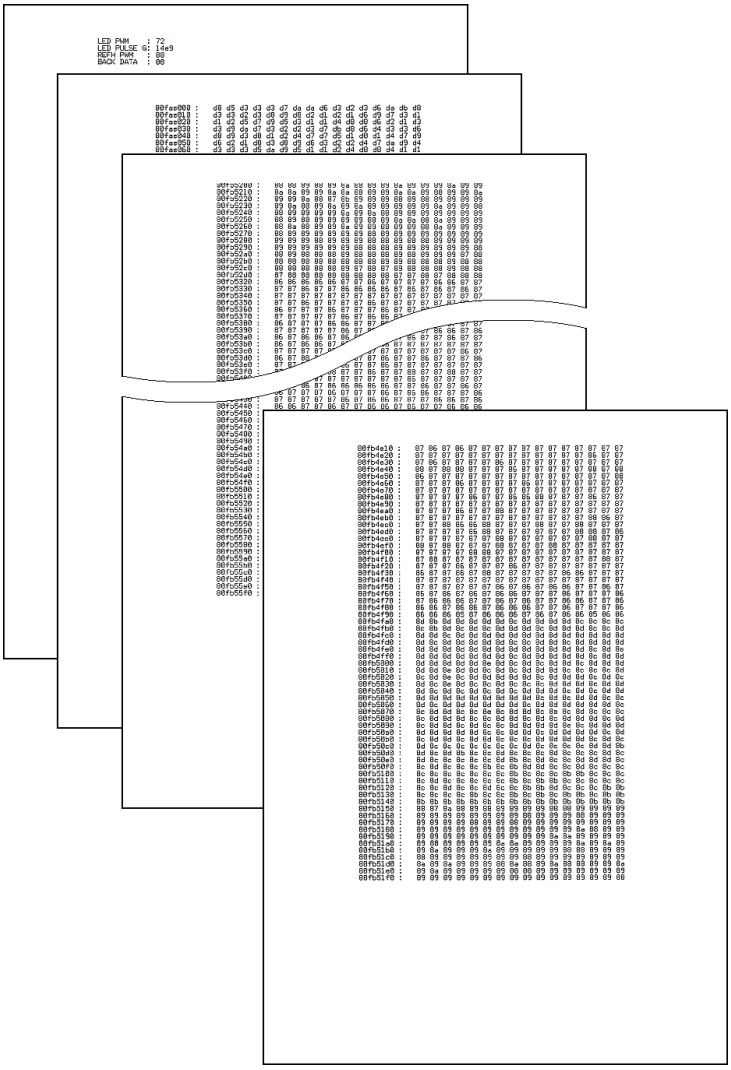


Fig. 5-1

1.4.3 Placement of CIS Unit in Position for Transportation (Function code 06)

<Function>

This function is to move the CIS unit in position for transportation located at the left end. When you fix the machine and check its operation, you need to perform this function last before packing and shipping.

Note :

Please instruct end users to perform this function if possible before packing and shipping their FAX machine to a sales agent or a service dealer for the purpose of repair. (For the procedure to allow users to perform maintenance modes, refer to "1.2 How to Enter the End User-accessible Maintenance Mode" in this chapter.

<Operating Procedure>

(1) MFC7840W/7840N/7450/7440N/7340/7320
Press in order the 0 and 6 buttons in the initial stage of the maintenance mode.
DCP7045N/7040/7030
Press the ▲ or ▼ button. "MAINTENANCE 06" appears on the LCD, and then press the OK button.
The CIS unit moves to the designated position for transportation located at the left side. The "MAINTENANCE 06" is displayed until the CIS unit is placed in position. When the scanner unit is placed in the position, the "SCAN LOCK" appears on the LCD.

(2) Press the Stop/Exit button. The machine beeps for one second and returns to the initial stage of the maintenance mode.

Note :

- If it is impossible to move the CIS unit in position for transportation, or if this function is performed while a scanning error is occurring, the "SCAN LOCK ERROR" appears on the LCD.

1.4.4 ADF Performance Test (Function code 08)

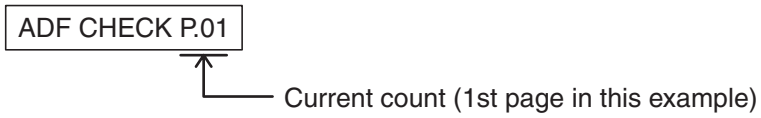
<Function>

The machine counts the documents fed by the automatic document feeder (ADF) and displays the count on the LCD for checking of the ADF performance.

<Operating Procedure>

(1) Set documents. (Allowable up to the ADF capacity.)
The "DOC. READY" will appear on the LCD.

(2) MFC7840W/7840N/7450/7440N/7340/7320
Press in order the 0 and 8 buttons.
DCP7045N/7040/7030
Press the ▲ or ▼ button. "MAINTENANCE 08" appears on the LCD, and then press the OK button.
While counting the documents, the machine feeds them in and out, displaying the current count on the LCD as shown below.



(3) Press the Stop/Exit button so that the machine beeps for one second and returns to the initial stage of the maintenance mode.

1.4.5 Test Pattern (Function code 09)

<Function>

This function prints out a test pattern (Print Quality Check sheet) to allow the service personnel to check the print quality.

When there is problem in the print quality, this function use to carve up whether there is the cause in the recording side or the reading side.

<Operating Procedure>

(1) MFC7840W/7840N/7450/7440N/7340/7320
Press in order the 0 and 9 buttons in the initial stage of the maintenance mode.
DCP7045N/7040/7030
Press the ▲ or ▼ button. "MAINTENANCE 09" appears on the LCD, and then press the OK button.

(2) The machine starts printing a test pattern. Upon completion of printing, the machine beeps for one second and returns to the initial stage of the maintenance mode.

The figure below shows a test pattern that is printed.

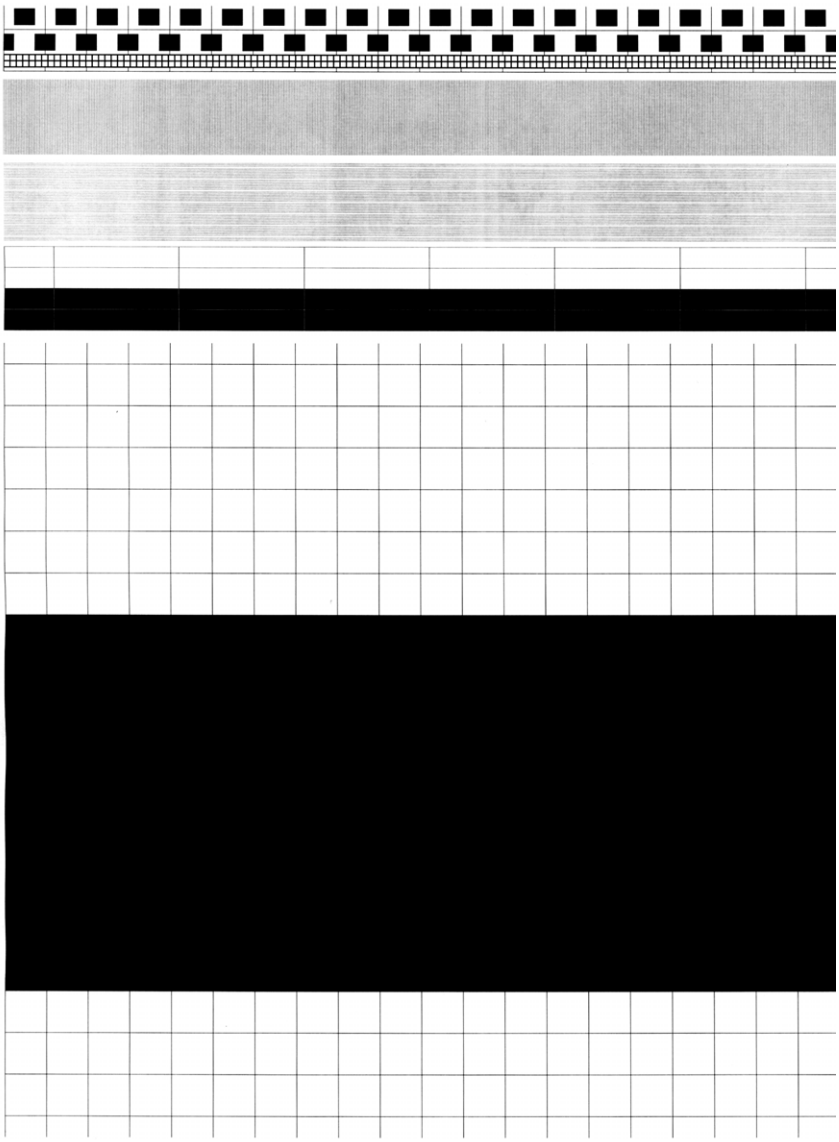


Fig. 5-2

1.4.6 Worker Sw WSW) Setting and Printout

[1] Worker Switch Setting (Function code 10)

<Function>

The machine incorporates the following worker switch functions which may be activated with the procedures using the control panel buttons. The worker switches have been set at the factory in conformity to the communications standards and codes of each country. Do not adjust them unless necessary. Some worker switches may not be applicable in some versions. The worker switch data list indicates "Not used." for those inapplicable switches.

*** Details of Worker switches**

The details of the worker switches are described in APPENDIX 1 in which the user-accessible selectors of the worker switches are shaded.

■ Worker Switches

WSW No.	Function	Refer to:
WSW01	Dial pulse setting	App. 1-3
WSW02	Tone signal setting	App. 1-5
WSW03	PABX mode setting	App. 1-6
WSW04	TRANSFER facility setting	App. 1-8
WSW05	1st dial tone and busy tone detection	App. 1-9
WSW06	Redial/Pause button setting and 2nd dial tone detection	App. 1-10
WSW07	Dial tone setting 1	App. 1-12
WSW08	Dial tone setting 2	App. 1-13
WSW09	Protocol definition 1	App. 1-14
WSW10	Protocol definition 2	App. 1-15
WSW11	Busy tone setting	App. 1-16
WSW12	Signal detection condition setting	App. 1-17
WSW13	Modem setting	App. 1-18
WSW14	AUTO ANS facility setting	App. 1-19
WSW15	REDIAL facility setting	App. 1-20
WSW16	Function setting 1	App. 1-21
WSW17	Function setting 2	App. 1-22
WSW18	Function setting 3	App. 1-23
WSW19	Transmission speed setting	App. 1-24
WSW20	Overseas communications mode setting	App. 1-25
WSW21	TAD setting 1	App. 1-26
WSW22	ECM and call waiting caller ID	App. 1-27
WSW23	Communications setting	App. 1-28
WSW24	TAD setting 2	App. 1-29
WSW25	TAD setting 3	App. 1-30
WSW26	Function setting 4	App. 1-31
WSW27	Function setting 5	App. 1-32

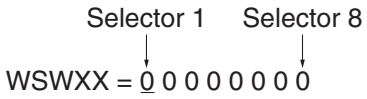
WSW No.	Function	Refer to:
WSW28	Function setting 6	App. 1-33
WSW29	Function setting 7	App. 1-34
WSW30	Function setting 8	App. 1-35
WSW31	Function setting 9	App. 1-36
WSW32	Function setting 10	App. 1-37
WSW33	Function setting 11	App. 1-38
WSW34	Function setting 12	App. 1-39
WSW35	Function setting 13	App. 1-40
WSW36	Function setting 14	App. 1-40
WSW37	Function setting 15	App. 1-42
WSW38	V.34 transmission settings	App. 1-43
WSW39	V.34 transmission speed	App. 1-44
WSW40	V.34 modem settings	App. 1-45
WSW41	ON-duration of the scanning light source	App. 1-47
WSW42	Internet mail settings	App. 1-48
WSW43	Function setting 21	App. 1-48
WSW44	Speeding up scanning-1	App. 1-49
WSW45	Speeding up scanning-2	App. 1-50
WSW46	Monitor of power ON/OFF state and parallel port kept at high	App. 1-51
WSW47	Switching between high- and full-speed USB	App. 1-52
WSW48	USB setup latency	App. 1-53
WSW49	End-of-copying beep and print in black	App. 1-54
WSW50	SDAA settings	App. 1-55
WSW51	Function setting 16	App. 1-56
WSW52	Function setting 17	App. 1-57
WSW53	Function setting 18	App. 1-58
WSW54	Function setting 19	App. 1-59
WSW55	Function setting 20	App. 1-60
WSW56	Function setting 21	App. 1-60
WSW57	Function setting 22	App. 1-61
WSW58	Function setting 23	App. 1-62
WSW59	Function setting 24	App. 1-63
WSW60	Not used	App. 1-63
WSW61	Scanning light intensity to judge to be stable 1	App. 1-64
WSW62	Scanning light intensity to judge to be stable 2	App. 1-65
WSW63	Not used	App. 1-66

<Operating Procedure>

MFC7840W/7840N/7450/7440N/7340/7320

(1) Press in order the 1 and 0 buttons in the initial stage of the maintenance mode. The machine displays the "WSW00" on the LCD and becomes ready to accept a firmware switch number.

(2) Enter the desired number from the firmware switch numbers (01 through 63). The following appears on the LCD:



(3) Use the ◀ and ▶ buttons to move the cursor to the selector position to be modified.

(4) Enter a value to be set (0 or 1) using the 0 and 1 buttons.

(5) Press the OK button. This operation saves the newly entered selector values onto the EEPROM and readies the machine for accepting a firmware switch number.

(6) Repeat steps (2) through (5) until the modification for the desired firmware switches is completed.

(7) Press the Stop/Exit button to return the machine to the initial stage of the maintenance mode.

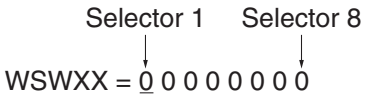
Note :

- To cancel this operation and return the machine to the initial stage of the maintenance mode during the above procedure, press the Stop/Exit button.
- If there is a pause of more than one minute after a single-digit number is entered for double-digit firmware switch numbers, the machine will automatically return to the initial stage of the maintenance mode.

DCP7045N/7040/7030

(1) Press the ▲ or ▼ button several times. The machine displays the "MAINTENANCE 10" on the LCD and becomes ready to accept a firmware switch number.

(2) Press the ▲ or ▼ button several times. The machine displays that the desired number from the firmware switch numbers (01 through 63), and the press the OK key.
The following appears on the LCD:



(3) If press the ▲ button, it is changed to "1". And press the ▼ button, it is changed to "0" in the state that the cursor is displayed the selector 1. And then the cursor moves to the selector 2. Change the firmware switch in the arbitrary value by this method.

(4) If enter all selectors, press the OK button. This operation saves the newly entered selector values onto the EEPROM and readies the machine for accepting a firmware switch number.

(5) Repeat steps (2) through (4) until the modification for the desired firmware switches is completed.

(6) Press the Stop/Exit button to return the machine to the initial stage of the maintenance mode.

Note :

- To cancel this operation and return the machine to the initial stage of the maintenance mode during the above procedure, press the Stop/Exit button.

■ Details of Firmware Switches

The details of the firmware switches are described in APPENDIX 1 in which the user-accessible selectors of the firmware switches are shaded.

[2] Printout of Worker Switch Setting (Function code 11)

<Function>

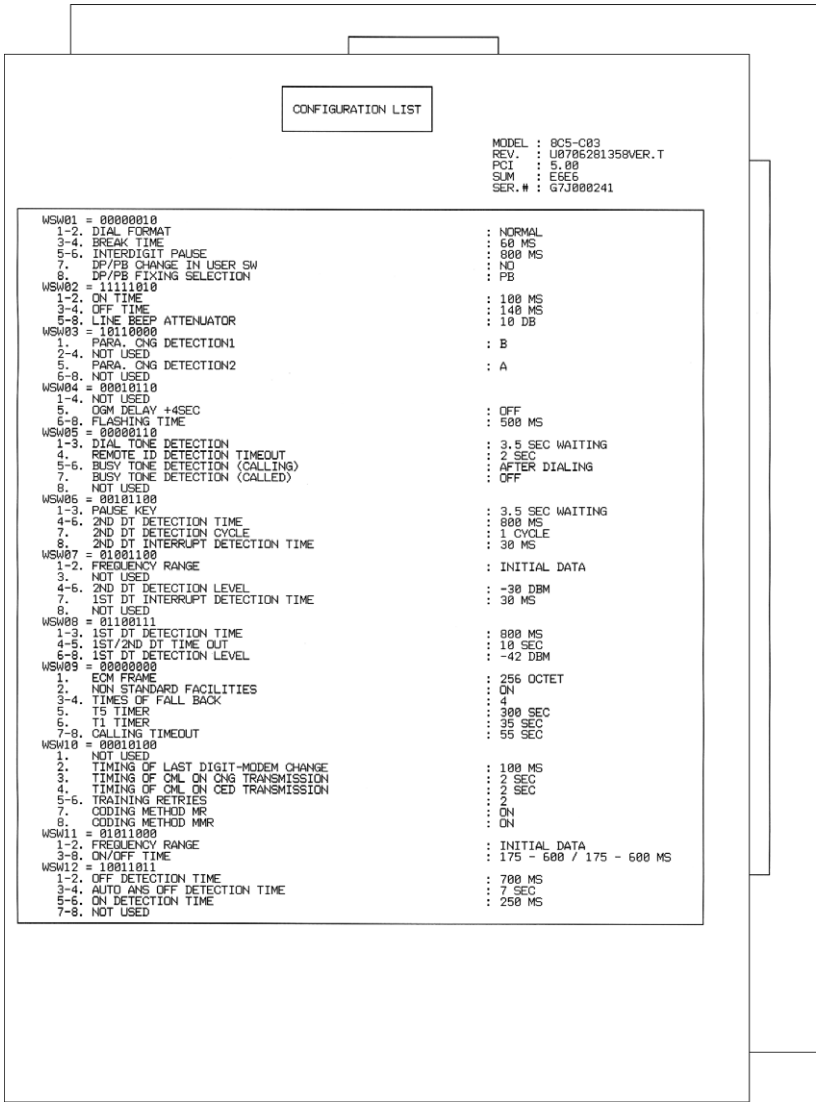
The machine prints out the setting items and contents specified by the worker switches.

<Operating Procedure>

(1) MFC7840W/7840N/7450/7440N/7340/7320
Press the 1 button twice in the initial stage of the maintenance mode.
DCP7045N/7040/7030
Press the ▲ or ▼ button. "MAINTENANCE 11" appears on the LCD, and then press the OK button.
"PRINTING" will appear on the LCD.

(2) The machine prints out the configuration list as shown in the figure below.

(3) Upon completion of printing, the machine beeps for one second and returns to the initial stage of the maintenance mode.



CONFIGURATION LIST

MODEL : 8C5-C03
REV. : U0706281358VER.T
PCI : 5.00
SUM : E6E6
SER.# : G7J000241

WSW01 = 00000010	
1-2. DIAL FORMAT	: NORMAL
3-4. BREAK TIME	: 60 MS
5-6. INTERDIGIT PAUSE	: 800 MS
7. DP/PB CHANGE IN USER SW	: NO
8. DP/PB FIXING SELECTION	: PB
WSW02 = 11111010	
1-2. ON TIME	: 100 MS
3-4. OFF TIME	: 140 MS
5-8. LINE BEEP ATTENUATOR	: 10 DB
WSW03 = 10110000	
1. PARA. CNG DETECTION1	: B
2-4. NOT USED	
5. PARA. CNG DETECTION2	: A
6-8. NOT USED	
WSW04 = 00010110	
1-4. NOT USED	
5. OGM DELAY +4SEC	: OFF
6-8. FLASHING TIME	: 500 MS
WSW05 = 00000110	
1-3. DIAL TONE DETECTION	: 3.5 SEC WAITING
4. REMOTE ID DETECTION TIMEOUT	: 2 SEC
5-6. BUSY TONE DETECTION (CALLING)	: AFTER DIALING
7. BUSY TONE DETECTION (CALLED)	: OFF
8. NOT USED	
WSW06 = 00101100	
1-3. PAUSE KEY	: 3.5 SEC WAITING
4-6. 2ND DT DETECTION TIME	: 800 MS
7. 2ND DT DETECTION CYCLE	: 1 CYCLE
8. 2ND DT INTERRUPT DETECTION TIME	: 30 MS
WSW07 = 01001100	
1-2. FREQUENCY RANGE	: INITIAL DATA
3. NOT USED	
4-6. 2ND DT DETECTION LEVEL	: -30 DBM
7. 1ST DT INTERRUPT DETECTION TIME	: 30 MS
8. NOT USED	
WSW08 = 01100111	
1-3. 1ST DT DETECTION TIME	: 800 MS
4-5. 1ST/2ND DT TIME OUT	: 10 SEC
6-8. 1ST DT DETECTION LEVEL	: -42 DBM
WSW09 = 00000000	
1. ECM FRAME	: 256 OCTET
2. NON STANDARD FACILITIES	: ON
3-4. TIMES OF FALL BACK	: 4
5. T5 TIMER	: 300 SEC
6. TI TIMER	: 35 SEC
7-8. CALLING TIMEOUT	: 55 SEC
WSW10 = 00010100	
1. NOT USED	
2. TIMING OF LAST DIGIT-MODEM CHANGE	: 100 MS
3. TIMING OF CML ON CNG TRANSMISSION	: 2 SEC
4. TIMING OF CML ON CED TRANSMISSION	: 2 SEC
5-6. TRAINING RETRIES	: 2
7. CODING METHOD MR	: ON
8. CODING METHOD MMR	: ON
WSW11 = 01011000	
1-2. FREQUENCY RANGE	: INITIAL DATA
3-8. ON/OFF TIME	: 175 - 600 / 175 - 600 MS
WSW12 = 10011011	
1-2. OFF DETECTION TIME	: 700 MS
3-4. AUTO ANS OFF DETECTION TIME	: 7 SEC
5-6. ON DETECTION TIME	: 250 MS
7-8. NOT USED	

Fig. 5-3

1.4.7 Operational Check of LCD (Function code 12)

<Function>

This function allows you to check whether the LCD on the control panel works normally.

<Operating Procedure>

(1) MFC7840W/7840N/7450/7440N/7340/7320
Press in order the 1 and 2 buttons in the initial stage of the maintenance mode.
DCP7045N/7040/7030
Press the ▲ or ▼ button. "MAINTENANCE 12" appears on the LCD, and then press the OK button.
The LCD shows.

(2) Press the Start button. Each time you press the Start button, the LCD cycles through the displays shown below.

(3) Press the Stop/Exit button in any process of the above display cycle. The machine beeps for one second and returns to the initial stage of the maintenance mode.

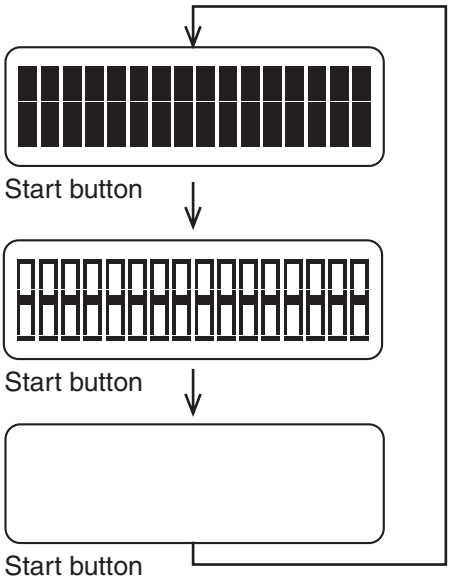


Fig. 5-4

1.4.8 Operational Check of Control Panel Button (Function code 13)

<Function>

This function allows you to check the control panel button for normal operation.

<Operating Procedure>

(1) MFC7840W/7840N/7450/7440N/7340/7320
Press in order the 1 and 3 buttons in the initial stage of the maintenance mode.
DCP7045N/7040/7030
Press the ▲ or ▼ button. "MAINTENANCE 13" appears on the LCD, and then press the OK button.
The machine displays "00" on the LCD.

(2) Press the buttons in the order designated in the illustration shown below.
The LCD shows the corresponding number in decimal notation each time a button is pressed. Check that the displayed number is correct by referring to the illustration below.
If a button is pressed out of order, the machine displays the "INVALID OPERATE" on the LCD. To return to the status ready to accept button entry for operational check, press the Stop/Exit button.

(3) After the last number button is pressed, the machine beeps for one second and returns to the initial stage of the maintenance mode.
To terminate this operation, press the Stop/Exit button. The machine beeps for one second and returns to the initial stage of the maintenance mode.

■ MFC7840W/7840N/7450/7440N/7340/7320

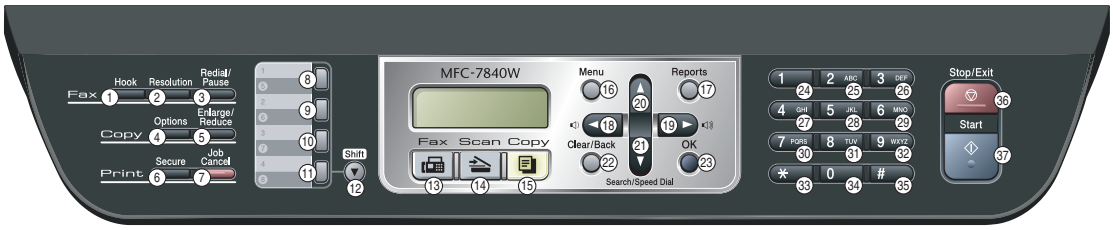


Fig. 5-5

■ DCP7045N/7040/7030

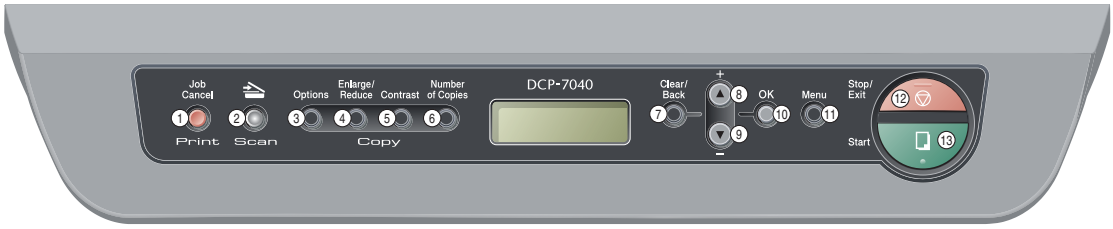


Fig. 5-6

1.4.9 ROM Version Check (Function code 25)

<Function>

This function allows you to check the management information of the software programs such as version information, check sum.

<Operating Procedure>

(1) MFC7840W/7840N/7450/7440N/7340/7320
Press in order the 2 and 5 buttons in the initial stage of the maintenance mode.
DCP7045N/7040/7030
Press the ▲ or ▼ button. "MAINTENANCE 25" appears on the LCD, and then press the OK button.
The machine displays each of terms described below on the LCD.

(2) Press the ▲ or ▼ button to check the next term.

LCD	Description
TOTL: Ver A	Main firmware version information (Revision information)
NET : Ver1.00	Network version information
U0612271600:7B0A*	Main firmware creation date & check sum information
B0608071049:5708*	Boot program creation date & check sum information

How to display the checksum information

Terms displayed with "*" have the checksum information as well. Press the OK button when its version information is displayed on the LCD. Press the OK button again to go back to the version information display. Press the ▲ or ▼ buttons to check the next term.

Note :

If you press the OK button when each version information of Network is displayed on the LCD, you cannot check the checksum information.

(3) To terminate this operation, press the Stop/Exit button. The machine beeps for one second and returns to the initial stage of the maintenance mode.

1.4.10 Operational Check of Sensors (Function code 32)

<Function>

This function allows you to check the nine sensors for normal operation.

<Operating Procedure>

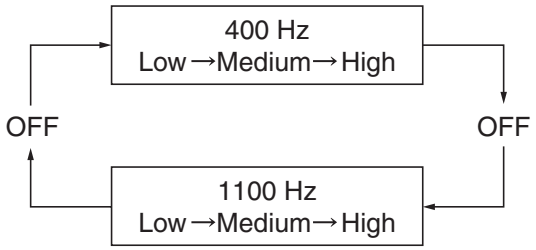
(1) MFC7840W/7840N/7450/7440N/7340/7320

Press in order the 3 and 2 buttons in the initial stage of the maintenance mode.

DCP7045N/7040/7030

Press the ▲ or ▼ button. "MAINTENANCE 32" appears on the LCD, and then press the OK button.

The machine beeps 1100 Hz and 400 Hz tones cyclically through the following volumes for testing the speaker. To stop beeping, press the Menu button or OK button.



If the sensing status are as listed below, the LCD will show the following:
"DFDRCV" and "NTMNRSTNKOFU" (which can be switched by pressing the Start button for machines.)
Given below is the relationship between the LCD indication, sensor names and sensor status.

LCD	Sensors	Sensing status
DF*	Document front sensor	No document detected.
DR*	Document rear sensor	No document detected.
CV	Cover sensor	Front cover closed.
NT	New toner sensor	New toner detected.
MN	Manual insertion sensor	No paper detected.
RS	Registration sensor	No paper detected.
TN	Toner sensor	Toner detected.
KO	Edge sensor	No paper detected.
FU	Eject sensor	No recording paper detected.

*Only DCP7030

■ Location of sensors

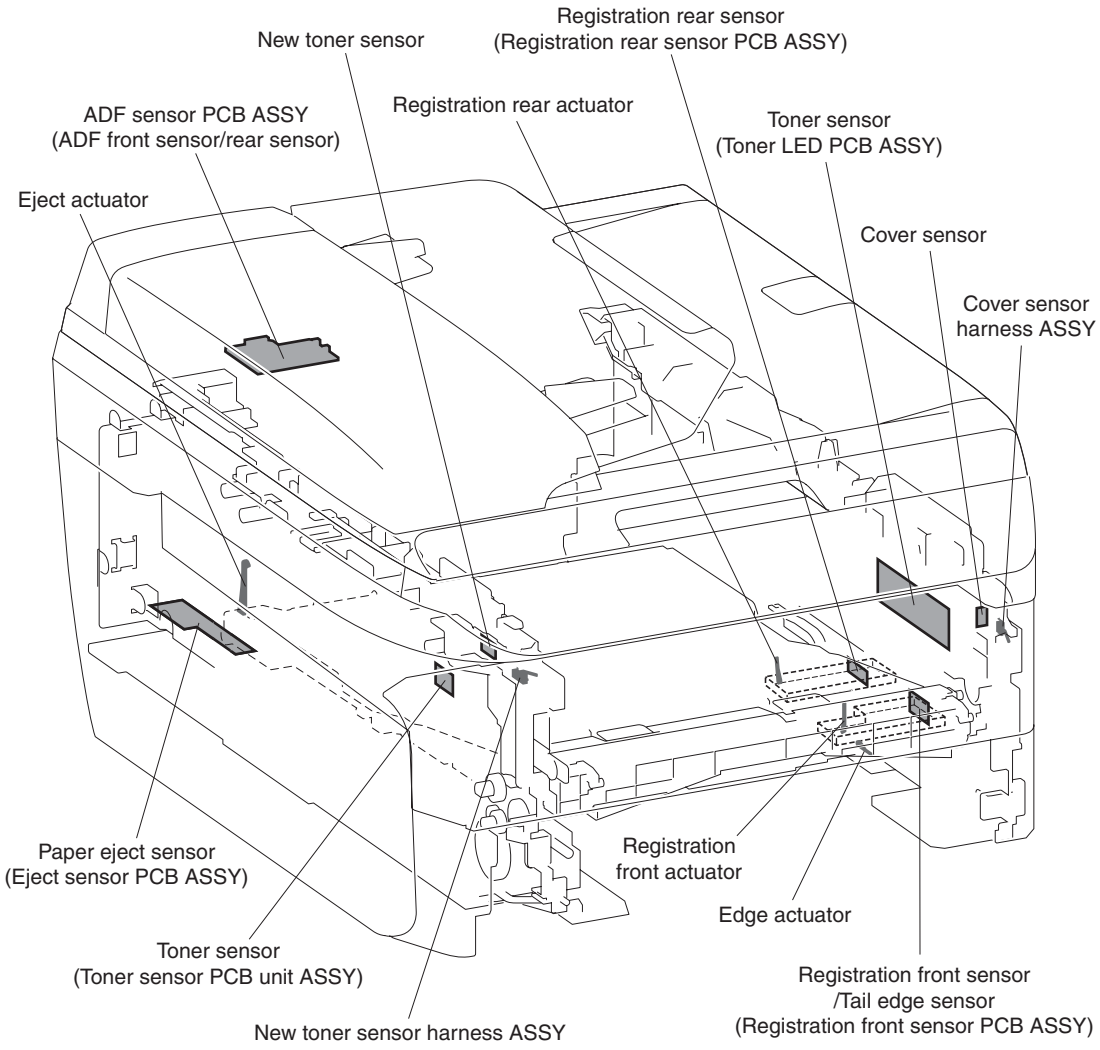


Fig. 5-7

1.4.11 PC Print Function setting (Function code 32)

<Function>

Can charge functions such as the switching of the manual paper feed tray and the recording paper tray or the switching of the resolution.

Note :

Do not work even if enter the maintenance mode during processing of the PC-Print or Fax-Share. Can work after having performed the PC-Print or Printed the PrintSetting / FontList / NetWorkConfig if enter the maintenance mode.

The choices are different whether support the PCL/PS.

<List of Function>

Model with PCL/PS

Function	Description	Set value	Initial value
Manual Feed	Switching of the Manual Feed	On/Off	Off
Resolution	Resolution to print	300/600/1200dpi	600
Toner Save	Switching of the Toner Save	On/Off	Off
Density	Switching of the Density level	-6 to 6	0
Sleep Time	Setting of the time until enter the SleepMode for the engine	0 to 99 (minutes)	5
Pege Protection	Switching of the protection of the page memory	Off/Letter/A4/Legal/Auto	Off
Emulation	Switching of the Emulation	Auto/HP/PS	Auto
Auto I/F Time	Switching of the I/F open time	1 to 99 (seconds)	5
Media Type	Switching of the recording paper type	Refer to function explanation	Plain *1
Paper (Size)	Switching of the area of develop the image	Refer to function explanation	Letter *2
Copies	Switching of the print copies	1 to 99 (pages)	1
Orientation	Switching of the print direction	PortLait/Landscape	Portlait
P-Pos X-Offset	Switching of the offset print position of the landscape orientation	-500 to 500 (1/300dpi)	0
P-Pos Y-Offset	Switching of the offset print position of the portrait orientation	-500 to 500 (1/300dpi)	0
AutoFF	Switching of the auto form feed	On/Off	Off
AutoFF Time	Switching of the time-out period of the auto feed	1 to 99 (seconds)	5
FF Surpress	Switching of the FF Surpress	On/Off	Off
- Auto LF	Switching of the auto LF	On/Off	Off
- Auto CR	Switching of the auto CR	On/Off	Off
- Auto WRAP	Switching of the auto WRAP (auto CRLF at the print width)	On/Off	Off
- Auto SKIP	Switching of the auto SKIP (SKIP at t he back-end/tip of the recording paper)	On/Off	On
- Left Margin	Switching of the margin at the left end	0 to 145 (columus)	0
- Right Margin	Switching of the margin at the right end	10 to 155 (columus)	80
- Top Margin	Switching of the margin at the upper end	0 to 2.00 (inches)	0.5
- Bottom Margin	Switching of the margin at the bottom end	0 to 2.00 (inches)	0.5
- Lines	Number of the text lines in the page	5 to 128 (lines)	60
- Error Print	Switching of the Error Print of the Post Script	On/Off	On

Model without PCL/PS

Function	Description	Set value	Initial value
Manual Feed	Switching of the Manual Feed	On/Off	Off
Sleep Time	Setting of the time until enter the SleepMode for the engine	0 to 99 (minutes)	5
Auto I/F Time	Switching of the I/F open time	1 to 99 (seconds)	5
P-Pos X-Offset	Switching of the offset print position of the landscape orientation	-500 to 500 (1/300dpi)	0
P-Pos Y-Offset	Switching of the offset print position of the portrait orientation	-500 to 500 (1/300dpi)	0

<Operating Procedure>

(1) MFC7840W/7840N/7450/7440N/7340/7320
Press in order the 4 and 3 buttons in the initial stage of the maintenance mode.
DCP7045N/7040/7030
Press the ▲ or ▼ button. "MAINTENANCE 43" appears on the LCD, and then press the OK button. "Manual Feed" appears on the LCD.

(2) Press the ▲ or ▼ button. The item to change is displayed on the LCD, and press the OK button.

(3) Press the ▲ or ▼ button, or charge the parameter using the numeric keys. And press the OK button. parameter value is confirmed.

<Function explanation>

Function	Set value	Problem
MANUAL FEED	ON/OFF	Configure the setting for the ON/OFF of the manual paper feed. Effective for the print from the PC, or for the print of the NetWorkConfig/TestPrint/Fontlist/ Configuration from the panel. When select the tray on the PC, the setting becomes effective. And this setting is ignored. (Default : OFF)
RESOLUTION	300/600/1200	Configure the setting for the Resolution. Effective only for the print from the PC. When set the Resolution on the PC, the setting becomes effective. And this setting is ignored. (Default : 600)
TONER SAVE	ON/OFF	Configure the setting for the Toner Save Mode. Effective for all print, and change the setting of the Manu (Function). However, as for the Copy, this setting becomes invalid. When set the Toner Save or the PC, the setting becomes effective. And this setting is ignored. (Default : OFF)
DENSITY	-6 to 6	Configure the setting for the Density. Effective for the print from the PC, or for the print of the NetWorkConfig/TestPrint/FontList/Configuration from the panel. Link the setting of the Toner Save. Judge the both setting, and decide the density. When set the Density or the PC, the setting becomes effective. And this setting is ignored. (Default : 0)

Function	Set value	Problem
SLEEP TIME	0 to 99	Configure the setting for the time until shift to the Sleep Time. Change the setting of the Menu (Function). (Default : 5)
PAGE PROTECTION	Off/Letter/Legal/A4/ Auto	Configure the setting to protect the page memory, when recording in PC. Set in the PCL-Core. There is not the influence of the memory management problem of the MFC. (Default : OFF)
EMULATION	Auto/HP-LaerJet/ BR-Script	Configure the setting for the Emulation. Charge the setting of the Menu (Function). When the data include the ENTER LANGUAGE, the setting becomes effective. And this setting is ignored. (Default : AUTO)
AUTO I/F TIME	1 to 99	Configure the setting for the I/F open time. The function is in the PC-Print. When the PC-Scan/ Remote-setUp works on the way, the setting becomes invalid. (Default : 5)
MEDIA TYPE	Thin/Plain/Thick/ Thicker/ Trancparency Recycled/Bond/ Envlopes/EnvThin/ EnvThick	Configure the setting for the type of the recording paper. Effective for the print from the PC. When set the type of the recording paper on the PC, the setting becomes effective. And this setting is ignored. The default value is different by the country setting in the Laser product. As for the basics, the Plain is the default value. However, the Thin may be became the default value in JPN/CHN. (Default : Plain/Thin (change in each country))
PAPER (SIZE)	Letter/Legal/A4/ Executive/B5/JISB5/ A5/B6/A6/Monarch/ C5/COM10/DL/DLL/ A4Long/PostCard/ Folio	Configure the setting for the size of the recording paper. Does not set the Paper Size of the Menu, set the drawing size of the PC-Print. When set the size of the recording paper on the PC, the setting becomes effective. And this setting is ignored. The default value is different by the country setting in the Laser product. US/CAN are the Letter, and others are the A4. (Default : Letter/A4 (change in each country))
COPIES	1 to 999	Configure the setting for the number of the copies. Effective for the print from the PC. When set the number of the copies on the PC, the setting becomes effective. And this setting is ignored. (Default : 1)
ORIENTATION	Portrait/Landscape	Configure the setting for the print direction. Effective for the print from the PC. (Default : Portrait)
P-POS X-OFFSET	-500 to 500	Configure the setting for the offset print position of the landscape orientation. Effective for the print from the PC. When set the X-Offset on the PC, the setting becomes effective. And this setting is ignored. (Default : 0)
P-POS Y-OFFSET	-500 to 500	Configure the setting for the offset print position of the portrait orientation. Effective for the print from the PC. When set the Y-Offset on the PC, the setting becomes effective. And this setting is ignored. (Default : 0)

AUTO OFF	ON/OFF	Configure the setting for the ON/OFF of the Auto

1.4.12 Received Data Transfer Function (Function code 53) (MFC-7840W/7840N/7450/7440N/7340/7320 only)

<Function>

This function transfers received FAX data to another machine. It is useful when the machine cannot print received data due to the printing mechanism being defective.

Note :

The number of files that can be transferred at a time is 99. To transfer 100 files or more, carry out the following procedure more than one time.

<Operating Procedure>

(1) Press in order the 5 and 3 buttons in the initial stage of the maintenance mode.
The "FAX TRANSFER" appears on the LCD.

(2) To check the number of received files, press the 1 button.
The "1.NO. OF JOBS" appears on the LCD.
Press the OK button, and the number of received files appears, just as "NO. OF. JOBS: 10."

(3) To transfer the activity report only, press the 2 button.
The "2.ACTIVITY" appears.
To transfer received files (together with the activity report), press the 3 button.
The "3.DOCUMENTS" appears. Note that if there is no received file, the "NO DOCUMENTS" appears.

(4) To transfer the communication list for the latest communication, press the 4 button.
The "4.COM.LIST (NEW)" appears.
To transfer the communication list for last three errors, press the 5 button.
The "5.COM.LIST (ERR3)" appears.

(5) With the "2.ACTIVITY," "3.DOCUMENTS," "4.COM.LIST (NEW)," or "5.COM.LIST (ERR3)" being displayed, press the OK button.
The "ENTER NO. & SET" appears.

(6) Enter the telephone number of the receiver machine and press the OK button again.

Note :

Be sure to type the telephone number with the numerical buttons. No one-touch dialing is allowed in this procedure.
The machine displays the "ACCEPTED" for approx. two seconds and starts dialing to transfer data.
No station ID will be attached. A cover page and end page as shown on the next page will be automatically attached, instead.

■ Cover page sample

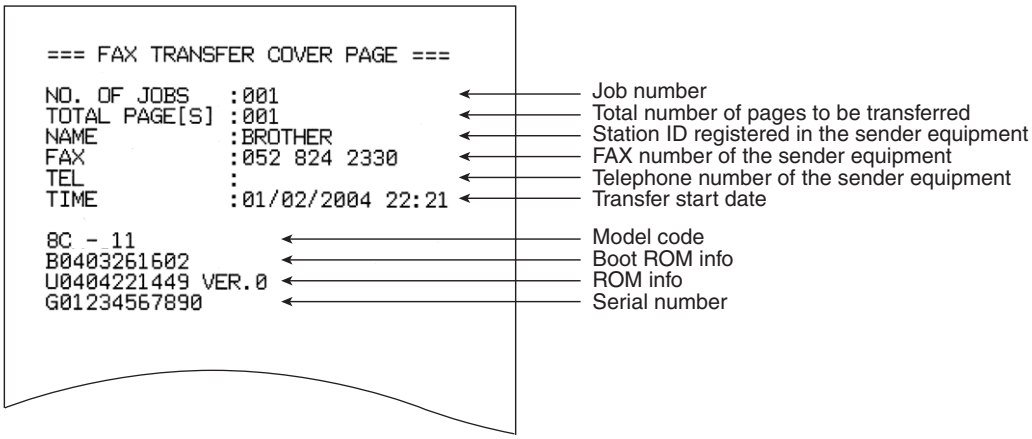


Fig. 5-8

■ End page sample

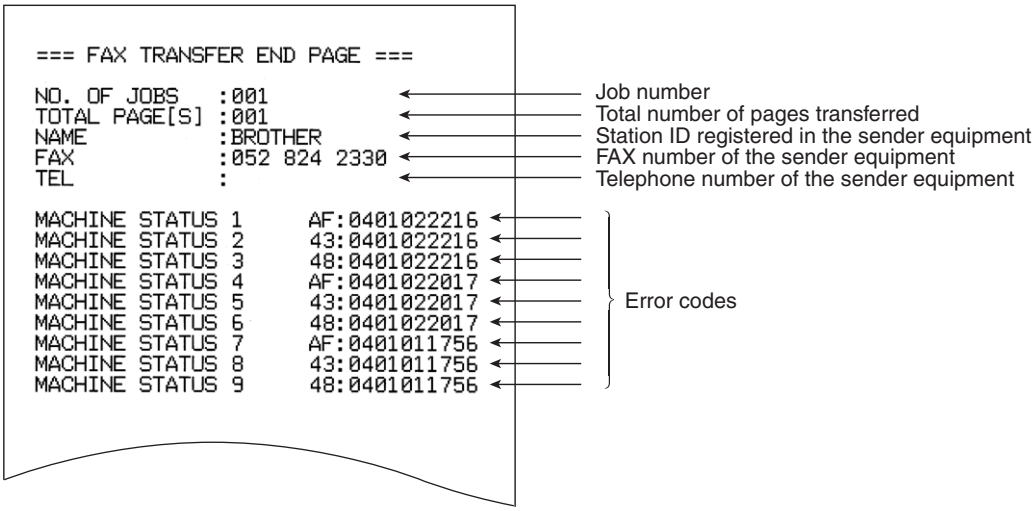


Fig. 5-9

1.4.13 Fine Adjustment of Scan Start/End Positions (Function code 54)

<Function>

This function allows you to adjust the scanning start and end positions with the ADF and FB unit.

<Operating Procedure>

(1) MFC7840W/7840N/7450/7440N/7340/7320
Press in order the 5 and 4 buttons in the initial stage of the maintenance mode.
DCP7045N/7040/7030
Press the ▲ or ▼ button. "MAINTENANCE 54" appears on the LCD, and then press the OK button.
The "SCAN START ADJ." will appear on the LCD.

(2) The "▲. ADF ▼. FB" will appear after two seconds.
Select one of them that you want to adjust the start position.
If you want to adjust the start position of the ADF, press ▲ button, and if you want to adjust that of the FB unit, press ▼ button.

(3) Press the 1 or 2 button to display the present compensation level for the start position.
Compensation levels can be adjusted in 11 steps from +5 to -5 (mm).

(4) Press the ▲ button to increase compensation levels, and the ▼ button to lower them.
Press the Stop/Exit button so that the machine beeps for one second and returns to the initial state of the maintenance mode without adjusting compensation levels.

(5) Set the compensation level and press the OK button.
The "ACCEPTED" will appear on the LCD. One second later, the machine "▲. ADF ▼. FB" will appear on the LCD.

(6) Press the Stop/Exit button when finish the adjustment. The machine beeps for one second and returns to the initial state of the maintenance mode.

Note :

The correlation between the scan start/end positions and compensation levels is shown below.

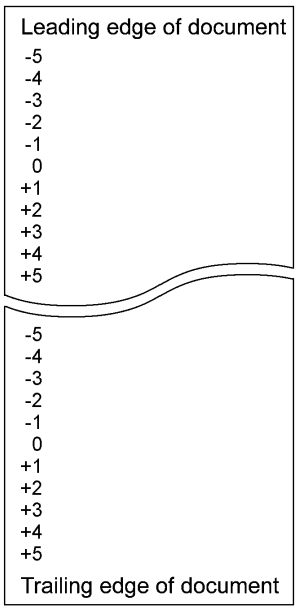


Fig. 5-10

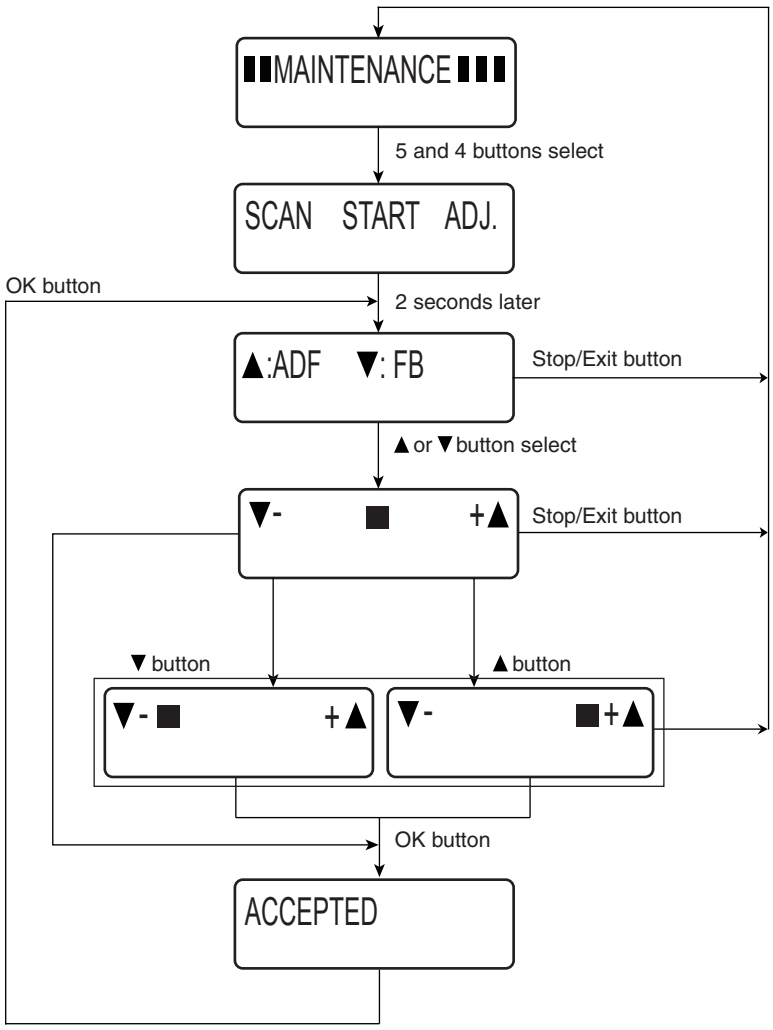


Fig. 5-11

1.4.14 Acquisition of White Level Data (Function code 55)

<Function>

This function allows the machine to obtain white level data for the CIS unit and save it into the EEPROM on the main PCB.

Note :

If you replace the FB unit, be sure to carry out this procedure.

<Operating Procedure>

(1) MFC7840W/7840N/7450/7440N/7340/7320
Press the 5 button twice in the initial stage of the maintenance mode.
DCP7045N/7040/7030
Press the ▲ or ▼ button several times. "MAINTENANCE 55" appears on the LCD, and then press the OK button.
"Press START" will appear on the LCD.

(2) Press the Start button.
"SCANNER AREA SET" will appear on the LCD.
The machine saves the revision data into the EEPROM after a few seconds. Then, it beeps for one seconds and returns to the initial stage of the maintenance mode.

1.4.15 Paper Feeding and Ejecting Test (Function code 67)

<Function>

This function allows you to check that a sheet of paper is fed and ejected correctly by printing the grid pattern on a page, whose interval is 1cm.

<Operating Procedure>

(1) MFC7840W/7840N/7450/7440N/7340/7320
Press in order the 6 and 7 buttons in the initial stage of the maintenance mode.
DCP7045N/7040/7030
Press the ▲ or ▼ button. "MAINTENANCE 67" appears on the LCD, and then press the OK button.

(2) The "PAPER FEED TEST" will appear. The test printing is started, and the grid pattern is printed.

(3) Press the Stop/Exit button so that machine stops printing. Then, it beeps for one second and returns to the initial stage of the maintenance mode.

Note :

- In the case that the front cover is opened, or that there is no paper in the tray during test printing, the test printing is stopped.
- Continue being printed till the recording paper disappears as far as push the Stop / Exit button or open the front cover.

1.4.16 EEPROM Customizing (Function code 74)

<Function>

This function allows you to customize the EEPROM according to language, function settings, and worker switch settings.

Note :

If you replace the main PCB, be sure to carry out this procedure.

<Operating Procedure>

(1) MFC7840W/7840N/7450/7440N/7340/7320
Press in order the 7 and 4 buttons in the initial stage of the maintenance mode.
DCP7045N/7040/7030
Press the ▲ or ▼ button. "MAINTENANCE 74" appears on the LCD, and then press the OK button.
The current customizing code appears.

(2) Enter the desired customizing code (e.g., 8001 in the case of MFC-7840W U.S. model).
The newly entered code appears.
To enter letters "A" through "F", press the 1 through 6 buttons while holding down the # button respectively.

Note :

The machine does not work properly when an incorrect code is entered.

(3) Press the Start button.
The machine saves the setting and displays the "PARAMETER INIT" on the LCD. The machine beeps for one second and returns to the initial stage of the maintenance mode.

If you press the Stop/Exit button or no buttons are pressed for one minute in the above procedure, the machine stops the procedure, beeps for one second and returns to the initial stage of the maintenance mode.
The modification of the setting data is not saved in this case.
The customizing code are displayed on the next page.

<EEPROM customizing code list>

		DCP			MFC				
		7030	7040	7045N	7320/7340	7440N	7450	7840N	7840W
U.S.A.		-	0001	-	8001	8001	-	-	8001
Canada		0102	-		0002	0002			0002
German		3104		3053 (3004)	2103	2003			2003
United Kingdom, South Africa, Ireland				3004	2104	2004			2004
France		3155 (3105)		3055 (3005)	2105	2005			2005
Australia		6104	6004	-	2056 (2006)	2056 (2006)			2056 (2006)
Belgium		3155 (3108)	-	3055 (3008)	2108	2008			2008
Nether lands		3155 (3109)		3055 (3009)	2109	2009			2009
Switzer land		3104		3004	2110	2010			2010
Austria		3014		3053 (3014)	2103	2014			2014
Spain				3004	2115	2015			2015
Italy		3104			2116	2016			2016
Israel		-		-	2104	-			-
Portugal		3014		3004	2118	2018			2018
China		2120	2020	-	2020	-	0040	0040	0140
New Zealand		6104	6004		2056 (2027)	2056 (2027)	-	-	2056 (20127)
Argentina, Chilly		-	1036		-	0036			0036
Asia		4104	4004		0040	-	0040	0040	0140
Brazil		-	-		-	0042	-	-	0042
Russia		7104		3004	2148	2048			2048
PAN-NORDIC	Norway	3104			2157 (2107)	2057 (2007)			2057 (2007)
	Sweden				2157 (2126)	2057 (2026)			2057 (2026)
	Finland				2157 (2112)	2057 (2012)			2057 (2012)
	Denmark				2157 (2113)	2057 (2013)			2057 (2013)
	Others	-		-	2157 (2150)	2057 (2050)			2057 (2050)
EEU-GENERAL	Czech	3104		3088 (3014)	2188 (2137)	2088 (2037)			2088 (2037)
	Hungary				2118 (2138)	2088 (2038)			2088 (2038)
	Poland				2118 (2139)	2088 (2039)			2088 (2039)
	Bulgaria				2118 (2132)	2088 (2032)			2088 (2032)
	Romania				2188 (2133)	2088 (2033)			2088 (2033)
	Slovakia				2188 (2131)	2088 (2030)			2088 (2030)
	Others				2188 (2150)	2088 (2050)			2088 (2050)

1.4.17 Operational Check of Fans (Function code 78)

<Function>

This function is to check whether each of fans is operating correctly or not. The following fans are checked.

LCD	Parts Name	Description
F1	Fan motor 60	Evacuate hot air of inside of the machine.

<Operating Procedure>

(1) MFC7840W/7840N/7450/7440N/7340/7320
Press in order the 7 and 8 buttons in the initial stage of the maintenance mode. The indication will appear on the LCD as shown in the figure below.
DCP7045N/7040/7030
Press the ▲ or ▼ button. "MAINTENANCE 78" appears on the LCD, and then press the OK button.

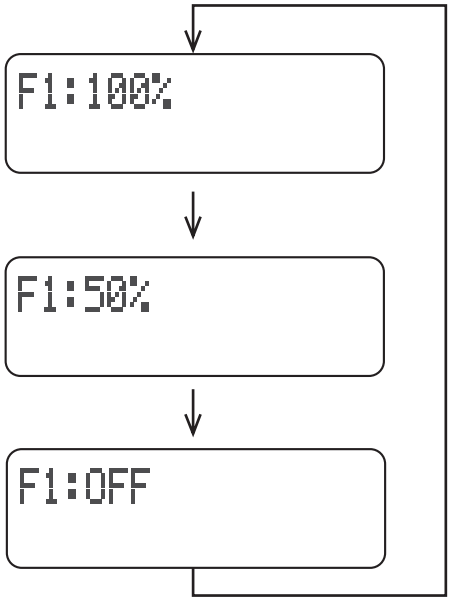


Fig. 5-12

(2) Press the Start button so that the LCD indication is changed in the order shown in the figure above. The fan operation is also changed as indicated on the LCD.

(3) Press the Stop/Exit button so that the machine stops checking the fans, beeps for one second and returns to the initial stage of the maintenance mode.

■ Location of fans

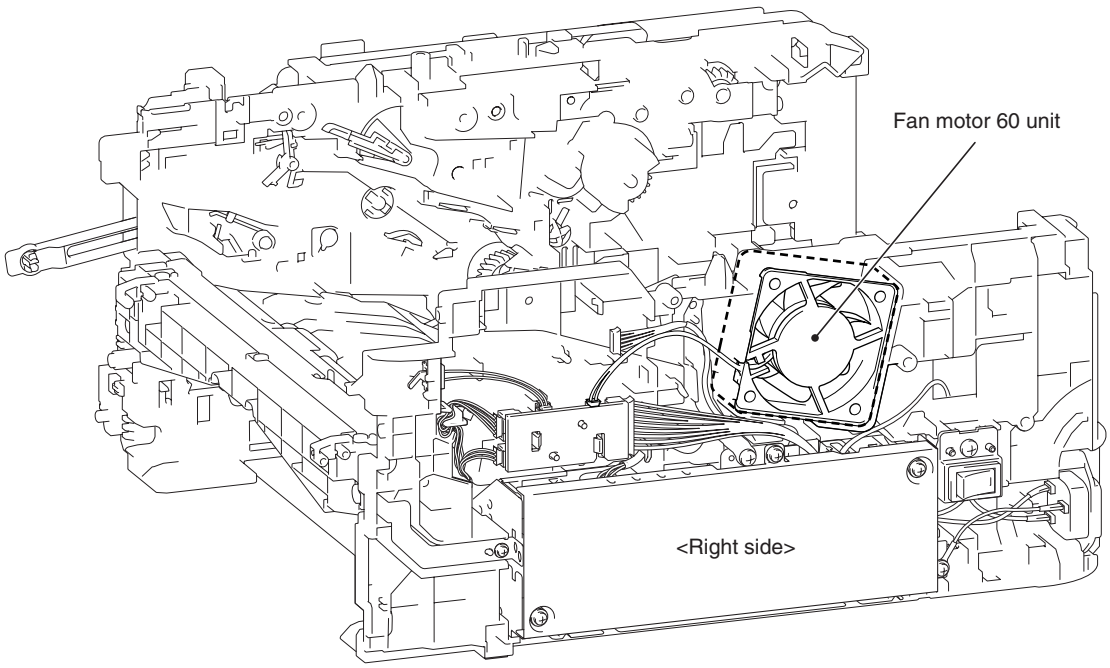


Fig. 5-13

1.4.18 Display of the Machine's Log Information (Function code 80)

<Function>

The machine may display its log information on the LCD.

<Operating Procedure>

(1) MFC7840W/7840N/7450/7440N/7340/7320
Press in order the 8 and 0 buttons in the initial stage of the maintenance mode.
The USB serial number appears on the LCD.
DCP7045N/7040/7030
Press the ▲ or ▼ button. "MAINTENANCE 80" appears on the LCD, and then press the OK button.

(2) Each time the Start button is pressed, one of the following log information items appears on the LCD in the order. The representative items are given below.

(3) Press the Stop/Exit button so that the machine stops this operation, beeps for one second and returns to the initial stage of the maintenance mode.

Note :

If the OK button is pressed when the "MACHINE ERR" or "COMEER1" appears on the LCD, the date and time when the error occurs are indicated on the LCD.

USB:	Serial number
DRUM:	Drum count
COVERAGE:	Average Coverage (%) *1
TTL_PG:	Total number of printed pages
COPY:	Number of copies made
PCPRINT:	Number of PC prints made
FAX:	Number of FAX outputs made *2
LIST:	Number of list page printed pages
TR1_PG:	Number of pages picked up from the T1.
MN_PAGE:	Number of pages picked up from manual tray.
A4+LTR:	Number of A4/Letter size sheets picked up.
LG+A4L:	Number of LEGAL/A4 LONG size sheets picked up.
B5+EXE:	Number of B5/Executive size sheets picked up.
ENVLOP:	Number of envelopes picked up.
A5	Number of A5 size sheets picked up.
OTHER:	Number of other-size sheets picked up.
PLTNRE:	Number of Plain/Thin/Recycled sheets made.
TRANSP:	Number of Transparency mode.
TKTRBD:	Number of Thick/Thicker/Bond made.
ENVLOP:	Number of Envelop/Env. Thick/Env. Thin made.
TTL_JAM:	Total number of jams
TR1_JAM	Number of jams that occurred at the T1.
MN_JAM	Number of jams that occurred at the manual tray.
IN_JAM	Number of jams that occurred inside the machine.

RE_JAM	Number of jams that occurred at the ejecting.
DRUM_CH	Number of times the drum unit has been replaced.
DRUM_PG	Number of printed pages with the drum unit.
TNER_CH	Number of times the toner cartridge has been replaced.
TNER_PG1	Number of pages printed with the current toner cartridge.
TNER_PG2	Number of pages printed with the previous toner cartridge.
DEV_BIAS	Developing bias voltage
HODN_ER:	Number of electric discharge error.
FUSR_ER:	Number of fuser error.
MTLK_ER:	Number of motor lock error.
MACHINE ERR_01 to 10	Last machine error code 01 to 10
ADF_JAM	Number of document jams that occurred at the ADF. *3
ADF_PG	Number of scanned pages from the ADF. *3
FB_PG	Number of pages scanned with the FB unit.
COMERR1 to 3	Last communication error code 1 to 3

*1 Some margin of error must be taken into consideration because coverage of the printable areas of A4-size paper is calculated using video signals.

*2 Not indicated for the DCP7030/7040/7045N.

*3 Not indicated for the DCP7030.

The shaded number can reset the counter value by the enter of the 2, 7, 8 and 3 keys.

1.4.19 Error Code Indication (Function code 82)

<Function>

This function displays an error code of the machine on the LCD.

<Operating Procedure>

(1) MFC7840W/7840N/7450/7440N/7340/7320
Press in order the 8 and 2 buttons in the initial stage of the maintenance mode.
DCP7045N/7040/7030
Press the ▲ or ▼ button. "MAINTENANCE 82" appears on the LCD, and then press the OK button.
The machine displays "MACHINE ERROR X X" on the LCD.
(Refer to "2. ERROR CAUSE" in Chapter 1.)

(2) Press the Stop/Exit button. The machine beeps for one second and returns to the initial stage of the maintenance mode.

1.4.20 Output of Transmission Log to the Telephone Line (Function code 87) (only MFC7840W/7840N/7450/7440N/7340/7320)

<Function>

This function outputs the transmission log (that the machine has stored about the latest transmission) to the telephone line. It allows the service personnel to receive the transmission log of the user's machine at a remote location and use it for analyzing problems arising in the user's machine.

<Operating Procedure>

(1) If the user's machine has a transmission-related problem, call the user's machine at a remote location from your machine.

(2) If the line is connected, have the user perform the following:

1) Hook up to the external phone.

2) Press in order the Menu, Start, Menu buttons.

3) Press the 8 and 7 buttons.
The above operation makes the user's machine send CNG to your machine for sending the transmission log.

(3) If you hear the CNG sent from the user's machine, press the Start button of your machine.
Your machine will start to receive the transmission log from the user's machine.

1.4.21 Exit from the Maintenance Mode (Function code 99)

<Function>

Exit from the Maintenance Mode.

<Operating Procedure>

(1) MFC7840W/7840N/7450/7440N/7340/7320
Press the 9 button twice in the initial stage of the maintenance mode.
DCP7045N/7040/7030
Press the ▲ or ▼ button. "MAINTENANCE 99" appears on the LCD, and then press the OK button.

(2) The machine exits from the maintenance mode and returns to the ready state.

2. OTHER SERVICE FUNCTIONS

2.1 User Maintenance Mode

This section describes what the end user should do when replacing the consumable parts.

■ Resetting the drum counter

The printed image may deteriorate when using the drum unit to a certain degree. The machine detects how much the drum unit is used with the drum counter and the “Drum End Soon“ appears on the LCD when the drum unit life is nearly at the end of its life to indicate to the end user that the drum unit life reaches the end of its life soon, in order to prevent the printed image defects due to drum unit deterioration.

The machine does not provide the function which resets the drum counter automatically when the drum unit is replaced with a new one. If replacing the drum unit with a new one without resetting the drum counter, the counted value of the old drum unit is used continuously, and remain appears on the LCD.

When replacing the drum unit with a new one, it is required to reset the drum counter following the steps below:

<Procedure>

(1) Open the front cover while the power supply of the machine is ON, after check the LCD of the above-mentioned.

(2) MFC7840W/7840N/7450/7440N/7340/7320
Press the Clear/Back button.
DCP7045N/7040/7030
Press the Clear/Back button.
"Replace Drum? / 1. Yes 2. No" appears on the LCD.

(3) MFC7840W/7840N/7450/7440N/7340/7320
Press the 1 button.
DCP7045N/7040/7030
Press the ▲ button.

(4) Close the front cover.

Note:

When the counter of the drum replacement number of times print more than 100pieces after reset the drum counter, Rise in the counter value.

2.2 Resetting the developing bias voltage counter

Since print density is likely to become darker as the toner gets older, the developing bias is lowered by degrees (bias voltage is reduced) according to the number of develop roller rotations so that an almost fixed density can be maintained from the beginning to the end. The developing bias voltage can be verified in the display of log information (Function code 80).

<Procedure>

(1) Open the front cover.

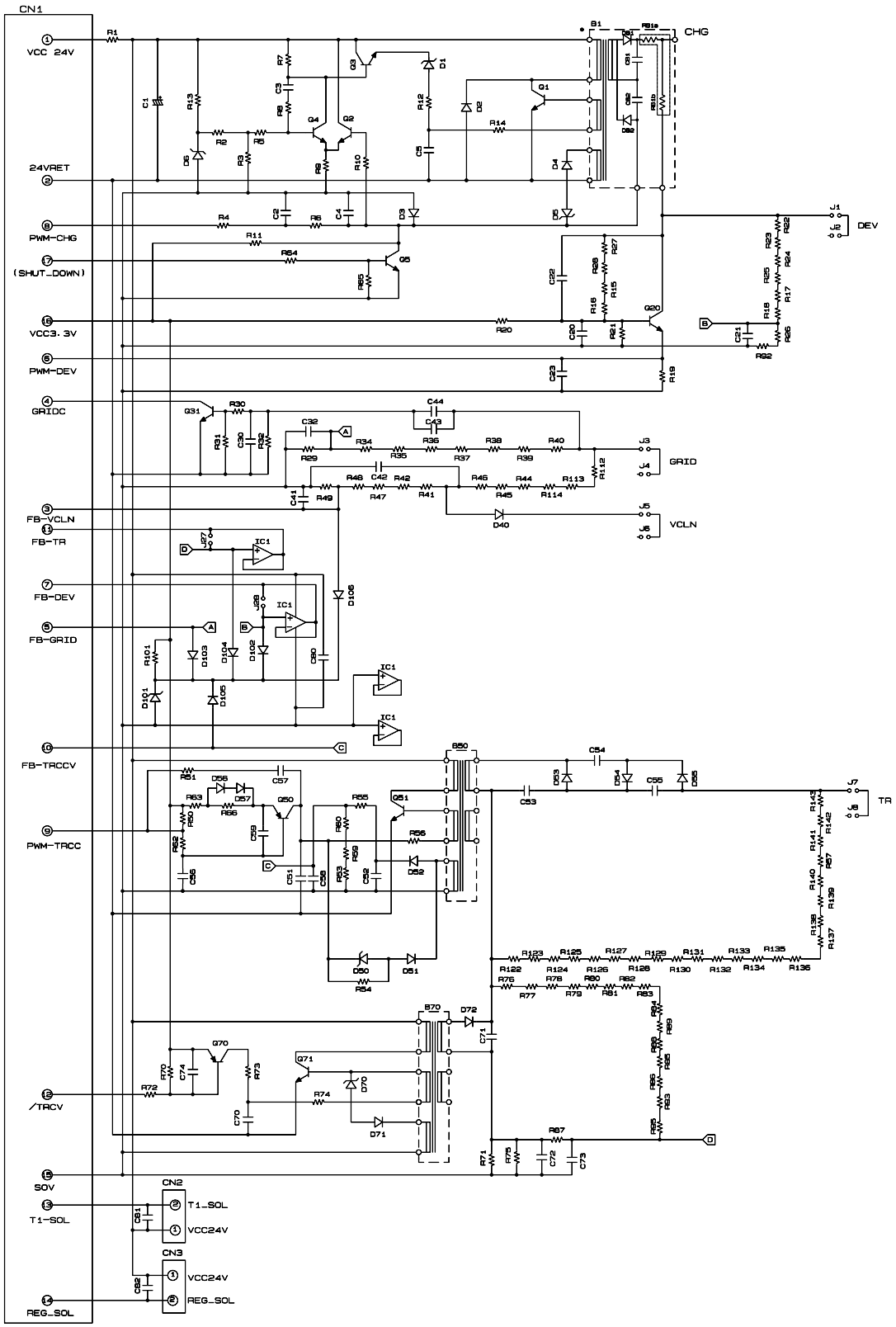
(2) MFC7840W/7840N/7450/7440N/7340/7320
Press the Clear/Back button.
DCP7045N/7040/7030
Press the Clear/Back button.
"Replace Drum? / 1. Yes 2. No" appears on the LCD.

(3) MFC7840W/7840N/7450/7440N/7340/7320
Press the button in order of ∗, 0, 0.
DCP7045N/7040/7030
Press the Start button, and then press the ▲ or ▼ button. "00" appears on the LCD, and then press the OK button.

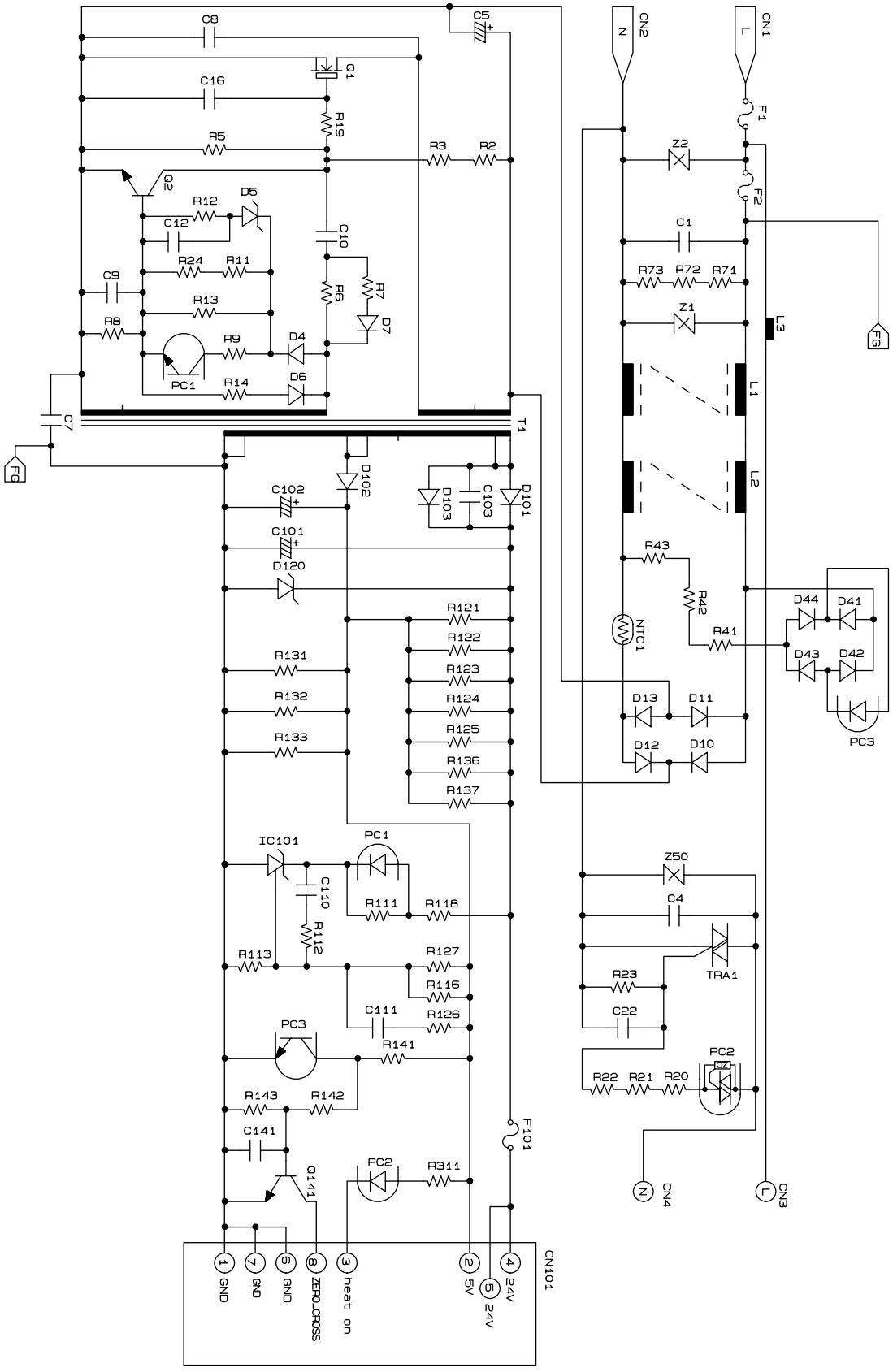
(4) Close the front cover.

CHAPTER 6 CIRCUIT DIAGRAMS, WIRING DIAGRAM

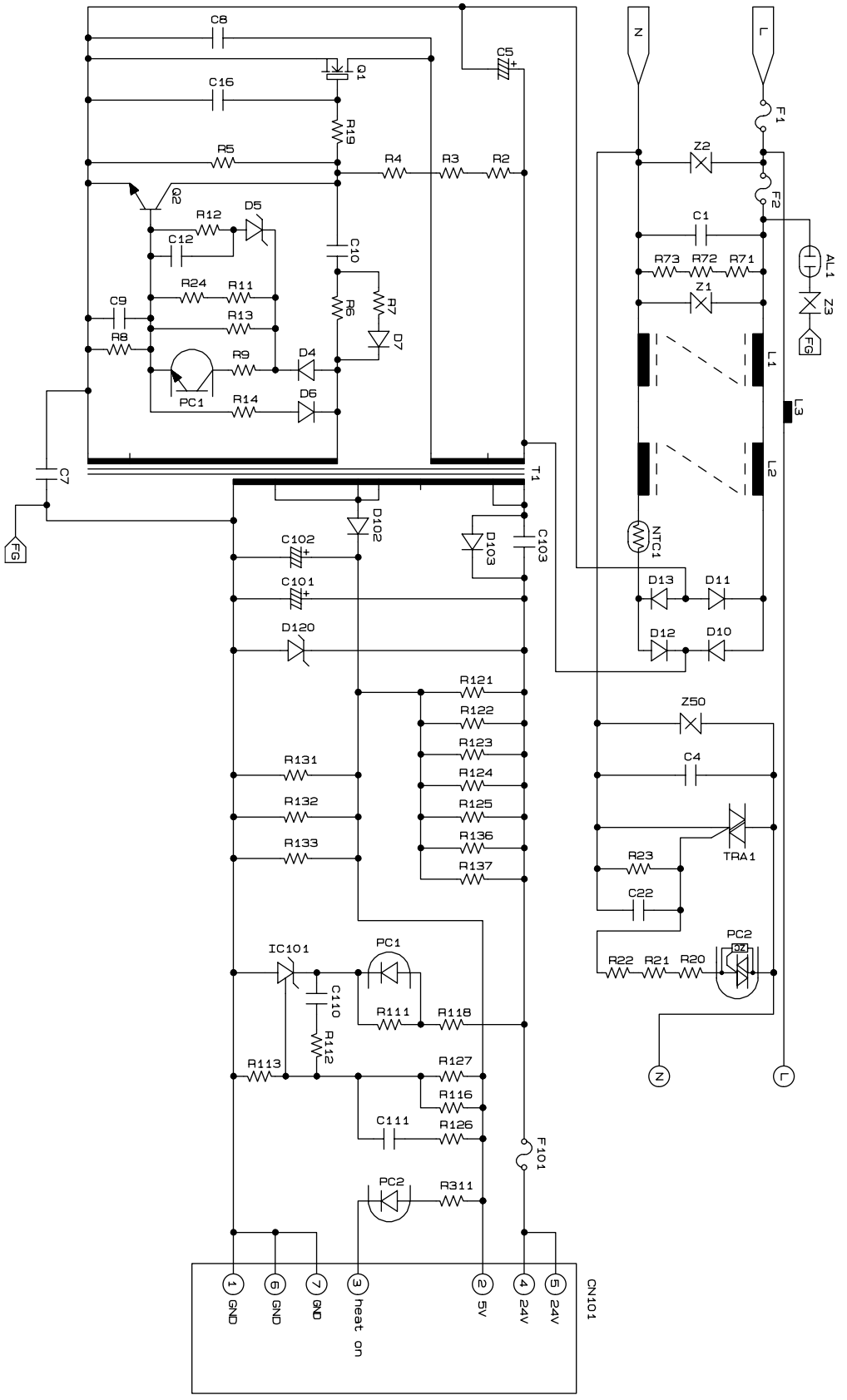
■ High-voltage Power Supply PCB Circuit Diagram



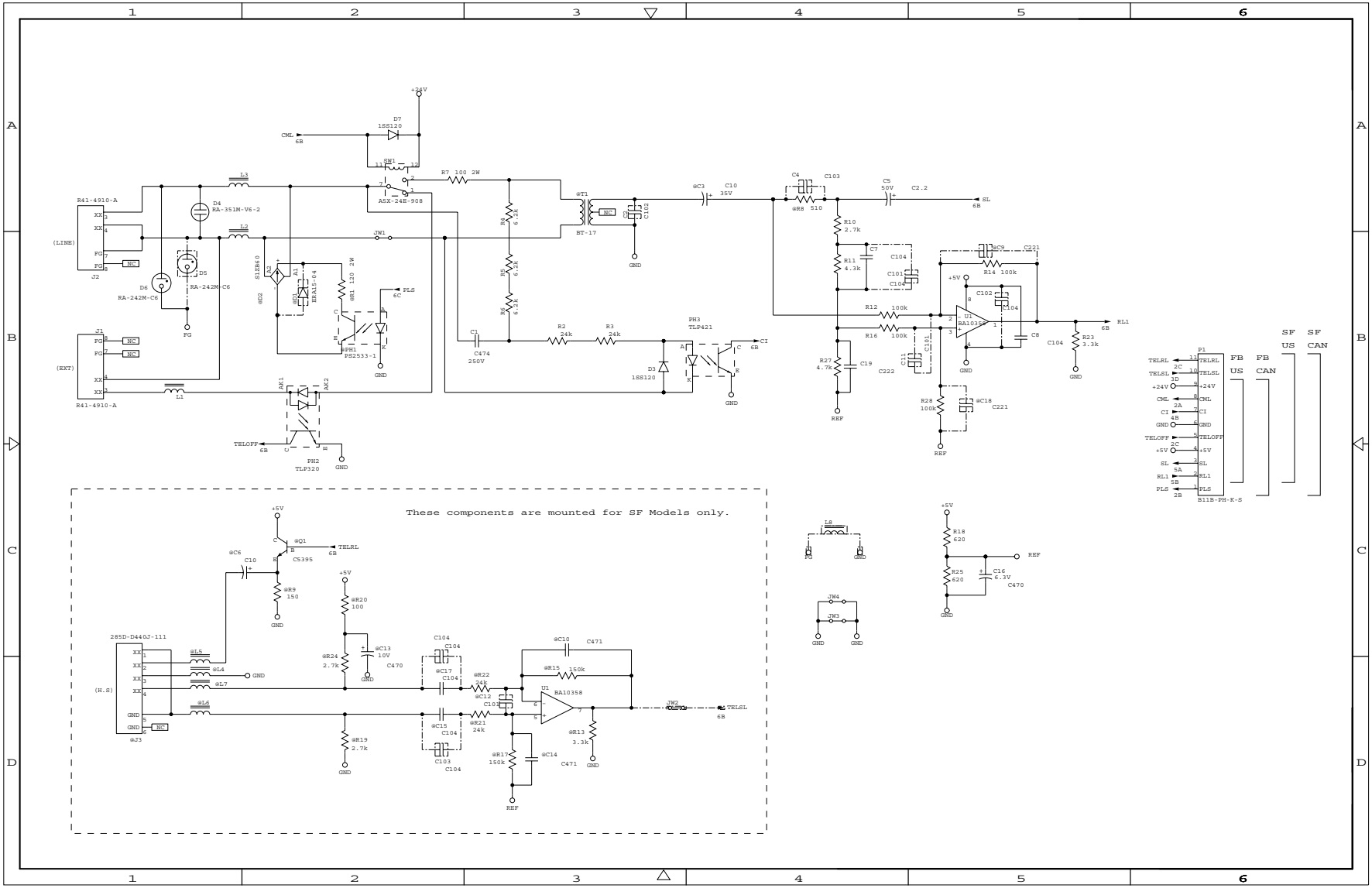
■ LVPS PCB Circuit Diagram (100V)



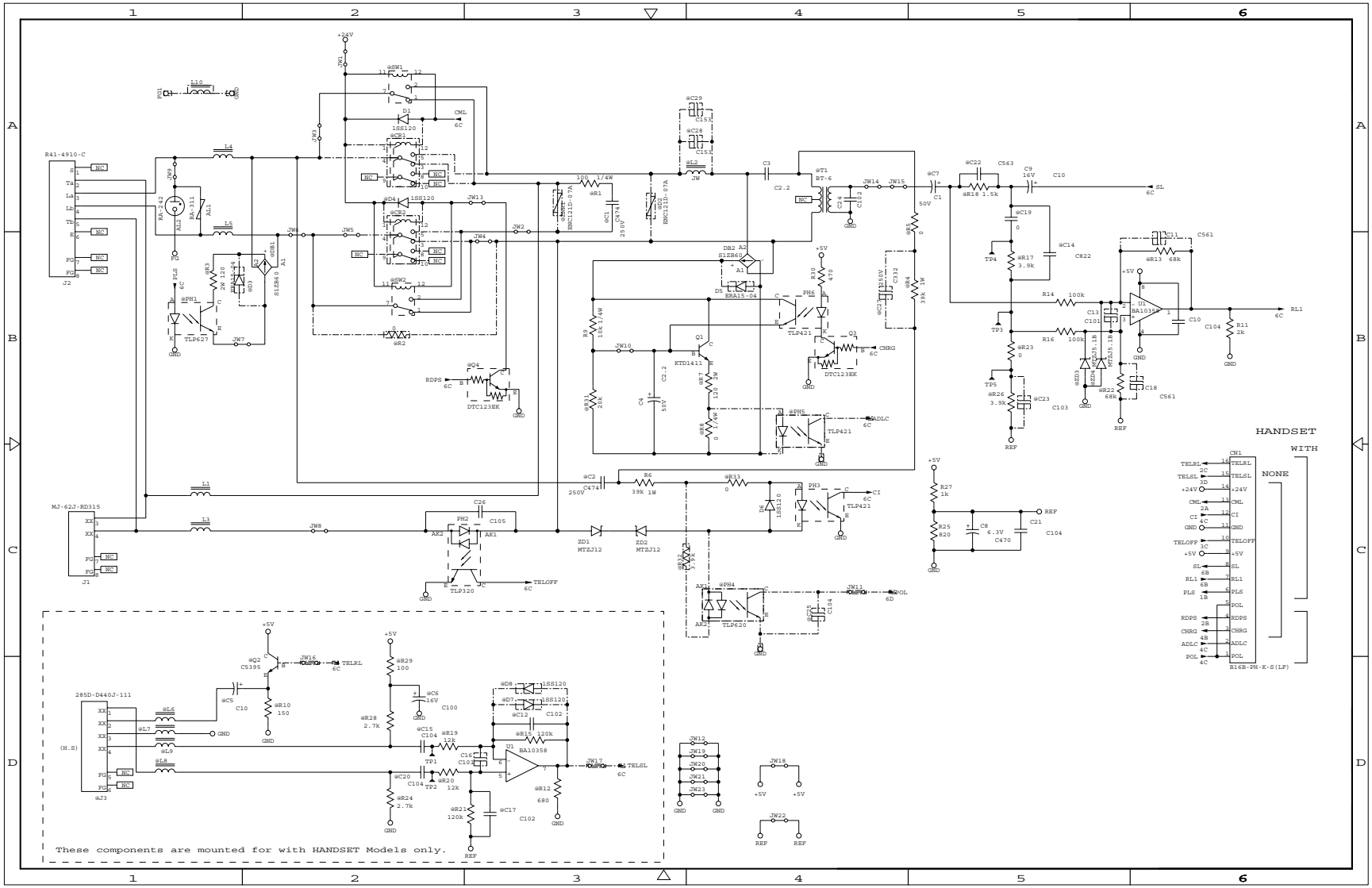
■ LVPS PCB Circuit Diagram (200V)



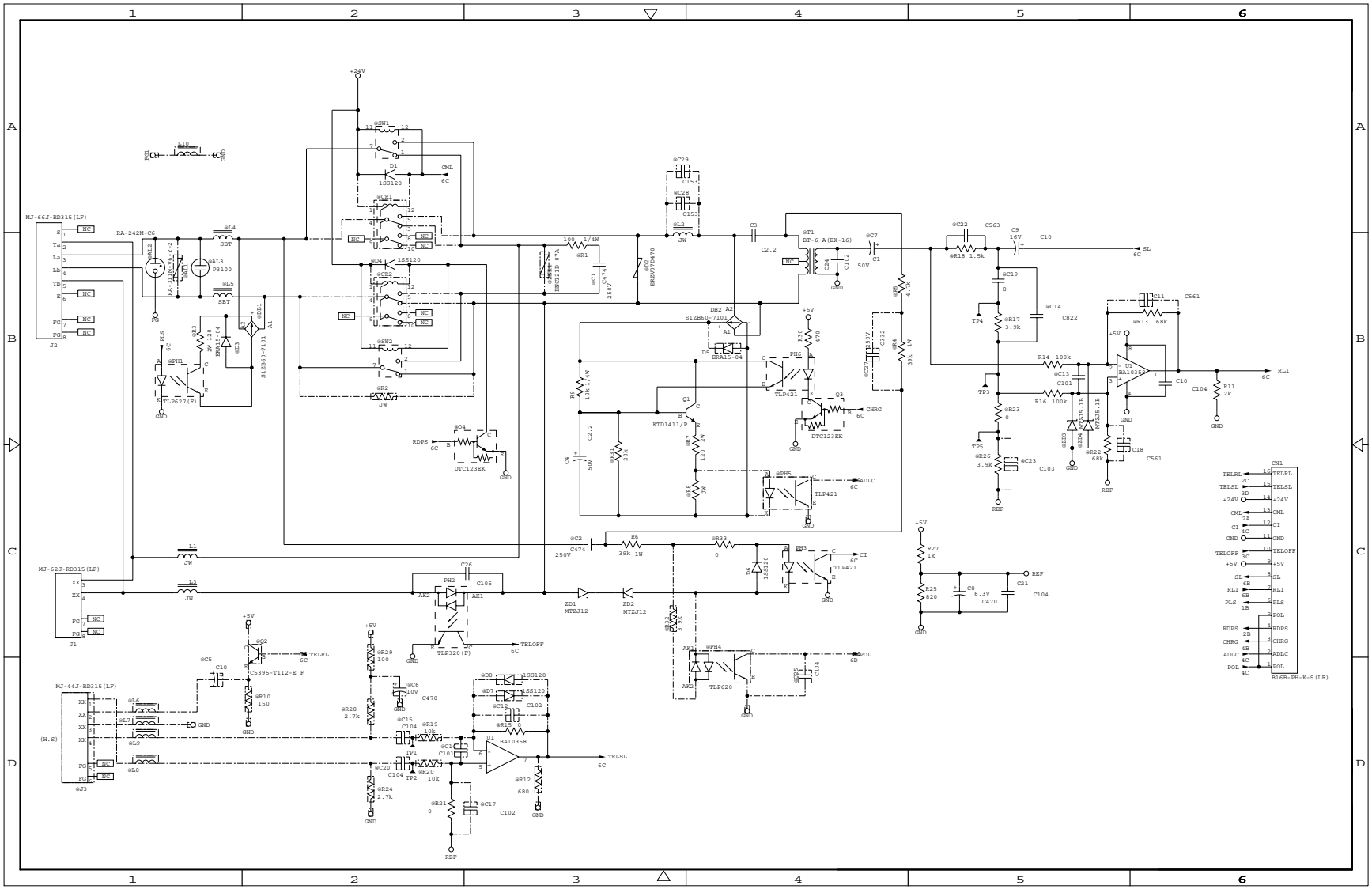
■ NCU PCB circuit diagram : USA/Canada



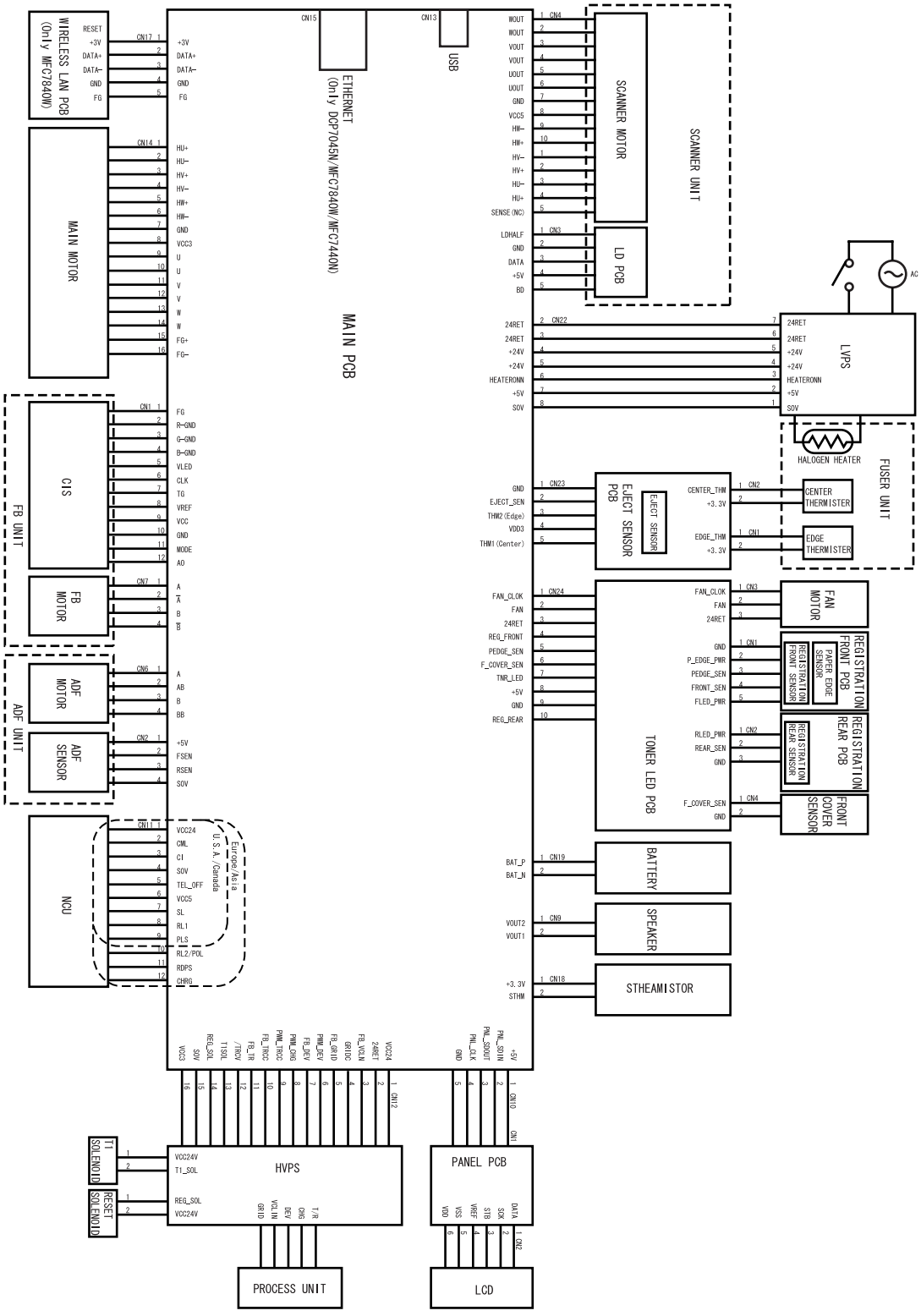
■ NCU PCB circuit diagram : Europe/Asia/Oceania/China



■ NCU PCB circuit diagram : South Africa



■ Wiring Diagram



APPENDIX 1 WORKER SWITCH Settings (WSW)

This appendix describes the functions of the Worker switches, which can be divided into two groups: one is for customizing preferences designed for the shipping destination (Refer to "1.4.16 EEPROM Customizing (Function code 74)" in Chapter 5) and the other is for modifying preferences that match the machine to the environmental conditions. Use the latter group if the machine malfunctions due to mismatching.

Each switch has eight selectors. However, some of them cannot be set by an end user. Only selectors in the worker switch setting tables of this Appendix that are shaded can be set by an end user.

The worker switch setting procedure is described in Chapter 5, Section 1.4.6 [1] Worker Switch Setting (Function code 10).

■ Worker Switch

WSW No.	Function	Refer to:
WSW01	Dial pulse setting	App. 1-3
WSW02	Tone signal setting	App. 1-5
WSW03	PABX mode setting	App. 1-6
WSW04	Transfer facility setting	App. 1-8
WSW05	1st dial tone and busy tone detection	App. 1-9
WSW06	**Redial/Pause** button setting and 2nd dial tone detection	App. 1-10
WSW07	Dial tone setting 1	App. 1-12
WSW08	Dial tone setting 2	App. 1-13
WSW09	Protocol definition 1	App. 1-14
WSW10	Protocol definition 2	App. 1-15
WSW11	Busy tone setting	App. 1-16
WSW12	Signal detection condition setting	App. 1-17
WSW13	Modem setting	App. 1-18
WSW14	AUTO ANS facility setting	App. 1-19
WSW15	Redial facility setting	App. 1-20
WSW16	Function setting 1	App. 1-21
WSW17	Function setting 2	App. 1-22
WSW18	Function setting 3	App. 1-23
WSW19	Transmission speed setting	App. 1-24
WSW20	Overseas communications mode setting	App. 1-25
WSW21	TAD setting 1	App. 1-26
WSW22	ECM and call waiting caller ID	App. 1-27
WSW23	Communications setting	App. 1-28
WSW24	TAD setting 2	App. 1-29
WSW25	TAD setting 3	App. 1-30
WSW26	Function setting 4	App. 1-31
WSW27	Function setting 5	App. 1-32

WSW No.	Function	Refer to:
WSW28	Function setting 6	App. 1-33
WSW29	Function setting 7	App. 1-34
WSW30	Function setting 8	App. 1-35
WSW31	Function setting 9	App. 1-36
WSW32	Function setting 10	App. 1-37
WSW33	Function setting 11	App. 1-38
WSW34	Function setting 12	App. 1-39
WSW35	Function setting 13	App. 1-40
WSW36	Function setting 14	App. 1-40
WSW37	Function setting 15	App. 1-42
WSW38	V.34 transmission settings	App. 1-43
WSW39	V.34 transmission speed	App. 1-44
WSW40	V.34 modem settings	App. 1-45
WSW41	ON-duration of the scanning light source	App. 1-47
WSW42	Internet mail settings	App. 1-48
WSW43	Function setting 16	App. 1-48
WSW44	Speeding up scanning-1	App. 1-49
WSW45	Speeding up scanning-2	App. 1-50
WSW46	Monitor of power ON/OFF state and parallel port kept at high	App. 1-51
WSW47	Switching between high- and full-speed USB	App. 1-52
WSW48	USB setup latency	App. 1-53
WSW49	End-of-copying beep and print in black	App. 1-54
WSW50	SDAA settings	App. 1-55
WSW51	Function setting 17	App. 1-56
WSW52	Function setting 18	App. 1-57
WSW53	Function setting 19	App. 1-58
WSW54	Function setting 20	App. 1-59
WSW55	Function setting 21	App. 1-60
WSW56	Function setting 22	App. 1-60
WSW57	Function setting 23	App. 1-61
WSW58	Function setting 24	App. 1-62
WSW59	Function setting 25	App. 1-63
WSW60	Not used	App. 1-63
WSW61	Scanning light intensity to judge to be stable 1	App. 1-64
WSW62	Scanning light intensity to judge to be stable 2	App. 1-65
WSW63	Not used	App. 1-66

The functions and settings for each worker switch (WSW) are described below;

<WSW01>

Selector No.	Function	Setting and Specifications
1 2	Dial pulse generation mode	No. 1 2 0 0 : N 0 1 : N+1 1 0 : 10-N 1 1 : N
3 4	Break time length in pulse dialing	No. 3 4 0 0 : 60 ms 0 1 : 67 ms 1 0 : 40 ms 1 1 : 64 ms (for 16 PPS)
5 6	Inter-digit pause	No. 5 6 0 0 : 800 ms 0 1 : 850 ms 1 0 : 950 ms (for 16 PPS) 1 1 : 600 ms (at 106-ms intervals)
7	Switching between pulse and tone dialing, by the function switch	0: Yes 1: No
8	Default dialing mode, pulse (DP) or tone (PB) dialing	0: PB 1: DP

- **Selectors 1 and 2: Dial pulse generation mode**

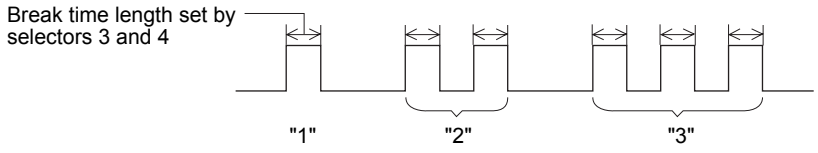
  These selectors set the number of pulses to be generated in pulse dialing.

  N: Dialing "N" generates "N" pulses. (Dialing "0" generates 10 pulses.)
  N + 1: Dialing "N" generates "N + 1" pulses.
  10 - N: Dialing "N" generates "10 - N" pulses.

- **Selectors 3 and 4: Break time length in pulse dialing**

  These selectors set the break time length in pulse dialing.

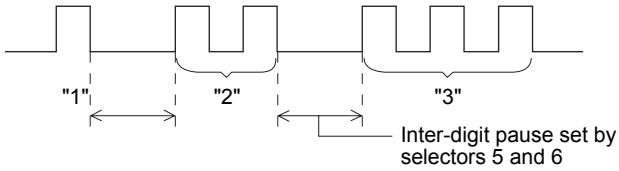
  (Example: If "1," "2," and "3" are dialed when N is set by selectors 1 and 2.)



- **Selectors 5 and 6: Inter-digit pause**

  These selectors set the inter-digit pause in pulse dialing.

  (Example: If "1," "2," and "3" are dialed when N is set by selectors 1 and 2.)



- **Selector 7: Switching between pulse and tone dialing, by the function switch**

  This selector determines whether or not the dialing mode can be switched between the pulse (DP) and tone (PB) dialing by using the function switch.

- **Selector 8: Default dialing mode, pulse (DP) or tone (PB) dialing**

  This selector sets the default dialing mode (pulse dialing or tone dialing) which can be changed by the function switch. If the user switches it with the function switch when selector 7 is set to "0," the setting specified by this selector will also be switched automatically.

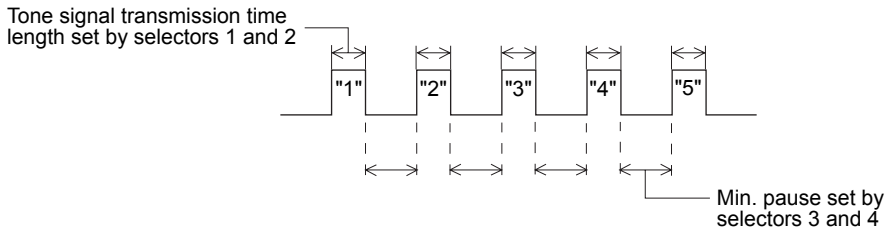
<WSW02>

Selector No.	Function	Setting and Specifications
1 2	Tone signal transmission time length	No. 1 2 0 0 : 70 ms 0 1 : 80 ms 1 0 : 90 ms 1 1 : 100 ms
3 4	Min. pause in tone dialing	No. 3 4 0 0 : 70 ms 0 1 : 80 ms 1 0 : 90 ms 1 1 : 140 ms
5 I 8	Attenuator for pseudo ring backtone to the line (selectable in the range of 0-15 dB, in 1 dB increments)	0: 0 dB 1: 8 dB 0: 0 dB 1: 4 dB 0: 0 dB 1: 2 dB 0: 0 dB 1: 1 dB

- **Selectors 1 through 4:Tone signal transmission time length and Min. pause in tone dialing**

  These selectors set the tone signal transmission time length and minimum pause in tone dialing.

  (Example: If "1," "2," "3," "4," and "5" are dialed.)



- **Selectors 5 through 8: Attenuator for pseudo ring backtone to the line**

  These selectors are used to adjust the sound volume of a ring backtone in the F/T mode, an on-hold sound, or a beep generated as a signal during remote control operation or at the start of ICM recording.

  The larger the value specified by these selectors, the greater the attenuation.

<WSW03>

Selector No.	Function	Setting and Specifications
1	CNG detection when sharing a modular wall socket with a telephone	0: A 1: B
2 I 4	Detection time length of PABX* dial tone, required for starting dialing	No. 2 3 4 0 0 0: 50 ms 0 0 1: 210 ms 0 1 0: 500 ms 0 1 1: 800 ms 1 0 0: 900 ms 1 0 1: 1.5 sec. 1 1 0: 2.0 sec. 1 1 1: 2.5 sec
5	CNG detection when sharing a modular wall socket with a telephone	0: A 1: B
6 7	Dial tone detection in PABX*	No. 6 7 0 0 : No detection (3.5 sec. wait) 0 1 : No detection (5 sec. wait) 1 0 : No detection (7 sec. wait) 1 1 : Detection (Frequency only)
8	Not used.	

* PABX: Private automatic branch exchange

Note:
Selectors 2 through 4, 6 and 7 are not applicable where no PABX is installed.

- **Selectors 1 and 5: CNG detection when sharing a modular wall socket with a telephone**

  These selectors determine whether or not the machine detects a CNG signal when a line is connected to a telephone sharing a modular wall socket with the machine. Upon detection of CNG signals by the number of cycles specified by these selectors, the machine interprets CNG as an effective signal and then starts FAX reception.

Selector		Cycle
No. 1	No. 5	
0 (A)	0 (A)	0.5 cycle
0 (A)	1 (B)	1.0 cycle
1 (A)	0 (A)	1.5 cycle
1 (B)	1 (B)	2.0 cycle

- **Selectors 2 through 4: Detection time length of PABX dial tone, required for starting dialing**

  Upon detection of the PABX dial tone for the time length set by these selectors, the machine starts dialing. These selectors are effective only when both selectors 6 and 7 are set to "1" (Detection).

- **Selectors 6 and 7: Dial tone detection in PABX***

  These selectors activate or deactivate the dial tone detection function which detects a dial tone when a line is connected to the PABX.

  Setting both of these selectors to "1" activates the dial tone detection function so that the machine starts dialing upon detection of a dial tone when a line is connected.

  Other setting combinations deactivate the dial tone detection function so that the machine starts dialing after the specified WAIT (3.5, 5.0, or 7.0 sec.) without detection of a dial tone when a line is connected.

<WSW04>

Selector No.	Function	Setting and Specifications
1	Earth function in transfer facility (Not used.)	0: Provided 1: Not provided
2 3	Dual tone detection frequency in ICM recording	No. 2 3 0 0: 350 and 440 Hz (A) 0 1: 440 and 480 Hz (B) 1 0: 480 and 620 Hz (C) 1 1: 480 and 620 Hz (C)
4	Dual tone detection sensitivity in ICM recording	0: Normal 1: High
5	Length of time added to time designated by selectors 3 and 4 on the WSW 24 (time between CML ON and pseudo ring backtone return).	0: Not added 1: +4 seconds added
6 I 8	Break time length for flash function	No. 6 7 8 0 0 0: 80 ms 0 0 1: 100 ms 0 1 0: 110 ms 0 1 1: 120 ms 1 0 0: 200 ms 1 0 1: 250 ms 1 1 0: 500 ms 1 1 1: 700 ms

Note:

- Selectors 1 and 5 through 8 are not applicable in those countries where no transfer facility is supported.
- Selectors 2 through 4 are applicable to models equipped with built-in TADs.

- **Selector 1: Earth function in transfer facility (Not used.)**

  This selector determines whether or not the earth function is added to the transfer setting menu to be accessed by the function switch.

- **Selectors 2 and 3: Dual tone detection frequency in ICM recording**

  If the machine detects either of the frequencies set by these selectors in ICM recording, it disconnects the line. For example, if these selectors are set to "0, 0" the machine disconnects the line upon detection of 350 Hz or 440 Hz.

- **Selector 4: Dual tone detection sensitivity in ICM recording**

  Setting this selector to "1" increases the tone detection sensitivity in ICM recording.

- **Selectors 6 and 8: Break time length for flash function**

  These selectors set the break time length. This setting is effective only when the flash function is selected for the **Search/Speed Dial** button by using the function switch.

<WSW05>

Selector No.	Function	Setting and Specifications
1 I 3	1st dial tone detection	No. 1 2 3 0 0 0: 3.5 sec. wait 0 0 1: 7.0 sec. wait 0 1 0: 10.5 sec. wait 0 1 1: 14.0 sec. wait 1 0 0: 17.5 sec. wait 1 0 1: 21.0 sec. wait 1 1 0: 25.0 sec. wait 1 1 1: Detection (Without wait)
4	Max. pause time allowable for remote ID code detection	0: 2 sec. 1: 1 sec.
5 6	Busy tone detection in auto-matic sending mode	No. 5 6 0 0: No detection 0 1: Detection only after dialing 1 0: No detection 1 1: Detection before and after dialing
7	Busy tone detection in auto-matic receiving mode	0: Yes 1: No
8	Not used.	

Note:
Selectors 5 through 7 are not applicable in those countries where no busy tone detection is supported.

- **Selectors 1 through 3: 1st dial tone detection**

  These selectors activate or deactivate the 1st dial tone detection function which detects the 1st dial tone issued from the PSTN when a line is connected to the PSTN.

  Setting all of these selectors to "1" activates the dial tone detection function so that the machine starts dialing upon detection of a dial tone when a line is connected. (However, in those countries which support no dial tone detection function, e.g., in the U.S.A., setting these selectors to "1" makes the machine start dialing after a WAIT of 3.5 seconds.) For the detecting conditions of the 1st dial tone, refer to WSW07 and WSW08.

  Other setting combinations deactivate the dial tone detection function so that the machine starts dialing after the specified WAIT (3.5, 7.0, 10.5, 14.0, 17.5, 21.0, or 24.5 seconds) without detection of a dial tone when a line is connected to the PSTN.

- **Selector 4: Max. pause time allowable for remote ID code detection**

  This selector sets the maximum pause time allowable for detecting the second digit of a remote ID code after detection of the first digit in remote reception.

  If selector 4 is set to "0" (2 seconds), for instance, only a remote ID code whose second digit is detected within 2 seconds after detection of the first digit will become effective so as to activate the remote function.

- **Selectors 5 and 6: Busy tone detection in automatic sending mode**

  These selectors determine whether or not the machine automatically disconnects a line upon detection of a busy tone in automatic sending mode.

  Setting selector 6 to "0" ignores a busy tone so that the machine does not disconnect the line. Setting selectors 5 and 6 to "0" and "1," respectively, makes the machine detect a busy tone only after dialing and disconnect the line.

  Setting both of selectors 5 and 6 to "1" makes the machine detect a busy tone before and after dialing and then disconnect the line.

- **Selector 7: Busy tone detection in automatic receiving mode**

  This selector determines whether or not the machine automatically disconnects the line upon detection of a busy tone in automatic receiving mode.

<WSW06>

Selector No.	Function	Setting and Specifications
1 I 3	**Redial/Pause** button setting and 2nd dial tone detection	No. 1 2 3 0 0 0: No pause 0 0 1: 3.5 sec. wait 0 1 0: 7 sec. wait 0 1 1: 10.5 sec. wait 1 0 0: 2.8 sec. wait 1 0 1: 2nd dial tone detection both in DP and push-button (PB) dialing system 1 1 0: 2nd dial tone detection only in pulse dialing (DP) system 1 1 1: 2nd dial tone detection both in DP and push-button (PB) dialing system
4 I 6	Detection of international tone	No. 4 5 6 0 0 0: 50 ms 0 0 1: 250 ms 0 1 0: 500 ms 0 1 1: 620 ms 1 0 0: 800 ms 1 0 1: 1.5 sec. 1 1 0: 2.0 sec. 1 1 1: 2.5 sec.
7	No. of 2nd dial tone detection cycles	0: 1 cycle 1: 2 cycles
8	Allowable instantaneous interrupt during reception of 2nd dial tone	0: 30 ms 1: 50 ms

Note:

Selectors 4 through 8 are not applicable in those countries where no dial tone detection is supported, e.g., U.S.A.

- **Selectors 1 through 3: Redial/Pause button setting and 2nd dial tone detection**

Selectors 1	2	3	
0	0	0	No wait is inserted even if the **Redial/Pause** button is pressed.
0	0	1	If you press the **Redial/Pause** button during dialing, the machine will insert wait as defined in the above table. If the **Redial/Pause** button is pressed repeatedly, the machine inserts the specified wait multiplied by the number of depressions. It applies also in hook-up dialing.
0	1	0	
0	1	1	
1	0	0	
1	0	1	When these selectors are set to "1, 0, 1": Each time you press the **Redial/Pause** button in dialing, the machine will wait for the 2nd dial tone to be sent via the communications line regardless of pulse dialing or tone dialing. When these selectors are set to "1, 1, 0": If you press the **Redial/Pause** button in pulse dialing, the machine will first wait for the 2nd dial tone to be sent via the communications line. After that, pressing the **Redial/Pause** button will cause the machine to insert a WAIT of 3.5 seconds. In tone dialing, the machine will insert a WAIT of 3.5 seconds. When these selectors are set to "1, 1, 1": If you press the **Redial/Pause** button, the machine will first wait for the 2nd dial tone to be sent via the communications line regardless of pulse dialing or tone dialing. After that, pressing the **Redial/Pause** button will cause the machine to insert a wait of 3.5 seconds. ((In those countries where no dial tone detection function is supported, setting these selectors to "1, 0, 1," "1, 1, 0," or "1, 1, 1" inserts a wait of 3.5 seconds.)
1	1	0	
1	1	1	

- **Selectors 4 through 6: Detection of international tone**

  Upon detection of the 2nd dial tone for the time length specified by these selectors, the machine starts dialing.
  This setting is effective only when the 2nd dial tone detection function is activated by selectors 1 through 3 (Setting 101, 110, or 111).
  This function does not apply in those countries where no dial tone detection function is supported.

- **Selector 7: No. of 2nd dial tone detection cycles**

  This selector sets the number of dial tone detection cycles required for starting dialing.

- **Selector 8: Allowable instantaneous interrupt during reception of 2nd dial tone**

  This selector sets the allowable instantaneous interrupt period that should be ignored during reception of the 2nd dial tone.

<WSW07>

Selector No.	Function	Setting and Specifications
1 2	Dial tone frequency band control	No. 1 2 0 0: Narrows by 10 Hz 0 1: Initial value 1 0: Widens by 10 Hz 1 1: Widens by 10 Hz
3	Line current detection (Not used.)	0: No 1: Yes
4 I 6	2nd dial tone detection level (Z = 600 Ω)	No. 4 5 6 0 0 0: -21 dBm 0 0 1: -24 dBm 0 1 0: -27 dBm 0 1 1: -30 dBm 1 0 0: -33 dBm 1 0 1: -36 dBm 1 1 0: -39 dBm 1 1 1: -42 dBm
7	Allowable instantaneous interrupt during reception of 1st dial tone	0: 30 ms 1: 50 ms
8	Not used.	

Note:

- Selectors 1, 2, 4 through 7 are not applicable in those countries where no dial tone or line current detection is supported, e.g., U.S.A.
- Selector 3 is not applicable to those models having no loop current detection function.

- **Selectors 1 and 2: Dial tone frequency band control**

  These selectors set the frequency band for the 1st dial tone and busy tone (before dialing) to be detected. This setting is effective only when selectors 1 through 3 on WSW05 are set to "1,1,1."

- **Selector 3: Line current detection (Not used.)**

  This selector determines whether or not to detect a line current before starting dialing.

- **Selectors 4 through 6: 2nd dial tone detection level**

  These selectors set the detection level of the 2nd dial tone.

- **Selector 7: Allowable instantaneous interrupt during reception of 1st dial tone**

  This selector sets the allowable instantaneous interrupt period that should be ignored during reception of the 1st dial tone.

<WSW08>

Selector No.	Function	Setting and Specifications
1 I 3	1st dial tone detection time length	No. 1 2 3 0 0 0: 50 ms 0 0 1: 250 ms 0 1 0: 500 ms 0 1 1: 620 ms 1 0 0: 800 ms 1 0 1: 1.5 sec. 1 1 0: 2.0 sec. 1 1 1: 2.5 sec.
4 5	Time-out length for 1st and 2nd dial tone detection	No. 4 5 0 0: 10 sec. 0 1: 20 sec. 1 0: 15 sec. 1 1: 30 sec.
6 I 8	Detection level of 1st dial tone and busy tone before dialing	No. 6 7 8 0 0 0: -21 dBm 0 0 1: -24 dBm 0 1 0: -27 dBm 0 1 1: -30 dBm 1 0 0: -33 dBm 1 0 1: -36 dBm 1 1 0: -39 dBm 1 1 1: -42 dBm

Note:
The WSW08 is not applicable in those countries where no dial tone detection is supported, e.g., U.S.A.

- **Selectors 1 through 3: 1st dial tone detection time length**

  Upon detection of the 1st dial tone for the time length set by these selectors, the machine starts dialing. This setting is effective only when selectors 1 through 3 on WSW05 are set to "1,1,1."

- **Selectors 4 and 5: Time-out length for 1st and 2nd dial tone detection**

  These selectors set the time-out length for the 1st and 2nd dial tone detection so that the machine waits dial tone input for the specified time length and disconnects itself from the line when no dial tone is inputted.

<WSW09>

Selector No.	Function	Setting and Specifications
1	Frame length selection	0: 256 octets 1: 64 octets
2	Use of non-standard commands	0: Allowed 1: Prohibited
3 4	No. of retries	No. 3 4 0 0: 4 times 0 1: 3 times 1 0: 2 times 1 1: 1 times
5	T5 timer	0: 300 sec. 1: 60 sec.
6	T1 timer	0: 35 sec. 1: 40 sec.
7 8	Timeout for response from the called station in automatic sending mode	No. 7 8 0 0: 55 sec. (in U.S.A. and Canadian models) 60 sec. (in other models) 0 1: 140 sec. 1 0: 90 sec. 1 1: 35 sec.

Note:
Selectors 1 through 5 are not applicable in those models which do not support ECM.

- **Selector 1: Frame length selection**

  Usually a single frame consists of 256 octets (1 octet = 8 bits). For communications lines with higher bit error rate, however, set selector 1 to "1" so that the machine can divide a message into 64-octet frames.

  Remarks: The error correction mode (ECM) is a facsimile transmission manner in which the machine divides a message into frames for transmission so that if any data error occurs on the transmission line, the machine retransmits only those frames containing the error data.

- **Selector 2: Use of non-standard commands**

  If this selector is set to "0," the machine can use non-standard commands (the machine's native-mode commands, e.g., NSF, NSC, and NSS) for communications. If it is set to "1," the machine will use standard commands only.

- **Selectors 3 and 4: No. of retries**

  These selectors set the number of retries in each specified modem transmission speed.

- **Selector 5: T5 timer**

  This selector sets the time length for the T5 timer.

- **Selector 6: T1 timer**

  This selector sets the time length for the T1 timer.

- **Selectors 7 and 8: Timeout for response from the called station in automatic sending mode**

  If the machine (calling station) receives no response (no G3 command) from the called terminal in automatic sending mode for the period specified by these selectors, it disconnects the line.

<WSW10>

Selector No.	Function		Setting and Specifications
1	DPS switching interfacing with CML		0: No 1: Yes
2	Time length from transmission of the last dial digit to CML ON		0: 100 ms 1: 50 ms
3	Time length from CML ON to CNG transmission		0: 2 sec. 1: 4 sec.
4	Time length from CML ON to CED transmission (except for facsimile-to-telephone switching)		0: 0.5 sec. 1: 2 sec.
5 6	No. of training retries		No. 5 6 0 0: 1 time 0 1: 2 times 1 0: 3 times 1 1: 4 times
7	Encoding system (Compression)	MR	0: Allowed 1: Not allowed
8		MMR	0: Allowed 1: Not allowed

- **Selector 2: Time length from transmission of the last dial digit to CML ON**

  This selector sets the time length from when the machine transmits the last dial digit until the CML relay comes on.

- **Selector 3: Time length from CML ON to CNG transmission**

  This selector sets the time length until the machine transmits a CNG after it turns on the CML relay.

- **Selector 4: Time length from CML ON to CED transmission**

  This selector sets the time length until the machine transmits a CED after it turns on the CML relay. This setting does not apply to switching between facsimile and telephone.

- **Selectors 5 and 6: No. of training retries**

  These selectors set the number of training retries to be repeated before automatic fallback.

- **Selectors 7 and 8: Encoding system (Compression)**

  This selector determines whether or not to allow the use of the MR/MMR coding system.

<WSW11>

Selector No.	Function	Setting and Specifications
1 2	Busy tone frequency band control	No. 1 2 0 0: Narrows by 10 Hz 0 1: Initial value 1 0: Widens by 10 Hz 1 1: Widens by 10 Hz
3	ON/OFF time length ranges for busy tone (More than one setting allowed)	1: 250-750/250-750 ms
4		1: 400-600/400-600 ms
5		1: 175-440/175-440 ms
6		1: 100-1000/17-660 ms
7		1: 110-410/320-550 ms
8		1: 100-660/100-660 ms

Note:

- WSW11 is not applicable in those countries where no busy tone detection is supported.
- The setting of WSW11 is effective only when selectors 5 and 6 on WSW05 are set to "0, 1" or "1, 1" (Busy tone detection).

- **Selectors 1 and 2: Busy tone frequency band control**

  These selectors set the frequency band for busy tone to be detected.

- **Selectors 3 through 8: ON/OFF time length ranges for busy tone**

  These selectors set the ON and OFF time length ranges for busy tone to be detected. If more than one selector is set to "1," the ranges become wider. For example, if selectors 4 and 5 are set to "1," the ON and OFF time length ranges are from 175 to 600 ms.

<WSW12>

Selector No.	Function	Setting and Specifications
1 2	Min. detection period required for interpreting incoming calling signal (CI) as OFF	No. 1 2 0 0: 1500 ms 0 1: 500 ms 1 0: 700 ms 1 1: 900 ms
3 4	Max. detection period for incoming calling signal (CI) being OFF	No. 3 4 0 0: 6 sec. 0 1: 7 sec. 1 0: 9 sec. 1 1: 11 sec.
5 6	Min. detection period required for acknowledging incoming calling signal (CI) as ON	No. 5 6 0 0: 800 ms (1000 ms*) 0 1: 200 ms 1 0: 250 ms 1 1: 150 ms
7	Line connection timing	0: Ringer-OFF period 1: Ringer-ON period
8	Not used.	

* 1000 ms in Chinese models.

- **Selectors 1 through 4: Min. detection period required for interpreting incoming calling signal (CI) as OFF**
  Max. detection period for incoming calling signal (CI) being OFF

  If the machine detects the OFF state of a CI signal for the period greater than the value set by selectors 1 and 2 and less than the value set by selectors 3 and 4, it interprets the CI signal as OFF.

- **Selectors 5 and 6: Min. detection period required for acknowledging incoming calling signal (CI) as ON**

  These selectors set the period required to make the machine acknowledge itself to be called. That is, if the machine continuously detects a CI signal with the frequency set by selectors 1 through 4 on WSW14 during the period set by these selectors 5 and 6, then it acknowledges the call.

- **Selector 7: Line connection timing**

  If a line is connected in a ringer-ON period, FAX models equipped with SDAA circuits may malfunction due to the ringer voltage. To make the line connection stable, this selector should be set to "0" so that a line is connected in a ringer-OFF period.

<WSW13>

Selector No.	Function	Setting and Specifications
1 2	Cable equalizer	No. 1 2 0 0: 0 km 0 1: 1.8 km 1 0: 3.6 km 1 1: 5.6 km
3 4	Reception level	No. 3 4 0 0: -43 dBm 0 1: -47 dBm 1 0: -49 dBm 1 1: -51 dBm
5 I 8	Modem attenuator	0: 0 dB 1: 8 dB 0: 0 dB 1: 4 dB 0: 0 dB 1: 2 dB 0: 0 dB 1: 1 dB

Note:
The modem should be adjusted according to the user's line conditions.

- **Selectors 1 and 2: Cable equalizer**

  These selectors are used to improve the pass-band characteristics of analogue signals on a line. Attenuation in the high-band frequency is greater than in the low-band frequency.

  Set these selectors according to the distance from the telephone switchboard to the machine.

- **Selectors 3 and 4: Reception level**

  These selectors set the optimum receive signal level.

- **Selectors 5 through 8: Modem attenuator**

  These selectors are used to adjust the transmitting level attenuation of the modem when the reception level at the remote station is improper due to line loss. This function applies for G3 protocol signals.

  Setting two or more selectors to "1" produces addition of attenuation assigned to each selector.

  If selector 8 on WSW23 is set to "0," this setting is so limited that 10 dB (1 dB in France) or higher setting only is effective.

  Note that in Japan and China, 9 dB or higher and 2 dB or higher settings only are effective, respectively, regardless of whether selector 8 on WSW23 is set to "0."

<WSW14>

Selector No.	Function	Setting and Specifications
1 2	Frequency band selection (lower limit) for incoming calling signal (CI)	No. 1 2 0 0: 13 Hz 0 1: 15 Hz 1 0: 23 Hz 1 1: 20 Hz
3 4	Frequency band selection (upper limit) for incoming calling signal (CI)	No. 3 4 0 0: 30 Hz 0 1: 55 Hz 1 0: 70 Hz 1 1: 200 Hz
5 I 8	No. of rings in AUTO ANS mode	No. 5 6 7 8 0 0 0 0: Fixed to once 0 0 0 1: 1 to 6 times 0 0 1 0: 1 to 8 times 0 0 1 1: 2 to 8 times 0 1 0 0: 1 to 2 times 0 1 0 1: 1 to 3 times 0 1 1 0: 1 to 4 times 0 1 1 1: 1 to 5 times 1 0 0 0: 2 to 3 times 1 0 0 1: 2 to 4 times 1 0 1 0: 2 to 5 times 1 0 1 1: 2 to 6 times 1 1 0 0: 1 to 10 times 1 1 0 1: 2 to 10 times 1 1 1 0: 3 to 5 times 1 1 1 1: 4 to 10 times

- **Selectors 1 through 4: Frequency band selection for incoming calling signal (CI)**

  These selectors are used to select the frequency band of CI for activating the AUTO ANS facility.

  In the French models, if the user sets the PBX to OFF from the control panel, the setting made by selectors 1 and 2 will take no effect and the frequency's lower limit will be fixed to 32 Hz. (Even if the setting made by these selectors does not apply, it will be printed on the configuration list.)

- **Selectors 5 through 8: No. of rings in AUTO ANS mode**

  These selectors set the number of rings to initiate the AUTO ANS facility.

<WSW15>

Selector No.	Function	Setting and Specifications
1 2	Redial interval	No. 1 2 0 0: 5 min. 0 1: 1 min. 1 0: 2 min. 1 1: 3 min.
3 I 6	No. of redialings	No. 3 4 5 6 0 0 0 0: 16 times 0 0 0 1: 1 times 0 0 1 0: 2 times 0 0 1 1: 3 times I 1 1 1 1: 15 times
7	(Not used.)	
8	CRP option	0: Disable 1: Enable

- **Selectors 1 through 6: Redial interval and No. of redialings**

  The machine redials by the number of times set by selectors 3 through 6 at intervals set by selectors 1 and 2.

- **Selector 8: CRP option**

  If a command error occurs in the machine (calling station), the machine usually waits for three seconds and then makes a retry three times. This CRP option is a request command that can be sent from the called station for requesting the calling station to retry the failed command immediately.

<WSW16>

Selector No.	Function	Setting and Specifications
1	Not used.	
2	ITU-T (CCITT) superfine recommendation	0: OFF 1: ON
3 I 6	Not used.	
7	Max. document length limitation	0: 400 cm 1: 90 cm
8	**Stop/Exit** button pressed during reception	0: Not functional 1: Functional

Note:
Selector 7 is applicable to models equipped with ADF units.

- **Selector 2: ITU-T (CCITT) superfine recommendation**

  If this selector is set to "1," the machine communicates in ITU-T (CCITT) recommended superfine mode (15.4 lines/mm). If it is set to "0," it communicates in native superfine mode.

- **Selector 7: Max. document length limitation**

  This selector is used to select the maximum length of a document to be sent.

- **Selector 8: Stop/Exit button pressed during reception**

  If this selector is set to "1," pressing the **Stop/Exit** button can stop the current receiving operation. The received data will be lost.

<WSW17>

Selector No.	Function	Setting and Specifications
1 2	Off-hook alarm	No. 1 2 0 0: No alarm 0 1: Always valid 1 0: Valid except when' call reservation' is selected. 1 1: Valid except when' call reservation' is selected.
3 4	Not used.	
5	Calendar clock type	0: U.S.A. type 1: European type
6	Not used.	
7	Non-ring reception	0: OFF 1: ON
8	Not used.	

- **Selectors 1 and 2: Off-hook alarm**

  These selectors activate or deactivate the alarm function which sounds an alarm when the communication is completed with the handset being off the hook.

- **Selector 5: Calendar clock type**

  If this selector is set to "0" (USA), the MM/DD/YY hh:mm format applies; if it is set to "1" (Europe), the DD/MM/YY hh:mm format applies: DD is the day, MM is the month, YY is the last two digits of the year, hh is the hour, and mm is the minute.

- **Selector 7: Non-ring reception**

  Setting this selector to "1" makes the machine receive calls without ringer sound if the Ring Delay is set to 0.

<WSW18>

Selector No.	Function	Setting and Specifications
1	Header for fax	0: With header 1: Without header
2 3	Detection enabled time for CNG and no tone	No. 2 3 0 0: 40 sec. 0 1: 0 sec. (No detection) 1 0: 5 sec. 1 1: 80 sec.
4 5	Not used.	
6	Registration of station ID	0: Permitted 1: Prohibited
7 8	Tone sound monitoring	No. 7 8 0 0: No monitoring 0 1: No monitoring 1 0: Up to phase B at the calling station only 1 1: All transmission phases both at the calling and called stations

- **Selector 1: Header for fax**

  The setting becomes effective only when do not add the header in the application of the PC.

- **Selectors 2 and 3: Detection enabled time for CNG and no tone**

  After the line is connected via the external telephone or by picking up the handset of the machine, the machine can detect a CNG signal or no tone for the time length specified by these selectors. The setting specified by these selectors becomes effective only when selector 8 on WSW20 is set to "1."

- **Selector 6: Registration of station ID**

  Setting this selector to "0" permits the registration of station ID for Austrian and Czech models.

- **Selectors 7 and 8: Tone sound monitoring**

  These selectors set monitoring specifications of the tone sound inputted from the line.

<WSW19>

Selector No.	Function	Setting and Specifications
1 I 3	First transmission speed choice for fallback	No. 1 2 3 No. 4 5 6 0 0 0: 2,400 bps 0 0 1: 4,800 bps 0 1 0: 7,200 bps 0 1 1: 9,600 bps 1 0 0: 12,000 bps 1 0 1: 14,400 bps 1 1 0: 14,400 bps 1 1 1: 14,400 bps
4 I 6	Last transmission speed choice for fallback	
7	V.34 mode	0: Permitted 1: Prohibited
8	V.17 mode	0: Permitted 1: Prohibited

Note:
Selector 7 takes effect only in models supporting V.34 mode.

- **Selectors 1 through 6: First and last choices of transmission speed for fallback**

  These selectors are used to set the MODEM speed range. With the first transmission speed choice specified by selectors 1 through 3, the machine attempts to establish the transmission link via the MODEM. If the establishment fails, the machine automatically steps down to the next lowest speed and attempts to establish the transmission link again. The machine repeats this sequence while stepping down the transmission speed to the last choice specified by selectors 4 through 6.

  If the MODEM always falls back to a low transmission speed (e.g., 4,800 bps), set the first transmission speed choice to the lower one (e.g., modify it from 12,000 bps to 7,200 bps) in order to deactivate the high-speed MODEM function and reduce the training time for shorter transmission time.

  Generally, to save the transmission time, set the last transmission speed choice to a higher one.

- **Selector 7: V.34 mode**

  If this selector is set to "0," selectors 5 through 8 on the WSW38 through WSW40 and on WSW41, will become effective.

<WSW20>

Selector No.	Function	Setting and Specifications
1	EP* tone prefix	0: OFF 1: ON
2	Overseas communications mode (Reception)	0: 2100 Hz 1: 1100 Hz
3	Overseas communications mode (Transmission)	0: OFF 1: Ignores DIS once.
4 5	Min. time length from reception of CFR to start of transmission of video signals	No. 4 5 0 0: 100 ms 0 1: 200 ms 1 0: 300 ms 1 1: 400 ms
6 7	At CNG detection, elimination of chattering noise (Not used.)	No. 6 7 0 0: Yes, at both ON/OFF timings 0 1: Yes, at OFF timing 1 0: No 1 1: No
8	Limitation on CNG detection	0: OFF 1: ON

* EP: Echo protection

Note:
Selectors 6 and 7 are applicable to models equipped with SDAA circuits.

- **Selector 1: EP tone prefix**

  Setting this selector to "1" makes the machine transmit a 1700 Hz echo protection (EP) tone immediately preceding training in V.29 modulation system to prevent omission of training signals.

  Prefixing an EP tone is useful when the machine fails to transmit at the V.29 modem speed and always has to fall back to 4800 bps transmission.

  The setting made by this selector takes effect only when the Overseas Mode is set to ON.

- **Selectors 2 and 3: Overseas communications mode**

  These selectors should be used if the machine malfunctions in overseas communications. According to the communications error state, select the signal specifications.

  Setting selector 2 to "1" allows the machine to use 1100 Hz CED signal instead of 2100 Hz in receiving operation. This prevents malfunctions resulting from echoes, since the 1100 Hz signal does not disable the echo suppressor (ES) while the 2100 Hz signal does.

  Setting selector 3 to "1" allows the machine to ignore a DIS signal sent from the called station once in sending operation. This operation suppresses echoes since the first DIS signal immediately follows a 2100 Hz CED (which disables the ES) so that it is likely to be affected by echoes in the disabled ES state. However, such a disabled ES state will be removed soon so that the second and the following DIS signals are not susceptible to data distortion due to echoes. Note that some models when called may cause error by receiving a self-outputted DIS.

  The setting made by selector 3 takes effect only when the Overseas Communications Mode is set to ON. (The setting made by selector 2 is always effective.)

- **Selectors 8: Limitation on CNG detection**

  If this selector is set to "1," the machine detects a CNG signal according to the condition preset by selectors 2 and 3 on WSW18 after a line is connected. If it is set to "0," the machine detects a CNG signal as long as the line is connected.

<WSW21>

Selector No.	Function	Setting and Specifications
1 I 5	Max. waiting time for voice signal (Not used.)	No. 1 2 3 4 5 0 0 0 0 0: No detection 0 0 0 0 1: 1 sec. 0 0 0 1 0: 2 sec. 0 0 0 1 1: 3 sec. | 0 0 1 1 0: 6 sec. (Default) | 1 1 1 1 1: 31 sec.
6 7	Taping the call (Not used.)	No. 6 7 0 0: Enable (signaling for U.S.A.) (A) 0 1: Enable (signaling for countries except U.S.A.) (B) 1 0: Enable (without signaling) (C) 1 1: Disable (D)
8	Erasure of message stored in the memory after the message transfer	0: Yes 1: No

Note:

- Selectors 1 through 5 are applicable to models equipped with ICM recorders.
- Selectors 6 through 8 are applicable to models equipped with TADs.

- **Selectors 1 through 5: Max. waiting time for voice signal (Not used.)**

  In the TAD mode, the machine waits for voice signal for the time length specified by these selectors before it automatically shifts to the facsimile message receive mode or disconnects the line.

- **Selectors 6 and 7: Taping the call (Not used.)**

  These selectors select whether or not to tape the call. Setting them to "1, 0" enables taping the call without signaling to the calling station that the call is being taped.

- **Selector 8: Erasure of message stored in the memory after the message transfer**

  Setting this selector to "0" will erase the message recorded in the memory after the document retrieval feature transfers the message.

<WSW22>

Selector No.	Function	Setting and Specifications
1	ECM* in sending	0: Valid 1: Invalid
2	ECM* in receiving	0: Valid 1: Invalid
3	Call Waiting Caller ID	0: Displayed 1: Not displayed
4	Not used.	
5 I 8	Acceptable TCF bit error rate (%) (Only at 4800 bps) (Not used.)	0: 0 % 1: 8 % 0: 0 % 1: 4 % 0: 0 % 1: 2 % 0: 0 % 1: 1 %

* ECM: Error correction mode

Note:

- Selector 3 is applicable to the American models only.
- Selectors 5 through 8 are applicable to the Chinese, Taiwanese and Asian models only.

- **Selector 3: Call Waiting Caller ID**

  Setting this selector to "0" allows the user to decide whether or not to interrupt the current call when a new call comes in. If Call Waiting Caller ID service is available in the area and the user subscribes to it, he/she can see information about his/her incoming call on the LCD.

- **Selectors 5 through 8: Acceptable TCF bit error rate (%) (Not used.)**

  Setting two or more selectors to "1" produces addition of percent assigned to each selector. If you set selectors 7 and 8 to "1," the acceptable TCF bit error rate will be 3%.

<WSW23>

Selector No.	Function	Setting and Specifications
1	Starting point of training check (TCF)	0: 0 From the head of a series of zeros 1: From any arbitrary point
2 3	Allowable training error rate	No. 2 3 0 0: 0 % 0 1: 0.5 % 1 0: 1 % 1 1: 2 %
4 5	Decoding error rate for transmission of RTN	No. 4 5 0 0: 16 % 0 1: 14% 1 0: 10 % 1 1: 8 %
6 7	Not used.	
8	Limitation of attenuation level	0: Yes 1: No

Note:
Selector 8 is not applicable to the French models.

- **Selector 1: Starting point of training check (TCF)**

  At the training phase of receiving operation, the called station detects for 1.0 second a training check (TCF) command, a series of zeros which is sent from the calling station for 1.5 seconds to verify training and give the first indication of the acceptability of the line.

  This selector sets the starting point from which the called station should start counting those zeros. If this selector is set to "0," the called station starts counting zeros 100 ms after the head of a series of zeros is detected.

  If it is set to "1," the called station starts counting zeros upon detection of 10-ms successive zeros 50 ms after the head of a series of zeros is detected. In this case, if the detection of 10-ms successive zeros is too late, the data counting period will become less than 1.0 second, making the called station judge the line condition unacceptable.

- **Selectors 2 and 3: Allowable training error rate**

  The called station checks a series of zeros gathered in training (as described in Selector 1) according to the allowable training error rate set by these selectors. If the called station judges the line condition to be accepted, it responds with CFR; if not, it responds with FTT.

- **Selectors 4 and 5: Decoding error rate for transmission of RTN**

  The machine checks the actual decoding errors and then transmits an RTN according to the decoding error rate (Number of lines containing an error per page ÷ Total number of lines per page) set by these selectors.

- **Selector 8: Limitation of attenuation level**

  Setting this selector to "0" limits the transmitting level of the modem to 4 dB. This setting has priority over the settings selected by WSW02 (selectors 5 through 8) and WSW13 (selectors 5 through 8).

<WSW24>

Selector No.	Function	Setting and Specifications
1 2	Maximum OGM recording time	No. 1 2 0 0: 15 sec. 0 1: 20 sec. 1 0: 30 sec. 1 1: 50 sec.
3 4	Time length from CML ON to start of pseudo ring backtone transmission	No. 3 4 0 0: 4 sec. 0 1: 3 sec. 1 0: 2 sec. 1 1: 1 sec.
5 I 8	Attenuator for playback of ICM/ OGM to the line (Not used.)	0: 0 dB 1: 8 dB 0: 0 dB 1: 4 dB 0: 0 dB 1: 2 dB 0: 0 dB 1: 1 dB

- **Selectors 1 and 2: Maximum OGM recording time**

  These selectors set the allowable maximum recording time for an OGM.

- **Selectors 3 and 4: Time length from CML ON to start of pseudo ring backtone transmission**

  These selectors set the length of time from CML-ON up to the start of pseudo ring backtone transmission.

  In models with OGM facilities, the settings made by these selectors also apply to the length of time from CML-ON up to the start of OGM transmission.

- **Selectors 5 through 8: Attenuator for playback of ICM/OGM to the line (Not used.)**

  Setting two or more selectors to "1" produces addition of attenuation assigned to each selector.

  This setting is not limited by selector 8 on WSW23.

<WSW25>

Selector No.	Function	Setting and Specifications
1 2	External TAD no-tone detection start delay time (Not used.)	No. 1 2 0 0: 0 sec. 0 1: 8 sec. 1 0: 16 sec. 1 1: 24 sec.
3 4	External TAD no-tone detection level (Not used.)	No. 3 4 0 0: -43 dB (A) 0 1: -46 dB (B) 1 0: -49 dB (C) 1 1: -51 dB (D)
5 I 7	Pause between paging number and PIN	No. 5 6 7 0 0 0: 2 sec. 0 0 1: 4 sec. 0 1 0: 6 sec. 0 1 1: 8 sec. 1 0 0: 10 sec. 1 0 1: 12 sec. 1 1 0: 14 sec. 1 1 1: 16 sec.
8	Not used.	

Note:

- Selectors 1 through 4 are not applicable in cases of models designed for the US market, models not equipped with a function of detection for no tone with external TAD, nor for models equipped with the Rockwell modem V24.
- Selectors 5 through 7 are applicable to the U.S.A. models only.

- **Selectors 1 and 2: External TAD no-tone detection start delay time (Not used.)**

  Valid only for the external TAD mode. This machine will delay the start of detection for no tone by the length of time set by selectors 1 and 2.

  The sum of the detection delay time setting and the waiting time for no-tone detection setting by selectors 1 through 5 of WSW21 must be within 40 seconds or less.

- **Selectors 3 and 4: External TAD no-tone detection level (Not used.)**

  These selectors set the no-tone detection level in the external TAD mode.

- **Selectors 5 through 7: Pause between paging number and PIN**

  These selectors set the pause time between a telephone number being paged and PIN (personal identification number) for the paging feature.

<WSW26>

Selector No.	Function	Setting and Specifications
1 2	Not used.	
3	Dialing during document reading into the temporary memory in in-memory message transmission	0: Disable 1: Enable
4 5	No. of CNG cycles to be detected (when the line is connected via the external telephone except in the external TAD mode or via the built-in telephone)	No. 4 5 0 0: 0.5 (A) 0 1: 1 (B) 1 0: 1.5 (C) 1 1: 2 (D) The number of times changes by the selector 3 of the WSW54. (Refer to " WSW54" Selector 3)
6 7	No. of CNG cycles to be detected (when the line is connected via the external telephone in the external TAD mode, via the built-in telephone in the TAD mode, or via the machine in the automatic reception of the F/T mode)	No. 6 7 0 0: 0.5 (A) 0 1: 1 (B) 1 0: 1.5 (C) 1 1: 2 (D)
8	Not used.	

- **Selector 3: Dialing during document reading into the temporary memory in in-memory message transmission**

  If this selector is set to "0," the machine waits for document reading into the memory to complete and then starts dialing. This enables the machine to list the total number of pages in the header of the facsimile message.

- **Selectors 4 and 5: No. of CNG cycles to be detected (when the line is connected via the external telephone except in the external TAD mode or via the built-in telephone)**

  The machine interprets a CNG as an effective signal if it detects the CNG by the number of cycles specified by these selectors when the line is connected via the external telephone except in the external TAD mode or via the built-in telephone.

- **Selectors 6 and 7: No. of CNG cycles to be detected (when the line is connected via the external telephone in the external TAD mode, via the built-in telephone in the TAD mode, or via the machine in the automatic reception of the F/T mode)**

  The machine interprets a CNG as an effective signal if it detects the CNG by the number of cycles specified by these selectors when the line is connected via the external telephone in the external TAD mode, via the built-in telephone in the TAD mode, or via the machine in the automatic reception of the F/T mode.

<WSW27>

Selector No.	Function	Setting and Specifications	
1	Not used.		
2	Ringer OFF setting	0: Yes	1: No
3	Automatic playback of OGM when switched to the TAD mode (Not used.)	0: No	1: Yes
4	Detection of distinctive ringing pattern (Not used.)	0: Yes	1: No
5	Not used.		
6	Recording quality (Not used.)	0: Normal	1: High
7	Recording time for high recording quality (Not used.)	0: Short (9.6 kbps)	1: Long (8.8 kbps)
8	Not used.		

Note:
Selectors 4 and 5 are applicable to the U.S.A. models only.

- **Selector 2: Ringer OFF setting (Not used.)**

  This selector determines whether or not the ringer can be set to OFF.

- **Selector 3: Automatic playback of OGM when switched to the TAD mode (Not used.)**

  This selector determines whether or not to automatically play back an OGM the moment the machine switches to the TAD mode.

- **Selectors 4: Detection of distinctive ringing pattern (Not used.)**

  If this selector is set to "1," the machine detects only the number of rings; if it is set to "0," the machine detects the number of rings and the ringing time length to compare the detected ringing pattern with the registered distinctive one.

- **Selector 6: Recording quality (Not used.)**

  This selector determines the recording quality for the OGM and ICM. Selecting "1" (High) increases the quality, sacrificing the recording time.

- **Selector 7: Recording time for high recording quality (Not used.)**

  This setting takes effect when selector 6 is set to "1" (High). Setting this selector to "0" (Short) further increases the recording quality, sacrificing the recording time. The recording quality and time to be applied when this selector is set to "1" (Long) are higher and shorter than the ones to be applied when selector 6 is set to "0" (Normal).

  The recording quality and time determined by this selector being set to "1" (Long) are higher and shorter than the ones determined by selector 6 being set to "0" (Normal).

<WSW28>

Selector No.	Function	Setting and Specifications
1 I 3	Transmission level of DTMF high-band frequency signal	No. 1 2 3 0 0 0: 0 dB 0 0 1: +1 dB 0 1 0: +2 dB 0 1 1: +3 dB 1 0 0: 0 dB 1 0 1: -1 dB 1 1 0: -2 dB 1 1 1: -3 dB
4 I 6	Transmission level of DTMF low-band frequency signal	No. 4 5 6 0 0 0: 0 dB 0 0 1: +1 dB 0 1 0: +2 dB 0 1 1: +3 dB 1 0 0: 0 dB 1 0 1: -1 dB 1 1 0: -2 dB 1 1 1: -3 dB
7 8	Not used.	

- **Selectors 1 through 6: Transmission level of DTMF high-/low-band frequency signal**

  These selectors are intended for the manufacturer who tests the machine for the Standard. Never access them.

<WSW29>

Selector No.	Function	Setting and Specifications
1 I 3	Compression threshold level for voice signals inputted via the telephone line in the built-in TAD operation (Not used.)	No. 1 2 3 0 0 0: -47.0 dBm (A) 0 0 1: -48.5 dBm (B) 0 1 0: -50.0 dBm (C) 0 1 1: -51.5 dBm (D) 1 0 0: -53.0 dBm (E) 1 0 1: -54.5 dBm (F) 1 1 0: -56.0 dBm (G) 1 1 1: OFF (H)
4 I 6	Compression threshold level for voice signals inputted via the handset in the built-in TAD operation (Not used.)	No. 4 5 6 0 0 0: -44.0 dBm (A) 0 0 1: -45.5 dBm (B) 0 1 0: -47.0 dBm (C) 0 1 1: -48.5 dBm (D) 1 0 0: -50.0 dBm (E) 1 0 1: -51.5 dBm (F) 1 1 0: -53.0 dBm (G) 1 1 1: OFF (H)
7	Impedance switching control in pulse dialing (Not used.)	0: OFF 1: ON
8	Prompt beep when the memory area for the activity report becomes full (Not used.)	0: No 1: Yes

Note:

- Selectors 1 through 6 are applicable to models equipped with built-in TADs.
- Selectors 7 and 8 are applicable only to the European versions.

- **Selectors 1 through 6: Compression threshold level for voice signals inputted via the telephone line and handset in the built-in TAD operation (Not used.)**

  If voice signals inputted via the telephone line are below the level specified by these selectors, the TAD interprets those received voice signals as no signal, compressing the recording time.

- **Selector 8: Prompt beep for activity report (Not used.)**

  This selector determines whether or not to beep if the memory area for the activity report becomes full, for prompting you to print out the report. (Printing it out will clear the memory area.)

<WSW30>

Selector No.	Function	Setting and Specifications
1 I 3	Dial tone/busy tone detection level during recording of ICM (Not used.)	No. 1 2 3 0 0 0: -38.0 dBm (A) 0 0 1: -39.5 dBm (B) 0 1 0: -41.0 dBm (C) 0 1 1: -42.5 dBm (D) 1 0 0: -44.0 dBm (E) 1 0 1: -45.5 dBm (F) 1 1 0: -47.0 dBm (G) 1 1 1: -48.5 dBm (H)
4	Not used.	
5	Drum cleaning alarm	0: ON 1: OFF
6	Not used.	
7	Scanning magnification adjusting function (Not used.)	0: Enable 1: Disable
8	Density adjustment of the copy for text mode	0: Normal 1: Thickening

Note:
Selectors 1 through 3 are applicable to models equipped with internal TADs.

- **Selectors 1 through 3: Dial tone/busy tone detection level during recording of ICM (Not used.)**

  If the machine (called station) detects dial tone (400 Hz continuously) or busy tone (400 Hz intermittently) exceeding the detection level specified by these selectors for the period specified by selectors 1 through 4 on WSW35, then it interprets the calling station as being disconnected. The machine stops TAD recording and disconnects the line.

- **Selector 8: Density adjustment of the copy for text mode**

  When copy the thin document, thicken the contrast and print it.

<WSW31>

Selector No.	Function	Setting and Specifications
1	Not used.	
2	Default reduction rate for failure of automatic reduction during recording	0: 100 % 1: 75 %
3	Not used.	
4	(Do not disturb this selector.)	
5	Minimum ON and OFF duration of ringer signals effective in distinctive ringing (Not used.)	0: 130 ms 1: 90 ms
6 I 7	Not used.	
8	Drum life indication	0: No 1: Yes

Note:
Selector 5 is applicable only to the U.S.A. models.

- **Selector 2: Default reduction rate for failure of automatic reduction during recording**

  This selector sets the default reduction rate to be applied if the automatic reduction function fails to record one-page data sent from the calling station in a single page of the current recording paper.

  If it is set to "0," the machine records one-page data at full size (100%) without reduction; if it is set to "1," the machine records it at 70% size.

- **Selector 5: Minimum ON and OFF duration of ringer signals effective in distinctive ringing (Not used.)**

  The ringer pattern consists of short and long rings, e.g., short-short-long rings. This selector sets the minimum ON and OFF duration of ringer signals that are required for the machine to interpret ringer signals as being ON or OFF. This is to prevent components of a ringer pattern from being misinterpreted due to chattering in distinctive ringing.

  The machine monitors ringer signals at 10-ms intervals. If the signal is ON, the machine counts +1; if it is OFF, it counts -1. If the counter increments up to +5 or +13 when this selector is set to "1" (90 ms) or "0" (130 ms), respectively, the machine interprets the current signal as being ON.

  If the counter returns to zero, the machine interprets the signal as being OFF.
  If the Distinctive Ring is set to OFF, this selector is not effective.

<WSW32>

Selector No.	Function	Setting and Specifications
1 I 4	Not used.	
5 6	Default resolution	No. 5 6 0 0: Standard 0 1: Fine 1 0: Super fine 1 1: Photo
7 8	Default contrast	No. 7 8 0 0: Automatic 0 1: Automatic 1 0: Super light 1 1: Super dark

- **Selectors 5 and 6: Default resolution**

  These selectors set the default resolution which applies when the machine is turned on or completes a transaction.

- **Selectors 7 and 8: Default contrast**

  These selectors set the default contrast which applies when the machine is turned on or completes a transaction.

<WSW33>

Selector No.	Function	Setting and Specifications
1 I 3	Detection threshold level of "no tone" during recording of ICM (Not used.)	No. 1 2 3 0 0 0: -48 dBm (A) 0 0 1: -50 dBm (B) 0 1 0: -52 dBm (C) 0 1 1: -54 dBm (D) 1 0 0: -56 dBm (E) 1 0 1: -58 dBm (F) 1 1 0: -60 dBm (G) (Default) 1 1 1: -62 dBm (H)
4 5	FAX receiving speed to be kept within the transmission speed limit to the PC (Not used.)	No. 4 5 0 0: 14,400 bps 0 1: 12,000 bps 1 0: 9,600 bps 1 1: 7,200 bps
6	Report output of polled transmission requests	0: Yes 1: No
7 8	Comfortable noise level (Not used.)	No. 7 8 0 0: OFF 0 1: Low (A) 1 0: Medium (B) 1 1: High (C)

Note:
Selectors 1 through 3 are applicable to models equipped with internal TADs.

- **Selectors 1 through 3: Detection threshold level of "no tone" during recording of ICM (Not used.)**

  If the tone level during recording of ICM is less than the threshold setting made by these selectors, the tone is interpreted as "no tone". When the "no tone" state is kept for the period specified by selectors 1 through 5 on WSW21, the machine disconnects the line.

- **Selectors 4 and 5: FAX receiving speed to be kept within the transmission speed limit to the PC (Not used.)**

  To transmit FAX data being received from other machine to the connected PC, you may need to keep the FAX receiving speed within the transmission speed limit specified for the PC. In an initial negotiation sequence for transmission, the machine responds to the calling station with the allowable FAX receiving speed specified by these selectors.

- **Selectors 7 and 8: Comfortable noise level (Not used.)**

  These selectors set the level of noise to be added during playing-back of voice signals recorded with no-signal compression. If they are set to "0, 0," no noise will be added.

<WSW34>

Selector No.	Function	Setting and Specifications
1 I 3	Erasing time length of ICM tone recorded preceding the tone detection starting point in the case of automatic line disconnection due to no voice signal received (Not used.)	No. 1 2 3 0 0 0: 0 sec. 0 0 1: 1 sec. 0 1 0: 2 sec. 0 1 1: 3 sec. 1 0 0: 4 sec. 1 0 1: 5 sec. 1 1 0: 6 sec. 1 1 1: 7 sec.
4 5	No. of CNG cycles to be detected (when the line is connected via the external telephone in the external TAD mode or via the machine in F/T mode) (Not used.)	No. 4 5 0 0: 0.5 (A) 0 1: 1 (B) 1 0: 1.5 (C) 1 1: 2 (D)
6 7	Number of DTMF tone signals for inhibiting the detection of CNG during external TAD operation	No. 6 7 0 0: 3 0 1: 2 1 0: 1 1 1: OFF
8	Not used.	

Note:
Selectors 1 through 5 are applicable to models equipped with built-in TADs.

- **Selectors 1 through 3: Erasing time length of ICM tone recorded preceding the tone detection starting point in the case of automatic line disconnection due to no voice signal received (Not used.)**

  If the machine has disconnected the line after detection of disconnection tone in ICM recording, it erases tone recorded preceding the tone detection starting point for the time length set by these selectors.

- **Selectors 4 and 5: No. of CNG cycles to be detected (when the line is connected via the external telephone in the external TAD mode or via the machine in F/T mode) (Not used.)**

  The machine interprets a CNG as an effective signal if it detects a CNG signal by the number of cycles specified by these selectors when the line is connected via the external telephone in the external TAD mode or via the machine in F/T mode.

- **Selectors 6 and 7: Number of DTMF tone signals for inhibiting the detection of CNG during external TAD operation**

  If the machine receives this specified number of DTMF tone signals during external TAD operation, it will not detect CNG afterwards.
  If these selectors are set to "1, 1," the CNG detection will not be inhibited.

<WSW35>

Selector No.	Function	Setting and Specifications
1 I 4	Max. detection period of dial tone/busy tone during recording of ICM (Not used.)	No. 1 2 3 4 0 0 0 0: No detection 0 0 0 1: 1 sec. 0 0 1 0: 2 sec. 0 1 0 0: 4 sec. I 1 1 1 1: 15 sec.
5 I 8	Not used.	

Note:
Selectors 1 through 4 are applicable to models equipped with internal TADs.

- **Selectors 1 through 4: Max. detection period of dial tone/busy tone during recording of ICM (Not used.)**

  If the machine (called station) detects dial tone or busy tone exceeding the detection level specified by selectors 1 through 3 on WSW30 for the period specified by these selectors, then it disconnects the line.

<WSW36>

Selector No.	Function	Setting and Specifications
1	ECP mode* (Not used.)	0: ON 1: OFF
2	Recovery from Inactive PC Interface (Not used.)	0: Disable 1: Enable
3	PC Power-off Recognition Time (Not used.)	0: Normal 1: Long
4	Not used.	
5	Escape from phase C	0: Yes 1: No
6 I 8	Extension of incoming calling signal (CI) frequency band specified by selectors 1 through 4 on WSW14	No. 6 7 8 0 0 0: 0 (Ignored) 0 0 1: 4 (448 Hz) 0 1 0: 8 (244 Hz) 0 1 1: 12 (162 Hz) 1 0 0: 16 (122 Hz) 1 0 1: 20 (97 Hz) 1 1 0: 24 (81 Hz) 1 1 1: 28 (69 Hz)

*ECP (Enhanced Capabilities Port)

Note:
Selectors 2 and 3 will become operative if selectors 1 and 2 of WSW46 are set to "monitor" the PC power ON/OFF state.

- **Selector 1: ECP mode (Not used.)**

  The ECP mode enhances the normal bidirectional communications between the machine and the connected PC for higher transmission speed.

- **Selector 2: Recovery from Inactive PC Interface (Not used.)**

  If the machine recognizes via the STB signal line that the connected PC is powered off, it will turn the PC interface outputs Low to protect the PC from hazards that could be caused by weak electric current accidentally flown from the machine.
  This selector determines whether or not the machine should recover from the inactive PC interface to normal interfacing state upon receipt of data from the PC.

- **Selector 3: PC Power-off Recognition Time (Not used.)**

  This selector sets the time length from when the machine detects the PC powered off until it recognizes the detected state as power-off.
  If selector 2 is set to "0," it is recommended that selector 3 be set to "1"; otherwise, the machine may mistakenly detect PC powered off.

- **Selector 5: Escape from phase C**

  This selector determines whether or not the machine will escape from phase C when it detects an RTC (Return to Control) in non-ECM mode or an RCP (Return to Control Partial page) in ECM mode.

- **Selectors 6 through 8: Extension of incoming calling signal (CI) frequency band specified by selectors 1 through 4 on WSW14**

  At the start of reception, if the machine detects the frequency of a CI signal specified by selectors 1 through 4 on WSW14, it starts the ringer sounding. However, the machine may fail to detect the CI signal normally due to noise superimposed at the time of reception. To prevent it, use selectors 6 through 8 on WSW36.

  If the machine detects higher frequencies than the setting made here, it regards them as noise and interprets the detecting state as being normal, allowing the ringer to keep sounding according to the preset number of ringers (until it starts automatic reception of FAX data in the FAX mode or enters the TAD mode in the TEL mode).

<WSW37>

Selector No.	Function	Setting and Specifications
1	Printout of the stored image data of an unsent document onto an error report	0: No 1: Yes
2	Erasure of the stored image data of an unsent document at the time of the subsequent in-memory message transmission	0: No 1: Yes
3 I .8	Not used.	

- **Selector 1: Printout of the stored image data of an unsent document onto an error report**

  This selector determines whether or not to print out the 1st-page image data of a document onto the error report if the document image data stored in the temporary memory cannot be transmitted normally.

- **Selector 2: Erasure of the stored image data of an unsent document at the time of the subsequent in-memory message transmission**

  If in-memory message transmission fails repeatedly when selector 1 is set to "1," the temporary memory will be occupied with image data. Setting selector 2 to "1" will automatically erase the stored 1st-page image data of an unsent document at the time of the subsequent in-memory message transmission only when recording paper or toner runs out.

<WSW38>

Selector No.	Function	Setting and Specifications
1 2	Setting of the equalizer	No. 1 2 0 0: Automatic 0 1: Automatic 1 0: Fixed to 4 points 1 1: Fixed to 16 points
3	Sending level of guard tone at phase 2	0: Normal - 7 db 1: Normal
4	Stepping down the transmission speed at fallback each	0: 2,400 bps 1: 4,800 bps
5 6	Automatic control of modem's EQM gain for proper transmission speed choice	No. 5 6 0 0: For higher transmission speed than the current setting 0 1: No change from the current setting 1 0: For lower transmission speed than the current setting 1 1: For further lower transmission than the setting made by 1, 0
7	Redialing when a communications error occurs	0: ON 1: OFF
8	Detection of CED for stopping CNG	0: ON 1: OFF

Note:
WSW38 takes effect only when the V.34 mode is permitted (WSW19, selector 7) in models supporting V.34 mode.

- **Selectors 1 and 2: Setting of the equalizer**

  These selectors set the equalizer's training level to be applied if the machine fails to send training due to weak line connection. If these selectors are set to "0, X," the modem will automatically set the appropriate training level.

- **Selector 3: Sending level of guard tone at phase 2**

  This selector sets the sending level of guard tone for 1800 Hz to be sent at Phase 2 in the V. 34 mode.

- **Selector 4: Stepping down the transmission speed at fallback each**

  This selector determines how much the modem steps down the transmission speed at fallback when called by the remote station. If this selector is set to "1," the modem may step down the transmission speed from 33600 bps to 28800 bps by one-time fallback.

- **Selectors 5 and 6: Automatic control of modem's EQM gain for proper transmission speed choice**

  These selectors determine how the modem controls the EQM (Eye Quality Monitor) gain for proper choice of the transmission speed, which applies if the modem selects higher transmission speed than the possible speed so that it always repeats falling back.

- **Selector 8: Detection of CED for stopping CNG**

  If this selector is set to "0," the detection time of CED specified by WSW43, selectors 4 and 5 will apply.

<WSW39>

Selector No.	Function	Setting and Specifications
1 I 4	First transmission speed choice for fallback	No. 1 2 3 4 No. 5 6 7 8 0 0 0 0: 2,400 bps 0 0 0 1: 4,800 bps 0 0 1 0: 7,200 bps 0 0 1 1: 9,600 bps 0 1 0 0: 12,000 bps 0 1 0 1: 14,400 bps 0 1 1 0: 16,800 bps 0 1 1 1: 19,200 bps 1 0 0 0: 21,600 bps 1 0 0 1: 24,000 bps 1 0 1 0: 26,400 bps 1 0 1 1: 28,800 bps 1 1 0 0: 31,200 bps 1 1 0 1: 33,600 bps 1 1 1 0: 33,600 bps 1 1 1 1: 33,600 bps
5 I 8	Last transmission speed choice for fallback	

Note:
WSW39 takes effect only when the V.34 mode is permitted (WSW19, selector 7) in models supporting V.34 mode. For the transmission speed setting in other modes, refer to WSW19.

- **Selectors 1 through 8: First and last choices of transmission speed for fallback**

  These selectors are used to set the modem speed range. With the first transmission speed choice specified by selectors 1 through 4, the machine attempts to establish the transmission link via the modem. If the establishment fails, the machine automatically steps down to the next highest speed and attempts to establish the transmission link again. The machine repeats this sequence while stepping down the transmission speed to the last choice specified by selectors 5 through 8.

  If the modem always falls back to a low transmission speed (e.g., 24,000 bps), set the first transmission speed choice to the lower one (e.g., modify it from 31,200 bps to 26,400 bps) in order to deactivate the high-speed modem function and reduce the training time for shorter transmission time.

  WSW39 will be limited by selectors 3 through 8 on WSW40.

<WSW40>

Selector No.	Function	Setting and Specifications			
1 2	Not used.				
3 I 8	Masking of symbol rate(s) (Not used.)	Not masking	Masking		
		No. 3	0	1	3429 symbols/sec
		No. 4	0	1	3200 symbols/sec
		No. 5	0	1	3000 symbols/sec
		No. 6	0	1	2800 symbols/sec
		No. 7	-	-	Not used.
		No. 8	0	1	2400 symbols/sec

Note:
WSW40 takes effect only when the V.34 mode is permitted (WSW19, selector 7) in models supporting V.34 mode.

- **Selectors 3 through 8: Masking of symbol rate(s) (Not used.)**

  These selectors allow you to limit the transmission speed range in V.34 mode by masking the desired symbol rate(s). Transmission speeds assigned to the symbol rates are listed on the next page. The setting made by these selectors will limit the setting made by selectors 1 through 4 on WSW39.

  If selector 3 is set to "1" to mask the 3429 symbols/second when the first transmission speed choice is 33600 bps (specified by selectors 1 through 4 of WSW39), for example, then the allowable maximum transmission speed will be limited to 31200 bps. If selector 8 is set to "1" to mask the 2400 symbols/second when the first transmission speed choice is 33600 bps, then the allowable maximum transmission speed remains 33600 bps.

  If selector 8 is set to "1" to mask the 2400 symbols/second when the first transmission speed choice is 21600 bps (specified by selectors 1 through 4 on WSW39), then the allowable maximum transmission speed remains 21600 bps but the minimum transmission speed will be limited to 4800 bps.

Symbol rate	Transmission speed (bps)	Symbol rate	Transmission speed (bps)	Symbol rate	Transmission speed (bps)
2400	2,400	3000	4,800	3429	4,800
	4,800		7,200		7,200
	7,200		9,600		9,600
	9,600		12,000		12,000
	12,000		14,400		14,400
	14,400		16,800		16,800
	16,800		19,200		19,200
	19,200		21,600		21,600
	21,600		24,000		24,000
			26,400		28,800
			28,800		31,200
2800	4,800	3200	4,800		33,600
	7,200		7,200		
	9,600		9,600		
	12,000		12,000		
	14,400		14,400		
	16,800		16,800		
	19,200		19,200		
	21,600		21,600		
	24,000		24,000		
	24,600		26,400		
			28,800		
			31,200		

<WSW41>

Selector No.	Function	Setting and Specifications
1 I 3	ON-duration of the scanning light source at room temperature (Not used.)	No. 1 2 3 0 0 0: 16 hours 0 0 1: 24 hours 0 1 0: 12 hours 0 1 1: 8 hours 1 0 0: 4 hours 1 0 1: 2 hours 1 1 0: 10 min. 1 1 1: 0 min.
4	I-FAX relay report (Not used.)	0: ON 1: OFF
5 I 8	Modem attenuator (Not used.)	No. 5 6 7 8 0 0 0 0: -10 dBm 0 0 0 1: -11 dBm 0 0 1 0: -12 dBm 0 0 1 1: -13 dBm 0 1 0 0: -14 dBm I 1 1 1 1: -25 dBm

- **Selectors 1 through 3: ON-duration of the scanning light source at room temperature (Not used.)**

  If the scanning operation is started when the scanning light source is off, then it will come on for scanning. These selectors determine how long the light source is ON after scanning.

  If these selectors are set to "1, 1, 1," the light source goes off immediately after the scanning sequence.

- **Selectors 5 through 8: Modem attenuator (Not used.)**

  These selectors are used to adjust the transmitting level of the modem when the reception level at the remote station is improper due to line loss. This function applies to super G3 protocol signals.

<WSW42>

Selector No.	Function	Setting and Specifications
1	Access to the incoming mail (POP3) server (Periodical or on-demand) (Not used.)	0: OFF 1: ON
2	Access to the outgoing mail (SMTP) server	0: OFF 1: ON
3	I-FAX relay (Not used.)	0: OFF 1: ON
4	JBIG encoding system	0: Not allowed 1: Allowed
5	Discharge detection (Not used.)	0: ON 1: OFF
6 I 8	Not used.	

<WSW43>

Selector No.	Function	Setting and Specifications
1	Header for sent mail	0: Yes 1: No
2 3	Wait time for PC-Fax reception (Class 2) and FPTS command transmission	No. 2 3 0 0: 50 ms 0 1: 100 ms 1 0: 150 ms 1 1: 0 ms
4 5	Detection time of 2100 Hz CED or ANSam	No. 4 5 0 0: 200 ms 0 1: 300 ms 1 0: 400 ms 1 1: 500 ms
6	Not used.	
7	Automatic start of remote maintenance	0: No 1: Yes
8	JPEG coding	0: Disable 1: Enable

- **Selector 1: Header for sent mail**

  This selector set whether add the header (station ID) to the image data of the reading sent mail. (only with LAN model)

- **Selector 8: JPEG coding**

  Setting this selector to "0" disables the machine from sending/receiving JPEG color images and from receiving JPEG monochrome images.

<WSW44>

Selector No.	Function	Setting and Specifications
1 I 5	Copying speed control (Not used.)	No. 1 2 3 4 5 0 0 0 0 0: Max. 0 0 0 0 1: 1cpm I 1 1 1 1 1: 31cpm
6 I 8	Effective time length of the white level compensation data obtained beforehand (Not used.)	No. 6 7 8 0 0 0: Obtained compensation data ineffective 0 0 1: 1 min. 0 1 0: 3 min. 0 1 1: 5 min. 1 0 0: 10 min. 1 0 1: 15 min. 1 1 0: 20 min. 1 1 1: 30 min.

Note:
Selectors 6 through 8 are applicable to flat head-type models only.

- **Selectors 6 through 8: Effective time length of the white level compensation data obtained beforehand (Not used.)**

  These selectors determine how long compensation data obtained beforehand will keep effective.

<WSW45>

Selector No.	Function	Setting and Specifications
1 I 3	Delay time from when documents are set until the ADF starts drawing them in (Not used.)	No. 1 2 3 0 0 0: No automatic drawing-in 0 0 1: 1 sec. 0 1 0: 2 sec. 0 1 1: 3 sec. 1 0 0: 4 sec. 1 0 1: 5 sec. 1 1 0: 6 sec. 1 1 1: 7 sec.
4 I 6	Periodical correction intervals of the reference voltage to be applied to white level compensation for document scanning, during standby (Not used.)	No. 4 5 6 0 0 0: No correction of reference voltage during standby 0 0 1: 10 sec. 0 1 0: 30 sec. 0 1 1: 1 min. 1 0 0: 3 min. 1 0 1: 5 min. 1 1 0: 10 min. 1 1 1: 30 min.
7	Standby position of the CIS unit (Not used.)	0: CIS home position 1: Location of the white-level reference film
8	Line polarity reverse detection function (Not used.)	0: No 1: Yes

Note:
WSW45 is applicable only to flat head-type models.

- **Selectors 1 through 3: Delay time from when documents are set until the ADF starts drawing them in (Not used.)**

  These selectors determine how long the ADF will delay automatic drawing-in of documents (to the scanning standby position) after you set them in the ADF, as well as determining whether or not the ADF automatically draws in documents.

- **Selectors 4 through 6: Periodical correction intervals of the reference voltage applied to white level compensation for document scanning, during standby (Not used.)**

  These selectors set the correction intervals (in seconds) of the reference voltage to be applied to white level compensation for document scanning during standby, as well as determining whether or not the controller makes the reference voltage correction during standby. (Conventionally, the correction has been made immediately before the start of actual scanning)

  This function takes effect in copying. Making the correction during standby may shorten the preparation time for copying.

  Note:
  Do not access these selectors.

- **Selector 7: Standby position of the CIS unit (Not used.)**

  This selector determines whether the standby position of the CIS unit should be the home position or the location of the white-level reference film (attached to the inside of the scanner top cover). If the location of the reference film is selected, the CIS unit will not return to the home position so as to shorten the travel time, decreasing the preparation time for copying.

- **Selector 8: Line polarity reverse detection function (Not used.)**

  Line polarity will be reversed if the phone is hung up at the other end of the line. If this selector is set to "1," the machine will detect the reverse polarity during an answering machine operation and thereby determine that the phone has been hung up.

<WSW46>

Selector No.	Function	Setting and Specifications
1 2	Monitoring the PC ON/OFF state	No. 1 2 0 0: Disable 0 1: Monitor SELECT IN 1 0: Monitor STROBE 1 1: Monitor both SELECT IN and STROBE
3	Parallel port output pins kept at high level	0: Enable 1: Disable
4	Previous filtering parameters for white level compensation (Not used.)	0: Enable 1: Disable
5 I 8	Not used.	

Note:
Selector 4 is not applicable to models equipped with flat-bed scanners.

- **Selectors 1 and 2: Monitoring the PC ON/OFF state**

  For the related functions, refer to WSW36, selectors 2 and 3.

- **Selector 3: Previous filtering parameters for white level compensation**

  Setting this selector to "0" will keep all parallel output pins of the machine at high level. Use this setting if Resource Manager (bundled with MFC models) installed to WindowsNT running on the connected PC fails to monitor the power ON/OFF state of the machine.

- **Selector 4: Previous filtering parameters for white level compensation (Not used.)**

  At the start of scanning operation, the machine usually initializes white and black level data stored in the EEPROM by scanning the while-level reference film attached to the inside of the scanner top cover. After long use of the machine, however, the film may be contaminated with dust or dirt.

  Accordingly, incorrect white level data will be set up so that white vertical streaks will be brought on the scanning result.

  Setting this selector to "0" (Enabled) will apply previously saved white level data instead of new incorrect compensation.

<WSW47>

Selector No.	Function	Setting and Specifications
1	Handling paper at the occurrence of a paper feed timing error (Not used.)	0: Eject paper w/o print 1: Print on the current paper
2	Not used.	
3 4	Delay of FAX line disconnection when switching to the pseudo-ringing external telephone (Not used.)	No. 3 4 0 0: 200 ms 0 1: 400 ms 1 0: 700 ms 1 1: 1000 ms
5	Disable the ringer of external telephone at non-ring reception (Not used.)	0: No 1: Yes
6	Not used.	
7	Disable the ringer of external telephone with CAR signal when caller ID service is available (Not used.)	0: No 1: Yes
8	Switching between high-speed USB and full-speed USB	0: Auto switching between high-speed USB (ver. 2.0) and full-speed USB (ver. 1.1) 1: Fixed to full-speed USB (ver. 1.1)

Note:

- Selector 1 is applicable only to models equipped with flat-bed scanners.
- Selectors 3 and 4 are applicable only to models supporting pseudo-ringing of a connected external telephone.

- **Selector 1: Handling paper at the occurrence of a paper feed timing error (Not used.)**

  When feeding paper to the print start position, the machine might cause a feed timing error so that the registration sensor goes ON signaling the presence of paper. This selector determines whether the machine prints on the current paper or ejects the current paper without printing and prints on the next paper.

- **Selectors 3 and 4: Delay of FAX line disconnection when switching to the pseudo-ringing external telephone (Not used.)**

  When the machine receives a phone call, it can make the connected external telephone ring (so called pseudo-ringing). During pseudo-ringing, if you pick up the handset of the external telephone, the line might be disconnected due to cut-off of the line current. To hold the line, the machine may supply line current by making use of the pulse generator circuit that forms a parallel loop. This way the FAX line disconnection may be delayed. These selectors determine the delay period.

<WSW48>

Selector No.	Function	Setting and Specifications
1 2	Not used.	
3 I 5	Number of network TWAIN PCs registered for each application (Not used.)	No. 3 4 5 0 0 0: 25 PCs 0 0 1: 50 PCs 0 1 0: 75 PCs 0 1 1: 100 PCs 1 0 0: 125 PCs 1 0 1: 150 PCs 1 1 0: 175 PCs 1 1 1: 200 PCs
6 I 8	USB setup latency (Not used.)	No. 6 7 8 0 0 0: Default period (default period without change) 0 0 1: Shorten 1 0 1 0: Lengthen 1 0 1 1: Lengthen 2 1 0 0: Lengthen 3 1 0 1: Lengthen 4 1 1 0: Shorten 2 1 1 1: Shorten 3

- **Selectors 6 through 8: USB setup latency (Not used.)**

  These selectors should not be disturbed.

<WSW49>

Selector No.	Function	Setting and Specifications
1 2	RAM disc size in PCL/ PS	No. 1 2 0 0: None 0 1: 1MB 1 0: 2MB 1 1: 4MB
3	End-of-copying beep	0: Yes 1: No
4 5	Command flag detection time	No. 4 5 0 0: 150 ms 0 1: 350 ms 1 0: 550 ms 1 1: 750 ms
6 7	CCD unit warm-up time adjustment (Not used.)	No. 6 7 0 0: Not adjusted 0 1: 80 % 1 0: 120 % 1 1: 150 %
8	Print in black (Not used.)	0: No (Default) 1: Yes

- **Selectors 4 and 5: Command flag detection time**

  After receiving a command flag, the machine will wait for the command that should follow for the time length specified by these selectors.

- **Selectors 8: Print in black (Not used.)**

  If any of the color inks have been deleted ("out of ink"), no printing can occur by default. If this selector is set to "1," in cases of "out of ink" data will be printed only in black ink. However, in such circumstances, no color data will be printed.

<WSW50>

Selector No.	Function	Setting and Specifications
1 2	Percentage voltage for interpreting the external telephone as being hooked up (based on the network's standard voltage) (Not used.)	No. 1 2 0 0: 50 % 0 1: 80 % 1 0: 30 % 1 1: No detection
3	DC mask curve table to be applied when the line is connected (Not used.)	0: Apply the initial value specified by local regulations 1: Apply table DC5 prepared specially
4	AC impedance to be applied when the line is connected (Not used.)	0: 600Ω termination 1: ZR termination
5 6	Current control to be applied immediately after connection of the line (Not used.)	No. 5 6 0 0: Standard 0 1: Increase start-up current for termination 1 0: Fine current control for termination 1 1: Not used. (equal to "0, 0")
7 8	AC voltage threshold for detection of ring (Not used.)	No. 7 8 0 0: 19 V 0 1: 11 V 1 0: 25 V 1 1: 31 V

Note:
WSW50 is applicable to models equipped with SDAA circuits.

- **Selectors 5 and 6: Current control to be applied immediately after connection of the line (Not used.)**

  FAX models equipped with an SDAA circuit (on which an NTU chip is mounted) might not be connected to a broad band line such as an ADSL (Asynchronous Digital Subscriber Line) in a stable condition. If those models fail to connect to such a line, try to change the current control to be applied immediately after connection of the line by using selectors 5 and 6.

  If selectors 5 and 6 are set to "0" and "1," respectively, the SDAA draws more current, decreasing the period required to terminate the current control. If they are set to "1" and "0," the SDAA finely controls precision of the termination current against the voltage to approach nearer to the specified DC curve that specifies the current vs. voltage characteristics of the network termination. Selecting either control may solve an unstable connection problem.

<WSW51>

Selector No.	Function	Setting and Specifications
1	Output of communications error report when transmission verification report is disabled	0: Enable 1: Disable
2	CR motor torque variation reduction control (Not used.)	0: Yes 1: No
3 4	Cordless handset microphone volume (Not used.)	No. 3 4 0 0: Middle (Default) 0 1: Low 1 0: High 1 1: Very high
5 I 7	Main unit microphone level and echo cancellation ON/OFF function (Not used.)	No. 5 6 7 0 0 0: Microphone level 0 with echo cancellation OFF 0 0 1: Microphone level 1 with echo cancellation ON 0 1 0: Microphone level 2 with echo cancellation ON 0 1 1: Microphone level 3 with echo cancellation ON
8	Support between nearly empty → empty when main unit cover opened after nearly empty detected (Not used.)	0: Empty state detected when main unit cover opened 1: Nearly empty state maintained when main unit cover opened

Note:
Selectors 3 and 4 are applicable only to models equipped with cordless handsets.

- **Selector 2: CR motor torque variation reduction control (Not used.)**

  Printing quality may be lowered due to changes in the head/carriage travel speed resulting from variations in the torque of the CR motor during operation. If selector 2 is set to "0," the CR motor drive current will be controlled so as to inhibit variations in torque, resulting in a smooth CR motor rotation.

- **Selectors 5 through 7: Microphone level and echo cancellation ON/OFF (Not used.)**

  Microphone level 0 is the highest microphone volume setting. The higher the microphone level, the lower the microphone volume setting. The microphone level can also be adjusted by means of a user function. In other words, the microphone level depends on the setting of the user function as well as on the setting by these selectors.
  Using the echo cancellation function, it is possible to reduce echoes both during speaking and hearing.

- **Selector 8: Support between nearly empty → empty with main unit cover open after nearly empty detection (Not used.)**

  If this selector is set to "0," the nearly empty ink state, if detected, will be replaced by the empty ink state when the main unit cover is opened, thus prompting the user to replace the ink cartridge immediately.

<WSW52>

Selector No.	Function	Setting and Specifications
1 I 3	Cordless handset microphone level and echo cancellation ON/ OFF (Not used.)	No. 1 2 3 0 0 0: Microphone level 0 with echo cancellation OFF 0 0 1: Microphone level 1 with echo cancellation ON 0 1 0: Microphone level 2 with echo cancellation ON 0 1 1: Microphone level 3 with echo cancellation ON
4 I 6	External telephone pseudo ringing signal frequency setting (Not used.)	No. 4 5 6 0 0 0: 16 Hz 0 0 1: 20 Hz 0 1 0: 24 Hz 0 1 1: 28 Hz 1 0 0: 32 Hz 1 0 1: 16 Hz 1 1 0: 16 Hz 1 1 1: 16 Hz
7	Caller ID (number display) display after the machine has returned to TEL mode from FAX mode (Not used.)	0: Yes 1: No
8	Dial display during transmission (Not used.)	0: Yes 1: No

- **Selectors 4 through 6: External telephone pseudo ringing signal frequency setting (Not used.)**

  External telephone ringing sound can be changed.

- **Selector 7: Caller ID (number display) display continued after the machine has returned to TEL mode from FAX mode (Not used.)**

  If this function is selected, the caller ID number (number display) will continue to be displayed even after the TEL → FAX → TEL mode changes.

- **Selector 8: Dial display during transmission (Not used)**

  If this selector is set to "0," the dial number of the fax transmission destination will be displayed until such time as the fax transmission has been completed.

<WSW53>

Selector No.	Function	Setting and Specifications
1 2	Not used.	
3 4	Caller ID (number display) FSK receiving timing delay setting (Not used.)	No. 3 4 0 0: 0 ms 0 1: 100 ms 1 0: 150 ms 1 1: 200 ms
5 6	Caller ID (number display) instantaneous interrupt detection time setting (Not used.)	No. 5 6 0 0: 20 ms 0 1: 10 ms 1 0: 30 ms 1 1: 0 ms
7	CNG detection retry after invalid CNG detected	0: Yes 1: No
8	Decompression of JPEG compressed file (Not used.)	0: ASIC (Default) 1: Software

Note:
Selector 8 is applicable only to models equipped with photo media capture.

- **Selectors 3 through 6: Caller ID (number display) FSK receiving timing delay setting and instantaneous interrupt detection time setting (Not used.)**

  If a call error occurs during use of caller ID (number display), it may be possible for the error to be corrected by adjustment these selectors. If the error cannot be thus corrected, try adjusting selectors 5 and 6.

- **Selector 8: Decompression of JPEG compressed file (Not used.)**

  Decompress JPEG compressed files stored on the inserted memory card. (ASIC: application specified integrated circuit)., JPEG compressed files can be decompressed with an ASIC. If an image fails to be replayed correctly due to a decompression error, set this selector to "1" and use other proven decompression software instead.

<WSW54>

Selector No.	Function	Setting and Specifications
1 2	PictBridge command delay time (Not used.)	No. 1 2 0 0: 100 ms (default) 0 1: 0 ms 1 0: 50 ms 1 1: 200 ms
3	More CNG detection cycles in user-friendly reception	0: No 1: 2 more cycles
4	Cordless handset ID recovery future (Not used.)	0: Valid 1: Invalid
5 6	Caller ID tone alert detection time length	No. 5 6 0 0: 50 ms (default) 0 1: 60 ms 1 0: 70 ms 1 1: 80 ms
7	Caller ID mild pulse transmission (Not used.)	0: Yes (default) 1: No
8	Switching between DTMF and FSK for caller ID reception (Not used.)	0: DTMF (default) 1: FSK

Note:

- Selectors 1 and 2 are applicable only to models equipped with PictBridge.
- Selector 4 is applicable only to models equipped with cordless handset(s).
- Selectors 5 through 7 are applicable only to models designed for the UK market.
- Selector 8 is applicable only to models designed for the Chinese market.

- **Selector 1 and 2: PictBridge command delay time (Not used)**

  These selectors specify the PictBridge command delay time that applies when the machine responds to the digital camera connected via PictBridge during negotiation. If the machine fails to receive data from the digital camera, change the delay time.

- **Selector 3: More CNG detection cycles in user-friendly reception**

  If CNG detection fails even after adjustment of selectors 4 and 5 on WSW26, try adding 2 more cycles to the permitted number of CNG detection cycles.

- **Selector 4: Cordless handset ID recovery (Not used)**

  When this function becomes operative, if the cordless handset ID number registered on the main board does not match that registered on the cordless board, the cordless handset ID number registered on the main board will be automatically written onto the cordless board.

- **Selectors 5 and 6: Caller ID tone alert detection time length**

  In the event of a false detection of a caller ID tone alert, adjust the detection time length.

- **Selector 7: Caller ID mild pulse transmission (Not used.)**

  If a caller ID (number display) cannot be displayed due to mild pulses transmitted after detection of tone alert, use this selector so as to make it impossible to transmit mild pulses.

- **Selector 8: Switching between DTMF and FSK for caller ID reception (Not used.)**

  If a caller ID (number display) cannot be received, switch from DTMF to FSK. This operation can also be performed by means of the menu, by switching between DTMF and FSK.

<WSW55>

Selector No.	Function	Setting and Specifications
1 I 8	Interval of time required for the developing bias voltage correction (hour)	0: The developing bias voltage correction is performed on each print job. 1-72: The developing bias voltage correction is performed when a print job occurs at specified time or later. 73-254: Not allowed to set. 255 (0xFF): The developing bias voltage correction is not performed.

The setting example of the selector number is as follows;

No.1 2 3 4 5 6 7 8

0 0 0 0 0 0 0 0 : The developing bias voltage correction is performed on each print job.

0 0 0 1 1 0 0 0 : The developing bias voltage correction is performed when a print job occurs after 24 hours (default value) or later.

0 0 0 1 0 0 1 0 : The developing bias voltage correction is performed when a print job occurs after 72 hours or later.

1 1 1 1 1 1 1 1 : The developing bias voltage correction is not performed.

- **Selector 1 to 8: Interval of time required for the developing bias voltage correction**

  To keep the density of four colors evenly, the developing bias voltage correction is performed when a print job occurs at specified time or later.

<WSW56>

Selector No.	Function	Setting and Specifications
1	PS emulation function setting (Not used.)	0: Invalid 1: Valid
2	Not used.	
3	"Last Job Reprint" function setting	0: Invalid 1: Valid
4 I 8	Not used.	

- **Selector 3: "Last Job Reprint" function setting**

  Setting this selector to "0" makes the machine not to reprint the "Last Job Print" data such as confidential document in order to prevent the misuse.

<WSW57>

Selector No.	Function	Setting and Specifications
1 I 3	Caller ID judgment voltage (to be distinguished from rings) (Not used.)	No. 1 2 3 0 0 0: 0 V 0 0 1: 5 V (Default) 0 1 0: 10 V 0 1 1: 15 V 1 0 0: 20 V 1 0 1: 25 V 1 1 0: 30 V 1 1 1: Max.
4 I 6	Caller ID judgment voltage (to be distinguished from reverse polarity voltages) (Not used.)	No. 4 5 6 0 0 0: 0 V 0 0 1: 5 V (Default) 0 1 0: 10 V 0 1 1: 15 V 1 0 0: 20 V 1 0 1: 25 V 1 1 0: 30 V 1 1 1: Max.
7	Not used.	
8	Base unit start button after cordless handset dialing (Not used.)	0: Invalid (Default) 1: Valid

Note:

Selectors 1 through 6 are applicable only to models designed for the European market.

- **Selectors 1 through 3: Caller ID judgment voltage (to be distinguished from rings) (Not used.)**

  If caller IDs cannot be displayed because of confusion with rings due to variations in the voltage, increase the judgment voltage.
  However, do make sure that the voltage value set by selectors 1 through 3 of this switch is equal to, or greater than, the value set by selectors 4 through 6 of the same switch.

- **Selectors 4 through 6: Caller ID judgment voltage (to be distinguished from reverse polarity voltages) (Not used.)**

  If caller IDs cannot be displayed because reverse polarities cannot be detected due to a large difference between line voltages in a reverse polarity condition and in a steady condition, increase the judgment voltage.
  However, do make sure that the voltage value set by selectors 1 through 3 of this switch is equal to, or greater than, the value set by selectors 4 through 6 of the same switch.

- **Selector 8: Base unit start button after cordless handset dialing (Not used.)**

  Even if the base unit start button is pressed to start a FAX transmission during calling when this selector is in its default state, no FAX transmission will occur. By using this selector, it is possible to make the base unit start button operative after cordless handset dialing.

<WSW58>

Selector No.	Function	Setting and Specifications
1 I 3	Prevention of line interrupt during ICM recording (ratio of guard tone response time to call end tone ON time) (Not used.)	No. 1 2 3 0 0 0: Invalid 0 0 1: 10 % 0 1 0: 20 % 0 1 1: 30 % (Default) 1 0 0: 40 % 1 0 1: 50 % 1 1 0: 60 % 1 1 1: 70 %
4 I 6	Not used.	
7 8	Synchronous of DTMF detecting	No. 7 8 0 0: 2 0 1: 3 (Default) 1 0: 4 1 1: 5

Note:
Selectors 1 through 3 are applicable only to models equipped with built-in TADs.
Selector 8 is applicable only to models equipped with V34.

- **Selectors 1 through 3: Prevention of line interrupt during ICM recording (ratio of guard tone response time to call end tone ON time) (Not used.)**

  If an ICM tone is detected as a call end tone by error, this machine will release the line even during ICM recording. To avoid this problem, change the setting for the ratio of guard tone response time to the call end tone ON detection time.

  If the actual percentage of guard tone response time is greater than the percentage set by selectors 1 through 3, this machine will judge that the call end tone has not yet been detected and will continue ICM recording.

<WSW59>

Selector No.	Function	Setting and Specifications
1	USB serial number (SN) transmission enabled/disabled	0: USB serial number transmitted/ USB serial number not transmitted 1: Frame length selection
2	Extension of waiting time between the ANSam-DIS	0: Valid 1: Invalid
3 I 8	Not used.	

- Selector 1: Frame length selection

  This is intended to prevent the problem of a continued increase in USB ports when serial numbers are transmitted from the MFC to a Windows Vista-based PC.

  It is intended only to prevent a problem specific to Windows Vista; its default setting is "0: USB SN enabled."

- Selector 2: Extension of waiting time between the ANSam-DIS

  When send from the G3 to the FAX machine of the G4, extend the waiting time between the ANSam-DIS from 75ms to 450ms in expectation of the switching time of the echo canceller of sending side. its default setting is "0: Valid"

<WSW60>

Selector No.	Function	Setting and Specifications
1 I 8	Not used.	

<WSW61>

Selector No.	Function	Setting and Specifications
1 I 4	Change rate of the CCD scanning light intensity to judge to be stable in the long time mode (Not used.)	No. 1 2 3 4 0 0 0 0: 1% (Default) 0 0 0 1: 0.5% 0 0 1 0: 3% 0 0 1 1: 5% 0 1 0 0: 10% 0 1 0 1: 15% 0 1 1 0: 20% 1 1 1 1: 100% * * (Scans immediately after the light source ON)
5 I 8	Change rate of the CCD scanning light intensity to judge to be stable in the short time mode (Not used.)	No. 5 6 7 8 0 0 0 0: 5% (Default) 0 0 0 1: 1% 0 0 1 0: 3% 0 0 1 1: 10% 0 1 0 0: 15% 0 1 0 1: 20% 0 1 1 0: 30% 1 1 1 1: 100% * * (Scans immediately after the light source ON)

- **Selectors 1 through 8: Change rate of the CCD scanning light intensity to judge to be stable. (Not used.)**

  The light intensity of the CCD unit is changed widely immediately after the light source is on, that influences scanning density. Therefore, the first scanning after the light source is off and on is started after the change rate of the CCD light intensity is stabilized in the definite range. These selectors set the change rate to start the scanning operation above. If you want to start scanning immediately even if the image quality is not good, set the rate to high.

  Long / short time mode:
  The selectors are divided between the long and short time modes depending on the scanning resolution and black and white or color mode. The long time mode is selected in color scanning at 600dpi or more, or in black and white scanning at 1200dpi. The short time mode is selected in other scanning conditions than the above.

<WSW62>

<table>
<tr><th>Selector No.</th><th>Function</th><th>Setting and Specifications</th></tr>
<tr><td>1
I
4</td><td>Change rate of the CCD light intensity for scanning pages compensation (Not used.)</td><td>
<table>
<tr><th>No. 1</th><th>2</th><th>3</th><th>4</th><th>Change rate for simple compensation</th><th>Change rate for regular compensation</th></tr>
<tr><td>0</td><td>0</td><td>0</td><td>0:</td><td>3%</td><td>10% *</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>1:</td><td>3%</td><td>7%</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>0:</td><td>3%</td><td>15%</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>1:</td><td>3%</td><td>20%</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>0:</td><td>3%</td><td>25%</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>1:</td><td>5%</td><td>10%</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>0:</td><td>5%</td><td>15%</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>1:</td><td>5%</td><td>20%</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>0:</td><td>5%</td><td>25%</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>1:</td><td>7%</td><td>15%</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>0:</td><td>7%</td><td>20%</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>1:</td><td>7%</td><td>25%</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>0:</td><td>10%</td><td>15%</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>1:</td><td>10%</td><td>20%</td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>0:</td><td>10%</td><td>25%</td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>1:</td><td>15%</td><td>30%</td></tr>
<tr><td colspan="6">* Default</td></tr>
</table>
</td></tr>
<tr><td>5
6</td><td>Selection of judging function for simple scanning pages compensation (Not used.)</td><td>
<table>
<tr><th>No. 5</th><th>6</th><th></th></tr>
<tr><td>0</td><td>0</td><td>0: Judges according to the change rate</td></tr>
<tr><td>0</td><td>1</td><td>1: Not judges</td></tr>
<tr><td>1</td><td>0</td><td>0: Judges every page</td></tr>
</table>
</td></tr>
<tr><td>7
8</td><td>Selection of judging function for regular scanning pages compensation (Not used.)</td><td>
<table>
<tr><th>No. 7</th><th>8</th><th></th></tr>
<tr><td>0</td><td>0</td><td>0: Judges according to the change rate</td></tr>
<tr><td>0</td><td>1</td><td>1: Not judges</td></tr>
<tr><td>1</td><td>0</td><td>0: Judges every page</td></tr>
</table>
</td></tr>
</table>

- **Selectors 1 through 4:Change rate of the CCD light intensity for scanning pages compensation (Not used.)**

The light intensity of the CCD unit may be changed (decreased, especially), and difference of density may appear among the scanning pages if continuous copying or scanning is implemented from the ADF for a long time. To prevent the above, in simplex copying or scanning from the ADF, the machine checks the change rate of the light intensity in every page. Then, it takes the compensation data again if the rate is over the set value. These selectors set the change rate of the light intensity to control such operations.

Change rate for simple compensation:
Change rate when compensating the pages using the standard data in the machine memory without moving the CCD unit to the designated position for scanning of the compensation data.

Change rate for regular compensation:
Change rate when compensating the pages with moving the CCD unit to the designated position for scanning of the compensation data and obtaining the data actually.

For duplex scanning, this setting is not used since the machine takes the compensation data of every page again.

- **Selectors 5 and 6 / 7 and 8:Selection of judging function for scanning pages compensation (Not used.)**

  These selectors set the condition to control scanning pages compensation. Some operation losses occur in the control of the compensation. If you want to start scanning immediately even if the image quality is not good, set to "01: Not discriminates". If you want to give priority to the image quality even though losses are increased, select one of others ("00: Discriminates depending on the rate of change" or "10: Discriminates every page").

<WSW63>

Selector No.	Function	Setting and Specifications
1 I 8	Not used.	

APPENDIX 2 DELETION OF PERSONAL INFORMATION

The personal information in the machine is recorded in the EEPROM on the main PCB. It cannot all be deleted in a single operation. Use Function code 01 in the maintenance mode, unplug the AC cord from the electrical outlet, and disconnect the backup battery.

■ Operating Procedure

[1] Using Function code 01

Using Function code 01 (EEPROM Parameter Initialization) in the maintenance mode deletes the following data that have been recorded in the EEPROM on the main PCB:

- Activity report
- Station ID data
- Outside line number
- One-touch dialing
- Speed dialing
- Group dialing
- Call transfer data

<Operating Procedure>

(1) Press in order the Menu, Start and the ▲ button four times to make the machine enter the maintenance mode.

TIP:
FAX models equipped with a numerical keypad can enter the maintenance mode in the same way as conventional models; that is, by pressing in order the Menu, *, 2, 8, 6, 4 buttons with in 2 seconds.

(2) MFC7840W/7840N/7450/7440N/7340/7320
Press in order the 0 and 1 buttons in the initial stage of the maintenance mode.
DCP7045N/7040/7030
Press the ▲ or ▼ button. "MAINTENANCE 01" appears on the LCD, and then press the OK button.
Parameter initialization starts and the "PARAMETER INIT" appears on the LCD.

(3) Upon completion of parameter initialization, the machine beeps for one second and returns to the initial stage of the maintenance mode.

[2] Unplugging the AC cord from the electrical outlet and disconnecting the backup battery

Unplugging the AC cord from the electrical outlet and disconnecting the backup battery deletes the Caller ID list, fax data received into memory, transmission verification report (for image), broadcasting report and batch transmission data (in the memory).

<Operating Procedure>

(1) Unplug the AC cord from the electrical outlet.

(2) For models with backup battery, disconnect the backup battery harness from the main PCB.

(3) Leave the machine for approx. 24 hours.

[3] Restoring the network settings

The procedure below allows you to return the LAN settings to the factory setting values.

<Operating Procedure>

(1) Press the Menu button. Next press the ▲ or ▼ button to select "LAN". Press the OK button.

(2) Press the ▲ or ▼ button to select "Factory Reset". Press the OK button.

(3) MFC7840W/7840N/7450/7440N/7340/7320
Press the 1 button select "Reset".
DCP7045N/7040/7030
Press the ▲ or ▼ button. "1" appears on the LCD, and then press the OK button.

(4) MFC7840W/7840N/7450/7440N/7340/7320
Press the 1 button select "Yes".
DCP7045N/7040/7030
Press the ▲ or ▼ button. "Yes" appears on the LCD, and then press the OK button.

APPENDIX 3 SERIAL NUMBERING SYSTEM

Each machine has a serial number label for the machine itself and property labels for some other parts. Refer to the information below for the meaning of the serial number and property codes and the location of each label.

■ Serial number labels for the machine itself

<How to Read>

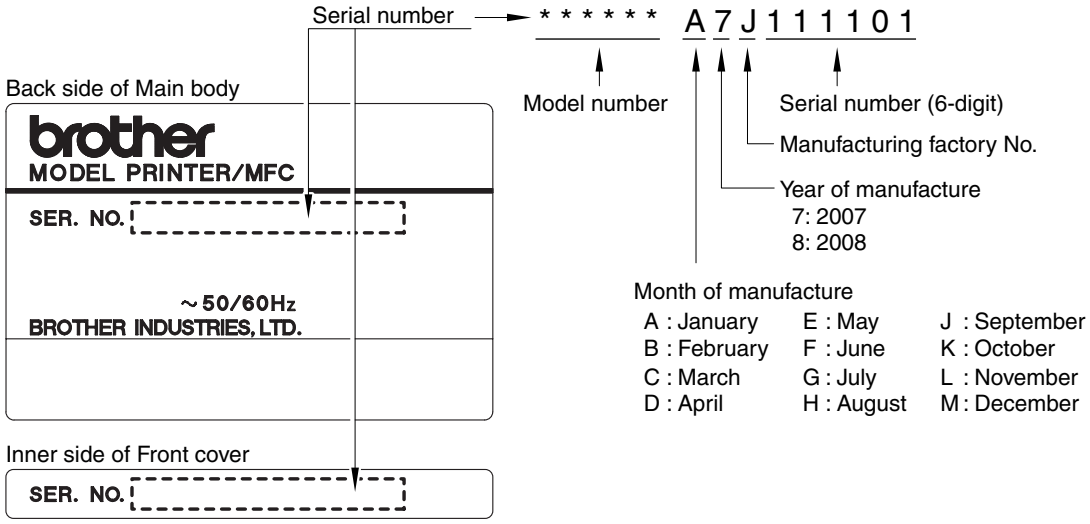


Fig. App. 3-1

<Location>

The back surface of the machine

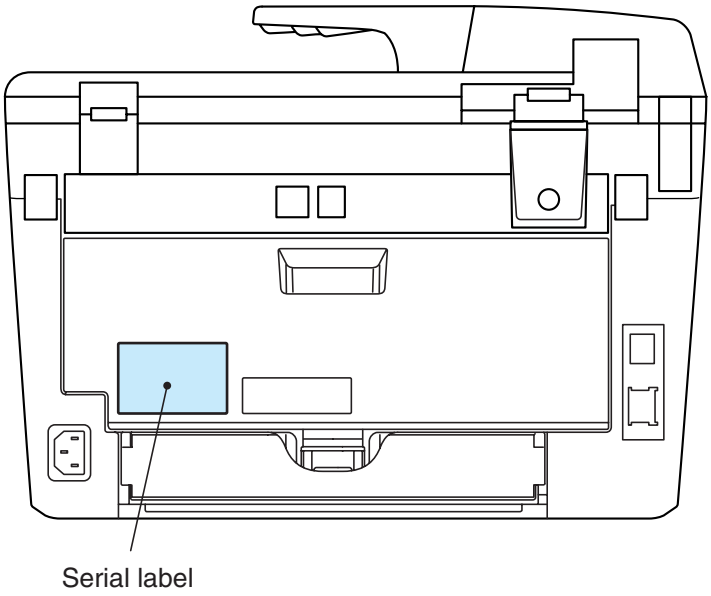


Fig. App. 3-2

The inside surface of the Front cover

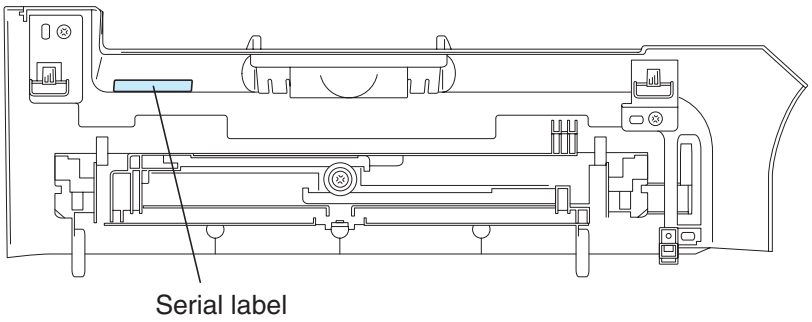


Fig. App. 3-3

■ Laser unit serial label

<How to Read>

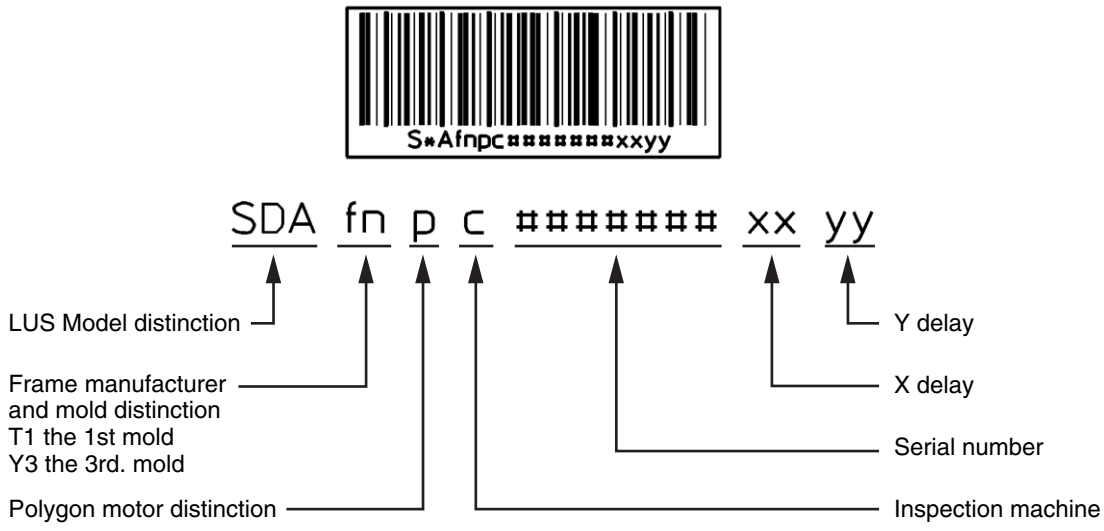


Fig. App. 3-4

<Location>

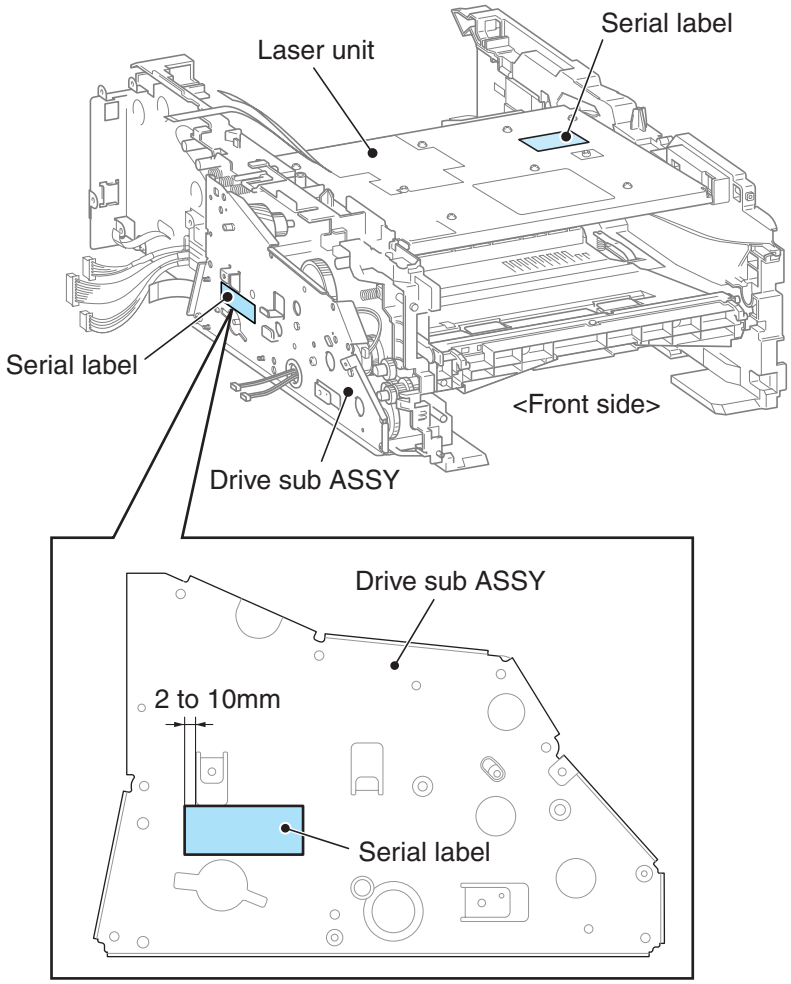


Fig. App. 3-5

■ Toner cartridge and Drum unit serial label (in common)

<How to read>

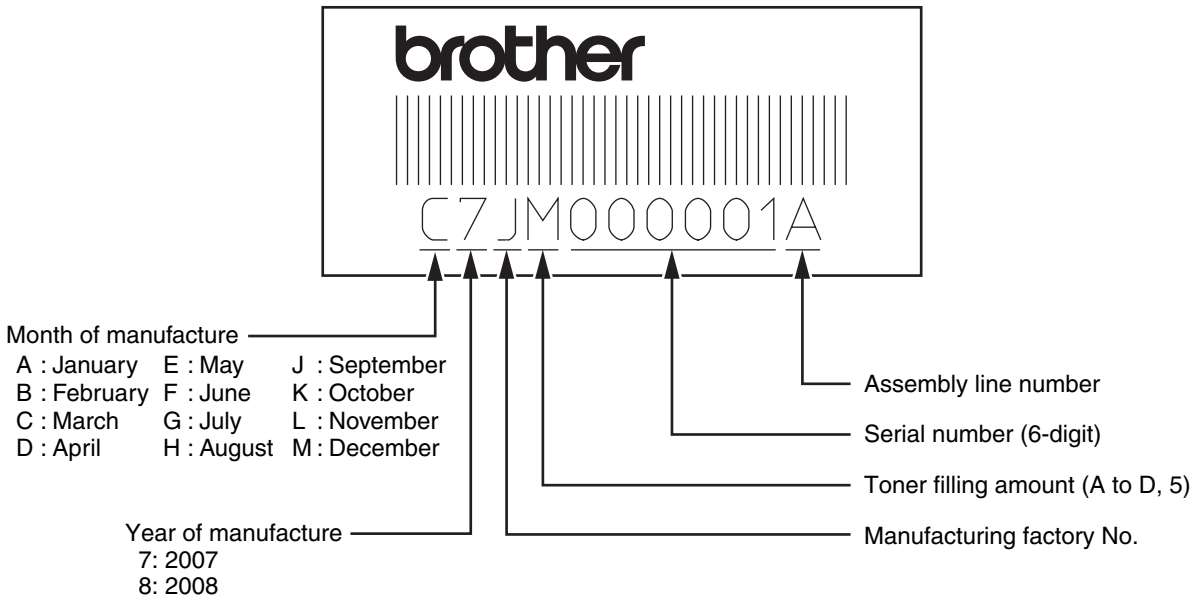


Fig. App. 3-6

<Location>

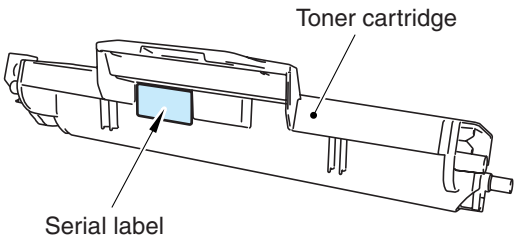


Fig. App. 3-7

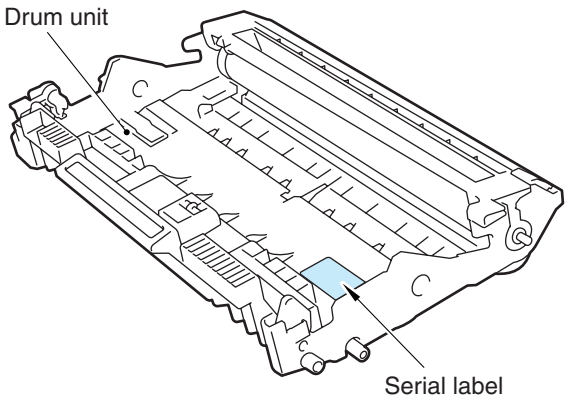
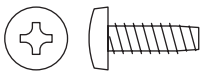


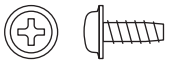
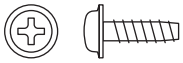
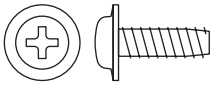
Fig. App. 3-8

APPENDIX 4 SCREW CATALOGUE

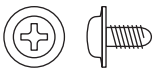
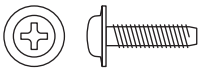
Taptite bind B

Taptite bind B M3x10	
Taptite bind B M4x12	

Taptite cup B

Taptite cup B M3x8	
Taptite cup B M3x10	
Taptite cup B M4x12	

Taptite cup S

Taptite cup S M3x6 SR	
Taptite cup S M3x12	

Taptite flat B

Taptite flat B M3x10	

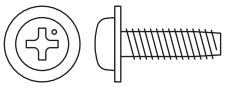
Screw pan (S/P washer)

Screw pan (S/P washer) M3.5x6	

Taptite pan (S/P washer)

Taptite pan (S/P washer) S M3x8	

Taptite pan

Taptite pan B M4x14	

APPENDIX 5 GLOSSARY

■ ACRONYMS AND TECHNICAL TERMS

In this manual and the Service Manual, the manual specific acronyms and technical terms are used in addition to the generally used ones. The table below contains typical acronyms and technical terms that are used throughout these manuals.

APIPA	Automatic Private IP Addressing
ASIC	Application Specific Integrated Circuit
ASSY	Assembly
CN	Connector
CPU	Central Processing Unit
dB	decibel
DEV	Development
DIMM	Dual Inline Memory Module
dpi	dots per inch
EEPROM	Electronically Erasable and Programmable Read Only Memory
FR	Feed Roller
FU	Fuser
HEX	Hexadecimal
HV	High Voltage
HVPS	High Voltage Power Supply
IEEE 1284	Institute of Electrical and Electronic Engineers 1284
IF	Interface
IPv4	Internet Protocol Version 4
IPv6	Internet Protocol Version 6
LCD	Liquid Crystal Display
LD	Laser Diode
LED	Light Emitting Diode
LV	Low Voltage
LVPS	Low Voltage Power Supply
N/A	Not Applicable
NC*	Network Circuit
NVRAM	Nonvolatile Random Access Memory
PF	Paper Feed
PP gear	Pressure Plate gear
ppm	pages per minute
PU	Pick-Up roller
RAM	Random Access Memory
REGI	Registration
SOL	Solenoid
SP	Spare Parts

TE	Toner Empty
TN	Toner
TR	Transfer

* Excluding the acronym shown on the wiring diagram or circuit diagram.

APPENDIX 6 REFERENCES

This page provides the retrieval information. It is possible to get the instruction of the subject by just clicking on the link below or refering to the relevent sections.

1. **Error indication**

   (Refer to "2.1 Error indication", Chapter 1 of the Service Manual.)

2. **Diameter of rollers**

   (Refer to "5.2 Diameter of Rollers", Chapter 1 of the Service Manual.)

3. **Machine specification**

   (Refer to "2. SPECIFICATIONS LIST", Reference 1 of the Service Reference Manual.)

4. **Paper specification**

   (Refer to "2.6 Paper", Reference 1 of the Service Reference Manual.)

5. **Toner cartridge weight information**

   (Refer to "APPENDIX 1 TONER CARTRIDGE WEIGHT INFORMATION", of the Service Reference Manual.)

6. **Parts life reset**

   (Refer to "Resetting the drum counter", Chapter 5 of the Service Manual.)