



# Brother Laser MFC

## **SERVICE MANUAL**

---

### **MODEL:**

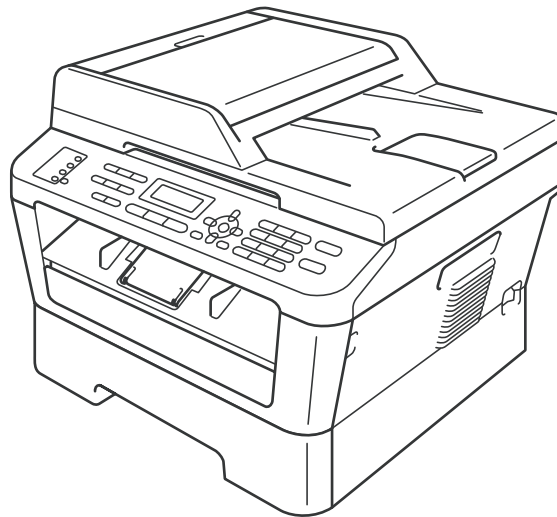
**DCP- 7055/7055W/7057/7057E/7057W**

**DCP- 7060D/7065DN**

**DCP- 7070DW/HL-2280DW**

**MFC- 7360/7360N/7362N/7365DN/7460DN**

**MFC- 7470D/7860DN/7860DW**



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

# TRADEMARKS

The Brother logo is a registered trademark of Brother Industries, Ltd.

Apple and Macintosh are trademarks of Apple Inc., registered in the United States and other countries.

PCL is either a trademark or a registered trademark of Hewlett-Packard Company in the United States and other countries.

Windows Vista is either a registered trademark or a trademark of Microsoft Corporation in the United States and/or other countries.

Microsoft, Windows, Windows Server and Internet Explorer are registered trademarks of Microsoft Corporation in the United States and/or other countries.

Linux is a registered trademark of Linus Torvalds in the United States and other countries.

PostScript and PostScript3 are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.

ENERGY STAR is a U.S. registered mark.

Citrix and MetaFrame are registered trademarks of Citrix Systems, Inc. in the United States.

Intel, Intel Xeon and Pentium are trademarks or registered trademarks of Intel Corporation.

AMD, AMD Athlon, AMD Opteron and combinations thereof, are trademarks of Advanced Micro Devices, Inc.

PictBridge is a trademark.

Each company whose software title is mentioned in this manual has a Software License Agreement specific to its proprietary programs.

All other trademarks are the property of their respective owners.

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

Model	DCP-7055	DCP-7055W DCP-7057W	DCP-7057 DCP-7057E	DCP-7060D	DCP-7065DN	DCP-7070DW	HL-2280DW
LAN	—	Wireless	—	—	Wired	Wired / Wireless	Wired / Wireless
Duplex printing	—	—	—	✓	✓	✓	✓
ADF	—	—	—	—	✓	—	—
Handset	—	—	—	—	—	—	—
Ten-key pad	—	—	—	—	—	—	—
Paper Edge Actuator	—	—	—	—	✓	✓	✓
FAX	—	—	—	—	—	—	—

Model	MFC-7360	MFC-7360N MFC-7362N	MFC-7365DN MFC-7460DN	MFC-7470D	MFC-7860DN	MFC-7860DW
LAN	—	Wired	Wired	—	Wired	Wired / Wireless
Duplex printing	—	—	✓	✓	✓	✓
ADF	✓	✓	✓	✓	✓	✓
Handset	✓ (Only for China)	—	—	✓ (For Asia & China)	✓ (Only for China)	—
Ten-key pad	✓	✓	✓	✓	✓	✓
Paper Edge Actuator	—	—	✓	✓	✓	✓
FAX	✓	✓	✓	✓	✓	✓

© Copyright Brother 2010

All rights reserved.

No part of this publication may be reproduced in any form or by any means without permission in writing from the publisher.

All other product and company names mentioned in this manual are trademarks or registered trademarks of their respective holders.

Specifications are subject to change without notice.

# CONTENTS

<b>REGULATION .....</b>	<b>vii</b>
-------------------------	------------

<b>SAFETY INFORMATION .....</b>	<b>xiv</b>
---------------------------------	------------

## CHAPTER 1 SPECIFICATIONS

<b>1. SPECIFICATIONS LIST .....</b>	<b>1-1</b>
1.1 General .....	1-1
1.2 Network Connectivity .....	1-6
1.3 Service Information .....	1-7
1.4 Consumables .....	1-8
1.5 Paper .....	1-9
1.5.1 Paper handling .....	1-9
1.5.2 Media specifications .....	1-9
1.6 Unprintable Area .....	1-10
1.7 Telephone .....	1-10
1.8 FAX .....	1-10
1.9 Copy .....	1-11
1.10 Scanner .....	1-11
1.11 Unscannable Area .....	1-12
1.12 USB Direct Interface .....	1-12

## CHAPTER 2 ERROR INDICATION AND TROUBLESHOOTING

<b>1. INTRODUCTION .....</b>	<b>2-1</b>
1.1 Precautions .....	2-1
1.2 Initial Check .....	2-2
<b>2. OVERVIEW .....</b>	<b>2-4</b>
2.1 Cross-section Drawing .....	2-4
2.2 Paper Feeding .....	2-6
2.3 Operation of each part .....	2-8
2.4 Block Diagram .....	2-9
2.5 Components .....	2-10
2.6 Life of Toner Cartridge and Drum Unit .....	2-11
<b>3. ERROR CODES .....</b>	<b>2-15</b>
3.1 Error Codes .....	2-15
3.2 Error Messages .....	2-20
3.3 Communications Error Code .....	2-22
3.4 Error Cause and Remedy .....	2-25
3.5 Paper Feeding Problems .....	2-71

3.5.1	Pickup function of Paper tray does not work.	2-71
3.5.2	No feeding	2-71
3.5.3	No paper fed manual feed slot (Error code 9A)	2-72
3.5.4	Double feeding	2-72
3.5.5	Paper jam	2-73
3.5.6	Dirt on paper	2-75
3.5.7	Paper feeding at an angle	2-75
3.5.8	Wrinkles or creases	2-76
3.5.9	Curl in the paper	2-77
3.5.10	Prints only single side of the paper when duplex-printing	2-78
3.5.11	Cannot make print through duplex-printing	2-78
3.5.12	Paper size error	2-78
3.5.13	Paper size error through duplex-printing	2-78
3.6	Image Defect Troubleshooting	2-79
3.6.1	Image defect examples	2-79
3.6.2	Troubleshooting image defect	2-80
3.7	Software Setting Problems	2-91
3.7.1	Cannot print data	2-91
3.8	Network Problems	2-92
3.8.1	Cannot make a print through network connection (Wireless LAN model only) (Error code DE, EE)	2-92
3.9	Document Feeding Problems	2-93
3.9.1	No feeding	2-93
3.9.2	Double feeding	2-93
3.9.3	Paper jam	2-94
3.9.4	Wrinkles	2-95
3.10	Scanning Image Defect Troubleshooting	2-96
3.10.1	Image defect examples	2-96
3.10.2	Troubleshooting image defect	2-96
3.11	Troubleshooting of the Control Panel	2-99
3.11.1	Nothing is displayed on the LCD	2-99
3.11.2	The control panel does not work	2-99
3.11.3	Lamp malfunction	2-99
3.12	Troubleshooting of FAX/Telephone Functions	2-100
3.12.1	FAX can't send it	2-100
3.12.2	FAX cannot be transmitted and received	2-100
3.12.3	No bell ring	2-100
3.12.4	A communication error occurs	2-101
3.12.5	Reception mode cannot be changed	2-101
3.12.6	Caller ID are not displayed	2-101
3.12.7	Cannot talk on the handset	2-101
3.13	PCB Problems	2-102
3.13.1	Main PCB failure	2-102
3.13.2	Out of Memory	2-102
3.13.3	High voltage power supply PCB ASSY failure	2-102

3.13.4 Low voltage power supply PCB ASSY failure .....	2-103
3.13.5 NCU ASSY failure .....	2-103
3.14 Other Problems .....	2-104
3.14.1 The machine is not turned ON, or the LCD indication does not appear .....	2-104
3.14.2 Fuser fan does not rotate .....	2-104
3.14.3 The room temperature is high or low .....	2-104
3.14.4 Problem associated with Secure Function Lock .....	2-104

## CHAPTER 3 DISASSEMBLY/REASSEMBLY

1. SAFETY PRECAUTIONS .....	3-1
2. PACKING .....	3-2
3. SCREW CATALOGUE .....	3-3
4. SCREW TORQUE LIST .....	3-4
5. LUBRICATION .....	3-6
6. OVERVIEW OF GEARS .....	3-7
7. HARNESS ROUTING .....	3-10
8. DISASSEMBLY FLOW CHART .....	3-26
9. DISASSEMBLY PROCEDURE .....	3-27
9.1 Paper Tray .....	3-29
9.2 Cord Hook .....	3-32
9.3 Back Cover .....	3-33
9.4 Outer Chute ASSY .....	3-34
9.5 Fuser Cover .....	3-35
9.6 Inner Chute ASSY, Eject Pinch Roller R ASSY and Eject Pinch Roller L ASSY .....	3-36
9.7 Front Cover ASSY, Support Flap 1 .....	3-38
9.8 Side cover L / Handset holder ASSY .....	3-40
9.9 Side Cover R .....	3-43
9.10 ADF Unit (For models with ADF) .....	3-44
9.10.1 ADF Unit .....	3-44
9.10.2 Hinge ASSY L / Hinge Arm R / Hinge R / Hinge R support .....	3-46
9.10.3 Document Stopper .....	3-47
9.10.4 Document Sub Tray .....	3-48
9.10.5 ADF Cover ASSY .....	3-49
9.10.6 Gear Cover .....	3-50
9.10.7 Separation Roller ASSY .....	3-51
9.10.8 Separation Rubber Holder ASSY .....	3-52
9.10.9 Upper Document Chute ASSY SX .....	3-53
9.10.10 Document Feed Roller ASSY .....	3-54
9.10.11 Lower Document Chute ASSY .....	3-55
9.10.12 Ejection Roller ASSY .....	3-56
9.10.13 ADF motor .....	3-57

9.10.14 Document Scanning Position Detection Sensor PCB ASSY/ Document Detection/ADF Cover Open Sensor PCB ASSY .....	3-59
9.11 Document Cover ASSY (For models without ADF) .....	3-61
9.12 Pull Arm L / Pull Arm R / Pull Arm Spring .....	3-63
9.13 Document Scanner Unit .....	3-66
9.14 Panel Unit .....	3-67
9.14.1 Panel Unit .....	3-67
9.14.2 Panel PCB ASSY .....	3-68
9.14.3 Rubber Key L/R .....	3-69
9.14.4 LCD .....	3-70
9.15 CIS unit .....	3-71
9.16 Pull Arm Guide .....	3-73
9.17 NCU ASSY .....	3-74
9.18 Speaker Unit .....	3-78
9.19 Joint cover .....	3-80
9.20 Fuser Unit .....	3-82
9.21 Low voltage power supply PCB ASSY .....	3-85
9.22 Fuser Fan .....	3-88
9.23 High Voltage Power Supply PCB ASSY .....	3-89
9.24 New Toner Sensor PCB ASSY .....	3-90
9.25 Filter .....	3-91
9.26 Laser Unit .....	3-92
9.27 Wireless LAN PCB ASSY (Wireless LAN model only) .....	3-94
9.28 Pick-up Roller Holder ASSY .....	3-95
9.29 Rubber Foot .....	3-96
9.30 Main PCB ASSY .....	3-97
9.31 T1 Clutch ASSY, REG Clutch ASSY .....	3-98
9.32 Main Frame L ASSY .....	3-100
9.33 Develop Drive Sub ASSY, Develop Gear Joint/52 .....	3-102
9.34 Motor Drive Sub ASSY, Main Motor .....	3-104
9.35 Internal Temperature Sensor .....	3-106
9.36 Paper Eject Sensor PCB ASSY .....	3-107
9.37 Fuser Gear 28/34 .....	3-109

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

<b>1. IF YOU REPLACE THE MAIN PCB ASSY .....</b>	<b>4-1</b>
1.1 Rewriting the firmware (Sub firmware, Main firmware) .....	4-2
1.1.1 Checking firmware version .....	4-2
1.1.2 Rewriting the firmware using computer .....	4-2
1.2 Initialization of EEPROM of Main PCB ASSY (Maintenance Mode: Code 01) .....	4-3
1.3 Setting by Country (Maintenance Mode: Code 74) .....	4-3
1.4 Setting the Serial Number .....	4-3

1.5	Inputting the Adjusted Value of the Laser Unit .....	4-5
1.6	Acquisition of White Level Data (Maintenance Mode: Code 55) .....	4-9
1.7	Operation Check of Sensors (Maintenance Mode: Code 32) .....	4-9
<b>2.</b>	<b>IF YOU REPLACE THE LASER UNIT .....</b>	<b>4-10</b>
2.1	Inputting the Adjusted Value of the Laser Unit .....	4-10
<b>3.</b>	<b>IF YOU REPLACE THE LOW VOLTAGE POWER SUPPLY PCB ASSY .....</b>	<b>4-14</b>
3.1	Reset of Irregular Power Supply Detection Counter .....	4-14
<b>4.</b>	<b>IF YOU REPLACE THE DOCUMENT SCANNER UNIT / THE CIS UNIT .....</b>	<b>4-15</b>
4.1	Acquisition of White Level Data (Maintenance Mode: Code 55) .....	4-15
4.2	Scanning and Printing Check .....	4-15
4.3	Placement of Scanner Unit in Position for Transportation (Maintenance Mode: Code 06) .	4-15
<b>5.</b>	<b>IF YOU REPLACE THE PANEL UNIT .....</b>	<b>4-15</b>
5.1	Operation Check of LCD (Maintenance Mode: Code 12) .....	4-15
5.2	Operation Check of Control Panel Button (Maintenance Mode: Code 13) .....	4-15
<b>6.</b>	<b>IF YOU REPLACE THE LCD UNIT .....</b>	<b>4-16</b>
6.1	Operation Check of LCD (Maintenance Mode: Code 12) .....	4-16

## CHAPTER 5 SERVICE FUNCTIONS

<b>1.</b>	<b>MAINTENANCE MODE .....</b>	<b>5-1</b>
1.1	How to Enter the Maintenance Mode .....	5-1
1.2	How to Enter the End User-accessible Maintenance Mode .....	5-1
1.3	List of Maintenance-mode Functions .....	5-2
1.4	Detailed Description of Maintenance-mode Functions .....	5-3
1.4.1	EEPROM parameter initialization (Function code 01, 91) .....	5-3
1.4.2	Printout of scanning compensation data (Function code 05) .....	5-4
1.4.3	Placement of scanner unit in position for transportation (Function code 06) .....	5-6
1.4.4	ADF performance test (Function code 08) .....	5-6
1.4.5	Monochrome image quality test pattern (Function code 09) .....	5-7
1.4.6	Worker switch (WSW) setting and printout (Function code 10, 11) .....	5-8
1.4.7	Operational check of LCD (Function code 12) .....	5-12
1.4.8	Operational check of control panel button (Function code 13) .....	5-13
1.4.9	Software version check (Function code 25) .....	5-14
1.4.10	Operational check of sensors (Function code 32) .....	5-15
1.4.11	LAN connection status display (Function code 33) .....	5-17
1.4.12	PC print function (Function code 43) .....	5-18
1.4.13	Not-disclosed-to-users functions (Function code 45) .....	5-21
1.4.14	EEPROM customizing (User-accessible) (Function code 52) .....	5-22
1.4.15	Received data transfer function (Function code 53) (FAX model only) .....	5-23
1.4.16	Fine adjustment of scan start/end positions (Function code 54) .....	5-25
1.4.17	Acquisition of white level data (Function code 55) .....	5-26
1.4.18	Continuous print test (Function code 67) .....	5-27
1.4.19	Setting by country (Function code 74) .....	5-28
1.4.20	Printout of maintenance information (Function code 77) .....	5-31

1.4.21	Operational check of fan (Function code 78) .....	5-32
1.4.22	Display of the machine history (log) (Function code 80) .....	5-33
1.4.23	Error code indication (Function code 82) .....	5-37
1.4.24	Sending communication error list (Function code 87) (FAX model only) .....	5-37
1.4.25	Counter reset after replacing the fuser unit and paper feeding kit (Function code 88) .....	5-38
1.4.26	Exit from the maintenance mode (Function code 99) .....	5-38
<b>2.</b>	<b>OTHER SERVICE FUNCTIONS .....</b>	<b>5-39</b>
2.1	Developer Roller Counter Reset Function .....	5-39
2.2	Parts Life Reset Function .....	5-40
2.3	Deletion of User Setting Information, etc. ....	5-40
2.4	Continue mode / Stop mode settings of Toner cartridge .....	5-41
2.5	Drum Cleaning .....	5-41
2.6	ON/OFF Setting of Deep Sleep Function .....	5-42
 <b>CHAPTER 6 CIRCUIT DIAGRAMS, WIRING DIAGRAM</b>		
<b>1.</b>	<b>CIRCUIT DIAGRAMS .....</b>	<b>6-1</b>
<b>2.</b>	<b>WIRING DIAGRAM .....</b>	<b>6-10</b>
 <b>CHAPTER 7 PERIODICAL MAINTENANCE</b>		
<b>1.</b>	<b>PERIODICAL REPLACEMENT PARTS .....</b>	<b>7-1</b>
 <b>APPENDIX 1 SERIAL NUMBERING SYSTEM</b>		
 <b>APPENDIX 2 DELETION OF USER SETTING INFORMATION, ETC.</b>		
 <b>APPENDIX 3 INSTALLING THE MAINTENANCE DRIVER</b>		
 <b>APPENDIX 4 HOW TO MAKE PROTECTIVE MATERIAL OF DRUM UNIT</b>		

## REGULATION

### ■ Approval Information (MFC only)

THIS EQUIPMENT IS DESIGNED TO WORK WITH A TWO WIRE ANALOGUE PSTN LINE FITTED WITH THE APPROPRIATE CONNECTOR.

Brother advises that this product may not function correctly in a country other than where it was originally purchased, and does not offer any warranty in the event that this product is used on public telecommunication lines in another country.

### ■ Declaration of Conformity (Europe only) (DCP-7055/DCP-7057/DCP-7057E/DCP-7060D/DCP-7065DN/MFC-7360/ MFC-7362N/MFC-7360N/MFC-7460DN/MFC-7470D/MFC-7860DN only)

We, Brother Industries, Ltd.

15-1, Naeshiro-cho, Mizuho-ku, Nagoya 467-8561 Japan

declare that this product is in compliance with the essential requirements of Directives 2004/108/EC, 2006/95/EC and 2005/32/EC.

The Declaration of Conformity (DoC) is on our Website.

Please go to <http://solutions.brother.com/>.

- choose region (eg. Europe)
- choose country
- choose your model
- choose "Manuals"
- choose Declaration of Conformity (Select Language when required.)

### ■ Declaration of Conformity (Europe only) (DCP-7055W/DCP-7057W/DCP-7070DW/MFC-7860DW only)

We, Brother Industries, Ltd.

15-1, Naeshiro-cho, Mizuho-ku, Nagoya 467-8561 Japan

declare that this product is in compliance with the essential requirements of Directives 1999/5/EC and 2005/32/EC.

The Declaration of Conformity (DoC) is on our Website.

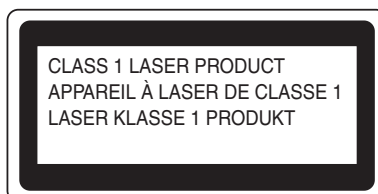
Please go to <http://solutions.brother.com/>.

- choose region (eg. Europe)
- choose country
- choose your model
- choose "Manuals"
- choose Declaration of Conformity (Select Language when required.)

## ■ IEC60825-1:2007 Specification (For 220-240V models only)

This product is a Class 1 laser product as defined in IEC60825-1:2007 specifications.  
The label shown below is attached in countries where required.

This product has a Class 3B Laser Diode which emits invisible laser radiation in the scanner unit. The scanner unit should not be opened under any circumstances.



### Internal laser radiation

Wave length: 770 - 800 nm

Output: 25 mW max.

Laser Class: Class 3B



### WARNING

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

## ■ Disconnect Device

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

## ■ Wiring Information (U.K. only)

If you need to replace the plug fuse, fit a fuse that is approved by ASTA to BS1362 with the same rating as the original fuse.

Always replace the fuse cover. Never use a plug that does not have a cover. If in any doubt, call a qualified electrician.

### Warning -This product must be earthed.

The wires in the mains lead are coloured in line with the following code:

- Green and Yellow: Earth
- Blue: Neutral
- Brown: Live

## ■ LAN Connection (Network models only)



### CAUTION

DO NOT connect this product to a LAN connection that is subject to over-voltages.

■ **Radio Interference**

This product complies with EN55022 (CISPR Publication 22)/Class B.

■ **EU Directive 2002/96/EC and EN50419**



European  
Union only

This equipment is marked with the above recycling symbol. 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

### ■ Standard telephone and FCC notices (MFC only)

**These notices are in effect on models sold and used in the United States only.**

**When programming emergency numbers or making test calls to emergency numbers:**

- Remain on the line and briefly explain to the dispatcher the reason for the call before hanging up.
- Perform these activities in the off-peak hours, such as early morning or late evening.

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the backside of this equipment is a label that contains, among other information, a product identifier in the format US: AAAEQ##TXXXX. If requested, this number must be provided to the telephone company.

You may safely connect this equipment to the telephone line by means of a standard modular jack, USOC RJ11C.

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. (See installation instructions for details.)

The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. For products approved after July 23, 2001, the REN for this product is part of the product identifier that has the format US:AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (e.g., 06 is a REN of 0.6). For earlier products, the REN is separately shown on the label.

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment, for repair or warranty information, please contact Brother Customer Service. (See Brother numbers in the Basic User's Guide.) If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

If your home has specially wired alarm equipment connected to the telephone line, ensure the installation of this equipment does not disable your alarm equipment. If you have questions about what will disable alarm equipment, call your telephone company or a qualified installer.

If you are not able to solve a problem with your product, call Brother Customer Service. (See Brother numbers in the Basic User's Guide.)

#### **WARNING**

For protection against the risk of electrical shock, always disconnect all cables from the wall outlet before servicing, modifying or installing the equipment.

## ■ 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: DCP-7060D/DCP-7065DN/HL-2280DW/  
MFC-7360N/MFC-7365DN/MFC-7460DN/MFC-7860DW

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 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.

(Wireless network models only)

This transmitter must be co-located or operated in conjunction with any other antenna or transmitter.

### **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.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of this device.

L'utilisation de ce dispositif est autorisée seulement aux conditions suivantes:

(1) il ne doit pas produire de brouillage et (2) l'utilisateur du dispositif doit être prêt à accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.

### ■ **Equipment Attachment Limitations (Canada only) (MFC only)**

#### **NOTICE**

This product meets the applicable Industry Canada technical specifications.

Le présent matériel est conforme aux spécifications techniques applicables d'Industrie Canada.

#### **NOTICE**

The Ringer Equivalence Number is an indication of the maximum number of devices allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the RENs of all the devices does not exceed five.

L'indice d'équivalence de la sonnerie (IES) sert à indiquer le nombre maximal de terminaux qui peuvent être raccordés à une interface téléphonique. La terminaison d'une interface peut consister en une combinaison quelconque de dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas 5.

### ■ **Laser Safety (110 to 120 volt model only)**

This machine is certified as a Class 1 laser product under the USA. 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 USA 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 INDUSTRIES (VIETNAM) LTD.

Phuc Dien Industrial Zone Cam Phuc Commune, Cam giang Dist Hai Duong Province, Vietnam.

This product complies with FDA performance standards for laser products except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007.

MANUFACTURED:

Brother Technology (Shenzhen) Ltd.

NO6 Gold Garden Ind., Nanling Nanwan, 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: 25 mW

Wave length: 770 - 800 nm

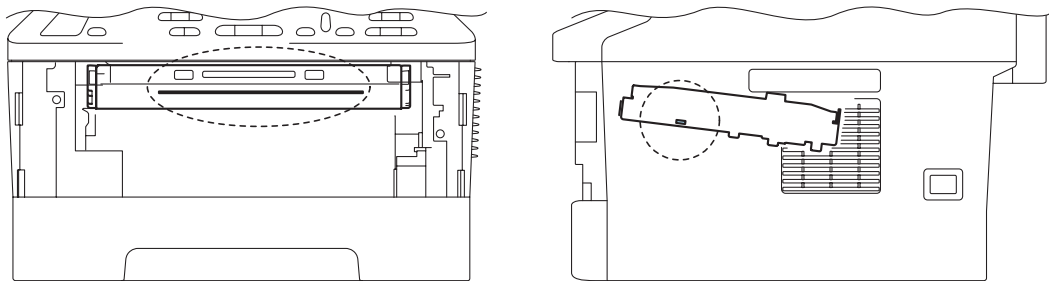
Laser class: Class 3B

## SAFETY INFORMATION

### ■ Caution for Laser Product (WARNHINWEIS für Laser drucker)

- CAUTION:** When the machine during servicing 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.

<Location of the laser beam window>



### ■ 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.
<b>Note</b>	Notes tell you useful tips when servicing the machine.
<b>Memo</b>	Memo tells you bits of knowledge to help understand the machine.

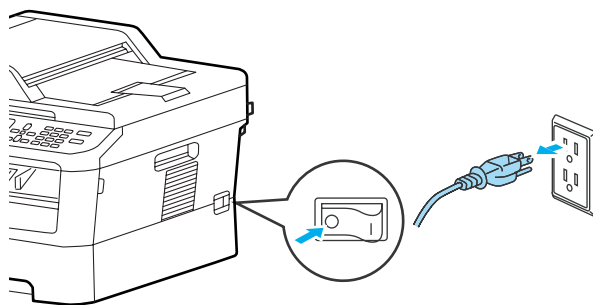
## ■ Safety Precautions

Listed below are the various kinds of “WARNING” messages included in this manual.

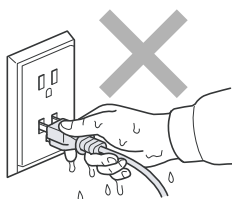
### **WARNING**



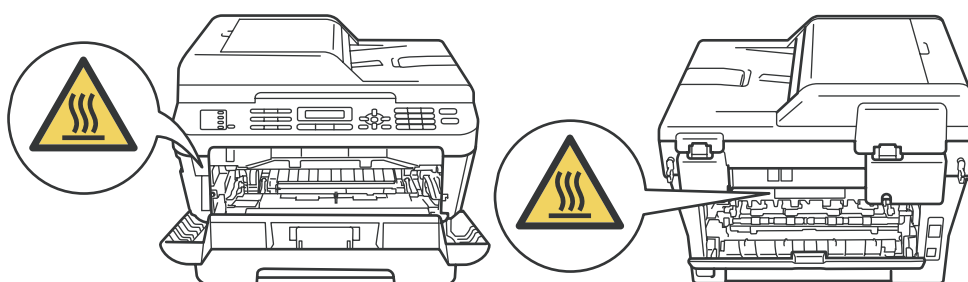
There are high voltage electrodes inside the machine. Before you clean the inside of the machine or replace parts, make sure that you have turned off the power switch and unplugged the machine from the AC power outlet.



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



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.



 **WARNING**

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

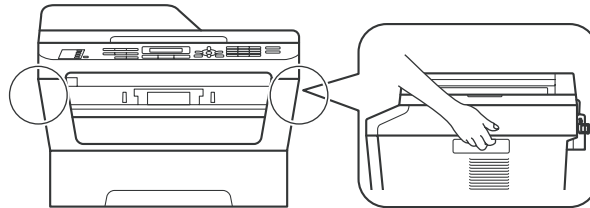


If the machine becomes hot, blows smoke, or generates obscure odor, immediately turn off the power switch and unplug the machine from the AC power outlet.

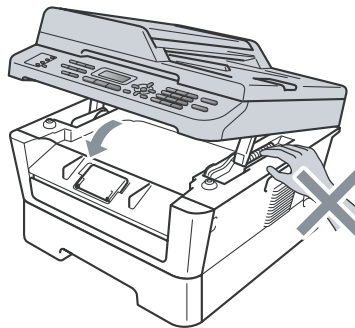
If metal objects, water or other liquids get inside the machine, immediately turn off the power switch and unplug the machine from the AC power outlet.

**! CAUTION**

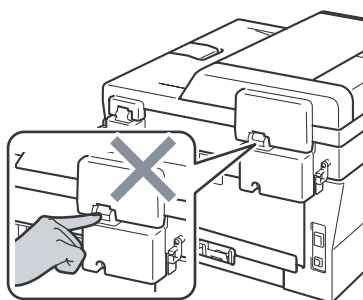
When you move the machine, grasp the side handholds that are under the scanner. DO NOT carry the machine by holding it at the bottom.



To prevent injuries, be careful not to put your hands on the edge of the product under the scanner as shown in the illustrations.



To prevent injuries, be careful not to put your fingers in the areas shown in the illustrations.



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

# **CHAPTER 1**

## **SPECIFICATIONS**

# CHAPTER 1 SPECIFICATIONS

This chapter lists the specifications of each model.

## CONTENTS

<b>1. SPECIFICATIONS LIST .....</b>	<b>1-1</b>
1.1 General.....	1-1
1.2 Network Connectivity.....	1-6
1.3 Service Information.....	1-7
1.4 Consumables.....	1-8
1.5 Paper .....	1-9
1.5.1 Paper handling .....	1-9
1.5.2 Media specifications .....	1-9
1.6 Unprintable Area.....	1-10
1.7 Telephone .....	1-10
1.8 FAX.....	1-10
1.9 Copy .....	1-11
1.10 Scanner .....	1-11
1.11 Unscannable Area .....	1-12
1.12 USB Direct Interface.....	1-12

# 1. SPECIFICATIONS LIST

## 1.1 General

Model		DCP-7055 DCP-7057 DCP-7057E	DCP-7055W DCP-7057W	DCP-7060D	DCP-7065DN	DCP-7070DW HL-2280DW
Print method		Electrophotographic / Laser				
Resolution		600 dpi x 600 dpi, HQ1200 (2400 X 600 dpi) quality				
Print speed		Up to 20/21 ppm	Up to 24/24 ppm	Up to 26/27 ppm		
		* When loading A4 or Letter-size paper from the paper tray.				
Warm-up time		From Sleep Mode: Less than 7 seconds				
		* At 23°C (73.4F)				
		From Power OFF → ON: Less than 27 seconds			From Power OFF → ON: Less than 28 seconds	
		* At 23°C (73.4F)				
First print time	From Ready mode	Less than 10.0 seconds		Less than 8.5 seconds		
	From Sleep mode	Less than 19.0 seconds		Less than 16.5 seconds		
CPU		ARM9 200MHz				
Memory		16 MB	32 MB			
Backup Clock		N/A				
Interface		Hi-Speed USB 2.0	Hi-Speed USB 2.0, IEEE802.11b/g (Infrastructure Mode / Adhoc Mode)	Hi-Speed USB 2.0	Hi-Speed USB 2.0, Ethernet 10/100 BASE-TX	Hi-Speed USB 2.0, Ethernet 10/100 BASE-TX, IEEE802.11b/g (Infrastructure Mode / Adhoc Mode)
Power Consumption * Measured with only USB connected	Peak	1080 W				
	Copying	Average: Approximately 445 W				
	Ready	Average: Approximately 55 W				
	Sleep, Wireless LAN: ON	N/A	Average: Approximately 2.8 W	N/A		Average: Approximately 2.8 W
	Deep Sleep	Average: Approximately 0.9 W	Average: Approximately 1.0 W	Average: Approximately 0.9 W		Average: Approximately 1.0 W

Specifications are subject to change without notice.

Model		DCP-7055 DCP-7055W DCP-7057 DCP-7057E DCP-7057W	DCP-7060D	DCP-7065DN	DCP-7070DW HL-2280DW
Noise Level	Sound pressure	Printing: 53 dB (A) Ready: 30 dB (A)			
	Sound power	Printing: 6.60 B (A) Ready: 4.30 B (A)	For U.S.A. /China Printing: 6.74 B (A) Ready: 4.30 B (A) Except for U.S.A. /China Printing: 6.40 B (A) Ready: 4.27 B (A)	For U.S.A. Printing: 6.81 B (A) Ready: 4.30 B (A) Except for U.S.A. Printing: 6.40 B (A) Ready: 4.22 B (A)	
Environment	Temperature	Operating: 10 to 32.5 °C Storage: 0 to 40 °C			
	Humidity	Operating: 20 to 80 % Storage: 10 to 90 %			
Dimensions (W x D x H)	Carton Size	For models with ADF : 527 x 510 x 493 mm (20.8 x 20.1 x 19.4 inch)  For models without ADF : 527 x 510 x 440 mm (20.8 x 20.1 x 17.4 inch)			
	Machine Size	For models with ADF : 405 x 398.5 x 316 mm (15.95 x 15.7 x 12.45 inch)  For models without ADF : 405 x 398.5 x 268 mm (15.95 x 15.7 x 10.6 inch)			
Weights	With Carton	12.9 kg / 28.4 lb	13.2 kg / 29.1 lb	14.6 kg / 32.2 lb	For U.S.A. 12.6 kg / 27.8 lb Except for U.S.A. 13.4 kg / 29.5 lb
	Without Carton, With toner/drum	9.8 kg / 21.6 lb	10.1 kg / 22.3 lb	11.4 kg / 25.1 lb	10.3kg / 22.7 lb
	Without Carton and toner/drum	8.6 kg / 19.0 lb	8.9 kg / 19.6 lb	10.2 kg / 22.5 lb	9.1 kg / 20.1 lb
LCD Size		Except for China: 16 Characters x 2 lines For China: 10 Characters x 2 lines			

Specifications are subject to change without notice.

Model		MFC-7360	MFC-7360N MFC-7362N	MFC-7365DN MFC-7460DN MFC-7470D MFC-7860DN	MFC-7860DW
Print method		Electrophotographic / Laser			
Resolution		600 dpi x 600 dpi, HQ1200 (2400 X 600 dpi) quality			
Print speed		Up to 24/24 ppm		For MFC-7365DN Up to 24/24 ppm Except for MFC-7365DN Up to 26/27 ppm	
		* When loading A4 or Letter-size paper from the paper tray.			
Warm-up time		From Sleep Mode: Less than 7seconds			
		* At 23°C (73.4F)			
		From Power OFF → ON: Less than 27 seconds		From Power OFF → ON For MFC-7365DN/7460DN Less than 27 seconds Except for MFC-7365DN/ 7460DN Less than 28 seconds	
		* At 23°C (73.4F)			
First print time	From Ready mode	Less than 8.5 seconds			
	From Sleep mode	Less than 16.5 seconds			
CPU		ARM9 200MHz			
Memory		16 MB	32 MB		
Backup Clock		Up to 2 hours		For MFC-7365DN/7460DN Up to 2 hours Except for MFC-7365DN/ 7460DN Up to 60 hours	
Interface		Hi-Speed USB 2.0	For MFC-7470D Hi-Speed USB 2.0 Except for MFC-7470D Hi-Speed USB 2.0, Ethernet 10/100 BASE-TX		Hi-Speed USB 2.0, Ethernet 10/100 BASE-TX, IEEE802.11b/g (Infrastructure Mode / Adhoc Mode)
Power Consumption * Measured with only USB connected	Peak	1080 W			
	Copying	Average: Approximately 445 W			
	Ready	Average: Approximately 55 W			
	Sleep, Wireless LAN: ON	N/A			Average: Approximately 3.9 W
	Deep Sleep	Average: Approximately 1.5 W			Average: Approximately 1.7 W

Specifications are subject to change without notice.

Model		MFC-7360	MFC-7360N MFC-7362N	MFC-7365DN MFC-7460DN MFC-7470D MFC-7860DN	MFC-7860DW
Noise Level	Sound pressure	Printing: 53 dB (A) Ready: 30 dB (A)			
	Sound power	Printing: 6.74 B (A) Ready: 4.30 B (A)		For Europe/ Oceania Printing: 6.40 B (A) Ready: 4.22 B (A) Except for Europe/ Oceania Printing: 6.81 B (A) Ready: 4.30 B (A)	For U.S.A. Printing: 6.81 B (A) Ready: 4.30 B (A) Except for U.S.A. Printing: 6.40 B (A) Ready: 4.22 B (A)
Environment	Temperature	Operating: 10 to 32.5 °C Storage: 0 to 40 °C			
	Humidity	Operating: 20 to 80 % Storage: 10 to 90 %			
Dimensions (W x D x H)	Carton Size	For models without Handset: 527 x 510 x 493 mm (20.8 x 20.1 x 19.4 inch) For models with Handset: 573 x 510 x 493 mm (22.6 x 20.1 x 19.4 inch)			
	Machine Size	For models without Handset: 405 x 398.5 x 316 mm (15.95 x 15.7 x 12.45 inch) For models with Handset: 477 x 398.5 x 316 mm (18.8 x 15.7 x 12.45 inch)			
Weights	With Carton	For Asia: 14.5 kg / 32.0 lb For China: 15.1 kg / 33.3 lb	14.6 kg / 32.2 lb	For models without Handset: 14.8 kg / 32.6 lb For models with Handset: 15.4 kg / 34.0 lb	
	Without Carton, With toner/drum	For Asia: 11.3 kg / 24.9 lb For China: 11.7 kg / 25.8 lb	11.4 kg / 25.1 lb	For models without Handset: 11.6 kg / 25.6 lb For models with Handset: 11.9 kg / 26.2 lb	
	Without Carton and toner/drum	For Asia: 10.1 kg / 22.3 lb For China: 10.4 kg / 22.9 lb	10.2 kg / 22.5 lb	For models without Handset: 10.4 kg / 22.9 lb For models with Handset: 10.6 kg / 23.4 lb	
LCD Size		Except for China: 16 Characters x 2 lines For China: 10 Characters x 2 lines			

Specifications are subject to change without notice.

## <Computer requirements>

Computer Platform & Operating System Version		Processor Minimum Speed	Minimum RAM	Recommended RAM	Hard Disk Space to install		Supported PC Software Functions	Supported PC Interface *3
					For Drivers	For Applications		
Windows® Operating System *1	Windows® 2000 Professional *4	Intel® Pentium® II or equivalent	64 MB	256 MB	150 MB	500 MB	Printing, Scanning	USB, 10/100 Base Tx (Ethernet), Wireless 802.11 b/g
	Windows® XP Home *2 *5 Windows® XP Professional *2 *5		128 MB					
	Windows® XP Professional x64 Edition *2 *5	64-bit (Intel® 64 or AMD 64) supported CPU	256 MB	512 MB				
	Windows Vista® *2 *5	Intel® Pentium® 4 or equivalent 64-bit (Intel® 64 or AMD 64) supported CPU	512 MB	1 GB	500 MB	1.2 GB		
	Windows® 7 *2 *5	Intel® Pentium® 4 or equivalent 64-bit (Intel® 64 or AMD 64) supported CPU	1 GB (32-bit) 2 GB (64-bit)	1 GB (32-bit) 2 GB (64-bit)	650 MB			
	Windows Server® 2003 (print only via network)	Intel® Pentium® III or equivalent	256 MB	512 MB	50 MB	N/A	Printing	10/100 Base Tx (Ethernet), Wireless 802.11 b/g
	Windows Server® 2003 x64 Edition (print only via network)	64-bit (Intel® 64 or AMD 64) supported CPU						
	Windows Server® 2008 (print only via network)	Intel® Pentium® 4 or equivalent 64-bit (Intel® 64 or AMD 64) supported CPU	512 MB	2 GB				
	Windows Server® 2008 R2 (print only via network)	64-bit (Intel® 64 or AMD 64) supported CPU						
Macintosh Operating System	Mac OS X 10.4.11 10.5.x	PowerPC® G4/G5 Intel® Core™ Processor	512 MB	1 GB	80 MB	400 MB	Printing, Scanning	USB, 10/100 Base Tx (Ethernet), Wireless 802.11 b/g
	Mac OS X 10.6.x	Intel® Core™ Processor	1 GB	2 GB				

\*1 Internet Explorer® 6.0 or greater.

\*2 For WIA, 1200 x 1200 resolution. Brother Scanner Utility enables to enhance up to 19200 x 19200 dpi.

\*3 Third-party USB ports are not supported.

\*4 PaperPort™ 11SE supports Microsoft® SP4 or higher for Windows® 2000.

\*5 PaperPort™ 12SE supports Microsoft® SP3 or higher for Windows® XP and SP2 or higher for Windows Vista® and Windows® 7.

Specifications are subject to change without notice.

## 1.2 Network Connectivity

Model		DCP-7055/7057 DCP-7057E/7060D MFC-7360/7470D	DCP-7055W DCP-7057W	DCP-7065DN MFC-7360N MFC-7362N MFC-7365DN MFC-7460DN MFC-7860DN	DCP-7070DW HL-2280DW MFC-7860DW
Wired network	Network node type	N/A		NC-8200h	
	Network type	N/A		Ethernet 10/100 BASE-TX	
	Network security	N/A		APOP, POP before SMTP, SMTP-AUTH	
Wireless network	Network node type	N/A	NC-7800w	N/A	NC-7800w
	Network type	N/A	IEEE802.11b/g (Infrastructure Mode / Adhoc Mode)	N/A	IEEE802.11b/g (Infrastructure Mode / Adhoc Mode)
	Communication mode	N/A	Infrastructure, Ad-hoc	N/A	Infrastructure, Ad-hoc
	Network security	N/A	WEP 64/128 bit, WPA-PSK (TKIP/AES), WPA2-PSK (AES), APOP, POP before SMTP, SMTP-AUTH	N/A	WEP 64/128 bit, WPA-PSK (TKIP/AES), WPA2-PSK (AES), APOP, POP before SMTP, SMTP-AUTH

Specifications are subject to change without notice.

### 1.3 Service Information

Part	Approximate Life (pages)
Machine life	50,000 pages (A4 / LTR) or 5 years under normal use at normal temperature and humidity.
Part life (ADF)	50,000 pages
Part life (Document Scanner Unit)	50,000 pages
MTBF	4,000 hours
MTTR	0.5 hours
Maximum monthly volume	DCP-7055/7055W/7057/7057E/7057W: Up to 8,000 pages Other models: Up to 10,000 pages
Part life (Fuser unit)	50,000 pages
Part life (Laser unit)	
Part life (PF kit)	

Specifications are subject to change without notice.

## 1.4 Consumables

Consumables		Approximate Life
Toner cartridge	Starter Toner	<For China/Asia, Europe in DCP-7065DN/MFC-7460DN/MFC-7860DW, DCP-7057W, DCP-7070DW, MFC-7360> N/A <Other models> Approximately 700 pages/cartridge * When printing A4/Letter-size one sided pages in accordance with ISO/IEC 19752. Shelf life: 2 years without opening (6 months after opening)
	Standard Toner	<DCP-7055/7055W/7057/7057E/7057W, Europe in DCP-7057> Except for China/Asia: Approximately 1,000 pages/cartridge For China/Asia in DCP-7055: Approximately 700 pages/cartridge <Other models> Approximately 1,200 pages/cartridge * When printing A4/Letter-size one sided pages in accordance with ISO/IEC 19752. Shelf life: 2 years without opening (6 months after opening)
	High Capacity	<DCP-7055/7055W/7057E/7057W, Europe in DCP-7057> N/A <Other models> Approximately 2,600 pages/cartridge * When printing A4/Letter-size one sided pages in accordance with ISO/IEC 19752. Shelf life: 2 years without opening (6 months after opening)
Drum unit		Life expectancy: Approximately 12,000 pages/drum unit The life expectancy varies according to the use condition. (Refer to Display of the machine's log ( <a href="#">Function code 80 in Chapter 5.</a> )) * When printing A4/Letter-size one sided pages in accordance with ISO/IEC 19752. Shelf life: 2 years
The shelf life of toner cartridge and drum unit is guaranteed under the normal condition as below; (Temperature) Normal condition: 0 to 40 °C * Storage condition at the temperature of 40 to 50 °C: Up to 5 days * Storage condition at the temperature of -20 to 0 °C: Up to 5 days (Humidity) Normal condition: 35 to 85 % * Storage condition at the humidity of 85 to 95 %: Up to 5 days * Storage condition at the humidity of 10 to 35%: Up to 5 days		

Specifications are subject to change without notice.

## 1.5 Paper

### 1.5.1 Paper handling

Model		All models
Paper Input	Manual feed slot	1 sheet
	Paper tray	250 sheets
	ADF (Only for ADF models)	35 sheets
Paper Output	Face-down	100 sheets
	Face-up	1 sheet (straight paper path)
Auto Duplex (Only for Duplex models)		Yes

Specifications are subject to change without notice.

### 1.5.2 Media specifications

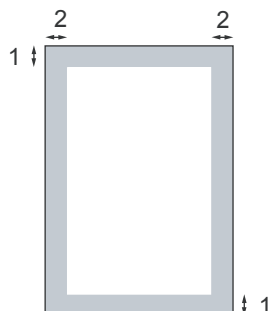
Model		All models
Media type	Paper tray	Plain paper, Thin paper, Recycled Paper
	Manual feed slot	Plain paper, Thin paper, Thick paper, Recycled paper, Bond paper, Labels, Envelope (Thin & Thick)
	Duplex (Only for duplex printing models)	Plain paper, Recycled paper
	ADF (Only for ADF models)	Plain paper, Recycled paper
Media weight	Paper tray	60 to 105 g/m <sup>2</sup> (16 to 28lb)
	Manual feed slot	60 to 163 g/m <sup>2</sup> (16 to 43lb)
	Duplex (Only for duplex printing models)	60 to 105 g/m <sup>2</sup> (16 to 28lb)
	ADF (Only for ADF models)	64 to 90 g/m <sup>2</sup> (17 to 24lb)
Media size	Paper tray	A4, Letter, B5 (ISO/JIS), A5, A5 (Long Edge), B6 (ISO), A6, Executive, Legal <sup>*1</sup> , Folio
	Manual feed slot	Width: 76.2 to 216 mm (3.0 to 8.5 inch) Length: 116 to 406.4 mm (4.6 to 16 inch)
	Duplex (Only for duplex printing models)	For U.S.A.: Letter, Legal, Folio Except for U.S.A.: A4
	ADF (Only for ADF models)	Width: 147.3 to 215.9 mm (5.8 to 8.5 inch) Length: 147.3 to 355.6 mm (5.8 to 14 inch)

<sup>\*1</sup> Legal size paper and Folio size paper are not available in some regions outside the U.S.A. and Canada.

Specifications are subject to change without notice.

## 1.6 Unprintable Area

Portrait



Landscape



	Windows® printer driver and Macintosh printer driver BRScript printer driver for Windows® and Macintosh
1	4.23 mm (0.16 inch)
2	4.23 mm (0.16 inch)

**Note :**

- The area that cannot be printed on may vary depending on the paper size and the printer driver you are using. The unprintable area shown above is for Letter size paper.

## 1.7 Telephone

Model	All models
Handset	Yes (Only for China & Asia in MFC-7470D, for China in MFC-7360/7860DN)

Specifications are subject to change without notice.

## 1.8 FAX

Model		MFC-7360	MFC-7360N MFC-7362N	MFC-7365DN MFC-7460DN	MFC-7470D MFC-7860DN	MFC-7860DW
Modem Speed		14,400 bps			33,600 bps	
Transmission speed		Approximately 7.0 seconds			Approximately 2.5 seconds	
ITU-T group		G3			Super G3	
Color FAX	Sending	N/A				
	Receiving					
Internet FAX (ITU T.37 simple mode)		N/A		Yes (Download only) * MFC-7470D for China & Asia: N/A		

Specifications are subject to change without notice.

## 1.9 Copy

Model		DCP-7055 DCP-7055W DCP-7057 DCP-7057E DCP-7057W	DCP-7060D	DCP-7065DN DCP-7070DW HL-2280DW	MFC-7360 MFC-7360N MFC-7362N MFC-7365DN	MFC-7460DN MFC-7470D MFC-7860DN MFC-7860DW
Copy Speed	A4/Letter	20/21 cpm	24/24 cpm	26/27 cpm	24/24 cpm For Europe in MFC-7360 11/11 cpm	26/27 cpm
First copy out time	From Ready mode and Paper Tray	Less than 12 seconds	Less than 11 seconds			
	From Sleep mode and Paper Tray	Less than 29 seconds	Less than 28 seconds			
Resolution (Optical)		Up to 600 (main scanning) x 600 dpi (sub scanning)				
Auto duplex scanning copy		N/A				

Specifications are subject to change without notice.

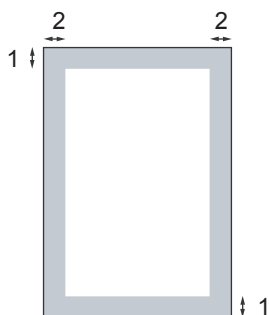
## 1.10 Scanner

Model		All models
Resolution (Optical)	FB	Maximum scanning 600 (main scanning) x 2,400 dpi (sub scanning)
	ADF (Only for ADF models)	Maximum scanning 600 (main scanning) x 600 dpi (sub scanning)
Resolution (Interpolated)		Maximum scanning 19,200 (main scanning) x 19,200 dpi (sub scanning)
Scanning speed	Monochrome	A4: 2.63 seconds / Letter: 2.47 seconds
	Color	A4: 7.89 seconds / Letter: 7.42 seconds

Specifications are subject to change without notice.

## 1.11 Unscannable Area

The scannable area depends on the settings in the application you are using. The figures below show unscannable areas.



Usage	Document Size	Top (1) Bottom (1)	Left (2) Right (2)
Fax	Letter	3 mm (0.12 inch)	3.95 mm (0.15 inch)
	A4	3 mm (0.12 inch)	3 mm (0.12 inch)
Copy	Letter	3 mm (0.12 inch)	3.96 mm (0.15 inch)
	A4	3 mm (0.12 inch)	3 mm (0.12 inch)

### Note :

- (For copies) This unscannable area shown above is for a single copy or a 1 in 1 copy using A4/Letter size paper. The area that cannot be scanned on may vary depending on the paper size.

## 1.12 USB Direct Interface

Model	All models
PictBridge	N/A
Direct print	N/A

Specifications are subject to change without notice.

# **CHAPTER 2**

## **ERROR INDICATION AND TROUBLESHOOTING**

## CHAPTER 2 ERROR INDICATION AND TROUBLESHOOTING

This chapter details error messages and codes which 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 which could occur in the main sections of the machine and related troubleshooting procedures.

### CONTENTS

<b>1. INTRODUCTION .....</b>	<b>2-1</b>
1.1 Precautions.....	2-1
1.2 Initial Check .....	2-2
<b>2. OVERVIEW .....</b>	<b>2-4</b>
2.1 Cross-section Drawing .....	2-4
2.2 Paper Feeding .....	2-6
2.3 Operation of each part.....	2-8
2.4 Block Diagram .....	2-9
2.5 Components .....	2-10
2.6 Life of Toner Cartridge and Drum Unit.....	2-11
<b>3. ERROR CODES .....</b>	<b>2-15</b>
3.1 Error Codes .....	2-15
3.2 Error Messages .....	2-20
3.3 Communications Error Code .....	2-22
3.4 Error Cause and Remedy.....	2-25
3.5 Paper Feeding Problems.....	2-71
3.5.1 Pickup function of Paper tray does not work. ....	2-71
3.5.2 No feeding .....	2-71
3.5.3 No paper fed manual feed slot (Error code 9A).....	2-72
3.5.4 Double feeding .....	2-72
3.5.5 Paper jam .....	2-73
3.5.6 Dirt on paper.....	2-75
3.5.7 Paper feeding at an angle .....	2-75
3.5.8 Wrinkles or creases .....	2-76
3.5.9 Curl in the paper.....	2-77
3.5.10 Prints only single side of the paper when duplex-printing .....	2-78
3.5.11 Cannot make print through duplex-printing .....	2-78
3.5.12 Paper size error.....	2-78
3.5.13 Paper size error through duplex-printing .....	2-78
3.6 Image Defect Troubleshooting .....	2-79
3.6.1 Image defect examples .....	2-79
3.6.2 Troubleshooting image defect .....	2-80

3.7	Software Setting Problems .....	2-91
3.7.1	Cannot print data.....	2-91
3.8	Network Problems .....	2-92
3.8.1	Cannot make a print through network connection (Wireless LAN model only) (Error code DE, EE).....	2-92
3.9	Document Feeding Problems .....	2-93
3.9.1	No feeding .....	2-93
3.9.2	Double feeding .....	2-93
3.9.3	Paper jam .....	2-94
3.9.4	Wrinkles.....	2-95
3.10	Scanning Image Defect Troubleshooting.....	2-96
3.10.1	Image defect examples .....	2-96
3.10.2	Troubleshooting image defect .....	2-96
3.11	Troubleshooting of the Control Panel .....	2-99
3.11.1	Nothing is displayed on the LCD .....	2-99
3.11.2	The control panel does not work .....	2-99
3.11.3	Lamp malfunction .....	2-99
3.12	Troubleshooting of FAX/Telephone Functions .....	2-100
3.12.1	FAX can't send it .....	2-100
3.12.2	FAX cannot be transmitted and received. ....	2-100
3.12.3	No bell ring .....	2-100
3.12.4	A communication error occurs.....	2-101
3.12.5	Reception mode cannot be changed.....	2-101
3.12.6	Caller ID are not displayed .....	2-101
3.12.7	Cannot talk on the handset .....	2-101
3.13	PCB Problems .....	2-102
3.13.1	Main PCB failure .....	2-102
3.13.2	Out of Memory.....	2-102
3.13.3	High voltage power supply PCB ASSY failure .....	2-102
3.13.4	Low voltage power supply PCB ASSY failure .....	2-103
3.13.5	NCU ASSY failure .....	2-103
3.14	Other Problems .....	2-104
3.14.1	The machine is not turned ON, or the LCD indication does not appear. ....	2-104
3.14.2	Fuser fan does not rotate. ....	2-104
3.14.3	The room temperature is high or low.....	2-104
3.14.4	Problem associated with Secure Function Lock.....	2-104


# 1. INTRODUCTION

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

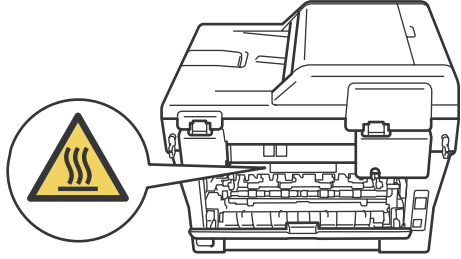
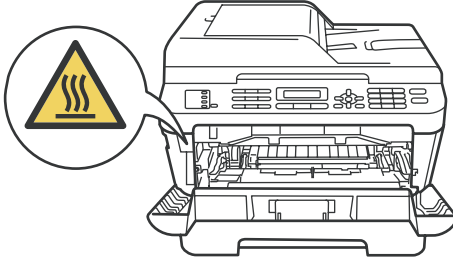
## 1.1 Precautions

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

- (1) Always turn off the power and unplug the power cable before removing any covers or PCBs, adjusting the machine and so on. If you need to take voltage measurements with the power switched on, take the greatest of care not to receive an electric shock.
- (2) When connecting or disconnecting cable connectors, make sure that you hold the connector body and not the cables.
- (3) Static electricity charged in your body may damage electronic parts.  
Before handling the PCBs, touch a metal portion of the machine to discharge static electricity charged in your body. When transporting PCBs, be sure to wrap them in conductive sheets.  
When replacing the PCBs, put on a grounding wrist band and perform the job on a conductive mat. Also take care not to touch the conductor sections on the flat cables.
- (4) Follow the warning by all means.






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.



**! WARNING**

**DO NOT** use flammable substances such as alcohol, benzine, thinner or any type of spray to clean the inside or outside of the machine. Doing this may cause a fire or electrical shock.



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

## 1.2 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) Ensure the machine is not exposed to direct sunlight, excessive heat, moisture, or dust.
- (4) When you move the machine, grasp the side handholds that are under the scanner. DO NOT carry the machine by holding it at the bottom.

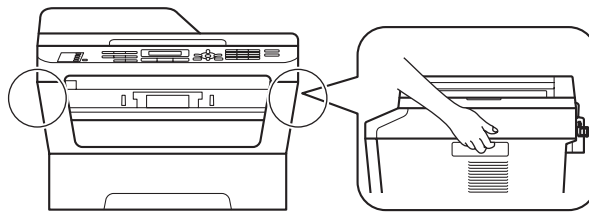


Fig. 2-1

### ■ Power Supply

- (1) The AC input power supply described on the rating plate of the machine should be within  $\pm 10\%$  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 User's guide.)
- (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 surface of optical devices such as the laser scanner windows, lens, reflecting mirror, and protection glass, etc, may cause light print image.
- If the exposure drum is cold, the electrical resistance of the photosensitive layer is increased, making it impossible to obtain the correct contrast when printing.
- Condensation on the charge unit may cause corona charge leakage.
- Condensation on the plate and separation pad may cause paper feed problems.

If condensation has occurred, leave the machine for at least two 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 user to allow the unit to come to room temperature before unpacking it. This will take one or two hours.

### (2) Low temperature

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

## ■ Cleaning

Use a soft dry lint-free cloth.

### **WARNING**

**DO NOT** use flammable substances, any type of spray or any organic solvent/liquids contains alcohol or ammonia to clean the inside or outside of the machine. Doing this may cause a fire or electrical shock.



## 2. OVERVIEW

### 2.1 Cross-section Drawing

#### ■ Printer part

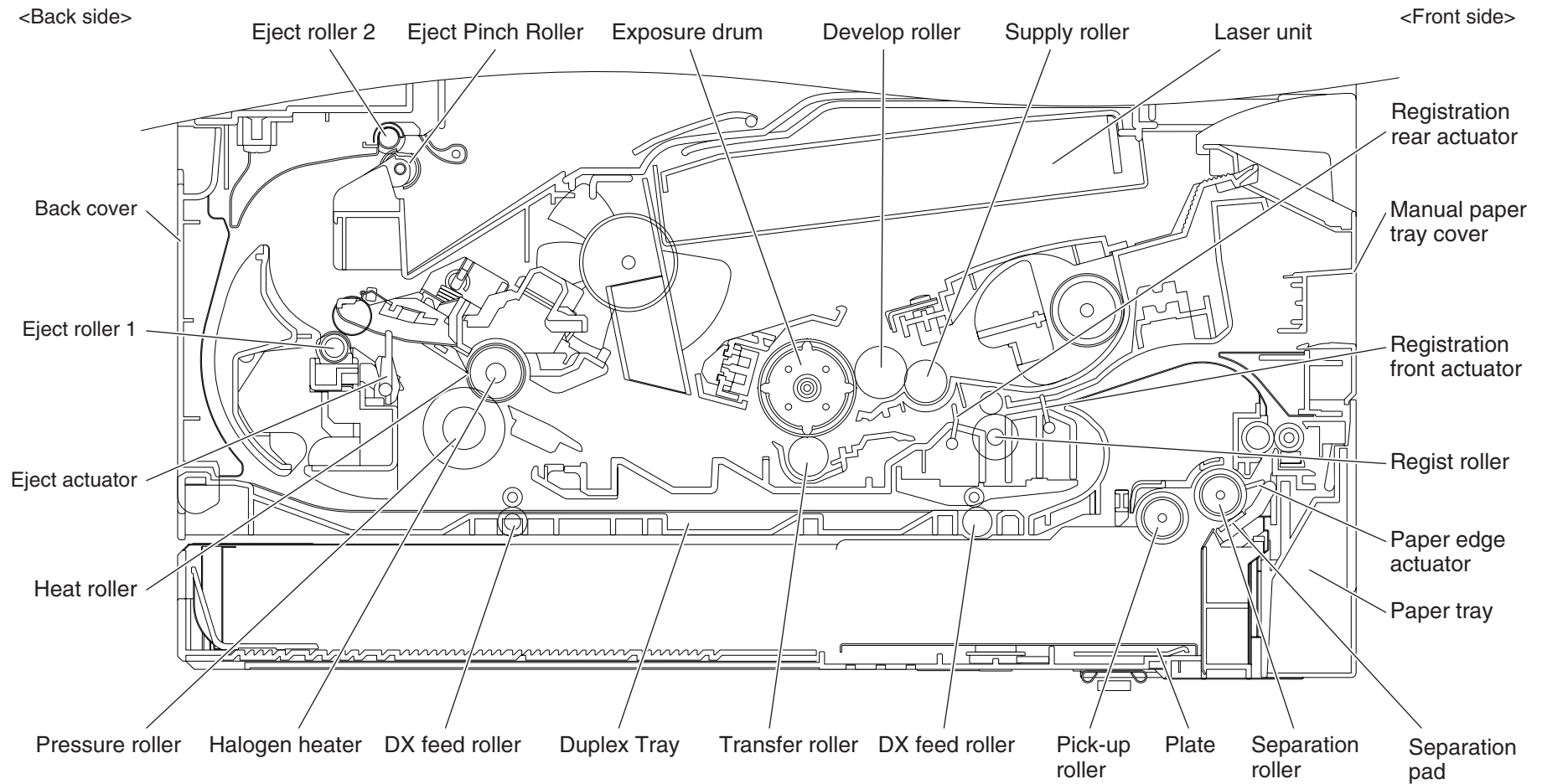
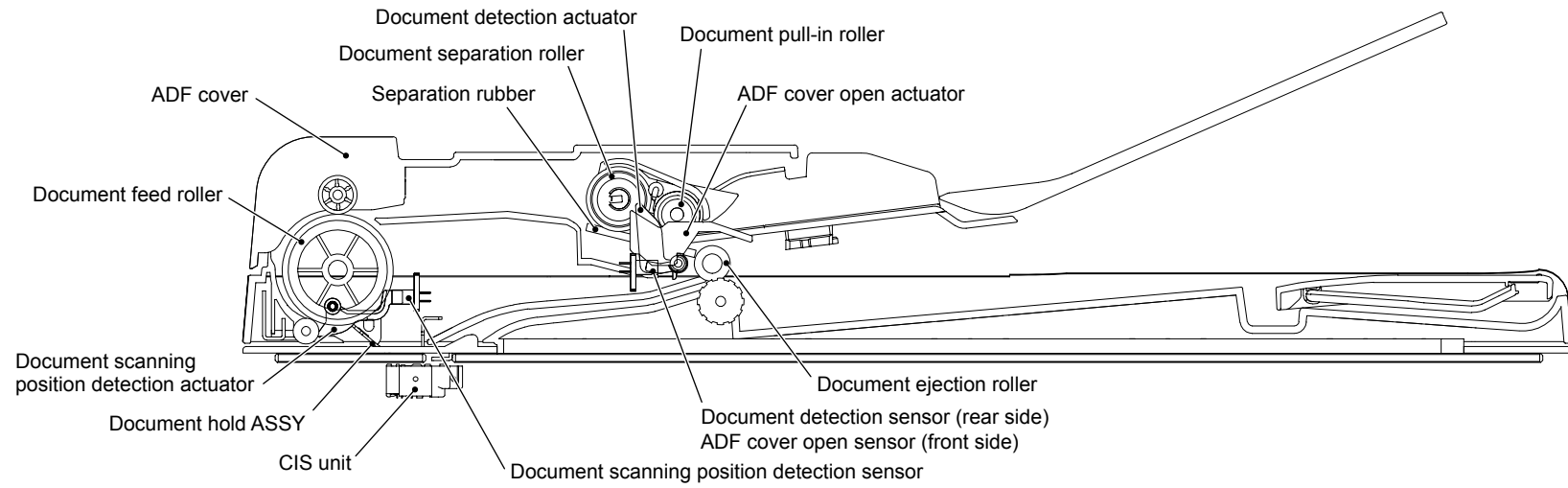


Fig. 2-2

## ■ ADF part

<Left Side>

<Right Side>



**Fig. 2-3**

## 2.2 Paper Feeding

### ■ Printer part

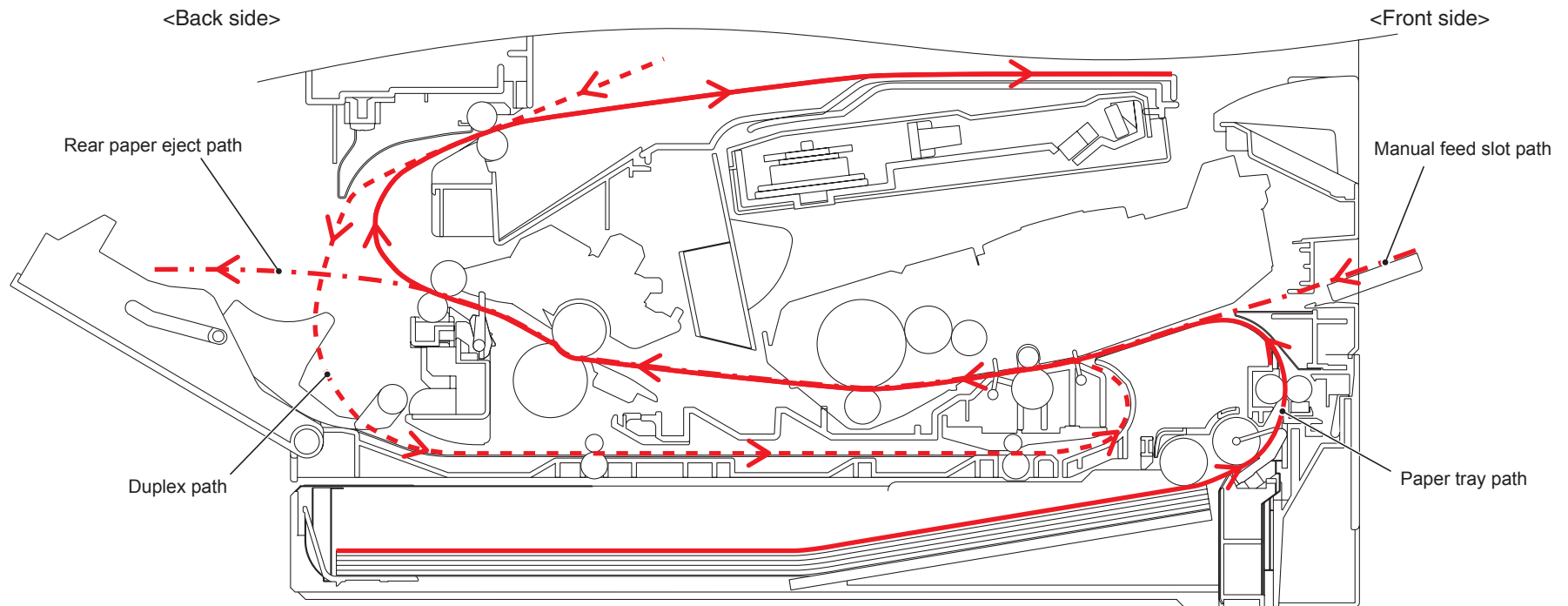


Fig. 2-4

■ ADF part

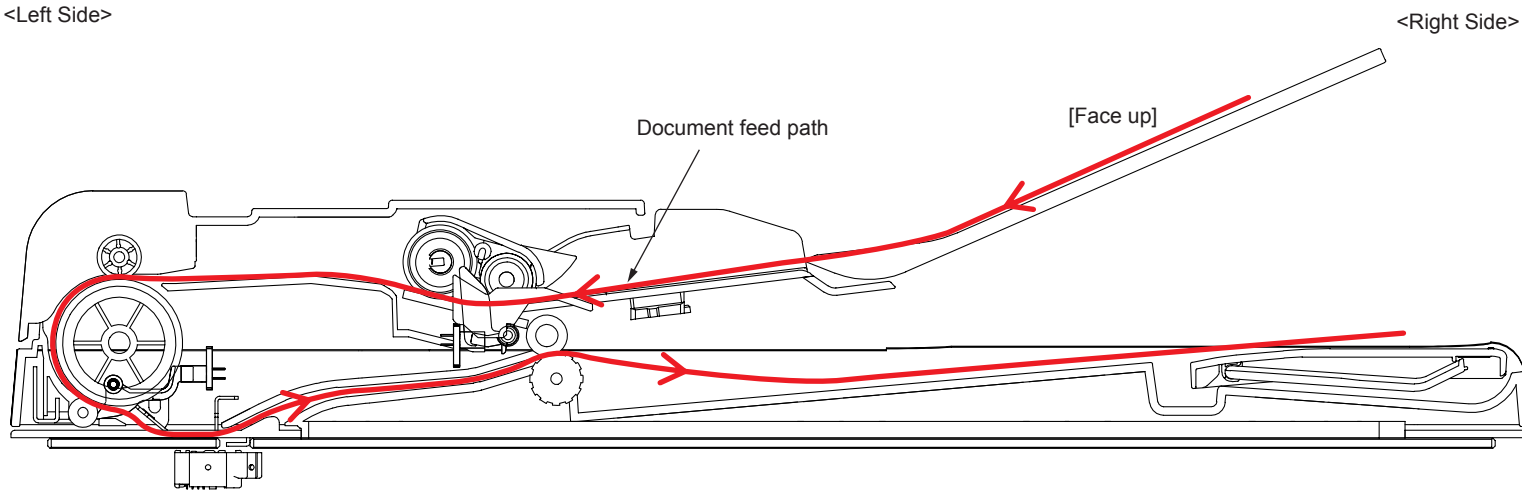


Fig. 2-5

## 2.3 Operation of each part

### ■ Printer part

Part name	Operation
Pick-up roller	Feed the paper from the paper tray.
Separation roller and Separation pad	Separate into single sheet from the paper tray.
Paper edge actuator (With paper edge actuator model only)	Detect the rear edge of paper, and identify the paper size.
Registration front actuator	Detect the front edge of paper, and control the drive of registration roller. When feeding from the manual feed slot, detect the passage of paper. Detect the paper jam of front part.
Registration roller	When the front edge of the paper hit the stopped registration roller and the inclination of the paper is corrected.
Registration rear actuator	Detect the passage of paper and adjust the starting position for writing on a sheet of paper. When the duplex printing, detect the rear edge of paper and adjust the timing of eject roller 2 switching.
Transfer roller	By applying a minus charge to the transfer roller, the toner adhered to the exposure drum is transferred to paper, and feed the paper to the fuser unit.
Heat roller and Pressure roller	The toner transferred on paper being fused by heat and pressure, and feed the paper to the eject roller 1.
Paper eject actuator	Detect whether or not paper is ejected from the fuser unit.
Eject roller 1	Feed the paper ejected from the fuser unit to the eject roller 2.
Eject roller 2	Eject the paper to the face-down output tray. When the duplex printing, after the paper is fed from the eject roller 2 with the front of sheet printed, the eject roller 2 rotates conversely and feed the paper to the duplex tray.
DX feed roller (Duplex printing model only)	Feed the paper passed in the duplex tray to the registration roller.

### ■ ADF part

Part name	Operation
Document detection actuator	Detect the passage of the document set in the document tray.
Document pull-in roller	Feed the documents set in the document tray.
Document separation roller, Separation rubber	Separate the documents fed by the document pull-in roller one by one.
Document feed roller	Feed the document to the CIS unit.
Document scanning position detection actuator	Detect the front edge of the document, and adjust the surface reading position. Detect the document jams inside the ADF.
Document ejection roller	Eject the document on the document cover after the surface has been read.

## 2.4 Block Diagram

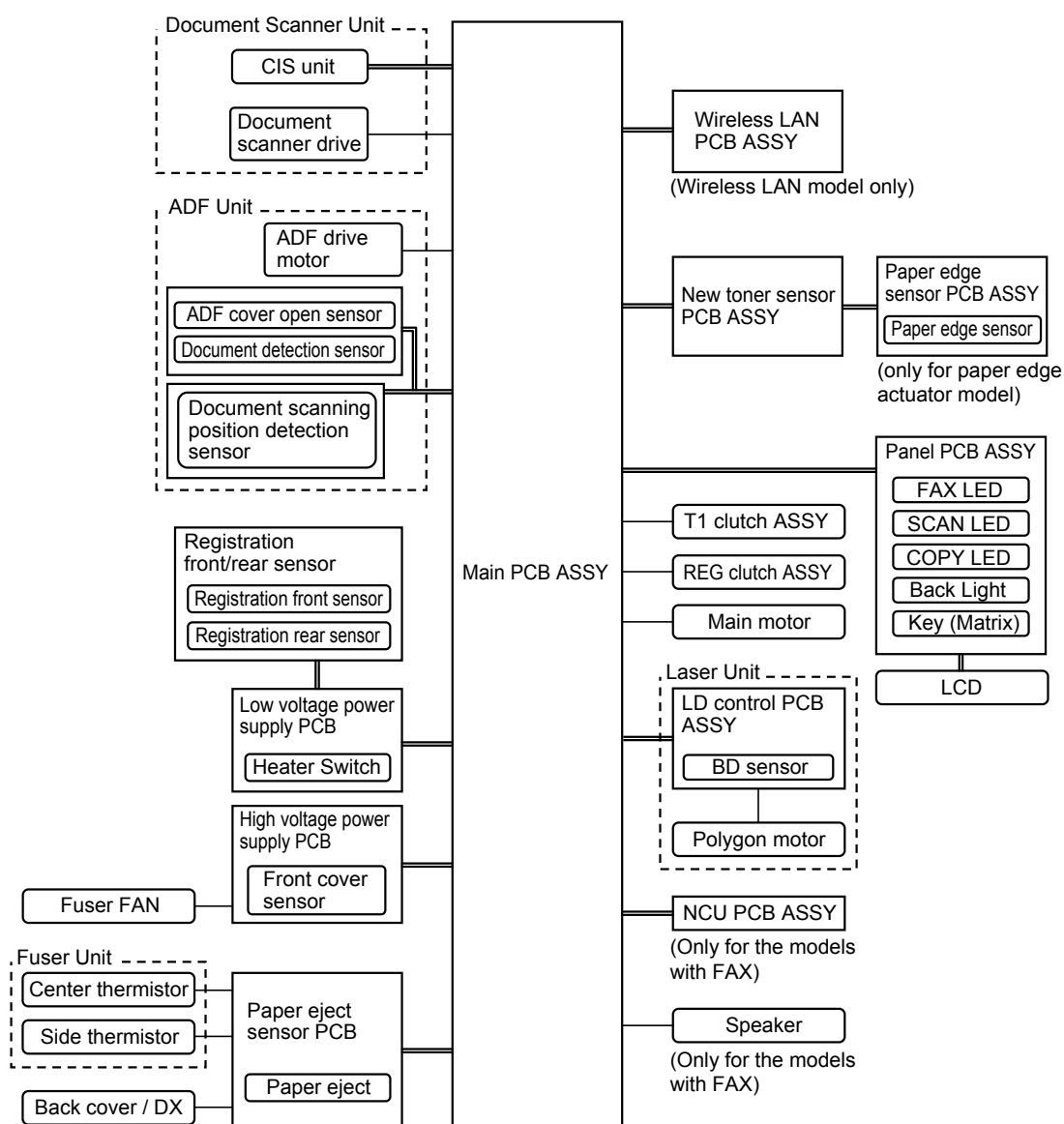


Fig. 2-6

## 2.5 Components

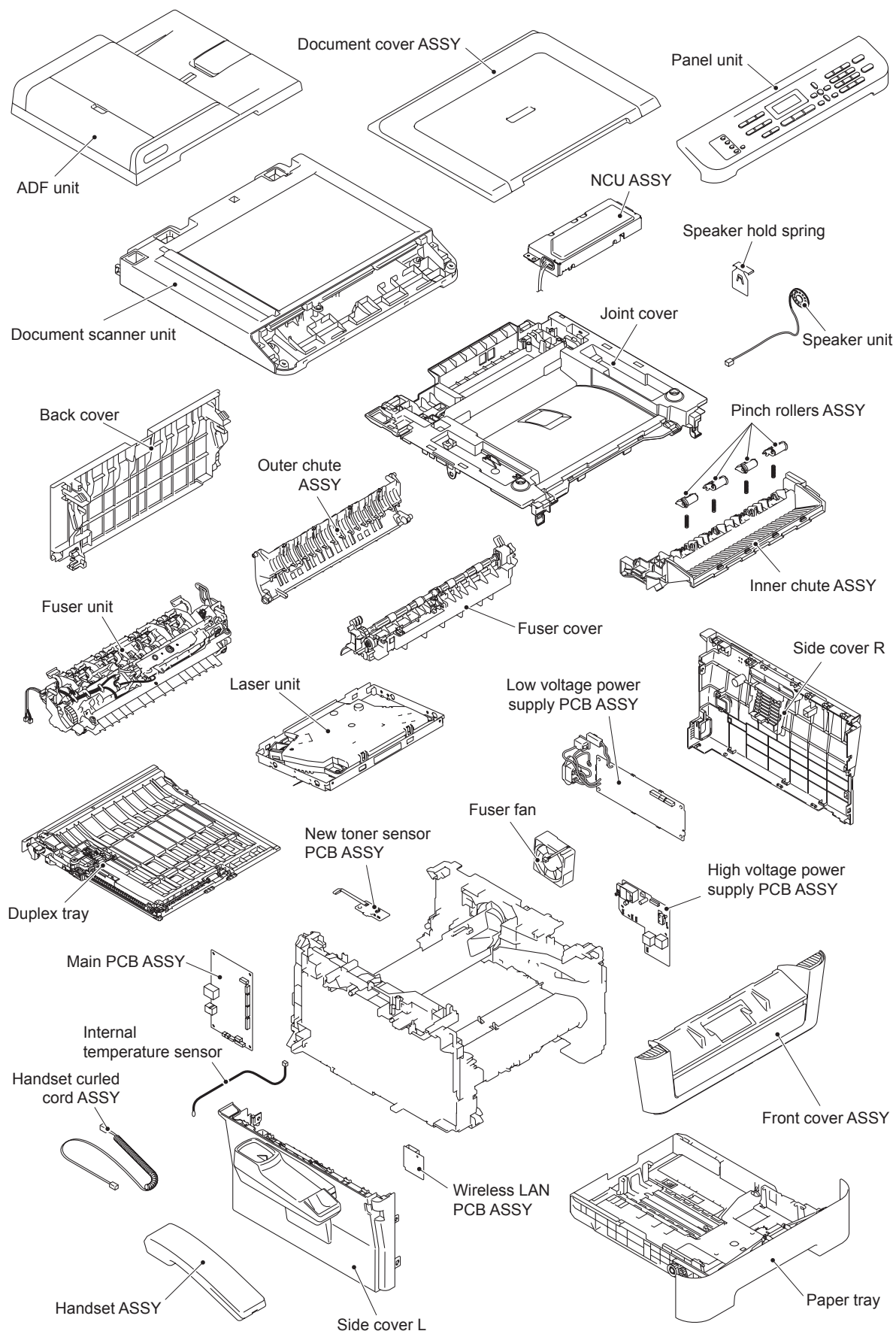


Fig. 2-7

## 2.6 Life of Toner Cartridge and Drum Unit

### <Life of Toner Cartridge>

This product detects the remaining toner only by the dot count and the number of rotations of the develop roller. The function to detect by the light sensor is not installed. As this machine is not equipped with a toner sensor as conventional models are, it manages the level of remaining toner by dot count during printing and the number of rotations of the develop roller. Therefore printing may stop with the error message "Replace Toner" even though some toner remains. Even if "Replace Toner" is displayed on the machine, printing can be continued if the user chooses to change the mode to Continue Mode. In Continue Mode, however, the printing result when the toner runs out is not assured, meaning that the user shall be responsible for it. In addition to this, even when the mode is set to Continue Mode, printing stops when the number of rotations of the develop roller reaches the upper limit, and remains stopped until the toner cartridge is replaced to prevent any problems, such as toner leakage.

The life of the toner cartridge varies according to the average number of print pages per job. (See the table below.) The number of printable pages is larger when making continuous prints in one job because deterioration of the develop roller is low.

Relationship between average print page per 1 job and life of toner cartridges

26/27ppm model

Average print page (page/job)	1	2	3	...	Continuance
Cartridge life (Starter)	630	950	1200		2100
Cartridge life (Standard)	1080	1600	2000		3600
Cartridge life (High-capacity)	2340	3500	4300		7800

Page

24ppm model

Average print page (page/job)	1	2	3	...	Continuance
Cartridge life (Starter)	630	930	1100		2000
Cartridge life (Standard)	1080	1600	2000		3400
Cartridge life (High-capacity)	2340	3500	4200		7400

Page

20/21ppm model

Average print page (page/job)	1	2	3	...	Continuance
Cartridge life (Starter)	630	930	1100		2000
Cartridge life (Standard)	900	1300	1600		2900
Cartridge life (Standard) (HL-2220)	1080	1600	2000		3500
Cartridge life (High-capacity) (HL-2220)	2340	3500	4200		7600

Page

The develop roller also rotates for the warm-up operation when the power is turned ON and when the cover is opened or closed. Therefore, when these operations are frequently performed, the life of toner cartridges is shortened. (The table below shows the worst case in which the warm-up operation is performed when the power is turned ON.)

Life of the toner cartridges in the case that the power is turned OFF/ON for every print job  
26/27ppm model

Average print page (page/job)	1	2	3	...	Continuance
Cartridge life (Starter)	380	640	850		2100
Cartridge life (Standard)	650	1100	1500		3600
Cartridge life (High-capacity)	1400	2400	3100		7800

Page

24ppm model

Average print page (page/job)	1	2	3	...	Continuance
Cartridge life (Starter)	380	630	820		2000
Cartridge life (Standard)	640	1100	1400		3400
Cartridge life (High-capacity)	1400	2400	3000		7400

Page

20/21ppm model

Average print page (page/job)	1	2	3	...	Continuance
Cartridge life (Starter)	310	540	710		2000
Cartridge life (Standard)	440	770	1000		2900
Cartridge life (Standard) (HL-2220)	530	920	1200		3500
Cartridge life (High-capacity) (HL-2220)	1150	2000	2600		7600

Page

The life in Continue Mode is shown below. However, print may become light within the use upper limit value on the way.

Relationship between average print page per 1 job in Continue Mode and life of toner cartridges

26/27ppm model

Average print page (page/job)	1	2	3	...	Continuance
Cartridge life (Starter)	4500	6800	8300		15000
Cartridge life (Standard)	4500	6800	8300		15000
Cartridge life (High-capacity)	4500	6800	8300		15000

Page

24ppm model

Average print page (page/job)	1	2	3	...	Continuance
Cartridge life (Starter)	4500	6700	8100		14000
Cartridge life (Standard)	4500	6700	8100		14000
Cartridge life (High-capacity)	4500	6700	8100		14000

Page

20/21ppm model

Average print page (page/job)	1	2	3	...	Continuance
Cartridge life (Starter)	4500	6700	8100		15000
Cartridge life (Standard)	4500	6700	8100		15000
Cartridge life (High-capacity)	4500	6700	8100		15000

Page

Life of the toner cartridges in the case that the power is turned OFF/ON for every print job in Continue Mode

26/27ppm model

Average print page (page/job)	1	2	3	...	Continuance
Cartridge life (Starter)	2700	4600	6000		15000
Cartridge life (Standard)	2700	4600	6000		15000
Cartridge life (High-capacity)	2700	4600	6000		15000

Page

24ppm model

Average print page (page/job)	1	2	3	...	Continuance
Cartridge life (Starter)	2690	4500	5900		14000
Cartridge life (Standard)	2690	4500	5900		14000
Cartridge life (High-capacity)	2690	4500	5900		14000

Page

20/21ppm model

Average print page (page/job)	1	2	3	...	Continuance
Cartridge life (Starter)	2920	4900	6300		15000
Cartridge life (Standard)	2920	4900	6300		15000
Cartridge life (High-capacity)	2920	4900	6300		15000

Page

The numeral values provided in this page are as of June 2010. These values are subject to change without prior notice.

### <Life of Drum Unit>

The drum unit life is based on the "drum counter" or the "number of drum rotations".

Printing does not stop even when the drum unit reaches the end of life.

The drum counter is based on the total printed pages on each drum unit. This total printed pages should be reset every time you replace the drum unit with a new one.

(Refer to <How to reset the drum counter> below.)

However, if the power switch is turned OFF/ON frequently or if you print few pages per one job, only the number of drum rotations increases. Then, the number of drum rotation exceeds the "drum counter" based on the total printed pages and the drum unit may reach the end of life.

Average print page per one job and life of drum unit

26/27ppm model

Average print page (page/job)	1	2	3	...	Continuance
Drum unit	12000	18000	22000		40000

Page

24ppm model

Average print page (page/job)	1	2	3	...	Continuance
Drum unit	12000	18000	22000		39000

Page

Drum rotations are required for the warm-up operation when the power is turned ON or when the cover is opened or closed. Therefore, when these operations are frequently performed, the life of drum unit is shortened. (The table below shows the worst case in which the warm-up operation is performed when the power is turned ON.)

Life of the drum unit in the case that the power is turned OFF/ON for every print job

26/27ppm model

Average print page (page/job)	1	2	3	...	Continuance
Drum unit	7000	12000	16000		40000

Page

20/21ppm model / 24ppm model

Average print page (page/job)	1	2	3	...	Continuance
Drum unit	7000	12000	15000		39000

Page

The numeral values provided in this page are as of June 2010. These values are subject to change without prior notice.

### <How to reset the drum counter>

Reset the drum counter in accordance with ["2.2 Parts Life Reset Function" in Chapter 5](#).

## 3. ERROR CODES

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

### 3.1 Error Codes

The errors with a mesh background in the table below do not occur in the normal operation. They might occur due to noise around the installation site, change of the power supply voltage, and failures in the software.

Error codes	Problem	Refer to:	Error codes	Problem	Refer to:
0B	An unidentified error occurred.	2-25	30	An unidentified error occurred.	2-30
0E	An unidentified error occurred.	2-25	31	An unidentified error occurred.	2-30
0F	The back cover is open upon duplex-printing. (The back cover sensor is OFF)	2-25	32	An unidentified error occurred.	2-30
10	An unidentified error occurred.	2-26	33	An unidentified error occurred.	2-30
11	An unidentified error occurred.	2-26	34	An unidentified error occurred.	2-30
12	An unidentified error occurred.	2-26	35	An unidentified error occurred.	2-31
16	An unidentified error occurred.	2-26	36	Error in the high voltage power supply PCB while the machine is in the ready state.	2-31
17	An unidentified error occurred.	2-26	37	An unidentified error occurred.	2-31
18	An unidentified error occurred.	2-26	38	An unidentified error occurred.	2-31
19	An unidentified error occurred.	2-26	39	An unidentified error occurred.	2-31
1A	An unidentified error occurred.	2-27	3A	An unidentified error occurred.	2-32
1B	An unidentified error occurred.	2-27	3B	Main PCB DRAM access error.	2-32
1C	An unidentified error occurred.	2-27	3C	An unidentified error occurred.	2-33
1D	An unidentified error occurred.	2-27	3D	An unidentified error occurred.	2-33
1E	The drum unit will reach the end of life soon.	2-27	3E	An unidentified error occurred.	2-33
1F	An unidentified error occurred.	2-28	3F	An unidentified error occurred.	2-33
20	An unidentified error occurred.	2-28	40	An unidentified error occurred.	2-33
21	An unidentified error occurred.	2-28	41	An unidentified error occurred.	2-33
22	An unidentified error occurred.	2-28	42	An unidentified error occurred.	2-33
23	An unidentified error occurred.	2-28	43	An unidentified error occurred.	2-33
24	Internal temperature sensor error.	2-28	44	The toner cartridge is not installed.	2-34
25	An unidentified error occurred.	2-29	45	An unidentified error occurred.	2-34
26	An unidentified error occurred.	2-29	46	An unidentified error occurred.	2-34
27	An unidentified error occurred.	2-29	47	An unidentified error occurred.	2-34
28	An unidentified error occurred.	2-29	48	An unidentified error occurred.	2-34
29	An unidentified error occurred.	2-29	49	An unidentified error occurred.	2-34
2A	An unidentified error occurred.	2-29	4A	An unidentified error occurred.	2-35
2B	An unidentified error occurred.	2-29	4B	An unidentified error occurred.	2-35
2C	An unidentified error occurred.	2-29	4C	An unidentified error occurred.	2-35
2D	An unidentified error occurred.	2-30	4D	An unidentified error occurred.	2-35
2E	An unidentified error occurred.	2-30	4E	An unidentified error occurred.	2-35
2F	An unidentified error occurred.	2-30	4F	An unidentified error occurred.	2-35

Error codes	Problem	Refer to:	Error codes	Problem	Refer to:
50	The drum unit reached the end of life. (Printable)	2-35	68	An unidentified error occurred.	2-41
51	An unidentified error occurred.	2-36	69	An unidentified error occurred.	2-41
52	An unidentified error occurred.	2-36	6A	Fuser unit error. (The center thermistor does not detect 60°C within in the specified time.)	2-42
53	An unidentified error occurred.	2-36	6B	Fuser unit error. (The center thermistor does not detect 100°C within in the specified time.)	2-42
54	An unidentified error occurred.	2-36	6C	Fuser unit error. (The center thermistor detects 270°C or higher temperature for 1 second.)	2-42
55	An unidentified error occurred.	2-36	6D	Fuser unit error. (The center thermistor detects 60°C or lower temperature for 1 second during ready state or printing.)	2-42
56	The fuser cover is open.	2-36	6E	An unidentified error occurred.	2-42
57	Paper is jammed in the duplex paper feed path.	2-37	6F	Fuser unit error. (The center and side thermistors detect extremely high temperature.)	2-43
58	Any of errors 6A to 6D, 6F, 76 or 78 occurred when the power was turned ON or machine goes back to the ready state from sleep mode.	2-37	70	An unidentified error occurred.	2-43
59	Error code displayed to prompt the operator to leave the machine for a certain time when power was turned OFF and then ON again after error 58 occurred.	2-38	71	Laser unit error.	2-44
5A	An unidentified error occurred.	2-39	72	Failed to detect the beam by BD sensor of the laser unit.	2-44
5B	An unidentified error occurred.	2-39	73	An unidentified error occurred.	2-44
5C	An unidentified error occurred.	2-39	74	An unidentified error occurred.	2-44
5D	An unidentified error occurred.	2-39	75	The internal temperature reached its upper limit.	2-45
5E	An unidentified error occurred.	2-39	76	Fuser unit error. (The center thermistor detects the sharp temperature rise.)	2-45
5F	An unidentified error occurred.	2-39	78	Fuser unit error. (The center thermistor detects the sharp temperature fall.)	2-45
60	An unidentified error occurred.	2-39	7A	Synchronized signal of the main motor cannot be detected.	2-45
61	An unidentified error occurred.	2-39	7B	An unidentified error occurred.	2-46
62	An unidentified error occurred.	2-39	7C	An unidentified error occurred.	2-46
63	The number of rotations of the developer roller reached the upper limit when stop mode is set for the toner cartridge.	2-40	7D	Detected unusual discharge of the corona wire due to dirt on the drum unit.	2-46
64	An unidentified error occurred.	2-40	7E	An unidentified error occurred.	2-47
65	An unidentified error occurred.	2-40	7F	FAX paper size is incorrect. (Menu setting)	2-47
66	An unidentified error occurred.	2-40	80	FAX paper size is incorrect. (The actually loaded paper is small)	2-47
67	The number of rotations of the developer roller will reach the upper limit when stop mode is set for the toner cartridge.	2-41	81	An unidentified error occurred.	2-47

Error codes	Problem	Refer to:	Error codes	Problem	Refer to:
82	An unidentified error occurred.	2-47	9B	The number of rotations of the developer roller reached the upper limit when continue mode is set for the toner cartridge.	2-54
83	Drum unit error (detected unusual discharge of the corona wire after the drum unit reached the end of life)	2-48	9C	The number of rotations of the developer roller will reach the upper limit when continue mode is set for the toner cartridge.	2-54
84	Paper jam at the rear section of the machine.	2-48	9D	An unidentified error occurred.	2-55
85	An unidentified error occurred.	2-49	9E	An unidentified error occurred.	2-55
86	An unidentified error occurred.	2-49	9F	An unidentified error occurred.	2-55
87	An unidentified error occurred.	2-49	A0	An unidentified error occurred.	2-55
88	Paper jam inside the machine.	2-49	A1	The front cover is open.	2-55
89	Paper of the size not supported for duplex printing is set in the tray.	2-50	A2	During scanning, 90cm or longer of a document is detected.	2-56
8A	Paper jam in the paper tray1.	2-50	A3	Document scanning position detection sensor does not detect the leading edge of a document although the document is fed farther than designated distance.	2-56
8B	An unidentified error occurred.	2-51	A4	ADF cover is open.	2-57
8C	An unidentified error occurred.	2-51	A5	Scanning failure upon FAX transmission. (Scanning unit failure for the first time)	2-57
8D	Paper jam occurred around the back cover at the time when the power was turned ON, or the back cover is open.	2-51	A6	Scanning failure upon FAX transmission. (Scanning unit failure for the second time or later)	2-57
8E	An unidentified error occurred.	2-52	A7	Scanning color parameter fille failure.	2-58
8F	An unidentified error occurred.	2-52	A8	Scanning color parameter error for recording the image.	2-58
90	An unidentified error occurred.	2-52	A9	An unidentified error occurred.	2-58
91	An unidentified error occurred.	2-52	AA	An unidentified error occurred.	2-58
92	An unidentified error occurred.	2-52	AB	An unidentified error occurred.	2-58
93	An unidentified error occurred.	2-52	AC	An unidentified error occurred.	2-58
94	An unidentified error occurred.	2-52	AD	Timeout error during waiting for completion of scanning DMA transfer.	2-58
95	An unidentified error occurred.	2-52	AE	An unidentified error occurred.	2-59
96	An unidentified error occurred.	2-52	AF	The white tape cannot be detected.	2-59
97	An unidentified error occurred.	2-53	B0	Scanning flat cable connection failure.	2-59
98	An unidentified error occurred.	2-53	B1	Dark level offset data level error for scanning.	2-60
99	An unidentified error occurred.	2-53	B2	Gain control data level error for scanning.	2-60
9A	Not detect paper at feeding from manual feed slot.	2-53	B3	The scanning area setting left edge detection error. (white tape)	2-60

Error codes	Problem	Refer to:	Error codes	Problem	Refer to:
B4	The scanning area setting right edge detection error. (white tape)	2-60	D2	An unidentified error occurred.	2-64
B5	An unidentified error occurred.	2-60	D3	An unidentified error occurred.	2-64
B6	An unidentified error occurred.	2-60	D4	An unidentified error occurred.	2-64
B7	A/D converter standard voltage failure; at High side.	2-61	D5	An unidentified error occurred.	2-64
B8	A/D converter standard voltage failure; at Low side.	2-61	D6	An unidentified error occurred.	2-64
B9	Scanning light adjustment error.	2-61	D7	An unidentified error occurred.	2-64
BA	An unidentified error occurred.	2-61	D8	An unidentified error occurred.	2-64
BB	White level data error.	2-61	D9	An unidentified error occurred.	2-64
BC	An unidentified error occurred.	2-62	DA	An unidentified error occurred.	2-64
BD	Black level data error.	2-62	DB	An unidentified error occurred.	2-64
BE	An unidentified error occurred.	2-62	DC	An unidentified error occurred.	2-64
BF	An unidentified error occurred.	2-62	DD	Fuser unit error except error codes 6A, 6B, 6C, 6D, 6F, 76, 78, DE and E2.	2-65
C0	Failure to detect a new toner cartridge.	2-62	DE	When the center thermistor is higher than the idle temperature, it is detected that the side thermistor temperature is lower than 60°C.	2-65
C1	An unidentified error occurred.	2-63	DF	An unidentified error occurred.	2-66
C2	An unidentified error occurred.	2-63	E0	Program error. (An error occurred in the ROM checksum.)	2-66
C3	An unidentified error occurred.	2-63	E1	Program error.	2-66
C4	An unidentified error occurred.	2-63	E2	When the center thermistor is lower than the idle temperature, it is detected that the side thermistor temperature is higher than 280°C.	2-67
C5	An unidentified error occurred.	2-63	E3	An unidentified error occurred.	2-67
C6	An unidentified error occurred.	2-63	E4	An unidentified error occurred.	2-67
C7	Insufficient memory.	2-63	E6	Write error in EEPROM of the main PCB.	2-67
C8	RAM area for secure data full.	2-63	E7	An unidentified error occurred.	2-68
C9	An unidentified error occurred.	2-64	E8	An unidentified error occurred.	2-68
CA	An unidentified error occurred.	2-64	E9	An unidentified error occurred.	2-68
CB	An unidentified error occurred.	2-64	EA	An unidentified error occurred.	2-68
CC	An unidentified error occurred.	2-64	EB	An unidentified error occurred.	2-68
CD	An unidentified error occurred.	2-64	EC	Fuser fan error.	2-68
CE	An unidentified error occurred.	2-64	ED	Communication with the wireless LAN PCB cannot be established upon startup of the power supply.	2-68
CF	An unidentified error occurred.	2-64	EE	Unavailability of communication after connecting to the wireless LAN PCB is detected.	2-69
D1	Modem initialization failed.	2-64	EF	The supplied power is unstable.	2-69

Error codes	Problem	Refer to:	Error codes	Problem	Refer to:
F0	Program error for the movement of flash memory.	2-70	F9	The country code is not entered properly.	2-70
F1	An unidentified error occurred.	2-70	FA	An unidentified error occurred.	2-70
F2	An unidentified error occurred.	2-70	FB	An unidentified error occurred.	2-70
F3	An unidentified error occurred.	2-70	FC	An unidentified error occurred.	2-70
F4	An unidentified error occurred.	2-70	FD	An unidentified error occurred.	2-70
F5	An unidentified error occurred.	2-70	FE	An unidentified error occurred.	2-70
F6	An unidentified error occurred.	2-70	FF	An unidentified error occurred.	2-70
F8	An unidentified error occurred.	2-70			

## 3.2 Error Messages

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

Error Message	Description	Error codes	Refer to:
Access Denied	The function you want to use is restricted by Secure Function Lock.	---	2-104
Cartridge Error	Failure to detect a new toner cartridge.	C0	2-62
Connection Fail	FAX connection error	---	2-100
Cooling Down	The internal temperature reached its upper limit.	75	2-45
Cover is Open	The front cover is open.	A1	2-55
	The fuser cover is open.	56	2-36
	The ADF cover is open.	A4	2-57
Disconnected	FAX communication error	---	2-101
DR Mode in Use	The machine is set to Distinctive Ring mode.	---	2-101
Document Jam	The document was not in setted, or fed properly.	A2, A3	2-56
Drum End Soon	The drum unit will reach the end of life soon.	1E	2-27
Drum Error	Dirt on drum unit.	7D	2-46
Drum Stop	Drum unit error. (An drum error occurred after the drum unit reached the end of life.)	83	2-48
Duplex Disabled	The back cover is open upon duplex printing. (The back cover sensor is OFF.) The duplex tray is removed or is not properly installed.	0F	2-25
Fuser Error	Failure in the center thermistor of the fuser unit.	58 59 6A 6B 6C 6D 6F 76 78 DD DE E2	2-37 2-38 2-42 2-42 2-42 2-42 2-43 2-45 2-45 2-65 2-65 2-67
Init Unable XX	The machine has a mechanical problem.	---	--- *1
Jam Duplex	Paper is jammed in the duplex paper feed path.	57	2-37
Jam Inside	Paper jam inside the machine.	88	2-49
Jam Rear	Paper jam at the rear section of the machine.	84	2-48
Jam Tray	Paper jam in the paper tray.	8A	2-50
Limit Exceeded	It reached to the printing limit on the number of sheets set by Secure Function Lock 2.0.	---	2-104
Low temperature	Room temperature is low.	---	2-104

\*1 For XX, refer to "3.1 Error Codes" in this chapter.

Error Message	Description	Error codes	Refer to:
Manual Feed	Manual Feed was selected as the paper source when there was no paper in the manual feed slot.	9A	2-53
No Response/Busy	The number you dialed does not answer or is busy.	---	2-100
No Paper	No paper in paper tray 1.	94	2-52
	No paper in all trays.	96	2-52
No Toner	The toner cartridge is not installed.	44	2-34
Not Available	The tried function is not permitted to all IDs by Secure Function Lock 2.0.	---	2-104
Out of Memory	RAM area for secure data full.	C8	2-63
Print Unable XX	The machine has mechanical problem.	---	--- *1
Replace Drum	Drum unit is at the end of life.	19	2-26
		50	2-35
Replace Toner	Each toner cartridge reached the end of life.	63	2-40
		9C	2-54
Scan Unable XX	Some kind of scanning error.	---	--- *1
Size Error DX	The unsupported paper size is loaded for duplex printing.	99	2-53
	Unsupported paper size is used for duplex printing.	89	2-50
Size mismatch	The loaded paper (loaded into the tray) size is small, when recording the FAX date.	7F	2-47
	The setting of the paper size in the tray is set to small size.	80	2-47
Toner Ended	The rotation rates of the developer roller reached its upper limit.	9B	2-54
Toner Low	The toner cartridge will reach the end of life soon.	67	2-41

\*1 For XX, refer to "3.1 Error Codes" in this chapter.

### 3.3 Communications Error Code

Code 1	Code 2	Cause	Refer to:
10	08	Wrong number called.	2-101
11	01	No dial tone detected before start of dialing.	2-101
11	02	Busy tone detected before dialing.	2-101
11	03	2nd dial tone not detected.	2-101
11	05	No loop current detected. *1	2-101
11	06	Busy tone detected after dialing or called.	2-101
11	07	No response from the remote station in sending.	2-101
11	10	Unobtainable tone detected after dialing.	2-101
17	07	No response from the calling station in receiving.	2-101
20	01	Unable to detect a flag field.	2-101
20	02	Carrier was OFF for 200 ms or longer.	2-101
20	03	Abort detected ("1" in succession for 7 bits or more).	2-101
20	04	Overrun detected.	2-101
20	05	A frame for 3 seconds or more received.	2-101
20	06	CRC error in answerback.	2-101
20	07	Echo command received.	2-101
20	08	Invalid command received.	2-101
20	09	Command ignored once for document setting or for dumping-out at turn-around transmission.	2-101
20	0A	T5 time-out error	2-101
20	0B	CRP received.	2-101
20	0C	EOR and NULL received.	2-101
32	01	Remote terminal only with V.29 capability in 2,400 or 4,800 bps transmission.	2-101
32	02	Remote terminal not ready for polling.	2-101
32	10	Remote terminal not equipped with password function or its password switch OFF.	2-101
32	11	Remote terminal not equipped with or not ready for confidential mailbox function.	2-101
32	12	Remote terminal not equipped with or not ready for relay function.	2-101
32	13	No confidential mail in the remote terminal.	2-101

\*1 Available in German models only.

Code 1	Code 2	Cause	Refer to:
32	14	The available memory space of the remote terminal is less than that required for reception of the confidential or relay broad-casting instruction.	2-101
32	18	Remote terminal not equipped with color function.	2-101
40	02	Illegal coding system requested.	2-101
40	03	Illegal recording width requested.	2-101
40	05	ECM requested although not allowed.	2-101
40	06	Polled while not ready.	2-101
40	07	No document to send when polled.	2-101
40	10	Nation code or manufacturer code not correct.	2-101
40	13	Polled by any other manufacturers' terminal while waiting for secure polling.	2-101
40	17	Invalid resolution selected.	2-101
40	20	Invalid full color mode selected.	2-101
50	01	Vertical resolution capability changed after compensation of background color.	2-101
63	01	Password plus "lower 4 digits of telephone number" not coincident.	2-101
63	02	Password not correct.	2-101
63	03	Polling ID not correct.	2-101
74		DCN received.	2-101
80	01	Fallback impossible.	2-101
90	01	Unable to detect video signals and commands within 6 seconds after CFR is transmitted.	2-101
90	02	Received PPS containing invalid page count or block count.	2-101
A0	03	Error correction sequence not terminated even at the final transmission speed for fallback.	2-101
A0	11	Receive buffer empty. (5-second time-out)	2-101
A0	12	Receive buffer full during operation except receiving into memory.	2-101
A0	13	Decoding error continued on 500 lines or more.	2-101
A0	14	Decoding error continued for 15 seconds or more.	2-101
A0	15	Time-out: 13 seconds or more for one-line transmission.	2-101
A0	16	RTC not found or carrier OFF detected for 6 seconds.	2-101
A0	17	RTC found but no command detected for 60 seconds or more.	2-101
A0	19	No video data to be sent.	2-101

Code 1	Code 2	Cause	Refer to:
A8	01	RTN, PIN, or ERR received at the calling terminal. <sup>*1</sup>	2-101
A9	01	RTN, PIN, or ERR received at the called terminal. <sup>*1</sup>	2-101
AA	18	Receive buffer full during receiving into memory.	2-101
B0	02	Unable to receive the next-page data.	2-101
B0	03	Unable to receive polling even during turn-around transmission due to call reservation.	2-101
B0	04	PC interface error.	2-101
BF	01	Communication canceled by pressing the <b>Stop/Exit</b> button before establishment of FAX communication. <sup>*2</sup>	2-101
BF	02	Communication canceled by pressing the <b>Stop/Exit</b> button after establishment of FAX communication. <sup>*2</sup>	2-101
BF	03	Transmission canceled due to a scanning error caused by no document or document feed problem in ADF scanning in real time transmission.	2-101
C0	01	No common modulation mode or failed to poll.	2-101
C0	02	Unable to detect JM.	2-101
C0	03	Unable to detect CM.	2-101
C0	04	Unable to detect CJ.	2-101
C0	10	Cannot finish V. 34 negotiation or training.	2-101
C0	11	Modem error detected during V. 34 negotiation or training.	2-101
C0	20	Modem error detected during sending of commands.	2-101
C0	21	Modem error detected during receiving of commands.	2-101
C0	22	Control channel connection time-out.	2-101
C0	30	Modem error detected during sending of video signals.	2-101
C0	31	Modem error detected during receiving of video signals.	2-101
FF	XX	Equipment error (For X X, refer to "3.1 Error Codes" in this chapter.)	2-101

<sup>\*1</sup> Available in German models only.

<sup>\*2</sup> 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.

### 3.4 Error Cause and Remedy

Check the **User Check** items first. If an error cannot be resolved, follow the procedures in numerical order in the Step field.

#### ■ Error code 0B, 0E

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

---

Error, which cannot be specified, occurs.

##### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

#### ■ Error code 0F

Duplex Disabled  
Close the Back Cover of the machine and put the Duplex Tray back in.

The back cover is open upon duplex printing, or the duplex tray is not installed properly.

##### <User Check>

- Check if the back cover is closed completely.
- Install the duplex tray properly.

Step	Cause	Remedy
1	Harness connection failure of paper eject sensor PCB ASSY	Check the harness connection of the paper eject sensor PCB ASSY and reconnect it.
2	The member part to press the back cover sensor which is located at the inner side of the back cover is broken.	Replace the back cover.
3	The member part to press the back cover sensor which is located at the duplex tray is broken.	Replace the duplex tray.
4	Back cover sensor failure	Replace the paper eject sensor PCB ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code 10 to 12, 16 to 18

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

---

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code 19

Replace Drum  
Open the Front Cover, replace the Drum Unit. Refer to the User's Guide for instructions.

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code 1A

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

---

Error, which cannot be specified, occurs.

## Error code 1B

Drum Stop

We cannot guarantee the print quality. Replace the Drum Unit. Refer to the User's Guide for instructions.

Error, which cannot be specified, occurs.

## Error code 1C

Drum Stop

We cannot guarantee the print quality. Replace the Drum Unit. Refer to the User's Guide for instructions.

Error, which cannot be specified, occurs.

## Error code 1D

Drum Stop

We cannot guarantee the print quality. Replace the Drum Unit. Refer to the User's Guide for instructions.

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code 1E

Drum End Soon

The drum unit will reach the end of life soon.

### <User Check>

- Prepare a new drum unit.

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

## ■ Error code 1F

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

Too Many Trays

Maximum number of optional trays is one. Remove additional trays.

Error, which cannot be specified, occurs.

## Error code 20

Print Unable 20

Turn the power off and then back on again.

Error, which cannot be specified, occurs.

## Error code 21

Print Unable 21

Turn the power off and then back on again.

Error, which cannot be specified, occurs.

## Error code 22

Print Unable 22

Turn the power off and then back on again.

Error, which cannot be specified, occurs.

## Error code 23

Print Unable 23

Turn the power off and then back on again.

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code 24

Print Unable 24

Turn the power off and then back on again.

Internal temperature sensor error.

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

## ■ Error code 25

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

Print Unable 25

Turn the power off and then back on again.

Error, which cannot be specified, occurs.

## Error code 26

Print Unable 26

Turn the power off and then back on again.

Error, which cannot be specified, occurs.

## Error code 27

Print Unable 27

Turn the power off and then back on again.

Error, which cannot be specified, occurs.

## Error code 28

Print Unable 28

Turn the power off and then back on again.

Error, which cannot be specified, occurs.

## Error code 29

Print Unable 29

Turn the power off and then back on again.

Error, which cannot be specified, occurs.

## Error code 2A

Print Unable 2A

Turn the power off and then back on again.

Error, which cannot be specified, occurs.

## Error code 2B

Print Unable 2B

Turn the power off and then back on again.

Error, which cannot be specified, occurs.

## Error code 2C

Print Unable 2C

Turn the power off and then back on again.

Error, which cannot be specified, occurs.

**Error code 2D**

Print Unable 2D  
Turn the power off and then back on again.

Error, which cannot be specified, occurs.

**Error code 2E**

Print Unable 2E  
Turn the power off and then back on again.

Error, which cannot be specified, occurs.

**Error code 2F**

Print Unable 2F  
Turn the power off and then back on again.

Error, which cannot be specified, occurs.

**Error code 30**

---

Error, which cannot be specified, occurs.

**Error code 31**

Print Unable 31  
Turn the power off and then back on again.

Error, which cannot be specified, occurs.

**Error code 32**

Print Unable 32  
Turn the power off and then back on again.

Error, which cannot be specified, occurs.

**Error code 33**

Print Unable 33  
Turn the power off and then back on again.

Error, which cannot be specified, occurs.

**Error code 34**

Print Unable 34  
Turn the power off and then back on again.

Error, which cannot be specified, occurs.

### Error code 35

Print Unable 35  
Turn the power off and then back on again.

Error, which cannot be specified, occurs.

#### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

### ■ Error code 36

Print Unable 36  
Turn the power off and then back on again.

Error in the high voltage power supply PCB while the machine is in the ready state.

Step	Cause	Remedy
1	Harness connection failure of high voltage power supply PCB	Check the harness connection of the high voltage power supply PCB and reconnect it.
2	High voltage power supply PCB failure	Replace the high voltage power supply PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

### ■ Error code 37

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

Print Unable 37  
Turn the power off and then back on again.

Error, which cannot be specified, occurs.

### Error code 38

Print Unable 38  
Turn the power off and then back on again.

Error, which cannot be specified, occurs.

### Error code 39

Print Unable 39  
Turn the power off and then back on again.

Error, which cannot be specified, occurs.

### Error code 3A

Print Unable 3A

Turn the power off and then back on again.

Error, which cannot be specified, occurs.

#### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

### ■ Error code 3B

Print Unable 3B

Turn the power off and then back on again.

Main PCB DRAM access error.

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

## ■ Error code 3C

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

```
Print Unable 3C
Turn the power off and then back on again.
```

Error, which cannot be specified, occurs.

## Error code 3D

```
Print Unable 3D
Turn the power off and then back on again.
```

Error, which cannot be specified, occurs.

## Error code 3E

```
Print Unable 3E
Turn the power off and then back on again.
```

Error, which cannot be specified, occurs.

## Error code 3F

```
---
```

Error, which cannot be specified, occurs.

## Error code 40

```
Print Unable 40
Turn the power off and then back on again.
```

Error, which cannot be specified, occurs.

## Error code 41

```
---
```

Error, which cannot be specified, occurs.

## Error code 42

```
Print Unable 42
Turn the power off and then back on again.
```

Error, which cannot be specified, occurs.

## Error code 43

```
Print Unable 43
Turn the power off and then back on again.
```

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code 44

No Toner  
Open the Front Cover, then install the Toner Cartridge.

The toner cartridge is not installed.

### <User Check>

- Install the toner cartridge.

Step	Cause	Remedy
1	Dirt on the electrode of the drum unit and on the machine	Clean the dirt on the contact points of the both electrodes. (Refer to Fig. 2-11, Fig. 2-12)
2	Harness connection failure of high voltage power supply PCB	Check the harness connection of the high voltage power supply PCB and reconnect it.
3	High voltage power supply PCB failure	Replace the high voltage power supply PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code 45

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

No Toner  
Open the Front Cover, then install the Toner Cartridge.

Error, which cannot be specified, occurs.

## Error code 46

No Toner  
Open the Front Cover, then install the Toner Cartridge.

Error, which cannot be specified, occurs.

## Error code 47

No Toner  
Open the Front Cover, then install the Toner Cartridge.

Error, which cannot be specified, occurs.

## Error code 48

Replace Drum

Error, which cannot be specified, occurs.

## Error code 49

Replace Drum

Error, which cannot be specified, occurs.

#### Error code 4A

Replace Drum

Error, which cannot be specified, occurs.

#### Error code 4B

Replace Drum

Error, which cannot be specified, occurs.

#### Error code 4C

Drum End Soon

Error, which cannot be specified, occurs.

#### Error code 4D

Drum End Soon

Error, which cannot be specified, occurs.

#### Error code 4E

Drum End Soon

Error, which cannot be specified, occurs.

#### Error code 4F

Drum End Soon

Error, which cannot be specified, occurs.

#### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

#### ■ Error code 50

Replace Drum

Drum unit is at the end of life. (Printable)

#### <User Check>

- Prepare a new drum unit.

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

## ■ Error code 51

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

Replace PF KitMP

Error, which cannot be specified, occurs.

## Error code 52

Replace PF Kit

Error, which cannot be specified, occurs.

## Error code 53

Replace PF Kit2

Error, which cannot be specified, occurs.

## Error code 54

Replace Fuser

Error, which cannot be specified, occurs.

## Error code 55

Replace Laser

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code 56

Cover is Open.

Close the Fuser Cover which can be found behind the Back Cover of the machine.

The fuser cover is open.

### <User Check>

- Close the fuser cover properly.

Step	Cause	Remedy
1	Paper eject actuator catching on some position	Correct the position of the paper eject actuator.
2	Paper eject sensor PCB failure	Check the sensor performance following the procedure described in "Function code 32". If any problem occurs, replace the paper eject sensor PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code 57

### Jam Duplex

Pull out the Duplex Tray at the back of the machine and remove the jammed paper.

Paper is jammed in the duplex paper feed system.

#### <User Check>

- Install the duplex tray properly.
- Check if the paper is jammed in the duplex tray.

Step	Cause	Remedy
1	Foreign object around duplex tray	Remove the foreign object around the duplex tray.
2	Duplex tray failure	Replace the duplex tray.
3	DX gears damaged	Replace the main frame L ASSY.

## ■ Error code 58

### Fuser Error

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

Any of errors 6A to 6D, 6F, 76 or 78 occurred when the power was turned ON or machine goes back to the ready state from sleep mode.

#### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

Step	Cause	Remedy
1	Any fuser error occurs when started in the ready state.	Follow the "Remedy" of the error code that has reoccurred.

## ■ Error code 59

Self-Diagnostic

Will Automatically Restart within 15 minutes.

Error code displayed to prompt the operator to leave the machine for a certain time when power was turned OFF and then ON again after error 58 occurred.

Step	Cause	Remedy
1	Harness connection failure between fuser unit connector and paper eject sensor PCB ASSY	Check the harness connection between the fuser unit connector and paper eject sensor PCB ASSY, and reconnect it.
2	Harness connection failure between fuser unit connector and low voltage power supply PCB ASSY	Check the harness connection between the fuser unit connector and low voltage power supply PCB ASSY, and reconnect it.
3	Harness connection failure between paper eject sensor PCB and main PCB	Check the harness connection between the paper eject sensor PCB and main PCB, and reconnect it.
4	Paper eject sensor PCB failure	Replace the paper eject sensor PCB ASSY.
5	Low voltage power supply PCB failure	Replace the low voltage power supply PCB ASSY.
6	Main PCB failure	Replace the main PCB ASSY.
7	Fuser unit failure	Replace the fuser unit.

### CAUTION :

- Turn off the power switch once, and after checking that the fuser unit sufficiently cools down, turn on the power switch again and leave the machine for ten minutes. Then, this problem may be cleared.

## ■ Error code 5A

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

---

Error, which cannot be specified, occurs.

## Error code 5B

Short Paper  
Open the Back Cover and then press Start.

Error, which cannot be specified, occurs.

## Error code 5C

Small Paper  
Open the Back Cover or press Start.

Error, which cannot be specified, occurs.

## Error code 5D, 5E

---

Error, which cannot be specified, occurs.

## Error code 5F

WT Box End Soon

Error, which cannot be specified, occurs.

## Error code 60

Replace Toner  
Open the Front Cover, replace Toner Cartridge.

Error, which cannot be specified, occurs.

## Error code 61

Replace Toner  
Open the Front Cover, replace Toner Cartridge.

Error, which cannot be specified, occurs.

## Error code 62

Replace Toner  
Open the Front Cover, replace Toner Cartridge.

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code 63

Replace Toner  
Open the Front Cover, replace Toner Cartridge.

The number of rotations of the developer roller reached the upper limit when stop mode is set for the toner cartridge.

### <User Check>

- Replace a new toner cartridge.
- Press the [MENU] button. Next, press the [1] button and [8] button to clear the stop mode\*, and shift to the continue mode.

Step	Cause	Remedy
1	New toner actuator catching on some position	Correct the position of the new toner actuator.
2	Harness connection failure of new toner sensor PCB	Check the harness connection of the new toner sensor PCB and reconnect it.
3	New toner sensor PCB failure	Replace the new toner sensor PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

### CAUTION :

- When the machine is in the stop mode, LCD shows "REPLACE TONER" to guarantee the print quality. On the other hand, when the continue mode is turned on, the end user can choose either to continue printing or replace the toner cartridge with a new one.

## ■ Error code 64

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

Toner Low  
Prepare New Toner Cartridge.

Error, which cannot be specified, occurs.

## Error code 65

Toner Low  
Prepare New Toner Cartridge.

Error, which cannot be specified, occurs.

## Error code 66

Toner Low  
Prepare New Toner Cartridge.

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code 67

Toner Low  
Prepare New Toner Cartridge.

The number of rotations of the developer roller will reach the upper limit when stop mode is set for the toner cartridge.

### <User Check>

- Prepare a new toner cartridge.

Step	Cause	Remedy
1	New toner actuator catching on some position	Correct the position of the new toner actuator.
2	Harness connection failure of new toner sensor PCB	Check the harness connection of the new toner sensor PCB and reconnect it.
3	New toner sensor PCB failure	Replace the new toner sensor PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code 68

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

Print Unable 68  
Turn the power off and then back on again.

Error, which cannot be specified, occurs.

## Error code 69

Print Unable 69  
Turn the power off and then back on again.

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code 6A

Print Unable 6A  
Turn the power off and then back on again.

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

## Error code 6B

Print Unable 6B  
Turn the power off and then back on again.

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

## Error code 6C

Print Unable 6C  
Turn the power off and then back on again.

Fuser unit error. (The center thermistor does not detect 270 °C within the specified time.)

## Error code 6D

Print Unable 6D  
Turn the power off and then back on again.

Fuser unit error. (The center thermistor detects 60 °C or lower temperature for 1 second during ready states.)

Step	Cause	Remedy
1	Fuser unit connector connection failure	Check the connector connection of the fuser unit and reconnect it.
2	Fuser unit failure	Replace the fuser unit.
3	Low voltage power supply PCB failure	Replace the low voltage power supply PCB ASSY.
4	Paper eject sensor PCB failure	Replace the paper eject sensor PCB ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code 6E

This error does not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

Print Unable 6E  
Turn the power off and then back on again.

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code 6F

Print Unable 6F

Turn the power off and then back on again.

Fuser unit error.

(The center and side thermistors detect extremely high temperature.) (Detection of hardware.)

Step	Cause	Remedy
1	Fuser unit connector connection failure	Check the connector connection of the fuser unit and reconnect it.
2	Fuser unit failure	Replace the fuser unit.
3	Low voltage power supply PCB failure	Replace the low voltage power supply PCB ASSY.
4	Paper eject sensor PCB failure	Replace the paper eject sensor PCB ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code 70

This error does not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

Print Unable 70

Turn the power off and then back on again.

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code 71

Print Unable 71  
Turn the power off and then back on again.

The rotation of the polygon motor in the laser unit is unstable. (A synchronized signal cannot be detected.)

## Error code 72

Print Unable 72  
Turn the power off and then back on again.

Failed to detect the beam by BD sensor of the laser unit.

### <User Check>

- There is a possibility that the condensation has occurred. Turn off the power, and leave the machine at least one hour in a well-ventilated place. And then turn on the power.

Step	Cause	Remedy
1	Correction value error of laser unit	Input the correction value of the laser unit correctly.
2	Harness connection failure of laser unit	Check the harness connection of the laser unit and reconnect them.
3	Main PCB failure	Replace the main PCB ASSY.
4	Laser unit failure	Replace the laser unit.

## ■ Error code 73

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

Print Unable 73  
Turn the power off and then back on again.

Error, which cannot be specified, occurs.

## Error code 74

Replace Toner  
Open the Front Cover, replace Toner Cartridge.

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code 75

Cooling Down  
Wait for a while

The internal temperature reached its upper limit.

### <User Check>

- Leave the machine for a while as the power remains ON.

Step	Cause	Remedy
1	Internal temperature sensor failure	Replace the internal temperature sensor.
2	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code 76

Print Unable 76  
Turn the power off and then back on again.

Fuser unit error. (The center thermistor detects the sharp temperature rise.)

## Error code 78

Print Unable 78  
Turn the power off and then back on again.

Fuser unit error. (The center thermistor detects the sharp temperature fall.)

Step	Cause	Remedy
1	Fuser unit failure	Replace the fuser unit.
2	Low voltage power supply PCB failure	Replace the low voltage power supply PCB ASSY.
3	Paper eject sensor PCB failure	Replace the paper eject sensor PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code 7A

Print Unable 7A  
Turn the power off and then back on again.

A synchronized signal of the main motor cannot be detected.

Step	Cause	Remedy
1	Flat cable connection failure of main motor	Check the flat cable connection of the main motor and reconnect them.
2	Main motor failure	Replace the main motor.
3	Low voltage power supply PCB failure	Replace the low voltage power supply PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code 7B

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

Print Unable 7B  
Turn the power off and then back on again.

Error, which cannot be specified, occurs.

## Error code 7C

---

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code 7D

Drum Error  
Open the Front Cover and slide the green tab across the Drum Unit several times.

Detected unusual discharge of the corona wire due to dirt on the drum unit.

### <User Check>

- Clean the corona wire of drum unit.
- Turn OFF the power switch, and turn it ON again after a while.

Step	Cause	Remedy
1	Dirt on the electrode of the drum unit and on the machine	Clean the dirt on the contact points of the both electrodes. (Refer to Fig. 2-11, Fig. 2-12)
2	High voltage power supply PCB failure	Replace the high voltage power supply PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code 7E

This error does not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

---

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code 7F

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

Fax paper size is incorrect. (Menu setting)

### <User Check>

- Reset 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 actually loaded paper is small.)

### <User Check>

- Use the A4 or Letter size paper.

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

## ■ Error code 81, 82

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

---

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code 83

Drum Stop

Replace the Drum Unit. Refer to the instructions in the carton of the new drum.

Drum unit error (detected unusual discharge of the corona wire after the drum unit reached the end of life)

### <User Check>

- Replace the drum unit with a new one and reset the drum counter.  
(Refer to "2.2 Parts Life Reset Function" in Chapter 5.)

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

## ■ Error code 84

Jam Rear

Open the Back Cover and remove the jammed paper, then press Start.

Paper jam at the rear section of the machine.

### <User Check>

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

Step	Cause	Remedy
1	Foreign object in the feed system at the rear section of the machine.	Remove the foreign object in the feed system at the rear section of the machine.
2	Paper eject actuator assembling failure	Re-assemble the paper eject actuator.
3	Paper eject sensor PCB failure	Replace the paper eject sensor PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code 85

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

No Tray  
A Tray is not detected, install #T.

Error, which cannot be specified, occurs.

## Error code 86

No Tray  
A Tray is not detected, install #T.

Error, which cannot be specified, occurs.

## Error code 87

---

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code 88

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

Paper jam inside the machine.

### <User Check>

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

Step	Cause	Remedy
1	Harness connection failure of paper eject sensor PCB ASSY	Check the harness connection of the paper eject sensor PCB ASSY and reconnect it.
2	Paper eject actuator catching on some position	Correct the position of the paper eject actuator.
3	Paper eject sensor PCB failure	Replace the paper eject sensor PCB ASSY.
4	Fuser unit gear damaged	Replace the Fuser unit.
5	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code 89

Size Error DX  
Specify the correct paper and press Start.

Check that the paper smaller than the specified size is not loaded.

### <User Check>

- Use the A4 or Letter size paper.

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

## ■ Error code 8A

Jam Tray  
Remove the jammed paper from Tray, then press Start.

Paper jam at the paper tray and the front cover.

### <User Check>

- Check if the paper is jammed at the paper tray and the front cover.
- Adjust the paper guide corresponding to the paper size.
- Check if the thickness of the paper is 60 to 105 g/m<sup>2</sup>.
- Check if too much paper is loaded in the tray.

Step	Cause	Remedy
1	Paper edge actuator catching on some position	Correct the position of the paper edge actuator.
2	Registration front actuator catching on some position	Correct the position of the registration front actuator.
3	Harness connection failure of registration front/rear sensor PCB ASSY	Check the harness connection of the registration front/rear sensor PCB ASSY and reconnect it.
4	Paper feeding kit worn out	Replace the paper feeding kit.
5	High voltage power supply PCB failure	Replace the high voltage power supply PCB ASSY.
6	Registration front/rear sensor PCB failure	Check the registration front/rear sensor performance following the procedure described in "Function code 32". If any problem occurs, replace the regist frame ASSY.

## ■ Error code 8B

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

Jam Tray 2  
Remove the jammed paper from Tray 2.

Error, which cannot be specified, occurs.

## Error code 8C

Jam MP Tray  
Remove the jammed paper from Multi Purpose Tray and press Start.

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code 8D

Cover is Open  
Make sure there is no paper jammed inside the machine and close the Back Cover, then press Start.

Paper jam occurred around the back cover at the time when the power was turned ON, or the fuser cover is open.

### <User Check>

- Close the fuser cover.
- Remove the jammed paper around the back cover.

Step	Cause	Remedy
1	Paper eject actuator catching on some position	Correct the position of the paper eject actuator.
2	Paper eject sensor PCB failure	Replace the paper eject sensor PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code 8E, 8F

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

---

Error, which cannot be specified, occurs.

## Error code 90

Size mismatch  
Reload correct paper, then press Start.

Error, which cannot be specified, occurs.

## Error code 91

Size mismatch  
Reload correct paper, then press Start.

Error, which cannot be specified, occurs.

## Error code 92

Size mismatch  
Reload correct paper, then press Start.

Error, which cannot be specified, occurs.

## Error code 93

No Paper  
Reload paper in MP Tray.

Error, which cannot be specified, occurs.

## Error code 94

No Paper  
Reload paper, then press Start.

Error, which cannot be specified, occurs.

## Error code 95

No Paper  
Reload paper in Tray 2.

Error, which cannot be specified, occurs.

## Error code 96

No Paper  
Reload paper, then press Start.

Error, which cannot be specified, occurs.

### Error code 97

Size mismatch  
Reload correct paper, then press Start.

Error, which cannot be specified, occurs.

### Error code 98

Size mismatch  
Reload correct paper, then press Start.

Error, which cannot be specified, occurs.

### Error code 99

Size mismatch DX  
Press Job Cancel. Specify the correct paper and load the same size paper as the Printer driver setting.

Error, which cannot be specified, occurs.

#### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

### ■ Error code 9A

Manual Feed  
Load Paper.

The paper cannot be detected when the paper is fed from the manual feed slot.

#### <User Check>

- Load the paper into the manual feed slot.

Step	Cause	Remedy
1	Harness connection failure of registration front/rear sensor PCB ASSY.	Check the harness connection of the registration front/rear sensor PCB ASSY and reconnect it.
2	High voltage power supply PCB failure	Replace the high voltage power supply PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.
4	Registration front sensor failure	Check the registration front sensor performance following the procedure described in "Function code 32". If any problem occurs, replace the regist frame ASSY.

## ■ Error code 9B

Toner Ended  
Open the Front Cover, replace Toner Cartridge.

The number of rotations of the developer roller reached the upper limit when continue mode is set for the toner cartridge.

### <User Check>

- Replace the toner cartridge.

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

## ■ Error code 9C

(For the models without FAX function)  
Replace Toner  
Open the Front Cover, replace Toner Cartridge.

(For the models with FAX function)  
Replace Toner  
Received faxes are also stored in memory until the toner cartridge is replaced or the memory is full.

The number of rotations of the developer roller will reach the upper limit when continue mode is set for the toner cartridge.

### <User Check>

- Replace a new toner cartridge.

Step	Cause	Remedy
1	New toner actuator catching on some position	Correct the position of the new toner actuator.
2	Harness connection failure of new toner sensor PCB	Check the harness connection of the new toner sensor PCB and reconnect it.
3	New toner sensor PCB failure	Replace the new toner sensor PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code 9D to 9F, A0

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

---

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code A1

Cover is Open  
Close the Front Cover.

The front cover is open.

### <User Check>

- Check if the front cover is closed correctly.

Step	Cause	Remedy
1	Harness connection failure of high voltage power supply PCB ASSY (Front cover sensor is mounted in high voltage power supply PCB ASSY.)	Check the harness connection of the high voltage power supply PCB ASSY, and reconnect it.
2	Part pressing the front cover sensor is broken, which is provided at inside of front cover	Replace the front cover ASSY.
3	Front cover sensor failure	Check the front cover sensor performance following the procedure described in "Function code 32". If any problem occurs, replace the high voltage power supply PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code A2

Document Jam

Clear the scanner jam, then press the Stop Key.

During scanning, 90 cm or longer of a document is detected.

### <User Check>

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

Step	Cause	Remedy
1	Document scanning position detection actuator catching on some position	Correct the position of the document scanning position detection actuator.
2	Document scanning position sensor PCB failure	Replace the document scanning position sensor PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code A3

Document Jam

Clear the scanner jam, then press the Stop Key.

The document scanning position detection actuator does not detect the leading edge of a document although the document is fed farther than a designated distance.

### <User Check>

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

Step	Cause	Remedy
1	Document scanning position detection actuator catching on some position	Correct the position of the document scanning position detection actuator.
2	Harness connection failure of document scanning position detection sensor PCB	Check the harness connection of the document scanning position detection sensor PCB and reconnect it.
3	Document scanning position detection sensor PCB failure	Replace the document scanning position detection sensor PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code A4

Cover is Open  
Close the ADF Cover.

The ADF cover is open.

### <User Check>

- Close the ADF cover.

Step	Cause	Remedy
1	Coming off of document detection actuator/ADF cover open actuator	Re-assemble the document detection actuator/ADF cover open actuator.
2	Harness connection failure of document detection sensor/ADF cover open sensor PCB	Check the harness connection of the document detection sensor/ADF cover open sensor PCB and reconnect it.
3	Deformation and/or breakage of ADF cover	Replace the ADF cover ASSY.
4	ADF cover open sensor failure	Replace the document detection sensor/ADF cover open sensor PCB ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code A5

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

Scanning failure upon FAX transmission. (Scanning unit failure for the first time.)

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

## ■ Error code A6

Scan Unable A6  
See Troubleshooting and routine maintenance chapter in User's Guide.

Scanning failure upon FAX transmission. (Scanning unit failure for the second time or later.)

Step	Cause	Remedy
1	White level data failure	Execute the "Acquisition of white level data (Function code 55)".
2	CIS unit failure	Replace the CIS unit.
3	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code A7

Print Unable A7  
Turn the power off and then back on again.

Scanning color parameter file failure.

## Error code A8

Scan Unable A8  
See Troubleshooting and routine maintenance chapter in User's Guide.

Scanning color parameter error for recording the image.

Step	Cause	Remedy
1	White level data failure	Execute the "Acquisition of white level data (Function code 55)".
2	CIS unit failure	Replace the CIS unit.
3	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code A9

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

Scan Unable A9

Error, which cannot be specified, occurs.

## Error code AA, AB

---

Error, which cannot be specified, occurs.

## Error code AC

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

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

Step	Cause	Remedy
1	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.

Timeout error during waiting for completion of scanning DMA transfer.

Step	Cause	Remedy
1	CIS unit failure	Replace the CIS unit.
2	Document scanner unit failure	Replace the document scanner unit.
3	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code AE

This error does not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

Scan Unable AE

See Troubleshooting and routine maintenance chapter in User's Guide.

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code AF

Scan Unable AF

See Troubleshooting and routine maintenance chapter in User's Guide.

The white tape cannot be detected.

Step	Cause	Remedy
1	White level data failure	Execute the "Acquisition of white level data (Function code 55)".
2	Harness connection failure of document scanner unit	Check the harness connection of the document scanner unit and reconnect it.
3	Harness connection failure of FB motor harness	Check the harness connection of the FB motor harness and reconnect it.
4	CIS unit failure	Replace the CIS unit.
5	Document scanner unit failure	Replace the document scanner unit.
6	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code B0

Scanner Error B0

Scanning flat cable connection failure.

\* This error is indicated on the LCD in the maintenance mode.

Step	Cause	Remedy
1	Incomplete insertion of the harness of the document scanner unit	Reconnect the harness for the document scanner unit correctly.
2	CIS unit failure	Replace the CIS unit.
3	CIS flat cable failure	Replace the document scanner unit.
4	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code B1

Scanner Error B1

Dark level offset data level error for scanning.

\* This error is indicated on the LCD in the maintenance mode.

## Error code B2

Scanner Error B2

Dark level offset data level error for scanning.

\* This error is indicated on the LCD in the maintenance mode.

## Error code B3

Scanner Error B3

The scanning area setting left edge detection error. (white tape)

\* This error is indicated on the LCD in the maintenance mode.

## Error code B4

Scanner Error B4

The scanning area setting right edge detection error. (white tape)

\* This error is indicated on the LCD in the maintenance mode.

Step	Cause	Remedy
1	CIS unit failure	Replace the CIS unit.
2	Document scanner unit failure	Replace the document scanner unit.
3	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code B5, B6

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

---

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code B7

Scanner Error B7

A/D converter standard voltage failure; at High side.

\* This error is indicated on the LCD in the maintenance mode.

## ■ Error code B8

Scanner Error

A/D converter standard voltage failure; at Low side.

\* This error is indicated on the LCD in the maintenance mode.

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

## ■ Error code B9

Scanner Error

Scanning light adjustment error.

\* This error is indicated on the LCD in the maintenance mode.

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

## ■ Error code BA

This error does not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

---

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

Step	Cause	Remedy
1	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	White level data failure	Execute the "Acquisition of white level data (Function code 55)".
2	CIS unit failure	Replace the CIS unit.
3	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code BC

This error does not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

---

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code BD

Scanner Error

Black level data error.

\* This error is indicated on the LCD in the maintenance mode.

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

## ■ Error code BE, BF

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

---

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code C0

Cartridge Error  
Put the Toner Cartridge back in.

Failure to detect a new toner cartridge.

### <User Check>

- Install the toner cartridge into the machine properly.

Step	Cause	Remedy
1	Power off or front cover opened while detecting a new toner cartridge	Reset the developing bias voltage and developer roller counter. (Refer to "2.1 Developer Roller Counter Reset Function" in Chapter 5.)

## ■ Error code C1 to C6

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

---

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code C7

Out of Memory  
Press Job Cancel.

Insufficient memory.

### <User Check>

- Delete the stored data.

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

## ■ Error code C8

Out of Memory  
Secure Print Data is full. Press Job Cancel and delete the previously stored data.

RAM area for secure data full.

### <User Check>

- Delete the stored data.

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

### ■ Error code C9, CA to CF

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

---

Error, which cannot be specified, occurs.

#### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

### ■ Error code D1

Print Unable D1  
See Troubleshooting and routine maintenance chapter in User's Guide.

Modem initialization failed.

#### <User Check>

- Turn OFF and ON the power and check if the machine recovers.

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

### ■ Error code D2 to D9, DA to DC

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

---

Error, which cannot be specified, occurs.

#### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code DD

Print Unable XX

See Troubleshooting and routine maintenance chapter in User's Guide.

Fuser unit failure except error code 6A, 6B, 6C, 6D, 6E, 6F, 76, 78, DE and E2.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

Step	Cause	Remedy
1	Harness connection failure between fuser unit connector and paper eject sensor PCB ASSY	Check the harness connection between the fuser unit connector and paper eject sensor PCB ASSY, and reconnect it.
2	Harness connection failure between fuser unit connector and low voltage power supply PCB ASSY	Check the harness connection between the fuser unit connector and low voltage power supply PCB ASSY, and reconnect it.
3	Harness connection failure between paper eject sensor PCB and main PCB	Check the harness connection between the paper eject sensor PCB and main PCB, and reconnect it.
4	Paper eject sensor PCB failure	Replace the paper eject sensor PCB ASSY.
5	Low voltage power supply PCB failure	Replace the low voltage power supply PCB ASSY.
6	Main PCB failure	Replace the main PCB ASSY.
7	Fuser unit failure	Replace the fuser unit.

## ■ Error code DE

Print Unable XX

Turn the power off and then back on again.

When the center thermistor is higher than the idle temperature, it is detected that the side thermistor temperature is lower than 60 °C.

### <User Check>

- Turn OFF and ON the power and check if the machine recovers.

Step	Cause	Remedy
1	Harness connection failure between paper eject sensor PCB ASSY and fuser unit	Check the harness connection between the paper eject sensor PCB ASSY and fuser unit, and reconnect it.
2	Side thermistor or center thermistor failure	Replace the fuser unit.
3	Paper eject sensor PCB failure	Replace the paper eject sensor PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code DF

This error does not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

---

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code E0

Print Unable E0  
Turn the power off and then back on again.

Program error. (An error occurred in the ROM checksum.)

Step	Cause	Remedy
1	Firmware update failure	Rewrite the latest firmware.
2	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code E1

Print Unable E1  
Turn the power off and then back on again.

Program error.

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

## ■ Error code E2

Print Unable E2  
Turn the power off and then back on again.

When the center thermistor is lower than the idle temperature, it is detected that the side thermistor temperature is higher than 280 °C.

Step	Cause	Remedy
1	Heat roller dirty	Clean the heat roller. (Refer to "How to clean the heat roller".)
2	Harness connection failure between paper eject sensor PCB ASSY and fuser unit	Check the harness connection between the paper eject sensor PCB ASSY and fuser unit, and reconnect it.
3	Side thermistor or center thermistor failure	Replace the fuser unit.
4	Paper eject sensor PCB failure	Replace the paper eject sensor PCB ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code E3, E4

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

---

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code E6

Print Unable E6  
Turn the power off and then back on again.

Write error in EEPROM of the main PCB.

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

## ■ Error code E7 to E9, EA, EB

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

---

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code EC

Print Unable EC

Turn the power off and then back on again.

Fuser fan error.

Step	Cause	Remedy
1	Harness connection failure of fuser fan	Check the harness connection of the fuser fan and reconnect it.
2	Fuser fan failure	Replace the fuser fan.
3	High voltage power supply PCB failure	Replace the high voltage power supply PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code ED

Print Unable ED

Turn the power off and then back on again.

Communication with the wireless LAN PCB cannot be established upon startup of the power supply. (Wireless LAN model only)

Step	Cause	Remedy
1	Harness connection failure of wireless LAN PCB	Check the harness connection of the wireless LAN PCB and reconnect it.
2	Wireless LAN PCB failure	Replace the wireless LAN PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code EE

Print Unable EE

Turn the power off and then back on again.

Unavailability of communication after connecting to the wireless LAN PCB is detected.  
(Wireless LAN model only)

Step	Cause	Remedy
1	Harness connection failure of wireless LAN PCB	Check the harness connection of the wireless LAN PCB and reconnect it.
2	Wireless LAN PCB failure	Replace the wireless LAN PCB ASSY.
3	High voltage power supply PCB failure	Replace the high voltage power supply PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

## ■ Error code EF

Print Unable EF

Turn the power off and then back on again.

The supplied power is unstable.

Step	Cause	Remedy
1	The irregular power supply is detected	Replace the low voltage power supply PCB ASSY. Reset the irregular power supply detection counter following the procedure described in "3. IF YOU REPLACE THE LOW VOLTAGE POWER SUPPLY PCB ASSY" in Chapter 4.
2	Main PCB failure	Replace the main PCB ASSY.

### Note:

- The irregular power supply detection error (Machine Error EF) occurs when there is a large distortion in the power supply voltage supplied to the machine.  
In this case, if the same power supply is used, the same error may occur even when the low voltage power supply PCB ASSY is replaced. Ask the user to review the installation environment.

## ■ Error code F0

Print Unable  
Turn the power off and then back on again.

Program error for the movement of flash memory.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code F1 to F6, F8

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

---

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

## ■ Error code F9

Machine Error F9

The country code is not entered properly.

Step	Cause	Remedy
1	Power turned OFF while the function code 74 is being executed and "PARAMETER INT1" is being displayed	Re-enter the country code. (Refer to "1.4.19 Setting by country (Function code 74)" in Chapter 5.)

## ■ Error code FA to FF

These errors do not usually occur in the normal use. The conceivable causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

---

Error, which cannot be specified, occurs.

### <User Check>

- Turn OFF the power switch, and turn it ON again after a while.

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

### 3.5 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.

#### 3.5.1 Pickup function of Paper tray does not work.

Step	Cause	Remedy
1	Link arm catching on some position	Re-assemble the link arm.
2	Pick-up roller holder ASSY catching on some position	Re-assemble the pick-up roller holder ASSY.
3	Harness connection failure of main motor	Reconnect the harness of the main motor.
4	Plate-up gear (gear Z19M10 or lift gear 46) failure	Replace the plate-up gear (gear Z19M10 or lift gear 46).
5	Main motor failure	Replace the main motor.
6	Low voltage power supply PCB ASSY failure	Replace the low voltage power supply PCB ASSY.
7	Main PCB failure	Replace the main PCB ASSY.

#### 3.5.2 No feeding

Not detect paper at feeding input

##### User Check

- Check if the paper tray is loaded correctly.
- Check if the paper is loaded into the paper tray correctly.
- Check that the paper smaller than the specified size is not loaded.
- Adjust the paper guide corresponding to the position of paper guide.
- Check if too much paper is loaded in the tray.
- Clean the surface of the separation pad or pick-up/separate roller.

Step	Cause	Remedy
1	Link arm and pick-up roller holder ASSY not assembled correctly	Re-assemble the link arm and pick-up roller holder ASSY.
2	Harness connection failure of T1 clutch ASSY	Check the harness connections of the T1 clutch ASSY, and reconnect it.
3	Harness connection failure of paper edge sensor harness ASSY (The models with paper edge actuator only)	Check the harness connections of the paper edge sensor harness ASSY, and reconnect it.
4	Harness connection failure of regist front sensor PCB	Check the harness connections of the regist front sensor PCB, and reconnect it.
5	Paper feeding roller failure	Replace the paper feeding kit.
6	Plate-up gear (gear Z19M10 or lift gear 46) failure	Replace the plate-up gear (gear Z19M10 or lift gear 46).
7	T1 clutch ASSY failure	Replace the T1 clutch ASSY.
8	Main PCB failure	Replace the main PCB ASSY.
9	Paper edge sensor failure (The models with paper edge actuator only)	Check the sensor performance following the procedure in " <a href="#">Operational check of sensors</a> " (Chapter 5). If any problem occurs, replace the PF frame ASSY.
10	Regist front sensor PCB failure	Check the sensor performance following the procedure in " <a href="#">Operational check of sensors</a> " (Chapter 5). If any problem occurs, replace the regist front sensor PCB.

### 3.5.3 No paper fed manual feed slot (Error code 9A)

Not detect paper at feeding from manual feed slot

#### User Check

- Load the paper into the manual feed slot.

Step	Cause	Remedy
1	Harness connection failure of registration front/rear sensor PCB ASSY	Check the harness connection of the registration front/rear sensor PCB ASSY, and reconnect it.
2	Low voltage power supply PCB ASSY failure	Replace the low voltage power supply PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.
4	Registration front/rear sensor failure	Check the sensor performance following the procedure in "Operational check of sensors" (Chapter 5). If any problem occurs, replace the regist frame ASSY.

### 3.5.4 Double feeding

#### User Check

- Check if the paper is loaded into the paper tray correctly.
- Check if the thickness of the paper is 60 to 105 g/m<sup>2</sup>.
- Clean the separation pad.
- Check that too much paper is not loaded in each tray.

Step	Cause	Remedy
1	Paper feeding roller failure	Replace the paper feeding kit.

### 3.5.5 Paper jam

- **Paper tray and front cover section (Error code 8A)**

Paper jam at paper tray and front cover section

**User Check**

- Check if the paper is jammed in the paper tray and front cover section.  
If jammed, remove it.
- Adjust the paper guide corresponding to the paper size.
- Check if the thickness of the paper is 60 to 105 g/m<sup>2</sup>.
- Check if too much paper is loaded in the tray.

Step	Cause	Remedy
1	Paper edge actuator (Only for the models with paper edge actuator) or registration front actuator catching on some position	Correct catching of the paper edge actuator or registration front actuator.
2	Harness connection failure of registration front/rear sensor PCB ASSY	Check the harness connection of the registration front/rear sensor PCB ASSY, and reconnect it.
3	Paper feeding roller worn out	Replace the paper feeding kit.
4	Low voltage power supply PCB ASSY failure	Replace the low voltage power supply PCB ASSY.
5	Main PCB failure	Replace the main PCB ASSY.
6	Registration front/rear sensor PCB ASSY failure	Check the registration front sensor and registration rear sensor performance following the procedure in "Operational check of sensors" (Chapter 5). If any problem occurs, replace the regist frame ASSY.

- **Jam inside/Jam rear (Error code 84, etc)**

Paper jam inside and rear of the machine

**User Check**

- Check if the paper is jammed inside and rear side of the machine.  
If jammed, remove it.
- Check if the back cover is closed certainly.
- Remove the protective material of the bottom side of the drum unit.

Step	Cause	Remedy
1	Registration front actuator catching on some position	Correct catching of the registration front actuator.
2	Registration rear actuator or paper eject actuator catching on some position	Correct catching of the registration rear actuator or paper eject actuator.
3	Harness connection failure of registration front/rear sensor PCB ASSY or paper eject sensor PCB ASSY	Check the harness connection of the registration front/rear sensor PCB ASSY or paper eject sensor PCB ASSY, and reconnect it.
4	REG clutch ASSY failure	Replace the REG clutch ASSY.
5	Paper eject sensor PCB ASSY failure	Check the sensor performance following the procedure in " <a href="#">Operational check of sensors</a> " (Chapter 5). If any problem occurs, replace the paper eject sensor PCB ASSY.
6	Low voltage power supply PCB ASSY failure	Replace the low voltage power supply PCB ASSY.
7	Main PCB failure	Replace the main PCB ASSY.
8	Fuser unit failure	Replace the fuser unit.
9	Registration front/rear sensor PCB ASSY failure	Check the sensor performance following the procedure in " <a href="#">Operational check of sensors</a> " (Chapter 5). If any problem occurs, replace the regist frame ASSY.

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

**User Check**

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

Step	Cause	Remedy
1	Foreign object around eject roller	Remove the foreign object around the eject roller.
2	Eject roller failure	Replace the joint cover ASSY.

- **Duplex unit (Error code 57, etc)**

Paper jam in the duplex tray

**User Check**

- Insert the duplex tray correctly.
- Check if the paper is jammed in the duplex tray.

Step	Cause	Remedy
1	Foreign object around duplex tray	Remove the foreign object around the duplex tray.
2	Duplex tray failure	Replace the duplex tray.
3	DX gears damaged	Replace the main frame L ASSY.

### 3.5.6 Dirt on paper

**User Check**

- Replace the toner cartridge with a new one.

Step	Cause	Remedy
1	Fuser unit dirty	Clean the entrance of the fuser unit, or clean the pressure roller.
2	Paper eject roller dirty	Clean the paper eject roller.

### 3.5.7 Paper feeding at an angle

**User Check**

- Check if the paper is loaded into the paper tray correctly.
- Adjust the paper guide corresponding to the paper size.
- Check if too much paper is loaded in the tray.
- Check if the thickness of the paper is 60 to 105 g/m<sup>2</sup>.
- Remove the protective sheet of the bottom side of the drum unit.

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

### 3.5.8 Wrinkles or creases

#### User Check

- Check if the paper is no damp.
- Check if the paper is loaded into the paper tray correctly.
- Check if the thickness of the paper is 60 to 105 g/m<sup>2</sup>.
- Turn over the stack of paper in the paper tray, or try rotating the paper 180° in the paper tray.
- Turn the green envelope levers to the direction of the black arrow. (Refer to Fig. 2-8.)

Step	Cause	Remedy
1	Foreign object inside fuser unit	Remove the foreign object inside of the eject roller.
2	Fuser unit failure	Replace the fuser unit.

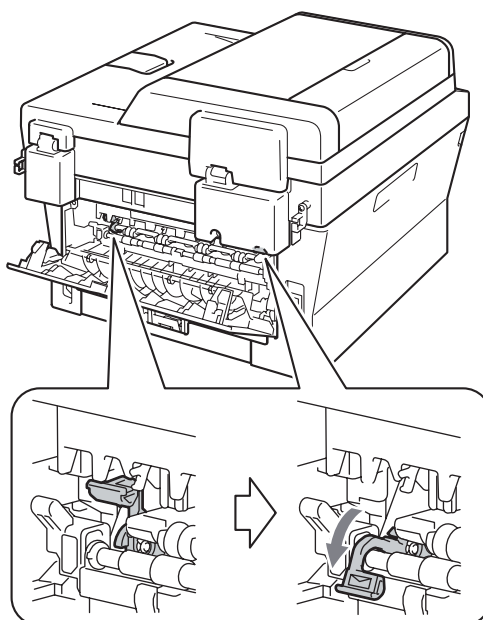


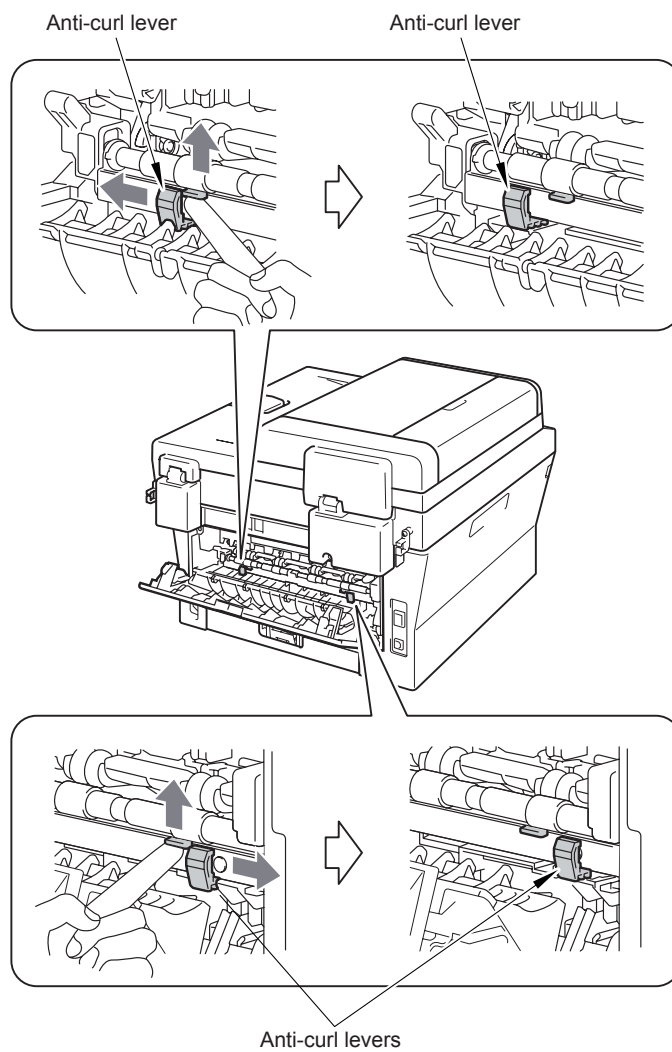
Fig. 2-8

### 3.5.9 Curl in the paper

#### User Check

- Choose Reduce Paper Curl mode in the driver.
- Turn the anti-curl levers to the direction of the black arrow. (Refer to Fig. 2-9.)
- Lift up the support flap2, and then print.

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



**Fig. 2-9**

### 3.5.10 Prints only single side of the paper when duplex-printing

#### User Check

- Set the driver setting to the duplex-printing.
- Use the paper of the A4/LETTER.

### 3.5.11 Cannot make print through duplex-printing

#### User Check

- Check if the back cover is closed certainly.
- Set the driver setting to the duplex-printing.
- Insert the duplex tray correctly.

Step	Cause	Remedy
1	Harness connection failure of paper eject sensor PCB ASSY	Check the harness connection of the paper eject sensor PCB ASSY, and reconnect it.
2	Duplex tray failure	Replace the duplex tray.
3	Back cover sensor failure	Replace the paper eject sensor PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.
5	DX gears damaged	Replace the main frame L ASSY.

### 3.5.12 Paper size error

#### User Check

- Load the specified paper size into the tray.

Step	Cause	Remedy
1	Registration front actuator catching on some position	Correct catching of the registration front actuator.
2	Main PCB failure	Replace the main PCB ASSY.

### 3.5.13 Paper size error through duplex-printing

#### User Check

- Load the specified paper size into the tray.

Step	Cause	Remedy
1	Registration front actuator catching on some position	Correct catching of the registration front actuator.
2	Main PCB failure	Replace the main PCB ASSY.

## 3.6 Image Defect Troubleshooting

### 3.6.1 Image defect examples

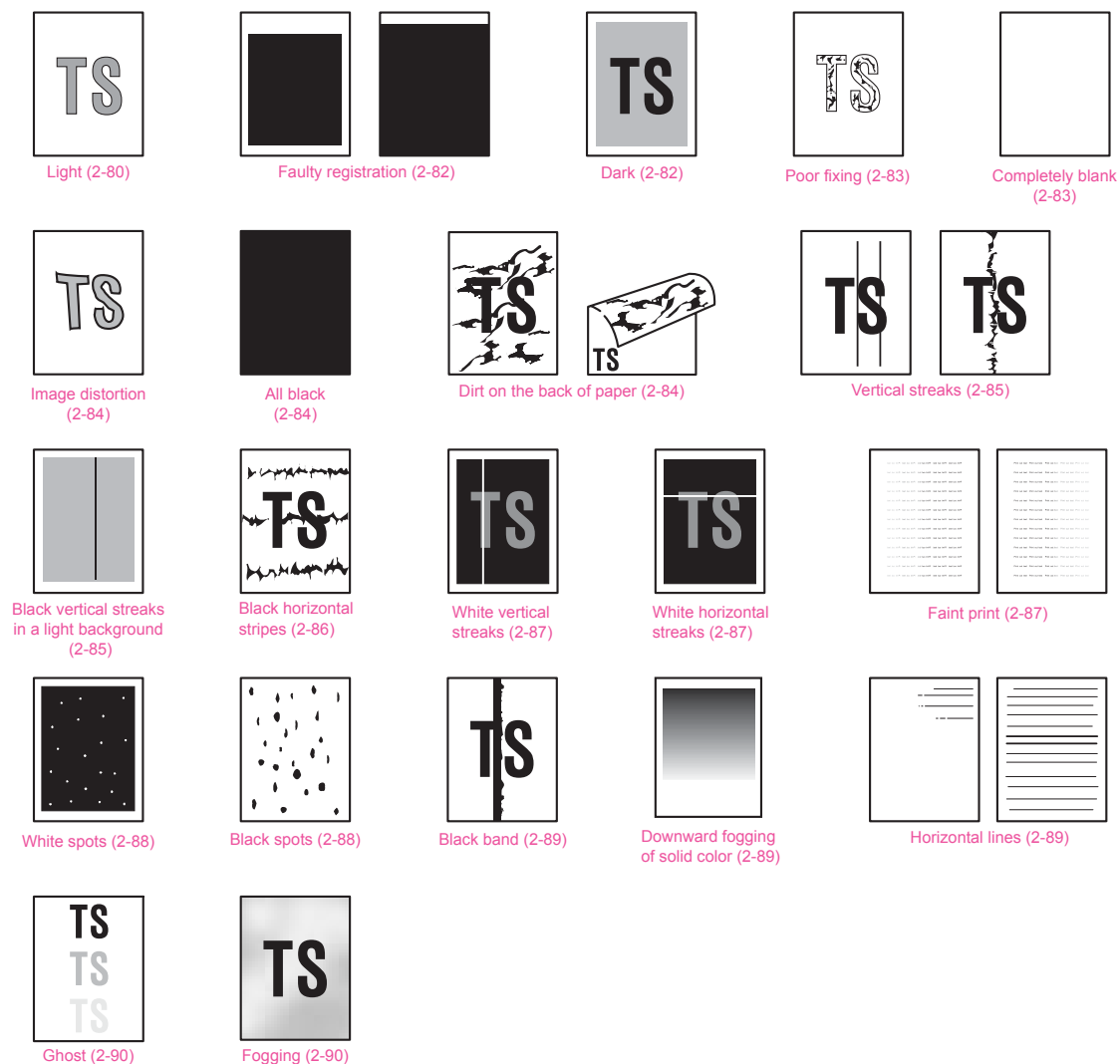


Fig. 2-10

### 3.6.2 Troubleshooting image defect

Image defect related problems are 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. High temperature and high humidity or low temperature and low humidity conditions can cause this problem.
- If the whole page is light, toner save mode may be on. Off the toner save mode.
- Adjust the density by the Density Adjustment.
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one. If remove the used toner cartridge and replace a relatively new used toner cartridge, this case is caused.

Step	Cause	Remedy
1	Dirt on electrodes of the drum unit and machine body	Clean the electrodes of the drum unit and machine body. (Refer to Fig. 2-11, Fig. 2-12.)
2	Develop bias failure	Reset the counter of develop roller.
3	High voltage power supply PCB ASSY failure	Replace the high voltage power supply PCB ASSY.
4	Laser unit failure	Replace the laser unit.
5	Main PCB failure	Replace the main PCB ASSY.

## ■ Electrodes location of the toner cartridge and drum unit

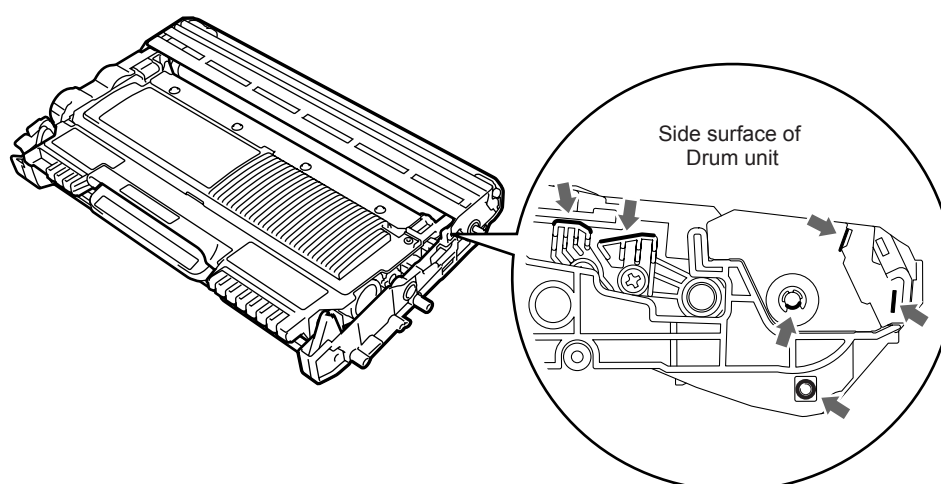


Fig. 2-11

## ■ Electrodes location of the machine

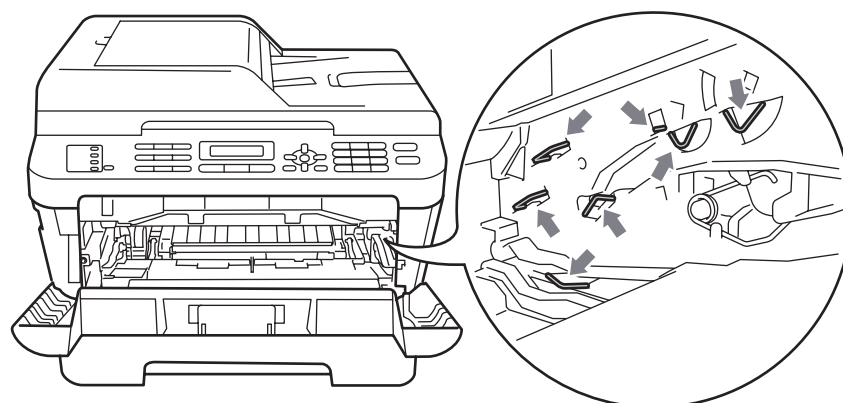


Fig. 2-12

### <How to clean the electrodes>

Turn off the power switch. Unplug the machine from the AC power outlet, and leave the machine for a few minutes. Then, wipe the electrodes above carefully with a dry lint-free cloth. Be careful not to change the shapes of the electrodes.

## ■ Faulty registration



### User Check

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

Step	Cause	Remedy
1	Adjusted value of the laser unit mistake	Refer to "2.1 Inputting the Adjusted Value of the Laser Unit" in Chapter 4, and enter the adjusted value of the laser unit again.
2	Registration rear actuator catching on some position	Correct catching of the registration rear actuator.

## ■ Dark

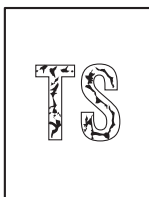


### User Check

- Check the machine's environment. High temperature and high humidity or low temperature and low humidity conditions can cause this problem.
- Adjust the density by the Density Adjustment.
- Clean the corona wire of drum unit.
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one. If remove the used toner cartridge and replace a relatively new used toner cartridge, this case is caused.
- If this problem occurs immediately after deep sleep mode is released, update the firmware to the latest version. If updating the firmware is not possible, open and close the front cover, and then retry printing after the main motor has stopped.

Step	Cause	Remedy
1	Dirt on the electrodes of the drum unit and the machine body	Clean the electrodes of the drum unit and machine body. (Refer to Fig. 2-11, Fig. 2-12.)
2	High voltage power supply PCB ASSY failure	Replace the high voltage power supply PCB ASSY.
3	Laser unit failure	Replace the laser unit.
4	Main PCB failure	Replace the main PCB ASSY.

## ■ Poor fixing

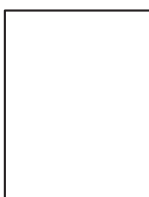


### User Check

- Check the machine's environment. High temperature and high humidity or low temperature and low humidity conditions can cause this problem.
- Clean the corona wire of drum unit.
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.
- Return the green envelope levers to the home position. (Refer to [Fig. 2-8.](#))
- Remove the elastic band from the drum unit.

Step	Cause	Remedy
1	Fuser unit failure	Replace the fuser unit.
2	Laser unit failure	Replace the laser unit.
3	Low voltage power supply PCB ASSY failure	Replace the low voltage power supply PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

## ■ Completely blank

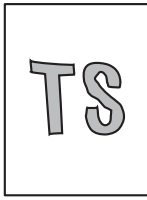


### User Check

- Check the machine's environment. High temperature and high humidity or low temperature and low humidity conditions can cause this problem.
- Clean the corona wire of drum unit.
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.
- Remove the elastic band from the drum unit.

Step	Cause	Remedy
1	Dirt on the electrodes of the drum unit and the machine body	Clean the electrodes of the drum unit and machine body. (Refer to <a href="#">Fig. 2-11</a> , <a href="#">Fig. 2-12.</a> )
2	Scanner harness of the laser unit connection failure	Reconnect the scanner harness of the laser unit.
3	Laser unit not assembled correctly	Assemble the laser unit correctly and secure the screw.
4	Laser unit failure	Replace the laser unit.
5	High voltage power supply PCB ASSY failure	Replace the high voltage power supply PCB ASSY.
6	Main PCB failure	Re-assemble the main PCB ASSY.

## ■ Image distortion



Step	Cause	Remedy
1	Laser unit not assembled correctly	Assemble the laser unit correctly and secure the screw.
2	Laser unit failure	Replace the laser unit.
3	Main PCB failure	Replace the main PCB ASSY.

## ■ All black



### User Check

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

Step	Cause	Remedy
1	Dirt on drum unit and machine body electrodes	Clean the electrodes of the drum unit and machine body. (Refer to Fig. 2-11, Fig. 2-12.)
2	Scanner harness of the laser unit connection failure	Reconnect the scanner harness of the laser unit.
3	FG plate connection failure	Reconnect the FG plate between the laser unit and develop drive sub ASSY securely, and secure the screw.
4	High voltage power supply PCB ASSY failure	Replace the high voltage power supply PCB ASSY.
5	Laser unit failure	Replace the laser unit.
6	Main PCB failure	Replace the main PCB ASSY.

## ■ The back of paper gets dirty



### User Check

- This problem may disappear after printing approximately 10 pages of completely blank sheets.

Step	Cause	Remedy
1	Dirt on the fuser unit	Replace the fuser unit.
2	Dirt in the paper feed system	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.
- If the same problem occurs after printing a few pages, the adhesive of the label or the like, paper powder or dirt may be attached on the surface of the exposure drum. Wipe off the dirt on the exposure drum. (Refer to User's guide, and perform the Drum Cleaning.)
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.

Step	Cause	Remedy
1	Dirt in the paper feed system	Wipe dirt off.
2	Dirt on the heat roller	Clean the heat roller in the following procedures.
3	Scratch on the heat roller	Replace the fuser unit.

### **CAUTION :**

- If the machine prints the same pattern, especially including vertical streaks, continuously, black vertical streaks may appear on the paper since the electrostatic performance of the exposure drum is decreased temporally.

## ■ How to clean the heat roller

- (1) Make the black pattern as shown in the below figure by the Word, PowerPoint and other applications.



100% Black  
All-black

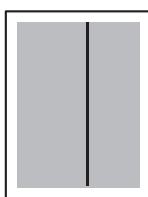
- (2) Put the paper that printed in the procedure (1) into the tray. The side to be printed on must be face down.
- (3) Print it in the state that the printing pattern is all white as shown in the below figure.



100% White  
All-white (In the state without data)

- (4) Print the arbitrary image, and check whether there is any dirt on the paper.
- (5) If there is still the dirt, repeat the procedure (2) to (4).
- (6) If repeat the procedure (2) to (4) several times when the dirt is not removed, replace the fuser unit.

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

## ■ Black horizontal stripes



### User Check

- Clean the inside of the machine and the corona wire in the drum unit.
- When the horizontal stripes at 94.2 mm are intervals, replace the drum unit with a new one.
- The paper tray ground terminal provided in the machine body may be dirty. Clean the contact with a dry cloth.
- Toner attached on the develop roller (horizontal stripes at 32.5 mm)  
This problem will disappear by printing approximate 10 pages.  
If the same problem occurs, replace the toner cartridge.

Step	Cause	Remedy
1	Dirt on the electrodes of the drum unit and the machine body	Clean the electrodes of the drum unit and machine body. (Refer to Fig. 2-11, Fig. 2-12.)
2	Bend of tray ground spring	(1) Correct bending of the tray ground spring. (2) Replace the paper tray.
3	Scratch and Dirt on the heat roller (horizontal stripes at 53.4 mm)	Replace the fuser unit.
4	High voltage power supply PCB ASSY failure	Replace the high voltage power supply PCB ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

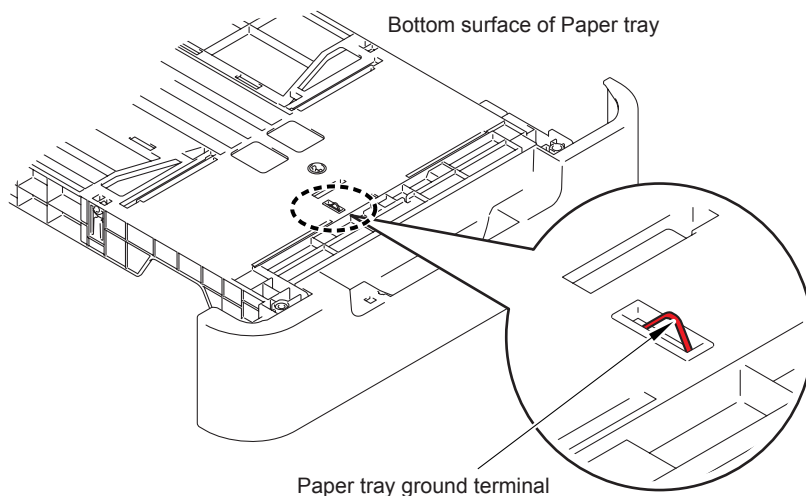


Fig. 2-13

### CAUTION :

- 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	Ø16 mm	32.5 mm
2	Exposure drum	Ø30 mm	94.2 mm
3	Heat roller in the fuser unit	Ø17 mm	53.4 mm
4	Pressure roller ASSY in the fuser unit	Ø25 mm	78.5 mm

## ■ White vertical streaks



### User Check

- Check if there is no dust in the gap between the toner cartridge and drum unit.
- Replace the toner cartridge with a new one.
- Check the machine's environment. High temperature and high humidity or low temperature and low humidity conditions can cause this problem.
- Damp (wet) paper might be used. Try to change to freshly unpacked paper.
- Replace the drum unit with a new one.
- Leave the machine for a while as the power remains ON.

Step	Cause	Remedy
1	Laser unit failure	Replace the laser unit.

## ■ White horizontal streaks



### User Check

- This problem may disappear If print several sheets of page. Print several sheets of page if the machine has not been used for a long time.
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.

Step	Cause	Remedy
1	Dirt on the electrodes of the drum unit and the machine body	Clean the electrodes of the drum unit and machine body. (Refer to <a href="#">Fig. 2-11</a> , <a href="#">Fig. 2-12</a> .)

## ■ Faint print



### User Check

- Check that the machine is installed on a level surface.
- Replace the toner cartridge with a new one.

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

## ■ White spots

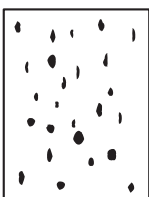


### User Check

- When the white spots at 32.5 mm are intervals, replace the toner cartridge with a new one.
- If the same problem occurs after printing a few pages, the adhesive of the label or the like, paper powder or dirt may be attached on the surface of the exposure drum. Wipe off the dirt on the exposure drum. (Refer to User's guide, and perform the Drum Cleaning.)
- When the white spots at 94.2 mm are intervals, replace the drum unit with a new one.

Step	Cause	Remedy
1	Dirt on the electrodes of the drum unit and the machine body	Clean the electrodes of the drum unit and machine body. (Refer to <a href="#">Fig. 2-11</a> , <a href="#">Fig. 2-12</a> .)
2	High voltage power supply PCB ASSY failure	Replace the high voltage power supply PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

## ■ Black spots



### User Check

- When the black spots at 32.5 mm are intervals, replace the toner cartridge with a new one.
- If the same problem occurs after printing a few pages, the adhesive of the label or the like, paper powder or dirt may be attached on the surface of the exposure drum. Wipe off the dirt on the exposure drum. (Refer to User's guide, and perform the Drum Cleaning.)
- When the black spots at 94.2 mm are intervals, replace the drum unit with a new one.

Step	Cause	Remedy
1	Dirt on the electrodes of the drum unit and the machine body	Clean the electrodes of the drum unit and machine body. (Refer to <a href="#">Fig. 2-11</a> , <a href="#">Fig. 2-12</a> .)
2	Dirt on the heat roller	Refer to " <a href="#">2-85 How to clean the heat roller</a> ", and clean the heat roller.
3	Scratch on the heat roller (Black spots at 53.4 mm)	Replace the fuser unit.
4	High voltage power supply PCB ASSY failure	Replace the high voltage power supply PCB ASSY.
5	Main PCB failure	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 provided in the machine body may be dirty. Clean the contact with a dry cloth.

Step	Cause	Remedy
1	Bend of tray ground spring	(1) Correct bending of the tray ground spring. (2) Replace the paper tray.

## ■ Downward fogging of solid black

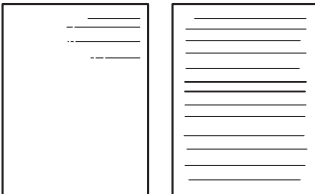


### User Check

- Replace the toner cartridge with a new one.

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

## ■ Horizontal lines



### User Check

- The paper tray ground terminal provided in the machine body may be dirty. Clean the contact with a dry cloth.
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.

Step	Cause	Remedy
1	Dirt on the electrodes of the drum unit and the machine body	Clean the electrodes of the drum unit and machine body. (Refer to Fig. 2-11, Fig. 2-12.)
2	Bend of tray ground spring	(1) Correct bending of the tray ground spring. (2) Replace the paper tray.
3	Laser unit failure	Replace the laser unit.
4	Scratch and Dirt on the heat roller (horizontal stripes at 53.4 mm)	Replace the fuser unit.

## ■ Ghost



### User Check

- Check the machine's environment. High temperature and high humidity or low temperature and low humidity conditions can cause this problem.
- Choose Reduce Ghosting mode in the driver.
- Replace the toner cartridge with a new one.

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

## ■ Fogging



### User Check

- This problem may disappear after printing approximately 10 pages of completely blank sheets.
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.
- Do not use acid paper.

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

### **CAUTION :**

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

## 3.7 Software Setting Problems

The end user can solve problems pertaining to software, for instance, print cannot be made from a computer although test print and Printer Settings print can be made from the machine, by 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.

### 3.7.1 Cannot print data

#### User Check

- Check that the USB cable or LAN cable is not damaged.
- 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.
- Reset the machine back to its default printer settings. (Refer to the following operations.)

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

\* Check the product ID of Macintosh as follows:

- (1) Select the "About This Mac" from the "Apple" menu.
- (2) Press the "More Info..." button within the "About This Mac" dialogue.
- (3) Select the "USB" at the bottom of "Hardware" in left side "Content".
- (4) Select the "MFC-XXXX" in the "USB Device Tree".
- (5) Check the "Product ID" in the "MFC-XXXX".

Product ID (Hexadecimal)

- |                      |                      |
|----------------------|----------------------|
| • DCP-7055 : 0248h   | • MFC-7360 : 024Dh   |
| • DCP-7055W : 02CEh  | • MFC-7360N : 0270h  |
| • DCP-7057 : 0273h   | • MFC-7362N : 0288h  |
| • DCP-7057W : 02CFh  | • MFC-7470D : 0271h  |
| • DCP-7060D : 0249h  | • MFC-7365DN : 0318h |
| • DCP-7065DN : 024Ah | • MFC-7460DN : 024Eh |
| • DCP-7070DW : 0277h | • MFC-7860DN : 024Ch |
| • HL-2280DW : 0272h  |                      |

#### ■ How to reset the network setting back to its default printer settings.

- (1) Press the **Menu** button while the machine is in the ready state.
- (2) Press the **▲** or **▼** button, then the "Initial Setup" or "General Setup" will appear on the LCD and press the **OK** button.  
(Which will appear, "Initial Setup" or "General Setup", depends on the model.)
- (3) Press the **▲** or **▼** button, then the "Reset Menu" will appear on the LCD and press the **OK** button.
- (4) Press the **▲** or **▼** button, then the "Network" will appear on the LCD and press the **OK** button.
- (5) Press the **1** button, then the "Reboot OK? 1.Yes 2.No" will appear on the LCD.
- (6) Press the **1** button, then the "Accepted" will appear on the LCD, and reset the network setting back to its default printer settings, and the machine goes back to the ready state.

## 3.8 Network Problems

### 3.8.1 Cannot make a print through network connection (Wireless LAN model only) (Error code DE, EE)

#### User Check

- Check the descriptions in the network user's guide.
- Reset the machine back to its default printer settings. (Refer to the following operations.)
- Check the connection of the network.

Step	Cause	Remedy
1	Harness connection failure of wireless LAN PCB	Reconnect the harness of the wireless LAN PCB.
2	Wireless LAN PCB failure	Replace the wireless LAN PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

#### ■ How to reset the network setting back to its default printer settings.

- (1) Press the **Menu** button while the machine is in the ready state.
- (2) Press the **▲** or **▼** button, then the "Initial Setup" or "General Setup" will appear on the LCD and press the **OK** button.  
(Which will appear, "Initial Setup" or "General Setup", depends on the model.)
- (3) Press the **▲** or **▼** button, then the "Reset Menu" will appear on the LCD and press the **OK** button.
- (4) Press the **▲** or **▼** button, then the "Network" will appear on the LCD and press the **OK** button.
- (5) Press the **1** button, then the "Reboot OK? 1.Yes 2.No" will appear on the LCD.
- (6) Press the **1** button, then the "Accepted" will appear on the LCD, and reset the network setting back to its default printer settings, and the machine goes back to the ready state.

## 3.9 Document Feeding Problems

### 3.9.1 No feeding

#### User Check

- Set the document so that it contacts the rear of the tray, and check that LCD display varies.
- Check if the number of the documents complies with the specifications in the specification list. (35 sheets or less)
- Check if the ADF cover is closed.

Step	Cause	Remedy
1	Document detection actuator catching on some position	Correct the position of the document detection actuator.
2	ADF cover open actuator catching on some position	Correct the position of the ADF cover open actuator.
3	Harness connection failure of ADF motor	Check the harness connection of the ADF motor and reconnect it.
4	Document detection actuator or ADF cover open sensor malfunction	Check the sensor performance following the procedure described in "Function code 32". If any problem occurs, replace the document front/ADF cover open sensor PCB ASSY.
5	Separation roller failure	Replace the separation roller ASSY.
6	ADF motor failure	Replace the ADF motor.
7	Main PCB failure	Replace the main PCB ASSY.

### 3.9.2 Double feeding

#### User Check

- Check whether the document does not use the paper which is thinner than the specification.
- Fan out the documents so that they will not stick together, and then reload them in the ADF.

Step	Cause	Remedy
1	Separation rubber worn out	Replace the separation rubber holder ASSY.

### 3.9.3 Paper jam

#### ■ Paper jam in the ADF cover (Error code A3, etc)

##### User Check

- Check whether the document does not use the paper which is thinner than the specification.
- Check whether length does not use paper equal to or less than 147.3 mm.

Step	Cause	Remedy
1	Foreign object inside the area around ADF cover	Remove foreign objects inside the area around the ADF cover, if any.
2	Harness connection failure of document scanning position detection sensor	Check the harness connection of the document scanning position detection sensor and reconnect it.
3	Document scanning position detection sensor malfunction	Replace the document scanning position detection sensor PCB ASSY.
4	Breakage of the drive gear	Replace the ADF unit.
5	Main PCB failure	Replace the main PCB ASSY.

#### ■ Paper jam in the ADF (Error code A3, etc)

Step	Cause	Remedy
1	Foreign object inside ADF	Remove foreign objects inside the ADF, if any.
2	Document scanning position detection actuator catching on some position	Correct catching of the document scanning position detection actuator.
3	Document scanning position detection sensor malfunction	Check the sensor performance following the procedure described in "Function code 32". If any problem occurs, replace the document scanning position detection sensor PCB ASSY.
4	Document feed roller failure	Replace the document feed roller ASSY.
5	Breakage of the drive gear	Replace the ADF unit.
6	Main PCB failure	Replace the main PCB ASSY.

#### ■ Paper jam in the paper eject section

Step	Cause	Remedy
1	Foreign object around paper eject	Remove foreign objects around the paper eject, if any.
2	Breakage of the drive gear Eject roller failure	Replace the ADF unit.
3	Main PCB failure	Replace the main PCB ASSY.

### 3.9.4 Wrinkles

#### User Check

- Check if the document is loaded into the ADF correctly.
- Check whether the document guide matches the document size.
- Check whether the document does not curl.

Step	Cause	Remedy
1	Separation roller worn out	Replace the separation roller ASSY.
2	Document feed roller failure	Replace the document feed roller ASSY.

## 3.10 Scanning Image Defect Troubleshooting

### 3.10.1 Image defect examples

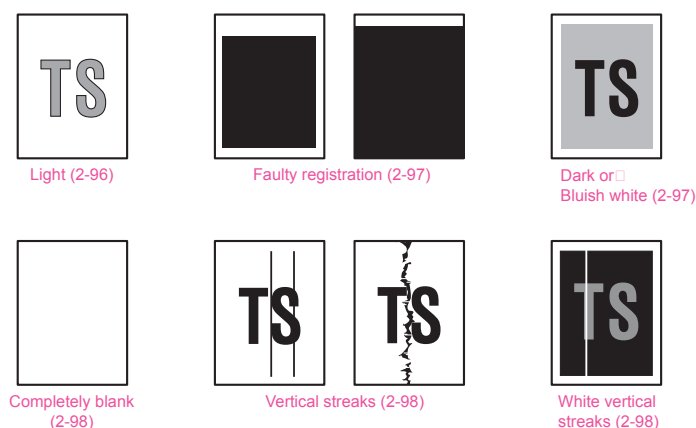


Fig. 2-14

### 3.10.2 Troubleshooting image defect

#### ■ Light on the page (Error code BB, etc)



#### User Check

- Check whether the setting of the contrast does not become light.
- Clean the document table glass or ADF glass.

Step	Cause	Remedy
1	White level data malfunction	Perform the acquisition of white level data. ("Function code 55")
2	CIS unit failure	Replace the CIS unit.
3	Main PCB failure	Replace the main PCB ASSY.

## ■ Faulty registration (Error code B3, B4, etc)



### User Check

- Check if the position of the document on the document table is mistaken.

- ADF

Step	Cause	Remedy
1	Fine adjustment of scan start position misalignment	Perform the fine adjustment of scan start position. (Function code 54)
2	Document scanning position actuator catching on some position	Correct catching of the document scanning position actuator.

- Document table

Step	Cause	Remedy
1	Fine adjustment of scan start position misalignment	Perform the fine adjustment of scan start position. ("Function code 55")
2	Document scanner unit failure	Replace the document scanner unit.

## ■ Dark or Bluish white (Error code BB, etc)

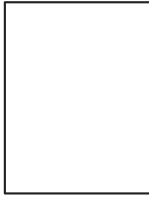


### User Check

- Check whether the setting of the contrast does not become dark.
- If this problem occurs immediately after deep sleep mode is released, update the firmware to the latest version. If updating the firmware is not possible, open and close the front cover, and then retry printing after the main motor has stopped.

Step	Cause	Remedy
1	White level data malfunction	Perform the acquisition of white level data. (Function code 55)
2	CIS unit failure	Replace the CIS unit.
3	Main PCB failure	Replace the main PCB ASSY.

## ■ Completely blank



### User Check

- Check if the first side and second side of the document are reversed.

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

## ■ Vertical streaks



### User Check

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

- ADF

Step	Cause	Remedy
1	CIS unit failure	Replace the CIS unit.

## ■ White vertical streaks



### User Check

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

Step	Cause	Remedy
1	White level data malfunction	Perform the acquisition of white level data. ("Function code 55")
2	CIS unit failure	Replace the CIS unit.

## 3.11 Troubleshooting of the Control Panel

### 3.11.1 Nothing is displayed on the LCD

#### User Check

- Verify if the power switch is turned off.

Step	Cause	Remedy
1	AC cord failure	Replace the AC cord.
2	Harness connection failure of panel PCB ASSY	Reconnect the panel PCB ASSY harness.
3	Harness connection failure of LCD and panel PCB	Check the harness connection between the LCD and panel PCB, and reconnect it.
4	LCD failure	Replace the LCD.
5	Low voltage power supply PCB failure	Replace the low voltage power supply PCB ASSY.
6	Panel PCB failure	Replace the panel PCB ASSY.
7	Main PCB failure	Replace the main PCB ASSY.

### 3.11.2 The control panel does not work

#### User Check

- Check whether the function lock is not set.
- Turn the power off and on.

Step	Cause	Remedy
1	Panel unit assembling failure	Re-assemble the panel unit.
2	Connection failure between main PCB and panel PCB	Connect the connector between the main PCB ASSY and panel PCB ASSY correctly.
3	Rubber key failure	Replace the rubber key.
4	Panel PCB failure	Replace the panel PCB ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

### 3.11.3 Lamp malfunction

Step	Cause	Remedy
1	Connection between main PCB and panel PCB	Connect the connector between the main PCB ASSY and panel PCB ASSY correctly.
2	Panel PCB failure	Replace the panel PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

## 3.12 Troubleshooting of FAX/Telephone Functions

### 3.12.1 FAX can't send it

#### User Check

- Verify that the telephone cord is securely inserted into the socket.
- Check the dial mode setting again.

Step	Cause	Remedy
1	Connection between main PCB and NCU PCB	Connect the connector between the main PCB ASSY and NCU PCB ASSY correctly.
2	Connection between main PCB and panel PCB	Connect the connector between the main PCB ASSY and panel PCB ASSY correctly.
3	Rubber key connection failure	Replace the rubber key.
4	NCU PCB failure	Replace the NCU PCB ASSY.
5	Panel PCB failure	Replace the panel PCB ASSY.
6	Main PCB failure	Replace the main PCB ASSY.

### 3.12.2 FAX cannot be transmitted and received

#### User Check

- Verify that the telephone cord is securely inserted into the socket.
- Check the reception mode.
- Check if the paper is loaded into the paper tray correctly.

Step	Cause	Remedy
1	Connection between main PCB and NCU PCB	Connect the connector between the main PCB ASSY and NCU PCB ASSY correctly.
2	NCU PCB failure	Replace the NCU PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

### 3.12.3 No bell ring

#### User Check

- Set a value other than "0" to the number of bell rings.
- Set a value other than "OFF" to the bell volume.
- Check the reception mode.
- Check if the paper is loaded into the paper tray correctly.

Step	Cause	Remedy
1	Harness connection failure of speaker	Check the harness connection of the speaker and reconnect it.
2	Connection between main PCB and NCU PCB	Connect the connector between the main PCB ASSY and NCU PCB ASSY correctly.
3	Speaker failure	Replace the speaker unit.
4	NCU PCB failure	Replace the NCU PCB ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

### 3.12.4 A communication error occurs

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

### 3.12.5 Reception mode cannot be changed

#### User Check

- Turn OFF the Distinctive ring mode.

### 3.12.6 Caller ID are not displayed

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

### 3.12.7 Cannot talk on the handset

#### User Check

- Verify that the handset curled cord is securely inserted into the socket.
- Adjust the handset volume.

Step	Cause	Remedy
1	Handset curled cord failure	Replace the handset curled cord.
2	Handset ASSY failure	Replace the handset ASSY.
3	Hook switch PCB ASSY failure	Replace the hook switch PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

### 3.13 PCB Problems

#### 3.13.1 Main PCB failure

##### User Check

- Turn the power off and on.

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

#### 3.13.2 Out of Memory

Memory full

##### User Check

- Then print the stored data.
- Reduce the data capacity or reduce the print resolution.

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

#### 3.13.3 High voltage power supply PCB ASSY failure

Step	Cause	Remedy
1	Harness connection failure of high voltage power supply PCB ASSY	Check the harness connection between the high voltage power supply PCB ASSY and main PCB, and reconnect it.
2	High voltage power supply PCB ASSY failure	Replace the high voltage power supply PCB ASSY.
3	Low voltage power supply PCB ASSY failure	Replace the low voltage power supply PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

### 3.13.4 Low voltage power supply PCB ASSY failure

#### User Check

- Turn the power off and on.

Step	Cause	Remedy
1	Harness connection failure of low voltage power supply PCB ASSY	Check the harness connection of the low voltage power supply PCB ASSY, and reconnect it.
2	Low voltage power supply PCB failure	Replace the low voltage power supply PCB ASSY. However, in the failure case of that the irregular power supply is detected, reset the irregular power supply detection counter following the procedure described in "3.1 Reset of Irregular Power Supply Detection Counter" in Chapter 4.
3	Main PCB failure	Replace the main PCB ASSY.

#### **CAUTION :**

- The irregular power supply detection error EF occurs when there is a large distortion in the power supply voltage supplied to the machine.  
In this case, if the same power supply is used, the same error might occur again even if the low voltage power supply PCB ASSY is replaced.

### 3.13.5 NCU ASSY failure

#### User Check

- Verify that the telephone cord is securely inserted into the socket.

Step	Cause	Remedy
1	Harness connection failure of NCU ASSY	Check the harness connection of the NCU ASSY, and reconnect it.
2	NCU ASSY failure	Replace the NCU ASSY.

### 3.14 Other Problems

#### 3.14.1 The machine is not turned ON, or the LCD indication does not appear

Step	Cause	Remedy
1	AC cord failure	Replace the AC cord.
2	Harness connection failure of panel PCB ASSY	Reconnect the panel PCB ASSY harness.
3	Harness connection failure of LCD	Reconnect the LCD harness.
4	LCD failure	Replace the LCD.
5	Low voltage power supply PCB failure	Replace the low voltage power supply PCB ASSY.
6	Panel PCB failure	Replace the panel PCB ASSY.
7	High voltage power supply PCB failure	Replace the high voltage power supply PCB ASSY.
8	Main PCB failure	Replace the main PCB ASSY.

#### 3.14.2 Fuser fan does not rotate

Step	Cause	Remedy
1	Harness connection failure of the fuser fan	Reconnect the harness of the fuser fan correctly.
2	Fuser fan failure	Replace the fuser fan.
3	Harness connection failure of high voltage power supply PCB	Reconnect the harness of the high voltage power supply PCB ASSY.
4	High voltage power supply PCB ASSY failure	Replace the high voltage power supply PCB ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

#### 3.14.3 The room temperature is high or low

##### User Check

- Adjust the room temperature to 10 °C to 30 °C.
- Check if the exhaust opening is blocked.

Step	Cause	Remedy
1	Internal temperature sensor failure	Replace the Internal temperature sensor.
2	Main PCB failure	Replace the main PCB ASSY.

#### 3.14.4 Problem associated with Secure Function Lock

##### User Check

- The administrator of this machine is requested to release the security lock.

Step	Cause	Remedy
1	Forgot the password (PIN code) and unable to release the lock.	Press the [MENU] button in the ready state, and then press the [#], [2], [7], [9], [0], and [0] in this order to reset the security lock setting.
2	Main PCB failure	Replace the main PCB ASSY.

# **CHAPTER 3**

## **DISASSEMBLY/REASSEMBLY**

## CHAPTER 3 DISASSEMBLY/REASSEMBLY

This chapter describes procedures for disassembling and assembling the machine with relates notes.

The provided disassembly order flow enables you to take in the quickest way to get an involved part at a glance.

At the start of disassembling, you can check the disassembly order flow which guides you through a shortcut to get to the part.

This chapter also covers screw tightening torques and lubrication points where the specified lubrication should be applied when the machine is assembled.

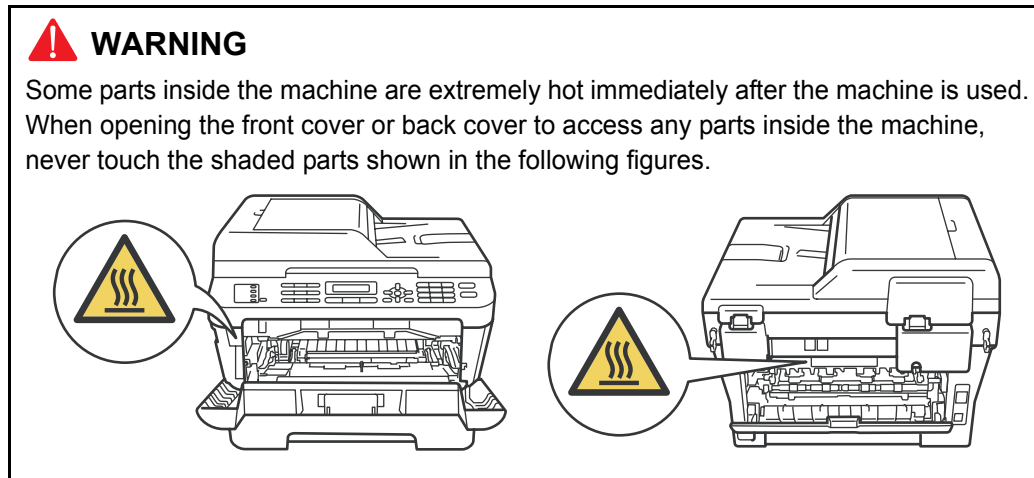
### CONTENTS

<b>1. SAFETY PRECAUTIONS .....</b>	<b>3-1</b>
<b>2. PACKING .....</b>	<b>3-2</b>
<b>3. SCREW CATALOGUE .....</b>	<b>3-3</b>
<b>4. SCREW TORQUE LIST .....</b>	<b>3-4</b>
<b>5. LUBRICATION .....</b>	<b>3-6</b>
<b>6. OVERVIEW OF GEARS.....</b>	<b>3-7</b>
<b>7. HARNESS ROUTING.....</b>	<b>3-10</b>
<b>8. DISASSEMBLY FLOW CHART .....</b>	<b>3-26</b>
<b>9. DISASSEMBLY PROCEDURE .....</b>	<b>3-27</b>
9.1 Paper Tray .....	3-29
9.2 Cord Hook.....	3-32
9.3 Back Cover .....	3-33
9.4 Outer Chute ASSY .....	3-34
9.5 Fuser Cover .....	3-35
9.6 Inner Chute ASSY, Eject Pinch Roller R ASSY and Eject Pinch Roller L ASSY .....	3-36
9.7 Front Cover ASSY, Support Flap 1 .....	3-38
9.8 Side cover L / Handset holder ASSY .....	3-40
9.9 Side Cover R.....	3-43
9.10 ADF Unit (For models with ADF) .....	3-44
9.10.1 ADF Unit.....	3-44
9.10.2 Hinge ASSY L / Hinge Arm R / Hinge R / Hinge R support.....	3-46
9.10.3 Document Stopper.....	3-47
9.10.4 Document Sub Tray .....	3-48
9.10.5 ADF Cover ASSY .....	3-49
9.10.6 Gear Cover.....	3-50
9.10.7 Separation Roller ASSY .....	3-51
9.10.8 Separation Rubber Holder ASSY .....	3-52
9.10.9 Upper Document Chute ASSY SX .....	3-53
9.10.10 Document Feed Roller ASSY.....	3-54

9.10.11 Lower Document Chute ASSY .....	3-55
9.10.12 Ejection Roller ASSY.....	3-56
9.10.13 ADF motor .....	3-57
9.10.14 Document Scanning Position Detection Sensor PCB ASSY/ Document Detection/ ADF Cover Open Sensor PCB ASSY .....	3-59
9.11 Document Cover ASSY (For models without ADF) .....	3-61
9.12 Pull Arm L / Pull Arm R / Pull Arm Spring .....	3-63
9.13 Document Scanner Unit.....	3-66
9.14 Panel Unit .....	3-67
9.14.1 Panel Unit.....	3-67
9.14.2 Panel PCB ASSY .....	3-68
9.14.3 Rubber Key L/R.....	3-69
9.14.4 LCD .....	3-70
9.15 CIS unit .....	3-71
9.16 Pull Arm Guide.....	3-73
9.17 NCU ASSY.....	3-74
9.18 Speaker Unit .....	3-78
9.19 Joint cover.....	3-80
9.20 Fuser Unit .....	3-82
9.21 Low voltage power supply PCB ASSY.....	3-85
9.22 Fuser Fan.....	3-88
9.23 High Voltage Power Supply PCB ASSY .....	3-89
9.24 New Toner Sensor PCB ASSY .....	3-90
9.25 Filter .....	3-91
9.26 Laser Unit.....	3-92
9.27 Wireless LAN PCB ASSY (Wireless LAN model only).....	3-94
9.28 Pick-up Roller Holder ASSY .....	3-95
9.29 Rubber Foot.....	3-96
9.30 Main PCB ASSY .....	3-97
9.31 T1 Clutch ASSY, REG Clutch ASSY .....	3-98
9.32 Main Frame L ASSY .....	3-100
9.33 Develop Drive Sub ASSY, Develop Gear Joint/52 .....	3-102
9.34 Motor Drive Sub ASSY, Main Motor .....	3-104
9.35 Internal Temperature Sensor .....	3-106
9.36 Paper Eject Sensor PCB ASSY .....	3-107
9.37 Fuser Gear 28/34.....	3-109

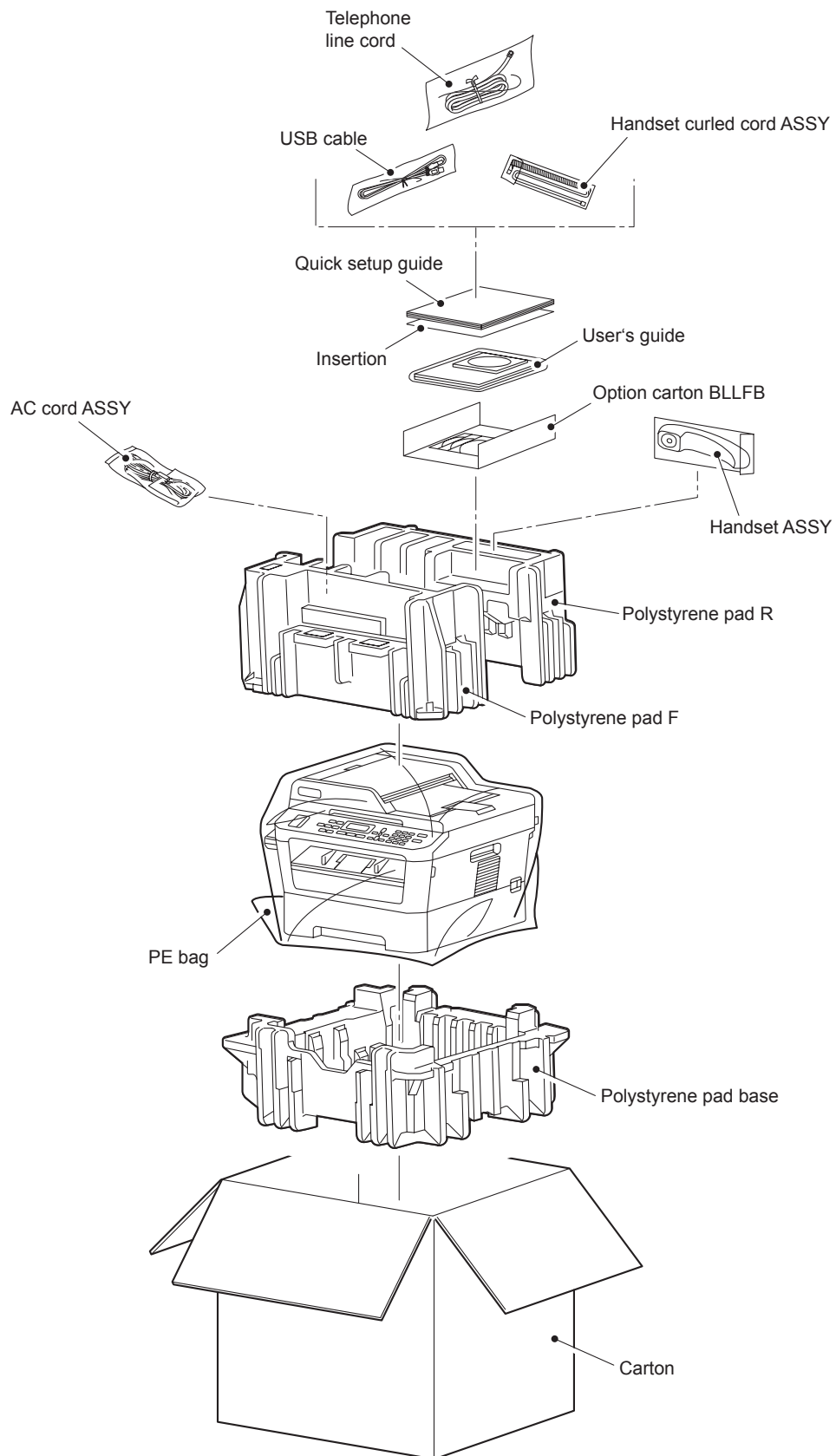
# 1. SAFETY PRECAUTIONS

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





- 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.
- After disconnecting flat cables, check that each cable is not damaged at its end or shortcircuited.
- When connecting flat cables, do not insert them at an angle. After insertion, check that the cable are not at an angle.
- 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.
- Violently closing the joint cover without mounting the toner cartridge and the drum unit can damage this product.

## 2. PACKING



### 3. SCREW CATALOGUE




#### Taptite bind B

Taptite bind B M3x10	
Taptite bind B M4x12	


#### Taptite cup B

Taptite cup B M3x10	
------------------------	---

#### Taptite cup S

Taptite cup S M3x6 SR	
Taptite cup S M3x8 SR	
Taptite cup S M3x12	

#### Taptite flat B

Taptite flat B M3x10	
-------------------------	---





#### Screw bind

Screw bind M3x4	
--------------------	---

#### Taptite pan

Taptite pan B M4x14	
---------------------	---

#### Screw pan (S/P washer)

Screw pan (S/P washer) M3x6	
Screw pan (S/P washer) M3x12DB	
Screw pan (S/P washer) M3.5x6	
Screw pan (S/P washer) M3.5x8	

## 4. SCREW TORQUE LIST

**Note:**

- For verifying the shape of each screw, refer to "3. SCREW CATALOGUE" in this chapter.

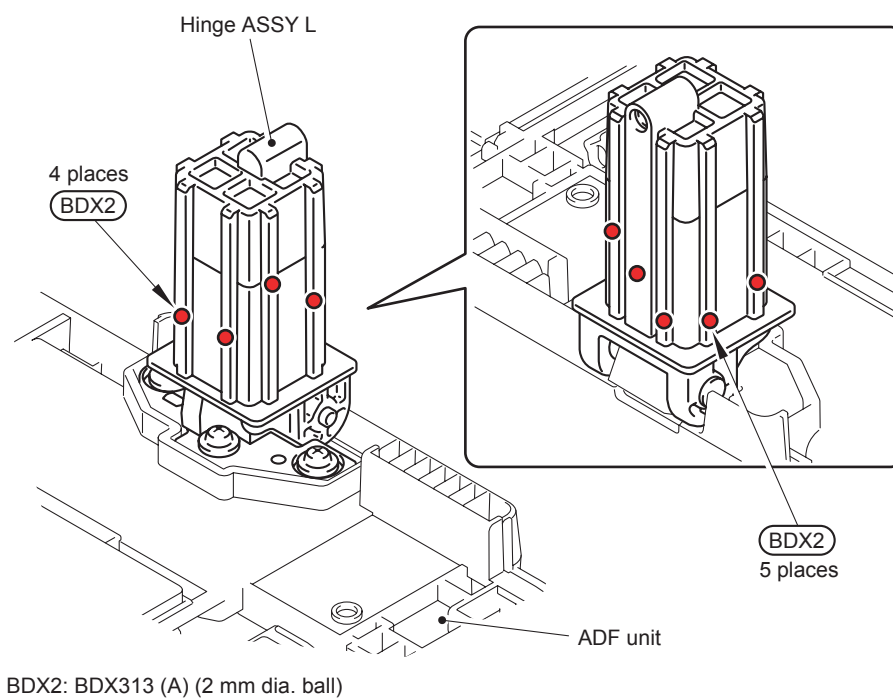
Location of screw	Screw type	Q'ty	Tightening torque N · m (kgf · cm)
Tray cover	Taptite bind B M4x12	2	0.8±0.1 (8±1)
Cord hook	Taptite cup B M3x8	2	0.4±0.05 (4±0.5)
Inner chute ASSY	Taptite bind B M4x12	2	0.8±0.1 (8±1)
Side cover L	Taptite bind B M4x12	3	0.8±0.1 (8±1)
Upper/Lower handset cover	Taptite pan B M3x8	1	0.5±0.1 (5±1)
Side cover R	Taptite bind B M4x12	1	0.8±0.1 (8±1)
ADF FG Harness / FB FG harness	Taptite cup S M3x6 SR	1	0.8±0.1 (8±1)
Hinge ASSY L	Taptite bind B M4x12	1	0.8±0.1 (8±1)
	Taptite cup S M3x12	3	0.8±0.1 (8±1)
Hinge arm R	Taptite cup B M3x10	4	0.5±0.1 (5±1)
Upper Document Chute ASSY	Taptite cup B M3x10	6	0.5±0.1 (5±1)
Lower Document Chute ASSY	Taptite cup B M3x10	3	0.5±0.1 (5±1)
ADF sensor harness unit	Taptite cup S M3x6 SR	1	0.8±0.1 (8±1)
Drive frame ASSY	Taptite cup B M3x10	3	0.5±0.1 (5±1)
ADF motor	Screw pan (S/P washer) M3x6	1	0.35±0.05 (3.5±0.5)
Panel unit	Taptite cup B M3x10	4	0.5±0.1 (5±1)
Document scanner top cover	Taptite bind B M4x12	6	0.8±0.1 (8±1)
Speaker cover	Taptite bind B M4x12	1	0.8±0.1 (8±1)
NCU FG harness ASSY (upper side)	Screw pan (S/P washer) M3.5x6	1	0.8±0.1 (8±1) VIETNAM *1
		1	0.6±0.05 (6±0.5) CHINA *1
		1	0.5±0.05 (5±0.5)
NCU FG harness ASSY (right side)		1	0.5±0.05 (5±0.5)
NCU unit	Taptite bind B M4x12	2	0.8±0.1 (8±1)
NCU ASSY	Taptite cup S M3x6 SR	2	0.5±0.1 (5±1)
Joint Cover	Taptite bind B M4x12	4	0.8±0.1 (8±1)
Fuser unit	Taptite pan B M4x14	2	0.8±0.1 (8±1)
LV shield plate cover	Taptite bind B M4x12	3	0.8±0.1 (8±1)
	Screw pan (S/P washer) M3.5x6	1	0.5±0.05 (5±0.5)
	Screw pan (S/P washer) M3x12DB	1	0.5±0.1 (5±1)

Location of screw	Screw type	Q'ty	Tightening torque N · m (kgf · cm)
Low voltage power supply PCB ASSY	Screw pan (S/P washer) M3.5x6	1	0.5±0.05 (5±0.5)
	Taptite flat B M3x10	1	0.45±0.05 (4.5±0.5)
	Taptite bind B M4x12	1	0.8±0.1 (8±1)
High voltage power supply PCB ASSY	Taptite bind B M4x12	1	0.8±0.05 (8±0.5)
New toner sensor PCB ASSY	Taptite bind B M3x10	1	0.5±0.05 (5±0.5)
Laser unit	Taptite cup S M3x8 SR	4	0.8±0.05 (8±0.5)
Main PCB ASSY	Taptite cup S M3x6 SR	3	0.6±0.1 (6±1)
Front chute ASSY	Taptite bind B M4x12	2	0.8±0.1 (8±1)
Under bar	Taptite bind B M4x12	1	0.8±0.1 (8±1)
Chute ground plate	Taptite bind B M3x10	1	0.55±0.05 (5.5±0.5)
PF frame ASSY	Taptite bind B M4x12	1	0.8±0.1 (8±1)
FG plate laser L	Taptite cup S M3x6 SR	1	0.8±0.1 (8±1)
Main frame L ASSY	Taptite bind B M4x12	2	0.8±0.1 (8±1)
	Taptite cup S M3x6 SR	2	0.8±0.1 (8±1)
Develop drive sub ASSY	Taptite cup S M3x6 SR	1	0.8±0.1 (8±1)
	Taptite bind B M4x12	3	0.8±0.1 (8±1)
Motor drive sub ASSY	Taptite bind B M4x12	6	0.8±0.1 (8±1)
Main motor	Screw bind M3x4	3	0.65±0.05 (6.5±0.5)
Main PCB shield	Taptite cup S M3x6 SR	1	0.6±0.1 (6±1)
	Taptite bind B M4x12	2	0.8±0.1 (8±1)

\*1 The tightening torque differs between machines produced in China and machines produced in Vietnam. Check the serial number label attached to the rear of the machine to confirm the country your machine was produced.

## 5. LUBRICATION

The kind of the lubricating oil (Maker name)	Lubrication point	Quantity of lubrication
BDX313 (A) (Kanto Kasei)	Hinge ASSY L	2mm dia. ball (BDX2)



**Fig. 3-1**

## 6. OVERVIEW OF GEARS

### ■ Paper feeder part

<Layout view>

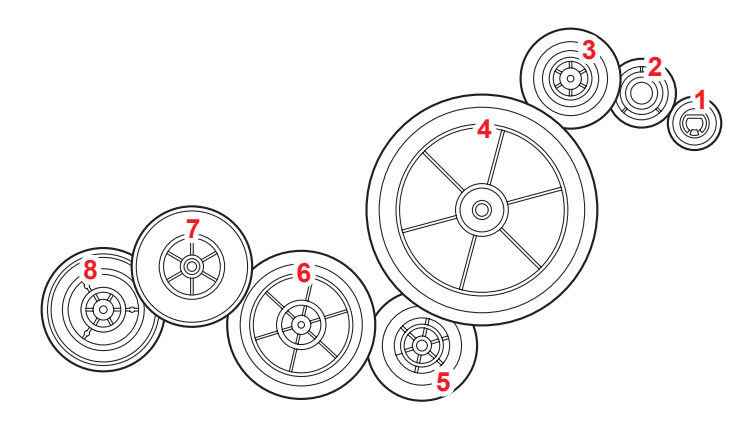


Fig. 3-2

<Development view>

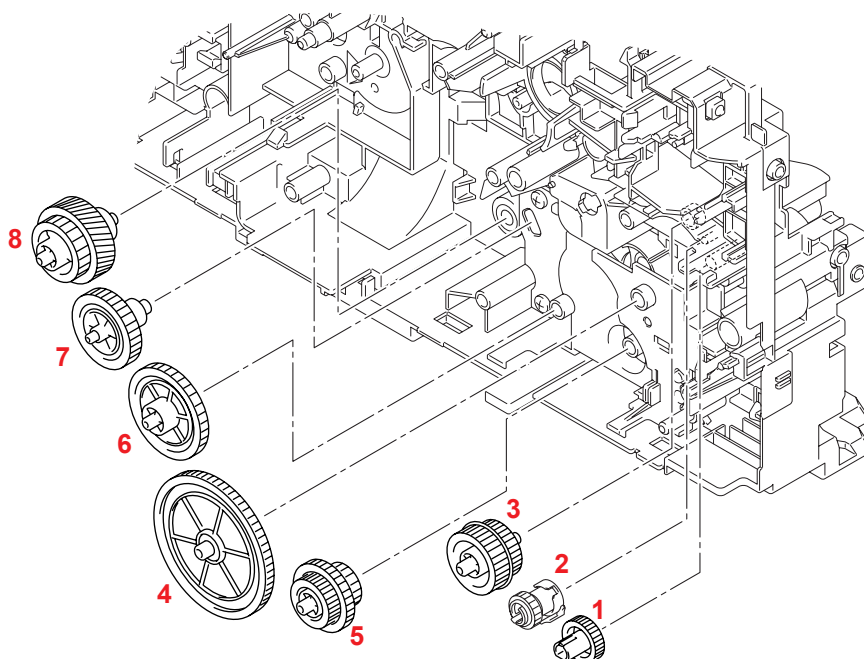


Fig. 3-3

<Name of gears>

1	LY2584	Feeder gear 17	4	LY2046	Feeder gear idle 65
2	LY2047	Feeder gear	5	LY2045	Feeder gear 21/30/17
	LY2581	Feeder gear holder	6	LY2044	Feeder gear 41
	LY2582	Feeder gear spring	7	LY2043	Feeder gear 31 pendulum
	LY2583	Feeder holder spring	8	LY2042	Feeder gear 26/52R
3	LY2048	Feeder gear 24/27			

\* These parts are subject to change without prior notice

## ■ Development part

<Layout view>

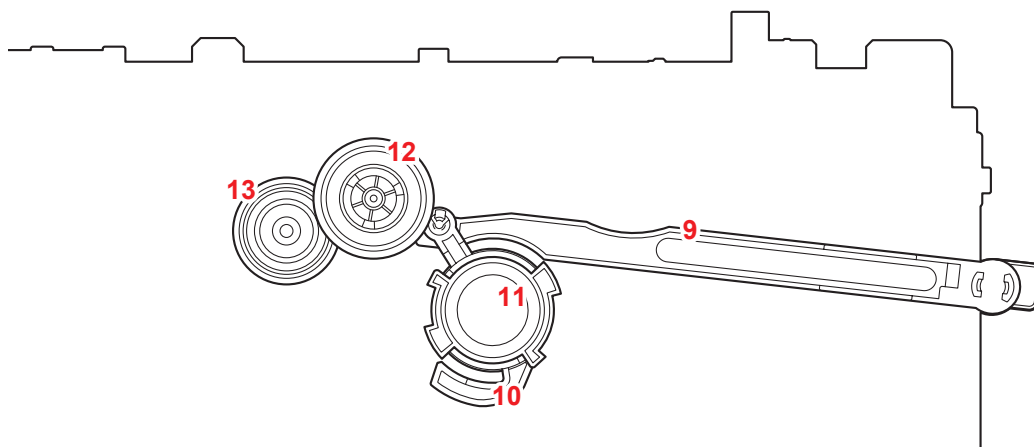


Fig. 3-4

<Development view>

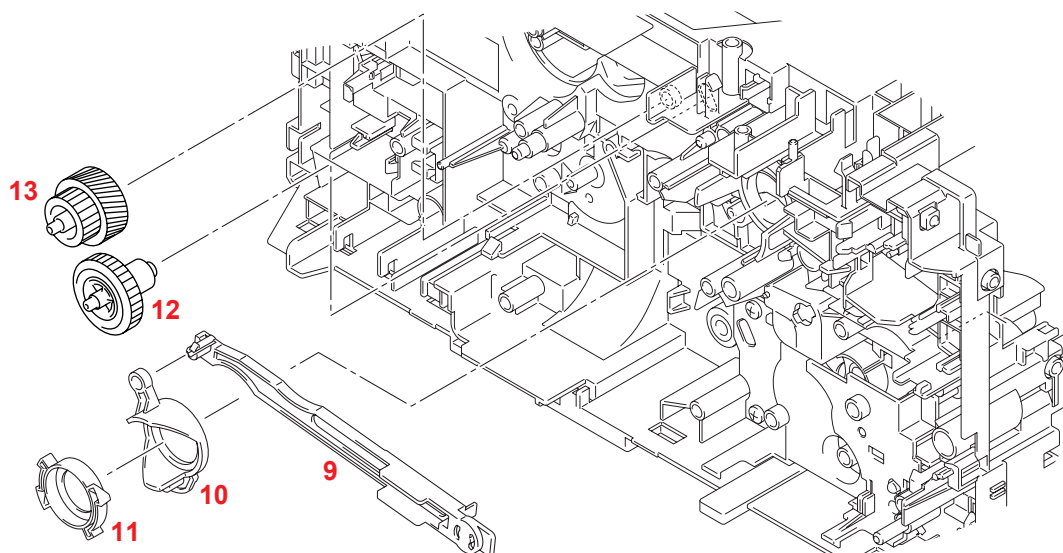


Fig. 3-5

<Name of gears>

9	LY2064	Develop joint link	12	LY2063	DEV gear 33
10	LY2458	Develop joint lift cam	13	LY2062	DEV gear 21/45R
11	LU2041	Develop joint lift disk			

\* These parts are subject to change without prior notice

## ■ Paper eject & Duplex part

<Layout view>

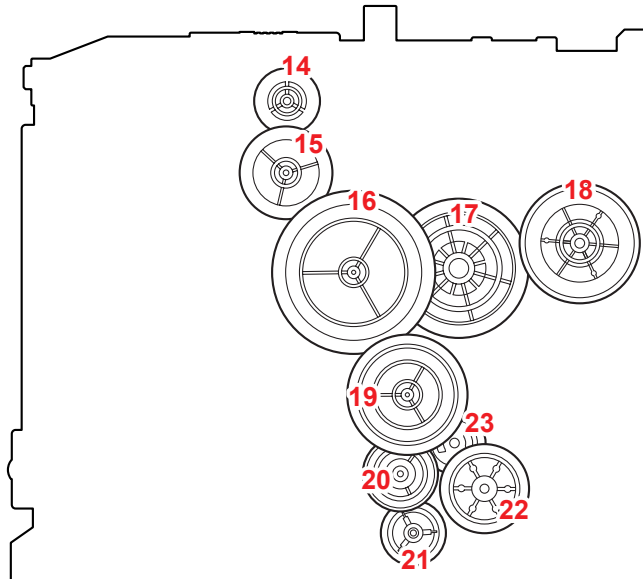


Fig. 3-6

<Development view>

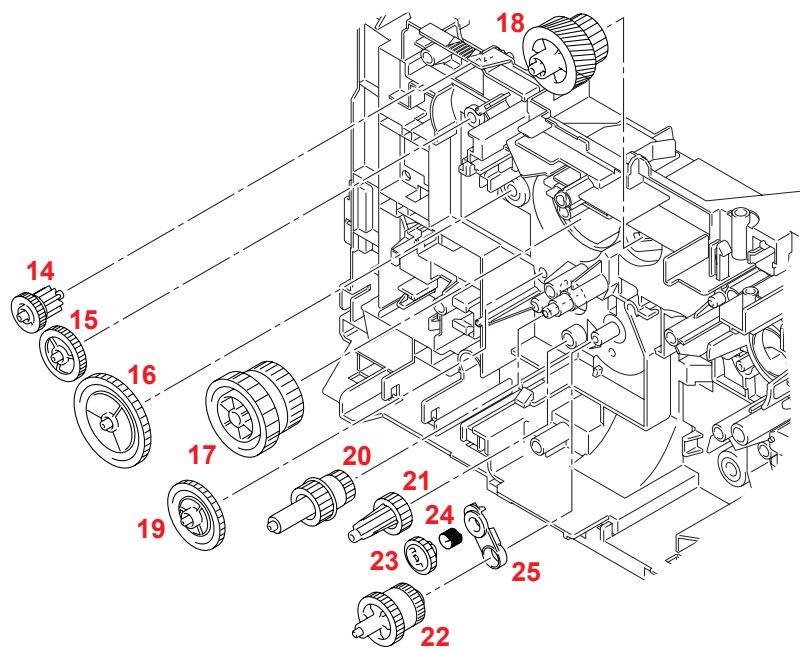


Fig. 3-7

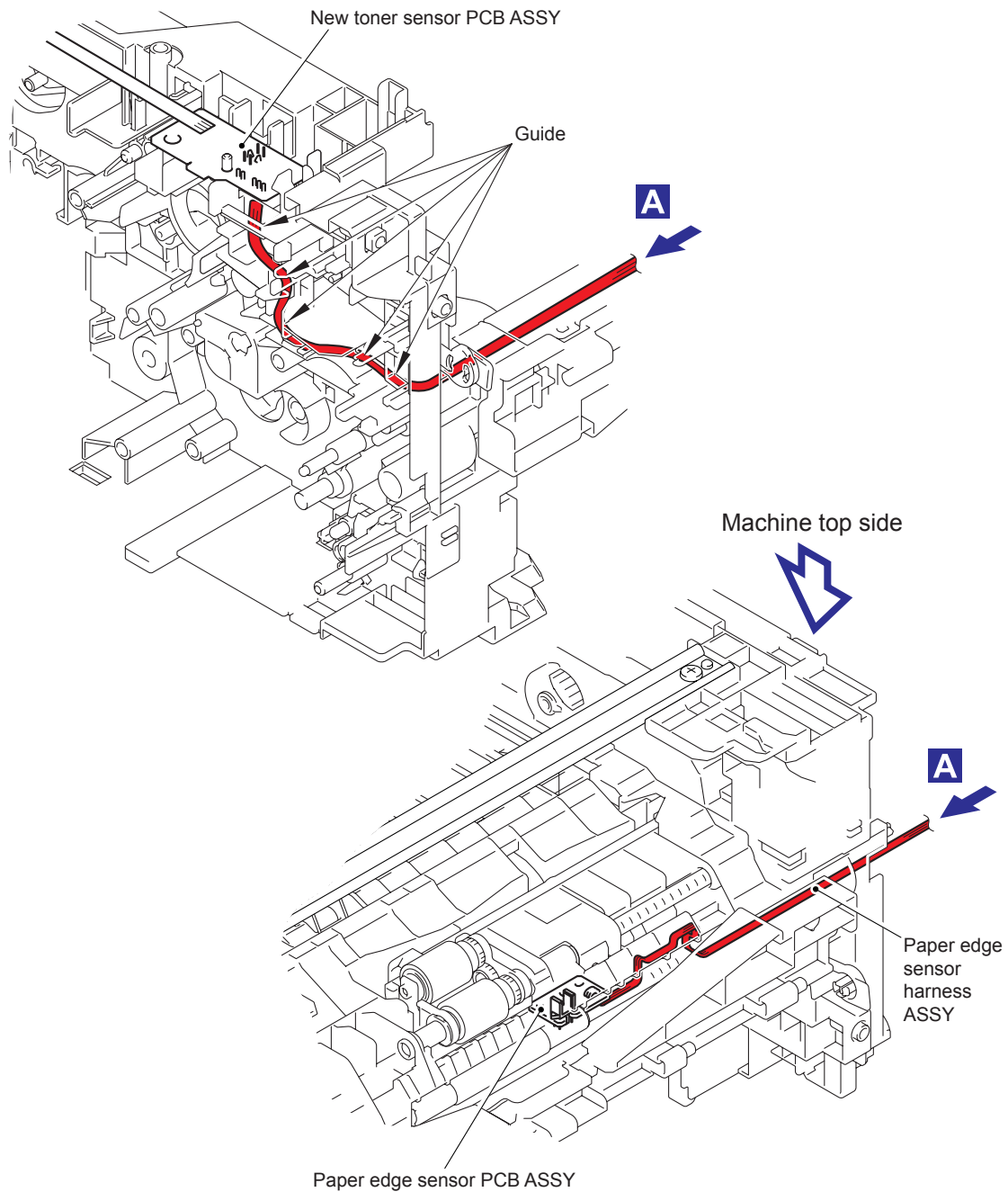
<Name of gears>

14	LY2011	Ejector gear 10/15	20	LY2015	DX gear 16/20
15	LY2012	Ejector gear 22	21	LY2016	DX gear 19
16	LY2013	Ejector gear 40	22	LY2454	DX gear 21M1/21M0.8
17	LY2010	Fuser gear 28/34	23	LY2038	DX gear 18 pendulum
18	LY2066	Fuser gear 20/54R pendulum	24	LY2037	DX pendulum gear spring
19	LY2014	Ejector gear 29	25	LY2036	DX pendulum holder

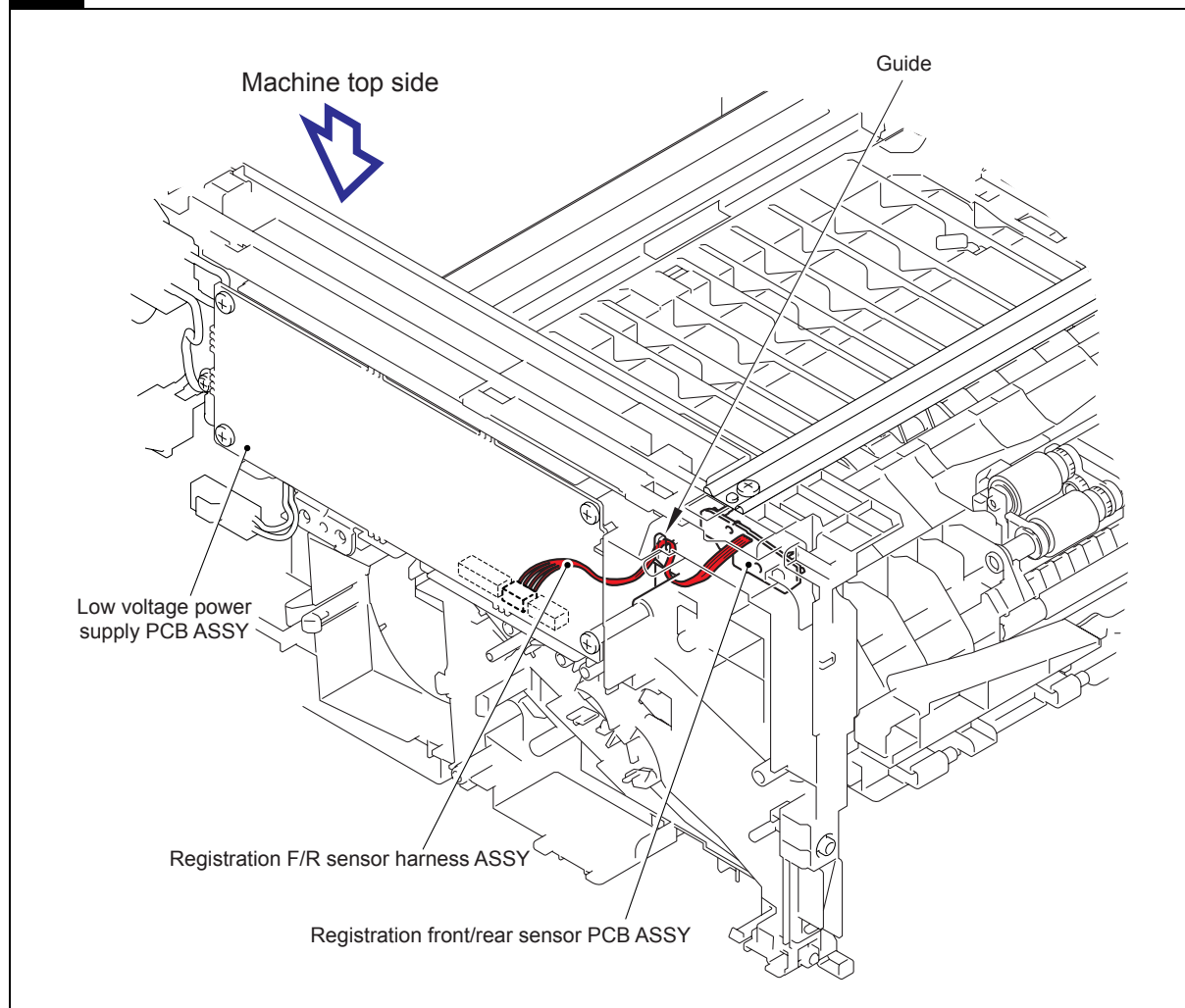
\* These parts are subject to change without prior notice

## 7. HARNESS ROUTING

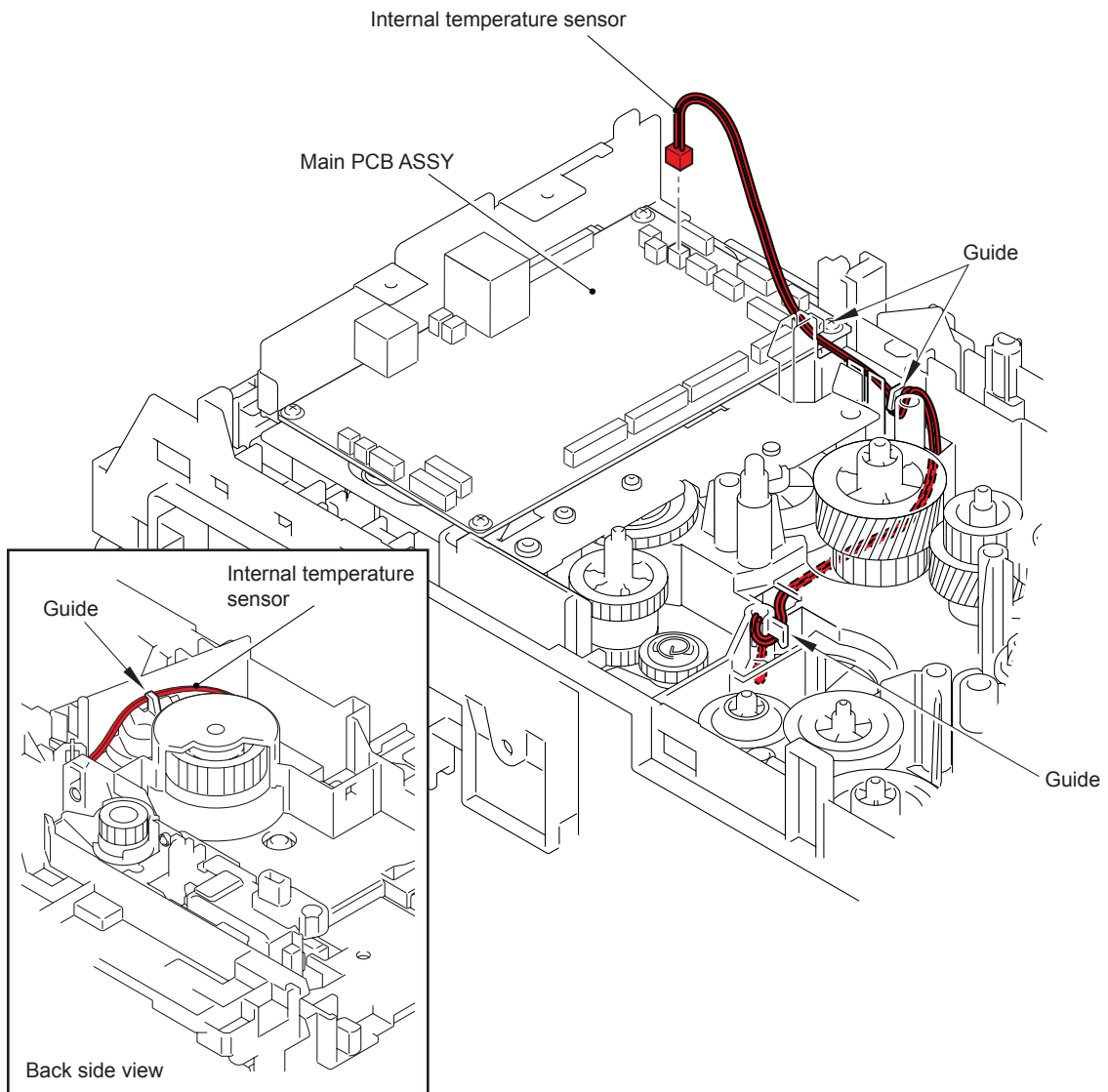
### 1 Paper edge sensor PCB ASSY



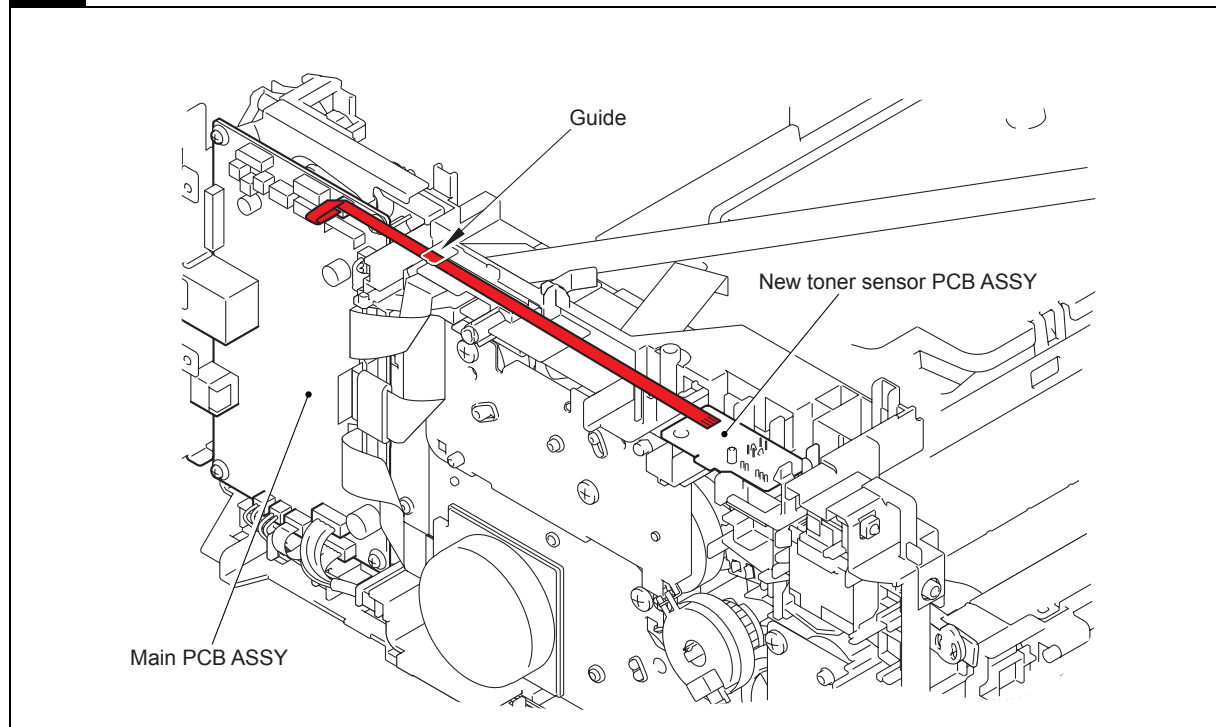
## 2 Registration front/rear sensor PCB ASSY



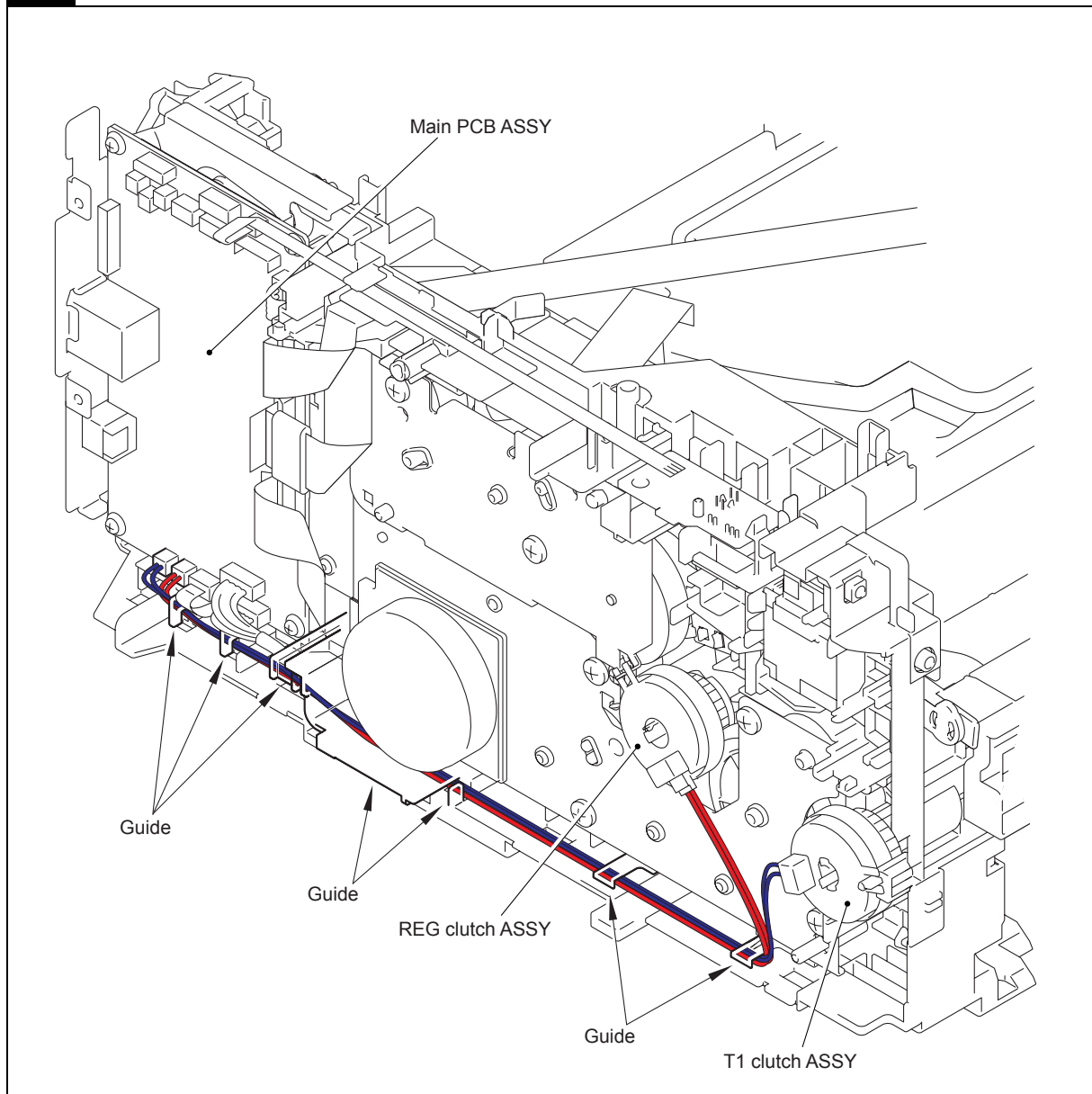
### 3 Internal temperature sensor



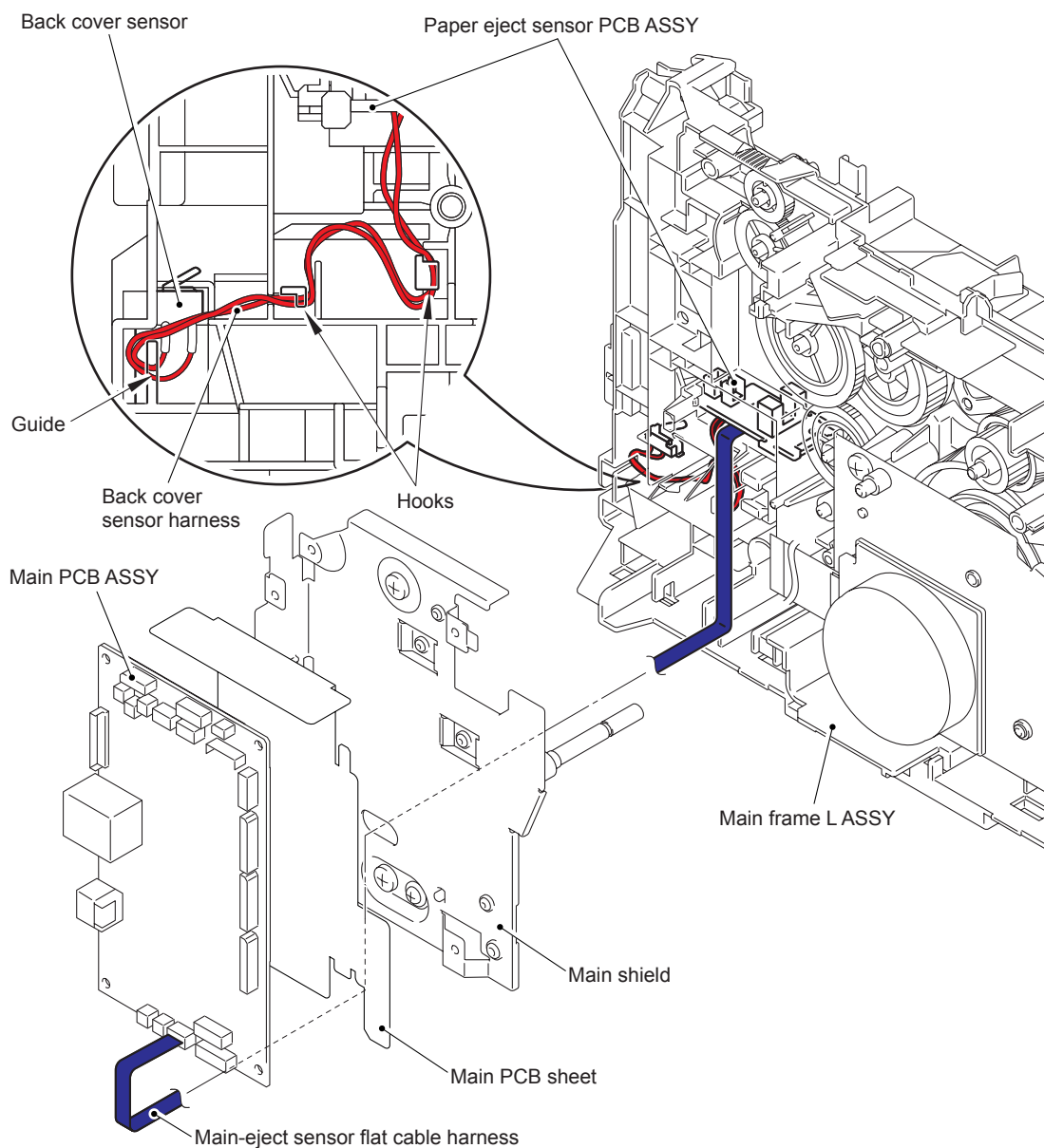
#### 4 New toner sensor PCB ASSY



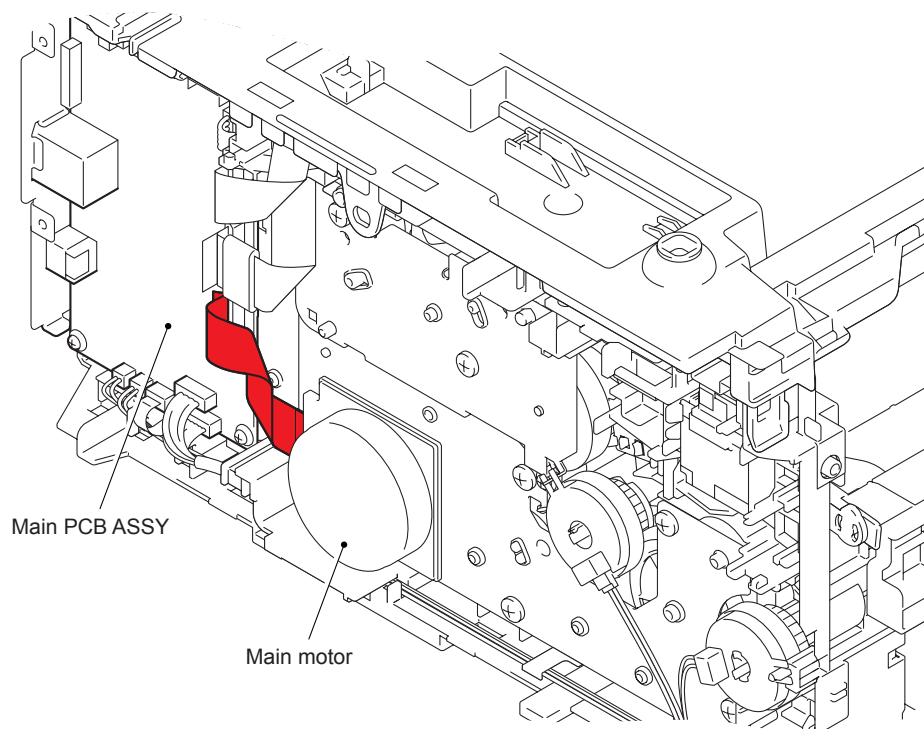
## 5 T1 clutch ASSY, REG clutch ASSY



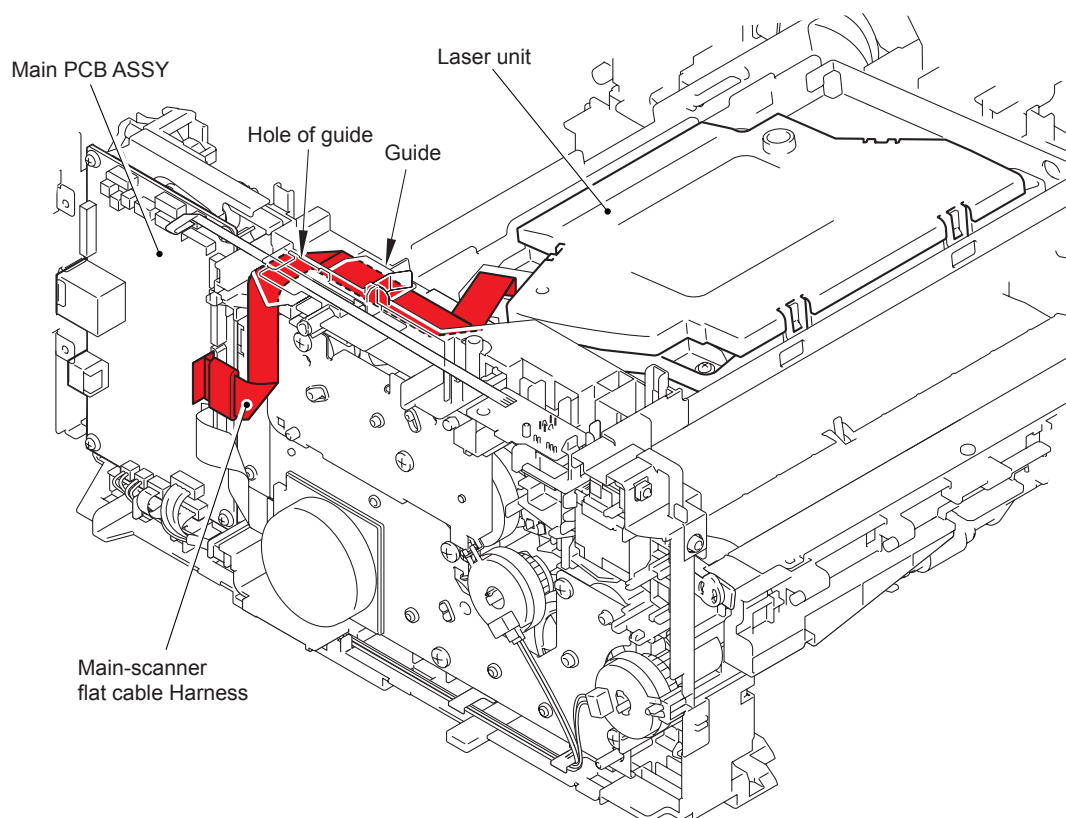
## 6 Paper eject sensor PCB ASSY



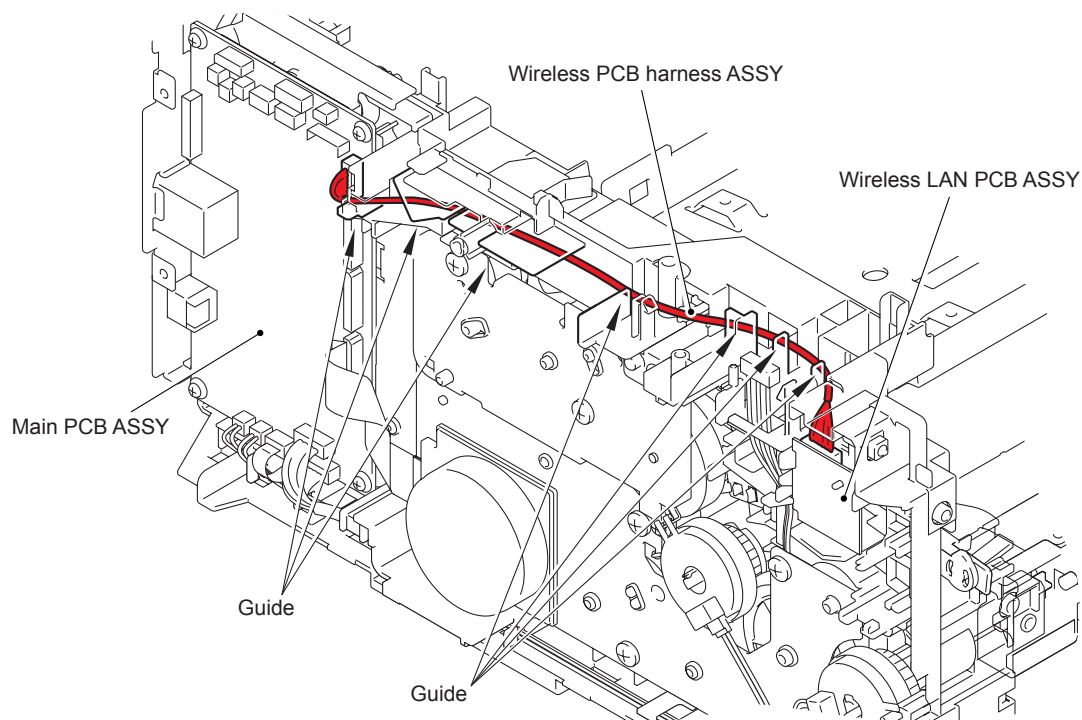
## 7 Main motor



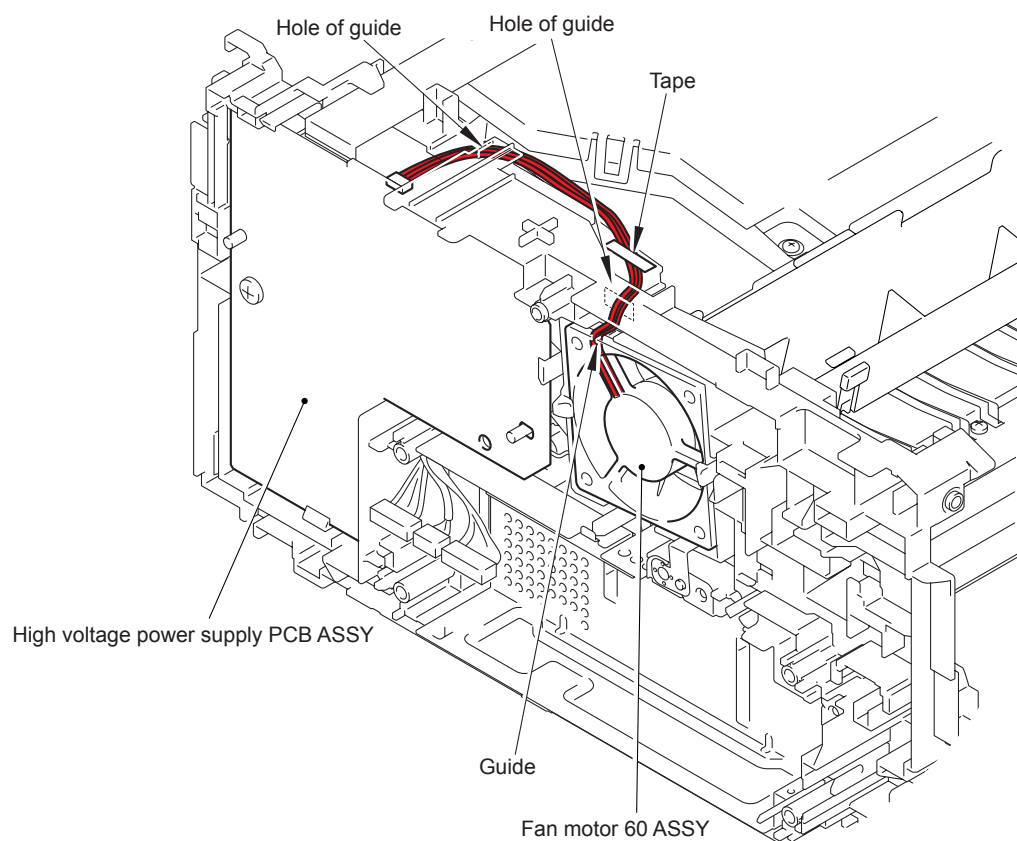
## 8 Laser unit



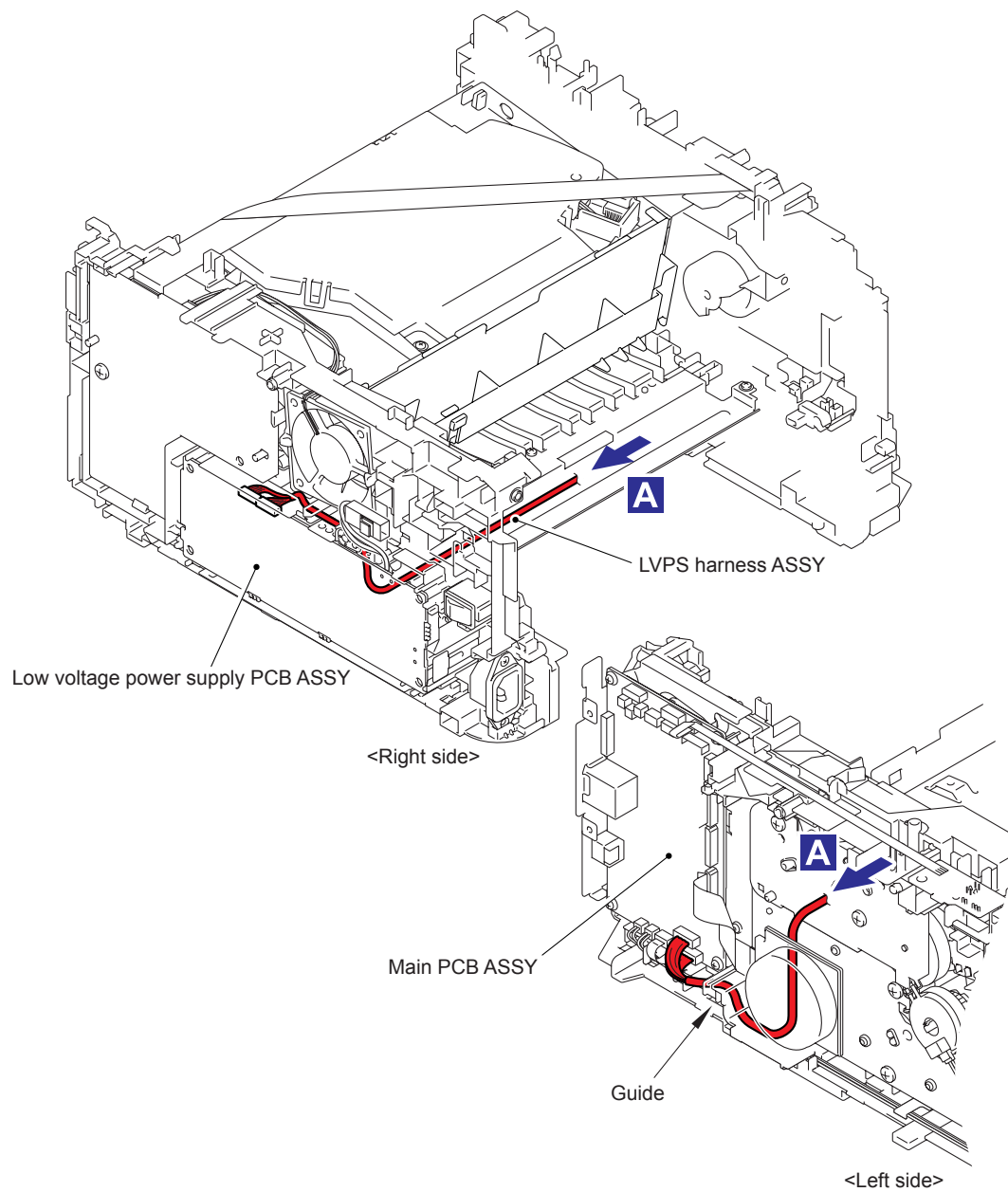
## 9 Wireless LAN PCB ASSY (wireless network model only)



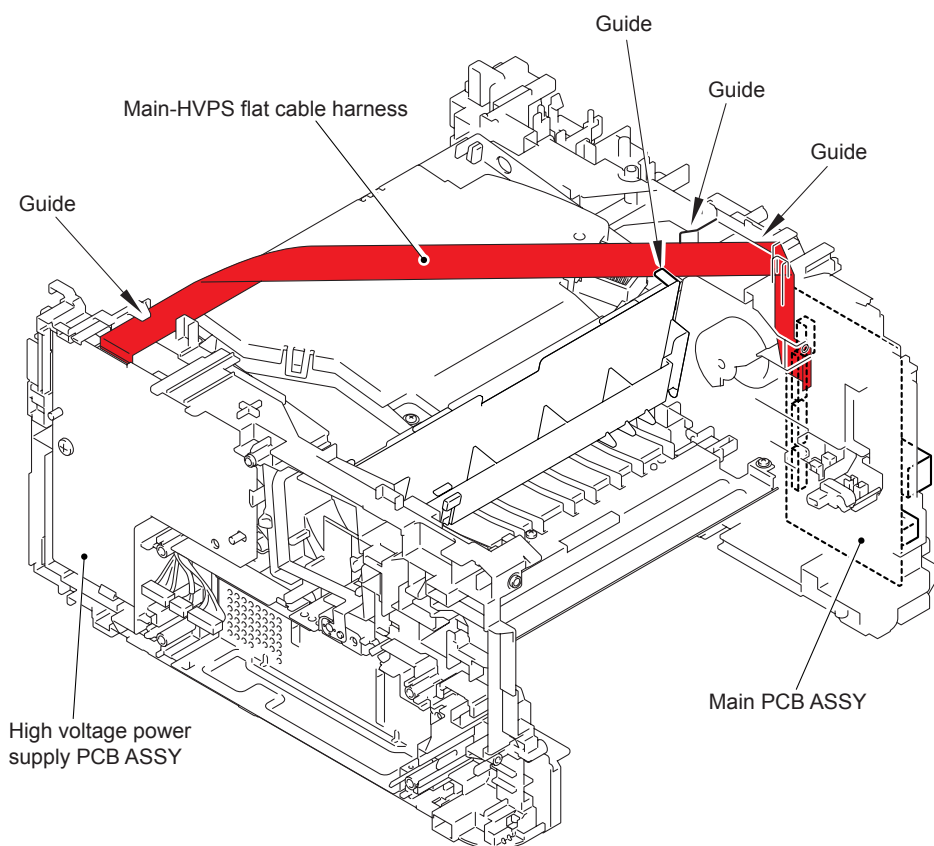
## 10 Fuser fan



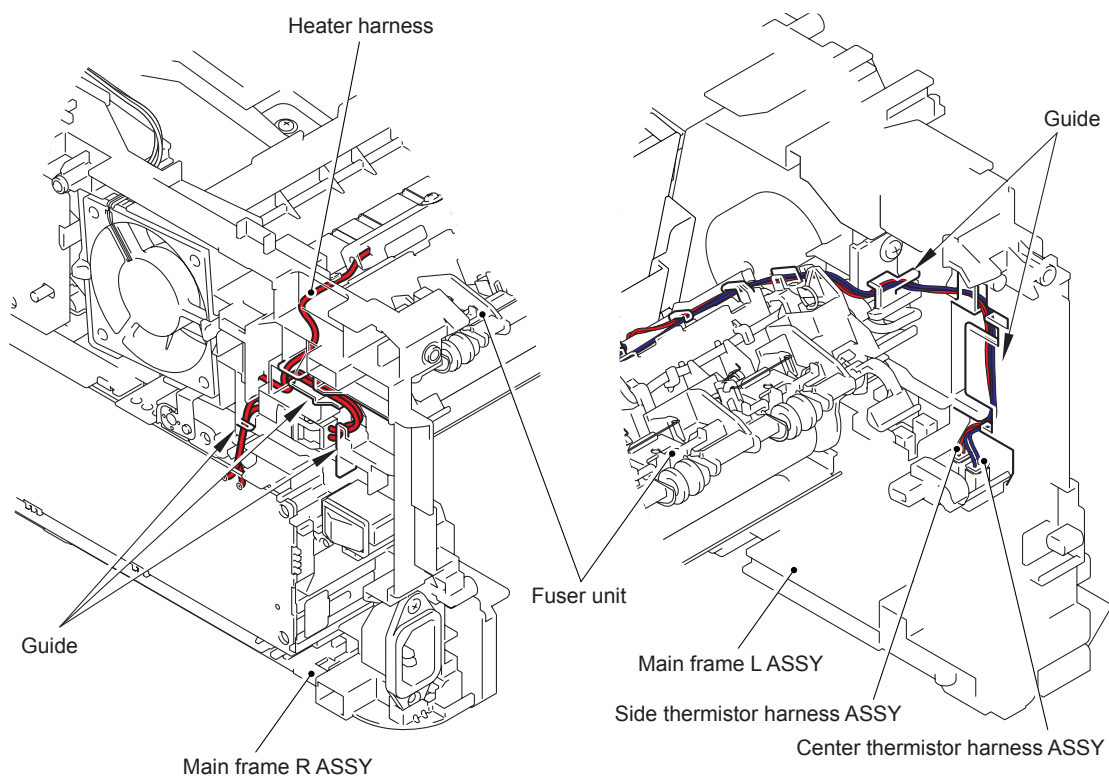
## 11 Low voltage power supply PCB ASSY



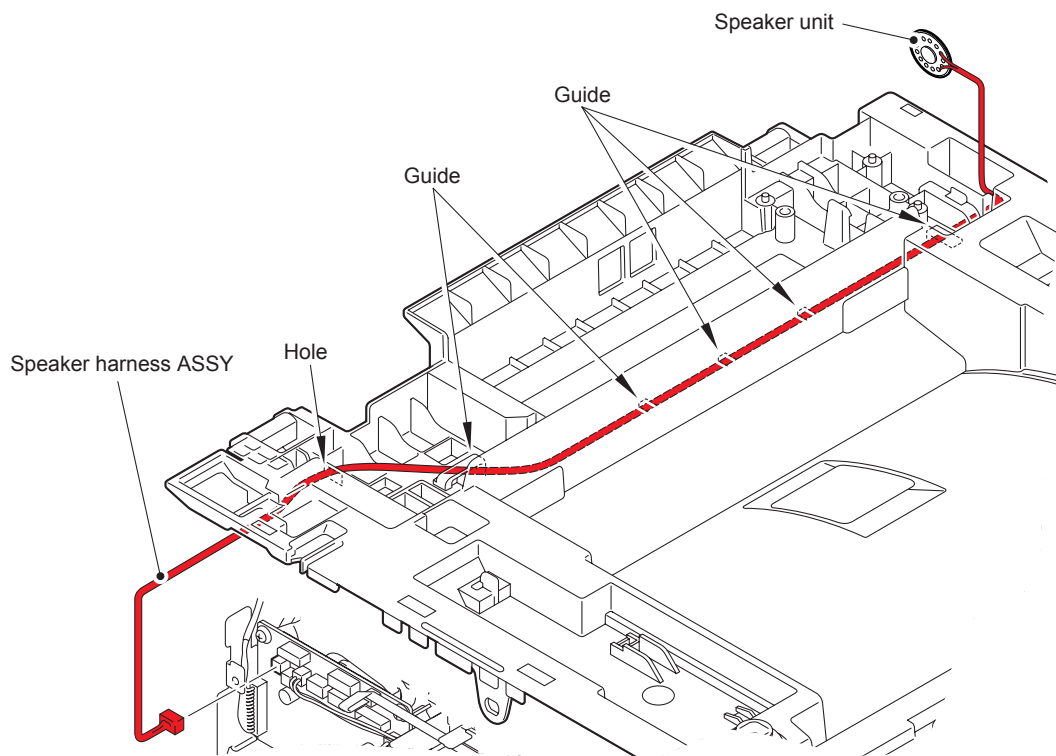
## 12 High voltage power supply PCB ASSY



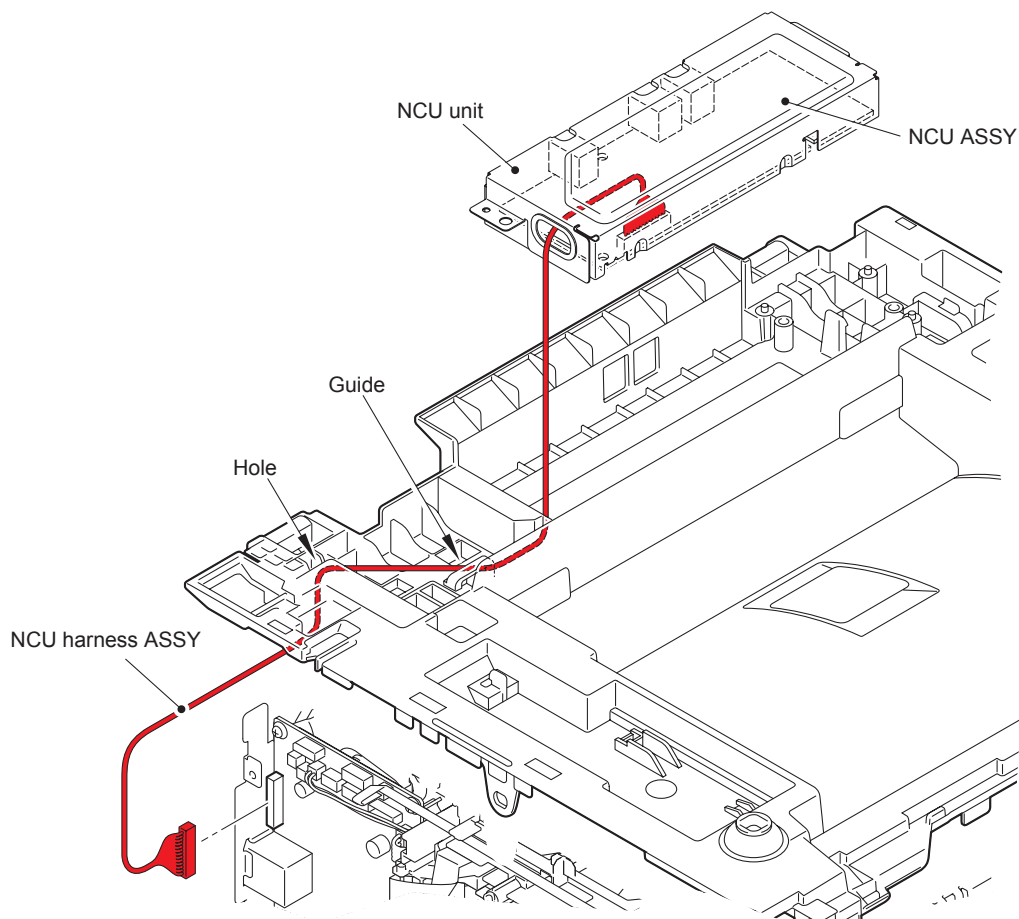
## 13 Fuser unit



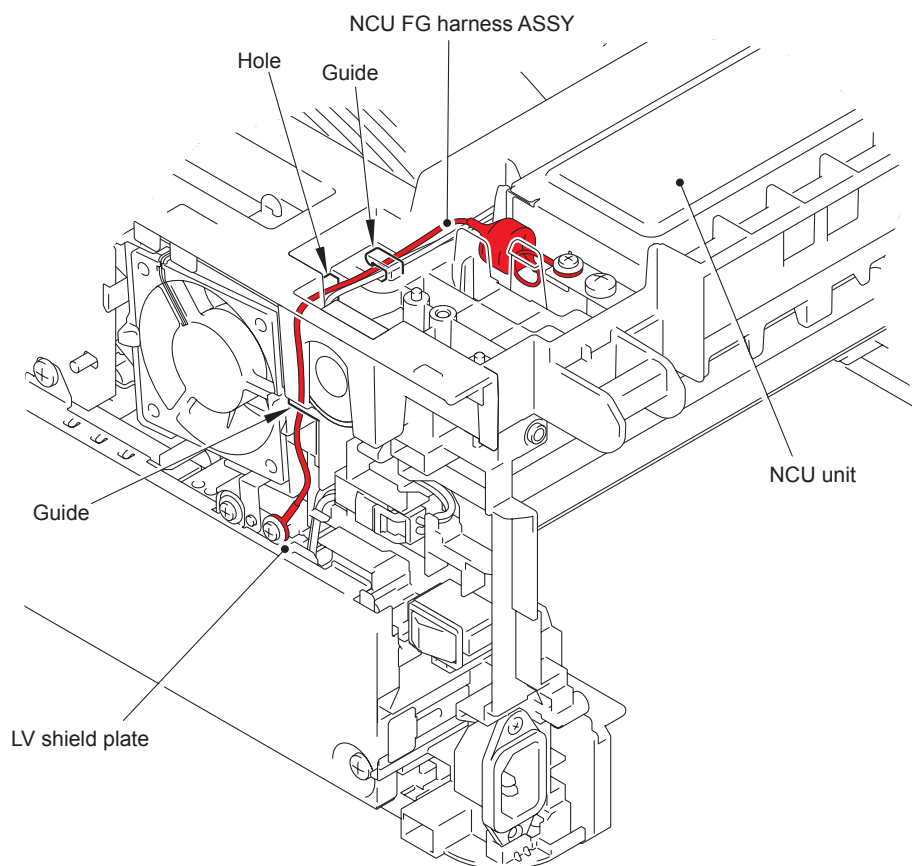
## 14 Speaker unit



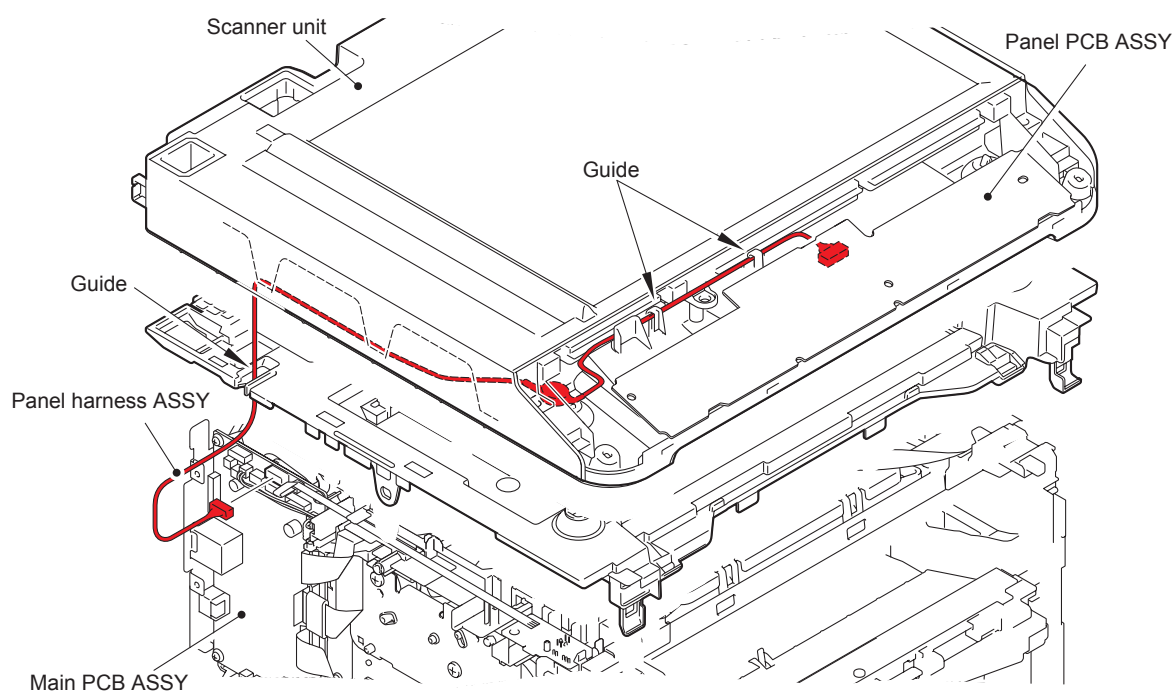
## 15 NCU ASSY

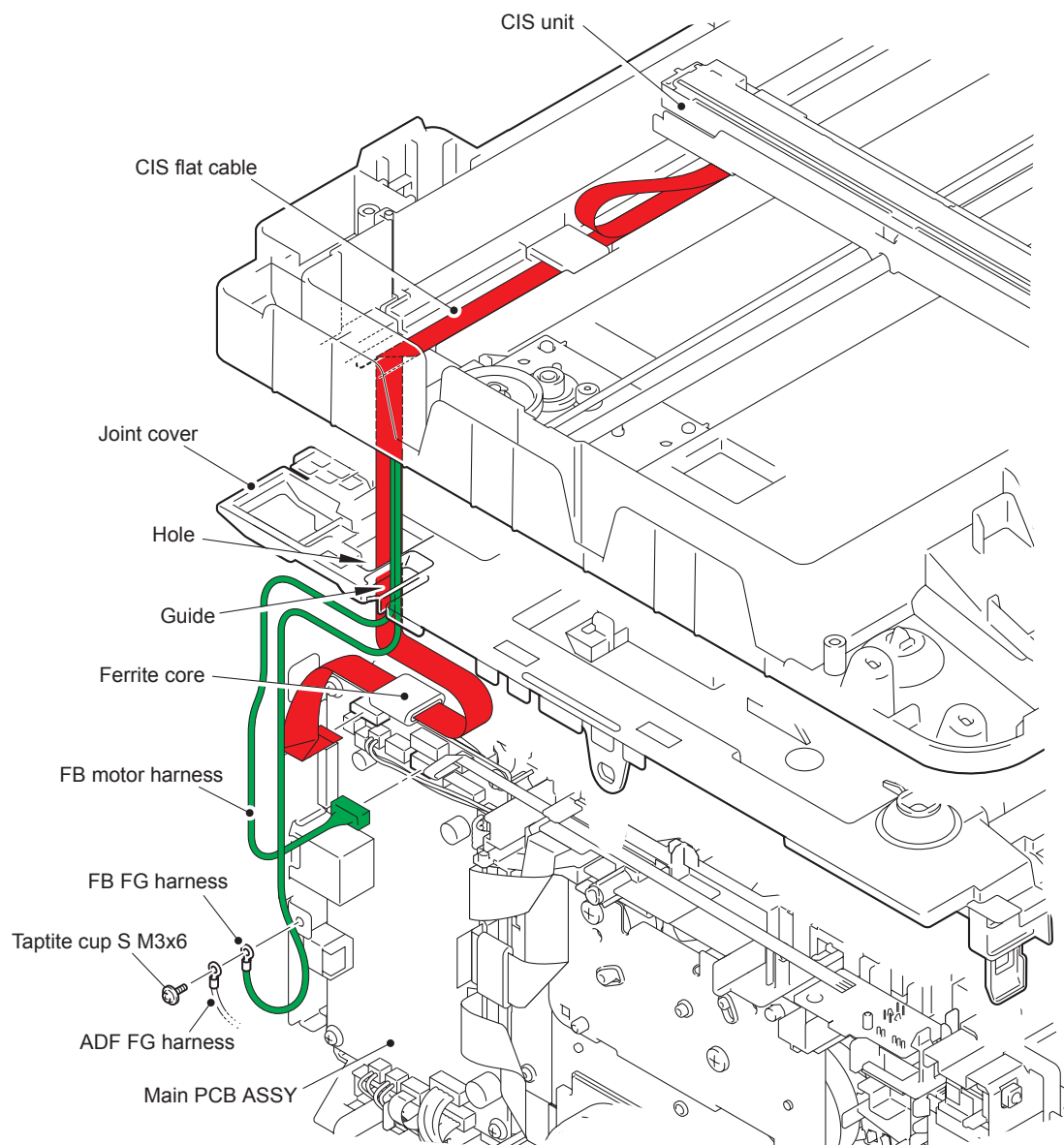


## 16 NCU FG harness ASSY

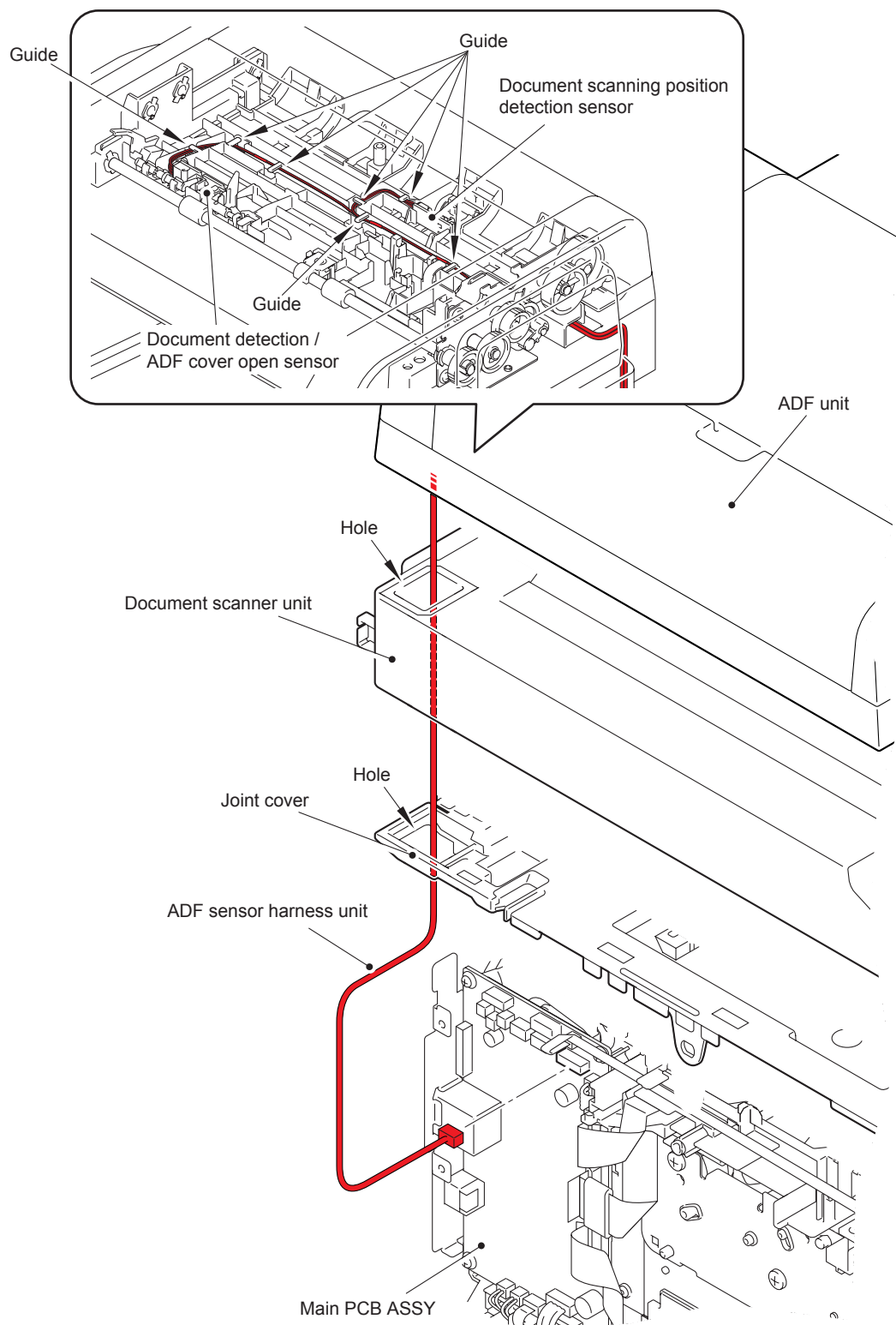


## 17 Panel unit

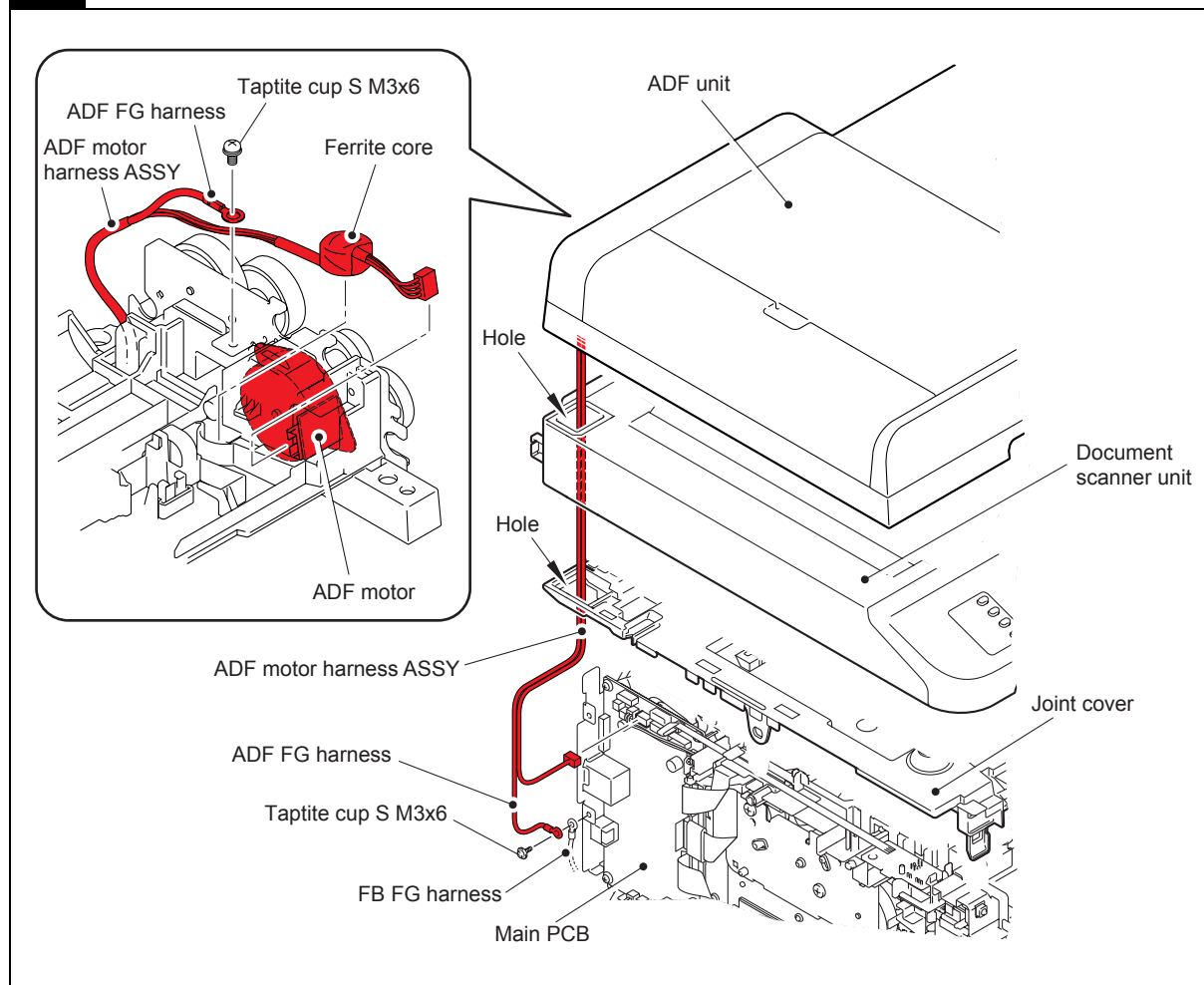




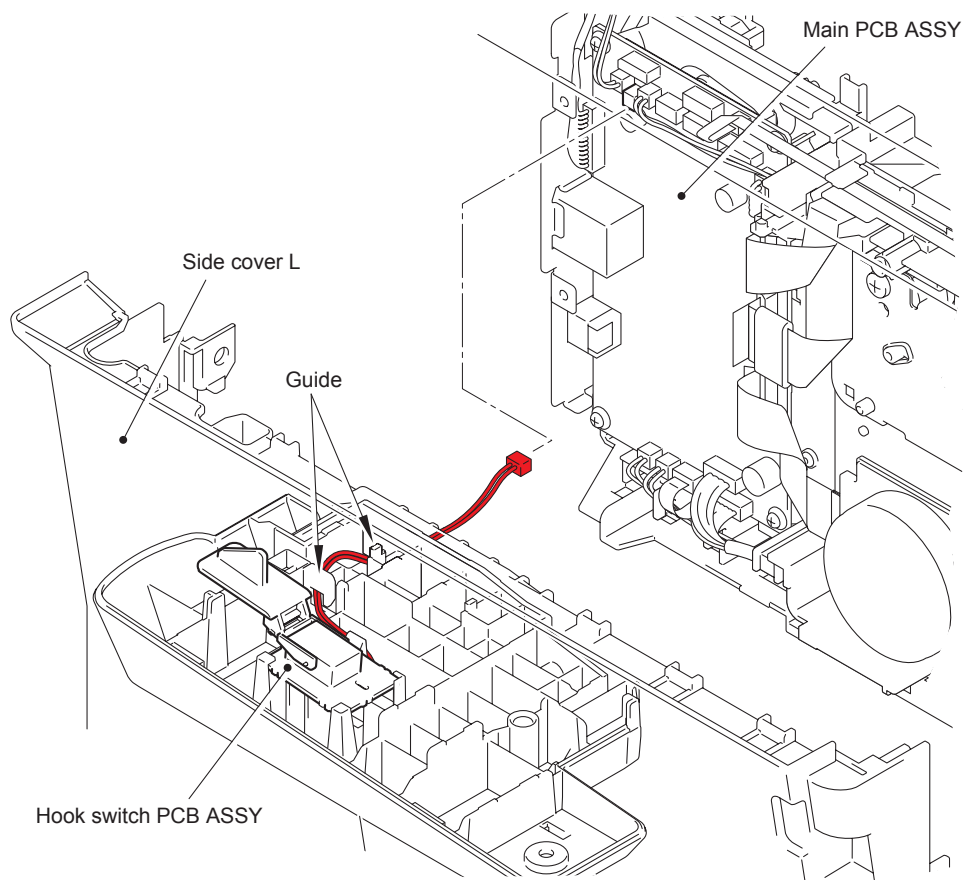
## 19 ADF sensor



## 20 ADF motor



## 21 Hook switch PCB ASSY



\_\_\_\_\_



## 9. DISASSEMBLY PROCEDURE

---

### ■ Preparation

#### <Transferring Received FAX Data>

When the machine at the user site requires to be repaired, unplugging the power cord from the electrical outlet for sending the machine for repair will lose received FAX data if left in the machine.

To prevent such data loss, the service personnel should instruct end users (e.g., by telephone) to transfer data to another facsimile machine or PC using the procedure below.

#### **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.

#### **TIP:**

- If there are both color and monochrome data in a file to be transferred, the monochrome data will be transferred first. If the receiver machine does not support the color function, the sender machine cannot transfer color data, resulting in an error.

#### Transferring faxes to another fax machine

##### <Operating Procedure>

- (1) Press the **Stop/Exit** button to interrupt the error (if displayed) temporarily.
- (2) Press the **Menu** button.
- (3) Press the ▲ or ▼ button to choose "Service."
- (4) Press the **OK** button.
- (5) Press the ▲ or ▼ button to choose "Data Transfer."
- (6) Press the **OK** button.
- (7) Press the ▲ or ▼ button to choose "Fax Transfer."
- (8) Press the **OK** button.
- (9) If "No Data" appears on the LCD, there are no faxes left in the machine's memory. Then press the **Stop/Exit** button.  
If a fax number entry screen appears, there are faxes in the machine's memory. Then enter the fax number to which faxes will be forwarded.
- (10) Press the **Start** button.

## <Disconnecting Cables and Removing Accessories>

Prior to proceeding with the disassembly procedure,

### (1) Unplug

- the AC cord,
- the USB cable, if connected,
- the LAN cable, if connected,
- the Handset curled cord ASSY, if connected.

### (2) Remove

- the Paper tray,
- the Toner cartridge and Drum unit,
- the Duplex unit,
- LAN port cap,
- Handset ASSY

Duplex tray  
(DCP-7060D / 7065DN / 7070DW / HL-2280DW  
MFC-7365DN / 7460DN / 7470D / 7860DN / 7860DW)

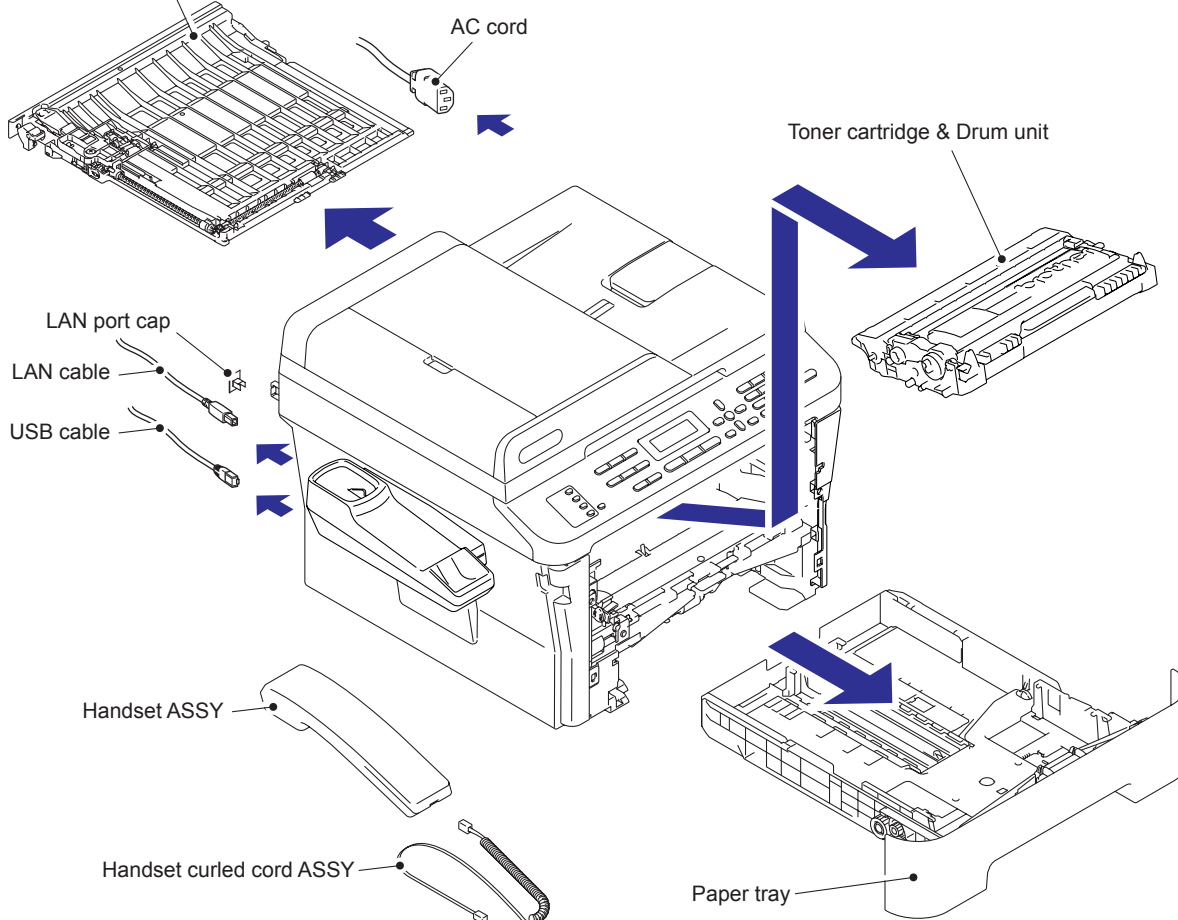
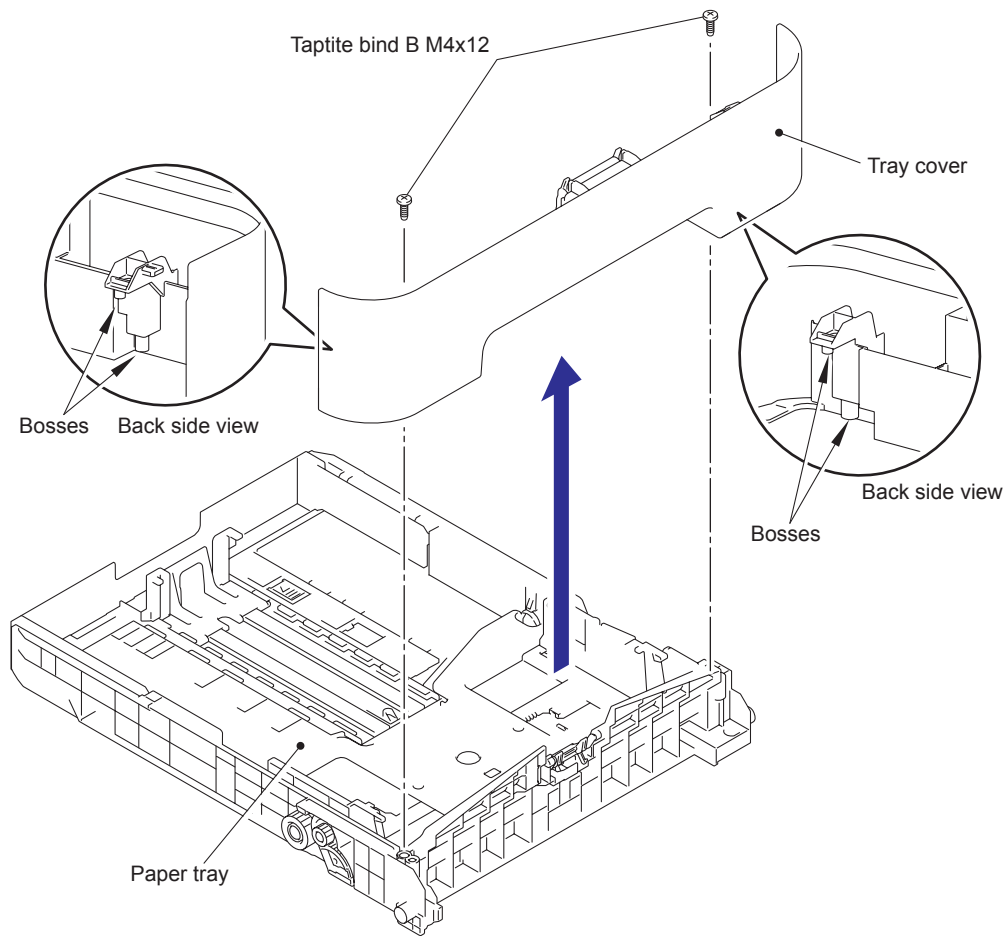


Fig. 3-8

## 9.1 Paper Tray

- (1) Remove the two tapite bind B M4x12 screws, and release the two bosses (upper side), and remove the tray cover from the paper tray.

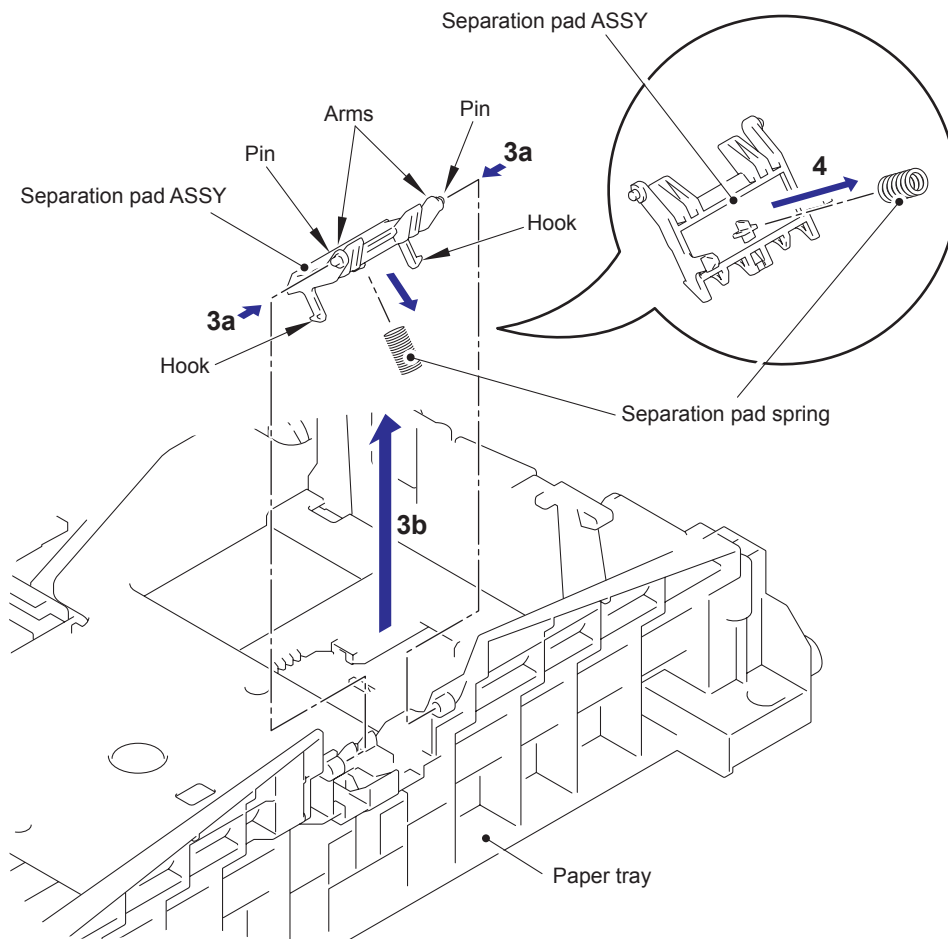


**Fig. 3-9**

- (2) Release the hooks of the separation pad ASSY from the paper tray.
- (3) Press both side arms of the separation pad ASSY to remove the pins, and remove the separation pad ASSY from the paper tray.
- (4) Remove the separation pad spring from the separation pad ASSY.

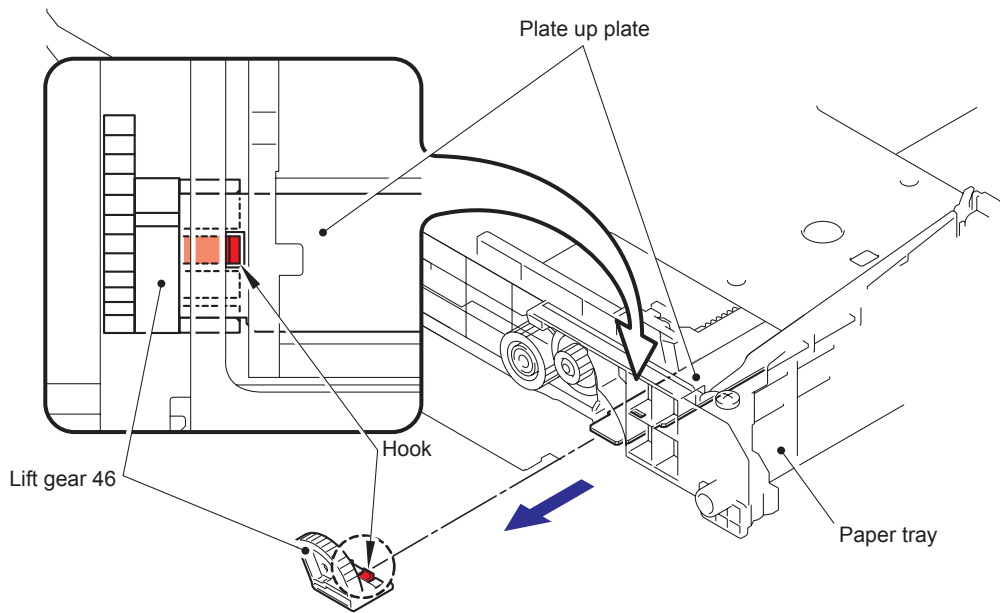
**Note:**

- Be careful not to lose the separation pad spring.



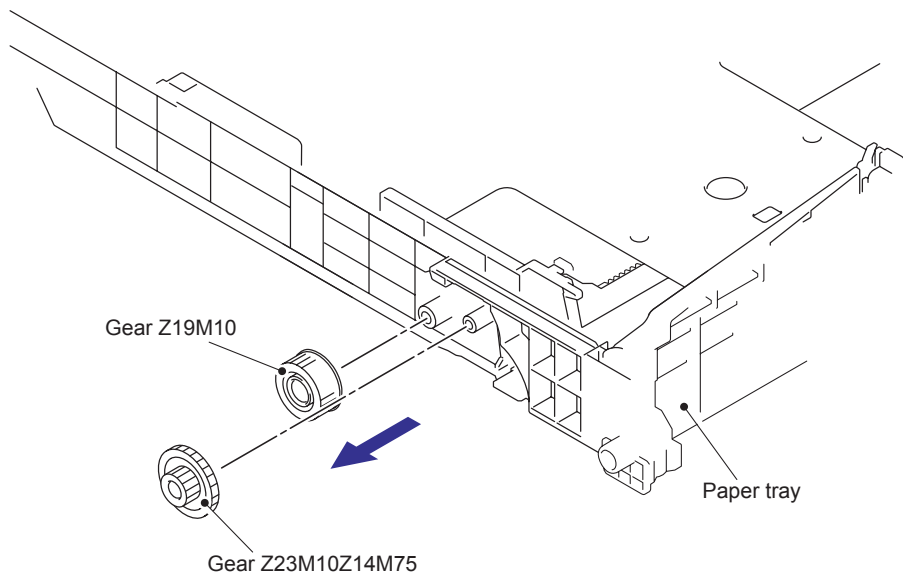
**Fig. 3-10**

- (5) Push the hook of the lift gear 46 while pushing up the plate up plate, and remove the lift gear 46.



**Fig. 3-11**

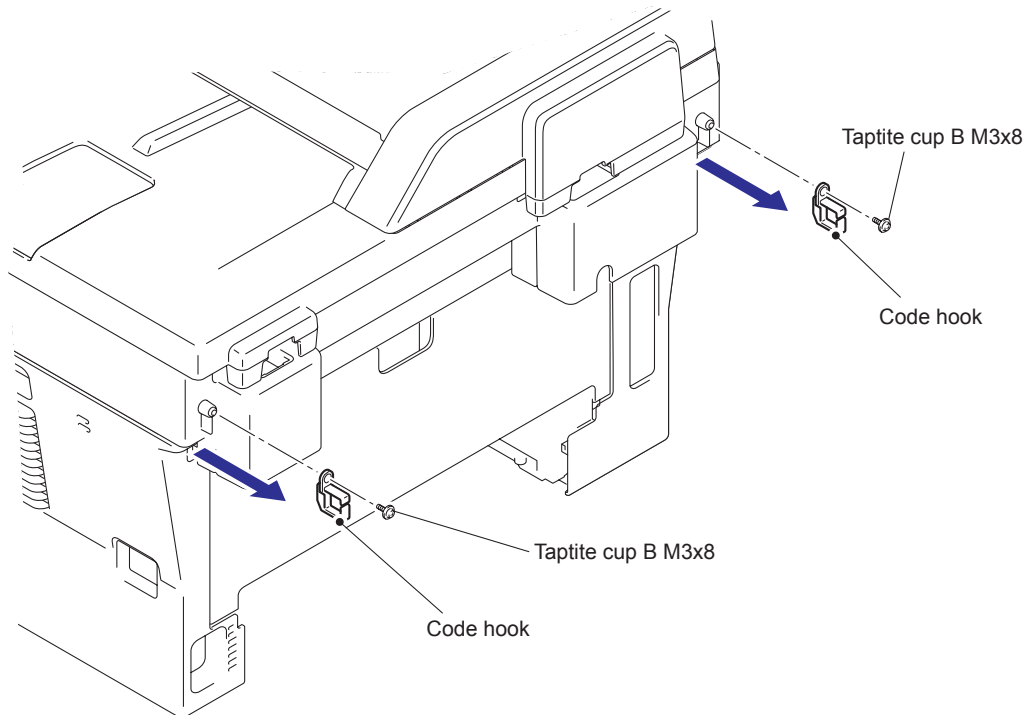
- (6) Remove the gear Z23M10Z14M75 and the gear Z19M10.



**Fig. 3-12**

## 9.2 Cord Hook

- (1) Remove the two taptite cup B M3x8 screws, and remove the two cord hooks.



**Fig. 3-13**

### 9.3 Back Cover

- (1) Open the back cover.
- (2) Push the both side ribs of the back cover to the direction of the arrow 2, and release the boss of the outer chute ASSY.
- (3) Release the boss of the main body while pulling the back cover to the direction of the arrow 3a, and remove the back cover.

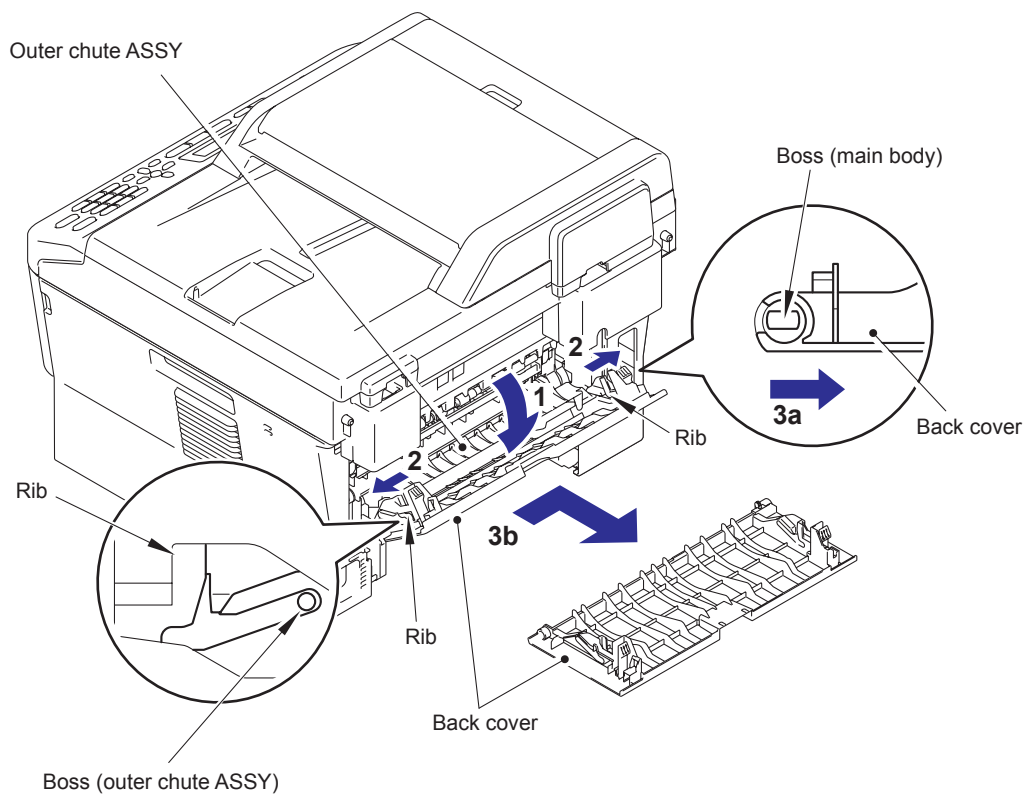


Fig. 3-14

#### Assembling Note:

- When assembling the back cover, close the back cover with aligning the boss of the outer chute ASSY with the groove of both side ribs of the back cover.

## 9.4 Outer Chute ASSY

- (1) Pull the outer chute ASSY to the direction of the 1a, and release the boss of the outer chute ASSY from the main frame L ASSY, and remove the outer chute ASSY.

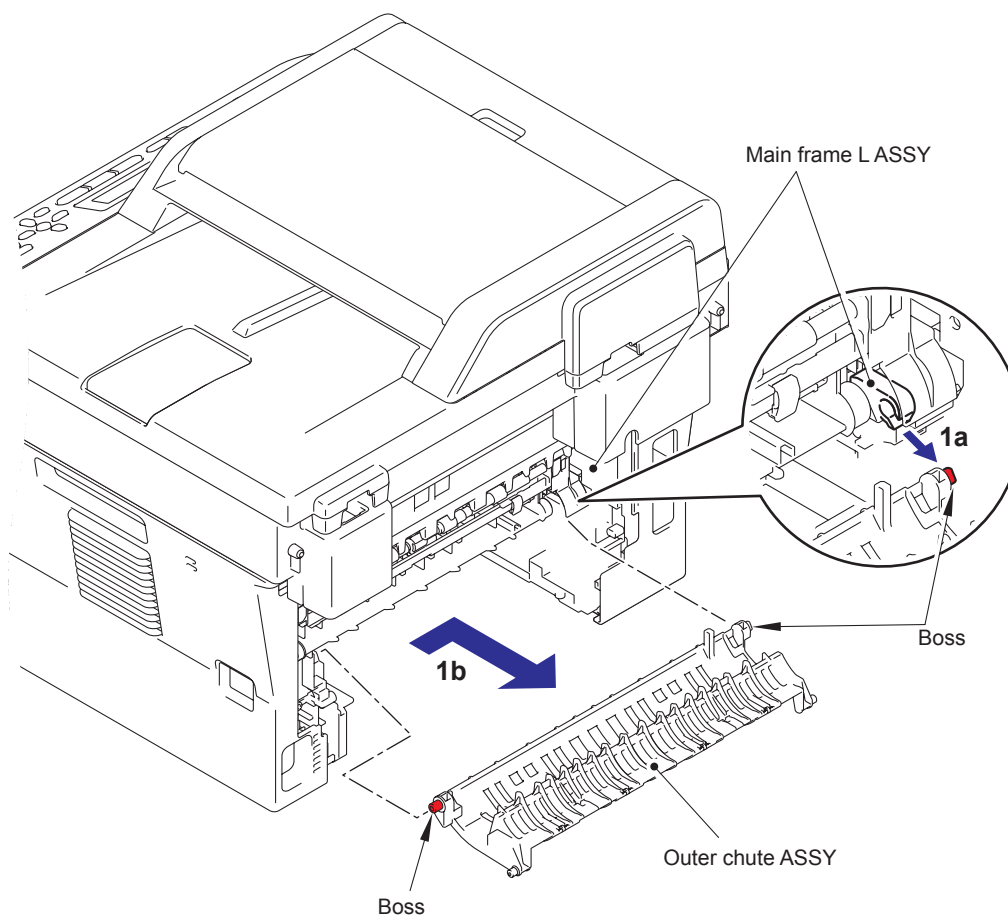


Fig. 3-15

## 9.5 Fuser Cover

- (1) Hold the knobs on the fuser cover, and pull down this to your side.
- (2) Release the boss of the main body while pulling the fuser cover to the direction of the arrow 2, and remove fuser cover.

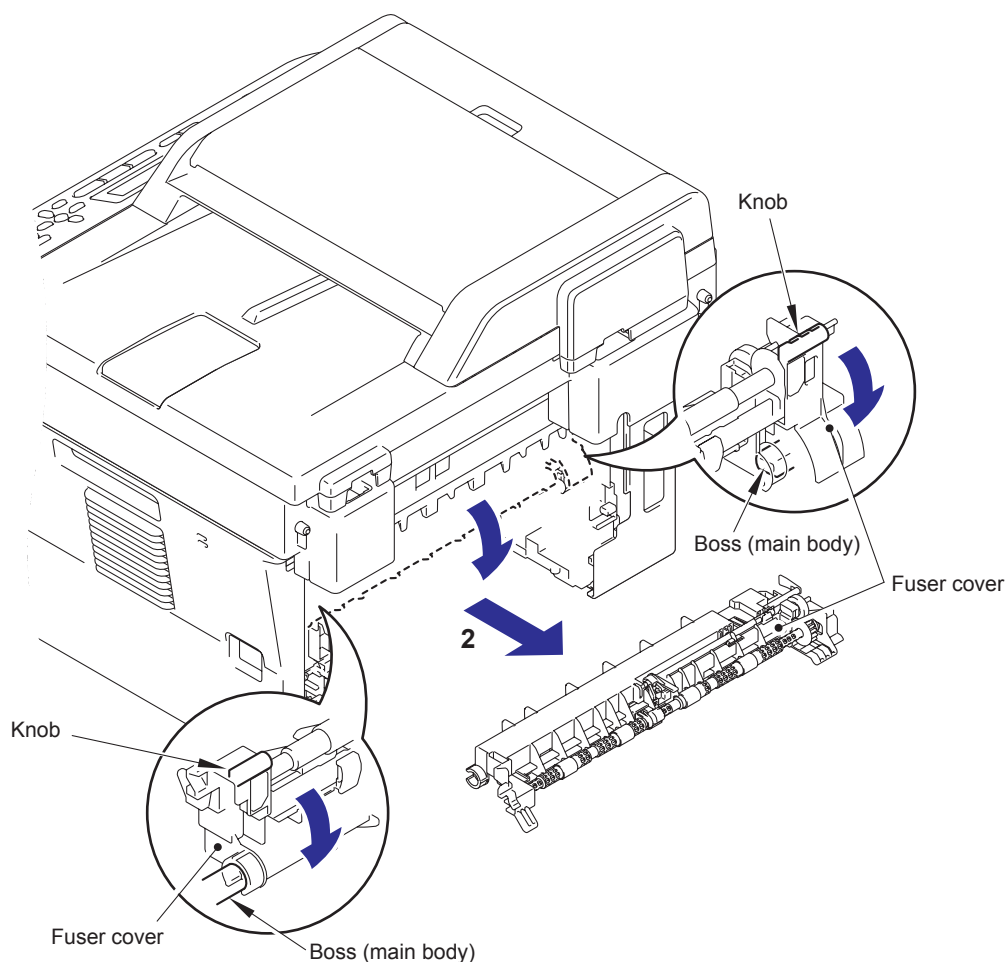


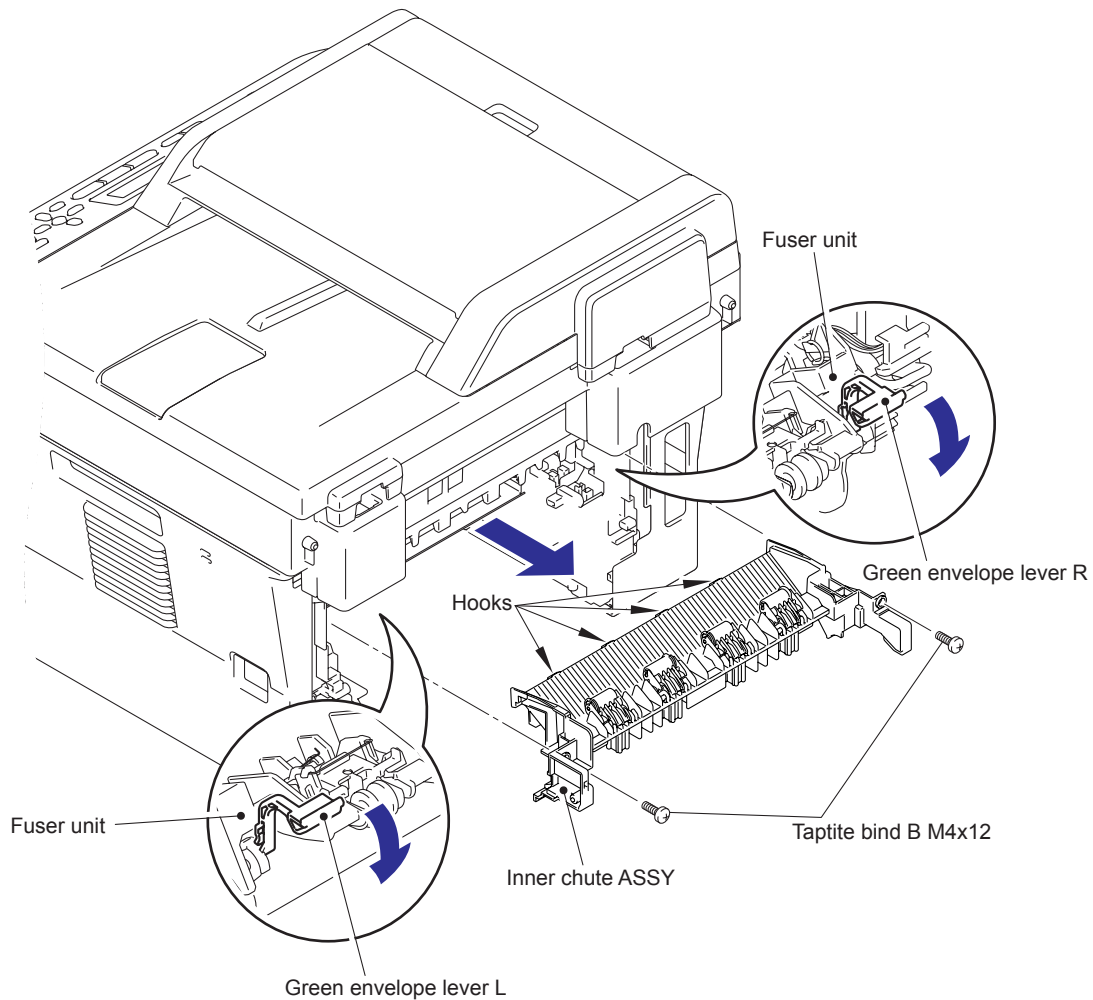
Fig. 3-16

### Assembling Note:

- When assembling the fuser cover, Check that only one of roller does not lift up. (Check the position of the anti-curl levers. Refer to [Fig. 2-9 in Chapter 2.](#))

## 9.6 Inner Chute ASSY, Eject Pinch Roller R ASSY and Eject Pinch Roller L ASSY

- (1) Pull down both side green envelope levers of the fuser unit.
- (2) Remove the two taptite bind B M4x12 screws to remove the inner chute ASSY.

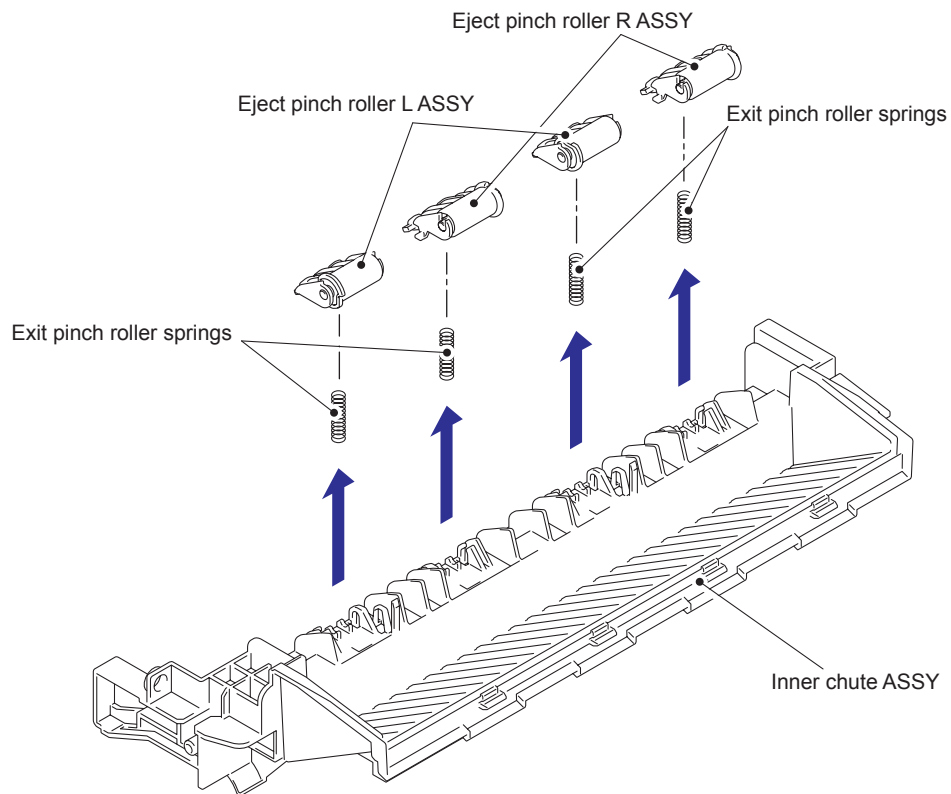


**Fig. 3-17**

### **Assembling Note:**

- When assembling the inner chute ASSY, align the hooks of the inner chute ASSY with the positioning holes of the joint cover ASSY.
- Pull up both side green levers of the fuser unit after assembling the inner chute ASSY.

- (3) Remove the two eject pinch roller L ASSY and the two eject pinch roller R ASSY from the inner chute ASSY.
- (4) Remove the four exit pinch roller springs from the eject pinch roller L ASSY and the eject pinch roller R ASSY.



**Fig. 3-18**

## 9.7 Front Cover ASSY, Support Flap 1

- (1) Open the front cover ASSY.
- (2) Release the hooks of the develop joint link to remove the develop joint link from the front cover ASSY.
- (3) Pull up the rib of the front chute ASSY to the direction of the arrow 3a, and slide the front cover ASSY to the direction of the arrow 3b and 3c, and remove it.

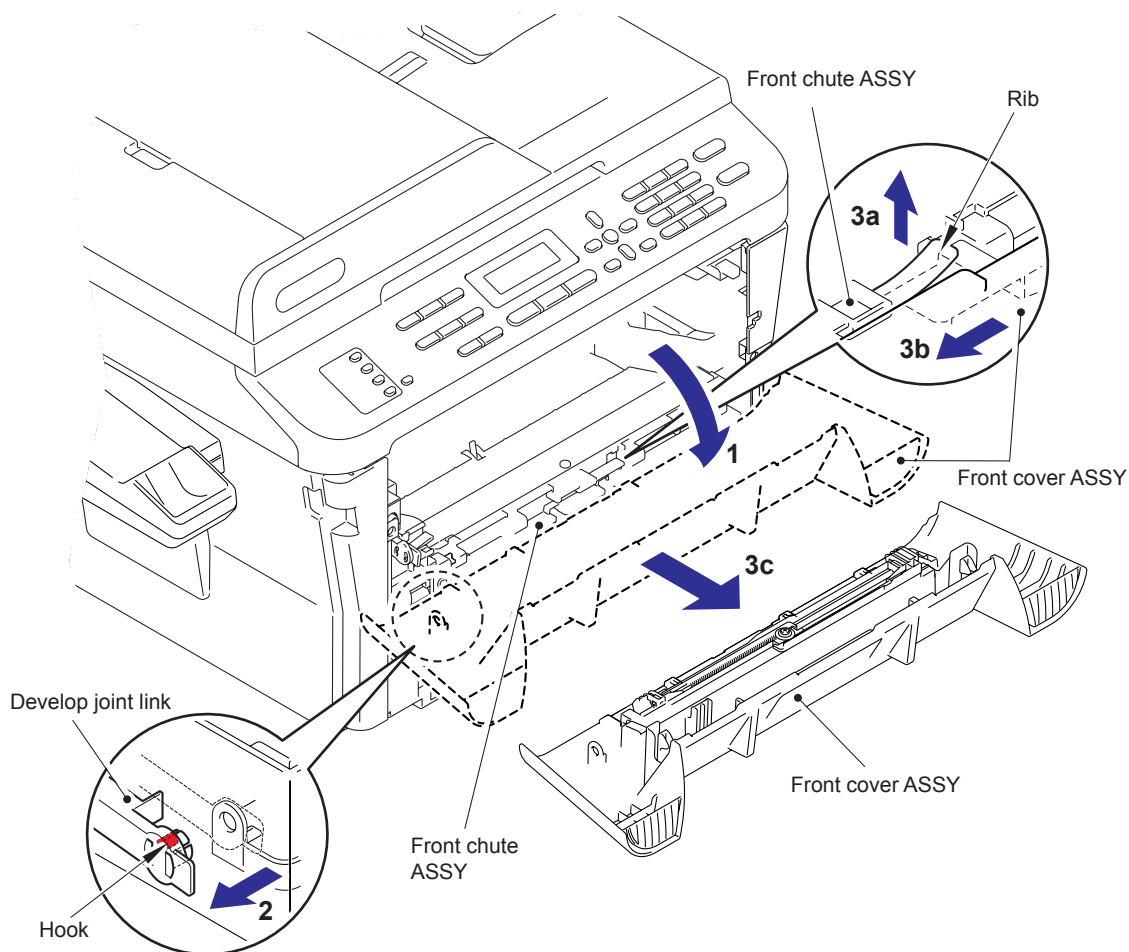
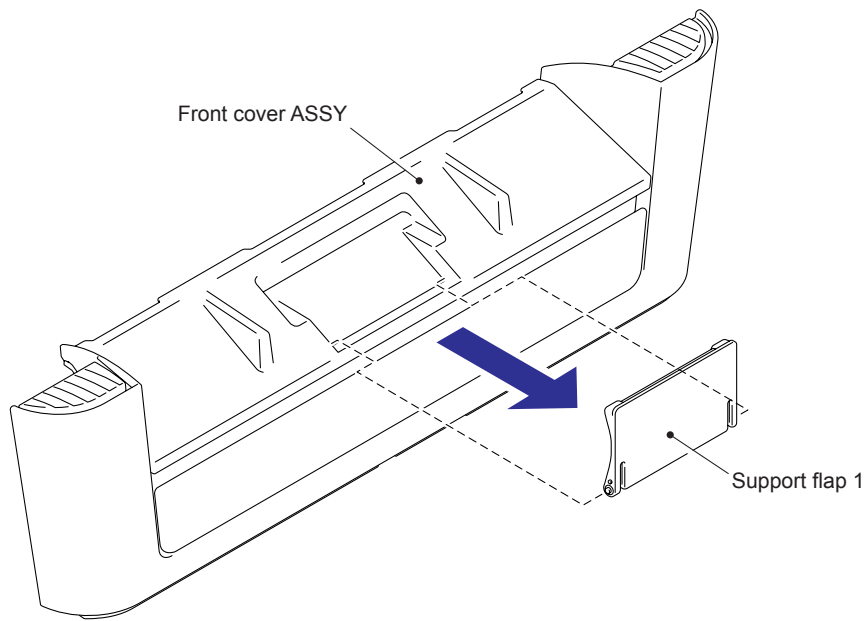


Fig. 3-19

(4) Remove the support flap 1 from the front cover ASSY.



**Fig. 3-20**

## 9.8 Side cover L / Handset holder ASSY

- (1) Remove the taptite bind B M4x12 screw.
- (2) Release the hooks in the order of 1a, 1b and 1c, and remove the side cover L.
- (3) Disconnect the connector of the hook switch from the main PCB ASSY.

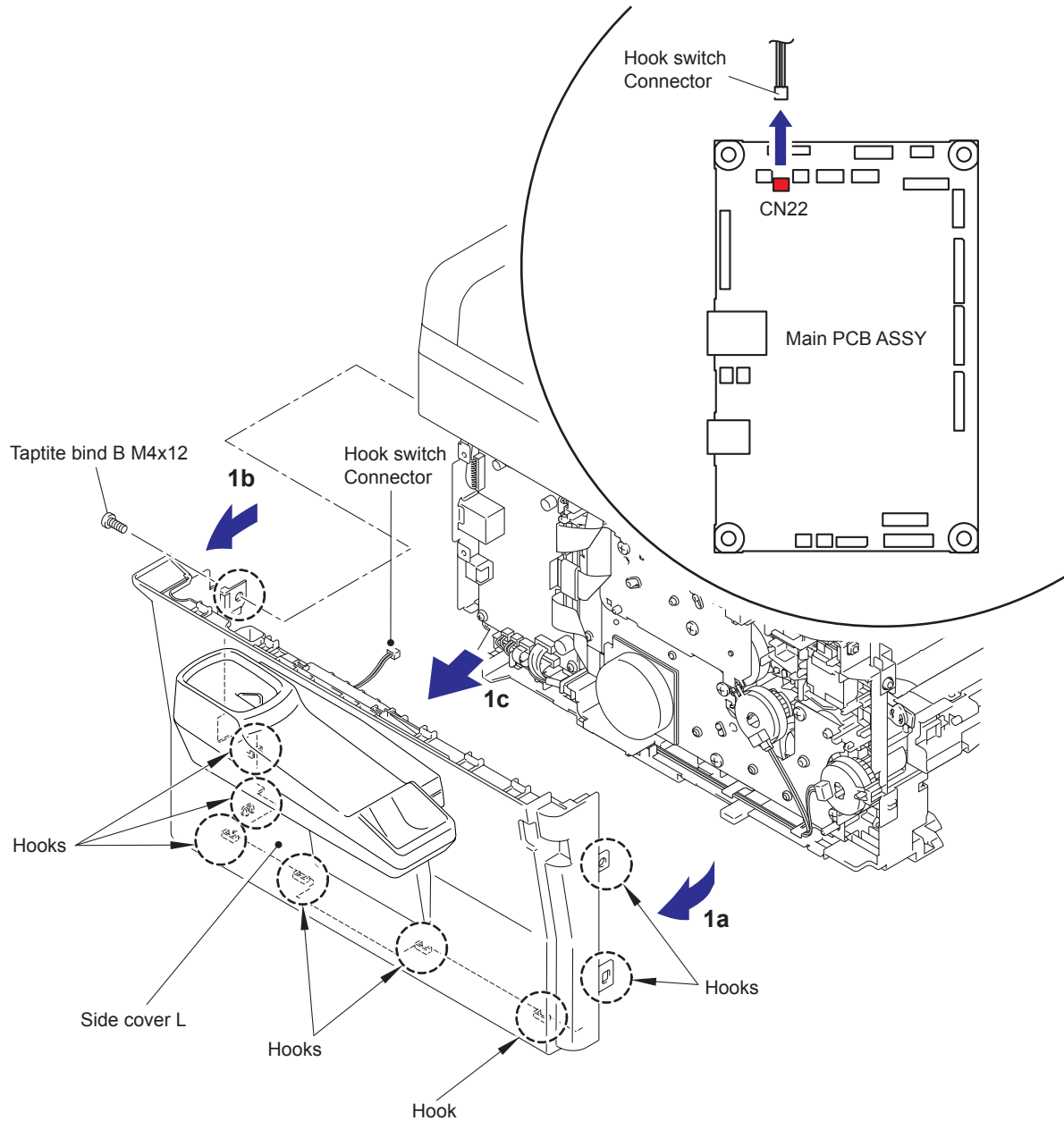
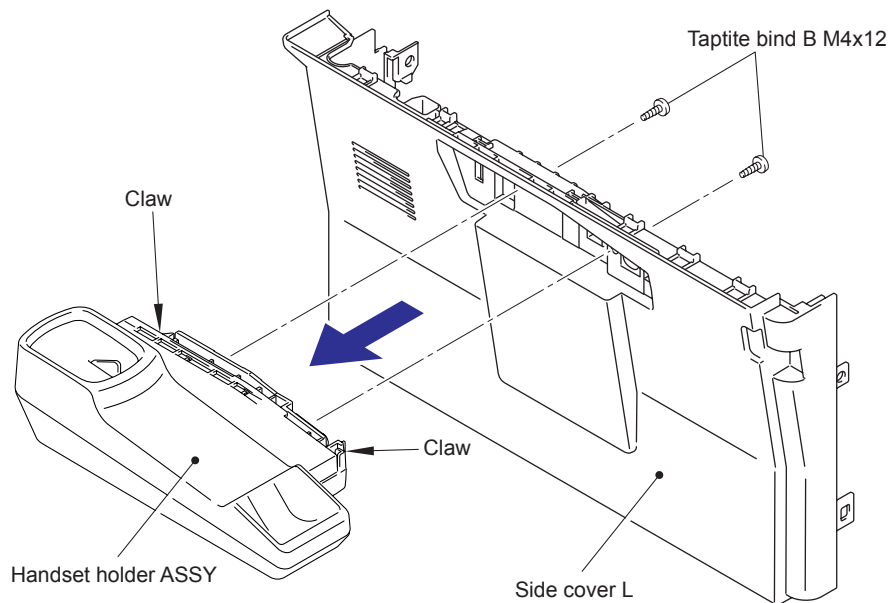


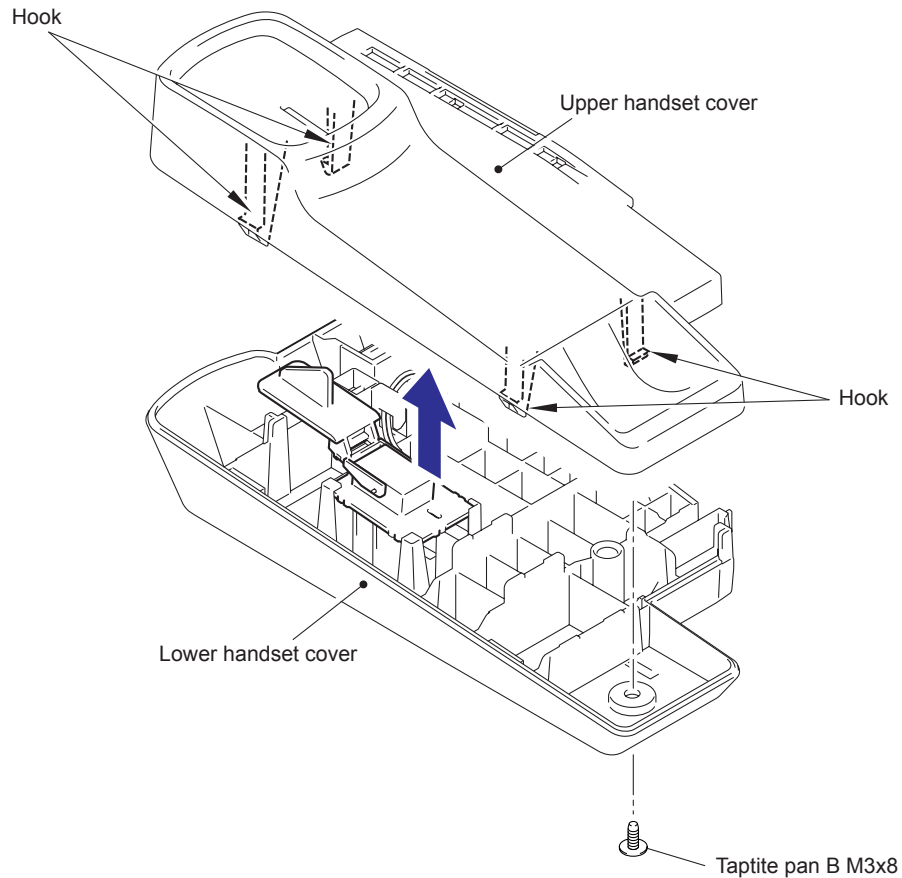
Fig. 3-21

- (4) Remove the two taptite bind B M4x12 screws and release the claws, and remove the handset holder ASSY from the side cover L.



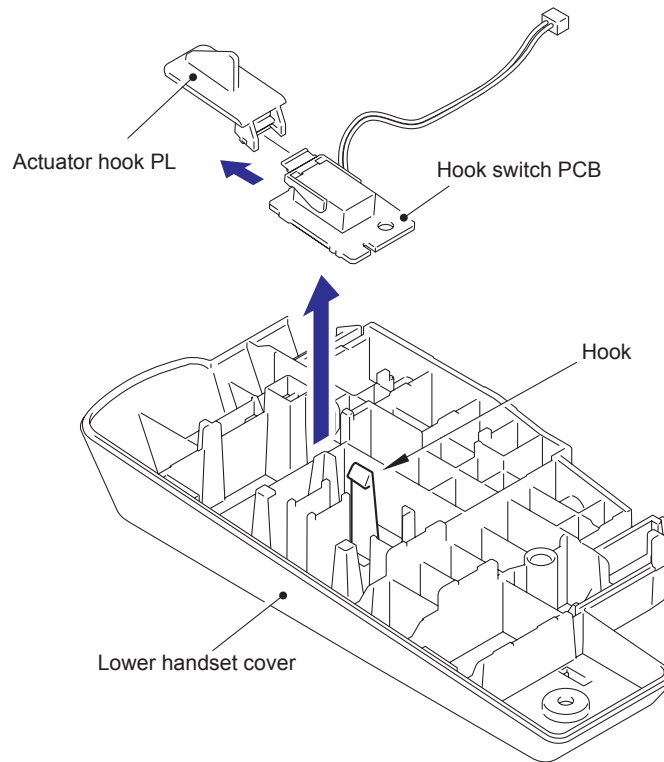
**Fig. 3-22**

- (5) Remove the taptite pan B M3x8 screw.
- (6) Release the hooks to remove the upper handset cover from the lower handset cover.



**Fig. 3-23**

- (7) Release the hook to remove the hook switch PCB from the lower handset cover.
- (8) Remove the actuator hook PL from the hook switch PCB.



**Fig. 3-24**

## 9.9 Side Cover R

- (1) Remove the tapite bind B M4x12 screw.
- (2) Release the hooks in the order of 1a, 1b and 1c, and remove the side cover R.

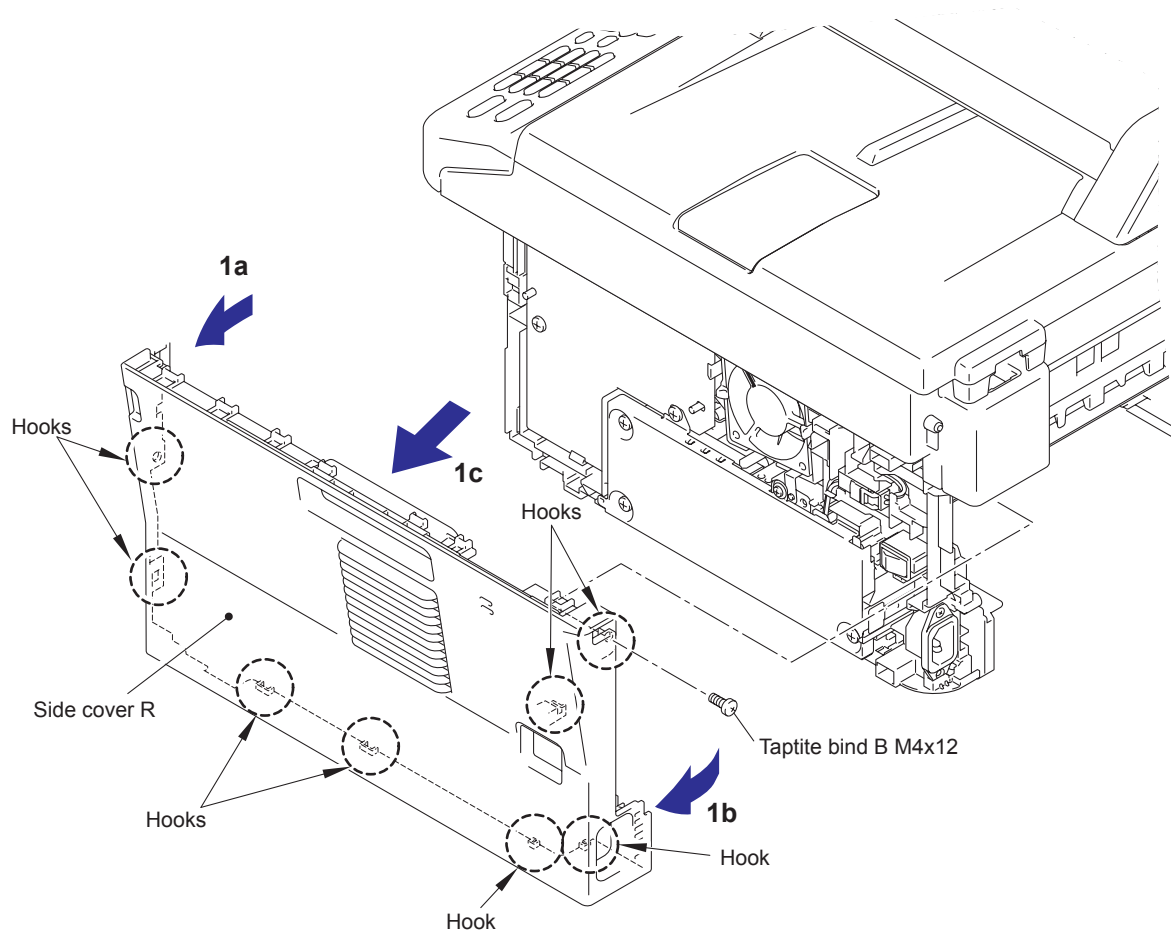


Fig. 3-25

## 9.10 ADF Unit (For models with ADF)

### 9.10.1 ADF Unit

- (1) Remove the taptite cup S M3x6 SR screw, and remove the ADF FG harness and the FB FG harness.
- (2) Disconnect the two connectors from the main PCB ASSY.

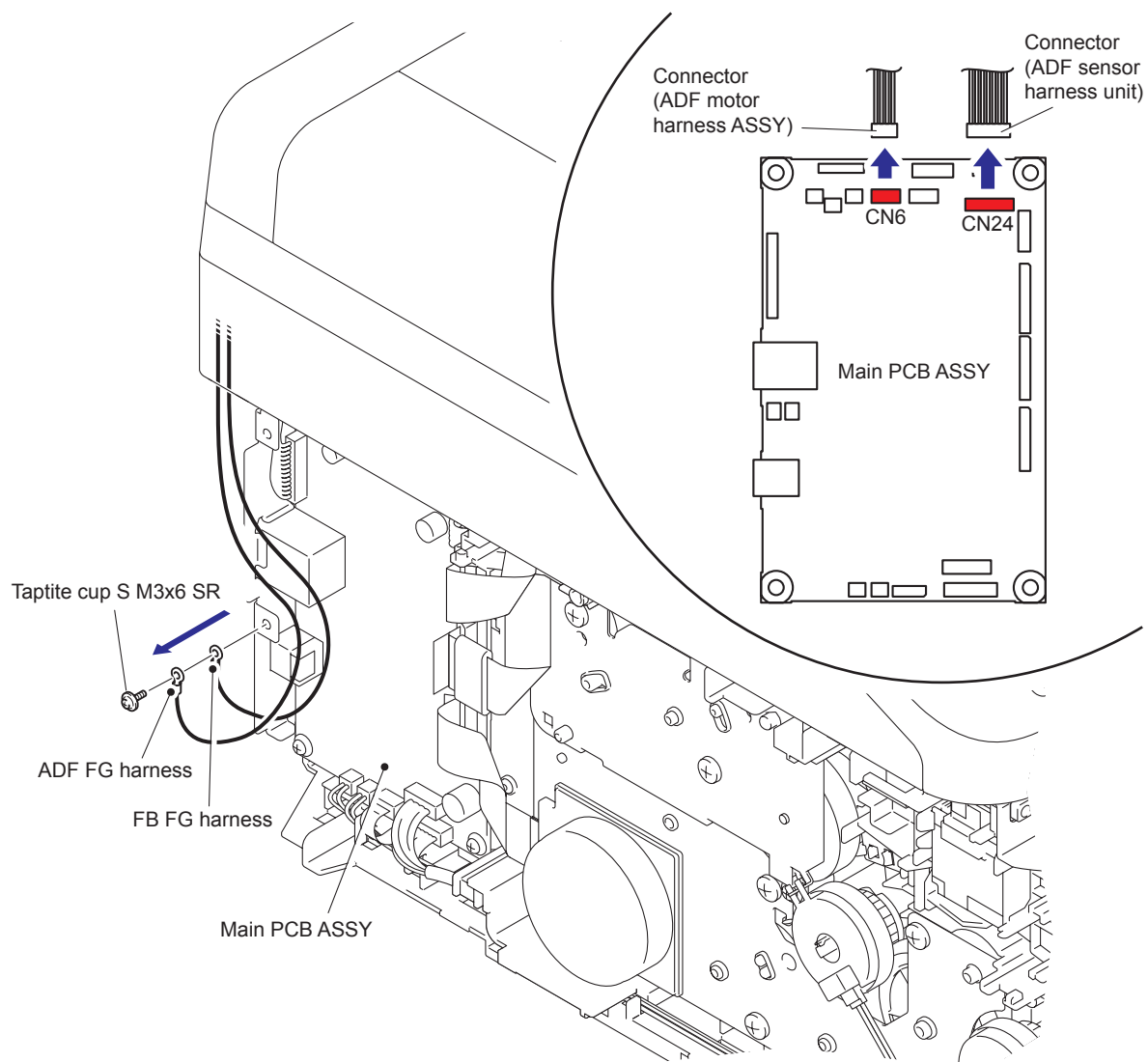
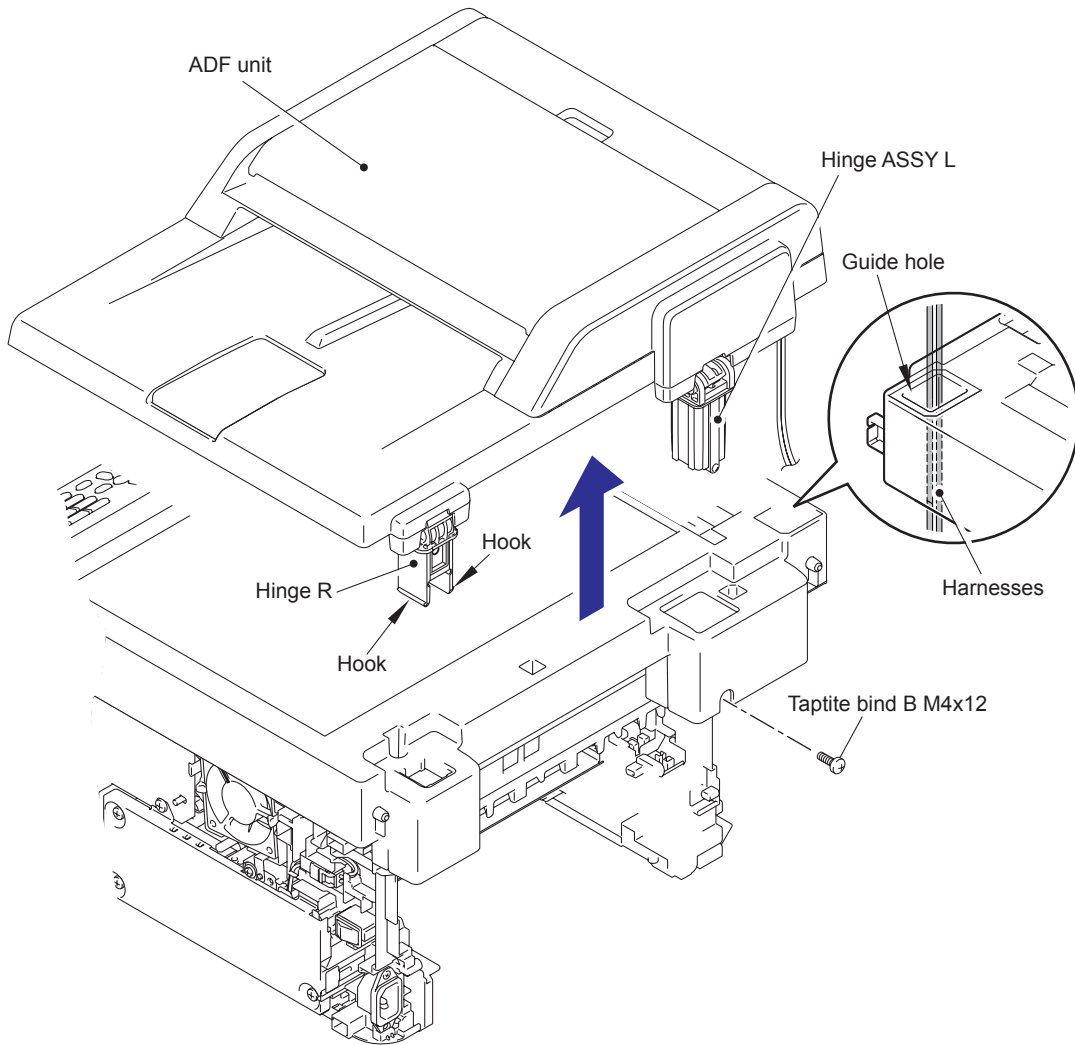


Fig. 3-26

- (3) Remove the tapite bind B M4x12 screw from the hinge ASSY L.
- (4) Pull up the ADF unit to release the hook of the hinge R, and remove the ADF unit.
- (5) Remove the harnesses from the guide hole.



**Fig. 3-27**

### 9.10.2 Hinge ASSY L / Hinge Arm R / Hinge R / Hinge R support

- (1) Remove the three taptite cup S M3x12 screws, and remove the hinge ASSY L.

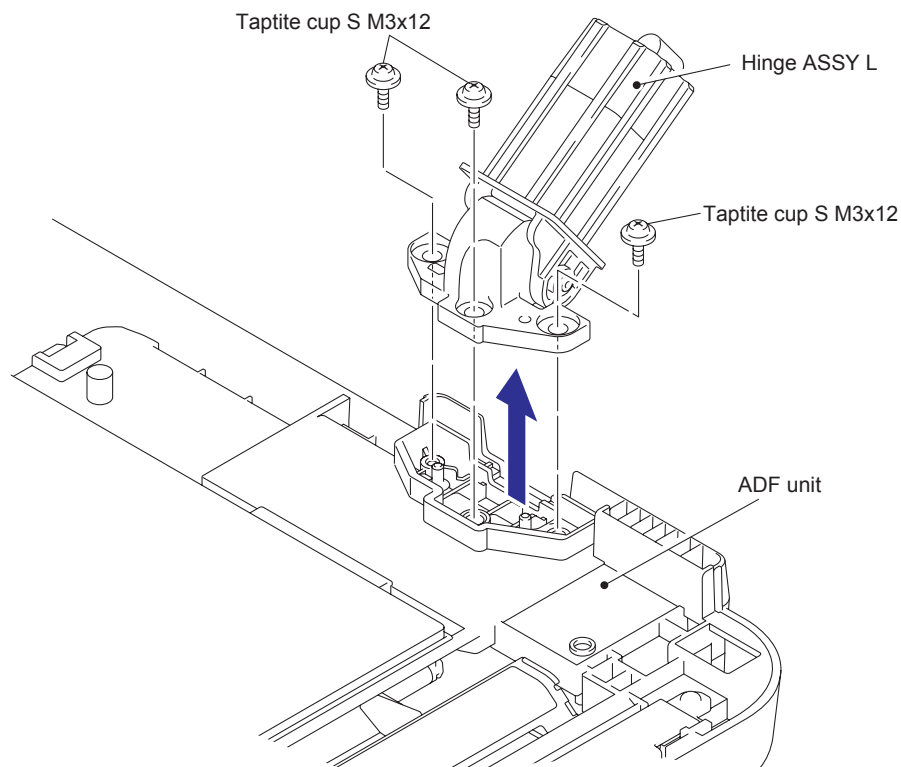


Fig. 3-28

- (2) Remove the taptite cup B M3x10 screw, and remove the hinge R and the hinge R support from the hinge arm R.

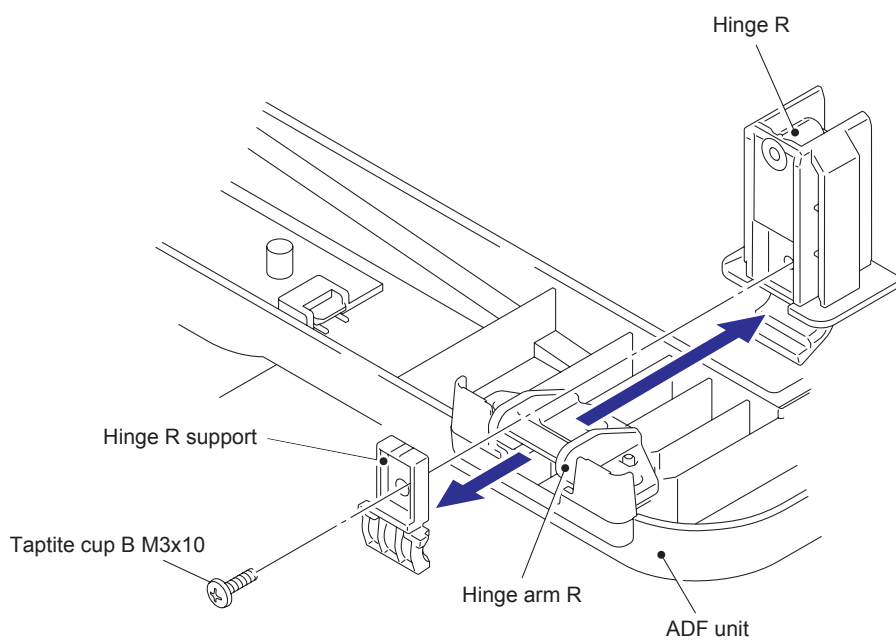
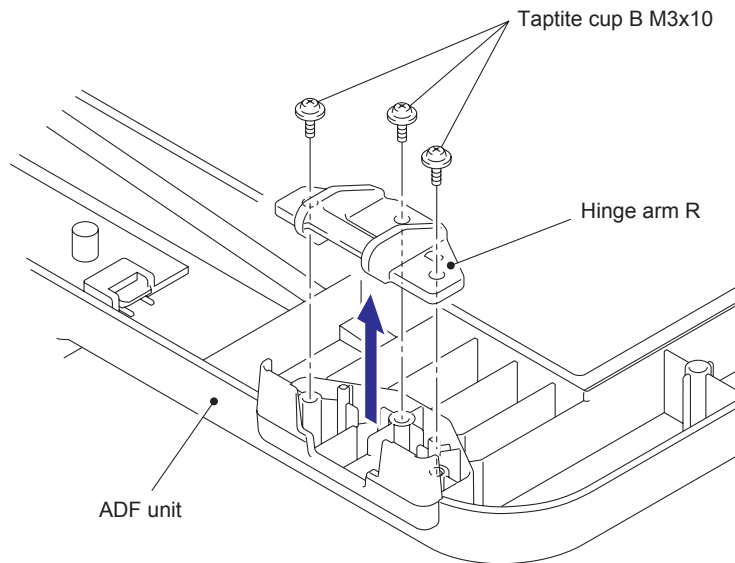


Fig. 3-29

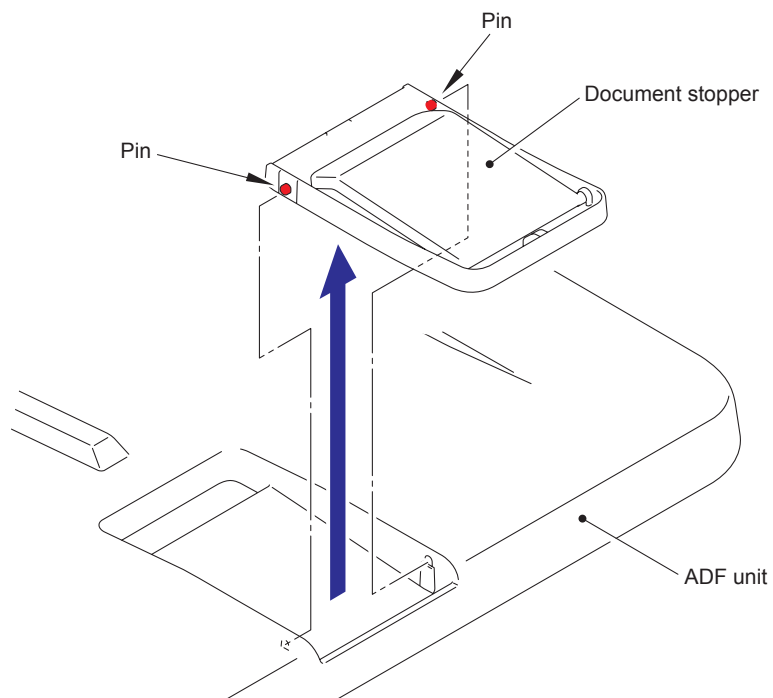
- (3) Remove the three taptite cup B M3x10 screws, and remove the hinge arm R.



**Fig. 3-30**

### 9.10.3 Document Stopper

- (1) Release the pins to remove the document stopper.



**Fig. 3-31**

#### 9.10.4 Document Sub Tray

- (1) Release the pins to remove the document sub tray.

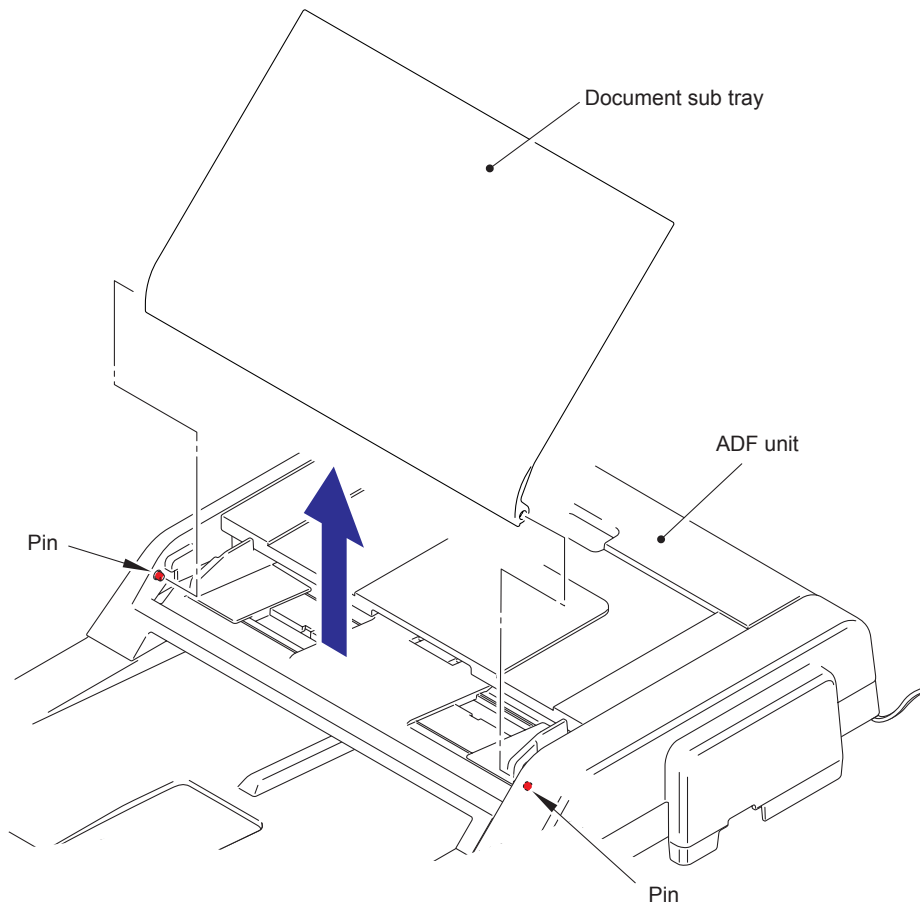


Fig. 3-32

### 9.10.5 ADF Cover ASSY

- (1) Open the ADF cover ASSY.
- (2) Release the pins to remove the ADF cover ASSY.

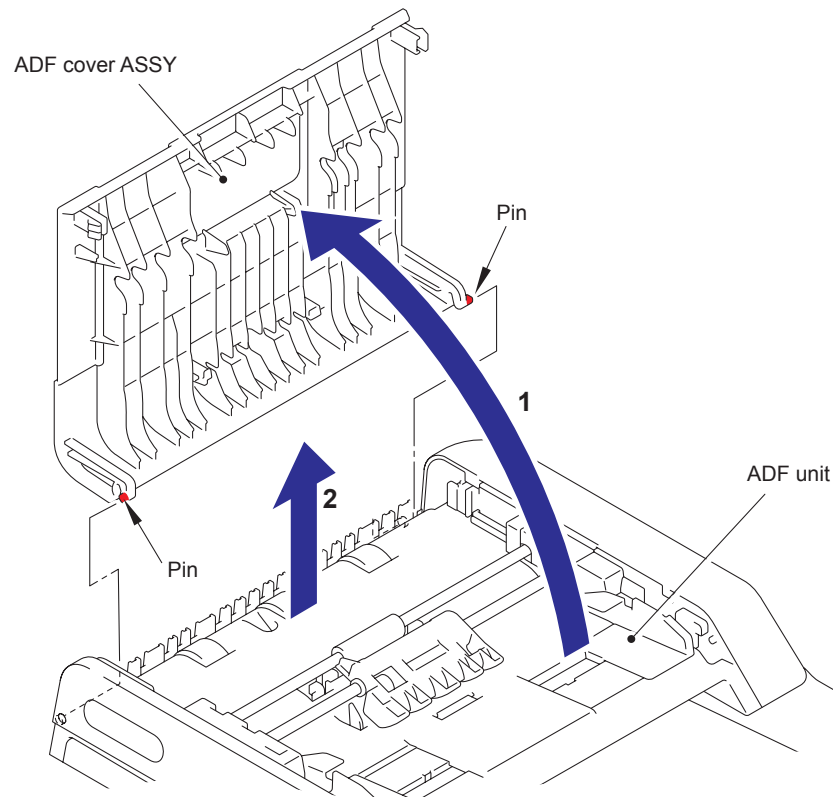


Fig. 3-33

### 9.10.6 Gear Cover

- (1) Release the hook to remove the gear cover.

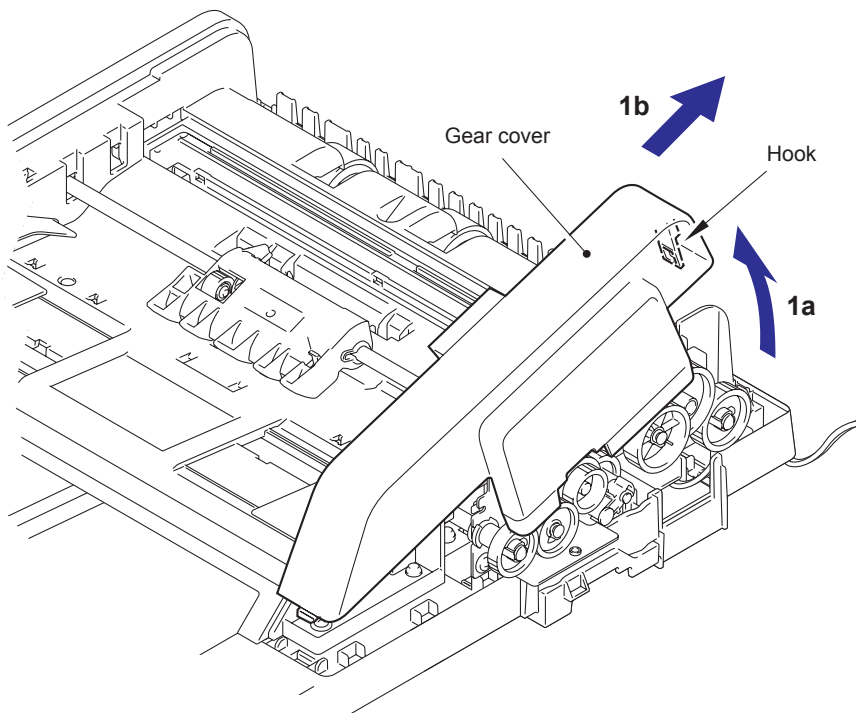


Fig. 3-34

### 9.10.7 Separation Roller ASSY

- (1) Unlock the lock of the conductive bushing to remove the separation roller ASSY.

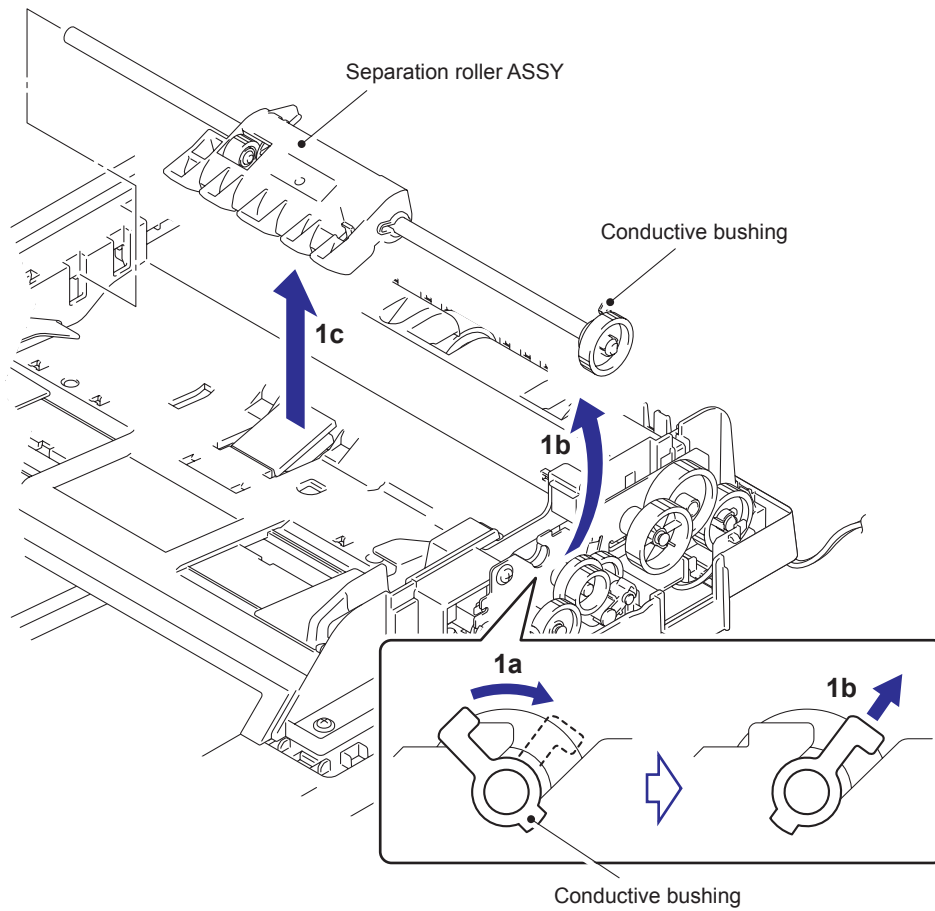


Fig. 3-35

### 9.10.8 Separation Rubber Holder ASSY

- (1) Release the pins to remove the separation rubber holder ASSY.
- (2) Remove the ADF spring.
- (3) Remove the support film.

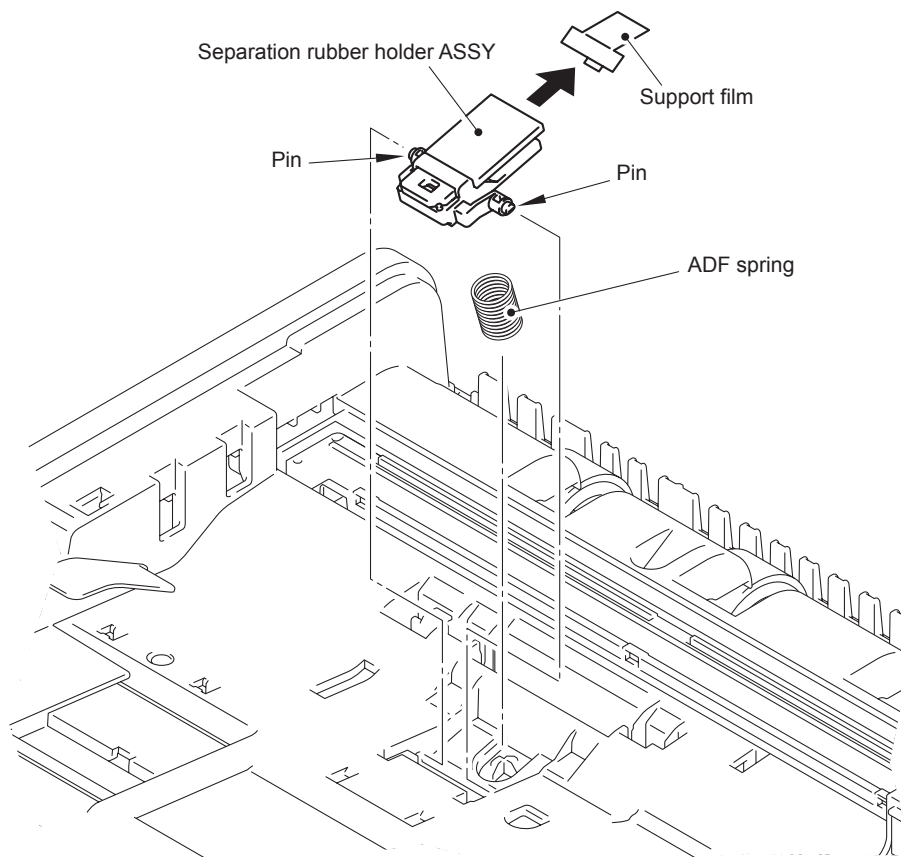


Fig. 3-36

#### Assembling Note:

- Noise may be caused if the front edge of the support film is not within the upper document chute ASSY SX. Check that there is the front edge of the support film at the position as shown in the figure below.

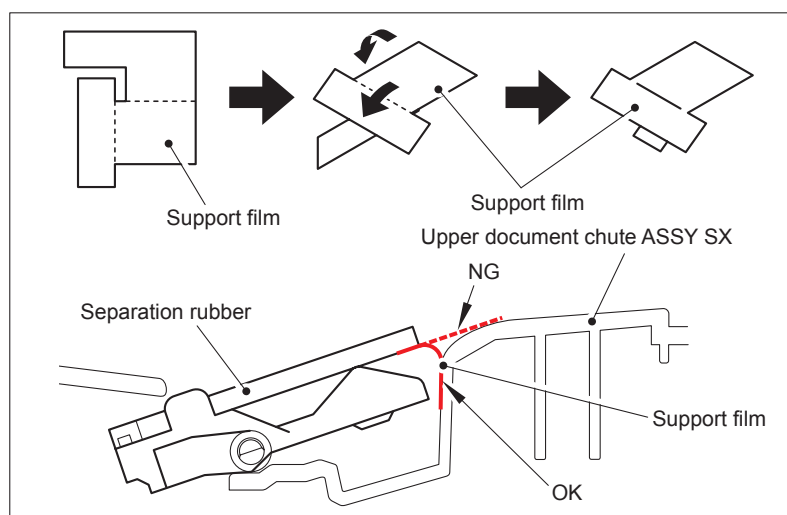


Fig. 3-37

### 9.10.9 Upper Document Chute ASSY SX

- (1) Remove the six taptite cup B M3x10 screws, and remove the upper document chute ASSY SX.

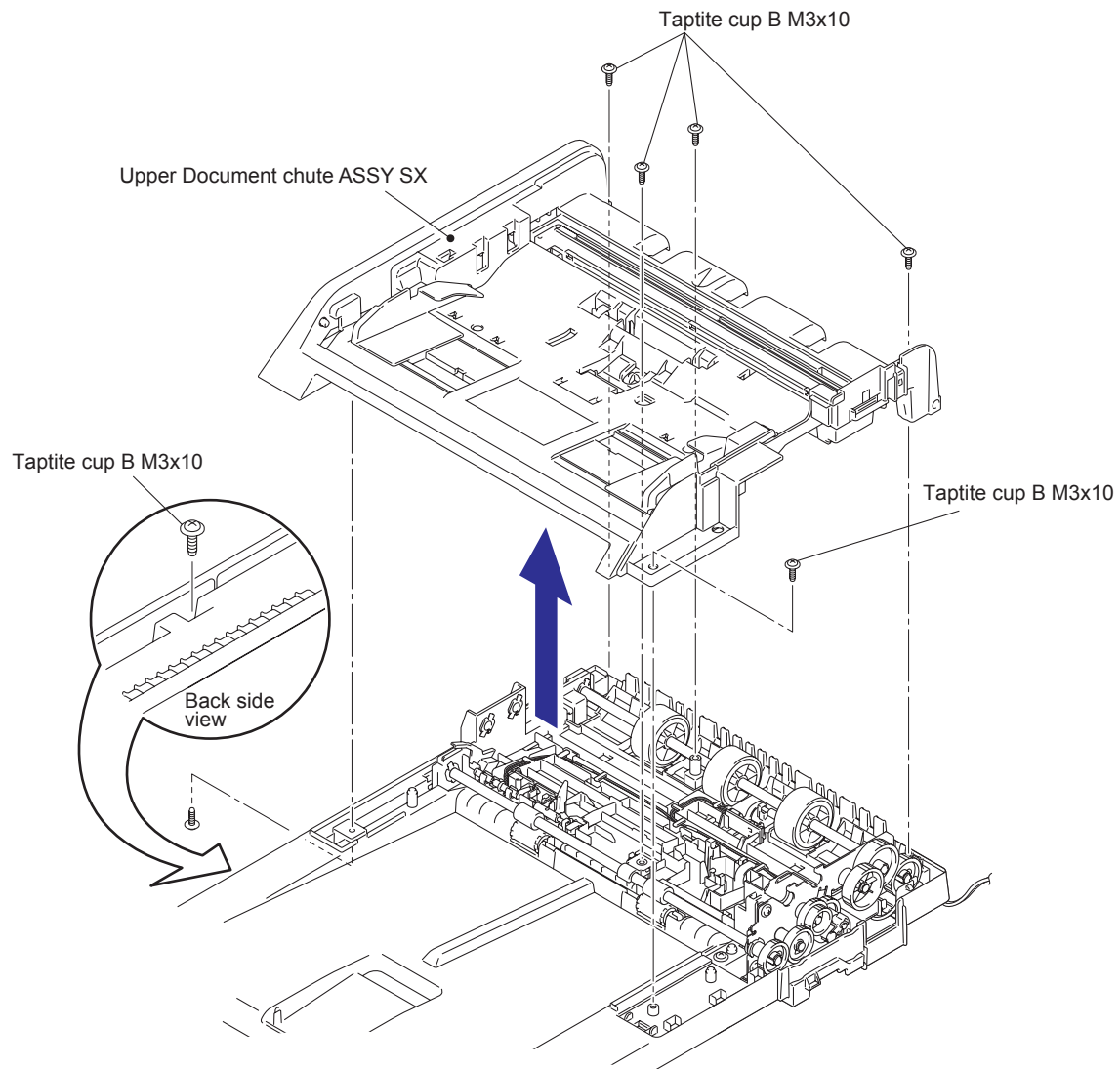


Fig. 3-38

### 9.10.10 Document Feed Roller ASSY

- (1) Unlock the lock of the conductive bushing to remove the document feed roller ASSY.

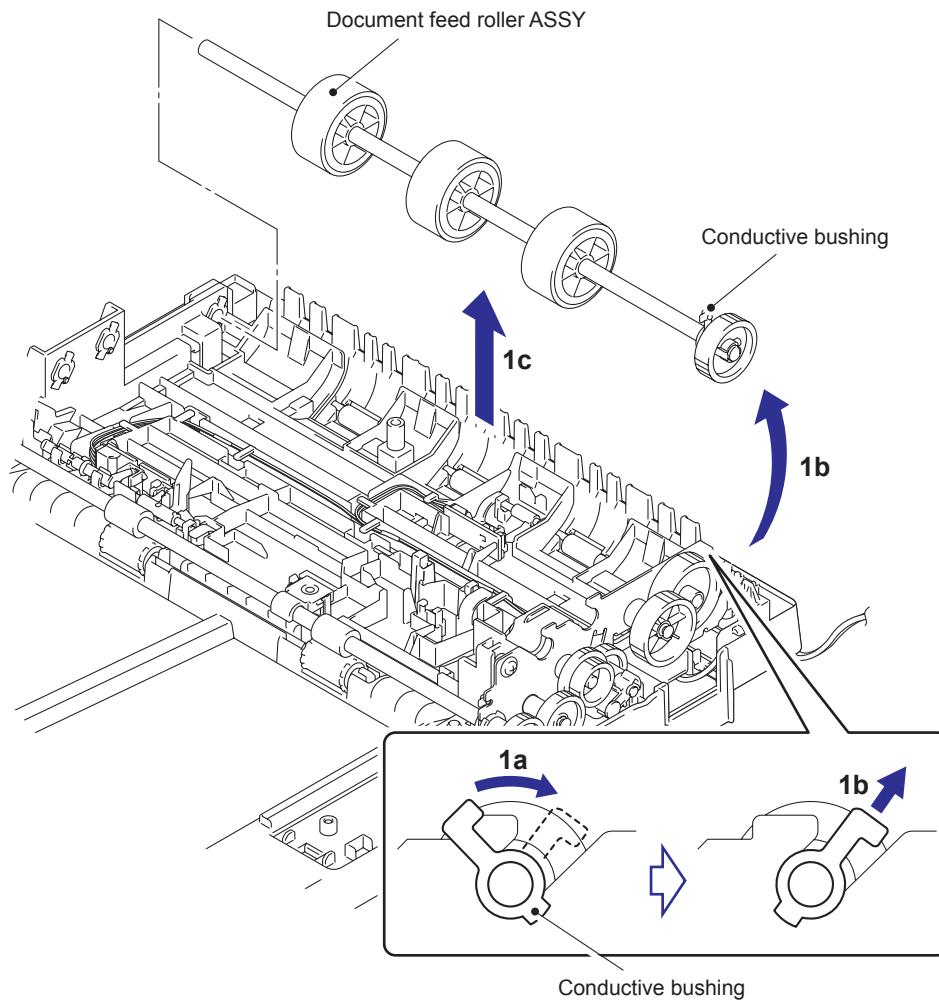


Fig. 3-39

### 9.10.11 Lower Document Chute ASSY

- (1) Remove the three taptite cup B M3x10 screws.
- (2) Release the hook to remove the lower document chute ASSY from the document cover.

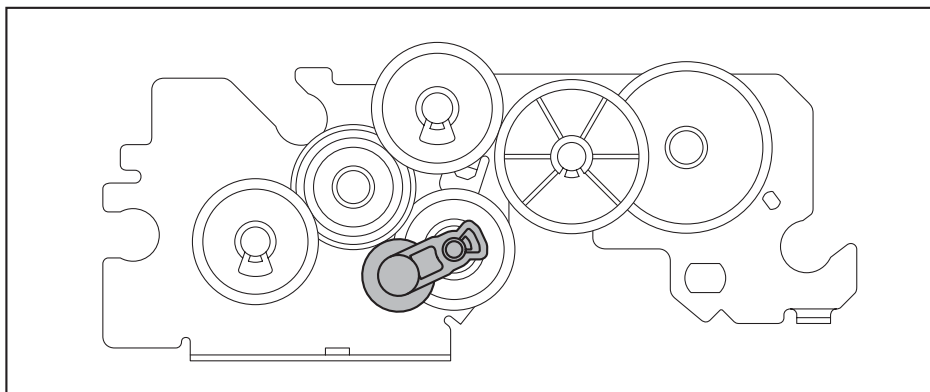
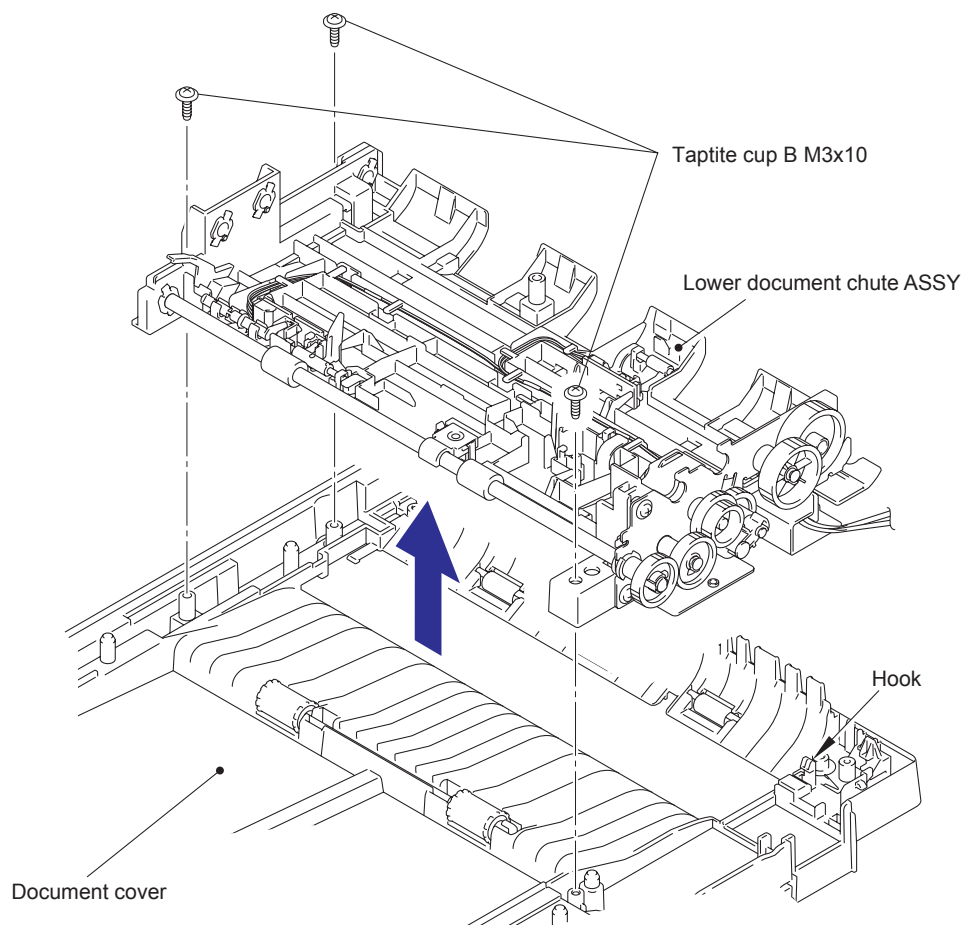


Fig. 3-40

#### Assembling Note:

- When assembling the lower document chute ASSY, ensure that the gear (indicated with gray) is placed in the position as shown in the figure above.

### 9.10.12 Ejection Roller ASSY

- (1) Release the hook to remove the ejection roller bushing.
- (2) Unlock the lock of the conductive bushing to remove the ejection roller ASSY.

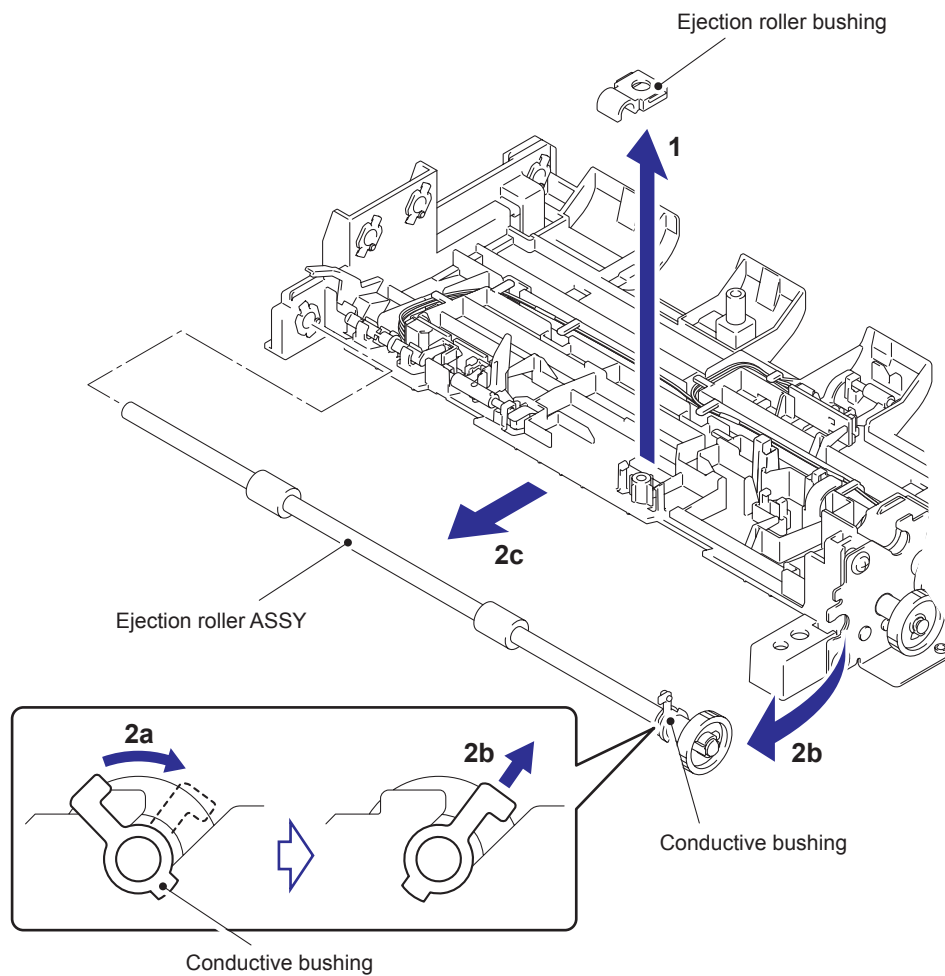


Fig. 3-41

### 9.10.13 ADF motor

- (1) Remove the ferrite core from the guide, and disconnect the connector of the ADF motor harness ASSY from the ADF motor.
- (2) Remove the taprite cup S M3x6 SR screw, and remove the FG harness.

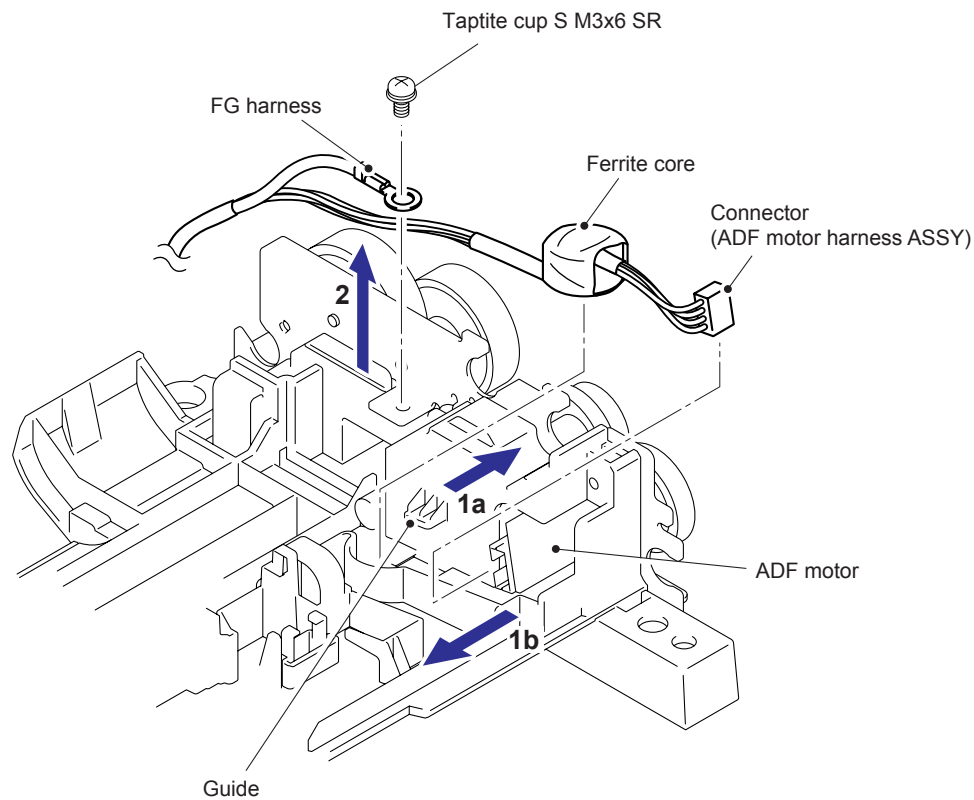
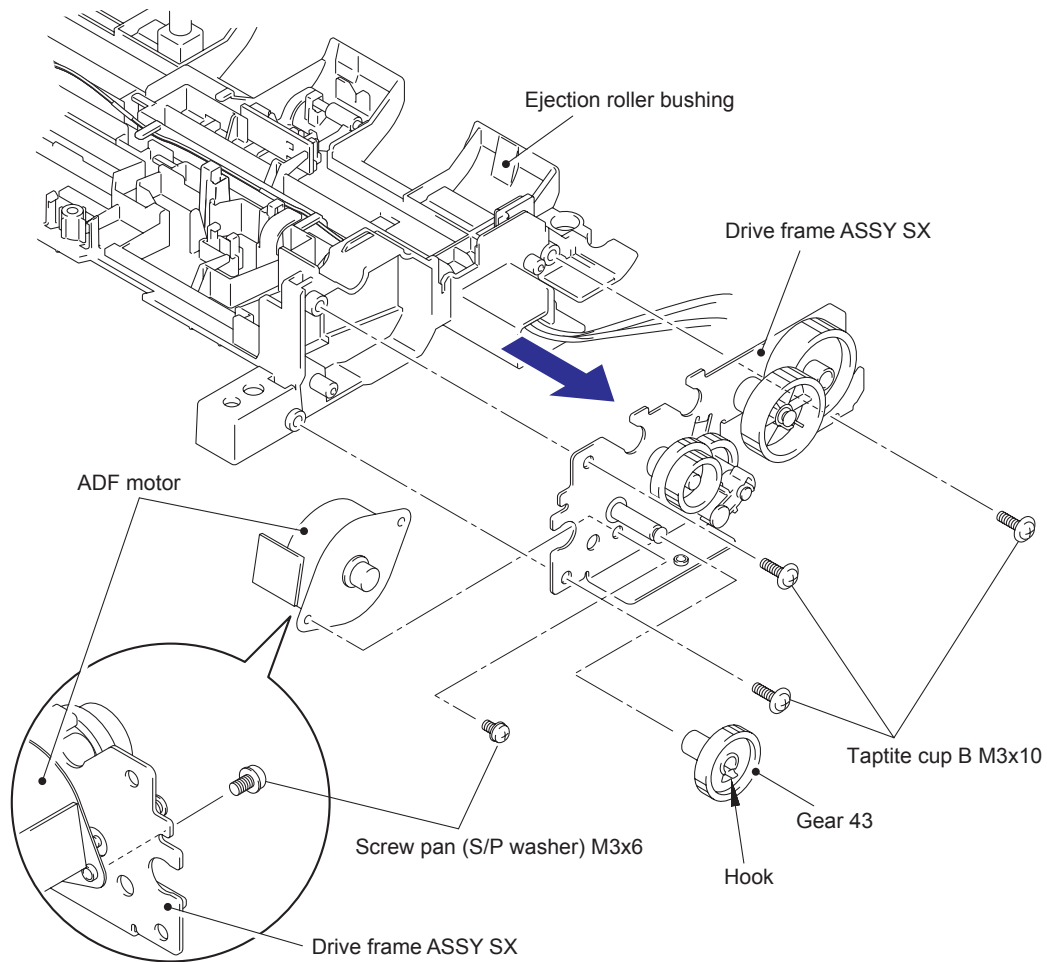


Fig. 3-42

- (3) Remove the three taptite cup B M3x10 screws, and remove the drive frame ASSY SX.
- (4) Release the hook to remove the gear 43.
- (5) Remove the screw pan (S/P washer) M3x6 screw, and remove the ADF motor.



**Fig. 3-43**

#### 9.10.14 Document Scanning Position Detection Sensor PCB ASSY/ Document Detection/ADF Cover Open Sensor PCB ASSY

- (1) Remove the document scanning position detection sensor PCB ASSY while pushing the rib.
- (2) Disconnect the connector of ADF sensor harness unit from the document scanning position detection sensor PCB ASSY.

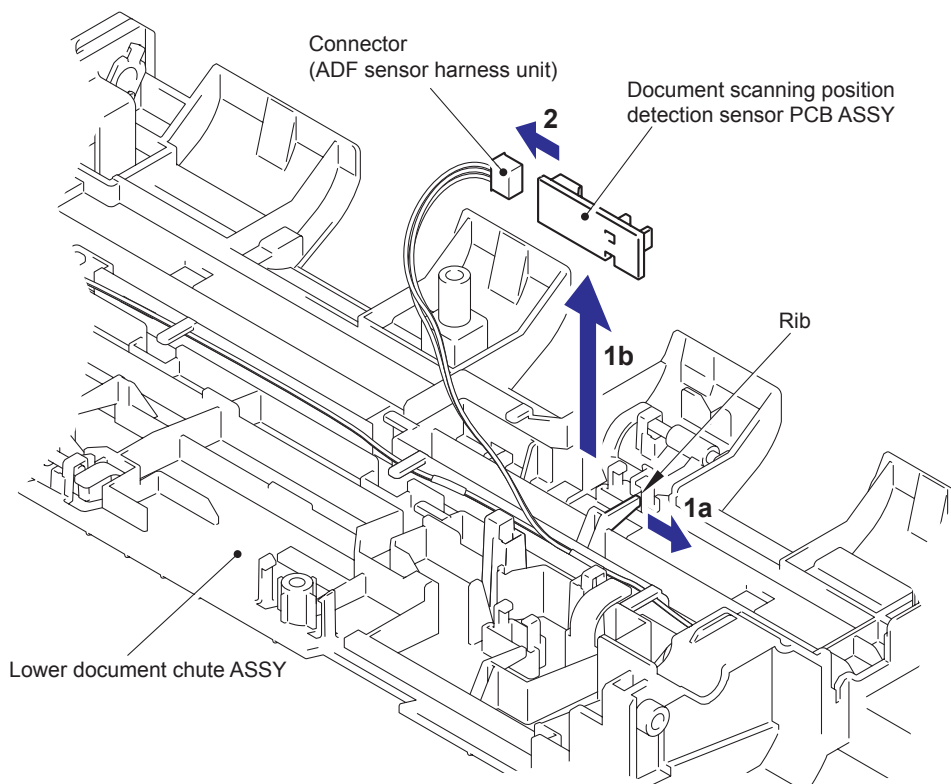
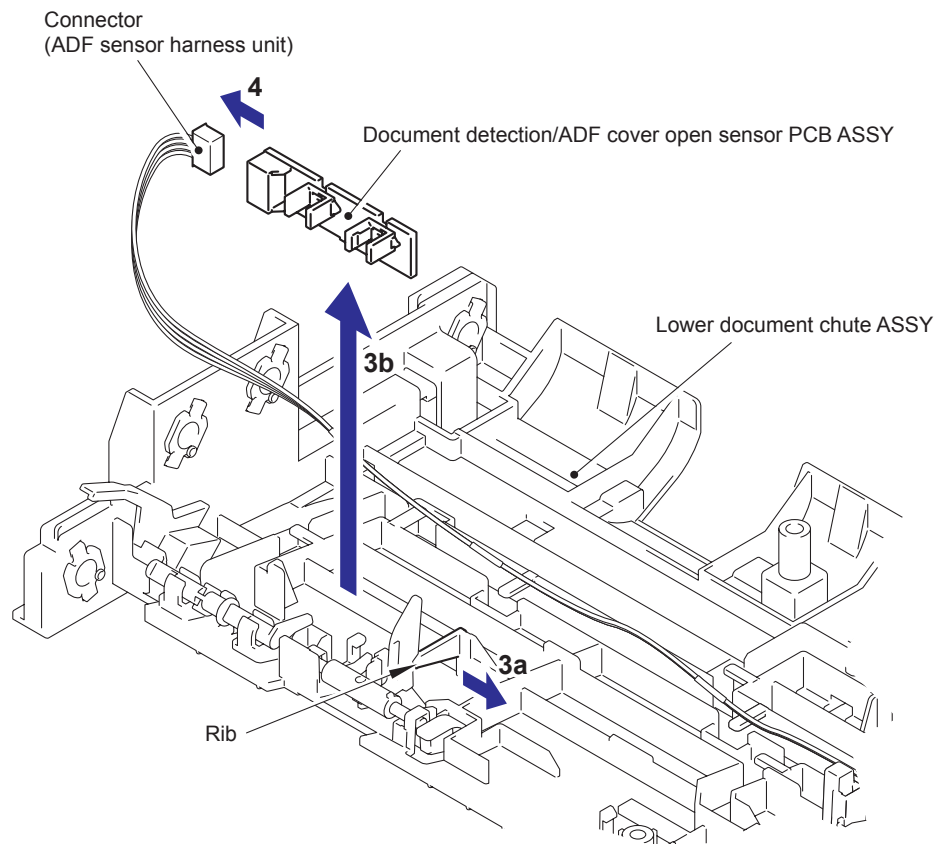


Fig. 3-44

- (3) Remove the document detection/ADF cover open sensor PCB ASSY while pushing the rib.
- (4) Disconnect the connector of ADF sensor harness unit from the document detection/ADF cover open sensor PCB ASSY.



**Fig. 3-45**

## 9.11 Document Cover ASSY (For models without ADF)

- (1) Release the hooks of the hinge L and the hinge R to remove the document cover ASSY.

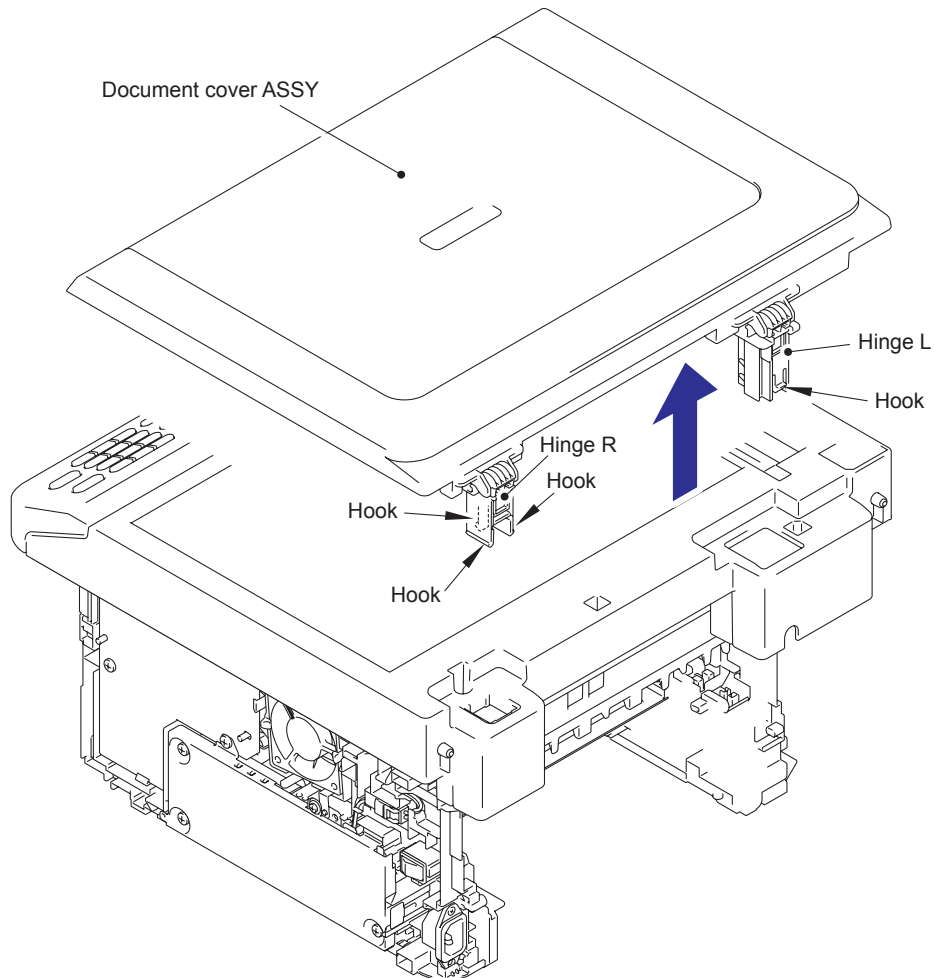
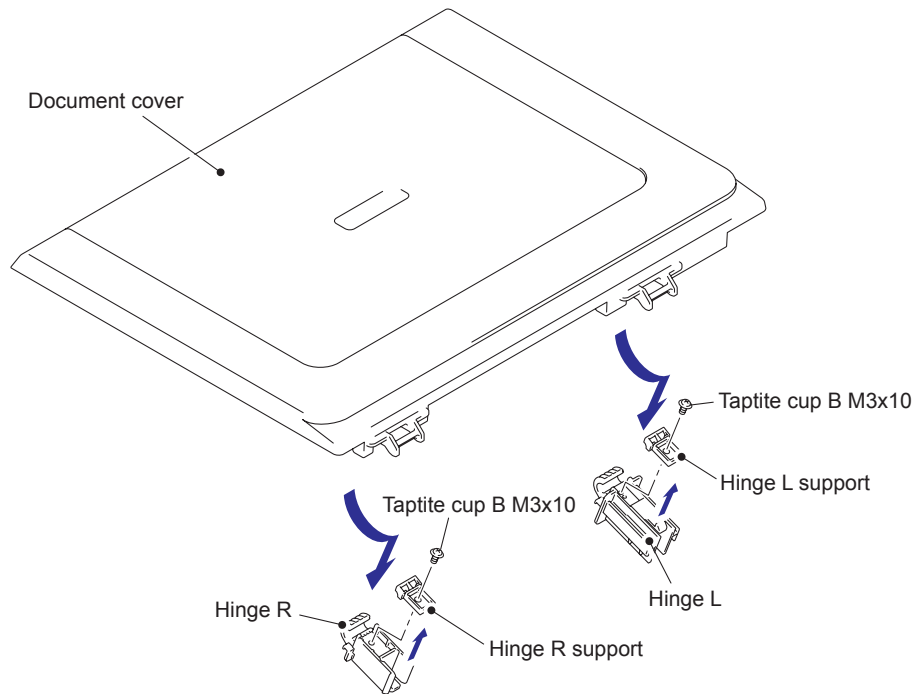


Fig. 3-46

- (2) Remove the taptite cup B M3x10 screw, and remove the hinge L and the hinge L support from the hinge arm.
- (3) Remove the taptite cup B M3x10 screw, and remove the hinge R and the hinge R support from the hinge arm.



**Fig. 3-47**

## 9.12 Pull Arm L / Pull Arm R / Pull Arm Spring

- (1) Disconnect the two connectors and the CIS flat cable from the main PCB ASSY.

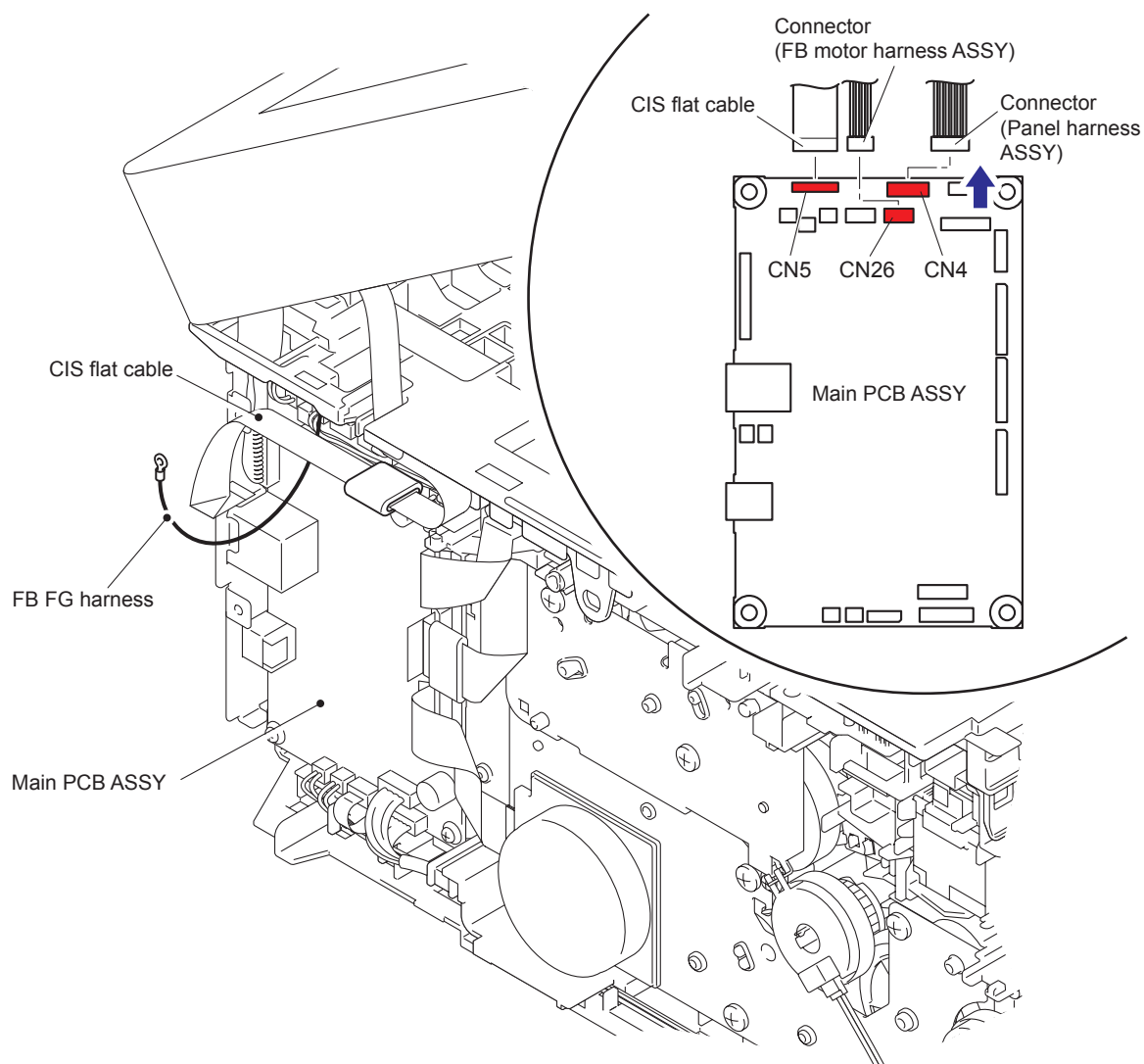
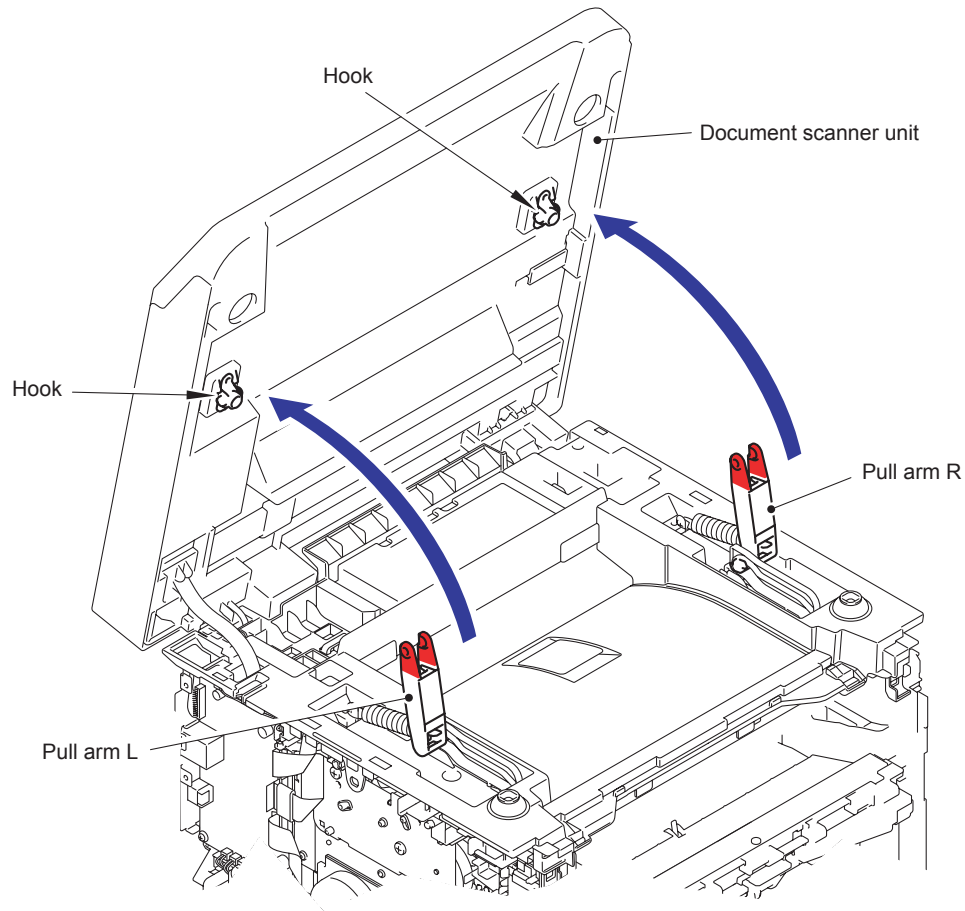


Fig. 3-48

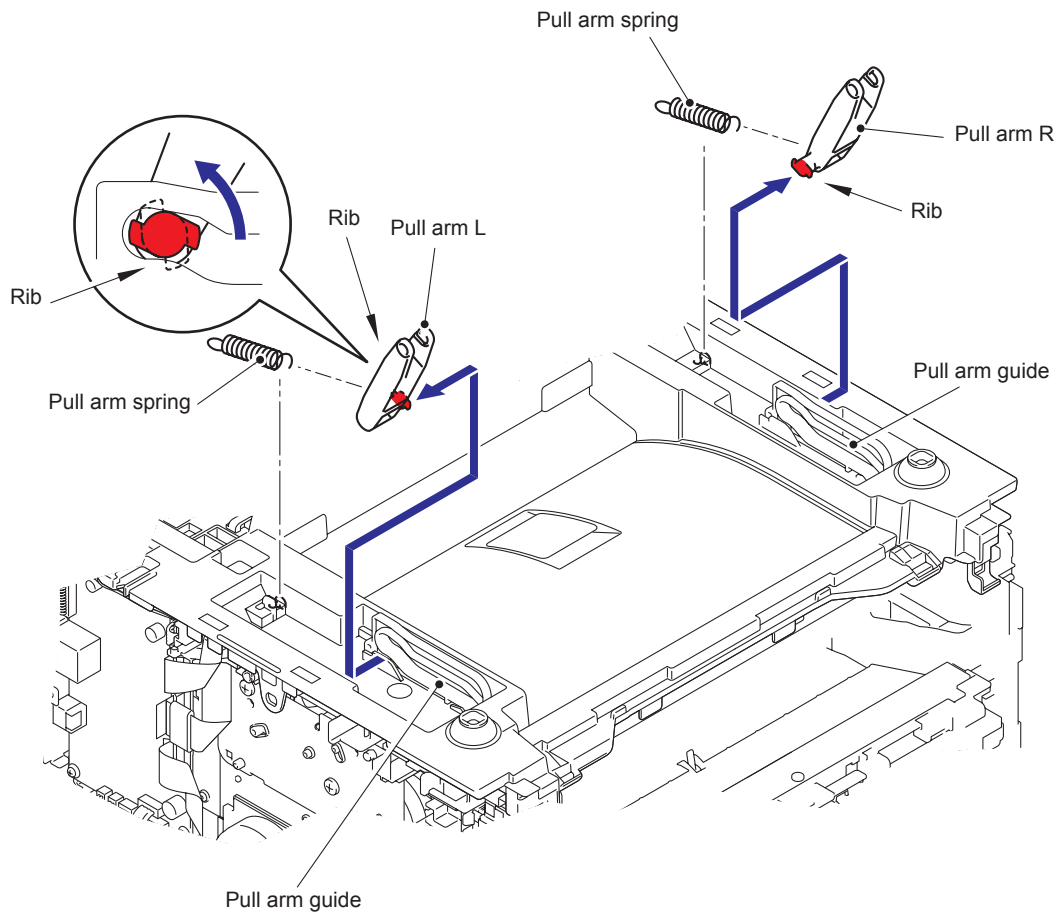
Harness routing: Refer to "17. Panel unit", "18. Document scanner unit".

- (2) Open the document scanner unit.
- (3) Release the hooks of the pull arm L and the pull arm R from the each joint part of the document scanner unit.



**Fig. 3-49**

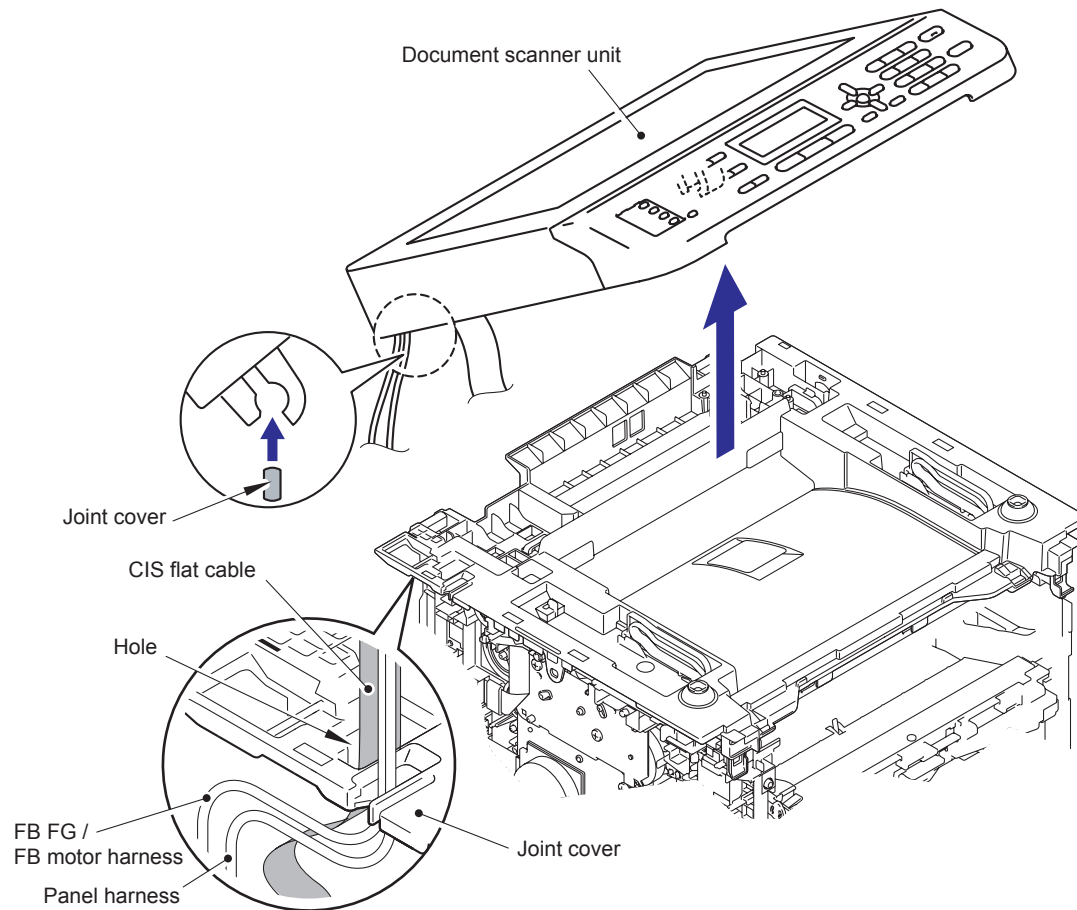
- (4) Remove the pull arm L and the pull arm spring from the pull arm guide.
- (5) Remove the pull arm R and the pull arm spring from the pull arm guide.



**Fig. 3-50**

### 9.13 Document Scanner Unit

- (1) Open the document scanner unit, and remove the harness from the hole, and remove the CIS flat cable from the hole.
- (2) Change the angle of the document scanner unit as shown in the figure to remove it upward.



**Fig. 3-51**

## 9.14 Panel Unit

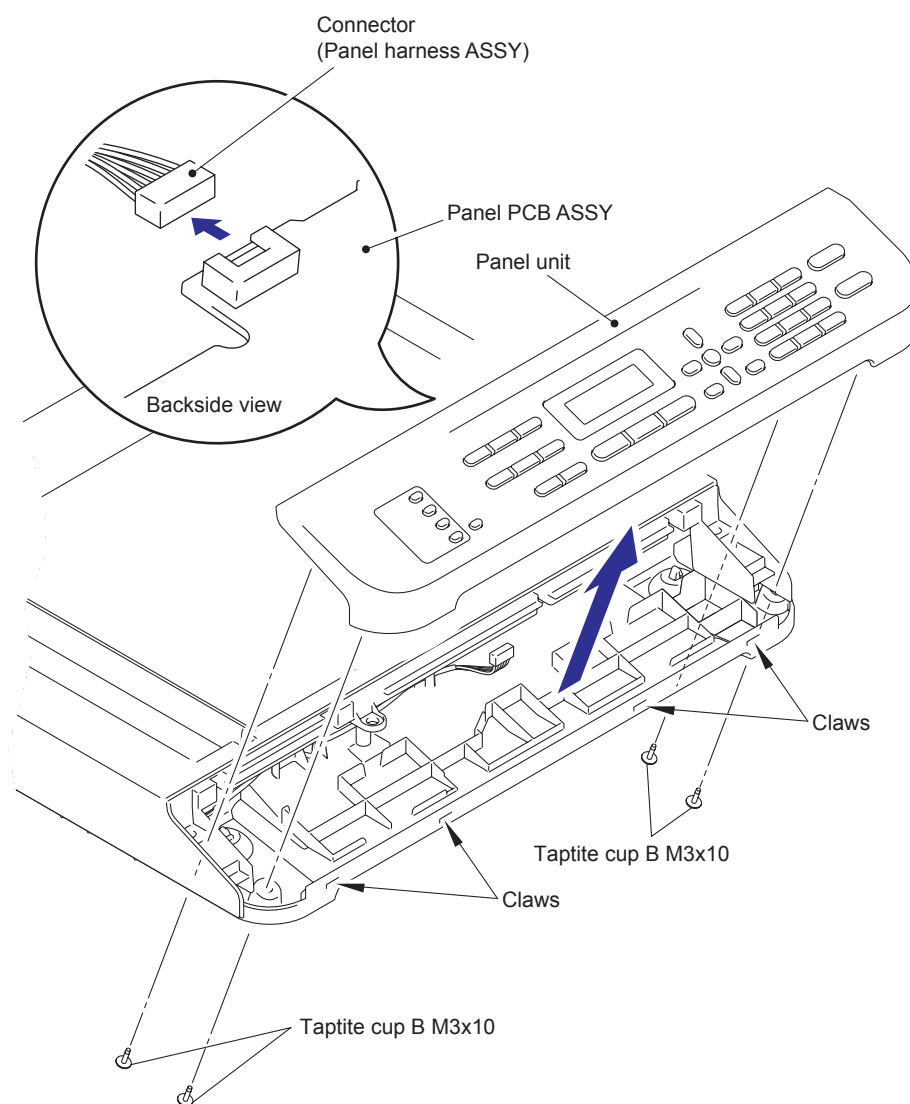
### 9.14.1 Panel Unit

- (1) Remove the four taptite cup B M3x10 screws.
- (2) Release the claw to remove the panel unit.

**Note:**

- Be careful not to pull the panel unit generic strongly because the harness is connected to it.

- (3) Disconnect the connector of the panel harness ASSY from the panel PCB ASSY.



**Fig. 3-52**

### 9.14.2 Panel PCB ASSY

- (1) Unlock the lock to disconnect the flat cable from the panel PCB ASSY.
- (2) Release the hooks to remove the panel PCB ASSY from the panel unit.

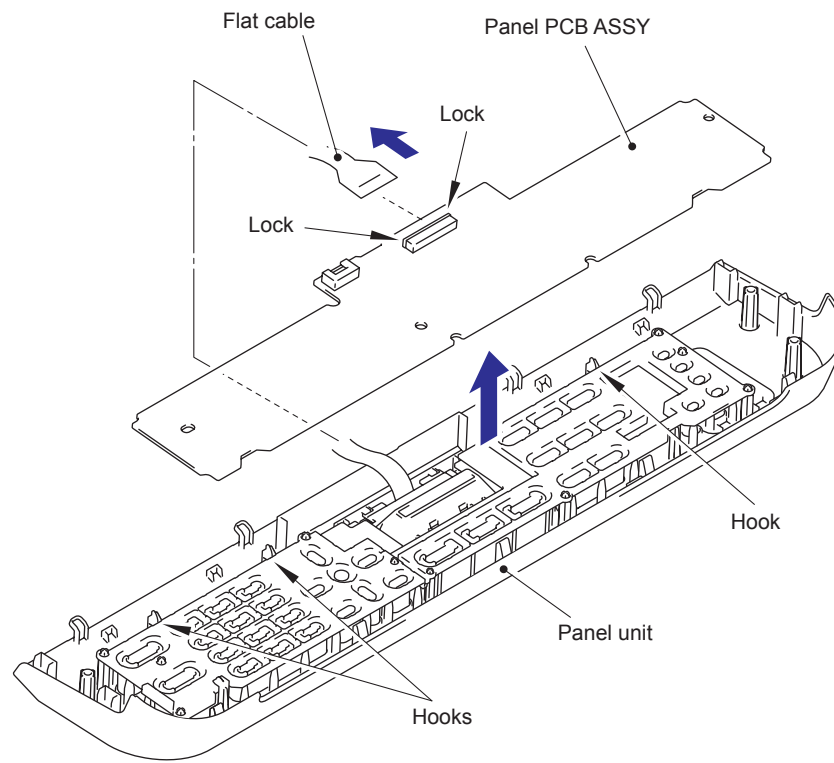
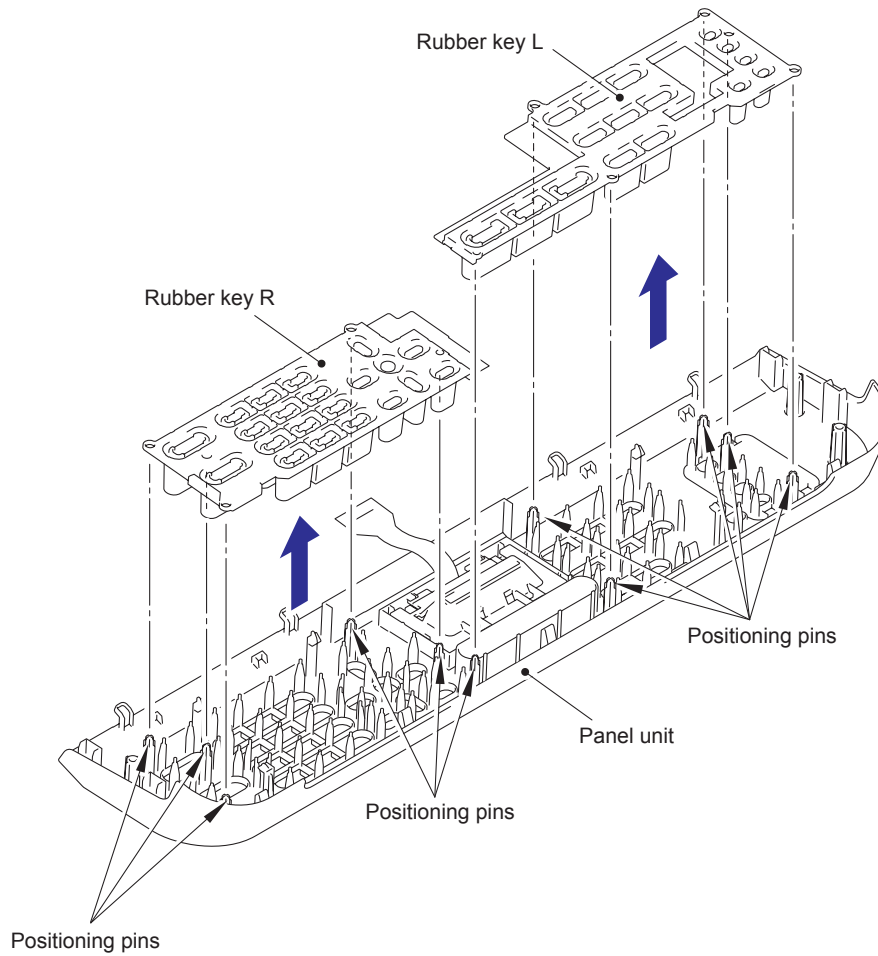


Fig. 3-53

### 9.14.3 Rubber Key L/R

- (1) Remove the rubber key L and the rubber key R from the panel unit.



**Fig. 3-54**

**Assembling Note:**

- Upon assembling, assemble the rubber key R first, and then assemble the rubber key L.
- Check if it is firmly inserted into the positioning pin.

#### 9.14.4 LCD

- (1) Release the hooks to remove the backlight guide from the panel cover.

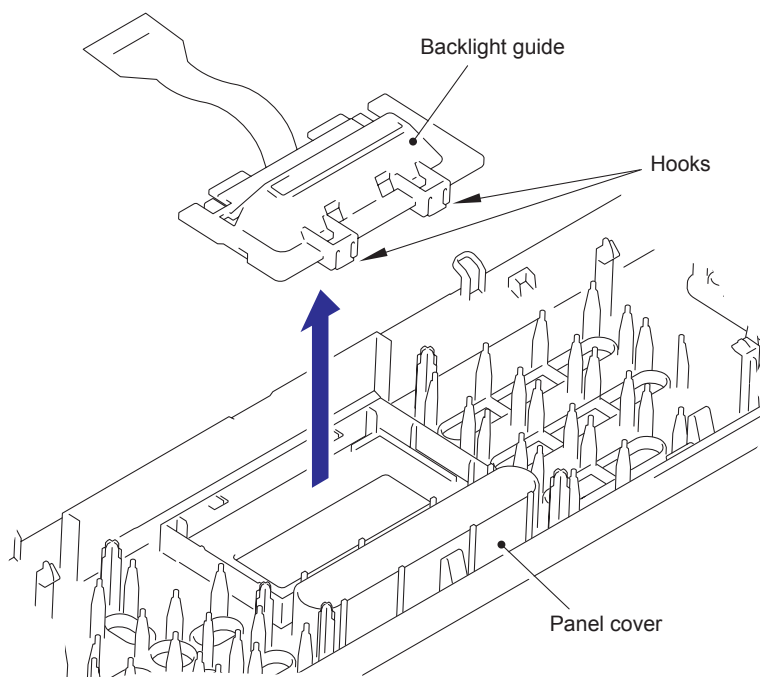


Fig. 3-55

- (2) Release the hooks to remove the LCD and the diffusion film from the backlight guide.

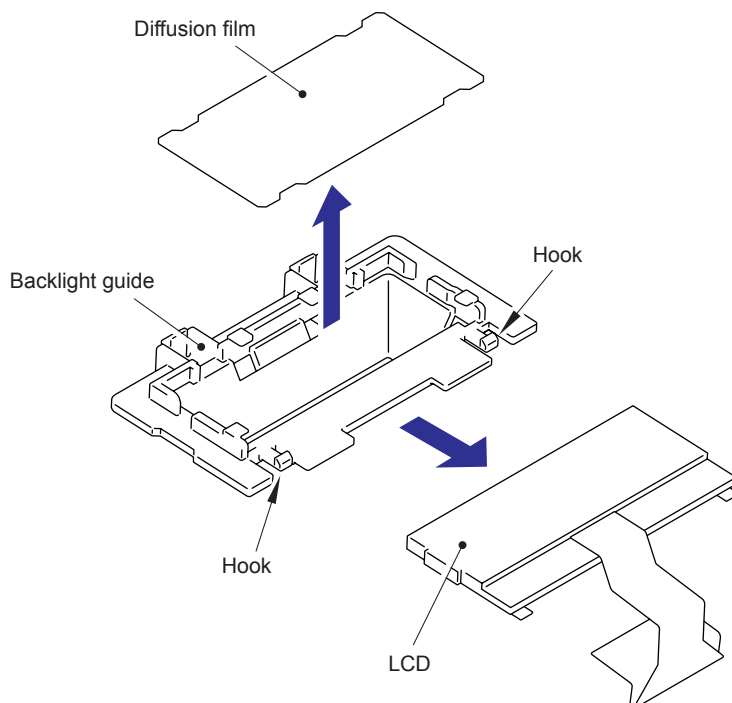


Fig. 3-56

**Note:**

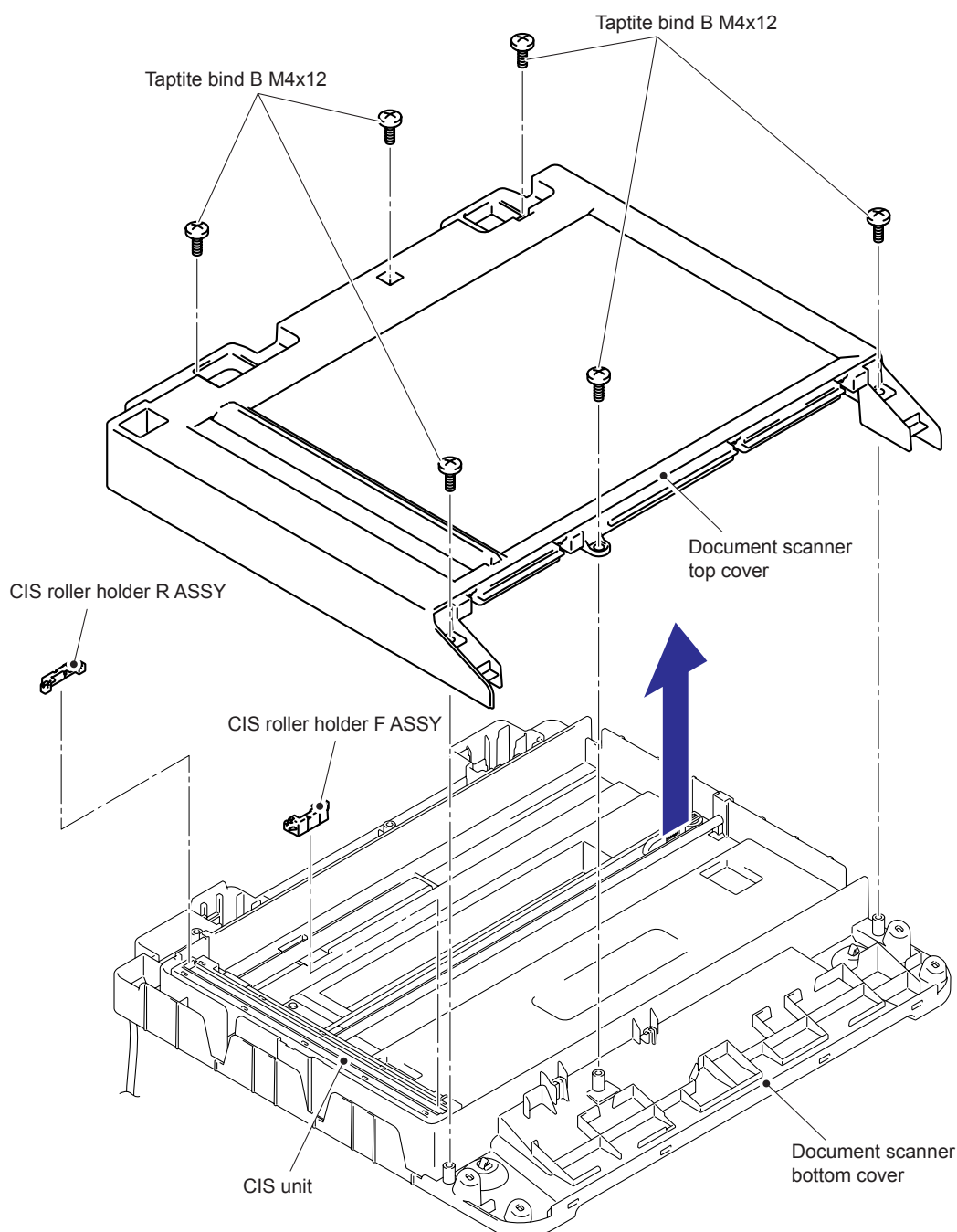
- When the hooks are deformed, the LCD may not be attached to the backlight guide, or the backlight guide may not be attached to the panel cover. Do not allow the hooks to be warped when releasing them.

## 9.15 CIS unit

**Note:**

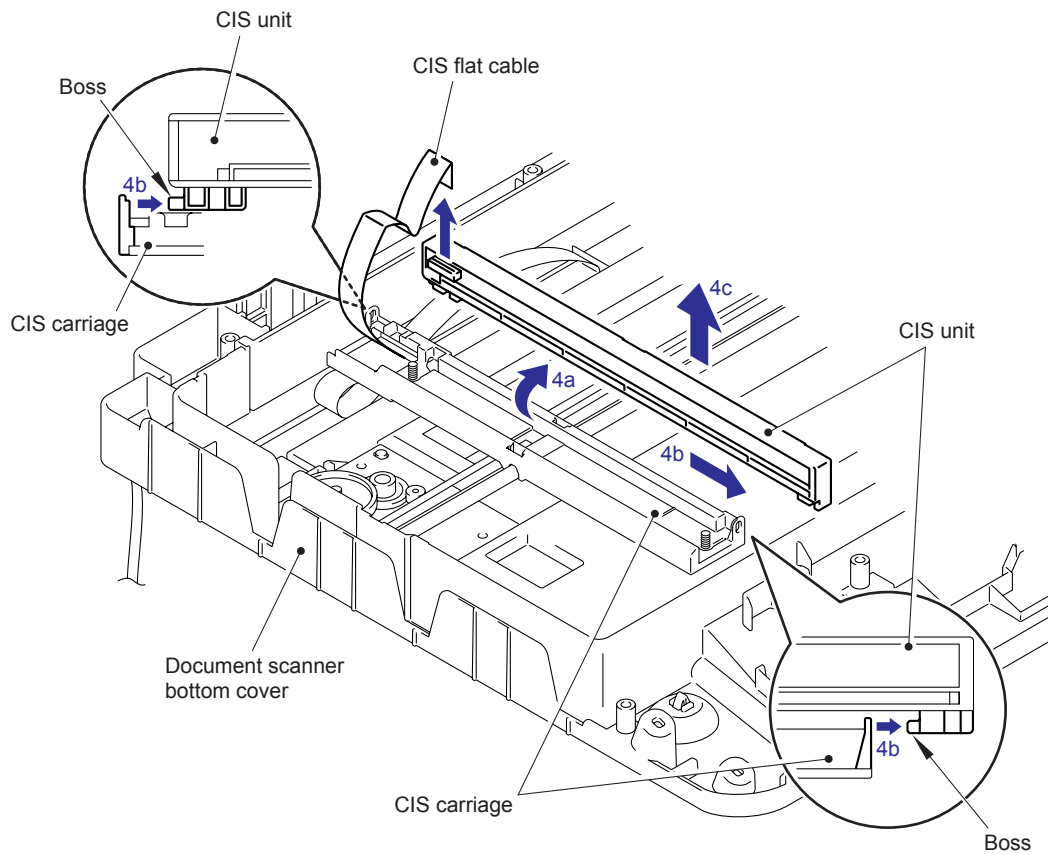
- Replacement of the CIS unit should be made in a dust-free, clean environment.

- (1) Remove the six taptite bind B M4x12 screws.
- (2) Remove the document scanner top cover.
- (3) Remove the CIS roller holder F ASSY and the CIS roller holder R ASSY.



**Fig. 3-57**

- (4) Turn the CIS unit to the direction of the arrow 4a 90° clockwise, and then pull it to the direction of the arrow 4b slightly. Release the two bosses from the CIS carriage, and remove the CIS unit to the direction of the arrow 4c.
- (5) Disconnect the CIS flat cable from the CIS unit.



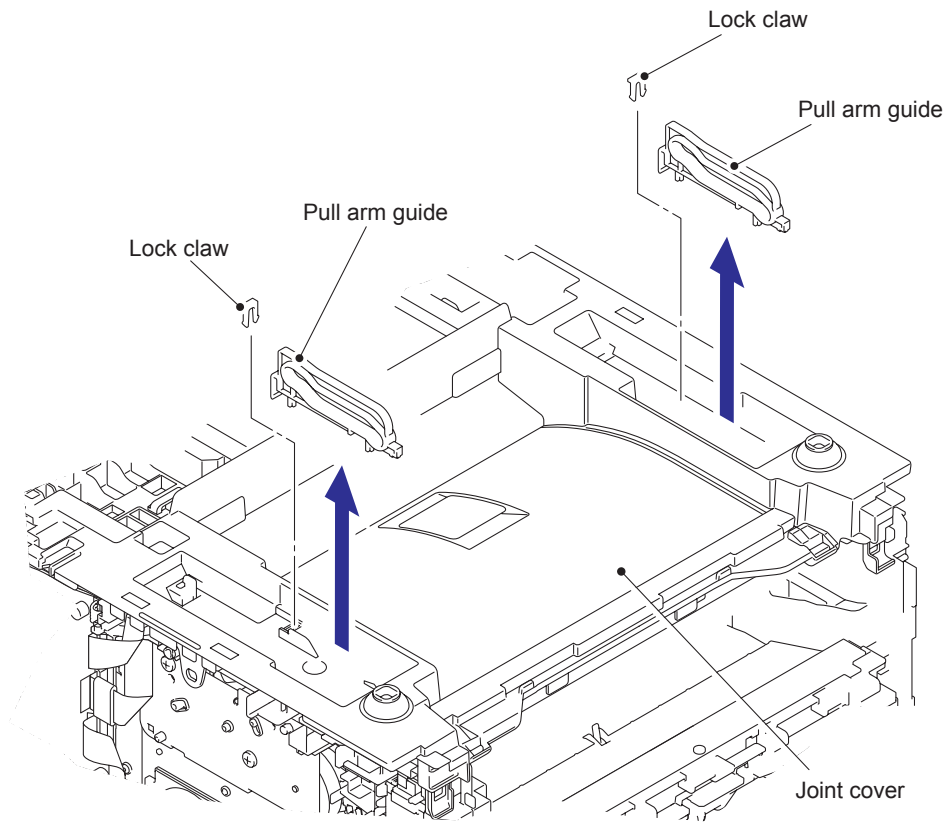
**Fig. 3-58**

**Assembling Note:**

- When assembling the CIS unit, turn the CIS unit 90° clockwise in the same way as removing.
- Acquire the white level data, and set the CIS scanning area.  
(Refer to [1.4.17 Acquisition of white level data \(Function code 55\) in Chapter 5.](#))

## 9.16 Pull Arm Guide

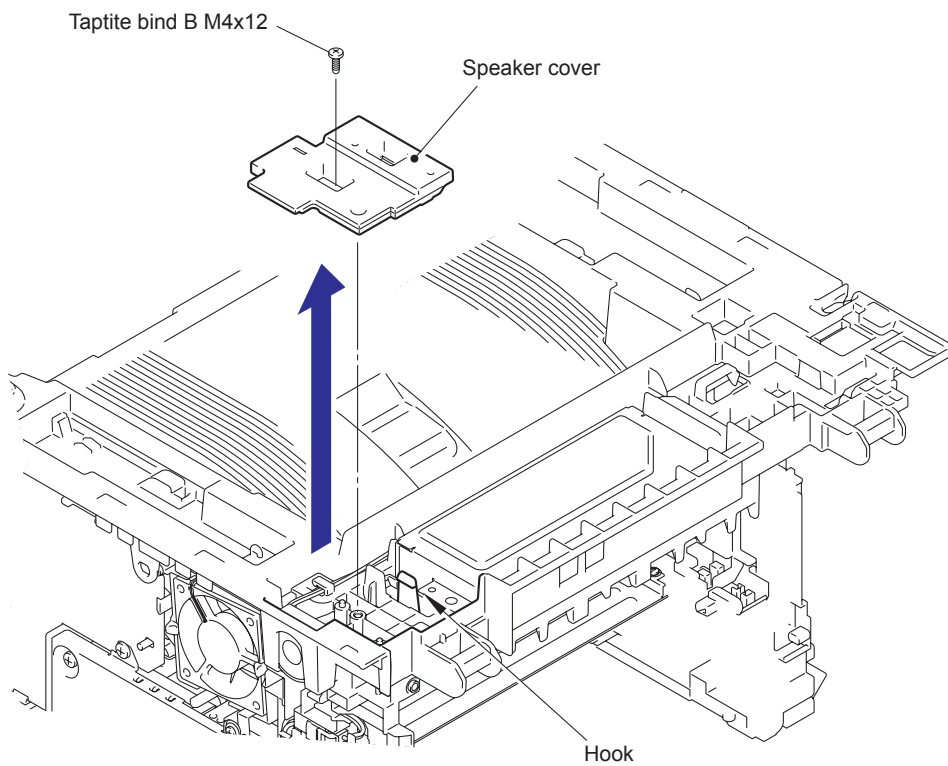
- (1) Remove the lock claw, and remove the pull arm guide. (2 locations)



**Fig. 3-59**

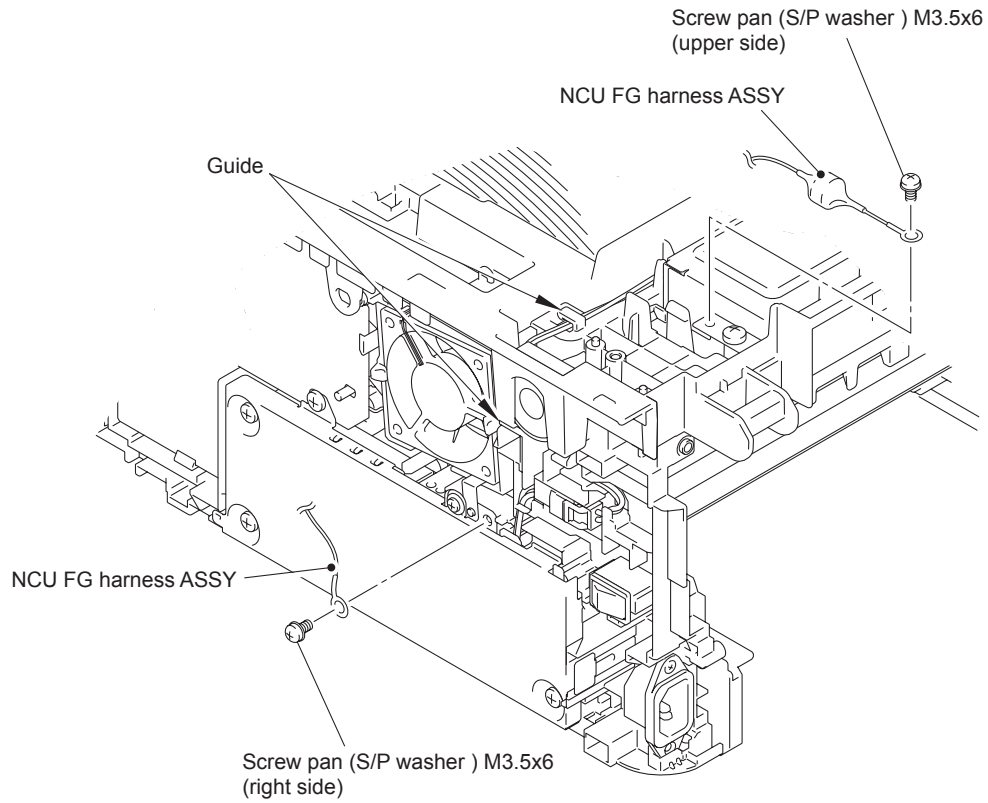
## 9.17 NCU ASSY

- (1) Remove the taptite bind B M4x12 screw.
- (2) Release the hook to remove the speaker cover.



**Fig. 3-60**

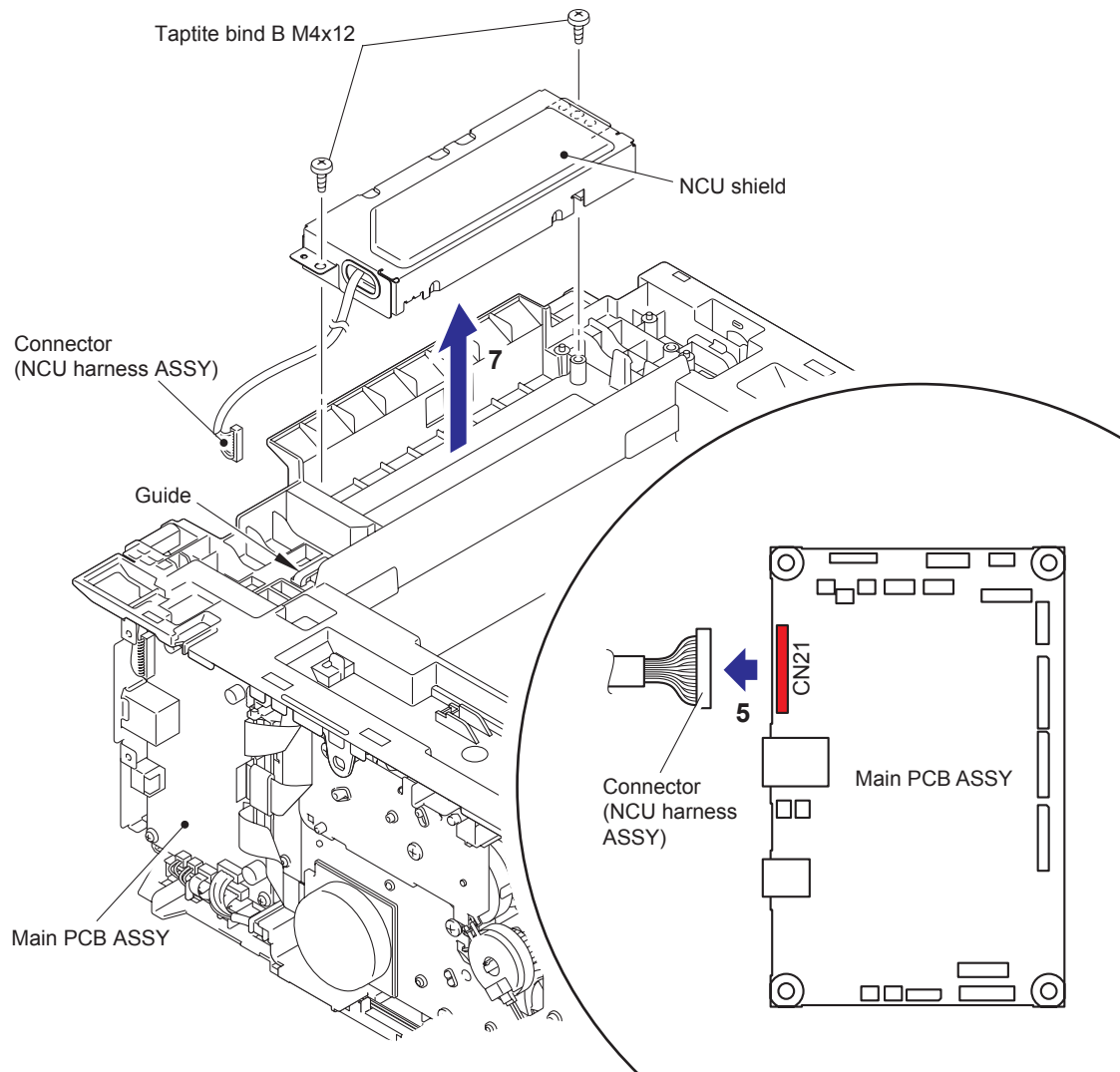
- (3) Remove the two screw pan (S/P washer) M3.5x6 screws.
- (4) Remove the NCU FG harness ASSY from the guide.



**Fig. 3-61**

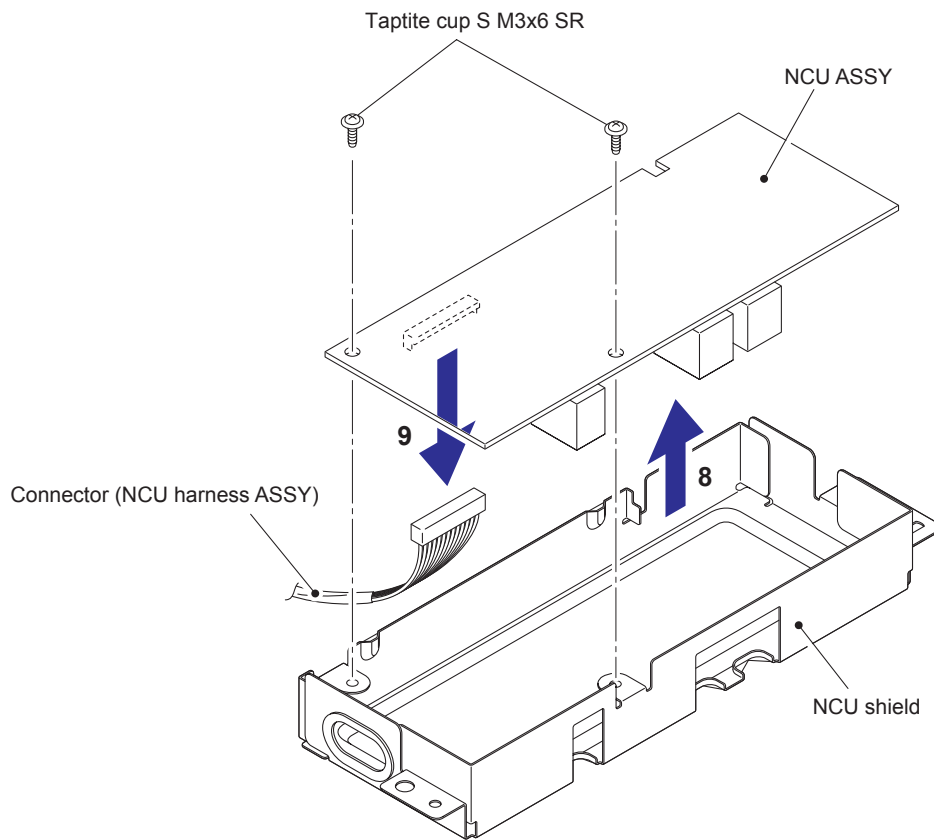
Harness routing: Refer to **"16. NCU FG harness ASSY"**.

- (5) Disconnect the connector of the NCU harness ASSY from the main PCB ASSY.
- (6) Remove the NCU harness ASSY from the guide.
- (7) Remove the two taprite bind B M4x12 screws, and remove the NCU shield.



**Fig. 3-62**

- (8) Remove the two taptite cup S M3x6 SR screws, and remove the NCU ASSY from the NCU shield.
- (9) Disconnect the connector of the NCU harness ASSY from the NCU ASSY.



**Fig. 3-63**

## 9.18 Speaker Unit

- (1) Disconnect the connector of the speaker unit from the main PCB ASSY.
- (2) Remove the speaker harness ASSY from the guide.

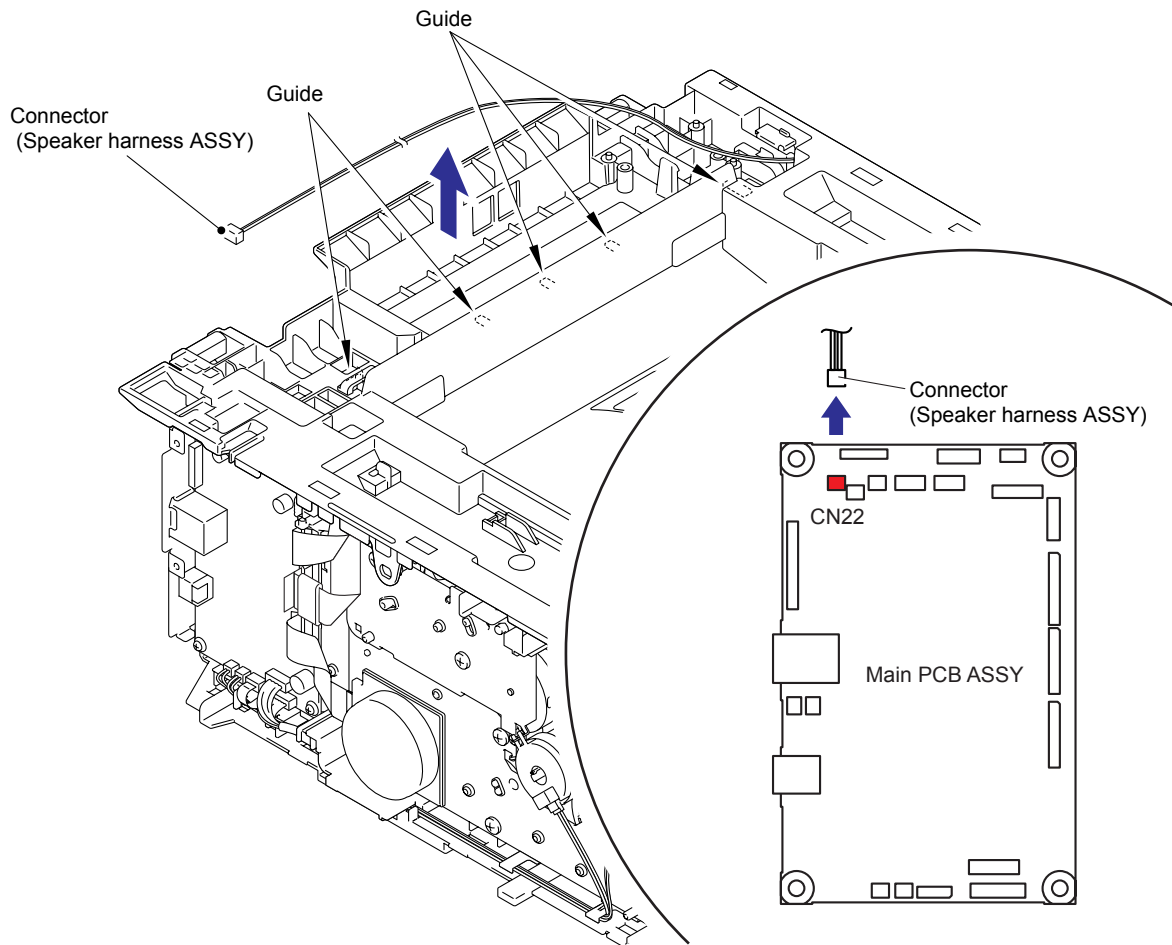
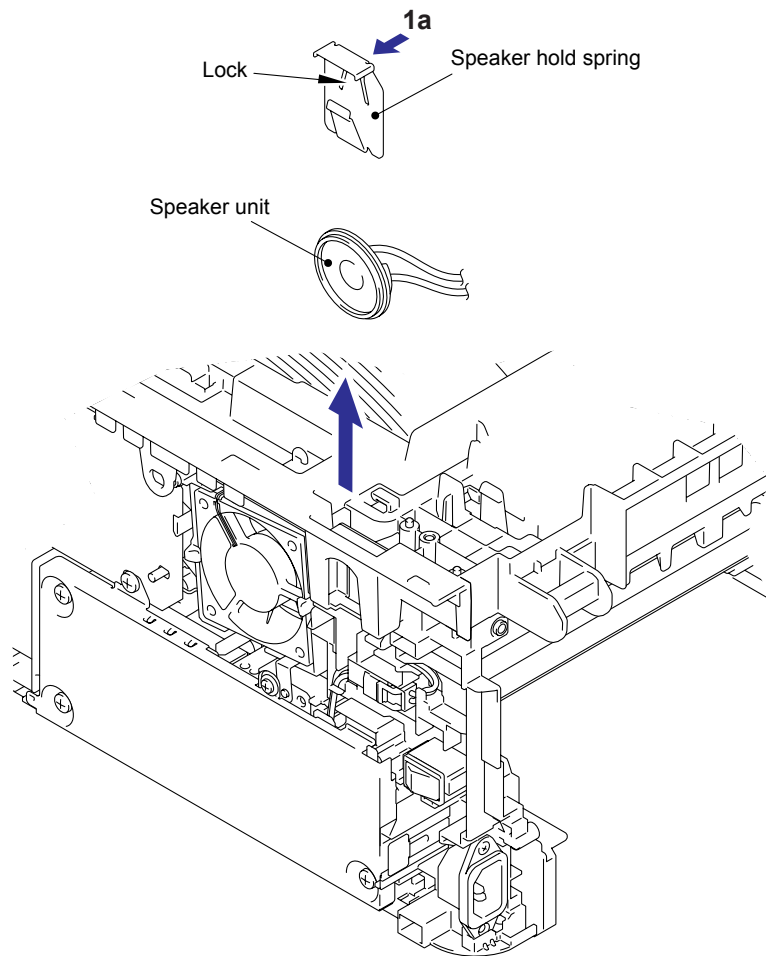


Fig. 3-64

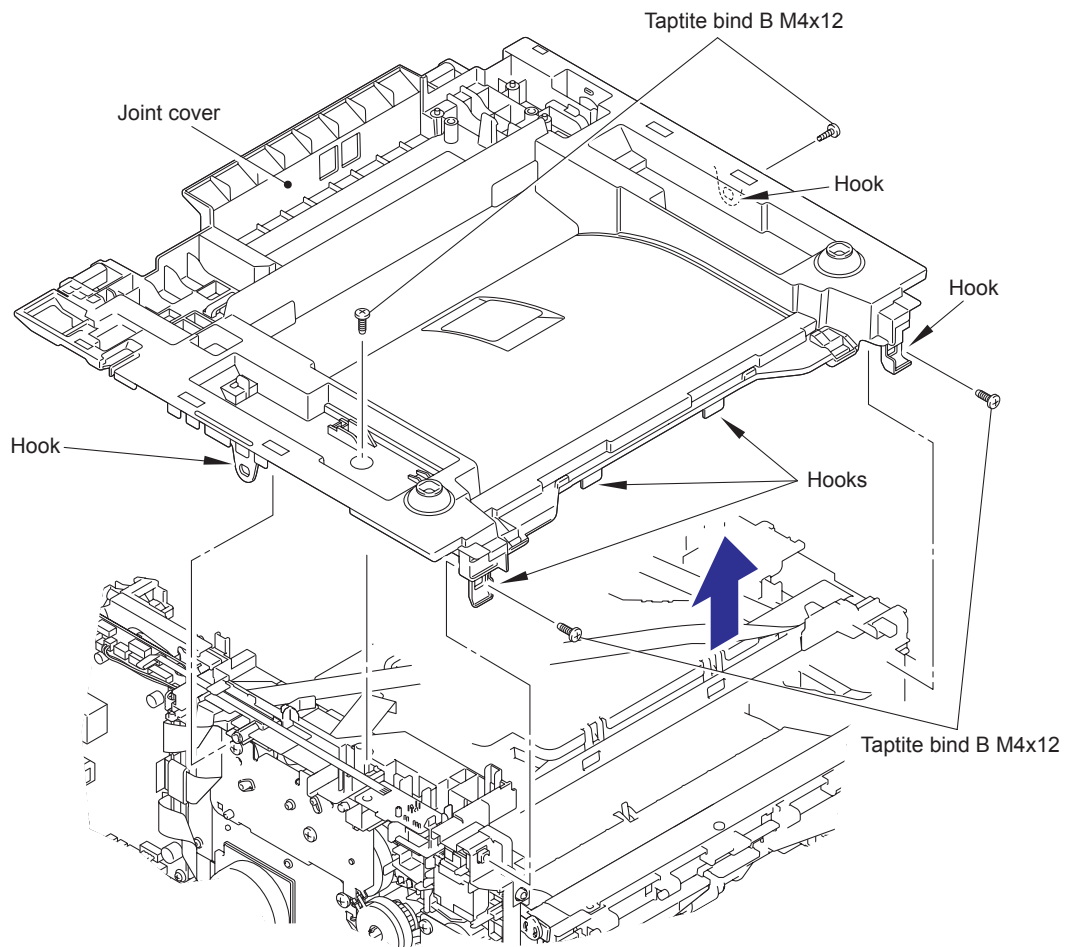
- (3) Unlock the lock from the direction of the arrow 1a to remove the speaker hold spring.
- (4) Remove the speaker unit.



**Fig. 3-65**

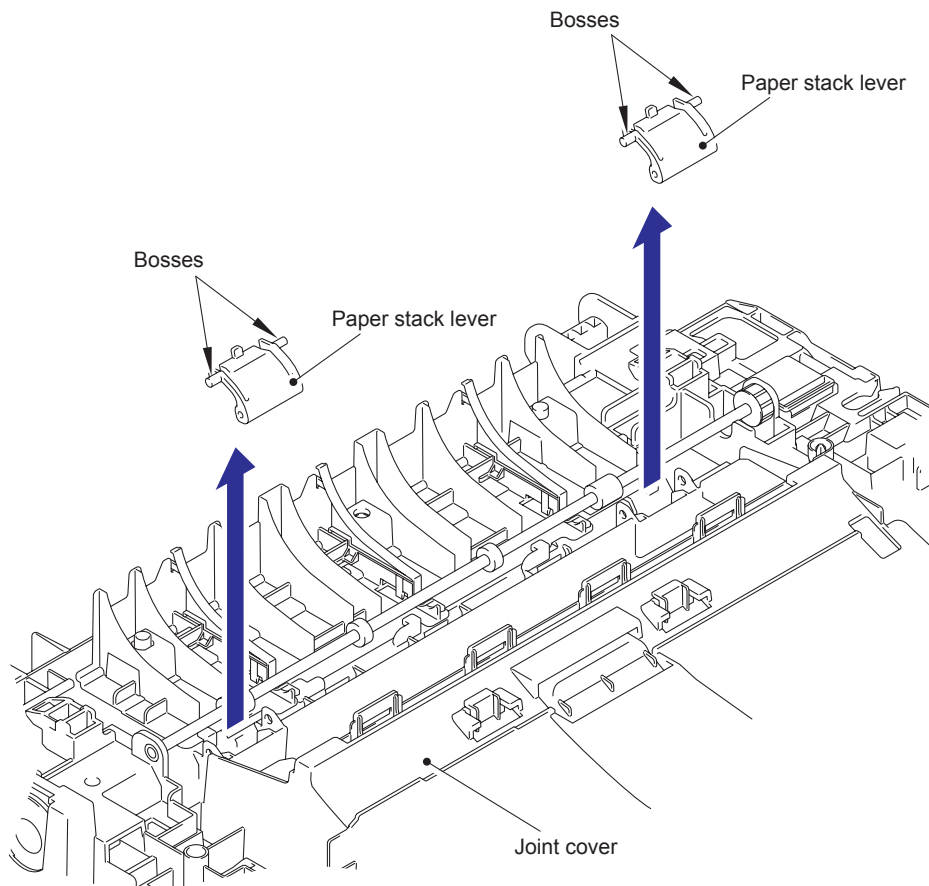
## 9.19 Joint cover

- (1) Remove the four taptite bind B M4x12 screws.
- (2) Release the hooks to remove the joint cover.



**Fig. 3-66**

(3) Remove the two paper stack levers.



**Fig. 3-67**

## 9.20 Fuser Unit

- (1) Release the harness of the fuser unit from the guides of the main frame R ASSY.
- (2) Disconnect the connector of the low voltage power supply PCB ASSY while pushing the hook of the connector of the fuser unit.

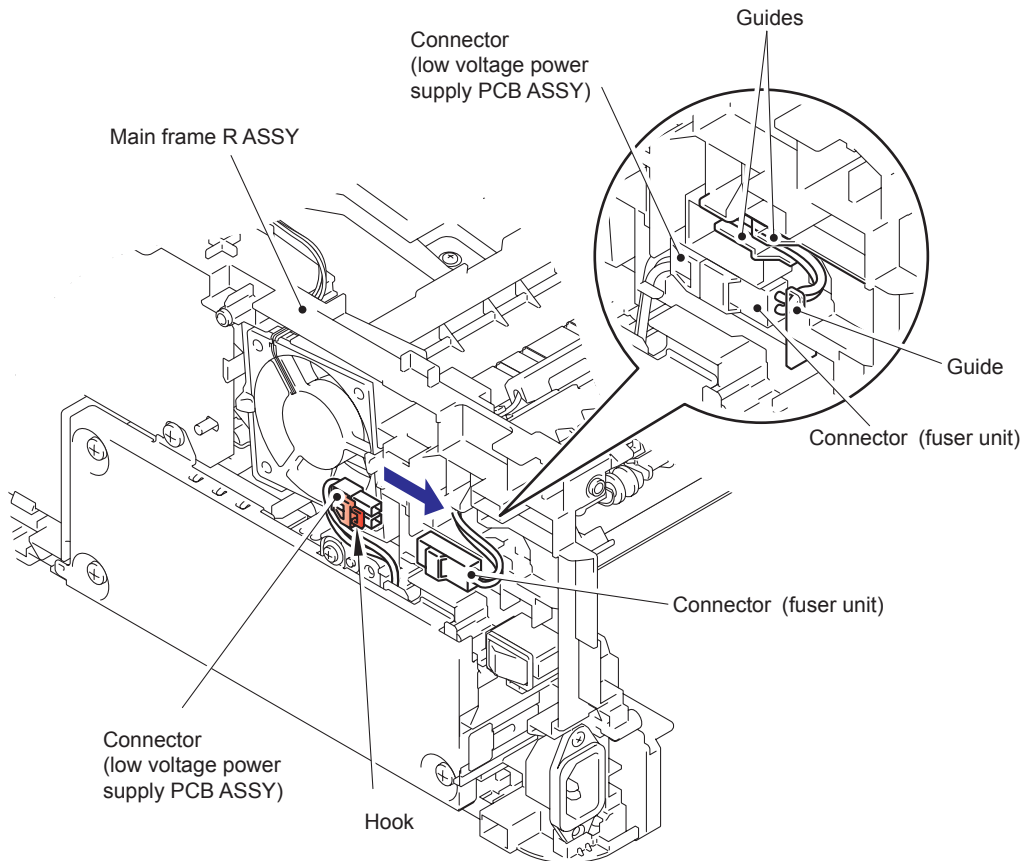


Fig. 3-68

- (3) Put the connector of the fuser unit through the hole of the main frame R ASSY.

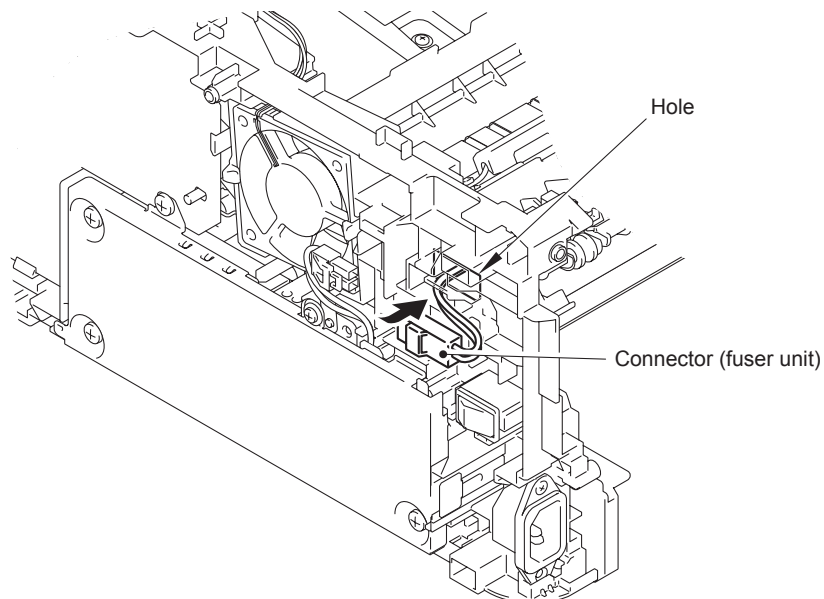
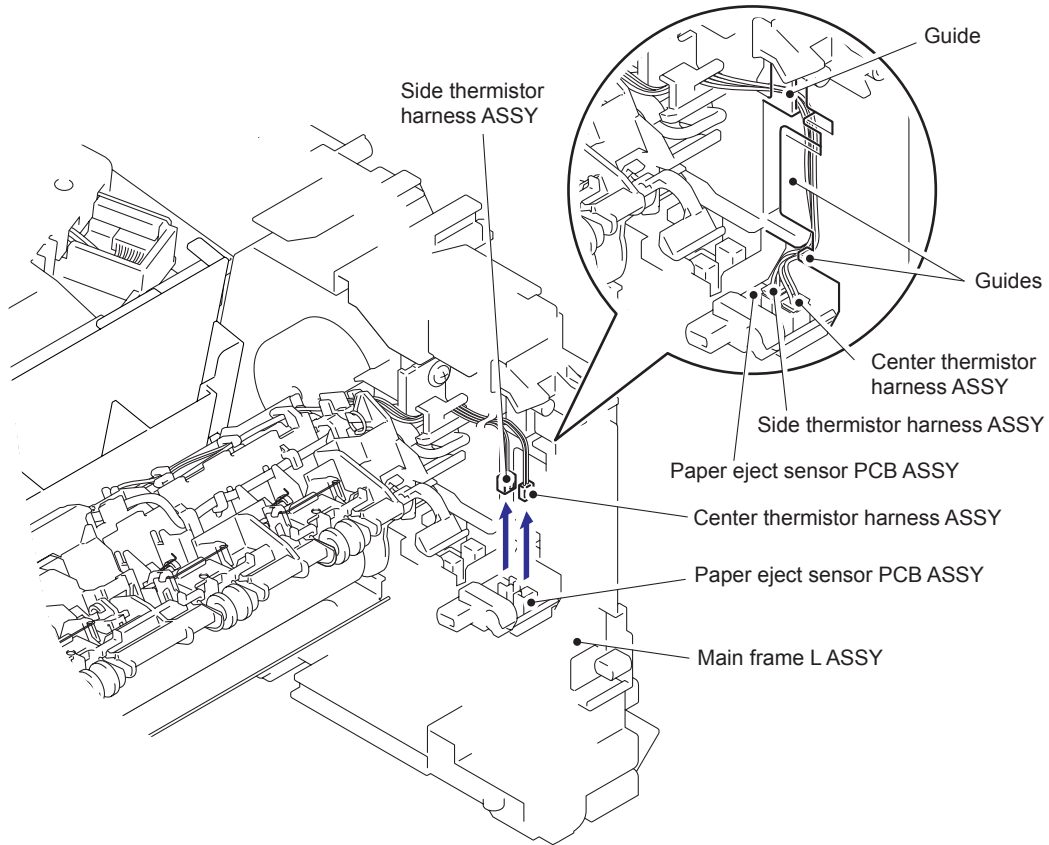


Fig. 3-69

- (4) Disconnect the connectors of the center thermistor harness ASSY and the side thermistor harness ASSY from the paper eject sensor PCB ASSY.
- (5) Release the harnesses of the center thermistor harness ASSY and the side thermistor harness ASSY from the guides of the main frame L ASSY.

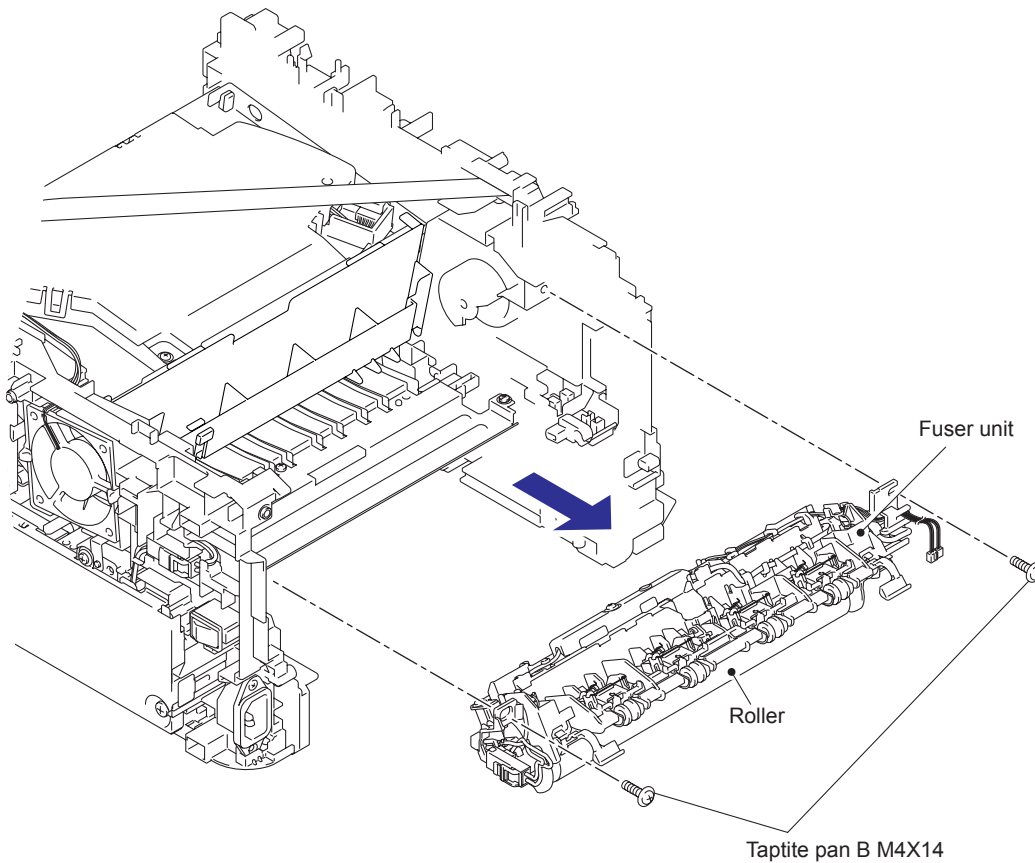


**Fig. 3-70**

(6) Remove the two tapite pan B M4x14 screws to remove the fuser unit.

**Note:**

- Do not apply a physical impact or vibration to the fuser unit.
- Do not touch the roller and electrodes as shown in the figure below to prevent breakage of the fuser unit.



**Fig. 3-71**

## 9.21 Low voltage power supply PCB ASSY

- (1) Remove the FG spring front chute from the LV shield plate cover and the front chute ASSY.
- (2) Release the hook part of the FG wire under R from the LV shield plate cover.
- (3) Remove the three taptite bind B M4x12 screws, the screw pan (S/P washer) M3.5x6 screw and the screw pan (S/P washer) M3x12DB screw to remove the LV shield plate cover.

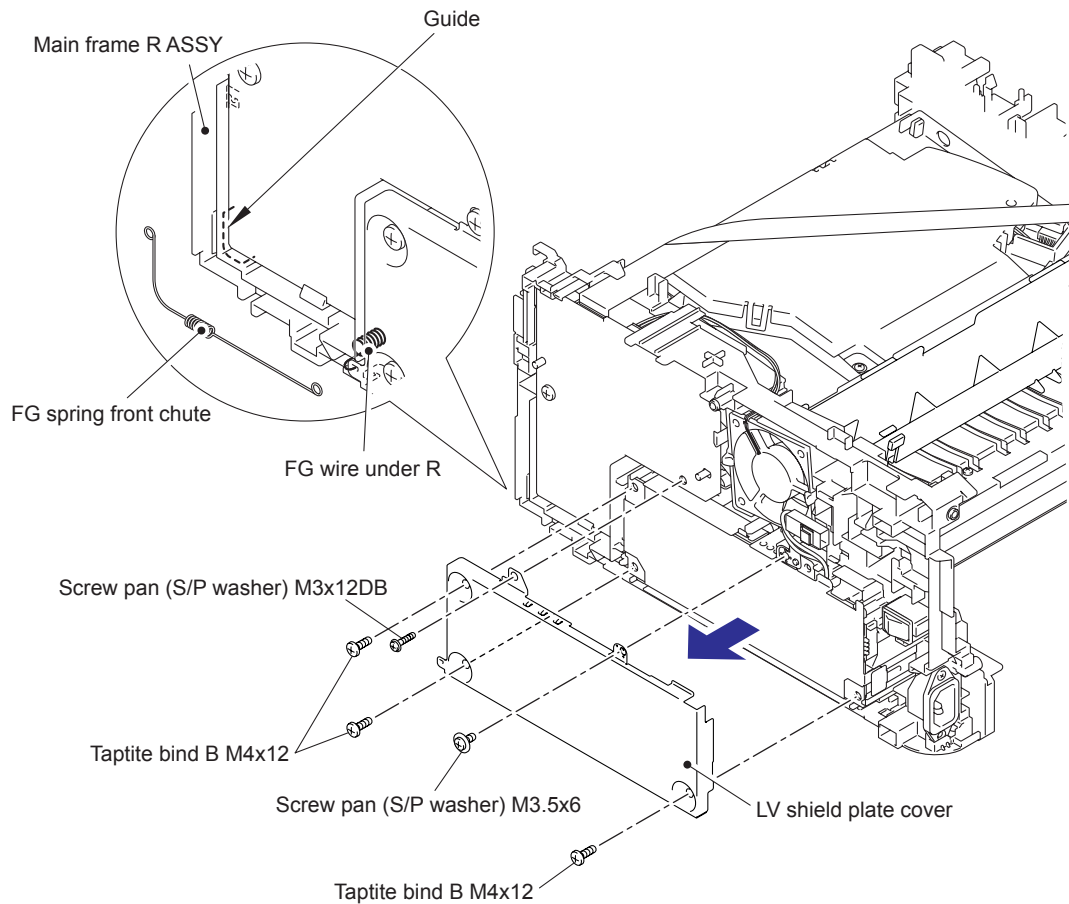
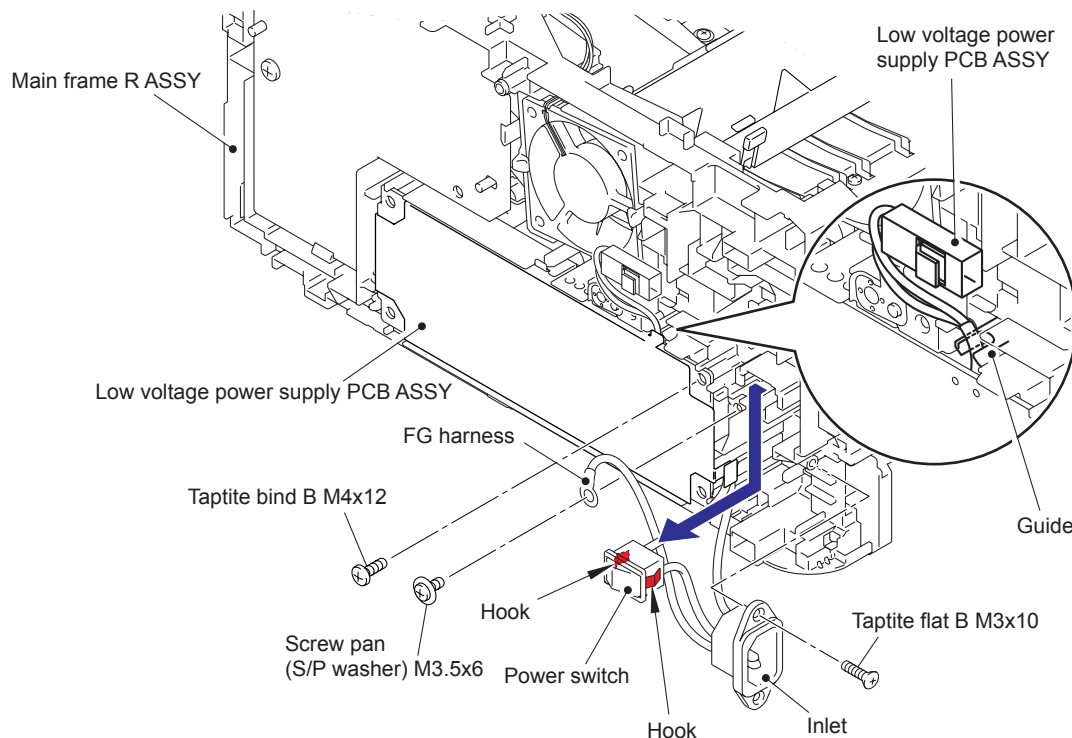


Fig. 3-72

### Assembling Note:

- Hang the FG spring front chute on the guide of the main frame R ASSY.

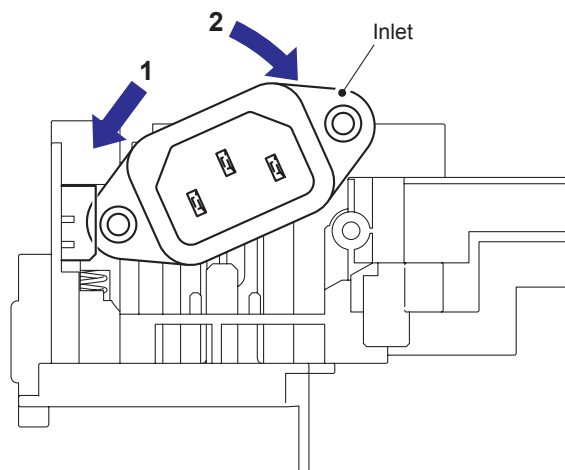
- (4) Remove the screw pan (S/P washer) M3.5x6 screw to remove the FG harness from the low voltage power supply PCB ASSY.
- (5) Remove the taptite flat B M3x10 screw to remove the Inlet of the low voltage power supply PCB ASSY.
- (6) Release the hooks to remove the power switch of the low voltage power supply PCB ASSY.
- (7) Remove the taptite bind B M4x12 screw.
- (8) Release the harness of the low voltage power supply PCB ASSY from the guide of the main frame R ASSY.



**Fig. 3-73**

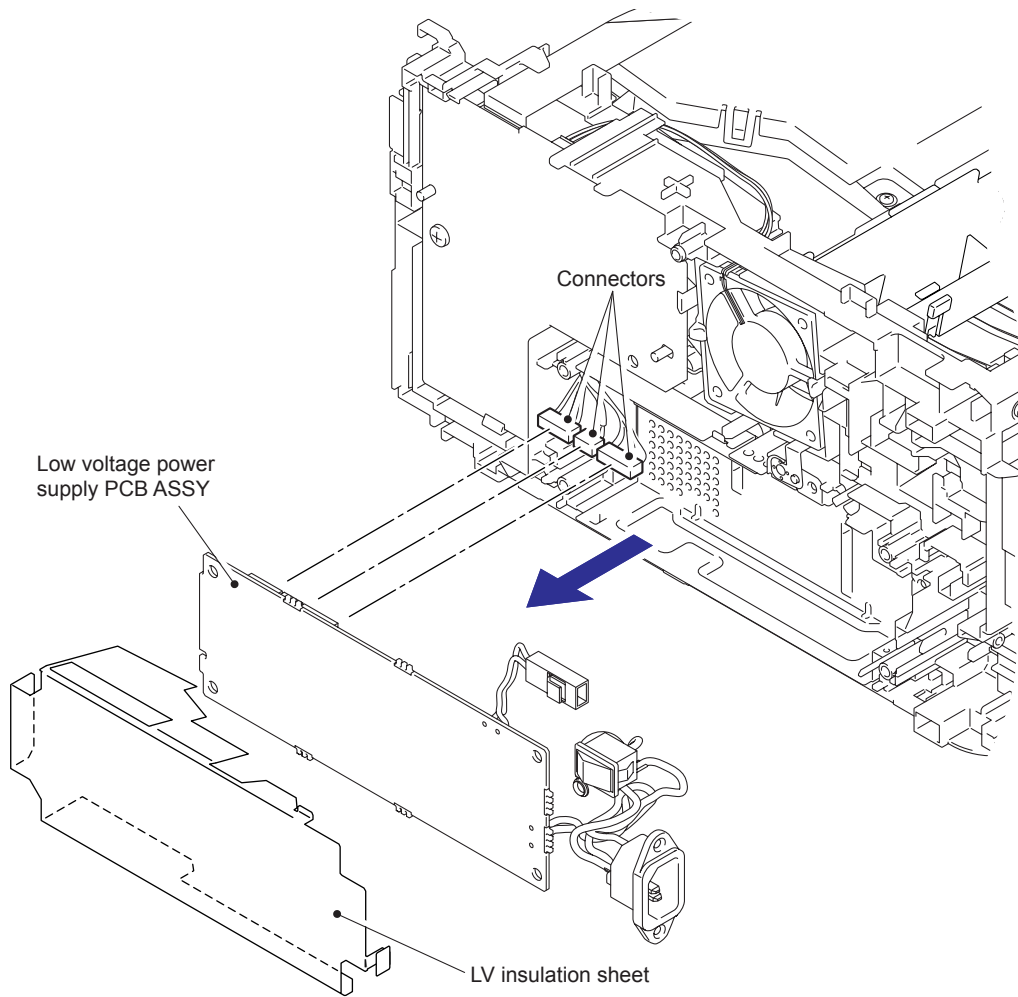
**Assembling Note:**

- When assembling the inlet, attach as shown in the figure below.



**Fig. 3-74**

- (9) Remove the low voltage power supply PCB ASSY, and disconnect the three connectors from the rear side.
- (10) Remove the LV insulation sheet.



**Fig. 3-75**

## 9.22 Fuser Fan

- (1) Disconnect the connector of the fuser fan from the high voltage power supply PCB ASSY.
- (2) Remove the harness of the fuser fan from the guides of the main frame R ASSY.
- (3) Release the hooks to remove the fuser fan.

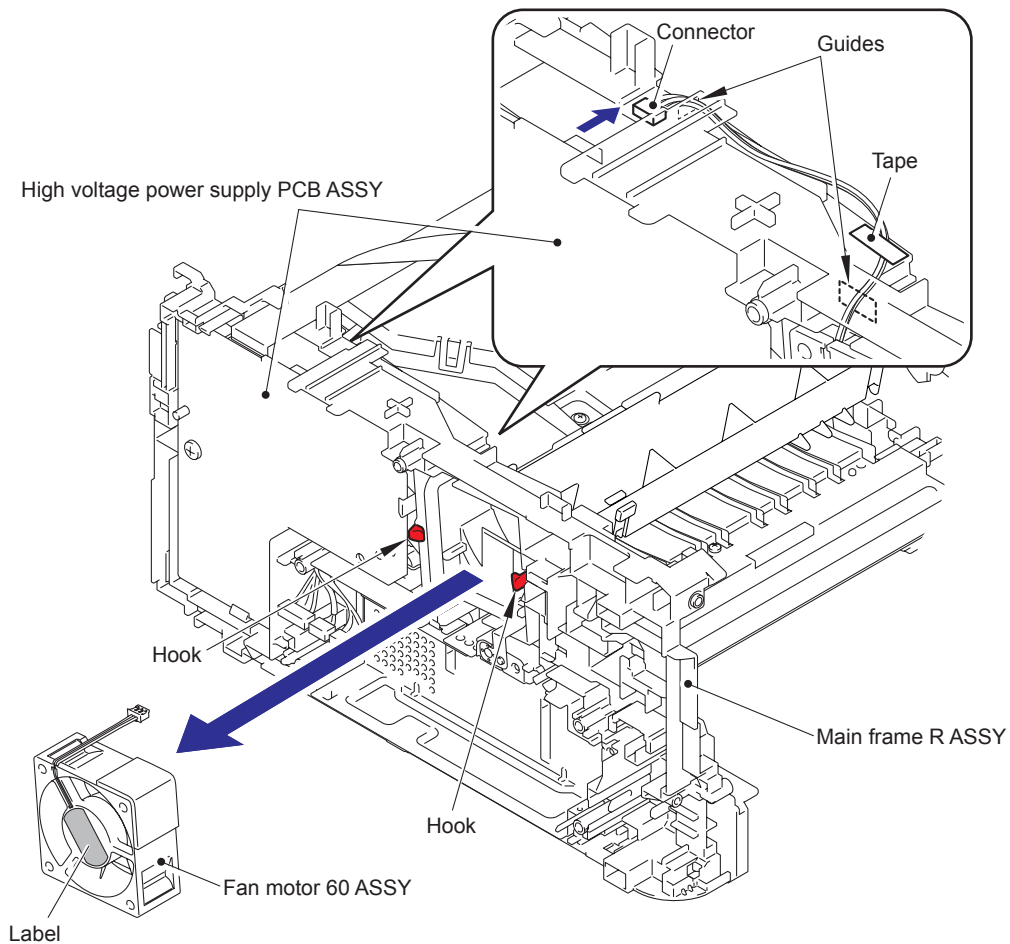


Fig. 3-76

### Assembling Note:

- When assembling the fan motor 60 ASSY, attach the fuser fan after inserting the harness into the guides of the main frame R ASSY.
- When assembling the fuser fan, place it so that the attached label faces outwards.
- When assembling the fuser fan, secure the harness to the position of figure above with the tape.

## 9.23 High Voltage Power Supply PCB ASSY

- (1) Remove the flat cable from the guides of the main frame R ASSY, and disconnect the connector from the high voltage power supply PCB ASSY.
- (2) Remove the taptite bind B M4x12 screw.
- (3) Release the hooks to remove the high voltage power supply PCB ASSY.

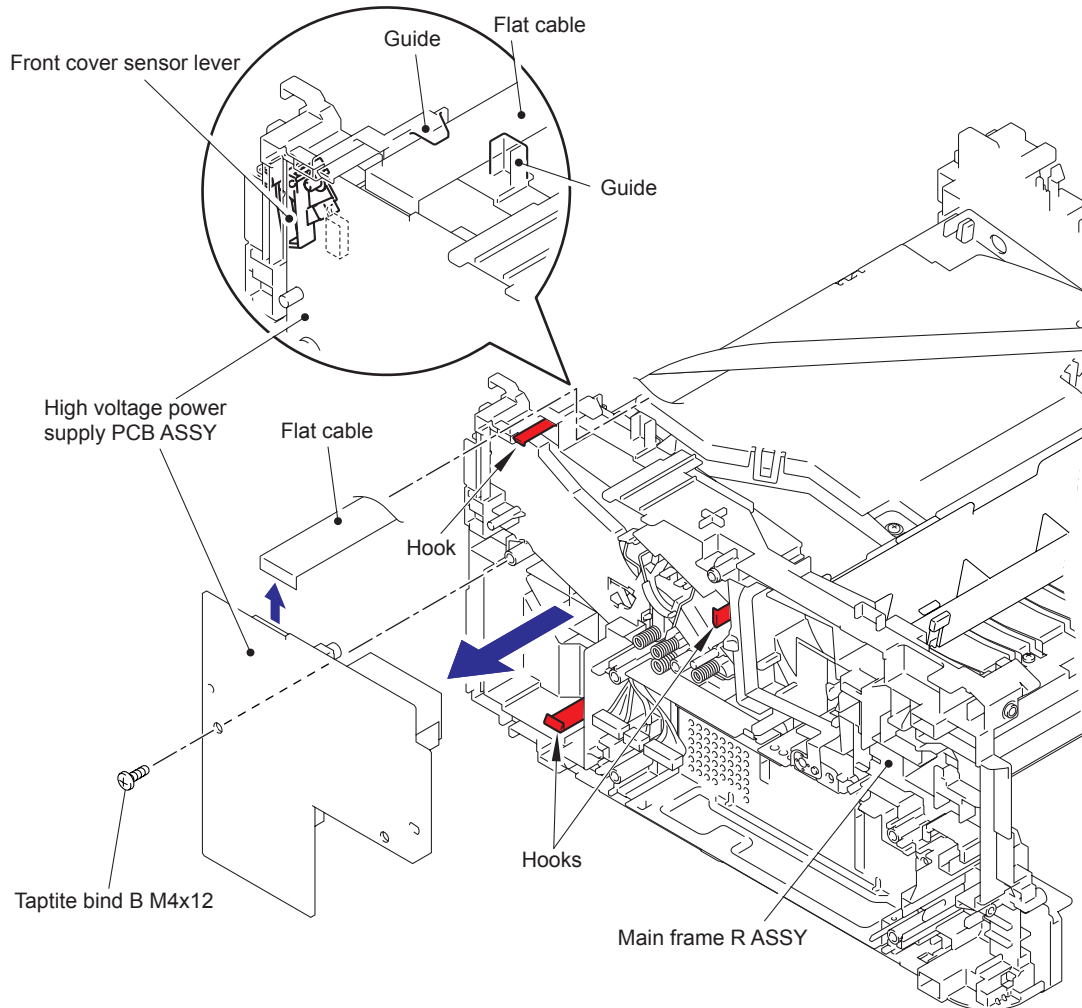


Fig. 3-77

### Assembling Note:

- Assemble the front cover sensor lever after assembling the high voltage power supply PCB ASSY.

## 9.24 New Toner Sensor PCB ASSY

- (1) Rotate the machine 180° to the side of main frame L ASSY.
- (2) Disconnect the flat cable of the new toner sensor PCB ASSY from the main PCB ASSY, and remove the flat cable of the new toner sensor PCB ASSY from the guide of the main frame L ASSY.
- (3) Remove the tapite bind B M3x10 screw.
- (4) Release the hooks to remove the new toner sensor PCB ASSY.
- (5) Disconnect the connector from the bottom side of the new toner sensor PCB ASSY.

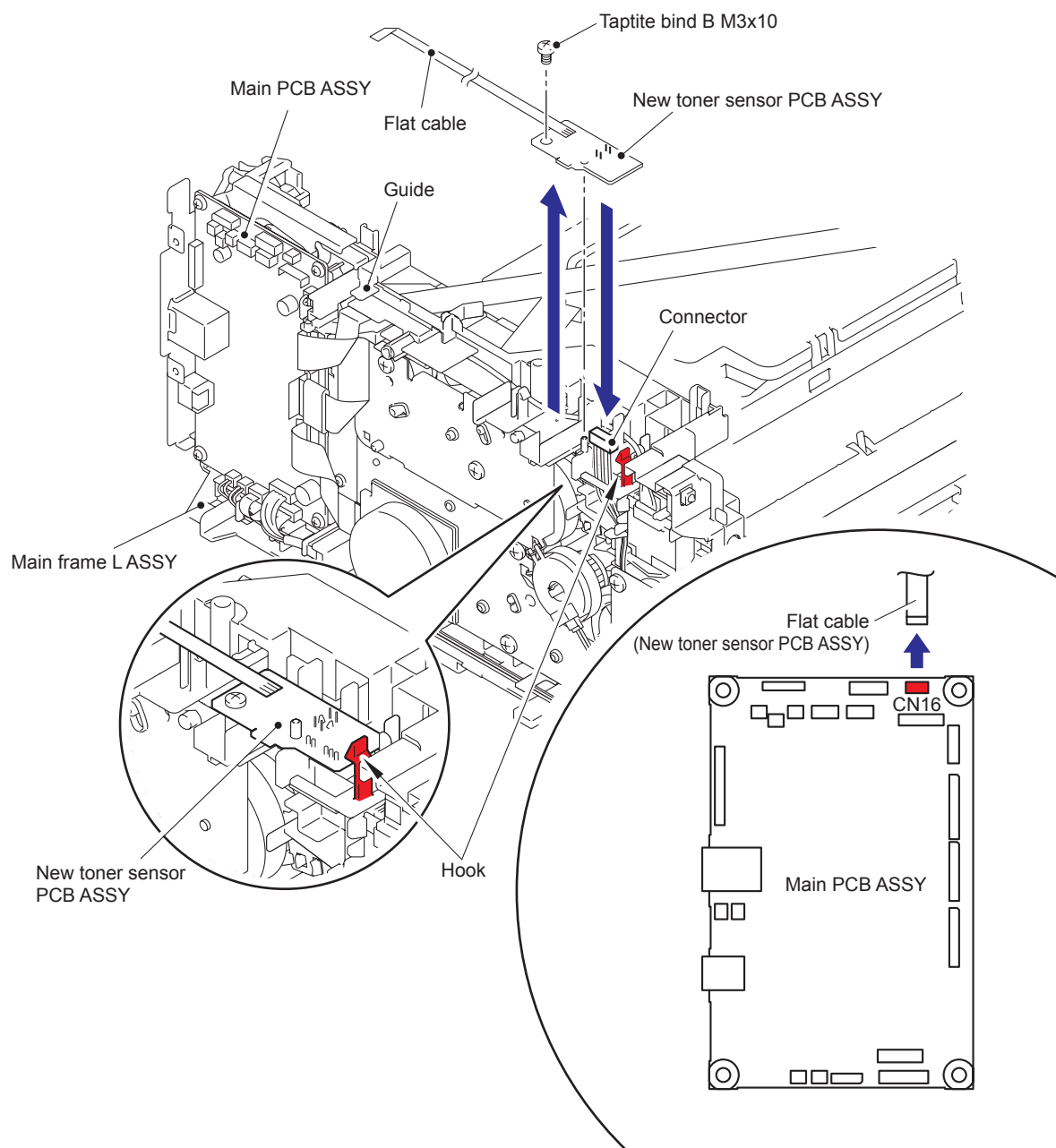


Fig. 3-78

Harness routing: Refer to "4. New toner sensor PCB ASSY".

## 9.25 Filter

- (1) Release the hooks to remove the air duct.
- (2) Pull the rib of the air duct to the direction of the arrow 2a, and remove the filter.

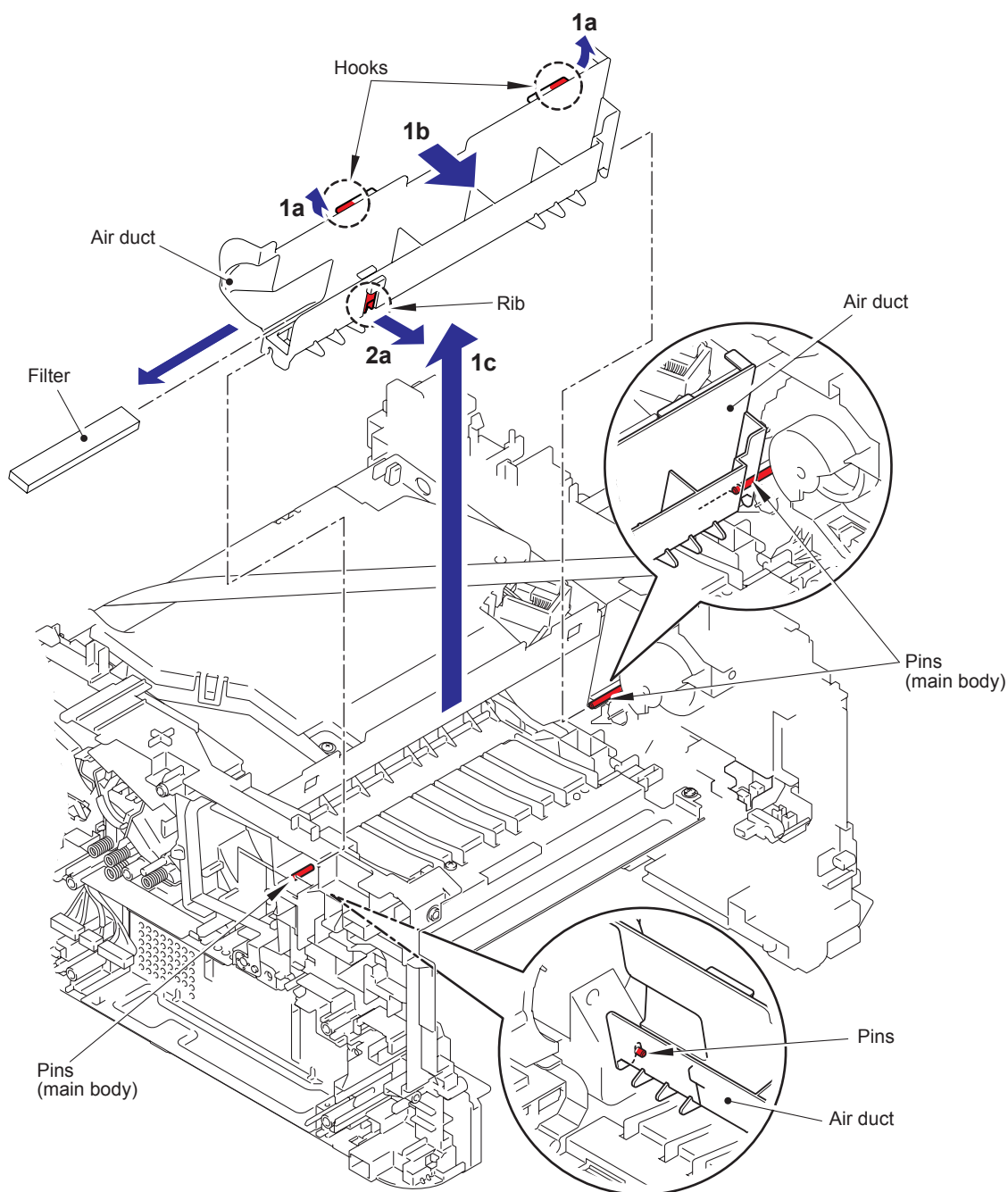


Fig. 3-79

### Assembling Note:

- When assembling the air duct, align the notch part of the air duct with the pins of the main body.

## 9.26 Laser Unit

- (1) Disconnect the flat cable of the high voltage power supply PCB ASSY from the main PCB ASSY, and remove the flat cable of the high voltage power supply PCB ASSY from the guide of the main frame L ASSY.
- (2) Disconnect the flat cable of the laser unit from the laser unit.
- (3) Remove the flat cable of the laser unit from the guide of the main frame L ASSY, and disconnect the flat cable of the laser unit from the main PCB ASSY.
- (4) Remove the four taptite cup S M3x8 SR screws, and remove the laser unit.

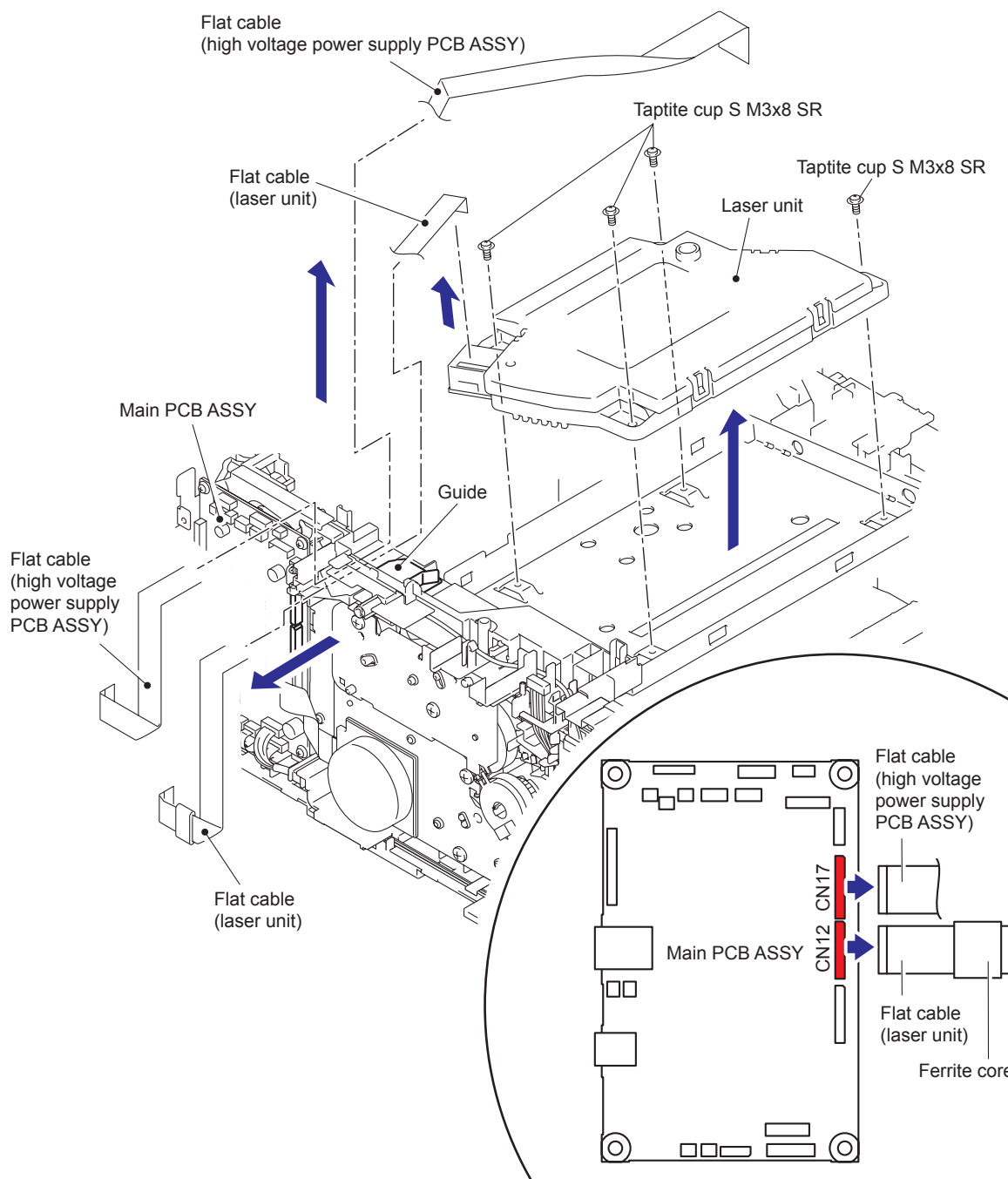
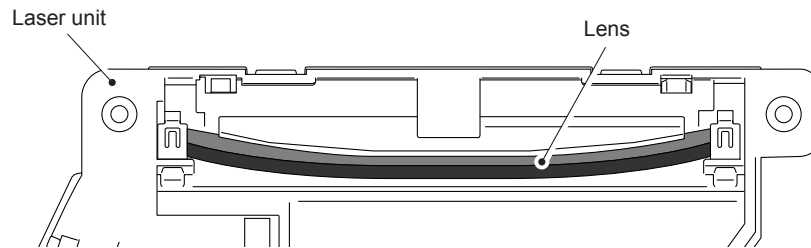


Fig. 3-80

**Note:**

- Do not touch the lens of the laser unit directly.

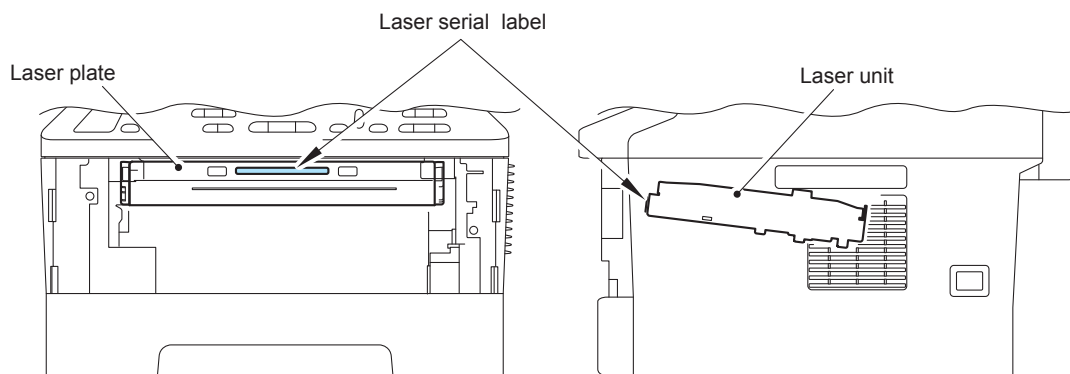
**Fig. 3-81****Assembling Note:**

- There are three types of Laser unit that can be ordered as a spare part.  
(SG type Laser unit is compatible with SJ type Laser unit.  
SH type Laser unit is compatible with SK type Laser unit.)

**<How to identify the type of Laser unit and the position of label>**

Check the first two characters of the Laser serial label.

- SF type : SFxxxxxxVXXYY
- SH type : SHxxxxxxVXXYY
- SG type : SGxxxxxxVXXYY
- SJ type : SJxxxxxxVXXYY
- SK type : SKxxxxxxVXXYY

**Fig. 3-82****Assembling Note:**

- Attach the Laser serial label as shown in the figure (on laser plate) above after replacing the laser unit.

## 9.27 Wireless LAN PCB ASSY (Wireless LAN model only)

- (1) Remove the harness of the wireless LAN PCB ASSY from the guides of the main frame L ASSY.
- (2) Disconnect the connector of the wireless LAN PCB ASSY from the main PCB ASSY.
- (3) Release the hooks to remove the wireless LAN PCB ASSY.

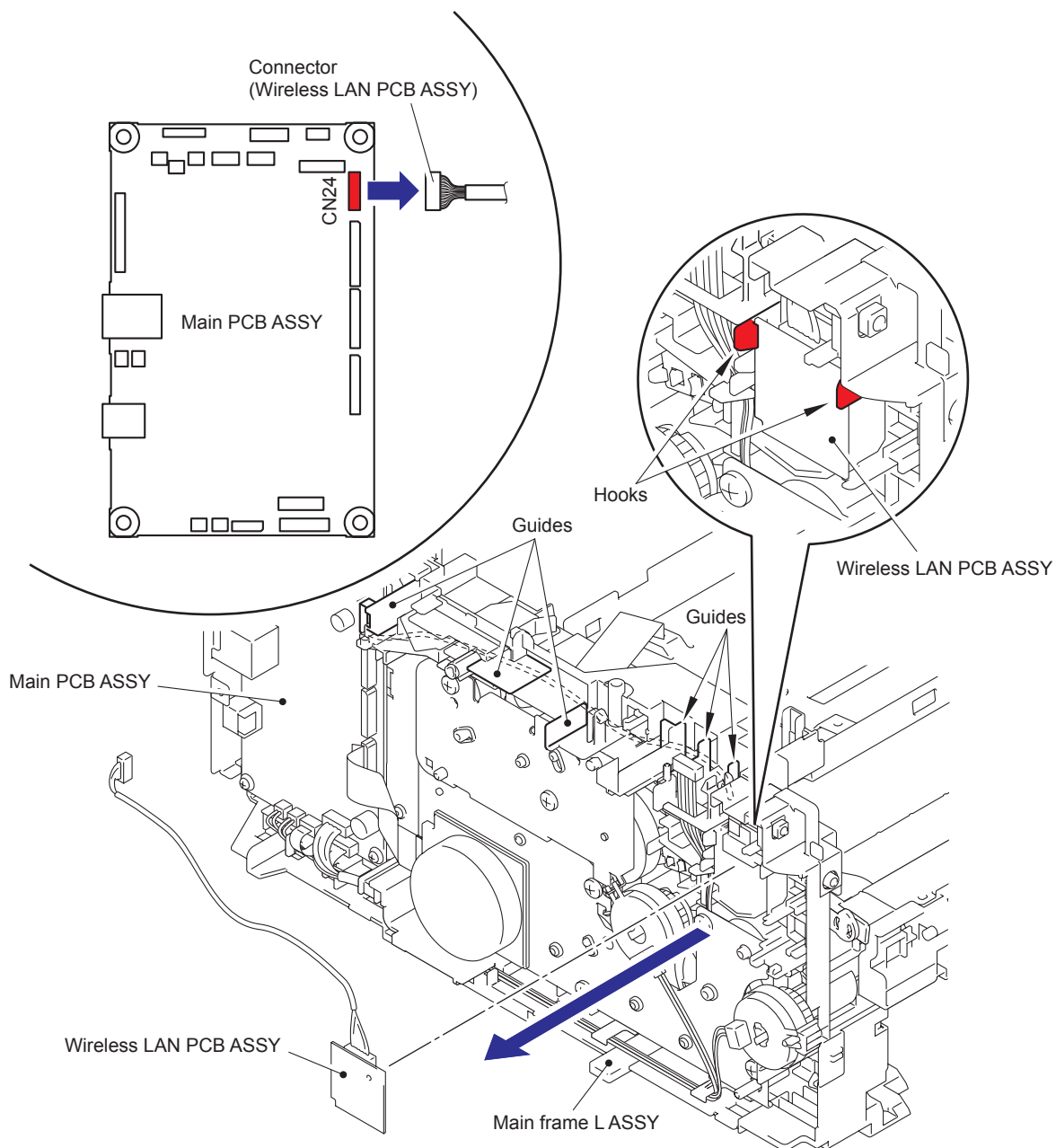


Fig. 3-83

## 9.28 Pick-up Roller Holder ASSY

- (1) Turn the machine upside down.
- (2) Push the link arm to the direction of the arrow 2, and turn the pick-up roller holder ASSY to release the boss.
- (3) Slide the pick-up roller holder ASSY to the direction of the arrow 3 to release it from the shaft, and remove the pick-up roller holder ASSY from the main body.

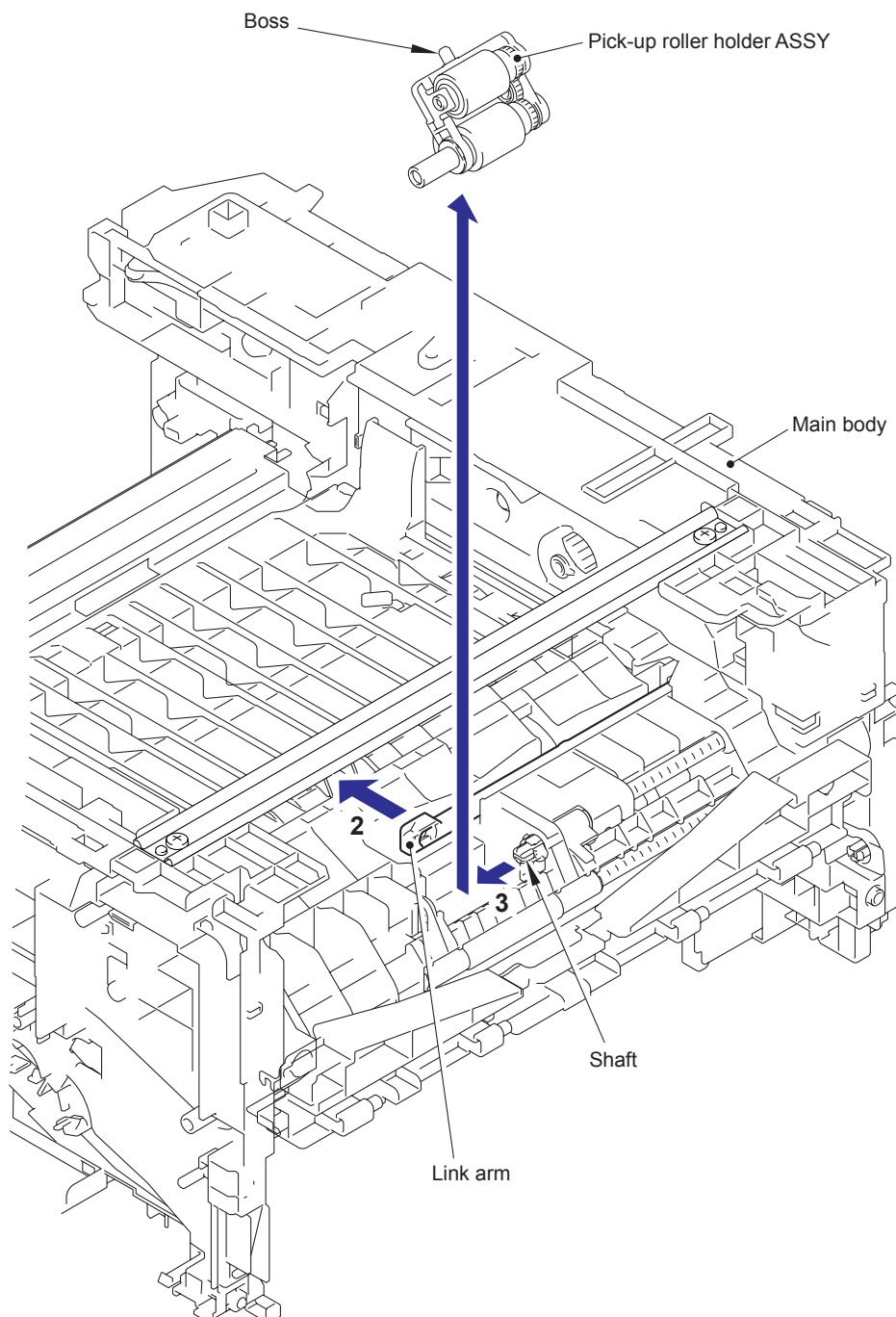
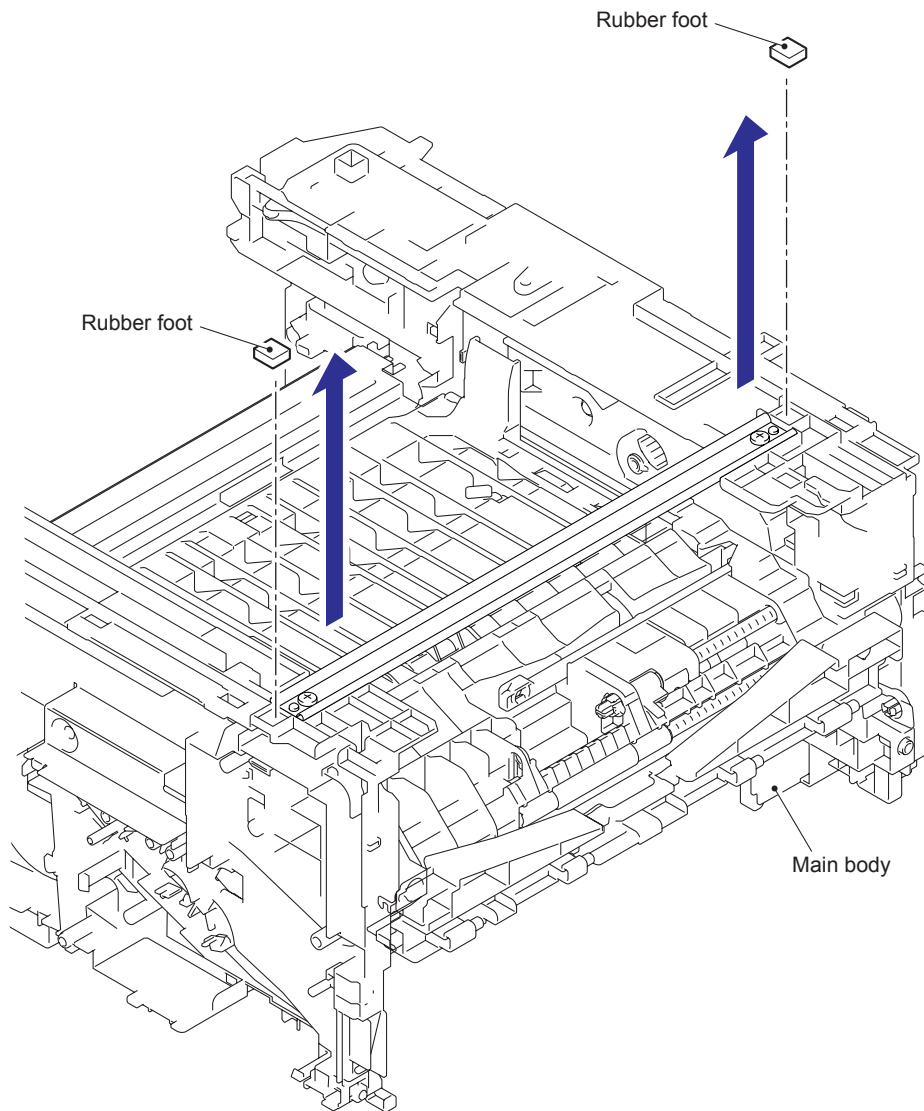


Fig. 3-84

## 9.29 Rubber Foot

- (1) Remove the two rubber feet from the main body.



**Fig. 3-85**

### 9.30 Main PCB ASSY

- (1) Turn the machine upside down.
- (2) Disconnect the two flat cables and the five connectors from the main PCB ASSY.
- (3) Remove the three taptite cup S M3x6 SR screws.
- (4) Release the hook to remove the main PCB ASSY and the main PCB sheet.

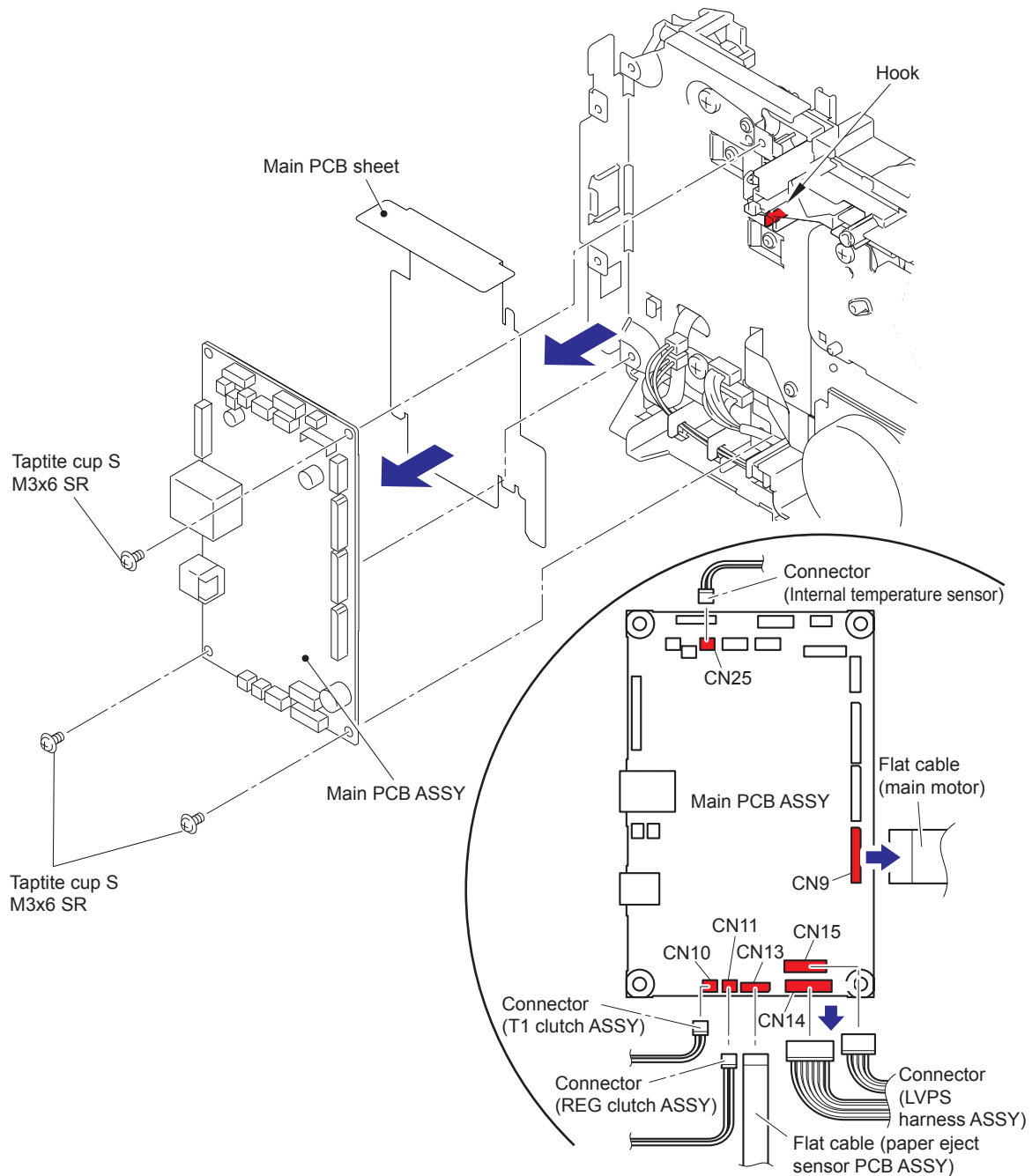


Fig. 3-86

Harness routing: Refer to "2. Registration front/rear sensor PCB ASSY", "5. T1 clutch ASSY, REG clutch ASSY", "6. Paper eject sensor PCB ASSY", "7. Main motor", "11. Low voltage power supply PCB ASSY".

### 9.31 T1 Clutch ASSY, REG Clutch ASSY

- (1) Remove the harness of the T1 clutch ASSY and the REG clutch ASSY from the guides of the main frame L ASSY.
- (2) Release the hook to remove the T1 clutch ASSY.
- (3) Release the hook to remove the REG clutch ASSY.

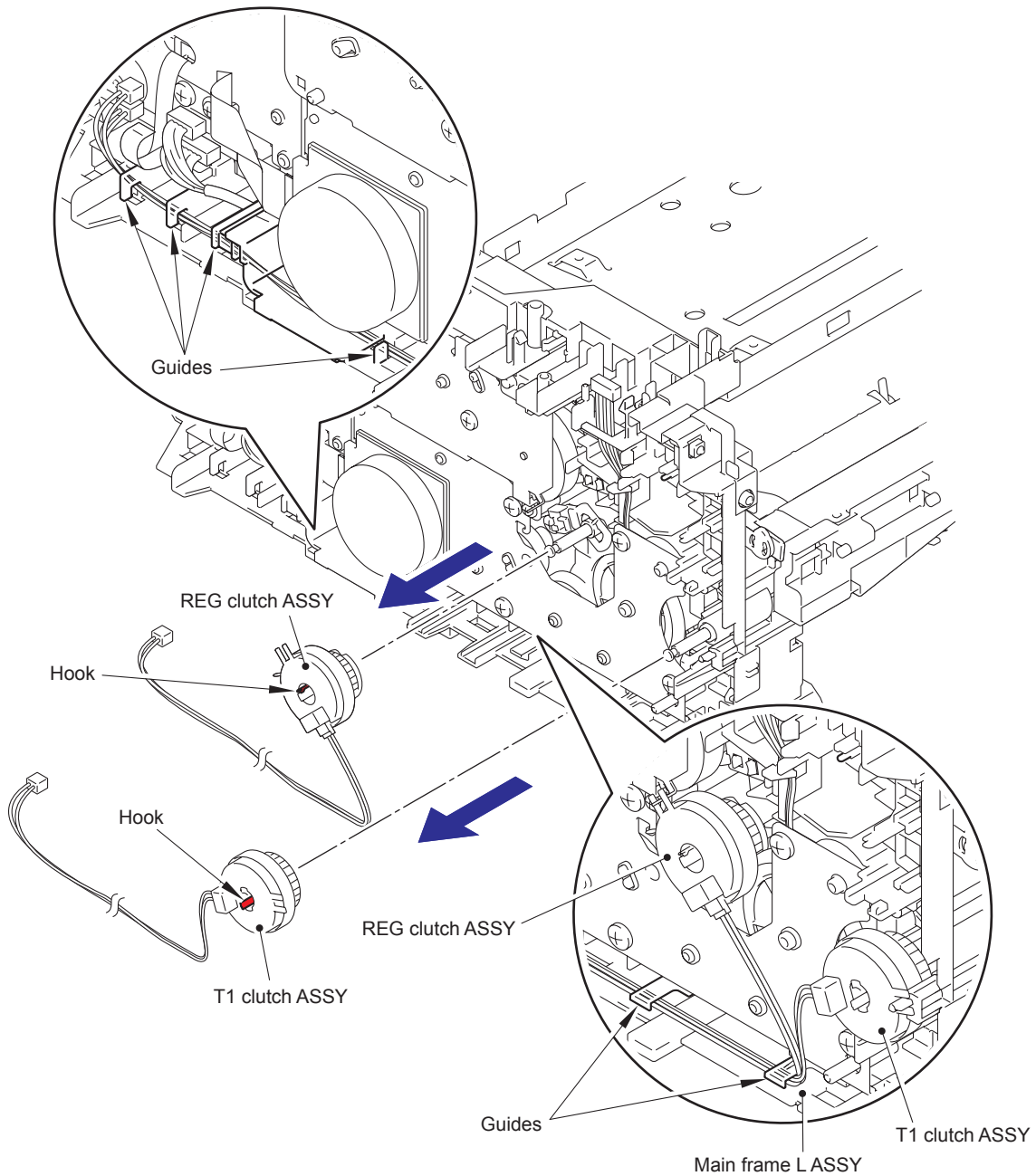
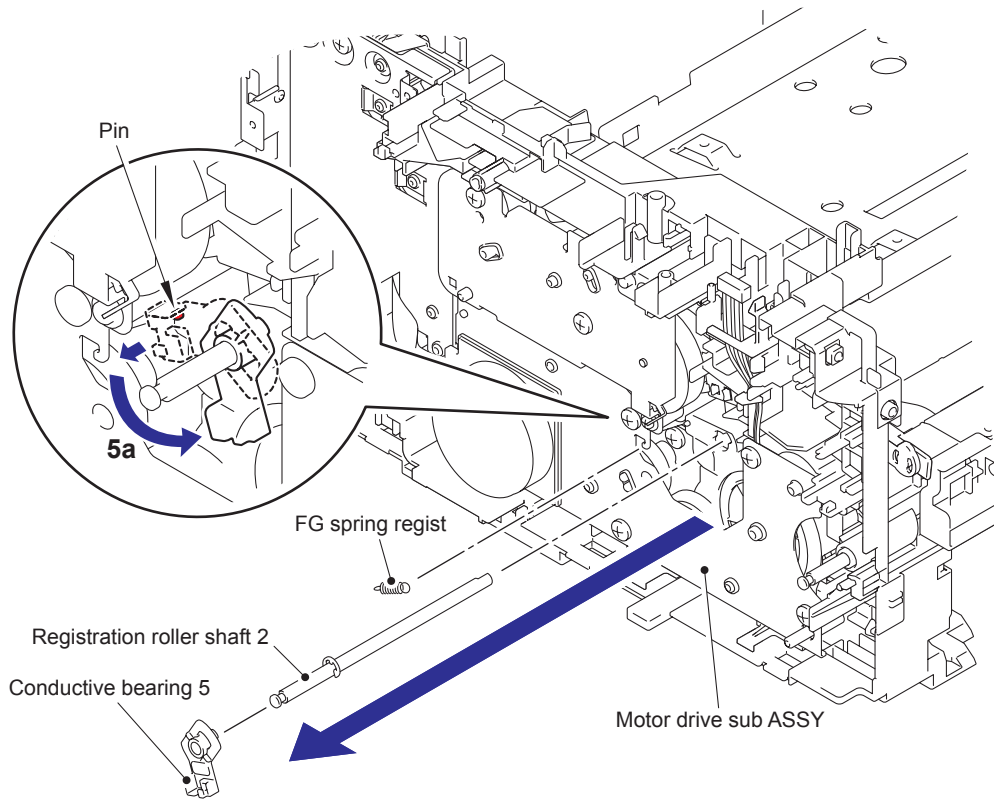


Fig. 3-87

#### Assembling Note:

- When wiring the harnesses of the T1 clutch ASSY and the REG clutch ASSY to the guides of the main frame L ASSY, check that there is no slack in the harnesses.

- (4) Remove the FG spring regist from the motor drive sub ASSY and the conductive bearing 5.
- (5) Remove the conductive bearing 5 from the pin of the main frame L ASSY, and turn it to the direction of the arrow 5a until the releasing position, and pull out the conductive bearing 5 from the registration roller shaft 2.
- (6) Pull out the registration roller shaft 2.



**Fig. 3-88**

### 9.32 Main Frame L ASSY

- (1) Remove the two tapite bind B M4x12 screws to remove the front chute ASSY.
- (2) Remove the paper edge sensor harness ASSY from the guides of the main frame L ASSY.

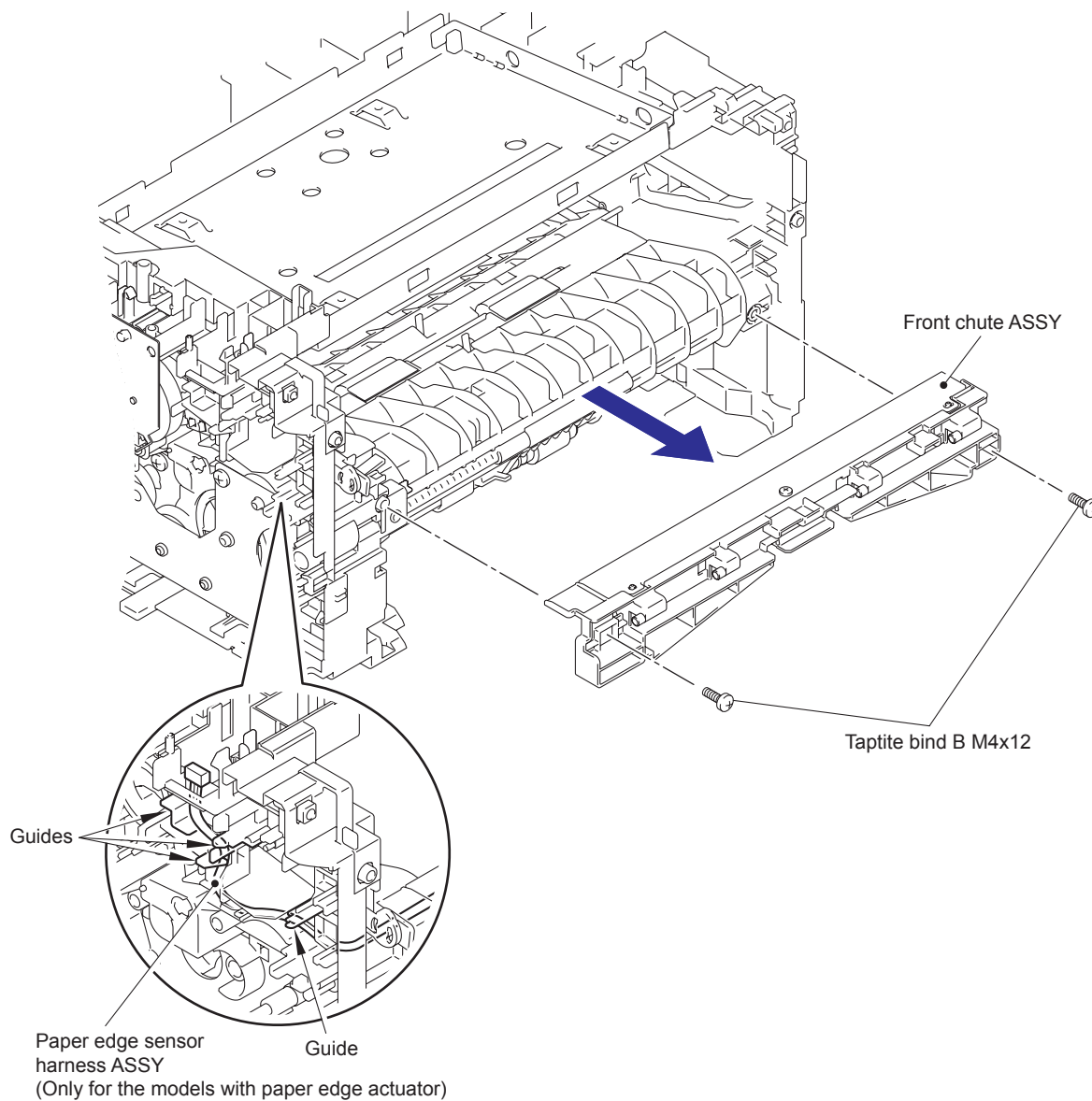


Fig. 3-89

- (3) Place the machine so that the main frame L ASSY is at the top.
- (4) Remove the LVPS harness ASSY from the guide of the main frame L ASSY.
- (5) Remove the taptite bind B M4x12 screw 5a (for Under bar).
- (6) Remove the taptite cup S M3x6 SR screw 6a (for Chute ground plate), the taptite bind B M4x12 screw 6b (for PF frame ASSY) and the taptite cup S M3x6 SR screw 6c (for FG plate laser L).
- (7) Release the hook to remove the feeder gear 17.
- (8) Turn the feeder cam lever to the direction of the arrow, and remove the taptite bind B M4x12 screw 8.
- (9) Remove the taptite bind B M4x12 screw 9a and the two taptite cup S M3x6 SR screws 9b to remove the main frame L ASSY.

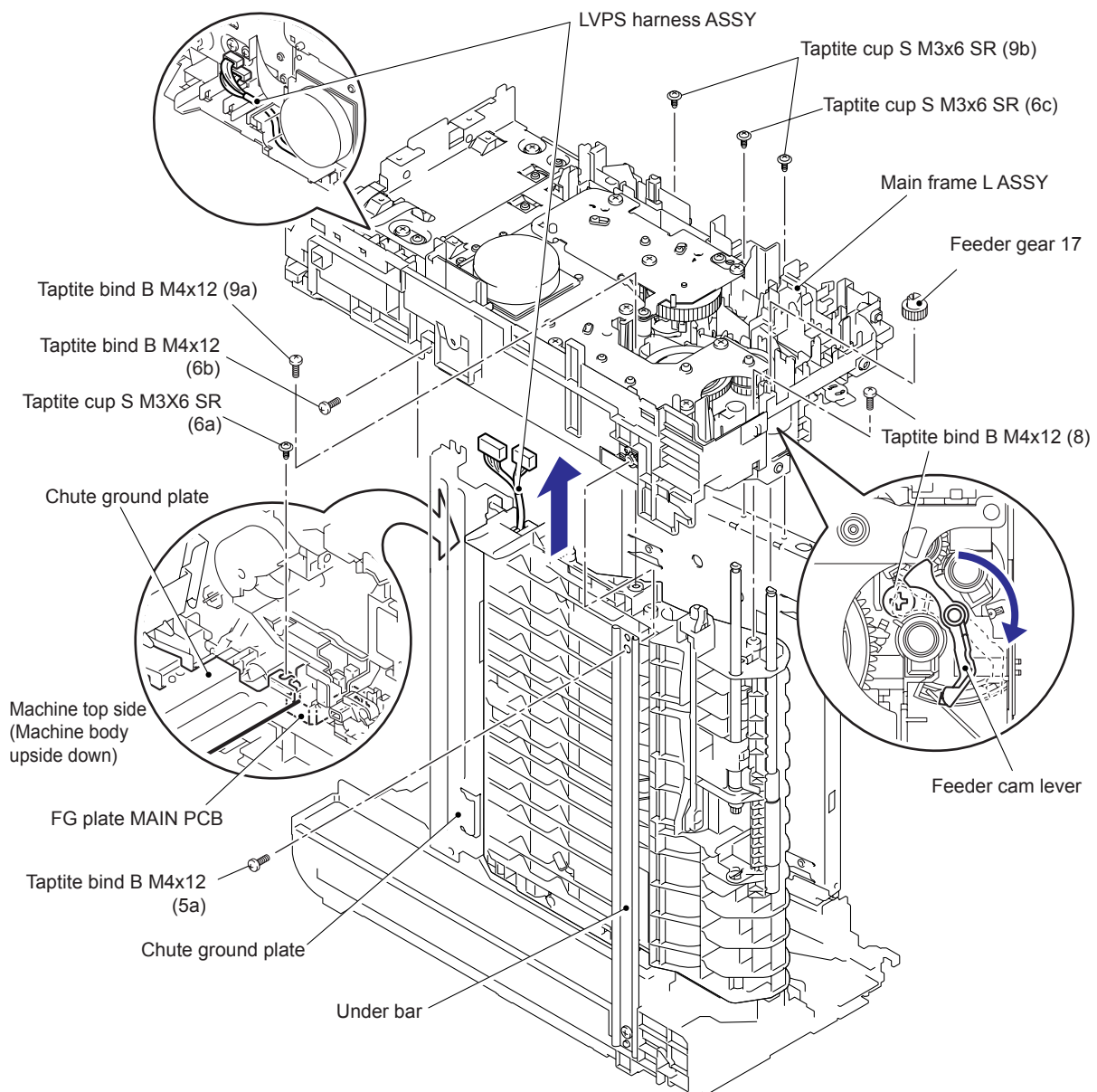


Fig. 3-90

**Assembling Note:**

- When assembling the main frame L ASSY, check that there is the chute ground plate on the upper side of the FG plate main PCB.

### 9.33 Develop Drive Sub ASSY, Develop Gear Joint/52

- (1) Remove the taptite cup S M3X6 SR screw and three taptite bind B M4x12 screws to remove the develop drive sub ASSY.

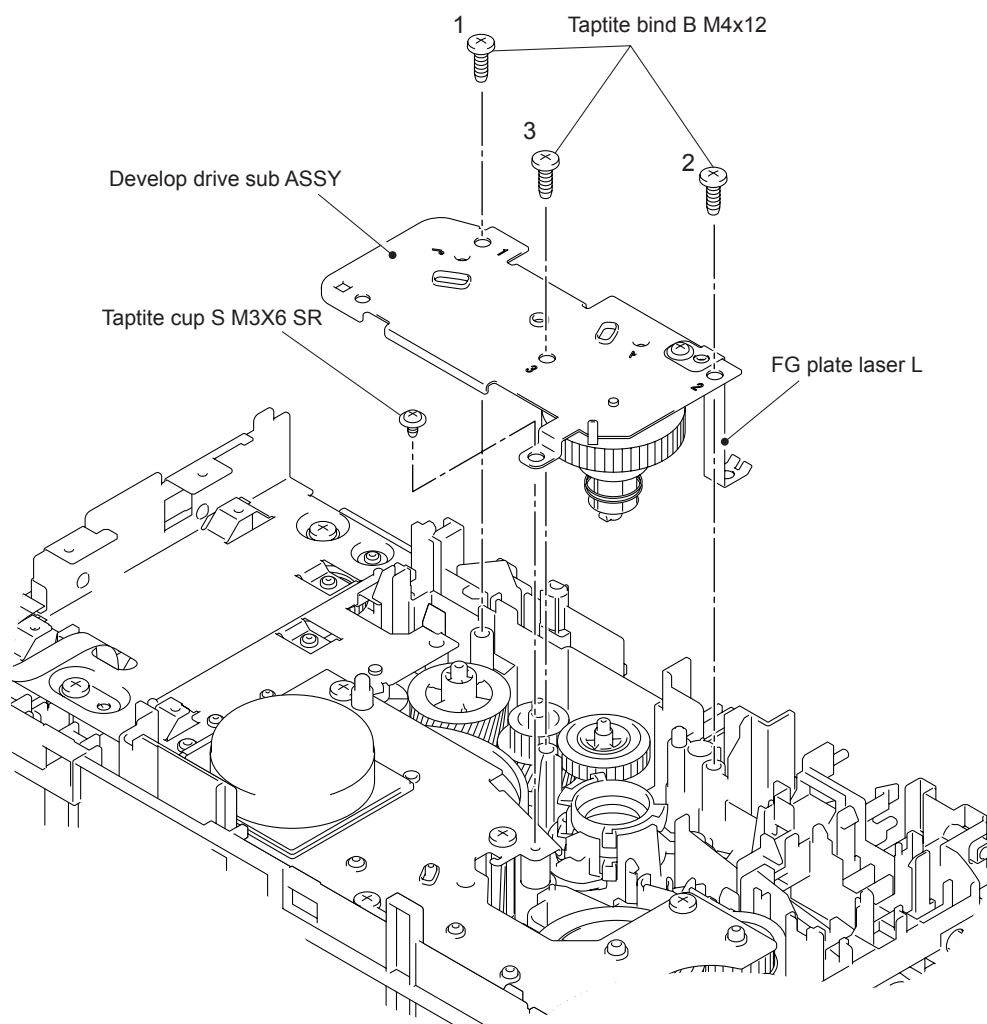
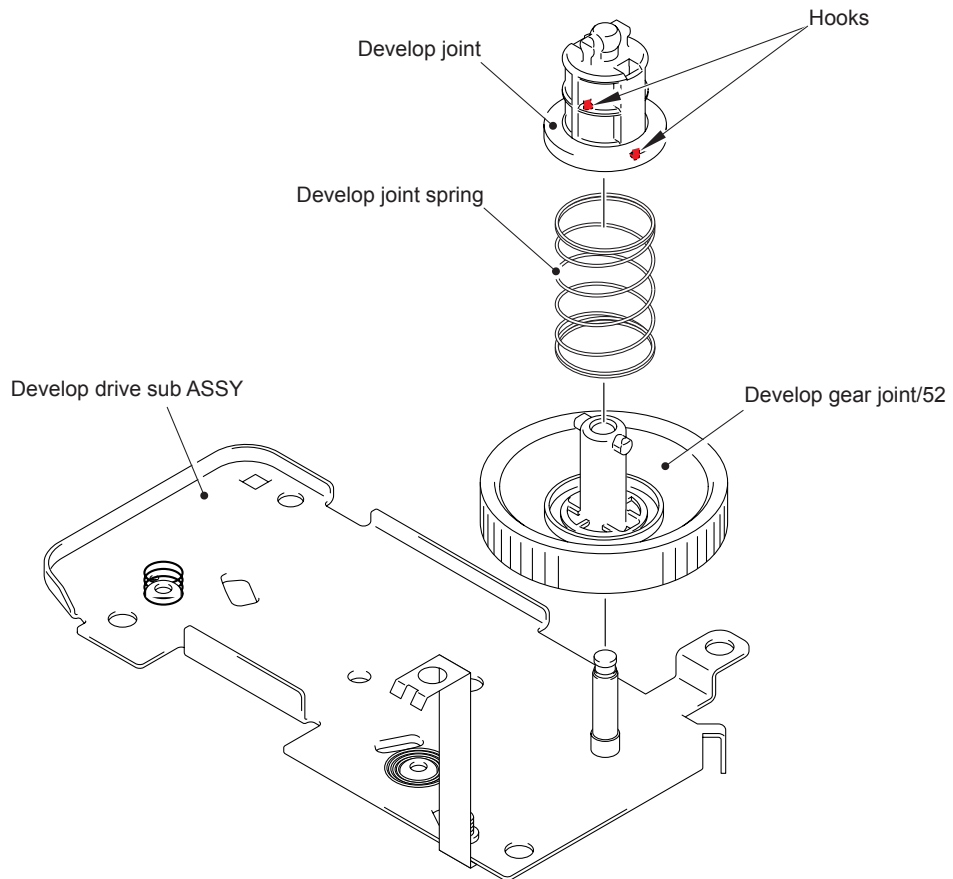


Fig. 3-91

**Assembling Note:**

- When assembling the develop drive sub ASSY, tighten the three taptite bind B M4x12 screws in numerical order written in the plate.
- Be careful not to bent the FG plate laser L.

- (2) Place the develop drive sub ASSY as shown in the figure below.
- (3) Be careful not to damage the Hooks of the develop joint and release the hooks to remove the develop joint, and then remove the develop joint spring and the develop gear joint/52.



**Fig. 3-92**

### 9.34 Motor Drive Sub ASSY, Main Motor

- (1) Remove the six taptite bind B M4x12 screws to remove the stopper and motor drive sub ASSY.

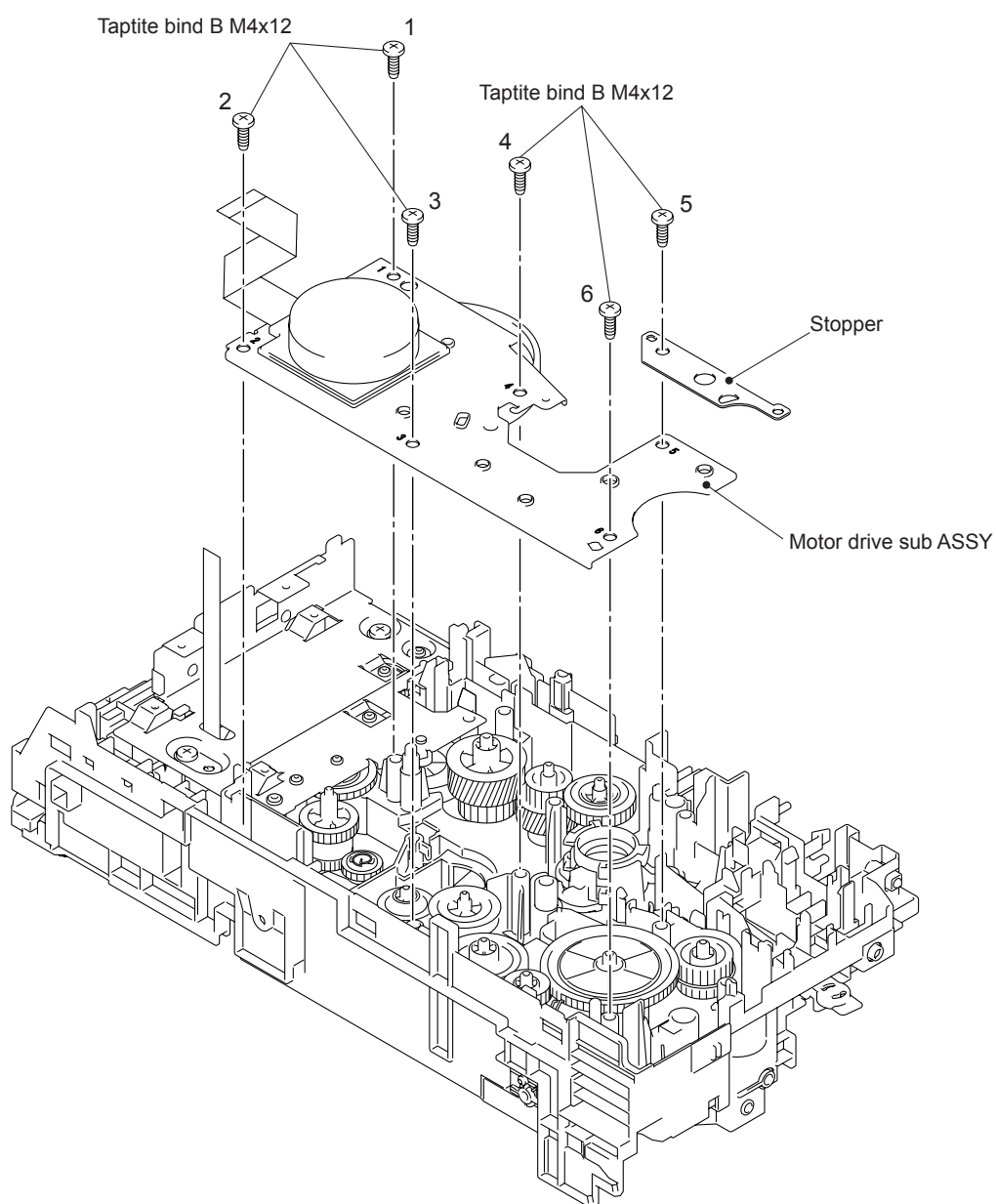
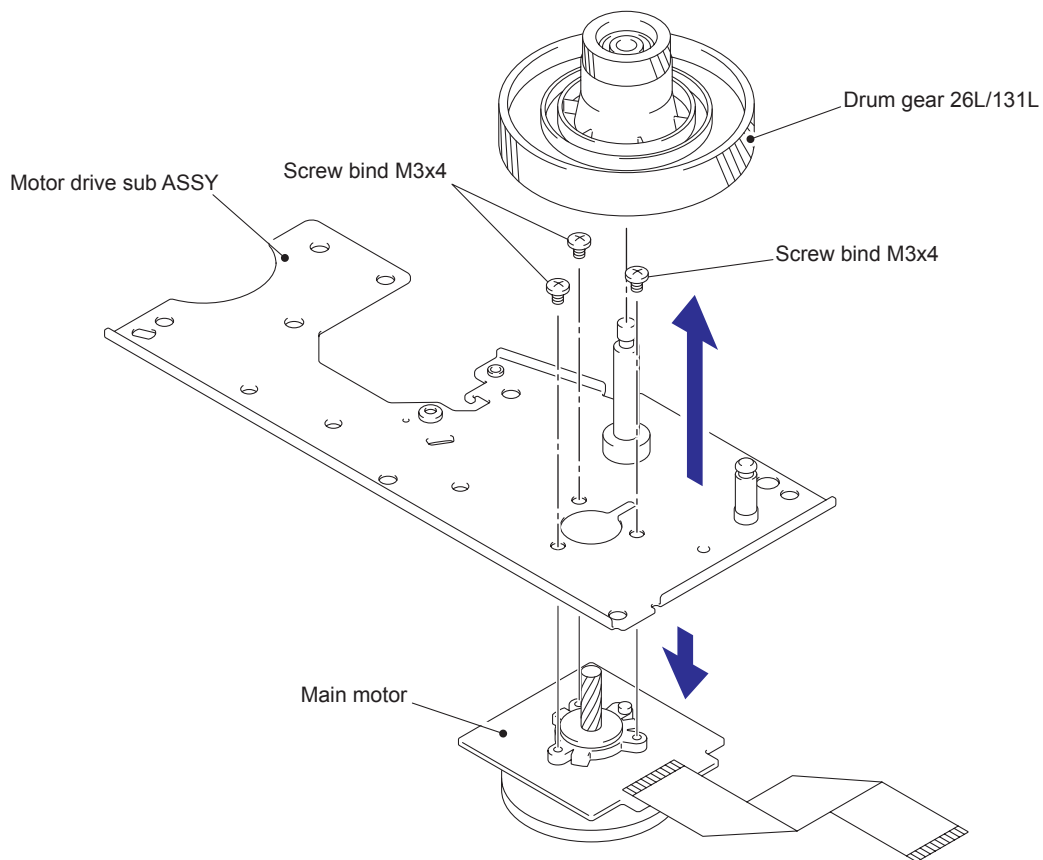


Fig. 3-93

#### Assembling Note:

- When assembling the motor drive sub ASSY, tighten the six taptite bind B M4x12 screws in numerical order written in the plate.

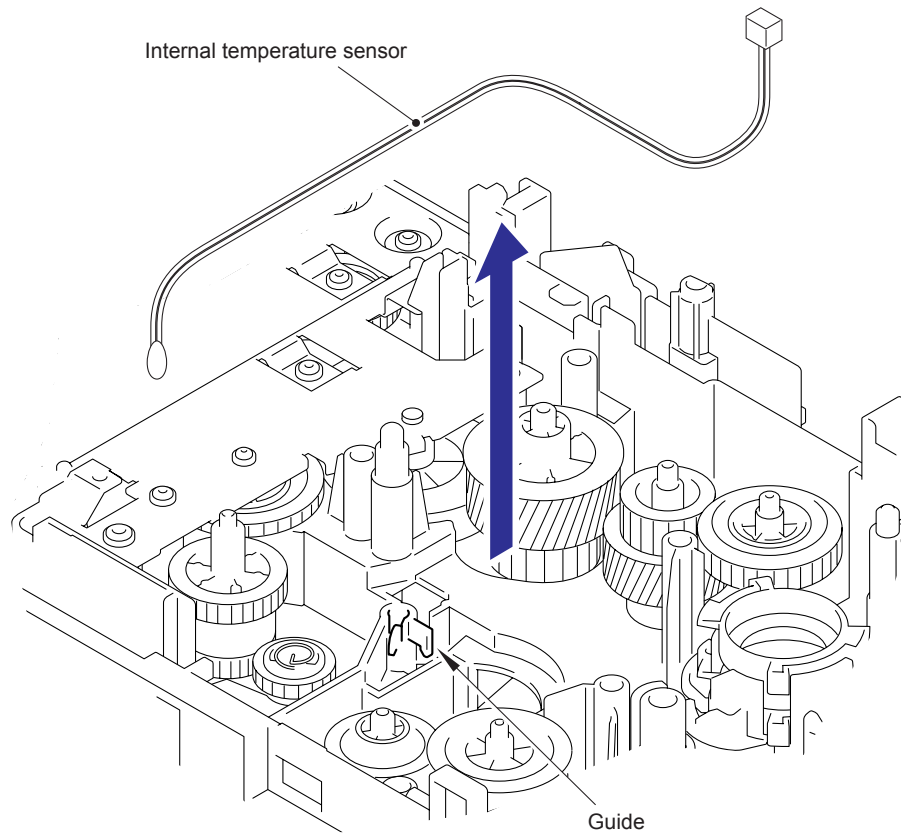
- (2) Place the motor drive sub ASSY as shown in the figure below.
- (3) Remove the drum gear 26L/131L.
- (4) Remove the three screw bind M3x4 screws to remove the main motor.



**Fig. 3-94**

### 9.35 Internal Temperature Sensor

- (1) Remove the harness of the internal temperature sensor from the guide of the frame L ASSY, and remove the internal temperature sensor.



**Fig. 3-95**

Harness routing: Refer to "3. Internal temperature sensor".

### 9.36 Paper Eject Sensor PCB ASSY

- (1) Remove the taptite cup S M3x6 SR screw and the two taptite bind B M4x12 screws.
- (2) Release the hooks to remove the main PCB shield.

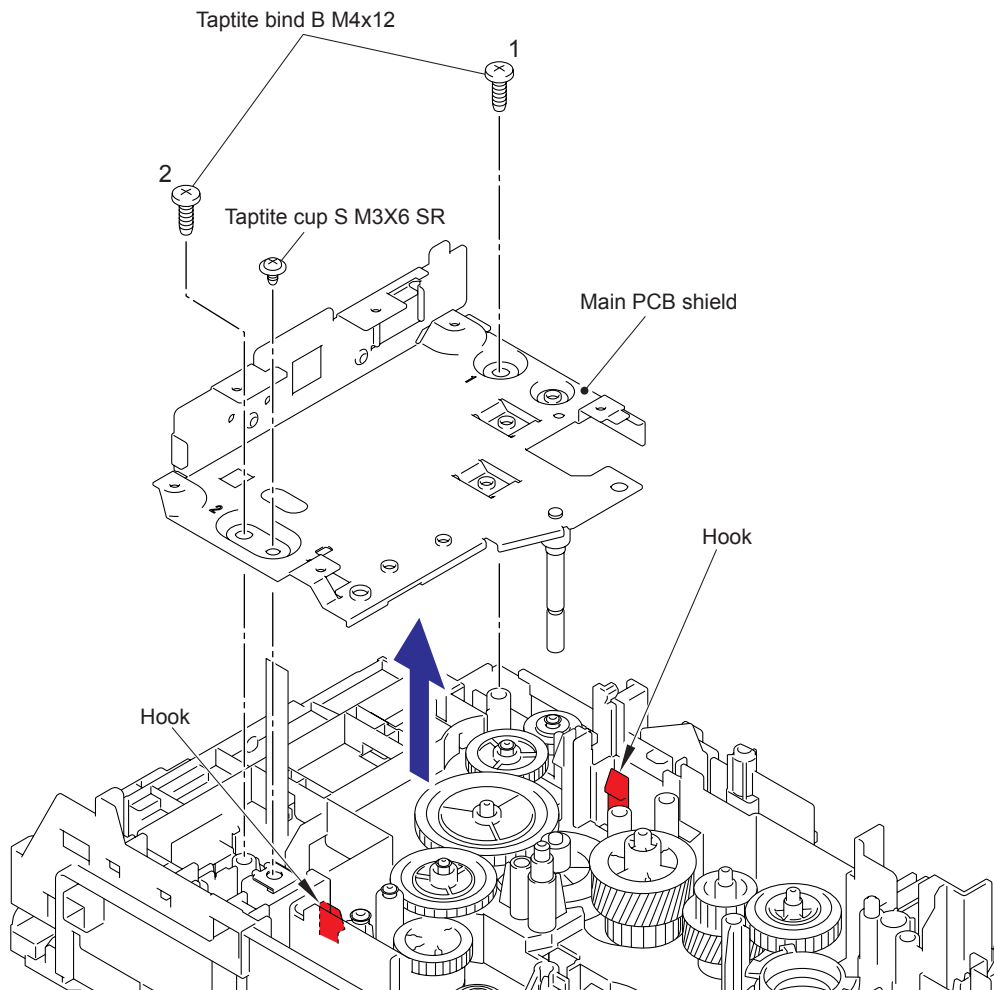
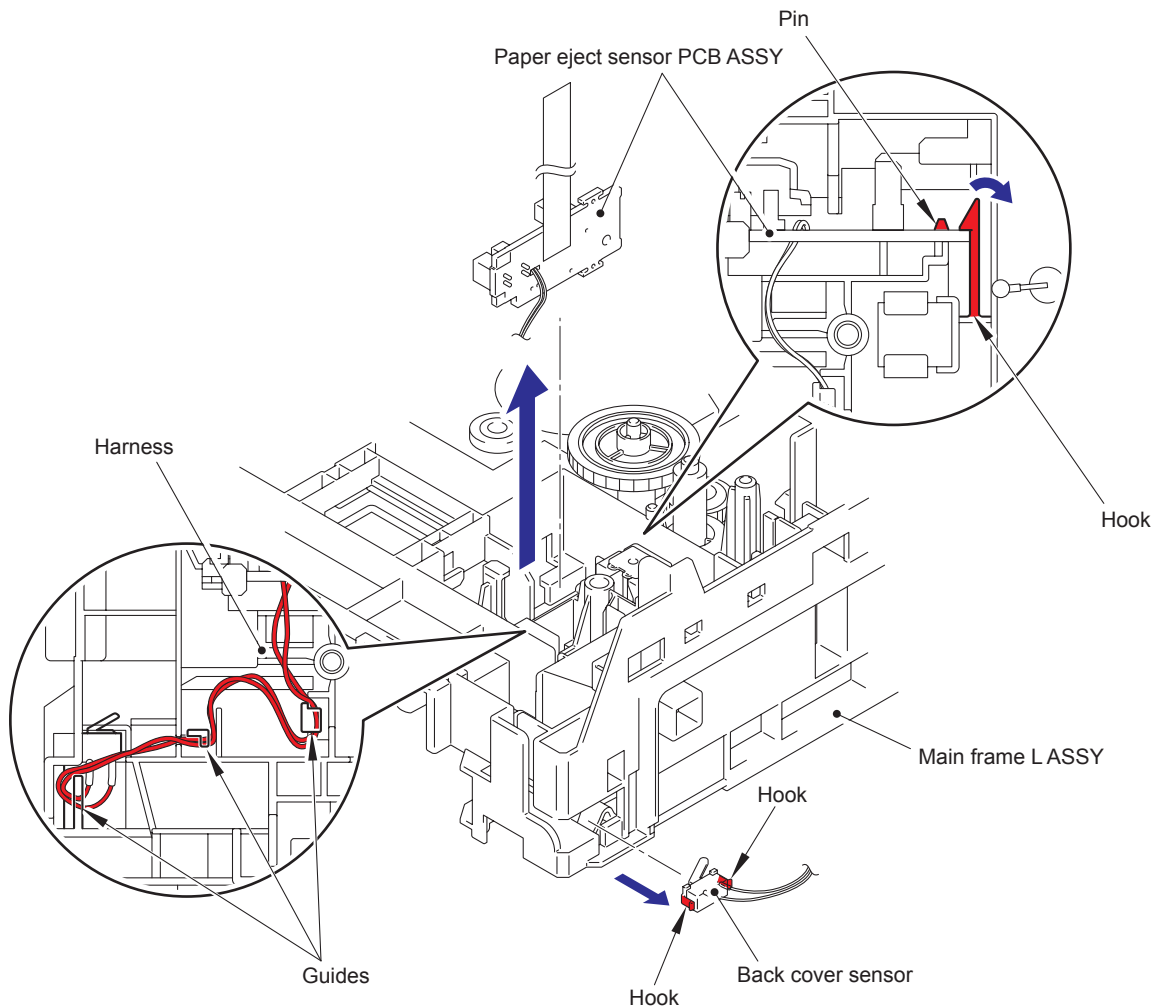


Fig. 3-96

#### Assembling Note:

- When assembling the main PCB shield, insert the flat cable of the paper eject sensor PCB ASSY into the hole of the main PCB shield.
- When assembling the main PCB shield, tighten the two taptite bind B M4x12 screws in numerical order written in the plate.

- (3) Release the hook to remove the paper eject sensor PCB ASSY from the pin of the main frame L ASSY.
- (4) Remove the harness of the paper eject sensor PCB ASSY from the guides of the main frame L ASSY.
- (5) Release the hooks to remove the back cover sensor.



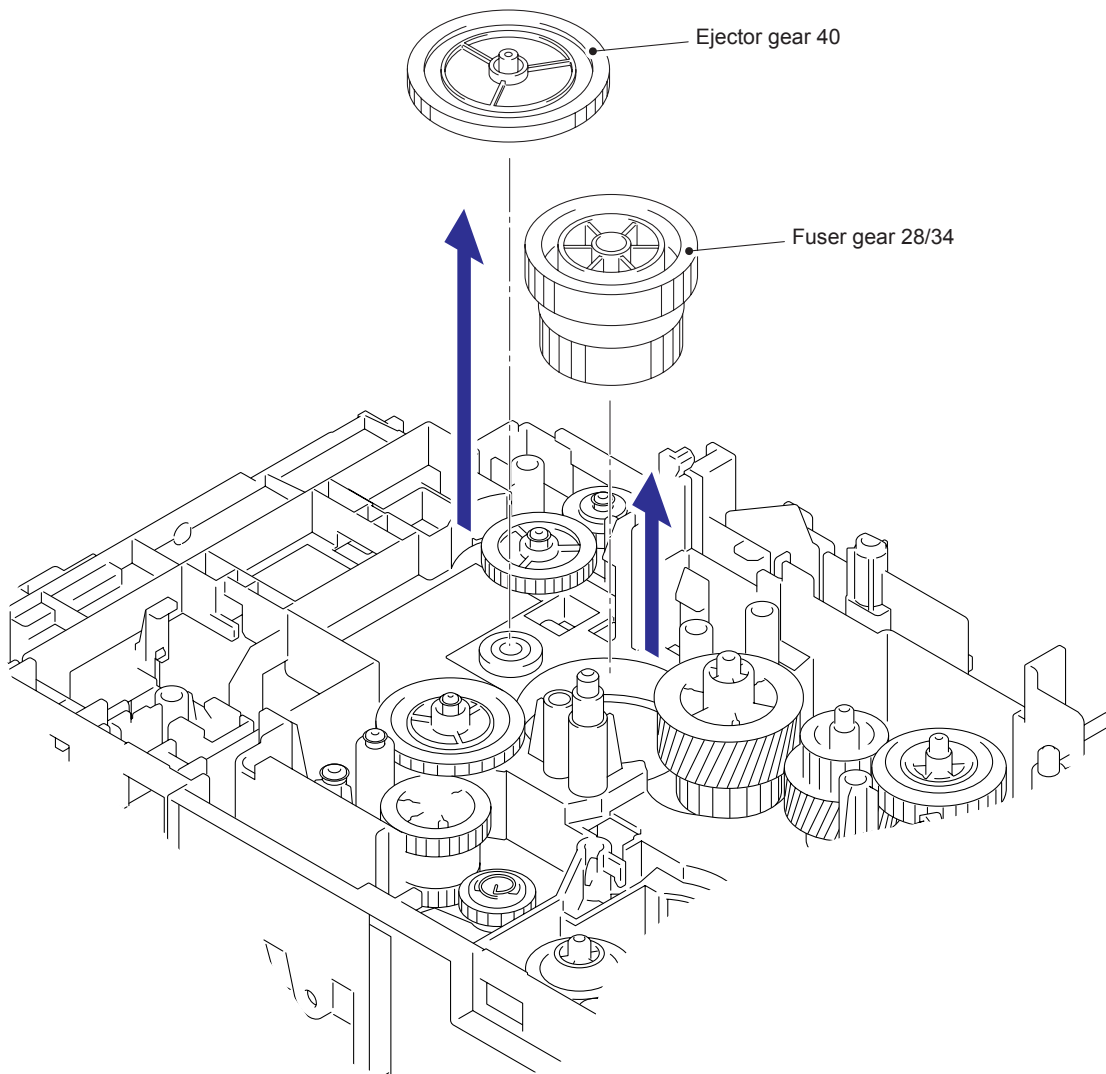
**Fig. 3-97**

**Assembling Note:**

- When assembling the back cover sensor, attach it while pushing the center of the rear side of the back cover sensor.

### 9.37 Fuser Gear 28/34

- (1) Remove the ejector gear 40.
- (2) Remove the fuser gear 28/34.



**Fig. 3-98**

Gear position: Refer to "Paper eject & Duplex part".

# **CHAPTER 4**

## **ADJUSTMENTS AND UPDATING OF SETTINGS, REQUIRED AFTER PARTS REPLACEMENT**

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

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

### CONTENTS

<b>1. IF YOU REPLACE THE MAIN PCB ASSY .....</b>	<b>4-1</b>
1.1 Rewriting the firmware (Sub firmware, Main firmware).....	4-2
1.1.1 Checking firmware version .....	4-2
1.1.2 Rewriting the firmware using computer .....	4-2
1.2 Initialization of EEPROM of Main PCB ASSY (Maintenance Mode: Code 01) .....	4-3
1.3 Setting by Country (Maintenance Mode: Code 74) .....	4-3
1.4 Setting the Serial Number .....	4-3
1.5 Inputting the Adjusted Value of the Laser Unit .....	4-5
1.6 Acquisition of White Level Data (Maintenance Mode: Code 55) .....	4-9
1.7 Operation Check of Sensors (Maintenance Mode: Code 32).....	4-9
<b>2. IF YOU REPLACE THE LASER UNIT .....</b>	<b>4-10</b>
2.1 Inputting the Adjusted Value of the Laser Unit .....	4-10
<b>3. IF YOU REPLACE THE LOW VOLTAGE POWER SUPPLY PCB ASSY .....</b>	<b>4-14</b>
3.1 Reset of Irregular Power Supply Detection Counter.....	4-14
<b>4. IF YOU REPLACE THE DOCUMENT SCANNER UNIT / THE CIS UNIT .....</b>	<b>4-15</b>
4.1 Acquisition of White Level Data (Maintenance Mode: Code 55) .....	4-15
4.2 Scanning and Printing Check .....	4-15
4.3 Placement of Scanner Unit in Position for Transportation (Maintenance Mode: Code 06) .....	4-15
<b>5. IF YOU REPLACE THE PANEL UNIT .....</b>	<b>4-15</b>
5.1 Operation Check of LCD (Maintenance Mode: Code 12).....	4-15
5.2 Operation Check of Control Panel Button (Maintenance Mode: Code 13).....	4-15
<b>6. IF YOU REPLACE THE LCD UNIT.....</b>	<b>4-16</b>
6.1 Operation Check of LCD (Maintenance Mode: Code 12).....	4-16

# 1. IF YOU REPLACE THE MAIN PCB ASSY

## <What to do when replacing the main PCB ASSY>

- Rewriting the firmware (Sub firmware, Main firmware)
- Initialization of EEPROM of main PCB ASSY (Maintenance mode: code 01)
- Setting by country (Maintenance mode: code 74)
- Setting the serial number
- Inputting the Adjusted value of the Laser Unit
- Acquisition of white level data (Maintenance mode: code 55)
- Operational check of sensors (Maintenance mode: code 32)

### Note:

- Since the counters are reset when the main PCB ASSY is replaced, the consumables and/ or periodical replacement parts might reach the end of the life before the message is displayed.

## <What you need to prepare>

- (1) A USB cable
- (2) Computer (Windows® XP or later)  
Create a temporary folder on the C drive, for example.
- (3) The service setting tool (brusbn.zip)  
Copy it into the temporary folder that has been created in the C drive. Extract the copied file and execute "brusbsn.exe" file by double-clicking it.
- (4) The download utility (FILEDG32.EXE)  
Copy it into the temporary folder that has been created in the C drive.
- (5) The Brother maintenance USB printer driver (Maintenance\_Driver.zip)  
Copy it into the temporary folder that has been created in the C drive. Extract the copied file.
- (6) The firmware

Sub firmware	LZXXXX_\$.upd*
Main firmware	LZXXXX_\$.upd*
LZXXXX: First six digits are a parts number of the firmware. \$: Alphabet representing the revision of the firmware	

\* upd: Used to rewrite the firmware via a computer.

- (7) Installing the maintenance driver. (Refer to [APPENDIX 3.](#))

## 1.1 Rewriting the firmware (Sub firmware, Main firmware)

### 1.1.1 Checking firmware version

Check if the firmware written on the main PCB ASSY is the latest version or not. If it is the latest version, there is no need to write the firmware. If it is not, make sure to write the firmware to the main PCB ASSY in accordance with “1.1.2 Rewriting the firmware using computer” in this chapter.

#### <How to check firmware version>

Press the \* and # buttons at the same time in the ready state. (For models without numeric keys; Press the ▲ and **Stop/Exit** buttons at the same time.) Then, the firmware version information is displayed on the LCD.

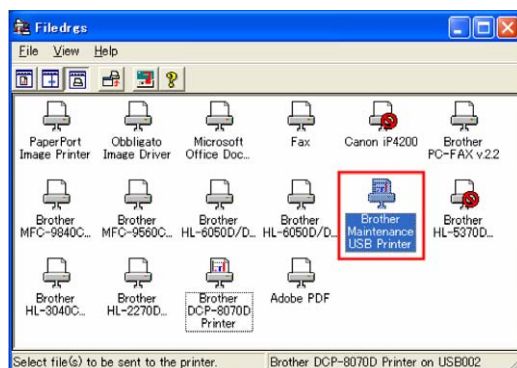
### 1.1.2 Rewriting the firmware using computer

#### Note:

- It is recommendable to rewrite 1) Sub firmware and 2) Main firmware in this order.
- DO NOT unplug the power cord of the machine or your computer or disconnect the USB cable while rewriting the program files.

#### <Procedures>

- (1) Turn the power switch of the machine off. Turn on the power as pressing the **5** button (For models without numeric keys; Press the **Number of Copies** button or **Duplex** button.). Check that “■■■■■■■■” appears on the LCD.
- (2) Connect the computer to the machine with the USB cable.
- (3) Double-click the “FILEDG32.EXE” to start. The following screen appears. Select the “Brother Maintenance USB Printer.”



- (4) Drag and drop a program file that you want to rewrite (for instance, LZXXXX\_\$.upd) onto the Brother Maintenance USB Printer icon in the screen shown above.

#### Note:

- After rewriting Sub firmware or Main firmware is completed, the machine returns to the ready state. To continue rewriting the other program files, turn off the power switch of the machine, and turn it on again as pressing the 5 buttons. Check that “■■■■■■■■” appears on the LCD and start rewriting.

- (5) Upon completion of rewriting, the machine restarts and returns to the ready state automatically.

## 1.2 Initialization of EEPROM of Main PCB ASSY (Maintenance Mode: Code 01)

Initialize the EEPROM in accordance with "1.4.1 EEPROM parameter initialization (Function code 01, 91)" in Chapter 5.

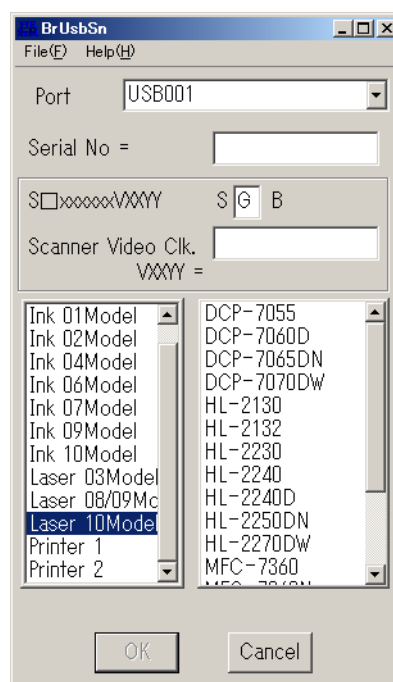
## 1.3 Setting by Country (Maintenance Mode: Code 74)

Make appropriate settings by country in accordance with "1.4.19 Setting by country (Function code 74)" in Chapter 5.

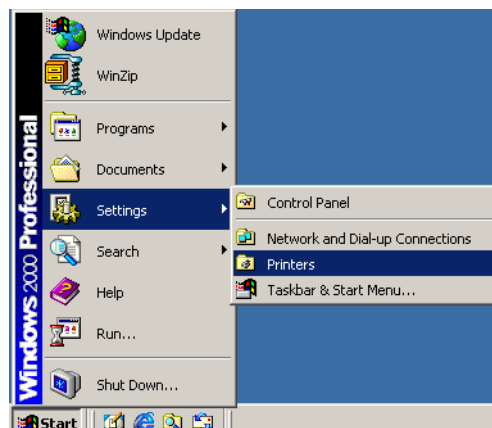
## 1.4 Setting the Serial Number

### <Procedures>

- (1) Connect the PC and machine with the USB cable.
- (2) Double-click the brusbsn.exe file which has been copied in the BLL folder to start.

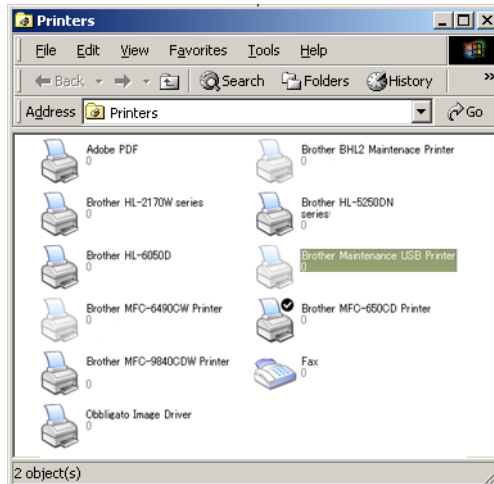


- (3) Click the Laser 10Model.
- (4) In Port on the brusbsn screen, select the port number assigned to the Brother Maintenance USB Printer. If the port number is unknown, follow steps below.
  - 1) Click Start | Settings | Printers.

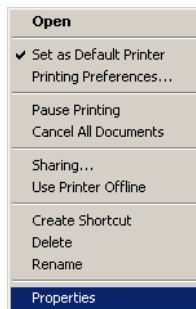


The Printers window appears as shown below.

- 2) Right-click the Brother Maintenance USB Printer icon.

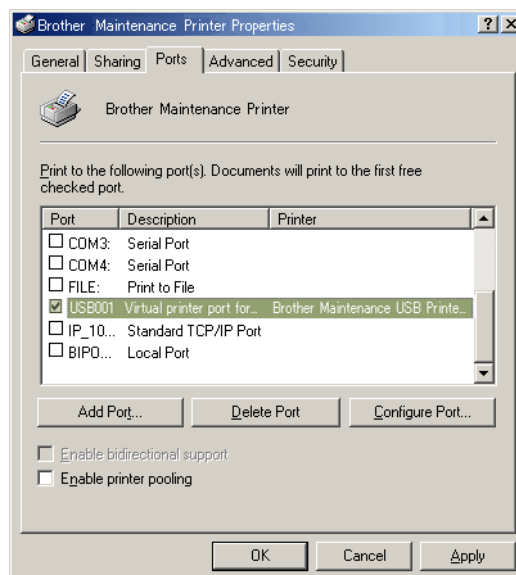


- 3) Click Properties.



The Brother Maintenance USB Printer Properties window appears as shown below.

- 4) Click the Ports tab.



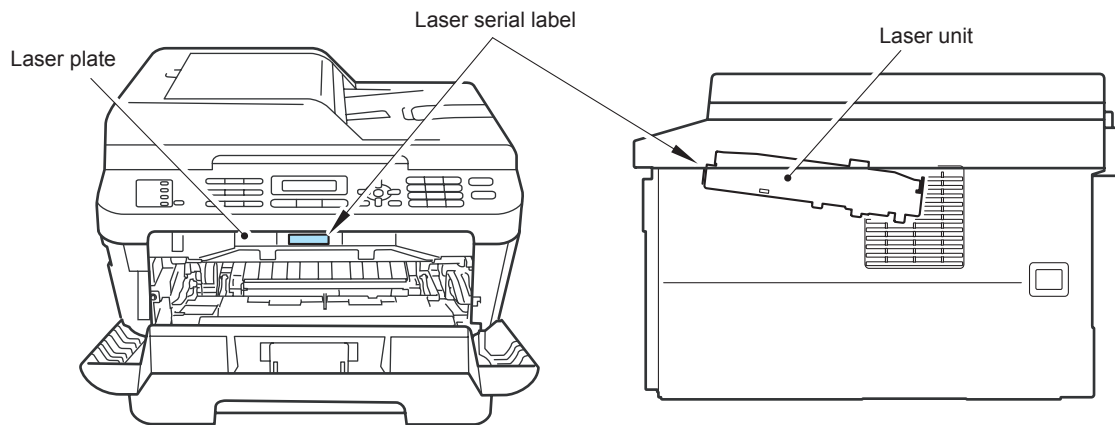
In this example, the port number assigned to the Brother Maintenance USB Printer is USB001.

- (5) Enter the serial number (the fifteen digits) of the machine into the box on the "Serial No".
- (6) Click the [OK] button. The serial number is written in the machine.

## 1.5 Inputting the Adjusted Value of the Laser Unit

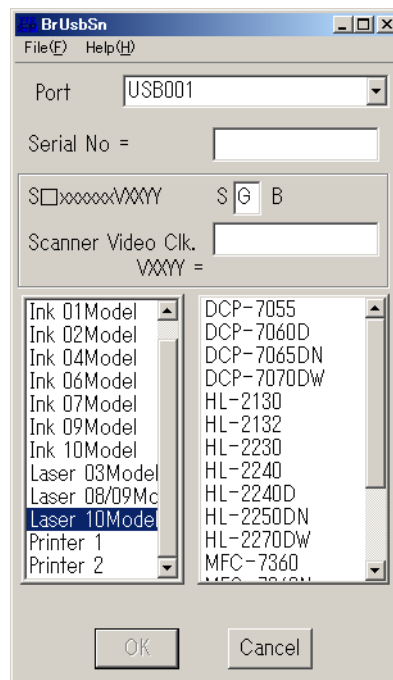
**Note:**

- When replace the laser unit, make sure to attach the serial label which is provided with the new laser unit to the laser plate.
- When input the adjusted value, make sure to refer to the laser serial label which is provided with the new laser unit.

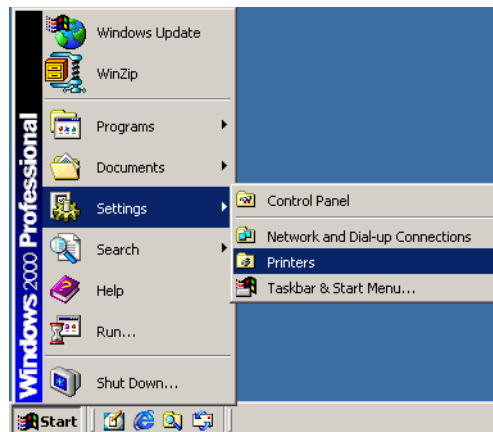


**Fig. 4-1**

- (1) Double-click the brusbsn.exe file to start.

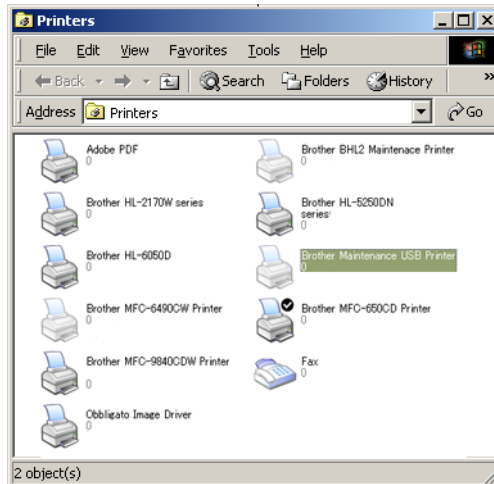


- (2) Click the Laser 10Model.
- (3) In Port on the brusbsn screen, select the port number assigned to the Brother Maintenance USB Printer. If the port number is unknown, follow steps below.
  - 1) Click Start | Settings | Printers.

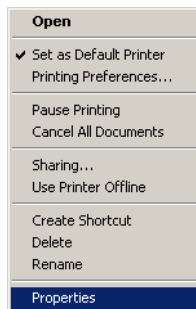


The Printers window appears as shown below.

- 2) Right-click the Brother Maintenance USB Printer icon.

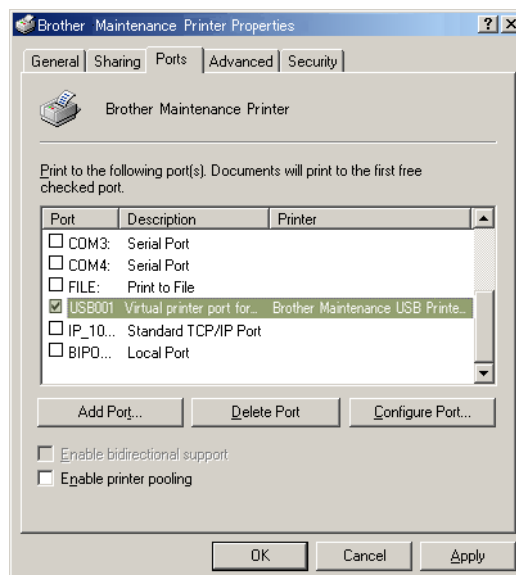


- 3) Click Properties.



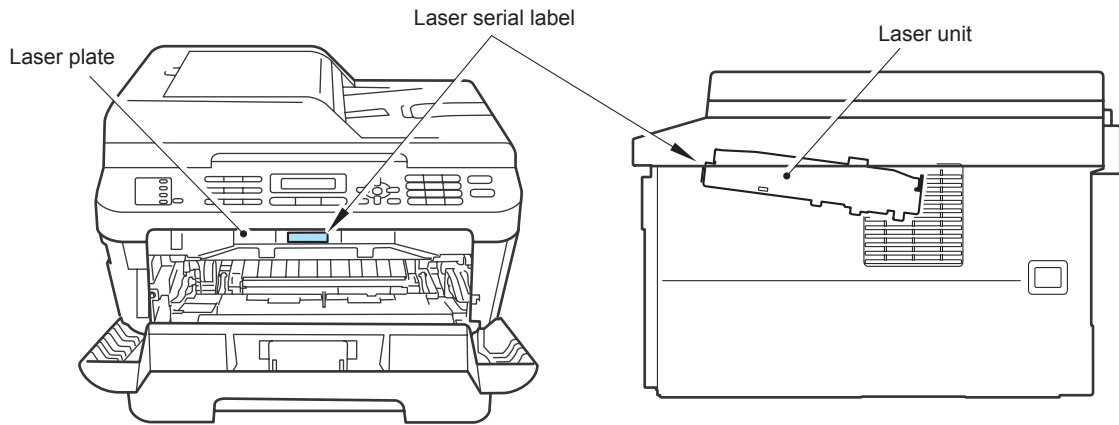
The Brother Maintenance USB Printer Properties window appears as shown below.

- 4) Click the Ports tab.



In this example, the port number assigned to the Brother Maintenance USB Printer is USB001.

- (4) Enter the serial number (second digit) shown on the laser serial label attached on the figure below into the box on the “S xxxxxxVXXYY”.
- (5) Enter the serial number (the last five digits) into the box on the “Scanner Video Clk.”.
- (6) Click the [OK] button. The corrected value of the laser unit is written in the machine.



**Fig. 4-2**

## **1.6 Acquisition of White Level Data (Maintenance Mode: Code 55)**

Acquire the white level data in accordance with "1.4.17 Acquisition of white level data (Function code 55)" in Chapter 5.

## **1.7 Operation Check of Sensors (Maintenance Mode: Code 32)**

Check performance of the sensors in accordance with "1.4.10 Operational check of sensors (Function code 32)" in Chapter 5.

## 2. IF YOU REPLACE THE LASER UNIT

### 2.1 Inputting the Adjusted Value of the Laser Unit

**Note:**

- When replace the laser unit, make sure to attach the serial label which is provided with the new laser unit to the laser plate.
- When input the adjusted value, make sure to refer to the laser serial label which is provided with the new laser unit.

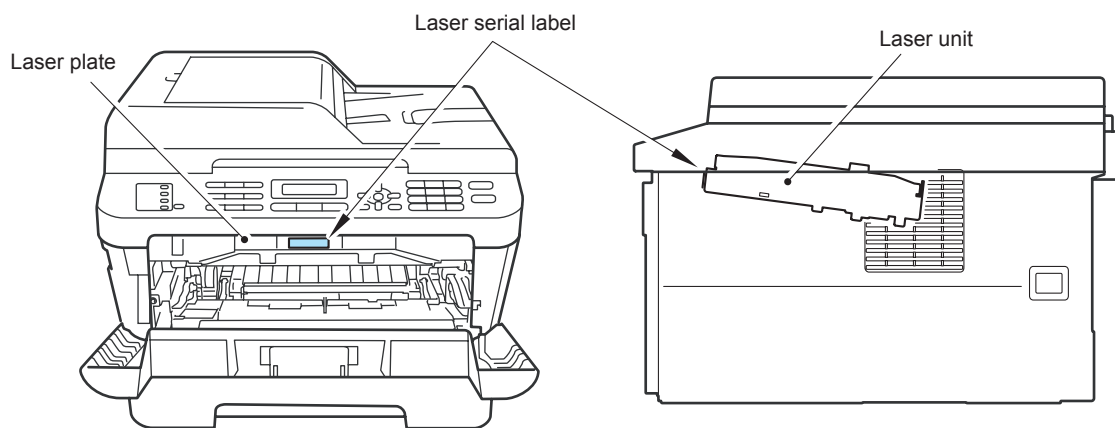
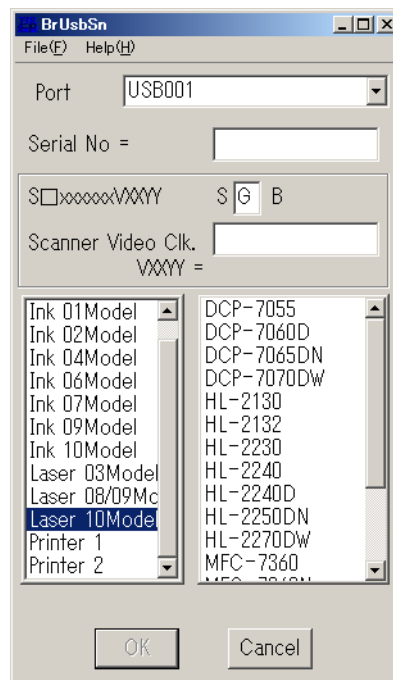
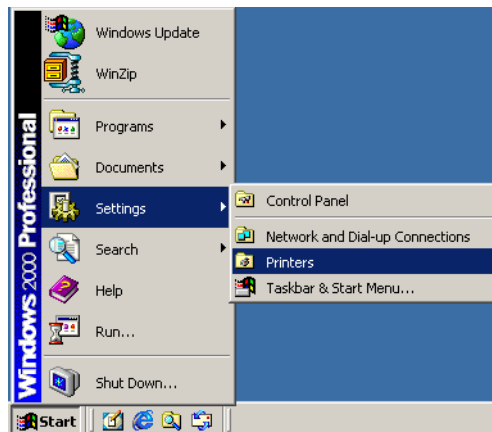


Fig. 4-3

- (1) Double-click the brusbsn.exe file to start.

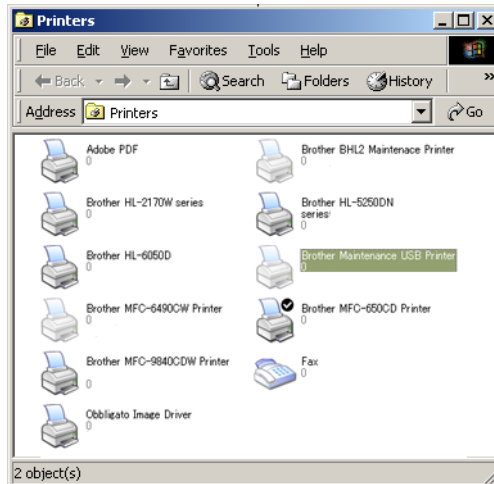


- (2) Click the Laser 10Model.
- (3) In Port on the brusbsn screen, select the port number assigned to the Brother Maintenance USB Printer. If the port number is unknown, follow steps below.
  - 1) Click Start | Settings | Printers.

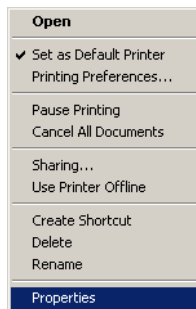


The Printers window appears as shown below.

- 2) Right-click the Brother Maintenance USB Printer icon.

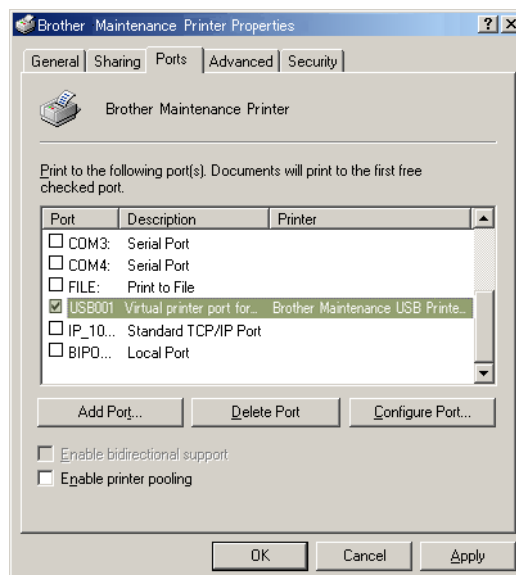


- 3) Click Properties.



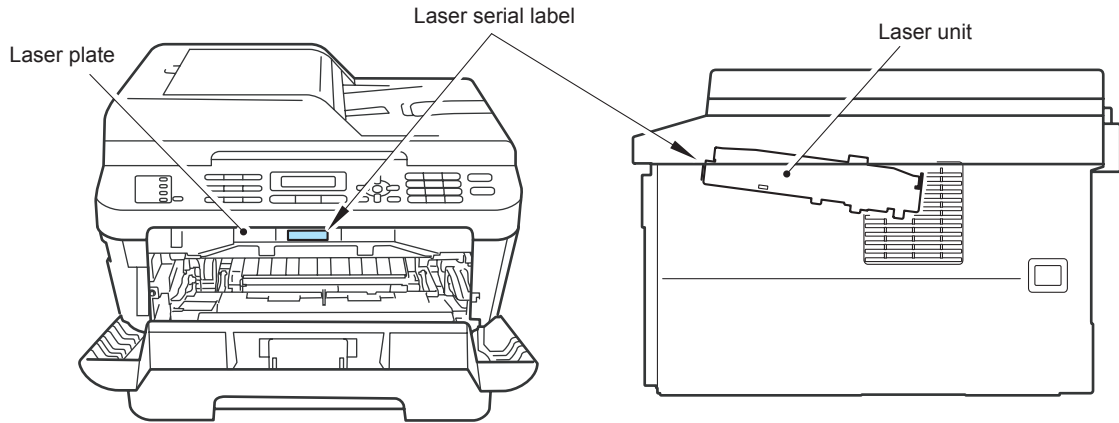
The Brother Maintenance USB Printer Properties window appears as shown below.

- 4) Click the Ports tab.



In this example, the port number assigned to the Brother Maintenance USB Printer is USB001.

- (4) Enter the serial number (second digit) shown on the laser serial label attached on the figure below into the box on the “S xxxxxxVXXYY”.
- (5) Enter the serial number (the last five digits) into the box on the “Scanner Video Clk.”.
- (6) Click the [OK] button. The corrected value of the laser unit is written in the machine.



**Fig. 4-4**

### 3. IF YOU REPLACE THE LOW VOLTAGE POWER SUPPLY PCB ASSY

---

#### 3.1 Reset of Irregular Power Supply Detection Counter

The irregular power supply detection counter is counted up when the machine detects irregular power supply. If the counter reaches to the limit, the machine shows the service error to replace the low-voltage power supply PCB because it might be damaged by recursive irregular power supply.

In this case, if the same power supply is used, the same error may occur even when the low voltage power supply PCB ASSY is replaced. Ask the user to review the installation environment.

**Note:**

- The maintenance driver must have been installed. (Refer to [APPENDIX 3.](#))

- (1) Press the **Menu** button and then the **Start** button while the machine is in the ready state. Next, press the **▲** button four times to enter the maintenance mode. The machine displays **■■ MAINTENANCE ■■■** on the LCD.
- (2) Connect the PC to the machine with the USB cable.
- (3) Double-click the “FILEDG32.EXE” to start. Select the “Brother Maintenance USB Printer”.
- (4) Click the “Brother Maintenance USB Printer” icon to select. Drag the SQWAVE.PJL and drop it.

## 4. IF YOU REPLACE THE DOCUMENT SCANNER UNIT / THE CIS UNIT

---

### <What to do when replacing the document scanner unit>

- Acquisition of white level data (Maintenance mode: code 55)
- Scanning and printing check
- Placement of scanner unit in position for transportation (Maintenance mode: code 06)

#### 4.1 Acquisition of White Level Data (Maintenance Mode: Code 55)

Perform the acquisition of white level data and scanner area setting in accordance with "1.4.17 Acquisition of white level data (Function code 55)" in Chapter 5.

#### 4.2 Scanning and Printing Check

Scan the test chart TC-023 with ADF, and make sure there are no problem of the printed image.

Make sure there are no problem of the ADF, scanner unit and the performance of recording part.

#### 4.3 Placement of Scanner Unit in Position for Transportation (Maintenance Mode: Code 06)

Perform the placement of document scanner unit in the position for transportation in accordance with "1.4.3 Placement of scanner unit in position for transportation (Function code 06)" in Chapter 5.

## 5. IF YOU REPLACE THE PANEL UNIT

---

### <What to do when replacing the panel unit>

- Operation check of LCD (Maintenance mode: code 12)
- Operation check of control panel button (Maintenance mode: code 13)

#### 5.1 Operation Check of LCD (Maintenance Mode: Code 12)

Check performance of the LCD in accordance with "1.4.7 Operational check of LCD (Function code 12)" in Chapter 5.

#### 5.2 Operation Check of Control Panel Button (Maintenance Mode: Code 13)

Check performance of the control panel button in accordance with "1.4.8 Operational check of control panel button (Function code 13)" in Chapter 5.

## 6. IF YOU REPLACE THE LCD UNIT

---

### <What to do when replacing LCD unit>

- Operation check of LCD (Maintenance mode: code 12)

#### 6.1 Operation Check of LCD (Maintenance Mode: Code 12)

Check performance of the LCD in accordance with "1.4.7 Operational check of LCD (Function code 12)" in Chapter 5.

# **CHAPTER 5**

## **SERVICE FUNCTIONS**

## CHAPTER 5 SERVICE FUNCTIONS

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

This chapter also covers not-disclosed-to-users function menus, which activate settings and functions or reset the parts life.

### CONTENTS

<b>1. MAINTENANCE MODE .....</b>	<b>5-1</b>
1.1 How to Enter the Maintenance Mode .....	5-1
1.2 How to Enter the End User-accessible Maintenance Mode .....	5-1
1.3 List of Maintenance-mode Functions.....	5-2
1.4 Detailed Description of Maintenance-mode Functions .....	5-3
1.4.1 EEPROM parameter initialization (Function code 01, 91).....	5-3
1.4.2 Printout of scanning compensation data (Function code 05) .....	5-4
1.4.3 Placement of scanner unit in position for transportation (Function code 06) ...	5-6
1.4.4 ADF performance test (Function code 08) .....	5-6
1.4.5 Monochrome image quality test pattern (Function code 09) .....	5-7
1.4.6 Worker switch (WSW) setting and printout (Function code 10, 11).....	5-8
1.4.7 Operational check of LCD (Function code 12) .....	5-12
1.4.8 Operational check of control panel button (Function code 13).....	5-13
1.4.9 Software version check (Function code 25) .....	5-14
1.4.10 Operational check of sensors (Function code 32).....	5-15
1.4.11 LAN connection status display (Function code 33) .....	5-17
1.4.12 PC print function (Function code 43).....	5-18
1.4.13 Not-disclosed-to-users functions (Function code 45).....	5-21
1.4.14 EEPROM customizing (User-accessible) (Function code 52).....	5-22
1.4.15 Received data transfer function (Function code 53) (FAX model only) ....	5-23
1.4.16 Fine adjustment of scan start/end positions (Function code 54) .....	5-25
1.4.17 Acquisition of white level data (Function code 55) .....	5-26
1.4.18 Continuous print test (Function code 67) .....	5-27
1.4.19 Setting by country (Function code 74).....	5-28
1.4.20 Printout of maintenance information (Function code 77).....	5-31
1.4.21 Operational check of fan (Function code 78) .....	5-32
1.4.22 Display of the machine history (log) (Function code 80) .....	5-33
1.4.23 Error code indication (Function code 82) .....	5-37
1.4.24 Sending communication error list (Function code 87) (FAX model only) .	5-37
1.4.25 Counter reset after replacing the fuser unit and paper feeding kit (Function code 88) .....	5-38
1.4.26 Exit from the maintenance mode (Function code 99).....	5-38

<b>2. OTHER SERVICE FUNCTIONS .....</b>	<b>5-39</b>
2.1 Developer Roller Counter Reset Function .....	5-39
2.2 Parts Life Reset Function .....	5-40
2.3 Deletion of User Setting Information, etc.....	5-40
2.4 Continue mode / Stop mode settings of Toner cartridge.....	5-41
2.5 Drum Cleaning.....	5-41
2.6 ON/OFF Setting of Deep Sleep Function .....	5-42

# 1. MAINTENANCE MODE

The maintenance mode is exclusively designed for the checking, setting and adjustments of the machine by using the buttons on the control panel. The EEPROM can be customized according to the destination of the machine. Moreover, the operational check of the LCD, operation panel board, and sensors, print test, display of the log information and error codes, and change of the worker switches (WSW) can be performed.

## 1.1 How to Enter the Maintenance Mode

### <Operating Procedure>

- (1) Press the **Menu** button and then the **Start** button while the machine is in the ready state. Next, press the **▲** button four times to enter the maintenance mode.

#### Memo:

- Operation using **Menu**, **\***, **2**, **8**, **6** and **4** buttons is also available.

- (2) The machine beeps for one second and displays “■■ MAINTENANCE ■■” on the LCD, indicating that it is placed in the initial state of the maintenance mode, a mode in which the machine is ready to accept entry from the buttons.
- (3) To select any of the maintenance mode functions shown in the [next page](#), enter the maintenance mode that you want to use using the buttons.

#### Memo:

- To exit from the maintenance mode and switch to ready state, press the **9** button twice in the initial state 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 ready state.
- When the **Stop/Exit** button is pressed, the machine beeps for one second and returns to the initial state of the maintenance mode.
- When an incorrect maintenance mode is entered, the machine beeps for one second and returns to the initial state of the maintenance mode.

## 1.2 How to Enter the End User-accessible Maintenance Mode

Basically, the maintenance-mode functions listed in 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, for example.

The end user-accessible functions are shaded in the table given on the [next page](#). (codes [06](#), [09](#), [10](#), [11](#), [12](#), [25](#), [43](#), [45](#), [52](#), [53](#), [54](#), [77](#), [80](#), [82](#), [87](#), [88](#) and [91](#))

Function code 10 accesses the worker switches, each of which has eight selectors.

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

### <Operating Procedure>

- (1) Press the **Menu**, **Start**, **Menu** and **▲** buttons in this order when the machine is in the ready state. “MAINTENANCE 06” appears on the LCD.
- (2) Press the **▲** or **▼** button to display the desired maintenance code on the LCD. Then press the **OK** button.

To switch the machine back to the ready state, press the **Stop/Exit** button. When each of the user-accessible functions is completed, the machine automatically returns to the ready 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 scanner unit in position for transportation	1.4.3 (5-6)
08	ADF performance test	1.4.4 (5-6)
09	Monochrome image quality test pattern	1.4.5 (5-7)
10	Worker switch (WSW) setting	1.4.6 [1] (5-8)
11	Printout of worker switch data	1.4.6 [2] (5-11)
12	Operation check of LCD	1.4.7 (5-12)
13	Operational check of control panel button	1.4.8 (5-13)
25	Software version check	1.4.9 (5-14)
32	Operational check of sensors	1.4.10 (5-15)
33	LAN connection status display	1.4.11 (5-17)
43	PC print function	1.4.12 (5-18)
45	Not-disclosed-to-users functions	1.4.13 (5-21)
52	EEPROM customizing (User-accessible)	1.4.14 (5-22)
53	Received data transfer function	1.4.15 (5-23)
54	Fine adjustment of scan start/end positions	1.4.16 (5-25)
55	Acquisition of white level data	1.4.17 (5-26)
67	Continuous print test	1.4.18 (5-27)
74	Setting by country	1.4.19 (5-28)
77	Printout of maintenance information	1.4.20 (5-31)
78	Operational check of fan	1.4.21 (5-32)
80	Display of machine history (log)	1.4.22 (5-33)
82	Error code indication	1.4.23 (5-37)
87	Sending communication error list	1.4.24 (5-37)
88	Counter reset after replacing the fuser unit and paper feeding kit	1.4.25 (5-38)
91	EEPROM parameter initialization	1.4.1 (5-3)
99	Exit from the maintenance mode	1.4.26 (5-38)

\* 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>

This function initializes the setting values of the operation parameters, user switches, and worker switches (WSW) registered in the EEPROM.

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	Function code 91
Counter information	These will <b>not</b> be initialized.	These will <b>not</b> be initialized.
Error History		
MAC Address (Ethernet Address)		
Operation lock of the control panel password	These will be initialized.	
Secure Function Lock		
Worker switch		
Telephone function registration		
One-touch dialing		
Speed dialing		
Group dialing		
User switches (Items to be initialized when resetting to the factory default settings)		These will be initialized.
Function settings except user switches (Items except the factory default settings) - Languages - Reprint - Secure Print - Interfaces		
LAN area (Network settings)		
PCL core area (Emulation settings)		

#### <Operating Procedure>

- (1) Press the **0** and **1** buttons (or the **9** and **1** buttons according to your need) in this order in the initial state of the maintenance mode. In the case of the model without the numeric keys; Press the **▲** or **▼** button. The "MAINTENANCE 01" appears on the LCD (or the "MAINTENANCE 91" appears on the LCD to your need). Then press the **OK** button. The "PARAMETER INIT" appears on the LCD.
- (2) Upon completion of parameter initialization, the machine returns to the initial state of the maintenance mode.

#### **Note:**

- Function code 01 is for service personnel. Function code 91 is for user support.

## 1.4.2 Printout of scanning compensation data (Function code 05)

### <Function>

The machine prints out the brightness level data for scanning compensation.

### <Operating Procedure>

#### Note:

- Be sure to execute this operating procedure not immediately after the power is turned ON, but after conducting the document scanning operation at least once in scanning. Since the machine initializes the brightness level data and obtains the standard value for document scanning compensation when starting scanning the document, the correct data for compensation cannot be printed out even if this operation is implemented without scanning the document.
- The print result varies depending on whether implementing color scanning or black and white scanning immediately before this operating procedure. Make sure the brightness level data you want to print and implement the operation below.

- (1) For white and black scanning, copy the document. For color scanning, implement color scanning of the document.
- (2) Press the **0** and **5** buttons in this order in the initial state of the maintenance mode. In the case of the model without the numeric keys; Press the **▲** or **▼** button. The "MAINTENANCE 05" appears on the LCD. Then press the **OK** button. The "PRINTING" will appear on the LCD, and the equipment prints out the scanning compensation data list (Refer to Fig. 5-1) containing the following:

### ■ Black and white/color scanning

#### Note:

- In the case of the black and white scanning, the output data (B) and (R) are invalid.

a)	LED CURRENT DATA	1 Byte
b)	LED pulse data 1(UP) (G)	2 Bytes
c)	LED pulse data 1(DOWN) (G)	2 Bytes
d)	LED pulse data 1(UP) (B)	2 Bytes
e)	LED pulse data 1(DOWN) (B)	2 Bytes
f)	LED pulse data 1(UP) (R)	2 Bytes
g)	LED pulse data 1(DOWN) (R)	2 Bytes
h)	REFH data	1 Bytes
i)	Background color compensated data	1 Byte
j)	Black level data	by previous scanning pixel count
k)	White level data (G)	by previous scanning pixel count
l)	White level data (B)	by previous scanning pixel count
m)	White level data (R)	by previous scanning pixel count

[illegible]

**Fig. 5-1**

### 1.4.3 Placement of scanner unit in position for transportation (Function code 06)

#### <Function>

This function is to move the scanner 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 information on the procedure to make the user operate the maintenance mode, refer to "1.2 How to Enter the End User-accessible Maintenance Mode" in this chapter.)

#### <Operating Procedure>

- (1) Press the **0** and **6** buttons in this order in the initial state of the maintenance mode. In the case of the model without the numeric keys; Press the **▲** or **▼** button. The "MAINTENANCE 06" appears on the LCD. Then press the **OK** button. The scanner unit moves to the designated position for transportation located at the left end. The "MAINTENANCE 06" is displayed until the scanner unit is placed in position. When the document scanner unit is placed in the position, the "SCAN LOCKED" appears on the LCD.
- (2) When the **Stop/Exit** button is pressed, the machine beeps for one second and returns to the initial state of the maintenance mode.

#### Note:

- When the document scanner unit fails to move to the transport position or when the maintenance mode: code 06 is executed while a reading error occurs, "SCAN LOCK ERROR" appears.
- After moving the scanner unit to the transport position, you cannot perform the scanning operation such as copy.

### 1.4.4 ADF performance test (Function code 08)

#### <Function>

The machine counts the documents fed by the automatic document feeder (ADF) and counts the scanned document pages and displays the result on the LCD.

#### <Operating Procedure>

- (1) Load documents. (Do not exceed the paper capacity of the ADF.) "DOC.READY" is displayed on the LCD.
- (2) Press the **0** and **8** buttons in this order.
- (3) While counting the documents, the machine feeds them in and out, displaying the number of pages on the LCD as shown below.

ADF CHECK P.01



Current count (1st page in this example)

- (4) When the **Stop/Exit** button is pressed, the machine beeps for one second and returns to the initial state of the maintenance mode.

## 1.4.5 Monochrome image quality test pattern (Function code 09)

### <Function>

This function allows you to print various monochrome test patterns and check the quality and if there is any image loss.

### <Operating Procedure>

- (1) Press the **0** and **9** buttons in this order in the initial state of the maintenance mode.  
In the case of the model without the numeric keys; Press the **▲** or **▼** button. The "MAINTENANCE 09" appears on the LCD. Then press the **OK** button.
- (2) Printing of the monochrome image quality test pattern (see the figure below) starts, and when printing is finished, the machine beeps for one second and returns to the initial state of the maintenance mode.

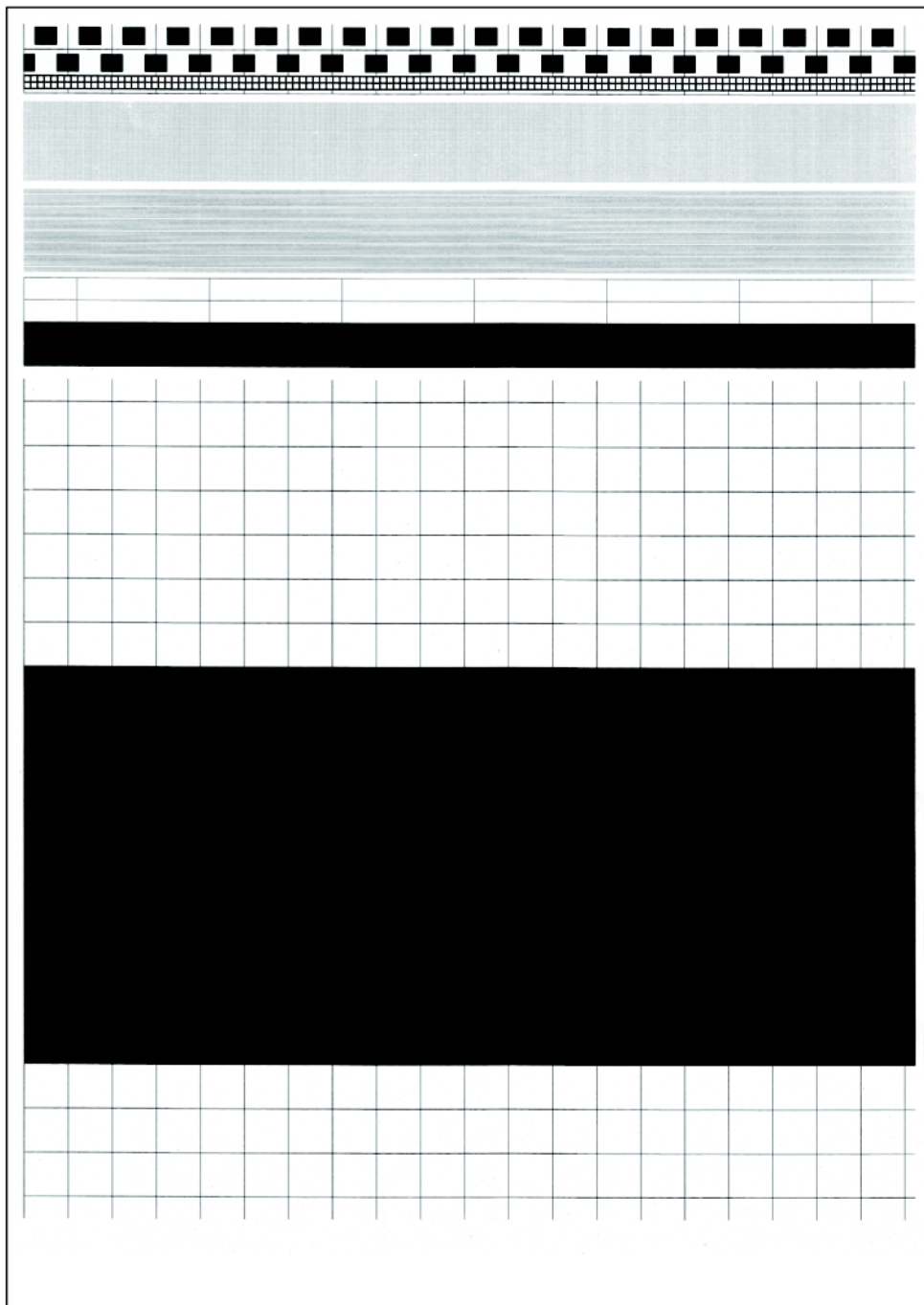


Fig. 5-2

## 1.4.6 Worker switch (WSW) setting and printout (Function code 10, 11)

### [1] Worker switch setting (Function code 10)

The machine incorporates the following worker switch functions which may be activated with the procedures using the buttons on the control panel. The worker switches have been set at the factory in conformity to the codes of each country. Do not disturb them unless necessary. Some of these switches are disabled according to the model and specifications.

#### ■ Worker switch

WSW No.	Function
WSW01	Dial pulse setting
WSW02	Tone signal setting
WSW03	PABX mode setting
WSW04	Transfer facility setting
WSW05	1st dial tone and busy tone detection
WSW06	Redial/Pause button setting and 2nd dial tone detection
WSW07	Dial tone setting 1
WSW08	Dial tone setting 2
WSW09	Protocol definition 1
WSW10	Protocol definition 2
WSW11	Busy tone setting
WSW12	Signal detection condition setting
WSW13	Modem setting
WSW14	AUTO ANS facility setting
WSW15	Redial facility setting
WSW16	Function setting 1
WSW17	Function setting 2
WSW18	Function setting 3
WSW19	Transmission speed setting
WSW20	Overseas communications mode setting
WSW21	TAD setting 1
WSW22	ECM and call waiting caller ID
WSW23	Communications setting
WSW24	TAD setting 2
WSW25	TAD setting 3
WSW26	Function setting 4
WSW27	Function setting 5
WSW28	Function setting 6
WSW29	Function setting 7
WSW30	Function setting 8
WSW31	Function setting 9

WSW No.	Function
WSW32	Function setting 10
WSW33	Function setting 11
WSW34	Function setting 12
WSW35	Function setting 13
WSW36	Function setting 14
WSW37	Function setting 15
WSW38	V.34 transmission settings
WSW39	V.34 transmission speed
WSW40	V.34 modem settings
WSW41	ON-duration of the scanning light source
WSW42	Internet mail settings
WSW43	Function setting 16
WSW44	Speeding up scanning-1
WSW45	Speeding up scanning-2
WSW46	Monitor of power ON/OFF state and parallel port kept at high
WSW47	Switching between high-speed USB and full-speed USB
WSW48	USB setup latency
WSW49	End-of-copying beep
WSW50	SDAA settings
WSW51	Function setting 17
WSW52	Function setting 18
WSW53	Function setting 19
WSW54	Function setting 20
WSW55	Interval of time required for the developing bias voltage correction
WSW56	Function setting 21
WSW57	Function setting 22
WSW58	Function setting 23
WSW59	Function setting 24
WSW60	Function setting 25
WSW61	Scanning light intensity to judge to be stable 1
WSW62	Scanning light intensity to judge to be stable 2
WSW63	Function setting 26
WSW64	Setting the language/Default paper size
WSW65	Setting the paper support
WSW66	Reserved (Change of the setting is prohibited)
WSW67	Reserved (Change of the setting is prohibited)
WSW68	Reserved (Change of the setting is prohibited)
WSW69	Reserved (Change of the setting is prohibited)
WSW70	Reserved (Change of the setting is prohibited)



## [2] Printout of worker switch data (Function code 11)

### <Function>

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

### <Operating Procedure>

- (1) Press the **1** button twice in the initial state of the maintenance mode. In the case of the model without the numeric keys; Press the **▲** or **▼** button. The "MAINTENANCE 11" appears on the LCD. Then press the **OK** button. The "PRINTING" will appear on the LCD.
- (2) Printing of CONFIGURATION LIST (see the figure below) starts, and when printing is finished, the machine beeps for one second and returns to the initial state of the maintenance mode.

CONFIGURATION LIST	
MODEL : 8C5-E35	
TIME : 01/01/2011 00:07	
REV. : U1000301256VER.V	
PCI : 5.00	
SUM : FB93	
SER. # : 000G01234567890	
WSW01 = 00010000	
1-2. DIAL FORMAT	: NORMAL
3-4. BREAK TIME	: 67 MS
5-6. INTERDIGIT PAUSE	: 000 MS
7. DP/PB CHANGE IN USER SW	: YES
8. DP/PB FIXING SELECTION	: PB
WSW02 = 01011100	
1-2. ON TIME	: 00 MS
3-4. OFF TIME	: 00 MS
5-8. LINE BEEP ATTENUATOR	: 12 DB
WSW03 = 10111000	
1. PARA. CNG DETECTION1	: B
2-4. PBX DT DETECTION TIME	: 620 MS
5. PARA. CNG DETECTION2	: B
6-7. DT DETECTION OF PBX	: 3.5 SEC WAITING
8. NOT USED	
WSW04 = 10010010	
1-4. NOT USED	
5. OGM DELAY +4SEC	: OFF
6-8. FLASHING TIME	: 110 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 = 10001100	
1-3. PAUSE KEY	: 2.8 SEC WAITING
4-6. 2ND DT DETECTION TIME	: 620 MS
7. 2ND DT DETECTION CYCLE	: 1 CYCLE
8. 2ND DT INTERRUPT DETECTION TIME	: 30 MS
WSW07 = 01011000	
1-2. FREQUENCY RANGE	: INITIAL DATA
3. NOT USED	
4-6. 2ND DT DETECTION LEVEL	: -39 DBM
7. 1ST DT INTERRUPT DETECTION TIME	: 30 MS
8. NOT USED	
WSW08 = 01100111	
1-3. 1ST DT DETECTION TIME	: 620 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. TS TIMER	: 300 SEC
6. TX 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 CHL ON CNG TRANSMISSION	: 2 SEC
4. TIMING OF CHL ON CED TRANSMISSION	: 2 SEC
5-6. TRAINING RETRIES	: 2
7. CODING METHOD MMR	: ON
8. CODING METHOD MMR	: ON
WSW11 = 01100000	
1-2. FREQUENCY RANGE	: INITIAL DATA
3-8. ON/OFF TIME	: 250 - 750 / 250 - 750 MS

Fig. 5-3

### Note:

- The function names specific to multi-function machines are printed in CONFIGURATION LIST for convenience of program development. They are invalid in this product and should be ignored.

## 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) Press the **1** and **2** buttons in this order in the initial state of the maintenance mode.  
In the case of the model without the numeric keys; Press the **▲** or **▼** button. The "MAINTENANCE 12" appears on the LCD. Then press the **OK** button. The LCD shows.
- (2) Each time you press the **Start** button, the LCD cycles through the displays as shown below.
- (3) When the **Stop/Exit** button is pressed regardless of the display, the machine cancels the operation, beeps for one second and returns to the initial state of the maintenance mode.



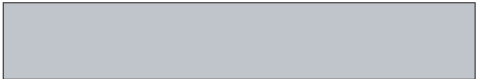





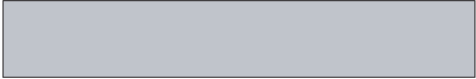
<b>&lt;For models with Backlight&gt;</b> (For all countries) MFC-7860DN / 7860DW DCP-7055W / 7065DN / 7070DW HL-2280DW (Only for China) MFC-7360 / 7470D DCP-7055 / 7057 / 7060D	<b>&lt;For models without Backlight&gt;</b> (For all countries) DCP-7057E / 7057W MFC-7360N / 7362N / 7365DN / 7460DN (Except for China) DCP-7055 / 7057 / 7060D MFC-7360 / 7470D
<p>ModeKey LED: Constantly blinking (only MFC)</p> <p>Display 1 Backlight : Not lit</p>  <p>Display 2 Backlight : Not lit</p>  <p>Display 3 Backlight : Not lit</p>  <p>Display 4 Backlight : Lit</p>  <p>Display 5 Backlight : Lit</p>  <p>Display 6 Backlight : Lit</p> 	<p>When the <b>Start</b> button is pressed, the LED display cycles in the following order: Display 1 → Display 2 → Display 3 → Display 1 ...</p> <p>Press the <b>Stop</b> button to stop cycling.</p> <p>ModeKey LED: Constantly blinking (only MFC)</p> <p>Display 1 Backlight : Not lit</p>  <p>Display 2 Backlight : Not lit</p>  <p>Display 3 Backlight : Not lit</p> 

Fig. 5-4

## 1.4.8 Operational check of control panel button (Function code 13)

### <Function>

This function allows you to check if the buttons on the control panel work properly.

### <Operating Procedure>

- (1) Press the **1** and **3** buttons in this order in the initial state of the maintenance mode.  
In the case of the model without the numeric keys; Press the **▲** or **▼** button. The "MAINTENANCE 13" appears on the LCD. Then press the **OK** button.  
The "00" will appear 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.  
  
When the buttons are pressed in an incorrect order, a warning beep goes off and "INVALID OPERATE" appears on the LCD at the same time. Press the Stop/Exit button, and then press the correct buttons.
- (3) After the last number button is pressed, the machine beeps for one second and returns to the initial state of the maintenance mode.

### Memo:

- When the **Stop/Exit** button is pressed, the machine beeps for one second and returns to the initial state of the maintenance mode.

## ■ MFC-7365DN/7460DN/7470D/7860DN/7860DW



Fig. 5-5

## ■ MFC-7360/7360N

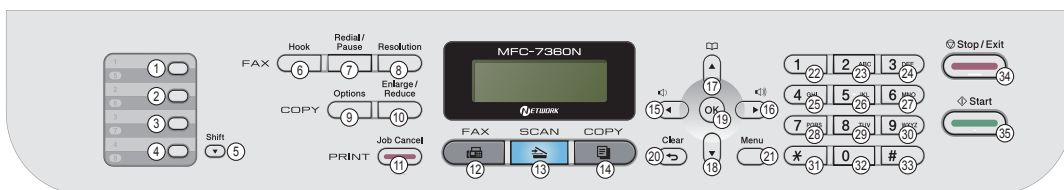


Fig. 5-6

## ■ HL-2280DW/DCP-7055/7055W/7057/7057E/7057W/7060D/7065DN/7070DW



Fig. 5-7

## 1.4.9 Software 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) Press the **2** and **5** buttons in this order in the initial state of the maintenance mode. In the case of the model without the numeric keys; Press the **▲** or **▼** button. The "MAINTENANCE 25" appears on the LCD. Then press the **OK** button. The machine displays each of items described below on the LCD.
- (2) Press the **▲** or **▼** button to check the next item.
- (3) When the **Stop/Exit** button is pressed regardless of the display, the machine cancels the operation, beeps for one second and returns to the initial state of the maintenance mode.

LCD	Description
TOTAL: Ver A <sup>*1</sup>	Main firmware version information(A): Revision information
PCL: Ver 1.00(P) <sup>*1</sup>	Sub firmware (PCL/PS) version information
ENG: Ver1.00	Engine firmware version information
NET: Ver 1.00	Network program version information
i0801170900:0000	I-FAX firmware version information
B09014151027:AF57 <sup>*1</sup>	Boot program creation date
U09040911553:A668 <sup>*1</sup>	Main firmware creation date
D09041191021:2E8F <sup>*1</sup>	Demo firmware data creation date
P09040031122:FC00 <sup>*1</sup>	Sub firmware (PCL/PS) creation date
ROM Check Sum	Check sum self-diagnosis function <sup>*2</sup>

<sup>\*1</sup> How to display the check sum information

Press the **OK** button when its version information is displayed on the LCD to display the check sum information. Press the **OK** button again to go back to the version information display. Press the **▲** or **▼** button to check the next item.

#### Note:

- Regarding the version information (Network and I-FAX) of which check sum information cannot be obtained, the check sum information is not displayed even if you press the **OK** button.

<sup>\*2</sup> There are two types of check sum information which can be checked with this function. This function checks if these two types of check sum information are matched each other. When you press the **OK** button while "ROM Check Sum" is displayed, check is automatically conducted for each ROM of each software part. When the check sum is matched, "OK" is displayed on the LCD. When all ROMs result in OK, "ROM Check Sum OK" is displayed at the end, and the operation is finished. When the check sum of any ROM is not matched, "NG" is displayed, and the display stops.

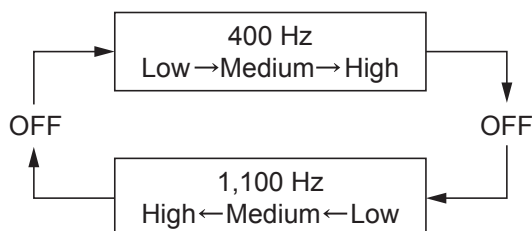
## 1.4.10 Operational check of sensors (Function code 32)

### <Function>

This function allows you to check each of the sensors.

### <Operating Procedure>

- (1) Press the **3** and **2** buttons in this order in the initial state of the maintenance mode.  
In the case of the model without the numeric keys; Press the **▲** or **▼** button. The "MAINTENANCE 32" appears on the LCD. Then press the **OK** button.
- (2) The machine beeps 1,100 Hz and 400 Hz tones cyclically through the following volumes for testing the speaker. To stop beeping, press the **OK** button.



If the sensing status are as listed below, the LCD will show "RIRCNTMRAPOCV\_\_", "DFDRAC" appears on the LCD.

Press the **Start** button to check the next item.

Given below is the relationship between the LCD indication, sensor name and sensor state.

LCD	Sensors	Display	Nondisplay
R1	Paper edge sensor	No paper	Paper set
RC	Back cover sensor / DX Tray	Cover closed	Cover open
NT	New toner sensor	ON	OFF
RM	Registration front sensor	No paper	Paper set
RA	Registration rear sensor	No paper	Paper set
PO	Paper eject sensor	No paper	Paper set
CV	Front cover sensor	Cover closed	Cover open
40 (Last two digits)	Internal temperature sensor	Measured value displayed	NG

<Display only models with ADF>

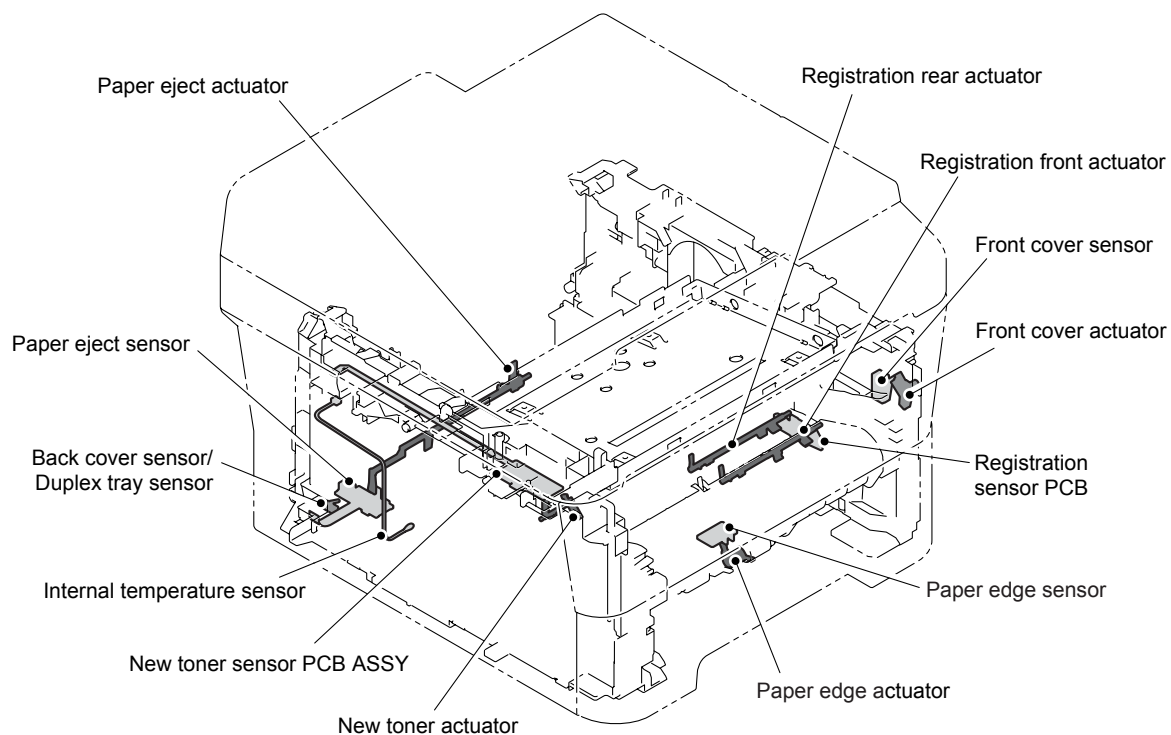
LCD	Sensors	Display	Nondisplay
DF	Document detection sensor	No paper	Paper set
DR	Document scanning position detection sensor	No paper	Paper set
AC	ADF cover open sensor	Cover closed	Cover open

#### Note:

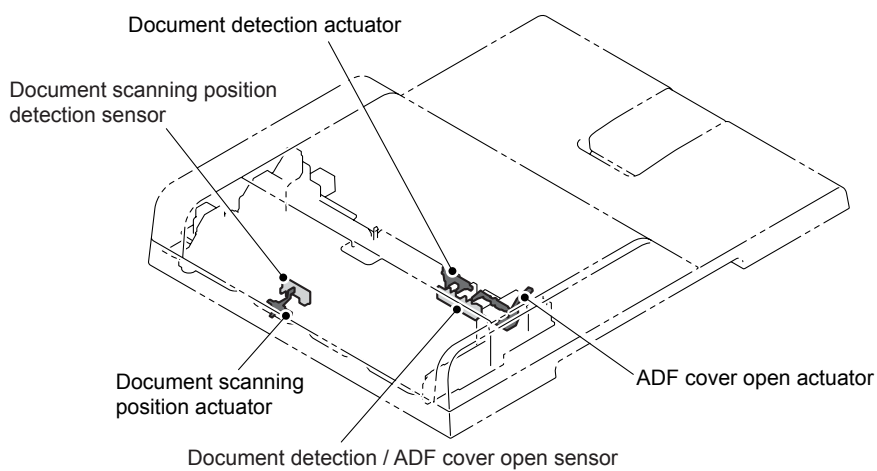
- The "--" appears on the LCD if there is no display.
- The "\*\*\*" appears on the LCD if the parts are not installed or there is no item.

- (3) Check that the display on the LCD is changed when the detection condition of each sensor is changed. For instance, insert paper to the document detection sensor or the registration front (rear) sensor, open the front cover or the back cover, etc.
- (4) When the **Stop/Exit** button is pressed, the machine beeps for one second and returns to the initial state of the maintenance mode.

## ■ Location of sensors



**Fig. 5-8**



**Fig. 5-9**

### 1.4.11 LAN connection status display (Function code 33)

#### <Function>

This function allows you to check the status of the wired LAN connection. The display items are shown in the table below.

LCD	LAN connection status
Active 100B-FD	100BASE-T Full Duplex
Active 100B-HD	100BASE-T Half Duplex
Active 10B-FD	10BASE-T Full Duplex
Active 10B-HD	10BASE-T Half Duplex
Inactive	Not connected.

#### <Operating Procedure>

- (1) Press the **3** button twice in the initial state of the maintenance mode. In the case of the model without the numeric keys; Press the **▲** or **▼** button. The "MAINTENANCE 33" appears on the LCD. Then press the **OK** button.
- (2) The display items in the table above are displayed.
- (3) Press the **Stop/Exit** button to return to the machine to the initial state of the maintenance mode.

## 1.4.12 PC print function (Function code 43)

### <Function>

This function allows the machine change that the setting of each computer printing function indicated to the following function settings.

### <Operating Procedure>

- (1) Press the **4** and **3** buttons in this order in the initial state of the maintenance mode.  
In the case of the model without the numeric keys; Press the **▲** or **▼** button. The "MAINTENANCE 43" appears on the LCD. Then press the **OK** button.  
The "Manual Feed" will appear on the LCD.
- (2) Press the **▲** or **▼** button to select the function you want to set and press the **OK** button.
- (3) When select the unchanging (On/Off) parameter, press the **▲** or **▼** button, or change the parameter using the numeric buttons. And press the **OK** button.  
When you select a parameter to input a numeric value, directly input a numeric value from the ten-key pad and press the **OK** button.
- (4) Press the **Stop/Exit** button so that the buzzer for one second and returns to the initial state of the maintenance mode.

### ■ Function setting

LCD	Description	Set value	Initial value
Manual Feed	Switching of the Manual Feed	On/Off	Off
Resolution	Resolution to print	300/600/1,200 dpi	600
Toner Save	Switching of the Toner Save	On/Off	Off
Density	Switching of the Density level	-6 to 6	0
JB-Can Time	Setting of the time until the host time-out at the Job Cancel	0 to 225 (seconds)	4
Sleep Time	Setting of the time until enter the Sleep Mode	0 to 99 (minutes)	5
Page 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	Thin/Plain/Thick/Thicker/Transparency/Recycled/Bond/Envelopes/EnvThin/EnvThick	Plain or Thin
Paper Size	Switching of the area of develop the image	Letter/Legal/A4/Executive/B5/JISB5/A5/B6/A6/Monarch/C5/COM10/DL/DLL/A4Long/PostCard/Folio	Letter or A4
Copies	Switching of the print copiess	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 (1/300 dpi)	0

LCD	Description	Set value	Initial value
P-Pos Y-Offset	Switching of the offset print position of the portrait orientation	-500 to 500 (1/300 dpi)	0
AutoFF	Switching of the auto form feed	On/Off	Off
AutoFF Time	Switching of the time-out period of the auto form feed	1 to 99 (seconds)	5
FF Surpress	Switching of the FF Suppress	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 CRLF at the print width	On/Off	Off
Auto Skip	Switching of the Skip at the backend/tip of the 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 ErrorPrint of the PostScript	On/Off	On

## ■ Detail description

LCD	Detail description
Manual Feed	Effective for the print from the computer, or for the print of the NetWorkConfig/TestPrint/Fontlist/Configuration from the panel. When select the tray on the computer, the setting becomes effective. And this setting is ignored.
Resolution	Effective only for the print from the computer. When set the Resolution on the computer, the setting becomes effective. And this setting is ignored.
Toner Save	Effective for all print, and change the setting of the Function Menu. However, as for the Copy, this setting becomes invalid. When set the Toner Save or the computer, the setting becomes effective. And this setting is ignored.
Density	Effective for the print from the computer, 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 computer, the setting becomes effective. And this setting is ignored.
JB-Can Time	Configure the setting for until the host time-out at the Job Cancel. The setting value is the second time scale.
Sleep Time	Configure the setting for the time until shift to the Sleep Time. Change the setting of the Function Menu.

LCD	Detail description
Page Protection	Configure the setting to protect the page memory, when recording in computer. Set in the PCL-Core. There is not the influence of the memory management problem of the MFC.
Emulation	Configure the setting for the Emulation. Change the setting of the Function Menu. When the data include the ENTER LANGUAGE, the setting becomes effective. And this setting is ignored.
Auto I/F Time	Configure the setting for the interface open time. The function is in the PC-Print. When the PC-Scan/Remote-SetUp works on the way, the setting becomes invalid.
Media Type	Effective for the print from the computer. When set the type of the recording paper on the computer, the setting becomes effective. And this setting is ignored. The default value is different by the country setting. China is the Thin, and others are the Plain.
Paper Size	Switching of the area of develop the image. 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 computer, the setting becomes effective. And this setting is ignored. The default value is different by the country setting. U.S.A/Canada are the Letter, and others are the A4.
Copies	Effective for the print from the computer. When set the number of the copies on the computer, the setting becomes effective. And this setting is ignored.
Orientation	Configure the switching for the print direction. Effective for the print from the computer.
P-Pos X-Offset	Configure the setting for the offset print position of the landscape orientation. Effective for the print from the computer. When set the X-Offset on the computer, the setting becomes effective. And this setting is ignored.
P-Pos Y-Offset	Configure the setting for the offset print position of the portrait orientation. Effective for the print from the computer. When set the Y-Offset on the computer, the setting becomes effective. And this setting is ignored.
AutoFF	Configure the setting for the ON/OFF of the Auto Form Feed. Effective for the print from the computer.
AutoFF Time	Configure the setting for the Time Out, when the Auto Form Feed is ON.
FF Surpress	Configure the setting for the skip of the blank page. Effective for the print from the computer. The blank data in the Copy/Fax cannot be turned ON/OFF in this setting.
Auto LF	Configure the setting for the auto line feed.
Auto CR	Configure the setting for the auto Carriage Return.
Auto WRAP	Configure the setting for the auto CRLF at the print width.
Auto Skip	Configure the setting for the skip at the back-end/tip of the recording paper and add the blank space.
Left Margin	Configure the setting for the column space at the left end.
Right Margin	Configure the setting for the column space at the right end.
Top Margin	Configure the setting for the space at the upper end.
Bottom Margin	Configure the setting for the space at the bottom end.
Lines	Configure the setting for the number of the lines in the PCL.
Error Print	Configure the setting for the Error Print of the BR-Script 3.

### 1.4.13 Not-disclosed-to-users functions (Function code 45)

#### ■ Changing return value of USB No.

##### <Function>

When the OS of the computer is Windows Vista<sup>®</sup>, and the computer is connected to a device through USB 2.0 full speed, the OS might fail to get the serial No. of the USB device depending on the computer and USB device. When the OS fails to get the serial No., the return value may continue to increase every time the device is connected to the computer. To avoid this problem, the return value of the serial No. is dropped to "0".

LCD	Detail description
USBNo. =ON	Returns "0".
USBNo. =OFF	Returns the serial No. of the device. (default)

##### <Operating Procedure>

- (1) Press the **4** and **5** buttons in this order in the initial state of the maintenance mode.  
In the case of the model without the numeric keys; Press the **▲** or **▼** button. The "MAINTENANCE 45" appears on the LCD. Then press the **OK** button.  
The "USBNo." will appear on the LCD. Then, press the **OK** button.
- (2) Press the **▲** or **▼** button to select "USB No. = ON" or "USB No. = OFF," and then press the **OK** or **Start** button.
- (3) "Accepted" is displayed on the LCD, and the product goes back to the initial state of the maintenance mode.
- (4) Turn the power switch of the machine OFF.

##### **Note:**

- This mode is enabled when the power of the machine is turned OFF and ON.

## 1.4.14 EEPROM customizing (User-accessible) (Function code 52)

### <Function>

This function allows users to customize the EEPROM settings such as language, function settings or worker switch settings.

#### Note:

- This function is applicable to France and surrounding countries, Pan-Nordic, East Europe, Oceania and Iberia areas only.

### <Operating Procedure>

- (1) Press the **Menu**, **Start** and **Menu** buttons in this order in the ready state.  
The "0" will appear on the LCD.
- (2) Press the **5** and **2** buttons in this order. In the case of the model without the numeric keys; Press the **▲** or **▼** button. The "MAINTENANCE 52" appears on the LCD. Then press the **OK** button.  
The "Set Country/Press OK" will appear on the LCD.
- (3) Press the **OK** button. The country name will appear on the LCD.

#### Note:

- The country name indicated on the LCD varies depending on the area (code input in [Function code 74](#)) as shown in the table below.

Belgium Netherlands	Germany Austria	France and surrounding countries	Oceania	Pan-Nordic	Iberia	East Europe	South Africa Turkey Gulf
België / Belgique	Deutschland	France	Australia	Norge	España	österreich	South Africa
Nederland	österreich	België / Belgique	New Zealand	Suerige	Portugal	Ceska republika	Türkiye
		Nederland		Suomi		Magyarország	Others
				Danmark		Polska	
				Others		България	
						România	
						Slovensko	
						Others	

- (4) Press the **▲** or **▼** button to display the country name where the machine is used. Press the **OK** button while the country name is being indicated. The EEPROM is customized, and the machine returns to the ready state.

## 1.4.15 Received data transfer function (Function code 53) (FAX model 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. And this function faxes the maintenance information of the machine.

#### Note:

- This function transfers received FAX file to another machine. It is useful when the machine cannot print received FAX file due to the printing mechanism being defective.
- If there are both color and monochrome data in a FAX file to be transferred, the monochrome data will be transferred first. If the receiver machine does not support the color function, the sender machine cannot transfer color data, resulting in an error.

### <Operating Procedure>

- (1) Press the **5** and **3** buttons in this order in the initial state of the maintenance mode. The "FAX TRANSFER" appears on the LCD.
  - 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."
  - To transfer the activity report only, press the **2** button. The "2.ACTIVITY" appears on the LCD.
  - To transfer received files (together with the activity report), press the **3** button. The "3.DOCUMENTS" appears on the LCD. Note that if there is no received file, the "NO DOCUMENTS" appears.
  - 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 on the LCD.
  - Press the **6** button to transfer the maintenance information (list of function code 77). The "6.MNT77 LIST" appears on the LCD.
- (2) With the "2.ACTIVITY," "3.DOCUMENTS," "4.COM.LIST (NEW)," "5.COM.LIST (ERR3)," or "6.MNT77 LIST" being displayed, press the **OK** button. The "ENTER NO & SET" appears on the LCD.
- (3) Enter the telephone number of the receiver machine and press the **OK** button again.
- (4) The machine displays the "ACCEPTED" for approximately two seconds and starts dialing to transfer data.

#### Note:

- Be sure to type the telephone number with the numerical buttons. No one-touch dialing is allowed in this procedure.
- 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

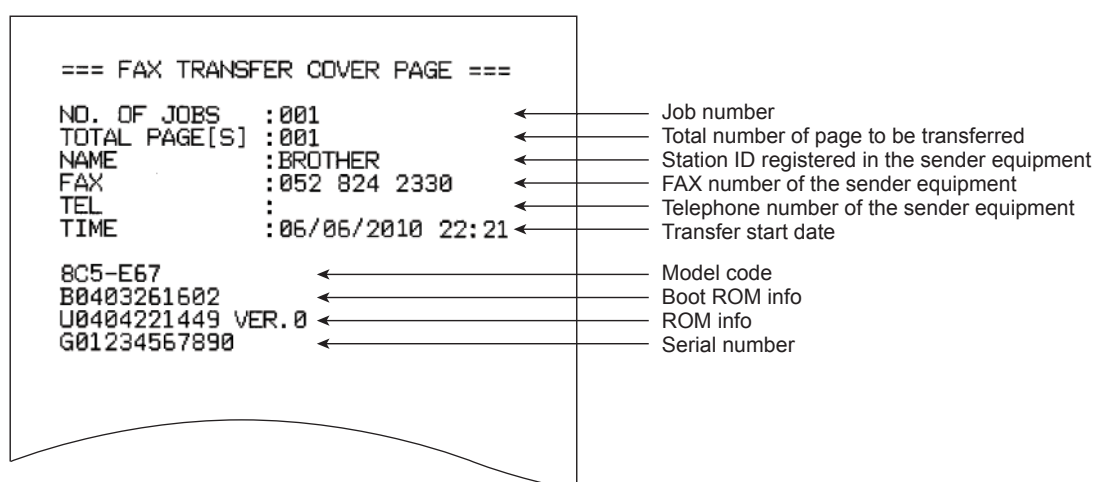


Fig. 5-10

## ■ End page sample

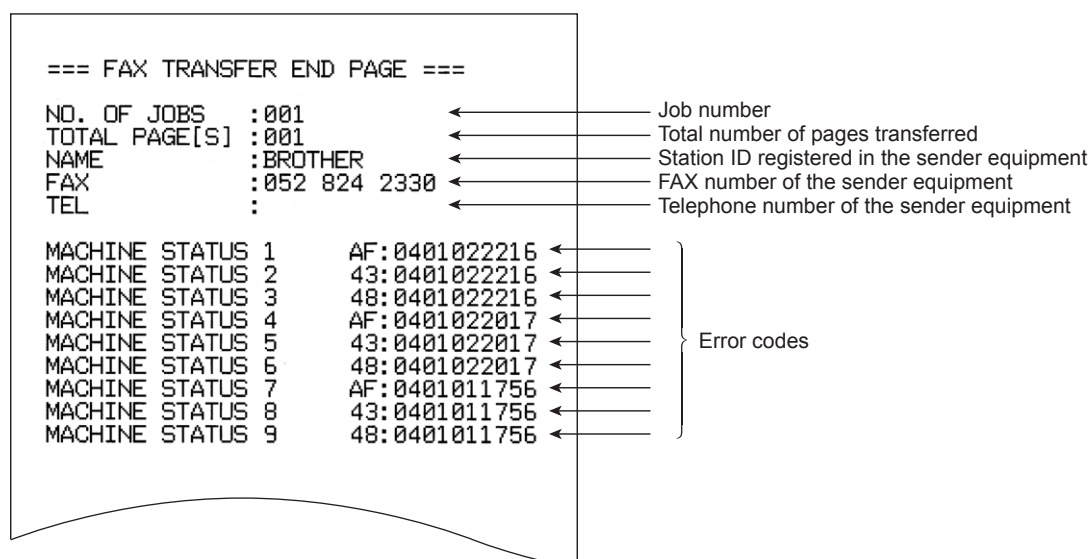


Fig. 5-11

## 1.4.16 Fine adjustment of scan start/end positions (Function code 54)

### <Function>

This function allows you to adjust the scan start/end positions on the ADF and FB unit.

### <Operating Procedure>

- (1) Press the **5** and **4** buttons in this order in the initial state of the maintenance mode.  
In the case of the model without the numeric keys; Press the **▲** or **▼** button. The "MAINTENANCE 54" appears on the LCD. 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 **▲** or **▼** 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 the correction value and the **▼** button to lower it.  
When the **Stop/Exit** button is pressed, the machine beeps for one second and returns to the initial state of the maintenance mode.
- (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.

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

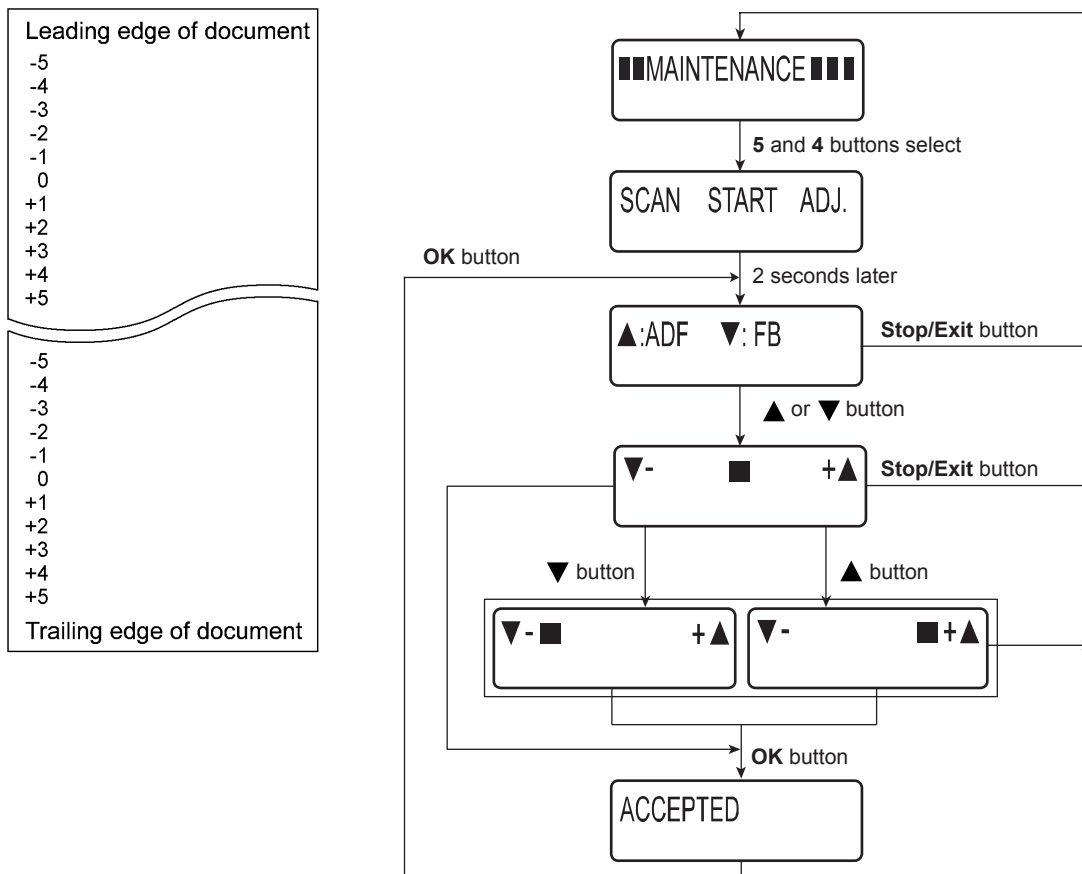


Fig. 5-12

### 1.4.17 Acquisition of white level data (Function code 55)

#### <Function>

This function allows you to acquire the white level of the scanner unit and save it to the EEPROM of the main PCB.

#### **Note:**

- After deep sleep mode is released, execute this function code. If the correct white level data is not yet acquired, update the firmware to the latest version. If updating the firmware is not possible, open and close the front cover, and then retry acquisition after the main motor has stopped.

#### <Operating Procedure>

- (1) Press the **5** button twice in the initial state of the maintenance mode.  
In the case of the model without the numeric keys; Press the **▲** or **▼** button. The "MAINTENANCE 55" appears on the LCD. Then press the **OK** button.
- (2) The "Press START" will appear on the LCD. Press the **Start** button.  
The "SCANNER AREA SET" will appear on the LCD.
- (3) After a few seconds, the machine saves the compensation of the white level data/ scanning width in the EEPROM, beeps for one second, and returns to the initial state of the maintenance mode.

## 1.4.18 Continuous print test (Function code 67)

### <Function>

This function allows you to conduct the pick-up and delivery test as printing patterns.

### <Operating Procedure>

- (1) Press the **6** and **7** buttons in this order in the initial state of the maintenance mode.  
In the case of the model without the numeric keys; Press the **▲** or **▼** button. The "MAINTENANCE 67" appears on the LCD. Then press the **OK** button.
- (2) When "SELECT: A4" is displayed on the LCD, select a relevant paper size using **▲** or **▼** button, and then press the **OK** button.

The available paper sizes are shown below.

LCD
SELECT: A4
SELECT: LETTER
SELECT: LEGAL
SELECT: A5
SELECT: B6
SELECT: A6

- (3) When "SELECT: TRAY1" is displayed on the LCD, press the **▲** or **▼** button to select the print format, and press the **OK** button.

The available print formats are shown below.

LCD
SELECT: TRAY1
SELECT: TRAY1 DX

- (4) The "PAPER FEED TEST" appears on the LCD, and print of the continuous print pattern with the selected pick-up test items starts.
- (5) Press the **Stop/Exit** button to return to the machine to the initial state of the maintenance mode.

#### Note:

- The test printing is stopped until there is no paper in a tray. Press the **Stop/Exit** button to stop if you check the paper feeding and ejecting operations. (Printing is resumed when paper is loaded in the tray.)
- In the case that the error occurs during test printing, the continuous print is terminated. (If you do not press the **Cancel** button, printing is resumed when the error is cleared.)
- To clear the error, remove the error factors, and then press the **Start** button.

## 1.4.19 Setting by country (Function code 74)

### <Function>

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

#### **Note:**

- When you replace the main PCB ASSY and rewrite the firmware forcibly, be sure to carry out this procedure.

### <Operating Procedure>

- (1) Press the **7** and **4** buttons in this order in the initial state of the maintenance mode.  
In the case of the model without the numeric keys; Press the **▲** or **▼** button. The "MAINTENANCE 74" appears on the LCD. Then press the **OK** button.  
The present country code is displayed.
- (2) Enter the desired country code (e.g., MFC-7860DW (U.S.A): 0201).  
In the case of the model without the numeric keys; Press the **▲** or **▼** button several times. The desired number appears on the LCD. Then repeat this operation for each number.  
The newly entered code appears.

#### **Note:**

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

- (3) Press the **OK** button. In the case of the model without the numeric keys; 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 state of the maintenance mode.

#### **Memo:**

- When the **Stop/Exit** button is pressed, or when no button is pressed for one second procedure during the above procedure, the machine cancels the above, beeps for one second and returns to the initial state of the maintenance mode. In this case, the modified setting data is not saved.

## ■ Setting by country code list

Country	DCP-7055 DCP-7055W	DCP-7057W	DCP-7057 DCP-7057E	DCP-7060D	DCP-7065DN	HL-2280DW	DCP-7070DW
U.S.A.	0001	---	---	0001	0001	0001	---
Canada	---	---	---	0002	0002	0002	---
Brazil	0042	---	---	---	0042	---	---
Argentina / Chile	0036	---	---	---	0036	---	---
Mexico	0001	---	---	---	---	---	---
Germany	3053(3003)	---	---	3053(3004)	3053(3004)	---	3153(3104)
U.K. / Ireland	3004	---	---	3004	3004	---	3104
France	3055(3004)	---	---	3055(3004)	3055(3005)	---	3155(3105)
Belgium	3055(3008)	---	---	3055(3008)	3055(3008)	---	3155(3108)
Netherlands	3055(3004)	---	---	3055(3004)	3055(3009)	---	3155(3109)
Spain	3065(3015)	---	---	3065(3015)	3066(3015)	---	---
Italy	3004	---	3104	3004	3066(3004)	---	---
Portugal	3065(3004)	---	---	3065(3004)	3066(3004)	---	---
Switzerland	3004	---	---	3004	3004	---	---
Austria	3053(3014)	---	---	3053(3014)	3053(3014)	---	3153(3114)
Pan-Nordic							
Norway	---	---	---	---	---	---	---
Sweden	---	---	---	---	---	---	---
Finland	---	---	---	---	---	---	---
Denmark	---	---	---	---	---	---	---
Others	3004	---	3104	3004	3004	---	3104
CEE General							
Slovakia	---	---	---	---	---	---	---
Bulgaria	---	---	---	---	---	---	---
Romania	---	---	---	---	---	---	---
Czech	---	---	---	---	---	---	---
Hungary	---	---	---	---	---	---	---
Poland	---	---	---	---	---	---	---
Others	3004	---	3104	3004	3004	---	3104
Russia	3004	3104	3104	3004	3004	---	3104
Australia	2004	---	---	2004	2004	---	---
New Zealand	2004	---	---	2004	2004	---	---
Asia	0004	---	---	0004	---	---	---
Gulf							
South Africa	---	---	---	---	---	---	---
Turkey	---	---	---	---	---	---	---
Others	1004	---	---	---	1004	---	---
Iran	8004	---	---	---	---	---	---
India	0045	---	---	0004	0045	---	---
Korea	---	---	---	---	---	---	---
China	2020	---	2120	2020	---	---	---
Indonesia	0004	---	---	---	---	---	---
Philippines	---	---	---	---	0021	---	---
Taiwan	---	---	---	0023	---	---	---

The above information is as of August 2013. Please confirm the latest firmware information which is available from your local Brother Customer Service.

Country	MFC-7360	MFC-7360N	MFC-7362N	MFC-7365DN	MFC-7460DN	MFC-7470D	MFC-7860DN	MFC-7860DW
U.S.A.	---	0001	---	0101	0001	---	---	0201
Canada	---	0002	---	---	0002	---	---	0202
Brazil	---	0042	---	---	0042	---	---	0242
Argentina / Chile	---	0036	---	---	0036	---	---	0236
Germany	---	2053(2003)	---	---	2053(2003)	---	---	2253(2203)
U.K. / Ireland	---	2004	---	---	2004	---	---	2204
France	---	2005	---	---	2005	---	---	2205
Belgium	---	2008	---	---	2008	---	---	2258(2208)
Netherlands	---	2009	---	---	2009	---	---	2258(2209)
Spain	---	2065(2015)	---	---	2065(2015)	---	---	2265(2215)
Italy	---	2016	---	---	2016	---	---	2216
Portugal	---	2065(2018)	---	---	2065(2018)	---	---	2265(2218)
Switzerland	---	2010	---	---	2010	---	---	2210
Austria	---	2053(2014)	---	---	2053(2014)	---	---	2253(2214)
Pan-Nordic								
Norway	---	2057(2007)	---	---	2057(2007)	---	---	2257(2207)
Sweden	---	2057(2026)	---	---	2057(2026)	---	---	2257(2226)
Finland	---	2057(2012)	---	---	2057(2012)	---	---	2257(2212)
Denmark	---	2057(2013)	---	---	2057(2013)	---	---	2257(2213)
Others	---	2057(2050)	---	---	2057(2050)	---	---	2257(2250)
CEE General								
Slovakia	---	2088(2030)	---	---	2088(2030)	---	---	---
Bulgaria	---	2088(2032)	---	---	2088(2032)	---	---	---
Romania	---	2088(2033)	---	---	2088(2033)	---	---	---
Czech	---	2088(2037)	---	---	2088(2037)	---	---	---
Hungary	---	2088(2038)	---	---	2088(2038)	---	---	---
Poland	---	2088(2039)	---	---	2088(2039)	---	---	---
Others	---	2088(2050)	---	---	2088(2050)	---	---	---
Poland	---	2039	---	---	2039	---	---	2239
Russia	---	2048	---	---	---	---	---	2248
Australia	---	2056(2006)	2156(2106)	---	2056(2006)	---	---	2256(2206)
New Zealand	---	2056(2027)	2156(2127)	---	2056(2027)	---	---	2256(2227)
Asia	0040	---	---	---	---	0040	---	0240
Gulf								
South Africa	0074(0024)	---	---	---	---	---	---	0274(0224)
Turkey	0074(0025)	---	---	---	---	---	---	0274(0225)
Others	0074(0041)	---	---	---	---	0041	---	0274(0241)
Iran	8041	---	---	---	---	---	---	---
India	0045	---	---	---	---	---	---	0245
Korea	0040	---	---	---	---	0040	0140	---
China	2020	---	---	---	---	2020	2120	---
Indonesia	0040	---	---	---	---	---	---	---
Philippines	---	---	---	---	---	0021	---	0221
Taiwan	0023	---	---	---	0023	---	---	0223

The above information is as of August 2013. Please confirm the latest firmware information which is available from your local Brother Customer Service.

## 1.4.20 Printout of maintenance information (Function code 77)

### <Function>

This function is to print out log information.

### <Operating Procedure>

- (1) Press the **7** button twice in the initial stage of the maintenance mode. The "MAINTENANCE 77" will appear on the LCD.  
In the case of the model without the numeric keys; Press the **▲** or **▼** button. The "MAINTENANCE 77" appears on the LCD. Then press the **OK** button.
- (2) The machine prints out a list of log information. Upon completion of printing, the machine returns to the initial state of the maintenance mode. The example of the log information is shown below.

## ■ Maintenance information

MAINTENANCE			
HL-2280DW	Serial No.=X12345KON000402	Model=8C5-E17	Country=0001 SW CheckSum=13
Main ROM: Ver.U U1008301834	ROM ChkSum: FB19	OK	00
Sub ROM: Ver.0.19 P1008301832	USB Prod.ID: 0272	OKOK	000000
Demo ROM: D1008302118		0018008008004000	
Boot ROM: B1008301649		00B2800030200000	000000F2
Memory Version:			
RAM Size = 32Mbyte			
Remaining life of :			
*Toner Cartridge: 99%	**Drum Unit: 11998 (100%)		
<Device Status>		<Error History (last 10 errors)>	
Total Page Count: 1		1:	
Copy Count: 0		2:	
PC-Print Count: 0		3:	
List/FAX Count: 1		4:	
		5:	
***Average Coverage(Total): 2.36%		6:	
***Average Coverage(Current)*: 2.36%		7:	
		8:	
<Drum Information>		9:	
Drum Page Count: 2		10:	
Drum Count: 31			
<Developing Roller Count: 31>		<Replace Count>	
		Toner Cartridge: 0	0
		Drum Unit: 0	
<Total Pages Printed>		<Total Pages Printed>	
Manual Feed: 0		Current Toner: 1	
Tray 1: 1		Previously Used Toner: 0	
Duplex: 0			
<Total Pages Printed>		<Scan Count>	
A4/Letter: 1		SX Page Count: 130	
Legal/Folio: 0		FB Page Count: 0	
B5/Executive: 0			
Envelope: 0		<Developing Bias: 415V>	
A5: 0			
Others: 0			
<Total Pages Printed>		<Engine Sensor Log>	
Plain/Thin/Recycled: 1		KO: 000000/000000	MN: 000000/000000
Thick/Thicker/Bond: 0		RS: 000000/000000	EJ: 000000/000000
Envelope/Env.Thick/Env.Thin: 0			
Label: 0			
Hagaki: 0			
<Total Paper Jams: 0>			
Jam Tray: 0			
Jam Inside: 0			
Jam Rear: 0			
Jam Duplex: 0			
<Power On Time: 0 hours>			
<Power On Count: 2>			
* Remaining life will vary depending on the types of documents printed.			
** Based on A4/Letter printing.			
*** Calculated coverage.			

Fig. 5-13

### 1.4.21 Operational check of fan (Function code 78)

#### <Function>

This function is to check whether a fan is operating correctly or not.

#### <Operating Procedure>

- (1) Press the **7** and **8** buttons in this order in the initial state of the maintenance mode.  
In the case of the model without the numeric keys; Press the **▲** or **▼** button. The  
“MAINTENANCE 78” appears on the LCD. Then press the **OK** button.  
The indication will appear on the LCD as shown in the figure below.
- (2) Press the **Start** button to check the next item. For operation check, spin or stop fans  
actually on each item.
- (3) Press the **Stop/Exit** button so that the machine stops checking the fans, beeps for one  
second and returns to the initial state of the maintenance mode.

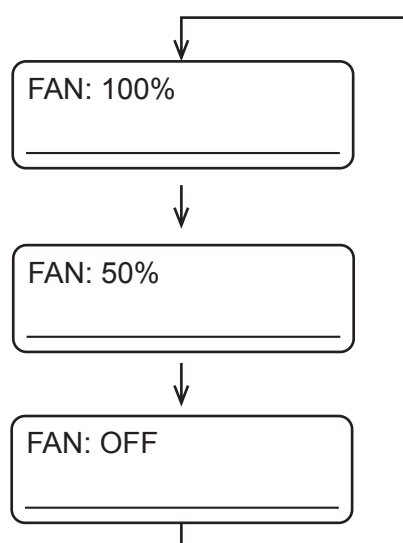


Fig. 5-14

#### ■ Location of fans

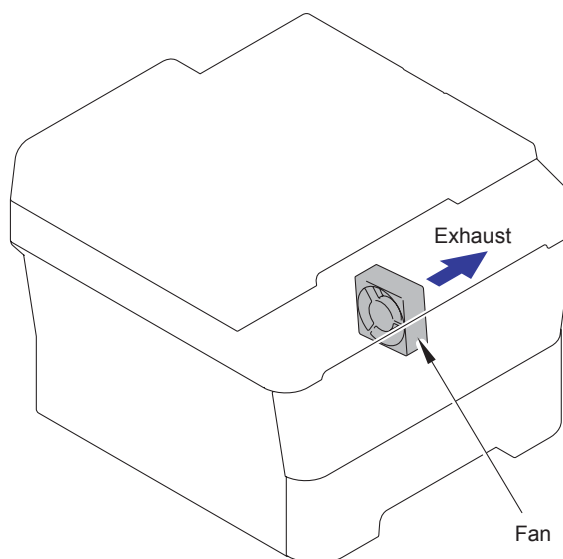


Fig. 5-15

## 1.4.22 Display of the machine history (log) (Function code 80)

### <Function>

This function allows you to view the machine's history (log). The display items are shown in the table below.

	LCD	Description
Serial <sup>*1</sup>	USB:	Serial number
MAC Address	MAC:	MAC Address (Ethernet Address)
PCB Serial	PCB:	Main PCB serial number
Drum related items	DRUM:	Number of drum rotations
	DRUM_PG:	Number of printed pages by drum
	DRUM_CH: <sup>*2</sup>	Number of times the drum unit has been replaced/ Date of last replacement
Toner related items	KTN_PG1:	Number of printed pages by toner
	KTN_PG2:	Number of printed pages before previous reset of toner
	KTN_ERM:	Remaining toner amount of toner (the calculated value in dots)
	KTN_RRM:	Remaining toner amount of toner (the remaining amount based on the number of rotation of the developer roller)
	KTNR_CH: <sup>*2</sup>	Number of times the toner has been replaced/ Date of last replacement
	KTNR_RND:	Toner developer roller count
Average print rate related items <sup>*3</sup>	KCVRGUSI:	Average black coverage% (Toner in use)
	KCVRGACC:	Average black coverage% (Accumulated)
Print pages related items	TTL_PG:	Total number of printed pages
	TTLCOPY:	Number of copy pages
	TTLPCPT:	Number of PC prints made
	TTLFAX:	Number of List/FAX outputs made
Picked-up pages by tray	TR1_PG:	Number of pages picked up from the paper tray1
	MN_PG:	Number of pages picked up from the Manual feed slot
	DX_PG:	Number of sheets picked up from the DX

	LCD	Description
Picked-up pages by paper size	A4+LTR:	Number of A4/Letter size sheets picked up
	LG+F0L:	Number of Legal/Folio 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 (including A5R) sheets picked up
	OTHER:	Number of other-size (including JIS B6) sheets picked up
Print pages by paper types *4	PLTNRE:	Printed pages of plain, thin, and recycled paper
	TKTRBD:	Printed pages of thick, thicker, and bond paper
	ENVTYP:	Printed pages of envelope, envelope thick, and envelope thin
	HAGAKI:	Printed pages of Hagaki
	LABEL:	Printed pages of label
Number of scanned pages	ADSX_PG	Number of pages scanned in singled sided scanning with ADF.
	FB_PG	Number of pages scanned with document table
Developing bias related time	KDEV_BIAS:	Black developing bias voltage (unit:V)
Power distribution time	POWER:	Power distribution time (unit: H)
	PWRCNT:	Number of times that the power is turned ON
Jam related items	TTL_JAM	Total number of times when a jam occurs
	TR1_JAM	Number of times when a jam occurs at the paper tray1
	MN_JAM	Number of times when a jam occurs at the manual tray
	DX_JAM	Number of sheets jammed in the DX
	IN_JAM	Number of sheets jammed in the product
	RE_JAM	Number of sheets jammed around the back cover
	ADSX_JAM	Number of jams that occurred at singled sided scanning with ADF.

	LCD	Description
Number of error occurrences	HODN_ER:	Number of times that the error caused by the dirt on the corona wire occurs
	FUSR_ER:	Number of times that fuser unit error occurs
	MTLK_ER:	Number of times that the motor lock error in the laser scanner occurs
Error log related items	MACHINEERR_##:* <sup>5</sup>	Error history ## to be displayed to the user: Error code/Occurrence page counter
	COMERR##:	Last communication error mode

\*1 The serial number can be changed using the steps below.

- (1) Push the **9**, **4**, **7**, and **5** buttons in this order with the serial number displayed.  
(For models without the numeric keys; push the ▲ or ▼ button to display “9” on the LCD, and push the **OK** button. Perform the same operation to display “4”, “7”, and “5”.) The first digit of the serial number displayed on the LCD flashes.

(2) Models with numeric keys

Use the numeric keys to enter the first digit of the machine's serial number, and push the ► button to change the flashing digit. Repeat this operation until the nine-digit serial number is entered.

<Entry method of alphabetical characters>

Push the corresponding numeric keys in the table below until the desired alphabetical character is displayed.

Numeric key	Assigned characters
2	2 → A → B → C
3	3 → D → E → F
4	4 → G → H → I
5	5 → J → K → L
6	6 → M → N → O
7	7 → P → Q → R → S
8	8 → T → U → V
9	9 → W → X → Y → Z

Models without numeric keys

Push the ▲ or ▼ button to display the first digit of the machine's serial number on the LCD, and push the **OK** button. Then, push the ▲ button to display “?” on the LCD, and push the **OK** button to change the flashing digit. Repeat this operation until the nine-digit serial number is entered.

<Entry method of alphabetical characters>

- a) Push the ▲ or ▼ button to display the number corresponding to the alphabetical character in the table below on the LCD, and push the **OK** button. The selected number is displayed on the LCD.
- b) Push the ▲ or ▼ button again to display the same number on the LCD, and push the **OK** button. The corresponding alphabetical character is displayed on the LCD. (Do not change the flashing digit.)

- c) If the alphabetical character displayed is not the desired one, repeat step b) until the desired character is displayed.

<Number and corresponding characters>

Number	Assigned characters
2	A, B, C
3	D, E, F
4	G, H, I
5	J, K, L
6	M, N, O
7	P, Q, R, S
8	T, U, V
9	W, X, Y, Z

E.g. When entering "Q"

Push the ▲ or ▼ button to display "7" on the LCD, and push the **OK** button. "7" is displayed on the LCD.

Push the ▲ or ▼ button again to display "7" on the LCD, and push the **OK** button. "P" is displayed on the LCD.

Push the ▲ or ▼ button again to display "7" on the LCD, and push the **OK** button. "Q" is displayed on the LCD.

- d) Push the ▲ button to display "?" on the LCD, and push the **OK** button to change the flashing digit. Repeat these operations until the nine-digit serial number is entered.

- (3) When serial number entry is completed, push the **OK** button.

The new setting is stored, and the machine returns to the initial state of the maintenance mode.

To abort serial number entry, push the **Stop** button. Setting is canceled, and the machine returns to the initial state of the maintenance mode.

- \*2 Press the **OK** button while the number of times that the consumable part has been replaced is displayed, the date last time the consumable part was replaced is displayed. Press the **OK** button again, and the number of times the consumable part has been replaced is displayed again.

- \*3 Average print rate: Print area/printable area

- \*4 Paper type according to the printer driver settings. It is not necessarily matched with the type of the actual fed paper.

- \*5 01 to 10 are entered in ## in chronological order. When you press the **OK** button as the machine error history is displayed, the page counter values when the errors occurred are displayed.

### <Operating Procedure>

- (1) Press the **8** and **0** buttons in this order in the initial state of the maintenance mode. In the case of the model without the numeric keys; Press the ▲ or ▼ button. The "MAINTENANCE 80" appears on the LCD. Then press the **OK** button.
- (2) Each time the **Start** button is pressed, next log information item appears on the LCD in the order. Press the ▼ button to go to the next item. Press the ▲ button to go back to the previous item.

- (3) Press the **Stop/Exit** button to return to the machine to the initial state of the maintenance mode.

**Note:**

- Regarding “MACHINEERR” and “COMERR”, when the **OK** button is pressed while the error history is displayed, the page counter value at which the error occurred is displayed. Press the **OK** button again to return the machine to the error history display.

### 1.4.23 Error code indication (Function code 82)

**<Function>**

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

**<Operating Procedure>**

- (1) Press the **8** and **2** buttons in this order in the initial state of the maintenance mode.  
In the case of the model without the numeric keys; Press the **▲** or **▼** button. The “MAINTENANCE 82” appears on the LCD. Then press the **OK** button.  
The machine displays “MACHINE ERROR X X” on the LCD.
- (2) Press the **Stop/Exit** button to return to the machine to the initial state of the maintenance mode.

### 1.4.24 Sending communication error list (Function code 87) (FAX model only)

**<Function>**

This function is to send the error list to a service man at a remote location when a FAX communication error occurs on a user's machine. Reception of the error list enables a service man to analyze the problem occurring on a user's machine.

**<Operating Procedure>**

- Service side
  - (1) The service side connects the phone line to the user in question.
- User side
  - (1) Press the Menu button and **Start** button as the machine is in the ready state.
  - (2) Press the **0** button to display “0” on the LCD.
  - (3) Press the **8** button and **7** button in this order, and “SENDING P.01” is displayed on the LCD, and the error list is sent.
  - (4) When the error list is sent, the machine beeps for approximately 1 second and returns to the initial state of the maintenance mode.

**Note:**

- If this operation is not performed while the phone line is connected, the error list sending operation is not started. Be sure to perform the operation explained above while the phone line is connected (i.e., while making a call using the built-in H/S, using the additional telephone set, or using the line monitor).

### 1.4.25 Counter reset after replacing the fuser unit and paper feeding kit (Function code 88)

#### <Function>

The number of replacement is increased by one, and the warning indication "Replace \*\*\*" is cleared, with implementing this operation after replacing the fuser unit and paper feeding kit.

#### <Operating Procedure>

- (1) Press the **8** button twice in the initial state of the maintenance mode.  
In the case of the model without the numeric keys; Press the **▲** or **▼** button. The "MAINTENANCE 88" appears on the LCD. Then press the **OK** button.
- (2) The "Reset-Laser Unit" will appear on the LCD.
- (3) Press the **▲** or **▼** button to select the item you want to reset. The LCD shows.
  - Laser Unit
  - Fuser Unit
  - PF KIT MP
  - PF KIT T1
  - PF KIT T2
- (4) Press the **OK** or **Start** button, then "OK?" will appear on the LCD.
- (5) Press the **OK** or **Start** button to reset the counter of the selected part and returns the operating procedure (2) mode.
- (6) When the **Stop/Exit** button is pressed, the machine beeps for one second and returns to the initial state of the maintenance mode.

### 1.4.26 Exit from the maintenance mode (Function code 99)

#### <Function>

This function allows you to exit from the maintenance mode. If the error related to the fuser unit occurs, the error is cleared.

#### <Operating Procedure>

- (1) Press the **9** button twice in the initial state of the maintenance mode. The maintenance mode exits from the maintenance mode and return to the ready state.  
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.

#### **Note:**

- When a fuser error occurs, be sure to turn ON the power after cooling the halogen heater sufficiently.

## 2. OTHER SERVICE FUNCTIONS

---

### 2.1 Developer Roller Counter Reset Function

This function is to manually perform the operation same as the one when a toner cartridge is replaced with a new one. The purpose of this function is to provide a means to resolve an error when a new toner cannot be recognized by the machine, and the toner life display fails to be cleared.

- (1) Open the front cover.
- (2) Press the **Clear/Back** button and  
"Replace Drum? / 1. Yes 2. No" or "Replace Drum? ▲ Yes ▼ No" appears on the LCD.
- (3) Reset the counter in the following procedures by the toner type.

#### <Models with numeric keys>

Starter toner: Press the \*, **1** and **0** button in this order.

Standard toner: Press the \*, **1** and **1** button in this order.

High capacity toner: Press the \*, **1** and **2** button in this order.

If the toner type is unknown, press the \*, **0** and **0** in this order. The input number appears on the LCD in 2 seconds.

#### <Models without numeric keys>

Starter toner: Press the **Start** button, and press the ▲ or ▼ button to display "10" on the LCD. Then press the **OK** button.

Standard toner: Press the **Start** button, and press the ▲ or ▼ button to display "11" on the LCD. Then press the **OK** button.

High capacity toner: Press the **Start** button, and press the ▲ or ▼ button to display "12" on the LCD. Then press the **OK** button.

If the toner type is unknown, press the **Start** button and press the ▲ or ▼ button to display "00" on the LCD. Then press the **OK** button.

"Accepted" is displayed on the LCD.

- (4) "Cover is open" appears on the LCD after 2 seconds.
- (5) Close the front cover.

#### Note:

- If there is no operation for 30 seconds or more, the machine automatically returns to step (1).

## 2.2 Parts Life Reset Function

This function is used to reset the relevant part counter when the user replaced a periodical replacement part with the correct procedure, and also used to forcibly reset the relevant part counter when an error cannot be resolved because the user did not replace a consumable part with the correct procedure.

- (1) Press the **3** and **9** buttons at the same time in the ready state.
- (2) The “Reset Menu” will appear on the LCD. Select the applicable periodical replacement part or consumable part by pressing the **▲** or **▼** button and press the **OK** button.  
<Periodical replacement parts or consumable part are indicated on the LCD>
  - Drum
- (3) Once “1.Reset 2.Exit” appears on the LCD; press the **1** or **2** button.
- (4) The machine implements clearing the counter.

### Note:

- This function is not available on models without the numeric keys.
- All replacement parts are always indicated on the LCD even though their lives do not reach the end of life.
- The machine returns to the ready state automatically if no panel operation is implemented for 30 seconds.

## 2.3 Deletion of User Setting Information, etc.

In this machine, the user setting information is stored in the EEPROM and flash memory of the main PCB ASSY. You can delete all the data listed below at a time with the procedure given below.

- Information related to Net
- User setting information

### <Operating Procedure>

- (1) Press the Menu button while the machine is in the ready state.
- (2) Press the **▲** or **▼** button, then the “Initial Setup” or “General Setup” will appear on the LCD and press the **OK** button.  
(Which will appear, “Initial Setup” or “General Setup”, depends on the model.)
- (3) Press the **▲** or **▼** button, then the “Reset Menu” will appear on the LCD and press the **OK** button.
- (4) Press the **▲** or **▼** button, then the “All Settings” will appear on the LCD and press the **OK** button.
- (5) The “1.Reset 2.Exit” appear on the LCD.
- (6) Press the **1** button, and the user setting information is deleted, and the machine goes back to the ready state.

### Note:

- The machine returns to the ready state automatically if no panel operation is implemented for 30 seconds.

## 2.4 Continue mode / Stop mode settings of Toner cartridge

You can set the machine to continue printing after the LCD shows “Replace Toner”. The machine will continue printing until the LCD shows “Toner Ended”. The default setting is “Stop”.

### <Models with numeric keys>

- (1) Press the **Menu** button, and then press the **1, 8** in this order.
- (2) Press the **▲** or **▼** button to choose continue or stop.
- (3) Press the **OK** button.
- (4) Press the **Stop/Exit** button, the machine goes back to the ready states.

### <Models without numeric keys>

- (1) Press the **Menu** button.
- (2) Press the **▲** or **▼** button, then the “1. General Setup” will appear on the LCD and press the **OK** button.
- (3) Press the **▲** or **▼** button, then the “4. Replace Toner” will appear on the LCD and press the **OK** button.
- (4) Press the **▲** or **▼** button, then select the “Continue” or “Stop” and press the **OK** button.
- (5) Press the **Stop/Exit** button, the machine goes back to the ready states.

#### Note:

- Printing is not guaranteed in the continue mode.
- If the toner cartridge is replaced, the machine returns to the default setting.

## 2.5 Drum Cleaning

### ■ Drum cleaning function overview

Install the plain paper into the manual feed slot and perform the cleaning of the drum.

#### <Operating Procedure>

- (1) Open the back cover while the machine is in the ready state.
- (2) Press the **Clear** and **Menu** buttons at the same time. “Insert the blank paper into the Manual feed slot.” is displayed on the LCD.
- (3) Install the paper into the manual feed slot.
- (4) The drum cleaning is performed. “Please Wait” is displayed on the LCD.
- (5) The paper is ejected from the back cover, and the drum cleaning is completed
- (6) Close the back cover, and the machine goes back to the ready state.

#### Note:

- When the error of jam during the drum cleaning, drum cleaning mode is canceled automatically and becomes the error display.

## 2.6 ON/OFF Setting of Deep Sleep Function

In addition to the sleep function with the normal specifications, the deep sleep function is prepared to reduce the power consumption.

The deep sleep function is used to stop the operation of the following functions whereas they are available in the normal sleep mode.

- Operation of the wireless LAN
- Operation of all the fans

### <Transition conditions>

The machine goes into the deep sleep function when the user does not operate the machine (from a PC) and no warning such as an error is issued after it goes into the normal sleep mode and all the fans are stopped. When secure print exists, the machine does not go into the deep sleep mode.

### <How to Exit>

The machine exits from the deep sleep function when it receives an input from the outside, for instance when it receives print data from a PC, or when any button on the control panel is operated, or when the front cover is opened or closed.

## ■ Setting of ON/OFF of the deep sleep function

You can set ON/OFF of the deep sleep function so that the machine will not go into the deep sleep function even when the aforementioned conditions are satisfied.

### <Operating Procedure>

- (1) Press the **Menu** button while the machine is in the ready state.
- (2) Press the **▲** or **▼** button to display “General Setup” on the LCD, and then press the **OK** button.
- (3) Press the **▲** or **▼** button to display “General Setup/Ecology” on the LCD, and then press the **OK** button.
- (4) Press the **▲** or **▼** button to display “Sleep Time” on the LCD, and then press the **OK** button.
- (5) Press the **Job Cancel** button and **Start** button at the same time while “Sleep Time/ \*Min” is displayed on the LCD. “Deep Sleep/On\*” is displayed on the LCD.
- (6) Press the **▲** or **▼** button to switch Deep Sleep On and Off and display the state that you want to set, and then press the **OK** button.
- (7) The machine goes back to the “Sleep Time/ \*Min” on the LCD.

#### Note:

- When no operation is made for 30 seconds during the switching operation, the machine goes back to the ready state.
- The initial value of Deep Sleep is set to On.
- In the procedure (5), the present setting (On or Off) of Deep Sleep is displayed on the LCD.
- “\*” is displayed on the right side of the present setting (On or Off) of Deep Sleep.

# **CHAPTER 6**

## **CIRCUIT DIAGRAMS, WIRING DIAGRAM**

## CHAPTER 6 CIRCUIT DIAGRAMS, WIRING DIAGRAM

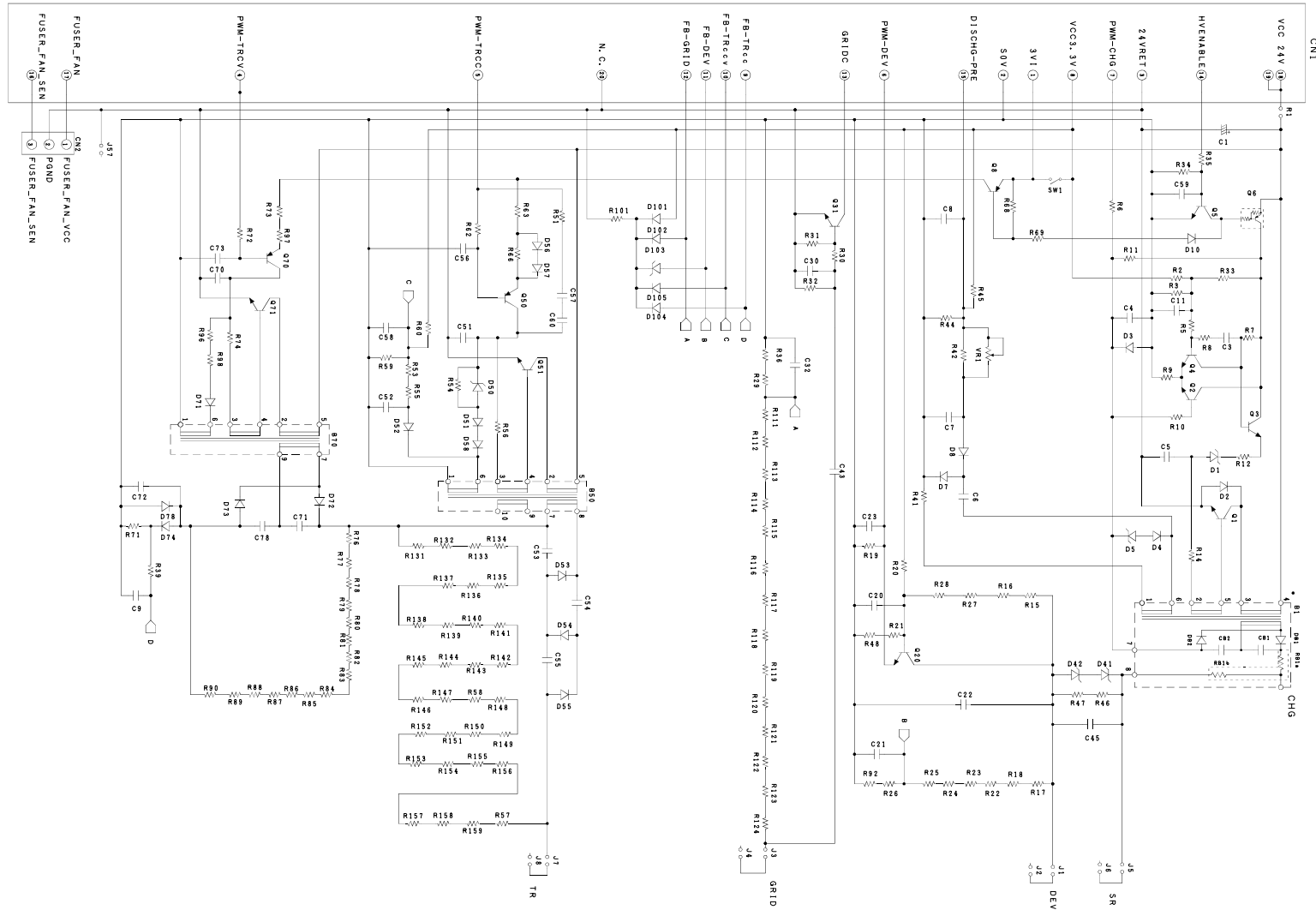
This chapter provides the circuit diagrams and wiring diagram for the connections of the PCBs.

### CONTENTS

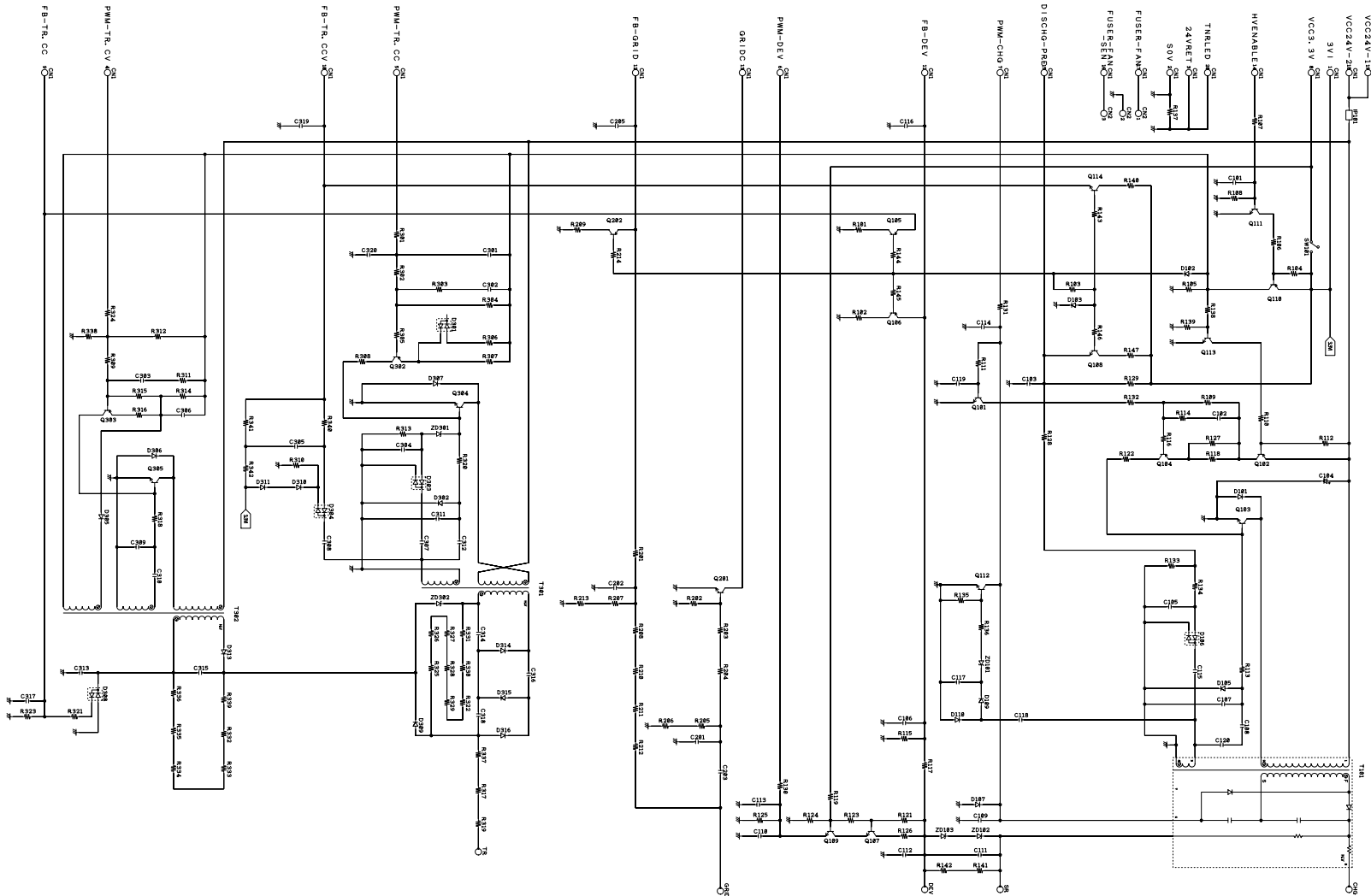
1. CIRCUIT DIAGRAMS.....	6-1
2. WIRING DIAGRAM .....	6-10

# 1. CIRCUIT DIAGRAMS

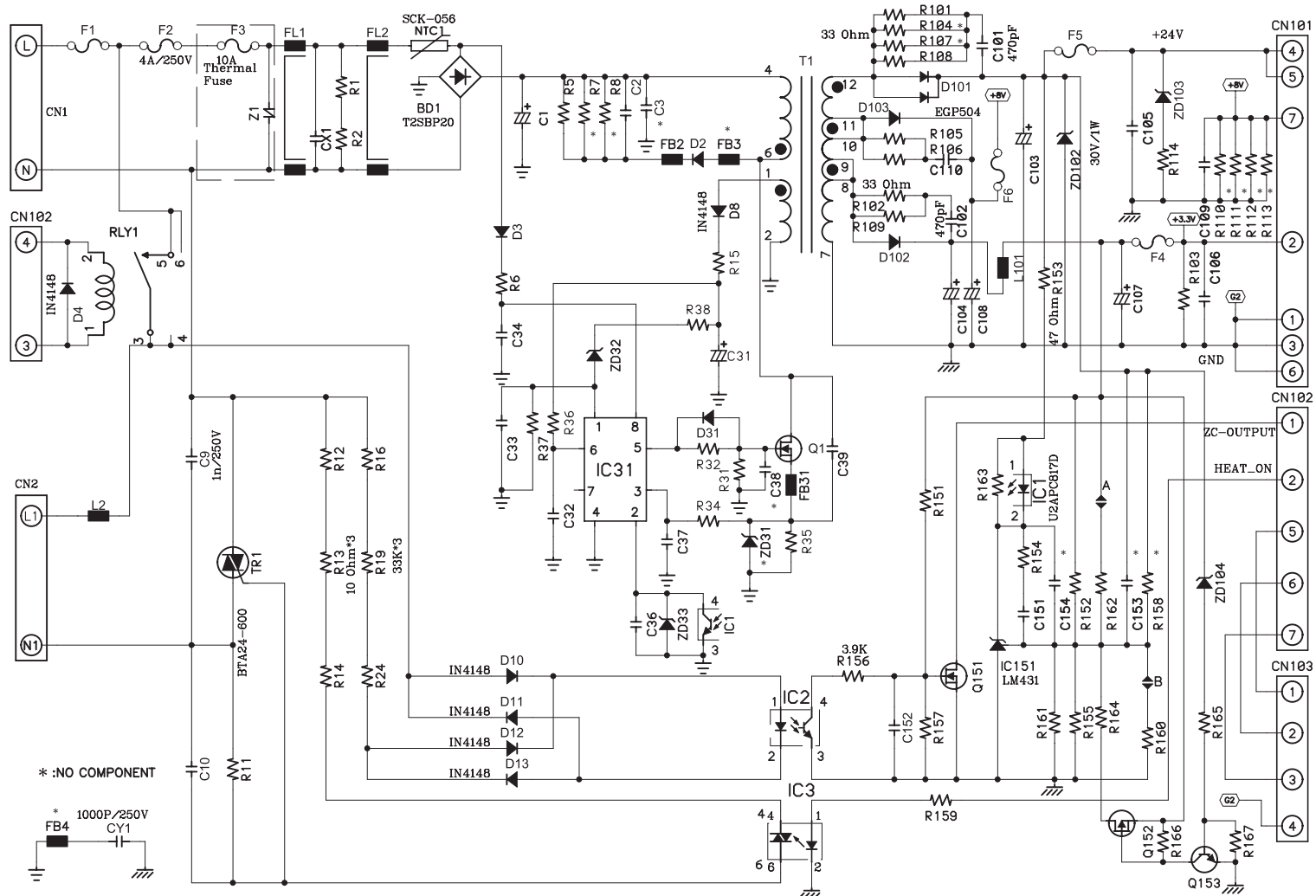
## ■ High Voltage Power Supply PCB Circuit Diagram (MURATA)



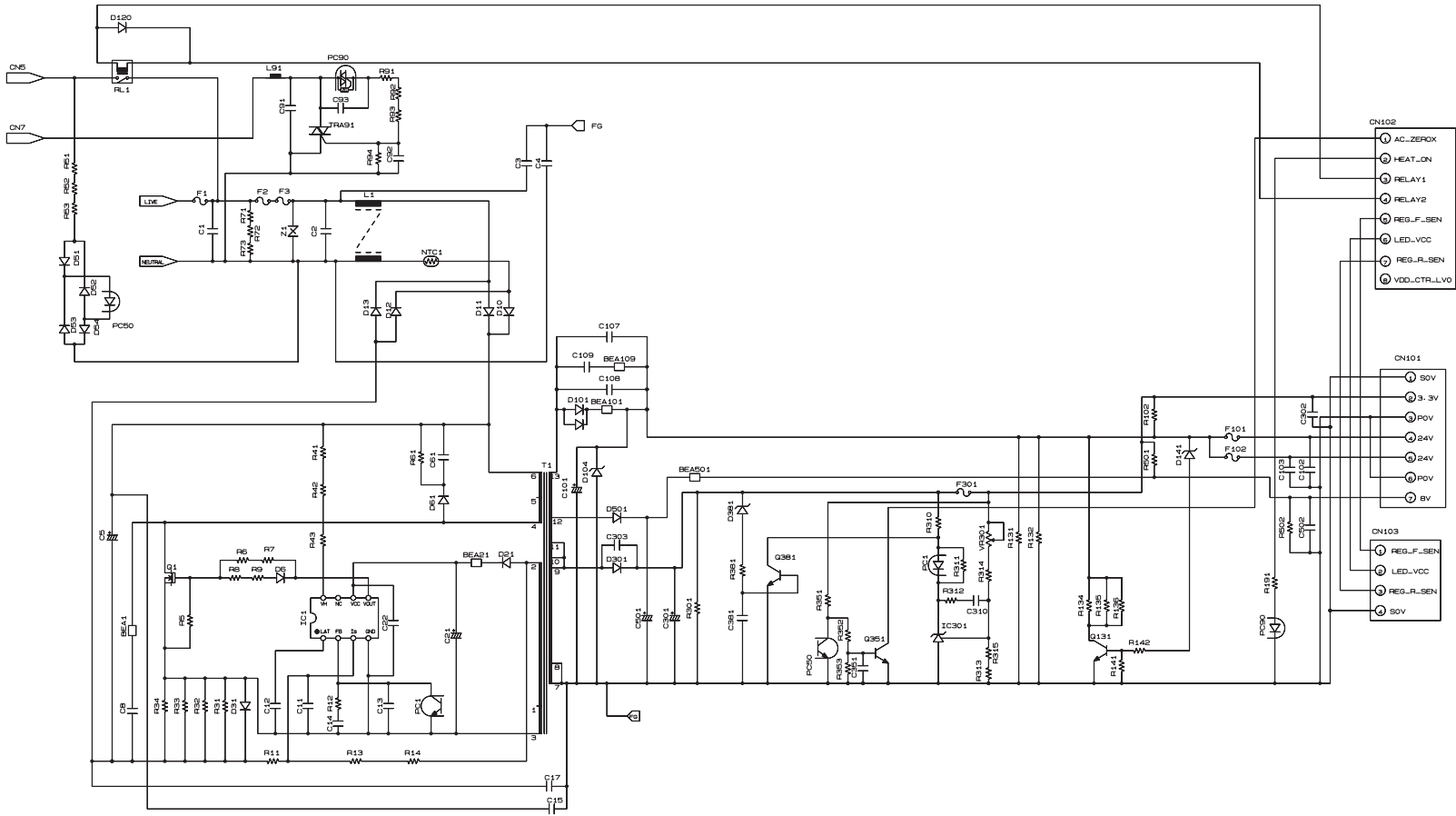
## ■ High Voltage Power Supply PCB Circuit Diagram (Panasonic)



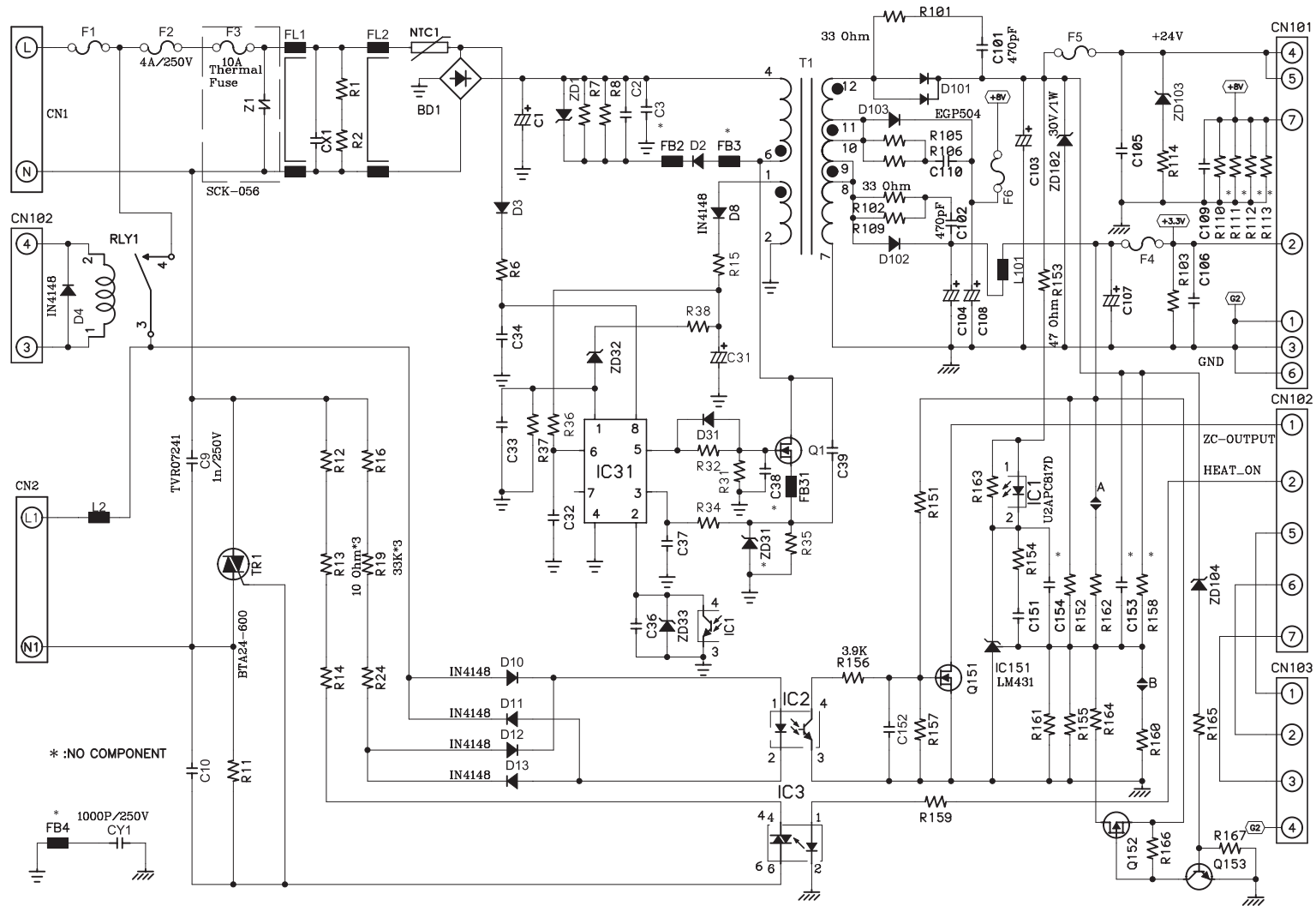
## ■ Low Voltage Power Supply PCB Circuit Diagram (115V) EDPS-62AF A (Delta)



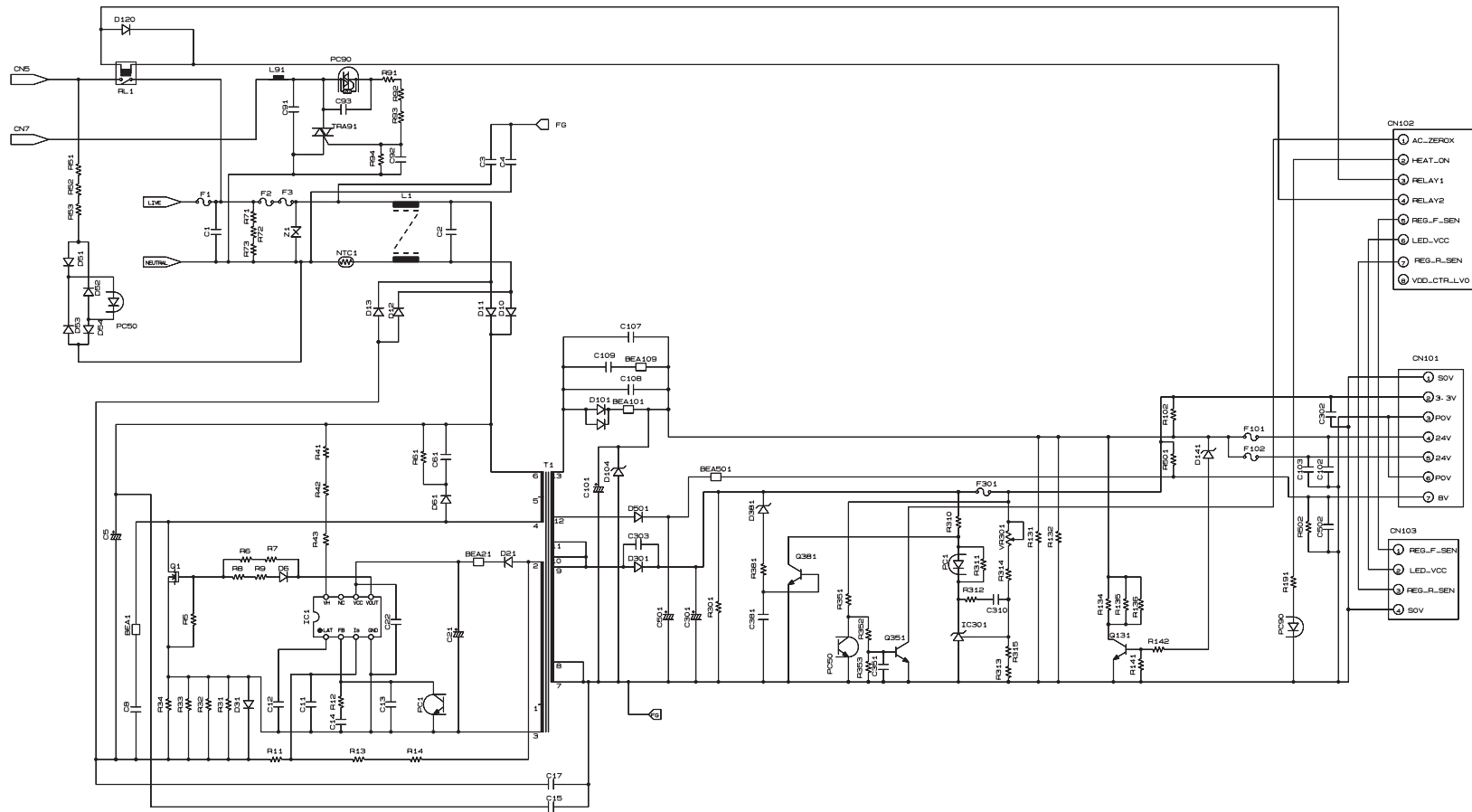
## ■ Low Voltage Power Supply PCB Circuit Diagram (115V) MPW3058 (MURATA)



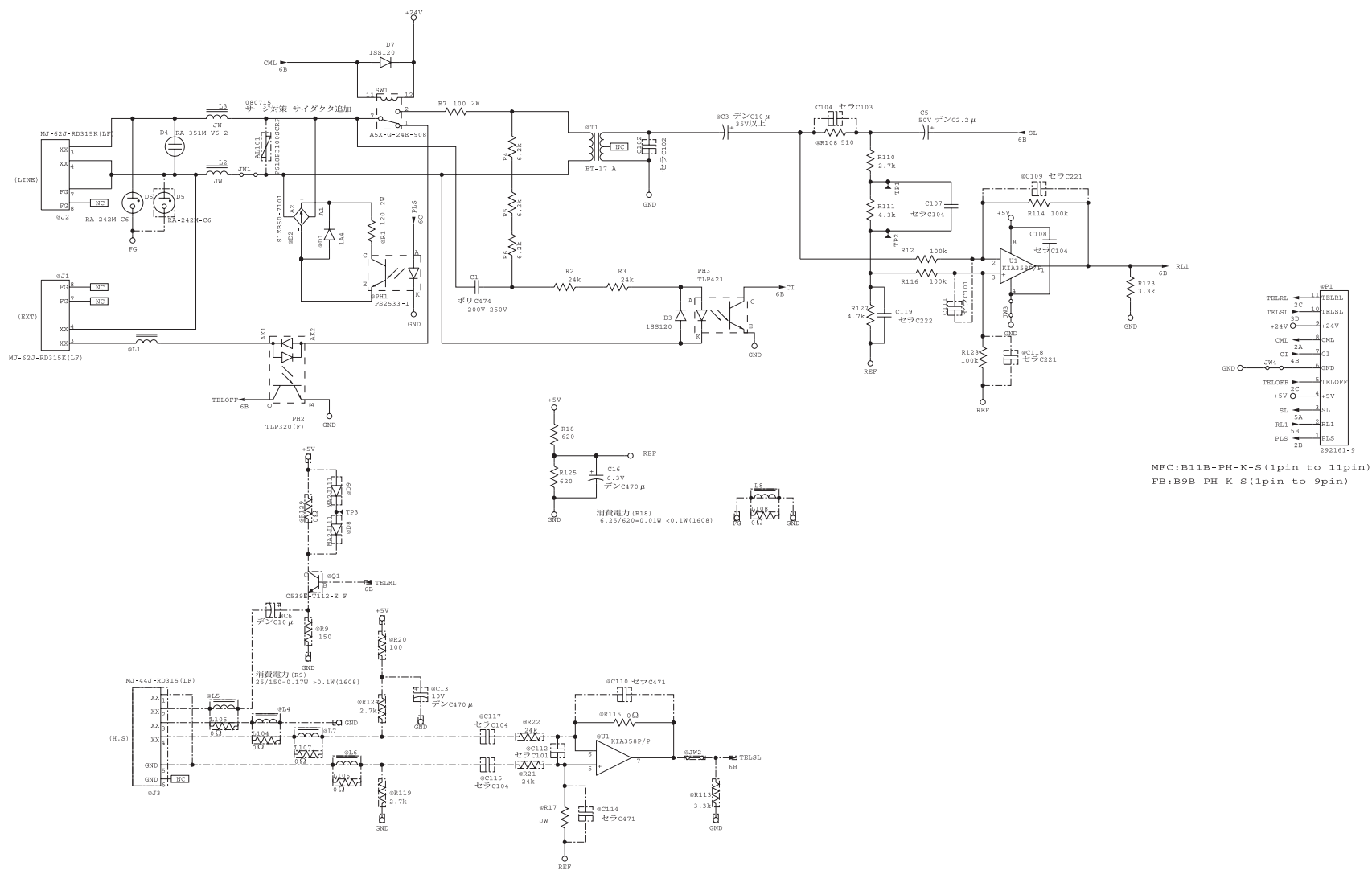
## ■ Low Voltage Power Supply PCB Circuit Diagram (230V) EDPS-62BF A (Delta)



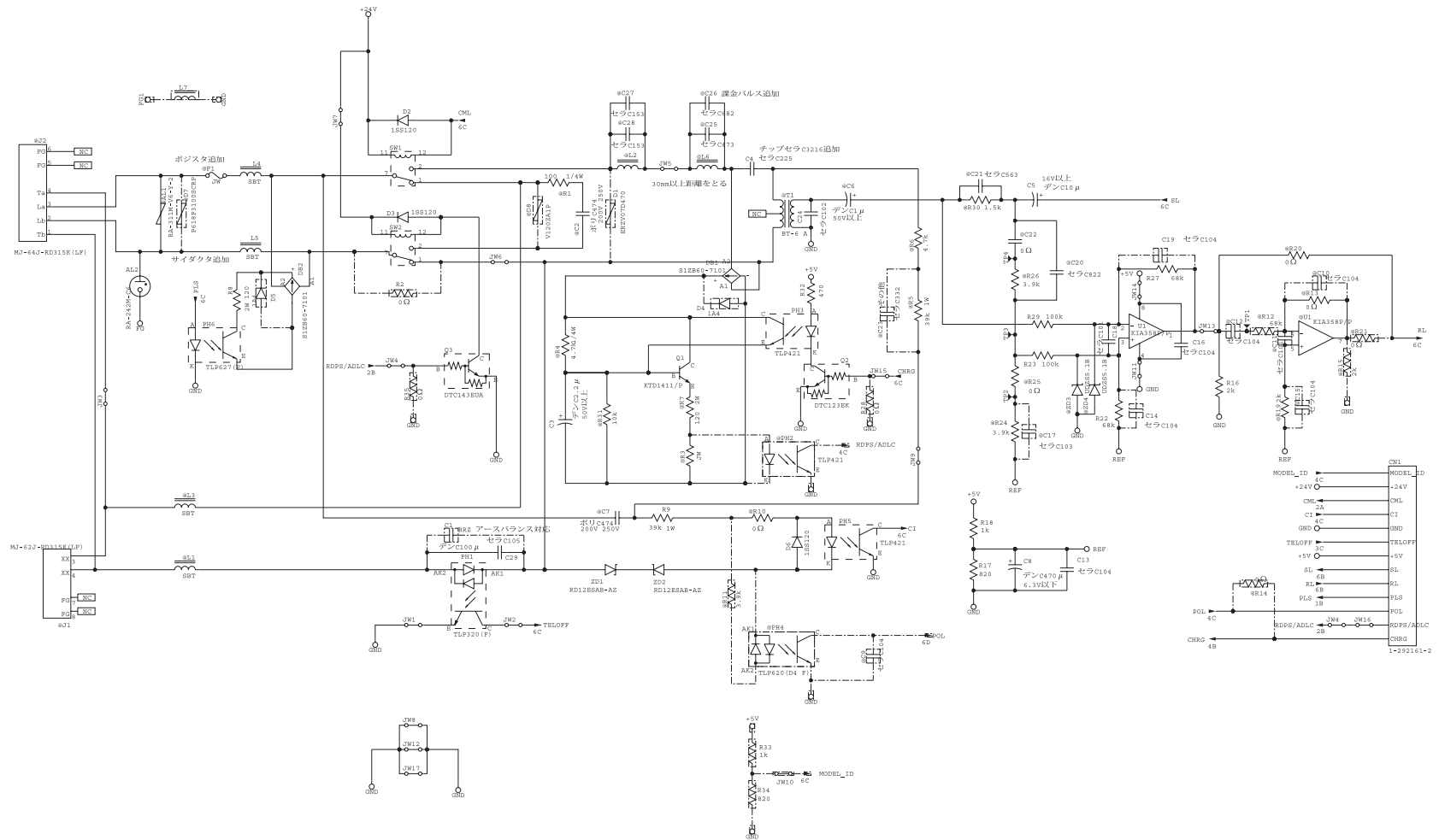
## ■ Low Voltage Power Supply PCB Circuit Diagram (230V) MPW3059 (MURATA)



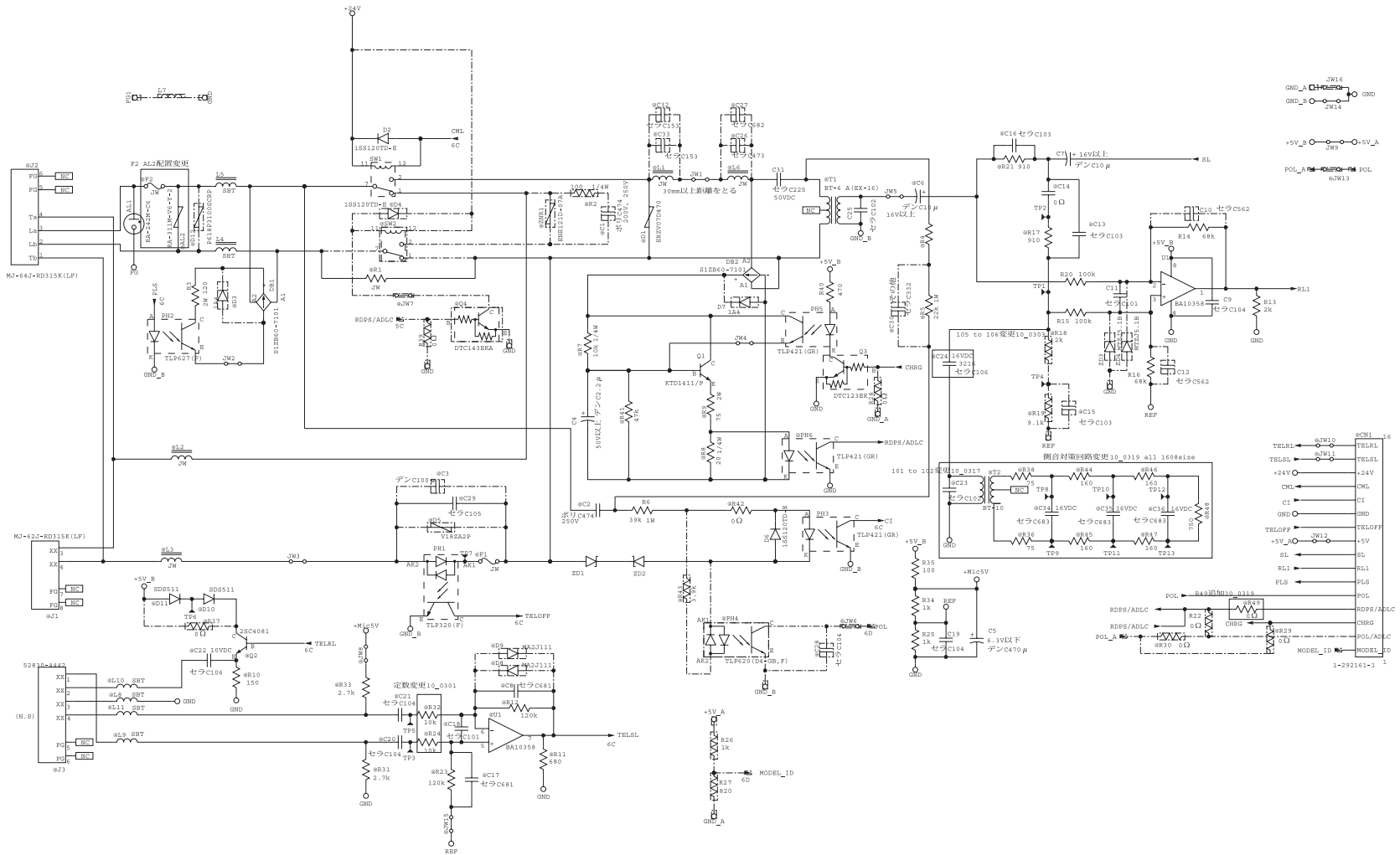
## ■ NCU PCB Circuit Diagram: U.S.A/Canada



## ■ NCU PCB Circuit Diagram: Europe/Oceania

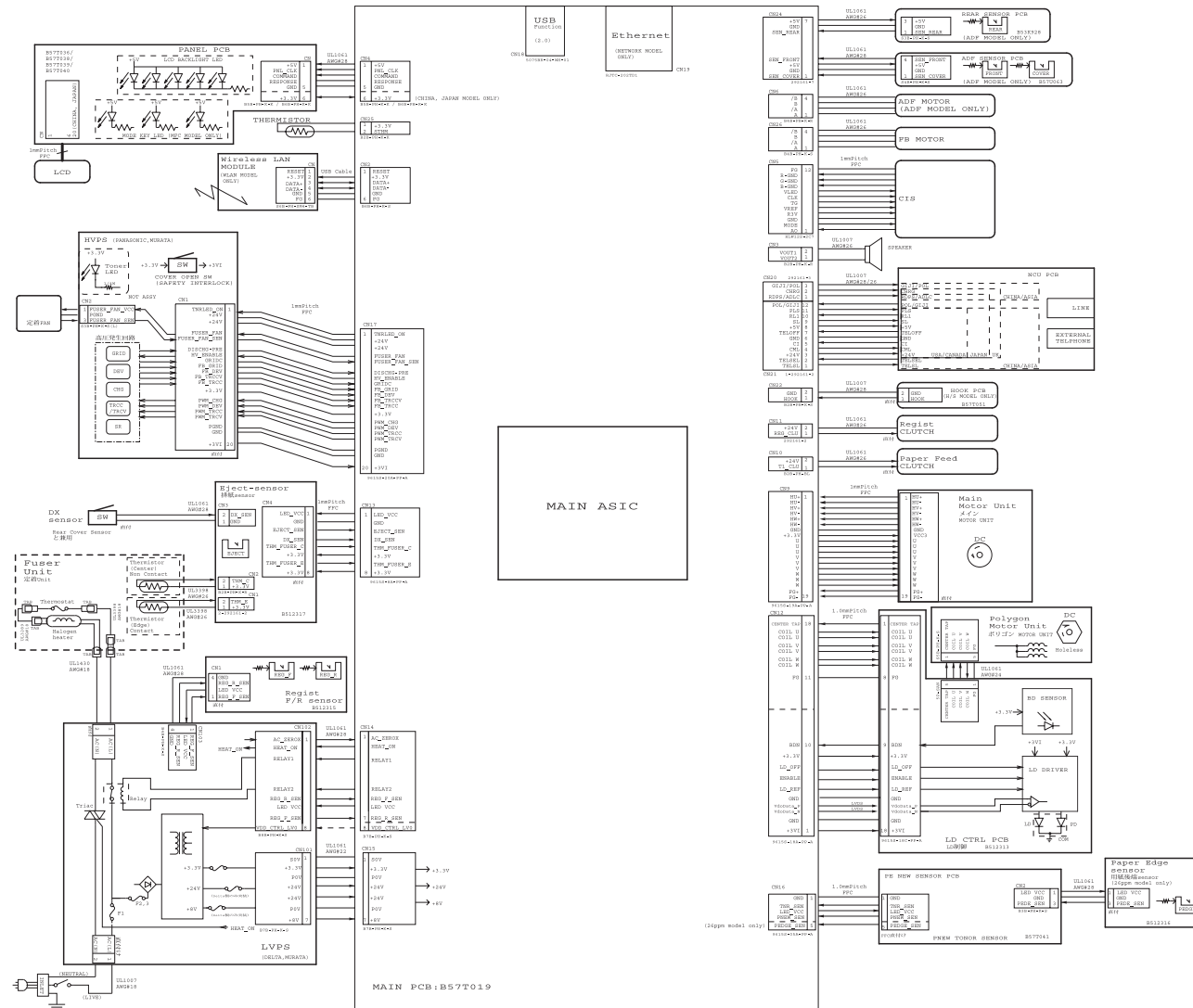


### ■ NCU PCB Circuit Diagram: China/Asia/Gulf



## 2. WIRING DIAGRAM

### ■ Wiring diagram



# **CHAPTER 7**

## **PERIODICAL MAINTENANCE**

# CHAPTER 7 PERIODICAL MAINTENANCE

## CONTENTS

1. PERIODICAL REPLACEMENT PARTS .....	7-1
---------------------------------------	-----

# 1. PERIODICAL REPLACEMENT PARTS

---

There are no parts to be replaced periodically.

# **APPENDIX 1**

## **SERIAL NUMBERING SYSTEM**

## APPENDIX 1 SERIAL NUMBERING SYSTEM

### ■ Serial number labels for the machine itself

#### <How to Read>

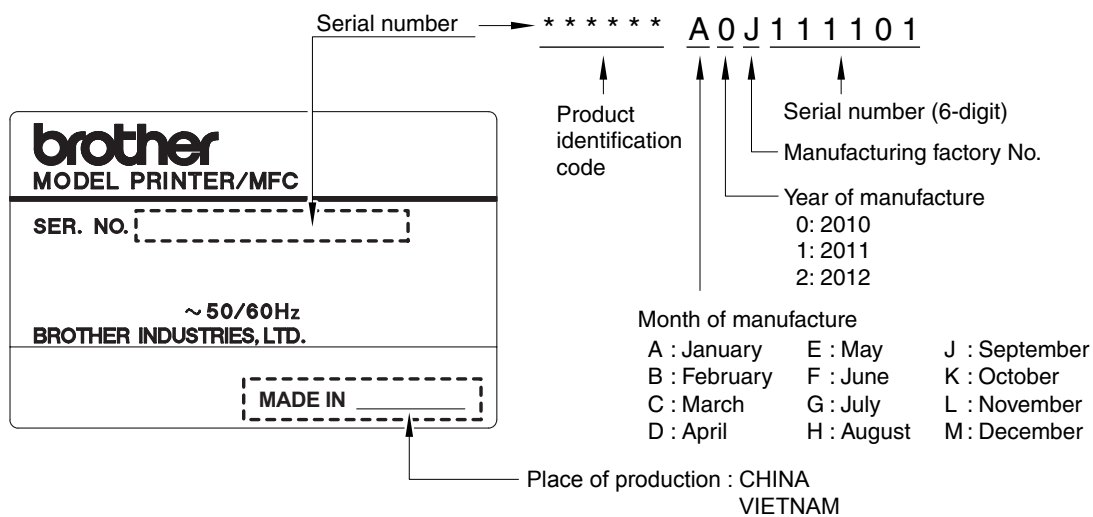


Fig. App. 1-1

#### <Location>

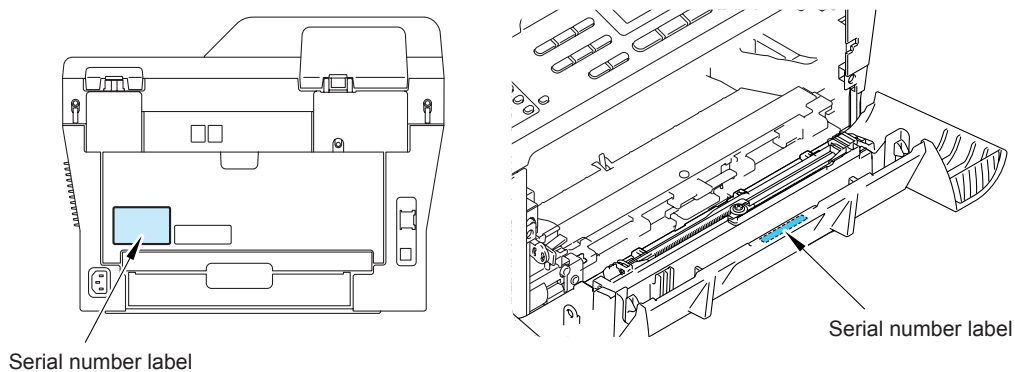


Fig. App. 1-2

# **APPENDIX 2**

## **DELETION OF USER SETTING INFORMATION, ETC.**

This appendix provides instructions on how to delete user setting information etc. recorded in the machine.

## APPENDIX 2 DELETION OF USER SETTING INFORMATION, ETC.

In this machine, the user setting information is stored in the EEPROM and flash memory of the main PCB. You can delete all the data listed below at a time with the procedure given below.

- Information related to Net
- User setting information

- (1) Press the **Menu** button while the machine is in the ready state.
- (2) Press the ▲ or ▼ button, then the “Initial Setup” or “General Setup” will appear on the LCD and press the **OK** button.  
(Which will appear, “Initial Setup” or “General Setup”, depends on the model.)
- (3) Press the ▲ or ▼ button, then the “Reset Menu” will appear on the LCD and press the **OK** button.
- (4) Press the ▲ or ▼ button, then the “All Settings” will appear on the LCD and press the **OK** button.
- (5) The “1.Reset/2.Exit” will appear on the LCD.
- (6) Press the **1** button, and the user setting information is deleted, and the machine goes back to the ready state.

**Note:**

- The machine returns to the ready state automatically if no panel operation is implemented for 30 seconds.

# **APPENDIX 3**

## **INSTALLING THE MAINTENANCE DRIVER**

## APPENDIX 3 INSTALLING THE MAINTENANCE DRIVER

To identify multiple machines connected to the computer via USB, the computer needs to configure the corresponding number of virtual USB devices by a driver or software. If you connect a multiple number of machines to your computer, the same number of virtual USB devices will be automatically configured on your computer.

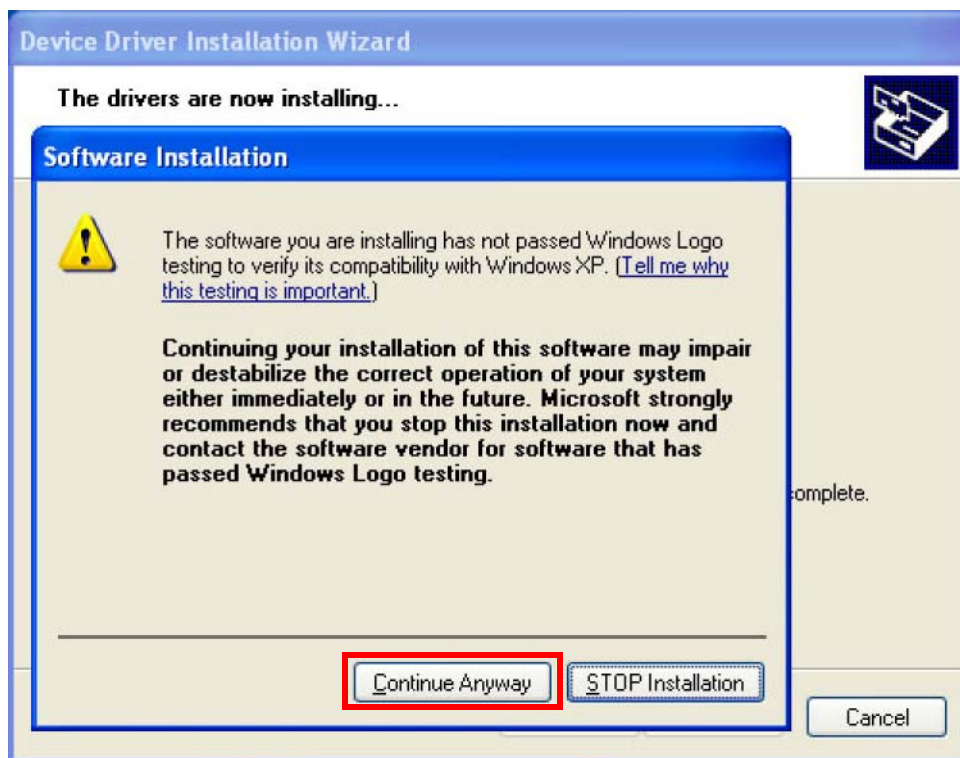
To prevent virtual USB devices from being configured without limitation, use the unique driver installation procedure described below that enables your computer to identify multiple machines via one single virtual USB device.

### <Procedures>

- (1) While the machine is in the ready state, press the **OK** button and then **Start** button. Next, press the **▲** button 4 times, and the machine goes into the maintenance mode.
- (2) “■■ MAINTENANCE ■■” appears on the LCD, and the machine goes into the maintenance mode.
- (3) Double-click “Setup.exe” of the maintenance printer driver which is saved in the temporary folder to execute.
- (4) The following screen appears, indicating the detection of device driver installation wizard. Click **Next** to proceed. (Screen below is the example of Windows® XP.)



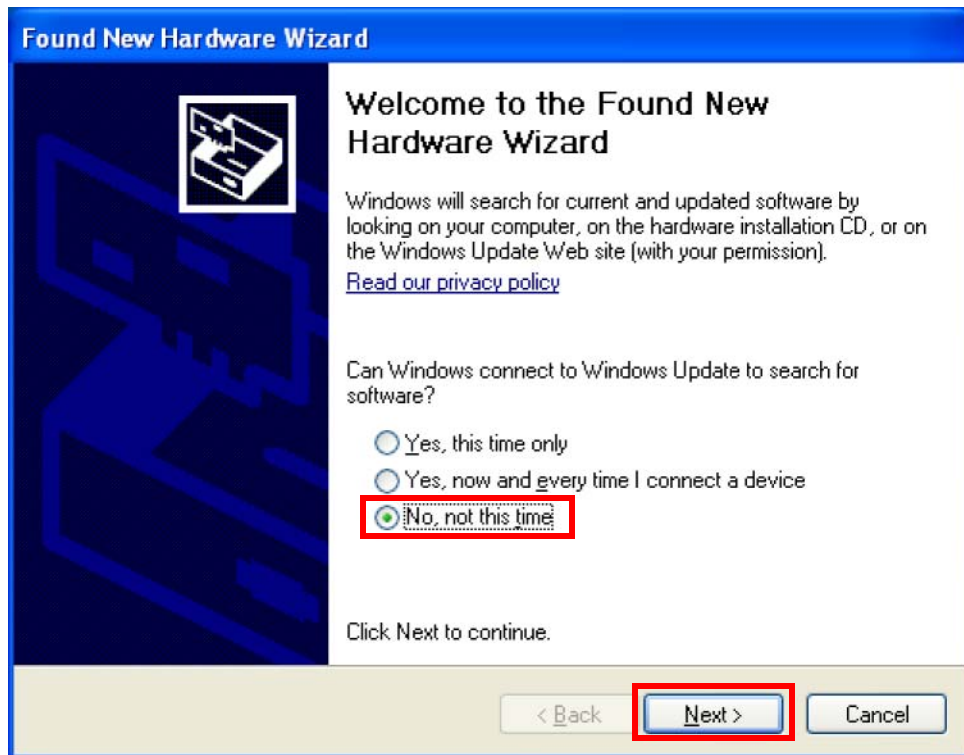
- (5) Alert warning message appears three times, click **Continue Anyway** to proceed.



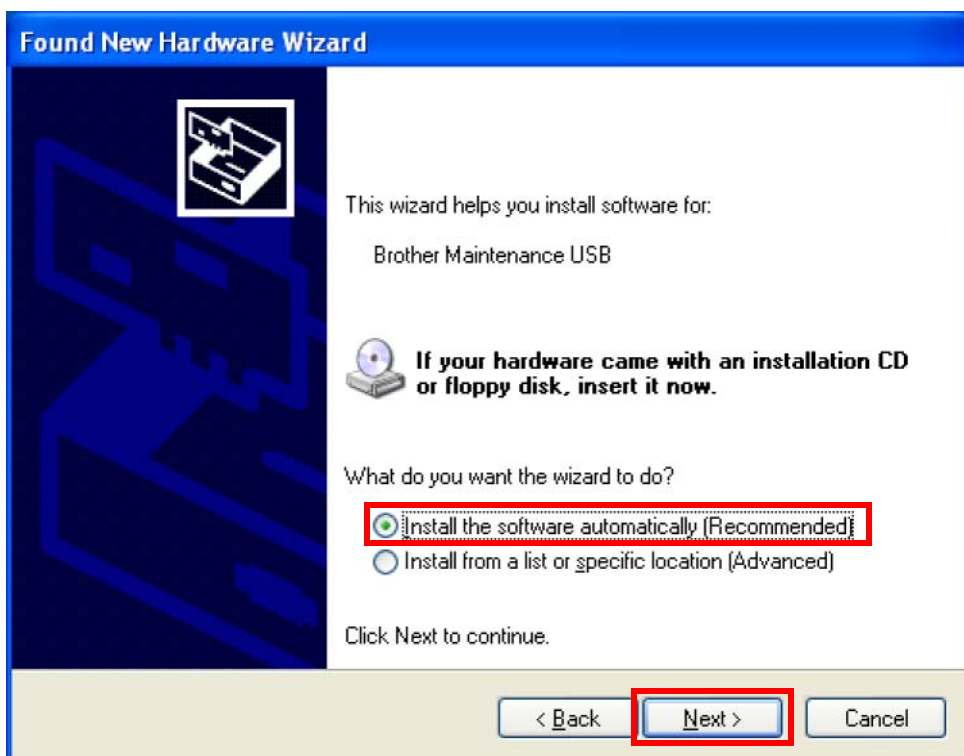
- (6) If the device driver is successfully installed, the following message screen appears. Click **Finish** to return.



- (7) Connect the machine to your computer using the USB cable.
- (8) The following screen appears, indicating the detection of new hardware device by the system. Select "No, not this time" and click **Next**.



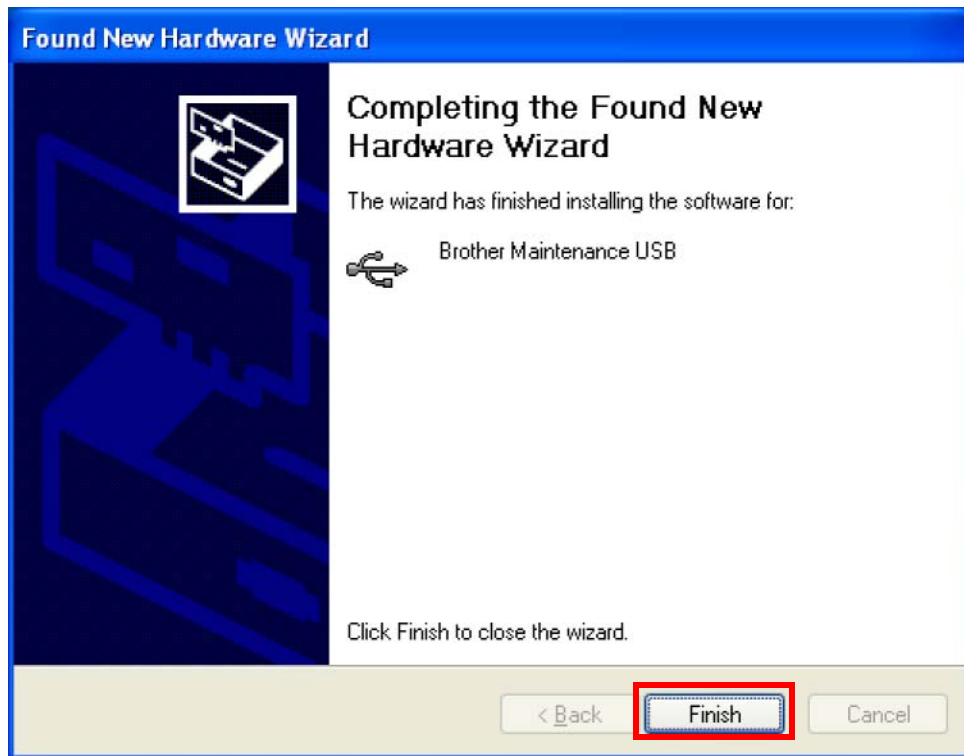
- (9) Select "Install the software automatically (Recommended)" and click **Next**.



(10) Alert warning message 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.



- (12) Repeat the steps from (9) to (11) three times, and then complete its installation.
- (13) Disconnect the USB cable.
- (14) Press the ▲ or ▼ button to display "MAINTENANCE 99" on the LCD. Then, press the **OK** button. The maintenance mode exits from the maintenance mode and return to the ready state.

# **APPENDIX 4**

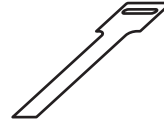
## **HOW TO MAKE PROTECTIVE MATERIAL OF DRUM UNIT**

## APPENDIX 4 HOW TO MAKE PROTECTIVE MATERIAL OF DRUM UNIT

Protective material



Paper strip



Make the protective material of drum unit by the following procedures, and use it at the time of packing.

### <Procedure>

- (1) Pass the Paper strip through the hole of Protective material. (The white surface of Paper strip is the upper side.)
- (2) Pass the end of Paper strip through the hole of Paper strip, and then pull the end of Paper strip to the direction of the arrow.

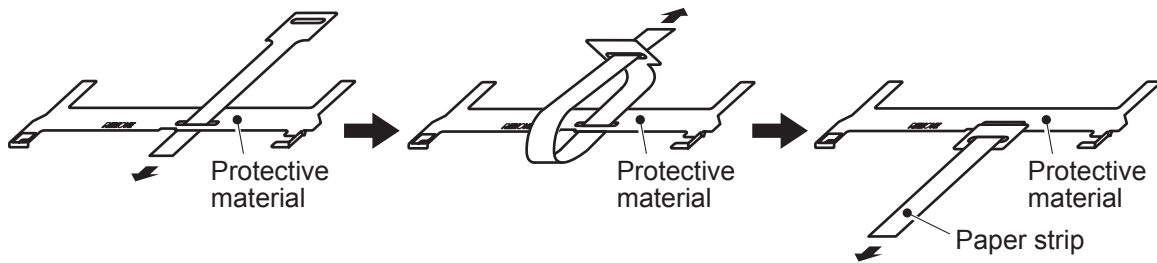


Fig. APP. 4-1