



**FACSIMILE EQUIPMENT
SERVICE MANUAL**

**MODELS: MFC-8460N/8860DN/8870DW
DCP-8060/8065DN**

© Copyright Brother 2006

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.

Specifications are subject to change without notice.

Confidential

PREFACE

This Service Manual is intended for use by service personnel and details the specifications, construction, theory of operation, and maintenance for the Brother machines noted on the front cover. It includes information required for troubleshooting and service--disassembly, reassembly, and lubrication--so that service personnel will be able to understand equipment function, repair the equipment in a timely manner and order spare parts as necessary.

To perform appropriate maintenance so that the machine is always in the best possible condition for the customer, service personnel must adequately understand and apply this manual.

HOW THIS MANUAL IS ORGANIZED

This manual is made up of nine chapters and appendices.

CHAPTER 1 PARTS NAMES AND FUNCTIONS

Contains external views and names of components and describes their functions. Information about the keys on the control panel is included to help you check operation or make adjustments.

CHAPTER 2 SPECIFICATIONS

Lists the specifications of each model, which enables you to make a comparison of different models.

CHAPTER 3 THEORY OF OPERATION

Gives an overview of the scanning and printing mechanisms as well as the sensors, actuators, and control electronics. It aids in understanding the basic principles of operation as well as locating defects for troubleshooting.

CHAPTER 4 TRANSFER OF DATA LEFT IN THE MACHINE TO BE SENT FOR REPAIR

Describes how to transfer data left in the machine to be sent for repair. The service personnel should instruct end users to follow the transfer procedure given in this chapter if the machine at the user site cannot print received data due to the printing mechanism defective. End users can transfer received data to another machine to prevent data loss.

CHAPTER 5 DISASSEMBLY/REASSEMBLY AND LUBRICATION

Details procedures for disassembling and reassembling the machine together with related notes. The disassembly order flow provided enables you to see at a glance the quickest way to get to component(s) involved.

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

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

CHAPTER 6 ADJUSTMENTS AND UPDATING OF SETTINGS REQUIRED AFTER PARTS REPLACEMENT

Details adjustments and updating of settings, which are required if the head/carriage unit, main PCB and some other parts have been replaced.

CHAPTER 7 CLEANING

Provides cleaning procedures not covered by the User's Manual. Before starting any repair work, clean the machine as it may solve the problem concerned.

CHAPTER 8 MAINTENANCE MODE

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

In the maintenance mode, you can update memory (EEPROM: electrically erasable programmable read-only memory) contents for optimizing the drive conditions of the head/carriage unit, paper feed roller or paper ejection roller (if they have been replaced) or for setting the CCD scanner area, for example. You can also customize the EEPROM according to the shipment destination of the machine concerned. In addition, you can perform operational checks of the LCD, control panel PCB or sensors, perform a print test, display the log information or error codes, and modify firmware switches (WSW).

CHAPTER 9 ERROR INDICATION AND TROUBLESHOOTING

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

The latter half of this chapter provides sample problems that could occur in the main sections of the machine and related troubleshooting procedures. This will help service personnel pinpoint and repair defective components.

APPENDIX 1 SERIAL NUMBERING SYSTEM

Shows the location of serial number labels put on some parts and lists the coding information pertaining to the serial numbers.

APPENDIX 2 FIRMWARE INSTALLATION

Provides instructions on how to update firmware stored in the flash ROM on the main PCB or load firmware to a new main PCB from the host PC.

No hardware replacement is required for updating.

APPENDIX 3 CUSTOMIZING CODES ACCORDING TO SHIPPING DESTINATION

Lists the customizing codes for the various preferences exclusively designed for each destination (e.g. language). Those codes are stored in the memory (EEPROM) mounted on the main PCB. If the main PCB is replaced with a new one, therefore, you will need to set the proper customizing codes with the machine in the maintenance mode.

APPENDIX 4 FIRMWARE SWITCHES (WSW)

Describes the functions of the firmware switches, which can be divided into two groups: one is for customizing preferences designed for the shipping destination (as described in [Appendix 3](#)) and the other is for modifying preferences that match the machine to the environmental conditions. Use the latter group if the machine malfunctions due to mismatching.

APPENDIX 5 WIRING DIAGRAM

Provides the wiring diagram that helps you understand the connections between PCBs.

APPENDIX 6 CIRCUIT DIAGRAMS

Provides the circuit diagrams of the NCU PCB and power supply PCB.

APPENDIX 7 VIEWING THE EVENT LOG FILE

When installing the printer driver, the installer logs events that occur during the installation process in the event log file. This appendix views a sample of the event log file. Selecting Start | Program | Brother | MFL-Pro Suite *model name* | Installation Diagnostics reads out the event log file.

This manual describes the models and their versions destined for major countries. The specifications and functions are subject to change depending upon each destination.

TABLE OF CONTENTS

CHAPTER 1 PARTS NAMES & FUNCTIONS

1.1	EQUIPMENT OUTLINE.....	1-1
1.2	CONTROL PANEL	1-2
1.3	COMPONENTS	1-7

CHAPTER 2 SPECIFICATIONS

2.1	GENERAL.....	2-1
2.1.1	General Specifications	2-1
2.1.2	Paper Specifications.....	2-2
2.1.2.1	Paper handling	2-2
2.1.2.2	Media specifications	2-2
2.1.3	Printable Area	2-5
2.1.3.1	PCL5e/EPSON/IBM emulation	2-5
2.1.3.2	PCLXL, PS (BR-Script 3).....	2-8
2.1.4	Print Speeds with Various Settings	2-9
2.1.5	Toner Cartridge Weight Information	2-10
2.2	SPECIFICATIONS LIST	2-11

CHAPTER 3 THEORY OF OPERATION

3.1	OVERVIEW.....	3-1
3.2	MECHANICAL COMPONENTS.....	3-2
3.2.1	Scanner Mechanism	3-3
3.2.2	Overview of Gear	3-9
3.2.3	Paper Transfer	3-10
3.2.3.1	Paper supply	3-10
3.2.3.2	Paper registration.....	3-12
3.2.3.3	Drum unit.....	3-12
3.2.3.4	Developing	3-13
3.2.3.5	Fixing stage.....	3-14
3.2.3.6	Paper eject.....	3-15
3.2.3.7	Duplex printing (For the models with the DX only).....	3-16

3.2.3.8	Paper feeding from the MP tray	3-17
3.2.3.9	LT tray	3-17
3.2.4	Toner Cartridge	3-18
3.2.4.1	Toner life end mode	3-18
3.2.4.2	New toner detection mechanism.....	3-20
3.2.4.3	Counter reset during indication of “Toner Life End”	3-21
3.2.5	Print Process	3-22
3.2.5.1	Charging.....	3-22
3.2.5.2	Exposure stage	3-22
3.2.5.3	Transfer.....	3-23
3.2.6	Sensors	3-24
3.3	CONTROL ELECTRONICS	3-25
3.3.1	Components.....	3-25
CHAPTER 4 TRANSFER OF DATA LEFT IN THE MACHINE TO BE SENT FOR REPAIR		
4.1	TRANSFERRING RECEIVED FAX DATA	4-1
CHAPTER 5 DISASSEMBLY/REASSEMBLY AND LUBRICATION		
5.1	DISASSEMBLY/REASSEMBLY	5-1
	Safety Precautions.....	5-1
	Tightening Torque	5-2
	Harness Routing	5-4
	Preparation	5-21
	How to Access the Object Component.....	5-21
	Disassembly Flowchart.....	5-22
5.1.1	AC Cord.....	5-23
5.1.2	Drum/Toner ASSY.....	5-23
5.1.3	DX Feed ASSY (For the models with the DX only)	5-24
5.1.4	Paper Tray.....	5-24
5.1.5	Back Cover	5-27
5.1.6	DX Blank Cover (For models with out the DX only)	5-27
5.1.7	Outer Chute ASSY	5-28

5.1.8	Access Cover/Side Cover L	5-30
5.1.9	ADF Unit.....	5-31
5.1.10	Hinge Base R	5-32
5.1.11	Hinge Arm R.....	5-33
5.1.12	Hinge ASSY L.....	5-33
5.1.13	ADF Cover ASSY	5-34
5.1.14	ADF Side Cover F	5-34
5.1.15	ADF Side Cover R.....	5-35
5.1.16	ADF Chute ASSY	5-36
5.1.17	SB Chute ASSY (For the models with the DX only) / SX Chute (For the models with out the DX only)	5-38
5.1.18	Exit Chute Cover ASSY.....	5-38
5.1.19	Earth Spring	5-39
5.1.20	PF Roller Holder ASSY	5-40
5.1.21	LF Roller 1 ASSY	5-41
5.1.22	SB Roller ASSY (For the models with the DX only)	5-42
5.1.23	ADF Motor.....	5-44
5.1.24	SB Solenoid ASSY (For the models with the DX only).....	5-45
5.1.25	PF Solenoid ASSY (For the models with the DX only).....	5-45
5.1.26	ADF Relay PCB.....	5-46
5.1.27	Paper Feed Chute ASSY	5-47
5.1.28	Actuator Front 1/Photo Interrupter (For the models with the DX only).....	5-48
5.1.29	Actuator Front 2/Photo Interrupter (For the models with the DX only).....	5-49
5.1.30	ADF Film/Spring Plate ADF Front A ASSY/Separation Rubber/Rubber Holder/ Separation Spring.....	5-50
5.1.31	Pressure Roller/LF Spring	5-50
5.1.32	LF Roller 2 ASSY	5-51
5.1.33	Exit Roller ASSY.....	5-52
5.1.34	LF Roller 3 ASSY	5-53
5.1.35	LF Roller 4 ASSY	5-54
5.1.36	Flap A ASSY (For the models with the DX only)/ Flap A (For models with out the DX only).....	5-55

5.1.37	Document Hold/Document Hold Spring	5-56
5.1.38	Upper Main Chute ASSY/Lower Main Chute ASSY	5-56
5.1.39	Actuator R/Photo Interrupter	5-58
5.1.40	Flap B	5-59
5.1.41	Actuator SB/Photo Interrupter (For the models with the DX only).....	5-59
5.1.42	Document Ejection Tray	5-60
5.1.43	Document Cover Sensor	5-61
5.1.44	Eject Roller B4.....	5-61
5.1.45	Presser Roller.....	5-62
5.1.46	Panel Cover ASSY	5-63
5.1.47	Scanner Unit ASSY	5-64
5.1.48	Top Cover ASSY	5-65
5.1.49	Lock Lever B/Lock Lever ASSY	5-65
5.1.50	CCD Module.....	5-66
5.1.51	FFC Cable ASSY	5-68
5.1.52	Scanner Motor FB	5-69
5.1.53	Pulley ASSY	5-70
5.1.54	Photo Interrupter	5-70
5.1.55	Panel Unit.....	5-71
5.1.56	Panel PCB ASSY	5-72
5.1.57	Printed Rubber Key	5-73
5.1.58	LCD Cover/Backlight Module/LCD	5-74
5.1.59	NCU PCB ASSY (For the models with the NCU only)	5-75
5.1.60	Speaker ASSY	5-77
5.1.61	Driver PCB	5-78
5.1.62	Fuser Unit.....	5-79
5.1.63	Tray MP ASSY	5-81
5.1.64	MP Tray Cover ASSY/Process Cover ASSY.....	5-82
5.1.65	Main PCB	5-85
5.1.66	Gear Plate Calking ASSY AL/Develop Joint/Main Motor ASSY AL.....	5-86
5.1.67	Main Shield Plate ASSY.....	5-88

5.1.68	Relay Rear PCB ASSY/Connector	5-90
5.1.69	Relay Front PCB ASSY	5-92
5.1.70	MP Solenoid ASSY	5-93
5.1.71	Drive Release Link.....	5-94
5.1.72	T1 Solenoid ASSY	5-95
5.1.73	Toner Sensor PCB.....	5-95
5.1.74	Register Solenoid ASSY	5-96
5.1.75	Ejector Solenoid ASSY (For the models with the DX only)	5-96
5.1.76	Interlock SW ASSY	5-97
5.1.77	New Toner Actuator.....	5-97
5.1.78	Gear 17/20/23	5-98
5.1.79	Thermistor ASSY	5-100
5.1.80	Side Cover R.....	5-100
5.1.81	Joint Cover ASSY	5-101
5.1.82	Filter	5-102
5.1.83	Laser Unit.....	5-103
5.1.84	PS PCB Unit	5-104
5.1.85	High-Voltage PS PCB ASSY	5-107
5.1.86	Toner LED PCB Unit ASSY	5-109
5.1.87	Fan Motor 60 Unit	5-110
5.1.88	Fan Motor 60 Unit LV.....	5-110
5.1.89	Frame L.....	5-111
5.1.90	Frame R.....	5-111
5.1.91	MP Unit	5-112
5.1.92	Regist Actuator Rear/Regist Actuator Spring	5-117
5.1.93	Regist Actuator Front/Regist Actuator Spring	5-119
5.1.94	Roller Holder ASSY	5-120
5.1.95	PE Actuator, Edge Actuator, Edge Actuator Spring	5-121
5.1.96	PE PG Sensor ASSY	5-123
5.1.97	Wireless PCB (PCB T60H929.00 ASSY 02) (For the model with the Wireless only)	5-124
5.2	DISASSEMBLY/REASSEMBLY (LT-5300)	5-125

5.2.2	LT Front Cover ASSY.....	5-128
5.2.3	LT Rear Cover.....	5-129
5.2.4	LT Side Cover L	5-129
5.2.5	LT Side Cover R.....	5-130
5.2.6	LT PCB ASSY	5-131
5.2.7	Connector: 55533-1219.....	5-132
5.2.8	Connector: 54702-1219.....	5-132
5.2.9	Gear 24 LT	5-133
5.2.10	Collar 6	5-134
5.2.11	LT Solenoid ASSY.....	5-138
5.2.12	Roller Holder ASSY	5-139
5.2.13	Edge Actuator Spring	5-140
5.2.14	PE Actuator, Edge Actuator	5-141
5.2.15	LT Sensor PCB ASSY	5-142
5.3	LUBRICATION	5-144
CHAPTER 6 ADJUSTMENTS AND UPDATING OF SETTINGS, REQUIRED AFTER PARTS REPLACEMENT		
6.1	IF YOU REPLACE THE MAIN PCB	6-1
6.1.1	Load Update Programs/data	6-1
6.1.2	Initialize the EEPROM on the Main PCB (Function code 01).....	6-1
6.1.3	Customize the EEPROM on the Main PCB (Function code 74).....	6-1
6.1.4	Check the Control Panel PCB for Normal Operation (Function code 13)	6-1
6.1.5	Make a Sensor Operation Check (Function code 32).....	6-1
6.1.6	Acquire of White Level Data and Set the CCD Scanner Area (Function code 55)	6-1
6.1.7	Setting the Serial Number	6-1
6.1.8	Switch Back to Standby.....	6-2
6.2	IF YOU REPLACE THE DOCUMENT SCANNER UNIT.....	6-2
6.2.1	Acquire of White Level Data and Set the CCD Scanner Area (Function code 55)	6-2
6.3	IF YOU REPLACE THE DRUM UNIT	6-2
6.4	PERIODICAL REPLACEMENT PARTS	6-3
6.4.1	Periodical Replacement Parts.....	6-3

6.4.2	Procedures to Replace Periodical Replacement Parts	6-4
6.4.2.1	Fuser unit and laser unit.....	6-4
6.4.2.2	Paper feeding kit for tray 1, 2	6-32
6.4.2.3	Paper feeding kit for MP tray.....	6-39

CHAPTER 7 CLEANING

CHAPTER 8 MAINTENANCE MODE

8.1	ENTRY INTO THE MAINTENANCE MODE	8-1
8.2	LIST OF MAINTENANCE-MODE FUNCTIONS	8-2
8.3	USER-ACCESS TO THE MAINTENANCE MODE	8-3
8.4	DETAILED DESCRIPTION OF MAINTENANCE-MODE FUNCTIONS.....	8-4
8.4.1	EEPROM Parameter Initialization (Function code 01/91)	8-4
8.4.2	Printout of Scanning Compensation Data (Function code 05).....	8-5
8.4.3	Placement of CCD Unit in Position for Transportation (Function code 06).....	8-9
8.4.4	ADF Performance Test (Function code 08)	8-9
8.4.5	Test Pattern 1 (Function code 09).....	8-10
8.4.6	Firmware Switch Setting and Printout	8-11
8.4.6.1	Firmware switch setting (Function code 10)	8-11
8.4.6.2	Printout of firmware switch data (Function code 11).....	8-13
8.4.7	Operation Check of LCD (Function code 12).....	8-14
8.4.8	Operational Check of Control Panel PCB (Function code 13)	8-15
8.4.9	Sensor Operational Check (Function code 32).....	8-16
8.4.10	Received Data Transfer Function (Function code 53) (Not applicable to DCP-8060/8065DN.).....	8-18
8.4.11	Fine Adjustment of Scan Start/End Positions (Function code 54)	8-20
8.4.12	Acquisition of White Level Data and CCD Scanner Area Setting (Function code 55)	8-22
8.4.13	Paper Feeding and Ejecting Test (Function code 67).....	8-23
8.4.14	EEPROM Customizing (Function code 74).....	8-23
8.4.15	Display of the Equipment's Log Information (Function code 80).....	8-24
8.4.16	Machine Error Code Indication (Function code 82).....	8-26
8.4.17	Output of Transmission Log to the Telephone Line (Function code 87) (Not applicable to DCP-8060/8065DN.).....	8-26

8.4.18 Counter Reset After Replacing the Fuser Unit, Laser Unit and Paper Feed Kit (Function code 88).....	8-27
8.4.19 Cancellation of the Memory Security Mode (Not applicable to with out the NCU models and the Japanese model.)	8-27
8.5 OTHER SERVICE FUNCTION	8-28
8.5.1 Resetting the Developing Bias Voltage Counter	8-28

CHAPTER 9 ERROR INDICATION AND TROUBLESHOOTING

9.1 ERROR INDICATION.....	9-1
9.1.1 Equipment Errors.....	9-1
9.1.1.1 Error messages appearing on the LCD	9-1
9.1.1.2 Error codes shown in "MACHINE ERROR <u>X</u> <u>X</u> " messages	9-4
9.1.2 Communications Errors	9-12
9.2 TROUBLESHOOTING.....	9-16
9.2.1 Introduction	9-16
9.2.2 Precautions	9-16
9.2.3 Checking Prior to Troubleshooting	9-16
9.2.4 Troubleshooting Based on Problem Type	9-17
9.2.4.1 Paper feeding problems.....	9-17
9.2.4.2 Software setting problems	9-19
9.2.4.3 Malfunction.....	9-22
9.2.4.4 Image defects	9-28
9.2.4.5 Incorrect printout.....	9-48
9.2.4.6 Network problem.....	9-50
9.2.4.7 Troubleshooting of the control panel	9-57
9.2.4.8 Troubleshooting of fax functions.....	9-59

APPENDIX 1 SERIAL NUMBERING SYSTEM

APPENDIX 2 FIRMWARE INSTALLATION

A2.1 INSTALLING THE UPDATE DATA TO THE MACHINE	APP. 2-1
A2.2 SETTING ID CODES TO MACHINES	APP. 2-7

APPENDIX 3 CUSTOMIZING CODES ACCORDING TO SHIPPING DESTINATION

APPENDIX 4 FIRMWARE SWITCHES (WSW)

APPENDIX 5 WIRING DIAGRAM

APPENDIX 6 CIRCUIT DIAGRAMS

NCU PCB

POWER SUPPLY PCB 100V

POWER SUPPLY PCB 200V

APPENDIX 7 VIEWING THE EVENT LOG FILE

APPENDIX 8 GEAR LAYOUT DRAWING

APPENDIX 9 READMARKS

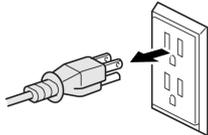
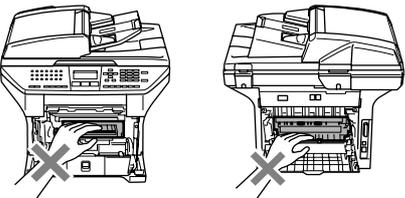
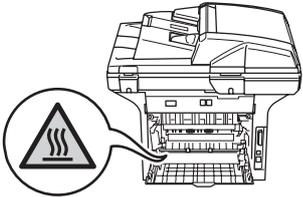
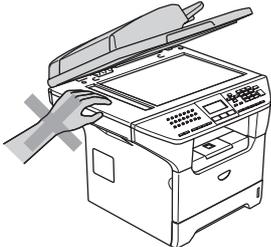
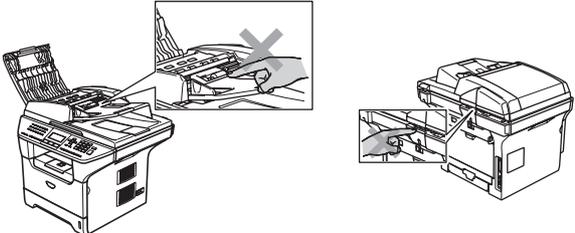
SAFETY PRECAUTIONS

To use the machine safely

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

NOTE: If there are faxes in the machine's memory, you need to print them or save them before you turn off the power and unplug the machine.

WARNING

	<p>There are high voltage electrodes inside the machine. Before you clean the inside of the machine, make sure you have unplugged the telephone line cord first and then the power cord from the AC power outlet.</p>	
	<p>Do not handle the plug with wet hands. Doing this might cause an electrical shock.</p>	
	<p>After you use the machine, some internal parts are extremely HOT! To prevent injuries, be careful not to put your fingers in the areas shown in the illustration.</p>	
	<p>The fuser unit is marked with a caution label. Please do not remove or damage the label.</p>	
	<p>To prevent injuries, be careful not to put your hands on the edge of the machine under the scanner cover.</p>	
	<p>To prevent injuries, be careful not to put your fingers in the area shown in the illustrations.</p>	

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

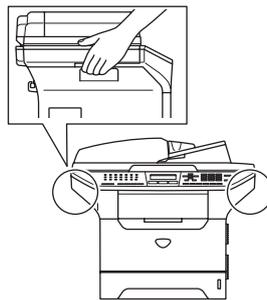
⚠ WARNING

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



⚠ WARNING

- When you move the machine, grasp the side hand holds that are under the scanner. DO NOT carry the machine by holding it at the bottom.
- Use caution when installing or modifying telephone lines. Never touch telephone wires or jack. Never install telephone wiring during a lightning storm. Never install a telephone wall jack in a wet location.
- This product must be installed near an AC power outlet that is easily accessible. In case of an emergency, you must disconnect the power cord from the AC power outlet to shut off the power completely.
- To reduce the risk of shock or fire, use only a No. 26 AWG or larger telecommunication line cord.



⚠ CAUTION

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

⚠ WARNING

IMPORTANT SAFETY INSTRUCTIONS

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

1. Do not use this product near water, for example, near a bath tub, wash bowl, kitchen sink or washing machine, in a wet basement or near a swimming pool.
2. Avoid using this product during an electrical storm. There may be a remote risk of electric shock from lightning.
3. Do not use this product to report a gas leak in the vicinity of the leak.
4. Use only the power cord provided with the MACHINE.

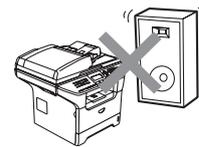
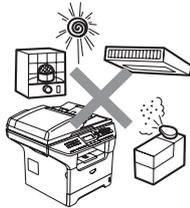
SAVE THESE INSTRUCTIONS

CHOOSING A LOCATION

Place your machine on a flat, stable surface that is free of vibration and shocks, such as a desk. Put the machine near a telephone wall jack and a standard, grounded AC power outlet. Choose a location where the temperature remains between 50°F and 90.5°F (10°C and 32.5°C).

! CAUTION

- Avoid placing your machine in a high-traffic area.
- Do not place the machine near heaters, air conditioners, water, chemicals, or refrigerators.
- Do not expose the machine to direct sunlight, excessive heat, moisture, or dust.
- Do not connect your machine to an AC power outlet controlled by wall switches or automatic timers.
- Disruption of power can wipe out information in the machine's memory.
- Do not connect your machine to an AC power outlet on the same circuit as large appliances or other equipment that might disrupt the power supply.
- Avoid interference sources, such as speakers or the base units of cordless phones.



CHAPTER 1

PARTS NAMES & FUNCTIONS

CHAPTER 1 PARTS NAMES & FUNCTIONS

This chapter contains external views and names of components and describes their functions. Information about the keys on the control panel is included to help you check operation or make adjustments.

CONTENTS

1.1	EQUIPMENT OUTLINE	1-1
1.2	CONTROL PANEL.....	1-2
1.3	COMPONENTS.....	1-7

1.1 EQUIPMENT OUTLINE

Front view

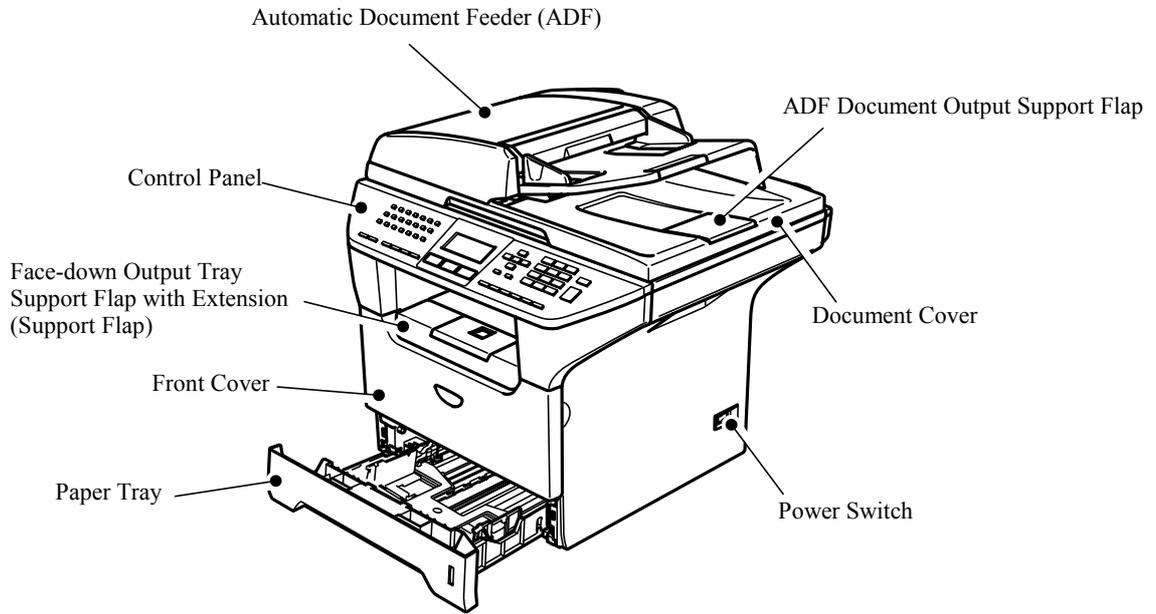


Fig. 1-1

Rear view

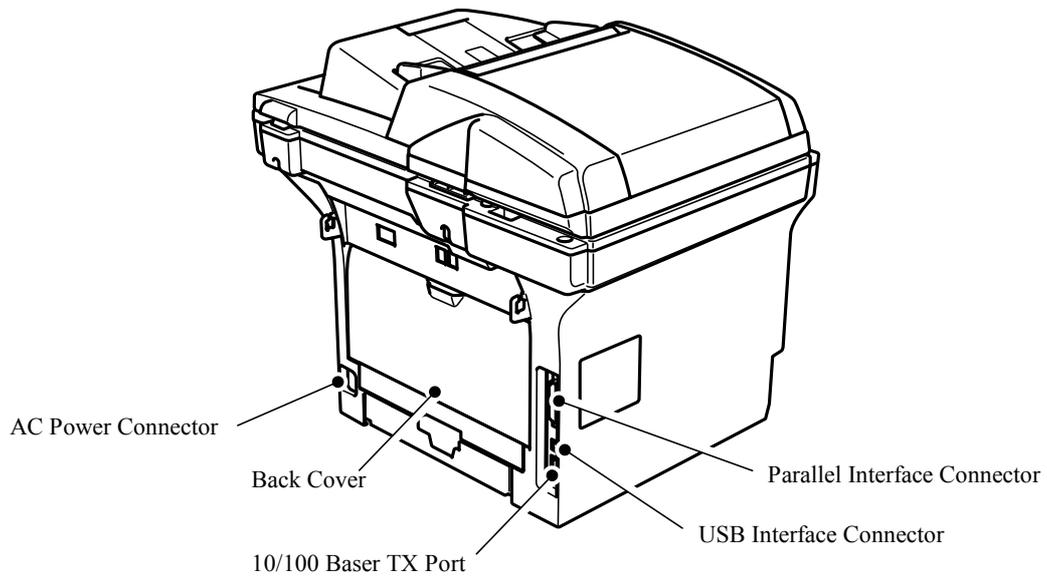


Fig. 1-2

1.2 CONTROL PANEL

MFC-8460N, MFC-8860DN and MFC-8870DW have similar control keys.

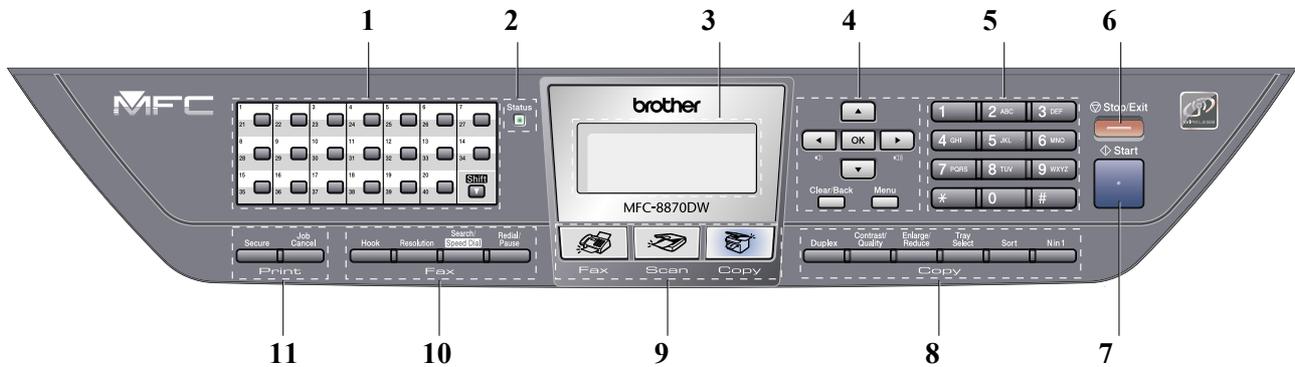


Fig. 1-3

<p style="text-align: center;">1. One-Touch Keys</p> <p>These 20 keys give you instant access to 40 previously stored numbers.</p> <p>Shift Lets you access One-Touch numbers 21 to 40 when held down.</p>	<p style="text-align: center;">5. Dial pad Keys</p> <p>Used to enter telephone and fax numbers or to enter text.</p> <p>The [#] key temporarily switches the dialing mode from Pulse to Tone during a telephone call.</p>
<p style="text-align: center;">2. Status LED</p> <p>The LED will flash and change color depending on the machine status.</p>	<p style="text-align: center;">6. Stop/Exit Key</p> <p>Stops an operation or exits from a menu.</p>
<p style="text-align: center;">3. LCD</p> <p>Displays messages to help you use your machine.</p>	<p style="text-align: center;">7. Start Key</p> <p>Starts sending a fax, making a copy or scanning.</p>
<p style="text-align: center;">4. Menu Keys</p> <p>Menu Accesses the main menu.</p> <p>Clear/Back Deletes entered data or lets you exit the menu.</p> <p>OK Selects a setting.</p> <p>◀ or ▶ Scrolls backwards or forwards through menu selections. Changes the volume when in fax or standby mode.</p> <p>▲ or ▼ Scrolls through the menus and options.</p>	

8. Copy Keys	10. Fax and Telephone Keys
<p>Duplex (For MFC-8860DN and MFC-8870DW) You can choose Duplex to copy on both sides of the paper.</p> <p>Contrast/Quality (For MFC-8860DN and MFC-8870DW) Lets you change the quality or contrast for the next copy.</p> <p>Contrast (For MFC-8460N) Lets you change the contrast for the next copy.</p> <p>Quality (For MFC-8460N) Lets you change the quality for the next copy.</p> <p>Enlarge/Reduce Reduces or enlarges copies.</p> <p>Tray Select Lets you change which tray will be used for the next copy.</p> <p>Sort Sorts multiple copies using the ADF.</p> <p>N in 1 You can choose N in 1 to copy 2 or 4 pages onto one page.</p>	<p>Hook Press before dialing if you want to make sure a fax machine answers, and then press [Start] key. Also, press this key after you pick up the handset of an external telephone during the F/T ring (fast double-rings).</p> <p>Resolution Sets the resolution when sending a fax.</p> <p>Search/Speed Dial Lets you look up numbers stored in the dialing memory and LDAP server* (* MFC-8860DN and MFC-8870DW). You can search the stored number by alphabetically. It also lets you look up the stored number in Speed-Dial numbers by pressing [Shift] key and [Speed-Dial] key simultaneously and then the three digit number.</p> <p>Redial/Pause Redials the last number called. It also inserts a pause when programming quick dial numbers.</p>
9. Mode Keys	11. Print Keys
<p> Fax Puts the machine in Fax mode.</p> <p> Scan Puts the machine in Scan mode. (For details about scanning. See Software User's Guide on the CD-ROM.)</p> <p> Copy Puts the machine in Copy mode.</p>	<p>Secure Prints data saved in memory when you enter your four-digit password.</p> <p>Job Cancel Cancels a print job and clears the machine memory.</p>

DCP-8060 and DCP-8065DN have similar control keys.

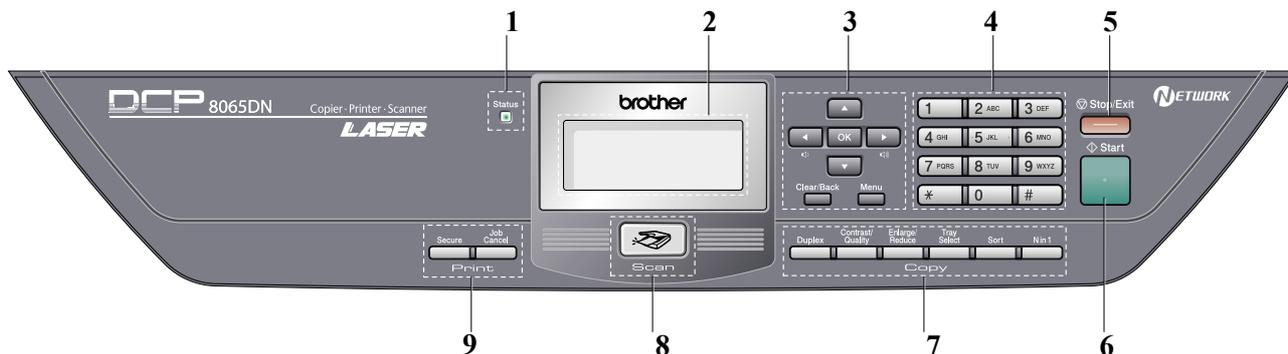


Fig. 1-4

<p align="center">1. Status LED</p>	<p align="center">7. Copy Keys</p>
<p>The LED will flash and change color depending on the machine status.</p>	<p>Duplex (For DCP-8065DN) You can choose Duplex to copy on both sides of the paper.</p>
<p align="center">2. LCD</p>	<p>Contrast/Quality (For DCP-8065DN) Lets you change the quality or contrast for the next copy.</p>
<p>Displays messages to help you use your machine.</p>	<p>Contrast (For DCP-8060) Lets you change the contrast for the next copy.</p>
<p align="center">3. Menu Keys</p>	<p>Quality (For DCP-8060) Lets you change the quality for the next copy.</p>
<p>Menu Accesses the main menu.</p> <p>Clear/Back Deletes entered data or lets you exit the menu.</p> <p>OK Selects a setting.</p> <p>◀ or ▶ Scrolls backwards or forwards through menu selections.</p> <p>Changes the volume when in standby mode.</p> <p>▲ or ▼ Scrolls through the menus and options.</p>	<p>Enlarge/Reduce Reduces or enlarges copies.</p>
<p align="center">4. Dial pad</p>	<p>Tray Select Lets you change which tray will be used for the next copy.</p>
<p>Used to enter text.</p>	<p>Sort Sorts multiple copies using the ADF.</p>
<p align="center">5. Stop/Exit Key</p>	<p>N in 1 You can choose N in 1 to copy 2 or 4 pages onto one page.</p>
<p>Stops an operation or exits from a menu.</p>	<p align="center">8. Scan Key</p>
<p align="center">6. Start Key</p>	<p> Scan Puts the machine in Scan mode. (For details about scanning. See Software User's Guide on the CD-ROM.)</p>
<p>Starts making a copy or scanning.</p>	<p align="center">9. Print Keys</p> <p>Secure Prints data saved in memory when you enter your four-digit password.</p> <p>Job Cancel Cancels a print job and clears the machine memory.</p>

< **Status LED indications** >

The Status LED (Light Emitting Diode) will flash and change color depending on the machine status.

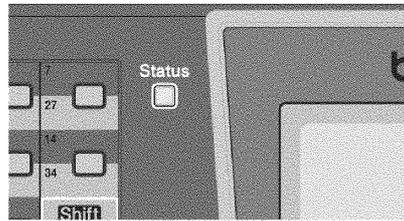


Fig. 1-5

The LED indications shown in the table below are used in the illustrations in this chapter.

LED				LED Status
				LED is off.
	 Green	 Yellow	 Red	LED is on.
	 Green	 Yellow	 Red	LED is blinking.

LED	Machine Status	Description
 LED is off.	Sleep Mode	The power switch is off or the machine is in Sleep mode.
 Green	Warming Up	The machine is warming up for printing.
 Green	Ready	The machine is ready to print.
 Yellow	Receiving Data	The machine is either receiving data from the computer, processing data in memory or printing data.
 Yellow	Data Remaining in Memory	Print data remains in the machine memory.
 Red	Service error	Follow the steps below. 1. Turn off the power switch. 2. Wait a few seconds, and then turn it back on and try to print again. If you cannot clear the error and see the same service call indication after turning the machine back on, please call Brother Customer Service.

LED	Machine Status	Description
 Red	Cover open	The front cover or the back cover is open. Close the cover.
	Toner Life End	Replace the toner cartridge with a new one.
	Paper error	Put paper in the tray or clear the paper jam. Check the LCD message.
	Scan lock	Check that the scanner lock lever is released.
	Others	Check the LCD message.
	Out of memory	Memory is full.

NOTE: When the power switch is off or the machine is in Sleep mode, the LED is off.

1.3 COMPONENTS

The equipment consists of the following major components:

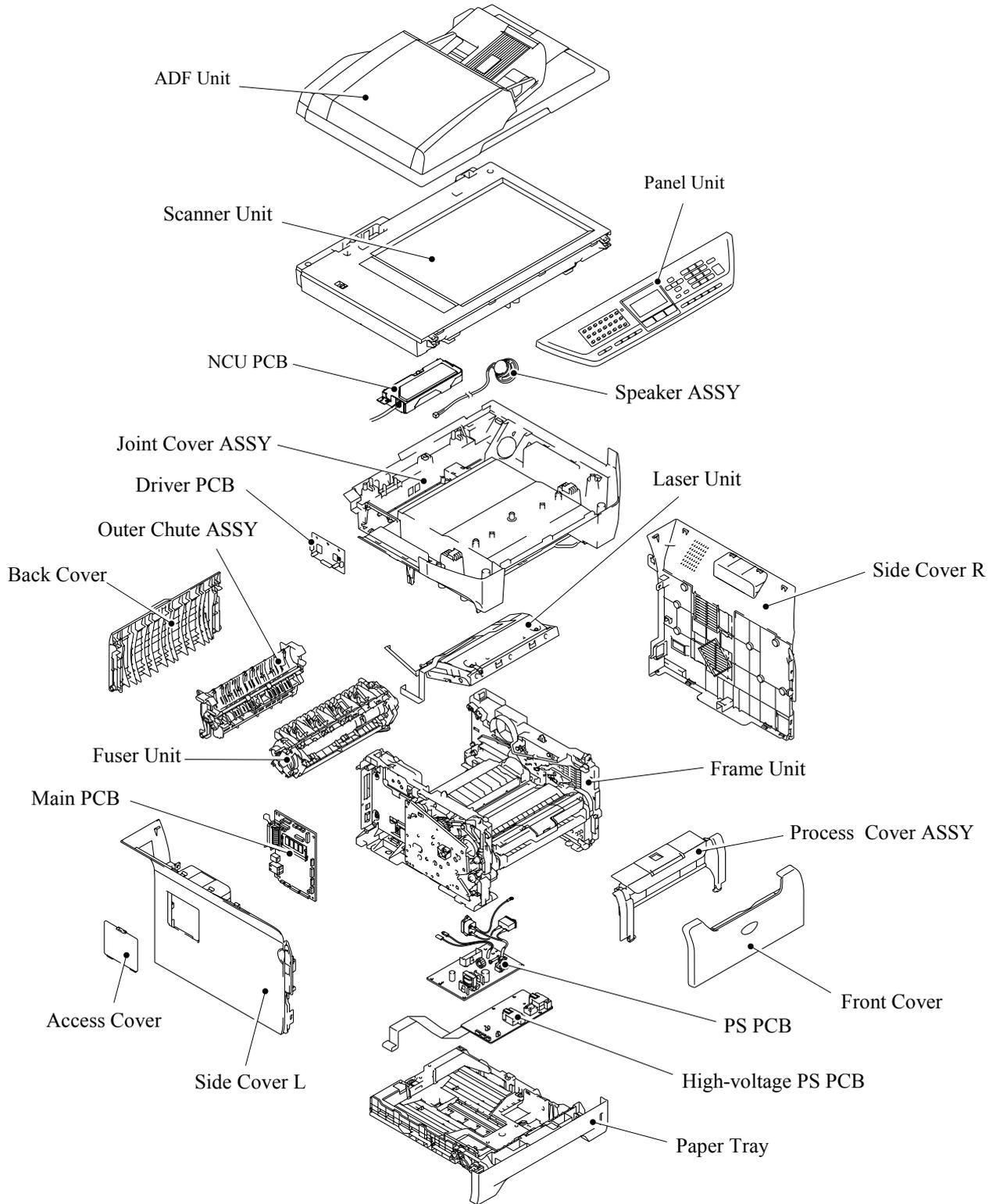


Fig. 1-6

CHAPTER 2

SPECIFICATIONS

CHAPTER 2 SPECIFICATIONS

This chapter lists the specifications of each model, which enables you to make a comparison of different models.

CONTENTS

2.1	GENERAL	2-1
2.1.1	General Specifications	2-1
2.1.2	Paper Specifications.....	2-2
2.1.2.1	Paper handling	2-2
2.1.2.2	Media specifications	2-2
2.1.3	Printable Area	2-5
2.1.3.1	PCL5e/EPSON/IBM emulation	2-5
2.1.3.2	PCLXL, PS (BR-Script 3).....	2-8
2.1.4	Print Speeds with Various Settings	2-9
2.1.5	Toner Cartridge Weight Information	2-10
2.2	SPECIFICATIONS LIST.....	2-11

2.1 GENERAL

2.1.1 General Specifications

Memory Capacity	32 MB
Automatic Document Feeder (ADF)	Up to 50 sheets (Staggered)
Paper Tray	250 Sheets (20 lb (80 g/m ²))
Printer Type	Laser
Print Method	Electrophotography by semiconductor laser beam scanning
Liquid Crystal Display (LCD)	22 characters x 5 lines
Power Source	120V AC 50/60Hz (U.S.A./Canada) 220 to 240V AC 50/60Hz (Europe/Asia/Oceania)
Power Consumption	Sleep: 17W (Average) (For the models with the NCU) : 15W (Average) (For the models with out NCU) Standby: 85W (Average) Peak: 1092W (U.S.A./Canada) 1104W (Europe/Asia/Oceania)
Dimensions (W x D x H)	531 mm x 450 mm x 475 mm (20.9" x 17.7" x 18.7") (with out carton)
Weight	Without Drum/Toner Unit: MFC-8460N: 16.5 kg (36.4 lb) MFC-8860DN/8870DW: 16.7 kg (36.81 lb)
Noise	Operating: 55 dB A or less (when ADF scanning) Standby: 30 dB A or less
Temperature	Operating: 10 to 32.5°C (50°F to 90.5°F) Storage: 0 to 40°C (32°F to 104°F)
Humidity	Operating: 20 to 80% (without condensation) Storage: 10 to 90% (without condensation)

2.1.2 Paper Specifications

2.1.2.1 Paper handling

Paper Input*	All models
Multi-purpose tray	50 sheets
Paper tray (Standard)	250 sheets
Lower tray (Option)	250 sheets

* Calculated with 80 g/m² (21 lb) paper.

Paper Input*	All models
Face-down	150 sheets

* Calculated with 80 g/m² (21 lb) paper.

Duplex	MFC-8460N/DCP8060	MFC-8860DN/8870DW DCP-8065DN
Manual Duplex	Yes	
Automatic Duplex	N/A	Yes

2.1.2.2 Media specifications

(1) Media types

The machine loads paper from the installed paper tray or the multi-purpose tray. The feedable media type and size are different depending on the paper tray installed. The names for the paper trays in the printer driver and this guides are as follows;

Paper tray	Tray 1
Multi-purpose tray	MP Tray
Optional lower tray unit	Tray 2
Duplex tray for automatic duplex printing (for MFC-8860DN/8870DW, DCP-8065DN)	DX

The table in the next page shows the feedable media of each paper tray described above.

	Tray 1/2	MP Tray	DX	Choose the media type from the printer driver
Plain paper 75 g/m ² to 105 g/m ² (20 to 28 lbs.)	Yes	Yes	Yes	Plain paper
Recycled paper	Yes	Yes	Yes	Recycled paper
Bond paper Rough paper- 60 g/m ² to 161 g/m ² (16 to 43 lbs.)	Yes 60 g/m ² to 105 g/m ² (16 to 28 lbs.)	Yes 60 g/m ² to 161 g/m ² (16 to 43 lbs.)	N/A	Bond paper
Thin paper 60 g/m ² to 75 g/m ² (16 to 20 lbs.)	Yes	Yes	Yes	Thin paper
Thick paper 105 g/m ² to 161 g/m ² (28 to 43 lbs.)	N/A	Yes	N/A	Thick Paper or Thicker Paper
Transparency	Yes Up to 10 sheets A4 or Letter **	Yes Up to 10 sheets A4 or Letter	N/A	Transparencies
Labels	N/A	Yes A4 or Letter	N/A	Thicker Paper
Envelopes	N/A	Yes	N/A	Envelopes, Env. Thin, Env. Thick

* Up to 10 sheets

** Not available for the optional Tray 2.

(2) Media size

Tray 1 (Standard)	Tray 2 (Option)	MP Tray	DX
A4, Letter, Legal*, B5 (ISO), Excutive, A5, A6, B6 (ISO)	A4, Letter, Legal*, B5 (ISO), Excutive, A5, B6 (ISO)	Width: 69.9 to 215.9 mm (2.75 to 8.5 in.) Length: 116 to 406.4 mm (4.57 to 16 in.)	A4, Letter, Legal*

* Legal size paper is not available in some regions outside the U.S.A. and Canada.

(3) Media weights

Tray 1	Tray 2 Lower tray unit (Option) (LT-5300)	MP Tray	DX
60 to 105 g/m ² (16 to 28 lb.)	60 to 105 g/m ² (16 to 28 lb.)	60 to 161 g/m ² (16 to 43 lb.)	60 to 105 g/m ² (16 to 28 lb.)

(4) Recommended paper

	Europe	U.S.A.
Plain paper	Xerox Premier 80 g/m ² Xerox Business 80 g/m ² M-real DATACOPY 80 g/m ²	Xerox 4200DP 20lb Hammermill Laser Paper 24lb
Recycled paper	Xerox Recycled Supreme	N/A
Transparency	3M CG3300	3M CG 3300
Label	Avery laser label L7163	Avery laser label #5160

* This machine can use recycled paper that meets the DIN 19309 specification.

(5) Moisture content

Moisture content: 4% to 6% by weight

 **CAUTION**

When you are choosing print media, be sure to follow the information given below to prevent any paper jams, print quality problems or machine damage;

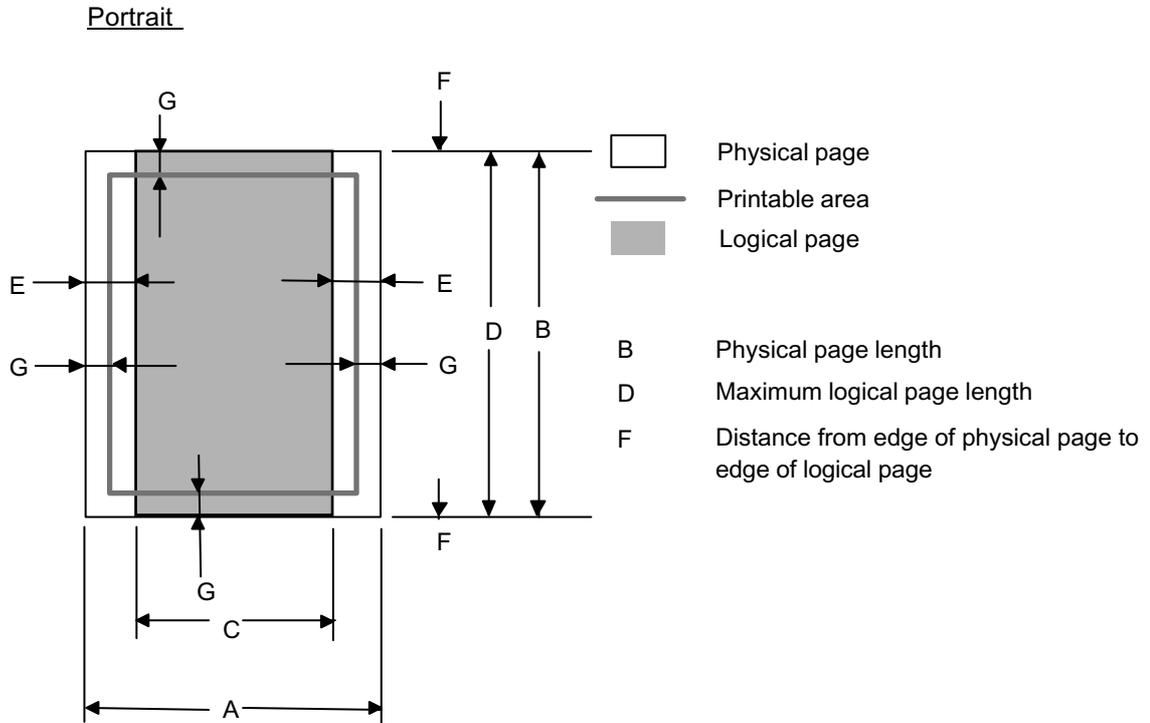
- It is recommended to use long-grained paper for the best print quality. If short-grained paper is being used, it might be the cause of paper jams.
- Use neutral paper. Do not use acid paper to avoid any damage to the drum unit.
- Avoid using coated paper such as vinyl coated paper.
- Avoid using preprinted or highly textured paper.
- It is recommended to use labels or transparencies which are designed for use in laser machines.
- Avoid feeding labels with the carrier sheet exposed, or the machine will be damaged.
- Before loading paper with holes such as organizer sheets, be sure to fan the stack well.
- Do not use organizer sheets that are stuck together. The glue that is used might caused damaged to the machine.
- When printing on the back of pre-printed paper, if the paper is curled, be sure to straighten the paper as much as possible.

Different types of paper should not be loaded at the same time in the paper tray to avoid any paper jams or misfeeds.

2.1.3 Printable Area

2.1.3.1 PCL5e/EPSON/IBM emulation

When using PCL emulation, the edges of the paper that cannot be printed on are shown below.



NOTE:

- “Logical page” shows the printable area for a PCL driver.
- “Printable area” shows mechanical printable area of the machine.
- Therefore, the machine can only print within the shaded area when you use a PCL driver.

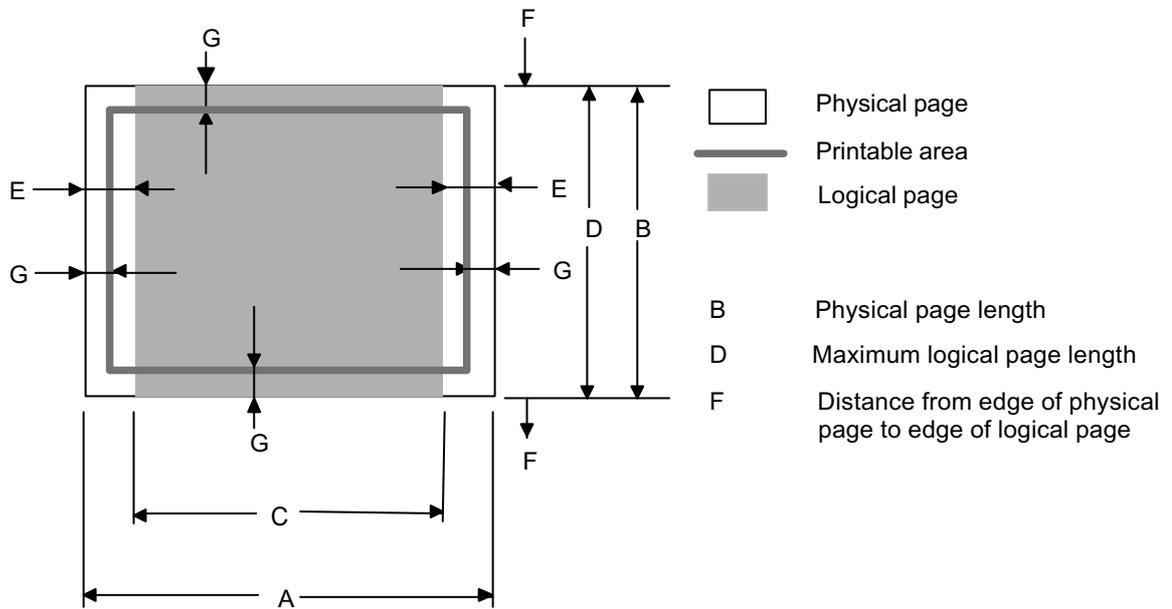
The table below shows the printable areas when printing on Portrait for each paper size.

Size	A	B	C	D	E	F	G
Letter	215.9 mm 8.5" (2,550 dots)	279.4 mm 11.0" (3,300 dots)	203.2 mm 8.0" (2,400 dots)	279.4 mm 11.0" (3,300 dots)	6.35 mm 0.25" (75 dots)	0 mm	4.2 mm 0.16" (50 dots)
Legal	215.9 mm 8.5" (2,550 dots)	355.6 mm 14.0" (4,200 dots)	203.2 mm 8.0" (2,400 dots)	355.6 mm 14.0" (4,200 dots)	6.35 mm 0.25" (75 dots)	0 mm	4.2 mm 0.16" (50 dots)
Folio	215.9 mm 8.5" (2,550 dots)	330.2mm 13.0" (3,900 dots)	203.2 mm 8.0" (2,400 dots)	330.2mm 13.0" (3,900 dots)	6.35 mm 0.25" (75 dots)	0 mm	4.2 mm 0.16" (50 dots)
Executive	184.15 mm 7.25" (2,175 dots)	266.7 mm 10.5" (3,150 dots)	175.7 mm 6.92" (2,025 dots)	266.7 mm 10.5" (3,150 dots)	6.35 mm 0.25" (75 dots)	0 mm	4.2 mm 0.16" (50 dots)
A4	210.0 mm 8.27" (2,480 dots)	297.0 mm 11.69" (3,507 dots)	198.0 mm 7.79" (2,338 dots)	297.0 mm 11.69" (3,507 dots)	6.01 mm 0.24" (71 dots)	0 mm	4.2 mm 0.16" (50 dots)
A5	148.5 mm 5.85" (1,754 dots)	210.0 mm 8.27" (2,480 dots)	136.5 mm 5.37" (1,612 dots)	210.0 mm 8.27" (2,480 dots)	6.01 mm 0.24" (71 dots)	0 mm	4.2 mm 0.16" (50 dots)
A6	105.0 mm 4.13" (1,240 dots)	148.5 mm 5.85" (1,754 dots)	93.0 mm 3.66" (1,098 dots)	148.5 mm 5.85" (1,754 dots)	6.01 mm 0.24" (71 dots)	0 mm	4.2 mm 0.16" (50 dots)
B5 (JIS)	182.0 mm 7.1" (2,130 dots)	257.0 mm 10.11" (3,033 dots)	170.0 mm 6.69" (2,007 dots)	257.0 mm 10.11" (3,033 dots)	6.01 mm 0.24" (71 dots)	0 mm	4.2 mm 0.16" (50 dots)
B5 (ISO)	176.0 mm 6.93" (2,078 dots)	250.0 mm 9.84" (2,952 dots)	164.0 mm 6.46" (1,936 dots)	250.0 mm 9.84" (2,952 dots)	6.01 mm 0.24" (71 dots)	0 mm	4.2 mm 0.16" (50 dots)
B6 (ISO)	125.0 mm 4.92" (1,476 dots)	176.0 mm 6.93" (2,078 dots)	164.0 mm 4.44" (1,334 dots)	176.0 mm 6.93" (2,078 dots)	6.01 mm 0.24" (71 dots)	0 mm	4.2 mm 0.16" (50 dots)
COM10	104.78 mm 4.125" (1,237 dots)	241.3 mm 9.5" (2,850 dots)	92.11 mm 3.63" (1,087 dots)	241.3 mm 9.5" (2,850 dots)	6.35 mm 0.25" (75 dots)	0 mm	4.2 mm 0.16" (50 dots)
MONARCH	98.43 mm 3.875" (1,162 dots)	190.5 mm 7.5" (2,250 dots)	85.7 mm 3.37" (1,012 dots)	190.5 mm 7.5" (2,250 dots)	6.35 mm 0.25" (75 dots)	0 mm	4.2 mm 0.16" (50 dots)
C5	162.0 mm 6.38" (1,913 dots)	229.0 mm 9.01" (2,704 dots)	150.0 mm 5.9" (1,771 dots)	229.0 mm 9.01" (2,704 dots)	6.01 mm 0.24" (71 dots)	0 mm	4.2 mm 0.16" (50 dots)
DL	110.0 mm 4.33" (1,299 dots)	220.0 mm 8.66" (2,598 dots)	98.0 mm 3.86" (1,157 dots)	220.0 mm 8.66" (2,598 dots)	6.01 mm 0.24" (71 dots)	0 mm	4.2 mm 0.16" (50 dots)
DLL	220.0 mm 8.66" (2,598 dots)	110.0 mm 4.33" (1,299 dots)	207.4 mm 8.17" (2,450 dots)	110.0 mm 4.33" (1,299 dots)	6.27 mm 0.25" (74 dots)	0 mm	6.27 mm 0.25" (74 dots)

NOTE:

- The paper sizes indicated here should confirm to the nominal dimensions specified by JIS except B5 (ISO), B6 (ISO).
- The dot size is based on 300 dpi resolution.

Landscape



NOTE:

- "Logical page" shows the printable area for a PCL driver.
- "Printable area" shows mechanical printable area of the machine.
- Therefore, the machine can only print within the shaded area when you use a PCL driver.

The table below shows the printable areas when printing on Landscape for each paper size.

Size	A	B	C	D	E	F	G
Letter	279.4 mm 11.0" (3,300 dots)	215.9 mm 8.5" (2,550 dots)	269.3 mm 10.6" (3,180 dots)	215.9 mm 8.5" (2,550 dots)	5.0 mm 0.2" (60 dots)	0 mm	4.2 mm 0.16" (50 dots)
Legal	355.6 mm 14.0" (4,200 dots)	215.9 mm 8.5" (2,550 dots)	345.5 mm 13.6" (4,080 dots)	215.9 mm 8.5" (2,550 dots)	5.0 mm 0.2" (60 dots)	0 mm	4.2 mm 0.16" (50 dots)
Folio	330.2mm 13.0" (3,900 dots)	215.9 mm 8.5" (2,550 dots)	320.0 mm 12.6" (3,780 dots)	215.9 mm 8.5" (2,550 dots)	5.0 mm 0.2" (60 dots)	0 mm	4.2 mm 0.16" (50 dots)
Executive	266.7 mm 10.5" (3,150 dots)	184.15 mm 7.25" (2,175 dots)	256.6 mm 10.1" (3,030 dots)	184.15 mm 7.25" (2,175 dots)	5.0 mm 0.2" (60 dots)	0 mm	4.2 mm 0.16" (50 dots)
A4	297.0 mm 11.69" (3,507 dots)	210.0 mm 8.27" (2,480 dots)	287.0 mm 11.2" (3,389 dots)	210.0 mm 8.27" (2,480 dots)	4.8 mm 0.19" (59 dots)	0 mm	4.2 mm 0.16" (50 dots)
A5	210.0 mm 8.27" (2,480 dots)	148.5 mm 5.85" (1,754 dots)	200.0 mm 7.87" (2,362 dots)	148.5 mm 5.85" (1,754 dots)	4.8 mm 0.19" (59 dots)	0 mm	4.2 mm 0.16" (50 dots)
A6	148.5 mm 5.85" (1,754 dots)	105.0 mm 4.13" (1,240 dots)	138.5 mm 5.45" (1,636 dots)	105.0 mm 4.13" (1,240 dots)	4.8 mm 0.19" (59 dots)	0 mm	4.2 mm 0.16" (50 dots)
B5 (JIS)	257.0 mm 10.11" (3,033 dots)	182.0 mm 7.1" (2,130 dots)	247.0 mm 9.72" (2,916 dots)	182.0 mm 7.1" (2,130 dots)	4.8 mm 0.19" (59 dots)	0 mm	4.2 mm 0.16" (50 dots)
B5 (ISO)	250.0 mm 9.84" (2,952 dots)	176.0 mm 6.93" (2,078 dots)	240.0 mm 9.44" (2,834 dots)	176.0 mm 6.93" (2,078 dots)	4.8 mm 0.19" (59 dots)	0 mm	4.2 mm 0.16" (50 dots)
B6 (ISO)	176.0 mm 6.93" (2,078 dots)	125.0 mm 4.92" (1,476 dots)	166.4 mm 6.55" (1,960 dots)	125.0 mm 4.92" (1,476 dots)	4.8 mm 0.19" (59 dots)	0 mm	4.2 mm 0.16" (50 dots)
COM10	241.3 mm 9.5" (2,850 dots)	104.78 mm 4.125" (1,237 dots)	231.1 mm 9.1" (2,730 dots)	104.78 mm 4.125" (1,237 dots)	5.0 mm 0.2" (60 dots)	0 mm	4.2 mm 0.16" (50 dots)
MONARCH	190.5 mm 7.5" (2,250 dots)	98.43 mm 3.875" (1,162 dots)	180.4 mm 7.1" (2,130 dots)	98.43 mm 3.875" (1,162 dots)	5.0 mm 0.2" (60 dots)	0 mm	4.2 mm 0.16" (50 dots)
C5	229.0 mm 9.01" (2,704 dots)	162.0 mm 6.38" (1,913 dots)	219.0 mm 8.62" (2,586 dots)	162.0 mm 6.38" (1,913 dots)	4.8 mm 0.19" (59 dots)	0 mm	4.2 mm 0.16" (50 dots)
DL	220.0 mm 8.66" (2,598 dots)	110.0 mm 4.33" (1,299 dots)	210.0 mm 8.26" (2,480 dots)	110.0 mm 4.33" (1,299 dots)	4.8 mm 0.19" (59 dots)	0 mm	4.2 mm 0.16" (50 dots)
DLL	110.0 mm 4.33" (1,299 dots)	220.0 mm 8.66" (2,598 dots)	97.5 mm 3.84" (1,151 dots)	220.0 mm 8.66" (2,598 dots)	6.27 mm 0.25" (74 dots)	0 mm	6.27 mm 0.25" (74 dots)

NOTE:

- The paper sizes indicated here should confirm to the nominal dimensions specified by JIS except B5 (ISO), B6 (ISO).
- The dot size is based on 300 dpi resolution.

2.1.3.2 PCLXL, PS (BR-Script 3)

You can not print within 4.2 mm (50dots in 300 dpi mode) on all four sides of the paper.

2.1.4 Print Speeds with Various Settings

Print speed is up to 28 ppm for A4 size and 30 ppm for Letter size when loading A4 or Letter size paper from the paper tray in the plain paper mode.

Actual print speed varies depending on the media type or paper size as shown in the tables below;

<A4/Letter size>

Media type setting	All models
Transparency	28/30 ppm
Thin Paper	28/30 ppm
Plain Paper	28/30 ppm
Recycled Paper	28/30 ppm
Thick Paper, Envelopes, Env.Thin	14 ppm
Thicker/Bond Paper, Env.Thick	3 ppm

< Smaller size than A4 or Letter

Media type setting	All models
Transparency	28/30 ppm
Thin Paper	28/30 ppm
Plain Paper	90 sec 28/30 ppm → 14 ppm
Recycled Paper	90 sec 28/30 ppm → 14 ppm
Env.Thin	14 ppm
Thick Paper, Envelopes	14 ppm
Thicker/Bond Paper, Env.Thick	3 ppm

NOTE:

- The print speed may vary according to conditions, such as paper size and paper tray.
- When a smaller size paper than A4 or Letter is printed, the temperature on both edges of the fuser unit is much higher than the temperature on the center of the unit where the paper is fed depending on the setting or model. Therefore, the print speed is slowed in order to decrease the temperature on the edges after the specified time, it is maximum print speed when you first start printing.
- The actual print speed varies depending on the paper size.

2.1.5 Toner Cartridge Weight Information

<Toner Cartridge Weight (approximate weight)>

	TN580 (U.S.A./Canada)	TN-3170 (Europe)	TN-3185 (Asia/Oceania)
Brand new Toner Cartridge Weight	727g		
Toner Weight at Brand New Toner Cartridge	190g		
Toner Cartridge Weight at Toner Near Empty	617g (± 13g)		
Remain Toner Weight at Toner Near Empty	77g		
Toner Cartridge Weight at Toner Life End	605g (± 10g)		
Remain Toner Weight at Toner Life End	68g		
	TN550 (U.S.A./Canada)	TN-3130 (Europe)	TN-3145 (Asia/Oceania)
Brand new Toner Cartridge Weight	663g		
Toner Weight at Brand New Toner Cartridge	126g		
Toner Cartridge Weight at Toner Near Empty	617g (± 13g)		
Remain Toner Weight at Toner Near Empty	77g		
Toner Cartridge Weight at Toner Life End	602g (± 10g)		
Remain Toner Weight at Toner Life End	65g		

NOTE:

- Without yellow protector, DR cover.
- Toner cartridge weight may vary within 2 to 3g depending on the cartridge weight.
- You can print about 630 pages with 10g toner.
(A4 size, 5% coverage, continuous printing)
- The figure has varied quite a bit, for example from 590 pages to 720 pages, on a comparison of printing test results.

2.2 SPECIFICATIONS LIST

MFC-8460N

(1/5)

		AL-FB Base	
		US/Canada	Europe
		Asia/Pacific	
Model Name		MFC-8460N	
GENERAL			
Print Engine		Laser (AL)	
CPU Speed		266MHz	
Back up Clock		Yes (up to 4 days)	
Operating Environment	Temperature	10 - 32.5 degrees Centigrade	
	Humidity	20% - 80% (without condensation)	
On/Off Switch		Yes	
Demo Print		Yes	N/A
Demo Model		N/A	
Starter Toner		Standard Toner (3.5K)	
Simultaneous Operation		Yes	
Supported OS Version		Win/98(SE)/Me, WinNT4.0/2K/XP MacOS 9.1 - 9.2/ OSX 10.2.4 or greater	
Paper Input Capacity	ADF	up to 50 sheets (XX4024 or 4200 20lbs, environment: temp. 20-30C humidity 50-70%)	
	Paper Tray	250 sheets	
	Optional Tray	250 sheets x 1 (LT-5300)	
	Multi-Purpose Tray	Yes (up to 50 sheets by 20lbs paper)	
Paper Output Capacity		up to 150 sheets	
Input Media Size	ADF	Width 148.0 to 215.9 mm, Length 148.0 to 355.6 mm (Width 5.8" to 8.5", Length 5.8" to 14")	
	MP Tray	Width 69.9 to 215.9 mm, Length 116 to 406.4 mm (Width 2.75" to 8.50", Length 4.57" to 16")	
	Paper Tray (Standard)	A4, Letter, B5 (ISO), A5, B6, A6, Exe, Legal, Folio	A4, Letter, B5 (ISO), A5, B6, A6, Exe
	Paper Tray (Option)	A4, Letter, B5 (ISO), A5, B6, Exe, Legal, Folio	A4, Letter, B5 (ISO), A5, B6, Exe
Media Types	MP Tray	Plain Paper, Bond Paper, Recycled Paper, Envelopes, Labels, and Transparencies	
	Paper Tray	Plain Paper, Bond Paper, Recycled Paper, Transparencies	
	Paper Tray (Option)	Plain Paper, Bond Paper, Recycled Paper	
Media Weights	ADF	64 - 90 g/m2 (17 - 24 lb)	
	MP Tray	60 -161 g/m2 (16 - 43 lb)	
	Paper Tray	60 - 105 g/m2 (16 - 28 lb)	
LCD Size		22 characters x 5 lines (Full Dot) maximum message is 16 characters	
LCD Dimention (W x L) *7		2.76 x 1.06 inch	
LCD Back-Lit		Yes (1-color)	
Memory Capacity (Standard : MByte)		32 Mbyte (RAM)	
Memory BackUp		Yes (up to 4 days for standard memory)	
Optional Memory		1 DIMM (144pin) slot (64, 128, 256, 512MB) ; expandable up to 544MB	
Function Lock		Yes	
Setting Lock		Yes	
Dimensions w/ Carton (WxDxH)		746mmX567mmX575mm 29.4" x 22.3" x 22.6"	
Dimensions w/o Carton (WxDxH)		531mmX450mmX475mm 20.9" x 17.7" x 18.7"	
Weight w/ Carton		22kg/ 48.5lbs.	
Weight w/o Carton		18kg/ 39.7lbs.	
Color		Front/TOP Cover : 1581Gray , Side cover/Panel : 1736Gray	
Power Source		120V AC 50/60(Canada)Hz	220-240V AC 50/60Hz
Power Consumption (Copying)		Average 660W	
Power Consumption (Sleep/Standby/Peak)		Average 17W/85W/1092W	Average 17W/85W/1104W
Power Save (CPU Sleep)		N/A	

(2/5)

	AL-FB Base		
	US/Canada	Europe	Asia/Pacific
Model Name	MFC-8460N		
GENERAL			
Sleep Mode (00-99min : w/ OFF mode)	Yes		
Energy Star Compliant (USA Only)	Yes	N/A	
Total Print pages Counter (LCD / Print)	Yes / Yes		
Copy pages Counter (LCD / Print)	Yes / Yes		
PC print pages Counter (LCD / Print)	Yes / Yes		
Fax RX/List pages counter (LCD / Print)	Yes / Yes		
TELEPHONE			
Handset	N/A		
Off Hook Alarm	N/A		
Power Failure Phone	N/A		
Power Failure Dialling	N/A		
Chain Dialing	Yes		
Automatic Redial	Yes		
PBX Feature	N/A	Yes	
Speaker Phone	N/A		
Handset Volume	N/A		
Beeper Volume	Yes (3 steps + OFF)		
Speaker Volume	Yes (3 steps + OFF)		
Ring Volume	Yes (3 steps + OFF)		
Hook/ Tel Key	Yes		
Hold/Mute Key	N/A		
Music on Hold	N/A		
Monitoring the Line on Hold with Music	N/A		
One-Touch Dial	40 (20 x 2) locations		
Speed Dial	300 locations		
Figures of One-Touch & Speed Dial	20 digits		
Resisterable Number Of Characters	15 characters		
Group Dial	Yes (up to 20 groups)		
Telephone Index	Yes (with Search/Speed dial key)		
Caller ID	Yes	N/A	Yes(Australia/New Zealand/Singapore/ Hong Kong only)
Call Waiting Caller ID	N/A		
Call waiting Ready (Only for USA)	N/A		
Distinctive Ringing	Yes	Yes (U.K., Denmark only)	Yes(Australia/New Zealand/Singapore/ Hong Kong only)
FAX			
Modem Speed	33.600bps (Fax)		
Transmission Speed	Approx. 2second. (Brother#1,JBIG)		
ITU-T Group	Super G3		
Coding Method	MH / MR / MMR / JBIG		
Color FAX (Document Send / Receive)	N/A / N/A		
Color FAX (Memory Send / Receive)	N/A / N/A		
Fax/Tel Switch	Yes		
Super Fine	Yes (TX & RX)		
Gray Scale	256		
Contrast	Yes (Auto/Light/Dark)		
Smoothing	N/A		
Dual Access	Yes		
Enhanced Remote Activate	Yes		
Station ID	Yes (20digits / 20characters)		
Remote Maintenance	Yes		

		AL-FB Base		
		US/Canada	Europe	Asia/Pacific
Model Name		MFC-8460N		
FAX				
RX Mode Indication		LCD		
Resolution Indication		LCD		
Delayed Timer		Yes (up to 50)		
Polled Sending		Yes		
Multi Transmission		N/A		
Multi Resolution Transmission		N/A		
Next-Fax Reservation		N/A		
Batch Transmission		Yes		
Call Reservation Over Auto TX		N/A		
Call Reservation Over Manual TX		N/A		
Quick-Scan(Memory transmission)		Approx. 2 second./page (A4 standard)		
Memory Transmission (ITU-T Chart)		up to 500 pages (ITU-T Test Chart, Standard Resolution) up to 600 pages ((Brother #1Chart, Standard Resolution)		
ECM(Error Correction Mode)		Yes		
Error Re-Transmission		Yes		
Broadcasting		Yes (390 locations)		
Manual Broadcasting		Yes (50 locations)		
Easy Receive/Fax Detect		Yes		
Polling Receiving		Yes		
Auto Reduction		Yes		
Duplex Fax Receive		N/A		
Out-of-Paper Reception (ITU-T Chart)		up to 500 pages (ITU-T Test Chart, Standard Resolution) up to 600 pages ((Brother #1Chart, Standard Resolution)		
LIST/REPORT				
Activity Report/Journal Report		Yes (up to 200)		
Transmission Verification Report		Yes		
Coverpage		Yes		
Help List		Yes		
Call Back Message		N/A		
Caller ID List		Yes	N/A	Yes
Tel Index List	Numeric	Yes		
	Alphabetic	Yes		
Memory Status List		N/A		
System Setup(User Setting) List		Yes		
Order Form		N/A	Yes	
INTERFACE				
External TAD Interface		Yes		
Host Interface (Serial)		N/A		
Host Interface (IEEE1284)		Yes		
Host Interface (Hi-Speed USB2.0)		Yes		
Ether Net (10/100base-TX)		Yes		
Cable included		N/A		
Acceptable Media Card Slot		N/A		
PRINTER				
Color/Mono		Mono		
Engine Type		Laser (AL)		
Resolution	Windows 95 / 98 /Me and NT4.0 / 2000 / XP	1200 dpi, HQ1200 (2400x600dpi), 600 dpi, 300 dpi		
	DOS	600 dpi		
	Mac OS	1200 dpi, HQ1200 (2400x600dpi), 600 dpi, 300 dpi		
	Linux	600 dpi, 300 dpi		

		AL-FB Base		
		US/Canada	Europe	Asia/Pacific
Model Name		MFC-8460N		
FAX				
RX Mode Indication		LCD		
Resolution Indication		LCD		
Delayed Timer		Yes (up to 50)		
Polled Sending		Yes		
Multi Transmission		N/A		
Multi Resolution Transmission		N/A		
Next-Fax Reservation		N/A		
Batch Transmission		Yes		
Call Reservation Over Auto TX		N/A		
Call Reservation Over Manual TX		N/A		
Quick-Scan(Memory transmission)		Approx. 2 second./page (A4 standard)		
Memory Transmission (ITU-T Chart)		up to 500 pages (ITU-T Test Chart, Standard Resolution) up to 600 pages ((Brother #1Chart, Standard Resolution)		
ECM(Error Correction Mode)		Yes		
Error Re-Transmission		Yes		
Broadcasting		Yes (390 locations)		
Manual Broadcasting		Yes (50 locations)		
Easy Receive/Fax Detect		Yes		
Polling Receiving		Yes		
Auto Reduction		Yes		
Duplex Fax Receive		N/A		
Out-of-Paper Reception (ITU-T Chart)		up to 500 pages (ITU-T Test Chart, Standard Resolution) up to 600 pages ((Brother #1Chart, Standard Resolution)		
LIST/REPORT				
Activity Report/Journal Report		Yes (up to 200)		
Transmission Verification Report		Yes		
Coverpage		Yes		
Help List		Yes		
Call Back Message		N/A		
Caller ID List		Yes	N/A	Yes
Tel Index List	Numeric	Yes		
	Alphabetic	Yes		
Memory Status List		N/A		
System Setup(User Setting) List		Yes		
Order Form		N/A	Yes	
INTERFACE				
External TAD Interface		Yes		
Host Interface (Serial)		N/A		
Host Interface (IEEE1284)		Yes		
Host Interface (Hi-Speed USB2.0)		Yes		
Ether Net (10/100base-TX)		Yes		
Cable included		N/A		
Acceptable Media Card Slot		N/A		
PRINTER				
Color/Mono		Mono		
Engine Type		Laser (AL)		
Resolution	Windows 95 / 98 /Me and NT4.0 / 2000 / XP	1200 dpi, HQ1200 (2400x600dpi), 600 dpi, 300 dpi		
	DOS	600 dpi		
	Mac OS	1200 dpi, HQ1200 (2400x600dpi), 600 dpi, 300 dpi		
	Linux	600 dpi, 300 dpi		

(5/5)

		AL-FB Base		
		US/Canada	Europe	Asia/Pacific
Model Name		MFC-8460N		
BUNDLED SOFTWARE (For Windows)				
PC Fax (Sending)		Yes (TX(Brother Driver) & RX)		
PC Fax (Receiving)		Yes		
Network PC-Fax Receive		Yes		
PC-Fax Protocol Compliance (machine side)		Class 2 (for RX)		
Remote Setup		Yes		
Network Remote Setup		Yes		
Fonts Disk Based		Yes (49 TrueType Fonts)		
Remote Printer Console		Yes		
BRAdmin Professional		Yes		
Network Print Software(LPR)		Yes		
WebBRAdmin		Yes (download from Brother Web Site)		
BUNDLED SOFTWARE (For MAC)				
Printer Driver		Yes (Mac OS9.1-9.2, Mac OS X 10.2.4 or greater)		
TWAIN		Yes		
Viewer (PageManager)		Yes		
PC Fax (Sending)		Yes (TX(Brother Driver) only)		
Remote Setup		Yes (for Mac OS X only)		
Network Remote Setup		Yes (Mac OS X 10.2.4 or greater only)		
BRAdmin Light		Yes		
PHOTO CAPTURE CENTER				
NETWORK				
Standard/Option		Standard (NC-6400h type2)		
Model Name		N/A		
Share Printer		Yes		
Share Scanner		Yes		
Share PC FAX		Yes		
Internet FAX (ITU T.37 simple mode)		Yes (Download Only)		
Scan to FTP		Yes (10 profiles)		
ITU SUB Addressing		N/A		
Support OS version		Win/98(SE)/Me, WinNT4.0/2K/XP MacOS 9.1 - 9.2/ OSX 10.2.4 or greater		
Network connection		Ethernet 10/100BASE-TX Auto Negotiation		
Wireless LAN capability		N/A		
Wireless Network Security		N/A		
Secure Easy Setup		N/A		
Wi-Fi Certified		N/A		
Support Protocols	IPv4	ARP,RARP, BOOTP, DHCP, APIPA (Auto IP), ICMP, WINS/NetBIOS DNS, mDNS, LPR/LPD, Port9100, IPP, FTP, SNMP, HTTP, TELNET POP3/SMTP, TFTP, LDAP		
	IPv6 (Turned off as default)	ICMPv6, NDP, DNS, mDNS, LPR/LPD, Port9100, IPP, FTP SNMP, HTTP, TELNET, SMTP, TFTP		
Network Management		BRAdmin Professional Web Based Management BRAdmin Light		
ACCESSORY				
Standard Toner (3,500 pages A4/LTR pages*4)		TN-550	TN-3130	TN-3145
High Capacity Toner (7,000 pages A4/LTR pages*4)		TN-580	TN-3170	TN-3185
Drum Unit (25,000 pages: 1 page/job) [TBD]		DR-520	DR-3100	DR3115
SERVICE				
Machine life (Print Pages)		200,000		
Machine life (Scans)		50,000		
Machine life (ADF)		50,000		
Machine life (Years)		5		
MTBF (Hours)		4,000		
MTTR (Hours)		0.5		

MFC-8860DN

(1/5)

		AL-FB Step1	
		US/Canada	Europe
		Asia/Pacific	
Model Name		MFC-8860DN	
GENERAL			
Print Engine		Laser (AL)	
CPU Speed		266MHz	
Back up Clock		Yes (up to 4 days)	
Operating Environment	Temperature	10 - 32.5 degrees Centigrade	
	Humidity	20% - 80% (without condensation)	
On/Off Switch		Yes	
Demo Print		Yes	N/A
Demo Model		N/A	
Starter Toner		Standard Toner (3.5K)	
Simultaneous Operation		Yes	
Supported OS Version		Win/98(SE)/Me, WinNT4.0/2K/XP MacOS 9.1 - 9.2/ OSX 10.2.4 or greater	
Paper Input Capacity	ADF	up to 50 sheets (XX4024 or 4200 20lbs, environment: temp. 20-30C humidity 50-70%)	
	Paper Tray	250 sheets	
	Optional Tray	250 sheets x 1 (LT-5300)	
	Multi-Purpose Tray	Yes (up to 50 sheets by 20lbs paper)	
Paper Output Capacity		up to 150 sheets	
Input Media Size	ADF	Width 148.0 to 215.9 mm, Length 148.0 to 355.6 mm (Width 5.8" to 8.5", Length 5.8" to 14")	
	MP Tray	Width 69.9 to 215.9 mm, Length 116 to 406.4 mm (Width 2.75" to 8.50", Length 4.57" to 16")	
	Paper Tray (Standard)	A4, Letter, B5 (ISO), A5, B6, A6, Exe, Legal, Folio	A4, Letter, B5 (ISO), A5, B6, A6, Exe
	Paper Tray (Option)	A4, Letter, B5 (ISO), A5, B6, Exe, Legal, Folio	A4, Letter, B5 (ISO), A5, B6, Exe
Media Types	MP Tray	Plain Paper, Bond Paper, Recycled Paper, Envelopes, Labels, and Transparencies	
	Paper Tray (Standard)	Plain Paper, Bond Paper, Recycled Paper, Transparencies	
	Paper Tray (Option)	Plain Paper, Bond Paper, Recycled Paper	
Media Weights	ADF	64 - 90 g/m2 (17 - 24 lb)	
	MP Tray	60 -161 g/m2 (16 - 43 lb)	
	Paper Tray	60 - 105 g/m2 (16 - 28 lb)	
LCD Size		22 characters x 5 lines (Full Dot) maximum message is 16 characters	
LCD Dimention (W x L) *7		2.76 x 1.06 inch	
LCD Back-Lit		Yes (1-color)	
Memory Capacity (Standard : MByte)		32 Mbyte (RAM)	
Memory BackUp		Yes (up to 4 days for standard memory)	
Optional Memory		1 DIMM (144pin) slot (64, 128, 256, 512MB) ; expandable up to 544MB	
Function Lock		Yes	
Setting Lock		Yes	
Dimensions w/ Carton (WxDxH)		746mmX567mmX575mm 29.4" x 22.3" x 22.6"	
Dimensions w/o Carton (WxDxH)		531mmX450mmX475mm 20.9" x 17.7" x 18.7"	
Weight w/ Carton		22kg/ 48.5lbs.	
Weight w/o Carton		18kg/ 39.7lbs.	
Color		Front/TOP Cover : 1581Gray , Side cover/Panel : 1736Gray	
Power Source		120V AC 50/60(Canada)Hz	220-240V AC 50/60Hz
Power Consumption (Copying)		Average 660W	
Power Consumption (Sleep/Standby/Peak)		Average 17W/85W/1092W	Average 17W/85W/1104W
Power Save (CPU Sleep)		N/A	

(2/5)

	AL-FB Step1		
	US/Canada	Europe	Asia/Pacific
Model Name	MFC-8860DN		
GENERAL			
Sleep Mode (00-99min : w/ OFF mode)	Yes		
Energy Star Compliant (USA Only)	Yes	N/A	
Total Print pages Counter (LCD / Print)	Yes / Yes		
Copy pages Counter (LCD / Print)	Yes / Yes		
PC print pages Counter (LCD / Print)	Yes / Yes		
Fax RX/List pages counter (LCD / Print)	Yes / Yes		
TELEPHONE			
Handset	N/A		
Off Hook Alarm	N/A		
Power Failure Phone	N/A		
Power Failure Dialling	N/A		
Chain Dialing	Yes		
Automatic Redial	Yes		
PBX Feature	N/A	Yes	
Speaker Phone	N/A		
Handset Volume	N/A		
Beeper Volume	Yes (3 steps + OFF)		
Speaker Volume	Yes (3 steps + OFF)		
Ring Volume	Yes (3 steps + OFF)		
Hook/ Tel Key	Yes		
Hold/Mute Key	N/A		
Music on Hold	N/A		
Monitoring the Line on Hold with Music	N/A		
One-Touch Dial	40 (20 x 2) locations		
Speed Dial	300 locations		
Figures of One-Touch & Speed Dial	20 digits		
Resisterable Number Of Characters	15 characters		
Group Dial	Yes (up to 20 groups)		
Telephone Index	Yes (with Search/Speed dial key)		
Caller ID	Yes	N/A	Yes(Australia/New Zealand/Singapore/Hong Kong only)
Call Waiting Caller ID	N/A		
Call waiting Ready (Only for USA)	N/A		
Distinctive Ringing	Yes	Yes (U.K., Denmark only)	Yes(Australia/New Zealand/Singapore/Hong Kong only)
FAX			
Modem Speed	33.600bps (Fax)		
Transmission Speed	Approx. 2second. (Brother#1,JBIG)		
ITU-T Group	Super G3		
Coding Method	MH / MR / MMR / JBIG		
Color FAX (Document Send / Receive)	N/A / N/A		
Color FAX (Memory Send / Receive)	N/A / N/A		
Fax/Tel Switch	Yes		
Super Fine	Yes (TX & RX)		
Gray Scale	256		
Contrast	Yes (Auto/Light/Dark)		
Smoothing	N/A		
Dual Access	Yes		
Enhanced Remote Activate	Yes		
Station ID	Yes (20digits / 20characters)		
Remote Maintenance	Yes		

Model Name	AL-FB Step1		
	US/Canada	Europe	Asia/Pacific
	MFC-8860DN		
FAX			
RX Mode Indication	LCD		
Resolution Indication	LCD		
Delayed Timer	Yes (up to 50)		
Polled Sending	Yes		
Multi Transmission	N/A		
Multi Resolution Transmission	N/A		
Next-Fax Reservation	N/A		
Batch Transmission	Yes		
Call Reservation Over Auto TX	N/A		
Call Reservation Over Manual TX	N/A		
Quick-Scan(Memory transmission)	Approx. 2 second./page (A4 standard)		
Memory Transmission (ITU-T Chart)	up to 500 pages (ITU-T Test Chart, Standard Resolution) up to 600 pages ((Brother #1Chart, Standard Resolution)		
ECM(Error Correction Mode)	Yes		
Error Re-Transmission	Yes		
Broadcasting	Yes (390 locations)		
Manual Broadcasting	Yes (50 locations)		
Easy Receive/Fax Detect	Yes		
Polling Receiving	Yes		
Auto Reduction	Yes		
Duplex Fax Receive	Yes		
Out-of-Paper Reception (ITU-T Chart)	up to 500 pages (ITU-T Test Chart, Standard Resolution) up to 600 pages ((Brother #1Chart, Standard Resolution)		
LIST/REPORT			
Activity Report/Journal Report	Yes (up to 200)		
Transmission Verification Report	Yes		
Coverpage	Yes		
Help List	Yes		
Call Back Message	N/A		
Caller ID List	Yes	N/A	Yes
Tel Index List	Numeric	Yes	
	Alphabetic	Yes	
Memory Status List	N/A		
System Setup(User Setting) List	Yes		
Order Form	N/A	Yes	
INTERFACE			
External TAD Interface	Yes		
Host Interface (Serial)	N/A		
Host Interface (IEEE1284)	Yes		
Host Interface (Hi-Speed USB2.0)	Yes		
Ether Net (10/100base-TX)	Yes		
Cable included	N/A		
Acceptable Media Card Slot	N/A		
PRINTER			
Color/Mono	Mono		
Engine Type	Laser (AL)		
Resolution	Windows 95 / 98 / Me and NT4.0 / 2000 / XP	1200 dpi, HQ1200 (2400x600dpi), 600 dpi, 300 dpi	
	DOS	600 dpi	
	Mac OS	1200 dpi, HQ1200 (2400x600dpi), 600 dpi, 300 dpi	
	Linux	600 dpi, 300 dpi	

		AL-FB Step1	
		US/Canada	Europe
		Asia/Pacific	
Model Name		MFC-8860DN	
PRINTER			
Speed(ppm)		up to 30ppm (Letter size)	up to 28ppm (A4 size)
Duplex Printing Speed (ppm)		Up to 13ppm	
First Print Out Time		Less than 8.5 seconds	
Emulation		PCL6, BR-Script 3, IBM Pro-Printer XL, Epson FX-850	
Secure Print		Yes	
Resident Fonts	PCL	66 scalable fonts, 12 bitmap fonts (including Letter Gothic 16.66, OCR-A, OCR-B), 11 bar codes	
	BR-Script	66 scalable fonts	
Variable Dot Print		N/A	
Shingling Print		N/A	
Color Enhancement		N/A	
COPY			
Color		N/A	
Speed		up to 30 cpm (Letter size)	up to 28 cpm (A4 size) Less than 19cpm (Belgium, Austria, General, EEU) Less than xxcpm (Iberia)
First Copy Out Time (from READY mode *2)		Less than 11 second	
Warm up Time (from SLEEP mode)		maximum. 18 second. at 73.4 F (23C)	
Multi Copy(Stack)		Yes (up to 99)	
Multi Copy(Sort)		Yes	
Reduction/Enlargement(%)		25% - 400% in 1% increments	
Resolution(dpi)		maximum. 1200 x 600 dpi	
Auto Duplex Copy		Yes	
Manual Duplex Copy		N/A	
N in 1		Yes	
Poster		Yes	
Image Enhancement		N/A	
Paper Type(Media) Setting		Yes	
SCANNER			
Color/Mono		Color	
Resolution (Hardware)		600 x 2400 dpi	
Resolution (Interporated)		19,200 x 19,200 dpi	
Gray Scale		256	
Color Depth (Int. / Ext.)		48 bit / 24 bit	
Duplex Scan		Yes	
Scan Key		Yes (Scan Mode Key)	
MESSAGE CENTER/MESSAGE MANAGER			
TAD Type		N/A	
ICM Recording Time		N/A	
OGM (MC;MC Pro;Paging;F/T)		N/A	
Memo/Recording Conversation		N/A	
Toll Saver		N/A	
Remote Access		Yes	
Fax Retrieval		Yes	
Fax Forwarding		Yes	
Paging		Yes	N/A
BUNDLED SOFTWARE (For Windows)			
Printer Driver		Yes (Win/98(SE)/Me and NT4.0WS/2000/XP)	
TWAIN (WIA for XP)		Yes	
Viewer (PaperPort 9.0)		Yes	

		AL-FB Step1		
		US/Canada	Europe	Asia/Pacific
Model Name		MFC-8860DN		
BUNDLED SOFTWARE (For Windows)				
PC Fax (Sending)		Yes (TX(Brother Driver) & RX)		
PC Fax (Receiving)		Yes		
Network PC-Fax Receive		Yes		
PC-Fax Protocol Compliance (machine side)		Class 2 (for RX)		
Remote Setup		Yes		
Network Remote Setup		Yes		
Fonts Disk Based		Yes (49 TrueType Fonts)		
Remote Printer Console		Yes		
BRAdmin Professional		Yes		
Network Print Software(LPR)		Yes		
WebBRAdmin		Yes (download from Brother Web Site)		
BUNDLED SOFTWARE (For MAC)				
Printer Driver		Yes (Mac OS9.1-9.2, Mac OS X 10.2.4 or greater)		
TWAIN		Yes		
Viewer (PageManager)		Yes		
PC Fax (Sending)		Yes (TX(Brother Driver) only)		
Remote Setup		Yes (for Mac OS X only)		
Network Remote Setup		Yes (Mac OS X 10.2.4 or greater only)		
BRAdmin Light		Yes		
PHOTO CAPTURE CENTER				
NETWORK				
Standard/Option		Standard (NC-6400h type2)		
Model Name		N/A		
Share Printer		Yes		
Share Scanner		Yes		
Share PC FAX		Yes		
Internet FAX (ITU T.37 simple mode)		Yes		
Scan to FTP		Yes (10 profiles)		
ITU SUB Addressing		N/A		
Support OS version		Win/98(SE)/Me, WinNT4.0/2K/XP MacOS 9.1 - 9.2/ OSX 10.2.4 or greater		
Network connection		Ethernet 10/100BASE-TX Auto Negotiation		
Wireless LAN capability		N/A		
Wireless Network Security		N/A		
Secure Easy Setup		N/A		
Wi-Fi Certified		N/A		
Support Protocols	IPv4	ARP,RARP, BOOTP, DHCP, APIPA (Auto IP), ICMP, WINS/NetBIOS DNS, mDNS, LPR/LPD, Port9100, IPP, FTP, SNMP, HTTP, TELNET POP3/SMTP, TFTP, LDAP		
	IPv6 (Turned off as default)	ICMPv6, NDP, DNS, mDNS, LPR/LPD, Port9100, IPP, FTP SNMP, HTTP, TELNET, POP3/SMTP, TFTP, LDAP		
Network Management		BRAdmin Professional Web Based Management BRAdmin Light		
ACCESORY				
Standard Toner (3,500 pages A4/LTR pages*4)		TN-550	TN-3130	TN-3145
High Capacity Toner (7,000 pages A4/LTR pages*4)		TN-580	TN-3170	TN-3185
Drum Unit (25,000 pages: 1 page/job) [TBD]		DR-520	DR-3100	DR3115
SERVICE				
Machine life (Print Pages)		200,000		
Machine life (Scans)		50,000		
Machine life (ADF)		50,000		
Machine life (Years)		5		
MTBF (Hours)		4,000		
MTTR (Hours)		0.5		

MFC-8870DW

(1/5)

		AL-FB Step2	
		US/Canada	Europe
		Asia/Pacific	
Model Name		MFC-8870DW	
GENERAL			
Print Engine		Laser (AL)	
CPU Speed		266MHz	
Back up Clock		Yes (up to 4 days)	
Operating Environment	Temperature	10 - 32.5 degrees Centigrade	
	Humidity	20% - 80% (without condensation)	
On/Off Switch		Yes	
Demo Print		TBD	N/A
Demo Model		N/A	
Starter Toner		Standard Toner (3.5K)	
Simultaneous Operation		Yes	
Supported OS Version		Win/98(SE)/Me, WinNT4.0/2K/XP MacOS 9.1 - 9.2/ OSX 10.2.4 or greater	
Paper Input Capacity	ADF	up to 50 sheets (XX4024 or 4200 20lbs, environment: temp. 20-30C humidity 50-70%)	
	Paper Tray	250 sheets	
	Optional Tray	250 sheets x 1 (LT-5300)	
	Multi-Purpose Tray	Yes (up to 50 sheets by 20lbs paper)	
Paper Output Capacity		up to 150 sheets	
Input Media Size	ADF	Width 148.0 to 215.9 mm, Length 148.0 to 355.6 mm (Width 5.8" to 8.5", Length 5.8" to 14")	
	MP Tray	Width 69.9 to 215.9 mm, Length 116 to 406.4 mm (Width 2.75" to 8.50", Length 4.57" to 16")	
	Paper Tray (Standard)	A4, Letter, B5 (ISO), A5, B6, A6, Exe, Legal, Folio	A4, Letter, B5 (ISO), A5, B6, A6, Exe
	Paper Tray (Option)	A4, Letter, B5 (ISO), A5, B6, Exe, Legal, Folio	A4, Letter, B5 (ISO), A5, B6, Exe
Media Types	MP Tray	Plain Paper, Bond Paper, Recycled Paper, Envelopes, Labels, and Transparencies	
	Paper Tray (Standard)	Plain Paper, Bond Paper, Recycled Paper, Transparencies	
	Paper Tray (Option)	Plain Paper, Bond Paper, Recycled Paper	
Media Weights	ADF	64 - 90 g/m2 (17 - 24 lb)	
	MP Tray	60 -161 g/m2 (16 - 43 lb)	
	Paper Tray	60 - 105 g/m2 (16 - 28 lb)	
LCD Size		22 characters x 5 lines (Full Dot) maximum message is 16 characters	
LCD Dimention (W x L) *7		2.76 x 1.06 inch	
LCD Back-Lit		Yes (1-color)	
Memory Capacity (Standard : MByte)		32 Mbyte (RAM)	
Memory BackUp		Yes (up to 4 days for standard memory)	
Optional Memory		1 DIMM (144pin) slot (64, 128, 256, 512MB) ; expandable up to 544MB	
Function Lock		Yes	
Setting Lock		Yes	
Dimensions w/ Carton (WxDxH)		746mmX567mmX575mm 29.4" x 22.3" x 22.6"	
Dimensions w/o Carton (WxDxH)		531mmX450mmX475mm 20.9" x 17.7" x 18.7"	
Weight w/ Carton		22kg/ 48.5lbs.	
Weight w/o Carton		18kg/ 39.7lbs.	
Color		Front/TOP Cover : 1581Gray , Side cover/Panel : 1736Gray	
Power Source		120V AC 50/60(Canada)Hz	220-240V AC 50/60Hz
Power Consumption (Copying)		Average 660W	
Power Consumption (Sleep/Standby/Peak)		TBD	
Power Save (CPU Sleep)		N/A	

(2/5)

Model Name	AL-FB Step2		
	US/Canada	Europe	Asia/Pacific
	MFC-8870DW		
GENERAL			
Sleep Mode (00-99min : w/ OFF mode)	Yes		
Energy Star Compliant (USA Only)	Yes	N/A	
Total Print pages Counter (LCD / Print)	Yes / Yes		
Copy pages Counter (LCD / Print)	Yes / Yes		
PC print pages Counter (LCD / Print)	Yes / Yes		
Fax RX/List pages counter (LCD / Print)	Yes / Yes		
TELEPHONE			
Handset	N/A		
Off Hook Alarm	N/A		
Power Failure Phone	N/A		
Power Failure Dialling	N/A		
Chain Dialing	Yes		
Automatic Redial	Yes		
PBX Feature	N/A	Yes	
Speaker Phone	N/A		
Handset Volume	N/A		
Beeper Volume	Yes (3 steps + OFF)		
Speaker Volume	Yes (3 steps + OFF)		
Ring Volume	Yes (3 steps + OFF)		
Hook/ Tel Key	Yes		
Hold/Mute Key	N/A		
Music on Hold	N/A		
Monitoring the Line on Hold with Music	N/A		
One-Touch Dial	40 (20 x 2) locations		
Speed Dial	300 locations		
Figures of One-Touch & Speed Dial	20 digits		
Resisterable Number Of Characters	15 characters		
Group Dial	Yes (up to 20 groups)		
Telephone Index	Yes (with Search/Speed dial key)		
Caller ID	Yes	N/A	Yes(Australia/New Zealand/Singapore/Hong Kong only)
Call Waiting Caller ID	N/A		
Call waiting Ready (Only for USA)	N/A		
Distinctive Ringing	Yes	Yes (U.K., Denmark only)	Yes(Australia/New Zealand/Singapore/Hong Kong only)
FAX			
Modem Speed	33.600bps (Fax)		
Transmission Speed	Approx. 2second. (Brother#1,JBIG)		
ITU-T Group	Super G3		
Coding Method	MH / MR / MMR / JBIG		
Color FAX (Document Send / Receive)	N/A / N/A		
Color FAX (Memory Send / Receive)	N/A / N/A		
Fax/Tel Switch	Yes		
Super Fine	Yes (TX & RX)		
Gray Scale	256		
Contrast	Yes (Auto/Light/Dark)		
Smoothing	N/A		
Dual Access	Yes		
Enhanced Remote Activate	Yes		
Station ID	Yes (20digits / 20characters)		
Remote Maintenance	Yes		

Model Name	AL-FB Step2		
	US/Canada	Europe	Asia/Pacific
	MFC-8870DW		
FAX			
RX Mode Indication	LCD		
Resolution Indication	LCD		
Delayed Timer	Yes (up to 50)		
Polled Sending	Yes		
Multi Transmission	N/A		
Multi Resolution Transmission	N/A		
Next-Fax Reservation	N/A		
Batch Transmission	Yes		
Call Reservation Over Auto TX	N/A		
Call Reservation Over Manual TX	N/A		
Quick-Scan(Memory transmission)	Approx. 2 second./page (A4 standard)		
Memory Transmission (ITU-T Chart)	up to 500 pages (ITU-T Test Chart, Standard Resolution) up to 600 pages ((Brother #1Chart, Standard Resolution)		
ECM(Error Correction Mode)	Yes		
Error Re-Transmission	Yes		
Broadcasting	Yes (390 locations)		
Manual Broadcasting	Yes (50 locations)		
Easy Receive/Fax Detect	Yes		
Polling Receiving	Yes		
Auto Reduction	Yes		
Duplex Fax Receive	Yes		
Out-of-Paper Reception (ITU-T Chart)	up to 500 pages (ITU-T Test Chart, Standard Resolution) up to 600 pages ((Brother #1Chart, Standard Resolution)		
LIST/REPORT			
Activity Report/Journal Report	Yes (up to 200)		
Transmission Verification Report	Yes		
Coverpage	Yes		
Help List	Yes		
Call Back Message	N/A		
Caller ID List	Yes	N/A	Yes
Tel Index List	Numeric	Yes	
	Alphabetic	Yes	
Memory Status List	N/A		
System Setup(User Setting) List	Yes		
Order Form	N/A	Yes	
INTERFACE			
External TAD Interface	Yes		
Host Interface (Serial)	N/A		
Host Interface (IEEE1284)	Yes		
Host Interface (Hi-Speed USB2.0)	Yes		
Ether Net (10/100base-TX)	Yes		
Cable included	N/A		
Acceptable Media Card Slot	N/A		
PRINTER			
Color/Mono	Mono		
Engine Type	Laser (AL)		
Resolution	Windows 95 / 98 / Me and NT4.0 / 2000 / XP	1200 dpi, HQ1200 (2400x600dpi), 600 dpi, 300 dpi	
	DOS	600 dpi	
	Mac OS	1200 dpi, HQ1200 (2400x600dpi), 600 dpi, 300 dpi	
	Linux	600 dpi, 300 dpi	

		US/Canada	Europe	Asia/Pacific
Model Name		MFC-8870DW		
PRINTER				
Speed(ppm)		up to 30ppm (Letter size)	up to 28ppm (A4 size)	
Duplex Printing Speed (ppm)		Up to 13ppm		
First Print Out Time		Less than 8.5 seconds		
Emulation		PCL6, BR-Script 3, IBM Pro-Printer XL, Epson FX-850		
Secure Print		Yes		
Resident Fonts	PCL	66 scalable fonts, 12 bitmap fonts (including Letter Gothic 16.66, OCR-A, OCR-B), 11 bar codes		
	BR-Script	66 scalable fonts		
Variable Dot Print		N/A		
Shingling Print		N/A		
Color Enhancement		N/A		
COPY				
Color		N/A		
Speed		up to 30 cpm (Letter size)	up to 28 cpm (A4 size) Less than 19cpm (Belgium, Austria, General, EEU) Less than xxcpm (Iberia)	
First Copy Out Time (from READY mode *2)		Less than 11 second		
Warm up Time (from SLEEP mode)		maximum. 18 second. at 73.4 F (23C)		
Multi Copy(Stack)		Yes (up to 99)		
Multi Copy(Sort)		Yes		
Reduction/Enlargement(%)		25% - 400% in 1% increments		
Resolution(dpi)		maximum. 1200 x 600 dpi		
Auto Duplex Copy		Yes		
Manual Duplex Copy		N/A		
N in 1		Yes		
Poster		Yes		
Image Enhancement		N/A		
Paper Type(Media) Setting		Yes		
SCANNER				
Color/Mono		Color		
Resolution (Hardware)		600 x 2400 dpi		
Resolution (Interporated)		19,200 x 19,200 dpi		
Gray Scale		256		
Color Depth (Int. / Ext.)		48 bit / 24 bit		
Duplex Scan		Yes		
Scan Key		Yes (Scan Mode Key)		
MESSAGE CENTER/MESSAGE MANAGER				
TAD Type		N/A		
ICM Recording Time		N/A		
OGM (MC;MC Pro;Paging;F/T)		N/A		
Memo/Recording Conversation		N/A		
Toll Saver		N/A		
Remote Access		Yes		
Fax Retrieval		Yes		
Fax Forwarding		Yes		
Paging		Yes	N/A	
BUNDLED SOFTWARE (For Windows)				
Printer Driver		Yes (Win/98(SE)/Me and NT4.0WS/2000/XP)		
TWAIN (WIA for XP)		Yes		
Viewer (PaperPort 9.0)		Yes		

		AL-FB Step2		
		US/Canada	Europe	Asia/Pacific
Model Name		MFC-8870DW		
BUNDLED SOFTWARE (For Windows)				
PC Fax (Sending)		Yes (TX(Brother Driver) & RX)		
PC Fax (Receiving)		Yes		
Network PC-Fax Receive		Yes		
PC-Fax Protocol Compliance (machine side)		Class 2 (for RX)		
Remote Setup		Yes		
Network Remote Setup		Yes		
Fonts Disk Based		Yes (49 Truetype Fonts)		
Remote Printer Console		Yes		
BRAdmin Professional		Yes		
Network Print Software(LPR)		Yes		
WebBRAdmin		Yes (download from Brother Web Site)		
BUNDLED SOFTWARE (For MAC)				
Printer Driver		Yes (Mac OS9.1-9.2, Mac OS X 10.2.4 or greater)		
TWAIN		Yes		
Viewer (PageManager)		Yes		
PC Fax (Sending)		Yes (TX(Brother Driver) only)		
Remote Setup		Yes (for Mac OS X only)		
Network Remote Setup		Yes (Mac OS X 10.2.4 or greater only)		
BRAdmin Light		Yes		
PHOTO CAPTURE CENTER				
NETWORK				
Standard/Option		Standard (NC-6400h type2, NC-7200w type2)		
Model Name		N/A		
Share Printer		Yes		
Share Scanner		Yes		
Share PC FAX		Yes		
Internet FAX (ITU T.37 simple mode)		Yes		
Scan to FTP		Yes (10 profiles)		
ITU SUB Addressing		N/A		
Support OS version		Win/98(SE)/Me, WinNT4.0/2K/XP MacOS 9.1 - 9.2/ OSX 10.2.4 or greater		
Network connection		Ethernet 10/100BASE-TX Auto Negotiation		
Wireless LAN capability		Yes (802.11 b/g)		
Wireless Network Security		WEP, WPA-PSK, LEAP, Secure Easy Setup		
Secure Easy Setup		Yes		
Wi-Fi Certified		TBD		
Support Protocols	IPv4	ARP,RARP, BOOTP, DHCP, APIPA (Auto IP), ICMP, WINS/NetBIOS DNS, mDNS, LPR/LPD, Port9100, IPP, FTP, SNMP, HTTP, TELNET POP3/SMTP, TFTP, LDAP		
	IPv6 (Turned off as default)	ICMPv6, NDP, DNS, mDNS, LPR/LPD, Port9100, IPP, FTP SNMP, HTTP, TELNET, POP3/SMTP, TFTP, LDAP		
Network Management		BRAdmin Professional Web Based Management BRAdmin Light		
ACCESSORY				
Standard Toner (3,500 pages A4/LTR pages*4)		TN-550	TN-3130	TN-3145
High Capacity Toner (7,000 pages A4/LTR pages*4)		TN-580	TN-3170	TN-3185
Drum Unit (25,000 pages: 1 page/job) [TBD]		DR-520	DR-3100	DR3115
SERVICE				
Machine life (Print Pages)		200,000		
Machine life (Scans)		50,000		
Machine life (ADF)		50,000		
Machine life (Years)		5		
MTBF (Hours)		4,000		
MTTR (Hours)		0.5		

DCP-8060

(1/5)

		AL-DCP Base		
		US/Canada	Europe	Asia/Pacific
Model Name		DCP-8060		
GENERAL				
Print Engine		Laser (AL)		
CPU Speed		266MHz		
Back up Clock		N/A		
Operating Environment	Temperature	10 - 32.5 degrees Centigrade		
	Humidity	20% - 80% (without condensation)		
On/Off Switch		Yes		
Demo Print		N/A		
Demo Model		N/A		
Starter Toner		Standard Toner (3.5K)		
Simultaneous Operation		Yes		
Supported OS Version		Win/98(SE)/Me, WinNT4.0/2K/XP MacOS 9.1 - 9.2/ OS X 10.2.4 or greater		
Paper Input Capacity	ADF	Up to 50 sheets (XX4024 or 4200 20lbs, environment: temp. 20-30C humidity 50-70%)		
	Paper Tray	Up to 250 sheets by 20lbs paper		
	Optional Tray	Up to 250 sheets x 1 (LT-5300) by 20lbs paper		
	Multi-Purpose Tray	Up to 50 sheets by 20lbs paper		
Paper Output Capacity		up to 150 sheets		
Input Media Size	ADF	Width 148.0 to 215.9 mm, Length 148.0 to 355.6 mm (Width 5.8" to 8.5", Length 5.8" to 14")		
	MP Tray	Width 69.9 to 215.9 mm, Length 116 to 406.4 mm (Width 2.75" to 8.50", Length 4.57" to 16")		
	Paper Tray (Standard)	A4, Letter, B5 (ISO), A5, B6, A6, Exe, Legal, Folio	A4, Letter, B5 (ISO), A5, B6, A6, Exe	
	Paper Tray (Option)	A4, Letter, B5 (ISO), A5, B6, Exe, Legal, Folio	A4, Letter, B5 (ISO), A5, B6, Exe	
Media Types	MP Tray	Plain Paper, Bond Paper, Recycled Paper, Envelopes, Labels, and Transparencies		
	Paper Tray (Standard)	Plain Paper, Bond Paper, Recycled Paper, Transparencies		
	Paper Tray (Option)	Plain Paper, Bond Paper, Recycled Paper		
Media Weights	ADF	64 - 90 g/m2 (17 - 24 lb)		
	MP Tray	60 -161 g/m2 (16 - 43 lb)		
	Paper Tray	60 - 105 g/m2 (16 - 28 lb)		
LCD Size		22 characters x 5 lines (Full Dot) maximum message is 16 characters		
LCD Dimention (W x L) *7		2.76 x 1.06 inch		
LCD Back-Lit		Yes (1-color)		
Memory Capacity (Standard : MByte)		32 Mbyte (RAM)		
Memory BackUp		N/A		
Optional Memory		1 DIMM (144pin) slot (64, 128, 256, 512MB) ; expandable up to 544MB		
Function Lock		Yes		
Setting Lock		N/A		
Dimensions w/ Carton (WxDxH)		746mmX567mmX575mm 29.4" x 22.3" x 22.6"		
Dimensions w/o Carton (WxDxH)		531mmX450mmX475mm 20.9" x 17.7" x 18.7"		
Weight w/ Carton		22kg/ 48.5lbs.		
Weight w/o Carton		18kg/ 39.7lbs.		
Color		Front/TOP Cover : 1581Gray , Side cover/Panel : 1736Gray		
Power Source		120V AC 50/60(Canada)Hz	220-240V AC 50/60Hz	
Power Consumption (Copying)		Average 660W		
Power Consumption (Sleep/Standby/Peak)		Average 15W/85W/1092W	Average 15W/85W/1104W	
Power Save (CPU Sleep)		N/A		

(2/5)

Model Name	AL-DCP Base		
	US/Canada	Europe	Asia/Pacific
	DCP-8060		
GENERAL			
Sleep Mode (00-99min : w/ OFF mode)	Yes		
Energy Star Compliant (USA Only)	Yes	N/A	
Total Print pages Counter (LCD / Print)	Yes / Yes		
Copy pages Counter (LCD / Print)	Yes / Yes		
PC print pages Counter (LCD / Print)	Yes / Yes		
Fax RX/List pages counter (LCD / Print)	List Only		
TELEPHONE			
Handset	N/A		
Off Hook Alarm	N/A		
Power Failure Phone	N/A		
Power Failure Dialling	N/A		
Chain Dialing	N/A		
Automatic Redial	N/A		
PBX Feature	N/A		
Speaker Phone	N/A		
Handset Volume	N/A		
Beeper Volume	Yes (3 steps + OFF)		
Speaker Volume	N/A		
Ring Volume	N/A		
Hook/ Tel Key	N/A		
Hold/Mute Key	N/A		
Music on Hold	N/A		
Monitoring the Line on Hold with Music	N/A		
One-Touch Dial	N/A		
Speed Dial	N/A		
Figures of One-Touch & Speed Dial	N/A		
Resisterable Number Of Characters	N/A		
Group Dial	N/A		
Telephone Index	N/A		
Caller ID	N/A		
Call Waiting Caller ID	N/A		
Call waiting Ready (Only for USA)	N/A		
Distinctive Ringing	N/A		
FAX			
	N / A		
Modem Speed	-		
Transmission Speed	-		
ITU-T Group	-		
Coding Method	-		
Color FAX (Document Send / Receive)	-		
Color FAX (Memory Send / Receive)	-		
Fax/Tel Switch	-		
Super Fine	-		
Gray Scale	-		
Contrast	-		
Smoothing	-		
Dual Access	-		
Enhanced Remote Activate	-		
Station ID	-		
Remote Maintenance	-		

		AL-DCP Base		
		US/Canada	Europe	Asia/Pacific
Model Name		DCP-8060		
PRINTER				
Speed(ppm)		up to 30ppm (Letter size)	up to 28ppm (A4 size)	
Duplex Printing Speed (ppm)		N/A		
First Print Out Time		Less than 8.5 seconds		
Emulation		PCL6, BR-Script 3, IBM Pro-Printer XL, Epson FX-850		
Secure Print		Yes		
Resident Fonts	PCL	66 scalable fonts, 12 bitmap fonts (including Letter Gothic 16.66, OCR-A, OCR-B), 11 bar codes		
	BR-Script	66 scalable fonts		
Variable Dot Print		N/A		
Shingling Print		N/A		
Color Enhancement		N/A		
COPY				
Color		N/A		
Speed		up to 30 cpm (Letter size)	up to 28 cpm (A4 size) Less than 19cpm (Belgium, Austria, General, EEU) Less than xxcpm (Iberia)	
First Copy Out Time (from READY mode *2)		Less than 11 second		
Warm up Time (from SLEEP mode)		maximum. 18 second. at 73.4 F (23C)		
Multi Copy(Stack)		Yes (up to 99)		
Multi Copy(Sort)		Yes		
Reduction/Enlargement(%)		25% - 400% in 1% increments		
Resolution(dpi)		maximum. 1200 x 600 dpi		
Auto Duplex Copy		N/A		
Manual Duplex Copy		N/A		
N in 1		Yes		
Poster		Yes		
Image Enhancement		N/A		
Paper Type(Media) Setting		Yes		
SCANNER				
Color/Mono		Color		
Resolution (Hardware)		600 x 2400 dpi		
Resolution (Interporated)		19,200 x 19,200 dpi		
Gray Scale		256		
Color Depth (Int. / Ext.)		48 bit / 24 bit		
Duplex Scan		N/A		
Scan Key		Yes		
MESSAGE CENTER/MESSAGE MANAGER				
TAD Type		N/A		
ICM Recording Time		N/A		
OGM (MC;MC Pro;Paging;F/T)		N/A		
Memo/Recording Conversation		N/A		
Toll Saver		N/A		
Remote Access		N/A		
Fax Retrieval		N/A		
Fax Forwarding		N/A		
Paging		N/A		
BUNDLED SOFTWARE (For Windows)				
Printer Driver		Yes (Win/98(SE)/Me and NT4.0WS/2000/XP)		
TWAIN (WIA for XP)		Yes		
Viewer (PaperPort 9.0)		Yes		

		AL-DCP Base		
		US/Canada	Europe	Asia/Pacific
Model Name		DCP-8060		
BUNDLED SOFTWARE (For Windows)				
PC Fax (Sending)		N/A		
PC Fax (Receiving)		N/A		
Network PC-Fax Receive		N/A		
PC-Fax Protocol Compliance (machine side)		N/A		
Remote Setup		N/A		
Network Remote Setup		N/A		
Fonts Disk Based		Yes (49 Truetype Fonts)		
Remote Printer Console		Yes		
BRAdmin Professional		N/A		
Network Print Software(LPR)		N/A		
WebBRAdmin		N/A		
BUNDLED SOFTWARE (For MAC)				
Printer Driver		Yes (Mac OS9.1-9.2, Mac OS X 10.2.4 or greater)		
TWAIN		Yes		
Viewer (PageManager)		Yes		
PC Fax (Sending)		N/A		
Remote Setup		N/A		
Network Remote Setup		N/A		
BRAdmin Light		N/A		
PHOTO CAPTURE CENTER				
N/A				
NETWORK				
Standard/Option		Option		
Model Name		NC2100p (print only)		
Share Printer		Yes		
Share Scanner		N/A		
Share PC FAX		N/A		
Internet FAX (ITU T.37 simple mode)		N/A		
Scan to FTP		N/A		
ITU SUB Addressing		N/A		
Support OS version		Win/98(SE)/Me, WinNT4.0/2K/XP MacOS 9.1 - 9.2/ OSX 10.2.4 or greater		
Network connection		Optional 10/100BASE-TX		
Wireless LAN capability		N/A		
Wireless Network Security		N/A		
Secure Easy Setup		N/A		
Wi-Fi Certified		N/A		
Support Protocols		N/A		
IPv4		N/A		
IPv6 (Turned off as default)		N/A		
Network Management		N/A		
ACCESORY				
Standard Toner (3,500 pages A4/LTR pages*4)		TN-550	TN-3130	TN-3145
High Capacity Toner (7,000 pages A4/LTR pages*4)		TN-580	TN-3170	TN-3185
Drum Unit (25,000 pages: 1 page/job) [TBD]		DR-520	DR-3100	DR3115
SERVICE				
Machine life (Print Pages)		200,000		
Machine life (Scans)		50,000		
Machine life (ADF)		50,000		
Machine life (Years)		5		
MTBF (Hours)		4,000		
MTTR (Hours)		0.5		

DCP-8065DN

(1/5)

		AL-DCP Step	
		US/Canada	Europe
		Asia/Pacific	
Model Name		DCP-8065DN	
GENERAL			
Print Engine		Laser (AL)	
CPU Speed		266MHz	
Back up Clock		N/A	
Operating Environment	Temperature	10 - 32.5 degrees Centigrade	
	Humidity	20% - 80% (without condensation)	
On/Off Switch		Yes	
Demo Print		N/A	
Demo Model		N/A	
Starter Toner		Standard Toner (3.5K)	
Simultaneous Operation		Yes	
Supported OS Version		Win/98(SE)/Me, WinNT4.0/2K/XP MacOS 9.1 - 9.2/ OSX 10.2.4 or greater	
Paper Input Capacity	ADF	up to 50 sheets (XX4024 or 4200 20lbs, environment: temp. 20-30C humidity 50-70%)	
	Paper Tray	250 sheets	
	Optional Tray	250 sheets x 1 (LT-5300)	
	Multi-Purpose Tray	Yes (up to 50 sheets by 20lbs paper)	
Paper Output Capacity		up to 150 sheets	
Input Media Size	ADF	Width 148.0 to 215.9 mm, Length 148.0 to 355.6 mm (Width 5.8" to 8.5", Length 5.8" to 14")	
	MP Tray	Width 69.9 to 215.9 mm, Length 116 to 406.4 mm (Width 2.75" to 8.50", Length 4.57" to 16")	
	Paper Tray (Standard)	A4, Letter, B5 (ISO), A5, B6, A6, Exe, Legal, Folio	A4, Letter, B5 (ISO), A5, B6, A6, Exe
	Paper Tray (Option)	A4, Letter, B5 (ISO), A5, B6, Exe, Legal, Folio	A4, Letter, B5 (ISO), A5, B6, Exe
Media Types	MP Tray	Plain Paper, Bond Paper, Recycled Paper, Envelopes, Labels, and Transparencies	
	Paper Tray (Standard)	Plain Paper, Bond Paper, Recycled Paper, Transparencies	
	Paper Tray (Option)	Plain Paper, Bond Paper, Recycled Paper	
Media Weights	ADF	64 - 90 g/m2 (17 - 24 lb)	
	MP Tray	60 -161 g/m2 (16 - 43 lb)	
	Paper Tray	60 - 105 g/m2 (16 - 28 lb)	
LCD Size		22 characters x 5 lines (Full Dot) maximum message is 16 characters	
LCD Dimention (W x L) *7		2.76 x 1.06 inch	
LCD Back-Lit		Yes (1-color)	
Memory Capacity (Standard : MByte)		32 Mbyte (RAM)	
Memory BackUp		N/A	
Optional Memory		1 DIMM (144pin) slot (64, 128, 256, 512MB) ; expandable up to 544MB	
Function Lock		Yes	
Setting Lock		N/A	
Dimensions w/ Carton (WxDxH)		746mmX567mmX575mm 29.4" x 22.3" x 22.6"	
Dimensions w/o Carton (WxDxH)		531mmX450mmX475mm 20.9" x 17.7" x 18.7"	
Weight w/ Carton		22kg/ 48.5lbs.	
Weight w/o Carton		18kg/ 39.7lbs.	
Color		Front/TOP Cover : 1581Gray , Side cover/Panel : 1736Gray	
Power Source		120V AC 50/60(Canada)Hz	220-240V AC 50/60Hz
Power Consumption (Copying)		Average 660W	
Power Consumption (Sleep/Standby/Peak)		Average 15W/85W/1092W	Average 15W/85W/1104W
Power Save (CPU Sleep)		N/A	

(2/5)

Model Name	AL-DCP Step		
	US/Canada	Europe	Asia/Pacific
	DCP-8065DN		
GENERAL			
Sleep Mode (00-99min : w/ OFF mode)	Yes		
Energy Star Compliant (USA Only)	Yes	N/A	
Total Print pages Counter (LCD / Print)	Yes / Yes		
Copy pages Counter (LCD / Print)	Yes / Yes		
PC print pages Counter (LCD / Print)	Yes / Yes		
Fax RX/List pages counter (LCD / Print)	List Only		
TELEPHONE			
Handset	N/A		
Off Hook Alarm	N/A		
Power Failure Phone	N/A		
Power Failure Dialling	N/A		
Chain Dialing	N/A		
Automatic Redial	N/A		
PBX Feature	N/A		
Speaker Phone	N/A		
Handset Volume	N/A		
Beeper Volume	Yes (3 steps + OFF)		
Speaker Volume	N/A		
Ring Volume	N/A		
Hook/ Tel Key	N/A		
Hold/Mute Key	N/A		
Music on Hold	N/A		
Monitoring the Line on Hold with Music	N/A		
One-Touch Dial	N/A		
Speed Dial	N/A		
Figures of One-Touch & Speed Dial	N/A		
Resisterable Number Of Characters	N/A		
Group Dial	N/A		
Telephone Index	N/A		
Caller ID	N/A		
Call Waiting Caller ID	N/A		
Call waiting Ready (Only for USA)	N/A		
Distinctive Ringing	N/A		
FAX			
Modem Speed	N / A		
Transmission Speed	-		
ITU-T Group	-		
Coding Method	-		
Color FAX (Document Send / Receive)	-		
Color FAX (Memory Send / Receive)	-		
Fax/Tel Switch	-		
Super Fine	-		
Gray Scale	-		
Contrast	-		
Smoothing	-		
Dual Access	-		
Enhanced Remote Activate	-		
Station ID	-		
Remote Maintenance	-		

Model Name	AL-DCP Step		
	US/Canada	Europe	Asia/Pacific
	DCP-8065DN		
FAX	N / A		
RX Mode Indication		-	
Resolution Indication		-	
Delayed Timer		-	
Polled Sending		-	
Multi Transmission		-	
Multi Resolution Transmission		-	
Next-Fax Reservation		-	
Batch Transmission		-	
Call Reservation Over Auto TX		-	
Call Reservation Over Manual TX		-	
Quick-Scan(Memory transmission)		-	
Memory Transmission (ITU-T Chart)		-	
ECM(Error Correction Mode)		-	
Error Re-Transmission		-	
Broadcasting		-	
Manual Broadcasting		-	
Easy Receive/Fax Detect		-	
Polling Receiving		-	
Auto Reduction		-	
Duplex Fax Receive		-	
Out-of-Paper Reception (ITU-T Chart)		-	
LIST/REPORT			
Activity Report/Journal Report		-	
Transmission Verification Report		-	
Coverpage		-	
Help List		-	
Call Back Message		-	
Caller ID List		-	
Tel Index List	Numeric	-	
	Alphabetic	-	
Memory Status List		-	
System Setup(User Setting) List		Yes	
Order Form		N/A	
INTERFACE			
External TAD Interface		N/A	
Host Interface (Serial)		N/A	
Host Interface (IEEE1284)		Yes	
Host Interface (Hi-Speed USB2.0)		Yes	
Ether Net (10/100base-TX)		Yes	
Cable included		N/A	
Acceptable Media Card Slot		N/A	
PRINTER			
Color/Mono		Mono	
Engine Type		Laser (AL)	
Resolution	Windows 95 / 98 / Me and NT4.0 / 2000 / XP	1200 dpi, HQ1200 (2400x600dpi), 600 dpi, 300 dpi	
	DOS	600 dpi	
	Mac OS	1200 dpi, HQ1200 (2400x600dpi), 600 dpi, 300 dpi	
	Linux	600 dpi, 300 dpi	

		AL-DCP Step		
		US/Canada	Europe	Asia/Pacific
Model Name		DCP-8065DN		
PRINTER				
Speed(ppm)		up to 30ppm (Letter size)	up to 28ppm (A4 size)	
Duplex Printing Speed (ppm)		Up to 13ppm		
First Print Out Time		Less than 8.5 seconds		
Emulation		PCL6, BR-Script 3, IBM Pro-Printer XL, Epson FX-850		
Secure Print		Yes		
Resident Fonts	PCL	66 scalable fonts, 12 bitmap fonts (including Letter Gothic 16.66, OCR-A, OCR-B), 11 bar codes		
	BR-Script	66 scalable fonts		
Variable Dot Print		N/A		
Shingling Print		N/A		
Color Enhancement		N/A		
COPY				
Color		N/A		
Speed		up to 30 cpm (Letter size)	up to 28 cpm (A4 size) Less than 19cpm (Belgium, Austria, General, EEU) Less than xxcpm (Iberia)	
First Copy Out Time (from READY mode *2)		Less than 11 second		
Warm up Time (from SLEEP mode)		maximum. 18 second. at 73.4 F (23C)		
Multi Copy(Stack)		Yes (up to 99)		
Multi Copy(Sort)		Yes		
Reduction/Enlargement(%)		25% - 400% in 1% increments		
Resolution(dpi)		maximum. 1200 x 600 dpi		
Auto Duplex Copy		Yes		
Manual Duplex Copy		N/A		
N in 1		Yes		
Poster		Yes		
Image Enhancement		N/A		
Paper Type(Media) Setting		Yes		
SCANNER				
Color/Mono		Color		
Resolution (Hardware)		600 x 2400 dpi		
Resolution (Interporated)		19,200 x 19,200 dpi		
Gray Scale		256		
Color Depth (Int. / Ext.)		48 bit / 24 bit		
Duplex Scan		Yes		
Scan Key		Yes		
MESSAGE CENTER/MESSAGE MANAGER				
TAD Type		N/A		
ICM Recording Time		N/A		
OGM (MC;MC Pro;Paging;F/T)		N/A		
Memo/Recording Conversation		N/A		
Toll Saver		N/A		
Remote Access		N/A		
Fax Retrieval		N/A		
Fax Forwarding		N/A		
Paging		N/A		
BUNDLED SOFTWARE (For Windows)				
Printer Driver		Yes (Win/98(SE)/Me and NT4.0WS/2000/XP)		
TWAIN (WIA for XP)		Yes		
Viewer (PaperPort 9.0)		Yes		

		AL-DCP Step		
		US/Canada	Europe	Asia/Pacific
		DCP-8065DN		
Model Name				
BUNDLED SOFTWARE (For Windows)				
PC Fax (Sending)		N/A		
PC Fax (Receiving)		N/A		
Network PC-Fax Receive		N/A		
PC-Fax Protocol Compliance (machine side)		N/A		
Remote Setup		N/A		
Network Remote Setup		N/A		
Fonts Disk Based		Yes (49 TrueType Fonts)		
Remote Printer Console		Yes		
BRAdmin Professional		Yes		
Network Print Software(LPR)		Yes		
WebBRAdmin		Yes (download from Brother Web Site)		
BUNDLED SOFTWARE (For MAC)				
Printer Driver		Yes (Mac OS9.1-9.2, Mac OS X 10.2.4 or greater)		
TWAIN		Yes		
Viewer (PageManager)		Yes		
PC Fax (Sending)		N/A		
Remote Setup		N/A		
Network Remote Setup		N/A		
BRAdmin Light		Yes		
PHOTO CAPTURE CENTER				N/A
NETWORK				
Standard/Option		Standard (NC-6400h type2)		
Model Name		N/A		
Share Printer		Yes		
Share Scanner		Yes		
Share PC FAX		N/A		
Internet FAX (ITU T.37 simple mode)		N/A		
Scan to FTP		Yes (10 profiles)		
ITU SUB Addressing		N/A		
Support OS version		Win/98(SE)/Me, WinNT4.0/2K/XP MacOS 9.1 - 9.2/ OSX 10.2.4 or greater		
Network connection		Ethernet 10/100BASE-TX Auto Negotiation		
Wireless LAN capability		N/A		
Wireless Network Security		N/A		
Secure Easy Setup		N/A		
Wi-Fi Certified		N/A		
Support Protocols	IPv4	ARP,RARP, BOOTP, DHCP, APIPA (Auto IP), ICMP, WINS/NetBIOS, DNS, mDNS, LPR/LPD, Port9100, IPP, FTP SNMP, HTTP, TELNET, SMTP, TFTP		
	IPv6 (Turned off as default)	ICMPv6, NDP, DNS, mDNS, LPR/LPD, Port9100, IPP, FTP SNMP, HTTP, TELNET, SMTP, TFTP		
Network Management		BRAdmin Professional Web Based Management BRAdmin Light		
ACCESORY				
Standard Toner (3,500 pages A4/LTR pages*4)		TN-550	TN-3130	TN-3145
High Capacity Toner (7,000 pages A4/LTR pages*4)		TN-580	TN-3170	TN-3185
Drum Unit (25,000 pages: 1 page/job) [TBD]		DR-520	DR-3100	DR3115
SERVICE				
Machine life (Print Pages)		200,000		
Machine life (Scans)		50,000		
Machine life (ADF)		50,000		
Machine life (Years)		5		
MTBF (Hours)		4,000		
MTTR (Hours)		0.5		

CHAPTER 3

THEORY OF OPERATION

CHAPTER 3 THEORY OF OPERATION

This chapter gives an overview of the scanning and printing mechanisms as well as the sensors, actuators, and control electronics. It aids in understanding the basic principles of operation as well as locating defects for troubleshooting.

CONTENTS

3.1	OVERVIEW	3-1
3.2	MECHANICAL COMPONENTS.....	3-2
3.2.1	Scanner Mechanism	3-3
3.2.2	Overview of Gear	3-9
3.2.3	Paper Transfer	3-10
3.2.3.1	Paper supply	3-10
3.2.3.2	Paper registration.....	3-12
3.2.3.3	Drum unit.....	3-12
3.2.3.4	Developing	3-13
3.2.3.5	Fixing stage.....	3-14
3.2.3.6	Paper eject.....	3-15
3.2.3.7	Duplex printing (For the models with the DX only).....	3-16
3.2.3.8	Paper feeding from the MP tray.....	3-17
3.2.3.9	LT tray.....	3-17
3.2.4	Toner Cartridge	3-18
3.2.4.1	Toner life end mode	3-18
3.2.4.2	New toner detection mechanism.....	3-20
3.2.4.3	Counter reset during indication of "Toner Life End"	3-21
3.2.5	Print Process.....	3-22
3.2.5.1	Charging.....	3-22
3.2.5.2	Exposure stage	3-22
3.2.5.3	Transfer.....	3-23
3.2.6	Sensors	3-24
3.3	CONTROL ELECTRONICS.....	3-25
3.3.1	Components.....	3-25

3.1 OVERVIEW

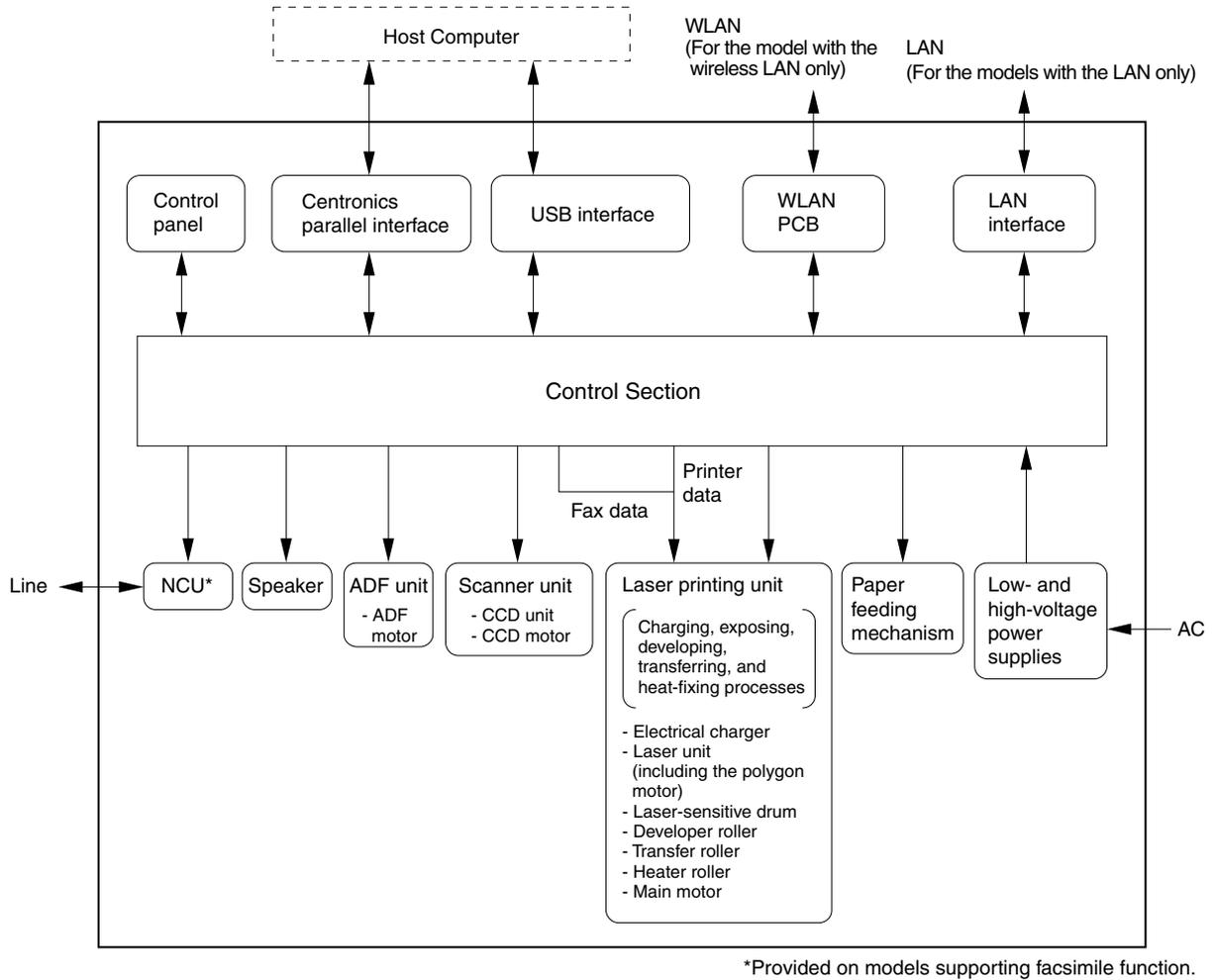


Fig. 3-1

3.2 MECHANICAL COMPONENTS

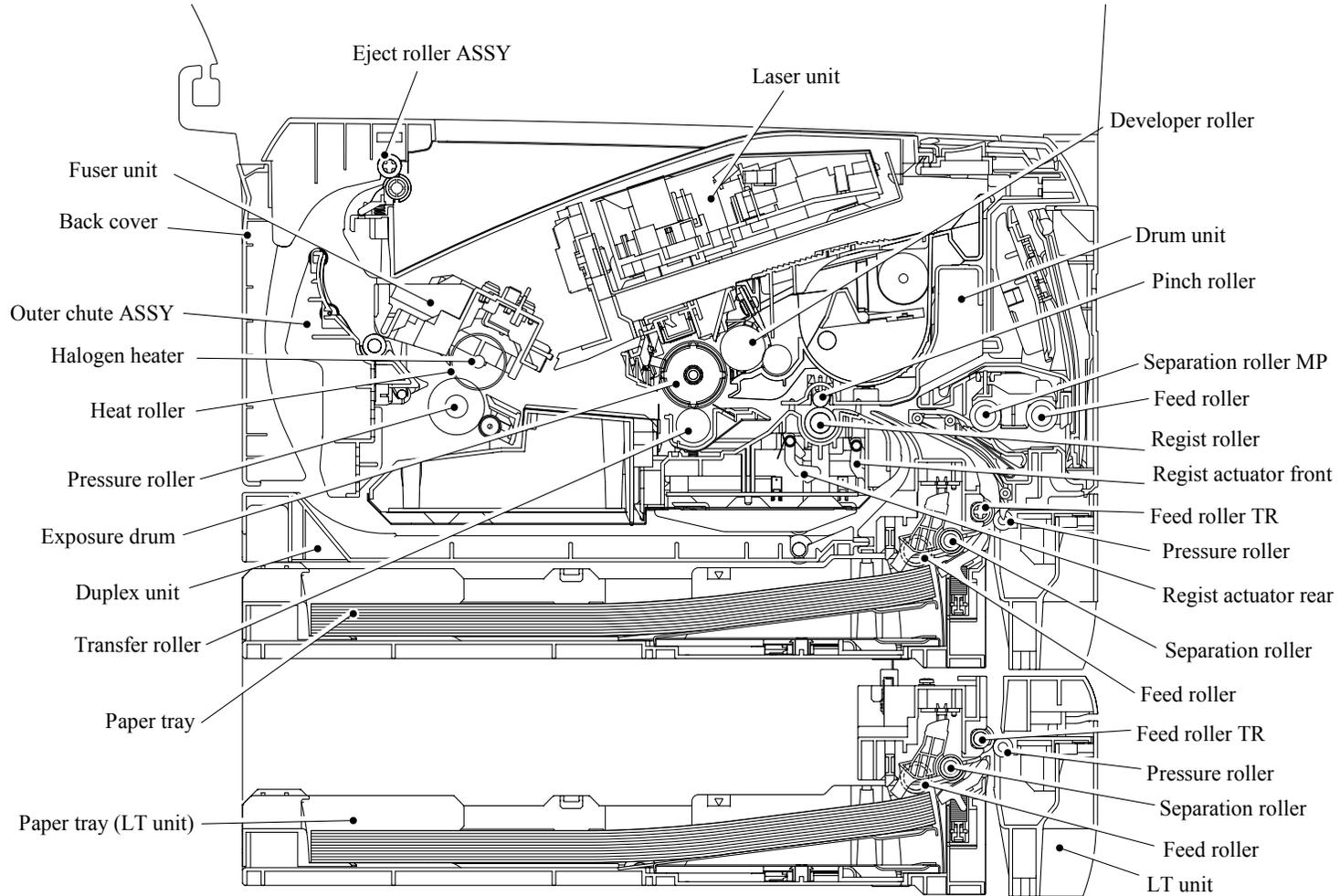


Fig. 3-2

3.2.1 Scanner Mechanism

<Duplex scanning mechanism>

This mechanism consists of the document cover, the scanner unit (scanner cover), and the automatic document feeder (ADF).

The scanner unit consists of a scanner top cover, CCD unit and scanner base.

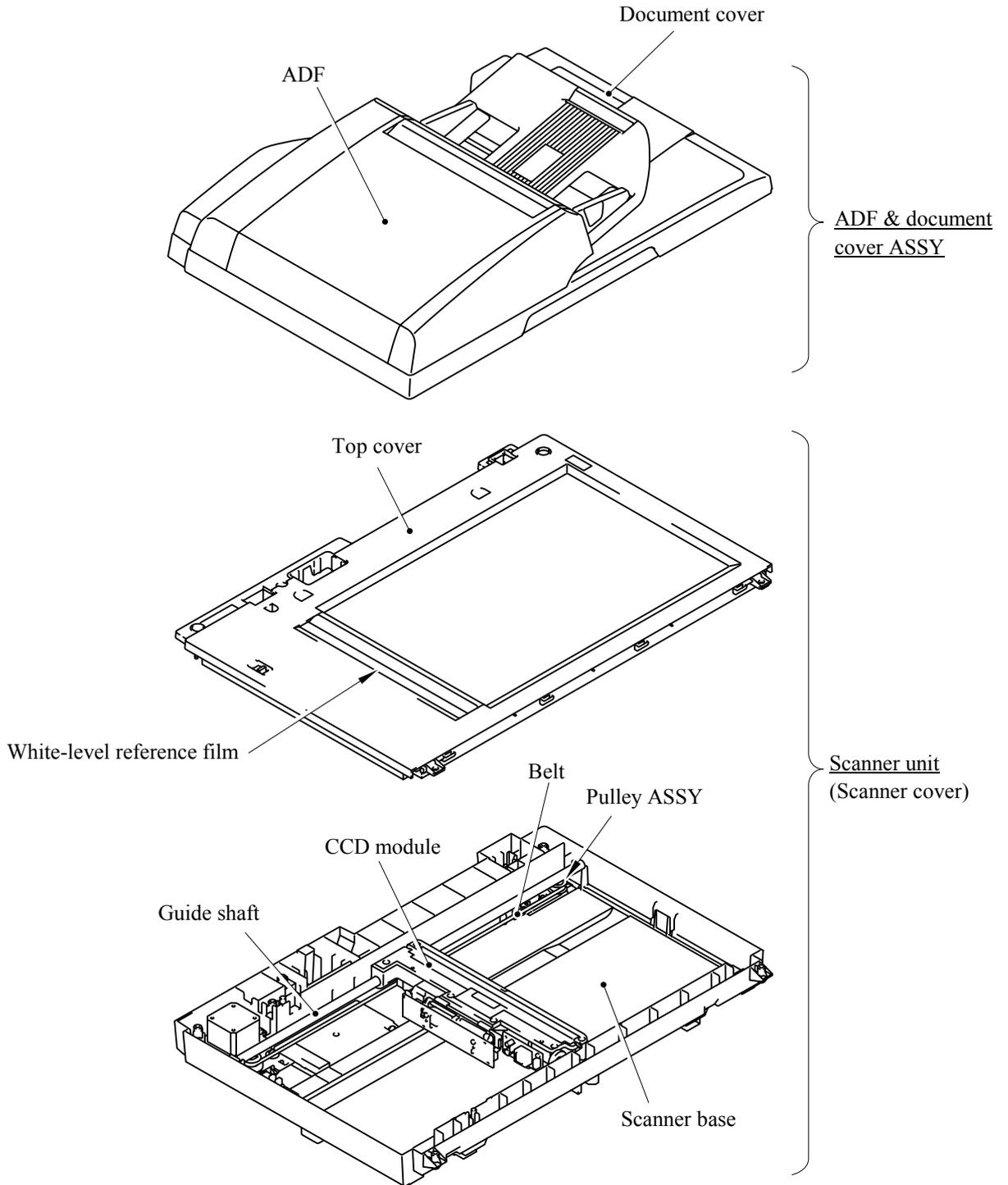


Fig. 3-3

The automatic document feeder (ADF) consists of the pick-up roller, separation roller, paper feed rollers 1/2/3/4, eject roller, ADF motor, switch back sensor, document rear sensor and document front sensors 1/2.

For further details on the sensors, see [Section 3.2.6](#).

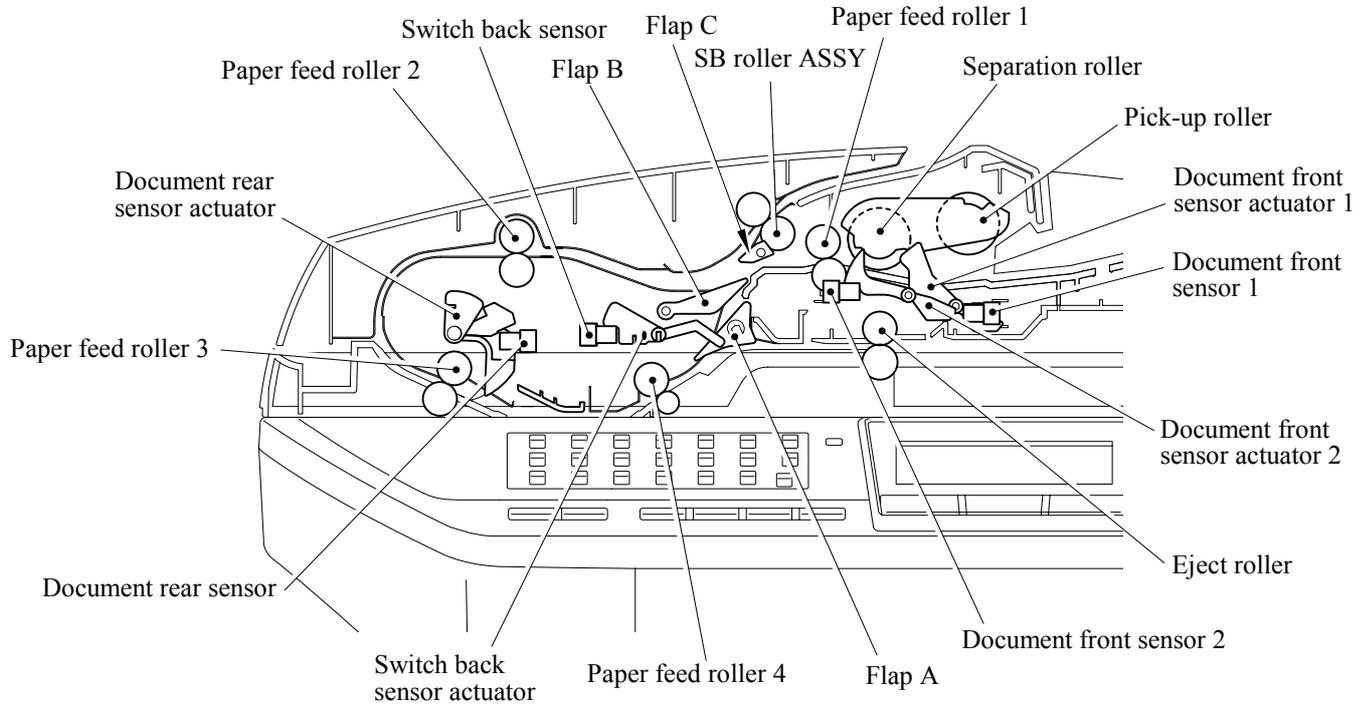


Fig. 3-4

The duplex scanning mechanism allows you to use the following two types of scanning, “ADF scanning” and “document glass scanning”. These two scanning methods are switched depending on whether the document front sensor 1 detects the document or not when starting scanning.

Document glass scanning (The CCD unit moves under the immovable document to scan.)

Open the document cover, place a sheet of the document (or opened book) onto the document glass, and close the document cover. Then, the machine starts scanning, and the CCD drive mechanism is started.

The CCD motor is rotated so that its action is transferred to the CCD drive belt through the gear train.

The CCD unit is supported by the CCD rail and assembled on the CCD drive belt. When the CCD motor is rotated clockwise, the CCD unit on the CCD drive belt scans the document while sliding to the right hand side.

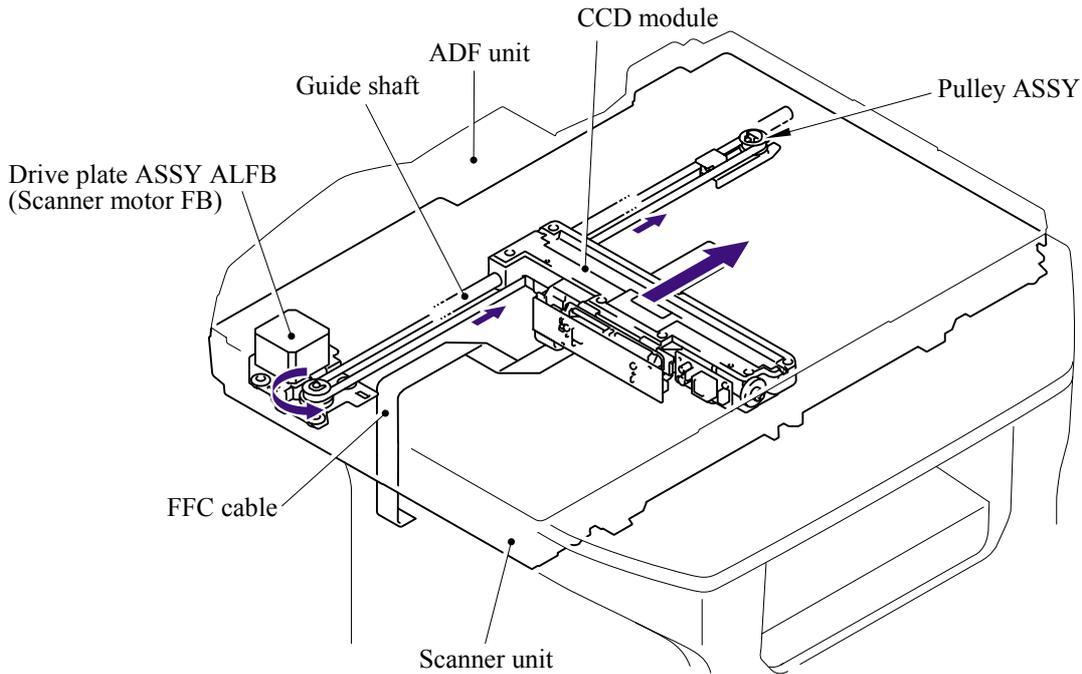


Fig. 3-5

ADF simplex scanning (The document moves over the immovable CCD unit.)

- (1) Set the document face up into the document chute. When the machine starts simplex scanning, the ADF motor is rotated clockwise, the pick-up roller draws the document, and the separation roller and separation pad send a sheet of the document to the ADF one by one from the top page of the stacked documents.
- (2) The document is passed through the paper feed rollers 1, 2 and 3, and is passed over the CCD unit so that the document is scanned. Then, the document is ejected to the document cover by the eject roller.

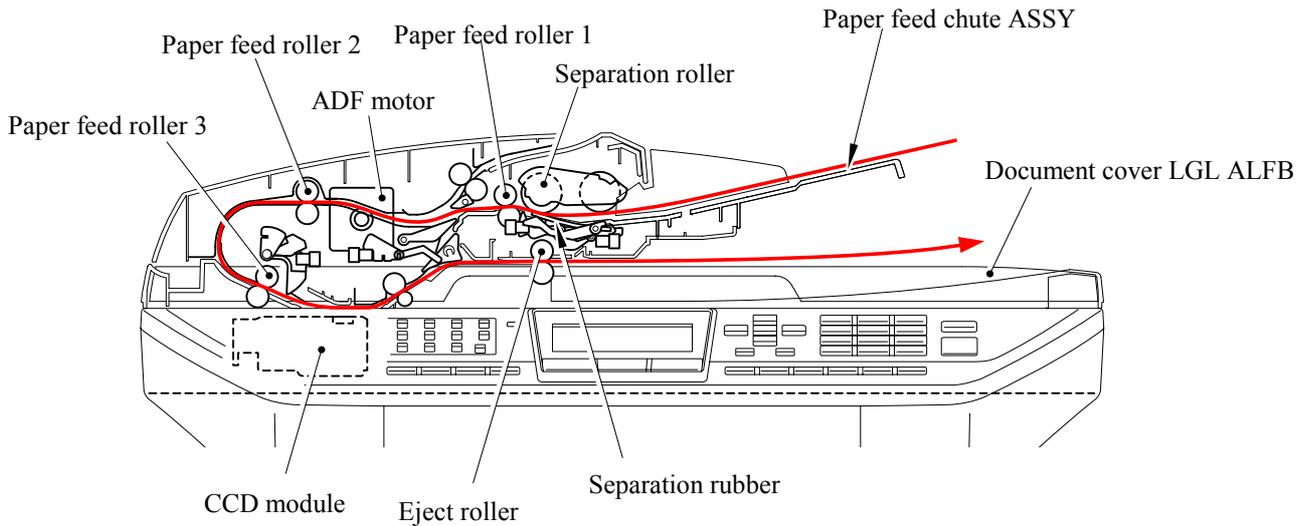


Fig. 3-6

ADF duplex scanning (The document moves over the immovable CCD unit.)

- (1) Set the document face up into the document chute. When the machine starts duplex scanning, the ADF motor is rotated clockwise, the pick-up roller draws the document, and the separation roller and separation pad send a sheet of the document to the ADF one by one from the top page of the stacked documents.
- (2) The document is passed through the paper feed rollers 1, 2 and 3, and is passed over the CCD unit so that the document is scanned. Then, the document is sent for the specified distance by the switch back roller ASSY, and the switch back roller is turned counter so that the document is drawn again.

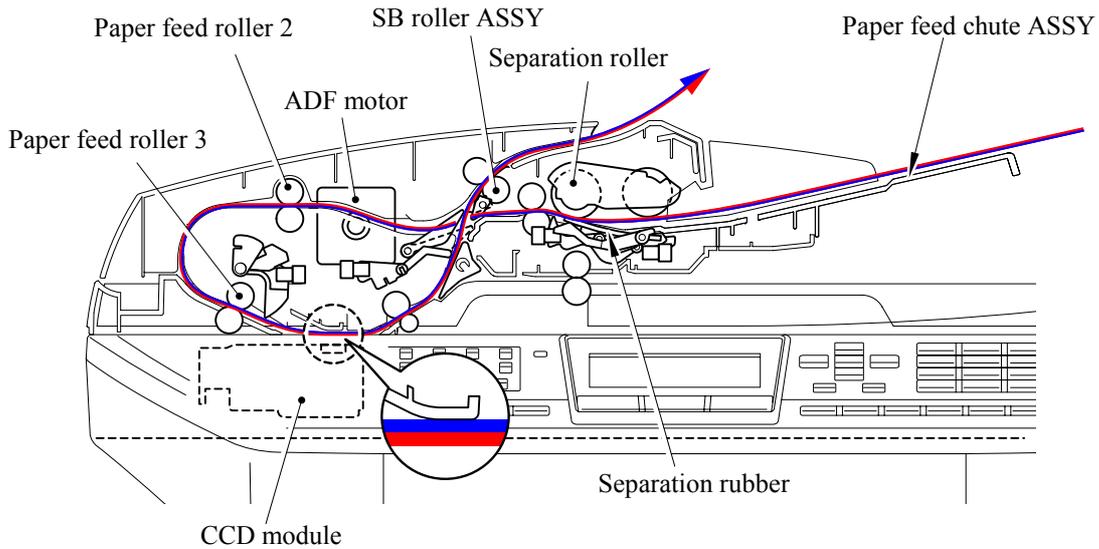


Fig. 3-7

- (3) The drawn document is attached on the flap B and sent to the paper feed rollers 2 and 3. At this time, the opposite side of the document is faced-up so that the backside of the document is scanned. The document is sent to the switch back roller ASSY again.

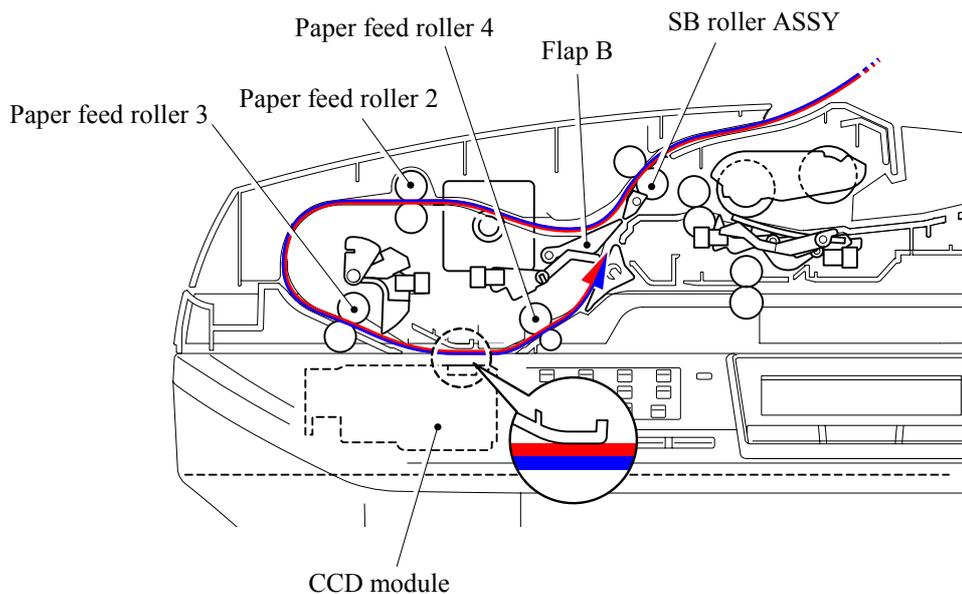


Fig. 3-8

- (4) The switch back roller ASSY is turned counter again, and the document is drawn again. The document is passed through the paper feed rollers 1, 2 and 3, and ejected to the document cover by the eject roller.

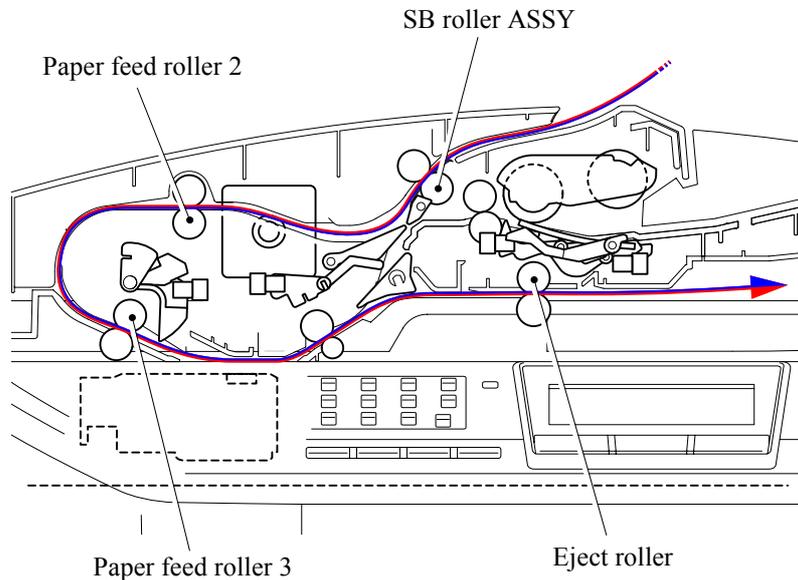


Fig. 3-9

Scanning by the CCD unit

The CCD unit includes the charge coupled device (CCD) sensor. The cold cathode fluorescent lamp lights the document, and the reflection from the scanned image data is transferred to the lens by the mirror. The lens reduces the scanned data so that the image is generated on the CCD.

Function of the machine cover open sensor

The machine cover open sensor detects whether the machine cover is opened or not. Even if the document is set into the ADF, the machine starts scanning the document glass ignoring the ADF.

Function of the scanner lock lever

The scanner lock lever fixes the CCD unit in position to prevent the CCD unit from moving and damaging during transportation.

Function of the paper feed solenoid

The paper feed solenoid releases the pick-up roller and separation roller from the drive gear while duplex scanning and engages them with the drive gear when the document is drawn in order to prevent that the next document is drawn into the ADF while duplex printing.

Function of the switch back solenoid

The switch back solenoid switches the planet gear of the switch back roller.

3.2.2 Overview of Gears

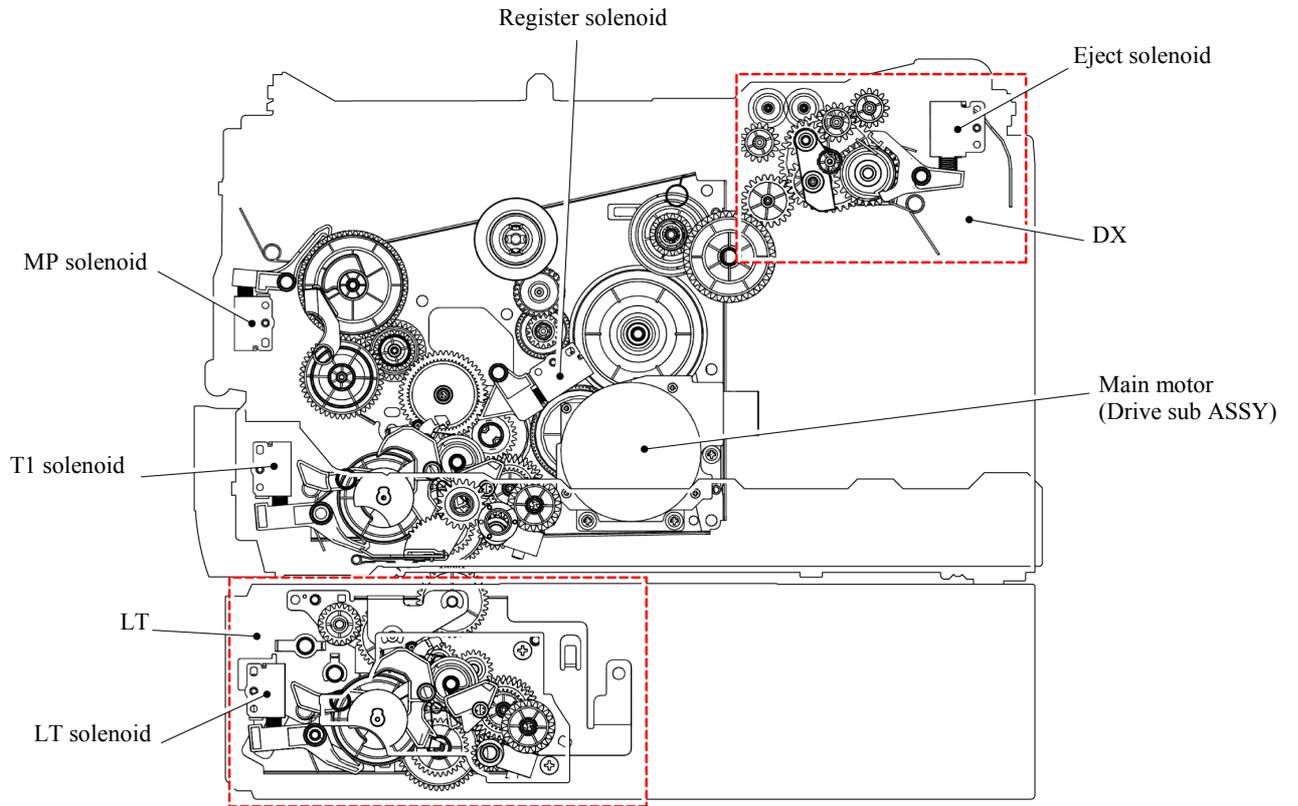


Fig. 3-10

3.2.3 Paper Transfer

3.2.3.1 Paper supply

The feed roller picks up a few sheets or one sheet of paper from the paper tray every time it is rotated and feeds it to the separation roller.

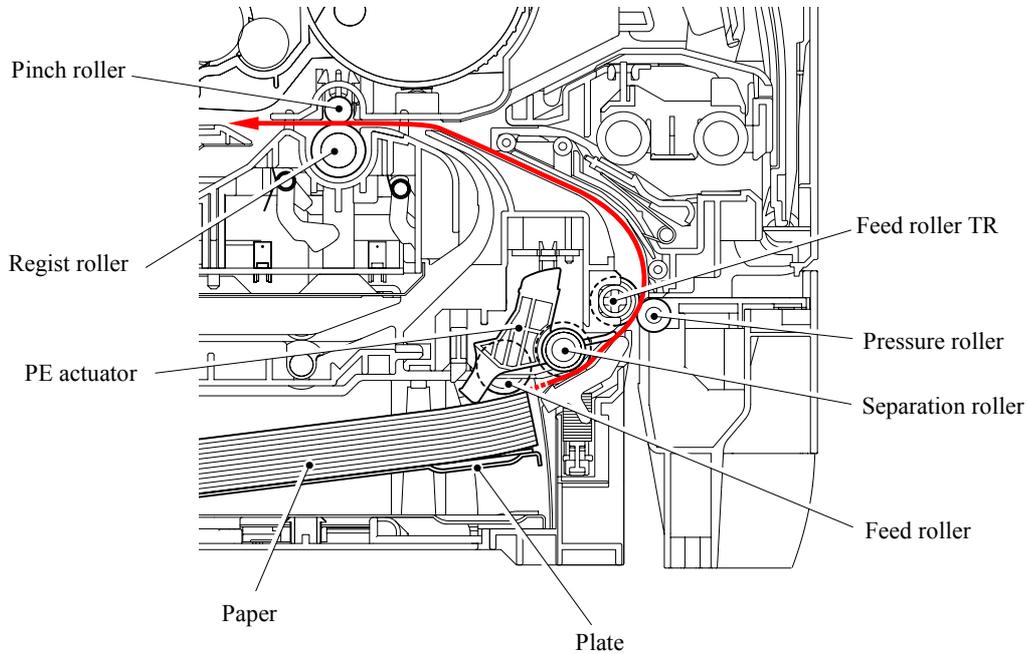


Fig. 3-11

The main motor drive is transmitted to the gears, and the gears are engaged. Then, the paper is gripped between the separation roller and separation pad and separated into individual sheets.

The paper drawn out of the paper tray pushes against the regist front actuator, and the paper top position or absence of paper is detected by the actuator movement. The tail edge actuator detects the end of the paper fed.

When a paper jam occurs, the nips between the pressure roller and feed roller TR and between the pinch roller and regist roller are released, which allows you to remove the jammed recording paper easily.

The plate ASSY in the paper tray is pushed up with the motor drive and not with the spring in order to maintain the constant paper feeding performance regardless the number of sheet remained in the tray.

When the paper tray (Tray1 cassette) is installed into the machine, the lift gear 46 is rotated, and the motor drive is transmitted to the plate ASSY so that it is pushed up.

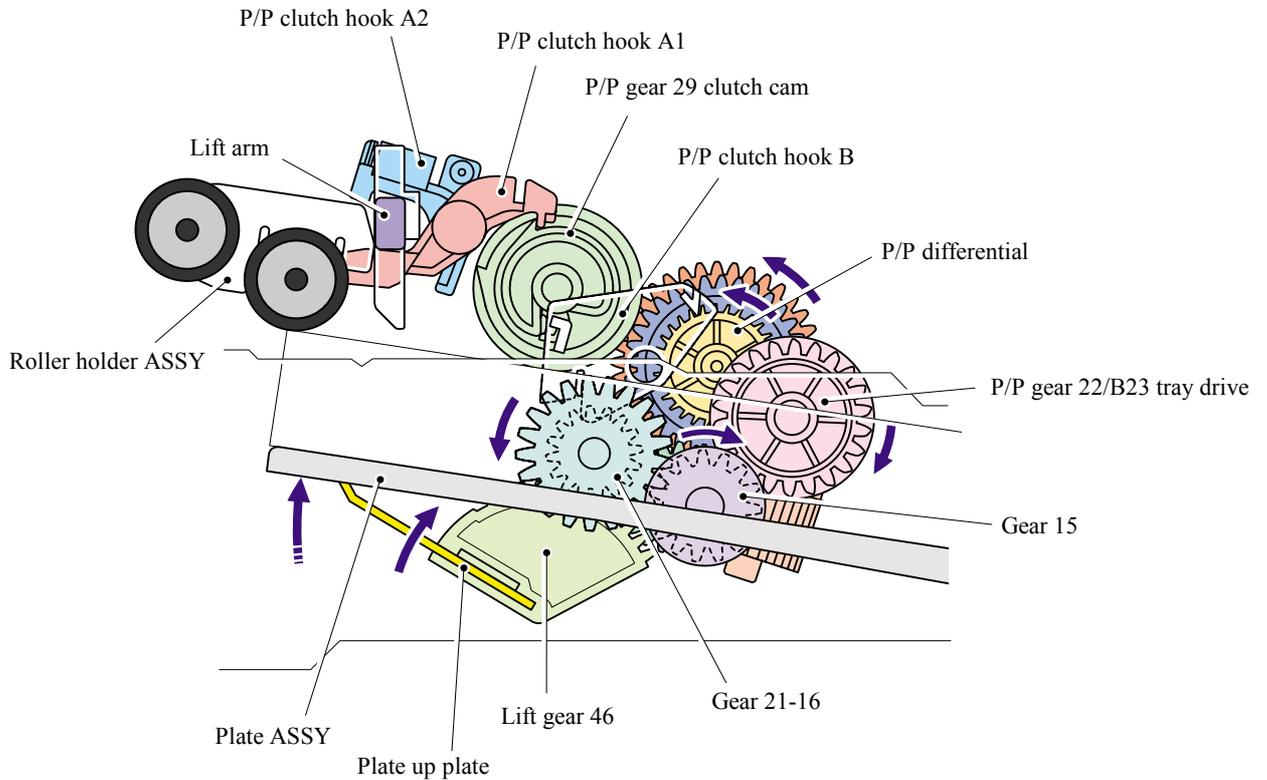


Fig. 3-12

When the roller holder ASSY is pushed up, the hook is released by the lift arm, and the rotation of the clutch gear is stopped. Then, the pressure plate is stopped to push up.

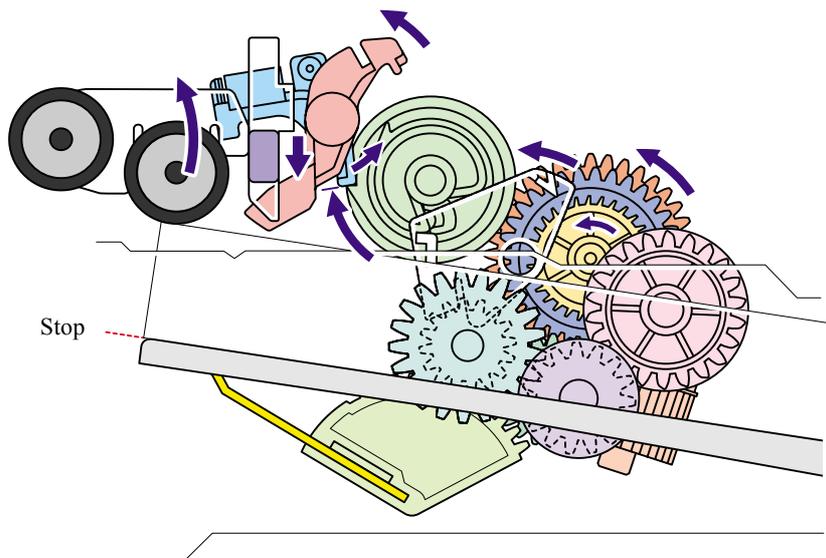


Fig. 3-13

3.2.3.2 Paper registration

After the paper top position is detected by the regist actuator front, the paper, separated into individual sheets by the separation roller, is fed further for a specified time, and the paper top position reaches the regist roller so that the paper skew is adjusted. Then, the register solenoid is turned off, the paper feed roller starts turning, and the paper is fed to the transfer roller in the drum/toner ASSY.

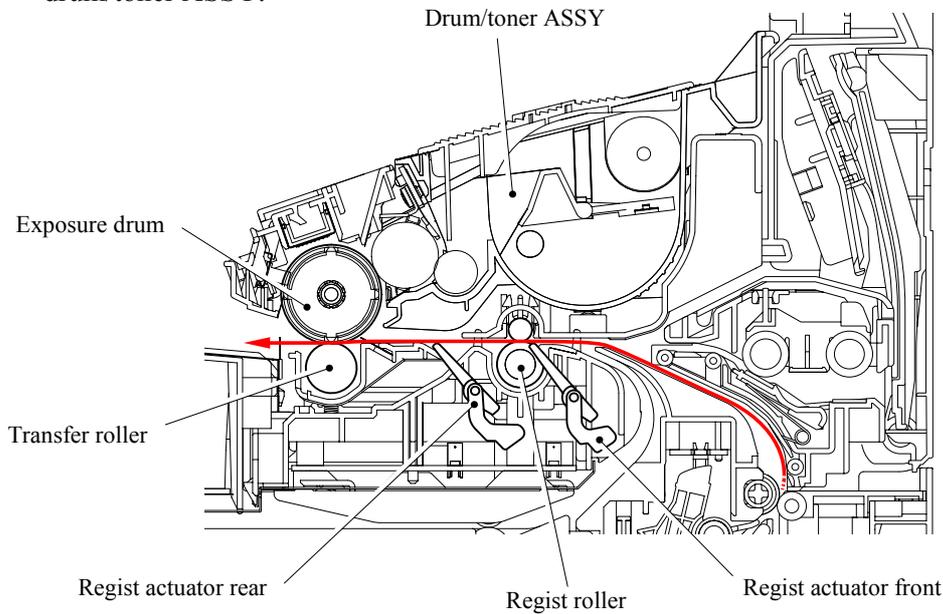


Fig. 3-14

The regist actuator rear in the path from the regist roller to the transfer roller controls the first print position on the paper. The machine starts transferring an image when a definite time passes after the paper is passed through the regist actuator rear.

3.2.3.3 Drum unit

<Exposure drum>

Generates the latent electrostatic image and develops the image on the drum surface.

<Primary charger >

Forms a uniform charge on the drum surface.

(1) Corona wire

Generates the ion charge on the drum.

(2) Grid

Spreads the ion charge evenly over the drum surface.

<Transfer roller >

Transfers the toner image to the paper from the drum surface.

<Cleaner >

Transfers the toner image to the paper from the drum surface.

3.2.3.4 Developing

Developing causes the toner to be attracted to the electrostatic image on the drum so as to transform it into a visible image.

The developer consists of a non-magnetic toner. The developer roller is made of conductive rubber and the supply roller (which is also made of conductive sponge) rotate against each other. The toner is charged and carried from the supply roller to the developer roller. The toner adheres to the developer roller and is conveyed to the exposure drum at an even thickness controlled by the blade. The toner is nipped between the developer roller and the drum and developed onto the latent image on the drum. The electrostatic field between the drum and the developer roller, which is DC-biased from the high-voltage power supply, creates the electrostatic potential to attract toner particles from the developer roller to the latent image area on the drum surface.

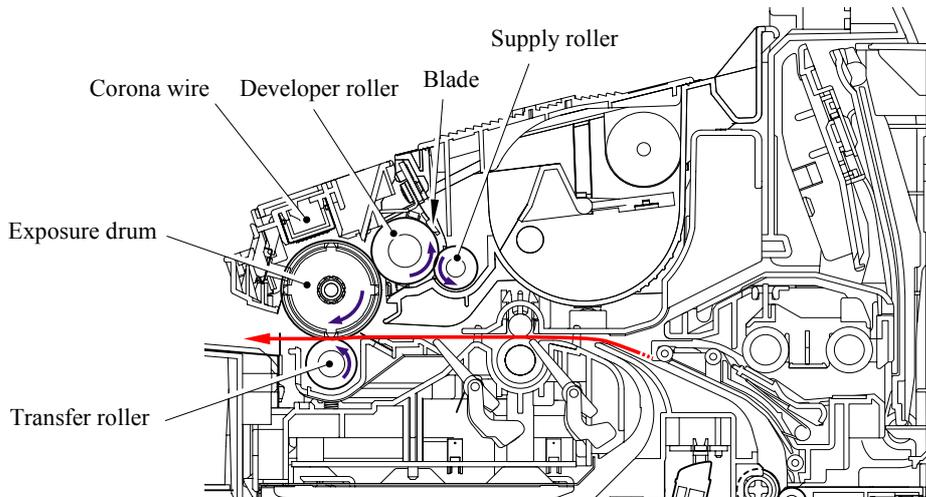


Fig. 3-15

3.2.3.5 Fixing stage

The image transferred to the paper by static electricity is fixed by heat and pressure when passing through the heat roller and the pressure roller in the fuser unit. The thermistor keeps the surface temperature of the heat roller constant by detecting the surface temperature of the heat roller and turning on or off the halogen heater lamp.

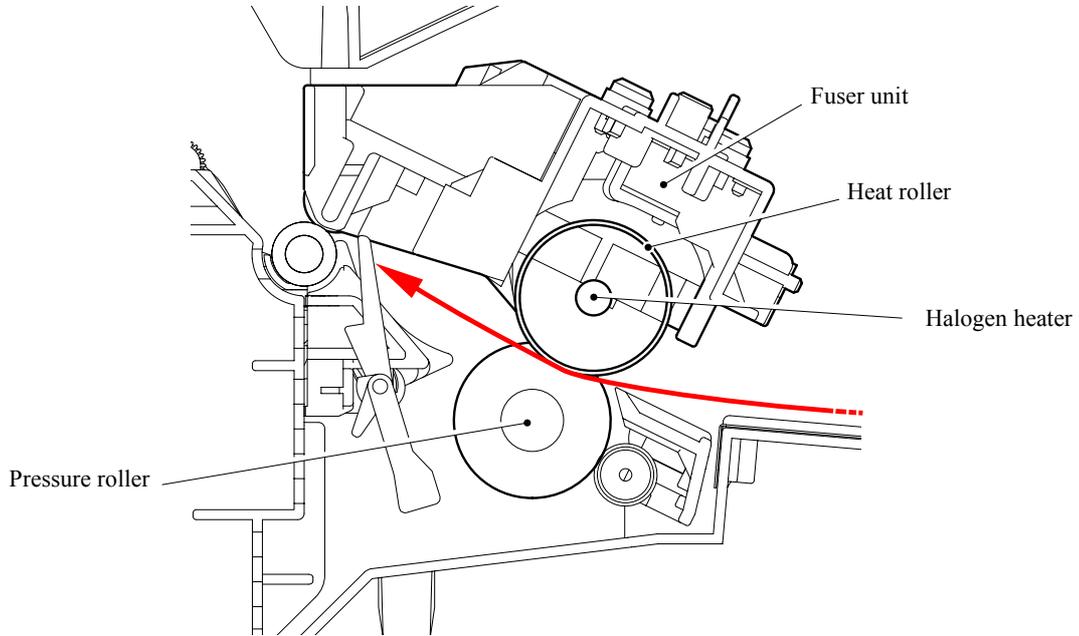


Fig. 3-16

3.2.3.6 Paper eject

After the printing image on the exposure drum is transferred onto the paper, the paper is fed to the fuser unit to fix unfixed toner onto the paper by the heat roller and the pressure roller in the fuser unit.

Afterwards, the paper is ejected from the fuser unit. The paper eject actuator detects whether the paper is ejected correctly or not.

After the paper exits from the heat roller, the paper is turned by the back cover and ejected face down into the top output tray through the eject roller ASSY.

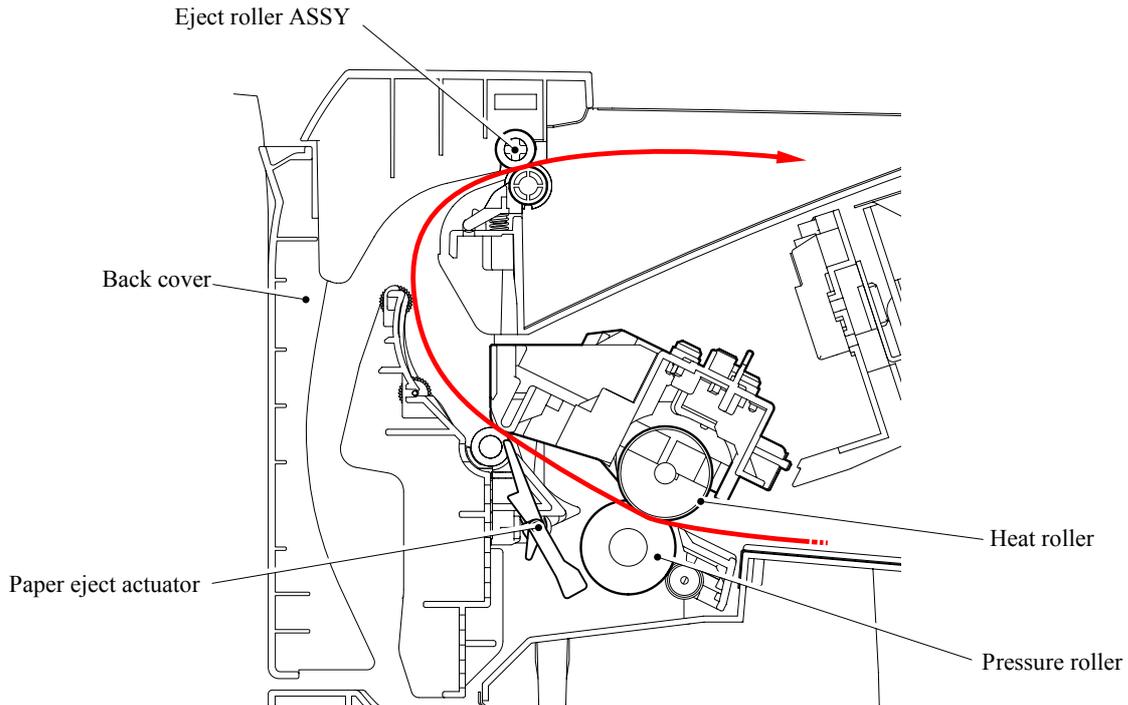


Fig. 3-17

When a paper jam occurs, the roller in the eject roller ASSY is released to remove the jammed recording paper easily.

3.2.3.7 Duplex printing (For the models with the DX only)

After the paper exits from the eject roller ASSY with the front of sheet printed, the eject roller ASSY rotates conversely and feeds the paper to the duplex tray, where the paper skew is adjusted. Afterwards, the paper is ejected from the duplex tray to the path through the regist roller and the transfer roller to the transfer block in the drum unit again for process of printing on the back of sheet.

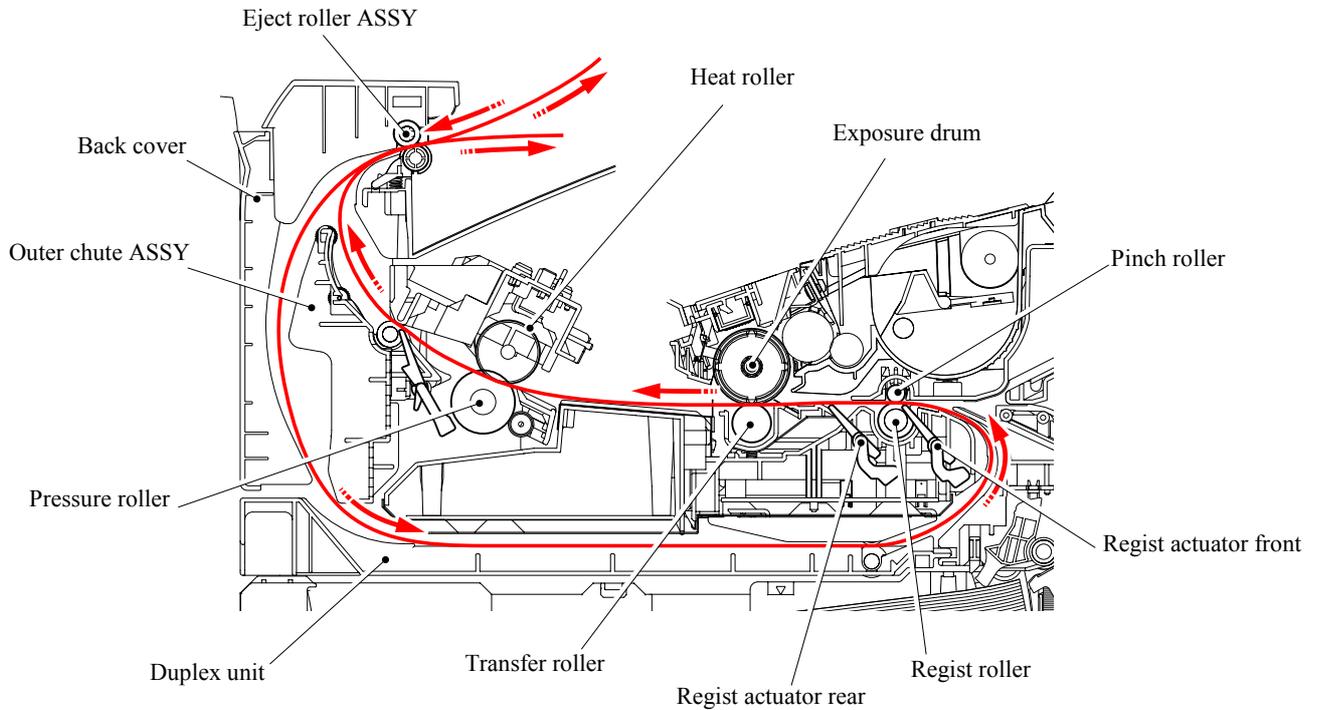


Fig. 3-18

3.2.3.8 Paper feeding from the MP tray

The separation roller is connected with the feed roller through the gear in the MP roller holder ASSY. When the separation roller is driven, therefore, the feed roller is also driven. At this time, the recording paper is drawn out of the MP tray by rotation of the feed roller contacted with the recording paper. The drawn recording paper is separated into individual sheets by the separation roller.

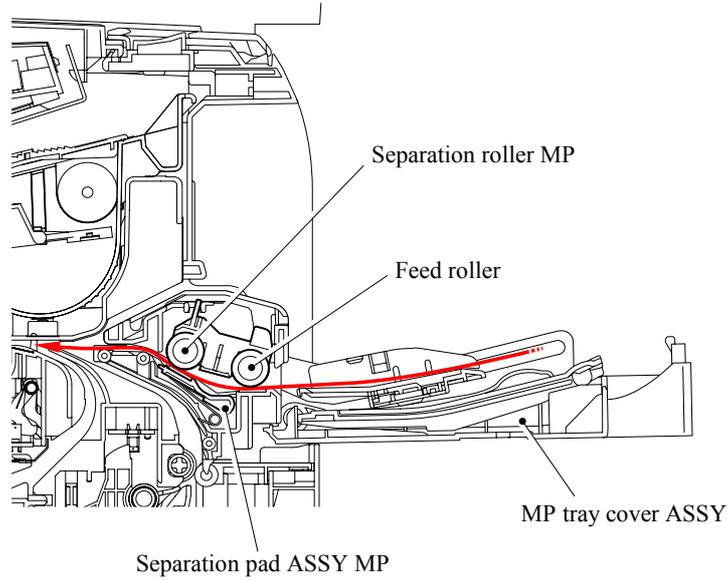


Fig. 3-19

3.2.3.9 LT tray

The motor drive is transmitted to the gear to rotate the feed roller, then the recording paper is drawn out of the LT tray. The drawn recording paper is separated into individual sheet by the separation roller and fed to the machine.

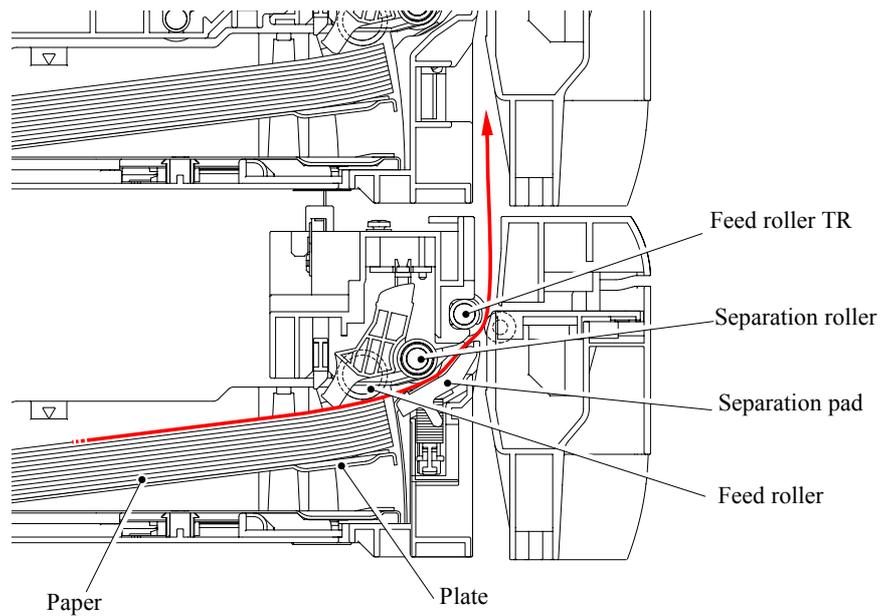


Fig. 3-20

3.2.4 Toner Cartridge

Develops the electrostatic latent image on the exposure drum with toner and forms the visible image.

3.2.4.1 Toner life end mode

A new toner cartridge can print approximately 3,500 (standard toner) or approximately 7,000 (high yield toner) A4 or Letter size single-sided pages at 5% coverage. In the case of low-duty printing, “Toner Life End” is indicated by “TONER LIFE END” message appears on the LCD panel before the toner runs out because the developer roller surface or other toner sealing is worn out due to a rotation of the rollers. The upper limit of the drum rotation is 44,000 = 4,000 sheets x 11 rotations (standard toner), 92,400 = 8,400 sheets x 11 rotations (high yield toner).

The following graph shows the number of printable pages in the case of A4 printing.

Standard (3.5K) toner

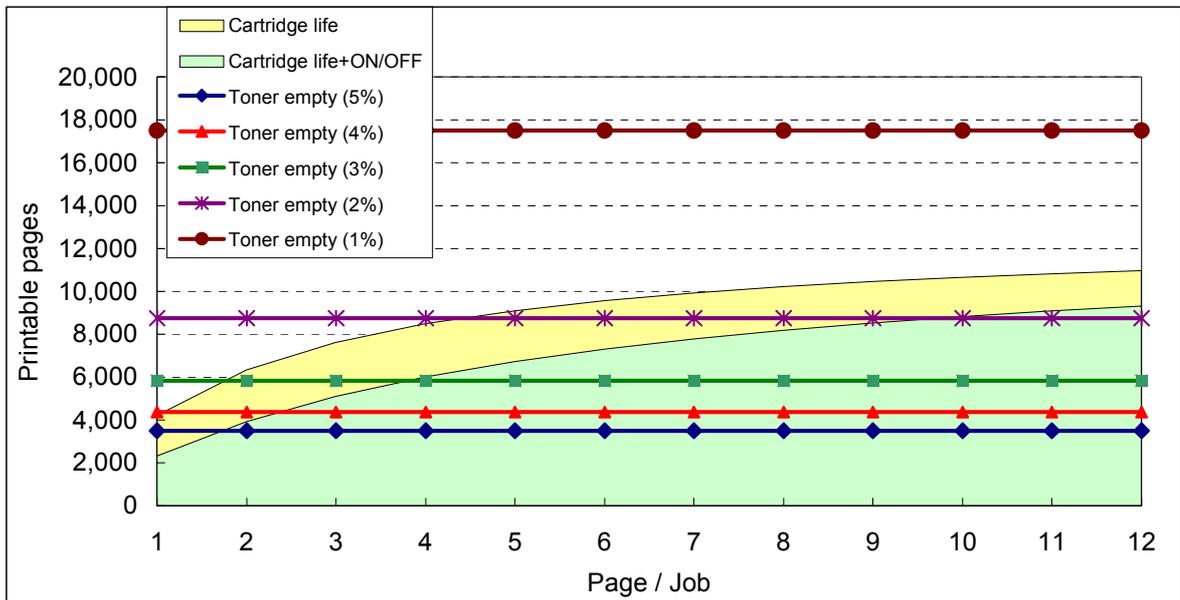
Page/job	1	2	3	4	5	6	7	8	9	10	11	12
Cartridge life	4,200	6,329	7,615	8,477	9,094	9,559	9,920	10,210	10,447	10,645	10,813	10,957
Cartridge life+ON/OFF	2,310	3,915	5,096	6,000	6,715	7,295	7,774	8,177	8,520	8,817	9,075	9,302
Toner empty (5%)	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
Toner empty (4%)	4,375	4,375	4,375	4,375	4,375	4,375	4,375	4,375	4,375	4,375	4,375	4,375
Toner empty (3%)	5,833	5,833	5,833	5,833	5,833	5,833	5,833	5,833	5,833	5,833	5,833	5,833
Toner empty (2%)	8,750	8,750	8,750	8,750	8,750	8,750	8,750	8,750	8,750	8,750	8,750	8,750
Toner empty (1%)	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500

$$\text{Cartridge life} = 11a \times 4200 / (3.6 \times (a - 1) + 11)$$

a : Page / job

$$\text{Cartridge life+ON/OFF} = (11a \times 4200) / (3.6 \times (a - 1) + 11 + 9)$$

$$\text{Cartridge life (Mechanical limit)} : 4200 \text{ (1page / job)}$$



High Capacity (7K) toner

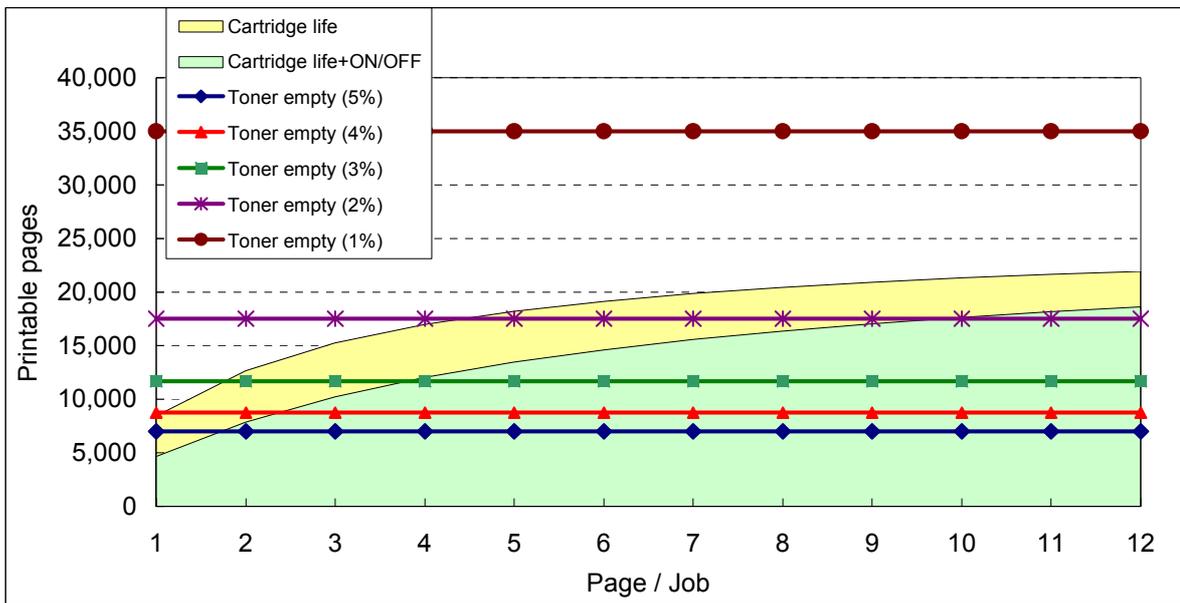
Page/job	1	2	3	4	5	6	7	8	9	10	11	12
Cartridge life	8,400	12,658	15,231	16,954	18,189	19,117	19,840	20,420	20,894	21,290	21,626	21,913
Cartridge life+ON/OFF	4,620	7,831	10,191	12,000	13,430	14,589	15,548	16,354	17,041	17,634	18,150	18,604
Toner empty (5%)	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000
Toner empty (4%)	8,750	8,750	8,750	8,750	8,750	8,750	8,750	8,750	8,750	8,750	8,750	8,750
Toner empty (3%)	11,667	11,667	11,667	11,667	11,667	11,667	11,667	11,667	11,667	11,667	11,667	11,667
Toner empty (2%)	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500
Toner empty (1%)	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000

Cartridge life = $11a \times 8400 / (3.6 \times (a - 1) + 11)$

a : Page / job

Cartridge life+ON/OFF = $(11a \times 8400) / (3.6 \times (a - 1) + 11 + 9)$

Cartridge life (Mechanical limit) : 8400 (1page / job)



- The number of rotation of the developer roller per page is as follows;
 1. One printed page only or the first page of continuous printing = 11 rotations
 2. The second page or later = 3.6 rotations
- Number of idling rotation when the machine is turned ON = 9 rotations

3.2.4.2 New toner detection mechanism

- (1) The motor drive is transmitted to the gear (4) through a few gears.
- (2) When the gear (4) is rotated, the rib A on the gear (4) pushes against a new toner actuator, and a new toner sensor detects the actuator motion. Then, the toner sensor detects that a new toner cartridge is installed.
- (3) For the high yield toner cartridge, the rib B is provided on the gear (4) as shown in the figure below so that a new toner actuator is pushed against twice by both ribs A and B.
- (4) When the toner actuator is pushed twice, the two signals are transmitted to a new toner sensor, and it is detected that the high yield toner cartridge is installed.
For the standard toner cartridge, the rib B is not provided, and a new toner actuator is pushed only once by the rib A. In this case, the one signal is transmitted to a new toner sensor so that it is detected that the standard toner cartridge is installed.

<Machine side view when a new toner cartridge is installed>

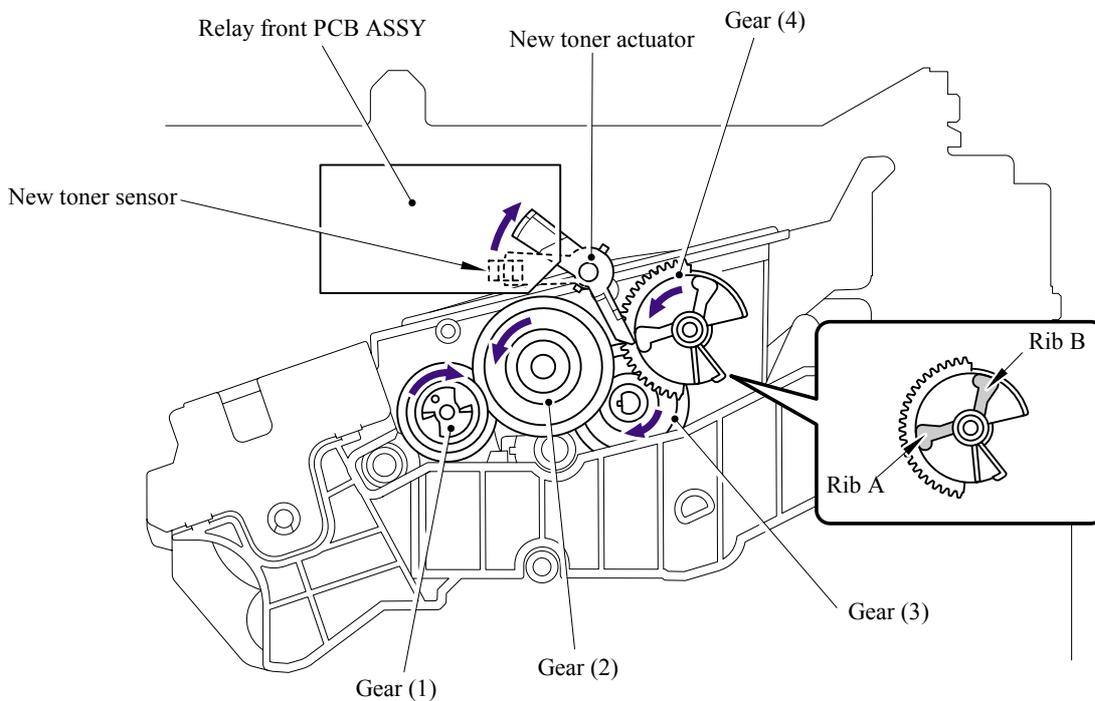


Fig. 3-21

When the new toner detection switch detects that the toner cartridge is replaced with a new one, the developing bias voltage is initialized at the same time.

The toner used for the machine has a property that print density is light first and gradually darker in the course of usage. The developing bias controls the toner property so that the print density is constant from first to last.

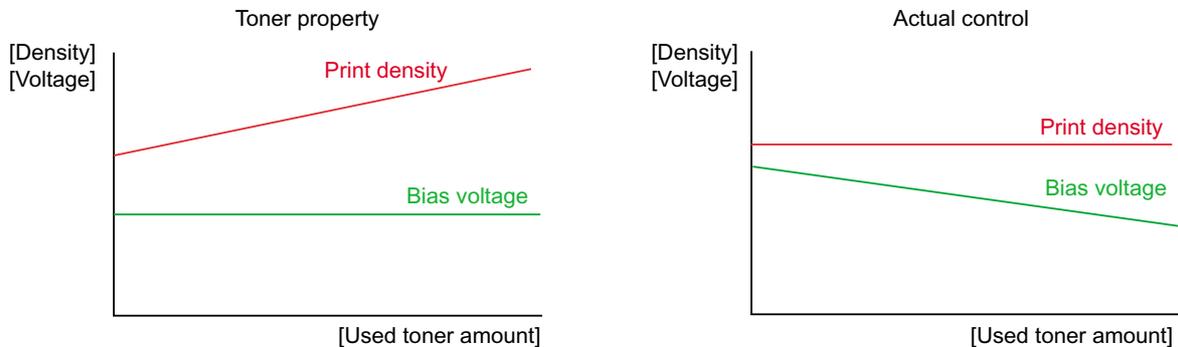


Fig. 3-22

To always obtain a print result of a constant density, the machine counts the number of print pages immediately after the toner cartridge is replaced and changes the bias voltage according to the accumulated number of prints with the toner cartridge.

The bias voltage is changed with the steps described below:

- (1) When the new toner sensor detects that the toner cartridge is replaced with a new (full) one, the developing bias is set to 400V (initialized).
- (2) After that, the bias voltage is stepped down according to the number of prints.

3.2.4.3 Counter reset during indication of “Toner Life End”

The counter resetting method during indication of “Toner Life End” depends on the cause of toner life end and the condition of the inserted toner cartridge. Refer to the following table for details.

	Toner Life End (Toner empty)	Toner Life End (Developer count full)
When a used toner is inserted (Reset gear is at the position of in use.)	Toner exchange count: +0 Page counter of each toner: Continued Coverage of each toner: Continued Development bias: Reset (Default)	Not used.
When a new toner is inserted (Reset gear is at the position of factory set.)	Toner exchange count: +1 Page counter of each toner: Reset (0) Coverage of each toner: Reset (0) Development bias: Reset (Default)	

3.2.5 Print Process

3.2.5.1 Charging

The drum is charged to approximately 900V by an ion charge which is generated by the primary charger. The charge is generated by ionization of the corona wire, which has a DC bias from the high-voltage power supply applied to it. The flow of the ion charge is controlled by the grid to ensure it is distributed evenly on the drum surface. The aluminum drum sleeve in the exposure drum is grounded.

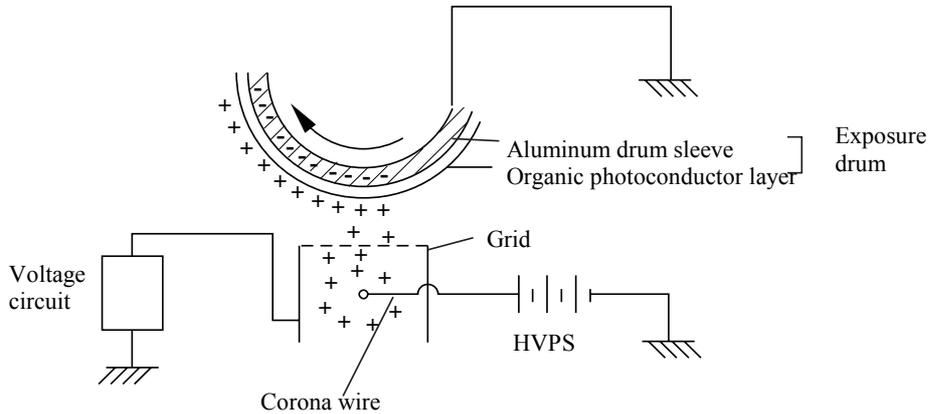


Fig. 3-23

The primary charge uses a corona wire, but since the drum is positively charged, only less than 1/10 of the usual quantity of ozone is generated compared with the negatively charged drum. The level of ozone expelled from the machine is therefore not harmful to the human body. Applicable safety standards have been complied with.

3.2.5.2 Exposure stage

After the drum is positively charged, it is exposed to the light emitted from the laser unit.

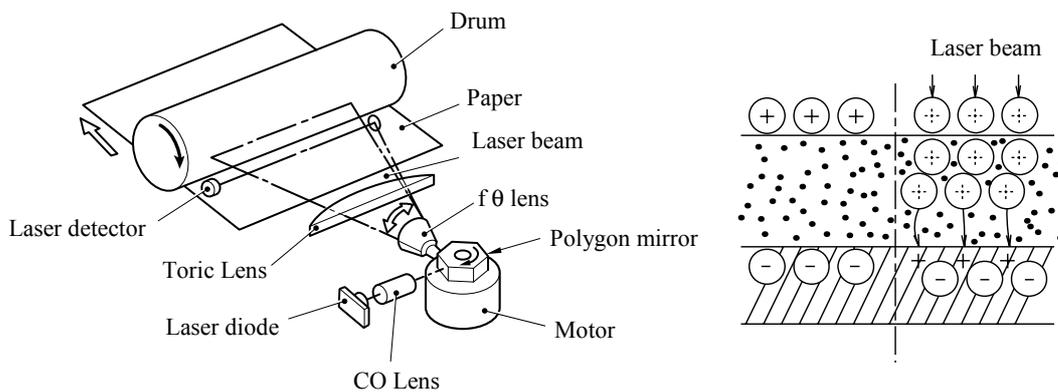


Fig. 3-24

<Laser exposure unit>

1. The laser beam radiated from a laser diode inside the laser unit are concentrated into a constant width by a slit in the CO lens cell and then reflected by a polygon mirror rotating at high speed.
2. The laser beam reflected by the polygon mirror are refracted by the f-theta lens and radiated from the right through to the left end of the reflection mirror as the polygon mirror rotates. At this time, blur of the vertical direction of the laser beam by inclination of a polygon mirror is corrected by passing a Toric lens.

- The laser beams reflected by the reflection mirror go straight toward the exposure drum below it, then expose the exposure drum.

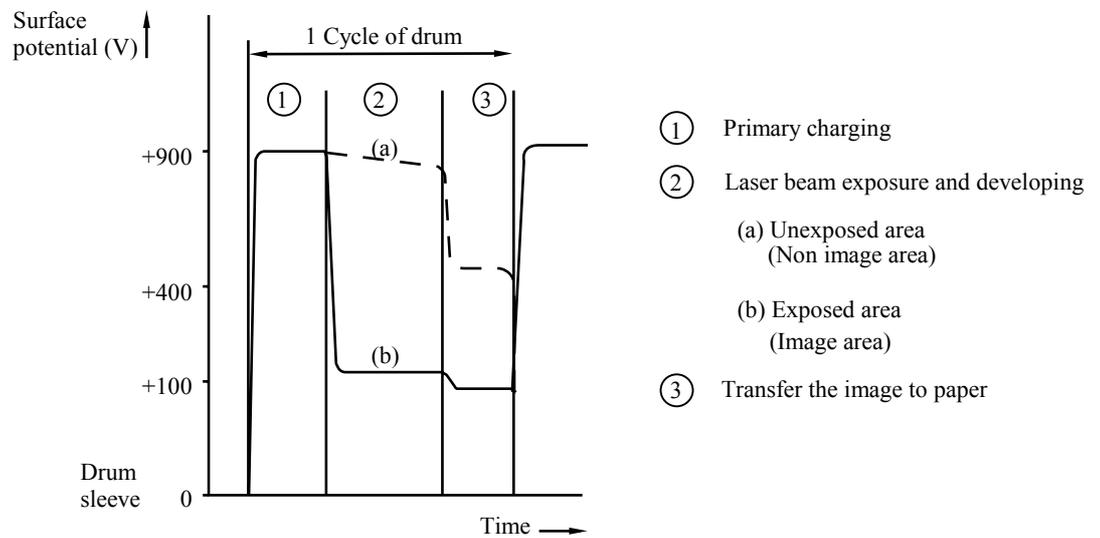


Fig. 3-25

3.2.5.3 Transfer

(1) Transfer process

After the drum has been charged and exposed, and has received a developed image, the toner formed is transferred onto the paper by applying a negative charge to the back of the paper. The negative charge applied to the paper causes the positively charged toner to leave the drum, and adhere to the paper. As a result, the image is visible on the paper.

(2) Cleaning process of transfer roller

If the toner is not transferred onto the paper perfectly it is possible that there may be residual toner on the drum which will adhere to the transfer roller. The transfer roller voltage changes to a positive voltage during non-printing rotation of the drum. Therefore the transfer roller is cleaned by returning the positively charged toner adhering to the transfer roller onto the exposure drum.

3.2.6 Sensors

Sensor name	Type	Located on
Regist front sensor	Photo sensor	High-voltage PS PCB
Regist rear sensor	Photo sensor	High-voltage PS PCB
Paper eject sensor	Photo sensor	Relay rear PCB
New toner sensor	Photo sensor	Relay front PCB
Toner LED PCB (Light emission)	Photo sensor	Frame R
Toner sensor PCB (Light reception)	Photo sensor	Frame L
Front cover sensor	Mechanical switch	Frame L
PE sensor	Photo sensor	PE EG sensor ASSY
Edge sensor	Photo sensor	PE EG sensor ASSY
MP PE sensor	Photo sensor	MP PE sensor ASSY
DX tray sensor	Mechanical switch	Relay rear PCB
Document front sensor 1	Photo sensor	ADF
Document front sensor 2	Photo sensor	ADF
Document rear sensor	Photo sensor	ADF
Switch back sensor	Photo sensor	ADF
Document cover sensor	Photo sensor	ADF
HP sensor	Photo sensor	Scanner unit ASSY

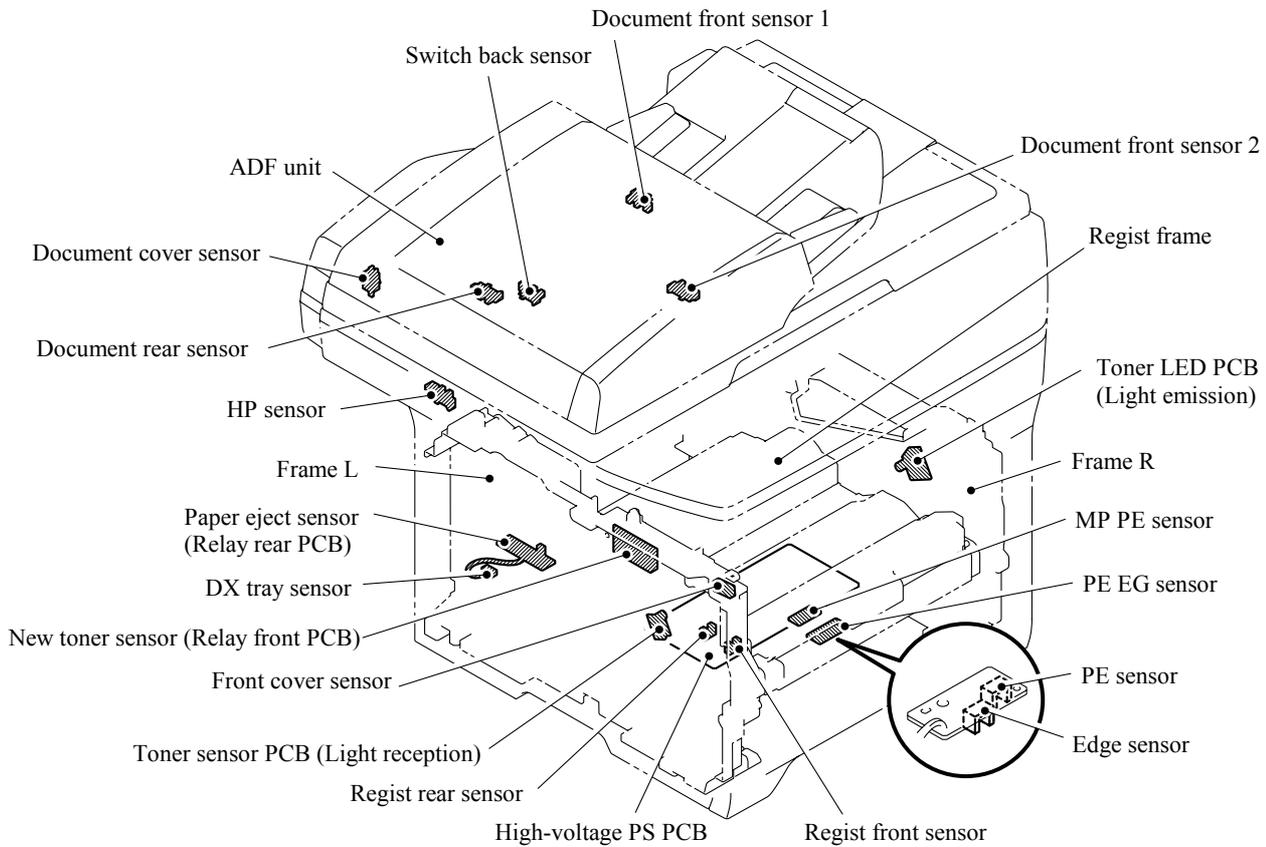


Fig. 3-26

CHAPTER 4

TRANSFER OF DATA LEFT IN THE MACHINE TO BE SENT FOR REPAIR

CHAPTER 4 TRANSFER OF DATA LEFT IN THE MACHINE TO BE SENT FOR REPAIR

This chapter describes how to transfer data left in the machine to be sent for repair. The service personnel should instruct end users to follow the transfer procedure given in this chapter if the machine at the user site cannot print received data due to the printing mechanism defective. End users can transfer received data to another machine to prevent data loss.

CONTENTS

4.1 TRANSFERRING RECEIVED FAX DATA.....	4-1
--	------------

4.1 TRANSFERRING RECEIVED FAX DATA

When the machine at the user site requires to be repaired, unplugging the power cord from the wall socket for sending the machine for repair will lose received FAX data if unprinted and 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 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.

NOTE: This functions is not applicable to the DCP-8060/8065DN.

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.

Operating Procedure

- (1) Connect the machine to be repaired (that has received data in the memory) to the telephone line.
- (2) Switch the machine on.
- (2) Press the **[Menu]**, **[Start]**, **[0]**, **[5]** and **[3]** keys in this order to access user-accessible functions of the maintenance mode.
The “FAX TRANSFER” appears on the LCD.
- (4) To check the number of received files, press the **[1]** key.
The “1.NO. OF JOBS” appears on the LCD.
Press the **[OK]** key, and the number of received files appears, just as “NO. OF. JOBS: 10.”
- (5) To transfer the activity report only, press the **[2]** key.
The “2.ACTIVITY” appears.
To transfer received files together with the activity report, press the **[3]** key.
The “3.DOCUMENTS” appears. Note that if there is no received file, the “NO DOCUMENTS” appears.
- (6) To transfer the communication list for the latest communication, press the **[4]** key.
The “4.COM.LIST (NEW)” appears.
To transfer the communication list for last three errors, press the **[5]** key.
The “5.COM.LIST (ERR3)” appears.
- (7) With the “2.ACTIVITY,” “3.DOCUMENTS,” “4.COM.LIST (NEW),” or “5.COM.LIST (ERR3)” being displayed, press the **[OK]** key.
The “ENTER NO. &SET” appears.
- (8) Enter the telephone number of the receiver machine and press the **[OK]** key again.

NOTE: Be sure to type the telephone number with the numerical keys. No one-touch dialing is allowed in this procedure.

The machine displays the “ACCEPTED” for approx. two seconds and starts dialing to transfer data.

No station ID will be attached. A cover page and end page as shown on the next page will be automatically attached, instead.

Cover page sample

```
=== FAX TRANSFER COVER PAGE ===  
  
NO. OF JOBS      :001  
TOTAL PAGE[S]   :001  
NAME            :BROTHER  
FAX             :052 824 2330  
TEL             :  
TIME           :01/02/2004 22:21  
  
8C5-A11  
B0403261602  
U0404221449 VER.0  
G01234567890
```

← Job number
← Total number of pages to be transferred
← Station ID registered in the sender equipment
← FAX number of the sender equipment
← Telephone number of the sender equipment
← Transfer start date
← Model code
← Boot ROM info
← ROM info
← Serial number

End page sample

```
=== FAX TRANSFER END PAGE ===  
  
NO. OF JOBS      :001  
TOTAL PAGE[S]   :001  
NAME            :BROTHER  
FAX             :052 824 2330  
TEL             :  
  
MACHINE STATUS 1    AF:0401022216  
MACHINE STATUS 2    43:0401022216  
MACHINE STATUS 3    48:0401022216  
MACHINE STATUS 4    AF:0401022017  
MACHINE STATUS 5    43:0401022017  
MACHINE STATUS 6    48:0401022017  
MACHINE STATUS 7    AF:0401011756  
MACHINE STATUS 8    43:0401011756  
MACHINE STATUS 9    48:0401011756
```

← Job number
← Total number of pages transferred
← Station ID registered in the sender equipment
← FAX number of the sender equipment
← Telephone number of the sender equipment
} Error codes

CHAPTER 5

DISASSEMBLY/REASSEMBLY AND LUBRICATION

CHAPTER 5 DISASSEMBLY/REASSEMBLY AND LUBRICATION

This chapter details procedures for disassembling and reassembling the machine together with related notes. The disassembly order flow provided enables you to see at a glance the quickest way to get to component(s) involved.

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

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

CONTENTS

5.1 DISASSEMBLY/REASSEMBLY	5-1
Safety Precautions	5-1
Tightening Torque	5-2
Harness Routing	5-4
Preparation.....	5-21
How to Access the Object Component	5-21
Disassembly Flowchart	5-22
5.1.1 AC Cord	5-23
5.1.2 Drum/Toner ASSY	5-23
5.1.3 DX Feed ASSY (For the models with the DX only)	5-24
5.1.4 Paper Tray	5-24
5.1.5 Back Cover	5-27
5.1.6 DX Blank Cover (For models with out the DX only).....	5-27
5.1.7 Outer Chute ASSY	5-28
5.1.8 Access Cover/Side Cover L.....	5-30
5.1.9 ADF Unit	5-31
5.1.10 Hinge Base R.....	5-32
5.1.11 Hinge Arm R	5-33
5.1.12 Hinge ASSY L	5-33
5.1.13 ADF Cover ASSY.....	5-34
5.1.14 ADF Side Cover F.....	5-34
5.1.15 ADF Side Cover R	5-35
5.1.16 ADF Chute ASSY.....	5-36

5.1.17 SB Chute ASSY (For the models with the DX only) / SX Chute (For the models with out the DX only)	5-38
5.1.18 Exit Chute Cover ASSY	5-38
5.1.19 Earth Spring	5-39
5.1.20 PF Roller Holder ASSY	5-40
5.1.21 LF Roller 1 ASSY	5-41
5.1.22 SB Roller ASSY (For the models with the DX only)	5-42
5.1.23 ADF Motor	5-44
5.1.24 SB Solenoid ASSY (For the models with the DX only)	5-45
5.1.25 PF Solenoid ASSY (For the models with the DX only)	5-45
5.1.26 ADF Relay PCB	5-46
5.1.27 Paper Feed Chute ASSY	5-47
5.1.28 Actuator Front 1/Photo Interrupter (For the models with the DX only)	5-48
5.1.29 Actuator Front 2/Photo Interrupter (For the models with the DX only)	5-49
5.1.30 ADF Film/Spring Plate ADF Front A ASSY/Separation Rubber/Rubber Holder/ Separation Spring	5-50
5.1.31 Pressure Roller/LF Spring	5-50
5.1.32 LF Roller 2 ASSY	5-51
5.1.33 Exit Roller ASSY	5-52
5.1.34 LF Roller 3 ASSY	5-53
5.1.35 LF Roller 4 ASSY	5-54
5.1.36 Flap A ASSY (For the models with the DX only)/ Flap A (For models with out the DX only)	5-55
5.1.37 Document Hold/Document Hold Spring	5-56
5.1.38 Upper Main Chute ASSY/Lower Main Chute ASSY	5-56
5.1.39 Actuator R/Photo Interrupter	5-58
5.1.40 Flap B	5-59
5.1.41 Actuator SB/Photo Interrupter (For the models with the DX only)	5-59
5.1.42 Document Ejection Tray	5-60
5.1.43 Document Cover Sensor	5-61
5.1.44 Eject Roller B4	5-61

5.1.45	Presser Roller	5-62
5.1.46	Panel Cover ASSY	5-63
5.1.47	Scanner Unit ASSY	5-64
5.1.48	Top Cover ASSY.....	5-65
5.1.49	Lock Lever B/Lock Lever ASSY.....	5-65
5.1.50	CCD Module	5-66
5.1.51	FFC Cable ASSY.....	5-68
5.1.52	Scanner Motor FB.....	5-69
5.1.53	Pulley ASSY.....	5-70
5.1.54	Photo Interrupter	5-70
5.1.55	Panel Unit	5-71
5.1.56	Panel PCB ASSY.....	5-72
5.1.57	Printed Rubber Key	5-73
5.1.58	LCD Cover/Backlight Module/LCD	5-74
5.1.59	NCU PCB ASSY (For the models with the NCU only).....	5-75
5.1.60	Speaker ASSY.....	5-77
5.1.61	Driver PCB	5-78
5.1.62	Fuser Unit	5-79
5.1.63	Tray MP ASSY.....	5-81
5.1.64	MP Tray Cover ASSY/Process Cover ASSY	5-82
5.1.65	Main PCB.....	5-85
5.1.66	Gear Plate Calking ASSY AL/Develop Joint/Main Motor ASSY AL	5-86
5.1.67	Main Shield Plate ASSY	5-88
5.1.68	Relay Rear PCB ASSY/Connector	5-90
5.1.69	Relay Front PCB ASSY	5-92
5.1.70	MP Solenoid ASSY	5-93
5.1.71	Drive Release Link.....	5-94
5.1.72	T1 Solenoid ASSY	5-95
5.1.73	Toner Sensor PCB.....	5-95
5.1.74	Register Solenoid ASSY.....	5-96
5.1.75	Ejector Solenoid ASSY (For the models with the DX only)	5-96

5.1.76	Interlock SW ASSY	5-97
5.1.77	New Toner Actuator	5-97
5.1.78	Gear 17/20/23	5-98
5.1.79	Thermistor ASSY	5-100
5.1.80	Side Cover R.....	5-100
5.1.81	Joint Cover ASSY	5-101
5.1.82	Filter	5-102
5.1.83	Laser Unit.....	5-103
5.1.84	PS PCB Unit	5-104
5.1.85	High-Voltage PS PCB ASSY	5-107
5.1.86	Toner LED PCB Unit ASSY	5-109
5.1.87	Fan Motor 60 Unit	5-110
5.1.88	Fan Motor 60 Unit LV	5-110
5.1.89	Frame L.....	5-111
5.1.90	Frame R	5-111
5.1.91	MP Unit	5-112
5.1.92	Regist Actuator Rear/Regist Actuator Spring	5-117
5.1.93	Regist Actuator Front/Regist Actuator Spring.....	5-119
5.1.94	Roller Holder ASSY	5-120
5.1.95	PE Actuator, Edge Actuator, Edge Actuator Spring	5-121
5.1.96	PE PG Sensor ASSY	5-123
5.1.97	Wireless PCB (PCB T60H929.00 ASSY 02) (For the model with the Wireless only)	5-124
5.2	DISASSEMBLY/REASSEMBLY (LT-5300)	5-125
5.2.1	Paper Tray	5-125
5.2.2	LT Front Cover ASSY	5-128
5.2.3	LT Rear Cover	5-129
5.2.4	LT Side Cover L.....	5-129
5.2.5	LT Side Cover R	5-130
5.2.6	LT PCB ASSY	5-131
5.2.7	Connector: 55533-1219	5-132
5.2.8	Connector: 54702-1219	5-132

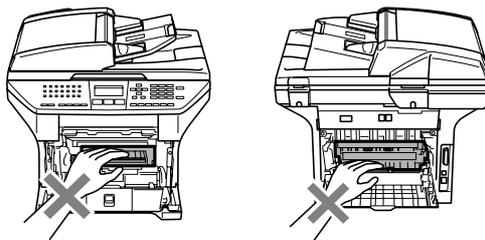
5.2.9	Gear 24 LT	5-133
5.2.10	Collar 6.....	5-134
5.2.11	LT Solenoid ASSY	5-138
5.2.12	Roller Holder ASSY	5-139
5.2.13	Edge Actuator Spring.....	5-140
5.2.14	PE Actuator, Edge Actuator.....	5-141
5.2.15	LT Sensor PCB ASSY	5-142
5.3	LUBRICATION	5-144

5.1 DISASSEMBLY/REASSEMBLY

Safety Precautions

To prevent the creation of secondary problems by mishandling, observe the following precautions during maintenance work.

- (1) Before starting disassembly/reassembly jobs, unplug the power cord and telephone line.
In particular, when having access to the power supply inside the machine, make sure that the power cord is unplugged from the electrical outlet; when having access to the main PCB or NCU PCB, make sure that both the power cord and telephone line are unplugged from the machine.
- (2) Be careful not to lose screws, washers, or other parts removed for parts replacement.
- (3) When using soldering irons and other heat-generating tools, take care not to damage the resin parts such as wires, PCBs, and covers.
- (4) Static electricity charged in your body may damage electronic parts. When transporting PCBs, be sure to wrap them in conductive sheets.
- (5) 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.
- (6) Be sure to reinsert self-tapping screws correctly, if removed.
- (7) Tighten screws to the torque values listed on the next page.
- (8) After disconnecting flat cables, check that each cable is not damaged at its end or short-circuited.
- (9) When connecting flat cables, do not insert them at an angle. After insertion, check that the cables are not at an angle.
- (10) When connecting or disconnecting cable connectors, hold the connector bodies not the wires. If the connector has a lock, always slide the connector lock to unlock it.
- (11) Before reassembly, apply the specified lubricant to the specified points.
(Refer to [Section 5.3](#) in this chapter.)
- (12) After repairs, check not only the repaired portion but also that the connectors and other related portions function properly before operation checks.
- (13) After you use the machine, some internal parts are extremely HOT! To prevent injuries, be careful not to put your fingers in the areas shown in the illustration.



Tightening Torque

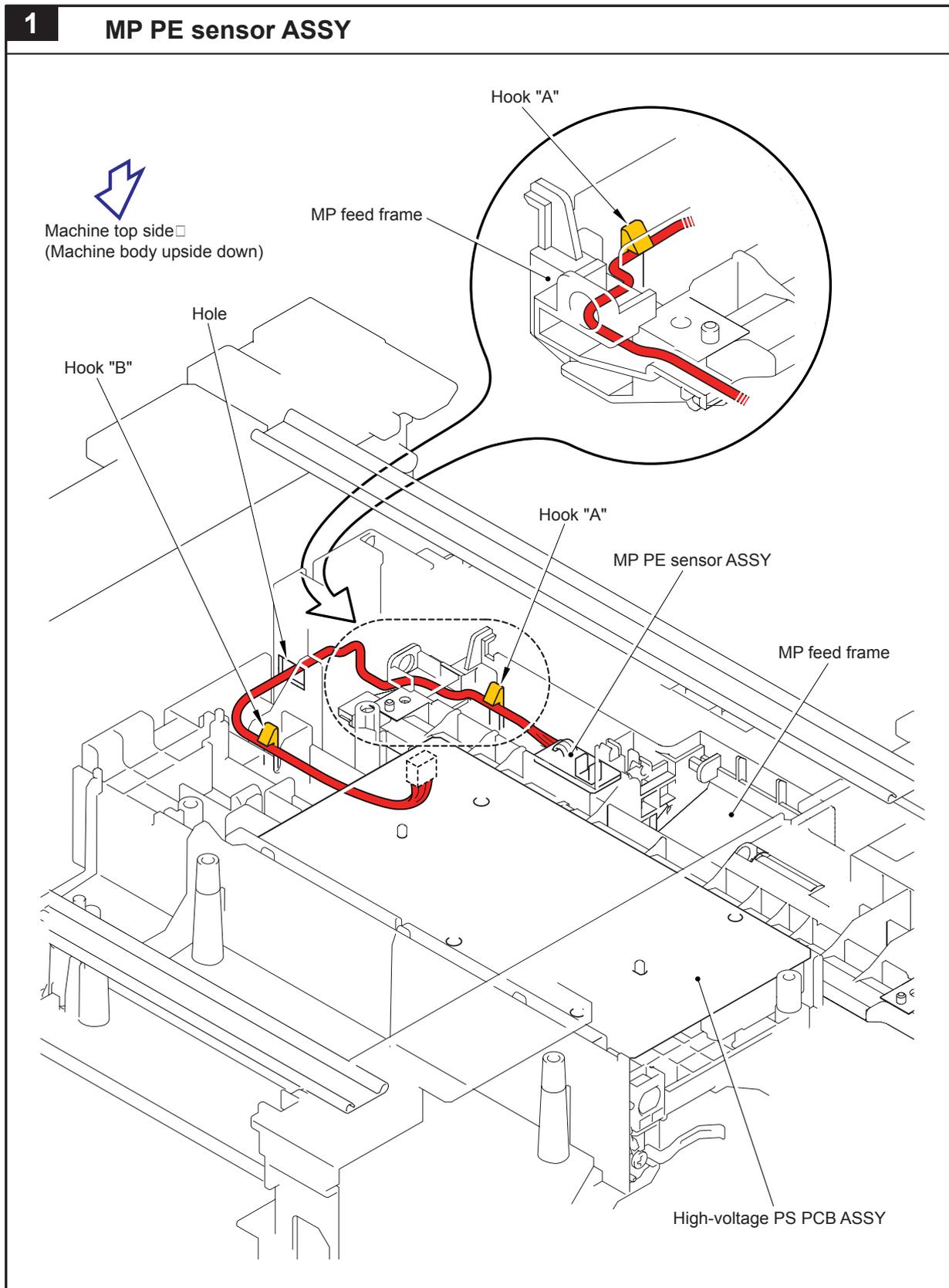
Location of screw	Screw type	Q'ty	Tightening torque N•m (kgf•cm)
Ejector solenoid	Taptite, bind B M3 x 10	1	0.5 ±0.1(5±1)
Main motor	Taptite, cup S M3 x 6	4	0.7 ±0.1(7±1)
T1, MP, Register solenoid	Taptite, bind B M3 x 10	3	0.5 ±0.05(5±0.5)
Gear plate	Taptite, bind B M4 x 12	8	0.9 ±0.05(9±0.5)
Main shield	Taptite, bind B M4 x 12	3	0.9 ±0.1(9±1)
Ground wire	Screw, pan (S/P washer) M3.5 x 6	1	0.5 ±0.05 (5±0.5)
SW holder	Taptite, bind B M4 x 12	1	0.8 ±0.1(8±1)
Under bar	Taptite, bind B M4 x 12	4	0.7 ±0.1(7±1)
Paper feed unit	Taptite, bind B M4 x 12	8	0.8 ±0.1(8±1)
HVPS	Taptite, bind B M4 x 12	2	0.8 ±0.1(8±1)
LVPS	Taptite, bind B M4 x 12	2	0.8 ±0.1(8±1)
Base plate	Taptite, bind B M4 x 12	9	0.8 ±0.1(8±1)
Main PCB	Taptite, cup S M3 x 6 SR	4	0.75 ±0.1(7.5±1)
Shield cover	Taptite, cup S M3 x 6 SR	4	0.75 ±0.1(7.5±1)
Scanner plate	Taptite, cup S M3 x 6	6	0.7 ±0.1(7±1)
PE EG sensor	Taptite, bind B M3 x 8	1	0.5 ±0.1(5±1)
MP PE sensor	Taptite, bind B M3 x 8	1	0.5 ±0.1(5±1)
MP feed frame	Taptite, bind B M3 x 8	2	0.5 ±0.1(5±1)
Regist frame (2), MP tray unit (2), Chute 2 (2)	Taptite, bind B M4 x 12	6	0.7 ±0.1(7±1)
Inner chute	Taptite, bind B M4 x 12	6 (7)	0.8 ±0.1(8±1)
Panel PCB	Taptite, cup B M3 x 8	3	0.5 ±0.1(5±1)
Cover	Taptite, bind B M4 x 12	6	0.7 ±0.1(7±1)
FG wire	Taptite, cup S M3 x 6 SR	1	0.75 ±0.1(7.5±1)
Joint cover ASSY ALFB	Taptite, bind B M4 x 12	4	0.8 ±0.1(8±1)
Speaker hold spring	Taptite, bind B M4 x 12	1	0.8 ±0.1(8±1)
Side cover R ALFB	Taptite, bind B M4 x 12	2	0.8 ±0.1(8±1)
Side cover L ALFB	Taptite, bind B M4 x 12	2	0.8 ±0.1(8±1)
Driver PCB shield ALFB	Taptite, bind B M3 x 8	2	0.4 ±0.05(4±0.5)
Driver PCB shield ALFB	Taptite, cup S M3 x 6 SR	1	0.75 ±0.1(7.5±1)
FB motor	Screw, pan (S/P washer) M3 x 6	2	0.7 ±0.1(7±1)
FB FG harness	Taptite, cup S M3 x 6	1	0.8 ±0.1(8±1)
Drive plate ASSY	Taptite, pan B M3 x 8	4	0.5 ±0.1(5±1)
Pulley ASSY ALFB	Taptite, B M3 x 6	2	0.4 ±0.05(4±0.5)
Lock lever A	Taptite, B M3 x 6	2	0.4 ±0.05(4±0.5)
Lock lever B	Taptite, B M3 x 6	1	0.4 ±0.05(4±0.5)
Scanner top cover ASSY	Taptite, cup B M4 x 12	6	0.8 ±0.1(8±1)
Scanner unit	Taptite, cup B M4 x 20	2	0.8 ±0.1(8±1)

Location of screw	Screw type	Q'ty	Tightening torque N•m (kgf•cm)
LF spring	Taptite, cup B M3 x 10	2	0.5 ±0.1(5±1)
Hinge arm R	Taptite, cup B M3 x 10	3	0.5 ±0.1(5±1)
Rear sensor cover	Taptite, cup B M3 x 10	2	0.5 ±0.1(5±1)
Drive frame sub ASSY	Taptite, cup B M3 x 10	3	0.5 ±0.1(5±1)
Front frame	Taptite, cup B M3 x 10	3	0.5 ±0.1(5±1)
Upper main chute ASSY	Taptite, cup B M3 x 10	4	0.5 ±0.1(5±1)
Exit chute cover ASSY	Taptite, cup B M3 x 10	4	0.5 ±0.1(5±1)
ADF chute ASSY	Taptite, cup B M3 x 10	4	0.5 ±0.1(5±1)
Side cover F	Taptite, cup B M3 x 10	1	0.5 ±0.1(5±1)
Side cover R	Taptite, cup B M3 x 10	1	0.5 ±0.1(5±1)
Paper feed chute	Taptite, cup B M3 x 10	1	0.7 ±0.05(7±0.5)
Hinge ASSY L	Taptite, cup B M3 x 10	3	0.5 ±0.1(5±1)
ADF motor	Screw, pan (S/P washer) M3 x 6	2	0.7 ±0.1(7±1)
Separation rubber	Taptite, B M3 x 6	1	0.4 ±0.05(4±0.5)
Motor frame ASSY	Taptite, cup S M3 x 8	3	0.7 ±0.05(7±0.5)
ADF relay PCB	Taptite, cup S M3 x 8	1	0.7 ±0.05(7±0.5)
SB chute ASSY	Taptite, cup S M3 x 8	2	0.7 ±0.05(7±0.5)
Paper feed chute ASSY	Taptite, cup S M3 x 8	4	0.7 ±0.05(7±0.5)
FG wire	Taptite, cup S M3 x 8	1	0.7 ±0.05(7±0.5)
Side cover F	Taptite, cup S M3 x 8	1	0.7 ±0.05(7±0.5)
Lower SB chute	Taptite, bind B M3 x 8	2	0.4 ±0.1(4±1)
Hinge ASSY L	Taptite, bind B M4 x 12	1	0.8 ±0.1(8±1)
Hinge base R	Taptite, bind B M4 x 12	1	0.8 ±0.1(8±1)
Panel cover generic	Taptite, cup B M3 x 10	4	0.5 ±0.1(5±1)
Panel unit generic	Taptite, cup B M4 x 12	4	0.7 ±0.1(7±1)
NCU PCB	Taptite, cup S M3 x 6	2	0.6 ±0.1(6±1)
NCU shield cover	Screw, pan (S/P washer) M3.5 x 6	1	0.4 ±0.05(4±0.5)
FG wire	Screw, pan (S/P washer) M3.5 x 6	2	0.4 ±0.05(4±0.5)

Harness Routing

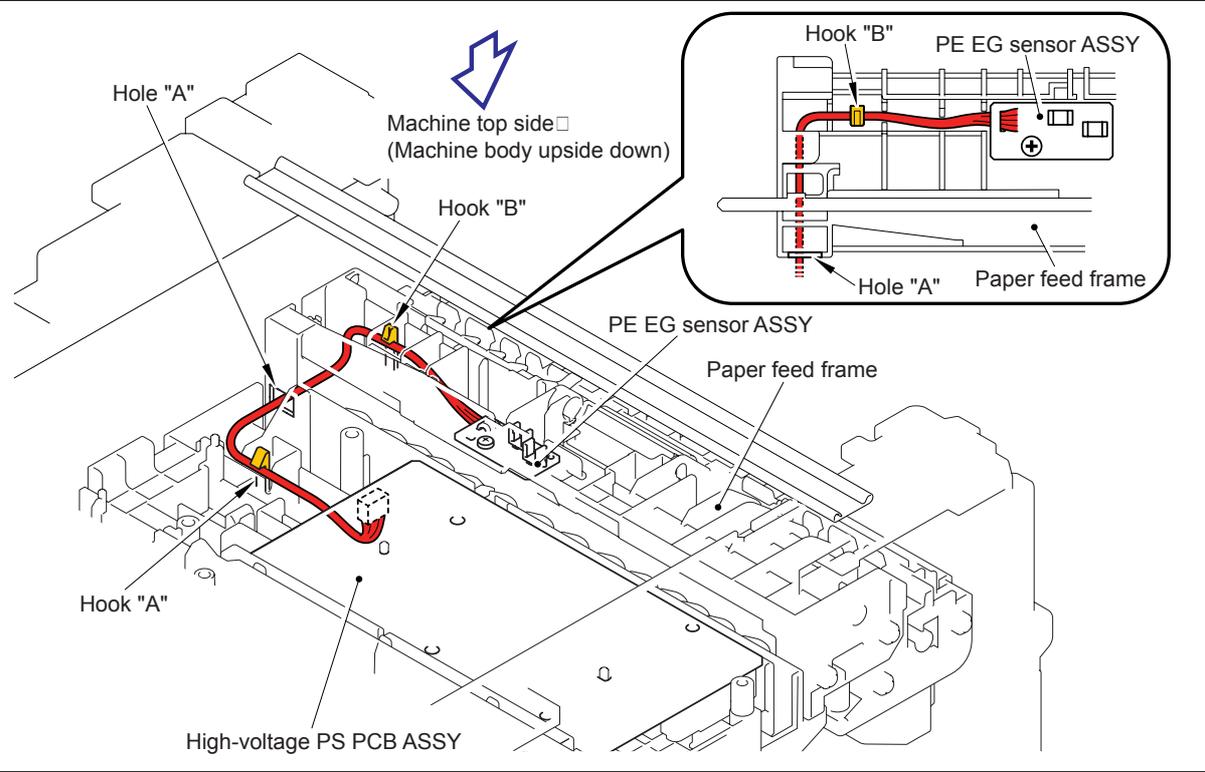
1

MP PE sensor ASSY



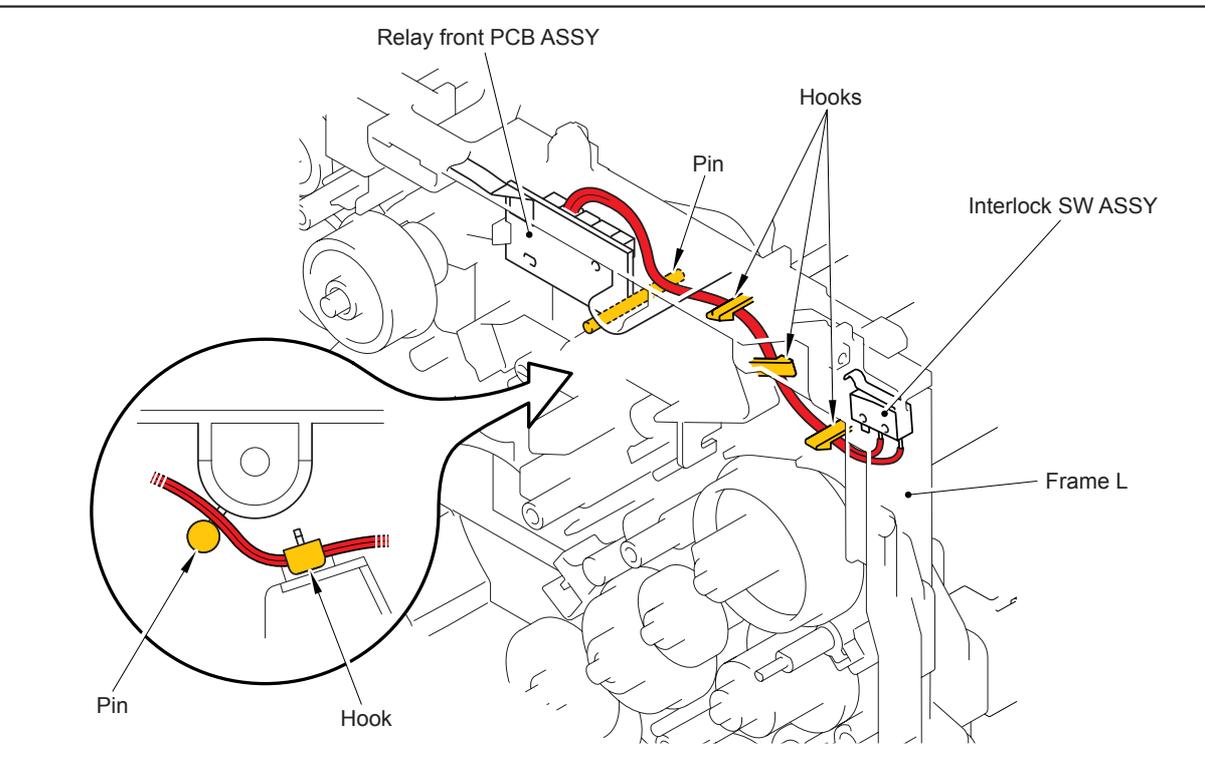
2

PE EG sensor ASSY



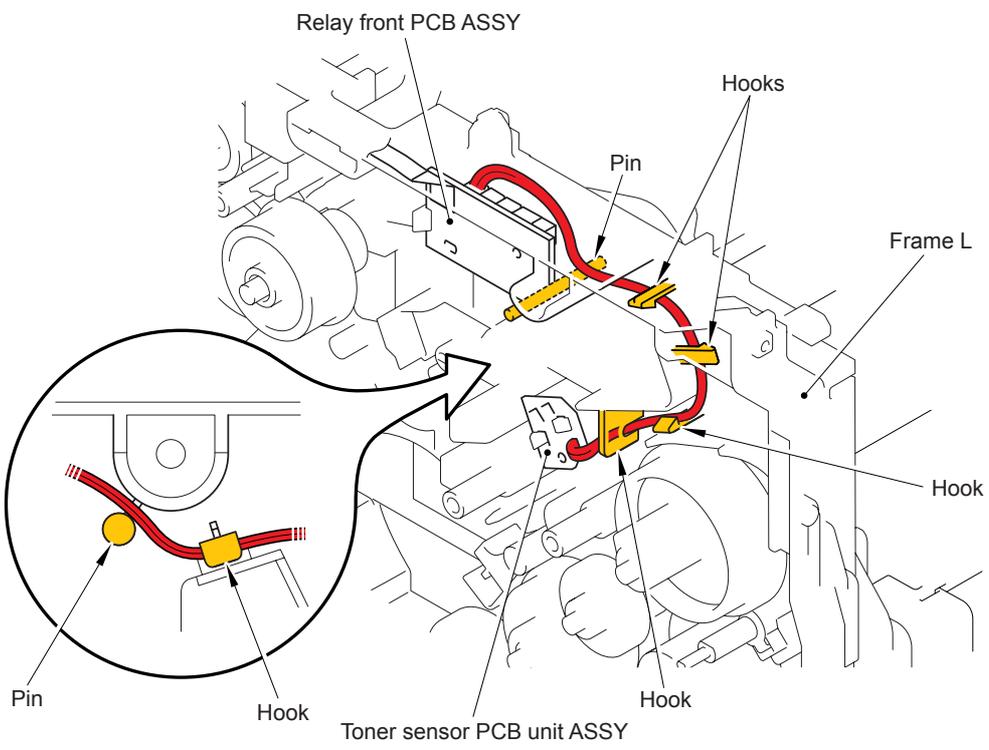
3

Interlock SW ASSY



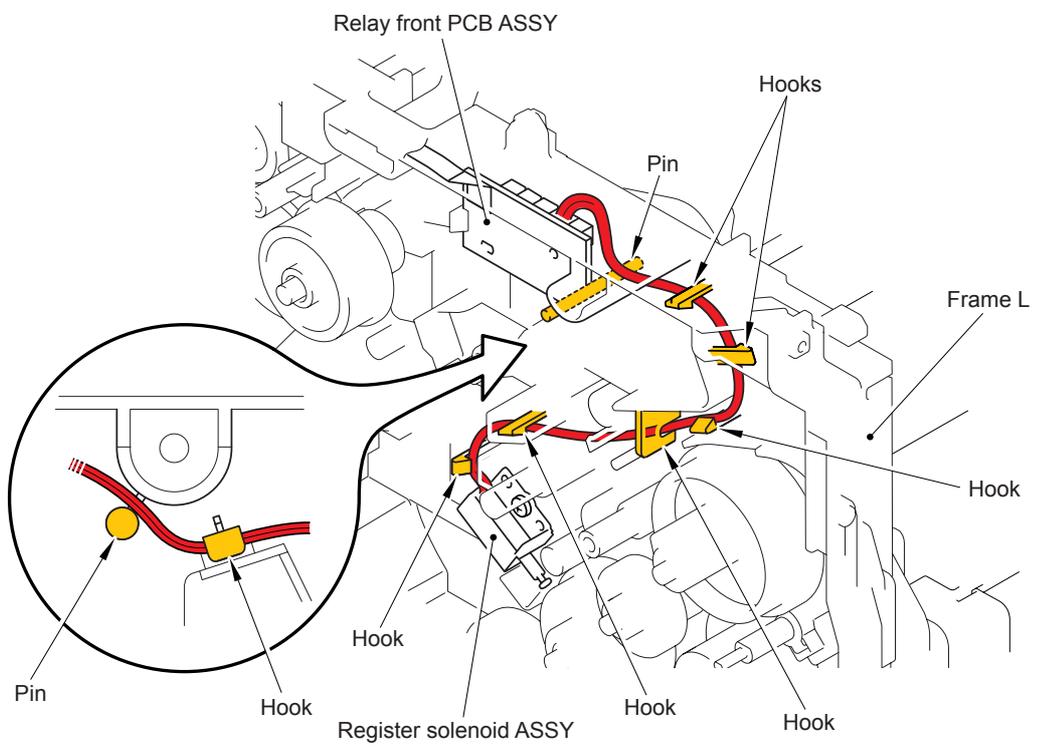
4

Toner sensor PCB unit ASSY



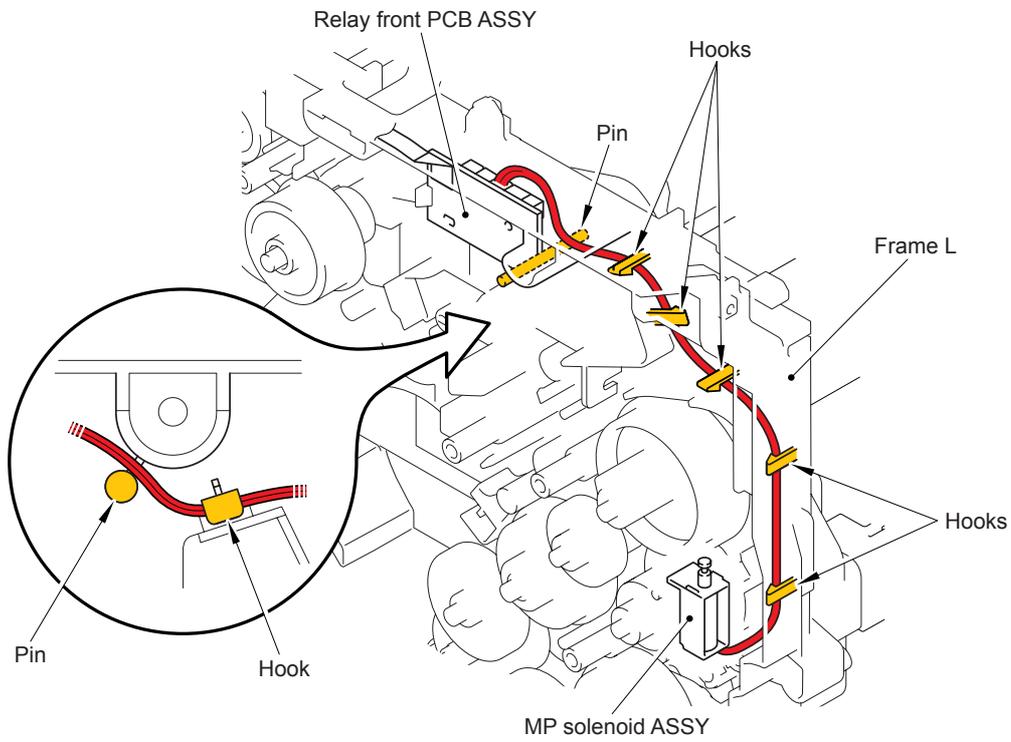
5

Register solenoid ASSY



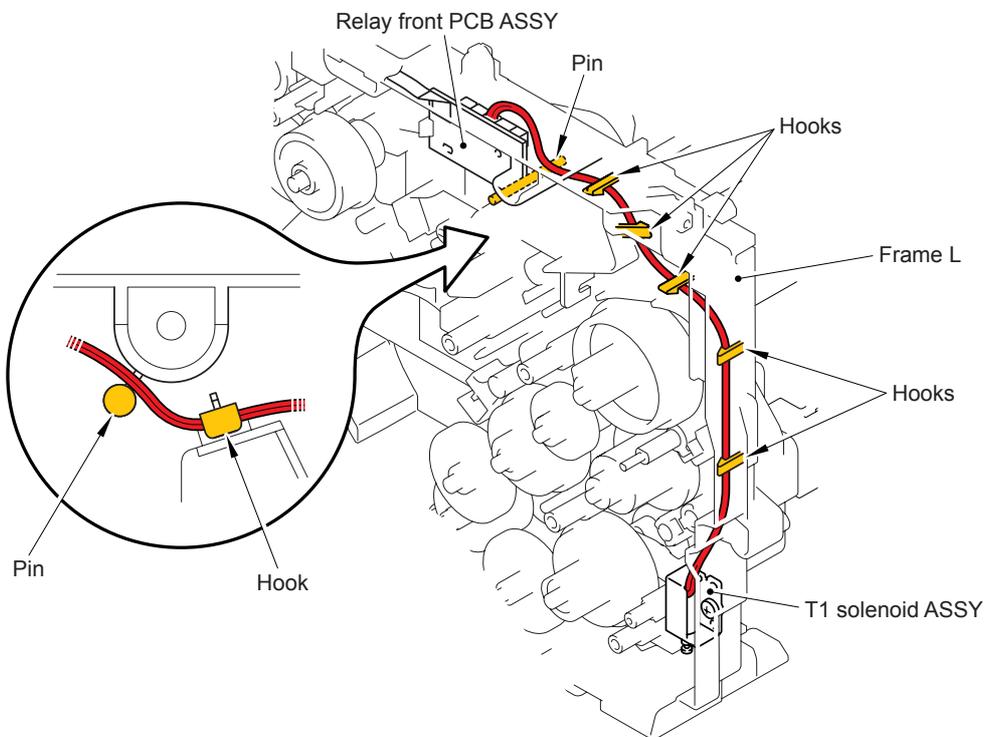
6

MP solenoid ASSY



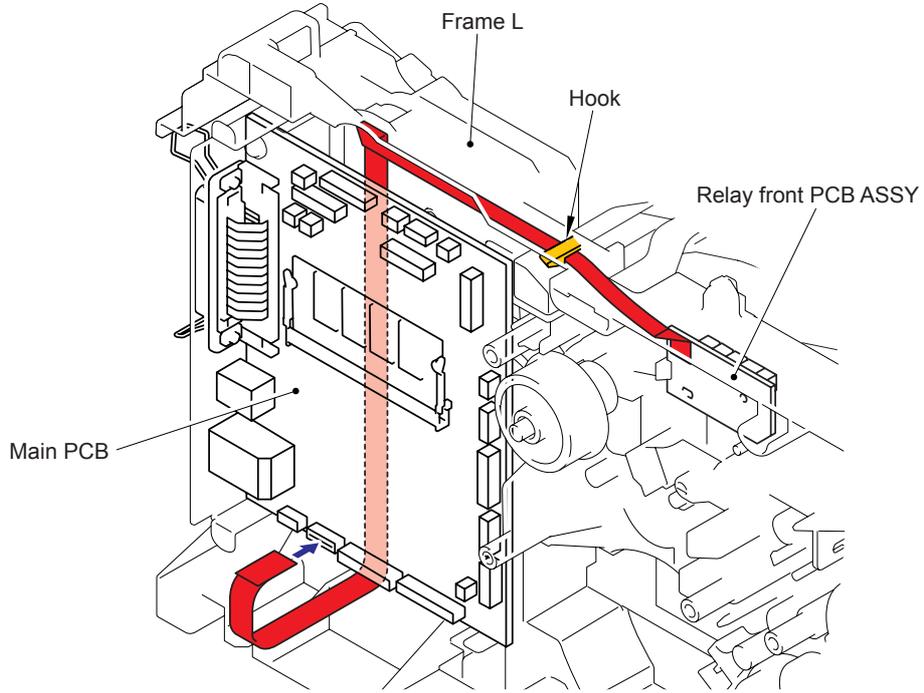
7

T1 solenoid ASSY



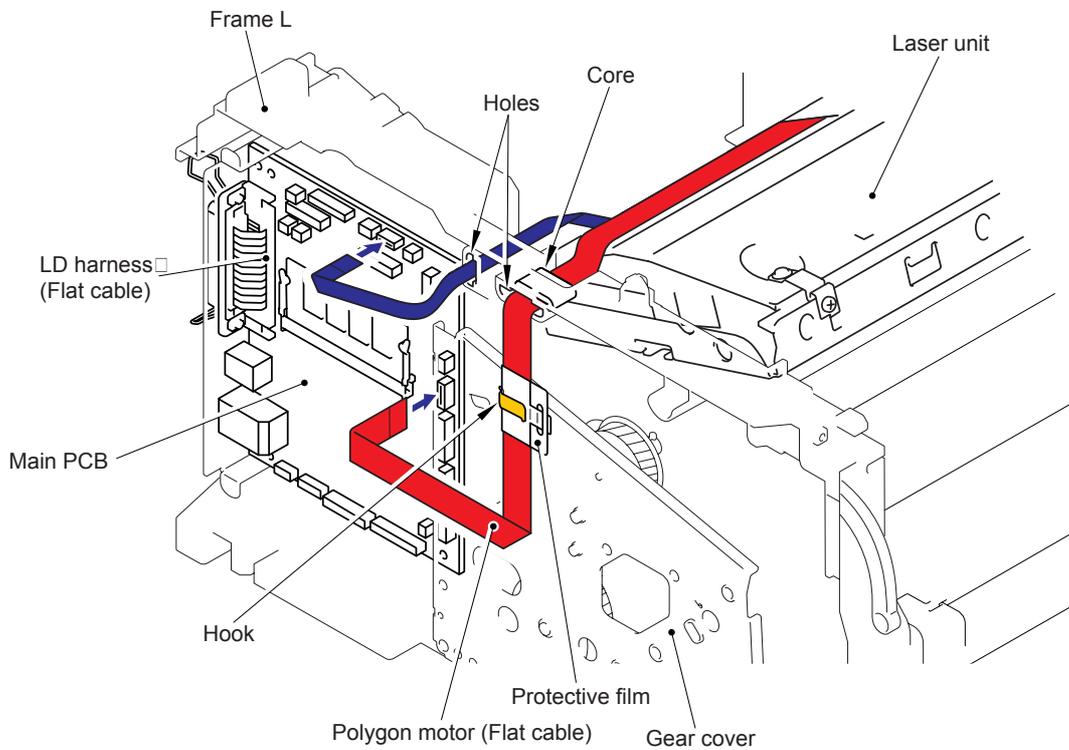
8

Relay front PCB ASSY



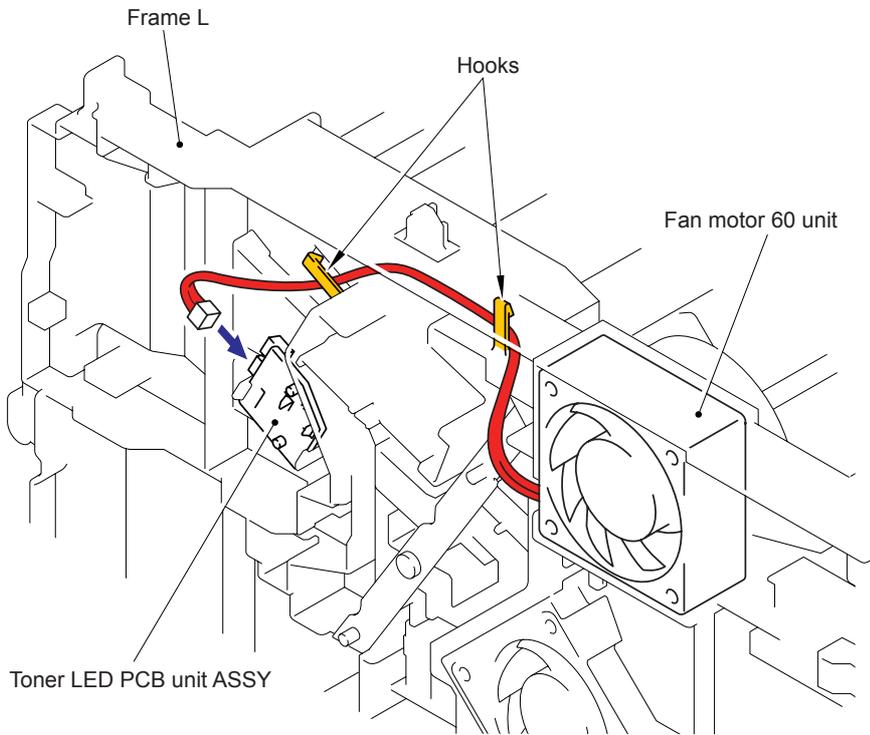
9

Laser unit



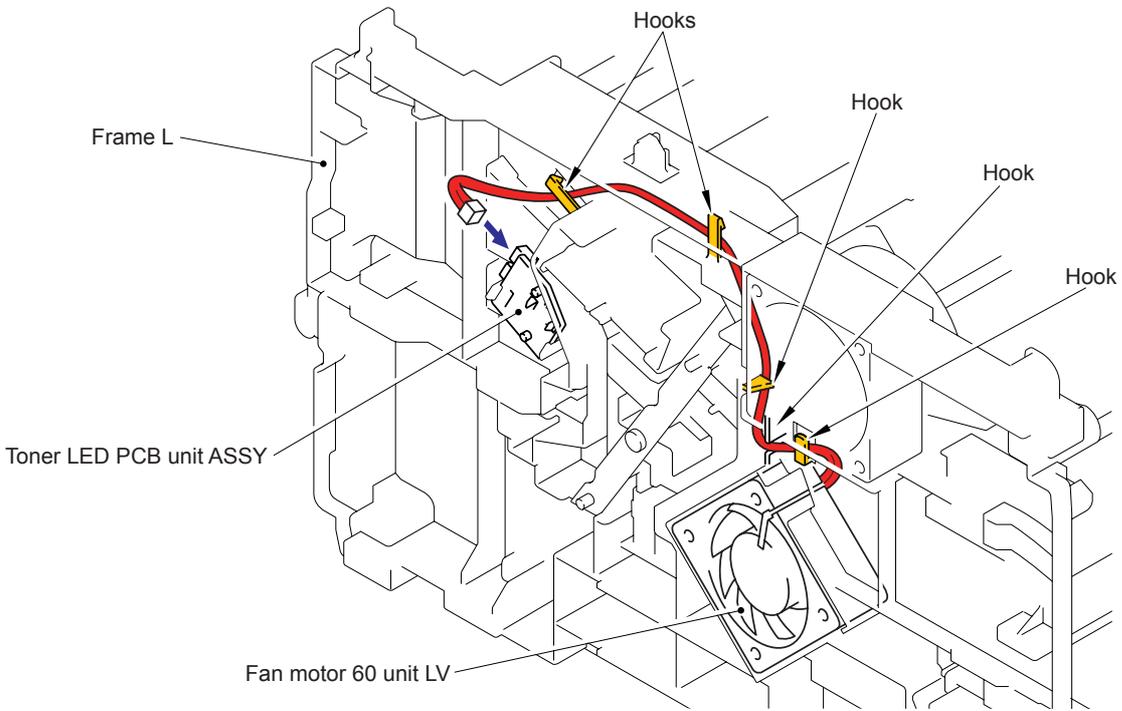
10

Fan motor 60 unit

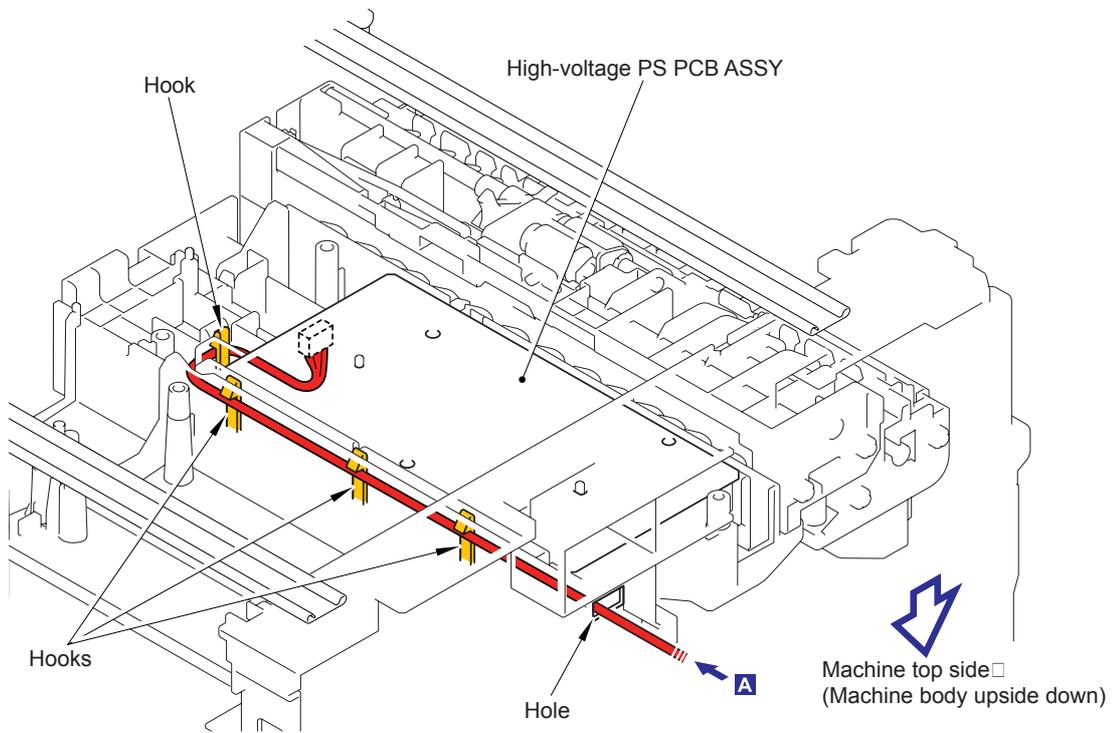
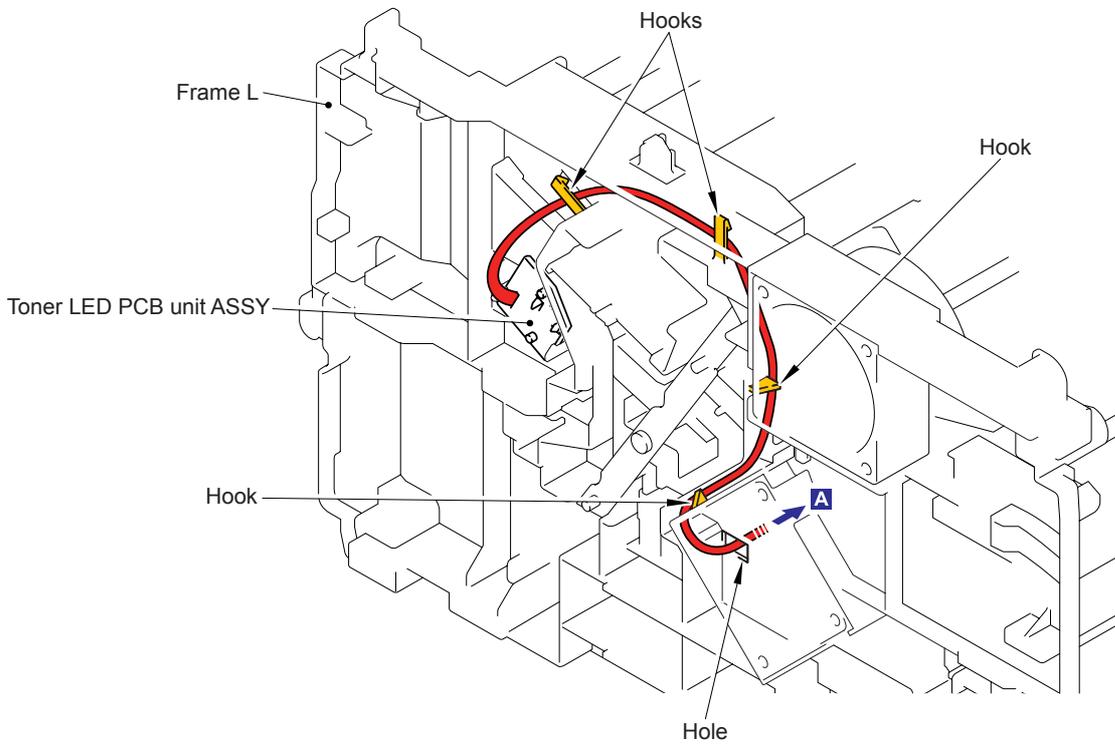


11

Fan motor 60 unit LV

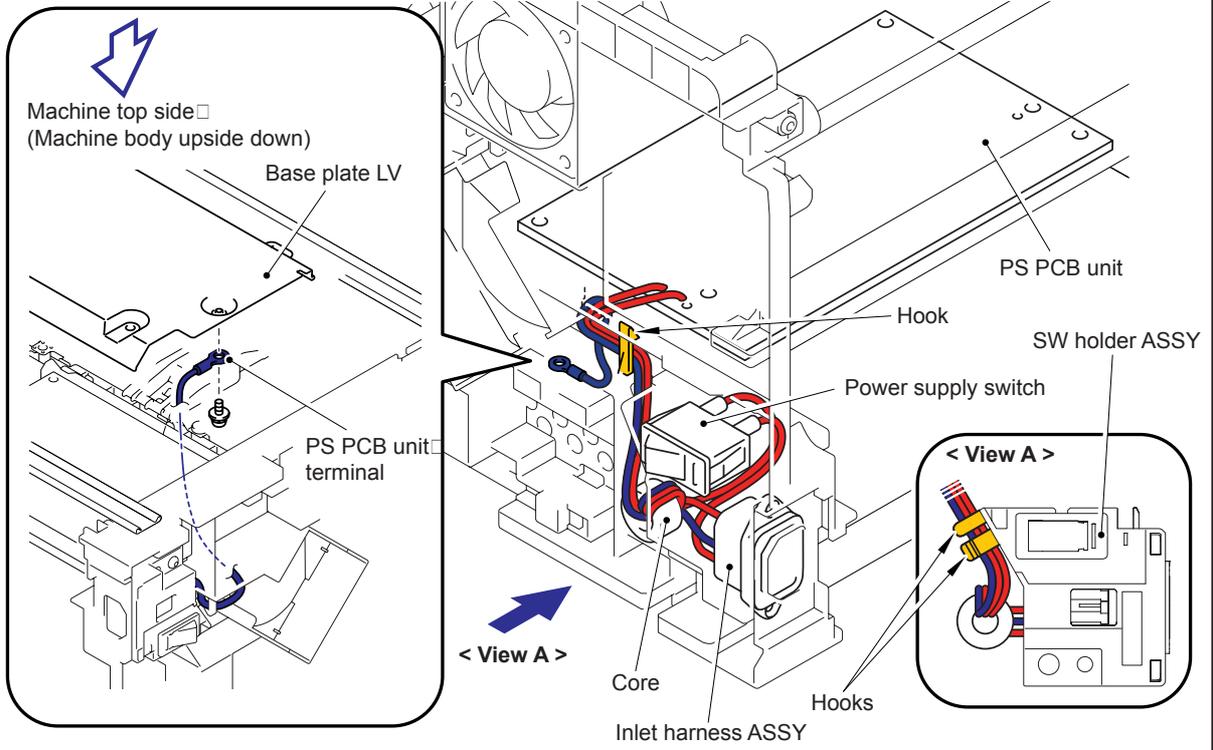


Toner LED PCB unit ASSY



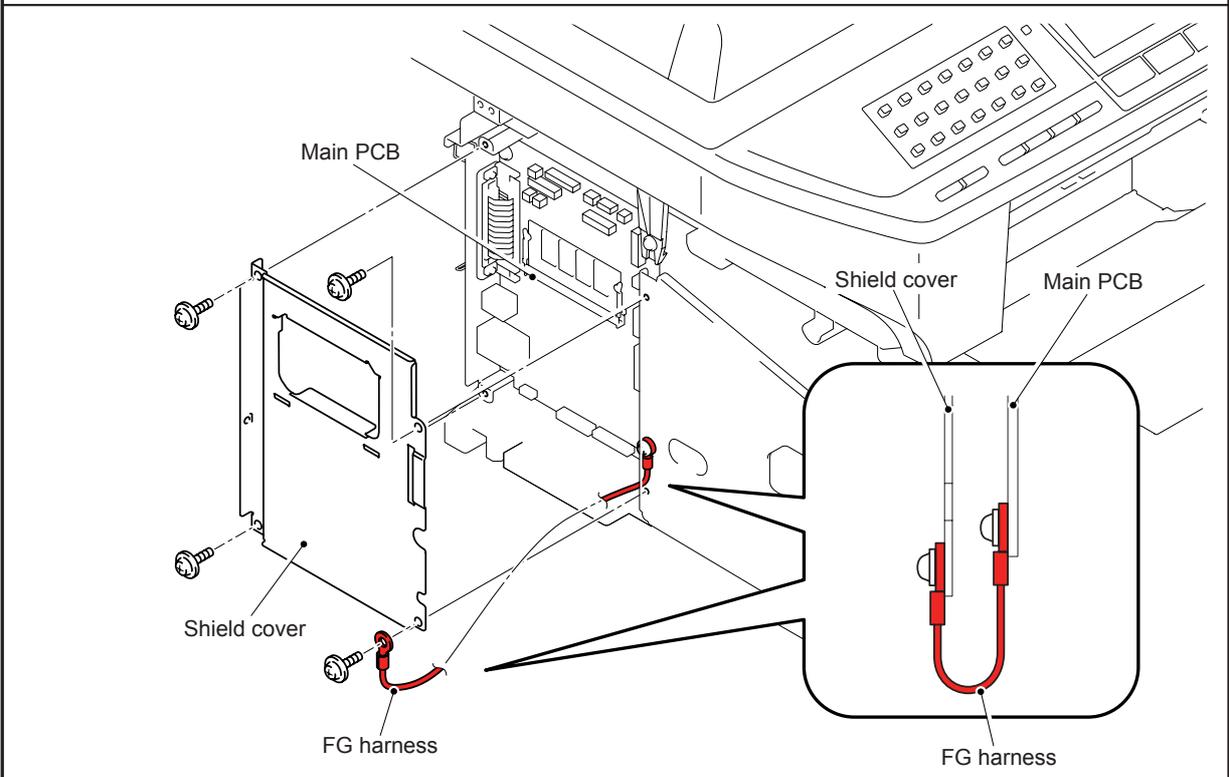
13

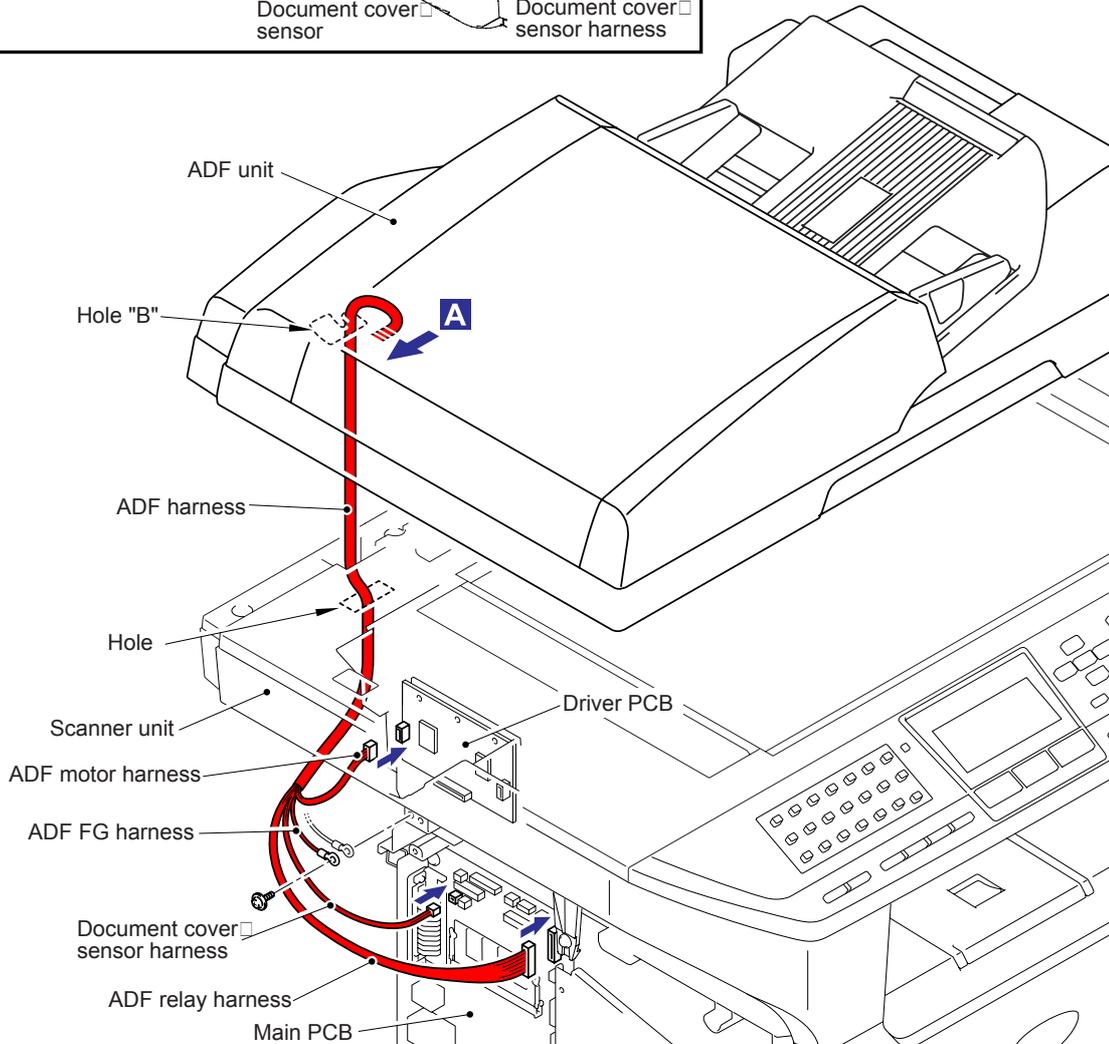
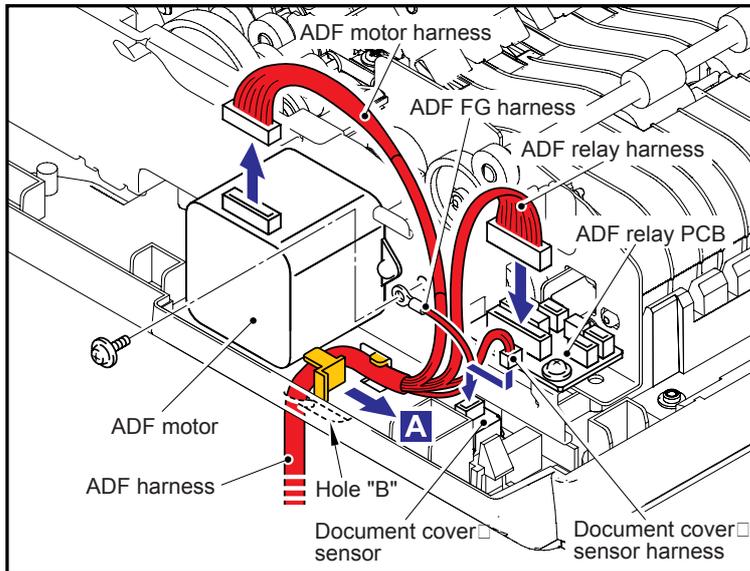
PS PCB unit



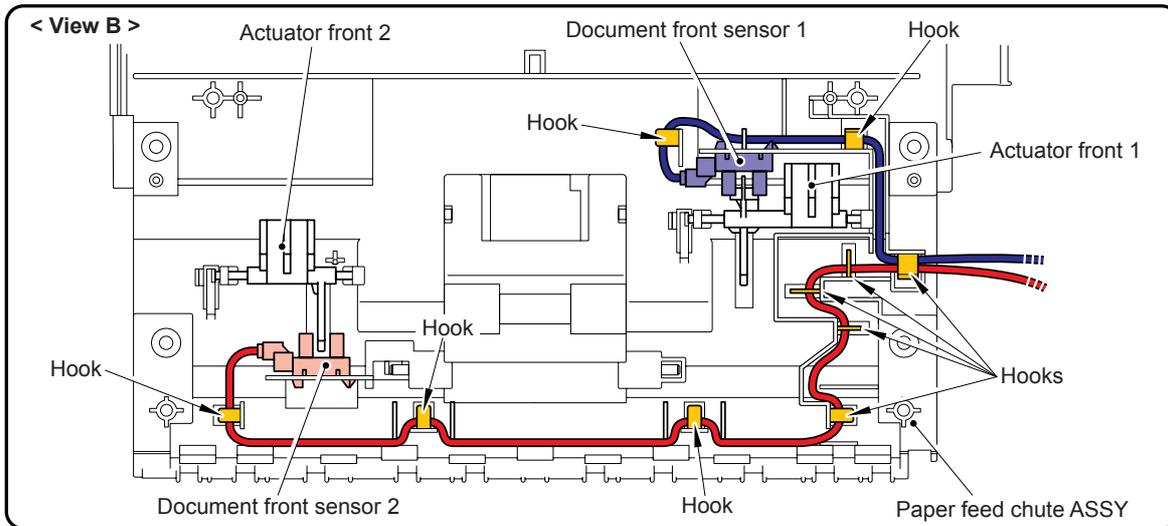
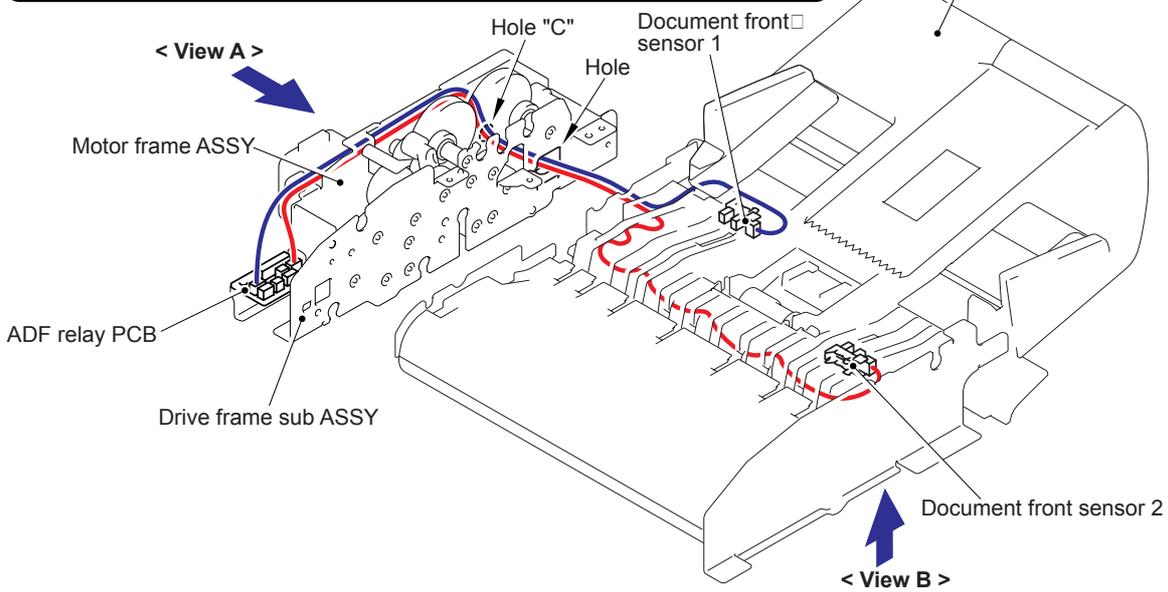
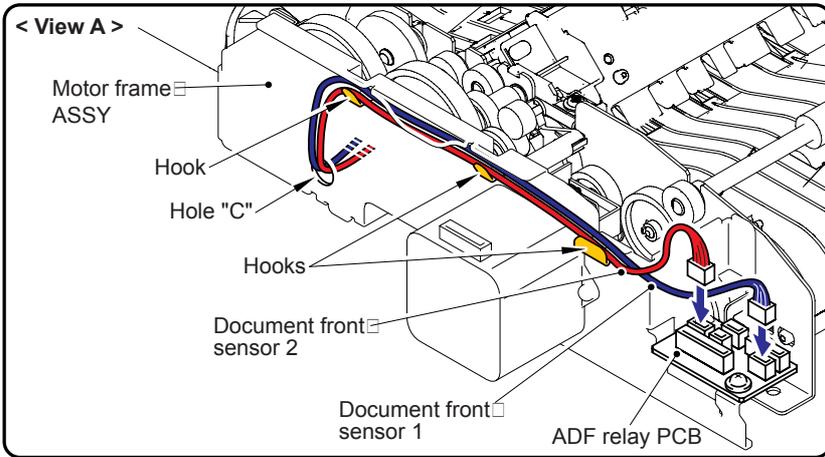
14

FG harness



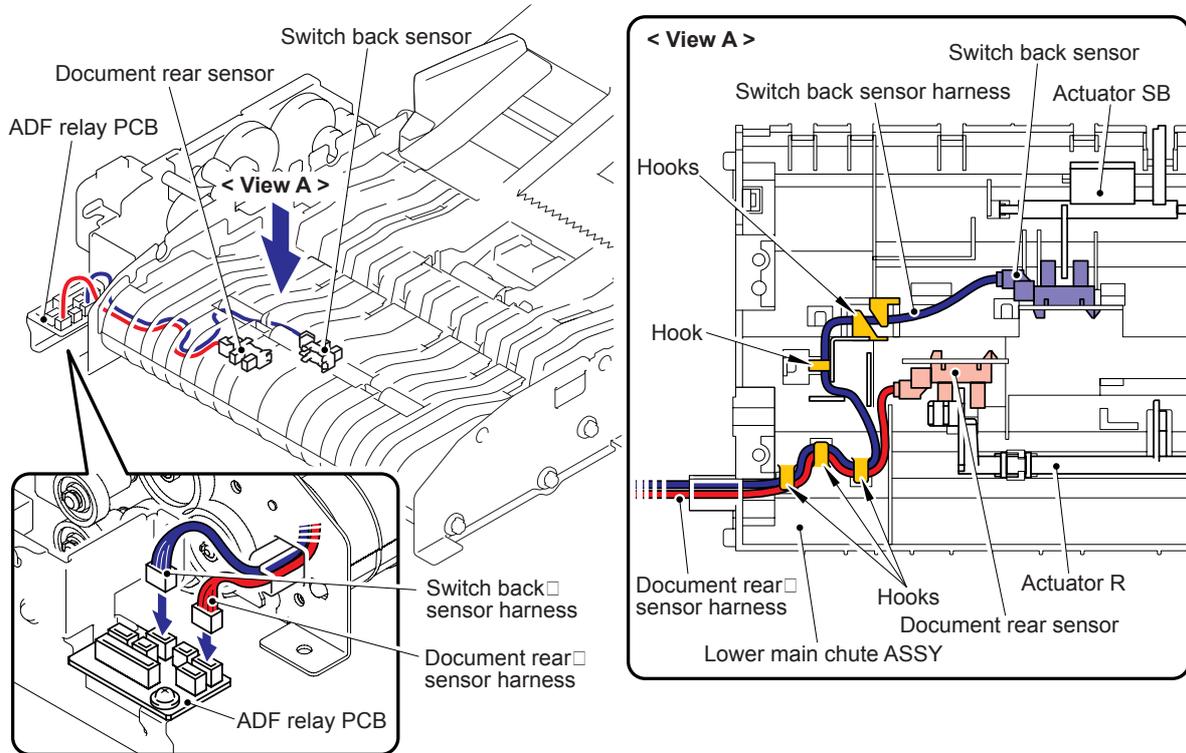


ADF unit (Document front sensor 1 , Document front sensor 2)



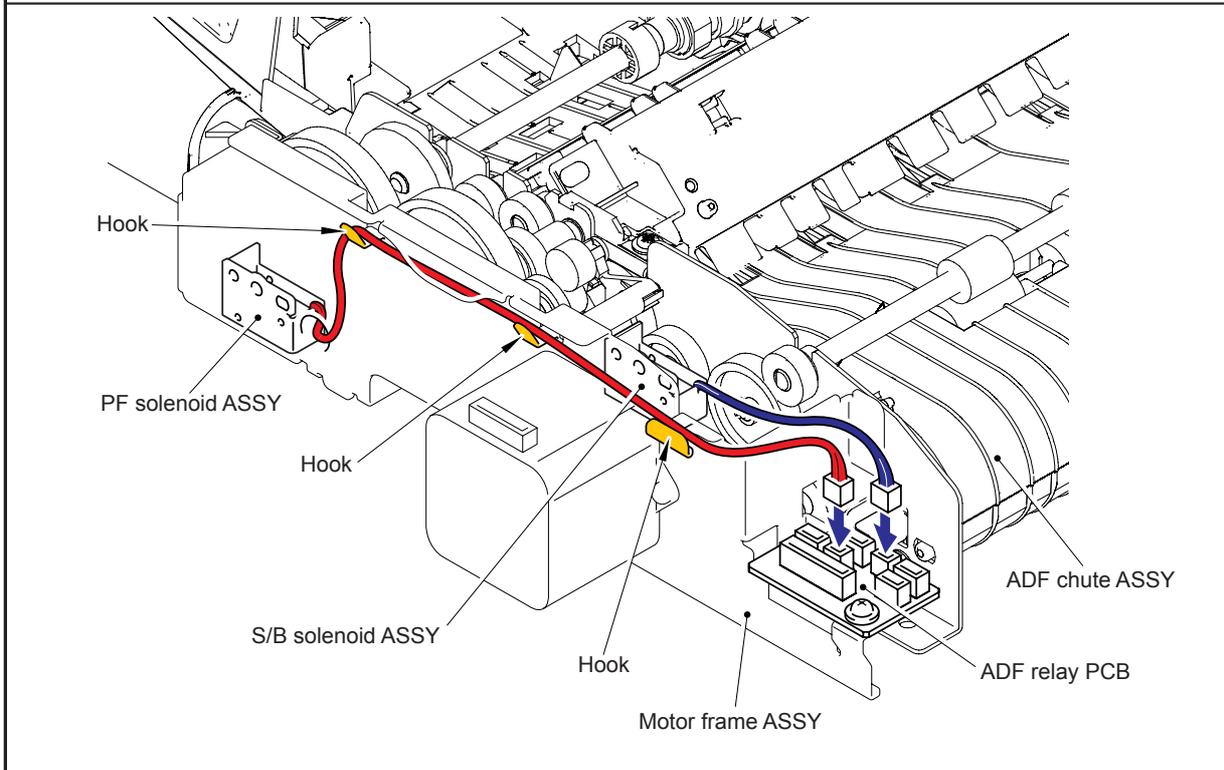
17

ADF unit (Document rear sensor , Switch back sensor)



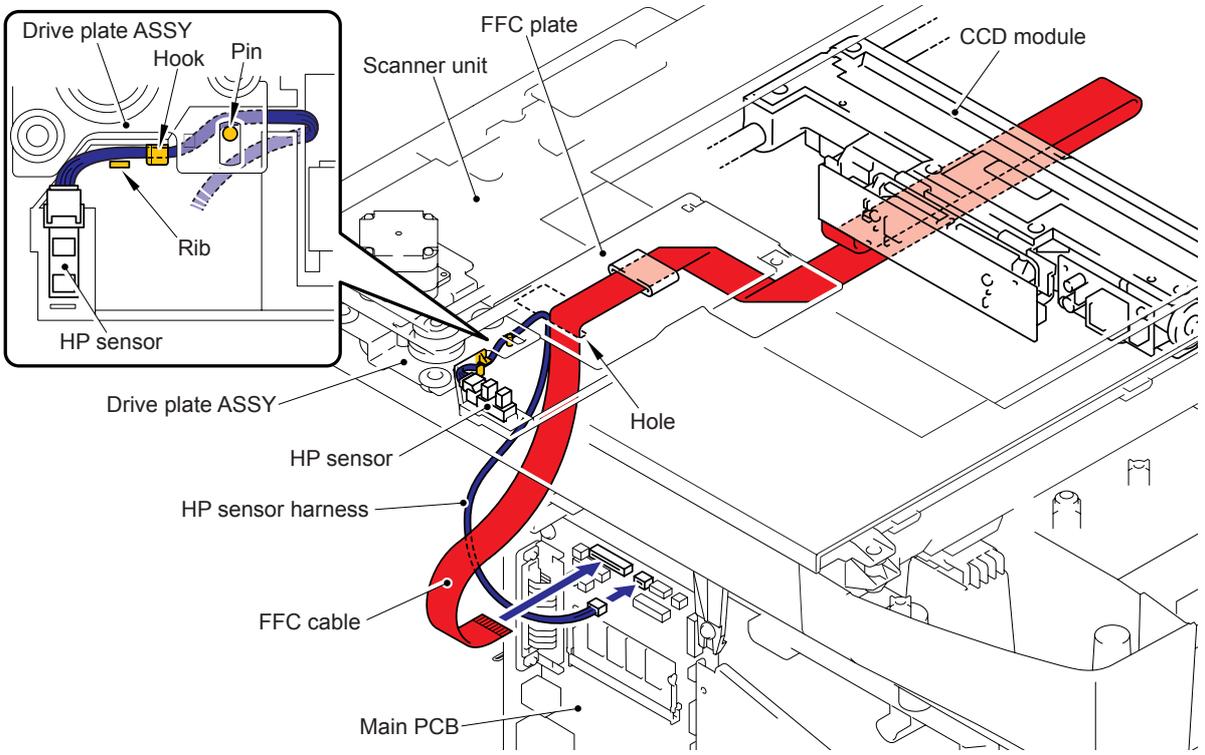
18

ADF unit (S/B solenoid ASSY , PF solenoid ASSY)



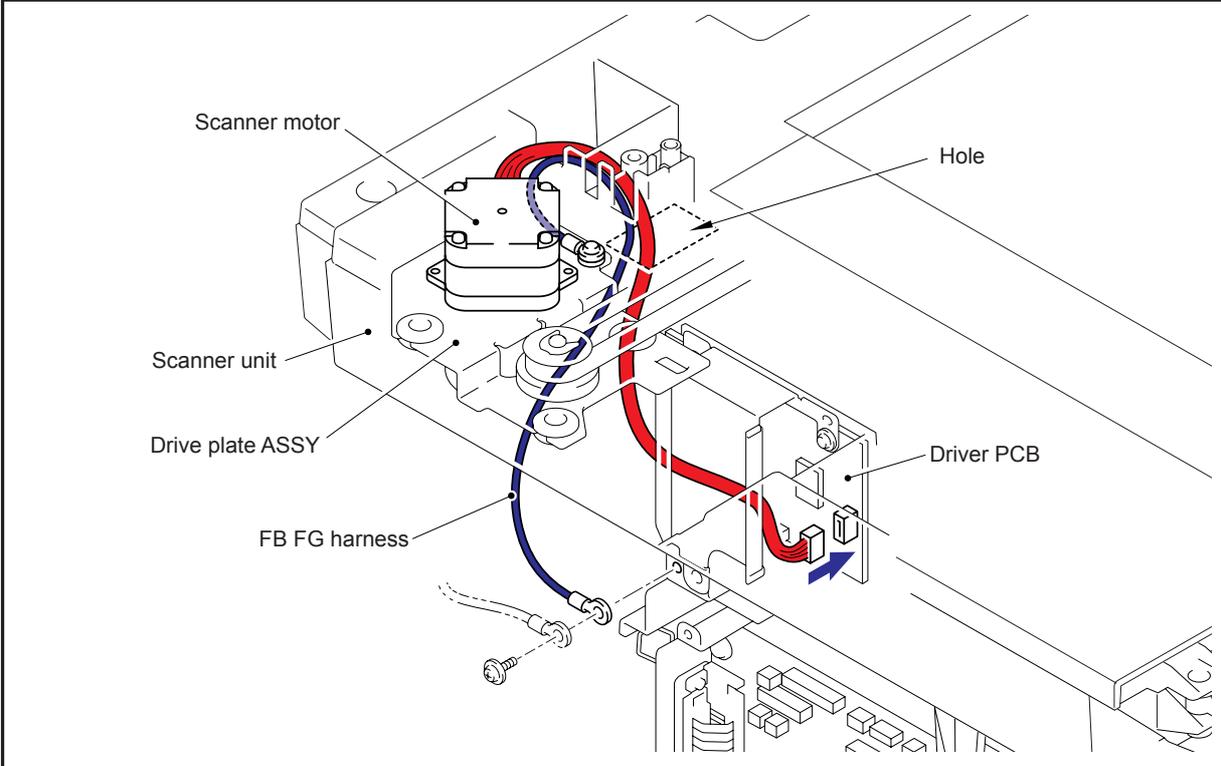
19

Scanner unit (CCD module , HP sensor)



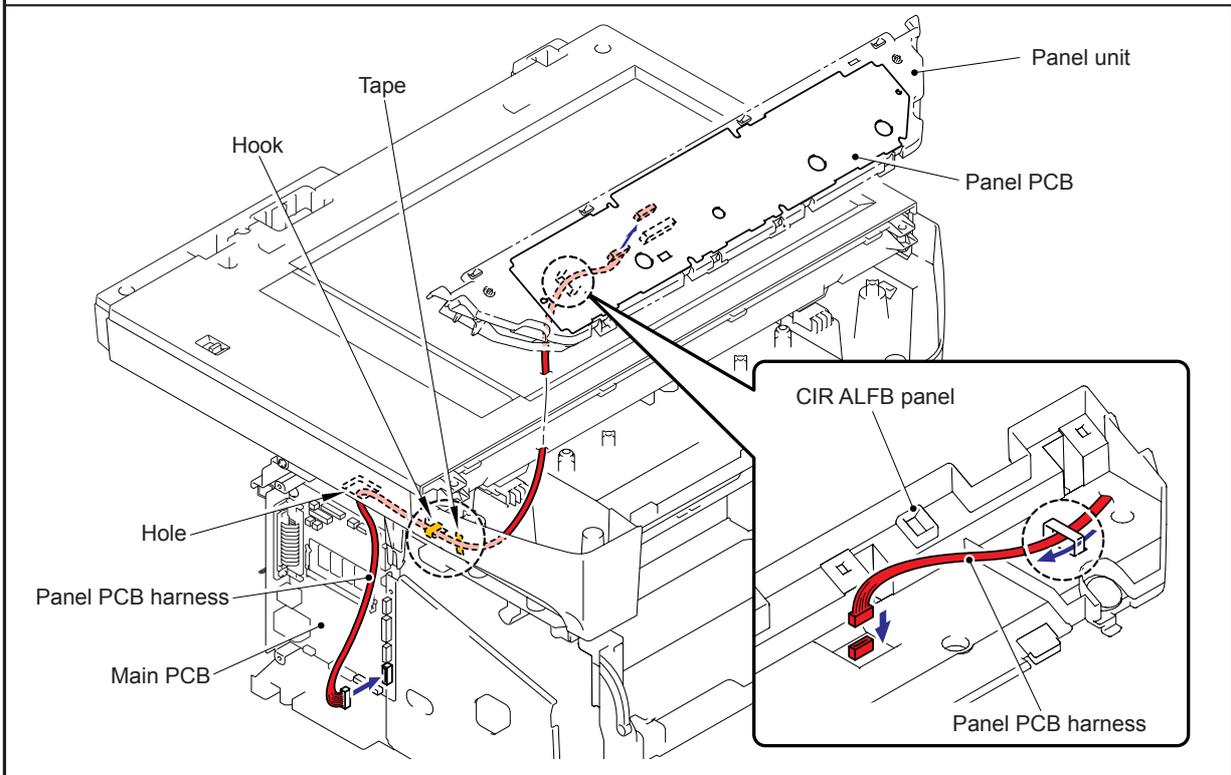
20

Scanner unit (Scanner motor , FB FG harness)



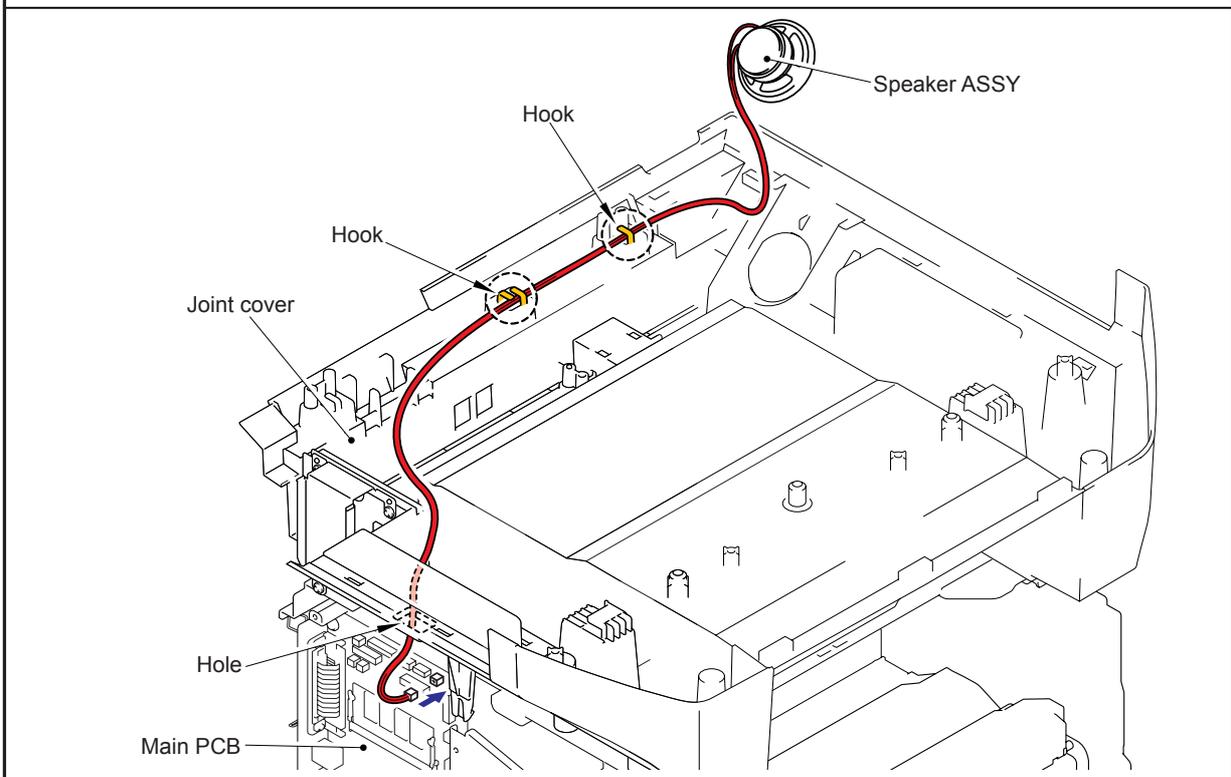
21

Panel unit

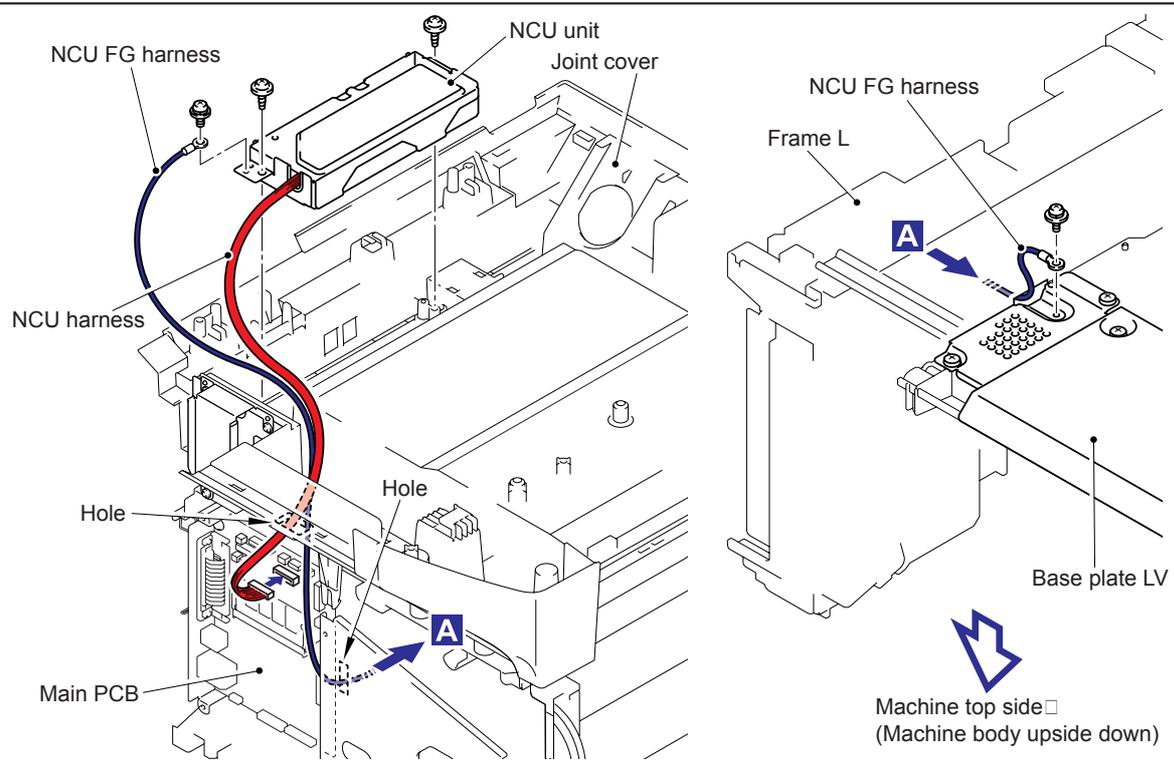


22

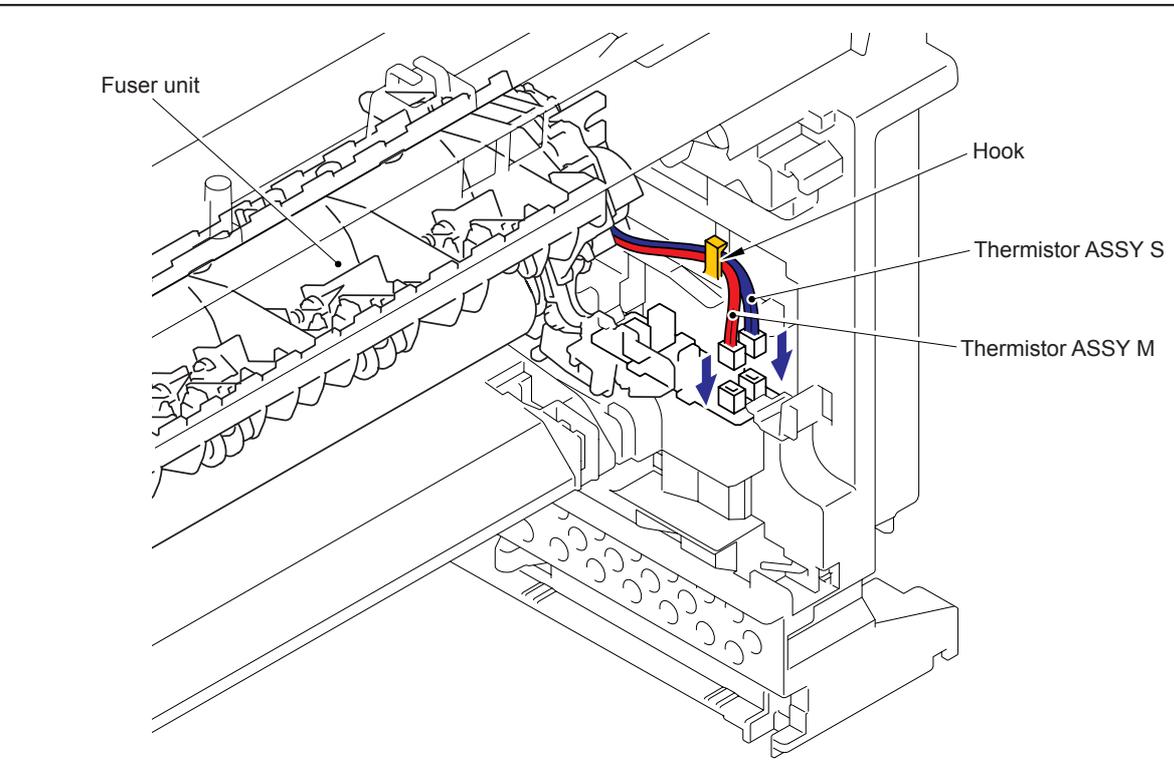
Speaker ASSY



23 NCU unit

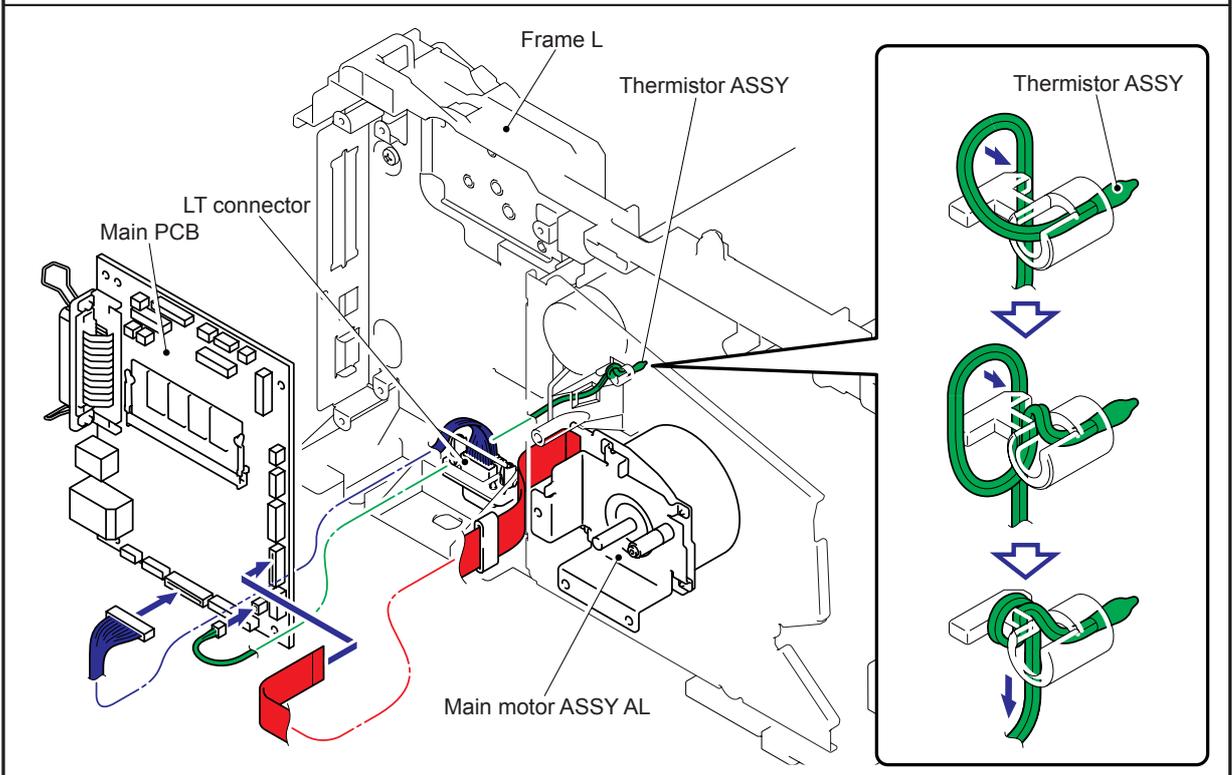


24 Fuser unit



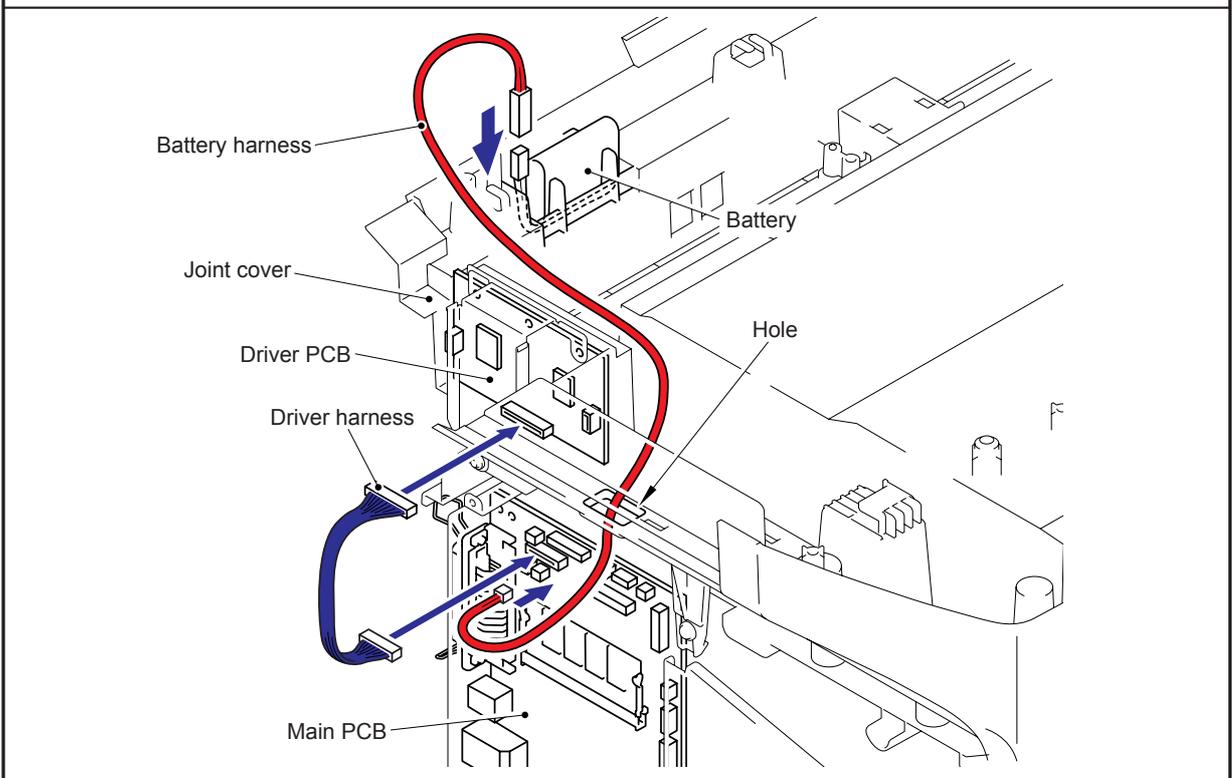
27

Main motor ASSY AL , Thermistor ASSY , LT connector

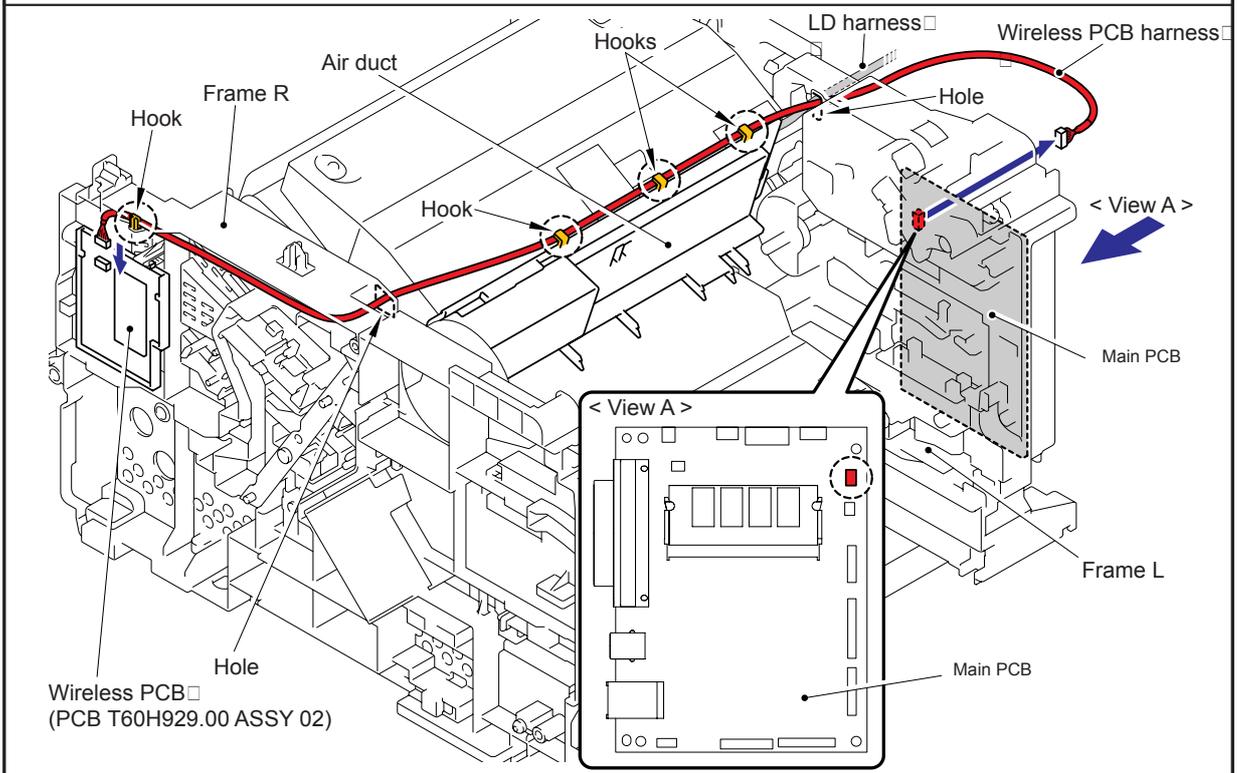


28

Driver PCB , Battery



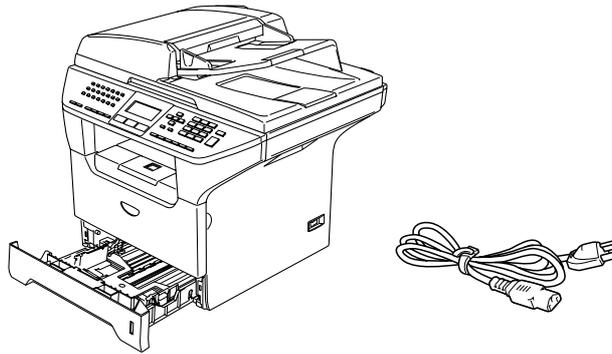
Wireless PCB (PCB T60H929.00 ASSY 02)



Preparation

Prior to proceeding with the disassembly procedure,

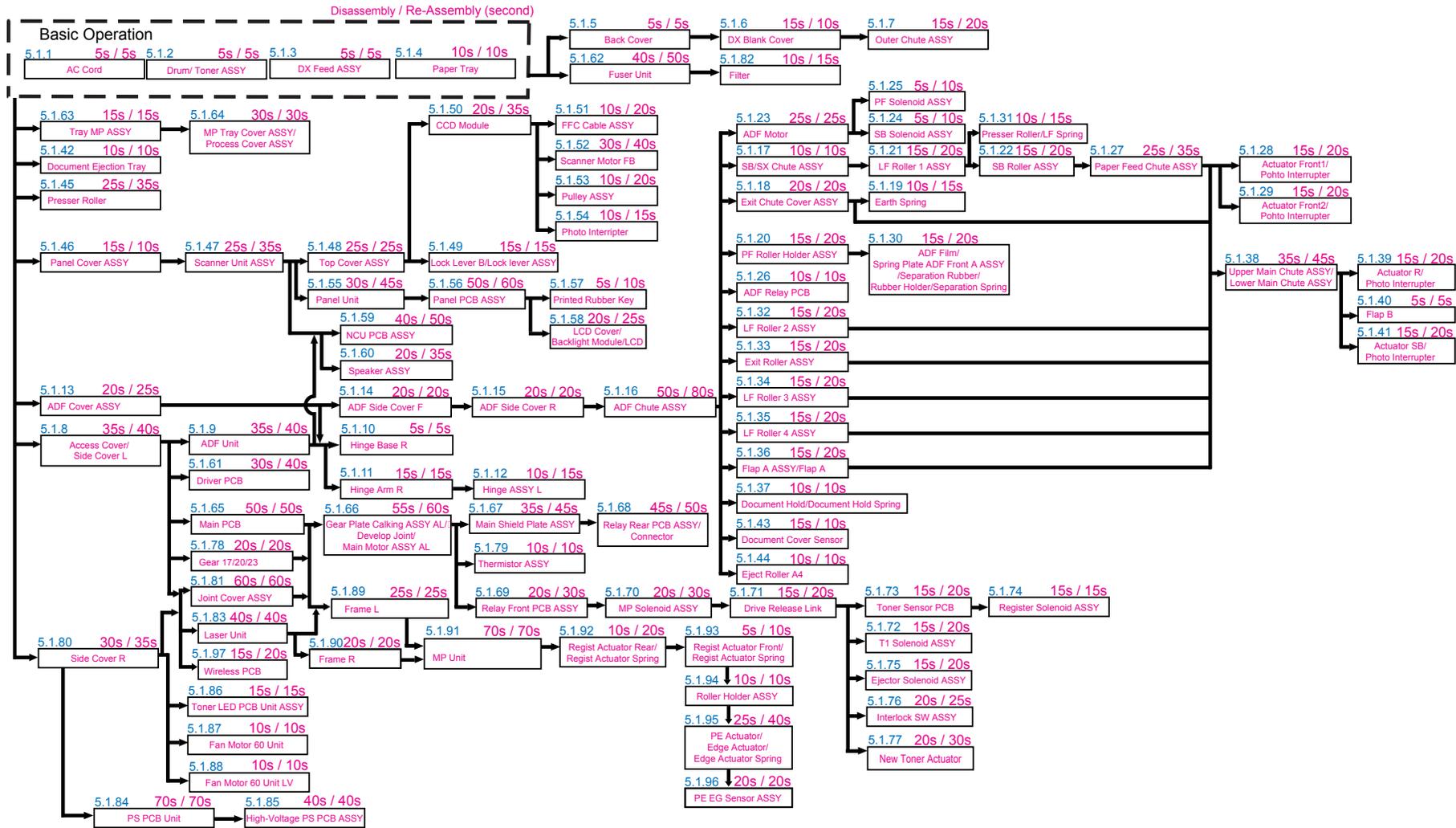
- (1) Unplug
 - the modular jack of the telephone line,
 - the USB cable, if connected (not shown below), and
 - the modular jack of the external telephone set if connected (not shown below).



How to Access the Object Component

- On the next page is a disassembly flowchart which helps you access the object components. To remove the scanner motor FB, for example, first find it on the flowchart and note its number (5.1.52 in this case). To access it, you need to remove all the parts above the fixing unit on the flowchart (5.1.46, 5.1.47, 5.1.48 and 5.1.50 in this case) before the unit itself can be removed.
- Unless otherwise specified, all parts should be replaced in the reverse order to which they were removed to reassemble the machine.

Disassembly Flowchart



5.1.1 AC Cord

- (1) Disconnect the AC cord from the Machine.

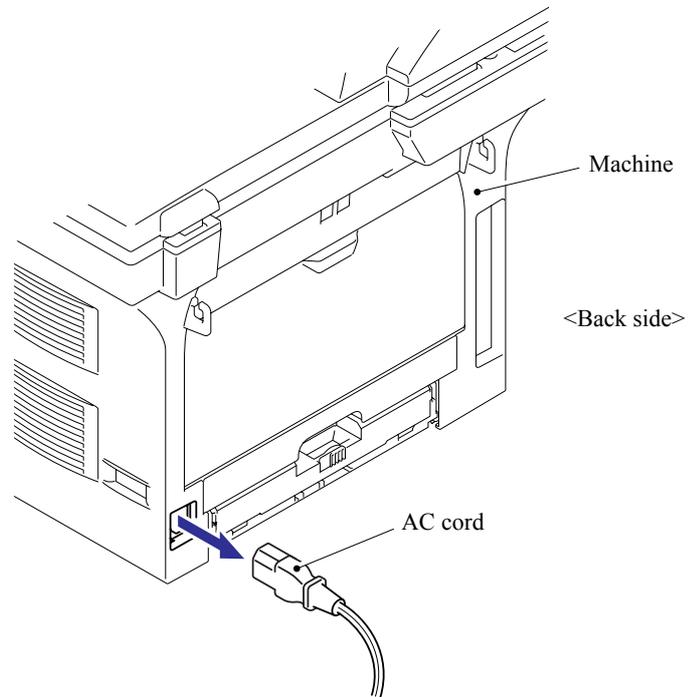


Fig. 5-1

5.1.2 Drum/Toner ASSY

- (1) Press the cover release lever.
- (2) Open the Front cover.
- (3) Take out the Drum/toner ASSY.

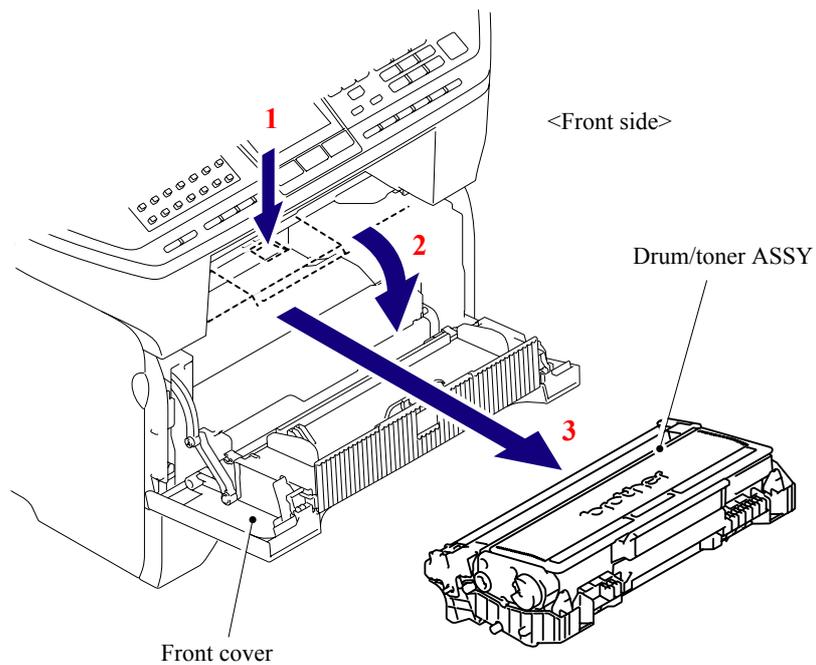


Fig. 5-2

5.1.3 DX Feed ASSY (For the models with the DX only)

- (1) Remove the DX feed ASSY.

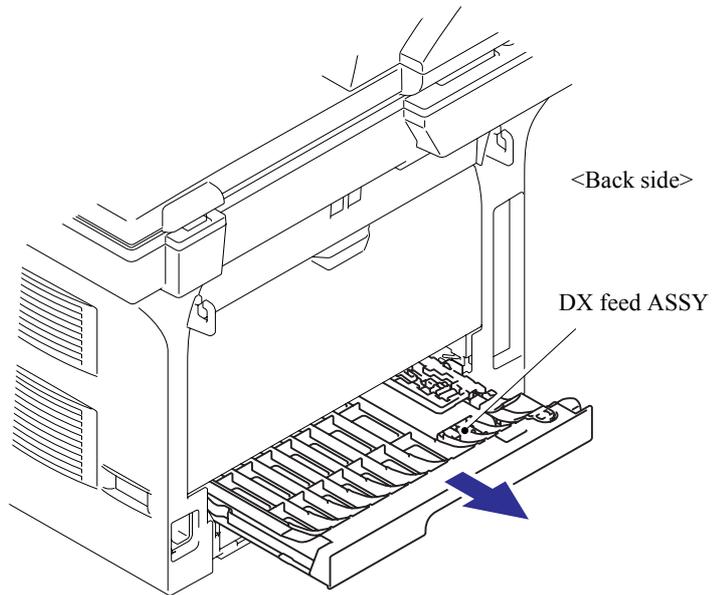


Fig. 5-3

5.1.4 Paper Tray

- (1) Close the Front cover.
- (2) Pull out the Paper tray.
- (3) Remove the recording paper if it is remained in the Paper tray.

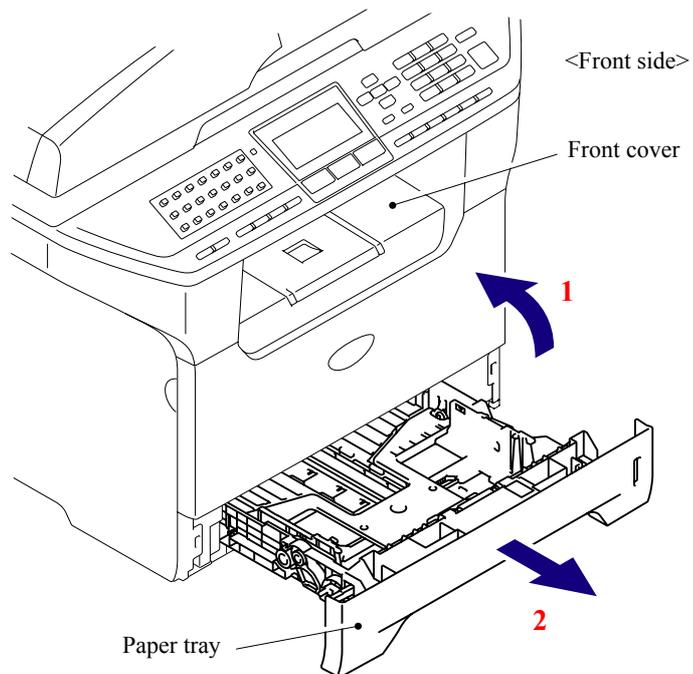


Fig. 5-4

- (4) Pull up the back side of the Separation pad ASSY.
- (5) Push the Hooks provided on both sides of the Separation pad ASSY inwards.
- (6) Pull up the Separation pad ASSY.

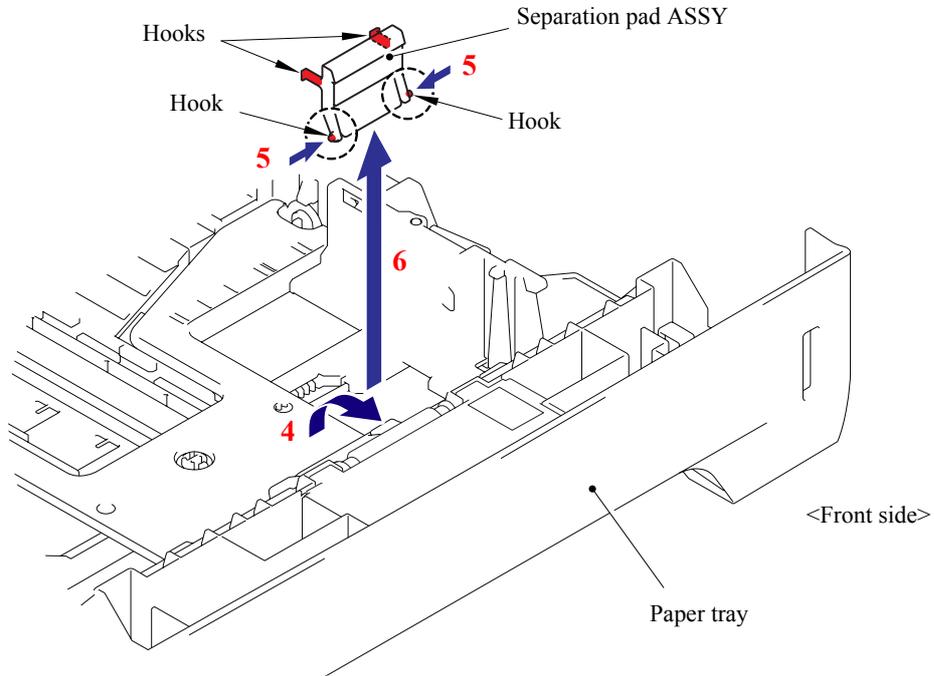


Fig. 5-5

- (7) Pull out the Separation pad spring.

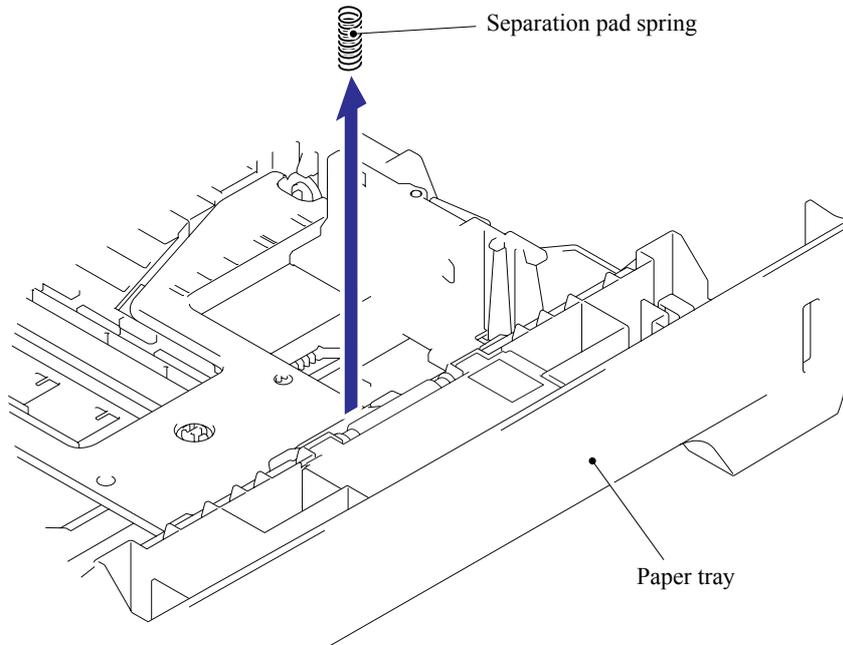


Fig. 5-6

(8) Remove the Lift gear 46.

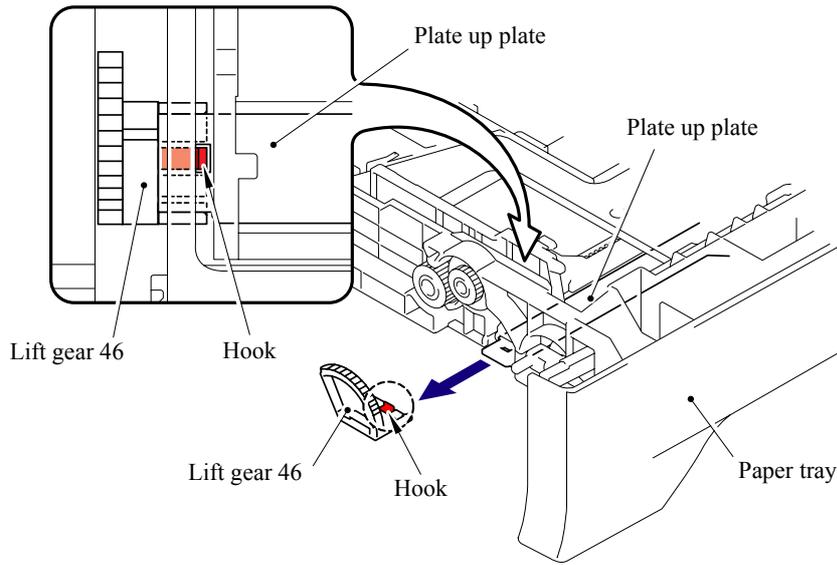


Fig. 5-7

(9) Remove the Gear 21-16.

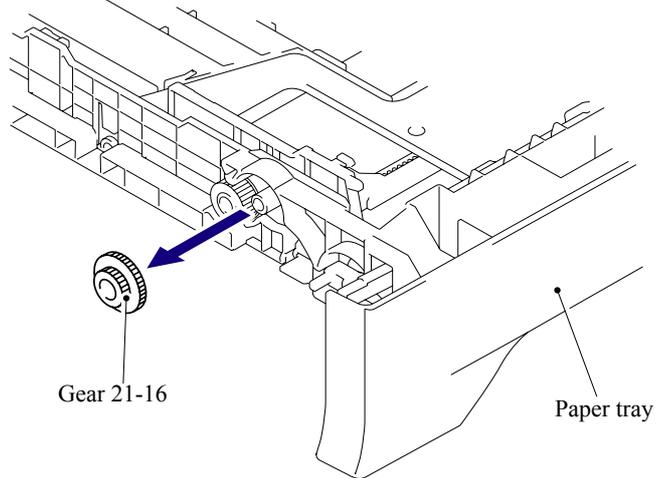


Fig. 5-8

(10) Remove the Gear 15.

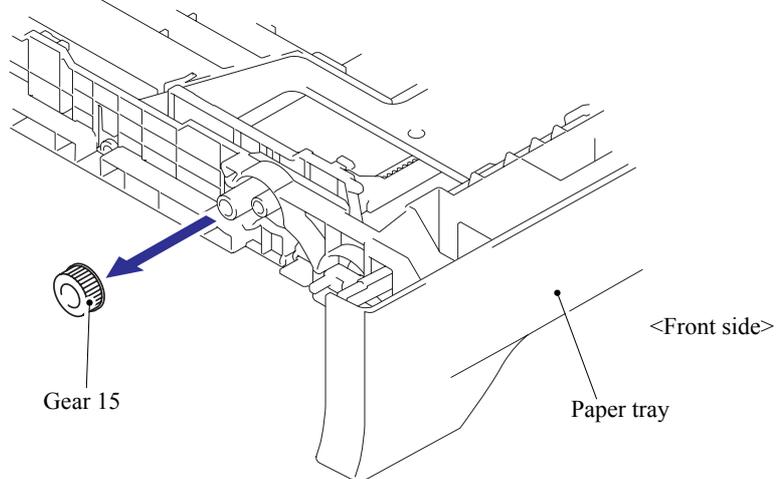


Fig. 5-9

5.1.5 Back Cover

- (1) Open the Back cover.
- (2) Remove the Arms of the Back cover from the Pins on the machine body.
- (3) Remove the Back cover.

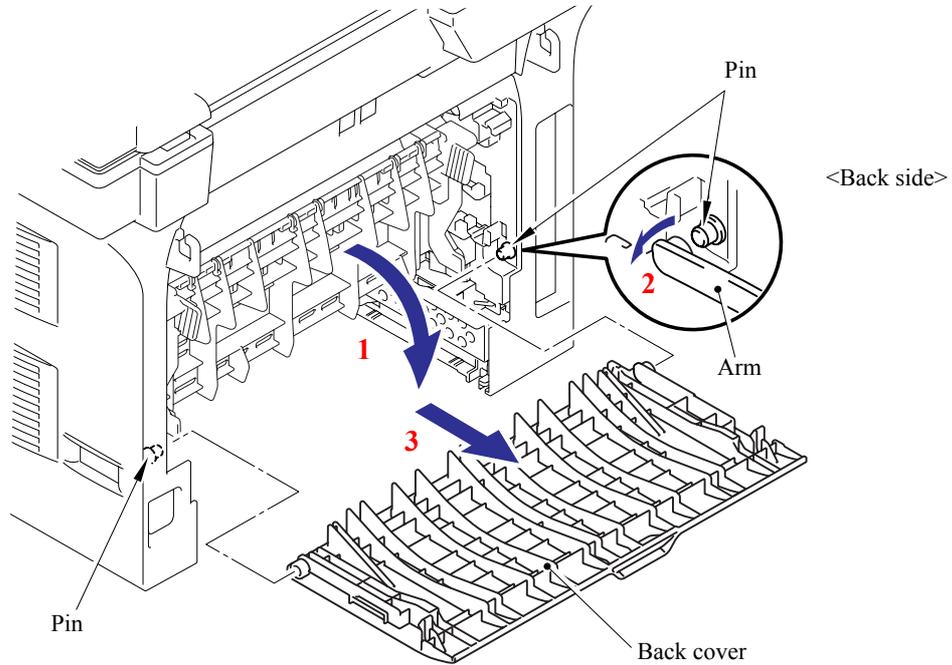


Fig. 5-10

5.1.6 DX Blank Cover (For the models with out the DX only)

- (1) Push the Hooks on both sides of the DX blank cover inwards to release them, and remove the DX blank cover.

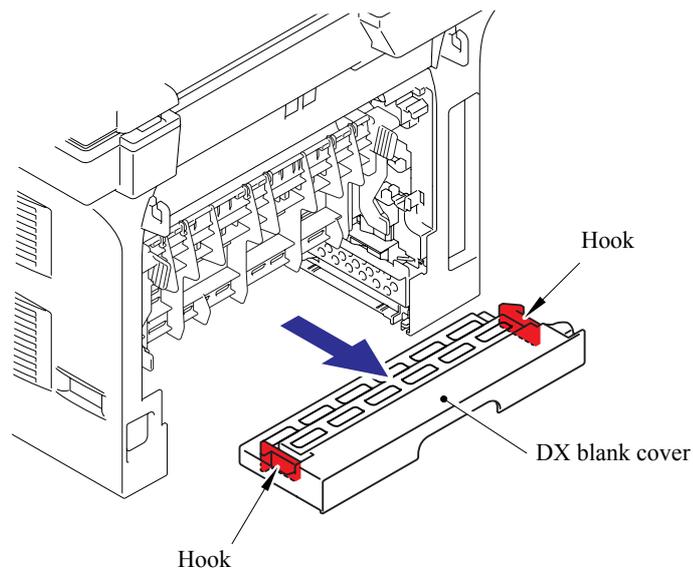


Fig. 5-11

5.1.7 Outer Chute ASSY

- (1) Hold the Knobs on the Outer chute ASSY and pull down the Outer chute ASSY to your side.
- (2) Remove the Arms of the Outer chute ASSY from the Pins on the machine body.
- (3) Remove the Outer chute ASSY.

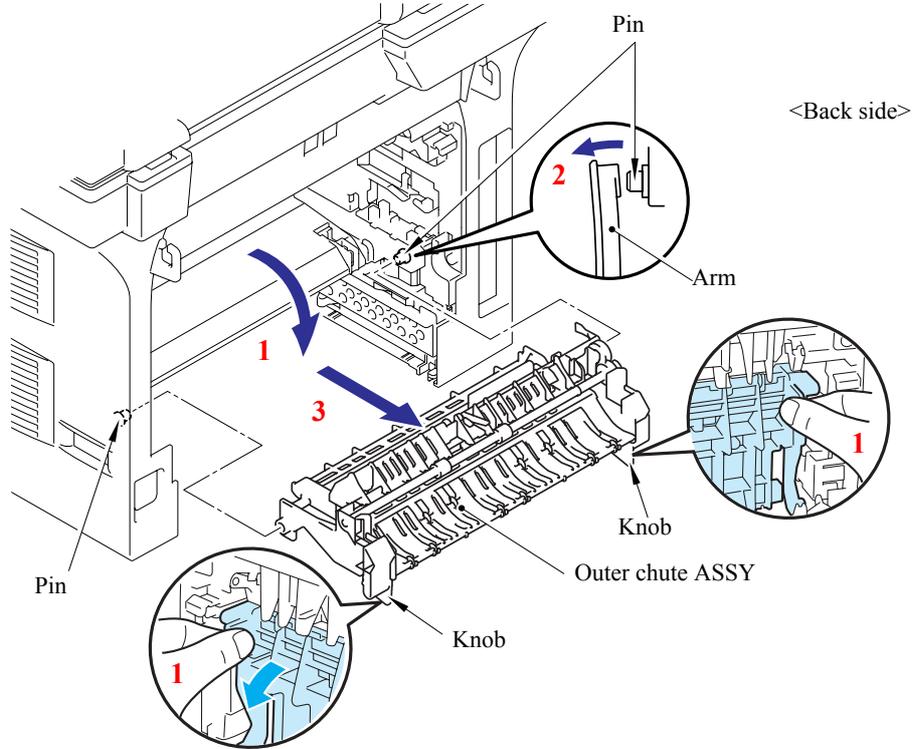


Fig. 5-12

- (4) Remove the bind B M3x8 Taptite screw.
- (5) Lift up the side where the eject actuator is assembled of the Sub outer chute slightly (to the direction of the arrow 5a), and move the Sub outer chute to the direction of the arrow 5b.
- (6) Lift up the Sub outer chute to remove.

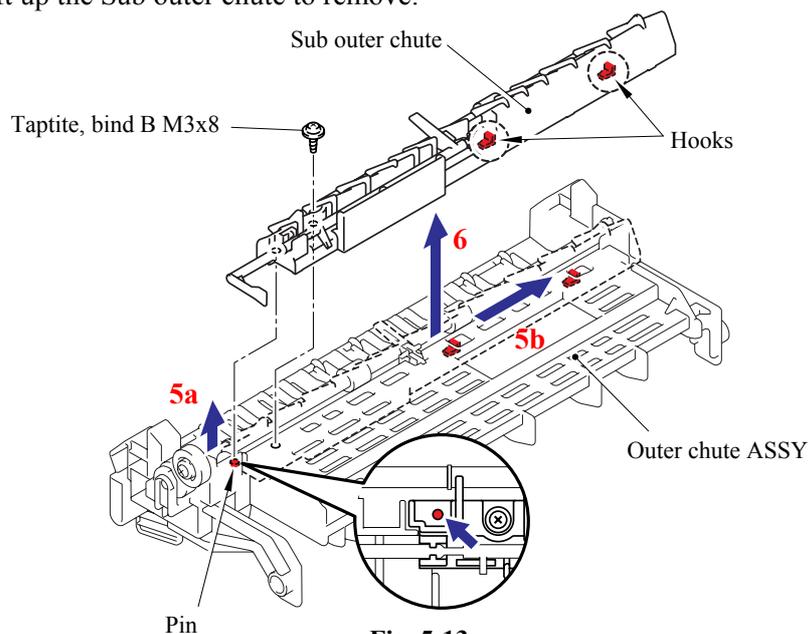


Fig. 5-13

- (7) Push the Hook of the Sub outer chute (indicated by the arrow 7a), and move the Eject actuator to the direction of the arrow 7b.
- (8) Lift up the Eject actuator to remove.
- (9) Remove the Eject actuator spring.

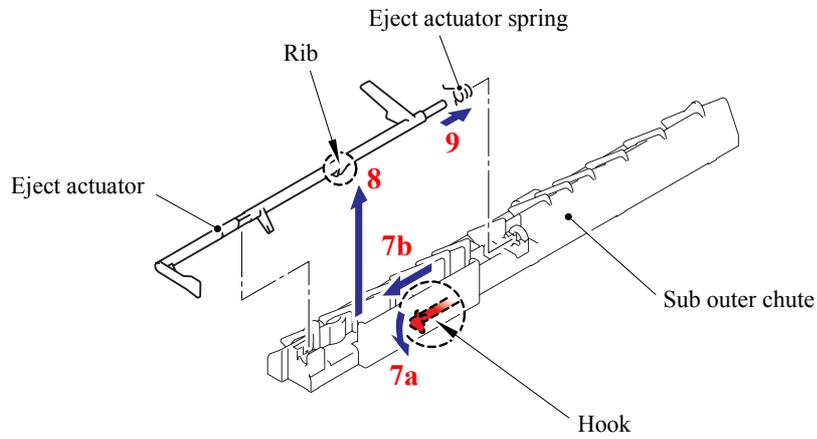


Fig. 5-14

■ Assembling Notes

When assembling the Eject actuator spring, ensure that its direction is correct referring to the figure below.

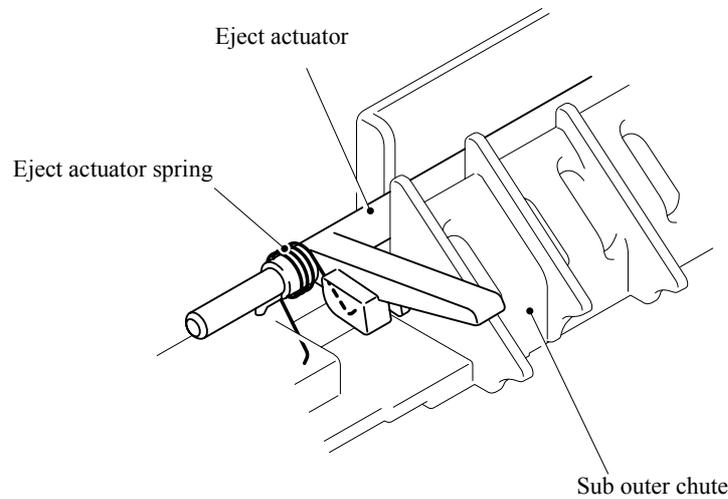


Fig. 5-15

5.1.8 Access Cover/Side Cover L

- (1) Remove the Access cover.

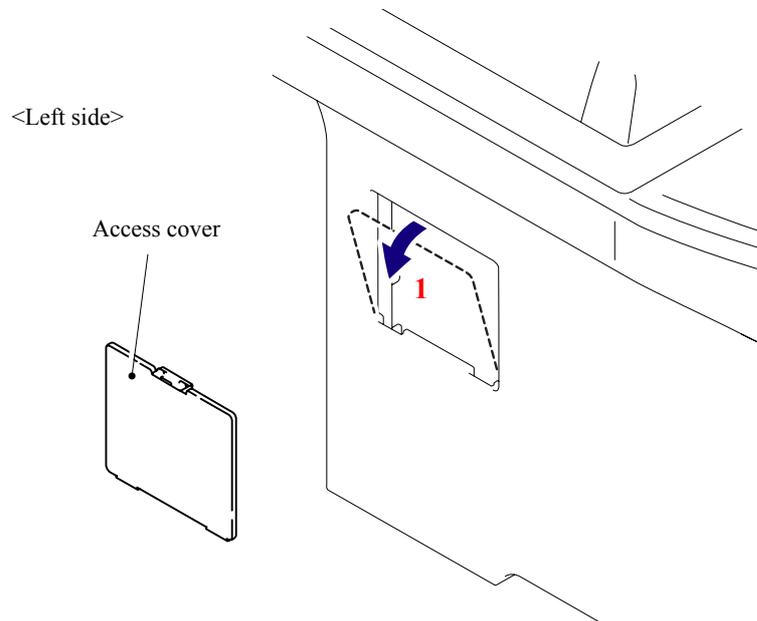


Fig. 5-16

- (2) Open the Front cover, remove the two bind B M4x12 Taptite screws, and then remove the Side cover L by releasing the Hooks in the order of 2a to 2d.

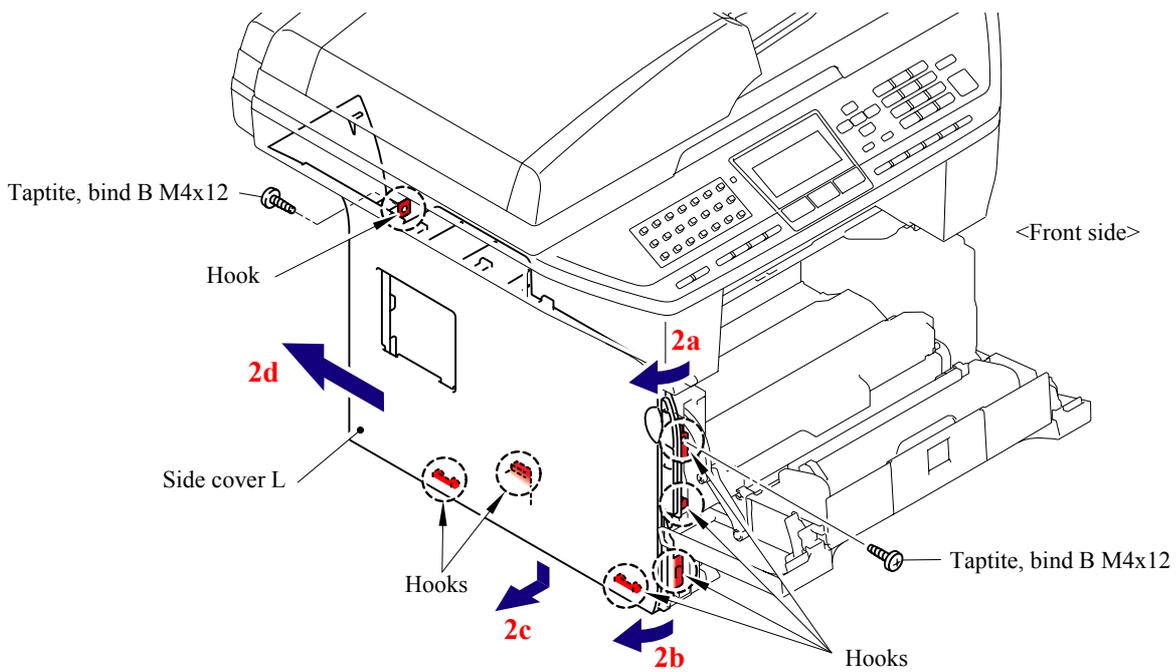


Fig. 5-17

5.1.9 ADF Unit

- (1) Remove the four cup S M3x6 Taptite screws, remove the FG harness and then remove the Shield cover.

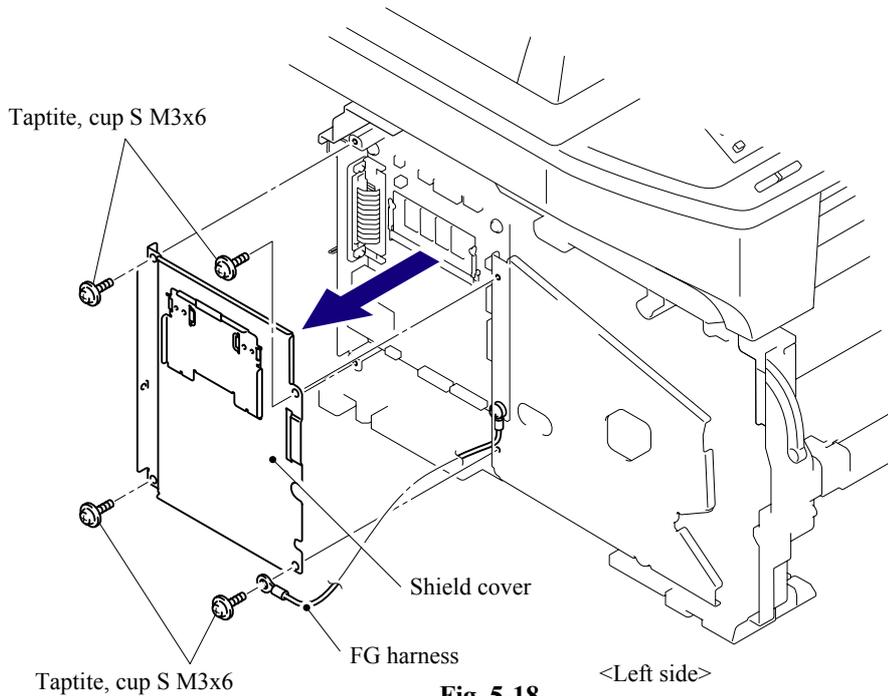


Fig. 5-18

- (2) Remove the cup S M3x6 Taptite screw, remove the ADF FG harness and FB FG harness.
- (3) Disconnect the Connector from the Driver PCB.
- (4) Disconnect the two Connectors from the Main PCB.

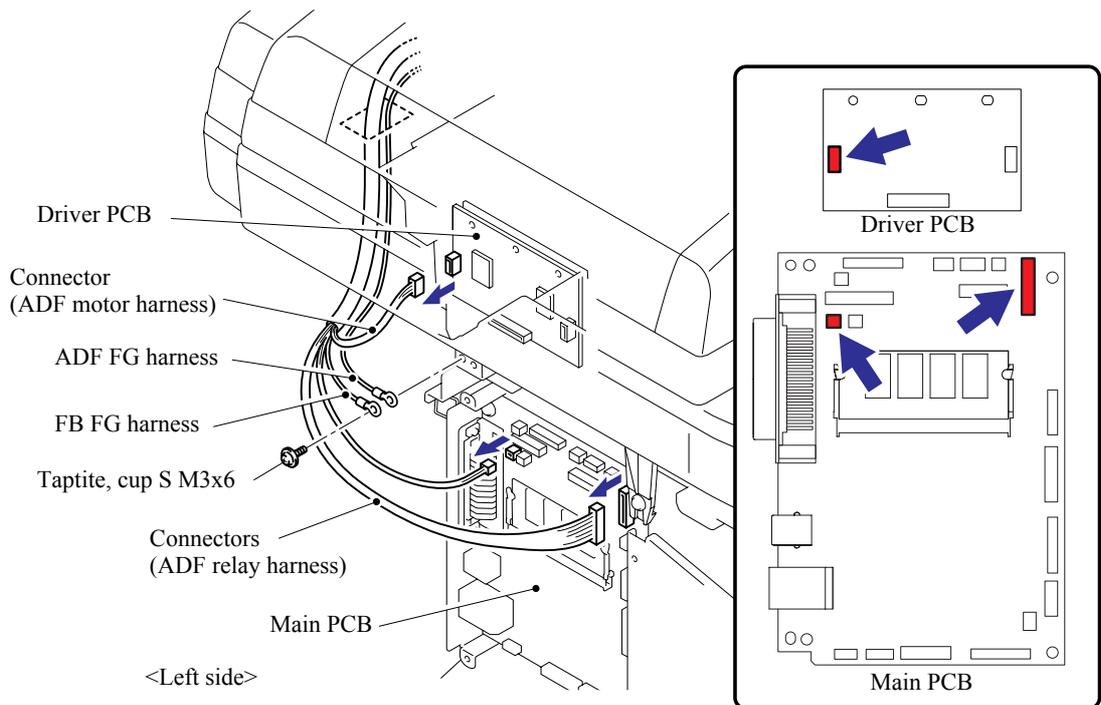


Fig. 5-19

(5) Remove the two bind B M4x12 Taptite screws, and then remove the Document cover.

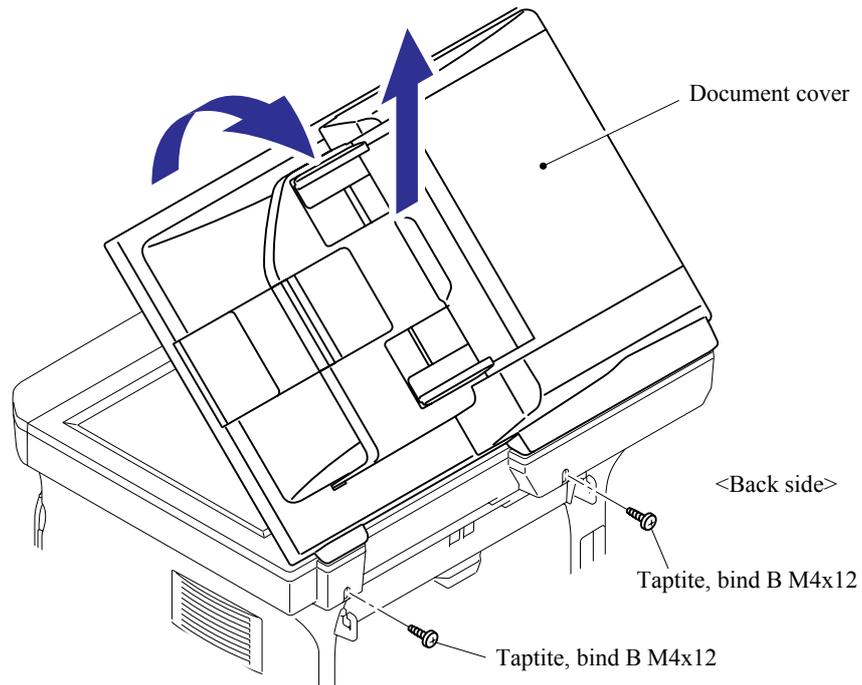


Fig. 5-20

5.1.10 Hinge Base R

(1) Turn the Document cover upside down. Remove the Hinge base R from the Hinge arm R.

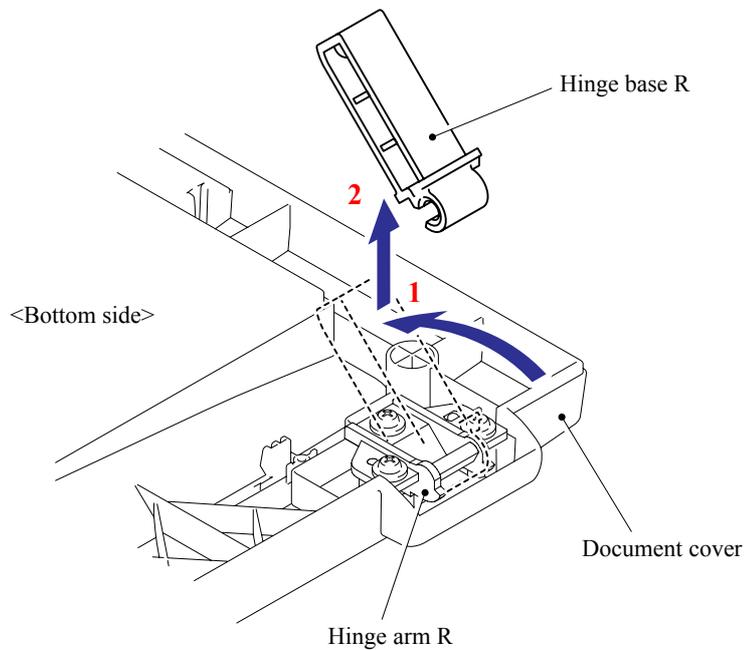


Fig. 5-21

5.1.11 Hinge Arm R

- (1) Remove the three cup B M3x10 Taptite screws, and then remove the Hinge arm R.

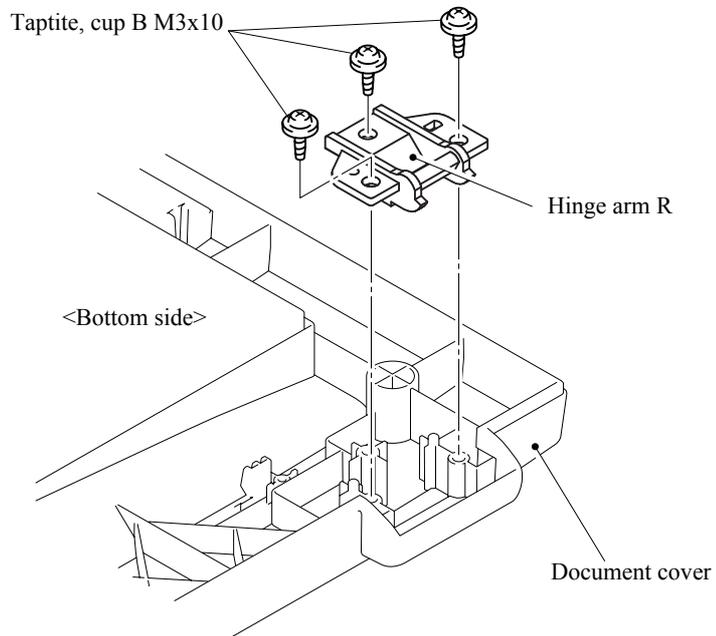


Fig. 5-22

5.1.12 Hinge ASSY L

- (1) Remove the three cup B M3x10 Taptite screws, and then remove the Hinge ASSY L.

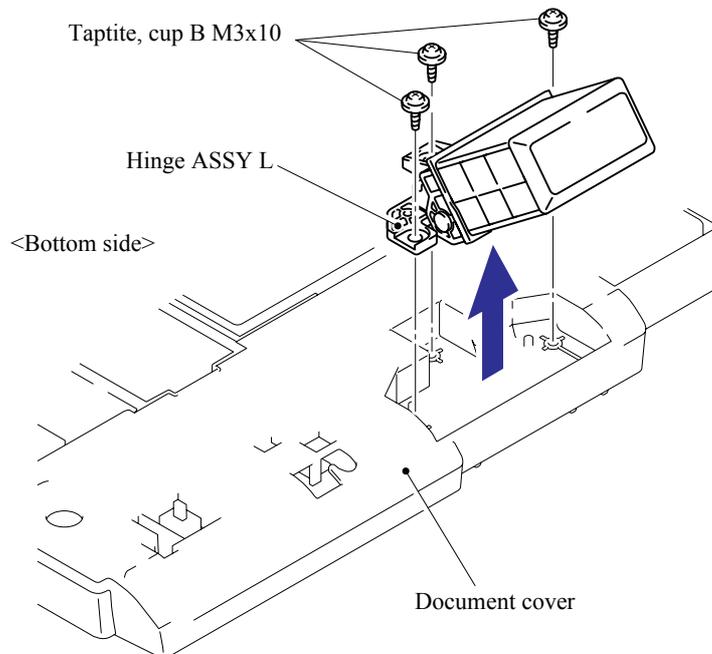


Fig. 5-23

5.1.13 ADF Cover ASSY

- (1) Turn the Document cover upside down. Remove the ADF cover ASSY from the ADF unit.

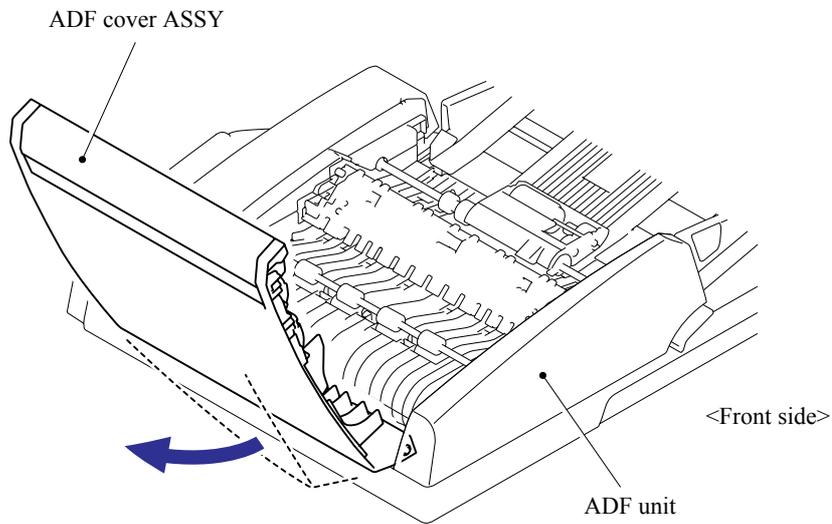


Fig. 5-24

5.1.14 ADF Side Cover F

- (1) Push the Hook from underneath the ADF unit to release the Latch, and remove the cup S M3x8 Taptite screw and cup B M3x10 Taptite screw from the ADF Side cover F.
- (2) Remove the ADF side cover F from the ADF unit.

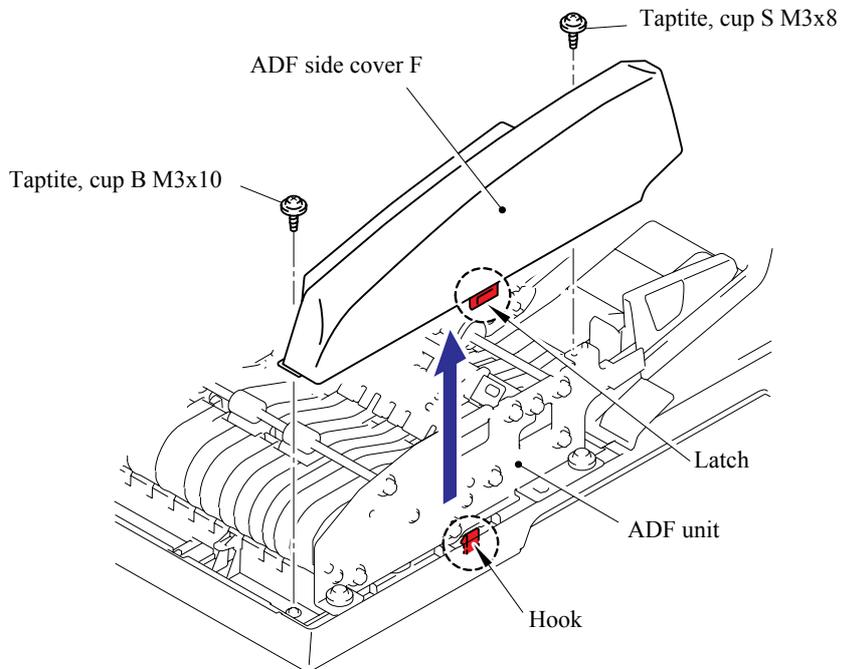


Fig. 5-25

5.1.15 ADF Side Cover R

- (1) Push the Hook from underneath the ADF unit to release the Latch, and remove the cup B M3x10 Taptite screw from the ADF side cover R.
- (2) Remove the ADF side cover R from the ADF unit.

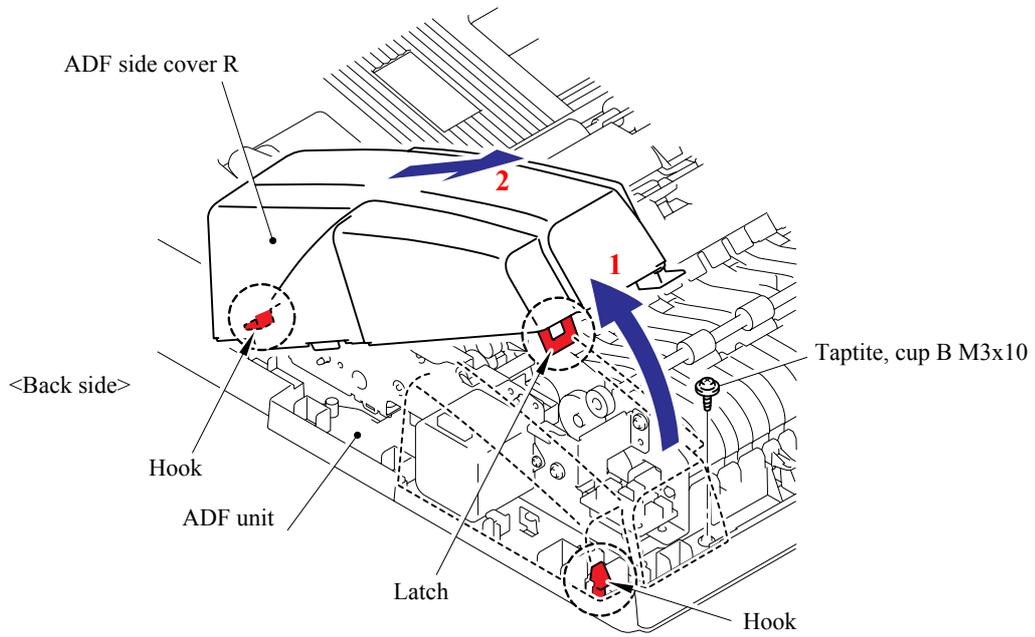


Fig. 5-26

5.1.16 ADF Chute ASSY

- (1) Disconnect the 7 connectors (for the model supporting the DX tray only) or 3 connectors (for the model supporting no DX tray only) from the ADF relay PCB.
- (2) Disconnect the connector of the ADF motor harness from the ADF motor.
- (3) Remove the cup S M3x8 Taptite screw and ADF FG harness.

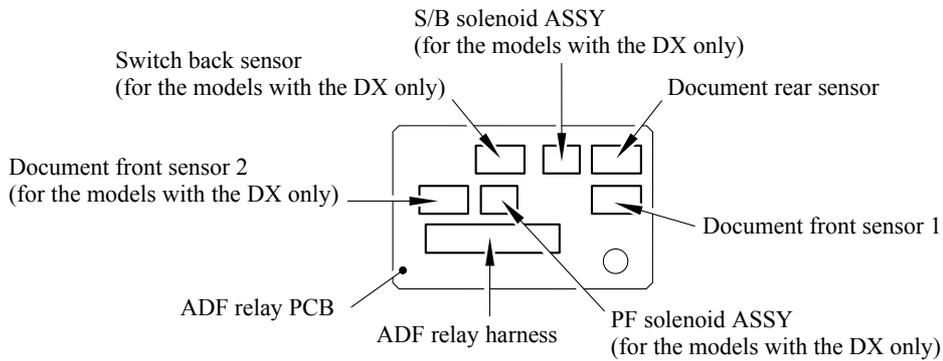
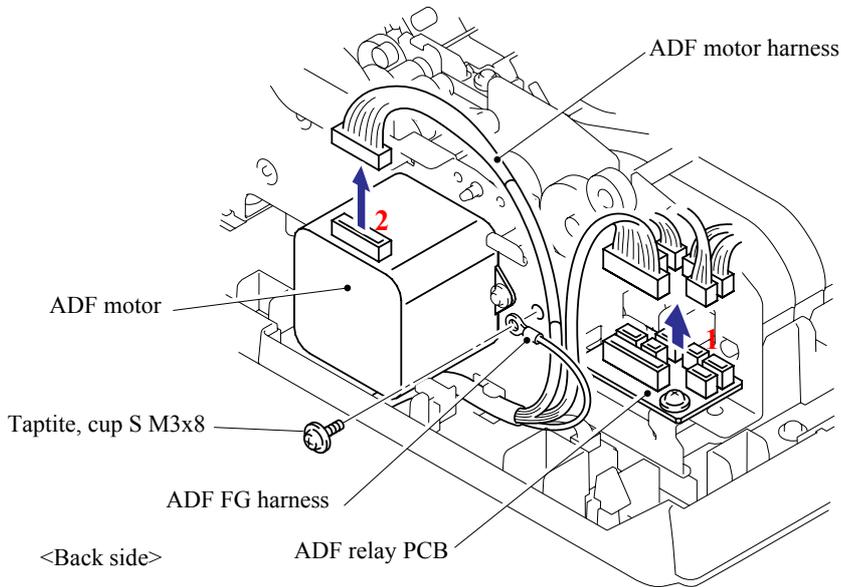


Fig. 5-27

- (4) Turn the Document cover upside down and remove the cup B M3x10 Taptite screw.

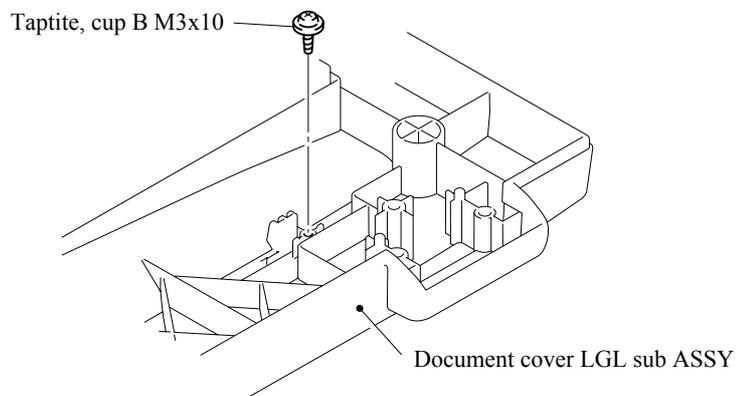


Fig. 5-28

- (5) Turn the Document cover the correct way up and remove the four cup B M3x10 Taptite screws from the ADF chute ASSY.
- (6) Release the hook to remove the ADF chute ASSY from the Document cover LGL sub ASSY.

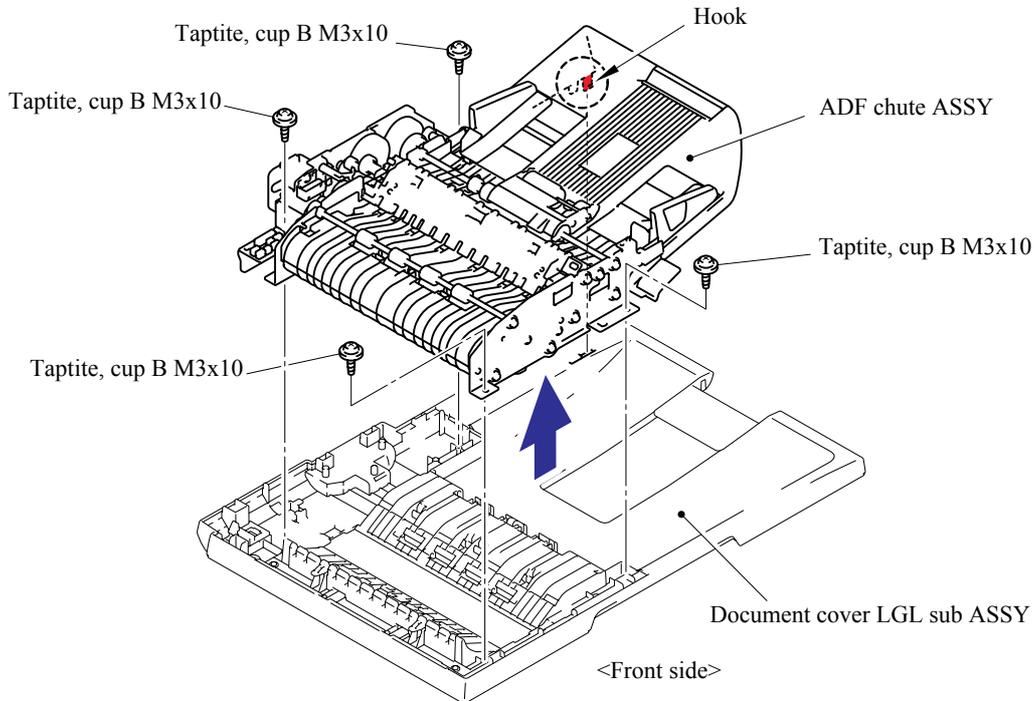


Fig. 5-29

- (7) Turn the ADF chute ASSY upside down and remove the four LF4 films.

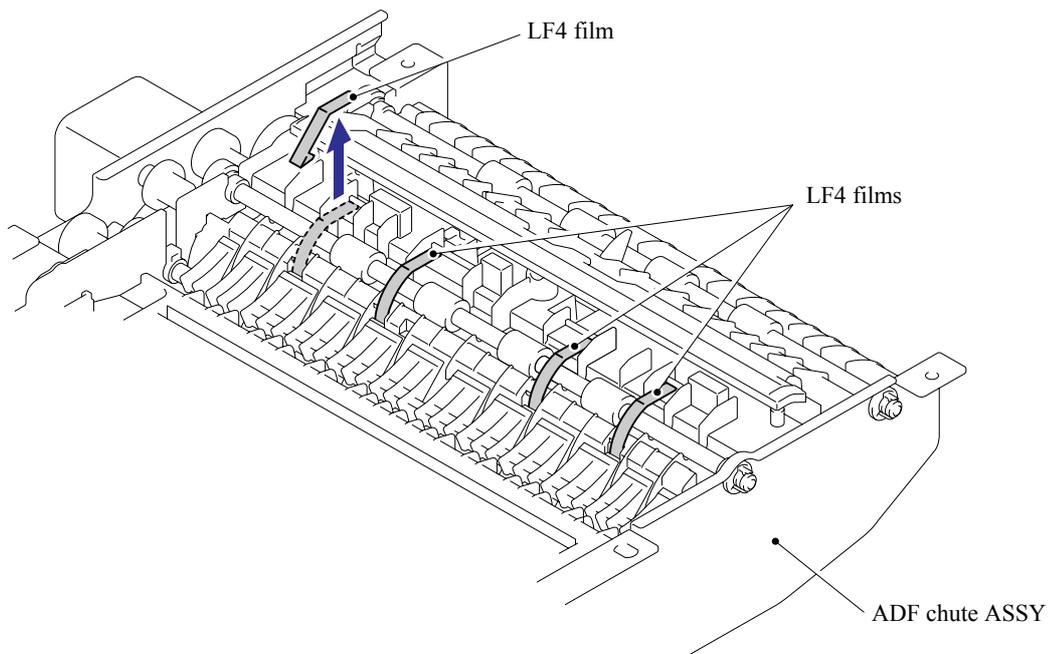


Fig. 5-30

**5.1.17 SB Chute ASSY (For the models with the DX only) / SX Chute
(For the models with out the DX only)**

- (1) Remove the two cup S M3x8 Taptite screws.
- (2) Remove the SB chute ASSY or SX chute from the ADF chute ASSY.

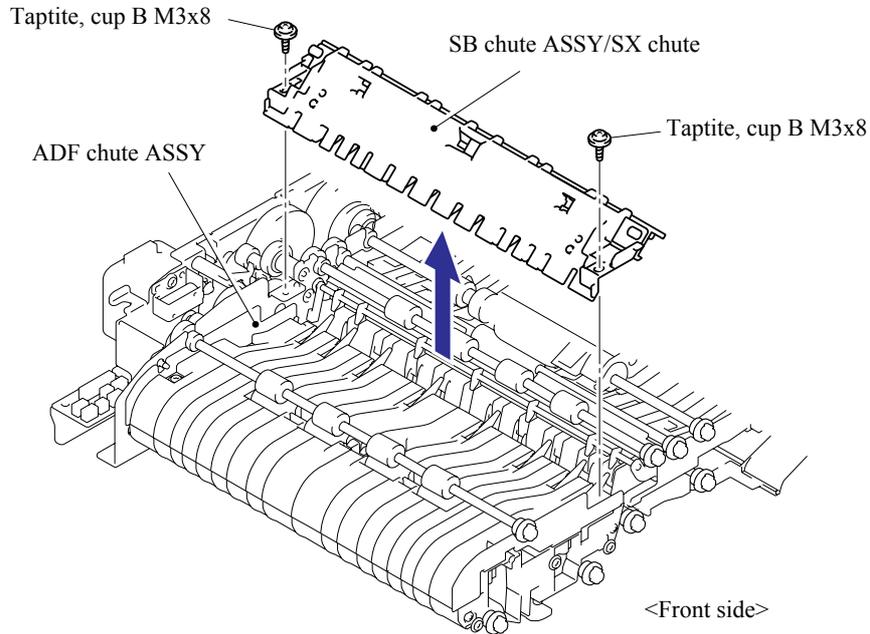


Fig. 5-31

5.1.18 Exit Chute Cover ASSY

- (1) Turn the ADF chute ASSY upside down and remove the four cup B M3x10 Taptite screws.
- (2) Remove the Exit chute cover ASSY from the ADF chute ASSY.

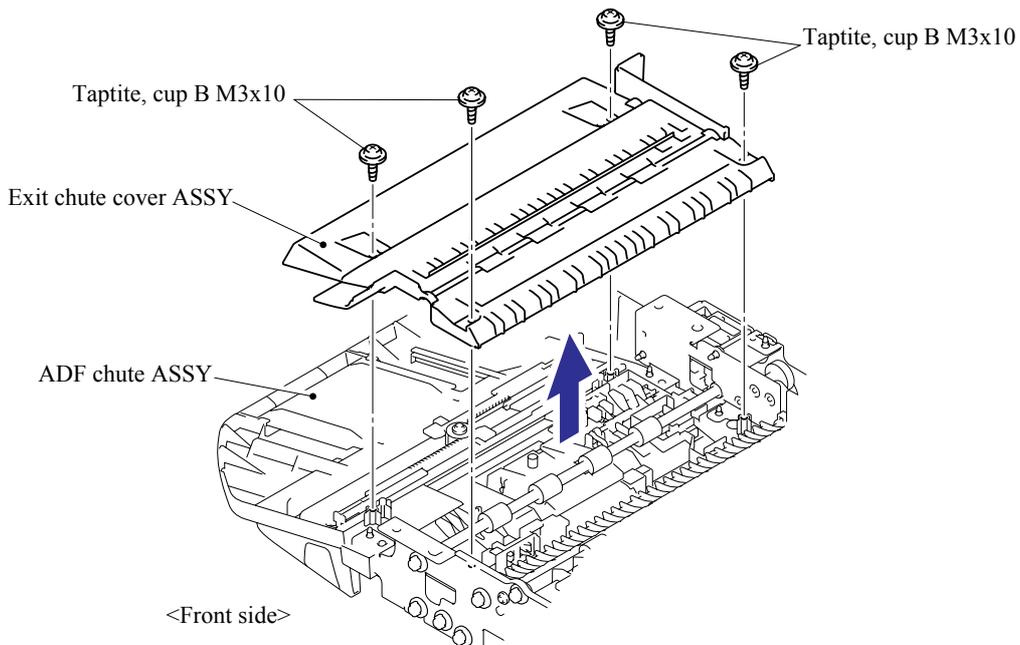


Fig. 5-32

5.1.19 Earth Spring

- (1) Turn the Exit chute cover ASSY upside down. Remove the Earth spring from the Exit chute cover ASSY.

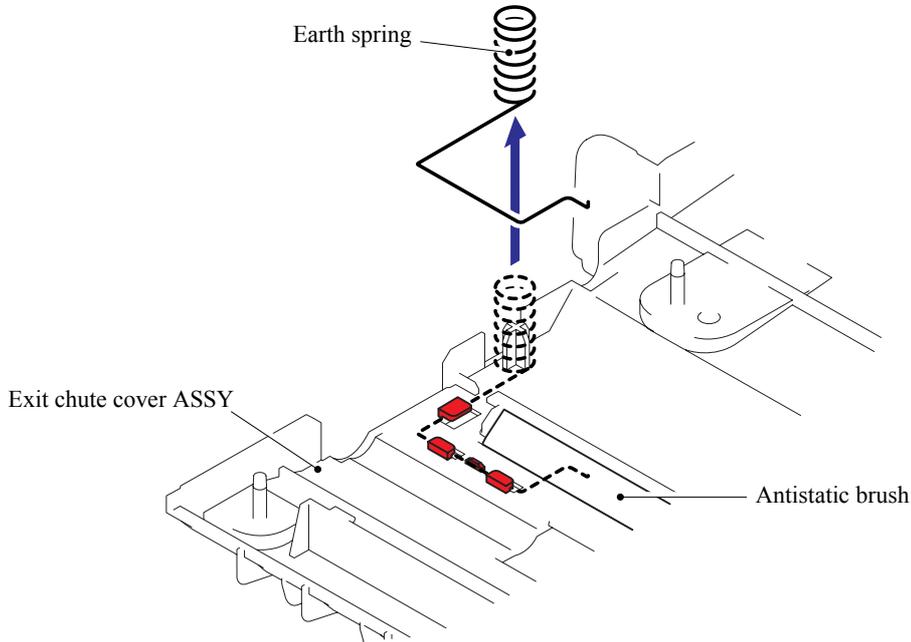


Fig. 5-33

■ Assembling Notes

When assembling the Earth spring, ensure that the end of the Earth spring is attached onto the Antistatic brush as shown in the figure below.

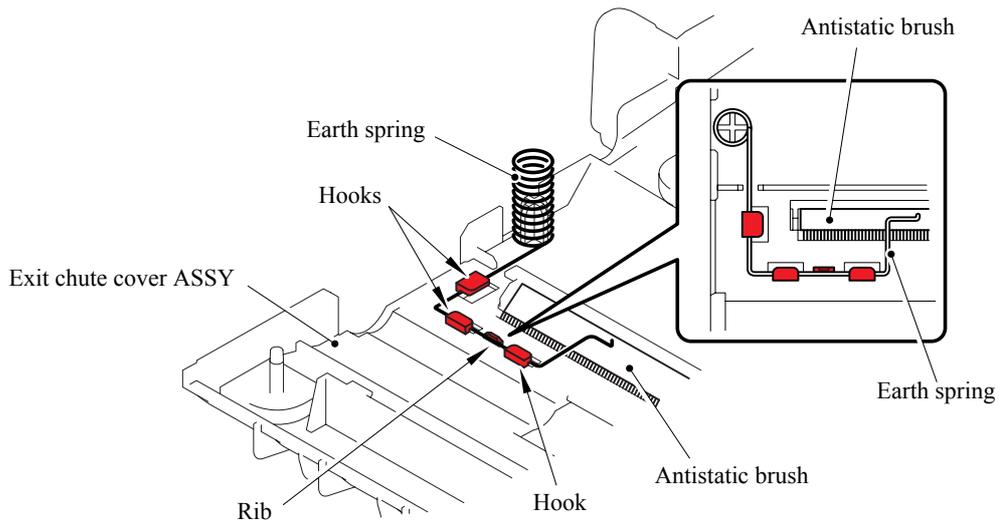


Fig. 5-34

5.1.20 PF Roller Holder ASSY

- (1) Turn the ADF chute ASSY upside down. Release the Hooks of the Conductive bushing A to remove the Conductive bushing A.
- (2) Remove the Bushing from the ADF chute ASSY, and remove the PF roller holder ASSY from the ADF chute ASSY.

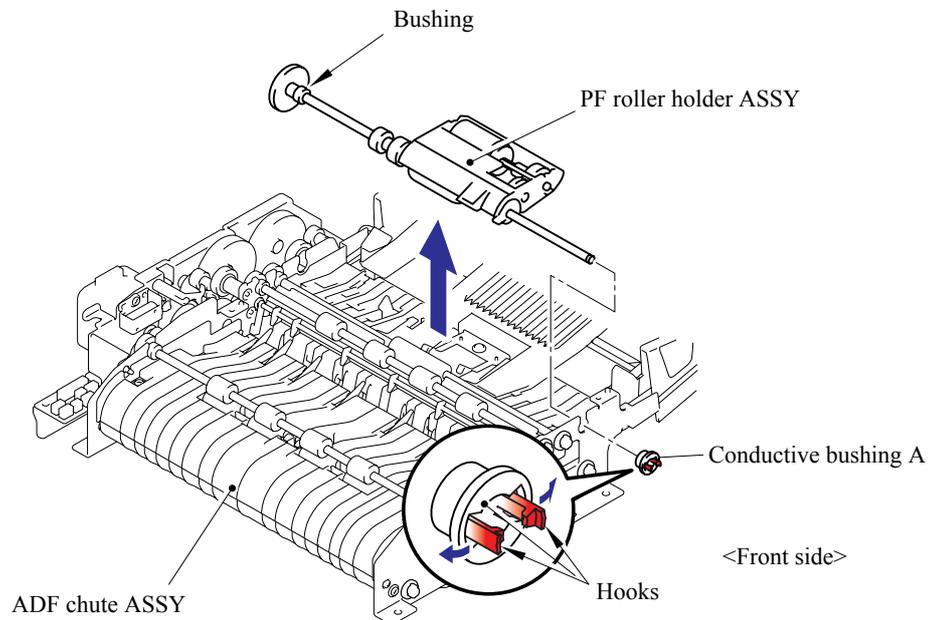


Fig. 5-35

5.1.21 LF Roller 1 ASSY

- (1) Release the Hooks of the Conductive bushing A to remove the Conductive bushing A.
- (2) Remove the Retaining ring from the shaft of the LF roller 1 ASSY.
- (3) Release the Lock lever and then remove the Bushing from the ADF chute ASSY, and remove the LF roller 1 ASSY from the ADF chute ASSY.

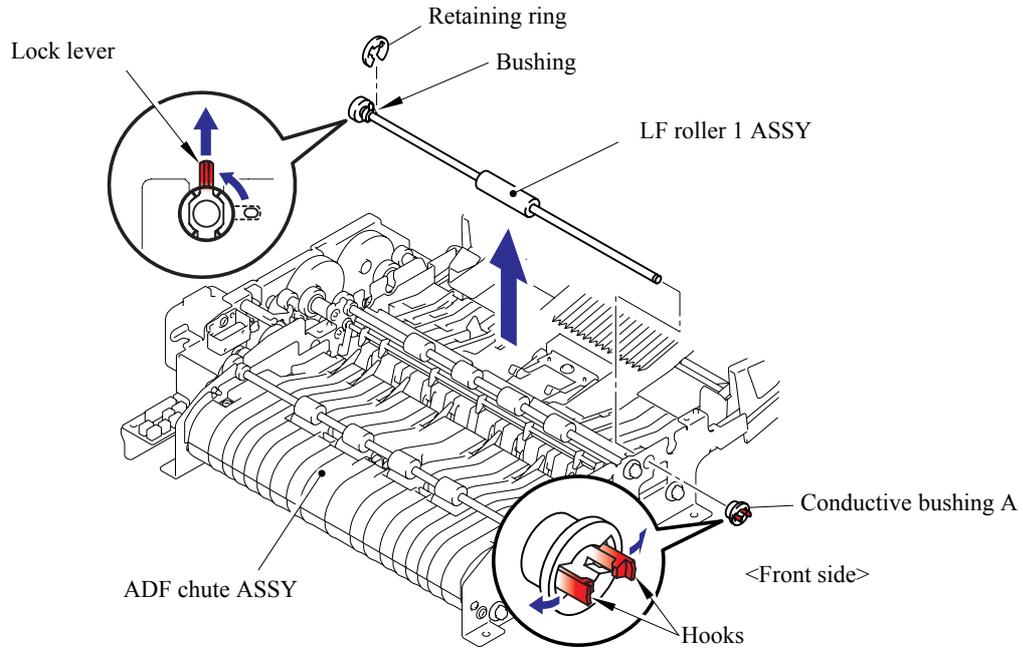


Fig. 5-36

■ Assembling Notes

When assembling the LF roller 1 ASSY, assemble the Bushing with aligning the Boss of the Bushing with the notch on the ADF chute ASSY.

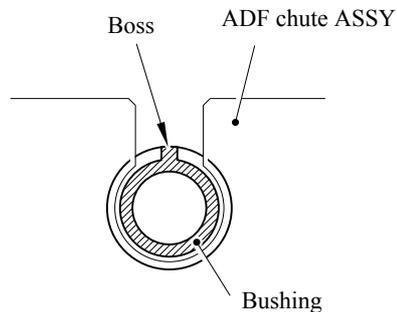


Fig. 5-37

5.1.22 SB Roller ASSY (For the models with the DX only)

- (1) Release the Hooks of the Conductive bushing A to remove the Conductive bushing A.
- (2) Remove the Bushing from the ADF chute ASSY, and remove the SB roller ASSY from the ADF chute ASSY.

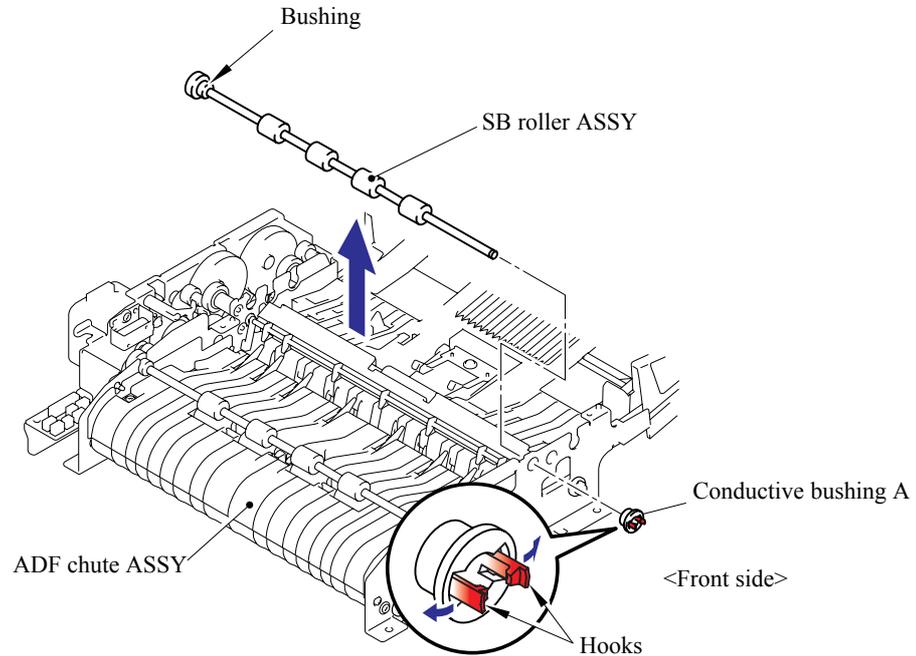


Fig. 5-38

■ Assembling Notes

- When assembling the SB roller ASSY, assemble the Bushing with aligning the Boss of the Bushing with the notch on the ADF chute ASSY.

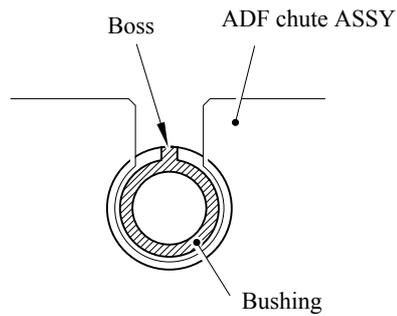


Fig. 5-39

- When assembling each of the SB roller ASSY, LF roller 2/3/4 ASSYs and Exit roller ASSY, make sure to assemble it onto the correct position.
Identify each roller by four shades of the rollers.

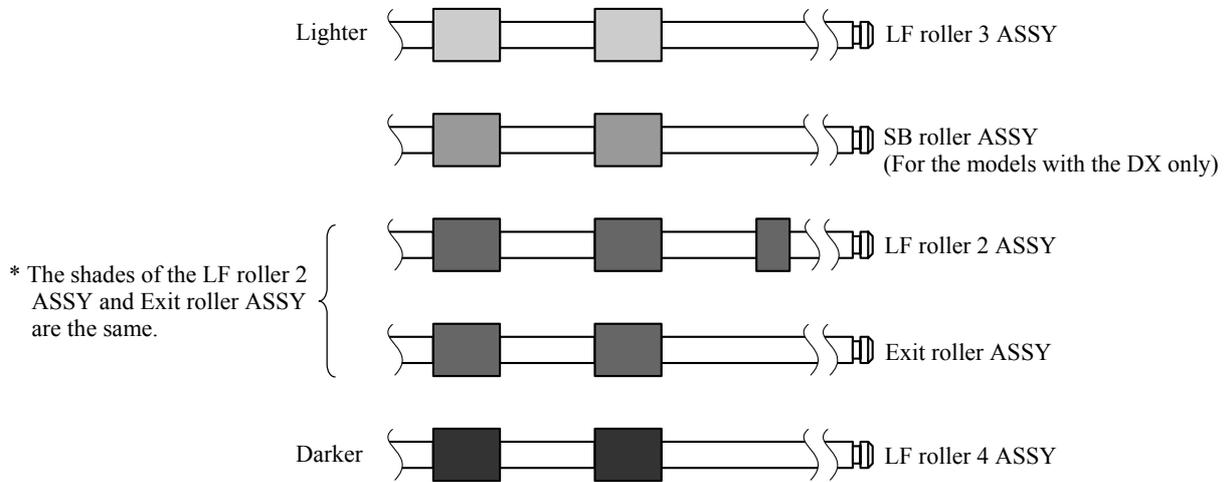


Fig. 5-40

- * It is recommended to mark each of the roller ASSYs when disassembling them.
Failure to assemble each roller ASSY onto the correct position may cause paper jam or stretching image.

5.1.23 ADF Motor

(1) Remove the two screw pan (S/P washer) M3x6, and then remove the ADF motor.

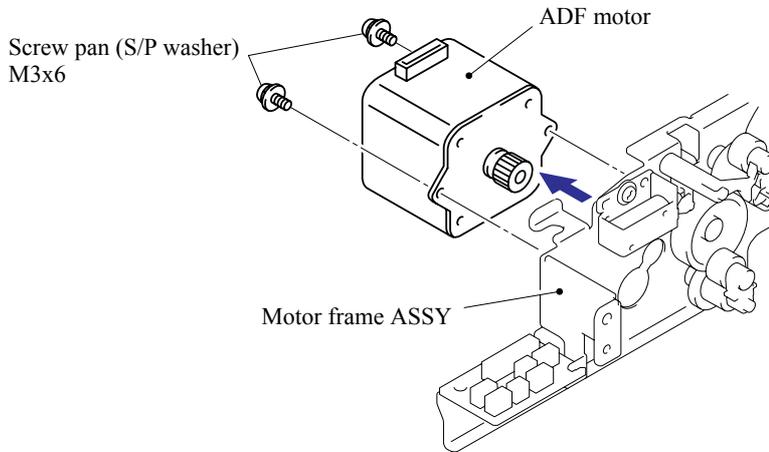


Fig. 5-41

(2) Remove the three cup S M3x8 Taptite screws, and then remove the Motor frame ASSY.

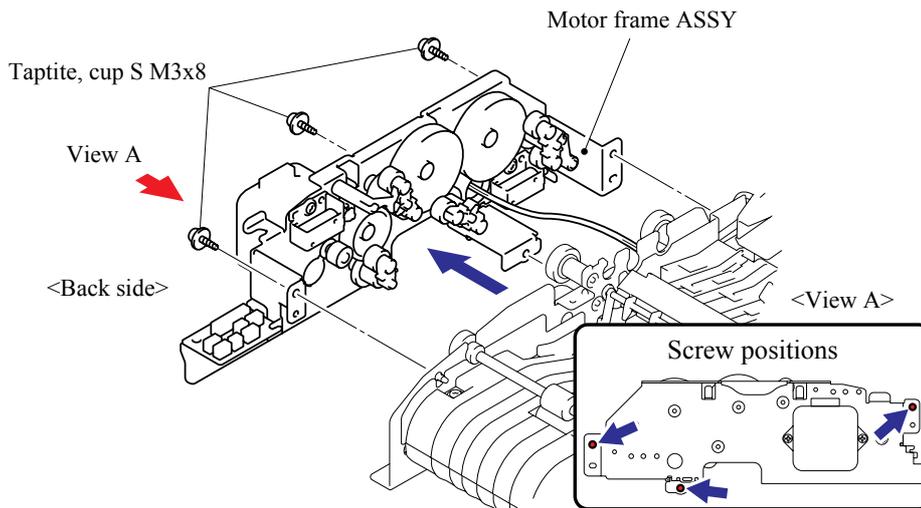


Fig. 5-42

■ Assembling Notes

When assembling the Motor frame ASSY, ensure that the gears (indicated with gray) are placed in the positions as shown in the figure below.

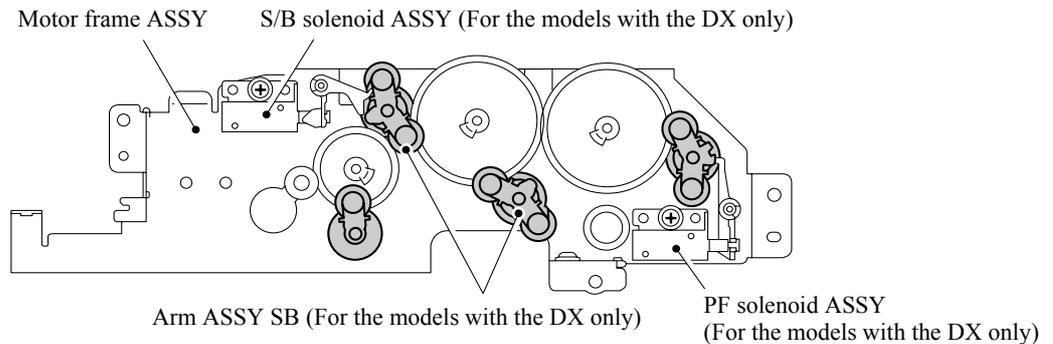


Fig. 5-43

5.1.24 S/B Solenoid ASSY (For the models with the DX only)

- (1) Remove the cup S M3x8 Taptite screw.
- (2) Remove the S/B solenoid ASSY.

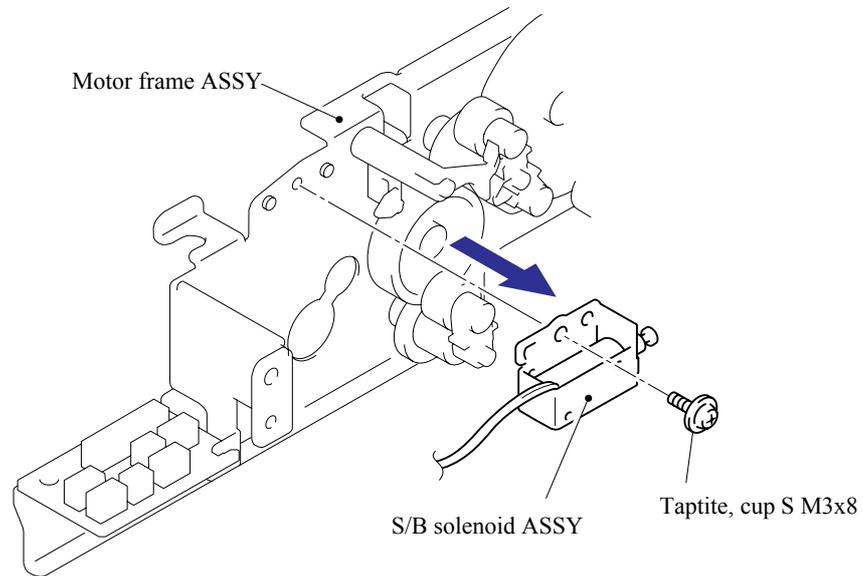


Fig. 5-44

5.1.25 PF Solenoid ASSY (For the models with the DX only)

- (1) Remove the cup S M3x8 Taptite screw.
- (2) Remove the PF solenoid ASSY.

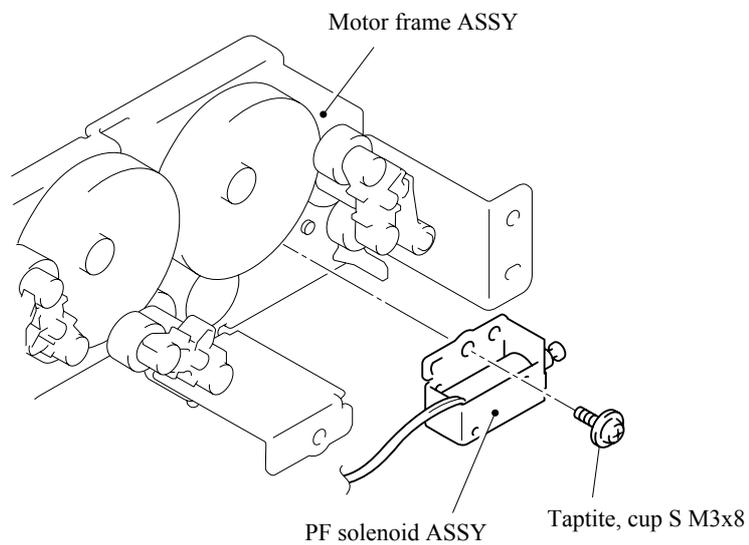


Fig. 5-45

5.1.26 ADF Relay PCB

- (1) Remove the cup S M3x8 Taptite screw.
- (2) Remove the ADF relay PCB.

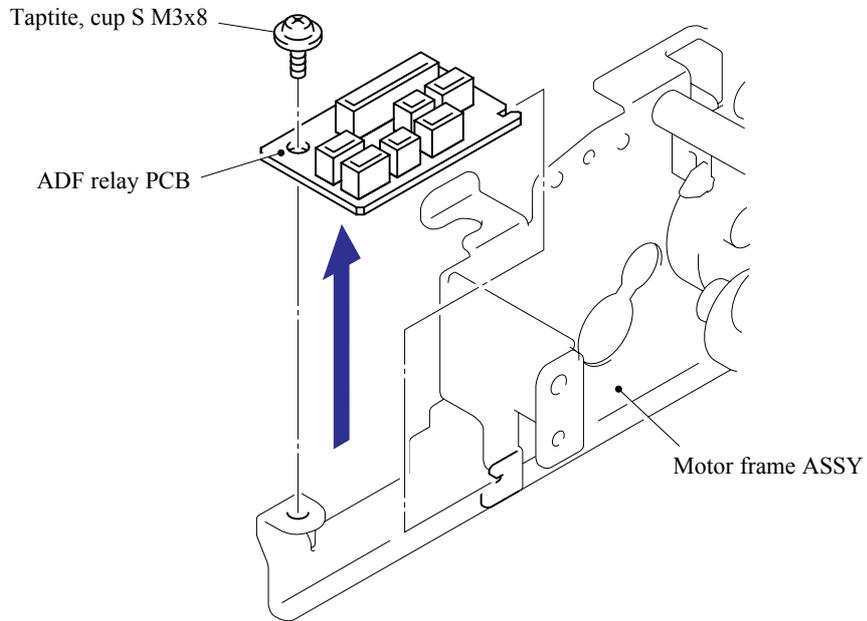


Fig. 5-46

5.1.27 Paper Feed Chute ASSY

- (1) Remove the two cup S M3x8 Taptite screws.
- (2) Remove the Paper feed plate. (For the models with the DX only)

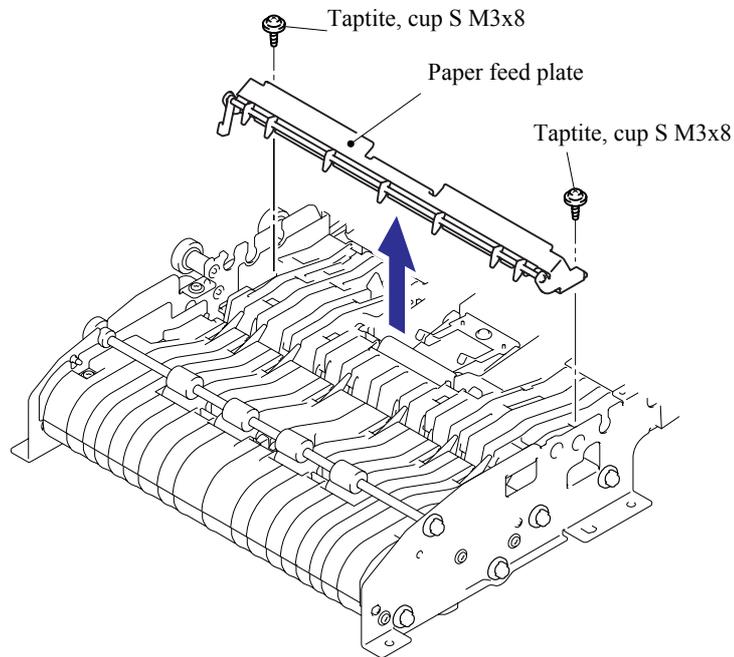


Fig. 5-47

- (3) Remove the two cup B M3x8 Taptite screws.
- (4) Remove the Paper feed chute ASSY.

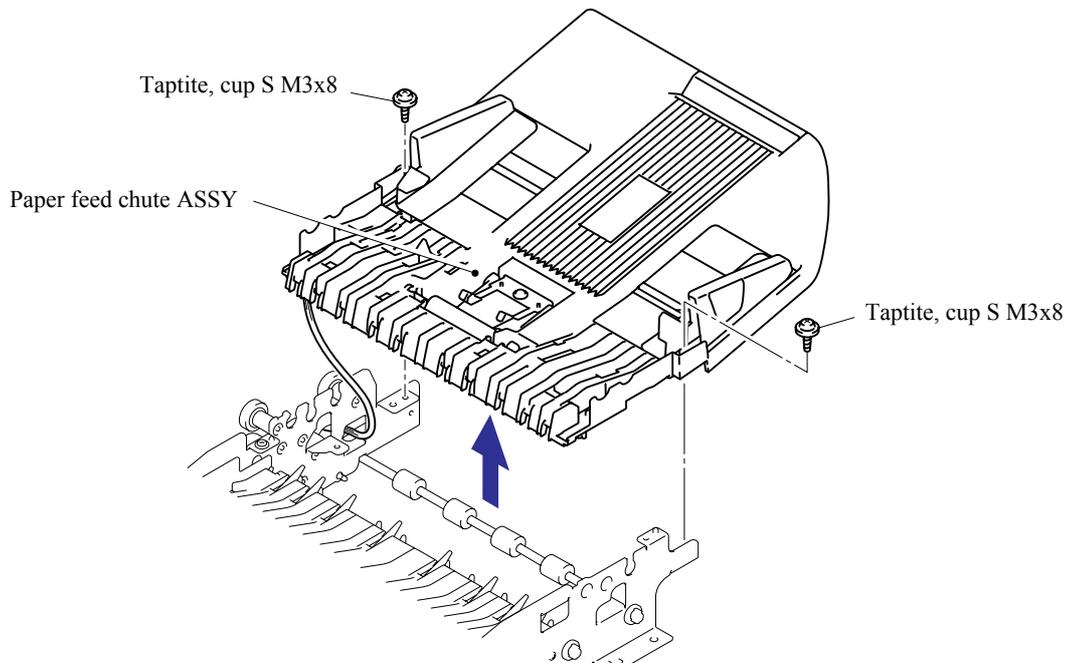


Fig. 5-48

5.1.28 Actuator Front 1/Photo Interrupter (For the models with the DX only)

- (1) Turn the Paper feed chute ASSY upside down. Release the Hooks of the Photo interrupter to remove the Photo interrupter from the Paper feed chute ASSY.
- (2) Disconnect the Connector from the Photo interrupter.

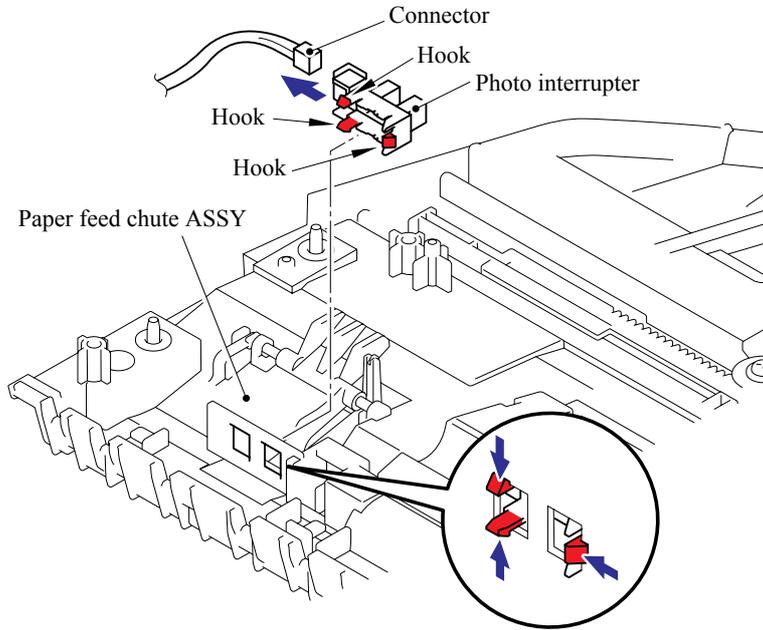


Fig. 5-49

- (3) Push down the Stopper, slide the Actuator front 1 to the stopper side and pull up the Actuator front 1 to remove.

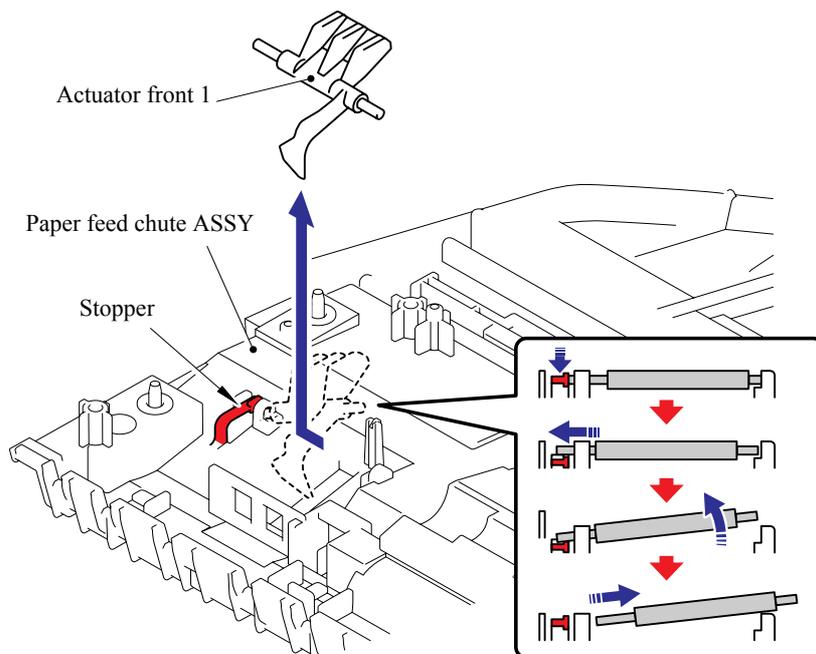


Fig. 5-50

5.1.29 Actuator Front 2/Photo Interrupter (For the models with the DX only)

- (1) Release the Hooks of the Photo interrupter to remove the Photo interrupter from the Paper feed chute ASSY.
- (2) Disconnect the Connector from the Photo interrupter.

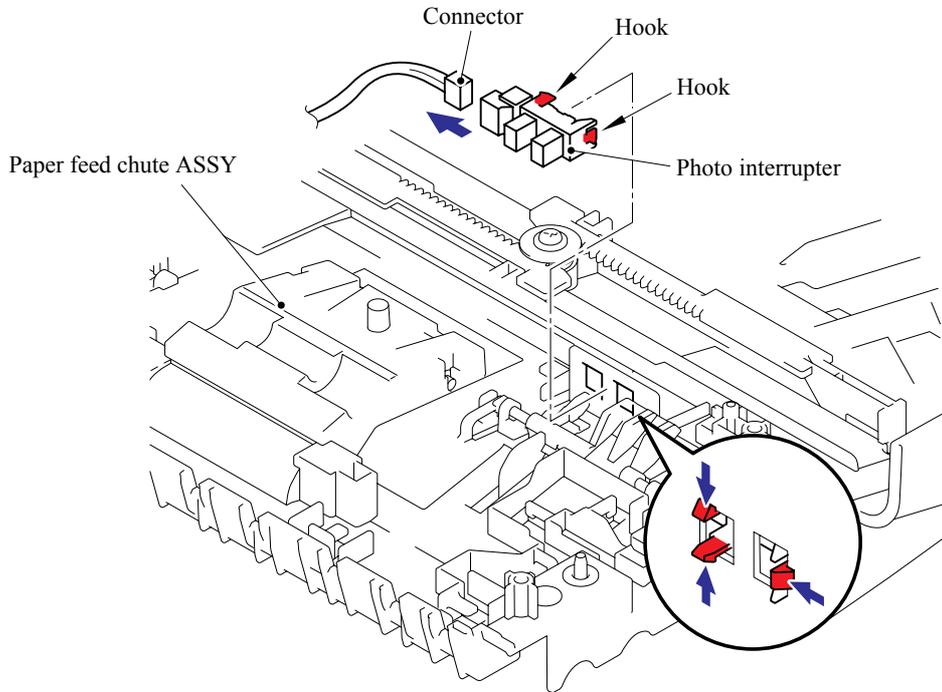


Fig. 5-51

- (3) Push down the Stopper, slide the Actuator front 2 to the stopper side and pull up the Actuator front 2 to remove.

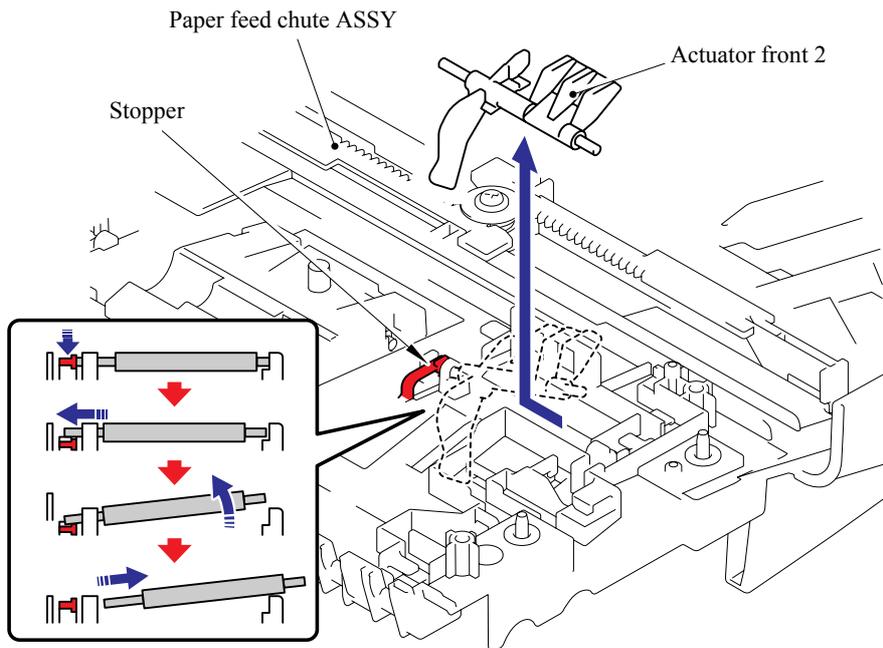


Fig. 5-52

5.1.30 ADF Film/Spring Plate ADF Front A ASSY/Separation Rubber/Rubber Holder/ Separation Spring

- (1) Remove the ADF film.
- (2) Remove the B M3x6 Taptite screw, and then remove the Spring plate ADF front A ASSY.
- (3) Remove the Separation rubber.
- (4) Remove the Rubber holder.
- (5) Remove the Separation spring.

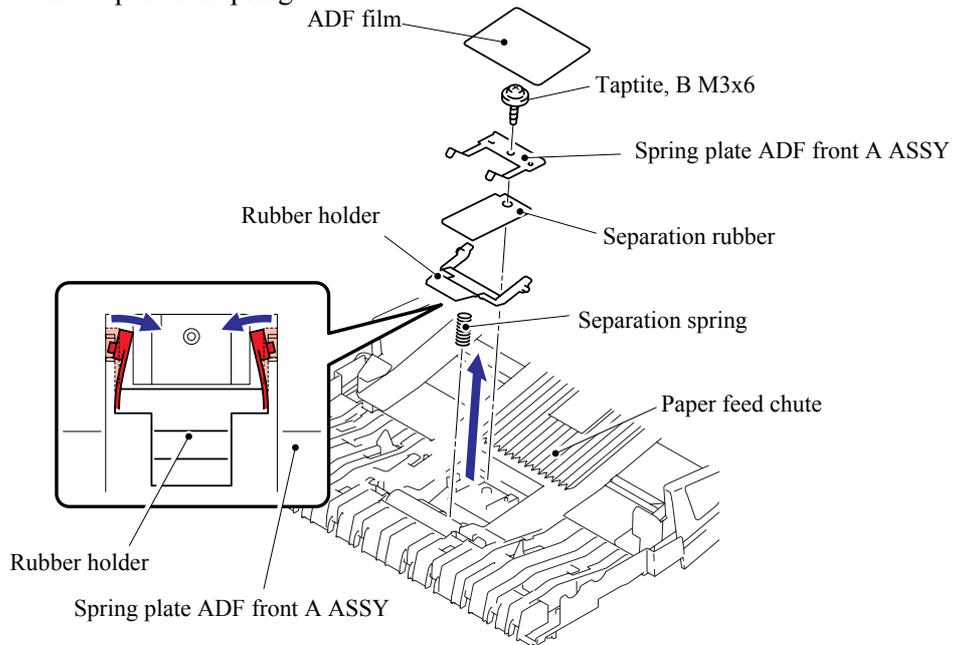


Fig. 5-53

5.1.31 Presser Roller/LF Spring

- (1) Push the Hook to the direction of the arrow (1a) as shown in the figure below while holding the Presser roller, and remove the Presser roller shaft from the hook.
- (2) Pull the Presser roller shaft out of the Presser roller.
- (3) Remove the two LF springs.

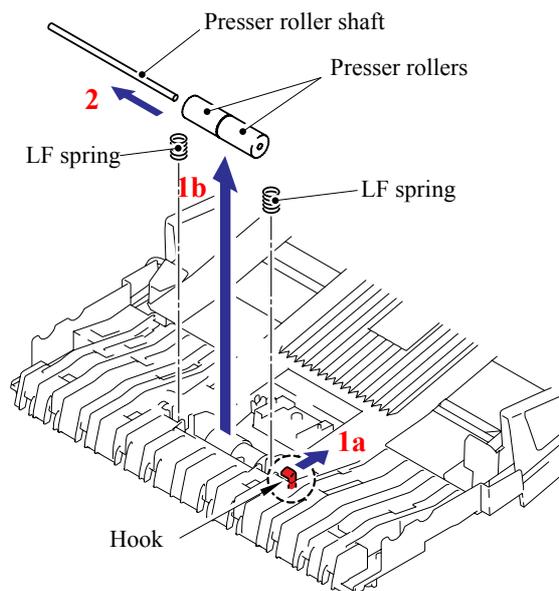


Fig. 5-54

5.1.32 LF Roller 2 ASSY

- (1) Release the Hooks of the Conductive bushing A to remove the Conductive bushing A.
- (2) Remove the Bushing from the ADF chute ASSY, and remove the LF roller 2 ASSY from the ADF chute ASSY.

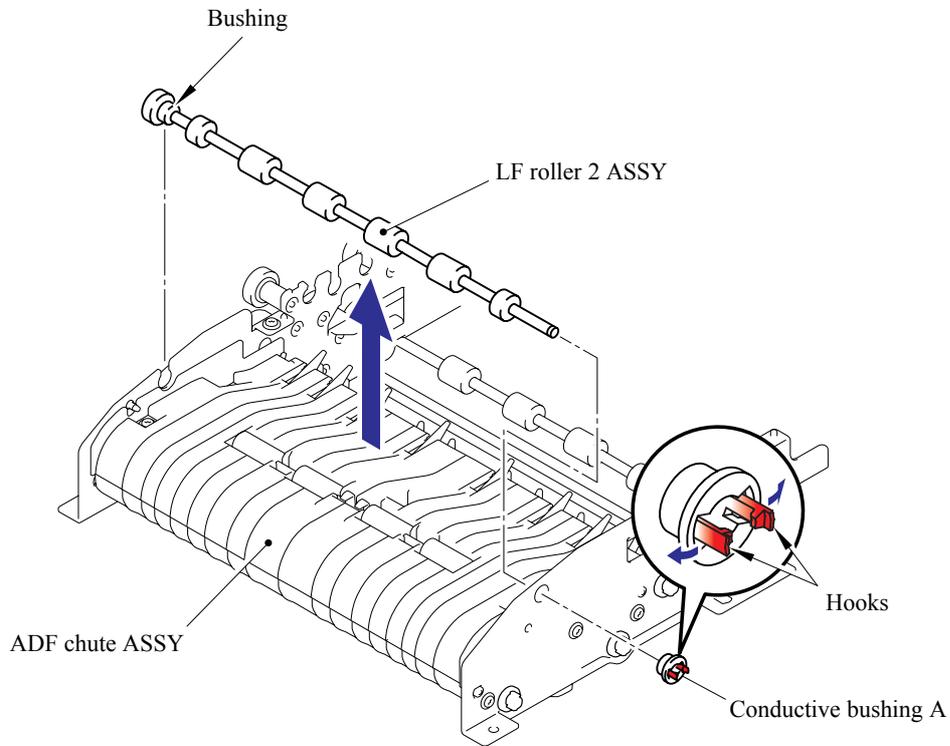


Fig. 5-55

■ Assembling Notes

When assembling the LF roller 2 ASSY, assemble the Bushing with aligning the Boss of the Bushing with the notch on the ADF chute ASSY.

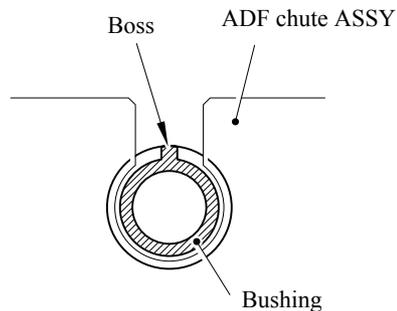


Fig. 5-56

5.1.33 Exit Roller ASSY

- (1) Release the Hooks of the Conductive bushing A to remove the Conductive bushing A.
- (2) Remove the Bushing from the ADF chute ASSY, and remove the Exit roller ASSY from the ADF chute ASSY.

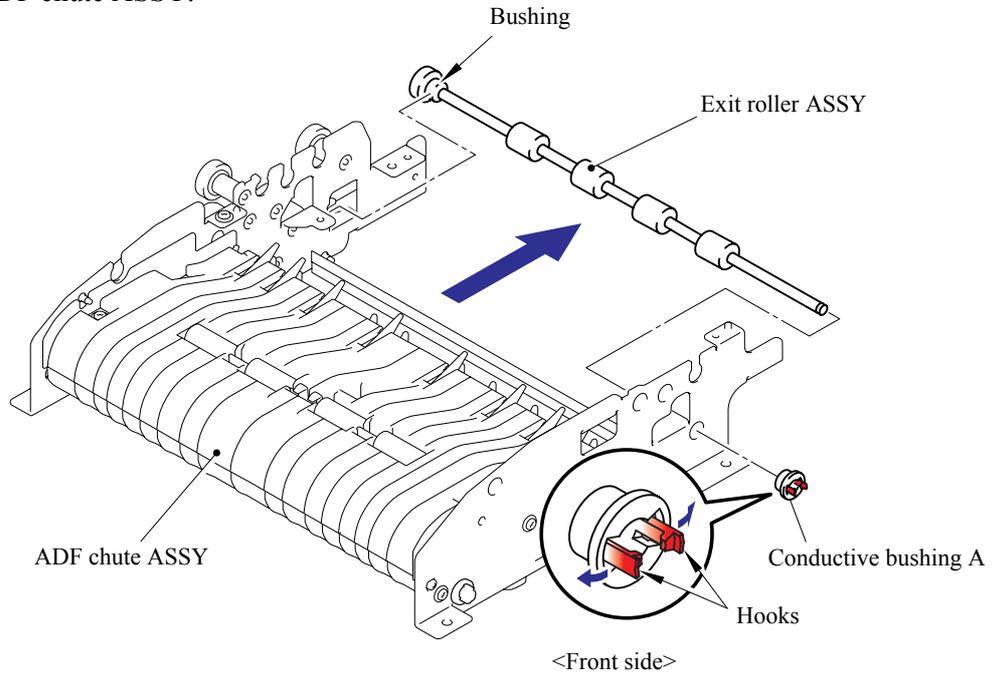


Fig. 5-57

■ Assembling Notes

When assembling the Exit roller ASSY, assemble the Bushing with aligning the Boss of the Bushing with the notch on the ADF chute ASSY.

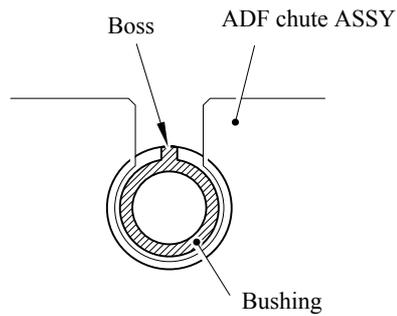


Fig. 5-58

5.1.34 LF Roller 3 ASSY

- (1) Turn the ADF chute ASSY upside down. Release the Hooks of the Conductive bushing A to remove the Conductive bushing A.
- (2) Remove the Bushing from the ADF chute ASSY, and remove the LF roller 3 ASSY from the ADF chute ASSY.

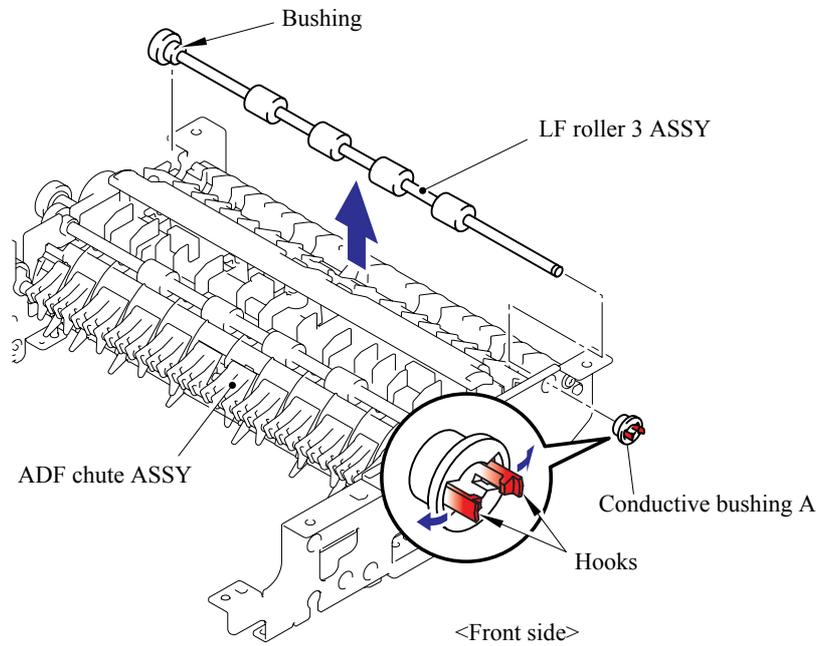


Fig. 5-59

■ Assembling Notes

When assembling the LF roller 3 ASSY, assemble the Bushing with aligning the Boss of the Bushing with the notch on the ADF chute ASSY.

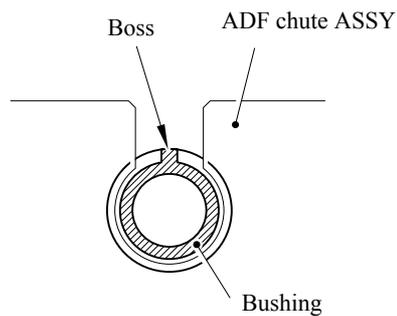


Fig. 5-60

5.1.35 LF Roller 4 ASSY

- (1) Release the Hooks of the Conductive bushing A to remove the Conductive bushing A.
- (2) Remove the Bushing from the ADF chute ASSY, and remove the LF roller 4 ASSY from the ADF chute ASSY.

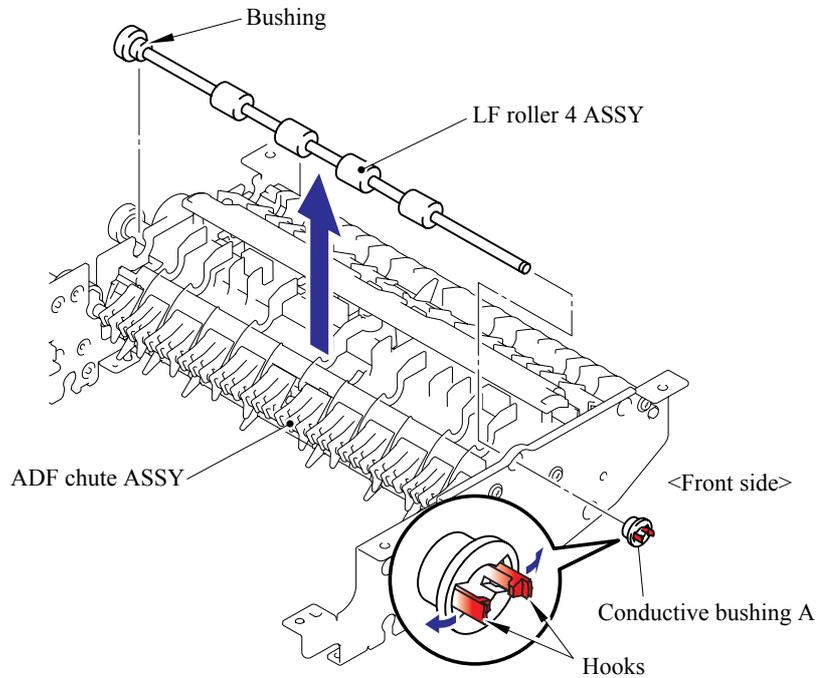


Fig. 5-61

■ Assembling Notes

When assembling the LF roller 4 ASSY, assemble the Bushing with aligning the Boss of the Bushing with the notch on the ADF chute ASSY.

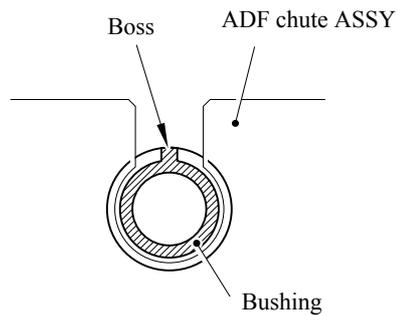


Fig. 5-62

**5.1.36 Flap A ASSY (For the models with the DX only)/
Flap A (For the models with out the DX only)**

- (1) Release the Hooks of the Conductive bushing A to remove the Conductive bushing A.
- (2) Remove the Bushing from the ADF chute ASSY, and remove the Flap A ASSY or Flap A from the ADF chute ASSY.

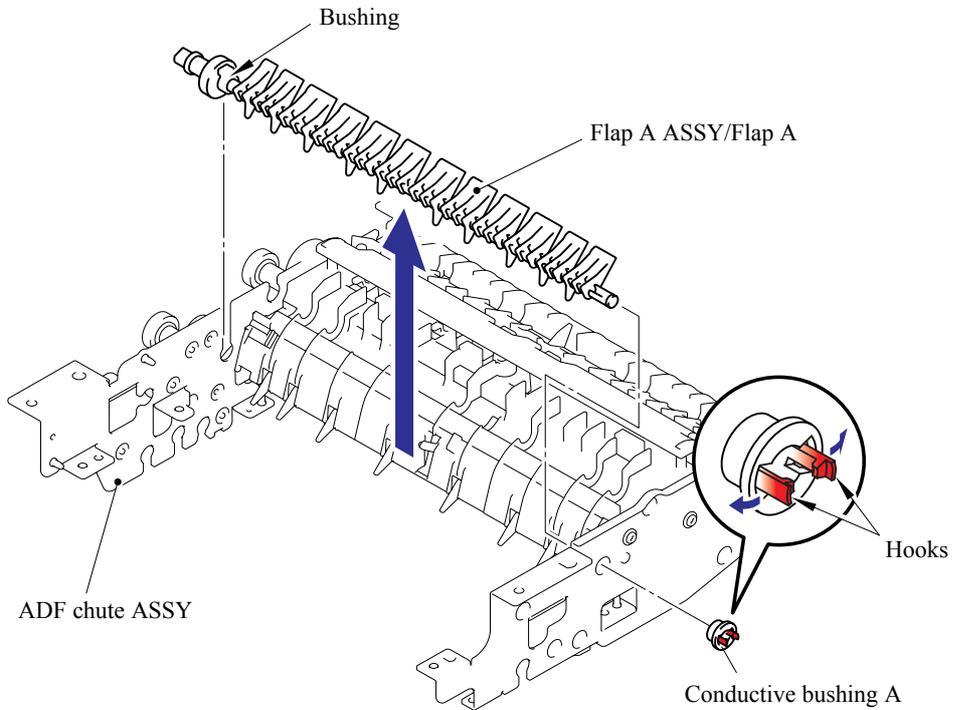


Fig. 5-63

■ Assembling Notes

When assembling the Flap A ASSY or Flap A, assemble the Bushing with aligning the Boss of the Bushing with the notch on the ADF chute ASSY.

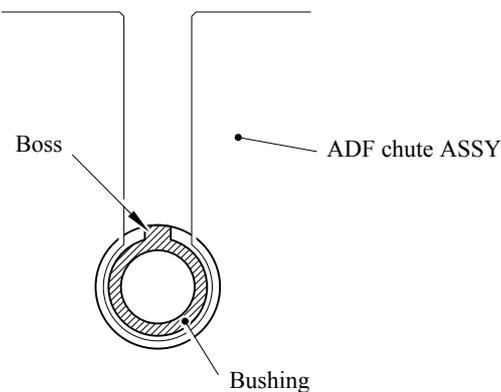


Fig. 5-64

5.1.37 Document Hold/Document Hold Spring

- (1) Push the Hooks to the direction of the arrows as shown in the figure below to remove the Document hold.
- (2) Remove the Document hold spring gently to prevent it from jumping.

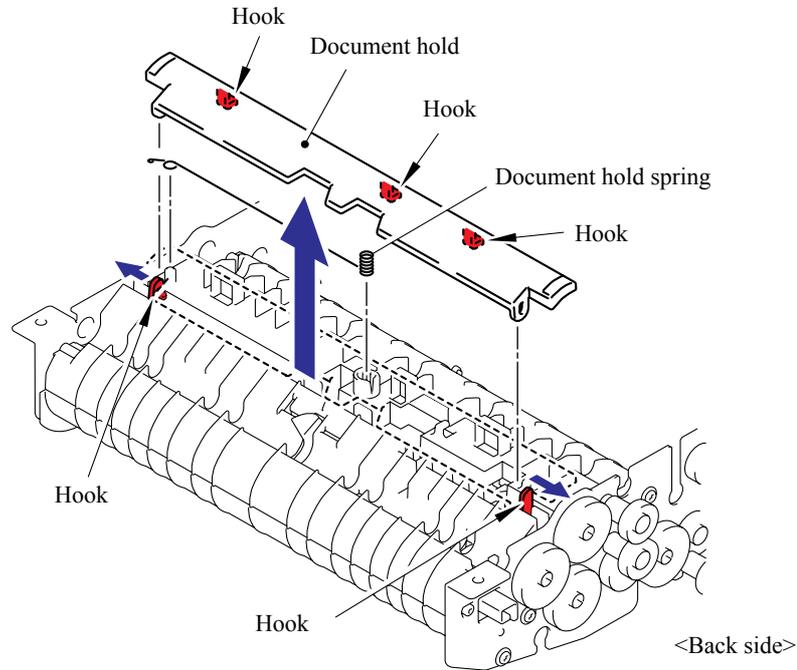


Fig. 5-65

5.1.38 Upper Main Chute ASSY/Lower Main Chute ASSY

- (1) Turn the ADF chute ASSY upside down. Remove the three cup B M3x10 Taptite screws.
- (2) Remove the Drive frame sub ASSY DX.

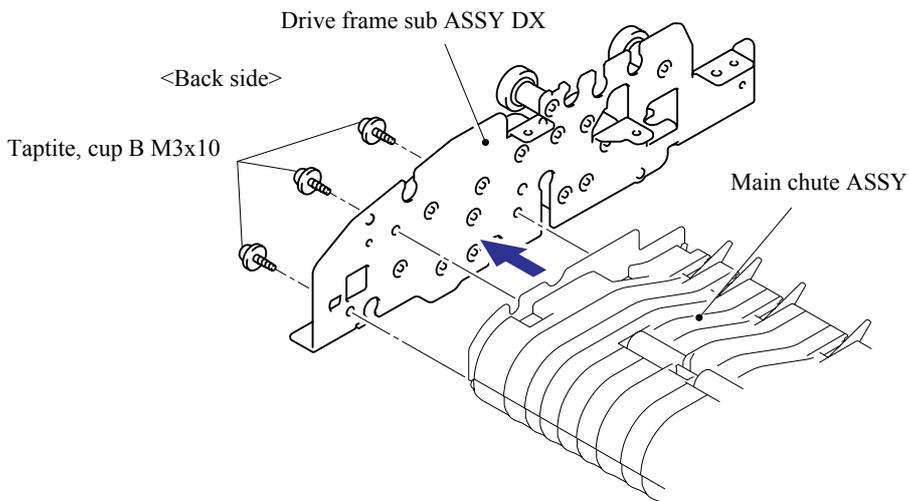


Fig. 5-66

- (3) Remove the three cup B M3x10 Taptite screws.
- (4) Remove the Front frame ALFB.

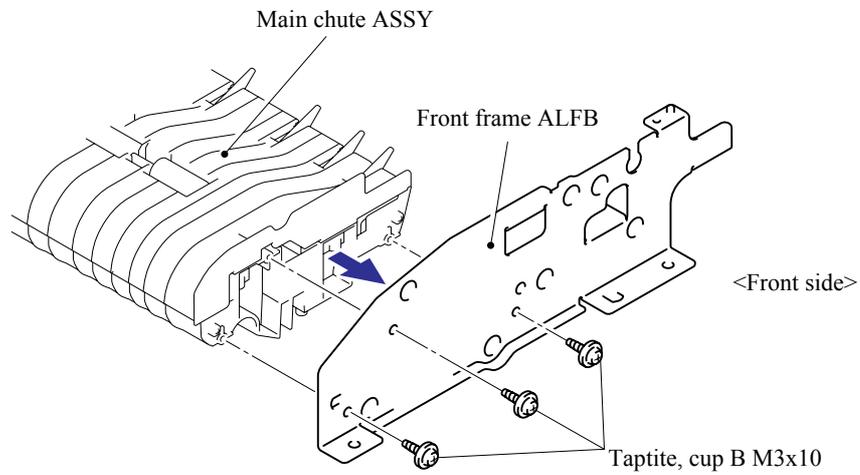


Fig. 5-67

- (5) Remove the four cup B M3x10 Taptite screws.
- (6) Remove the Upper main chute ASSY from the Lower main chute ASSY.

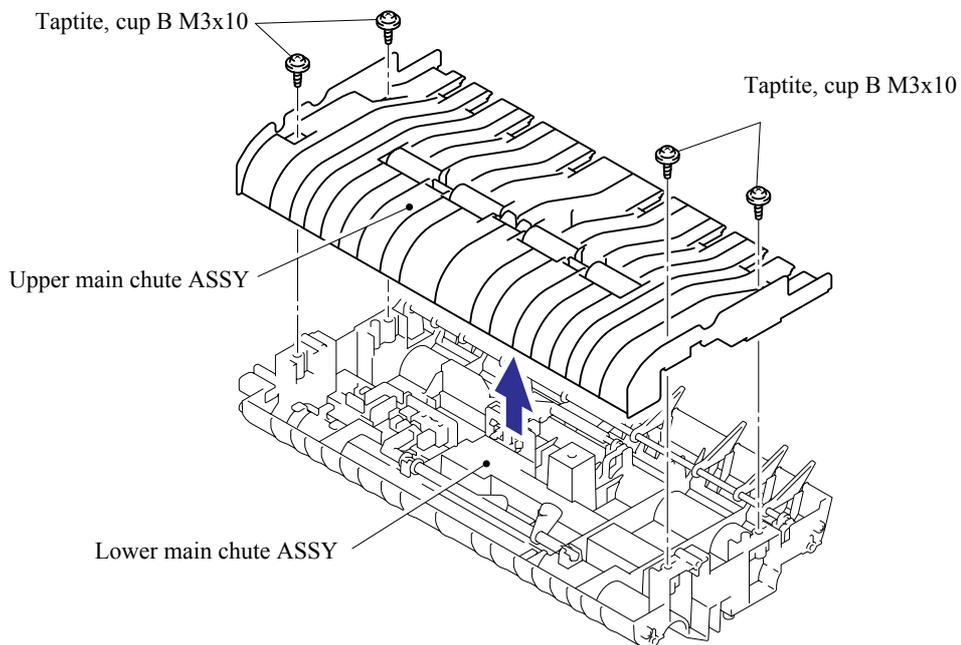


Fig. 5-68

5.1.39 Actuator R/Photo Interrupter

- (1) Turn the Actuator R to the direction of the arrow 1a and pull it out to the direction of the arrow 1b.

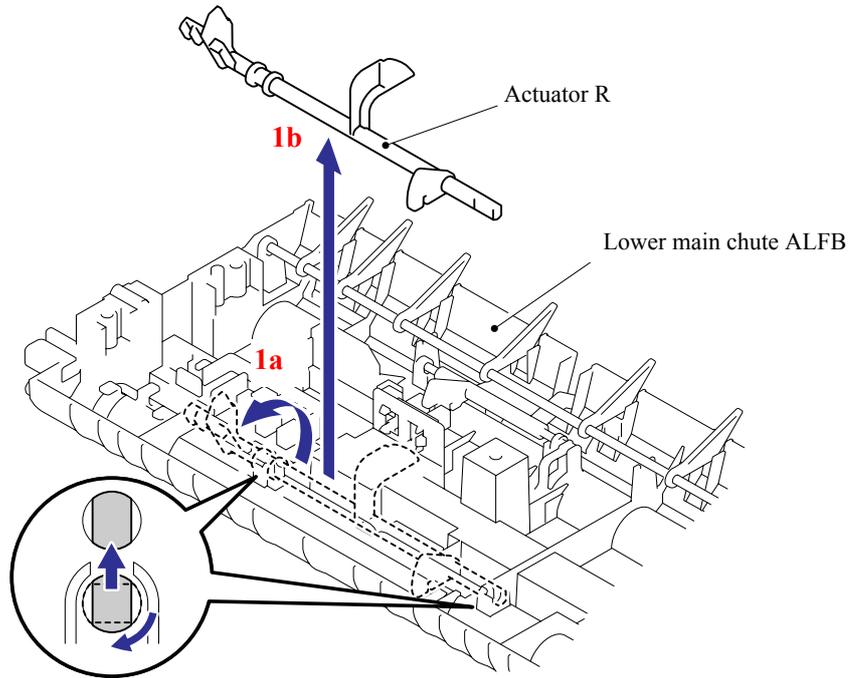


Fig. 5-69

- (2) Release the Hooks of the Photo interrupter to remove the Photo interrupter from the Lower main chute ALFB.
- (3) Disconnect the Connector from the Photo interrupter.

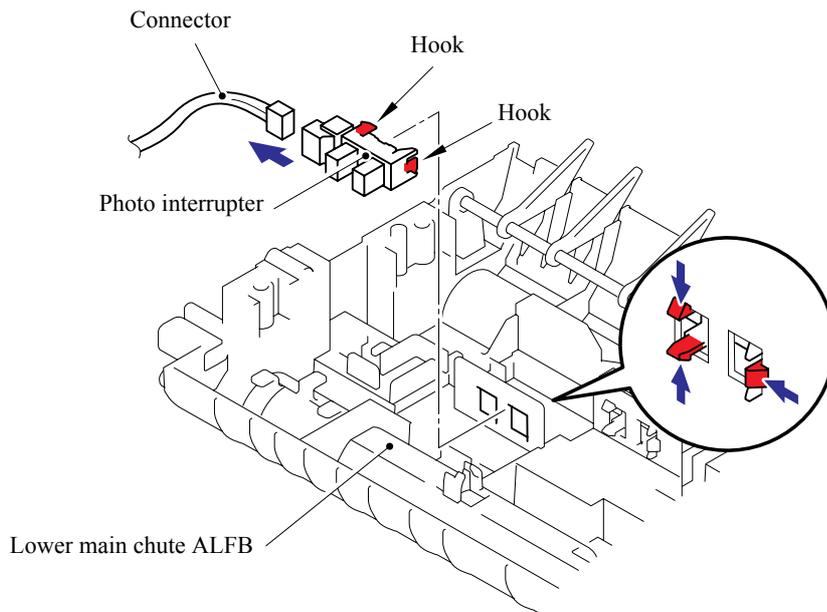


Fig. 5-70

5.1.40 Flap B

- (1) Remove the Flap B from the Lower main chute ALFB.

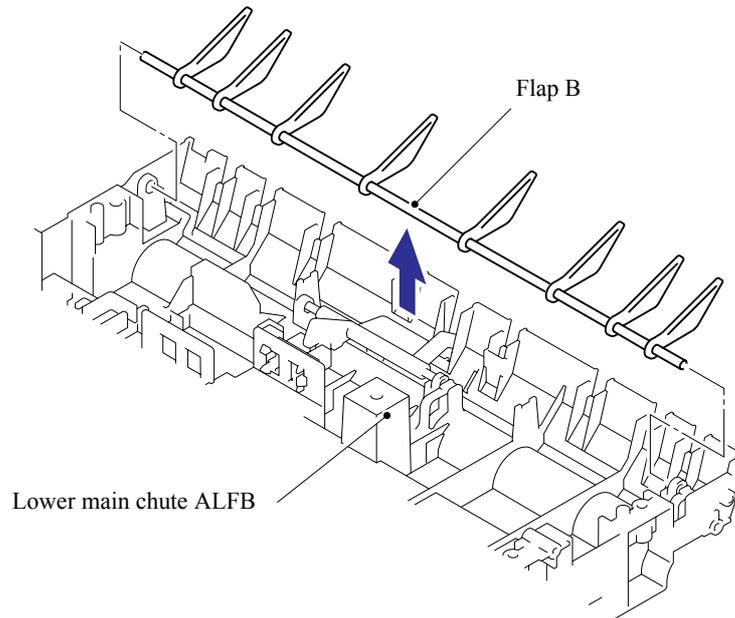


Fig. 5-71

5.1.41 Actuator SB/Photo Interrupter (For the models with the DX only)

- (1) Push down the Stopper, slide the Actuator SB to the stopper side and pull up the Actuator SB to remove.

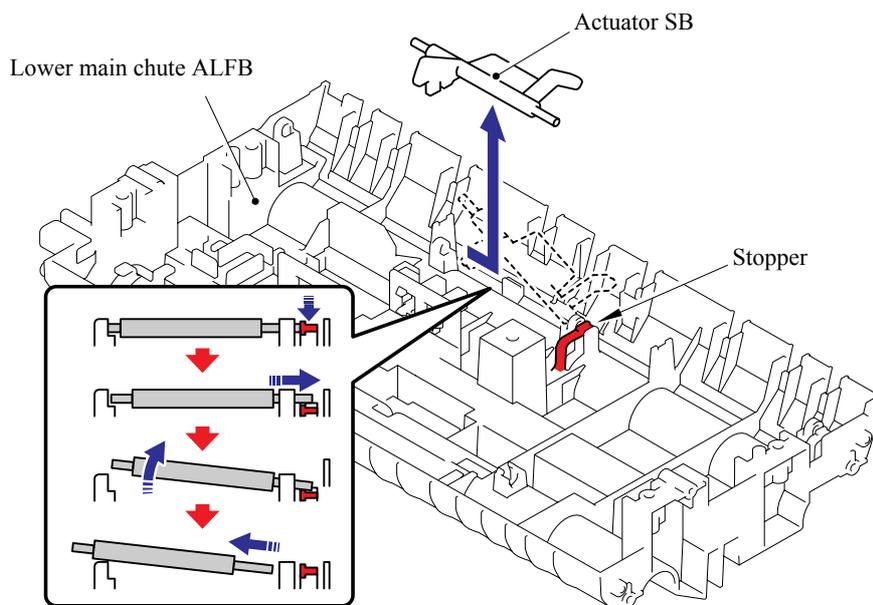


Fig. 5-72

- (2) Release the Hooks of the Photo interrupter to remove the Photo interrupter from the Lower main chute ALFB.
- (3) Disconnect the Connector from the Photo interrupter.

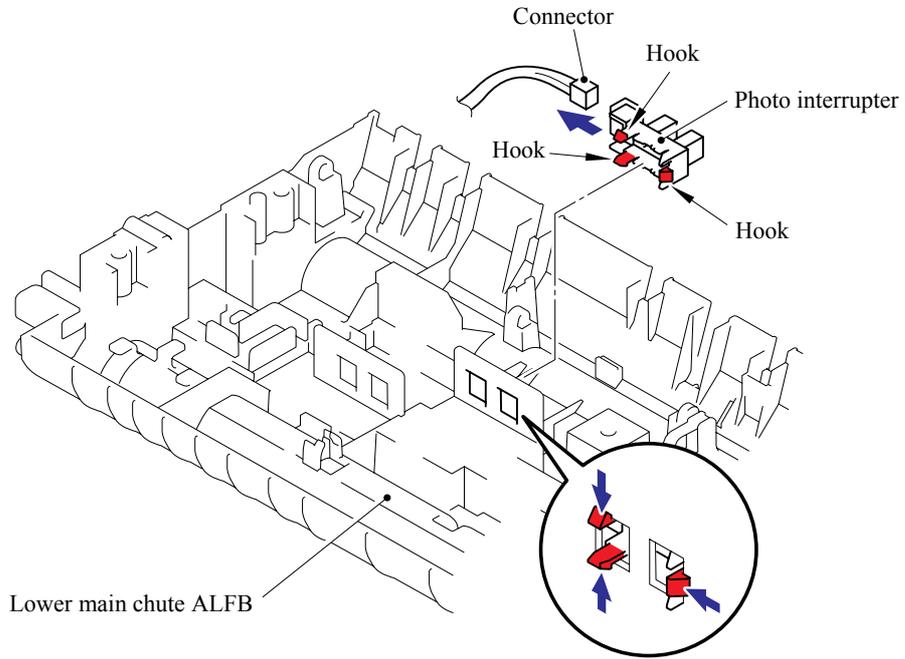


Fig. 5-73

5.1.42 Document Ejection Tray

- (1) Remove the ADF document output support flap from the Document cover LGL ALFB.

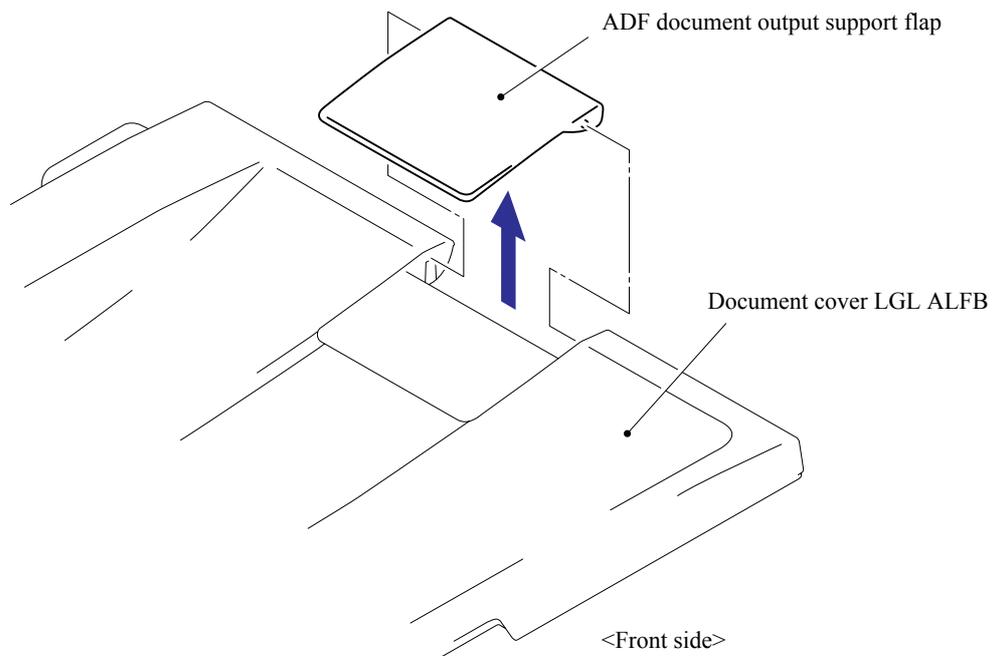


Fig. 5-74

5.1.43 Document Cover Sensor

- (1) Disconnect the Connector from the Document cover sensor.
- (2) Pull the Document cover sensor downwards to remove it from the Document cover LGL ALFB while pressing the Hook of the Document cover sensor.

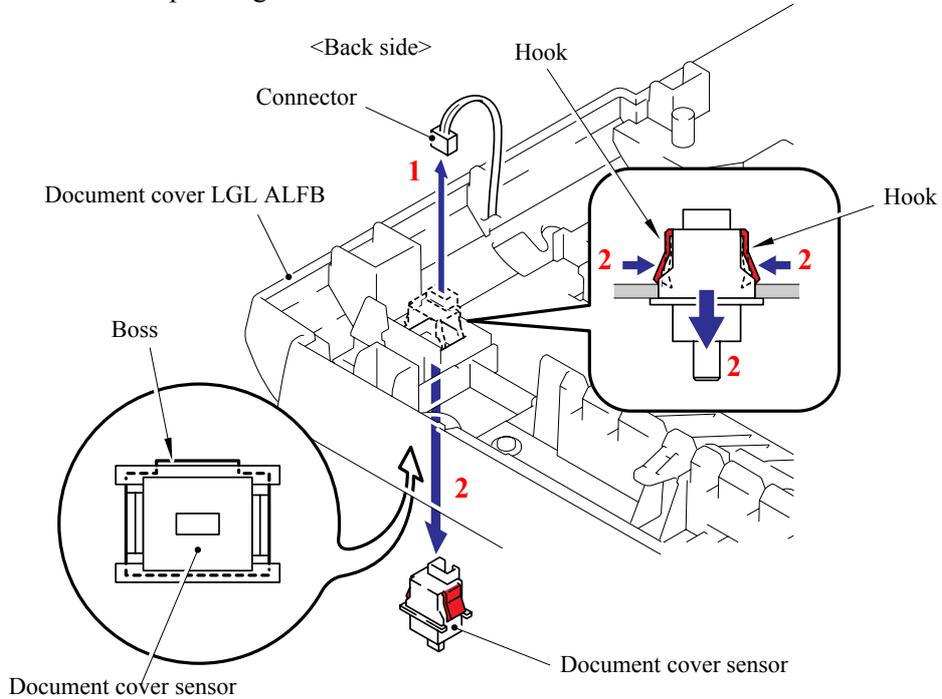


Fig. 5-75

5.1.44 Eject Roller B4

- (1) Remove the four Eject rollers B4 and two Pressure roller shaft S from the Document cover LGL ALFB.

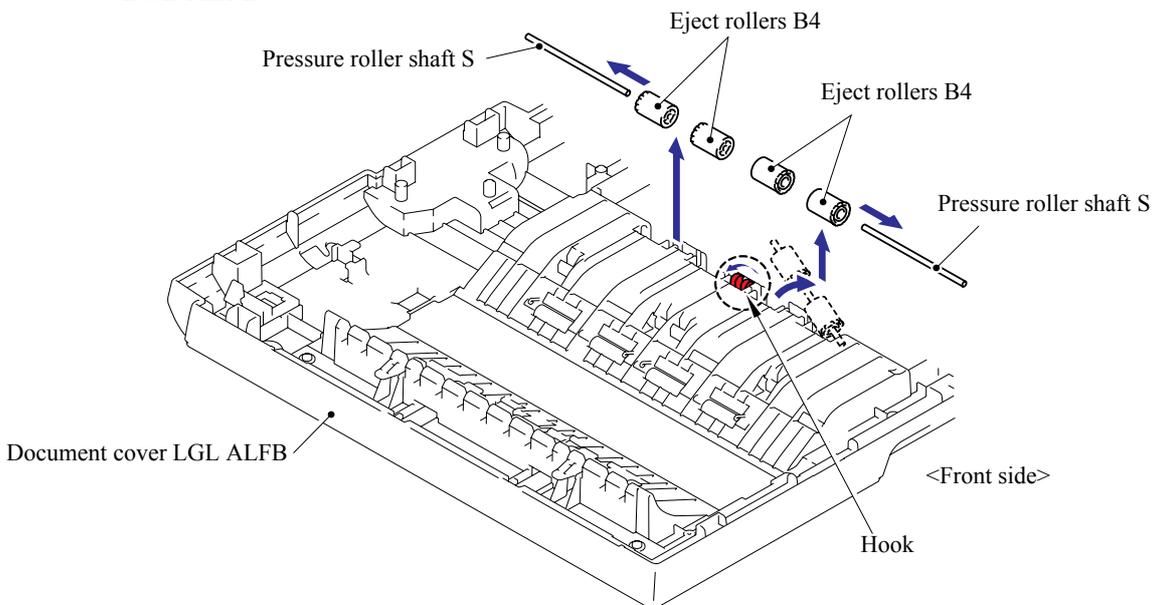


Fig. 5-76

■ **Assembling Notes**

When assembling the Eject rollers B4, ensure that the direction of each roller is correct as shown in the figure above.

5.1.45 Presser Roller

- (1) Turn the Document cover LGL ALFB upside down. Remove the two cup B M3x10 Taptite screws.
- (2) Remove the Rear sensor cover from the Document cover LGL ALFB.

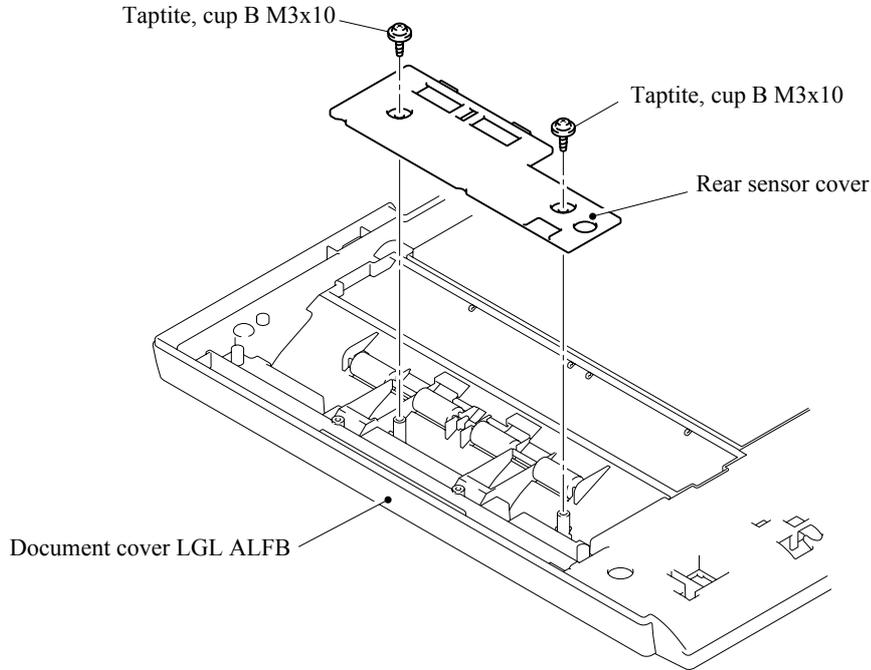


Fig. 5-77

- (3) Remove the two cup B M3x10 Taptite screws, and then remove the two LF springs, four Presser rollers and two Presser roller shafts S.

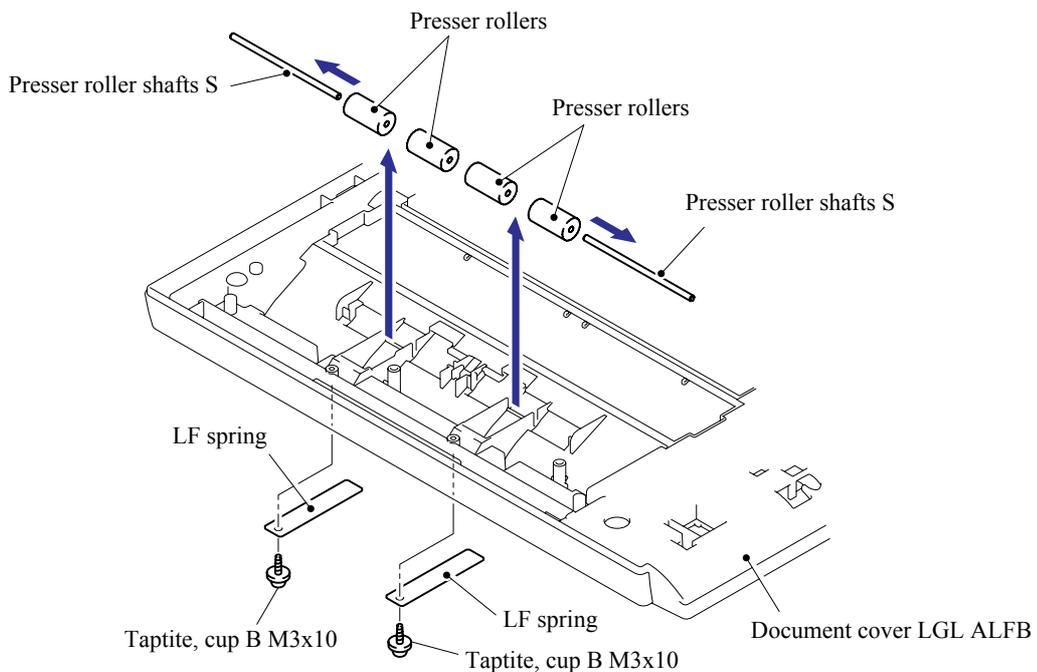


Fig. 5-78

5.1.46 Panel Cover ASSY

- (1) Remove the Panel cover ASSY.

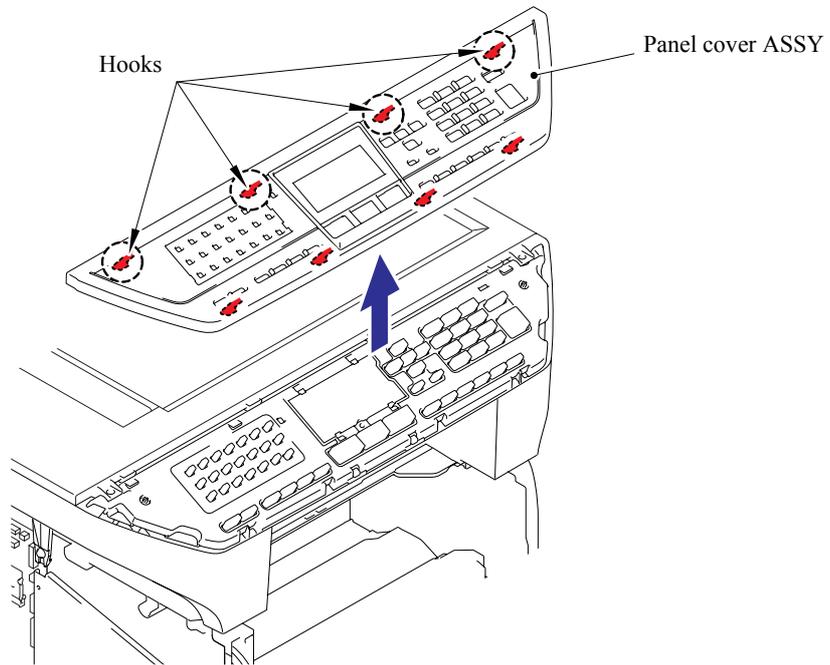


Fig. 5-79

5.1.47 Scanner Unit ASSY

- (1) Disconnect the connector of the Scanner motor harness from the Driver PCB.
- (2) Disconnect the connector of the Photo interrupter and FFC cable from the Main PCB.

NOTE:

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

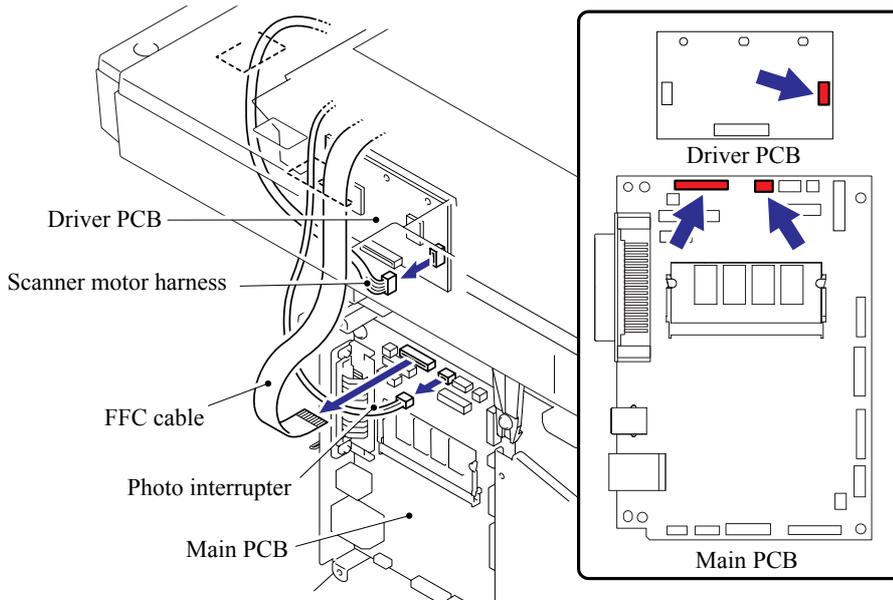


Fig. 5-80

- (3) Remove the two cup B M4x20 Taptite screws. Lift up the rear of the Scanner unit FLFB slightly and remove the Scanner unit FLFB.

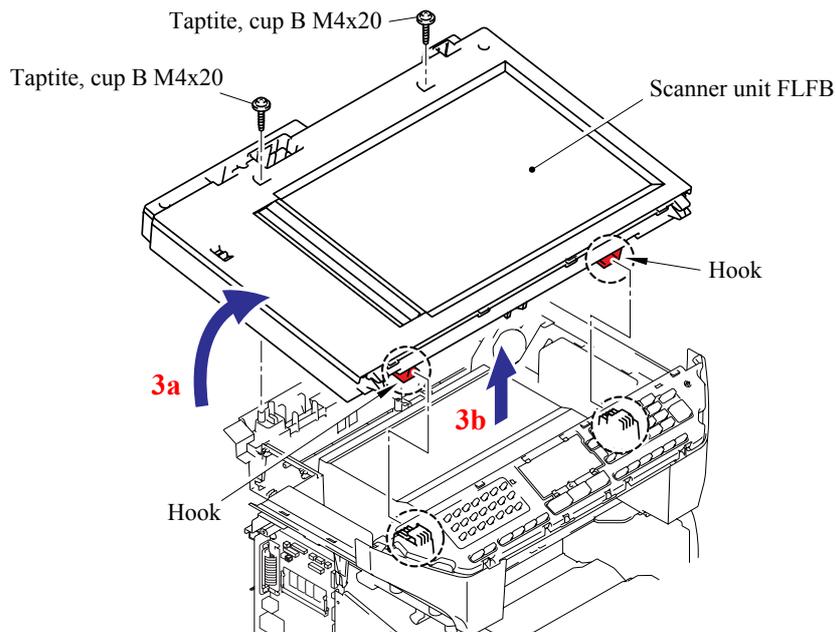


Fig. 5-81

5.1.48 Top Cover ASSY

NOTE: Be sure not to open the Top cover ASSY in a dusty place.

- (1) Remove the six cup B M4x12 Taptite screws.
- (2) Remove the Top cover ASSY from the Scanner base ASSY.

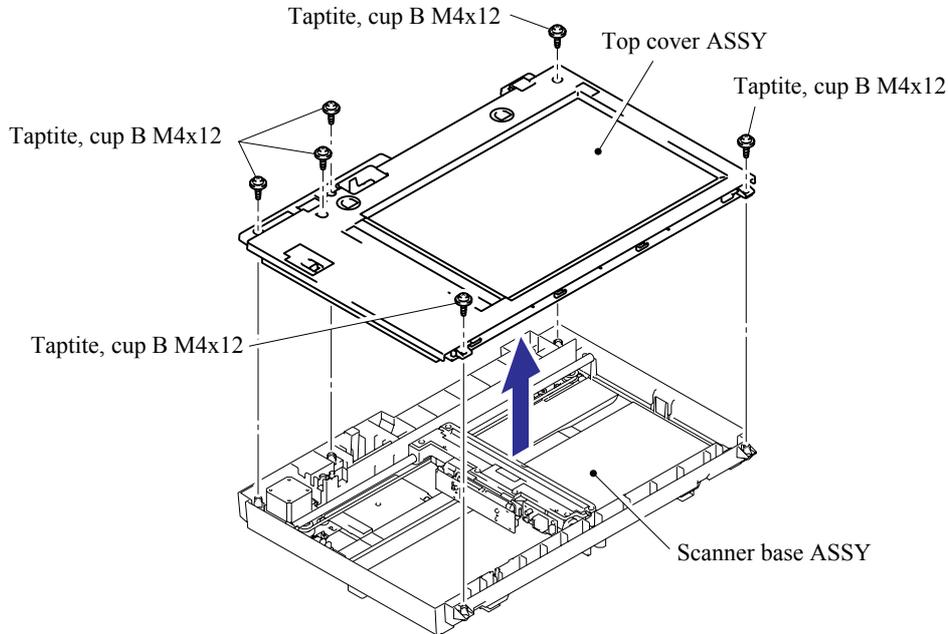


Fig. 5-82

5.1.49 Lock Lever B/ Lock Lever ASSY

- (1) Remove the cup B M3x6 Taptite screw, and then remove the Lock lever B.
- (2) Remove the two cup B M3x6 Taptite screws, and then remove the Lock lever ASSY.

NOTE: After moving the Lock lever ASSY to “A” direction, assemble “B” of the Lock lever B that is to the direction of the top cover rib in touch.

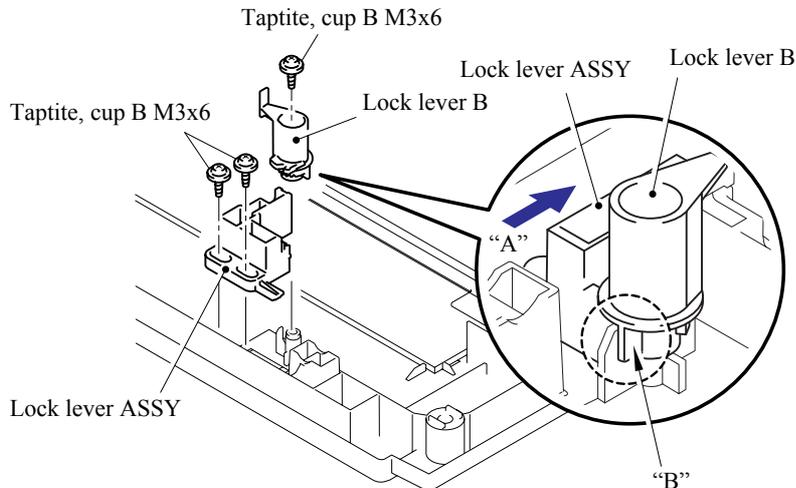


Fig. 5-83

5.1.50 CCD Module

- (1) Loosen the two B M3x8 Taptite screws, push the Pulley ASSY to the direction of the arrow 1a and remove the Belt.

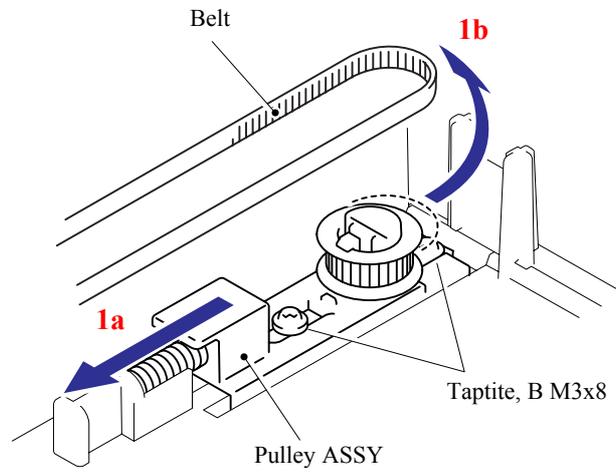


Fig. 5-84

- (2) Lift up the CCD Module and Guide shaft and pull the Guide shaft out of the CCD Module.

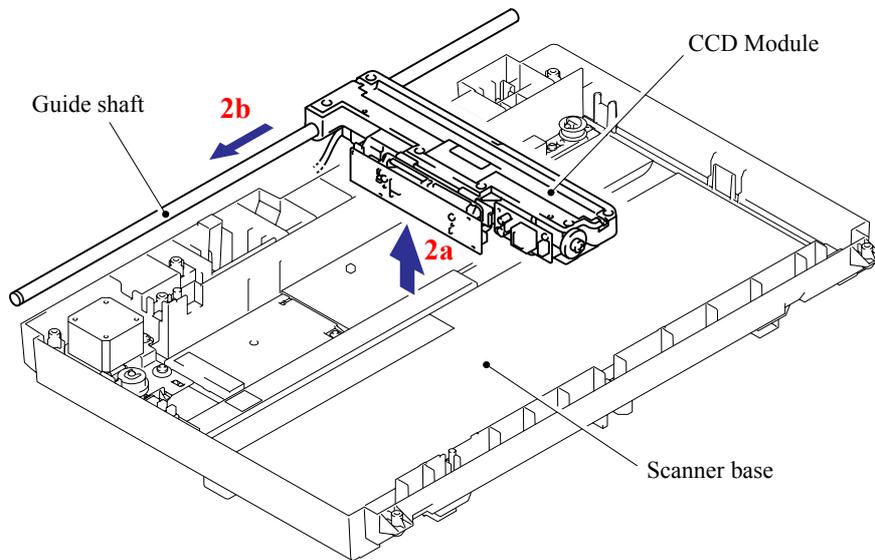


Fig. 5-85

- (3) Remove the Belt support rubber, and then remove the Belt from the CCD module.
- (4) Remove the double-faced adhesive tape which is attached between the FFC cable and CCD module, and disconnect the FFC cable from the CCD module.

NOTE:

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

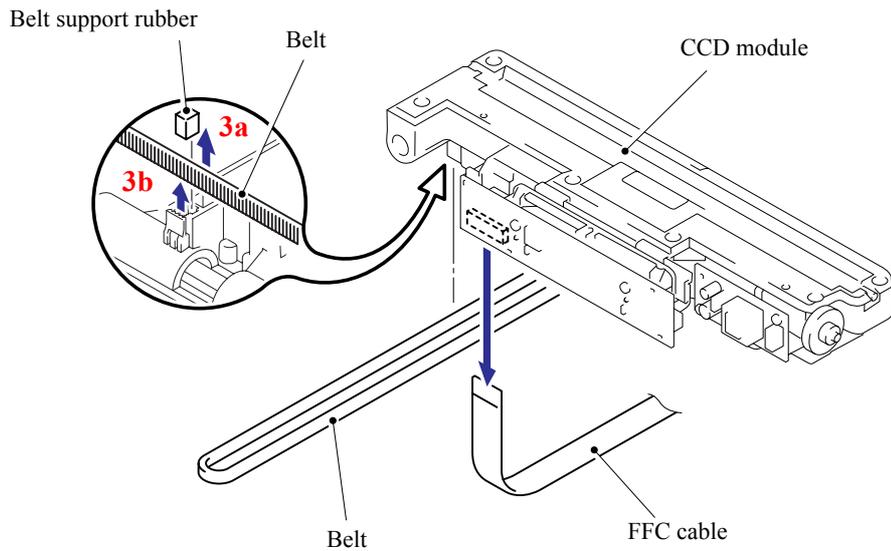


Fig. 5-86

5.1.51 FFC Cable ASSY

- (1) Release the Hooks and remove the FFC plate ALFB.

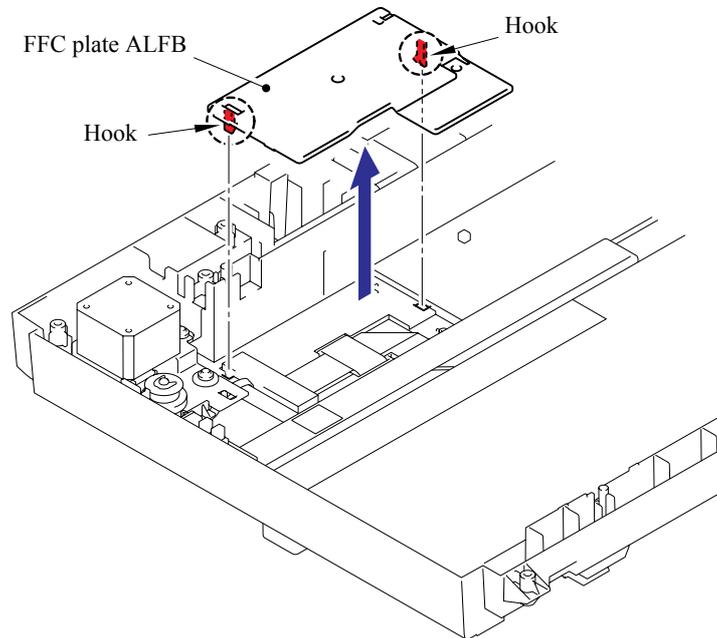


Fig. 5-87

- (2) Remove the Shield sponge ALFB and FFC cable ASSY.
- (3) Remove the Flat core from the FFC cable ASSY.

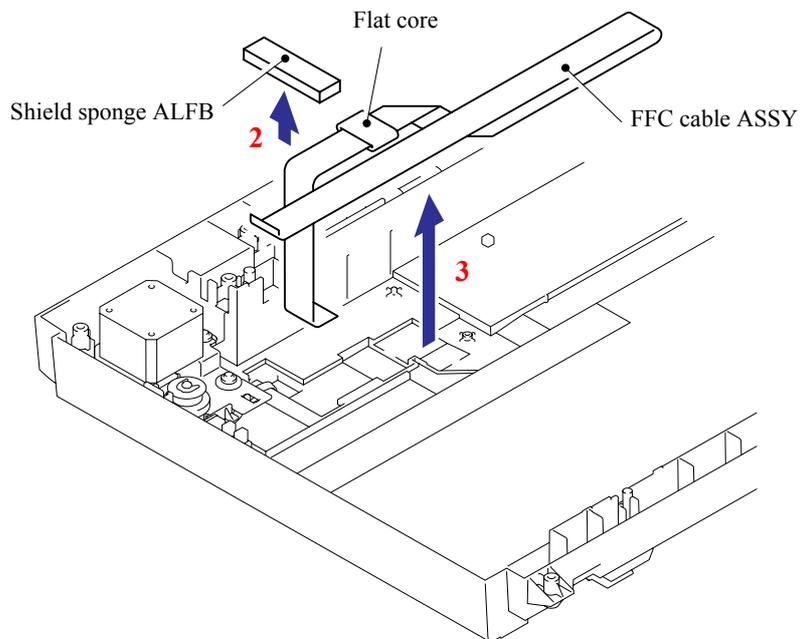


Fig. 5-88

5.1.52 Scanner Motor FB

- (1) Remove the cup S M3x6 Taptite screw, and then remove the FB FG harness.
- (2) Remove the four pan B M3x8 Taptite screws, and then remove the Drive plate ASSY ALFB.

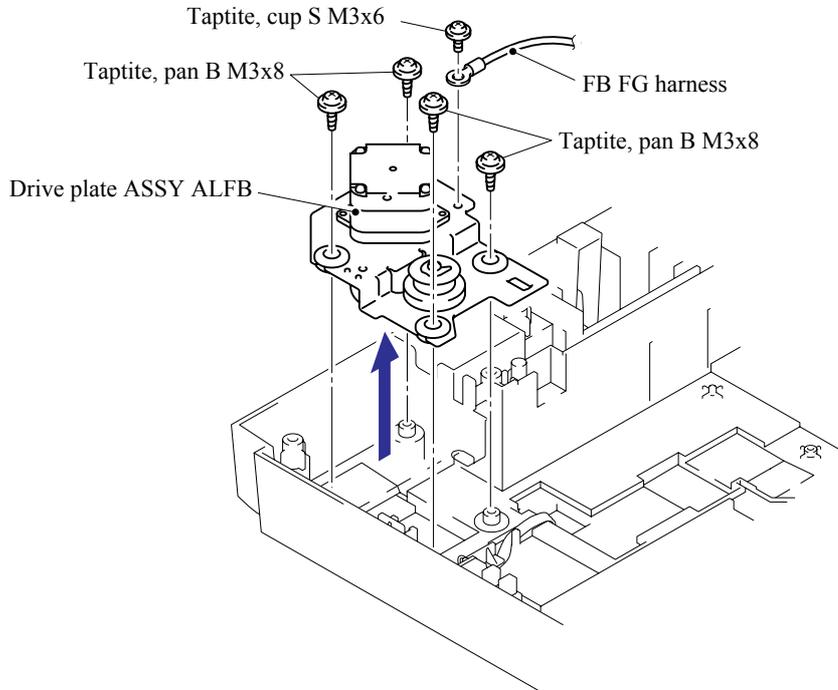


Fig. 5-89

- (3) Remove the two Screws pan (S/P washer) M3x6, and then remove the Scanner motor FB.

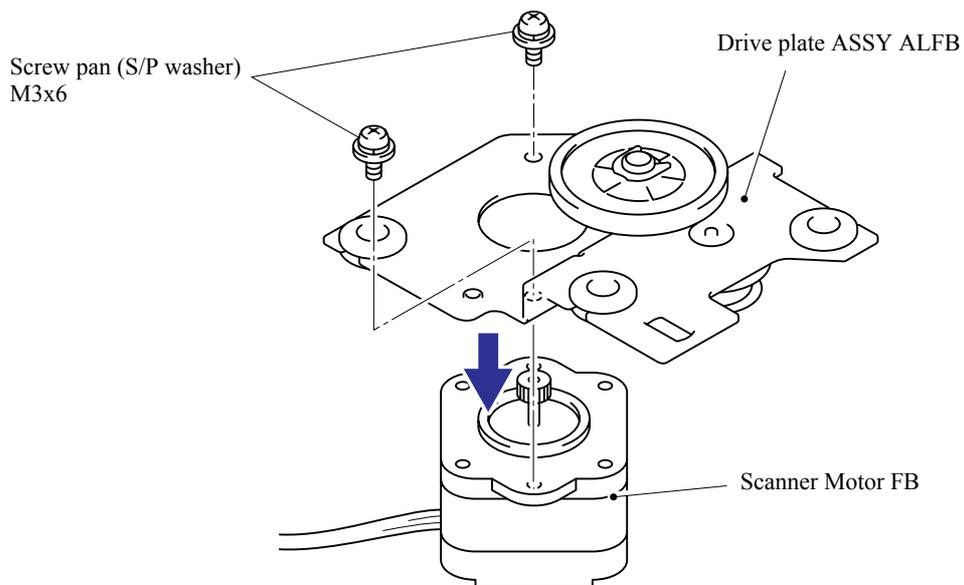


Fig. 5-90

5.1.53 Pulley ASSY

- (1) Remove the two B M3x6 Taptite screws, and then remove the Pulley ASSY.
- (2) Remove the Pulley spring.

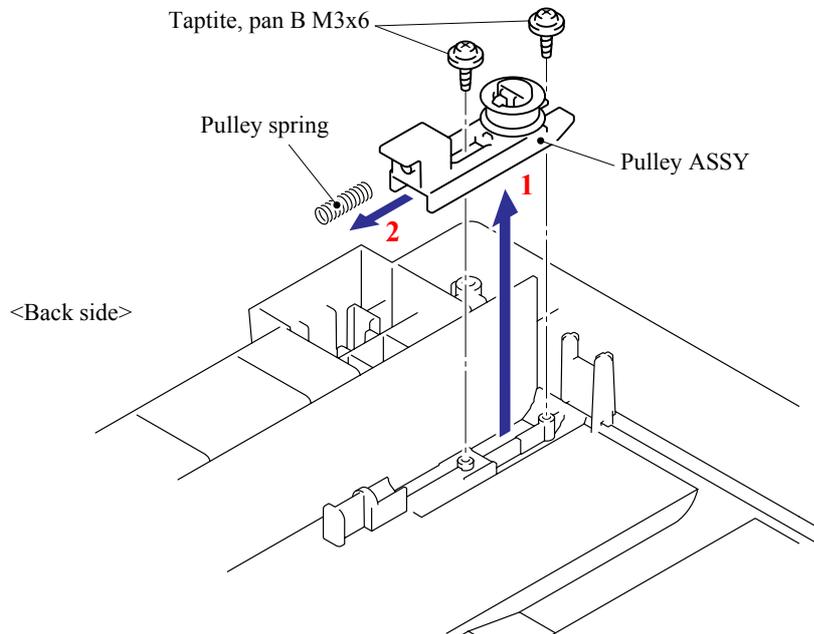


Fig. 5-91

5.1.54 Photo Interrupter

- (1) Release the Hooks and remove the Photo interrupter.
- (2) Disconnect the Connector from the Photo interrupter.

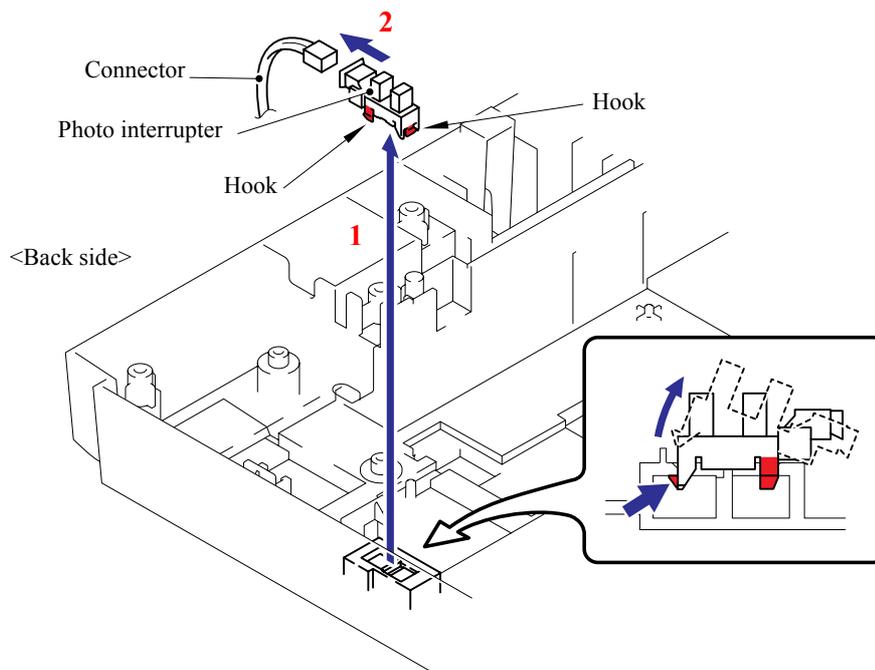


Fig. 5-92

5.1.55 Panel Unit

- (1) Disconnect the connector of the Panel PCB harness from the Main PCB.

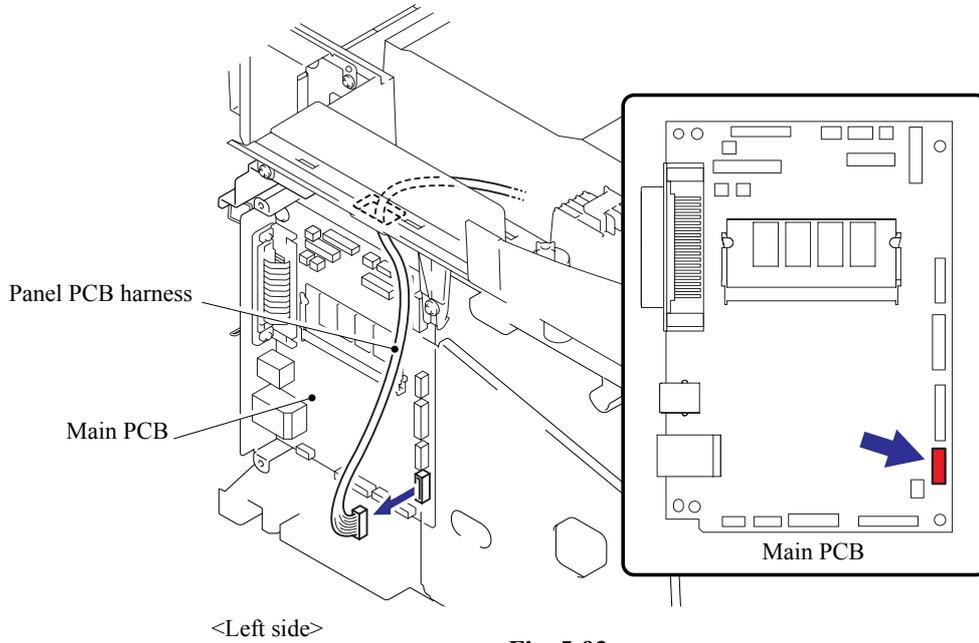


Fig. 5-93

- (2) Remove the four cup B M4x12 Taptite screw.
- (3) Remove the Tape fixing the wire harness.
- (4) Remove the Panel Unit.

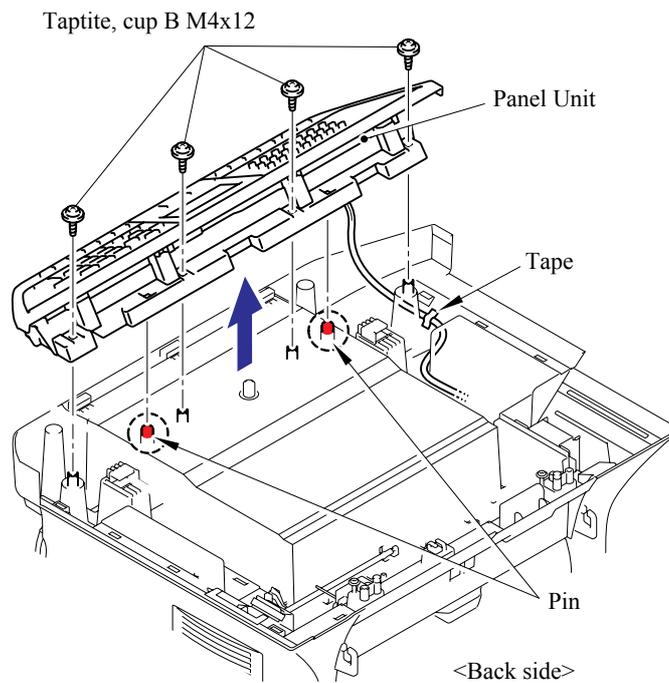


Fig. 5-94

5.1.56 Panel PCB ASSY

- (1) Disconnect the connector of the Panel PCB harness from the Panel unit.
- (2) Remove the four cup B M3x10 Taptite screws, release the two Hooks and remove the ALFB panel.

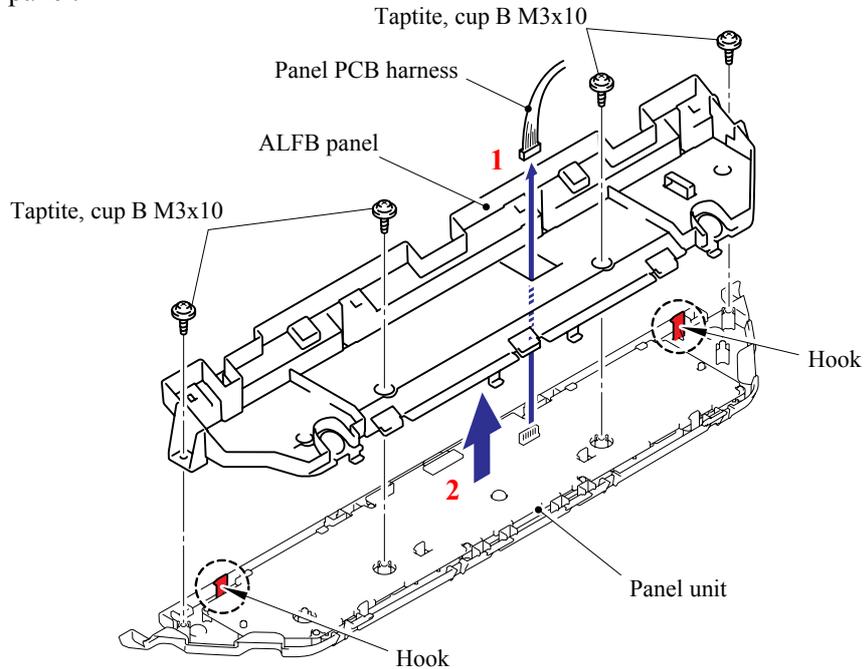


Fig. 5-95

- (3) Disconnect the connector of the Backlight module harness and LCD cable from the Panel PCB ASSY.

NOTE:

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

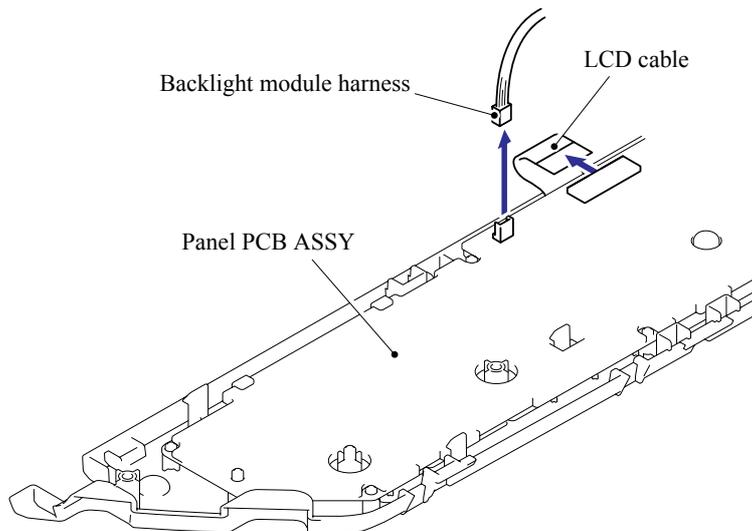


Fig. 5-96

- (4) Release the four Hooks, lift up the Panel PCB ASSY to the direction of the arrow 4a and remove the Panel PCB ASSY.

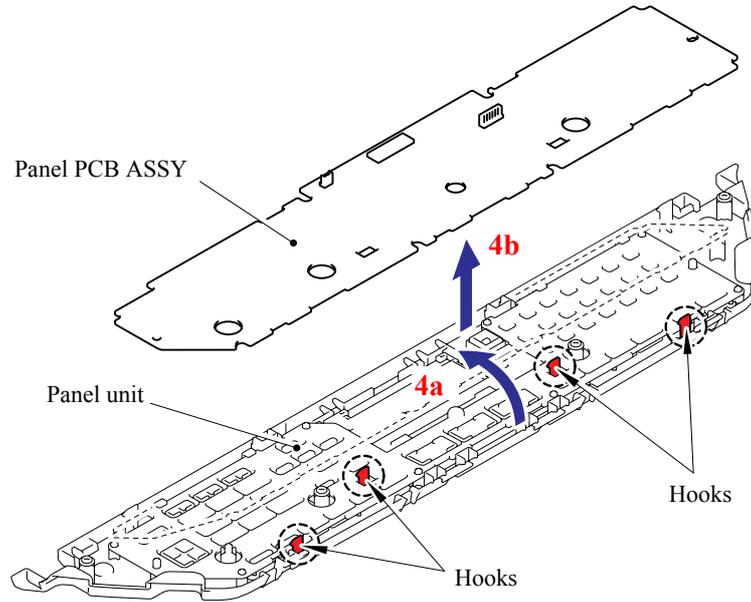


Fig. 5-97

5.1.57 Printed Rubber Key

- (1) Remove the Printed rubber key.

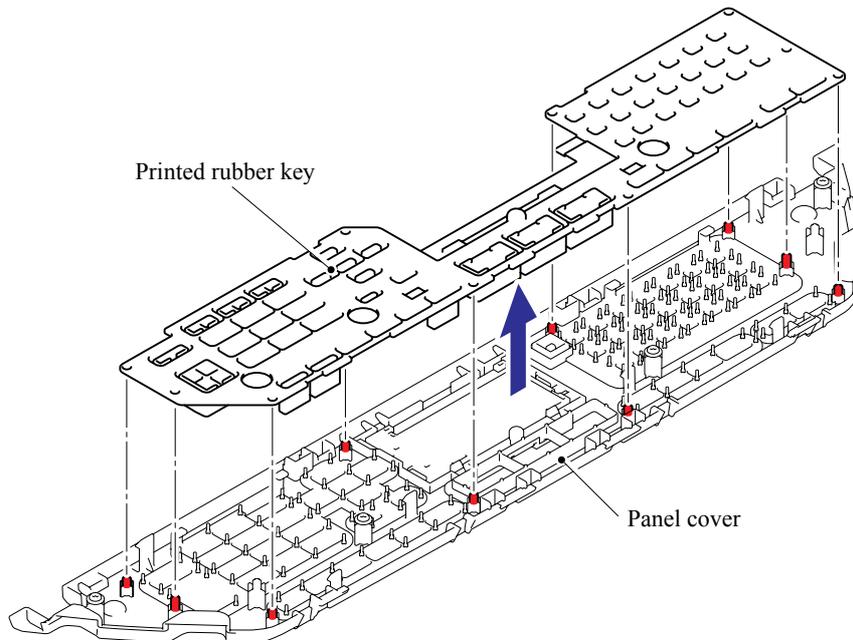


Fig. 5-98

5.1.58 LCD Cover/Backlight Module/LCD

- (1) Release the Hooks on the Panel cover to the direction of the arrow and remove the LCD cover and LCD ASSY from the Panel cover.

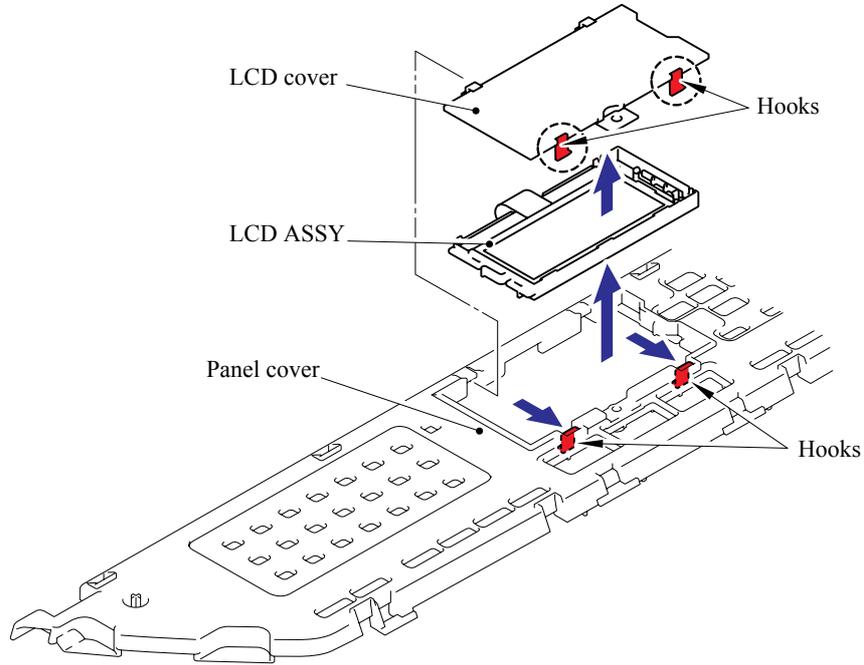


Fig. 5-99

- (2) Release the two Hooks, lift up the LCD to the direction of the arrow 2a and remove the LCD.

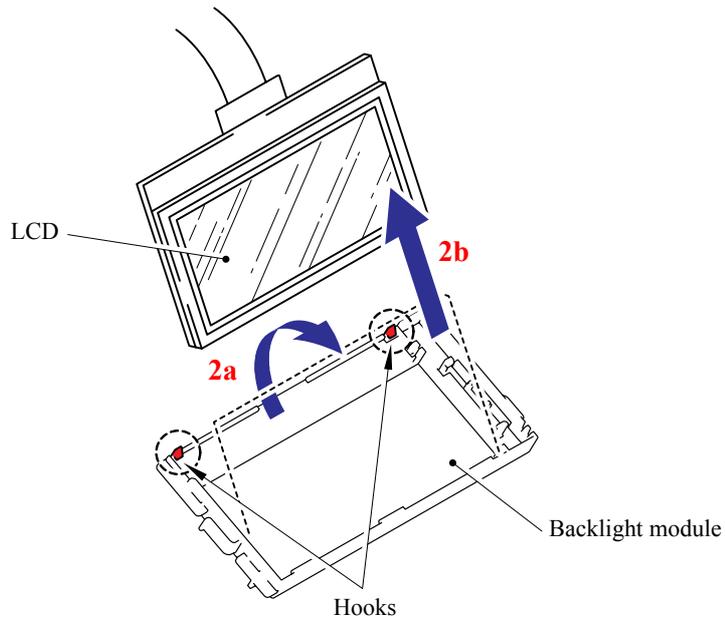


Fig. 5-100

5.1.59 NCU PCB ASSY (For the models with the NCU only)

- (1) Disconnect the connector of the NCU harness from the Main PCB.

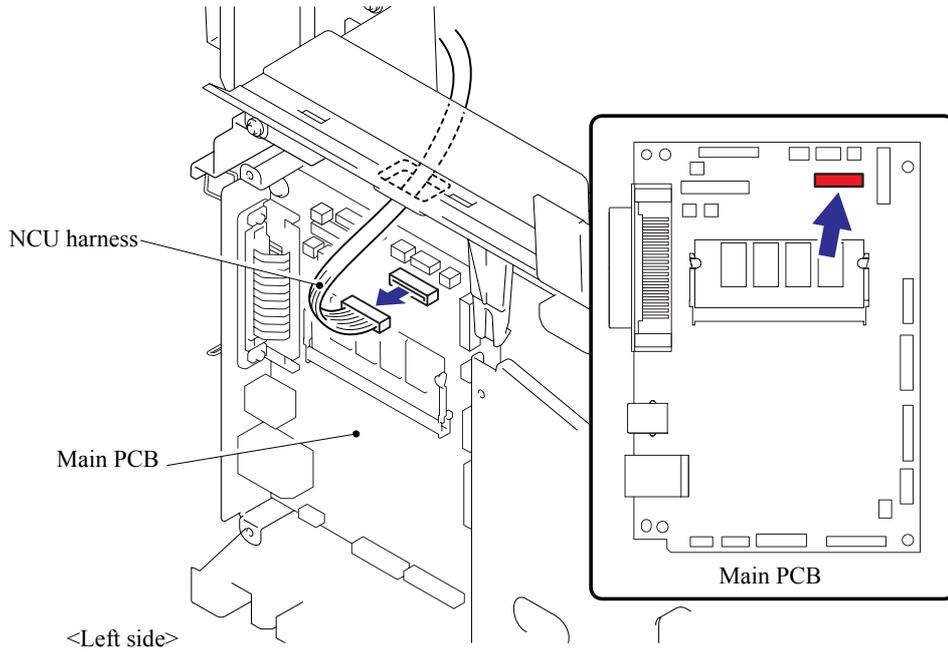


Fig. 5-101

- (2) Remove the Screw pan (S/P washer) M3.5x6 and NCU FG harness ASSY ALFB.
- (3) Remove the two bind B M4x12 Taptite screws, and then remove the NCU unit.

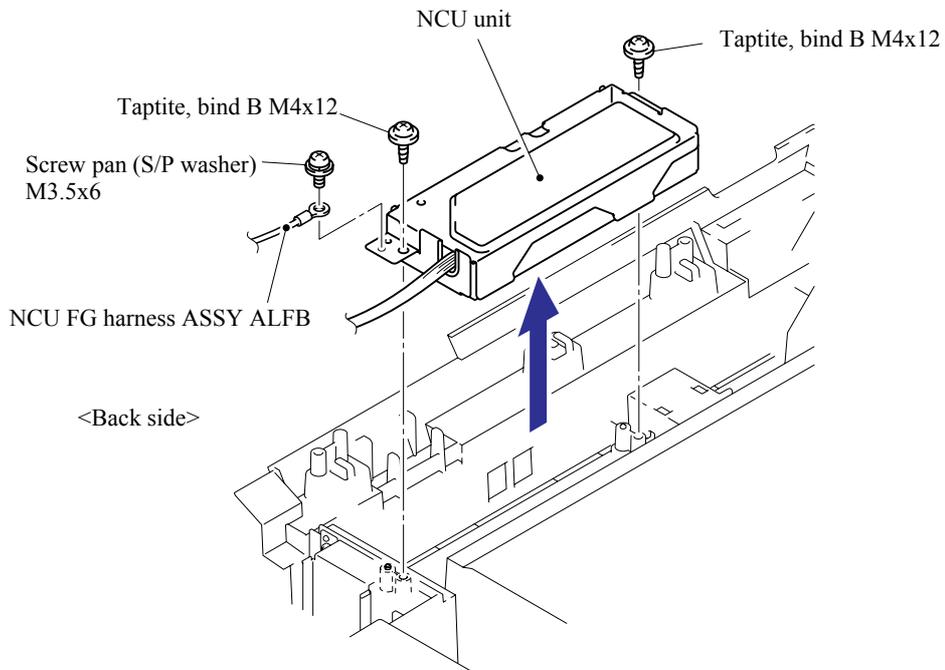


Fig. 5-102

- (4) Remove the Screw pan (S/P washer) M3.5x6 screw, and then remove the NCU shield plate.
- (5) Disconnect the connector of the NCU harness.

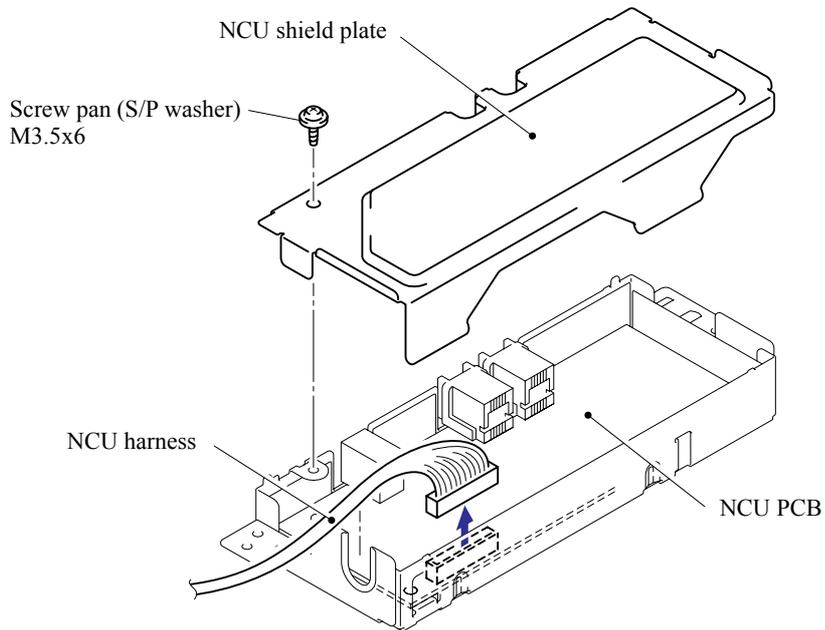


Fig. 5-103

- (6) Remove the two cup S M3x6 Taptite screws, and then remove the NCU PCB ASSY.

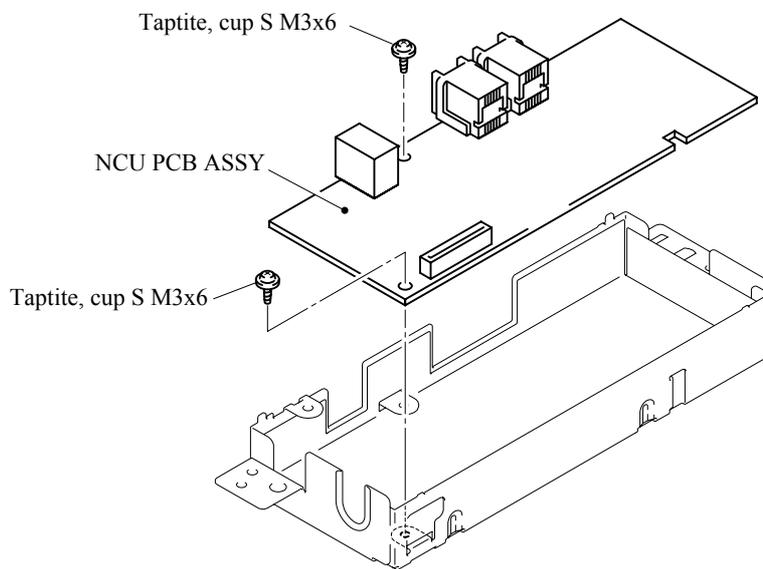


Fig. 5-104

5.1.60 Speaker ASSY

- (1) Disconnect the connector of the Speaker harness from the Main PCB.

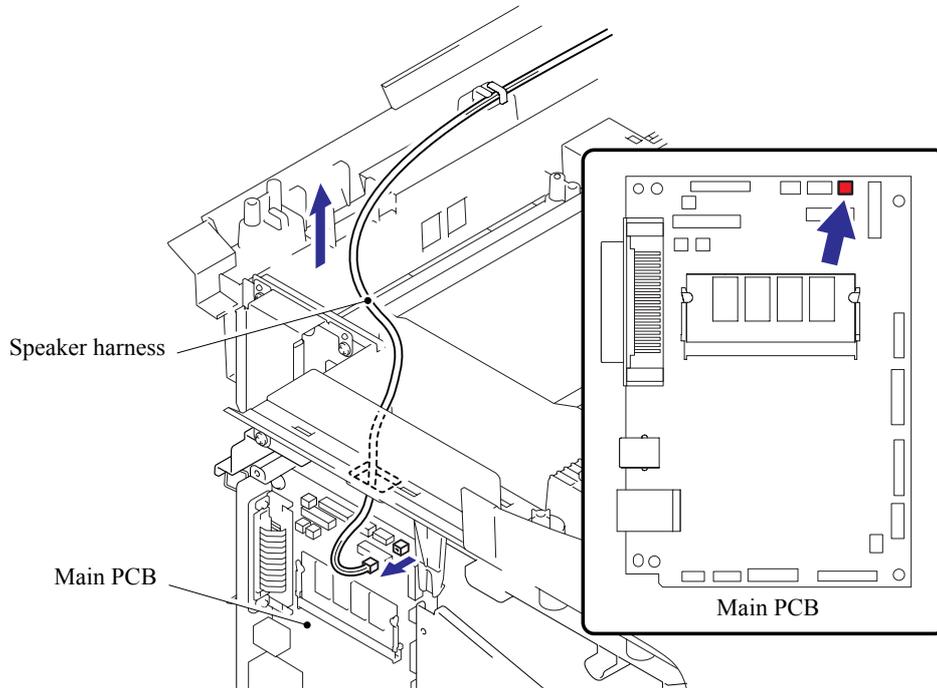


Fig. 5-105

- (2) Remove the bind B M4x12 Taptite screw.
- (3) Remove the Speaker hold spring and Speaker ASSY.

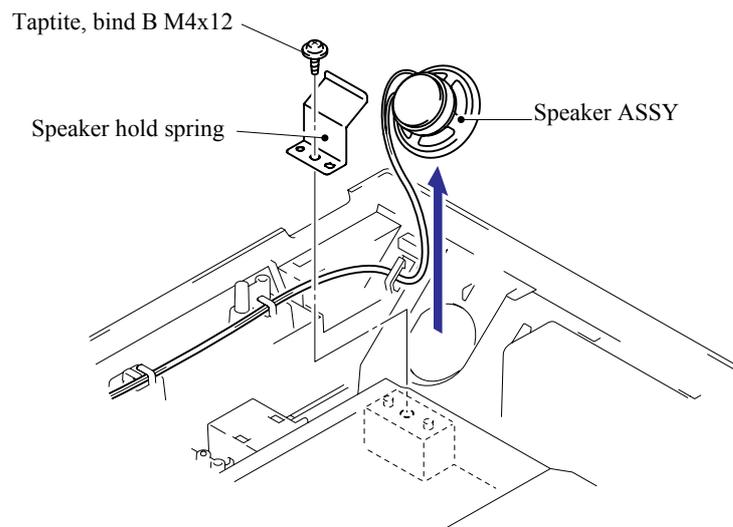


Fig. 5-106

5.1.61 Driver PCB

- (1) Disconnect the connector of the Driver harness from the Main PCB.

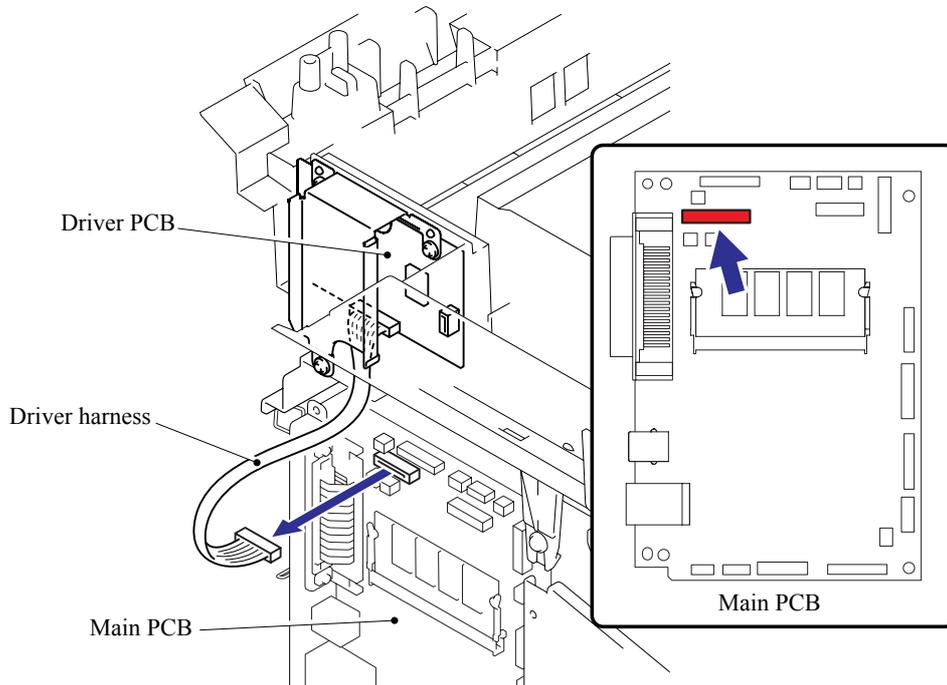


Fig. 5-107

- (2) Remove the cup S M3x6 SR Taptite screw and two cup B M3x8 Taptite screws.
- (3) Remove the Driver PCB shield ALFB and Driver PCB from the Joint cover ASSY.
- (4) Disconnect the connector of the Driver harness from the Driver PCB.

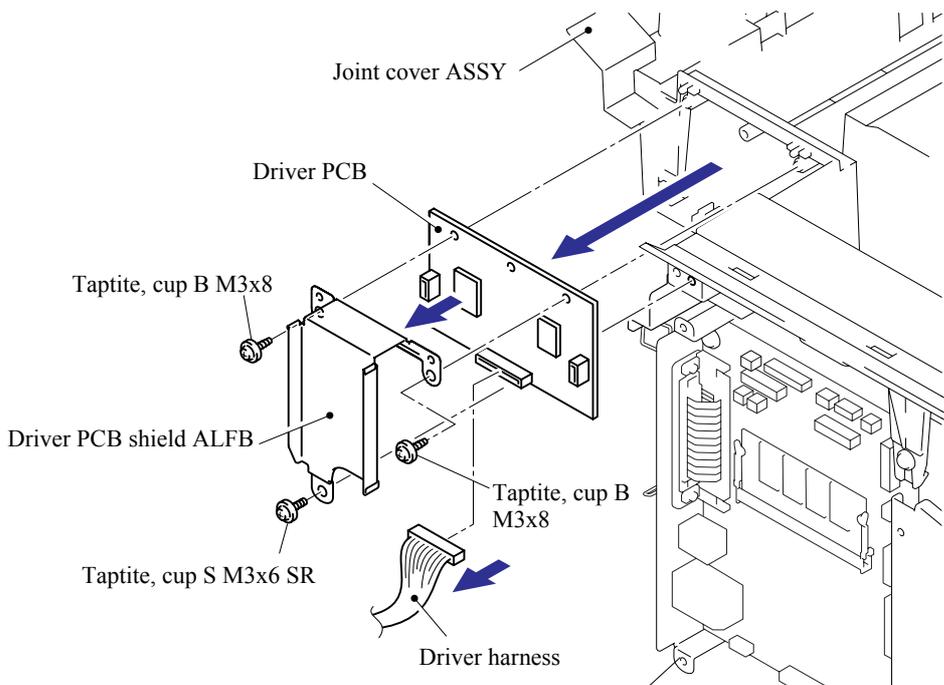


Fig. 5-108

5.1.62 Fuser Unit

- (1) Remove the bind B M4x16 Taptite screw. Release the Hooks in the order of the arrows 1a, 1b and 1c, and remove the FU harness cover 1.

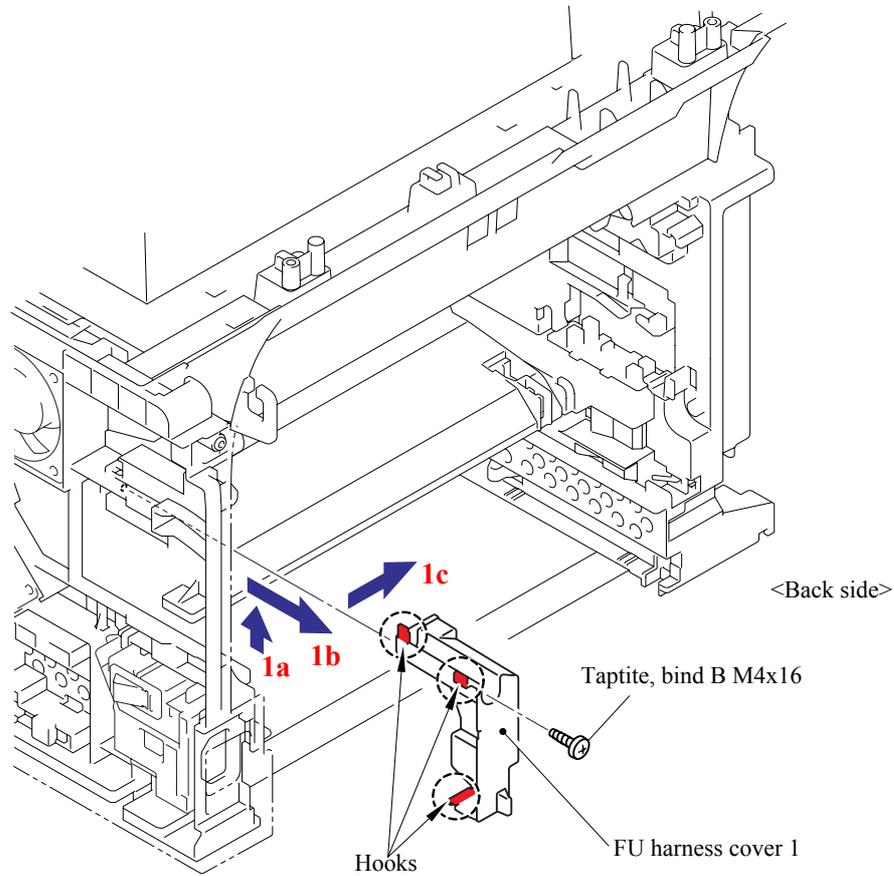


Fig. 5-109

- (2) Remove the Heater terminal L and Heater terminal S from the Fuser unit while holding the Fuser unit.

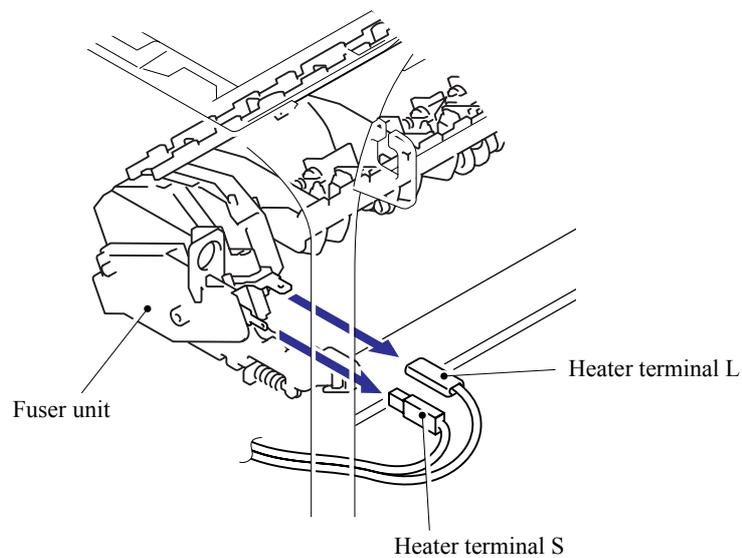


Fig. 5-110

- (3) Pull the FU harness cover 2 to the direction of the arrow 3a while pressing the Hook and pull out the FU harness cover 2 from the back of the machine.

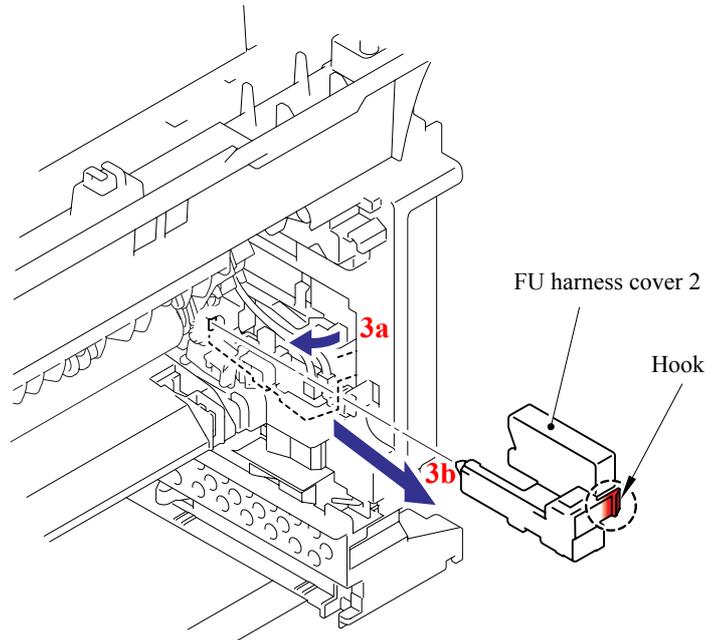


Fig. 5-111

- (4) Disconnect the connectors of the Thermistor ASSY M and Thermistor ASSY S from the Relay rear PCB ASSY, and remove the harnesses of these thermistors.

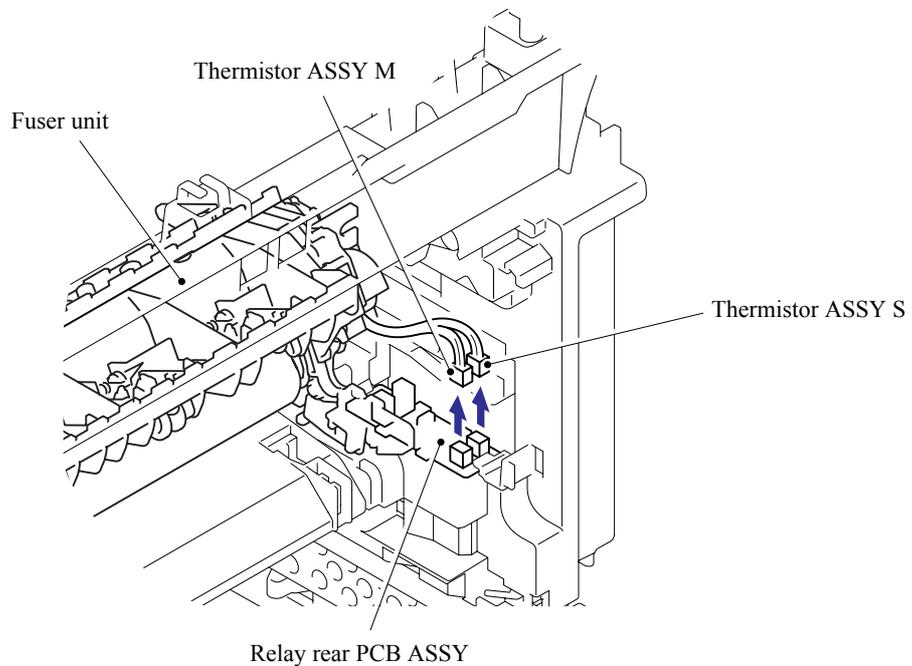


Fig. 5-112

- (5) Remove the cup B M4x16 Taptite screw, and then remove Fuser unit.

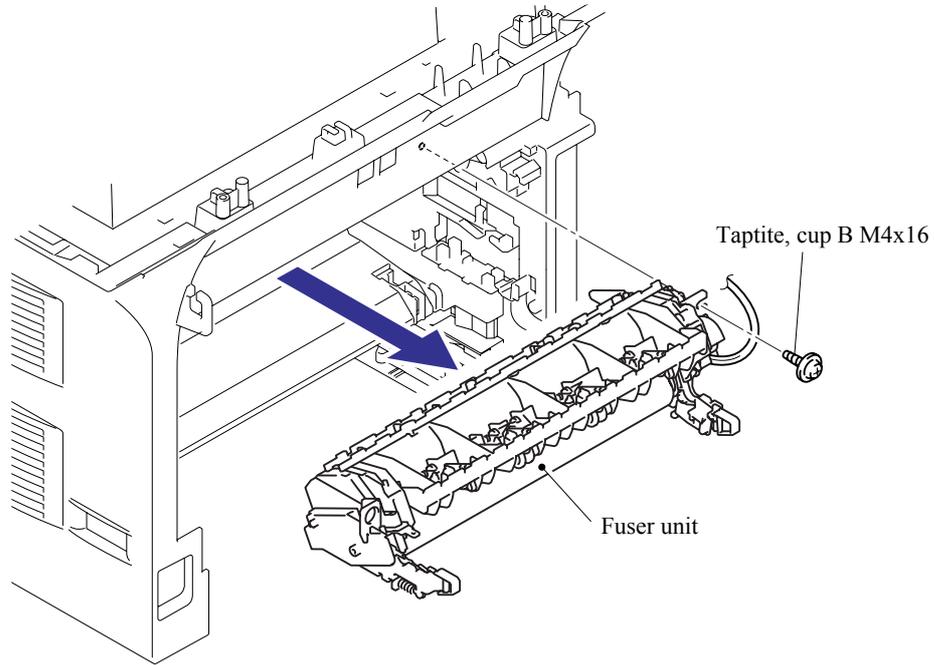


Fig. 5-113

5.1.63 Tray MP ASSY

- (1) Open the MP tray cover ASSY.
- (2) Release the Boss of the Tray MP ASSY from the MP tray cover ASSY.
- (3) Remove the Tray MP ASSY.

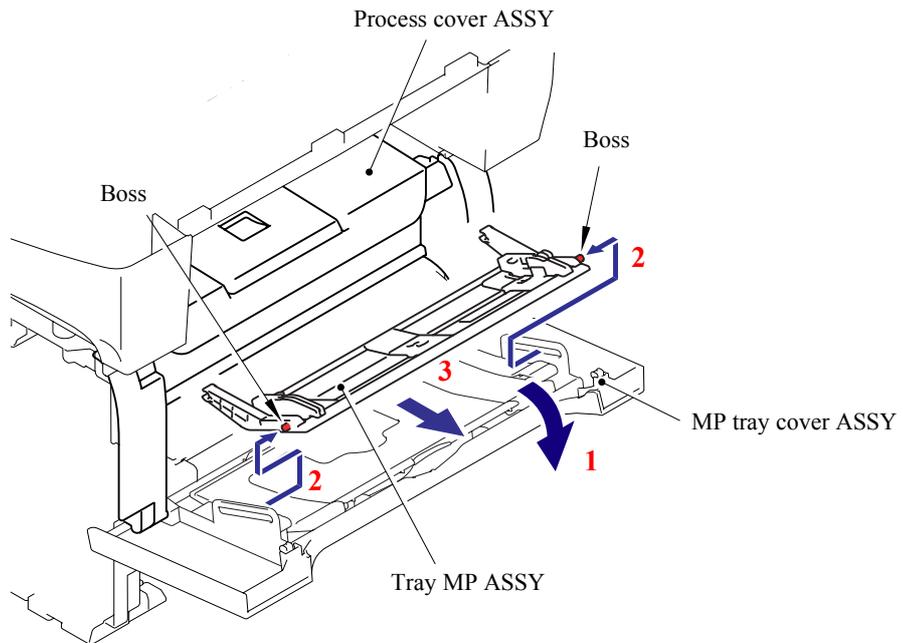


Fig. 5-114

5.1.64 MP Tray Cover ASSY/Process Cover ASSY

- (1) Push the cover release lever.
- (2) Open the Process cover ASSY.
- (3) Release the Hook to remove the Process cover stopper.

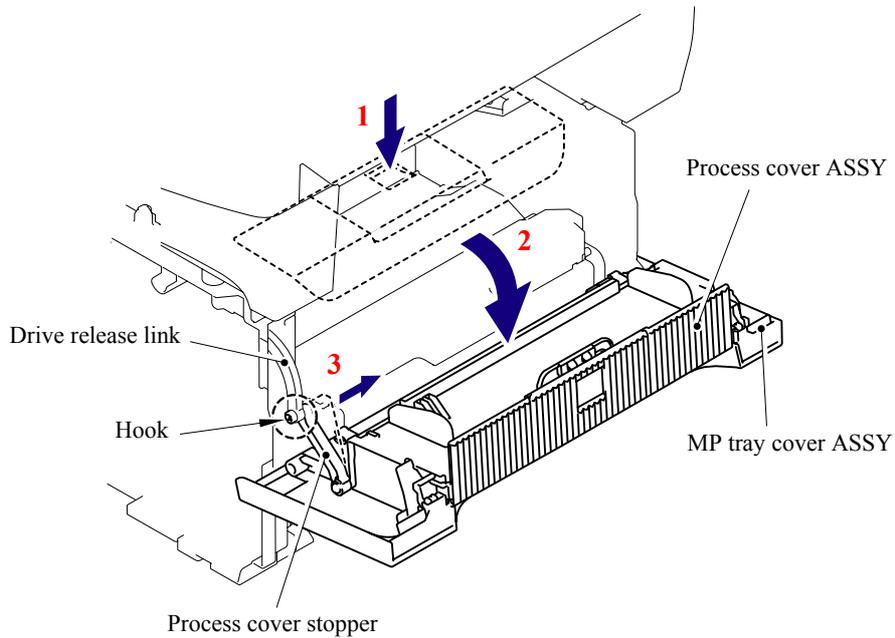


Fig. 5-115

- (4) Push the Process cover ASSY to the direction of the arrow 4a to release the Boss, and remove the Process cover ASSY.

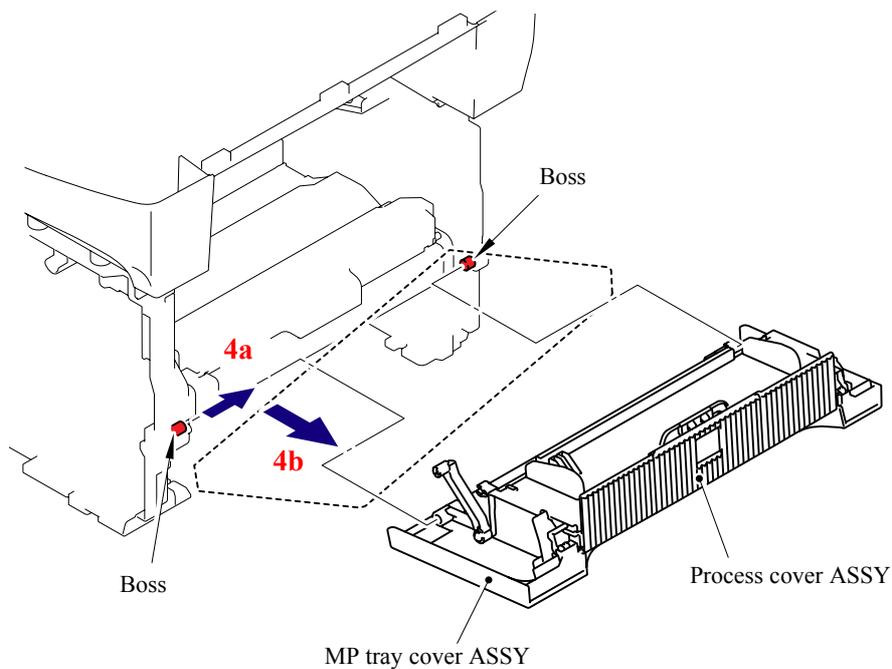


Fig. 5-116

(5) Pull the Arm outwards and remove the Process cover ASSY from the MP tray cover ASSY.

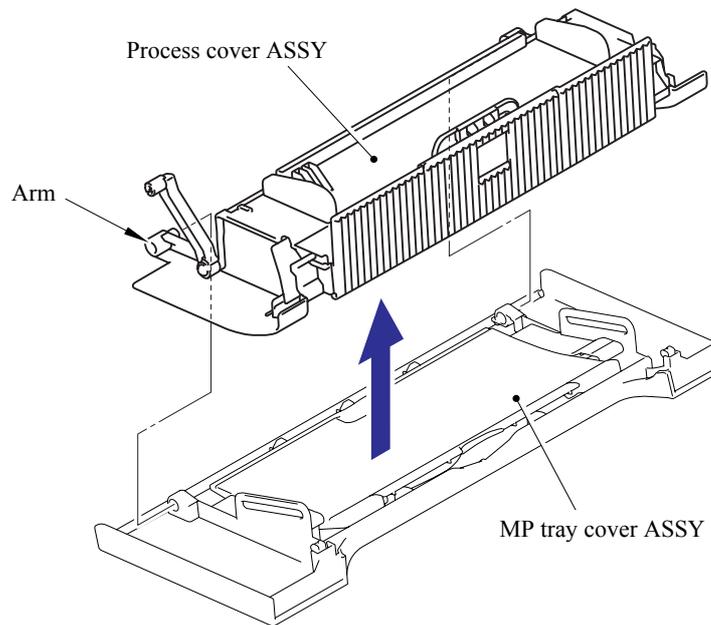


Fig. 5-117

(6) Remove the cup B M4x10 Taptite screw, and then remove the Process cover stopper.

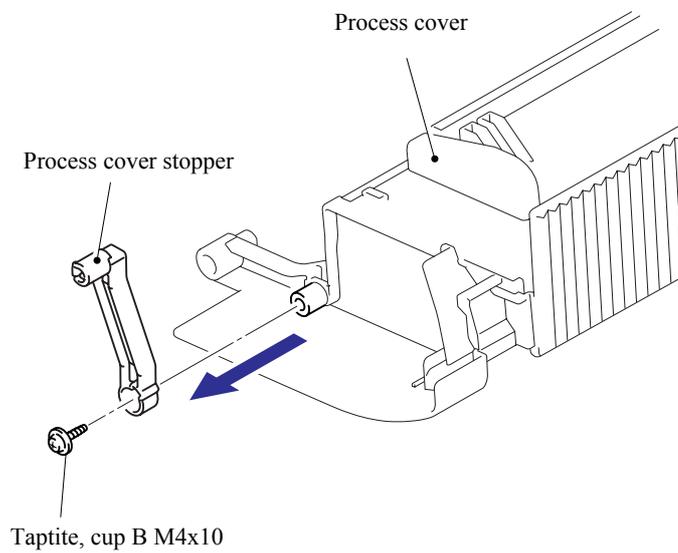


Fig. 5-118

(7) Remove the Support lap from the Process cover.

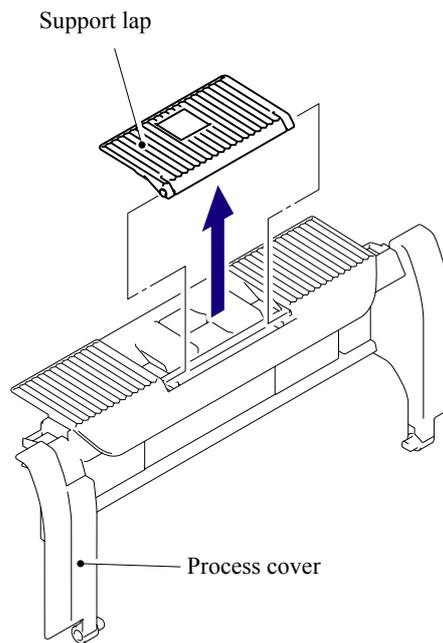


Fig. 5-119

5.1.65 Main PCB

- (1) Disconnect the 12 connectors and 7 flat cables from the Main PCB.

NOTE:

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

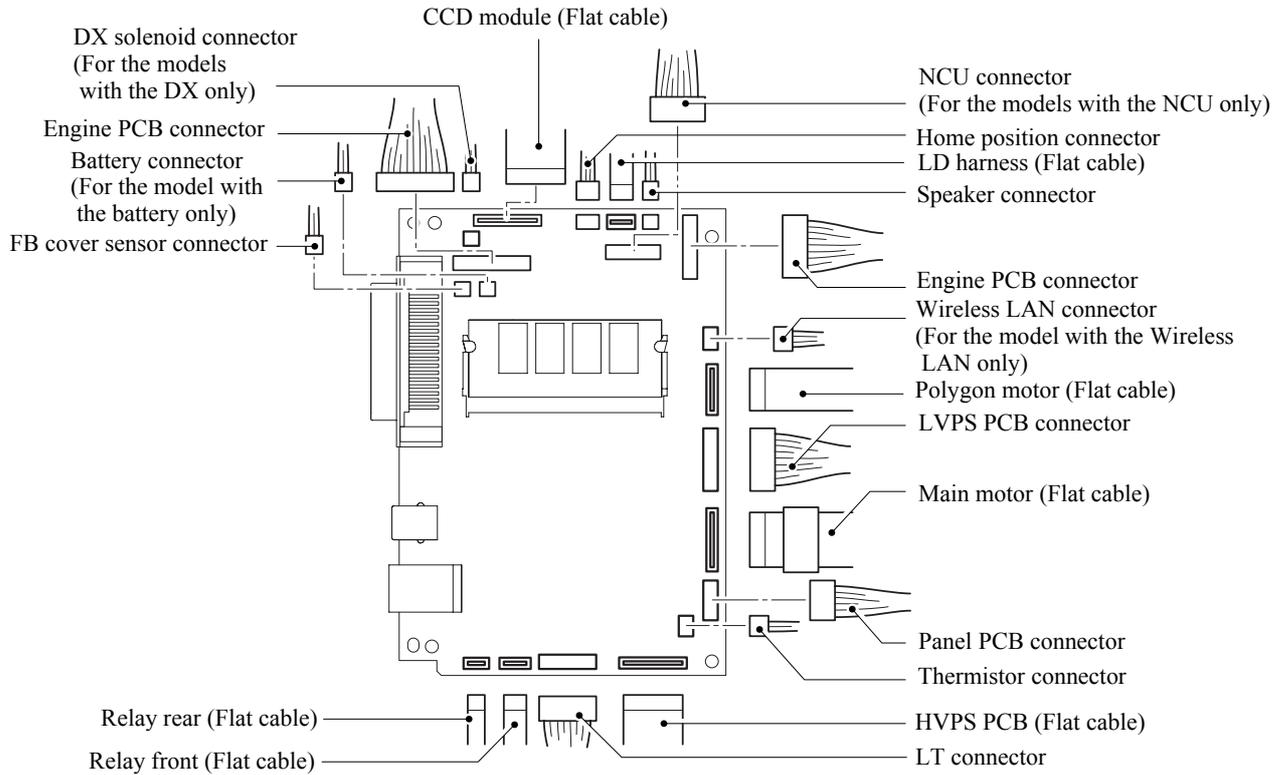


Fig. 5-120

- (2) Remove the four cup S M3x6 Taptite screws and two Screws to remove the Main PCB.

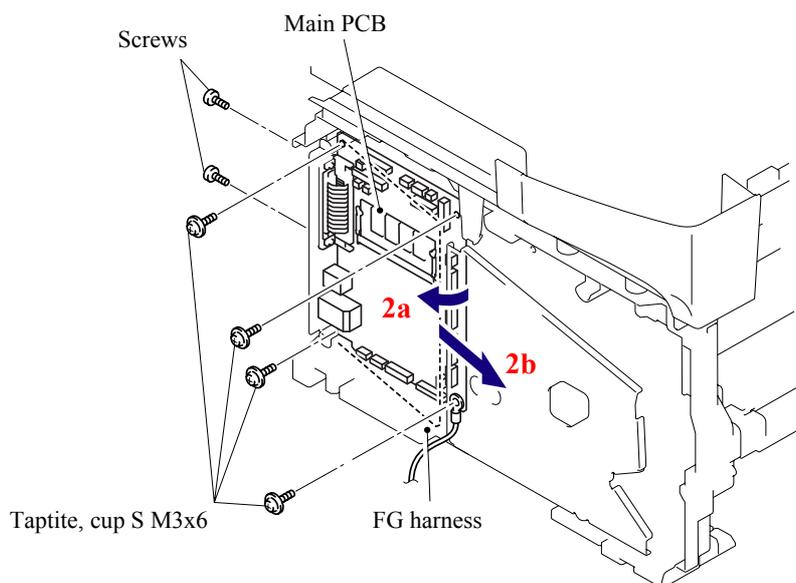


Fig. 5-121

5.1.66 Gear Plate Calking ASSY AL/Develop Joint/ Main Motor ASSY AL

- (1) Place the machine body so that the Frame L is at the top.
- (2) Remove the eight bind B M4x12 Taptite screws and cup S M3x6 taptite screw.
- (3) Remove the Gear plate calking ASSY AL from the Frame L.

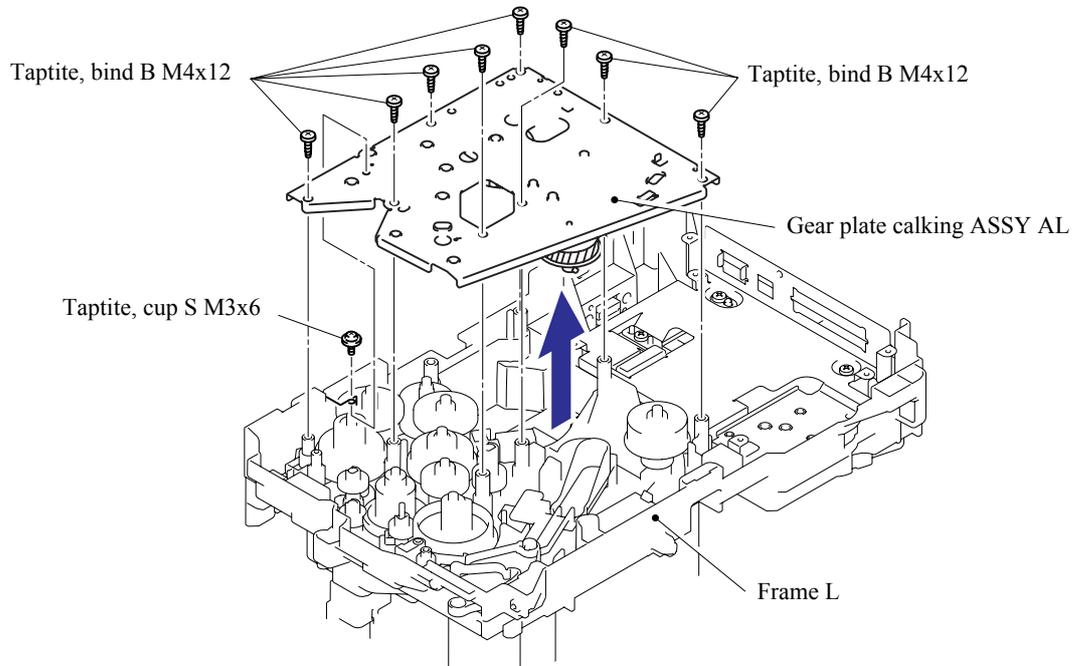


Fig. 5-122

NOTE: Be careful not to drop the gear.

(4) Remove the four cup S M3x6 Taptite screws, and then remove the Main motor ASSY AL.

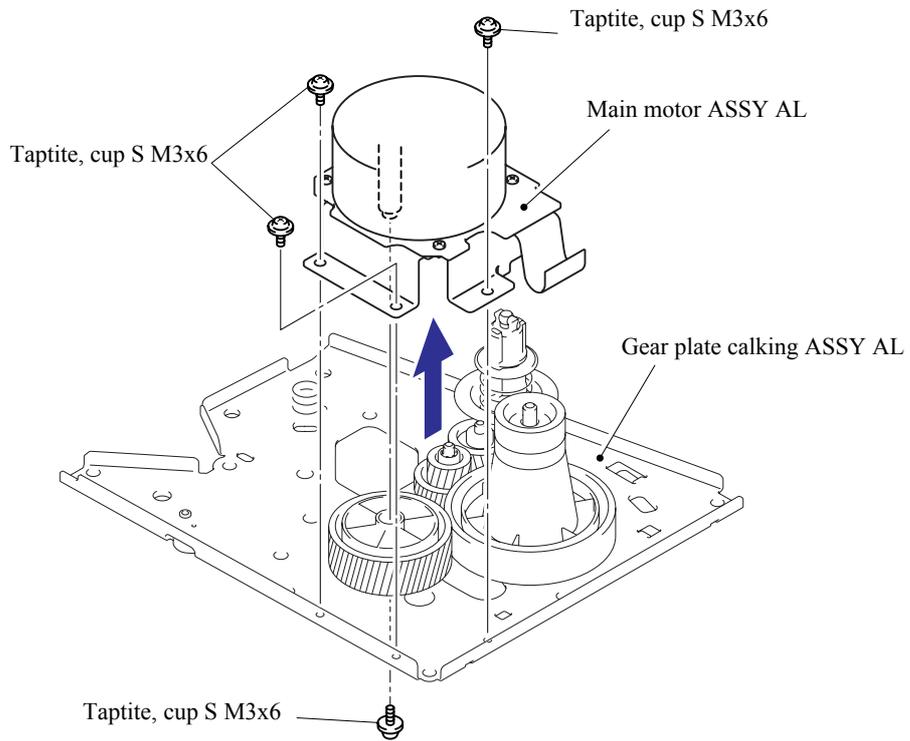


Fig. 5-123

(5) Remove the Develop joint from the Gear plate calking ASSY AL.

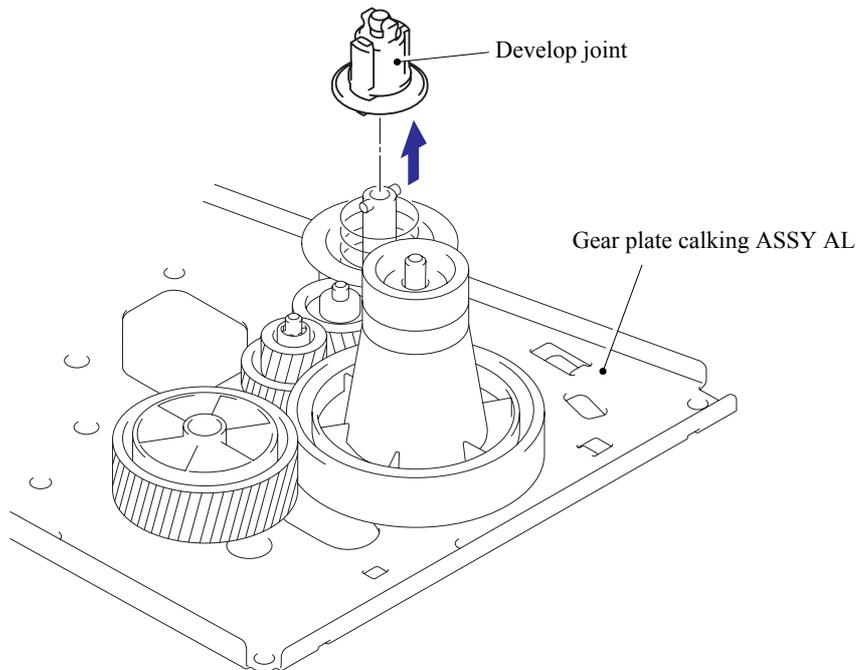


Fig. 5-124

5.1.67 Main Shield Plate ASSY

- (1) Remove the two Insulation sheets.

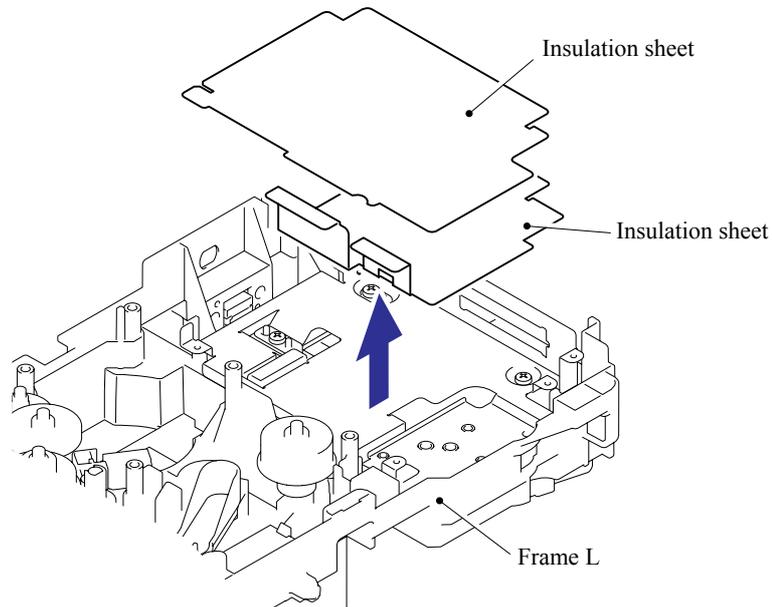


Fig. 5-125

- (2) Remove the bind B M4x12 Taptite screw.
- (3) Remove the bind B M4x12 Taptite screw, and then remove the Plate.

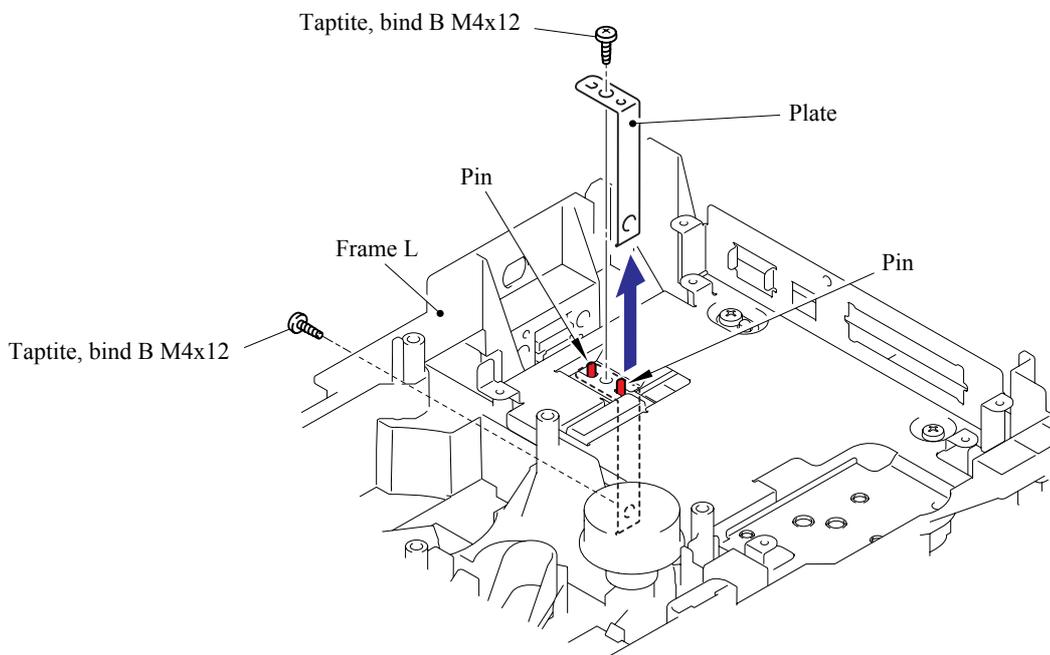


Fig. 5-126

■ **Assembling Notes**

- When assembling the Plate, ensure to put the Plate into the base plate LV.
- When assembling the Plate, secure the screw at the Frame L side first, then the screw at the base plate LV side.

- (4) Remove the three bind B M4x12 Taptite screws and cup S M3x6 Taptite screw, and then remove the Main shield plate ASSY.

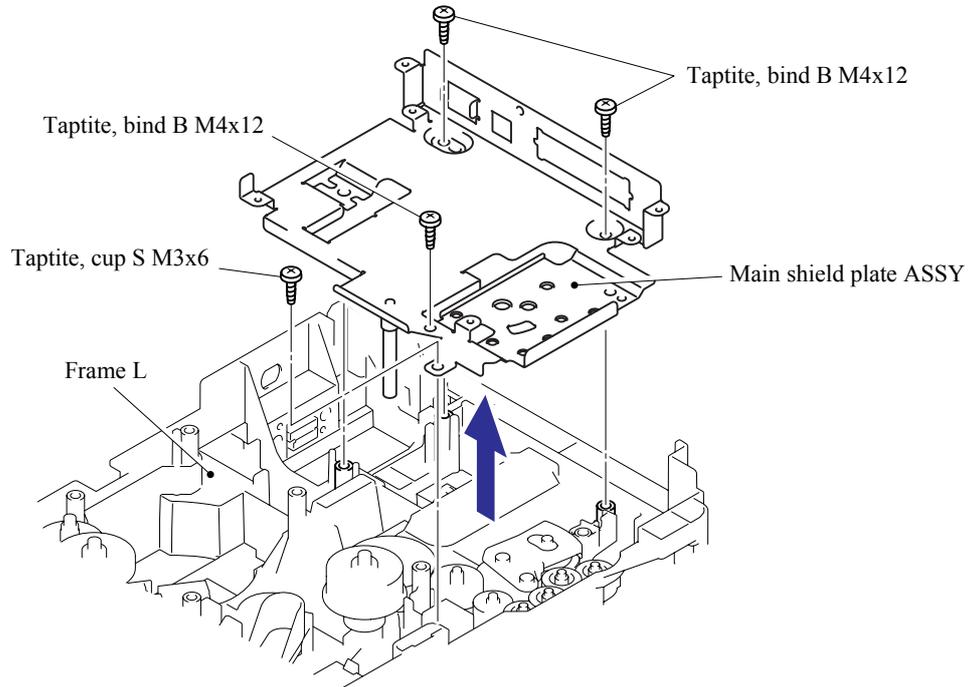


Fig. 5-127

■ **Assembling Notes**

When assembling the Main shield plate ASSY, be careful not to bend the Ground wire AL of the Frame L.

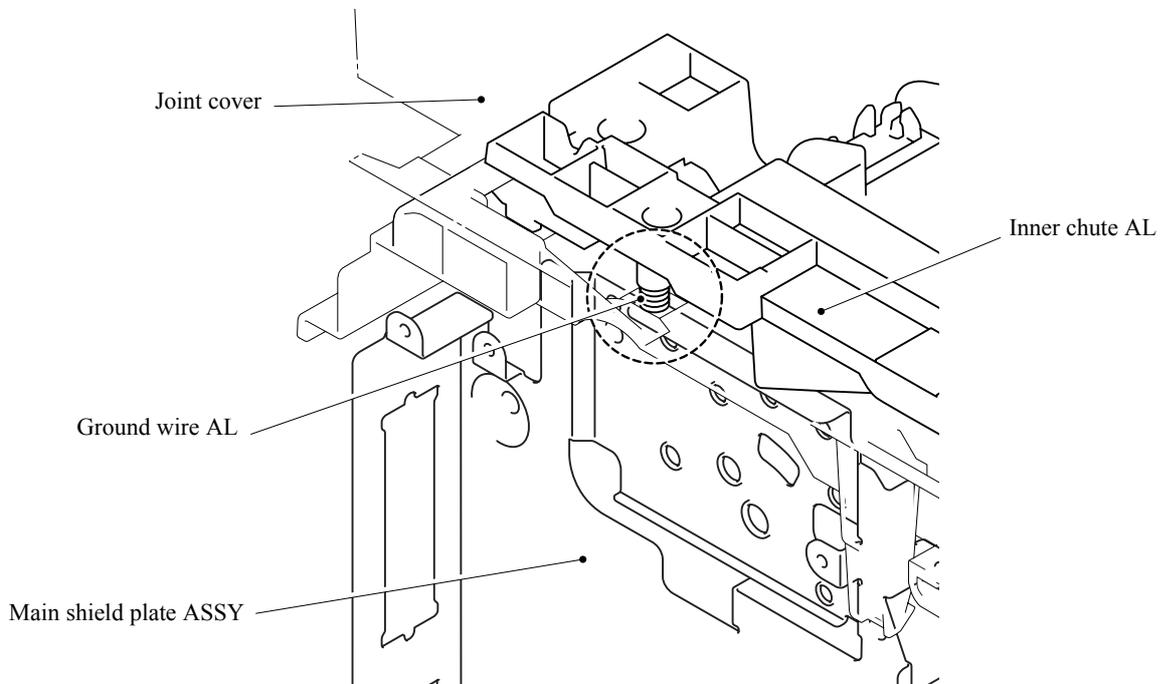


Fig. 5-128

5.1.68 Relay Rear PCB ASSY/Connector

- (1) Remove the Relay rear PCB ASSY.

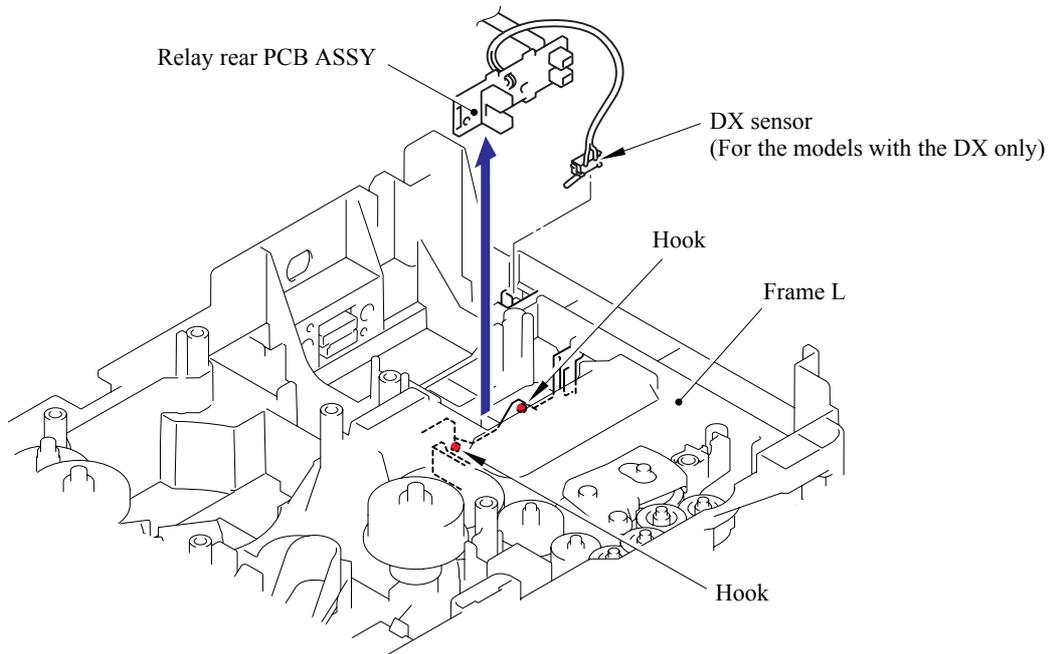


Fig. 5-129

- (2) Remove the Connector harness.
- (3) Disconnect the LT connector while pressing the hook inwards.

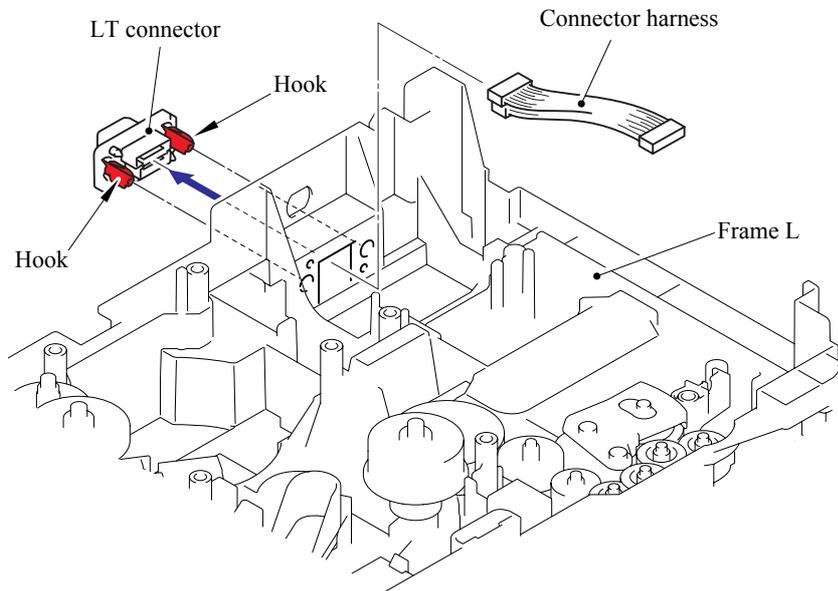


Fig. 5-130

■ Assembling Notes

When assembling the LT connector, ensure that its direction is correct referring to the figure below.

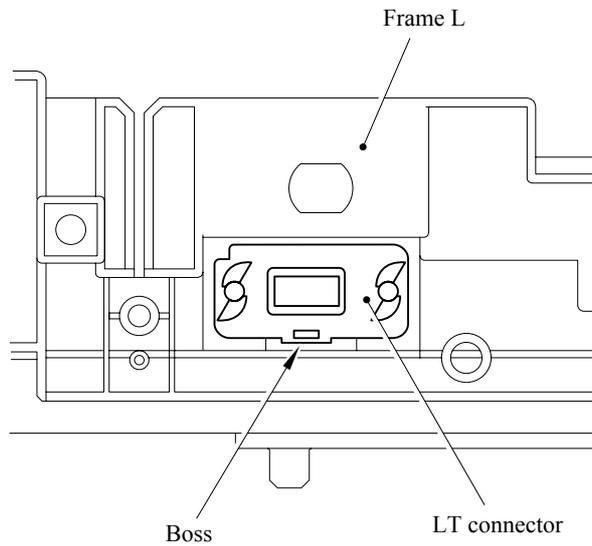


Fig. 5-131

5.1.69 Relay Front PCB ASSY

- (1) Remove the Relay front PCB ASSY.
- (2) Disconnect the five connectors from the Relay front PCB ASSY.

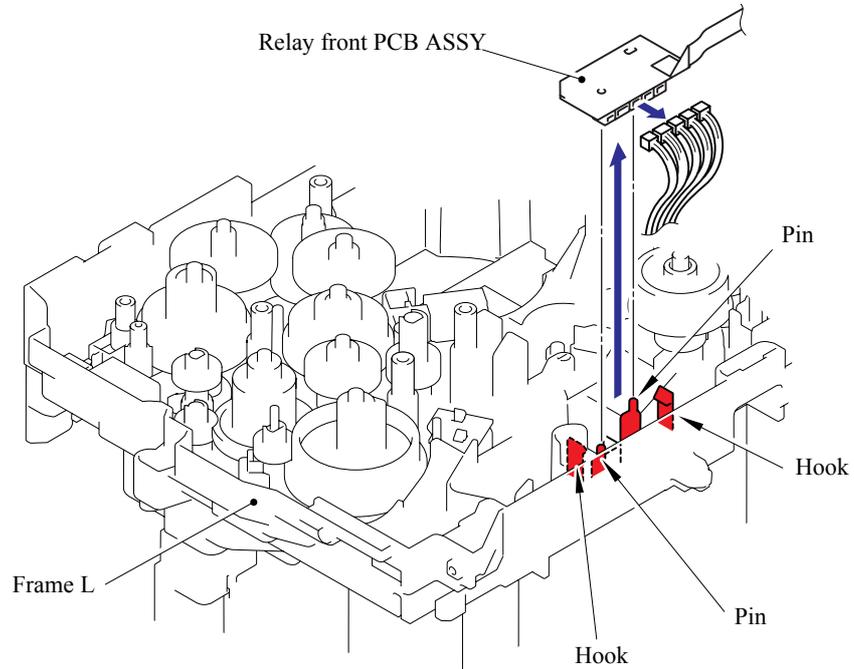


Fig. 5-132

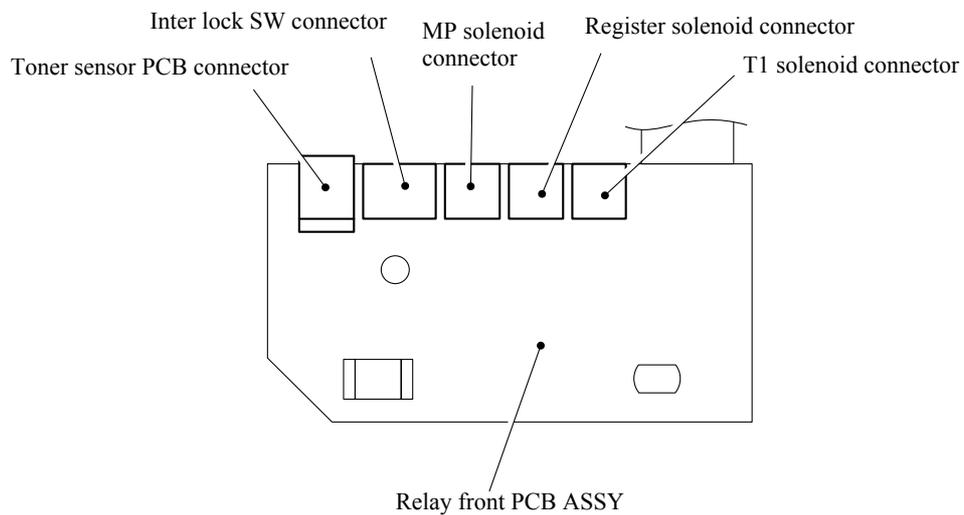


Fig. 5-133

5.1.70 MP Solenoid ASSY

- (1) Remove the cup B M3x8 Taptite screw, and then remove the Spring.

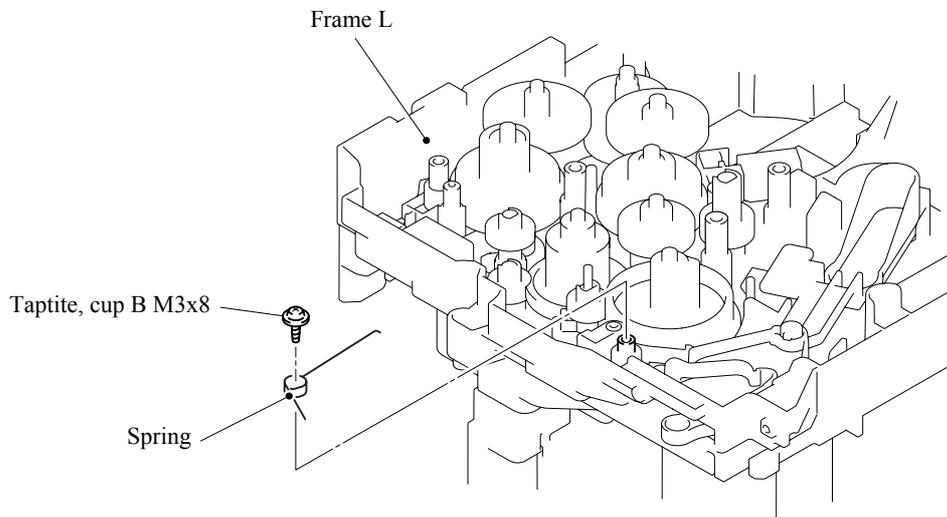


Fig. 5-134

■ **Assembling Notes**

When assembling the Spring, ensure that its direction is correct referring to the figure below.

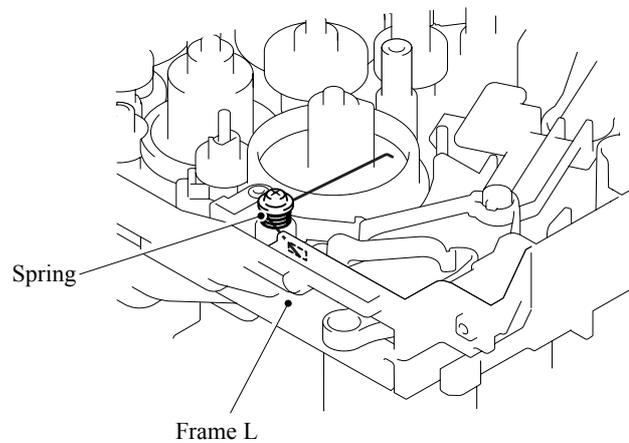


Fig. 5-135

- (2) Remove the bind B M3x10 Taptite screw.
- (3) Remove the MP solenoid ASSY, Solenoid release spring P/R and MP solenoid lever.

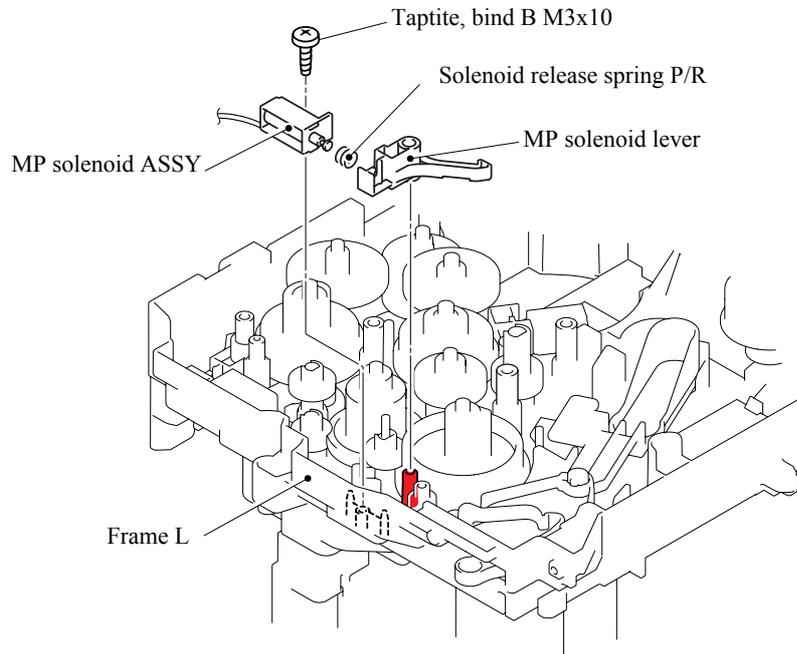


Fig. 5-136

5.1.71 Drive Release Link

- (1) Lift up the back end of the Drive release cam slightly and remove the Drive release cam from the Frame L.
- (2) Turn the Drive release link to the direction of the arrow 2 until the groove of the Drive release link is aligned with the guide of the boss as shown in the figure below.
- (3) Remove the Drive release cam.

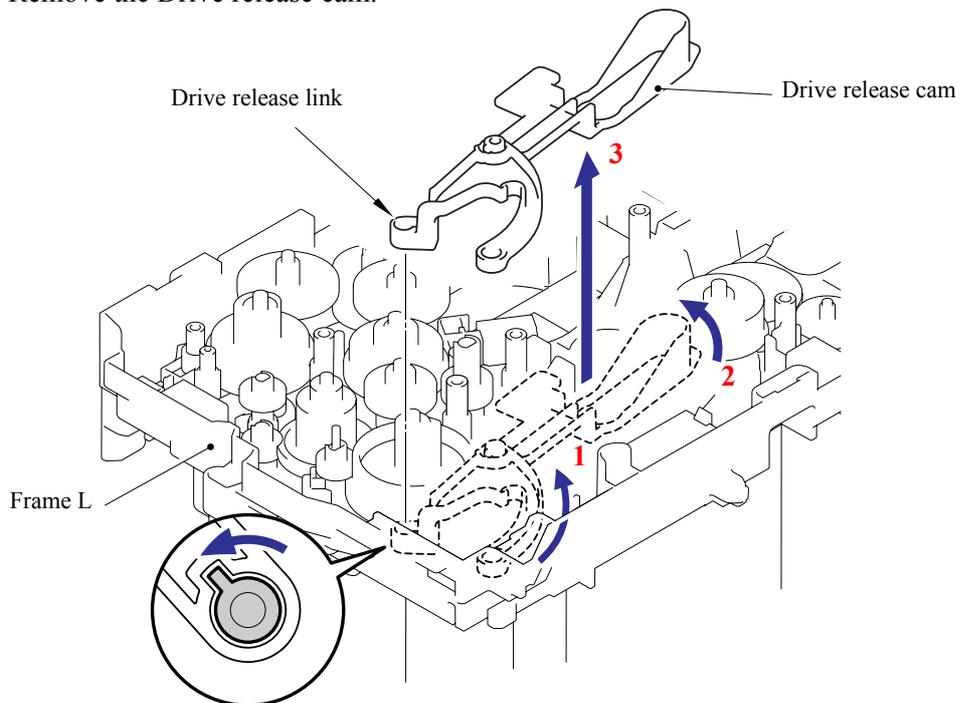


Fig. 5-137

5.1.72 T1 Solenoid ASSY

- (1) Remove the bind B M3x10 Taptite screw.
- (2) Remove the T1 solenoid ASSY and the Solenoid release spring.

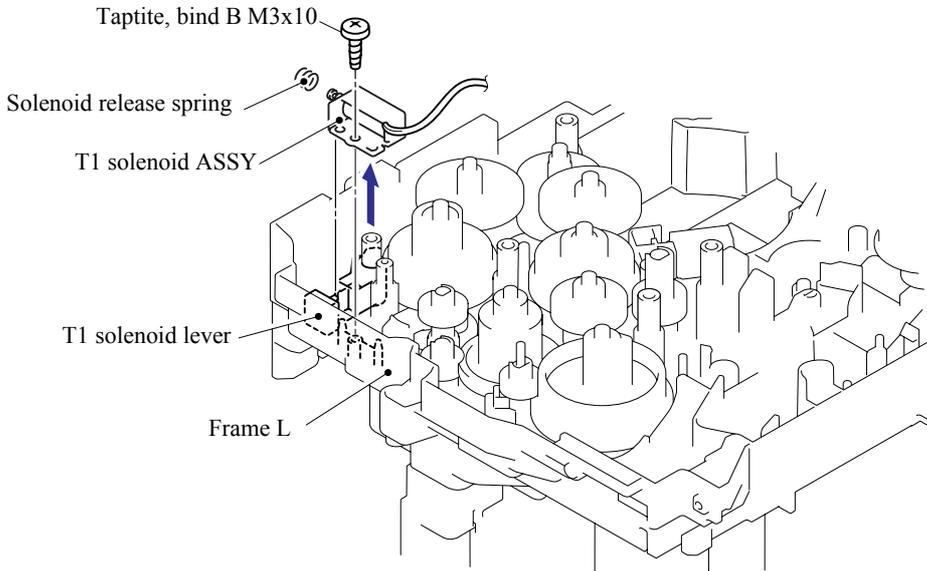


Fig. 5-138

5.1.73 Toner Sensor PCB

- (1) Remove the Toner sensor PCB unit ASSY from the Frame L.

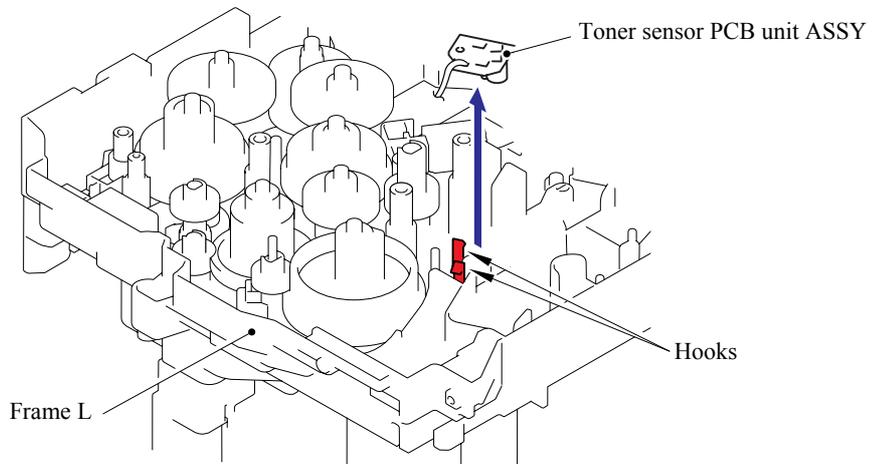


Fig. 5-139

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

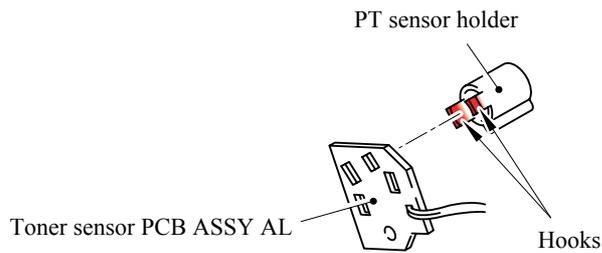


Fig. 5-140

5.1.74 Register Solenoid ASSY

- (1) Remove the bind B M3x10 Taptite screw.
- (2) Remove the Register solenoid ASSY and the Solenoid release spring.

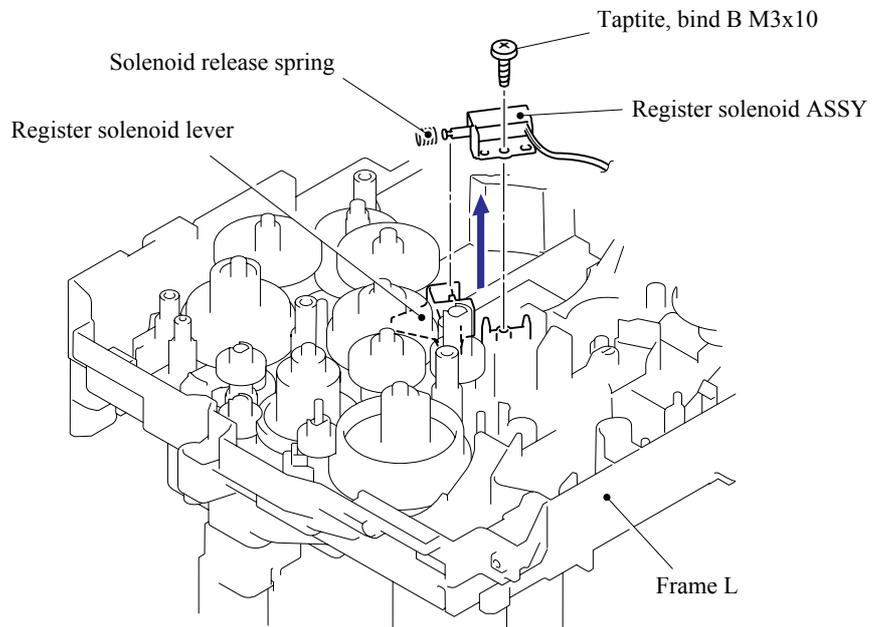


Fig. 5-141

5.1.75 Ejector Solenoid ASSY (For the models with the DX only)

- (1) Remove the bind B M3x10 Taptite screw.
- (2) Remove the Ejector solenoid and the Solenoid release spring.

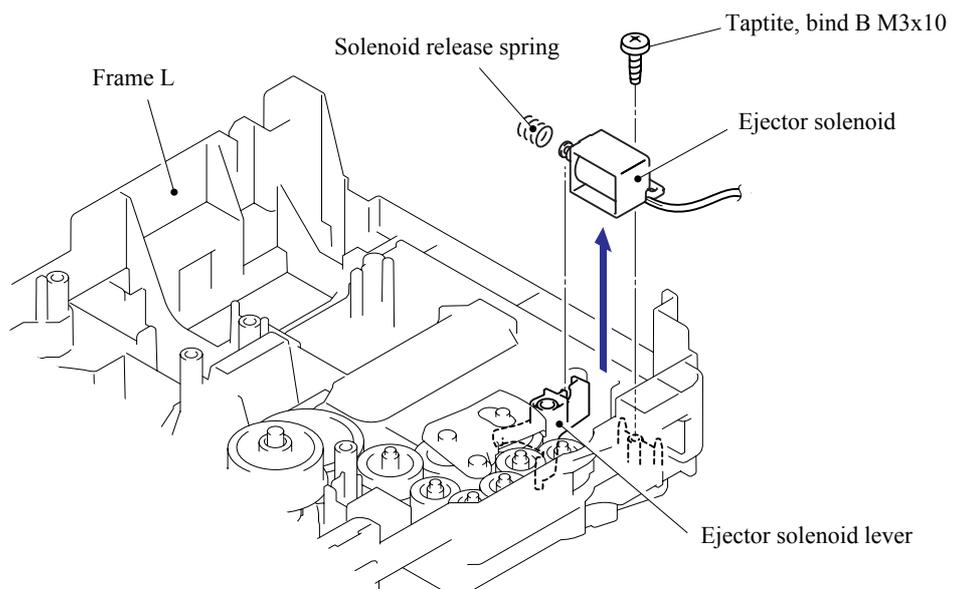


Fig. 5-142

5.1.76 Interlock SW ASSY

- (1) Remove the Interlock SW ASSY from the Frame L.

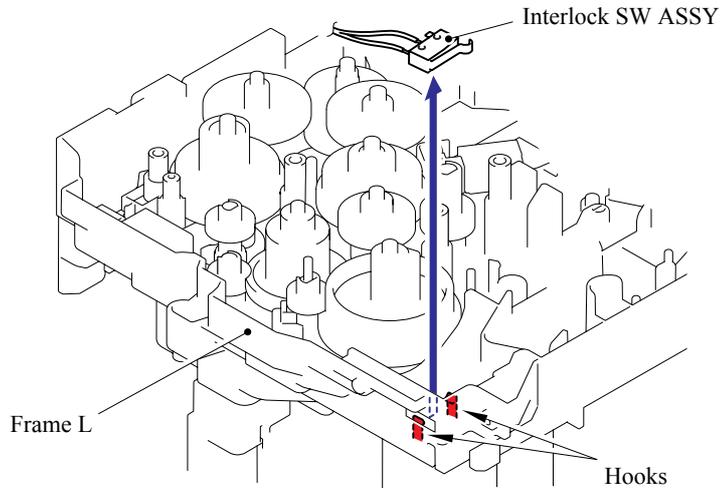


Fig. 5-143

5.1.77 New Toner Actuator

- (1) Remove the New toner actuator and the New toner actuator spring.

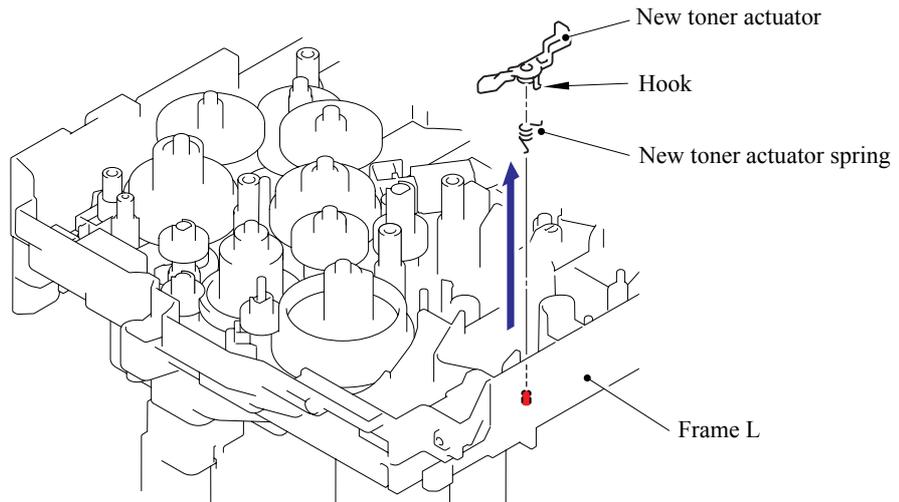


Fig. 5-144

■ Assembling Notes

When assembling the New toner actuator spring, ensure that its direction is correct referring to the figure below.

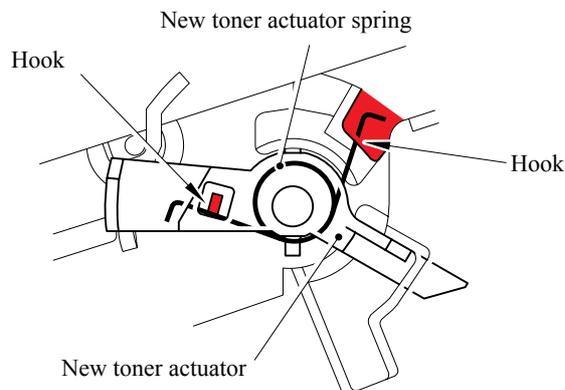


Fig. 5-145

5.1.78 Gear 17/20/23

(1) Remove the Gear 23.

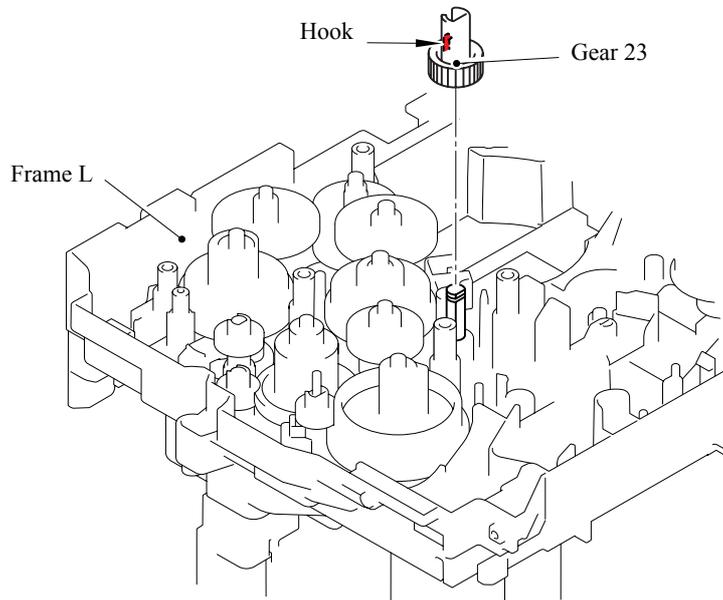


Fig. 5-146

(2) Remove the Gear 20.

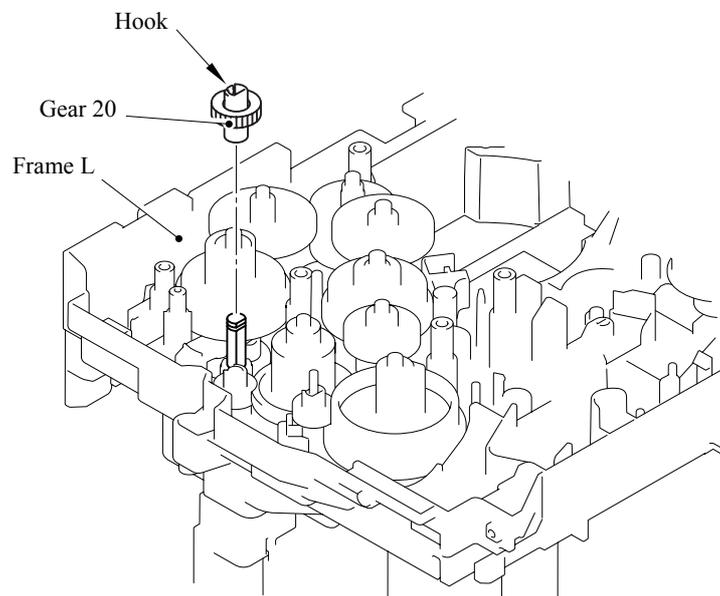


Fig. 5-147

(3) Remove the Gear 17 (black).

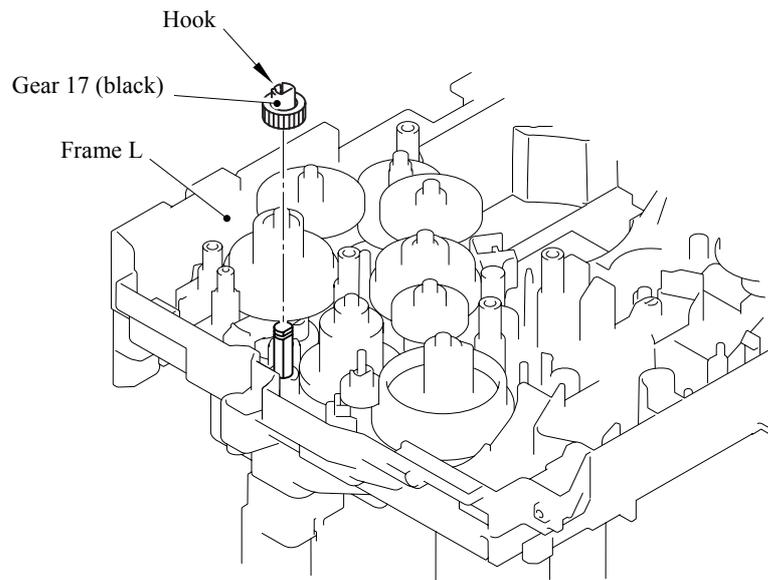


Fig. 5-148

(4) Remove the Gear 17 (white).

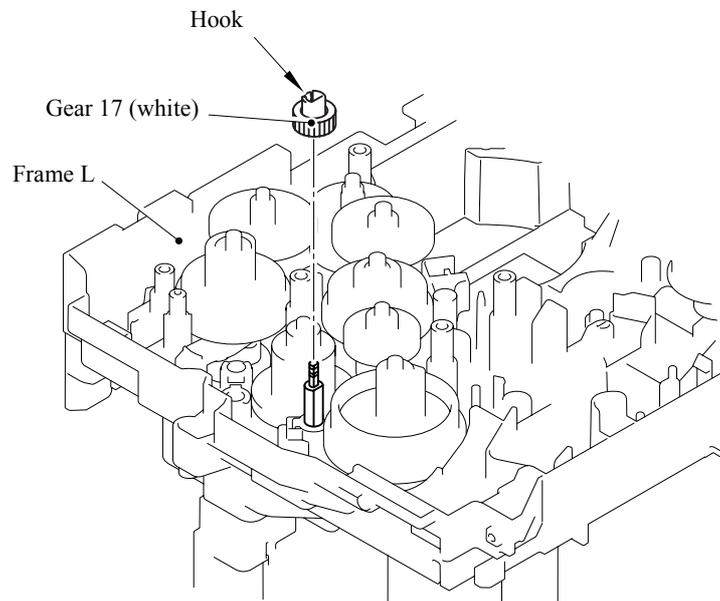


Fig. 5-149

5.1.79 Thermistor ASSY

- (1) Remove the Thermistor ASSY from the Frame L.

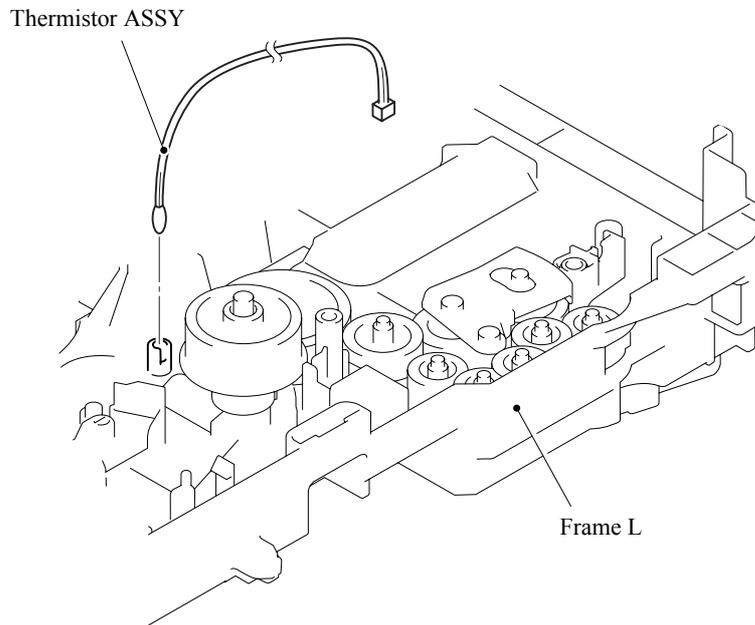


Fig. 5-150

5.1.80 Side Cover R

- (1) Remove the two bind B M4x12 Taptite screws, and then remove the Side cover R by following the direction from 1a to 1d.

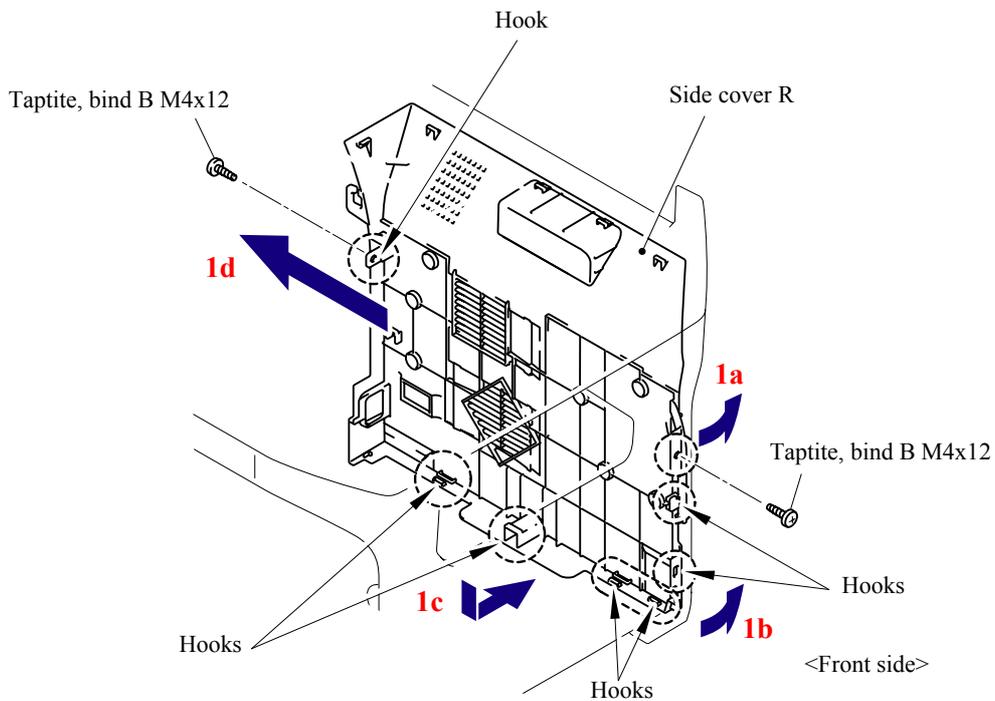


Fig. 5-151

5.1.81 Joint Cover ASSY

- (1) Disconnect the connector of the Battery.
- (2) Remove the Battery. (for the model supporting the Battery only)
- (3) Disconnect the connector of the Battery harness, and then remove the Battery harness from the Main PCB.

! CAUTION:

- There is a danger of explosion if the battery is incorrectly replaced.
- Use Brother genuine spare part when you replace the battery.
- Do not disassemble, recharge or dispose of in fire.
- Used battery should be disposed of according to local regulations.

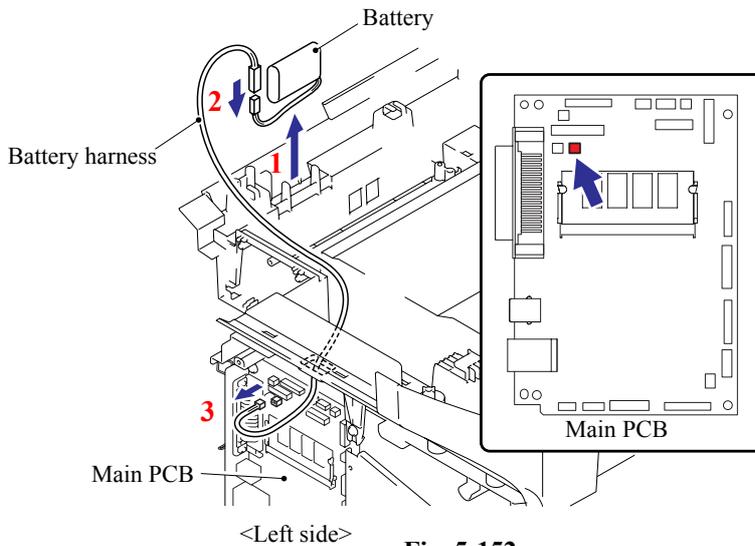


Fig. 5-152

- (4) Remove the four bind B M4x12 Taptite screws from the Joint cover.
- (5) Release all Hooks of the Joint cover and lift up the front side of the Joint cover.
- (6) Pull out the Joint cover to the front side.

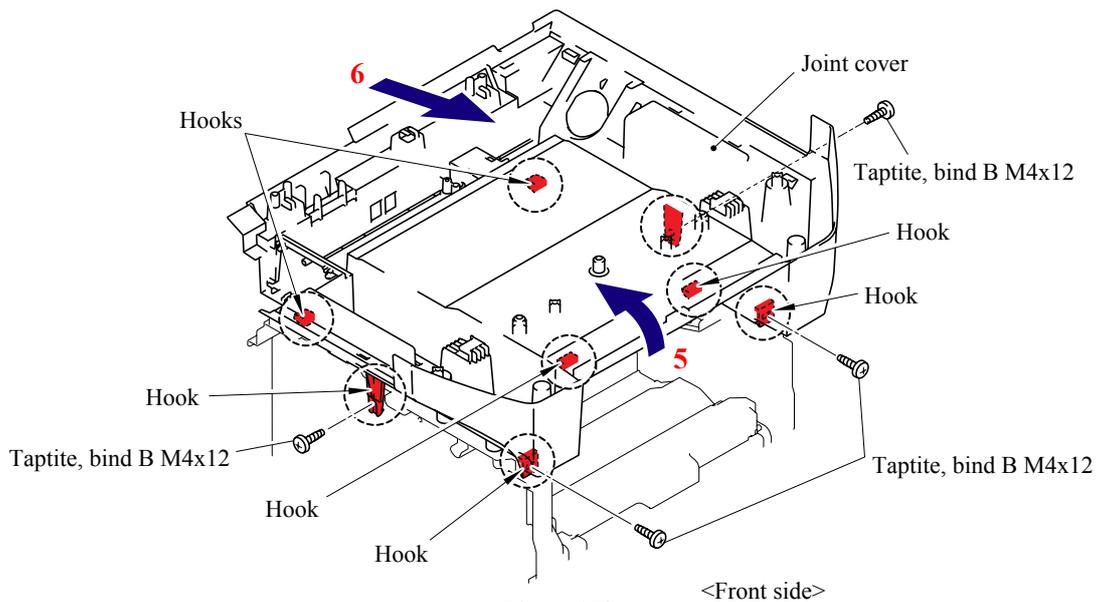


Fig. 5-153

5.1.82 Filter

- (1) Slide the Sub duct to the direction of the arrow 1b while pressing the three Hooks and remove the Sub duct from the Air duct.

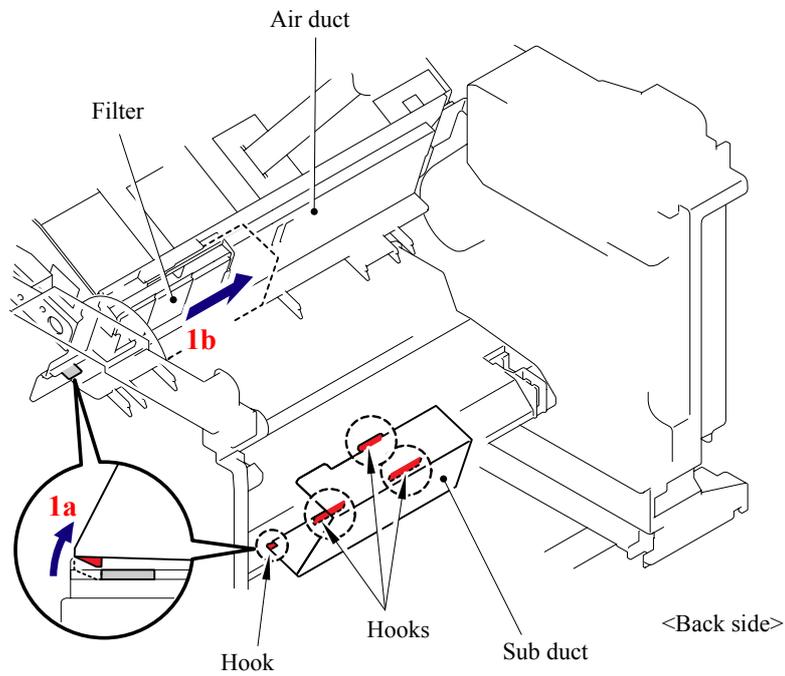


Fig. 5-154

- (2) Remove the Filter from the Air duct.

NOTE: The filter is dirt. Be careful when disassembling or assembling it.

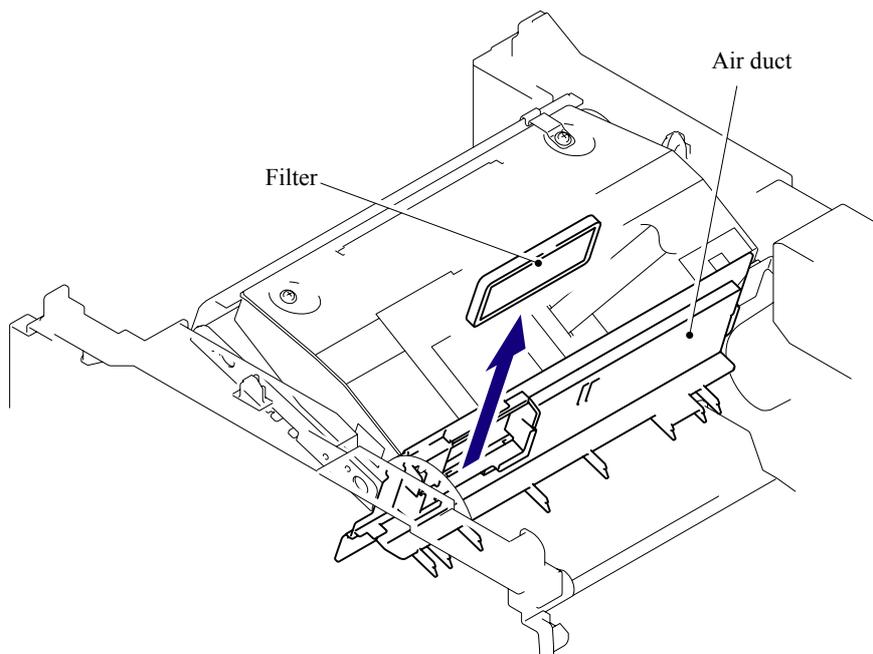


Fig. 5-155

5.1.83 Laser Unit

- (1) Remove the Pin of the Air duct from the frame. Slide the Air duct to the direction of the arrow 1b and remove the Air duct.

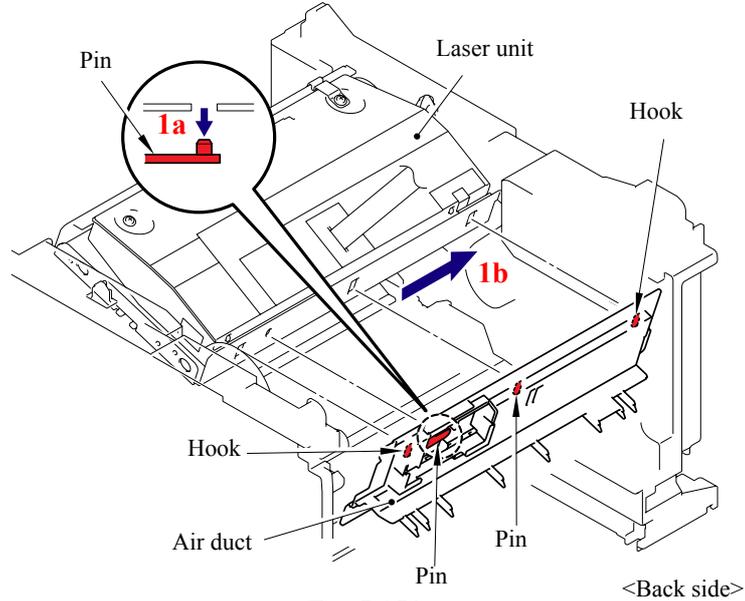


Fig. 5-156

- (2) Remove the five cup S M3x6 Taptite screws.
- (3) Remove the Protective film.
- (4) Pull out the flat cable from the Core.
- (5) Remove the Laser unit.

NOTE:

- Be careful not to lose the Protective film attached on the flat cable.
- Do not touch the Laser scanner window directly.

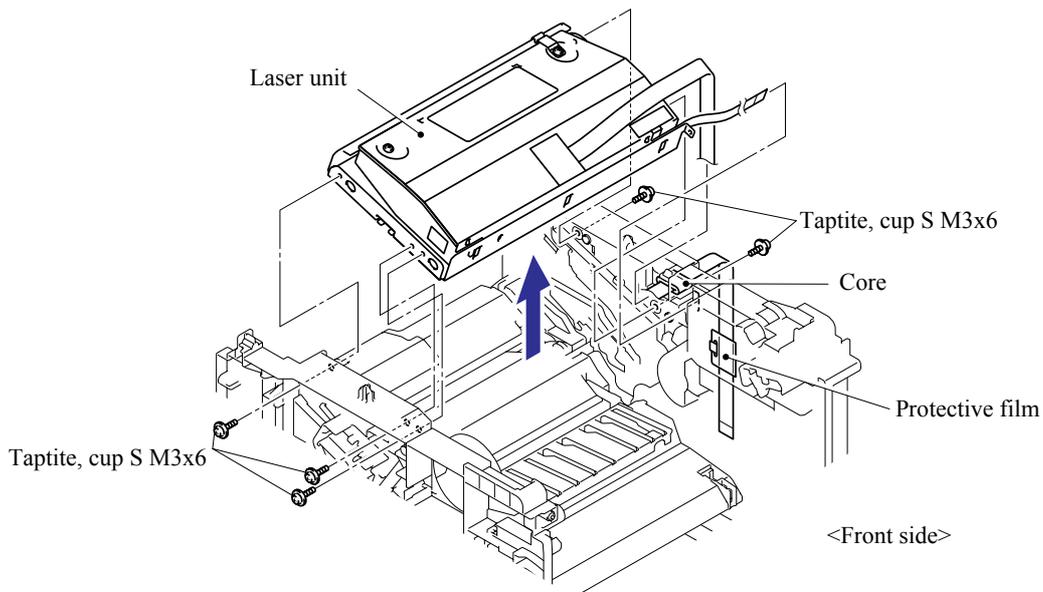


Fig. 5-157

■ **Assembling Notes**

Before assembling the Laser unit, always assemble the Core.

5.1.84 PS PCB Unit

- (1) Turn the machine upside down.
- (2) Remove the five bind B M4x12 Taptite screws.
- (3) Remove the cup S M3x6 Taptite screw. (for the models with the NCU only)
- (4) Lift up the Base plate LV to the direction of the arrow.
- (5) Remove the Screw pan (S/P washer) M3.5x6 from the Base plate LV to remove the PS PCB unit terminal.

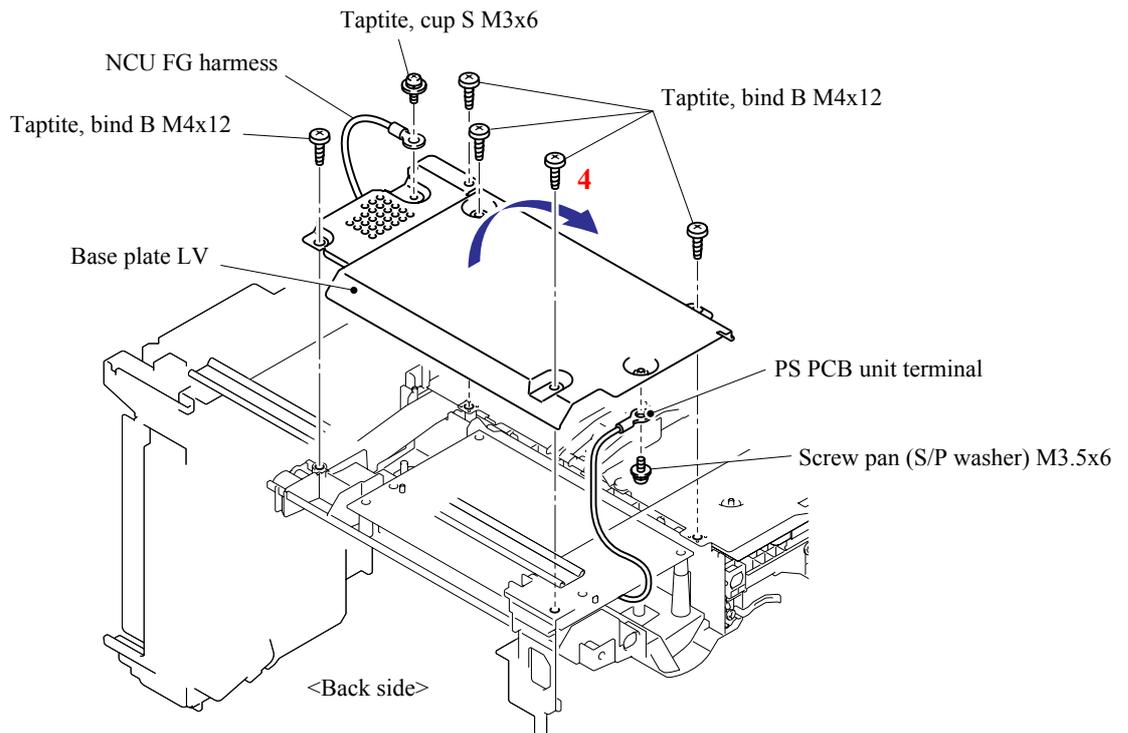


Fig. 5-158

- (6) Remove the two bind B M4x12 Taptite screws, and then remove the LV insulation sheet.

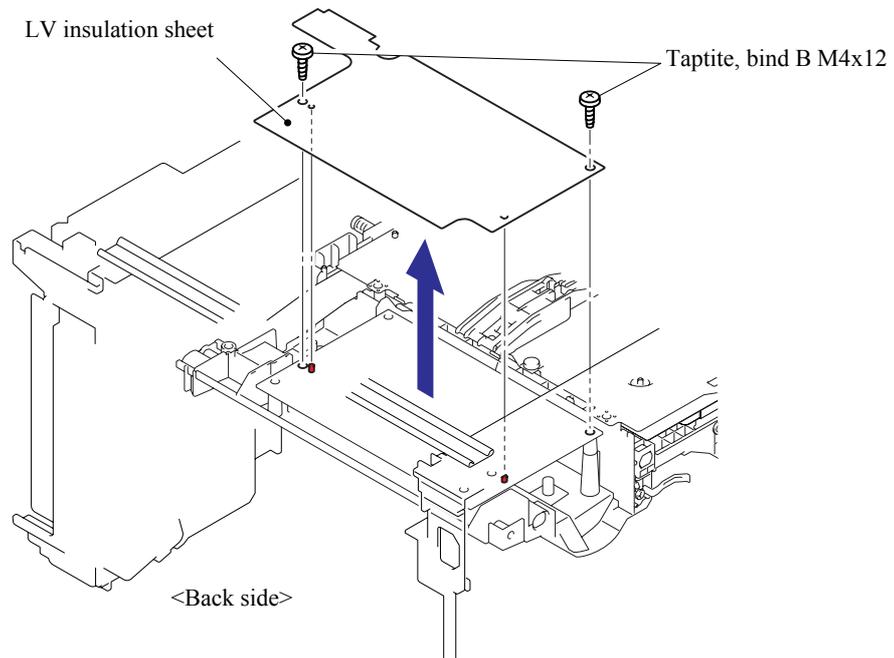


Fig. 5-159

- (7) Remove the bind B M4x12 Taptite screw.
(8) Remove the SW holder ASSY.
(9) Float the Fan motor 60 unit LV from the Frame R.

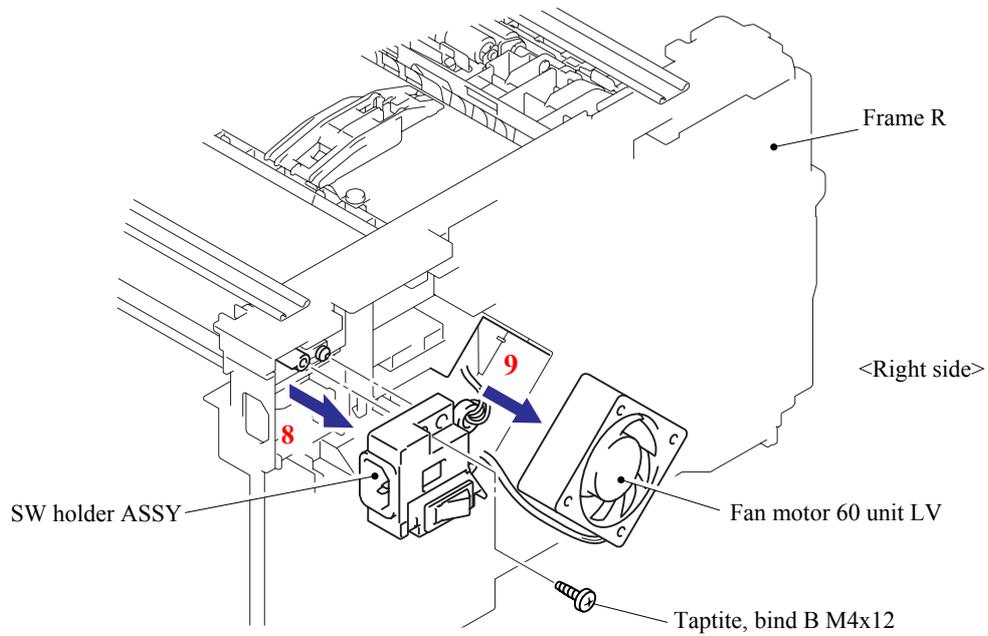


Fig. 5-160

(10) Remove the Inlet harness ASSY from the SW holder.

(11) Press the Hooks on both sides of the Power supply switch, pull out the Power supply switch to the direction of the arrow 11a and pull the wire out of the groove on the SW holder.

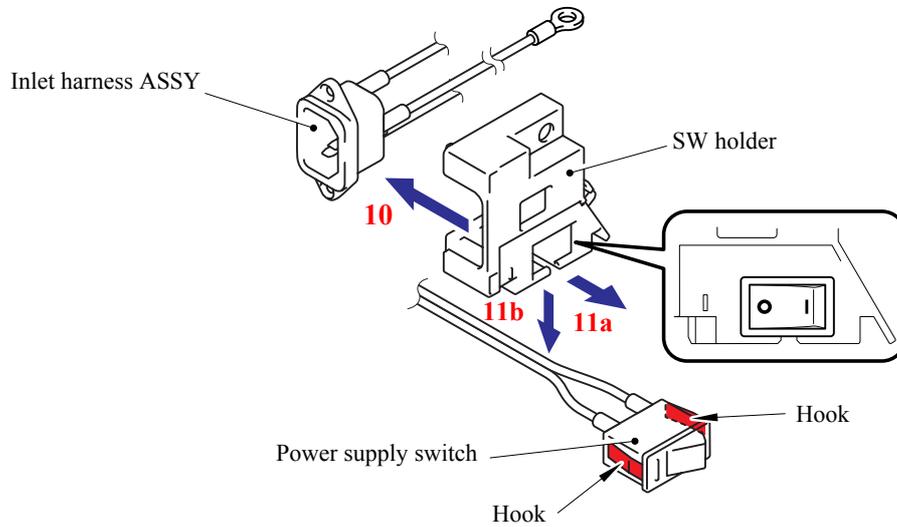


Fig. 5-161

■ Assembling Notes

When assembling the power supply switch onto the SW holder, pay attention to the direction of the switch.

(12) Remove the harness of the fuser unit and power supply harness.

(13) Put each harness through the opening where the fan 60 unit is assembled and remove the PS PCB unit.

(14) Remove the harness from the PS PCB unit.

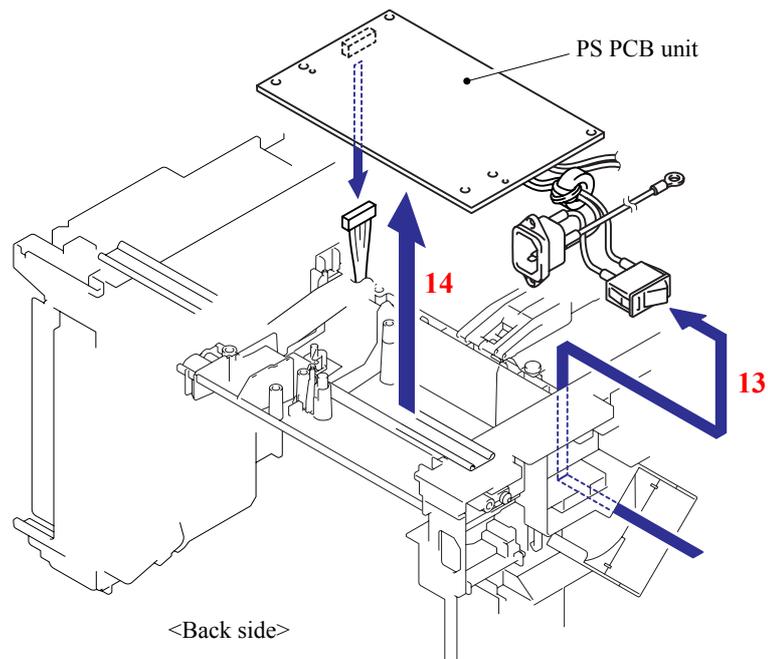


Fig. 5-162

5.1.85 High-Voltage PS PCB ASSY

- (1) Remove the four bind B M4x12 Taptite screws, and then remove the Base plate HV.

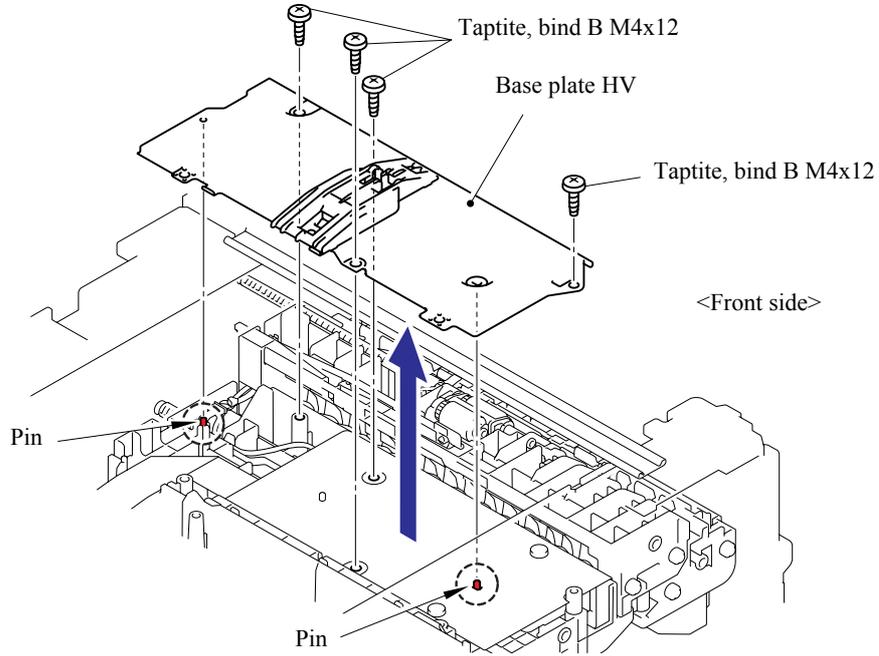


Fig. 5-163

- (2) Remove the bind B M4x12 Taptite screw, and then remove the HV insulation sheet.

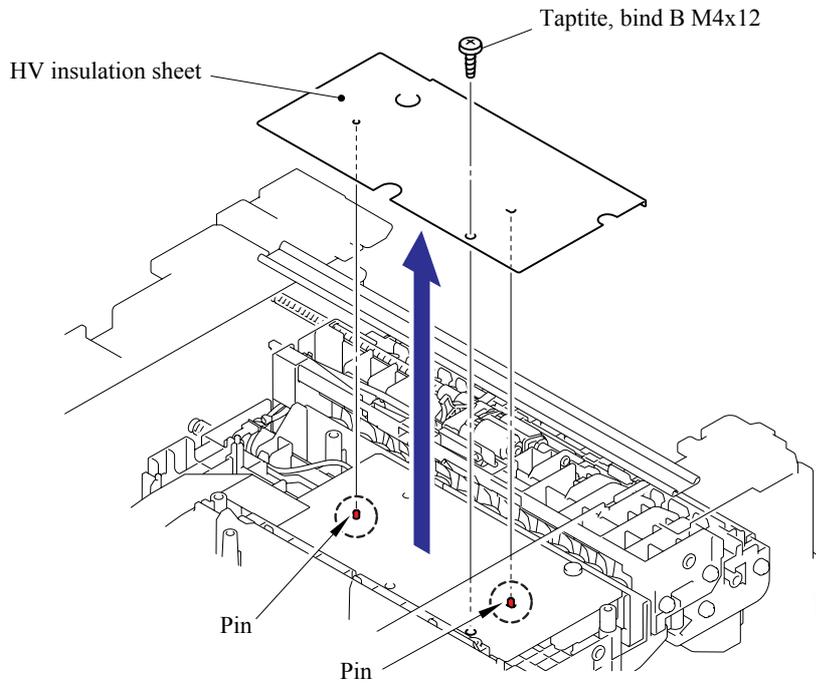


Fig. 5-164

- (3) Remove the bind B M4x12 Taptite screw, and then remove the High-voltage PS PCB ASSY.
- (4) Disconnect the three connectors from the High-voltage PS PCB ASSY.

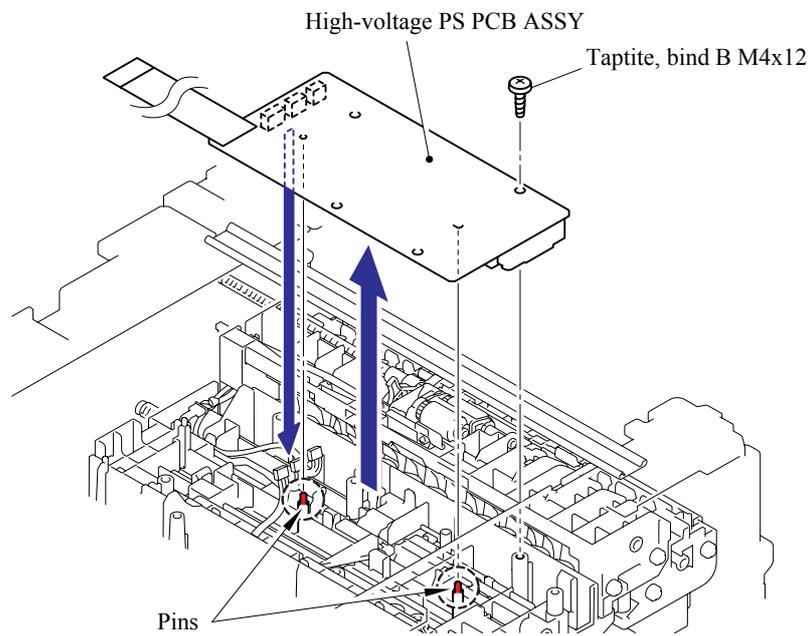


Fig. 5-165

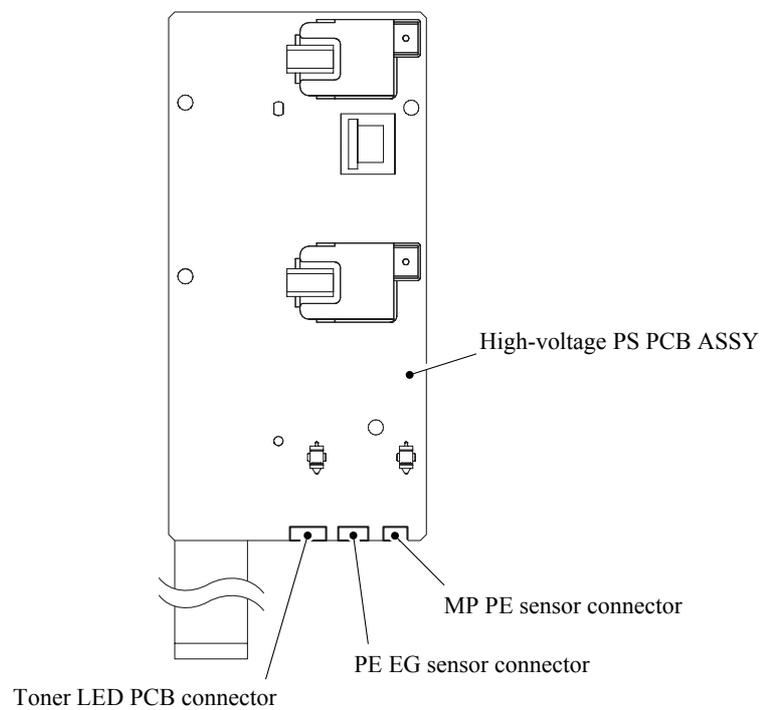


Fig. 5-166

5.1.86 Toner LED PCB Unit ASSY

- (1) Release the two Hooks to remove the Toner LED PCB unit ASSY from the Frame R.
- (2) Disconnect the two connectors from the Toner LED PCB.

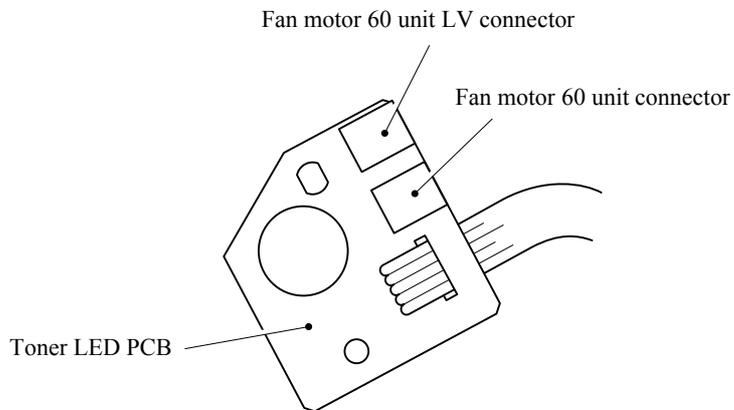
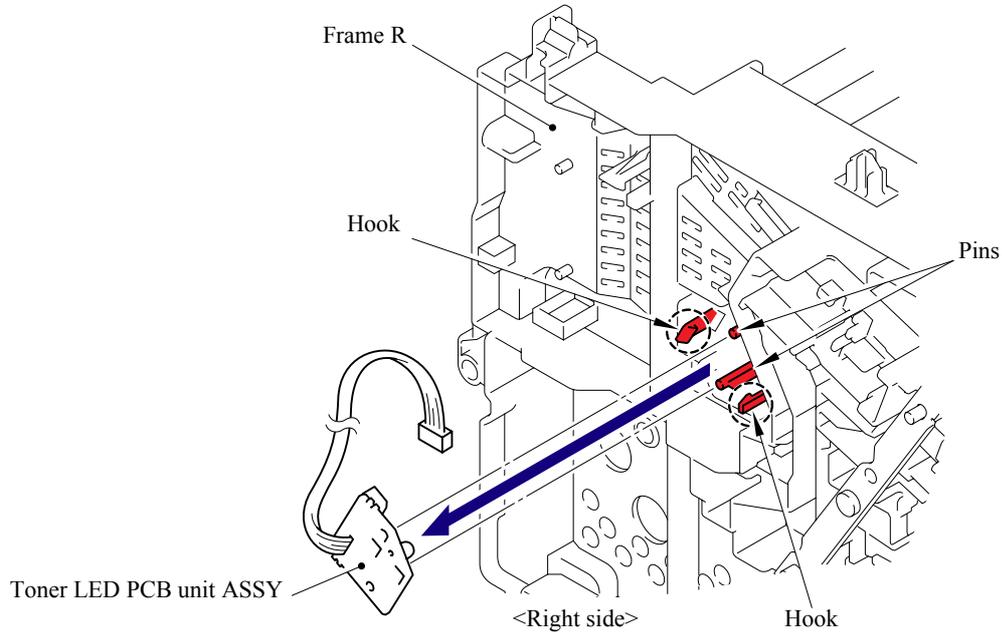


Fig. 5-167

- (3) Release the two Hooks to remove the LED holder from the Toner LED PCB.

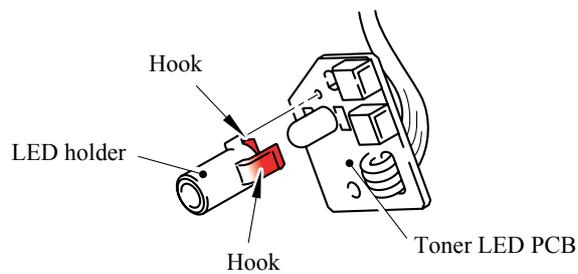


Fig. 5-168

5.1.87 Fan Motor 60 Unit

- (1) Remove the Fan motor 60 unit from the Frame R.

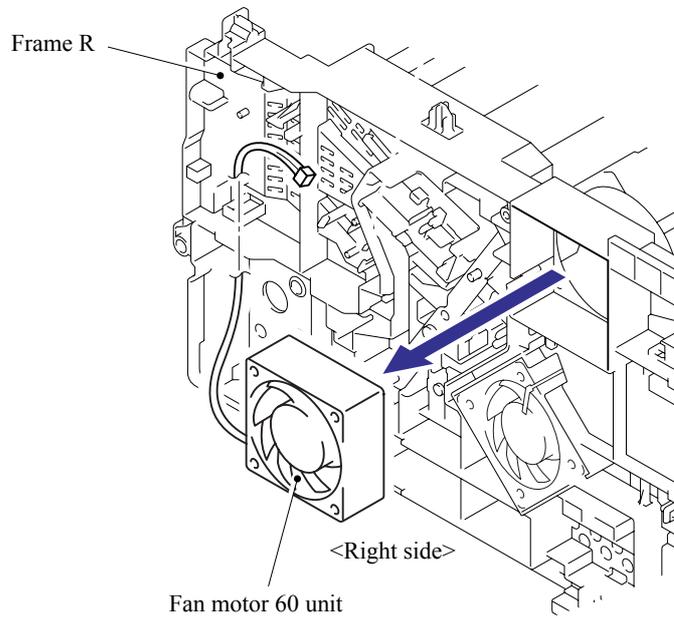


Fig. 5-169

5.1.88 Fan Motor 60 Unit LV

- (1) Remove the Fan motor 60 unit LV from the Frame R.

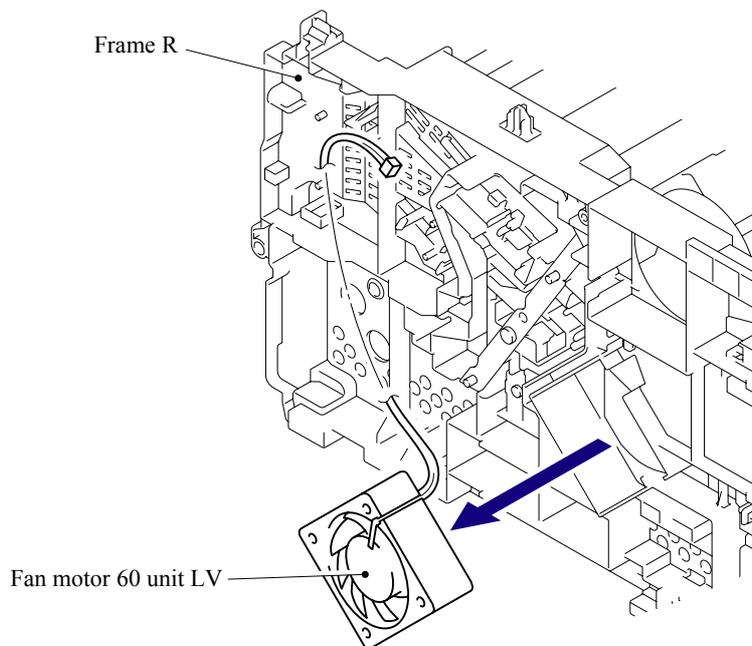


Fig. 5-170

5.1.89 Frame L

- (1) Remove the six bind B M4x12 Taptite screws from the Frame L.
- (2) Remove the Frame L.

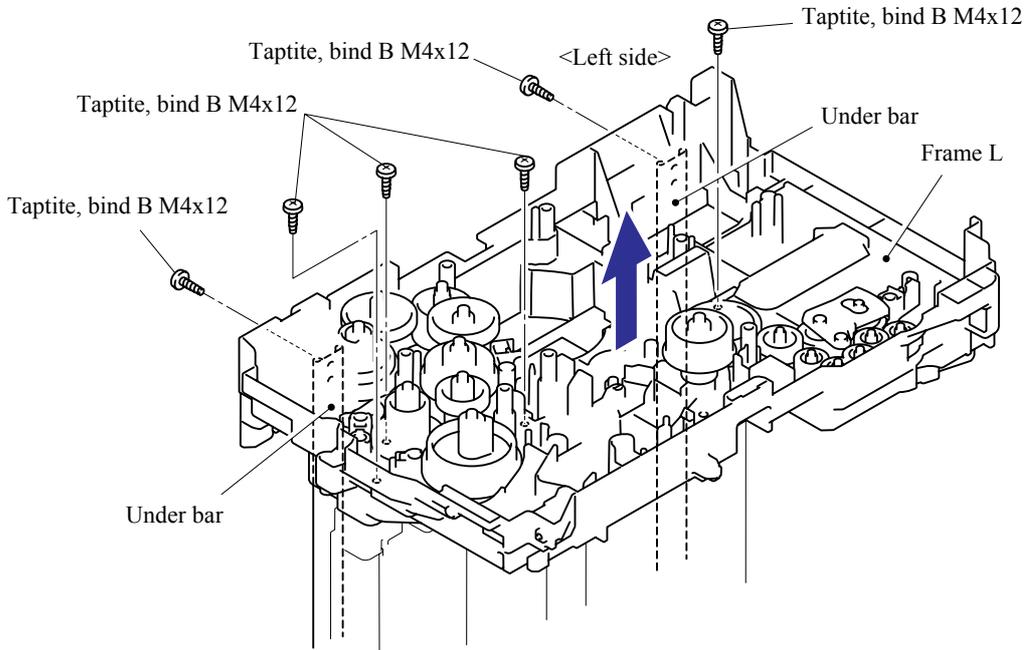


Fig. 5-171

5.1.90 Frame R

- (1) Remove the four bind B 4x12 Taptite screws from the Frame R.
- (2) Remove the Frame R.

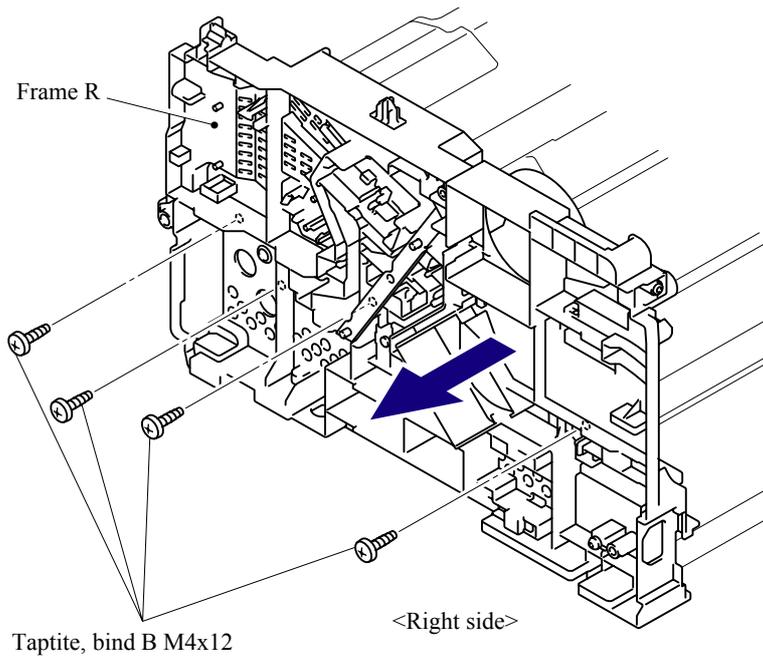


Fig. 5-172

5.1.91 MP Unit

- (1) Cut the Binder bundling the harnesses with nippers or the like.

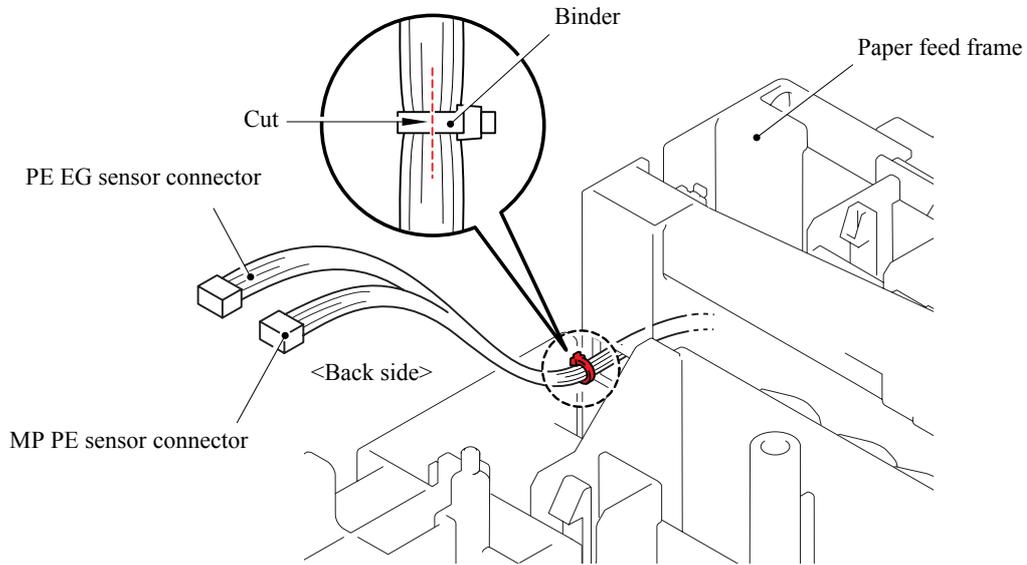


Fig. 5-173

- (2) Remove the two bind B M3x8 Taptite screws
- (3) Lift up the rear side of the MP feed frame and pull up the MP feed frame to remove.

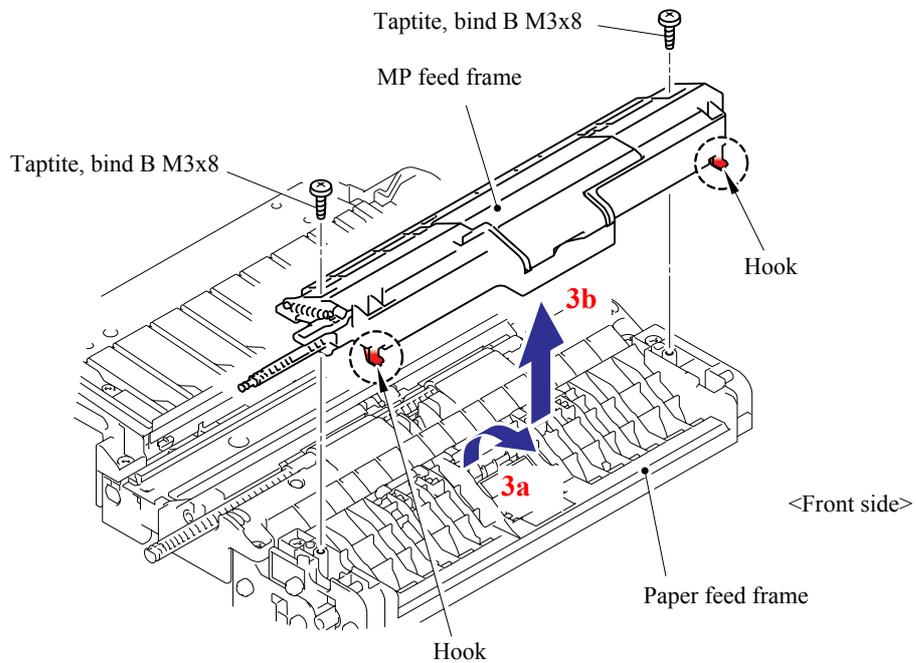


Fig. 5-174

(4) Open the MP feed frame cover.

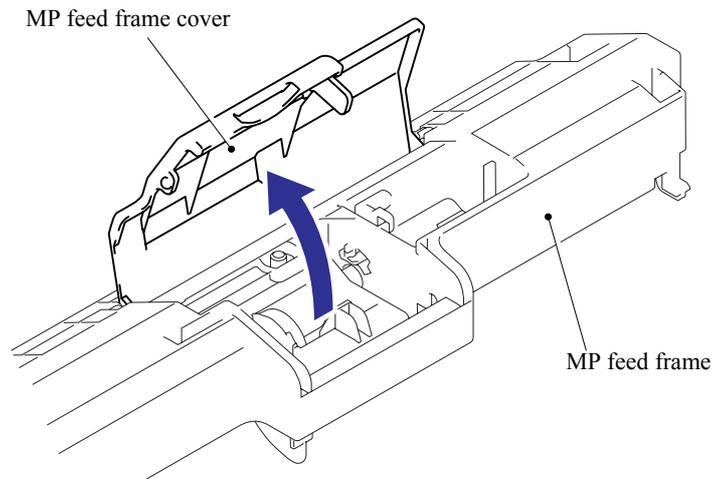


Fig. 5-175

(5) Release the Hook to remove the Holder bearing MP from the MP feed frame.

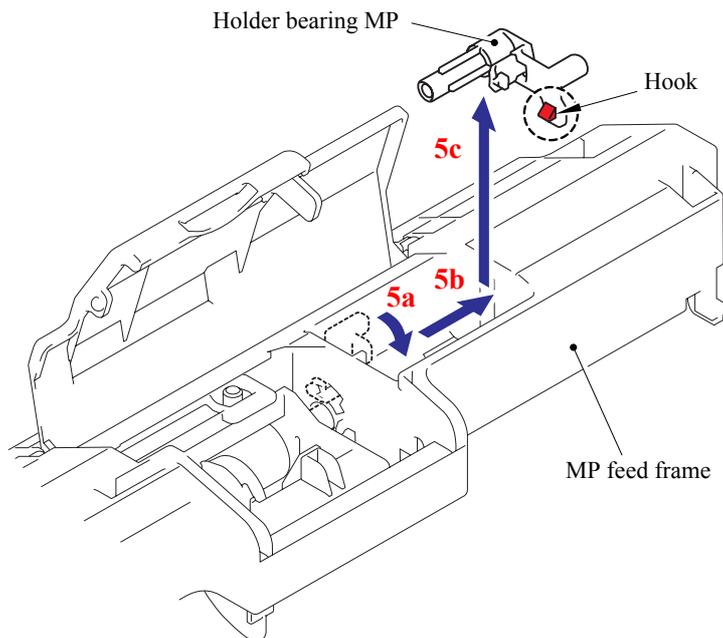


Fig. 5-176

- (6) Slide the MP roller holder ASSY to the direction of the arrow 6a and pull it up to remove.

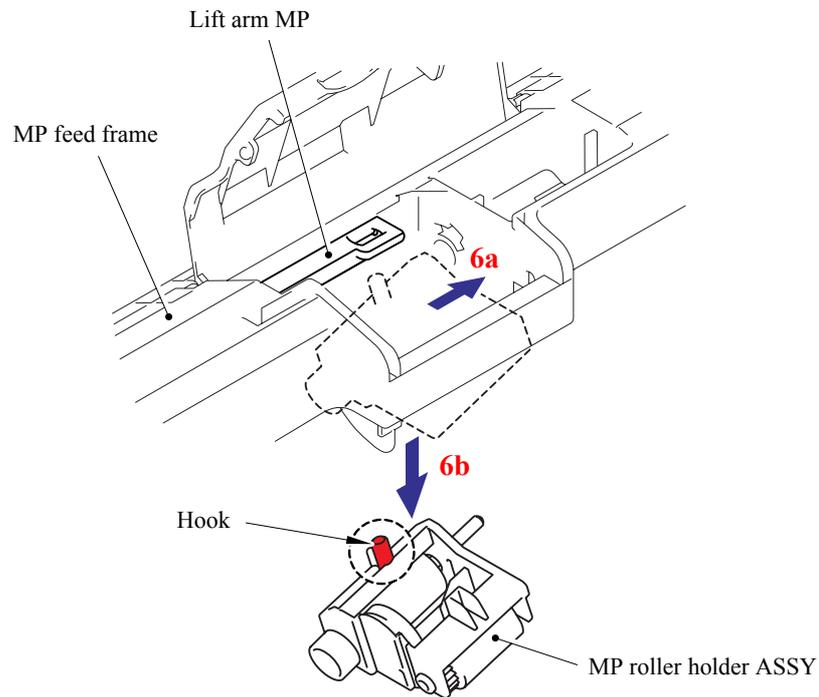


Fig. 5-177

- (7) Turn the MP feed frame upside down.
(8) Slide the PE actuator MP B to the direction of the arrow 8b while pressing the Hook to the direction of the arrow 8a, and pull it up to remove.

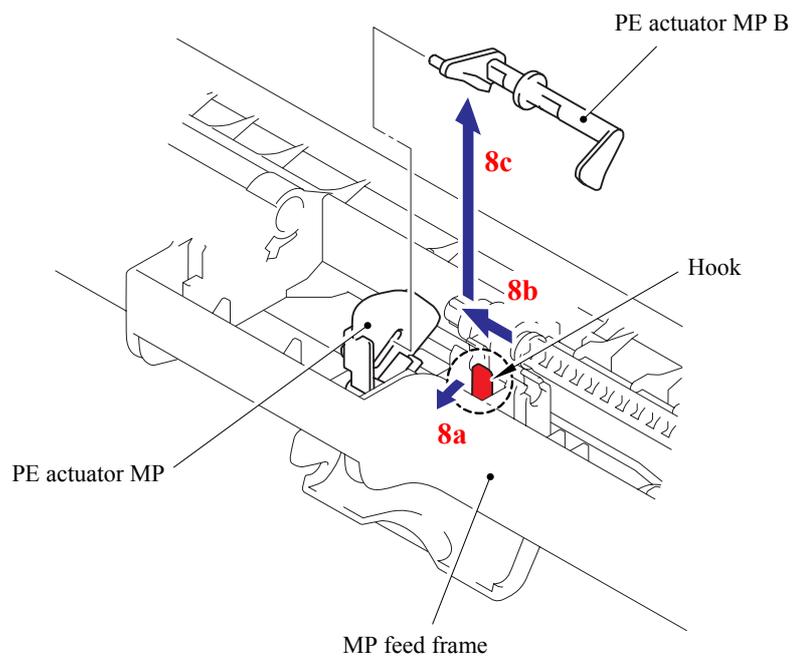


Fig. 5-178

(9) Turn the PE actuator MP to the direction of the arrow 9a and pull it up to remove.

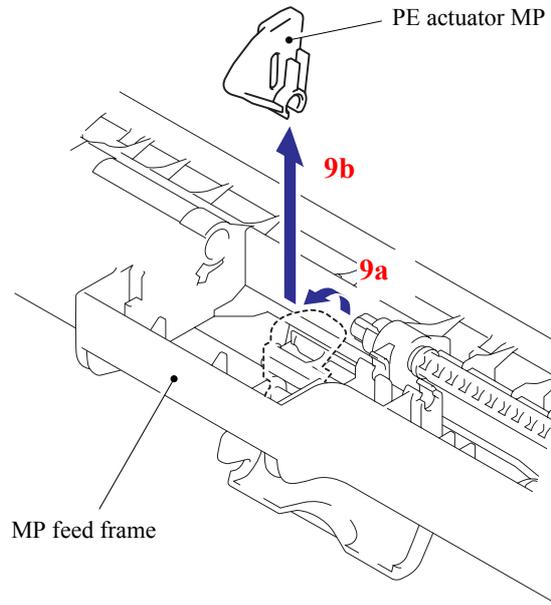


Fig. 5-179

(10) Remove the bind B M3x8 Taptite screw, and then remove the MP PE sensor ASSY.

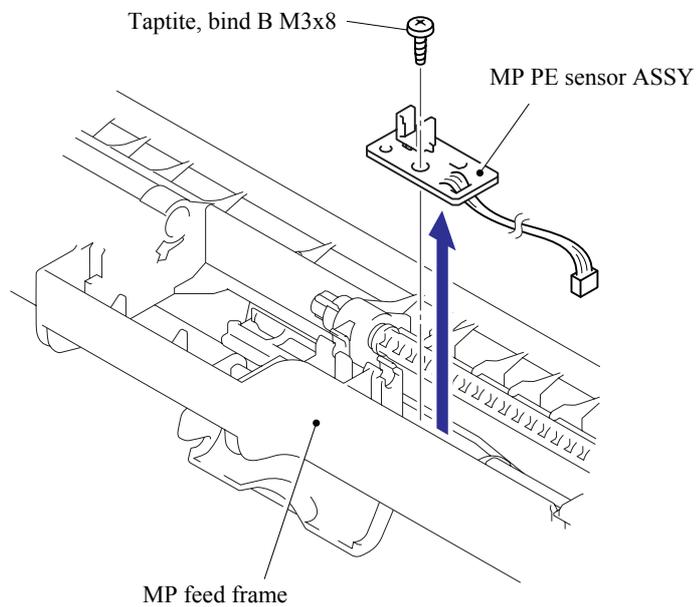


Fig. 5-180

(11) Lift up the rear of the Separation pad ASSY MP to the direction of the arrow 11a and pull up the Separation pad ASSY MP to remove.

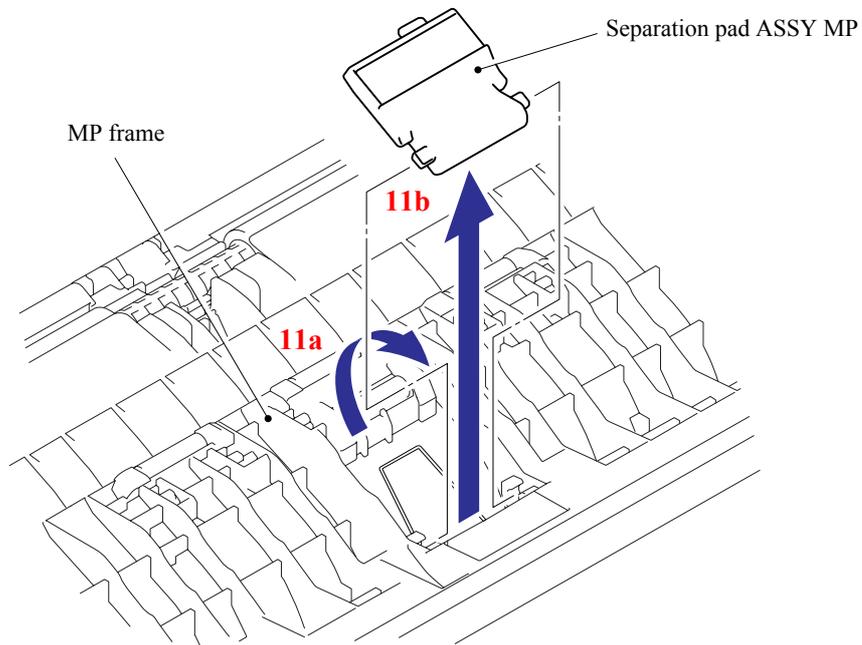


Fig. 5-181

(12) Remove the MP separation spring from the MP frame.

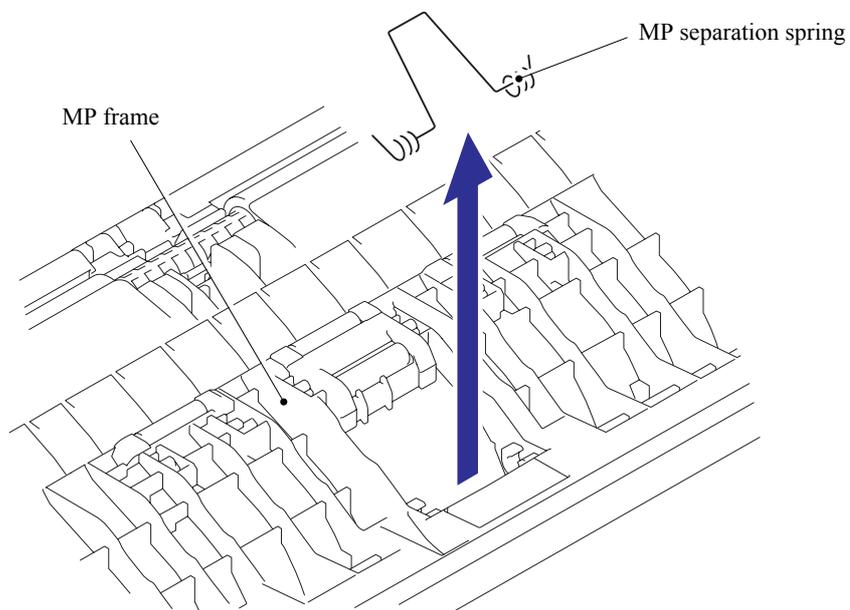


Fig. 5-182

■ **Assembling Notes**

When assembling the MP separation spring, ensure that its direction is correct referring to the figure below.

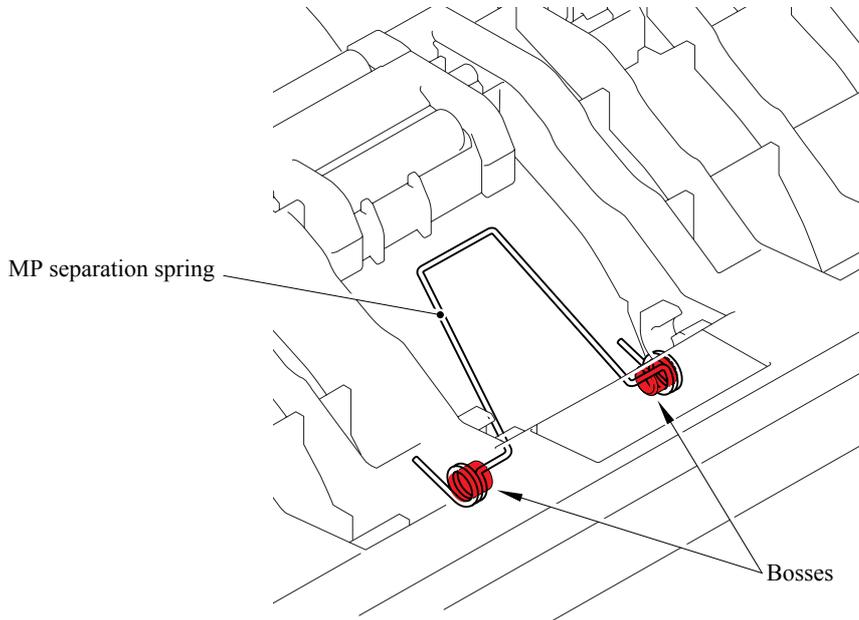


Fig. 5-183

5.1.92 Regist Actuator Rear/Regist Actuator Spring

- (1) Turn the Paper feed unit upside down.
- (2) Release the Hook A of the Actuator cover to pull up the Actuator cover to remove.

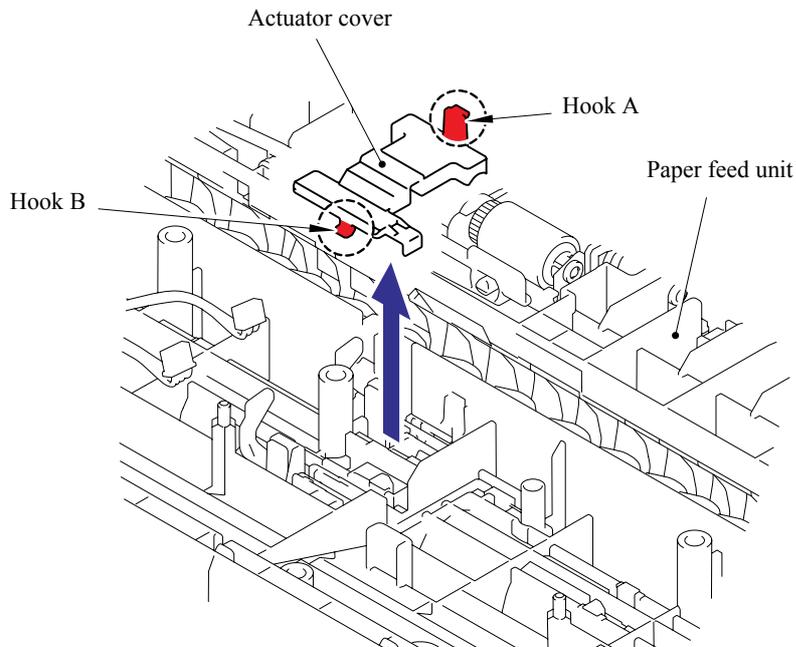


Fig. 5-184

- (3) Slide the Regist actuator rear to the direction of the arrow 3b while pressing the Hook to the direction of the arrow 3a and pull up the Regist actuator rear to remove. Then, remove the Regist actuator spring from the Regist actuator rear.

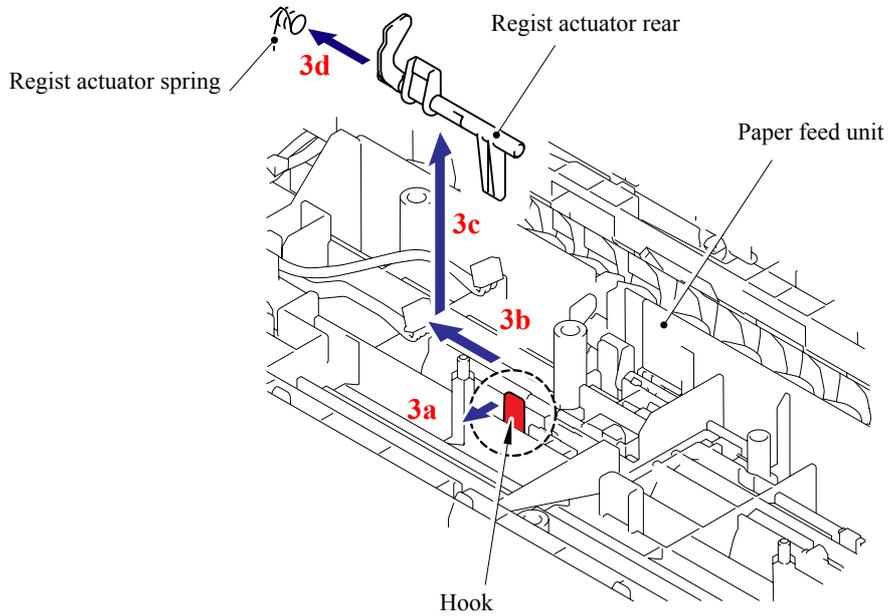


Fig. 5-185

■ **Assembling Notes**

When assembling the Regist actuator spring, ensure that its direction is correct referring to the figure below.

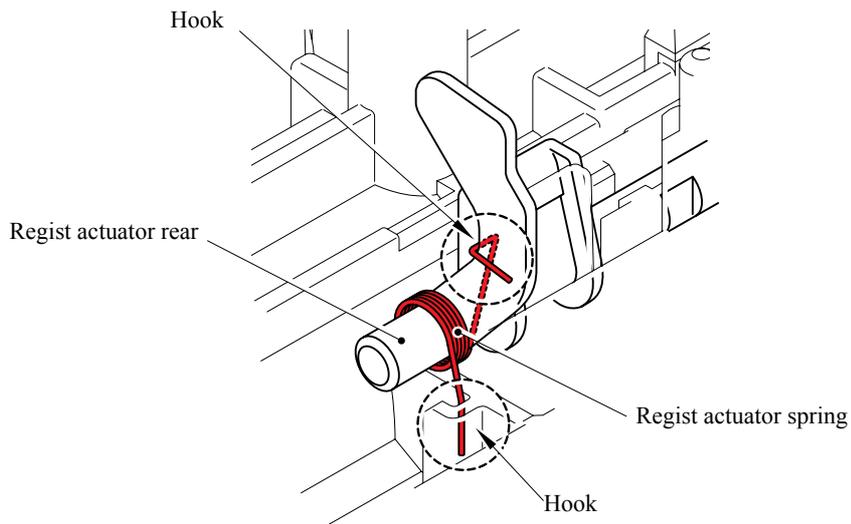


Fig. 5-186

5.1.93 Regist Actuator Front/Regist Actuator Spring

- (1) Slide the Regist actuator front to the direction of the arrow 1b while pressing the Hook to the direction of the arrow 1a and pull up the Regist actuator front to remove. Then, remove the Regist actuator spring from the Regist actuator front.

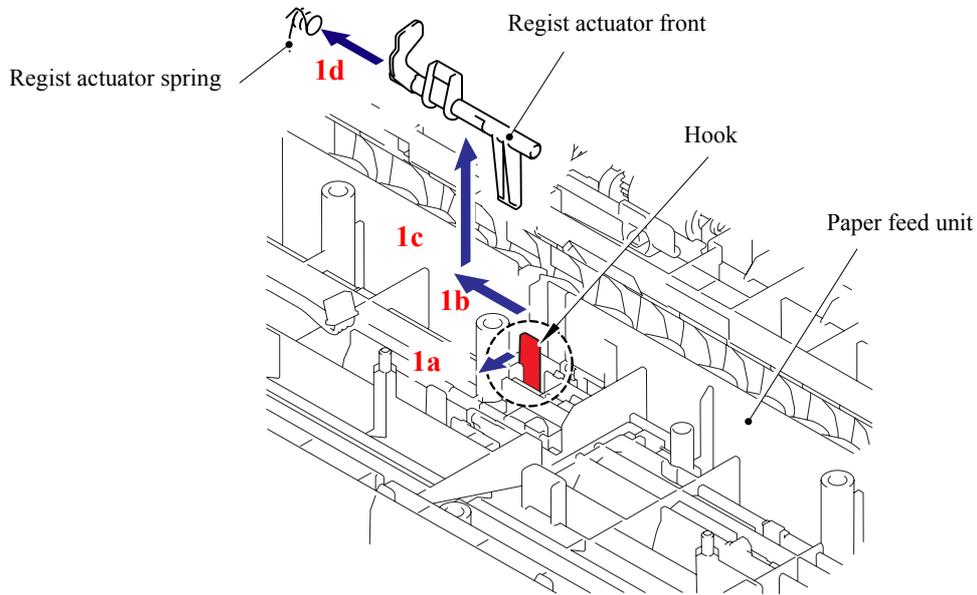


Fig. 5-187

■ Assembling Notes

When assembling the Regist actuator spring, ensure that its direction is correct referring to the figure below.

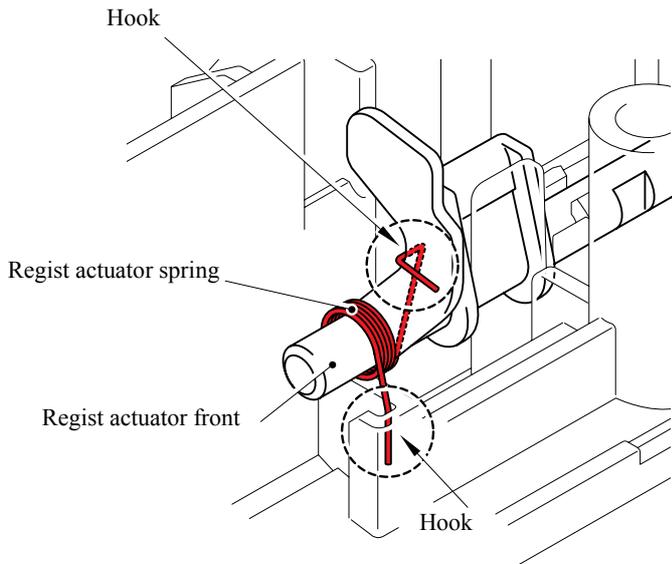


Fig. 5-188

5.1.94 Roller Holder ASSY

- (1) Push the Lift arm to the direction of the arrow 1a and pull out the pin of the Roller holder ASSY. Then, turn the Roller holder ASSY to the direction of the arrow 1b.

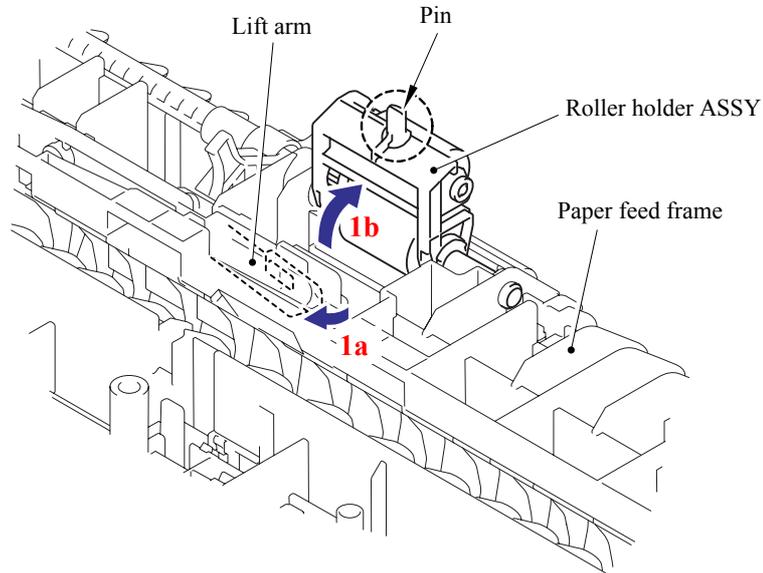


Fig. 5-189

- (2) Slide the Roller holder ASSY to the direction of the arrow 2a. Then, lift up the gear side of the Roller holder ASSY to the direction of the arrow 2b and pull it out to the direction of the arrow 2c to remove.

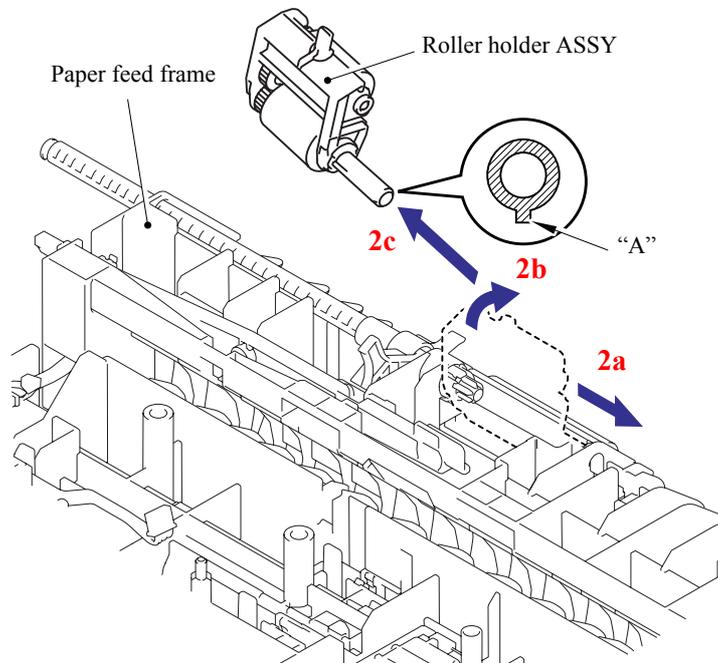


Fig. 5-190

■ **Assembling Notes**

When assembling the roller holder ASSY, align the section “A” on the shaft of the roller holder ASSY with the hole on the paper feed frame.

5.1.95 PE Actuator/Edge Actuator/Edge Actuator Spring

- (1) Remove the Edge actuator spring.

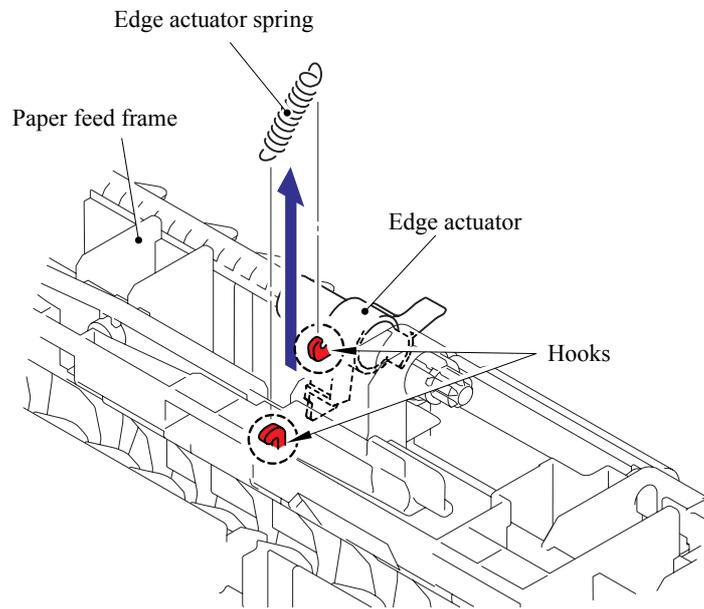


Fig. 5-191

- (2) Release the hook and remove the Separation R shaft bearing.

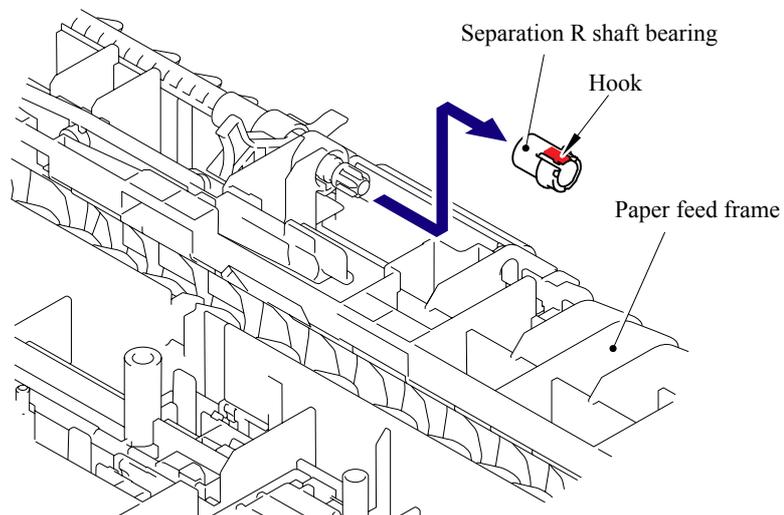


Fig. 5-192

- (3) Pull out the Separation roller drive shaft to the direction of the arrow and remove the Edge actuator and PE actuator.

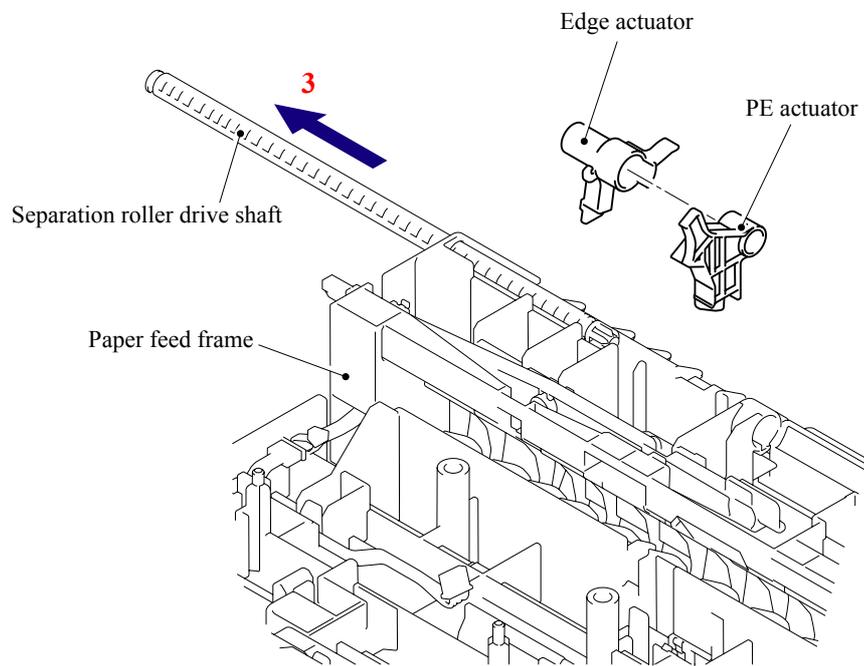


Fig. 5-193

5.1.96 PE EG Sensor ASSY

- (1) Remove the two bind B M3x8 Taptite screws, and then remove the MP frame.

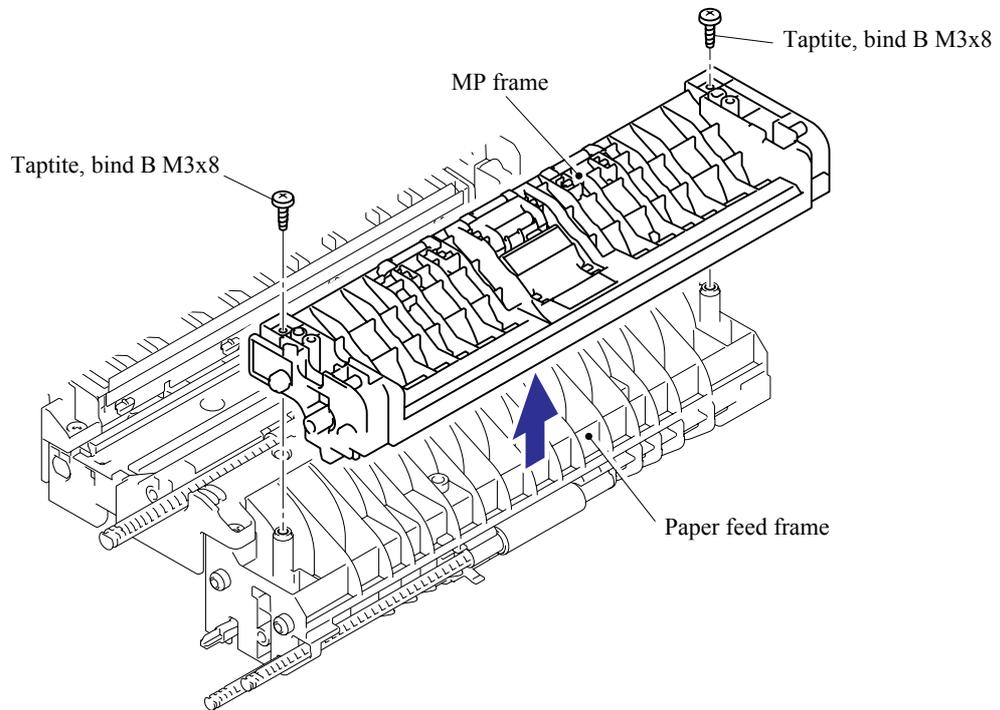


Fig. 5-194

- (2) Remove the bind B M3x8 Taptite screw, and then remove the PE EG sensor ASSY.

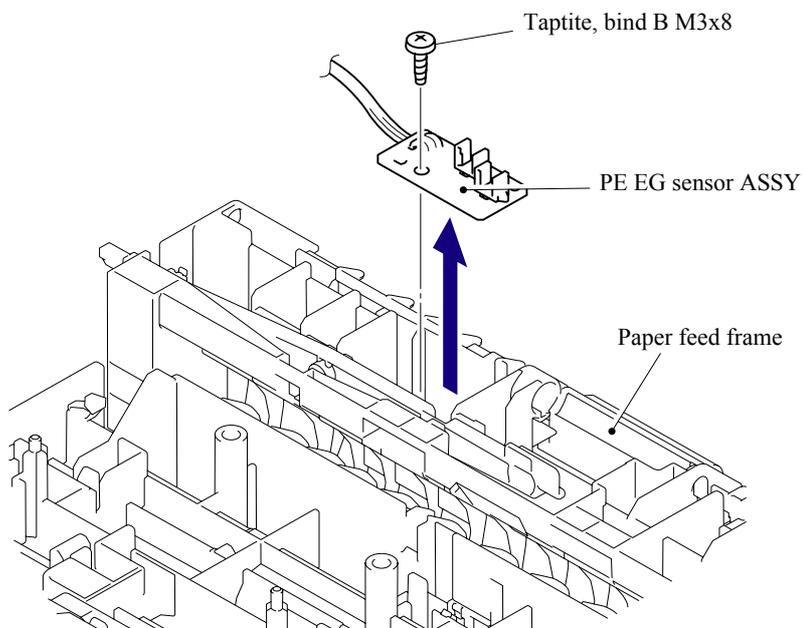


Fig. 5-195

5.1.97 Wireless PCB (PCB T60H929.00 ASSY 02) (For the model with the Wireless only)

- (1) Disconnect the connector from the Wireless PCB harness.
- (2) Remove the Wireless PCB (PCB T60H929.00 ASSY 02) and Wireless PCB holder from the Frame R.

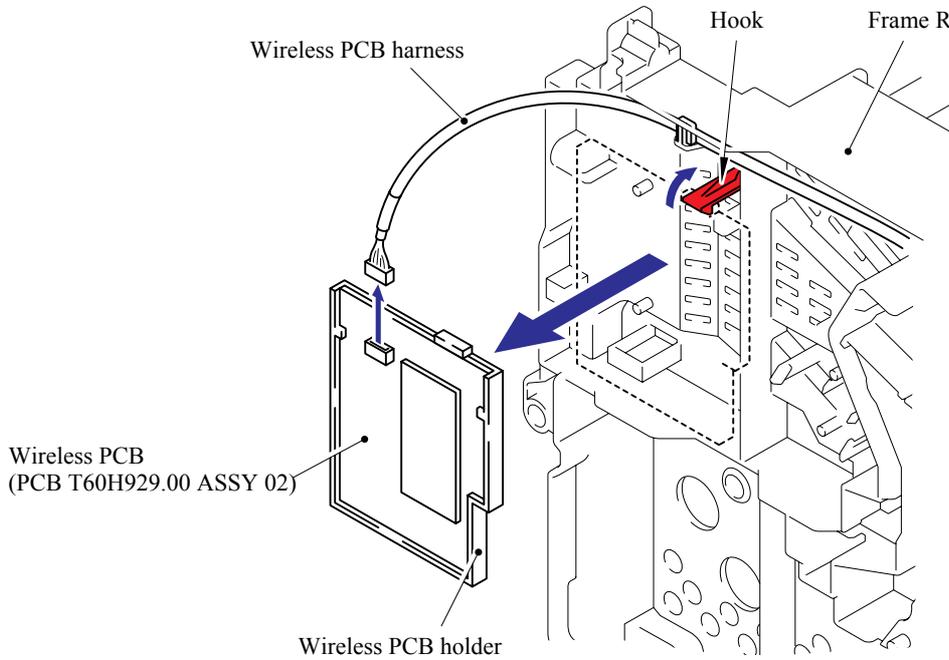


Fig. 5-196

- (3) Remove the Wireless PCB (PCB T60H929.00 ASSY 02) from the Wireless PCB holder.

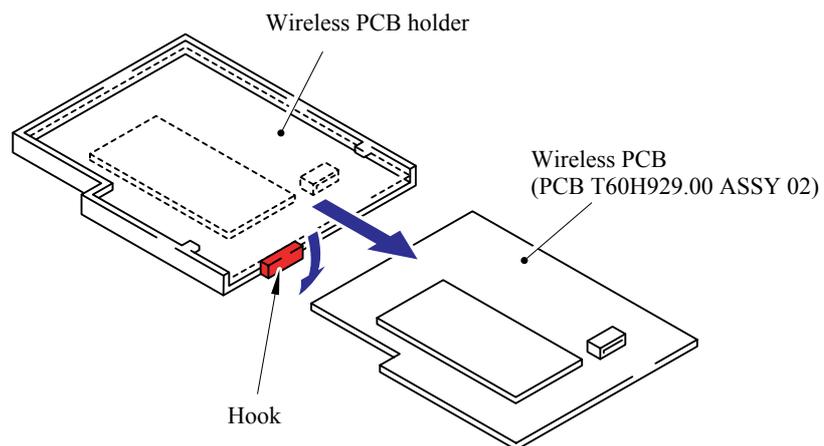


Fig. 5-197

5.2 DISASSEMBLY/REASSEMBLY (LT-5300)

5.2.1 Paper Tray

- (1) Pull out the Paper tray from the LT-5300.

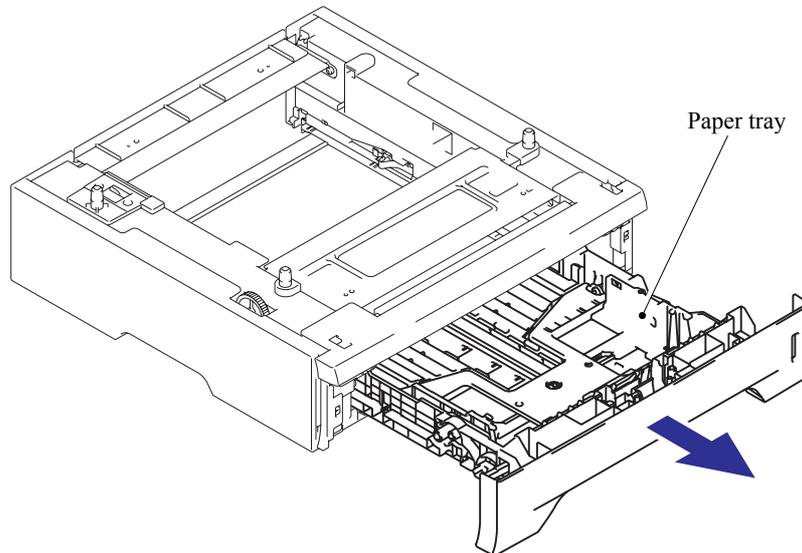


Fig. 5-198

- (2) Pull up the back side of the Separation pad ASSY.
- (3) Push the Hooks provided on both sides of the Separation pad ASSY inwards.
- (4) Pull up the Separation pad ASSY.

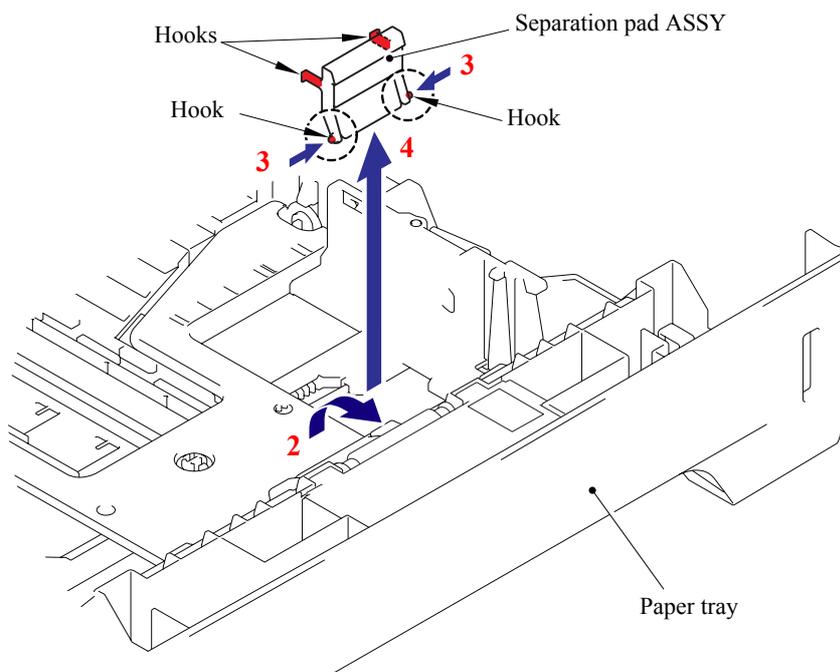


Fig. 5-199

(5) Remove the Separation pad spring.

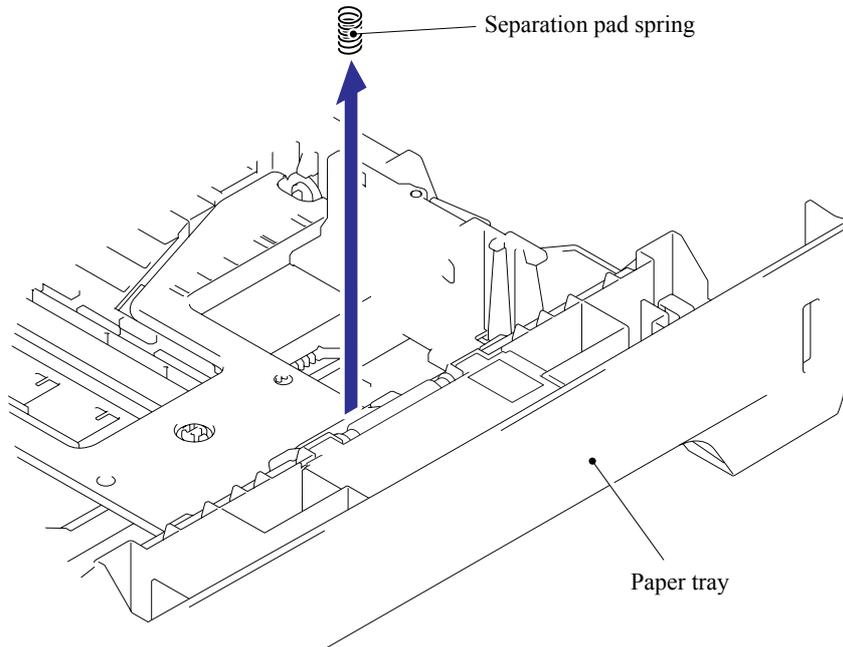


Fig. 5-200

(6) Remove the Lift gear 46.

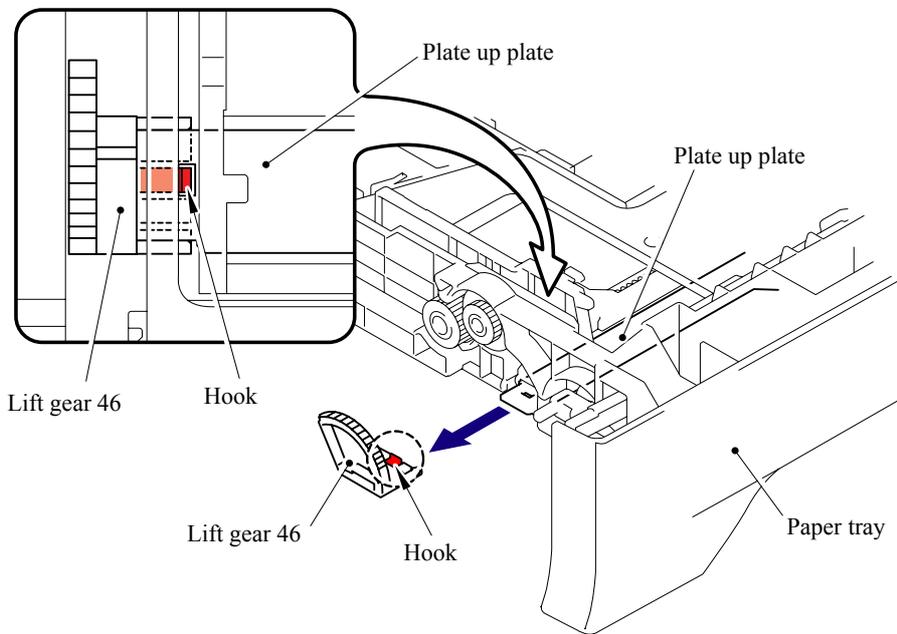


Fig. 5-201

(7) Remove the Gear 21-16.

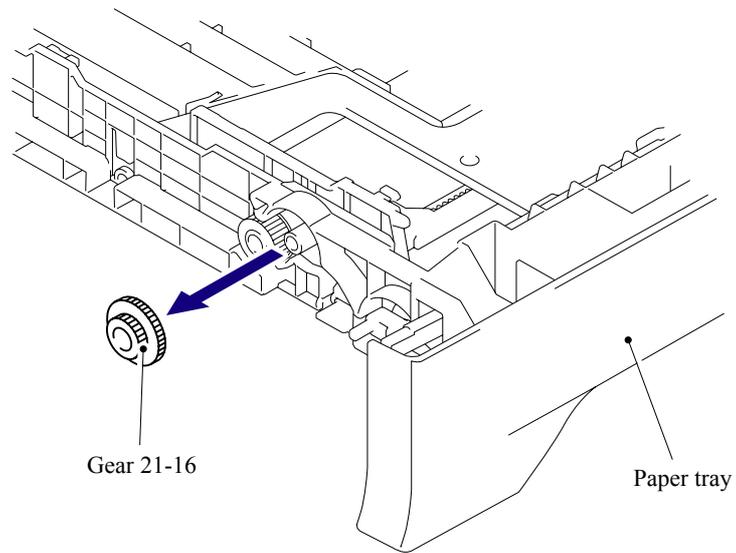


Fig. 5-202

(8) Remove the Gear 15.

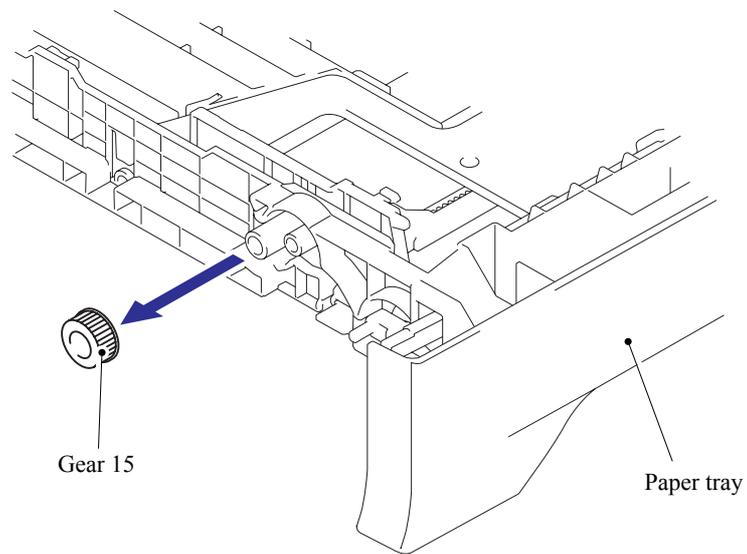


Fig. 5-203

5.2.2 LT Front Cover ASSY

- (1) Remove the two bind B M4x12 Taptite screws.
- (2) Remove the LT front cover ASSY.

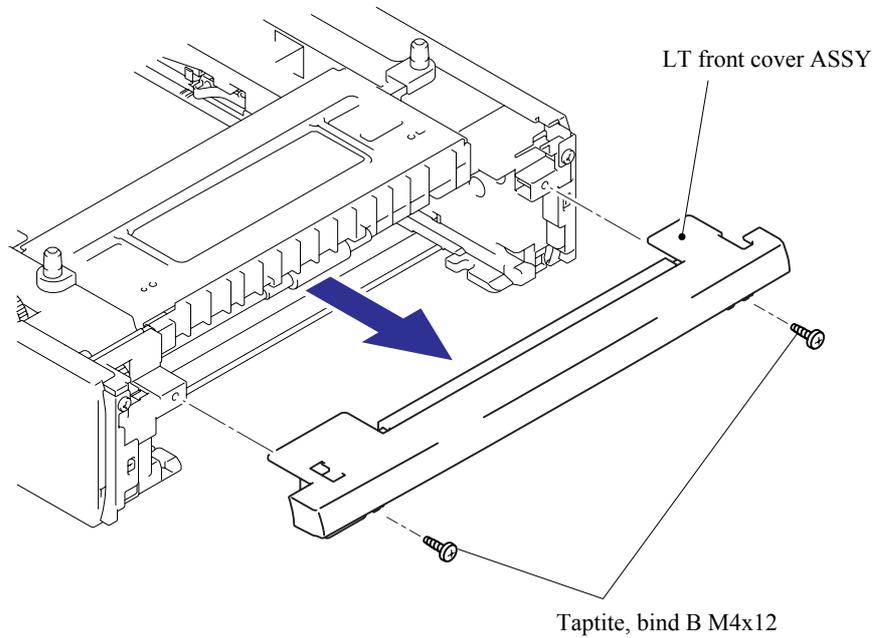


Fig. 5-204

- (3) Remove the LT front paper guide from the LT front cover ASSY while pulling the two hooks inwards.

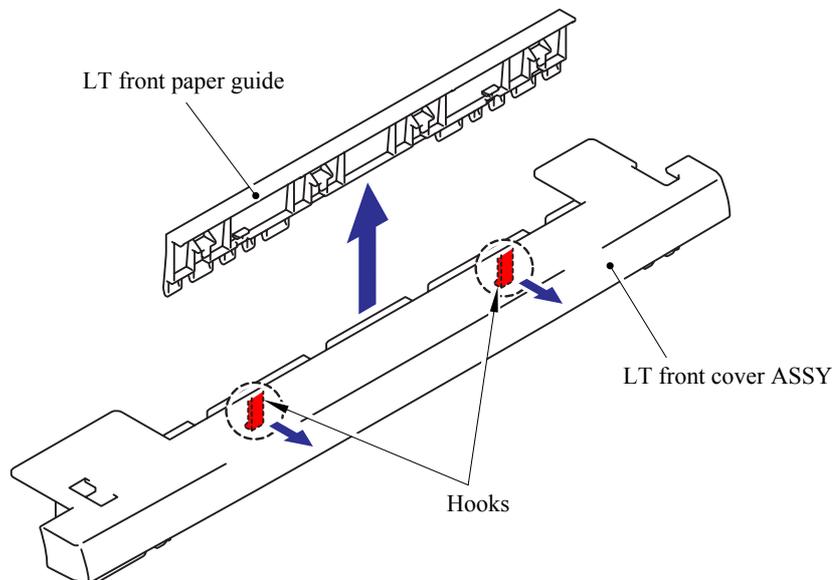


Fig. 5-205

5.2.3 LT Rear Cover

- (1) Remove the two cup S M3x6 Taptite SR screws.
- (2) Remove the LT rear cover.

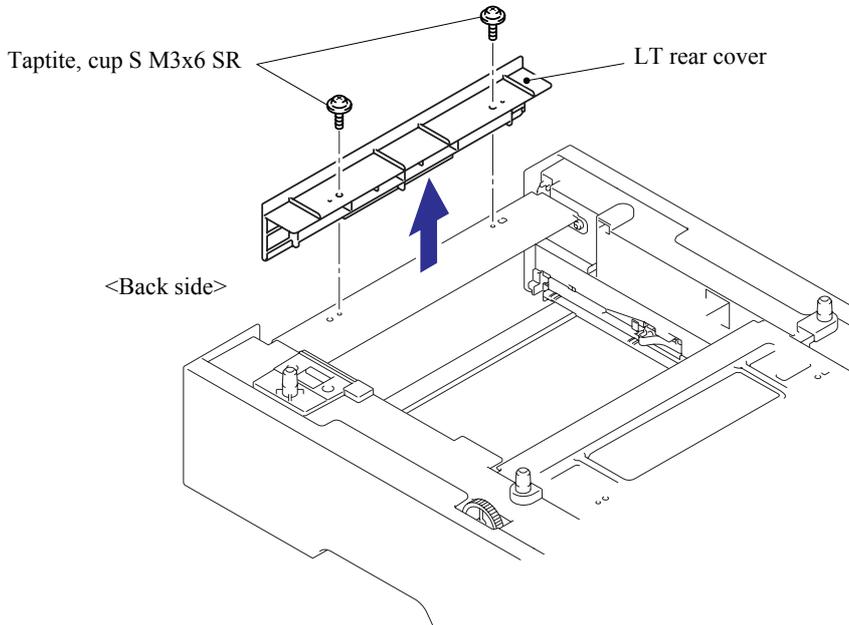


Fig. 5-206

5.2.4 LT Side Cover L

- (1) Remove the bind B M4x12 Taptite screw.
- (2) Remove the cup S M3x6 Taptite SR screw.
- (3) Release the Hooks in the order of the arrows and remove the LT side cover L.

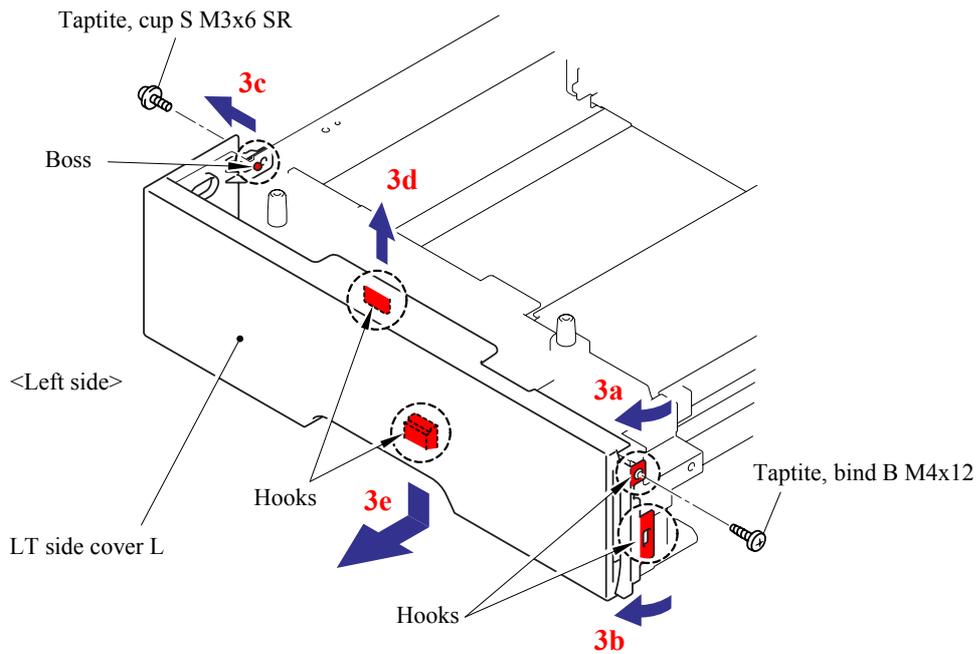


Fig. 5-207

5.2.5 LT Side Cover R

- (1) Remove the bind B M4x12 Taptite screw.
- (2) Remove the cup S M3x6 Taptite SR screw.
- (3) Release the Hooks in the order of the arrows and remove the LT side cover R.

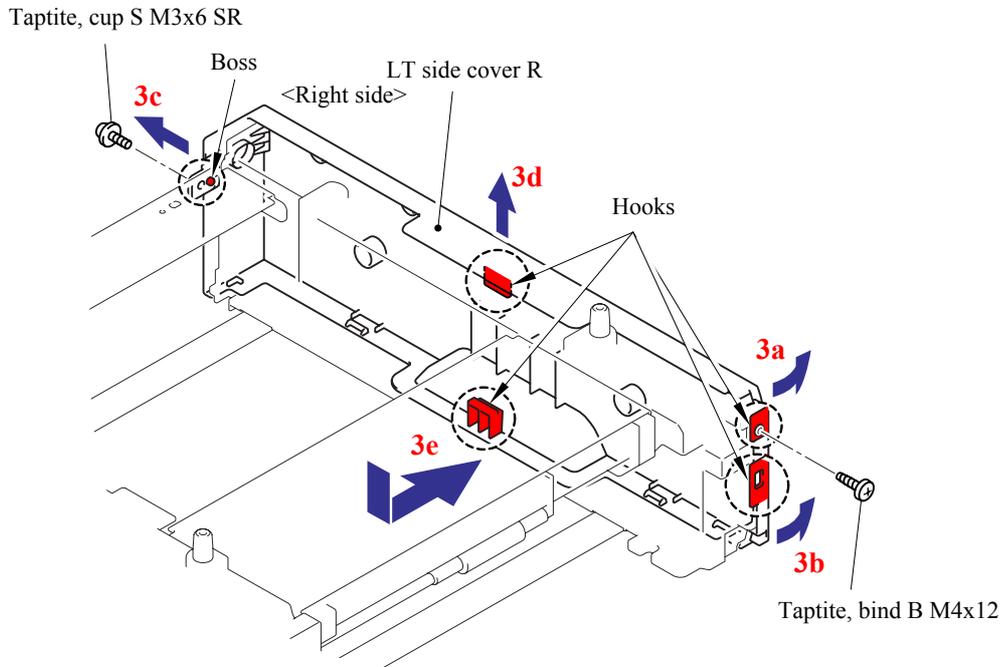


Fig. 5-208

5.2.6 LT PCB ASSY

- (1) Disconnect the connectors from the LT PCB ASSY.
- (2) Remove the bind B M4x12 Taptite screw, and then remove the LT PCB ASSY.

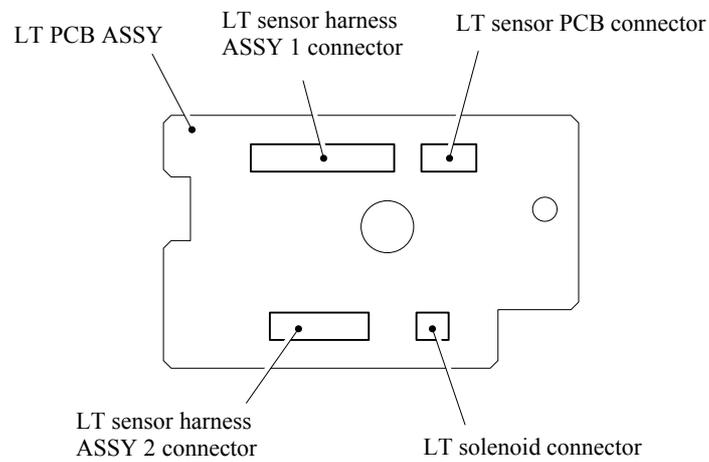
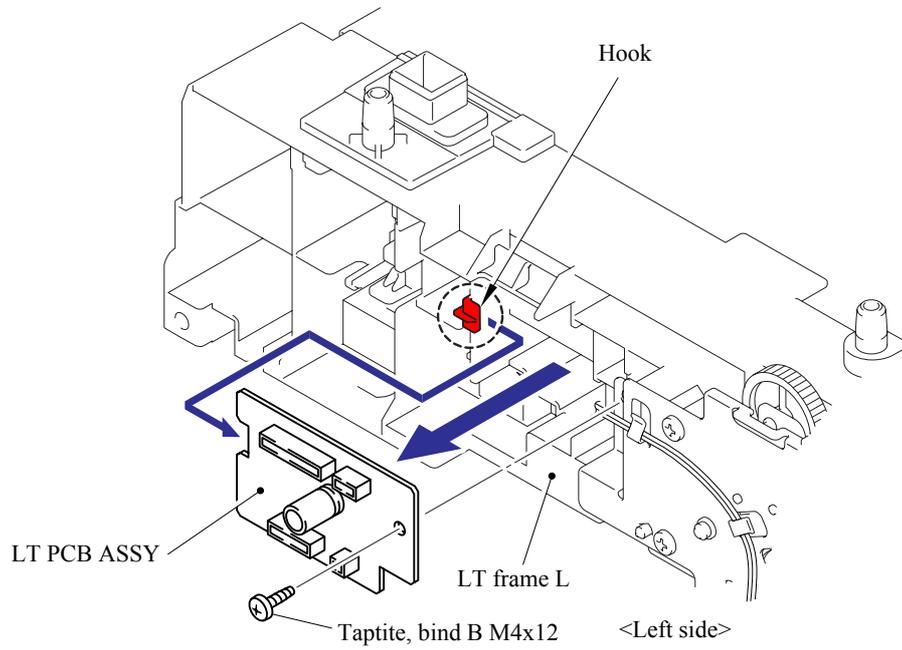


Fig. 5-209

5.2.7 Connector: 55533-1219

- (1) Remove the LT sensor harness ASSY 1 from the Connector: 55533-1219.
- (2) Disconnect the Connector: 55533-1219 while pressing the Hooks inwards.

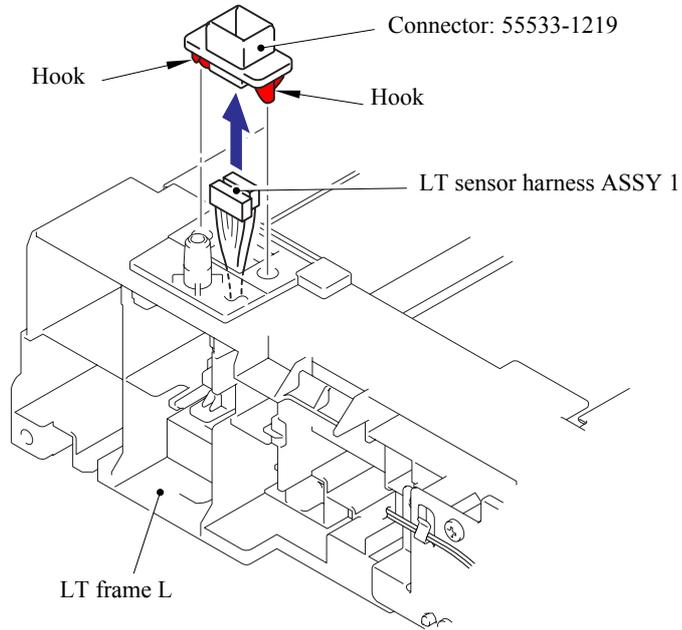


Fig. 5-210

5.2.8 Connector: 54702-1219

- (1) Remove the LT sensor harness ASSY 2 from the Connector: 54702-1219.
- (2) Disconnect the Connector: 54702-1219 while pressing the Hooks inwards.

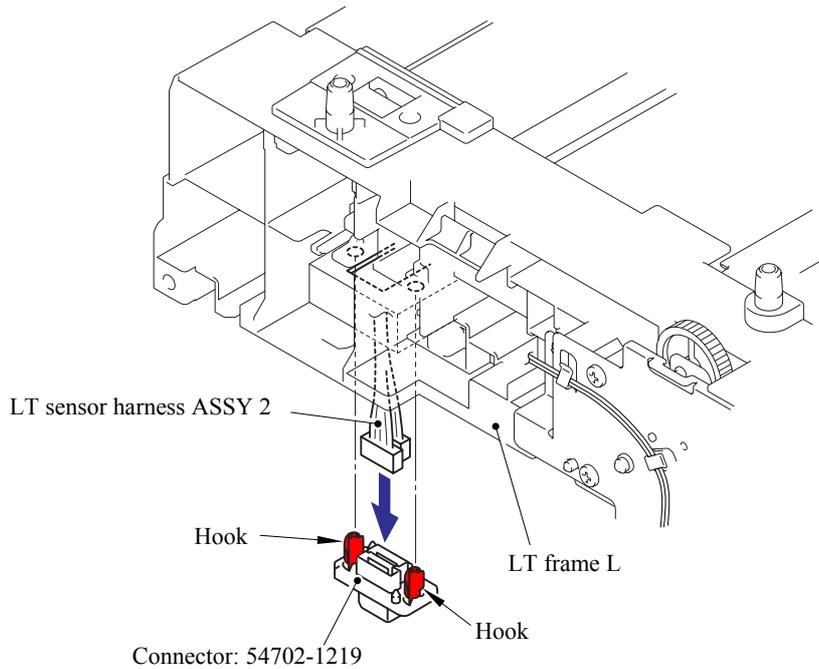


Fig. 5-211

5.2.9 Gear 24 LT

- (1) Place the LT so that the LT frame L is at the top.
- (2) Release the Hook to remove the Gear 20 T1 roller drive from the LT frame L.

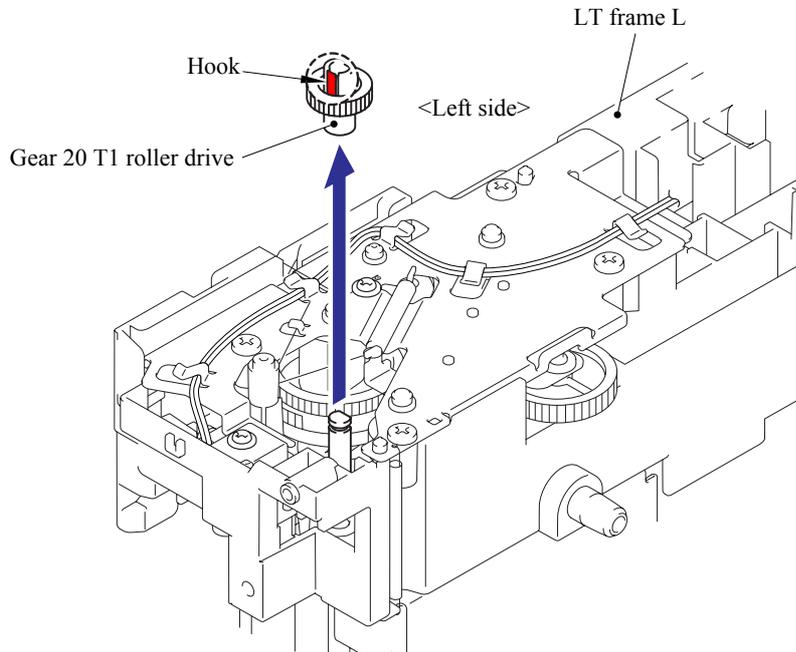


Fig. 5-212

- (3) Remove the Retaining ring E4.
- (4) Remove the Gear 24 LT from the LT frame L.

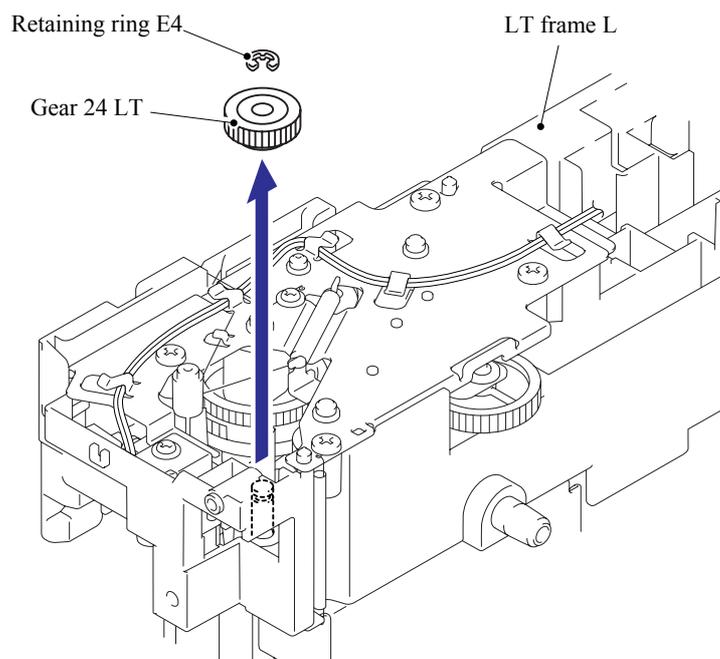


Fig. 5-213

5.2.10 Collar 6

- (1) Remove the Gear plate ground spring from the LT frame L.

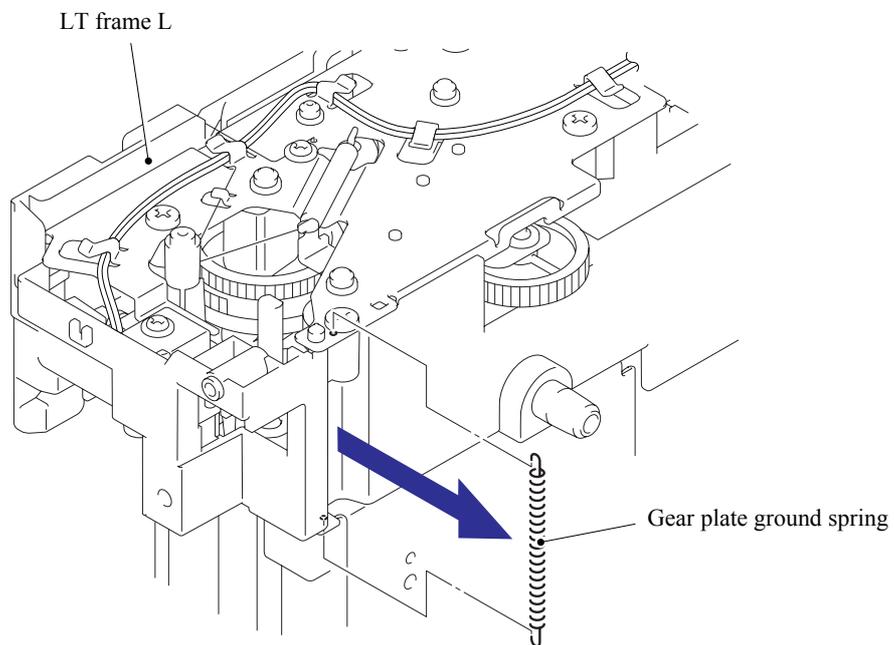


Fig. 5-214

- (2) Remove the cup S M3x6 Taptite SR screw, and then remove the Feed roller ground plate.

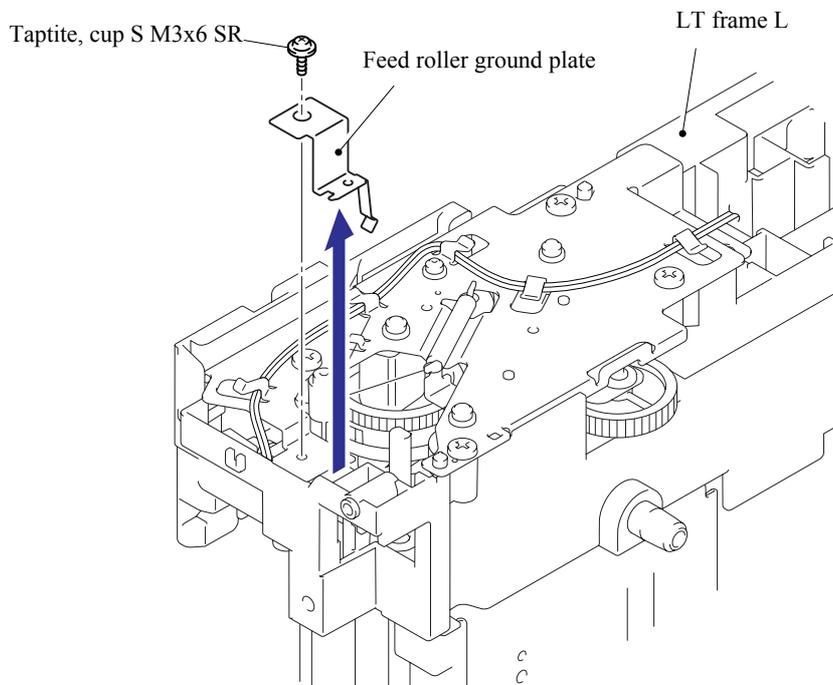


Fig. 5-215

(3) Remove the T1 sector gear spring LT from the LT frame L.

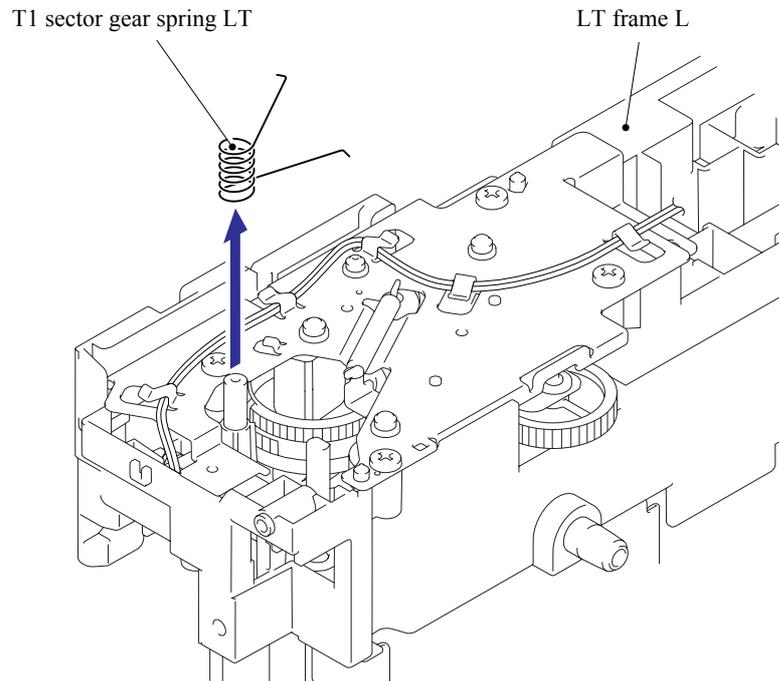


Fig. 5-216

■ Assembling Notes

When assembling the T1 sector gear spring LT, ensure that its direction is correct referring to the figure below.

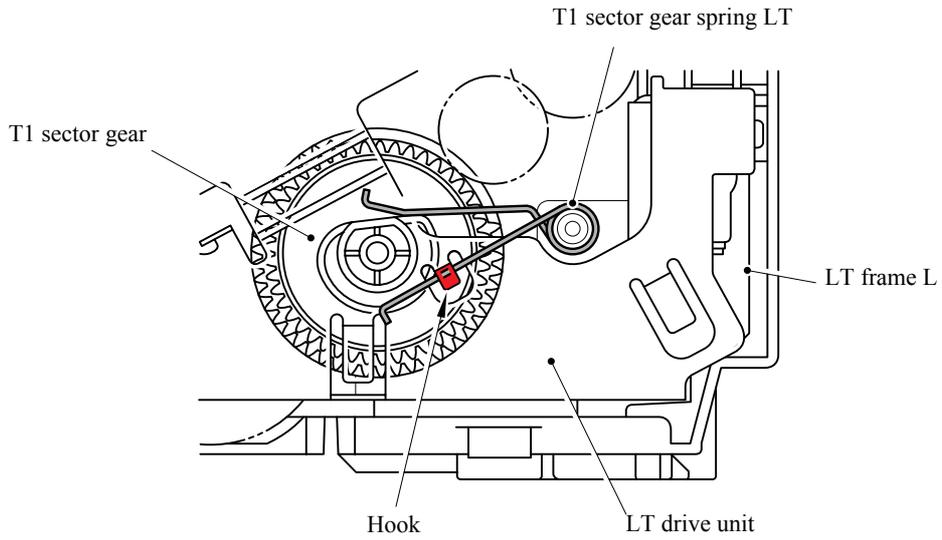


Fig. 5-217

(4) Remove the LT solenoid harness from the hooks of the LT drive unit.

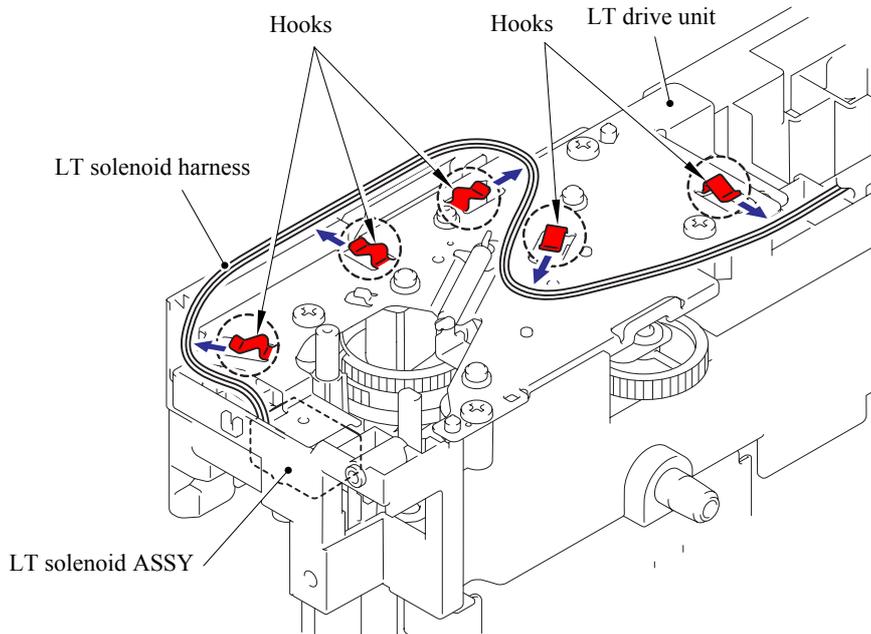


Fig. 5-218

(5) Remove the cup S M3x6 Taptite screw.

(6) Remove the four bind B M4x12 Taptite screws, and then remove the LT drive unit.

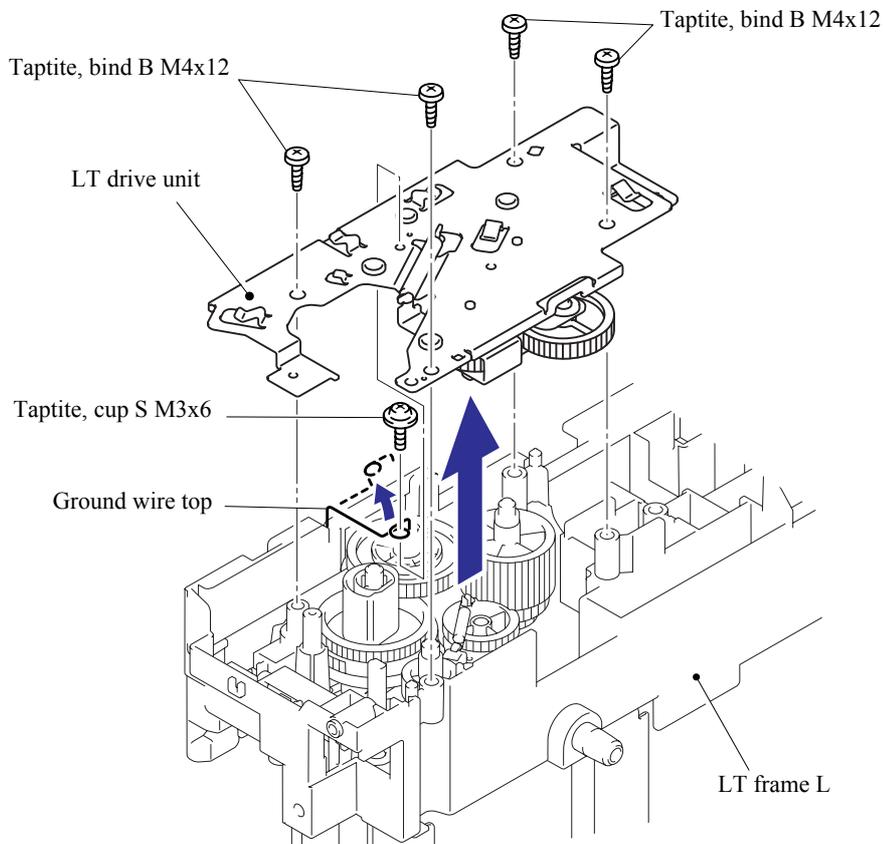


Fig. 5-219

(7) Remove the Clutch spring from the LT drive unit.

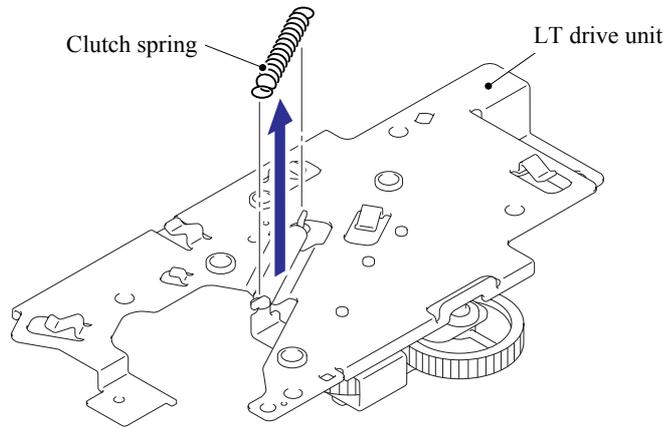


Fig. 5-220

(8) Remove the Collar 6.

(9) Remove the Clutch arm ASSY from the LT drive unit.

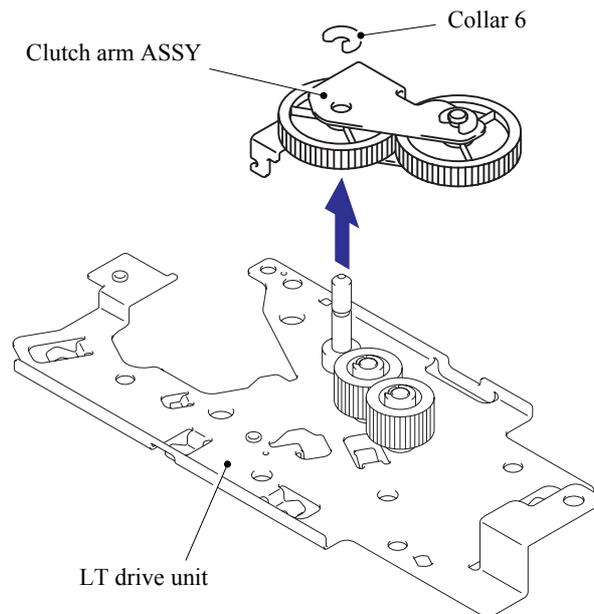


Fig. 5-221

(10) Remove the Collar 6 from the Clutch arm ASSY.

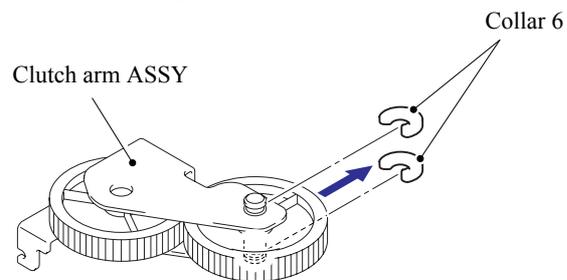


Fig. 5-222

5.2.11 LT Solenoid ASSY

- (1) Remove the bind B M3x10 Taptite screw, and then remove the LT solenoid ASSY.
- (2) Remove the Solenoid release spring P/R from the LT solenoid ASSY.

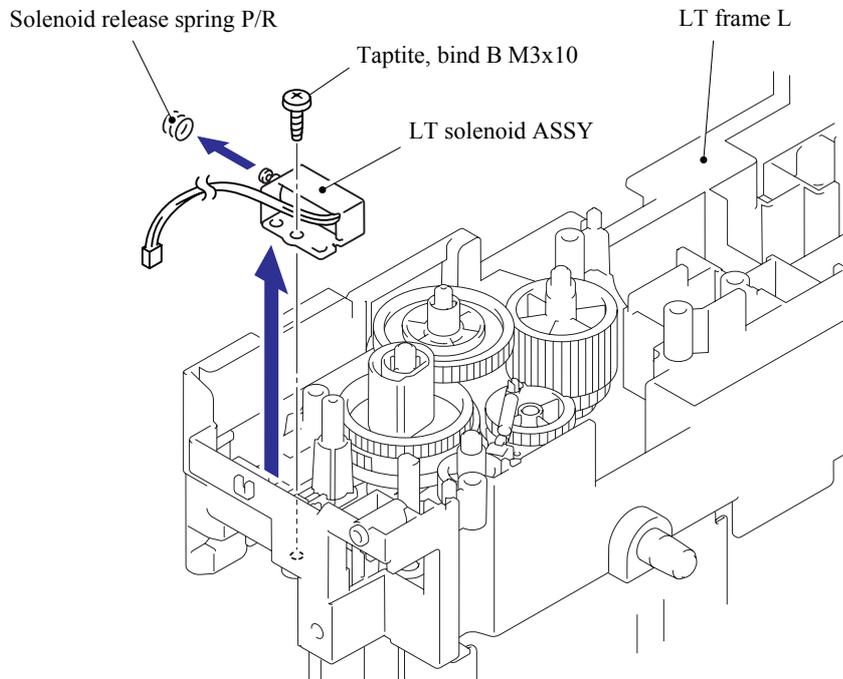


Fig. 5-223

5.2.12 Roller Holder ASSY

- (1) Push the Lift arm to the direction of the arrow 1a and pull out the pin of the Roller holder ASSY. Then, turn the Roller holder ASSY to the direction of the arrow 1b.

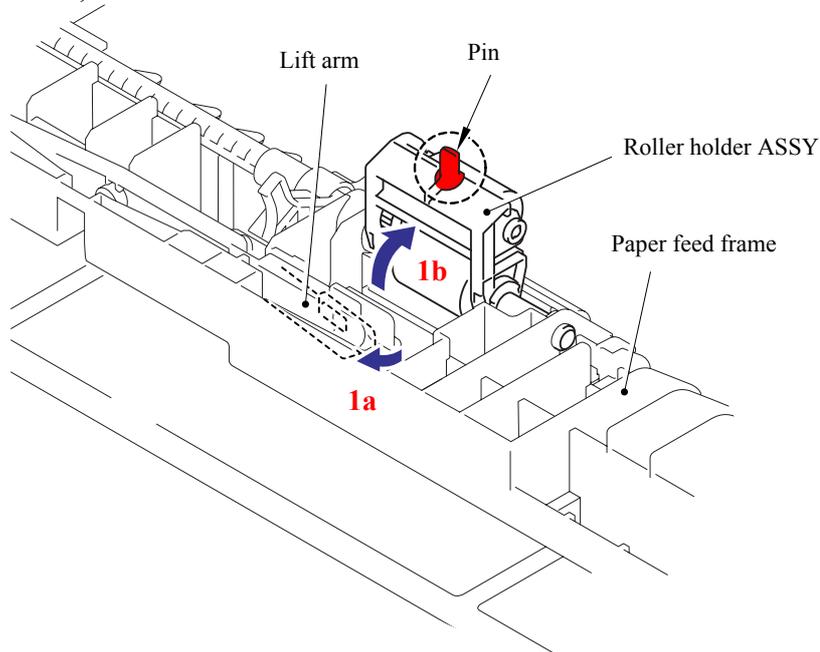


Fig. 5-224

- (2) Slide the Roller holder ASSY to the direction of the arrow 2a. Then, lift up the gear side of the Roller holder ASSY to the direction of the arrow 2b and pull it out to the direction of the arrow 2c to remove.

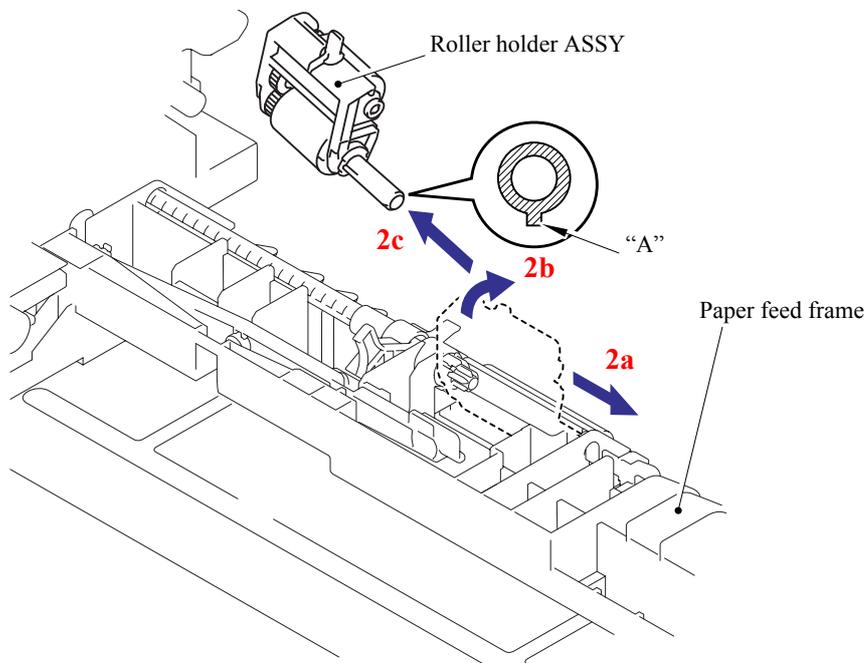


Fig. 5-225

■ **Assembling Notes**

When assembling the roller holder ASSY, align the section “A” on the shaft of the roller holder ASSY with the hole on the paper feed frame.

5.2.13 Edge Actuator Spring

- (1) Remove the Edge actuator spring.

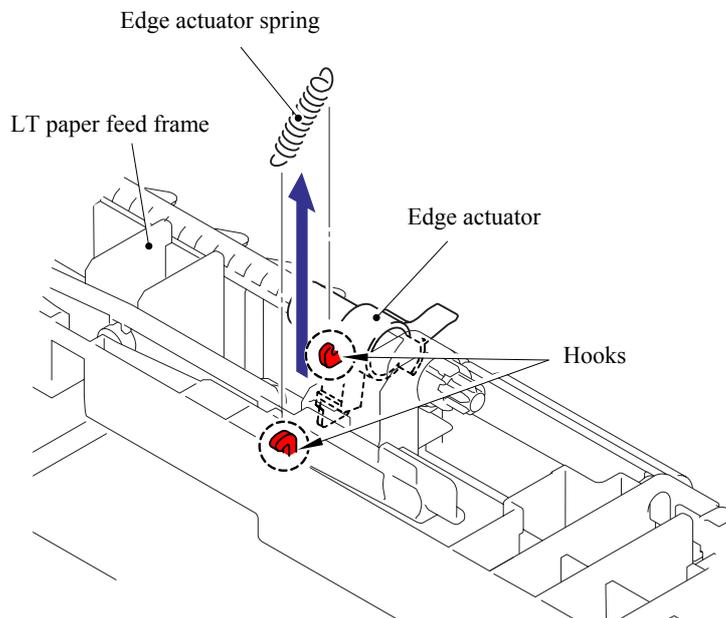


Fig. 5-226

5.2.14 PR Actuator/Edge Actuator

- (1) Release the Hook and remove the Separation R shaft bearing.

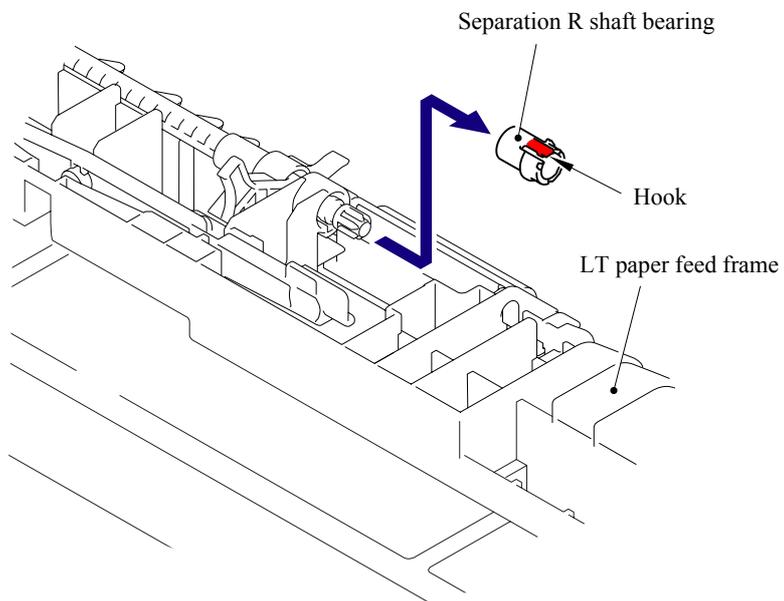


Fig. 5-227

- (2) Pull out the Separation roller drive shaft to the direction of the arrow and remove the Edge actuator and PE actuator.

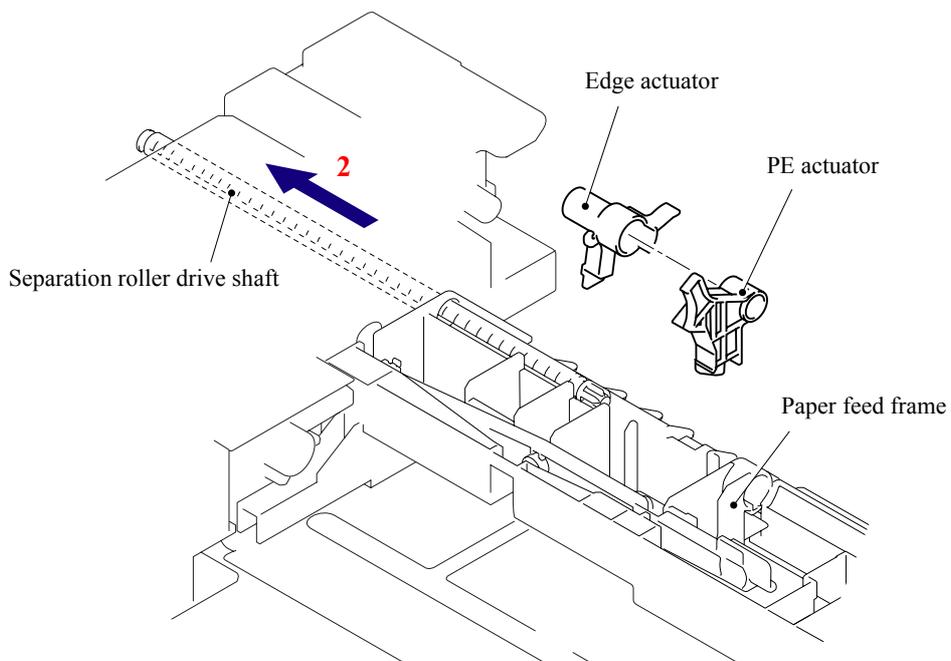


Fig. 5-228

5.2.15 LT Sensor PCB ASSY

- (1) Remove the two bind B M4x12 Taptite screws.
- (2) Remove the four cup S M3x6 Taptite SR screws, and then remove the LT frame L.

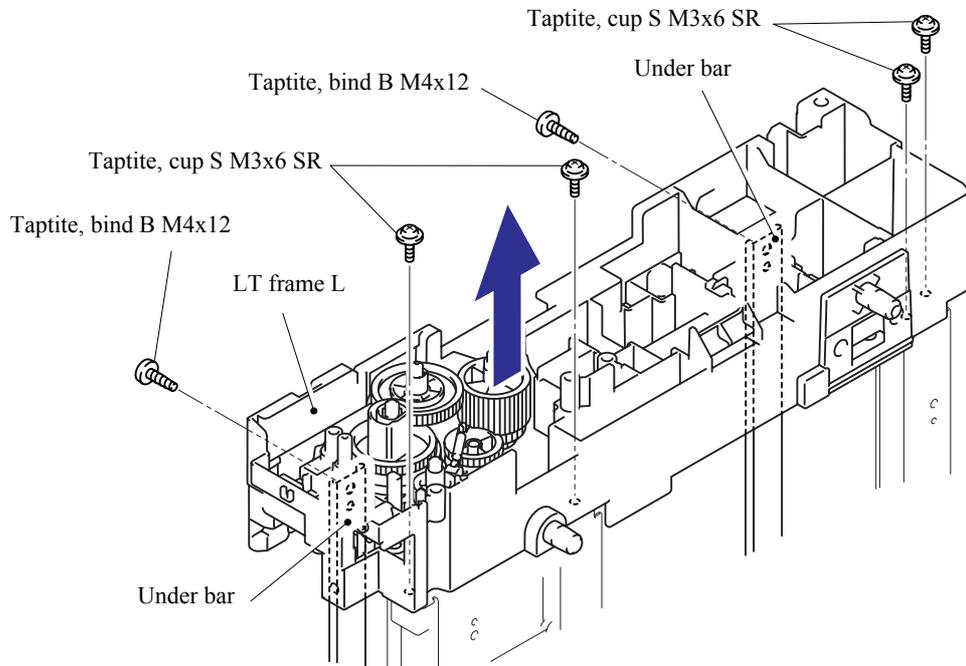


Fig. 5-229

- (3) Remove the two cup S M3x6 Taptite SR screws, and then remove the LT paper feed frame.

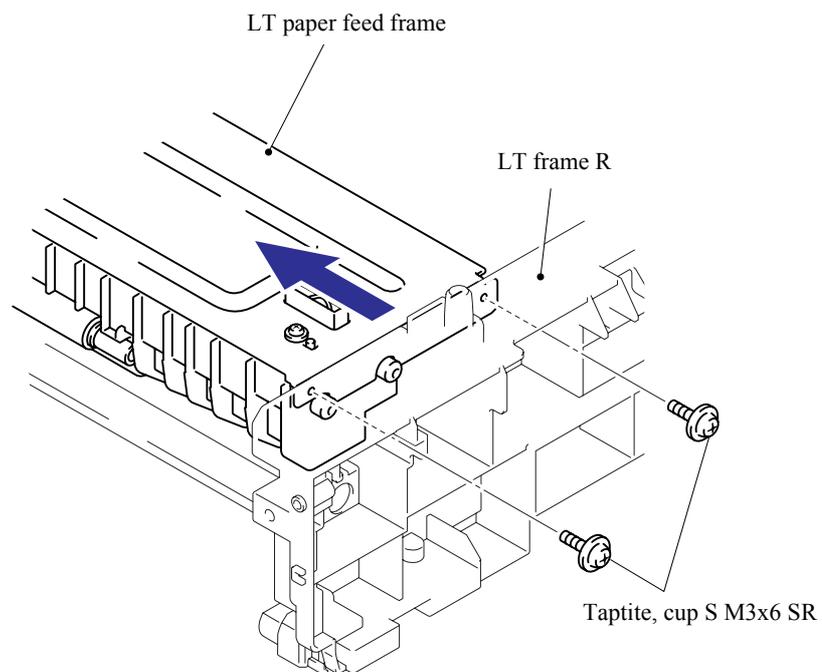


Fig. 5-230

- (4) Remove the two cup B M3x12 Taptite screws, and then remove the LT front beam.

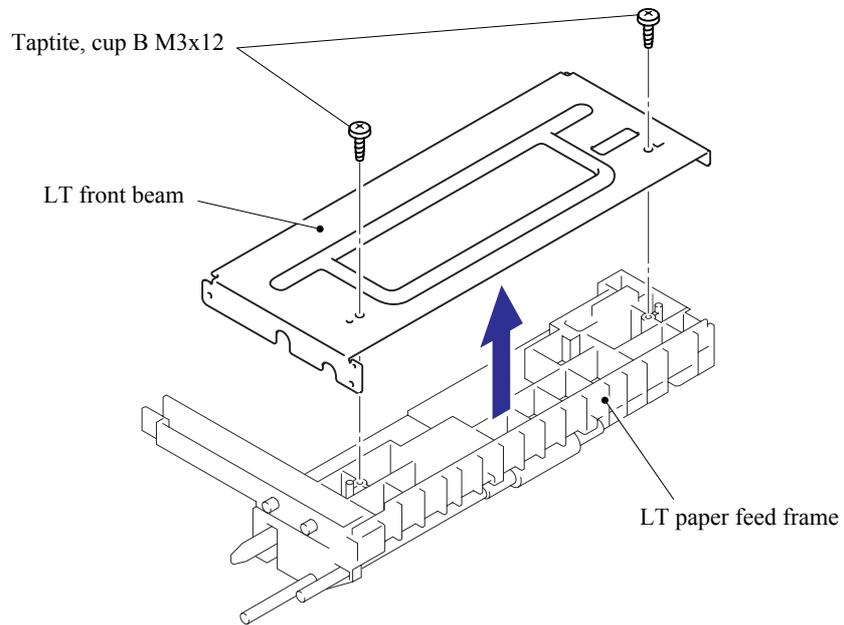


Fig. 5-231

- (5) Remove the bind B M3x8 Taptite screw, and then remove the LT sensor PCB ASSY.

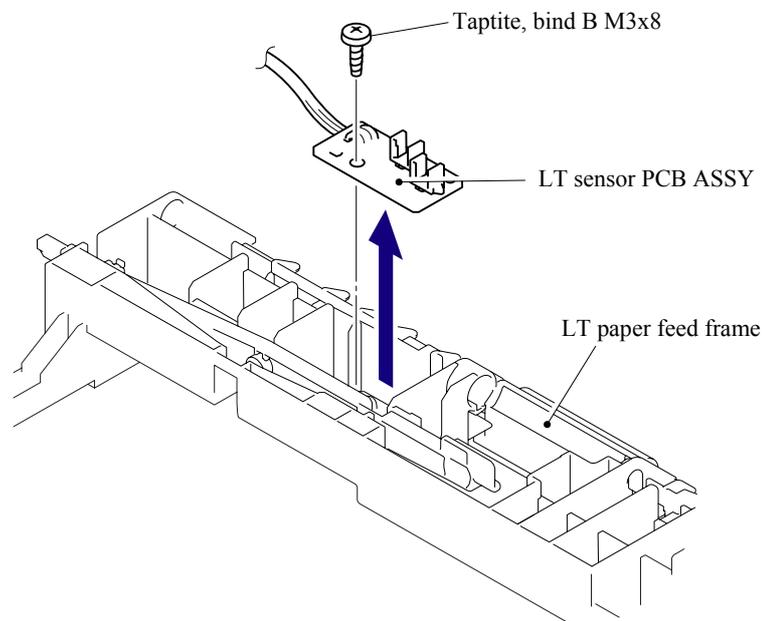
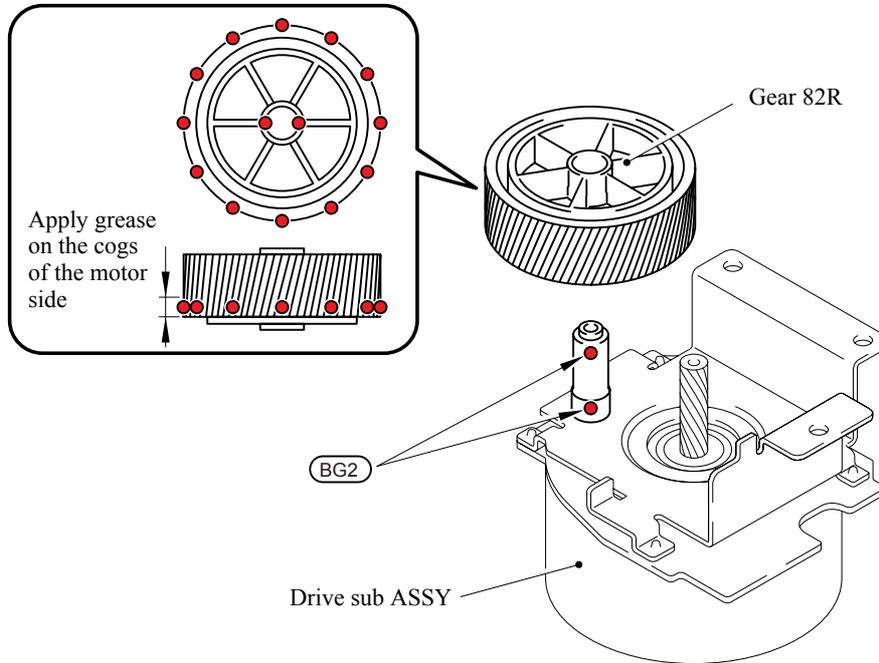
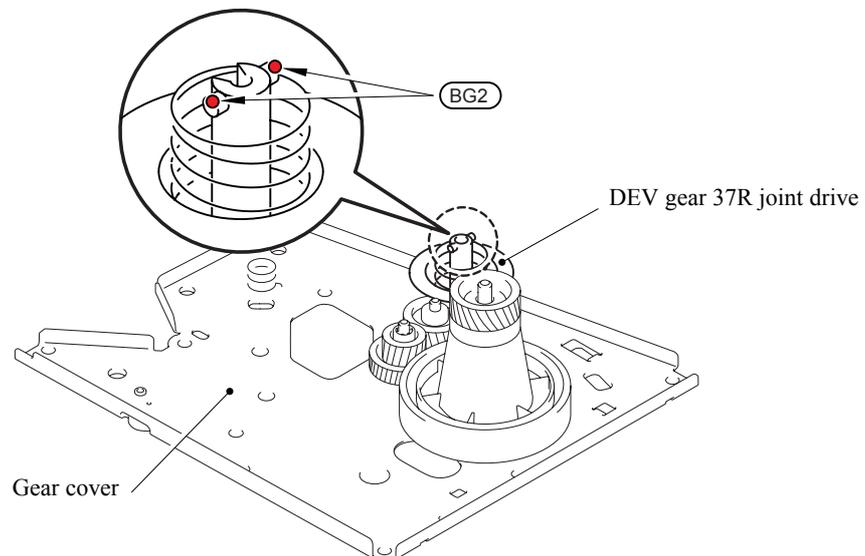


Fig. 5-232

5.3 LUBRICATION



* BG2: KANTO KASEI BG- MU (2 mm dia. Ball)



* BG2: KANTO KASEI BG- MU (2 mm dia. Ball)

CHAPTER 6

ADJUSTMENTS AND UPDATING OF SETTINGS, REQUIRED AFTER PARTS REPLACEMENT

CHAPTER 6 ADJUSTMENTS AND UPDATING OF SETTINGS, REQUIRED AFTER PARTS REPLACEMENT

This chapter details adjustments and updating of settings, which are required if main PCB and some other parts have been replaced.

CONTENTS

6.1	IF YOU REPLACE THE MAIN PCB.....	6-1
6.1.1	Load Update Programs/data	6-1
6.1.2	Initialize the EEPROM on the Main PCB (Function code 01).....	6-1
6.1.3	Customize the EEPROM on the Main PCB (Function code 74).....	6-1
6.1.4	Check the Control Panel PCB for Normal Operation (Function code 13)	6-1
6.1.5	Make a Sensor Operation Check (Function code 32).....	6-1
6.1.6	Acquire of White Level Data and Set the CCD Scanner Area (Function code 55)	6-1
6.1.7	Setting the Serial Number	6-1
6.1.8	Switch Back to Standby.....	6-2
6.2	IF YOU REPLACE THE DOCUMENT SCANNER UNIT	6-2
6.2.1	Acquire of White Level Data and Set the CCD Scanner Area (Function code 55)	6-2
6.3	IF YOU REPLACE THE DRUM UNIT	6-2
6.4	PERIODICAL REPLACEMENT PARTS	6-3
6.4.1	Periodical Replacement Parts.....	6-3
6.4.2	Procedures to Replace Periodical Replacement Parts	6-4
6.4.2.1	Fuser unit and laser unit.....	6-4
6.4.2.2	Paper feeding kit for tray 1, 2	6-32
6.4.2.3	Paper feeding kit for MP tray.....	6-39

6.1 IF YOU REPLACE THE MAIN PCB

6.1.1 Load Update Programs/data

If the main PCB is replaced with a new one, write the update programs/data onto the flash ROM.
Refer to [Appendix 2, page App. 2-2](#).

6.1.2 Initialize the EEPROM on the Main PCB (Function code 01)

Refer to [Chapter 8, Section 8.4.1](#).

6.1.3 Customize the EEPROM on the Main PCB (Function code 74)

Refer to [Chapter 8, Section 8.4.14](#).

6.1.4 Check the Control Panel PCB for Normal Operation (Function code 13)

Refer to [Chapter 8, Section 8.4.8](#).

6.1.5 Make a Sensor Operation Check (Function code 32)

Refer to [Chapter 8, Section 8.4.9](#).

6.1.6 Acquire of White Level Data and Set the CCD Scanner Area (Function code 55)

Refer to [Chapter 8, Section 8.4.12](#).

6.1.7 Setting the Serial Number

- (1) Double-click the brmainte.EXE file (maintenance utility).
- (2) Select Input Information from Menu. Select the applicable model name.
- (3) Check the port (USB) which the machine is connected through and click “Serial No.”
- (4) Enter the serial number (the last nine digits) of the machine into the box and click the **OK** button. (Refer to the **NOTE** below for the serial number label.)
- (5) The serial number is shown in the window, and check that it is correct. The setting of the serial number is completed.

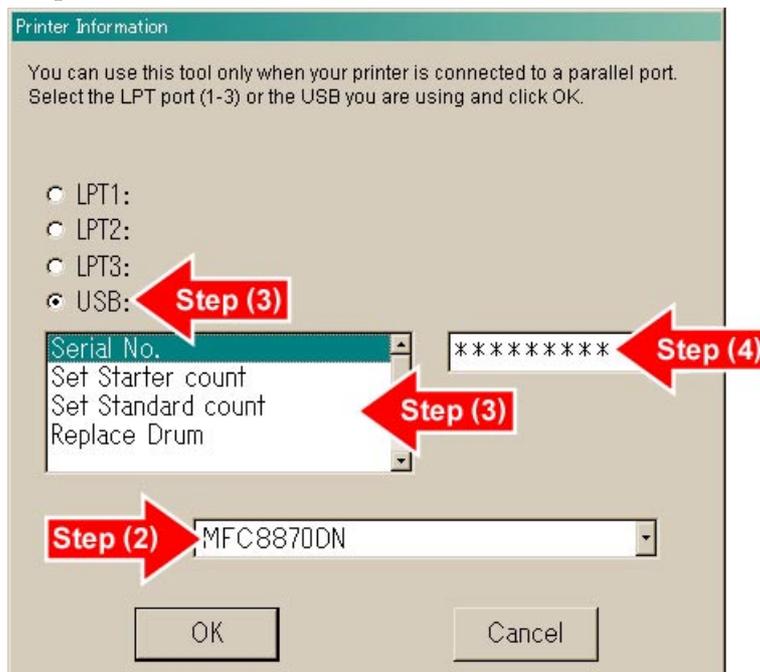


Fig. 6-1

NOTE: Please refer to the illustration below for the location and the identification of the serial number label.

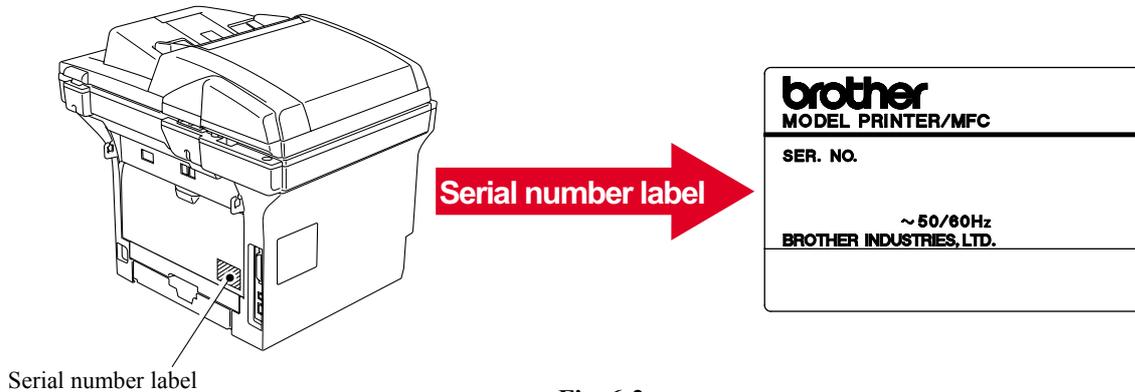


Fig. 6-2

6.1.8 Switch Back to Standby

Unplug the USB cable and press the [9] key twice.

6.2 IF YOU REPLACE THE DOCUMENT SCANNER UNIT

6.2.1 Acquire of White Level Data and Set the CCD Scanner Area (Function code 55)

Refer to [Chapter 8, Section 8.4.12](#).

6.3 IF YOU REPLACE THE DRUM UNIT

When replacing the drum unit due to the end of its life or due to repair its life
(This steps below are also described in the user's guide.)

Reset the drum unit life counter from the normal standby status.

- (1) Open the front cover.
- (2) Press the [Clear/Back] key.
The "Replace Drum/▲ 1. Yes ▼ 2. No" appears on the LCD.
- (3) Press the [1] key.

The drum unit life counter is reset, and the machine returns to the normal standby status.

NOTE:

The estimated drum life is approximately 25,000 pages. The actual number of pages the drum unit will print may be significantly less than these estimates because there are many factors that determine the actual drum life, such as temperature, humidity type of paper and how much toner that are used for the number of pages per print job.

6.4 PERIODICAL REPLACEMENT PARTS

6.4.1 Periodical Replacement Parts

Periodical replacement parts are the parts to be replaced periodically to maintain product quality. These parts would affect the product quality greatly if they lost their function even if they do not appear to be damaged or there is no change in their appearance.)

The periodical replacement parts listed below should be replaced at the service center referring to the service life.

Parts name	LCD message	Qty	Approximate Life ^{*1}	Replacement procedure
Fuser Unit	REPLACE FUSER	1	100,000 pages	Refer to 6.4.2.1.
Laser Unit	REPLACE LASER	1	100,000 pages	
Paper feeding kit for Tray 1 ^{*3}	REPLACE PF KIT1	1	100,000 pages	Refer to 6.4.2.2.
Paper feeding kit for Tray 2 ^{*3}	REPLACE PF KIT2	1	100,000 pages	
Paper feeding kit for MP tray ^{*2}	REPLACE PF KITMP	1	100,000 pages	Refer to 6.4.2.3.

NOTE:

*1: At 5% print coverage (A4 or Letter size). The actual number of printed pages will vary depending on the print jobs and paper you use.

*2: Paper feeding kit means the paper pick up roller and the separation pad.

*3: Paper feeding kit for Tray 1 and Tray 2 means the paper feed roller, separation roller, separation pad and separation pad spring. Tray 1 and Tray 2 are the same kit.

NOTE:

- Always turn off the power switch of the machine and unplug the power cord from the power outlet before replacing the periodical replacement parts.
- If the fuser unit is replaced after errors related to the fuser unit occur, it is necessary to leave the machine power ON for ten minutes after part replacement. This will make the machine to be released from errors.
- To reset the count of each periodical replacement parts, refer to [8.4.18](#).
- After disconnecting flat cables, check that each cable is not damaged at its end or short-circuited.
- When connecting flat cables, do not insert them at an angle. After insertion, check that the cables are not at an angle.

6.4.2 Procedures to Replace Periodical Replacement Parts

6.4.2.1 Fuser unit and laser unit

<Uninstalling Procedure>

- (1) Disconnect the AC cord from the Machine.

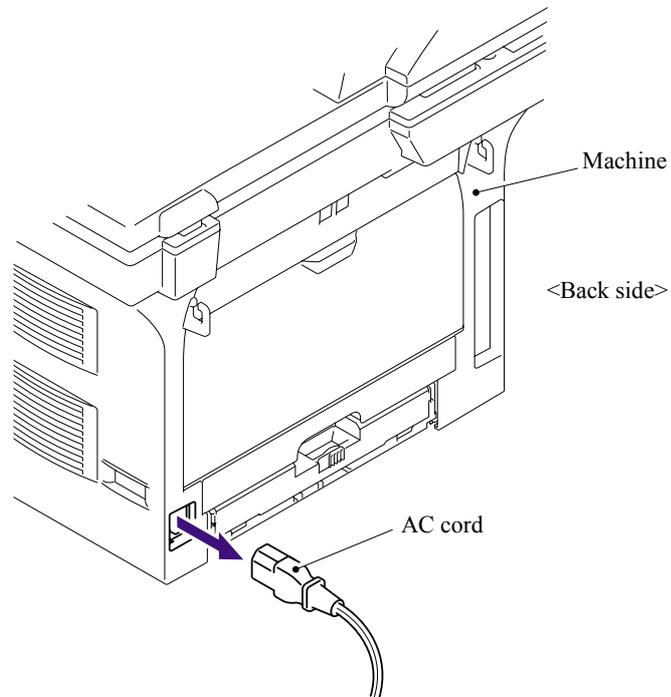


Fig. 6-3

- (2) Press the cover release lever.
- (3) Open the Front cover.
- (4) Take out the Drum/toner ASSY.

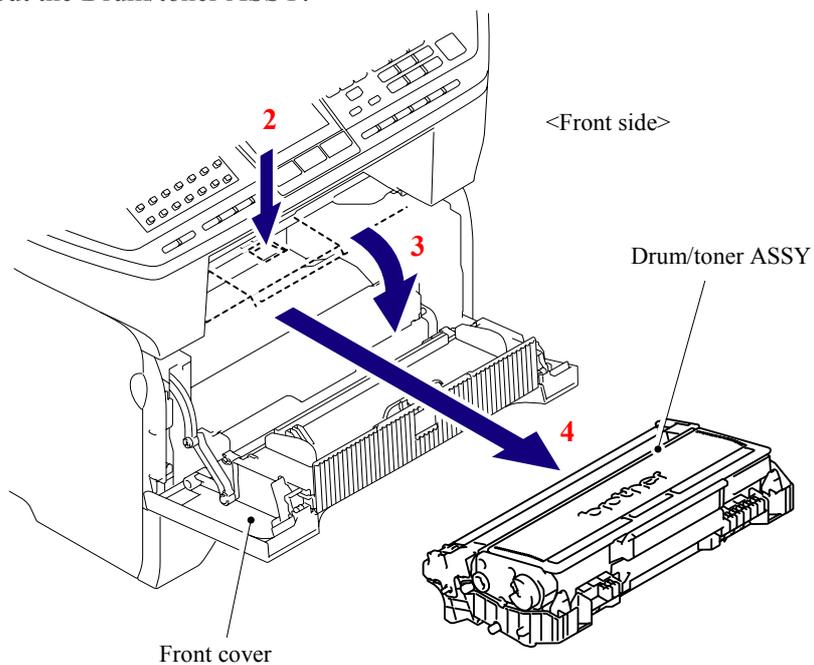


Fig. 6-4

(5) Remove the DX feed ASSY or DX blank cover.

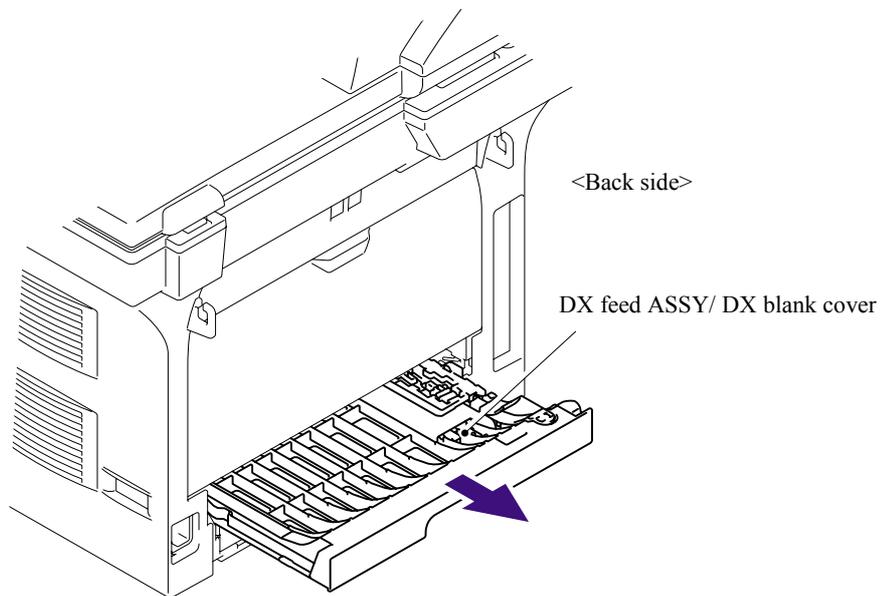


Fig. 6-5

(6) Close the Front cover.

(7) Pull out the Paper tray.

(8) Remove the recording paper if it is remained in the Paper tray.

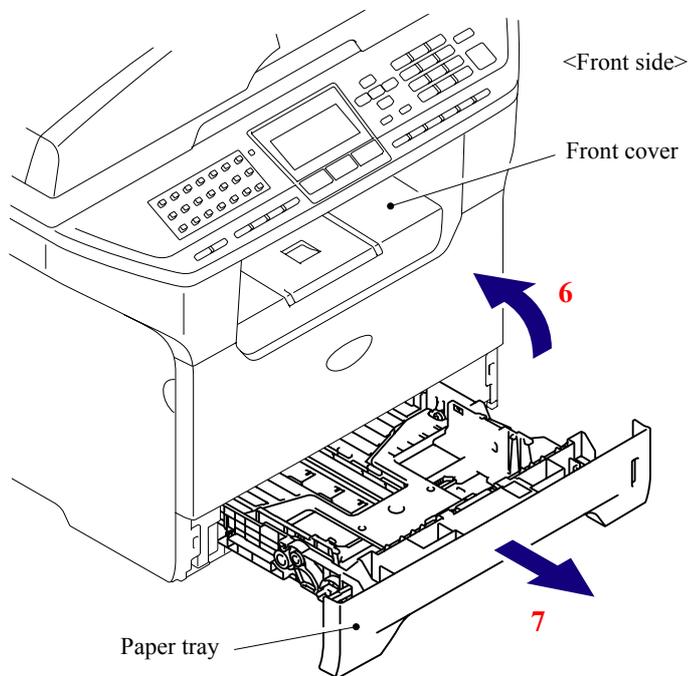


Fig. 6-6

- (9) Open the Back cover.
- (10) Remove the Arms of the Back cover from the Pins on the machine body.
- (11) Remove the Back cover.

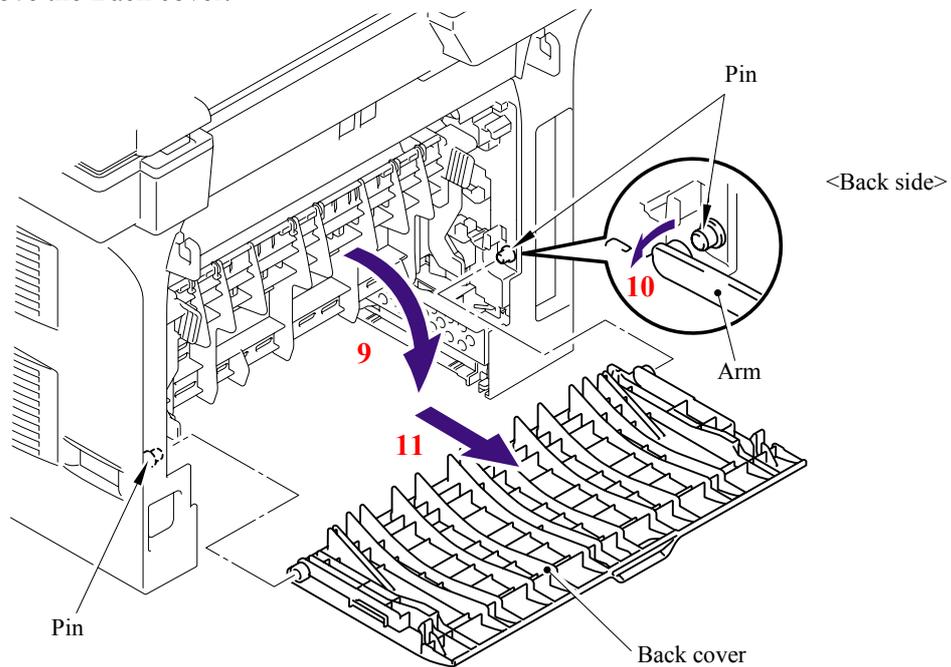


Fig. 6-7

- (12) Hold the Knobs on the Outer chute ASSY and pull down the Outer chute ASSY to your side.
- (13) Remove the Arms of the Outer chute ASSY from the Pins on the machine body.
- (14) Remove the Outer chute ASSY.

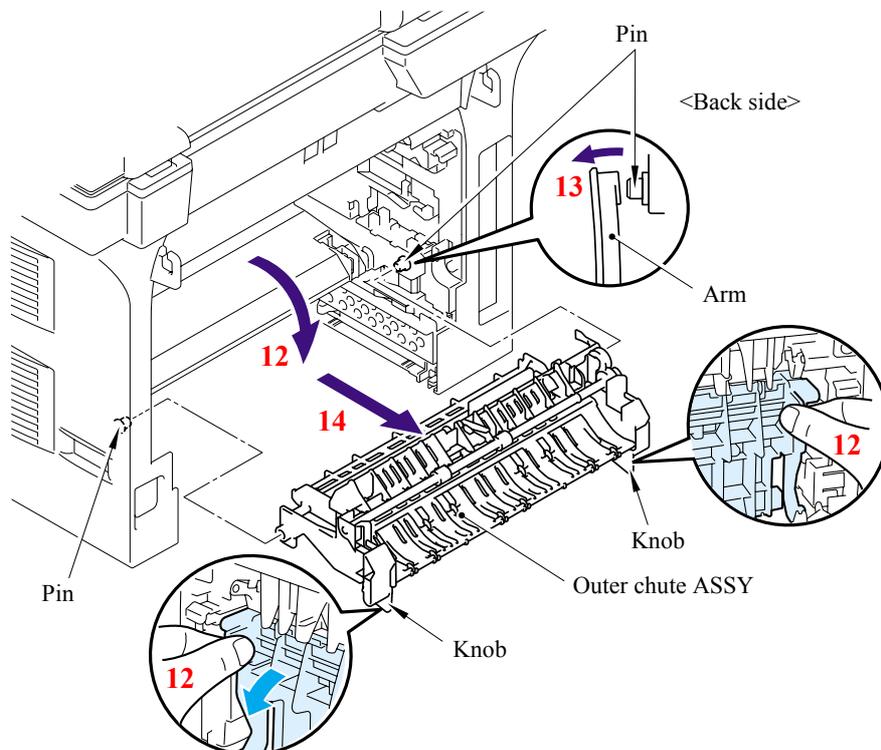


Fig. 6-8

- (15) Open the Front cover, remove the two bind B M4x12 Taptite screws, and then remove the Side cover L by releasing the Hooks in the order of 15a to 15d.

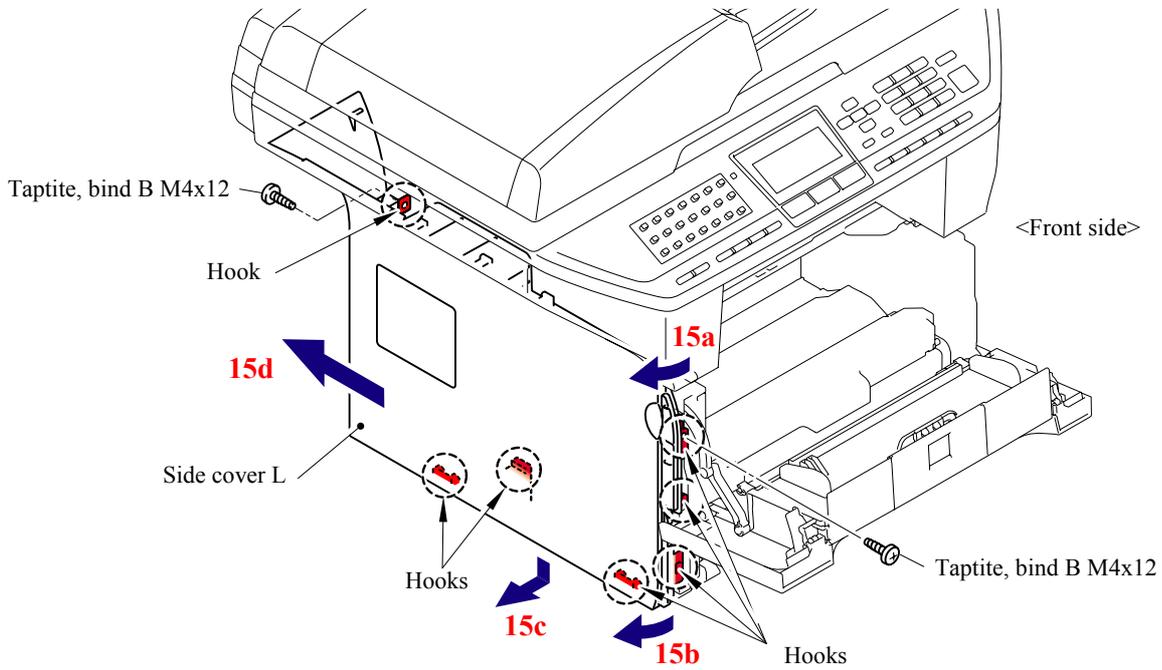


Fig. 6-9

- (16) Remove the four cup S M3x6 Taptite screws, remove the FG harness and then remove the Shield cover.

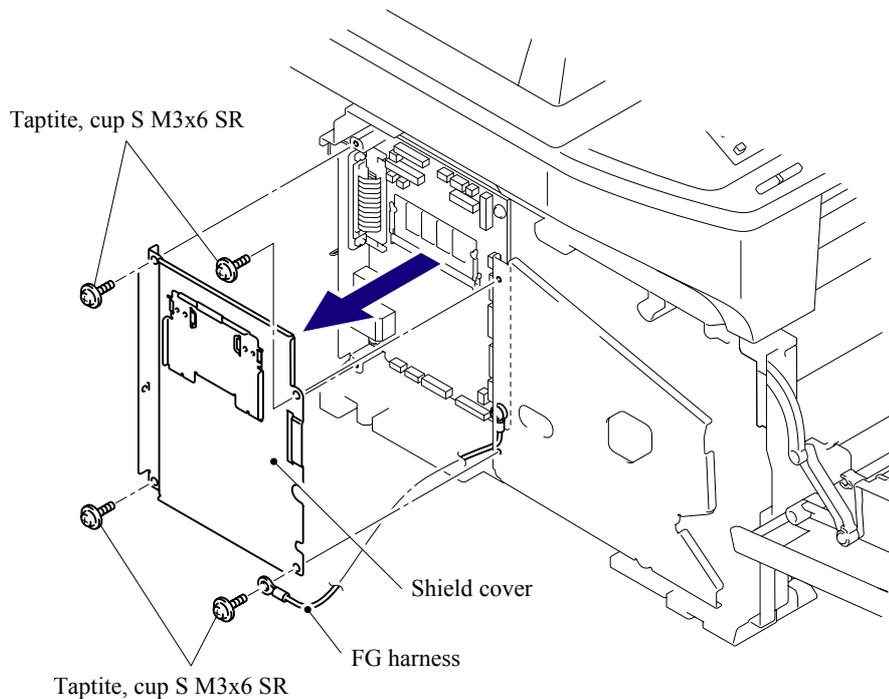


Fig. 6-10

- (17) Remove the two bind B M4x12 Taptite screws, and then remove the Side cover R by following the direction from 17a to 17d.

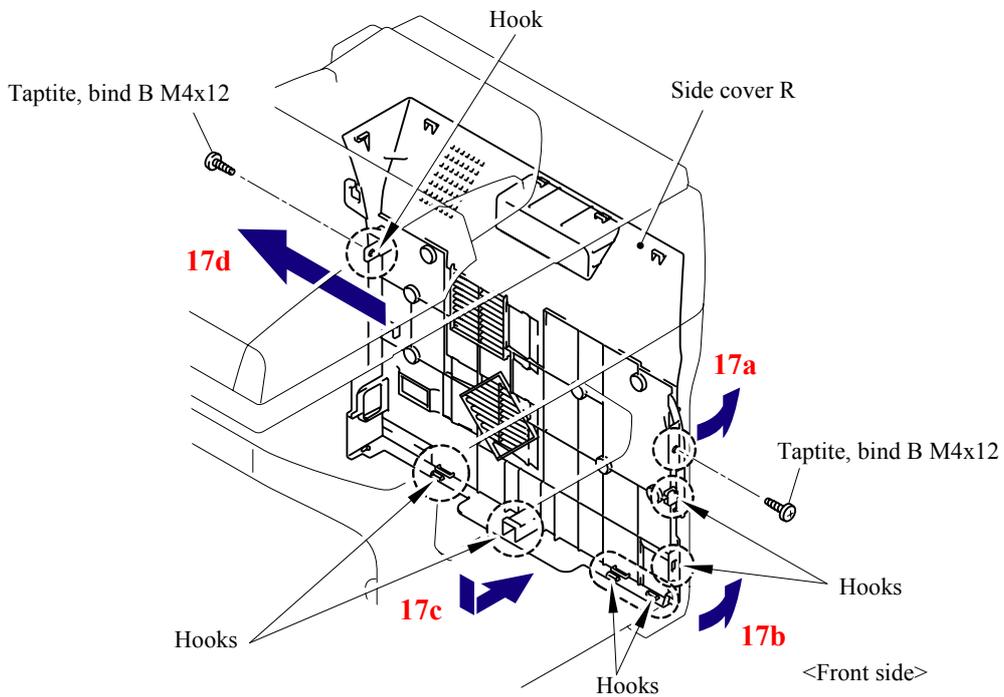


Fig. 6-11

- (18) Remove the cup S M3x6 Taptite screw, remove the ADF FG harness and FB FG harness.
 (19) Disconnect the Connector from the Driver PCB.
 (20) Disconnect the two Connectors from the Main PCB.

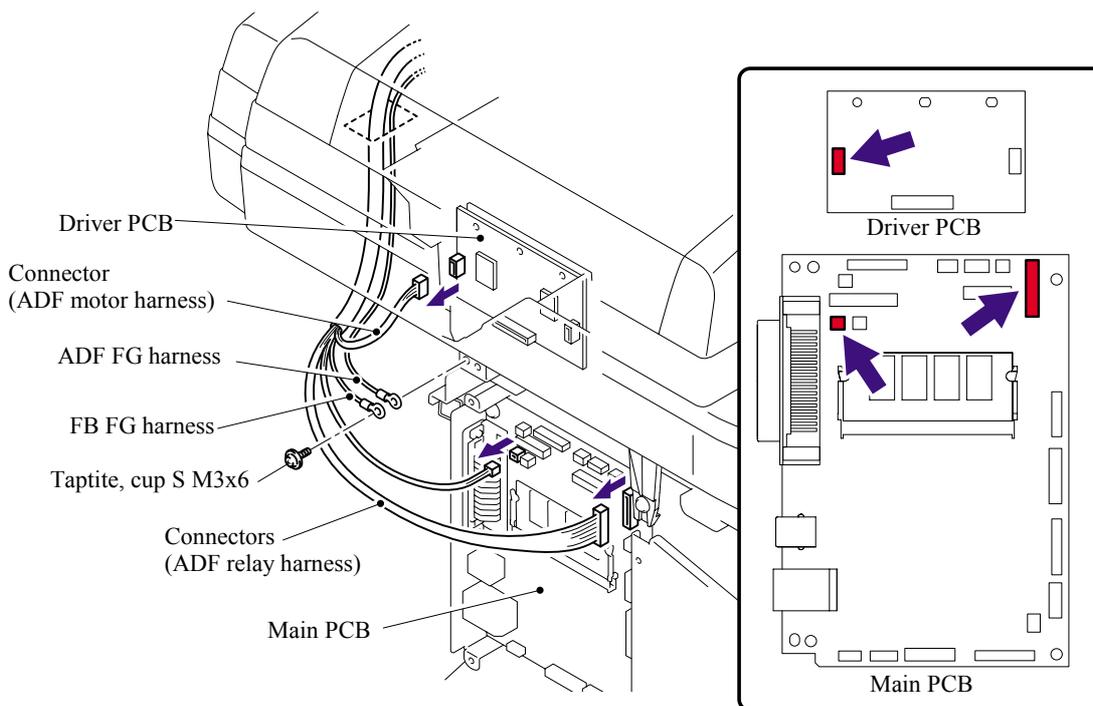


Fig. 6-12
6-8

- (21) Disconnect the connector of the Scanner motor harness from the Driver PCB.
- (22) Disconnect the connectors of the Photo interrupter and FFC cable from the Main PCB.

NOTE:

After disconnecting flat cable(s), check that each cable is not damaged at its end or short-circuited.

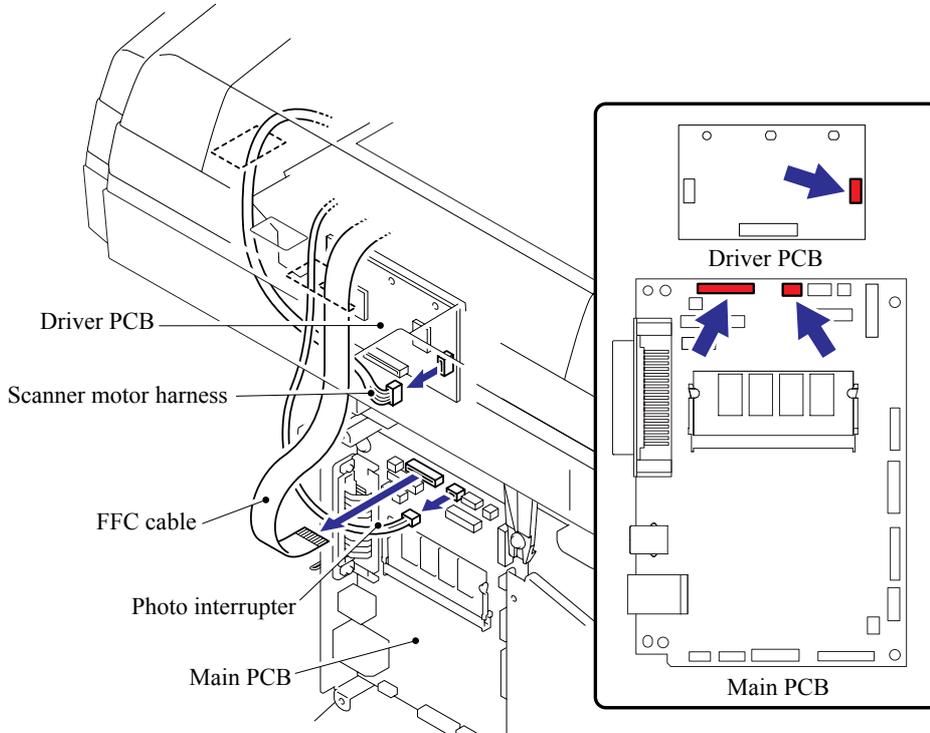


Fig. 6-13

- (23) Disconnect the five connectors of the Panel harness from the Main PCB.

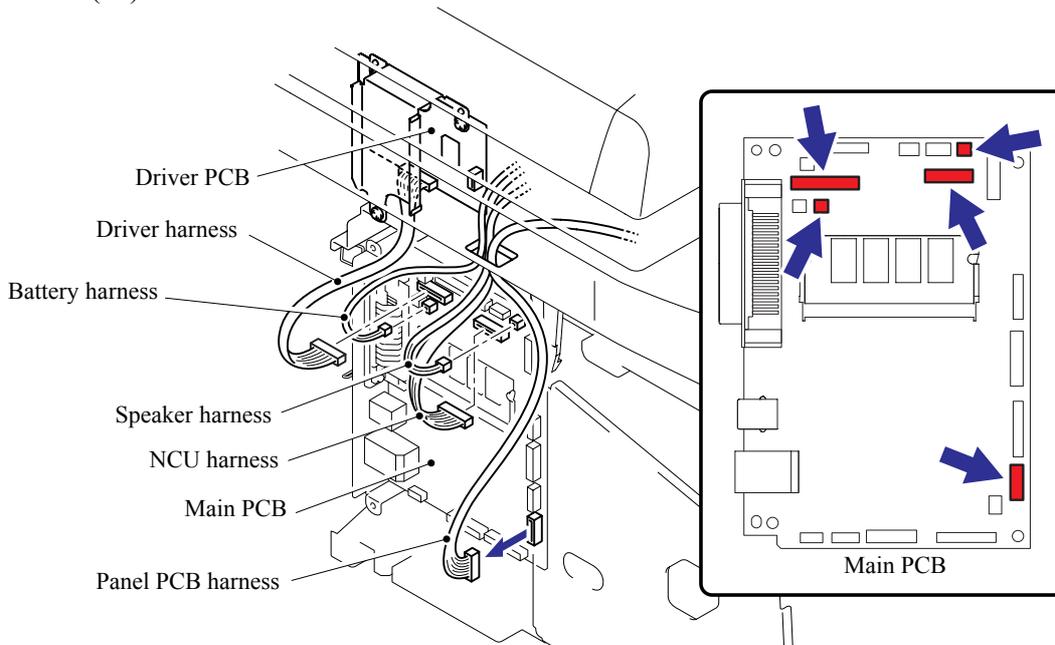


Fig. 6-14

(24) Remove the two bind B M4x12 Taptite screws, and then remove the Document scanner.

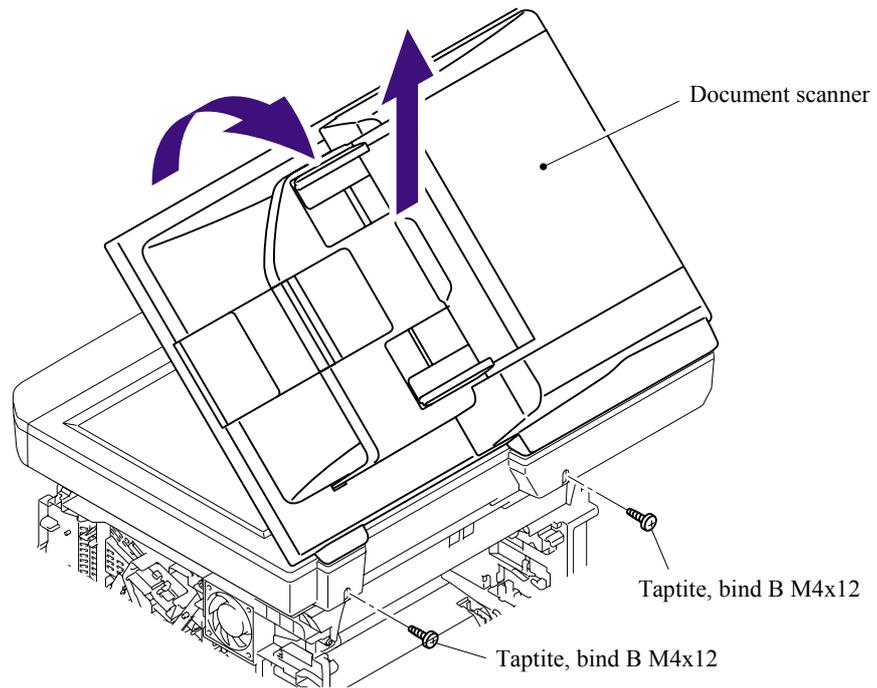


Fig. 6-15

(25) Remove the Panel cover ASSY.

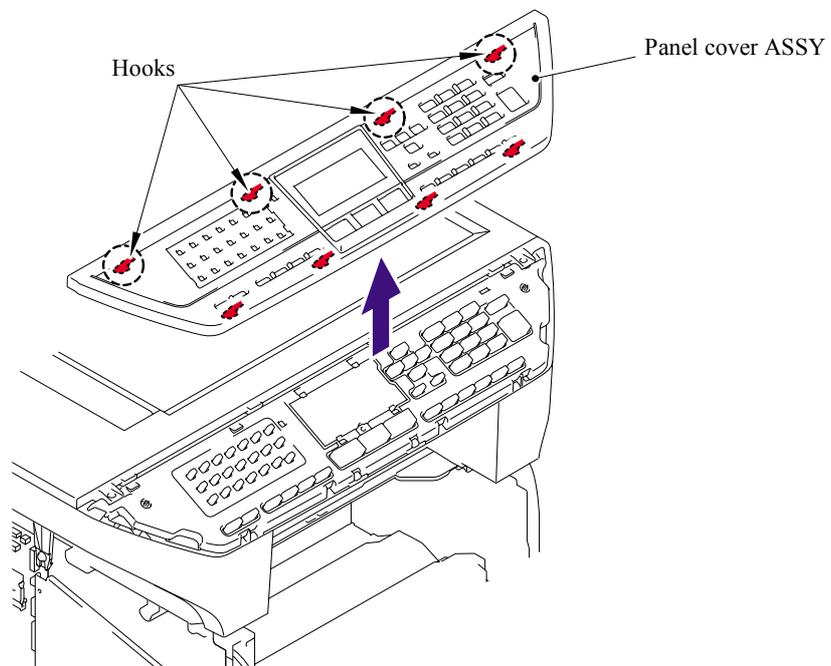


Fig. 6-16

- (26) Remove the two cup B M4x20 Taptite screws. Lift up the rear of the Scanner unit FLFB slightly and remove the Scanner unit FLFB.

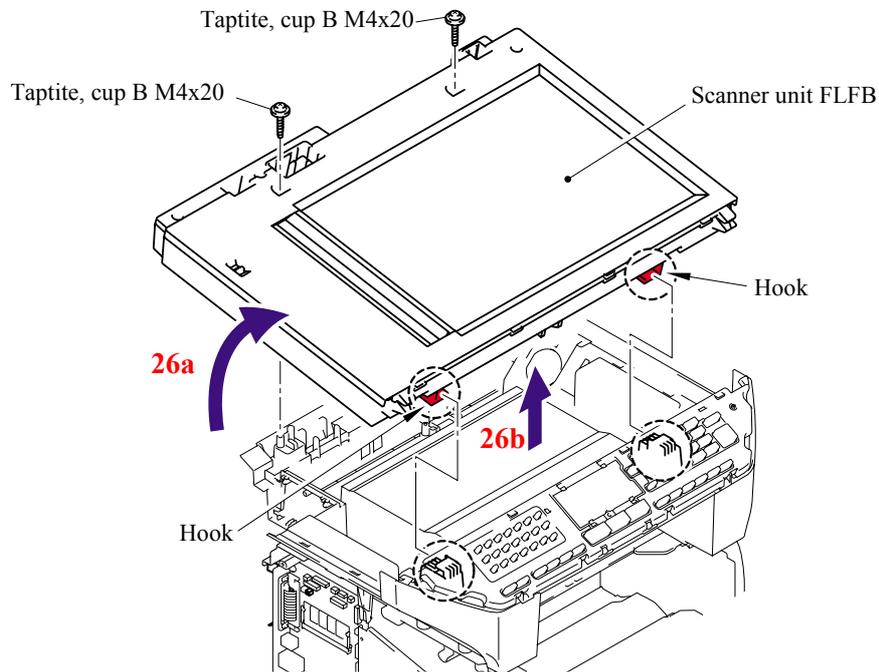


Fig. 6-17

- (27) Remove the cup S M3x6 SR Taptite screw, and remove the Screw pan (S/P washer) M3.5x6 of the NCU FG harness ASSY ALFB.

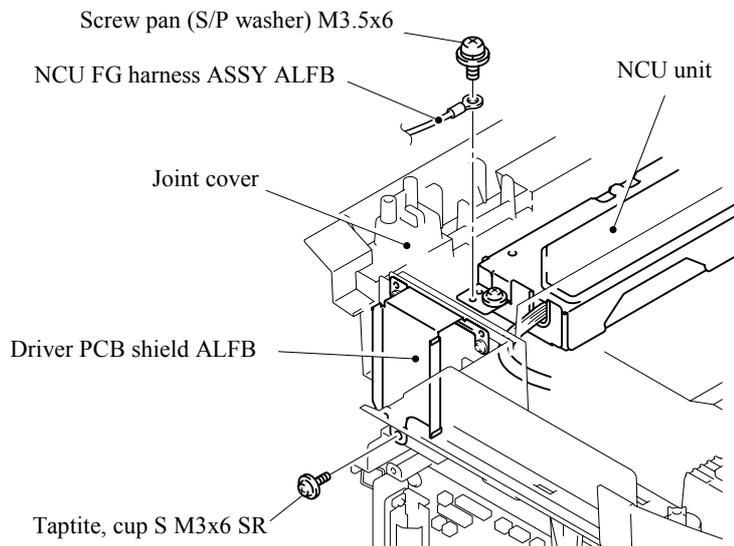


Fig. 6-18

- (28) Remove the four bind B M4x12 Taptite screws from the Joint cover.
- (29) Release all Hooks of the Joint cover and lift up the front side of the Joint cover.
- (30) Pull out the Joint cover to the front side.

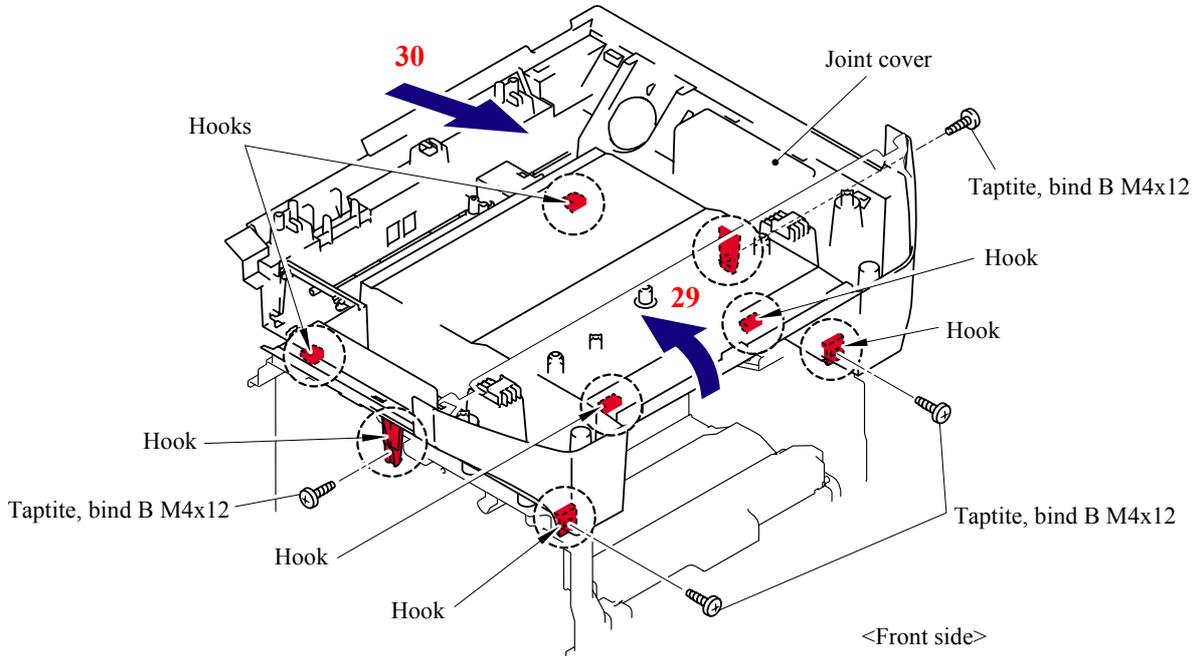


Fig. 6-19

- (31) Remove the bind B M4x16 Taptite screw. Release the Hooks in the order of the arrows 31a, 31b and 31c, and remove the FU harness cover 1.

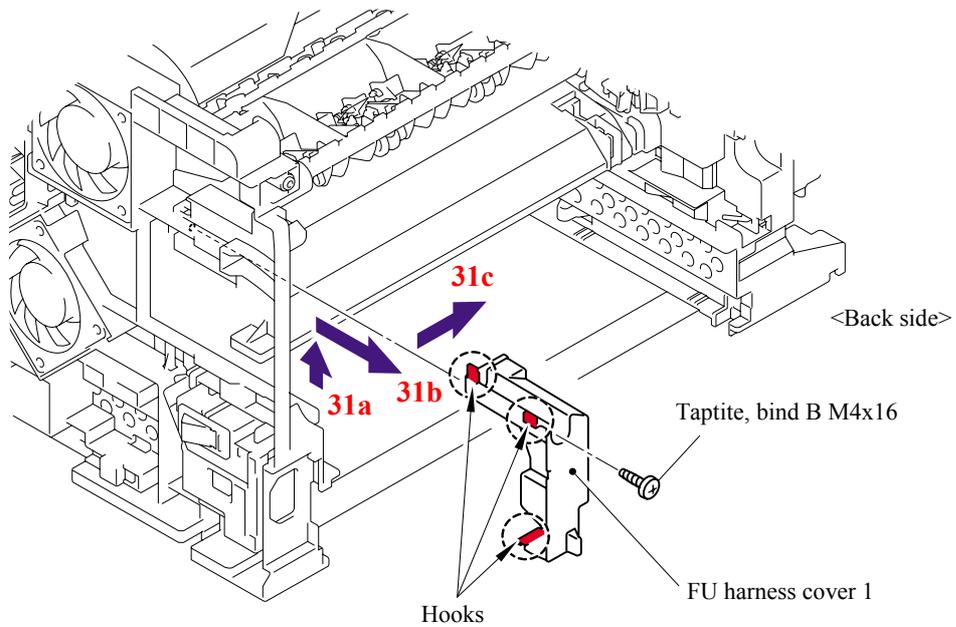


Fig. 6-20

- (32) Remove the Heater terminal L and Heater terminal S from the Fuser unit while holding the Fuser unit.

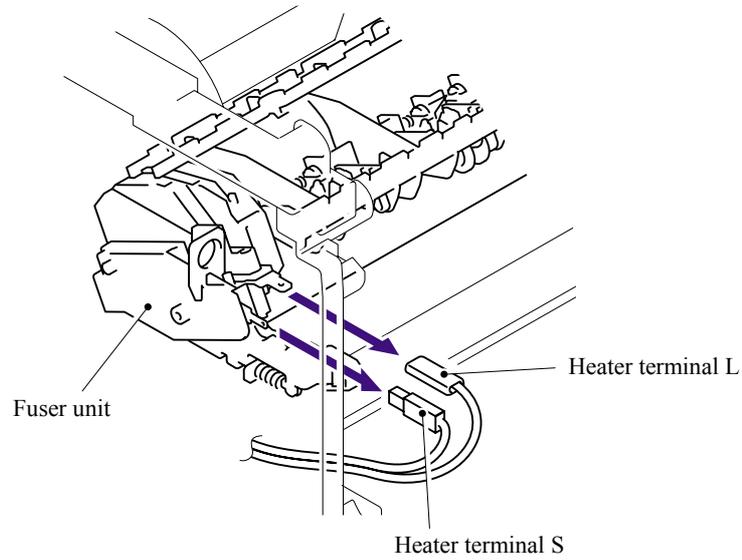


Fig. 6-21

- (33) Pull the FU harness cover 2 to the direction of the arrow 33a while pressing the Hook and pull out the FU harness cover 2 from the back of the machine.

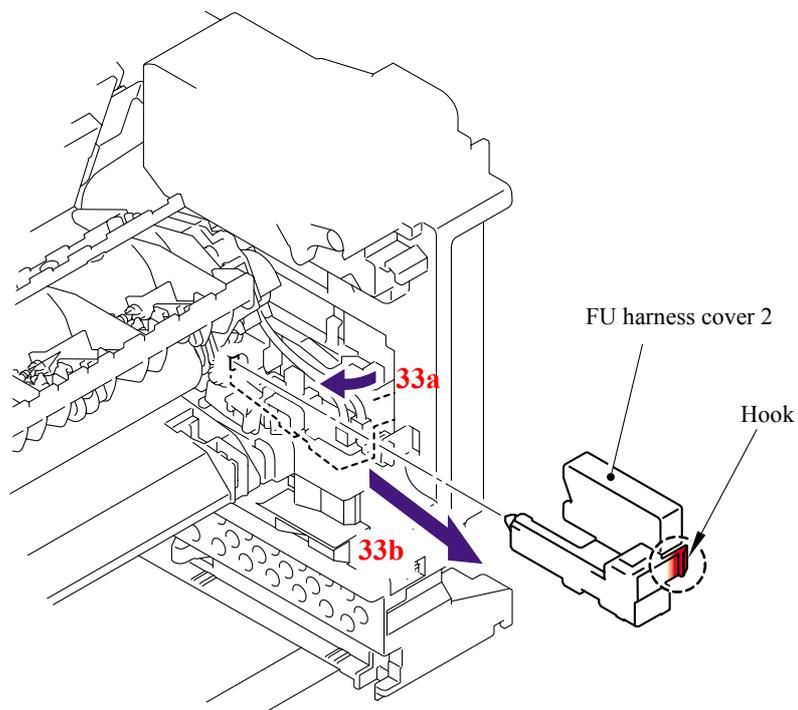


Fig. 6-22

- (34) Disconnect the connectors of the Thermistor ASSY M and Thermistor ASSY S from the Relay rear PCB ASSY, and remove the harnesses of these thermistors.

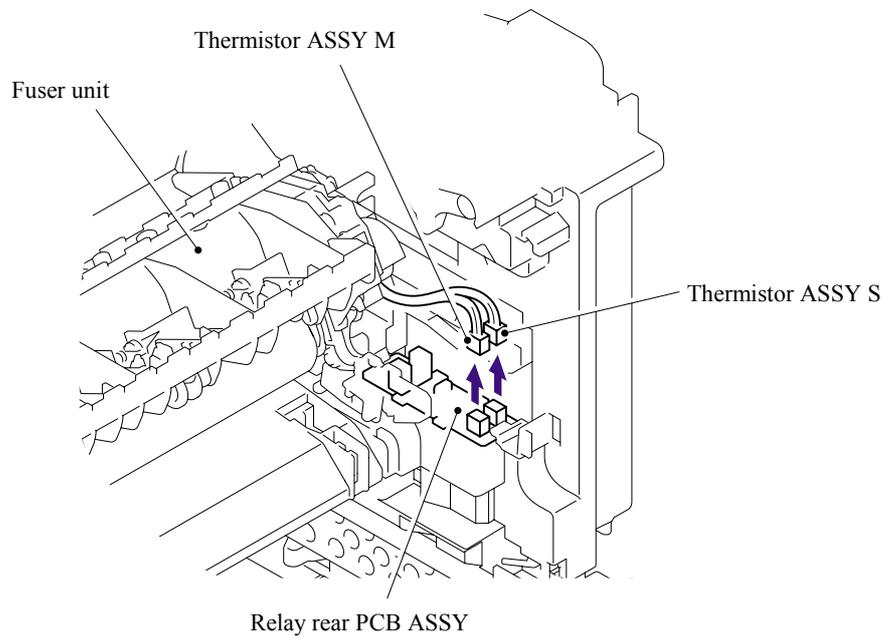


Fig. 6-23

- (35) Remove the cup B M4x16 Taptite screw, and then remove the Fuser unit.

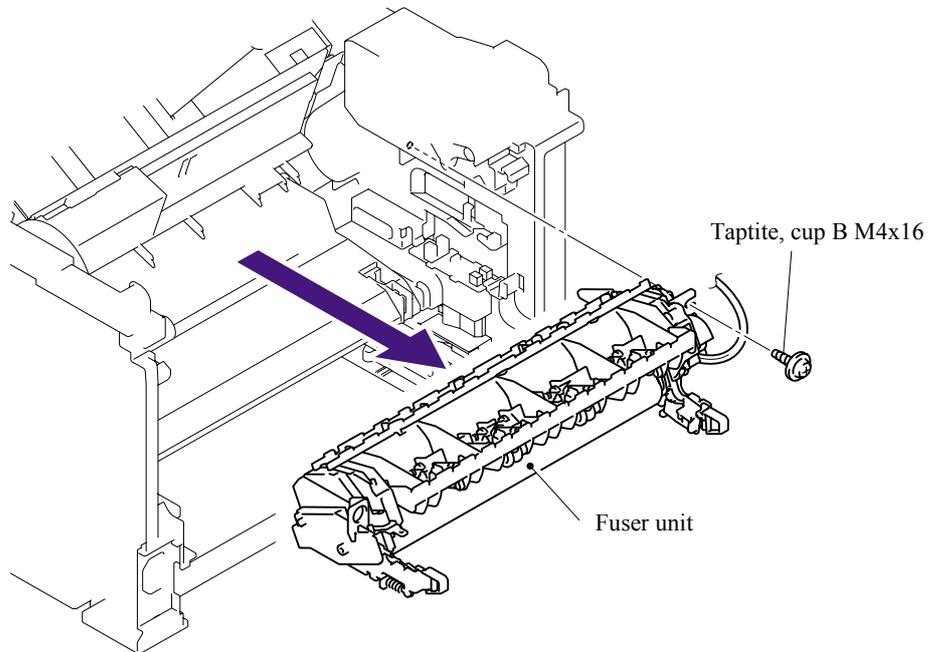


Fig. 6-24

- (36) Slide the Sub duct to the direction of the arrow 36b while pressing the three Hooks and remove the Sub duct from the Air duct.

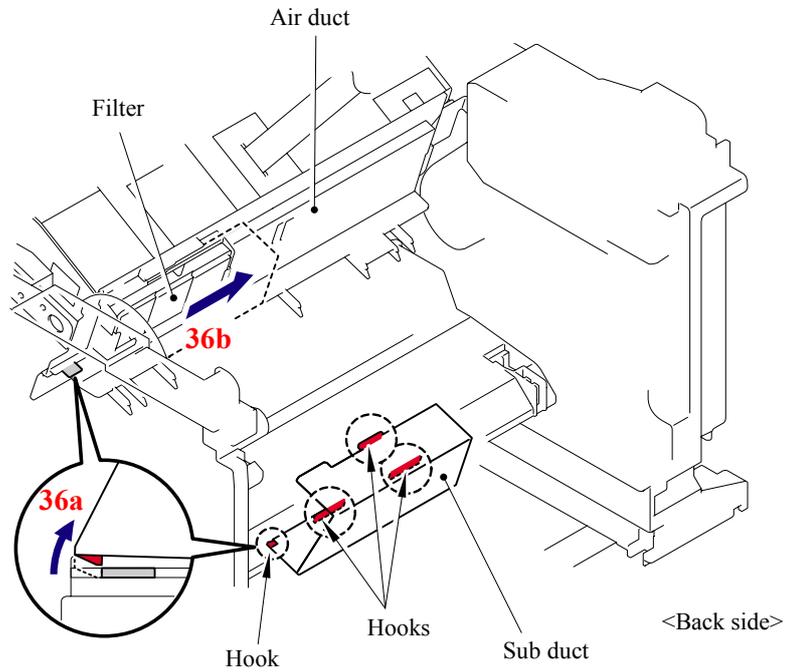


Fig. 6-25

- (37) Remove the Filter from the Air duct.

NOTE: The filter is dirt. Be careful when disassembling or assembling it.

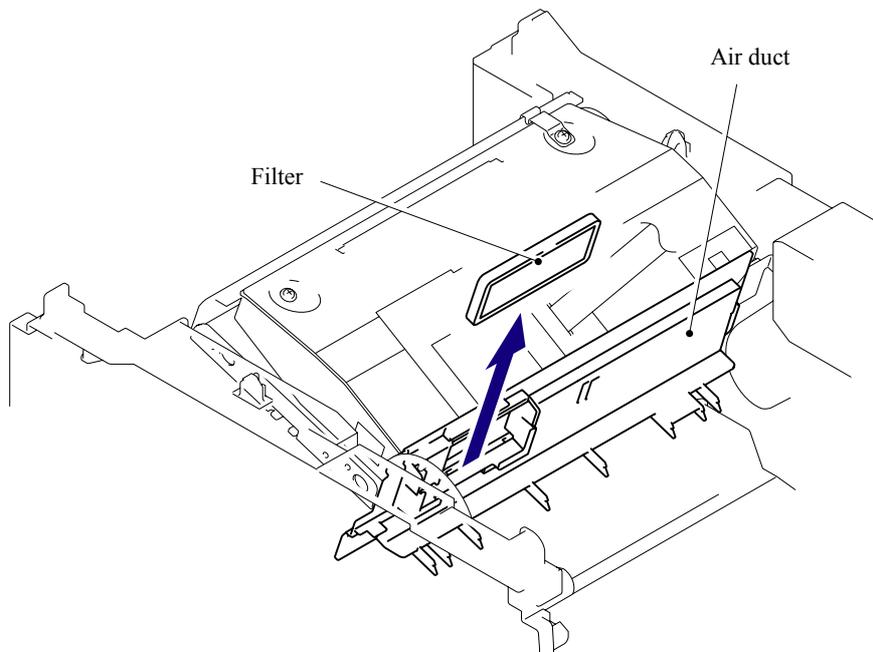


Fig. 6-26

- (38) Remove the Pin of the Air duct from the frame. Slide the Air duct to the direction of the arrow 38b and remove the Air duct.

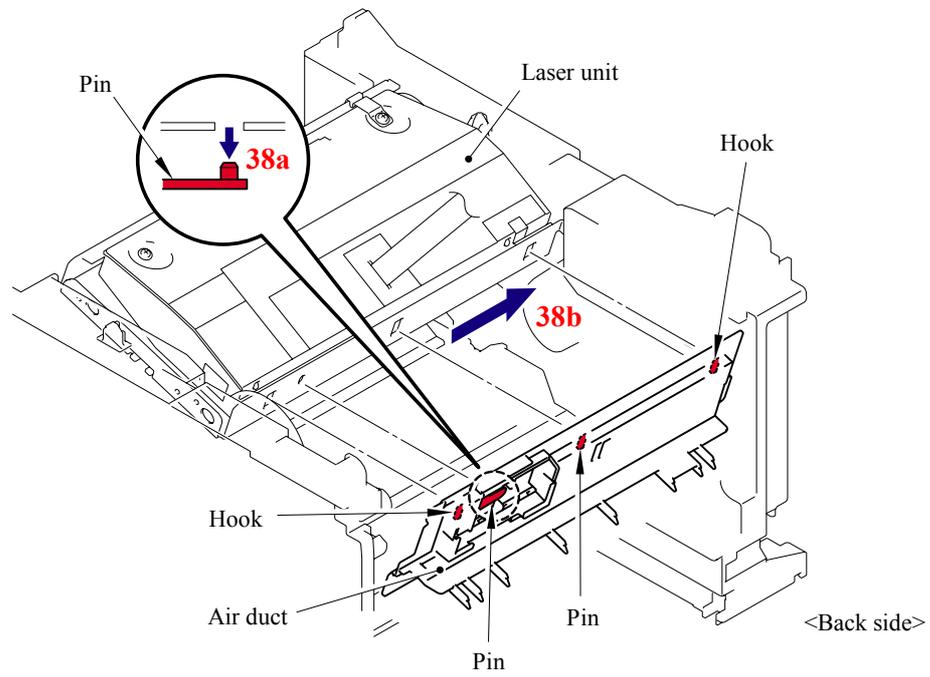


Fig. 6-27

(39) Remove the six cup S M3x6 Taptite screws.

(40) Remove the two Flat cable from the Main PCB.

NOTE:

After disconnecting flat cable(s), check that each cable is not damaged at its end or short-circuited.

(41) Remove the Protective film.

(42) Pull out the flat cable from the Core.

(43) Remove the Laser unit.

NOTE:

- Be careful not to lose the Protective film attached on the flat cable.

- Do not touch the Laser scanner window directly.

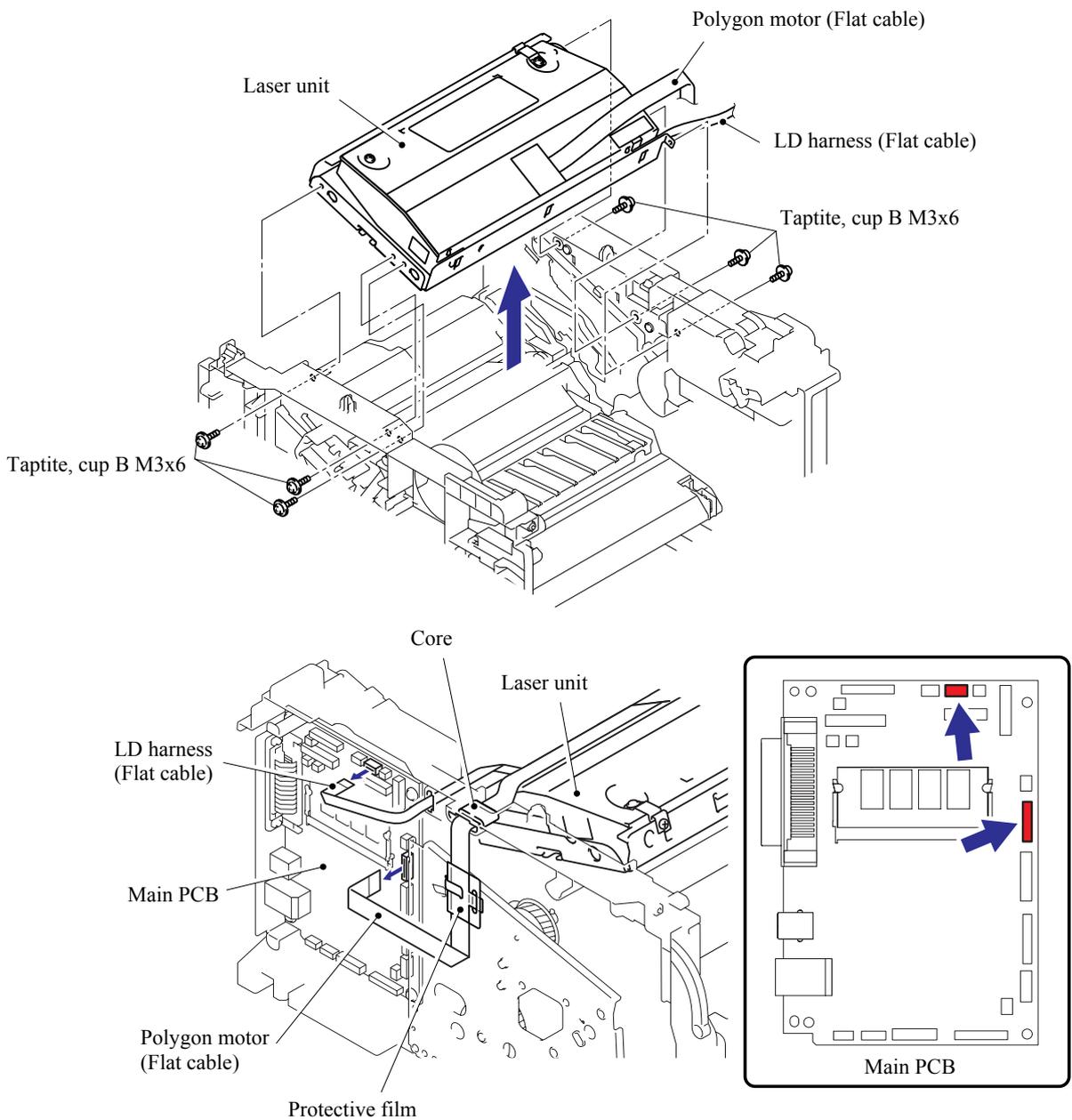


Fig. 6-28

<Installing Procedure>

- (1) Secure the Laser unit with the six cup S M3x6 Taptite screws.
- (2) Put the flat cable through the Core and Protective film.
- (3) Install the flat cable. (Refer to “[HARNESSE ROUTING](#)” in Chapter 5.)

NOTE:

When connecting flat cable(s), do not insert them at an angle. After insertion, check that the cables are not at an angle.

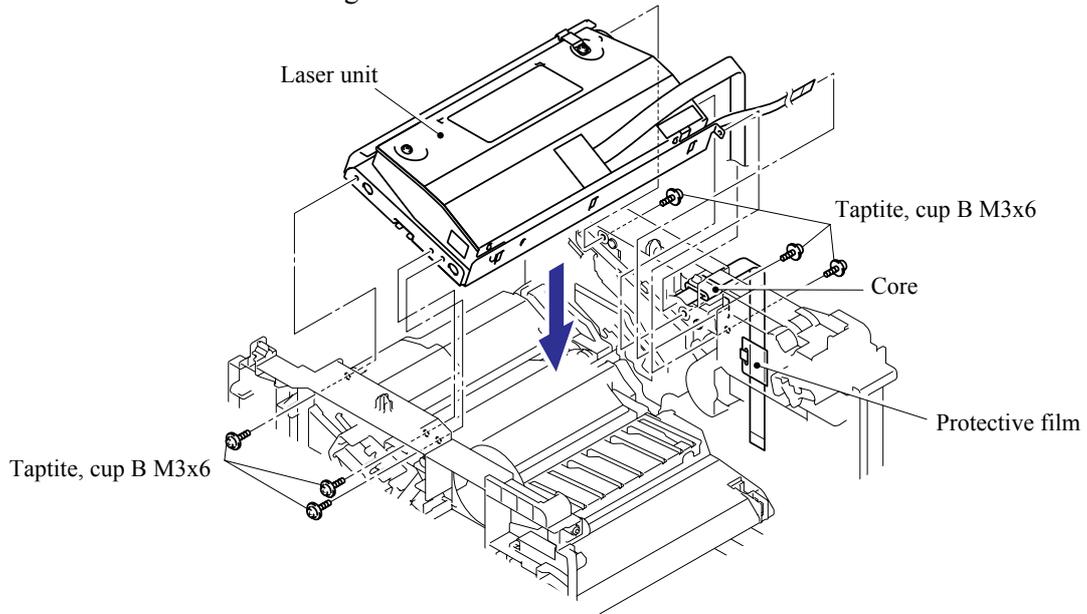


Fig. 6-29

- (4) Install the Air duct into the Laser unit.

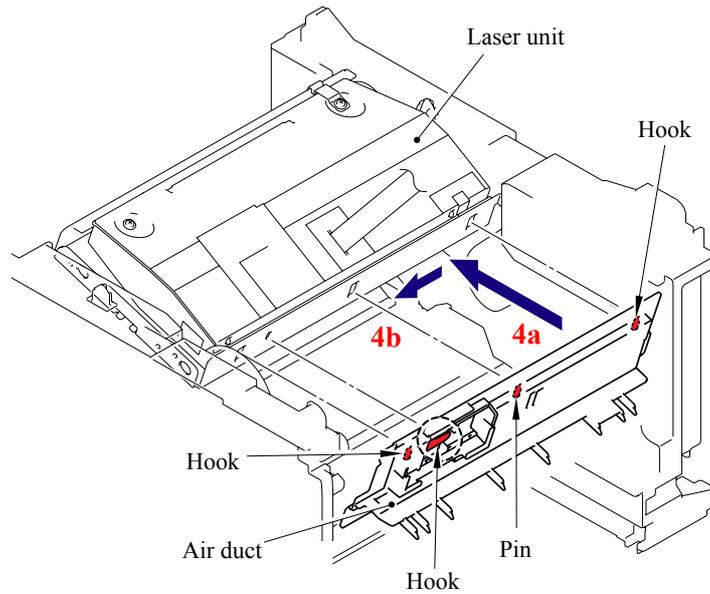


Fig. 6-30

(5) Install the Filter into the Air duct.

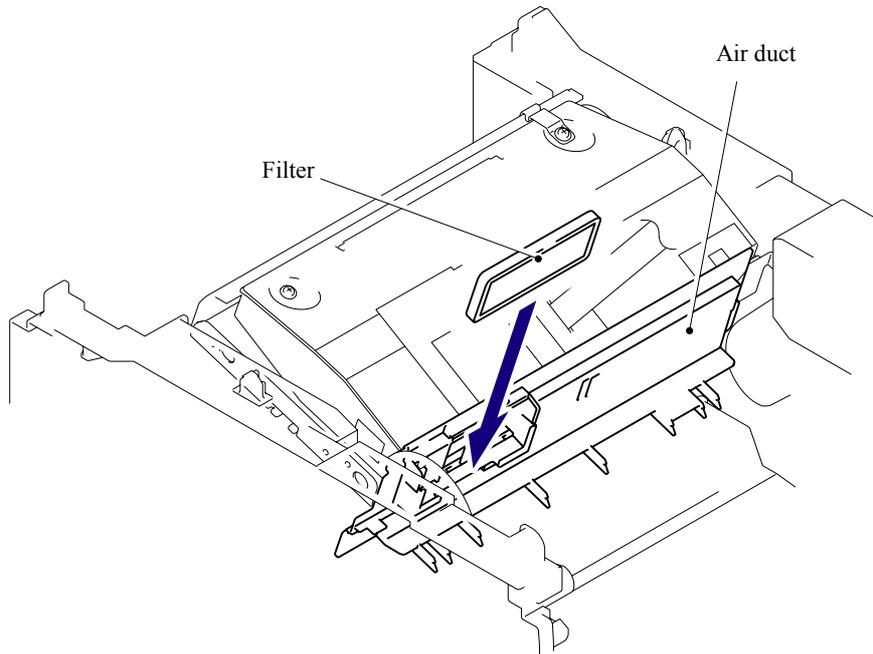


Fig. 6-31

(6) Install the Sub duct into the Air duct.

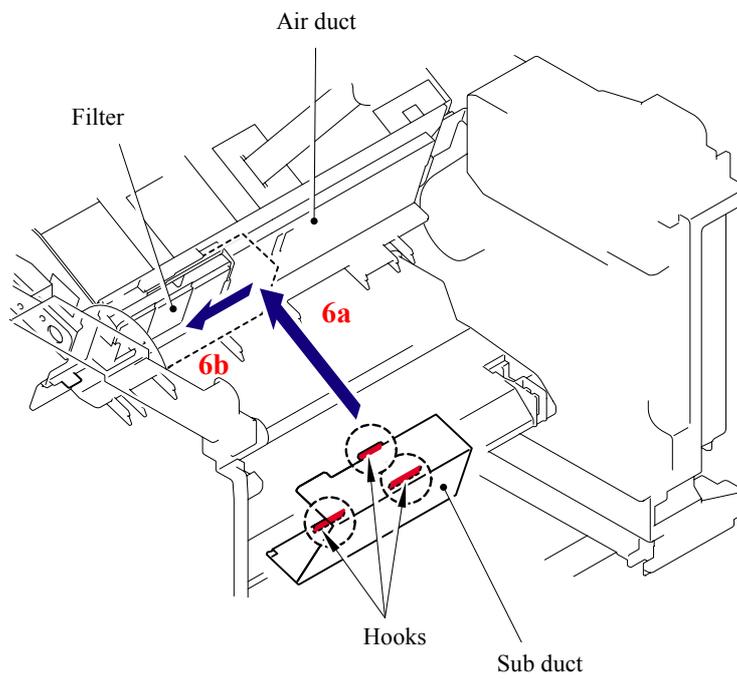


Fig. 6-32

⚠ WARNING

- DO NOT subject the fuser unit to strong physical shocks or vibrations.
- DO NOT touch the rollers and the electrodes to prevent damage to the fuser unit In the following figures.

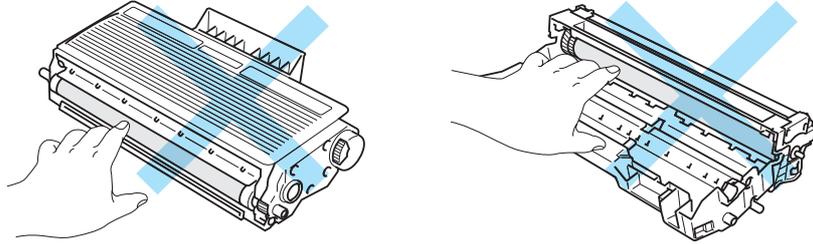


Fig. 6-33

! CAUTION

To prevent the deformation of the pressure roller, the fuser unit spare parts is shipped with its pressure roller at low nip pressure. Before installing the fuser unit, turn back the levers to the normal position by following instructions below.

- 1) Put the fuser unit on a flat, horizontal surface. Pull up each of the blue tab (a) on the right side and left side.

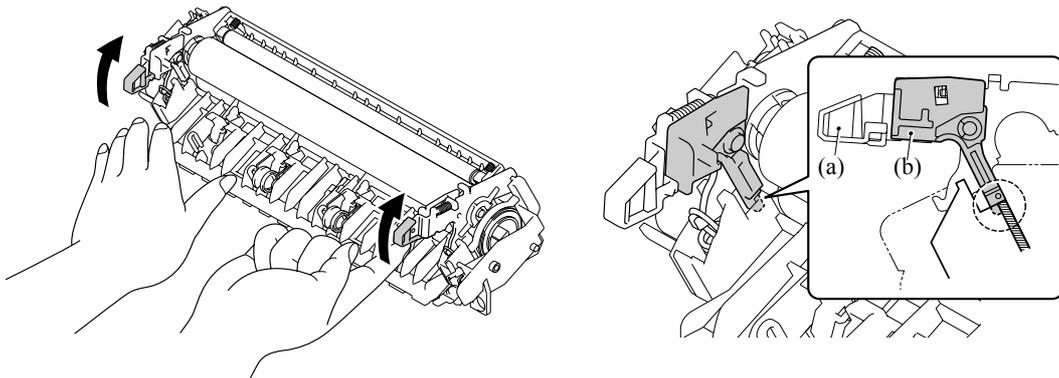


Fig. 6-34

- 2) Make sure that the black lever (b) is in the position in the illustration below.

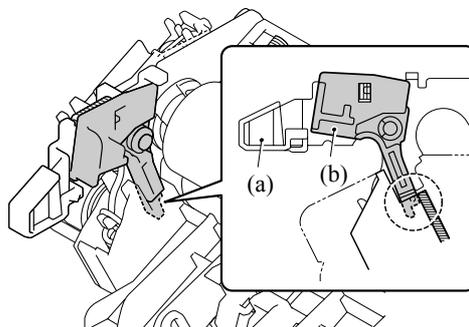


Fig. 6-35

(7) Secure the Fuser unit with the bind B M4x16 Taptite screw.

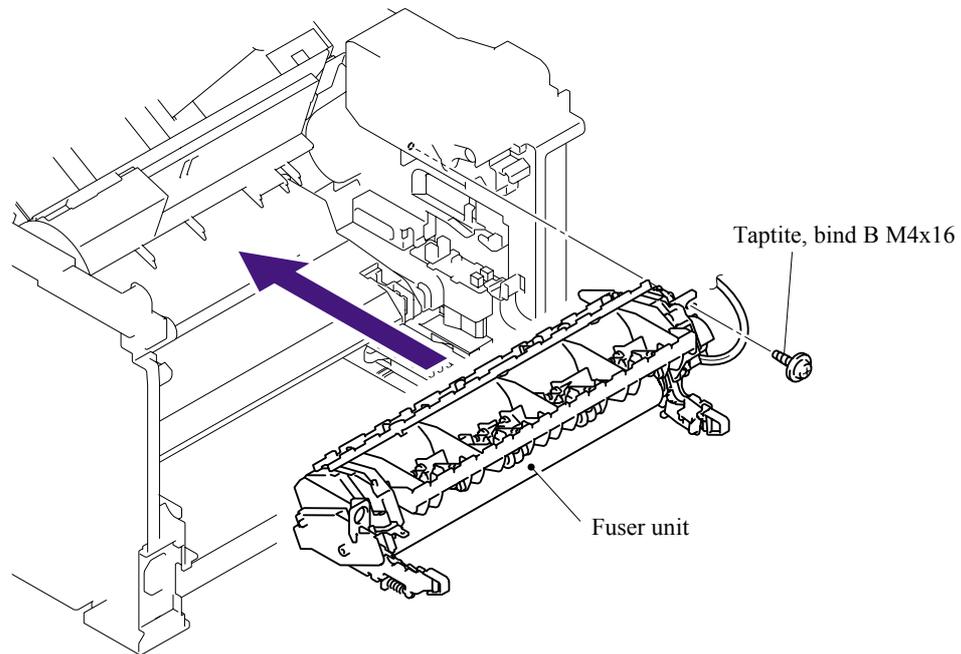


Fig. 6-36

(8) Connect the connectors of the Thermistor ASSY M and Thermistor ASSY S onto the Relay rear PCB ASSY.

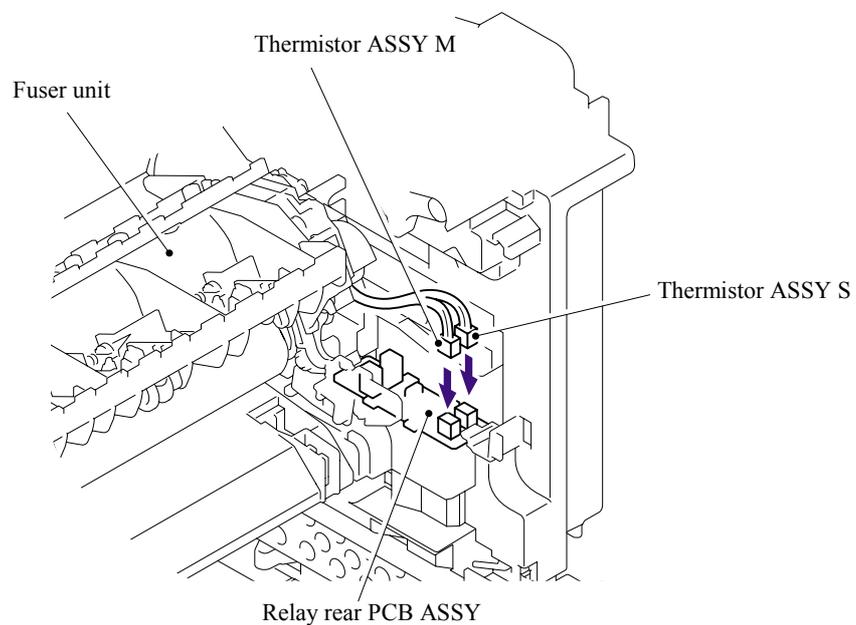


Fig. 6-37

(9) Install the FU harness cover 2.

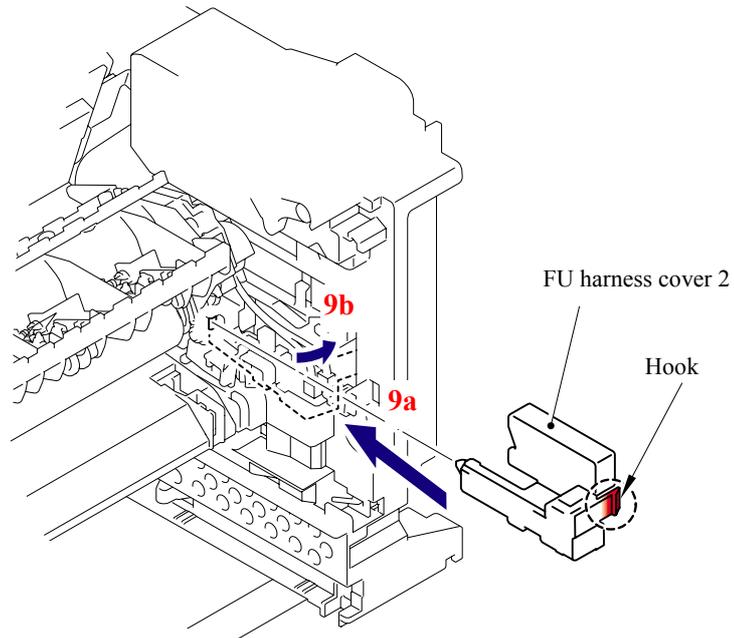


Fig. 6-38

(10) Install the Heater terminal L and Heater terminal S.

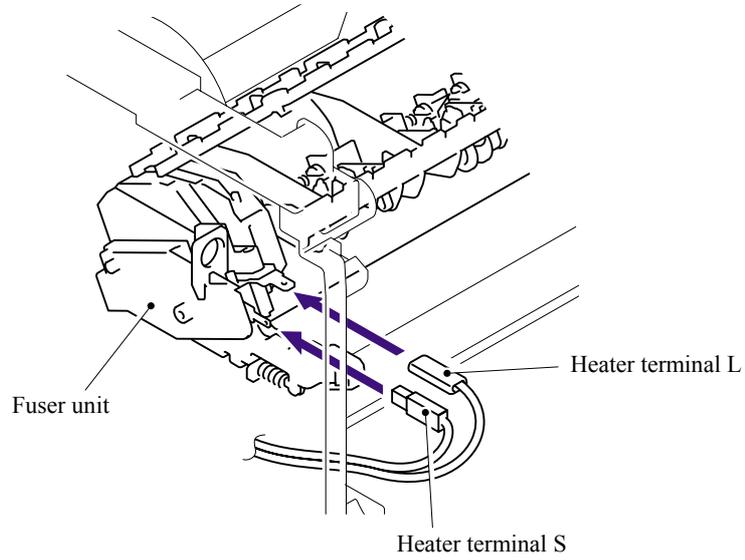


Fig. 6-39

(11) Secure the FU harness cover 1 with the bind B M4x16 Taptite screw.

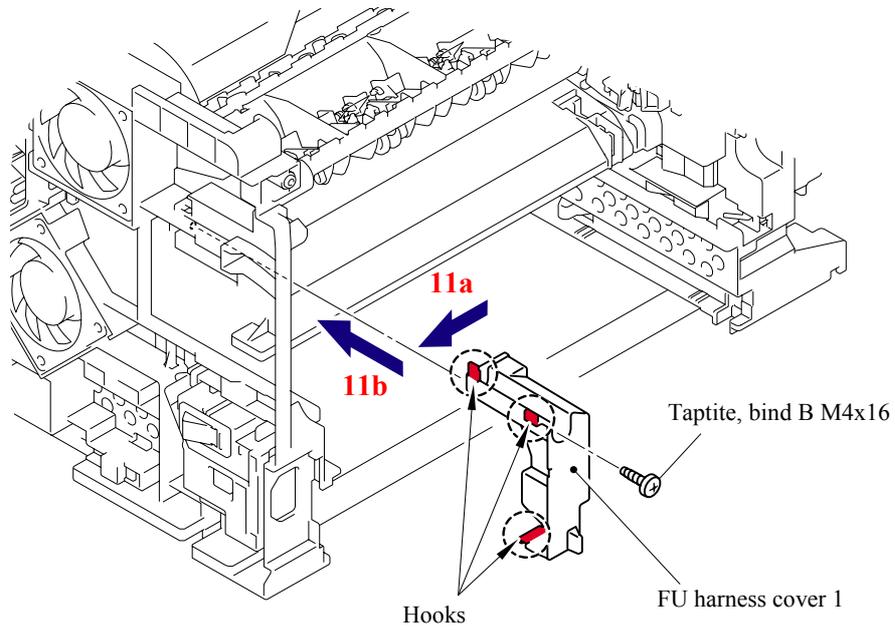


Fig. 6-40

(12) Secure the Joint cover with the four bind B M4x12 Taptite screws.

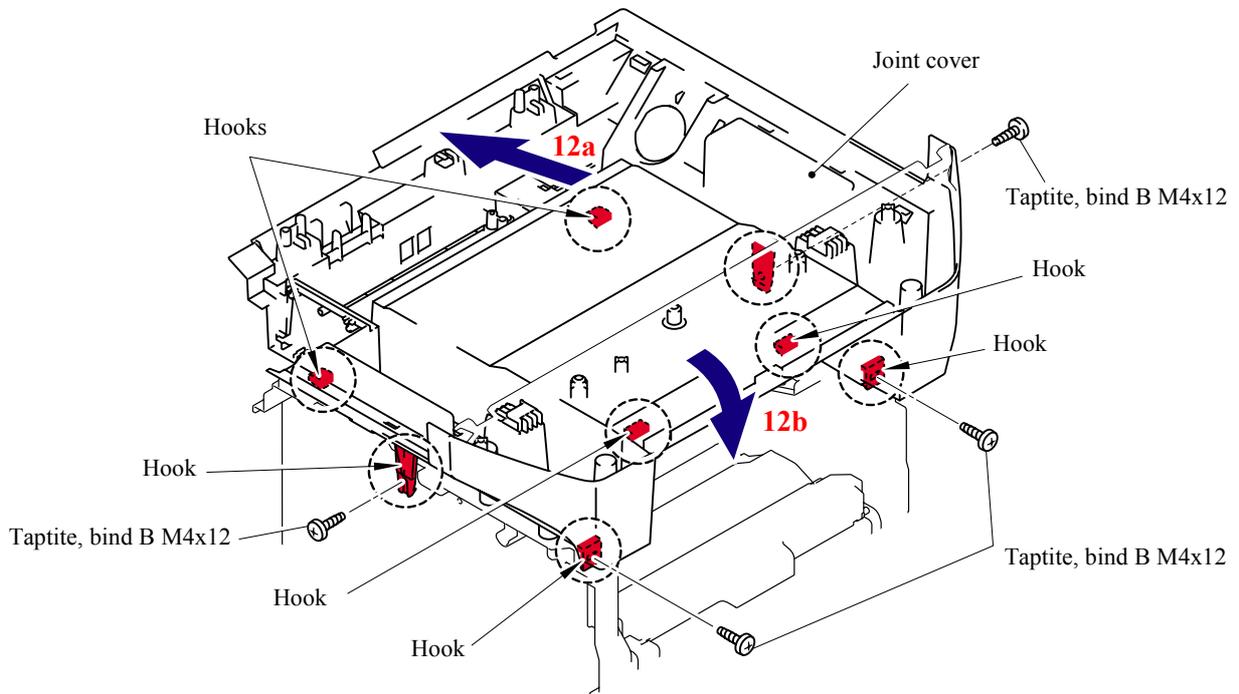


Fig. 6-41

- (13) Secure the Screw pan (S/P washer) M3.5x6 of the NCU FG harness ASSY ALFB.
- (14) Secure the cup S M3x6 SR Taptite screw.

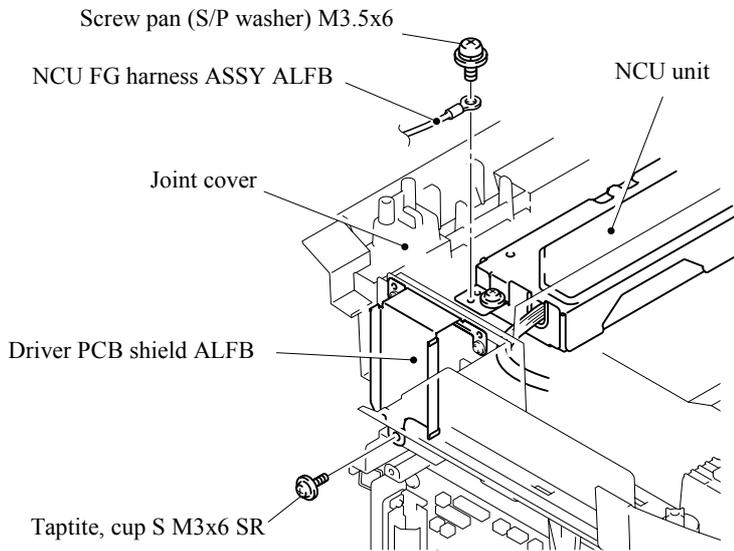


Fig. 6-42

- (15) Catch the Hooks of the Scanner unit FLFB into the Joint cover and secure the Scanner unit FLFB with the two cup B M4x20 Taptite screws.

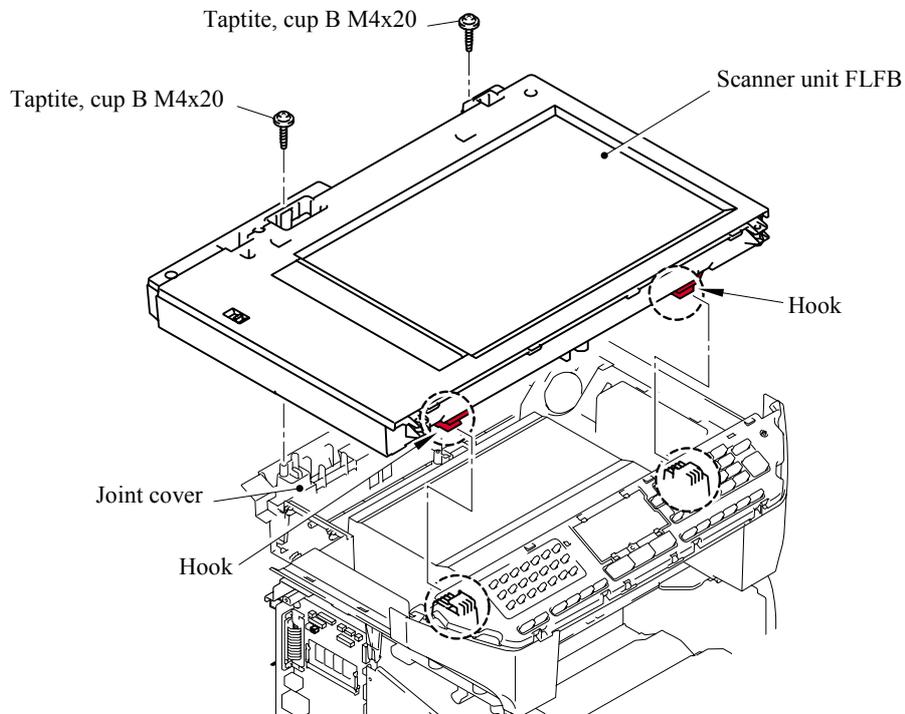


Fig. 6-43

(16) Put the Panel cover ASSY onto the machine body.

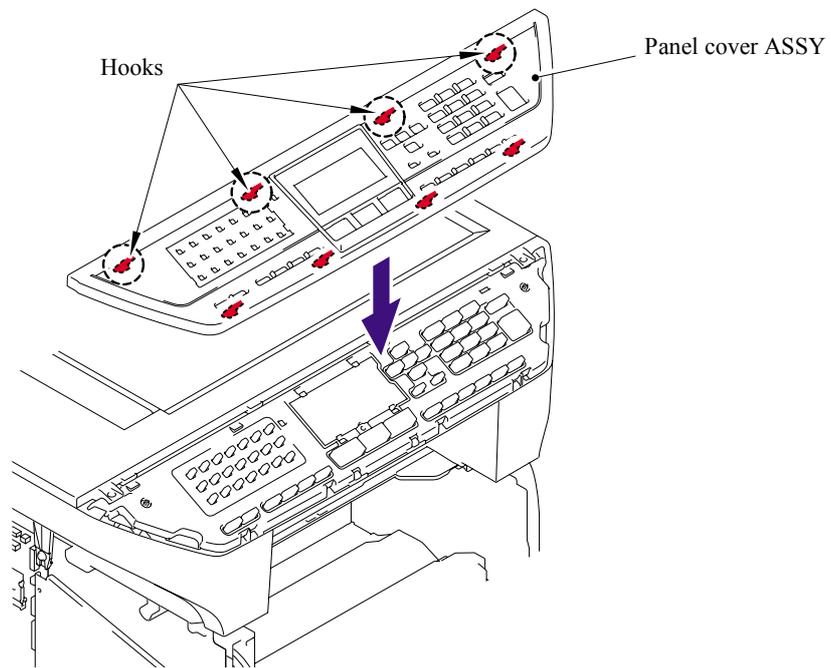


Fig. 6-44

(17) Secure the Document scanner with the two bind B M4x12 Taptite screws.

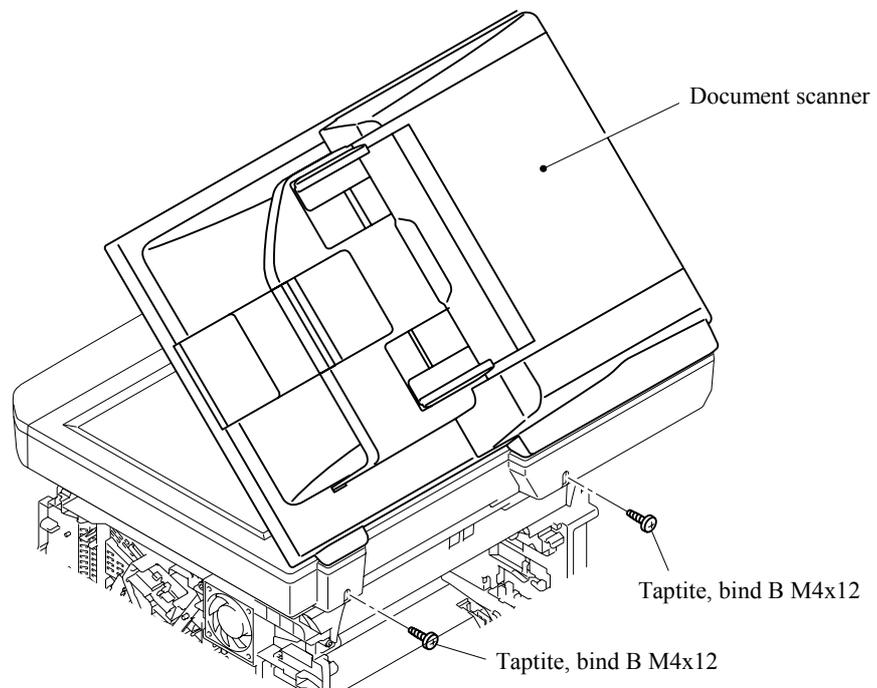


Fig. 6-45

- (18) Connect the two Connectors into the Main PCB.
- (19) Connect the Connector into Driver PCB.
- (20) Secure the ADF FG harness and FB FG harness with the cup S M3x6 Taptite screw.

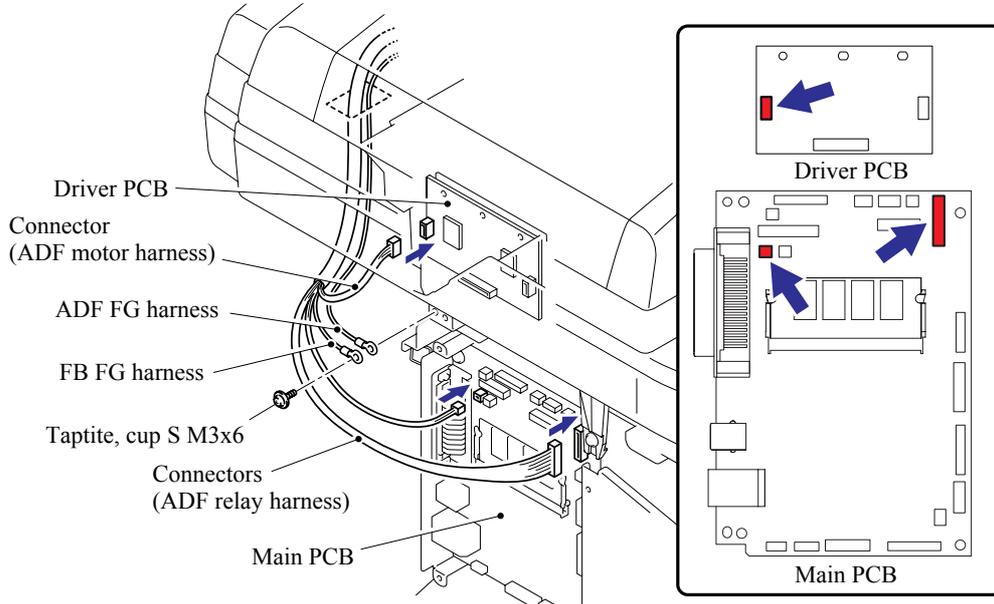


Fig. 6-46

- (21) Connect the connectors of the Photo interrupter and FFC cable into the Main PCB.

NOTE:

When connecting flat cable(s), do not insert them at an angle. After insertion, check that the cables are not at an angle.

- (22) Connect the connector of the Scanner motor harness into the Driver PCB.

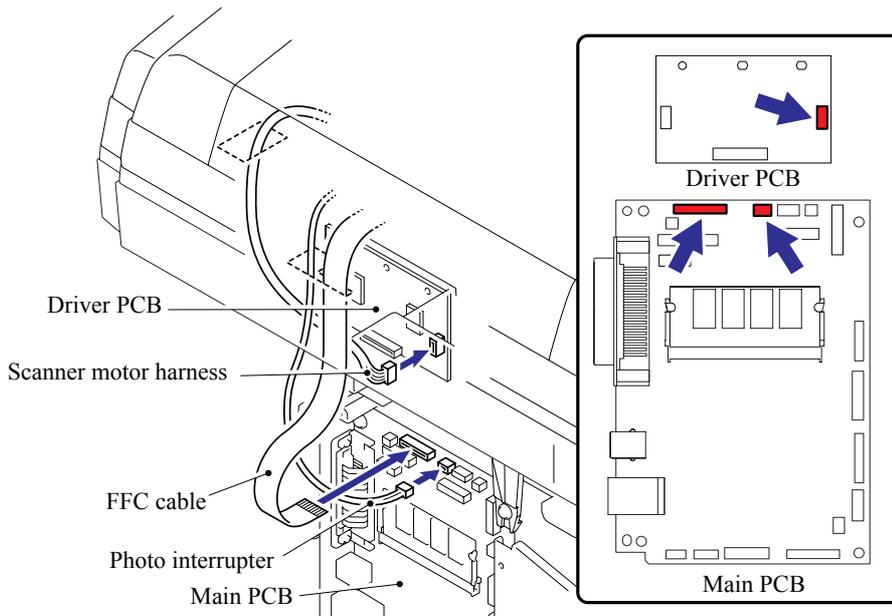


Fig. 6-47

(23) Connect the five connectors of the Panel harness into the Main PCB.

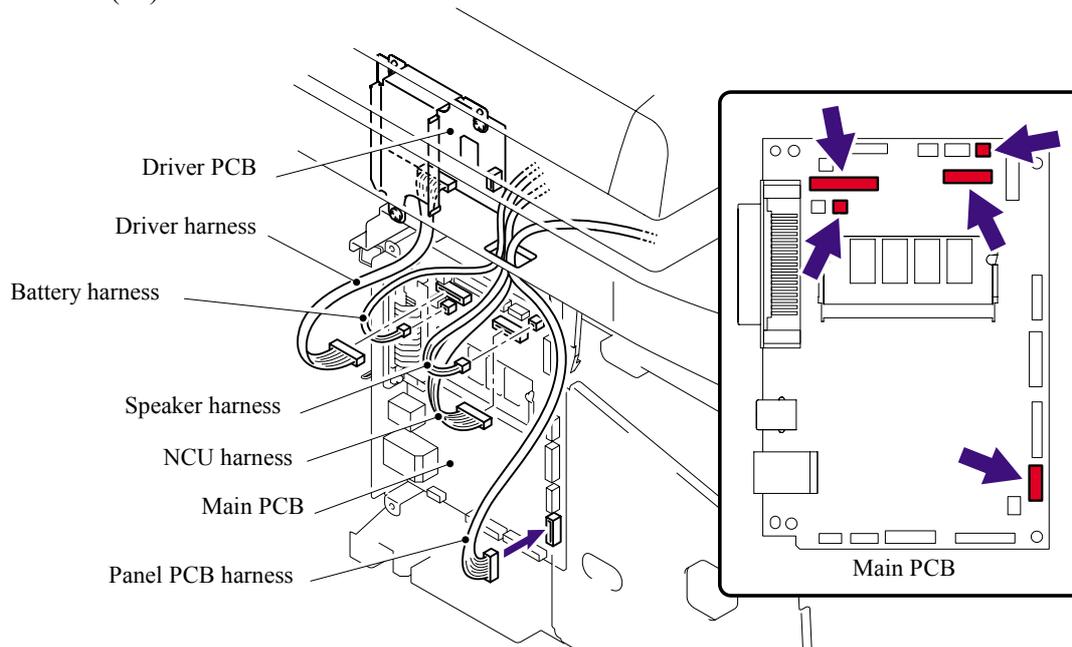


Fig. 6-48

(24) Catch the Hooks in the order of the arrows and secure the Side cover R with the two bind B M4x12 Taptite screws.

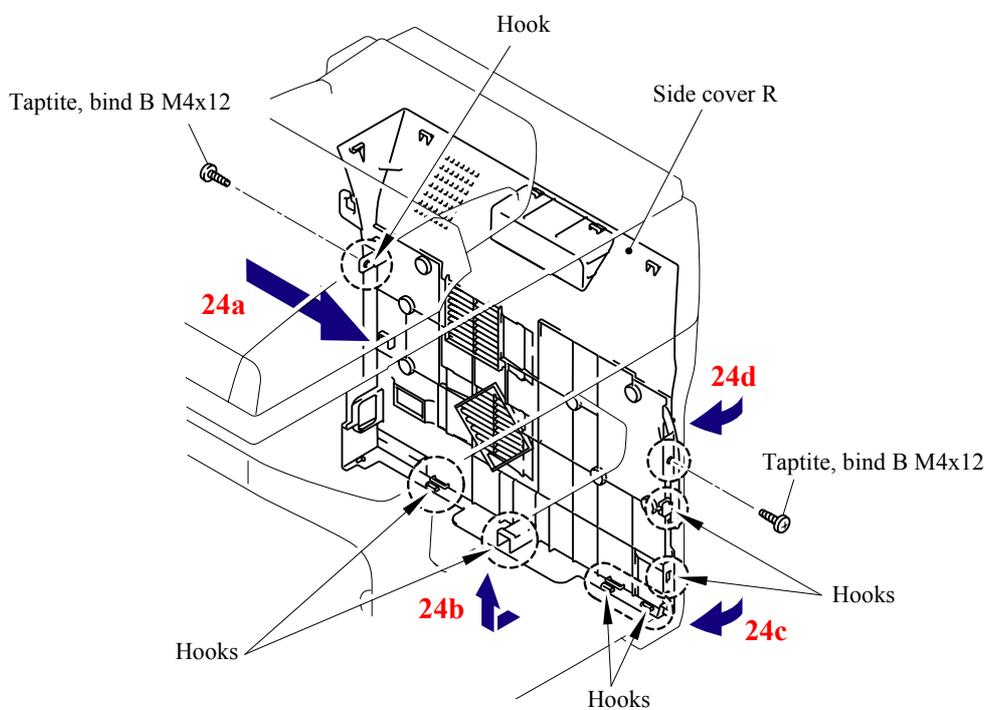


Fig. 6-49

(25) Secure the Shield cover and FG harness with the four cup S M3x6 SR Taptite screws.

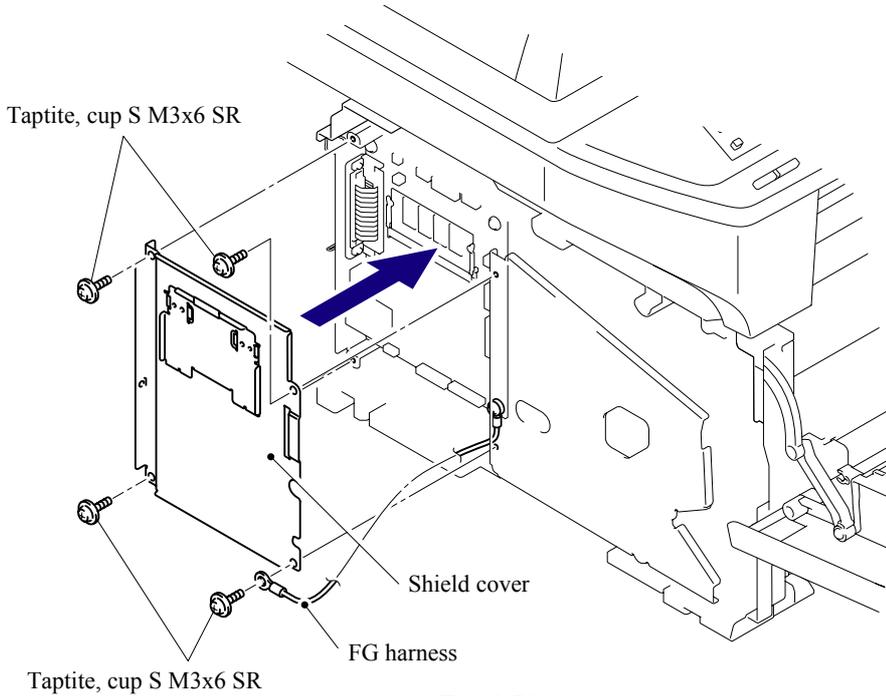


Fig. 6-50

(26) Catch the Hooks in the order of the arrows and secure the Side cover L with the two bind B M4x12 Taptite screws.

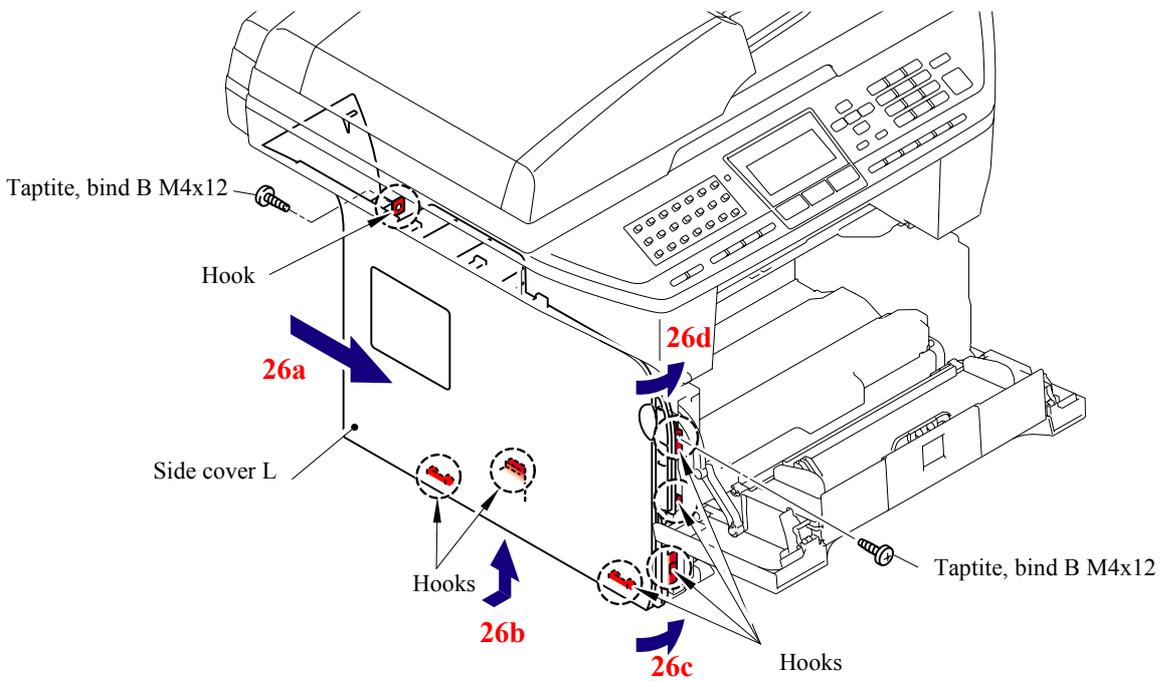


Fig. 6-51

- (27) Catch the Arm of the Outer chute ASSY onto the Pin of the machine body and install the Outer chute ASSY.

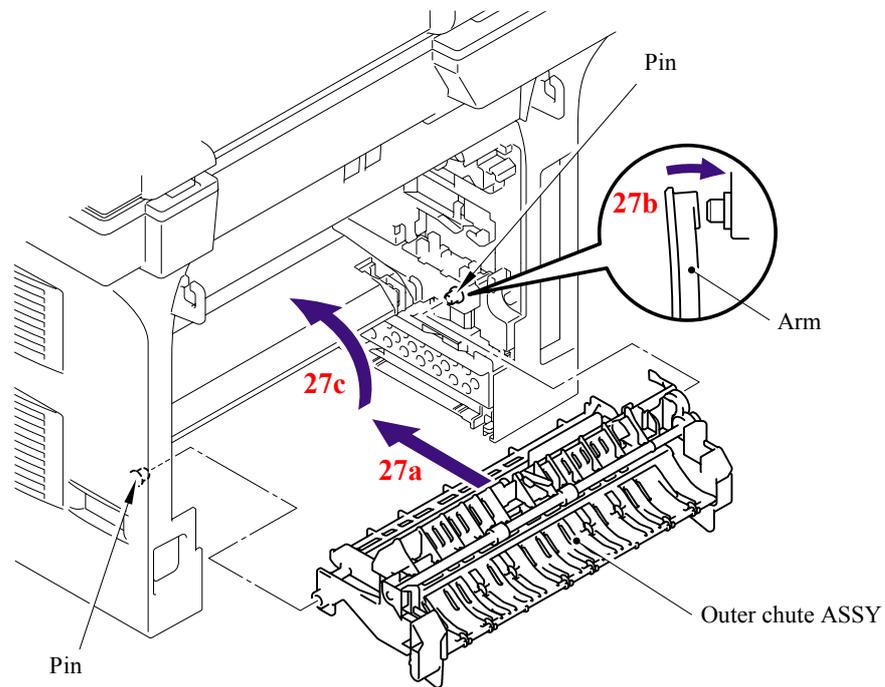


Fig. 6-52

- (28) Catch the Arm of the Back cover onto the Pin of the machine body and install the Back cover.

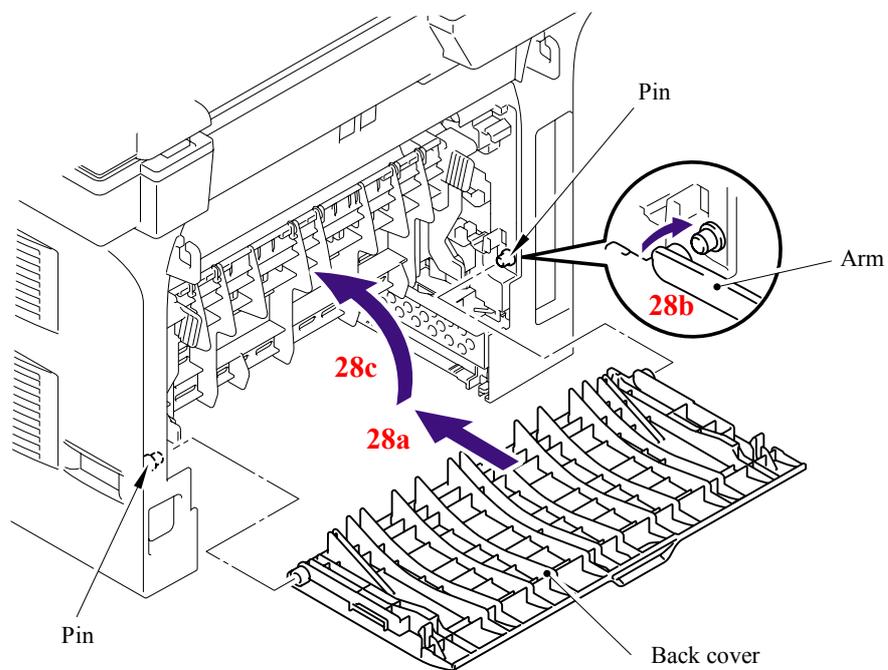


Fig. 6-53

(29) Install the DX feed ASSY or DX blank cover.

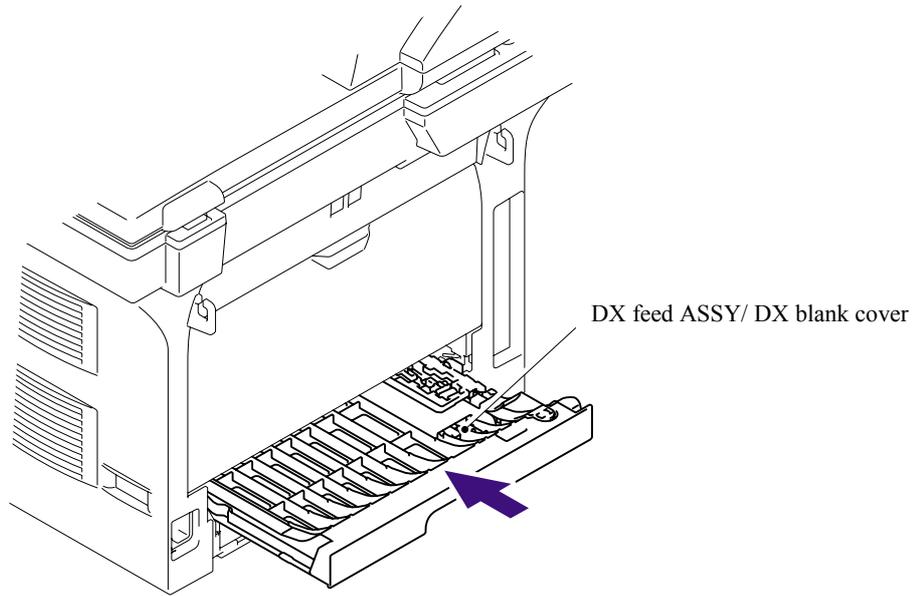


Fig. 6-54

(30) Install the Drum/toner ASSY into the machine.

(31) Close the Front cover.

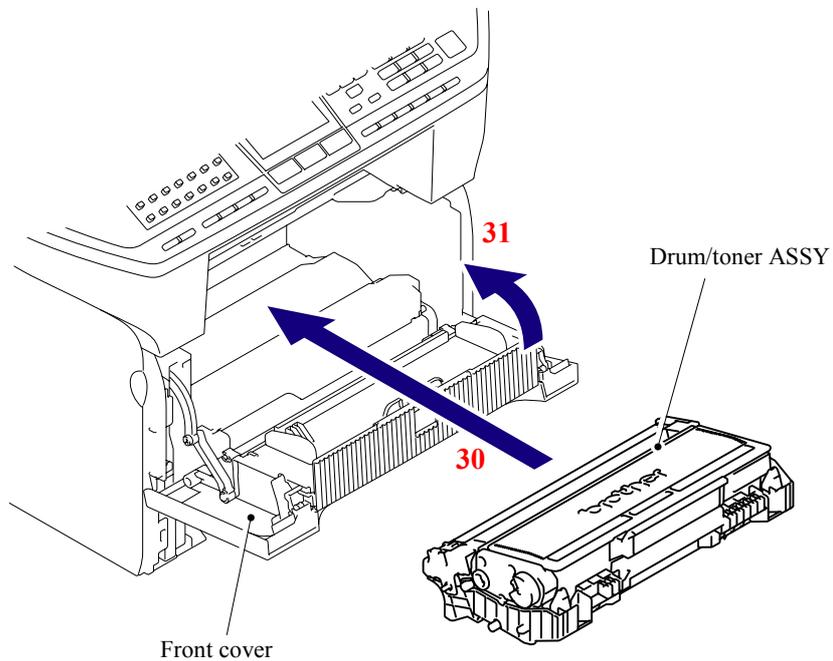


Fig. 6-55

(32) Put the Paper tray into the machine.

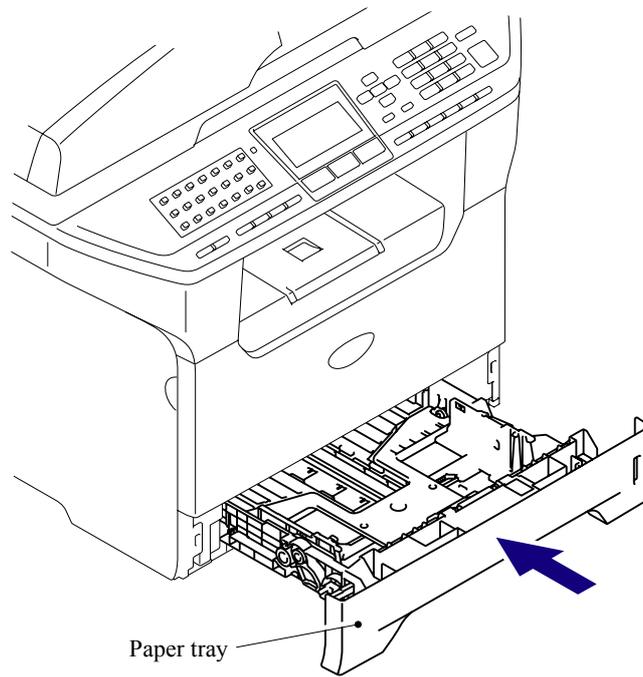


Fig. 6-56

(33) Connect the AC cord into the Machine.

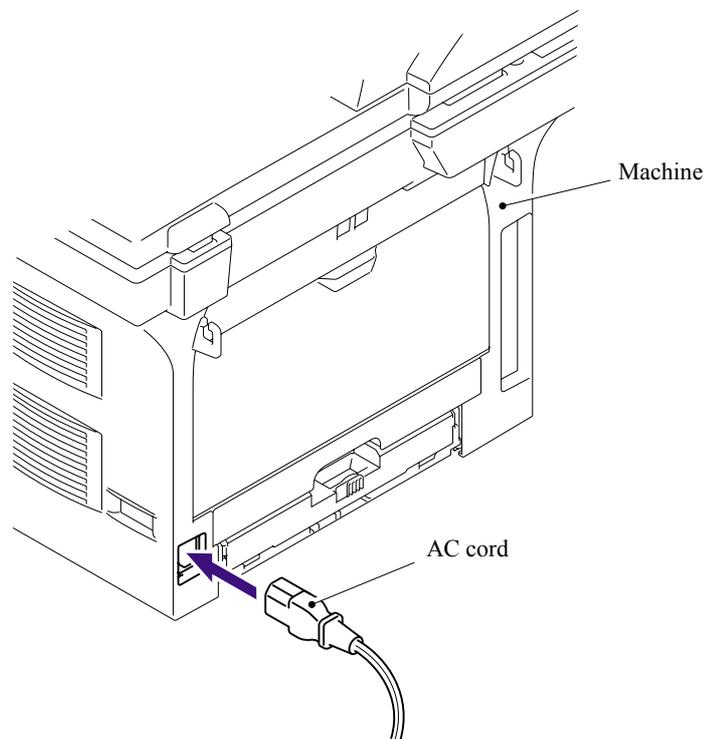


Fig. 6-57

6.4.2.2 Paper feeding kit for tray 1, 2

<Uninstalling Procedure>

- (1) Disconnect the AC cord from the machine.

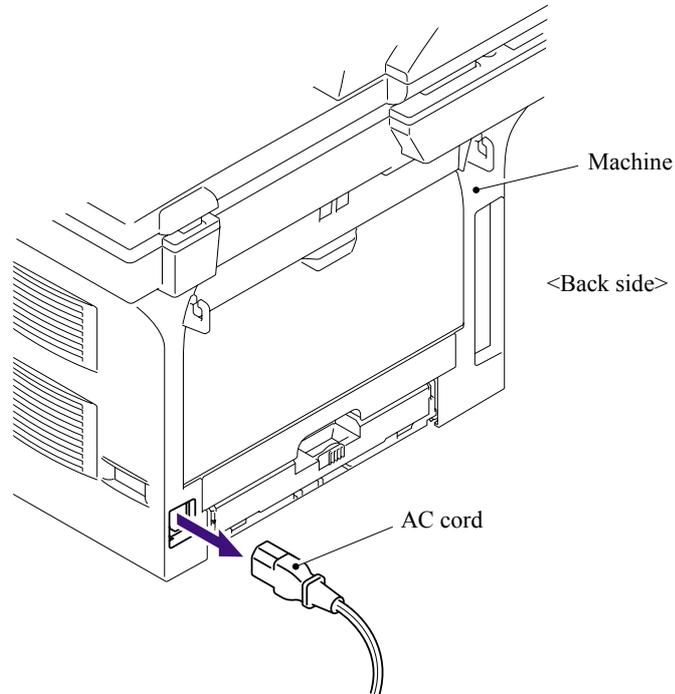


Fig. 6-58

- (2) Press the cover release lever.
- (3) Open the Front cover.
- (4) Take out the Drum/toner ASSY.

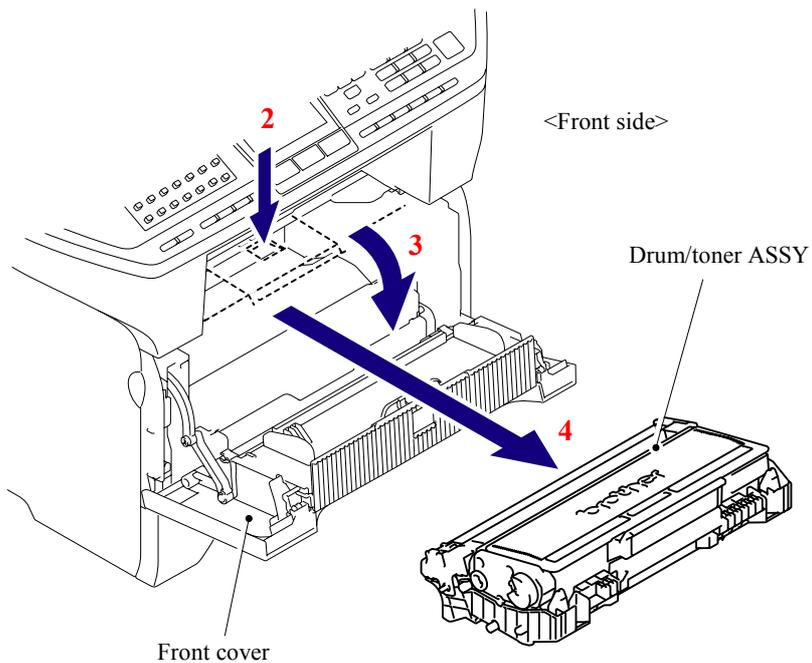


Fig. 6-59

- (5) Remove the DX feed ASSY or DX blank cover.

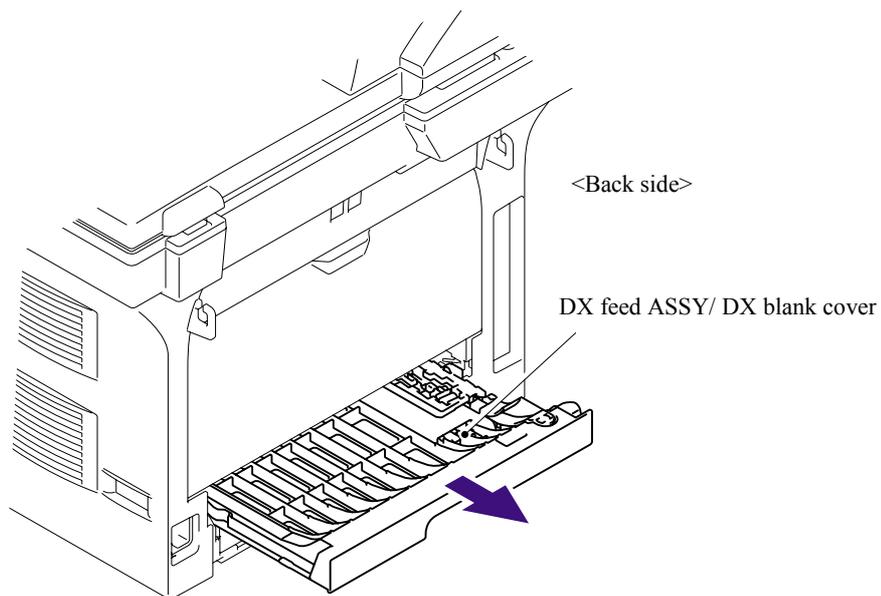


Fig. 6-60

- (6) Close the Front cover.
(7) Pull out the Paper tray.
(8) Remove the recording paper if it is remained in the Paper tray.

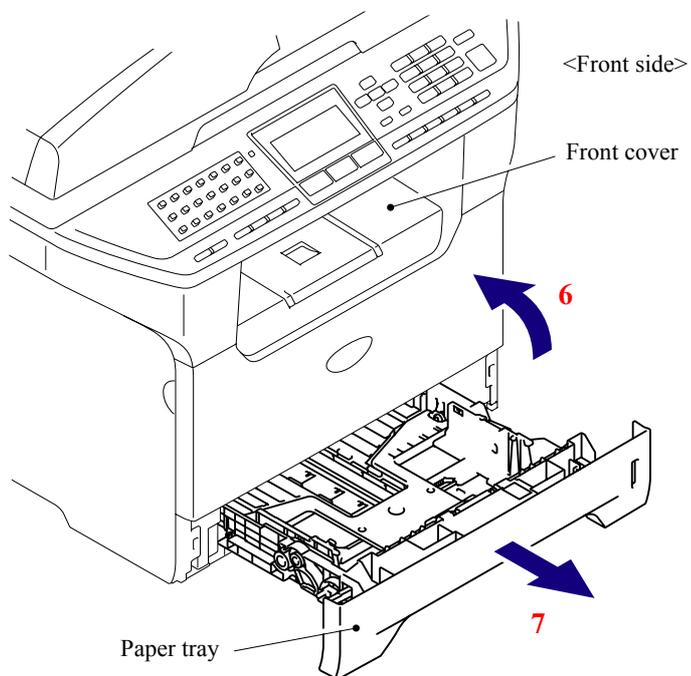


Fig. 6-61

- (9) Pull up the back side of the Separation pad ASSY.
- (10) Push the Hooks provided on both sides of the Separation pad ASSY inwards.
- (11) Pull up the Separation pad ASSY.
- (12) Remove the Separation pad spring.

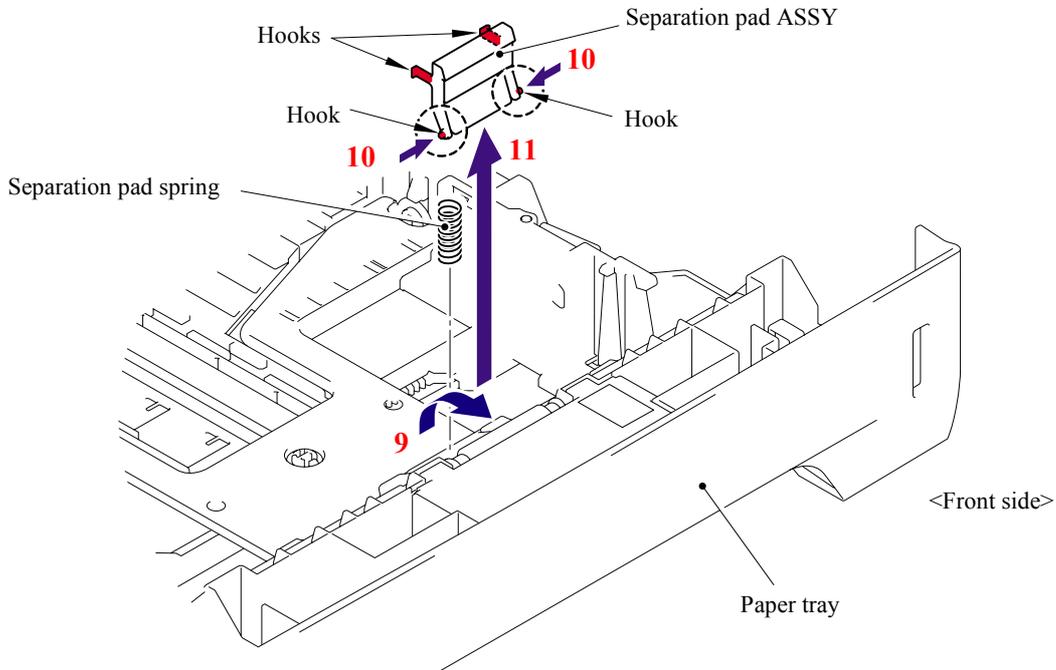


Fig. 6-62

- (13) Turn the Machine upside down.

NOTE:

- Pull out and put into the paper tray so that the Roller holder ASSY is lowered.
- If the Roller holder ASSY is remained up, it cannot be removed.

- (14) Push the Lift arm to the direction of the arrow 14a and pull out the pin of the Roller holder ASSY. Then, turn the Roller holder ASSY to the direction of the arrow 14b.

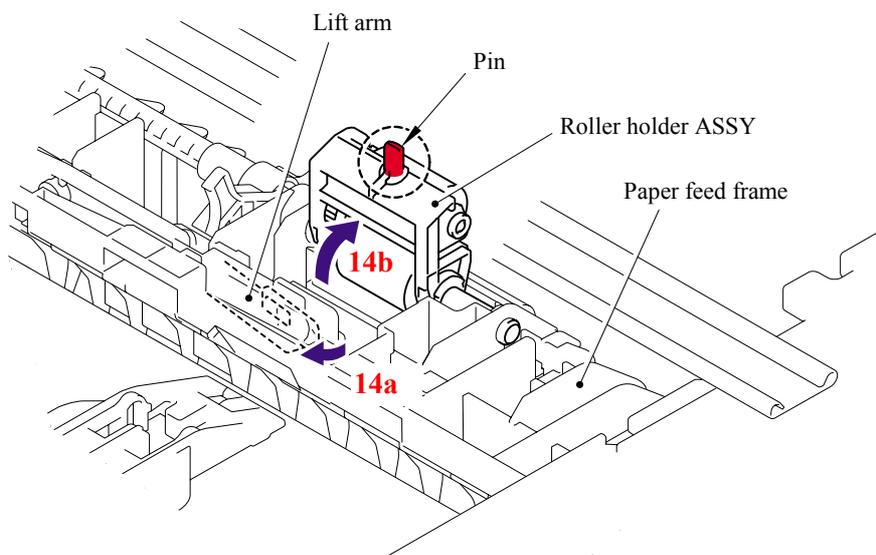


Fig. 6-63

- (15) Slide the Roller holder ASSY to the direction of the arrow 15a. Then, lift up the gear side of the Roller holder ASSY to the direction of the arrow 15b and pull it out to the direction of the arrow 15c to remove.

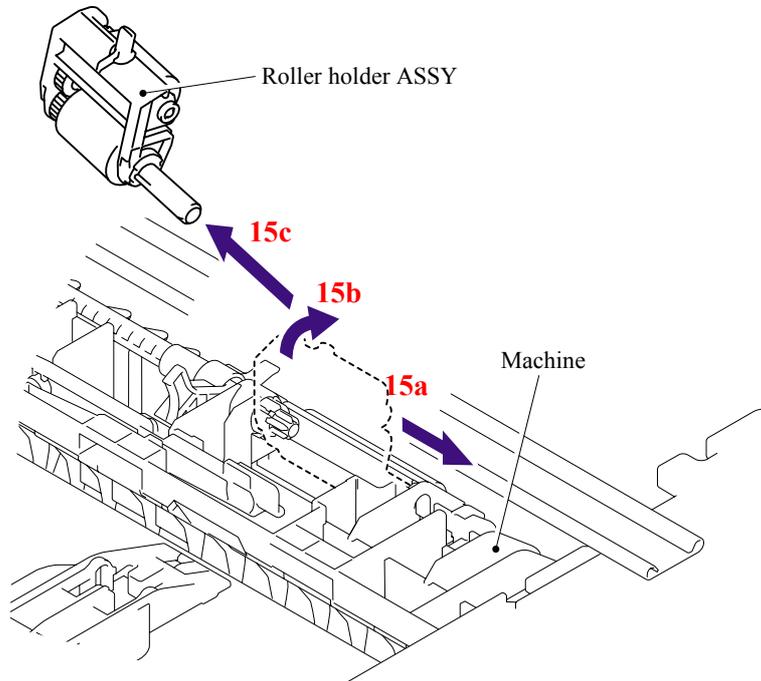


Fig. 6-64

<Installing Procedure>

- (1) Install the Roller holder ASSY.

NOTE: When assembling the roller holder ASSY, align the section “A” on the shaft of the roller holder ASSY with the hole on the paper feed frame.

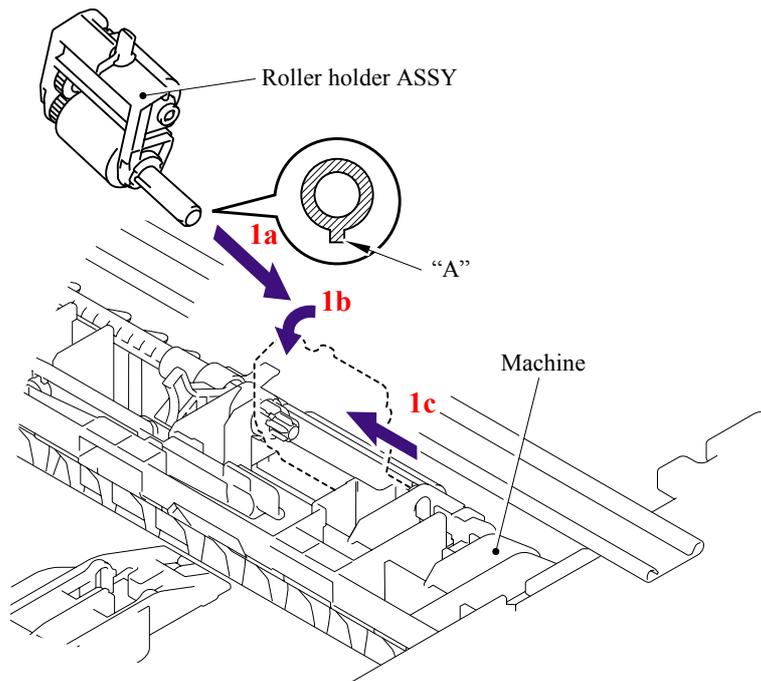


Fig. 6-65

- (2) Put the Pin of the Roller holder ASSY into the hole of the Lift arm.
- (3) Place the Machine on its base.

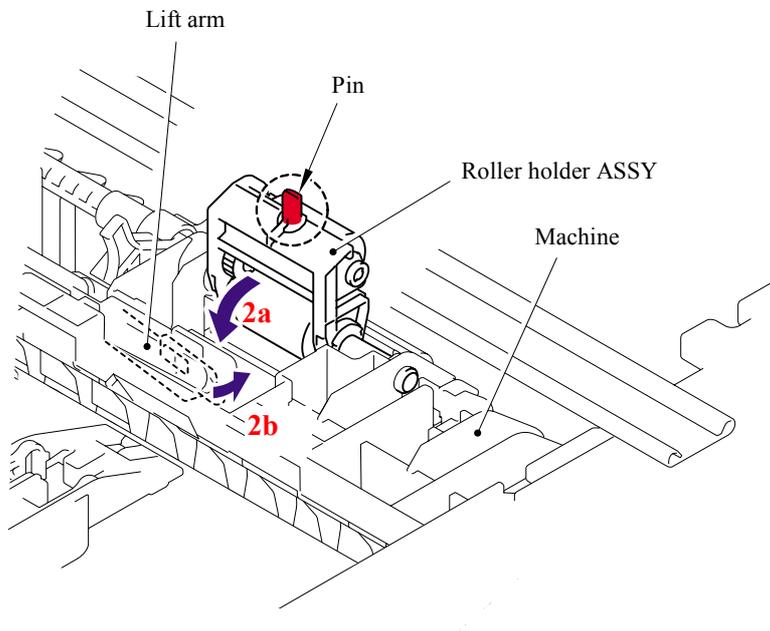


Fig. 6-66

- (4) Install the DX feed ASSY or DX blank cover.

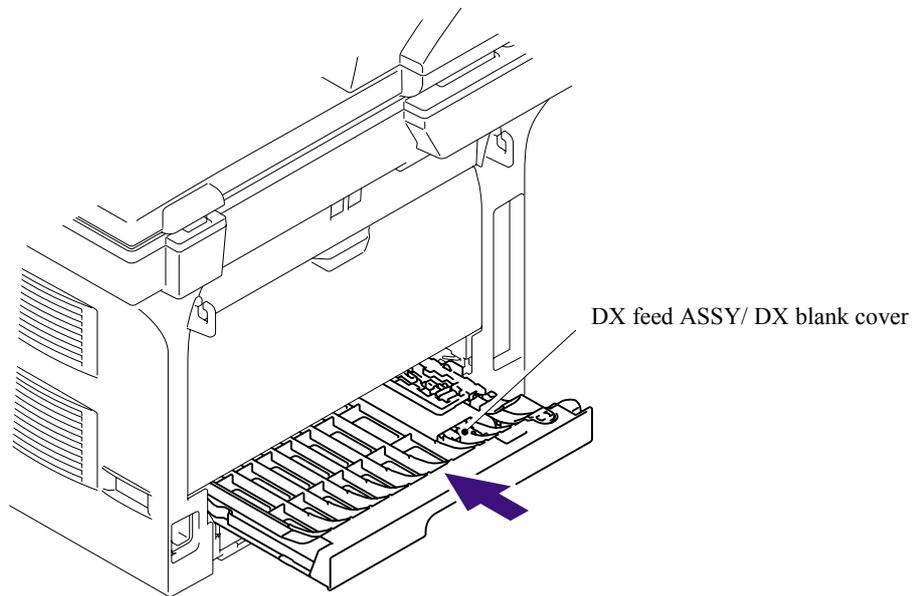


Fig. 6-67

- (5) Install the Drum /toner ASSY, and close the Front cover.

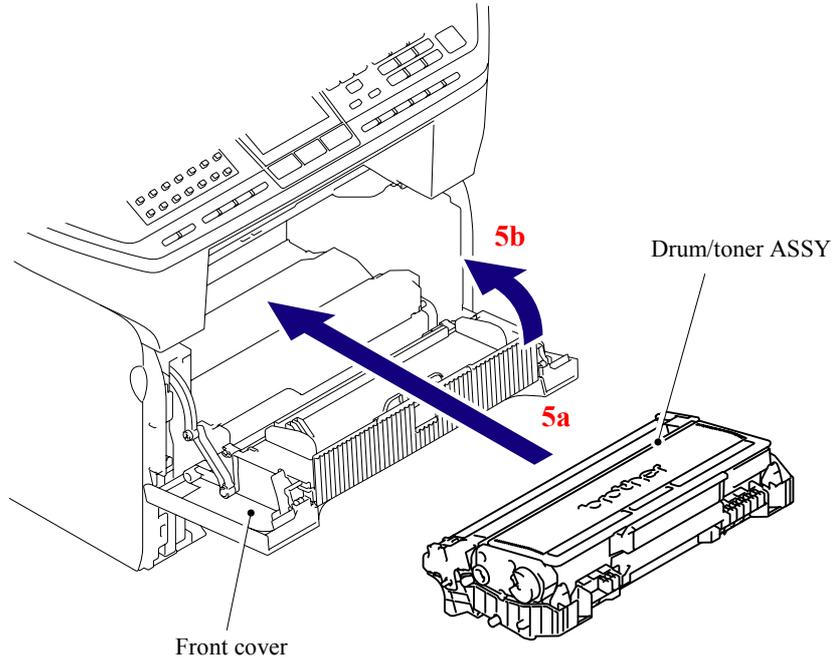


Fig. 6-68

- (6) Set the Separation pad spring.
- (7) Put the Hooks of the Separation pad ASSY into the Paper tray, and turn the Separation pad ASSY to the direction of the arrow 7c to catch the Hooks into the Paper tray.
- NOTE:** Check that the Separation pad spring is assembled correctly.

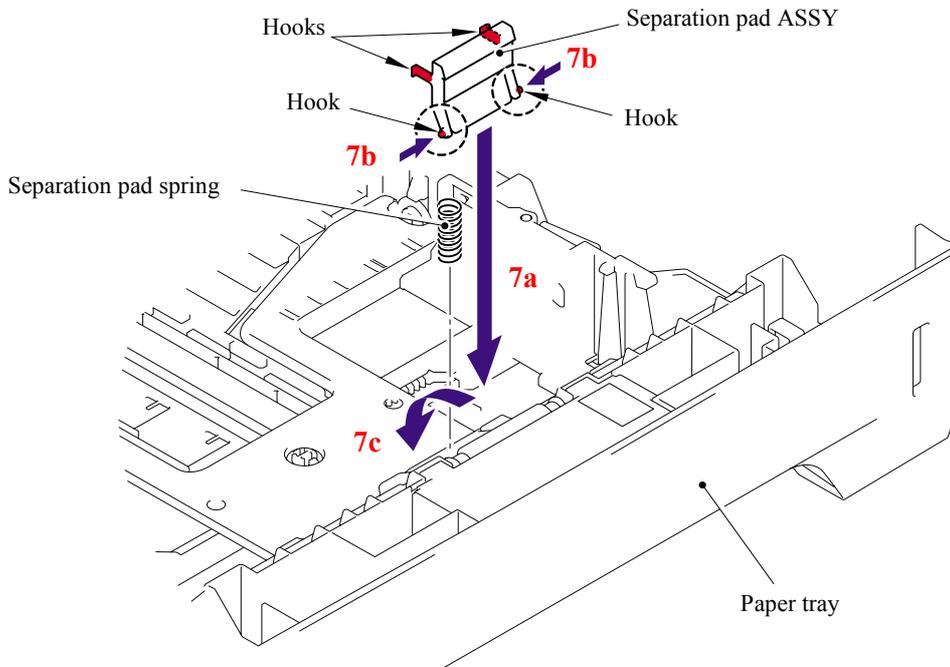


Fig. 6-69

(8) Put the Paper tray into the machine.

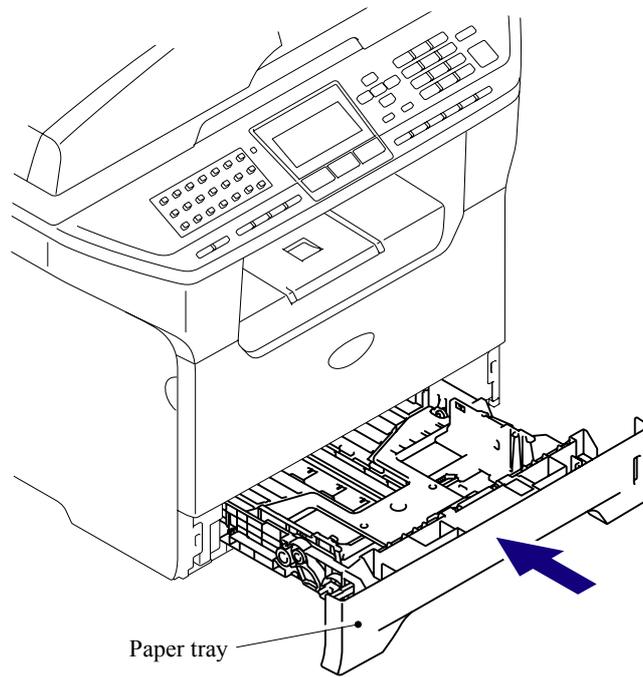


Fig. 6-70

(9) Connect the AC cord into the Machine.

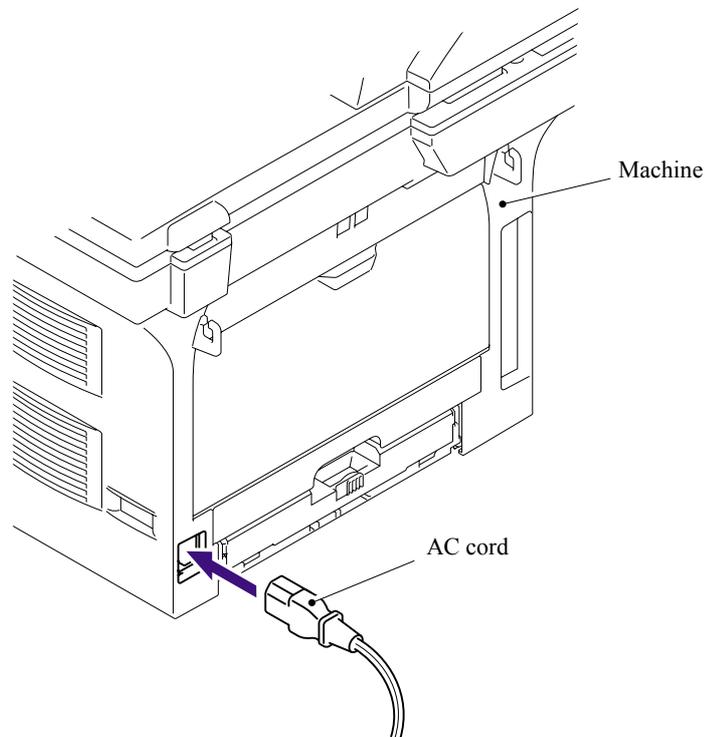


Fig. 6-71

6.4.2.3 Paper feeding kit for MP tray

<Uninstalling Procedure>

- (1) Disconnect the AC cord from the Machine.

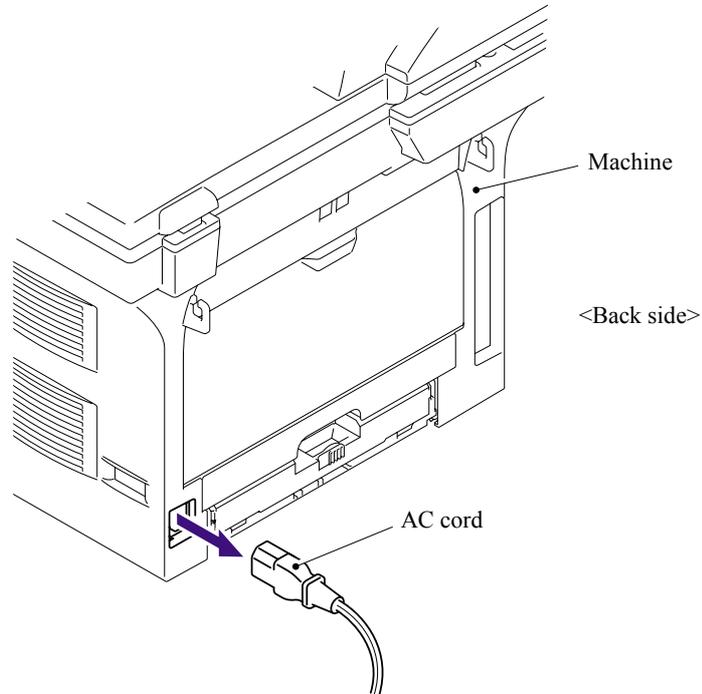


Fig. 6-72

- (2) Press the cover release lever.
- (3) Open the Front cover.
- (4) Take out the Drum/toner ASSY.

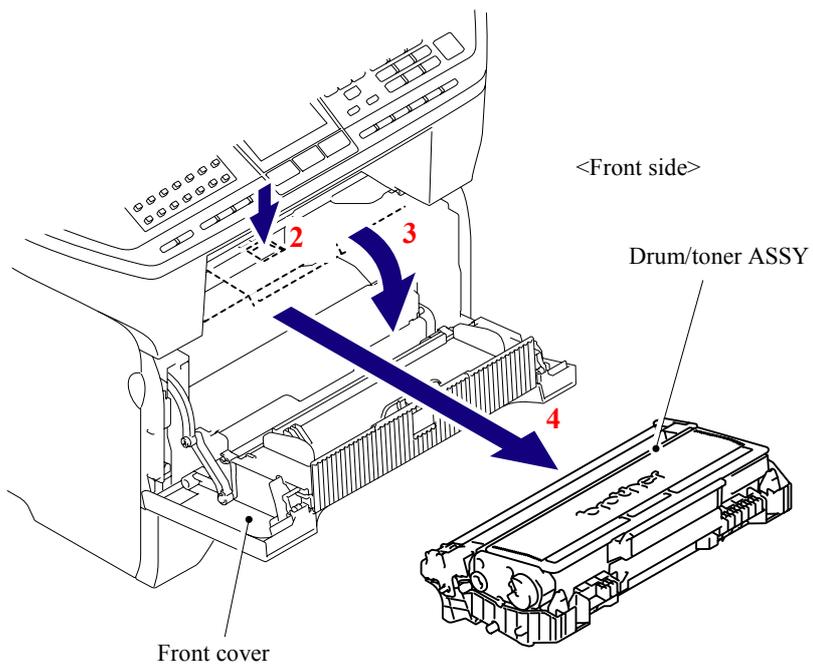


Fig. 6-73

(5) Open the MP feed frame cover.

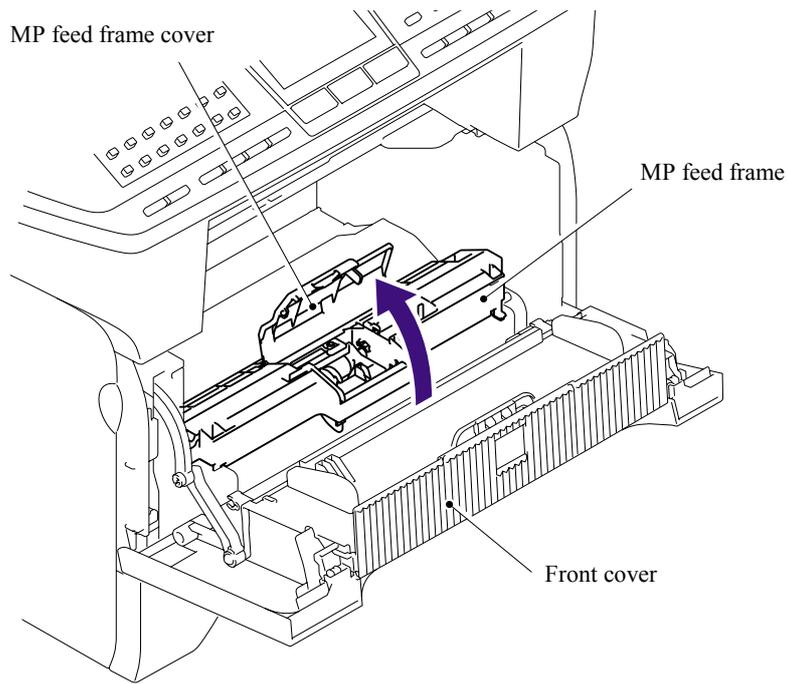


Fig. 6-74

(6) Remove the Holder bearing MP.

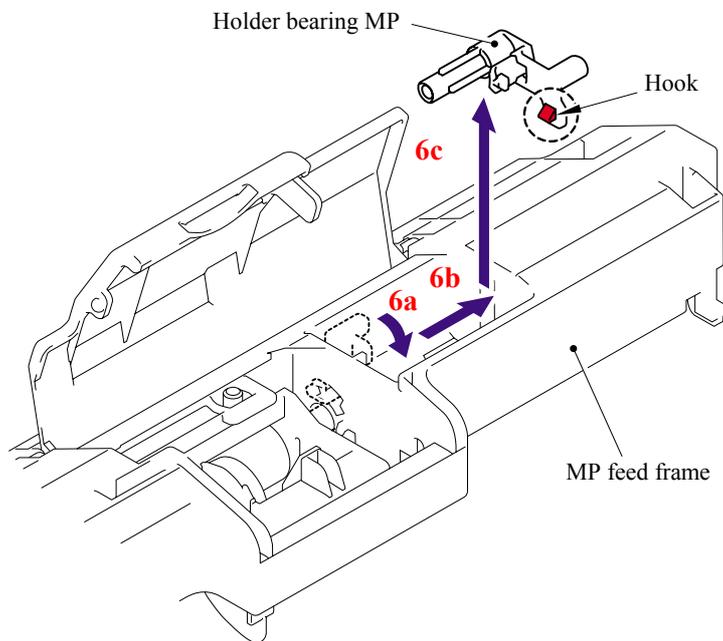


Fig. 6-75

- (7) Lift up the Lift arm MP to release it from the Pin of the MP roller holder ASSY.
- (8) Slide the MP roller holder ASSY to the direction of the arrow 8a and put it up to remove.

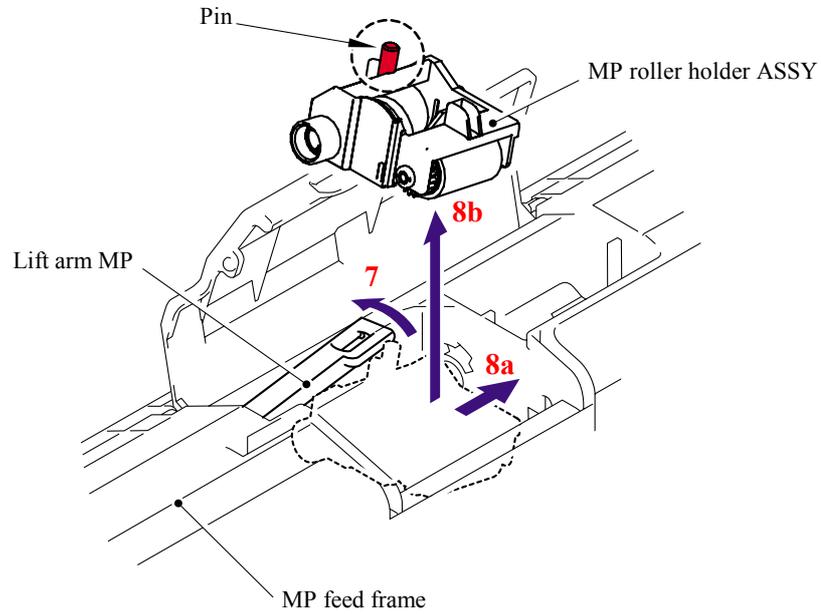


Fig. 6-76

- (9) Turn the back side of the Separation pad ASSY MP to the direction of the arrow 9a and put it up to remove.

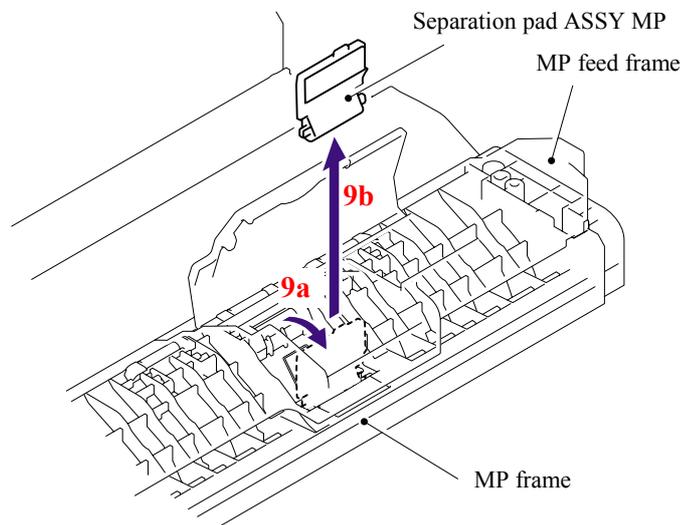


Fig. 6-77

<Installing Procedure>

- (1) Put the Hook of the Separation pad ASSY MP into the MP feed frame and pull down the Separation pad ASSY MP to the direction of the arrow 1b until it is locked.

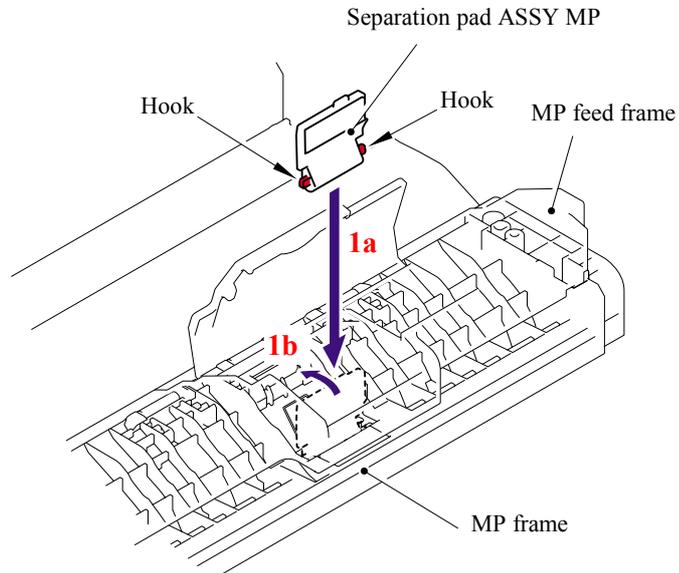


Fig. 6-78

- (2) Lift up the Lift arm MP and put the MP roller holder ASSY into the MP feed frame. Put the Pin of the MP roller holder ASSY into the hole of the Lift arm MP.

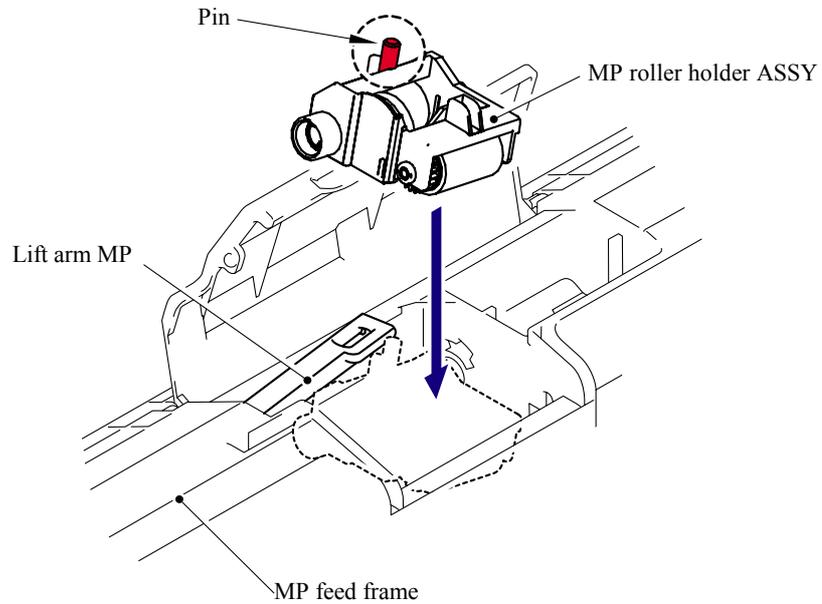


Fig. 6-79

- (3) Put the Holder bearing MP into the MP feed frame and turn the Holder bearing MP to the direction of the arrow 3c to lock.

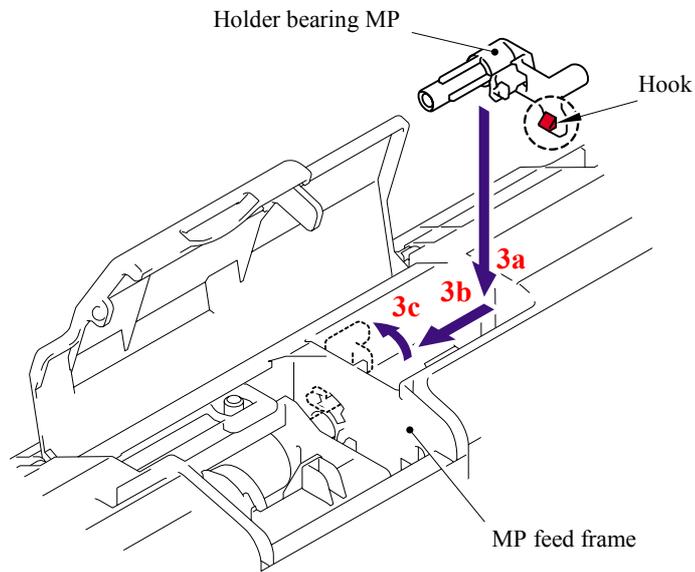


Fig. 6-80

- (4) Close the MP feed frame cover.

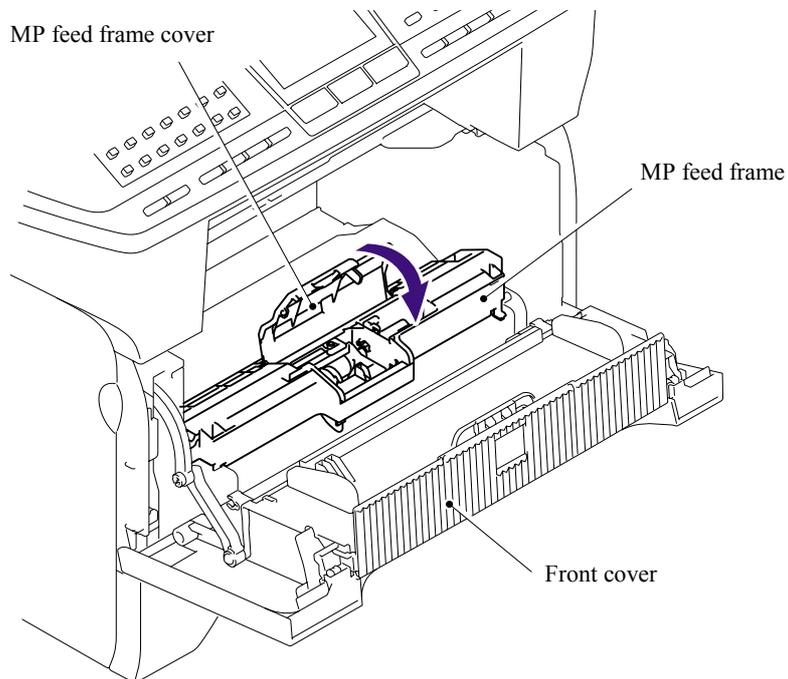


Fig. 6-81

- (5) Install the Drum /toner ASSY into the machine.
- (6) Close the Front cover.

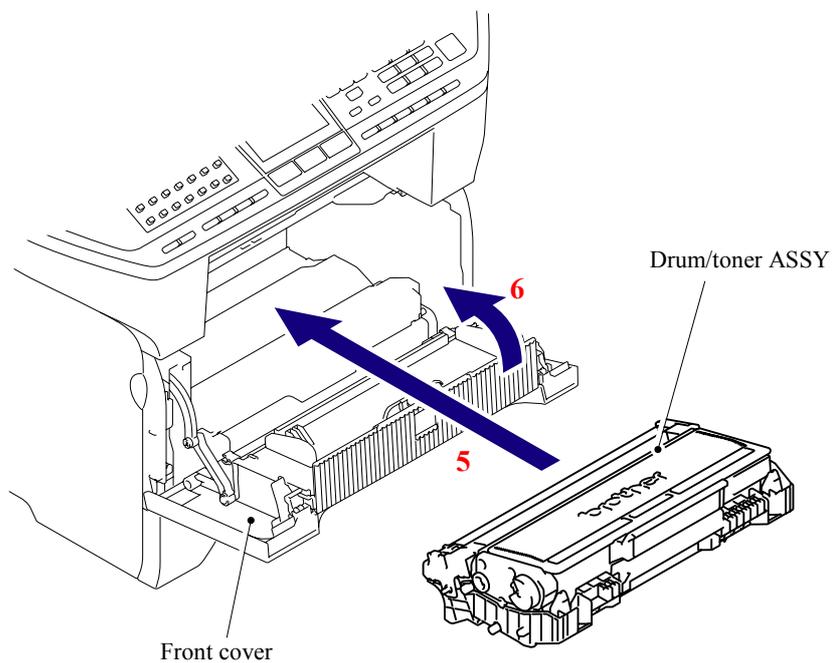


Fig. 6-82

- (7) Connect the AC cord into the Machine.

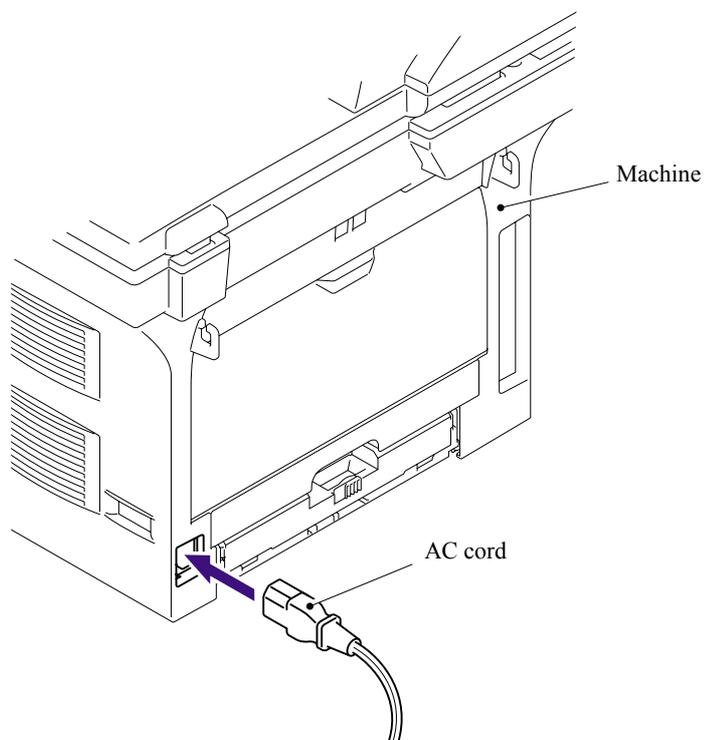


Fig. 6-83

CHAPTER 7

CLEANING

CHAPTER 7 CLEANING

For the cleaning procedures of the drum unit and toner cartridge, refer to the User's Guide.

CHAPTER 8

MAINTENANCE MODE

CHAPTER 8 MAINTENANCE MODE

This chapter describes the maintenance mode which is exclusively designed for the purpose of checks, settings and adjustments using the keys on the control panel.

You can customize the EEPROM according to the shipment destination of the machine concerned. In addition, you can perform operational checks of the LCD, control panel PCB or sensors, perform a print test, display the log information or error codes, and modify firmware switches (WSW).

CONTENTS

8.1	ENTRY INTO THE MAINTENANCE MODE	8-1
8.2	LIST OF MAINTENANCE-MODE FUNCTIONS	8-2
8.3	USER-ACCESS TO THE MAINTENANCE MODE	8-3
8.4	DETAILED DESCRIPTION OF MAINTENANCE-MODE FUNCTIONS	8-4
8.4.1	EEPROM Parameter Initialization (Function code 01/91)	8-4
8.4.2	Printout of Scanning Compensation Data (Function code 05)	8-5
8.4.3	Placement of CCD Unit in Position for Transportation (Function code 06)	8-9
8.4.4	ADF Performance Test (Function code 08)	8-9
8.4.5	Test Pattern 1 (Function code 09)	8-10
8.4.6	Firmware Switch Setting and Printout	8-11
8.4.6.1	Firmware switch setting (Function code 10)	8-11
8.4.6.2	Printout of firmware switch data (Function code 11)	8-13
8.4.7	Operation Check of LCD (Function code 12)	8-14
8.4.8	Operational Check of Control Panel PCB (Function code 13)	8-15
8.4.9	Sensor Operational Check (Function code 32)	8-16
8.4.10	Received Data Transfer Function (Function code 53) (Not applicable to DCP-8060/8065DN.)	8-18
8.4.11	Fine Adjustment of Scan Start/End Positions (Function code 54)	8-20
8.4.12	Acquisition of White Level Data and CCD Scanner Area Setting (Function code 55)	8-22
8.4.13	Paper Feeding and Ejecting Test (Function code 67)	8-23
8.4.14	EEPROM Customizing (Function code 74)	8-23
8.4.15	Display of the Equipment's Log Information (Function code 80)	8-24
8.4.16	Machine Error Code Indication (Function code 82)	8-26
8.4.17	Output of Transmission Log to the Telephone Line (Function code 87) (Not applicable to DCP-8060/8065DN.)	8-26
8.4.18	Counter Reset After Replacing the Fuser Unit, Laser Unit and Paper Feed Kit (Function code 88)	8-27
8.4.19	Cancellation of the Memory Security Mode (Not applicable to with out the NCU models and the Japanese model.)	8-27
8.5	OTHER SERVICE FUNCTION	8-28
8.5.1	Resetting the Developing Bias Voltage Counter	8-28

8.1 ENTRY INTO THE MAINTENANCE MODE

Press the **[Menu]** and **[Start]** keys. Next press the **[▲]** key four times to make the machine enter the maintenance mode.

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

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

To select one of the maintenance-mode functions listed in [Section 8.2](#), press the **[▲]** key or **[▼]** key to display any function code on the LCD. Then press the **[OK]** key.
(The details of each maintenance-mode function are described in [Section 8.4](#).)

NOTE:

- To exit from the maintenance mode and switch to standby, press the **[9]** key twice in the initial stage of the maintenance mode.
- Pressing the **[Stop/Exit]** key after entering only one digit restores the machine to the initial stage of the maintenance mode.
- If an invalid function code is entered, the machine resumes the initial stage of the maintenance mode.

8.2 LIST OF MAINTENANCE-MODE FUNCTIONS

Maintenance-mode Functions

Function Code	Function	Reference Section (Page)
01	EEPROM Parameter Initialization	8.4.1 (8-4)
05	Printout of Scanning Compensation Data	8.4.2 (8-5)
06	Placement of CCD Unit Position for Transportation	8.4.3 (8-9)
08	ADF Performance Test	8.4.4 (8-9)
09	Test Pattern 1	8.4.5 (8-10)
10	Firmware Switch Setting	8.4.6.1 (8-11)
11	Printout of Firmware Switch Data	8.4.6.2 (8-13)
12	Operational Check of LCD	8.4.7 (8-14)
13	Operational Check of Control Panel PCB	8.4.8 (8-15)
32	Sensor Operational Check	8.4.9 (8-16)
53	Received Data Transfer Function	8.4.10 (8-18)
54	Fine Adjustment of Scan Start/End Positions	8.4.11 (8-20)
55	Acquisition of White Level Data and CCD Scanner Area Setting	8.4.12 (8-22)
67	Paper Feeding and Ejecting Test	8.4.13 (8-23)
74	EEPROM Customizing	8.4.14 (8-23)
80	Display of the Equipment's Log Information	8.4.15 (8-24)
82	Machine Error Code Indication	8.4.16 (8-26)
87	Output of Transmission Log to the Telephone Line	8.4.17 (8-26)
88	Counter Reset After Replacing the Fuser Unit, Laser Unit and Paper Feed Kit	8.4.18 (8-27)
—	Cancellation of the Memory Security Mode (Not applicable to DCP-8060/8065DN and the Japanese model.)	8.4.19 (8-27)

8.3 USER-ACCESS TO THE MAINTENANCE MODE

Basically, the maintenance-mode functions listed on the previous 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 (e.g., by telephone).

The user-accessible functions (codes 06, 09, 10, 11, 12, 53, 54, 80, 82 and 87) are *shaded* in the table given on the [previous page](#). Function code 10 accesses the firmware switches, each of which has eight selectors. You should not allow end users to access all of those selectors, but you can allow them to access user-accessible selectors which are *shaded* in the firmware switch tables in [Appendix 4](#).

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

- (1) Press the [Menu], [Start], [Menu], and [▲] keys in this order.
The “MAINTENANCE 10” appears on the LCD.
- (2) Press the [▲] key or [▼] key several times to display the desired maintenance code on the LCD.
Then press the [Menu] key.
- (3) To switch the machine back to the standby state, press the [Stop/Exit] key. When each of the user-accessible functions is completed, the machine automatically returns to the standby state.

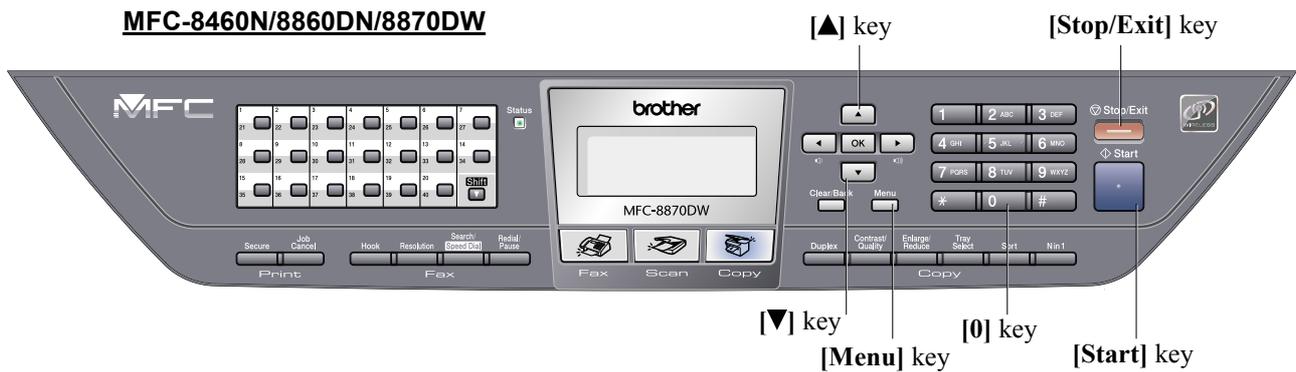


Fig. 8-1



Fig. 8-2

8.4 DETAILED DESCRIPTION OF MAINTENANCE-MODE FUNCTIONS

8.4.1 EEPROM Parameter Initialization (Function code 01/91)

Function

The machine initializes the parameters, user switches, and firmware switches registered in the EEPROM, to the initial values. Entering the function code 01 initializes all of the EEPROM areas, but entering 91 does not initialize some areas, as listed below.

Function code	01	91
Data item		
Maintenance-mode functions	All of these will be initialized.	These will be initialized.
User switches		
Firmware switches		
Remote activation code		These will not be initialized.
Station ID data		These will not be initialized.
Outside line number		
Telephone function registration		
One-touch dialing		
Speed dialing		
Group dialing		

NOTE: If you replace the main PCB with the one used for any other machine, carry out this procedure and then customize the EEPROM (maintenance-mode function code 74 in [Section 8.4.14](#)).

Operating Procedure

- (1) Press the **[0]** and **[1]** keys (or the **[9]** and **[1]** keys according to your need) in this order in the initial stage of the maintenance mode.
The “PARAMETER INIT” will appear on the LCD.
- (2) Upon completion of parameter initialization, the machine returns to the initial stage of the maintenance mode.
- (3) Be sure to turn the machine power off. If you press the **[9]** key twice to exit from the maintenance mode without turning the power off, then the machine will not fully initialize the EEPROM.

8.4.2 Printout of Scanning Compensation Data (Function code 05)

Function

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

Operating Procedure

Implement the operating procedure below after scanning the document once at least, not immediately after the machine is turned on. Since the machine initializes the white and black 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 white and black 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]** keys in this order in the initial stage of the maintenance mode. The “WHITE LEVEL 1” will appear on the LCD.
- (3) The equipment prints out the scanning compensation data list containing the following:

<For white and black scanning>

- | | |
|---|----------|
| a) Dark output adjustment value (CH0) | 1Byte |
| b) Dark output adjustment value (CH1) | 1Byte |
| c) Bright output adjustment value (CH0) | 1Byte |
| d) Bright output adjustment value (CH1) | 1Byte |
| e) Black level data (CH0) | 2Byte |
| f) Black level data (CH1) | 2Byte |
| g) White level MIN data | 2Byte |
| h) White level MAX data | 2Byte |
| i) Background color compensated data | 1Byte |
| j) White level data (CH0) | 5136Byte |

<For color scanning>

- | | |
|---------------------------------------|-------|
| a) Dark output adjustment value (R) | 1Byte |
| b) Dark output adjustment value (G) | 1Byte |
| c) Dark output adjustment value (B) | 1Byte |
| d) Bright output adjustment value (R) | 1Byte |
| e) Bright output adjustment value (G) | 1Byte |
| f) Bright output adjustment value (B) | 1Byte |
| g) Black level data (R) | 2Byte |
| h) Black level data (G) | 2Byte |
| i) Black level data (B) | 2Byte |
| j) White level MIN data (R) | 2Byte |
| k) White level MIN data (G) | 2Byte |
| l) White level MIN data (B) | 2Byte |

m) White level MAX data (R)	2Byte
n) White level MAX data (G)	2Byte
o) White level MAX data (B)	2Byte
p) Background color compensated data	1Byte
q) White level data (CH0)	2568Byte/5136Byte *1
r) White level data (CH1)	2568Byte/5136Byte *1
s) White level data (CH1)	2568Byte/5136Byte *1

*1: 5136Byte is shown when implementing color scanning with 600 dpi or more of horizontal scanning.

2568Byte is shown when implementing color scanning with less than 600 dpi of horizontal scanning.

- (4) Upon completion of recording of the compensation data list, the equipment returns to the initial stage of the maintenance mode.

NOTE: If any data is abnormal, its code will be printed in inline style, as shown on the next page.

<For white and black scanning>

2006-01-01-04:13

- a) 89b0bce4 : 78
- b) 89b0bce5 : 77
- c) 89b0bcec
- d) 89b0bced
- e) 89b0bd74
- f) 89b0bd76
- g) 4197d000
- h) 4197d000
- i) 89ab2ff6

```
4197d000 : c1 c2 c5 c5 c6 c2 c3 c5 c0 c7 c5 c9 ca c9 c7
4197d020 : cb c9 ca c5 cc ca cf ca cc c8 d0 cb cc cd cd cc
4197d040 : ce cc d3 d1 d4 d2 d1 d1 d3 d2 ce d4 d4 d0 d6 d3
4197d060 : d5 d4 d6 d1 d6 d5 d7 d7 d6 d6 d9 d8 d7 da d9 d9
4197d080 : da d7 d9 d9 da da db da da da da da da da da da
```

```
4197d0a0 : 4197d800 : f2 f0 f2 f0
4197d0c0 : 4197d820 : f2 f0 f2 f0
4197d0e0 : 4197d840 : f2 f0 f2 f0
4197d100 : 4197d860 : f2 f0 f2 f0
4197d120 : 4197d880 : f2 f0 f2 f0
4197d140 : 4197d8a0 : f2 f0 f2 f0
4197d160 : 4197d8c0 : f2 f0 f2 f0
4197d180 : 4197d8e0 : f2 f0 f2 f0
4197d1a0 : 4197d900 : f2 f0 f2 f0
4197d1c0 : 4197d920 : f2 f0 f2 f0
4197d1e0 : 4197d940 : f2 f0 f2 f0
4197d200 : 4197d960 : f2 f0 f2 f0
4197d220 : 4197d980 : f2 f0 f2 f0
4197d240 : 4197d9a0 : f2 f0 f2 f0
4197d260 : 4197d9c0 : f2 f0 f2 f0
4197d280 : 4197d9e0 : f2 f0 f2 f0
4197d2a0 : 4197f1e0 : f2 f0 f2 f0
4197d2c0 : 4197f200 : f2 f0 f2 f0
4197d2e0 : 4197f220 : f2 f0 f2 f0
4197d300 : 4197f240 : f2 f0 f2 f0
4197d320 : 4197f260 : f2 f0 f2 f0
4197d340 : 4197f280 : f2 f0 f2 f0
4197d360 : 4197f2a0 : f2 f0 f2 f0
4197d380 : 4197f2c0 : f2 f0 f2 f0
4197d3a0 : 4197f2e0 : f2 f0 f2 f0
4197d3c0 : 4197f300 : f2 f0 f2 f0
4197d3e0 : 4197f320 : f2 f0 f2 f0
4197d400 : 4197f340 : f2 f0 f2 f0
4197d420 : 4197f360 : f2 f0 f2 f0
4197d440 : 4197f380 : f2 f0 f2 f0
4197d460 : 4197f3a0 : f2 f0 f2 f0
4197d480 : 4197f3c0 : f2 f0 f2 f0
4197d4a0 : 4197f3e0 : f2 f0 f2 f0
4197d4c0 : 4197f400 : f2 f0 f2 f0
4197d4e0 : 4197f420 : f2 f0 f2 f0
4197d500 : 4197f440 : f2 f0 f2 f0
4197d520 : 4197f460 : f2 f0 f2 f0
4197d540 : 4197f480 : f2 f0 f2 f0
4197d560 : 4197f4a0 : f2 f0 f2 f0
4197d580 : 4197f4c0 : f2 f0 f2 f0
4197d5a0 : 4197f4e0 : f2 f0 f2 f0
4197d5c0 : 4197f500 : f2 f0 f2 f0
4197d5e0 : 4197f520 : f2 f0 f2 f0
4197d600 : 4197f540 : f2 f0 f2 f0
4197d620 : 4197f560 : f2 f0 f2 f0
4197d640 : 4197f580 : f2 f0 f2 f0
4197d660 : 4197f5a0 : f2 f0 f2 f0
4197d680 : 4197f5c0 : f2 f0 f2 f0
4197d6a0 : 4197f5e0 : f2 f0 f2 f0
4197d6c0 : 4197f600 : f2 f0 f2 f0
4197d6e0 : 4197f620 : f2 f0 f2 f0
4197d700 : 4197f640 : f2 f0 f2 f0
4197d720 : 4197f660 : f2 f0 f2 f0
4197d740 : 4197f680 : f2 f0 f2 f0
4197d760 : 4197f6a0 : f2 f0 f2 f0
4197d780 : 4197f6c0 : f2 f0 f2 f0
4197d7a0 : 4197f6e0 : f2 f0 f2 f0
4197d7c0 : 4197f700 : f2 f0 f2 f0
4197d7e0 : 4197f720 : f2 f0 f2 f0
4197f740 : 4197f740 : f2 f0 f2 f0
4197f760 : 4197f760 : f2 f0 f2 f0
4197f780 : 4197f780 : f2 f0 f2 f0
4197f7a0 : 4197f7a0 : f2 f0 f2 f0
4197f7c0 : 4197f7c0 : f2 f0 f2 f0
4197f7e0 : 4197f7e0 : f2 f0 f2 f0
```

```
4197f800 : b9 b3 b6 b2 b5 b3 b9 b5 b4 b4 b6 b2 b3 af b2 ae
```

j)

<For color scanning>

		2007-01-13-01:44	
a)	89bd01b3	:	73
b)	89bd01b4	:	7a
c)	89bd01b5	:	
d)	89bd01bb	:	418f1b00 : c6 c8 c4 c9 cb c9 cb cb cd cd cc cc ce ce d0 cf
e)	89bd01bc	:	418f1b20 : cf d1 d2 d0 d2 d3 d3 d4 d4 d5 d4 d4 d7 d8 d5 da
f)	89bd01bd	:	418f1b40 : d8 d8 d7 da da d9 d9 d9 da dd db dc df dc de dc
g)	89bd0246	:	418f1b60 : df e0 df e0 de e0 e1 e1 df e1 e0 de e0 e3 e4 e2
h)	89bd0248	:	418f1b80 : e3 e5 e1 e2 e4 e4 e3 e5 e7 e4 e5 e3 e5 e7 e8 e7
i)	89bd024a	:	418f1ba0 : 418f2300 : d0 cd d1 ce d0 cf d0 d0 cd d0 cf ce cd d1 d0 ce
			418f1bc0 : 418f2320 : d1 ce d0 cf d0 d0 cf d1 d0 d0 d0 ce cf ce cf ce
j)	418f1b00	:	418f2340 : cd d0 d0 d0 ce ce ce d1 d1 cd d1 cf ce ce cf ce
k)	418f4600	:	418f2360 : ce ce ce cd ce d0 ce cb d0 cf cf cf cd cf ce cf
l)	418f7100	:	418f2380 : ce cd ce ce cf cf cc ce cf cc cd ce cf ce cf cf
m)	418f1b00	:	418f23a0 : cf ce cd d0 d0 cf cf d0 cf d0 cd d0 ce ce ce d0
n)	418f4600	:	418f23c0 : cd cc cd cc ce cd ce cf cd ce cd d0 ce ce cf ce
o)	418f7100	:	418f23e0 : cd d0 ce ce cc cd cc d0 cf cd cd cf d0 cd ce ce
p)	89aa90f6	:	418f1cc0 : ce cd ce cf ce ce cf cf ce ce cf cf ce ce cf ce
			418f1ce0 : ce cf cf cd cf ce
			418f1d00 : cd d0 cd cc cd d0 d0 d0 da da da dd dc da d0
			418f1d20 : cf cd cc cc ce
			418f1d40 : ce cd ce
			418f1d60 : da
			418f1d80 : db dc d8 d7 da da da d9 db dc dc da d0
			418f1da0 : da dc d9 db da da da d9 da d9 d9 da d8 dc dc d9
			418f1dc0 : da da d7 d7 d8 da da da d8 db dc da d9
			418f1de0 : da
			418f1e00 : 418f5000 : d9 da db db dd db df da dc db dc da dc db da d9
			418f1e20 : 418f5020 : d0
			418f1e40 : 418f5040 : 418f8100 : d0 d2 d1 d0 d1 d4 d2 d0 d1 d1 d3 d2 d0 d3 d0 cf
			418f1e60 : 418f5060 : 418f8120 : d0 d3 d0 d1 d1 d3 d1 d2 d0 d2 d1 d0 cf d1 d3 d2
			418f1e80 : 418f5080 : 418f8140 : d2 d2 d2 d2 d1 d1 d1 d4 d0 ce d0 d4 d3 d1 d0 d1
			418f1ea0 : 418f50a0 : 418f8160 : d1 d3 d2 d0 d3 d0 d1 d5 d2 d4 d1 d1 d3 d0 d3 d0
			418f1ec0 : 418f50c0 : 418f8180 : cf d0 d0 d0 d2 d2 d2 d1 d3 d2 d1 d1 d2 d3 d1 d2
			418f1ee0 : 418f50e0 : 418f81a0 : d3 d3 d2 d3 d2 d3 d3 d2 d2 d1 d2 d3 d1 d3 d3 d2
			418f1f00 : 418f5100 : 418f81c0 : d4 d4 d5 d4 d3 d3 d6 d3 d2 d3 d2 d3 d2 d3 d1 d5
			418f1f20 : 418f5120 : 418f81e0 : d3 d4 d3 d3 d5 d2 d2 d4 d3 d5 d3 d4 d4 d7 d5
			418f1f40 : 418f5140 : 418f8200 : d4 d5 d5 d7 d4 d5 d5 d3 d5 d2 d3 d5 d5 d3 d5 d6
			418f1f60 : 418f5160 : 418f8220 : d4 d5 d4 d5 d4 d6 d5 d7 d5 d3 d5 d3 d4 d7 d5 d6
			418f1f80 : 418f5180 : 418f8240 : d6 d6 d6 d4 d4 d6 d4 d2 d6 d5 d6 d5 d8 d5 d7 d3
			418f1fa0 : 418f51a0 : 418f8260 : d6 d7 d6 d6 d4 d6 d4 d3 d5 d3 d4 d5 d7 d4 d7 d4
			418f1fc0 : 418f51c0 : 418f8280 : d6 d6 d6 d5 d6 d8 d4 d7 d7 d6 d8 d4 d7 d5 d6 d4
			418f1fe0 : 418f51e0 : 418f82a0 : d6 d5 d5 d5 d5 d8 d9 d6 d6 d3 d5 d6 d5 d5 d6 d6
			418f2000 : 418f5200 : 418f82c0 : d4 d4 d6 d4 d3 d4 d3 d5 d6 d5 d6 d6 d6 d4 d4 d7
			418f2020 : 418f5220 : 418f82e0 : d6 d4 d5 d4 d4 d5 d6 d6 d7 d7 d6 d4 d5 d5 d5 d7
			418f2040 : 418f5240 : 418f8300 : d6 d5 d8 d5 d8 d7 d6 d7 d6 d6 d4 d7 d8 d7 d6 d7
			418f2060 : 418f5260 : 418f8320 : d8 d7 d8 d4 d6 d6 d9 d8 d7 d6 d8 d7 d6 d8 d6 d5
			418f2080 : 418f5280 : 418f8340 : d6 d6 d8 d6 d5 d7 d6 da d8 d8 d7 d7 d7 d7 d6 d8
			418f20a0 : 418f52a0 : 418f8360 : d9 d7 d8 d7 d7 d8 d7 d8 d8 d8 d9 d4 d7 d8 d8 d7
			418f20c0 : 418f52c0 : 418f8380 : d9 d8 d7 d8 d9 d8 d8 d6 d7 d8 d8 d7 d8 d8 d6 d7
			418f20e0 : 418f52e0 : 418f83a0 : d7 d8 d9 d9 d9 d8 d9 da d8 d7 d7 d7 d8 da d8 d9
			418f2100 : 418f5300 : 418f83c0 : d6 d7 d7 d7 d9 d8 d8 d6 d7 d5 d6 d9 d6 d6 d7 d5
			418f2120 : 418f5320 : 418f83e0 : d5 d5 d7 d6 d8 d6 da d4 d7 d7 d5 d7 d6 d6 d5 d3
			418f2140 : 418f5340 : 418f8400 : d5 d7 d5 d6 d6 d4 d6 d6 d3 d6 d4 d4 d5 d5 d5 d6
			418f2160 : 418f5360 : 418f8420 : d5 d3 d2 d4 d3 d4 d3 d2 d2 d5 d5 d3 d2 d1 d4 d2
			418f2180 : 418f5380 : 418f8440 : d3 d1 d3 d2 d3 d1 d0 d2 d0 d1 d3 d2 d1 d1 cd cf
			418f21a0 : 418f53a0 : 418f8460 : cf cf cd cc cd ce d0 cd ce cf ce cd cb cb cd ce
			418f21c0 : 418f53c0 : 418f8480 : cc cb cc ca ca ce cd ca ca c9 c8 c8 c9 c6 c8 c7
			418f21e0 : 418f53e0 : 418f84a0 : c9 c8 c7 c6 c5 c5 c7 c5 c7 c4 c3 c3 c5 c3 c1 c3
			418f2200 : 418f5400 : 418f84c0 : c1 c2 c1 c1 c2 be bd be c2 bf bf bf c0 bd be bf
			418f2220 : 418f5420 : 418f84e0 : bc bd b9 ba b9 ba ba b9 ba b8 b8 b5 b5 b7 b5 b3
			418f2240 : 418f5440 : 418f8500 : b3 b4 b4 b2 b0 af b2 b0
			418f2260 : 418f5460
			418f2280 : 418f5480
			418f22a0 : 418f54a0
			418f22c0 : 418f54c0
			418f22e0 : 418f54e0
			418f2300 : 418f5500
			418f2320 : 418f5520
			418f2340 : 418f5540
			418f2360 : 418f5560
			418f2380 : 418f5580
			418f23a0 : 418f55a0
			418f23c0 : 418f55c0
			418f23e0 : 418f55e0

Fig. 8-3 Scanning Compensation Data List

8.4.3 Placement of CCD Unit in Position for Transportation (Function code 06)

Function

This function is to move the CCD unit in position for transportation located at the right end. When you fix the FAX equipment and check its operation, you need to perform this function right before packing and shipping it.

NOTE: Please instruct end users to perform this function if possible before packing and shipping their FAX equipment to a sales agent or a service dealer for the purpose of repair. (For the procedure to allow users to perform maintenance modes, please see [P.8-3.](#))

Operating Procedure

- (1) Press the **[0]** and **[6]** keys in this order in the initial stage of the maintenance mode. The CCD unit moves to the designated position for transportation located at the right end. The “MAINTENANCE 06” is displayed until the CCD unit is placed in position. When the CCD unit is placed in the position, the “PLEASE SCAN LOCK” appears on the LCD.
- (2) Open the document cover, and lock the scanner lock lever at the rear left of the scanner unit. When the scanner lock lever is locked, the “SCAN LOCKED” appears. To terminate this operation, press the **[Stop/Exit]** key. The machine returns to the initial stage of the maintenance mode.

8.4.4 ADF Performance Test (Function code 08)

Function

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

Operating Procedure

- (1) Set documents. (Allowable up to the ADF capacity.) The “DOC. READY” will appear on the LCD.
- (2) Press the **[0]** and **[8]** keys in this order. Press the **[▲]** or **[▼]** keys so that the “[▲]: DX, [▼]: SX” is displayed on the LCD. While counting the documents, the machine feeds them in and out, displaying the current count on the LCD as shown below.

ADF CHECK P.01



Current count (1st page in this example)

- (3) To return the machine to the initial stage of the maintenance mode, press the **[Stop/Exit]** key.

8.4.5 Test Pattern 1 (Function code 09)

Function

This function, much like the copying function, prints out test pattern 1 to allow the service personnel to check for record data missing or print quality.

Operating Procedure

Press the [0] and [9] keys in this order in the initial stage of the maintenance mode.
The figure below shows test pattern.

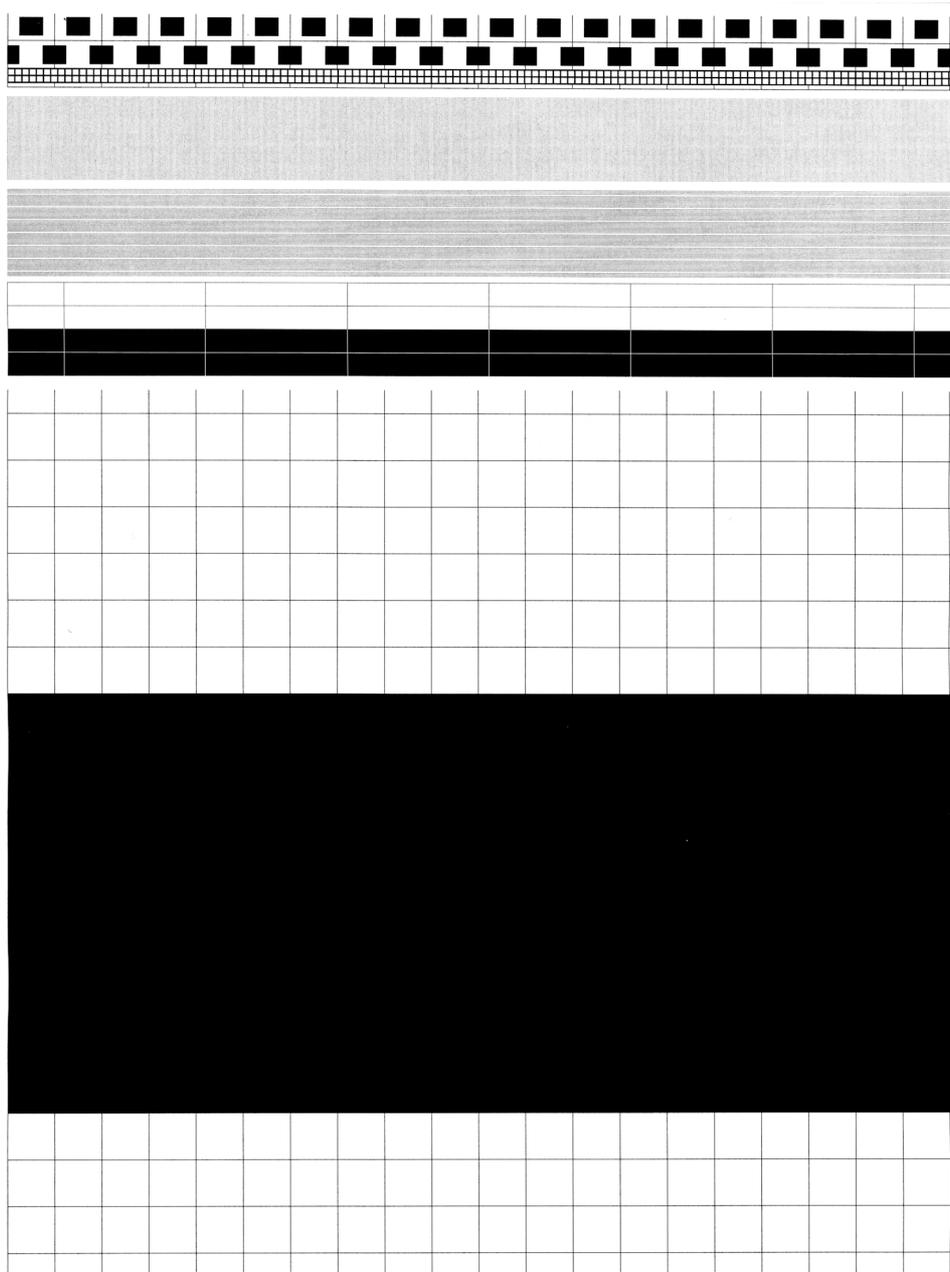


Fig. 8-4 Test Pattern

8.4.6 Firmware Switch Setting and Printout

8.4.6.1 Firmware switch setting (Function code 10)

Function

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

Firmware Switches (WSW01 through WSW53)

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] key 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
WSW32	Function setting 10
WSW33	Function setting 11
WSW34	Function setting 12
WSW35	Function setting 13
WSW36	Function setting 14
WSW37	Function setting 15

8.4.6.2 Printout of firmware switch data (Function code 11)

Function

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

Operating Procedure

- (1) Press the [1] key twice in the initial stage of the maintenance mode.
The "PRINTING" will appear on the LCD.
- (2) The machine prints out the configuration list as shown in the figure below.
- (3) Upon completion of printing, the machine returns to the initial stage of the maintenance mode.

```


CONFIGURATION LIST



MODEL : 8C5-B03  

REV. : U0510191747VER.V  

PCI : 5.00  

SUM : 4572  

SER.# : K5J000221



```

WSW01 = 00000000
1-2. DIAL FORMAT : NORMAL
3-4. BREAK TIME : 60 MS
5-6. INTERDIGIT PAUSE : 800 MS
7. DP/PB CHANGE IN USER SW : YES
8. DP/PB FIXING SELECTION : PB
WSW02 = 11111010
1-2. ON TIME : 100 MS
3-4. OFF TIME : 140 MS
5-8. LINE BEEP ATTENUATOR : 10 DB
WSW03 = 10110000
1. PARA. CNG DETECTION1 : B
2-4. NOT USED
5. PARA. CNG DETECTION2 : A
6-8. NOT USED
WSW04 = 00010110
1-4. NOT USED
5. OGM DELAY +4SEC : OFF
6-8. FLASHING TIME : 500 MS
WSW05 = 00000110
1-3. DIAL TONE DETECTION : 3.5 SEC WAITING
4. REMOTE ID DETECTION TIMEOUT : 2 SEC
5-6. BUSY TONE DETECTION (CALLING) : AFTER DIALING
7. BUSY TONE DETECTION (CALLED) : OFF
8. NOT USED
WSW06 = 00101100
1-3. PAUSE KEY : 3.5 SEC WAITING
4-6. 2ND DT DETECTION TIME : 800 MS
7. 2ND DT DETECTION CYCLE : 1 CYCLE
8. 2ND DT INTERRUPT DETECTION TIME : 30 MS
WSW07 = 01001100
1-2. FREQUENCY RANGE : INITIAL DATA
3. NOT USED
4-6. 2ND DT DETECTION LEVEL : -30 DBM
7. 1ST DT INTERRUPT DETECTION TIME : 30 MS
8. NOT USED
WSW08 = 01100111
1-3. 1ST DT DETECTION TIME : 800 MS
4-5. 1ST/2ND DT TIME OUT : 10 SEC
6-8. 1ST DT DETECTION LEVEL : -42 DBM
WSW09 = 00000000
1. ECM FRAME : 256 OCTET
2. NON STANDARD FACILITIES : ON
3-4. TIMES OF FALL BACK : 4
5. T5 TIMER : 300 SEC
6. T1 TIMER : 35 SEC
7-8. CALLING TIMEOUT : 55 SEC
WSW10 = 00010100
1. NOT USED
2. TIMING OF LAST DIGIT-MODEM CHANGE : 100 MS
3. TIMING OF CML ON CNG TRANSMISSION : 2 SEC
4. TIMING OF CML ON CED TRANSMISSION : 2 SEC
5-6. TRAINING RETRIES : 2
7. CODING METHOD MR : ON
8. CODING METHOD MMR : ON
WSW11 = 01011000
1-2. FREQUENCY RANGE : INITIAL DATA
3-8. ON/OFF TIME : 175 - 600 / 175 - 600 MS
WSW12 = 10011011
1-2. OFF DETECTION TIME : 700 MS
3-4. AUTO ANS OFF DETECTION TIME : 7 SEC
5-6. ON DETECTION TIME : 250 MS
7-8. NOT USED

```


```

Fig. 8-5 Configuration List

8.4.7 Operation 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]** keys in this order in the initial stage of the maintenance mode. The LCD shows.
- (2) Press the **[Start]** key. Each time you press the **[Start]** key, the LCD cycles through the displays shown at right. The Status lamp also changes from orange, red, to green each time you press the **[Start]** key.
- (3) Press the **[Stop/Exit]** key in any process of the above display cycle. The machine beeps for one second and returns to the initial stage of the maintenance mode.

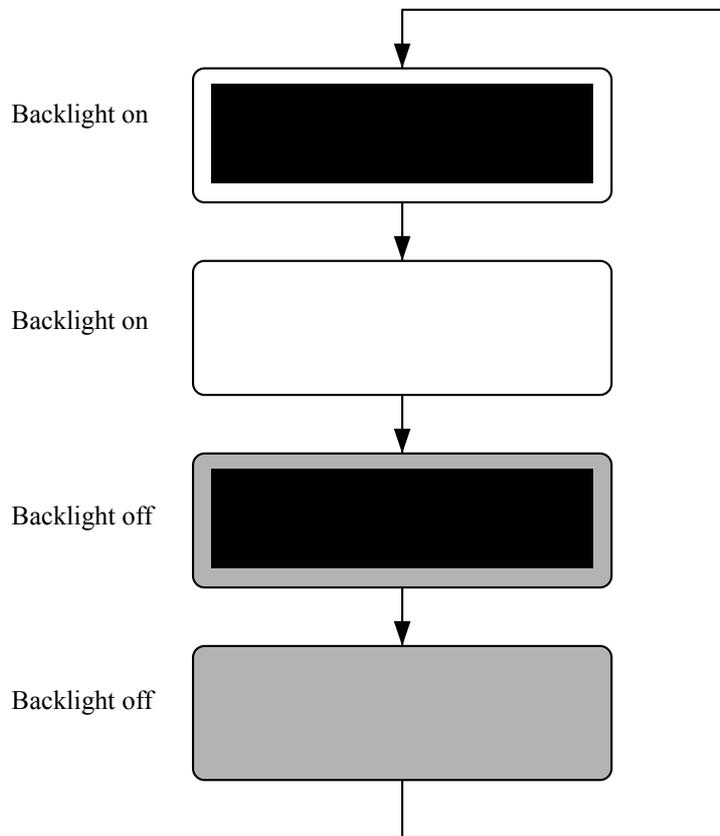


Fig. 8-6

8.4.8 Operational Check of Control Panel PCB (Function code 13)

Function

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

Operating Procedure

- (1) Press the **[1]** and **[3]** keys in this order in the initial stage of the maintenance mode. The “00 ” will appear on the LCD.
- (2) Press the keys and buttons in the order designated in the illustration shown below. The LCD shows the corresponding number in decimal notation each time a key or button is pressed. Check that the displayed number is correct by referring to the illustration below.
If a key or button is pressed out of order, the machine beeps and displays the “INVALID OPERATE” on the LCD. To return to the status ready to accept key & button entry for operational check, press the **[Stop/Exit]** key.
- (3) After the last number key or button is pressed, the machine beeps for one second and returns to the initial stage of the maintenance mode.
To terminate this operation, press the **[Stop/Exit]** key. The machine returns to the initial stage of the maintenance mode.

MFC-8460N/8860DN/8870DW



Fig. 8-7

DCP-8060/8065DN



Fig. 8-8

8.4.9 Sensor Operational Check (Function code 32)

Function

This function allows you to check whether the 21 sensors work correctly.

Operating Procedure

- Press the **[3]** and **[2]** keys in this order in the initial stage of the maintenance mode. The machine beeps 1100 Hz and 400 Hz tones cyclically through the following volumes for testing the speaker. To stop beeping, press the **[OK]** key.

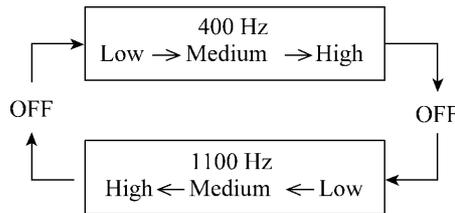


Fig. 8-9

If the sensing status are as listed below, the LCD will show the following: “C1P1C2P2T2T3BCST”, “TNMPNTRMRSPO” and “DFDRDLDSFCFHCV” (which can be switched by pressing the **[Start]** key for machines.)

Given below is the relationship among the LCD indication, sensor names and sensor status.

LCD	Sensors	Sensing status
C1	Tray1 sensor	Tray installed.
P1	Tray1 paper sensor	Recording paper detected.
C2	Tray2 sensor	Tray installed.
P2	Tray2 paper sensor	Recording paper detected.
T2	Tray2 connect sensor	Tray2 connected.
T3	Tray3 connect sensor	Tray3 connected.
BC	Back cover sensor (Used for both standard tray and duplex tray.)	Back cover detected. (Tray detected.)
ST	Paper ejection tray stack sensor	Stack detected.
TN	Toner sensor	Toner detected.
MP	Multi-purpose tray sensor	Recording paper detected.
NT	New toner sensor	New toner detected.
RM	Front registration sensor	No paper detected.
RS	Rear registration sensor	No paper detected.
PO	Paper ejection sensor	No paper detected.

LCD	Sensors	Sensing status
DF	Document front sensor	No document detected.
DR	Document rear sensor	No document detected.
DL	ADF document separation sensor/Size sensor	Document detected.
DS	ADF document SB sensor	No document detected.
FC	FB cover sensor	Document cover closed.
FH	Document scanner home position sensor	CCD unit home position detected.
CV	Front cover sensor	Front cover detective

- (2) Change the detecting conditions to check that the indication on the LCD changes according to the sensor states. For instance, insert paper through the document front (or rear) sensor or the registration sensor (s), open the front cover or the document cover, remove the toner cartridge, jam paper at the paper outlet, insert paper from the manual feeder, and load a recording paper tray, etc.
- (3) Press the **[Stop/Exit]** key. The machine beeps for one second and returns to the initial stage of the maintenance mode.

NOTE: If you have opened and closed the front cover during the above procedure, you need to open and close the front cover again upon completion of the procedure.

8.4.10 Received Data Transfer Function (Function code 53) (Not applicable to DCP-8060/8065DN.)

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 defective.

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

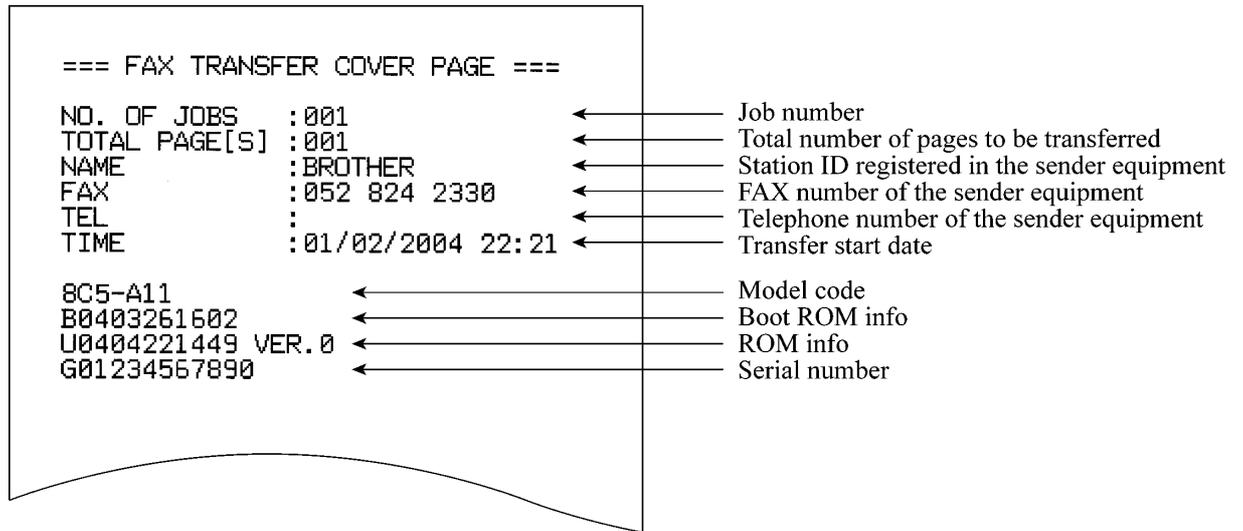
TIP: If there are both color and monochrome data in a file to be transferred, the monochrome data will be transferred first. If the receiver machine does not support the color function, the sender machine cannot transfer color data, resulting in an error.

Operating Procedure

- (1) Press the **[5]** and **[3]** keys in this order in the initial stage of the maintenance mode.
The "FAX TRANSFER" appears on the LCD.
- (2) To check the number of received files, press the **[1]** key.
The "1.NO. OF JOBS" appears on the LCD.
Press the **[OK]** key, and the number of received files appears, just as "NO. OF JOBS: 10."
- (3) To transfer the activity report only, press the **[2]** key.
The "2.ACTIVITY" appears.
To transfer received files (together with the activity report), press the **[3]** key.
The "3.DOCUMENTS" appears. Note that if there is no received file, the "NO DOCUMENTS" appears.
- (4) To transfer the communication list for the latest communication, press the **[4]** key.
The "4.COM.LIST (NEW)" appears.
To transfer the communication list for last three errors, press the **[5]** key.
The "5.COM.LIST (ERR3)" appears.
- (5) With the "2.ACTIVITY," "3.DOCUMENTS," "4.COM.LIST (NEW)," or "5.COM.LIST (ERR3)" being displayed, press the **[OK]** key.
The "ENTER NO. &SET" appears.
- (6) Enter the telephone number of the receiver machine and press the **[OK]** key again.

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

Cover page sample



End page sample

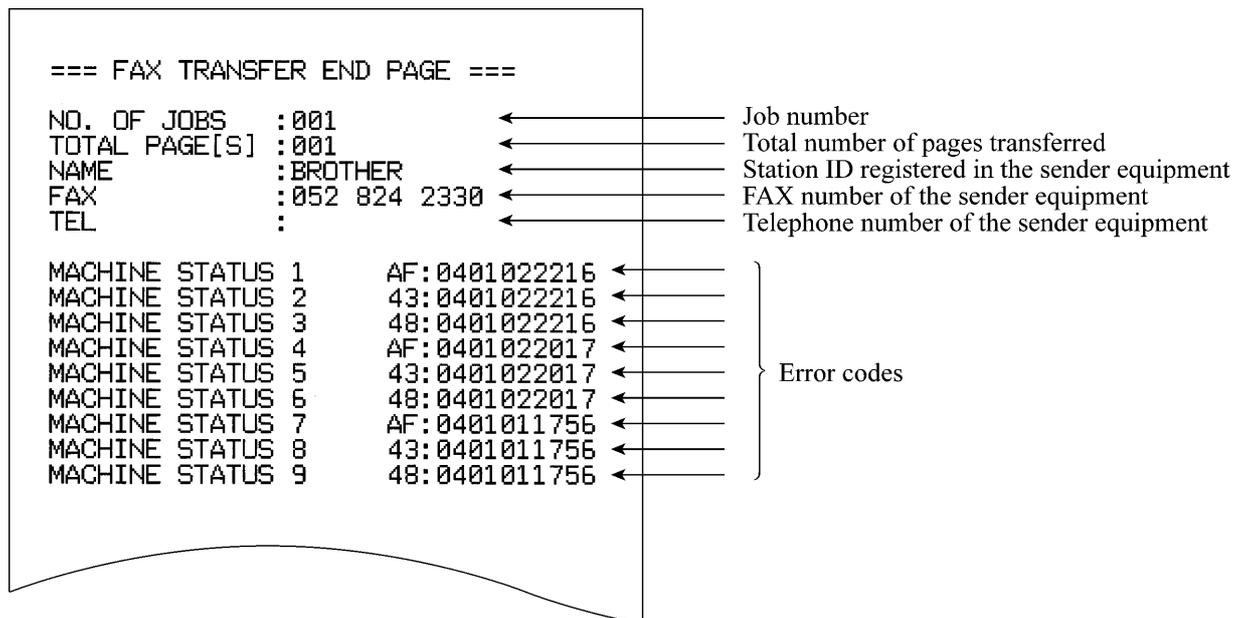


Fig. 8-10

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

Function

This function is to adjust the scan start/end positions.

Operating Procedure

- (1) Press the **[5]** and **[4]** keys in this order in the initial stage of the maintenance mode.
The “SCAN START ADJ.” will appear on the LCD.
- (2) The “1. ADF 2. FB” will appear.
Select one of them that you want to adjust the start position.
If you want to adjust the start position of the ADF, press **[1]** key, and if you want to adjust that of the FB unit, press **[2]** key.
- (3) Press the **[1]** or **[2]** key 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 **[◀]** key to increase compensation levels, and the **[▶]** key to lower them.
Press the **[Stop/Exit]** key, and the machine returns to the initial state of the maintenance mode without adjusting compensation levels.
- (5) Press the **[OK]** key.
The “ACCEPTED” will appear on the LCD. One second later, the machine “1. ADF 2. FB” will appear on the LCD.
- (6) Press the **[Stop/Exit]** key when finish the adjustment. The machine returns to the initial state of the maintenance mode.

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

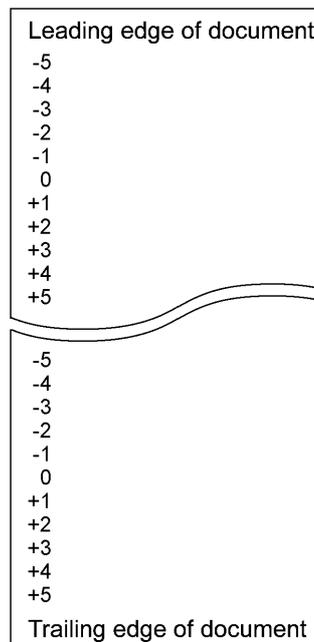


Fig. 8-11

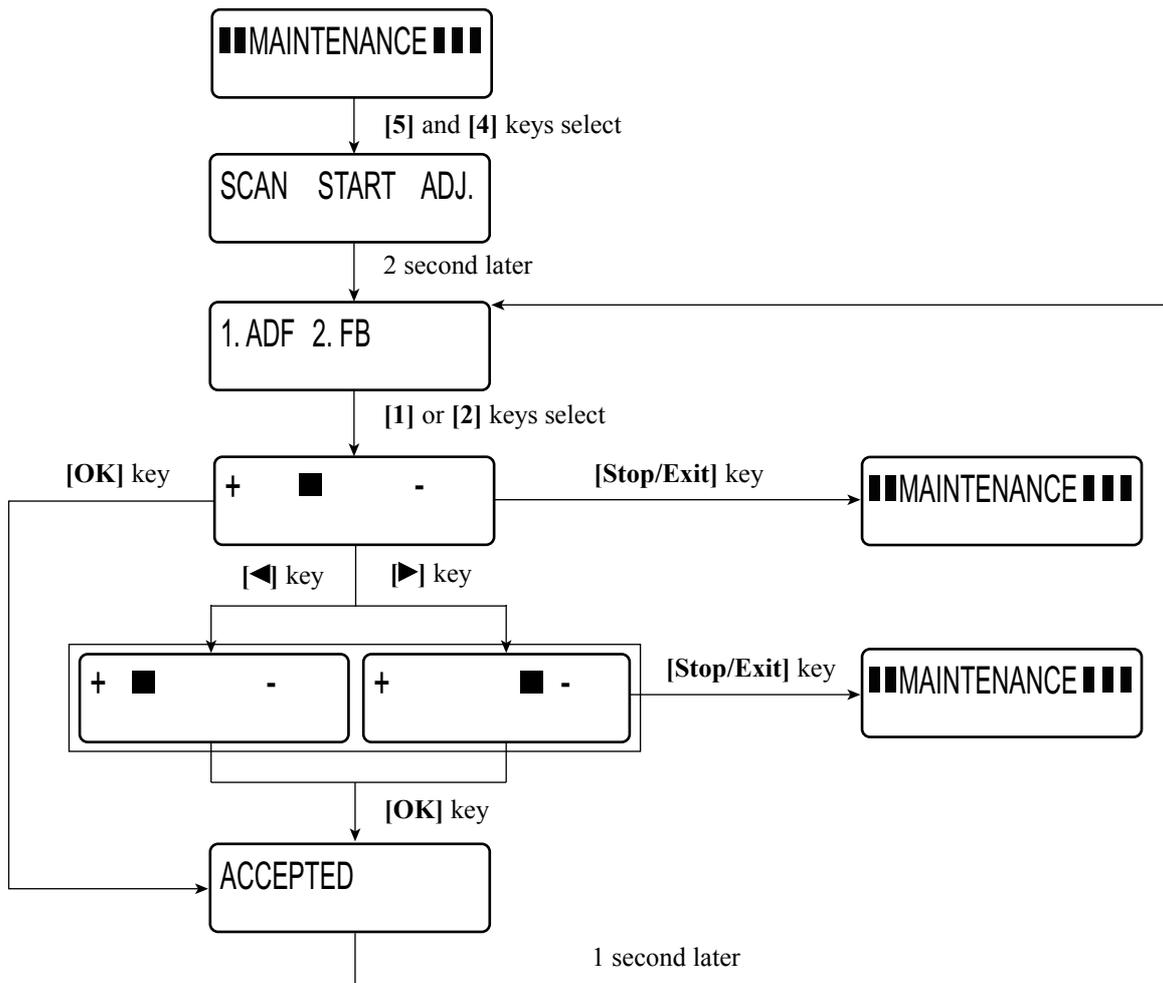


Fig. 8-12



Fig. 8-13

8.4.12 Acquisition of White Level Data and CCD Scanner Area Setting (Function code 55)

Function

This function allows the machine to obtain white level data for the CCD scanner and save it together with the CCD scanner area into the EEPROM on the main PCB.

Operating Procedure

- (1) Press the **[5]** key twice in the initial stage of the maintenance mode.
The “SCANNER AREA SET” will appear on the LCD.
- (2) When setting of the scanner area is completed, a 4-digit number will appear on the LCD.
(e.g., 4723)

* If you press the **[Stop/Exit]** key at this point, the machine will return to the maintenance initial stage of the maintenance mode.

Based on this 4-digit number and referring to the input data specified in the table, input its corresponding 5-digit data value (input data). (e.g., 4723? 47247)

- (3) Save the magnification compensation setting value in the EEPROM, and then return to the initial stage of the maintenance mode.

<Input data for magnification compensation after performing Maintenance mode 55>

	Maintenance mode 55 required input data				Input data
1	4610	---	4619	→	46156
2	4620	---	4629	→	46257
3	4630	---	4639	→	46358
4	4640	---	4649	→	46459
5	4650	---	4659	→	46550
6	4660	---	4669	→	46651
7	4670	---	4679	→	46752
8	4680	---	4689	→	46853
9	4690	---	4699	→	46954
10	4700	---	4709	→	47056
11	4710	---	4719	→	47157
12	4720	---	4729	→	47247
13	4730	---	4739	→	47359
14	4740	---	4749	→	47450
15	4750	---	4759	→	47551
16	4760	---	4769	→	47652
17	4770	---	4779	→	47753
18	4780	---	4789	→	47854
19	4790	---	4799	→	47955
20	4800	---	4809	→	48057
21	4810	---	4819	→	48158
22	4820	---	4829	→	48259
23	4830	---	4839	→	48350

8.4.13 Paper Feeding and Ejecting Test (Function code 67)

Function

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

Operating Procedure

- (1) Press the **[6]** and **[7]** keys in this order in the initial stage of the maintenance mode.
The “SELECT: TRAY1” will appear on the LCD. Press the **[OK]** key.
The “PAPER FEED TEST” will appear on the LCD.
The test printing is started, and the grid pattern is printed.
- (2) To return the machine to the initial stage of the maintenance mode, press the **[Stop/Exit]** key.

NOTE: In the case that the front cover is opened, or that there is no paper in the tray during test printing, the test printing is stopped.

8.4.14 EEPROM Customizing (Function code 74)

Function

This function allows you to customize the EEPROM according to language, function settings, and firmware switch settings. The customizing codes list is given in [Appendix 3](#).

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

Operating Procedure

- (1) Press the **[7]** and **[4]** keys in this order in the initial stage of the maintenance mode.
The current customizing code (e.g., 0002 in the case of DCP-8060 Canada model) appears.
- (2) Enter the desired customizing code (e.g., 0001 in the case of DCP-8060 U.S.A. model).
The newly entered code appears.
To enter letters “A” through “F”, press the **[1]** through **[6]** keys while holding down the **[#]** key respectively.

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

- (3) Press the **[Start]** key.
The machine saves the setting and appears the “PARAMETER INIT” on the LCD.
The machine returns to the initial stage of the maintenance mode.
If you press the **[Stop/Exit]** key or no keys are pressed for one minute in the above procedure, the machine stops the procedure and returns to the initial stage of the maintenance mode.

8.4.15 Display of the Equipment's Log Information (Function code 80)

Function

The equipment may display its log information on the LCD.

Operating Procedure

- (1) Press the **[8]** and **[0]** keys in this order in the initial stage of the maintenance mode. The USB serial number appears on the LCD.
- (2) Press the **[Start]** key. Each time the **[Start]** key is pressed, one of the following log information items appears on the LCD in the order. The representative items are given below.
 - 1) Jam count, indicating how many times a paper jam has been occurred
 - 2) Page count, indicating how many pages the photosensitive drum has been printed
 - 3) Total page count, indicating how many pages the equipment has been printed since produced
 - 4) Drum count, indicating how many times the photosensitive drum has been rotated
 - 5) Drum change count, indicating how many times drum replacement has been made
 - 6) Toner change count, indicating how many times toner replacement has been made
 - 7) Copy page count, indicating how many copies have been made
 - 8) PC print page count, indicating how many pages the equipment has been printed as an output device of the connected PC
 - 9) FAX page count, indicating how many received FAX pages have been printed
 - 10) Error code of the most recent machine error ^{*1}
 - 11) Error code of the most recent communications error ^{*2}
 - 12) ADF jam count, indicating how many times a document jam has been occurred
 - 13) ADF page count, indicating how many documents have been fed
- (3) To stop this operation and return to the equipment to the initial stage of the maintenance mode, press the **[Stop/Exit]** key.
 - *1 When you press the **[OK]** key while the MACHINE ERR error code is displayed, the last error code is displayed. Each time the **[OK]** key is pressed, up to the ten error codes are displayed one by one in reverse order.
 - *2 When you press the **[OK]** key while the COMEER1 error is displayed, the last error, the previous error, and the second previous error are displayed in turn. The indication changes from COMEER1, COMEER2, to COMEER3.

USB	USB Serial No.
DRUM	Drum counter
COVERAGE *3	Average black coverage
TTL_PG	Total number of pages printed
COPY	Number of copies made
PC PRINT	Number of PC prints made
FAX/LIST *1	Number of FAX outputs made
TR1_PG	Number of pages picked up from the paper tray1
TR2_PG	Number of pages picked up from the paper tray2
MP_PG	Number of pages picked up from the MP tray
DX_PG *2	Number of pages picked up from the DX tray
A4+LTR	Number of A4/Letter size sheets picked up
LG+A4L	Number of Legal/A4-Long size sheets picked up
B5+EXE	Number of B5/Executive size sheets picked up
ENVLOP	Number of envelopes picked up
A5	Number of A5 size sheets picked up
OTHER	Number of other-size sheets picked up
TTL_JAM	Total number of jams
TR1_JAM	Number of jams that occurred at the paper tray1
TR2_JAM	Number of jams that occurred at the paper tray2
MP_JAM	Number of jams that occurred at the MP tray
DX_JAM *2	Number of jams that occurred at the DX tray
IN_JAM	Number of jams that occurred at the feeding
RE_JAM	Number of jams that occurred at the ejecting
DRUM_CH	Number of times the drum has been replaced
DRUM_PG	Number of pages printed by a drum
TNER_CH	Number of times the toner cartridge has been replaced
TNER_PG1	Number of pages printed with the current toner cartridge
TNER_PG2	Number of pages printed with the previous toner cartridge
DEV_BIAS	Current bias voltage
MACHINE_ERR_01 to 10	Last machine error code 01 to 10
ADF_JAM *2	Number of document jams that occurred at the ADF
ADF_PG *2	Number of scanned pages from the ADF
FB_PG	Number of scanned pages from the FB
COMERR1 to 3	Last communication error code 1 to 3

*1: For MFC-8460N/8860DN/8870DW, "FAX" is displayed. For DCP-8060/8065DN, "LIST" is displayed.

*2: For MFC-8460N and DCP-8060, "LIST" is displayed, but number of pages or jams is not counted.

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

8.4.16 Machine Error Code Indication (Function code 82)

Function

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

Operating Procedure

- (1) Press the **[8]** and **[2]** keys in this order in the initial stage of the maintenance mode.
The LCD shows the "MACHINE ERROR X X."
- (2) Press the **[Stop/Exit]** key. Return to the initial stage of the maintenance mode.

8.4.17 Output of Transmission Log to the Telephone Line (Function code 87) (Not applicable to DCP-8060/8065DN.)

Function

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

Operating Procedure

- (1) If the user's machine has a transmission-related problem, call the user's machine at a remote location from your machine.
- (2) If the line is connected, have the user perform the following:
 - 1) Hook up to the external phone.
 - 2) Press the **[Menu]**, **[Start]**, **[Menu]**, **[Start]** keys in this order.
 - 3) Press the **[8]** and **[7]** keys.
The above operation makes the user's machine send CNG to your machine for sending the transmission log.
- (3) If you hear the CNG sent from the user's machine, press the **[Start]** key of your machine. Your machine will start to receive the transmission log from the user's machine.

8.4.18 Counter Reset After Replacing the Fuser Unit, Laser Unit and Paper Feed 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, laser unit and paper feed Kit (MP, T1, T2).

Operating Procedure

- (1) Press the **[8]** and **[8]** keys in this order in the initial stage of the maintenance mode.
- (2) The LCD shows the “Parts Replacement”.
- (3) Press the **[▼]** or **[▲]** key to select the item you want to reset. The LCD shows.
“Reset Fuser ?”
“Reset Laser ?”
“Reset PF KIT MP ?”
“Reset PF KIT T1 ?”
“Reset PF KIT T2 ?”
- (4) Press the **[OK]** or **[Start]** key to reset the counter of the selected part. The machine returns to the initial stage of the maintenance mode.
- (5) When pressing the **[Stop]** key after Step (2), the machine returns to the standby status of the maintenance mode. At this time, the drum counter and page counter are not reset.

8.4.19 Cancellation of the Memory Security Mode (Not applicable to DCP-8060/8065DN and the Japanese model.)

Function

This procedure can cancel the memory security mode. Use this procedure if the user forgets his/her password entered when setting the memory security mode so as not to exit from the memory security mode.

NOTE: Carrying out this procedure will lose passwords previously entered but retain FAX messages received in the memory security mode.

Operating Procedure

- (1) When the SECURE MODE is displayed on the LCD, press the **[Menu]** key and **[#]** key together. Within two seconds, start to press the **[2]**, **[7]**, **[9]**, **[0]** and **[0]** keys. The memory security mode will be canceled and the machine returns to the calendar clock screen.

8.5 OTHER SERVICE FUNCTION

8.5.1 Resetting the Developing Bias Voltage Counter

Function

Since print density is likely to become darker as the toner gets older, the developing bias is lowered by degrees (bias voltage is reduced) according to the number of develop roller rotations so that an almost fixed density can be maintained from the beginning to the end. The developing bias voltage can be verified in the display of log information (maintenance-mode function code 80 in [Section 8.4.15](#)).

Operating Procedure

- (1) Open the front cover.
- (2) Press the **[Clear/Back]** button. "Replace Drum? / 1. Yes 2. No" appears on the LCD.
- (3) Press the **[*]**, **[0]** and **[0]** keys in this order.
- (4) Close the front cover.

CHAPTER 9

ERROR INDICATION AND TROUBLESHOOTING

CHAPTER 9 ERROR INDICATION AND TROUBLESHOOTING

This chapter details error messages and codes that the incorporated self-diagnostic functions display if any error or malfunction occurs. If any error message appears, refer to this chapter to find which components should be checked or replaced.

The latter half of this chapter provides sample problems that could occur in the main sections of the machine and related troubleshooting procedures. This will help service personnel pinpoint and repair defective components.

CONTENTS

9.1	ERROR INDICATION	9-1
9.1.1	Equipment Errors.....	9-1
9.1.1.1	Error messages appearing on the LCD.....	9-1
9.1.1.2	Error codes shown in "MACHINE ERROR <u>X</u> <u>X</u> " messages	9-4
9.1.2	Communications Errors	9-12
9.2	TROUBLESHOOTING	9-16
9.2.1	Introduction	9-16
9.2.2	Precautions	9-16
9.2.3	Checking Prior to Troubleshooting	9-16
9.2.4	Troubleshooting Based on Problem Type	9-17
9.2.4.1	Paper feeding problems.....	9-17
9.2.4.2	Software setting problems	9-19
9.2.4.3	Malfunction.....	9-22
9.2.4.4	Image defects	9-28
9.2.4.5	Incorrect printout.....	9-48
9.2.4.6	Network problem.....	9-50
9.2.4.7	Troubleshooting of the control panel	9-57
9.2.4.8	Troubleshooting of fax functions.....	9-59

9.1 ERROR INDICATION

To help the user or the service personnel promptly locate the cause of a problem (if any), the facsimile equipment incorporates the self-diagnostic functions which display error messages for equipment errors and communications errors.

For the communications errors, the equipment also prints out the transmission verification report and the communications list.

9.1.1 Equipment Errors

If an equipment error occurs, the facsimile equipment emits an audible alarm (continuous beeping) for approximately 4 seconds and shows the error message on the LCD. For the error messages, see [1] below.

To display detailed error information, use maintenance-mode function code 82 described in [Chapter 8, Section 8.4.16](#) (that is, make the equipment enter the maintenance mode and then press the [8] and [2] keys). Following the MACHINE ERROR, one of the error codes listed in [2] will appear on the LCD.

9.1.1.1 Error messages appearing on the LCD

ERROR MESSAGE	CAUSE	ACTION
Cover Open	The front or the back cover is not closed completely.	Close the front or the back cover of the machine.
Drum Near End	The drum unit is near the end of its life.	Use the drum unit until you have a print quality problem; then replace the drum unit with a new one.
Comm. Error	Poor phone line quality caused a communication error.	Send the fax again or connect the machine to another telephone line. If the problem continues, call the telephone company and ask them to check your phone line.
Connection Fail	You tried to poll a fax machine that is not in Polled Waiting mode.	Check the other fax machine's polling setup.
Cooling Down Wait For a While	The temperature of the drum unit or toner cartridge is too hot. The machine will pause its current print job and go into cooling down mode. During the cooling down mode, you will hear the cooling fan running while the LCD shows "Cooling Down", and "Wait For a While".	Make sure that you can hear the fan in the machine spinning and the exhaust outlet isn't blocked by something. If the fan is spinning, remove any obstacles that surround the exhaust outlet, and then leave the machine turned on but do not use it for several minutes. If the fan is not spinning follow the suggestions below. Turn off the machine's power switch and then turn it on again. If the error message continues leave the machine for several minutes and then try it again. (The machine can be turned off for up to 4 days without losing faxes stored in the memory.)

ERROR MESSAGE	CAUSE	ACTION
Document Jam	The document was not inserted or fed properly, or the document scanned from the ADF was too long.	Remove the document in the ADF.
Data Remaining	Print data is left in the machine's memory.	Re-start printing from your computer.
	Print data is left in the machine's memory. The interface cable was unplugged while the computer was sending the data to the machine.	Press [Job Cancel] key. If the data which is being created (whose pages are not created entirely) is remained in the memory, the machine ejects the data. Try to print again.
Disconnected	The other person or other person's fax machine stopped the call.	Try to send or receive again.
Dust on Drum	The primary corona wire on the drum unit needs to be cleaned.	Clean the primary corona wire on the drum unit.
		Clean the electrodes of the main body and drum unit. (Refer to [4] " Location of ground contacts " in this Chapter.)
DR Mode in Use	The machine is set to Distinctive Ring mode. You can not change the Receive Mode from Manual to another mode.	Set Distinctive Ring to Off.
Fuser Error	The fuser unit is too hot.	Turn off the machine's power switch, and check the machine's environment. If it is in a location that is too hot or too cold, try to cool or warm the room by turning on the air conditioner or heater. Or change the location. Then, turn on the machine's power switch. (The machine can be turned off for up to 4 days without losing faxes stored in the memory.)
Duplex disabled	The duplex tray is not installed properly.	Remove the duplex tray and install it again.
No Paper	The machine is out of paper or paper is not properly loaded in the paper tray.	Do one of the following: - Refill the paper in the paper tray or MP tray. - Remove the paper and load it again.
No Tray	The machine has no tray1, tray2 or MP tray.	Put the paper tray in the machine.
No Response/Busy	The number you dialed does not answer or is busy.	Verify the number and try again.
Not Registered	You tried to access a One-Touch or Speed Dial number that is not programmed.	Set up the One-Touch or Speed Dial number.

ERROR MESSAGE	CAUSE	ACTION
Out of Memory	The machine's memory is full.	<p><Fax sending or copy operation in progress></p> <p>Do one of the following:</p> <ul style="list-style-type: none"> - Press [Start] key to send or copy the scanned pages. - Press [Stop/Exit] key and wait until the other operations in progress finish and then try again. - Clear the data from the memory. <p><Printing operation in process></p> <p>Do one of the following:</p> <ul style="list-style-type: none"> - Reduce print resolution. - Clear the faxes from the memory.
Paper Jam Duplex	The paper is jammed in the duplex tray.	Remove the jammed paper.
Paper Jam Inside	The paper is jammed inside the machine.	Remove the jammed paper.
Paper Jam Rear	The paper is jammed in the rear of the machine.	Remove the jammed paper.
Paper Jam Tray1 Paper Jam Tray2 Paper Jam MP Tray	The paper is jammed in the paper tray of machine.	Remove the jammed paper.
Scanner Locked	The scanner lock is locked.	Open the document cover, and then release the scanner lock lever.
Toner Life End	The toner cartridge and drum unit assembly is not installed properly, or the toner cartridge is used up and printing is not possible.	<p>Do one of the following:</p> <ul style="list-style-type: none"> - Re-install the toner cartridge and drum unit assembly. - Replace the toner cartridge with a new one.
Toner Low	If the LCD shows "Toner Low", you can still print, however, the machine is telling you that the toner cartridge is near the end of its life and the toner will soon run out.	Order a new toner cartridge now.
Unable to Init. (Initialize) Unable to Print Unable to Scan	The machine has a mechanical problem.	Turn off the machine's power switch and then turn it on again. If the error message continues leave the machine for several minutes and then try it again. (The machine can be turned off for up to 4 days without losing faxes stored in the memory.)
Wrong Paper Size	Paper is not the correct size.	Load the correct size of paper (Letter, Legal, A4 or Folio) and then set the "Paper size" ([Menu] , [1] , [3] keys) and "Tray Use in Fax Mode" ([Menu] , [1] , [7] , [2] keys).

9.1.1.2 Error codes shown in the "MACHINE ERROR X X" message

Error Code (Hex)	Symptom	Probable Cause	Solution
56	The fuser cover is opened.	The ejection sensor is ON while no operation is performed.	Set the ejection actuator into place.
			Replace relay rear PCB ASSY.
			Replace the main PCB.
57	Duplex jam	Foreign materials in the DX feed ASSY	Remove foreign materials.
		Main PCB defective	Replace the main PCB.
		Ejector solenoid defective	Replace ejector solenoid.
		Duplex reverse gear damaged	Replace the frame L.
58	After the fuser unit error occurs, a message saying to wait 10 minutes appears on the LCD.	Some kind of error on the fuser unit	Wait 10 minutes.
59	Although 10 minutes have passed after the error 58 was displayed, the fuser unit error is not resolved.	Fuser unit defective	Replace the fuser unit.
			Replace the power supply PCB.
			Replace the main PCB.
5A	High-voltage power supply PCB malfunction	High-voltage power supply PCB malfunction	Replace the high-voltage power supply PCB.
5B	New toner sensor lever error (New toner sensor stays on)	New toner actuator lever broken	Replace the new toner actuator.
		New toner sensor defective	Replace the new toner sensor.
		Main PCB defective	Replace the main PCB.
5C	Optional lower tray (LT-5300) error	Two or more optional lower trays are installed.	Install one optional lower tray.
5D	Duplex printing cannot be implemented.	The DX tray sensor is OFF.	Reinsert and adjust the harness of the Relay rear PCB ASSY.
			Replace the back cover.
			Replace the relay rear PCB ASSY.
			Replace the main PCB.
5E-5F	Not used.		
60	The ejection tray is full.	The ejection tray sensor is ON.	Replace the joint cover ASSY.
			Replace the main PCB.
61-67	Not used.		
68	Side thermistor high temperature error	Side thermistor short circuit	Replace the fuser unit.

Error Code (Hex)	Symptom	Probable Cause	Solution
69	Side thermistor low temperature error	Side thermistor break	Replace the fuser unit.
6A	Heater warming-up timeout error. (Heater does not reach 60 °C within 12 second.)	Thermistor defective	Replace the fuser unit.
		Main PCB defective	Replace the main PCB.
		Power supply PCB defective	Replace the power supply PCB.
6B	Heater warming-up timeout error. (Heater does not reach 100 °C within 9 second.)	Thermistor defective	Replace the fuser unit.
		Halogen lamp defective	
		Main PCB defective	Replace the main PCB.
		Power supply PCB defective	Replace the power supply PCB.
6C	Heater temperature exceeds the maximum high temperature. (270°C or more is detected for 1sec.)	Thermistor defective	Replace the fuser unit.
		Main PCB defective	Replace the main PCB.
		Power supply PCB defective	Replace the power supply PCB.
6D	Not used.		
6E	Heater temperature does not go up enough.	Halogen lamp defective	Replace the fuser unit.
		Power supply PCB defective	Replace the power supply PCB.
6F	Heater hard limiter operates	Thermistor defective	Replace the fuser unit.
		Power supply PCB defective	Replace the power supply PCB.
70	Not used.		
71	Scanner motor does not synchronize with the reference clock.	Laser unit defective	Replace the laser unit.
		Main PCB defective	Replace the main PCB.
72	Cannot detect Beam Detect signal.	Laser unit defective	Replace the laser unit.
		Main PCB defective	Replace the main PCB.
73	Not used.		
74	Toner empty	Toner sensor defective	Replace the toner sensor.
		Main PCB defective	Replace the main PCB.
75	In casing temperature error.	In casing temperature sensor defective	Replace the in casing temperature sensor.
		Main PCB defective	Replace the main PCB.

Error Code (Hex)	Symptom	Probable Cause	Solution
76	The temperature of the fuser unit is too high.	Thermistor defective	Replace the fuser unit.
		Main PCB defective	Replace the main PCB.
		Power supply PCB defective	Replace the power supply PCB.
77	The power supply is turned off when the error 76 or 78 occurs.	---	---
78	The temperature of the fuser unit does not rise.	Poor connection in the harness of the thermistor	Reinsert and adjust the harness of the thermistor.
		Halogen lamp defective	Replace the fuser unit.
		Thermistor defective	
		Main PCB defective	Replace the main PCB.
		Power supply PCB defective	Replace the power supply PCB.
7A	Main motor does not synchronize with the reference clock.	Main PCB defective	Replace the main PCB.
		Main motor defective	Replace the main motor.
7B, 7C	Not used.		
7D	Dirt in the corona wire.	Corona wire is dirty.	Cleaning the corona wire.
			Clean the electrodes of the main body and drum unit. (Refer to [4] “Location of ground contacts” in this Chapter.)
7E, 7F	Not used.		
80	At the start of FAX message printing, the controller detects that paper is smaller than A4 size in width.	Regist sensor actuator does not move smoothly.	Set the regist sensor actuator into place.
		Main PCB defective	Replace the main PCB.
81, 82	Not used.		

<The solution when Error Code 76, 77, 78 shown in the machine>

The heater may be overheating when these kinds of error occur. Therefore, the heater is programmed to turn off the power for 10 minutes after the switch is on for the safety concern when the error occurs.

To help the heater work properly, it's necessary to follow the operating procedures as below after taking measures against the cause of the error.

1. Turn off the switch. Wait until the temperature of the heater lowers enough.
2. Turn on the switch.
3. Either display the maintenance mode then returns to the initial original maintenance mode, or keep the power on for 10 minutes under inspection.

Error Code (Hex)	Symptom	Probable Cause	Solution
83	Recording paper jam. (The registration sensor comes ON too early in the paper feeding operation.)	Separation pad damaged	Replace the separation pad ASSY.
		Registration sensor actuator does not move smoothly.	Set the registration sensor actuator into place.
84	Recording paper jam. (The ejection sensor stays ON after completion of paper ejection operation.)	Foreign materials in the paper path	Remove foreign materials.
		The paper ejection roller does not rotate correctly.	Replace the paper ejection roller.
		Ejection sensor actuator does not move smoothly.	Set the ejection sensor actuator into place.
		Ejection sensor defective	Replace the relay rear PCB ASSY.
		Main PCB defective	Replace the main PCB.
85	No paper tray1 loaded.	PE PG sensor defective	Replace the PE PG sensor.
		Main PCB defective	Replace the main PCB.
86	No paper tray2 loaded.	PE PG sensor of LT defective	Replace the PE PG sensor of LT.
		Main PCB defective	Replace the main PCB.
87	Not used.		
88	Recording paper jam. (Even after paper pulling-in operation, the regist rear sensor is still OFF.)	Foreign materials in the machine	Remove foreign materials in the machine.
		Regist actuator rear does not move smoothly.	Set the regist actuator rear into place.
		Fuser unit defective	Replace the fuser unit.
		Breakage of the gear in the frame L ASSY	Replace the frame L ASSY.
		Regist rear sensor defective	Replace the high-voltage PS PCB.
		PE PG sensor defective	Replace the PE PG sensor.
		Main PCB defective	Replace the main PCB.
89	Not used.		

Error Code (Hex)	Symptom	Probable Cause	Solution
8A	Jam tray2	The paper trays T1 and T2 are mounted oppositely.	Switch the paper trays T1 and T2.
		Foreign materials between the tray and front registration sensor	Remove foreign materials.
		PF roller defective	Replace the PF roller.
		Separation pad ASSY defective	Replace the separation pad ASSY.
		T2 solenoid defective	Replace the T2 solenoid
		Regist actuator front does not move smoothly.	Set the regist actuator front into place.
		Regist actuator front defective	Replace the regist actuator front.
		Regist front sensor defective	Replace the high-voltage PS PCB.
		Main PCB defective	Replace the main PCB.
8B	Jam tray1	Foreign materials between the tray and front registration sensor	Remove foreign materials.
		PF roller defective	Replace the PF roller.
		Separation pad ASSY defective	Replace the separation pad ASSY.
		T1 solenoid defective	Replace the T1 solenoid.
		Regist actuator front does not move smoothly.	Set the regist actuator front into place.
		Regist actuator front defective	Replace the regist actuator front.
		Regist front sensor defective	Replace the high-voltage PS PCB.
		Main PCB defective	Replace the main PCB.
8C	Jam MP tray	MP tray defective	Replace the MP tray.
		PF roller defective	Replace the PF roller.
		Separation pad ASSY defective	Replace the separation pad ASSY.
		MP solenoid defective	Replace the MP solenoid.
		Regist actuator front does not move smoothly.	Set the regist actuator front into place.
		Regist actuator front defective	Replace the regist actuator front.
		Regist front sensor defective	Replace the high-voltage PS PCB.
		Main PCB defective	Replace the main PCB.
8D-A0	Not used.		

Error Code (Hex)	Symptom	Probable Cause	Solution
A1	Front cover opened.	Hook of the front cover sensor on the front cover broken.	Replace the front cover.
		Front cover sensor defective	Replace the front cover sensor.
A2	Document length exceeding the scan limitation. During scanning, 90 cm or longer of a document is detected. During document feeding or ejecting, 400 cm or longer of a document is detected.	Document jam	Remove the jammed document.
		Document rear sensor actuator does not move smoothly.	Set the document rear sensor actuator into place.
A3	The document rear sensor does not come ON during document pull-in operation.	Document jam	Remove the jammed document.
		Document rear sensor actuator does not move smoothly.	Set the document rear sensor actuator into place.
		Document rear sensor broken	Replace the document rear sensor.
A4	Not used.		
A5	FAX scanning failure. (1st time)	White-level reference film stained in the scanner cover	Replace the scanner cover (scanner unit).
A6	FAX scanning failure. (retry)		
		CCD unit defective	Replace the CCD unit.
		Main PCB defective	Replace the main PCB.
A7-A9	Not used.		
AA	The document cover is opened when the ADF is used.	Document cover sensor defective	Replace the document cover sensor.
AB	Not used.		
AC-AE	Not used.		
AF	The scanner is locked.	Scanner lock lever defective	Replace the scanner lock lever.
		Driver PCB defective	Replace the driver PCB.
B0	Not used.		
B1	Dark level offset data level error for scanning.	Scan level error	Execute the maintenance mode 55.
		CCD unit defective	Replace the CCD unit.
		Main PCB defective	Replace the main PCB.
B2	Gain control data level error for scanning.	Scan level error	Execute the maintenance mode 55.
		CCD unit defective	Replace the CCD unit.
		Main PCB defective	Replace the main PCB.

Error Code (Hex)	Symptom	Probable Cause	Solution
B3	Scan area left edge detection error.	Black markings on the white-level reference film inside the scanner top cover.	Clean the white-level reference film.
		CCD unit defective	Replace the CCD unit.
		Main PCB defective	Replace the main PCB.
B4	Scan area right edge detection error.	Black markings on the white-level reference film inside the scanner top cover.	Clean the white-level reference film.
		CCD unit defective	Replace the CCD unit.
		Main PCB defective	Replace the main PCB.
B5	Horizontal scanning edge reduction detection error in scanning area setting	Black markings on the white-level reference film inside the scanner top cover.	Clean the white-level reference film.
		CCD unit defective	Replace the CCD unit.
		Main PCB defective	Replace the main PCB.
B6	Horizontal scanning edge enlargement detection error in scanning area setting	Black markings on the white-level reference film inside the scanner top cover.	Clean the white-level reference film.
		CCD unit defective	Replace the CCD unit.
		Main PCB defective	Replace the main PCB.
B7-BA	Not used.		
BB	White level data error	Scan level error	Execute the maintenance mode 55.
		CCD unit defective	Replace the CCD unit.
		Main PCB defective	Replace the main PCB.
BC	Not used.		
BD	Black level data error	Scan level error	Execute the maintenance mode 55.
		CCD unit defective	Replace the CCD unit.
		Main PCB defective	Replace the main PCB.
BE	Scan starting edge detection error	Black markings on the white-level reference film inside the scanner top cover.	Clean the white-level reference film.
		CCD unit defective	Replace the CCD unit.
		Main PCB defective	Replace the main PCB.

Error Code (Hex)	Symptom	Probable Cause	Solution
BF	Duplex scanning cannot be implemented due to too long document	Document front sensor 2 defective	Replace the document front sensor 2.
		Main PCB defective	Replace the main PCB.
C1-CF	Not used.		
D0-DF	Modem error	Main PCB defective	Replace the main PCB.
E0-E5	Not used.		
E6	Write error in EEPROM	Main PCB defective	Replace the main PCB.
E7	Not used.		
E8	Data scanning error during transmission.	CCD unit defective	Replace the CCD unit.
		Main PCB defective	Replace the main PCB.
E9	Not used.		
EA	Document removed at phase B.	Document front sensor actuator does not move smoothly.	Set the document front sensor actuator into place.
		ADF relay PCB defective	Replace the ADF relay PCB.
		Document front sensor defective	Replace the document front sensor.
		Main PCB defective	Replace the main PCB.
EB-FF	Not used.		

9.1.2 Communications Errors

If a communications error occurs, the facsimile equipment

- (1) emits an audible alarm (intermittent beeping) for approximately 4 seconds,
- (2) displays the corresponding error message, and
- (3) prints out the transmission verification report if the equipment is in sending operation.

■ Definition of error codes on the communications list

(1) Calling

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

* Available in German models only.

(2) Command reception

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

(3) Compatibility [checking the NSF and DIS]

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

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

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

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

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

(6) ID checking

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

(7) DCN reception

Code 1	Code 2	Causes
74		DCN received.

(8) TCF transmission/reception

Code 1	Code 2	Causes
80	01	Fallback impossible.

(9) Signal isolation

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

(10) Video signal reception

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

* Available in German models only

(11) General communications-related

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

* Establishment of FAX communication:

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

(12) Maintenance mode

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

(13) Equipment error

Code 1	Code 2	Causes
FF	<u>X</u> <u>X</u>	Equipment error (For <u>X</u> <u>X</u> , refer to Section 9.1.1.2.)

9.2 TROUBLESHOOTING

9.2.1 Introduction

This section gives the service personnel some of the troubleshooting procedures to be followed if an error or malfunction occurs with the facsimile equipment. It is impossible to anticipate all of the possible problems which may occur in future and determine the troubleshooting procedures, so this section covers some sample problems. However, those samples will help service personnel pinpoint and repair other defective elements if he/she analyzes and examines them well.

9.2.2 Precautions

Be sure to observe the following to prevent the secondary troubles from happening:

- (1) Always unplug the AC power cord from the outlet when removing the covers and PCBs, adjusting the mechanisms, or conducting continuity testing with a circuit tester.
- (2) When disconnecting the connectors, do not pull the lead wires but hold the connector housings.
- (3) Before handling the PCBs, touch a metal portion of the machine to discharge static electricity charged in your body.
When repairing the PCBs, handle them with extra care.

After repairing the defective section, be sure to check again if the repaired section works correctly. Also record the troubleshooting procedure so that it would be of use for future trouble occurrence.

9.2.3 Checking Prior to Troubleshooting

Prior to proceeding to the troubleshooting procedures given in [Section 9.2.4](#), make the following initial checks:

Environmental conditions

Check that:

- (1) The machine is placed on a flat, firm surface.
- (2) The machine is used in a clean environment at or near normal room temperature (10°C to 32.5°C) with normal relative humidity (20 to 80%).
- (3) The machine is not exposed to direct sunlight or harmful gases.

Power requirements

Check that:

- (1) The power supply specified on the rating plate on the machine is used. The supply voltage stays within the rating $\pm 10\%$.
- (2) Each voltage level on AC input lines and DC lines are correct.
- (3) All cables and harnesses are firmly connected.
- (4) None of the fuses are blown.

Recording paper

Check that:

- (1) A recommended type of recording paper is used.
- (2) The recording paper is not dampened.

Drum unit

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

9.2.4 Troubleshooting Based on Problem Type

9.2.4.1 Paper feeding problems

Even if the paper is printed and ejected without any problems such as paper jams, paper feeding problems below may appear.

Users can clear these problems by following the ‘User Check’ items for each problem. Even if the same problem occurs again, follow the procedures in the table below.

(1) Double feeding

 User Check Check the paper used meets the recommended paper specifications. (Refer to 2.1.2 “Paper Specifications” in Chapter 2.)
--

Possible cause	Step	Check	Result	Remedy
Separation pad	1	Is the surface of the separation pad worn out?	Yes	Replace the separation pad.

(2) Wrinkles or creases

 User Check (1) Check that paper is loaded into the paper tray correctly. (2) Check the paper used meets the recommended paper specifications. (Refer to 2.1.2 “Paper Specifications” in Chapter 2.) (3) Try printing using the straight-through output path. (4) Turn over the stack of paper in the tray or try rotating the paper 180° in the tray. (5) For the envelope, check the setting of the nip action in the fuser unit.
--

Possible cause	Step	Check	Result	Remedy
Paper	1	Is the problem solved if new paper is used?	Yes	Instruct the user how to store paper so that it does not absorb moisture.
Fuser unit entrance guide	2	Is the entrance guide dirty?	Yes	Clean the entrance guide.
Fuser unit	3	Is the pressure roller dirty?	Yes	Clean the pressure roller.
			No	Replace the fuser unit.

(3) Page skew

 **User Check**

- (1) Check that the paper or other media is loaded into the paper tray correctly and that the paper guides are not too tight or too loose against the paper stack.
- (2) If using the manual feed slot, check how to load paper into the manual feed slot correctly.
- (3) The paper tray may be too full. Load paper below ▼ mark in depth.
- (4) Check the paper used meets the recommended paper specifications. (Refer to 2.1.2 “Paper Specifications” in Chapter 2.)
- (5) Check that the levers on the left and right hand sides for the nip action in the fuser unit are nipped equally.

(4) Curl or Wave

 **User Check**

- (1) Check the paper used meets the recommended paper specifications. Both high temperature and humidity will cause paper to curl.
- (2) If the machine is used infrequently, the paper may have sat for too long in the paper tray. Turn over the stack of paper in the paper tray. Also, try rotating the paper 180° in the paper tray.
- (3) Check that the paper used meets the Media Type setting in the driver.

NOTE: For no paper supplied as the cause of a malfunction, see ‘(4) No paper supplied’ in ‘9.2.4.3 Malfunctions’ in this Chapter.

(5) Prints only single side of the paper when duplex-printing

 **User Check**

Check the size of the paper used meets the recommended paper specifications (A4 or Letter, Legal).

(6) Paper pickup

Possible cause	Step	Check	Result	Remedy
Disconnection of the pickup solenoid harness	1	Is the harness of the pickup solenoid disconnected?	Yes	Reconnect the harness.
Pickup solenoid harness failure	2	Does the harness of the pickup solenoid work correctly?	No	Replace the harness of the pickup solenoid.
Pressure plate gear damage	3	Is the pressure plate gear damaged?	Yes	Replace the pressure plate gear.
Clutch gear damage	4	Is the clutch gear damaged?	Yes	Replace the gear unit.

9.2.4.2 Software setting problems

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

- (1) “There was an error writing to LPT1: (or BRUSB) for the machine ” error message appears.

✔ User Check

- (1) Check that the machine cable is not damaged or broken. Check also that the cable is connected to the correct interface connectors of both the machine and PC.
- (2) Check that the correct machine is selected if you have an interface switching device.
- (3) Check that the appropriate printer driver is selected as ‘Set as Default’. Check also that the correct print port is set for the selected printer driver.
- (4) Check that the machine is not connected to the same port which is also connected to a mass storage device or scanner. Remove all other devices and connect the port to the machine only. Turn off the printer status monitor in the device options tab in the printer driver.
- (5) If the print port is set as an ECP port, change it to a normal port.
- (6) Try printing the test page referring to [8.4.5 ‘Test Pattern 1’ in chapter 8.](#)
- (7) Try resetting the factory settings.

Possible cause	Step	Check	Result	Remedy
Failure inside the machine	1	Is it possible to print the test page with the method?	No	Identify the error type, then refer to the specified section of this chapter.
Main PCB failure	2	Is it possible to print with another PC and machine cable?	No	Replace the main PCB.
			Yes	This problem may appear under the specified system environment. Check the environment which the user used.

(2) Although the USB driver is installed, it is unable to find the BRUSB: port.
(Windows98/Me only)

<p> User Check</p> <p>(1) Re-install the USB driver by following the steps below;</p> <ul style="list-style-type: none"> i) Turn the machine off. ii) Double-click the file “Deins USB.exe” in the USB directory of the CD-ROM. iii) Re-boot the PC. iv) Turn the machine on. v) “Add New Hardware Wizard” is launched again, follow the instructions in the Wizard to re-install the driver. <p>(2) Try to connect the machine directly to the computer if it is connected through a USB hub.</p>

Possible cause	Step	Check	Result	Remedy
Computer Operating System	1	Windows 95 or Windows NT4.0?	Yes	The operating system does not support USB.
Computer settings	2	Does ‘Universal Serial Bus Controllers’ appear in the Device Manager tab of ‘System Properties’ in Control Panel?	No	This problem can be caused by your computer settings. See the computer manual.
USB cable/ machine damage	3	Does “Add New Hardware Wizard” appear on the screen or Does test print complete?	No	The USB cable is damaged. Replace the cable. If the same problem appears, the machine will be damaged.

- (3) This machine does not appear in Chooser (Mac OS[®] 9.1 to 9.2) or Print center (Mac OS[®] X 10.2) or Print Setup Utility (Mac OS[®] X 10.3 or greater).

 **User Check**

- (1) Check the machine is turned on.
- (2) Check the USB cable is connected correctly.
- (3) Check the printer driver is installed correctly.

Possible cause	Step	Check	Result	Remedy
Machine connection	1	Select 'Apple System Profiler' in Apple Menu. Are the following items indicated in the USB box of the Device and Volumes tab? <ul style="list-style-type: none"> • Product ID: 01A3 (DCP-8060) 01A4 (DCP-8065DN) 01A5 (MFC-8460N) 01A6 (MFC-8860DN) 01A7 (MFC-8870DW) Vender: Brother International Corporation (or 0x4f9) 	No	Check the machine is turned on and the USB cable is connected correctly. Check that the USB cable used is the shielded twisted pair type and 5 m or less. Try to connect the machine and PC with the USB cable directly.
Driver installation	2	Are there the following files in the Extensions Folder of System Folder? <For System 9.1 – 9.2> <ul style="list-style-type: none"> • BR_PrintMonitor (laser) • Brother Laser 	No	Try to re-install the printer driver.
			Yes	Turn off the machine and PC power switch, and check all connections between them. Then, turn them on again.

- (4) Unable to print from the application when using Macintosh with USB

 **User Check**

Make sure that the supplied Macintosh[®] printer driver is installed in the Hard Disk and that it is selected with Chooser (Mac OS[®] 9.1 to 9.2) or Print Center (Mac OS[®] X 10.2.4 or greater).

- (5) Unable to print from the application software under DOS.

 **User Check**

- (1) Make sure that the DOS application interface settings match those of your machine. For example, if you are using a parallel printer cable, you would set your DOS application printer port to LPT1.
- (2) Check if the machine has any machine alarms.
- (3) Make sure that you have chosen the proper machine in your application.

9.2.4.3 Malfunction

When taking countermeasures for malfunctions as described in this section, check connectors for contact failure before measuring the voltage at the specified connector pins.

(1) No AC power supplied

Possible cause	Step	Check	Result	Remedy
Supply voltage	1	Is the correct voltage present at the outlet?	No	Inform the user that the correct voltage is not supplied at the outlet.
Power plug	2	Is the power cord securely plugged into the outlet?	No	Plug the power cord securely into the outlet.
Fuse (F1, F2)	3	Is the fuse blown?	Yes	If the fuse blows again immediately after replacing the low-voltage power supply PCB, check that there is not a short circuit somewhere in the AC power supply line.
Wiring	4	Unplug the power supply plug. Is there a broken wire between the AC input connector of the low-voltage power supply and the power plug?	Yes	Replace the AC power cord.

(2) No DC power supplied

Possible cause	Step	Check	Result	Remedy
AC power supply	1	Is AC power supplied between terminals LIVE and NEUTRAL when the power plug is plugged into the outlet?	No	Follow the same check procedure of (1) "No AC power supplied".
Wiring, DC load	2	Turn on the power switch. Measure the voltages between the terminals. Do the measured voltage satisfy the prescribed valued in the table below?	Yes	Turn off the power switch, reconnect the connector and turn the power switch on again. If the protector circuit is activated, check the connector, the wiring from the connector, and the DC load.
Low-voltage power supply PCB	3	Refer to the chart * 1 below.	No	Replace the low-voltage power supply PCB.

*1

PCB	+lead pin	- lead pin	Voltage
Main	CN5-4	CN5-2	Approx. 24V
	CN5-6	CN5-8	Approx. 8V
	CN5-7	CN5-8	Approx. 3.3V

⚠ WARNING

If you analyze malfunctions with the power plug inserted into the power outlet, special caution should be exercised even if the power switch is OFF because it is a single pole switch.

(3) Main motor failure

Possible cause	Step	Check	Result	Remedy
Failure of connector	1	Is the connection of connector CN6 on the main PCB correct?	No	Reconnect the connector.
Main motor	2	Is the problem solved by replacing the main motor?	Yes	Replace the main motor.
Main PCB	3	Is the problem solved by replacing the main PCB?	Yes	Replace the main PCB.

(4) No paper supplied

Possible cause	Step	Check	Result	Remedy
Separation pad / pickup roller failure	1	Is the surface of the separation pad or the pickup roller dirty or worn out?	Yes	1) Clean the surface of the separation pad or pickup roller. 2) Replace the separation pad or pickup roller.
Failure of connector	2	Is the contact of the solenoid connector on the relay front PCB good?	No	Reconnect the connector.
HVPS circuit	3	Set the document into the ADF, select MP tray in the copy mode and press the [Start] key. Does the voltage between pins 1(SOLENOID) and 2 (24V) of the CN1 TRAY1, CN3 MP connector on the relay front PCB change from approx. 24V DC to 0V within the specified time?	Yes	Replace the HVPS.
Paper pickup clutch solenoid			No	Replace the paper pickup clutch solenoid.
Main PCB	4	Is the problem solved by replacing the main PCB?	Yes	Replace the main PCB.

(5) Insufficient output from high-voltage power supply unit

Possible cause	Step	Check	Result	Remedy
High-voltage contact	1	Do any of the terminals on the high-voltage contacts have dirt or contact burns?	Yes	Clean the terminals.
High-voltage power supply PCB	2	Check the connections of the connector between the high-voltage power supply and the main PCB are secured correctly?	Yes	Replace the high-voltage power supply PCB.
			No	Reconnect the connector between the high-voltage power supply and the main PCB.

(6) Fixing heater temperature failure

Possible cause	Step	Check	Result	Remedy
Poor thermistor harness contact	1	Is the contact of connector CN1 and CN2 on the relay rear PCB good?	No	Reconnect the connector.
	2	Is the contact of connector CN3 on the main PCB good?	No	Reconnect the connector.
Blown thermostat	3	Remove the fuser unit and measure the resistance of the thermostat. Is it open circuit?	Yes	Replace the fuser unit.
Halogen heater lamp failure	4	Remove the fuser unit and measure the resistance of the halogen heater lamp. Is it open circuit?	Yes	Replace the fuser unit.

(7) Laser Unit failure

Possible cause	Step	Check	Result	Remedy
Harness connection failure (1)	1	Is connector CN18 on the main PCB secured correctly?	No	Reconnect the connector securely.
			Yes	Replace the laser unit.
Harness connection failure (2)	2	Is the connection of the scanner motor connector CN10 on the main PCB secure?	No	Reconnect the connector securely.
			Yes	Replace the laser unit.

(8) Fuser unit failure

Possible cause	Step	Check	Result	Remedy
Poor thermistor harness contact	1	Is the contact of connector CN1 and CN2 on the relay rear PCB good?	No	Reconnect the connector.
	2	Is the contact of connector CN3 on the main PCB good?	No	Reconnect the connector.
Thermistor assembling failure	3	Is the thermistor installed properly?	Yes	Replace the fuser unit.
			No	Reinstall the thermistor properly.
Halogen heater lamp failure	4	Remove the fuser unit and measure the resistance of the halogen heater lamp. Is it open circuit?	Yes	Replace the halogen heater lamp.
Heater harness connection failure	5	Is the heater harness connector connected to the low-voltage power supply PCB and fuser unit secure?	No	Reconnect the connectors securely.

NOTE:

- This problem will be cleared if leaving the machine power ON for ten minutes.
- If the heater is cooled down sufficiently, this problem may be cleared by turning on the machine power switch while pressing the **Go** button. **Be warned, however, that this operation will melt the fuser unit if the heater is hot.**

(9) Main PCB failure

Possible cause	Step	Check	Result	Remedy
Main PCB	1	Is it possible to print the test page with the method of 8.4.5 'Test Pattern 1' in chapter 8 ?	No	Replace the main PCB.
Software bug	2	Does this problem appear when printing specific data or printing under a specific environment?	Yes	Inform the Brother office of the used specific data, machine condition and system environment.

(10) Pickup function of paper tray does not work.

Possible cause	Step	Check	Result	Remedy
Link lever does not move smoothly.	1	Does the link lever work? Isn't the link lever bent?	Yes	Remove the cause of non-smooth operation of the link lever. Replace the link lever.
Pickup roller holder ASSY does not move smoothly.	2	Does the pickup roller holder ASSY move up and down?	No	Replace the pickup roller holder ASSY.
Main motor failure	3	Does the main motor work?	No	Replace the main motor.
Pressure plate drive cam failure	4	Does the pressure plate drive cam rotate?	No	Replace the main frame L ASSY.

(11) The new toner is not sensed.

Possible cause	Step	Check	Result	Remedy
The toner cartridge is not set to the main body correctly	1	The toner cartridge is not inserted completely.	Yes	Reset the cartridge.
New toner detection switch failure	2	Isn't the toner sensed even if the switch is held?	Yes	Replace the switch.
Main PCB failure	3	Is the problem solved by replacing the main PCB?	No	Replace the main PCB.

(12) Maximum speed is slow.

Possible cause	Step	Check	Result	Remedy
Two or more sheets of the paper in the tray are pulled to feed.	1	Does paper double feeding occur?	Yes	Replace the separation pad.
Foreign body attached to the tail edge actuator	2	Is a foreign body caught on the tail edge actuator?	Yes	Remove a foreign body.
Tail edge actuator failure	3	Is the tail edge actuator deformed?	Yes	Replace the tail edge actuator.
Tail edge sensor malfunction	4	Is the tail edge sensor turned ON?	Yes	Replace the tail edge sensor.

(13) The machine stops while idling.

Possible cause	Step	Check	Result	Remedy
Front cover failure	1	Is the cover opened by vibration during idling?	Yes	Replace the front cover.
New toner detection switch failure	2	Does the new toner detection switch work correctly?	No	Replace the new toner detection switch.
Process unit terminal failure	3	Are the terminals of the process unit dirty?	Yes	Clean the terminals.
Laser unit failure	4	Does the laser unit work correctly?	No	Replace the laser unit.

9.2.4.4 Image defects

[1] Image defect examples

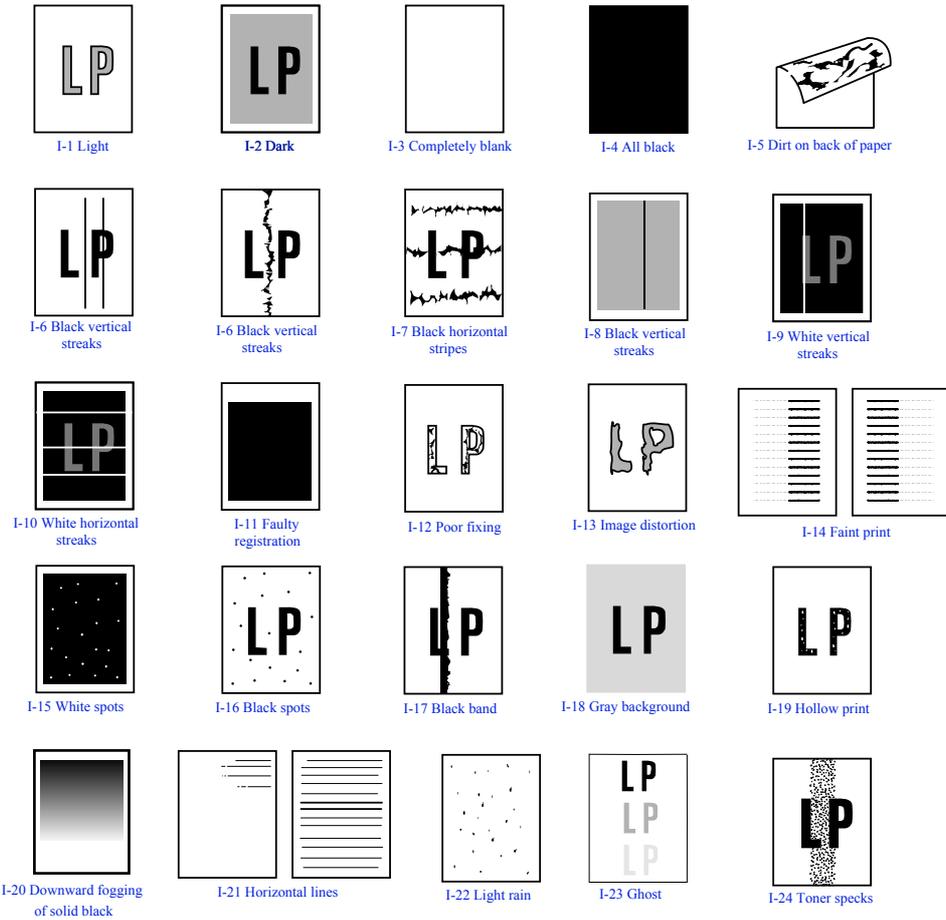


Fig. 9-1

[2] Diameter of rollers

The diameter of each roller and the pitch which appears in the image are listed below.

No.	Parts Name	Diameter (The pitch which appears in the image)
1	Paper Feed Roller	Ø 14.0 mm (44.0 mm)
2	Transfer Roller	Ø 15.2 mm (48.2 mm)
3	Exposure Drum	Ø 30.0 mm (94.2 mm)
4	Heat Roller	Ø 25.0 mm (78.5 mm)
5	Pressure Roller	Ø 25.0 mm (78.5 mm)
6	Developer Roller	Ø 20.0 mm (42.7 mm)

[3] Troubleshooting image defect

Several types of the image defects can be cleared by end users. For those defects, instruct the user to check the ‘User Check’ items described in each table. Even if the same image defect appears, the following procedures should be followed in the event of specific image defects.

See also [4] “[Location of ground contacts](#)” in this Chapter for information about the location of the grounding contacts.

CAUTION

When using the machine for a special job, such as printing of name cards, print quality cannot be guaranteed.

(I-1) Light



User Check

- (1) Check the machine’s environment. Conditions such as humidity, high temperatures, etc. may cause this situation to occur.
- (2) If the whole page is light, toner save mode may be on. Disable toner save mode within Printer Properties tab of the driver.
- (3) Try installing a new toner cartridge or drum unit.

Possible cause	Step	Check	Result	Remedy	Ground contacts
Toner sensor failure (machine side)	1	Can printing be started with the drum unit and toner cartridge removed?	Yes	Check if the toner sensor is dirty and check the toner sensor connection.	
Toner sensor failure (toner cartridge side)	2	Is the problem solved when 4 or 5 pages are printed after the toner cartridge is replaced with a full one?	Yes	The wiper of the toner cartridge is defective. Replace the toner cartridge.	
Drum connection failure	3	Are all the contacts between the drum unit and machine body connected correctly?	No	Clean contact electrodes both on the drum unit and in the machine body.	(1), (4) (5), (6)
HVPS / Main PCB failure	4	Is the harness connection between the HVPS and the main PCB correct?	Yes	Replace the HVPS or the main PCB.	
Dirt on the scanner window	5	Is there any dirt on the scanner window?	Yes	Wipe it off with a soft clean paper.	
Laser unit failure	6	Is the problem solved after replacing the laser unit?	Yes	Replace the laser unit.	

(I-2) Dark

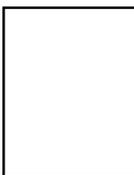


User Check

- (1) Check the paper used meets the recommended paper specifications.
- (2) Check the machine's environment. High temperature and high humidity conditions can increase the amount of background shading.
- (3) Clean the corona wire with the wire cleaner.
- (4) Try installing a new toner cartridge or drum unit.

Possible cause	Step	Check	Result	Remedy	Ground contacts
Corona failure (contact failure)	1	Are the charge electrodes between the machine body and the drum unit dirty?	Yes	Clean both electrodes.	(3)
Drum unit failure	2	Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit with a new one.	
Toner cartridge failure	3	Is the problem solved after replacing the toner cartridge?	Yes	Replace the toner cartridge with a new one.	
High-voltage power supply PCB failure	4	Is the connections of the connector between the high-voltage power supply PCB and the main PCB secured correctly?	Yes	Replace the high-voltage power supply PCB.	
Main PCB failure	5	Are there any disconnected connectors?	No	Replace the main PCB.	

(I-3) Completely blank



Possible cause	Step	Check	Result	Remedy	Ground contacts
Developing bias contact failure	1	Are the developing bias contacts between the machine body and drum unit dirty?	Yes	Clean the electrodes at both sides.	(4)
Drum unit	2	Are the drum shaft and drum electrode of the machine body connected correctly?	Yes	Clean the shaft and the electrode.	(1)
			No	Check the connection between the shaft and the electrode.	(1)
Drum unit failure	3	Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit.	
Toner cartridge failure	4	Is the problem solved after replacing the toner cartridge?	Yes	Replace the toner cartridge with a new one.	
Scanner harness connection failure	5	Is the scanner harness connected securely? (Check if there is any play in the connection.)	No	Reconnect the connector correctly.	
Main PCB failure	6	Are printing signals being input to the laser unit? Is the problem solved after replacing the main PCB?	Yes	Replace the main PCB.	
Laser unit failure	7	Is the scanner interlock lever damaged? Is the scanner mirror broken or loose?	Yes	Replace the laser unit.	
			No	Replace the high-voltage power supply PCB.	

(I-4) All black

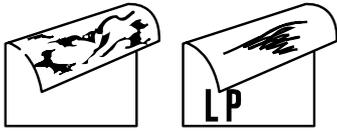


User Check

- (1) Clean the corona wire of the drum unit.
- (2) The drum unit may be damaged. Install a new drum unit.

Possible cause	Step	Check	Result	Remedy	Ground contacts
Corona failure	1	Is the corona wire dirty?	Yes	Clean the corona wire with the wire cleaner.	(2)
	2	Is the corona wire broken?	Yes	Replace the drum unit.	
	3	Are the charge electrodes between the machine body and the drum unit dirty?	Yes	Clean both electrodes.	(3)
Harness connection	4	Is the laser unit connected to the main PCB correctly?	No	Connect the harness between the laser unit and the main PCB correctly.	
High-voltage power supply PCB failure	5	Is the problem solved after replacing the high-voltage power supply PCB?	Yes	Replace the high-voltage power supply PCB.	
Main PCB failure	6	Is the problem solved after replacing the main PCB?	Yes	Replace the main PCB.	
Laser unit failure	7	Is the problem solved after replacing the laser unit?	Yes	Replace the laser unit.	

(I-5) Dirt on the back of paper



Possible cause	Step	Check	Result	Remedy
Fuser unit dirty	1	Is the pressure roller dirty? Is any other area in the machine dirty?	Yes	Clean the pressure roller referring to the following procedure.
Dirt in the drum unit	2	Is the transfer roller dirty? Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit
			No	Replace the high-voltage power supply PCB.

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

How to clean the pressure roller

Clean the pressure roller as follows;

- (1) Set 5 or more sheets of paper in the paper tray.
- (2) Press the [Menu], [Start], [▲], [▲], [▲], [▲] keys in this order so that the machine goes into the maintenance mode.
- (3) Press the [6] and [7] keys. The machine starts to print the grid pattern continuously.
- (4) When five pages are printed, press the [Stop/Exit] key. The machine returns to the initial stage of the maintenance mode.
- (5) Press the [9] key twice so that the machine returns to the ready status.

(I-6) Black and blurred vertical streaks



User Check

- (1) The ADF glass is dirty. Clean the ADF glass.
- (2) Clean the corona wire in the drum unit.
- (3) Check that the wire cleaner is at the home position.
- (4) Check that the toner cartridge is not empty.
- (5) The drum unit may be damaged. Install a new drum unit.
- (6) The toner cartridge may be damaged. Install a new toner cartridge.

Possible cause	Step	Check	Result	Remedy
Dirt on the ADF glass	1	Is the ADF glass dirt?	Yes	Clean the ADF glass.
Corona failure	2	Is the corona wire dirty?	Yes	Clean the corona wire with the wire cleaner.
	3	Is the vertical block streak about 10mm wide? (Check if the wire cleaner is at its home position.)	Yes	Return the wire cleaner to its home position.
Dirt in the paper feed system	4	Is the paper tray or feed system on the drum unit dirty with toner?	Yes	Clean the toner off.
Scratch on the drum	5	Is the drum surface scratched?	Yes	Replace the drum unit.
Cleaning failure	6	Is the drum surface dirty with toner in streaks?	Yes	Replace the drum unit.
Scratch on the heat roller	7	Is the surface of the heat roller scratched?	Yes	Replace the fuser unit.

NOTE:

- If you print the same pattern (especially vertical streaks) continuously, electrostatic charge performance of the drum will decrease temporarily and black vertical streaks may appear on the paper
- This problem may occur with noise due to the corona wire being dirty. In that case, clean the corona wire with the wire cleaner.

(I-7) Black and blurred horizontal stripes

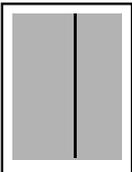


User Check

- (1) The drum unit may be damaged. Install a new drum unit.
- (2) Check the paper used meets the recommended paper specifications.
- (3) Clean the inside of the machine and the corona wire in the drum unit.

Possible cause	Step	Check	Result	Remedy	Ground contacts
Scratch on the drum	1	Are the horizontal stripes at 74mm (exposure drum) intervals?	Yes	The exposure drum was scratched. Replace the drum unit.	
Toner stuck on the developer roller	2	Are the horizontal stripes at 42.7mm (developer roller) intervals?	Yes	After printing several pages, the problem will disappear. If not, replace the toner cartridge.	
Scratch on the heat roller	3	Are the horizontal stripes at 79mm (heat roller) intervals?	Yes	Replace the heat roller.	
Corona contact failure	4	Are the charge electrodes between the machine body and the drum unit dirty?	Yes	Clean both electrodes.	(3)
High-voltage power supply PCB failure	5	Is the problem solved after replacing the high-voltage power supply PCB?	Yes	Replace the high-voltage power supply PCB.	

(I-8) Black vertical streaks (in a gray background)



Possible cause	Step	Check	Result	Remedy	Ground contacts
Corona failure	1	Is the corona wire dirty?	Yes	Clean the corona wire with the wire cleaner.	(2)

(I-9) White vertical streaks



User Check

- (1) Try to wipe the scanner window with a soft cloth.
- (2) The toner cartridge may be damaged. Install a new toner cartridge.
- (3) Check the machine's environment. High temperature and high humidity conditions can cause this problem.
- (4) Damp (wet) paper might be used. Try to change to freshly unpacked paper.

Possible cause	Step	Check	Result	Remedy
Translucent stain on the scanner window	1	Is there any dirt on the scanner window?	Yes	1) Clean the scanner window. 2) If it is not effective, replace the laser unit.
Transfer failure	2	Is the transfer roller scratched?	Yes	Replace the drum unit.
Condensation	3	Has condensation occurred inside the machine?	Yes	Try to print several pages or leave the machine 2 hours to allow it to reach room temperature.

(I-10) White horizontal streaks

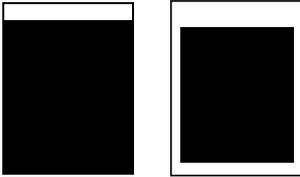


User Check

- (1) Check the paper used meets the recommended paper specifications. A rough surfaced paper, damp paper or thick media can cause the problem.
- (2) Check that the appropriate media type is selected in the printer driver.
- (3) The problem may disappear by itself. Try printing multiple pages to clear this problem especially if the machine has not been used for a long time.
- (4) The drum unit may be damaged. Install a new drum unit.

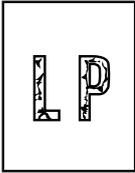
Possible cause	Step	Check	Result	Remedy	Ground contacts
Developing bias contact failure	1	Are the developing bias contacts between the machine body and toner cartridge dirty?	Yes	Clean the electrodes at both sides.	(4)

(I-11) Faulty registration



Possible cause	Step	Check	Result	Remedy
Excessive paper load	1	Is the paper loaded in the paper tray more than 27mm high?	Yes	Instruct the user to keep paper loads below 27mm in depth.
Print paper	2	Is the specified weight of the recommended paper being used?	No	Recommend to use the specified types of paper.
	3	Is the first printing position within ± 1 mm of the tolerance specification?	Yes	Adjust the Y offset by using the utility software supplied.
Regist rear sensor position incorrect	4	Is the regist rear sensor off from the correct position?	Yes	Reposition the sensor to the correct position.
Drum unit failure	5	Is the rotation torque of the drum unit heavy?	Yes	Replace the drum unit.

(I-12) Poor fixing



Possible cause	Step	Check	Result	Remedy
Print paper	1	Is thick paper of more than 43lb being used?	Yes	Recommend to use the specified types of paper.
Nip release lever	2	Does the position of the nip release levers in the fuser unit decompress the nip pressure?	Yes	Return the nip release levers to the original position.
Toner sensor failure (When printing is faint.)	3	Is the problem solved by replacing the drum unit or the toner cartridge?	Yes	1) Toner is empty. 2) The toner sensor is defective. Clean the toner sensor. 3) If the wiper in the toner cartridge is broken, replace the toner cartridge with a new one.
Fuser unit thermistor failure	4	Is the thermistor fitted correctly?	No	Fit the thermistor correctly.
Low-voltage power supply PCB failure	5	Is the problem solved by replacing the low-voltage power supply PCB?	Yes	Replace the low-voltage power supply PCB.

Open the back cover and fuser cover. Push down the blue tab (1). Repeat this process on the other side. Make sure that the top of the tab and the white lever (2) are not level with each other. Close the back cover and try printing again.

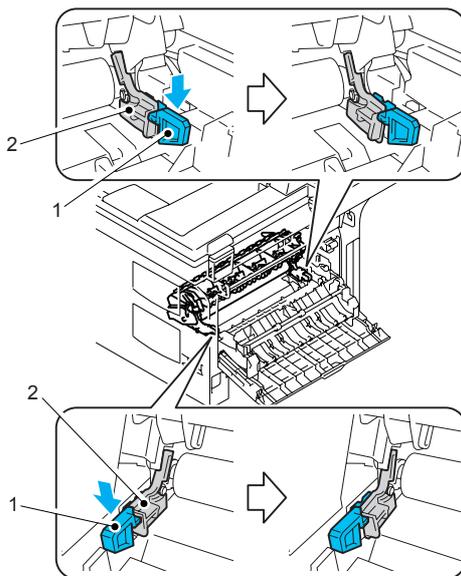
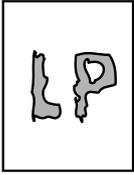


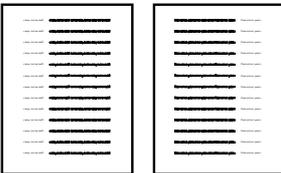
Fig. 9-2

(I-13) Image distortion



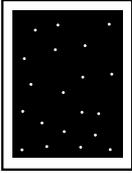
Possible cause	Step	Check	Result	Remedy
Laser unit installation	1	Is the laser unit secured to the frame incorrectly? (Check if there is any play.)	Yes	Secure the unit correctly and tighten the screws.
Scanner LD emission failure Scanner motor rotation failure	2	Is the laser diode or the scanner motor defective?	Yes	Replace the laser unit.
Scanner connection failure	3	Is the scanner harness connected properly? (Check if it is coming loose.)	No	Connect the harness correctly.

(I-14) Faint print



Possible cause	Step	Check	Result	Remedy
Dirt on the ADF glass or document glass	1	Is the ADF glass or document glass dirt?	Yes	Clean the ADF glass or document glass.
Machine installation	2	Is the machine placed horizontally?	No	Place the machine on a flat surface.
Toner cartridge	3	Does the problem happen immediately after replacing the toner cartridge with a new one?	Yes	Remove and carefully shake the toner cartridge horizontally.
Scanner window dirty	4	Is the scanner window dirty?	Yes	Clean the scanner window with a soft dry cloth.
Laser unit failure	5	Is the problem solved by replacing the laser unit?	Yes	Replace the laser unit.

(I-15) White spots



User Check

- (1) If the problem is not solved after printing a few pages, the drum unit may have glue from label stock on the exposure drum surface. Refer to Step 1 in the table below and **NOTE** in the next page.
- (2) The drum unit may be damaged. Install a new drum unit.

Possible cause	Step	Check	Result	Remedy
Drum unit failure	1	Are the white spot at 94.2mm intervals?	Yes	1) If toner or glue remains stuck, wipe it off gently with a cotton swab. (Refer to NOTE in the next page.) 2) If the drum surface is scratched, replace the drum unit.
	2	Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit.
No toner	3	Is the toner in the toner cartridge almost empty?	Yes	Replace the toner cartridge with a new one.
Print paper	4	Is the problem solved after changing to specified freshly unpacked paper?	No	Damp (wet) paper might be used. Recommend to change freshly unpacked paper.
Environment	5	Does the problem still appear after the machine has warmed up?	Yes	1) Replace the drum unit. 2) Advise the user of the specified machine environment

NOTE: Clean the drum unit as follows.

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

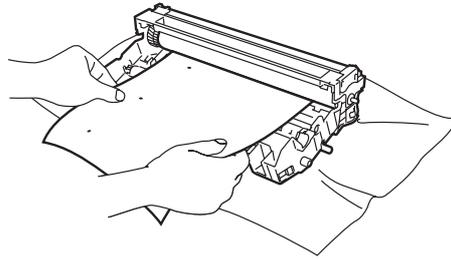
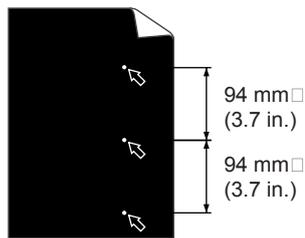
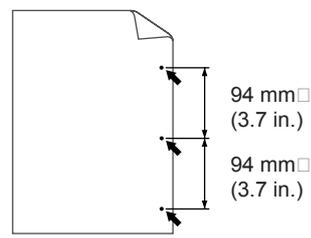


Fig. 9-3

<Examples of poor print quality>



White Spots on black text and graphics at 94 mm (3.7 in.) intervals



Black Spots at 94 mm (3.7 in.) intervals

Fig. 9-4

- (2) Turn the drum unit gear by hand while looking at the surface of the OPC drum.

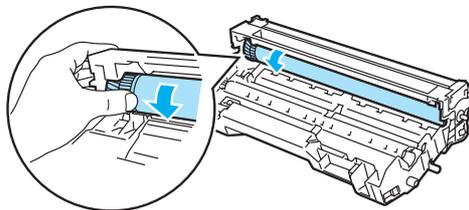


Fig. 9-5

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

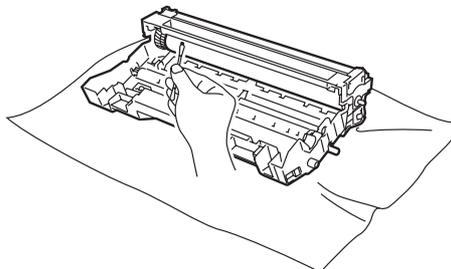


Fig. 9-6

! **CAUTION**

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

(I-16) Black spots



User Check

(1) If the problem is not solved after printing a few pages, the drum unit may have glue from label stock on the exposure drum surface. Refer to Step 1 in the table below and **NOTE** in the previous page.

(2) The drum unit may be damaged. Install a new drum unit.

Possible cause	Step	Check	Result	Remedy	Ground contacts
Dirt on the document glass	1	Is the document glass dirt?	Yes	Clean the document glass.	
Drum unit	2	Are the spots at 94.2mm intervals? (The problem is not solved after printing a few pages.)	Yes	1) If toner or glue remains stuck, wipe it off gently with a cotton swab. (Refer to NOTE in the previous page.) 2) If the exposure drum is scratched or deteriorated (exposed), replace the drum unit.	
Drum connection failure	3	Is the contact between the drum unit and machine body connected correctly?	No	Clean contact electrode both on the drum unit and in the machine body.	(7)
Fuser unit	4	Are the spots at 79mm intervals? (The problem is not solved after printing a few pages.)	Yes	1) Check and clean the heat roller with a cloth dampened with alcohol. 2) Replace the fuser unit.	
High-voltage power supply PCB failure	5	Is the problem solved after replacing the high-voltage power supply PCB?	Yes	Replace the high-voltage power supply PCB.	

(I-17) Black band



Possible cause	Step	Check	Result	Remedy	Ground contacts
Corona failure	1	Is the wire cleaner at its home position?	No	Return the wire cleaner to its home position.	(2)
Corona dirty	2	Is the corona wire dirty?	Yes	1) Clean the corona wire. 2) If the problem still appears after cleaning, replace the drum unit.	(2)

(I-18) Gray background



Possible cause	Step	Check	Result	Remedy
Print paper	1	Does the paper being used meet the paper specification (weight, etc.)	No	Recommend to use the specified types of paper.
			Yes	Recommend to change to freshly unpacked paper.
Toner sensor failure (machine side)	2	Is the error indication displayed when the toner cartridge and drum unit is taken out of the machine? (The front cover is closed.)	No	Toner sensor failure. Clean the toner sensor and check the toner sensor connection.
Toner cartridge failure	3	Is the problem solved after replacing the toner cartridge?	Yes	Replace the toner cartridge.
Drum unit failure	4	Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit.
			No	Replace the high-voltage power supply PCB.

NOTE: The following cases increase the possibility of this problem.

- Acid paper is being used.
- The drum unit is at the end of its life.
- There is dust or paper powder.

(I-19) Hollow print



User Check

- (1) Check the paper used meets the recommended paper specifications.
- (2) Select the 'Thick paper mode' in the printer driver, or use thinner paper than you are currently using.
- (3) Check the machine's environment, conditions such as high humidity may cause this situation to occur.

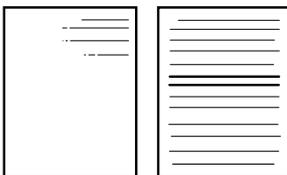
Possible cause	Step	Check	Result	Remedy
Print paper	1	Is thick paper of more than 43lb being used or extremely rough surface paper?	Yes	Recommend to use the specified types of paper.
			No	Refer and compare with I-15 .

(I-20) Downward fogging of solid black



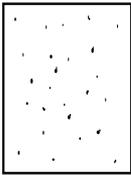
Possible cause	Step	Check	Result	Remedy
Toner cartridge failure	1	Is the problem solved after replacing the toner cartridge?	Yes	Replace the toner cartridge.
High-voltage power supply PCB failure	2	Is the problem solved after replacing the high-voltage power supply PCB?	Yes	Replace the high-voltage power supply PCB.

(I-21) Horizontal lines



Possible cause	Step	Check	Result	Remedy
Paper tray contacts	1	Are the ground contacts on the right side of the paper tray connecting correctly?	No	Clean the contacts.
Drum unit	2	Are the high-voltage power supply and drum unit contacted correctly?	No	Clean the contacts.

(I-22) Light rain



Possible cause	Step	Check	Result	Remedy	Ground contacts
Drum unit failure	1	Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit.	
Drum connection failure	2	Is the contact between the drum unit and machine body connected correctly?	No	Clean contact electrode both on the drum unit and in the machine body.	(7)
High-voltage power supply PCB failure	3	Is the problem solved after replacing the high-voltage power supply PCB?	Yes	Replace the high-voltage power supply PCB.	

(I-23) Ghost



User Check

- (1) Check the paper used meets the recommended paper specifications. Damp paper, thick media or rough surfaced paper can cause the problem.
- (2) Check the machine's environment. High temperature and high humidity conditions can cause the problem.
- (3) Check that the appropriate media type is selected in the printer driver.
- (4) Try installing a new drum unit.

Possible cause	Step	Check	Result	Remedy
Driver setting	1	Is thin paper such as 64g/m ² used under the thick paper mode?	Yes	1) Change the current mode to the normal mode from the driver setting. 2) Print 5 or 6 blank pages if this problem occurs.
Drum unit failure	2	Is the problem solved after replacing the drum unit?	Yes	Replace the drum unit.
High-voltage power supply PCB failure	3	Is the problem solved after replacing the high-voltage power supply PCB?	Yes	Replace the high-voltage power supply PCB.

(I-24) Toner specks



User Check

- (1) Check the paper used meets the recommended paper specifications. A rough surfaced paper may cause the problem.
- (2) The toner cartridge may be damaged. Install a new toner cartridge.
- (3) The drum unit may be damaged, or may be nearly at the end of life. Install a new drum unit.

[4] Location of grounding contacts

<Drum unit>

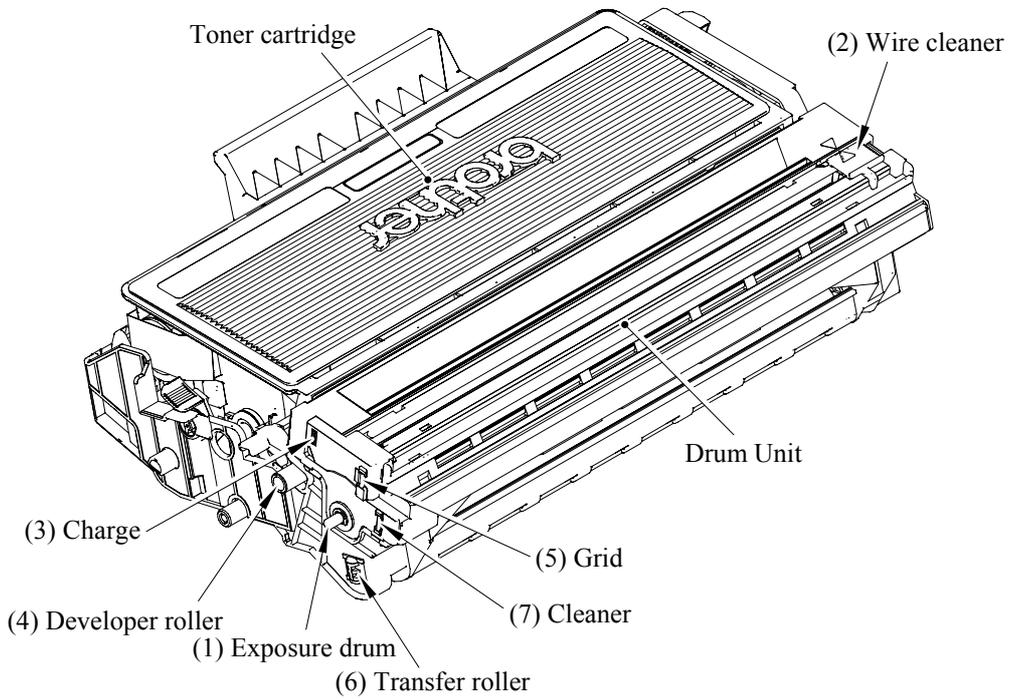


Fig. 9-7

<Machine body & paper tray>

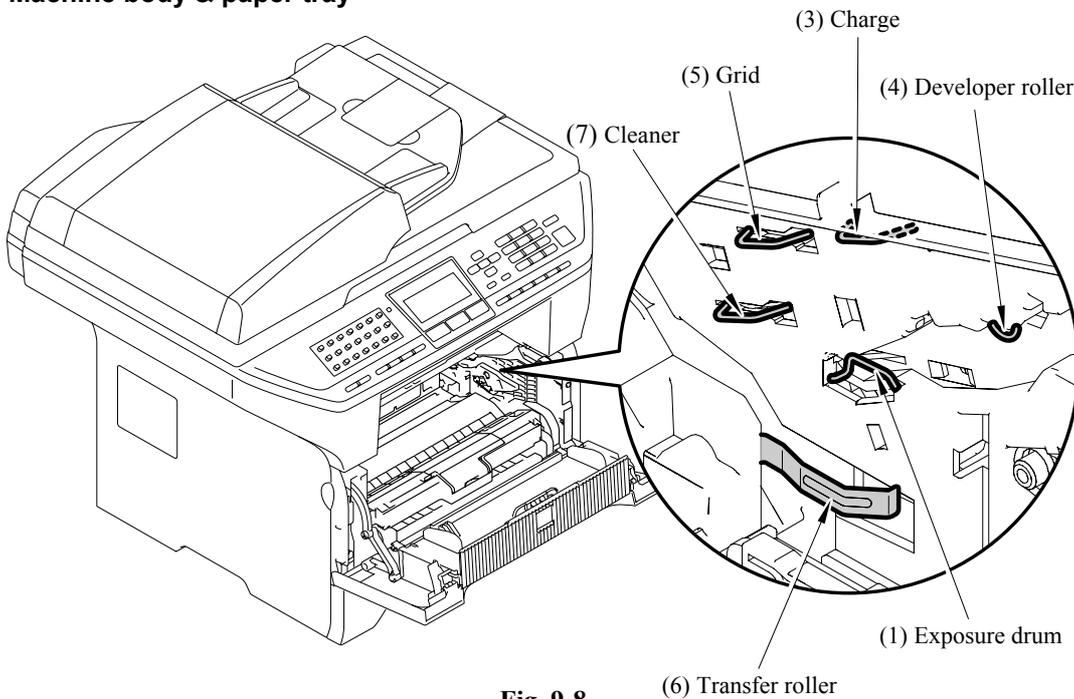


Fig. 9-8

<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.

9.2.4.5 Incorrect printout

When the data is not printed correctly as it is seen on the PC screen, follow the procedures below in the event of a specific error.

(P-1) The prints unexpectedly or it prints garbage.

 **User Check**

- (1) Check if the machine cable is not too long. It is recommended to use a parallel cable of less than 2 meters (6.6 feet) in length.
- (2) Check that the machine cable is not damaged or broken. Check also that the machine cable is connected to the correct interface connectors of both the machine and PC.
- (3) If an interface switching device is used, remove it and connect the computer directly to the machine and try again.
- (4) Check that the appropriate printer driver is selected as 'Set as Default'. Check also that the correct print port is set for the selected printer driver.
- (5) Check that the machine is not connected to the same port which is also connected to a mass storage device or scanner. Remove all other devices and connect the port to the machine only. Turn off the printer status monitor in the device options tab in the printer driver.
- (6) If the print port is set as an ECP port, change it to a normal port.
- (7) Try printing the test page referring to [8.4.5 'Test Pattern 1' in chapter 8](#).
- (8) Try resetting the factory settings.

Possible cause	Step	Check	Result	Remedy
Failure inside the machine	1	Is it possible to print the test page with the method of 8.4.5 'Test Pattern 1' in chapter 8 ?	No	Identify the error type, and then refer to the specified section of this chapter.

(P-2) Unable to print full pages of a document with the "PRINT OVERRUN" message.

 **User Check**

- (1) Press the **[Start]** key on the control panel to print the data remaining in the machine.
- (2) If this does not clear the error, reduce the complexity of your document or reduce the machine resolution.
- (3) Change the following setting in the printer driver and try again. The best combination of settings below will vary depending on your document.
Graphic Mode / TrueType™ mode / Use Printer TrueType™ Fonts

NOTE: This problem may appear if the data is too complex. If it is not cleared by taking the actions above, it will be impossible to print such data under the machine specifications.

(P-3) Unable to print full pages of a document with the “MEMORY FULL” message.

 **User Check**

- (1) Press the **[Start]** key on the control panel to print the data remaining in the machine.
- (2) Reduce the complexity of your document or reduce the machine resolution.

NOTE: This problem may appear if the data is too complex.

Possible cause	Step	Check	Result	Remedy
Main PCB failure	1	Is it possible to print after reducing the data of a document?	Yes	Replace the main PCB.

(P-4) Headers or footers are not printed out even though they are viewed on PC screen.

 **User Check**

Most laser machines have a restricted area that cannot be printed on. Usually the first two lines and last two lines of text cannot print (leaving 62 printable lines). Adjust the top and bottom margins in your document to allow for this.

(P-5) The machine sometimes prints a couple of characters and then ejects the page.

 **User Check**

(For DOS environment only)

The application machine emulation setting and the machine's emulation do not match. Check in the application software which machine you have selected to make sure the machine is set up correctly. Remember that the machine emulates widely used machine selections:

HP Laser Jet 6P, HP Laser Jet 6P, Epson FX-850, IBM Proprinter XL

Try setting the machine into HP emulation and then select the HP LaserJet 6P machine in the application software.

9.2.4.6 Network problem

If the error related to network occurs, refer to the following sections;

[1] Installation problem

The Brother print server is not found during setup of the network machine software installation or from the printer driver of the Brother machine in Windows®.

The Brother print server is not found using the Simple Network Configuration capabilities of Mac OS® X.

Make sure you have completed the IP address setting of the Brother print server according to Chapter 2 of this User's Guide before installing the network print software or printer driver.

Check the following:

1. Make sure that the machine is powered on, is on-line and ready to print.
2. Check to see if there is any LED activity. Brother print servers have two LEDs on the back panel of the machine.

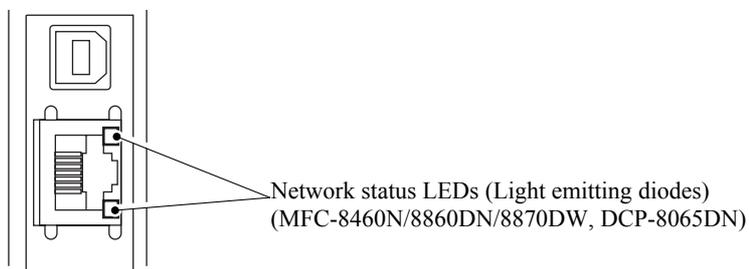


Fig. 9-9

Both LEDs are off: the print server is not connected to the network.

The upper LED is on: Link status

The upper LED is blinking: Activity status

The upper side LED is on: Link speed is 100M.

The lower side LED is off: Link speed is 10M.

3. Print the Machine Settings Page and check if the settings such as IP address settings are correct for your network. The problem may be the result of mismatched or duplicate IP address. Verify that the IP address is correctly loaded into the print server. And make sure that no other nodes on the network have this IP address. For information on how to print the Machine Settings Page, see Printing the Machine Settings Page.
4. Verify that the print server is on your network as follows:

For Windows®

Try pinging the print server from the host operating system command prompt with the command:

```
ping ipaddress
```

Where ipaddress is the print server IP address (note that in some instances it can take up to two minutes for the print server to load its IP address after setting the IP address).

For Macintosh®

For Mac OS® 9.1 to 9.2

- (1) From the **Apple** menu, open the **Chooser**.
- (2) Click the **Brother Laser (IP)** icon, and make sure that your print server name appears in the right frame. If it is visible, then the connection is good. Otherwise, go to Step 5.

For Mac OS® X 10.2.4 or greater

- (1) From the **Apple** menu, select **Applications**.
- (2) Open the **Utilities** folder.
- (3) Double-click the **Printer Setup Utility** icon.
- (4) Click **Add**.
(For Mac OS® X 10.2.4 to 10.3) Go to (5).
(For Mac OS® X 10.4) Go to (6).
- (5) (For Mac OS® X 10.2.4 to 10.3)
Make the following selection.

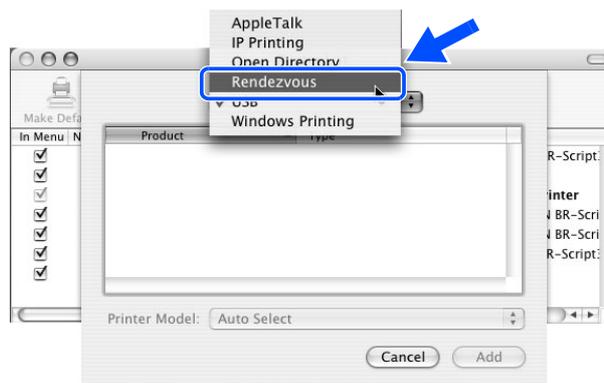


Fig. 9-10

- (6) Make sure that your print server appears. If it is visible, then the connection is good. Otherwise, go to Step 5.
5. If you have tried 1 to 4 above and it does not work, then reset the print server back to the default factory settings and try from the initial setup again. For information how to reset to the default factory settings, see Restoring the network settings to factory default on page 7-7.
6. (For Windows®) Firewall setting on your PC may be rejecting the necessary network connection. Follow the instructions below to disable the Firewall. If you are using a personal Firewall software, see the User's Guide for your software or contact the software manufacturer.

Windows XP SP2 users

- (1) Click the **Start** button, **Settings**, and then **Control Panel**.
- (2) Double click **Windows Firewall**.
- (3) Click the **General** tab. Verify that **Off (not recommended)** is selected.
- (4) Click **OK**.

Windows® XP SP1 users

- (1) Locate the “Windows” key on your keyboard. These are the keys with the Windows logo on it.



Fig. 9-11

- (2) Press the “Windows” key plus the “E” key to open **My Computer**.
- (3) On the left, right click **My Network Places**, click **Properties**, then right click **Local Area Connection** and click **Properties**.
- (4) Click the **Advanced** tab. Under **Internet Connection Firewall**, verify that the box next to **Protect my computer...** is unchecked. If the box is selected, click the box to remove the check. Then, click **OK**.
- (5) Once your firewall is disabled, try reinstalling the Brother software package. For instructions on how to install from the CD-ROM, use the Quick Setup Guide we have provided with the machine.
- (6) If the installation completed successfully, the Firewall on your computer is rejecting the necessary network connection. In this case, you will need to disable the Firewall on your computer whenever you install the network drivers.

NOTE: After the Brother software package is installed, enable again your Firewall. For instructions on how to re-enable your Firewall software, refer to your User’s Guide or contact the Firewall software manufacturer.

[2] Printing problem

<Print job is not printed>

Make sure the status and configuration of the print server. Check following:

1. Make sure that the machine is powered on, is on-line and ready to print.
2. Print the Machine Settings Page of the machine and check if the settings such as IP address settings are correct for your network. The problem may be the result of mismatched or duplicate IP address. Verify that the IP address is correctly loaded into the print server. And make sure that no other nodes on the network have this IP address.
3. Verify that the print server is on your network as follows:

For Windows[®]

- (1) Try pingging the print server from the host operating system command prompt with the command:

```
ping ipaddress
```

Where ipaddress is the print server IP address (note that in some instances it can take up to two minutes for the print server to load its IP address after setting the IP address).

- (2) If a successful response is received, then proceed to Windows[®] 95/98/Me and Windows NT[®] 4.0 Peer-to-Peer print (LPR) troubleshooting, and Windows[®] 2000/XP IPP troubleshooting. Otherwise, proceed to Step 4.

For Macintosh[®]

For Mac OS[®] 9.1 to 9.2

- (1) From the **Apple** menu, open the **Chooser**.
- (2) Click the **Brother Laser (IP)** icon, and make sure that your print server name appears in the right frame. If it is visible, then the connection is good. Otherwise, go to Step (4).

For Mac OS® X 10.2.4 or greater

- (1) From the **Apple** menu, select **Applications**.
- (2) Open the **Utilities** folder.
- (3) Double-click the **Printer Setup Utility** icon.
- (4) Click **Add**.
(For Mac OS® X 10.2.4 to 10.3) Go to (5).
(For Mac OS® X 10.4) Go to (6).
- (5) (For Mac OS® X 10.2.4 to 10.3)
Make the following selection

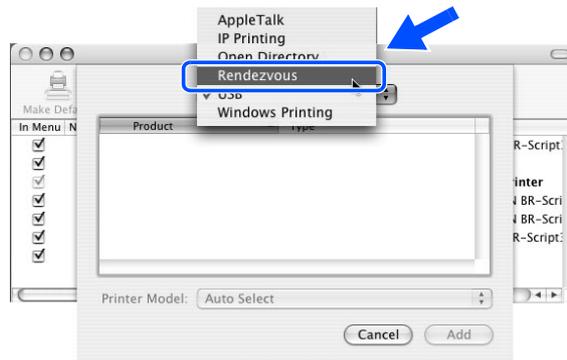


Fig. 9-12

- (6) Make sure that your print server appears. If it is visible, then the connection is good. Otherwise, go to Step 4.
4. If you have tried 1 to 4 above and it does not work, then reset the print server back to the default factory settings and try from the initial setup again. For information how to reset to the default factory settings, see Restoring the network settings to factory default on page 7-7.

<Error during printing>

If you try to print while other users are printing large amounts of data (e.g. many pages or color pages with high resolution), the machine is unable to accept your print job until the ongoing printing is finished. If the waiting time of your print job exceeds a certain limit, a time out situation occurs, which causes the error message. In such situations, execute the print job again after the other jobs are completed.

[3] Protocol-specific troubleshooting

Windows® 95/98/Me and Windows NT® 4.0 Peer-to-Peer print (LPR) troubleshooting

If you are having trouble printing on a Windows® 95/98/Me, Windows NT® 4.0 or later Peer-to-Peer network (LPR method), check the following:

1. Make sure that the Brother LPR Port driver is correctly installed and configured according to the Windows® 95/98/Me or Windows NT® 4.0 Peer-to-Peer chapters.
2. Try to turn the **Byte Count** on in the **Configure port** area of printer driver properties.

You may find that during the installation of BLP software, the screen that prompts you for a Port name is not displayed. This may happen on some Windows® 95/98/Me and Windows NT® 4.0 computers. Press the ALT and TAB keys to make it appear.

Windows® 95/98/Me and Windows NT® 4.0 Peer-to-Peer print (NetBIOS) troubleshooting

If you are having trouble printing on a Windows® 95/98/Me, Windows NT® 4.0 or later Peer-to-Peer network (NetBIOS), check the following:

1. Make sure that the Brother NetBIOS Port driver is correctly installed and configured according to the Windows® 95/98/Me or Windows NT® 4.0 Peer-to-Peer (NetBIOS) chapters. You may find that during the installation of the port driver, the screen that prompts you for a Port name is not displayed. This happens on some Windows® 95/98/Me and Windows NT® 4.0 computers. Press the ALT and TAB keys to make it appear.
2. Make sure that the print server is configured to be in the same workgroup or domain as the rest of your computers. It may take several minutes for the print server to appear in the network neighborhood.

Windows® 2000/XP IPP troubleshooting

Want to use a different Port number other than 631.

If you are using Port 631 for IPP printing, you may find that your firewall may not let the print data through. If this is the case, use a different port number (port 80), or configure your Firewall to allow Port 631 data through.

To send a print job using IPP to a machine using Port 80 (the standard HTTP port) enter the following when configuring your Windows® 2000/XP system.

`http://ip_address/ipp`

Get More Info option in Windows® 2000 not working

If you are using a URL of:

`http://ip_address:631` or `http://ip_address:631/ipp` ,

the **Get More Info** option in Windows® 2000 will not function. If you wish to use the **Get More Info** option, use the following URL:

`http://ip_address`

This will then force Windows® 2000/XP to use Port 80 to communicate with the Brother print server.

Web browser troubleshooting (TCP/IP)

1. If you can not connect to the print server using your web browser it may be worth checking the Proxy Settings of your browser. Look in the Exceptions setting and if necessary, type in the IP address of the print server. This will stop your PC from trying to connect to your ISP or proxy server every time you wish to look at the printer server.
2. Make sure that you are using the proper web browser, we recommend Microsoft Internet Explorer[®] version 6.0 (or higher) or Netscape Navigator[®] version 7.1 (or higher).

9.2.4.7 Troubleshooting of the control panel

(L-1) Nothing is displayed on the LCD.

 User Check (1) Verify if the power switch is turned off.
--

Possible cause	Step	Check	Result	Remedy
Connection between main PCB and control panel PCB	1	Main PCB and control panel PCB are properly connected	No	Fix the connector properly.
Harness between main PCB and control panel PCB	2	Harness is damaged.	Yes	Replace the harness with a normal part.
Connection between main PCB and low-voltage power supply PCB	3	Main PCB and low-voltage power supply PCB are properly connected.	No	Fix the connection properly.
Harness between main PCB and low-voltage power supply PCB LCD	4	Harness is damaged.	Yes	Replace the harness with a normal part.
LCD	5	Replacement of LCD solves the problem.	Yes	Replace the LCD with a normal part.
Control panel PCB	6	Replacement of control panel PCB solves the problem.	Yes	Replace the control panel PCB with a normal part.
Low-voltage power supply PCB	7	Replacement of low-voltage power supply PCB solves the problem.	Yes	Replace the low-voltage power supply PCB with a normal part.
Main PCB	8	Replacement of main PCB solves the problem.	Yes	Replace the main PCB with a normal part.

(L-2) The control panel does not work.

User Check

(1) No

Possible cause	Step	Check	Result	Remedy
Key sticking	1	Any key on control panel is stuck.	Yes	Clean up the panel cover, or remove the burrs from panel cover and panel keys.
Connection between main PCB and control panel PCB	2	Main PCB and control panel PCB are properly connected.	No	Fix the connection properly.
Harness between main PCB and control panel PCB	3	Harness is damaged.	Yes	Replace the harness with a normal part.
Rubber key	4	Replacement of rubber key solves the problem	Yes	Replace the rubber key with a normal part.
Control panel PCB	5	Replacement of control panel PCB solves the problem.	Yes	Replace the control panel PCB with a normal part.
Main PCB	6	Replacement of main PCB solves the problem.	Yes	Replace the main PCB with a normal part.

(L-3) Printing from Macintosh applications fails.

User Check

- (1) Verify that the printer driver supplied with the machine has been installed in the system folder and selected in the selector.
- (2) Check the port selected in the selector. The selected port has to match the actual port to which the machine cable is connected.

Possible cause	Step	Check	Result	Remedy
Fault in machine	1	Test page can be printed using the method described in 8.4.5 'Test Pattern 1' in Chapter 8.	No	Check the symptom of the problem and refer to an appropriate section in this Chapter to solve the problem.
Breakage of main PCB	2	Printing can be made using an appropriate PC, machine cable, and RS-100M?	No	Replace the main PCB.

9.2.4.8 Troubleshooting of fax functions

(F-1) FAX can't send it.

User Check

(1) Verify that the telephone cord is securely inserted.

Possible cause	Step	Check	Result	Remedy
Dialing mode setting	1	Dialing signal (PB or DP) comes out normally in each mode. (Use telephone line emulator.)	Yes	Check the dialing mode setting at customer's again. Check the telephone line cord between machine and socket.
Connection between main PCB and NCU PCB	2	Main PCB and NCU PCB are properly connected.	No	Fix the connection properly.
Harness between main PCB and NCU PCB	3	Harness is damaged.	Yes	Replace the harness with a normal part.
Connection between main PCB and control panel PCB	4	Main PCB and control panel PCB are properly connected.	No	Fix the connection properly.
Harness between main PCB and control panel PCB	5	Harness is damaged.	Yes	Replace the harness with a normal part.
Contact of rubber key	6	The rubber key works correctly.	No	Replace the rubber key with a normal part.
NCU PCB	7	Replacement of NCU PCB solves the problem.	Yes	Replace the NCU PCB with a normal part.
Control panel PCB	8	Replacement of control panel PCB solves the problem.	Yes	Replace the control panel PCB with a normal part.
Main PCB	9	Replacement of main PCB solves the problem.	Yes	Replace the main PCB with a normal part.

(F-2) Speed dialing and One-touch dialing can't be used.

Possible cause	Step	Check	Result	Remedy
Speed dialing, One-touch dialing	1	A fax transmission can be made using the key, ten?	Yes	Replace the main PCB.
Dialing mode setting	2	Dialing signal (PB or DP) comes out normally in each mode. (Use telephone line emulator.)	Yes	Check the dialing mode setting at customer's again. Check the telephone line cord between machine and socket.
Connection between main PCB and NCU PCB	3	Main PCB and NCU PCB are properly connected.	No	Fix the connection properly.
Harness between main PCB and NCU PCB	4	Harness is damaged.	Yes	Replace the harness with a normal part.
Connection between main PCB and control panel PCB	5	Main PCB and control panel PCB are properly connected.	No	Fix the connection properly.
Harness between main PCB and control panel PCB	6	Harness is damaged.	Yes	Replace the harness with a normal part.
Rubber key	7	Replacement of rubber key solves the problem.	Yes	Replace the rubber key with a normal part.
NCU PCB	8	Replacement of NCU PCB solves the problem.	Yes	Replace the NCU PCB with a normal part.
Control panel PCB	9	Replacement of control panel PCB solves the problem.	Yes	Replace the control panel PCB with a normal part.

(F-3) FAX can't be received.

User Check

(1) Verify that the telephone cord is securely inserted.

Possible cause	Step	Check	Result	Remedy
Receive mode setting	1	Receive mode is set to automatic receive mode.	No	Set the receive mode to automatic receive mode.
NCU PCB	2	Replacement of NCU PCB solves the problem.	Yes	Replace the NCU PCB with a normal part.
Main PCB	3	Replacement of main PCB solves the problem.	Yes	Replace the main PCB with a normal part.

(F-4) No bell ring.

Possible cause	Step	Check	Result	Remedy
Ring delay	1	Ring delay is set to "0".	Yes	Set the ring delay to other than "0".
Ring volume	2	Ring volume is set to "OFF".	Yes	Set the ring volume to other than "OFF".
Connection between main PCB and NCU PCB	3	Main PCB and NCU PCB are properly connected.	No	Fix the connection properly.
Harness between main PCB and NCU PCB	4	Harness is damaged.	Yes	Replace the harness with a normal part.
Speaker	5	Replacement of speaker solves the problem.	Yes	Replace the speaker with a normal part.
NCU PCB	6	Replacement of NCU PCB solves the problem.	Yes	Replace the NCU PCB with a normal part.
Main PCB	7	Replacement of main PCB solves the problem.	Yes	Replace the main PCB with a normal part.

(F-5) Speaker is silent during on-hook dialing.

Possible cause	Step	Check	Result	Remedy
Connection between main PCB and speaker	1	Main PCB and speaker are properly connected.	No	Fix the connection properly.
Speaker	2	Replacement of speaker solves the problem.	Yes	Replace the speaker with a normal part.
Connection between main PCB and NCU PCB	3	Main PCB and NCU PCB are properly connected.	No	Fix the connection properly.
Harness between main PCB and NCU PCB	4	Harness is damaged.	Yes	Replace the harness with a normal part.
Connection between main PCB and control panel PCB	5	Main PCB and control panel PCB are properly connected.	No	Fix the connection properly.
Harness between main PCB and control panel PCB	6	Harness is damaged.	Yes	Replace the harness with a normal part.
NCU PCB	7	Replacement of NCU PCB solves the problem.	Yes	Replace the NCU PCB with a normal part.
Main PCB	8	Replacement of main PCB solves the problem.	Yes	Replace the main PCB with a normal part.

(F-6) Dialing function does not switch between "tone" and "pulse".

Possible cause	Step	Check	Result	Remedy
Connection between main PCB and NCU PCB	1	Main PCB and NCU PCB are properly connected.	No	Fix the connection properly.
Harness between main PCB and NCU PCB	2	Harness is damaged.	Yes	Replace the harness with a normal part.
NCU PCB	3	Replacement of NCU PCB solves the problem.	Yes	Replace the NCU PCB with a normal part.
Main PCB	4	Replacement of main PCB solves the problem.	Yes	Replace the main PCB with a normal part

MFC-8460N/8860DN/8870DW
DCP-8060/8065DN

APPENDIX 1. SERIAL NUMBERING SYSTEM

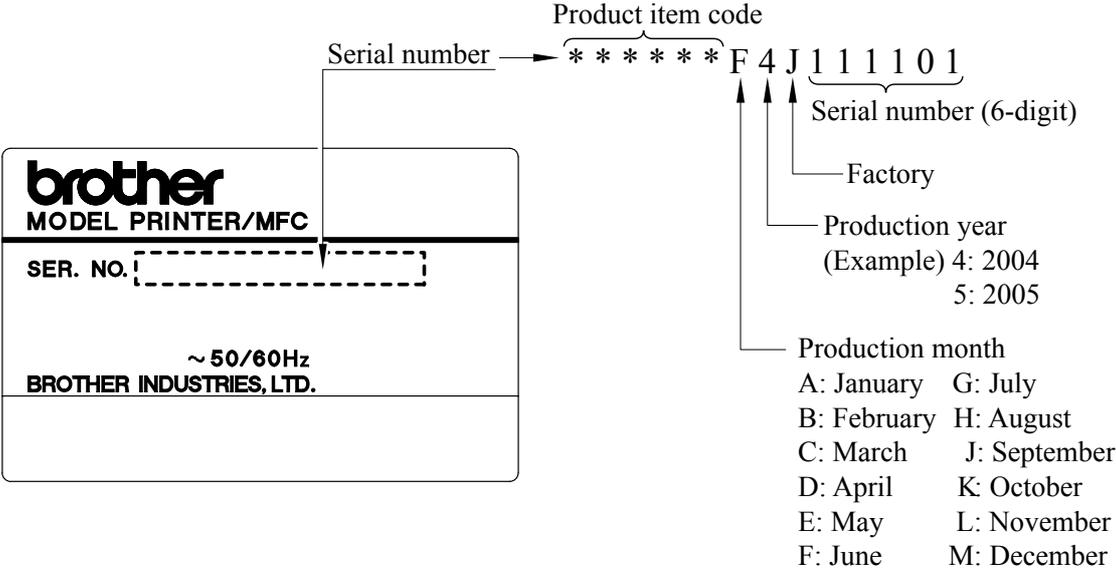
This appendix shows the location of serial number labels put on some parts and lists the coding information pertaining to the serial numbers.

SERIAL NUMBERING SYSTEM

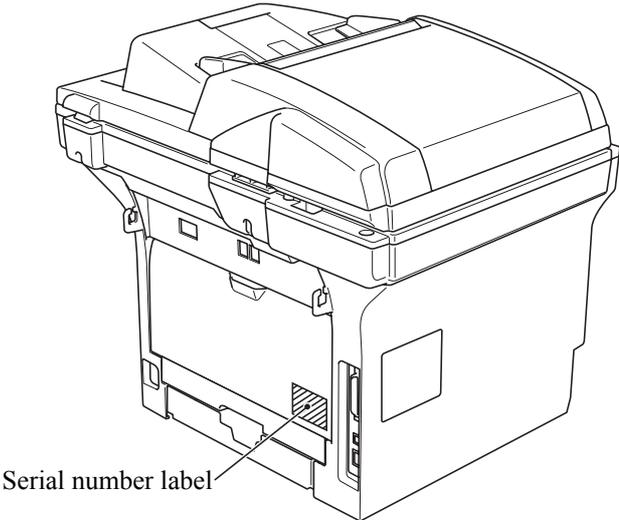
Individual machines have a serial number label for the machine itself and a property label for the head/carriage unit.

This section lists the coding information for those serial numbers and property codes.

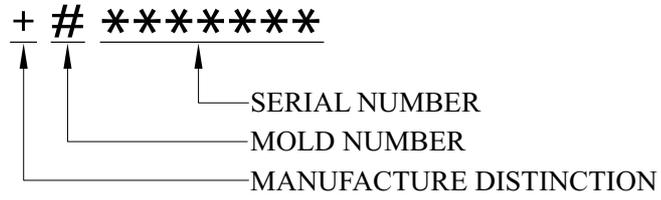
(1) Serial number label for the machine itself



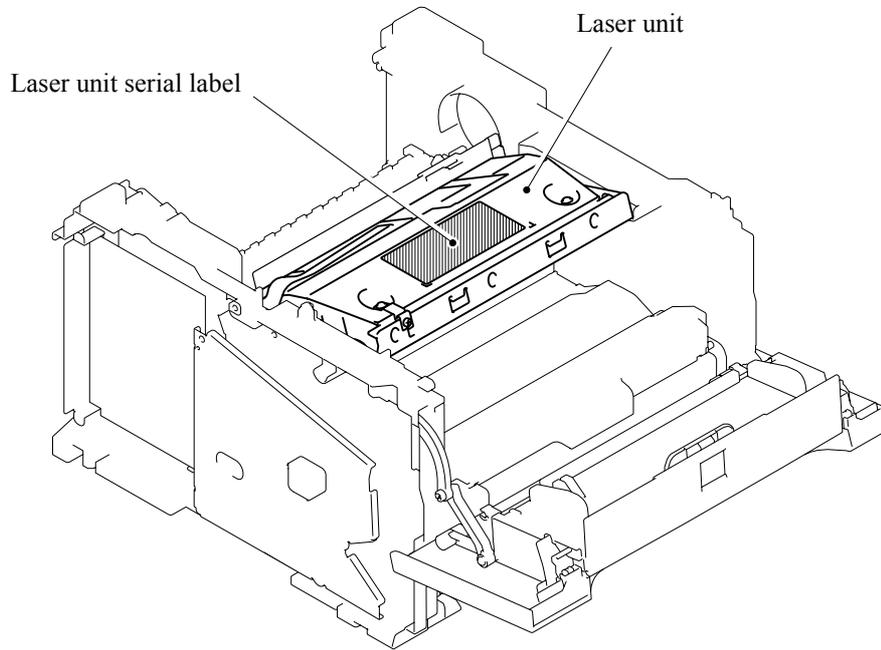
Location



(2) Laser unit serial label



Location



MFC-8460N/8860DN/8870DW DCP-8060/8065DN

APPENDIX 2. FIRMWARE INSTALLATION

This appendix provides instructions on how to update firmware stored in the flash ROM on the main PCB or load firmware to a new main PCB from the host PC.

No hardware replacement is required for updating.

A2.1	INSTALLING THE UPDATE DATA TO THE MACHINE	App. 2-1
A2.2	SETTING ID CODES TO MACHINES	App. 2-7

A2.1 INSTALLING THE UPDATE DATA TO THE MACHINE

If you want to update the current program stored in the flash ROM of the main PCB to the newer version or after you replace the main PCB, install the update program onto the flash ROM. The program installation requires a PC/AT-compatible computer (which is capable of running MS-DOS or its compatible OS).

If you use parallel interface

< Connecting the Machine to Your PC >

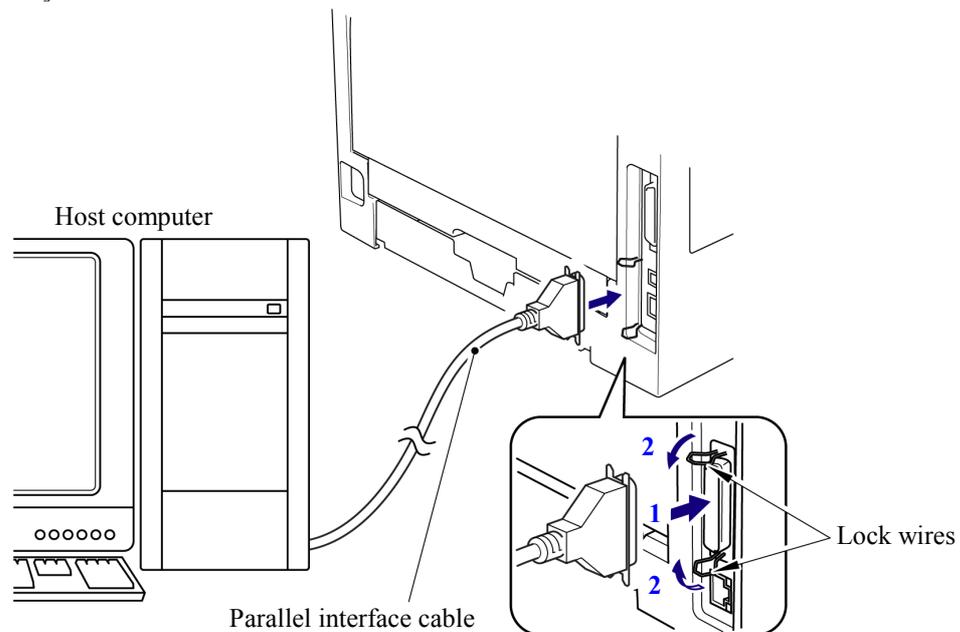
- (1) Make sure that your PC is turned off.
- (2) Make sure that the power cord of the machine is unplugged from a wall socket or other power source.
- (3) Connect the parallel interface cable to the parallel port on the back of the machine and secure it with the lock wires.
- (4) Connect the other end of the interface cable to the machine port of your PC and secure it with the two screws.

< Setting up the Machine and Your PC >

- (1) Plug the power cord of the machine into a wall socket, and turn on the power switch while pressing the [5] key on the machine's control panel.
- (2) Check to see that the following pattern displays on the LCD. If it does not display, go back to step (2) above.



- (3) Turn on your PC.



Installing the Update Data onto the Flash ROM of the Machine

< On a PC running Windows 95 >

- (1) Copy the update data and transfer utility onto the desired same directory of the hard disk. e.g., C:\UPDATE
- (2) Click the **Start** button, point to Programs, and then click MS-DOS Prompt to open an MS-DOS window.
- (3) Type the drive letter where the update data and transfer utility are located. In the above example, type C:\ from the command line and press the **Enter** key.
Then type CD UPDATE and press the **Enter** key.
- (4) To start the transfer utility transmitting the update data to the flash ROM of the machine, type the following:
ICEN *filename* /b
Where *filename* is an update data file, e.g., 8870xxxx.dat.
Then press the **Enter** key.
During downloading, the machine beeps *intermittently*.
Upon completion of the downloading, the machine beeps *continuously*.
NOTE: If the machine cannot return to the standby state after completion of downloading, turn the power off and on.

< On a PC running Windows 98/Me/2000/XP >

- (1) Install the printer driver for the parallel port to your PC. (Once installed, no more printer driver is required for your PC.)
- (2) Copy the update data onto the desired directory of the hard disk.
e.g., C:\UPDATE
- (3) Copy the transfer utility "Filedg32.exe" onto the desired directory of the hard disk.
- (4) Run "Filedg32.exe".
The Filedrgs window will appear as shown below. (e.g., MFC-8870DW)
- (5) Drag and drop the update data onto the icon of the model being used in the Filedrgs windows.
During downloading, the machine beeps *intermittently*.
Upon completion of the downloading, the machine beeps *continuously*.
NOTE: If the machine cannot return to the standby state after completion of downloading, turn the power off and on.

If you use USB cable

< Preparation >

You need to have the BHL2-Maintenance Printer driver and FILEDG32.exe (provided by Brother Industries) on hand. Save them in an arbitrary folder in your PC.

< Installing the BHL2-Maintenance Printer driver >

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

NOTE: Once this installation procedure is carried out for a PC, no more driver/software installation will be required for that PC to identify machines. If the BHL2-Maintenance Printer driver has been already installed to your PC according to this procedure, skip this section.

NOTE: Before proceeding to the procedure given below, make sure that the BHL2-Maintenance Printer driver is stored in your PC.

- (1) Make sure that the power cord of the machine is unplugged from the electrical outlet. If the machine is connected to a PC, unplug the USB cable.
- (2) Switch on your PC.
- (3) Plug the power cord of the machine into an electrical outlet.
- (4) Press the **[Menu]** and **[Start]** keys. Next press the **[▲]** key four times to make the machine enter the maintenance mode. (Refer to [Chapter 8](#).)

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

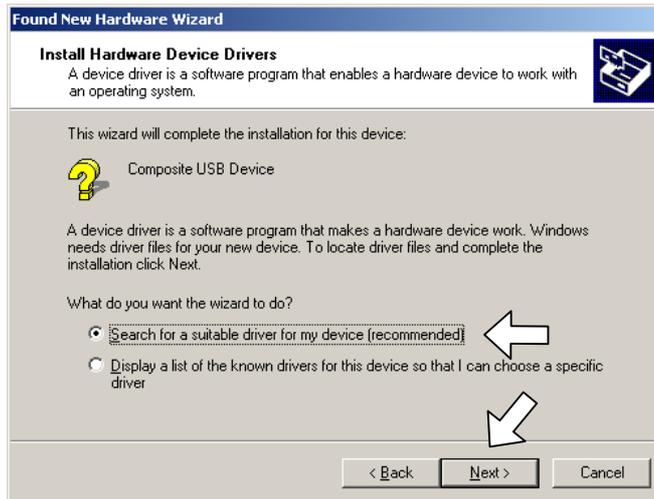
- (5) Connect the machine to your PC using the USB cable.
The following window appears.



- (6) The following screen appears, indicating the detection of new hardware device by the system. Click **Next** to proceed.



- (7) Select “Search for a suitable driver for my device (recommended)” and click **Next**.



- (8) Select “Specify a location” and click **Next**.



- (9) Select the “OEMDVLP.inf” from a folder where the “BR_DEVELOP” file is extracted, then click **OK**.
- (10) Click **Next**.



- (11) To proceed, click **Yes**.



- (12) If the driver is successfully installed, the following message window appears. Click **Finish** to return to Windows.



Writing the update programs/data onto the flash ROM of the machine

After the installation procedure of the printer driver, proceed to the firmware writing operation. If the printer driver has been installed so that you start from writing firmware, unplug the power cord from the electrical outlet.

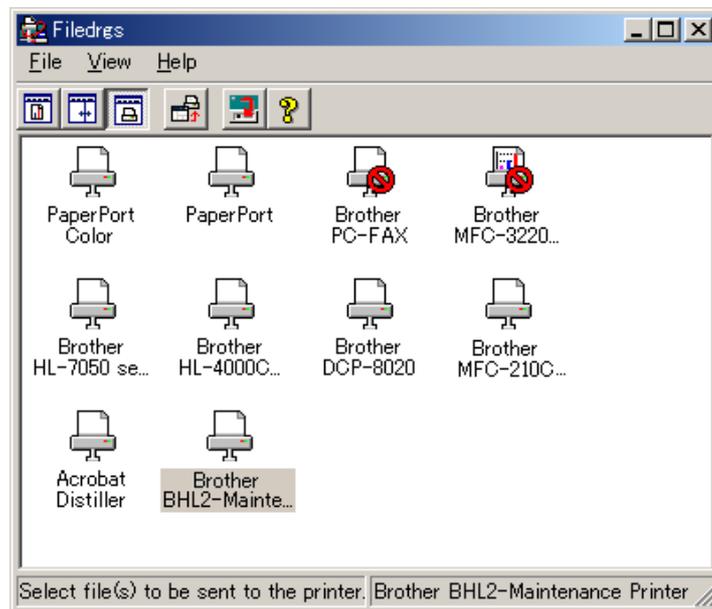
While holding down the [5] key, plug the power cord into an electrical outlet.

The machine should show the black and white pattern on the LCD.

NOTE: Never unplug the machines or PC's power cord or the USB cable during writing.

- (1) Run "FILEDRG32.exe."

The Filedrgs window will appear as shown below.



- (2) Drag and drop the firmware (e.g., LZ0023_A.upd) onto the BHL2-Maintenance Printer icon in the Filedrgs window shown above.

NOTE: Use a firmware file after extracting. It is a self-extracting file having the extension .exe. Double-click the exe file to extract it.

When writing operation starts, the machine beeps intermittently. After approx. 2 to 5 minutes, the writing operation is complete and the machine automatically reboots and returns to the standby state.

- (3) Press the [*] and [#] keys at the same time when the machine is on standby. The firmware version appears on the LCD.

NOTE: The latest firmware will display its version on the LCD by pressing the [Stop/Exit] and [▲] keys at the same time.

- (4) If downloading finishes abnormally, turn the machine off and on. The machine automatically enters the write mode and emits a large beep. Perform the writing procedure above again.

A2.2 SETTING ID CODES TO MACHINES

Brother driver machines are assigned unique ID codes (character strings) at the factory. If you replace the main PCB of the machine, the machine will lose its assigned ID code so that it will not be identified by the connected PC*.

You need to assign a unique ID code (character string) to the machine according to the procedure given here. For models covered by this manual, set serial numbers given to individual machines as ID codes.

(* ID codes are essential when more than one machine is connected to a single PC via USB.)

Please check the printer driver of MFC-8460N, MFC-8860DN, MFC-8870DW, DCP-8060 or DCP-8065DN is installed in a host computer before working. When not installed. Please install a printer driver in a host computer before working.

- (1) Double-click the brmainte.EXE file (maintenance utility).
- (2) Select Input Information from Menu. Select the applicable model name.
- (3) Check the port (USB) which the machine is connected through and click "Serial No." in the lower box. Enter the serial number (the last nine digits) of the machine into the box at the right hand side and click the **OK** button. The serial number is shown in the window, and check that it is correct. The setting of the serial number is completed.

MFC-8460N/8860DN/8870DW DCP-8060/8065DN

APPENDIX 3. CUSTOMIZING CODES ACCORDING TO SHIPPING DESTINATION

This appendix lists the customizing codes for the various preferences exclusively designed for each destination (e.g. language). Those codes are stored in the memory (EEPROM) mounted on the main PCB. If the main PCB is replaced with a new one, therefore, you will need to set the proper customizing codes with the machine in the maintenance mode.

EEPROM CUSTOMIZING CODES

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

Operating Procedure

- (1) Press the **[Menu]** and **[Start]** keys. Next press the **[▲]** key four times to make the machine enter the maintenance mode.

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

The machine beeps for approx. one second and displays “■■ MAINTENANCE ■■■” on the LCD.

- (2) Press the **[7]** and **[4]** keys in this order in the initial stage of the maintenance mode. The current customizing code (e.g., 0002 in the case of DCP-8060 Canada model) appears.
- (3) Enter the desired customizing code (e.g., 0001 in the case of DCP-8060 U.S.A. model). The newly entered code appears.
To enter letters “A” through “F”, press the **[1]** through **[6]** keys while holding down the **[#]** key, respectively.

NOTE: If a wrong 4-digit code is entered, the machine will malfunction.

- (4) Press the **[Start]** key.
The machine saves the setting and returns to the initial stage of the maintenance mode.
If you press the **[Stop/Exit]** key or no keys are pressed for one minute in the above procedure, the machine stops the procedure and returns to the initial stage of the maintenance mode.

MFC-8460N/8860DN/8870DW DCP-8060/8065DN

APPENDIX 4. FIRMWARE SWITCHES (WSW)

This appendix describes the functions of the firmware switches, which can be divided into two groups: one is for customizing preferences designed for the shipping destination (as described in [Appendix 3](#)) and the other is for modifying preferences that match the machine to the environmental conditions. Use the latter group if the machine malfunctions due to mismatching.

WSW No.	Function	Refer to:
WSW01	Dial pulse setting	App. 4-3
WSW02	Tone signal setting	App. 4-4
WSW03	PABX mode setting	App. 4-5
WSW04	TRANSFER facility setting	App. 4-6
WSW05	1st dial tone and busy tone detection	App. 4-7
WSW06	[Redial/Pause] key setting and 2nd dial tone detection	App. 4-9
WSW07	Dial tone setting 1	App. 4-11
WSW08	Dial tone setting 2	App. 4-12
WSW09	Protocol definition 1	App. 4-13
WSW10	Protocol definition 2	App. 4-14
WSW11	Busy tone setting	App. 4-15
WSW12	Signal detection condition setting	App. 4-16
WSW13	Modem setting	App. 4-17
WSW14	AUTO ANS facility setting	App. 4-18
WSW15	REDIAL facility setting	App. 4-19
WSW16	Function setting 1	App. 4-20
WSW17	Function setting 2	App. 4-21
WSW18	Function setting 3	App. 4-22
WSW19	Transmission speed setting	App. 4-23
WSW20	Overseas communications mode setting	App. 4-24
WSW21	TAD setting 1	App. 4-25
WSW22	ECM and call waiting caller ID	App. 4-26
WSW23	Communications setting	App. 4-27
WSW24	TAD setting 2	App. 4-28
WSW25	TAD setting 3	App. 4-29
WSW26	Function setting 4	App. 4-30
WSW27	Function setting 5	App. 4-31
WSW28	Function setting 6	App. 4-32
WSW29	Function setting 7	App. 4-33
WSW30	Function setting 8	App. 4-34
WSW31	Function setting 9	App. 4-35
WSW32	Function setting 10	App. 4-36
WSW33	Function setting 11	App. 4-37
WSW34	Function setting 12	App. 4-38
WSW35	Function setting 13	App. 4-39
WSW36	Function setting 14	App. 4-40
WSW37	Function setting 15	App. 4-41

WSW No.	Function	Refer to:
WSW38	V.34 transmission settings	App. 4-42
WSW39	V.34 transmission speed	App. 4-43
WSW40	V.34 modem settings	App. 4-44
WSW41	ON-duration of the scanning light source	App. 4-46
WSW42	Internet mail settings	App. 4-47
WSW43	Function setting 21	App. 4-47
WSW44	Speeding up scanning-1	App. 4-48
WSW45	Speeding up scanning-2	App. 4-49
WSW46	Monitor of power ON/OFF state and parallel port kept at high	App. 4-50
WSW47	Switching between high- and full-speed USB	App. 4-51
WSW48	USB setup latency	App. 4-52
WSW49	End-of-copying beep and print in black	App. 4-52
WSW50	SDAA settings	App. 4-53
WSW51	Function setting 16	App. 4-54
WSW52	Not used.	App. 4-54
WSW53	Function setting 18	App. 4-54

WSW01 (Dial pulse setting)

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

- Selectors 1 and 2: Dial pulse generation mode

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

N: Dialing "N" generates "N" pulses. (Dialing "0" generates 10 pulses.)

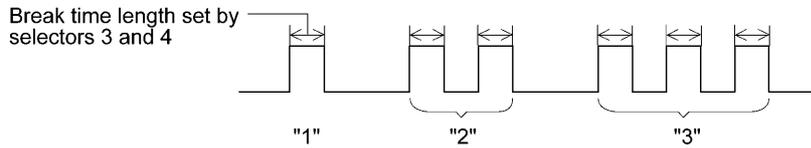
N + 1: Dialing "N" generates "N + 1" pulses.

10 - N: Dialing "N" generates "10 - N" pulses.

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

These selectors set the break time length in pulse dialing.

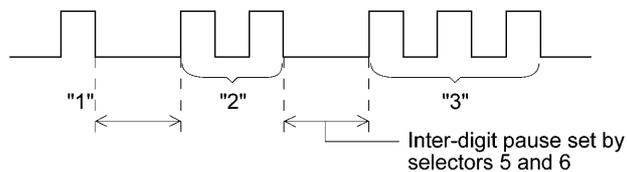
(Example: If "1," "2," and "3" are dialed when N is set by selectors 1 and 2.)



- Selectors 5 and 6: Inter-digit pause

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

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



- Selector 7: Switching between pulse (DP) and tone (PB) dialing, by the function switch

This selector determines whether or not the dialing mode can be switched between the pulse (DP) and tone (PB) dialing by using the function switch.

- Selector 8: Default dialing mode, pulse (DP) or tone (PB) dialing

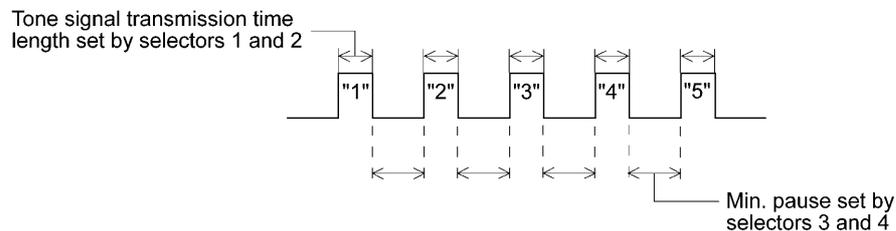
This selector sets the default dialing mode (pulse dialing or tone dialing) which can be changed by the function switch. If the user switches it with the function switch when selector 7 is set to "0," the setting specified by this selector will also be switched automatically.

WSW02 (Tone signal setting)

Selector No.	Function	Setting and Specifications
1 2	Tone signal transmission time length	No. 1 2 0 0 : 70 ms 0 1 : 80 ms 1 0 : 90 ms 1 1 : 100 ms
3 4	Min. pause in tone dialing	No. 3 4 0 0 : 70 ms 0 1 : 80 ms 1 0 : 90 ms 1 1 : 140 ms
5 8	Attenuator for pseudo ring backtone to the line (selectable in the range of 0-15 dB, in 1 dB increments)	0: 0 dB 1: 8 dB 0: 0 dB 1: 4 dB 0: 0 dB 1: 2 dB 0: 0 dB 1: 1 dB

- Selectors 1 through 4: Tone signal transmission time length and Min. pause in tone dialing

These selectors set the tone signal transmission time length and minimum pause in tone dialing. (Example: If "1," "2," "3," "4," and "5" are dialed.)



- Selectors 5 through 8: Attenuator for pseudo ring backtone to the line

These selectors are used to adjust the sound volume of a ring backtone in the F/T mode, an on-hold sound, or a beep generated as a signal during remote control operation or at the start of ICM recording.

The larger the value specified by these selectors, the greater the attenuation.

WSW03 (PABX* mode setting)

Selector No.	Function	Setting and Specifications
1	CNG detection when sharing a modular wall socket with a telephone	0: A 1: B
2 4	Detection time length of PABX* dial tone, required for starting dialing (Not used.)	No. 2 3 4 0 0 0 : 50 ms 0 0 1 : 210 ms 0 1 0 : 500 ms 0 1 1 : 800 ms 1 0 0 : 900 ms 1 0 1 : 1.5 sec. 1 1 0 : 2.0 sec. 1 1 1 : 2.5 sec.
5	CNG detection when sharing a modular wall socket with a telephone	0: A 1: B
6 7	Dial tone detection in PABX* (Not used.)	No. 6 7 0 0 : No detection (3.5 sec. WAIT) 0 1 : No detection (5 sec. WAIT) 1 0 : No detection (7 sec. WAIT) 1 1 : Detection (Frequency only)
8	Not used.	

* PABX: Private automatic branch exchange

NOTE: Selectors 2 through 4, 6 and 7 are not applicable where no PABX is installed.

- Selectors 1 and 5: CNG detection when sharing a modular wall socket with a telephone

These selectors determine whether or not the machine detects a CNG signal when a line is connected to a telephone sharing a modular wall socket with the machine. Upon detection of CNG signals by the number of cycles specified by these selectors, the machine interprets CNG as an effective signal and then starts FAX reception.

Selector		Cycle
No. 1	No. 5	
0 (A)	0 (A)	0.5 cycle
0 (A)	1 (B)	1.0 cycle
1 (B)	0 (A)	1.5 cycles
1 (B)	1 (B)	2.0 cycles

- Selectors 2 through 4: Detection time length of PABX dial tone, required for starting dialing (Not used.)

Upon detection of the PABX dial tone for the time length set by these selectors, the machine starts dialing.

These selectors are effective only when both selectors 6 and 7 are set to "1" (Detection).

- Selectors 6 and 7: Dial tone detection in PABX (Not used.)

These selectors activate or deactivate the dial tone detection function which detects a dial tone when a line is connected to the PABX.

Setting both of these selectors to "1" activates the dial tone detection function so that the machine starts dialing upon detection of a dial tone when a line is connected.

Other setting combinations deactivate the dial tone detection function so that the machine starts dialing after the specified WAIT (3.5, 5.0, or 7.0 sec.) without detection of a dial tone when a line is connected.

WSW04 (TRANSFER facility setting)

Selector No.	Function	Setting and Specifications
1	Earth function in transfer facility (Not used.)	0: Provided 1: Not provided
2 3	Dual tone detection frequency in ICM recording (Not used.)	No. 2 3 0 0 : 350 and 440 Hz (A) 0 1 : 440 and 480 Hz (B) 1 0 : } 480 and 620 Hz (C) 1 1 : }
4	Dual tone detection sensitivity in ICM recording (Not used.)	0: Normal 1: High
5	Added time to maximum OGM recording time (WSW24 Selector 1, 2) and erasing time length of ICM tone recorded preceding the tone detection starting point in the case of automatic line disconnection due to no voice signal received (WSW34 Selector 1 to 3).	0: Not added 1: +4 seconds added
6 8	Break time length for flash function	No. 6 7 8 0 0 0 : 80 ms 0 0 1 : 100 ms 0 1 0 : 110 ms 0 1 1 : 120 ms 1 0 1 : 200 ms 1 0 1 : 250 ms 1 1 0 : 500 ms 1 1 1 : 700 ms

NOTE: Selectors 1 and 5 through 8 are not applicable in those countries where no transfer facility is supported.

NOTE: Selectors 2 through 4 are applicable to models equipped with built-in TADs.

- Selector 1: Earth function in transfer facility (Not used.)

This selector determines whether or not the earth function is added to the transfer setting menu to be accessed by the function switch.

- Selectors 2 and 3: Dual tone detection frequency in ICM recording (Not used.)

If the machine detects either of the frequencies set by these selectors in ICM recording, it disconnects the line. For example, if these selectors are set to "0, 0," the machine disconnects the line upon detection of 350 Hz or 440 Hz.

- Selector 4: Dual tone detection sensitivity in ICM recording (Not used.)

Setting this selector to "1" increases the tone detection sensitivity in ICM recording.

- Selectors 5 and 6: Earth time length for earth function (Not used.)

These selectors set the short-circuiting time length of the telephone line (La or Lb) to ground. This setting is effective only when the earth function is selected for the [R] key by using the function switch.

- Selectors 7 and 8: Break time length for flash function

These selectors set the break time length.

This setting is effective only when the flash function is selected for the [Search/Speed Dial] key by using the function switch.

WSW05 (1st dial tone and busy tone detection)

Selector No.	Function	Setting and Specifications
1 3	1st dial tone detection	No. 1 2 3 0 0 0 : 3.5 sec. WAIT 0 0 1 : 7.0 sec. WAIT 0 1 0 : 10.5 sec. WAIT 0 1 1 : 14.0 sec. WAIT 1 0 0 : 17.5 sec. WAIT 1 0 1 : 21.0 sec. WAIT 1 1 0 : 24.5 sec. WAIT 1 1 1 : Detection (Without WAIT)
4	Max. pause time allowable for remote ID code detection	0 : 2 seconds 1: 1 second
5 6	Busy tone detection in auto-matic sending mode	No. 5 6 0 0 : No detection 0 1 : Detection only after dialing 1 0 : No detection 1 1 : Detection before and after dialing
7	Busy tone detection in auto-matic receiving mode	0: Yes 1: No
8	Not used.	

NOTE: Selectors 5 through 7 are not applicable in those countries where no busy tone detection is supported.

- Selectors 1 through 3: 1st dial tone detection

These selectors activate or deactivate the 1st dial tone detection function which detects the 1st dial tone issued from the PSTN when a line is connected to the PSTN.

Setting all of these selectors to "1" activates the dial tone detection function so that the machine starts dialing upon detection of a dial tone when a line is connected. (However, in those countries which support no dial tone detection function, e.g., in the U.S.A., setting these selectors to "1" makes the machine start dialing after a WAIT of 3.5 seconds.) For the detecting conditions of the 1st dial tone, refer to WSW07 and WSW08.

Other setting combinations deactivate the dial tone detection function so that the machine starts dialing after the specified WAIT (3.5, 7.0, 10.5, 14.0, 17.5, 21.0, or 24.5 seconds) without detection of a dial tone when a line is connected to the PSTN.

- Selector 4: Max. pause time allowable for remote ID code detection

This selector sets the maximum pause time allowable for detecting the second digit of a remote ID code after detection of the first digit in remote reception.

If selector 4 is set to "0" (2 seconds), for instance, only a remote ID code whose second digit is detected within 2 seconds after detection of the first digit will become effective so as to activate the remote function.

- Selectors 5 and 6: Busy tone detection in automatic sending mode

These selectors determine whether or not the machine automatically disconnects a line upon detection of a busy tone in automatic sending mode.

Setting selector 6 to "0" ignores a busy tone so that the machine does not disconnect the line.

Setting selectors 5 and 6 to "0" and "1," respectively, makes the machine detect a busy tone only after dialing and disconnect the line.

Setting both of selectors 5 and 6 to "1" makes the machine detect a busy tone before and after dialing and then disconnect the line.

- Selector 7: Busy tone detection in automatic receiving mode

This selector determines whether or not the machine automatically disconnects the line upon detection of a busy tone in automatic receiving mode.

WSW06 (Redial/Pause key setting and 2nd dial tone detection)

Selector No.	Function	Setting and Specifications
1 3	[Redial/Pause] key setting and 2nd dial tone detection	No.1 2 3 0 0 0 : No pause 0 0 1 : 3.5 sec. WAIT 0 1 0 : 7 sec. WAIT 0 1 1 : 10.5 sec. WAIT 1 0 0 : 2.8 sec. WAIT 1 1 0 : 2nd dial tone detection only in pulse dialing (DP) system 1 0 1 : } 2nd dial tone detection 1 1 1 : } both in DP and push-button (PB) dialing system
4 6	Detection of international tone	No.4 5 6 0 0 0 : 50 ms 0 0 1 : 210 ms 0 1 0 : 500 ms 0 1 1 : 800 ms 1 0 0 : 900 ms 1 0 1 : 1.5 sec. 1 1 0 : 2.0 sec. 1 1 1 : 2.5 sec.
7	No. of 2nd dial tone detection cycles	0: 1 cycle 1: 2 cycles
8	Allowable instantaneous interrupt during reception of 2nd dial tone	0: 30 ms 1: 50 ms

NOTE: Selectors 4 through 8 are not applicable in those countries where no dial tone detection is supported, e.g., U.S.A.

- Selectors 1 through 3: Redial/Pause key setting and 2nd dial tone detection

Selectors			
1	2	3	
0	0	0	No WAIT is inserted even if the [Redial/Pause] key is pressed.
0	0	1	If you press the [Redial/Pause] key during dialing, the machine will insert WAIT as defined in the above table. If the [Redial/Pause] key is pressed repeatedly, the machine inserts the specified WAIT multiplied by the number of depressions. It applies also in hook-up dialing.
0	1	0	
0	1	1	
1	0	0	
1	0	1	When these selectors are set to "1, 0, 1": Each time you press the [Redial/Pause] key in dialing, the machine will wait for the 2nd dial tone to be sent via the communications line regardless of pulse dialing or tone dialing. When these selectors are set to "1, 1, 0": If you press the [Redial/Pause] key in pulse dialing, the machine will first wait for the 2nd dial tone to be sent via the communications line. After that, pressing the [Redial/Pause] key will cause the machine to insert a WAIT of 3.5 seconds. In tone dialing, the machine will insert a WAIT of 3.5 seconds. When these selectors are set to "1, 1, 1": If you press the [Redial/Pause] key, the machine will first wait for the 2nd dial tone to be sent via the communications line regardless of pulse dialing or tone dialing. After that, pressing the [Redial/Pause] key will cause the machine to insert a WAIT of 3.5 seconds. (In those countries where no dial tone detection function is supported, setting these selectors to "1, 0, 1," "1, 1, 0," or "1, 1, 1" inserts a WAIT of 3.5 seconds.)
1	1	0	
1	1	1	

- Selectors 4 through 6: Detection of international tone

Upon detection of the 2nd dial tone for the time length specified by these selectors, the machine starts dialing.

This setting is effective only when the 2nd dial tone detection function is activated by selectors 1 through 3 (Setting 101, 110, or 111).

This function does not apply in those countries where no dial tone detection function is supported.

- Selector 7: No. of 2nd dial tone detection cycles

This selector sets the number of dial tone detection cycles required for starting dialing.

- Selector 8: Allowable instantaneous interrupt during reception of 2nd dial tone

This selector sets the allowable instantaneous interrupt period that should be ignored during reception of the 2nd dial tone.

WSW07 (Dial tone setting 1)

Selector No.	Function	Setting and Specifications
1 2	Dial tone frequency band control	No. 1 2 0 0 : Narrows by 10 Hz 0 1 : Initial value 1 X : Widens by 10 Hz
3	Line current detection (Not used.)	0: No 1: Yes
4 6	2nd dial tone detection level (Z = 600 Ω)	No. 4 5 6 0 0 0 : -21 dBm 0 0 1 : -24 dBm 0 1 0 : -27 dBm 0 1 1 : -30 dBm 1 0 0 : -33 dBm 1 0 1 : -36 dBm 1 1 0 : -39 dBm 1 1 1 : -42 dBm
7	Allowable instantaneous interrupt during reception of 1st dial tone	0: 30 ms 1: 50 ms
8	Not used.	

NOTE: Selectors 1, 2, 4 through 7 are not applicable in those countries where no dial tone or line current detection is supported, e.g., U.S.A.

NOTE: Selector 3 is not applicable to those models having no loop current detection function.

- Selectors 1 and 2: Dial tone frequency band control

These selectors set the frequency band for the 1st dial tone and busy tone (before dialing) to be detected.

This setting is effective only when selectors 1 through 3 on WSW05 are set to "1,1,1."

- Selector 3: Line current detection (Not used.)

This selector determines whether or not to detect a line current before starting dialing.

- Selectors 4 through 6: 2nd dial tone detection level

These selectors set the detection level of the 2nd dial tone.

- Selector 7: Allowable instantaneous interrupt during reception of 1st dial tone

This selector sets the allowable instantaneous interrupt period that should be ignored during reception of the 1st dial tone.

WSW08 (Dial tone setting 2)

Selector No.	Function	Setting and Specifications
1 3	1st dial tone detection time length	No. 1 2 3 0 0 0 : 50 ms 0 0 1 : 210 ms 0 1 0 : 500 ms 0 1 1 : 800 ms 1 0 0 : 900 ms 1 0 1 : 1.5 sec. 1 1 0 : 2.0 sec. 1 1 1 : 2.5 sec.
4 5	Time-out length for 1st and 2nd dial tone detection	No. 4 5 0 0 : 10 sec. 0 1 : 20 sec. 1 0 : 15 sec. 1 1 : 30 sec.
6 8	Detection level of 1st dial tone and busy tone before dialing	No. 6 7 8 0 0 0 : -21 dBm 0 0 1 : -24 dBm 0 1 0 : -27 dBm 0 1 1 : -30 dBm 1 0 0 : -33 dBm 1 0 1 : -36 dBm 1 1 0 : -39 dBm 1 1 1 : -42 dBm

NOTE: The WSW08 is not applicable in those countries where no dial tone detection is supported, e.g., U.S.A.

- Selectors 1 through 3: 1st dial tone detection time length

Upon detection of the 1st dial tone for the time length set by these selectors, the machine starts dialing.

This setting is effective only when selectors 1 through 3 on WSW05 are set to "1,1,1."

- Selectors 4 and 5: Time-out length for 1st and 2nd dial tone detection

These selectors set the time-out length for the 1st and 2nd dial tone detection so that the machine waits dial tone input for the specified time length and disconnects itself from the line when no dial tone is inputted.

WSW10 (Protocol definition 2)

Selector No.	Function	Setting and Specifications
1	Not used.	
2	Time length from transmission of the last dial digit to CML ON	0: 100 ms 1: 50 ms
3	Time length from CML ON to CNG transmission	0: 2 sec. 1: 4 sec.
4	Time length from CML ON to CED transmission (except for facsimile-to-telephone switching)	0: 0.5 sec. 1: 2 sec.
5 6	No. of training retries	No. 5 6 0 0 : 1 time 0 1 : 2 times 1 0 : 3 times 1 1 : 4 times
7	Encoding system (Compression)	MR 0: Allowed 1: Not allowed
8		MMR 0: Allowed 1: Not allowed

- Selector 2: Time length from transmission of the last dial digit to CML ON

This selector sets the time length from when the machine transmits the last dial digit until the CML relay comes on.

- Selector 3: Time length from CML ON to CNG transmission

This selector sets the time length until the machine transmits a CNG after it turns on the CML relay.

- Selector 4: Time length from CML ON to CED transmission

This selector sets the time length until the machine transmits a CED after it turns on the CML relay. This setting does not apply to switching between facsimile and telephone.

- Selectors 5 and 6: No. of training retries

These selectors set the number of training retries to be repeated before automatic fallback.

- Selectors 7 and 8: Encoding system (Compression)

This selector determines whether or not to allow the use of the MR/MMR coding system.

WSW11 (Busy tone setting)

Selector No.	Function	Setting and Specifications
1 2	Busy tone frequency band control	No. 1 2 0 0 : Narrows by 10 Hz 0 1 : Initial value 1 x : Widens by 10 Hz
3		1: 250-750/250-750 ms
4	ON/OFF time length ranges for busy tone (More than one setting allowed)	1: 400-600/400-600 ms
5		1: 175-440/175-440 ms
6		1: 100-1000 ms/17-660 ms
7		1: 110-410/320-550 ms
8		1: 100-660/100-660 ms

NOTE: WSW11 is not applicable in those countries where no busy tone detection is supported.

NOTE: The setting of WSW11 is effective only when selectors 5 and 6 on WSW05 are set to "0, 1" or "1, 1" (Busy tone detection).

- Selectors 1 and 2: Busy tone frequency band control

These selectors set the frequency band for busy tone to be detected.

- Selectors 3 through 8: ON/OFF time length ranges for busy tone

These selectors set the ON and OFF time length ranges for busy tone to be detected. If more than one selector is set to "1," the ranges become wider. For example, if selectors 4 and 5 are set to "1," the ON and OFF time length ranges are from 175 to 600 ms.

WSW12 (Signal detection condition setting)

Selector No.	Function	Setting and Specifications
1 2	Min. detection period required for interpreting incoming calling signal (CI) as OFF	No. 1 2 0 0 : 1500 ms 0 1 : 500 ms 1 0 : 700 ms 1 1 : 900 ms
3 4	Max. detection period for incoming calling signal (CI) being OFF	No. 3 4 0 0 : 6 sec. 0 1 : 7 sec. 1 0 : 9 sec. 1 1 : 11 sec.
5 6	Min. detection period required for acknowledging incoming calling signal (CI) as ON	No. 5 6 0 0 : 800 ms (1000 ms*) 0 1 : 200 ms 1 0 : 250 ms 1 1 : 150 ms
7	Line connection timing (Not used.)	0: Ringer-OFF period (default) 1: Ringer-ON period
8	Not used.	

*1000 ms in Chinese models.

- Selectors 1 through 4: Min. detection period required for interpreting incoming calling signal (CI) as OFF

Max. detection period for incoming calling signal (CI) being OFF

If the machine detects the OFF state of a CI signal for the period greater than the value set by selectors 1 and 2 and less than the value set by selectors 3 and 4, it interprets the CI signal as OFF.

- Selectors 5 and 6: Min. detection period required for acknowledging incoming calling signal (CI) as ON

These selectors set the period required to make the machine acknowledge itself to be called. That is, if the machine continuously detects a CI signal with the frequency set by selectors 1 through 4 on WSW14 during the period set by these selectors 5 and 6, then it acknowledges the call.

WSW13 (Modem setting)

Selector No.	Function	Setting and Specifications
1 2	Cable equalizer	No. 1 2 0 0 : 0 km 0 1 : 1.8 km 1 0 : 3.6 km 1 1 : 5.6 km
3 4	Reception level	No. 3 4 0 0 : -43 dBm 0 1 : -47 dBm 1 0 : -49 dBm 1 1 : -51 dBm
5 8	Modem attenuator	0: 0 dB 1: 8 dB 0: 0 dB 1: 4 dB 0: 0 dB 1: 2 dB 0: 0 dB 1: 1 dB

The modem should be adjusted according to the user's line conditions.

- Selectors 1 and 2: Cable equalizer

These selectors are used to improve the pass-band characteristics of analogue signals on a line. (Attenuation in the high-band frequency is greater than in the low-band frequency.) Set these selectors according to the distance from the telephone switchboard to the machine.

- Selectors 3 and 4: Reception level

These selectors set the optimum receive signal level.

- Selectors 5 through 8: Modem attenuator

These selectors are used to adjust the transmitting level attenuation of the modem when the reception level at the remote station is improper due to line loss. This function applies for G3 protocol signals.

Setting two or more selectors to "1" produces addition of attenuation assigned to each selector. If selector 8 on WSW23 is set to "0," this setting is so limited that 10 dB (1 dB in France) or higher setting only is effective. Note that in Japan and China, 9 dB or higher and 2 dB or higher settings only are effective, respectively, regardless of whether selector 8 on WSW23 is set to "0."

WSW14 (AUTO ANS facility setting)

Selector No.	Function	Setting and Specifications
1 2	Frequency band selection (lower limit) for incoming calling signal (CI)	No. 1 2 0 0 : 13 Hz 0 1 : 15 Hz 1 0 : 23 Hz 1 1 : 20 Hz
3 4	Frequency band selection (upper limit) for incoming calling signal (CI)	No. 3 4 0 0 : 30 Hz 0 1 : 55 Hz 1 0 : 70 Hz 1 1 : 200 Hz
5 8	No. of rings in AUTO ANS mode	No. 5 6 7 8 0 0 0 0 : Fixed to once 0 0 0 1 : Fixed to 2 times 0 0 1 0 : Fixed to 3 times 0 0 1 1 : Fixed to 4 times 0 1 0 0 : 1 to 2 times 0 1 0 1 : 1 to 3 times 0 1 1 0 : 1 to 4 times 0 1 1 1 : 1 to 5 times 1 0 0 0 : 2 to 3 times 1 0 0 1 : 2 to 4 times 1 0 1 0 : 2 to 5 times 1 0 1 1 : 2 to 6 times 1 1 0 0 : 1 to 10 times 1 1 0 1 : 2 to 10 times 1 1 1 0 : 3 to 5 times 1 1 1 1 : 4 to 10 times

- Selectors 1 through 4: Frequency band selection for incoming calling signal (CI)

These selectors are used to select the frequency band of CI for activating the AUTO ANS facility. In the French models, if the user sets the PBX to OFF from the control panel, the setting made by selectors 1 and 2 will take no effect and the frequency's lower limit will be fixed to 32 Hz. (Even if the setting made by these selectors does not apply, it will be printed on the configuration list.)

- Selectors 5 through 8: No. of rings in AUTO ANS mode

These selectors set the number of rings to initiate the AUTO ANS facility.

WSW15 (REDIAL facility setting)

Selector No.	Function	Setting and Specifications
1 2	Redial interval	No. 1 2 0 0 : 5 minutes 0 1 : 1 minute 1 0 : 2 minutes 1 1 : 3 minutes
3 6	No. of redialings	No. 3 4 5 6 0 0 0 0 : 16 times 0 0 0 1 : 1 times 0 0 1 0 : 2 times 0 0 1 1 : 3 times 1 1 1 1 : 15 times
7	Not used.	
8	CRP option	0: Disable 1: Enable

- Selectors 1 through 6: Redial interval and No. of redialings

The machine redials by the number of times set by selectors 3 through 6 at intervals set by selectors 1 and 2.

- Selector 8: CRP option

If a command error occurs in the machine (calling station), the machine usually waits for three seconds and then makes a retry three times. This CRP option is a request command that can be sent from the called station for requesting the calling station to retry the failed command immediately.

WSW16 (Function setting 1)

Selector No.	Function	Setting and Specifications
1	Not used.	
2	ITU-T (CCITT) superfine recommendation	0: OFF 1: ON
3 6	Not used.	
7	Max. document length limitation	0: 400 cm 1: 90 cm
8	[Stop/Exit] key pressed during reception	0: Not functional 1: Functional

NOTE: Selector 7 is applicable to models equipped with ADF units.

- Selector 2: ITU-T (CCITT) superfine recommendation

If this selector is set to "1," the machine communicates in ITU-T (CCITT) recommended superfine mode (15.4 lines/mm). If it is set to "0," it communicates in native superfine mode.

- Selector 7: Max. document length limitation

This selector is used to select the maximum length of a document to be sent.

- Selector 8: [Stop/Exit] key pressed during reception

If this selector is set to "1," pressing the **[Stop/Exit]** key can stop the current receiving operation. The received data will be lost.

WSW17 (Function setting 2)

Selector No.	Function	Setting and Specifications
1 2	Off-hook alarm	No. 1 2 0 0 : No alarm 0 1 : Always valid 1 X : Valid except when 'call reservation' is selected.
3 4	Not used.	
5	Calendar clock type	0: U.S.A. type 1: European type
6	Not used.	
7	Non-ring reception	0: OFF 1: ON
8	Not used.	

- Selectors 1 and 2: Off-hook alarm

These selectors activate or deactivate the alarm function which sounds an alarm when the communication is completed with the handset being off the hook.

- Selector 5: Calendar clock type

If this selector is set to "0" (USA), the MM/DD/YY hh:mm format applies; if it is set to "1" (Europe), the DD/MM/YY hh:mm format applies: DD is the day, MM is the month, YY is the last two digits of the year, hh is the hour, and mm is the minute.

- Selector 7: Non-ring reception

Setting this selector to "1" makes the machine receive calls without ringer sound if the Ring Delay is set to 0.

WSW18 (Function setting 3)

Selector No.	Function	Setting and Specifications
1	Not used.	
2 3	Detection enabled time for CNG and no tone	No. 2 3 0 0 : 40 sec. 0 1 : 0 sec. (No detection) 1 0 : 5 sec. 1 1 : 80 sec.
4 5	Not used.	
6	Registration of station ID	0: Permitted 1: Prohibited
7 8	Tone sound monitoring	No. 7 8 0 X : No monitoring 1 0 : Up to phase B at the calling station only 1 1 : All transmission phases both at the calling and called stations

- Selectors 2 and 3: Detection enabled time for CNG and no tone

After the line is connected via the external telephone or by picking up the handset of the machine, the machine can detect a CNG signal or no tone for the time length specified by these selectors. The setting specified by these selectors becomes effective only when selector 8 on WSW20 is set to "1."

- Selector 6: Registration of station ID

Setting this selector to "0" permits the registration of station ID for Austrian and Czech models.

- Selectors 7 and 8: Tone sound monitoring

These selectors set monitoring specifications of the tone sound inputted from the line.

WSW19 (Transmission speed setting)

Selector No.	Function	Setting and Specifications
1 3	First transmission speed choice for fallback	No. 1 2 3 No. 4 5 6 0 0 0 : 2,400 bps 0 0 1 : 4,800 bps 0 1 0 : 7,200 bps 0 1 1 : 9,600 bps 1 0 0 : 12,000 bps 1 0 1 : } 14,400 bps 1 1 0 : 1 1 1 :
4 6	Last transmission speed choice for fallback	
7	V.34 mode	0: Permitted 1: Prohibited
8	V.17 mode	0: Permitted 1: Prohibited

NOTE: Selector 7 takes effect only in models supporting V.34 mode.

- Selectors 1 through 6: First and last choices of transmission speed for fallback

These selectors are used to set the MODEM speed range. With the first transmission speed choice specified by selectors 1 through 3, the machine attempts to establish the transmission link via the MODEM. If the establishment fails, the machine automatically steps down to the next lowest speed and attempts to establish the transmission link again. The machine repeats this sequence while stepping down the transmission speed to the last choice specified by selectors 4 through 6. If the MODEM always falls back to a low transmission speed (e.g., 4,800 bps), set the first transmission speed choice to the lower one (e.g., modify it from 12,000 bps to 7,200 bps) in order to deactivate the high-speed MODEM function and reduce the training time for shorter transmission time.

Generally, to save the transmission time, set the last transmission speed choice to a higher one.

WSW20 (Overseas communications mode setting)

Selector No.	Function	Setting and Specifications
1	EP* tone prefix	0: OFF 1: ON
2	Overseas communications mode (Reception)	0: 2100 Hz 1: 1100 Hz
3	Overseas communications mode (Transmission)	0: OFF 1: Ignores DIS once.
4 5	Min. time length from reception of CFR to start of transmission of video signals	No. 4 5 0 0 : 100 ms 0 1 : 200 ms 1 0 : 300 ms 1 1 : 400 ms
6 7	At CNG detection, elimination of chattering noise	No. 6 7 0 0 : Yes, at both ON/OFF timings 0 1 : Yes, at OFF timing 1 X : No
8	Limitation on CNG detection	0: OFF 1: ON

* EP: Echo protection

NOTE: Selectors 6 and 7 are applicable to models equipped with SDAA circuits.

- Selector 1: EP tone prefix

Setting this selector to "1" makes the machine transmit a 1700 Hz echo protection (EP) tone immediately preceding training in V.29 modulation system to prevent omission of training signals. Prefixing an EP tone is useful when the machine fails to transmit at the V.29 modem speed and always has to fall back to 4800 bps transmission.

The setting made by this selector takes effect only when the Overseas Mode is set to ON.

- Selectors 2 and 3: Overseas communications mode

These selectors should be used if the machine malfunctions in overseas communications.

According to the communications error state, select the signal specifications.

Setting selector 2 to "1" allows the machine to use 1100 Hz CED signal instead of 2100 Hz in receiving operation. This prevents malfunctions resulting from echoes, since the 1100 Hz signal does not disable the echo suppressor (ES) while the 2100 Hz signal does.

Setting selector 3 to "1" allows the machine to ignore a DIS signal sent from the called station once in sending operation. This operation suppresses echoes since the first DIS signal immediately follows a 2100 Hz CED (which disables the ES) so that it is likely to be affected by echoes in the disabled ES state. However, such a disabled ES state will be removed soon so that the second and the following DIS signals are not susceptible to data distortion due to echoes. Note that some models when called may cause error by receiving a self-outputted DIS.

The setting made by selector 3 takes effect only when the Overseas Communications Mode is set to ON. (The setting made by selector 2 is always effective.)

- Selectors 8: Limitation on CNG detection

If this selector is set to "1," the machine detects a CNG signal according to the condition preset by selectors 2 and 3 on WSW18 after a line is connected. If it is set to "0," the machine detects a CNG signal as long as the line is connected.

WSW21 (TAD setting 1)

Selector No.	Function	Setting and Specifications
1 5	Max. waiting time for voice signal (Not used.)	No. 1 2 3 4 5 0 0 0 0 0 : No detection 0 0 0 0 1 : 1 sec. 0 0 0 1 0 : 2 sec. 0 0 0 1 1 : 3 sec. 0 1 0 0 0 : 8 sec. 1 1 1 1 1 : 31 sec.
6 7	Taping the call (Not used.)	No. 6 7 0 0 : Enable (signaling for U.S.A.) 0 1 : Enable (signaling for countries except U.S.A.) 1 0 : Enable (without signaling) 1 1 : Disable
8	Erasure of message stored in the memory after the message transfer	0: Yes 1: No

NOTE: Selectors 1 through 5 are applicable to models equipped with ICM recorders.

NOTE: Selectors 6 and 7 are applicable to models with internal TADs.

NOTE: Selector 8 is applicable to models equipped with TADs.

- Selectors 1 through 5: Max. waiting time for voice signal (Not used.)

In the TAD mode, the machine waits for voice signal for the time length specified by these selectors before it automatically shifts to the facsimile message receive mode or disconnects the line.

- Selectors 6 and 7: Taping the call (Not used.)

These selectors select whether or not to tape the call. Setting them to "1, 0" enables taping the call without signaling to the calling station that the call is being taped.

- Selector 8: Erasure of message stored in the memory after the message transfer

Setting this selector to "0" will erase the message recorded in the memory after the document retrieval feature transfers the message.

WSW22 (ECM and call waiting caller ID)

Selector No.	Function	Setting and Specifications	
1	ECM* in sending	0: ON	1: OFF
2	ECM* in receiving	0: ON	1: OFF
3	Call Waiting Caller ID	0: ON	1: OFF
4	Not used.		
5 8	Acceptable TCF bit error rate (%) (Only at 4800 bps) (Not used.)	0: 0% 0: 0% 0: 0% 0: 0%	1: 8% 1: 4% 1: 2% 1: 1%

* ECM: Error correction mode

NOTE: Selector 3 is applicable to the American models only.

NOTE: Selectors 5 through 8 are applicable to the Chinese, Taiwanese and Asian models only.

- Selector 3: Call Waiting Caller ID

Setting this selector to "0" allows the user to decide whether or not to interrupt the current call when a new call comes in. If Call Waiting Caller ID service is available in the area and the user subscribes to it, he/she can see information about his/her incoming call on the LCD.

- Selectors 5 through 8: Acceptable TCF bit error rate (%) (Not used.)

Setting two or more selectors to "1" produces addition of percent assigned to each selector. If you set selectors 7 and 8 to "1," the acceptable TCF bit error rate will be 3%.

WSW23 (Communications setting)

Selector No.	Function	Setting and Specifications
1	Starting point of training check (TCF)	0: From the head of a series of zeros 1: From any arbitrary point
2 3	Allowable training error rate	No. 2 3 0 0 : 0% 0 1 : 0.5% 1 0 : 1% 1 1 : 2%
4 5		No. 4 5 0 0 : 16% 0 1 : 14% 1 0 : 10% 1 1 : 8%
6 7	Not used.	
8	Limitation of attenuation level	0: Yes 1: No

NOTE: Selector 8 is not applicable to the French models.

- Selector 1: Starting point of training check (TCF)

At the training phase of receiving operation, the called station detects for 1.0 second a training check (TCF) command, a series of zeros which is sent from the calling station for 1.5 seconds to verify training and give the first indication of the acceptability of the line.

This selector sets the starting point from which the called station should start counting those zeros. If this selector is set to "0," the called station starts counting zeros 100 ms after the head of a series of zeros is detected.

If it is set to "1," the called station starts counting zeros upon detection of 10-ms successive zeros 50 ms after the head of a series of zeros is detected. In this case, if the detection of 10-ms successive zeros is too late, the data counting period will become less than 1.0 second, making the called station judge the line condition unacceptable.

- Selectors 2 and 3: Allowable training error rate

The called station checks a series of zeros gathered in training (as described in Selector 1) according to the allowable training error rate set by these selectors. If the called station judges the line condition to be accepted, it responds with CFR; if not, it responds with FTT.

- Selectors 4 and 5: Decoding error rate for transmission of RTN

The machine checks the actual decoding errors and then transmits an RTN according to the decoding error rate (Number of lines containing an error per page ÷ Total number of lines per page) set by these selectors.

- Selector 8: Limitation of attenuation level

Setting this selector to "0" limits the transmitting level of the modem to 10 dB (1 dB in France).

This setting has priority over the settings selected by WSW02 (selectors 5 through 8) and WSW13 (selectors 5 through 8).

WSW24 (TAD setting 2)

Selector No.	Function	Setting and Specifications
1 2	Maximum OGM recording time (Not used.)	No. 1 2 0 0 : 15 sec. 0 1 : 20 sec. 1 0 : 30 sec. 1 1 : 50 sec.
3 4	Time length from CML ON to start of pseudo ring backtone transmission	No. 3 4 0 0 : 4 sec. 0 1 : 3 sec. 1 0 : 2 sec. 1 1 : 1 sec.
5 8	Attenuator for playback of ICM/OGM to the line (Selectable from the range of 0-15 dB) (Not used.)	0: 0 dB 1: 8 dB 0: 0 dB 1: 4 dB 0: 0 dB 1: 2 dB 0: 0 dB 1: 1 dB

- Selectors 1 and 2: Maximum OGM recording time (Not used.)

These selectors set the allowable maximum recording time for an OGM.

- Selectors 3 and 4: Time length from CML ON to start of pseudo ring backtone transmission

These selectors set the length of time from CML-ON up to the start of pseudo ring backtone transmission.

In models with OGM facilities, the settings made by these selectors also apply to the length of time from CML-ON up to the start of OGM transmission.

- Selectors 5 through 8: Attenuator for playback of ICM/OGM to the line (Not used.)

Setting two or more selectors to "1" produces addition of attenuation assigned to each selector.

This setting is not limited by selector 8 on WSW23.

WSW25 (TAD setting 3)

Selector No.	Function	Setting and Specifications																																																						
1 4	Not used.																																																							
5 7	Pause between paging number and PIN	<table> <tr> <td>No.</td> <td>5</td> <td>6</td> <td>7</td> <td>:</td> <td></td> </tr> <tr> <td></td> <td>0</td> <td>0</td> <td>0</td> <td>:</td> <td>2 sec.</td> </tr> <tr> <td></td> <td>0</td> <td>0</td> <td>1</td> <td>:</td> <td>4 sec.</td> </tr> <tr> <td></td> <td>0</td> <td>1</td> <td>0</td> <td>:</td> <td>6 sec.</td> </tr> <tr> <td></td> <td>0</td> <td>1</td> <td>1</td> <td>:</td> <td>8 sec.</td> </tr> <tr> <td></td> <td>1</td> <td>0</td> <td>0</td> <td>:</td> <td>10 sec.</td> </tr> <tr> <td></td> <td>1</td> <td>0</td> <td>1</td> <td>:</td> <td>12 sec.</td> </tr> <tr> <td></td> <td>1</td> <td>1</td> <td>0</td> <td>:</td> <td>14 sec.</td> </tr> <tr> <td></td> <td>1</td> <td>1</td> <td>1</td> <td>:</td> <td>16 sec.</td> </tr> </table>	No.	5	6	7	:			0	0	0	:	2 sec.		0	0	1	:	4 sec.		0	1	0	:	6 sec.		0	1	1	:	8 sec.		1	0	0	:	10 sec.		1	0	1	:	12 sec.		1	1	0	:	14 sec.		1	1	1	:	16 sec.
No.	5	6	7	:																																																				
	0	0	0	:	2 sec.																																																			
	0	0	1	:	4 sec.																																																			
	0	1	0	:	6 sec.																																																			
	0	1	1	:	8 sec.																																																			
	1	0	0	:	10 sec.																																																			
	1	0	1	:	12 sec.																																																			
	1	1	0	:	14 sec.																																																			
	1	1	1	:	16 sec.																																																			
8	Not used.																																																							

NOTE: Selectors 5 through 7 are applicable to the U.S.A. models only.

- Selectors 5 through 7: Pause between paging number and PIN

These selectors set the pause time between a telephone number being paged and PIN (personal identification number) for the paging feature.

WSW26 (Function setting 4)

Selector No.	Function	Setting and Specifications
1 2	Not used.	
3	Dialing during document reading into the temporary memory in in-memory message transmission	0: Disable 1: Enable
4 5	No. of CNG cycles to be detected (when the line is connected via the external telephone except in the external TAD mode or via the built-in telephone)	No.4 5 0 0 : 0.5 (A) 0 1 : 1 (B) 1 0 : 1.5 (C) 1 1 : 2 (D)
6 7	No. of CNG cycles to be detected (when the line is connected via the external telephone in the external TAD mode, via the built-in telephone in the TAD mode, or via the machine in the automatic reception of the F/T mode)	No.6 7 0 0 : 0.5 (A) 0 1 : 1 (B) 1 0 : 1.5 (C) 1 1 : 2 (D)
8	Not used.	

- Selector 3: Dialing during document reading into the temporary memory in in-memory message transmission

If this selector is set to "0," the machine waits for document reading into the memory to complete and then starts dialing. This enables the machine to list the total number of pages in the header of the facsimile message.

- Selectors 4 and 5: No. of CNG cycles to be detected (when the line is connected via the external telephone except in the external TAD mode or via the built-in telephone)

The machine interprets a CNG as an effective signal if it detects the CNG by the number of cycles specified by these selectors when the line is connected via the external telephone except in the external TAD mode or via the built-in telephone.

- Selectors 6 and 7: No. of CNG cycles to be detected (when the line is connected via the external telephone in the external TAD mode, via the built-in telephone in the TAD mode, or via the machine in the automatic reception of the F/T mode)

The machine interprets a CNG as an effective signal if it detects the CNG by the number of cycles specified by these selectors when the line is connected via the external telephone in the external TAD mode, via the built-in telephone in the TAD mode, or via the machine in the automatic reception of the F/T mode.

WSW27 (Function setting 5)

Selector No.	Function	Setting and Specifications
1	Not used.	
2	Ringer OFF setting	0: Yes 1: No
3	Automatic playback of OGM when switched to the TAD mode (Not used.)	0: No 1: Yes
4	Detection of distinctive ringing pattern	0: Yes 1: No
5	Not used.	
6	Recording quality	0: Normal 1: High
7	Recording time for high recording quality	0: Short (9.6 kbps) 1: Long (8.8 kbps)
8	Not used.	

NOTE: Selectors 4 and 5 are applicable to the U.S.A. models only.

- Selector 2: Ringer OFF setting

This selector determines whether or not the ringer can be set to OFF.

- Selector 3: Automatic playback of OGM when switched to the TAD mode (Not used.)

This selector determines whether or not to automatically play back an OGM the moment the machine switches to the TAD mode.

- Selectors 4: Detection of distinctive ringing pattern

If this selector is set to "1," the machine detects only the number of rings; if it is set to "0," the machine detects the number of rings and the ringing time length to compare the detected ringing pattern with the registered distinctive one.

- Selector 6: Recording quality

This selector determines the recording quality for the OGM and ICM. Selecting "1" (High) increases the quality, sacrificing the recording time.

- Selector 7: Recording time for high recording quality

This setting takes effect when selector 6 is set to "1" (High). Setting this selector to "0" (Short) further increases the recording quality, sacrificing the recording time.

The recording quality and time to be applied when this selector is set to "1" (Long) are higher and shorter than the ones to be applied when selector 6 is set to "0" (Normal).

The recording quality and time determined by this selector being set to "1" (Long) are higher and shorter than the ones determined by selector 6 being set to "0" (Normal).

WSW28 (Function setting 6)

Selector No.	Function	Setting and Specifications
1 3	Transmission level of DTMF high-band frequency signal	No. 1 2 3 0 0 0 : 0 dB 0 0 1 : +1 dB 0 1 0 : +2 dB 0 1 1 : +3 dB 1 0 0 : 0 dB 1 0 1 : -1 dB 1 1 0 : -2 dB 1 1 1 : -3 dB
4 6	Transmission level of DTMF low-band frequency signal	No. 4 5 6 0 0 0 : 0 dB 0 0 1 : +1 dB 0 1 0 : +2 dB 0 1 1 : +3 dB 1 0 0 : 0 dB 1 0 1 : -1 dB 1 1 0 : -2 dB 1 1 1 : -3 dB
7 8	Not used.	

- Selectors 1 through 6: Transmission level of DTMF high-/low-band frequency signal

These selectors are intended for the manufacturer who tests the machine for the Standard. Never access them.

WSW29 (Function setting 7)

Selector No.	Function	Setting and Specifications
1 3	Compression threshold level for voice signals inputted via the telephone line in the built-in TAD operation (Not used.)	No. 1 2 3 0 0 0 : -47.0 dBm (A) 0 0 1 : -48.5 dBm (B) 0 1 0 : -50.0 dBm (C) 0 1 1 : -51.5 dBm (D) 1 0 0 : -53.0 dBm (E) 1 0 1 : -54.5 dBm (F) 1 1 0 : -56.0 dBm (G) 1 1 1 : OFF (H)
4 6	Compression threshold level for voice signals inputted via the handset in the built-in TAD operation (Not used.)	No. 4 5 6 0 0 0 : -44.0 dBm (A) 0 0 1 : -45.5 dBm (B) 0 1 0 : -47.0 dBm (C) 0 1 1 : -48.5 dBm (D) 1 0 0 : -50.0 dBm (E) 1 0 1 : -51.5 dBm (F) 1 1 0 : -53.0 dBm (G) 1 1 1 : OFF (H)
7	Impedance switching control in pulse dialing (Not used.)	0: OFF 1: ON
8	Prompt beep when the memory area for the activity report becomes full (Not used.)	0: No 1: Yes

NOTE: Selectors 1 through 6 are applicable to models equipped with built-in TADs.

NOTE: Selectors 7 and 8 are applicable only to the European versions.

- Selectors 1 through 6: Compression threshold level for voice signals inputted via the telephone line in the built-in TAD operation (Not used.)

If voice signals inputted via the telephone line are below the level specified by these selectors, the TAD interprets those received voice signals as no signal, compressing the recording time.

- Selector 8: Prompt beep for activity report (Not used.)

This selector determines whether or not to beep if the memory area for the activity report becomes full, for prompting you to print out the report. (Printing it out will clear the memory area.)

WSW30 (Function setting 8)

Selector No.	Function	Setting and Specifications
1 3	Dial tone/busy tone detection level during recording of ICM (Not used.)	No. 1 2 3 0 0 0 : -38.0 dBm (A) 0 0 1 : -39.5 dBm (B) 0 1 0 : -41.0 dBm (C) 0 1 1 : -42.5 dBm (D) 1 0 0 : -44.0 dBm (E) 1 0 1 : -45.5 dBm (F) 1 1 0 : -47.0 dBm (G) 1 1 1 : -48.5 dBm (H)
4	Duty cycle control of pulsed current for the heat-fuser unit	0: OFF 1: ON
5	"CLEAN DRUM" display	0: Yes 1: No
6 7	Not used.	0: Normal 1: Dark
8	Text mode copy density adjustment	0: Normal 1: Dark

NOTE: Selectors 1 through 3 are applicable to models equipped with internal TADs.

NOTE: Selector 4 is applicable to the European version only.

- Selectors 1 through 3: Dial tone/busy tone detection level during recording of ICM (Not used.)

If the machine (called station) detects dial tone (400 Hz continuously) or busy tone (400 Hz intermittently) exceeding the detection level specified by these selectors for the period specified by selectors 1 through 4 on WSW35, then it interprets the calling station as being disconnected. The machine stops TAD recording and disconnects the line.

- Selectors 4: Duty cycle control of pulsed current for the heat-fuser unit

Setting this selector to "1" activates the duty cycle control that suppresses the rush current. The duty cycle is 10ms ON and 20ms OFF.

However, the duty cycle control may emit switching noise to the AC line. Depending upon the codes and regulations in the country, this selector should be set to "0".

WSW31 (Function setting 9)

Selector No.	Function	Setting and Specifications
1	Not used.	
2	Default reduction rate for failure of automatic reduction during recording	0: 100% 1: 70%
3	Not used.	
4	(Do not disturb this selector.)	
5	Minimum ON and OFF duration of ringer signals effective in distinctive ringing	0: 130 ms 1: 90 ms
6 7	Not used.	
8	"CHANGE DRUM" display	0: Yes 1: No

NOTE: Selector 5 is applicable only to the U.S.A. models.

- Selector 2: Default reduction rate for failure of automatic reduction during recording

This selector sets the default reduction rate to be applied if the automatic reduction function fails to record one-page data sent from the calling station in a single page of the current recording paper. If it is set to "0," the machine records one-page data at full size (100%) without reduction; if it is set to "1," the machine records it at 70% size.

- Selector 5: Minimum ON and OFF duration of ringer signals effective in distinctive ringing

The ringer pattern consists of short and long rings, e.g., short-short-long rings. This selector sets the minimum ON and OFF duration of ringer signals that are required for the machine to interpret ringer signals as being ON or OFF. This is to prevent components of a ringer pattern from being misinterpreted due to chattering in distinctive ringing.

The machine monitors ringer signals at 10-ms intervals. If the signal is ON, the machine counts +1; if it is OFF, it counts -1. If the counter increments up to +5 or +13 when this selector is set to "1" (50 ms) or "0" (130 ms), respectively, the machine interprets the current signal as being ON.

If the counter returns to zero, the machine interprets the signal as being OFF.

If the Distinctive Ring is set to OFF, this selector is not effective.

- Selector 8: "CHANGE DRUM" display

This selector determines whether or not the "CHANGE DRUM" display should appear on the LCD when the service life of the laser-sensitive drum in the laser unit will expire soon.

WSW32 (Function setting 10)

Selector No.	Function	Setting and Specifications
1 4	Not used.	
5 6	Default resolution	No. 5 6 0 0 : Standard 0 1 : Fine 1 0 : Super fine 1 1 : Photo
7 8	Default contrast	No. 7 8 0 X : Automatic 1 0 : Super light 1 1 : Super dark

- Selectors 5 and 6: Default resolution

These selectors set the default resolution which applies when the machine is turned on or completes a transaction.

- Selectors 7 and 8: Default contrast

These selectors set the default contrast which applies when the machine is turned on or completes a transaction.

WSW33 (Function setting 11)

Selector No.	Function	Setting and Specifications
1 3	Detection threshold level of "no tone" during recording of ICM (Not used.)	No. 1 2 3 0 0 0 : -42.5 dBm (A) 0 0 1 : -44.0 dBm (B) 0 1 0 : -45.5 dBm (C) 0 1 1 : -47.0 dBm (D) 1 0 0 : -48.5 dBm (E) 1 0 1 : -50.0 dBm (F) 1 1 0 : -51.5 dBm (G) 1 1 1 : -53.0 dBm (H)
4 5	FAX receiving speed to be kept within the transmission speed limit to the PC (Not used.)	No. 4 5 0 0 : 14,400 bps 0 1 : 12,000 bps 1 0 : 9,600 bps 1 1 : 7,200 bps
6	Report output of polled transmission requests	0: Yes 1: No
7 8	Comfortable noise level (Not used.)	No. 7 8 0 0 : OFF 0 1 : Low (A) 1 0 : Medium (B) 1 1 : High (C)

NOTE: Selectors 1 through 3 are applicable to models equipped with internal TADs.

- Selectors 1 through 3: Detection threshold level of "no tone" during recording of ICM (Not used.)

If the tone level during recording of ICM is less than the threshold setting made by these selectors, the tone is interpreted as "no tone. " When the "no tone" state is kept for the period specified by selectors 1 through 5 on WSW21, the machine disconnects the line.

- Selectors 4 and 5: FAX receiving speed to be kept within the transmission speed limit to the PC (Not used.)

To transmit FAX data being received from other machine to the connected PC, you may need to keep the FAX receiving speed within the transmission speed limit specified for the PC. In an initial negotiation sequence for transmission, the machine responds to the calling station with the allowable FAX receiving speed specified by these selectors.

- Selectors 7 and 8: Comfortable noise level (Not used.)

These selectors set the level of noise to be added during playing-back of voice signals recorded with no-signal compression.

If they are set to "0, 0," no noise will be added.

WSW34 (Function setting 12)

Selector No.	Function	Setting and Specifications																																													
1 3	Erasing time length of ICM tone recorded preceding the tone detection starting point in the case of automatic line disconnection due to no voice signal received (Not used.)	<table> <tr> <td>No. 1</td> <td>2</td> <td>3</td> <td></td> <td></td> </tr> <tr> <td>0</td> <td>0</td> <td>0</td> <td>:</td> <td>0 sec.</td> </tr> <tr> <td>0</td> <td>0</td> <td>1</td> <td>:</td> <td>1 sec.</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> <td>:</td> <td>2 sec.</td> </tr> <tr> <td>0</td> <td>1</td> <td>1</td> <td>:</td> <td>3 sec.</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> <td>:</td> <td>4 sec.</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> <td>:</td> <td>5 sec.</td> </tr> <tr> <td>1</td> <td>1</td> <td>0</td> <td>:</td> <td>6 sec.</td> </tr> <tr> <td>1</td> <td>1</td> <td>1</td> <td>:</td> <td>7 sec.</td> </tr> </table>	No. 1	2	3			0	0	0	:	0 sec.	0	0	1	:	1 sec.	0	1	0	:	2 sec.	0	1	1	:	3 sec.	1	0	0	:	4 sec.	1	0	1	:	5 sec.	1	1	0	:	6 sec.	1	1	1	:	7 sec.
No. 1	2	3																																													
0	0	0	:	0 sec.																																											
0	0	1	:	1 sec.																																											
0	1	0	:	2 sec.																																											
0	1	1	:	3 sec.																																											
1	0	0	:	4 sec.																																											
1	0	1	:	5 sec.																																											
1	1	0	:	6 sec.																																											
1	1	1	:	7 sec.																																											
4 5	No. of CNG cycles to be detected (when the line is connected via the external telephone in the external TAD mode or via the machine in F/T mode) (Not used.)	<table> <tr> <td>No. 4</td> <td>5</td> <td></td> <td></td> <td></td> </tr> <tr> <td>0</td> <td>0</td> <td>:</td> <td>0.5</td> <td>(A)</td> </tr> <tr> <td>0</td> <td>1</td> <td>:</td> <td>1</td> <td>(B)</td> </tr> <tr> <td>1</td> <td>0</td> <td>:</td> <td>1.5</td> <td>(C)</td> </tr> <tr> <td>1</td> <td>1</td> <td>:</td> <td>2</td> <td>(D)</td> </tr> </table>	No. 4	5				0	0	:	0.5	(A)	0	1	:	1	(B)	1	0	:	1.5	(C)	1	1	:	2	(D)																				
No. 4	5																																														
0	0	:	0.5	(A)																																											
0	1	:	1	(B)																																											
1	0	:	1.5	(C)																																											
1	1	:	2	(D)																																											
6 7	Number of DTMF tone signals for inhibiting the detection of CNG during external TAD operation	<table> <tr> <td>No. 6</td> <td>7</td> <td></td> <td></td> </tr> <tr> <td>0</td> <td>0</td> <td>:</td> <td>3</td> </tr> <tr> <td>0</td> <td>1</td> <td>:</td> <td>2</td> </tr> <tr> <td>1</td> <td>0</td> <td>:</td> <td>1</td> </tr> <tr> <td>1</td> <td>1</td> <td>:</td> <td>OFF</td> </tr> </table>	No. 6	7			0	0	:	3	0	1	:	2	1	0	:	1	1	1	:	OFF																									
No. 6	7																																														
0	0	:	3																																												
0	1	:	2																																												
1	0	:	1																																												
1	1	:	OFF																																												
8	Not used.																																														

NOTE: Selectors 1 through 5 are applicable to models equipped with built-in TADs.

- **Selectors 1 through 3: Erasing time length of ICM tone recorded preceding the tone detection starting point in the case of automatic line disconnection due to no voice signal received (Not used.)**

If the machine has disconnected the line after detection of disconnection tone in ICM recording, it erases tone recorded preceding the tone detection starting point for the time length set by these selectors.

- **Selectors 4 and 5: No. of CNG cycles to be detected (when the line is connected via the external telephone in the external TAD mode or via the machine in F/T mode) (Not used.)**

The machine interprets a CNG as an effective signal if it detects a CNG signal by the number of cycles specified by these selectors when the line is connected via the external telephone in the external TAD mode or via the machine in F/T mode.

- **Selectors 6 and 7: Number of DTMF tone signals for inhibiting the detection of CNG during external TAD operation**

If the machine receives this specified number of DTMF tone signals during external TAD operation, it will not detect CNG afterwards.

If these selectors are set to "1, 1," the CNG detection will not be inhibited.

WSW35 (Function setting 13)

Selector No.	Function	Setting and Specifications
1 4	Max. detection period of dial tone/busy tone during recording of ICM (Not used.)	No. 1 2 3 4 0 0 0 0 : No detection 0 0 0 1 : 1 sec. 0 0 1 0 : 2 sec. 0 1 0 0 : 4 sec. 1 1 1 1 : 15 sec.
5 8	Not used.	

NOTE: Selectors 1 through 4 are applicable to models equipped with internal TADs.

- Selectors 1 through 4: Max. detection period of dial tone/busy tone during recording of ICM (Not used.)

If the machine (called station) detects dial tone or busy tone exceeding the detection level specified by selectors 1 through 3 on WSW30 for the period specified by these selectors, then it disconnects the line.

WSW36 (Function setting 14)

Selector No.	Function	Setting and Specifications
1	ECP mode*	0: ON 1: OFF
2	Recovery from Inactive PC Interface	0: Disable 1: Enable
3	PC Power-off Recognition Time	0: Normal 1: Long
4	Not used.	
5	Escape from phase C	0: Yes 1: No
6 8	Extension of incoming calling signal (CI) frequency band specified by selectors 1 through 4 on WSW14	No. 6 7 8 0 0 0 : 0 (Ignored) 0 0 1 : 4 (448 Hz) 0 1 0 : 8 (244 Hz) 0 1 1 : 12 (162 Hz) 1 0 0 : 16 (122 Hz) 1 0 1 : 20 (97 Hz) 1 1 0 : 24 (81 Hz) 1 1 1 : 28 (69 Hz)

*ECP (Enhanced Capabilities Port)

- Selector 1: ECP mode

The ECP mode enhances the normal bidirectional communications between the machine and the connected PC for higher transmission speed.

- Selector 2: Recovery from Inactive PC Interface

If the machine recognizes via the STB signal line that the connected PC is powered off, it will turn the PC interface outputs Low to protect the PC from hazards that could be caused by weak electric current accidentally flown from the machine.

This selector determines whether or not the machine should recover from the inactive PC interface to normal interfacing state upon receipt of data from the PC.

- Selector 3: PC Power-off Recognition Time

This selector sets the time length from when the machine detects the PC powered off until it recognizes the detected state as power-off.

If selector 2 is set to "0," it is recommended that selector 3 be set to "1"; otherwise, the machine may mistakenly detect PC powered off.

- Selector 5: Escape from phase C

This selector determines whether or not the machine will escape from phase C when it detects an RTC (Return to Control) in non-ECM mode or an RCP (Return to Control Partial page) in ECM mode.

- Selectors 6 through 8: Extension of incoming calling signal (CI) frequency band specified by selectors 1 through 4 on WSW14

At the start of reception, if the machine detects the frequency of a CI signal specified by selectors 1 through 4 on WSW14, it starts the ringer sounding. However, the machine may fail to detect the CI signal normally due to noise superimposed at the time of reception. To prevent it, use selectors 6 through 8 on WSW36.

If the machine detects higher frequencies than the setting made here, it regards them as noise and interprets the detecting state as being normal, allowing the ringer to keep sounding according to the preset number of ringers (until it starts automatic reception of FAX data in the FAX mode or enters the TAD mode in the TEL mode).

WSW37 (Function setting 15)

Selector No.	Function	Setting and Specifications
1	Printout of the stored image data of an unsent document onto an error report	0: No 1: Yes
2	Erasure of the stored image data of an unsent document at the time of the subsequent in-memory message transmission	0: No 1: Yes
3 8	Not used.	

- Selector 1: Printout of the stored image data of an unsent document onto an error report

This selector determines whether or not to print out the 1st-page image data of a document onto the error report if the document image data stored in the temporary memory cannot be transmitted normally.

- Selector 2: Erasure of the stored image data of an unsent document at the time of the subsequent in-memory message transmission

If in-memory message transmission fails repeatedly when selector 1 is set to "1," the temporary memory will be occupied with image data. Setting selector 2 to "1" will automatically erase the stored 1st-page image data of an unsent document at the time of the subsequent in-memory message transmission only when recording paper or toner runs out.

WSW38 (V.34 transmission settings)

Selector No.	Function	Setting and Specifications
1 2	Setting of the equalizer	No. 1 2 0 X : Automatic 1 0 : Fixed to 4 points 1 1 : Fixed to 16 points
3	Sending level of guard tone at phase 2	0: Normal - 7 db 1: Normal
4	Stepping down the transmission speed at fallback each	0: 2400 bps 1: 4800 bps
5 6	Automatic control of modem's EQM gain for proper transmission speed choice	No. 5 6 0 0 : For higher transmission speed than the current setting 0 1 : No change from the current setting 1 0 : For lower transmission speed than the current setting 1 1 : For further lower transmission than the setting made by 1, 0
7	Redialing when a communications error occurs	0: ON 1: OFF
8	Detection of CED for stopping CNG	0: ON 1: OFF

NOTE: WSW38 takes effect only when the V.34 mode is permitted (WSW19, selector 7) in models supporting V.34 mode.

- Selectors 1 and 2: Setting of the equalizer

These selectors set the equalizer's training level to be applied if the machine fails to send training due to weak line connection. If these selectors are set to "0, X," the modem will automatically set the appropriate training level.

- Selector 3: Sending level of guard tone at phase 2

This selector sets the sending level of guard tone for 1800 Hz to be sent at Phase 2 in the V. 34 mode.

- Selector 4: Stepping down the transmission speed at fallback each

This selector determines how much the modem steps down the transmission speed at fallback when called by the remote station. If this selector is set to "1," the modem may step down the transmission speed from 33600 bps to 28800 bps by one-time fallback.

- Selectors 5 and 6: Automatic control of modem's EQM gain for proper transmission speed choice

These selectors determine how the modem controls the EQM (Eye Quality Monitor) gain for proper choice of the transmission speed, which applies if the modem selects higher transmission speed than the possible speed so that it always repeats falling back.

- Selector 8: Detection of CED for stopping CNG

If this selector is set to "0," the detection time of CED specified by WSW43, selectors 4 and 5 will apply.

WSW39 (V.34 transmission speed)

Selector No.	Function	Setting and Specifications
1 4	First transmission speed choice for fallback	No. 1 2 3 4 No. 5 6 7 8 0 0 0 0 : 2400 bps 0 0 0 1 : 4800 bps 0 0 1 0 : 7200 bps 0 0 1 1 : 9600 bps 0 1 0 0 : 12000 bps 0 1 0 1 : 14400 bps 0 1 1 0 : 16800 bps 0 1 1 1 : 19200 bps
5 8	Last transmission speed choice for fallback	1 0 0 0 : 21600 bps 1 0 0 1 : 24000 bps 1 0 1 0 : 26400 bps 1 0 1 1 : 28800 bps 1 1 0 0 : 31200 bps 1 1 0 1 : 33600 bps 1 1 1 0 : 33600 bps 1 1 1 1 : 33600 bps

NOTE: WSW39 takes effect only when the V.34 mode is permitted (WSW19, selector 7) in models supporting V.34 mode. For the transmission speed setting in other modes, refer to WSW19.

- Selectors 1 through 8: First and last choices of transmission speed for fallback

These selectors are used to set the modem speed range. With the first transmission speed choice specified by selectors 1 through 4, the machine attempts to establish the transmission link via the modem. If the establishment fails, the machine automatically steps down to the next highest speed and attempts to establish the transmission link again. The machine repeats this sequence while stepping down the transmission speed to the last choice specified by selectors 5 through 8. If the modem always falls back to a low transmission speed (e.g., 24,000 bps), set the first transmission speed choice to the lower one (e.g., modify it from 31,200 bps to 26,400 bps) in order to deactivate the high-speed modem function and reduce the training time for shorter transmission time.

WSW39 will be limited by selectors 3 through 8 on WSW40.

WSW40 (V.34 modem settings)

Selector No.	Function	Setting and Specifications			
1 2	Not used.				
3 8	Masking of symbol rate(s)	Not masking Masking			
		No. 3	0	1	3429 symbols/sec
		No. 4	0	1	3200 symbols/sec
		No. 5	0	1	3000 symbols/sec
		No. 6	0	1	2800 symbols/sec
		No. 7	-	-	Not used.
		No. 8	0	1	2400 symbols/sec

NOTE: WSW40 takes effect only when the V.34 mode is permitted (WSW19, selector 7) in models supporting V.34 mode.

- Selectors 3 through 8: Masking of symbol rate(s)

These selectors allow you to limit the transmission speed range in V.34 mode by masking the desired symbol rate(s). Transmission speeds assigned to the symbol rates are listed on the next page. The setting made by these selectors will limit the setting made by selectors 1 through 4 on WSW39.

If selector 3 is set to "1" to mask the 3429 symbols/second when the first transmission speed choice is 33600 bps (specified by selectors 1 through 4 of WSW39), for example, then the allowable maximum transmission speed will be limited to 31200 bps. If selector 8 is set to "1" to mask the 2400 symbols/second when the first transmission speed choice is 33600 bps, then the allowable maximum transmission speed remains 33600 bps.

If selector 8 is set to "1" to mask the 2400 symbols/second when the first transmission speed choice is 21600 bps (specified by selectors 1 through 4 on WSW39), then the allowable maximum transmission speed remains 21600 bps but the minimum transmission speed will be limited to 4800 bps.

Symbol rate	Transmission speed (bps)	Symbol rate	Transmission speed (bps)	Symbol rate	Transmission speed (bps)
2400	2400	3000	4800	3429	4800
	4800		7200		7200
	7200		9600		9600
	9600		12000		12000
	12000		14400		14400
	14400		16800		16800
	16800		19200		19200
	19200		21600		21600
	21600		24000		24000
	21600		26400		28800
2800	4800	3200	4800	3429	33600
	7200		7200		
	9600		9600		
	12000		12000		
	14400		14400		
	16800		16800		
	19200		19200		
	21600		21600		
	24000		24000		
	26400		26400		
	26400		28800		
	26400		31200		
	26400		31200		

WSW41 (ON-duration of the scanning light source)

Selector No.	Function	Setting and Specifications
1 3	ON-duration of the scanning light source at room temperature (Not used.)	No. 1 2 3 0 0 0 : 16 hours 0 0 1 : 24 hours 0 1 0 : 12 hours 0 1 1 : 8 hours 1 0 0 : 4 hours 1 0 1 : 2 hours 1 1 0 : 10 minutes 1 1 1 : 0 minute
4	Not used.	
5 8	Modem attenuator	No. 5 6 7 8 0 0 0 0 : -10 dBm 0 0 0 1 : -11 dBm 0 0 1 0 : -12 dBm 0 0 1 1 : -13 dBm 0 1 0 0 : -14 dBm 1 1 1 1 : -25 dBm

- Selectors 1 through 3: ON-duration of the scanning light source at room temperature (Not used.)

If the scanning operation is started when the scanning light source is off, then it will come on for scanning. These selectors determine how long the light source is ON after scanning. If these selectors are set to "1, 1, 1," the light source goes off immediately after the scanning sequence.

- Selectors 5 through 8: Modem attenuator

These selectors are used to adjust the transmitting level of the modem when the reception level at the remote station is improper due to line loss. This function applies to super G3 protocol signals.

WSW42 (Internet mail settings)

Selector No.	Function	Setting and Specifications
1 3	Not used.	
4	JBIG* coding system	0: Disable 1: Enable

* JBIG (Join Bi-level Image Group)

NOTE: WSW42 is applicable to models equipped with LAN interface.

WSW43 (Function setting 21)

Selector No.	Function	Setting and Specifications
1	Not used.	
2 3	Wait time for PC-Fax reception (Class 2) and FPTs command transmission	No. 2 3 0 0 : 50 ms 0 1 : 100 ms 1 0 : 150 ms 1 1 : 0 ms
4 5	Detection time of 2100 Hz CED or ANSam	No. 4 5 0 0 : 200 ms 0 1 : 300 ms 1 0 : 400 ms 1 1 : 500 ms
6	Not used.	
7	Automatic start of remote maintenance	0: No 1: Yes
8	JPEG coding	0: Disable 1: Enable

- Selector 8: JPEG coding

Setting this selector to "0" disables the machine from sending/receiving JPEG color images and from receiving JPEG monochrome images.

WSW44 (Speeding up scanning-1)

Selector No.	Function	Setting and Specifications
1 5	Not used.	
6 8	Effective time length of the white level compensation data obtained beforehand (Not used.)	No. 6 7 8 0 0 0 : Obtained compensation data ineffective 0 0 1 : 1 min. 0 1 0 : 3 min. 0 1 1 : 5 min. 1 0 0 : 10 min. 1 0 1 : 15 min. 1 1 0 : 20 min. 1 1 1 : 30 min.

NOTE: Selectors 6 through 8 are applicable only to models equipped with ADF units.

- Selectors 6 through 8: Effective time length of the white level compensation data obtained beforehand (Not used.)

If you set documents in the ADF and the document front sensor detects them, the controller will make correction of the reference voltage to be applied to white level compensation for document scanning before the **[Copy]** key is pressed.

These selectors determine how long compensation data obtained beforehand will keep effective.

WSW45 (Speeding up scanning-2)

Selector No.	Function	Setting and Specifications
1 3	Delay time from when documents are set until the ADF starts drawing them in	No. 1 2 3 0 0 0 : No automatic drawing-in 0 0 1 : 1 sec. 0 1 0 : 2 sec. 0 1 1 : 3 sec. 1 0 0 : 4 sec. 1 0 1 : 5 sec. 1 1 0 : 6 sec. 1 1 1 : 7 sec.
4 6	Periodical correction intervals of the reference voltage to be applied to white level compensation for document scanning, during standby	No. 4 5 6 0 0 0 : No correction of reference voltage during standby 0 0 1 : 10 sec. 0 1 0 : 30 sec. 0 1 1 : 1 min. 1 0 0 : 3 min. 1 0 1 : 5 min. 1 1 0 : 10 min. 1 1 1 : 30 min.
7	Standby position of the CCD unit	0: CCD home position 1: Location of the white-level reference film
8	Not used.	

NOTE: WSW45 is applicable only to models equipped with ADF units.

- Selectors 1 through 3: Delay time from when documents are set until the ADF starts drawing them in

These selectors determine how long the ADF will delay automatic drawing-in of documents (to the scanning standby position) after you set them in the ADF, as well as determining whether or not the ADF automatically draws in documents.

- Selectors 4 through 6: Periodical correction intervals of the reference voltage applied to white level compensation for document scanning, during standby

These selectors set the correction intervals (in seconds) of the reference voltage to be applied to white level compensation for document scanning during standby, as well as determining whether or not the controller makes the reference voltage correction during standby. (Conventionally, the correction has been made immediately before the start of actual scanning)

This function takes effect in copying. Making the correction during standby may shorten the preparation time for copying.

NOTE: Do not access these selectors.

- Selector 7: Standby position of the CCD unit

This selector determines whether the standby position of the CCD unit should be the home position or the location of the white-level reference film (attached to the inside of the scanner top cover).

If the location of the reference film is selected, the CCD unit will not return to the home position so as to shorten the travel time, decreasing the preparation time for copying.

WSW46 (Monitor of power ON/OFF state and parallel port kept at high)

Selector No.	Function	Setting and Specifications
1 2	Monitoring the PC ON/OFF state	No. 1 2 0 0 : Disable 0 1 : Monitor SELECT IN 1 0 : Monitor STROBE 1 1 : Monitor both SELECT IN and STROBE
3	Parallel port output pins kept at high level	0: Enable 1: Disable
4 8	Not used.	

NOTE: Selector 4 is not applicable to models equipped with flat-bed scanners.

- Selectors 1 and 2: Monitoring the PC ON/OFF state

For the related functions, refer to WSW36, selectors 2 and 3.

- Selector 3: Parallel port output pins kept at high level

Setting this selector to "0" will keep all parallel output pins of the machine at high level. Use this setting if Resource Manager (bundled with MFC models) installed to WindowsNT running on the connected PC fails to monitor the power ON/OFF state of the machine.

- Selector 4: Previous filtering parameters for white level compensation

At the start of scanning operation, the machine usually initializes white and black level data stored in the EEPROM by scanning the while-level reference film attached to the inside of the scanner top cover. After long use of the machine, however, the film may be contaminated with dust or dirt. Accordingly, incorrect white level data will be set up so that white vertical streaks will be brought on the scanning result.

Setting this selector to "0" (Enabled) will apply previously saved white level data instead of new incorrect compensation.

WSW47 (Switching between high- and full-speed USB)

Selector No.	Function	Setting and Specifications
1	Handling paper at the occurrence of a paper feed timing error (Not used.)	0: Eject paper w/o print 1: Print on the current paper
2	Not used.	
3 4	Delay of FAX line disconnection when switching to the pseudo-ringing external telephone (Not used.)	No. 3 4 0 0 : 200 ms 0 1 : 400 ms 1 0 : 700 ms 1 1 : 1000 ms
5	Disable the ringer of external telephone at non-ring reception (Not used.)	0: No 1: Yes
6	Not used.	
7	Disable the ringer of external telephone with CAR signal when caller ID service is available (Not used.)	0: No 1: Yes
8	Switching between high-speed USB and full-speed USB	0: Auto switching between high-speed USB (ver. 2.0) and full-speed USB (ver. 1.1) 1: Fixed to full-speed USB (ver. 1.1)

NOTE: Selector 1 is applicable only to models equipped with flat-bed scanners.

NOTE: Selectors 3 and 4 are applicable only to models supporting pseudo-ringing of a connected external telephone.

- Selector 1: Handling paper at the occurrence of a paper feed timing error (Not used.)

When feeding paper to the print start position, the machine might cause a feed timing error so that the registration sensor goes ON signaling the presence of paper. This selector determines whether the machine prints on the current paper or ejects the current paper without printing and prints on the next paper.

- Selectors 3 and 4: Delay of FAX line disconnection when switching to the pseudo-ringing external telephone (Not used.)

When the machine receives a phone call, it can make the connected external telephone ring (so called pseudo-ringing). During pseudo-ringing, if you pick up the handset of the external telephone, the line might be disconnected due to cut-off of the line current. To hold the line, the machine may supply line current by making use of the pulse generator circuit that forms a parallel loop. This way the FAX line disconnection may be delayed. These selectors determine the delay period.

WSW48 (USB setup latency)

Selector No.	Function	Setting and Specifications
1 5	Not used.	
6 8	USB setup latency (Not used.)	No. 6 7 8 0 0 0 : Default period 0 0 1 : Shorter 1 0 1 0 : Longer 1 0 1 1 : Longer 2 1 0 0 : Longer 3 1 0 1 : Longer 4 1 0 0 : Shorter 2 1 1 1 : Shorter 3

- Selectors 6 through 8: USB setup latency (Not used.)

These selectors should not be disturbed.

WSW49 (End-of-copying beep and print in black)

Selector No.	Function	Setting and Specifications
1 2	Not used.	0 0 : None 0 1 : 1Mbytes 1 0 : 2Mbytes 1 1 : 4Mbytes
3	Presence or absence of copy completion sound	0: Present 1: Absent
4 5	Command flag detection time	No. 4 5 0 0 : 150 ms 0 1 : 350 ms 1 0 : 550 ms 1 1 : 750 ms
6 7	Scanning light source WARMUP time adjustment <Models concerned: CCD scanning type>	0 0 : No adjustment 0 1 : 80% 1 0 : 120% 1 1 : 150%
8	Not used.	

- Selectors 4 and 5: Command flag detection time

After receiving a command flag, the machine will wait for the command that should follow for the time length specified by these selectors.

WSW50 (SDAA settings)

Selector No.	Function	Setting and Specifications
1 2	Percentage voltage for interpreting the external telephone as being hooked up (based on the network's standard voltage) (Not used.)	No. 1 2 0 0 : 80% 0 1 : 90% 1 0 : 70% 1 1 : No detection
3	DC mask curve table to be applied when the line is connected (Not used.)	0: Apply the initial value specified by local regulations 1: Apply table DC5 prepared specially
4	AC impedance to be applied when the line is connected (Not used.)	0: 600Ω termination 1: ZR termination
5 6	Current control to be applied immediately after connection of the line (Not used.)	No. 5 6 0 0 : Standard 0 1 : Increase start-up current for termination 1 0 : Fine current control for termination 1 1 : Not used. (equal to "0, 0")
7 8	AC voltage threshold for detection of ring (Not used.)	No. 7 8 0 0 : 19 V 0 1 : 11 V 1 0 : 25 V 1 1 : 31 V

NOTE: WSW50 is applicable to models equipped with SDAA circuits.

WSW51 (Function setting 16)

Selector No.	Function	Setting and Specifications
1	Output of communications error report when transmission verification report is disabled	0: Enable 1: Disable
2 8	Not used.	

WSW52

Selector No.	Function	Setting and Specifications
1 8	Not used.	

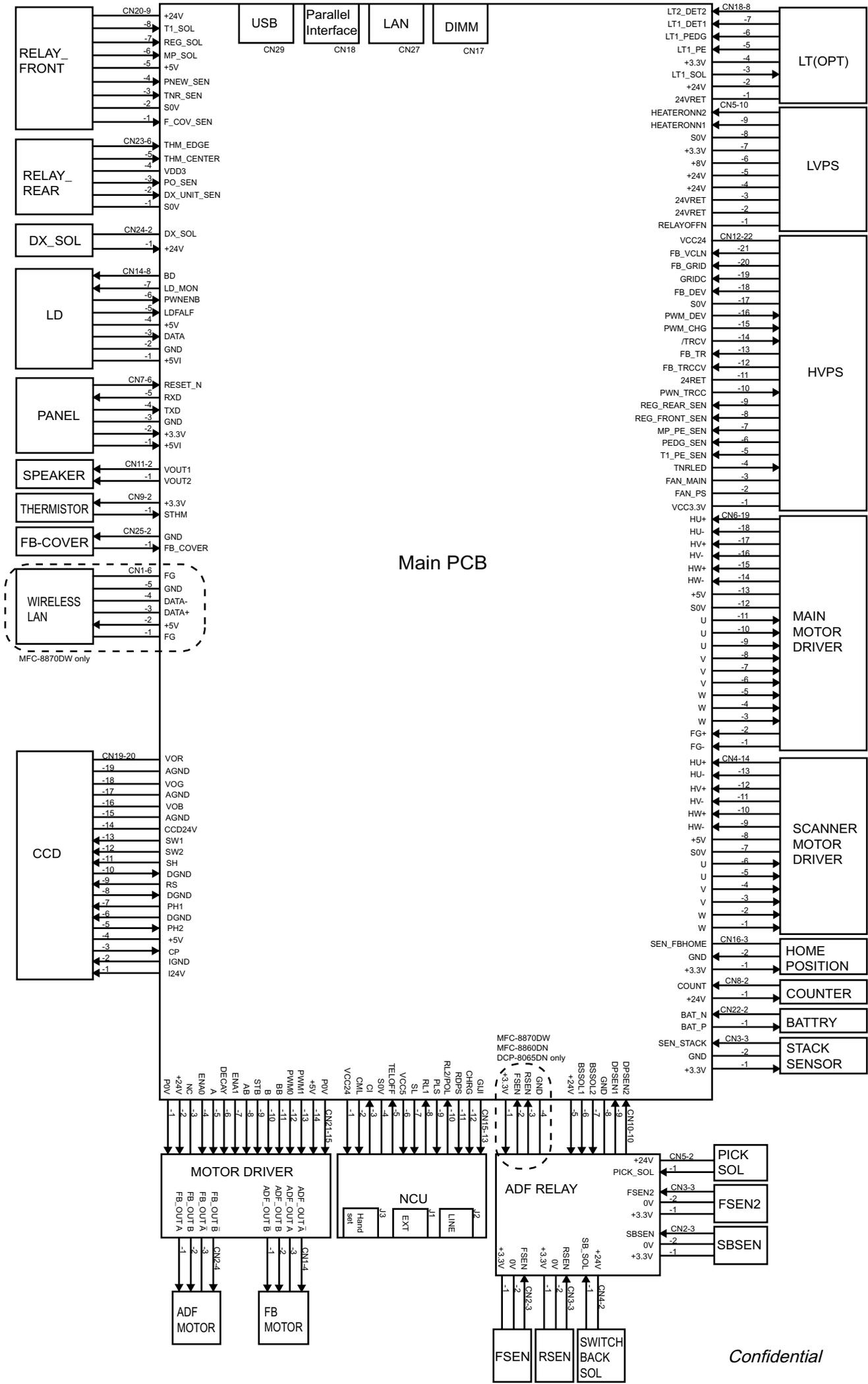
WSW53 (Function setting 18)

Selector No.	Function	Setting and Specifications
1 6	Not used.	
7	CNG detection retry after detection of invalid CNG.	0: Yes 1: No
8	Not used.	

MFC-8460N/8860DN/8870DW DCP-8060/8065DN

APPENDIX 5. WIRING DIAGRAM

This appendix provides the wiring diagram that helps you understand the connections between PCBs.



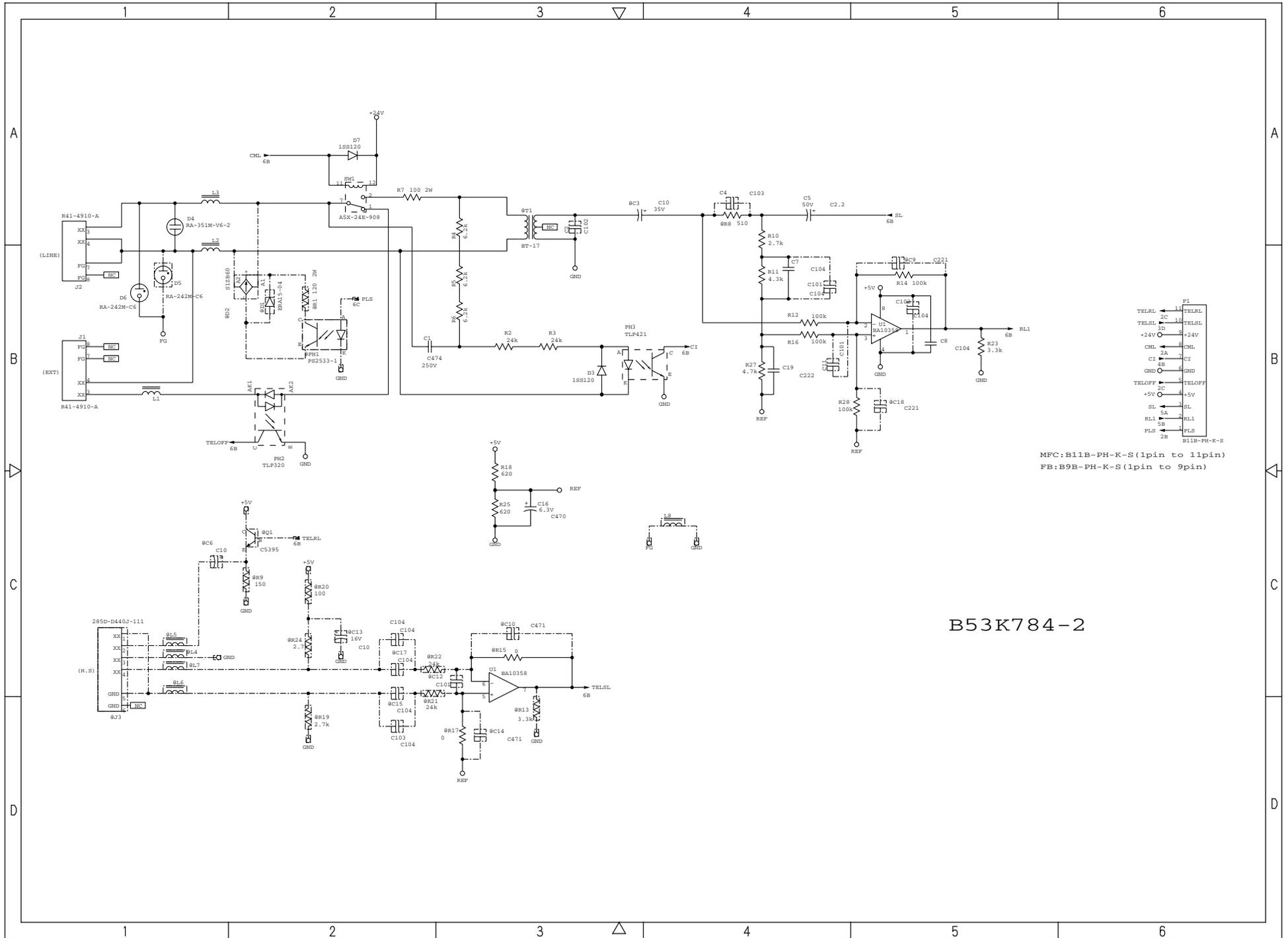
MFC-8460N/8860DN/8870DW DCP-8060/8065DN

APPENDIX 6. CIRCUIT DIAGRAMS

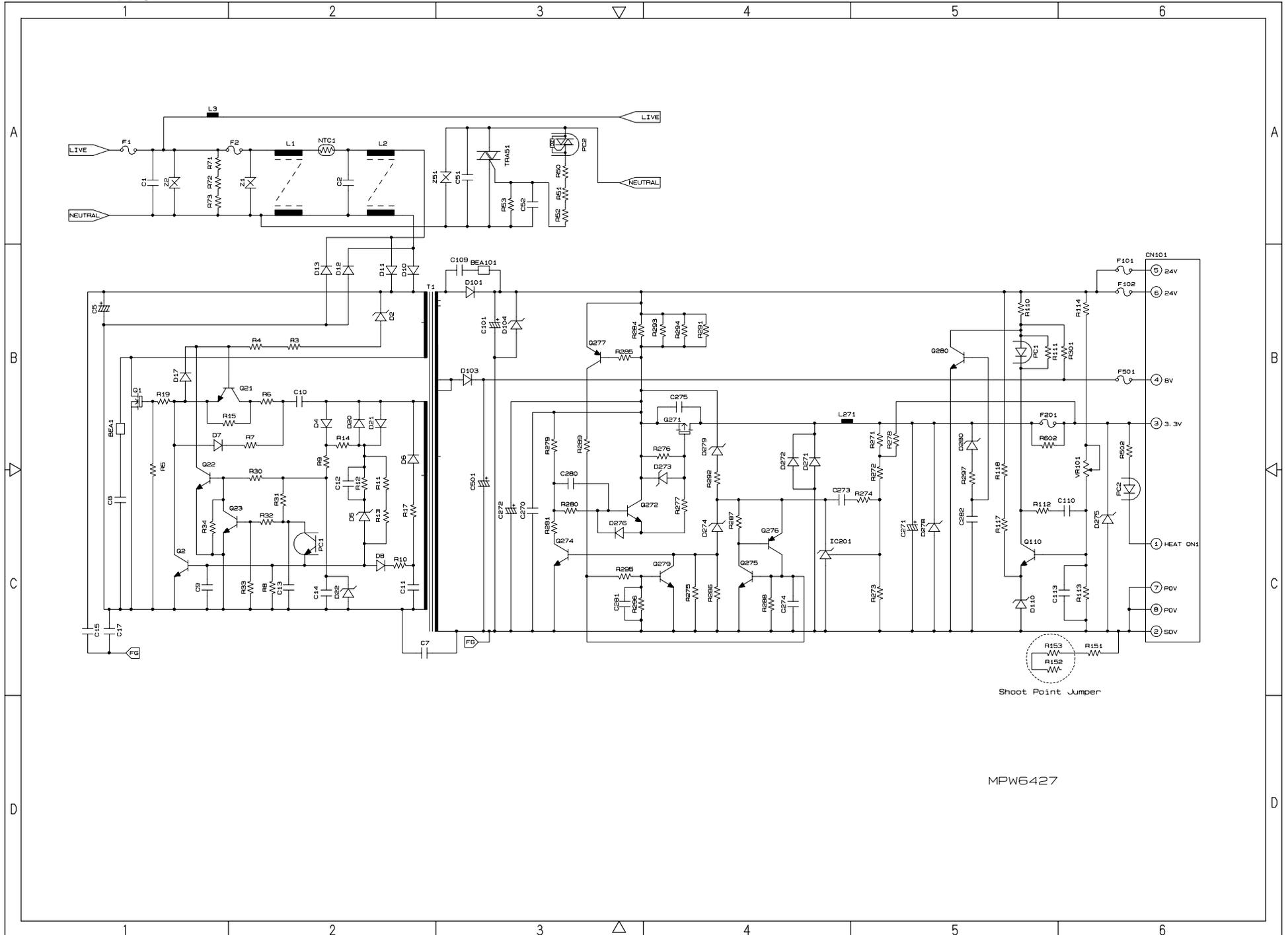
This appendix provides the circuit diagrams of the NCU PCB and power supply PCB.

- A NCU PCB
- B. Power Supply PCB 100V
Power Supply PCB 200V

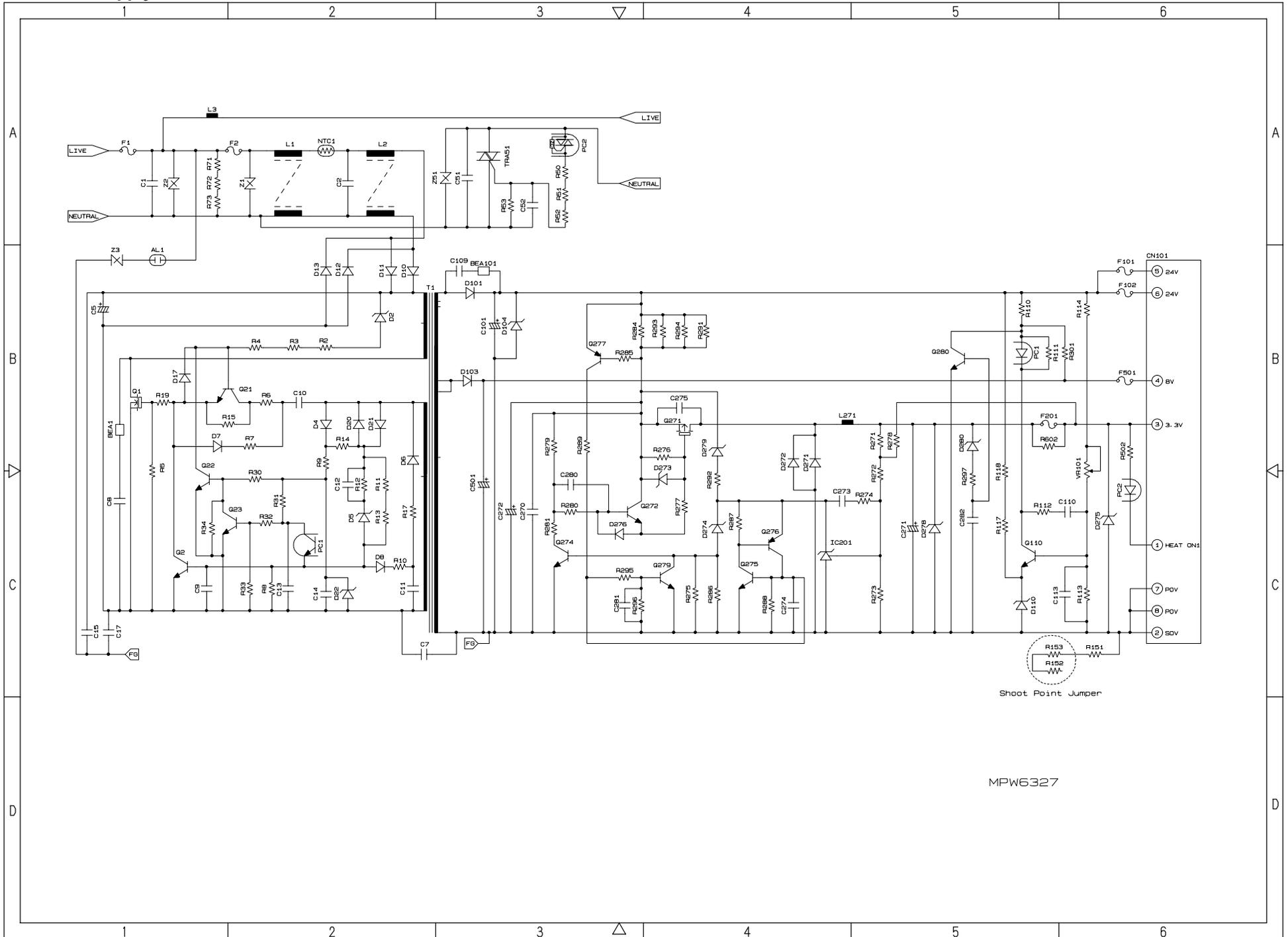
A. NCU PCB



B. Power Supply PCB 100V



B. Power Supply PCB 200V



MFC-8460N/8860DN/8870DW DCP-8060/8065DN

APPENDIX 7. VIEWING THE EVENT LOG FILE

When installing the printer driver, the installer logs events that occur during the installation process in the event log file. This appendix views a sample of the event log file. Selecting Start | Program | Brother | MFL-Pro Suite *model name* | Installation Diagnostics reads out the event log file.

BH3 installation log file

C:\Documents and Settings\All Users\Application Data\Brother\BrLog\BrI\INSTL.log

*****Debug Write Start 2004/07/25 19:28:44*****

Brother(R) Debug Output DLL Version 1.1

Copyright(c) 2004 Brother Industries, Ltd. All Rights Reserved.

***** SYSTEM INFORMATION *****

Function Name: INSTL
CPU Vender: GenuineIntel
Cpu Name: Intel Pentium III
FPU: Supprrted
TSC: Supprrted
MSR: Supprrted
CMOV: Supprrted
MMX: Supprrted
3DNow!: Not Supprrted
SSE_INT: Supprrted
SSE_FP: Supprrted
3DNow! Ext: Not Supprrted
FCMOV: Supprrted
OS Informations:
Windows 2000 Professional Service Pack 2 OS version 5.0.2195
Memory Informations:
Current memory load 28% Total physical memory = 255MB
Available physical memory = 181MB
Total pagefile = 618MB
Available pagefile = 553MB
Total virtual memory = 2047MB
Available virtual memory = 2022MB

***** SYSTEM INFORMATION *****

[00325207] 040000 INF: InstallationIniFilePath = C:\Program Files\Brother\Brmf\04b\Brmf\info.ini

[00325207] 040000 INF: Function Data -----

[00325207] 040000 INF: INIDATA PRT = 1
[00325207] 040000 INF: INIDATA SCN = 1
[00325207] 040000 INF: INIDATA FAXTX = 1
[00325207] 040000 INF: INIDATA FAXRX = 1
[00325207] 040000 INF: INIDATA RSP = 1
[00325217] 040000 INF: INIDATA MEDIA = 7
[00325217] 040000 INF: INIDATA COM = 8 9 10
[00325217] 040000 INF: INIDATA USBID = USBVID_0419 PID_016E
[00325217] 040000 INF: INIDATA LPTID = LPTENUM\Brother\MFC-5840CN USB P 11 85F4
[00325217] 040000 INF: INIDATA PRTNAME = Brother MFC-5840CN USB P 12 r
[00325217] 040000 INF: INIDATA SCNNAME = Brother MFC-5840CN USB 13
[00325217] 040000 INF: INIDATA FAXNAME = Brother PC-FAX #2 14
[00325217] 040000 INF: INIDATA INSTPATH = C:\Program Files\Brother\ 15 f\04b
[00325217] 040000 INF: INIDATA PORTNAME = USB006 16
[00325217] 040000 INF: INIDATA MODELNAME = MFC-5840CN 17
[00325217] 040000 INF: INIDATA INTERFACE = U 18
[00325217] 040000 INF: -----

*1 Header Information

Each start-up creates a new set of information

*2 PC System Information

*3 OS Start-up Time

*4 Error Level

*5 INF: Information / ERR: Error

*6 Information to be checked

(Functions set up by integrated installer)

PRT: Printer driver

SCN: Scanner driver

FAXTX: FAX sending driver

FAXRX: FAX receiving software

RSP: Remote Setup software

MEDIA: Media Drive driver

*7 All models indicate "0" because BH3 doesn't check Media Drive

*8 COM Port Number

*9 Brother ID

*10 MODEL ID (! Machine ID is serial number, not obtained here)

*11 USB connection also requires LPTID

*12 Printer Driver Name

*13 Scanner Driver Name

*14 PC-FAX Sending Driver Name

*15 Folder Name to be installed

*16 USB Port Number

*17 Model Name

*18 Connection Mode (USB / LPT / LAN)

USB Normal

Confidential

```

[00325217] 040000 INF: Win2K
[00325217] 040000 INF: ----- Printer Driver Check Start -----
[00325217] 040000 INF: PARAM MODEL NAME      MFC-5840CN
[00325217] 040000 INF: PARAM CMP PRINTER NAME  Brother MFC-5840CN USB Printer
[00325217] 040000 INF: PARAM INTERFACE        USB
[00325217] 040000 INF: PARAM PRINTER ID
[00325217] 040000 INF: PARAM MODE          0
[00325227] 040000 INF: PARAM CMP NAME CHANGE  Brother MFC-5840CN USB Printer
[00325227] 040000 INF: PARAM CMP NAME CHANGE  Brother MFC-5840CN USB Printer
[00325227] 040000 INF: PARAM CMP NAME CHANGE  Brother MFC-5840CN USB Printer
[00325227] 040000 INF: EXIST DRIVER NAME    = Brother MFC-5840CN USB Printer
[00325227] 040000 INF: LOCAL PORT NAME      = USB006
[00325227] 040000 INF: ----- Printer Driver Check End -----

```

19

*19 Installation Check Detail

*20 Printer Driver Installation Check

20

```

[00325227] 040000 INF: ----- Scanner Driver Check Start -----
[00325497] 040000 INF: Initialize() Result = 0
[00325497] 040000 INF: Scanner Install = OK
[00325497] 040000 INF: ----- Scanner Driver Check End -----

```

23

*22 Scanner Driver Installation Check

*23 Scanner Error Code

*24 If Scanner Install =OK, Scanner Driver is properly installed.

24

22

```

[00325497] 040000 INF: ----- FAXTX Driver Check Start -----
[00325497] 040000 INF: PARAM MODEL NAME      PC-FAX
[00325497] 040000 INF: PARAM CMP PRINTER NAME  Brother PC-FAX #2
[00325497] 040000 INF: PARAM INTERFACE        USB
[00325497] 040000 INF: PARAM PRINTER ID
[00325497] 040000 INF: PARAM MODE          0
[00325507] 040000 INF: EXIST DRIVER NAME    = Brother PC-F#2
[00325507] 040000 INF: PC-FAX PORT NAME      = USB006
[00325507] 040000 INF: ----- FAXTX Driver Check End -----

```

25

*25 FAX(Tx) Driver Installation Check

*26 If there is EXIST DRIVER NAME, PC-FAX sending driver is properly installed.

26

```

[00325507] 040000 INF: ----- FAXRX Check Start -----
[00325507] 040000 INF: FAXRX FILE CHECK
[00325507] 040000 INF: ----- FAXRX Check End -----

```

28

*27 FAX(Rx) File Check

*28 If FAXRX FILE CHECK =OK, FAX receiving file is properly copied.

27

```

[00325507] 040000 INF: ----- RSP Check Start -----
[00325507] 040000 INF: RSP FILE CHECK =
[00325507] 040000 INF: ----- RSP Check End -----

```

30

*29 Remote Setup File Check

*30 If RSP FILE CHECK =OK, RSP file is properly copied.

29

```

[00325507] 040000 INF: ----- Serial Port Check Start -----
[00326508] 040000 INF: FAXRX Connect OK
[00326508] 040000 INF: RSP Connect OK
[00326528] 040000 INF: ----- Serial Port Check End -----

```

32

*31 Serial Port (COM Port Driver Check)

*32 FAX receiving and RSP are communicating properly with COM port.

31

[00326528] 040000 INF: ----- Enumerate Host Controllers Check Start -----
[00326649] 040000 INF: USB Host Controller: \\.\HCD0 = Intel 82371AB/EB PCI to USB Universal Host Controller

[00327280] 040000 INF: ----- Connect Device Information Start ----- [34]
[00327280] 040000 INF: Port1: Dev1 = USB Composite Device
[00327280] 040000 INF: ----- Connect Device Information End -----

*33 Communication Check
*34 USB device is connected to USB Port1.
If other USB devices are connected to USB Port2, it will be also indicated.
! If no device is recognized, HUB might be connected to the port. In this case, displace it.

[00328181] 040000 INF: ----- Printer Connect Check Start -----
[00328181] 040000 INF: PARAM MODEL NAME MFC-5840CN
[00328181] 040000 INF: PARAM CMP PRINTER NAME Brother MFC-5840CN USB Printer
[00328181] 040000 INF: PARAM INTERFACE USB
[00328181] 040000 INF: PARAM PRINTER ID 7&19fa3abd&0&USB006
[00328181] 040000 INF: PARAM MODE 1
[00328191] 040000 INF: Get Printer ID = USBPRINT\BROTHERMFC-5840CN7&19FA3ABD&0&USB006

*35 Printer Driver Communication Check

[00328191] 040000 INF: Printer ID is agreement!
[00328191] 040000 INF: REAL PORT = USB006 [36]
[00328191] 040000 INF: ----- Printer Port Check Start -----
[00328191] 040000 INF: PRINTER PORT CHECK = USB [37]
[00328191] 040000 INF: INTERFACE = USB [38]
[00328191] 040000 INF: PORT CHECK = OK [39]

*36 Port Name created by installer
*37 Communication Check to this port
*38 Port Type (USB/LPT/LAN)
*39 Communication Check Result

[00328191] 040000 INF: ----- Printer Port Check End -----
[00328191] 040000 INF: PARAM MODEL NAME PC-FAX
[00328191] 040000 INF: PARAM CMP PRINTER NAME Brother PC-FAX #2
[00328191] 040000 INF: PARAM INTERFACE USB
[00328191] 040000 INF: PARAM PRINTER ID 7&19FA3ABD&0&USB006
[00328191] 040000 INF: PARAM MODE 1

*40 PC-FAX Sending Driver Check

[00328191] 040000 INF: ----- Fax Port Check Start -----
[00328191] 040000 INF: FAX PORT CHECK = USB006 [41]
[00328191] 040000 INF: INTERFACE = USB [42]
[00328191] 040000 INF: PORT CHECK = OK [43]
[00328191] 040000 INF: ----- Fax Port Check End -----
[00328191] 040000 INF: ----- Printer Connect Check End -----

*41 Communication Check to this port
*42 Port Type (USB/LPT/LAN)
*43 Communication Check Result

[00328191] 040000 INF: ----- Connect Device Information Start -----
[00328191] 040000 INF: Port1: Dev1 = Brother MFC-5840CN USB [44] ter
[00328191] 040000 INF: ----- Connect Device Information End -----

*44 No meaning (Ignore)

[00328621] 040000 INF: ----- Scanner Connect Check Start ----- [45]
[00328872] 040000 INF: Initialize() Result = 0 [46]
[00329302] 040000 INF: ChkStiDevice() Result = 0
[00329302] 040000 INF: ChkWiaDevice() Result = 3
[00331215] 040000 INF: ChkTwainDs() Result = 0
[00331215] 040000 INF: Get ScannerName = Brother MFC-5840CN USB
[00331656] 040000 INF: GetDefaultTwds() Result = 0
[00331656] 040000 INF: Get DefaultDS = TWAIN_32 Brother MFL Pro Scanner
[00332177] 040000 INF: GetPortName() Result = 0
[00332177] 040000 INF: Get PortName = \\.\BrUsca [47]
[00332617] 040000 INF: ChkDevCommunication() Result [48]
[00332617] 040000 INF: Scanner Connect = OK
[00332617] 040000 INF: ----- Scanner Connect Check End -----

*45 Scanner Driver Communication Check
*46 Scanner Error Code (Refer to the Scanner Error Code List

*47 Port Name the scanner is using
*48 ! If USB ID is not correct, it indicates "6"

USB Normal

Confidential

[00334049] 040000 INF: ----- Media Connect Check Start ----- [49]
[00334049] 040000 INF: ----- Media Connect Check End -----

*49 BH3 doesn't check the media drive driver.

[00334049] 040000 INF: ----- Connect Device Information Start -----
[00334049] 040000 INF: Port1: Dev1 = Brother MFC-5840CN USB Device [50]
[00334049] 040000 INF: ----- Connect Device Information End -----

*50 No meaning (Ignore)

[00334049] 040000 INF: ----- Connect Device Information Start -----
[00334049] 040000 INF: Port1: Dev1 = USB Printing Support [51]
[00334049] 040000 INF: Port1: Dev2 = Brother MFC-5840CN USB [52]
[00334049] 040000 INF: Port1: Dev3 = Brother MFC-5840CN USB Remote Setup Port [52] COM5)
[00334049] 040000 INF: Port1: Dev4 = USB Mass Storage Device
[00334049] 040000 INF: ----- Connect Device Information End -----

*51 It indicates connected devices
(A connected device can be indicated including other company's products)
*52 If another device is connected to USB Port2, it is also indicated.

[00334049] 040000 INF: USB Hub Information: [Port1] DeviceConnected = USB Composite Device [53]
[00334049] 040000 INF: USB Hub Information: [Port2] NoDeviceConnected = NoDeviceConnected

*53 It indicates that each port is connected to devices or not.

[00334049] 040000 INF: ----- Enumerate Host Controllers Check End -----

[00334510] 040000 INF: ----- USB Chip information Check Start -----
[00334510] 040000 INF: USB Chip0(Device25) = Intel 82371AB/EB PCI to ISA bridge (ISA mode)
[00334510] 040000 INF: USB Chip1(Device26) = Intel(r) 82371AB/EB PCI Bus Master IDE Controller
[00334510] 040000 INF: USB Chip2(Device27) = Intel 82371AB/EB PCI to USB Universal Host Controller [54]
[00334510] 040000 INF: USB Chip3(Device28) = Intel 82443BX Pentium(r) II Processor to PCI Bridge
[00334510] 040000 INF: USB Chip4(Device29) = Intel 82443BX Pentium(r) II Processor to AGP Controller
[00334510] 040000 INF: ----- USB Chip information Check End -----

*54 USB Chip Information

[00334510] 040000 INF: ----- ADD/REMOVE APPLICATION Check Start -----
[00334510] 040000 INF: AddRemove Display Name: DisplayName1 = Brother HL-5070
[00334510] 040000 INF: AddRemove Display Name: DisplayName2 = NVIDIA Windows 2000 Display Drivers
[00334510] 040000 INF: AddRemove Display Name: DisplayName3 = Microsoft Visual Studio 6.0 Enterprise Edition
[00334510] 040000 INF: AddRemove Display Name: DisplayName4 = Microsoft Web Publishing Wizard 1.53
[00334510] 040000 INF: AddRemove Display Name: DisplayName5 = Microsoft Office 2000 Premium [55]
[00334510] 040000 INF: AddRemove Display Name: DisplayName6 = Brother MFL-Pro Suite
[00334510] 040000 INF: AddRemove Display Name: DisplayName7 = Brother Drivers
[00334510] 040000 INF: AddRemove Display Name: DisplayName8 = WebFldrs
[00334510] 040000 INF: AddRemove Display Name: DisplayName9 = Brother Drivers
[00334510] 040000 INF: ----- ADD/REMOVE APPLICATION Check End -----

*55 Add/Remove Application Information

```

[00341109] 040000 [57] ----- Process Information Start -----
[00341109] 010000 ERR: Process1=
[00341109] 010000 ERR: Process2=
[00341109] 010000 ERR: Process3=\SystemRoot\System32\smss.exe
[00341109] 010000 ERR: Process4=
[00341109] 010000 ERR: Process5=?\C:\WINNT\system32\winlogon.exe
[00341109] 010000 ERR: Process6=C:\WINNT\system32\services.exe
[00341109] 010000 ERR: Process7=C:\WINNT\system32\lsass.exe
[00341109] 010000 ERR: Process8=C:\WINNT\system32\svchost.exe
[00341109] 010000 ERR: Process9=C:\WINNT\system32\spoolsv.exe
[00341109] 010000 ERR: Process10=C:\WINNT\System32\svchost.exe
[00341109] 010000 ERR: Process11=C:\WINNT\system32\regsvc.exe
[00341109] 010000 ERR: Process12=C:\WINNT\system32\MSTask.exe
[00341109] 010000 ERR: Process13=C:\WINNT\System32\WBEM\WinMgmt.exe
[00341109] 010000 ERR: Process14=C:\WINNT\Explorer.EXE
[00341109] 010000 ERR: Process15=C:\Program Files\Brownie\brstswnd.exe
[00341109] 010000 ERR: Process16=C:\Program Files\Brownie\Brcdcom.exe
[00341109] 010000 ERR: Process17=\\apngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Setup.exe
[00341109] 010000 ERR: Process18=\\apngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Setup.exe
[00341109] 010000 ERR: Process19=\\apngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Diagnosis\BR_collect.exe
[00341109] 040000 INF: ----- Process Information End -----

```

[56] *56 Process Information which is running
! If you failed to install and virus checker was running, displace it.

*57 ERRs are just a bug. Fix with ALL

```

[00341109] 040000 INF: ----- Startup Information Start -----
[00341109] 040000 INF: STARTUP: = Microsoft Office.lnk [58]
[00341109] 040000 INF: STARTUP: = Status Monitor.lnk
[00341109] 040000 INF: ----- Startup Information End -----

```

*58 Startup Registration
! If you failed to install and virus checker was running, displace it.

```

[00347739] 040000 INF: ----- Installation Diagnostics Result Start -----
[00347739] 040000 INF: PRT = OK [60]
[00347739] 040000 INF: PRT_INST = OK [61]
[00347739] 040000 INF: PRT_PORT = USB006 [62]
[00347739] 040000 INF: SCN = OK [63]
[00347739] 040000 INF: SCN_INST = OK [64]
[00347739] 040000 INF: SCN_PORT = \\.\BrUscan0 [65]
[00347739] 040000 INF: FAXTX = OK [66]
[00347739] 040000 INF: FAXTX_INST = OK [67]
[00347739] 040000 INF: FAXTX_PORT = USB006 [68]
[00347739] 040000 INF: FAXRX = OK [69]
[00347739] 040000 INF: FAXRX_INST = OK [70]
[00347739] 040000 INF: FAXRX_PORT = COM5: [71]
[00347739] 040000 INF: RSP = OK [72]
[00347739] 040000 INF: RSP_INST = OK [73]
[00347739] 040000 INF: RSP_PORT = COM5 [74]

```

*59 Installation Diagnostics Result (OK / NG(Installation) / NG(Communication))
*60 Printer Driver Integrated Diagnostic Result
*61 Printer Driver Installation Result
*62 Printer Driver Port

*63 Scanner Driver Integrated Diagnostic Result
*64 Scanner Driver Installation Result
*65 Scanner Driver Port

*66 PC-FAX Sending Driver Integrated Diagnostic Result
*67 PC-FAX Sending Driver Installation Result
*68 PC-FAX Sending Driver Port

*69 PC-FAX Receiving Driver Integrated Diagnostic Result
*70 PC-FAX Receiving Driver Installation Result
*71 PC-FAX Receiving Driver Port

*72 RSP Software Integrated Diagnostic Result
*73 RSP Software Installation Result
*74 RSP Software Port

```

[00347739] 040000 INF: ----- Installation Diagnostics Result End -----
*****Debug Write End 2004/07/25 19:29:10*****

```

BH3 installation log file

C:\Documents and Settings\All Users\Application Data\Brother\BrLog\BrtlNSTL.log

*****Debug Write Start 2004/07/25 19:26:59*****
Brother(R) Debug Output DLL Version 1.1
Copyright(c) 2004 Brother Industries, Ltd. All Rights Reserved.

***** SYSTEM INFORMATION *****

Function Name: **INSTL**
CPU Vender: GenuineIntel
Cpu Name: Intel Pentium III
FPU: Supprted
TSC: Supprted
MSR: Supprted
CMOV: Supprted
MMX: Supprted
3DNow!: Not Supprted
SSE_INT: Supprted
SSE_FP: Supprted
3DNow! Ext: Not Supprted
FCMOV: Supprted
OS Informations:
Windows 2000 Professional Service Pack 2 OS version 5.0.2195
Memory Informations:
Current memory load 28% Total physical memory = 255MB
Available physical memory = 183MB
Total pagefile = 618MB
Available pagefile = 557MB
Total virtual memory = 2047MB
Available virtual memory = 2022MB

***** SYSTEM INFORMATION *****

[00220757] 040000 INF: InstallationIniFilePath = C:\Program Files\Brother\Brmf104b\Brmfinfo.ini
[00220787] 040000 INF: Function Data -----
[00220787] 040000 INF: INIDATA PRT = 1
[00220787] 040000 INF: INIDATA SCN = 1
[00220787] 040000 INF: INIDATA FAXTX = 1
[00220787] 040000 INF: INIDATA FAXRX = 1
[00220787] 040000 INF: INIDATA RSP = 1
[00220787] 040000 INF: INIDATA MEDIA = 0
[00220787] 040000 INF: INIDATA COM = 0
[00220787] 040000 INF: INIDATA USBID = USB\VID_04F9&PID_016E
[00220787] 040000 INF: INIDATA LPTID = LPTENUM\BrotherMFC-5840CN USB Pr
[00220787] 040000 INF: INIDATA PRTNAME = Brother MFC-5840CN USB Pr
[00220787] 040000 INF: INIDATA SCNNAME = Brother MFC-5840CN USB
[00220787] 040000 INF: INIDATA FAXNAME = Brother PC-FAX #2
[00220787] 040000 INF: INIDATA INSTPATH = C:\Program Files\Brother\B
[00220787] 040000 INF: INIDATA PORTNAME = USB006
[00220787] 040000 INF: INIDATA MODELNAME = MFC-5840CN
[00220787] 040000 INF: INIDATA INTERFACE = U
[00220787] 040000 INF: -----

*1 Header Information
Each start-up creates a new set of information

*2 PC System Information

*3 OS Start-up Time

*4 Error Level

*5 INF: Information / ERR: Error

*6 Information to be checked
(Functions set up by integrated installer)

PRT: Printer driver
SCN: Scanner driver
FAXTX: FAX sending driver
FAXRX: FAX receiving software
RSP: Remote Setup software
MEDIA: Media Drive driver

*7 All models indicate "0" because BH3 doesn't check Media Drive

*8 COM Port Number

*9 Brother ID

*10 MODEL ID (! Machine ID is serial number, not obtained here)

*11 USB connection also requires LPTID

*12 Printer Driver Name

*13 Scanner Driver Name

*14 PC-FAX Sending Driver Name

*15 Folder Name to be installed

*16 USB Port Number

*17 Model Name

*18 Connection Mode (USB / LPT / LAN)

[00220787] 040000 INF: Win2K
[00220837] 040000 INF: ----- Printer Driver Check Start -----
[00220847] 040000 INF: PARAM MODEL NAME MFC-5840CN
[00220847] 040000 INF: PARAM CMP PRINTER NAME Brother MFC-5840CN USB Printer
[00220847] 040000 INF: PARAM INTERFACE USB
[00220847] 040000 INF: PARAM PRINTER ID
[00220847] 040000 INF: PARAM MODE 0
[00220857] 040000 INF: PARAM CMP NAME CHANGE Brother MFC-5840CN USB Printer
[00220857] 040000 INF: PARAM CMP NAME CHANGE Brother MFC-5840CN USB Printer
[00220857] 040000 INF: PARAM CMP NAME CHANGE Brother MFC-5840CN USB Printer
[00220857] 040000 INF: EXIST DRIVER NAME = Brother MFC-5840CN USB Printer
[00220857] 040000 INF: LOCAL PORT NAME = USB006
[00220857] 040000 INF: ----- Printer Driver Check End -----

19

*19 Installation Check Detail

*20 Printer Driver Installation Check

[00220857] 040000 INF: ----- Scanner Driver Check Start -----
[00221158] 040000 INF: Initialize() Result = 5
[00221158] 040000 INF: Scanner Install = OK
[00221158] 040000 INF: ----- Scanner Driver Check End -----

22

*22 Scanner Driver Installation Check

*23 Scanner Error Code:5 = The specified device is not connected (only USB connection).

*24 If Scanner Install =OK, Scanner Driver is properly installed.

[00221158] 040000 INF: ----- FAXTX Driver Check Start -----
[00221158] 040000 INF: PARAM MODEL NAME PC-FAX
[00221158] 040000 INF: PARAM CMP PRINTER NAME Brother PC-FAX #2
[00221158] 040000 INF: PARAM INTERFACE USB
[00221158] 040000 INF: PARAM PRINTER ID
[00221158] 040000 INF: PARAM MODE 0
[00221158] 040000 INF: EXIST DRIVER NAME = Brother PC-FAX #2
[00221158] 040000 INF: PC-FAX PORT NAME = USB006
[00221158] 040000 INF: ----- FAXTX Driver Check End -----

25

*25 FAX(Tx) Driver Installation Check

[00221168] 040000 INF: ----- FAXRX Check Start -----
[00221168] 040000 INF: FAXRX FILE CHECK = OK
[00221168] 040000 INF: ----- FAXRX Check End -----

27

*27 FAX(Rx) File Check

*28 If FAXRX FILE CHECK =OK, FAX receiving file is properly copied.

[00221168] 040000 INF: ----- RSP Check Start -----
[00221168] 040000 INF: RSP FILE CHECK = OK
[00221168] 040000 INF: ----- RSP Check End -----

29

*29 Remote Setup File Check

*30 If RSP FILE CHECK =OK, RSP file is properly copied.

[00221168] 040000 INF: ----- Serial Port Check Start -----
[00221168] 010000 ERR: Open Serial Port Failure
[00221168] 010000 ERR: Port Name = \\.\COM5
[00221168] 040000 INF: ----- Serial Port Check End -----

31

*31 Serial Port (COM Port Driver Check)

*32 PC-FAXRX is not available due to serial port failure..

[00221168] 040000 INF: ----- Enumerate Host Controllers Check Start -----
[00221288] 040000 INF: USB Host Controller: \\.\HCD0 = Intel 82371AB/EB PCI to USB Universal Host Controller
[00221288] 040000 INF: USB Hub Information: [Port1] NoDeviceConnected = NoDeviceConnected
[00221288] 040000 INF: USB Hub Information: [Port2] NoDeviceConnected = NoDeviceConnected
[00221288] 040000 INF: ----- Enumerate Host Controllers Check End -----

33

*33 Communication Check

*34 No device is connected to USB or no device is recognized because of HUB.
Communication check is not attempted because the connection is not recognizable.

[00221669] 040000 INF: ----- USB Chip information Check Start -----
[00221669] 040000 INF: USB Chip0(Device25) = Intel 82371AB/EB PCI to ISA bridge (ISA mode)
[00221669] 040000 INF: USB Chip1(Device26) = Intel(r) 82371AB/EB PCI Bus Master IDE Controller
[00221669] 040000 INF: USB Chip2(Device27) = Intel 82371AB/EB PCI to USB Universal Host Controller
[00221669] 040000 INF: USB Chip3(Device28) = Intel 82443BX Pentium(r) II Processor to PCI Bridge
[00221669] 040000 INF: USB Chip4(Device29) = Intel 82443BX Pentium(r) II Processor to AGP Controller
[00221669] 040000 INF: ----- USB Chip information Check End -----

*54 USB Chip Information

[00221669] 040000 INF: ----- ADD/REMOVE APPLICATION Check Start -----
[00221669] 040000 INF: AddRemove Display Name: DisplayName1 = Brother HL-5070
[00221669] 040000 INF: AddRemove Display Name: DisplayName2 = NVIDIA Windows 2000 Display Drivers
[00221669] 040000 INF: AddRemove Display Name: DisplayName3 = Microsoft Visual Studio 6.0 Enterprise Edition
[00221669] 040000 INF: AddRemove Display Name: DisplayName4 = Microsoft Web Publishing Wizard 1.53
[00221679] 040000 INF: AddRemove Display Name: DisplayName5 = Microsoft Office 2000 Premium
[00221679] 040000 INF: AddRemove Display Name: DisplayName6 = Brother MFL-Pro Suite
[00221679] 040000 INF: AddRemove Display Name: DisplayName7 = Brother Drivers
[00221679] 040000 INF: AddRemove Display Name: DisplayName8 = WebFldrs
[00221679] 040000 INF: AddRemove Display Name: DisplayName9 = Brother Drivers
[00221679] 040000 INF: ----- ADD/REMOVE APPLICATION Check End -----

*55 Add/Remove Application Information

[00235399] 040000 [57] ----- Process Information Start -----
[00235429] 010000 ERR: Process1=
[00235429] 010000 ERR: Process2=
[00235429] 010000 ERR: Process3=\SystemRoot\System32\smss.exe
[00235429] 010000 ERR: Process4=
[00235429] 010000 ERR: Process5=?\C:\WINNT\system32\winlogon.exe
[00235429] 010000 ERR: Process6=C:\WINNT\system32\services.exe
[00235429] 010000 ERR: Process7=C:\WINNT\system32\lsass.exe
[00235429] 010000 ERR: Process8=C:\WINNT\system32\svchost.exe
[00235429] 010000 ERR: Process9=C:\WINNT\system32\spoolsv.exe
[00235429] 010000 ERR: Process10=C:\WINNT\System32\svchost.exe
[00235429] 010000 ERR: Process11=C:\WINNT\system32\regsvc.exe
[00235429] 010000 ERR: Process12=C:\WINNT\system32\IMSTask.exe
[00235429] 010000 ERR: Process13=C:\WINNT\System32\WBEM\WinMgmt.exe
[00235429] 010000 ERR: Process14=C:\WINNT\Explorer.EXE
[00235429] 010000 ERR: Process15=C:\Program Files\Brownie\brstswnd.exe
[00235429] 010000 ERR: Process16=C:\Program Files\Brownie\Brcdcom.exe
[00235429] 010000 ERR: Process17=\\apngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Setup.exe
[00235429] 010000 ERR: Process18=\\apngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Setup.exe
[00235429] 010000 ERR: Process19=\\apngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Diagnosis\BR_collect.exe
[00235459] 040000 INF: ----- Process Information End -----

*56 Process Information running now

*57 ERRs are just a bug. Fix with ALL

[00235459] 040000 INF: ----- Startup Information Start -----
[00235459] 040000 INF: STARTUP: = Microsoft Office.lnk [58]
[00235459] 040000 INF: STARTUP: = Status Monitor.lnk
[00235459] 040000 INF: ----- Startup Information End -----

*58 Startup Registration

[00242088] 040000 INF: ----- Installation Diagnostics Result Start -----
[00242088] 010000 ERR: PRT = NG (Communication) 60
[00242088] 010000 ERR: PRT_INST = OK 61
[00242088] 010000 ERR: PRT_PORT = USB006 62

[00242088] 010000 ERR: SCN = NG (Communication) 63
[00242088] 010000 ERR: SCN_INST = OK 64
[00242088] 010000 ERR: SCN_PORT = --- 65

[00242088] 010000 ERR: FAXTX = NG (Communication) 66
[00242088] 010000 ERR: FAXTX_INST = OK 67
[00242088] 010000 ERR: FAXTX_PORT = USB006 68

[00242088] 010000 ERR: FAXRX = NG (Communication) 69
[00242088] 010000 ERR: FAXRX_INST = OK 70
[00242088] 010000 ERR: FAXRX_PORT = COM5: 71

[00242088] 010000 ERR: RSP = NG (Communication) 72
[00242088] 010000 ERR: RSP_INST = OK 73
[00242088] 010000 ERR: RSP_PORT = COM5: 74

[00242088] 040000 INF: ----- Installation Diagnostics Result End -----

59

- *59 Installation Diagnostics Result (OK / NG(Installation) / NG(Communication))
- *60 Printer Driver Installation Failure (CANNOT Communicate)
- *61 Printer Driver Installation Result
- *62 Printer Driver Port

- *63 Scanner Driver Installation Failure (CANNOT Communicate)
- *64 Scanner Driver Installation Result
- *65 Scanner Driver Port

- *66 PC-FAX Sending Driver Installation Failure(CANNOT Communicate)
- *67 PC-FAX Sending Driver Installation Result
- *68 PC-FAX Sending Driver Port

- *69 PC-FAX Receiving Software Installation Failure(CANNOT Communicate)
- *70 PC-FAX Receiving Software Installation Result
- *71 PC-FAX Receiving Software Port

- *72 RSP Software Installation Failure (CANNOT Communicate)
- *73 RSP Software Installation Result
- *74 RSP Software Port

*****Debug Write End 2004/07/25 19:27:25*****

BH3 installation log file

C:\Documents and Settings\All Users\Application Data\Brother\BrLog\BrtlNSTL.log

*****Debug Write Start 2004/07/25 19:33:41*****
Brother(R) Debug Output DLL Version 1.1
Copyright(c) 2004 Brother Industries, Ltd. All Rights Reserved.

***** SYSTEM INFORMATION *****

Function Name: INSTL
CPU Vender: GenuineIntel
Cpu Name: Intel Pentium III
FPU: Supprted
TSC: Supprted
MSR: Supprted
CMOV: Supprted
MMX: Supprted
3DNow!: Not Supprted
SSE_INT: Supprted
SSE_FP: Supprted
3DNow! Ext: Not Supprted
FCMOV: Supprted
OS Informations:
Windows 2000 Professional Service Pack 2 OS version 5.0.2195
Memory Informations:
Current memory load 28% Total physical memory = 255MB
Available physical memory = 181MB
Total pagefile = 618MB
Available pagefile = 554MB
Total virtual memory = 2047MB
Available virtual memory = 2022MB

***** SYSTEM INFORMATION *****

[00622414] 040000 INF: InstallationIniFilePath = C:\Program Files\Brother\Brmf104b\Brmfinfo.ini
[00622414] 040000 INF: Function Data -----
[00622414] 040000 INF: INIDATA PRT = 1
[00622414] 040000 INF: INIDATA SCN = 1
[00622414] 040000 INF: INIDATA FAXTX = 1
[00622414] 040000 INF: INIDATA FAXRX = 1
[00622414] 040000 INF: INIDATA RSP = 1
[00622414] 040000 INF: INIDATA MEDIA = 7
[00622414] 040000 INF: INIDATA COM = 8 9 1
[00622414] 040000 INF: INIDATA USBID = USB\VID_04F9&PID_016F
[00622414] 040000 INF: INIDATA LPTID = LPTENUM\BrotherMFC-5840 11 35F5
[00622414] 040000 INF: INIDATA PRTNAME = Brother MFC-5555840CN USB 12 nter
[00622414] 040000 INF: INIDATA SCNNAME = Brother MFC-5555840CN USB 13
[00622424] 040000 INF: INIDATA FAXNAME = Brother PC-FAX #3 14
[00622424] 040000 INF: INIDATA INSTPATH = C:\Program Files\Brother\B 15 04c
[00622424] 040000 INF: INIDATA PORTNAME = USB006 16
[00622424] 040000 INF: INIDATA MODELNAME = MFC-5850CN 17
[00622424] 040000 INF: INIDATA INTERFACE = U 18
[00622424] 040000 INF: -----

1

2

*1 Header Information
Each start-up creates a new set of information

*2 PC System Information

*3 OS Start-up Time

*4 Error Level

*5 INF: Information / ERR: Error

*6 Information to be checked
(Functions set up by integrated installer)

PRT: Printer driver
SCN: Scanner driver
FAXTX: FAX sending driver
FAXRX: FAX receiving software
RSP: Remote Setup software
MEDIA: Media Drive driver

*7 All models indicate "0" because BH3 doesn't check Media Drive

*8 COM Port Number

*9 Brother ID

*10 MODEL ID (! Machine ID is serial number, not obtained here)

*11 USB connection also requires LPTID

*12 Printer Driver Name

*13 Scanner Driver Name

*14 PC-FAX Sending Driver Name

*15 Folder Name to be installed

*16 USB Port Number

*17 Model Name

*18 Connection Mode (USB / LPT / LAN)

Insatallation Failure

Confidential

```

[00622424] 040000 INF: Win2K
[00622424] 040000 INF: ----- Printer Driver Check Start -----
[00622424] 040000 INF: PARAM MODEL NAME      MFC-5850CN
[00622424] 040000 INF: PARAM CMP PRINTER NAME  Brother MFC-5555840CN USB Printer
[00622424] 040000 INF: PARAM INTERFACE      USB
[00622424] 040000 INF: PARAM PRINTER ID
[00622424] 040000 INF: PARAM MODE      0
[00622434] 040000 INF: PARAM CMP NAME CHANGE  Brother MFC-5555840CN USB Printer
[00622434] 040000 INF: PARAM CMP NAME CHANGE  Brother MFC-5555840CN USB Printer
[00622434] 040000 INF: PARAM CMP NAME CHANGE  Brother MFC-5555840CN USB Printer
[00622434] 040000 INF: PARAM CMP NAME CHANGE  Brother MFC-5555840CN USB Printer
[00622434] 040000 INF: PARAM CMP NAME CHANGE  Brother MFC-5555840CN USB Printer
[00622434] 040000 INF: ----- Printer Driver Check End -----

[00622434] 040000 INF: ----- Scanner Driver Check Start -----
[00622454] 040000 INF: Initialize() Result = 4
[00622454] 010000 ERR: Scanner Install = NG
[00622454] 040000 INF: ----- Scanner Driver Check End -----

[00622454] 040000 INF: ----- FAXTX Driver Check Start -----
[00622454] 040000 INF: PARAM MODEL NAME      PC-FAX
[00622454] 040000 INF: PARAM CMP PRINTER NAME  Brother PC-FAX #3
[00622454] 040000 INF: PARAM INTERFACE      USB
[00622454] 040000 INF: PARAM PRINTER ID
[00622454] 040000 INF: PARAM MODE      0
[00622454] 040000 INF: ----- FAXTX Driver Check End -----

[00622454] 040000 INF: ----- FAXRX Check Start -----
[00622454] 040000 INF: FAXRX FILE CHECK = NG
[00622454] 040000 INF: ----- FAXRX Check End -----

[00622454] 040000 INF: ----- RSP Check Start -----
[00622454] 040000 INF: RSP FILE CHECK = NG
[00622454] 040000 INF: ----- RSP Check End -----

[00622454] 040000 INF: ----- Serial Port Check Start -----
[00623465] 040000 INF: FAXRX Connect OK
[00623465] 040000 INF: RSP Connect OK
[00623485] 040000 INF: ----- Serial Port Check End -----

[00623485] 040000 INF: ----- Enumerate Host Controllers Check Start -----
[00623605] 040000 INF: USB Host Controller:  \\.\HCD0 = Intel 82371AB/EB PCI to USB Universal Host Controller
[00623766] 040000 INF: USB Hub Information:  [Port1] DeviceConnected = USB Composite Device
[00623766] 040000 INF: USB Hub Information:  [Port2] NoDeviceConnected = NoDeviceConnected
[00623766] 040000 INF: ----- Enumerate Host Controllers Check End -----

```

19

*19 Installation Check Detail
*20 Printer Driver Installation Check

20

21

*21 If there is no EXIST DRIVER NAME, Driver is not properly installed.

22

*22 Scanner Driver Installation Check
*23 Scanner Error (4= The specified device is not installed)
*24 Scanner Driver is not properly installed.

23

24

25

*25 FAX(Tx) Driver Installation Check

26

*26 If there is no EXIST DRIVER NAME, PC-FAX sending driver is not properly installed.

27

*27 FAX(Rx) File Check
*28 If FAXRX FILE CHECK =NG, FAX sending driver is not properly installed.

28

29

*29 Remote Setup File Check
*30 If RSP FILE CHECK =NG, Remote Setup is not properly installed.

30

31

*31 Serial Port (COM Port Driver Check)
*32 FAX sending and RSP are not properly installed, but communication is available.
FAX receiving and RSP can be used properly, if file exists

32

33

*33 Communication Check
*34 The installation was not successful, and failed to check USB device.

34

[00624216] 040000 INF: ----- USB Chip information Check Start -----
[00624216] 040000 INF: USB Chip0(Device25) = Intel 82371AB/EB PCI to ISA bridge (ISA mode)
[00624216] 040000 INF: USB Chip1(Device26) = Intel(r) 82371AB/EB PCI Bus Master IDE Controller
[00624216] 040000 INF: USB Chip2(Device27) = Intel 82371AB/EB PCI to USB Universal Host Controller
[00624216] 040000 INF: USB Chip3(Device28) = Intel 82443BX Pentium(r) II Processor to PCI Bridge
[00624216] 040000 INF: USB Chip4(Device29) = Intel 82443BX Pentium(r) II Processor to AGP Controller
[00624216] 040000 INF: ----- USB Chip information Check End -----

*54 USB Chip Information

[00624216] 040000 INF: ----- ADD/REMOVE APPLICATION Check Start -----
[00624216] 040000 INF: AddRemove Display Name: DisplayName1 = Brother HL-5070
[00624216] 040000 INF: AddRemove Display Name: DisplayName2 = NVIDIA Windows 2000 Display Drivers
[00624216] 040000 INF: AddRemove Display Name: DisplayName3 = Microsoft Visual Studio 6.0 Enterprise Edition
[00624216] 040000 INF: AddRemove Display Name: DisplayName4 = Microsoft Web Publishing Wizard 1.53
[00624216] 040000 INF: AddRemove Display Name: DisplayName5 = Microsoft Office 2000 Premium
[00624216] 040000 INF: AddRemove Display Name: DisplayName6 = Brother MFL-Pro Suite
[00624216] 040000 INF: AddRemove Display Name: DisplayName7 = Brother Drivers
[00624216] 040000 INF: AddRemove Display Name: DisplayName8 = WebFldrs
[00624216] 040000 INF: AddRemove Display Name: DisplayName9 = Brother Drivers
[00624216] 040000 INF: ----- ADD/REMOVE APPLICATION Check End -----

*55 Add/Remove Application Information

[00625218] 040000 INF: ----- Installation Diagnostics Result Start -----
[00625218] 010000 ERR: PRT = NG (Installation) *59 Installation Diagnostics Result (OK / NG(Installation) / NG(Communication))
[00625218] 010000 ERR: PRT_INST = NG *60 Printer Driver Installation Failure (Failure to install file)
[00625218] 010000 ERR: PRT_PORT = --- *61 Scanner Driver Installation Result
[00625218] 010000 ERR: PRT_PORT = --- *62 Printer Driver Port

[00625218] 010000 ERR: SCN = NG (Installation) *63 Scanner Driver Installation Failure (Failure to install file)
[00625218] 010000 ERR: SCN_INST = NG *64 Scanner Driver Installation Result
[00625218] 010000 ERR: SCN_PORT = --- *65 Scanner Driver Port

[00625218] 010000 ERR: FAXTX = NG (Installation) *66 PC-FAX Sending Driver Installation Failure (Failure to install file)
[00625218] 010000 ERR: FAXTX_INST = NG *67 PC-FAX sending Driver Installation Result
[00625218] 010000 ERR: FAXTX_PORT = --- *68 PC-FAX Sending Driver Port

[00625218] 010000 ERR: FAXRX = NG (Installation) *69 PC-FAX Receiving Driver Installation Failure (Failure to install file)
[00625218] 010000 ERR: FAXRX_INST = NG *70 PC-FAX receiving Software Installation Result
[00625218] 010000 ERR: FAXRX_PORT = COM5: *71 PC-FAX Receiving Software Port

[00625218] 010000 ERR: RSP = NG (Installation) *72 RSP Software Installation Failure (Failure to install file)
[00625218] 010000 ERR: RSP_INST = NG *73 RSP Software Installation Result
[00625218] 010000 ERR: RSP_PORT = COM5: *74 RSP Software Port

[00625218] 040000 INF: ----- Installation Diagnostics Result End -----

*****Debug Write End 2004/07/25 19:33:50*****

BH3 installation log file

C:\Documents and Settings\All Users\Application Data\Brother\BrLog\BrtlNSTL.log

*****Debug Write Start 2004/07/25 19:49:04*****

Brother(R) Debug Output DLL Version 1.1
Copyright(c) 2004 Brother Industries, Ltd. All Rights Reserved.

***** SYSTEM INFORMATION *****

Function Name: INSTL
CPU Vender: GenuineIntel
Cpu Name: Intel Pentium III
FPU: Supprted
TSC: Supprted
MSR: Supprted
CMOV: Supprted
MMX: Supprted
3DNow!: Not Supprted
SSE_INT: Supprted
SSE_FP: Supprted
3DNow! Ext: Not Supprted
FCMOV: Supprted
OS Informations:
Windows 2000 Professional Service Pack 2 OS version 5.0.2195
Memory Informations:
Current memory load 34% Total physical memory = 255MB
Available physical memory = 167MB
Total pagefile = 618MB
Available pagefile = 538MB
Total virtual memory = 2047MB
Available virtual memory = 2022MB

1

*1 Header Information
Each start-up creates a new set of information

2

*2 PC System Information

***** SYSTEM INFORMATION *****

[00318407] 040000 INF: InstallationIniFilePath = C:\Program Files\Brother\Brmf104b\Brmfinfo.ini
[00318407] 040000 INF: Function Data -----
[00318407] 040000 INF: INIDATA PRT = 1
[00318407] 040000 INF: INIDATA SCN = 1
[00318407] 040000 INF: INIDATA FAXTX = 1
[00318407] 040000 INF: INIDATA FAXRX = 0
[00318407] 040000 INF: INIDATA RSP = 0
[00318407] 040000 INF: INIDATA MEDIA = 7
[00318407] 040000 INF: INIDATA COM = 0
[00318407] 040000 INF: INIDATA USBID =
[00318407] 040000 INF: INIDATA LPTID =
[00318407] 040000 INF: INIDATA PRTPNAME = Brother MFC-5840CN Printer
[00318407] 040000 INF: INIDATA SCNNNAME = Brother MFC-5840CN LAN
[00318407] 040000 INF: INIDATA FAXNAME = Brother PC-FAX #4
[00318407] 040000 INF: INIDATA INSTPATH = C:\Program Files\Brother\B 04b
[00318407] 040000 INF: INIDATA PORTNAME = BRN_600300
[00318407] 040000 INF: INIDATA MODELNAME = MFC-5840CN
[00318407] 040000 INF: INIDATA INTERFACE = L
[00318407] 040000 INF: -----

6

*3 OS Start-up Time
*4 Error Level
*5 INF: Information / ERR: Error

*6 Information to be checked
(Functions set up by integrated installer)
PRT: Printer driver
SCN: Scanner driver
FAXTX: FAX sending driver
FAXRX: FAX receiving software
RSP: Remote Setup software
MEDIA: Media Drive driver

*7 All models indicate "0" because BH3 doesn't check Media Drive

11

*11 USB connection also requires LPTID

12

*12 Printer Driver Name

13

*13 Scanner Driver Name

14

*14 PC-FAX Sending Driver Name

15

*15 Folder Name to be installed (04a: BHmini2 / 04b: BHL3)

16

*16 USB Port Number

17

*17 Model Name

18

*18 Connection Mode (USB / LPT / LAN)

```

[00318407] 040000 INF: Win2K
[00318417] 040000 INF: ----- Printer Driver Check Start -----
[00318417] 040000 INF: PARAM MODEL NAME      MFC-5840CN
[00318417] 040000 INF: PARAM CMP PRINTER NAME  Brother MFC-5840CN Printer
[00318417] 040000 INF: PARAM INTERFACE      LAN
[00318417] 040000 INF: PARAM PRINTER ID
[00318417] 040000 INF: PARAM MODE          0
[00318427] 040000 INF: EXIST DRIVER NAME      = Brother MFC-5840CN Pri
[00318427] 040000 INF: LAN PRINTER PORT NAME = BRN_600300
[00318427] 040000 INF: PARAM MODEL NAME      MFC-5840CN
[00318427] 040000 INF: PARAM CMP PRINTER NAME  Brother MFC-5840CN Printer
[00318427] 040000 INF: PARAM INTERFACE      LAN
[00318427] 040000 INF: PARAM PRINTER ID
[00318427] 040000 INF: PARAM MODE          1
[00318437] 040000 INF: ----- Network Port Check Start -----
[00318437] 040000 INF: NETWORK PORT CHECK      = BRN_600300
[00318437] 040000 INF: INTERFACE      = LAN
[00318437] 040000 INF: ----- Network Connect Check Start -----
[00320480] 010000 ERR: BrNetCloseDevice(): WSAAwaitForMultipleEvents() timeout Error (code = 0)
[00322482] 010000 ERR: BrNetCloseDevice(): WSAAwaitForMultipleEvents() timeout Error (code = 0)
[00322482] 040000 INF: Connect Device Name = Brother MFC-5840CN
[00322482] 040000 INF: ----- Network Connect Check End -----
[00322482] 040000 INF: PORT CHECK      = OK
[00322482] 040000 INF: ----- Network Port Check End -----
[00322482] 040000 INF: ----- Printer Driver Check End -----

[00322482] 040000 INF: ----- Scanner Driver Check Start -----
[00322833] 040000 INF: Initialize() Result = 0
[00322843] 040000 INF: Scanner Install      = OK
[00323183] 040000 INF: Initialize() Result = 0
[00324045] 040000 INF: ChkStiDevice() Result = 0
[00324045] 040000 INF: ChkWiaDevice() Result = 3
[00326909] 040000 INF: ChkTwainDs() Result = 0
[00326909] 040000 INF: Get ScannerName = Brother MFC-5840CN LAN
[00328501] 040000 INF: GetDefaultTwds() Result = 0
[00328501] 040000 INF: Get DefaultDS = TWAIN_32 Brother MFL Pro Scanner
[00329332] 040000 INF: GetPortName() Result = 0
[00329332] 040000 INF: Get PortName = AUTO
[00332827] 040000 INF: ChkDevCommunication() Result = 0
[00332827] 040000 INF: Scanner Connect      = OK
[00332827] 040000 INF: ----- Scanner Driver Check End -----

```

19

*19 Installation Check Detail

20

*20 Printer Driver Installation Check

21

*21 If there is EXIST DRIVER NAME, printer driver is properly installed.

75

*75 Network Port Communication Check

76

*76 Port Name created by installer

77

*77 No meaning (Ignore)

78

*78 If OK, communication to network port is available.

22

*22 Scanner Driver Installation Check

23

*23 Scanner Error Code

24

*24 If Scanner Install =OK, scanner driver is properly installed.

```

[00332827] 040000 INF: ----- FAXTX Driver Check Start -----
[00332827] 040000 INF: PARAM MODEL NAME      PC-FAX
[00332827] 040000 INF: PARAM CMP PRINTER NAME Brother PC-FAX #4
[00332827] 040000 INF: PARAM INTERFACE        LAN
[00332827] 040000 INF: PARAM PRINTER ID
[00332827] 040000 INF: PARAM MODE            0
[00332827] 040000 INF: EXIST DRIVER NAME     = Brother PC-F #4
[00332827] 040000 INF: PC-FAX PORT NAME     = BRN_600300
[00332827] 040000 INF: PARAM MODEL NAME      PC-FAX
[00332827] 040000 INF: PARAM CMP PRINTER NAME Brother PC-FAX #4
[00332827] 040000 INF: PARAM INTERFACE        LAN
[00332827] 040000 INF: PARAM PRINTER ID
[00332827] 040000 INF: PARAM MODE            1
[00332827] 040000 INF: ----- Fax Port Check Start -----
[00332827] 040000 INF: FAX PORT CHECK       = BRN_600300
[00332827] 040000 INF: INTERFACE           = LAN
[00332827] 040000 INF: ----- Network Connect Check Start -----
[00334850] 010000 ERR: BrNetCloseDevice(): WSAWaitForMultipleEvents() timeout Error (code = 0)
[00336853] 010000 ERR: BrNetCloseDevice(): WSAWaitForMultipleEvents() timeout Error (code = 0)
[00336853] 040000 INF: Connect Device Name = Brother MFC-5840CN
[00336853] 040000 INF: ----- Network Connect Check End -----
[00336853] 040000 INF: PORT CHECK           = OK
[00336853] 040000 INF: ----- Fax Port Check End -----
[00336853] 040000 INF: ----- FAXTX Driver Check End -----

```

25

*25 FAX(Tx) Driver Installation Check

26

*26 If there is EXIST DRIVER NAME, PC-FAX sending driver is properly installed.

```

[00336853] 040000 INF: ----- FAXRX Check Start -----
[00336853] 040000 INF: FAXRX FILE CHECK = 28
[00336853] 040000 INF: ----- FAXRX Check End -----

```

27

*27 FAX(Rx) File Check

*28 If installation was done by network connection, it indicates NG.
In this example, installation is done by local connection in advance.

```

[00336853] 040000 INF: ----- RSP Check Start -----
[00336853] 040000 INF: RSP FILE CHECK = 30
[00336853] 040000 INF: ----- RSP Check End -----

```

29

*29 Remote Setup File Check

*30 If installation was done by network connection, it indicates NG
In this example, installation is done by local connection in advance.

```

[00336853] 040000 INF: ----- Serial Port Check Start -----
[00336853] 040000 INF: ----- Serial Port Check End -----

```

32

31

*31 Serial Port (COM Port Driver Check)

*32 Network connection doesn't support RSP, PC-FAXRx(COM Port Driver) and doesn't indicate.

[00336853] 040000 INF: ----- Enumerate Host Controllers Check Start -----
[00336983] 040000 INF: USB Host Controller: \\.\HCD0 = Intel 82371AB/EB PCI to USB Universal Host Controller

[00337604] 040000 INF: ----- Connect Device Information Start -----
[00337604] 040000 INF: Port1: Dev1 = USB Composite Device
[00337604] 040000 INF: ----- Connect Device Information End -----

[00338095] 040000 INF: ----- Connect Device Information Start -----
[00338095] 040000 INF: ----- Connect Device Information End -----

[00338586] 040000 INF: ----- Connect Device Information Start -----
[00338586] 040000 INF: ----- Connect Device Information End -----

[00338586] 040000 INF: ----- Connect Device Information Start -----
[00338586] 040000 INF: Port1: Dev1 = USB Printing Support
[00338586] 040000 INF: Port1: Dev2 = USB Mass Storage Device
[00338586] 040000 INF: ----- Connect Device Information End -----

[00338586] 040000 INF: USB Hub Information: [Port1] DeviceConnected = USB Composite Device
[00338586] 040000 INF: USB Hub Information: [Port2] NoDeviceConnected = NoDeviceConnected

[00338586] 040000 INF: ----- Enumerate Host Controllers Check End -----

[00339036] 040000 INF: ----- USB Chip information Check Start -----
[00339036] 040000 INF: USB Chip0(Device25) = Intel 82371AB/EB PCI to ISA bridge (ISA mode)
[00339036] 040000 INF: USB Chip1(Device26) = Intel(r) 82371AB/EB PCI Bus Master IDE Controller
[00339036] 040000 INF: USB Chip2(Device27) = Intel 82371AB/EB PCI to USB Universal Host Controller
[00339036] 040000 INF: USB Chip3(Device28) = Intel 82443BX Pentium(r) II Processor to PCI Bridge
[00339036] 040000 INF: USB Chip4(Device29) = Intel 82443BX Pentium(r) II Processor to AGP Controller
[00339036] 040000 INF: ----- USB Chip information Check End -----

[00339036] 040000 INF: ----- ADD/REMOVE APPLICATION Check Start -----
[00339036] 040000 INF: AddRemove Display Name: DisplayName1 = Brother HL-5070
[00339036] 040000 INF: AddRemove Display Name: DisplayName2 = NVIDIA Windows 2000 Display Drivers
[00339036] 040000 INF: AddRemove Display Name: DisplayName3 = Microsoft Visual Studio 6.0 Enterprise Edition
[00339036] 040000 INF: AddRemove Display Name: DisplayName4 = Microsoft Web Publishing Wizard 1.53
[00339036] 040000 INF: AddRemove Display Name: DisplayName5 = Microsoft Office 2000 Pr
[00339036] 040000 INF: AddRemove Display Name: DisplayName6 = Brother MFL-Pro Suite
[00339036] 040000 INF: AddRemove Display Name: DisplayName7 = Brother Drivers
[00339036] 040000 INF: AddRemove Display Name: DisplayName8 = WebFldrs
[00339036] 040000 INF: AddRemove Display Name: DisplayName9 = Brother Drivers
[00339036] 040000 INF: ----- ADD/REMOVE APPLICATION Check End -----

33

*33 Communication Check
(When connecting network, obtains local network connection)
*34 USB device is connected to USB Port1
If other USB devices are connected to USB Port2, it will be also indicated.
! If no device is recognized, HUB might be connected to the port. In this case, displace it.

34

79

*79 No meaning (Ignore)

51

*51 It indicates connected devices
(A connected device can be indicated including other company's products)

52

*52 If another device is connected to USB Port2, it is also indicated.

53

*53 It indicates that each port is connected to devices or not.

54

*54 USB Chip Information

55

*55 Add/Remove Application Information

```

[00345566] 040000 INF: ----- Process Information Start -----
[00345566] 010000 [57]: Process1=
[00345566] 010000 ERR: Process2=
[00345566] 010000 ERR: Process3=\SystemRoot\System32\smss.exe
[00345566] 010000 ERR: Process4=
[00345566] 010000 ERR: Process5=\??\C:\WINNT\system32\winlogon.exe
[00345566] 010000 ERR: Process6=C:\WINNT\system32\services.exe
[00345566] 010000 ERR: Process7=C:\WINNT\system32\lsass.exe
[00345566] 010000 ERR: Process8=C:\WINNT\system32\svchost.exe
[00345566] 010000 ERR: Process9=C:\WINNT\system32\spoolsv.exe
[00345566] 010000 ERR: Process10=C:\WINNT\System32\svchost.exe
[00345566] 010000 ERR: Process11=C:\WINNT\system32\regsvc.exe
[00345566] 010000 ERR: Process12=C:\WINNT\system32\MSTask.exe
[00345566] 010000 ERR: Process13=C:\WINNT\System32\WBEM\WinMgmt.exe
[00345566] 010000 ERR: Process14=C:\WINNT\Explorer.EXE
[00345566] 010000 ERR: Process15=C:\Program Files\Brownie\brstswnd.exe
[00345566] 010000 ERR: Process16=C:\Program Files\Brownie\Brcdcmn.exe
[00345566] 010000 ERR: Process17=\lapngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Setup.exe
[00345566] 010000 ERR: Process18=\lapngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Setup.exe
[00345566] 010000 ERR: Process19=\lapngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Diagnosis\BR_collect.exe
[00345566] 040000 INF: ----- Process Information End -----

```

[56] *56 Process Information which is running
! If you failed to install and virus checker was running, quit the software.

*57 ERRs are just a bug. Fix with ALL

```

[00345566] 040000 INF: ----- Startup Information Start -----
[00345566] 040000 INF: STARTUP: = Microsoft Office.lnk [58]
[00345566] 040000 INF: STARTUP: = Status Monitor.lnk
[00345566] 040000 INF: ----- Startup Information End -----

```

[58] *58 Startup Registration
! If you failed to install and virus checker was running, quit the software.

```

[00352175] 040000 INF: ----- Installation Diagnostics Result Start -----
[00352175] 040000 NF: PRT = OK [60]
[00352175] 040000 NF: PRT_INST = OK [61]
[00352175] 040000 NF: PRT_PORT = BRN_600300 [62]
[00352175] 040000 NF: SCN = OK [63]
[00352175] 040000 NF: SCN_INST = OK [64]
[00352175] 040000 NF: SCN_PORT = AUTO [65]
[00352175] 040000 NF: FAXTX = OK [66]
[00352175] 040000 NF: FAXTX_INST = OK [67]
[00352175] 040000 NF: FAXTX_PORT = BRN_600300 [68]
[00352175] 040000 INF: ----- Installation Diagnostics Result End -----

```

[59] *59 Installation Diagnostics Result (OK / NG(Installation) / NG(Communication))

[60] *60 Printer Driver Integrated Diagnostic Result

[61] *61 Printer Driver Installation Result

[62] *62 Printer Driver Port

[63] *63 Scanner Driver Integrated Diagnostic Result

[64] *64 Scanner Driver Installation Result

[65] *65 Scanner Driver Port

[66] *66 PC-FAX Sending Driver Integrated Diagnostic Result

[67] *67 PC-FAX Sending Driver Installation Result

[68] *68 PC-FAX Sending Driver Port

*****Debug Write End 2004/07/25 19:49:44*****

BH3 installation log file

C:\Documents and Settings\All Users\Application Data\Brother\BrLog\BrtINSTL.log

*****Debug Write Start 2004/07/25 20:44:21*****

Brother(R) Debug Output DLL Version 1.1
Copyright(c) 2004 Brother Industries, Ltd. All Rights Reserved.

***** SYSTEM INFORMATION *****

Function Name: INSTL
CPU Vendor: GenuineIntel
Cpu Name: Intel Pentium III
FPU: Supprted
TSC: Supprted
MSR: Supprted
CMOV: Supprted
MMX: Supprted
3DNow!: Not Supprted
SSE_INT: Supprted
SSE_FP: Supprted
3DNow! Ext: Not Supprted
FCMOV: Supprted
OS Informations:
Windows 2000 Professional Service Pack 2 OS version 5.0.2195
Memory Informations:
Current memory load 34% Total physical memory = 255MB
Available physical memory = 167MB
Total pagefile = 618MB
Available pagefile = 539MB
Total virtual memory = 2047MB
Available virtual memory = 2022MB

1

*1 Header Information
Each start-up creates a new set of information

2

*2 PC System Information

***** SYSTEM INFORMATION *****

[03635316] 040000 INF: InstallationIniFilePath = C:\Program Files\Brother\Brmf104b\BrmfInfo.ini
[03635316] 040000 INF: Function Data -----
[03635316] 040000 INF: INIDATA PRT = 1
[03635316] 040000 INF: INIDATA SCN = 1
[03635316] 040000 INF: INIDATA FAXTX = 1
[03635316] 040000 INF: INIDATA FAXRX = 0
[03635316] 040000 INF: INIDATA RSP = 0
[03635316] 040000 INF: INIDATA MEDIA = 0
[03635316] 040000 INF: INIDATA COM = 0
[03635316] 040000 INF: INIDATA USBID =
[03635316] 040000 INF: INIDATA LPTID =
[03635316] 040000 INF: INIDATA PRNNAME = Brother MFC-5840CN Printer
[03635316] 040000 INF: INIDATA SCNNNAME = Brother MFC-5840CN LAN
[03635316] 040000 INF: INIDATA FAXNAME = Brother PC-FAX #5
[03635316] 040000 INF: INIDATA INSTPATH = C:\Program Files\Brother\B 04b
[03635316] 040000 INF: INIDATA PORTNAME = BRN_6007C0
[03635316] 040000 INF: INIDATA MODELNAME = MFC-5840CN
[03635316] 040000 INF: INIDATA INTERFACE = L
[03635316] 040000 INF: -----

6

*3 OS Start-up Time
*4 Error Level
*5 INF: Information / ERR: Error
*6 Information to be checked
(Functions set up by integrated installer)
PRT: Printer driver
SCN: Scanner driver
FAXTX: FAX sending driver
FAXRX: FAX receiving software
RSP: Remote Setup software
MEDIA: Media Drive driver

*7 All models indicate "0" because BH3 doesn't check Media Drive.

11

12

13

14

15

16

17

18

*11 USB connection also requires LPTID
*12 Printer Driver Name
*13 Scanner Driver Name
*14 PC-FAX Sending Driver Name
*15 Folder Name to be installed (04a: BHmini2 / 04b: BHL3)
*16 USB Port Number
*17 Model Name
*18 Connection Mode (USB / LPT / LAN)

Net Cable Disconnected

Confidential

```

[03635316] 040000 INF: Win2K
[03635326] 040000 INF: ----- Printer Driver Check Start -----
[03635326] 040000 INF: PARAM MODEL NAME      MFC-5840CN
[03635326] 040000 INF: PARAM CMP PRINTER NAME  Brother MFC-5840CN Printer
[03635326] 040000 INF: PARAM INTERFACE      LAN
[03635326] 040000 INF: PARAM PRINTER ID
[03635326] 040000 INF: PARAM MODE          0
[03635336] 040000 INF: EXIST DRIVER NAME    = Brother MFC-5840CN
[03635336] 040000 INF: LAN PRINTER PORT NAME = BRN_6007C0
[03635336] 040000 INF: PARAM MODEL NAME      MFC-5840CN
[03635336] 040000 INF: PARAM CMP PRINTER NAME  Brother MFC-5840CN Printer
[03635336] 040000 INF: PARAM INTERFACE      LAN
[03635336] 040000 INF: PARAM PRINTER ID
[03635336] 040000 INF: PARAM MODE          1
[03635336] 040000 INF: ----- Network Port Check Start -----
[03635336] 040000 INF: NETWORK PORT CHECK    = BRN_6007C0
[03635336] 040000 INF: INTERFACE      = LAN
[03635336] 040000 INF: ----- Network Connect Check Start -----
[03635376] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03635376] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 0)
[03637389] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03637389] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 1)
[03639402] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03639402] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 2)
[03641415] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03641415] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 3)
[03643428] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03643428] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 4)
[03645440] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03645440] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 5)
[03647453] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03647453] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 6)
[03649466] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03649466] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 7)
[03651479] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03651479] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 8)
[03653492] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03653492] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 9)
[03655505] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03655505] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 10)
[03657518] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03657518] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 11)
[03659531] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03659531] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 12)
[03661544] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03661544] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 13)
[03663556] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03663556] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 14)
[03665559] 040000 INF: PORT CHECK          = 90
[03665559] 040000 INF: ----- Network Port Check End -----
[03670567] 040000 INF: PARAM MODEL NAME      MFC-5840CN

```

19

*19 Installation Check Detail

20

*20 Printer Driver Installation Check

21

*21 Printer Driver is properly installed.

76

*75 Network Port Connection Check

*76 Port Name created by installer

75

*90 There is no response from BRN_6007C0 (or IP address) assigned to the port.

```
[03670567] 040000 INF: PARAM CMP PRINTER NAME Brother MFC-5840CN Printer
[03670567] 040000 INF: PARAM INTERFACE LAN
[03670567] 040000 INF: PARAM PRINTER ID
[03670567] 040000 INF: PARAM MODE 1
[03670567] 040000 INF: ----- Network Port Check Start -----
[03670567] 040000 INF: NETWORK PORT CHECK = BRN_6007C0
[03670567] 040000 INF: INTERFACE = LAN
[03670567] 040000 INF: ----- Network Connect Check Start -----
[03670577] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03670577] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 0)
[03672589] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03672589] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 1)
[03674602] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03674602] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 2)
[03676615] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03676615] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 3)
[03678628] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03678628] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 4)
[03680641] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03680641] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 5)
[03682654] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03682654] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 6)
[03684667] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03684667] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 7)
[03686680] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03686680] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 8)
[03688693] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03688693] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 9)
[03690706] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03690706] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 10)
[03692718] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03692718] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 11)
[03694731] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03694731] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 12)
[03696744] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03696744] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 13)
[03698757] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03698757] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 14)
[03700760] 040000 INF: PORT CHECK = NG
[03700760] 040000 INF: ----- Network Port Check End -----
[03700760] 040000 INF: ----- Printer Driver Check End -----
```

91

*91 There is no response from BRN_6007C0(or IP address) assigned to the port and attempting again.

[03700760] 040000 INF: ----- Scanner Driver Check Start -----
[03701110] 040000 INF: Initialize() Result = 0
[03701110] 040000 INF: Scanner Install = OK
[03701461] 040000 INF: Initialize() Result = 0
[03702012] 040000 INF: ChkStiDevice() Result = 0
[03702012] 040000 INF: ChkWiaDevice() Result = 3
[03704906] 040000 INF: ChkTwainDs() Result = 0
[03704906] 040000 INF: Get ScannerName = Brother MFC-5840CN LAN
[03706498] 040000 INF: GetDefaultTwds() Result = 0
[03706498] 040000 INF: Get DefaultDS = TWAIN_32 Brother MFL Pro Scanner
[03707309] 040000 INF: GetPortName() Result = 0
[03707309] 040000 INF: Get PortName = AUTO
[03707860] 040000 INF: ChkDevCommunication() Result = 40
[03707860] 010000 ERR: Scanner Connect = NG
[03713218] 040000 INF: Initialize() Result = 0
[03713759] 040000 INF: ChkStiDevice() Result = 0
[03713759] 040000 INF: ChkWiaDevice() Result = 3
[03716623] 040000 INF: ChkTwainDs() Result = 0
[03716623] 040000 INF: Get ScannerName = Brother MFC-5840CN LAN
[03718235] 040000 INF: GetDefaultTwds() Result = 0
[03718235] 040000 INF: Get DefaultDS = TWAIN_32 Brother MFL Pro Scanner
[03719046] 040000 INF: GetPortName() Result = 0
[03719046] 040000 INF: Get PortName = AUTO
[03719607] 040000 INF: ChkDevCommunication() Result = 40
[03719607] 010000 ERR: Scanner Connect = NG
[03724965] 040000 INF: Initialize() Result = 0
[03725526] 040000 INF: ChkStiDevice() Result = 0
[03725526] 040000 INF: ChkWiaDevice() Result = 3
[03728390] 040000 INF: ChkTwainDs() Result = 0
[03728390] 040000 INF: Get ScannerName = Brother MFC-5840CN LAN
[03729992] 040000 INF: GetDefaultTwds() Result = 0
[03729992] 040000 INF: Get DefaultDS = TWAIN_32 Brother MFL Pro Scanner
[03730813] 040000 INF: GetPortName() Result = 0
[03730813] 040000 INF: Get PortName = AUTO
[03731364] 040000 INF: ChkDevCommunication() Result = 40
[03731364] 010000 ERR: Scanner Connect = NG
[03736722] 040000 INF: Initialize() Result = 0
[03737262] 040000 INF: ChkStiDevice() Result = 0
[03737262] 040000 INF: ChkWiaDevice() Result = 3
[03740147] 040000 INF: ChkTwainDs() Result = 0
[03740147] 040000 INF: Get ScannerName = Brother MFC-5840CN LAN
[03741739] 040000 INF: GetDefaultTwds() Result = 0
[03741739] 040000 INF: Get DefaultDS = TWAIN_32 Brother MFL Pro Scanner
[03742540] 040000 INF: GetPortName() Result = 0
[03742540] 040000 INF: Get PortName = AUTO
[03743101] 040000 INF: ChkDevCommunication() Result = 40
[03743101] 010000 ERR: Scanner Connect = NG
[03748459] 040000 INF: Initialize() Result = 0
[03748999] 040000 INF: ChkStiDevice() Result = 0
[03748999] 040000 INF: ChkWiaDevice() Result = 3
[03751863] 040000 INF: ChkTwainDs() Result = 0

23

24

22

93

*22 Scanner Driver Installation Check

*23 There is no error in scanner

*24 Driver is properly installed

*92 It cannot make a connection to Scanner Brother MFC-5840CN LAN.

*93 Attempting again because the first attempt was NG

```
[03751863] 040000 INF: Get ScannerName = Brother MFC-5840CN LAN
[03753476] 040000 INF: GetDefaultTwds() Result = 0
[03753476] 040000 INF: Get DefaultDS = TWAIN_32 Brother MFL Pro Scanner
[03754297] 040000 INF: GetPortName() Result = 0
[03754297] 040000 INF: Get PortName = AUTO
[03754848] 040000 INF: ChkDevCommunication() Result = 40
[03754848] 010000 ERR: Scanner Connect = NG
[03760205] 040000 INF: Initialize() Result = 0
[03760756] 040000 INF: ChkStiDevice() Result = 0
[03760756] 040000 INF: ChkWiaDevice() Result = 3
[03763630] 040000 INF: ChkTwainDs() Result = 0
[03763630] 040000 INF: Get ScannerName = Brother MFC-5840CN LAN
[03765223] 040000 INF: GetDefaultTwds() Result = 0
[03765223] 040000 INF: Get DefaultDS = TWAIN_32 Brother MFL Pro Scanner
[03766034] 040000 INF: GetPortName() Result = 0
[03766034] 040000 INF: Get PortName = AUTO
[03766605] 040000 INF: ChkDevCommunication() Result = 40
[03766605] 010000 ERR: Scanner Connect = NG
[03771612] 040000 INF: ----- Scanner Driver Check End -----
```

```
[03771612] 040000 INF: ----- FAXTX Driver Check Start -----
[03771612] 040000 INF: PARAM MODEL NAME PC-FAX
[03771612] 040000 INF: PARAM CMP PRINTER NAME Brother PC-FAX #5
[03771612] 040000 INF: PARAM INTERFACE LAN
[03771612] 040000 INF: PARAM PRINTER ID
[03771612] 040000 INF: PARAM MODE 0
[03771612] 040000 INF: EXIST DRIVER NAME = Brother PC-FAX #5
[03771612] 040000 INF: PC-FAX PORT NAME = BRN_6007C0
[03771612] 040000 INF: PARAM MODEL NAME PC-FAX
[03771612] 040000 INF: PARAM CMP PRINTER NAME Brother PC-FAX #5
[03771612] 040000 INF: PARAM INTERFACE LAN
[03771612] 040000 INF: PARAM PRINTER ID
[03771612] 040000 INF: PARAM MODE 1
[03771612] 040000 INF: ----- Fax Port Check Start -----
[03771612] 040000 INF: FAX PORT CHECK = BRN_6007C0
[03771612] 040000 INF: INTERFACE = LAN
```

```
[03771612] 040000 INF: ----- Network Connect Check Start -----
[03771632] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03771632] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 0)
[03773645] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03773645] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 1)
[03775658] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03775658] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 2)
[03777671] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03777671] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 3)
[03779683] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03779683] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 4)
[03781696] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03781696] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 5)
[03783709] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03783709] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 6)
```

25

26

*26 PC-FAX sending driver is properly installed.

```
[03785722] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03785722] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 7)
[03787735] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03787735] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 8)
[03789748] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03789748] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 9)
[03791761] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03791761] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 10)
[03793774] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03793774] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 11)
[03795787] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03795787] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 12)
[03797800] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03797800] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 13)
[03799812] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03799812] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 14)
[03801815] 040000 INF: PORT CHECK = NG 94
[03801815] 040000 INF: ----- Fax Port Check End -----
[03806822] 040000 INF: PARAM MODEL NAME PC-FAX
[03806822] 040000 INF: PARAM CMP PRINTER NAME Brother PC-FAX #5
[03806822] 040000 INF: PARAM INTERFACE LAN
[03806822] 040000 INF: PARAM PRINTER ID
[03806822] 040000 INF: PARAM MODE 1
[03806822] 040000 INF: ----- Fax Port Check Start -----
[03806822] 040000 INF: FAX PORT CHECK = BRN_6007C0
[03806822] 040000 INF: INTERFACE = LAN
[03806822] 040000 INF: ----- Network Connect Check Start -----
[03806832] 010000 ERR: Cannot Get IP Address (ErrCode = 11001) 95
[03806832] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 0)
[03808845] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03808845] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 1)
[03810858] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03810858] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 2)
[03812871] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03812871] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 3)
[03814884] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03814884] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 4)
[03816897] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03816897] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 5)
[03818910] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03818910] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 6)
[03820923] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03820923] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 7)
[03822936] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03822936] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 8)
[03824949] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03824949] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 9)
[03826961] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03826961] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 10)
[03828974] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03828974] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 11)
```

*94 There is no response from BRN_6007C0 (or IP address) assigned to the port and attempting again.

*95 Attempting again because the first attempt was NG

```
[03830987] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03830987] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 12)
[03833000] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03833000] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 13)
[03835013] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03835013] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 14)
[03837016] 040000 INF: PORT CHECK = NG
[03837016] 040000 INF: ----- Fax Port Check End -----
[03837016] 040000 INF: ----- FAXTX Driver Check End -----
```

```
[03837016] 040000 INF: ----- FAXRX Check Start -----
[03837016] 040000 INF: FAXRX FILE CHECK = OK [28] [27]
[03837016] 040000 INF: ----- FAXRX Check End -----
```

```
[03837016] 040000 INF: ----- RSP Check Start -----
[03837016] 040000 INF: RSP FILE CHECK = OK [30] [29]
[03837016] 040000 INF: ----- RSP Check End -----
```

```
[03837016] 040000 INF: ----- Serial Port Check Start -----
[03837016] 040000 INF: ----- Serial Port Check End ----- [32] [31]
```

```
[03837016] 040000 INF: ----- Enumerate Host Controllers Check Start -----
[03837146] 040000 INF: USB Host Controller: \\.\HCD0 = Intel 82371AB/EB PCI to USB Universal Host Controller
```

```
[03837777] 040000 INF: ----- Connect Device Information Start -----
[03837777] 040000 INF: Port1: Dev1 = USB Composite Device [34]
[03837777] 040000 INF: ----- Connect Device Information End -----
```

```
[03838278] 040000 INF: ----- Connect Device Information Start -----
[03838278] 040000 INF: ----- Connect Device Information End ----- [79]
```

```
[03838748] 040000 INF: ----- Connect Device Information Start -----
[03838748] 040000 INF: ----- Connect Device Information End -----
```

```
[03838748] 040000 INF: ----- Connect Device Information Start ----- [51]
[03838748] 040000 INF: Port1: Dev1 = USB Printing Support
[03838748] 040000 INF: Port1: Dev2 = USB Mass Storage Device
[03838748] 040000 INF: ----- Connect Device Information End ----- [52]
```

```
[03838748] 040000 INF: USB Hub Information: [Port1] DeviceConnected = USB Composite Device [53]
```

```
[03838748] 040000 INF: USB Hub Information: [Port2] NoDeviceConnected = NoDeviceConnected
```

```
[03838748] 040000 INF: ----- Enumerate Host Controllers Check End -----
```

*27 FAX(Rx) File Check
*28 If installation was done by network connection, it indicates NG.
In this example, installation is done by local connection in advance.
*29 Remote Setup File Check
*30 If installation was done by network connection, it indicates NG.
In this example, installation is done by local connection in advance.
*31 Serial Port (COM Port Driver Check)
*32 Network connection doesn't support RSP, PC-FAXRx(COM Port Driver) and doesn't indicate.

[33] *33 Communication Check
(It obtains the status of connecting to local network, even though it is connecting to network,)
*34 USB device is connected to USB Port1
If other USB devices are connected to USB Port2, it will be also indicated.
! If no device is recognized, HUB might be connected to the port. In this case, displace it.
*79 No meaning (Ignore)

*51 It indicates connected devices
USB Printing Support, USB Mass Storage Device is connected to Port 1.
*52 If another device is connected to USB Port2, it is also indicated.

[03839169] 040000 INF: ----- USB Chip information Check Start -----
[03839169] 040000 INF: USB Chip0(Device25) = Intel 82371AB/EB PCI to ISA bridge (ISA mode)
[03839179] 040000 INF: USB Chip1(Device26) = Intel(r) 82371AB/EB PCI Bus Master IDE Controller
[03839179] 040000 INF: USB Chip2(Device27) = Intel 82371AB/EB PCI to USB Universal Host Controller
[03839179] 040000 INF: USB Chip3(Device28) = Intel 82443BX Pentium(r) II Processor to PCI Bridge
[03839179] 040000 INF: USB Chip4(Device29) = Intel 82443BX Pentium(r) II Processor to AGP Controller
[03839179] 040000 INF: ----- USB Chip information Check End -----

54

*54 USB Chip Information

[03839179] 040000 INF: ----- ADD/REMOVE APPLICATION Check Start -----
[03839179] 040000 INF: AddRemove Display Name: DisplayName1 = Brother HL-5070
[03839179] 040000 INF: AddRemove Display Name: DisplayName2 = NVIDIA Windows 2000 Display Drivers
[03839179] 040000 INF: AddRemove Display Name: DisplayName3 = Microsoft Visual Studio 6.0 Enterprise Edition
[03839179] 040000 INF: AddRemove Display Name: DisplayName4 = Microsoft Web Publishing Wizard
[03839179] 040000 INF: AddRemove Display Name: DisplayName5 = Microsoft Office 2000 Premium
[03839179] 040000 INF: AddRemove Display Name: DisplayName6 = Brother MFL-Pro Suite
[03839179] 040000 INF: AddRemove Display Name: DisplayName7 = Brother Drivers
[03839179] 040000 INF: AddRemove Display Name: DisplayName8 = WebFldrs
[03839179] 040000 INF: AddRemove Display Name: DisplayName9 = Brother Drivers
[03839179] 040000 INF: ----- ADD/REMOVE APPLICATION Check End -----

55

*55 Add/Remove Application Information

[03845718] 040000 INF: ----- Process Information Start -----
[03845718] 010000 ERR: Process1=
[03845718] 010000 ERR: Process2=
[03845718] 010000 ERR: Process3=\SystemRoot\System32\smss.exe
[03845718] 010000 ERR: Process4=
[03845718] 010000 ERR: Process5=\??\C:\WINNT\system32\winlogon.exe
[03845718] 010000 ERR: Process6=C:\WINNT\system32\services.exe
[03845718] 010000 ERR: Process7=C:\WINNT\system32\lsass.exe
[03845718] 010000 ERR: Process8=C:\WINNT\system32\svchost.exe
[03845718] 010000 ERR: Process9=C:\WINNT\system32\spoolsv.exe
[03845718] 010000 ERR: Process10=C:\WINNT\System32\svchost.exe
[03845718] 010000 ERR: Process11=C:\WINNT\system32\regsvc.exe
[03845718] 010000 ERR: Process12=C:\WINNT\system32\IMSTask.exe
[03845718] 010000 ERR: Process13=C:\WINNT\System32\WBEM\WinMgmt.exe
[03845718] 010000 ERR: Process14=C:\WINNT\Explorer.EXE
[03845718] 010000 ERR: Process15=C:\Program Files\Brownie\brstswnd.exe
[03845718] 010000 ERR: Process16=C:\Program Files\Brownie\Brcdcom.exe
[03845718] 010000 ERR: Process17=\\lapngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Setup.exe
[03845718] 010000 ERR: Process18=\\lapngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Setup.exe
[03845718] 010000 ERR: Process19=\\lapngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Diagnosis\BR_collect.exe
[03845718] 040000 INF: ----- Process Information End -----

56

*56 Process Information which is running
! If you failed to install and virus checker was running, quit the software.

*57 ERRs are just a bug. Fix with ALL

[03845718] 040000 INF: ----- Startup Information Start -----
[03845718] 040000 INF: STARTUP: = Microsoft Office.Ink
[03845718] 040000 INF: STARTUP: = Status Monitor.Ink
[03845718] 040000 INF: ----- Startup Information End -----

58

*58 STARTUP Registration
! If you failed to install and virus checker was running, quit the software.

[03852358] 040000 INF: ----- Installation Diagnostics Result Start -----
[03852358] 010000 ERR: PRT = NG (Communication) 60
[03852358] 010000 ERR: PRT_INST = OK 61
[03852358] 010000 ERR: PRT_PORT = BRN_6007C0 62

[03852358] 010000 ERR: SCN = NG (Communication) 63
[03852358] 010000 ERR: SCN_INST = OK 64
[03852358] 010000 ERR: SCN_PORT = AUTO 65

[03852358] 010000 ERR: FAXTX = NG (Communication) 66 h)
[03852358] 010000 ERR: FAXTX_INST = OK 67
[03852358] 010000 ERR: FAXTX_PORT = BRN_6007C0 68

[03852358] 040000 INF: ----- Installation Diagnostics Result End -----

*****Debug Write End 2004/07/25 20:48:04*****

*59 Installation Diagnostics Result (OK / NG(Installation) / NG(Communication))
*60 Printer Driver Installation Failure (cannot communicate)
*61 Scanner Driver Installation Result
*62 Printer Driver Port

*63 Scanner Driver Installation Failure (cannot communicate)
*64 Scanner Driver Installation Result
*65 Scanner Driver Port

*66 PC-FAX Sending Driver Installation Failure (cannot communicate)
*67 PC-FAX Sending Driver Installation Result
*68 PC-FAX Sending Driver Port

Scanner Error Code

Define name	Error Code	Contents
SCDIAG_OK	0	The processing is completed or confirmation is successful.
SCDIAG_FAIL	1	The system stopped processing due to errors which don't fall into ones above, such as the lack of memory.
SCDIAG_NOT_INITIALIZE	2	The system tried to run functions without the initialization processing.
SCDIAG_NOT_SUPPORT	3	This Scanner driver type doesn't support the function which is tried to run, This confirmation of the function is not necessary.
SCDIAG_NOT_INSTALL	4	The specified device is not installed.
SCDIAG_NOT_CONNECTED	5	The specified device is not connected. (only USB connection)
SCDIAG_NOT_FOUND_DEVICE	6	The specified device is not found, No device may be connected or may fail to install.
SCDIAG_NOT_FOUND_TWDS	10	The specified TWAIN Data Source is not found, No device may be connected or may fail to install.
SCDIAG_NOT_SELECT_TWDS	11	The TWAIN Data Source Manager fails to recognize the default TWAIN Data Source.
SCDIAG_TWAIN_SYSTEM_ERROR	12	The TWAIN Data Source Manager to use the TWAIN protocol is not available. The TWAIN Data Source Manager may not exist.
SCDIAG_STIDEVICE_CREATE_FAIL	20	The system failed to create the STI device. The STI/WIA service or the minidriver may have problems.
SCDIAG_STI_SYSTEM_ERROR	21	The STI Interface (IStillImage) is not available. The STI service may not start or the operation system may have problems.
SCDIAG_WIADEVICE_CREATE_FAIL	30	The system failed to create the WIA device. The WIA service or the minidriver may have problems.
SCDIAG_WIA_SYSTEM_ERROR	31	The WIA Service (IWiaDevMgr Interface and so on) is not available. The WIA service may not start or the operation system may have problems.
SCDIAG_OPEN_ERROR	40	The system failed to open the scanner device. The attempt may be rejected because the object device is running or so.
SCDIAG_WRITE_ERROR	41	The system failed to send the scanner command.
SCDIAG_READ_ERROR	42	The system failed to read the data from the device.
SCDIAG_TIMEOUT	43	The system failed to receive the response after the request has timed out.
SCDIAG_NO_RSM	44	The system failed to recognize the Resource Manager and failed to restart. The Resource Manager may not be installed or running incorrectly.

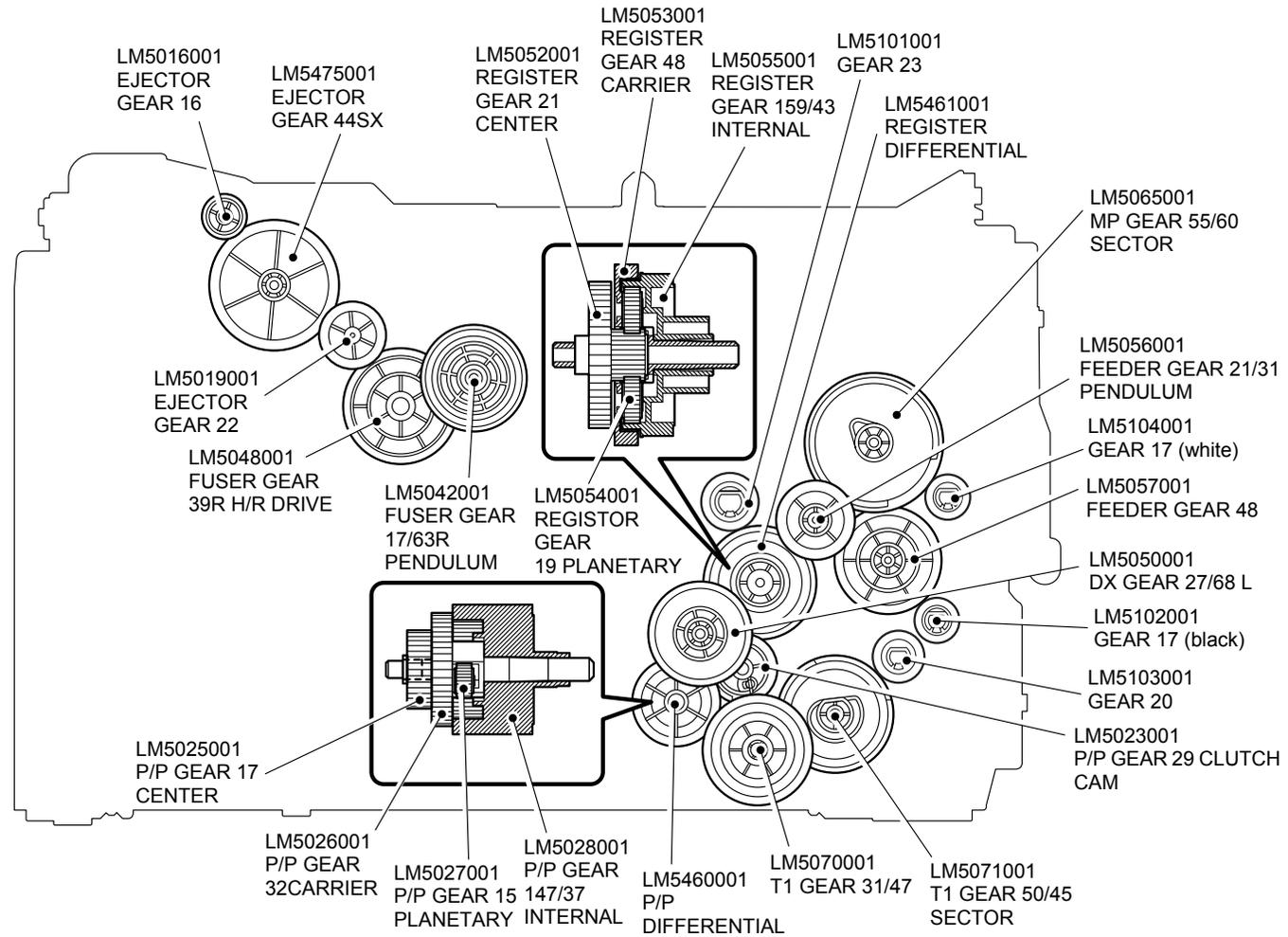
**MFC-8460N/8860DN/8870DW
DCP-8060/8065DN**

APPENDIX 8. GEAR LAYOUT DRAWING

1. MFC-8460N, DCP-8060
2. MFC-8860DN/8870DW, DCP-8065DN

1. MFC-8460N, DCP-8060

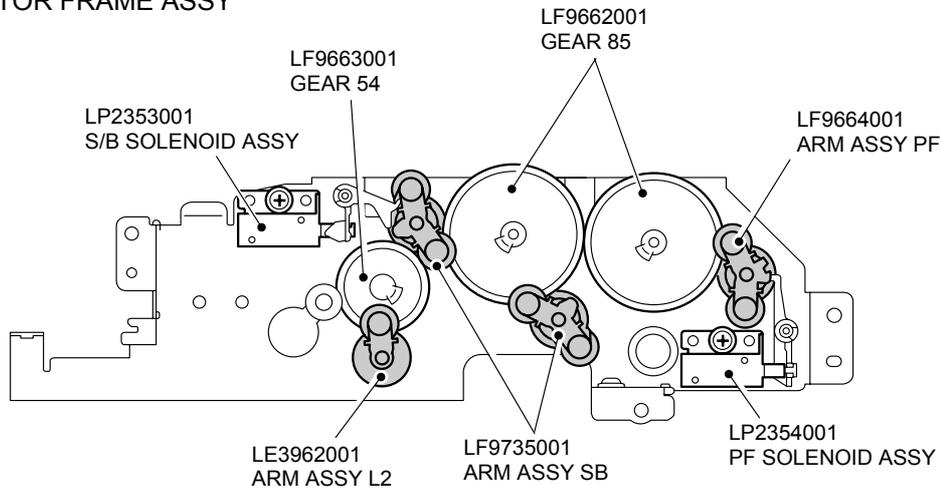
FRAME L



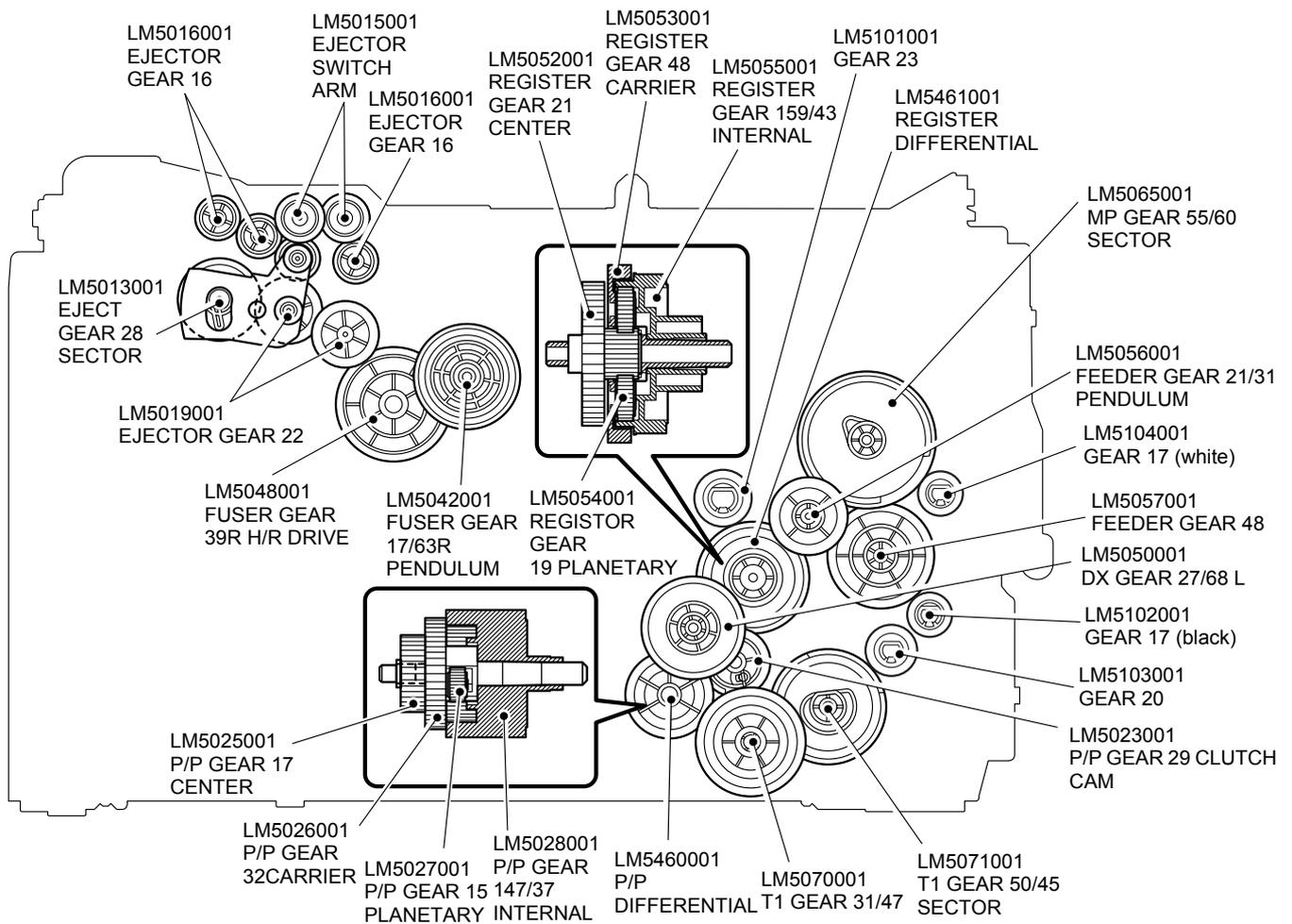
Confidential

2. MFC-8860DN/8870DW, DCP-8065DN

MOTOR FRAME ASSY



FRAME L



MFC-8460N/8860DN/8870DW DCP-8060/8065DN

APPENDIX 9. READMARKS

This appendix provides retrieve information. You can get the instruction of the subject by just clicking on the link below.

1. [Error message \(Refer to 9.1.1.1.\)](#)
2. [Error codes \(Refer to 9.1.1.2.\)](#)
3. [Reset parts life \(Refer to 8.4.18.\)](#)
 - [Fuser unit and laser unit](#)
 - [Paper feeding kit for tray 1, 2](#)
 - [Paper feeding kit for MP tray](#)
 - [Drum unit](#)
4. [Paper specifications \(Refer to 2.1.2.\)](#)
5. [Machine specifications \(Refer to 2.2.\)](#)
6. [Diameter of rollers \(Refer to 9.1.1.1.\)](#)
7. [Periodical replacement parts \(Refer to 6.4.\)](#)
8. [Toner cartridge weight information \(Refer to 2.1.5.\)](#)

brother[®]

January '06
SM-FAX049 (16)
8C5B03
Printed in Japan