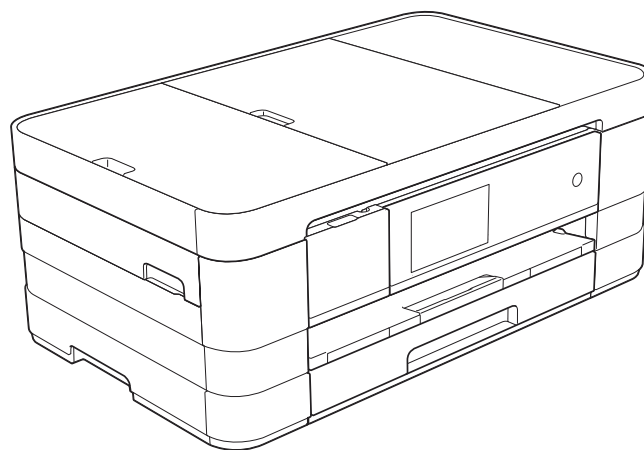




# Brother Inkjet DCP/MFC **SERVICE MANUAL**

**MODELS: DCP-J4110DW  
MFC-J2310/J2510/J4310DW  
MFC-J4410DW/J4510DW  
MFC-J4610DW/J4710DW**



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

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July 2012  
SM-FAX137  
8CAR(6)

*Confidential*

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The table below shows the functional comparison between the models covered by this manual.

	DCP-J4110DW	MFC-J2310	MFC-J2510	MFC-J4310DW
LCD	1.8 inch	1.8 inch	3.7 inch	1.8 inch
Lower Tray	---	---	---	---
ADF	---	---	√	---
Duplex scan	---	---	---	---

	MFC-J4410DW	MFC-J4510DW	MFC-J4610DW	MFC-J4710DW
LCD	1.8 inch	3.7 inch	1.8 inch	3.7 inch
Lower Tray	---	---	A4 and Letter	A3 and LGR
ADF	√	√	√	√
Duplex scan	---	---	---	√

# TABLE OF CONTENTS

<b>REGULATION</b> .....	<b>ix</b>
<b>SAFETY INFORMATION</b> .....	<b>xiv</b>
<b>CHAPTER 1 SPECIFICATIONS</b> .....	<b>1-1</b>
<b>1 GENERAL</b> .....	<b>1-1</b>
1.1 General .....	1-1
1.2 Media Specification .....	1-1
1.3 Paper Handling .....	1-2
1.4 LCD Panel .....	1-3
1.5 Memory .....	1-3
1.6 Interface .....	1-3
1.7 Others .....	1-4
<b>2 FAX</b> .....	<b>1-5</b>
<b>3 PRINTER</b> .....	<b>1-5</b>
<b>4 COPY</b> .....	<b>1-6</b>
<b>5 SCANNER</b> .....	<b>1-7</b>
<b>6 SOFTWARE</b> .....	<b>1-7</b>
<b>7 NETWORK</b> .....	<b>1-8</b>
7.1 Network .....	1-8
7.2 Wired .....	1-8
7.3 Wireless .....	1-8
<b>8 SUPPLIES/OPTIONS</b> .....	<b>1-9</b>
<b>9 SERVICE INFORMATION</b> .....	<b>1-9</b>
<b>10 PAPER</b> .....	<b>1-10</b>
10.1 Paper .....	1-10
10.2 Printable Area .....	1-13
<b>CHAPTER 2 TROUBLESHOOTING</b> .....	<b>2-1</b>
<b>1 INTRODUCTION</b> .....	<b>2-1</b>
1.1 Precautions .....	2-1
1.2 Initial Check .....	2-2
<b>2 OVERVIEW</b> .....	<b>2-4</b>
2.1 Cross-section Drawings .....	2-4

2.1.1	Document scanning .....	2-4
2.1.2	Printer part .....	2-5
2.2	Document Feeding Path/Recording Paper Feeding Path .....	2-6
2.2.1	Document Feeding Path .....	2-6
2.2.2	Recording Paper Feeding Path .....	2-6
2.3	Parts Names and Functions .....	2-7
2.4	Block Diagram .....	2-8
2.5	Components .....	2-9
<b>3</b>	<b>ERROR INDICATION .....</b>	<b>2-10</b>
3.1	Error Code .....	2-10
3.2	Error Messages .....	2-15
3.3	Communications Error .....	2-17
<b>4</b>	<b>TROUBLESHOOTING .....</b>	<b>2-21</b>
4.1	Error Cause and Solutions .....	2-21
4.2	Recording Paper Feeding Problems .....	2-58
4.2.1	Paper is not fed from paper tray .....	2-58
4.2.2	Paper is not fed from manual feed slot .....	2-60
4.2.3	Two or more sheets of paper fed at a time .....	2-60
4.2.4	Paper feeding at an angle .....	2-60
4.2.5	Recording paper jam .....	2-61
4.2.6	Prints only single side of the paper when duplex-printing .....	2-64
4.3	Print-image Problems .....	2-65
4.3.1	Defective images .....	2-65
4.3.2	Print-image problems .....	2-66
4.4	Software-related Problems .....	2-76
4.4.1	Cannot print data .....	2-76
4.5	Network Problems .....	2-77
4.5.1	Cannot make a print through network connection .....	2-77
4.6	Control Panel Problems .....	2-78
4.6.1	No display on LCD .....	2-78
4.6.2	No display on LED .....	2-78
4.6.3	The control panel does not work .....	2-78
4.6.4	Touch panel inoperative .....	2-78
4.7	Document Feeding Problems .....	2-79
4.7.1	Document can not be fed .....	2-79
4.7.2	Document double feeding .....	2-79
4.7.3	Document jam .....	2-80

4.7.4	Wrinkles on documents .....	2-82
4.7.5	Document size not correctly detected .....	2-82
4.8	Scanned-image Problems .....	2-83
4.8.1	Defective images .....	2-83
4.8.2	Troubleshooting from image defect .....	2-83
4.9	Fax Problems .....	2-88
4.9.1	No faxes can be sent .....	2-88
4.9.2	No faxes can be received .....	2-88
4.9.3	A communications error occurs .....	2-88
4.10	Other Problems .....	2-89
4.10.1	The machine cannot be powered on .....	2-89
4.10.2	Memory card/PictBridge does not function (no response) .....	2-89
4.10.3	Data of memory card/PictBridge does not read .....	2-89
4.10.4	Internal memory errors .....	2-90
4.10.5	Security Function Lock related problems .....	2-90

**CHAPTER 3 DISASSEMBLY AND ASSEMBLY ..... 3-1**

<b>1</b>	<b>PRECAUTIONS BEFORE PROCEEDING .....</b>	<b>3-1</b>
<b>2</b>	<b>PACKING .....</b>	<b>3-3</b>
<b>3</b>	<b>SCREW CATALOGUE .....</b>	<b>3-4</b>
<b>4</b>	<b>SCREW TORQUE LIST .....</b>	<b>3-5</b>
<b>5</b>	<b>LUBRICATION .....</b>	<b>3-6</b>
<b>6</b>	<b>OVERVIEW OF GEARS .....</b>	<b>3-11</b>
<b>7</b>	<b>ROUTING OF HARNESES AND INK SUPPLY TUBES .....</b>	<b>3-12</b>
<b>8</b>	<b>DISASSEMBLY FLOW .....</b>	<b>3-20</b>
<b>9</b>	<b>DISASSEMBLY PROCEDURE .....</b>	<b>3-22</b>
9.1	Preparation .....	3-22
9.2	Scanner Cover Damper and Scanner Cover Support .....	3-27
9.3	ADF Unit .....	3-29
9.3.1	ADF Hinge R .....	3-34
9.3.2	ADF Document Support .....	3-35
9.3.3	ADF Cover ASSY .....	3-36
9.3.4	ADF Back Cover, ADF Side Covers R and L, and ADF Front Cover .....	3-37
9.3.5	ADF Separation Pad Holder ASSY .....	3-39
9.3.6	Eject Films .....	3-41

9.3.7	Document Separation Roller ASSY .....	3-42
9.3.8	Document Detection Sensor PCB and Document Scanning Position Sensor PCB .....	3-44
9.3.9	ADF Hinge L .....	3-45
9.3.10	ADF Motor .....	3-47
9.3.11	Second Side CIS Unit (Duplex scanning models only) .....	3-51
9.3.12	Second Side CIS Flat Cable (Duplex scanning models only) .....	3-54
9.4	Manual Feed Slot Cover ASSY .....	3-56
9.5	Document Scanner Top Cover .....	3-57
9.5.1	First Side CIS Unit .....	3-58
9.5.2	First Side CIS Flat Cable .....	3-60
9.6	Upper Cover .....	3-62
9.7	Ink Cartridge Cover .....	3-64
9.8	Front Cover .....	3-64
9.9	Lower Side Covers R and L .....	3-65
9.10	Jam Clear Cover .....	3-66
9.11	Bank ASSY .....	3-67
9.12	Media Module Cover .....	3-68
9.13	Inner Media Module Cover .....	3-68
9.14	Ink Absorber Box .....	3-69
9.15	Control Panel ASSY .....	3-71
9.16	Wireless LAN PCB ASSY .....	3-73
9.17	Main PCB ASSY .....	3-74
9.18	Sensor Relay PCB ASSY .....	3-76
9.19	MJ PCB ASSY .....	3-77
9.20	Head/Carriage Unit and CR Timing Belt .....	3-78
9.21	Lower Tray Unit (LT models only) .....	3-88
9.22	Power Supply PCB ASSY .....	3-93
9.23	Speaker .....	3-96
9.24	Ink Refill ASSY .....	3-97
9.25	CR Encoder Strip .....	3-100
9.26	Encoder Strip Guard Film .....	3-101
9.27	Ink Cartridge Cover Sensor ASSY .....	3-102
9.28	Flushing Base .....	3-103
9.29	Carriage Motor ASSY .....	3-106
9.30	Switchback Roller .....	3-107
9.31	Flushing Box .....	3-109
9.32	PF Encoder Disk and PF Encoder Sensor PCB ASSY .....	3-110

9.33 Paper Feed Motor .....	3-112
9.34 Paper Feed Roller .....	3-115
9.35 Paper Ejection Roller .....	3-116
9.36 Platen .....	3-118
9.37 Maintenance Unit .....	3-119
9.38 Registration Sensor PCB ASSY .....	3-120
9.39 Base Pad on Paper Tray ASSY .....	3-124
9.40 T1 Paper Pull-in Roller .....	3-125

## **CHAPTER 4 ADJUSTMENTS AND UPDATING OF SETTINGS, REQUIRED AFTER PARTS REPLACEMENT ..... 4-1**

### **1 IF YOU REPLACE THE MAIN PCB ..... 4-1**

1.1 Customize destinations (Maintenance mode 74) .....	4-3
1.2 Set the CIS type (Maintenance mode 59) .....	4-3
1.3 Install the firmware (Maintenance mode 28) .....	4-3
1.4 Initialize the EEPROM parameters (Maintenance mode 01) .....	4-5
1.5 Restore the head calibration data (Maintenance mode 68) .....	4-5
1.6 Set the serial number (Maintenance mode 80) .....	4-5
1.7 Restore machine information (Maintenance mode 46) .....	4-8
1.8 Adjust the touch panel (Maintenance mode 78) .....	4-8
1.9 Update the head property data (Maintenance mode 68) .....	4-8
1.10 Acquire white level data (Maintenance mode 55) .....	4-8
1.11 Adjustment of vertical print lines/software correction for inclination/corrugation/ ruled lines (Maintenance mode 65) .....	4-8
1.12 Update the paper feeding correction values (Maintenance mode 58) .....	4-8
1.13 Adjust margins in borderless printing (Maintenance mode 66) .....	4-8
1.14 Reset purge and flushing counts .....	4-8
1.15 Write head calibration data (Maintenance mode 02) .....	4-9
1.16 Check scanning and printing .....	4-9

### **2 IF YOU REPLACE THE HEAD/CARRIAGE UNIT ..... 4-12**

2.1 Update the head property data (Maintenance mode 68) .....	4-13
2.2 Perform ink supply purge (Maintenance mode 76) .....	4-16
2.3 Check head nozzles (Maintenance mode 09) .....	4-16
2.4 Adjust head inclination .....	4-16
2.5 Adjustment of vertical print lines/software correction for inclination/corrugation/ ruled lines (Maintenance mode 65) .....	4-18
2.6 Update paper feeding correction values (Maintenance mode 58) .....	4-18
2.7 Adjust margins in borderless printing (Maintenance mode 66) .....	4-18
2.8 Write head calibration data (Maintenance mode 02) .....	4-18



2.9	Check scanning and printing .....	4-18
2.10	Obtain machine information at the user site (Instruction to the end user) .....	4-19
<b>3</b>	<b>IF YOU REPLACE THE DOCUMENT SCANNER UNIT, ADF UNIT OR CIS UNIT ...</b>	<b>4-20</b>
3.1	Set the CIS type (Maintenance mode 59) (Not required after replacement of the ADF unit on simplex scanning models) .....	4-21
3.2	Acquire white level data (Maintenance mode 55) (Not required after replacement of the ADF unit on simplex scanning models) .....	4-21
3.3	Check scanning .....	4-21
<b>4</b>	<b>IF YOU REPLACE THE CONTROL PANEL ASSY .....</b>	<b>4-22</b>
4.1	Adjust the touch panel (Maintenance mode 78) .....	4-22
4.2	Check LCD operation (Maintenance mode 12) .....	4-22
4.3	Check the operation of the control panel keys (Maintenance mode 13) .....	4-22
<b>5</b>	<b>IF YOU REPLACE THE INK ABSORBER BOX OR FLUSHING BOX .....</b>	<b>4-23</b>
5.1	Reset purge and flushing counts .....	4-23
<b>6</b>	<b>IF YOU REPLACE THE PAPER FEEDING RELATED PARTS and MAINTENANCE UNIT .....</b>	<b>4-24</b>
6.1	Check head nozzles (Maintenance mode 09) .....	4-25
6.2	Adjustment of vertical print lines/software correction for inclination/corrugation/ruled lines (Maintenance mode 65) .....	4-25
6.3	Update paper feeding correction values (Maintenance mode 58) .....	4-25
6.4	Adjust margins in borderless printing (Maintenance mode 66) .....	4-25
6.5	Check printing .....	4-25
<b>CHAPTER 5 SERVICE FUNCTIONS .....</b>		<b>5-1</b>
<b>1</b>	<b>MAINTENANCE MODE .....</b>	<b>5-1</b>
1.1	Entry to the Maintenance Mode .....	5-1
1.1.1	How to Enter the Maintenance Mode for Service Personnel .....	5-1
1.1.2	How to Enter the End User-accessible Maintenance Mode .....	5-3
1.2	List of Maintenance-mode Functions .....	5-4
1.3	Detailed Description of Maintenance-mode Functions .....	5-5
1.3.1	EEPROM Parameter Initialization (Maintenance mode 01, 91) .....	5-5
1.3.2	Creating of Head Calibration Data and Writing it into Flash ROM (Maintenance mode 02) .....	5-6
1.3.3	Printout of Scanning Compensation White/Black Level Data (Maintenance mode 05) .....	5-11
1.3.4	ADF Performance Test (Maintenance mode 08) .....	5-14
1.3.5	Printout of Test Pattern (Maintenance mode 09) .....	5-14
1.3.6	Worker Switch Setting and Printout (Maintenance modes 10 and 11) .....	5-16

1.3.7	Operational Check of LCD (Maintenance mode 12) .....	5-19
1.3.8	Operational Check of Keys on Control Panel (Maintenance mode 13) .....	5-20
1.3.9	EEPROM Dump and Log Information Saving (Maintenance mode 17) .....	5-21
1.3.10	Updating of Firmware Using an External Memory (Maintenance mode 28) .....	5-22
1.3.11	Sensor Operational Check (Maintenance mode 32) .....	5-23
1.3.12	Printout of Dial Log (Maintenance mode 37) .....	5-25
1.3.13	Backup of Machine Information (Maintenance mode 46) .....	5-26
1.3.14	Setting of Country/Language (Maintenance mode 52) .....	5-28
1.3.15	Transfer of Received FAX Data and/or Equipment's Log (Maintenance mode 53) .....	5-29
1.3.16	Fine Adjustment of Scanning Position (Maintenance mode 54) .....	5-31
1.3.17	Acquisition of White/Black Level Data and CIS Scanner Area Setting (Maintenance mode 55) .....	5-32
1.3.18	Cartridge IC Communication Check (Maintenance mode 57) .....	5-33
1.3.19	Updating of Paper Feeding Correction Values (Maintenance mode 58) ....	5-34
1.3.20	Checking of CIS Travel and Specifying of CIS Type (Maintenance mode 59) .....	5-40
1.3.21	Printout of PRN/JPEG Files in Memory Card (Maintenance mode 61) .....	5-41
1.3.22	Move of the Head/Carriage Unit to the Adjustment Position (Maintenance mode 63) .....	5-42
1.3.23	Adjustment of Vertical Print Lines/Software Correction for Inclination/ Corrugation/Ruled Lines (Maintenance mode 65) .....	5-43
1.3.24	Margin Adjustment in Borderless Printing (Maintenance mode 66) .....	5-47
1.3.25	Updating of Head Property Data and Backup/Restoration of Head Calibration Data (Maintenance mode 68) .....	5-49
1.3.26	Traveling Speed Check of Head/Carriage Unit (Maintenance mode 69) ...	5-51
1.3.27	Customizing Destinations (Maintenance mode 74) .....	5-52
1.3.28	Move of the Head/Carriage Unit to the Center (Maintenance mode 75) ....	5-55
1.3.29	Purge Operation (Maintenance mode 76) .....	5-56
1.3.30	Print of the Maintenance Information (Maintenance mode 77) .....	5-59
1.3.31	Adjustment of Touch Panel (Maintenance mode 78) .....	5-61
1.3.32	Display of the Equipment's Log (Maintenance mode 80) .....	5-62
1.3.33	Equipment Error Code Indication (Maintenance mode 82) .....	5-65
1.3.34	Output of Transmission Log to the Telephone Line (Maintenance mode 87) .....	5-65
1.3.35	Assurance Mode Switch Setting (Maintenance mode 88) .....	5-66
<b>2</b>	<b>OTHER SERVICE FUNCTIONS .....</b>	<b>5-75</b>
2.1	Cancellation of the Secure function lock .....	5-75

2.2	Displaying the Firmware Version .....	5-76
2.3	Moving the Head/Carriage Unit .....	5-76
2.4	Retrieving the Equipment Log Information .....	5-77
<b>CHAPTER 6 CIRCUIT DIAGRAMS AND WIRING DIAGRAMS .....</b>		<b>6-1</b>
<b>CHAPTER 7 PERIODICAL MAINTENANCE .....</b>		<b>7-1</b>
<b>1</b>	<b>PERIODICAL REPLACEMENT PARTS .....</b>	<b>7-1</b>
<b>APPENDIX 1 SERIAL NUMBERING SYSTEM .....</b>		<b>App. 1-1</b>
<b>APPENDIX 2 DELETION OF USER SETTING INFORMATION .....</b>		<b>App. 2-1</b>
	<b>A2.1 Deleting User Setting Info from the machine .....</b>	<b>App. 2-1</b>
<b>APPENDIX 3 INSTALLING THE MAINTENANCE PRINTER DRIVER .....</b>		<b>App. 3-1</b>
<b>APPENDIX 4 REPLACEMENT OF CONDENSER ON THE MAIN PCB .....</b>		<b>App. 4-1</b>
	<b>A4.1 HOW TO JUDGE CONDENSER DEFECTIVE .....</b>	<b>App. 4-1</b>
	<b>A4.2 HOW TO REPLACE CONDENSER .....</b>	<b>App. 4-1</b>
	<b>A4.3 TEST AFTER CONDENSER IS REPLACED .....</b>	<b>App. 4-3</b>

## REGULATION

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

**These notices are in effect on models sold and used in the United States only. When programming emergency numbers or making test calls to emergency numbers:**

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

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

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

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

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

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

## ■ Federal Communications Commission (FCC) Declaration of Conformity (USA only)

Responsible Party: Brother International Corporation  
100 Somerset Corporate Boulevard  
Bridgewater, NJ 08807-0911 USA  
TEL: (908) 704-1700

declares, that the products

Product Name: MFC-J4310DW/J4410DW/J4510DW/J4610DW/J4710DW

comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.
- This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

### **! IMPORTANT**

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

## ■ Industry Canada Compliance Statement (Canada only)

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

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

Operation is subject to the following two conditions:

(1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of this device.

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

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

## ■ EQUIPMENT ATTACHMENT LIMITATIONS (Canada only) (MFC models only)

### NOTICE

This product meets the applicable Industry Canada technical specifications.

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

### NOTICE

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

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

## ■ For use in the USA or Canada only

These machines are made for use in the USA and Canada only. We cannot recommend using them overseas because it may violate the Telecommunications Regulations (MFC models only) of that country and the power requirements of your machine may not be compatible with the power available in foreign countries. Using USA or Canada models overseas is at your own risk and may void your warranty.

## ■ LAN connection

### ! IMPORTANT

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

## ■ Declaration of Conformity (Europe only)

We, Brother Industries Ltd, of 15-1 Naeshiro-cho, Mizuho-ku, Nagoya 467-8561 Japan,

Declare that this product is in compliance with the essential requirements of Directives 1999/5/EC and 2009/125/EC.

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

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

-> choose your region (eg. Europe)

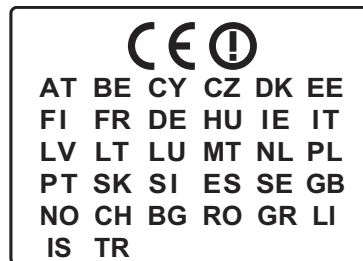
-> choose your country

-> choose your model

-> choose "Manuals"

-> choose Declaration of Conformity (Select Language when required.)

## ■ CE marking for devices with Wireless LAN



This product supports Wireless LAN.

■ **Radio interference**

This product complies with EN55022 (CISPR Publication 22)/Class B. When connecting the machine to a computer, ensure that you use a USB cable which does not exceed 2 metres in length.

■ **Recycling information in accordance with the WEEE (2002/96/EC) Directive.**



Product mark

European Union only

The product is marked with one of the above recycling symbols. It indicates that at the end of the life of the product, you should dispose of it separately at an appropriate collection point and not place it in the normal domestic waste stream.

■ **International ENERGY STAR® Qualification Statement**

The purpose of the International ENERGY STAR® Program is to promote the development and popularization of energy-efficient equipment.

As an ENERGY STAR® Partner, Brother Industries, Ltd. has determined that this product meets the ENERGY STAR® specifications for energy efficiency.





## SAFETY INFORMATION

### WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injuries.

### CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injuries.

### IMPORTANT

IMPORTANT indicate a potentially hazardous situation which, if not avoided, may result in damage to property or loss of product functionality.



Notes tell you how you should respond to a situation that may arise or give tips about how the operation works with other features.



Electrical Hazard icons alert you to possible electrical shock.



Improper Setup icons alert you to devices and operations that are not compatible with the machine.



Fire Hazard icons alert you to the possibility of fire.

Follow all warnings and instructions marked on the machine.

# To use the machine safely

## WARNING



### ELECTRICAL HAZARDS

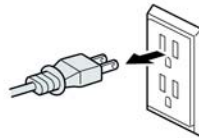
Failure to follow the warnings in this section may create the risk of an electrical shock. In addition, you could create an electrical short, which may create the risk of a fire.

---



There are high-voltage electrodes inside the machine. Before you access the inside of the machine, including for routine maintenance such as cleaning, make sure you have unplugged the power cord from the AC power outlet, as well as any telephone (RJ-11) (MFC models only) or Ethernet (RJ-45) (Network models only) cables from the machine.

DO NOT push objects of any kind into this machine through slots or openings in the cabinet, as they may touch dangerous voltage points or short out parts.



DO NOT handle the plug with wet hands.



Always make sure the plug is fully inserted.

---



DO NOT continue using the machine if it has been dropped or the cabinet has been damaged. Instead, unplug the machine from the power outlet.



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

---



DO NOT connect the machine to a DC power source or inverter. If you are not sure what kind of power source you have, contact a qualified electrician.

---



Power Cord Safety:

- DO NOT pull on the middle of the AC power cord; pulling on the middle may cause the cord to separate from the plug. Doing this might cause an electrical shock.
  - DO NOT allow anything to rest on the power cord.
  - DO NOT place this machine where people can walk on the cord.
  - DO NOT place this machine in a position where the cord is stretched or strained, as it may become worn or frayed.
  - DO NOT use the machine or handle the cord if the cord has become worn or frayed. If unplugging your machine, DO NOT touch the damaged/frayed part.
  - Brother strongly recommends that you DO NOT use any type of extension cord.
- 



DO NOT use this product during an electrical storm.

---



(MFC models only)

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

---

#### FIRE HAZARDS

Failure to follow the warnings in this section may create the risk of a fire.

---



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

---



DO NOT use this machine in the vicinity of combustible dust.

---

For users with pacemakers

This machine generates a weak magnetic field. If you feel anything wrong with the operation of your pacemakers when near the machine, move away from the machine and consult a doctor immediately.

---

## CAUTION

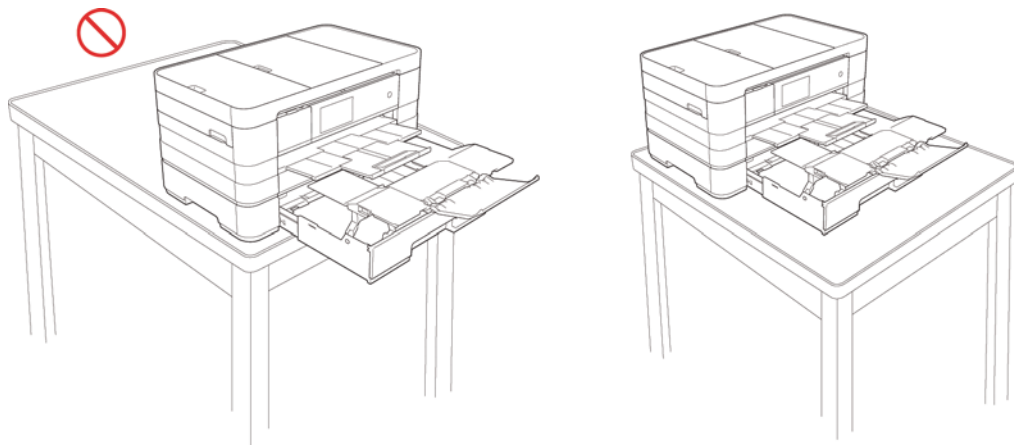
DO NOT sit or stand on the machine or use it for any purpose beyond its intended purpose.

If the machine becomes hot, releases smoke, or generates any strong smells, immediately unplug the machine from the AC power outlet.

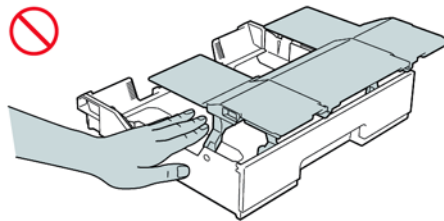
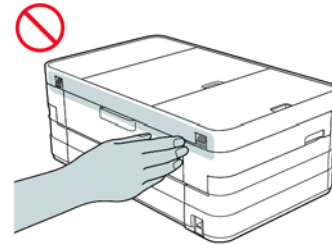
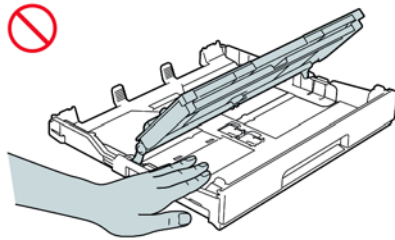
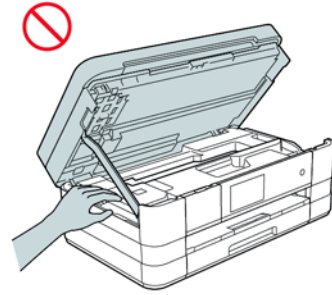
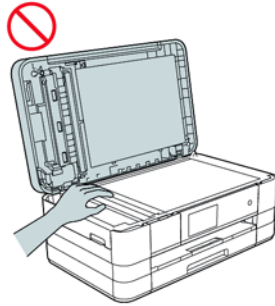
Wait until pages have exited the machine before picking them up. Doing this may cause injury to your fingers by trapping them in a roller.

(MFC-J4710DW)

If the lower tray has been expanded to hold large paper such as Ledger size paper, place the machine on a flat surface that can support both the machine and the lower tray. When the lower tray is expanded, it will protrude from the machine. Therefore, if someone hits the tray, the machine could fall and cause injury.



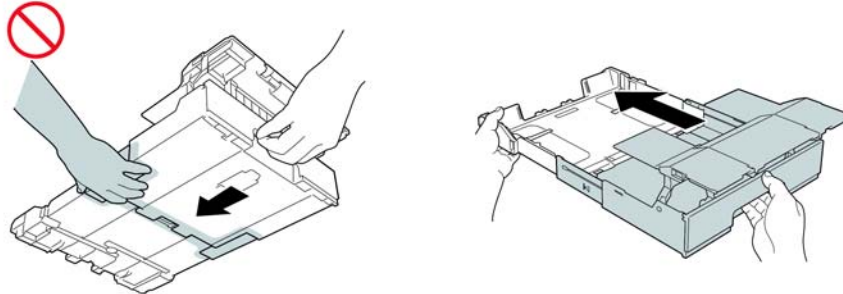
DO NOT put your hands on the edge of the machine. Doing this may cause injury to your fingers by pinching them.



---

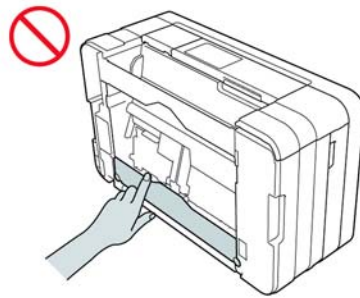
(MFC-J4710DW)

When changing the lower tray size from the Ledger, A3 or legal size to the original size, be careful not to pinch your fingers in the gaps or slots in the bottom of the tray. It may cause injury to you.



---

DO NOT touch the area shaded in the illustration. Doing this may cause injury to your fingers by cutting them on the edge of the machine.

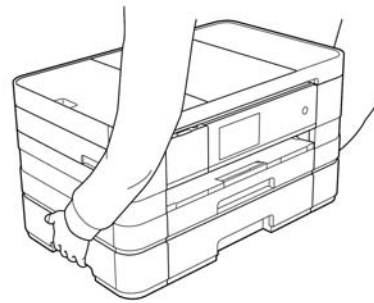
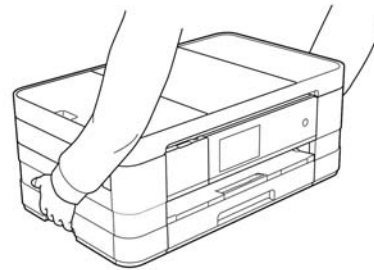


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DO NOT carry the machine by holding the scanner cover or the Jam Clear Cover manual feed slot cover or control panel. Doing this may cause the machine to slip out of your hands. Only carry the machine by placing your hands under the entire machine.

(MFC-J4710DW)

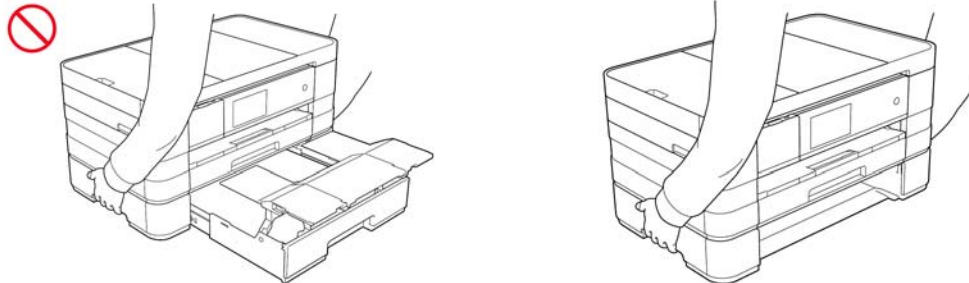
DO NOT carry the machine by holding the lower tray when it is installed. The lower tray could fall and cause injury to you.



---

(MFC-J4710DW)

When carrying the machine, remove the lower tray if it has been expanded to hold large paper such as Ledger, A3 or legal size paper. The weight of the paper could cause the lower tray to fall and cause injury to you.



Do not remove the serial number and instruction labels that are affixed to the machine.

---

## **!** IMPORTANT

- Disruption of power can wipe out information in the machine's memory.
- DO NOT put objects on top of the machine.
- (MFC models only)

DO NOT place anything in front of the machine that will block received faxes. DO NOT place anything in the path of received faxes.

- DO NOT touch the Touchscreen immediately after plugging in the power cord or turning on the machine. Doing this may cause an error.
-



# CHAPTER 1 SPECIFICATIONS

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

## 1 GENERAL

### 1.1 General

Model	ALL models
Print Head	BH13 BK/C/M/Y: 420/420/420/420 nozzles
Minimum Droplet Size	BK: 3 pl CMY: 1.5 pl
Scanning Method	CIS
CPU Speed	288 MHz
Backup Clock	Yes (Up to 1 hour)

### 1.2 Media Specification

Model		DCP-J4110DW	MFC-J2310	MFC-J2510	MFC-J4310DW
Media Sizes	Standard Tray	<Landscape>A4, LTR, EXE, B5 <sup>*1</sup> <Portrait>A5, A6, Photo (102 x 152 mm/4 x 6"), Indecard (127 x 203 mm/5 x 8"), Photo-L (89 x 127 mm/3.5 x 5"), Photo-2L (127 x 178 mm/5 x 7"), Com-10, DL Envelope, Monarch			
	Lower Tray	N/A			
	Manual Feed Slot	<Landscape>A4, LTR, EXE, B5 <sup>*2</sup> , B4 <sup>*2</sup> <Portrait>A3, LGR, LGL, A5, A6, Photo (102 x 152 mm/4 x 6"), Indecard (127 x 203 mm/5 x 8"), Photo-L (89 x 127 mm/3.5 x 5"), Photo-2L (127 x 178 mm/5 x 7"), C5, Com-10, DL Envelope, Monarch			
	Duplex Print	<PC Print>A4/LTR/EXE/A5,<Copy>LTR/A4/A5/EXE *			
	ADF (width/length)	N/A		148/148 mm to 215.9/355.6 mm (5.8/5.8" to 8.5/14.0")	N/A
	Scanner Glass (width/length)	Up to 215.9/297 mm (up to 8.5/11.7")			
Media Weights	Standard Tray	64-220 g/m <sup>2</sup> (17-58 lb. )			
	Lower Tray	N/A			
	Manual Feed Slot	64-220 g/m <sup>2</sup> (17-58 lb. )			
	Duplex Print	64-105 g/m <sup>2</sup> (17-28 lb. )			
	ADF	N/A		64-90 g/m <sup>2</sup> (17-24 lb. )	N/A
Media Types	Standard Tray	Plain, Inkjet, Glossy (cast/resin), Transparency			
	Lower Tray	N/A			
	Manual Feed Slot	Plain, Inkjet, Glossy (cast/resin), Transparency			
	Duplex Print	Plain			
	ADF	N/A		Plain	N/A

<sup>\*1</sup> MFC-J2510 For CHN

<sup>\*2</sup> MFC-J2510 For CHN, HK, TW and KOR

Model		MFC-J4410DW	MFC-J4510DW	MFC-J4610DW	MFC-J4710DW
Media Sizes	Standard Tray	<Landscape>A4, LTR, EXE<Portrait>A5, A6, Photo (102 x 152 mm/4 x 6"), Indexcard (127 x 203 mm/5 x 8"), Photo-L (89 x 127 mm/3.5 x 5"), Photo-2L (127 x 178 mm/5 x 7"), Com-10, DL Envelope, Monarch			
	Lower Tray	N/A		A4, LTR	A3, LGR, A4, LTR, LGL
	Manual Feed Slot	<Landscape>A4, LTR, EXE, <Portrait>A3, LGR, LGL, A5, A6, Photo (102 x 152 mm/4 x 6"), Indexcard (127 x 203 mm/5 x 8"), Photo-L (89 x 127 mm/3.5 x 5"), Photo-2L (127 x 178 mm/5 x 7"), C5, Com-10, DL Envelope, Monarch			
	Duplex Print	<PC Print>A4/LTR/EXE/A5,<Copy>LTR/A4/A5/EXE *			
	ADF(width/length)	148/148 mm to 215.9/355.6 mm (5.8/5.8" to 8.5/14.0")			
	Scanner Glass (width/length)	Up to 215.9/297 mm (up to 8.5/11.7")			
Media Weights	Standard Tray	64-220 g/m <sup>2</sup> (17-58 lb. )			
	Lower Tray	N/A		64-105 g/m <sup>2</sup> (17-28 lb. )	
	Manual Feed Slot	64-220 g/m <sup>2</sup> (17-58 lb. )			
	Duplex Print	64-105 g/m <sup>2</sup> (17-28 lb. )			
	ADF	64-90 g/m <sup>2</sup> (17-24 lb. )			
Media Types	Standard Tray	Plain, Inkjet, Glossy (cast/resin), Transparency			
	Lower Tray	N/A		Plain	
	Manual Feed Slot	Plain, Inkjet, Glossy (cast/resin), Transparency			
	Duplex Print	Plain			
	ADF	Plain			

\* For US only

### 1.3 Paper Handling

Model		DCP-J4110DW	MFC-J2310	MFC-J2510	MFC-J4310DW
Paper Input (sheets)	Standard Tray	150 (80 g/m <sup>2</sup> )			
	Lower Tray	N/A			
	Manual Feed Slot	1			
	ADF	N/A		20 (80 g/m <sup>2</sup> )	N/A
Output Paper Capacity (sheets)		50 (80 g/m <sup>2</sup> )			

Model		MFC-J4410DW	MFC-J4510DW	MFC-J4610DW	MFC-J4710DW
Paper Input (sheets)	Standard Tray	150 (80 g/m <sup>2</sup> )			
	Lower Tray	N/A		250 (80 g/m <sup>2</sup> )	
	Manual Feed Slot	1			
	ADF	20 (80 g/m <sup>2</sup> )			
Output Paper Capacity (sheets)		50 (80 g/m <sup>2</sup> )			

## 1.4 LCD Panel

Model		DCP-J4110DW	MFC-J2310	MFC-J2510	MFC-J4310DW
LCD	Type & Size	1.8 inch TFT		3.7 inch TFT	1.8 inch TFT
	Touch-Panel	Yes			

Model		MFC-J4410DW	MFC-J4510DW	MFC-J4610DW	MFC-J4710DW
LCD	Type & Size	1.8 inch TFT	3.7 inch TFT	1.8 inch TFT	3.7 inch TFT
	Touch-Panel	Yes			

## 1.5 Memory

Model	DCP-J4110DW	MFC-J2310	MFC-J2510	MFC-J4310DW
Memory Capacity (physical: Mbytes)	128 MB			
Memory Backup (with Flash memory)	N/A	Yes		

Model	MFC-J4410DW	MFC-J4510DW	MFC-J4610DW	MFC-J4710DW
Memory Capacity (physical: Mbytes)	128 MB			256 MB
Memory Backup (with Flash memory)	Yes			

## 1.6 Interface

Model	All models	
Host Interface	Hi-Speed USB 2.0	
LAN	Yes	
Wireless LAN	Yes	
PictBridge	Yes	
USB Memory	up to 32 GB	
Acceptable Media Cards (Type & Size)/Media Card	Memory Stick Duo:	16 MB-128 MB
	Memory Stick Pro Duo:	256 MB-32 GB (MagicGate: YES if not use MG function)
	Memory Stick Micro:	256 MB-32 GB (MagicGate: YES if not use MG function)
	SD Memory Card:	16 MB-2 GB (miniSD, microSD with Adapter)
	SDHC Memory Card:	4 GB-32 GB (miniSDHC, microSDHC with Adapter)
	SDXC Memory Card:	48 GB-128 GB
	MultiMedia Card:	32 MB-2 GB
	MultiMedia Card plus:	128 MB-4 GB
	MultiMedia Card mobile:	64 MB-1 GB (with Adapter)

## 1.7 Others

Model		DCP-J4110DW	MFC-J2310	MFC-J2510	MFC-J4310DW
Operating Environment Temperature (Best Print Quality)		10-35 (20-33) degrees centigrade			
Operating Environment Humidity (Best Print Quality)		20-80 (20-80) %			
Power Consumption (Operating/Standby/Sleep mode/Off)	U.S.A	N/A			21/5/1.5/0.04W
	Europe	21/5.5/1/0.04W	21/6/1.5/0.04W	21/5.5/1.5/0.04W	N/A
	Asia/Oceania				21/6/1.5/0.04W
	China	N/A			N/A
Machine Noise (Operating)		50 dBA (Average)			
Machine Dimensions		W480 x D290 x H163 mm	W480 x D290 x H186 mm	W480 x D290 x H186 mm	W480 x D290 x H163 mm
Machine Weight		8 kg (17.6 lb)	9.3 kg (20.5 lb)	9.3 kg (20.5 lb)	8 kg (17.6 lb)

Model		MFC-J4410DW	MFC-J4510DW	MFC-J4610DW	MFC-J4710DW
Operating Environment Temperature (Best Print Quality)		10-35 (20-33) degrees centigrade			
Operating Environment Humidity (Best Print Quality)		20-80 (20-80) %			
Power Consumption (Operating/Standby/Sleep mode/Off)	U.S.A	21/5/1.5/0.04W			23/5/1.5/0.04W
	Europe	21/6/1.5/0.04W	21/5.5/1.5/0.04W	21/6/1.5/0.04W	21/5.5/1.5/0.04W
	Asia/Oceania			N/A	
	China	N/A			
Machine Noise		50 dBA (Average)			
Machine Dimensions		W480 x D290 x H186 mm		W480 x D290 x H254 mm	
Machine Weight		9.2 kg (20.3 lb)	9.3 kg (20.5 lb)	For US 11 kg (24.3 lb) For EU 10.8 kg (23.8 lb)	For US 11.5 kg (25.4 lb) For EU/AP 11.3 kg (24.9 lb)

## 2 FAX

Model		DCP-J4110DW	MFC-J2310	MFC-J2510	MFC-J4310DW
Modem Speed (bps)		N/A	33,600 (FAX)		
Transmission Speed		N/A	Approx.3sec (ITU-T Test Chart #1, MMR)		
ITU-T Group		N/A	Super G3		
COLOR FAX	Document (Send/Receive)	N/A	Yes/Yes (ITU-T color FAX)		
	Memory (Send/Receive)	N/A	No/No (ITU-T color FAX)		

Model		MFC-J4410DW	MFC-J4510DW	MFC-J4610DW	MFC-J4710DW
Modem Speed (bps)		33,600 (FAX)			
Transmission Speed		Approx.3sec (ITU-T Test Chart #1, MMR)			
ITU-T Group		Super G3			
COLOR FAX	Document (Send/Receive)	Yes/Yes (ITU-T color FAX)			
	Memory (Send/Receive)	No/No (ITU-T color FAX)			

## 3 PRINTER

Model	DCP-J4110DW	MFC-J2310	MFC-J2510	MFC-J4310DW
Print Speed ESAT (mono/color) (based on ISO/IEC 24734)	18/16 ipm		20/18 ipm	18/16 ipm
Draft Print Speed (mono/color) *time calculated including paper feeding	33/25 ppm			
Resolution (horizontal x vertical)	Up to 1,200 x 6,000 dpi			
Auto Duplex Print	Yes (up to A4/LTR)			

Model	MFC-J4410DW	MFC-J4510DW	MFC-J4610DW	MFC-J4710DW
Print Speed ESAT (mono/color) (based on ISO/IEC 24734)	18/16 ipm	20/18 ipm		
Draft Print Speed (mono/color) *time calculated including paper feeding	33/25 ppm	35/27 ppm		
Resolution (horizontal x vertical)	Up to 1,200 x 6,000 dpi			
Auto Duplex Print	Yes (up to A4/LTR)			

## 4 COPY

Model		DCP-J4110DW	MFC-J2310	MFC-J2510	MFC-J4310DW
COPY SPEED ESAT (based on ISO/IEC 24735) (mono/color) <small>*This spec is for ADF model only.</small>		N/A		12/9 ipm	N/A
COPY SPEED sESAT (based on ISO/IEC 29183) <small>*This spec is for non-ADF model only.</small>		15/10 ipm		N/A	
COPY SPEED FCOT (based on ISO/IEC 24735 Annex D)		18 sec			
Resolution (horizontal x vertical)	Mono	Print: Max. 1,200 x 1,200 dpi Scan: Max. 1,200 x 1,200 dpi			
	Color	Print: Max. 1,200 x 1,200 dpi Scan: Max. 1,200 x 1,200 dpi			
Auto Duplex Print		Yes			

Model		MFC-J4410DW	MFC-J4510DW	MFC-J4610DW	MFC-J4710DW
COPY SPEED ESAT (based on ISO/IEC 24735) (mono/color) <small>*This spec is for ADF model only.</small>		12/9 ipm			
COPY SPEED sESAT (based on ISO/IEC 29183) <small>*This spec is for non-ADF model only.</small>		N/A			
COPY SPEED FCOT (based on ISO/IEC 24735 Annex D)		18 sec			
Resolution (horizontal x vertical)	Mono	Print: Max. 1,200 x 1,200 dpi Scan: Max. 1,200 x 1,200 dpi			
	Color	Print: Max. 1,200 x 1,200 dpi Scan: Max. 1,200 x 1,200 dpi			
Auto Duplex Print		Yes			

## 5 SCANNER

Model		DCP-J4110DW	MFC-J2310	MFC-J2510	MFC-J4310DW
Scan speed (Mono/Color) *@100 dpi		A4: 3.37 sec/3.37 sec LTR: 3.17 sec/3.17 sec			
Scan speed (Duplex) (Mono/Color) *@100 dpi		N/A			
Resolution (horizontal x vertical)	Optical	FB: 2,400 x 2,400 dpi		FB: 2,400 x 2,400 dpi ADF: 2,400 x 1,200 dpi	FB: 2,400 x 2,400 dpi
	Interpolated	For XP/Vista/Windows 7, up to 19,200 x 19,200 dpi with Scanner Utility			

Model		MFC-J4410DW	MFC-J4510DW	MFC-J4610DW	MFC-J4710DW
Scan speed (Mono/Color) *@100 dpi		A4: 3.37 sec/3.37 sec LTR: 3.17 sec/3.17 sec			
Scan speed (Duplex) (Mono/Color) *@100 dpi		N/A			A4: 3.37 sec/13.37 sec LTR: 3.17 sec/13.17 sec
Resolution (horizontal x vertical)	Optical	FB: 2,400 x 2,400 dpi ADF: 2,400 x 1,200 dpi			
	Interpolated	For XP/Vista/Windows 7, up to 19,200 x 19,200 dpi with Scanner Utility			

## 6 SOFTWARE

Model		All models
Driver Support OS Version	Windows	Windows XP/XP x64/Vista/7 Windows Server 2003/2008
	Macintosh	Mac OS X v10.5.8/10.6.x/10.7.x

## 7 NETWORK

### 7.1 Network

Model	DCP-J4110DW	MFC-J2310	MFC-J2510	MFC-J4310DW
Internet FAX (Firmware) (versionT37)	N/A	Yes (Download)		

Model	MFC-J4410DW	MFC-J4510DW	MFC-J4610DW	MFC-J4710DW
Internet FAX (Firmware) (versionT37)	Yes (Download)			

### 7.2 Wired

Model	All models
Model Name (Ethernet)	Embedded (NC-280h)
Network Connection (Ethernet)	Ethernet 10/100BASE-TX Auto Negotiation

### 7.3 Wireless

Model	All models	
Model Name (Wireless)	Embedded (NC-290w)	
Network Connection (Wireless)	IEEE802.11 b/g/n	
Wireless Security	SSID (32 chr), WEP 64/128 bit, WPA-PSK (TKIP/AES), WPA2-PSK (AES) **NO LEAP**	
Setup Support Utility	AOSS	Yes
	WPS (Wifi Protected Setup)	Yes



## 8 SUPPLIES/OPTIONS

Model		All models
Ink Cartridge Yield @ ISO/IEC pattern	Bundled Cartridges	BK: 390 CL: 390
	Supply High Yield Cartridges	BK: 600 CL: 600
	Supply Super High Yield Cartridges	BK: 1,200 CL: 1,200
Storage Condition of Ink Cartridge		(Temperature) Normal condition : -20 to 40°C (Humidity) Normal condition : 20 to 80% *Storage condition at the temperature of 40 to 50°C and the humidity of 80 to 95% : Up to 5 days *Storage condition at the temperature of 40 to 60°C and the humidity of Non controll condition : Up to 5 days

## 9 SERVICE INFORMATION

Model	All models
Monthly Volume	13,000 pages
Machine Life	50,000 pages or 5 years
MTBF (Mean Time Between Failures)	4,000 hours
MTTR (Mean Time To Be Repaired)	30 minutes

## 10 PAPER

### 10.1 Paper

#### Paper type and size for each operation

Paper Type	Paper Size		Usage			
			Fax	Copy	Photo Capture	Printer
Cut-Sheet	Ledger	11 x 17 in. (279.4 x 431.8 mm)	Yes <sup>*2</sup>	Yes <sup>*1</sup>	Yes <sup>*3</sup>	Yes <sup>*1</sup>
	Letter	8 1/2 x 11 in. (215.9 x 279.4 mm)	Yes	Yes	Yes	Yes
	A3	11.7 x 16.5 in. (297 x 420 mm)	Yes <sup>*2</sup>	Yes <sup>*1</sup>	Yes <sup>*3</sup>	Yes <sup>*1</sup>
	A4	8.3 x 11.7 in. (210 x 297 mm)	Yes	Yes	Yes	Yes
	Legal	8 1/2 x 14 in. (215.9 x 355.6 mm)	Yes <sup>*2</sup>	Yes <sup>*1</sup>	--	Yes <sup>*1</sup>
	Executive	7 1/4 x 10 1/2 in. (184 x 267 mm)	--	Yes	--	Yes
	JIS B4	10.1 x 14.3 in. (257 x 364 mm)	--	--	--	User Defined
	JIS B5	7.2 x 10.1 in. (182 x 257 mm)	--	--	--	User Defined
	A5 A6	5.8 x 8.3 in. (148 x 210 mm) 4.1 x 5.8 in. (105 x 148 mm)	-- --	Yes --	-- --	Yes Yes
Cards	Photo	4 x 6 in. (10 x 15 cm)	--	Yes	Yes	Yes
	Photo L	3 1/2 x 5 in. (89 x 127 mm)	--	--	--	Yes
	Photo 2L	5 x 7 in. (13 x 18 cm)	--	--	Yes	Yes
	Index Card	5 x 8 in. (127 x 203 mm)	--	--	--	Yes
	Postcard 1	3.9 x 5.8 in. (100 x 148 mm)	--	--	--	User Defined
	Postcard 2 (Double)	5.8 x 7.9 in. (148 x 200 mm)	--	--	--	User Defined
Envelopes	C5 Envelope	6.4 x 9 in. (162 x 229 mm)	--	--	--	Yes <sup>*1</sup>
	DL Envelope	4.3 x 8.7 in. (110 x 220 mm)	--	--	--	Yes <sup>*1</sup>
	COM-10	4 1/8 x 9 1/2 in. (105 x 241 mm)	--	--	--	Yes <sup>*1</sup>
	Monarch	3 7/8 x 7 1/2 in. (98 x 191 mm)	--	--	--	Yes <sup>*1</sup>
	Y4 Envelope	4.1 x 9.3 in. (105 x 235 mm)	--	--	--	User Defined
Transparencies	Letter	8 1/2 x 11 in. (215.9 x 279.4 mm)	--	Yes	--	Yes
	A4	8.3 x 11.7 in. (210 x 297 mm)	--	Yes	--	Yes
	Legal	8 1/2 x 14 in. (215.9 x 355.6 mm)	--	Yes	--	Yes
	A5	5.8 x 8.3 in. (148 x 210 mm)	--	Yes	--	Yes

<sup>\*1</sup> Manual Feed Slot only (MFC-J4510DW)  
Manual Feed Slot or Tray #2 (MFC-J4710DW)

<sup>\*2</sup> Lower Tray only (MFC-J4710DW)

<sup>\*3</sup> Manual Feed Slot only

## Paper weight and thickness

Paper Type		Weight	Thickness
Cut-Sheet	Plain Paper	17 to 32 lb (64 to 120 g/m <sup>2</sup> )	3 to 6 mil (0.08 to 0.15 mm)
	(Lower Tray) Plain Paper	17 to 28 lb (64 to 105 g/m <sup>2</sup> )	3 to 6 mil (0.08 to 0.15 mm)
	Inkjet Paper	17 to 53 lb (64 to 200 g/m <sup>2</sup> )	3 to 10 mil (0.08 to 0.25 mm)
	Glossy Paper* <sup>1</sup>	Up to 58 lb (Up to 220 g/m <sup>2</sup> )	Up to 10 mil (Up to 0.25 mm)
Cards	Photo 4"x 6" Card* <sup>1</sup>	Up to 58 lb (Up to 220 g/m <sup>2</sup> )	Up to 10 mil (Up to 0.25 mm)
	Index Card	Up to 32 lb (Up to 120 g/m <sup>2</sup> )	Up to 6 mil (Up to 0.15 mm)
	Postcard 1 Postcard 2	Up to 53 lb (Up to 200 g/m <sup>2</sup> )	Up to 10 mil (Up to 0.25 mm)
Envelopes		20 to 25 lb (80 to 95 g/m <sup>2</sup> )	Up to 20 mil (Up to 0.52 mm)
Transparencies		--	--

\*<sup>1</sup> BP71 69 lb (260 g/m<sup>2</sup>) paper is especially designed for Brother inkjet machines.

## Paper capacity of the paper trays

	Paper size	Paper types	
Standard Tray	<Landscape>Letter, Executive, A4	Plain Paper	150 * <sup>1</sup>
	<Portrait> A5, A6, Photo, Photo L, Photo 2L, Index card, Envelopes (Com-10, DL, Monarch)	Inkjet Paper	20
		Glossy Paper, Photo	20
		Index Card, Postcard	30
		Envelopes, Transparencies	10
Lower Tray (MFC-J4610DW/J4710DW)	<Landscape>Letter, A4 <Portrait>Ledger, A3, Legal	Plain Paper	250 * <sup>1</sup>
Manual Feed Slot	<Landscape>Letter, Executive, A4	Plain Paper, Inkjet Paper, Glossy Paper, Envelopes and Transparencies	1
	<Portrait> Ledger, A3, Legal, A5, A6, Photo, Photo L, Photo 2L, Index card, Envelopes (C5, Com-10, DL, Monarch)		

\*<sup>1</sup> Up to 250 sheets of plain paper 20 lb (80 g/m<sup>2</sup>).

## Recommended print media

To get the best print quality, we suggest using Brother paper. (See the table below.)

If Brother paper is not available in your country, we recommend testing various papers before purchasing large quantities.

We recommend using "3M Transparency Film" when you print on transparencies.

## Brother paper

Paper Type	Item
Premium Plus Glossy Photo - Ledger - Letter - 4" x 6"	BP71GLGR BP71GLTR BP71GP
Plain Inkjet - Ledger	BP60PLGR (USA only)

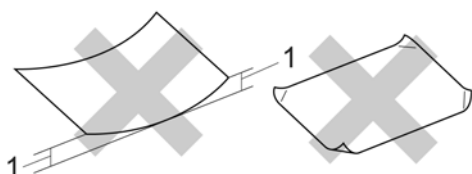
## Handling and using print media

- Store paper in its original packaging and keep it sealed. Keep the paper flat and away from moisture, direct sunlight and heat.
- Avoid touching the shiny (coated) side of photo paper. Load photo paper with the shiny side facing down.
- Avoid touching either side of transparencies because they absorb water and perspiration easily, and this may cause decreased output quality. Transparencies designed for laser printers/copier may stain your next document. Use only transparencies recommended for inkjet printing.

### IMPORTANT

DO NOT use the following kinds of paper:

- Damaged, curled, wrinkled, or irregularly shaped



1 0.08 in. (2 mm) or greater curl may cause jams to occur.

- Extremely shiny or highly textured
- Paper that cannot be arranged uniformly when stacked
- Paper made with a short grain

### Paper capacity of the output paper tray cover

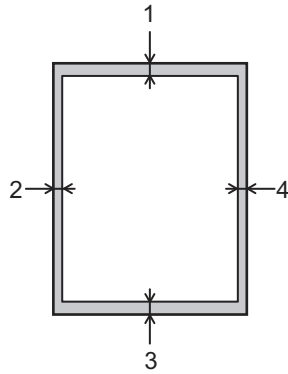
Up to 50 sheets of Letter, Legal or A4 20 lb (80 g/m<sup>2</sup>) paper.

- Transparencies and photo paper must be picked up from the output paper tray cover one page at a time to avoid smudging.

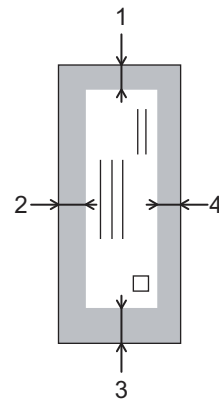
## 10.2 Printable Area

The printable area depends on the settings in the application you are using. The figures below show the unprintable areas on cut-sheet paper and envelopes. The machine can print in the shaded areas of cut-sheet paper only when the Borderless print feature is available and turned on.

**Cut-Sheet Paper**



**Envelopes**



	Top (1)	Left (2)	Bottom (3)	Right (4)
Cut-Sheet	0.12 in. (3 mm)	0.12 in. (3 mm)	0.12 in. (3 mm)	0.12 in. (3 mm)
Envelopes	0.87 in. (22 mm)	0.12 in. (3 mm)	0.87 in. (22 mm)	0.12 in. (3 mm)

 **Note**

The Borderless print feature is not available for envelopes and 2-sided printing.

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## CHAPTER 2 TROUBLESHOOTING

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### 1 INTRODUCTION

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This section gives the service personnel some of the troubleshooting procedures to be followed if an error or malfunction occurs with the machine. It is impossible to anticipate all of the possible problems which may occur in future and determine the troubleshooting procedures, so this 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.

#### 1.1 Precautions

Be sure to observe the following to prevent any secondary troubles from happening during troubleshooting.

- (1) AC power codes must be removed from their outlets before starting any removal of covers and PCBs, adjustments and conductivity test using a tester.
- (2) When disconnecting the connectors, hold the connector housings. Do not pull the lead wires.
- (3) Static electricity charged in your body may damage electronic parts.

Before handling the PCBs, touch a metal portion of the machine to discharge static electricity charged in your body. When transporting PCBs, be sure to wrap them in conductive sheets.

When replacing the PCBs, put on a grounding wrist band and perform the job on a conductive mat.

Also take care not to touch the conductor sections on the flat cables.

- (4) Be sure to observe the warnings.



#### WARNING

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



- (5) After repairing the defective section, be sure to check again if the repaired section works correctly.

## 1.2 Initial Check

Prior to proceeding to the troubleshooting procedures, make the following initial checks:

### **Environmental conditions**

- (1) The machine is placed on a flat, firm surface.
- (2) The machine is used in clean environment with temperature (10 to 35 degree-C) and humidity (20 to 80 %.)
- (3) The machine is not exposed to direct sunlight, excessive heat, moisture, or dust.
- (4) The machine is transported in level.

### **Power requirements**

- (1) The power requirements described in label of the machine is supplied. Its variation is within +/-10% of the rated voltage.
- (2) All cables and harnesses are firmly connected.
- (3) The fuses are not blown.

### **Recording paper**

- (1) A recommended type of paper is being used (refer to [Chapter 1, Section 10 "PAPER."](#))
- (2) The recording paper is not dampened.

### **Consumable Parts**

- (1) Ink cartridge (4 colors) is correctly set.

### **Head/carriage unit**

- (1) Repeat purge action (maintenance code 76) for a couple of times. (Refer to [Chapter 5, Section 1.3.29.](#))

### **Others**

- (1) Low temperature

Motor may not run correctly due to excessive load for each drive in low temperature environment. Warm the room temperature in such case.

## **Cleaning**

Use a soft dry lint-free cloth.

### **WARNING**

DO NOT use flammable solvent such as alcohol, benzene, thinner to clean the body of the machine. DO NOT use near by.





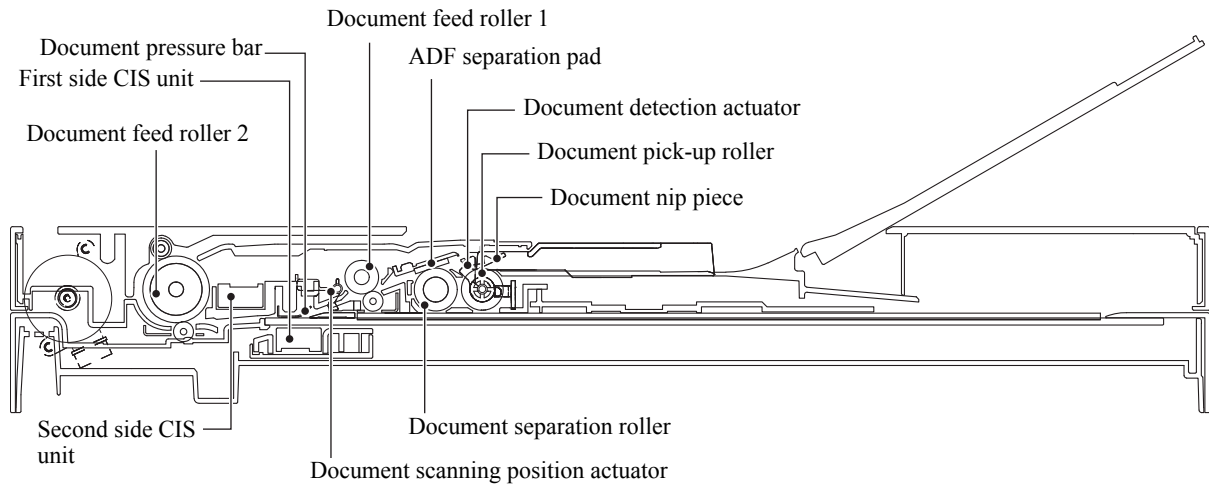
---

## 2 OVERVIEW

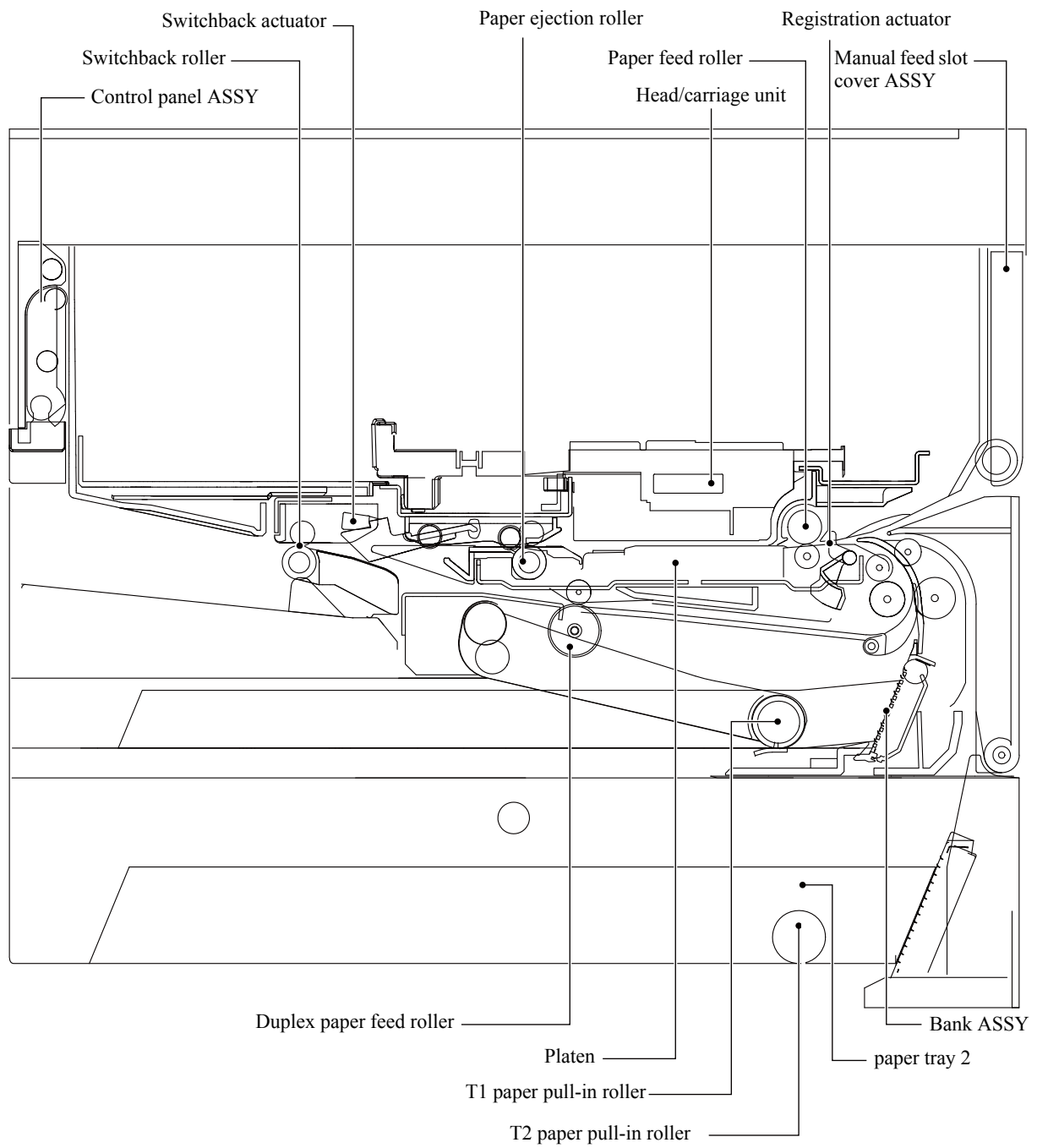
---

### 2.1 Cross-section Drawings

#### 2.1.1 Document scanning

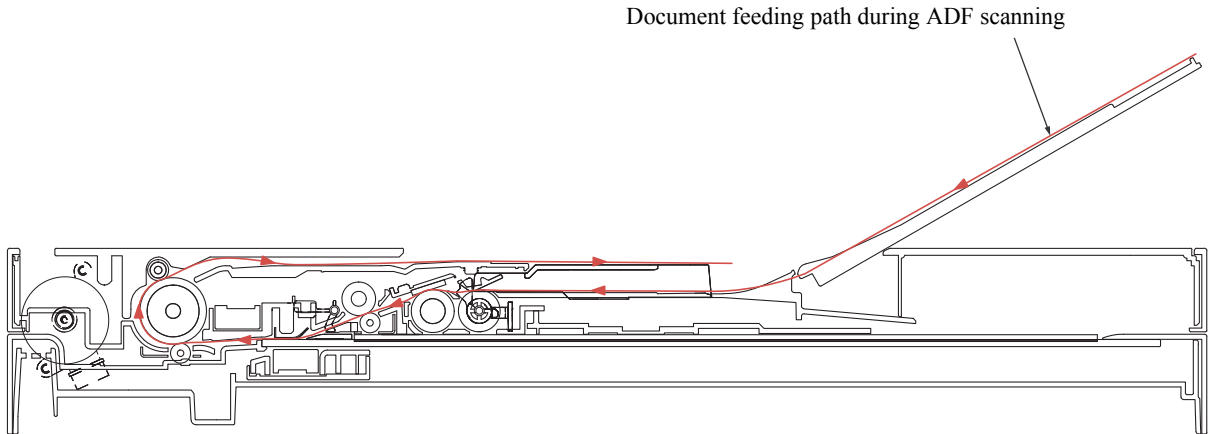


## 2.1.2 Printer part

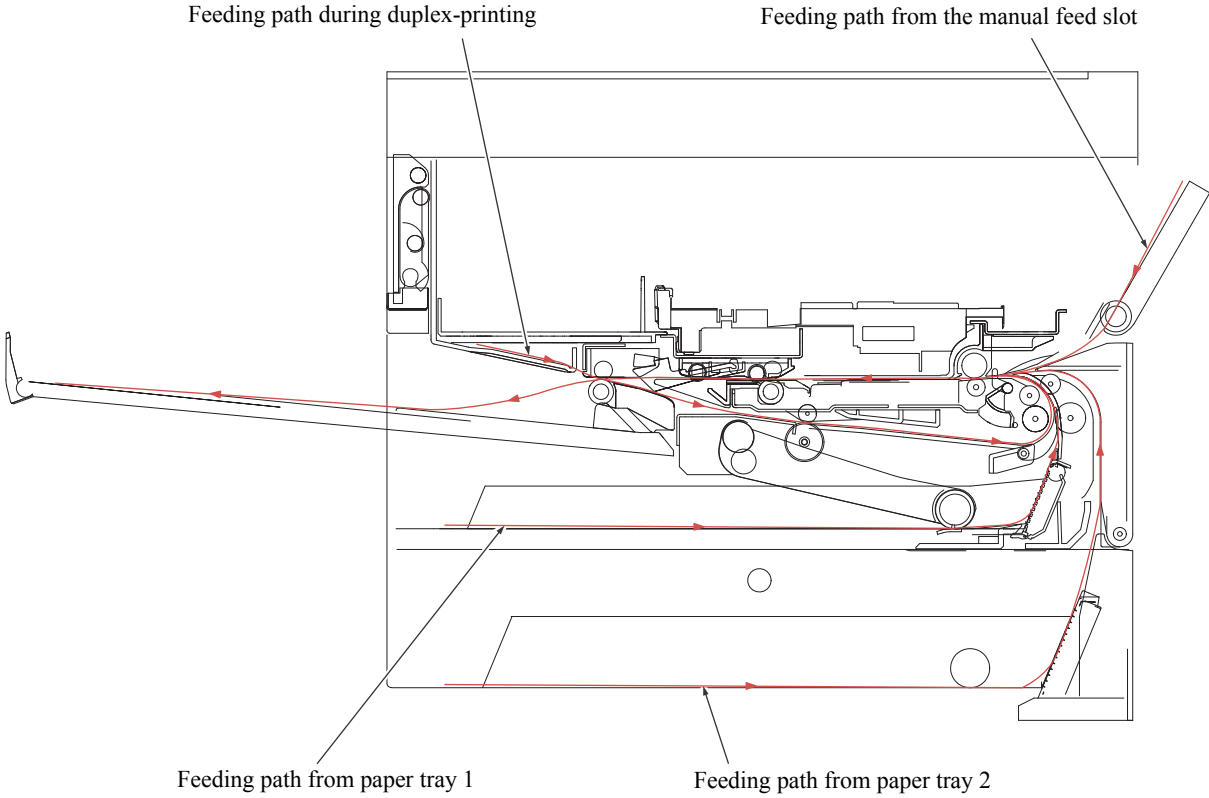


## 2.2 Document Feeding Path/Recording Paper Feeding Path

### 2.2.1 Document Feeding Path



### 2.2.2 Recording Paper Feeding Path



## 2.3 Parts Names and Functions

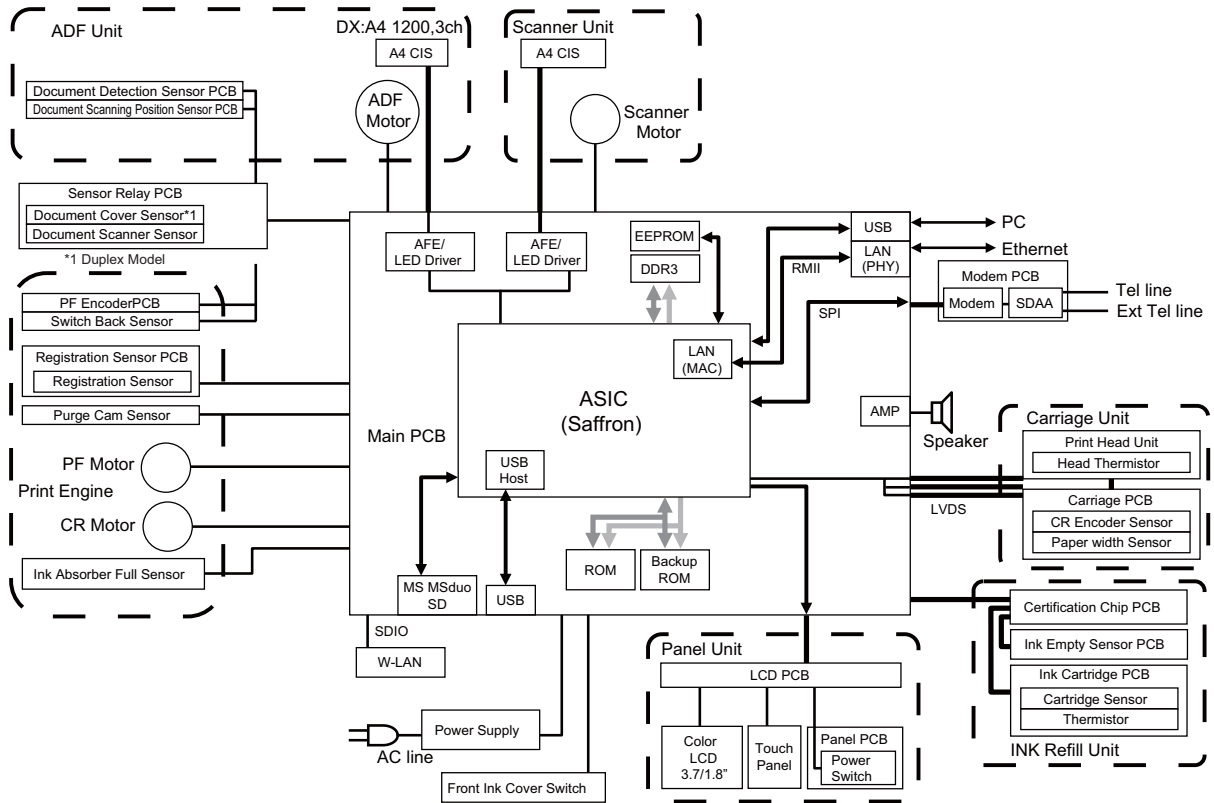
### ■ Document scanning and feeding

Names	Functions
Document detection actuator	This detects whether documents are set on the document tray.
Document pick-up roller	This pulls documents loaded in the document tray into the ADF.
Document separation roller, ADF separation pad	This separates documents sent by the document pick-up roller in single sheet.
Document feed roller 1	This feeds a document to the CIS unit.
Document scanning position actuator	This detects the leading edge of document pages, indicating the scanning start position. This detects paper jamming in the ADF.
Document feed roller 2	This ejects the scanned document to ADF document support.

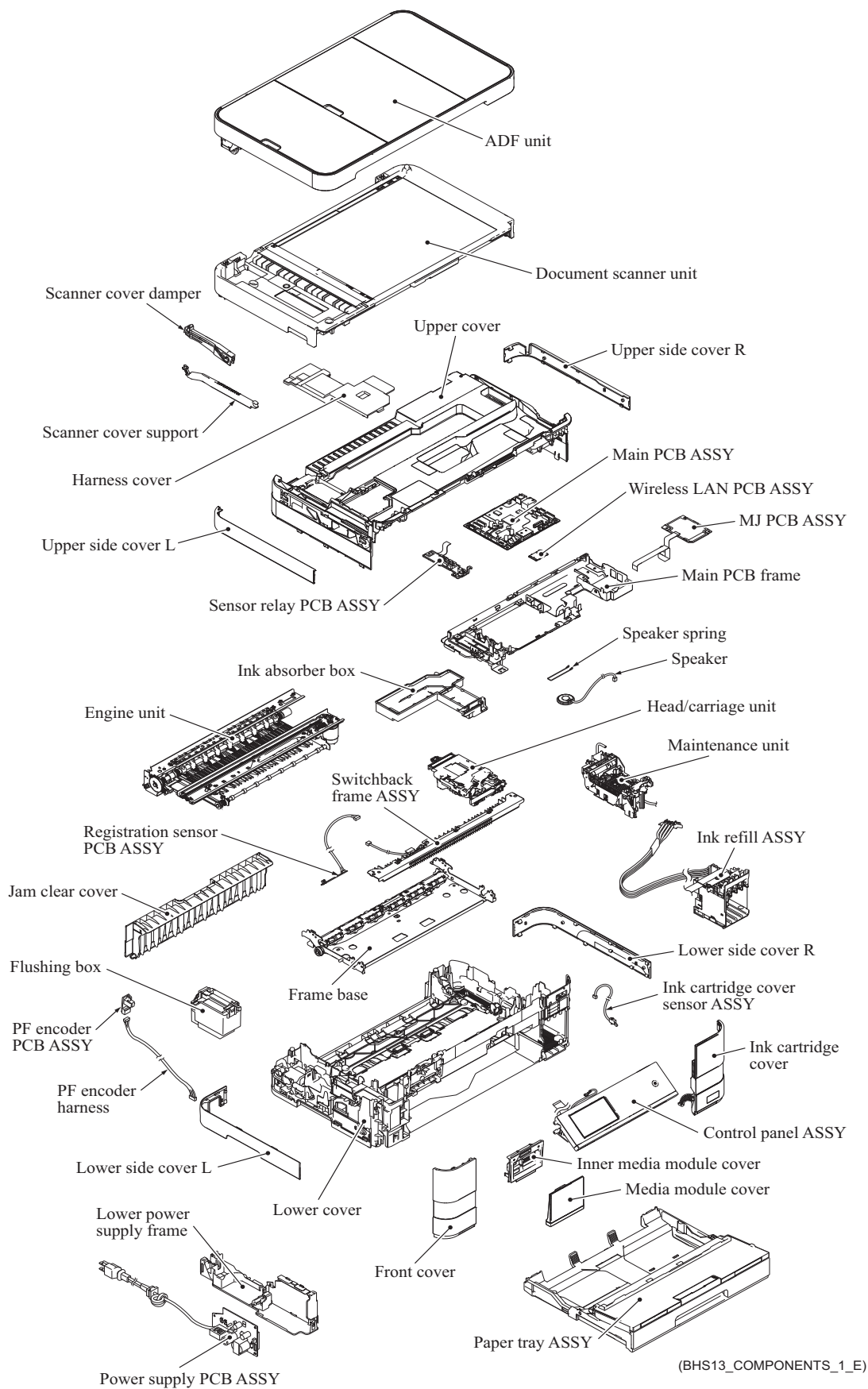
### ■ Printing and paper feeding

Names	Functions
T1 paper pull-in roller	This feeds recording paper from the paper tray 1.
T2 paper pull-in roller	This feeds recording paper from the paper tray 2.
Registration actuator	This detect the leading edge of recording paper, controlling the printing start position. This detect the leading edge/ending edge of recording paper, identifying the recording paper size. This detects paper jamming in the rear.
Paper feed roller	The leading edge of recording page hits the stopped paper feed roller, correcting inclination of the paper. After the correction, the paper feed roller rotates, feeding the paper to printing start position.
Paper ejection roller	This feeds printed recording paper to the switchback roller.
Switchback actuator	This detects whether the printed recording papers are ejected. This detects the ending edge of recording paper after printing the first side when duplex-printing, adjusting timing to reverse the switchback roller rotation. This detect the leading edge/ending edge of recording paper when duplex-printing, identifying the recording paper size. This detects whether the recording papers are fed from the switchback roller to the duplex-printing path. This detects paper jamming in the ejector. Detect if paper tray 1 is set.
Switchback roller	This ejects the recording paper to the ejected paper tray. During duplex-printing, after feeding some of the recording papers printed in the first side to the switchback roller, its rotation is reversed to feed the recording paper to the duplex-printing path.
Duplex paper feed roller	During duplex-printing, this feeds the recording paper that are fed in the duplex paper path to the paper feed roller.

## 2.4 Block Diagram



## 2.5 Components



(BHS13\_COMPONENTS\_1\_E)

### 3 ERROR INDICATION

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

#### 3.1 Error Code

Error Code	Contents	Refer to page:
0D	Paper jam during duplex-printing The recording papers are fed in reverse on the platen when switchback drive is started, triggering switchback sensor as paper feeding condition.	2-21
0E	Defective during duplex-printing Switchback sensor detects paper feed condition at out of specified timing during switchback.	2-21
13	Defective during duplex-printing Registration sensor detects paper feed condition at out of specified timing during switchback.	2-22
15	Paper jam during duplex ejecting Recording paper is not able to be ejected since it is longer than 840 mm when ejecting the paper.	2-22
17	Recording paper size error (duplex-printing/duplex-copying) -Paper width is wider than 301.5 mm (detection by media sensor) -Paper width is narrower than 95.5 mm (detection by media sensor) -Paper length is longer than 245.9 mm (detection by registration, SB sensor) -Paper length is shorter than 143.5 mm (detection by registration, SB sensor)	2-23
18	Paper jam during duplex-printing Registration sensor does not detect paper feed within specified pulse numbers in the second side paper re-feed.	2-24
20	Cannot identify a black ink cartridge. The ink cartridge detection sensor and the ink remaining sensor are detecting.	2-25
21	Cannot identify a yellow ink cartridge. The ink cartridge detection sensor and the ink remaining sensor are detecting.	2-25
22	Cannot identify a cyan ink cartridge. The ink cartridge detection sensor and the ink remaining sensor are detecting.	2-25
23	Cannot identify a magenta ink cartridge. The ink cartridge detection sensor and the ink remaining sensor are detecting.	2-25
24	Ink cartridge side IC chip relation defective - Identification no match - Judging as incompatible cartridge - Detecting setting wrong color	2-26
25	Cannot communicate with ink cartridge IC chip (ink cartridge side.)	2-26

Error Code	Contents	Refer to page:
26	Black ink cartridge reaches service life time. After judging as no ink by the ink remaining sensor, ink discharged for specified times.	2-27
27	Yellow ink cartridge reaches service life time. After judging as no ink by the ink remaining sensor, ink discharged for specified times.	2-27
28	Cyan ink cartridge reaches service life time. After judging as no ink by the ink remaining sensor, ink discharged for specified times.	2-27
29	Magenta ink cartridge reaches service life time. After judging as no ink by the ink remaining sensor, ink discharged for specified times.	2-27
2A	No black ink cartridge loaded. Detected by the ink cartridge detection sensor.	2-28
2B	No yellow ink cartridge loaded. Detected by the ink cartridge detection sensor.	2-28
2C	No cyan ink cartridge loaded. Detected by the ink cartridge detection sensor.	2-28
2D	No magenta ink cartridge loaded. Detected by the ink cartridge detection sensor.	2-28
2E	Cannot communicate with ink cartridge IC chip (machine body side.)	2-29
2F	Ink cartridge cover sensor detects opened cover state.	2-29
30	Carriage does not move. Detected by the CR encoder sensor.	2-30
31	Carriage cannot returned to origin. Detected by the CR encoder sensor.	2-31
32	Head capping is unable.	2-31
35	Abnormal stop of head/carriage unit being driven Causes other than paper jam when ink is not discharging	2-32
38	Abnormal stop of head/carriage unit being driven Cause by paper jam when ink is not discharging	2-32
3B	Abnormal stop of head/carriage unit being driven Causes other than paper jam when ink is discharging	2-33
3C	Abnormal stop of head/carriage unit being driven Cause by paper jam when ink is discharging	2-33
3E	Defective occurs in the carriage motor, paper feed motor.	2-34
3F	Carriage motor cannot stop.	2-35
40	Casing internal thermistor defective Machine internal thermistor detects -20 degree-C or less and 80 degree-C or more when power is on.	2-35



Error Code	Contents	Refer to page:
42	Head voltage does not turn OFF.	2-36
43	Head thermistor defective Head thermistor detects -20 degree-C or less and 80 degree-C or more when power is on.	2-36
44	Head driver IC detects abnormal temperature during operation or stand-by.	2-37
46	Purge count or flushing count overflowed.	2-37
48	Head flat cable detected to be not correctly inserted.	2-37
49	Head voltage does not raise.	2-38
4D	Ink absorber full sensor harness detected to be not correctly inserted.	2-38
4F	Head voltage drops too quick.	2-39
50	The purge cam switch is not switching ON/OFF.	2-39
52	Failed to detect the origin of the purge cam.	2-40
5A	Abnormal stop of purge cam being driven	2-41
5B	Pump of maintenance unit stopped abnormally during exhaustion/suction.	2-41
5D	Excessive current protection activated for the driver IC during purge cam operation.	2-41
5E	Excessive current protection activated for the driver IC during pump operation.	2-41
67	Switchback sensor detects no recording paper tray state.	2-42
75	Head/carriage unit cannot shift to head capping position.	2-43
76	Head/carriage unit cannot shift to head uncapping position.	2-43
7E	Head property information not input.	2-43
80	Recording paper size error (during FAX/list printing) Registration sensor, recording paper width sensor detect unspecified papers.	2-44
81	Recording paper size error (other than FAX/list printing) Registration sensor detects papers smaller than specified size.	2-45
82	Paper jam Recording paper width sensor cannot detect leading edge of recording papers.	2-45
84	Paper jam Registration sensor stays in paper feeding state even after completion of paper ejection action.	2-46
87	Paper jam Switchback sensor stays in paper feeding state even after completion of paper ejection action.	2-46

Error Code	Contents	Refer to page:
88	Paper jam Switchback sensor cannot detect paper feeding state even papers are fed during printing.	2-47
89	Recording paper width sensor cannot detect origin specified on the recording paper feed roller.	2-47
8A	PF encoder sensor cannot detect rotation of the recording paper feed motor.	2-48
8C	Excessive current protection activated for the driver IC during recording paper feed motor operation.	2-49
8F	Paper feed motor cannot stop.	2-49
A1	Document scanner sensor detects that document scanner is open.	2-50
A2	Document scanning position sensor detects length of document 90 cm or more.	2-50
A3	Document detection sensor detects that document is pulled out during document scanning. Or, the document scanning position sensor cannot detect document within specified time.	2-51
A4	ADF cover sensor detects opened cover state.	2-51
A5	Level of first side CIS scan result is detected as abnormal during FAX transmission (first transmission.)	2-52
A6	Level of first side CIS scan result is detected as abnormal during FAX transmission (after re-try.)	2-52
A7	Type of CIS unit and CIS type input value does not match.	2-52
A8	Matching of color parameter fails (for development debugging.)	2-52
AC	Level of second side CIS scan result is detected as abnormal during FAX transmission (first transmission.)	2-53
AF	CIS positioning abnormal (Home position cannot be found)	2-53
BC	Level of second side CIS scan result detected as abnormal during FAX transmission (after re-try.)	2-54
BD	Black level value abnormal at scanning	2-54
BF	Document scanning position sensor detects size that its length does not fit duplex scanning.	2-55
DF	SDAA communication failure	2-55
E0	Modem does not start normally even after resetting the modem.	2-55
E2	Wired LAN MAC address not registered.	2-55
E3	Wireless LAN MAC address not registered.	2-56
E6	Main PCB ASSY EEPROM write error	2-56
EC	LCD disconnection detected.	2-56
ED	Touch panel initialization failed.	2-57
F0	Flash file system error	2-57

Error Code	Contents	Refer to page:
FE	ROM data acquisition error	2-57

## 3.2 Error Messages

Error Message	State	Error Code	Refer to page:
Cannot Detect	Cannot identify a ink cartridge.	20,21,22, 23,24,25	2-25,2-25, 2-26
Cannot detect ink volume	Ink remaining counter in the cartridge IC chip becomes 0.		
Cover is Open.	Detect document scanner open state.	A1	2-50
	Detect ADF cover open state.	A4	2-51
	Detect ink cartridge cover open state.	2F	2-29
Document Jam	Document scanning position sensor detects paper jam inside ADF.	A2,A3	2-50, 2-51
High Temperature	Machine interior thermistor detects that room temperature is too high.	40	2-35
Ink Absorber Full	Purge count or flushing count reach upper threshold.	46	2-37
Ink Absorber Near Full	Purge counter is near upper threshold.		2-37
Ink low	Ink remaining sensor detects near ink replacing timing.	-	
Low Temperature	Room temperature too low.	40	2-35
Media Error	Detect defective in memory card.	-	
No Ink Cartridge	Ink cartridge detection sensor detects no cartridge.	2A,2B,2C, 2D	2-28
No Paper Fed	Registration sensor detects no recording paper in the paper tray 1 or 2. Registration sensor detects that papers are not loaded correctly in the manual feed slot cover ASSY.		
Out of Memory	The memory in the virtual drive becomes full.		
Paper Jam	Registration sensor, switchback sensor detect paper jam. Paper feed motor detects paper jam.	0D,0E, 8A,8C 13,15,18,82, 84,87,88	2-21,2-22, 2-24,2-45, 2-46,2-47, 2-48,2-49
Paper tray not detected	Switchback sensor detects no recording paper tray 1.	67	2-42
Printer Locked.	Printing function locked by Secure Function Lock, etc.	-	

Error Message	State	Error Code	Refer to page:
Replace Ink	After judging getting close to ink replacing timing by the ink remaining sensor, ink discharged for specified times.	26,27,28,29	2-27, 2-27
Unable to Print	Detects some problem in printing.		
Unable to Scan	Detects some problem in scanning.		
Wrong Ink Color	A ink cartridge is set in position not matching its specified color.	24	2-26
Install Starter Ink	The ink cartridge which does not contain required ink volume for the initial installation has been set at the initial installation.	24	2-26
Wrong Paper Size	Registration sensor, recording paper width sensor detect unspecified papers.	17,80,81	2-23, 2-44, 2-45

### 3.3 Communications Error

Code 1	Code 2	Cause	Refer to page:
10	07	No paper when document transmission is called	Section 4.9.3 "A communications error occurs"
10	08	Wrong fax number sent	
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 calling station in sending	
11	10	Unobtainable tone detected after dialing	
11	11	No response after sending Fax2 net command	
13	12	NG response signal is received after sending Fax2 net command	
16	09	Cipher key not registered	
17	07	No response from the calling station in receiving	
20	01	Unable to detect a flag field	
20	02	Carrier termination lasts for 200 msec	
20	03	Termination command (consecutive "1" of 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	
20	0D	While command send bit of FIF in ON, no corresponding command is received	
20	0E	EORCommand received	

Code 1	Code 2	Cause	Refer to page:
32	01	Remote terminal only with V.29 capability in 2,400 or 4,800 bps transmission.	Section 4.9.3 "A communications error occurs"
32	02	Remote terminal not ready for polling.	
32	10	Remote terminal not equipped with password function, or password function switch is 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 function.	
32	13	No confidential mail in the remote terminal.	
32	14	The available memory space of the remote terminal is less than that required for reception of the confidential or relay broadcasting instruction.	
32	15	Remote terminal not equipped with cipher receiving function.	
32	16	Remote terminal not equipped with SEP function.	
32	17	Remote terminal not equipped with SUB function.	
32	18	Remote terminal not equipped with color function.	
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	11	Group number not registered in relay broad-casting commanded, or commanded total broad-casting number exceeds maximum broadcast enabled number.	
40	12	Retrieval while not in retrieval stand-by.	
40	13	Received polling from other maker products during confidential polling stand-by.	
40	14	No common key registration when using common key.	
40	15	Red-black receiving requested while red-black receiving is disabled.	
40	16	Cipher communication requested while cipher receiving is disabled.	
40	17	Invalid resolution selected.	
40	20	Invalid full-color mode requested.	

Code 1	Code 2	Cause	Refer to page:
50	01	Vertical resolution capability changed after compensation of background color.	Section 4.9.3 "A communications error occurs"
63	01	Password plus "lower 4 digits of telephone number" not coincident.	
63	02	Password not coincident.	
63	03	Polling ID not coincident.	
63	04	Commanded confidential ID and MailBox ID not coincident.	
63	05	Relay broad-casting ID not coincident.	
63	06	Commanded Retrieval ID and MailBox Retrieval ID not coincident.	
74	XX	DCN received.	
80	01	Fallback impossible.	
90	01	Unable to detect video signals or commands within 6 seconds after CFR is transmitted.	
90	02	Received PPS containing invalid page count or block count.	
A0	03	Error correction sequence not terminated even at the final transmission speed for fallback.	
A0	11	Receiving buffer empty (5 seconds time-out.)	
A0	12	Receive buffer full during operation except receiving into memory.	
A0	13	Decoding error continued on 500 lines or more.	
A0	14	Decoding error continued for 15 seconds or more.	
A0	15	Timeout: 13 seconds or more for one-line transmission.	
A0	16	RTC not detected and carrier off detected for 6 seconds.	
A0	17	RTC detected but command not detected for 60 seconds or more.	
A0	19	No image data to be sent.	
A0	20	Continue ColorFAX receiving impossible (ink remaining low.)	
A8	01	Receive RTN or PIN or ERR (sending side.)	
A9	01	Send RTN or PIN or ERR (receiving side.)	
AA	18	Receive buffer full during receiving into memory.	
B0	01	Detect polarity reversion.	
B0	02	Unable to receive the next-page data.	



Code 1	Code 2	Cause	Refer to page:
B0	03	Unable to receive polling even during turn-around transmission due to call reservation.	Section 4.9.3 "A communications error occurs"
B0	04	PC interface error	
BF	01	Communication cancelled by depressing stop key before confirming FAX communication.	
BF	02	Communication cancelled by depressing stop key after confirming FAX communication.	
C0	01	No common modulation mode or polling failed.	
C0	02	Unable to detect JM.	
C0	03	Unable to detect CM.	
C0	04	Unable to detect CJ.	
C0	10	V. 34 negotiation or training not finished.	
C0	11	Modem error detected during V. 34 negotiation or training.	
C0	20	Modem error detected during sending of commands.	
C0	21	Modem error detected during receiving of commands.	
C0	22	Control channel connection time-out.	
C0	30	Modem error detected during sending of image signals.	
C0	31	Modem error detected during receiving of image signals.	
E0	01	Failed to detect 1,300 Hz signal in burn-in operation.	
E0	02	Failed to detect PB signals in burn-in operation.	
E0	03	Command not detected from RS232C in burn-in.	

## 4 TROUBLESHOOTING

### 4.1 Error Cause and Solutions

#### ■ Error Code 0D

<b>Paper Jam</b>	LCD
------------------	-----

Paper jam during duplex-printing

The recording papers are fed in reverse on the platen when switchback drive is started, triggering switchback sensor as paper feeding condition.

#### User Check

- Remove the jammed paper.
- Check whether the recording paper being used is within the specification.
- Check that recording paper are not curled, wrinkled or wet.
- Check that recording paper is loaded correctly in the paper tray.

Step	Cause	Solution
1	Foreign materials in the duplex print paper path	Remove foreign materials.
2	Outer paper guide not mounted in place	Set the outer paper guide into place.
3	Switchback actuator caught on the surrounding parts	Set the switchback frame ASSY into place.
4	Sensor relay PCB defective	Replace the sensor relay PCB ASSY.
5	Main PCB defective	Replace the main PCB ASSY.

#### ■ Error Code 0E

<b>Paper Jam</b>	LCD
------------------	-----

Defective during duplex-printing

Switchback sensor detects paper feed condition at out of specified timing during switchback.

#### User Check

- Check whether the recording paper being used is within the specification.

Step	Cause	Solution
1	Switchback actuator caught on the surrounding parts	Set the switchback frame ASSY into place.
2	Registration actuator caught on the surrounding parts	Set the registration actuator into place.
3	Registration sensor defective	Replace the registration sensor PCB ASSY.
4	Sensor relay PCB defective	Replace the sensor relay PCB ASSY.
5	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 13**

<b>Paper Jam</b>	LCD
------------------	-----

Defective during duplex-printing

Registration sensor detects paper feed condition at out of specified timing during switchback.

**User Check**

- Check whether the recording paper being used is within the specification.

Step	Cause	Solution
1	Registration actuator caught on the surrounding parts	Set the registration actuator into place.
2	Registration sensor defective	Replace the registration sensor PCB ASSY.
3	Switchback actuator caught on the surrounding parts	Set the switchback frame ASSY into place.
4	Sensor relay PCB defective	Replace the sensor relay PCB ASSY.
5	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 15**

<b>Paper Jam</b>	LCD
------------------	-----

Eject jam during printing

Recording paper is not able to be ejected since it is longer than 840 mm when ejecting the paper after occurrence of the error 17.

**User Check**

- Remove the jammed paper.
- Check whether the recording paper being used is within the specification.

Step	Cause	Solution
1	Foreign materials in the recording paper path	Remove foreign materials.
2	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 17**

<b>Wrong Paper Size / Wrong Paper</b>	LCD
---------------------------------------	-----

Recording paper size error (duplex-printing/duplex-copying)

- Paper width is wider than 301.5 mm (detection by media sensor.)
- Paper width is narrower than 95.5 mm (detection by media sensor.)
- Paper length is longer than 245.9 mm (detection by registration, switchback sensor.)
- Paper length is shorter than 143.5 mm (detection by registration, switchback sensor.)

**User Check**

- Check whether the recording paper being used is within the specification.
- Check that dark recording paper is not used.

Step	Cause	Solution
1	CR encoder strip stained	Clean the CR encoder strip.
2	Registration actuator caught on the surrounding parts	Set the registration actuator into place.
3	PF encoder disk stained	Clean the PF encoder disk and flushing guide (refer to <a href="#">Chapter 3, Section 1.</a> )
4	CR encoder strip defective	Replace the CR encoder strip.
5	PF encoder disk defective	Replace the PF encoder disk.
6	Registration sensor defective	Replace the registration sensor PCB ASSY.
7	Switchback actuator caught on the surrounding parts	Set the switchback frame ASSY into place.
8	Paper width sensor defective	Replace the carriage PCB ASSY.
9	Paper feed motor defective	Replace the paper feed motor.
10	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 18**

<b>Paper Jam</b>	LCD
------------------	-----

Paper jam during duplex-printing

Registration sensor does not detect paper feed within specified pulse numbers in the second side paper re-feed  
(recording paper was pulled out, or very likely to have been pulled out.)

**User Check**

- Remove the jammed paper.
- Check whether the recording paper being used is within the specification.
- Check that recording paper are not curled, wrinkled or wet.

Step	Cause	Solution
1	Foreign materials in the duplex print paper path	Remove foreign materials.
2	Registration actuator caught on the surrounding parts	Set the registration actuator into place.
3	Registration sensor defective	Replace the registration sensor PCB ASSY.
4	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 20**

<b>Cannot Detect</b>	LCD
----------------------	-----

Cannot identify a black ink cartridge.  
The ink cartridge detection sensor and the ink remaining sensor are detecting.

**Error Code 21**

<b>Cannot Detect</b>	LCD
----------------------	-----

Cannot identify a yellow ink cartridge.  
The ink cartridge detection sensor and the ink remaining sensor are detecting.

**Error Code 22**

<b>Cannot Detect</b>	LCD
----------------------	-----

Cannot identify a cyan ink cartridge.  
The ink cartridge detection sensor and the ink remaining sensor are detecting.

**Error Code 23**

<b>Cannot Detect</b>	LCD
----------------------	-----

Cannot identify a magenta ink cartridge.  
The ink cartridge detection sensor and the ink remaining sensor are detecting.

**User Check**

- Check if incompatible ink cartridge is loaded.
- Reload the ink cartridge.
- Replace the ink cartridge.
- Check if ink cartridge has been already set before instruction for ink cartridge setting during initial installation.

Step	Cause	Solution
1	Each ink cartridge sensor defective	Replace the ink refill ASSY.
2	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 24**

<b>Cannot Detect / Wrong Color Ink</b>	LCD
--	-----

Ink cartridge side IC chip relation defective  
 -Identification no match/judge as incompatible cartridge/detecting setting wrong color

<b>Install Starter Ink</b>	LCD
----------------------------	-----

The Ink cartridge which does not contain required ink volume for the initial installation has been set at the initial installation.

**User Check**

- Check if incompatible ink cartridge is loaded.
- Reload the ink cartridge.
- Replace the ink cartridge.
- Set ink cartridge at position for correct color.
- Set the starter ink cartridge.

Step	Cause	Solution
1	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 25**

<b>Cannot Detect</b>	LCD
----------------------	-----

Cannot communicate with ink cartridge IC chip (ink cartridge side.)

**User Check**

- Check if incompatible ink cartridge is loaded.
- Reload the ink cartridge.
- Replace the ink cartridge.

Step	Cause	Solution
1	Ink cartridge flat cable connection failure	Reconnect the ink cartridge flat cable.
2	Ink cartridge IC chip PCB defective	Replace the ink refill ASSY.
3	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 26**

<b>Cannot Print / Replace Ink</b>	LCD
-----------------------------------	-----

Black ink cartridge reaches service life time.  
After judging as no ink by the ink remaining sensor, ink discharged for specified times.

**Error Code 27**

<b>Cannot Print / Replace Ink</b>	LCD
-----------------------------------	-----

Yellow ink cartridge reaches service life time.  
After judging as no ink by the ink remaining sensor, ink discharged for specified times.

**Error Code 28**

<b>Cannot Print / Replace Ink</b>	LCD
-----------------------------------	-----

Cyan ink cartridge reaches service life time.  
After judging as no ink by the ink remaining sensor, ink discharged for specified times.

**Error Code 29**

<b>Cannot Print / Replace Ink</b>	LCD
-----------------------------------	-----

Magenta ink cartridge reaches service life time.  
After judging as no ink by the ink remaining sensor, ink discharged for specified times.

**User Check**

- Replace the ink cartridge.

Step	Cause	Solution
1	Ink remaining sensor defective	Replace the ink refill ASSY.
2	Main PCB defective	Replace the main PCB ASSY.



■ **Error Code 2A**

<b>Cannot Print / No Ink Cartridge</b>	LCD
--	-----

No black ink cartridge loaded, detected by the ink cartridge detection sensor.

**Error Code 2B**

<b>Cannot Print / No Ink Cartridge</b>	LCD
--	-----

No yellow ink cartridge loaded, detected by the ink cartridge detection sensor.

**Error Code 2C**

<b>Cannot Print / No Ink Cartridge</b>	LCD
--	-----

No cyan ink cartridge loaded, detected by the ink cartridge detection sensor.

**Error Code 2D**

<b>Cannot Print / No Ink Cartridge</b>	LCD
--	-----

No magenta ink cartridge loaded, detected by the ink cartridge detection sensor.

**User Check**

- Check if incompatible ink cartridge is loaded.
- Reload the ink cartridge.
- Replace the ink cartridge.

Step	Cause	Solution
1	Ink cartridge detection sensor defective	Replace the ink refill ASSY.
2	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 2E**

<b>MACHINE ERROR 2E</b>	LCD
-------------------------	-----

Cannot communicate with ink cartridge IC chip (machine body side.)

Step	Cause	Solution
1	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 2F**

<b>Cover is Open / Close Ink Cover</b>	LCD
--	-----

Ink cartridge cover sensor detects opened cover state.

**User Check**

- Close the ink cartridge cover.

Step	Cause	Solution
1	Ink cartridge cover sensor harness connection failure	Reconnect the ink cartridge cover sensor harness.
2	Ink cartridge cover defective	Replace the ink cartridge cover.
3	Ink cartridge cover sensor defective	Replace the ink cartridge cover sensor ASSY.
4	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 30**

<b>Unable to Print 30</b>	LCD
---------------------------	-----

Carriage does not move. Detected by the CR encoder sensor.

**User Check**

- Remove the jammed paper in platen part.

Step	Cause	Solution
1	Foreign materials in the engine unit	Remove foreign materials.
2	CR encoder strip out of place	Set the CR encoder strip into place.
3	CR timing belt out of place	Set the CR timing belt into place.
4	Head cover out of place	Set the Head cover into place.
5	Carriage motor harness connection failure	Reconnect the carriage motor harness.
6	Carriage flat cable connection failure	Reconnect the Carriage flat cable.
7	CR encoder strip stained	Clean the CR encoder strip.
8	CR encoder strip defective	Replace the CR encoder strip.
9	CR encoder sensor defective	Replace the carriage PCB ASSY.
10	Carriage motor defective	Replace the carriage motor ASSY.
11	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 31**

<b>Paper Jam</b>	LCD
------------------	-----

Carriage cannot return to origin. Detected by the CR encoder sensor.

**User Check**

- Remove the jammed paper in platen part.

Step	Cause	Solution
1	Foreign materials around the maintenance unit	Remove foreign materials.
2	Foreign materials around the flushing box	Remove foreign materials.
3	Switching lever guide out of place	Set the switching lever guide into place.
4	CR encoder strip stained	Clean the CR encoder strip.
5	Flushing box not mounted in place	Set the flushing box into place.
6	Carriage rail not mounted in place	Set the carriage rail into place.
7	Platen not mounted in place	Set the platen into place.
8	Maintenance unit not mounted in place	Set the maintenance unit into place.
9	CR encoder sensor defective	Replace the carriage PCB ASSY.
10	Switching lever guide defective	Replace the maintenance unit.
11	Maintenance unit defective	Replace the maintenance unit.
12	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 32**

<b>Unable to Print 32</b>	LCD
---------------------------	-----

Head capping load is unable.

**User Check**

- Remove the jammed paper in platen part.

Step	Cause	Solution
1	Foreign materials around the maintenance unit	Remove foreign materials.
2	Switching lever guide out of place	Set the switching lever guide into place.
3	Switching lever guide defective	Replace the maintenance unit.
4	Maintenance unit defective	Replace the maintenance unit.
5	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 35**

<b>Unable to Print 35</b>	LCD
---------------------------	-----

Abnormal stop of head/carriage unit. Causes due to recording paper jam when ink is not discharging.

**User Check**

- Remove the jammed paper in platen part.

Step	Cause	Solution
1	Foreign materials in the engine unit	Remove foreign materials.
2	CR encoder strip stained	Clean the CR encoder strip.
3	Switching lever guide out of place	Set the switching lever guide into place.
4	CR encoder strip defective	Replace the CR encoder strip.
5	CR encoder sensor defective	Replace the carriage PCB ASSY.
6	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 38**

<b>Unable to Print 38</b>	LCD
---------------------------	-----

Abnormal stop of head/carriage unit, Causes due to recording paper jam when ink is not discharging.

**User Check**

- Remove the jammed paper in platen part.

Step	Cause	Solution
1	Foreign materials in the engine unit	Remove foreign materials.
2	CR encoder strip stained	Clean the CR encoder strip.
3	CR encoder strip defective	Replace the CR encoder strip.
4	CR encoder sensor defective	Replace the carriage PCB ASSY.
5	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 3B**

<b>Paper Jam</b>	LCD
------------------	-----

Abnormal stop of head/carriage unit, Causes other than recording paper jam when ink is discharging.

**User Check**

- Remove the jammed paper in platen part.

Step	Cause	Solution
1	Foreign materials in the engine unit	Remove foreign materials.
2	CR encoder strip stained	Clean the CR encoder strip.
3	Switching lever guide out of place	Set the switching lever guide into place.
4	CR encoder strip defective	Replace the CR encoder strip.
5	CR encoder sensor defective	Replace the carriage PCB ASSY.
6	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 3C**

<b>Paper Jam</b>	LCD
------------------	-----

Abnormal stop of head/carriage unit, Causes due to recording paper jam when ink is discharging.

**User Check**

- Remove the jammed paper in platen part.

Step	Cause	Solution
1	Foreign materials in the engine unit	Remove foreign materials.
2	CR encoder strip stained	Clean the CR encoder strip.
3	CR encoder strip defective	Replace the CR encoder strip.
4	CR encoder sensor defective	Replace the carriage PCB ASSY.
5	Main PCB defective	Replace the main PCB ASSY.

■ Error Code 3E

<b>Unable to Print 3E</b>	LCD
---------------------------	-----

Defective occurs in the carriage motor, paper feed motor.

Step	Cause	Solution
1	Foreign materials in the recording paper path	Remove foreign materials.
2	Foreign materials in the maintenance unit	Remove foreign materials.
3	Foreign materials around recording paper feed roller belt	Remove foreign materials.
4	Foreign materials around recording paper eject roller belt	Remove foreign materials.
5	Foreign materials in the engine unit	Remove foreign materials.
6	Maintenance unit not mounted in place	Set the maintenance unit into place.
7	Flushing box not mounted in place	Set the flushing box into place.
8	Carriage rail not mounted in place	Set the carriage rail into place.
9	Platen not mounted in place	Set the platen into place.
10	PF encoder sensor defective	Replace the PF encoder sensor.
11	CR encoder sensor defective	Replace the carriage PCB ASSY.
12	Carriage motor defective	Replace the carriage motor ASSY.
13	Paper feed motor defective	Replace the paper feed motor.
14	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 3F**

<b>Unable to Print 3F</b>	LCD
---------------------------	-----

Carriage motor cannot stop.

Step	Cause	Solution
1	Carriage motor harness connection failure	Reconnect the carriage motor harness.
2	CR encoder strip stained	Clean the CR encoder strip.
3	CR encoder strip defective	Replace the CR encoder strip.
4	CR encoder sensor defective	Replace the carriage PCB ASSY.
5	Carriage motor defective	Replace the carriage motor ASSY.
6	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 40**

<b>Unable to Init. 40</b>	LCD
---------------------------	-----

Casing internal thermistor defective

Machine internal thermistor detects -20 degree-C or less and 80 degree-C or more when power is on.

Step	Cause	Solution
1	Machine internal thermistor defective	Replace the ink refill ASSY.
2	Main PCB defective	Replace the main PCB ASSY.



■ **Error Code 42**

<b>Unable to Print 42</b>	LCD
---------------------------	-----

Head voltage does not turn OFF.

**User Check**

- They may occur due to lower surrounding temperature. Use in warmer surrounding temperature.

Step	Cause	Solution
1	Head flat cable connection failure	Reconnect the head flat cable.
2	Carriage flat cable connection failure	Reconnect the Carriage flat cable.
3	Carriage PCB defective	Replace the carriage PCB ASSY.
4	Head defective	Replace the head/carriage unit.
5	Power supply PCB defective	Replace the power supply PCB.
6	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 43**

<b>Unable to Print 43</b>	LCD
---------------------------	-----

Head thermistor defective

Head thermistor detects -20 degree-C or less and 80 degree-C or more when power is on.

Step	Cause	Solution
1	Carriage flat cable connection failure	Reconnect the Carriage flat cable.
2	Head thermistor defective	Replace the head/carriage unit.
3	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 44**

<b>Unable to Print 44</b>	LCD
---------------------------	-----

Head driver IC detects abnormal temperature during operation or stand-by.

Step	Cause	Solution
1	Carriage flat cable connection failure	Reconnect the Carriage flat cable.
2	Head property information not input	Input the head property information (refer to Chapter 5, Section 1.3.25.)
3	Head thermistor defective	Replace the head/carriage unit.
4	Head defective	Replace the head/carriage unit.
5	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 46**

<b>Unable to Print 46 / Ink Absorber Full</b>	LCD
---	-----

Purge count or flushing count overflown.

Step	Cause	Solution
1	Ink absorber box or flushing box full.	Replace ink absorber box or flushing box, resetting purge counter or flushing counter.
2	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 48**

<b>Unable to Init. 48</b>	LCD
---------------------------	-----

Head flat cable detected to be not correctly inserted.

Step	Cause	Solution
1	Head flat cable connection failure	Reconnect the head flat cable.
2	Carriage flat cable connection failure	Reconnect the Carriage flat cable.
3	Carriage PCB defective	Replace the carriage PCB ASSY.
4	Head defective	Replace the head/carriage unit.
5	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 49**

<b>Unable to Print 49</b>	LCD
---------------------------	-----

Head voltage does not raise.

**User Check**

- They may occur due to lower surrounding temperature. Use in warmer surrounding temperature.

Step	Cause	Solution
1	Head flat cable connection failure	Reconnect the head flat cable.
2	Carriage flat cable connection failure	Reconnect the Carriage flat cable.
3	Carriage PCB defective	Replace the carriage PCB ASSY.
4	Head defective	Replace the head/carriage unit.
5	Power supply PCB defective	Replace the power supply PCB ASSY.
6	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 4D**

<b>MACHINE ERROR 4D</b>	LCD
-------------------------	-----

Ink absorber full sensor harness detected to be not correctly inserted.

Step	Cause	Solution
1	Ink absorber full sensor harness connection failure	Reconnect the ink absorber full sensor harness.
2	Ink absorber full sensor defective	Replace ink absorber box.
3	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 4F**

<b>Unable to Print 4F</b>	LCD
---------------------------	-----

Head voltage drops too quick.

**User Check**

- They may occur due to lower surrounding temperature. Use in warmer surrounding temperature.

Step	Cause	Solution
1	Head flat cable connection failure	Reconnect the head flat cable.
2	Carriage flat cable connection failure	Reconnect the Carriage flat cable.
3	Carriage PCB defective	Replace the carriage PCB ASSY.
4	Head defective	Replace the head/carriage unit.
5	Power supply PCB defective	Replace the power supply PCB ASSY.
6	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 50**

<b>Unable to Print 50</b>	LCD
---------------------------	-----

The purge cam switch is not switching ON/OFF.

Step	Cause	Solution
1	Foreign materials in the maintenance unit	Remove foreign materials.
2	Purge cam switch harness connection failure	Reconnect the purge cam switch harness.
3	Paper feed motor defective	Replace the paper feed motor.
4	PF encoder sensor defective	Replace the PF encoder PCB ASSY.
5	Maintenance unit defective	Replace the maintenance unit.
6	Main PCB defective	Replace the main PCB ASSY.

■ Error Code 52

<b>Unable to Print 52</b>	LCD
---------------------------	-----

Failed to detect the origin of the purge cam.

Step	Cause	Solution
1	Foreign materials in the maintenance unit	Remove foreign materials.
2	Purge cam switch harness connection failure	Reconnect the purge cam switch harness.
3	Paper feed motor defective	Replace the paper feed motor.
4	PF encoder sensor defective	Replace the PF encoder PCB ASSY.
5	Maintenance unit defective	Replace the maintenance unit.
6	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 5A**

<b>Unable to Print 5A</b>	LCD
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Abnormal stop of purge cam being driven.

**Error Code 5B**

<b>Unable to Print 5B</b>	LCD
---------------------------	-----

Pump of maintenance unit stopped abnormally during exhaustion/suction.

**Error Code 5D**

<b>Unable to Print 5D</b>	LCD
---------------------------	-----

Excessive current protection activated for the driver IC during purge cam operation.

**Error Code 5E**

<b>Unable to Print 5E</b>	LCD
---------------------------	-----

Excessive current protection activated for the driver IC during pump operation.

Step	Cause	Solution
1	Foreign materials in the maintenance unit	Remove foreign materials.
2	PF encoder disk stained	Clean the PF encoder disk and flushing guide (refer to <a href="#">Chapter 3, Section 1.</a> )
3	PF encoder disk defective	Replace the PF encoder disk.
4	PF encoder sensor defective	Replace the PF encoder PCB ASSY.
5	Ink supply tubes bent	Replace the ink refill ASSY.
6	Paper feed motor defective	Replace the paper feed motor.
7	Maintenance unit defective	Replace the maintenance unit.
8	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 67**

<b>Tray is Open / Paper tray not detected</b>	LCD
---	-----

Switchback sensor detects no recording paper tray 1 state.

**User Check**

- Set recording paper tray1.

Step	Cause	Solution
1	Switchback actuator caught on the surrounding parts	Set the switchback actuator into place.
2	Switchback paper sensor harness connection failure	Reconnect the switchback paper sensor harness.
3	Sensor relay PCB harness connection failure	Reconnect the sensor relay PCB harness.
4	Outer paper guide wear/defective	Replace the outer paper guide.
5	Sensor relay PCB defective	Replace the sensor relay PCB ASSY.
6	Recording paper tray 1 defective	Replace the recording paper tray 1.
7	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 75**

<b>Unable to Print 75</b>	LCD
---------------------------	-----

Head/carriage unit cannot shift to head capping position.

**Error Code 76**

<b>Unable to Print 76</b>	LCD
---------------------------	-----

Head/carriage unit cannot shift to head uncapping position.

Step	Cause	Solution
1	CR encoder strip out of place	Set the CR encoder strip into place.
2	Foreign materials in the maintenance unit	Remove foreign materials.
3	Foreign materials in the engine unit	Remove foreign materials.
4	Switching lever guide defective	Replace the maintenance unit.
5	Carriage motor defective	Replace the carriage motor ASSY.
6	Maintenance unit defective	Replace the maintenance unit.
7	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 7E**

<b>MACHINE ERROR 7E</b>	LCD
-------------------------	-----

Head property information not input.

Step	Cause	Solution
1	Head property information not input	Input the head property information (refer to <a href="#">Chapter 5, Section 1.3.25.</a> )
2	Main PCB defective	Replace the main PCB ASSY.



■ **Error Code 80**

<b>Wrong Paper Size / Wrong Paper</b>	LCD
---------------------------------------	-----

Recording paper size error (during FAX/list printing)

Registration sensor, recording paper width sensor detect unspecified papers.

**User Check**

- Check whether the recording paper being used is within the specification.
- Check that dark recording paper is not used.
- Clean the platen.

Step	Cause	Solution
1	Registration actuator caught on the surrounding parts	Set the registration actuator into place.
2	CR encoder strip stained	Clean the CR encoder strip.
3	PF encoder disk stained	Clean the PF encoder disk and flushing guide (refer to <a href="#">Chapter 3, Section 1.</a> )
4	CR encoder strip defective	Replace the CR encoder strip.
5	PF encoder disk defective	Replace the PF encoder disk.
6	Paper width sensor defective	Replace the carriage PCB ASSY.
7	PF encoder sensor defective	Replace the PF encoder PCB ASSY.
8	Registration sensor defective	Replace the registration sensor PCB ASSY.
9	Carriage motor defective	Replace the carriage motor ASSY.
10	Paper feed motor defective	Replace the paper feed motor.
11	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 81**

<b>Wrong Paper Size / Wrong Paper</b>	LCD
---------------------------------------	-----

Recording paper size error (other than FAX/list printing)  
Recording paper width sensor detects papers smaller than specified size.

**User Check**

- Check whether the recording paper being used is within the specification.
- Check that recording paper is loaded in correct direction in the paper tray.
- Check that dark recording paper is not used.
- Clean the platen.

Step	Cause	Solution
1	CR encoder strip stained	Clean the CR encoder strip.
2	CR encoder strip defective	Replace the CR encoder strip.
3	Paper width sensor defective	Replace the carriage PCB ASSY.
4	Carriage motor defective	Replace the carriage motor ASSY.
5	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 82**

<b>Paper Jam</b>	LCD
------------------	-----

Recording paper jam, recording paper width sensor cannot detect leading edge of recording papers.

**User Check**

- Check whether the recording paper being used is within the specification.
- Check that dark recording paper is not used.
- Clean the platen.
- Remove the jammed paper in jam clear cover part.

Step	Cause	Solution
1	Foreign materials in the feeding path	Remove foreign materials.
2	Paper feeding path parts out of place	Set the paper feeding path parts into place.
3	Paper feed roller stained	Clean the paper feed roller.
4	Paper width sensor defective	Replace the carriage PCB ASSY.
5	Paper feed roller defective	Replace the paper feed roller.
6	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 84**

<b>Paper Jam</b>	LCD
------------------	-----

Recording paper jam, registration sensor stays in paper feeding state even after completion of paper ejection action.

**User Check**

- Remove the jammed paper in platen part.

Step	Cause	Solution
1	Foreign materials in the feeding path	Remove foreign materials.
2	Registration actuator caught on the surrounding parts	Set the registration actuator into place.
3	Switchback actuator caught on the surrounding parts	Set the switchback frame ASSY into place.
4	Recording paper feed roller, recording paper eject roller, switchback roller stained	Clean the related rollers.
5	Recording paper feed roller, recording paper eject roller, switchback roller defective	Replace related rollers.
6	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 87**

<b>Paper Jam</b>	LCD
------------------	-----

Recording paper jam, switchback sensor stays in paper feeding state even after completion of paper ejection action.

**User Check**

- Remove the jammed paper in front part.
- The paper tray is not set correctly.

Step	Cause	Solution
1	Foreign materials in the feeding path	Remove foreign materials.
2	Switchback actuator caught on the surrounding parts	Set the switchback frame ASSY into place.
3	Switchback outer paper guide not mounted in place	Set the switchback outer paper guide into place.
4	Recording paper ejection roller, switchback roller stained	Clean the related rollers.
5	Paper ejection roller, switchback roller defective	Replace related rollers.
6	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 88**

<b>Paper Jam</b>	LCD
------------------	-----

Recording paper jam, switchback sensor cannot detect paper feeding state even papers are fed during printing.

**User Check**

- Remove the jammed paper in platen part and front part.

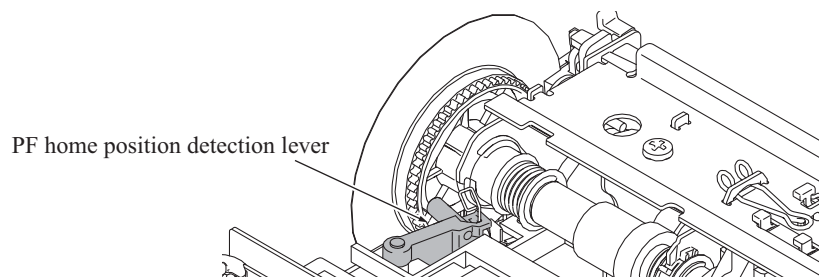
Step	Cause	Solution
1	Foreign materials in the feeding path	Remove foreign materials.
2	Switchback actuator out of place	Set the switchback frame ASSY into place.
3	Switchback paper sensor harness connection failure	Reconnect the switchback paper sensor harness.
4	Sensor relay PCB harness connection failure	Reconnect the sensor relay PCB harness.
5	Paper feed roller, paper ejection roller stained	Clean the related rollers.
6	Paper feed roller, paper ejection roller defective	Replace related rollers.
7	Sensor relay PCB defective	Replace the sensor relay PCB ASSY.
8	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 89**

<b>Unable to Print 89</b>	LCD
---------------------------	-----

Recording paper width sensor cannot detect origin specified on the recording paper feed roller.

Step	Cause	Solution
1	PF encoder disk stained	Clean the PF encoder disk and flushing guide (refer to <a href="#">Chapter 3, Section 1.</a> )
2	PF home position detection lever out of place	Set the PF home position detection lever into place.
3	Paper width sensor or carriage PCB defective	Replace the carriage PCB ASSY.
4	Main PCB defective	Replace the main PCB ASSY.



■ **Error Code 8A**

<b>PRINTER JAM</b>	LCD
--------------------	-----

PF encoder sensor cannot detect rotation of the recording paper feed motor.

**User Check**

- Remove the jammed paper in jam clear cover part, platen part and front part.

Step	Cause	Solution
1	Foreign materials in the feeding path	Remove foreign materials.
2	Paper feed motor harness connection failure	Reconnect the paper feed motor harness.
3	PF encoder sensor harness connection defective	Reconnect the PF encoder sensor harness.
4	Sensor relay PCB harness connection failure	Reconnect the sensor relay PCB harness.
5	PF roller belt out of place	Set the PF roller belt into place.
6	PF encoder sensor defective	Replace the PF encoder sensor.
7	Sensor relay PCB defective	Replace the sensor relay PCB ASSY.
8	PF encoder disk defective	Replace the PF encoder disk.
9	Paper feed motor defective	Replace the paper feed motor.
10	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 8C**

<b>PRINTER JAM</b>	LCD
--------------------	-----

Excessive current protection activated for the driver IC during recording paper feed motor operation.

**User Check**

- Remove the jammed paper in jam clear cover part, platen part and front part.

Step	Cause	Solution
1	Foreign materials in the feeding path	Remove foreign materials.
2	PF encoder sensor defective	Replace the PF encoder sensor.
3	Paper feed motor defective	Replace the paper feed motor.
4	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 8F**

<b>Unable to Print 8F</b>	LCD
---------------------------	-----

Paper feed motor cannot stop.

Step	Cause	Solution
1	Paper feed motor harness connection failure	Reconnect the paper feed motor harness.
2	PF roller belt out of place	Set the PF roller belt into place.
3	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code A1**

<b>Cover is Open</b>	LCD
----------------------	-----

Document scanner sensor detects that document scanner is open.

**User Check**

- Close the document scanner.

Step	Cause	Solution
1	Sensor relay PCB harness connection failure	Reconnect the sensor relay PCB harness.
2	Document scanner sensor defective	Replace the sensor relay PCB ASSY.
3	Document scanner unit boss broken	Replace the document scanner unit.
4	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code A2**

<b>Document Jam</b>	LCD
---------------------	-----

Document scanning position sensor detects length of document 90 cm or more.

**User Check**

- Check whether the document scanned is longer than the specified limit.
- Remove the jammed document.

Step	Cause	Solution
1	Document scanning position actuator caught on the surrounding parts	Set the document scanning position actuator into place.
2	Document scanning position sensor defective	Replace the document scanning position sensor PCB.
3	ADF motor defective	Replace the ADF motor.
4	Document feed roller worn out	Replace the ADF unit.
5	Sensor relay PCB defective	Replace sensor relay PCB.
6	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code A3**

<b>Document Jam</b>	LCD
---------------------	-----

Document detection sensor detects that document is pulled out during document scanning. Or, the document scanning position sensor cannot detect document within specified time.

**User Check**

- Remove the jammed document.

Step	Cause	Solution
1	Foreign materials in the document feeding path	Remove foreign materials.
2	Document detection actuator caught on the surrounding parts	Set the document detection actuator into place.
3	Document scanning position actuator out of place	Set the document scanning position actuator into place.
4	Document scanning position sensor harness connection failure	Reconnect the document scanning position sensor harness.
5	Document scanning position sensor defective	Replace the document scanning position sensor PCB ASSY.
6	ADF motor defective	Replace the ADF motor.
7	Document pick-up roller worn out	Replace the document separate roller ASSY.
8	Sensor relay PCB defective	Replace sensor relay PCB.
9	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code A4**

<b>Cover is Open</b>	LCD
----------------------	-----

ADF cover sensor detects opened cover state.

Although this error is usually unlikely to occur, it can be considered to occur due to noise around the location of setting, power supply voltage fluctuation or problem of software.

**User Check**

- Turn the power off and on.

Step	Cause	Solution
1	Main PCB defective	Replace the main PCB ASSY.



■ **Error Code A5**

<b>Unable to Scan A5</b>	LCD
--------------------------	-----

Level of first side CIS scan result is detected as abnormal during FAX transmission (first transmission.)

**Error Code A6**

<b>Unable to Scan A6</b>	LCD
--------------------------	-----

Level of first side CIS scan result is detected as abnormal during FAX transmission (after re-try.)

Step	Cause	Solution
1	White level data failure	Carry out maintenance 55 to obtain white label data.
2	White reference film stained	Clean document cover glass at white reference film.
3	First side CIS unit defective	Replace the first side CIS unit.
4	White reference film damage, broken	Replace the document scanner unit.
5	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code A7**

<b>Unable to Scan A7</b>	LCD
--------------------------	-----

Type of CIS unit and CIS type input value does not match.

Step	Cause	Solution
1	First side or second side CIS type input value error	Automatically identify the first side or second side CIS type input value (refer to <a href="#">Chapter 5, Section 1.3.20.</a> )
2	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code A8**

<b>Unable to Scan A8</b>	LCD
--------------------------	-----

Matching of color parameter fails.

**User Check**

- Turn the power off and on.

Step	Cause	Solution
1	Program malfunctioning	Re-load the firmware.
2	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code AC**

<b>Unable to Scan AC</b>	LCD
--------------------------	-----

Level of second side CIS scan result is detected as abnormal during FAX transmission (First transmission.)

Step	Cause	Solution
1	White level data failure	Carry out maintenance 55 to obtain white label data.
2	White reference film stained	Clean the white reference film of the document scanner unit.
3	Second side CIS unit defective	Replace the second side CIS unit.
4	White reference film damage, broken	Replace the document scanner unit.
5	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code AF**

<b>Unable to Scan AF</b>	LCD
--------------------------	-----

CIS positioning abnormal (Home position cannot be found.)

Step	Cause	Solution
1	Scanner belt out of place	Set the scanner belt into place.
2	Scanner motor harness connection failure	Reconnect the scanner motor harness.
3	First side CIS flat cable connection failure	Reconnect the first side CIS flat cable.
4	Black reference film stained	Clean document cover glass at black reference film.
5	First side CIS flat cable defective	Replace the first side CIS flat cable.
6	First side CIS unit defective	Replace the first side CIS unit.
7	Scanner motor defective	Replace the document scanner unit.
8	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code BC**

<b>Unable to Scan BC</b>	LCD
--------------------------	-----

Level of second side CIS scan result is detected as abnormal during FAX transmission (After re-try.)

Step	Cause	Solution
1	White level data failure	Carry out maintenance 55 to obtain white label data.
2	White reference film stained	Clean the white reference film of the document scanner unit.
3	Second side CIS unit defective	Replace the second side CIS unit.
4	White reference film damage, broken	Replace the document scanner unit.
5	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code BD**

<b>Unable to Scan BD</b>	LCD
--------------------------	-----

Black level value abnormal at scanning.

Step	Cause	Solution
1	Black level data failure	Carry out maintenance 55 to obtain white label data.
2	First side or second side CIS unit defective	Replace the first side or second side CIS unit.
3	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code BF**

<b>Unable to Print BF</b>	LCD
---------------------------	-----

Document scanning position sensor detects size that its length does not fit duplex scanning.

**User Check**

- Check whether the document scanned is longer than the specified limit.
- Remove the jammed document.

Step	Cause	Solution
1	Document scanning position actuator caught on the surrounding parts	Set the document scanning position actuator into place.
2	Document scanning position sensor defective	Replace the document scanning position sensor.
3	ADF motor defective	Replace the ADF motor.
4	Document feed roller worn out	Replace the ADF unit.
5	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code DF**

<b>Unable to Print DF</b>	LCD
---------------------------	-----

SDAA communication failure

**Error Code E0**

<b>Unable to Print E0</b>	LCD
---------------------------	-----

Modem does not start normally even after resetting the modem.

Step	Cause	Solution
1	MJ PCB defective	Replace the MJ PCB ASSY.
2	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code E2**

<b>Unable to Print E2</b>	LCD
---------------------------	-----

Wired LAN MAC address not registered..

Step	Cause	Solution
1	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code E3**

<b>MACHINE ERROR E3</b>	LCD
-------------------------	-----

Wireless LAN MAC address acquisition error

Step	Cause	Solution
1	Wireless LAN PCB ASSY connection failure	Reconnect the wireless LAN PCB ASSY.
2	Wireless LAN PCB ASSY defective	Replace the wireless LAN PCB ASSY.
3	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code E6**

<b>MACHINE ERROR E6</b>	LCD
-------------------------	-----

Main PCB ASSY EEPROM write error

Step	Cause	Solution
1	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code EC**

<b>MACHINE ERROR EC</b>	LCD
-------------------------	-----

LCD disconnection detected.

Step	Cause	Solution
1	LCD flat cable connection failure	Reconnect the LCD flat cable.
2	LCD PCB defective	Replace the control panel ASSY.
3	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code ED**

<b>MACHINE ERROR ED</b>	LCD
-------------------------	-----

Touch panel initialization failed.

**User Check**

- Check foreign materials between touch panel and touch panel frame, and remove if any.

Step	Cause	Solution
1	Touch panel defective	Replace the control panel ASSY.
2	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code F0**

<b>MACHINE ERROR F0</b>	LCD
-------------------------	-----

Flash file system error

**Error Code FE**

<b>MACHINE ERROR FE</b>	LCD
-------------------------	-----

ROM data acquisition error

**User Check**

- Turn the power off and on.

Step	Cause	Solution
1	Program malfunctioning	Re-load the firmware.
2	Main PCB defective	Replace the main PCB ASSY.

## **4.2 Recording Paper Feeding Problems**

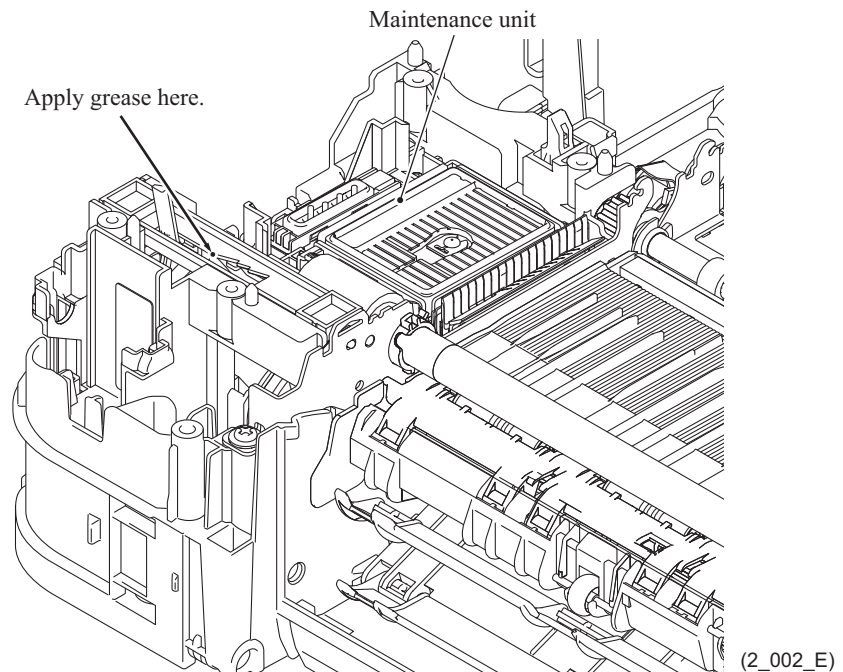
Problems related to paper feeding are end user recoverable if following the User Check items. If the same problem occurs, follow each procedure in the order of the number described in the Step column in the tables below.

### **4.2.1 Paper is not fed from paper tray**

#### **User Check**

- Check that setting of tray selection is not fix to other tray.
- Check that recording paper is loaded correctly in the paper tray.
- Check that the paper smaller than the specified size is not loaded.
- Adjust the paper guide to match the recording paper size.
- Try reversing the recording paper in the recording paper tray, or rotating direction of the paper for 180 degrees.
- Check thickness of recording paper is within tolerance of each type.
- Check that the number of recording paper loaded in the recording paper tray is within specified volume.
- Clean the paper pull-in roller.

Step	Cause	Solution
1	Paper pull-in roller not mounted in place	Set the paper pull-in roller into place.
2	CR encoder strip stained	Clean the CR encoder strip.
3	PF encoder disk stained	Clean the PF encoder disk and flushing guide (refer to <a href="#">Chapter 3, Section 1.</a> )
4	Bank ASSY out of place	Set the bank ASSY into place.
5	The grease of the switching lever guide of the maintenance unit is not enough	Apply the grease for the switching lever guide of the maintenance unit.
6	Paper feed motor harness connection failure	Reconnect the paper feed motor harness.
7	Registration actuator out of place	Set the registration actuator into place.
8	Paper feeding path parts out of place	Set the feeding path parts into place.
9	Paper pull-in roller worn out	Replace the paper pull-in roller.
10	CR encoder strip defective	Replace the CR encoder strip
11	CR encoder sensor defective	Replace the carriage PCB ASSY.
12	Switching lever guide defective	Replace the maintenance unit.
13	Registration sensor defective	Replace the registration sensor PCB ASSY.
14	Paper feed motor defective	Replace the paper feed motor.
15	Main PCB defective	Replace the main PCB ASSY.





#### 4.2.2 Paper is not fed from manual feed slot

##### User Check

- Check that recording paper is loaded correctly in the manual feed slot.
- Check thickness of recording paper is within tolerance of each type.
- Check only a single recording paper enters.

Step	Cause	Solution
1	Paper feed motor harness connection failure	Reconnect the paper feed motor harness.
2	Registration actuator out of place	Set the registration actuator into place.
3	Registration sensor defective	Replace the registration sensor PCB ASSY.
4	Paper feed motor defective	Replace the paper feed motor.
5	Main PCB defective	Replace the main PCB ASSY.

#### 4.2.3 Two or more sheets of paper fed at a time

##### User Check

- Check that recording paper is loaded correctly in the paper tray.
- Check that the set number of recording paper loaded in each recording paper tray is within specified volume.
- Try reversing the recording paper in each recording paper tray, or rotating direction of the paper for 180 degrees.
- Check thickness of recording paper is within tolerance of each type.
- Shuffle recording papers thoroughly and then reload them in the recording paper tray.

Step	Cause	Solution
1	Bank ASSY worn out	Replace the bank ASSY.
2	Base pad worn out	Replace the base pad.

#### 4.2.4 Paper feeding at an angle

##### User Check

- Check that recording paper is loaded correctly in the paper tray.
- Adjust the paper guide to match the recording paper size.
- Check thickness of recording paper is within tolerance of each type.
- Check if too much paper is loaded in the paper tray.
- Clean the paper pull-in roller.

Step	Cause	Solution
1	Paper pull-in roller not mounted in place	Set the paper pull-in roller into place.
2	Bank ASSY out of place	Set the bank ASSY into place.
3	Paper feeding path parts out of place	Set the feeding path parts into place.
4	Main PCB defective	Replace the main PCB ASSY.

## 4.2.5 Recording paper jam

### ■ Paper jam around the paper tray

#### User Check

- Check that recording paper is loaded correctly in the paper tray.
- Adjust the paper guide to match the recording paper size.
- Check that the paper shorter than the specified size is not loaded.
- Check thickness of recording paper is within tolerance of each type.
- Check that the number of recording paper loaded in the recording paper tray is within specified volume.
- Check that the jam clear cover is securely closed.
- Clean the related rollers.

Step	Cause	Solution
1	Foreign materials in the recording paper path	Remove foreign materials.
2	Bank ASSY out of place	Set the bank ASSY into place.
3	Platen foam drift	Set the platen foam into place.
4	Jam clear cover not mounted in place	Set the jam clear cover into place.
5	CR guide rail not mounted in place	Set the CR guide rail into place.
6	Platen ASSY not mounted in place	Set the platen ASSY into place.
7	Platen spring not mounted in place	Set the platen spring into place.
8	Jam clear cover damaged, broken	Replace the jam clear cover.
9	Platen ASSY damaged, broken	Replace the platen ASSY.
10	Registration sensor defective	Replace the registration sensor PCB ASSY.
11	Recording paper tray defective	Replace the recording paper tray.
12	Main PCB defective	Replace the main PCB ASSY.

■ **Paper jam around the platen**

**User Check**

- Check that recording paper is loaded correctly in the paper tray.
- Adjust the paper guide to match the recording paper size.
- Check that the paper shorter than the specified size is not loaded.
- Check thickness of recording paper is within tolerance of each type.
- Clean the related rollers.

Step	Cause	Solution
1	Foreign materials in the recording paper path	Remove foreign materials.
2	CR encoder strip stained	Clean the CR encoder strip.
3	CR encoder strip defective	Replace the CR encoder strip.
4	Platen foam drift	Set the platen foam into place.
5	Bank ASSY out of place	Set the bank ASSY into place.
6	Head/carriage unit head unlocked	Set the head lock in lock position.
7	Switchback inner paper guide not mounted in place	Set the switchback inner paper guide into place.
8	Switchback outer paper guide not mounted in place	Set the switchback outer paper guide into place.
9	Switchback roller belt out of place	Set the switchback roller belt into place.
10	Paper ejection roller belt out of place	Set the paper ejection roller belt into place.
11	CR guide rail not mounted in place	Set the CR guide rail into place.
12	Platen ASSY not mounted in place	Set the platen ASSY into place.
13	Platen spring not mounted in place	Set the platen spring into place.
14	Inner chute ASSY not mounted in place	Set the inner chute ASSY into place.
15	Inner chute ASSY broken	Replace the inner chute ASSY.
16	DX paper guide ASSY not mounted in place	Set the DX paper guide ASSY into place.
17	Switchback roller belt broken	Replace the switchback roller belt.
18	Paper ejection roller belt broken	Replace the paper ejection roller belt.
19	Platen ASSY damaged, broken	Replace the platen ASSY.
20	Registration sensor PCB defective	Replace the registration sensor PCB ASSY.
21	Main PCB defective	Replace the main PCB ASSY.

■ **Paper jam around paper ejection parts**

**User Check**

- Clean the related rollers.
- Check that the number of recording paper on the paper ejecting tray is within the maximum ejecting paper volume.

Step	Cause	Solution
1	Foreign materials in the recording paper path	Remove foreign materials.
2	Switchback inner paper guide not mounted in place	Set the switchback inner paper guide into place.
3	Switchback outer paper guide not mounted in place	Set the switchback outer paper guide into place.
4	Paper ejection roller belt out of place	Set the paper ejection roller belt into place.
5	Paper ejection roller belt broken	Replace the paper ejection roller belt.
6	Main PCB defective	Replace the main PCB ASSY.

■ **Paper jam during duplex printing**

**User Check**

- Adjust the paper guide to match the recording paper size.
- Check that the paper shorter than the specified size is not loaded.
- Check thickness of recording paper is within tolerance of each type.
- Clean the related rollers.

Step	Cause	Solution
1	Foreign materials in the recording paper path	Remove foreign materials.
2	Switchback inner paper guide not mounted in place	Set the switchback inner paper guide into place.
3	Switchback outer paper guide not mounted in place	Set the switchback outer paper guide into place.
4	Switchback roller belt out of place	Set the switchback roller belt into place.
5	Paper ejection roller belt out of place	Set the paper ejection roller belt into place.
6	DX paper guide ASSY not mounted in place	Set the DX paper guide ASSY into place.
7	Switchback roller belt broken	Replace the switchback roller belt.
8	Paper ejection roller belt broken	Replace the paper ejection roller belt.
9	Main PCB defective	Replace the main PCB ASSY.

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

##### User Check

- Set the driver settings to duplex-printing.
- Use recording papers in letter size or A4 size.
- Check if the recording papers are not overlapping each other. Shuffle the papers thoroughly in the case of overlapping.

Step	Cause	Solution
1	Switching lever guide defective	Replace the maintenance unit.
2	Main PCB defective	Replace the main PCB ASSY.

### 4.3 Print-image Problems

#### 4.3.1 Defective images

Completely blank	All single color	Random color	Light	Dark
Straight vertical stripes	Blurred vertical stripes	White vertical streaks	Ink splash	Ink splash
Print edges not aligned	Random missing dots	White horizontal streaks	Stained leading edge of recording paper	Overlapping lines over the whole page
Separated lines over the whole page	Overlapping lines at the trailing edge of the recording paper	Separated lines at the trailing edge of the recording paper	Characters having shadows (ghost)	
Traces of paper pull-in roller	Dirt on the paper			

### 4.3.2 Print-image problems

Problems related to defective image are end user recoverable if following the User Check items.

If the same problem occurs, follow each procedure in the order of the number described in the Step column in the tables below.

#### ■ Completely blank

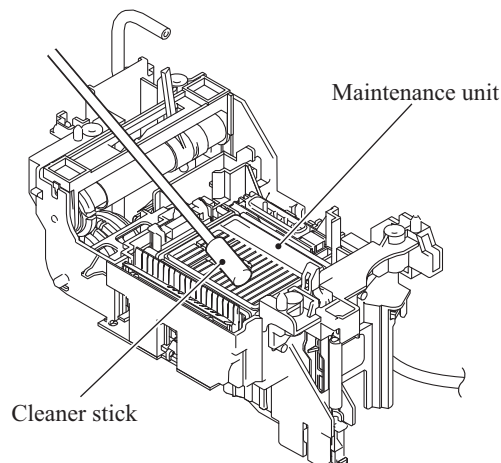


#### User Check

- Check if there is enough remaining ink.
- Carry out head cleaning.

Step	Cause	Solution
1	Maintenance unit stained	Clean the maintenance unit (refer to the figure below.)
2	Wrong head property value	Input the head property value (refer to <a href="#">Chapter 5, Section 1.3.25.</a> )
3	Head flat cable connection failure	Reconnect the head flat cable.
4	Carriage flat cable connection failure	Reconnect the Carriage flat cable.
5	Non-discharge of ink from head	Perform the recommended purge procedures. Refer to "Recommended purge procedures" in <a href="#">Chapter 5, Section 1.3.29 "Purge Operation (Maintenance mode 76)."</a>
6	Ink supply tubes bent	Replace the ink refill ASSY.
7	Carriage PCB defective	Replace the carriage PCB ASSY.
8	Maintenance unit defective	Replace the maintenance unit.
9	Head defective	Replace the head/carriage unit.
10	Main PCB defective	Replace the main PCB ASSY.

<Cleaning of the maintenance unit>



(cleaning\_E)

■ All single color



**User Check**

- Check that ink cartridge is loaded correctly.

Step	Cause	Solution
1	Carriage PCB defective	Replace the carriage PCB ASSY.
2	Head defective	Replace the head/carriage unit.
3	Main PCB defective	Replace the main PCB ASSY.

■ Random color



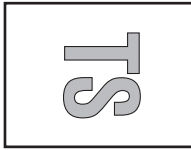
**User Check**

- Check that ink cartridge is loaded correctly.
- Carry out head cleaning.

Step	Cause	Solution
1	Maintenance unit stained	Clean the maintenance unit (refer to <a href="#">Section 4.3.2</a> in this Chapter.)
2	Wrong head property value	Input the head property value (refer to <a href="#">Chapter 5, Section 1.3.25.</a> )
3	Head correction uncompleted	Write the head correction data. (refer to <a href="#">Chapter 5, Section 1.3.2.</a> )
4	Non-discharge of ink from head	Perform the recommended purge procedures. Refer to "Recommended purge procedures" in <a href="#">Chapter 5, Section 1.3.29 "Purge Operation (Maintenance mode 76)."</a>
5	Carriage PCB defective	Replace the carriage PCB ASSY.
6	Head defective	Replace the head/carriage unit.
7	Main PCB defective	Replace the main PCB ASSY.



■ **Light**



**User Check**

- Check whether the recording paper being used is within the specification.
- Check whether the paper type setting is correct.
- Carry out head cleaning.
- Replace the ink cartridge.

Step	Cause	Solution
1	Maintenance unit stained	Clean the maintenance unit (refer to <a href="#">Section 4.3.2</a> in this Chapter.)
2	Wrong head property value	Input the head property value (refer to <a href="#">Chapter 5, Section 1.3.25.</a> )
3	Head correction uncompleted	Input the head correction data (refer to <a href="#">Chapter 5, Section 1.3.2.</a> )
4	Non-discharge of ink from head	Perform the recommended purge procedures. Refer to "Recommended purge procedures" in <a href="#">Chapter 5, Section 1.3.29 "Purge Operation (Maintenance mode 76)."</a>
5	Carriage PCB defective	Replace the carriage PCB ASSY.
6	Maintenance unit defective	Replace the maintenance unit.
7	Head defective	Replace the head/carriage unit.
8	Main PCB defective	Replace the main PCB ASSY.

■ **Dark**



**User Check**

- Check whether the paper type setting is correct.

Step	Cause	Solution
1	Maintenance unit stained	Clean the maintenance unit (refer to <a href="#">Section 4.3.2</a> in this Chapter.)
2	Wrong head property value	Input the head property value (refer to <a href="#">Chapter 5, Section 1.3.25.</a> )
3	Head correction uncompleted	Input the head correction data (refer to <a href="#">Chapter 5, Section 1.3.2.</a> )
4	Carriage PCB defective	Replace the carriage PCB ASSY.
5	Maintenance unit defective	Replace the maintenance unit.
6	Head defective	Replace the head/carriage unit.
7	Main PCB defective	Replace the main PCB ASSY.

■ **Straight vertical stripes**



**User Check**

- Check whether the recording paper being used is within the specification.
- Clean the related rollers by printing blank paper.
- Clean the platen.



Step	Cause	Solution
1	Foreign materials in the carriage rail	Remove foreign materials.
2	Recording paper path contaminated	Clean the recording paper path.
3	CR encoder strip stained	Clean the CR encoder strip.
4	Carriage flat cable not mounted in place	Set the Carriage flat cable into place.
5	Ink supply tubes not mounted in place	Set the ink supply tubes guide into place.
6	CR encoder strip defective	Replace the CR encoder strip.

■ **White vertical streaks**

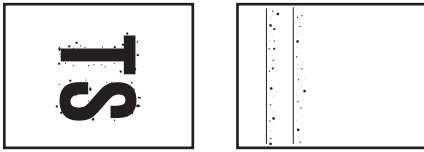


**User Check**

- Carry out head cleaning.

Step	Cause	Solution
1	Foreign materials in the carriage rail	Remove foreign materials.
2	CR encoder strip stained	Clean the CR encoder strip.
3	Non-discharge of ink from head	Perform the recommended purge procedures. Refer to "Recommended purge procedures" in <a href="#">Chapter 5, Section 1.3.29 "Purge Operation (Maintenance mode 76)."</a>
4	CR encoder strip defective	Replace CR encoder strip
5	Carriage motor defective	Replace the carriage motor ASSY.
6	Head defective	Replace the head/carriage unit.

■ Ink splash

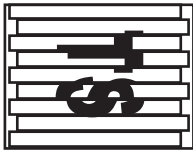


**User Check**

- Replace the ink cartridge.

Step	Cause	Solution
1	Maintenance unit stained	Clean the maintenance unit (refer to <a href="#">Section 4.3.2</a> in this Chapter.)
2	Wrong head property value	Input the head property value (refer to <a href="#">Chapter 5, Section 1.3.25.</a> )
3	Carriage PCB defective	Replace the carriage PCB ASSY.
4	Maintenance unit defective	Replace the maintenance unit.
5	Head defective	Replace the head/carriage unit.
6	Main PCB defective	Replace the main PCB ASSY.

■ Print edges not aligned



**User Check**

- Check whether the recording paper being used is within the specification.
- Perform the printing position adjustment.

Step	Cause	Solution
1	Vertical print lines not aligned	Adjust vertical print line alignment (refer to <a href="#">Chapter 5, Section 1.3.23.</a> )
2	Head inclination is not correctly adjusted.	Adjust the head inclination (refer to <a href="#">Chapter 4, Section 2.4.</a> )
3	CR encoder strip stained	Clean the CR encoder strip.
4	CR encoder strip defective	Replace CR encoder strip
5	Head defective	Replace the head/carriage unit.
6	Main PCB defective	Replace the main PCB ASSY.

■ **Random missing dots**

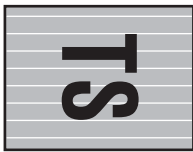


**User Check**

- Carry out head cleaning.
- Replace the ink cartridge.

Step	Cause	Solution
1	Maintenance unit stained	Clean the maintenance unit (refer to <a href="#">Section 4.3.2</a> in this Chapter.)
2	Non-discharge of ink from head	Perform the recommended purge procedures. Refer to "Recommended purge procedures" in <a href="#">Chapter 5, Section 1.3.29 "Purge Operation (Maintenance mode 76)."</a>
3	Carriage PCB defective	Replace the carriage PCB ASSY.
4	Maintenance unit defective	Replace the maintenance unit.
5	Head defective	Replace the head/carriage unit.
6	Main PCB defective	Replace the main PCB ASSY.

■ **White horizontal streaks**



**User Check**

- Check if it is not in draft mode.
- Carry out head cleaning.

Step	Cause	Solution
1	Maintenance unit stained	Clean the maintenance unit (refer to <a href="#">Section 4.3.2</a> in this Chapter.)
2	Paper feeding correction not updated	Update paper feed correction (refer to <a href="#">Chapter 5, Section 1.3.19.</a> )
3	Head inclination is not correctly adjusted.	Adjust the head inclination (refer to <a href="#">Chapter 4, Section 2.4.</a> )
4	PF encoder disk stained	Clean the PF encoder disk and flushing guide (refer to <a href="#">Chapter 3, Section 1.</a> )
5	Non-discharge of ink from head	Perform the recommended purge procedures. Refer to "Recommended purge procedures" in <a href="#">Chapter 5, Section 1.3.29 "Purge Operation (Maintenance mode 76)."</a>
6	PF encoder disk defective	Replace the PF encoder disk.
7	Carriage PCB defective	Replace the carriage PCB ASSY.
8	Maintenance unit defective	Replace the maintenance unit.
9	Head defective	Replace the head/carriage unit.
10	Main PCB defective	Replace the main PCB ASSY.

■ **Stained leading edge of recording paper**



**User Check**

- Check whether the recording paper being used is within the specification.

Step	Cause	Solution
1	Maintenance unit stained	Clean the maintenance unit (refer to <a href="#">Section 4.3.2</a> in this Chapter.)
2	Paper feeding correction value not updated	Adjust the paper feeding correction value (refer to <a href="#">Chapter 5, Section 1.3.19.</a> )
3	Head defective	Replace the head/carriage unit.

■ **Overlapping lines over the whole page**



**User Check**

- Carry out head cleaning.

Step	Cause	Solution
1	Head inclination is not correctly adjusted.	Adjust the head inclination (refer to <a href="#">Chapter 4, Section 2.4.</a> )
2	Head correction uncompleted	Input the head correction data (refer to <a href="#">Chapter 5, Section 1.3.25.</a> )
3	Paper feeding correction value not updated	Adjust the paper feeding correction value (refer to <a href="#">Chapter 5, Section 1.3.19.</a> )
4	PF encoder disk stained	Clean the PF encoder disk and flushing guide (refer to <a href="#">Chapter 3, Section 1.</a> )
5	PF encoder disk defective	Replace the PF encoder disk.
6	Head defective	Replace the head/carriage unit.
7	Main PCB defective	Replace the main PCB ASSY.

■ **Separated lines over the whole page**



**User Check**

- Carry out head cleaning.

Step	Cause	Solution
1	Head inclination is not correctly adjusted.	Adjust the head inclination (refer to <a href="#">Chapter 4, Section 2.4.</a> )
2	Head correction uncompleted	Input the head correction data (refer to <a href="#">Chapter 5, Section 1.3.25.</a> )
3	Paper feeding correction value not updated	Adjust the paper feeding correction value (refer to <a href="#">Chapter 5, Section 1.3.19.</a> )
4	PF encoder disk stained	Clean the PF encoder disk and flushing guide (refer to <a href="#">Chapter 3, Section 1.</a> )
5	Non-discharge of ink from head	Perform the recommended purge procedures. Refer to "Recommended purge procedures" in <a href="#">Chapter 5, Section 1.3.29 "Purge Operation (Maintenance mode 76)."</a>
6	PF encoder disk defective	Replace the PF encoder disk.
7	Head defective	Replace the head/carriage unit.
8	Main PCB defective	Replace the main PCB ASSY.

■ **Overlapping lines at the trailing edge of the recording paper**



**User Check**

- Carry out head cleaning.

Step	Cause	Solution
1	Paper feeding correction value not updated	Adjust the paper feeding correction value (refer to <a href="#">Chapter 5, Section 1.3.19.</a> )
2	PF encoder disk stained	Clean the PF encoder disk and flushing guide (refer to <a href="#">Chapter 3, Section 1.</a> )
3	PF encoder disk defective	Replace the PF encoder disk.
4	Main PCB defective	Replace the main PCB ASSY.

■ Separated lines at the trailing edge of the recording paper

**User Check**

- Carry out head cleaning.

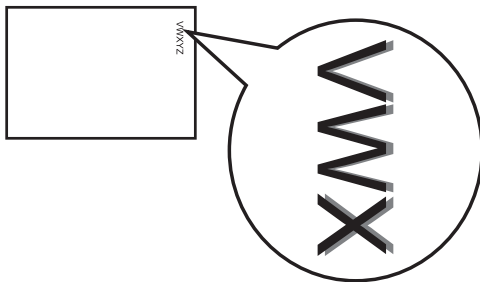


Step	Cause	Solution
1	Paper feeding correction value not updated	Adjust the paper feeding correction value (refer to <a href="#">Chapter 5, Section 1.3.19.</a> )
2	PF encoder disk stained	Clean the PF encoder disk and flushing guide (refer to <a href="#">Chapter 3, Section 1.</a> )
3	Non-discharge of ink from head	Perform the recommended purge procedures. Refer to "Recommended purge procedures" in <a href="#">Chapter 5, Section 1.3.29 "Purge Operation (Maintenance mode 76)."</a>
4	PF encoder disk defective	Replace the PF encoder disk.
5	Main PCB defective	Replace the main PCB ASSY.

■ Characters having shadows (ghost)

**User Check**

- Carry out head cleaning.



Step	Cause	Solution
1	Paper feeding correction value not updated	Adjust the paper feeding correction value (refer to <a href="#">Chapter 5, Section 1.3.19.</a> )
2	Vertical print lines not aligned	Adjust vertical print line alignment (refer to <a href="#">Chapter 5, Section 1.3.23.</a> )
3	PF encoder disk stained	Clean the PF encoder disk and flushing guide (refer to <a href="#">Chapter 3, Section 1.</a> )
4	CR encoder strip stained	Clean the CR encoder strip.
5	PF encoder disk defective	Replace the PF encoder disk.
6	CR encoder strip defective	Replace the CR encoder strip.
7	Head defective	Replace the head/carriage unit.
8	Main PCB defective	Replace the main PCB ASSY.

■ **Traces of paper pull-in roller**

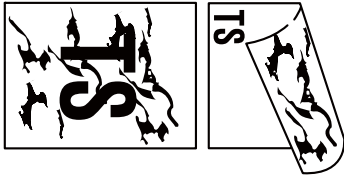


**User Check**

- Check whether the recording paper being used is within the specification.
- Clean the paper pull-in roller.

Step	Cause	Solution
1	Paper pull-in roller defective	Replace the paper pull-in roller.

■ **Dirt on the paper**



**User Check**

- Check whether the recording paper being used is not folded.
- Check whether the recording paper being used is within the specification.
- Clean the related rollers by printing blank paper.
- Clean the platen.

Step	Cause	Solution
1	Maintenance unit stained	Clean the maintenance unit.
2	Paper feed roller stained	Replace the paper feed roller.
3	Paper ejection roller stained	Replace the paper ejection roller.
4	Switchback roller stained	Replace the switchback roller.
5	Foreign materials in the reverse side of the head	Remove foreign materials.



## 4.4 Software-related Problems

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

### 4.4.1 Cannot print data

#### User Check

- Check if USB cable or LAN cable is not broken.
- Check if the correct product is selected if the interface switching device is in use.
- Check the driver settings.
- Reset to the factory default (refer to the user's guide.)

Step	Cause	Solution
1	Main PCB defective	Replace the main PCB ASSY.

## 4.5 Network Problems

### 4.5.1 Cannot make a print through network connection

#### User Check

- Check items in the network setting guide.
- Carry out network reset (refer to the user's guide.)

Step	Cause	Solution
1	Wireless LAN PCB connector connection failure	Reconnect the wireless LAN PCB ASSY.
2	Wireless LAN PCB defective	Replace the wireless LAN PCB ASSY.
3	Main PCB defective	Replace the main PCB ASSY.

## 4.6 Control Panel Problems

### 4.6.1 No display on LCD

Step	Cause	Solution
1	AC cord defective	Replace the AC cord.
2	Panel harness connection failure	Check connection of the panel harness and re-connect.
3	Control panel ASSY defective	Replace the control panel ASSY.
4	Power supply PCB defective	Replace the power supply PCB ASSY.
5	Main PCB defective	Replace the main PCB ASSY.

### 4.6.2 No display on LED

Step	Cause	Solution
1	AC cord defective	Replace the AC cord.
2	Panel harness connection failure	Check connection of the panel harness and re-connect.
3	Control panel ASSY defective	Replace the control panel ASSY.
4	Power supply PCB defective	Replace the power supply PCB ASSY.
5	Main PCB defective	Replace the main PCB ASSY.

### 4.6.3 The control panel does not work

Step	Cause	Solution
1	Panel connection failure	Check connection of the panel harness and re-connect.
2	Control panel ASSY defective	Replace the control panel ASSY.
3	Main PCB defective	Replace the main PCB ASSY.

### 4.6.4 Touch panel inoperative

Step	Cause	Solution
1	Panel connection failure	Check connection of the panel harness and re-connect.
2	Adjustment slippage of the touch panel	Perform the touch panel adjustment. (refer to <a href="#">Chapter 5, Section 1.3.31.</a> )
3	Control panel ASSY defective	Replace the control panel ASSY.
4	Main PCB defective	Replace the main PCB ASSY.

## 4.7 Document Feeding Problems

### 4.7.1 Document can not be fed

#### User Check

- Check that document is loaded all the way to the end correctly in the document tray.
- Check that the number of documents loaded in the document tray is within specified volume.

Step	Cause	Solution
1	Foreign materials in adjacent area of the document pick-up roller	Remove foreign materials.
2	Document pick-up roller stained	Clean the document pick-up roller.
3	Document detection actuator not mounted in place	Set the document detection actuator into place.
4	ADF motor harness connection failure	Reconnect the ADF motor harness.
5	Document detection sensor harness connection failure	Reconnect the document detection sensor harness.
6	Document nip piece not mounted in place	Set the document nip piece into place.
7	Document pick-up roller worn out	Replace the document separate roller ASSY.
8	Document detection sensor defective	Replace the document detection sensor PCB ASSY.
9	ADF motor defective	Replace the ADF motor.
10	Document feed gear, document separation roller gear broken	Replace the ADF unit.
11	Sensor relay PCB defective	Replace the sensor relay PCB.
12	Main PCB defective	Replace the main PCB ASSY.

### 4.7.2 Document double feeding

#### User Check

- Check whether a document thinner than the specified one is used.

Step	Cause	Solution
1	ADF separation pad worn out	Replace the ADF separation pad.

### 4.7.3 Document jam

#### ■ Document jam in adjacent area of ADF cover or in paper ejector part

##### User Check

- Check that document is loaded correctly in the document tray.
- Adjust the document guide to match the document size.
- Check that the document shorter than the specified size is not loaded.
- Check that thickness of the document is 64 to 90 g/m<sup>2</sup>.
- Check that the number of documents loaded in the document tray is within specified volume.
- Close the ADF cover securely.

Step	Cause	Solution
1	Foreign materials in adjacent area of ADF cover	Remove foreign materials.
2	ADF cover ASSY not mounted in place	Set the ADF cover ASSY into place.
3	Upper ADF chute not mounted in place	Set the upper ADF chute into place.
4	Separation pad holder ASSY not mounted in place	Set the separation pad holder ASSY into place.
5	Separation pad spring not mounted in place	Set the separation pad spring into place.
6	Ejection film not mounted in place	Set the ejection film into place.
7	Document scan position actuator not mounted in place	Set the document scan position actuator into place.
8	ADF cover ASSY damaged, broken	Replace the ADF cover ASSY.
9	Upper ADF chute damaged, broken	Replace the upper ADF chute.
10	ADF separation pad holder ASSY defective	Replace the ADF separation pad holder ASSY.
11	ADF separation pad spring defective	Replace the ADF separation pad spring.
12	Ejection film damaged, broken	Replace the ejection film.
13	Main PCB defective	Replace the main PCB ASSY.

## ■ Document jam inside ADF

### User Check

- Check that document is loaded correctly in the document tray.
- Adjust the document guide to match the document size.
- Check that the document shorter than the specified size is not loaded.
- Check that thickness of the document is 64 to 90 g/m<sup>2</sup>.

Step	Cause	Solution
1	Foreign materials inside ADF	Remove foreign materials.
2	Document pressure bar not mounted in place	Set the document pressure bar into place.
3	Upper ADF chute not mounted in place	Set the upper ADF chute into place.
4	Document scan position actuator not mounted in place	Set the document scan position actuator into place.
5	Upper ADF chute, document guide damaged, broken	Replace the upper ADF chute.
6	Document scanning position sensor defective	Replace the document scanning position sensor PCB ASSY.
7	Feeding path in ADF unit damaged, broken	Replace the ADF unit.
8	Feeding path inside document scanner unit damaged, broken	Replace the document scanner unit.
9	Sensor relay PCB defective	Replace the sensor relay PCB.
10	Main PCB defective	Replace the main PCB ASSY.

#### 4.7.4 Wrinkles on documents

##### User Check

- Check that the document guide is correctly set to the document size.
- Check that documents are not curled.

Step	Cause	Solution
1	Document separation roller worn out	Replace the document separate roller ASSY.
2	Each paper feed roller worn out	Replace the ADF unit.

#### 4.7.5 Document size not correctly detected

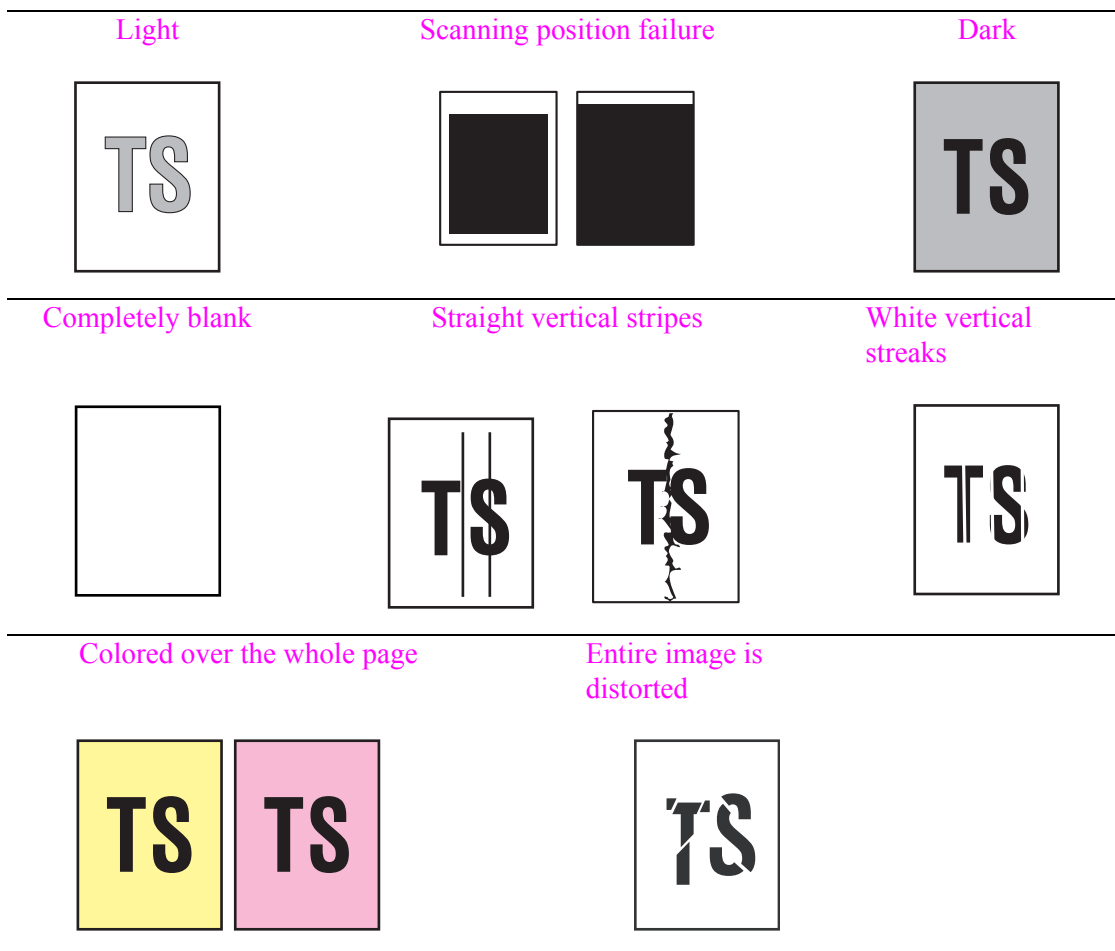
##### User Check

- Check that documents are within specified size.

Step	Cause	Solution
1	Document scanning position actuator caught on the surrounding parts	Set the document scanning position actuator into place.
2	Document scanning position sensor harness connection failure	Reconnect the document scanning position sensor harness.
3	Document scanning position sensor defective	Replace the document scanning position sensor PCB.
4	Main PCB defective	Replace the main PCB ASSY.

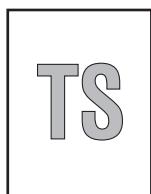
## 4.8 Scanned-image Problems

### 4.8.1 Defective images



### 4.8.2 Troubleshooting from image defect

#### ■ Light



#### User Check

- Check if the contrast is set to "Light."
- Clean document cover glass or ADF glass.
- Clean the document pressure bar.

Step	Cause	Solution
1	White level correction data failure	Carry out maintenance 55.
2	First side or second side CIS unit defective	Replace the first side or second side CIS unit.
3	Main PCB defective	Replace the main PCB ASSY.



■ **Scanning position failure**



**User Check**

- Check that the document is placed correctly on the document cover.

(1) ADF

Step	Cause	Solution
1	Scanning start position out of alignment	Carry out maintenance 54 to adjust the scanning start position.
2	Document scanning position actuator caught on the surrounding parts	Set the document scanning position actuator into place.

(2) Document scanner unit

Step	Cause	Solution
1	Scanning start position out of alignment	Carry out maintenance 54 to adjust the scanning start position.
2	First side CIS unit defective	Replace the first side CIS unit.

■ **Dark**



**User Check**

- Check if the contrast is set to "Dark."

Step	Cause	Solution
1	White level correction data failure	Carry out maintenance 55.
2	First side or second side CIS unit defective	Replace the first side or second side CIS unit.
3	Main PCB defective	Replace the main PCB ASSY.

■ **Completely blank**

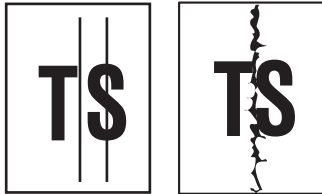


**User Check**

- Check that documents are not reversed.
- Check that they are set in the ADF tray securely.

Step	Cause	Solution
1	White level correction data failure	Carry out maintenance 55.
2	First side or second side CIS flat cable connection failure	Reconnect the first side or second side CIS flat cable.
3	The first side or second side CIS flat cable defective	Replace the first side or second side CIS flat cable.
4	First side or second side CIS unit defective	Replace the first side or second side CIS unit.
5	Main PCB defective	Replace the main PCB ASSY.

■ **Straight vertical stripes**



**User Check**

- Clean document cover glass or ADF glass.
- Clean the document pressure bar.

Step	Cause	Solution
1	CIS lens foreign materials	Remove foreign materials.
2	First side or second side CIS unit defective	Replace the first side or second side CIS unit.

■ **White vertical streaks**

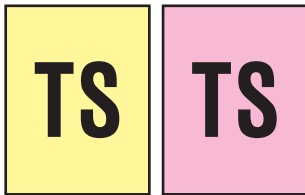


**User Check**

- Clean document cover glass or ADF glass.
- Clean the document pressure bar.

Step	Cause	Solution
1	White reference film of document pressure bar of the document scanner unit stained (in the case of problem in the second side)	Clean the white reference film of the document scanner unit.
2	White reference film of document scanner unit stained (in the case of problem in first side)	Clean document scanner unit glass at white reference film.
3	White reference film stained (first side or second side)	Replace the document scanner unit.
4	First side or second side CIS unit defective	Replace the first side or second side CIS unit.

■ **Colored over the whole page**



**User Check**

- Clean document cover glass or ADF glass.
- Clean the document pressure bar.

Step	Cause	Solution
1	White level correction data failure	Carry out maintenance 55.
2	First side or second side CIS unit defective	Replace the first side or second side CIS unit.
3	Main PCB defective	Replace the main PCB ASSY.

■ Entire image is distorted



Step	Cause	Solution
1	CIS type mismatches	Carry out maintenance code 59 to rewrite firmware.

## 4.9 Fax Problems

### 4.9.1 No faxes can be sent

#### User Check

- Check that the line cord is inserted correctly into the socket.
- Check that the dialing function setting (tone/pulse) is correct.
- Check that the phone cord is not connected to EXT terminal.

Step	Cause	Solution
1	MJ PCB harness connection failure	Reconnect the MJ PCB harness.
2	Control panel ASSY defective	Replace the control panel ASSY.
3	MJ PCB defective	Replace the MJ PCB ASSY.
4	First side or second side CIS unit defective	Replace the first side or second side CIS unit.
5	Main PCB defective	Replace the main PCB ASSY.

### 4.9.2 No faxes can be received

#### User Check

- Check that the line cord is inserted correctly into the socket.
- Check if the receiving mode setting is correct.
- Check that the phone cord is not connected to EXT terminal.

Step	Cause	Solution
1	MJ PCB harness connection failure	Reconnect the MJ PCB harness.
2	MJ PCB defective	Replace the MJ PCB ASSY.
3	Main PCB defective	Replace the main PCB ASSY.

### 4.9.3 A communications error occurs

#### User Check

- Change the “compatibility“ of the function menu to see if the error is cleared.
- Check that there is no noise source around this machine body.

Step	Cause	Solution
1	MJ PCB harness connection failure	Reconnect the MJ PCB harness.
2	MJ PCB defective	Replace the MJ PCB ASSY.
3	Main PCB defective	Replace the main PCB ASSY.

## 4.10 Other Problems

### 4.10.1 The machine cannot be powered on

#### User Check

- Insert the AC cord securely.

Step	Cause	Solution
1	Panel PCB harness connection failure	Reconnect the panel PCB harness.
2	LCD defective	Replace the control panel ASSY.
3	Condenser on the Main PCB defective	Replace the condenser on the main PCB. *For instructions on how to judge condenser defective and how to replace condenser, refer to <b>APPENDIX 4. "REPLACEMENT OF CONDENSER ON THE MAIN PCB."</b>
4	Power supply PCB defective	Replace the power supply PCB ASSY.
5	Main PCB defective	Replace the main PCB ASSY.

### 4.10.2 Memory card/PictBridge does not function (no response)

#### User Check

- Check if the memory card is inserted correctly.
- Replace the USB cable.
- Check that memory card is compatible.
- Check that data form is compatible.
- Format the memory card.
- Load the latest firmware.
- Disconnect and insert again the AC cord.

Step	Cause	Solution
1	Inner media cover not mounted in place	Set the inner media cover into place in the case the memory card won't be inserted smoothly.
2	Main PCB defective	Replace the main PCB ASSY.

### 4.10.3 Data of memory card/PictBridge does not read

#### User Check

- Check that memory card is compatible.
- Check that data form is compatible.
- Format the memory card.
- Load the latest firmware.

Step	Cause	Solution
1	Main PCB defective	Replace the main PCB ASSY.

#### 4.10.4 Internal memory errors

##### User Check

- Delete saved print data and fax data.
- Disconnect and insert again the AC cord.

Step	Cause	Solution
1	Main PCB defective	Replace the main PCB ASSY.

#### 4.10.5 Security Function Lock related problems

##### User Check

- Ask administrator to release security function lock.
- Delete the personal information to unlock the password.

Step	Cause	Solution
1	Main PCB defective	Replace the main PCB ASSY.

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## CHAPTER 3 DISASSEMBLY AND ASSEMBLY

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### 1 PRECAUTIONS BEFORE PROCEEDING

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To prevent the creation of secondary problems by mishandling, observe the following warnings and precautions during disassembly/assembly work.



#### WARNING

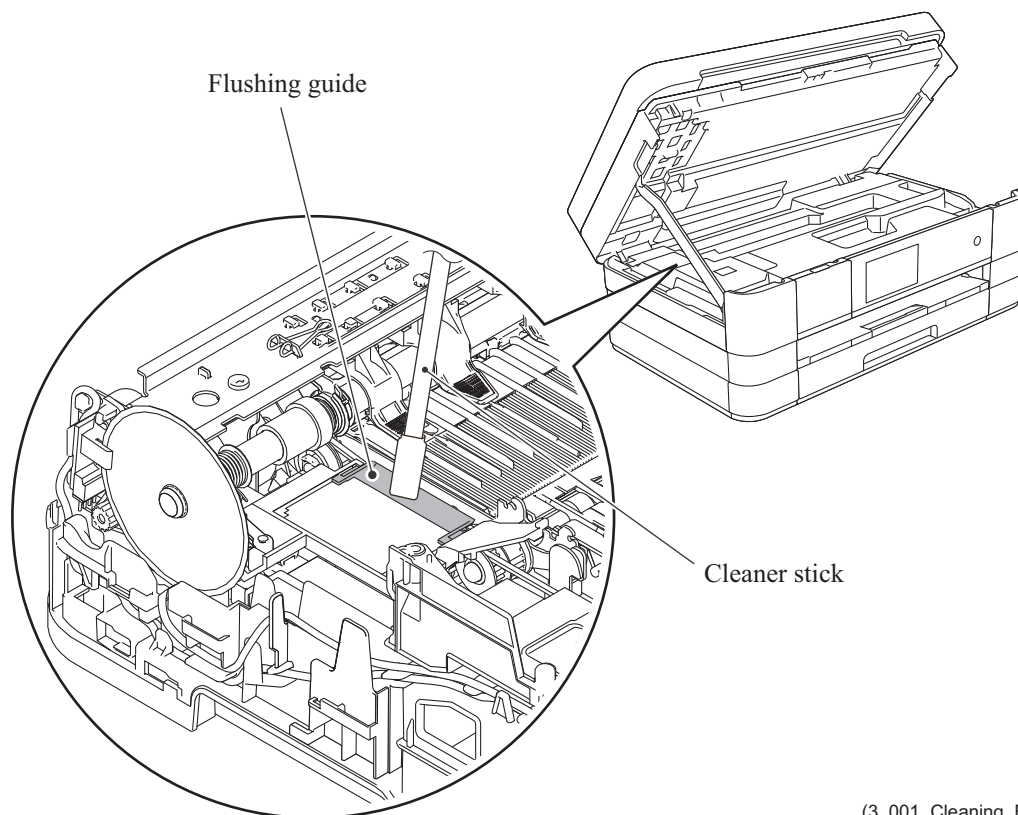
Before replacing parts or units, unplug the power cord and telephone line. Do not use switches but unplug the power cord itself.

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 modem PCB, make sure that both the power cord and telephone line are unplugged from the electrical outlet.

- (1) Be careful not to lose screws, washers, or other parts.
- (2) Apply grease to the points specified in this chapter.
- (3) When using soldering irons and other heat-generating tools, take care not to damage the plastic 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. When replacing the PCBs and components including PCBs, put on a grounding wrist band and perform the job on a static mat. Also take care not to touch the conductor sections on flat cables or wire harnesses.
- (5) After disconnecting flat cables, check that each cable is not damaged at its end or short-circuited.
- (6) When connecting flat cables, do not insert them at an angle. After insertion, check again that the cables are not at an angle.
- (7) When connecting or disconnecting harnesses, hold the connector bodies not the cables. If the connector has a lock, always unlock it.
- (8) After repairs, check not only the repaired portion but also that the harnesses are routed properly. Also check that the other related portions function properly.
- (9) Once the head/carriage unit prints, it will start head locking operation after five seconds from the end of printing. The head locking operation will take 5 to 10 seconds. NEVER unplug the power cord before the machine completes the head locking operation; doing so will make the head/carriage unit unusable and require replacement with a new head/carriage unit.  
When you receive the machine from the user or when you pack it for sending it back to the user, check the head locking state.
- (10) If ink gets on your skin or gets into your eyes or mouth, you need the following treatment.
  - If ink gets on your skin, wash it off immediately with soap and water.
  - If ink gets into your eyes, flush them immediately and thoroughly with water. If left untreated, the eyes may become bloodshot or mildly inflamed. If you feel any discomfort, consult a doctor immediately.
  - If ink gets into your mouth, immediately spit it out and consult a doctor.
- (11) After completion of reassembly, it is recommended that the dielectric voltage withstand test and continuity test be conducted.



- (12) Before packing the machine for sending it back to the user after repairs, be sure to clean the flushing guide with a cleaner stick as shown below to prevent ink splashing during transportation.

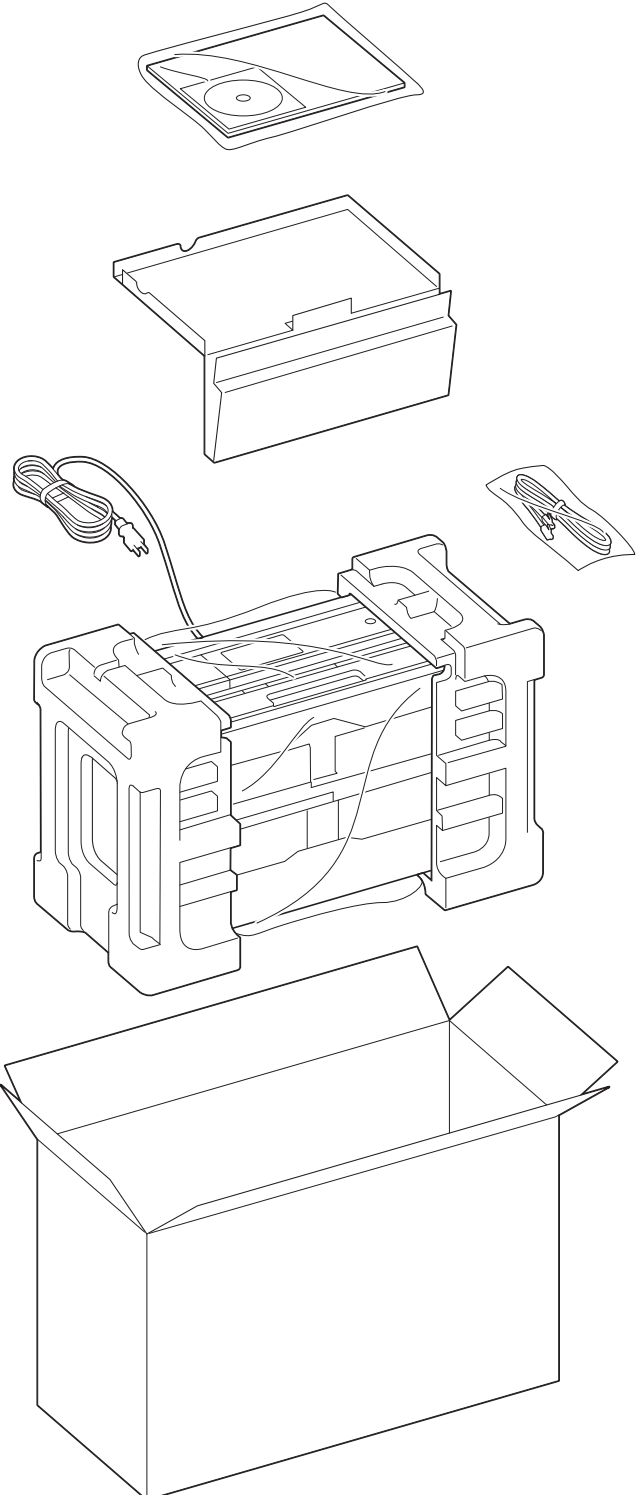


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## 2 PACKING

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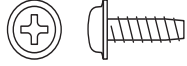
(3\_131\_E)

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### 3 SCREW CATALOGUE

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#### Taptite cup B

Taptite cup B M3x10	
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#### Taptite cup S

Taptite cup S M3x6	
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#### Taptite bind B

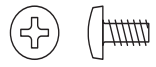
Taptite bind B M4x12	
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#### Screw pan (washer)

Screw pan (washer) M3x6	
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#### Screw bind

Screw bind M2x12	
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Screw, bind M3x6	
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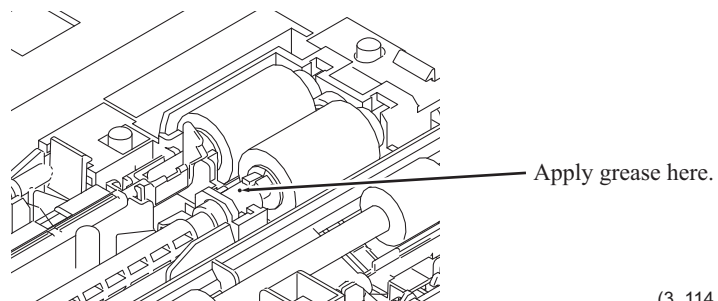
## 4 SCREW TORQUE LIST

Location of screw	Screw type	Q'ty	Tightening torque N•m (kgf•cm)
ADF motor harness	TAPTITE CUP S M3x6	1	0.40±0.10
ADF cover support band	TAPTITE CUP B M3x10	1	0.45±0.05
Upper document chute	TAPTITE CUP B M3x10 (bottom)	2	0.50±0.10
	TAPTITE CUP B M3x10 (top)	3	0.45±0.05
ADF harness support	TAPTITE CUP B M3x10	1	0.50±0.10
	TAPTITE CUP B M3x10	1	0.45±0.05
ADF drive unit	TAPTITE CUP B M3x10 (top)	1	0.45±0.05
	TAPTITE CUP B M3x10 (rear)	1	0.50±0.10
ADF drive unit support plate	TAPTITE CUP B M3x10	1	0.50±0.10
ADF motor	SCREW PAN (S/P WASHER) M3x6	1	0.40±0.10
Document scanner top cover	TAPTITE CUP B M3x10	6	0.50±0.10
Upper cover	TAPTITE BIND B M4x12	6	0.70±0.10
Panel grounding wire	TAPTITE CUP S M3x6	1	0.40±0.10
Main PCB shield	TAPTITE CUP S M3x6	2	0.40±0.10
Main PCB ASSY	TAPTITE CUP S M3x6	2	0.40±0.10
Sensor relay PCB ASSY	TAPTITE CUP S M3x6	1	0.40±0.10
MJ shield	TAPTITE CUP S M3x6	1	0.40±0.10
MJ PCB ASSY	TAPTITE CUP S M3x6	1	0.40±0.10
Main PCB frame	TAPTITE CUP B M3x10	2	0.40±0.10
	TAPTITE CUP S M3x6	1	0.45±0.10
Power supply unit	TAPTITE CUP S M3x6	1	0.45±0.10
Power inlet ASSY (200 V models)	SCREW PAN (WASHER) M4x8DB	1	0.60±0.10
Power supply PCB ASSY	TAPTITE CUP S M3x6	3	0.45±0.10
Tube support plate	TAPTITE CUP B M3x10	3	0.40±0.10
Switchback frame ASSY	TAPTITE CUP B M3x10	2	0.45±0.10
CR frame	TAPTITE CUP B M3x10	2	0.60±0.10
PF encoder PCB ASSY	SCREW BIND M2x12	1	0.15±0.05
CR guide rail	TAPTITE CUP B M3x10	2	0.60±0.10
	SCREW BIND M3x6	2	0.60±0.10
Paper feed motor	SCREW BIND M3x6	2	0.60±0.10
Frame base	TAPTITE CUP B M3x10	1	0.40±0.10
	TAPTITE BIND B M3x10	2	0.40±0.10

## 5 LUBRICATION

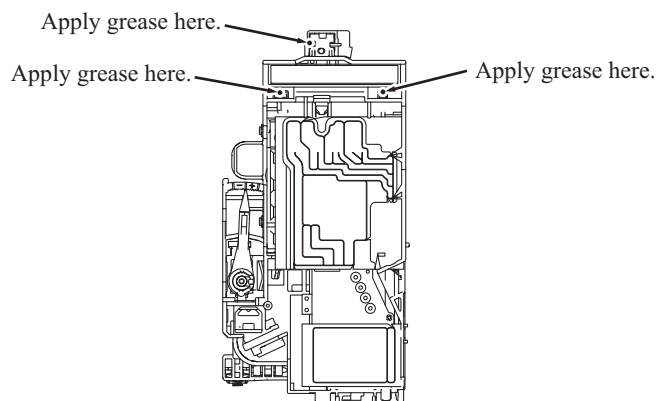
Lubricant type (Manufacturer)	Lubrication points		Lubricant amount per point
Molykote EM-30LP (Dow Corning)	Document separation roller gear	1	2.0 mm diameter ball
FLOIL BG-1319 (Kanto Kasei)	Head/carriage unit	2	1.0 mm diameter ball
Permalub BAN-5		1	1.5 mm diameter ball
FLOIL BG1319 (Kanto Kasei)	CR frame (top face)	24	2.0 mm diameter ball
	CR frame (inner side of the rear upright edge) (inner side of the front upright edge)	30	2.0 mm diameter ball
	CR frame (bottom face)	2	
Molykote EM-30LP (Dow Corning)	Platen/paper ejection roller	4	1.0 mm diameter ball
Permalub BAN-5	Paper feed roller	2	2.0 mm diameter ball x 2
Molykote EM-30LP (Dow Corning)	Paper pull-in rollers (T1/T2)	2	1.0 mm diameter ball

### ■ Document separation roller gear



(3\_114\_E)

### ■ Head/carriage unit



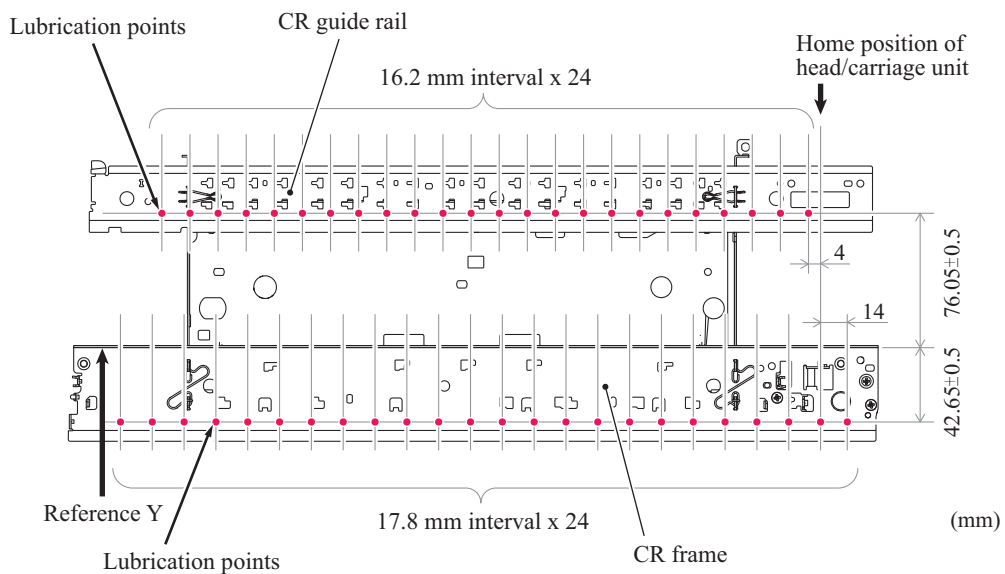
(3\_115\_E)

### ■ CR guide rail and CR frame (top face)

Apply a 2 mm diameter ball of grease (FLOIL BG1319) to each of the 48 lubrication points below.

#### Lubrication procedure

- (1) Move the head/carriage unit to the left end of its travel.
- (2) Before applying grease, wipe dust or dirt off the lubrication area with an alcohol soaked cloth.
- (3) Move the head/carriage unit from the left to the right ends of its travel to spread the applied grease on the CR guide rail and CR frame.



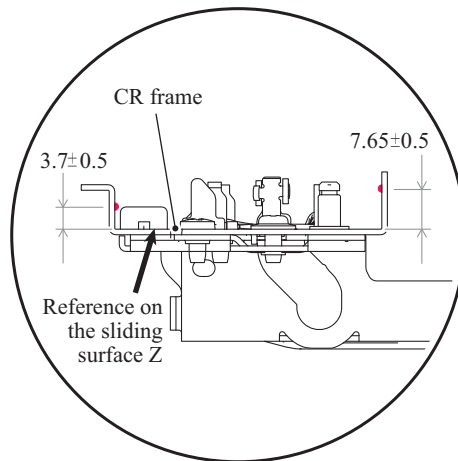
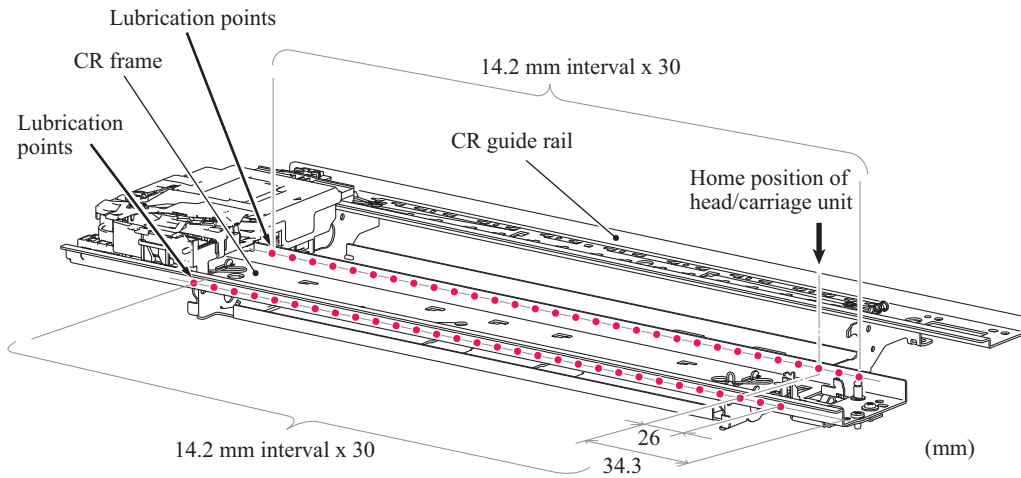
(3\_005\_S13E)

■ CR frame (inner sides of the front and rear upright edges)

Apply a 2 mm diameter ball of grease (FLOIL BG1319) to each of the 60 lubrication points below.

Lubrication procedure

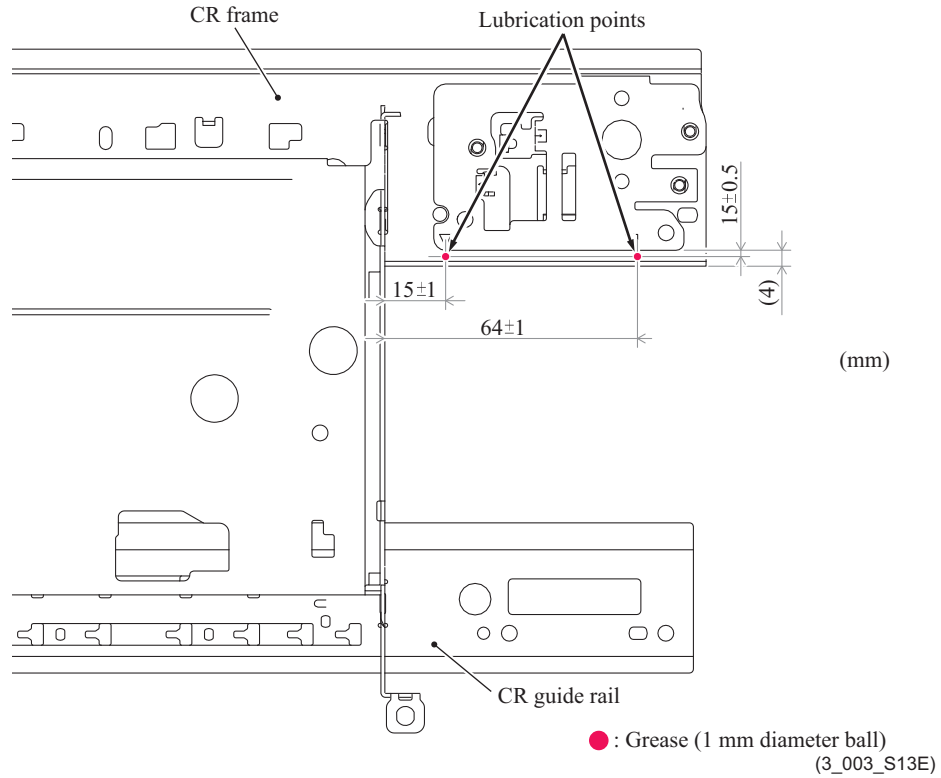
- (1) Move the head/carriage unit to the left end of its travel.
- (2) Before applying grease, wipe dust or dirt off the lubrication area with an alcohol soaked cloth.
- (3) Move the head/carriage unit from the left to the right ends of its travel to spread the applied grease on the CR guide rail and CR frame.



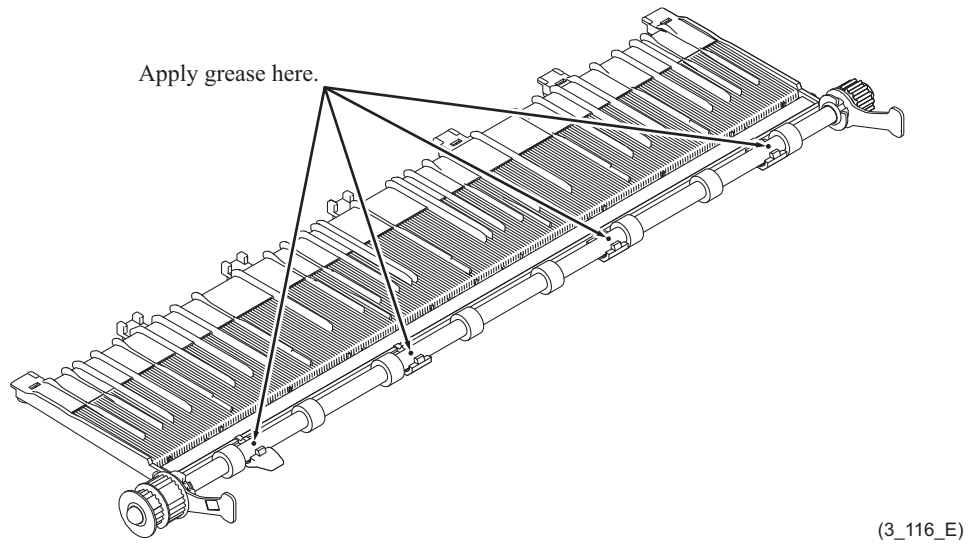
(3\_004\_S13E)

### ■ CR frame (bottom face)

Apply a 1 mm diameter ball of grease (FLOIL BG1319) to each of the 2 lubrication points below.



### ■ Paper ejection roller

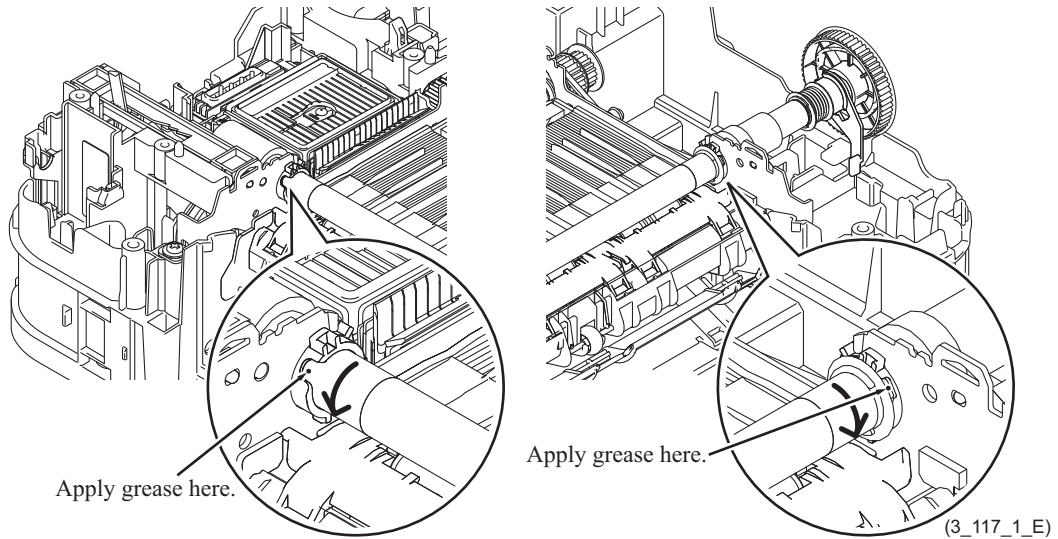




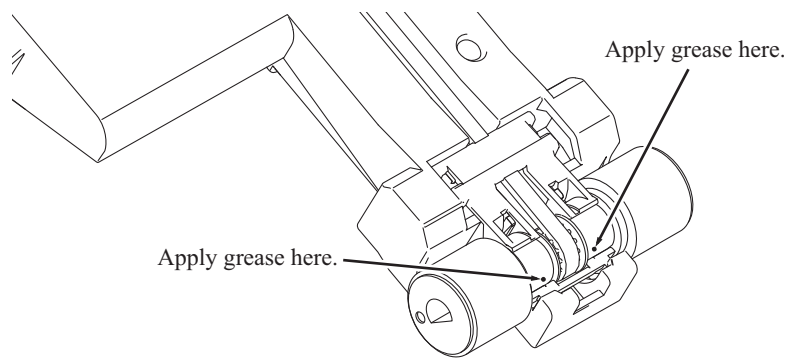
## ■ Paper feed roller

### Lubrication procedure

- (1) Apply grease to the lubrication points.
- (2) Rotate the paper feed roller one revolution in the direction indicated by the arrow.
- (3) Apply grease to the lubrication points.
- (4) Rotate the paper feed roller one revolution in the direction indicated by the arrow.



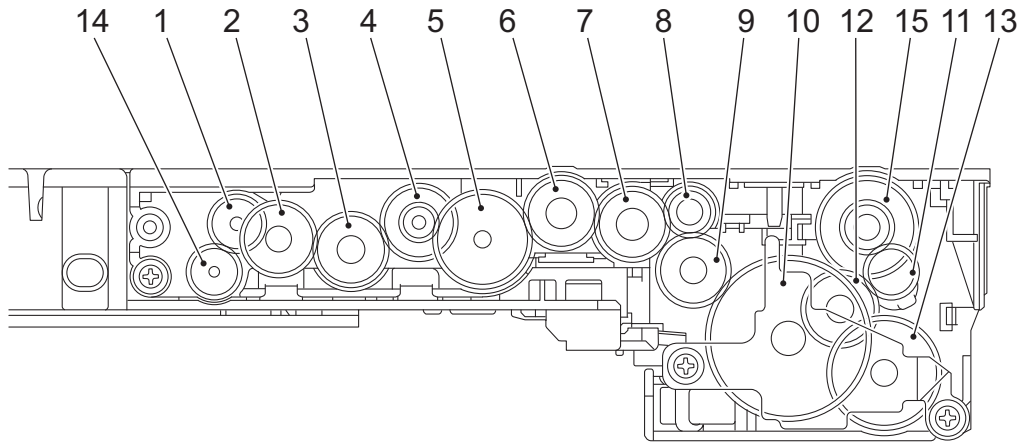
## ■ Paper pull-in rollers (T1/T2)



(3\_118\_1\_E)

## 6 OVERVIEW OF GEARS

### ■ ADF

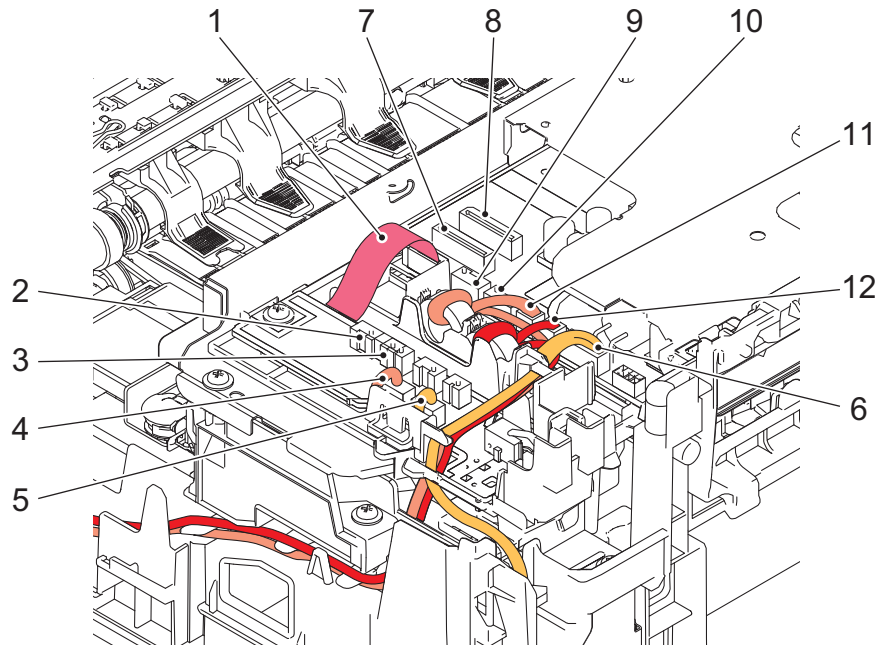


(3\_119\_E)

1	LED198001	GEAR 23
2	LED197001	GEAR 16/32
3	LED200001	LF ROLLER GEAR 31
4	LED197001	GEAR 16/32
5	LED199001	GEAR 41
6	LED196001	GEAR 31
7	LED196001	GEAR 31
8	LED195001	GEAR 20
9	LED200001	LF ROLLER GEAR 31
10	LED194001	GEAR 70
11	LP1410001	PLANET ARM ASSY
12	LED192001	GEAR 20/31
13	LED193001	GEAR 18/48
14	LED201001	SEPARATE ROLLER GEAR
15	LED191001	GEAR 20/54

## 7 ROUTING OF HARNESES AND INK SUPPLY TUBES

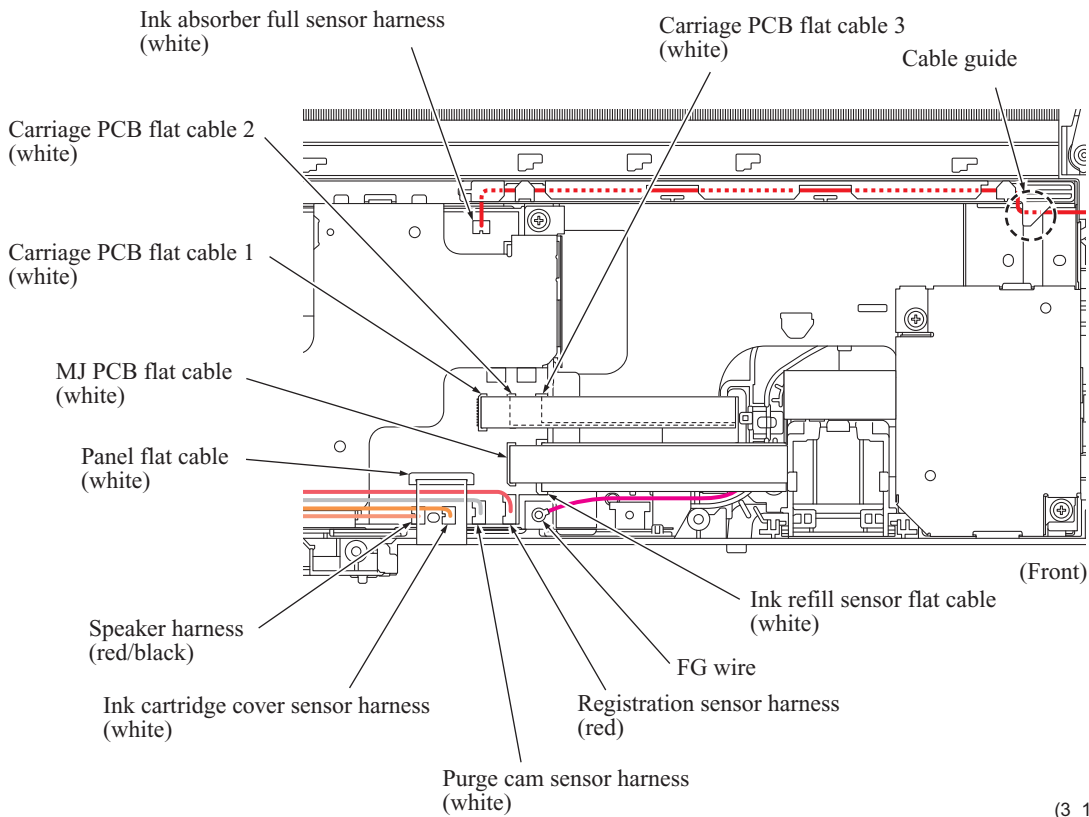
### 1 Sensor relay PCB ASSY and main PCB ASSY



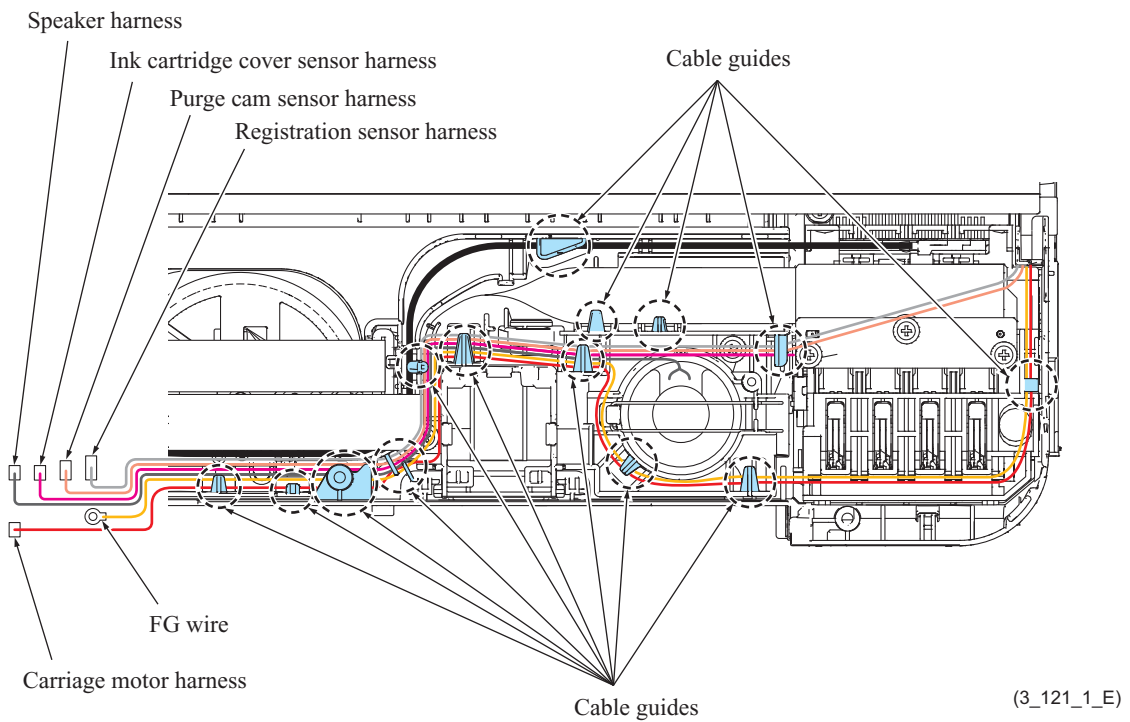
(3\_120\_E)

No.	Harness name
1	Sensor relay PCB flat cable
2	Document scanning position sensor harness
3	Document detection sensor harness
4	PF encoder sensor harness
5	Switchback sensor harness
6	Power supply PCB harness
7	Second side CIS flat cable
8	First side CIS flat cable
9	Scanner motor harness
10	ADF motor harness
11	Carriage motor harness
12	Paper feed motor harness

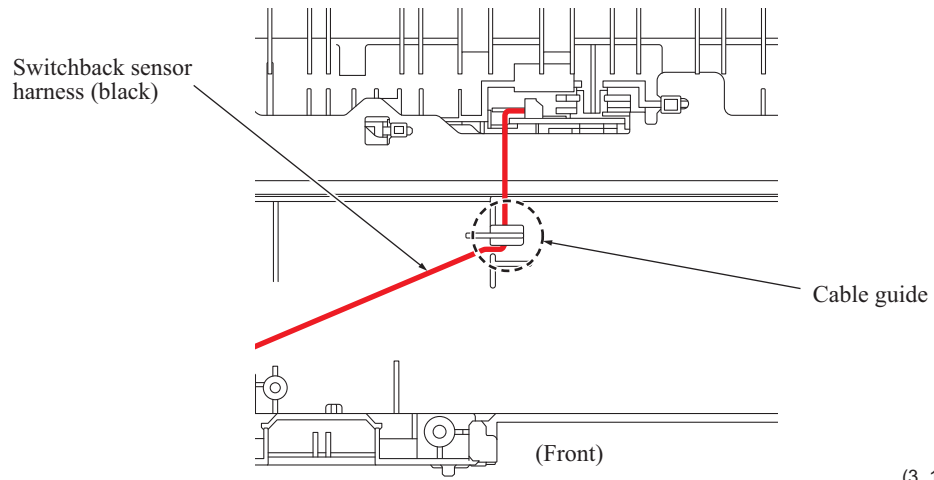
**2 Main PCB ASSY and MJ PCB ASSY**



The harness colors may change due to circumstances.

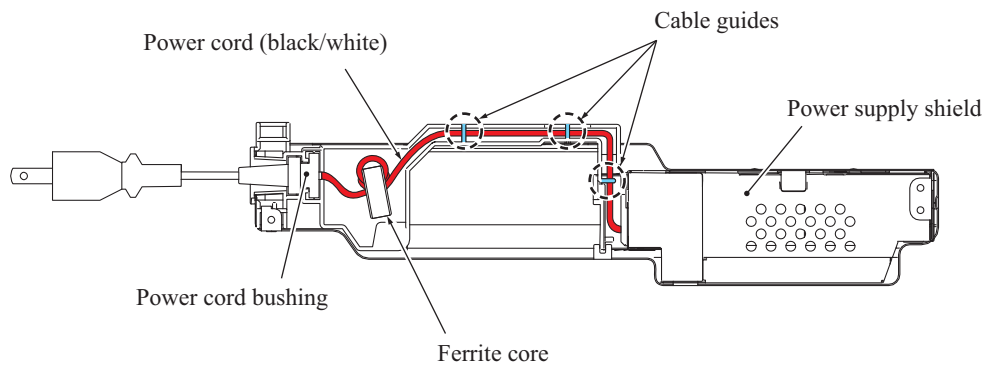


### 3 Switchback sensor



The harness colors may change due to circumstances.

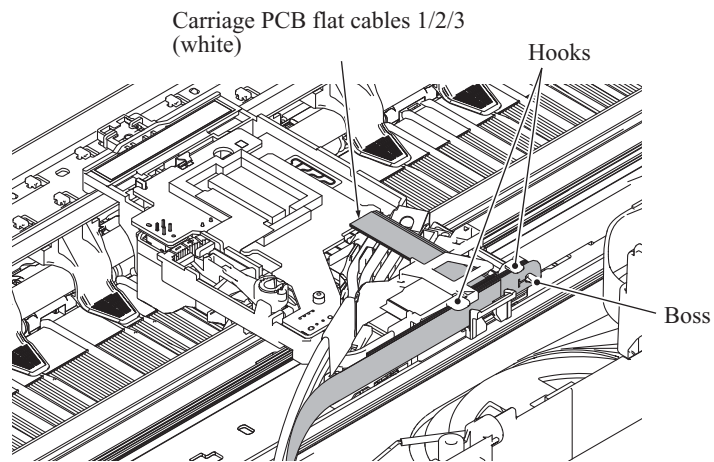
### 4 Power supply PCB ASSY



(3\_123\_E)

The harness colors may change due to circumstances.

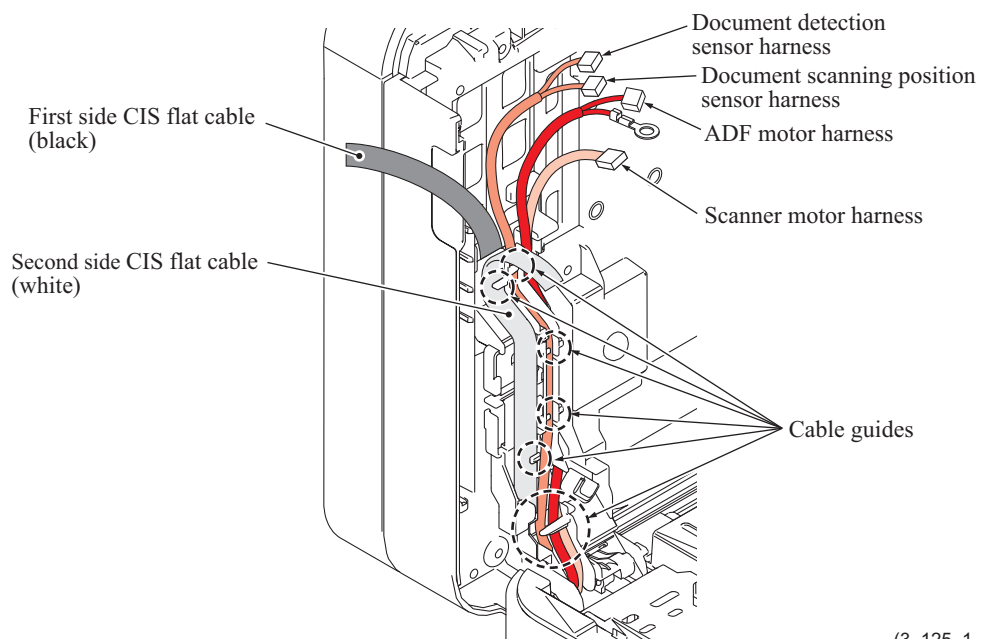
**5** Head/carriage unit



(3\_124\_E)

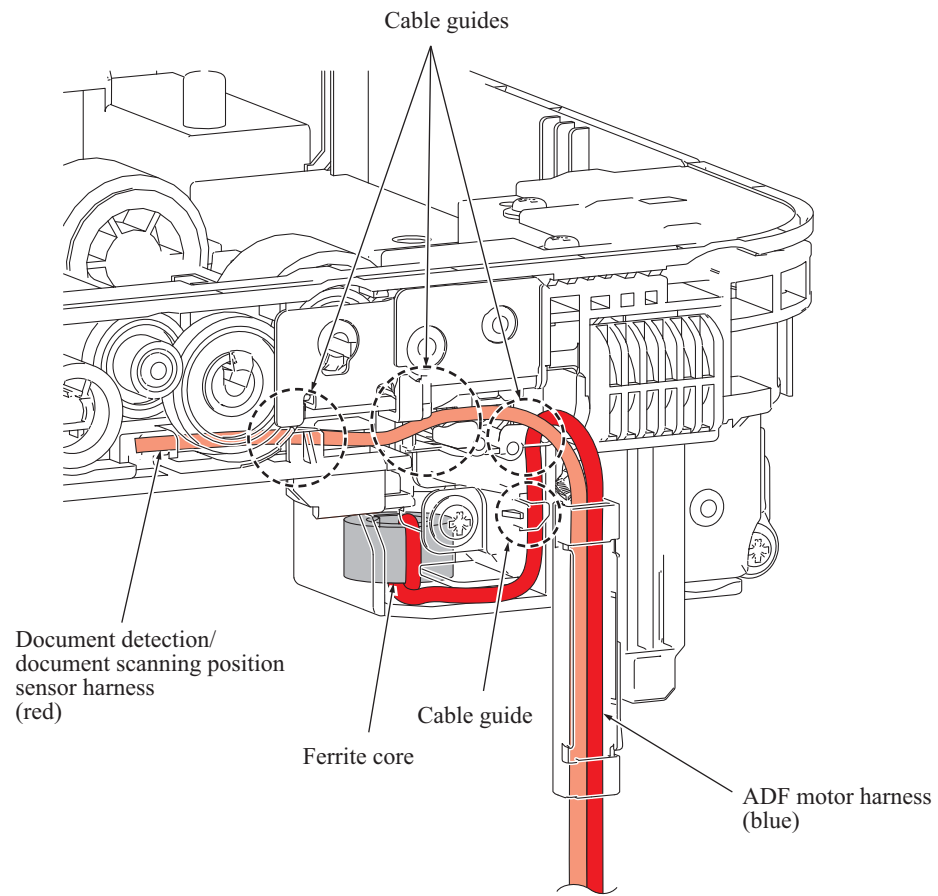
The harness colors may change due to circumstances.

**6** ADF unit and document scanner unit



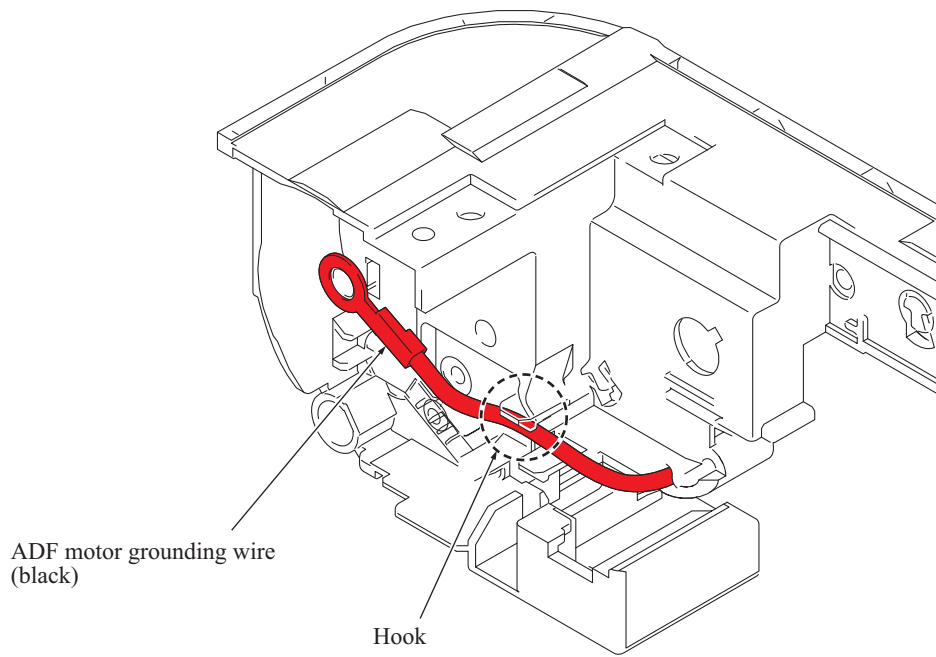
(3\_125\_1\_E)

The harness colors may change due to circumstances.



(3\_126\_1\_E)

The harness colors may change due to circumstances.

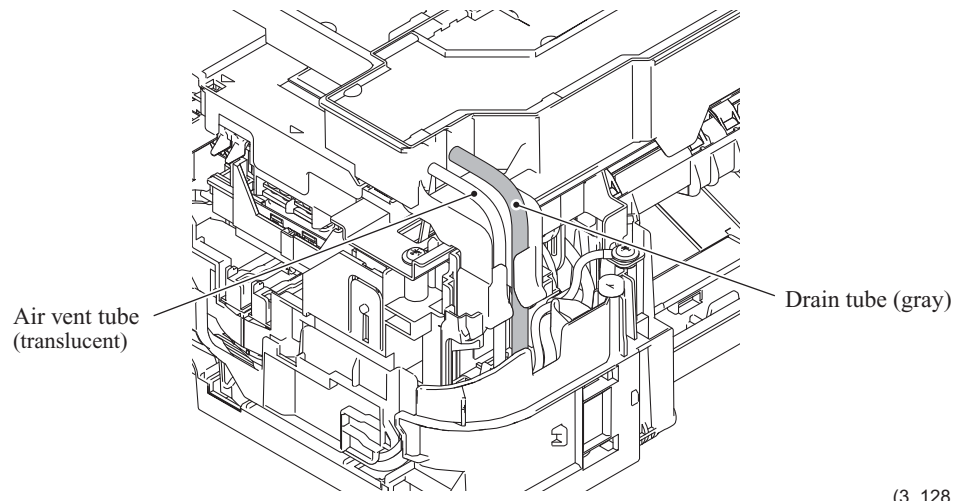


(3\_127\_E)

The harness colors may change due to circumstances.

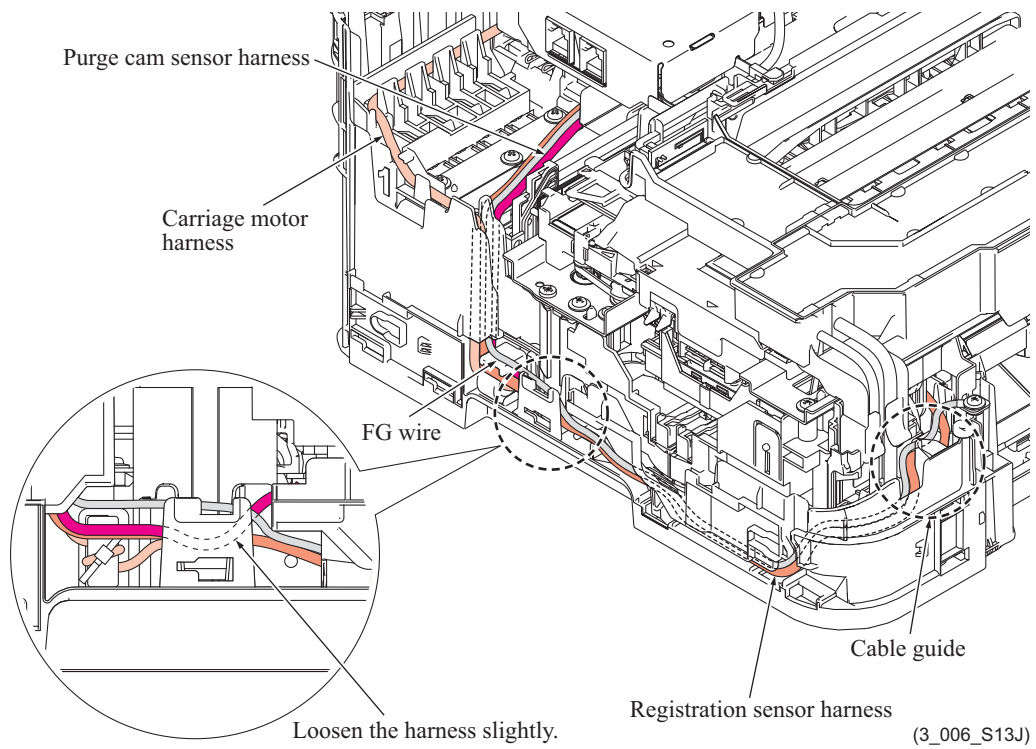


**9** Drain tube

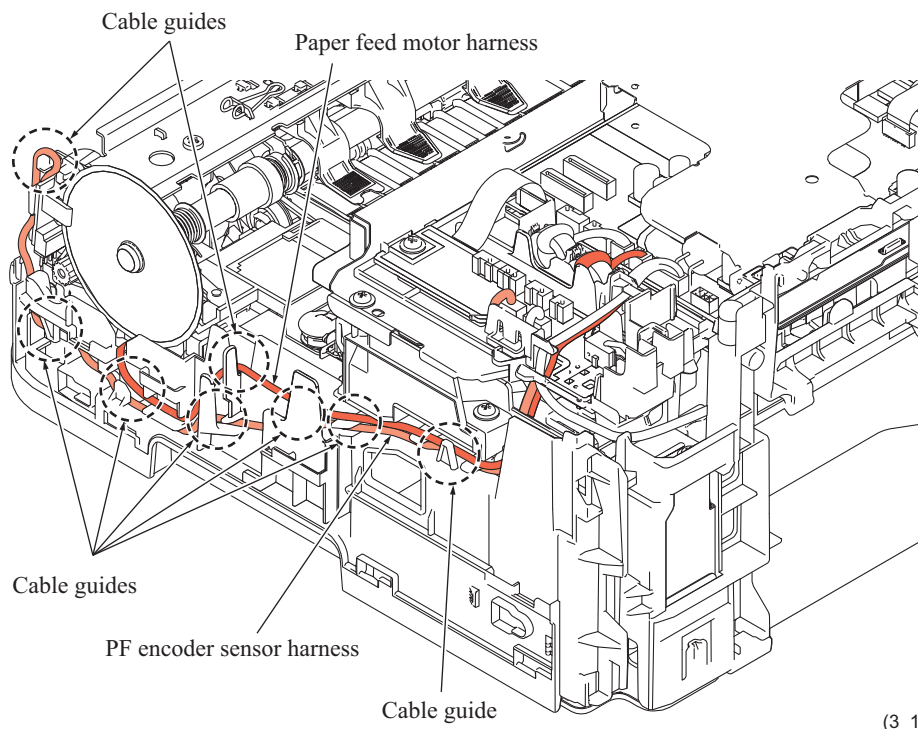


The tubes colors may change due to circumstances.

**10** Lower side cover R



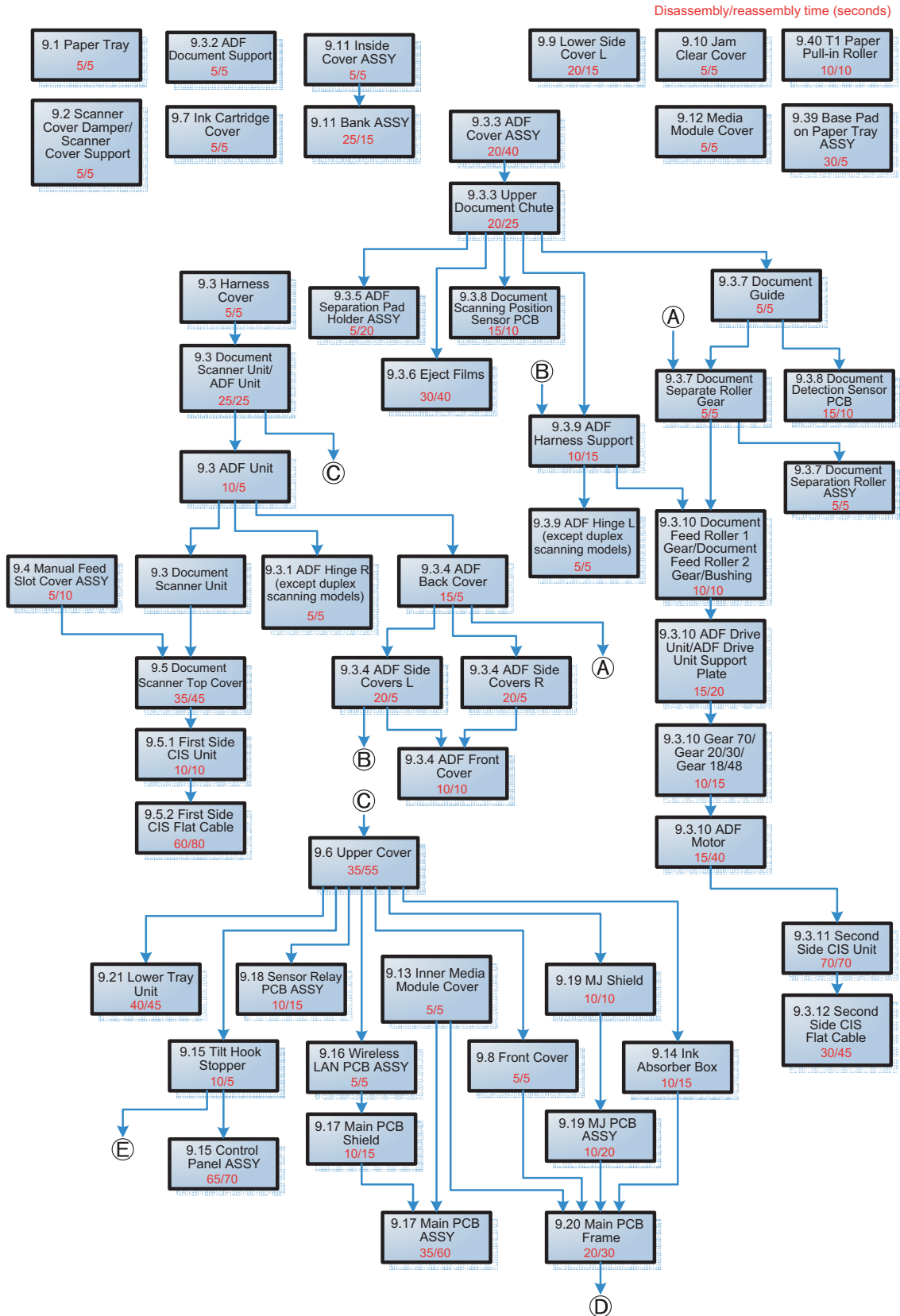
**11** Lower side cover L



(3\_130\_E)

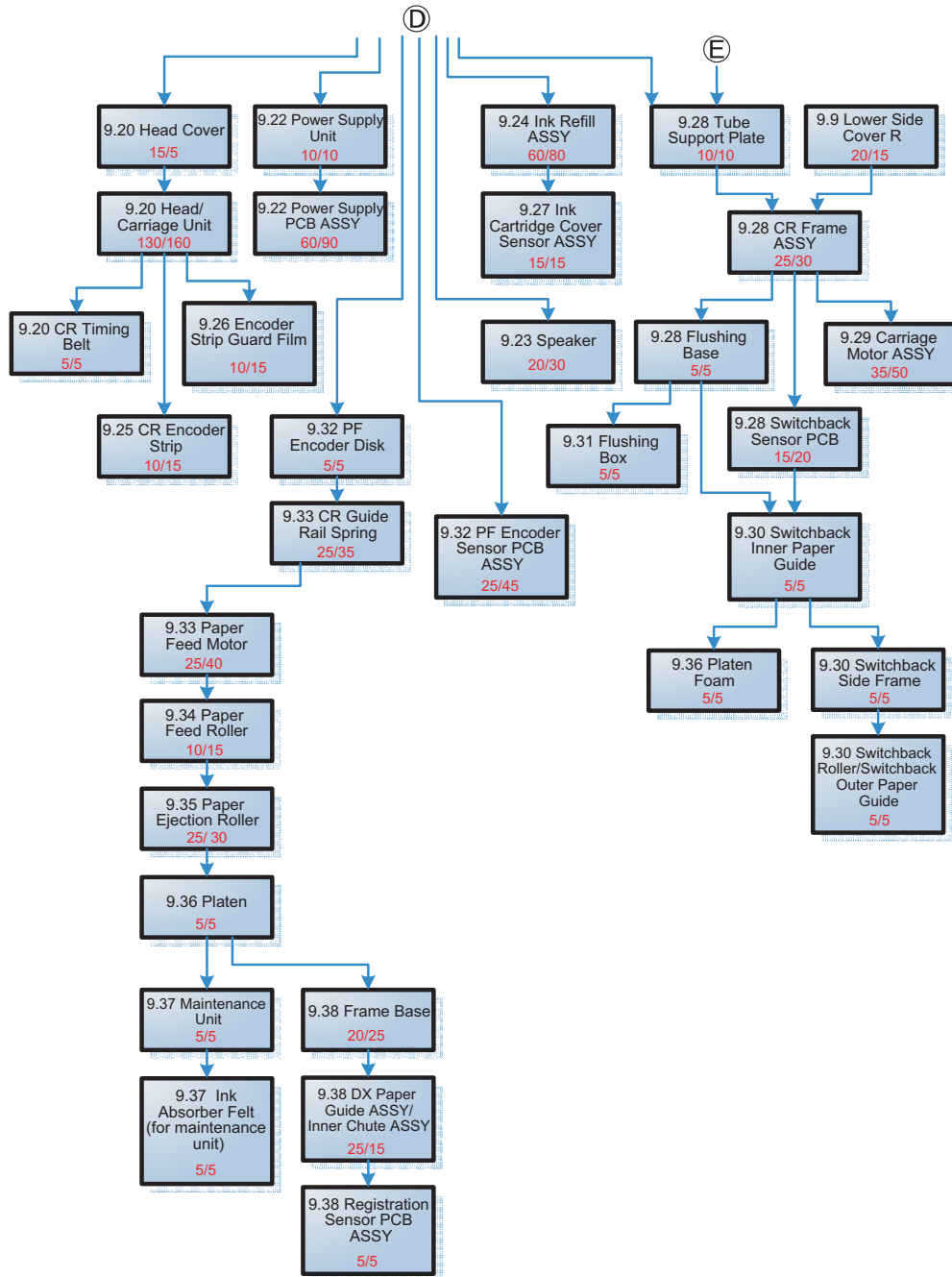
# 8 DISASSEMBLY FLOW

## ■ Disassembly flowchart 1/2



■ Disassembly flowchart 2/2

Disassembly/reassembly time (seconds)



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## 9 DISASSEMBLY PROCEDURE

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### 9.1 Preparation

#### [ 1 ] Transferring Received FAX Data

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


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

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

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

#### Transferring faxes to another fax machine

##### ■ Operating Procedure

- (1) Press the **X** key to interrupt the error (if displayed) temporarily.
- (2) Press . Press **All Settings**.
- (3) Press **Fax** or **Fax/Tel**.
- (4) Press **Setup Receive**.
- (5) Press **Memory Receive**.
- (6) Press **Fax Transfer**.


If a fax number entry screen appears, there are faxes in the machine's memory. Then enter the fax number to which faxes should be forwarded

- (7) Press the **OK** key.

## Transferring faxes to a PC

### ■ Operating Procedure

The following procedure uses the fax machine and your PC.

- (1) Press the **X** key to interrupt the error (if displayed) temporarily.
- (2) Press . Press **All Settings**.
- (3) Press **Fax**.
- (4) Press **Setup Receive**.
- (5) Press **Memory Receive**.
- (6) Press **PC-Fax Receive**.
- (7) If the "Run PC-Fax on your computer." appears on the LCD, press **OK**.
- (8) Click **Start | All Programs (program) | Brother | (Model name) MFC-XXXX | PC-FAX Receiving | Receive**.

Wait for the **PC-Fax Receiving** dialog box to appear. Confirm the message and click **OK**.

The PC-FAX icon appears in your PC task tray.



- (9) Select **<USB>** or the PC you run in step (8), then press **OK**.
- (10) Press **Backup Print:On** or **Backup Print:Off**.  
**Note:** Choosing **Backup Print:On** prints the received fax file.
- (11) Press the **X** key.

## [ 2 ] Backing up Machine Information and Head Calibration Data (when the main PCB is to be replaced)

Before starting repair, the service personnel should back up the following machine information , user setting information and head calibration data into an external memory (memory card or USB flash memory).

- Machine information (Preset values, count values, error information, machine specifications data, etc.)
- User setting information (telephone directory, password, station ID, transfer information, telephone area code, user settings, etc.)
- Other data (Received fax data, ICM/OGM data, etc.)

Note that the following information cannot be backed up.

- MAC address
- Call and caller ID records
- Activity report
- Fax data to be sent (by delayed-timer, redialing, and polling)

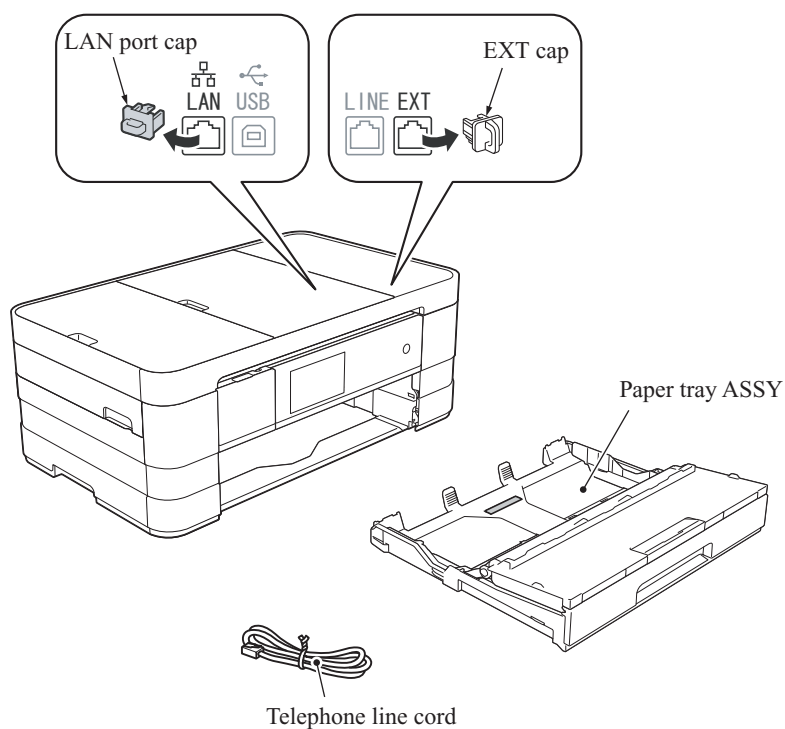
### ■ Operating Procedure

Refer to [Chapter 5, Section 1.3.13 "Backup of Machine Information \(Maintenance mode 46\)."](#) and [Chapter 5, Section 1.3.25 "Updating of Head Property Data and Backup/Restoration of Head Calibration Data \(Maintenance mode 68\)."](#)

### [ 3 ] Disconnecting Cables, Removing Accessories, and Setting the Protective Part

Before starting disassembly, perform the following procedure.

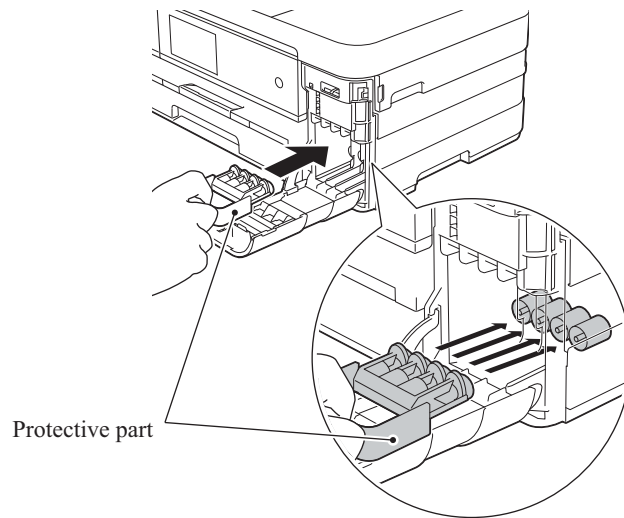
- (1) Disconnect the following:
  - Telephone line cord, if connected
  - Power cord (for 200 V models)
  - USB cable, if connected
  - LAN cable, if connected
  - External memory card, if connected
- (2) Remove the following:
  - Paper tray ASSY
  - Ink cartridges
  - LAN port cap
  - EXT cap



(3\_001\_E)



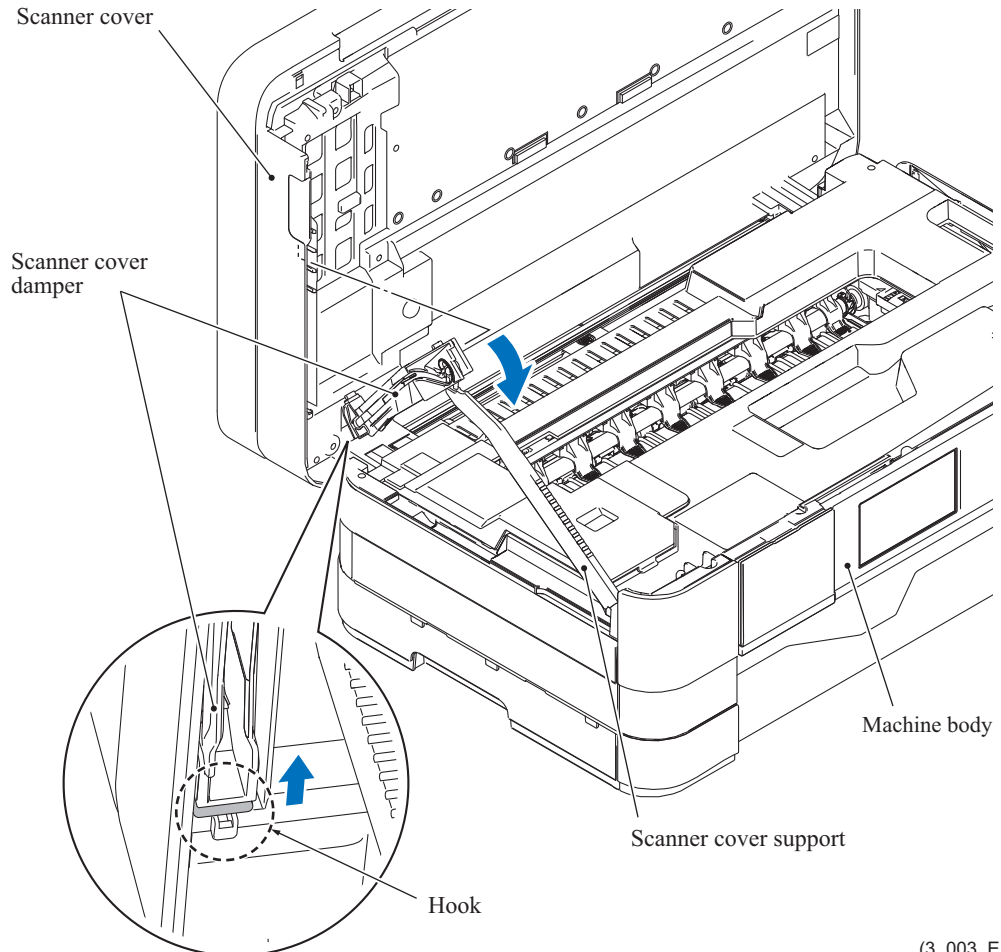
(3) Set the protective part.



(3\_002\_E)

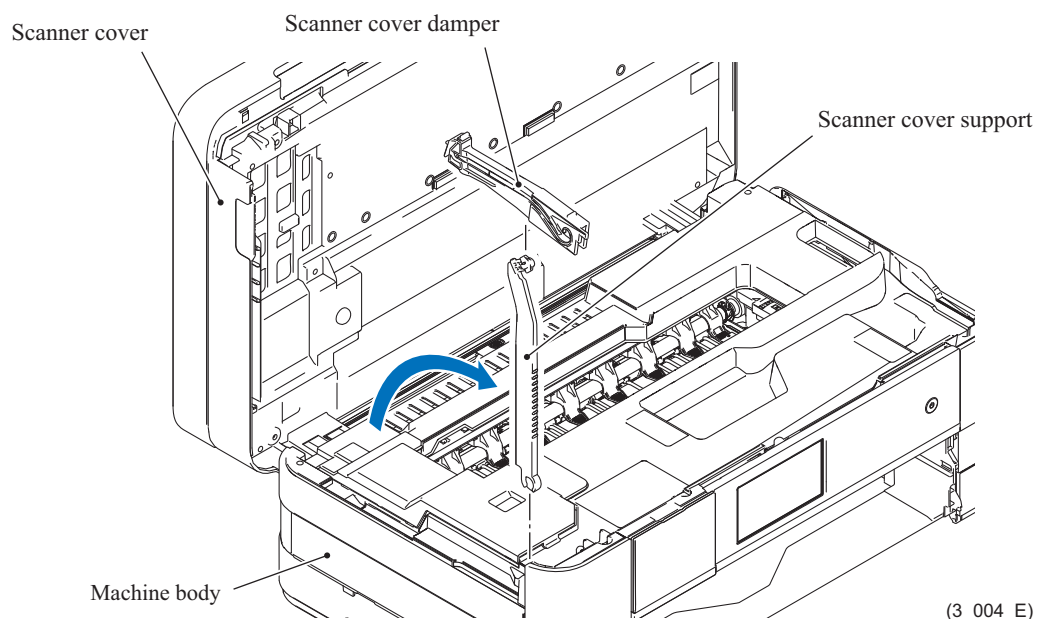
## 9.2 Scanner Cover Damper and Scanner Cover Support

- (1) Open the scanner cover until it locks.
- (2) Support the scanner cover by hand, pull the hook at the rear end of the scanner cover damper to the front, and remove the damper from the scanner cover.



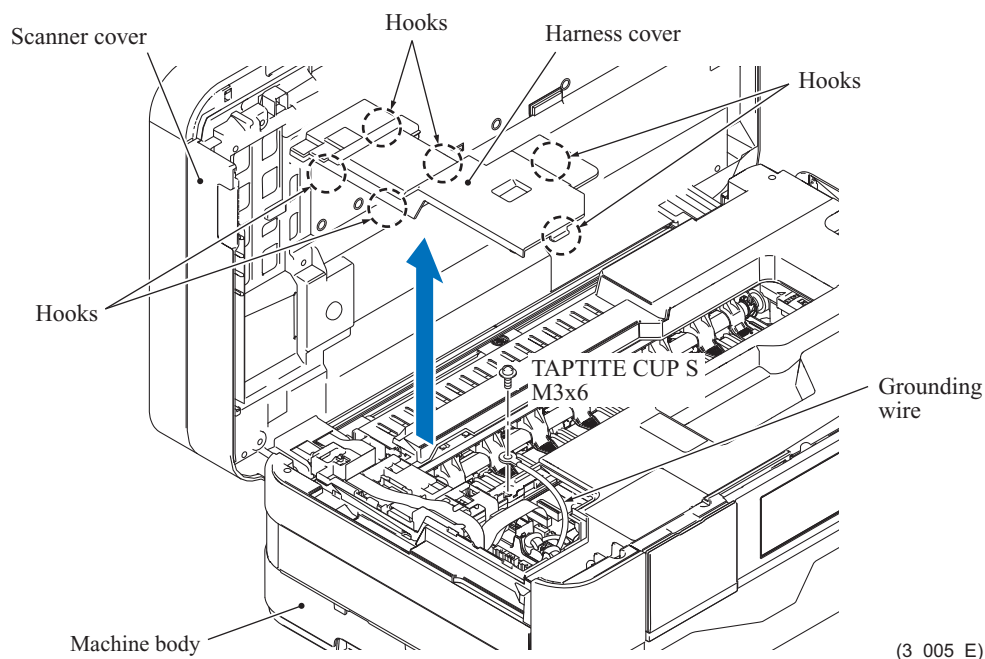
(3\_003\_E)

- (3) Turn the scanner cover support upright and pull it up and out of the upper cover together with the scanner cover damper.
- (4) Remove the scanner cover damper from the scanner cover support.

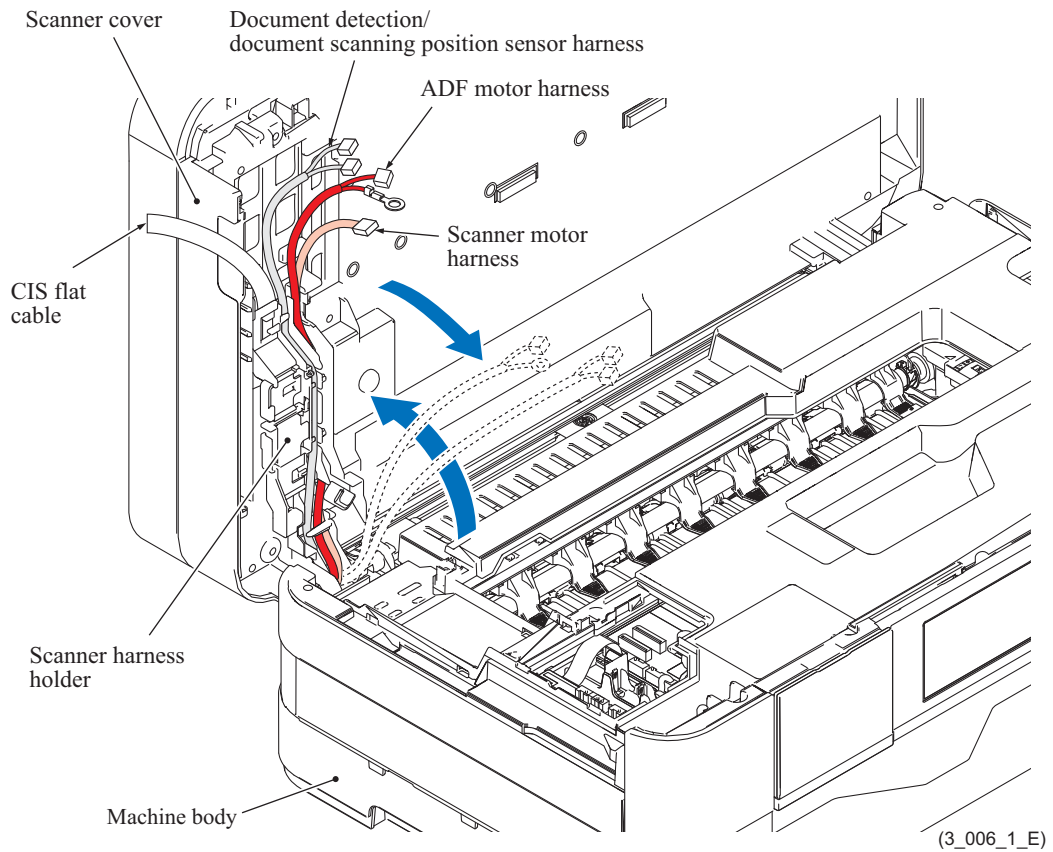


### 9.3 ADF Unit

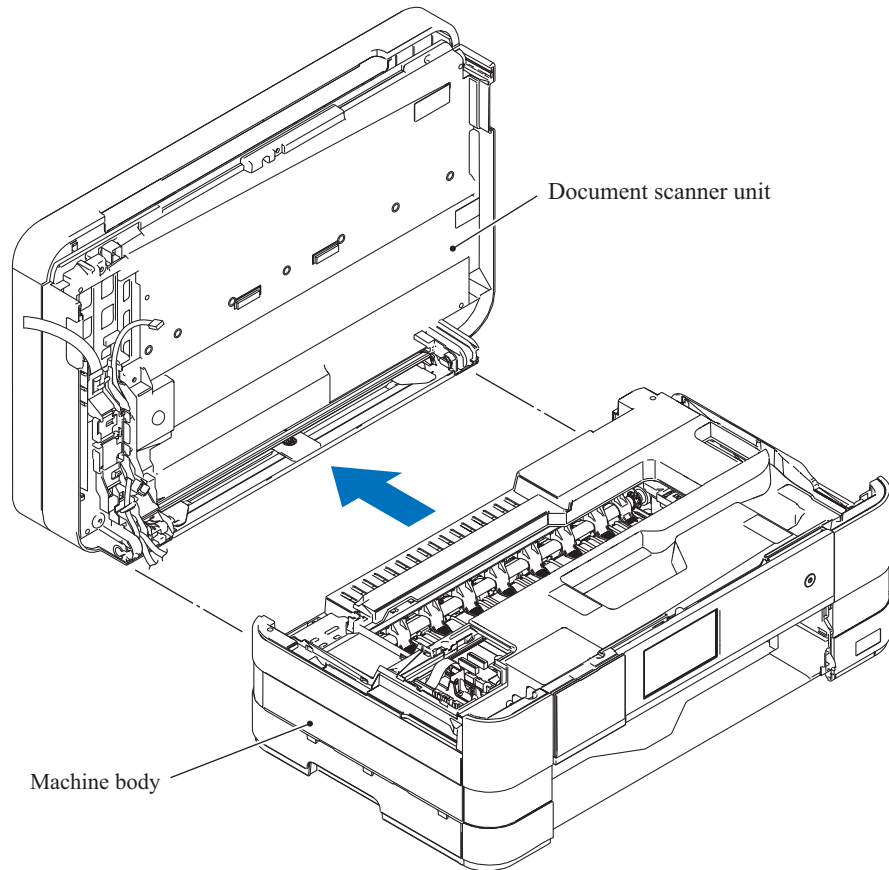
- (1) Open the scanner cover, insert the tip of a flat screwdriver into the hooks and lift the harness cover up and off, starting from the rear and finally pulling out the tab.
- (2) Remove the screw (TAPTITE CUP S M3x6) from the grounding wire of the ADF motor harness.
- (3) Disconnect the document detection/document scanning position sensor harness, ADF motor harness, scanner motor harness and CIS flat cable.  
Duplex scanning models: Disconnect also the second side CIS flat cable.



- (4) Release the two hooks on the scanner harness holder and open it.
- (5) Secure the scanner harness holder to the document scanner unit and then release the wiring of the document detection/document scanning position sensor harness and the ADF motor harness.  
Duplex scanning models: Secure the scanner harness holder to the document scanner unit and then release the second side CIS flat cable.



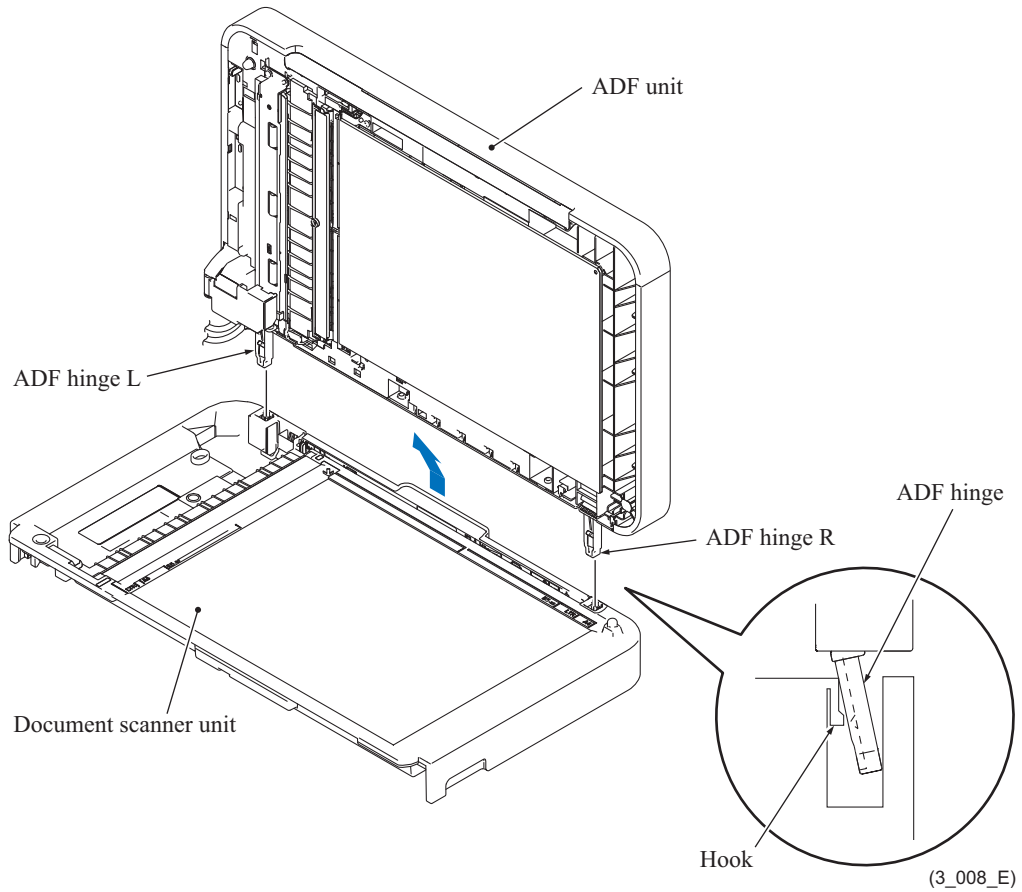
- (6) Slide off the document scanner unit and the ADF unit to the rear.



(3\_007\_1\_E)

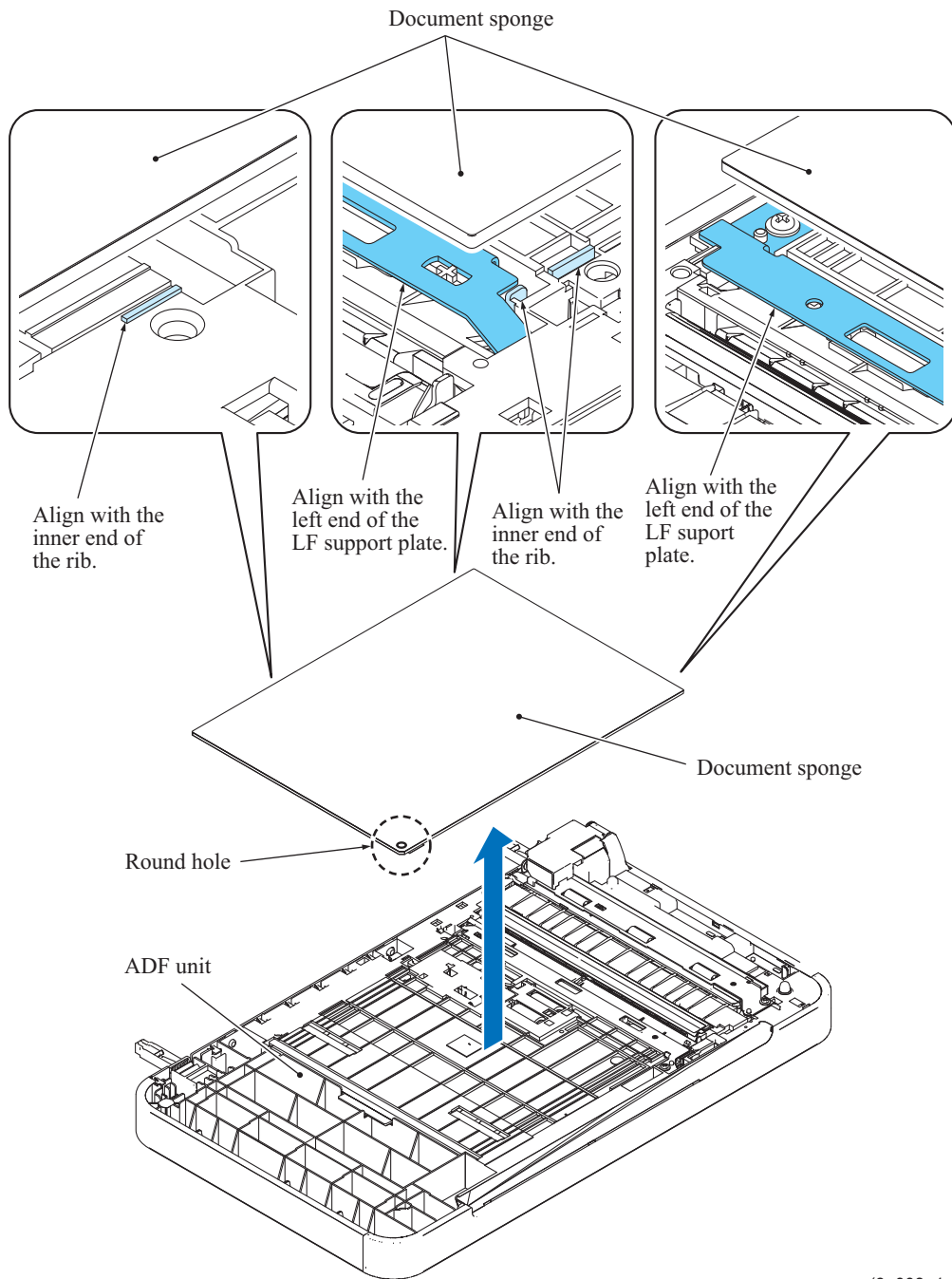
**Assembling Note:** Before routing the document detection/document scanning position sensor harness and the ADF motor harness through the harness holder, put a 20-mm-thick pad on the scanner glass of the document scanner cover. Otherwise, when you scan a thick book on the scanner glass, the ADF unit cannot be closed due to those tense harnesses.

- (7) Open the ADF unit, lift it up slightly, pull it towards you to tilt the hinges, and remove it from the document scanner unit.
- (8) Pull out the document detection/document scanning position sensor harness and the ADF motor harness from the document scanner unit.



(9) Remove the document sponge.

**Assembling Note:** Attach the document sponge in accordance with the instruction drawing shown below.

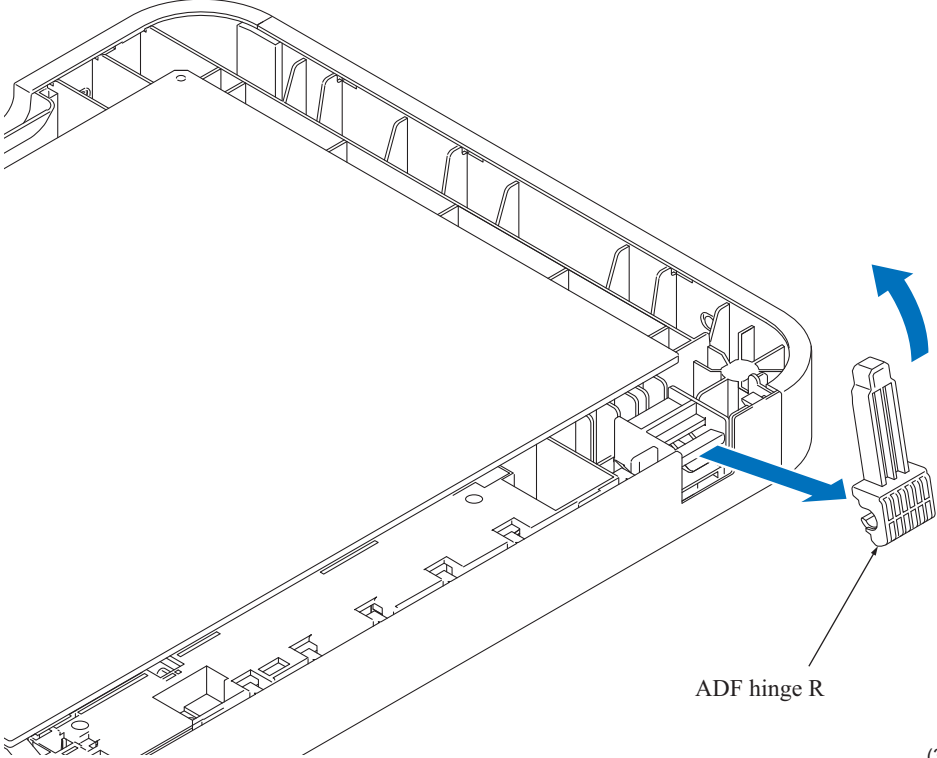


(3\_008\_1\_E)



**9.3.1 ADF Hinge R**

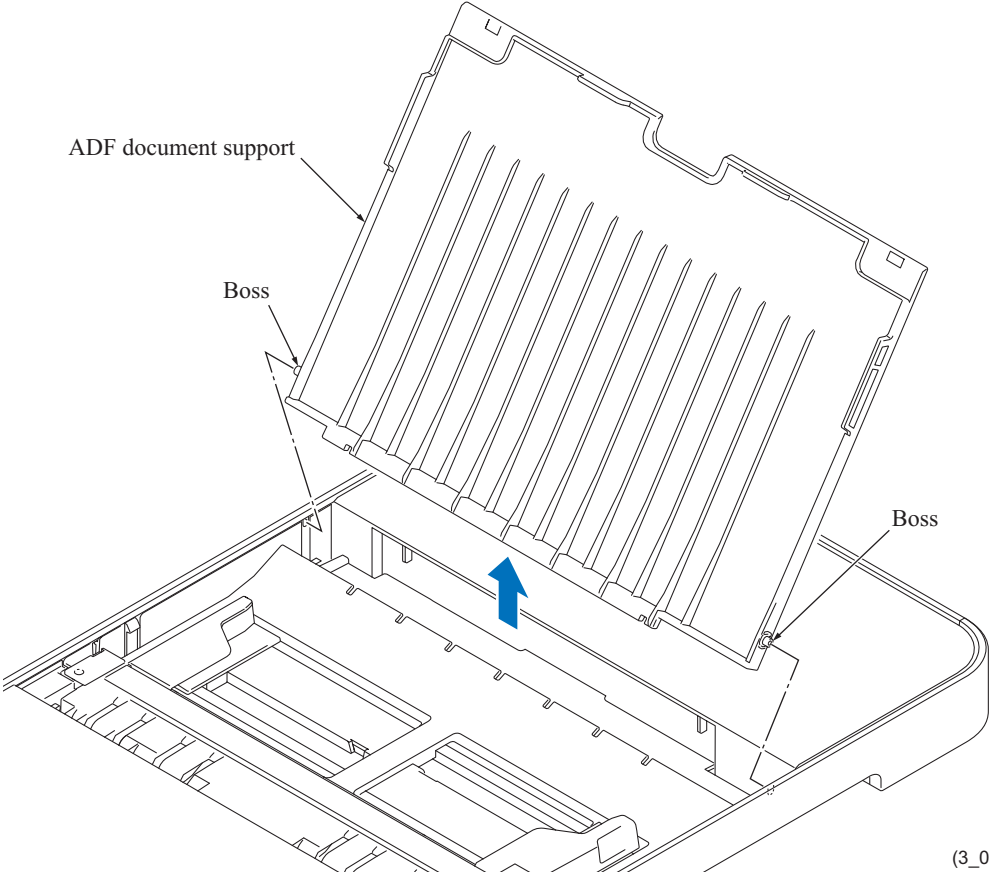
(1) Fully turn the ADF hinge R to the front and pull it out to the rear.



(3\_009\_E)

**9.3.2 ADF Document Support**

(1) Warp the ADF document support to release its bosses, then remove the support.

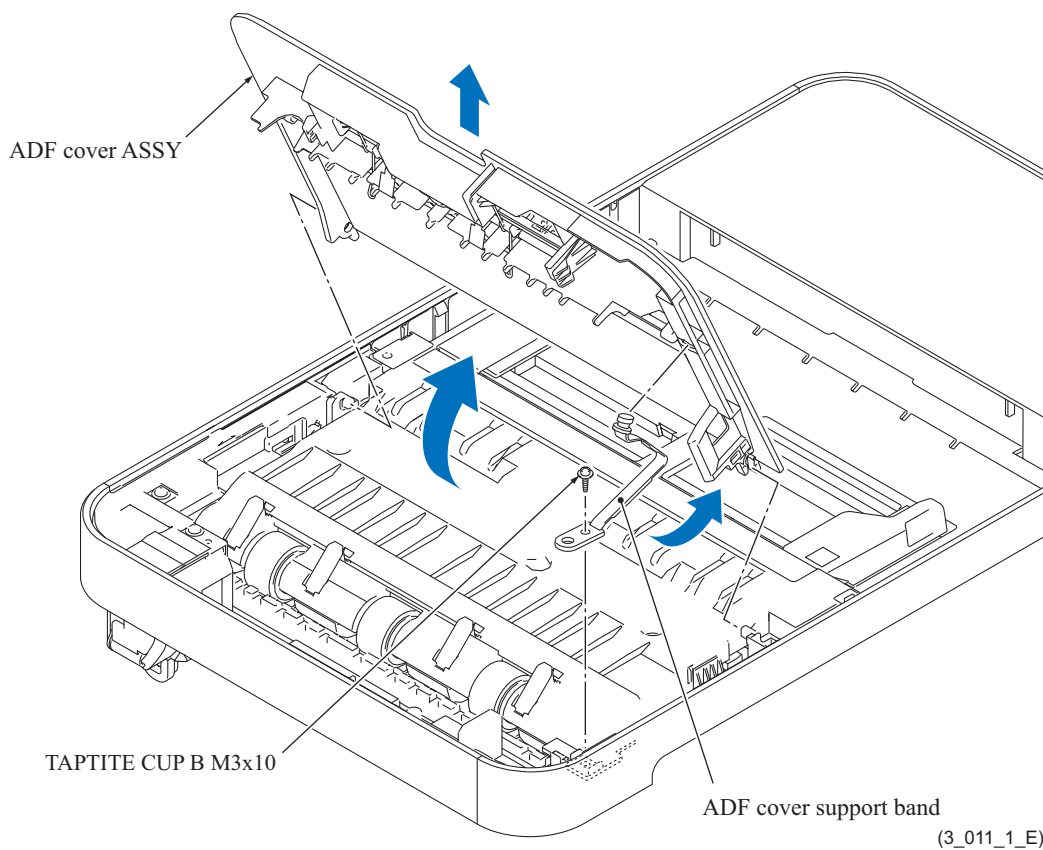


### 9.3.3 ADF Cover ASSY

- (1) Open the ADF cover ASSY, remove the screw (TAPTITE CUP B M3x10), turn the ADF cover support band 90 degrees and pull it down.

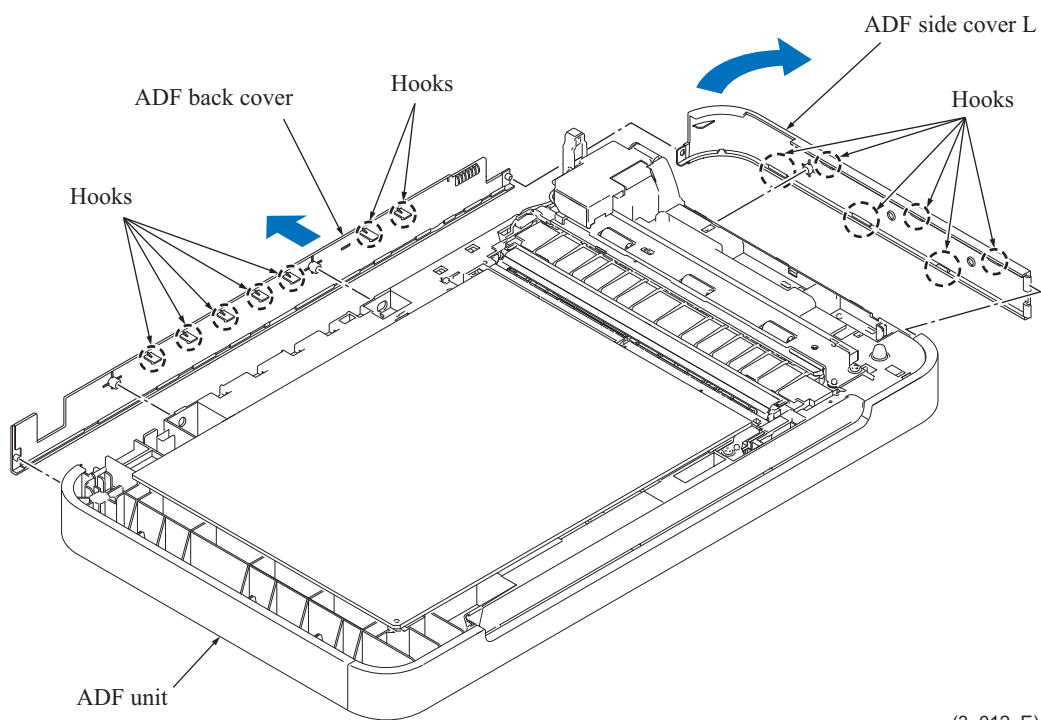
**Note:** After removing the ADF cover support band, do not open the ADF cover ASSY exceeding 80 degrees.

- (2) Warp the ADF cover to release it from the bosses and remove the ADF cover ASSY.



### 9.3.4 ADF Back Cover, ADF Side Covers R and L, and ADF Front Cover

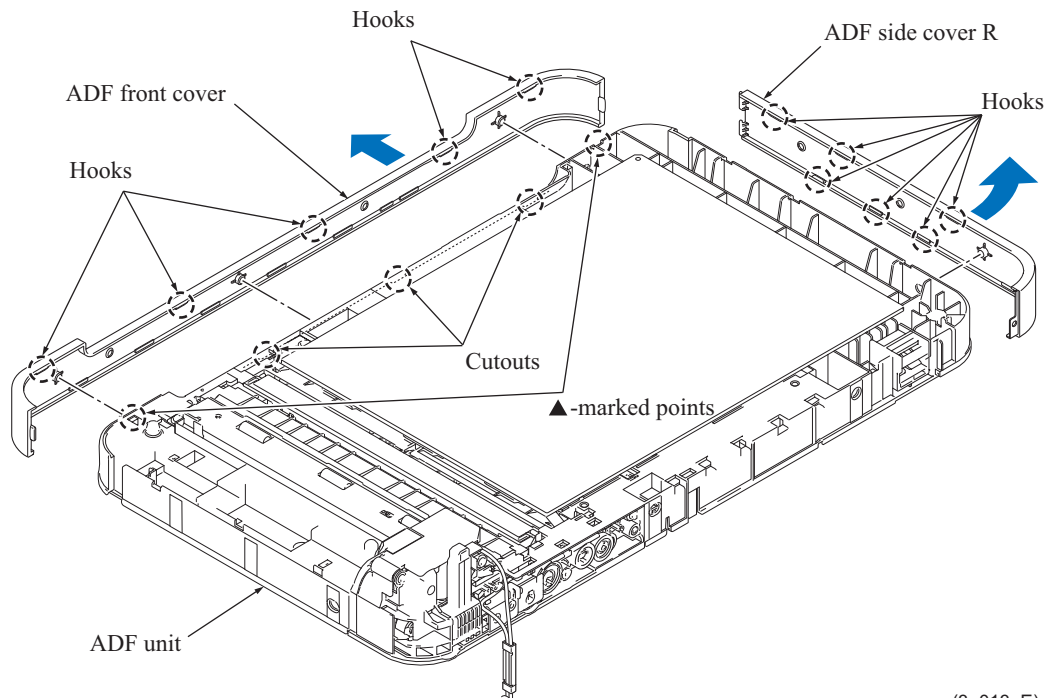
- (1) Turn the ADF unit upside down, release the seven hooks on the ADF back cover with a flat screwdriver, and remove the ADF back cover from the ADF unit.
- (2) Hold the rear end of the ADF side cover L and turn it to the front to release the hooks starting from the rear side, and remove the ADF side cover L.



(3\_012\_E)

- (3) Hold the rear end of the ADF side cover R, turn it to the front to release the hooks starting from the rear side, and remove the ADF side cover R.
- (4) Insert the tip of a flat screwdriver into the two ▲-marked points and three cutouts provided in the ADF front cover and release the five hooks to remove the cover.

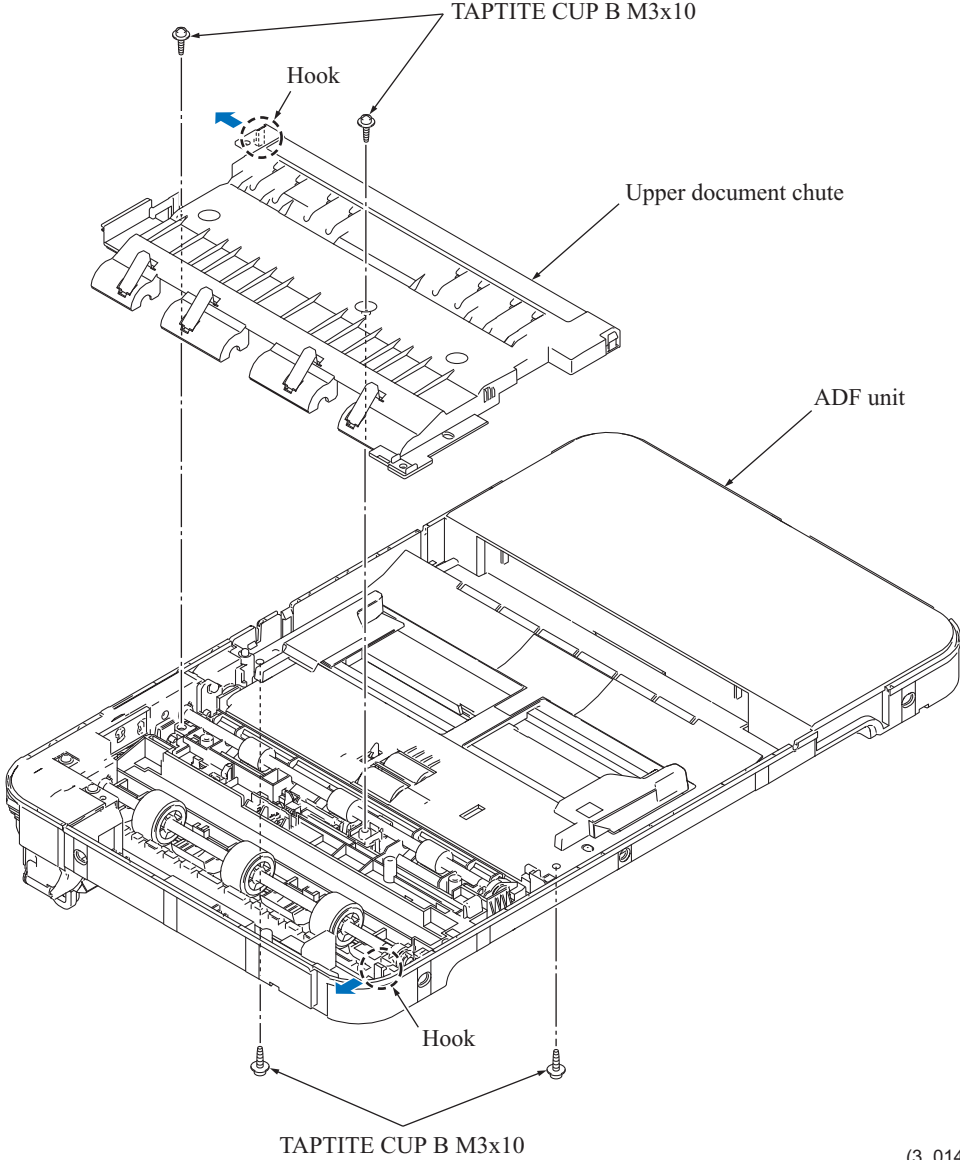
**Assembling Note:** Mount the ADF front and back covers while fitting the hooks into the grooves provided in the ADF unit.



(3\_013\_E)

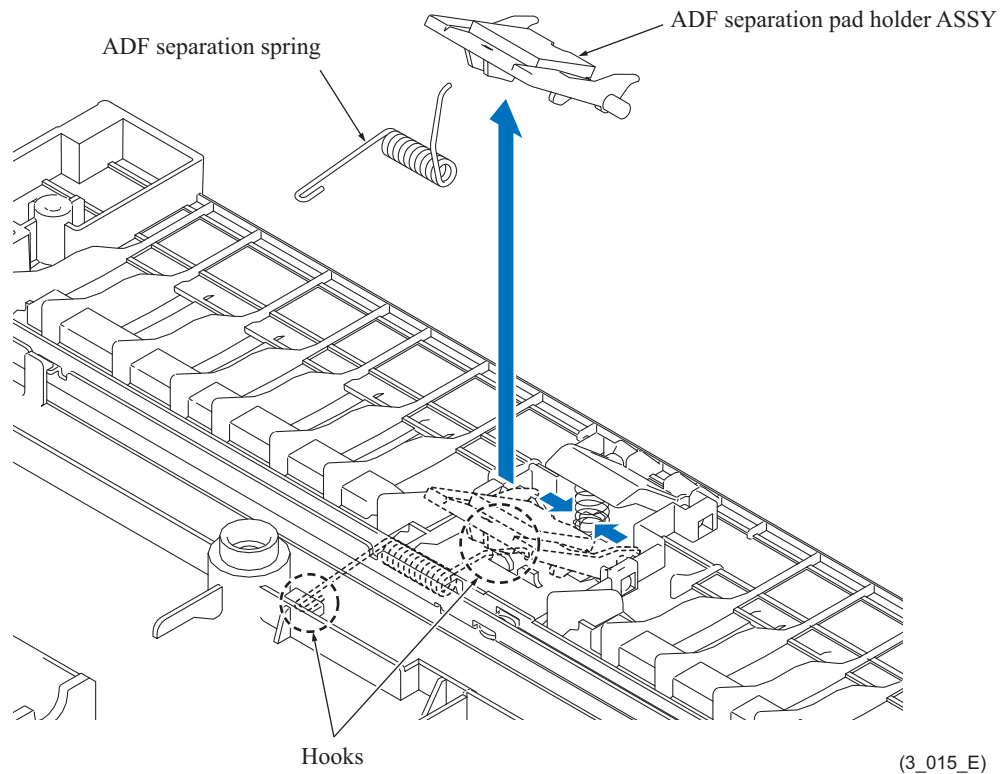
**9.3.5 ADF Separation Pad Holder ASSY**

- (1) Remove the four screws (TAPTITE CUP B M3x10), two screws each from the bottom and top of the ADF unit.
- (2) Release the two hooks and remove the upper document chute.

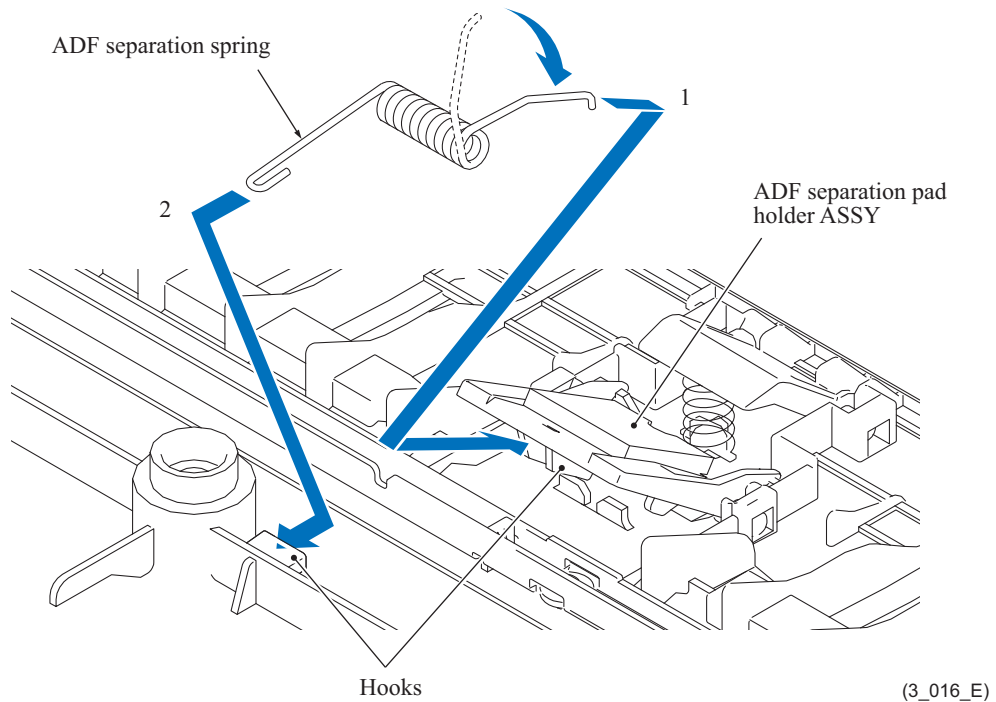


(3\_014\_E)

- (3) Release the two hooks and remove the ADF separation pad holder ASSY and the ADF separation spring.

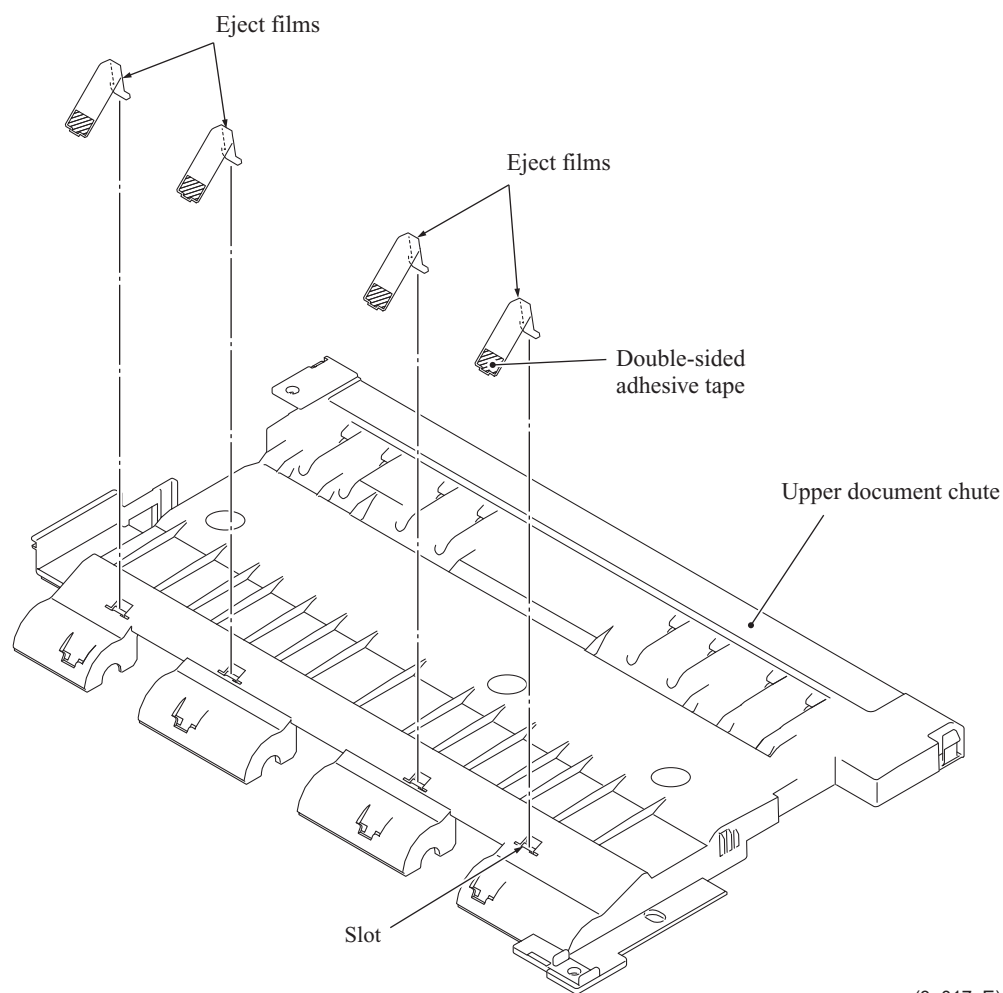


**Assembling Note:** Mount the ADF separation spring and the ADF separation pad holder ASSY to the ADF unit, then hook the other end of the spring on the ADF unit.



### 9.3.6 Eject Films

- (1) Peel off the double-sided adhesive taped end of the eject film.
- (2) Pull out the eject film through the slot in the upper document chute.
- (3) In the same way, remove other three eject films.



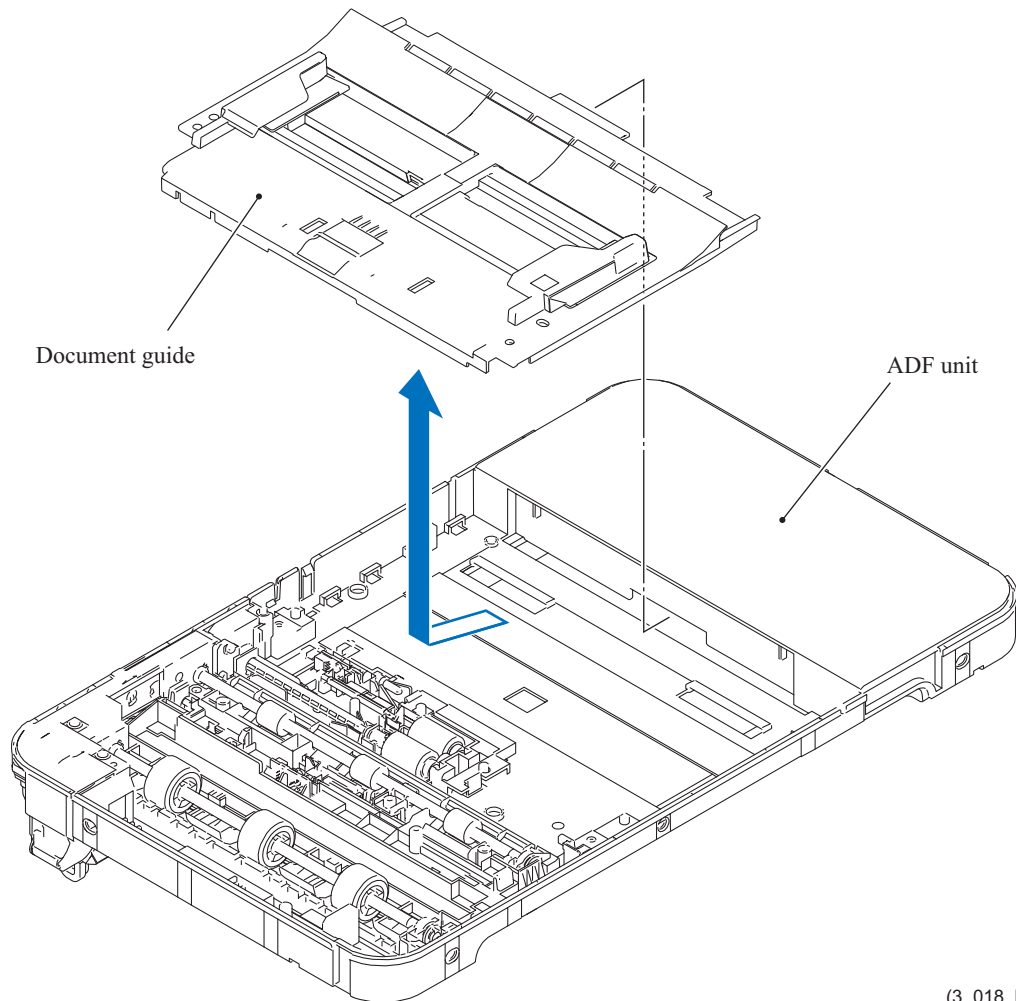
(3\_017\_E)

**Assembling Note:** Once removed, the eject films should be replaced with new ones.



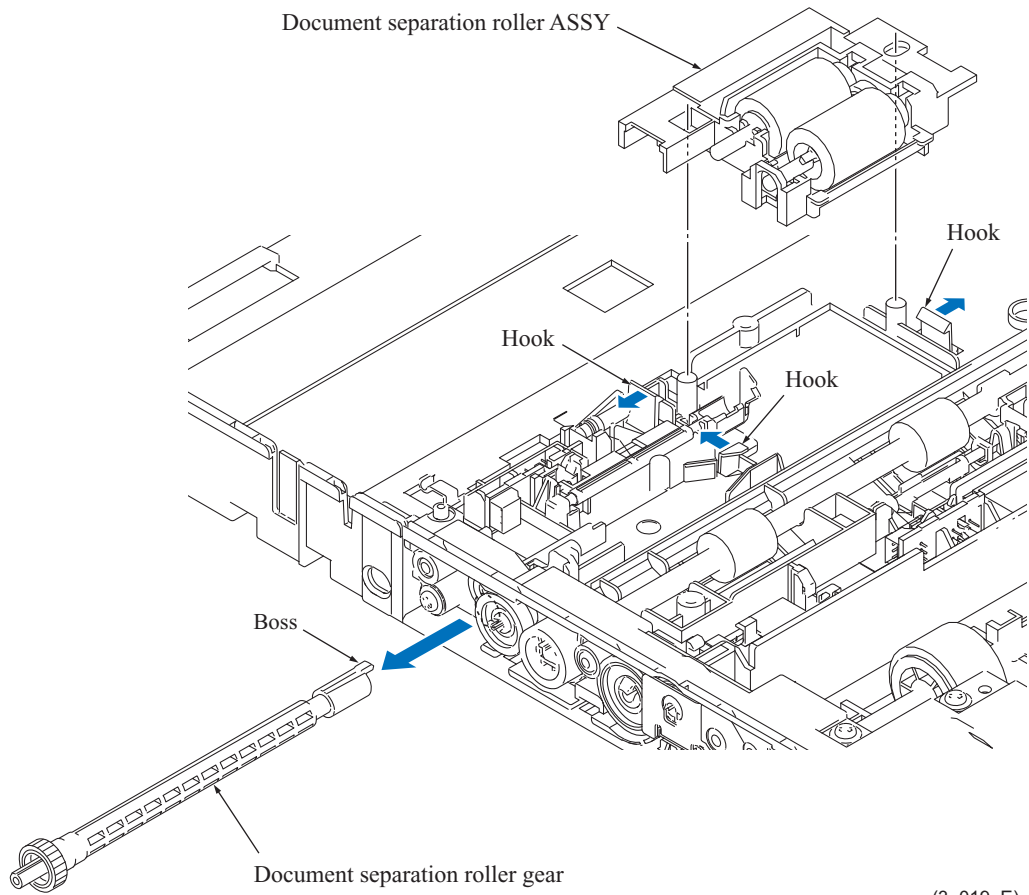
### 9.3.7 Document Separation Roller ASSY

- (1) Slightly lift up the left end of the document guide and slide it to the upper left to remove it.



(3\_018\_E)

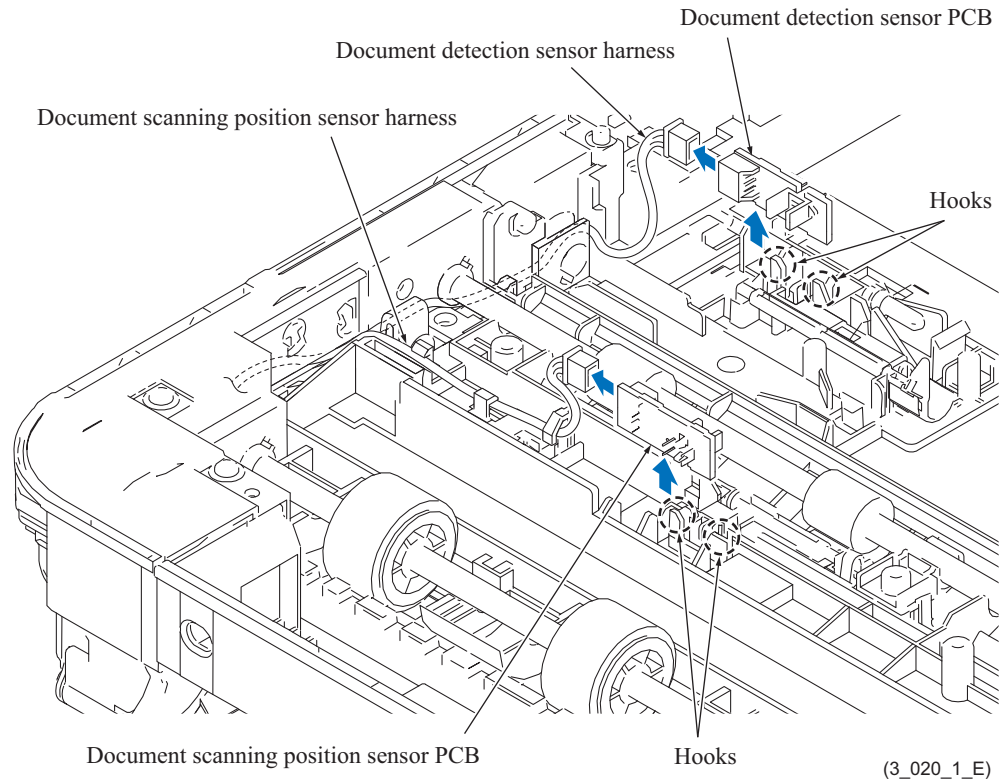
- (2) Rotate the document feed roller shaft until the boss of the document separation roller gear faces upward.
- (3) Open the hook and pull out the document separation roller gear to the rear.
- (4) Release the two hooks and remove the document separation roller ASSY.



(3\_019\_E)

### 9.3.8 Document Detection Sensor PCB and Document Scanning Position Sensor PCB

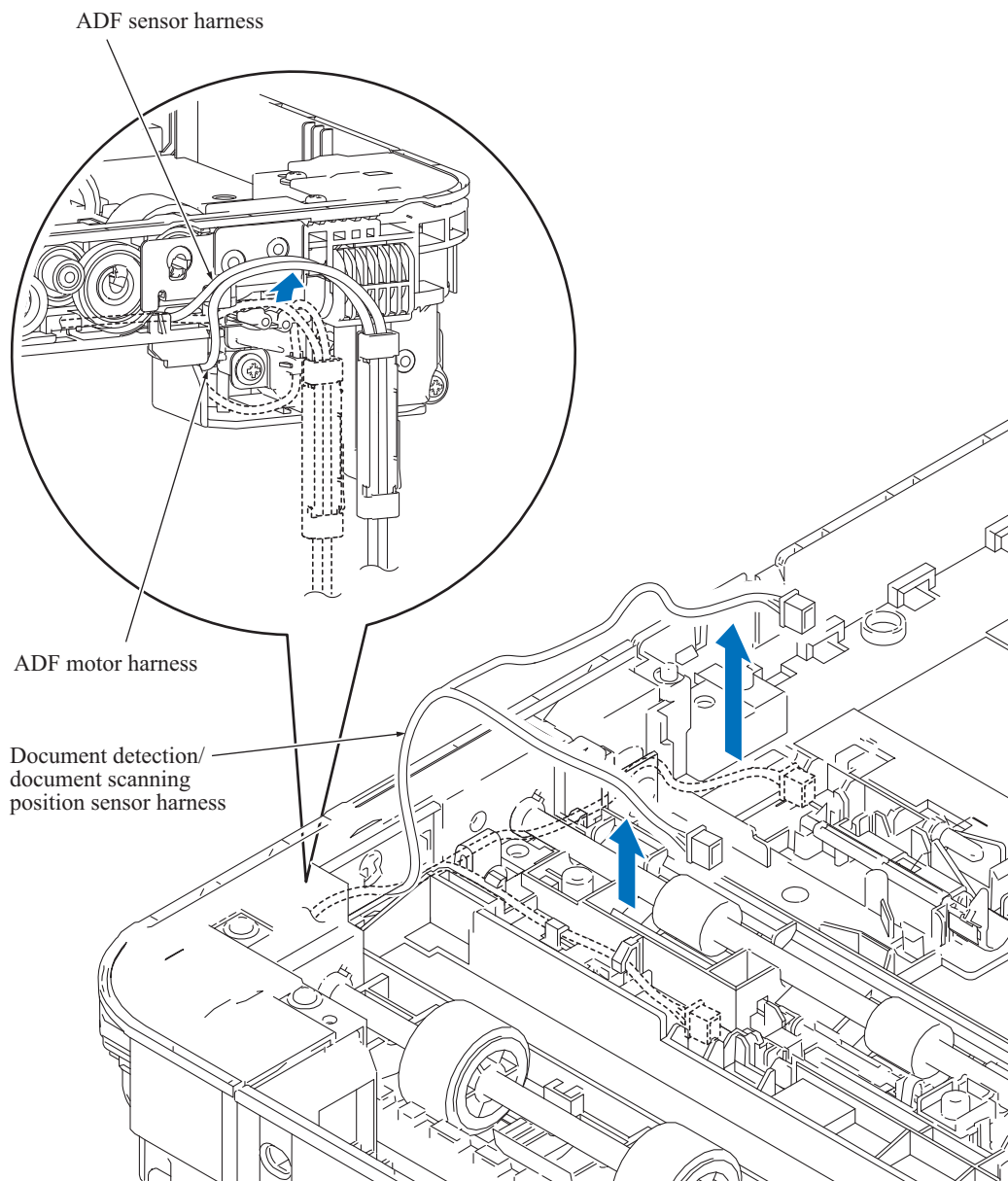
- (1) Disconnect the document detection sensor harness from the document detection sensor PCB and the document scanning position sensor harness from the document scanning position sensor PCB.
- (2) Open the two hooks and remove the document detection sensor PCB.
- (3) Open the two hooks and remove the document scanning position sensor PCB.



**Assembling Note:** Mount the document detection sensor PCB and the document scanning position sensor PCB to the holders by pressing the sensor section of each PCB.

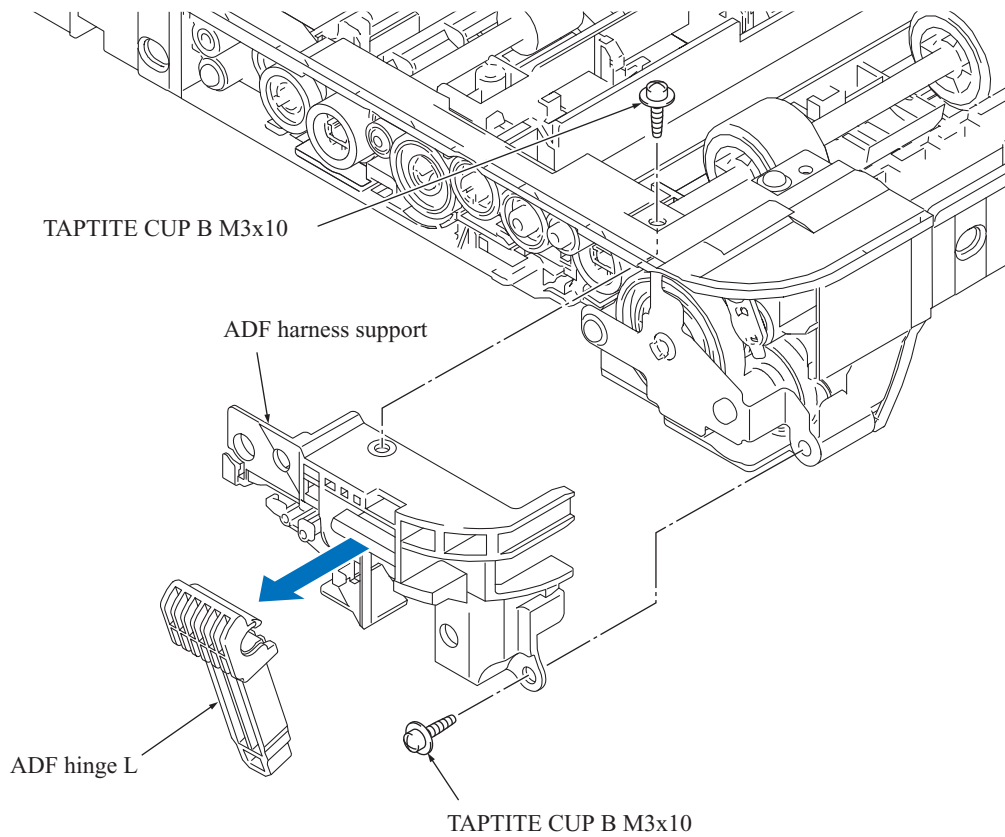
### 9.3.9 ADF Hinge L

- (1) Release the wiring of the ADF motor harness and the document detection/document scanning position sensor harness.  
Duplex scanning models: Release the wiring of the second side CIS flat cable.



(3\_021\_1\_E)

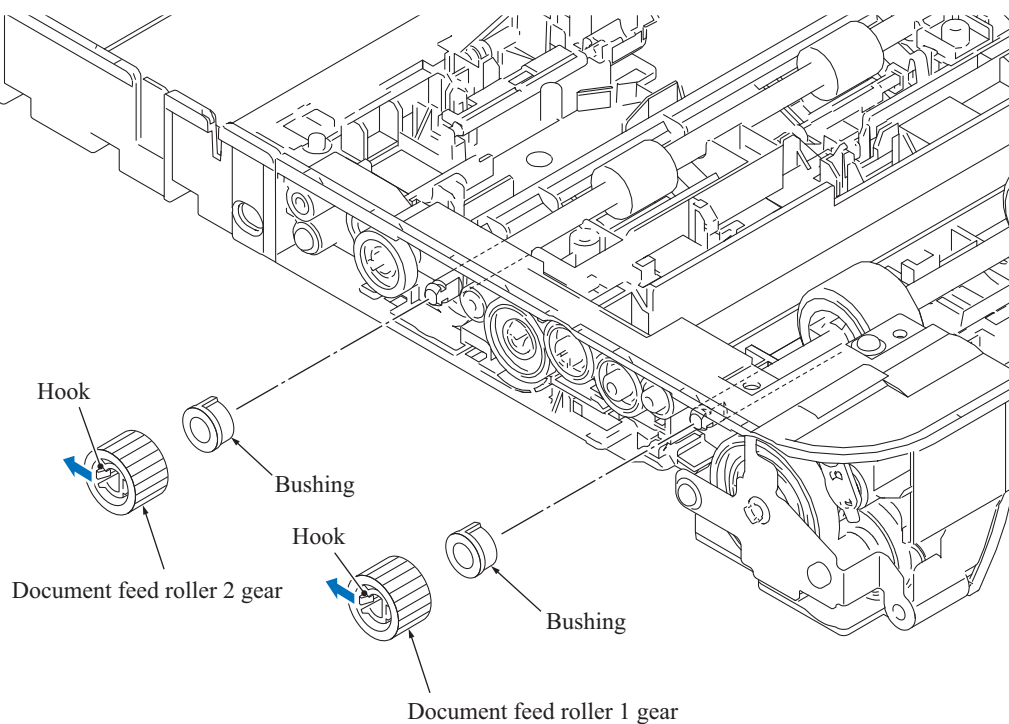
- (2) Remove the two screws (TAPTITE CUP B M3x10) and take off the ADF harness support.
- (3) Remove the ADF hinge L from the ADF harness support.



(3\_022\_E)

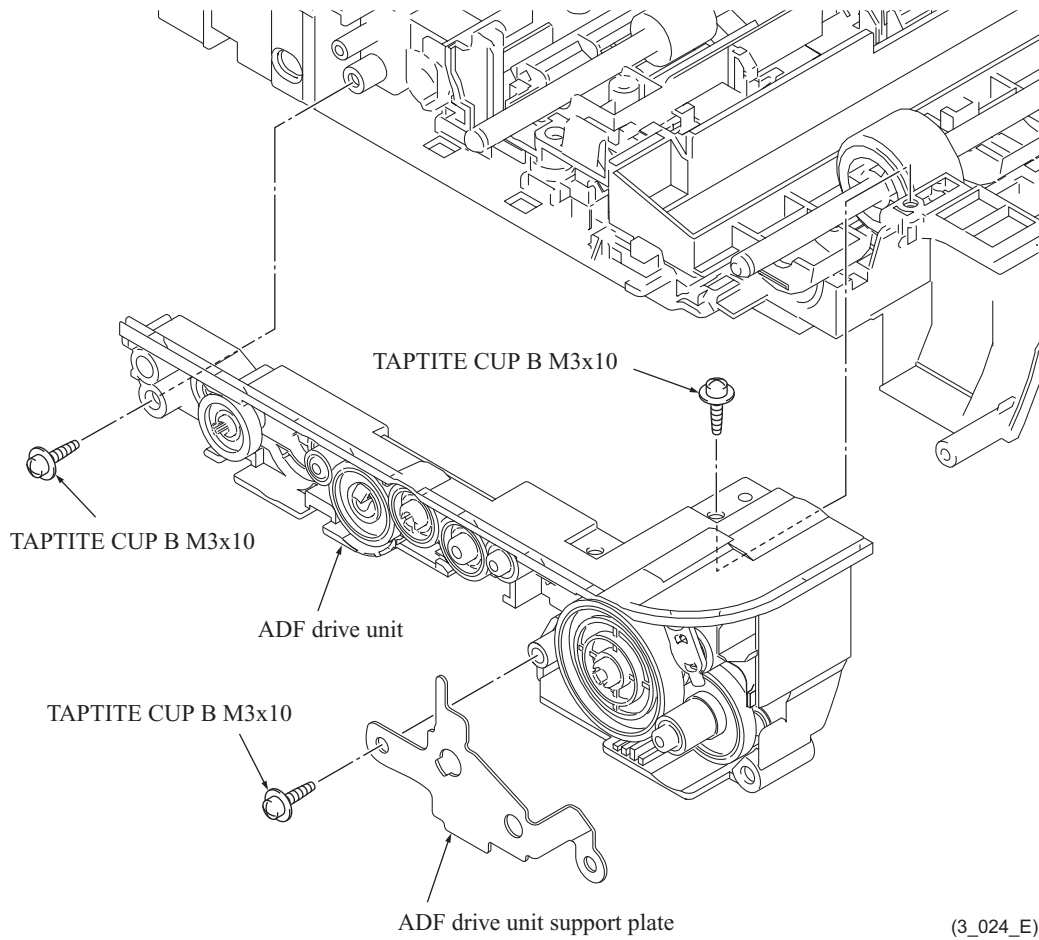
### 9.3.10 ADF Motor

- (1) Release the hook and remove the document feed roller 2 gear and the bushing.
- (2) Release the hook and remove the document feed roller 1 gear and the bushing



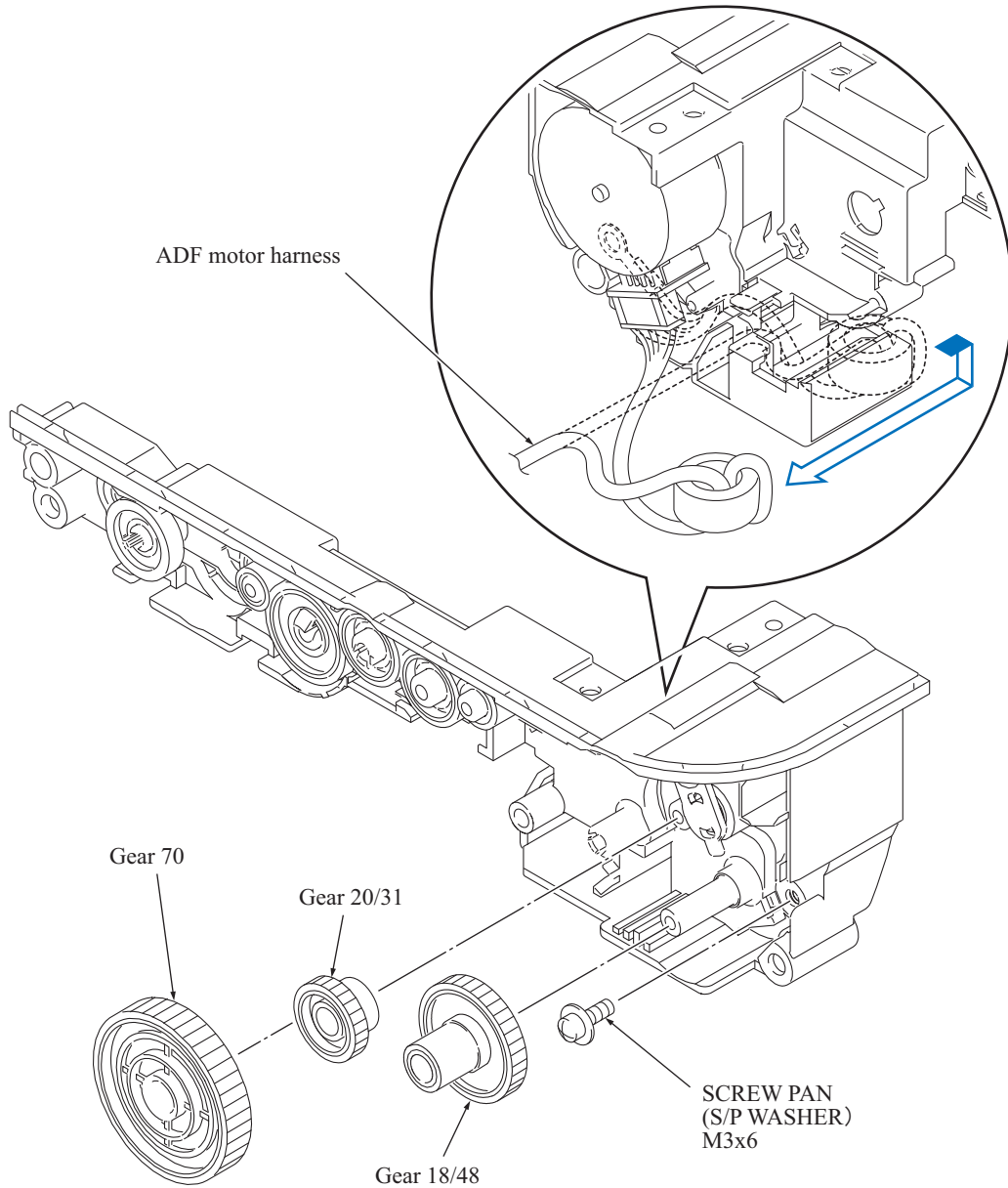
(3\_023\_E)

- (3) Remove the two screws (TAPTITE CUP B M3x10) and take off the ADF drive unit.
- (4) Remove the screw (TAPTITE CUP B M3x10) and take off the ADF drive unit support plate.



- (5) Release the wiring of the ADF motor harness.
- (6) Remove the gear70, gear20/31 and gear18/48 and remove the screw (SCREW PAN (S/P WASHER) M3x6).

**Note:** If any other gears slip off, reposition them, referring to [Section 6](#) in this chapter.

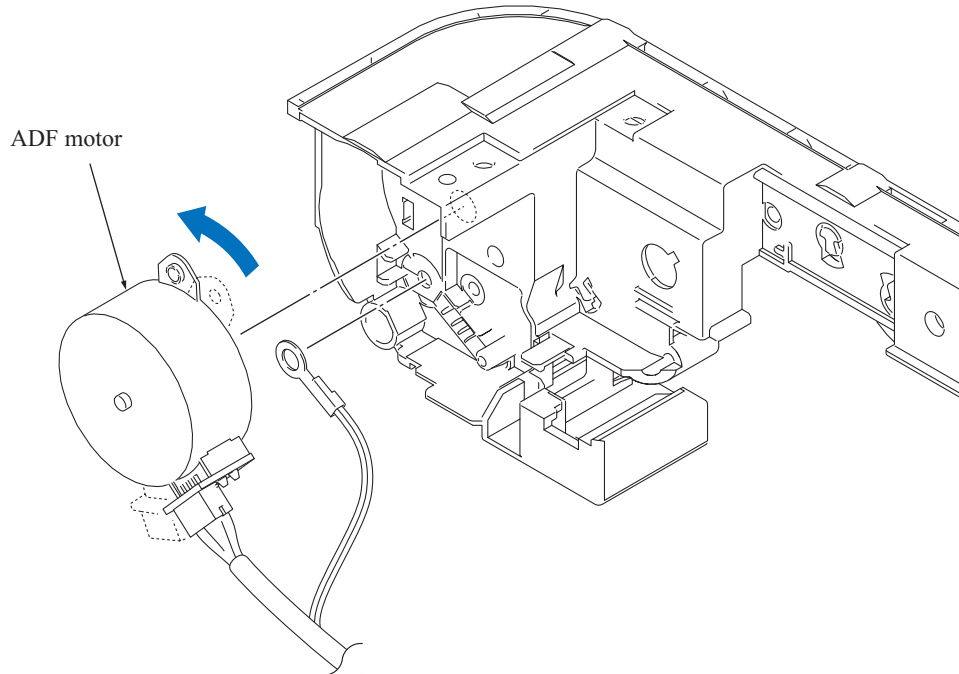


(3\_025\_E)



(7) Turn the ADF motor in the direction of the arrow to remove it.

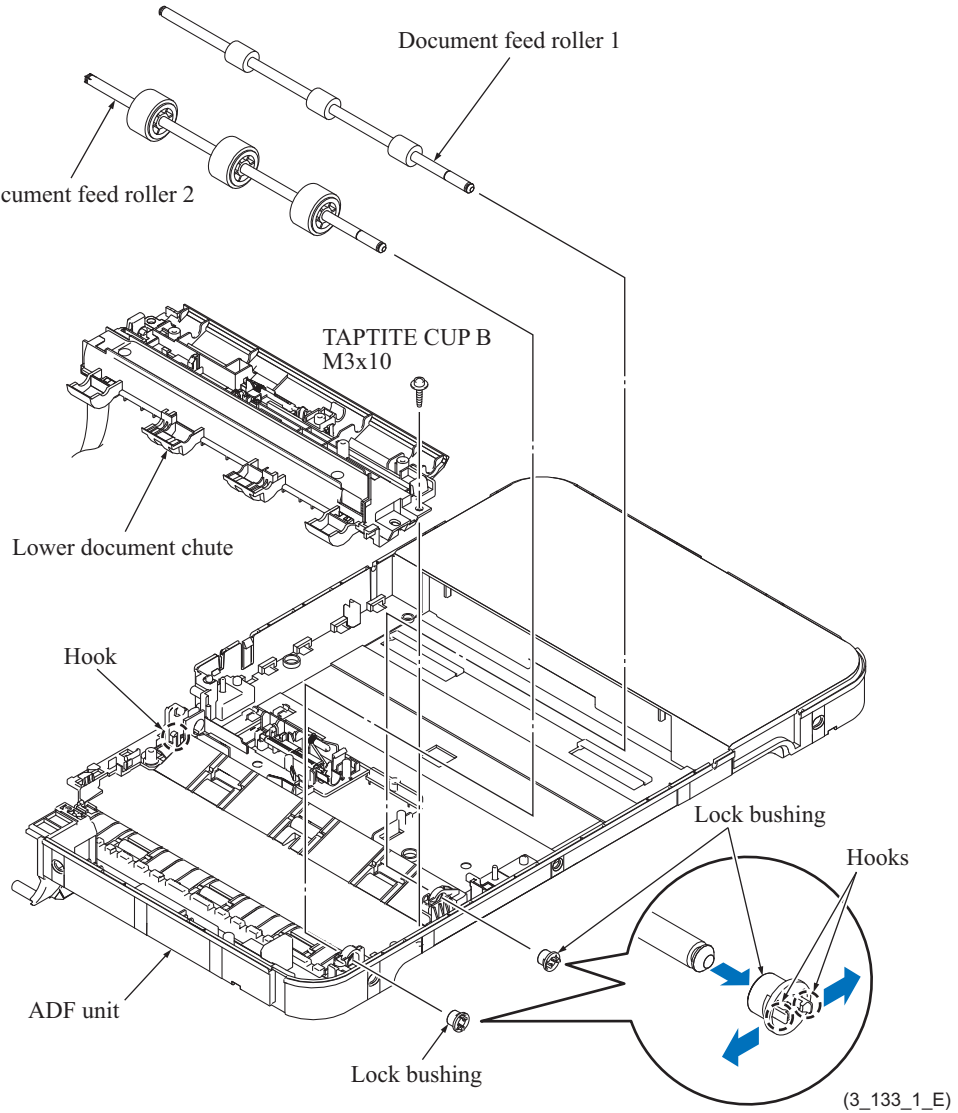
**Note:** Sandwich the ADF motor grounding wire between the ADF motor and the ADF drive unit and secure it with the screw (SCREW PAN (S/P WASHER) M3x6) together with the ADF motor.



(3\_026\_E)

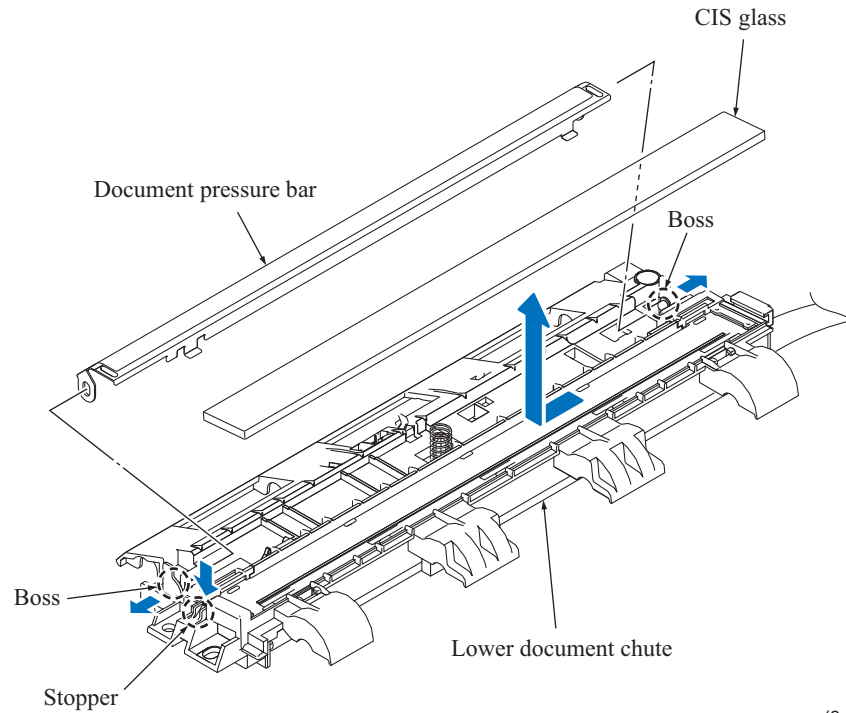
### 9.3.11 Second Side CIS Unit (Duplex scanning models only)

- (1) Release two hooks and remove the lock bushing and document feed roller 1.
- (2) Release two hooks and remove the lock bushing and document feed roller 2.
- (3) Remove the screw (TAPTITE CUP B M3x10), release the left rear hook, and remove the lower document chute.



- (4) Pull the boss outwards and remove the document pressure bar.
- (5) Push down the stopper, slide the CIS glass to the stopper side, lift up the other end of the CIS glass, and remove it.

**Note:** When removing the CIS glass, take care not to stain it with dust or fingerprints. If it is stained, wipe it off with a soft, dry cloth.

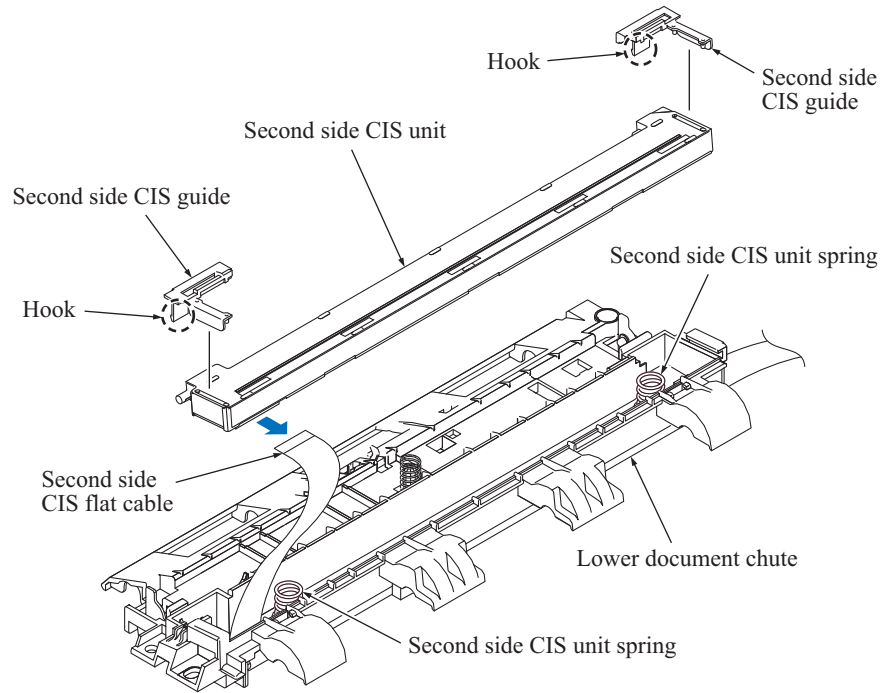


(3\_134\_E)

- (6) Release the hook and remove the second side CIS guide.
- (7) Remove the second side CIS unit and disconnect the second side CIS flat cable from the CIS unit.

**Note:** Do not touch the lens of the second side CIS unit with your hands.

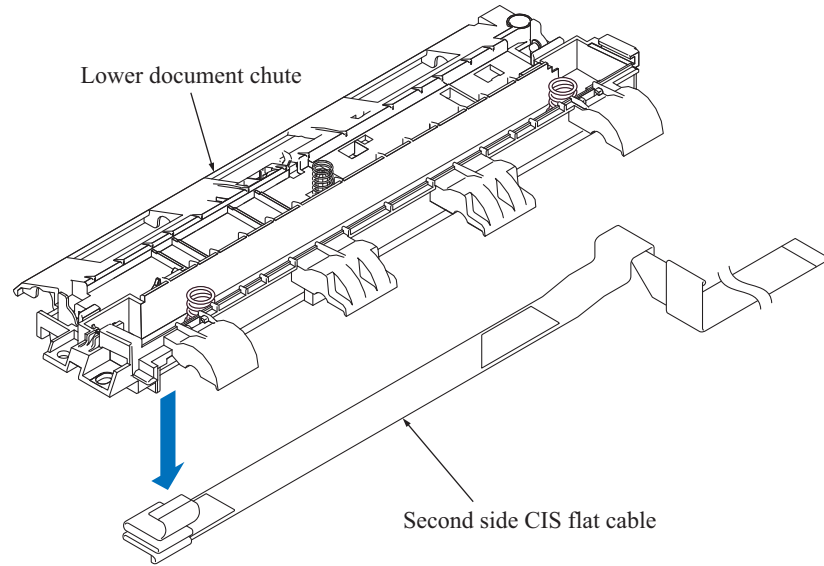
**Assembling Note:** Make sure that the second side CIS unit springs are not lying flat or out of place.



(3\_135\_E)

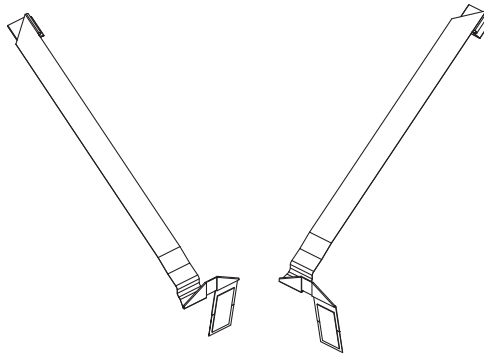
### 9.3.12 Second Side CIS Flat Cable (Duplex scanning models only)

- (1) Pull out the second side CIS flat cable from the lower document chute.



(3\_136\_E)

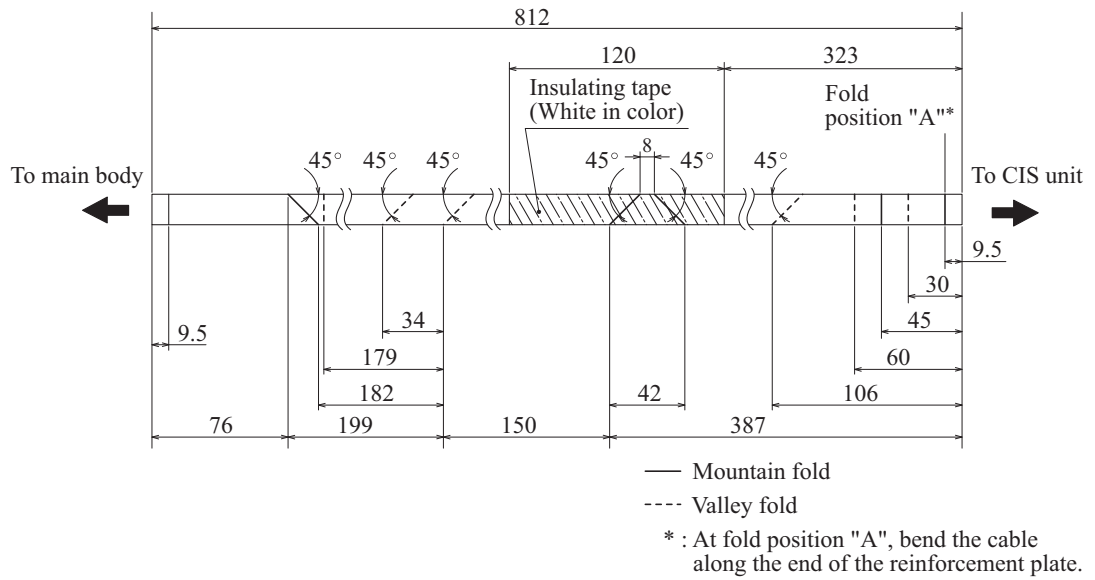
**Assembling Note:** Assemble new second side CIS flat cable as shown below.



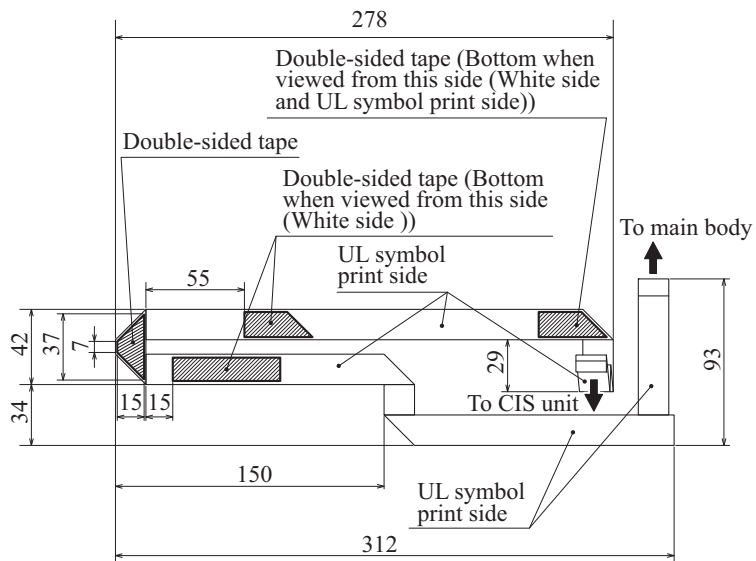
Folding instructions

(Unit: mm)

Top: White side  
Bottom: UL symbol print side



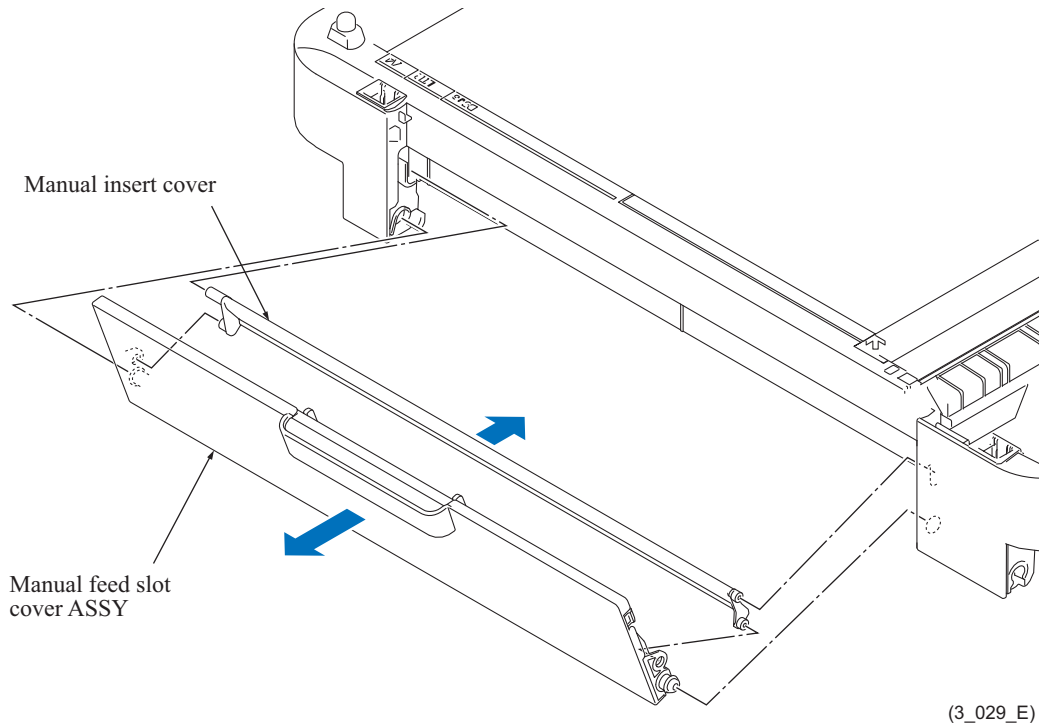
Double-sided tape attachment position



(3\_CIS\_FFC-2\_E)

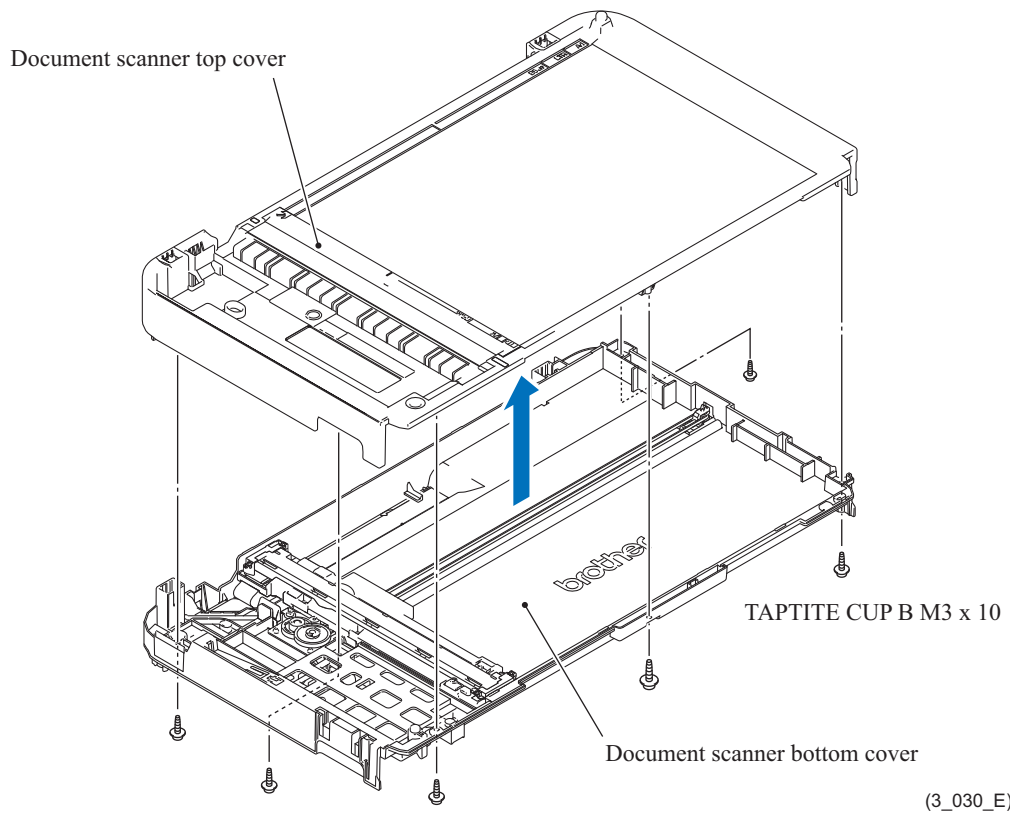
## 9.4 Manual Feed Slot Cover ASSY

- (1) Open the manual feed slot cover ASSY and warp the manual insert cover to release the upper left boss.
- (2) Warp the manual feed slot cover ASSY, release the left-side boss, and remove the ASSY.

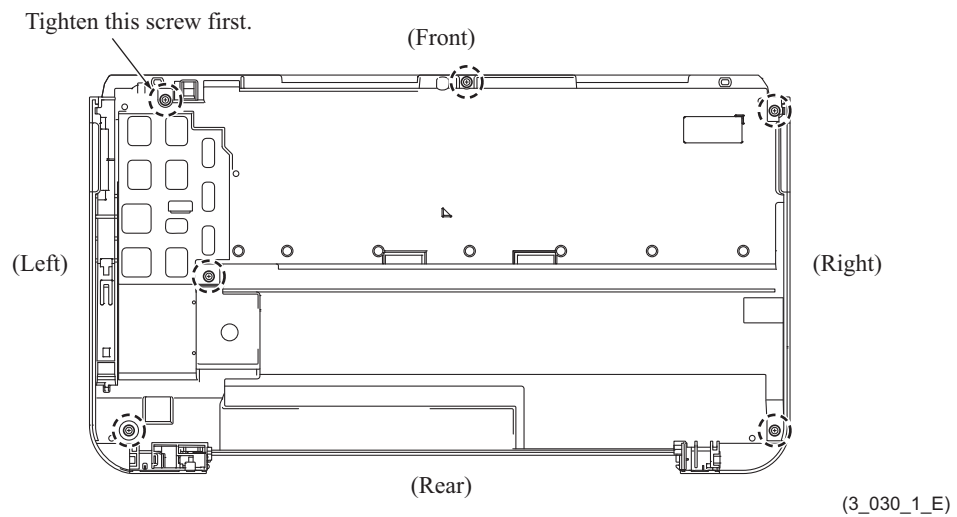


## 9.5 Document Scanner Top Cover

- (1) Remove the six screws (TAPTITE CUP B M3x10) and remove the document scanner top cover.



**Assembling Note:** When mounting the document scanner top cover, tighten the left front screw first.

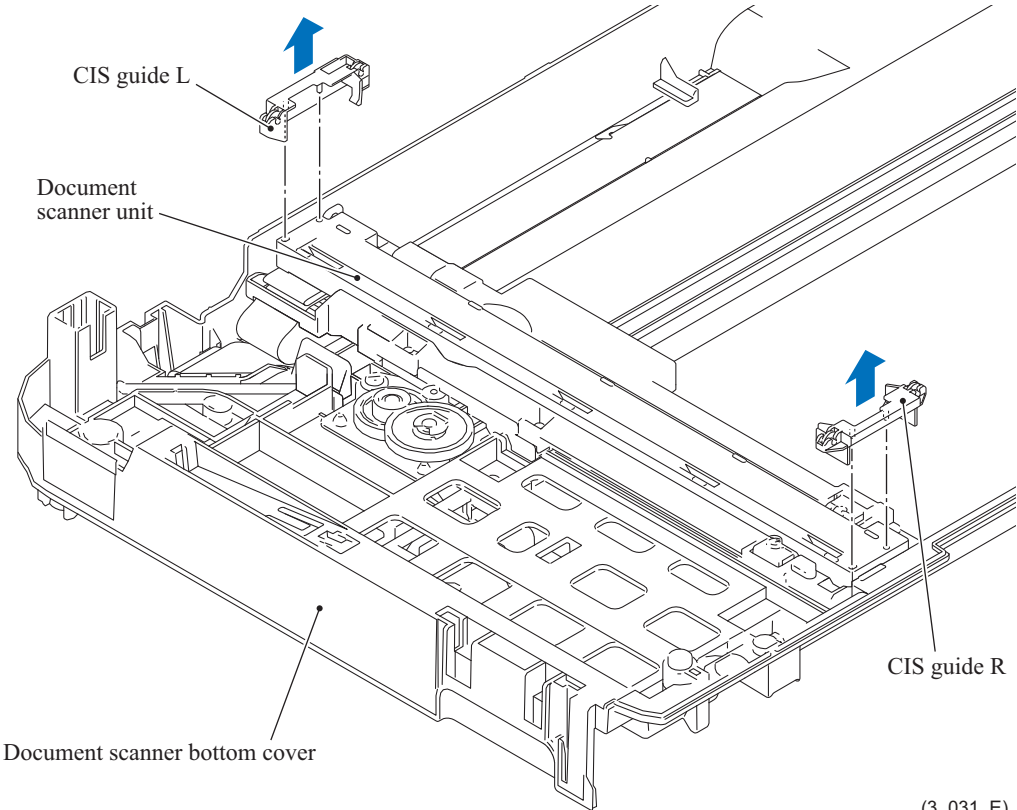




**9.5.1 First Side CIS Unit**

(1) Remove the CIS guides R and L from the document scanner unit.

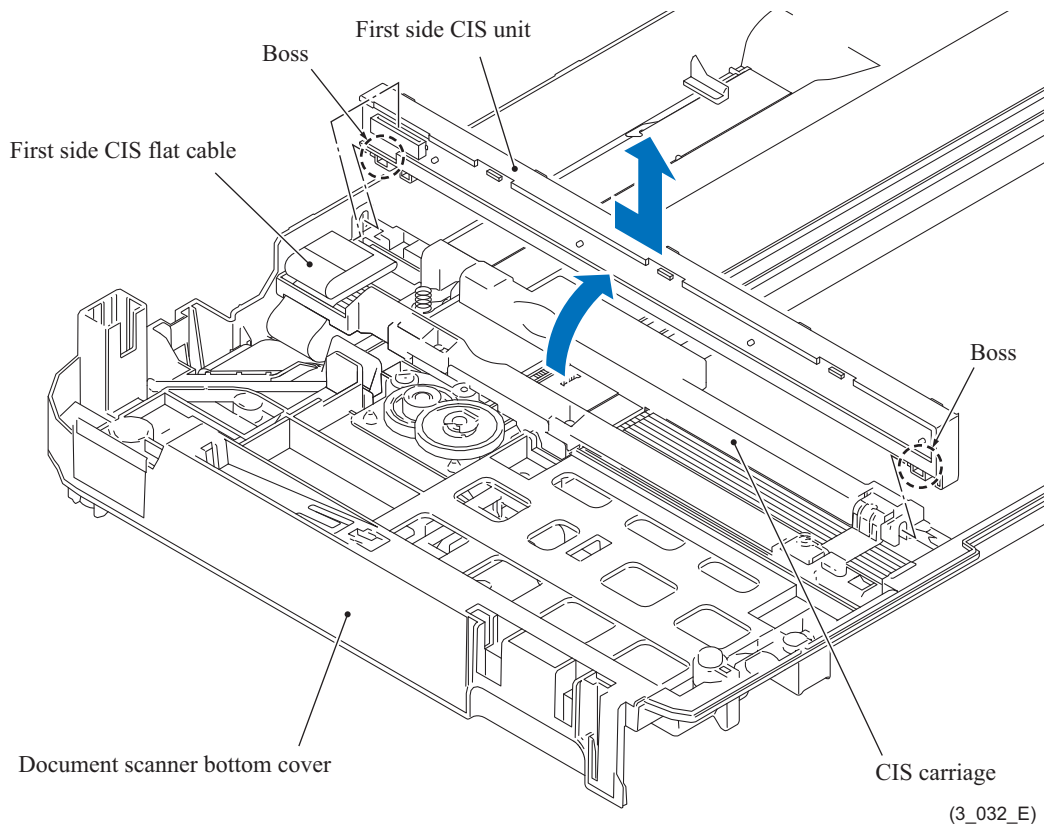
**Note:** Do not touch the rollers on the CIS guides by hand.



(3\_031\_E)

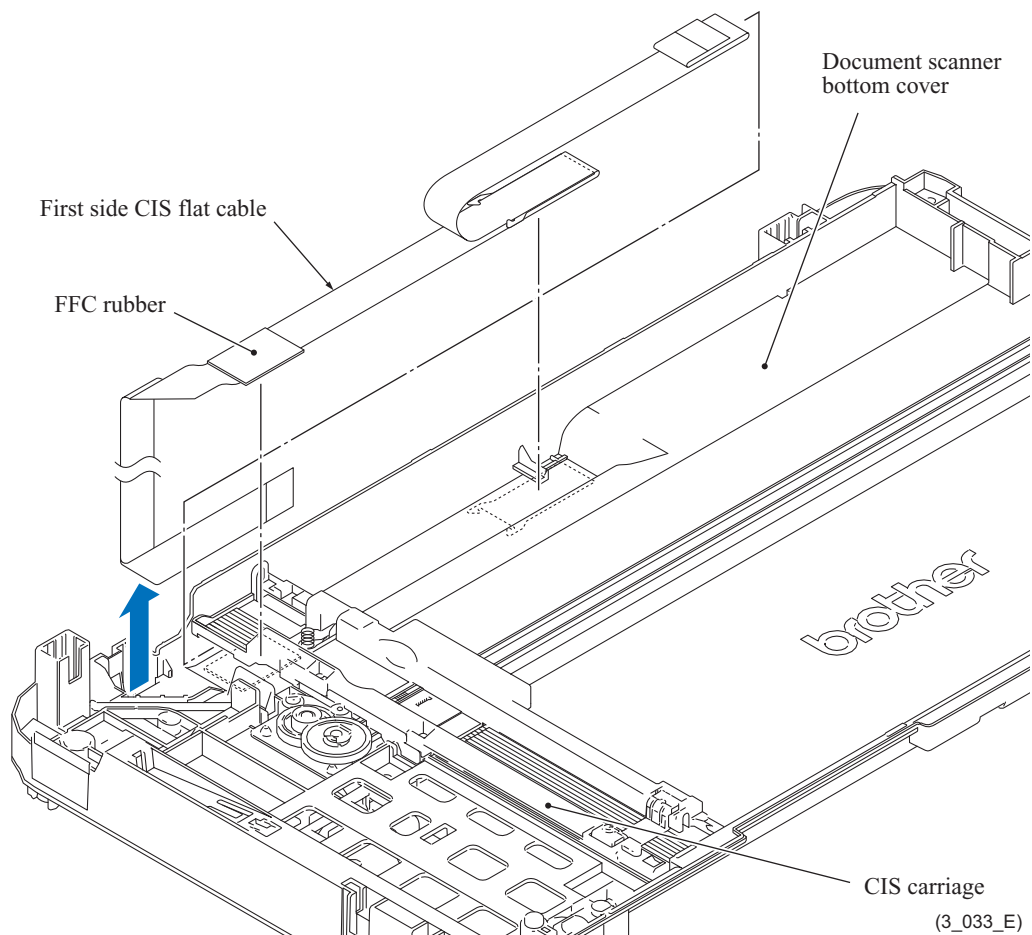
- (2) Set the first side CIS unit upright on the CIS carriage, slide it in the direction of the arrow to remove it, then disconnect the first side CIS flat cable from the CIS unit.

**Note:** Do not touch the lens of the first side CIS unit by hand.



### 9.5.2 First Side CIS Flat Cable

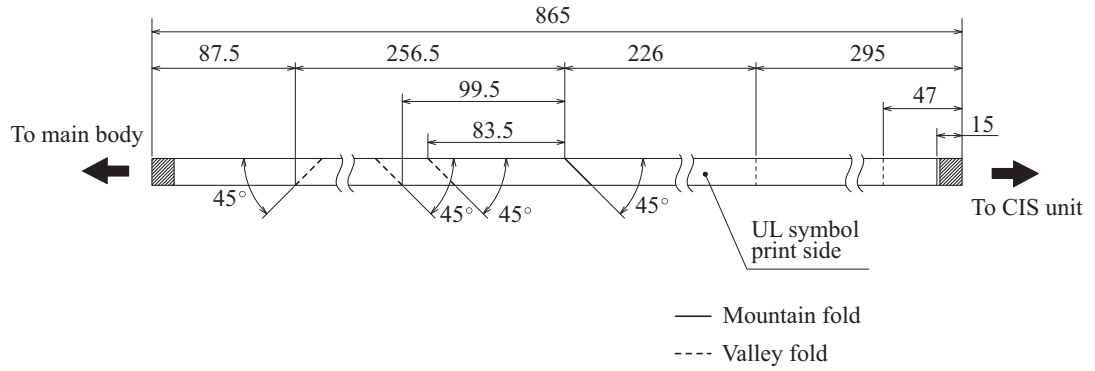
- (1) Release the wiring of the first side CIS flat cable from the scanner harness holder.
- (2) Pull the first side CIS flat cable out of the CIS carriage, peel off the FFC rubber and FFC tension film, and remove the CIS flat cable from the document scanner bottom cover.



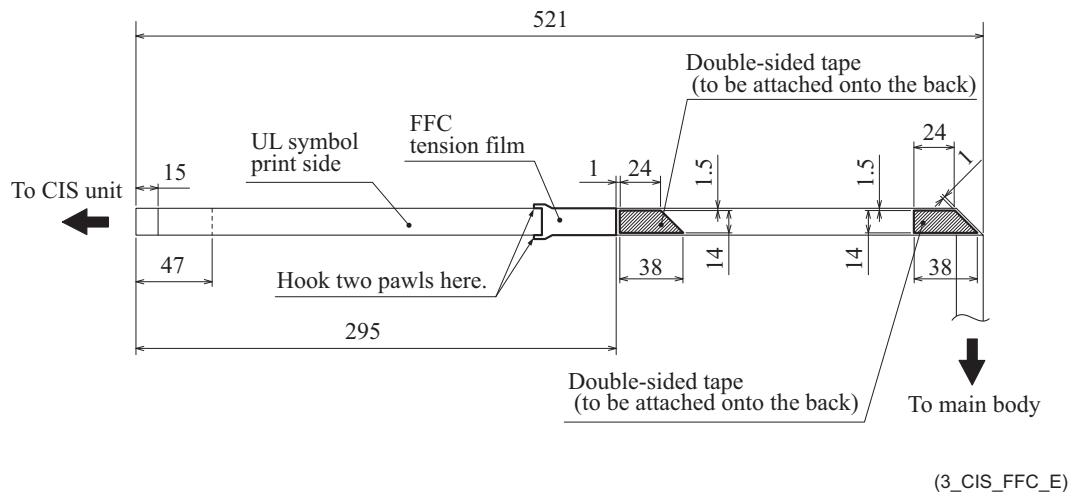
**Assembling Note:** Assemble new first side CIS flat cable, FFC rubber and FFC tension film as shown below.

Folding instructions

(Unit: mm)

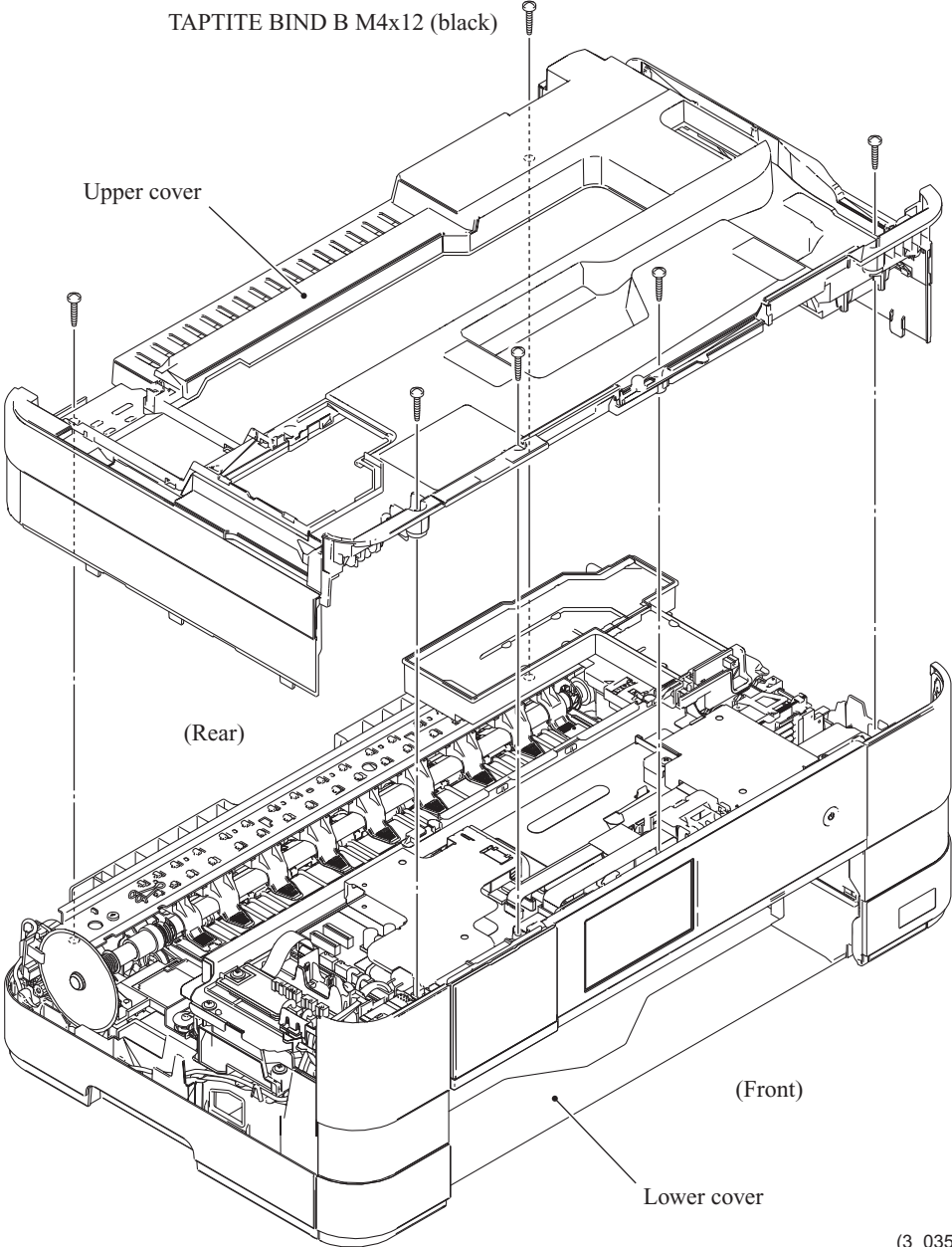


Double-sided tape attachment position



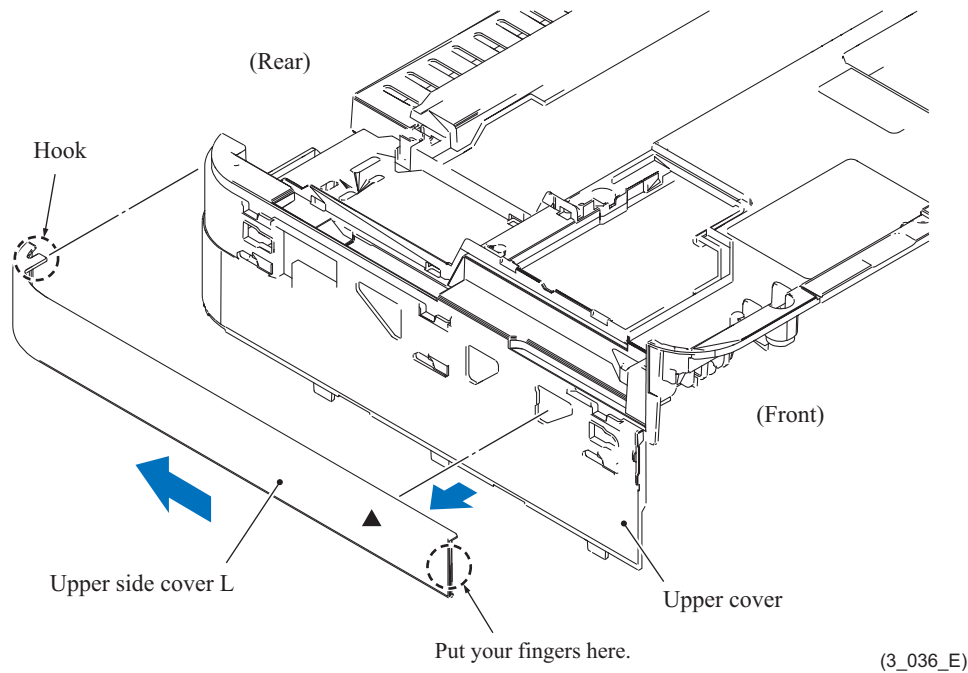
### 9.6 Upper Cover

(1) Remove the six screws (TAPTITE BIND B M4x12 (black)) and take off the upper cover.

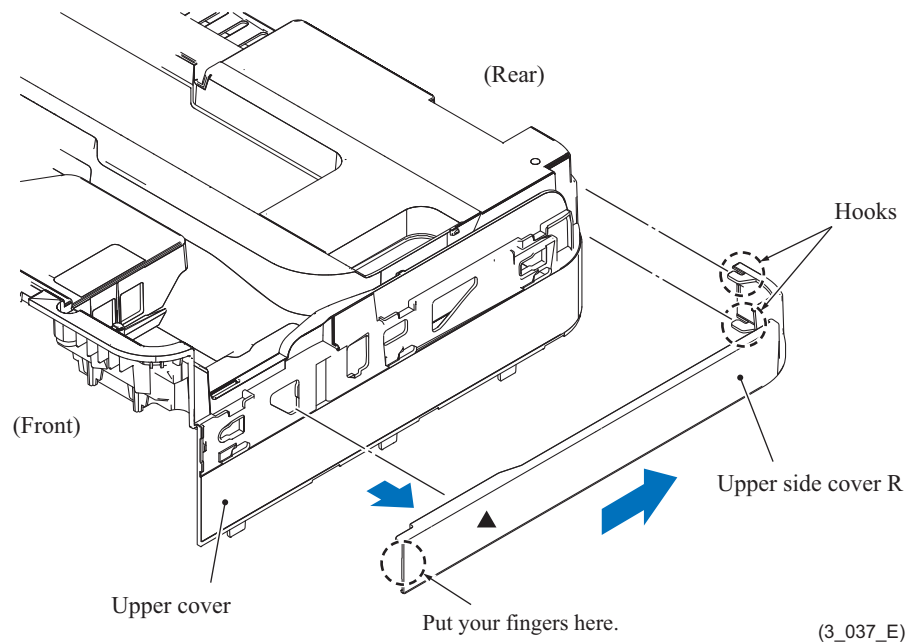


(3\_035\_E)

- (2) Release the hook (indicated in the illustration below) on the upper side cover L.
- (3) While pushing out the ▲-marked point on the upper side cover L from the inside, slide the cover L to the rear and remove it from the upper cover.

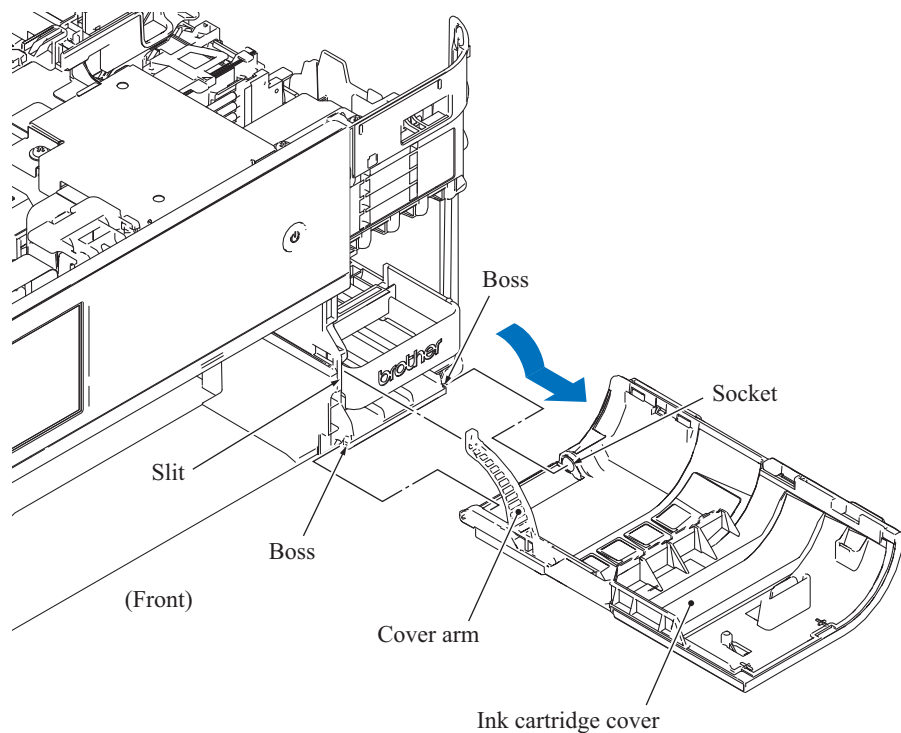


- (4) Release the hook (indicated in the illustration below) on the upper side cover R.
- (5) While pushing out the ▲-marked point on the upper side cover R from the inside, slide the cover R to the rear and remove it from the upper cover.



## 9.7 Ink Cartridge Cover

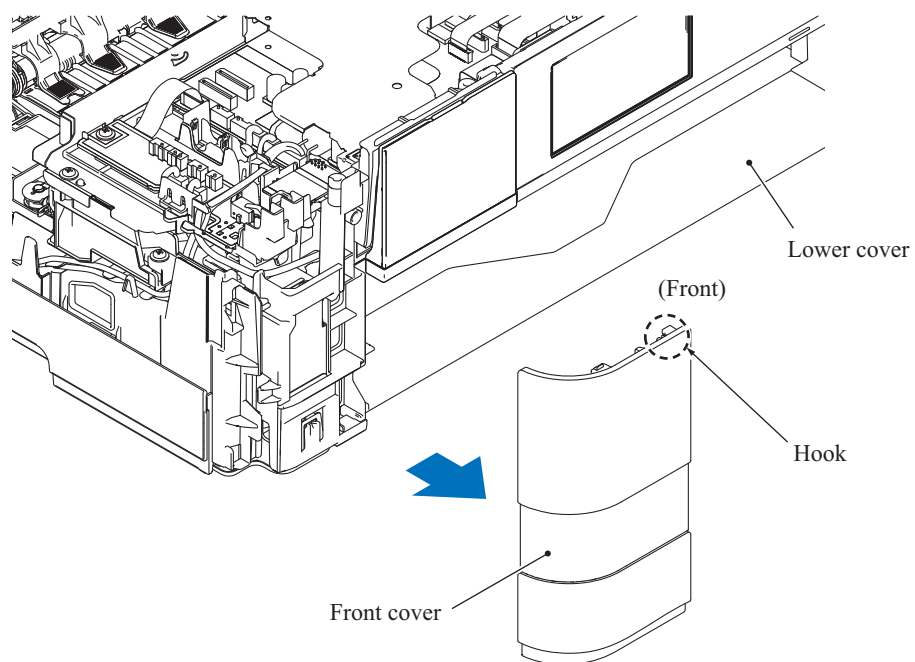
- (1) Open the ink cartridge cover, unhook its right end from the boss, and remove the cover.



(3\_038\_E)

## 9.8 Front Cover

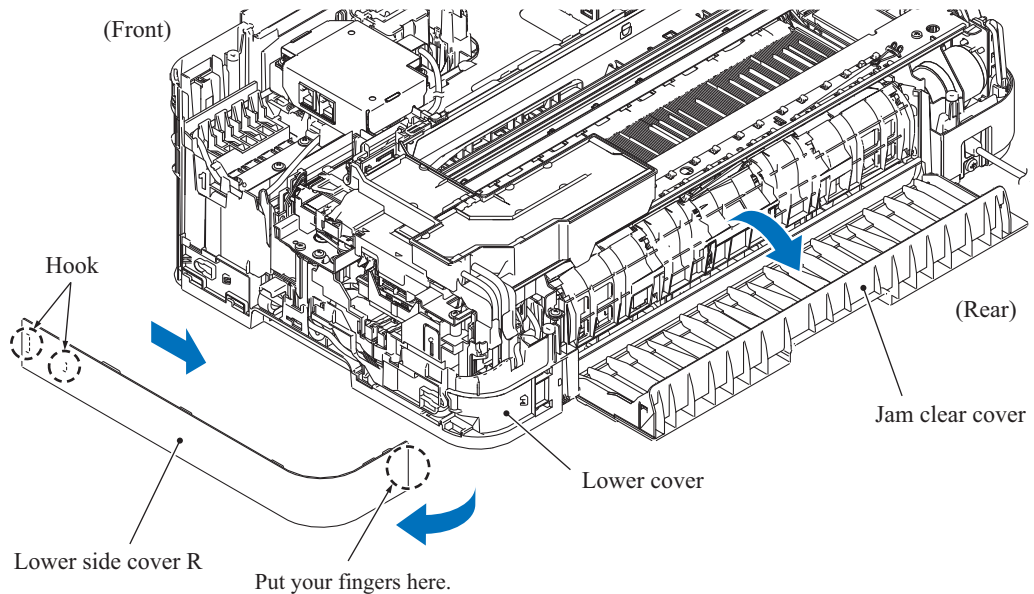
- (1) Release the upper hook on the front cover and remove the front cover.



(3\_039\_E)

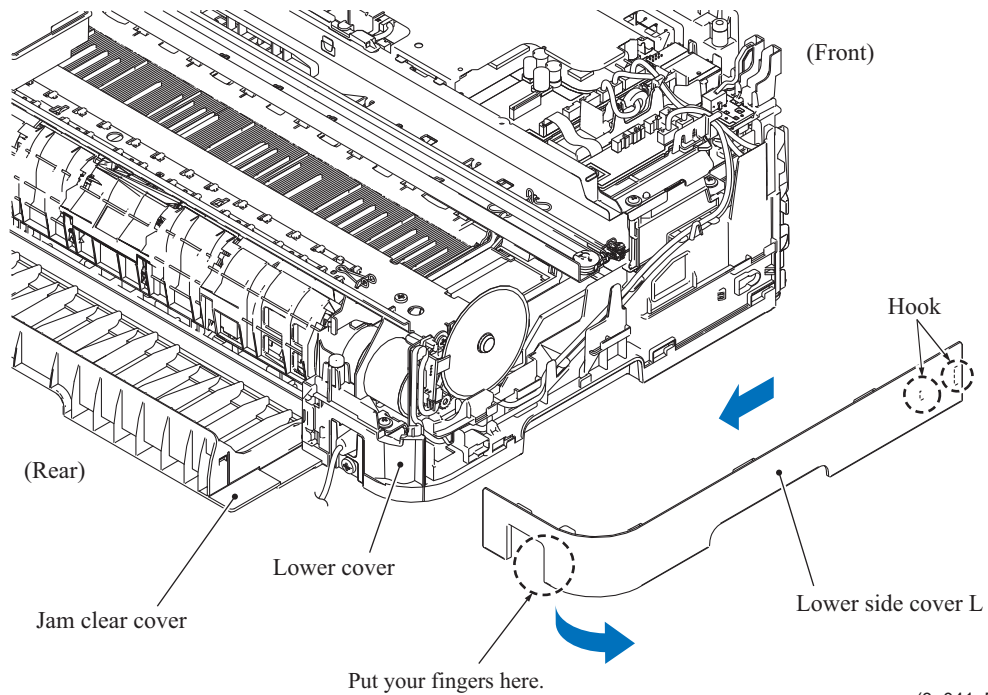
## 9.9 Lower Side Covers R and L

- (1) Open the jam clear cover.
- (2) Release the hook on the lower side cover R and slide the cover R to the rear.
- (3) Put your fingers on the lower side cover R at the section indicated in the illustration below, pull the lower side cover R to the rear and slide it off outwards.



(3\_040\_E)

- (4) Release the hook on the lower side cover L and slide cover L to the rear.
- (5) Put your fingers on the lower side cover L at the section indicated in the illustration below, pull the lower side cover L to the rear and slide it off outwards.

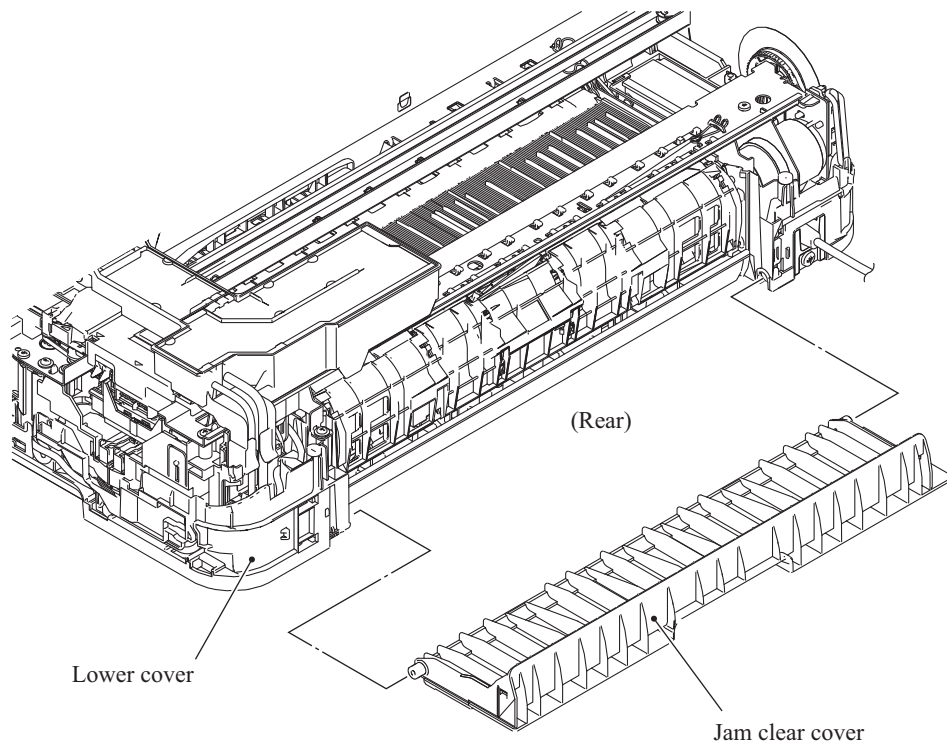


(3\_041\_E)



## 9.10 Jam Clear Cover

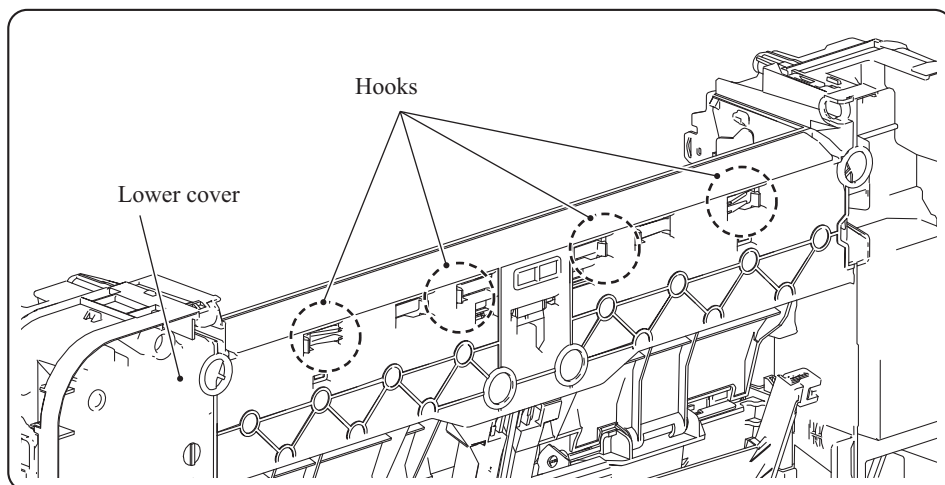
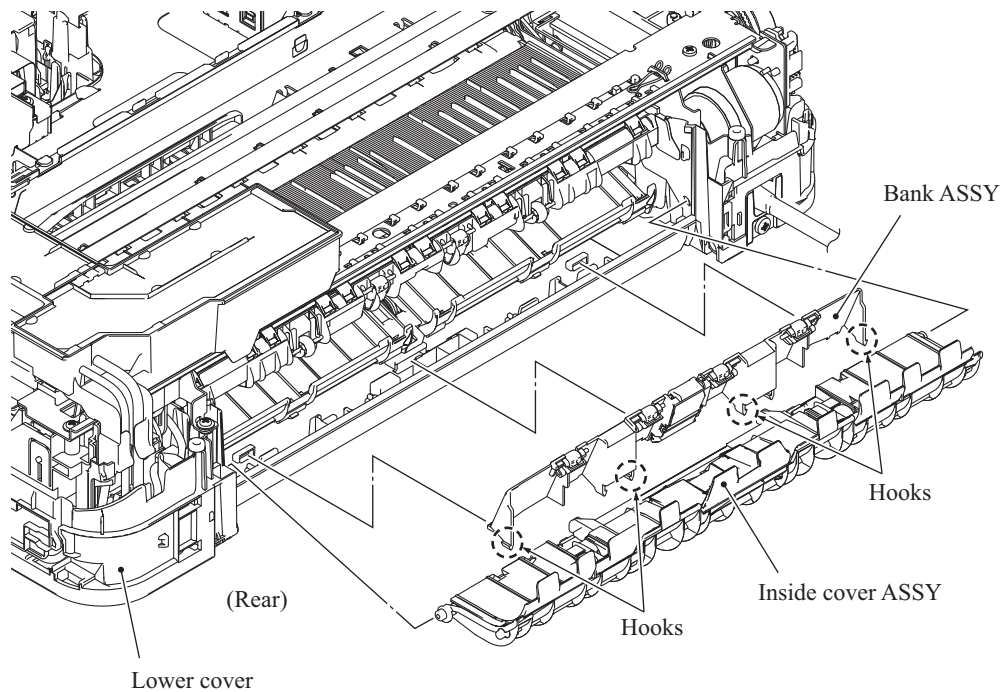
- (1) Release either one of the bosses provided on the ends of the jam clear cover and remove the jam clear cover.



(3\_042\_E)

## 9.11 Bank ASSY

- (1) Slightly warp the inside cover ASSY to release the bosses and remove the ASSY.
- (2) Release the four hooks on the bottom of the bank ASSY.
- (3) Slide off the bank ASSY to the rear.

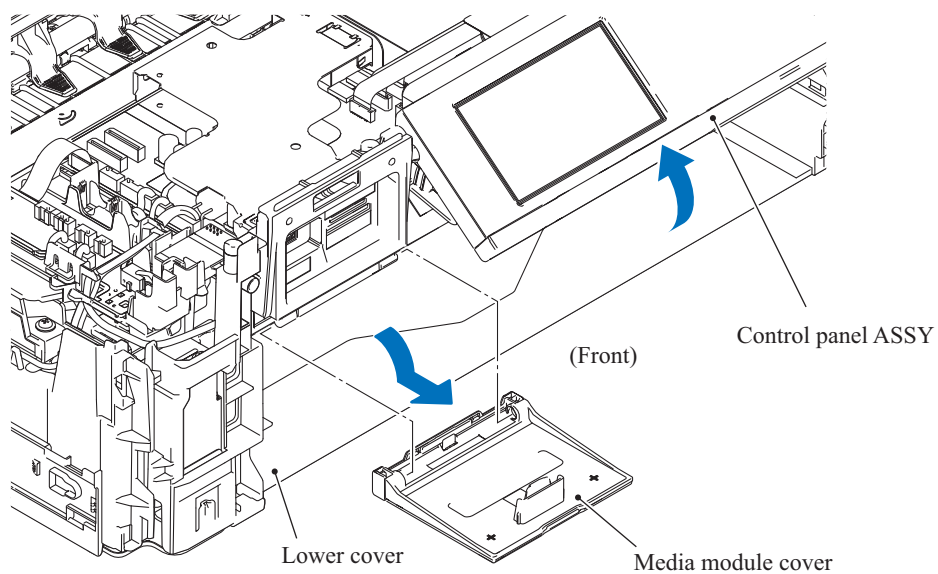


(3\_043\_E)

**Assembling Note:** When mounting the bank ASSY, first insert the three front pawls and set the four hooks into place.

## 9.12 Media Module Cover

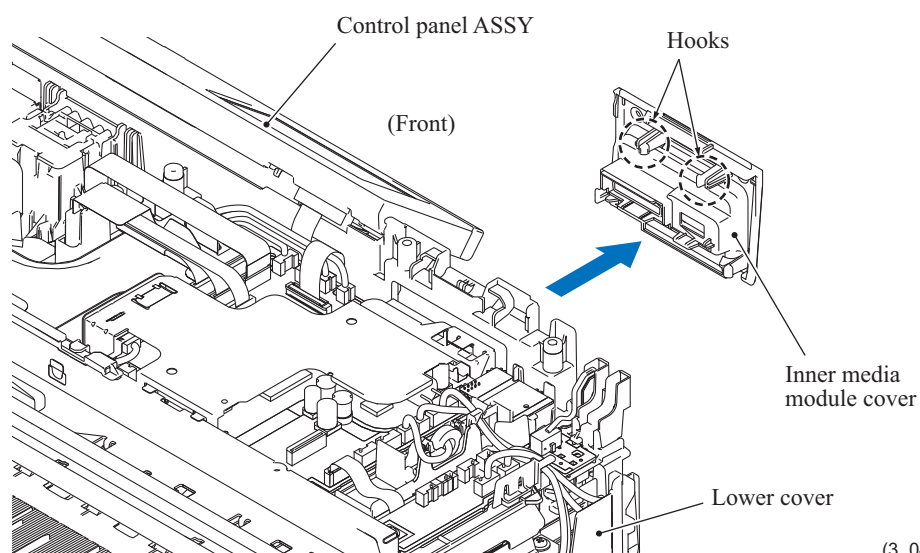
- (1) Open the media module cover, release it from the either one of the bosses, and remove the cover to the front.



(3\_044\_E)

## 9.13 Inner Media Module Cover

- (1) Release the two hooks on the inner media module cover and remove the cover to the front.

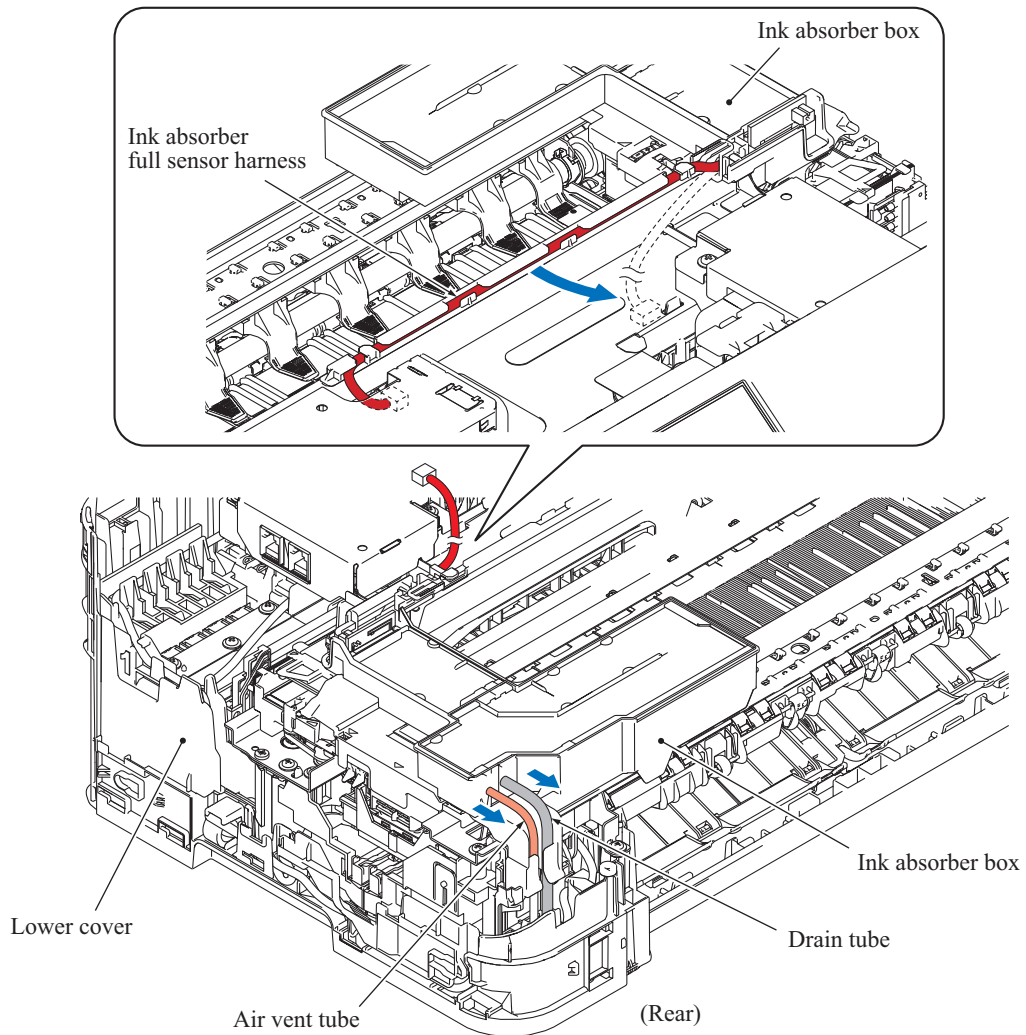


(3\_045\_E)

## 9.14 Ink Absorber Box

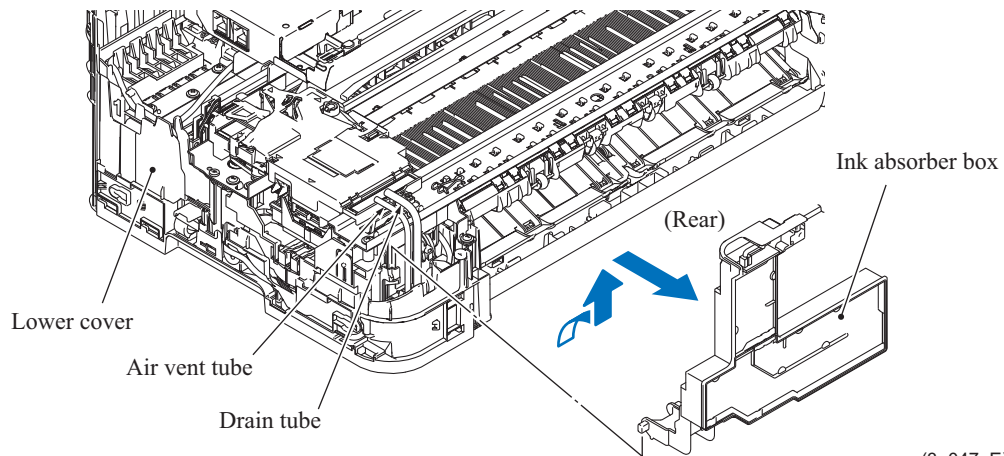
**Note:** Do not remove the ink absorber box unless it needs to be replaced.

- (1) Release the wiring of the ink absorber full sensor PCB ASSY and disconnect the ink absorber full sensor harness from the PCB ASSY.
- (2) Pull out the drain tube and air vent tube from the ink absorber box.



**Note:** Pinch the end of each tube with a clip in order to prevent drained ink from leaking and the machine from getting stained with leaked ink.

(3) Turn the ink absorber box 90 degrees to the rear and take it out.

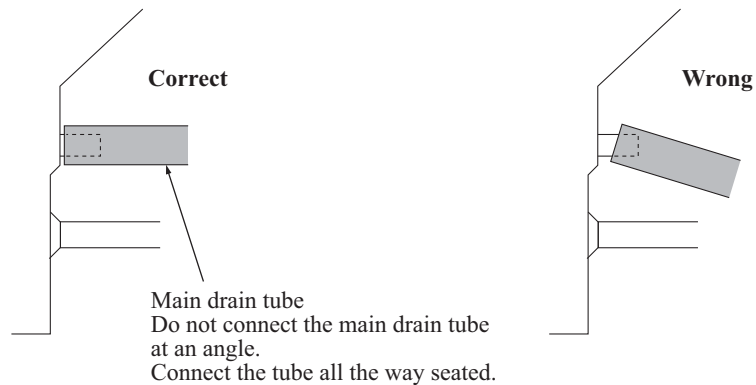


(3\_047\_E)

### Assembling Notes:

- It is not necessary to trim the ends of the main drain tube and air vent tube when reconnecting those tubes to the ink absorber box.
- Take care not to connect the drain tube or air vent tube to the ink absorber box at an angle. Tubes connected at an angle come off easily, resulting in ink leakage. After connection, check that there is no ink leakage.
- If you replace the ink absorber box (without replacing the main PCB), reset the purge count, using the procedure given in [Chapter 4, Section 1.14](#).

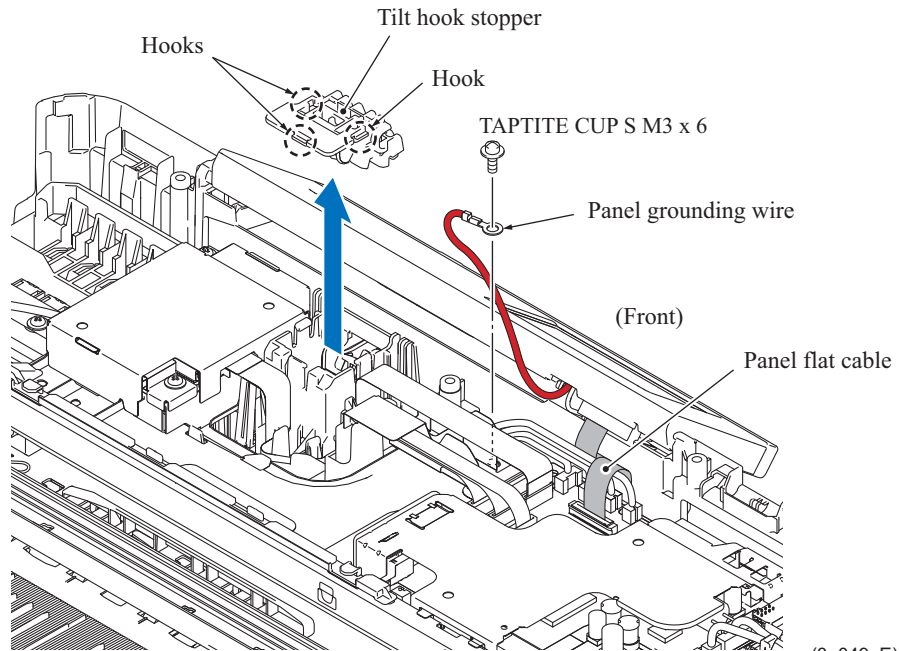
It is also recommended that the flushing box be replaced and the flushing count be reset as necessary since the flushing count may approach the upper limit.



(3\_048\_E)

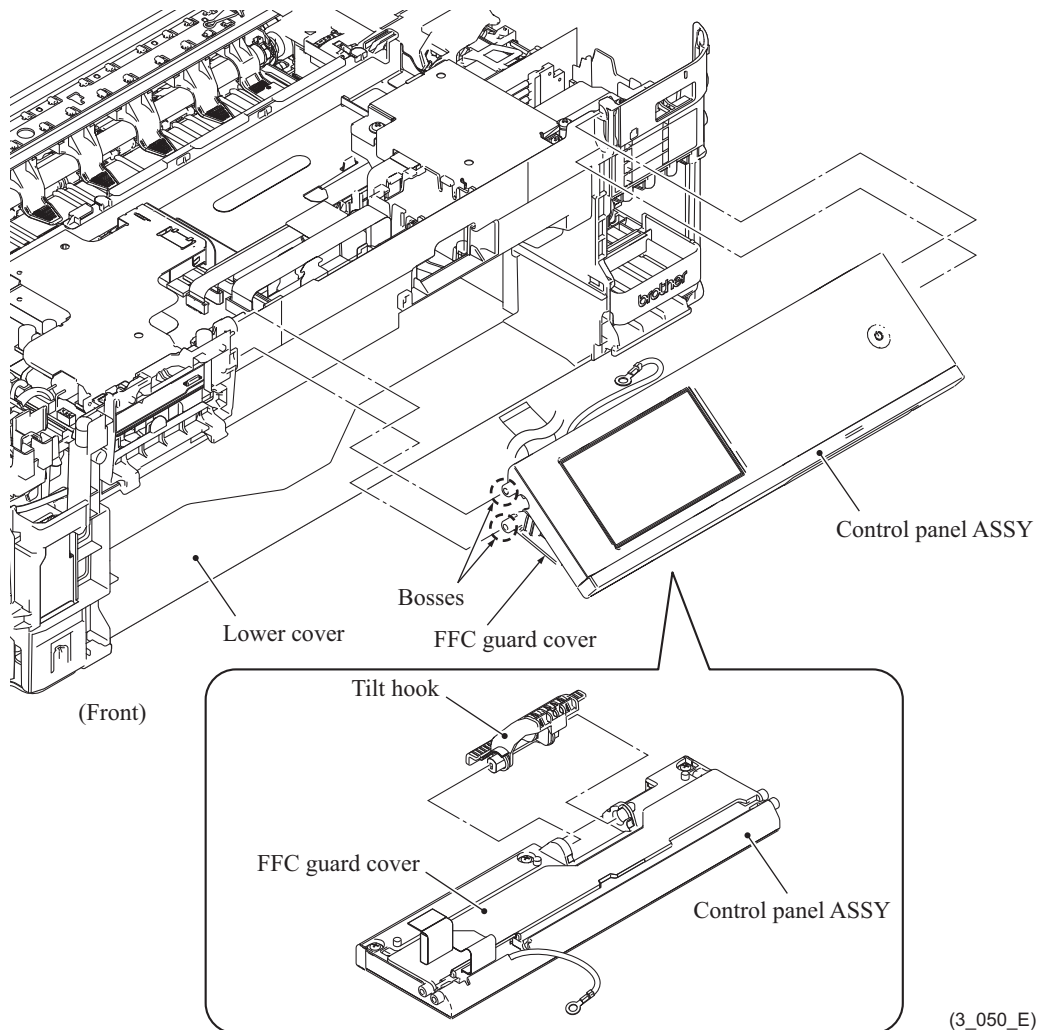
## 9.15 Control Panel ASSY

- (1) Release the three hooks on the tilt hook stopper and remove the stopper.
- (2) Remove the screw (TAPTITE CUP S M3x6) to release the panel grounding wire.
- (3) Disconnect the panel flat cable.



(3\_049\_E)

- (4) Release the upper left boss on the control panel ASSY and the left-side boss on the FFC guard cover, then remove the control panel ASSY.
- (5) Release the right-side boss on the panel tilt hook from the control panel ASSY to remove the panel tilt hook.

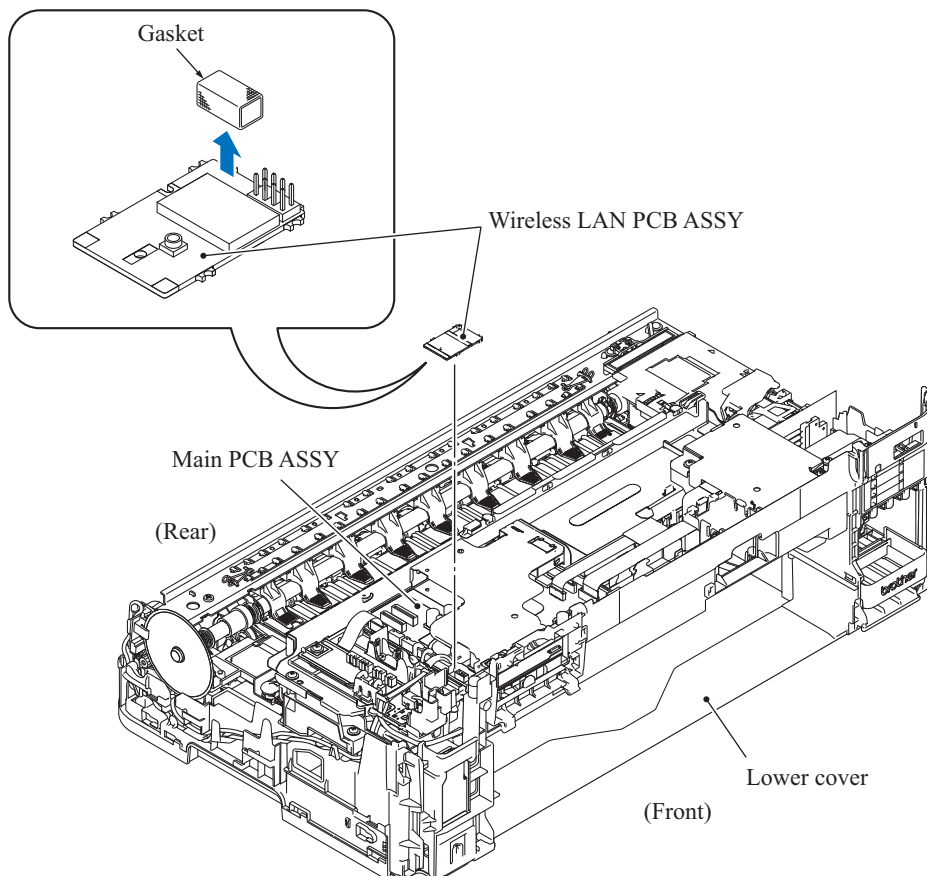


## 9.16 Wireless LAN PCB ASSY

(1) Remove the wireless LAN PCB ASSY from the main PCB ASSY.

**Note:** When removing the wireless LAN PCB ASSY, do not hold the tape put on the top of the ASSY.

(2) Remove the gasket from the wireless LAN PCB ASSY.



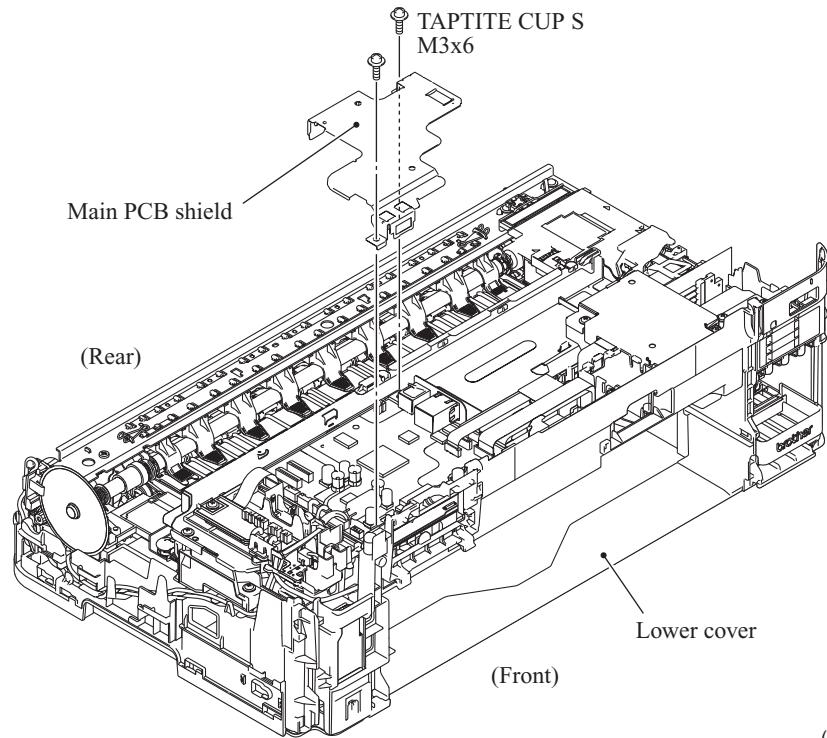
(3\_051\_E)

**Assembling Note:** Make sure to attach the gasket on wireless LAN PCB ASSY.

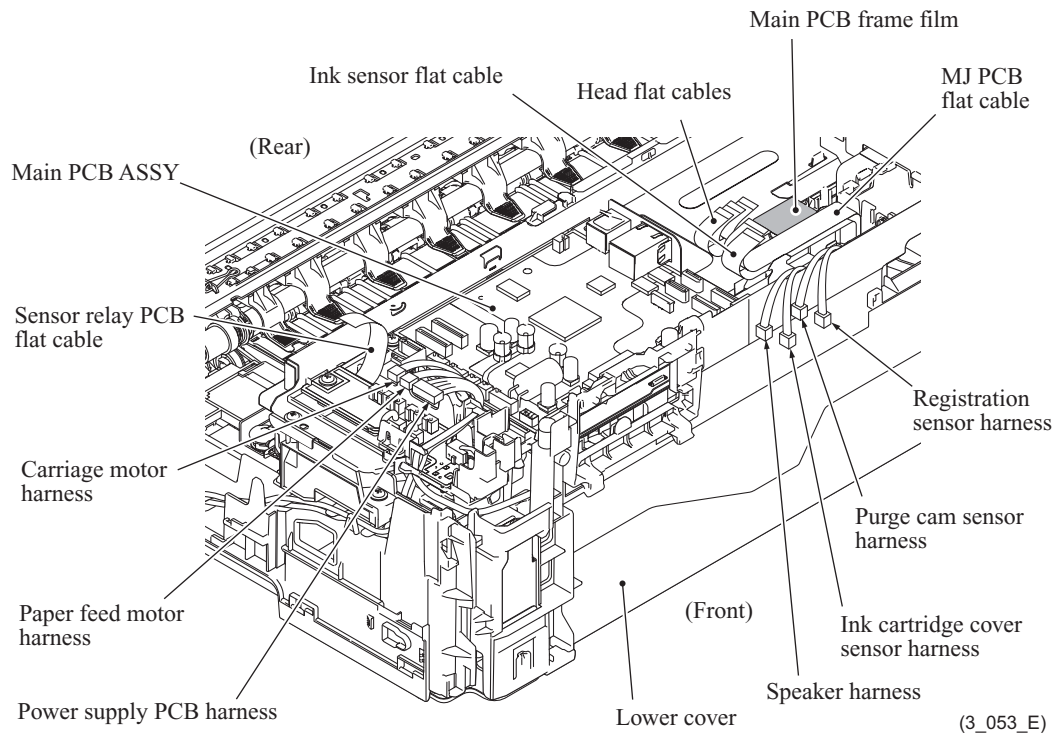


## 9.17 Main PCB ASSY

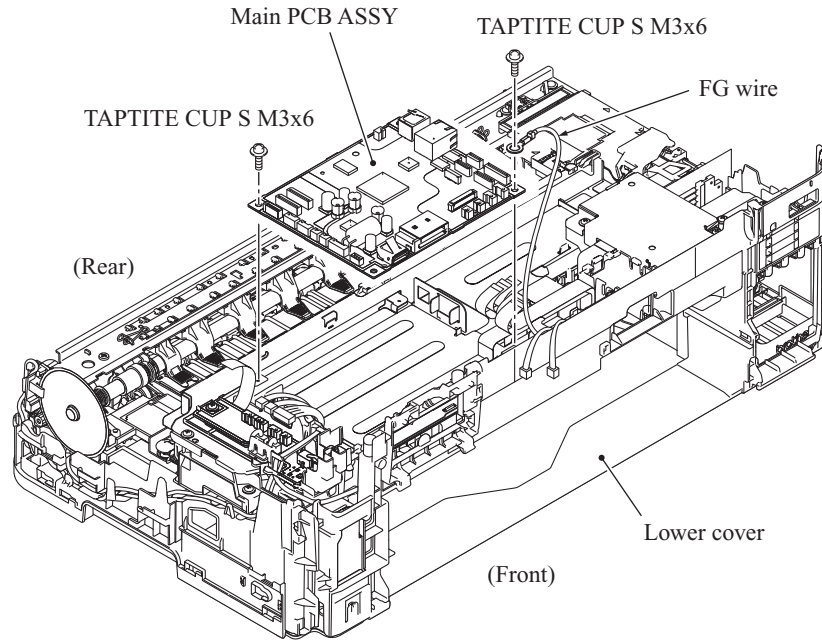
- (1) Remove the two screws (TAPTITE CUP S M3x6) and lift up the main PCB shield.



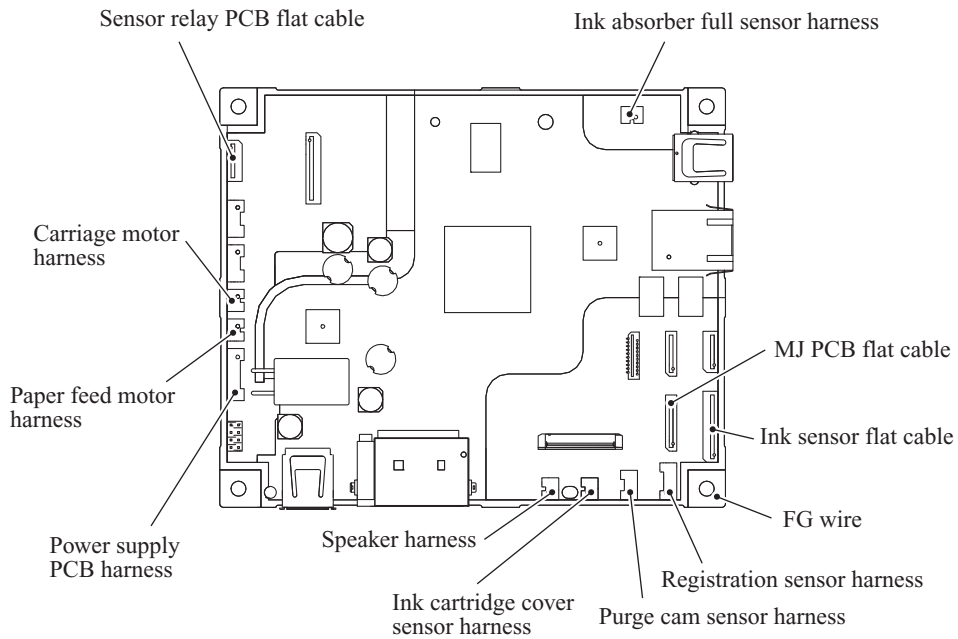
- (2) Release the harness fixing section of the main PCB frame film.
- (3) Disconnect all harnesses connected to the main PCB ASSY.



(4) Remove the two screws (TAPTITE CUP S M3x6) and remove the main PCB ASSY.



(3\_054\_E)

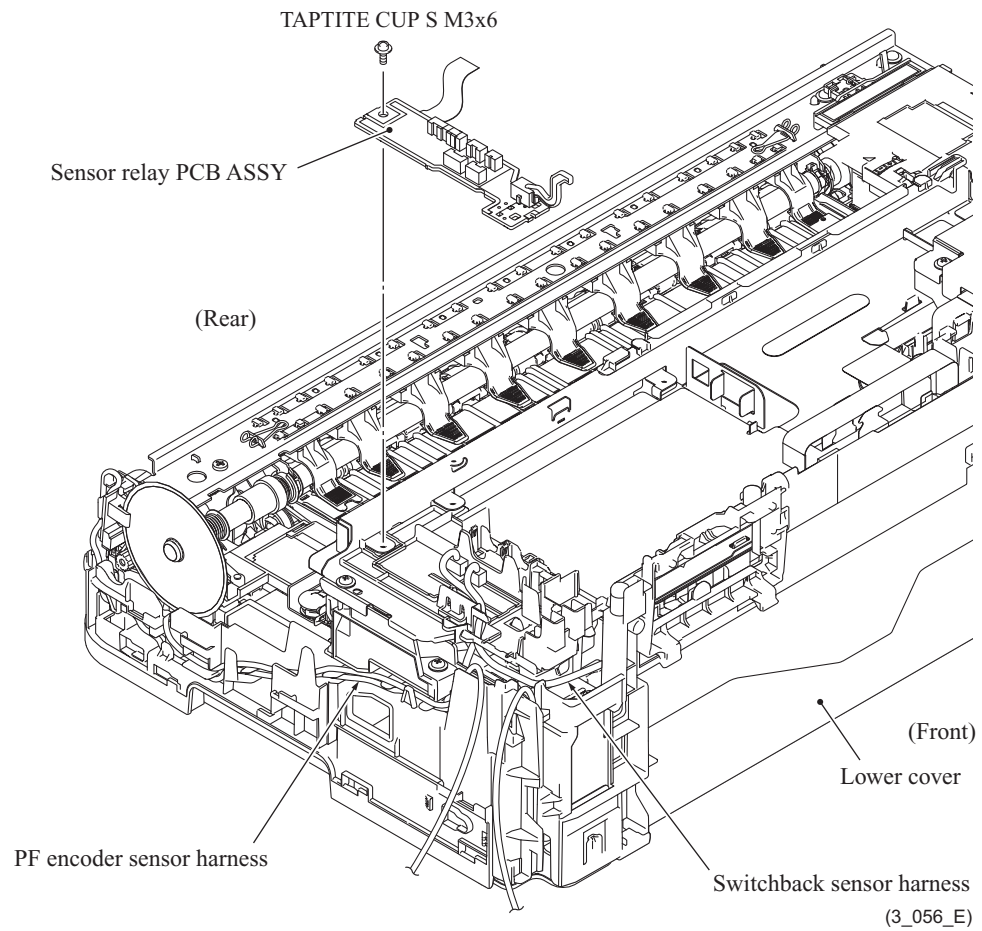


(3\_055\_E)

**Assembling Note:** When tightening the right front screw on the main PCB, secure the FG wire together.

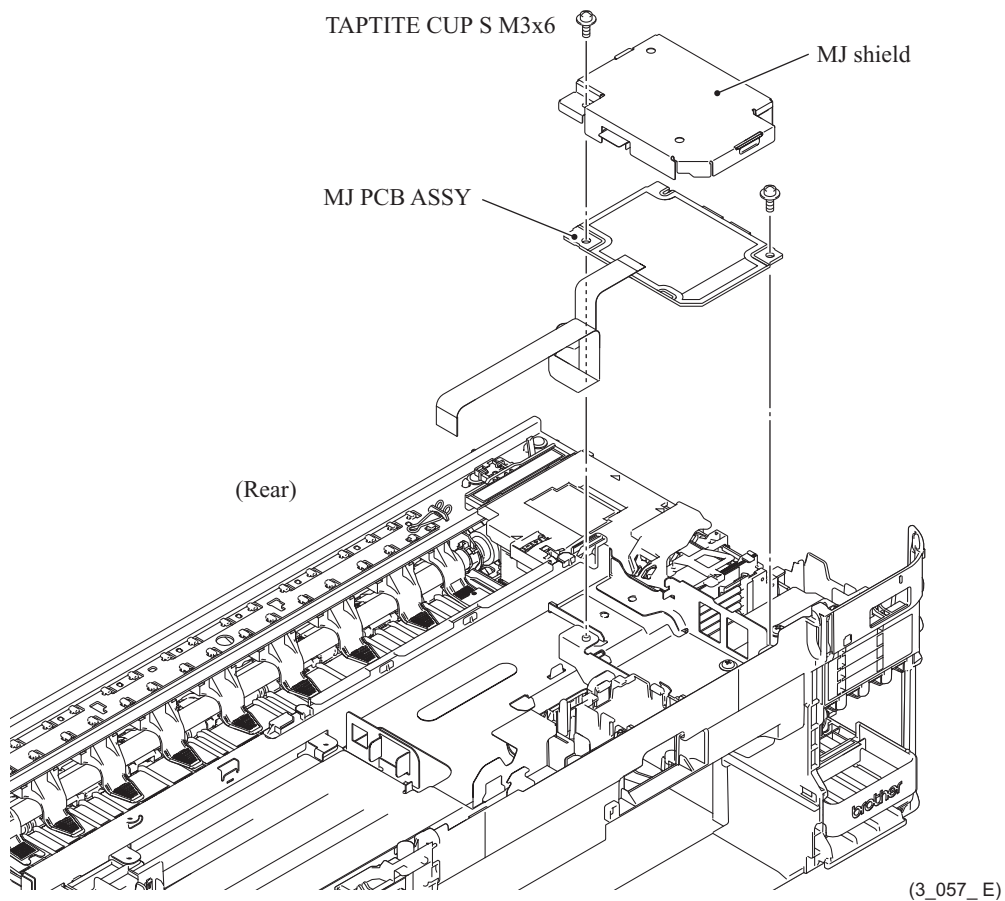
## 9.18 Sensor Relay PCB ASSY

- (1) Disconnect all harnesses connected to the sensor relay PCB ASSY.
- (2) Remove the screw (TAPTITE CUP S M3x6) and take off the sensor relay PCB ASSY.



## 9.19 MJ PCB ASSY

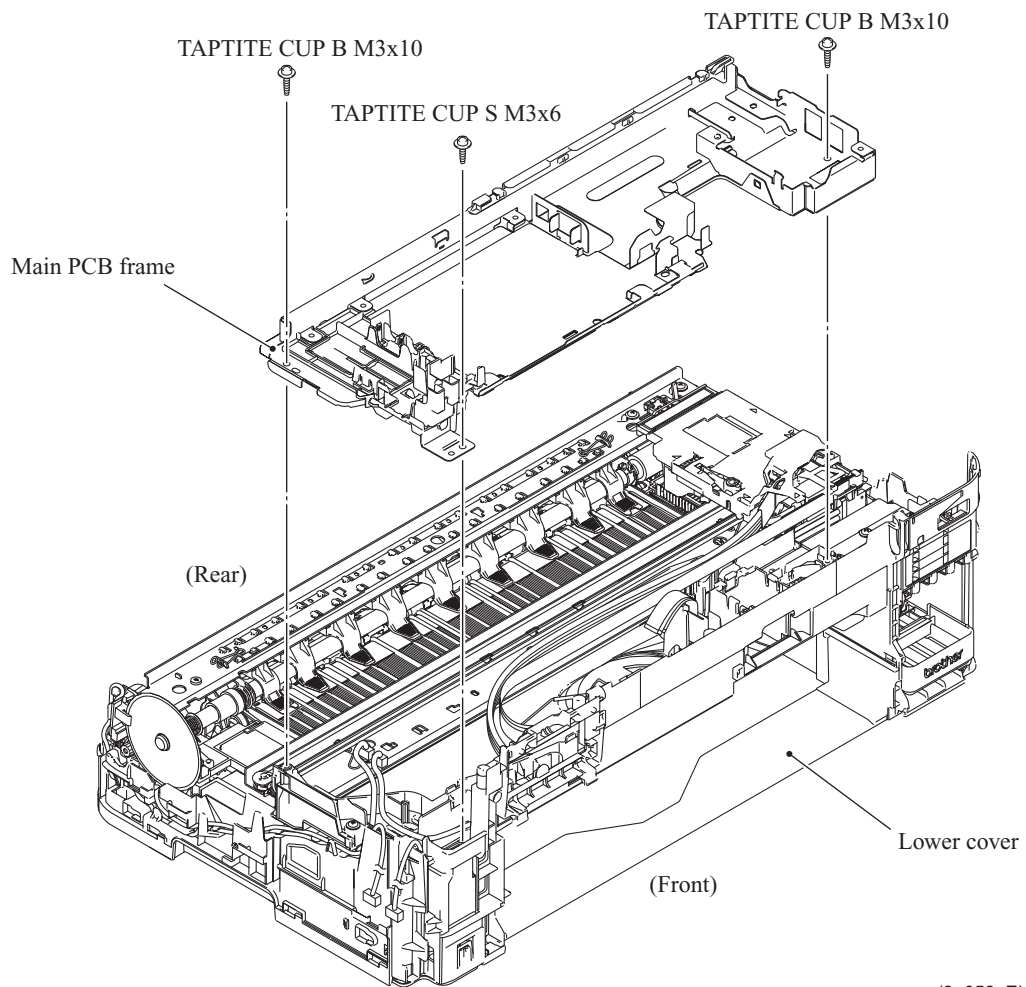
- (1) Release the wiring of the MJ PCB flat cable.
- (2) Remove the screw (TAPTITE CUP S M3x6) and take off the MJ shield.
- (3) Remove the screw (TAPTITE CUP S M3x6) and take off the MJ PCB ASSY.



**Assembling Note:** Make sure that two insulation films are sandwiched between the MJ shield and the MJ PCB.

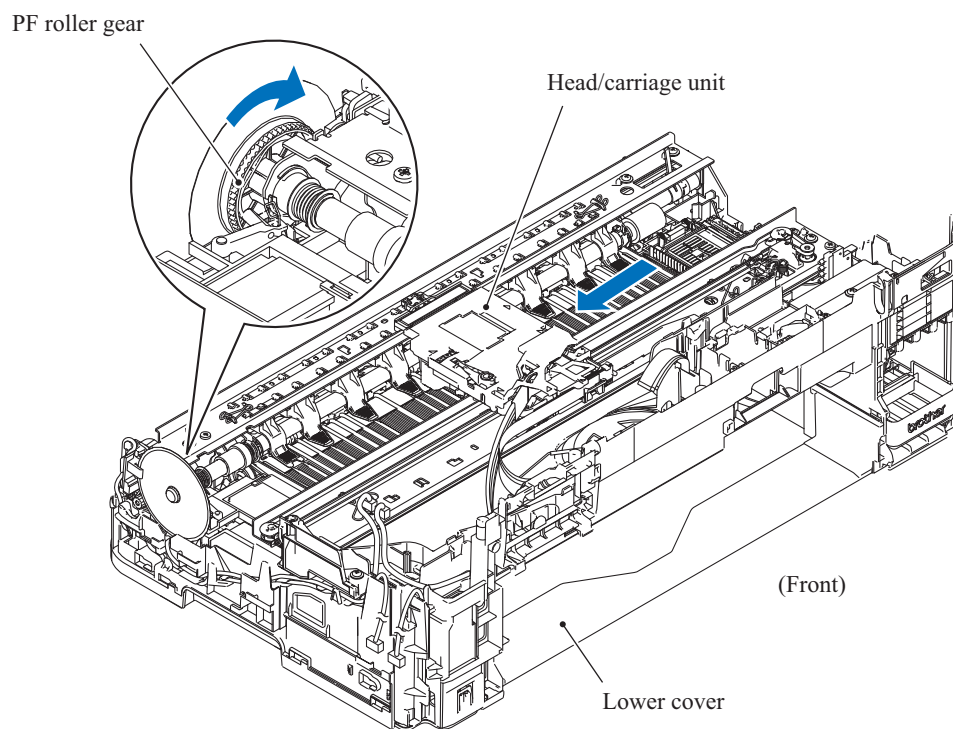
## 9.20 Head/Carriage Unit and CR Timing Belt

- (1) Remove two screws (TAPTITE CUP B M3x10) and one screw (TAPTITE CUP S M3x6) and take off the main PCB frame.



(3\_058\_E)

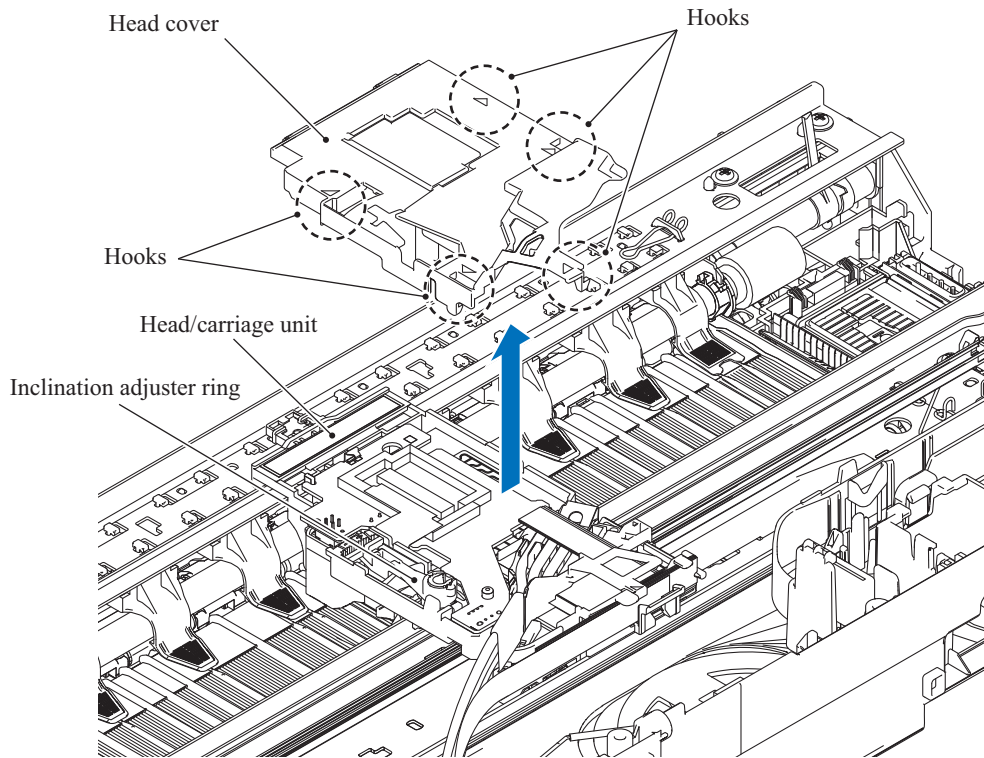
- (2) Turn the PF roller gear in the direction of the arrow until the head stopper of the maintenance unit clicks.
- (3) Move the head/carriage unit to the center of its travel.



(3\_059\_E)

(4) Release the five hooks marked with ▲ on the head cover to remove it.

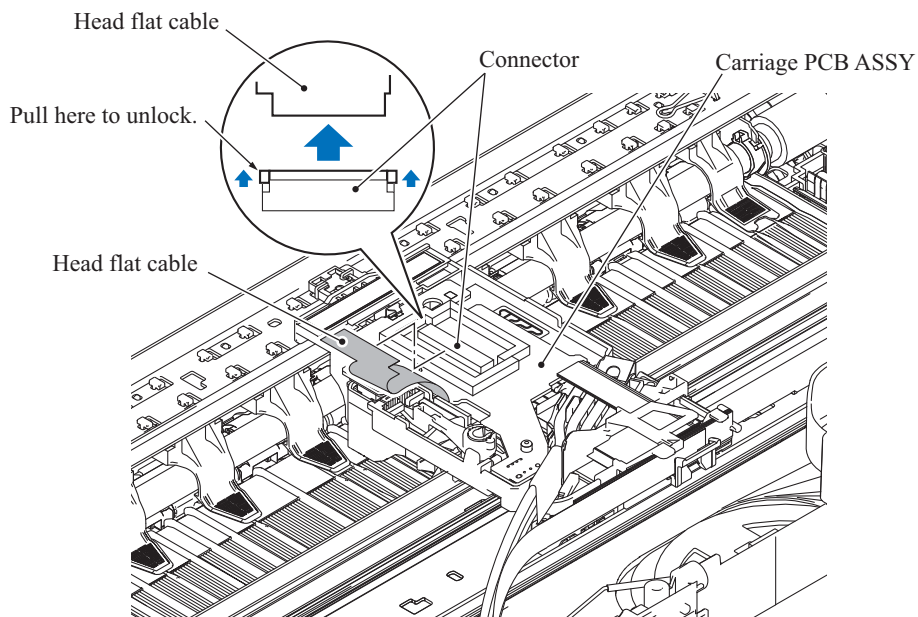
**Note:** When removing the head cover, do not touch the inclination adjuster ring.



(3\_060\_1\_E)

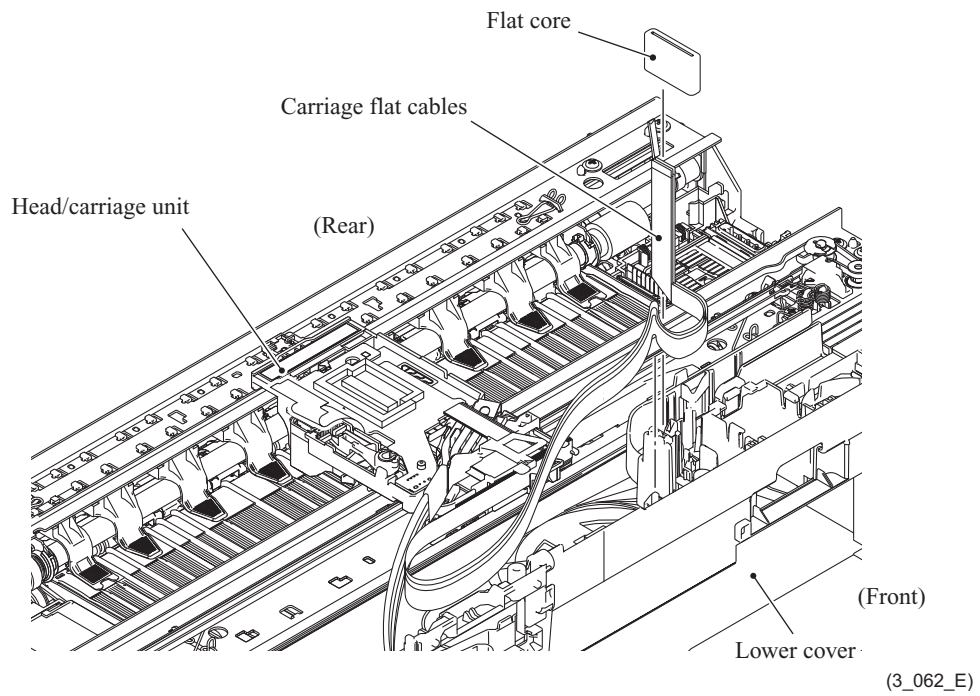
(5) Unlock the connector on the carriage PCB ASSY and disconnect the head flat cable.

**Note:** After disconnecting the head flat cable, check that it is not damaged at its end or short-circuited. When connecting the head flat cable, do not insert it at an angle. After insertion, check again that it is not at an angle and then lock the connector.

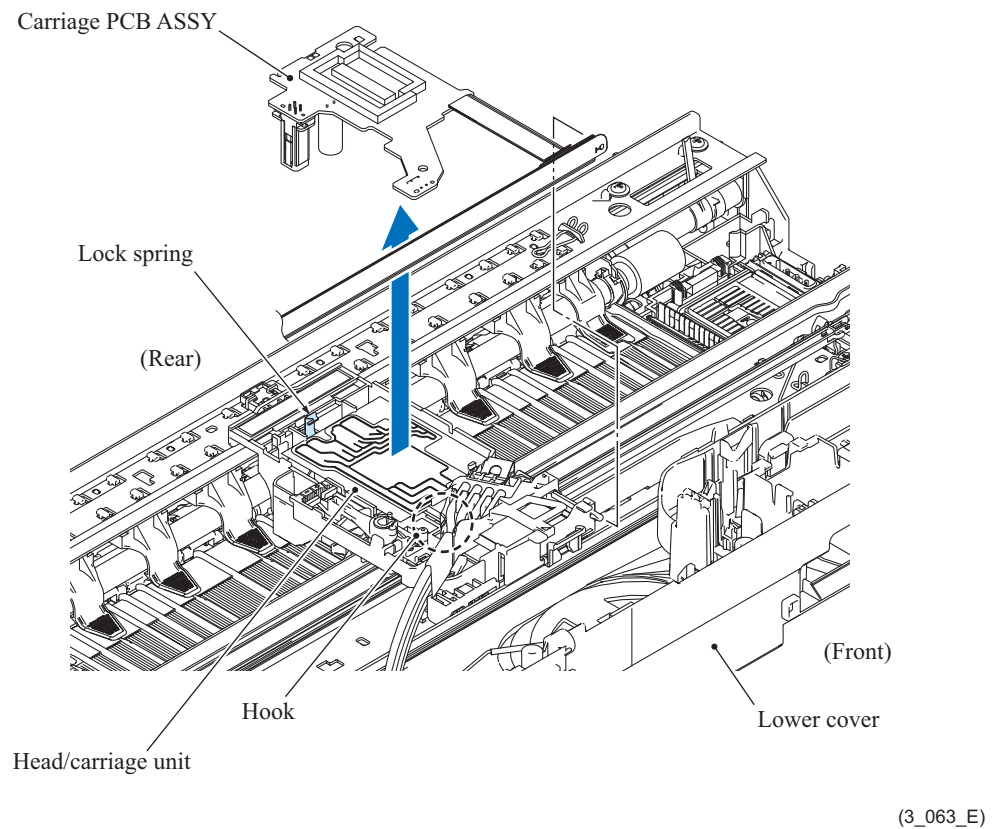


(3\_061\_E)

- (6) Release two hooks of the tube binder securing the carriage flat cables.
- (7) Release the wiring of the three carriage flat cables and remove the flat core. Release the carriage flat cables from the tube clamp.



- (8) Release the lock spring and hook to remove the carriage PCB ASSY.



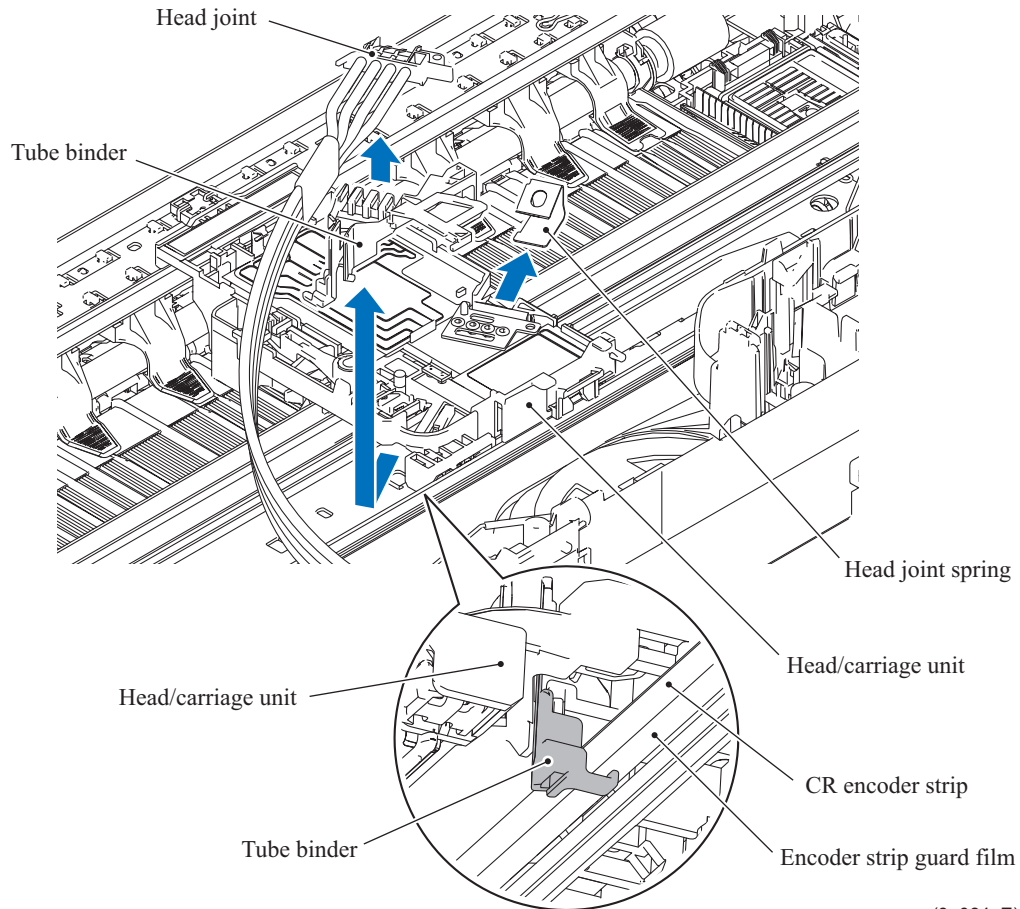


(9) Remove the head joint spring.

(10) Release the two hooks on the tube binder, hold up the right side of the tube binder and slide it in the direction of the arrow, then remove it from the head/carriage unit. At the same time, remove the head joint.

**Note:** After removal of the head joint, immediately wrap the head joint in a clean, lint-free cloth and keep it higher than the ink refill ASSY to prevent ink remaining in the ink supply tubes from leaking and the machine from getting stained with leaked ink.

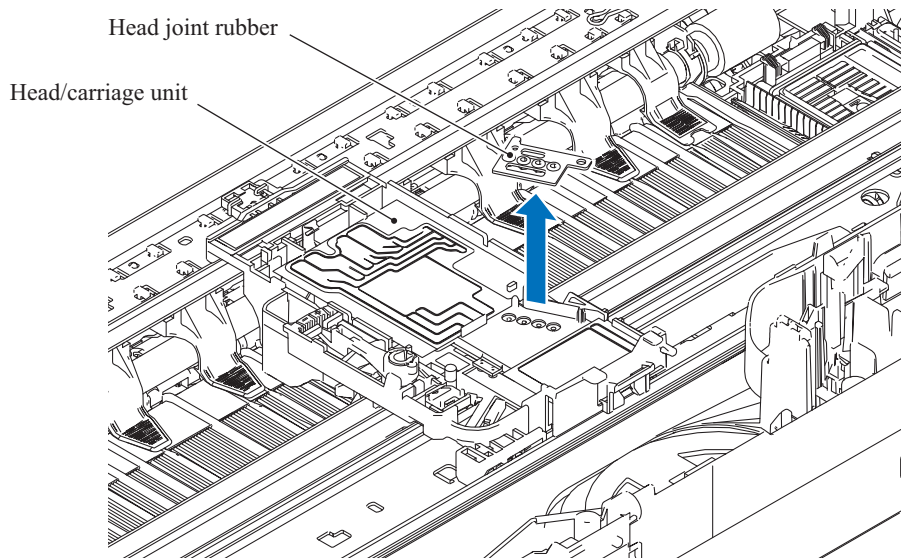
**Assembling Note:** Pass the L-shaped section of the tube binder beneath the CR encoder strip to prevent it from coming into contact with the CR encoder strip.



(3\_064\_E)

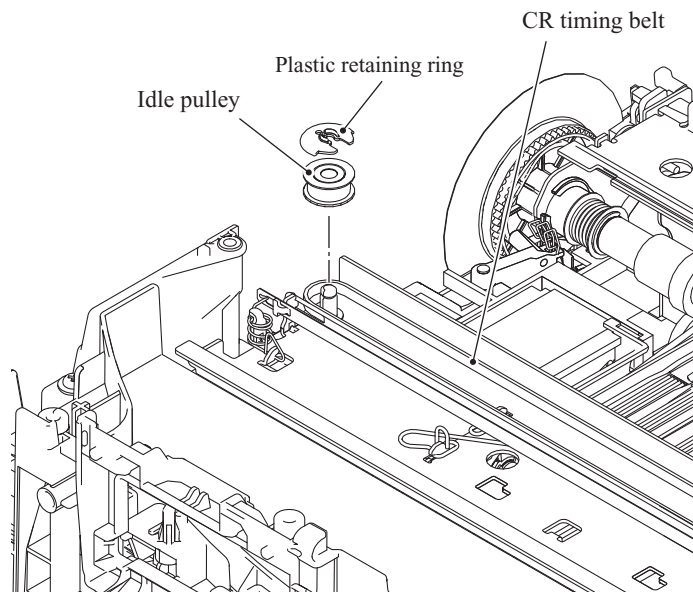
(11) Remove the head joint rubber.

**Note:** Put the head joint rubber on a clean vinyl sheet and take care not to contaminate it. Do not touch the inclination adjuster knob.



(3\_065\_E)

(12) Remove the resin retaining ring and the idle pulley.



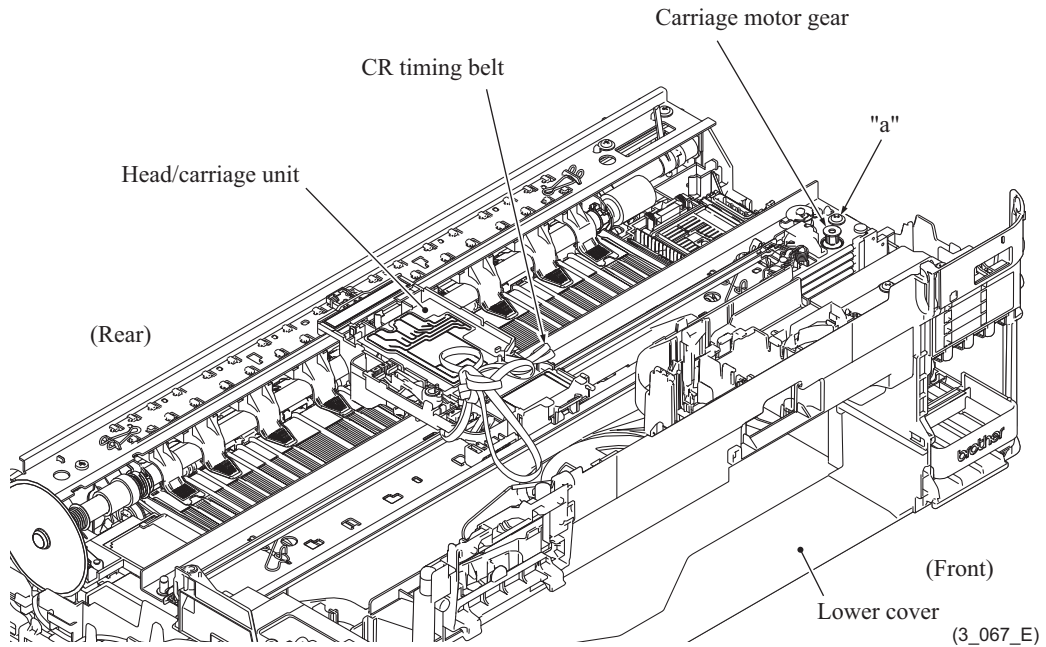
(3\_066\_E)

(13) Remove the CR timing belt from the carriage motor gear.

As shown below, loosely tie the CR timing belt in a bundle on the head/carriage unit.

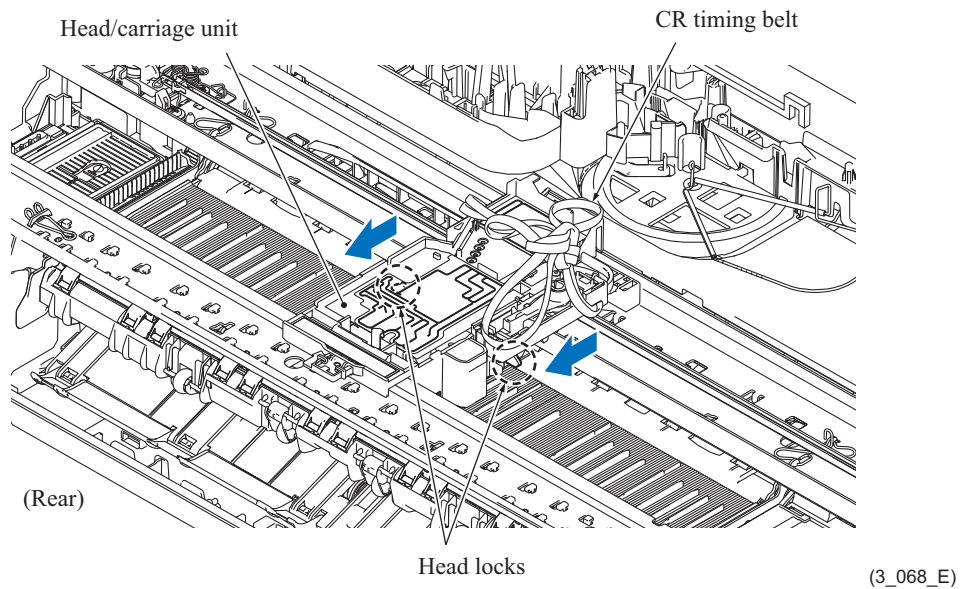
**Note:** When removing the CR timing belt, do not touch the CR encoder strip or the lubrication area on the engine unit with your hands or with the CR timing belt.

**Note:** Do not loosen screw "a" shown below. Doing so may decrease the tension of the CR timing belt.



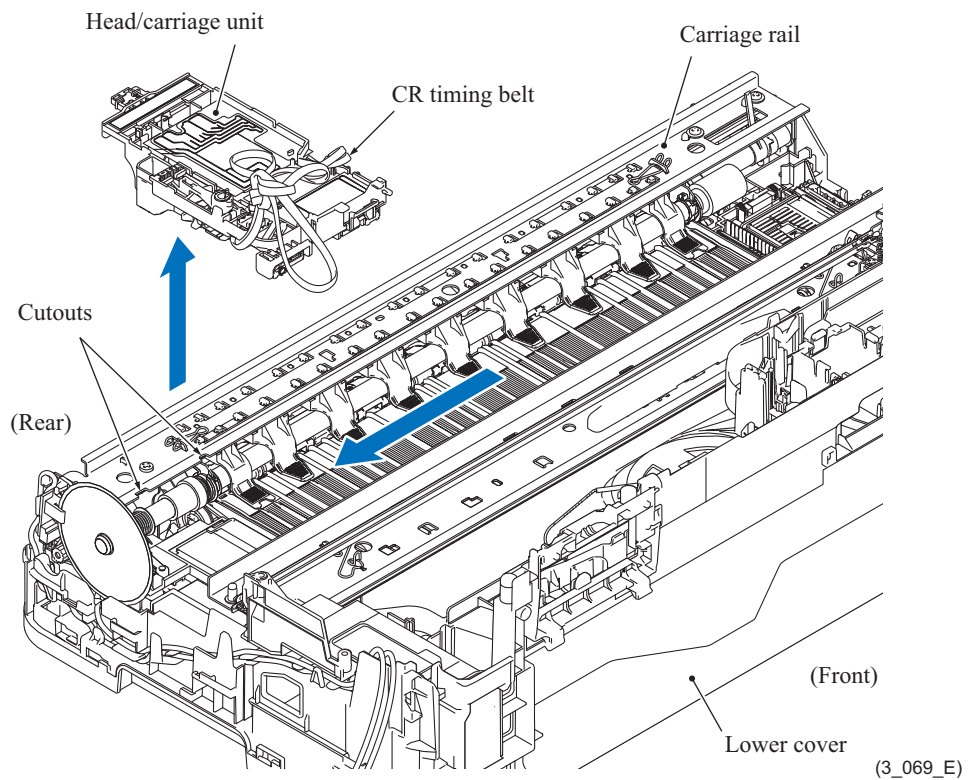
"a": TAPTITE CUP S M3x6

(14) Pull the two head locks in the direction of the arrow and move the head/carriage unit to the release position.

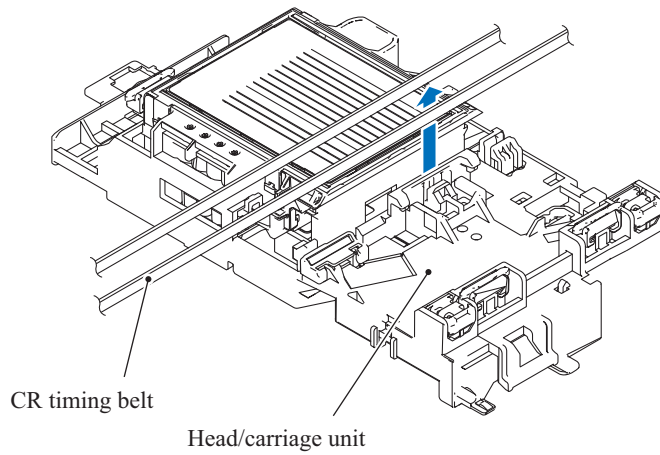


(15) Move the head/carriage unit to the left until the pawls on the unit are aligned with the cutouts in the carriage rail. Slightly lift up the rear end of the head/carriage unit to release it through the two cutouts in the carriage rail, and then release the front end from the CR frame to take out the head/carriage unit.

**Note:** Do not touch the head nozzles (the printing ends) or ink supply ports (to which ink supply tubes are connected) of the head/carriage unit; doing so will not only stain your hands with ink but also damage the nozzles and supply ports. If you do touch them though, perform a head cleaning operation.

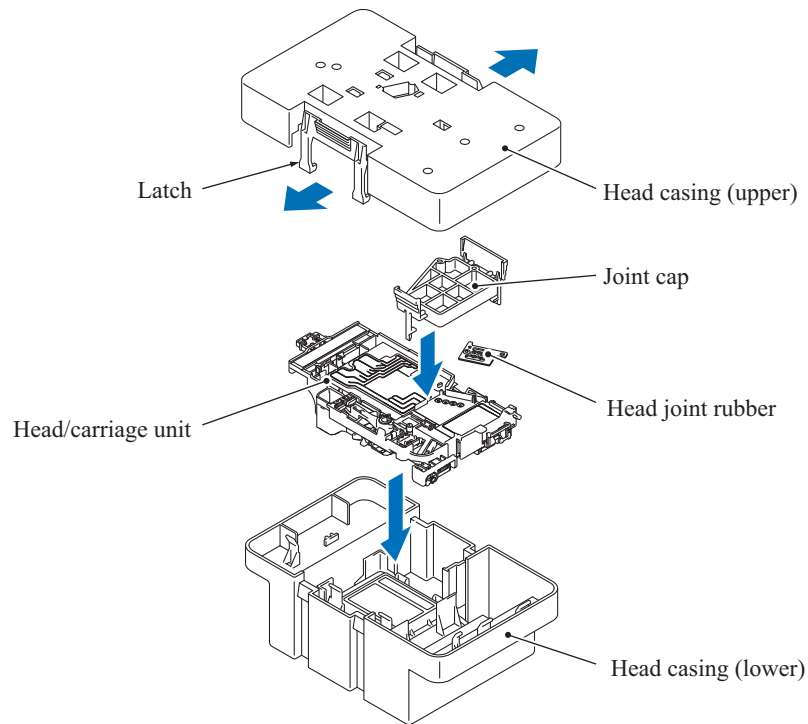


(16) Remove the CR timing belt from the head/carriage unit.



(3\_070\_E)

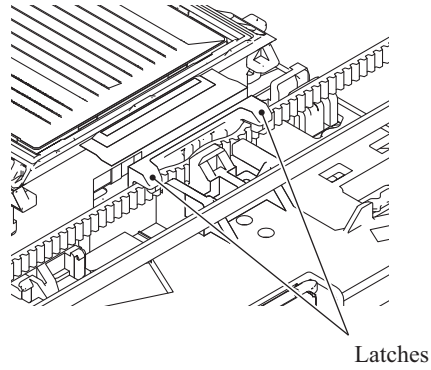
**Note:** When storing the removed head/carriage unit for a long period, store the unit in a head casing as shown below. Leaving it out of the casing causes the head nozzles and ink supply ports to dry up so that the head/carriage unit can no longer provide the original performance.



(3\_071\_E)

**Assembling Note:** Mount the head/carriage unit, using the following steps.

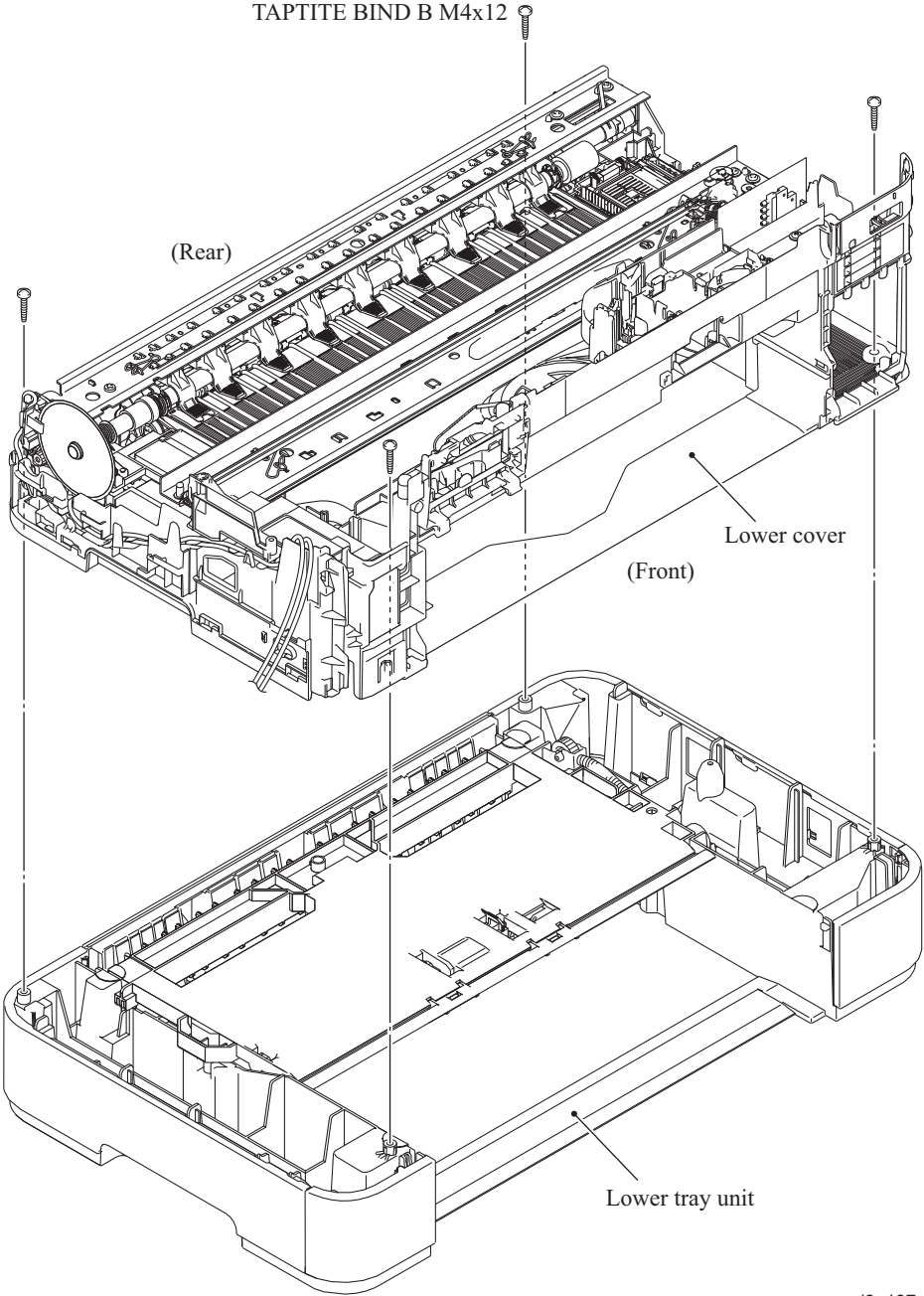
- 1) When mounting a new head/carriage unit, apply lubricant to the unit, as specified in [Section 5](#) of this chapter.
- 2) When mounting the CR timing belt, insert it into the head/carriage unit so that the toothed side faces inwards as shown below and make sure that the upper and lower edges of the belt are fitted in the latches.



(3\_132\_E)

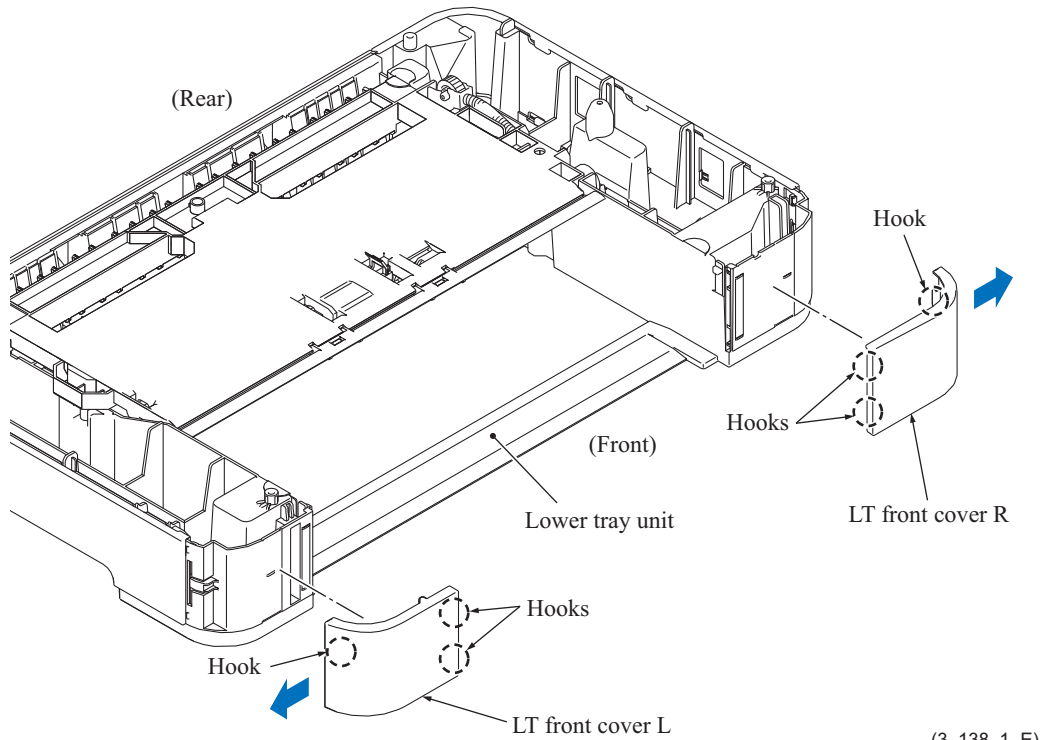
**9.21 Lower Tray Unit (LT models only)**

(1) Remove four screws (TAPTITE BIND B M4x12) and take out the lower tray unit.

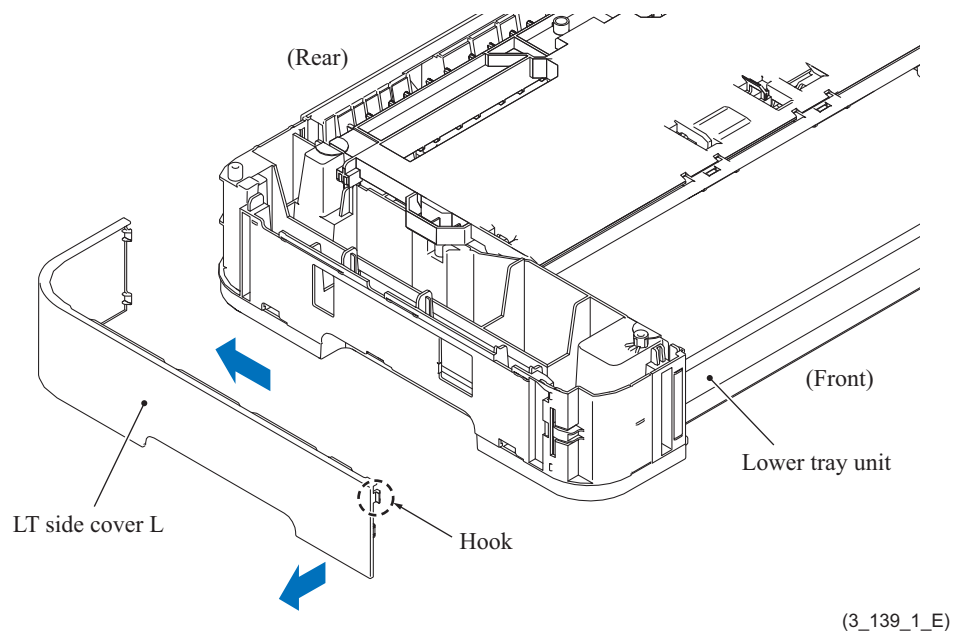


(3\_137\_1\_E)

- (2) Release two front hooks on the LT front cover L.
- (3) Pull the LT front cover L outwards to release the rear hooks and remove the LT front cover L.
- (4) Release two front hooks on the LT front cover R.
- (5) Pull the LT front cover R outwards to release the rear hooks and remove the LT front cover R.

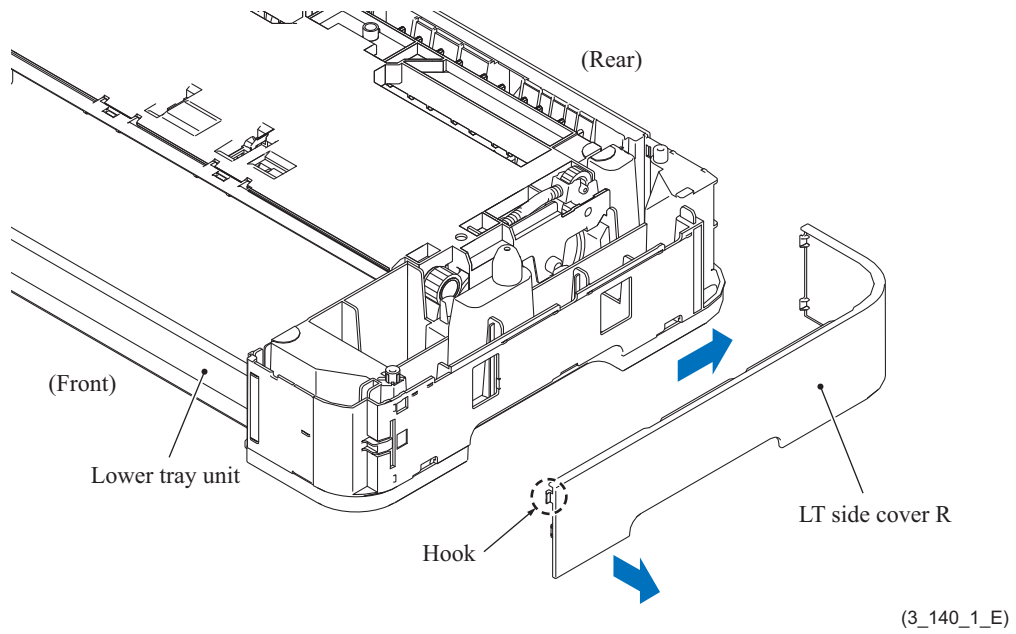


- (6) While pulling the LT side cover L to the rear, pull it outwards to release the hooks and remove the LT side cover L.

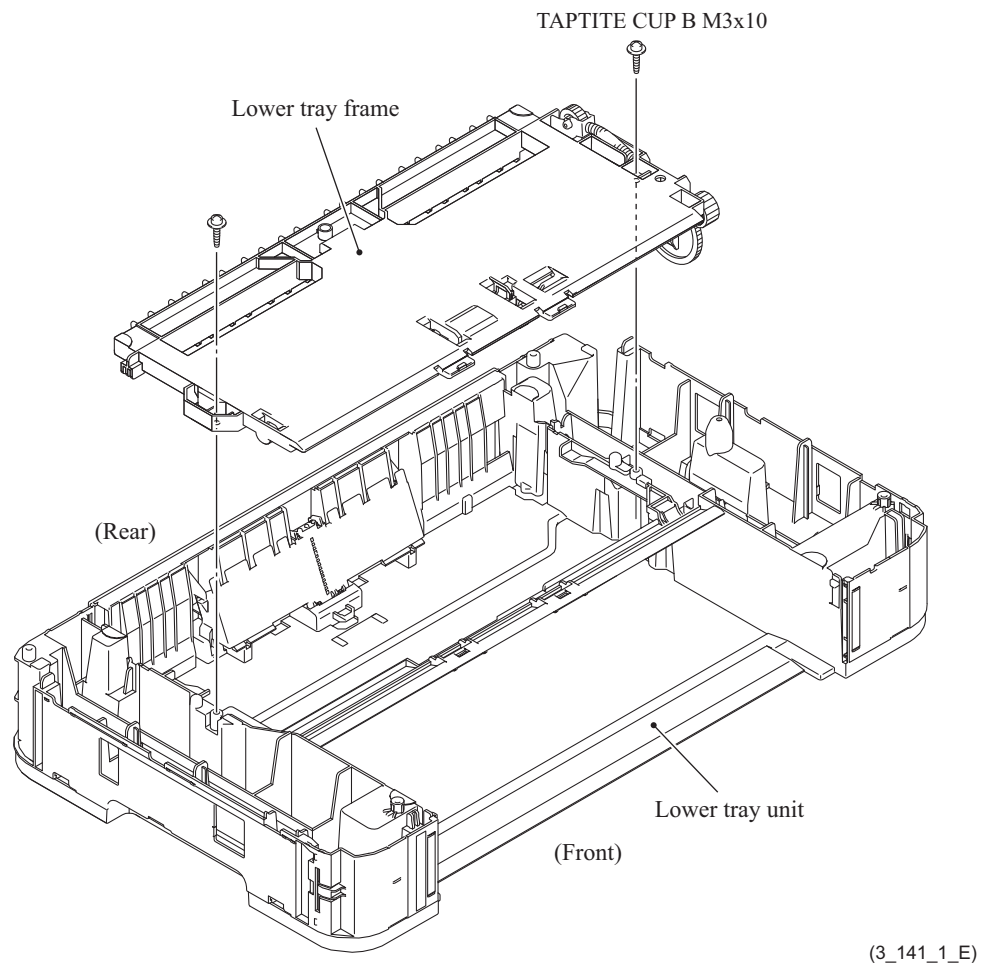




- (7) While pulling the LT side cover R to the rear, pull it outwards to release the hooks and remove the LT side cover R.

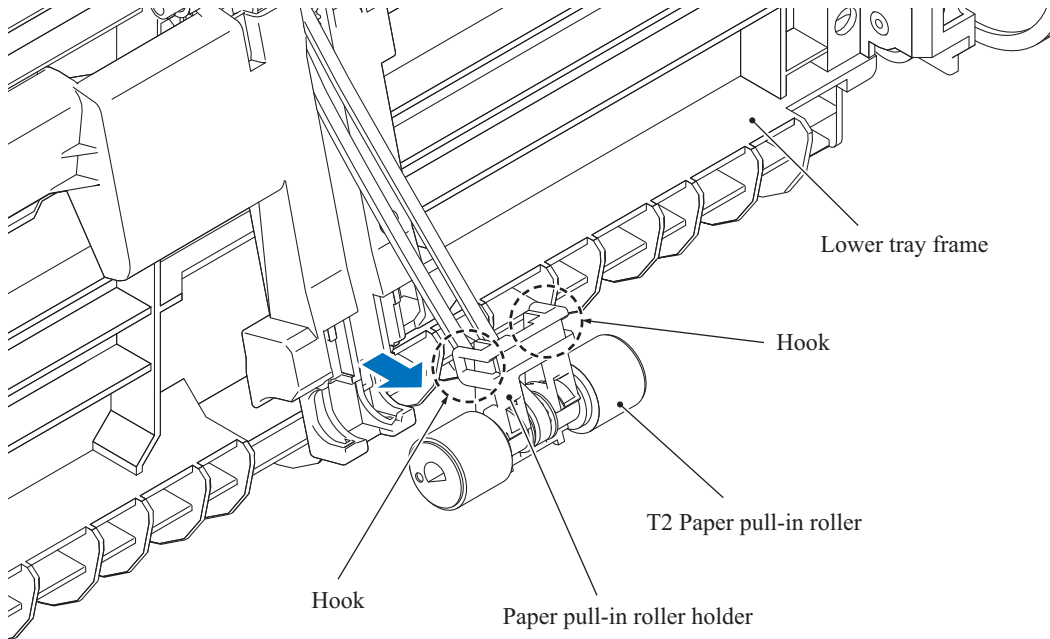


- (8) Remove two screws (TAPTITE CUP B M3x10) and remove the lower tray frame.



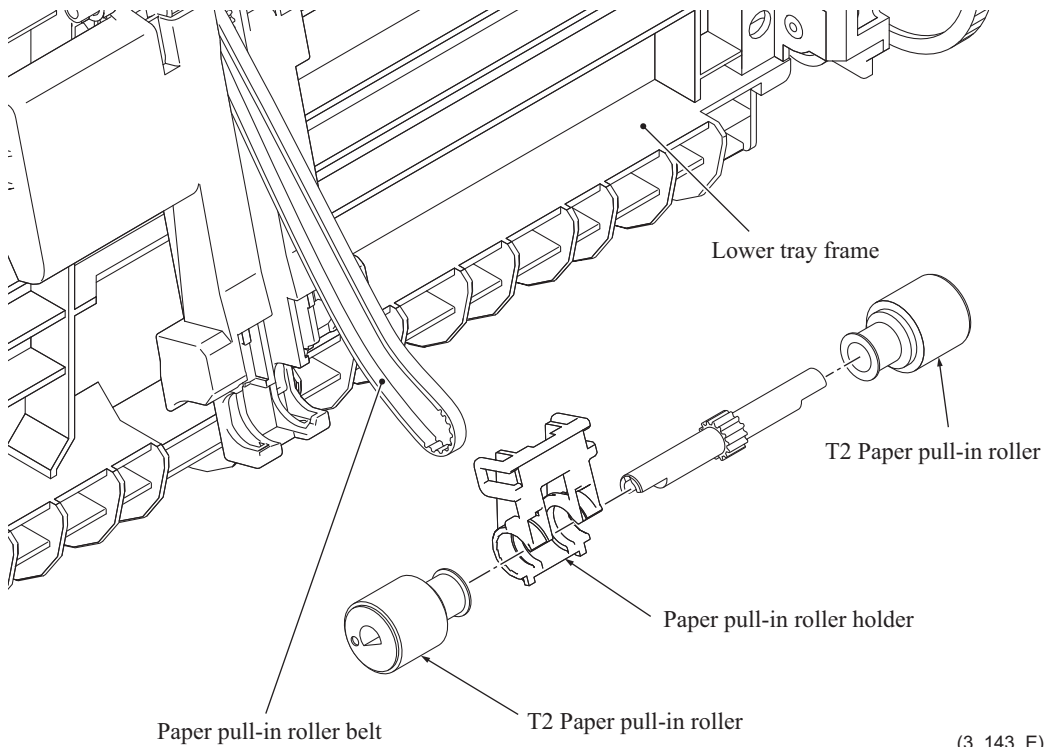
**For the paper pull-in roller with belt drive**

- (9) Release the two hooks of the paper pull-in roller holder and remove the T2 paper pull-in rollers and their holder from the gear holder ASSY.



(3\_142\_E)

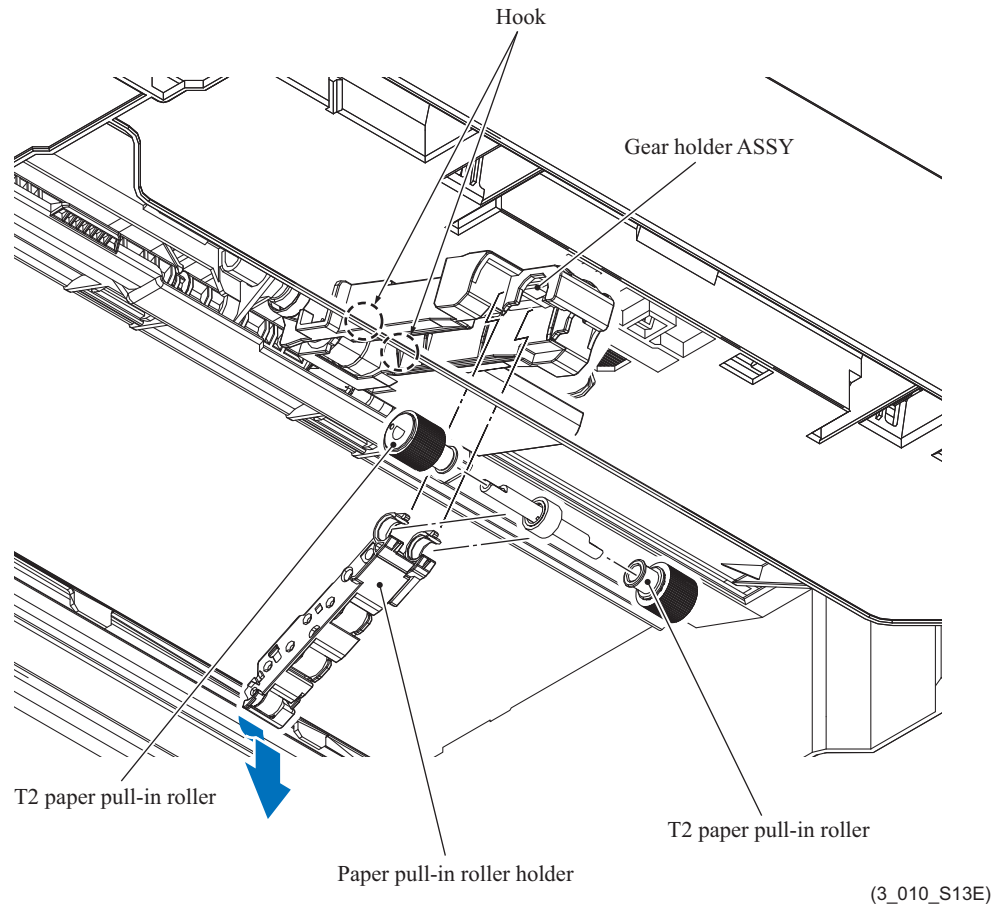
- (10) Remove the T2 paper pull-in rollers from their holder and separate those rollers to the right and left to remove them from the paper pull-in roller belt.



(3\_143\_E)

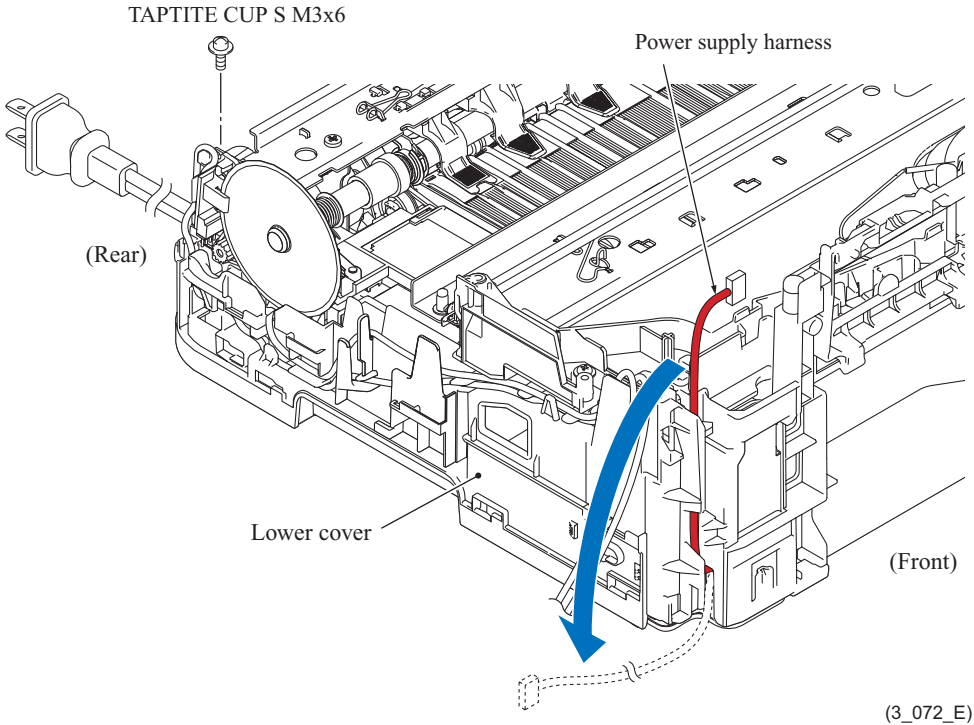
**For the paper pull-in roller with gear drive**

- (1) Release the two hooks of the paper pull-in roller holder and remove the T2 paper pull-in rollers and their holder from the gear holder ASSY.
- (2) Remove the T2 paper pull-in rollers from their holder and separate those rollers to the right and left.

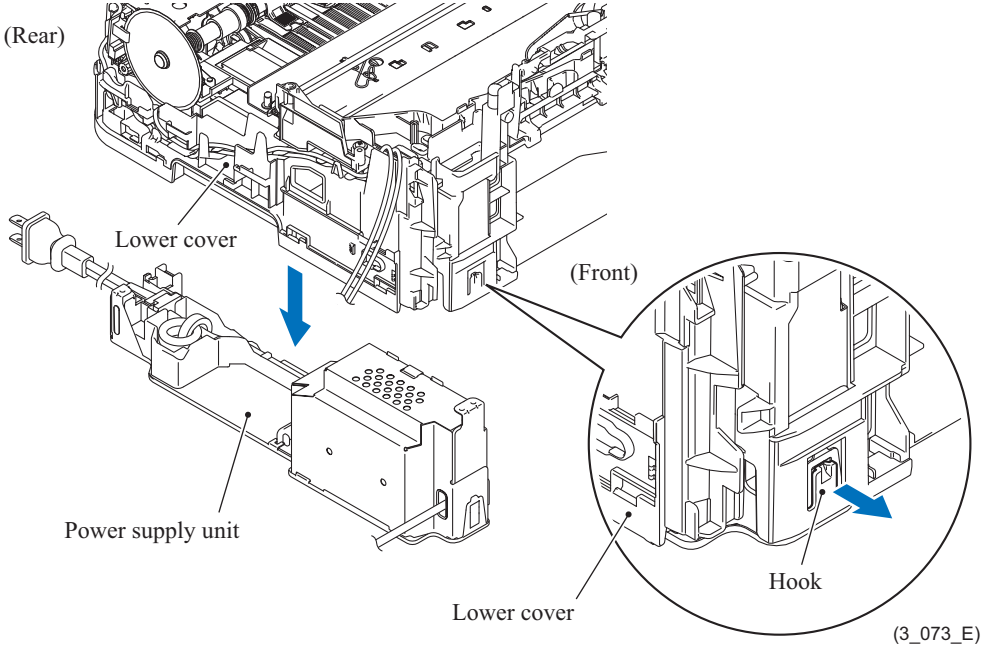


**9.22 Power Supply PCB ASSY**

- (1) Release the wiring of the power supply PCB ASSY.
- (2) Remove the screw (TAPTITE CUP S M3x6).

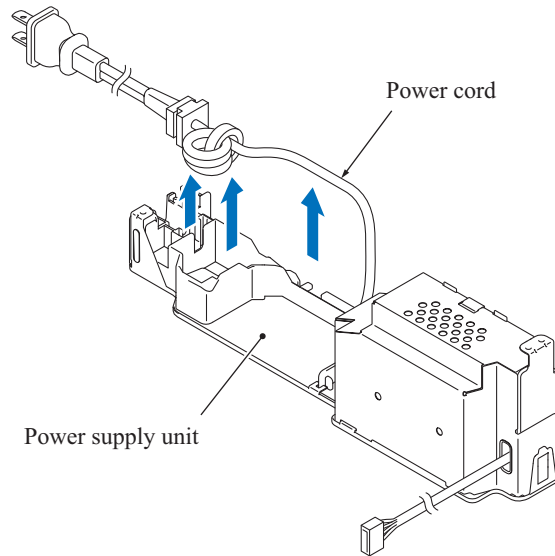


- (3) Release the hook and remove the power supply unit from the bottom of the lower cover.



(4) For 100 V Release the wiring of the power cord.

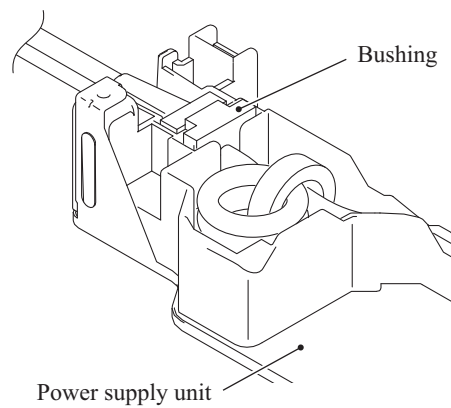
< For 100 V >



(3\_074\_E)

For 200 V Remove the screw (SCREW PAN (WASHER) M4x8D) and remove the power inlet from the power cord holder.

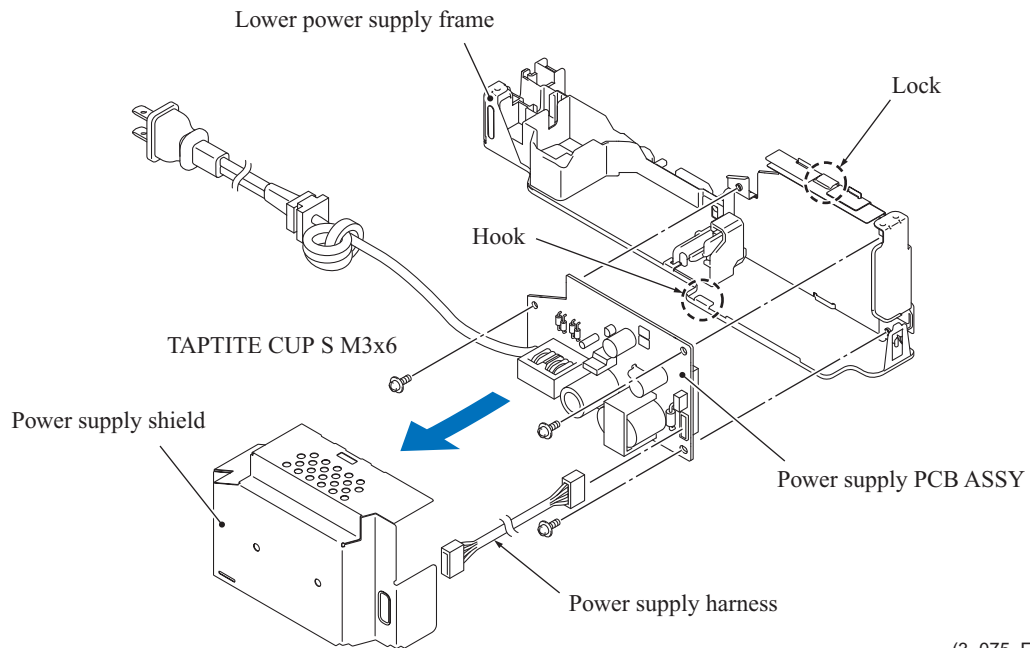
**Assembling Note:** Be careful with the mounting direction of the bushing.



(3\_074\_2\_E)

- (5) Release the power supply shield from the lock and the hook of the lower power supply frame, then remove the shield to the front.
- (6) Disconnect the power supply harness from the power supply PCB ASSY.
- (7) Remove the three screws (TAPTITE CUP S M3x6) and take the power supply PCB ASSY out of the lower power supply frame.

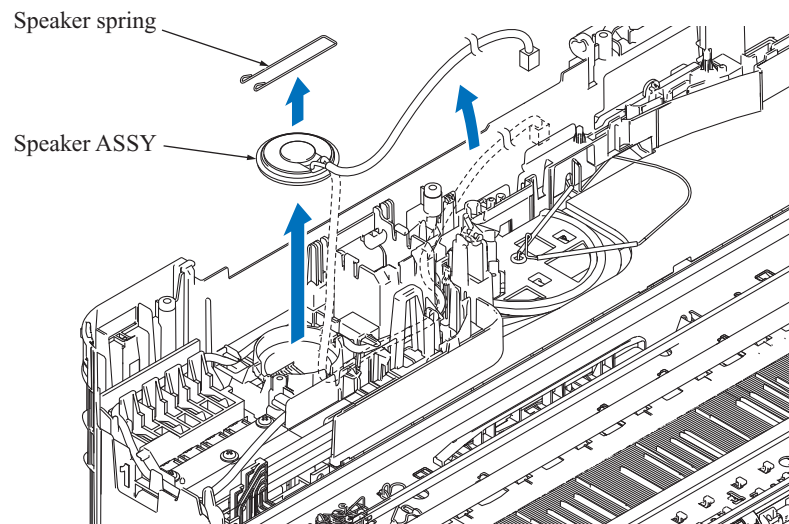
**Assembling Note:** Make sure that two insulation films are sandwiched between the power supply PCB ASSY and the lower power supply frame.



(3\_075\_E)

## 9.23 Speaker

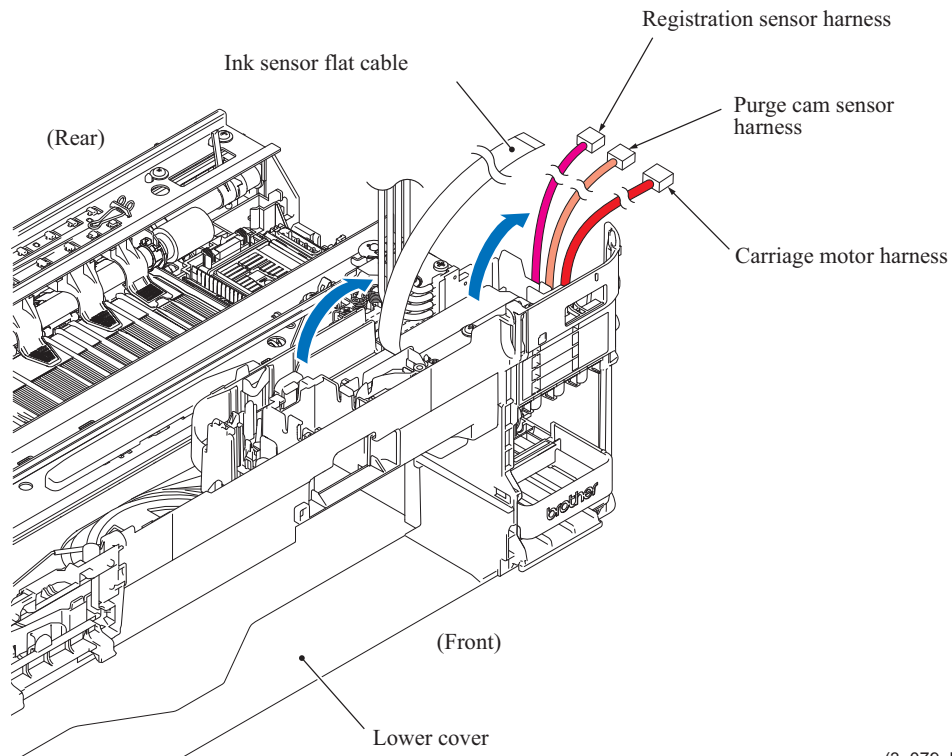
- (1) Release the wiring of the speaker harness.
- (2) Remove the speaker spring.
- (3) Remove the speaker ASSY.



(3\_076\_E)

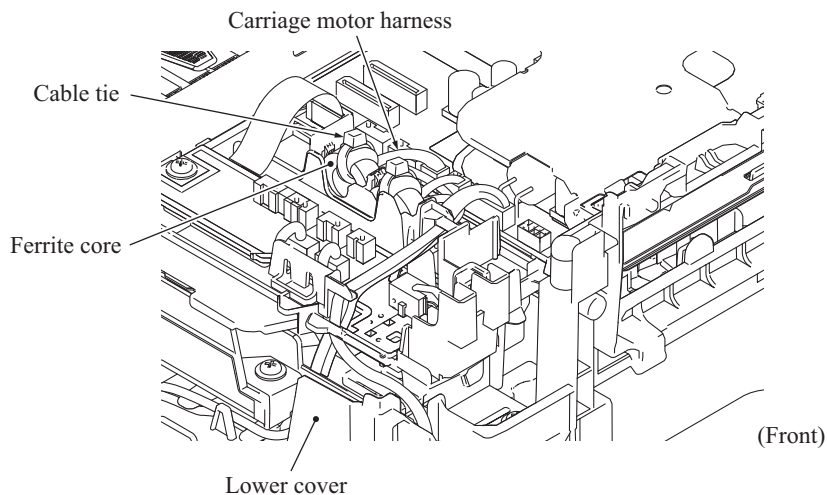
## 9.24 Ink Refill ASSY

- (1) If the head joint has been removed from the head/carriage unit, set it back to the head/carriage unit (to prevent ink leakage when you remove a protective part).
- (2) Release the wiring of the ink supply tubes from the tube support wire and tube support plate.
- (3) Release the wiring of the ink sensor flat cable.
- (4) Release the wiring of the harnesses.



(3\_079\_E)

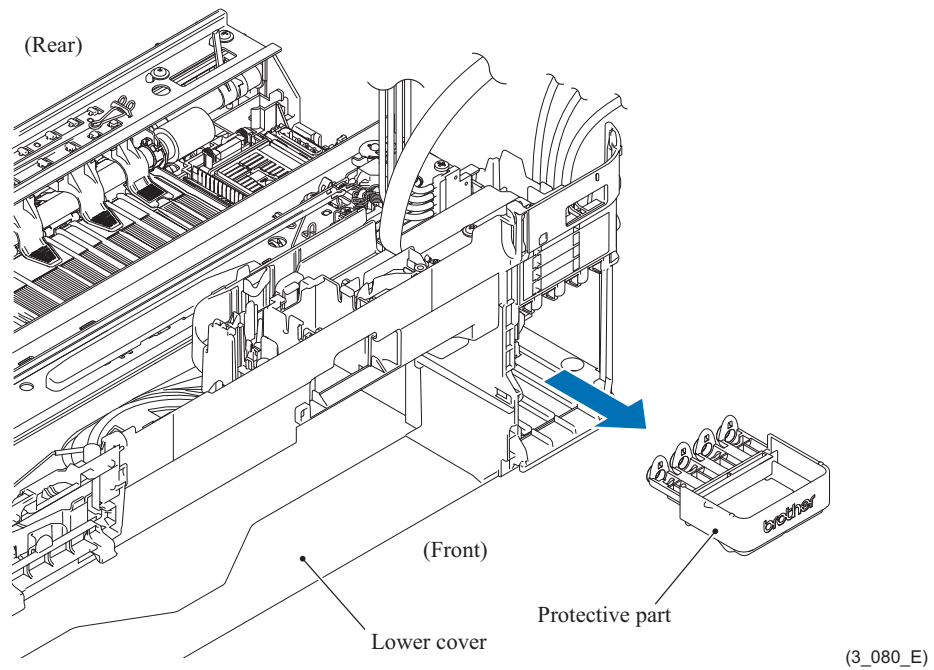
**Assembling Note:** When routing the carriage motor harness, set the ferrite core into the square hole with the cable tie positioned on the top of the ferrite core.



(3\_085\_1\_E)

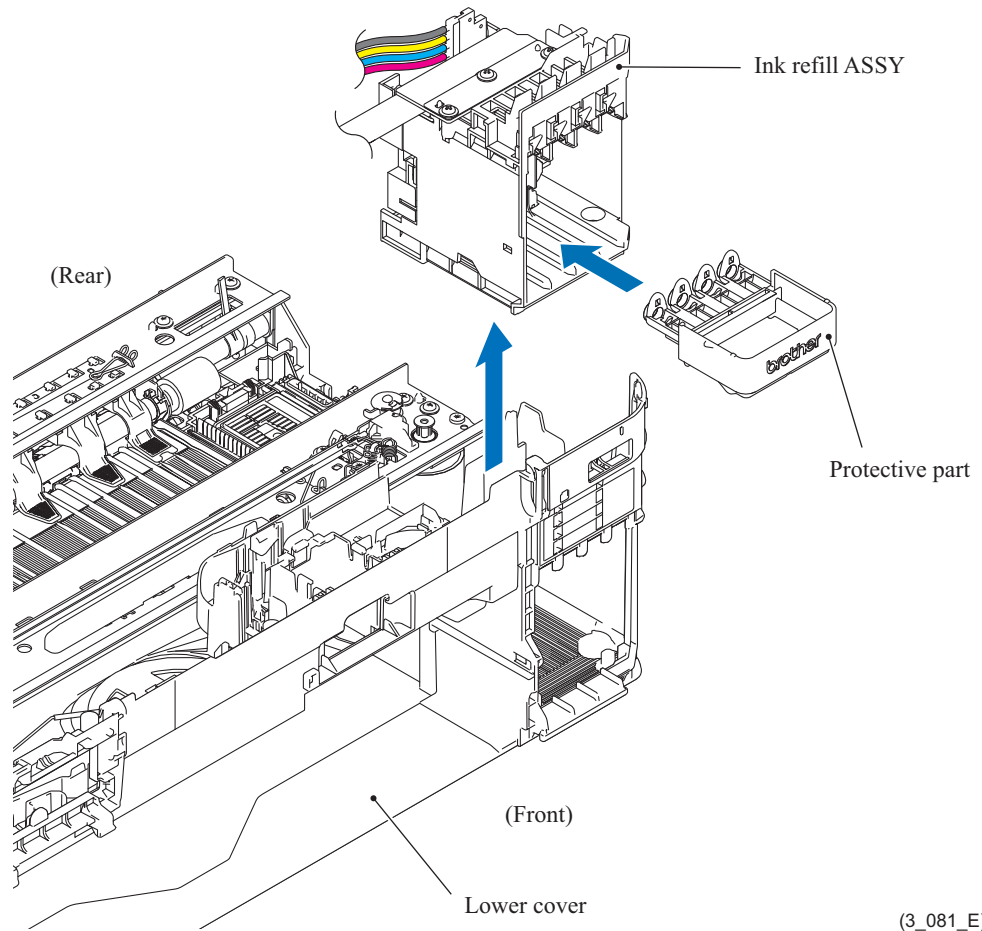


(5) Remove the protective part.



**Note:** To prevent the ink remaining in the ink supply tubes from leaking from the ink supply needle side, keep the head joint side at the same height as the ink supply needles in the ink refill ASSY and perform steps (5) and (6).

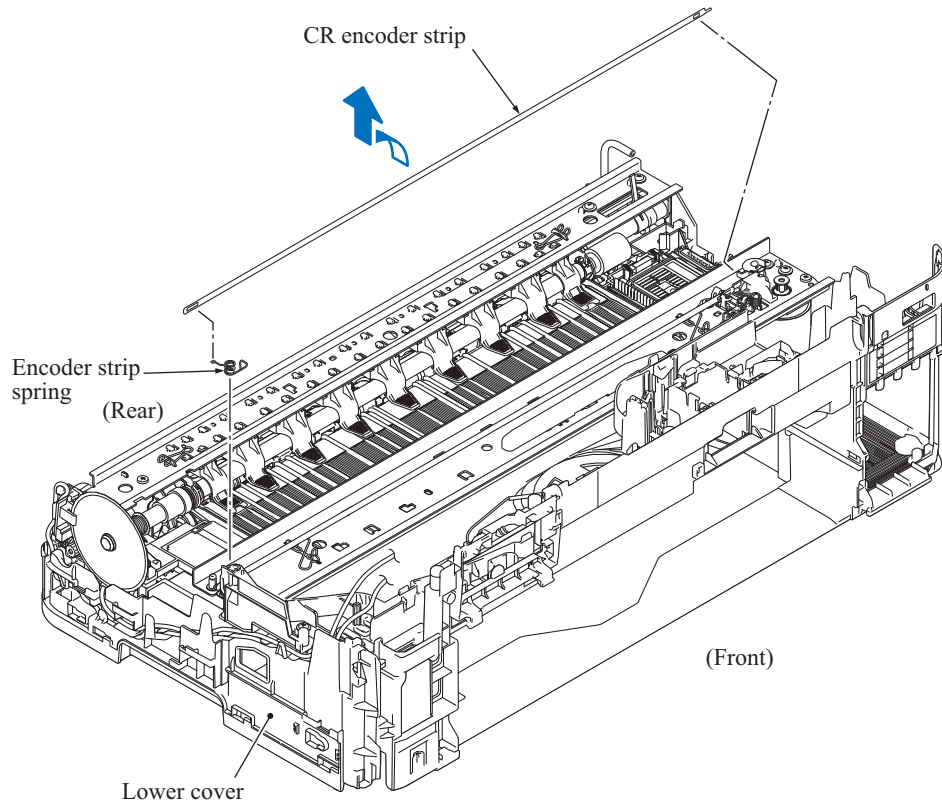
(6) Remove the ink refill ASSY and immediately set the protective part into place.



## 9.25 CR Encoder Strip

- (1) Release the lock of the encoder strip spring and remove the CR encoder strip and the spring.

**Note:** Take care not to scratch the CR encoder strip. If it is stained or scratched, replace it with a new one.

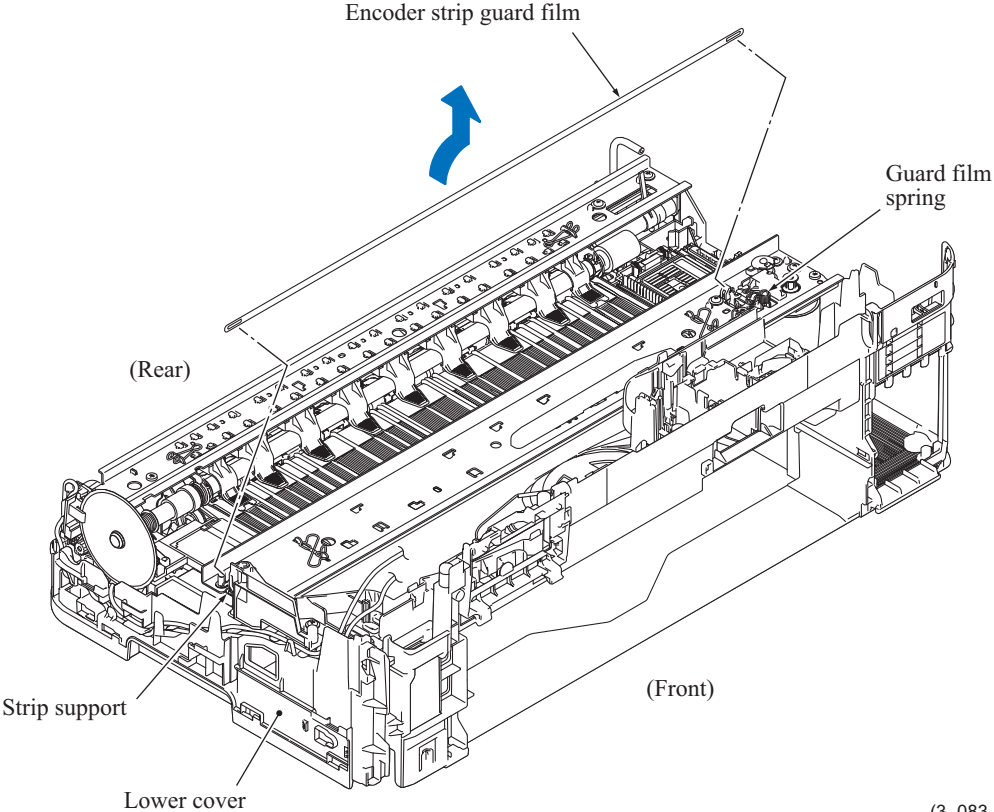


(3\_082\_E)

**Assembling Note:** Set the CR encoder strip so that the ▲-marked end is to the right (carriage motor side) and the mark ▲ points upwards.

### 9.26 Encoder Strip Guard Film

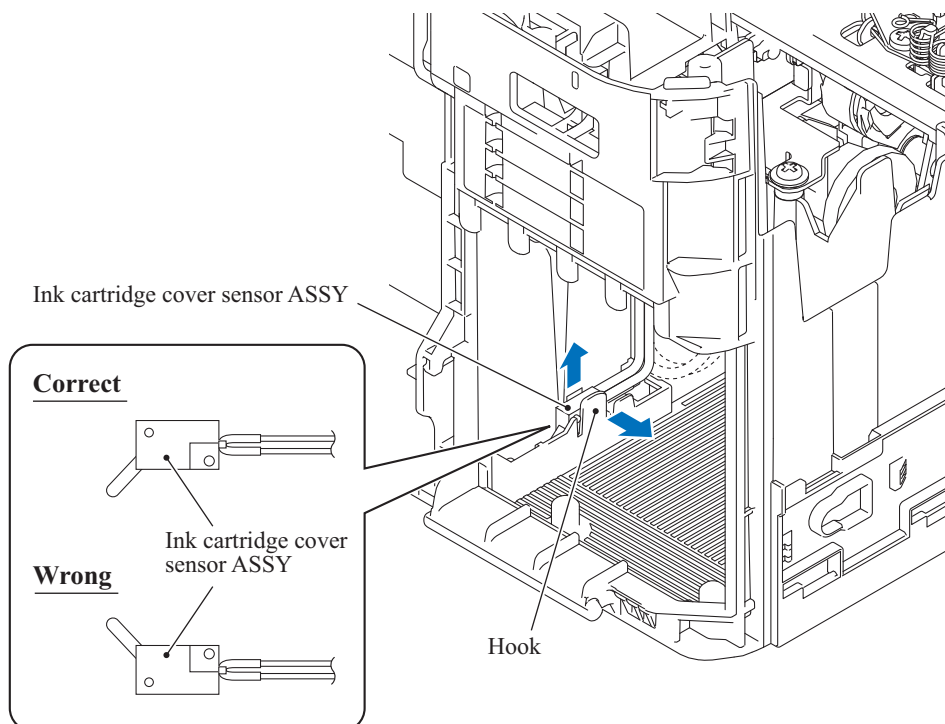
(1) Release the lock of the guard film spring and remove the encoder strip guard film.



(3\_083\_E)

## 9.27 Ink Cartridge Cover Sensor ASSY

- (1) Release the wiring of the ink cartridge cover sensor ASSY.
- (2) Release the hook and remove the ink cartridge cover sensor ASSY.

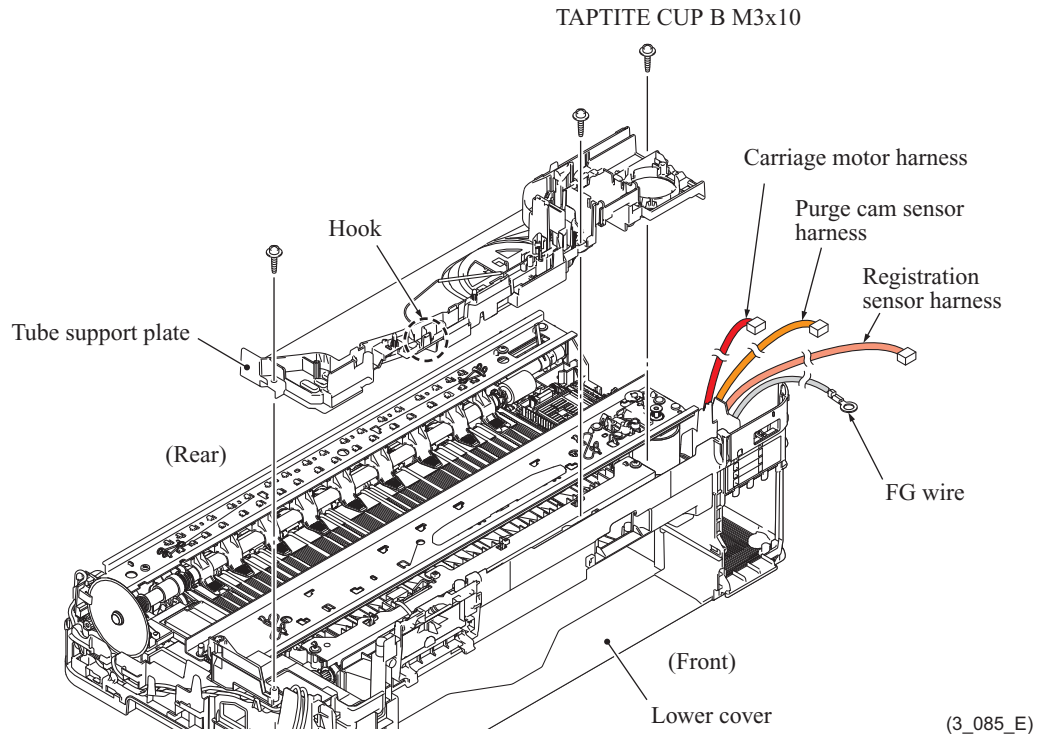


(3\_084\_E)

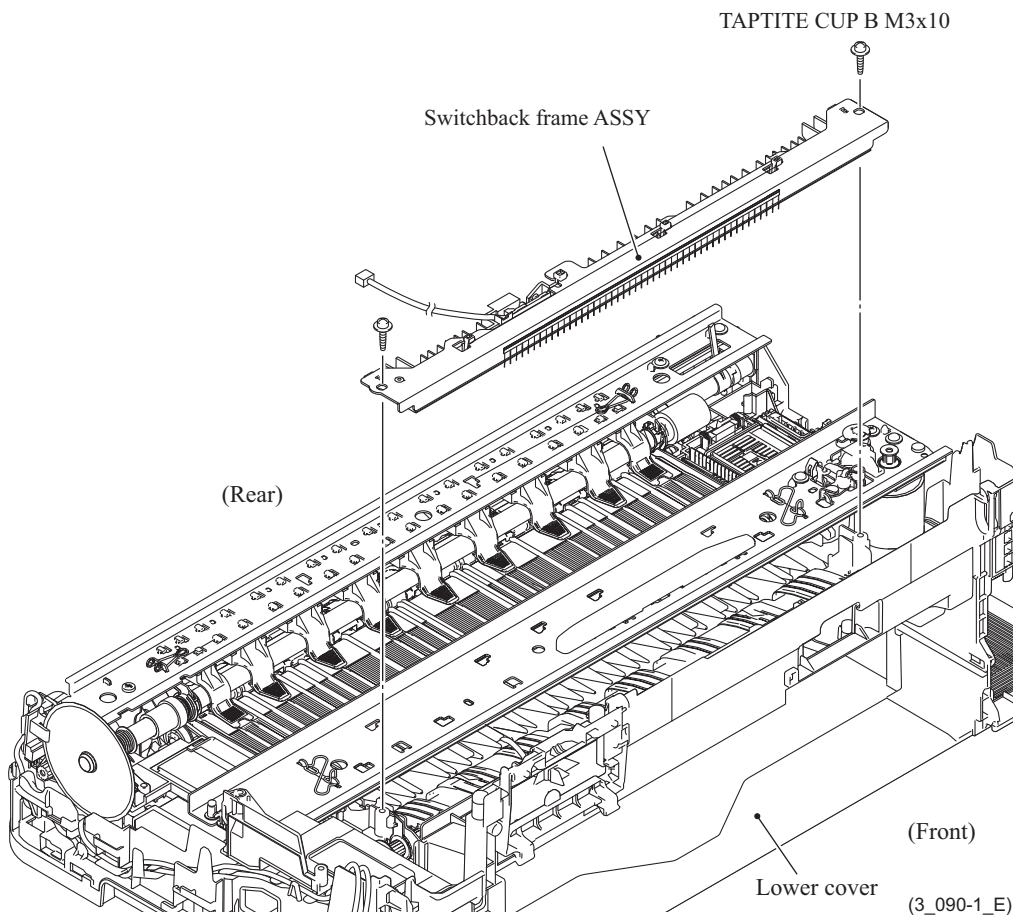
**Assembling Note:** When mounting the ink cartridge cover sensor ASSY, be careful with the mounting direction.

## 9.28 Flushing Base

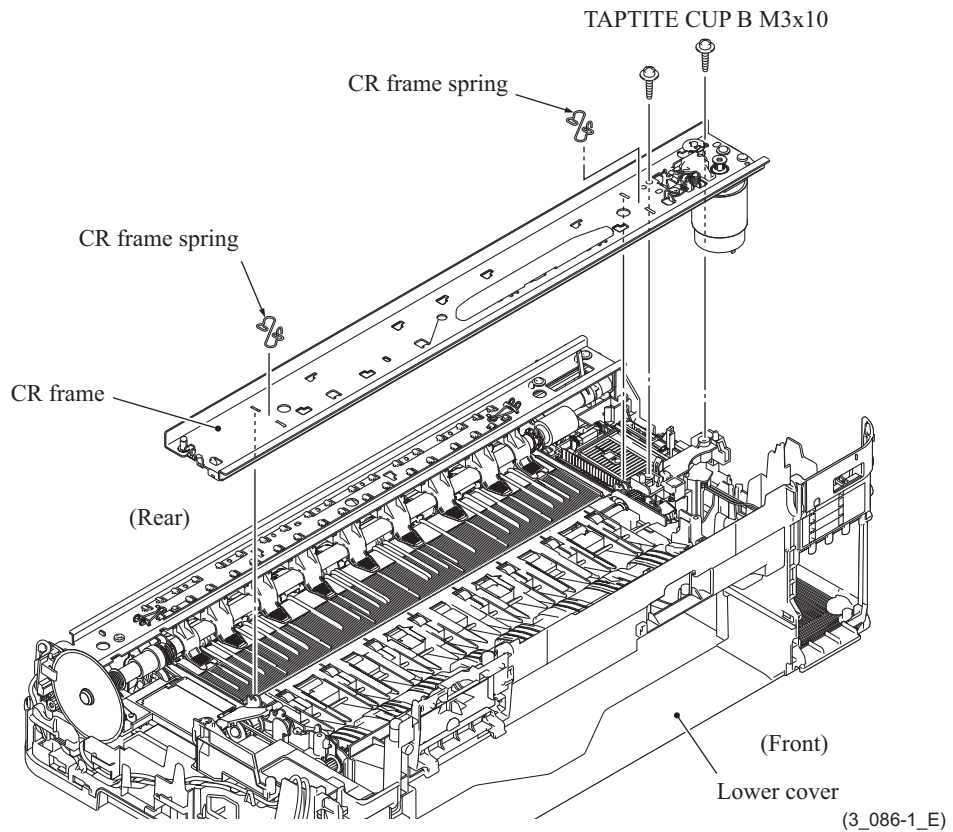
- (1) Release the wiring of the harnesses at the right side of the machine.
- (2) Remove the three screws (TAPTITE CUP B M3x10), release the hook, and remove the tube support plate.



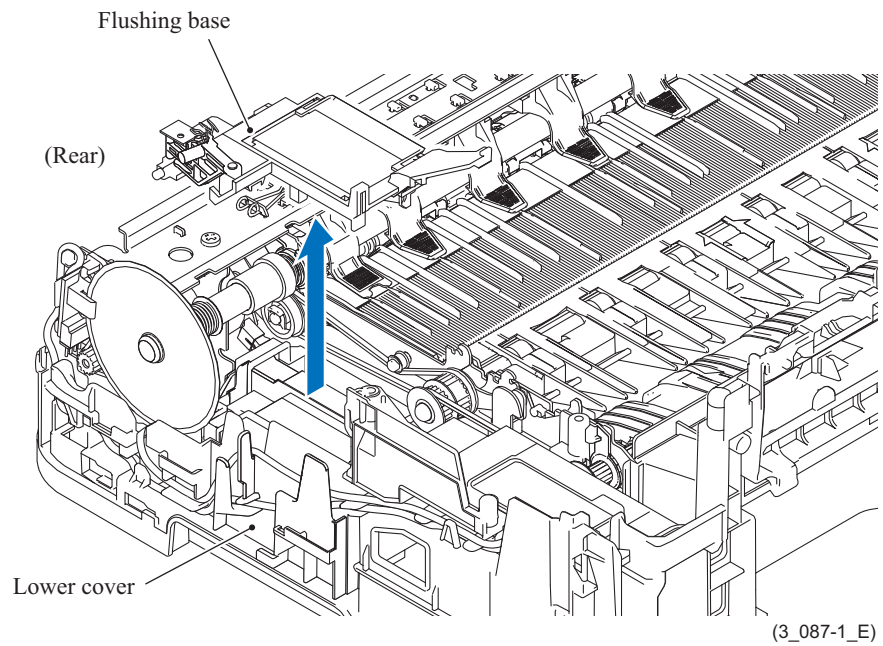
- (3) Release the wiring of the switchback sensor PCB.
- (4) Remove the two screws (TAPTITE CUP B M3x10) and remove the switchback frame ASSY.



- (5) Remove the two CR frame springs and two screws (TAPTITE CUP B M3x10) and remove the CR frame.



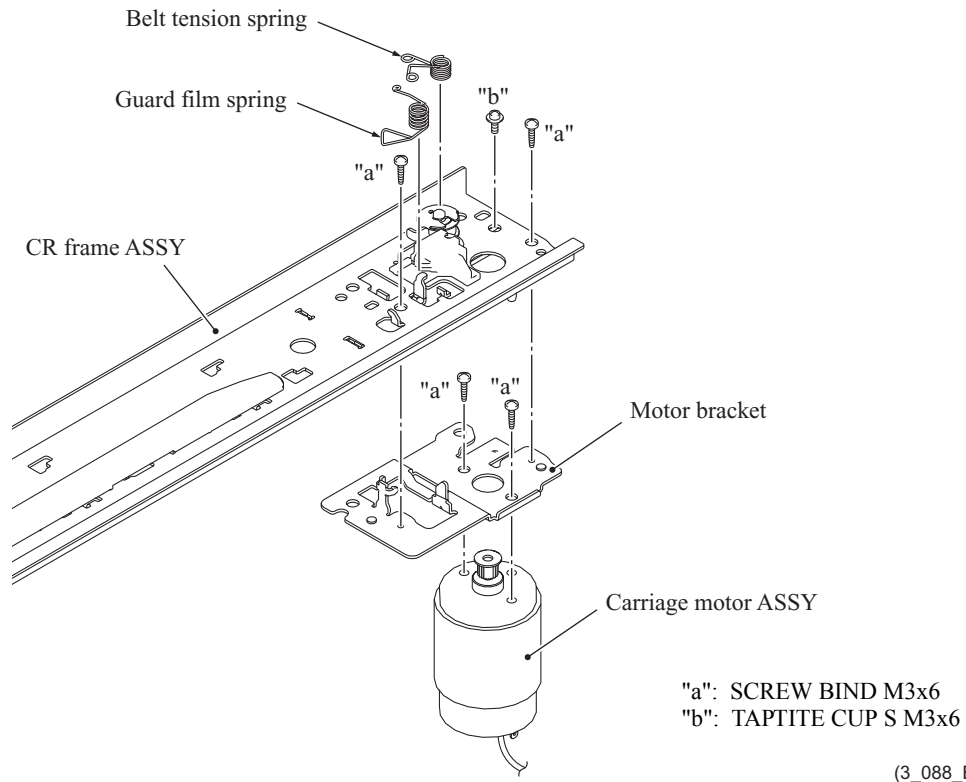
- (6) Remove the flushing base.



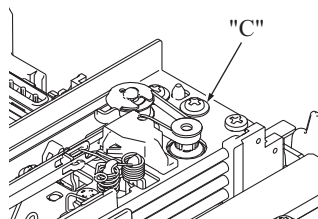


## 9.29 Carriage Motor ASSY

- (1) Remove the belt tension spring and the guard film spring.
- (2) Remove the two screws (SCREW BIND M3x6) and the screw (TAPTITE CUP S M3x6) and take the carriage motor ASSY off the CR frame ASSY.
- (3) Remove the two screws (SCREW BIND M3x6) and take the carriage motor ASSY off the motor bracket.



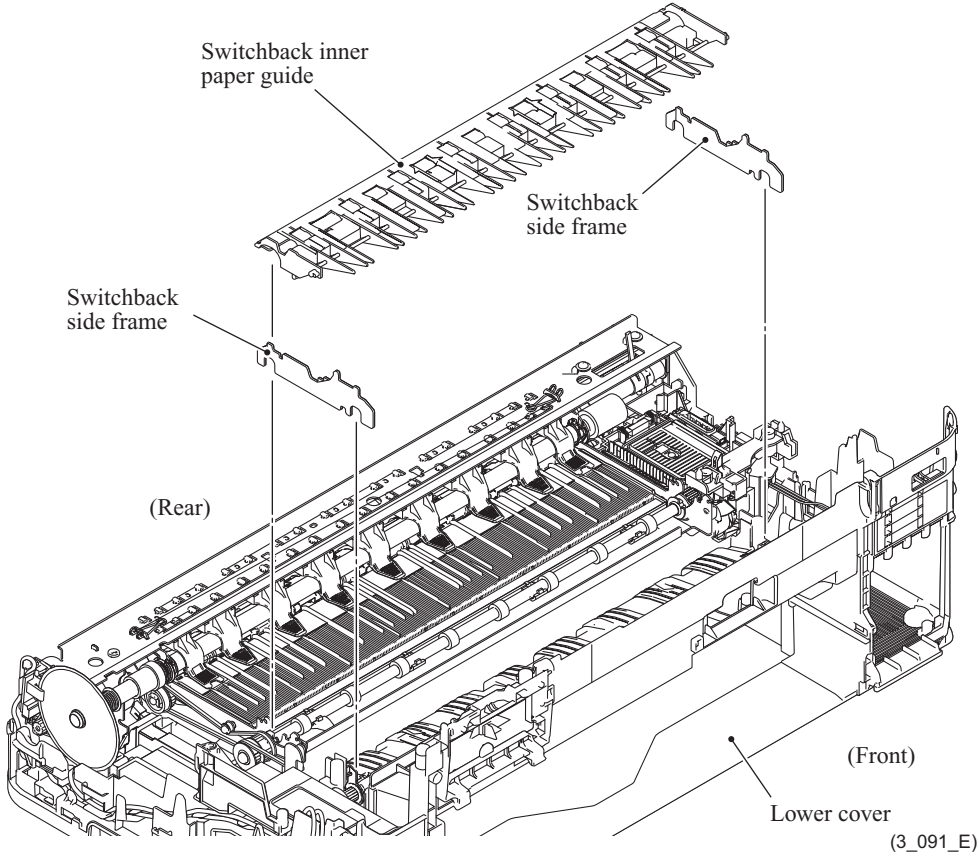
**Assembling Note:** Tighten screw "C" (TAPTITE CUP S M3x6) temporarily. After setting the head/carriage unit and the CR timing belt, tighten screw "C" firmly.



(3\_089\_E)

**9.30 Switchback Roller**

- (1) Remove the switchback inner paper guide.
- (2) Remove the two switchback side frames.



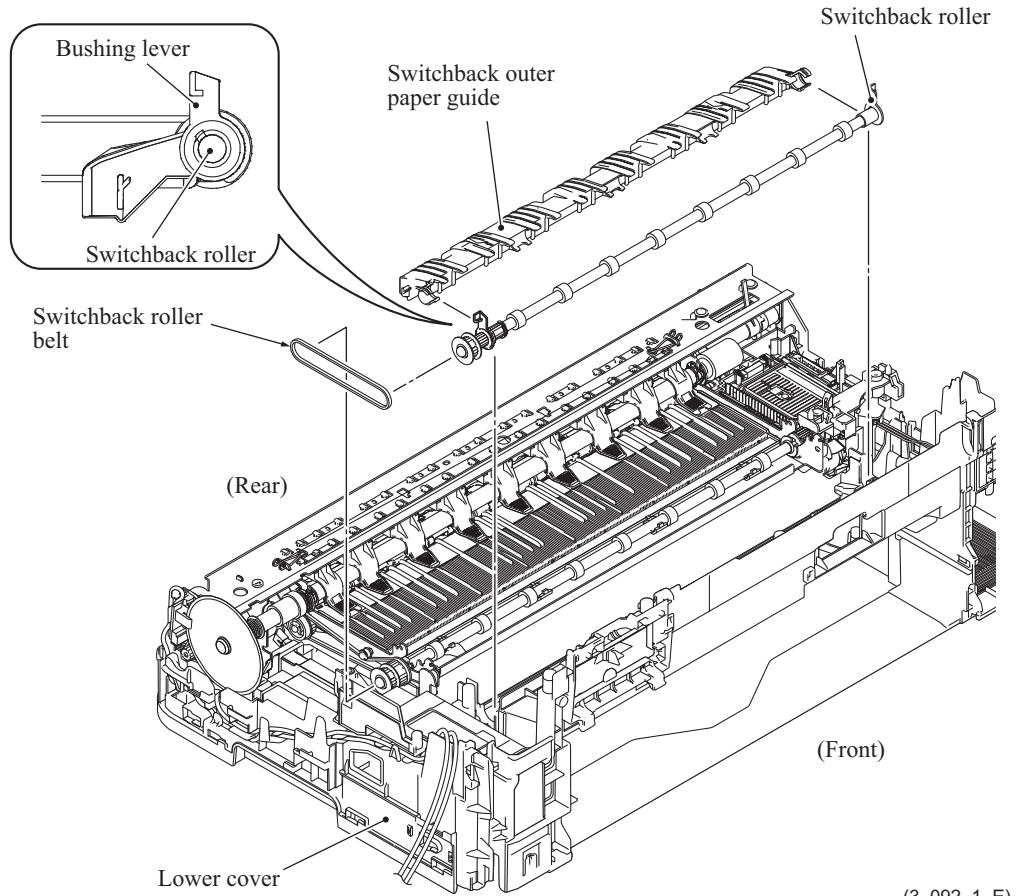
(3) Remove the switchback roller belt.

(4) Remove the switchback roller.

**Assembling Notes:**

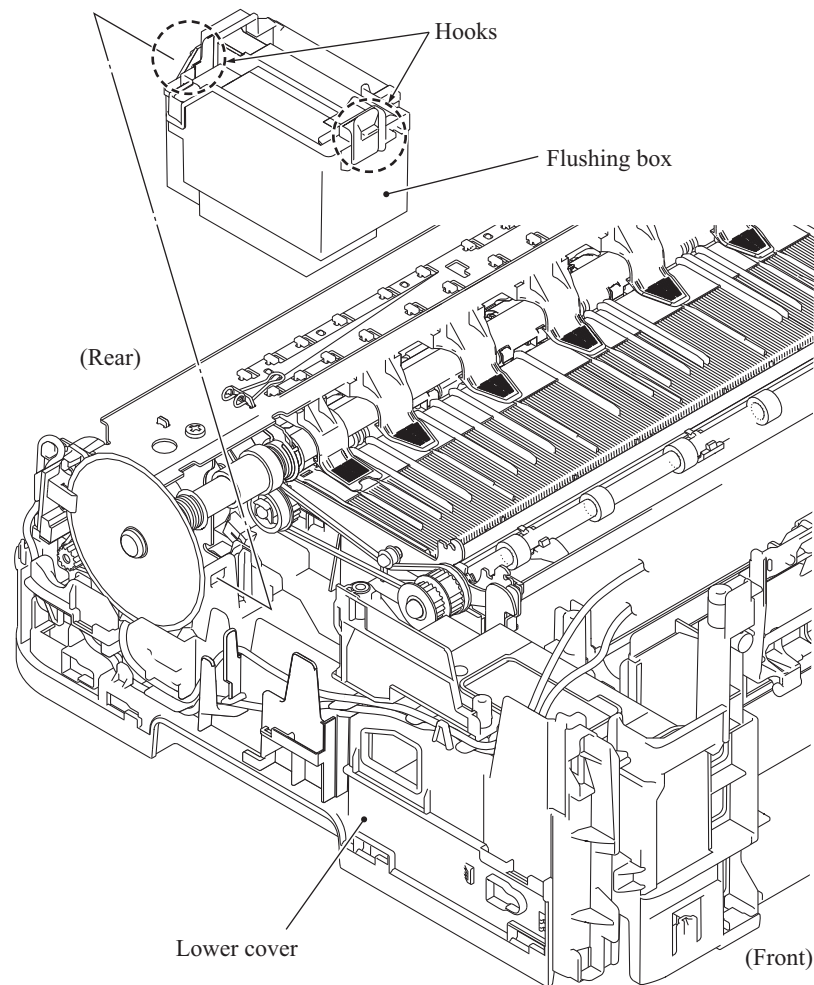
- Do not touch the platen foam by hand.
- Mount the switchback roller with its bushing lever facing up.

(5) Remove the switchback outer paper guide from the switchback roller.



### 9.31 Flushing Box

- (1) Release the two hooks, lift up the front end of the flushing box, and remove the flushing box.



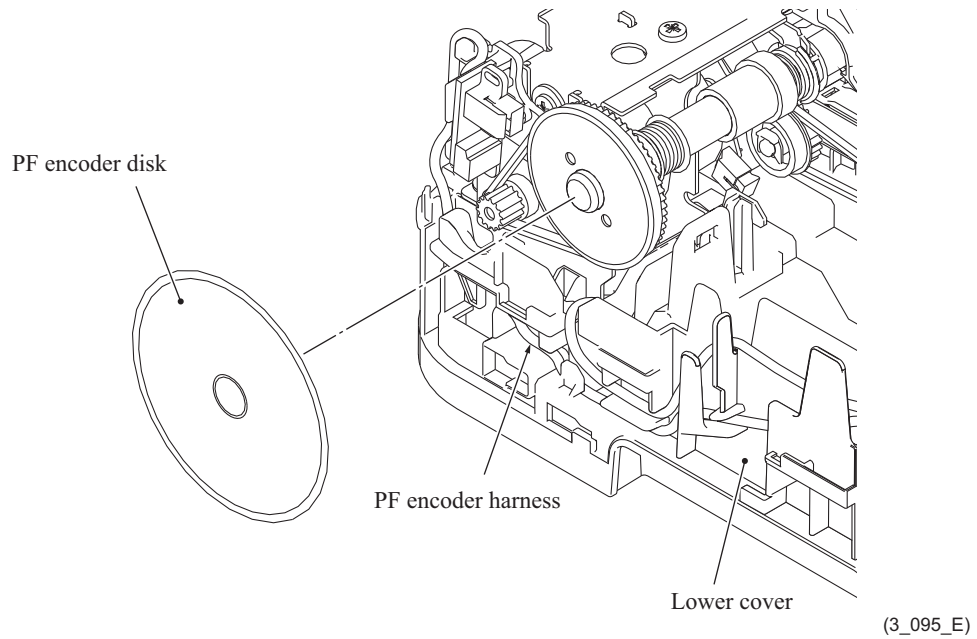
(3\_093\_E)

**Assembling Note:** If you replace the flushing box (without replacing the main PCB), reset the flushing count, using the procedure given in [Chapter 4, Section 1.14 "Reset purge and flushing counts."](#)

It is also recommended that the ink absorber box be replaced and the purge count be reset as necessary since the purge count may approach the upper limit.

## 9.32 PF Encoder Disk and PF Encoder Sensor PCB ASSY

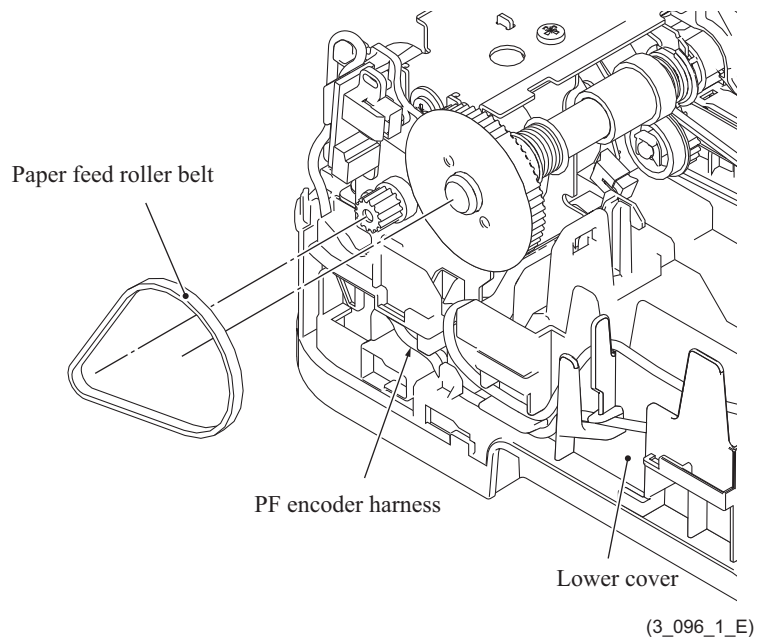
- (1) Remove the PF encoder disk.



**Note:** Once removed, the PF encoder disk should be replaced with a new one.

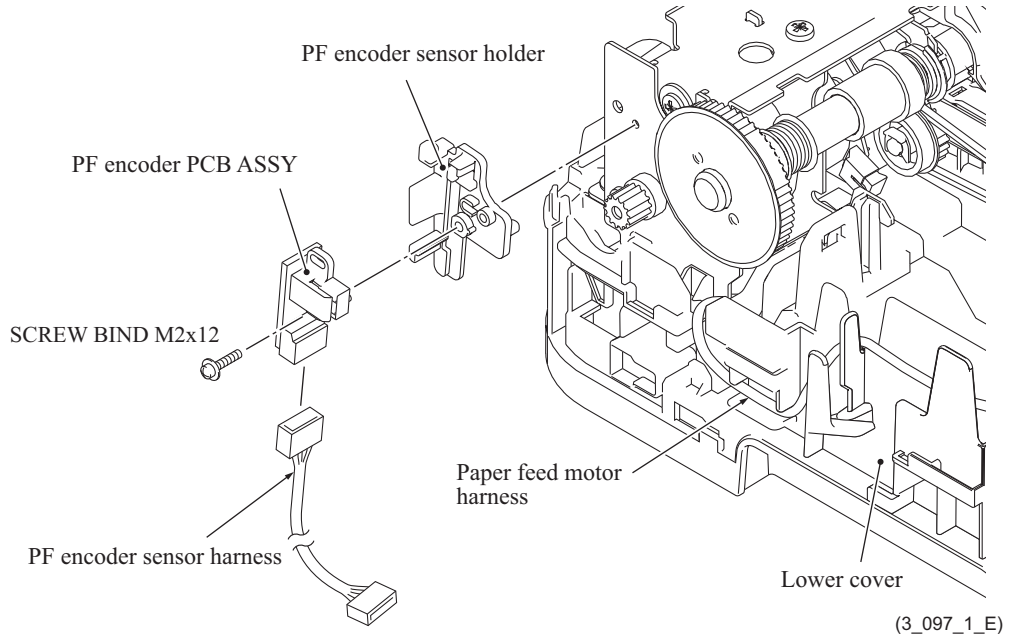
**Assembling Note:** When attaching the PF encoder disk, using a spatular tool makes the job easier. Put on clean gloves to protect the disk surface from dust or fingerprints.

- (2) Remove the paper feed roller belt.



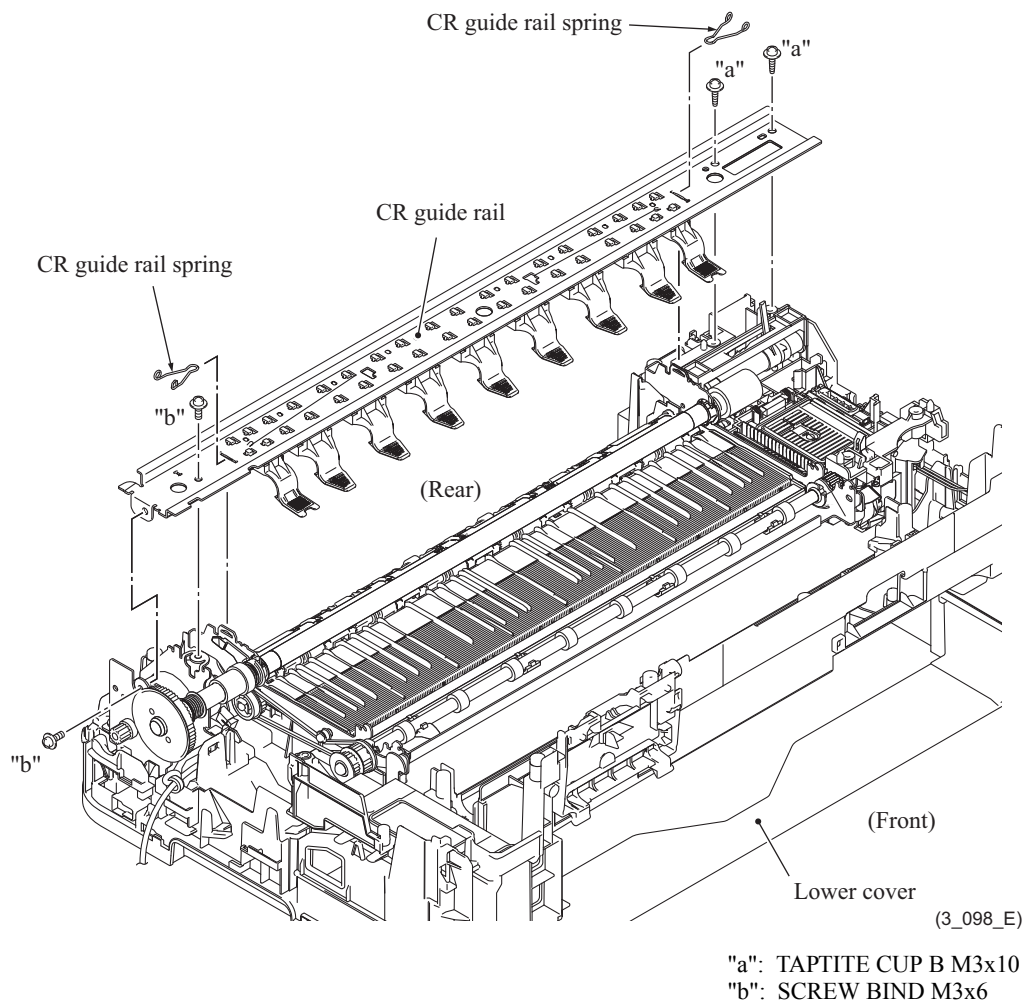
**Assembling Note:** When setting the paper feed roller belt, first fit it over the motor gear and then over the paper feed roller shaft.

- (3) Release the wiring of the PF encoder harness.
- (4) Remove the screw (SCREW BIND M2x12) and remove the PF encoder sensor holder and the PF encoder PCB ASSY.
- (5) Disconnect the PF encoder sensor harness.

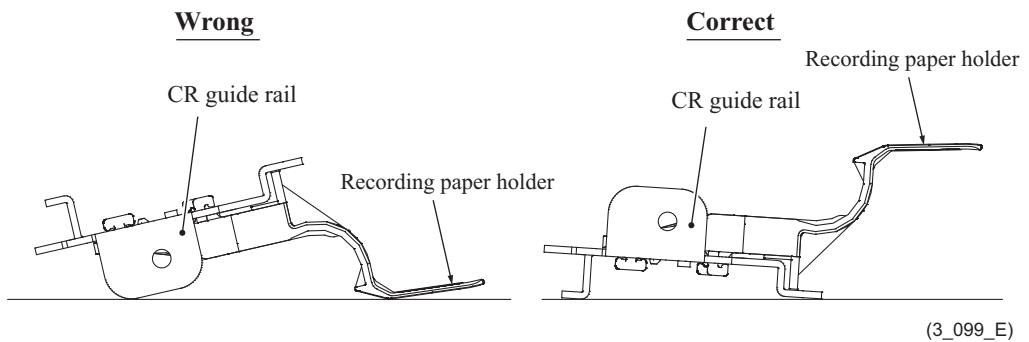


### 9.33 Paper Feed Motor

- (1) Remove the two screws (TAPTITE CUP B M3x10) and two screws (SCREW BIND M3x6), remove the two CR guide rail springs, and remove the CR guide rail.

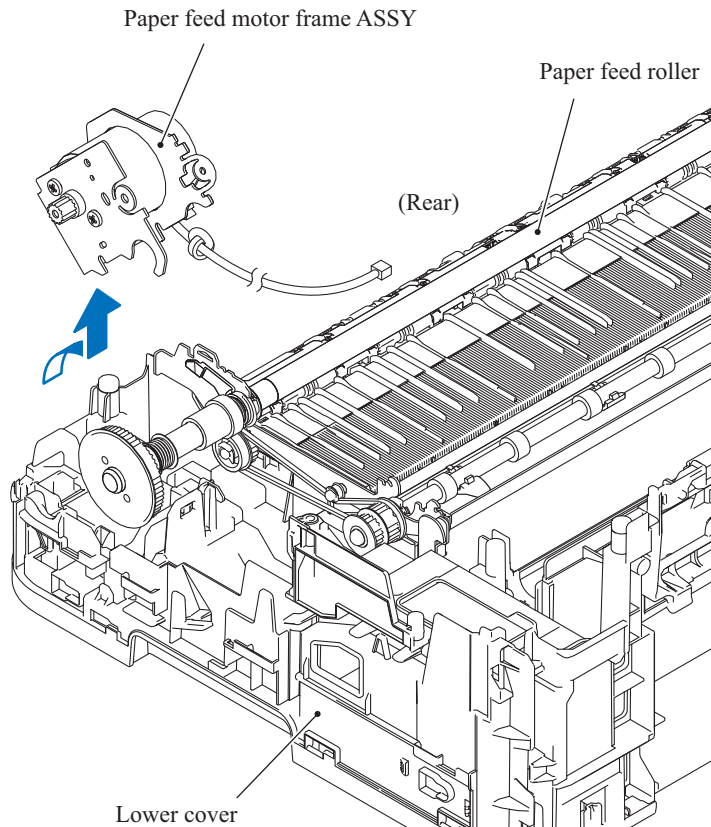


**Note:** Do not place the removed CR guide rail with the recording paper holder down.



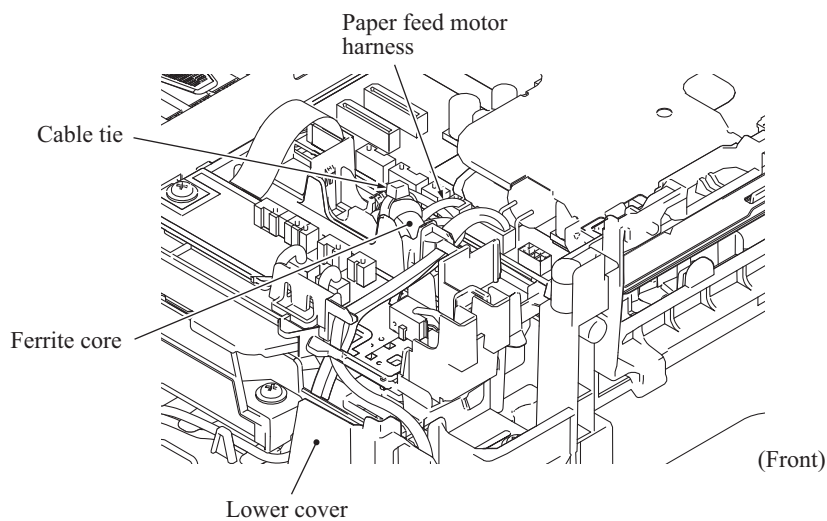
- (2) Release the wiring of the paper feed motor harness.
- (3) Turn the paper feed motor frame ASSY 45 degrees in the direction of the arrow and pull it straight up.

It may not be pulled straight up depending upon the position of the black bushing. Rotate the bushing to the proper position and pull it out.



(3\_100\_E)

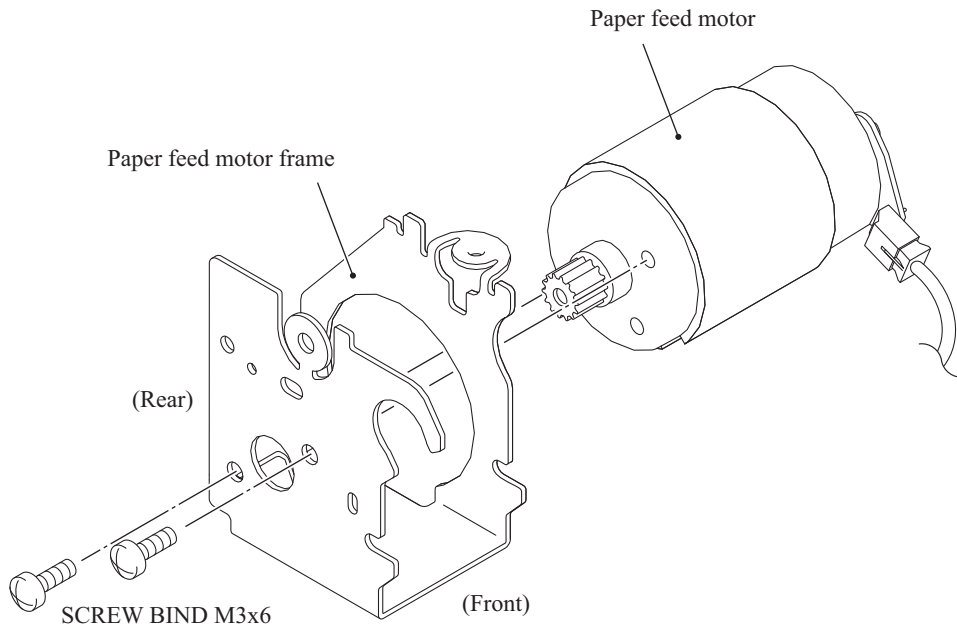
**Assembling Note:** In wiring of the paper feed motor harness, route it through the cutout shown below and set the ferrite core into the square hole with the cable tie positioned on the top of the ferrite core.



(3\_100\_1\_E)



- (4) Remove the two screws (SCREW BIND M3x6) and take the paper feed motor off its frame.

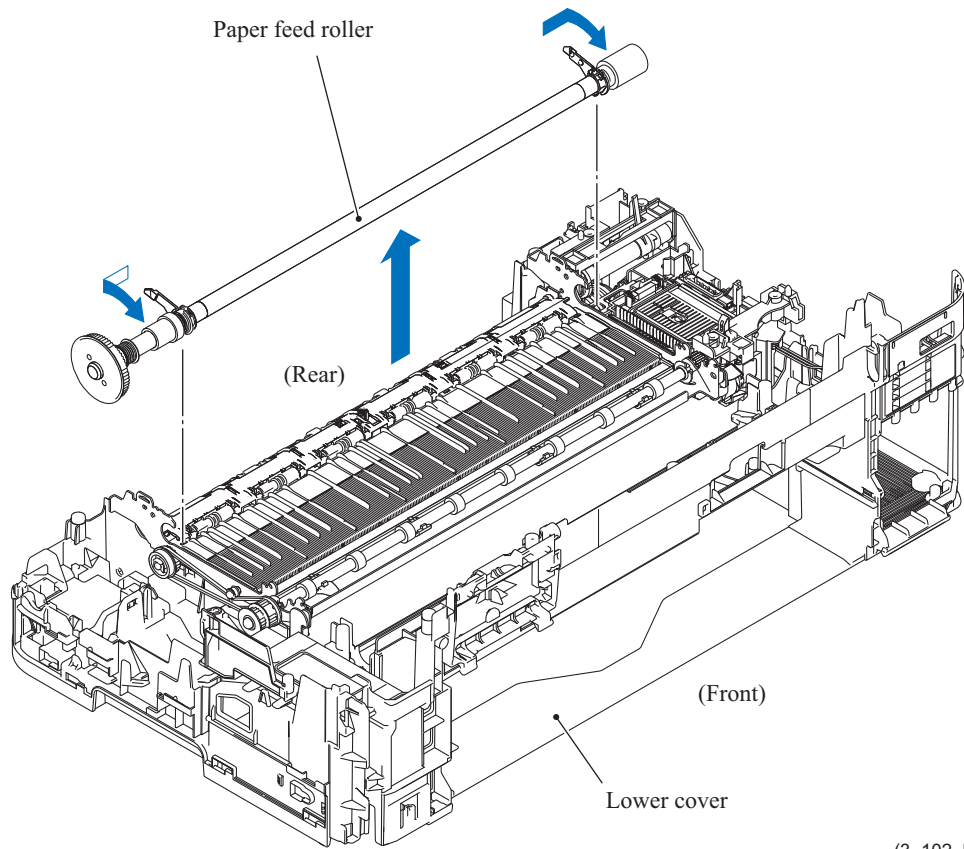


(3\_101\_E)

**Assembling Note:** Mount the paper feed motor on its frame as shown above.

### 9.34 Paper Feed Roller

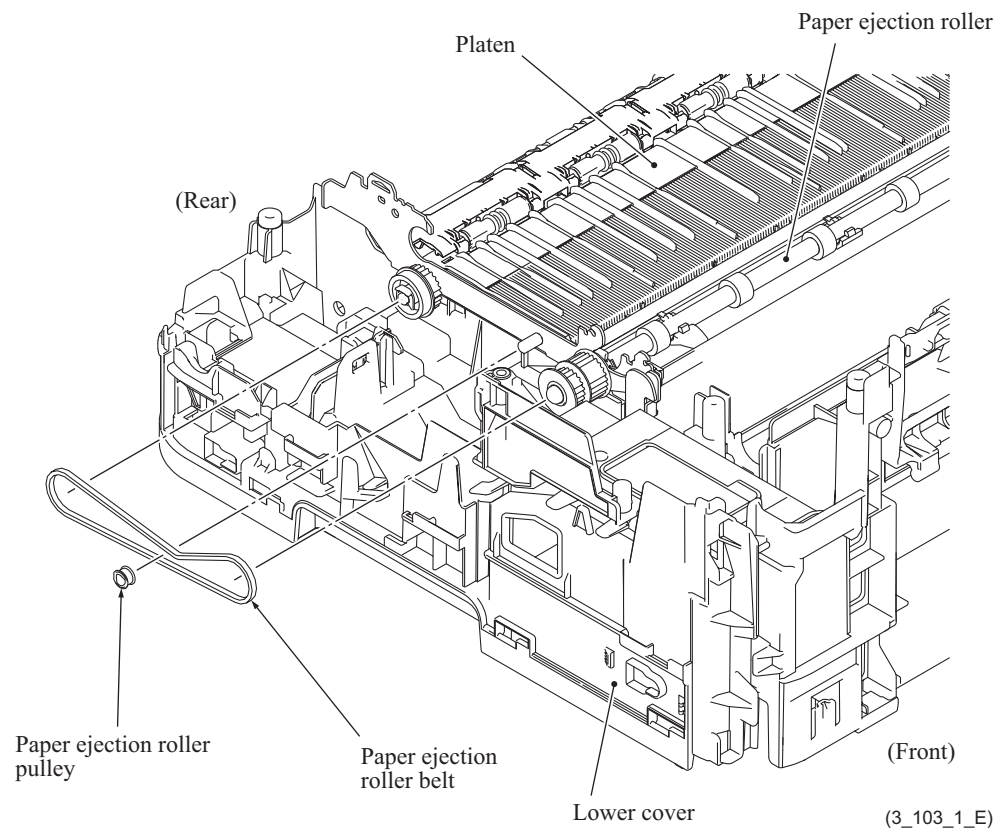
- (1) Turn the right and left bushings in the direction of the arrow to unlock them.
- (2) Remove the paper feed roller.



(3\_102\_E)

### 9.35 Paper Ejection Roller

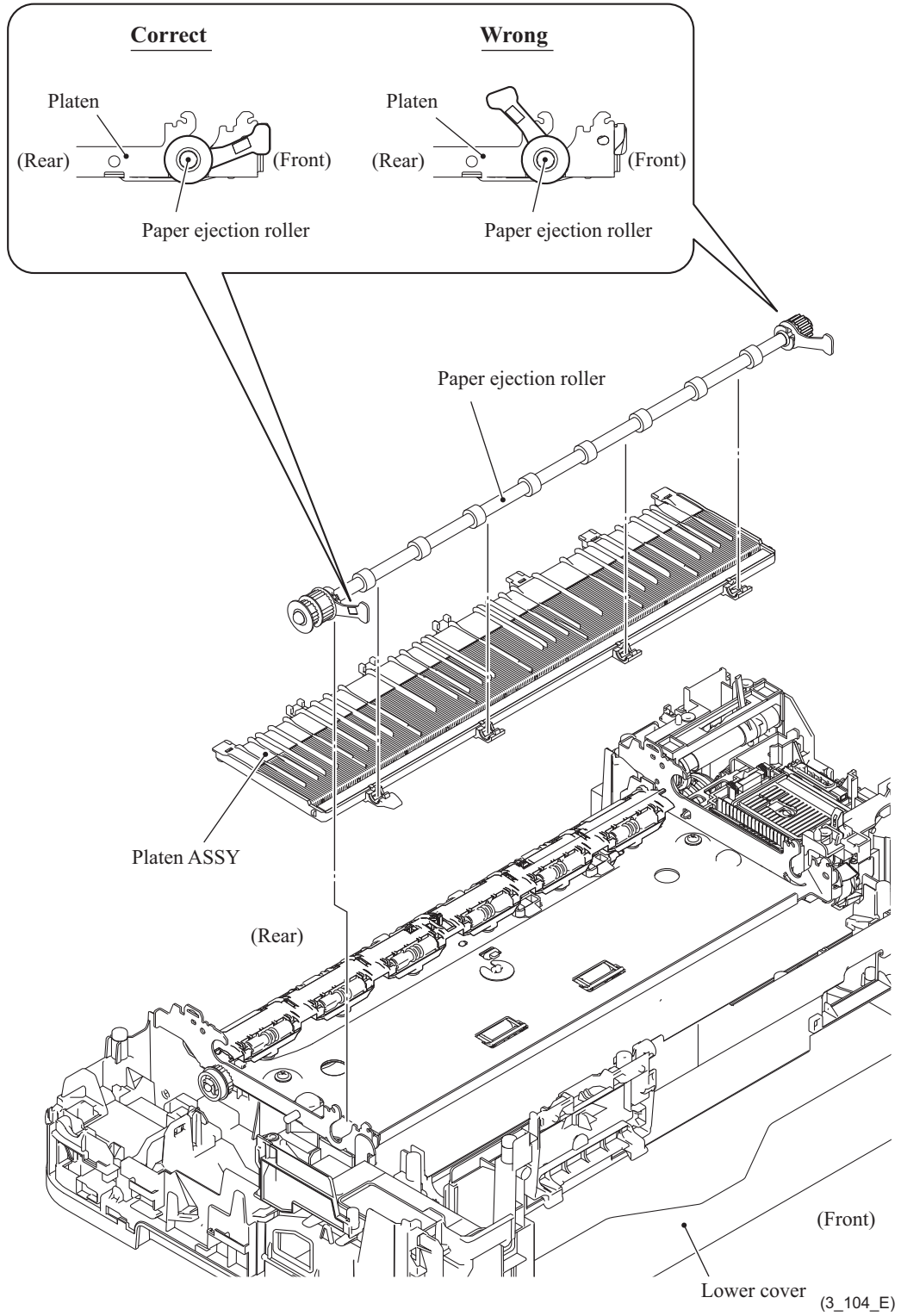
- (1) Remove the paper ejection roller pulley.
- (2) Remove the paper ejection roller belt.



(3) Remove the platen ASSY.

(4) Remove the paper ejection roller from the platen ASSY.

**Assembling Note:** Mount the paper ejection roller with its bushing lever tilted forward as shown below.



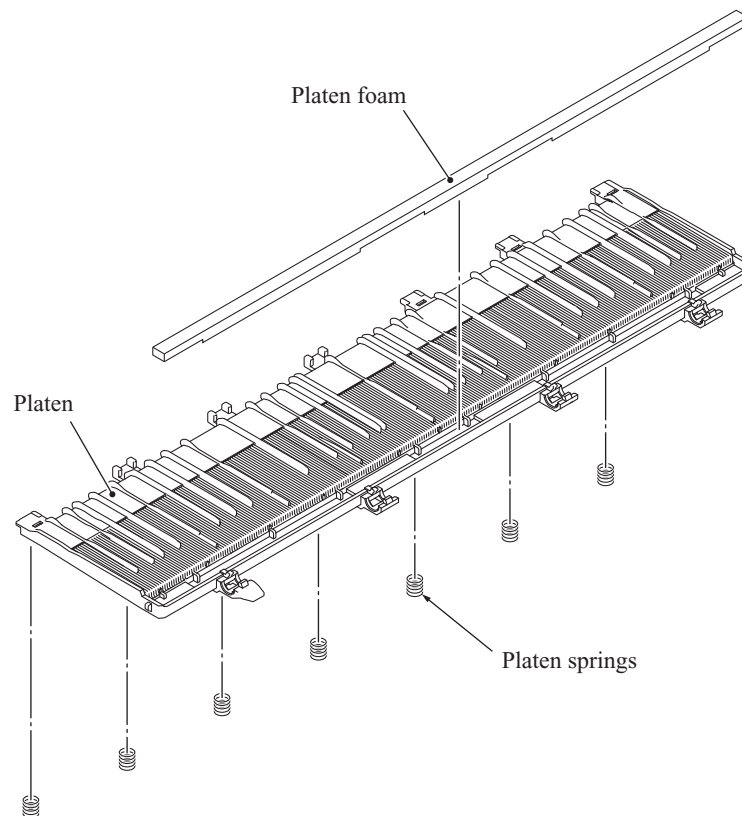
**Assembling Note:** Platen springs should not be bent or turned over.



(3\_105\_E)

### 9.36 Platen

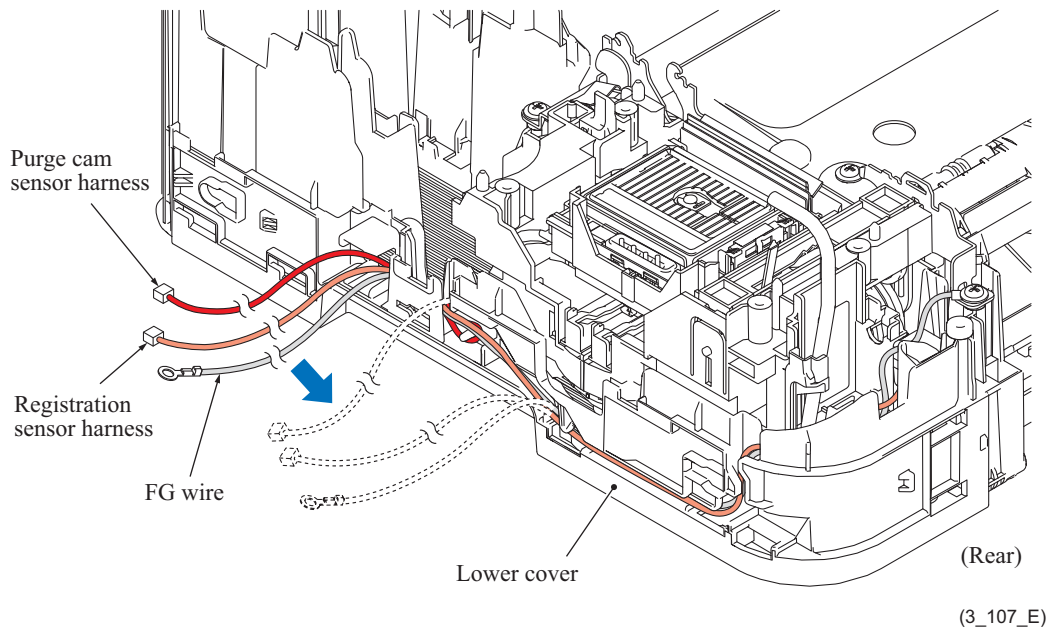
- (1) Remove the platen foam from the platen.
- (2) Remove the seven platen springs from the platen.



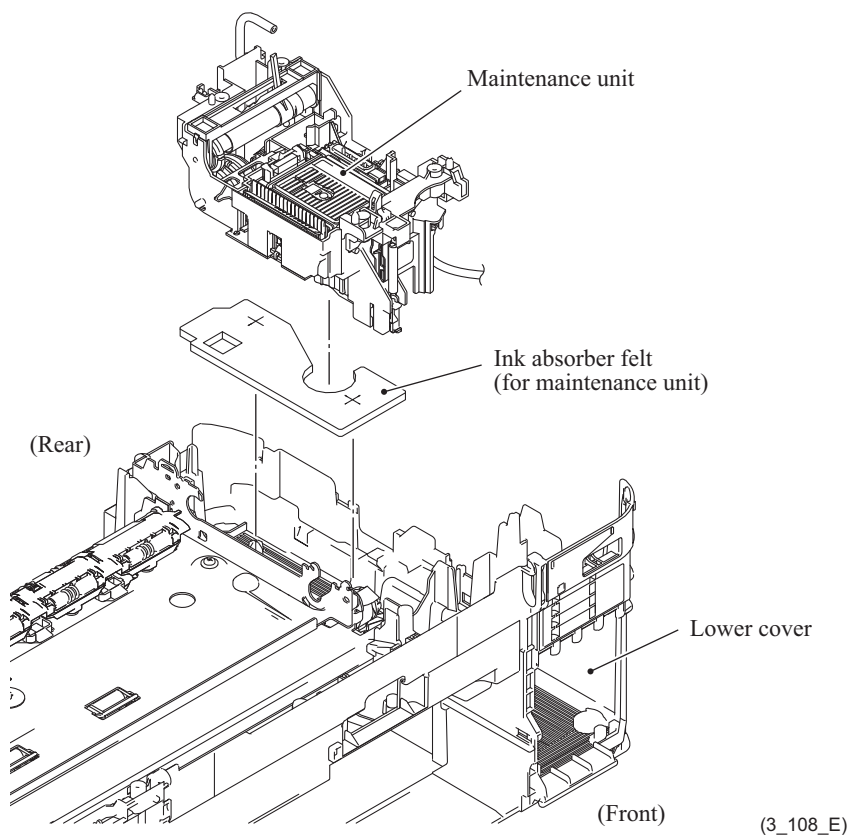
(3\_106\_E)

### 9.37 Maintenance Unit

- (1) Release the wiring of the harnesses.

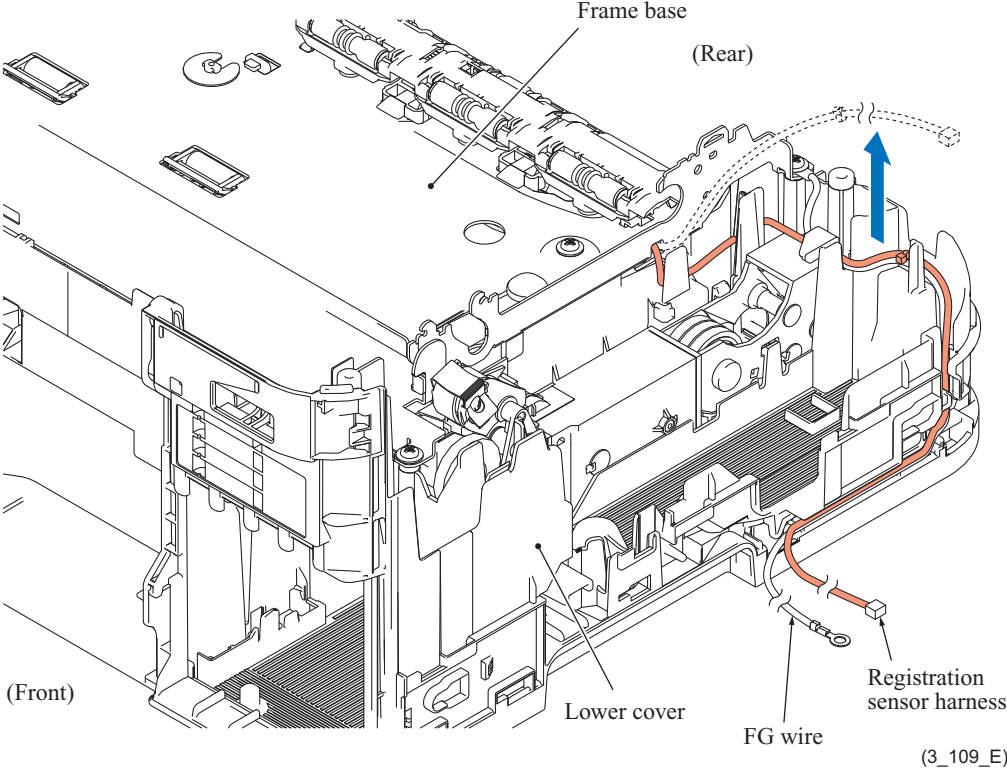


- (2) Remove the maintenance unit.
- (3) Remove the ink absorber felt (for maintenance unit).

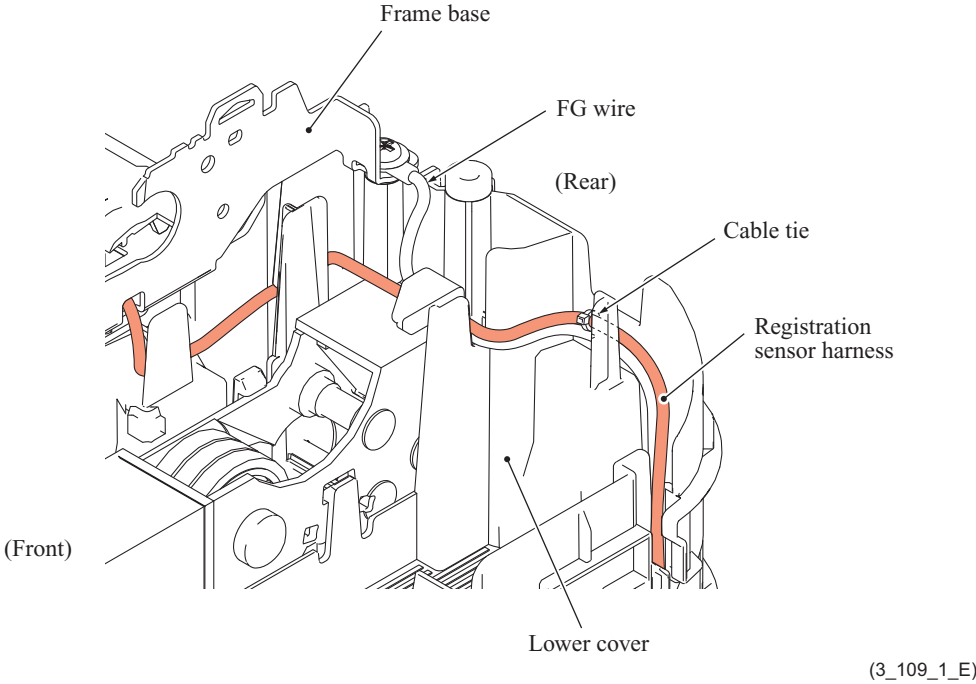


### 9.38 Registration Sensor PCB ASSY

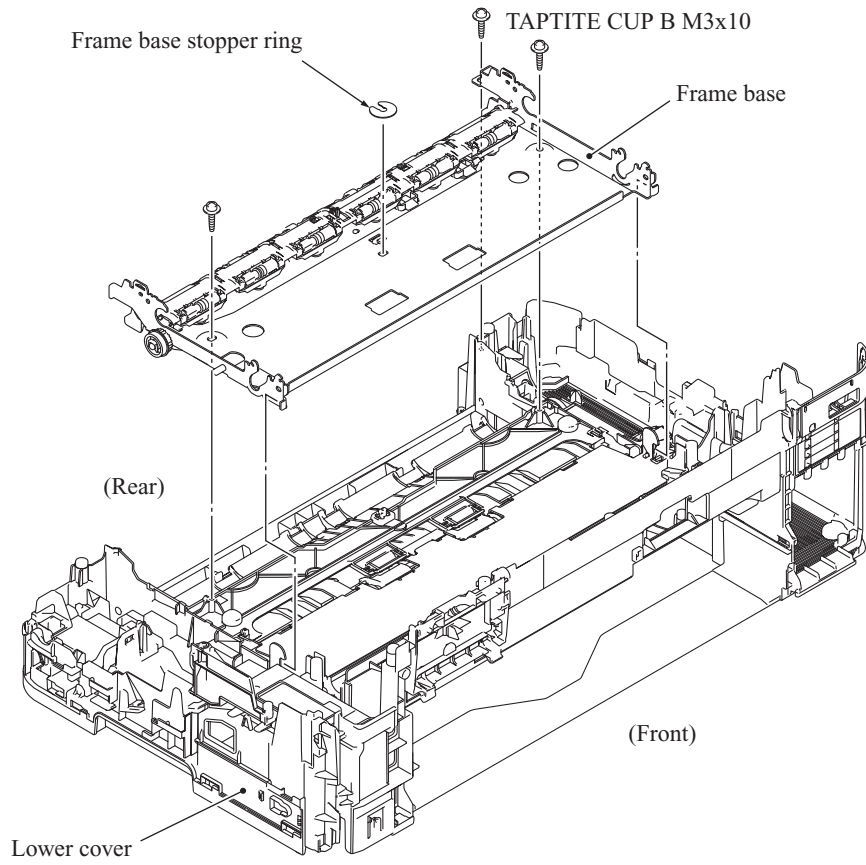
(1) Release the wiring of the registration sensor PCB ASSY.



**Assembling Note:** In wiring of the registration sensor harness, set the cable tie on the left side of the rib of the lower cover.



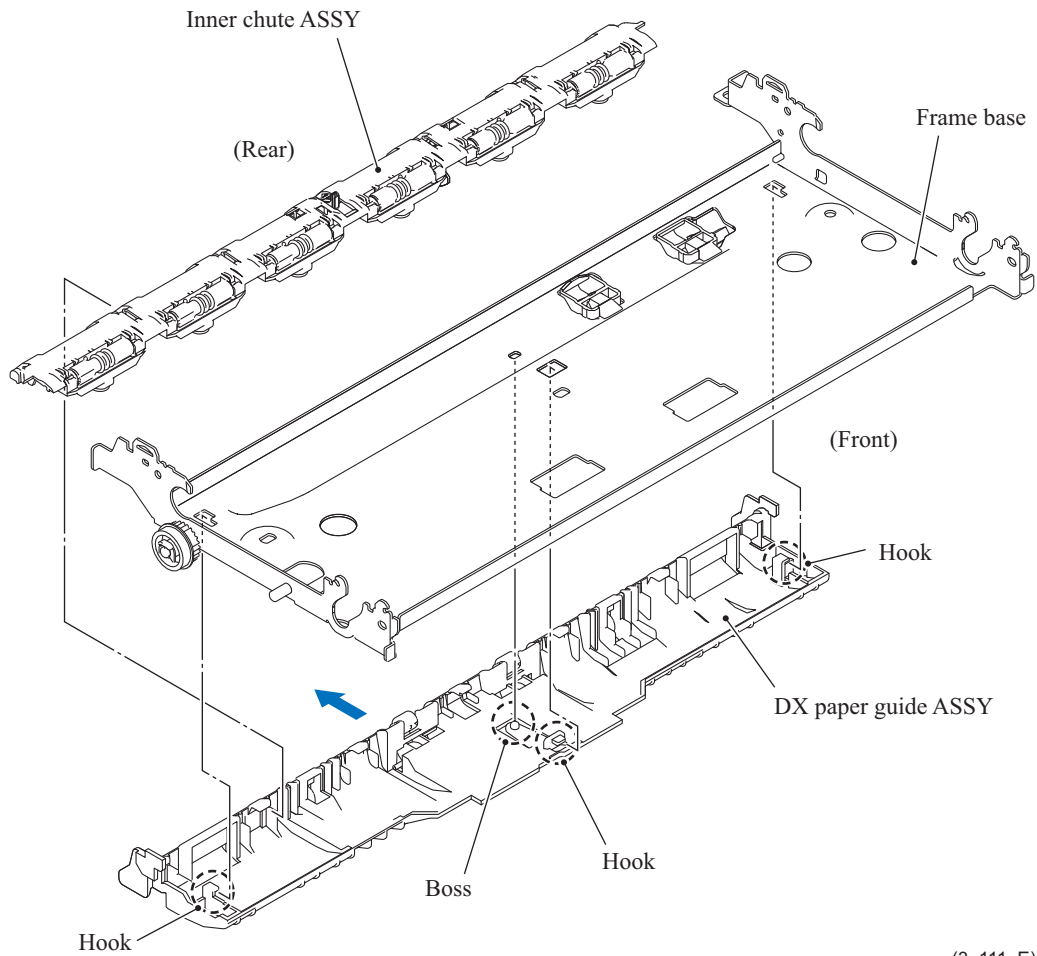
- (2) Remove the three screws (TAPTITE CUP B M3x10).
- (3) Remove the frame base stopper ring, lift up the rear end of the frame base, and take it off the lower cover.



(3\_110\_E)

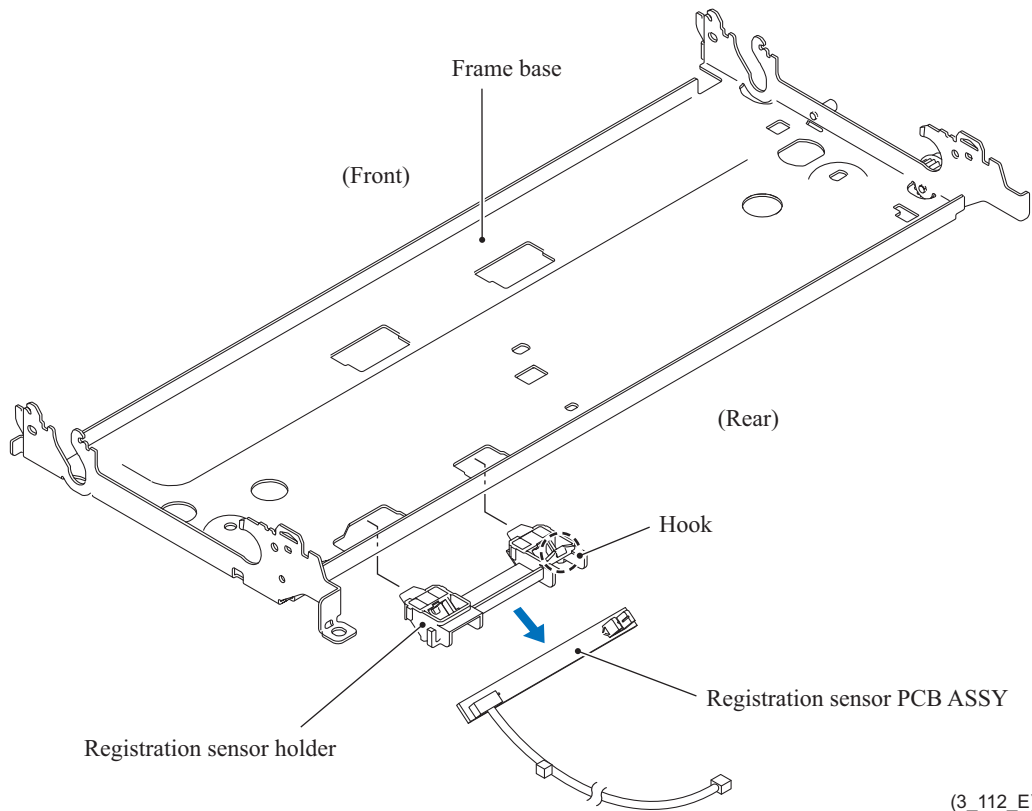


- (4) Release the hooks on the DX paper guide ASSY, slide it in the direction of the arrow, and remove the DX paper guide ASSY and the inner chute ASSY from the frame base.



(3\_111\_E)

- (5) Release the hook on the registration sensor holder and remove the registration sensor holder from the frame base.
- (6) Warp the registration sensor inwards to release it from the guide, then slide off the registration sensor PCB ASSY in the direction of the arrow.



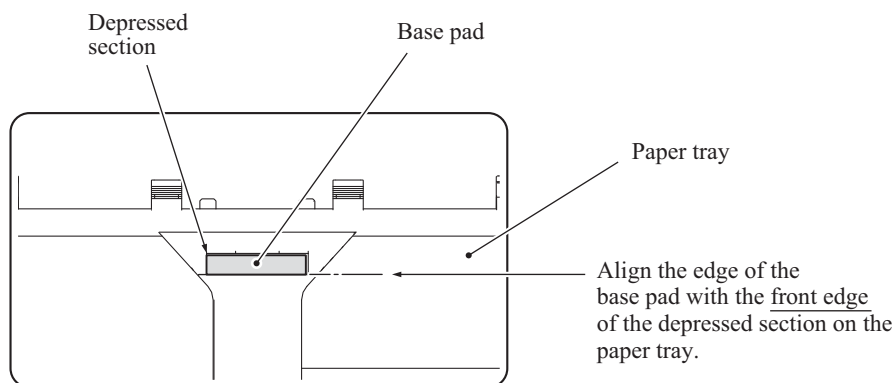
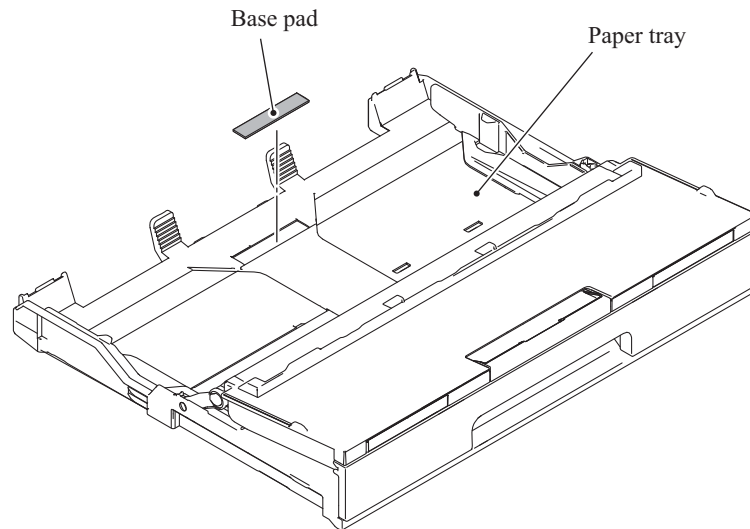
(3\_112\_E)

**Assembling Note:** Set the registration sensor PCB ASSY to its holder while pressing the sensor section of registration sensor PCB ASSY.

### 9.39 Base Pad on Paper Tray ASSY

(1) If the base pad needs to be replaced, peel it off the bottom of the paper tray.

**Note:** Once removed, the base pad will become unusable and a new pad will have to be put back in.



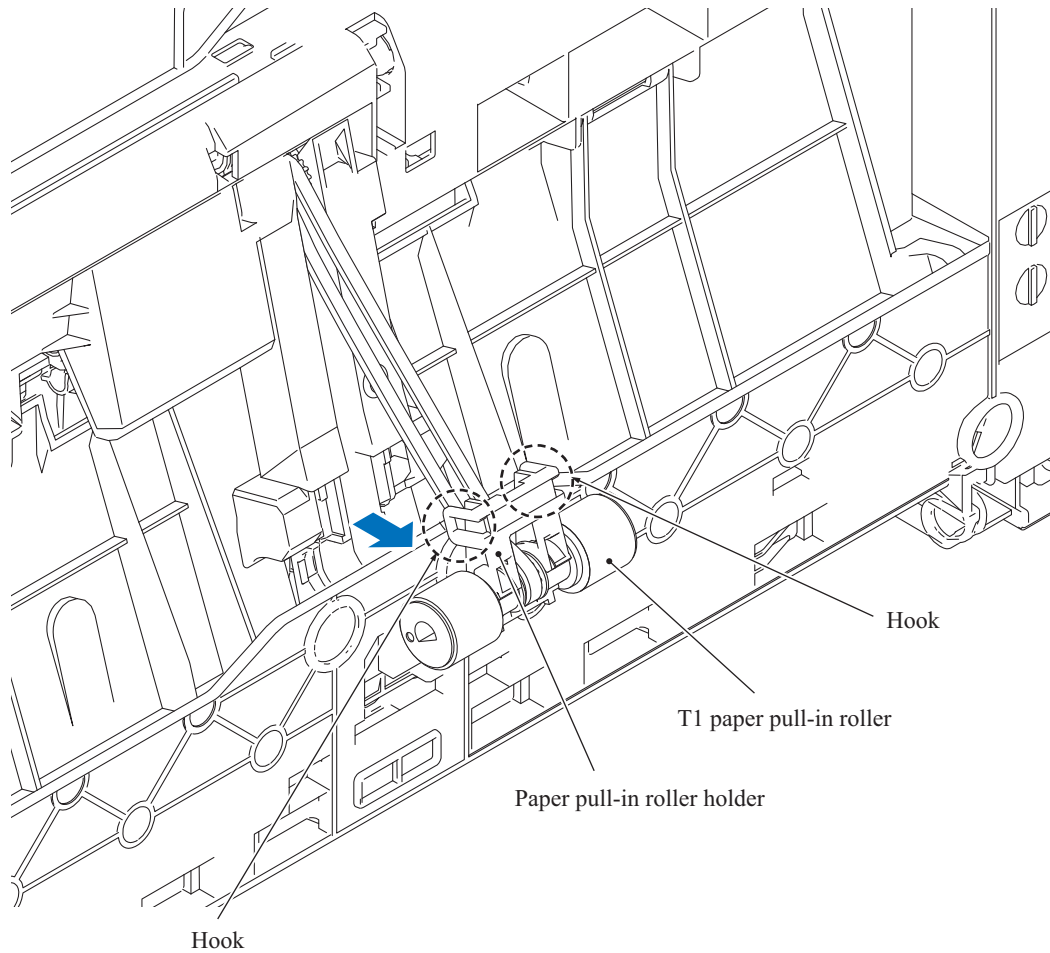
(3\_113\_E)

**Assembling Note:** When attaching a new base pad to the paper tray, align the front edge of the pad with that of the depressed section on the paper tray and center the pad widthways as shown above.

## 9.40 T1 Paper Pull-in Roller

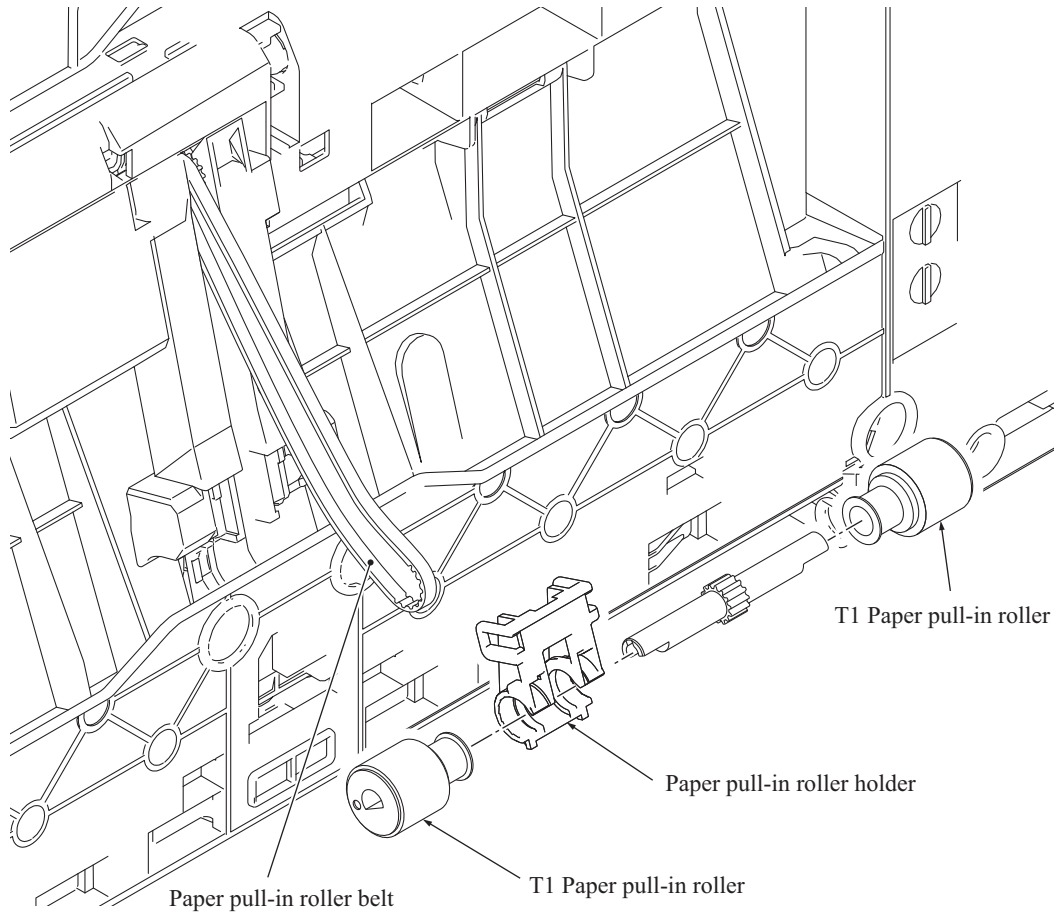
### For the paper pull-in roller with belt drive

- (1) Release the two hooks of the paper pull-in roller holder and remove the T1 paper pull-in rollers and their holder from the gear holder ASSY.



(3\_027\_1\_E)

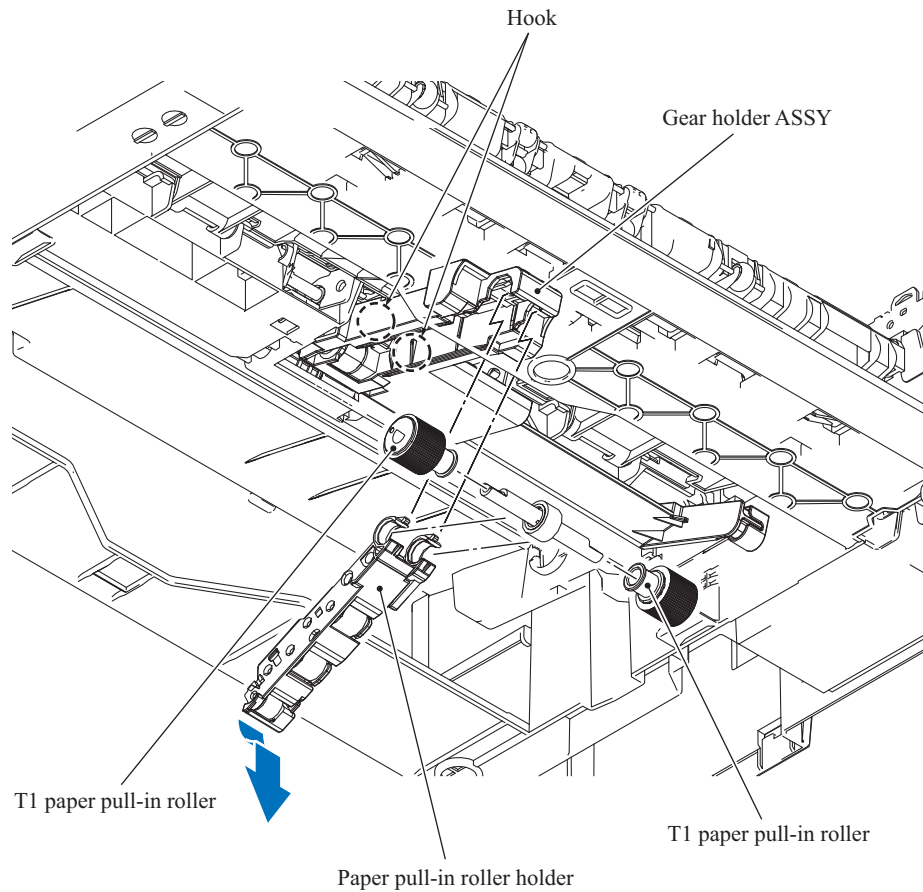
- (2) Remove the T1 paper pull-in rollers from their holder and separate those rollers to the right and left to remove them from the paper pull-in roller belt.



(3\_028\_1\_E)

**For the paper pull-in roller with gear drive**

- (1) Release the two hooks of the paper pull-in roller holder and remove the T1 paper pull-in rollers and their holder from the gear holder ASSY.
- (2) Remove the T1 paper pull-in rollers from their holder and separate those rollers to the right and left.



(3\_002\_S13E)

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

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### 1 IF YOU REPLACE THE MAIN PCB

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If the machine information has not been backed up in an external memory before the start of repair, it is necessary to replace the ink absorber box and flushing box and then reset their counts.

#### <Operations>

- 1.1 Customize destinations (Maintenance mode 74)
- 1.2 Set the CIS type (Maintenance mode 59)
- 1.3 Install the firmware (Maintenance mode 28)
- 1.4 Initialize the EEPROM parameters (Maintenance mode 01)
- 1.5 Restore the head calibration data (Maintenance mode 68)
- 1.6 Set the serial number (Maintenance mode 80)
- 1.7 Restore machine information (Maintenance mode 46)
- 1.8 Adjust the touch panel (Maintenance mode 78)
- 1.9 Update the head property data (Maintenance mode 68)
- 1.10 Acquire white level data (Maintenance mode 55)
- 1.11 Adjustment of vertical print lines/software correction for inclination/corrugation/ruled lines (Maintenance mode 65)
- 1.12 Update the paper feeding correction values (Maintenance mode 58)
- 1.13 Adjust margins in borderless printing (Maintenance mode 66)
- 1.14 Reset purge and flushing counts
- 1.15 Write head calibration data (Maintenance mode 02)
- 1.16 Check scanning and printing

**< Requirements >**

- (1) USB cable (one piece)
- (2) PC (Windows<sup>®</sup> XP or later)  
Create a temporary folder in the C drive.
- (3) Service setting tool (brusbsn.zip)  
Make a copy of the service setting tool in the temporary folder in the C drive. Extract the copied file and run it by double-clicking.
- (4) Download utility (FILEDG32.EXE)  
Make a copy of the download utility in the temporary folder in the C drive.
- (5) Maintenance driver (MaintenanceDriver.zip), if not installed  
Make a copy of the maintenance driver in the temporary folder in the C drive. Extract the copied file and install it, referring to [APPENDIX 3. "INSTALLING THE MAINTENANCE PRINTER DRIVER"](#).
- (6) Firmware  
LZXXXX\_\$.pjl (For installing firmware using an external memory or PC)  
LZXXXX\_\$.upd (For installing firmware using a PC)
- (7) USB flash memory or SD card
- (8) Stylus for touch panel
- (9) Print data (Corrugate\_BHS13.prn) for adjustment of vertical print lines/software correction for inclination, corrugation and ruled lines.
- (10) Print data for adjusting paper feeding correction values  
For A4-sized paper: pfadj1\_A4\_BHS13.prn and pfadj2\_A4\_BHS13.prn,  
For letter-sized paper: pfadj1\_LTR\_BHS13.prn and pfadj2\_LTR\_BHS13.prn
- (11) Print data for adjusting margins in borderless printing  
For A4-sized paper: mediaadj\_A4\_BHS13.prn  
For letter-sized paper: mediaadj\_LTR\_BHS13.prn
- (12) Print data for writing head calibration data  
head\_calib1\_BHS13.prn  
head\_calib2\_BHS13.prn
- (13) ADF copy chart data (chart\_BHS13.prn)



## 1.1 Customize destinations (Maintenance mode 74)

Customize destinations, referring to [Chapter 5, Section 1.3.27](#).

If "PLS UPDATE PROG" appears on the LCD, install the firmware using the procedure in [Section 1.3](#) below.

## 1.2 Set the CIS type (Maintenance mode 59)

Set the CIS type, referring to [Chapter 5, Section 1.3.20](#).

If "PLS UPDATE PROG" appears on the LCD, install the firmware using the procedure in [Section 1.3](#) below.

## 1.3 Install the firmware (Maintenance mode 28)

This procedure is not required unless "PLS UPDATE PROG" appears on the LCD in Section 1.1 or 1.2. If the message appears, install the firmware, referring to [Chapter 5, Section 1.3.10](#).

It is also possible to install the firmware using a PC according to the following procedure.

- (1) Turn the machine on and switch it to the maintenance mode.
- (2) Connect the machine to your PC using a USB cable.
- (3) On the PC, run "filedg32.exe."
- (4) Drag and drop the firmware (e.g., lz00001\_a.pjl) onto the Brother Maintenance USB Printer driver icon in the filedg32 window.

**Note:** To use a firmware file, extract it beforehand by double-clicking. It is a self-extracting file having the extension .exe.

After approx. 2 to 3 minutes, the loading operation is complete and the machine automatically reboots and returns to standby.

- (5) On the machine, display the version of the installed firmware on the LCD to check that the firmware installation has been successfully finished, referring to [Chapter 5, Section 2.2 "Displaying the Firmware Version"](#).

**Note:** If loading operation ends abnormally, turn the machine off and on. Wait for the machine to emit a long beep and automatically enter the firmware loading mode, and then perform the loading procedure above again with the firmware having an extension .upd.

If the machine does not automatically enter the firmware loading mode, perform the following procedure for switching to that mode and then load the firmware having an extension .upd.

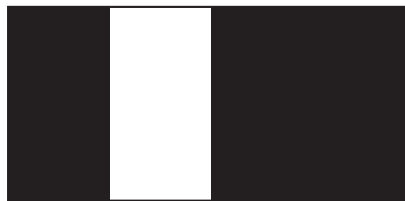
- 1) While holding down the power switch, plug the power cord into an electrical outlet. When the **Home** key lights, release the power switch and immediately press the power switch once to display the following pattern.



- 2) Within three seconds after the above pattern appears, hold down the power switch for approximately two seconds to display the following pattern.



- 3) Within three seconds after the above pattern appears, press the power switch once to display the following pattern.



- 4) Within three seconds after the above pattern appears, press the power switch two times to display the following pattern.



- 5) Within three seconds after the above pattern appears, press the power switch three times to display the following pattern.



#### 1.4 Initialize the EEPROM parameters (Maintenance mode 01)

Initialize the EEPROM parameters, referring to [Chapter 5, Section 1.3.1](#).

#### 1.5 Restore the head calibration data (Maintenance mode 68)

Restore head calibration data that has been backed up in an external memory, referring to [Chapter 5, Section 1.3.25](#).

If the restoration is successfully completed, the procedure given in [Section 1.15](#) is not required.

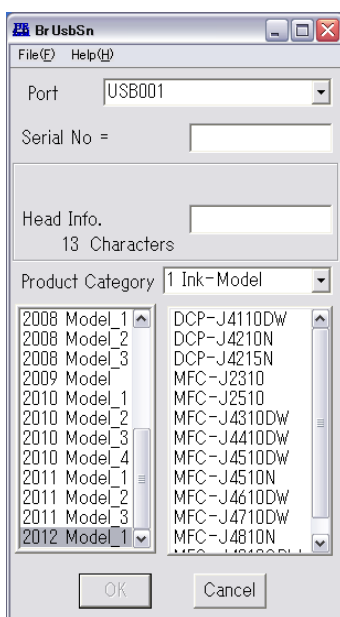
#### 1.6 Set the serial number (Maintenance mode 80)

Set the serial number, referring to [Chapter 5, Section 1.3.32](#).

The serial number can also be set with the service setting tool (BrUsbSn.exe) that enables the head property information to be updated ([Section 1.9](#)) at the same time.

The serial number setting procedure is given below.

- (1) Turn the machine on and switch it to the maintenance mode.
- (2) Connect the machine to your PC using a USB cable.
- (3) On the PC, run the service setting tool (BrUsbSn.exe) to display the following window.

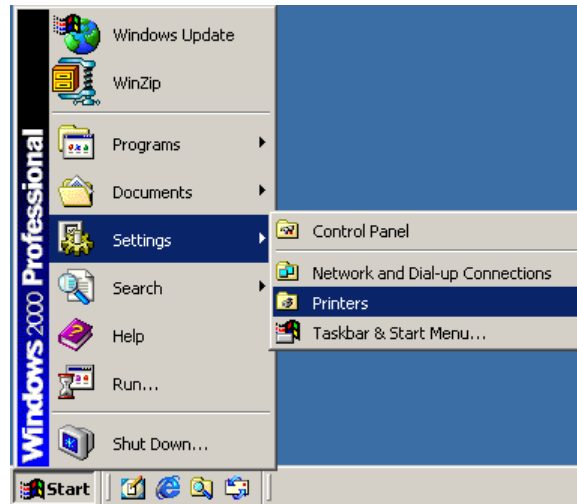


- (4) In **Product Category**, select **1. Ink-Model**.

- (5) Select **2012 Model\_1**.
- (6) In **Port** on the BrUsbSn screen, select the port number assigned to the Brother Maintenance USB Printer.

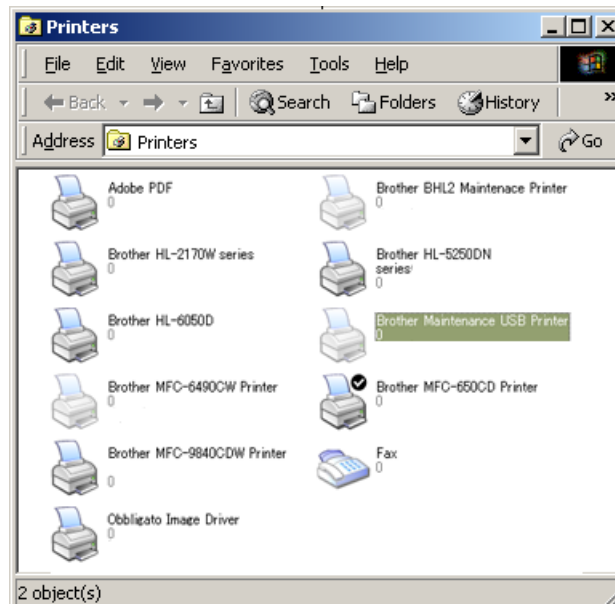
If the port number is unknown, follow steps 1) through 4) below.

- 1) Click **Start | Settings | Printers**.

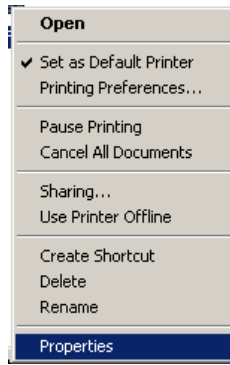


The Printers window appears as shown below.

- 2) Right-click the Brother Maintenance USB Printer driver icon.

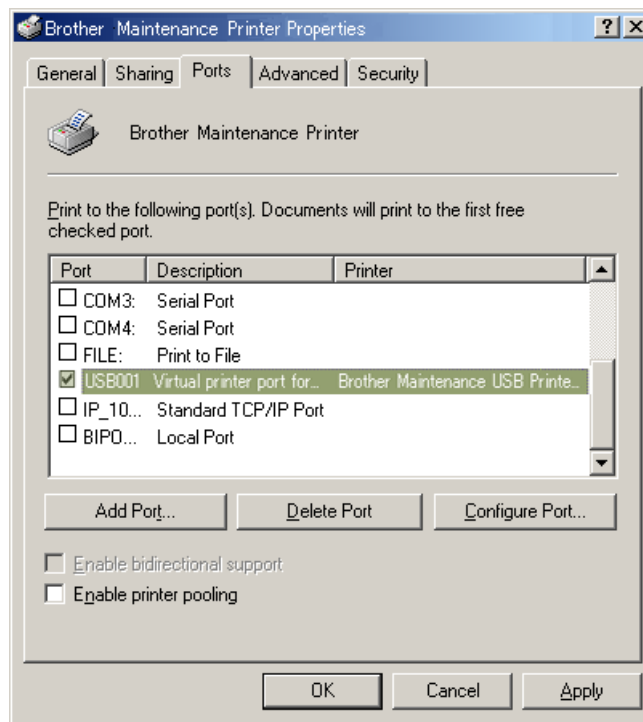


3) Click **Properties**.



The Brother Maintenance USB Printer Properties window appears as shown below.

4) Click the **Ports** tab.



In this example, the port number assigned to the Brother Maintenance USB Printer is USB001.

- (7) In the **Serial No.** box on the BrUsbSn screen, type the 15-digit serial number which is printed on the serial number label attached to the machine.
- (8) In the **Head Info.** box, type the 13-digit head property code. The head property info is printed on the bar code label attached to the head/carriage unit.



**Tip:** Opening the scanner cover when the machine is on standby and holding down the **X** key for at least 5 seconds moves the head/carriage unit to the center of its travel. This makes it possible to check the property label through the opening.

- (9) Click the **OK** key.

- (10) Wait for the confirmation screen of the serial number entered and the head property code to appear, then click **Yes**.
- (11) Use Maintenance mode 80 to display the serial number and head property info and check that the entered data is correct.

## **1.7 Restore machine information (Maintenance mode 46)**

Restore the machine information and user setting information that have been backed up in an external memory, referring to [Chapter 5, Section 1.3.13](#).

If the machine information is successfully restored, it is not necessary to perform operations given in Sections [1.8](#) to [1.14](#).

If the machine has failed to restore the machine information from the external memory, replace the ink absorber box and flushing box and then reset their counts using the procedure given in [Section 1.14](#).

## **1.8 Adjust the touch panel (Maintenance mode 78)**

Adjust the touch panel, referring to [Chapter 5, Section 1.3.31](#).

## **1.9 Update the head property data (Maintenance mode 68)**

Update the head property data, referring to [Chapter 5, Section 1.3.25](#).

The head property data can also be updated with the service setting tool (BrUsbSn.exe). For details, refer to [Section 1.6](#).

## **1.10 Acquire white level data (Maintenance mode 55)**

Acquire white level data, referring to [Chapter 5, Section 1.3.17](#).

## **1.11 Adjustment of vertical print lines/software correction for inclination/corrugation/ruled lines (Maintenance mode 65)**

Refer to [Chapter 5, Section 1.3.23](#).

## **1.12 Update the paper feeding correction values (Maintenance mode 58)**

Refer to [Chapter 5, Section 1.3.19](#).

## **1.13 Adjust margins in borderless printing (Maintenance mode 66)**

Refer to [Chapter 5, Section 1.3.24](#).

## **1.14 Reset purge and flushing counts**

- (1) Switch the machine to the maintenance mode.
- (2) Press the **8** and **0** keys in this order.
- (3) Press the **▼** key several times until the purge (or flushing) count appears on the LCD.
- (4) Press the **2**, **7**, **8** and **3** keys in this order to reset the purge (or flushing) count.
- (5) When the count is reset, the machine automatically returns to the initial stage of the maintenance mode.

When the purge or flushing count approaches 17,143 or black: 406,653,747 color: 507,105,943, respectively, the "MACHINE ERROR 46" appears and further purge or flushing operations are prohibited. Replace the ink absorber box and flushing box, and then reset their counts using the procedure above.

### 1.15 Write head calibration data (Maintenance mode 02)

Write head calibration data, referring to [Chapter 5, Section 1.3.2](#).

### 1.16 Check scanning and printing

To make a final check after replacement of the main PCB, print test patterns for updating the paper feeding correction values, adjustment of vertical print lines/software correction for inclination/corrugation/ruled lines/margins in borderless printing, and then check a copy of an ADF copy chart.

#### Updating paper feeding correction values

Check the test patterns, referring to [Chapter 5, Section 1.3.19](#).

#### Adjustment of vertical print lines/software correction for inclination/corrugation/ruled lines

Check the test patterns, refer to [Chapter 5, Section 1.3.23](#).

#### Adjusting margins in borderless printing

Check the test patterns, referring to [Chapter 5, Section 1.3.24](#).

#### Making a copy of an ADF copy chart

Using the Brother genuine plain paper BP60 or other higher quality is recommended. (Do not use glossy paper.)

- (1) On your PC, save a copy of "chart\_BHS13.prn" to a USB flash memory or SD card.
- (2) Print test patterns, referring to [Chapter 5, Section 1.3.21 "Printout of PRN/JPEG Files in Memory Card \(Maintenance mode 61\)."](#)

**Tip:** The test pattern can also be printed by opening "Filedrgs" on your PC and dragging & dropping the above adjustment file onto the Brother Maintenance USB Printer driver icon.

**Note:** If the print quality on the ADF copy chart is poor, perform head cleaning and then print it again.

- (3) Remove the USB flash memory or SD card.
- (4) Press the **9** key twice to return to the initial stage of the maintenance mode.
- (5) Set the printed ADF copy chart facing down into the ADF.
- (6) Press the **Copy** key, set the copy quality mode to "Normal" and press the **Color Start** key to make a copy.

**Note:** Check that the document does not skew.

**Note:** During copying, do not touch the document to prevent printed images from displacement.

- (7) Duplex scanning models: Turn over the ADF copy chart, and set into the ADF. Copy it with duplex-printing and check whether the ADF copy chart printed on the second side has any problem.

- (8) Check the copied chart, referring to the "Check Items on the ADF Copy Chart" given below.

If any problem is found, perform the adjustment procedure again.

**Check Items on the ADF Copy Chart**

Check that the copied chart has none of the following defects.

A: Color blocks

- Patchy color

**Note:** Vertical streaks in color blocks are negligible.

B: Contrast charts 1, 2 and 3

- Black or white vertical streaks
- Patchy color
- Missing dots

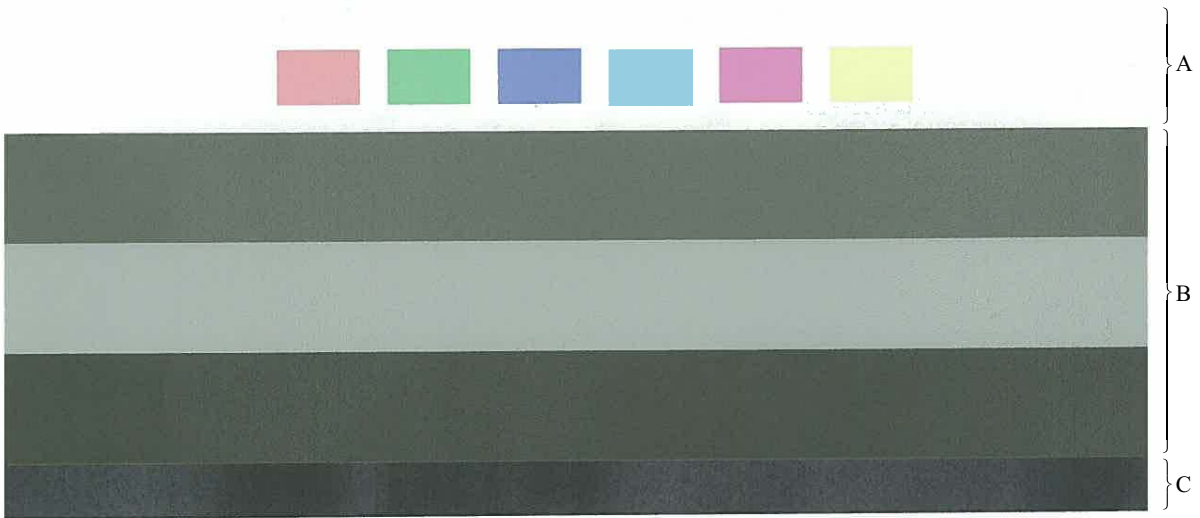
C: Resolution chart

- Black or white vertical streaks
- Missing dots

D: Whole page

- Ghost (image printed on the blank area)
- Color horizontal streaks
- Black vertical band





**ADF CHART**  
**FOR S13, MINI13**  
2011.12.01 VER 1.0  
**CONFIDENTIAL**  
**IPAPPROVED**

**ADF Copy Chart**

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## 2 IF YOU REPLACE THE HEAD/CARRIAGE UNIT

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### <Operations>

- 2.1 Update the head property data (Maintenance mode 68)
- 2.2 Perform ink supply purge (Maintenance mode 76)
- 2.3 Check head nozzles (Maintenance mode 09)
- 2.4 Adjust head inclination
- 2.5 Adjustment of vertical print lines/software correction for inclination/corrugation/ruled lines (Maintenance mode 65)
- 2.6 Update paper feeding correction values (Maintenance mode 58)
- 2.7 Adjust margins in borderless printing (Maintenance mode 66)
- 2.8 Write head calibration data (Maintenance mode 02)
- 2.9 Check scanning and printing
- 2.10 Obtain machine information at the user site (Instruction to the end user)

### <Requirements>

- (1) USB cable (one piece)
- (2) PC (Windows<sup>®</sup> XP or later)  
Create a temporary folder in the C drive.
- (3) Service setting tool (brusbsn.zip)  
Make a copy of the service setting tool in the temporary folder in the C drive. Extract the copied file and run it by double-clicking.
- (4) Download utility (FILEDG32.EXE)  
Make a copy of the download utility in the temporary folder in the C drive.
- (5) Maintenance driver (MaintenanceDriver.zip), if not installed  
Make a copy of the maintenance driver in the temporary folder in the C drive. Extract the copied file and install it, referring to [APPENDIX 3. "INSTALLING THE MAINTENANCE PRINTER DRIVER"](#).
- (6) USB flash memory or SD card
- (7) Print data (Corrugate\_BHS13.prn) for adjustment of vertical print lines/software correction for inclination, corrugation and ruled lines.
- (8) Print data for adjusting paper feeding correction values  
For A4-sized paper: pfadj1\_A4\_BHS13.prn and pfadj2\_A4\_BHS13.prn,  
For letter-sized paper: pfadj1\_LTR\_BHS13.prn and pfadj2\_LTR\_BHS13.prn
- (9) Print data for adjusting margins in borderless printing  
For A4-sized paper: mediaadj\_A4\_BHS13.prn  
For letter-sized paper: mediaadj\_LTR\_BHS13.prn
- (10) Print data for writing head calibration data  
head\_calib1\_BHS13.prn  
head\_calib2\_BHS13.prn
- (11) ADF copy chart data (chart\_BHS13.prn)

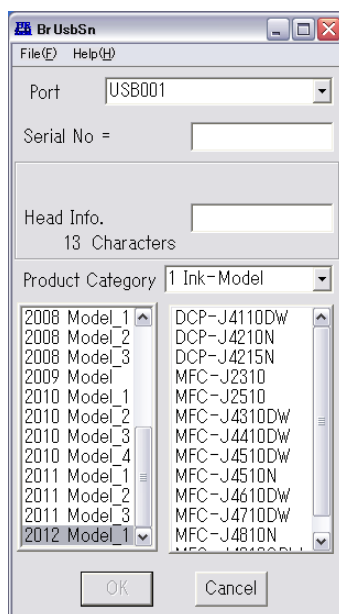
## 2.1 Update the head property data (Maintenance mode 68)

Update the head property data, referring to [Chapter 5, Section 1.3.25](#).

The head property data can also be updated with the service setting tool (BrUsbSn.exe).

The head property data updating procedure is given below.

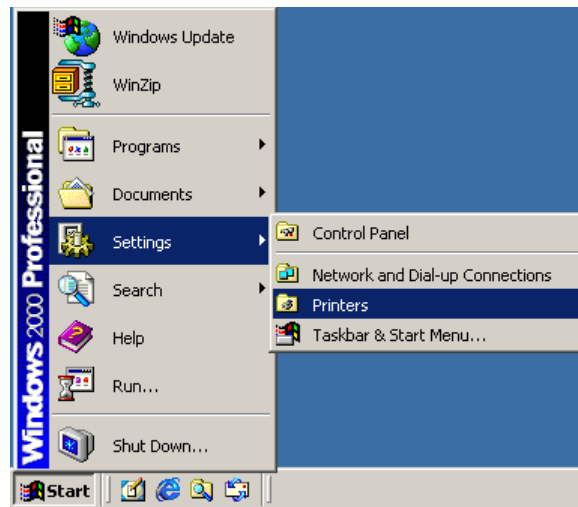
- (1) Turn the machine on and switch it to the maintenance mode.
- (2) Connect the machine to your PC using a USB cable.
- (3) On the PC, run the service setting tool (BrUsbSn.exe) to display the following window.



- (4) In **Product Category**, select **1. Ink-Model**.
- (5) Select **2012 Model\_1**.
- (6) In **Port** on the BrUsbSn screen, select the port number assigned to the Brother Maintenance USB Printer.

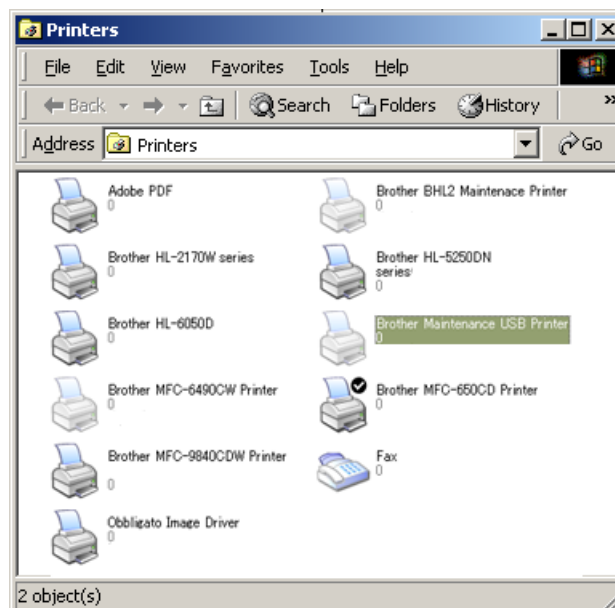
If the port number is unknown, follow steps 1) through 4) below.

1) Click **Start** | **Settings** | **Printers**.

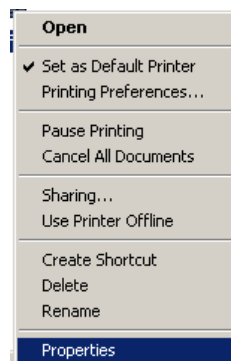


The Printers window appears as shown below.

2) Right-click the Brother Maintenance USB Printer driver icon.

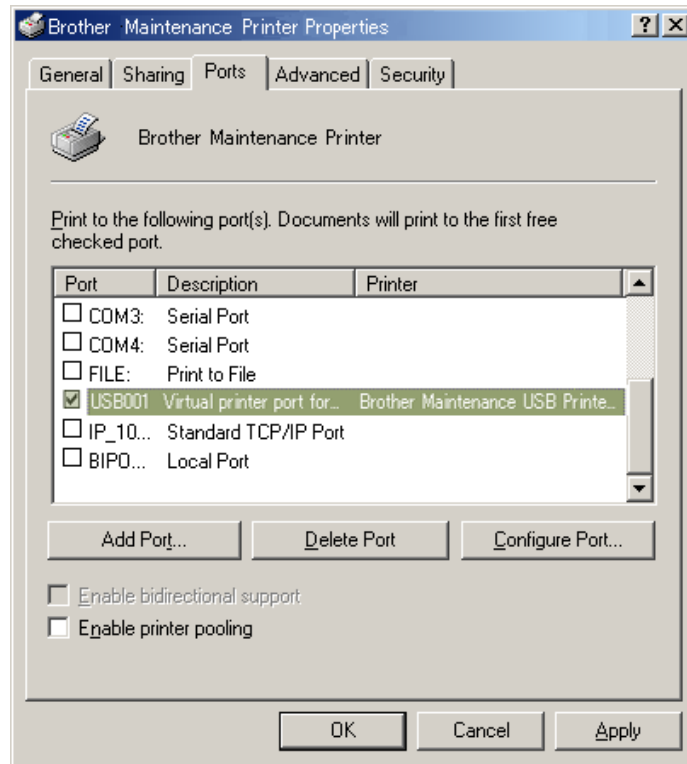


3) Click **Properties**.



The Brother Maintenance USB Printer Properties window appears as shown below.

- 4) Click the **Ports** tab.



In this example, the port number assigned to the Brother Maintenance USB Printer is USB001.

- (7) In the **Head Info.** box, type the 13-digit head property code. The head property info is printed on the bar code label attached to the head/carriage unit.
- (8) Click the **OK** key.
- (9) Wait for the confirmation screen of the serial number entered and the head property code to appear, then click **Yes**.



**Tip:** Opening the scanner cover when the machine is on standby and holding down the **X** key for at least 5 seconds moves the head/carriage unit to the center of its travel. This makes it possible to check the property label through the opening.

- (10) Use Maintenance mode 80 to display the head property data and check that the entered data is correct.

## 2.2 Perform ink supply purge (Maintenance mode 76)

- (1) Open the ink cartridge cover, set comparatively-new ink cartridges (having sufficient ink) into the ink refill ASSY, and close the ink cartridge cover.
- (2) Carry out a purge operation (with maintenance code 76) using the steps below.
  - 1) Press the **7** and **6** keys in this order.

The machine displays "CLEANING ALL" on the LCD and enters the purge mode.
  - 2) Press the **4** and **Mono** keys in this order to start an initial purge.

The machine starts an initial purge that refills the ink supply tubes and the print head with fresh ink.

## 2.3 Check head nozzles (Maintenance mode 09)

To check that the head/carriage unit normally sprays ink droplets from *all* head nozzles, print out a nozzle test pattern with Maintenance mode 09 with the following steps.

- (1) Press the **0** and **9** keys in this order.
- (2) If dot missing or any other print quality problem is found, use Maintenance mode 76 to perform an appropriate purge operation (refer to [Chapter 5, Section 1.3.29](#)).

## 2.4 Adjust head inclination

- (1) On your PC, save a copy of "Corrugate\_BHS13.prn" to a USB flash memory or SD card.
- (2) Print test patterns on A4- or letter-sized paper, referring to [Chapter 5, Section 1.3.21 "Printout of PRN/JPEG Files in Memory Card \(Maintenance mode 61\)."](#)

**Tip:** The test pattern can also be printed by opening "Filedrgs" on your PC and dragging & dropping the above file onto the Brother Maintenance USB Printer driver icon.

- (3) Among the test patterns printed, check the D pattern.

If the number of the block in which red color is the least visible is 2, the adjustment is complete.

If the number of the block in which red color is the least visible is 1 or 3, adjust the inclination of the head/carriage unit using the procedure below.

### Head inclination adjustment procedure

- 1) Switch the machine to the maintenance mode and press the **6**, **3**, **Mono Start**, and **\*** keys in this order to move the head/carriage unit to the adjustment position.
- 2) If the number of the block in which red color is the least visible is 1, turn the external ring to the positive side by 5 scale marks.

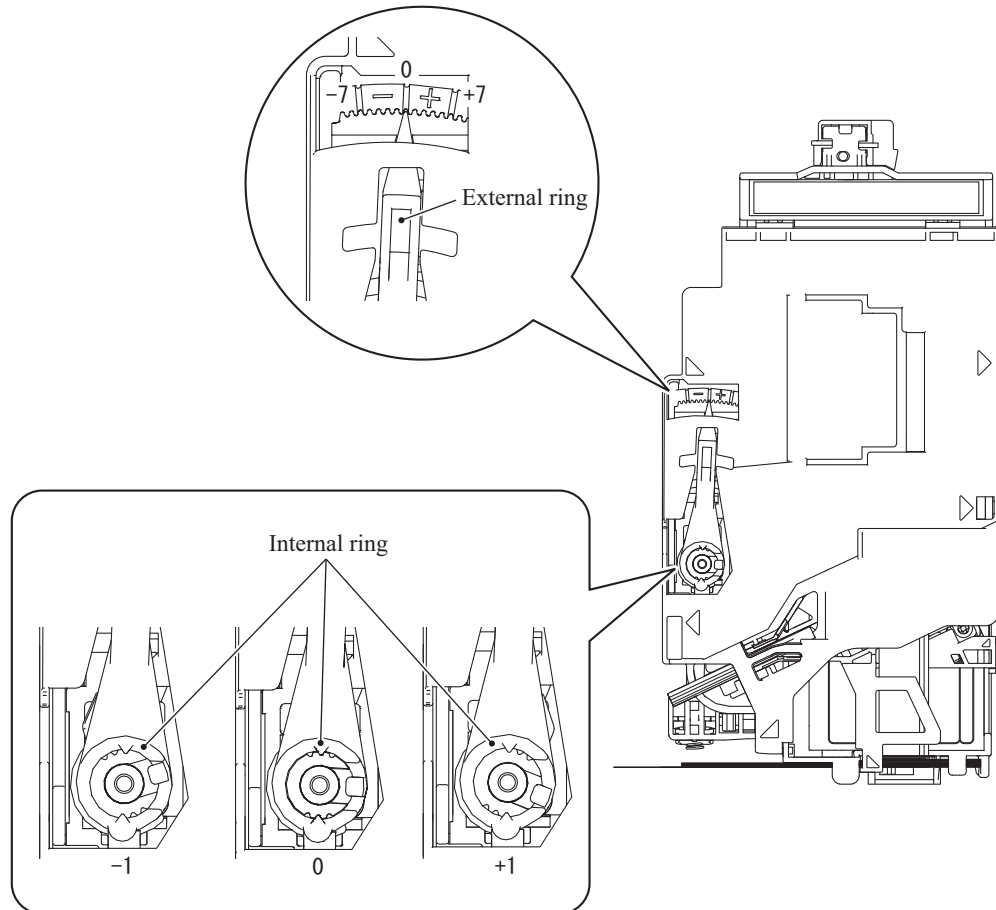
If the external ring cannot turn exceeding 3 to 4 scale marks, turn the external ring to the +7 position. If the external ring cannot turn exceeding 2 scale marks, turn the internal ring to the +1 position and then turn the external ring to the center (0 position).

If the number of the block in which red color is the least visible is 3, turn the external ring to the negative side by 5 scale marks.

If the external ring cannot turn exceeding 3 to 4 scale marks, turn the external ring to the -7 position. If the external ring cannot turn exceeding 2 scale marks, turn the internal ring to the -1 position and then turn the external ring to the center (0 position).

If the internal ring is already set in the +1 or -1 position and cannot be turned further, then replace the head/carriage unit.

**Note:** When turning the internal ring, hold down the head/carriage unit. Failure to do so may cause missing block.



(5\_001\_E)

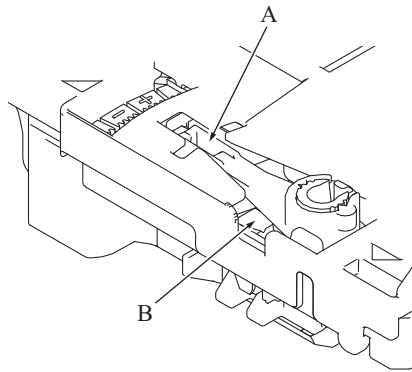
#### ■ Turning the rings

##### External ring

Apply the tip of a flat screwdriver to the groove at section "A" shown on the next page. While pressing down the external ring with the screwdriver, turn it to the + or - position.

##### Internal ring

Insert the tip of a flat screwdriver under the external ring from section "B" and remove the external ring upwards. Put the external ring on the internal ring inside out and use it as a wrench to turn the internal ring to the + or - position.



(5\_002\_1\_E)

- 3) Go back to step (2), print out a test pattern again, and check the D pattern. Repeat this procedure until the number of block that shows the most indistinct horizontal lines comes to be 2.

## **2.5 Adjustment of vertical print lines/software correction for inclination/corrugation/ruled lines (Maintenance mode 65)**

Refer to [Chapter 5, Section 1.3.23](#).

## **2.6 Update paper feeding correction values (Maintenance mode 58)**

Refer to [Chapter 5, Section 1.3.19](#).

## **2.7 Adjust margins in borderless printing (Maintenance mode 66)**

Refer to [Chapter 5, Section 1.3.24](#).

## **2.8 Write head calibration data (Maintenance mode 02)**

Refer to [Chapter 5, Section 1.3.2](#).

## **2.9 Check scanning and printing**

Refer to [Section 1.16](#) in this chapter.



## 2.10 Obtain machine information at the user site (Instruction to the end user)

When the user receives the repaired machine, he/she needs to retrieve the head calibration data and save it into his/her PC at the user site. The service personnel should contact the user to instruct him/her to perform the following procedure.

### Windows®

- (1) On the user computer, click **Start | Settings | Printers** to display the Printers window.
- (2) Right-click the Brother Printer driver icon to display the pull-down menu.
- (3) Click **Properties | Print Settings | Advanced | Other print options | Retrieve Printer's Color Data**.
- (4) Check that the **Use Printer's Color Data** check box is selected.
- (5) Click **Retrieve Printer's Color Data**.
- (6) Wait for the dialog to appear and click **OK**.

### Macintosh

- (1) On the user Mac, display the printer list and select the repaired machine.
- (2) Select **Open Print Queue | Printer Setup | Utility | Open Printer Utility**.
- (3) From the menu bar, select **Control | Retrieve Printer's Color Data**.
- (4) Wait for the dialog to appear and click **OK**.

\*For detailed instructions on how to obtain machine information, refer to the FAQ at the Brother Solution Center.

---

### 3 IF YOU REPLACE THE DOCUMENT SCANNER UNIT, ADF UNIT OR CIS UNIT

---

#### <Operations>

- 3.1 Set the CIS type (Maintenance mode 59) (Not required after replacement of the ADF unit on simplex scanning models)
- 3.2 Acquire white level data (Maintenance mode 55) (Not required after replacement of the ADF unit on simplex scanning models)
- 3.3 Check scanning

#### <Requirements>

- (1) USB cable (one piece)
- (2) PC (Windows<sup>®</sup> XP or later)  
Create a temporary folder in the C drive.
- (3) Download utility (FILEDG32.EXE)  
Make a copy of the download utility in the temporary folder in the C drive.
- (4) Maintenance driver (MaintenanceDriver.zip), if not installed  
Make a copy of the maintenance driver in the temporary folder in the C drive. Extract the copied file and install it, referring to [APPENDIX 3. "INSTALLING THE MAINTENANCE PRINTER DRIVER"](#).
- (5) USB flash memory or SD card
- (6) ADF copy chart data (chart\_BHS13.prn)

### **3.1 Set the CIS type (Maintenance mode 59) (Not required after replacement of the ADF unit on simplex scanning models)**

Set the CIS type, referring to [Chapter 5, Section 1.3.20](#).

If "PLS UPDATE PROG" appears on the LCD, install the firmware using the procedure in [Section 1.3](#).

### **3.2 Acquire white level data (Maintenance mode 55) (Not required after replacement of the ADF unit on simplex scanning models)**

Acquire white level data, referring to [Chapter 5, Section 1.3.17](#).

### **3.3 Check scanning**

To make a final check after replacement, check a copy of an ADF copy chart.

Check scanning, referring to the ADF copy chart given in [Section 1.16](#).

---

## 4 IF YOU REPLACE THE CONTROL PANEL ASSY

---

### <Operations>

4.1 Adjust the touch panel (Maintenance mode 78)

4.2 Check LCD operation (Maintenance mode 12)

4.3 Check the operation of the control panel keys (Maintenance mode 13)

### <Requirements>

(1) Stylus

#### **4.1 Adjust the touch panel (Maintenance mode 78)**

Adjust the touch panel, referring to [Chapter 5, Section 1.3.31](#).

#### **4.2 Check LCD operation (Maintenance mode 12)**

Check the LCD operation, referring to [Chapter 5, Section 1.3.7](#).

#### **4.3 Check the operation of the control panel keys (Maintenance mode 13)**

Check the operation of the control panel keys, referring to [Chapter 5, Section 1.3.8](#).

---

## 5 IF YOU REPLACE THE INK ABSORBER BOX OR FLUSHING BOX

---

<Operations>

5.1 Reset purge and flushing counts

<Requirements>

None

### 5.1 Reset purge and flushing counts

Reset purge and flushing counts, referring to [Section 1.14](#).

---

## 6 IF YOU REPLACE THE PAPER FEEDING RELATED PARTS and MAINTENANCE UNIT

---

The paper feeding related parts to be adjusted after replacement are listed below.

- Paper feed roller
- Paper ejection roller
- Switchback roller
- Carriage motor
- Paper feed motor
- CR encoder strip
- PF encoder disk
- PF encoder sensor PCB ASSY
- CR timing belt
- Switchback roller belt
- Paper ejection roller belt
- Registration sensor PCB ASSY
- Carriage PCB ASSY
- Platen
- Platen foam
- Flushing box
- Flushing base
- Maintenance unit

### <Operations>

6.1 Check head nozzles (Maintenance mode 09)

6.2 Adjustment of vertical print lines/software correction for inclination/corrugation/ruled lines (Maintenance mode 65)

6.3 Update paper feeding correction values (Maintenance mode 58)

6.4 Adjust margins in borderless printing (Maintenance mode 66)

6.5 Check printing

### <Requirements>

(1) USB cable (one piece)

(2) PC (Windows<sup>®</sup> XP or later)

Create a temporary folder in the C drive.

(3) Download utility (FILEDG32.EXE)

Make a copy of the download utility in the temporary folder in the C drive.

(4) Maintenance driver (MaintenanceDriver.zip), if not installed

Make a copy of the maintenance driver in the temporary folder in the C drive. Extract the copied file and install it, referring to **APPENDIX 3. "INSTALLING THE MAINTENANCE PRINTER DRIVER"**.

(5) USB flash memory or SD card

(6) Print data (Corrugate\_BHS13.prn) for adjustment of vertical print lines/software correction for inclination, corrugation and ruled lines.

(7) Print data for adjusting paper feeding correction values

For A4-sized paper: pfadj1\_A4\_BHS13.prn and pfadj2\_A4\_BHS13.prn,

For letter-sized paper: pfadj1\_LTR\_BHS13.prn and pfadj2\_LTR\_BHS13.prn

(8) Print data for adjusting margins in borderless printing

For A4-sized paper: mediaadj\_A4\_BHS13.prn

For letter-sized paper: mediaadj\_LTR\_BHS13.prn

## **6.1 Check head nozzles (Maintenance mode 09)**

Check head nozzles, referring to [Section 2.3](#).

## **6.2 Adjustment of vertical print lines/software correction for inclination/corrugation/ruled lines (Maintenance mode 65)**

Refer to [Chapter 5, Section 1.3.23](#).

## **6.3 Update paper feeding correction values (Maintenance mode 58)**

Refer to [Chapter 5, Section 1.3.19](#).

## **6.4 Adjust margins in borderless printing (Maintenance mode 66)**

Refer to [Chapter 5, Section 1.3.24](#).

## **6.5 Check printing**

### **Update the paper feeding correction value**

Check the test patterns, referring to [Chapter 5, Section 1.3.19](#).

### **Adjustment of vertical print lines/software correction for inclination/corrugation/ruled lines**

Check the test patterns, referring to [Chapter 5, Section 1.3.23](#).

### **Adjust margins in borderless printing**

Check the test patterns, referring to [Chapter 5, Section 1.3.24](#).

---

## CHAPTER 5 SERVICE FUNCTIONS

---

### 1 MAINTENANCE MODE

---

The maintenance mode is exclusively designed for the purpose of checks, settings and adjustments of the machine and can be triggered by the keys on the control panel.

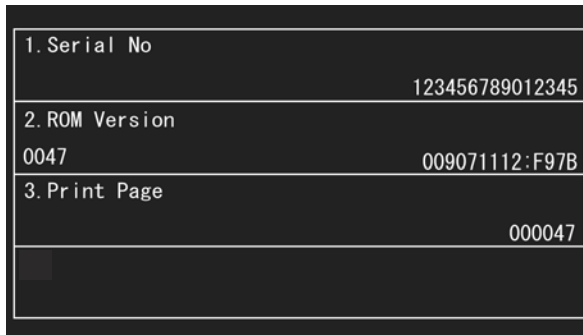
In the maintenance mode, you can perform operational checks of sensors, perform a print test, display the log information or error codes, and configure worker switches (WSW).

#### 1.1 Entry to the Maintenance Mode

##### 1.1.1 How to Enter the Maintenance Mode for Service Personnel

###### < Operating Procedure >

- (1) When the machine is on standby, hold down the **Home** key for approx. 5 seconds to display the following screen on the LCD.



1. Serial No	123456789012345
2. ROM Version	0047 009071112:F97B
3. Print Page	000047

- (2) Hold down the blank area at the bottom of the LCD for approx. 2 seconds to display the following screen.



1	2	3	4	Stop	Mono Start
5	6	7	8	*	Color Start
<<	9	0		#	>>



(3) Press the \*, 2, 8, 6 and 4 keys on the LCD in this order.

The machine displays the following screen on the LCD and enters the maintenance mode.



(4) To select one of the maintenance mode functions listed on the 5-4 page, enter the corresponding 2-digit code using the numerical keys.

- Notes**
- Pressing the **9** key twice in the initial stage of the maintenance mode switches the machine to standby.
  - Pressing the **Stop** key after entering only one digit returns the machine to the initial stage of the maintenance mode.
  - If an invalid maintenance code is entered, the machine returns to the initial stage of the maintenance mode.

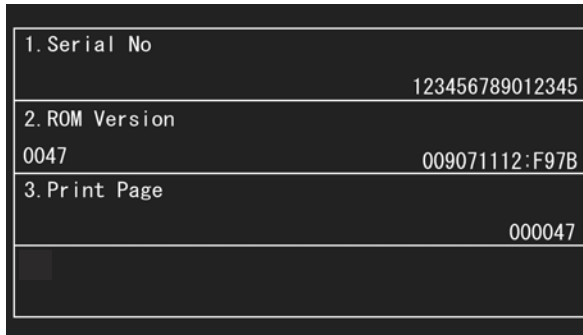
### 1.1.2 How to Enter the End User-accessible Maintenance Mode

Basically, the maintenance-mode functions 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 are *shaded* in the table given on the next page. (Maintenance mode 10, 11, 12, 17, 28, 37, 46, 52, 53, 54, 58, 65, 66, 75, 76, 77, 78, 80, 82, 87, 88, 91)

#### < Operating Procedure >

- (1) When the machine is on standby, hold down the **Home** key for approx. 5 seconds to display the following screen on the LCD.



1. Serial No	123456789012345
2. ROM Version	0047 009071112:F97B
3. Print Page	000047

- (2) Hold down the blank area at the bottom of the LCD for approx. 2 seconds to display the following screen.



1	2	3	4	Stop	Mono Start
5	6	7	8	*	Color Start
<<	9	0		#	>>

- (3) Press the \*, 0 and # keys on the LCD in this order. The machine becomes ready to accept entry from the keys. Enter the desired maintenance code.
- (4) When each of the maintenance mode functions is completed, the machine automatically returns to standby.

**Note:** To stop the above procedure in midway and switch to standby, press the **Stop** key.

## 1.2 List of Maintenance-mode Functions

Maintenance Mode	Function	Reference Section (Page)
01	EEPROM Parameter Initialization	1.3.1 (5-5)
02	Creating of Head Calibration Data and Writing it into Flash ROM	1.3.2 (5-6)
05	Printout of Scanning Compensation White/Black Level Data	1.3.3 (5-11)
08	ADF Performance Test	1.3.4 (5-14)
09	Printout of Test Pattern	1.3.5 (5-14)
10	Worker Switch (WSW) Setting	1.3.6 (5-16)
11	Printout of Worker Switch (WSW) Data	1.3.6 (5-16)
12	Operational Check of LCD	1.3.7 (5-19)
13	Operational Check of Keys on Control Panel	1.3.8 (5-20)
17 *	EEPROM Dump and Log Information Transfer	1.3.9 (5-21)
28	Updating of Firmware Using an External Memory	1.3.10 (5-22)
32	Sensor Operational Check	1.3.11 (5-23)
37 *	Printout of Dial Log	1.3.12 (5-25)
46	Backup of Machine Information	1.3.13 (5-26)
52	Setting of Country/Language	1.3.14 (5-28)
53	Transfer of Received FAX Data and/or Equipment's Log	1.3.15 (5-29)
54	Fine Adjustment of Scanning Position	1.3.16 (5-31)
55	Acquisition of White/Black Level Data and CIS Scanner Area Setting	1.3.17 (5-32)
57	Cartridge IC Communication Check	1.3.18 (5-33)
58	Updating of Paper Feeding Correction Values	1.3.19 (5-34)
59	Checking of CIS Travel and Setting of CIS Type	1.3.20 (5-40)
61	Print of PRN/JPEG Files in Memory Card	1.3.21 (5-41)
63	Move of the Head/Carriage Unit to the Adjustment Position	1.3.22 (5-42)
65	Adjustment of Vertical Print Lines/Software Correction for Inclination/Corrugation/Ruled Lines	1.3.23 (5-43)
66	Margin Adjustment in Borderless Printing	1.3.24 (5-47)
68	Updating of Head Property Data and Backup/Restoration of Head Calibration Data	1.3.25 (5-49)
69	Traveling Speed Check of Head/Carriage Unit	1.3.26 (5-51)
74	Customizing Destinations	1.3.27 (5-52)
75	Move of the Head/Carriage Unit to the Center	1.3.28 (5-55)
76	Purge Operation	1.3.29 (5-56)
77	Print of the Maintenance Information	1.3.30 (5-59)
78	Adjustment of Touch Panel	1.3.31 (5-61)
80	Display of the Equipment's Log	1.3.32 (5-62)
82	Equipment Error Code Indication	1.3.33 (5-65)
87	Output of Transmission Log to the Telephone Line	1.3.34 (5-65)
88	Assurance Mode Switch Setting (AMS)	1.3.35 (5-66)
91	EEPROM Parameter Initialization	1.3.1 (5-5)
99	Exit from the Maintenance Mode	

Shaded maintenance mode functions are available to end users.

\* Exclusive to the end user-accessible maintenance mode.

### 1.3 Detailed Description of Maintenance-mode Functions

#### 1.3.1 EEPROM Parameter Initialization (Maintenance mode 01, 91)

##### < Function >

This function initializes the parameters, user switches and worker switches settings registered in the EEPROM, to the initial values. Entering Maintenance mode 01 initializes almost all of the EEPROM areas, but entering Maintenance mode 91 does not initialize some areas, as listed below.

Maintenance mode	01	91
Maintenance-mode functions User switches Firmware switches Remote activation code Assurance mode switch settings	All of these will be initialized.	These will be initialized.
Activity report Station ID data Outside line number Telephone function registration Speed dialing Group dialing Call transfer data		These will <u>not</u> be initialized.
EEPROM customizing code (4-digit)	This will <u>not</u> be initialized. (Note that the first digit of the 4-digit code will be initialized to "0." If the code is <u>1001</u> , for example, it will be initialized to <u>0001</u> .)	

##### < Operating Procedure >

- (1) Press the **0** and **1** keys in this order to display "Maintenance 01" on the LCD (or press the **9** and **1** keys in this order according to your need to display "Maintenance 91") in the initial stage of the maintenance mode.
- (2) Press the **Mono Start** key.  
The "PARAMETER INIT" appears on the LCD.
- (3) Upon completion of parameter initialization, the machine returns to the initial stage of the maintenance mode.

### 1.3.2 Creating of Head Calibration Data and Writing it into Flash ROM (Maintenance mode 02)

#### < Function >

This procedure scans the "Print pattern for creating head calibration data" sheets (see [page 5-9](#)) placed on the scanner glass of the document cover, creates the head calibration data using the scanning result, and writes it into the flash ROM on the main PCB.

#### < Operating Procedure >

**Notes** • Before proceeding to the procedure given below, use [Section 1.3.5 "Printout of Test Pattern \(Maintenance mode 09\)"](#) in this chapter to check that there is no block missing.

- Before proceeding to the procedure given below, use [Section 1.3.35 "Assurance Mode Switch Setting \(Maintenance mode 88\)"](#) in this chapter to check that the uneven printing correction for upper and lower ends of the nozzle is set to ON (Selector 1 on AMS05 is "0").
- Before proceeding to the procedure given below, use the following to enable the machine to make high precision printing.

[Section 1.3.17 "Acquisition of White/Black Level Data and CIS Scanner Area Setting \(Maintenance mode 55\)"](#)

- Make sure that both the document scanner unit and document cover are closed.
- For higher precision of uneven printing correction, it is recommended to use the recording paper specified below to print the pattern for creating head calibration data.

US: Xerox 4200DP 20 lb., Brother BP60PL

EU, AP and others: Xerox Business 80 g/m<sup>2</sup>, Brother BP60PA

- (1) Save copies of "head\_calib1\_BHS13.prn" and "head\_calib2\_BHS13.prn" to a USB memory or SD card.
- (2) Use [Section 1.3.21 "Printout of PRN/JPEG Files in Memory Card \(Maintenance mode 61\)"](#) to print two file patterns (2 sheets).
- (3) Fold the printed patterns for creating head calibration data along the folding line. (See [page 5-9](#).)
- (4) Set the pattern printed with "1\_page" on the scanner glass of the document cover so that the ▲ mark fits on the left rear of the document cover.
- (5) Press the **0** and **2** keys in this order in the initial stage of the maintenance mode.

The "MAINTENANCE 02" and "No. 1 Sheet Set" appear on the LCD in this order.

**Note:** Pressing the **Stop** key immediately returns the machine to the initial stage of the maintenance mode without creating head calibration data.

- (6) Press the **Mono Start** key.

The machine displays the "Scanning" on the LCD and starts scanning the "Print pattern for creating head calibration data" placed on the scanner glass.

- (7) If "No. 2 Sheet Set" appears on the LCD, remove the pattern printed with "1\_page" from the scanner glass and set the pattern printed with "2\_page."

(8) Press the **Mono Start** key.

The machine displays the "Scanning" on the LCD and starts scanning the "Print pattern for creating head calibration data" placed on the scanner glass.

(9) Upon completion of scanning, the machine displays the "Write Head Calib" on the LCD, creates the head calibration data, and writes it into the flash ROM on the main PCB.

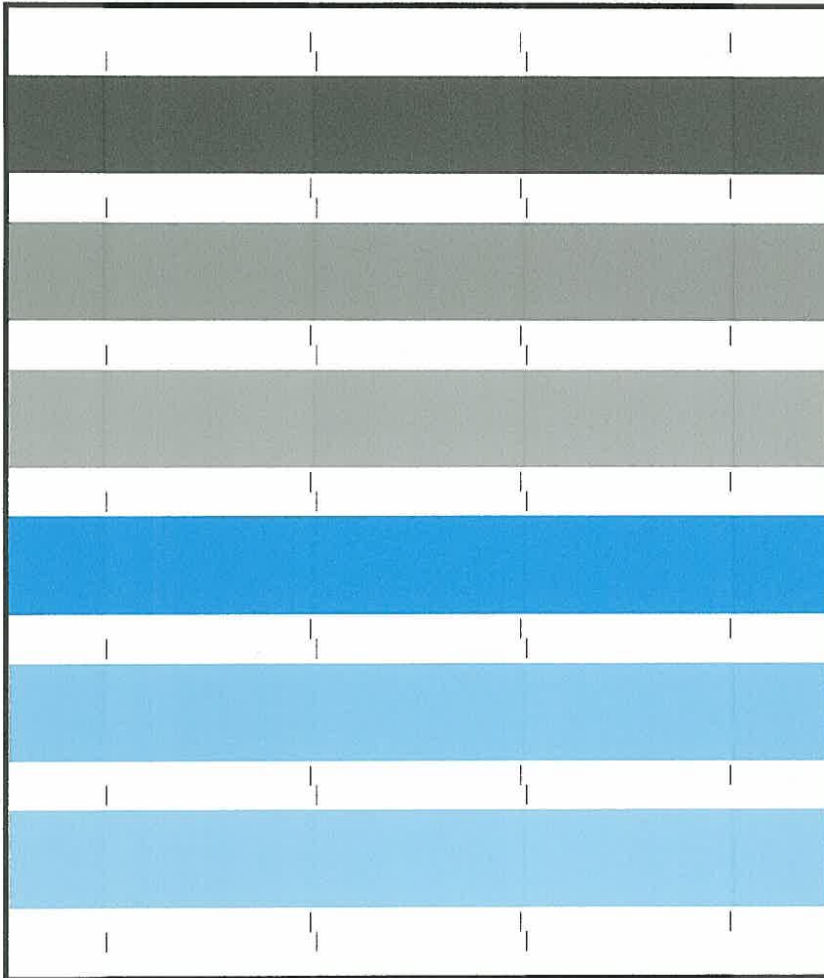
Upon completion of writing, the "Complete" appears. Press the **Stop** key to return to the initial stage of the maintenance mode.

**Note:** If an error occurs, the machine beeps and displays "Error No \*\*\*" on the LCD. Press the **Stop** key to return to the initial stage of the maintenance mode and then recover the machine from the error state, following the table given below. Then go back to step (4).

Error code	The following error has occurred.	Do the following:
01	Failed to detect the external frame.	<ul style="list-style-type: none"> <li>• Clean the document cover glass.</li> <li>• Reset the print pattern so that the ▲ mark is aligned with the left rear of the document cover without tilt.</li> <li>• Check that there is no block missing</li> <li>• Go back to step (2) and print out "Print pattern for creating head calibration data" again.</li> </ul>
02	Internal image inclined.	
03	Failed to detect position.	
04	Failed to write head calibration data.	<ul style="list-style-type: none"> <li>• Clean the document cover glass.</li> <li>• Reset the print pattern so that the ▲ mark is aligned with the left rear of the document cover without tilt.</li> <li>• Check that there is no block missing.</li> <li>• Restart the machine and perform the procedure from the beginning again.</li> <li>• Replace the main PCB.</li> </ul>
05	The uneven printing correction function for upper and lower ends of the nozzle is disabled with Maintenance 88.	<ul style="list-style-type: none"> <li>• Set selector 1 on AMS05 to "0" (ON) in <a href="#">Section 1.3.35 "Assurance Mode Switch Setting (Maintenance mode 88)"</a> in this chapter.</li> </ul>
06	Cannot get data due to memory full.	<ul style="list-style-type: none"> <li>• Delete fax data and other data stored in the memory.</li> <li>• Replace the main PCB ASSY.</li> </ul>
07	The document scanner unit is open.	<ul style="list-style-type: none"> <li>• Close the document scanner unit.</li> <li>• Reconnect the document scanner sensor harness.</li> <li>• Replace the document scanner sensor.</li> <li>• Replace the document scanner if the boss that presses the document scanner sensor is broken.</li> <li>• Replace the main PCB ASSY.</li> </ul>

Error code	The following error has occurred.	Do the following:
09	Scanning errors other than the above.	<ul style="list-style-type: none"> <li>Use <a href="#">Section 1.3.17 "Acquisition of White/Black Level Data and CIS Scanner Area Setting (Maintenance mode 55)"</a> in this chapter.</li> </ul>
10	With a media being inserted, the USB cable or LAN cable is connected.	<ul style="list-style-type: none"> <li>Disconnect the USB cable or LAN cable.</li> </ul>
11	The scanner cover is open.	<ul style="list-style-type: none"> <li>Close the scanner cover.</li> </ul>

Fit this mark  
on the left rear of  
the document cover.

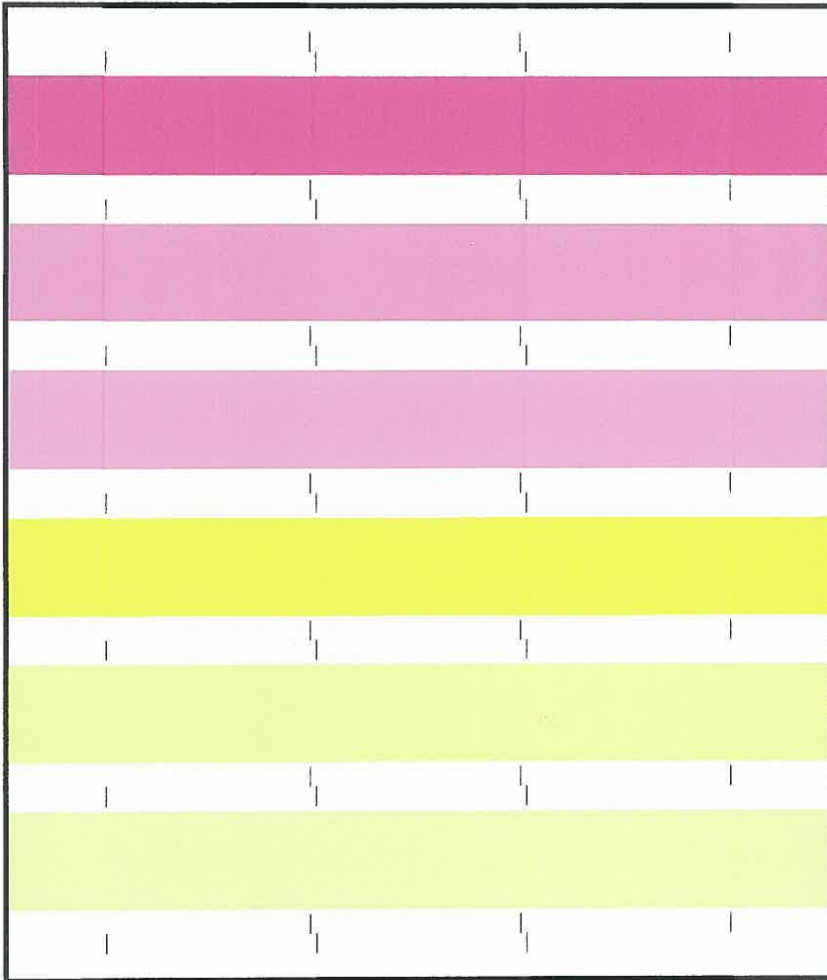


Fold along this folding line.

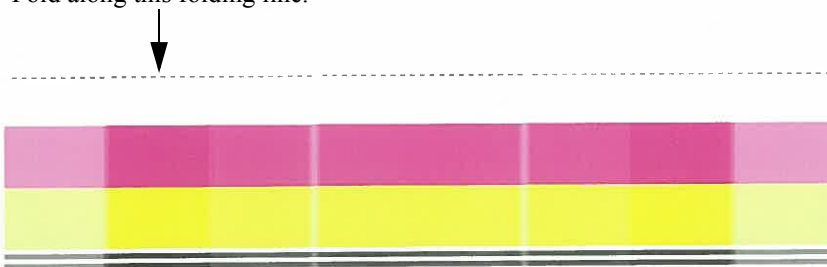


**Print Pattern for Creating Head Calibration Data**





Fold along this folding line.



Fit this mark  
on the left rear of  
the document cover.



**Print Pattern for Creating Head Calibration Data**

### 1.3.3 Printout of Scanning Compensation White/Black Level Data (Maintenance mode 05)

#### < Function >

This function prints out the light and dark level data for scanning compensation.

#### < Operating Procedure >

**Note** • Perform this procedure after carrying out document scanning operation at least once, not immediately after powering on the machine. Do not start this procedure without carrying out document scanning operation. This is because at the start of scanning operation, the machine initializes light and dark level data and takes in the scanning compensation reference data.

The print result differs depending upon whether color or monochrome scanning is performed preceding this procedure. Check the light and dark level data to be output before performing this procedure.

#### Simplex scanning models

- (1) For monochrome scanning, make a monochrome copy; for color scanning, make a color copy.
- (2) Press the **0** and **5** keys in this order in the initial stage of the maintenance mode.  
The "DUMP 0:GRA 1:ALL" appears on the LCD.
- (3) To print only the light and dark data graph for each color, LED data, AFE parameters and background color compensation data, press the **0** key. To print all data, press the **1** key.

If no error has occurred in the machine, the machine displays "PRINTING" on the LCD and starts printing.

If any error has occurred in the machine, "ME STATE STOP" appears on the LCD.

**Note** If no recording paper is loaded in the paper tray, printing will be canceled.

- (4) Upon completion of printing, the machine returns to the initial stage of the maintenance mode.

#### Duplex scanning models

- (1) For monochrome scanning, make a monochrome copy; for color scanning, make a color copy.
- (2) Press the **0** and **5** keys in this order in the initial stage of the maintenance mode.  
The "CIS 0:FB 1:ADF" appears on the LCD.
- (3) To print data scanned by the first side scanning CIS, press the **0** key; to print data scanned by the second side scanning CIS, press the **1** key.

The "DUMP 0:GRA 1:ALL" appears on the LCD.

- (4) To print only the light and dark data graph for each color, LED data, AFE parameters and background color compensation data, press the **0** key. To print all data, press the **1** key.

If no error has occurred in the machine, the machine displays "PRINTING" on the LCD and starts printing.

**Note** If no recording paper is loaded in the paper tray, printing will be canceled.

(5) Upon completion of printing, the machine returns to the initial stage of the maintenance mode.

■ Output data (common to monochrome and color)

a) Light and dark data graph<sup>\*1</sup>

(If monochrome scanning is performed preceding execution of maintenance 05, only G data is valid and RB data is indefinite.)

b) LED light intensity PWM data for color image (1 byte)

c) LED light intensity PWM data for monochrome image (1 byte)

d) LED light intensity pulse data for green image (2 bytes)

e) LED light intensity pulse data for blue image (2 bytes)

f) LED light intensity pulse data for red image (2 bytes)

g) LED light intensity pulse data for monochrome image (2 bytes)

h) RLCV (AFE parameter) (1 byte)

i) OFFSET (AFE parameter) (1 byte)

j) GAIN (AFE parameter) (1 byte)

k) Background color compensation data (SCAN1) (1 byte)

l) Background color compensation data (SCAN2) (1 byte) (Duplex scanning models only)

m) Background color compensation data (PRC1) (1 byte) (Duplex scanning models only)

n) Background color compensation data (PRC2) (1 byte) (Duplex scanning models only)

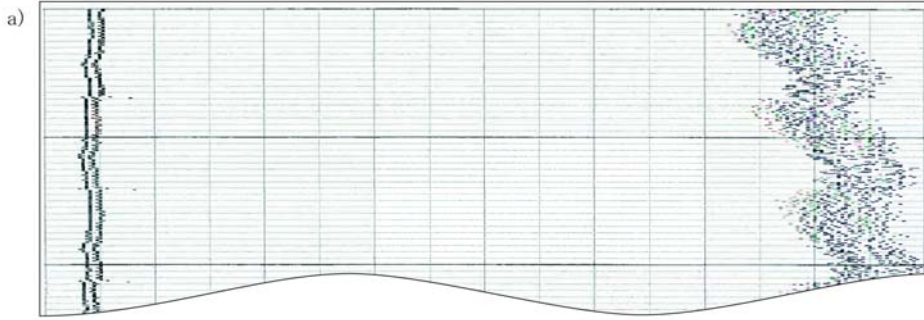
o) Black level data

p) White level data for red image

q) White level data for green image

r) White level data for blue image

<sup>\*1</sup> For the CIS whose resolution is 2400 dpi, the machine prints out three sheets of light and dark data graph and for others, two sheets.



b)	42c8399c	: 05
c)	42c8399d	: 00
d)	42c83992	: 02c4
e)	42c83994	: 01f4
f)	42c83996	: 0314
g)	42c83986	: 0f
h)	42c83987	: c9
i)	42c83988	: b0
j)	42c839a2	: ff
k)	42c83990	: 0f
l)	42c83986	: 0f
m)	42c83987	: c9

o) ~ r)	47ceb400	: 0d 11 0d 11 0d 11 0d 10 0d 10 0d 10 0d 10 0d 10 0d 10
	47ceb420	: 0d 10 0d 10 0d 11 0d 10 0d 11 0d 11 0d 11 0d 11 0d 10
	47ceb440	: 0d 11 0e 11 0e 11 0d 10 0e 11 0d 11 0d 11 0e 11 0e 10
	47ceb460	: 0e 11 0e 11 0e 11 0e 10 0e 11 0d 11 0d 11 0e 11 0e 10
	47ceb480	: 0e 11 0e 11 0e 11 0d 10 0d 11 0d 10 0d 10 0d 11 0d 10
	47ceb4a0	: 0d 11 0d 10 0d 11 0d 10 0d 10 0d 10 0d 10 0d 10 0d 10
	47ceb4c0	: 0d 11 0d 10 0d 11 0d 0f 0d 10 0d 10 0d 10 0d 10 0d 10
	47ceb4e0	: 0d 10 0d 10 0c 10 0c 0f 0c 0f 0c 0f 0c 0f 0c 0f 0c 0f
	47ceb500	: 0c 0f 0b 0e 0b 0f 0c 0e 0c 0f 0c 0e 0c 0f 0c 0f 0c 0f
	47ceb520	: 0c 0f 0c 0f 0c 10 0c 0f 0c 10 0c 10 0c 10 0c 10 0c 0f
	47ceb540	: 0c 10 0d 10 0d 10 0d 10 0d 10 0d 10 0d 10 0d 10 0d 10
	47ceb560	: 0d 10 0d 11 0d 10 0d 10 0d 11 0d 11 0d 11 0d 11 0d 10
	47ceb580	: 0d 11 0d 10 0d 11 0d 10 0d 11 0d 10 0d 11 0d 11 0d 10
	47ceb5a0	: 19 0f 0c 0f 0c 10 0c 0e 0c 0f 0c 0f 0c 0f 0c 0f 0c 0e
	47ceb5c0	: 0c 0f 0c 0f 0c 0f 0c 0e 0c 0f 0c 0f 0c 0f 0c 0f 0c 0e
	47ceb5e0	: 0c 0f 0c 0f 0c 0f 0c 0e 0c 0f 0c 0f 0c 0f 0c 0f 0c 0e
	47ceb600	: 0c 0f 0c 10 0c 10 0c 0f 0c 0f 0c 0f 0c 0f 0c 10 0c 0f
	47ceb620	: 0c 10 0c 0f 0c 0f 0c 0f 0c 0f 0c 10 0c 0f 0c 10 0c 0f
	47ceb640	: 0c 0f 0c 10 0c 0f 0c 0e 0c 0f 0c 0f 0c 0f 0c 0f 0c 0e
	47ceb660	: 0c 0f 0b 0e 0b 0f 0c 0e 0c 0f 0c 0f 0c 10 0c 0f 0c 0e
	47ceb680	: 0c 0f 0c 0f 0b 0f 0c 0e 0c 0f 0b 0f 0b 0e 0b 0e 0b 0d
	47ceb6a0	: 0b 0e 0b 0e 0a 0e 0a 0d 0b 0e 0a 0d 0a 0d 0b 0d 0b 0d
	47ceb6c0	: 0b 0e 0b 0e 0b 0e 0b 0d 0b 0e 0b 0e 0b 0e 0b 0e 0b 0d
	47ceb6e0	: 0b 0e 0b 0e 0b 0f 0b 0d 0b 0f 0b 0f 0c 0f 0c 0f 0c 0e
	47ceb700	: 0c 0f 0c 0f 0b 0f 0c 0e 0c 0f 0c 0f 0c 0f 0c 0f 0c 0e
	47ceb720	: 0b 0f 0c 0f 0c 0f 0c 0e 0c 0f 0c 0f 0c 0f 0c 0f 0c 0e
	47ceb740	: 0c 10 0c 0f 0c 12 0a 0c 1a 10 0d 10 0d 10 0d 10 0d 0f
	47ceb760	: 0d 10 0d 10 0d 10 0d 0f 0d 10 0d 10 0d 10 0d 10 0d 0f
	47ceb780	: 0d 10 0d 10 0d 10 0d 0f 0d 10 0d 10 0d 10 0d 10 0d 0f
	47ceb7a0	: 0d 10 0d 10 0d 10 0d 0f 0d 10 0d 11 0d 11 0d 10 0d 0f
	47ceb7c0	: 0d 10 0d 10 0d 11 0d 10 0d 10 0d 10 0d 10 0d 10 0d 0f

	47ceb800	: 0d 10 0d 10 0d 10 0c 0f 0b 0e 0b 0f 0b 0e 0b 0f 0b 0e
	47ceb820	: 0d 10 0c 10 0d 10 0c 0f 0b 0e 0b 0f 0b 0e 0b 0f 0b 0e
	47ceb840	: 0d 10 0c 10 0c 0f 0b 0e 0b 0f 0b 0e 0b 0f 0b 0e
	47ceb860	: 0b 0e 0b 0e 0a 0e 0b 0e 0b 0f 0b 0f 0c 0f 0c 0e

Scanning Compensation Data List

### 1.3.4 ADF Performance Test (Maintenance mode 08)

#### < Function >

The function 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 on the ADF unit.

The "ADF. READY" appears on the LCD.

- (2) Press the **0** and **8** keys in this order in the initial stage of the maintenance mode.

The machine feeds the documents in and out while counting them and displaying "ADF CHECK P.\*\*" on the LCD. (\*\* shows the current count.)

- (3) Press the **Stop** key to return the machine to the initial stage of the maintenance mode.

**Note:** If no document is set on the ADF, the machine displays "NO DOCUMENT" on the LCD and returns to the initial stage of the maintenance mode.

### 1.3.5 Printout of Test Pattern (Maintenance mode 09)

#### < Function >

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

If any print quality problem is found, use [Section 1.3.29 "Purge Operation \(Maintenance mode 76\)"](#) to perform head cleaning.

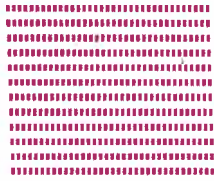
#### < Operating Procedure >

- (1) Press the **0** and **9** keys in this order in the initial stage of the maintenance mode.

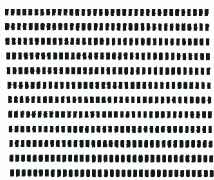
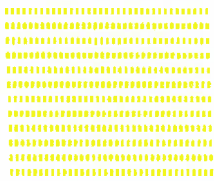
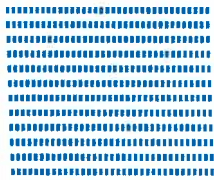
The machine displays "PRINTING" on the LCD and prints out a test pattern.

If no recording paper is loaded in the paper tray, printing will be canceled.

- (2) Upon completion of printing, the machine returns to the initial stage of the maintenance mode.



S/N : U63310B2F000182



**Test Pattern**

### 1.3.6 Worker Switch Setting and Printout (Maintenance modes 10 and 11)

#### [ 1 ] Worker switch setting (Maintenance mode 10)

##### < Function >

The worker switch functions (listed below) customize the machine to meet various needs. They can be activated with the procedures using the control panel keys.

The worker switches have been configured at the factory in conformity to the communications standards and codes of each country. Do not disturb them unless necessary.

#### List of Worker Switches

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	<b>Redial/Pause</b> 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
WSW38	V.34 transmission setting
WSW39	V.34 transmission speed

WSW No.	Function
WSW40	V.34 modem settings
WSW41	ON-duration of the scanning light source
WSW42	Internet mail settings
WSW43	Function setting 16
WSW44	Speeding up scanning-1
WSW45	Speeding up scanning-2
WSW46	Monitor of power ON/OFF state and parallel port kept at high
WSW47	Switching between high- and full-speed USB
WSW48	USB setup latency
WSW49	End-of-copying beep
WSW50	SDAA settings
WSW51	Function setting 17
WSW52	Function setting 18
WSW53	Function setting 19
WSW54	Function setting 20
WSW55	Execution interval switching of developing bias voltage correction
WSW56	Function setting 21
WSW57	Function setting 22
WSW58	Function setting 23
WSW59	Function setting 24
WSW60	Function setting 25
WSW61	Scanning light intensity stability judgement 1
WSW62	Scanning light intensity stability judgement 2
WSW63	Function setting 26

For details about the worker switches, refer to the document separately issued.

### < Operating Procedure >

- (1) Press the **1** and **0** keys in this order in the initial stage of the maintenance mode.

The machine displays the "WSW00" on the LCD.

- (2) Enter a worker switch number to be modified.

The following appears on the LCD:

Selector 1      Selector 8  
                   ↓                   ↓  
 WSWXX = 0 0 0 0 0 0 0

- (3) Press the ◀ or ▶ key to move the cursor to the selector position to be modified. Press the **0** or **1** key to change the setting.
- (4) Press the **SET** key. This operation saves the newly entered selector values onto the EEPROM and readies the machine for accepting a worker switch number ("WSW00").
- (5) Press the **Stop** key to return the machine to the initial stage of the maintenance mode.

**Notes** • To cancel the setting and return to the initial stage of the maintenance mode, press the **Stop** key.

- If there is a pause of more than one minute after a single-digit number is entered for double-digit firmware switch numbers, the machine automatically returns to the initial stage of the maintenance mode.












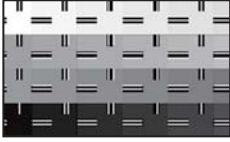




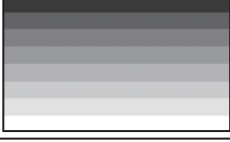
### 1.3.7 Operational Check of LCD (Maintenance mode 12)

#### < Function >

This function checks 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.
- (2) Each time you press the **#** or **▼** key, the LCD cycles through the screens as shown below  
 Pressing the **\*** or **▲** key goes back to the immediately preceding screen.  
 When Screen 13 displays, pressing the **#** or **▼** key switches to Screen 1.
- (3) Press the **X** key in any process of the screen cycle to return the machine to the initial stage of the maintenance mode.

<u>Screen 1</u> Completely blank 	<u>Screen 8</u> Red stepwise 
<u>Screen 2</u> All black 	<u>Screen 9</u> Green stepwise 
<u>Screen 3</u> All gray 	<u>Screen 10</u> Blue stepwise 
<u>Screen 4</u> All red 	<u>Screen 11</u> Stroke detection 
<u>Screen 5</u> All green 	<u>Screen 12</u> All gray 
<u>Screen 6</u> All blue 	<u>Screen 13</u> Image data 
<u>Screen 7</u> White stepwise 	

### 1.3.8 Operational Check of Keys on Control Panel (Maintenance mode 13)

#### < Function >

This function checks the keys on the control panel 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" appears on the LCD.

- (2) Press the keys on the control panel in the order designated in the illustration shown below.

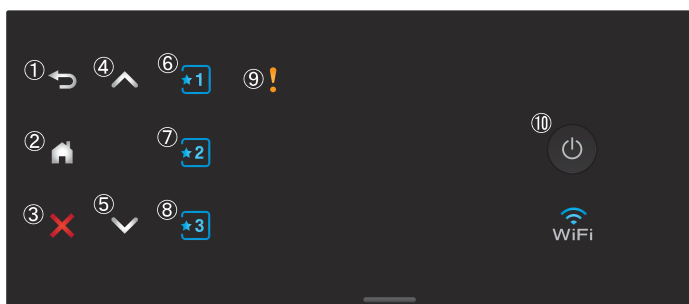
Each time a key is pressed, the LCD shows the corresponding number in decimal notation. Check that the number assigned to the pressed key matches the number shown on the LCD.

If a key is pressed out of order, "INVALID OPERATE" appears on the LCD. Press the **Stop** key and then press the correct key.

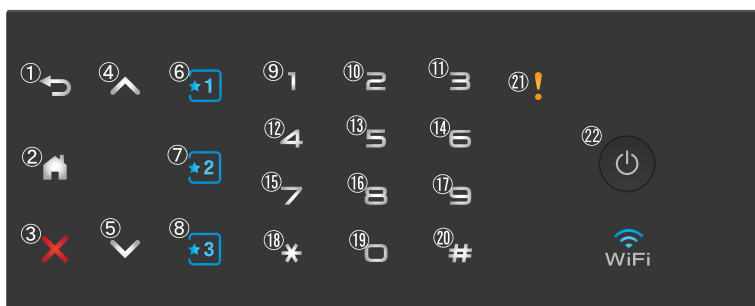
- (3) After the last number key is pressed in the correct entry procedure, the machine returns to the initial stage of the maintenance mode.

To terminate this operation halfway through the procedure and return to the initial stage of the maintenance mode, press the **Cancel** key.

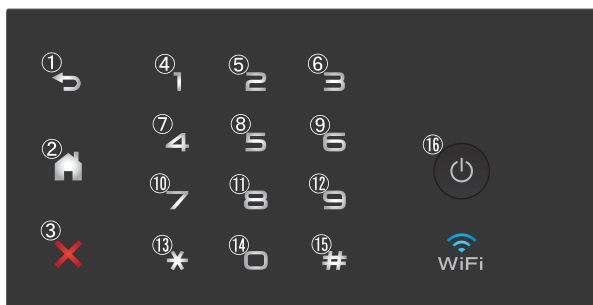
#### DCP-J4110DW



#### MFC-J2310/J4310DW/4410DW/4610DW



#### MFC-J2510/J4510DW/4710DW



### 1.3.9 EEPROM Dump and Log Information Saving (Maintenance mode 17)

#### < Function >

The EEPROM dump function transfers the EEPROM settings made in the machine to another machine as fax data.

The log information transfer function outputs user's log information (e.g., panel operation) and machine's operation log information to a USB flash memory to save it as a CSV file.

#### < Operating Procedure >

##### EEPROM dumping

- (1) Let the end user make a call to the destination machine to which he/she should transfer the EEPROM settings as fax data.
- (2) If the line is connected, instruct the end user to:
  - 1) Switch his/her machine to the end user-accessible maintenance mode.
  - 2) Press the **1** and **7** keys in this order.
  - 3) Press the **1** key.

The machine starts transferring the EEPROM settings to the destination machine as fax data.

##### Log information saving

Instruct the end user to:

- (1) Switch his/her machine to the end user-accessible maintenance mode.
- (2) Press the **1** and **7** keys in this order.
- (3) Insert a USB flash memory to his/her machine and press the **1** key.

The machine saves the log information in the USB flash memory as a CSV file.

### 1.3.10 Updating of Firmware Using an External Memory (Maintenance mode 28)

#### < Function >

This function updates firmware stored in the flash ROM on the main PCB using an external memory (memory card or USB flash memory). It enables updating of firmware without connecting the machine to a PC.

**TIP:** For instructions on how to update firmware when the main PCB has been replaced or for operations using a PC, refer to [Chapter 4, Section 1.3](#).

#### < Operating Procedure >

- (1) Switch your PC ON and insert an external memory.
- (2) Create a folder named "BROTHER" in the top layer of the external memory's directory and copy the firmware file having the extension ".pjl" into that folder.

**Note:** Before copying, check that the firmware file name having the extension ".pjl" matches your machine. The number of files having the extension ".pjl" in the "BROTHER" folder should be 100 or less.

**Tip:** If a firmware file not matching the machine is used, the firmware cannot be updated, but note that you can superficially continue the operation until step (5) below without any error.

- (3) Remove the external memory from the PC and insert it into the machine in the initial stage of the maintenance mode.

**Note:** Do not insert more than one external memory at a time.

- (4) On the machine, press the **2** and **8** keys in this order.

The file name "\*\*\*\*\*.Pjl" appears on the LCD.

- (5) Press the **▲** or **▼** key to select the target firmware file.

- (6) Press the **Mono Start** key.

"Receiving Data" appears on the LCD, and after a while, it changes to "Program Updating."

**Note:** Never remove the external memory from the machine when updating is in progress.

- (7) Updating will complete in a few minutes, and the machine automatically restarts and returns to the standby state.

Remove the external memory from the machine and store it in a safe place.

**Note 1:** If any of the error messages listed below appears, press the **Stop** key, and the machine returns to the initial stage of the maintenance mode.

Error Message	Cause
Card is used	The external memory is being used by another operation.
Insert Card	No external memory is inserted.
No file	Invalid file name or no "BROTHER" folder exists.
Card Error	External memory defective

**Note 2:** After the completion of firmware updating, a file named "mfu-send.log" (which stores the execution log) is created in the layer right below the "BROTHER" folder.

### 1.3.11 Sensor Operational Check (Maintenance mode 32)

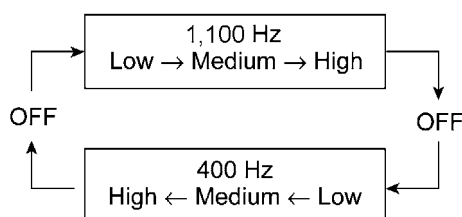
#### < Function >

This function checks whether sensors work normally.

#### < Operating Procedure >

- (1) Press the **3** and **2** keys in this order in the initial stage of the maintenance mode.

The machine sounds 1,100 Hz and 400 Hz tones cyclically through the following volumes for testing the speaker:



**Note:** To stop beeping, press the **SET** key.

If the sensing statuses are as defined below, the LCD shows the 1st sensor group "DFDRCVRSCCP1\*\*AC."

- (2) Press the **Mono Start** key to switch to the next sensor group.

If asterisks (\*\*) appear on the LCD, it means that the corresponding sensor does not exist on the model.

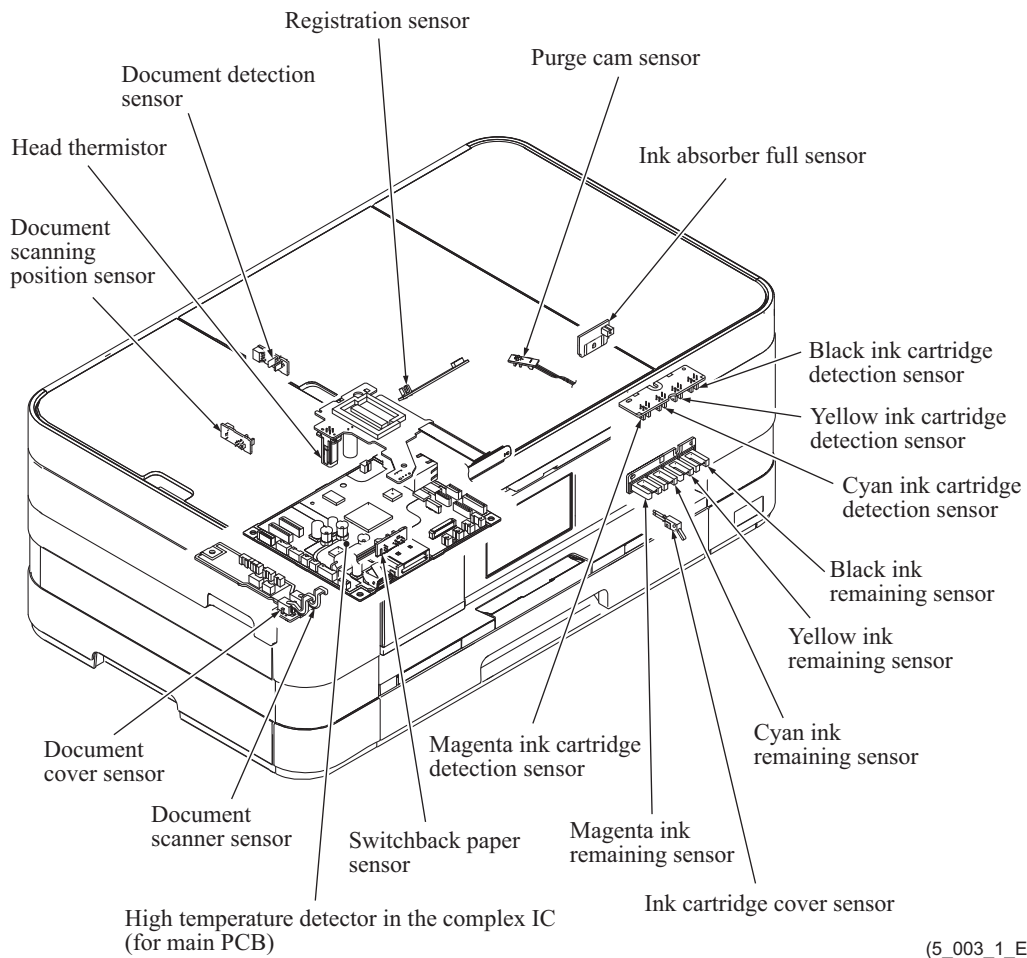
Given below is the relationship between the LCD indication, sensor name and sensor status.

LCD	Sensors	Sensing status (display/no display)
DF	Document detection sensor	No document/Document present
DR	Document scanning position sensor	No document/Document present
CV	Document scanner sensor	Cover closed/Cover opened
RS	Registration sensor	No recording paper/Recording paper present
CC	Ink cartridge cover sensor	Cover closed/Cover opened
P1	Purge cam sensor	Origin/Out of origin
DS	DS cover sensor	*Not existing.
IK	Black ink cartridge detection sensor	Cartridge present/No cartridge
IY	Yellow ink cartridge detection sensor	Cartridge present/No cartridge
IC	Cyan ink cartridge detection sensor	Cartridge present/No cartridge
IM	Magenta ink cartridge detection sensor	Cartridge present/No cartridge
EK	Black ink remaining sensor	Ink present/No ink
EY	Yellow ink remaining sensor	Ink present/No ink
EC	Cyan ink remaining sensor	Ink present/No ink
EM	Magenta ink remaining sensor	Ink present/No ink
PP	Switchback paper sensor	No recording paper/Recording paper present
HF	Ink absorber full sensor	Less than ink near FULL/Ink rear FULL

LCD	Sensors	Sensing status (display/no display)
FC *1	Document cover sensor	Cover closed/Cover opened
VT	Head thermistor	Normal temperature/Abnormal temperature
T1	High temperature detector in the complex IC (for main PCB)	Normal temperature/Abnormal temperature

\*1 Exclusive to duplex scanning models

- (3) Change the detecting conditions (e.g., insert paper through the registration sensor, open the ink cartridge cover or document scanner, or remove the ink cartridges), and then check that the indication on the LCD changes according to the sensor states.
- (4) Press the **X** key to stop this operation and return the machine to the initial stage of the maintenance mode.



**Locations of Sensors and Actuators**

### **1.3.12 Printout of Dial Log (Maintenance mode 37)**

#### **< Function >**

This function outputs a list of telephone numbers dialed.

#### **< Operating Procedure >**

- (1) In the initial stage of the end user-accessible maintenance mode, press the **3** and **7** keys in this order.

The machine displays "PRINTING" on the LCD and prints out a list of dial log.



### 1.3.13 Backup of Machine Information (Maintenance mode 46)

#### < Function >

This procedure backs up the machine information and user setting information into an external memory (memory card or USB flash memory) and restores it when necessary.

- Machine information (Preset values, count values, error information, machine specifications data, etc.)
- User setting information (Telephone directory, password, station ID, transfer information, telephone area code, user settings, etc.)
- Other data (Received fax data, ICM/OGM data, etc.)

Note that the following information cannot be backed up.

- Serial number of the machine
- MAC address
- Call and caller ID records
- Activity report
- Fax data to be sent (by delayed-timer, redialing, and polling)
- Head calibration data

**Note:** The user can use the backup and restoration (given on the next page) procedures, except "Import all" in the restoration procedure.

**Note:** An external memory (memory card or USB flash memory) for backup should have a free space larger than the RAM size of the machine.

**Note:** When performing this procedure for any other machine with the same external memory, delete the data previously stored in the external memory.

**Note:** Do not use a Memory Stick; using it may fail to transfer data correctly.

#### < Operating Procedure >

##### **Backup Procedure**

- (1) On the PC, create a "Brother" folder in an external memory to be used for saving backup data.
- (2) Insert the external memory into the slot of the machine in the initial stage of the maintenance mode.

The "\*\*\*\* Active" appears on the LCD. ("\*\*\*\*" shows the name of the external memory inserted.)

**Note:** Do not insert more than one external memory at a time.

**Note:** If the external memory inserted already contains backup data of the same model, the existing data will be overwritten with new data.

- (3) Press the **4** and **6** keys in this order.

The "Export to Card" appears on the LCD.

- (4) Press the **Mono Start** key.

The "\*\*\*\*\*.msd" appears on the LCD. The "\*\*\*\*\*" is unique to each model.

- (5) Press the **Mono Start** key.

The "Export to Card" appears again on the LCD.

- (6) Press the **Mono Start** key.

The "Please wait" appears on the LCD.

**Note:** Never remove the external memory from the machine when exporting is in progress.

**Note:** If this procedure has been started with the user-access, the machine returns to the standby state after showing the "Please wait" on the LCD.

- (7) Wait for the machine to automatically return to the initial stage of the maintenance mode and show "\*\*\*\*\* Active" on the LCD.

Remove the external memory from the machine and keep it in a safe place.

**NOTE:** If any of the error messages listed below appears, press the **Stop** key, and the machine returns to the initial stage of the maintenance mode.

Error Message	Cause
Card is used	The external memory is being used by another operation.
Insert Card	No external memory is inserted.
No file	File name is invalid or no "BROTHER" folder exists.
Card Error	External memory failure.
Machine ID Error	Mismatch of serial numbers between the machine and the backup data (which is detected only in data restoration).
Write Error	Insufficient free space in external memory.

### **Restoration Procedure**

- (1) Insert the external memory containing the backup data into the slot of the machine in the initial stage of the maintenance mode.

The "\*\*\*\*\* Active" appears on the LCD. ("\*\*\*\*\*" shows the name of the external memory inserted.)

**Note:** Do not insert more than one external memory at a time.

**Note:** If the serial number in the backup data stored in the external memory does not match that of the machine, data restoration cannot be performed.

- (2) Press the **4** and **6** keys in this order.

The "Export to Card" appears on the LCD.

- (3) Press the **▲** or **▼** key until the desired item, any of the following, appears on the LCD.

"Import from Card" for restoring only user setting information

"Import all" for restoring all backup data including machine information

- (4) Press the **Mono Start** key.

The "\*\*\*\*\*.msd" appears on the LCD. The "\*\*\*\*\*" is unique to each model.

- (5) Press the **Mono Start** key.

The "Import from Card" or "Import all" appears on the LCD again.

- (6) Press the **Mono Start** key.

The "Please wait" appears on the LCD.

**Note:** Never remove the external memory from the machine when importing is in progress.

- (7) Wait for the machine to automatically return to the initial stage of the maintenance mode and show "\*\*\*\* Active" on the LCD.

Remove the external memory from the machine and keep it in a safe place.

**Note:** If any of the error messages shown in "Backup Procedure" appears, press the **Stop** key to return the machine to the initial stage of the maintenance mode.

### 1.3.14 Setting of Country/Language (Maintenance mode 52)

#### < Function >

Machines have been customized for their destination countries with the corresponding EEPROM customizing codes (see [Section 1.3.27](#), Function code 74). However, some customizing codes are shared by two or more destination countries, so the machines customized by these codes require further specifying individual destination countries or languages.

**Note:** This function applies to "France and surrounding areas," "Pan-Nordic," "Eastern Europe," "Oceania," and "Iberia" only.

#### < Operating Procedure >

- (1) Press the **5** and **2** keys in this order in the initial stage of the maintenance mode.

Wait for the "Press OK key" to appear on the LCD, then press the **SET** key.

- (2) Select the country name of the user with the **▲** and **▼** keys and press the **SET** key to display "1.Yes 2.No."

- (3) If the choice is correct, press **1.Yes**.

The machine displays "ACCEPTED" on the LCD, saves the new setting, and returns to the standby state.

### 1.3.15 Transfer of Received FAX Data and/or Equipment's Log (Maintenance mode 53)

#### < 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.

This function also transfers the activity report, the communications list, and the equipment's log of the machine as fax data.

- Notes**
- 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.
  - 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.

- To check the number of received files, press the **1** key.

The "1.NO. OF JOBS" appears on the LCD.

Press the **SET** key to display the number of received files, just as "NO. OF JOBS: 10."

- 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.

- 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 the last three errors, press the **5** key.

The "5.COM.LIST (ERR3)" appears.

- To transfer the maintenance information (List of Maintenance mode 77), press the **6** key.

The "6.MNT77 LIST" appears.

- To transfer the user setting information, press the **7** key.

The "7.USER SETTINGS" appears.

- To transfer the caller ID history, press the **8** key.

The "8.CALLER ID HIST" appears.

- To transfer the outgoing call history, press the **9** key.

The "9.OUTGOING CALL" appears.

- To transfer the radio wave condition list, press the **0** key.

The "0.WLAN DATA" appears.

- (2) With one of "2.ACTIVITY," "3.DOCUMENTS," "4.COM.LIST (NEW)," "5.COM.LIST (ERR3)," "6.MNT77LIST," "7.USER SETTINGS," "8.CALLER ID HIST," "9.OUTGOING CALL" and "0.WLAN DATA" being displayed, press the **SET** key.

The "ENTER NO&OK" appears on the LCD.

- (3) Enter the telephone number of the receiver machine and press the **SET** key again.
- (4) The machine displays the "ACCEPTED" for approx. two seconds and starts dialing to transfer data.

- Notes**
- Be sure to type the telephone number with the numerical keys. No auto-dial numbers stored in memory can be used in this procedure.
  - No station ID will be attached. A cover page and end page as shown below will be automatically attached, instead.

Cover page sample

=== FAX TRANSFER COVER PAGE ===		
NO. OF JOBS	:001	← Job number for identification
TOTAL PAGE[S]	:001	← Total number of pages to be transferred
NAME	:BROTHER	← Station ID registered in the sender equipment
FAX	:052 824 2330	← FAX number of the sender equipment
TEL	:	← Telephone number of the sender equipment
TIME	:06/06/2010 22:21	← Transfer start date
8C5-E67		← Model code
B0403261602		← Boot ROM info
U0404221449 VER.0		← ROM info
G01234567890		← Serial number

End page sample

=== FAX TRANSFER END PAGE ===		
NO. OF JOBS	:001	← Job number for identification
TOTAL PAGE[S]	:001	← Total number of pages to be transferred
NAME	:BROTHER	← Station ID registered in the sender equipment
FAX	:052 824 2330	← FAX number of the sender equipment
TEL	:	← Telephone number of the sender equipment
MACHINE STATUS 1	AF:0906062216	} Error codes
MACHINE STATUS 2	43:0906062216	
MACHINE STATUS 3	48:0906022216	
MACHINE STATUS 4	AF:0906062017	
MACHINE STATUS 5	43:0906062017	
MACHINE STATUS 6	48:0906062017	
MACHINE STATUS 7	AF:0906061756	
MACHINE STATUS 8	43:0906061756	
MACHINE STATUS 9	48:0906061756	

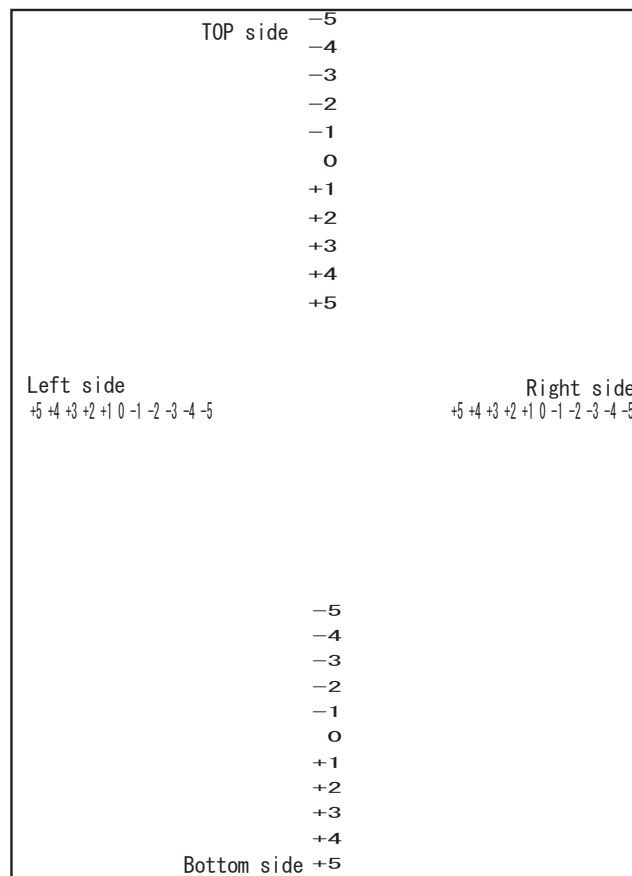
### 1.3.16 Fine Adjustment of Scanning Position (Maintenance mode 54)

#### < Function >

This function adjusts the scanning start and end positions of ADF.

#### < Operating Procedure >

- (1) Press the **5** and **4** keys in this order in the initial stage of the maintenance mode.  
Simplex scanning models: The "SCAN ADJ SELECT" appears on the LCD. Go to step (3).  
Duplex scanning models: The "0: FRONT 1: BACK" appears on the LCD.
- (2) To adjust the first side scanning position, press the **0** key. The "SCAN START ADJ." appears on the LCD.  
To adjust the second side scanning position, press the **1** key. The "SCAN START ADJ." appears on the LCD.
- (3) To adjust the right and left edges, press the **0** key. The "RL EGDE \*\*" appears on the LCD.  
To adjust the top edge, press the **1** key. The "TOP EGDE \*\*" appears on the LCD.  
To adjust the bottom edge, press the **2** key. The "BOTM EGDE \*\*" appears on the LCD.
- (4) Enter the correction value (in units of 0.1 mm) multiplied by 10.  
To increase the value by 10 (1.0 mm), press the **▲** key; to decrease it, press the **▼** key. To increase the value by 1 (0.1 mm), press the **▶** key; to decrease it, press the **◀** key.  
**Note:** Pressing the **CLR** key resets the correction value to 0.  
**Note:** Pressing the **Stop** key returns the machine to the initial stage of the maintenance mode without making changes of the correction value.
- (5) Upon completion of adjustment, press the **SET** key. The machine displays the "ACCEPTED" on the LCD and returns to the initial stage of the maintenance mode.



### 1.3.17 Acquisition of White/Black Level Data and CIS Scanner Area Setting (Maintenance mode 55)

#### < Function >

This procedure allows the machine to obtain white/black level data for the CIS scanner and save it together with the CIS 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.  
If any error has occurred in the machine, the "ME STATE STOP" appears on the LCD.  
If no error has occurred in the machine, the machine automatically goes to step (2).
- (2) The machine displays the "SCANNER AREA SET" on the LCD and obtains white level data.
- (3) After a few seconds, the machine saves the white/black level data and scanning width correction into the EEPROM and returns to the initial stage of the maintenance mode.

If any error is detected during this operation, the LCD shows the following message.

Simplex scanning models "SCANNER ERROR"

Duplex scanning models "ERR FB:\*\*/ADF:\*\*"

Asterisks in "FB:\*\*" show an error code for the first side scanning CIS and those in "ADF:\*\*," an error code for the second side scanning CIS.

Error codes	Contents
90	Abnormal digital conversion data detected
91	Abnormal digital conversion data detected
92	Abnormal light intensity data detected
93	Abnormal white level data obtained
94	Abnormal black level data obtained
95	Scanner cover is open
9A	Failed to adjust the light intensity
9B	Failed to obtain white/black level data

To return the machine to the initial stage of the maintenance mode, press the **Stop** key.

### 1.3.18 Cartridge IC Communication Check (Maintenance mode 57)

#### < Function >

This function checks the applicable cartridge, color information, destination, size and data version in the IC chip built in an ink cartridge.

#### < Operating Procedure >

- (1) Press the **5** and **7** keys in this order in the initial stage of the maintenance mode.

The "IC ACT ALL" appears on the LCD.

To check whether the cartridge is applicable, press the **1** key. The "IC ACT ALL" appears on the LCD.

To check the color information of the cartridge, press the **2** key. The "IC COL ALL" appears on the LCD.

To check the destination of the cartridge, press the **3** key. The "IC AREA ALL" appears on the LCD.

To check the cartridge size, press the **4** key. The "IC SIZE ALL" appears on the LCD.

To check the data version of the cartridge, press the **5** key. The "IC VER BLACK" appears on the LCD.

- (2) Select the slot number of the cartridge to be checked, using the ◀ or ▶ key.

ALL: all colors (except MAIN)

BLACK: black

MAGENTA: magenta

CYAN: cyan

YELLOW: yellow

MAIN: IC chip in the machine

**Note:** The color displayed on the LCD indicates not the cartridge color but the cartridge slot color position.

- (3) Press the **Mono Start** key.

If checking is successfully completed, the LCD shows "OK."

If any error is detected, the LCD shows the corresponding error code as shown below. Press the **Stop** key to return the machine to the initial stage of the maintenance mode.

Display	Causes
NG0 to NG99	Failure of IC integrated in the machine
NG100 to NG199	No response from the IC <ul style="list-style-type: none"><li>• Ink cartridge not loaded</li><li>• No IC in the ink cartridge</li><li>• IC contact defective</li></ul>
NG200 to NG299	Wrong response result from the IC <ul style="list-style-type: none"><li>• Cartridge defective</li></ul>
NG300 to NG399	Succeeded in verifying IC, but the information judged as mismatching <ul style="list-style-type: none"><li>• Loading mistake</li></ul>



### 1.3.19 Updating of Paper Feeding Correction Values (Maintenance mode 58)

#### < Function >

To match the paper feeding amount with the head nozzle pitch, the machine optimizes the rotations of the paper feed roller and paper ejection roller, using the correction values stored in the EEPROM on the main PCB.

If you replace the head/carriage unit or main PCB or remove the engine-related parts, you need to update the paper feeding correction values according to the procedure given below.

#### < Operating Procedure >

##### For printout of test patterns

- (1) On your PC, when using A4-sized paper, save copies of "pfadj1\_A4\_BHS13.prn" and "pfadj2\_A4\_BHS13.prn" to a USB flash memory or SD card. When using letter-sized paper, save copies of "pfadj1\_LTR\_BHS13.prn" and "pfadj2\_LTR\_BHS13.prn."
- (2) Use [Section 1.3.21 "Printout of PRN/JPEG Files in Memory Card \(Maintenance mode 61\)"](#) to print test patterns.

**Tip:** The test patterns can also be printed by opening "Filedrgs" on your PC and dragging & dropping the above adjustment files onto the Brother Maintenance USB Printer driver icon.

##### For adjustment of all paper feeding correction values

- (1) Press the **5** and **8** keys in this order in the initial stage of the maintenance mode.  
The "Select 58?" appears on the LCD.
- (2) Press the **Mono Start** key.  
The "1. ALL" appears on the LCD.
- (3) Press the **1** key.  
The "PF\_ONLY NO. +0" appears on the LCD.
- (4) On the pfadj1 pattern (see [page 5-38](#)), check the PF0 row of blocks. Select the block that is the least uneven print and enter the block number.  
For example, if the number of the least uneven block is +4, press the **4** key with the "PF\_ONLY NO. +0" being displayed on the LCD. If the number is -4, press the **▼** key to display the "PF\_ONLY NO. -0" and press the **4** key. Then press the **SET** key.
- (5) The "PF1 NO. +0" appears on the LCD.
- (6) On the pfadj1 pattern (see [page 5-38](#)), check each of the PF1 through PF6 rows sequentially. First, on the PF1 row, select the block that is the least uneven print and enter the block number. Then press the **SET** key.
- (7) In the same way, enter the number of the least uneven block for each of PF2 through PF6, and then press the **SET** key.  
The "EXT NO. +0" appears on the LCD.
- (8) On the pfadj1 pattern (see [page 5-38](#)), check the EXIT row of blocks. In the same way as in step (4), enter the number of the block that is the least uneven print and then press the **SET** key.  
The "LF300 NO. +0" appears on the LCD.

- (9) On the pfdj2 pattern (see [page 5-39](#)), check the LF300 row of blocks. In the same way as in step (4), enter the number of the block that is the least uneven print and then press the **SET** key.

The "CORFEED NO. +0" appears on the LCD.

- (10) On the pfdj2 pattern (see [page 5-39](#)), check the CORF row of blocks. Enter the number of the block that is the least uneven print and then press the **SET** key.

Press the **STOP** key to return the machine to the initial stage of the maintenance mode.

#### For the PF roller diameter adjustment

- (1) Press the **5** and **8** keys in this order in the initial stage of the maintenance mode.

The "Select 58?" appears on the LCD.

- (2) Press the **Mono** key.

The "1. ALL" appears on the LCD.

- (3) Press the **▶** key once.

The "1. PF 2. EXIT" appears on the LCD.

- (4) Press the **1** key.

The "PF1 NO. +0" appears on the LCD.

- (5) On the pfdj1 pattern (see [page 5-38](#)), check the PF1 row of blocks. In the same way as in step (4) of the adjustment of all paper feeding correction values, enter the number of the block that is the least uneven print and then press the **SET** key.

- (6) In the same way, check each of the PF2 through PF6 rows. Enter the number of the block that is the least uneven print and press the **SET** key.

Press the **STOP** key to return the machine to the initial stage of the maintenance mode.

#### For the paper ejection roller diameter adjustment

- (1) Press the **5** and **8** keys in this order in the initial stage of the maintenance mode.

The "Select 58?" appears on the LCD.

- (2) Press the **Mono** key.

The "1. ALL" appears on the LCD.

- (3) Press the **▶** key once.

The "1. PF 2. EXIT" appears on the LCD.

- (4) Press the **2** key.

The "EXT NO. +0" appears on the LCD.

- (5) On the pfdj1 pattern (see [page 5-38](#)), check the EXIT row of blocks. In the same way as in step (4) of the adjustment of all paper feeding correction values, enter the number of the block that is the least uneven print and then press the **SET** key.

Press the **STOP** key to return the machine to the initial stage of the maintenance mode.

#### For the LF resolution 300 adjustment

- (1) Press the **5** and **8** keys in this order in the initial stage of the maintenance mode.  
The "Select 58?" appears on the LCD.
- (2) Press the **Mono Start** key.  
The "1. ALL" appears on the LCD.
- (3) Press the **▶** key twice.  
The "1. LF300" appears on the LCD.
- (4) Press the **1** key.  
The "LF300 NO. +0" appears on the LCD.
- (5) On the pfadj2 pattern (see [page 5-39](#)), check the LF300 row of blocks. In the same way as in step (4) of the adjustment of all paper feeding correction values, enter the number of the block that is the least uneven print and then press the **SET** key.  
Press the **STOP** key to return the machine to the initial stage of the maintenance mode.

#### For the PF roller alone adjustment

- (1) Press the **5** and **8** keys in this order in the initial stage of the maintenance mode.  
The "Select 58?" appears on the LCD.
- (2) Press the **Mono Start** key.  
The "1. ALL" appears on the LCD.
- (3) Press the **▶** key three times.  
The "1. PF\_ONLY" appears on the LCD.
- (4) Press the **1** key.  
The "PF\_ONLY NO. +0" appears on the LCD.
- (5) On the pfadj1 pattern (see [page 5-38](#)), check the PF0 row of blocks. In the same way as in step (4) of the adjustment of all paper feeding correction values, enter the number of the block that is the least uneven print and then press the **SET** key.  
Press the **STOP** key to return the machine to the initial stage of the maintenance mode.

#### For corrugation feed adjustment

- (1) Press the **5** and **8** keys in this order in the initial stage of the maintenance mode.  
The "Select 58?" appears on the LCD.
- (2) Press the **Mono Start** key.  
The "1. ALL" appears on the LCD.
- (3) Press the **▶** key four times.  
The "1.COR\_FEED(T2)" appears on the LCD.
- (4) Press the **1** key.  
The "CORFEED NO. +0" appears on the LCD.

- (5) On the pfadj2 pattern (see [page 5-39](#)), check the CORF row of blocks. In the same way as in step (4) of the adjustment of all paper feeding correction values, enter the number of the block that is the least uneven print and then press the **SET** key.

Press the **STOP** key to return the machine to the initial stage of the maintenance mode.

For initialization of adjustment values

- (1) Press the **5** and **8** keys in this order in the initial stage of the maintenance mode.

The "Select 58?" appears on the LCD.

- (2) Press the **Mono Start** key.

The "1. ALL" appears on the LCD.

- (3) Press the **8**, **9**, **5**, and **4** keys in this order.

The machine initializes all paper feeding correction values.

The "CLEAR PF & EXIT" and "1. ALL" appear.

Press the **STOP** key to return the machine to the initial stage of the maintenance mode.

PF0	-8	-6	-4	-2	0	+2	+4	+6	+8	+10
-----	----	----	----	----	---	----	----	----	----	-----

PF1	-8	-6	-4	-2	0	+2	+4	+6	+8	+10
-----	----	----	----	----	---	----	----	----	----	-----

PF2	-8	-6	-4	-2	0	+2	+4	+6	+8	+10
-----	----	----	----	----	---	----	----	----	----	-----

PF3	-8	-6	-4	-2	0	+2	+4	+6	+8	+10
-----	----	----	----	----	---	----	----	----	----	-----

PF4	-8	-6	-4	-2	0	+2	+4	+6	+8	+10
-----	----	----	----	----	---	----	----	----	----	-----

PF5	-8	-6	-4	-2	0	+2	+4	+6	+8	+10
-----	----	----	----	----	---	----	----	----	----	-----

PF6	-8	-6	-4	-2	0	+2	+4	+6	+8	+10
-----	----	----	----	----	---	----	----	----	----	-----

EXIT	-8	-6	-4	-2	0	+2	+4	+6	+8	+10
------	----	----	----	----	---	----	----	----	----	-----



**pfadj1 Pattern**

\* BHS13 PF2 adJust - Ver 003 001 \*

**pfadj2 Pattern**



### 1.3.20 Checking of CIS Travel and Specifying of CIS Type (Maintenance mode 59)

#### < Function >

This procedure allows you to check the movement of the CIS unit integrated in the document scanner unit. The CIS unit travels to the three positions--the white reference film position, scanning start and end positions.

It also allows you to specify the CIS type into the EEPROM on the main PCB. If you replace the main PCB, you need to specify the CIS type according to the procedure given below.

#### < Operating Procedure >

##### Check the movement of the CIS unit

- (1) Press the **5** and **9** keys in this order in the initial stage of the maintenance mode. The machine displays the "WAIT SCAN INIT" on the LCD, if the scanning initialization is not completed.

Duplex scanning models: The "CIS 1:FB 2:ADF" appears on the LCD. Press the **1** key to display the "1:MO 2:CO 3:CHG?" on the LCD.

Simplex scanning models: The "1:MO 2:CO 3:CHG?" appears on the LCD.

- (2) Press the **1** key to display the "RESO TYPE SET \*" on the LCD.
- (3) Press the **SET** key to display the "LED PWM : \*\*" on the LCD.
- (4) Press the **SET** key to display the "G PULSE : \*\*\*\*" on the LCD.
- (5) Press the **SET** key to display the "1:WHT 2:FRT 3:MV" on the LCD.

Press the **1**, **2**, or **3** key and the **SET** key to move the CIS unit to the white reference film position, the scanning start position, or the scanning end position, respectively.

- (6) Press the **X** key to return the machine to the initial stage of the maintenance mode.

##### Specify the CIS type

- (1) Press the **5** and **9** keys in this order in the initial stage of the maintenance mode. The machine displays the "WAIT SCAN INIT" on the LCD, if the scanning initialization is not completed.

Duplex scanning models: The "CIS 1:FB 2:ADF" appears on the LCD. To specify the type of the first side scanning CIS, press the **1** key; to specify that of the second side scanning CIS, press the **2** key. The "1:MO 2:CO 3:CHG?" appears on the LCD.

Simplex scanning models: The "1:MO 2:CO 3:CHG?" appears on the LCD.

- (2) Press the **3** key.

The "1:AUTO 2:MANUAL" appears on the LCD.

- (3) Press the **1** key.

The machine automatically sets the CIS type and returns to the initial stage of the maintenance mode.

If the completion of automatic setting of the CIS type results in mismatch between the built-in CIS unit and the firmware setting, the "PLS UPDATE PROG" appears on the LCD. If this happens, load the latest firmware.

### 1.3.21 Printout of PRN/JPEG Files in Memory Card (Maintenance mode 61)

#### < Function >

This procedure prints PRN files and JPEG files stored in a memory card supported by PhotoCapture Center.

The following four print modes are available.

- Printing the specified file *once*
- Printing the specified file *repeatedly*
- Printing all PRN/JPEG files *once*
- Printing all PRN/JPEG files *repeatedly*

#### File name requirements

The target files are located in the root directory.

PRN file: Maximum of 16 characters consisting of alphanumerics, underline "\_" and parentheses "()", including the extension .prn

JPEG file: Maximum of 16 characters consisting of alphanumerics, underline "\_" and parentheses "()", including the extension .jpg

The maximum number of files is 999.

#### < Operating Procedure >

- (1) Insert a memory card.
- (2) Press the **6** and **1** keys in this order in the initial stage of the maintenance mode.  
The "MAINTENANCE 61" appears on the LCD.
- (3) To print a PRN file(s), press the **#** key; to print a JPEG file(s), press the **\*** key.  
Files of the selected type appear on the LCD.
- (4) To print the specified file once, select the target file with the **▲/▼** keys and press the **4** key.  
To print the specified file repeatedly, select the target file with the **▲/▼** keys and press the **6** key.  
To print all files of the selected type once, press the **7** key.  
To print all files of the selected type repeatedly, press the **9** key.
- (5) Pressing any of the keys specified above starts printing. Upon completion of printing, the machine returns to the initial stage of the maintenance mode. Pressing the **X** key during repeated printing returns the machine to the state showing the "MAINTENANCE 61" on the LCD.

**Note:** This function is not available when Error Code A\* or B\* occurs.



### 1.3.22 Move of the Head/Carriage Unit to the Adjustment Position (Maintenance mode 63)

#### < Function >

This function moves the head/carriage unit to the adjustment position.

#### < Operating Procedure >

- (1) Press the **6** and **3** keys in this order in the initial stage of the maintenance mode.

The "SELECT 63?" appears on the LCD.

- (2) Press the **Mono Start** key.

The "START 63" appears on the LCD.

- (3) Press the \* key.

The head/carriage unit moves to the adjustment position and the "HEAD ADJ" appears on the LCD.

- (4) After completion of adjustment jobs, press the **X** key.

The head/carriage unit returns to the home position and locks itself, then the machine returns to the initial stage of the maintenance mode.

### 1.3.23 Adjustment of Vertical Print Lines/Software Correction for Inclination/Corrugation/Ruled Lines (Maintenance mode 65)

#### < Function >

This procedure aligns vertical lines printed in the forward and backward directions of the head/carriage unit.

If the head/carriage unit, main PCB, or engine-related parts are replaced, you need to make the adjustment given below.

#### < Operating Procedure >

##### Adjustment of vertical print lines

- (1) Press the **6** and **5** keys in this order in the initial stage of the maintenance mode.  
The "MAINTENANCE 65" appears on the LCD.
- (2) Press the **1** key. The machine displays the "PRINTING" on the LCD and prints the vertical alignment check pattern (see [page 5-45](#)).  
Upon completion of printing, the "A NO. (1-9)" appears on the LCD.
- (3) Check the A row, find which number block shows the most indistinct vertical lines, and then enter that block number.  
The "B NO. (1-9)" appears on the LCD.
- (4) Check the B row, find which number block shows the most indistinct vertical lines, and then enter that block number.  
The "C NO. (1-9)" appears on the LCD.
- (5) Check the C row, find which number block shows the most indistinct vertical lines, and then enter that block number.  
The "D NO. (1-4)" appears on the LCD.
- (6) Check the D row, find which number block shows the most indistinct vertical lines, and then enter that block number.  
The machine saves the adjustment values and automatically returns to the initial stage of the maintenance mode.

**Note:** If the **1** or **9** key is pressed during the above procedure, the machine shows "PRINTING" on the LCD and prints the vertical alignment check pattern again. Go back to step (3) and make adjustments again.

### **Software correction for inclination/corrugation/ruled lines**

- (1) On your PC, save a copy of "Corrugate\_BHS13.prn" into a USB flash memory or SD card.
- (2) Use [Section 1.3.21 "Printout of PRN/JPEG Files in Memory Card \(Maintenance mode 61\)"](#) to print a test pattern (see [page 5-46](#)) on A4- or letter-sized paper.

**Tip:** The test pattern can also be printed by opening "Filedrgs" on your PC and dragging and dropping the above file onto the Brother Maintenance USB Printer driver icon.

- (3) Check blocks (B1) through (B15) on the printed test pattern. If there is no block that shows almost indistinct vertical lines, clean the CR encoder strip and go back to step (2) to make adjustments again.
- (4) Among the test patterns printed, check the D pattern.

If the number of the block in which red color is the least visible is 2, go to step (4).

If the number of the block in which red color is the least visible is 1 or 3, adjust the inclination of the head/carriage unit, referring to [Chapter 4, Section 2.4](#).

- (5) Press the **6** and **5** keys in this order in the initial stage of the maintenance mode.

The "MAINTENANCE 65" appears on the LCD.

- (6) Press the **2** key.

The "A1 No. (1-9) 5" appears on the LCD.

- (7) Check the A1, find which number block shows the most indistinct vertical lines, and then enter that block number. Then press the **SET** key.

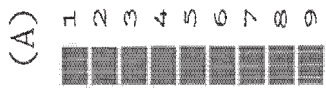
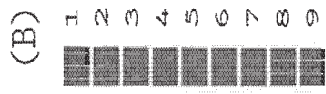
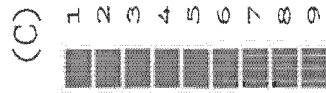
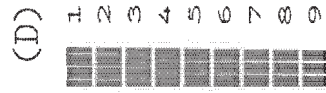
The "A2 No. (1-9) 5" appears on the LCD.

- (8) Wait for the block number to appear for confirmation in the same way. For each of the printed A2, B1 to B15 and C1 to C3, enter the number of the block that shows the most indistinct vertical lines. For the printed D, enter the number of the block in which red color is the least visible. Then press the **SET** key.

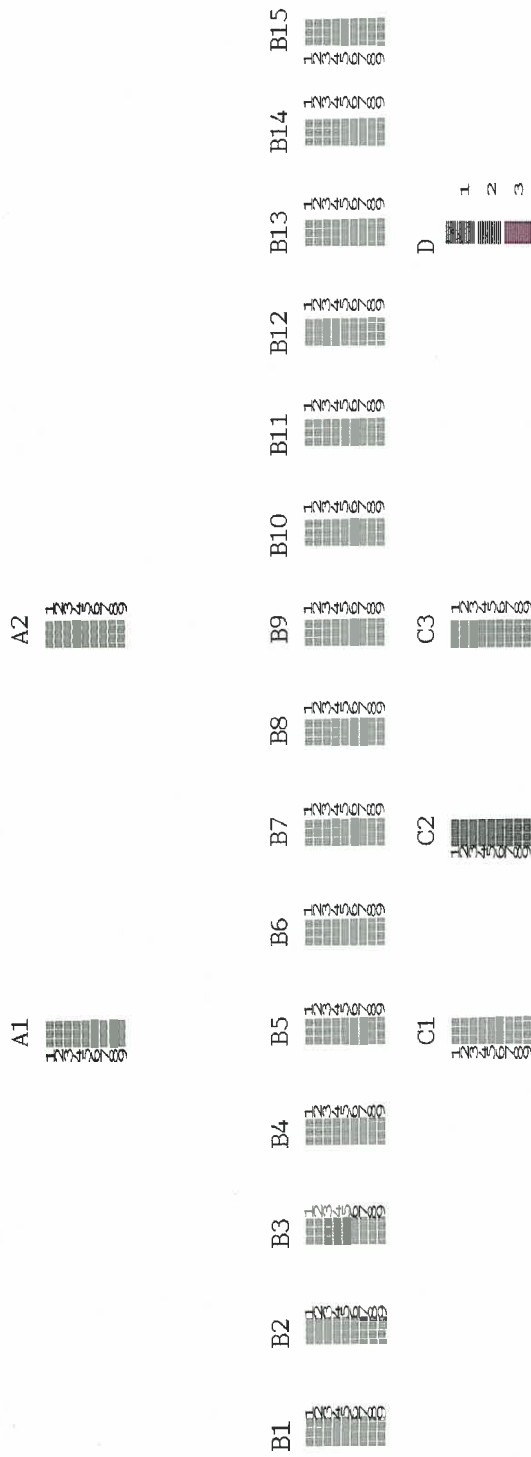
- (9) After entry of the block number for D, the "OK? 1.YES 2.NO" appears on the LCD.

Press the **1** key to save individual adjustment values and return the machine to the initial stage of the maintenance mode.

**Note:** If the entered value for each of A1, A2, C1, C2 and C3 is other than 4 to 6, go back to step (2) after completion of step (9), print software correction for inclination/corrugation/ruled lines check pattern again, and then go to step (5) to make adjustments.



**Vertical Lines Check Pattern**



**Software Correction for Inclination/Corrugation/Ruled Lines Check Pattern**

### 1.3.24 Margin Adjustment in Borderless Printing (Maintenance mode 66)

#### < Function >

This procedure adjusts the left, right and bottom margins for borderless printing. Print out a margin check pattern, measure each margin, and enter the measured values.

If the head/carriage unit or main PCB is replaced or the engine and its related components are disassembled, you need to make the adjustment given below.

#### < Operating Procedure >

- (1) On your PC, when using A4-sized paper, save a copy of "mediaadj\_A4\_BHS13.prn" to a USB flash memory or SD card. When using letter-sized paper, save a copy of "mediaadj\_LTR\_BHS13.prn."

- (2) Use [Section 1.3.21 "Printout of PRN/JPEG Files in Memory Card \(Maintenance mode 61\)"](#) to print test patterns.

**Tip:** The test patterns can also be printed by opening "Filedrgs" on your PC and dragging & dropping the above adjustment file onto the Brother Maintenance USB Printer driver icon.

- (3) Measure the left, right, and bottom margins on the printed pattern.

If each margin is within the range of 2.9 to 3.1 mm, no adjustment is required.

- (4) Press the **6** key two times in the initial stage of the maintenance mode.

Wait for the "SELECT66?" to appear and then press the **Mono Start** key.

The "MEDIA SENSOR ADJ" appears on the LCD.

- (5) Press the \* key to display the "LEFT 1 :30."

Enter the measured upper left margin value "A" multiplied by 10. If the measured left margin is 2.8 mm, for example, press the **2, 8**, and **SET** keys.

The "RIGHT1 :10" appears on the LCD.

- (6) Enter the measured upper right margin value "B" multiplied by 10. If the measured right margin is 3.0 mm, for example, press the **3, 0**, and **SET** keys.

The "LEFT 2 :30" appears on the LCD.

- (7) Enter the measured lower left margin value "C" multiplied by 10. If the measured left margin is 2.9 mm, for example, press the **2, 9**, and **SET** key

The "RIGHT 2 :10" appears on the LCD.

- (8) Enter the measured lower right margin value "D" multiplied by 10. If the measured right margin is 3.1 mm, for example, press the **3, 1**, and **SET** keys.

The machine saves the left and right margin values and returns to the initial stage of the maintenance mode.

- (9) Press the **6** key two times in the initial stage of the maintenance mode.

Wait for the "SELECT66?" to appear and then press the **Mono Start** key.

The "MEDIA SENSOR ADJ" appears on the LCD.

- (10) Press the # key to display the "BOTTOM :30."

Enter the measured bottom margin value "E" multiplied by 10. If the measured bottom margin is 3.5 mm, for example, press the **3, 5**, and **SET** keys.

The machine saves the bottom margin value and returns to the initial stage of the maintenance mode.

- (11) Go back to step (2) and print the margin check pattern again. If each margin is within the range of 2.9 to 3.1 mm, the adjustment is completed.

\* BHS13 CR Adjust - Ver 003 002 \*

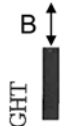
600x2400dpi LEFT  
A



1200dpi LEFT  
C



600x2400dpi RIGHT  
B



1200dpi RIGHT  
D



**Margin Check Pattern**

### 1.3.25 Updating of Head Property Data and Backup/Restoration of Head Calibration Data (Maintenance mode 68)

#### < Function >

Maintenance mode 68 provides two types of procedures--one for updating the head property data and the other for backing up the head calibration data and restoring it.

#### Updating the head property data

To keep the print quality, the machine optimizes the drive conditions of individual head/carriage units according to the head property data.

The property data is stored in the EEPROM on the main PCB and its property code is printed on the property labels attached to the head/carriage unit.

If you replace the head/carriage unit, you need to enter its property code printed on the property label (pasted on the new spare part).

#### Backing up the head calibration data and restoring it

This procedure backs up the head calibration data into an external memory (memory card or USB flash memory) and restores it to the machine.

#### < Operating Procedure >

##### Head Property Data Updating Procedure

- (1) Press the **6** and **8** keys in this order in the initial stage of the maintenance mode.
- (2) Press the **2**, **5**, **8**, and **0** keys in this order.

The current property data stored in the EEPROM appears on the LCD and the machine is ready for entry.

- (3) Check the property label pasted on a new head/carriage unit and enter the property code.

The code to be entered is 10 digits excluding the heading "ALR."



**Tip:** Opening the scanner cover when the machine is on standby and holding down the **X** key for at least 5 seconds moves the head/carriage unit to the center of its travel. This makes it possible to check the property label through the opening.

- (4) After entry of 10-digit code, press the **SET** key.

The machine displays the "INPUT ACCEPTED" on the LCD, writes the entered property code into the EEPROM, and then returns to the initial stage of the maintenance mode.

**Note:** If the entered data contains any checksum error, the machine shows the "Input Error" and becomes ready to accept entry. Go back to step (3).



## Head Calibration Data Backup/Restoration Procedures

### **Backup procedure**

- (1) Press the **6** and **8** keys in this order in the initial stage of the maintenance mode.
- (2) Press the **0**, **6**, **2**, and **6** keys in this order.

The "HeadCalib->Media" appears on the LCD.

- (3) Insert an external memory into the memory slot.
- (4) Press the **SET** or **Mono Start** key.

The machine displays "Now Saving" on the LCD and starts the backup operation.

Upon completion of the backup operation, the machine beeps displays "Head Calib.data" on the LCD and returns to the initial stage of the maintenance mode.

### **Restoration procedure**

- (1) Press the **6** and **8** keys in this order in the initial stage of the maintenance mode.
- (2) Press the **0**, **6**, **2**, and **6** keys in this order.

The "HeadCalib->Media" appears on the LCD.

- (3) Use the > or < key to display "Media->HeadCalib" on the LCD and then press the **SET** key.
- (4) Insert the external memory holding the head calibration data into the memory slot.
- (5) Press the **SET** or **Mono Start** key.

The machine displays "Now Loading" on the LCD and starts the restoration operation.

Upon completion of the restoration operation, the machine displays "Complete" on the LCD and returns to the initial stage of the maintenance mode.

- Notes**
- If the external memory inserted in step (5) holds no head calibration data, the "Can't Open File" appears on the LCD.
  - This procedure should be performed with the USB cable disconnected. If it is performed with the USB cable being connected, disconnect it.

### 1.3.26 Traveling Speed Check of Head/Carriage Unit (Maintenance mode 69)

#### < Function >

This procedure checks whether the traveling speed of the head/carriage unit is within the specified range.

#### < Operating Procedure >

- (1) Press the **6** and **9** keys in this order in the initial stage of the maintenance mode.

The machine shows "CR AGING" on the LCD and starts checking the traveling speed of the head/carriage unit.

In each of travel speeds of 43.3, 26.7 and 21.7 inches/second (ips), the machine checks whether the maximum and minimum traveling speeds of the head/carriage unit are within the specified range.

- If the maximum and minimum speeds in all of the three traveling speeds are within the specified range, the "430 270 210" appears on the LCD
- If any one is out of the range, the machine shows some message, e.g., "430 270 21X" on the LCD. This sample message indicates that the speed variation is within the allowable range when the head/carriage unit travels at 43.3 and 26.7 inches/second; however, it is out of the range at 21.7 inches/second.

- (2) Press the **X** key to return the machine to the initial stage of the maintenance mode.

### 1.3.27 Customizing Destinations (Maintenance mode 74)

#### < Function >

This procedure customizes the machine according to settings of the language, functions, and worker switches.

#### < Operating Procedure >

- (1) Press the **7** and **4** keys in this order in the initial stage of the maintenance mode.  
The "Select 74?" appears on the LCD.
- (2) Press the **Mono Start** key to display the current settings on the LCD.
- (3) Enter the desired customizing code.
- (4) Press the **Mono Start** key to save the new setting and return the machine to the initial stage of the maintenance mode.

If the destination is changed, the "PLS UPDATE PROG" appears on the LCD. Load the latest firmware (refer to [Chapter 4, Section 1.3](#)).

- (5) Pressing the **Stop** key during the above procedure returns the machine to the initial stage of the maintenance mode without saving the customizing code.

**Note:** If no keys are pressed for at least one minute with any display state, the machine automatically returns to the initial stage of the maintenance mode.

#### < Destination Customizing Codes List >

	USA	Canada	Brazil	Argentina	Chile	Germany Austria
DCP-J4110DW	-	-	-	-	-	0003
MFC-J4310DW	0001	0002	0042	0036	0036	-
MFC-J4410DW	0101	0102	-	-	-	0103
MFC-J4510DW	0001	0002	0042	0036	0036	0003
MFC-J4610DW	0201	0202	-	-	-	0203
MFC-J4710DW	0001	0002	-	-	-	0003
MFC-J2310	-	-	-	-	-	-
MFC-J2510	-	-	-	-	-	-

< EEPROM Customizing Codes List >

	UK Ireland	France (France Belgium Holland Others)	Holland	Belgium	Iberia (Spain Portugal)
DCP-J4110DW	0004	0055 (0005/0008/ 0009/0004)	-	-	0065 (0015/0018)
MFC-J4310DW	-	-	-	-	-
MFC-J4410DW	0104	0105	0109	0108	0165 (0115/0118)
MFC-J4510DW	0004	0005	0009	0008	0065 (0015/0018)
MFC-J4610DW	0204	0205	0209	0208	-
MFC-J4710DW	0004	0005	0009	0008	0065 (0015/0018)
MFC-J2310	-	-	-	-	-
MFC-J2510	-	-	-	-	-

	Italy	Switzerland	Pan Nordic (Norway/ Sweden/ Finland/ Denmark)	CEE General
DCP-J4110DW	-	0004	0057 (0007)	0054
MFC-J4310DW	-	-	-	-
MFC-J4410DW	0116	0110	0157 (0107/0126/ 0112/0113)	0154
MFC-J4510DW	0016	0010	0057 (0007/0026/ 0012/0013)	0054
MFC-J4610DW	0216	0210	-	-
MFC-J4710DW	0016	0010	0057 (0007/0026/ 0012/0013)	-
MFC-J2310	-	-	-	-
MFC-J2510	-	-	-	-

The above information is as of July 2012. Please confirm the latest firmware information which is available from your local Brother Customer Service.

< EEPROM Customizing Codes List >

	Israel	Russia	Oceania (Australia/ New Zealand)	Sin/Gulf	HK
DCP-J4110DW	0004	-	0004	-	-
MFC-J4310DW	-	-	-	-	-
MFC-J4410DW	0104	-	0156 (0106/0127)	-	-
MFC-J4510DW	0004	-	0056 (0006/0027)	-	-
MFC-J4610DW	-	-	-	-	-
MFC-J4710DW	-	-	0056 (0006/0027)	-	-
MFC-J2310	-	0348	-	0340	0328
MFC-J2510	-	0148	-	0140	0140

	Indonesia	Korea	Taiwan	China
DCP-J4110DW	-	-	-	-
MFC-J4310DW	-	-	-	-
MFC-J4410DW	-	-	-	-
MFC-J4510DW	-	-	-	-
MFC-J4610DW	-	-	-	-
MFC-J4710DW	-	-	-	-
MFC-J2310	-	0344	0323	-
MFC-J2510	0129	0144	-	0120

The above information is as of July 2012. Please confirm the latest firmware information which is available from your local Brother Customer Service.

### 1.3.28 Move of the Head/Carriage Unit to the Center (Maintenance mode 75)

#### < Function >

This function is used to remove paper particles and dust accumulated between the maintenance unit and head/carriage unit. Using this function moves the head/carriage unit to the center of its travel, allowing you to easily remove the paper particles and dust accumulated.

#### < Operating Procedure >

- (1) Press the **7** and **5** keys in this order in the initial stage of the maintenance mode.

The "PLS OPEN COVER" appears on the LCD.

The head/carriage unit moves to the center of its travel.

- (2) Open the scanner cover.

The "PLS CLOSE COVER" appears on the LCD.

- (3) Remove the paper particles and dust accumulated.

- (4) Close the scanner cover.

The head/carriage unit moves back to the home position and the machine returns to the initial stage of the maintenance mode.

**TIP:** Holding down the **X** key with the document scanner unit opened for at least five seconds can also move the head/carriage unit in the same manner as above.

### 1.3.29 Purge Operation (Maintenance mode 76)

#### < Function >

The machine can carry out several types of purge operations--normal purge, periodical reset purge, power purge, initial purge, user reset purge, and engine setup purge. This function allows you to select the desired purge type and carry it out.

#### < Operating Procedure >

- (1) Press the **7** and **6** keys in this order in the initial stage of the maintenance mode.  
The "CLEANING ALL" appears on the LCD.
- (2) Press the < or > key to display the target color for purge on the LCD.  
"CLEANING ALL": Purge for all four color inks  
"CLEANING BLACK": Purge for black ink  
"CLEANING MAGENTA" / "CLEANING CYAN" / "CLEANING YELLOW": Any color choice performs purge for all three color inks.
- (3) Enter the purge code according to the table on the next page.
- (4) Press the **Mono** key. The LCD displays "Cleaning."  
Upon completion of purging, the machine automatically returns to the initial stage of the maintenance mode.

- Notes**
- Before performing a purge operation, confirm that the ink cartridge that has enough remaining has been installed.
  - This machine counts all purge operations and flushing operations performed since produced in order to prevent the ink absorber box and flushing box from overflowing with drained and flushed ink, respectively. An initial purge, for example, advances by 832. If purges for all four color inks are carried out at the same time, the purge count is not always equal to the total of black and color ink purge counts.
  - When the purge or flushing count reaches the upper limit, the "Unable to Print 46" appears, and further purge or flushing operations are prohibited. Replace the ink absorber box or flushing box and then reset the corresponding count using the procedure given below.

#### ■ Resetting purge or flushing count

- 1) Press the **8** and **0** keys in this order in the initial stage of the maintenance mode to call up the machine's log information. (Maintenance mode 80. Refer to [Section 1.3.32](#) in this chapter.)
- 2) Press the **Mono Start** key several times until the purge or flushing count appears on the LCD.
- 3) Press the **2**, **7**, **8**, and **3** keys in this order to reset the purge or flushing count. The machine automatically returns to the initial stage of the maintenance mode.

**Purge types, ink usage, purge counts, and purge codes**

Purge Types	Description	Ink Usage (ml)	Purge Counts	Purge Codes (to be entered with Maintenance mode 76)
Normal purge (NP)	Purge to be performed by user purge.	COLOR: 1.015 BLACK: 0.334	COLOR: 48 BLACK: 16	1
Periodical reset purge (RP)	Purge to be performed periodically. The cycle varies due to the ambient temperature.	COLOR: 1.375 BLACK: 0.579	COLOR: 65 BLACK: 26	2
Power purge (PP)	Purge to be performed by user purge.	COLOR: 2.45 BLACK: 0.79	COLOR: 113 BLACK: 36	3
Initial purge (uIP)	Purge to be performed automatically immediately after the user purchases the machine.	COLOR: 18.344 BLACK: 4.584	COLOR: 832 BLACK: 228	4
User reset purge (RP3)	Purge to be performed by user purge.	COLOR: 2.201 BLACK: 0.73	COLOR: 101 BLACK: 33	5
Engine setup purge (eIP)	Purge to be performed for refilling the tubes with ink.	COLOR: 18.344 BLACK: 4.584	COLOR: 832 BLACK: 228	6
Periodic expelling purge (RP2)	Purge to be performed periodically. The cycle varies due to the ambient temperature.	COLOR: 0.396 BLACK: 0.396	COLOR: 17 BLACK: 17	7
Periodic suction purge (SP)	Purge to be performed periodically. The cycle varies due to the ambient temperature.	COLOR: 0.294 BLACK: 0.183	COLOR: 14 BLACK: 8	8
Small reset purge (SRP)	Purge to be performed periodically. The cycle varies due to the ambient temperature.	COLOR: 0.504 BLACK: 0.364	COLOR: 20 BLACK: 14	9
Ink replacement purge	(Not to be performed by service personnel)	ALL: 16.355	ALL: 736	0

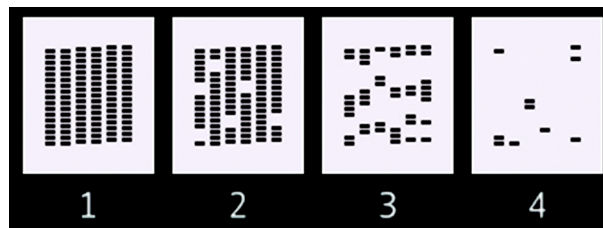
The ink usage and purge count for COLOR are total values of three colors.



### < Recommended purge procedures >

When a print failure occurs due to the non-discharge of ink, make a recovery from the non-discharge in accordance with the recommended procedures below.

- (1) Open the document scanner unit and check if there is ink in the ink supply tubes from the opening of the upper cover.  
If there is ink, go on to the step (3).  
If there is no ink, go on to the step (2).
- (2) Perform Maintenance 76-4 (uIP).  
Check if there is ink in the ink supply tubes again.  
If there is ink, go on to the step (3).  
If there is no ink, replace the maintenance unit and ink refill ASSY.
- (3) Perform Maintenance 76-3 (PP).
- (4) Print the test pattern by performing Maintenance 09.  
If a lot of blocks are missing in the test pattern (pattern 4 in the figure below), perform Maintenance 76-D (CPP).  
If about a half of the blocks are missing (pattern 3 in the figure below), perform Maintenance 76-F (QPP).  
If few blocks are missing (pattern 2 in the figure below), perform Maintenance 76-1 (NP).  
If no blocks are missing (pattern 1 in the figure below), end the operation.



- (5) Repeat the step (4) three times until there is no more missing block in the test pattern.
- (6) If blocks are still missing in the test pattern, leave the machine for 8 hours (if possible), and perform the step (4) again.
- (7) If blocks are still more missing in the test pattern, replace the head/carriage unit.
- (8) Perform Maintenance 76-4 (uIP).
- (9) Repeat the step (4) three times until there is no more missing block in the test pattern.



1	Real-time clock (RTC) check result *4	23	Total page count in duplex printing
2	RTC backup check result *4 OK: Backup completed, NG: Backup failed	24	Printed page count for paper size and paper type in duplex printing *1
3	Model code	25	Total printed label count/Total label jam count
4	Country code	26	Total print count in printing via manual feed slot/Total jam count
5	Checksum of WSW, PSW, USW, and FSW *4	27	ADF scanning count/ADF duplex scanning count (for duplex scanning models only)/FB scanning count/ADF jam count/FAX scanning count/Scanner count
6	Version of main firmware	28	Home positioning error code of the CIS unit/ Home positioning detection log data (See Maintenance code 80. Refer to <a href="#">Section 1.3.32</a> in this chapter.)
7	Version of boot firmware *4	29	Purge count/sensor purge count *7/wipe count/black flushing count/color flushing count
8	Serial number	30	Purge count (black) *2
9	Head property information	31	Purge count (color) *2
10	CIS type/Engine type/LCD type	32	Total power-ON time
11	PictBridge information *4	33	Power-ON count
12	Ink drop count after replacement of ink cartridge	34	Machine error history (Error code : Date of occurrence : Machine temperature °C at the time of occurrence)
13	Ink drop count after detection of "Ink Low"	35	Communications error history (Error code : Date of occurrence)
14	Ink drop count for droplets jetted out onto the platen *4	36	Initial purge log *4 (FF: Normal end)
15	Total ink drop count from a new head	37	Machine information backup file version *4
16	Ink cartridge change count (High-yield and super high-yield ink cartridges)	38	Sensor status *3
17	Ink cartridge detection failure count (Cannot Detect display count)	39	Ink cartridge type loaded in each slot *5
18	Total printed page count/Total jam count	40	Executed maintenance modes *4
19	Printed page count for paper size	41	Executed special maintenance modes *4
20	Printed page count for PC print, copy, fax & list & report, memory card, and test print	42	LCD error *4
21	Printed page count for paper size and paper type *1	43	Reset count *6/Power-ON duration at the time of last reset (Total power-ON hours)
22	Total page count in duplex printing/Jam count in duplex printing/Paper pull-in roller cleaning count in duplex printing	44	Operation start date of the machine (Current date when the user operates the machine first after unpacking)

\*1 The paper type is printed in the order of "Plain paper - Inkjet paper - Glossy paper."

\*2 For details about the purge type, refer to Maintenance mode 76.

\*3 For details about sensors, refer to Maintenance mode 32.

\*4 Not required for servicing.

\*5 0: No ink cartridge loaded

1: High-yield ink cartridge

2: Super high-yield ink cartridge

\*: Unidentifiable ink cartridge

\*6 Excluding the resets triggered by the following.

Maintenance modes 01 and 91

Maintenance mode 80 (Resetting the purge and flushing counts)

\*7 Purge count after the waste ink full sensor comes ON.

### 1.3.31 Adjustment of Touch Panel (Maintenance mode 78)

#### < Function >

This function adjusts the detection area on the touch panel.

**Note:** The adjustment procedure requires a stylus with a thin tip. A commercially available stylus designed for electronic dictionaries or personal digital assistance (PDA) can be used. If you do not have it on hand, order the "TOUCH PEN" from the Brother's parts list.

#### < Operating Procedure >

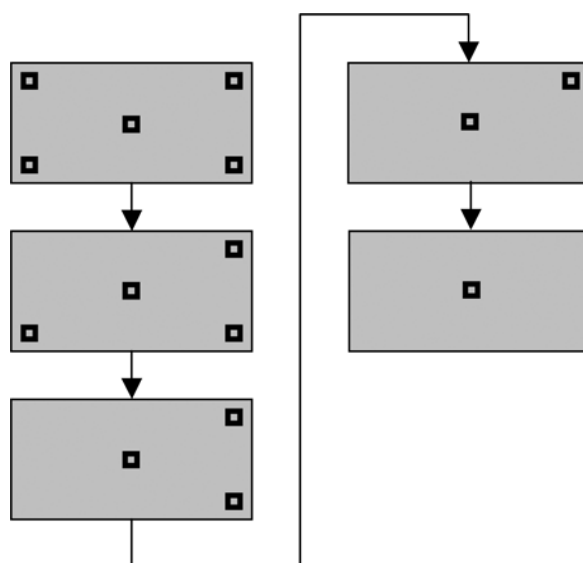
- (1) Press the **7** and **8** keys in this order in the initial stage of the maintenance mode.

The adjustment screens shown below appear on the LCD.

- (2) Touch the symbols on the touch panel with a stylus in the order of top-left, bottom-left, bottom-right, top-right, and the center. After a symbol touched disappears, touch the next one.

After the fifth symbol (center) is pressed, the "OK" appears if the adjustment is normally completed. After approx. three seconds, the machine returns to the initial stage of the maintenance mode.

- Notes**
- Do not use tools other than a pen designed for touch panels. Especially, never use a pointed one, e.g., a screwdriver. Using such a tool damages the touch panel.
  - Do not touch the touch panel with fingers. The contact area of a finger is too large to adjust the touch panel precisely.
  - If no keys are pressed for one minute in the above procedure or you press the **X** key, the machine stops the procedure and returns to the initial stage of the maintenance mode.
  - If the touch panel is improperly pressed or a wrong point is pressed, the "ERROR" appears on the LCD. After approx. three seconds, the screen returns to the state in step (2). Start pressing the five symbols again from the first one (top-left).
  - If the "ERROR" appears on the LCD, check the panel flat cable for a contact failure, breakage, or short-circuit. If the "ERROR" continues to be displayed without any of such problems, replace the control panel ASSY.



### 1.3.32 Display of the Equipment's Log (Maintenance mode 80)

#### < Function >

This function displays the 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 "00:00 22:36 OK" appears on the LCD.
- (2) Press the **▼** key to call up the following log information items, one by one.  
To return to the previous item, press the **▲** key.
- (3) Press the **X** key to return the machine to the initial stage of the maintenance mode.

Log information items

Items shown on the LCD	Description
00:00 22:36 OK	RTC backup check, OK: Backup completed, NG: Backup failed Not shown on DCP models. *2
8CA-R65-001	Model code
COUNTRY:0001	Country code
SWITCH:82	Checksum of WSW, PSW, USW, and FSW *2
MAIN:0A307211213	Main firmware version and ROM production date & time
3415 5314	Main firmware checksum/ROM1 checksum
B0306101054:34CD	Boot ROM production date & time and checksum *2
S/N:	Serial number *1
ALR777FFFFFF8	Head property information
CISF:00 CISA:00	CIS type, CISF: First side CIS, CISA: Second side CIS
ENGINE:00	Engine type *2
PICTBRIDGE	PictBridge information *2
DK:000000000000	Ink drop count *3
SEN K:0000000001	Ink drop count after detection of "Ink Low" *3
PLA K:0000000001	Ink drop count for droplets jetted out onto the platen *3
LK:000000000001	Total dot count *3
INK_CH BK:00001	Ink cartridge change count (high-yield) *3
INK_CH2 BK:00001	Ink cartridge change count (super high-yield) *3
CHGMISS_BK:00001	Ink cartridge detection failure count *3
PAGE:0000000002	Total printed page count *4
JAM:00001	Total jam count
PC:00001	PC print page count *5
COPY:00002	Total number of copies *5
FAX:00001	Total number of fax/list/report prints *5
MEDIA:00001	Memory card/PictBridge print page count
TEST PRINT:0000	Total number of test prints
A3P:00001	Total page count for paper sizes and types *6
DX P:0000000001	Total page count in duplex printing
DX JAM:00001	Jam count in duplex printing
DX CLEAN:001	Roller cleaning count in duplex printing

Items shown on the LCD	Description
DX PC:00001	PC print page count in duplex printing
DX CLCOPY:00001	Color copy page count in duplex printing
DX MNCOPY:00001	Monochrome copy page count in duplex printing
DX A3P:00001	Total printed page count for paper sizes and types in duplex printing *7
CD PAGE:00000	Label print count
CD JAM:00000	Jam count in label printing
BYPASS PAGE:00001	Total printed page count in bypass printing
BYPASS JAM:00001	Total jam count in bypass printing
PURGE:00001	Purge count
SEN PURGE:00001	Sensor purge count (Purge count after the waste ink full sensor comes ON)
eIP_BK:001/001	Purge count for purge types (black) *8
eIP_CL:001/001	Purge count for purge types (color) *8
WIPE:00001	Wipe count
FLSBK:0000000001	Flushing count (black)
FLSCL:0000000001	Flushing count (color)
FLUSHLOG:000	Flushing count error detection count
POWER:0000000353	Total power-ON time
PWCNT:0000000353	Power-ON count
MACHINE ERR_1:50	Machine error history (Last 9 errors) *9
ADF_JAM:00000	Document jam count in ADF scanning
FB:0000000006	Scanning page count in ADF/document cover/FAX/SCANNER *10
HP_ERR_CODE:XX	CIS home positioning error in the document scanner unit
HP_LOG1:XXXXXXXX	CIS home positioning detection log data in the document scanner unit *11
COMERR1:BF010000	Communications error history (Last 3 errors) *9
BACKUP VER:a	Machine information backup file version *2
RESET COUNT:001	Reset count for manufacturing process *12
SET UP:20120629	Operation start date of the machine (Current date when the user operates the machine first after unpacking)

\*1 The serial number of the machine can be changed with the following procedure.

- 1) Press the **SET** key to display the serial number, then press the **9**, **4**, **7** and **5** keys in this order.  
The cursor appears at the uppermost digit of the current serial number, indicating that the machine switches to the edit mode.
- 2) Enter the uppermost digit of the desired serial number with numerical keys. The cursor moves to the next lower digit. In the same way, enter the remaining 14 digits.

### Entry of alphabet letters

To enter an alphabet letter, press the corresponding numerical key repeatedly until the target alphabet letter appears.

Numerical keys	Letters supported
2	2 → A → B → C
3	3 → D → E → F
4	4 → G → H → I
5	5 → J → K → L
6	6 → M → N → O
7	7 → P → Q → R → S
8	8 → T → U → V
9	9 → W → X → Y → Z

- 3) Press the **SET** key to save the newly entered setting and return the machine to the initial stage of the maintenance mode.

- \*2 Not required for servicing.
- \*3 With each item being displayed, pressing the **SET** key cycles through black → yellow → cyan → magenta.
- \*4 With each item being displayed, pressing the **SET** key cycles through Total printed page count → Total printed monochrome page count → Total printed color page count → A3/Ledger printed monochrome page count → A3/Ledger printed color page count → Printed monochrome page count except A3/Ledger → Printed color page count except A3/Ledger.
- \*5 With the item being displayed, pressing the **SET** key cycles through total, monochrome, and color.
- \*6 With the item being displayed, pressing the **SET** key cycles through A3 plain paper → A3 inkjet paper → A3 glossy paper → A4 plain paper → A4 inkjet paper → A4 glossy paper → 4x6/postcard plain paper → 4x6/postcard inkjet paper → 4x6/postcard glossy paper → Photo L plain paper → Photo L inkjet paper → Photo L glossy paper.
- \*7 With the item being displayed, pressing the **SET** key cycles through A3 plain paper → A4 plain paper → 4x6 plain paper → 4x6 inkjet paper → 4x6 glossy paper.
- \*8 For details about the purge types, refer to Maintenance mode 76.
- \*9 With the item being displayed, pressing the **SET** key switches back to the last errors, one by one. With an error code being displayed, pressing the **▶** key toggles between the date when the error occurred and the ambient temperature when the error occurred (only in the case of a machine error).
- \*10 With the item being displayed, pressing the **SET** key cycles through Flat-bed scanning → ADF first-side scanning → ADF second side scanning → FAX scanning → Scanner scanning.
- \*11 With the item being displayed, pressing the **SET** key cycles through 0-3Byte → 4-7Byte → 8-11Byte → 12-15Byte → 0-3Byte.
- \*12 With the item being displayed, pressing the **SET** key switches to the power-ON time at which the counter has been reset.

### 1.3.33 Equipment Error Code Indication (Maintenance mode 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 XX."

**Tip:** If two or more errors have occurred, press the **Mono Start** key to cycle through the error codes.

- (2) Press the **X** key to stop this operation and return the machine to the initial stage of the maintenance mode.

### 1.3.34 Output of Transmission Log to the Telephone Line (Maintenance mode 87)

#### < Function >

This function outputs the transmission log 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 FAX transmission problems arising in the user's machine.

#### < Operating Procedure >

- At the service site

- (1) Call the user's machine at a remote location from your machine.

- At the user site, have the user perform the following.

- (2) With the machine on standby, hold down the **Home** key to switch the LCD screen.
- (3) Hold down the lowermost blank field to switch the LCD screen.
- (4) Press the **\***, **0**, **#**, **8**, and **7** keys in this order.

The user's machine displays the "SENDING P.01" on the LCD and outputs the transmission log (error list).

- (5) Upon completion of error list transmission, the machine returns to the standby state.



### 1.3.35 Assurance Mode Switch Setting (Maintenance mode 88)

#### < Function >

When the machine does not function normally because the usage environments or operating conditions are not usual, the assurance mode switches provide workarounds to make the machine usable by changing the machine settings to untypical ones.

The machine incorporates seven assurance mode switches (AMS01 through AMS07) that are firmware switches just as the ones described in [Section 1.3.6](#) in this chapter.

The user is allowed to access the assurance mode switches under the guidance of service personnel (e.g., by telephone).

The details about AMS01 through AMS05 are described on the following pages.

#### < Operating Procedure >

- (1) Press the **8** key twice in the initial stage of the maintenance mode.

The machine displays "AMS00" on the LCD and becomes ready to accept an assurance mode switch number.

- (2) Enter the desired number from the assurance mode switch numbers (01 through 07).

The following appears on the LCD:

Selector 1	Selector 8
↓	↓
AMSXX = <u>0</u> 0 0 0 0 0 0 0	

- (3) Use the ◀ or ▶ key to move the underline cursor to the selector position to be modified.
- (4) Enter the desired number (0 or 1) using the **0** and **1** keys.
- (5) Press the **SET** key. This operation saves the newly entered selector values onto the EEPROM and readies the machine for accepting an assurance mode switch number.
- (6) Repeat steps (2) through (5) until the modification for the desired assurance mode switches is completed.
- (7) Press the **X** key to return the machine to the initial stage of the maintenance mode.

**Notes** • To cancel this operation and return the machine to the initial stage of the maintenance mode during the above procedure, press the **X** key.

- If there is a pause of more than one minute after a single-digit number is entered for double-digit assurance mode switch numbers, the machine will automatically return to the initial stage of the maintenance mode.
- Initializing the EEPROM with Maintenance mode 01 or 91 initializes the AMS switch settings.

**AMS01 (Printing assurance 1)**

Selector No.	Function	Setting and Specifications
1	Prevention of stains on back side of leading edge of paper in borderless printing	0: Disable (default)      1: Enable
2	Not used.	
3 4	Protection of platen from no-paper printing to prevent stains (Functional restriction on the paper width sensor)	No. 3 4 0 0 : Enable (Determine the sensor function depending upon the print resolution selected) (default) 0 1 : Enable (Detect the leading edge plus right and left edges of paper) 1 0 : Enable (Detect the leading edge of paper) 1 1 : Disable (No paper detection)
5	Assurance print 1 (Printing with black and cyan inks in monochrome copy)	0: Disable (default)      1: Enable
6	Assurance print 2 (Printing with black and cyan inks in monochrome FAX reception and in list output)	0: Disable (default)      1: Enable
7 8	Workaround for false jam detection (Functional restriction on the paper width sensor)	No. 7 8 0 0 : Detect both the leading edge and width of paper (default) 0 1 : Detect both the leading edge and width of paper 1 0 : Detect only the leading edge of paper 1 1 : No detection

• **Selector 1: Prevention of stains on back side of leading edge of paper in borderless printing**

Setting this selector to "1" reduces the protruding amount of the leading edge of recording paper to the platen groove to minimize stains that could be caused by ink mist on the back side of the leading edge. Enabling this function reduces the throughput than disabling it.

- **Selectors 3 and 4: Protection of platen from no-paper printing to prevent stains (Functional restriction on the paper width sensor)**

The setting made by these selectors applies to such printing that is assumed to be at a high resolution, that is, printing from a PC or memory card, copying, and printing via PictBridge.

If these selectors are set to "0, 0," the machine automatically determines the functions of the paper width sensor depending upon the print resolution selected. Therefore, in low resolution printing, e.g. when the "Fast" print quality is selected, the paper width sensor is automatically disabled. On the contrary, in high resolution printing, e.g. when the "Highest" print quality is selected, the sensor is automatically enabled.

Setting these selectors to "1, 1" disables the paper width sensor to save the sensing time for higher throughput.

- **Selectors 5 and 6: Assurance print 1 and 2**

Enabling assurance print 1 or 2 causes the machine to mix black ink (pigment-based) and a little of cyan ink (dye-based) to use in monochrome copy or in monochrome FAX reception and list output, respectively.

If black ink is not jetted out normally, cyan ink can be substituted for black ink in printing. This ensures that in list printing (in which data once printed will be deleted) the data will be preserved as a printout.

- **Selectors 7 and 8: Workaround for false jam detection (Functional restriction on the paper width sensor)**

The setting made by these selectors applies to the FAX, list, index printing and test printing.

When colored recording paper is used, for example, the paper width sensor might misdetect the paper present state as "no paper loaded" due to the recording paper's color. Limiting the paper width sensor functions with these selectors avoids detecting such a false paper jam.

**AMS02 (Printing assurance 2)**

Selector No.	Function	Setting and Specifications
1   5	Not used.	
6	Registration time offset to slipping in plain paper feeding	0: Disable (default)      1: Enable
7	Unidirectional print for higher print quality	0: Disable (default)      1: Enable
8	Improvement of paper feeding reliability	0: Disable (default)      1: Enable

- **Selector 6: Registration time offset to slipping in plain paper feeding**

Enabling the registration time offset with this selector increases the registration time (during which the paper feed roller rotates in the reverse direction), avoiding the occurrence of a paper feeding timeout error even if the paper cannot reach the registration sensor actuator within the predetermined registration time due to slipping of the paper pull-in rollers against paper in the paper tray.

Selecting the "Fast" print quality disables the registration time offset even if it is enabled with this selector.

**Note:** Selecting the "Glossy paper" automatically enables the registration time offset.

- **Selector 7: Unidirectional print for higher print quality**

The machine prints bidirectionally by default. To get higher print quality, set this selector to "1" to switch to the unidirectional print mode in which printing is performed only when the head/carriage unit travels from left to right. Note that the unidirectional print mode sacrifices the print speed.

Print object	Unidirectional print
Print FAX message received	Yes
Copy	Yes
Print from PC	No
Print from memory cards or via PictBridge	Yes
Print memory card index or PictBridge index	Yes
Print a list	Yes
Print a test pattern	No

- **Selector 8: Improvement of paper feeding reliability**

Setting this selector to "1" improves the paper feeding reliability, sacrificing the print speed.

### AMS03 (Maintenance assurance 1)

Selector No.	Function	Setting and Specifications
1	Protection of head caps from drying	0: Disable (default)      1: Enable
2 3	Auto capping start time	No. 2 3 0 0 : 30 seconds (default) 0 1 : 5 seconds 1 0 : 15 seconds 1 1 : 300 seconds
4	Purge more powerful than normal purge	0: Disable (default)      1: Enable
5 6	Not used.	
7	Automatic purging interval programmed for matching the ambient temperature (for color ink)	0: Enable (default)      1: Disable
8	Automatic purging interval programmed for matching the ambient temperature (for black ink)	0: Enable (default)      1: Disable

- **Selector 1: Protection of head caps from drying**

If the protection function is enabled with this selector, the head/carriage unit automatically returns to the home position (head capping position) for flushing each time the machine prints the specified number of pages in order to protect the inside of the head caps from drying up. This function is useful in a dry environment or for heavy duty print per printing cycle.

- **Selectors 2 and 3: Auto capping start time**

If data transfer from the PC stops midway through printing for some reason in the PC, the head/carriage unit automatically returns to the home position (head capping position) after the specified auto capping start time (default: 30 seconds) to prevent the head surface from drying up. At the restart of printing after the auto capping operation, print image unevenness could occur. To avoid it, increase the auto capping start time with these selectors.

- **Selector 4: Purge more powerful than normal purge**

Setting this selector to "1" automatically selects a purge more powerful than the normal purge from the first if the purge is initiated immediately after printing.

- **Selectors 7 and 8: Automatic purging interval programmed for matching the ambient temperature**

The "automatic purging interval programmed for matching the ambient temperature" is enabled by default. If the machine is set in an excessively hot or cold place, therefore, the automatic purging interval becomes short, resulting in increased ink waste.

Disabling this interval enables the one programmed for the ordinary temperature. In the first printing after a long no-print period, however, the print quality may lower.

### AMS04 (Maintenance assurance 2)

Selector No.	Function	Setting and Specifications
1 2	Not used.	
3	Black ink print mode	0: Disable (default)      1: Enable
4	Automatic purging for color ink	0: Enable (default)      1: Disable
5	Not used.	
6 7	Periodical purging interval	No. 6 7 0 0 : Prescribed purge intervals 0 1 : 30 days (black), 60 days (color) 1 0 : 30 days (black), no purge (color) 1 1 : No purge (black and color)
8	Automatic purging for black ink	0: Enable (default)      1: Disable

• **Selector 3: Black ink print mode**

If any color ink runs out, printing is no longer possible by default. Setting this selector to "1" allows the machine to function as a monochrome printer, making it possible to print with black ink only even in a "Replace Ink" state as listed below.

Printing FAX message received	Monochrome printing only possible. (A color FAX message will be printed in monochrome.)
Printing from a PC	No printing possible.
Copying	Monochrome printing only possible. The <b>Mono</b> key is enabled, but the <b>Color</b> key is disabled.
Printing from memory cards	No printing possible.
Printing via PictBridge	No printing possible.
Printing lists	Monochrome printing only possible.
Purge operation	Purge operation possible for black ink only, not possible for all-color or any specific color.

**Tip:** Difference between selector 3 on AMS04 and selector 8 on WSW49 (For details, refer to the "Worker Switches (WSW)" document separately issued.)

Both selector 3 on AMS04 and selector 8 on WSW49 specify the similar black ink print mode that applies if any color ink runs out. The difference is that the former allows the machine to print all data received as a monochrome printer with black ink only; the latter to ignore the "Replace Ink" state, receive both color and black data, and print it, resulting in a printout missing color components.

• **Selectors 4 and 8: Automatic purging for color ink and for black ink**

The machine periodically performs an automatic purge by default. The automatic purge, however, wastes ink when no printing has occurred. To avoid it, disable the automatic purge with these selectors. In the first printing after a long no-print period, disabling it may lower the print quality.

Setting selector 4 or 8 to "1" disables the setting made by selectors 6 and 7.

- **Selectors 6 and 7: Periodical purging intervals**

These selectors allow you to select the periodical purge interval to reduce ink consumption. Setting these selectors "0, 0" (Prescribed purge intervals) performs purging at the intervals.

Setting these selectors to "1, 0" (30 days (black), no purge (color)) disables the setting made by selector 4.

Setting these selectors to "1, 1" (No purge (black and color)) disables the settings made by selectors 4 and 8.

**AMS05 (Printing assurance 3)**

Selector No.	Function	Setting and Specifications
1	Uneven printing correction for upper and lower ends of the nozzle	0: ON (default) 1: OFF
2   4	Not used.	
5	Jam reduction paper feed mode	0: Disable (default) 1: Enable
6   8	Adjustment of print head drive voltage rank	No. 6 7 8 0 0 0: +0 1 0 0: -0 0 0 1: +1 0 1 0: +2 0 1 1: +3 1 0 1: -1 1 1 0: -2 1 1 1: -3

- **Selector 1: Uneven printing correction for upper and lower ends of the nozzle**

If performing the correction lowers the print quality due to wrong nozzle property data, set this selector to "1" to disable the correction function.

- **Selector 5: Jam reduction paper feed mode**

Setting this selector to "1" lowers the paper feeding speed when the recording paper passes along the star wheels for reduction of jams.

- **Selectors 6 through 8: Adjustment of print head drive voltage rank**

This selector regulates the print head drive voltage rank for adjusting the ink drop amount.

If the black section printed on glossy paper is greenish or the printed ink does not dry quickly, increase the print head drive voltage rank to decrease the ink drop amount; if it is reddish, decrease the rank to increase the ink drop amount.

**AMS06 (Printing assurance 4)**

Selector No.	Function	Setting and Specifications
1 2	Improvement of white and black horizontal streaks on bottom edge of the paper during normal and high-speed printing on plain paper	No. 1 2 0 0 : Disable (default) 0 1 : Improve black horizontal streaks 1 0 : Improve white horizontal streaks 1 1 : Further improve black horizontal streaks
3 4	Improvement of white and black horizontal streaks from leading edge to center of paper during high-speed and normal print on plain paper	No. 3 4 0 0 : Disable (default) 0 1 : Improve black horizontal streaks 1 0 : Improve white horizontal streaks 1 1 : Further improve black horizontal streaks
5 6	Improvement of white and black horizontal streaks during print on glossy paper	No. 5 6 0 0 : Disable (default) 0 1 : Improve black horizontal streaks 1 0 : Improve white horizontal streaks 1 1 : Further improve black horizontal streaks
7 8	Not used.	

- **Selector 1 and 2: Improvement of white and black horizontal streaks on bottom edge of the paper during normal and high-speed printing on plain paper**

Setting these selectors enables improvement of the white and black horizontal streaks on the bottom edge of paper during normal and high-speed printing on plain paper.

- **Selector 3 and 4: Improvement of white and black horizontal streaks from leading edge to center of paper during high-speed and normal print on plain paper**

Setting these selectors enables improvement of the white and black horizontal streaks from the leading edge to the center of paper during normal and high-speed printing on plain paper.

- **Selector 5 and 6: Improvement of white and black horizontal streaks during print on glossy paper**

Setting these selectors enables improvement of the white and black horizontal streaks during printing on glossy paper.

**Note:** To use AMS06, you need to update firmware to the latest one.



### AMS07 (Printing assurance 5)

Selector No.	Function	Setting and Specifications
1	Improvement of displaced ruled lines for A3/ledger/B4 size	0: Disable (default) 1: Enable
2	Improvement of displaced ruled lines for A4/letter size	0: Disable (default) 1: Enable
3	Improvement of displaced ruled lines for sizes other than A3/ledger/B4/A4/letter size	0: Disable (default) 1: Enable
4	Brother Paper mode	0: Disable (default) 1: Enable
5   8	Not used.	

- **Selector 1: Improvement of displaced ruled lines for A3/ledger/B4 size**

Setting this selector to "0" switches to the unidirectional print mode with control enabled for improving displaced ruled lines, in normal printing of A3/ledger/B4 size plain paper.

- **Selector 2: Improvement of displaced ruled lines for A4/letter size**

Setting this selector to "1" switches to the unidirectional print mode with control enabled for improving displaced ruled lines, in normal printing of A4/letter size plain paper.

- **Selector 3: Improvement of displaced ruled lines for sizes other than A3/ledger/B4/A4/letter size**

Setting this selector to "1" switches to the unidirectional print mode with control enabled for improving displaced ruled lines, in normal printing of plain paper of sizes other than A3/ledger/B4/A4/letter size.

- **Selector 4: Brother Paper mode**

Setting this selector to "1" switches to print with control enabled for enhanced printing quality, as customized for Brother Paper.

**Note:** To use AMS07, you need to update firmware to the latest one.

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## 2 OTHER SERVICE FUNCTIONS

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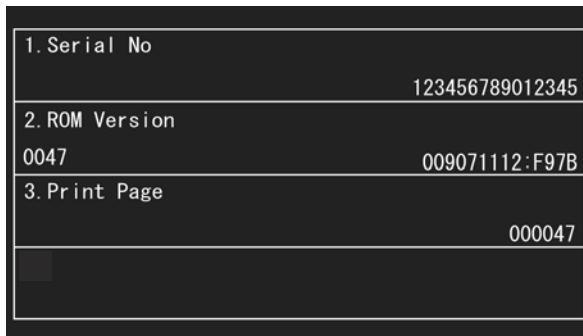
### 2.1 Cancellation of the Secure function lock

#### < Function >

This procedure cancels the secure function lock. Use this procedure if the user forgets his/her password entered when setting the secure function lock so as not to exit from the lock.


#### < Operating Procedure >

- (1) When the machine is on standby, hold down the **Home** key for approx. 5 seconds to display the following screen on the LCD.



1. Serial No	123456789012345
2. ROM Version	0047 009071112:F97B
3. Print Page	000047

- (2) Hold down the blank area at the bottom of the LCD for approx. 2 seconds to display the following screen.



1	2	3	4	Stop	Mono Start
5	6	7	8	*	Color Start
<<	9	0		#	>>

- (3) Press the #, 2, 7, 9, 0 and 0 keys on the LCD in this order. The machine displays the following screen on the LCD.

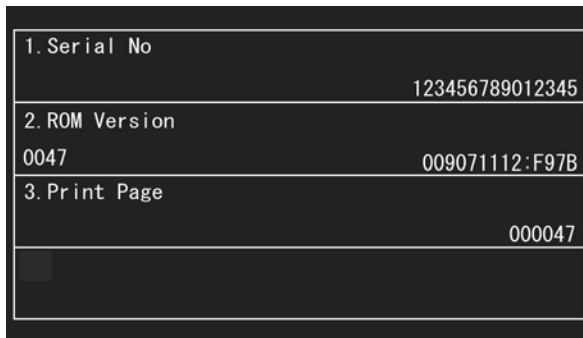


■■ MAINTNANCE ■■					
1	2	3	4	Stop	Mono Start
5	6	7	8	*	Color Start
<<	9	0		#	>>

- (4) Press the **X** key to return to the standby state.

## 2.2 Displaying the Firmware Version

- (1) When the machine is on standby, hold down the **Home** key for approx. 5 seconds to display the following screen on the LCD.



The screenshot shows a black LCD screen with white text. It is divided into three horizontal sections by thin white lines. The first section is labeled '1. Serial No' and shows the number '123456789012345'. The second section is labeled '2. ROM Version' and shows '0047' on the left and '009071112:F97B' on the right. The third section is labeled '3. Print Page' and shows the number '000047' on the right. Below the third section, there is an empty space.

1. Serial No	123456789012345
2. ROM Version	0047 009071112:F97B
3. Print Page	000047

The firmware version displays in the "2. ROM Version" area.

## 2.3 Moving the Head/Carriage Unit

- (1) Holding down the **X** key with the document scanner unit opened for more than five seconds moves the head/carriage unit to the center of its travel.

## 2.4 Retrieving the Equipment Log Information

### ■ Function

This procedure retrieves the log information from the machine to the connected PC as electronic data.

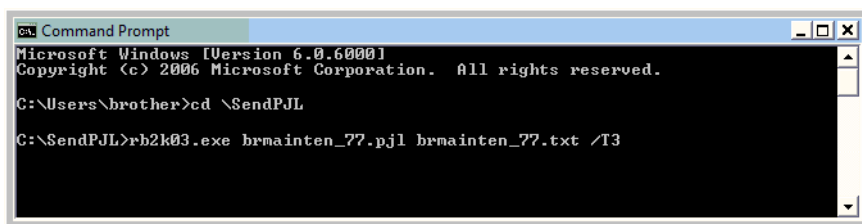
### ■ Operating Procedure

- (1) Switch your PC on.
- (2) Create an arbitrary folder in the C: directory and save the readback tool (rb2k03.exe) and PJL command file (brmainten\_77.pjl) in that folder.

**Note:** The rb2k03.exe is available only in windows XP.

- (3) Switch the machine to the maintenance mode. (Refer to [Section 1.1](#) in this chapter.)
- (4) Connect the machine to the PC using a USB cable.
- (5) On the PC, start Command Prompt and change to the directory where the readback tool is located.

(In the example below, a "SendPJL" folder is created in the C: directory and the readback tool is saved in that folder.)



```
Microsoft Windows [Version 6.0.6000]
Copyright (c) 2006 Microsoft Corporation. All rights reserved.

C:\Users\brother>cd \SendPJL
C:\SendPJL>rb2k03.exe brmainten_77.pjl brmainten_77.txt /T3
```

- (6) In Command Prompt, type `rb2k03.exe brmainten_77.pjl brmainten_77.txt /T3` and press the **Enter** key.

**Note:** Be sure to enter a space to the points marked with an asterisk (\*) shown below.

```
rb2k03.exe*brmainten_77.pjl*brmainten_77.txt*/T3
```

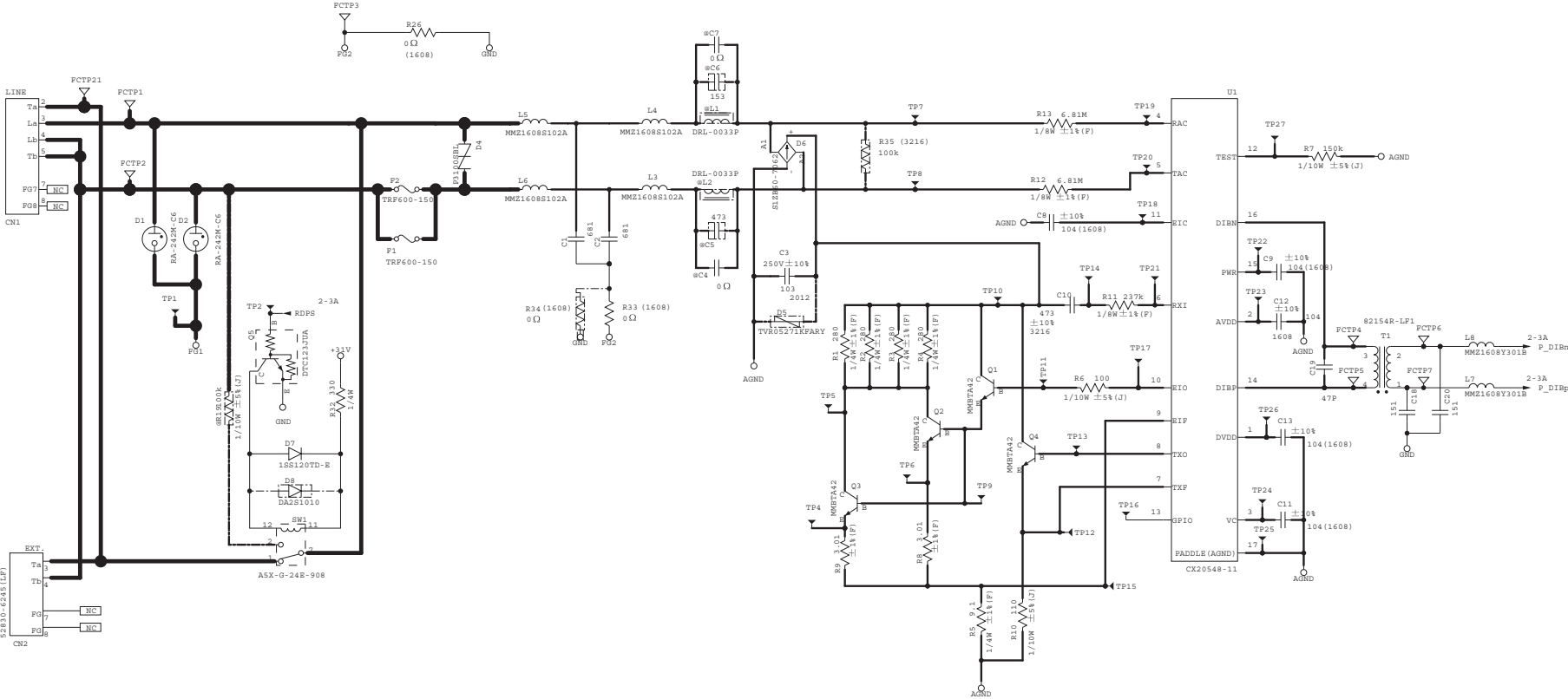
Otherwise, an error occurs.

brmainten\_77.txt is created in the arbitrary folder.

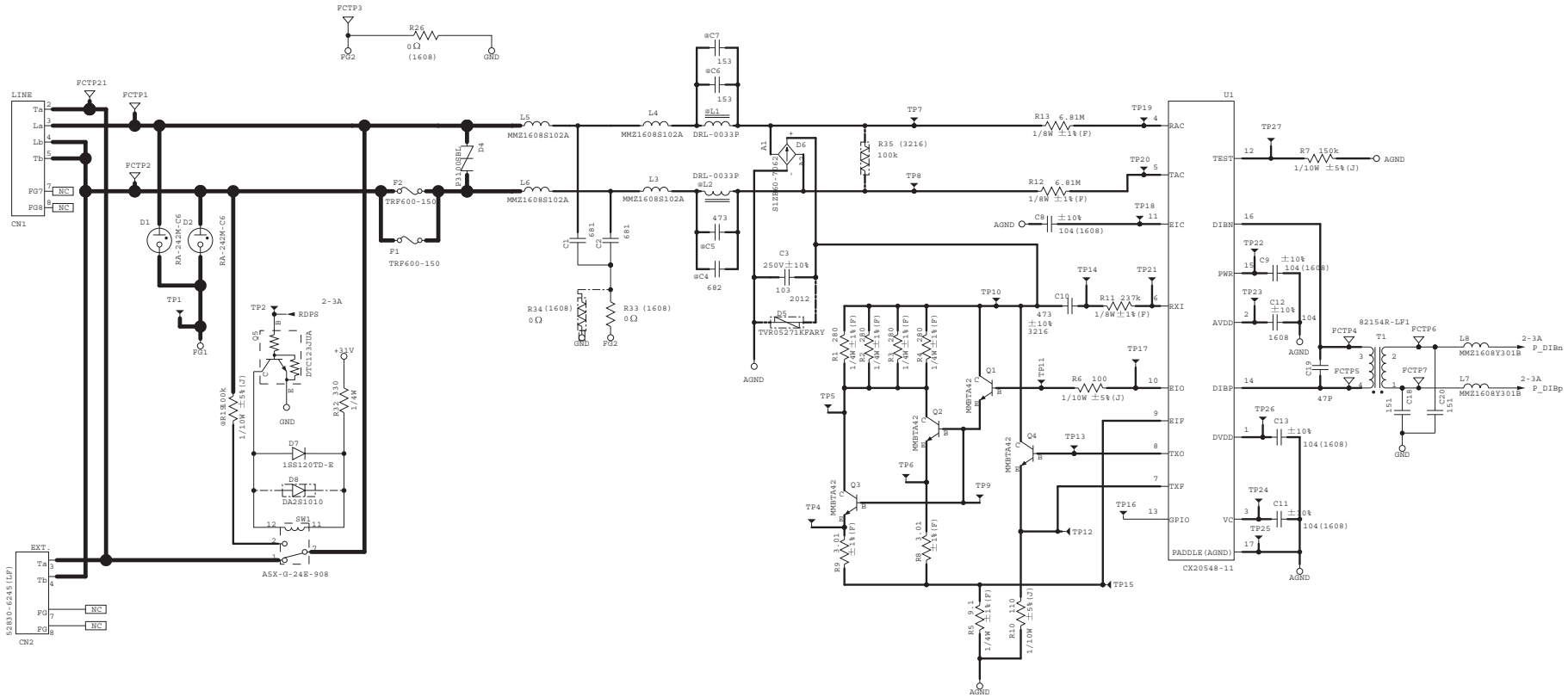
- (7) In Excel, open the created header/footer and delete texts added by the PJL stipulation.

# CHAPTER 6 CIRCUIT DIAGRAMS AND WIRING DIAGRAMS

■ MJ PCB  
U.S.A., Canadian models



■ MJ PCB  
 European, Oceanian, Asian models

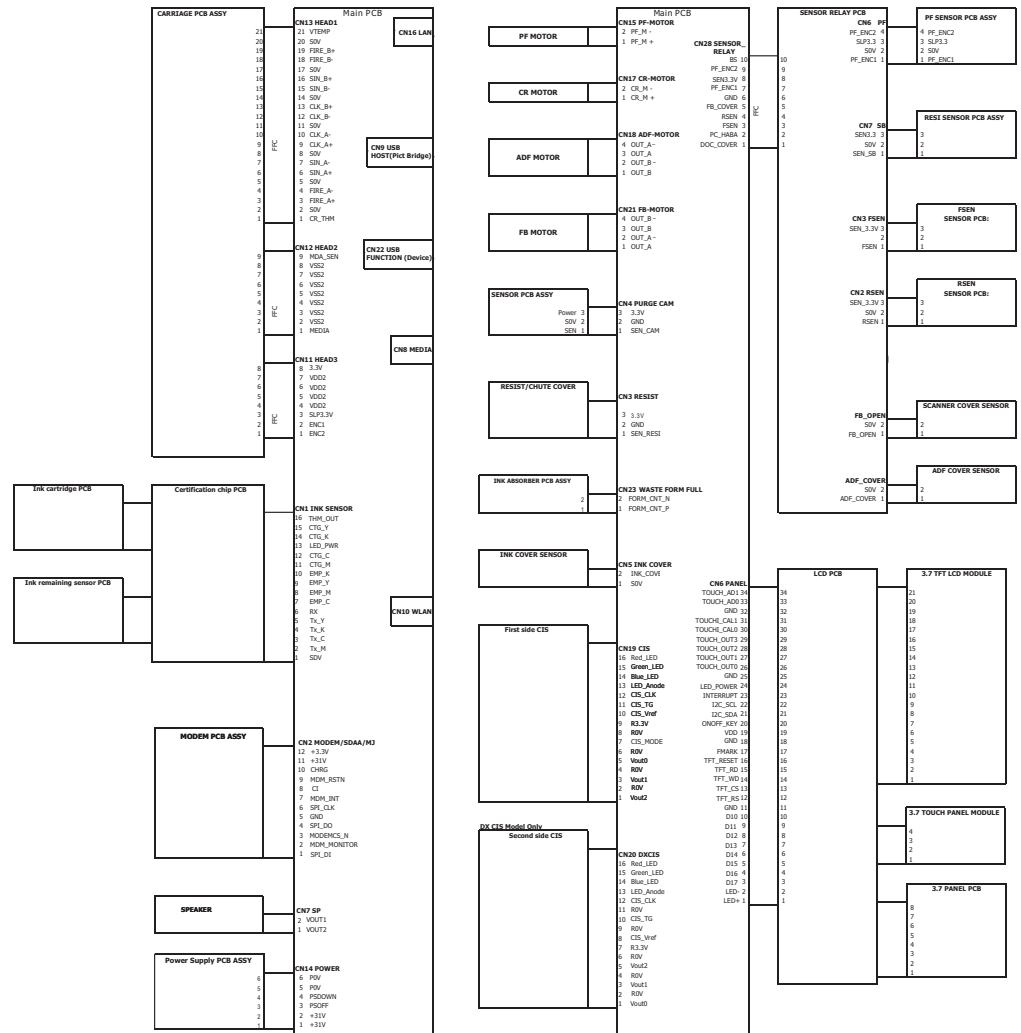








# ■ Wiring Diagram



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## **CHAPTER 7 PERIODICAL MAINTENANCE**

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---

### **1 PERIODICAL REPLACEMENT PARTS**

---

There are no parts to be replaced periodically.

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## APPENDIX 1. SERIAL NUMBERING SYSTEM

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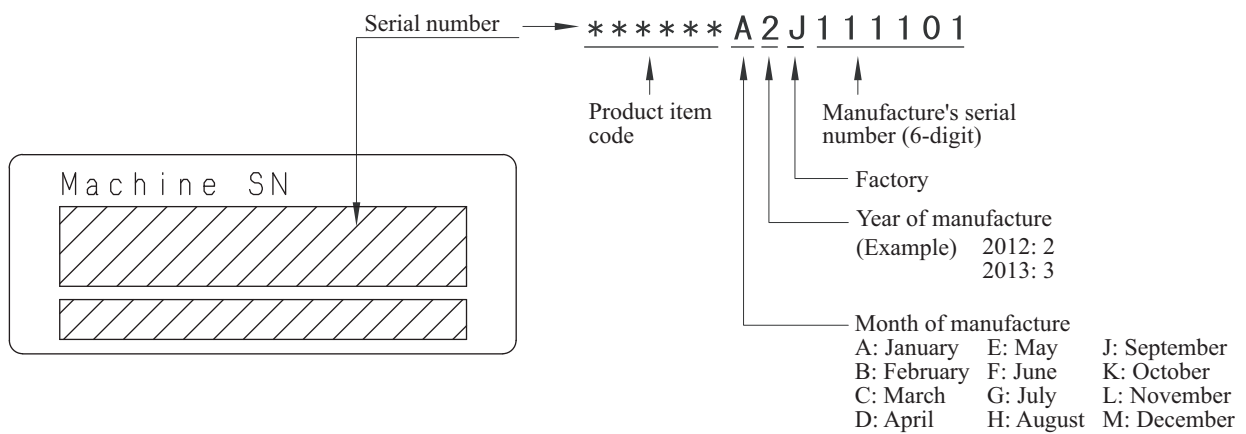
This appendix shows the location of labels put on some parts and describes the coding information for serial number and head property data.

### < Reading Labels >

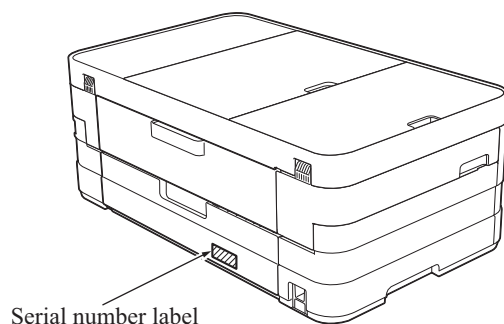
An individual machine has a "serial number label" for the machine itself and "property label" for the head/carriage unit.

This section lists the coding information for those serial number and head property data.

#### (1) Serial number label for the machine itself



#### Location



Serial number label

(app1\_001\_1\_E)

**(2) Head property label**

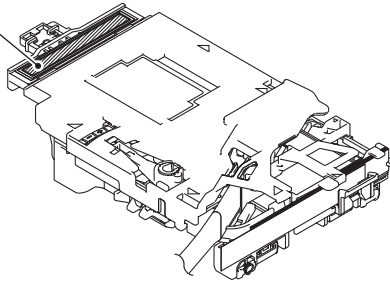
The property code of the head/carriage unit is printed on the head property label attached to the head/carriage unit.



**■ On the head/carriage unit**

Location

Head property label



(app1\_002\_E)

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## APPENDIX 2. DELETION OF USER SETTING INFORMATION

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This appendix provides instructions on how to delete user setting information recorded in the machine.

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### A2.1 Deleting User Setting Info from the machine

---

The following user setting information in the machine is recorded in the EEPROM on the main PCB. It can be deleted with the operation below.

- User's name and telephone number
- Speed dialing
- Group dialing
- Dial record (stored for redialing)
- Receiver info for fax transfer (The transfer setting will also be canceled.)
- Data stored in the memory (Received data and voice messages will also be deleted.)
- Fax preview
- Fax data not yet transferred in PC-Fax receiving (Fax data already transferred to the PC will not be deleted.)
- Fax data waiting to be sent in polling
- Receiver info for timer faxing
- Receiver info for broadcasting or batch transmission
- Caller ID history
- Activity report
- Password assigned by the secure function lock (for models with secure function lock)
- Favorite copy settings (for models with touch panel)
- Network settings (e-mail addresses, server settings, account settings, etc)

#### ■ Operating Procedure

- (1) Press .
- (2) Press **All Settings**.
- (3) Swipe up or down, or press ▲ or ▼ to display **Initial Setup**.
- (4) Press **Initial Setup**.
- (5) Swipe up or down, or press ▲ or ▼ to display **Reset**.
- (6) Press **Reset**.
- (7) Press the reset All Settings.
- (8) Press **Yes**.
- (9) Press **Yes** for 2 seconds or more.

---

## APPENDIX 3. INSTALLING THE MAINTENANCE PRINTER DRIVER

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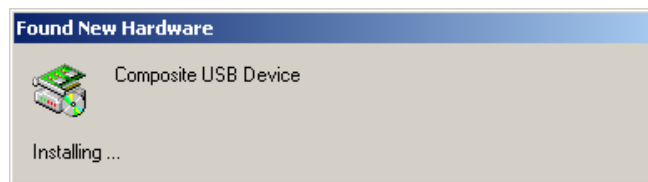
To identify machines connected via USB direct interface, the PC requires the corresponding driver for the virtual USB device. If you connect any number of machines to your PC, the same number of virtual USB devices will be automatically configured on your PC. To prevent many virtual USB devices from being configured, use the unique driver installation procedure described below that enables your PC to identify terminals via one 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 Brother Maintenance USB Printer driver has been already installed to your PC according to this procedure, skip this section.

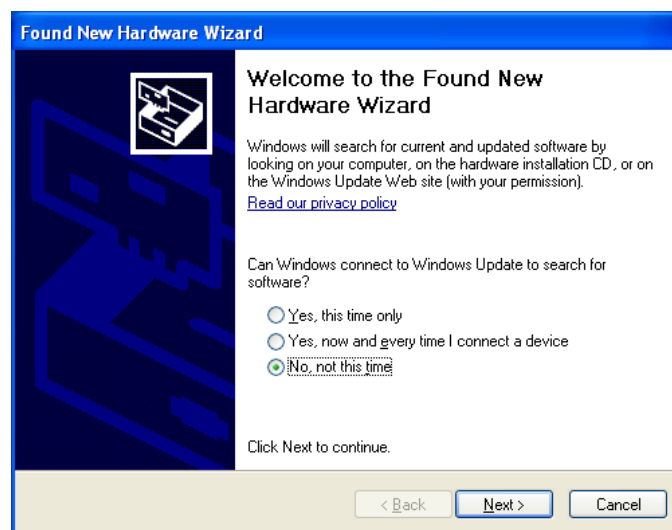
### **Windows 2000/Windows XP**

- (1) Check that the power switch of the machine is turned off. Disconnect the USB cable that connects the machine with your PC.
- (2) Turn on your PC.
- (3) Turn on the power switch of the machine.
- (4) Switch the machine to the maintenance mode. (Refer to [Chapter 5](#).)
- (5) Connect the machine to your PC using a USB cable.

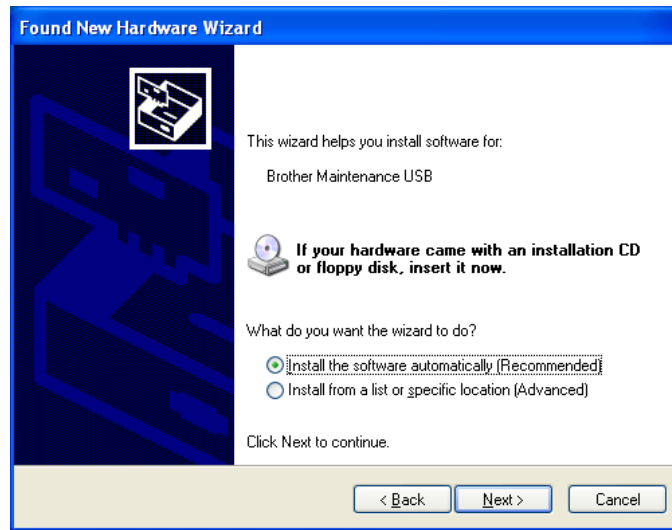
The following window appears.



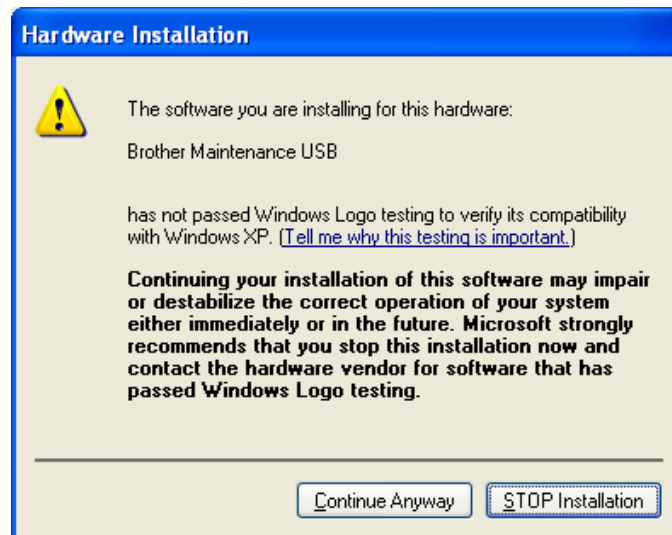
- (6) The following screen appears, indicating the detection of new hardware device by the system. Select "No, not this time." And click **Next**.

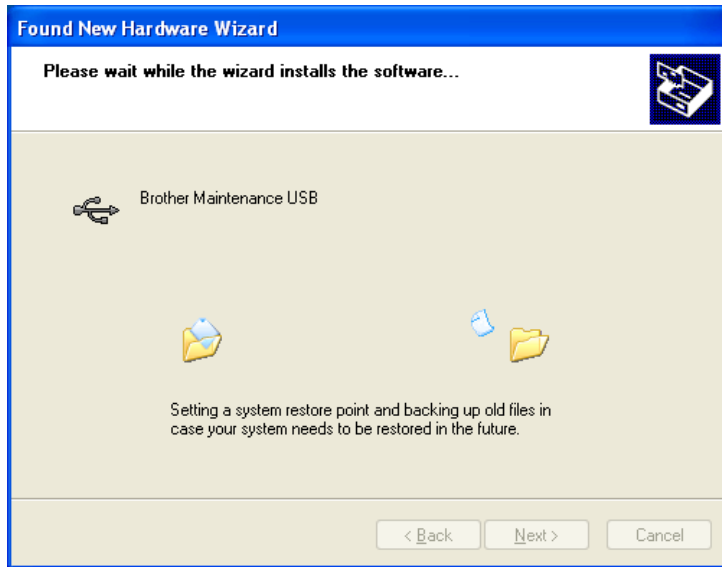


(7) Select "Install the software automatically (Recommended)" and click **Next**.



(8) Alert warning message of WHQL appears. Click **Continue Anyway** to proceed.





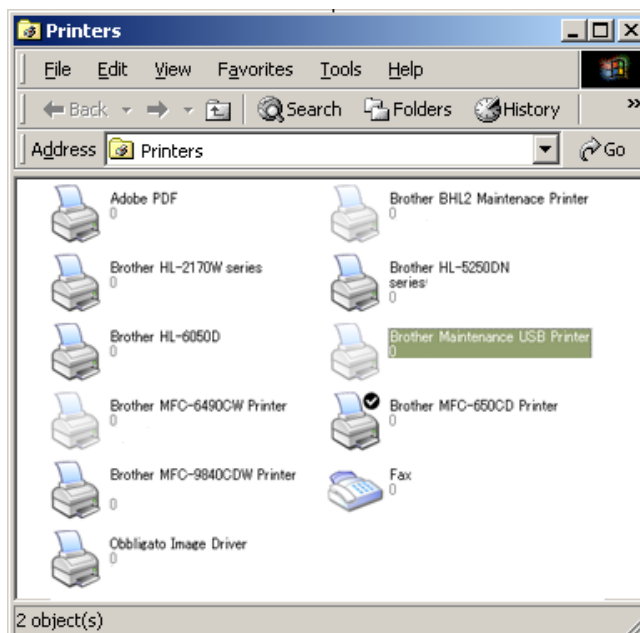
(9) Repeat steps (6) to (8) three times. Installation is completed.

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



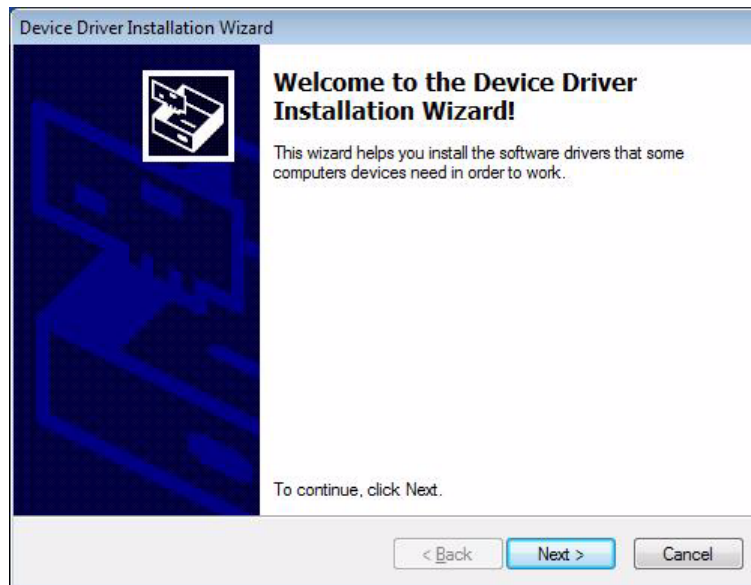


**NOTE:** In order to check whether the printer driver is successfully installed, click **Start | Settings | Printers** to select the Printers window. Then, check that the Brother Maintenance USB Printer icon is shown.

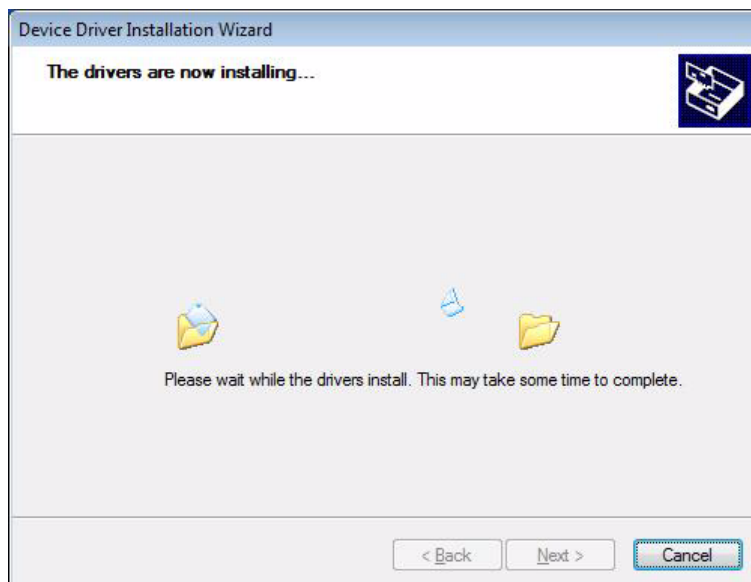


## **Windows Vista/Windows 7**

- (1) Check that the power cord of the machine is unplugged from the electrical outlet. Disconnect the USB cable that connects the machine with your PC.
- (2) Turn on your PC.
- (3) Click the Setup.exe in the Brother Maintenance USB Printer held in an arbitrary folder.
- (4) Wait for the following screen to appear and click Next.



The following screen is displayed during installation.



- (5) Wait for the following screen to appear and click **Finish**.



- (6) Plug the power cord of the machine into an electrical outlet.
- (7) Switch the machine to the maintenance mode. (Refer to [Chapter 5](#).)
- (8) Connect the machine to your PC using a USB cable.
- The following window is displayed during installation.



If the following window appears, the installation is completed.



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## APPENDIX 4. REPLACEMENT OF CONDENSER ON THE MAIN PCB

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This section explains the handling method when the power fails to be turned ON due to the condenser defective on the main PCB.

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### A4.1 HOW TO JUDGE CONDENSER DEFECTIVE

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Judge if the failure to turn ON the power is caused by the condenser defective on the main PCB or not with the procedures below:

- (1) Unplug the power cord of the machine from the electrical outlet and leave it for 20 seconds electrical outlet.
- (2) While holding down the power switch on the control panel, plug the power cord to the electrical outlet.

If the power is turned ON with the above operations: Condenser defective on the main PCB

If the power is not turned ON with the above operations: Other factors (power supply PCB defective or main PCB defective, etc.)

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### A4.2 HOW TO REPLACE CONDENSER

---

Replace the condenser in accordance with the information below:

< Requirements >

- Nipper
- Soldering iron
- Solder

< Recommended solder list >

Countries	Manufacturer	Origin	Name	Web site
For Japan, UK, Finland, Germany, France, Sweden	ALMIT	JAPAN	KR-19 SH RMA LFM-48	<a href="http://www.almit.com">http://www.almit.com</a>
For Worldwide except Australia, New Zealand	KESTER	U.S.A.	KESTER245 KESTER285	<a href="http://www.kester.com">http://www.kester.com</a>
For Worldwide	AIM	CANADA	CASTIN RMA2	<a href="http://www.aimsolder.com">http://www.aimsolder.com</a>

\* For more detailed list, refer to the procedure manual on Brother Databank Information with Ref. No. 1000049318.

## ■ Precautions for replacement work

- (1) When replacing the condenser, put on a grounding wristband.
- (2) Do not touch the tip of the soldering iron to the condenser's external sleeve, the sleeve will melt or break.
- (3) Do not touch the tip of the soldering iron to the body of condenser. In use the soldering iron (30W or under), solder at iron tip temperature not more than 350°C within 4 second. Solder the condenser three times or less at intervals of 15 second or more.
- (4) The lead wires and terminals are plated for solderability. Rasping or filling lead wires or terminals might damage the plating layer and degrade the solderability.
- (5) Do not use a condenser more than once after it has been mounted on the PCB. Excessive heat stress is applied when detaching it from the PCB.

## ■ Replacement procedures

- (1) Remove the Main PCB ASSY from the machine.
- (2) Turn over the Main PCB ASSY, put the soldering iron to the soldered part of the Condenser, and remove the Condenser from the Main PCB ASSY.

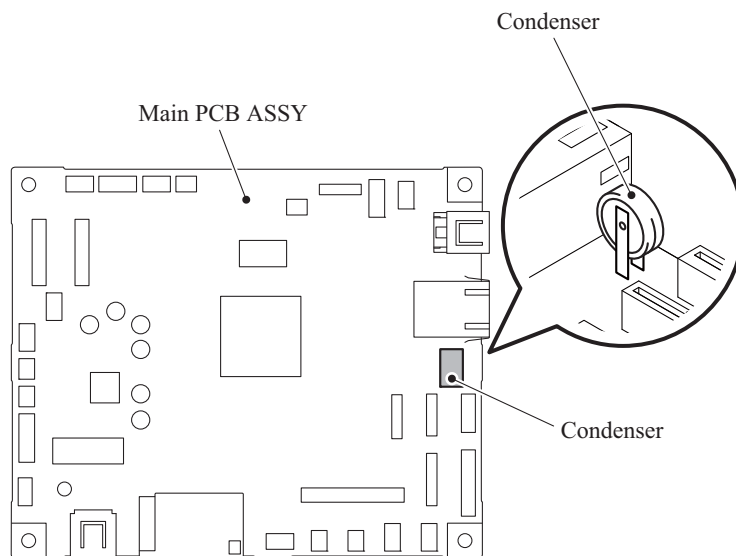


Fig. App 4-1

- (3) Turn up the Main PCB ASSY and insert the tips of the leads of a new Condenser into the through hole in a way that the tips of the ▲ marks printed on the Condenser comes to the right side (outside of the Main PCB ASSY) when viewing from the front of the machine.
- (4) Turn over the Main PCB ASSY and solder the leads of the Condenser.
- (5) Turn up the Main PCB ASSY and mount it on to the machine.

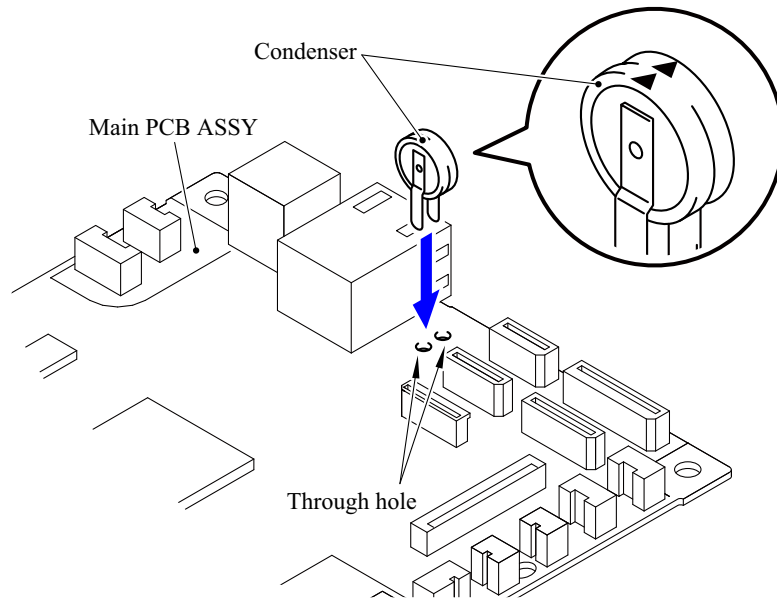


Fig. App 4-2

### A4.3 TEST AFTER CONDENSER IS REPLACED

After replacing the condenser, check that the machine works properly in accordance with the procedures below.

**Note:** Perform the following steps sequentially. If the power cord is disconnected or the operation is suspended for 1 minute or more, perform the procedures from the beginning.

- (1) Plug the power cord of the machine to the electrical outlet, and check that the LCD is displayed.
- (2) Hold the power switch on the control panel for 3 seconds or more and check that “All functions will be disabled” is displayed on the LCD.
- (3) Check that the LCD disappears approx. 10 seconds later.
- (4) Wait approx. 10 seconds after the LCD disappears.
- (5) Open the scanner cover.
- (6) Press the power switch on the control panel and check that “Please close the scanner cover.” is displayed on the LCD.