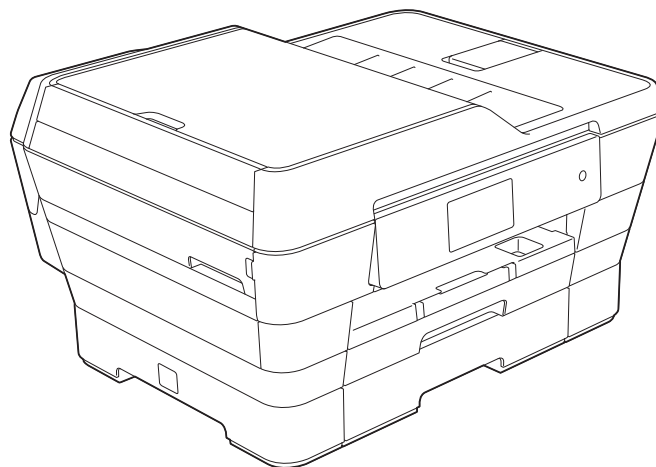




Brother Inkjet MFC **SERVICE MANUAL**

**MODELS: MFC-J3520/J3720
MFC-J6520DW/J6720DW
MFC-J6920DW/J6925DW**



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

June 2013
SM-FAX145
8CAT*
(5)

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

	MFC-J3520	MFC-J3720	MFC-J6520DW	MFC-J6720DW	MFC-J6920DW/ J6925DW
LCD	2.7 inch	2.7 inch	2.7 inch	2.7 inch	3.7 inch
Duplex scan	---	---	---	---	√
NFC	---	---	---	---	√
Main PCB	B57U184	B57U184	B57U184	B57U184	B57U184
Lower Tray	---	√	---	√	√

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REGULATION

■ Standard telephone and FCC notices

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 (U.S.A. only)**

Responsible Party: Brother International Corporation
200 Crossing Boulevard
Bridgewater, NJ 08807-0911 U.S.A.
TEL: (908) 704-1700

declares, that the products

Product Name: MFC-J3520/J3720/J6520DW/J6720DW/J6920DW/J6925DW

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 device complies with Industry Canada license-exempt RSS standard(s). 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 the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

■ **EQUIPMENT ATTACHMENT LIMITATIONS (Canada 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 U.S.A. or Canada only**

These machines are made for use in the U.S.A. and Canada only. We cannot recommend using them overseas because it may violate the Telecommunications Regulations of that country and the power requirements of your machine may not be compatible with the power available in foreign countries. Using U.S.A. 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.
15-1 Naeshiro-cho, Mizuho-ku, Nagoya 467-8561 Japan

declare that this product is in conformity with the essential requirements of all relevant directives and regulations applied within the European Community.

The Declaration of Conformity (Doc) can be downloaded from our website. Visit <http://solutions.brother.com/and>:

- > select "Europe"
- > select your country
- > select your model
- > select "Manuals" and your language, then click "Search"
- > select Declaration of Conformity
- > click "Download"

Your Declaration will be downloaded as a PDF file.

■ Declaration of Conformity for R&TTE (Radio and Telecommunications) Directive 1999/5/EC (Europe only) (Applicable to models with telecommunications and/or radio interfaces)

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

declare that these products are in conformity with the provisions of the R&TTE Directive 1999/5/EC. A copy of the Declaration of Conformity can be downloaded by following the instructions in the Declaration of Conformity (Europe only) section.

■ CE marking for devices with Wireless LAN

This product supports Wireless LAN.

■ LAN connection

IMPORTANT

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

■ **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 meters in length.

■ **Recycling information in accordance with the WEEE and Battery Directives.**



Product mark



Battery mark

European Union only

The product/battery is marked with one of the above recycling symbols. It indicates that at the end of the life of the product/battery, 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

Mark	Contents
	<u>WARNING</u> indicates a potentially hazardous situation which, if not avoided, could result in death or serious injuries.
	<u>CAUTION</u> indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injuries.
	<u>IMPORTANT</u> indicates a potentially hazardous situation which, if not avoided, may result in damage to property or loss of product functionality.
	Prohibition icons indicate actions that must not be performed.
	This icon indicates that flammable sprays must not be used.
	This icon indicates that organic solvents such as alcohol and liquids must not be used.
	Electrical Hazard icons alert you to possible electrical shocks.
	Fire Hazard icons alert you to the possibility of fire.
Note	Notes tell you how to respond to a situation that may arise or give tips about how the operation works with other features.

Follow all warnings and instructions marked on the machine.

■ To use the Machine Safely

 **WARNING**



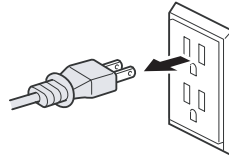
ELECTRICAL HAZARDS

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) or Ethernet (RJ45) 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.



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.

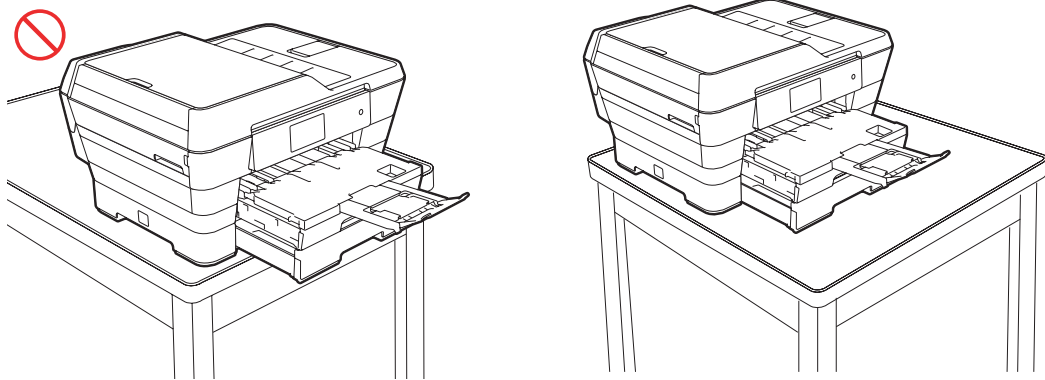
CAUTION

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

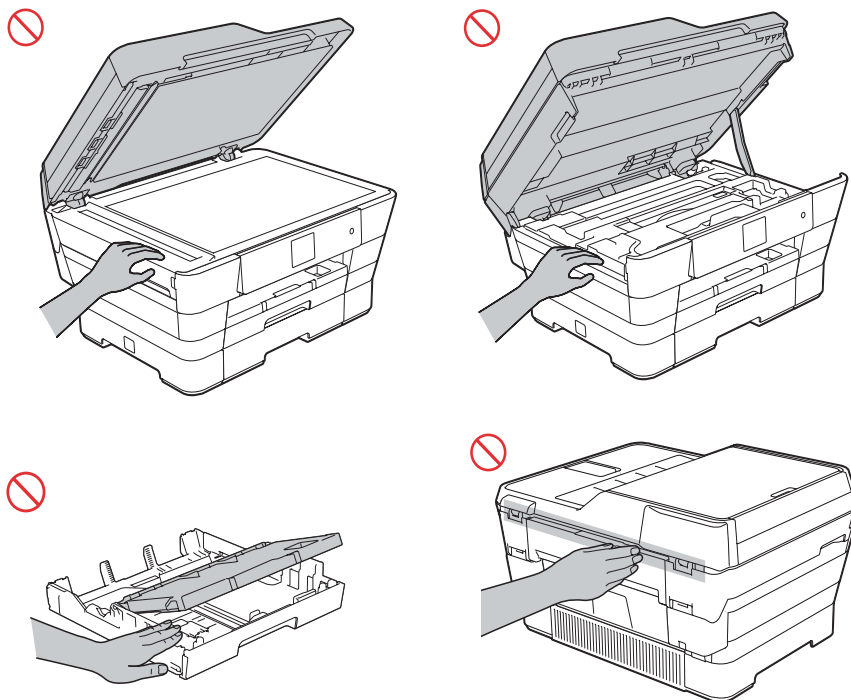
If the machine becomes hot, releases smoke, or generates any strong smells, immediately unplug the machine from the AC power outlet.

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

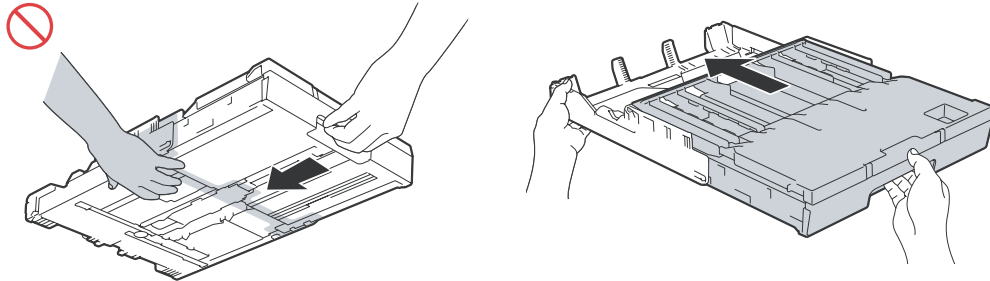
If the tray has been expanded to hold large paper such as Ledger, A3 or Legal size paper, position the machine so that the tray will not protrude past the edge of the table or desk. When the tray is expanded, it will protrude from the machine. Therefore, if someone hits the tray, the machine could fall and cause injury.



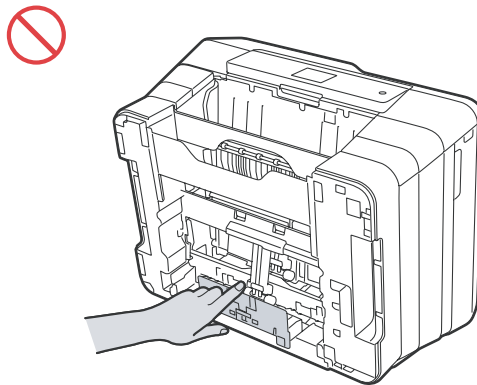
DO NOT put your hands on the edge of the machine. Doing this may cause injury to your fingers by pinching them.



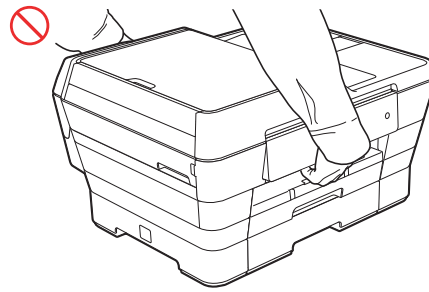
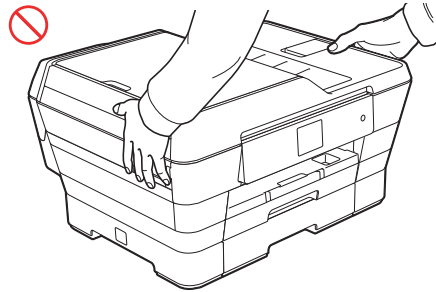
When changing the lower tray size from the Ledger, A3 or legal size to the original size, be careful not to pinch your fingers in the gaps or slots in the bottom of the tray. It may cause injury to you.



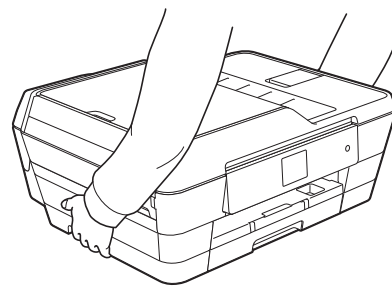
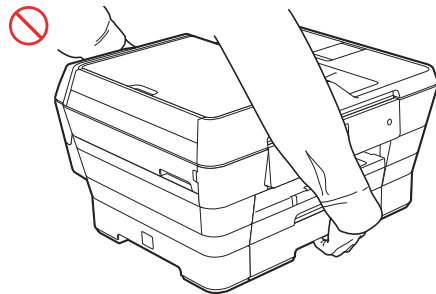
DO NOT touch the area shaded in the illustration. Doing this may cause injury to your fingers by cutting them on the edge of the machine.



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 and may result in injury. Carry the machine by sliding your hands into the hand hold indentations located on each side of the machine.

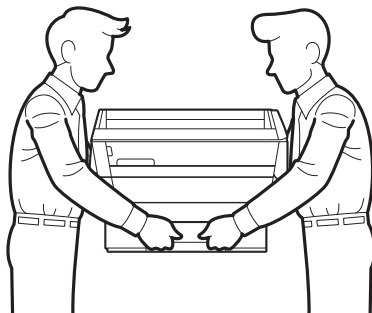
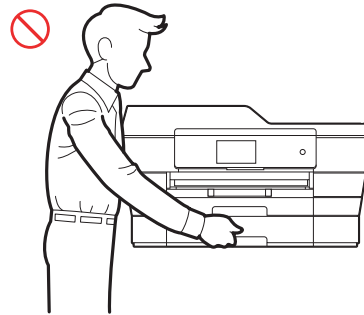
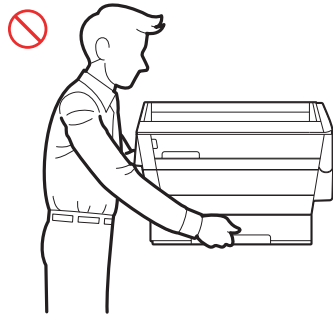


(MFC-J3520/J6520DW)



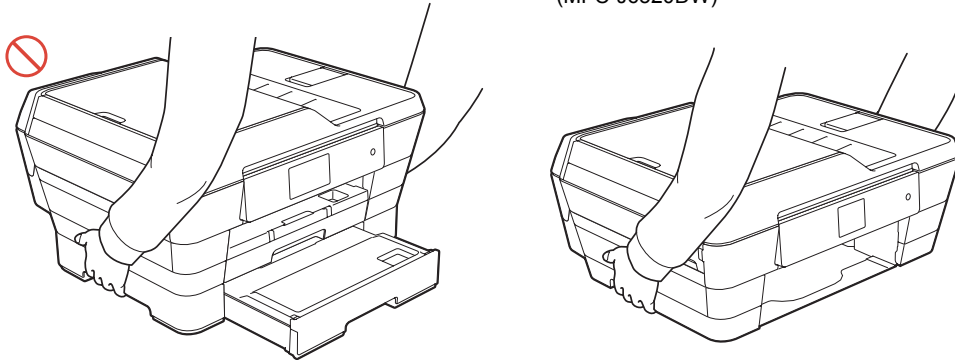
(MFC-J3720/J6720DW/J6920DW and MFC-J6925DW only)

To prevent injuries when moving or lifting this machine, make sure to use at least two people. Be careful not to pinch your fingers when you set the machine back down. DO NOT carry the machine by holding the lower tray when it is installed. The lower tray could fall and injury to you.



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.

(MFC-J6520DW)



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

Precautions for Troubleshooting and/or Disassembly/Assembly

Be sure to observe the following warnings and precautions to prevent any secondary troubles from happening by mishandling the machine during troubleshooting and/or disassembly/assembly.

■ Precautions

Be sure to observe the following to prevent any secondary troubles from happening during troubleshooting and/or disassembly/assembly.

- (1) Power codes must be removed from their outlets before starting any removal of covers and PCBs, adjustments and conductivity test using a tester.
- (2) Be careful not to lose screws, washers, or other parts.
- (3) Apply grease to the points specified in [Chapter 3](#).
- (4) When using soldering irons and other heat-generating tools, take care not to damage the plastic parts such as wires, PCBs, and covers.
- (5) When disconnecting the connectors, hold the connector housings. Do not pull the lead wires.
- (6) After disconnecting flat cables, check that each cable is not damaged at its end or shortcircuited.
- (7) When connecting flat cables, do not insert them at an angle. After insertion, check again that the cables are not at an angle.
- (8) When connecting or disconnecting harnesses, hold the connector bodies not the cables. If the connector has a lock, always unlock it.
- (9) 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.
- (10) 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.
- (11) 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 five to ten 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.
- (12) 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.
- (13) Be sure to observe the warnings.
- (14) After completion of reassembly, it is recommended that the dielectric voltage withstand test and continuity test be conducted.
- (15) After repairing the defective section, be sure to check again if the repaired section works correctly.

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		MFC-J3520	MFC-J3720	MFC-J6520DW	MFC-J6720DW	MFC-J6920DW/J6925DW
Media Sizes	Standard Tray	<Landscape> A4, LTR, EXE, B5* <Portrait> A3, LGR, B4*, LGL, Folio, 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				
	Lower Tray	N/A	<Landscape> A4, LTR <Portrait> A3, LGR, B4*, LGL	N/A	<Landscape> A4, LTR <Portrait> A3, LGR, LGL	
	Manual Feed Slot	<Landscape> A4, LTR, EXE, B5* <Portrait> A3, LGR, B4*, LGL, Folio, 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> A3, LGR, B4*, LGL, Folio, A4, LTR, EXE, A5, B5* <Copy> A3, LGR, B4*, LGL, A4, LTR, A5				
	ADF (width/length)	148/148 mm to 297/431.8 mm (5.8/5.8" to 11.7/17.0")				
	Scanner Glass (width/length)	Up to 297/431.8 mm (Up to 11.7/17.0")				
	Media Weights	Standard Tray	64-220 g/m ² (17-58 lb)			
Lower Tray		N/A	64-105 g/m ² (17-28 lb)	N/A	64-105 g/m ² (17-28 lb)	
Manual Feed Slot		64-220 g/m ² (17-58 lb)				
Duplex Print		64-105 g/m ² (17-28lb)				
ADF		64-90 g/m ² (17-24lb)				
Media Types	Standard Tray	Plain, Inkjet, Glossy (cast/resin), Transparency				
	Lower Tray	N/A	Plain	N/A	Plain	
	Manual Feed Slot	Plain, Inkjet, Glossy (cast/resin), Transparency, Envelope				
	Duplex Print	Plain				
	ADF	Plain				

* Only for Hong Kong/Taiwan/Korea

1.3 Paper Handling

Model		MFC-J3520	MFC-J3720	MFC-J6520DW	MFC-J6720DW	MFC-J6920DW/J6925DW
Paper Input (sheets)	Standard Tray	250 (80 g/m ²)				
	Lower Tray	N/A	250 (80 g/m ²)	N/A	250 (80 g/m ²)	
	Manual Feed Slot	1 (Plain: 120 g/m ² , Grossy: 0.28 mm)				
	ADF	35 (80 g/m ²)				
Output Paper Capacity (sheets)		50 (80 g/m ²)				

1.4 LCD Panel

Model		MFC-J3520	MFC-J3720	MFC-J6520DW	MFC-J6720DW	MFC-J6920DW/J6925DW
LCD	Type & Size	2.7 inch TFT				3.7 inch TFT
	Touch-Panel	Yes				

1.5 Memory

Model		MFC-J3520	MFC-J3720	MFC-J6520DW	MFC-J6720DW	MFC-J6920DW/J6925DW
Memory Capacity (physical: Mbytes)		128 MB				256 MB
Memory Backup (with Flash memory)		Yes				

1.6 Interface

Model		MFC-J3520	MFC-J3720	MFC-J6520DW	MFC-J6720DW	MFC-J6920DW/J6925DW
Host Interface		Hi-Speed USB 2.0				
LAN		Yes				
Wireless LAN		Yes				
NFC		N/A				Yes
PictBridge		Yes				
USB Memory		Yes				
Acceptable Media Cards (Type & Size)/Media Card		Memory Stick Duo: 16 MB-128 MB Memory Stick Pro/Pro Duo/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		MFC-J3520	MFC-J3720	MFC-J6520DW	MFC-J6720DW	MFC-J6920DW/J6925DW
Operating Environment Temperature (Best Print Quality)		10-35 (20-33) °C				
Operating Environment Humidity (Best Print Quality)		20-80 (20-80) %				
Power Consumption (Operating/Standby/Sleep mode/Off)	U.S.A.	N/A		28 w/4.5 w/1.5 w/0.04 w		30 w/5.0 w/1.5 w/0.04 w
	Europe	28 w/5.5 w/1.5 w/0.04 w				29 w/5.5 w/1.5 w/0.04 w
	Asia/Oceania	28 w/5.5 w/1.5 w/0.04 w				29 w/5.5 w/1.5 w/0.04 w
	China	28 w/5.5 w/1.5 w/0.04 w		N/A		
Machine Noise (Operating)		50 dBA (Maximum)				
Machine Dimensions		W553 x D433 x H247 mm	W553 x D433 x H310 mm	W553 x D433 x H247 mm	W553 x D433 x H310 mm	
Machine Weight	U.S.A.	N/A		14.3 kg (31.5 lb)		16.5 kg (36.4 lb)
	Europe	14.5 kg (32.0 lb)	16.7 kg (36.8 lb)	14.5 kg (32.1 lb)		16.7 kg (36.8 lb)
	Asia/Oceania					
	China	N/A				

2 FAX

Model		All models
Modem Speed (bps)		33,600 (FAX)
Transmission Speed		Approx. 3 sec (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		All models
Print Speed ESAT (mono/color) (based on ISO/IEC 24734)		22/20 ipm
Draft Print Speed (mono/color) * time calculated including paper feeding		35/27 ppm
Resolution (horizontal x vertical)		Up to 1,200 x 6,000 dpi
Auto Duplex Print		Yes (Up to A3/LGR)

4 COPY

Model		All models
COPY SPEED ESAT (mono/color) (based on ISO/IEC 24735)		12/9 ipm
COPY SPEED FCOT (based on ISO/IEC 24735 Annex D)		18 sec
Resolution (horizontal x vertical)	Mono	Print: Max. 1,200 x 2,400 dpi Scan: Max. 1,200 x 2,400 dpi
	Color	Print: Max. 1,200 x 2,400 dpi Scan: Max. 1,200 x 1,200 dpi
Duplex Copy		Yes

5 SCANNER

Model		MFC-J3520	MFC-J3720	MFC-J6520DW	MFC-J6720DW	MFC-J6920DW/J6925DW
Scan speed (Mono/Color) *@100 dpi		A4: 3.37 sec/3.48 sec Letter: 3.17 sec/3.27 sec				
Scan speed (Duplex) (Mono/Color) *@100 dpi		N/A				A4: 3.37 sec/4.27 sec Letter: 3.17 sec/4.01 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/Windows 8, 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/7/8/8.1* Windows Server 2003/2003 R2/2008/2008 R2/2012/2012 R2*
	Macintosh	Mac OS X v10.6.8/10.7.x/10.8.x

* Only MFC-J6925DW

7 NETWORK

7.1 Network

Model	All models
Internet FAX (Firmware) (versionT37)	Yes (Download)

7.2 Wired

Model	All models
Model Name (Ethernet)	Embedded (NC-320h)
Network Connection (Ethernet)	Ethernet 10/100BASE-TX Auto Negotiation

7.3 Wireless

Model	All models	
Model Name (Wireless)	Embedded (NC-330w)	
Network Connection (Wireless)	IEEE802.11 b/g/n	
Wireless Security	SSID (32 chr), WEP 64/128 bit, WPA-PSK (TKIP/AES), WPA2-PSK (AES)	
Setup Support Utility	AOSS	Yes
	WPS (Wifi Protected Setup)	Yes

8 SUPPLIES/OPTIONS

Model		MFC-J3520/J3720/J6520DW/J6720DW/J6920DW	MFC-J6925DW
Ink Cartridge Yield @ ISO pattern (Pages)	Bundled Cartridges	BK: 390 CL: 390	BK: 2160 CL: 540
	Supply High Yield Cartridges	BK: 600 CL: 600 (Except for MFC-J3520/3720 for China)	N/A
	Supply Super High Yield Cartridges	BK: 2,400 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	26,000 pages
Machine Life	60,000 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 inch (279.4 x 431.8 mm)	Yes	Yes	Yes	Yes
	Letter	8 1/2 x 11 inch (215.9 x 279.4 mm)	Yes	Yes	Yes	Yes
	A3	11.7 x 16.5 inch (297 x 420 mm)	Yes	Yes	Yes	Yes
	A4	8.3 x 11.7 inch (210 x 297 mm)	Yes	Yes	Yes	Yes
	Legal	8 1/2 x 14 inch (215.9 x 355.6 mm)	Yes	Yes	--	Yes
	Folio	8 1/2 x 13 inch (215.9 x 330.2 mm)	--	--	--	Yes
	Executive	7 1/4 x 10 1/2 inch (184 x 267 mm)	--	Yes	--	Yes
	JIS B4	10.1 x 14.3 inch (257 x 364 mm)	--	--	--	User Defined
	JIS B5	7.2 x 10.1 inch (182 x 257 mm)	--	--	--	User Defined
	A5	5.8 x 8.3 inch (148 x 210 mm)	--	Yes	--	Yes
A6	4.1 x 5.8 inch (105 x 148 mm)	--	--	--	Yes	
Cards	Photo	4 x 6 inch (10 x 15 cm)	--	Yes	Yes	Yes
	Photo L	3 1/2 x 5 inch (89 x 127 mm)	--	--	--	Yes
	Photo 2L	5 x 7 inch (13 x 18 cm)	--	--	Yes	Yes
	Index Card	5 x 8 inch (127 x 203 mm)	--	--	--	Yes
	Postcard 1	3.9 x 5.8 inch (100 x 148 mm)	--	--	--	User Defined
	Postcard 2 (Double)	5.8 x 7.9 inch (148 x 200 mm)	--	--	--	User Defined
Envelopes	C5 Envelope	6.4 x 9 inch (162 x 229 mm)	--	--	--	Yes
	DL Envelope	4.3 x 8.7 inch (110 x 220 mm)	--	--	--	Yes
	COM-10	4 1/8 x 9 1/2 inch (105 x 241 mm)	--	--	--	Yes
	Monarch	3 7/8 x 7 1/2 inch (98 x 191 mm)	--	--	--	Yes
Transparencies	Letter	8 1/2 x 11 inch (215.9 x 279.4 mm)	--	Yes	--	Yes
	A4	8.3 x 11.7 inch (210 x 297 mm)	--	Yes	--	Yes
	Legal	8 1/2 x 14 inch (215.9 x 355.6 mm)	--	Yes	--	Yes
	A5	5.8 x 8.3 inch (148 x 210 mm)	--	Yes	--	Yes

Paper weight and thickness

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

*¹ BP71 69 lb (260 g/m²) paper is especially designed for Brother inkjet machines.

Paper capacity of the paper trays

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

*¹ When using plain paper 20 lb (80 g/m²).

Recommended print media

To get the best print quality, we suggest using Brother paper in the table.

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 BP71GP20
Plain Inkjet - Ledger	BP60PLGR (U.S.A. only)

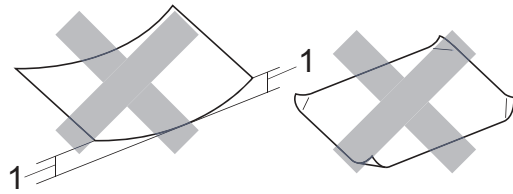
Handling and using print media

- 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.
- Avoid touching either side of transparency paper 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 paper



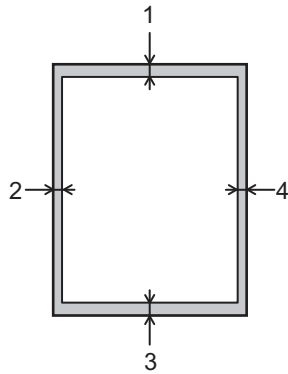
1 0.08 inch (2mm) or greater curl may cause jams to occur.

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

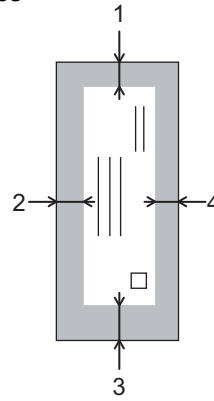
10.2 Printable Area

The printable area depends on the settings in the application you are using. The figures 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 inch (3 mm)	0.12 inch (3 mm)	0.12 inch (3 mm)	0.12 inch (3 mm)
Envelopes	0.87 inch (22 mm)	0.12 inch (3 mm)	0.87 inch (22 mm)	0.12 inch (3 mm)

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

CHAPTER 2 TROUBLESHOOTING

1 INTRODUCTION

1.1 See "Precautions for Troubleshooting and/or Disassembly/Assembly" at the end of SAFETY INFORMATION. (Refer to page: [xxi](#))

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 °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.

■ 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

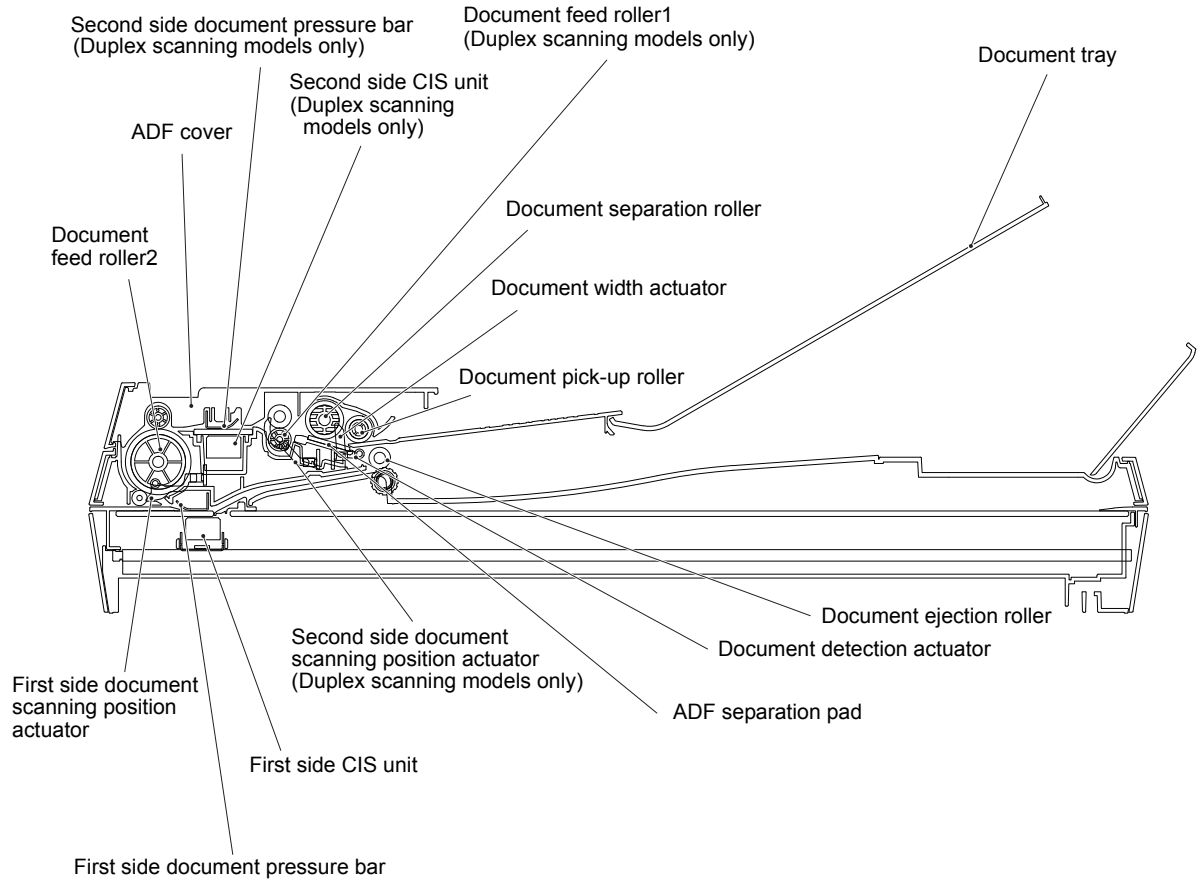


Fig. 2-1

2.1.2 Printer part

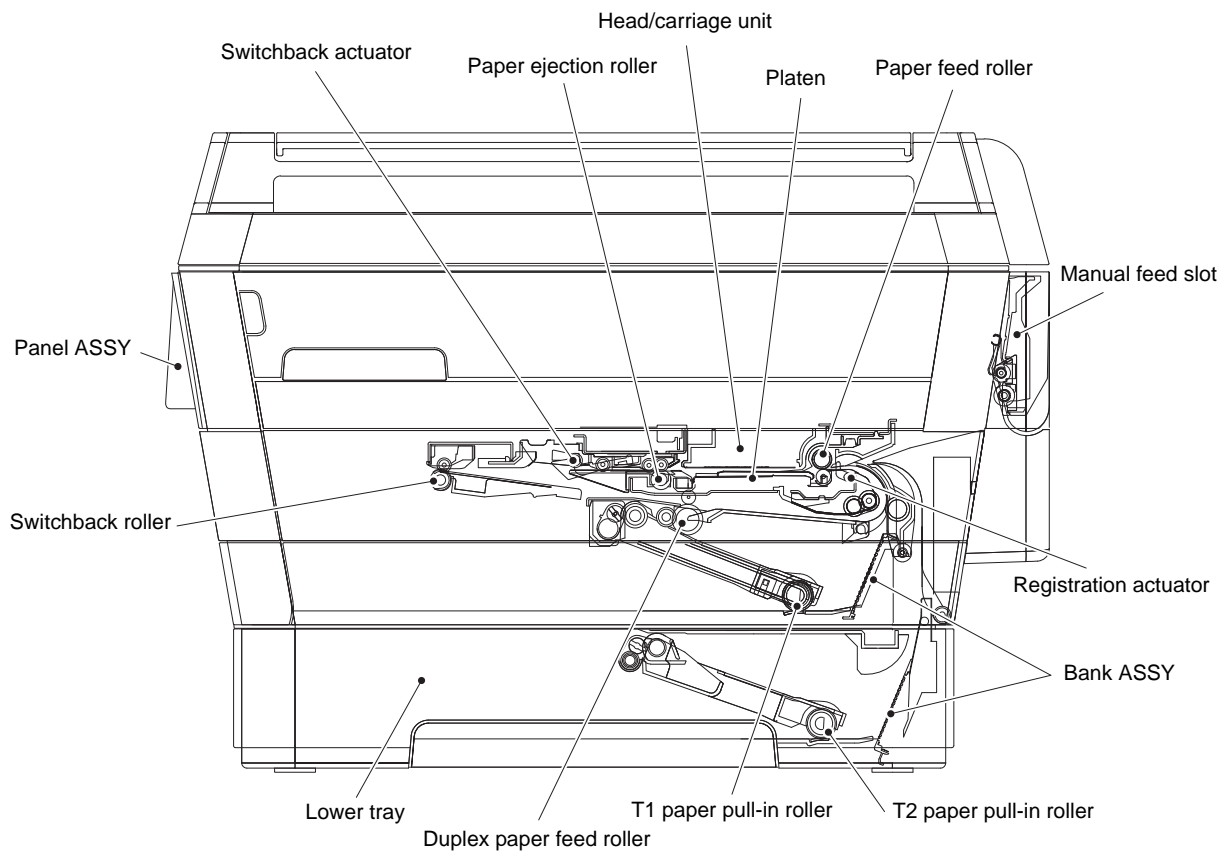


Fig. 2-2

2.2 Document Feeding Path/Recording Paper Feeding Path

2.2.1 Document Feeding Path

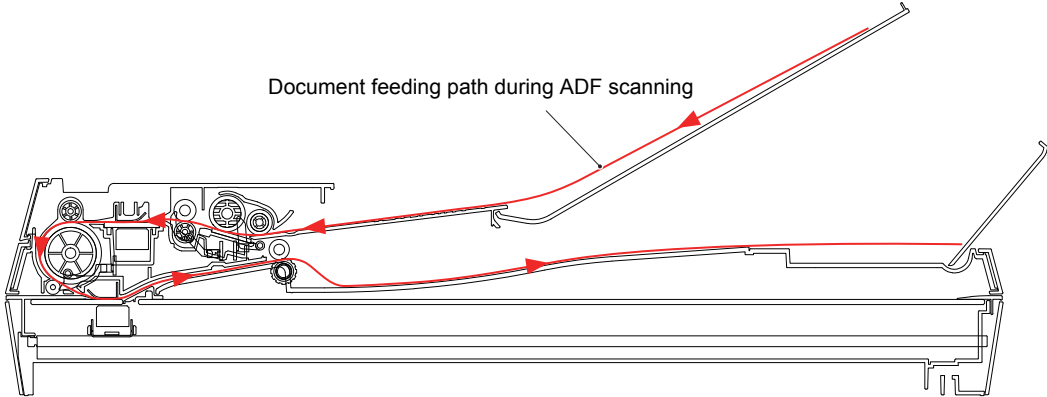


Fig. 2-3

2.2.2 Recording Paper Feeding Path

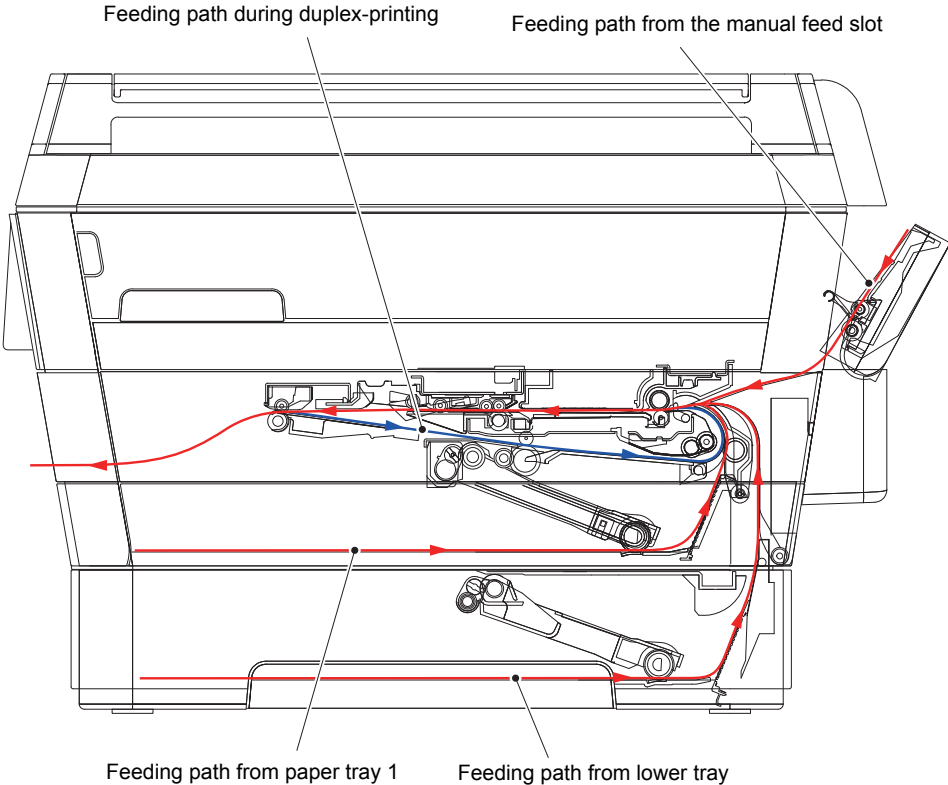


Fig. 2-4

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 width actuator	This detects the width of the documents 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 roller1	This feeds a document to the second side CIS unit.
Document feed roller2	This feeds a document to the first side CIS unit.
Second side document scanning position actuator	This detects the leading edge of document pages, indicating the scanning start position of the second side. (Only in the case of duplex scanning) This detects paper jamming in the ADF.
First side document scanning position actuator	This detects the leading edge of document pages, indicating the scanning start position of the first side. This detects paper jamming in the ADF.
Document ejection roller	This ejects the document of which the first side is scanned to document cover.

■ **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 lower tray.
Registration actuator	<p>This detect the leading edge of recording paper, controlling the printing start position.</p> <p>This detect the leading edge/ending edge of recording paper, identifying the recording paper size.</p> <p>This detects paper jamming in the rear.</p>
Paper feed roller	The leading edge of recording page hits the reversed 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	<p>This detects whether the printed recording papers are ejected.</p> <p>This detects the ending edge of recording paper after printing the first side when duplex-printing, adjusting timing to reverse the switchback roller rotation.</p> <p>This detect the leading edge/ending edge of recording paper when duplex-printing, identifying the recording paper size.</p> <p>This detects whether the recording papers are fed from the switchback roller to the duplex-printing path.</p> <p>This detects paper jamming in the ejector.</p> <p>Detect if paper tray 1 is set.</p>
Switchback roller	<p>This ejects the recording paper to the output paper tray.</p> <p>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.</p>
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

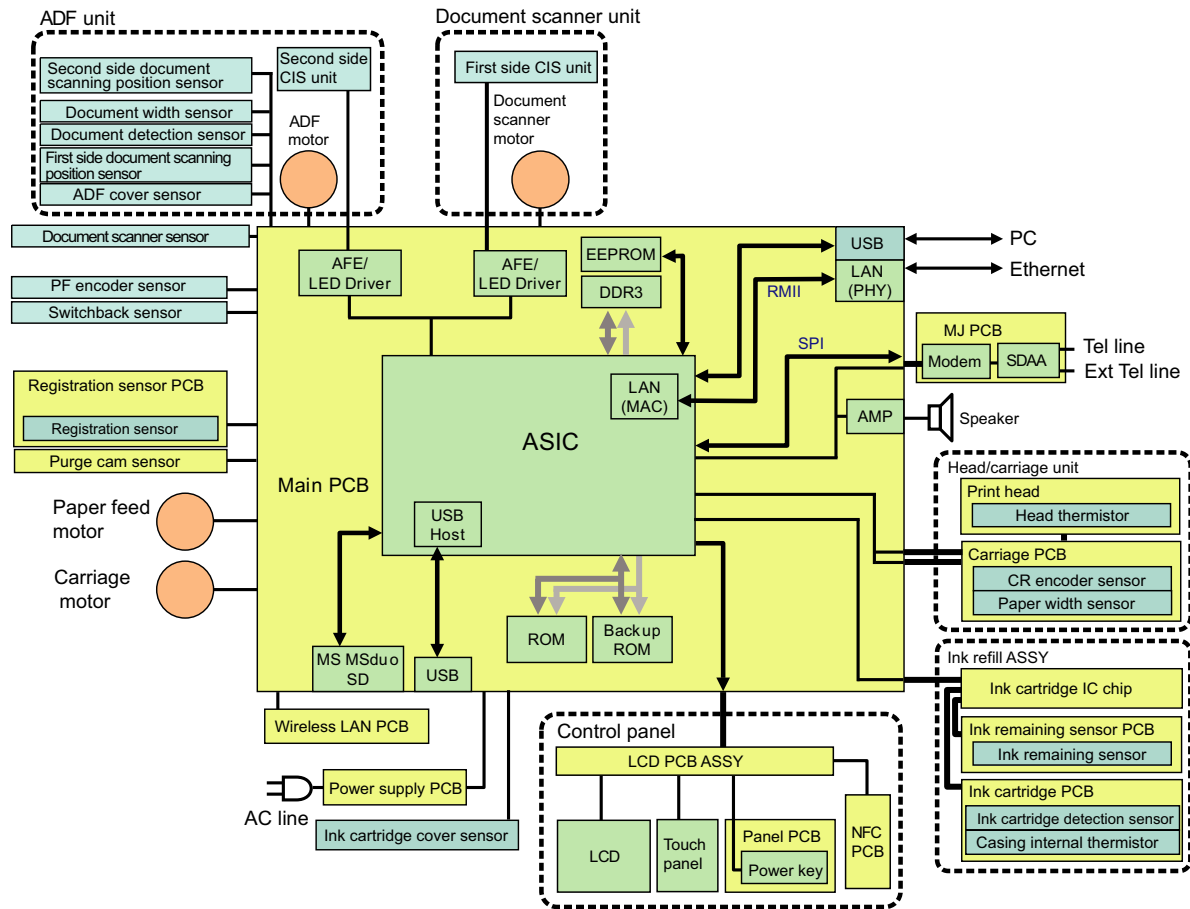


Fig. 2-5

2.5 Components

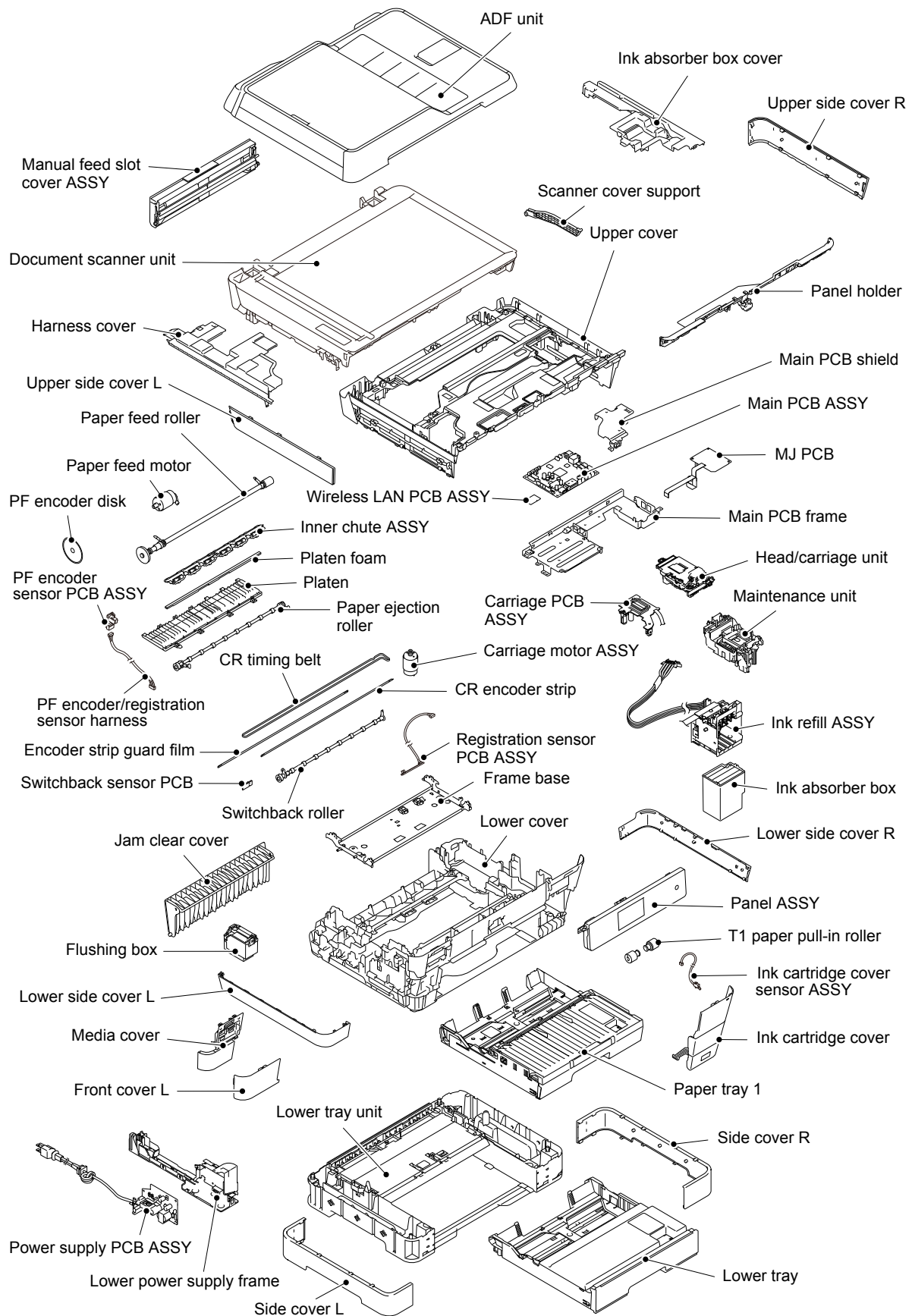


Fig. 2-6

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:
13	Defective during duplex-printing Registration sensor detects paper feed condition at out of specified timing during switchback.	2-21
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.	2-21
17	Recording paper size error (duplex-printing/duplex-copying) - Paper width is wider than 301.5 mm (detection by paper width sensor) - Paper width is narrower than 95.5 mm (detection by paper width sensor) - Paper length is longer than 245.9 mm (detection by registration sensor, switchback sensor) - Paper length is shorter than 143.5 mm (detection by registration sensor, switchback sensor)	2-22
18	Paper jam during duplex-printing Registration sensor does not detect paper feed within specified pulse numbers in the second side paper re-feed.	2-23
20	Cannot identify a black ink cartridge. The ink cartridge detection sensor and the ink remaining sensor are detecting.	2-24
21	Cannot identify a yellow ink cartridge. The ink cartridge detection sensor and the ink remaining sensor are detecting.	2-24
22	Cannot identify a cyan ink cartridge. The ink cartridge detection sensor and the ink remaining sensor are detecting.	2-24
23	Cannot identify a magenta ink cartridge. The ink cartridge detection sensor and the ink remaining sensor are detecting.	2-24
24	Ink cartridge side IC chip relation defective - Identification no match - Judging as incompatible cartridge - Detecting setting wrong color	2-25

Error Code	Contents	Refer to page:
25	Cannot communicate with ink cartridge IC chip (ink cartridge side.)	2-25
26	Black ink cartridge reaches service life time. After judging as no ink by the ink remaining sensor, ink discharged for specified times.	2-26
27	Yellow ink cartridge reaches service life time. After judging as no ink by the ink remaining sensor, ink discharged for specified times.	2-26
28	Cyan ink cartridge reaches service life time. After judging as no ink by the ink remaining sensor, ink discharged for specified times.	2-26
29	Magenta ink cartridge reaches service life time. After judging as no ink by the ink remaining sensor, ink discharged for specified times.	2-26
2A	No black ink cartridge loaded, detected by the ink cartridge detection sensor.	2-27
2B	No yellow ink cartridge loaded, detected by the ink cartridge detection sensor.	2-27
2C	No cyan ink cartridge loaded, detected by the ink cartridge detection sensor.	2-27
2D	No magenta ink cartridge loaded, detected by the ink cartridge detection sensor.	2-27
2E	Cannot communicate with ink cartridge IC chip (machine body side.)	2-27
2F	Ink cartridge cover sensor detects opened cover state.	2-28
30	Head/carriage unit does not move. Detected by the CR encoder sensor.	2-28
31	Head/carriage unit cannot returned to origin. Detected by the CR encoder sensor.	2-29
32	Head capping is unable.	2-29
35	Abnormal stop of head/carriage unit. Causes other than recording paper jam when ink is not discharging.	2-30
38	Abnormal stop of head/carriage unit. Causes by recording paper jam when ink is not discharging.	2-30
3B	Abnormal stop of head/carriage unit. Causes other than recording paper jam when ink is discharging.	2-31
3C	Abnormal stop of head/carriage unit. Causes by recording paper jam when ink is discharging.	2-31
3E	Defective occurs in the carriage motor, paper feed motor.	2-32
3F	Carriage motor cannot stop.	2-33

Error Code	Contents	Refer to page:
40	Casing internal thermistor defective Casing internal thermistor detects -20 °C or less and 80 °C or more when power is ON.	2-33
42	Head voltage fails to be turned OFF.	2-33
43	Head thermistor defective Head thermistor detects -20 °C or less and 80 °C or more when power is ON.	2-34
44	Head driver IC detects abnormal temperature during operation or standby.	2-34
46	Purge count or flushing count overflowed.	2-34
48	Head flat cable detected to be not correctly inserted.	2-35
49	Head voltage does not raise.	2-35
4F	Head voltage drops too quick.	2-36
50	The purge cam switch is not switching ON/OFF.	2-36
52	Failed to detect the origin of the purge cam.	2-37
5A	Abnormal stop of purge cam being driven	2-38
5B	Pump of maintenance unit stopped abnormally during exhaustion/suction.	2-38
5D	Excessive current protection activated for the driver IC during purge cam operation.	2-38
5E	Excessive current protection activated for the driver IC during pump operation.	2-38
67	Switchback sensor detects no paper tray 1 state.	2-39
75	Head/carriage unit cannot shift to head capping position.	2-39
76	Head/carriage unit cannot shift to head uncapping position.	2-39
7E	Head property information not input.	2-40
80	Recording paper size error (during FAX/list printing) Registration sensor, paper width sensor detect unspecified papers.	2-40
81	Recording paper size error (other than FAX/list printing) Registration sensor, paper width sensor detects papers smaller than specified size.	2-41
82	Recording paper jam Paper width sensor cannot detect leading edge of recording papers.	2-41
84	Recording paper jam Registration sensor stays in paper feeding state even after completion of paper ejection action.	2-42

Error Code	Contents	Refer to page:
87	Recording paper jam Switchback sensor stays in paper feeding state even after completion of paper ejection action.	2-42
88	Recording paper jam Switchback sensor cannot detect paper feeding state even papers are fed during printing.	2-43
89	Paper width sensor cannot detect origin specified on the paper feed roller.	2-43
8A	PF encoder sensor cannot detect rotation of the paper feed motor.	2-44
8C	Excessive current protection activated for the driver IC during paper feed motor operation.	2-44
8F	Paper feed motor cannot stop. Or, PF encoder sensor cannot detect rotation of the paper feed motor.	2-45
A1	Document scanner sensor detects that document scanner is open.	2-45
A2	Document scanning position sensor detects length of document 900 mm or more.	2-45
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.	2-46
A4	ADF cover sensor detects opened cover state.	2-46
A5	Level of first side CIS scan result is detected as abnormal during FAX transmission (first transmission.)	2-47
A6	Level of first side CIS scan result is detected as abnormal during FAX transmission (after re-try.)	2-47
A7	Type of CIS unit and CIS type input value does not match.	2-47
A8	Matching of color parameter fails.	2-47
AC	Level of second side CIS scan result is detected as abnormal during FAX transmission (first transmission.)	2-48
AF	CIS positioning abnormal (Home position cannot be found.)	2-48
BC	Level of second side CIS scan result detected as abnormal during FAX transmission (after re-try.)	2-49
BD	Black level value abnormal at scanning	2-49
BF	Document scanning position sensor detects a document of which length is larger than the specified size for duplex scanning.	2-50
DF	Modem communication failure	2-50
E0	Modem does not start normally even after resetting the modem.	2-50
E2	Wired LAN MAC address not registered.	2-51
E3	Wireless LAN MAC address not registered.	2-51

Error Code	Contents	Refer to page:
E6	Main PCB ASSY EEPROM write error	2-51
E9	NFC PCB initialization failed.	2-51
EC	LCD disconnection detected.	2-52
ED	Touch panel initialization failed.	2-52
F0	Flash file system error	2-52
F8	Battery harness is detected to be not correctly inserted.	2-53
FE	ROM data acquisition error	2-53

3.2 Error Messages

Error Message	State	Error Code	Refer to page:
B&W 1-sided Print Only Replace Ink	After judging getting close to ink replacing timing by the ink remaining sensor, ink discharged for specified times. Monochrome print only is available.	27, 28, 29	2-26
BT Call Sign On (UK only)	Since the BT Call sign is ON, the receiving mode cannot be changed.		
Cannot Detect	Cannot identify a ink cartridge.	20, 21, 22, 23, 24, 25	2-24, 2-25
Cannot detect Ink volume	Ink remaining counter in the ink cartridge IC chip becomes 0.		2-86 (4.10.6)
Cannot Print Replace Ink	After judging getting close to ink replacing timing by the ink remaining sensor, ink discharged for specified times.	26, 27, 28, 29	2-26
Comm.Error	FAX communication error.		2-83 (4.9)
Connection Failed	Destination fax machine cannot make the polling setting.		
Cover is Open.	Document scanner sensor detects that document scanner is open.	A1	2-45
	ADF cover sensor detects opened cover state.	A4	2-46
	Ink cartridge cover sensor detects opened cover state.	2F	2-28
Data Remaining in Memory	Data cannot be processed due to memory full.		
Disconnected	Destination fax machine stops.		
Document Jam	Document scanning position sensor detects paper jam inside ADF.	A2, A3	2-45, 2-46
DR Mode in Use	Since the Distinctive Ring mode is set, the receiving mode cannot be changed from Manual to other mode.		
High Temperature	Casing internal thermistor detects that room temperature is too high.	40	2-33
Hub is Unusable.	USB hub or USB device with a built-in hub is set.		
Image Too Long	Image is too long to correct.		
Image Too Small	Image is too small to trim.		
Ink Absorber Full	Purge count or flushing count reach upper threshold.	46	2-34
Ink Absorber Near Full	Purge counter is near upper threshold.		
Ink low	Ink remaining sensor detects near ink replacing timing.		

Error Message	State	Error Code	Refer to page:
Low Temperature	Casing internal thermistor detects that room temperature is too low.	40	2-33
Media Error	Detect defective in memory card.		2-86 (4.10.4)
Media is Full	Media slot memory is full or there are 999 files or more.		
No Caller ID	There is no Caller ID information.		
No File	There is no file that can be printed in the memory card or USB flash memory.		
No Ink Cartridge	Ink cartridge is not set.	2A, 2B, 2C, 2D	2-27
No Paper Fed	Registration sensor detects no recording paper in the paper tray 1 or lower tray. Registration sensor detects that papers are not loaded correctly in the manual feed slot.		2-54 (4.2.1)
No Response/Busy	The calling station is busy or does not respond.		
Out of Fax Memory	Amount of the data stored in the memory by the Memory Receive function exceeds the upper limit.		
Out of Memory	Memory is insufficient.		
Paper Jam	Registration sensor, switchback sensor, and paper width sensor detect paper jam. Some kind of error occurs on the paper feed motor.	13, 15, 18, 31, 38, 3C, 82, 84, 87, 88, 8A, 8C	2-21, 2-23, 2-29, 2-30, 2-31, 2-41, 2-42, 2-43, 2-44
Paper tray not detected	Switchback sensor detects no paper tray 1.	67	2-39
Touchscreen Init. Failed	Touch panel initialization failed.	ED	2-52
Unable to Print	Detects some problem in printing.		
Unable to Scan	Detects some problem in scanning.		
Unusable Device Disconnect device from front connector & turn machine off then	Connected USB device might be broken.		
Unusable Device Please disconnect USB device	USB device which is not compatible with this machine is connected.		
Wrong Ink Color	A ink cartridge is set in position not matching its specified color.	24	2-25
Wrong Paper	Registration sensor, paper width sensor detect unspecified papers.	17, 80, 81	2-22, 2-40, 2-41

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	
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 broad-casting instruction.	
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	08	There is no data in the box No. specified by F code communication.	
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	17	Invalid resolution selected.	
40	18	Retrieval is commanded although remote retrieval of F code is not available.	
40	19	Remote registration is commanded although remote registration of F code is not available.	
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.	
63	09	There is no box No. specified by F code communication.	
63	10	SID frame is not sent at the time of remote registration to bulletin board using F code.	
63	11	PWD frame is not sent at the time of remote retrieval of confidential data using F code.	
63	12	Password specified by F code does not match.	
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.)	

Code 1	Code 2	Cause	Refer to page:
A8	01	Receive RTN or PIN or ERR (sending side.)	Section 4.9.3 "A communications error occurs"
A9	01	Send RTN or PIN or ERR (receiving side.)	
AA	18	Receive buffer full during receiving into memory.	
B0	02	Unable to receive the next-page data.	
B0	03	Unable to receive polling even during turn-around transmission due to call reservation.	
B0	04	PC interface error	
BF	01	Communication canceled by depressing X key before confirming FAX communication.	
BF	02	Communication canceled by depressing X 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 13

Paper Jam	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	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	Main PCB defective	Replace the main PCB ASSY.

■ Error Code 15

Paper Jam	LCD
-----------	-----

Paper jam during duplex ejecting

Recording paper is not able to be ejected since it is longer than 840 mm when ejecting the paper.

User Check

- Remove the jammed paper.
- Check whether the recording paper being used is within the specification.
- Firmly set the paper tray to the rear end.

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**

Wrong Paper Size / Wrong Paper	LCD
---------------------------------------	-----

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

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

User Check

- Check whether the recording paper being used is within the specification.
- Check that dark recording paper is not used.
- Firmly set the paper tray to the rear end.

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 Chapter 3, Section 1 "PRECAUTIONS BEFORE PROCEEDING.")
4	Switchback actuator caught on the surrounding parts	Set the switchback frame ASSY into place.
5	CR encoder strip defective	Replace the CR encoder strip.
6	PF encoder disk defective	Replace the PF encoder disk.
7	Registration sensor defective	Replace the registration sensor PCB ASSY.
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**

Paper Jam	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**

Cannot Detect	LCD
----------------------	-----

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

Error Code 21

Cannot Detect	LCD
----------------------	-----

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

Error Code 22

Cannot Detect	LCD
----------------------	-----

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

Error Code 23

Cannot Detect	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**

Cannot Detect / Wrong Color Ink	LCD
--	-----

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

Install Starter Ink	LCD
----------------------------	-----

The ink cartridge which is not contains 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 starter ink cartridge.

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

■ **Error Code 25**

Cannot Detect	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**

Cannot Print / Replace Ink	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

Cannot Print / Replace Ink	LCD
B&W 1-sided Print Only / Replace Ink	

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

Cannot Print / Replace Ink	LCD
B&W 1-sided Print Only / Replace Ink	

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

Cannot Print / Replace Ink	LCD
B&W 1-sided Print Only / Replace Ink	

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**

Cannot Print / No Ink Cartridge	LCD
--	-----

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

Error Code 2B

Cannot Print / No Ink Cartridge	LCD
--	-----

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

Error Code 2C

Cannot Print / No Ink Cartridge	LCD
--	-----

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

Error Code 2D

Cannot Print / No Ink Cartridge	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**

Unable to Print 2E	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**

Cover is Open / Close Ink Cover	LCD
--	-----

Ink cartridge cover sensor detects opened cover state.

User Check

- Close the ink cartridge cover.

Step	Cause	Solution
1	Ink cartridge cover harness connection failure	Reconnect the ink cartridge cover 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**

Unable to Print 30	LCD
---------------------------	-----

Head/carriage unit 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**

Paper Jam	LCD
------------------	-----

Head/carriage unit 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	Maintenance unit defective	Replace the maintenance unit.
11	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 32**

Unable to Print 32	LCD
---------------------------	-----

Head capping 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	Maintenance unit defective	Replace the maintenance unit.
4	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 35**

Unable to Print 35	LCD
---------------------------	-----

Abnormal stop of head/carriage unit. Causes other than 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**

Paper Jam	LCD
------------------	-----

Abnormal stop of head/carriage unit. Causes by 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	Maintenance unit defective	Replace the maintenance unit.
6	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 3B**

Unable to Print 3B	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**

Paper Jam	LCD
------------------	-----

Abnormal stop of head/carriage unit. Causes by 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

Unable to Print 3E	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 paper feed roller belt	Remove foreign materials.
4	Foreign materials around 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 PCB ASSY.
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**

Unable to Print 3F	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**

Unable to Print 40	LCD
---------------------------	-----

Casing internal thermistor defective

Casing internal thermistor detects -20 °C or less and 80 °C or more when power is ON.

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

■ **Error Code 42**

Unable to Print 42	LCD
---------------------------	-----

Head voltage fails to be turned 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 ASSY.
6	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 43**

Unable to Print 43	LCD
---------------------------	-----

Head thermistor defective

Head thermistor detects -20 °C or less and 80 °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**

Unable to Print 44	LCD
---------------------------	-----

Head driver IC detects abnormal temperature during operation or standby.

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 "Updating of Head Property Data and Backup/Restoration of Head Calibration Data.")
3	Head defective	Replace the head/carriage unit.
4	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 46**

Unable to Print 46 / Ink Absorber Full	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 flashing counter.
2	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 48**

Unable to Print 48	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**

Unable to Print 49	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 4F**

Unable to Print 4F	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**

Unable to Print 50	LCD
---------------------------	-----

The purge cam switch is not switching ON/OFF.

User Check

- Remove the jammed paper in platen part.

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 sensor PCB ASSY.
5	Maintenance unit defective	Replace the maintenance unit.
6	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 52**

Unable to Print 52	LCD
---------------------------	-----

Failed to detect the origin of the purge cam.

User Check

Remove the jammed paper in platen part.

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 sensor PCB ASSY.
5	Maintenance unit defective	Replace the maintenance unit.
6	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 5A**

Unable to Print 5A	LCD
---------------------------	-----

Abnormal stop of purge cam being driven.

Error Code 5B

Unable to Print 5B	LCD
---------------------------	-----

Pump of maintenance unit stopped abnormally during exhaustion/suction.

Error Code 5D

Unable to Print 5D	LCD
---------------------------	-----

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

Error Code 5E

Unable to Print 5E	LCD
---------------------------	-----

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

User Check

Remove the jammed paper in platen part.

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 Chapter 3, Section 1 "PRECAUTIONS BEFORE PROCEEDING.")
3	PF encoder disk defective	Replace the PF encoder disk.
4	PF encoder sensor defective	Replace the PF encoder sensor 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**

Paper tray not detected	LCD
--------------------------------	-----

Switchback sensor detects no paper tray 1 state.

User Check

- Set paper tray1.

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

■ **Error Code 75**

Unable to Print 75	LCD
---------------------------	-----

Head/carriage unit cannot shift to head capping position.

Error Code 76

Unable to Print 76	LCD
---------------------------	-----

Head/carriage unit cannot shift to head uncapping position.

User Check

Remove the jammed paper in platen part and maintenance unit part.

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	Carriage motor defective	Replace the carriage motor ASSY.
5	Maintenance unit defective	Replace the maintenance unit.
6	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 7E**

Unable to Print 7E	LCD
---------------------------	-----

Head property information not input.

Step	Cause	Solution
1	Head property information not input	Input the head property information (refer to Chapter 5, Section 1.3.25 "Updating of Head Property Data and Backup/Restoration of Head Calibration Data.")
2	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 80**

Wrong Paper Size / Wrong Paper	LCD
---------------------------------------	-----

Recording paper size error (during FAX/list printing)
Registration sensor, 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 Chapter 3, Section 1 "PRECAUTIONS BEFORE PROCEEDING.")
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 sensor 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**

Wrong Paper Size / Wrong Paper	LCD
---------------------------------------	-----

Recording paper size error (other than FAX/list printing)
 Registration sensor, 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**

Paper Jam	LCD
------------------	-----

Recording paper jam
 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	Inside cover ASSY defective	Replace the inside cover ASSY.
7	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 84**

Paper Jam	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	Paper feed roller, paper ejection roller, switchback roller stained	Clean the related rollers.
5	Paper feed roller, paper ejection roller, switchback roller defective	Replace related rollers.
6	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 87**

Paper Jam	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	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**

Paper Jam	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 sensor harness connection failure	Reconnect the switchback sensor harness.
4	Paper feed roller, paper ejection roller stained	Clean the related rollers.
5	Paper feed roller, paper ejection roller defective	Replace related rollers.
6	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 89**

Unable to Print 89	LCD
---------------------------	-----

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

Step	Cause	Solution
1	PF encoder disk stained	Clean the PF encoder disk and flushing guide (refer to Chapter 3, Section 1 "PRECAUTIONS BEFORE PROCEEDING.")
2	PF home position detection lever stained	Clean the PF home position detection lever and the flushing guide. (refer to Chapter 3, Section 1 "PRECAUTIONS BEFORE PROCEEDING.")
3	PF encoder disk defective	Replace the PF encoder disk.
4	PF home position detection lever out of place	Set the PF home position detection lever into place.
5	Paper width sensor or carriage PCB defective	Replace the carriage PCB ASSY.
6	Main PCB defective	Replace the main PCB ASSY.

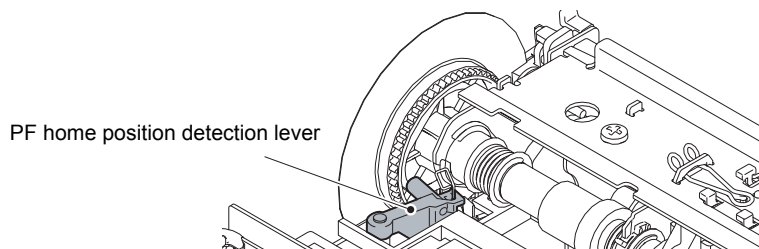


Fig. 2-7

■ **Error Code 8A**

PAPER JAM	LCD
------------------	-----

PF encoder sensor cannot detect rotation of the 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	PF roller belt out of place	Set the PF roller belt into place.
5	PF encoder sensor defective	Replace the PF encoder sensor PCB ASSY.
6	PF encoder disk defective	Replace the PF encoder disk.
7	Paper feed motor defective	Replace the paper feed motor.
8	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 8C**

PAPER JAM	LCD
------------------	-----

Excessive current protection activated for the driver IC during 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 PCB ASSY.
3	Paper feed motor defective	Replace the paper feed motor.
4	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 8F**

Unable to Print 8F	LCD
---------------------------	-----

Paper feed motor cannot stop. Or, PF encoder sensor cannot detect rotation of the paper feed motor.

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

■ **Error Code A1**

Cover is Open	LCD
----------------------	-----

Document scanner sensor detects that document scanner is open.

User Check

- Close the document scanner unit.

Step	Cause	Solution
1	Document scanner actuator out of place	Set the document scanner actuator into place.
2	Document scanner sensor defective	Replace the document scanner sensor.
3	Document scanner unit boss broken	Replace the document scanner unit.
4	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code A2**

Document Jam	LCD
---------------------	-----

Document scanning position sensor detects length of document 900 mm 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.
3	Document feed roller worn out/ ADF motor defective	Replace the ADF unit.
4	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code A3**

Document Jam	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	Document pick-up roller worn out	Replace the document separation roller ASSY.
7	ADF motor defective	Replace the ADF motor.
8	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code A4**

Cover is Open	LCD
----------------------	-----

ADF cover sensor detects opened cover state.

User Check

- Close the ADF cover.

Step	Cause	Solution
1	ADF cover sensor harness connection failure	Reconnect the ADF cover sensor harness.
2	ADF cover boss broken	Replace the ADF cover.
3	ADF cover sensor defective	Replace the ADF unit.
4	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code A5**

Unable to Scan A5	LCD
--------------------------	-----

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

■ **Error Code A6**

Unable to Scan A6	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 level data.
2	White reference tape stained	Clean document cover glass at white reference tape.
3	First side CIS unit defective	Replace the first side CIS unit.
4	White reference tape damage, broken	Replace the document scanner unit.
5	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code A7**

Unable to Scan A7	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 Chapter 5, Section 1.3.20 "Checking of CIS Travel and Setting of CIS Type.")
2	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code A8**

Unable to Scan A8	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**

Unable to Scan AC	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 level data.
2	White reference tape of document pressure bar of ADF cover stained	Clean the white reference tape of document pressure bar of ADF cover.
3	Second side CIS unit defective	Replace the second side CIS unit.
4	White reference tape of document pressure bar of ADF cover damage, broken	Replace the ADF cover.
5	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code AF**

Unable to Scan AF	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	Document scanner motor harness connection failure	Reconnect the document scanner motor harness.
3	First side CIS flat cable connection failure	Reconnect the first side CIS flat cable.
4	First side CIS flat cable and second side CIS flat cable are connected vice versa.	Reconnect the first side CIS flat cable and the second side CIS flat cable correctly.
5	Black reference tape stained	Clean document cover glass at black reference tape.
6	First side CIS flat cable defective	Replace the first side CIS flat cable.
7	First side CIS unit defective	Replace the first side CIS unit.
8	Document scanner motor defective	Replace the document scanner unit.
9	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code BC**

Unable to Scan BC	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 level data.
2	White reference tape of document pressure bar of ADF cover stained	Clean the white reference tape of document pressure bar of ADF cover.
3	Second side CIS unit defective	Replace the second side CIS unit.
4	White reference tape of document pressure bar of ADF cover damage, broken	Replace the ADF cover.
5	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code BD**

Unable to Scan BD	LCD
--------------------------	-----

Black level value abnormal at scanning.

Step	Cause	Solution
1	Black level data failure	Carry out maintenance 55 to obtain white level 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**

Unable to Scan BF	LCD
--------------------------	-----

Document scanning position sensor detects a document of which length is larger than the specified size for 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	Document feed roller worn out/ ADF motor defective	Replace the ADF unit.
4	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code DF**

Unable to Print DF	LCD
---------------------------	-----

Modem communication failure

■ **Error Code E0**

Unable to Print E0	LCD
---------------------------	-----

Modem does not start normally even after resetting the modem.

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.

■ **Error Code E2**

Unable to Print E2	LCD
---------------------------	-----

Wired LAN MAC address not registered.

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

■ **Error Code E3**

Unable to Print E3	LCD
---------------------------	-----

Wireless LAN MAC address not registered.

Step	Cause	Solution
1	Wireless LAN PCB ASSY 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.

■ **Error Code E6**

Unable to Print E6	LCD
---------------------------	-----

Main PCB ASSY EEPROM write error

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

■ **Error Code E9**

Unable to Print E9	LCD
---------------------------	-----

NFC PCB initialization failed.

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

■ **Error Code EC**

Unable to Print EC	LCD
---------------------------	-----

LCD disconnection detected.

Step	Cause	Solution
1	LCD flat cable connection failure	Reconnect the LCD flat cable.
2	LCD PCB harness connection failure	Reconnect the LCD PCB harness.
3	LCD PCB ASSY defective	Replace the LCD PCB ASSY.
4	LCD unit defective	Replace the LCD unit.
5	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code ED**

Unable to Print ED	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 touch panel ASSY.
2	LCD PCB ASSY defective	Replace the LCD PCB ASSY.
3	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code F0**

Unable to Print F0	LCD
---------------------------	-----

Flash file system error

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

■ **Error Code F8**

Unable to Print F8	LCD
---------------------------	-----

Battery harness is detected to be not correctly inserted.
 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 FE**

Unable to Print FE	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.

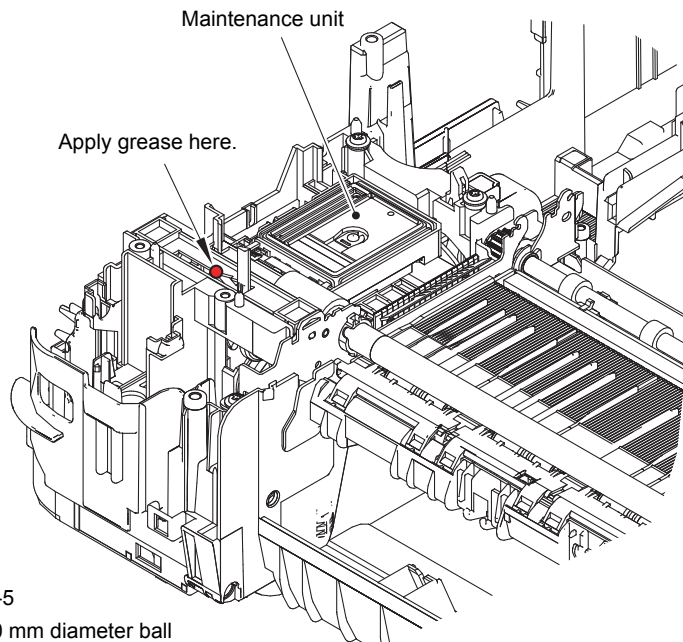
If the same problem occurs, follow each procedure in the order of the number described in the Step column in the tables below.

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 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 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 Chapter 3, Section 1 "PRECAUTIONS BEFORE PROCEEDING.")
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 (refer to Fig. 2-8 (2-55).)
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.



Lubricant type: Permalub BAN-5
 Lubricant amount per point: 3.0 mm diameter ball

Fig. 2-8

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 paper tray is within specified volume.
- Try reversing the recording paper in each 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 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	Inside cover ASSY defective	Replace the inside cover ASSY.
5	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 paper tray is within specified volume.
- Check that the recording paper is not curled or folded.
- 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 not mounted in place	Set the platen 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	Inside cover ASSY defective	Replace the inside cover ASSY.
10	Platen damaged, broken	Replace the platen.
11	Registration sensor defective	Replace the registration sensor PCB ASSY.
12	Paper tray defective	Replace the paper tray.
13	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 eject roller belt out of place	Set the paper eject roller belt into place.
11	CR guide rail not mounted in place	Set the CR guide rail into place.
12	Platen not mounted in place	Set the platen 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	Platen damaged, broken	Replace the platen.
18	Registration sensor PCB defective	Replace the registration sensor PCB ASSY.
19	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 eject roller belt out of place	Set the paper eject roller belt into place.
5	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 eject roller belt out of place	Set the paper eject roller belt into place.
6	DX paper guide ASSY not mounted in place	Set the DX paper guide ASSY into place.
7	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.
- 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

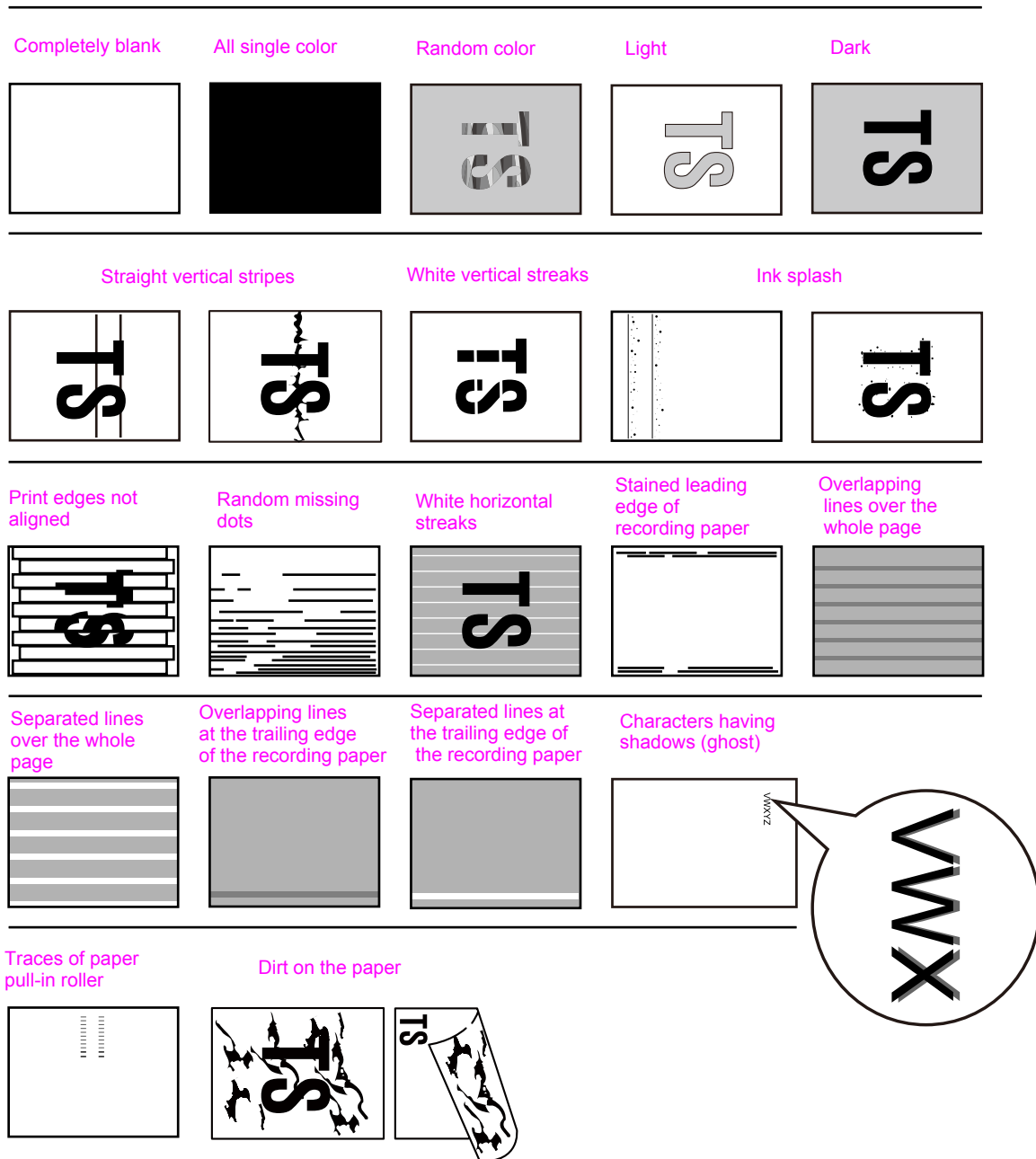


Fig. 2-9

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 Chapter 5, Section 1.3.25 "Updating of Head Property Data and Backup/Restoration of Head Calibration Data.")
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 the recommended procedures in Chapter 5, Section 1.3.29 "Purge Operation (Maintenance mode 76)").
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>

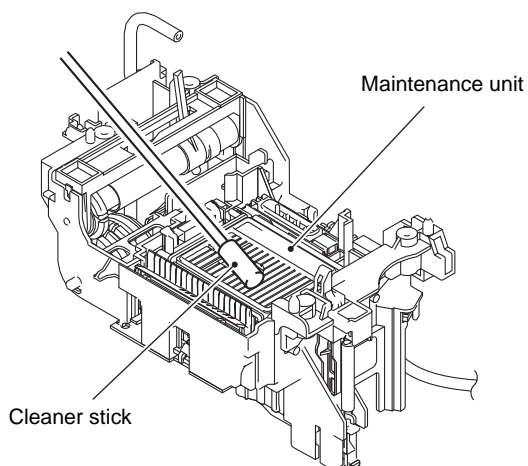


Fig. 2-10

■ 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

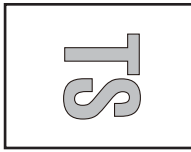


User Check

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

Step	Cause	Solution
1	Maintenance unit stained	Clean the maintenance unit (refer to Fig. 2-10 (2-62).)
2	Wrong head property value	Input the head property value (refer to Chapter 5, Section 1.3.25 "Updating of Head Property Data and Backup/Restoration of Head Calibration Data.")
3	Head calibration uncompleted	Write the head calibration data (refer to Chapter 5, Section 1.3.2 "Creating of Head Calibration Data and Writing it into Flash ROM.")
4	Non-discharge of ink from head	Perform the recommended purge procedures. (refer to the recommended procedures in Chapter 5, Section 1.3.29 "Purge Operation (Maintenance mode 76)").
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 Fig. 2-10 (2-62).)
2	Wrong head property value	Input the head property value (refer to Chapter 5, Section 1.3.25 "Updating of Head Property Data and Backup/Restoration of Head Calibration Data.")
3	Head calibration uncompleted	Write the head calibration data (refer to Chapter 5, Section 1.3.2 "Creating of Head Calibration Data and Writing it into Flash ROM.")
4	Non-discharge of ink from head	Perform the recommended purge procedures. (refer to the recommended procedures in Chapter 5, Section 1.3.29 "Purge Operation (Maintenance mode 76)".
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

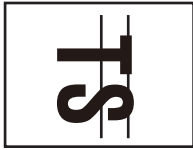


User Check

- Check whether the paper type setting is correct.

Step	Cause	Solution
1	Maintenance unit stained	Clean the maintenance unit (refer to Fig. 2-10 (2-62).)
2	Wrong head property value	Input the head property value (refer to Chapter 5, Section 1.3.25 "Updating of Head Property Data and Backup/Restoration of Head Calibration Data.")
3	Head calibration uncompleted	Write the head calibration data (refer to Chapter 5, Section 1.3.2 "Creating of Head Calibration Data and Writing it into Flash ROM.")
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**

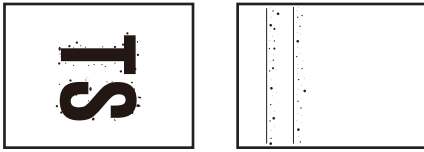


User Check

- 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 the recommended procedures in Chapter 5, Section 1.3.29 "Purge Operation (Maintenance mode 76)").
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 Fig. 2-10 (2-62).)
2	Wrong head property value	Input the head property value (refer to Chapter 5, Section 1.3.25 "Updating of Head Property Data and Backup/Restoration of Head Calibration Data.")
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.
- Set the improvement of the ruled line offset of Selector Nos. 1 to 3 of AMS07 (refer to [1.3.35 "Assurance Mode Switch Setting."](#))

Step	Cause	Solution
1	Vertical print lines not aligned	Adjust vertical print line alignment (refer to Chapter 5, Section 1.3.23 "Adjustment of Vertical Print Lines/Software Correction for Inclination/Corrugation/Ruled Lines.")
2	Head inclination is not correctly adjusted.	Adjust the head inclination (refer to Chapter 4, Section 2.4 "Adjust head inclination.")
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 Fig. 2-10 (2-62) .)
2	Non-discharge of ink from head	Perform the recommended purge procedures. (refer to the recommended procedures in Chapter 5, Section 1.3.29 "Purge Operation (Maintenance mode 76)").
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 Fig. 2-10 (2-62) .)
2	Paper feeding correction not updated	Update paper feed correction (refer to Chapter 5, Section 1.3.19 "Updating of Paper Feeding Correction Values.")
3	Head inclination is not correctly adjusted	Adjust the head inclination (refer to Chapter 4, Section 2.4 "Adjust head inclination.")
4	PF encoder disk stained	Clean the PF encoder disk and flushing guide (refer to Chapter 3, Section 1 "PRECAUTIONS BEFORE PROCEEDING")
5	Non-discharge of ink from head	Perform the recommended purge procedures. (refer to the recommended procedures in Chapter 5, Section 1.3.29 "Purge Operation (Maintenance mode 76)").
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 Fig. 2-10 (2-62).)
2	Paper feeding correction value not updated	Adjust the paper feeding correction value (refer to Chapter 5, Section 1.3.19 "Updating of Paper Feeding Correction Values.")
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 Chapter 4, Section 2.4 "Adjust head inclination.")
2	Head calibration uncompleted	Write the head calibration data (refer to Chapter 5, Section 1.3.2 "Creating of Head Calibration Data and Writing it into Flash ROM.")
3	Paper feeding correction value not updated	Adjust the paper feeding correction value (refer to Chapter 5, Section 1.3.19 "Updating of Paper Feeding Correction Values.")
4	PF encoder disk stained	Clean the PF encoder disk and flushing guide (refer to Chapter 3, Section 1 "PRECAUTIONS BEFORE PROCEEDING.")
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

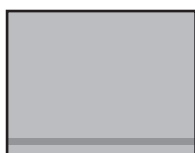


User Check

- Carry out head cleaning.

Step	Cause	Solution
1	Head inclination is not correctly adjusted.	Adjust the head inclination (refer to Chapter 4, Section 2.4 "Adjust head inclination.")
2	Head calibration uncompleted	Write the head calibration data (refer to Chapter 5, Section 1.3.2 "Creating of Head Calibration Data and Writing it into Flash ROM.")
3	Paper feeding correction value not updated	Adjust the paper feeding correction value (refer to Chapter 5, Section 1.3.19 "Updating of Paper Feeding Correction Values.")
4	PF encoder disk stained	Clean the PF encoder disk and flushing guide (refer to Chapter 3, Section 1 "PRECAUTIONS BEFORE PROCEEDING")
5	Non-discharge of ink from head	Perform the recommended purge procedures. (refer to the recommended procedures in Chapter 5, Section 1.3.29 "Purge Operation (Maintenance mode 76)").
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 Chapter 5, Section 1.3.19 "Updating of Paper Feeding Correction Values.")
2	PF encoder disk stained	Clean the PF encoder disk and flushing guide (refer to Chapter 3, Section 1 "PRECAUTIONS BEFORE PROCEEDING")
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.

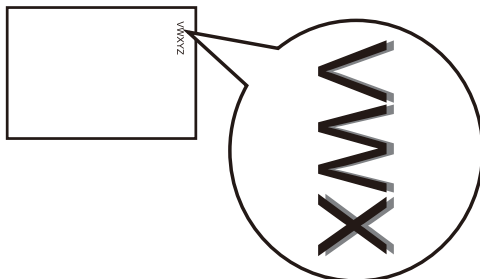


Step	Cause	Solution
1	Paper feeding correction value not updated	Adjust the paper feeding correction value (refer to Chapter 5, Section 1.3.19 "Updating of Paper Feeding Correction Values.")
2	PF encoder disk stained	Clean the PF encoder disk and flushing guide (refer to Chapter 3, Section 1 "PRECAUTIONS BEFORE PROCEEDING")
3	Non-discharge of ink from head	Perform the recommended purge procedures. (refer to the recommended procedures in Chapter 5, Section 1.3.29 "Purge Operation (Maintenance mode 76)").
4	PF encoder disk defective	Replace the PF encoder disk.
5	Main PCB defective	Replace the main PCB ASSY.

■ Characters having shadows (ghost)

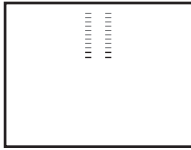
User Check

- Carry out head cleaning.



Step	Cause	Solution
1	Paper feeding correction value not updated	Adjust the paper feeding correction value (refer to Chapter 5, Section 1.3.19 "Updating of Paper Feeding Correction Values.")
2	Vertical print lines not aligned	Adjust vertical print line alignment (refer to Chapter 5, Section 1.3.23 "Adjustment of Vertical Print Lines/Software Correction for Inclination/Corrugation/Ruled Lines.")
3	PF encoder disk stained	Clean the PF encoder disk and flushing guide (refer to Chapter 3, Section 1 "PRECAUTIONS BEFORE PROCEEDING")
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**

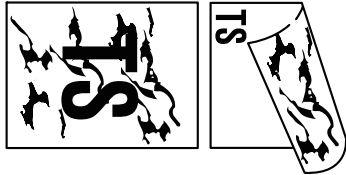


User Check

- 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 (refer to Fig. 2-10 (2-62).)
2	Foreign materials in the reverse side of the head	Remove foreign materials.
3	Paper feed roller stained	Replace the paper feed roller.
4	Paper ejection roller stained	Replace the paper ejection roller.
5	Switchback roller stained	Replace the switchback roller.

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	LCD PCB harness connection failure	Reconnect the LCD PCB harness.
2	LCD harness connection failure	Reconnect the LCD harness.
3	LCD unit defective	Replace the LCD unit.
4	LCD PCB ASSY defective	Replace the LCD PCB ASSY.
5	Power supply PCB and power cord defective	Replace the power supply PCB ASSY.
6	Main PCB defective	Replace the main PCB ASSY.

4.6.2 No display on LED

Step	Cause	Solution
1	LCD PCB harness connection failure	Reconnect the LCD PCB harness.
2	Panel PCB harness connection failure	Reconnect the panel PCB harness.
3	LCD PCB ASSY defective	Replace the LCD PCB ASSY.
4	Panel PCB defective	Replace the panel ASSY.
5	Power supply PCB and power cord defective	Replace the power supply PCB ASSY.
6	Main PCB defective	Replace the main PCB ASSY.

4.6.3 The control panel does not work

Step	Cause	Solution
1	Panel PCB harness connection failure	Reconnect the panel PCB harness.
2	Panel PCB defective	Replace the panel ASSY.
3	Power supply PCB defective	Replace the power supply PCB ASSY.
4	Main PCB defective	Replace the main PCB ASSY.

4.6.4 Touch panel inoperative

Step	Cause	Solution
1	LCD PCB harness connection failure	Reconnect the LCD PCB harness.
2	Touch panel harness connection failure	Reconnect the touch panel harness.
3	LCD PCB ASSY defective	Replace the LCD PCB ASSY.
4	Touch panel ASSY defective	Replace the touch panel ASSY.
5	Power supply PCB defective	Replace the power supply PCB ASSY.
6	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 and "ADF READY" appears on the LCD.
- 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 separation roller	Remove foreign materials.
2	Document separation roller stained	Clean the document separation roller.
3	Document detection actuator not mounted in place	Set the document detection actuator into place.
4	Document width actuator not mounted in place	Set the document width actuator into place.
5	ADF motor harness connection failure	Reconnect the ADF motor harness.
6	Document detection sensor harness connection failure	Reconnect the document detection sensor harness.
7	Document width sensor harness connection failure	Reconnect the document width sensor harness.
8	Document pick-up roller worn out	Replace the document separation roller ASSY.
9	Document detection sensor defective	Replace the document detection sensor PCB ASSY.
10	Document width sensor defective	Replace the document width sensor PCB ASSY.
11	ADF motor defective or document feed gear and/or document separate roller gear broken	Replace the ADF unit.
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 around ADF cover

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/m².
- Check that the document is not curled or folded.
- 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 document chute not mounted in place	Set the upper document chute into place.
4	ADF separation pad holder ASSY not mounted in place	Set the ADF separation pad holder ASSY into place.
5	Separation pad spring not mounted in place	Set the separation pad spring into place.
6	Document scanning position actuator not mounted in place	Set the document scanning position actuator into place.
7	ADF cover ASSY damaged, broken	Replace the ADF cover ASSY.
8	ADF separation pad defective	Replace the ADF separation pad.
9	Document scanning position sensor defective	Replace the document scanning position sensor PCB ASSY.
10	Upper document chute damaged, broken	Replace the ADF unit.
11	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/m².

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 document chute not mounted in place	Set the upper document chute into place.
4	Document scanning position actuator not mounted in place	Set the document scanning position actuator into place.
5	Document scanning position sensor defective	Replace the document scanning position sensor PCB ASSY.
6	Feeding path in ADF unit damaged, broken	Replace the ADF unit.
7	Feeding path inside document scanner unit damaged, broken	Replace the document scanner unit.
8	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 separation 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 width actuator caught on the surrounding parts	Set the document width actuator into place.
3	Document scanning position sensor harness connection failure	Reconnect the document scanning position sensor harness.
4	Document width sensor harness connection failure	Reconnect the document width sensor harness.
5	Document scanning position sensor defective	Replace the document scanning position sensor PCB ASSY.
6	Document width sensor defective	Replace the document width sensor.
7	Main PCB defective	Replace the main PCB ASSY.

4.8 Scanned-image Problems

4.8.1 Defective images

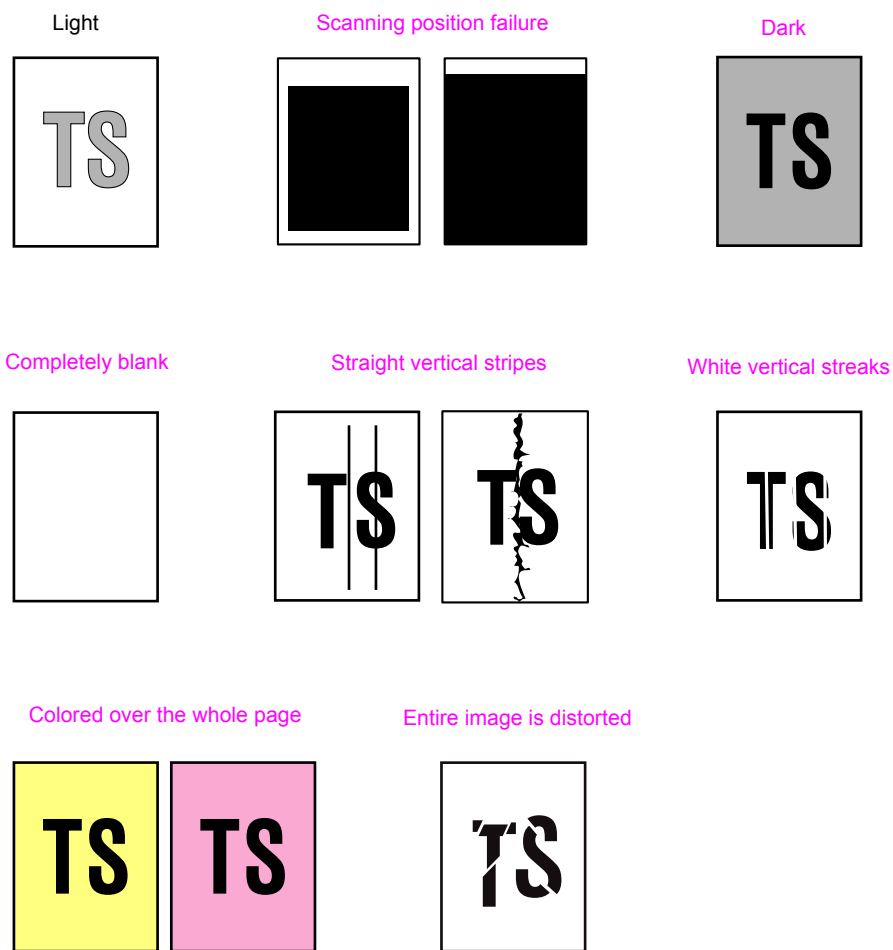
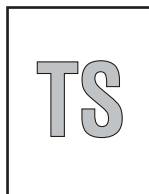


Fig. 2-11

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 flat-bed.

(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**

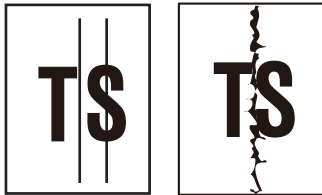


User Check

- 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	Foreign materials on the lens surface of CIS unit	Remove foreign materials.
2	First side or second side CIS unit defective	Replace the first side or second side CIS unit.

■ **White vertical streaks**

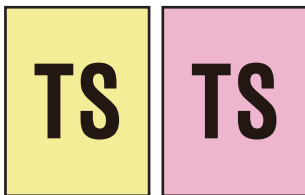


User Check

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

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

■ **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	The first side or second side of CIS type mismatches	Carry out maintenance 59 to set the CIS type of the first side or second side.

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	LCD PCB harness connection failure	Reconnect the LCD PCB harness.
3	Panel PCB harness connection failure	Reconnect the panel PCB harness.
4	LCD PCB ASSY defective	Replace the LCD PCB ASSY.
5	Touch panel defective	Replace the touch panel.
6	MJ PCB defective	Replace the MJ PCB ASSY.
7	First side or second side CIS unit defective	Replace the first side or second side CIS unit.
8	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 power cord securely.

Step	Cause	Solution
1	LCD PCB harness connection failure	Reconnect the LCD PCB harness.
2	LCD harness connection failure	Reconnect the LCD harness.
3	LCD unit defective	Replace the LCD unit.
4	Condenser defective on the main PCB	Replace the condenser on the main PCB. (For the judgment and replacement methods of condenser defective, refer to APPENDIX 4 "REPLACEMENT OF CONDENSER ON THE MAIN PCB".)
5	Power supply PCB defective	Replace the power supply PCB ASSY.
6	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 power cord.

Step	Cause	Solution
1	Media cover not mounted in place	Set the 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 power 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.

4.10.6 Ink cartridge related problems

User Check

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

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

4.10.7 Loud printing sound

User Check

- Set the silent mode enabled in the user menu.

CHAPTER 3 DISASSEMBLY AND ASSEMBLY

1 PRECAUTIONS BEFORE PROCEEDING

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



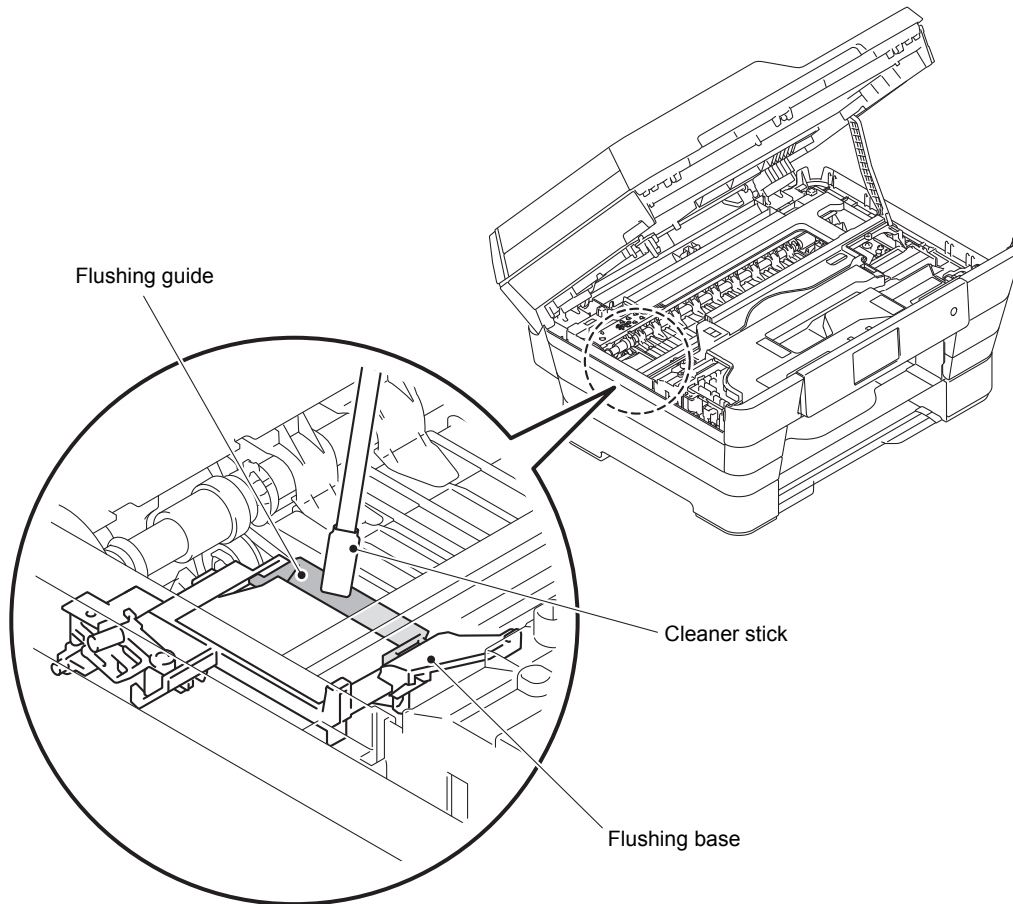
WARNING

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

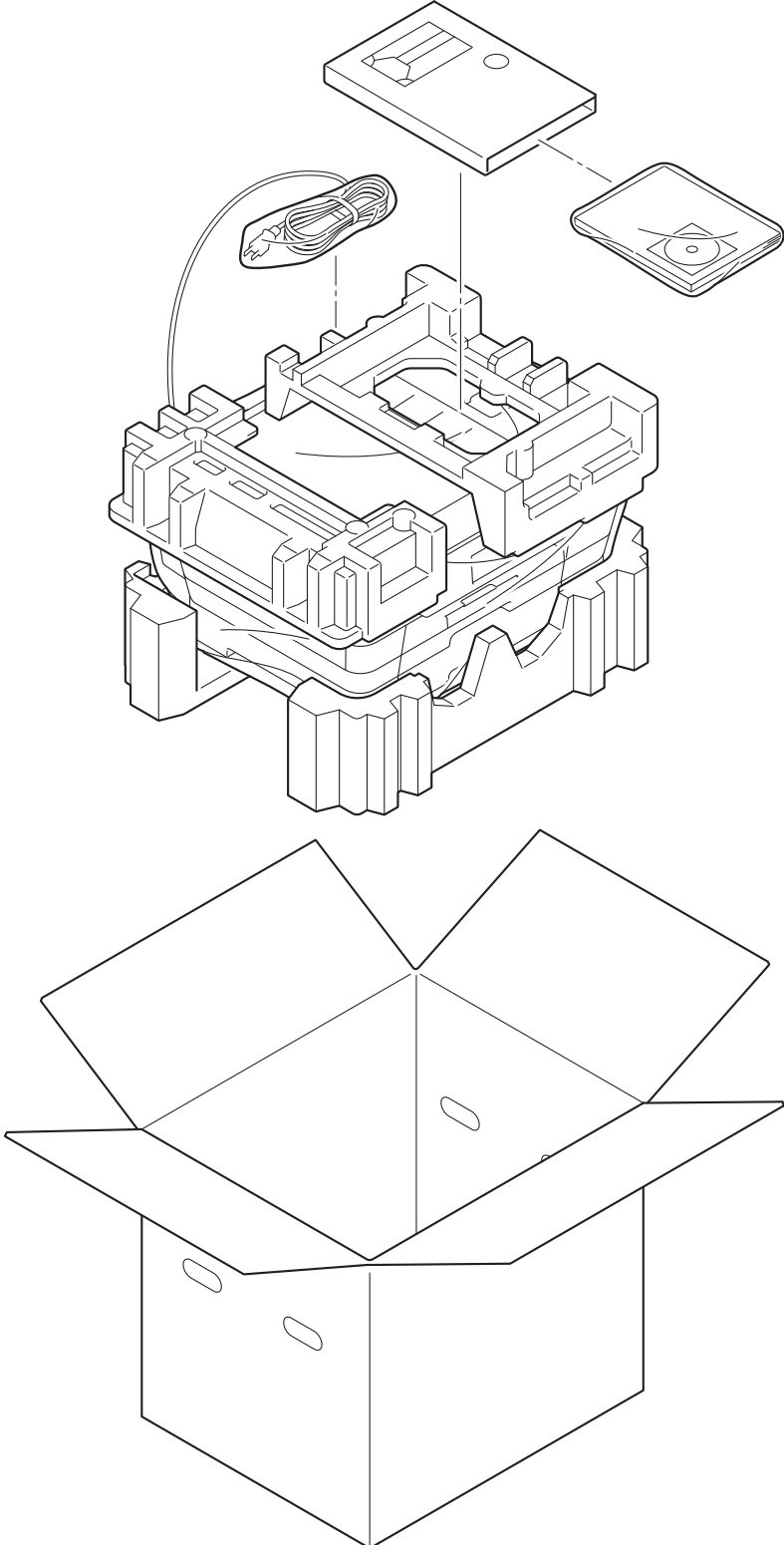
In particular, when having access to the power supply inside the machine, make sure that the power cord is unplugged from the electrical outlet; when having access to the main PCB or modem PCB, make sure that both the power cord and telephone line are unplugged from the electrical outlet.

- (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 five to ten 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.

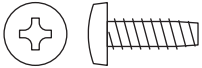


2 PACKING



3 SCREW CATALOGUE

TAPTITE BIND B

TAPTITE BIND B M4x12	
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TAPTITE CUP B

TAPTITE CUP B M3x10	
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TAPTITE CUP B M3x8	
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TAPTITE CUP B M3x12	
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TAPTITE CUP S

TAPTITE CUP S M3x6	
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TAPTITE CUP S M3x8	
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SCREW BIND

SCREW, BIND M3x6	
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SCREW BIND M2x12	
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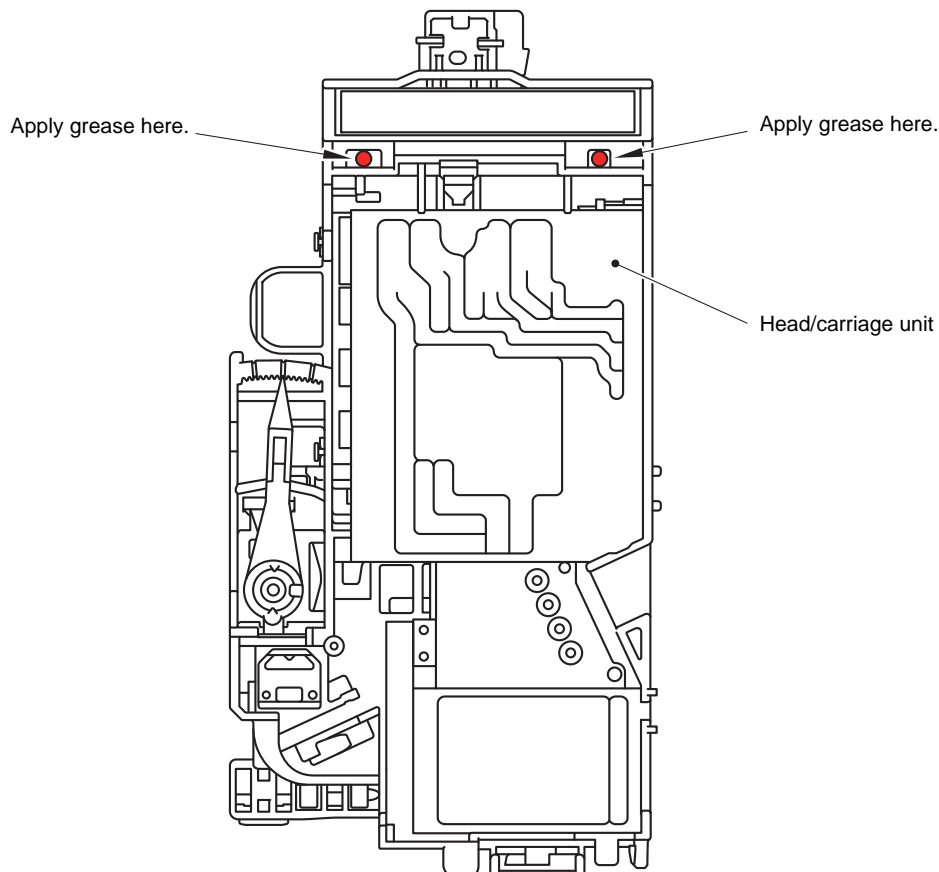
4 SCREW TORQUE LIST

Location of screw	Screw type	Q'ty	Tightening torque N•m (kgf•cm)
ADF FG wire/FB FG wire	TAPTITE CUP S M3x6	1	0.40±0.10 (4±1)
Document scanner unit	TAPTITE BIND B M4x12	2	0.80±0.10 (8±1)
FB hinge	TAPTITE BIND B M4x12	6	0.85±0.10 (8.5±1)
ADF unit	TAPTITE BIND B M4x12	2	0.85±0.05 (8.5±0.5)
ADF hinge	TAPTITE CUP B M3x10	6	0.50±0.10 (5±1)
ADF reinforcement plate	TAPTITE CUP B M3x10	1	0.50±0.10 (5±1)
Upper document chute	TAPTITE CUP B M3x10	5	0.50±0.10 (5±1)
Document scanner base ASSY	TAPTITE CUP B M3x10	5	0.55±0.05 (5.5±0.5)
Panel holder	TAPTITE BIND B M4x12	3	0.70±0.10 (7±1)
Panel grounding wire	TAPTITE CUP S M3x6	1	0.40±0.10 (4±1)
Panel lower cover	TAPTITE CUP B M3x10	3	0.40±0.10 (4±1)
Upper cover	TAPTITE BIND B M4x12	3	0.70±0.10 (7±1)
Main PCB shield	TAPTITE CUP S M3x6	2	0.40±0.10 (4±1)
Main PCB ASSY	TAPTITE CUP S M3x6	2	0.40±0.10 (4±1)
MJ upper frame	TAPTITE CUP S M3x6	1	0.40±0.10 (4±1)
MJ PCB ASSY	TAPTITE CUP S M3x6	1	0.40±0.10 (4±1)
Lower cover	TAPTITE BIND B M4x12	4	0.70±0.10 (7±1)
Lower power supply frame	TAPTITE CUP S M3x8	1	0.45±0.10 (4.5±1)
Power supply PCB ASSY	TAPTITE CUP S M3x6	3	0.45±0.10 (4.5±1)
Engine FG wire	TAPTITE CUP S M3x6	1	0.40±0.10 (4±1)
Main PCB frame	TAPTITE CUP S M3x6	1	0.45±0.10 (4.5±1)
	TAPTITE CUP B M3x10	2	0.40±0.10 (4±1)
CR frame ASSY	TAPTITE CUP B M3x10	2	0.60±0.10 (6±1)
	TAPTITE CUP S M3x6	1	0.40±0.10 (4±1)
	SCREW BIND M3x6	2	0.60±0.10 (6±1)
Motor bracket	SCREW BIND M3x6	2	0.60±0.10 (6±1)
Switchback frame	TAPTITE CUP B M3x12	2	0.50±0.10 (5±1)
PF encoder sensor PCB ASSY	SCREW BIND M2x12	1	0.15±0.05 (1.5±0.5)
CR guide rail	SCREW BIND M3x6	2	0.60±0.10 (6±1)
	TAPTITE CUP B M3x10	2	0.50±0.10 (5±1)
Paper feed motor frame ASSY	SCREW BIND M3x6	2	0.60±0.10 (6±1)
Frame base	TAPTITE CUP B M3x10	2	0.50±0.10 (5±1)
Engine FG wire	TAPTITE CUP B M3x10	1	0.50±0.10 (5±1)
DX chute	TAPTITE CUP B M3x10	2	0.50±0.10 (5±1)
Lower tray frame	TAPTITE CUP B M3x8	2	0.50±0.10 (5±1)

5 LUBRICATION

Lubricant type (Manufacturer)	Lubrication points		Lubricant amount per point
FLOIL BG-1319 (Kanto Kasei)	Head/carriage unit	2	1.0 mm diameter ball
	CR guide rail (Top surface)	24	2.0 mm diameter ball
	CR frame (Top surface)	24	2.0 mm diameter ball
	CR frame (Inner side face of vertical edge at the front side)	30	2.0 mm diameter ball
	CR frame (Inner side face of vertical edge at the rear side)	30	2.0 mm diameter ball
	CR frame (Rear surface)	2	1.0 mm diameter ball
Molykote EM-30LP (Dow Corning) or FLOIL BG-10KS (Kanto Kasei)	Platen	4	1.0 mm diameter ball
Permalub BAN-5 (Nippeco)	Paper feed roller	2	2.0 mm diameter ball x 2
Molykote EM-30LP (Dow Corning) or FLOIL BG-10KS (Kanto Kasei)	T1 paper pull-in roller	2	2.0 mm diameter ball
	T2 paper pull-in roller	2	2.0 mm diameter ball

■ Head/carriage unit

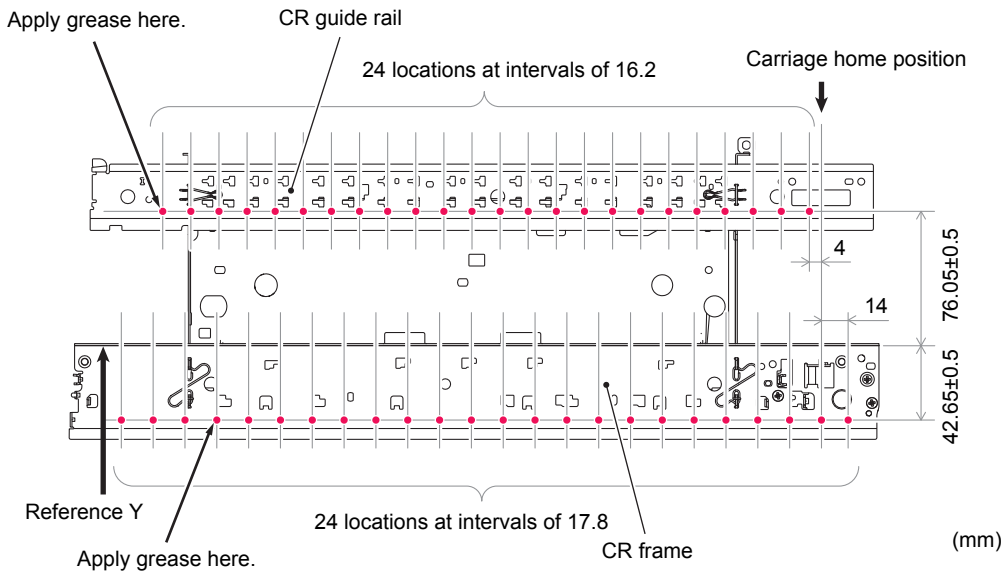


■ CR guide rail and CR frame (Top surface)

Apply grease (FLOIL BG1319) at the size of 2 mm diameter to 48 locations in total shown in the figure below.

Grease application procedures

- (1) Move the Head/carriage unit to the left end.
- (2) Before applying grease, wipe dirt and dust on the area to which grease is to be applied with a cloth damped with alcohol.
- (3) After applying grease, move the Head/carriage unit from the left end to the right end in order to spread grease.

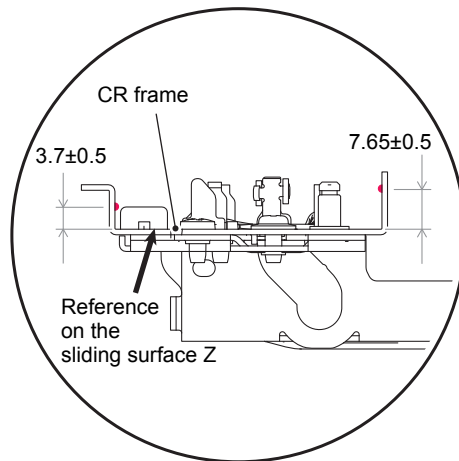
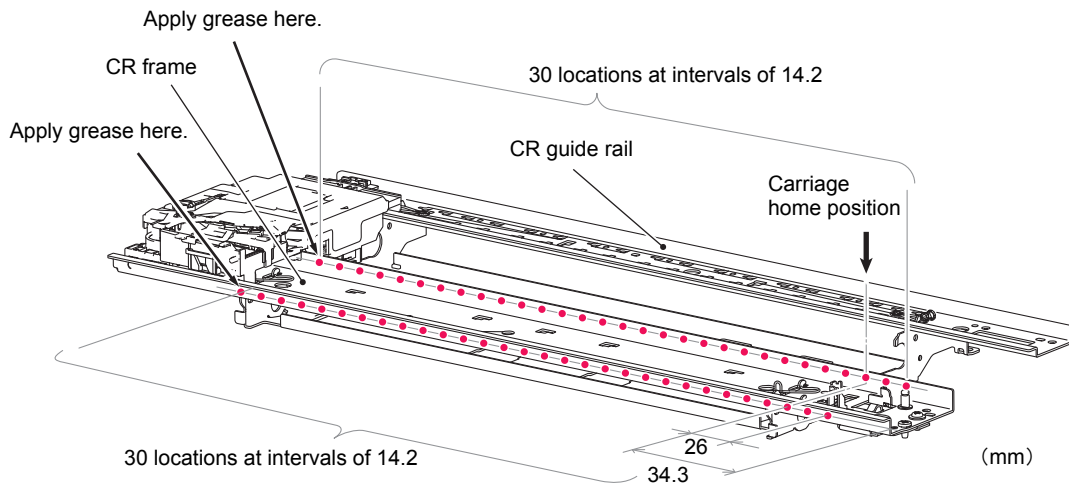


■ **CR frame (Inner side face of vertical edge at the front and rear sides)**

Apply grease (FLOIL BG1319) at the size of 2 mm diameter to 60 locations in total shown in the figure below.

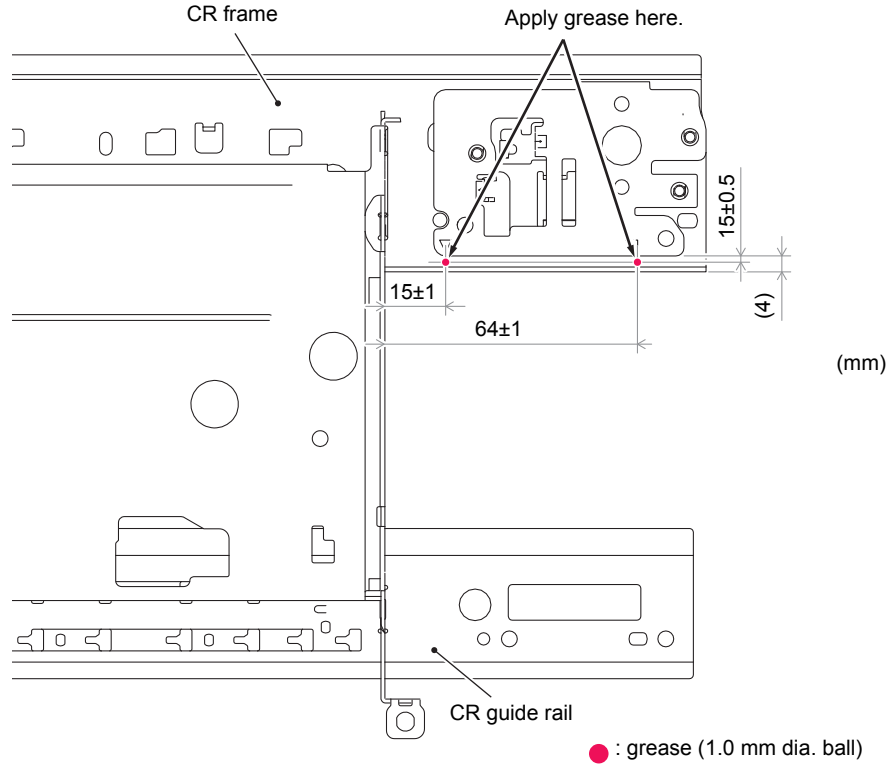
Grease application procedures

- (1) Move the Head/carriage unit to the left end.
- (2) Before applying grease, wipe dirt and dust on the area to which grease is to be applied with a cloth damped with alcohol.
- (3) After applying grease, move the Head/carriage unit from the left end to the right end in order to spread grease.

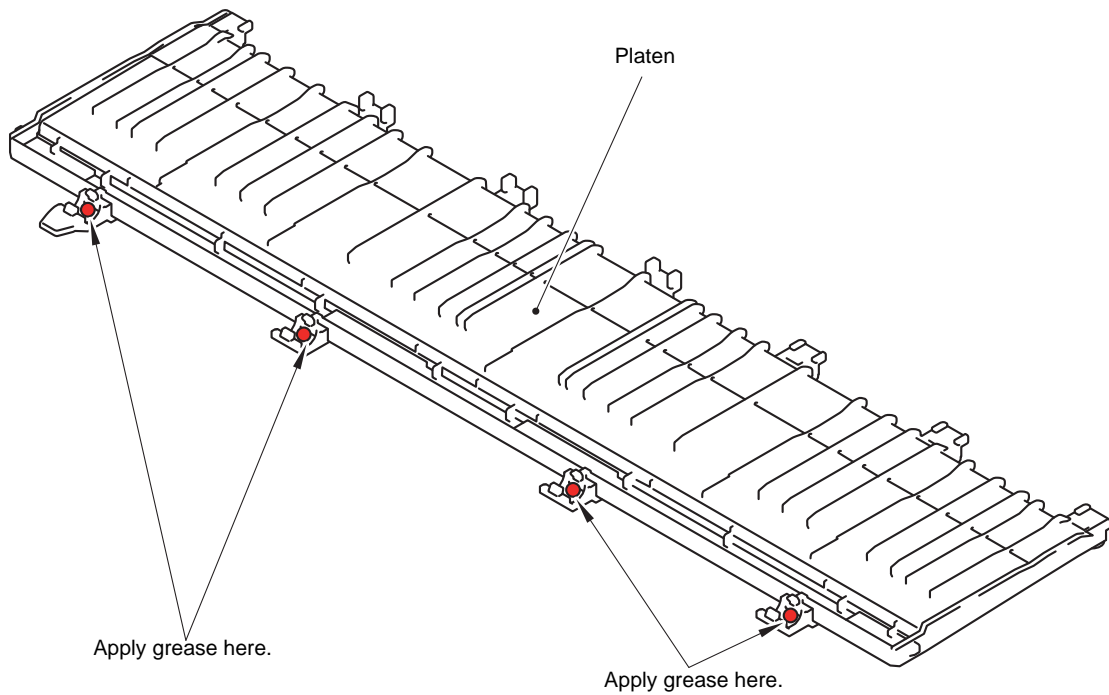


■ CR frame (Rear surface)

Apply grease (FLOIL BG1319) at the size of 1 mm diameter to 2 locations in total shown in the figure below.



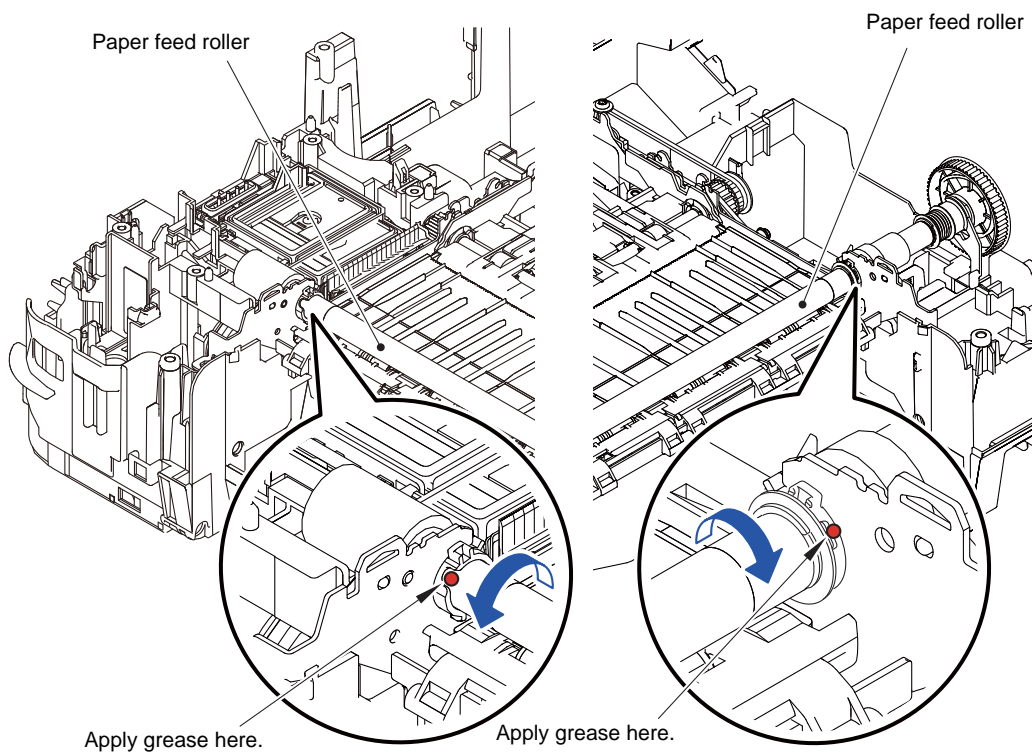
■ Platen



■ Paper feed roller

Grease application procedures

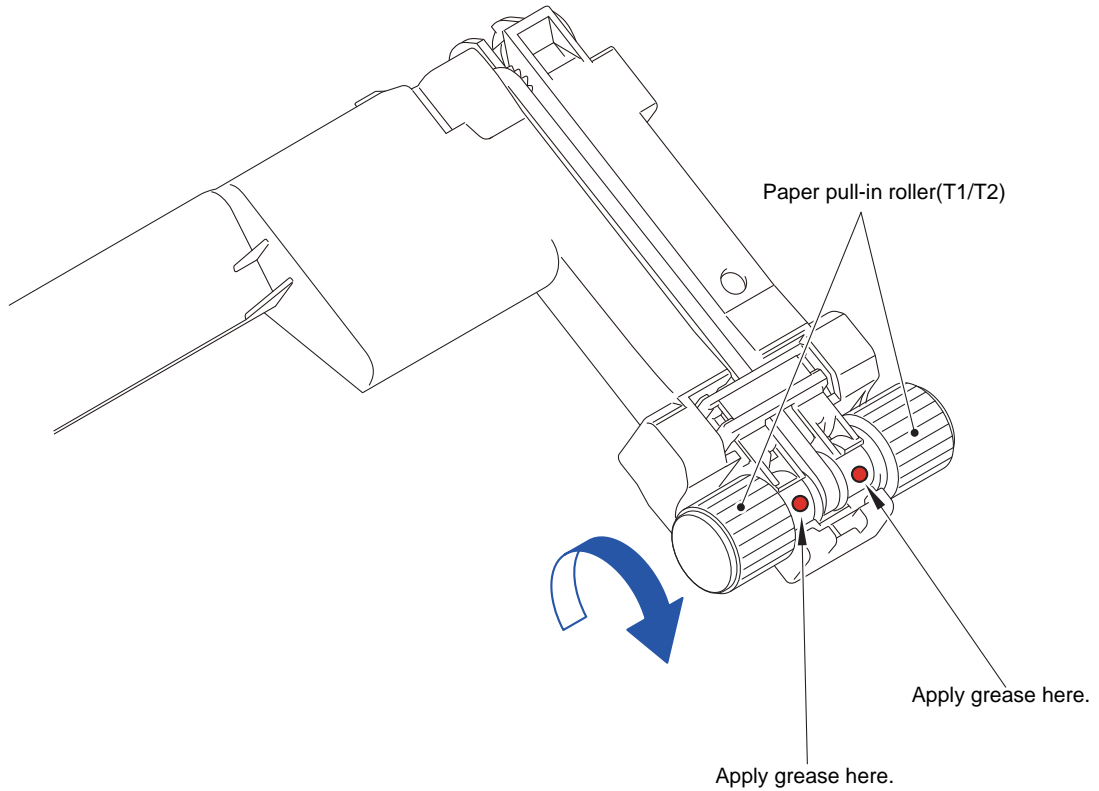
- (1) Apply grease to the lubrication points.
- (2) Rotate the Paper feed roller one revolution in the direction indicated by the arrow.
- (3) Apply grease to the lubrication points.
- (4) Rotate the Paper feed roller one revolution in the direction indicated by the arrow.



■ Paper pull-in roller(T1/T2)

Grease application procedures

- (1) Apply grease to the lubrication points.
- (2) Rotate the Paper pull-in roller in the direction indicated by the arrow to spread grease.

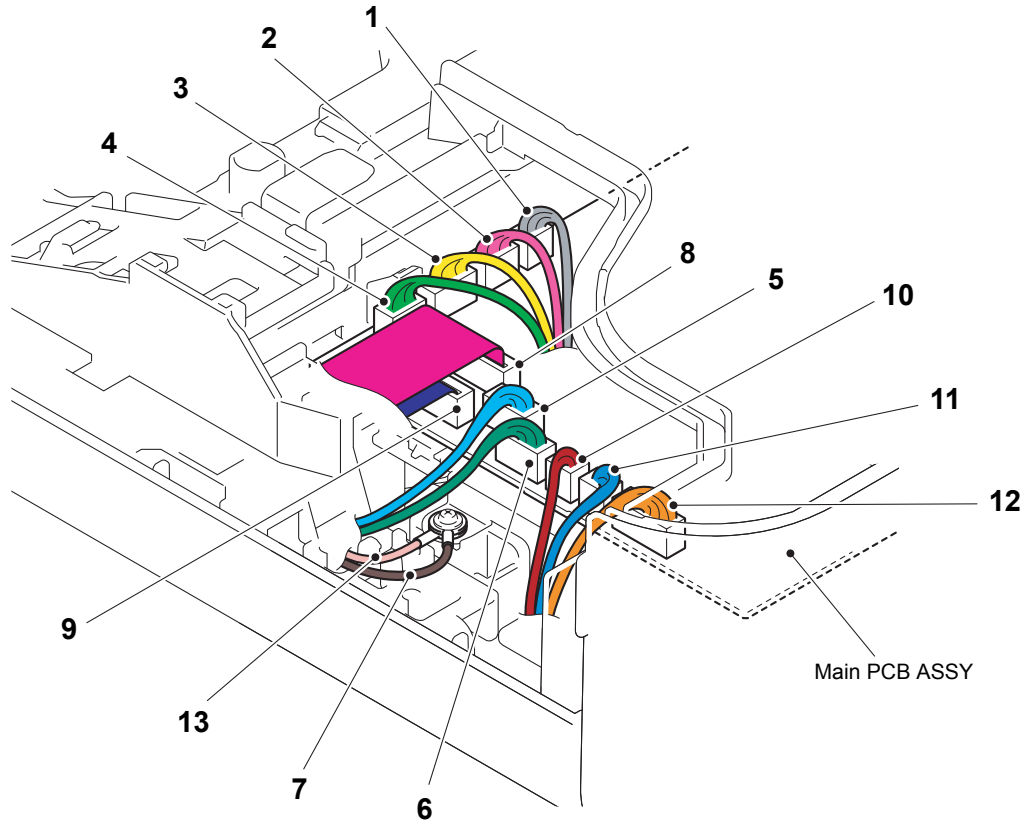


6 OVERVIEW OF GEARS

There is no overview of gears.

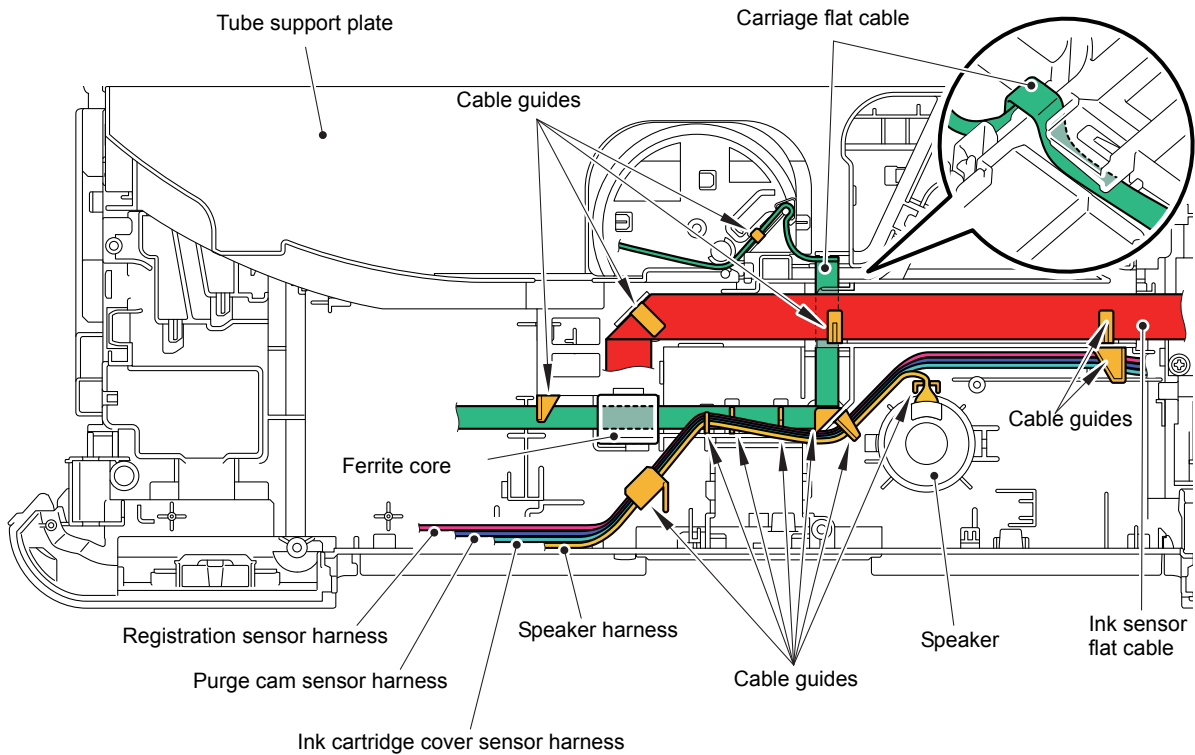
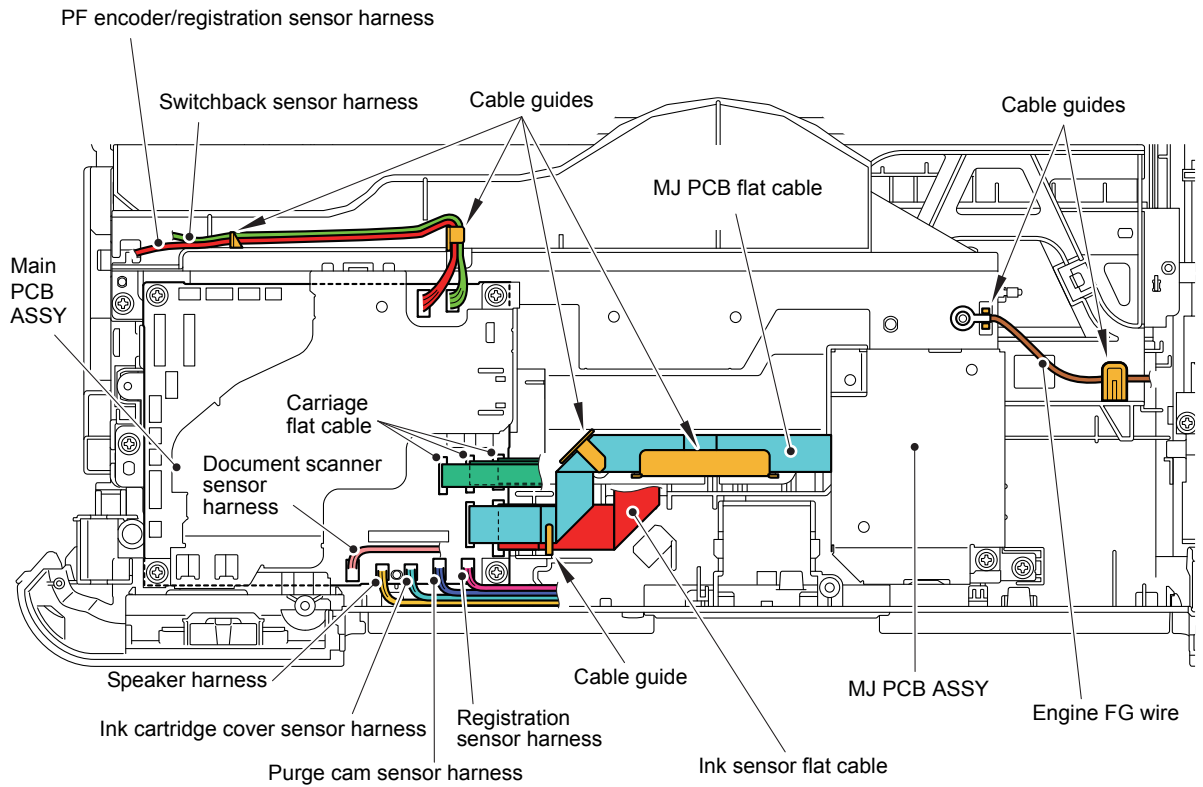
7 ROUTING OF HARNESES AND INK SUPPLY TUBES

1 Main PCB ASSY

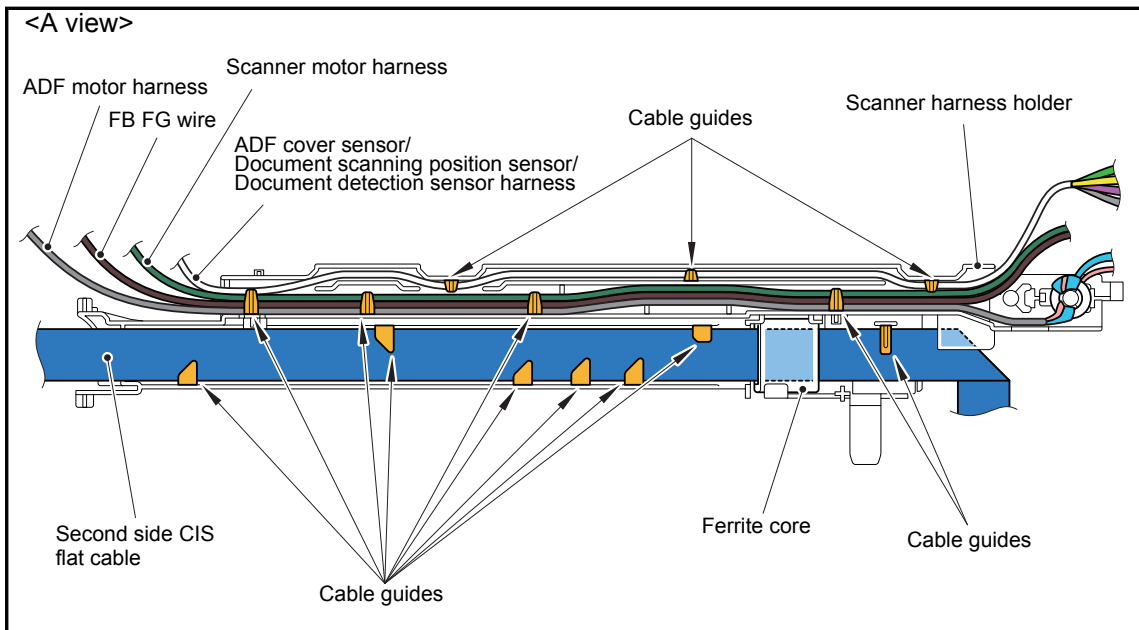
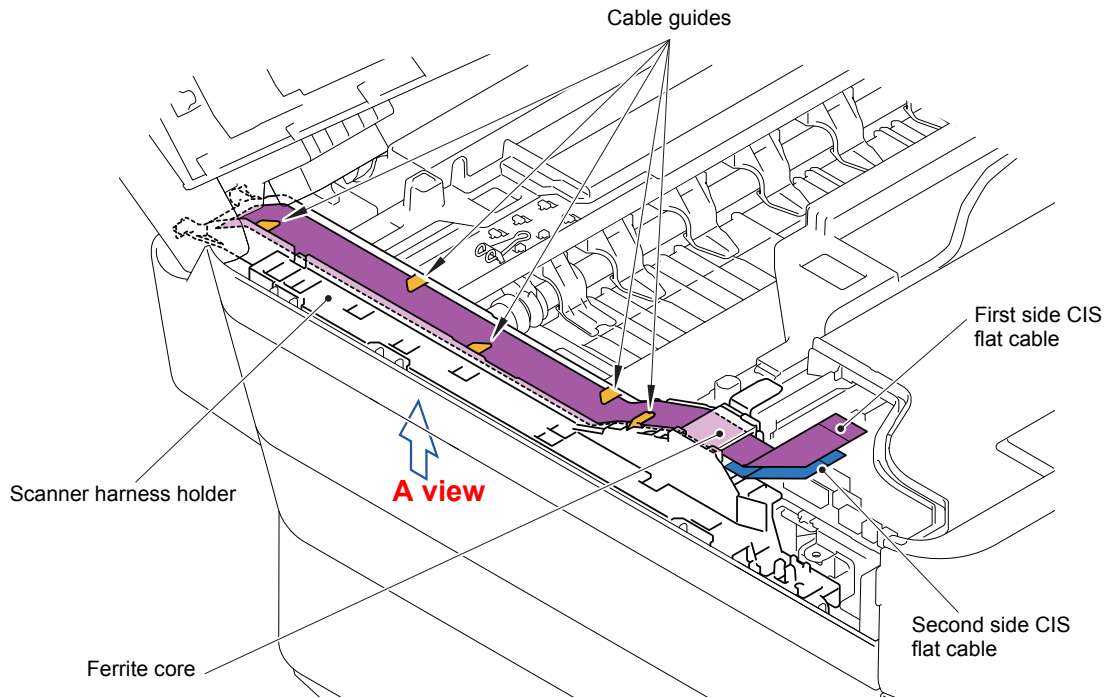


No.	Harness name
1	ADF cover sensor harness
2	First side document scanning position sensor harness
3	Document detection sensor/Document width sensor harness
4	Second side document scanning position sensor harness
5	Scanner motor harness
6	ADF motor harness
7	FB FG wire
8	First side CIS flat cable
9	Second side CIS flat cable
10	Carriage motor harness
11	Paper feed motor harness
12	Power supply harness
13	ADF FG wire

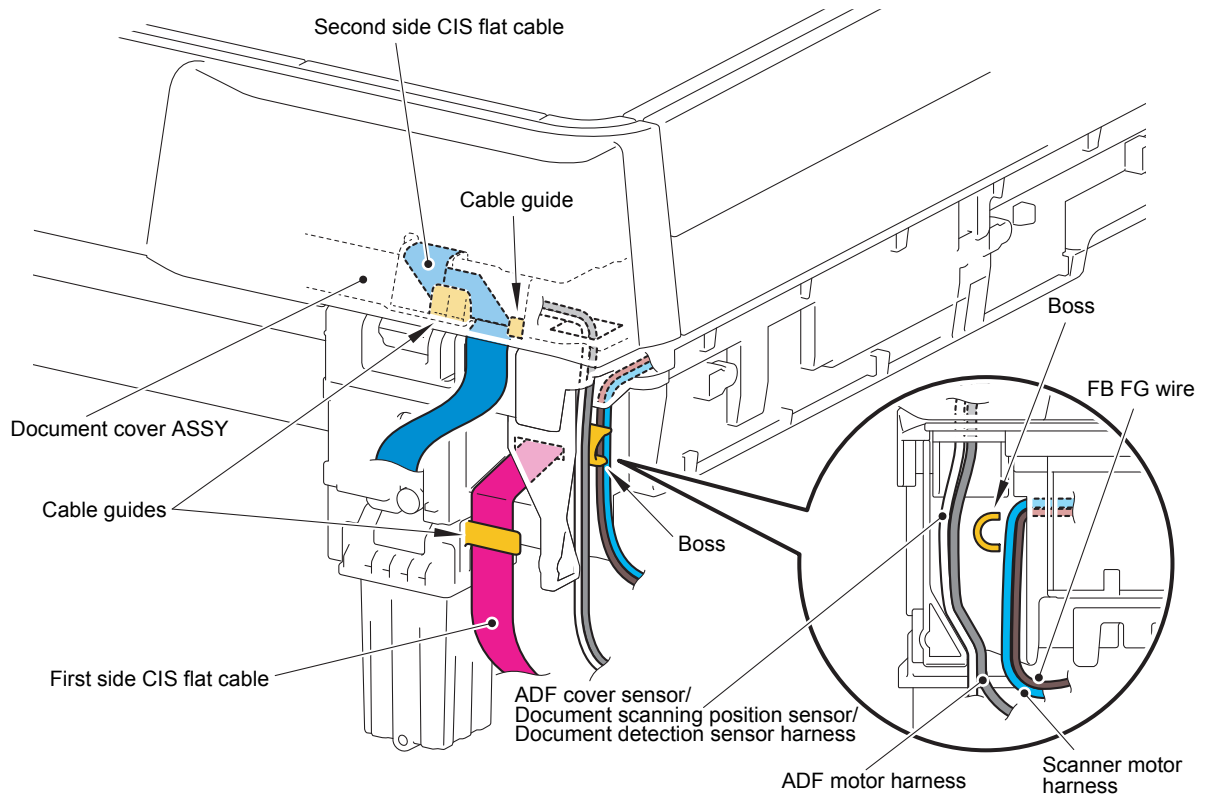
2 Main PCB ASSY and MJ PCB ASSY



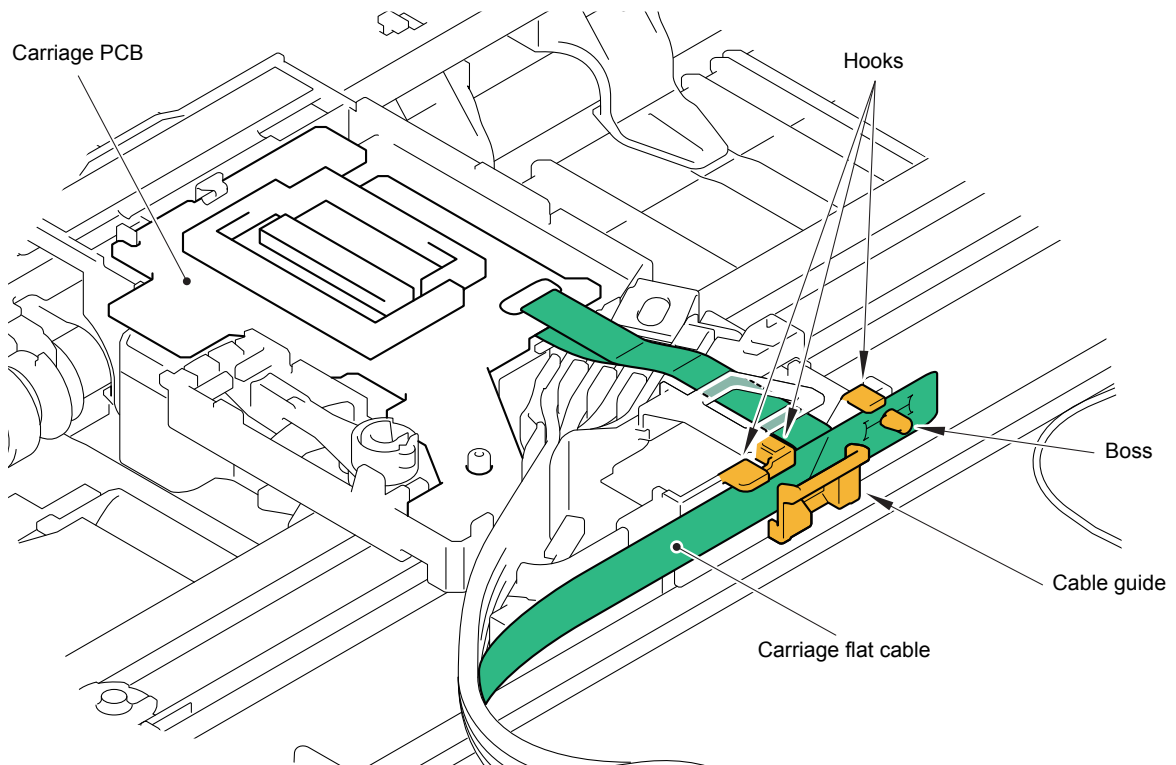
3 Scanner harness holder



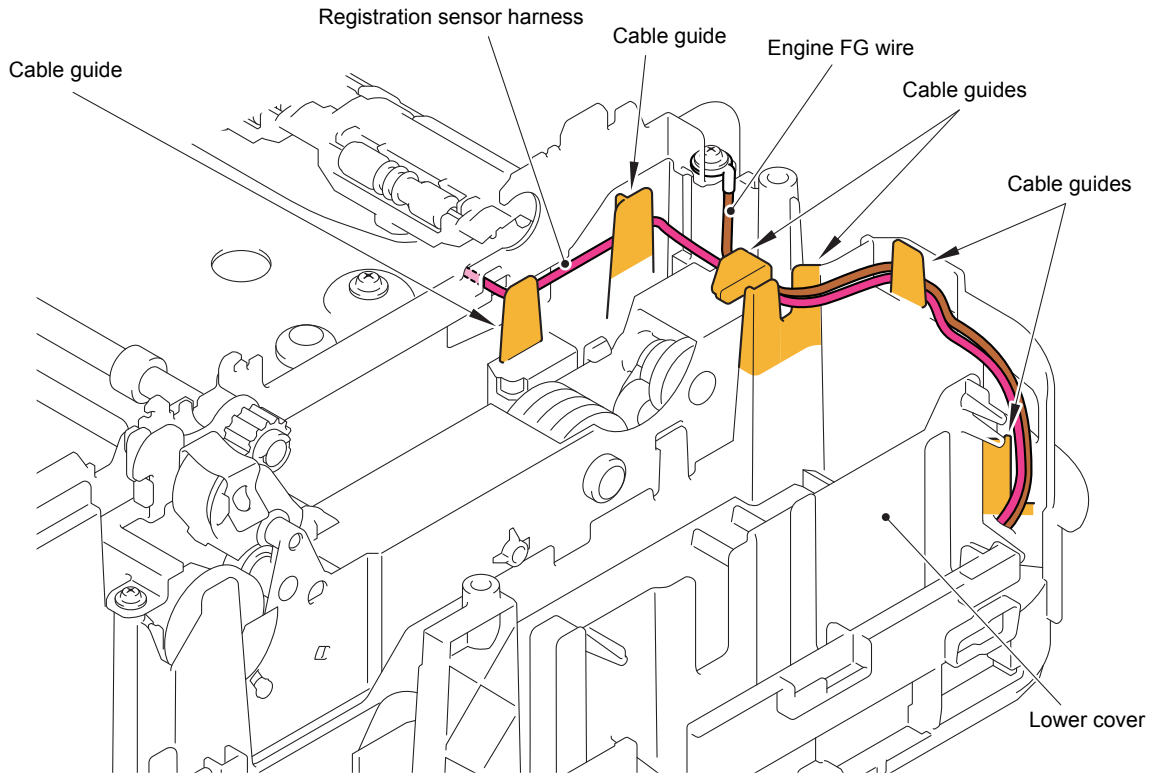
4 ADF unit and document scanner unit



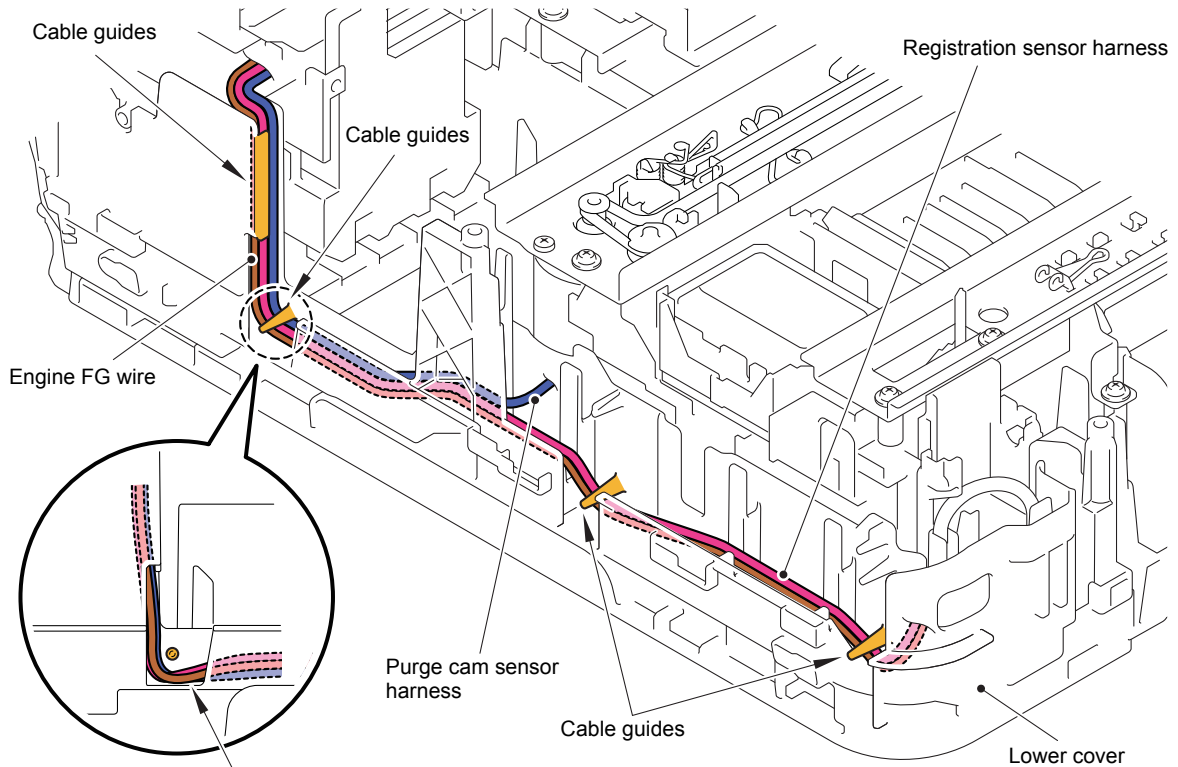
5 Head/carriage unit



6 Registration sensor harness

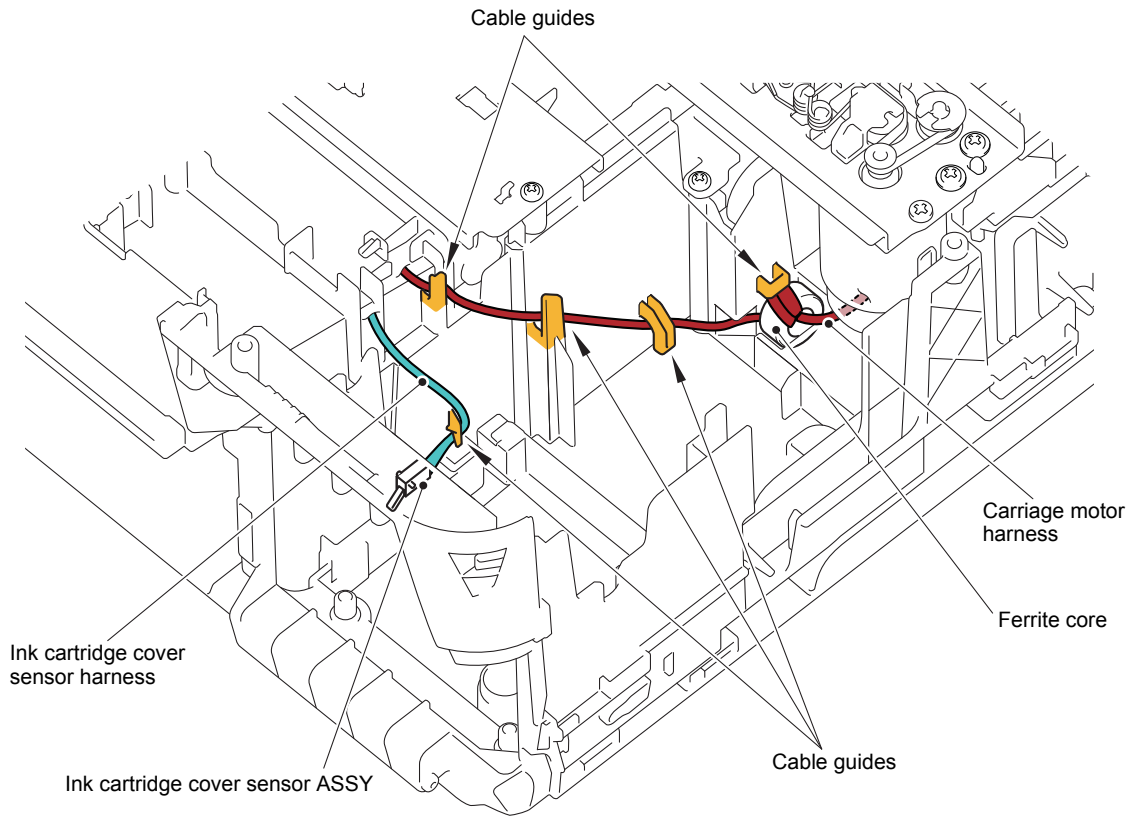


7 Lower cover (Right side)

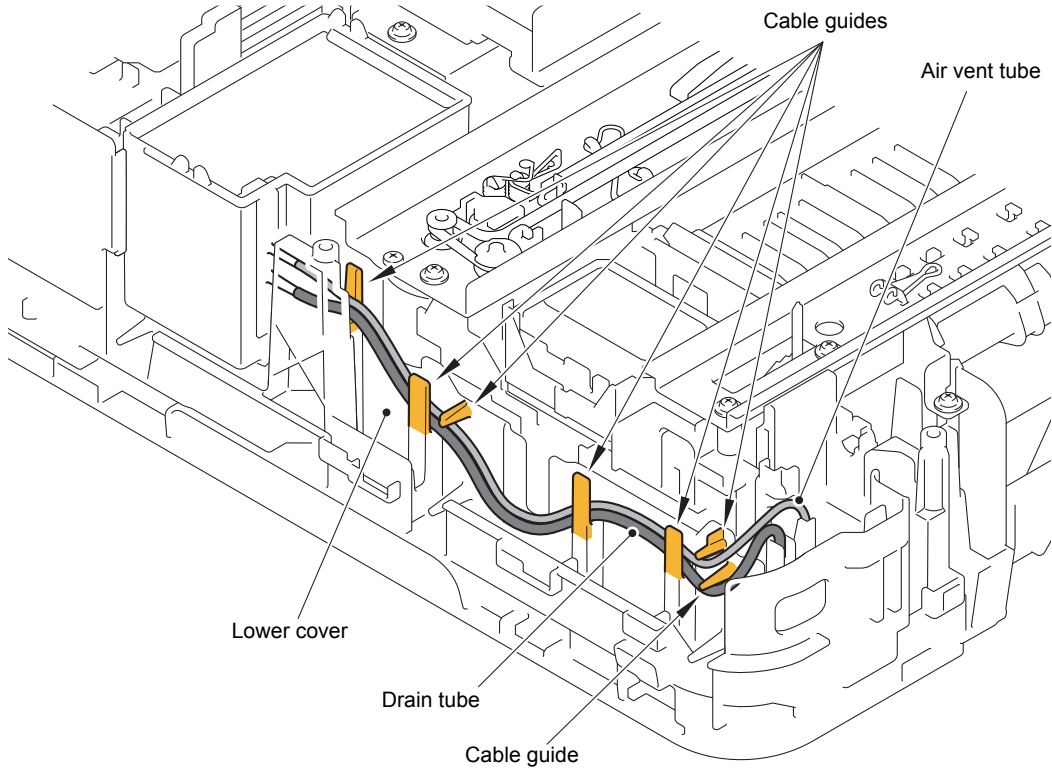


Leave a little slack in the cables.

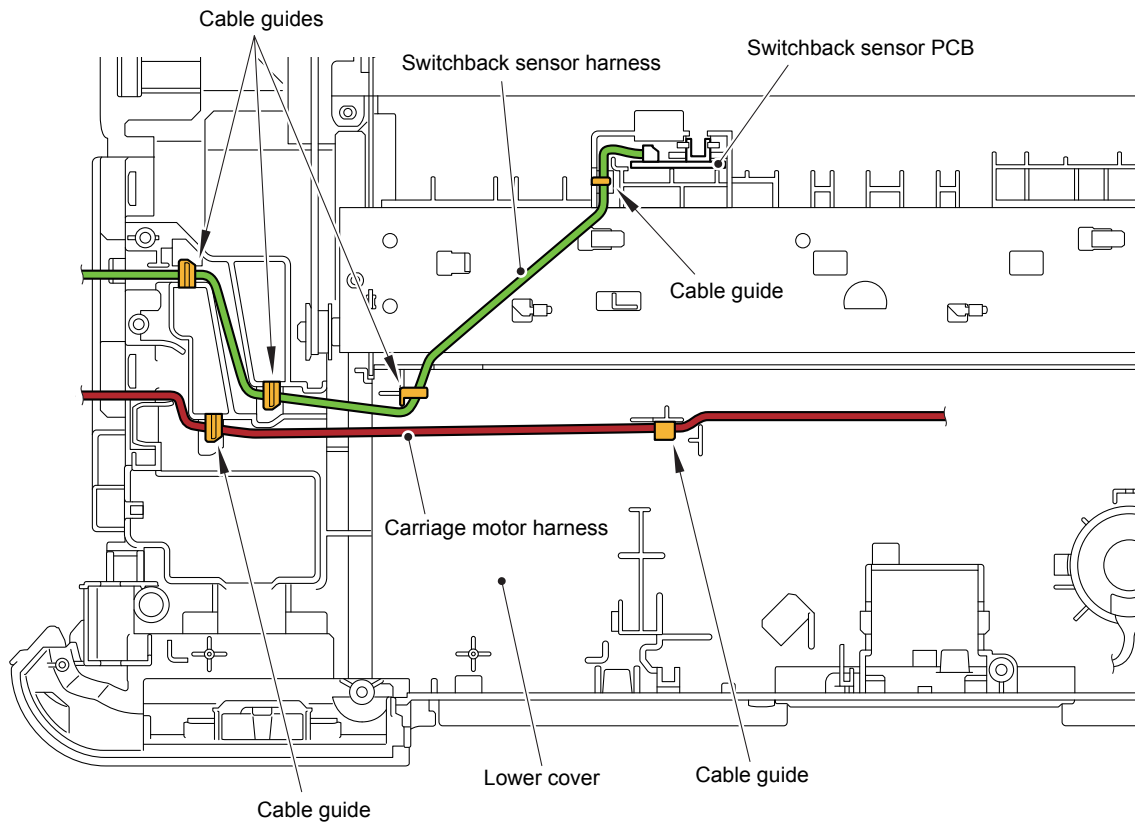
8 Carriage motor harness and ink cartridge cover sensor ASSY



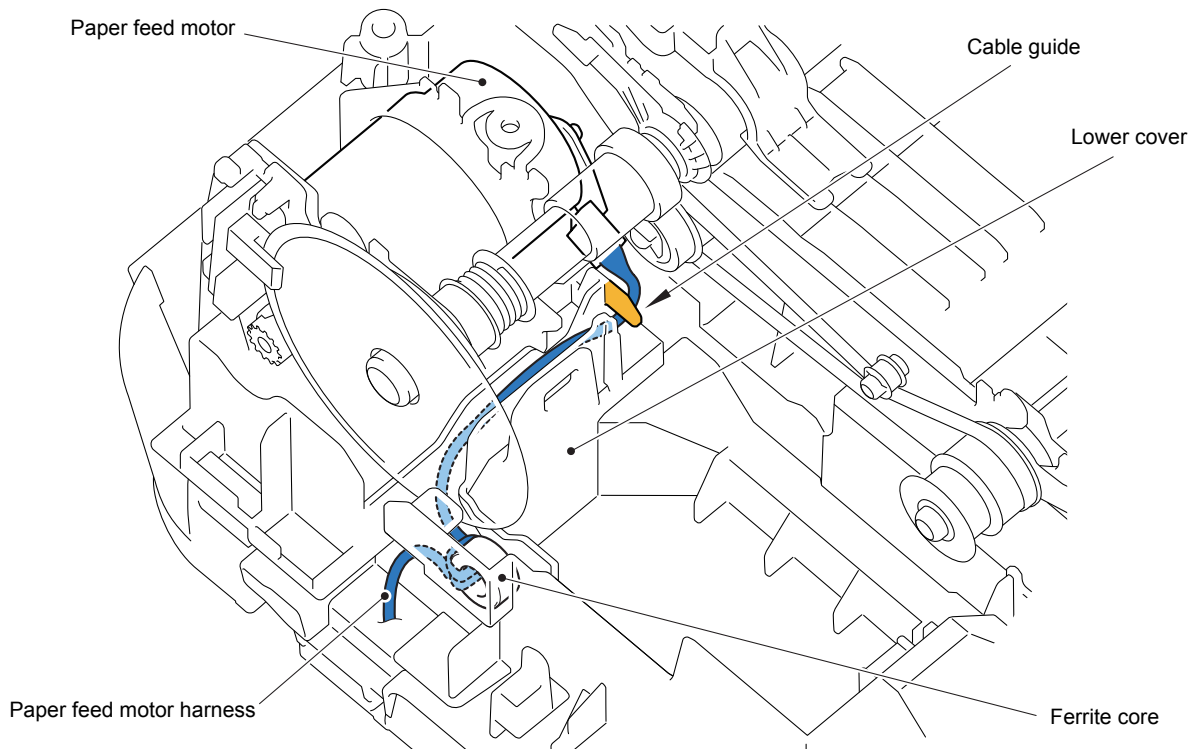
9 Air vent tube and drain tube



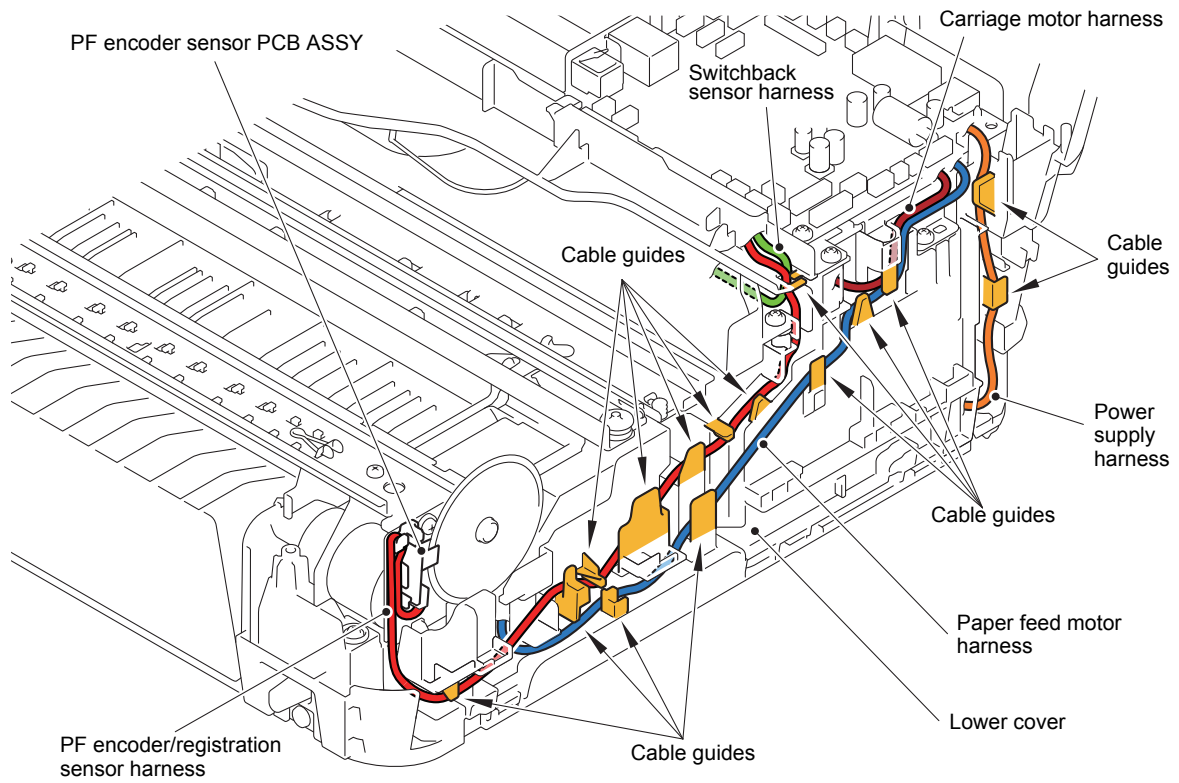
10 Switchback sensor PCB



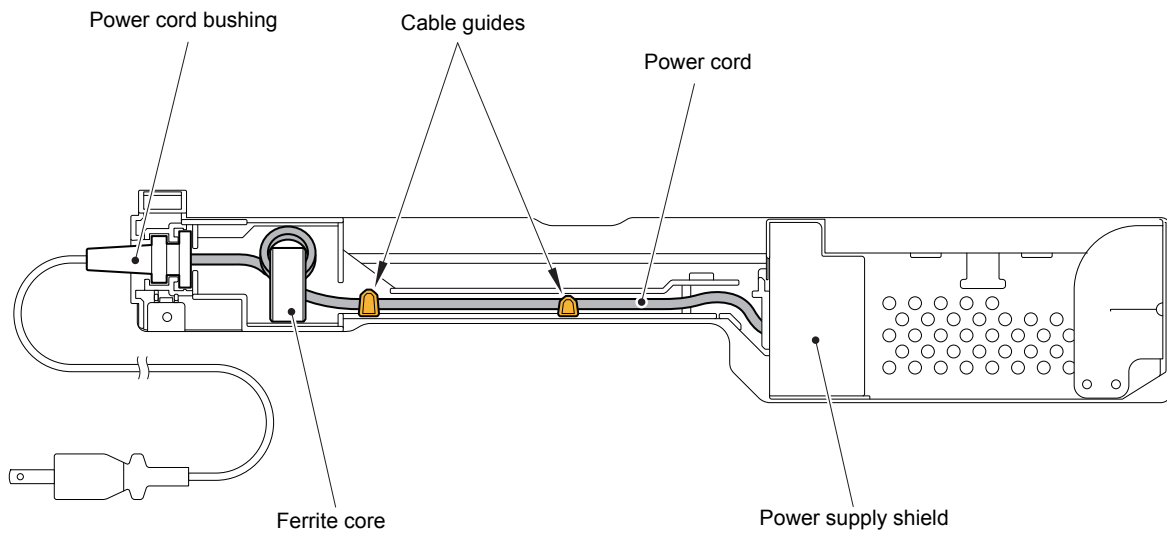
11 Paper feed motor



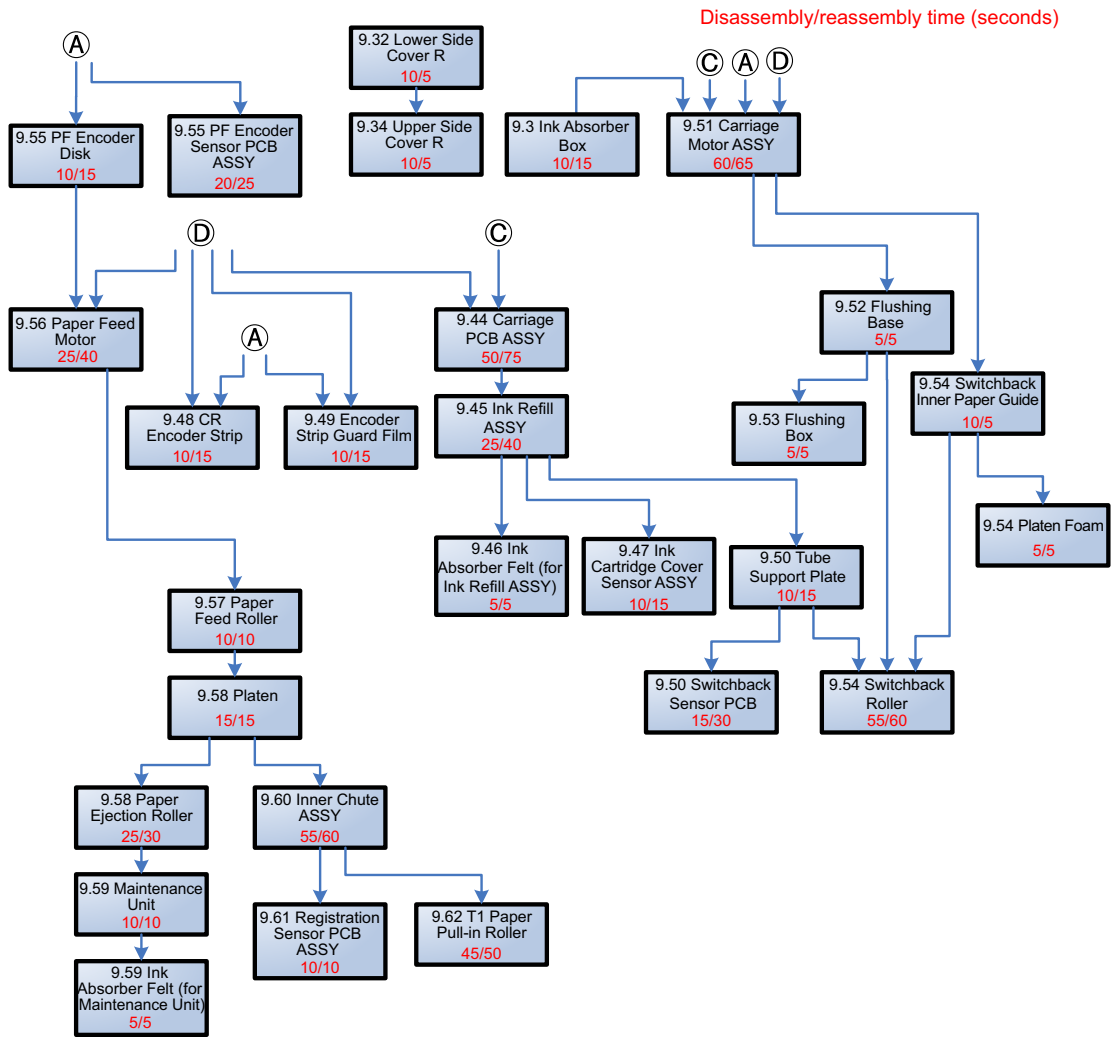
12 Lower cover (Left side)



13 Power supply PCB ASSY



■ Disassembly flowchart 2/2



9 DISASSEMBLY PROCEDURE

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 **Service**.
- (4) Press **Data Transfer**.
- (5) Press **Fax Transfer**.


If a fax number entry screen appears, there are faxes in the machine's memory. Then go to step (6).

- (6) Enter the fax number and press **Fax Start**.

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 ASSY 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)

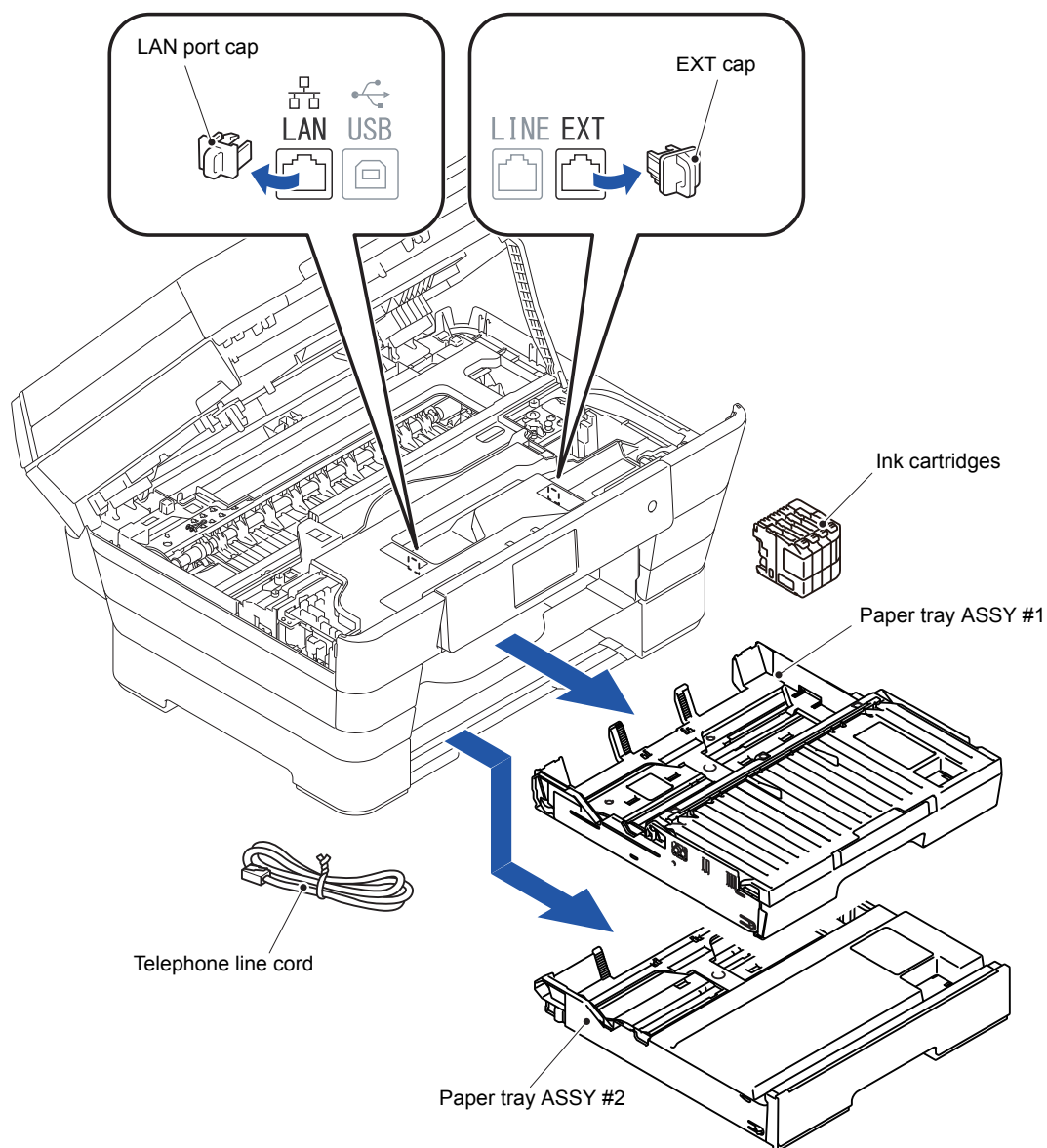
■ Operating Procedure

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 \(Maintenance mode 68\)."](#)

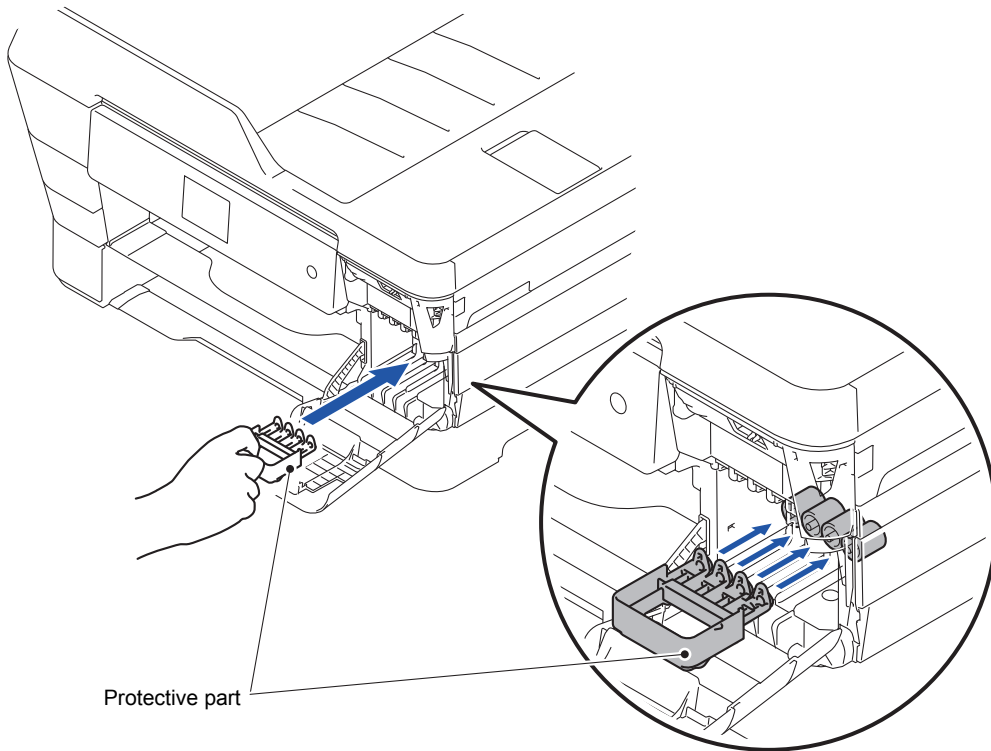
[3] Disconnecting Cables, Removing Accessories, and Setting the Protective Part

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 #1
 - Paper tray ASSY #2
 - Ink cartridges
 - LAN port cap
 - EXT cap



(3) Set the protective part.



9.2 Head Joint Rubber, Head/carriage Unit and CR Timing Belt

- (1) Plug the Power cord into an electrical outlet.

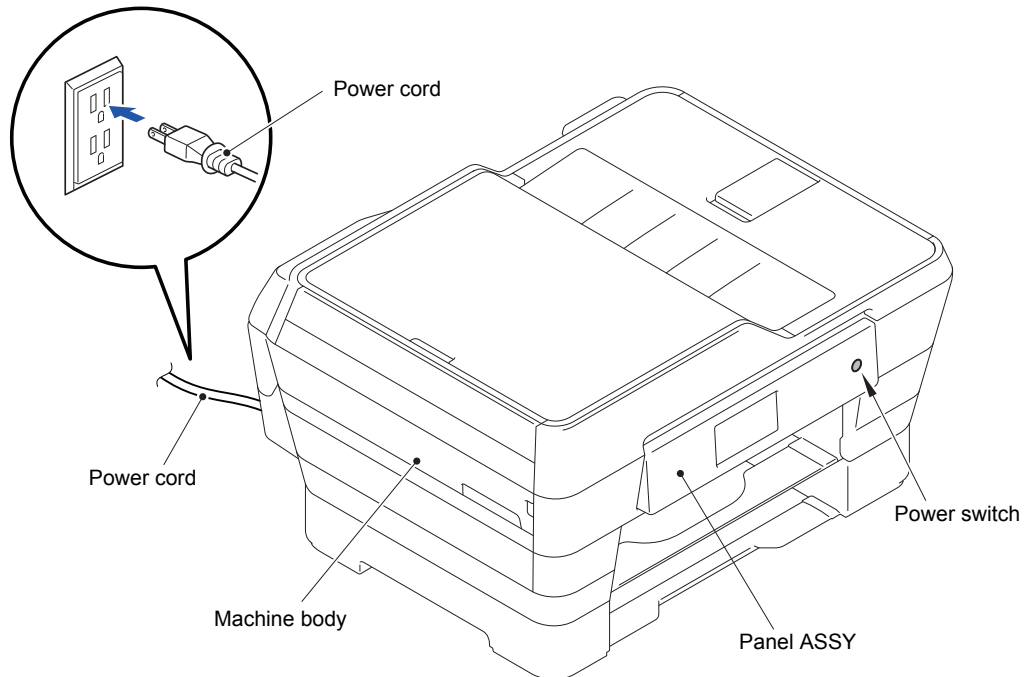


Fig. 3-1

- (2) Switch the machine to the maintenance mode and press the **6**, **3**, **Mono Start**, and ***** keys in this order to automatically move the Head/carriage unit to the position shown in the figure.
- (3) Pull out the Power cord from the electrical outlet.
- (4) Open the Scanner cover.

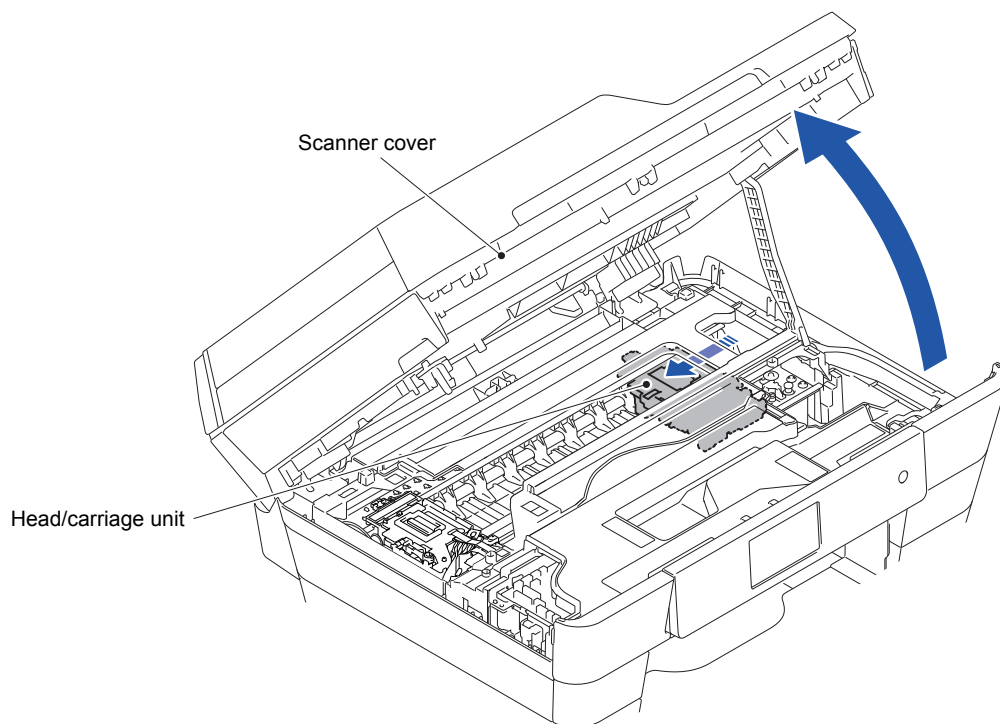


Fig. 3-2

Note: If the Head/carriage unit does not move after performing step (2), perform the following procedures.

- 1) After performing steps (5) through (12), turn the PF roller gear in the direction of the arrow until the head stopper of the maintenance unit clicks.
- 2) Move the Head/carriage unit manually to the position shown in the figure.

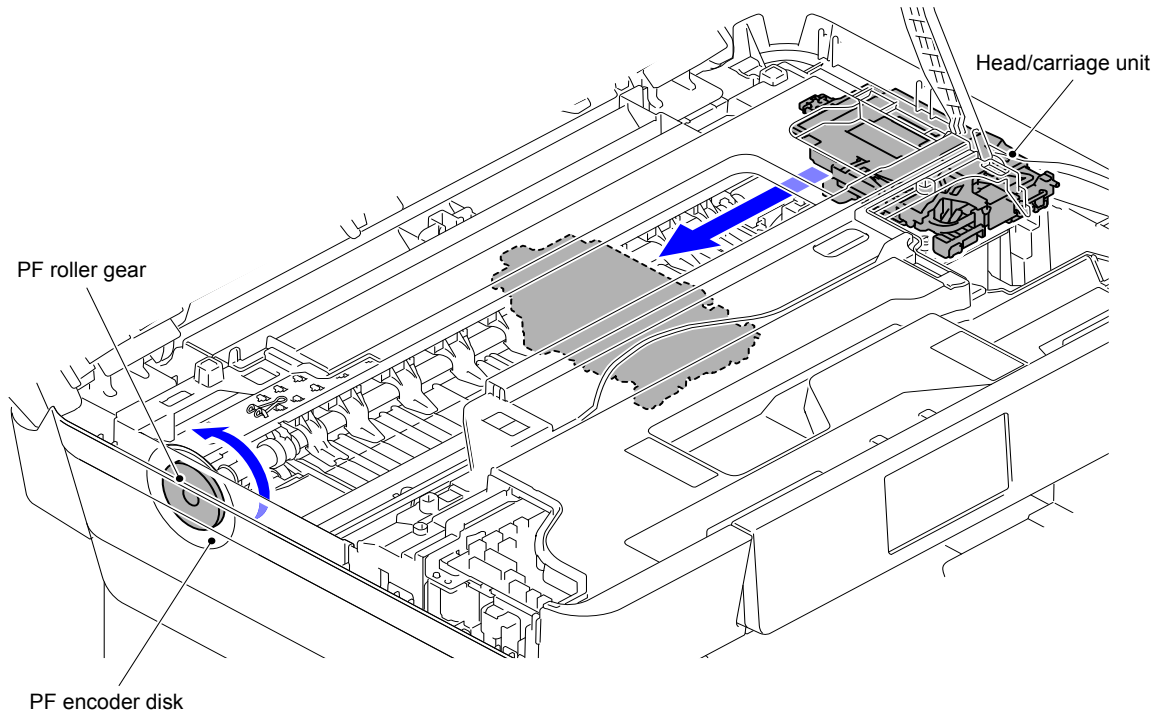


Fig. 3-3

- (5) Release the four Hooks and remove the Ink absorber box cover from the Upper cover.

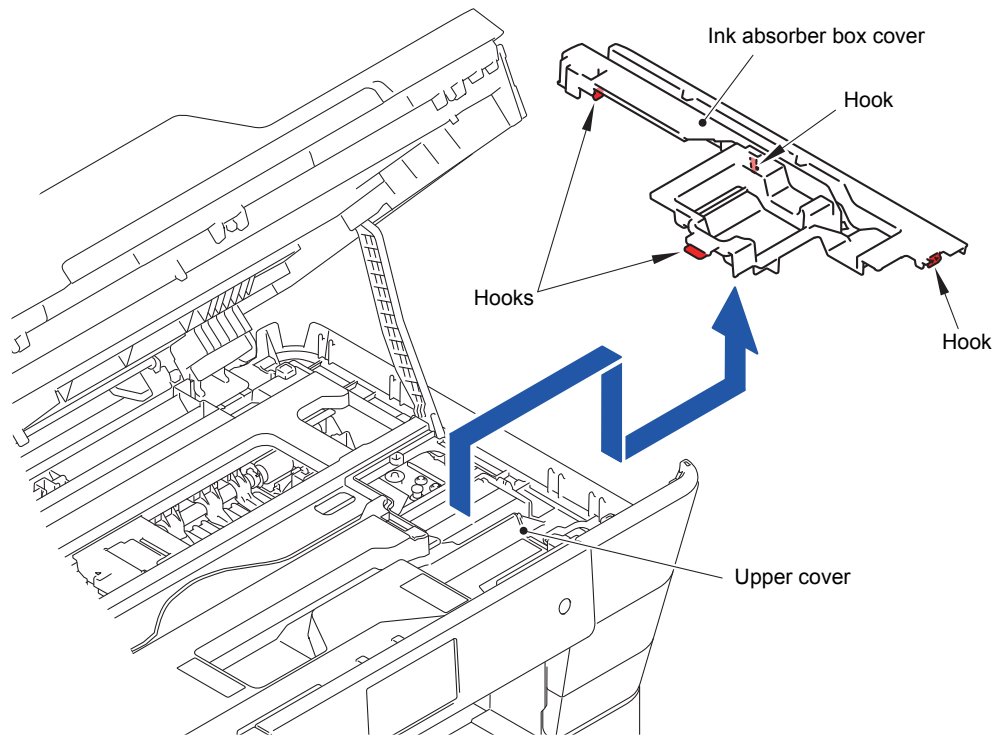


Fig. 3-4

- (6) Release the six Hooks and remove the Harness cover from the Upper cover.

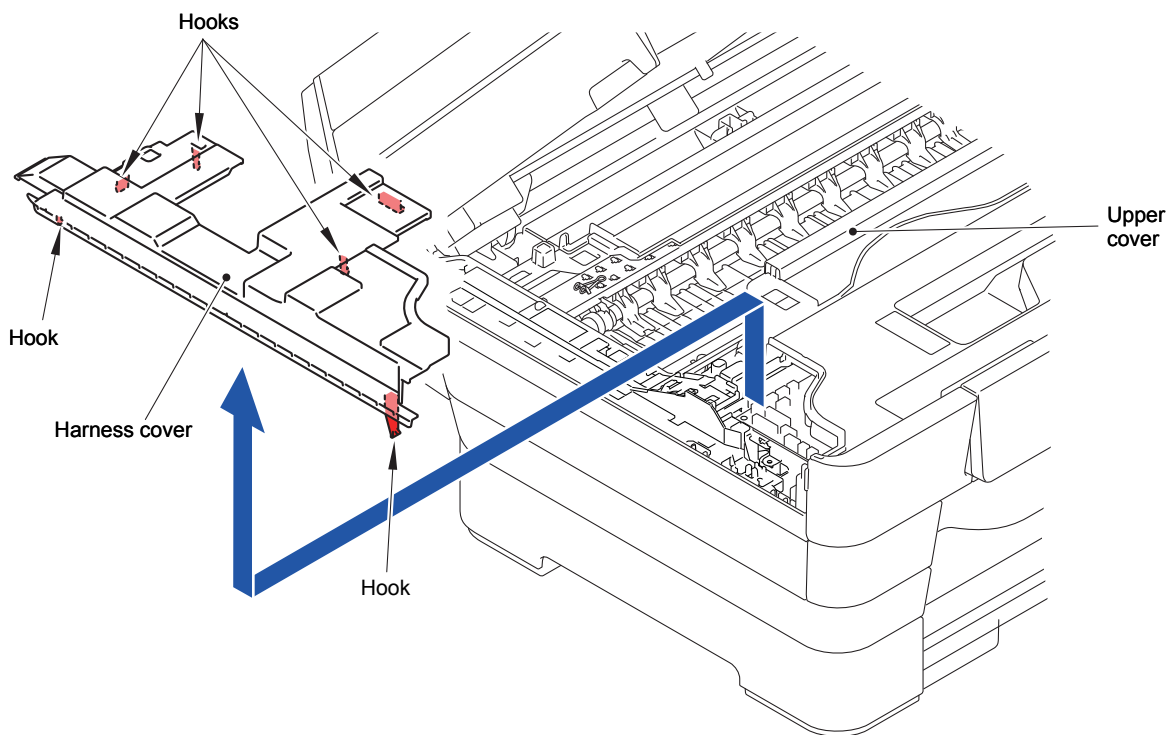


Fig. 3-5

- (7) Remove the one screw (TAPTITE CUP S M3x6) to release the ADF FG wire and FB FG wire.
- (8) Disconnect the six Connectors from the Main PCB ASSY.
- (9) Disconnect the two Flat cables from the Main PCB ASSY.

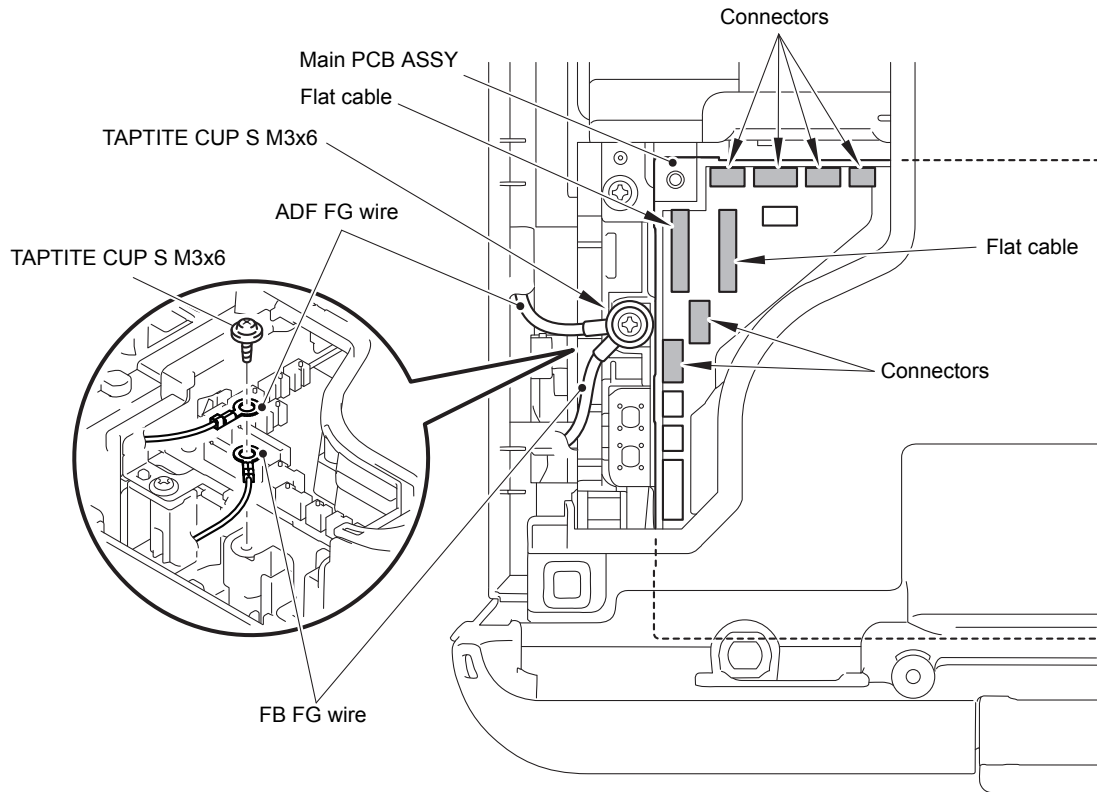


Fig. 3-6

- (10) Release the Hook of the Scanner harness holder.
- (11) Lift up the Scanner harness holder.
- (12) Insert the section "A" into the Hole of the Document scanner unit.

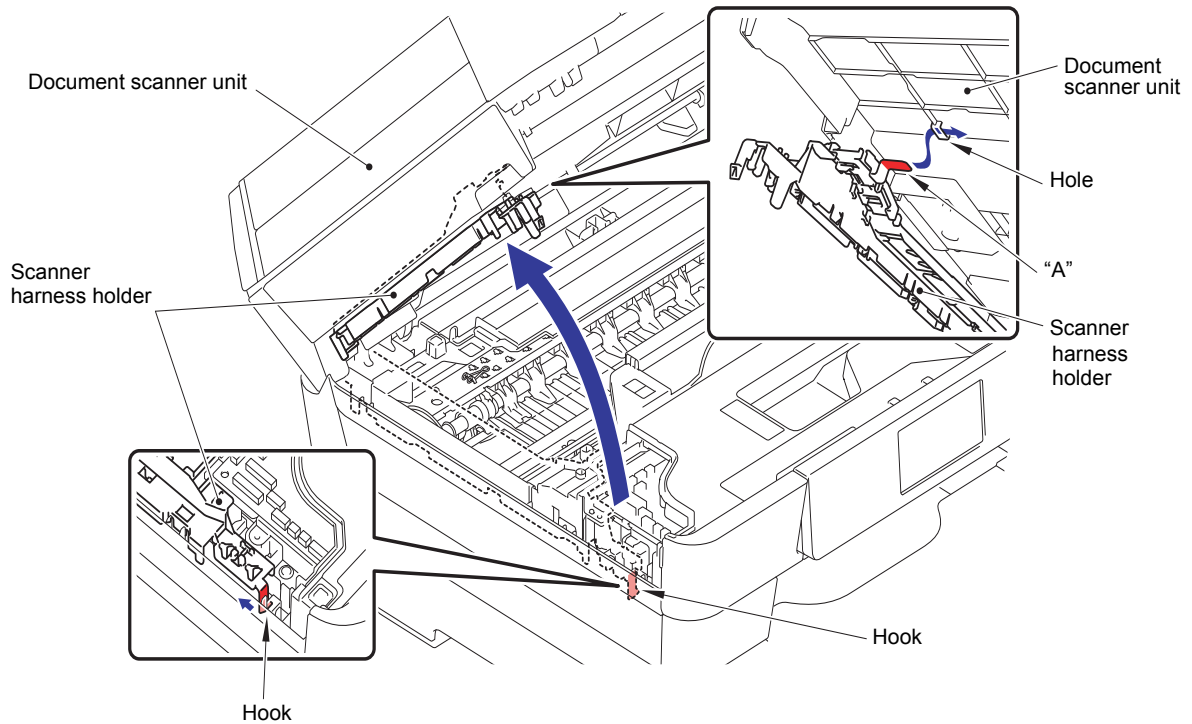


Fig. 3-7

- (13) Move the Head/carriage unit manually to the position shown in the figure.

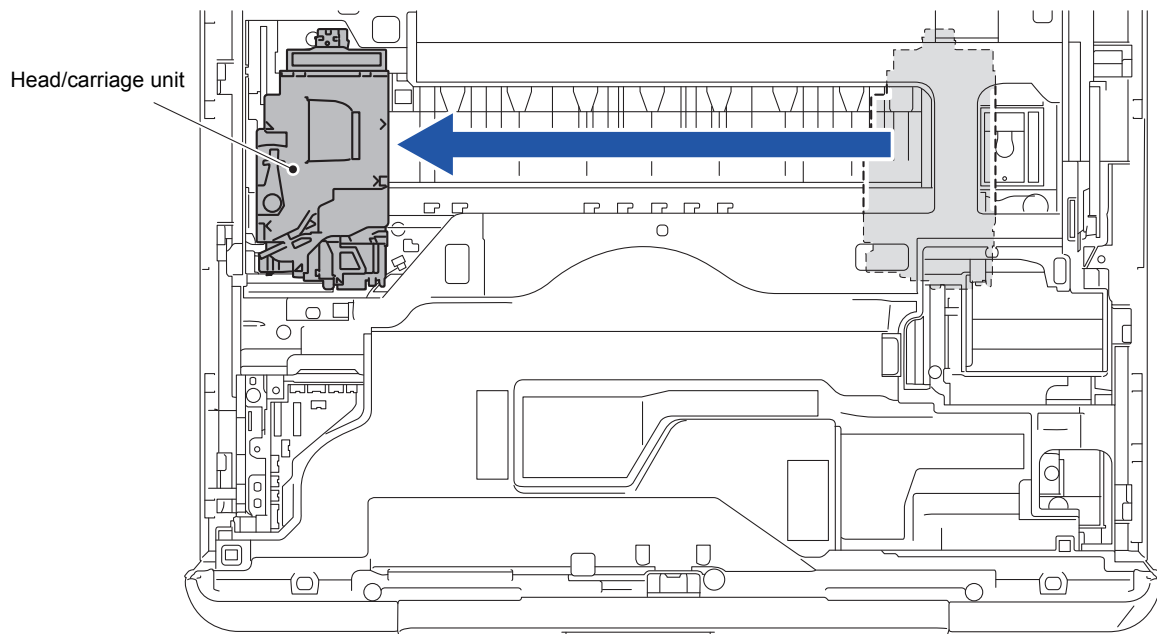


Fig. 3-8

(14) Release the Hook 1. Release other six Hooks as rotating the Head cover in the direction of the arrow 14a and remove the Head cover from the Head/carriage unit.

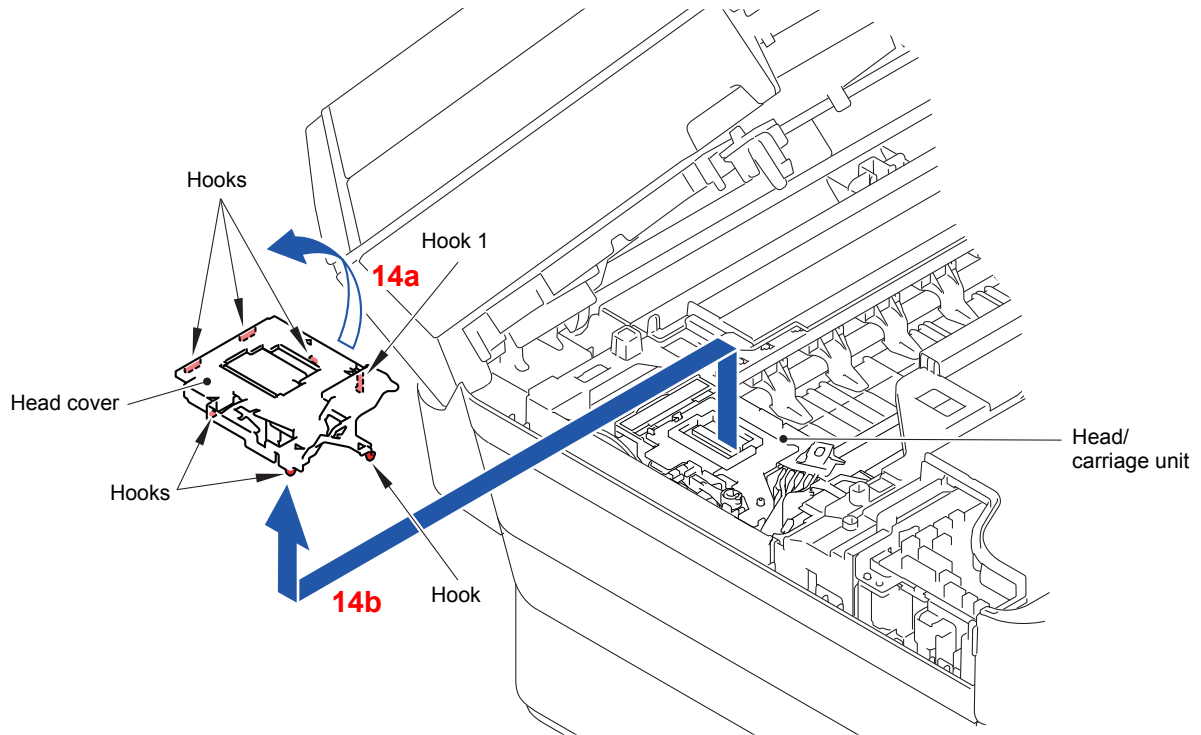


Fig. 3-9

(15) Unlock the Connector and disconnect the Flat cable from the Carriage PCB.

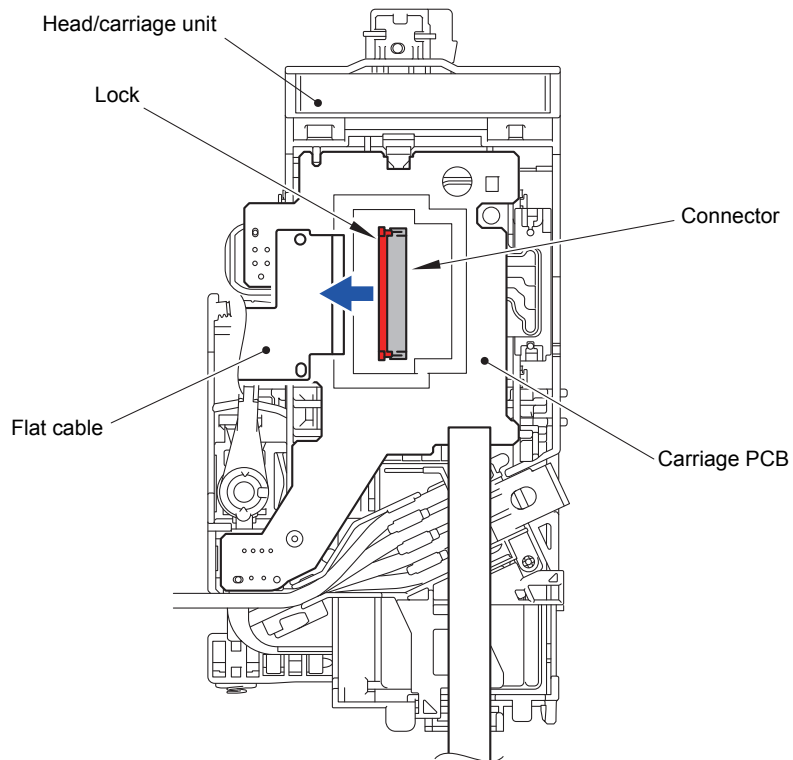


Fig. 3-10

(16) Release the Lock spring securing the Carriage PCB.

(17) Release the Hook and remove the Carriage PCB from the Head/carriage unit.

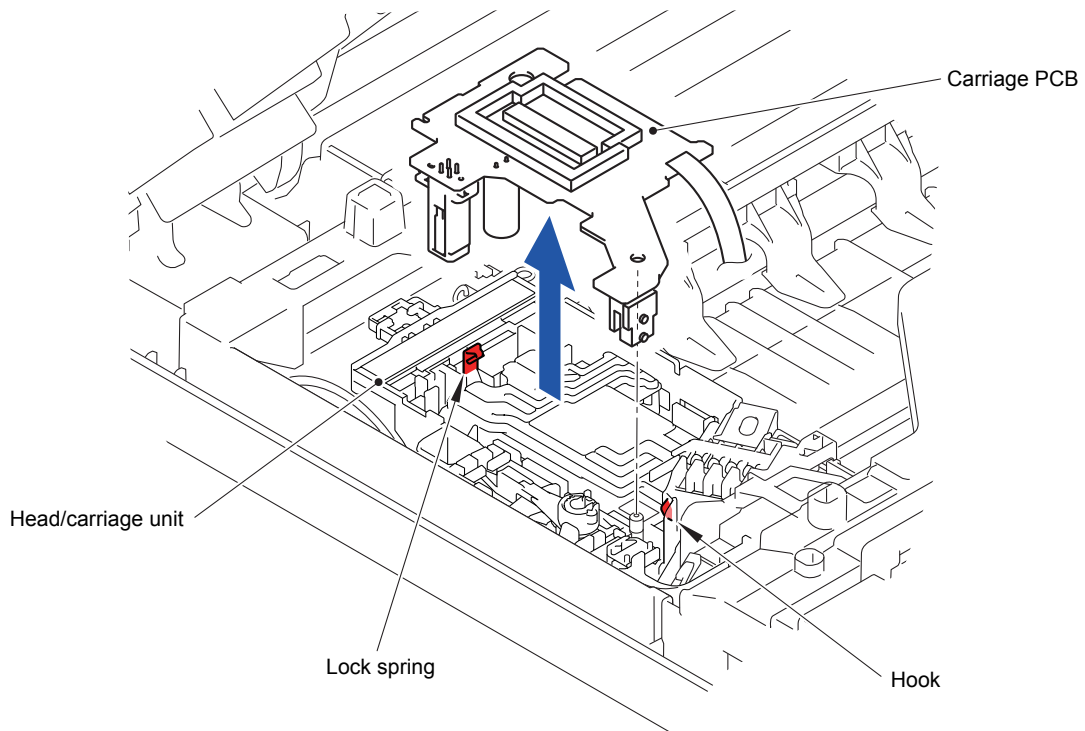


Fig. 3-11

(18) Place the removed Carriage PCB on the position shown in the figure.

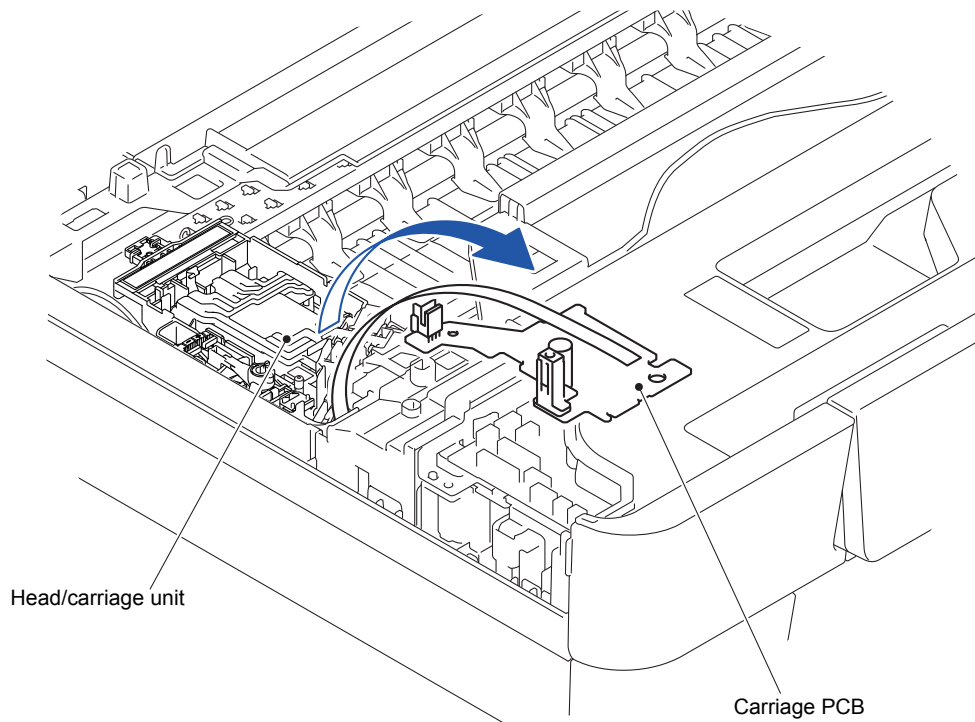


Fig. 3-12

(19) Remove the Head joint spring from the Head/carriage unit.

Note: It can be easily removed if you press the section "A" by inserting a thin screwdriver, etc. from the spring hole.

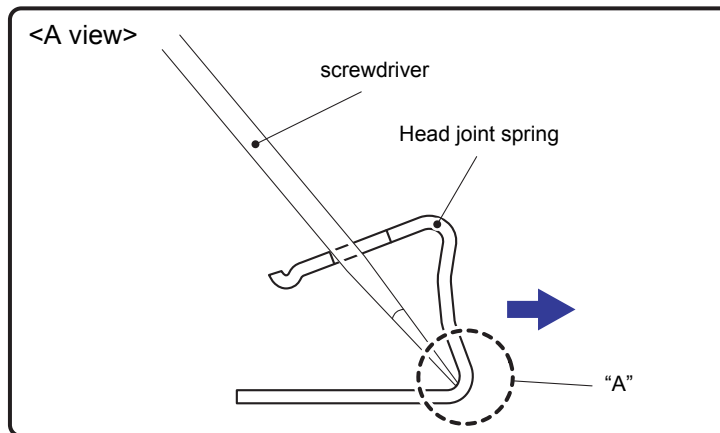
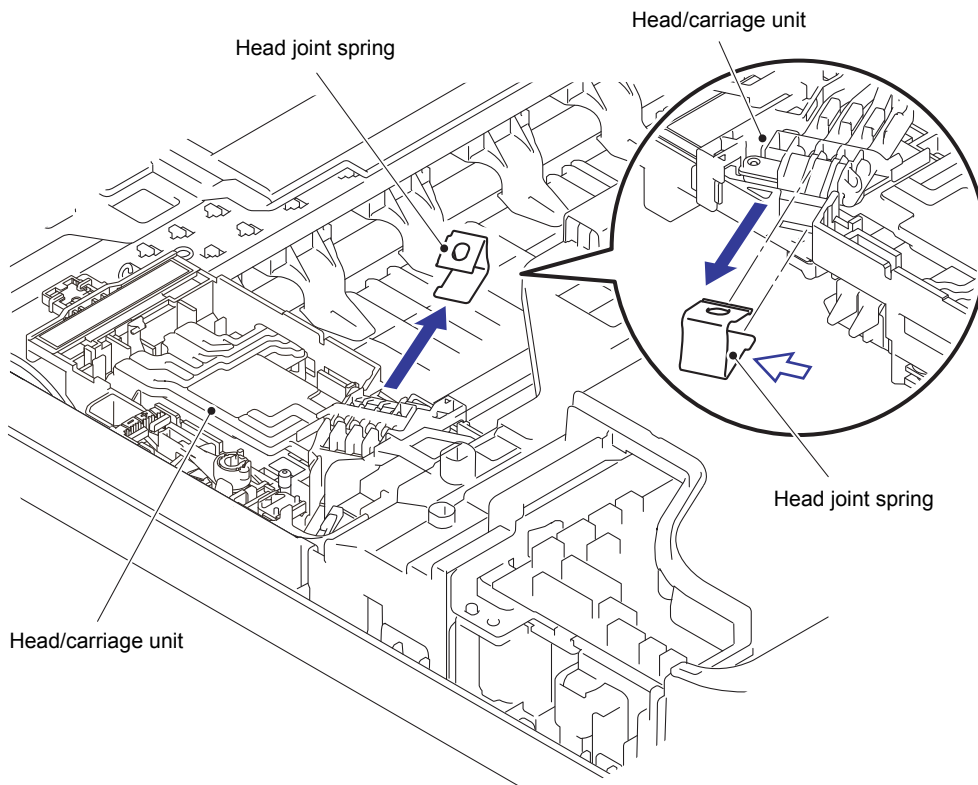


Fig. 3-13

(20) Release the Hooks 1 and 2 and lift the Hook 1 as using the Hook 3 as the center. Slide the Tube binder in the direction of the arrow and remove it from the Head/ carriage unit.

Note: 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 section "A" of the Tube binder beneath the CR encoder strip to prevent it from coming into contact with the CR encoder strip.

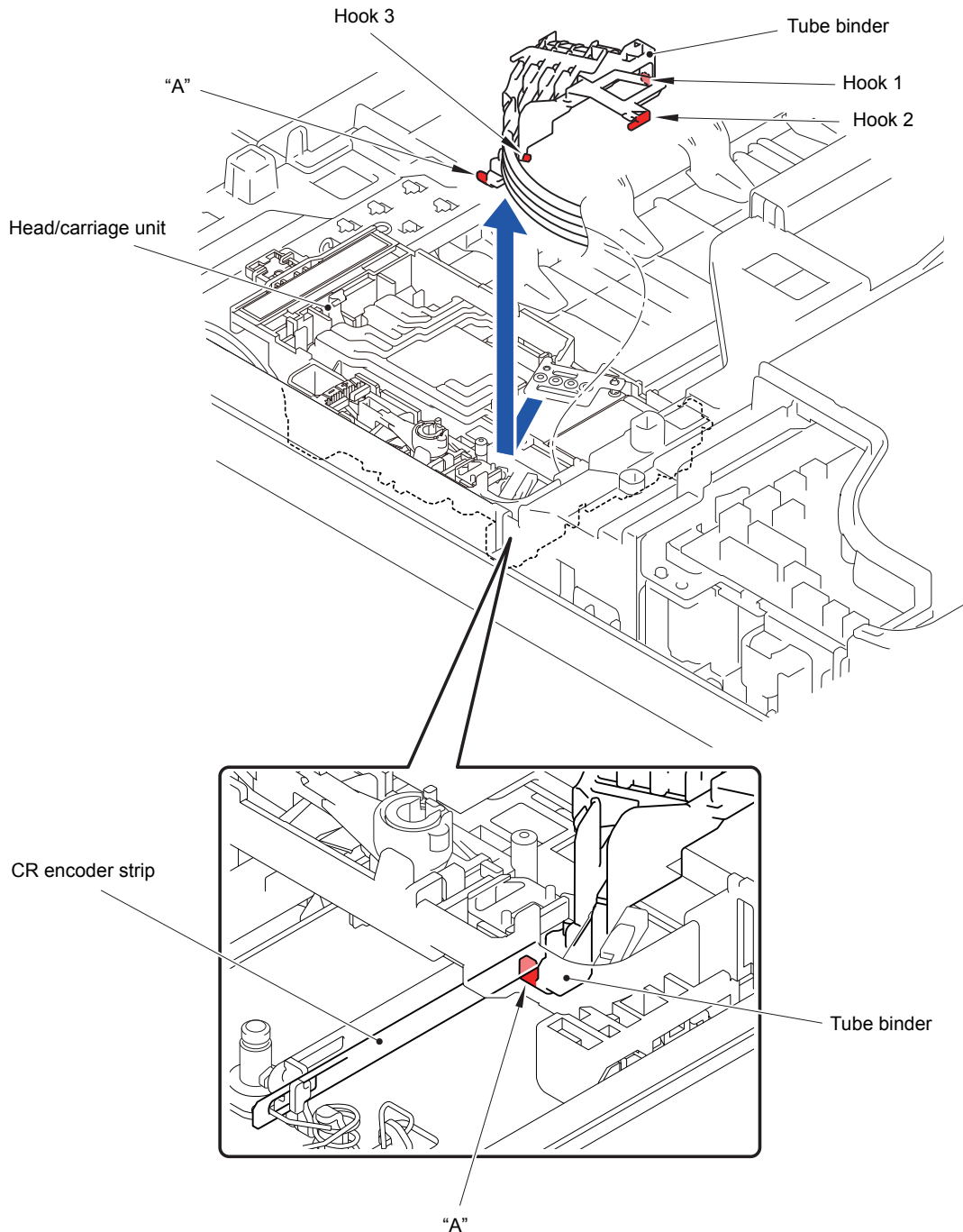


Fig. 3-14

(21) Remove the Head joint rubber from the Head/carriage unit.

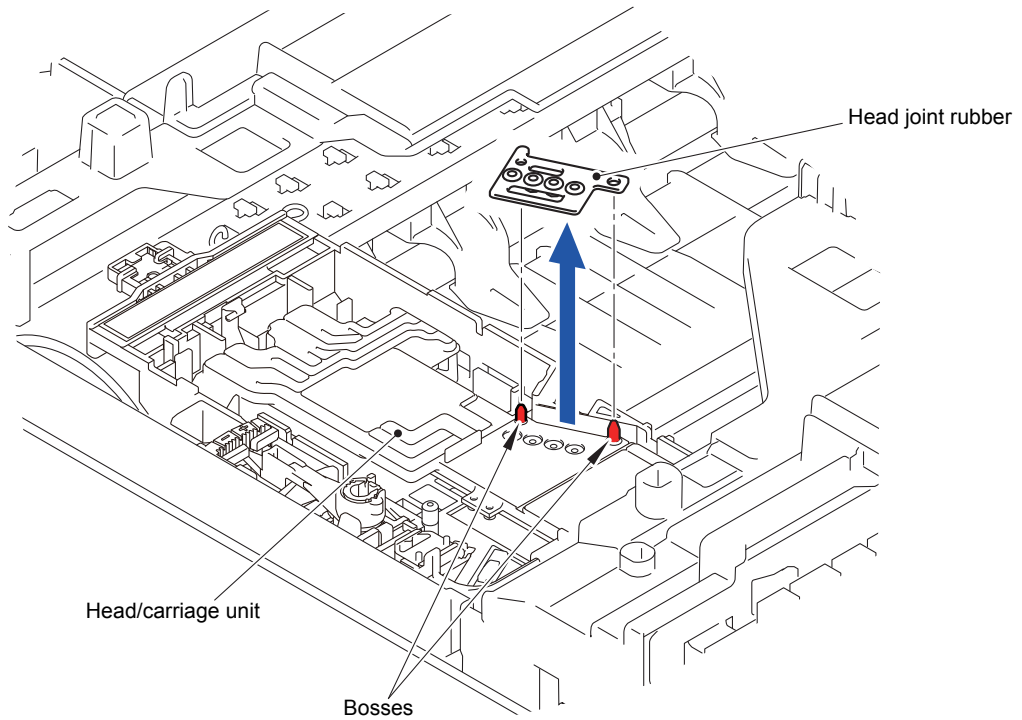


Fig. 3-15

(22) Move the Head/carriage unit slightly in the direction of the arrow and remove the Resin retaining ring from the Idle pulley.

(23) Remove the Idle pulley from the CR frame ASSY.

Note: Be careful not to lose the Washer which easily comes off from the Idle pulley.

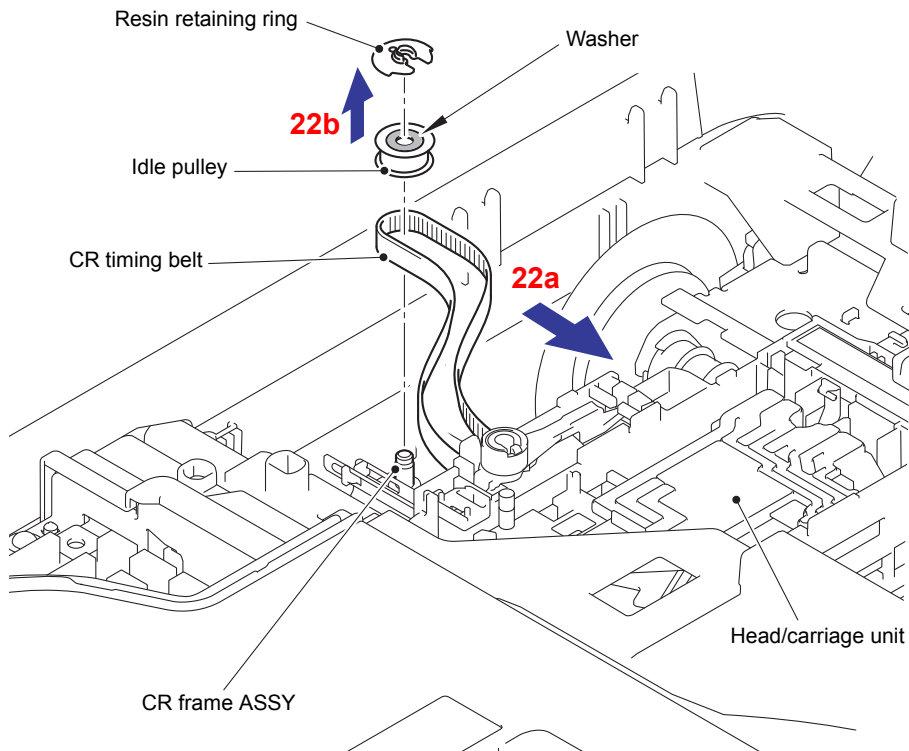


Fig. 3-16

(24) Remove the CR timing belt from the Gear of the Carriage motor ASSY.

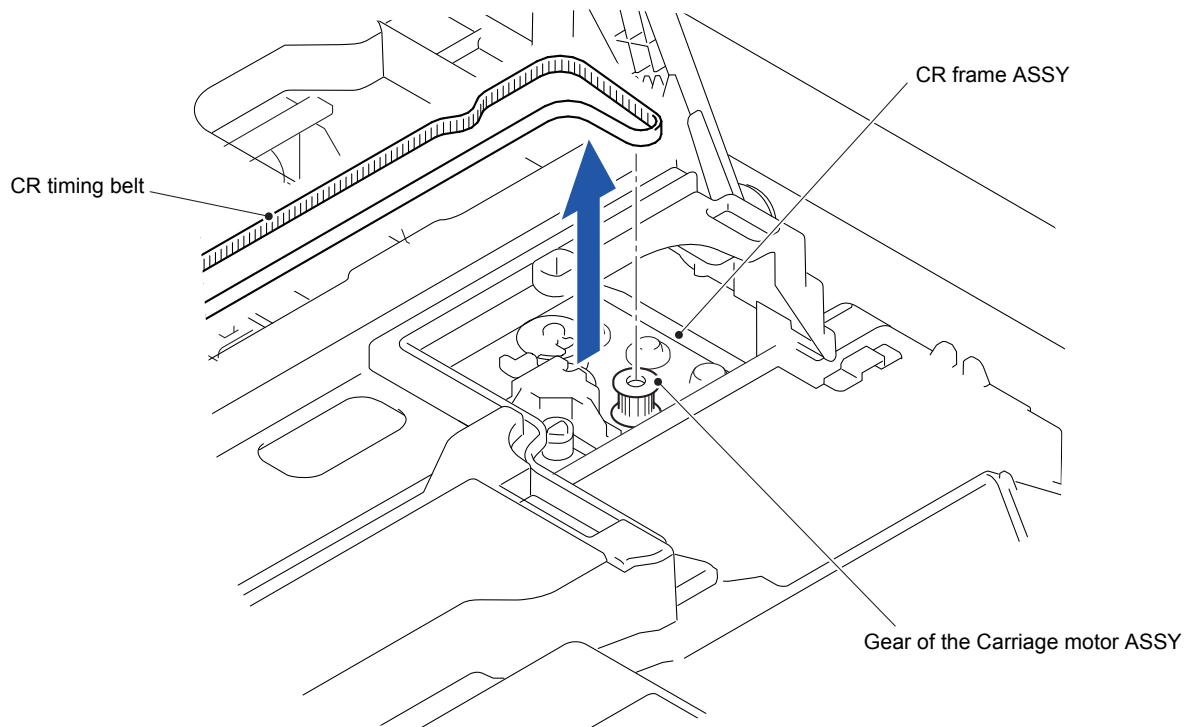


Fig. 3-17

(25) Loosely tie the CR timing belt in a bundle on the Head/carriage unit as shown in the figure below.

(26) Pull the two Locks in the direction of the arrow to release the position.

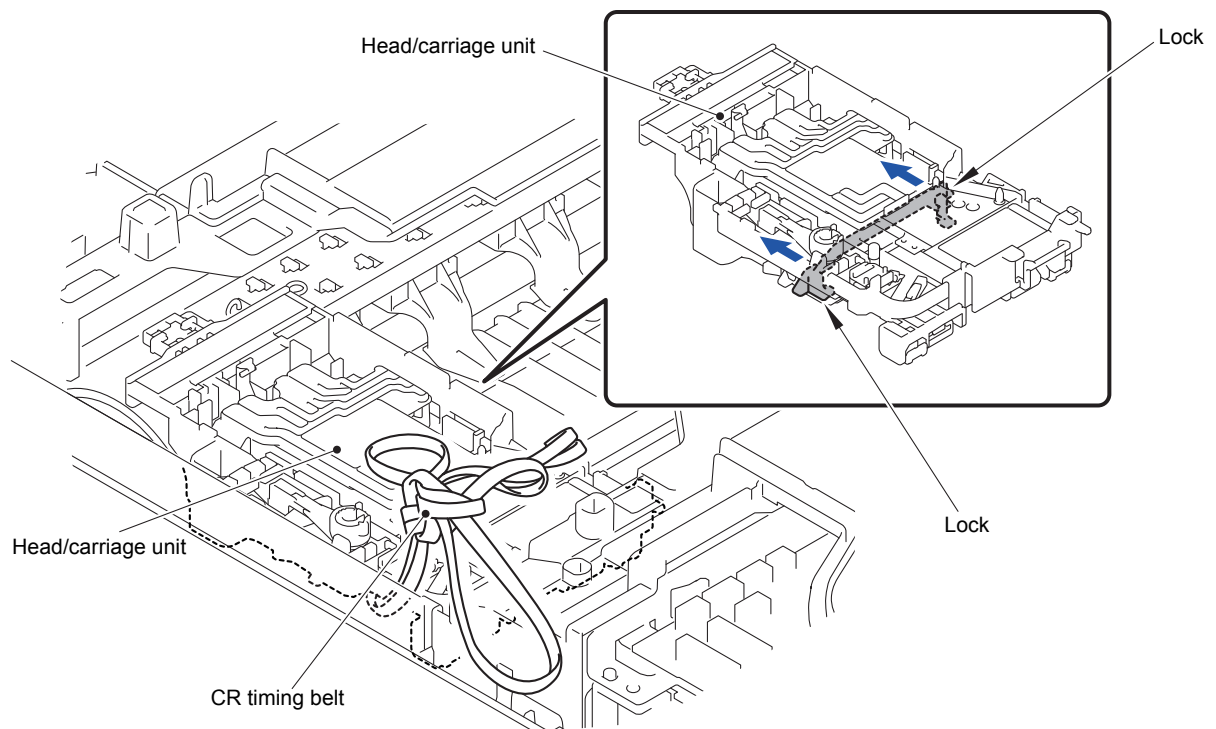


Fig. 3-18

(27) Move the Head/carriage unit to the position where the Hooks of the Head/carriage unit are aligned with the Cutouts in the CR guide rail.

(28) Take out the Head/carriage unit from the CR guide rail.

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.

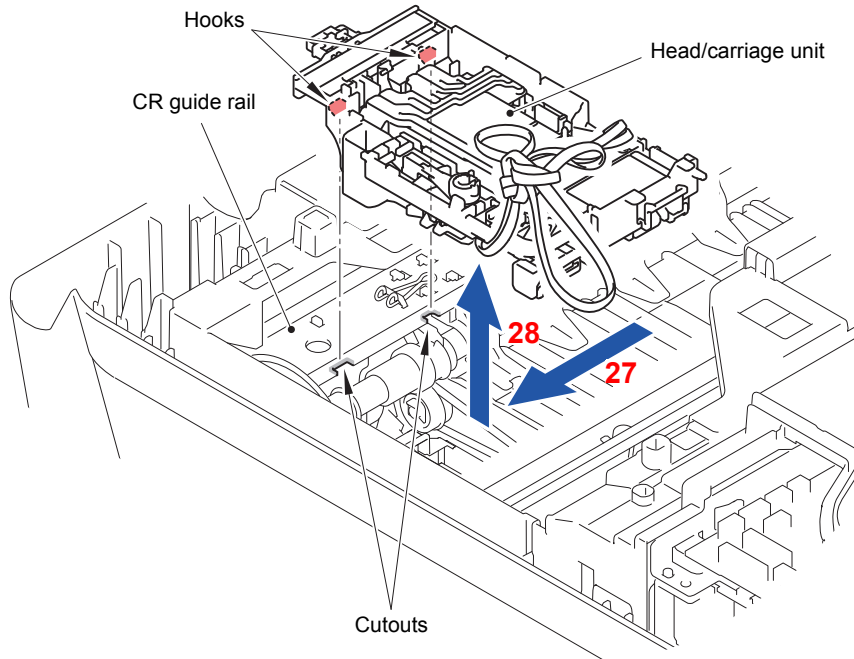


Fig. 3-19

(29) Remove the Carriage flat cable from the section "A" of the Head/carriage unit.

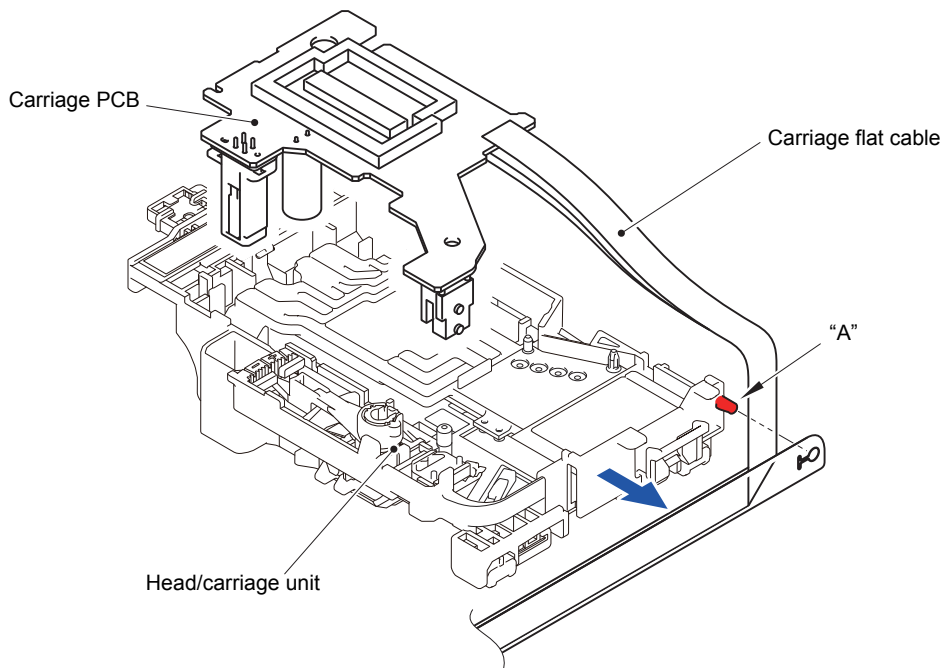


Fig. 3-20

(30) Remove the CR timing belt from the Head/carriage unit.

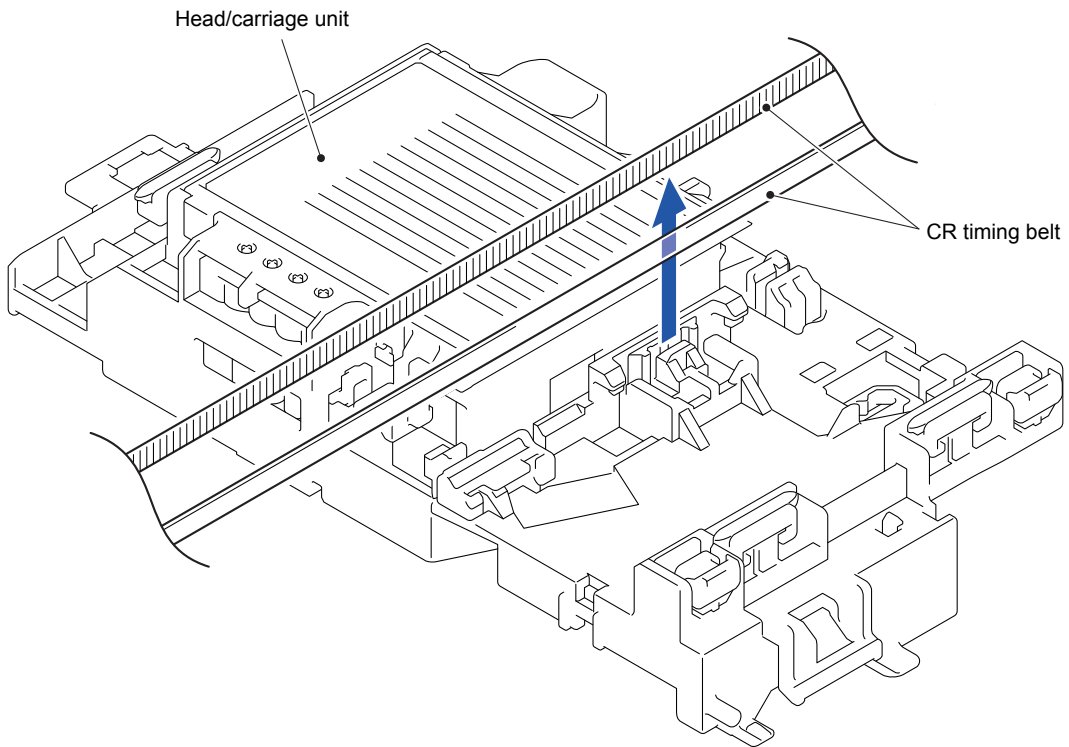


Fig. 3-21

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.

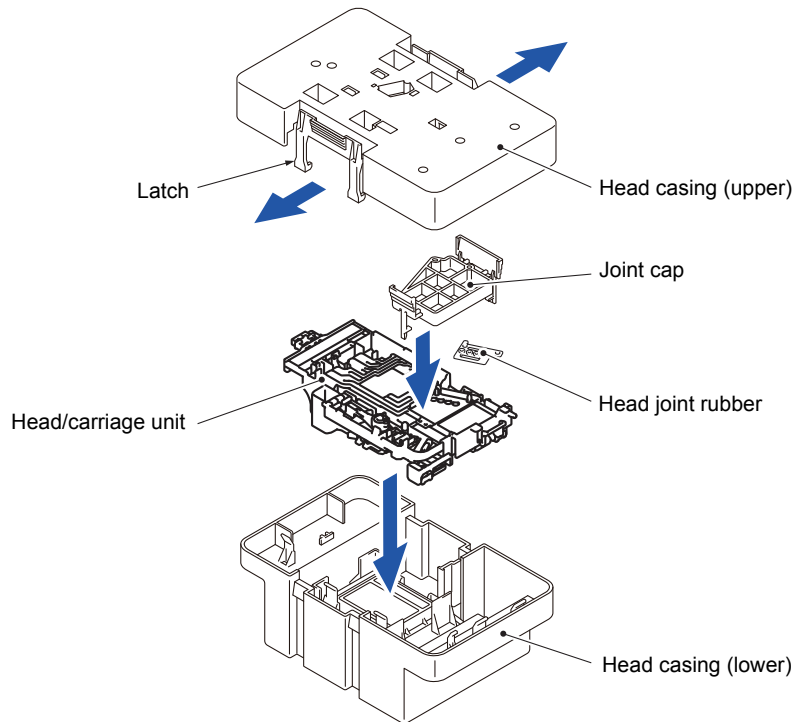


Fig. 3-22

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 "5.LUBRICATION" 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.

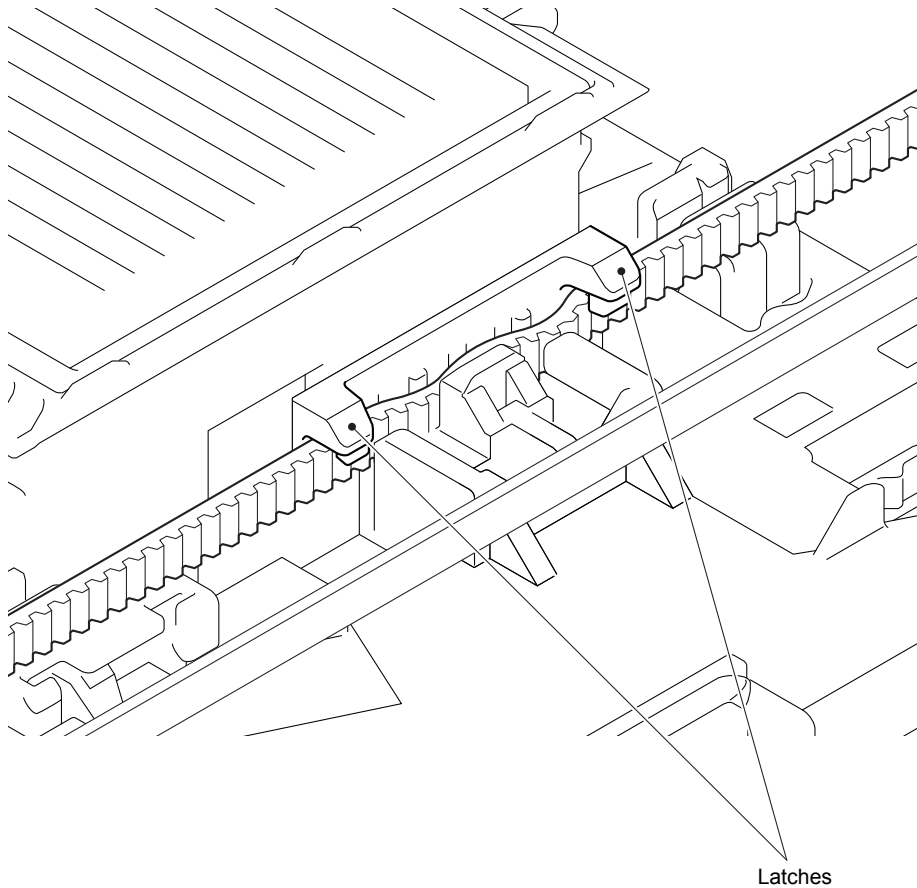


Fig. 3-23

Harness routing: Refer to "**1** Main PCB ASSY", "**5** Head/carriage unit"

9.3 Ink Absorber Box

- (1) Remove the Ink absorber box.
- (2) Pull out the Air vent tube and Drain tube from the Ink absorber box.

Note: Pinch the ends of the Air vent tube and Drain tube with the clips in order to prevent drained ink from leaking and the machine from getting stained with leaked ink.

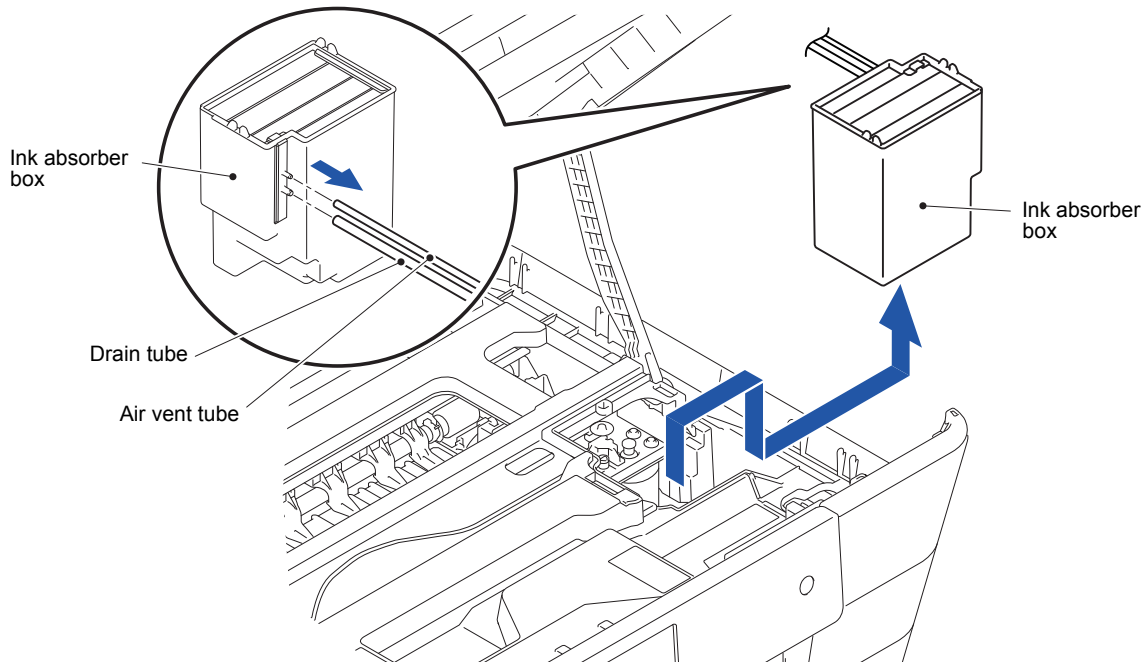


Fig. 3-24

Assembling Note:

- It is not necessary to trim the ends of the 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 ASSY), reset the purge count, using the procedure given in [Chapter 4, Section 1.14 "Reset purge and flushing counts."](#)
- 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.

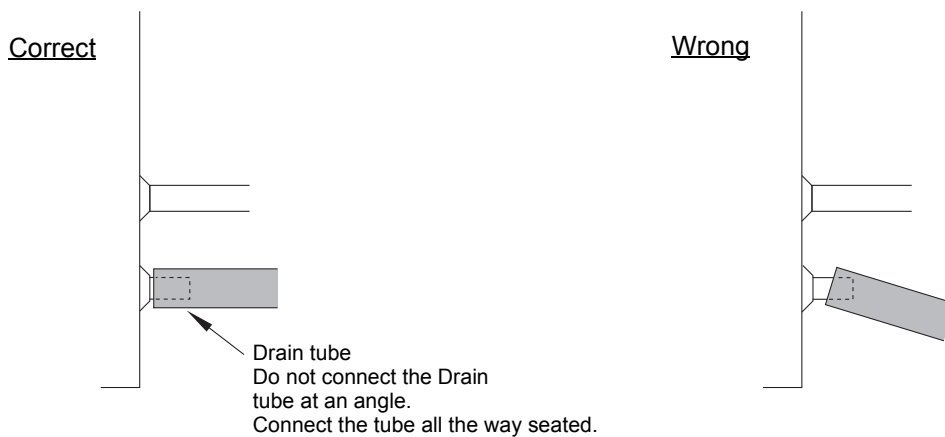


Fig. 3-25

9.4 FB Hinge

- (1) Remove the two screws (TAPTITE BIND B M4x12).

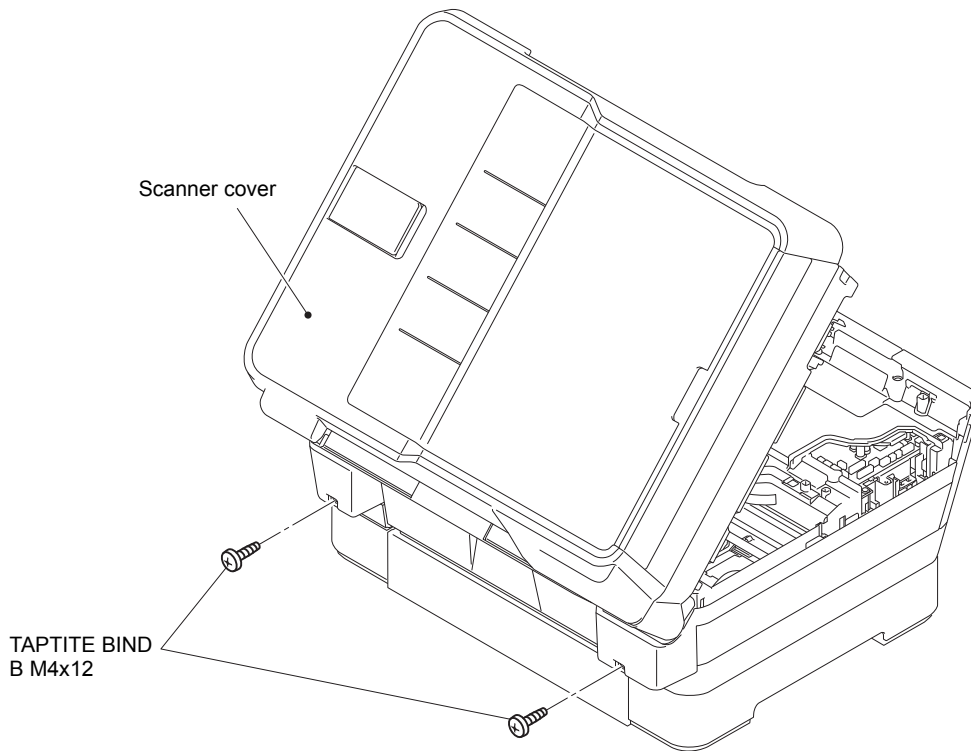


Fig. 3-26

- (2) Tilt the Scanner cover to the position shown in the figure.
- (3) Remove the Pin of the Scanner cover support from the Scanner cover.

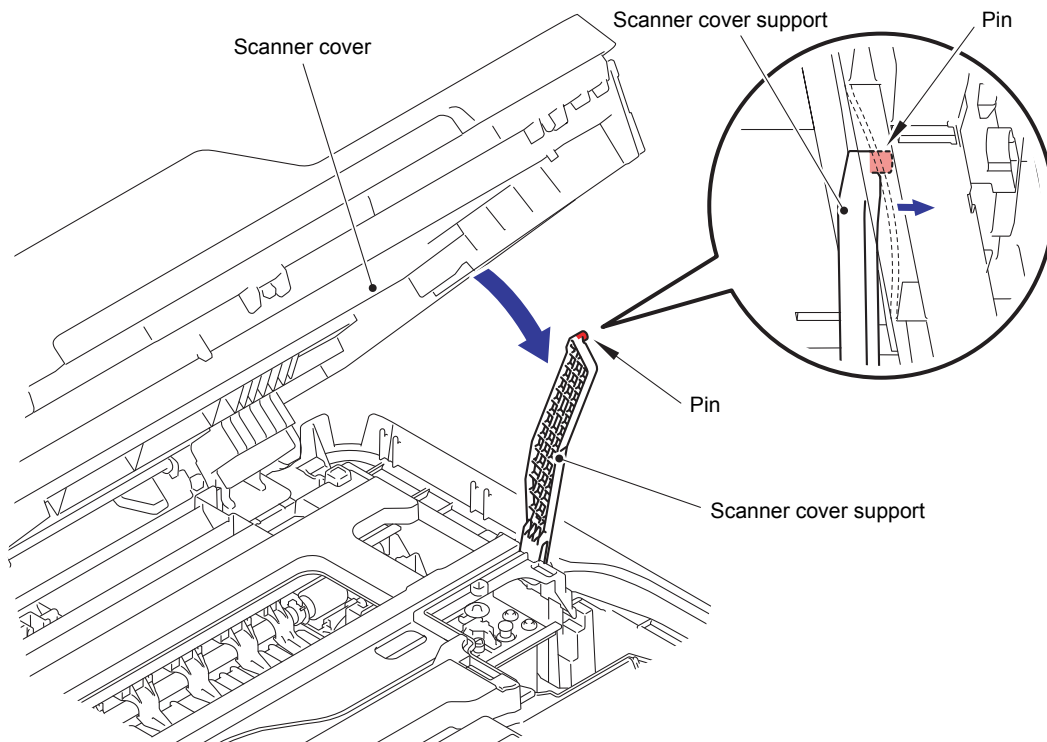


Fig. 3-27

(4) Remove the Scanner cover.

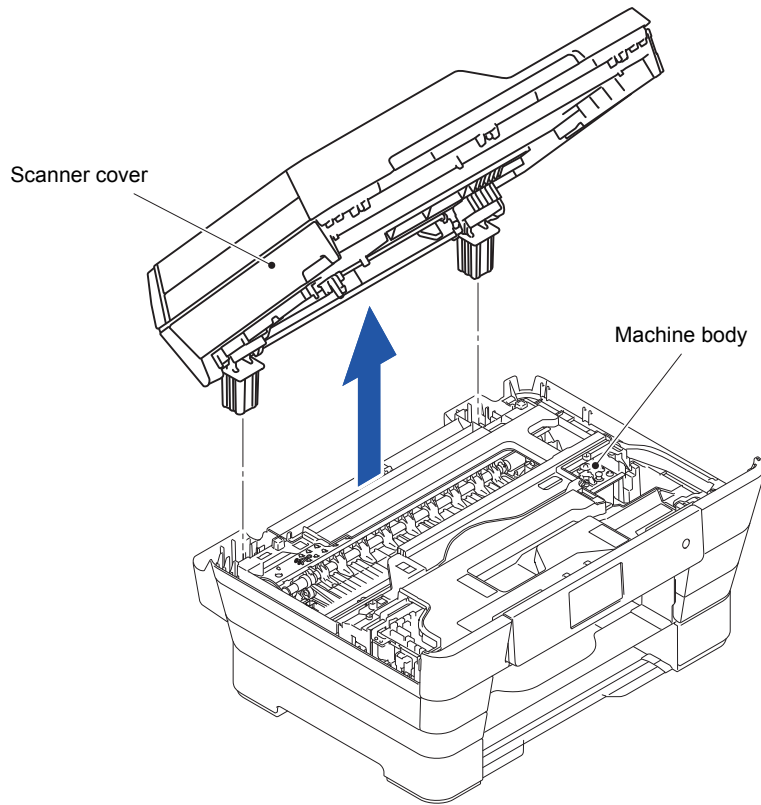


Fig. 3-28

Note: The Hook of the Scanner harness holder is easily broken, be sure to place the Scanner cover in the orientation shown in the figure.

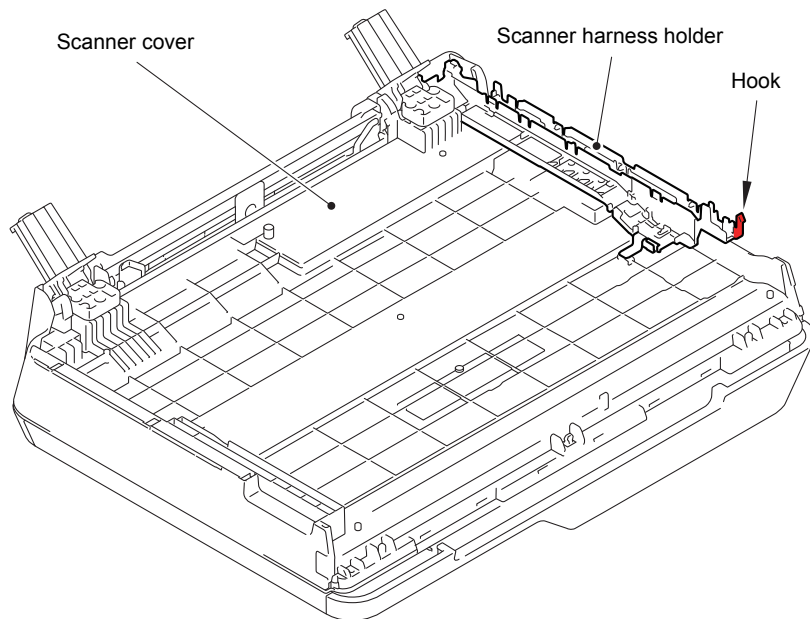


Fig. 3-29

- (5) Remove the three screws (TAPTITE BIND B M4x12) and take off the FB hinge from the Document scanner unit.
- (6) Remove the other FB hinge in the same way.

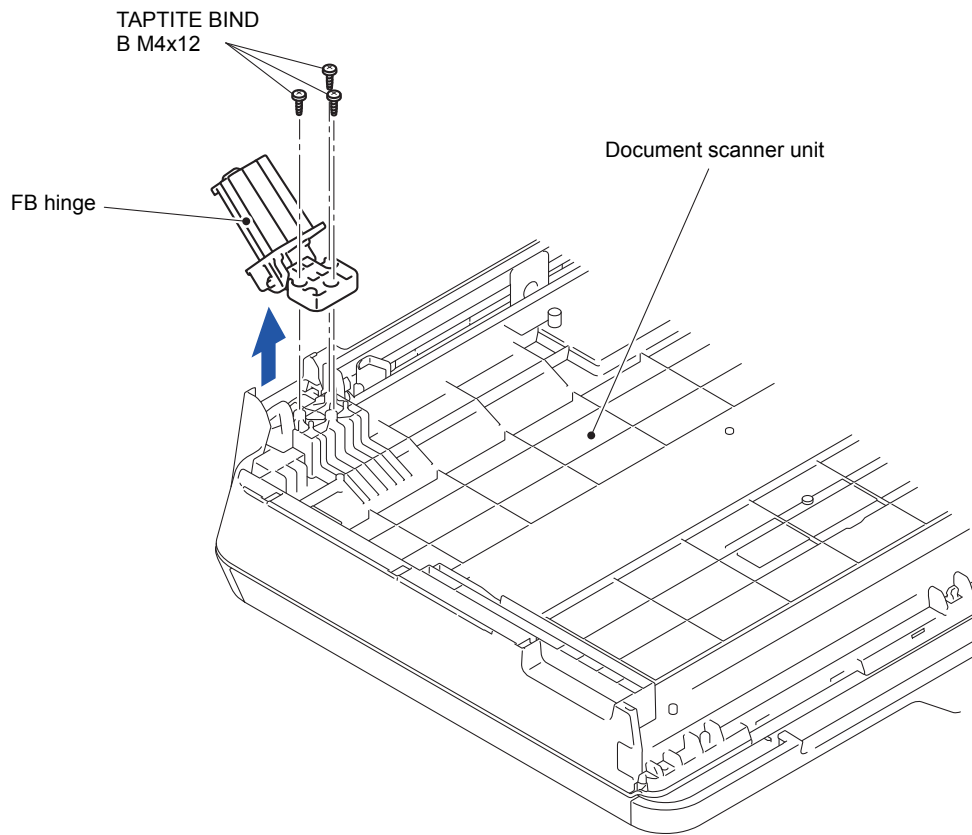


Fig. 3-30

9.5 Manual Feed Slot Cover ASSY

- (1) Release the four Pins and remove the Manual feed slot cover ASSY from the Document scanner unit.

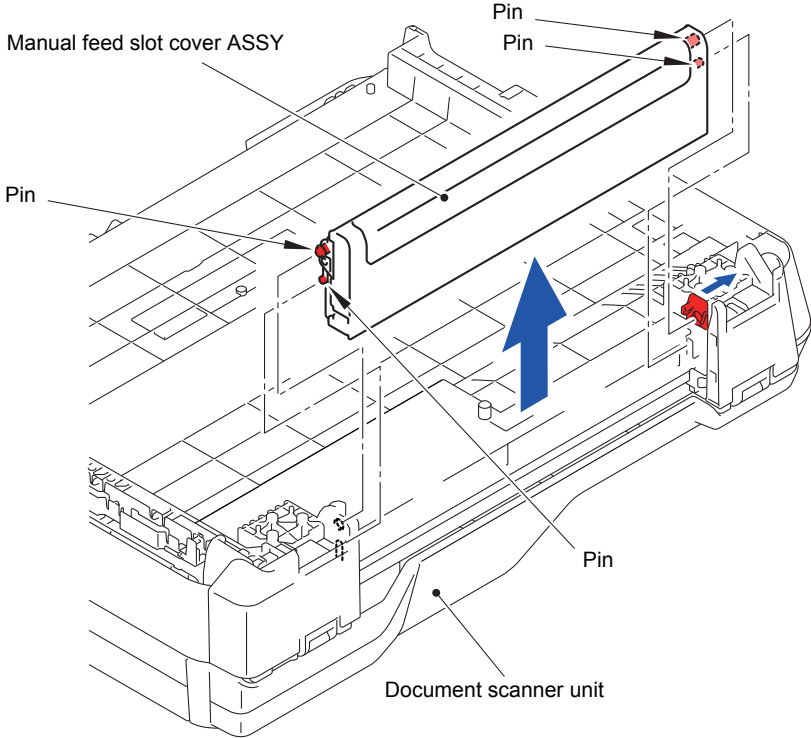


Fig. 3-31

9.6 Document Scanner Side Cover L

- (1) Insert a Flat screwdriver into the Cutout and release the sections "A" and "B".
- (2) Slide the Document scanner side cover L to release the nine Hooks.

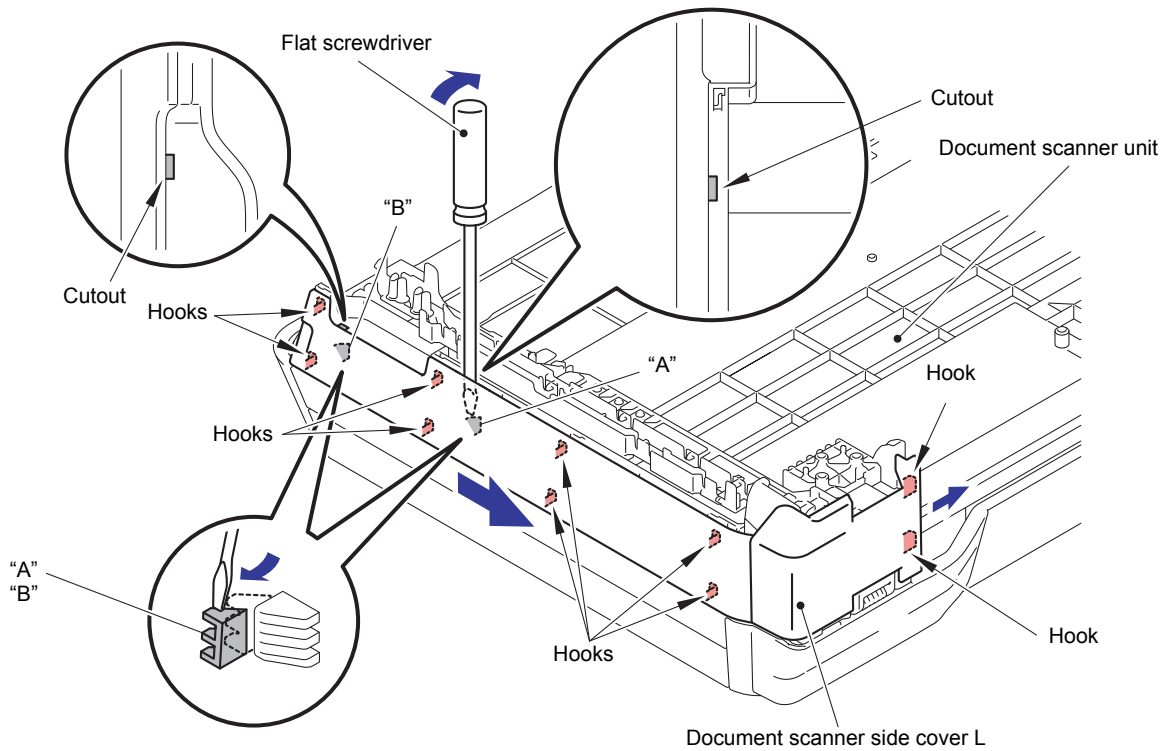


Fig. 3-32

- (3) Remove the Document scanner side cover L from the Document scanner unit.

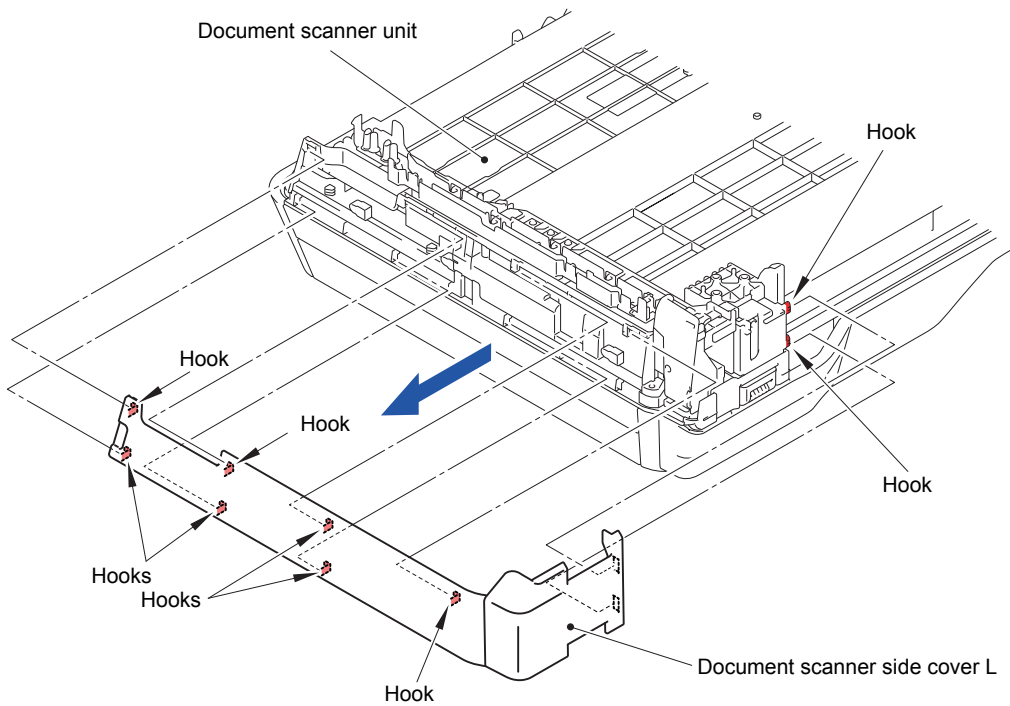


Fig. 3-33

9.7 Document Scanner Side Cover R

- (1) Insert a Flat screwdriver into the Cutout and release the sections "A" and "B".
- (2) Slide the Document scanner side cover R to release the nine Hooks.

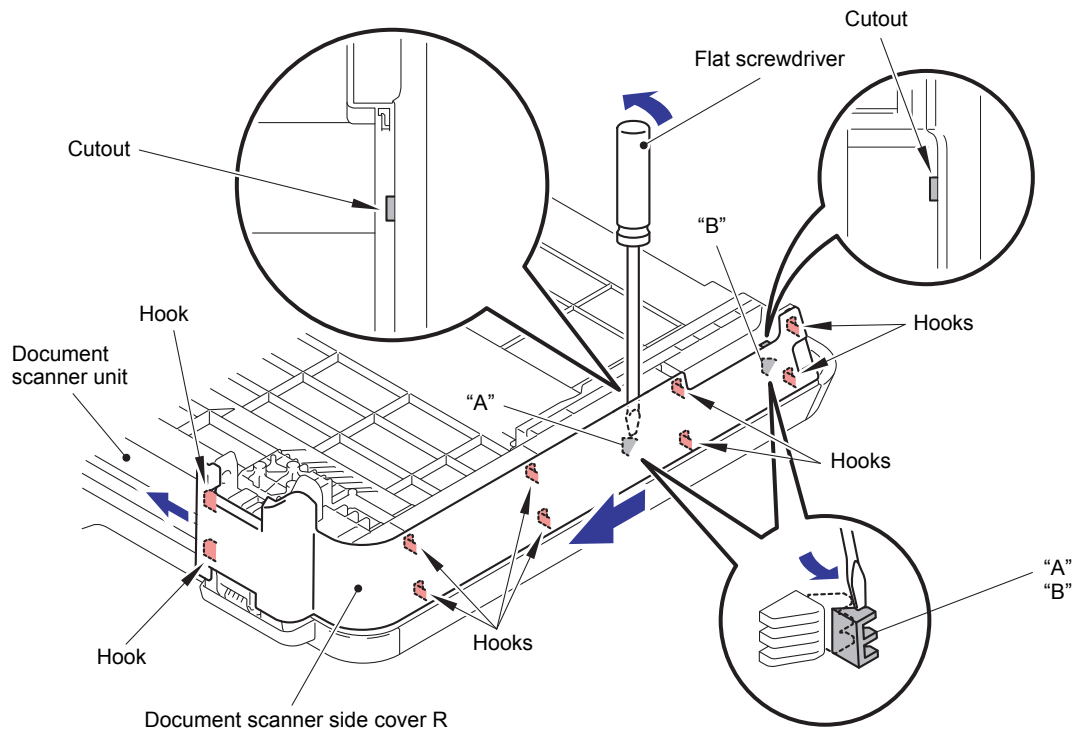


Fig. 3-34

- (3) Remove the Document scanner side cover R from the Document scanner unit.

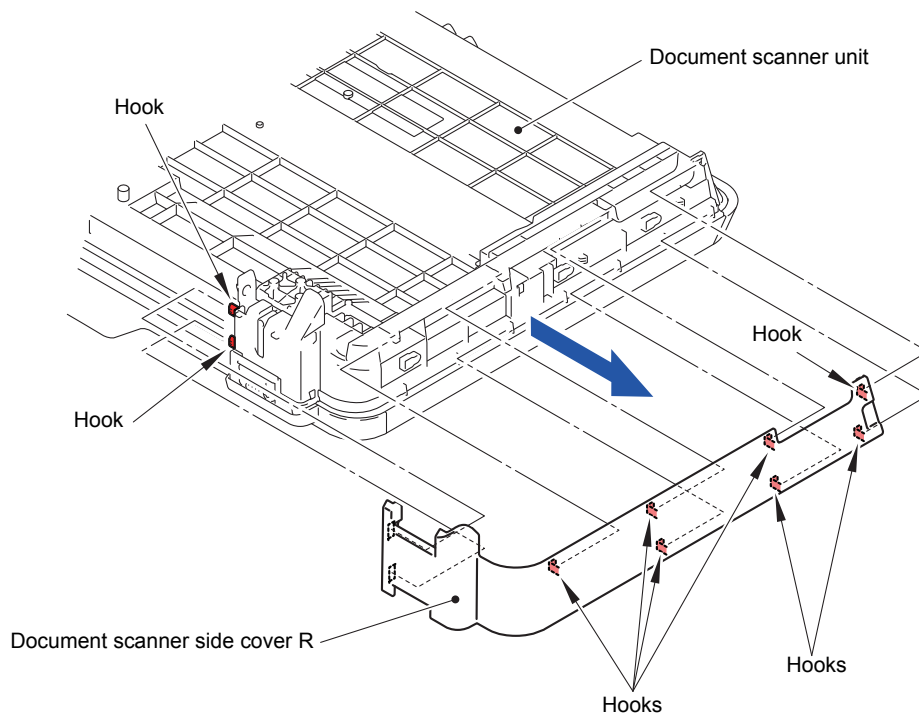


Fig. 3-35

9.8 ADF Unit, Document Scanner Unit and ADF Hinge

- (1) Release all the wiring from the Scanner harness holder.
- (2) Release the Hook from the Document scanner unit and lift up the Scanner harness holder.

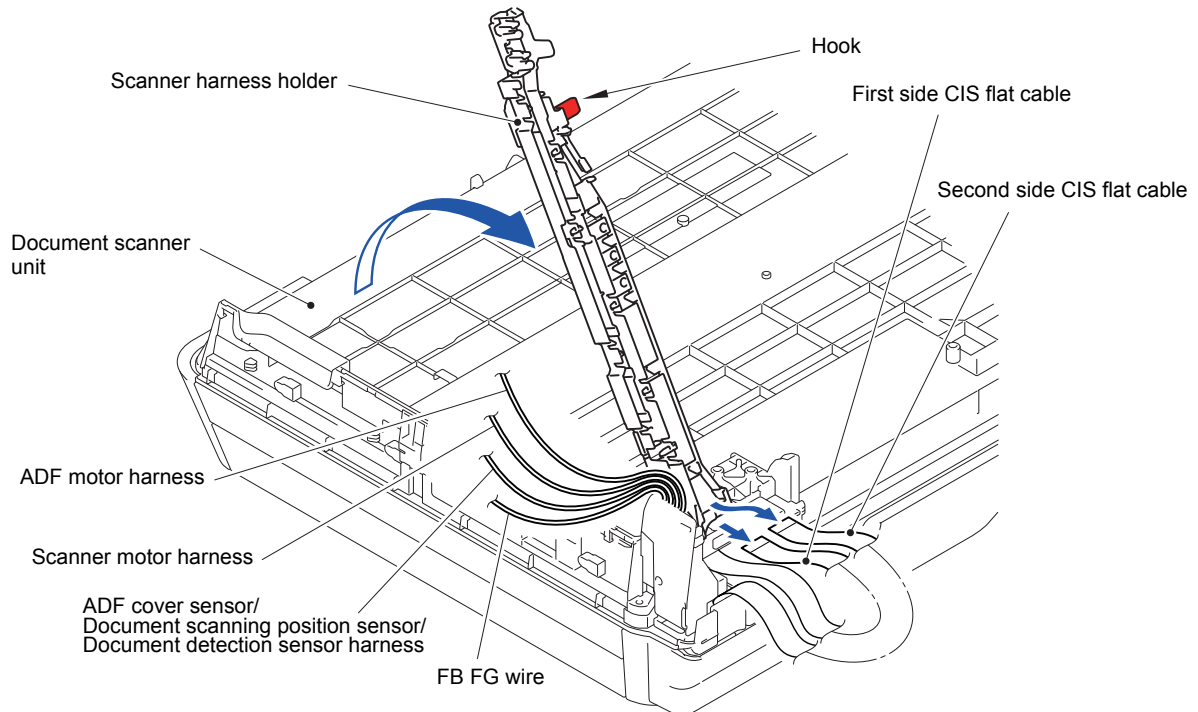


Fig. 3-36

Assembling Note: Mount the Ferrite core of the ADF motor harness to the Scanner harness holder so that the Cable tie is positioned as shown in the figure.

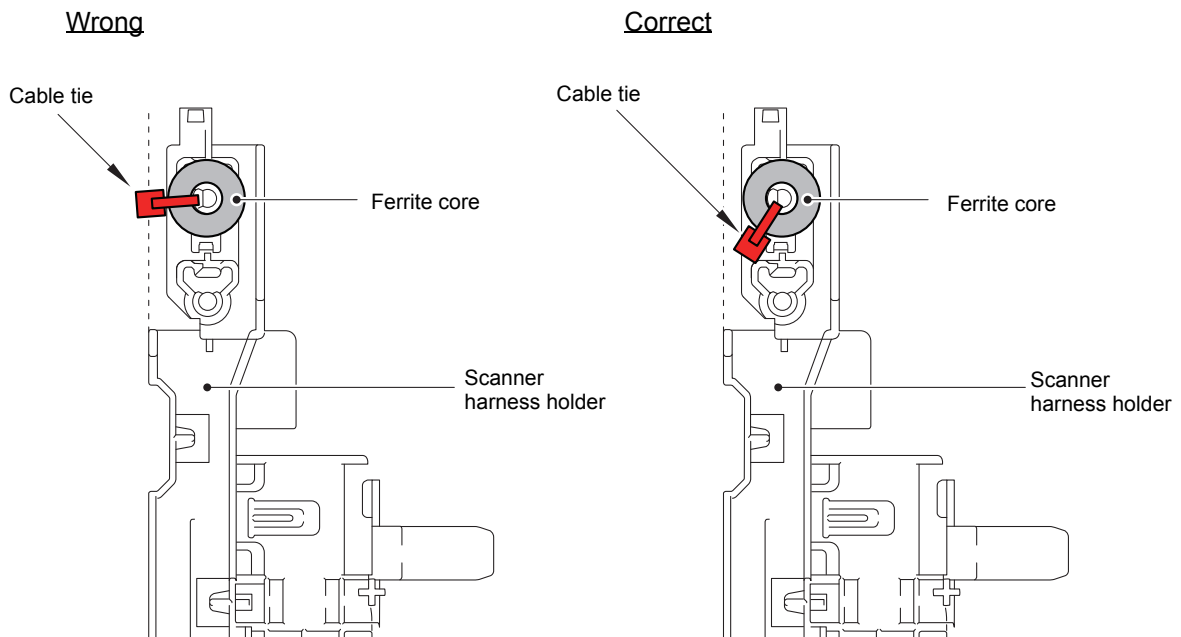


Fig. 3-37

- (3) Release the two Hooks and remove the Scanner harness holder from the Document scanner unit.

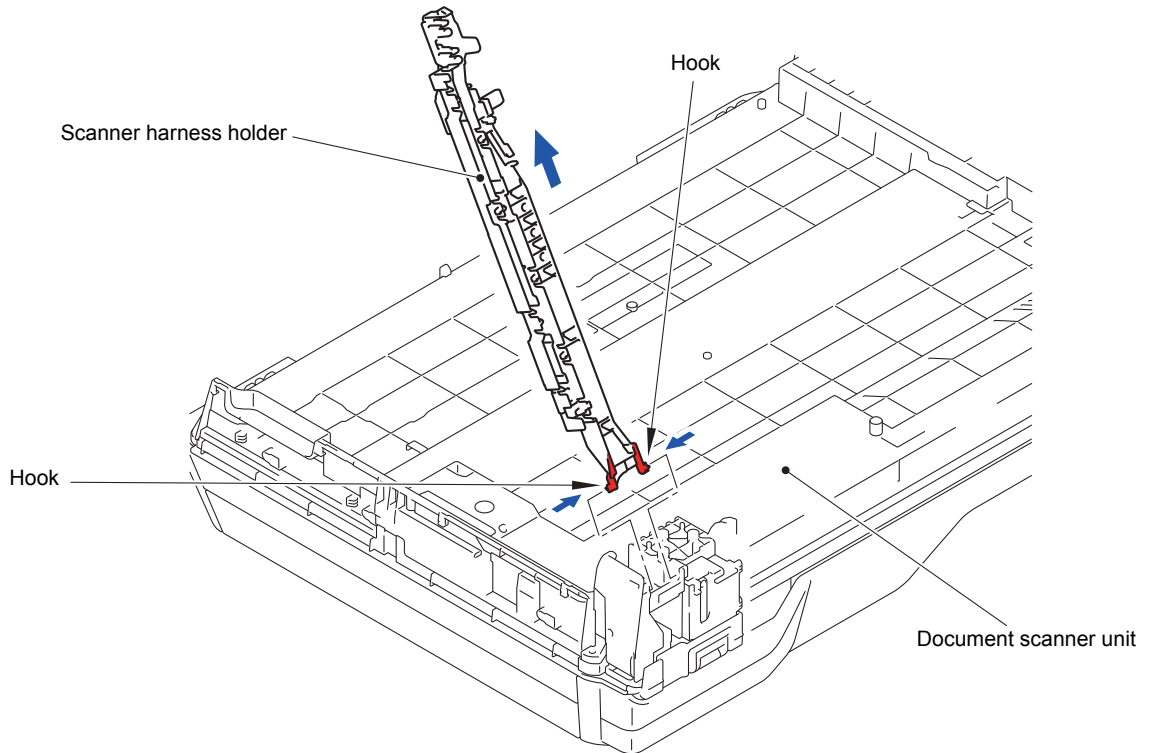


Fig. 3-38

- (4) Release the two Hooks and remove the Harness support from the Document scanner unit.

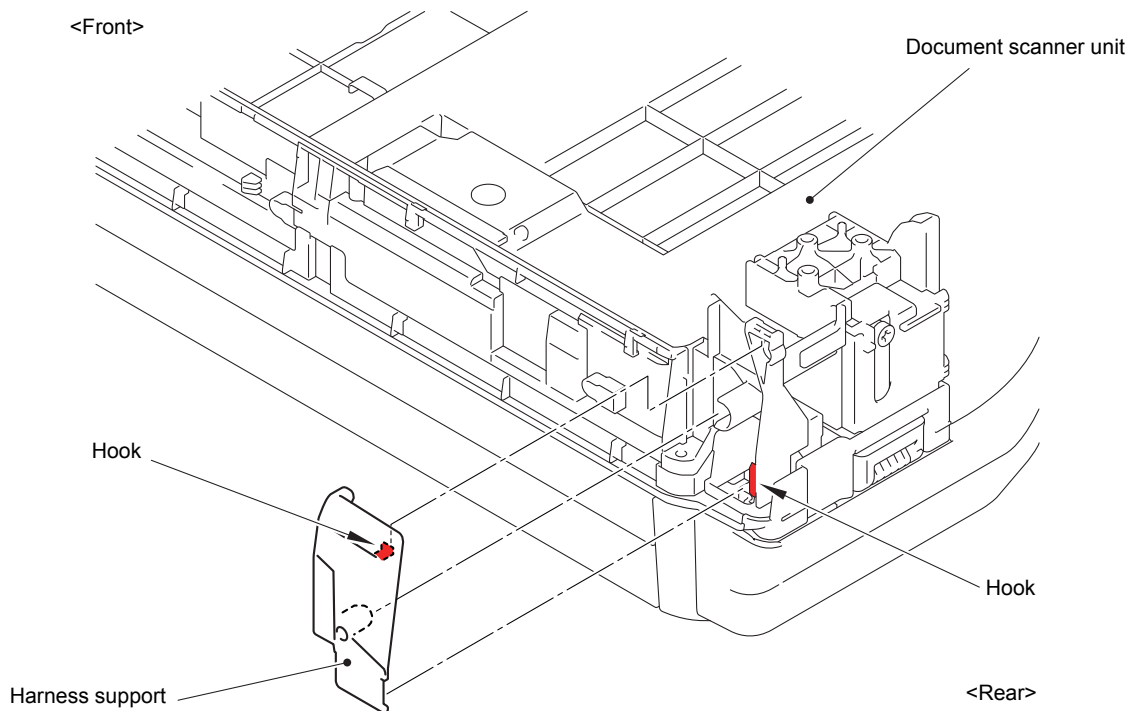


Fig. 3-39

- (5) Turn the Document scanner unit right side up.
- (6) Remove the two screws (TAPTITE BIND B M4x12) from the Document scanner unit.
- (7) Open the ADF unit fully.

Note: Lifting up the ASSY without fully opening it in step (8) opens the ADF hinge suddenly and unexpectedly with great force. It is DANGEROUS!

Hinweis: Das Anheben der Baugruppe, ohne sie zuvor vollständig geöffnet zu haben, führt in Schritt (8) dazu, dass der Scharnierarm L plötzlich und unerwartet mit großer Kraft nach oben schnell. Dies ist GEFÄHRLICH!

- (8) Remove the ADF unit from the Document scanner unit.

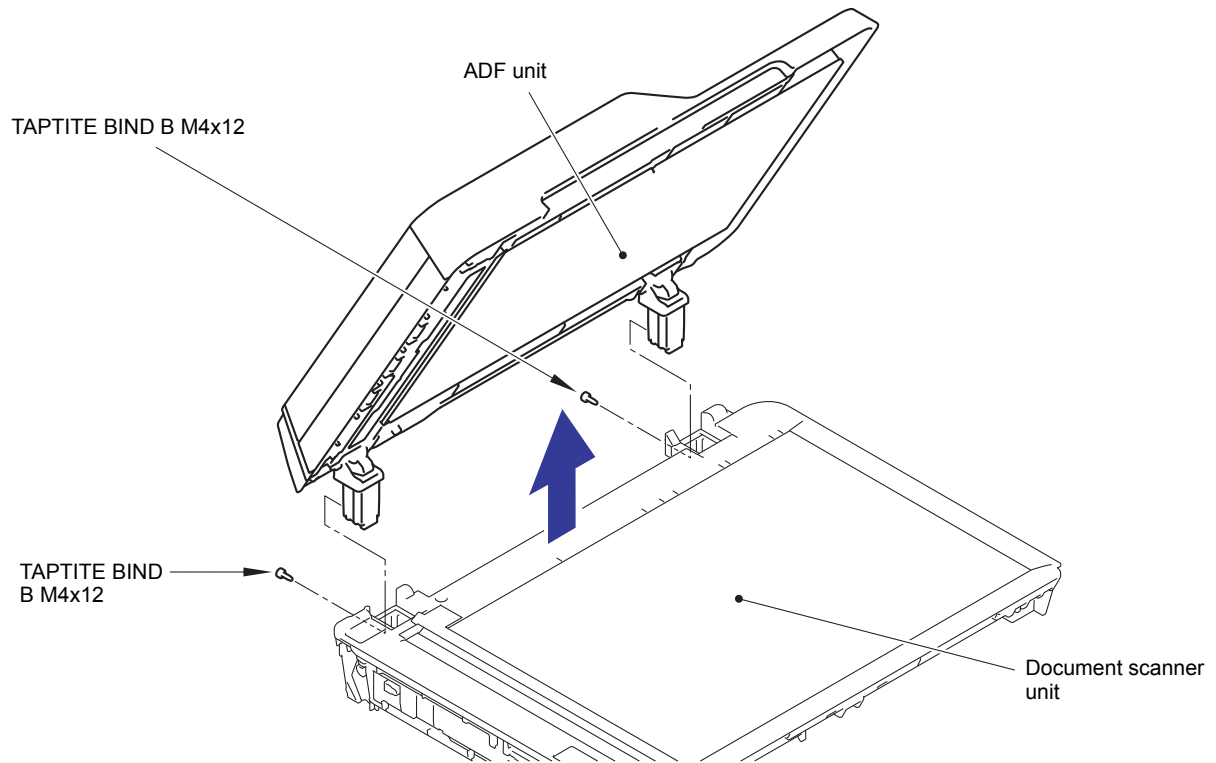


Fig. 3-40

- (9) Turn the ADF unit upside down.
- (10) Remove the three screws (TAPTITE CUP B M3x10) and take off the ADF hinge from the ADF unit.
- (11) Remove the other ADF hinge in the same way.

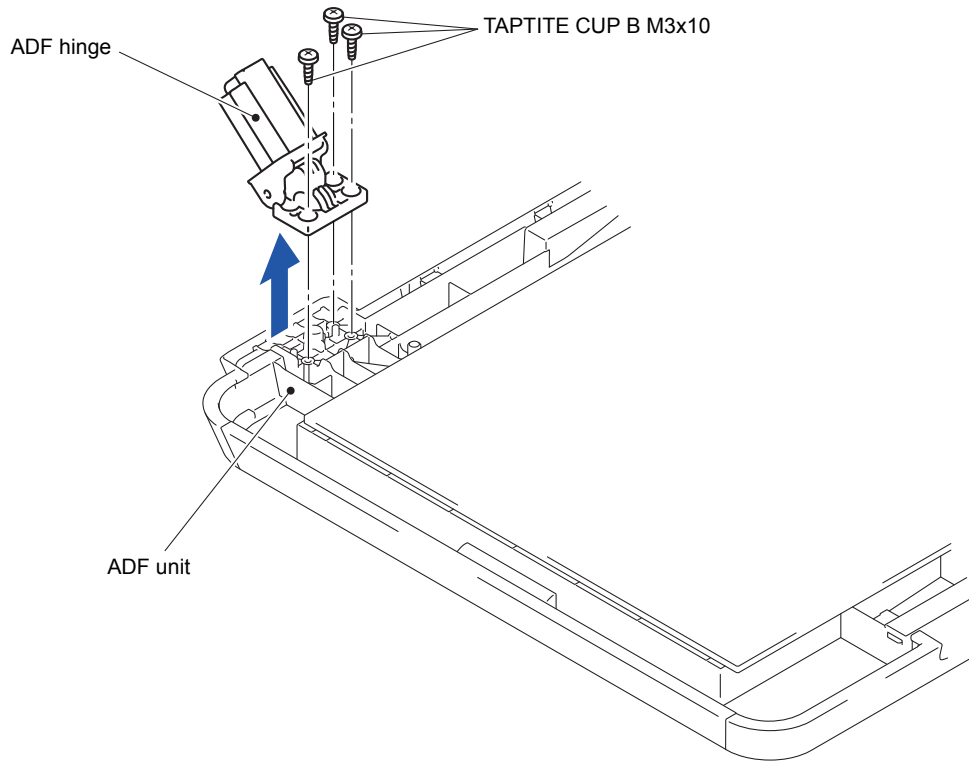


Fig. 3-41

Harness routing: Refer to "**3** Scanner harness holder", "**4** ADF unit and document scanner unit"

9.9 ADF Document Support

- (1) Open the ADF document support.
- (2) Release the two Bosses on the ADF unit and remove the ADF document support from the ADF unit.

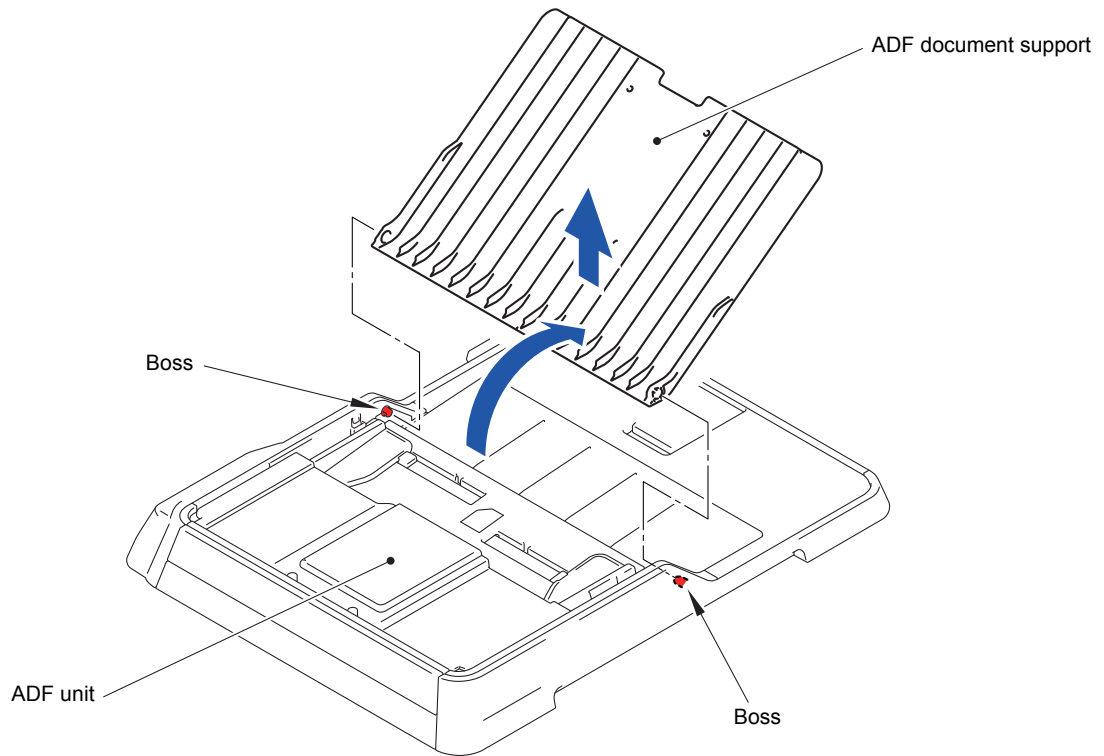


Fig. 3-42

9.10 ADF Cover ASSY and ADF Cover Side Cover

- (1) Open the ADF cover ASSY.
- (2) Release the two Bosses and remove the ADF cover ASSY from the ADF unit.

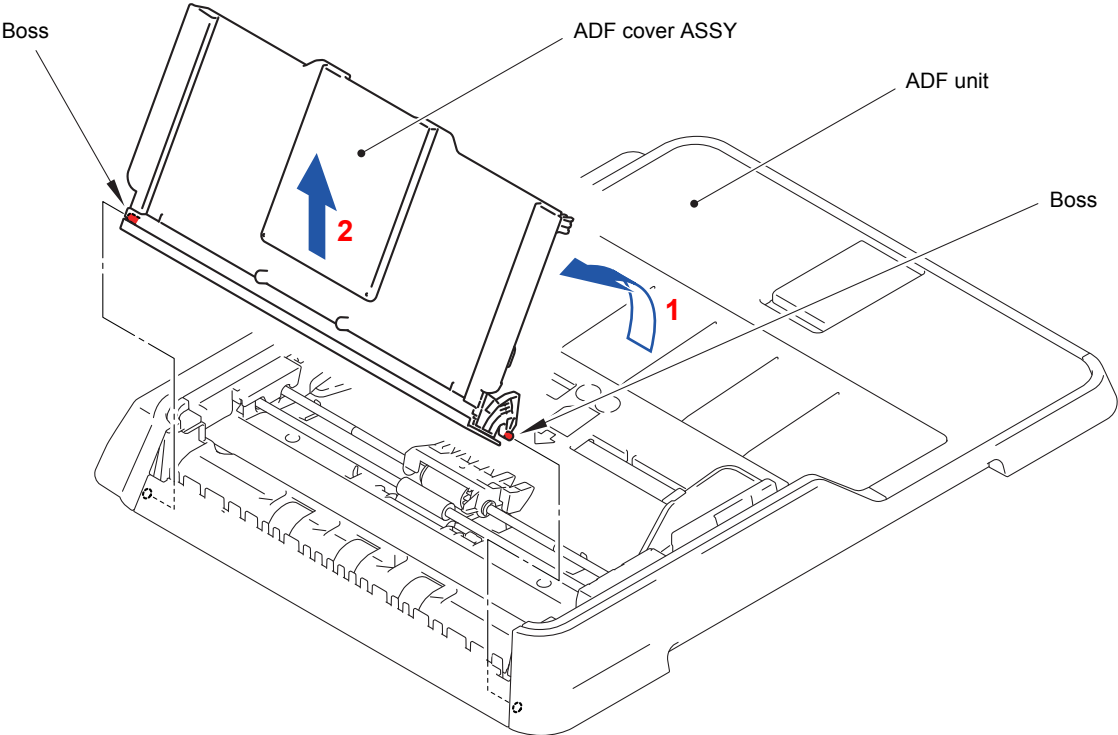


Fig. 3-43

- (3) Release the nine Hooks and remove the ADF cover side cover from the ADF cover ASSY.

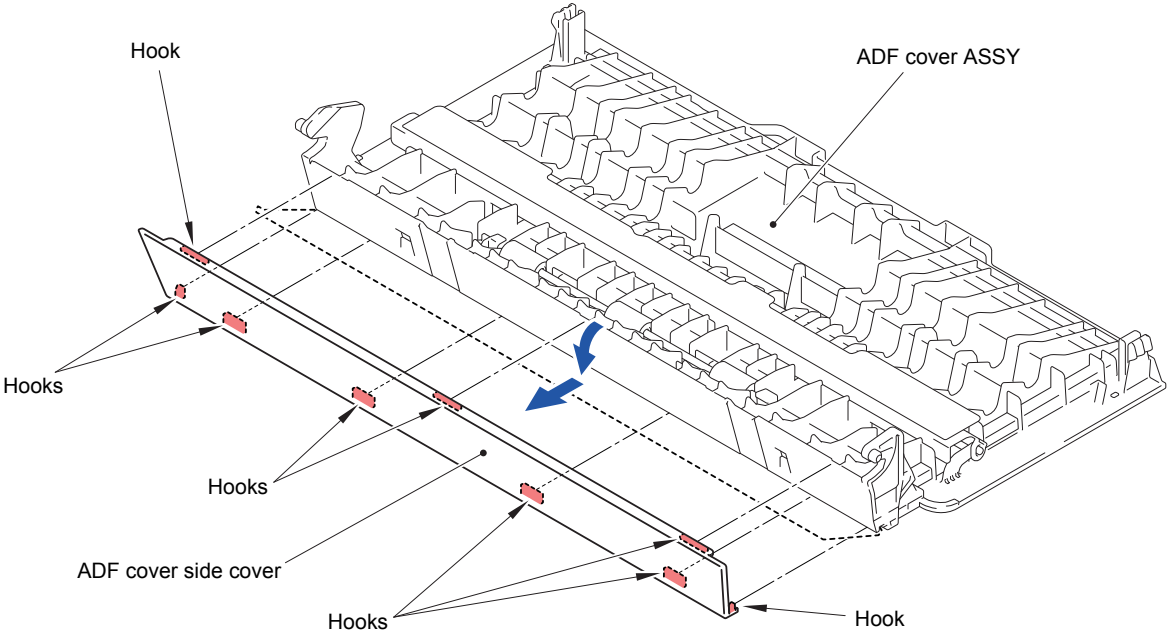


Fig. 3-44

9.11 ADF Front Cover

- (1) Release the eleven Hooks and remove the ADF front cover from the ADF unit.

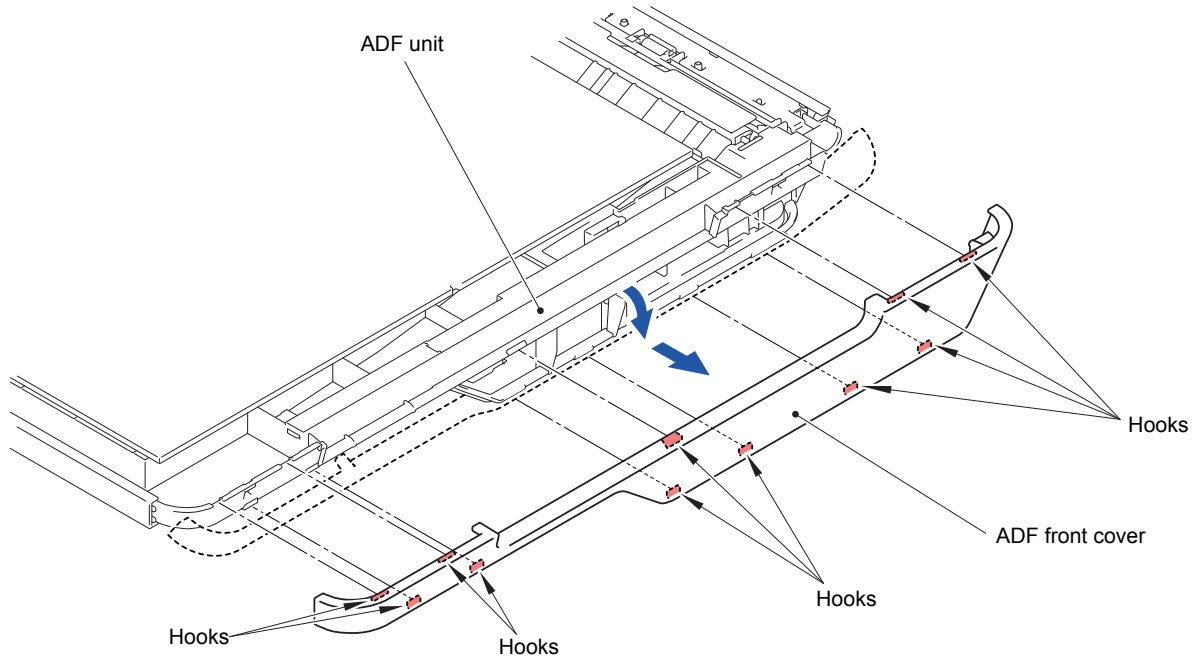


Fig. 3-45

9.12 ADF Side Cover L

- (1) Release the ten Hooks, slide the ADF side cover L in the direction of the arrow, and remove the ADF side cover L from the ADF unit.

Assembling Note: Mount the ADF side cover L to the ADF unit by aligning the ▲-marked point with the end of the ADF side cover L.

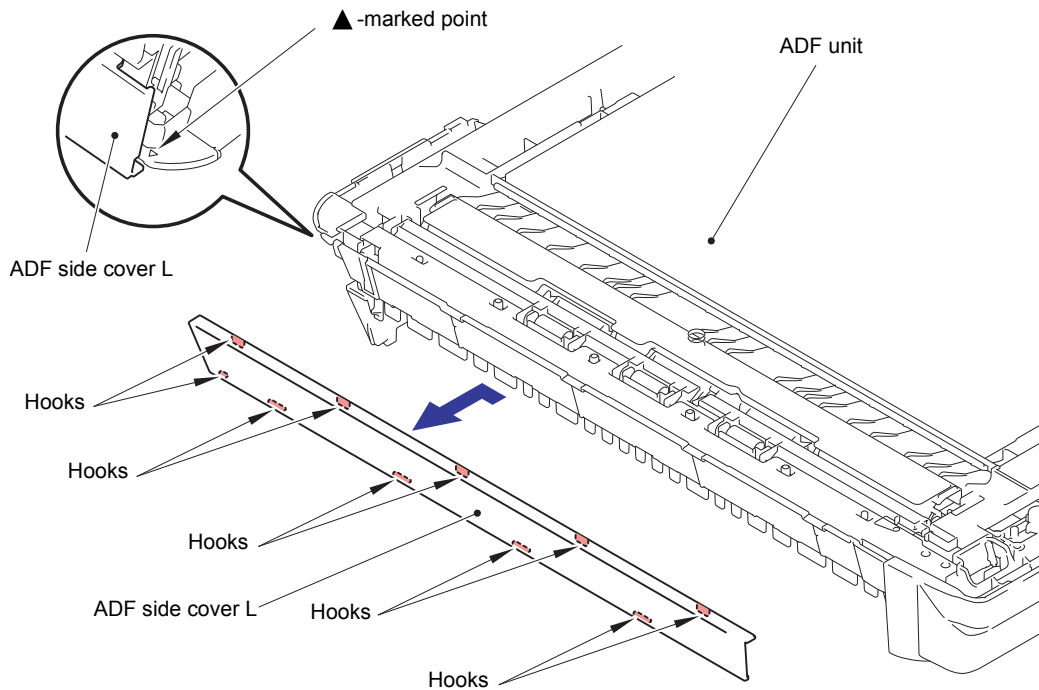


Fig. 3-46

9.13 ADF Side Cover R

- (1) Release the ten Hooks, slide the ADF side cover R in the direction of the arrow, and remove the ADF side cover R from the ADF unit.

Assembling Note: Mount the ADF side cover R to the ADF unit by aligning the ▲-marked point with the end of the ADF side cover R.

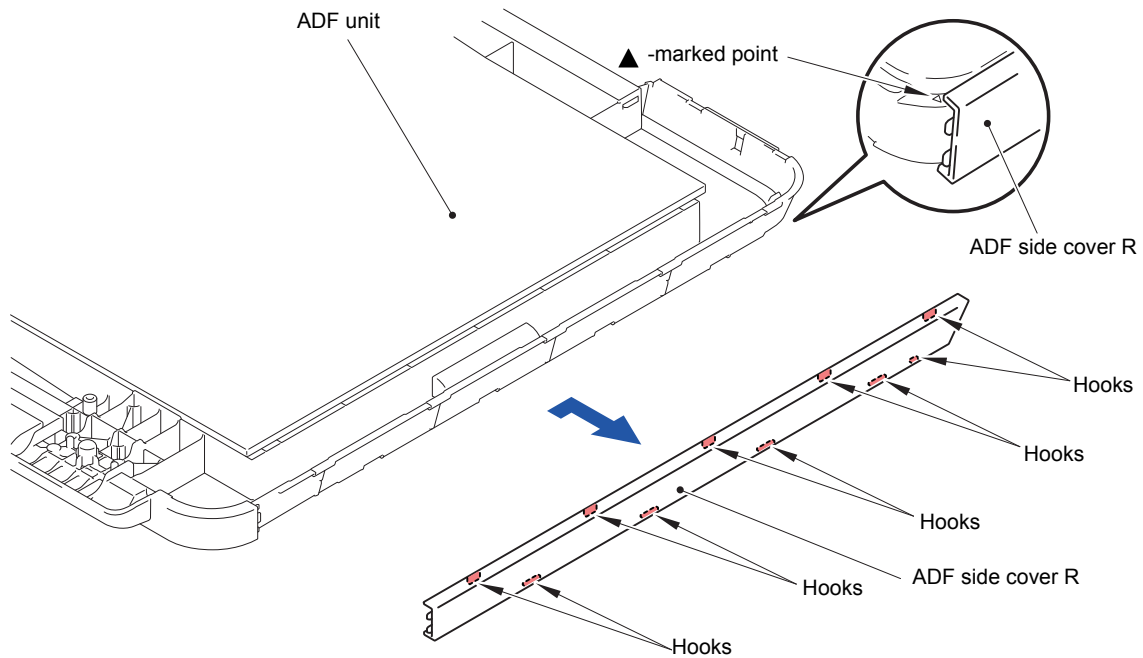


Fig. 3-47

9.14 ADF Back Cover

- (1) Release the eleven Hooks and remove the ADF back cover from the ADF unit.

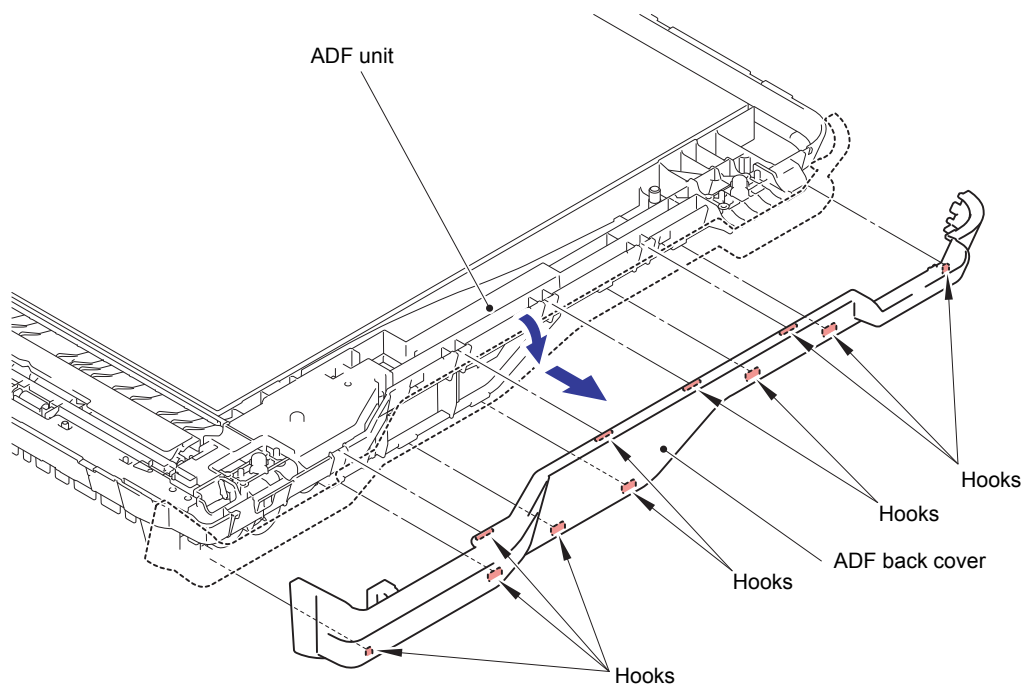


Fig. 3-48

9.15 Document Separation Roller ASSY

(1) Release the two Hooks and remove the ADF cover plate from the ADF unit.

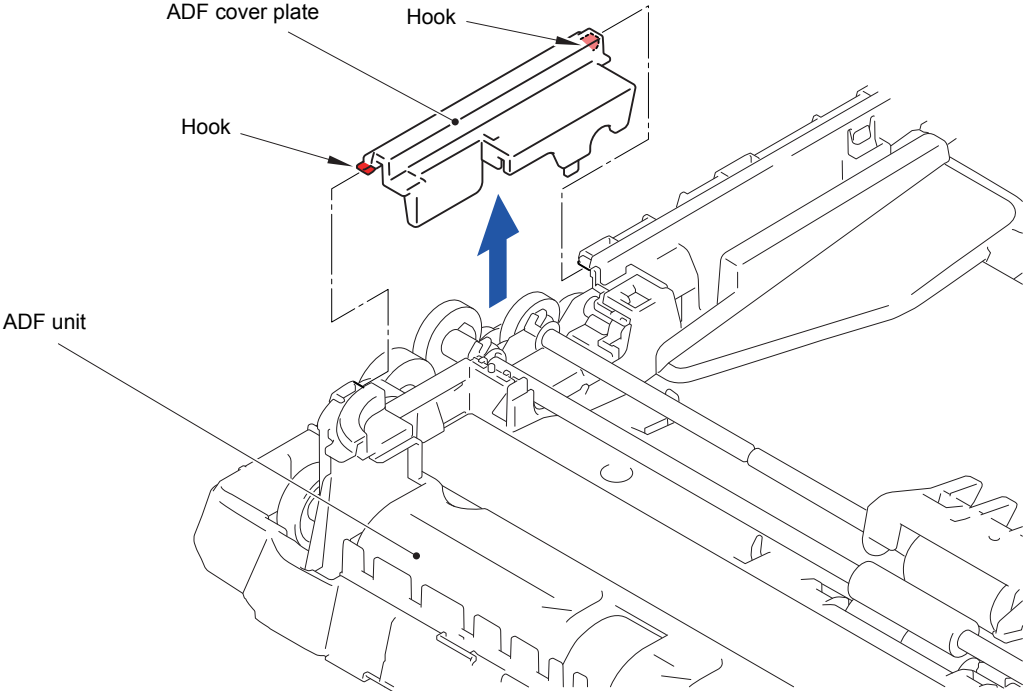


Fig. 3-49

(2) Turn the Bushing of the Document separation roller ASSY in the direction of the arrow 2a to unlock it.

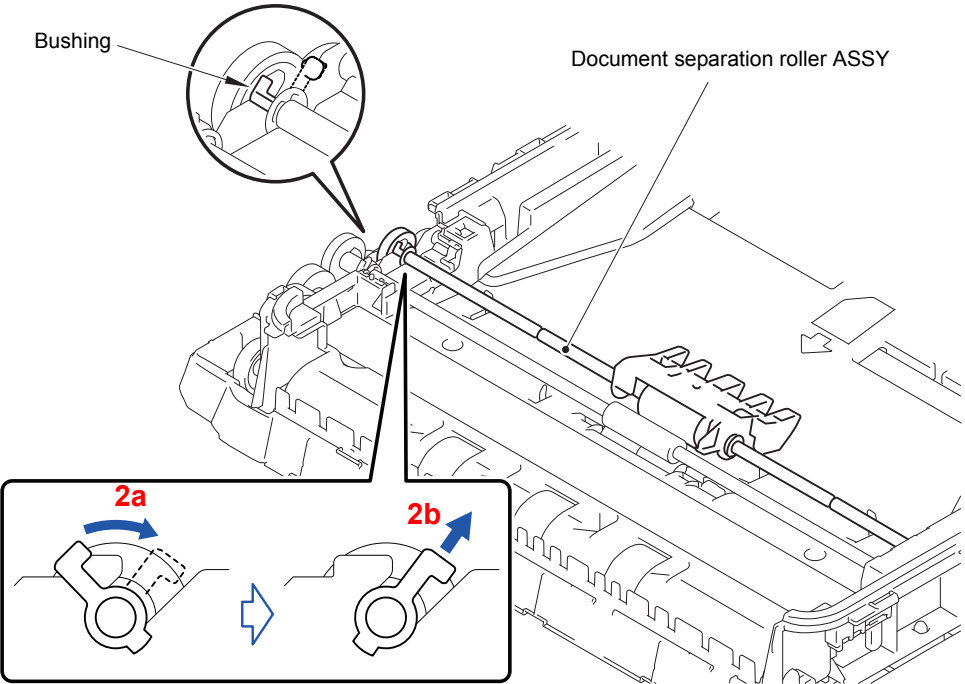


Fig. 3-50

(3) Remove the Document separation roller ASSY from the ADF unit.

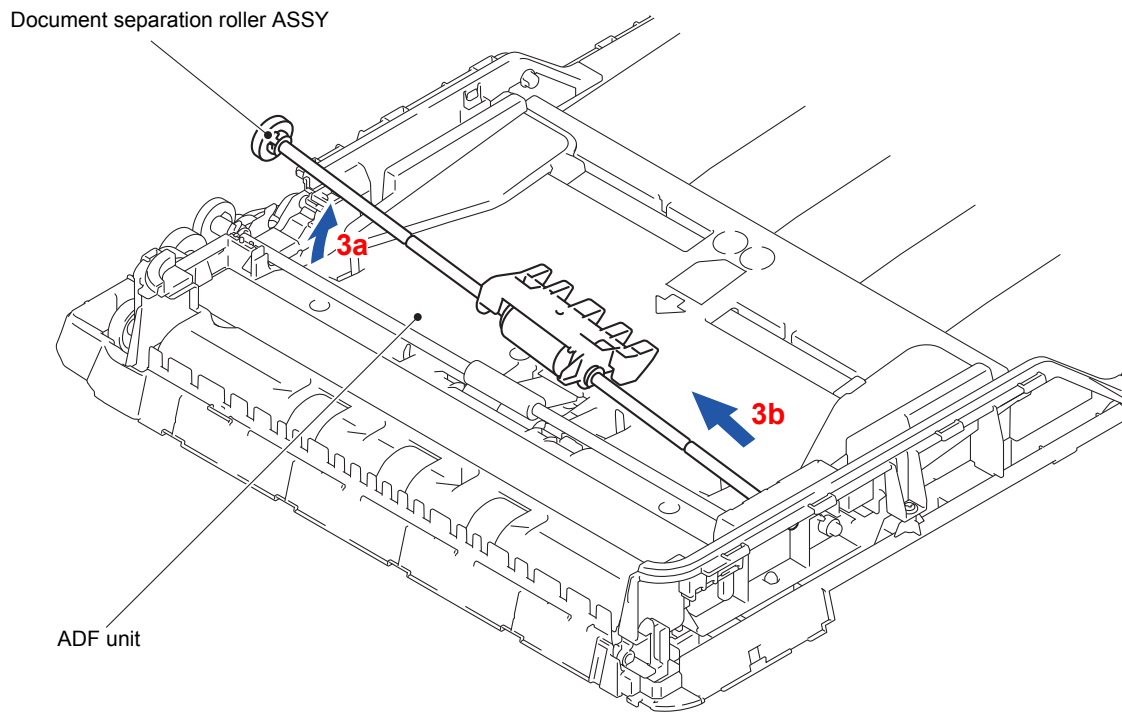


Fig. 3-51

9.16 ADF Separation Pad

- (1) Release the two Hooks of the ADF separation pad holder from the Upper document chute.
- (2) Remove the two Pins and remove the ADF separation pad holder from the Upper document chute.

Note: When removing the ADF separation pad holder, be careful not to lose the ADF separation pad spring.

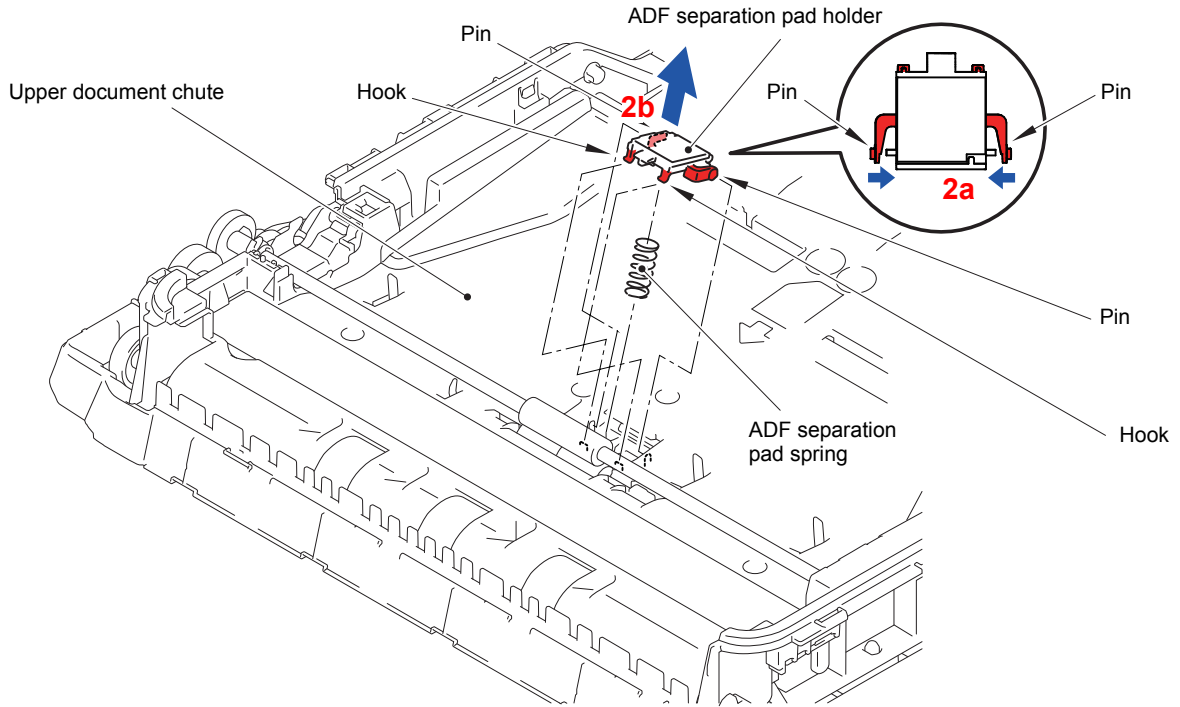


Fig. 3-52

- (3) Peel off the ADF separation pad which is secured with Double-sided adhesive tape from the ADF separation pad holder.

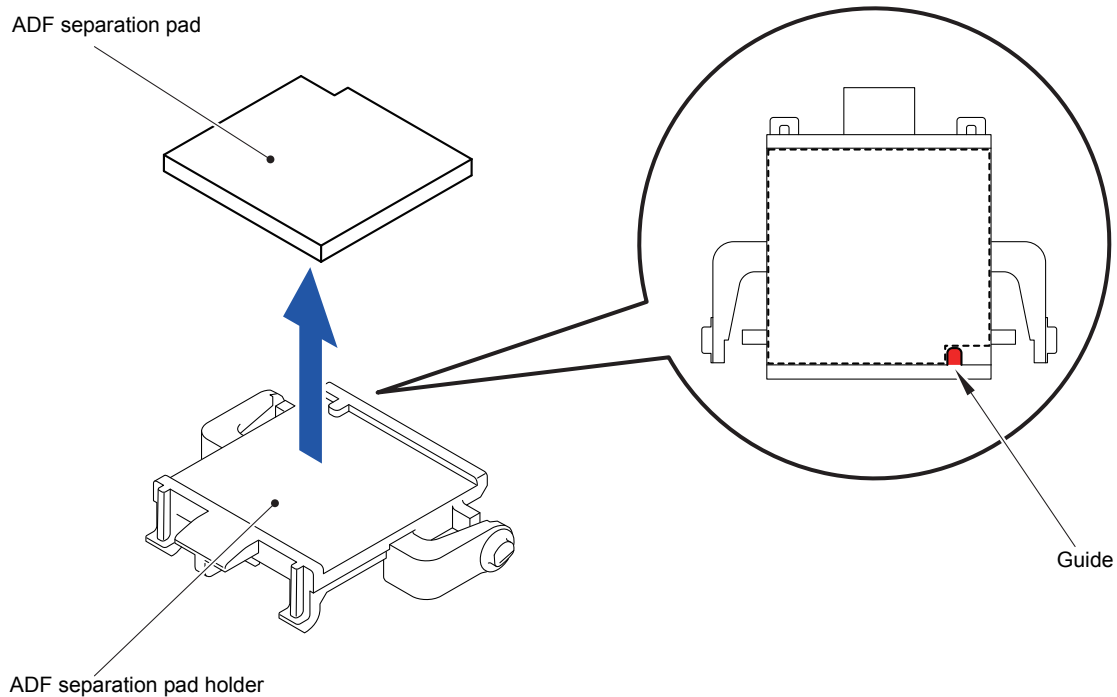


Fig. 3-53

9.17 Second Side CIS Unit

- (1) Release the two Hooks on the Upper document chute and remove the ADF earth spring from the Upper document chute.

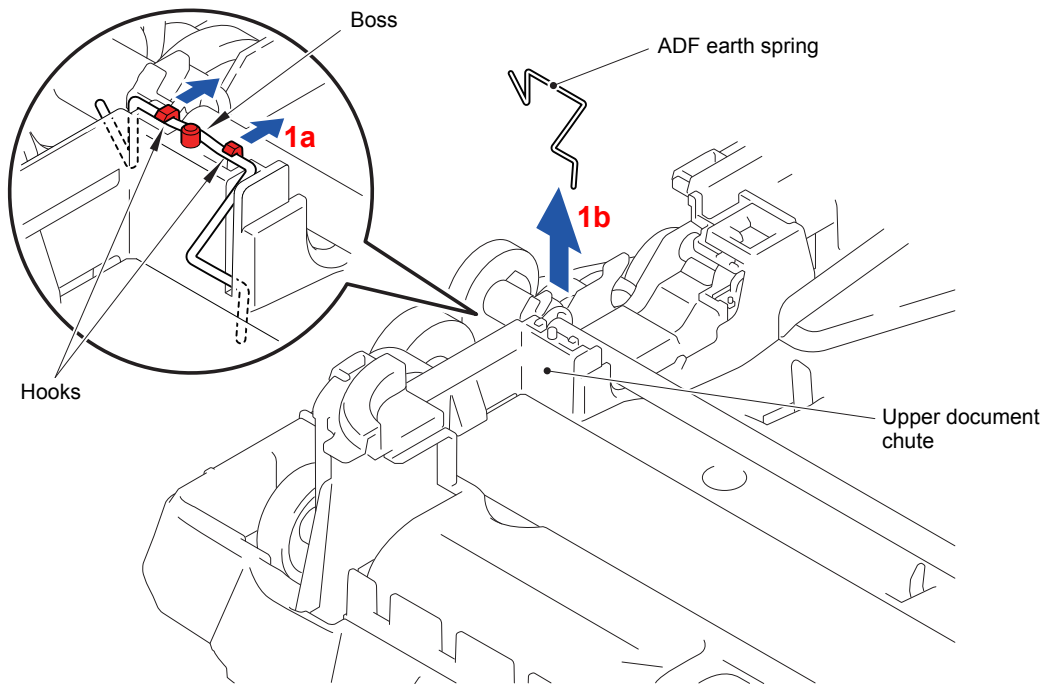


Fig. 3-54

- (2) Release the Hook on the Upper document chute and remove the CIS glass from the Upper document chute.

Assembling Note: Mount the CIS glass to the Upper document chute in the mounting direction so that the color mark point of the CIS glass comes to the position shown in the figure.

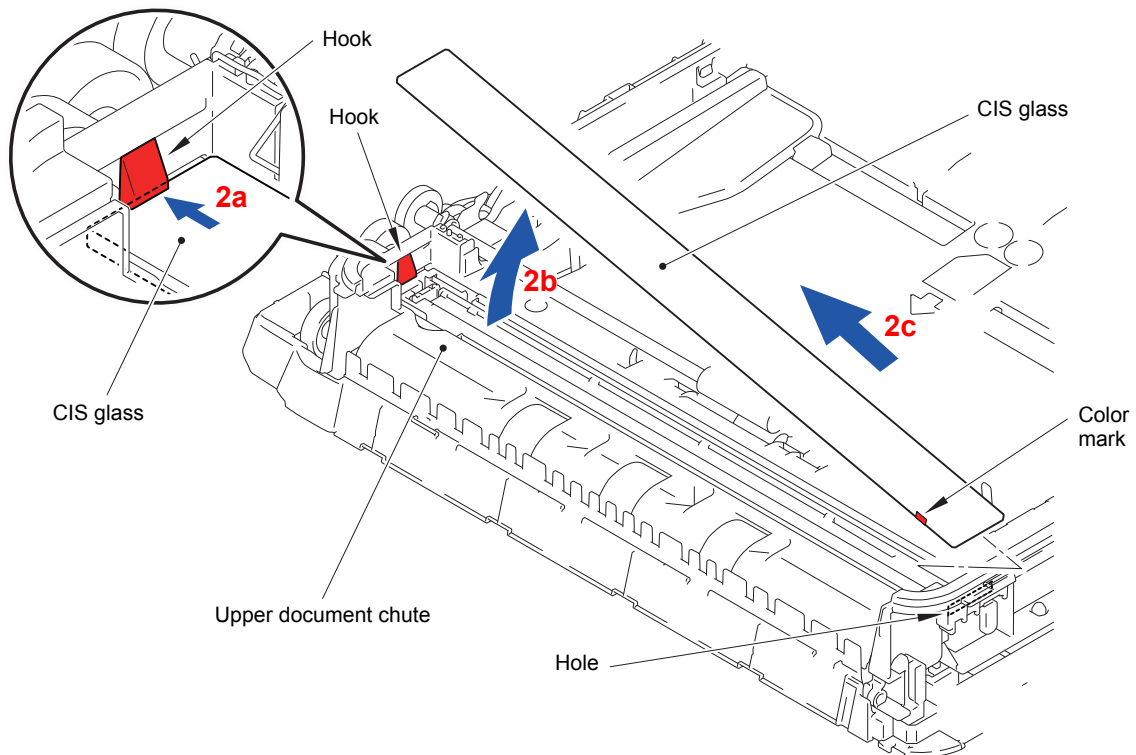


Fig. 3-55

- (3) Take off the two CIS guides from the Second side CIS unit.
- (4) Lift up the Second side CIS unit from the Upper document chute.
- (5) Disconnect the Second side CIS flat cable from the Connector of the Second side CIS unit.

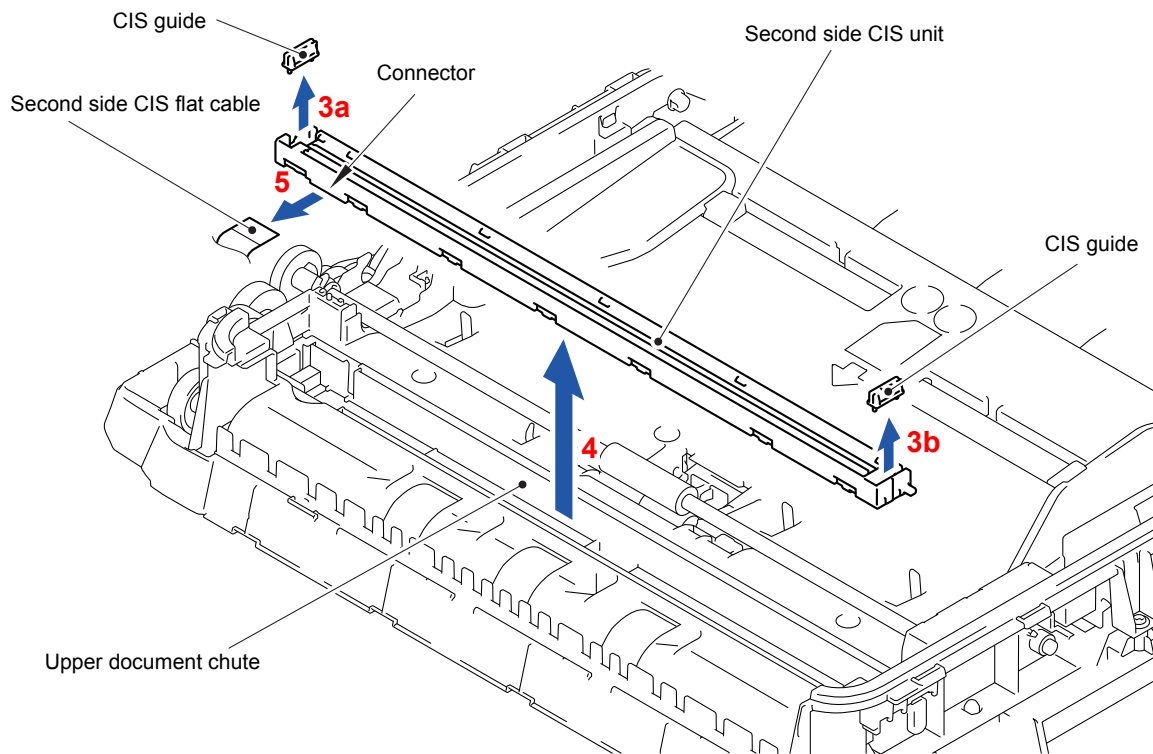


Fig. 3-56

9.18 Second Side CIS Flat Cable

- (1) Take out the CIS sponge from the Second side CIS flat cable.
- (2) Peel off the Second side CIS flat cable which is secured with Double-sided adhesive tape from the Upper document chute.

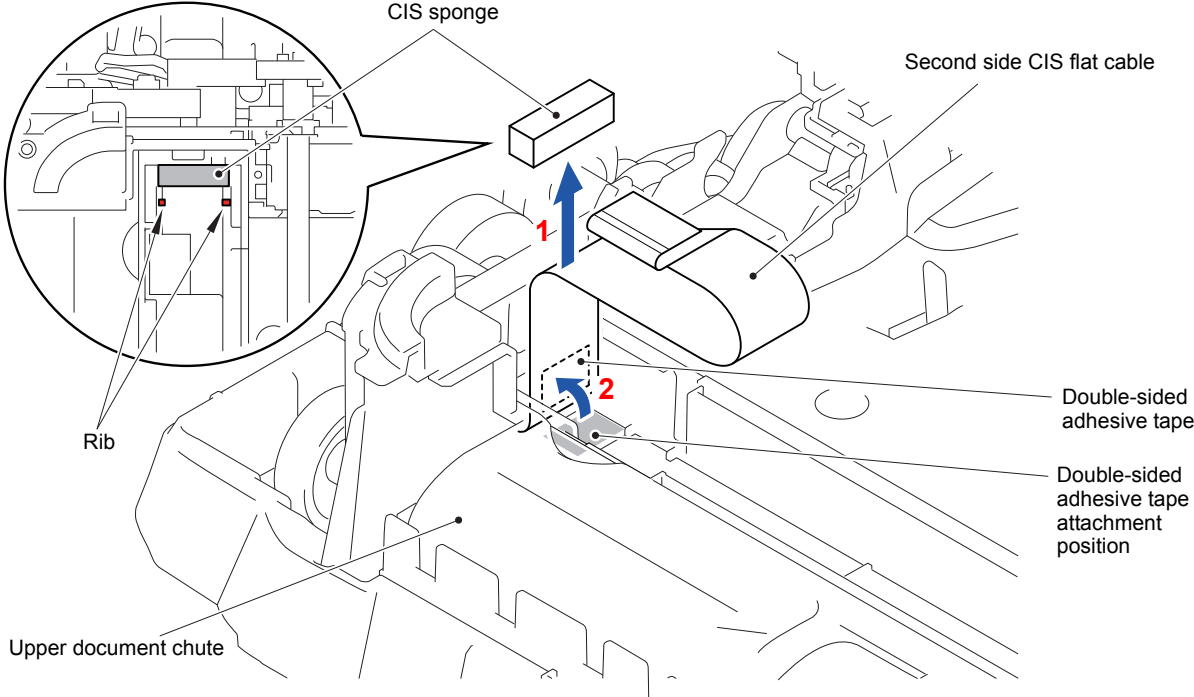


Fig. 3-57

Note: Be careful not to lose the CIS sponge shown in the figure.

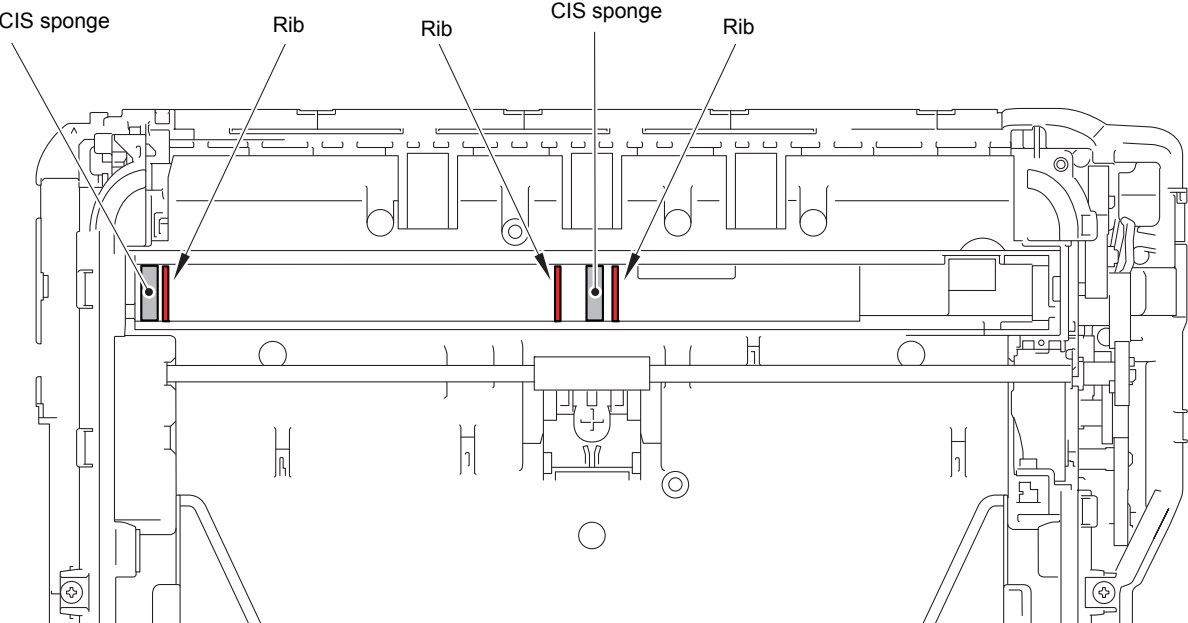


Fig. 3-58

- (3) Turn the Bushing of the Document feed roller ASSY in the direction of the arrow 3a to unlock it.

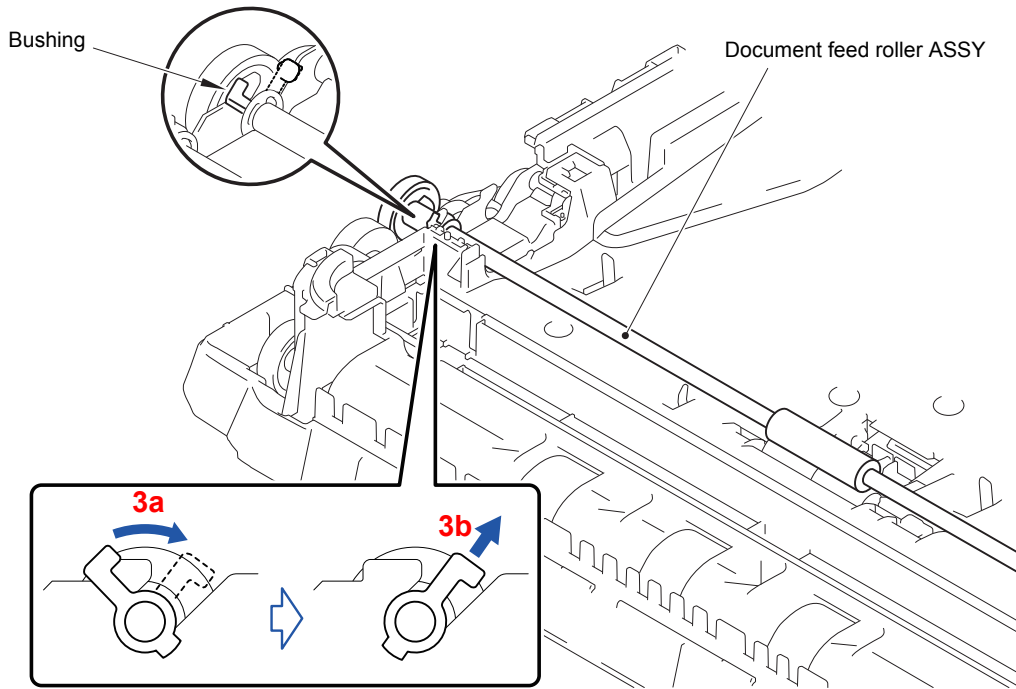


Fig. 3-59

- (4) Remove the Document feed roller ASSY from the Upper document chute.

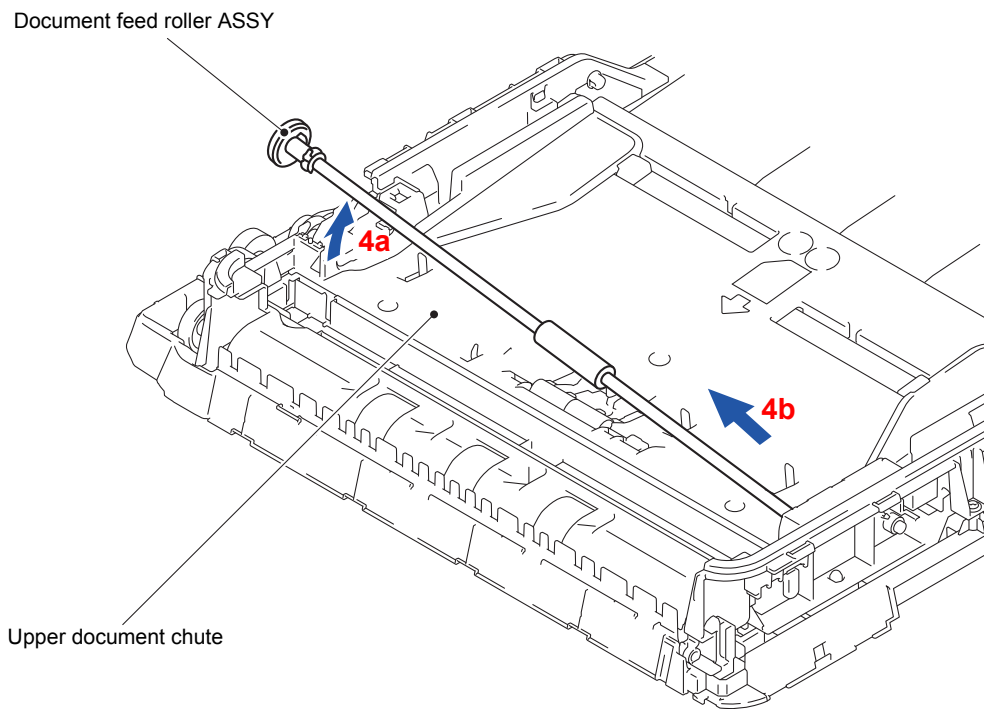


Fig. 3-60

- (5) Turn the ADF unit upside down.
- (6) Release the two Pins on the ADF unit and remove the Document pressure bar from the ADF unit.
- (7) Remove the one screw (TAPTITE CUP B M3x10) and remove the ADF reinforcement plate from the ADF unit.
- (8) Remove the Earth spring from the ADF unit.

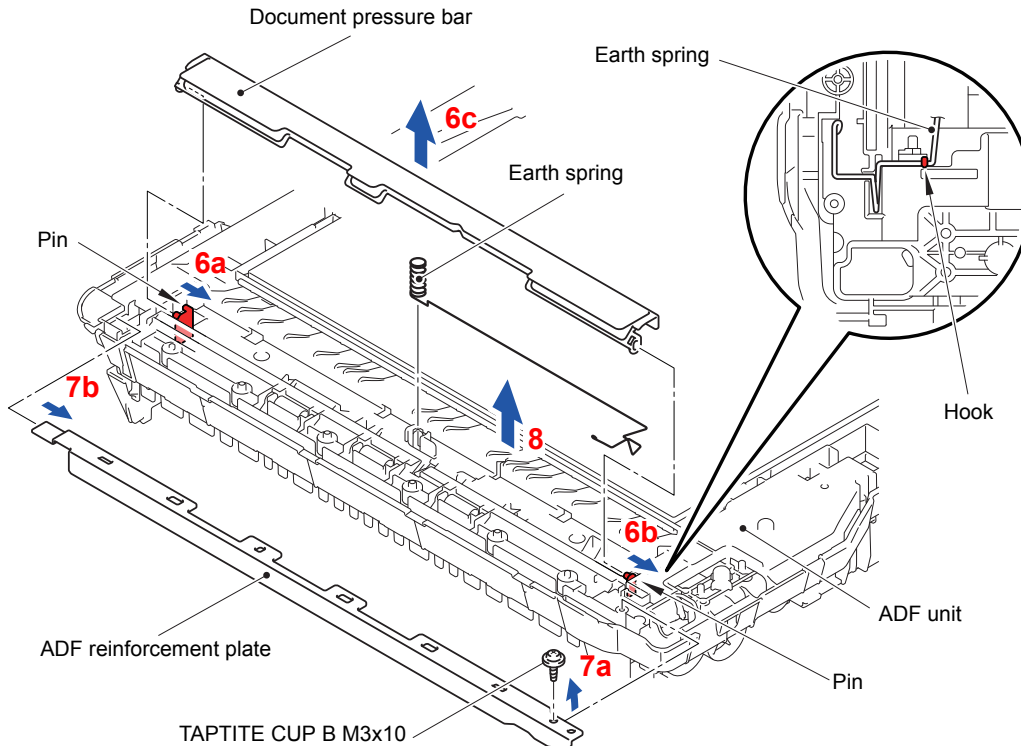


Fig. 3-61

- (9) Turn the ADF unit right side up.
- (10) Remove the five screws (TAPTITE CUP B M3x10) from the Upper document chute.
- (11) Release the three Hooks and remove the Upper document chute from the Document cover ASSY.

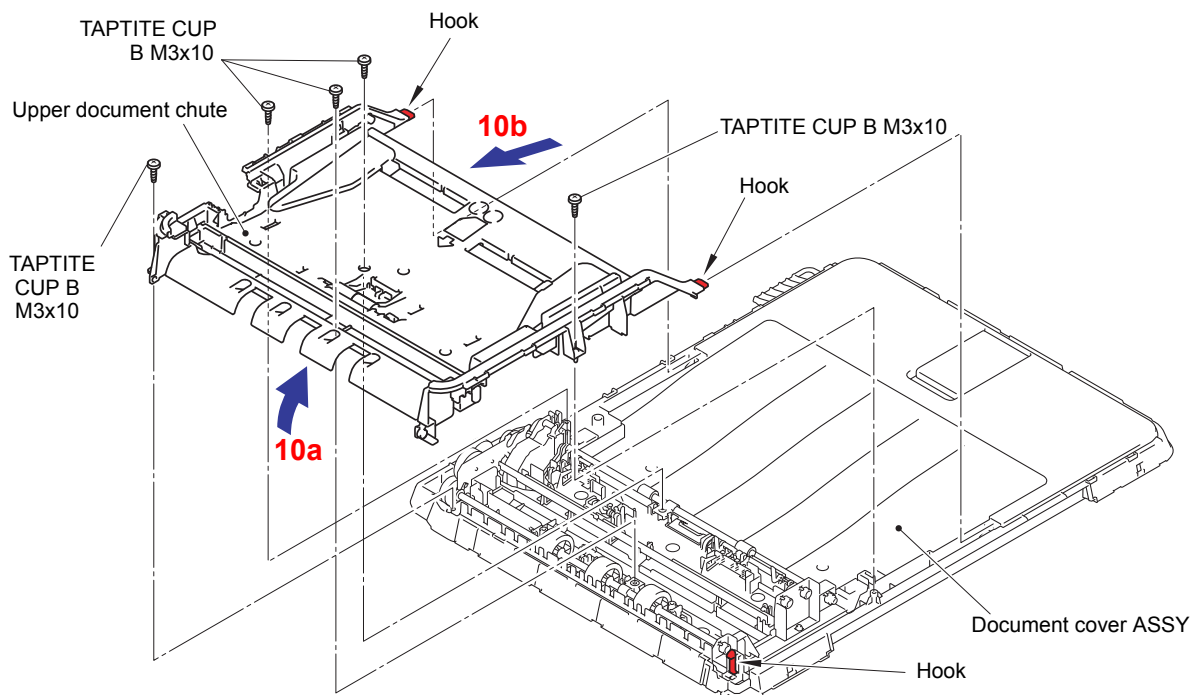


Fig. 3-62

(12) Pull out the Second side CIS flat cable from the Hole of the Upper document chute.

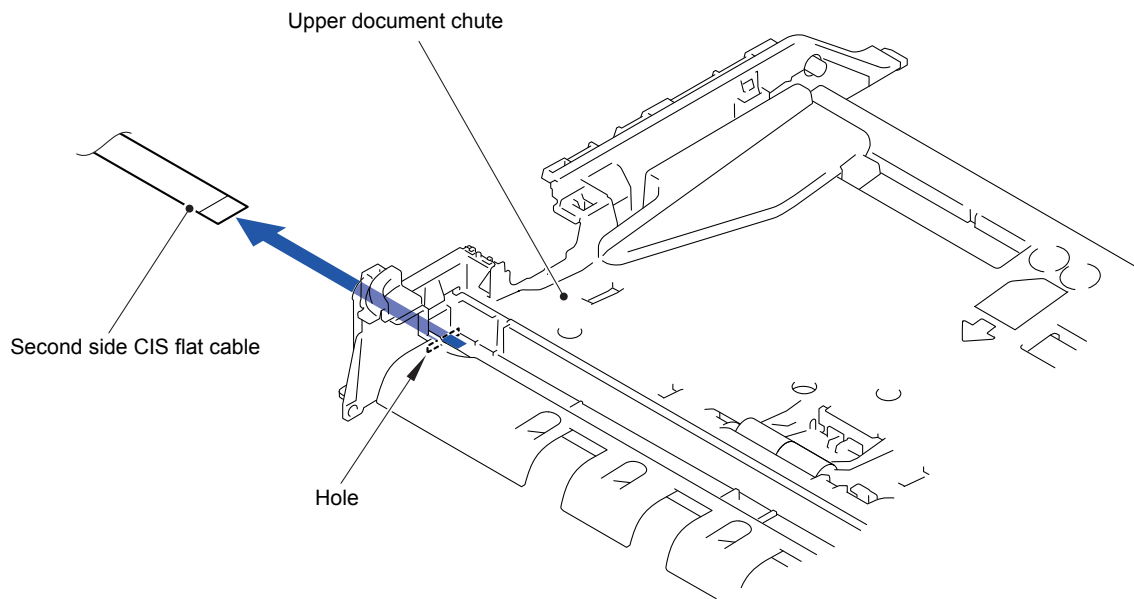


Fig. 3-63

(13) Release the three Hooks and remove the Lower document chute from the Document cover ASSY.

(14) Pull out the Second side CIS flat cable from the Hole of the Lower document chute.

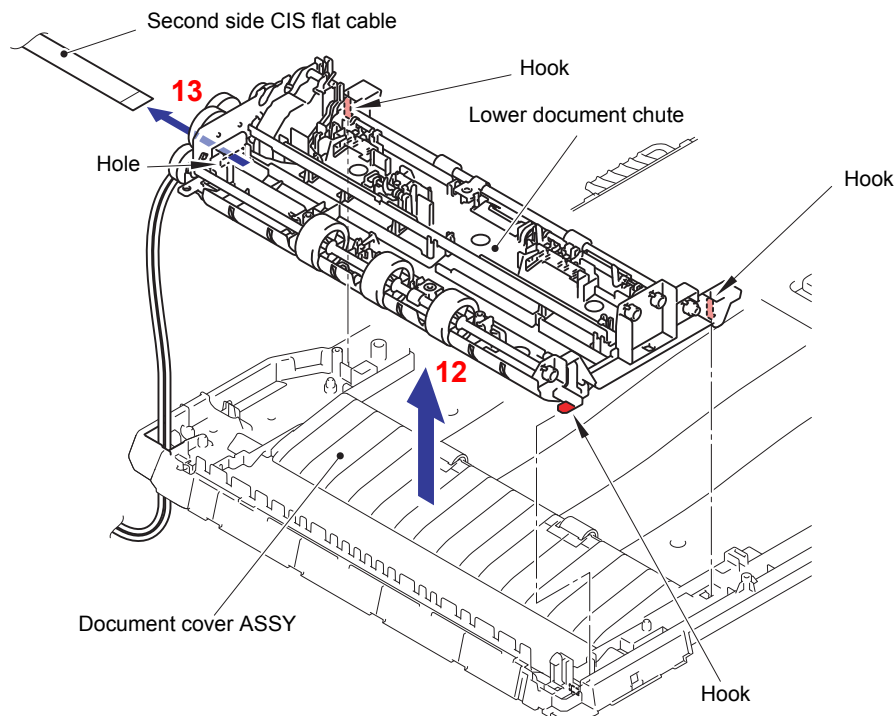


Fig. 3-64

Assembling Note: Assemble a new Second side CIS flat cable by bending the Second side CIS flat cable and affixing the Double-sided adhesive tape as shown in the figure below.

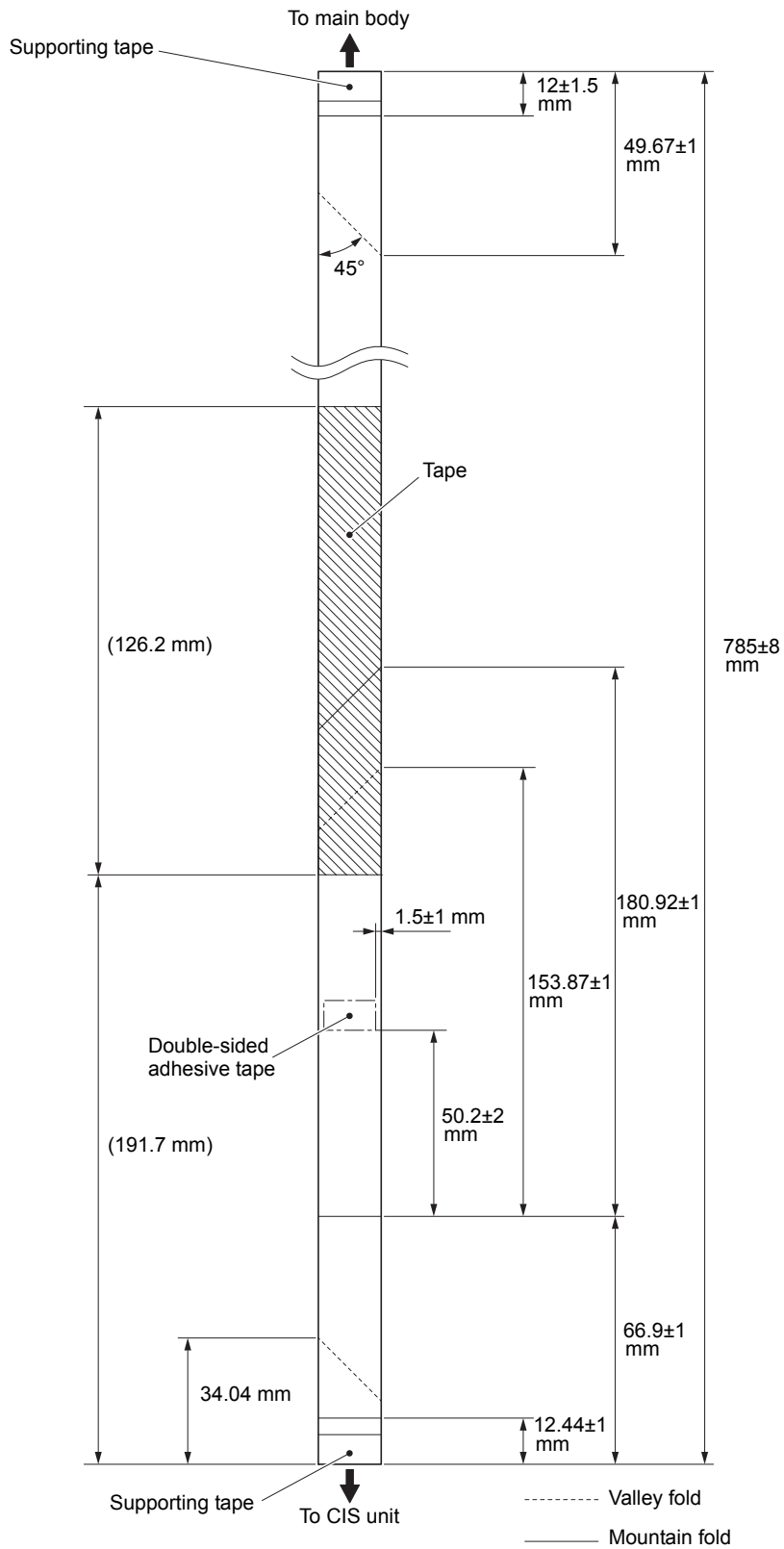


Fig. 3-65

Harness routing: Refer to "4 ADF unit and document scanner unit"

9.19 First Side Document Scanning Position Sensor PCB and Second Side Document Scanning Position Sensor PCB (Duplex Scanning Models Only)

- (1) Push the Lock arm in the direction of the arrow 1a and remove the First side document scanning position sensor PCB from the Lower document chute.

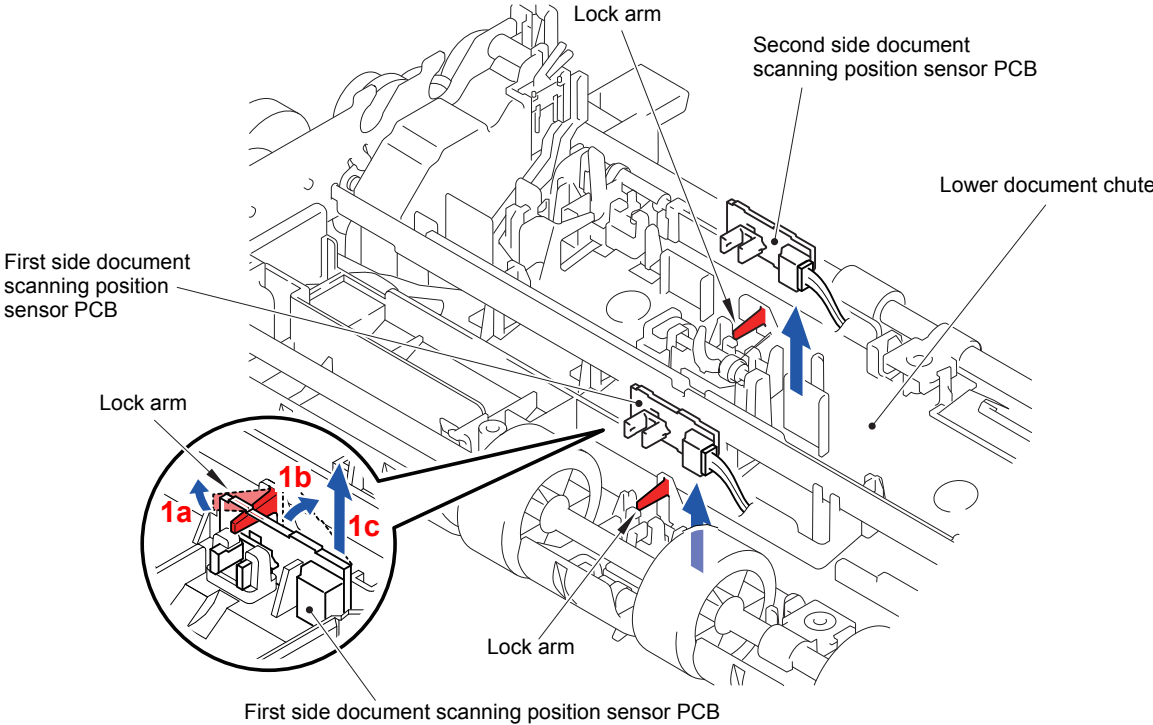


Fig. 3-66

- (2) Disconnect the Connector from the First side document scanning position sensor PCB.
- (3) Remove the Second side document scanning position sensor PCB in the same way.

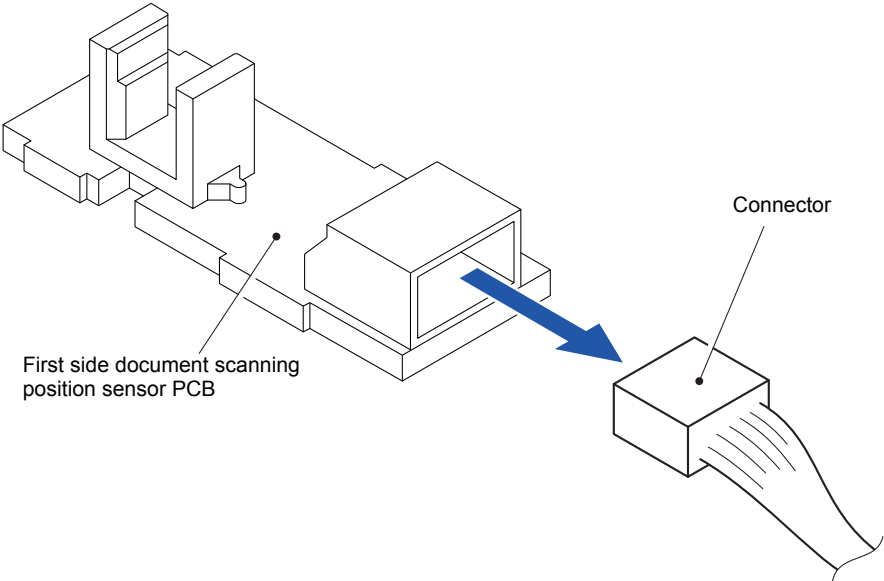


Fig. 3-67

9.20 Document Detection Sensor/Document Width Sensor PCB

- (1) Push the Lock arm in the direction of the arrow 1a and remove the Document detection sensor/document width sensor PCB from the Lower document chute.

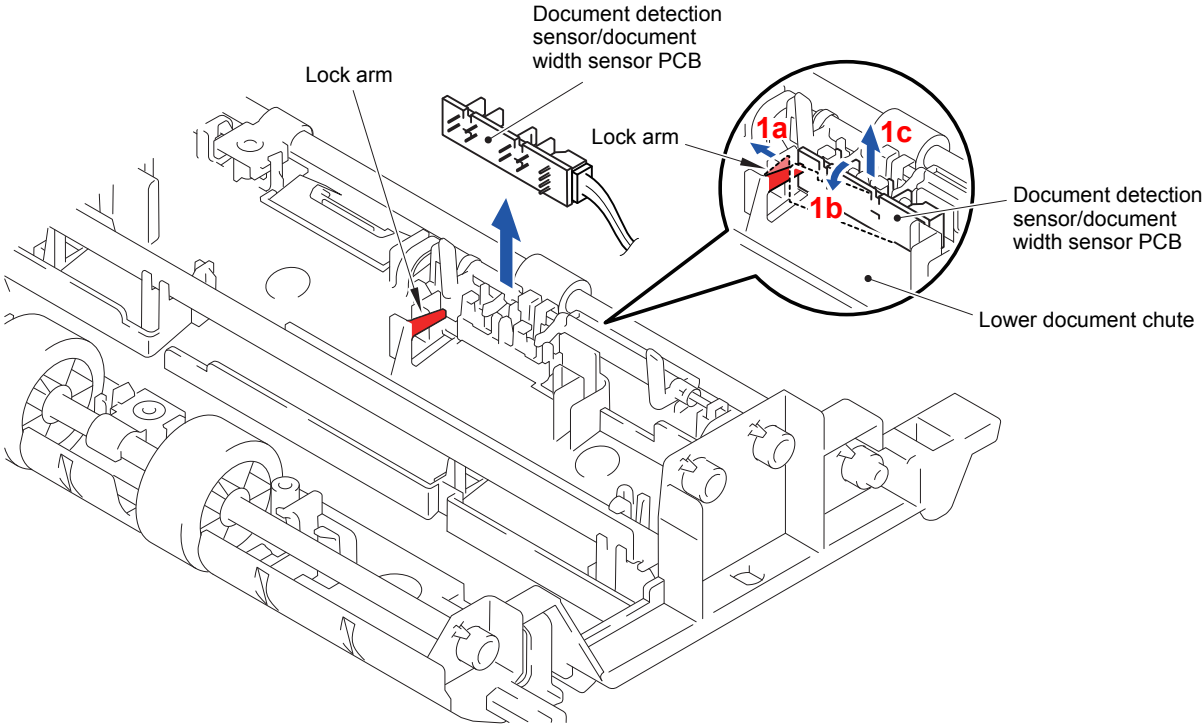


Fig. 3-68

- (2) Disconnect the Connector from the Document detection sensor/document width sensor PCB.

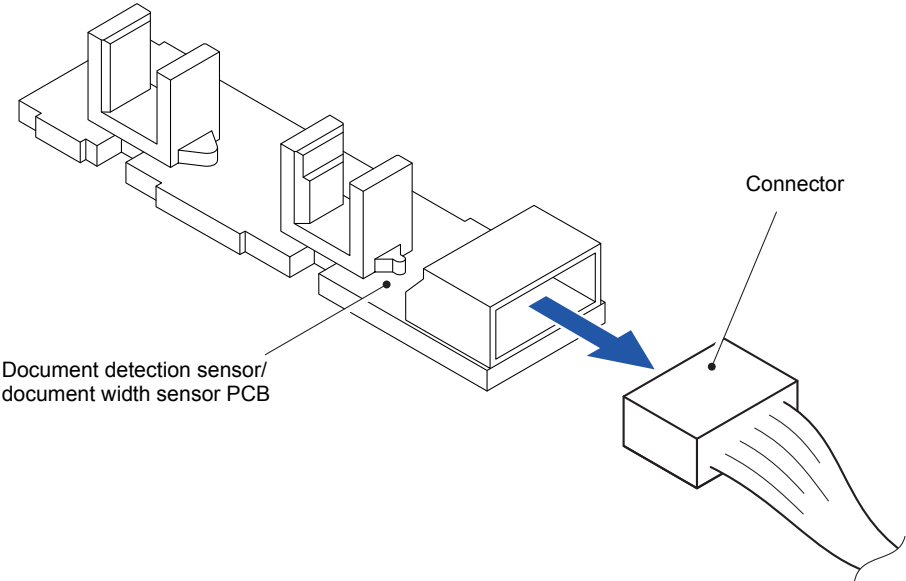


Fig. 3-69

9.21 First Side CIS Unit

- (1) Turn the Document scanner base ASSY upside down.
- (2) Remove the five screws (TAPTITE CUP B M3x10) from the Document scanner base ASSY.

Assembling Note: When tightening the five screws (TAPTITE CUP B M3x10), tighten them in the order shown in the figure.

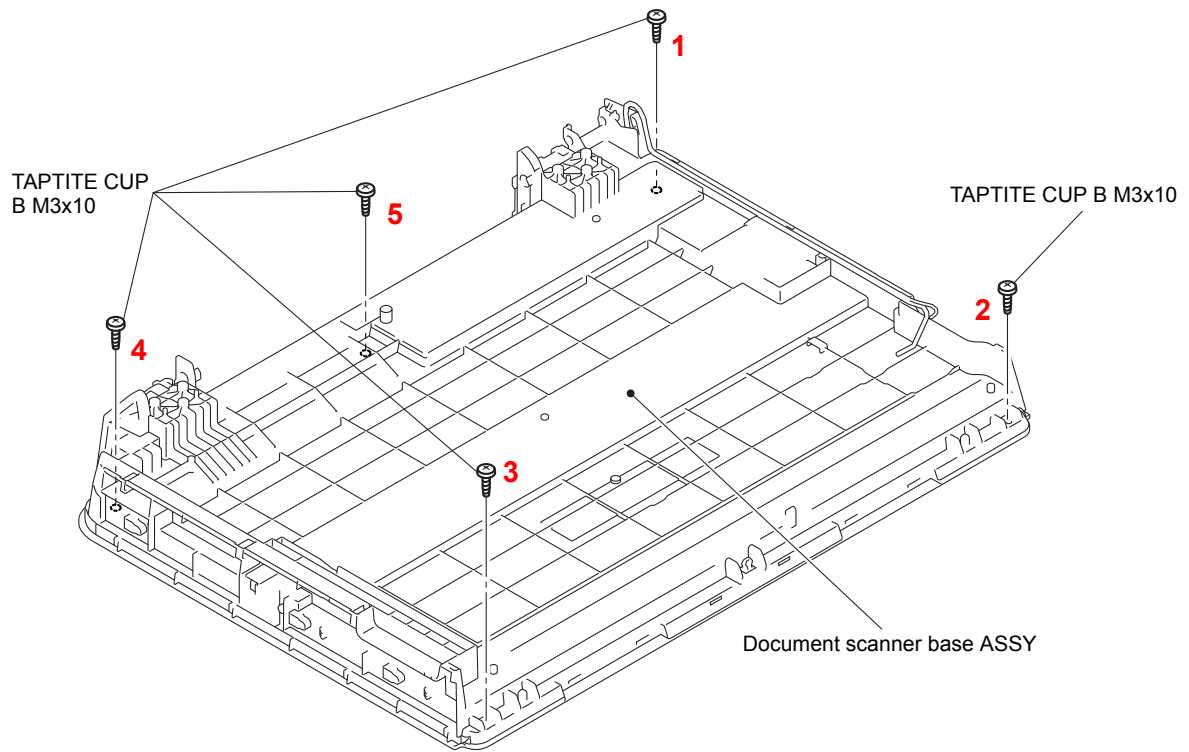


Fig. 3-70

- (3) Turn the Document scanner base ASSY right side up.
- (4) Lift up the rear side of the Document scanner top cover as shown in the figure. Release the six Hooks at the front side and remove the Document scanner top cover from the Document scanner base ASSY.

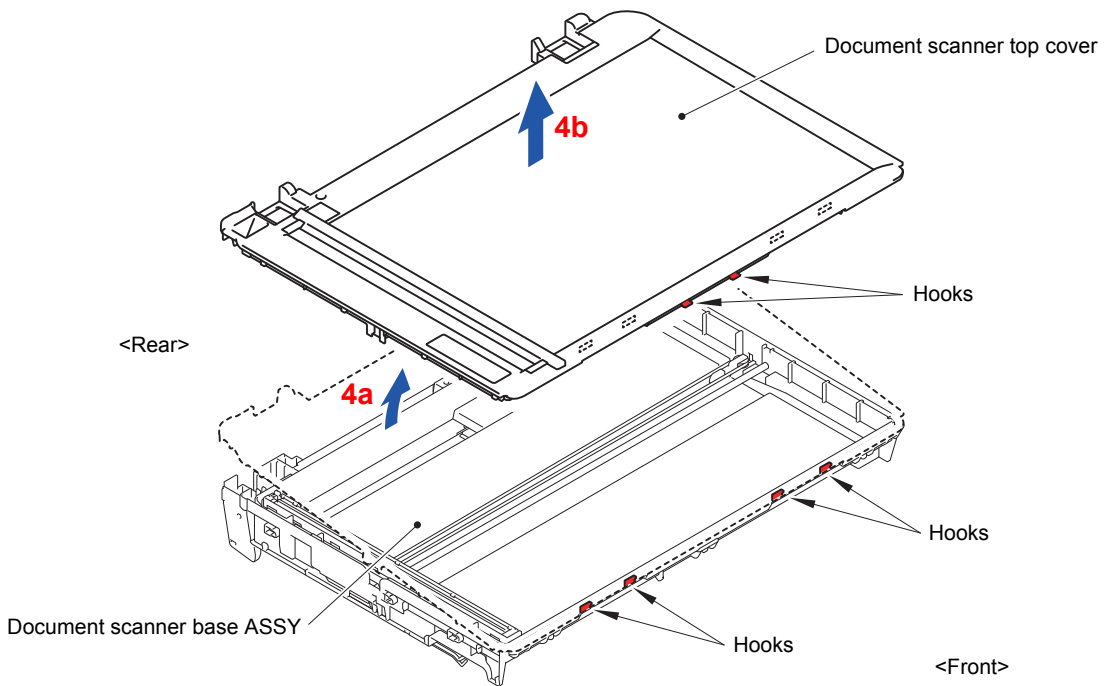


Fig. 3-71

- (5) Take off the two CIS roller holders from the First side CIS unit.
- (6) Disconnect the First side CIS flat cable from the First side CIS unit and remove the First side CIS unit from the CIS carriage.

Note: Be careful not to lose the CIS spring when removing the First side CIS unit.

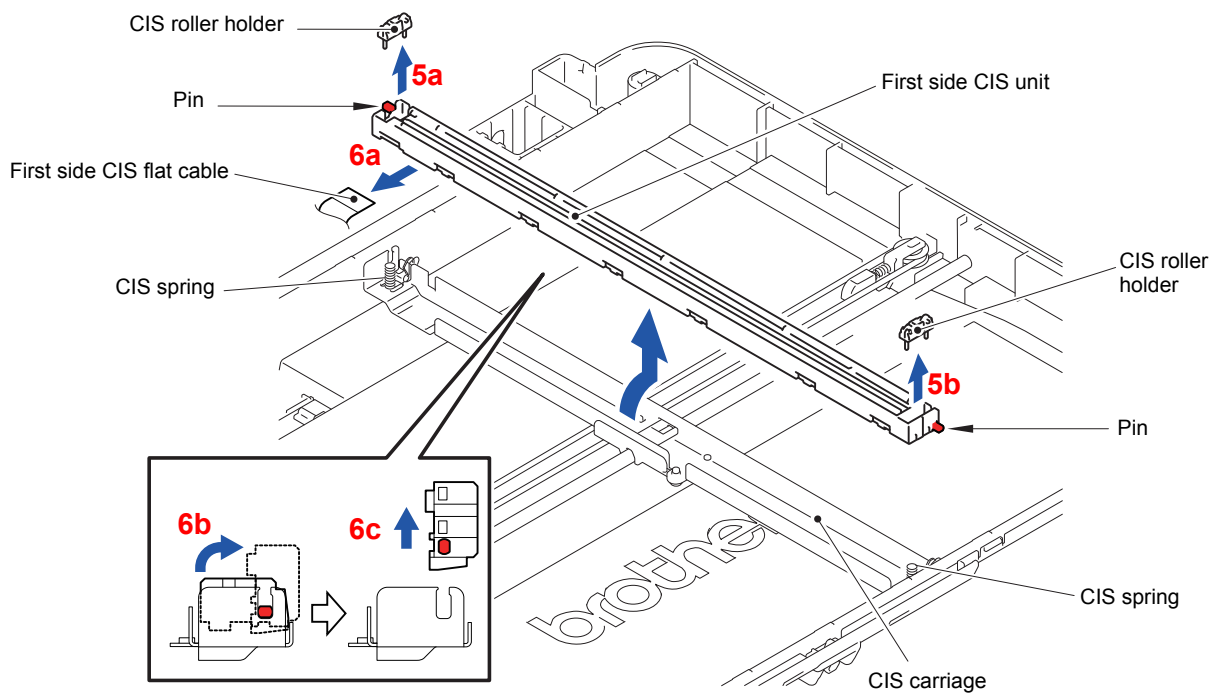


Fig. 3-72

9.22 First Side CIS Flat Cable and FFC Film

- (1) Peel off the First side CIS flat cable which is secured at three locations with the Double-sided adhesive tape from the Document scanner base ASSY.
- (2) Pull out the First side CIS flat cable from the Hole of the Document scanner base ASSY.
- (3) Peel off the FFC film which is secured with Double-sided adhesive tape from the First side CIS flat cable.

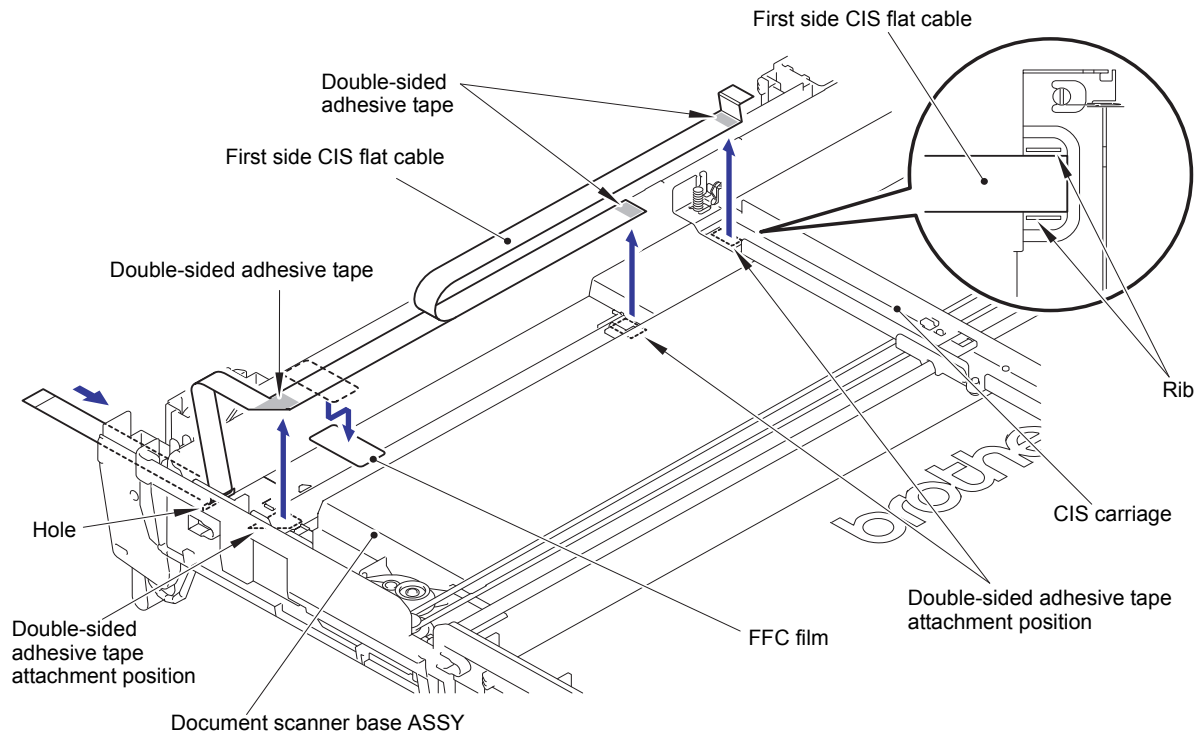


Fig. 3-73

Assembling Note:

- Attach the FFC film to the First side CIS flat cable referring to the figure below.
- Attach the First side CIS flat cable to the Document scanner base ASSY referring to the figure below.

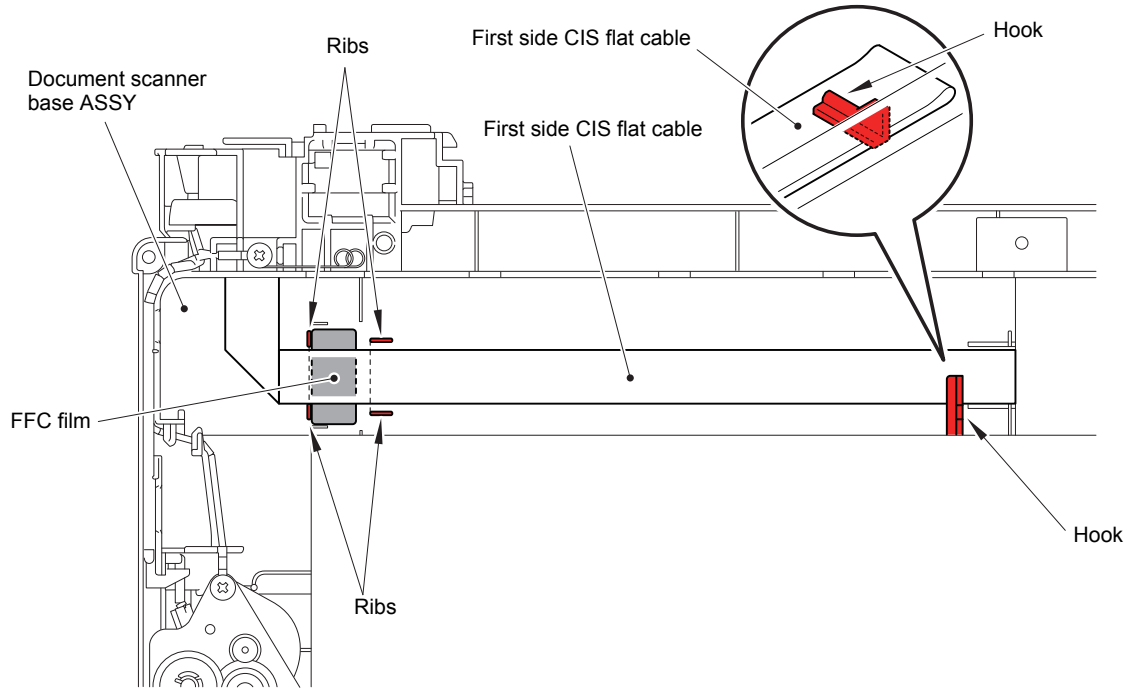


Fig. 3-75

Harness routing: Refer to "**4** ADF unit and document scanner unit"

9.23 Front Cover L

- (1) Open the Front cover L.
- (2) Release the two Bosses on the Inner media cover and remove the Front cover L from the Inner media cover.

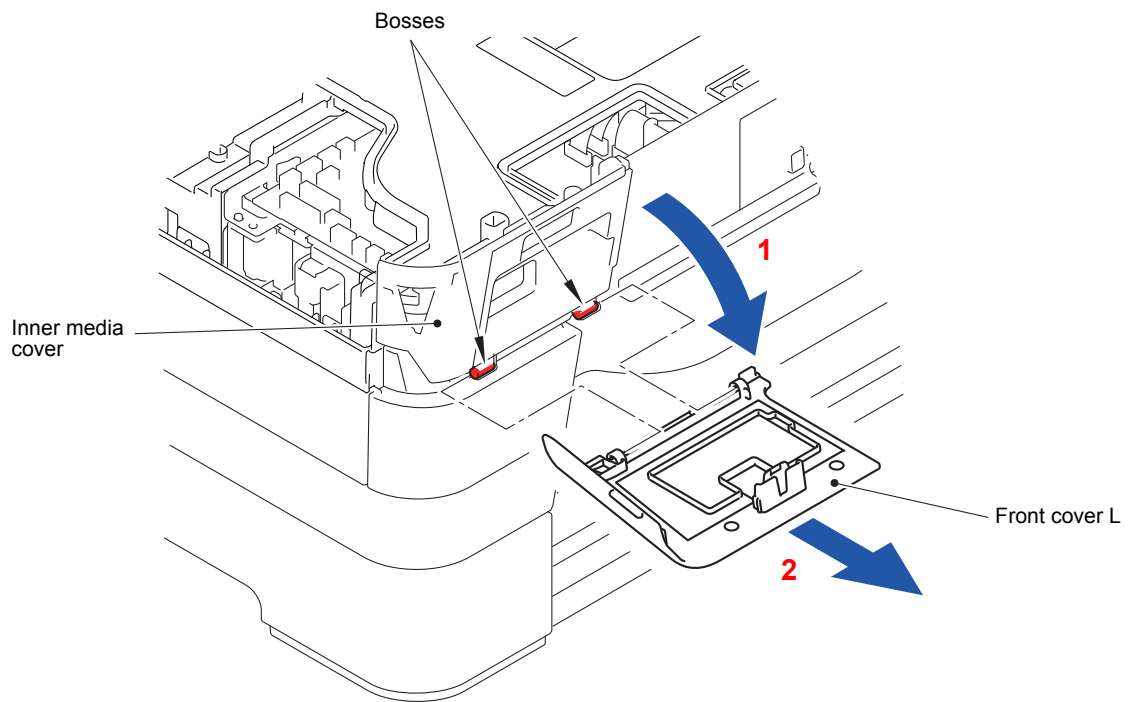


Fig. 3-76

9.24 Inner Media Cover

- (1) Remove the three screws (TAPTITE BIND B M4x12) from the Panel holder.
- (2) Insert a flat screwdriver into the three Holes, release the three Hooks at the center.
- (3) Release the one Hook on the left as well.

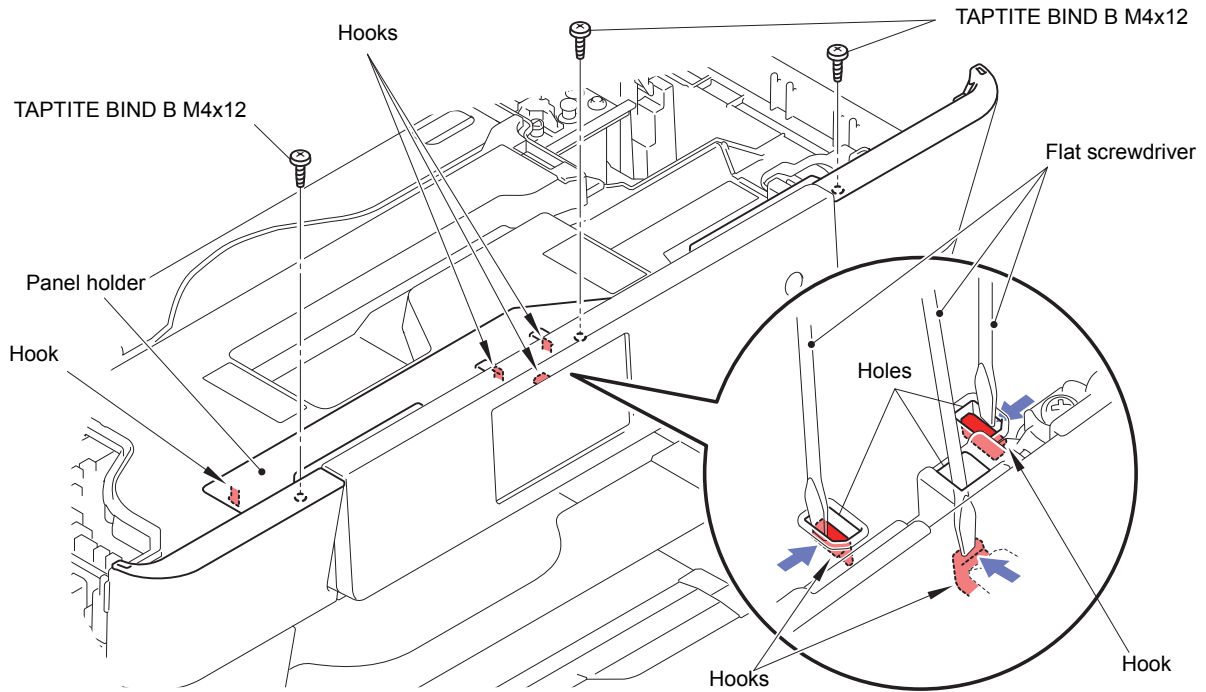


Fig. 3-77

- (4) Hold the section "A" and remove the Panel holder from the Upper cover in the direction of the arrow.

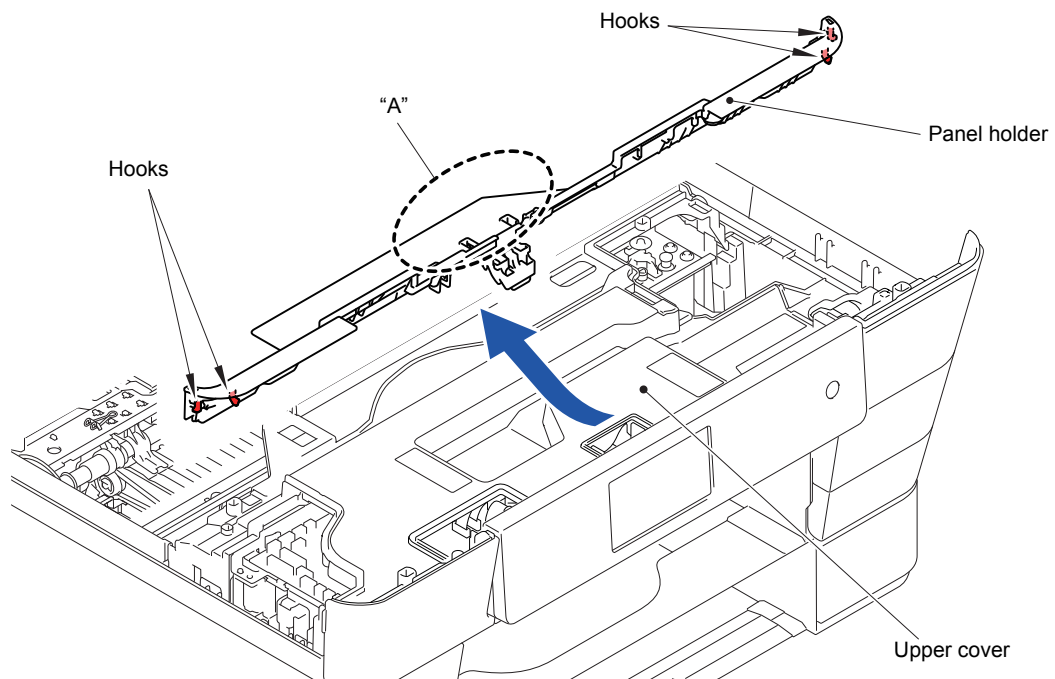


Fig. 3-78

Assembling Note: Mount the Panel holder as shown in the figure so that the section "B" engages with the Hook of the Tilt hook.

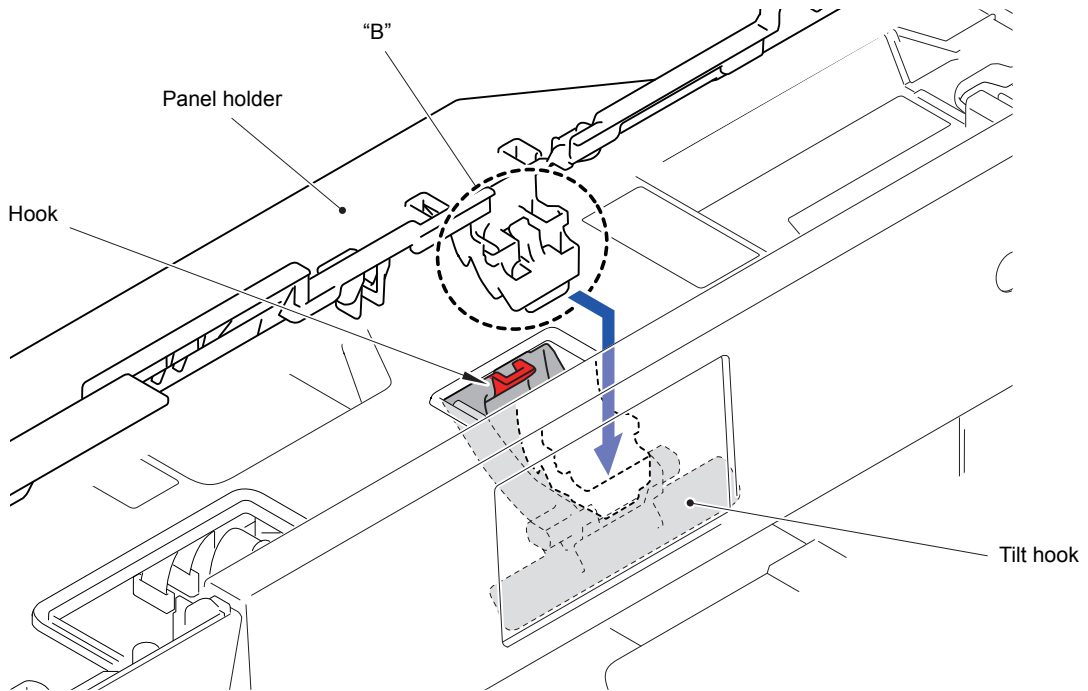


Fig. 3-79

(5) Release the four Hooks and remove the Inner media cover.

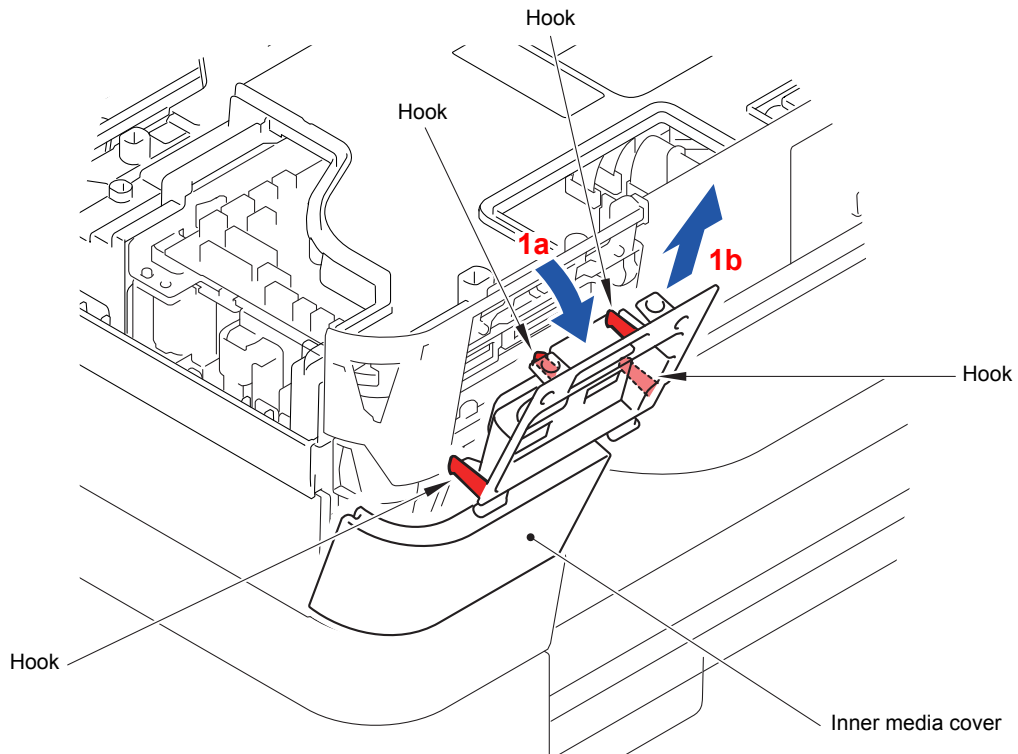


Fig. 3-80

9.25 Panel ASSY

- (1) Unlock the Connector and disconnect the Flat cable from the Main PCB ASSY.
- (2) Remove the one screw (TAPTITE CUP S M3x6) and release the Panel grounding wire from the Main PCB frame.

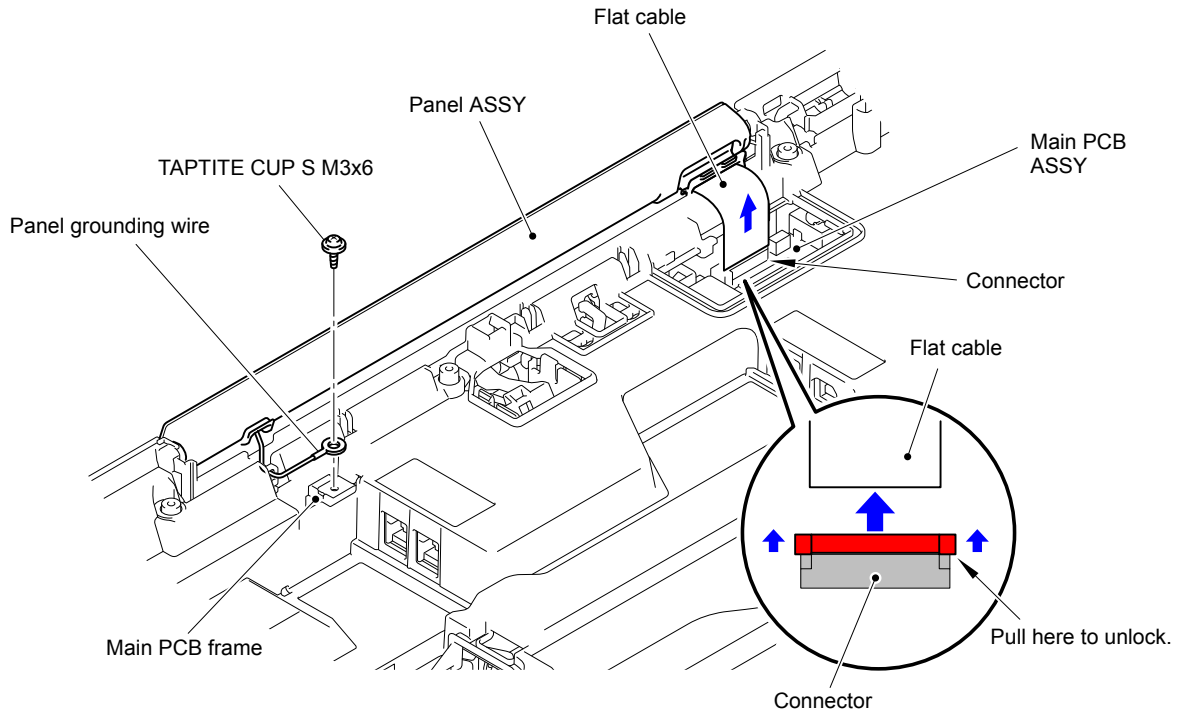


Fig. 3-81

- (3) Release the four Bosses and remove the Panel ASSY.

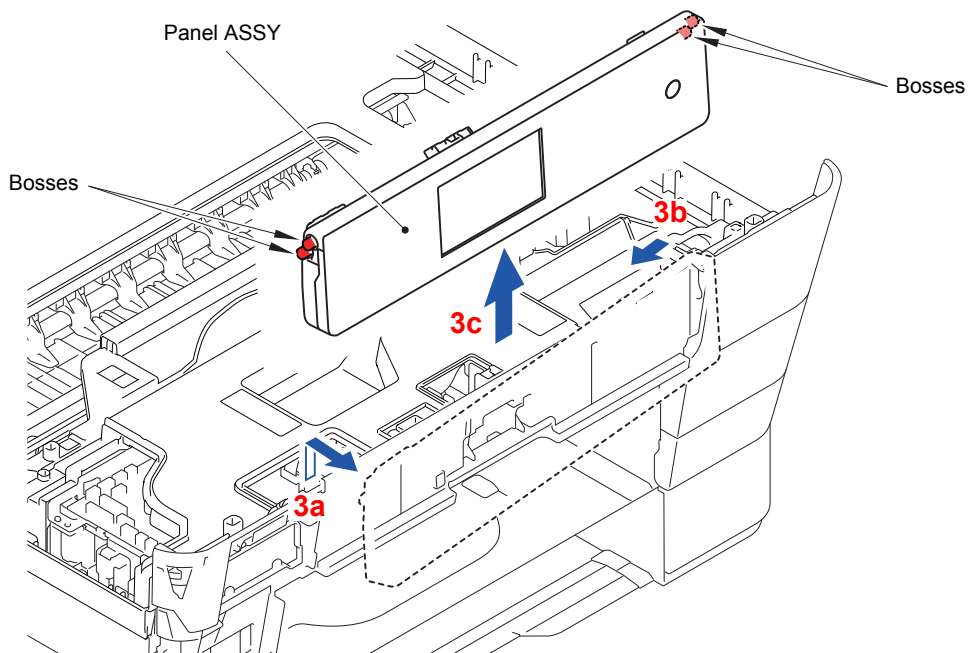


Fig. 3-82

(4) Release the two Bosses and remove the Tilt hook from the Panel ASSY.

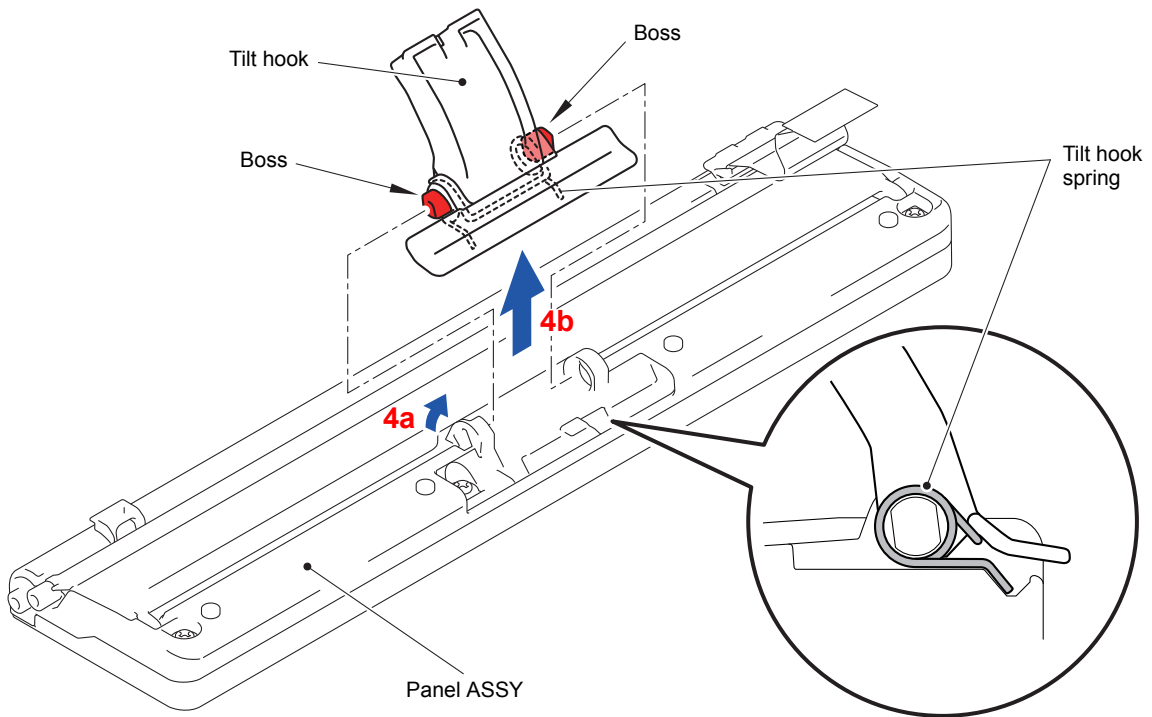


Fig. 3-83

9.26 LCD PCB ASSY

(1) Remove the three screws (TAPTITE CUP B M3x10) from the Panel ASSY.

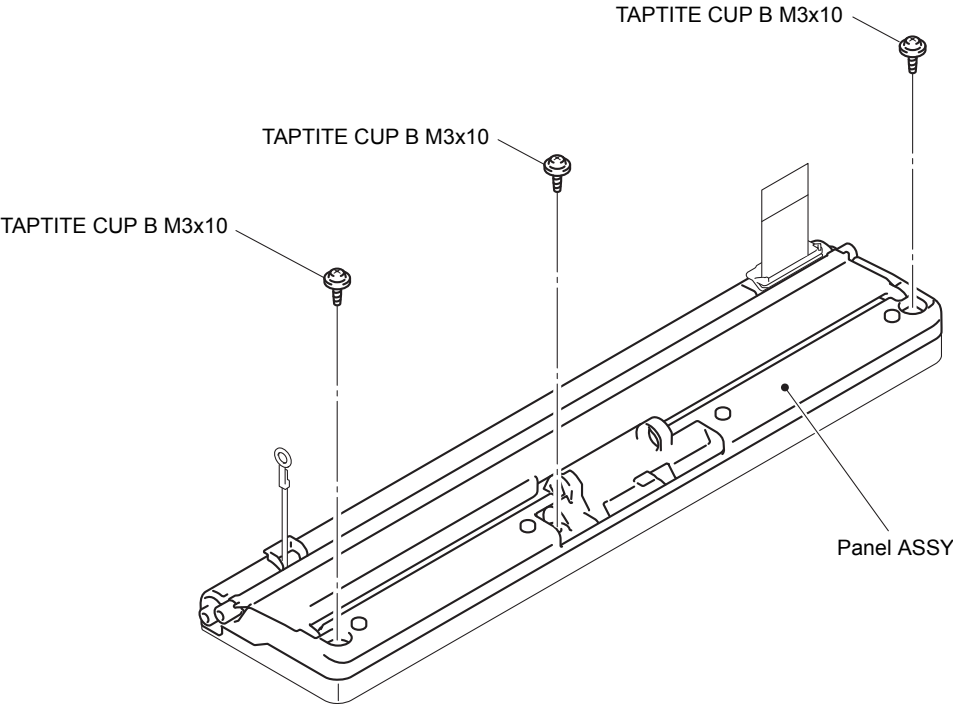


Fig. 3-84

(2) Release the ten Hooks in the order shown in the figure below and remove the Panel lower cover from the Panel upper cover.

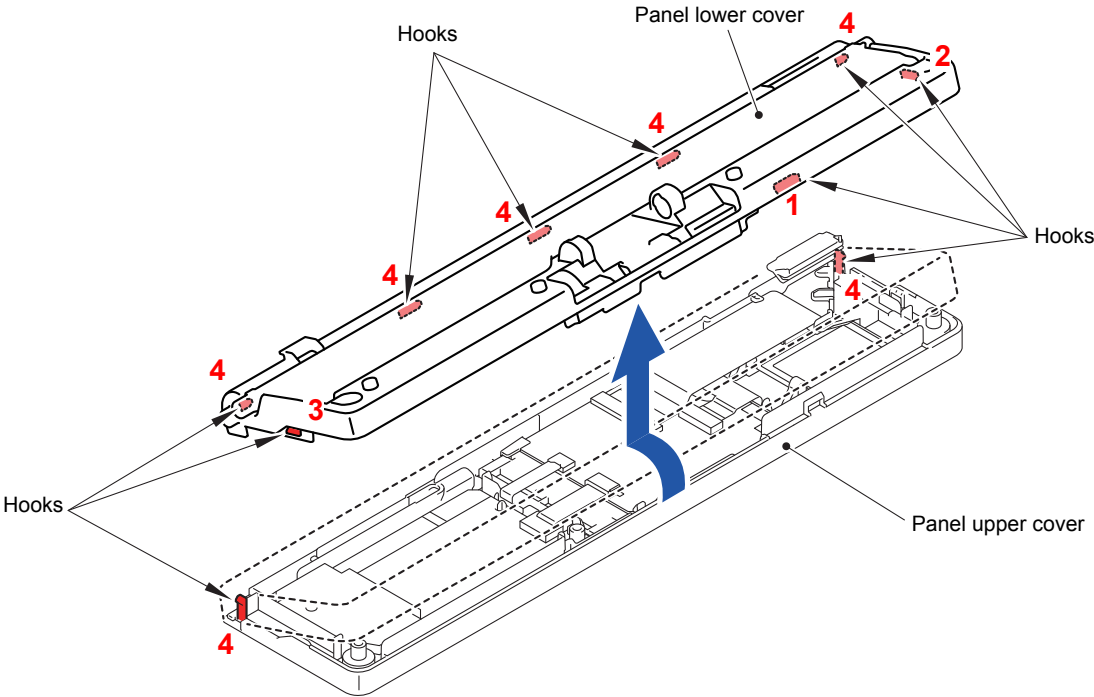


Fig. 3-85

- (3) Unlock the Connector 1 and disconnect the Flat cable from the LCD PCB ASSY.
- (4) Unlock the Connector 2 and disconnect the Flat cable from the LCD PCB ASSY.

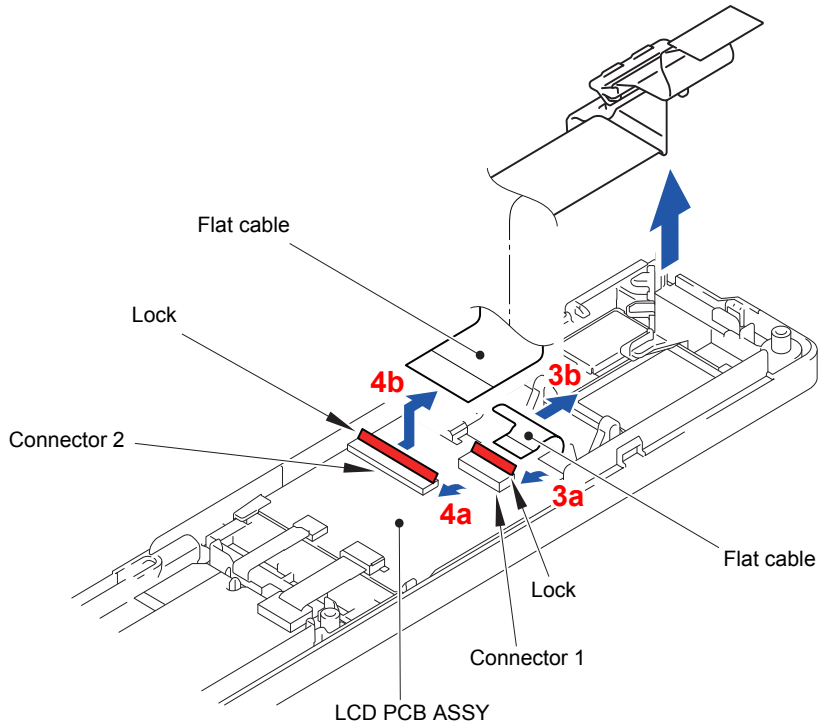


Fig. 3-86

- (5) Lift the LCD PCB ASSY from the Panel upper cover.
- (6) Disconnect the three Flat cables from the LCD PCB ASSY.

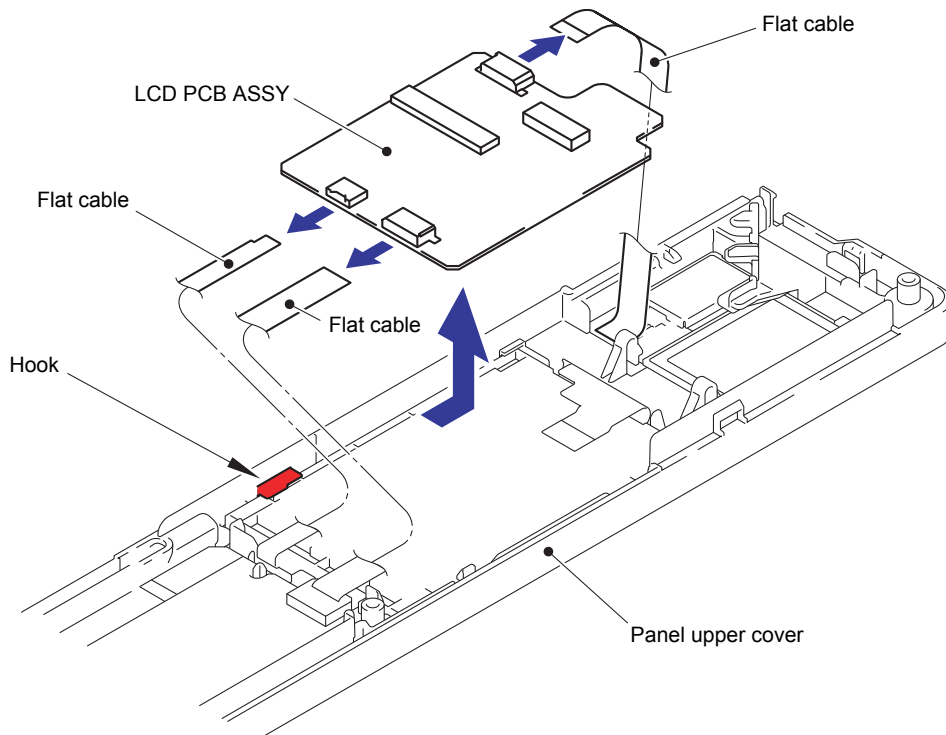


Fig. 3-87

9.27 LCD

- (1) Release the three Hooks and remove the LCD from the Panel upper cover.

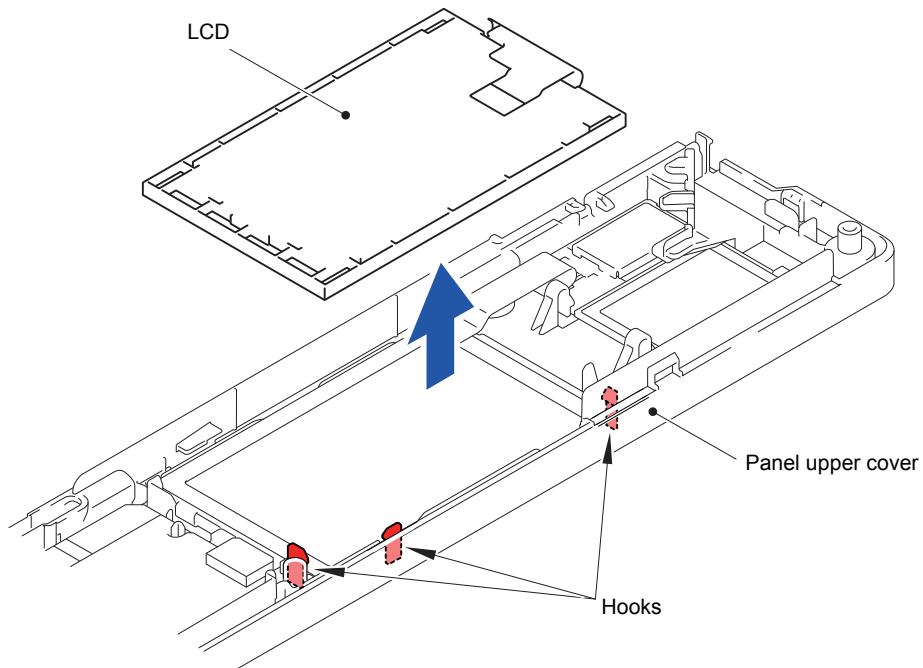


Fig. 3-88

9.28 Touch Panel ASSY

- (1) Remove the LCD frame sheet from the Panel upper cover.
- (2) Remove the Touch panel ASSY from the Panel upper cover.

Assembling Note: When mounting the Touch panel ASSY, mount the section "A" of the Touch panel ASSY as shown in the figure below.

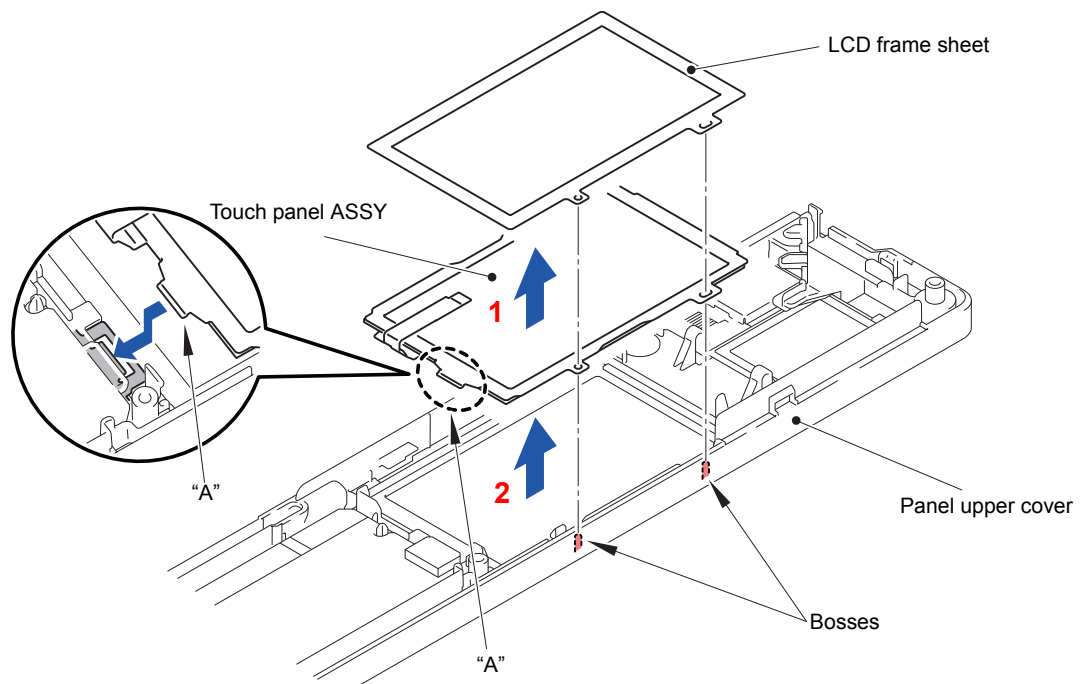


Fig. 3-89

9.29 NFC PCB

- (1) Release the three Hooks and remove the NFC PCB from the Panel upper cover.

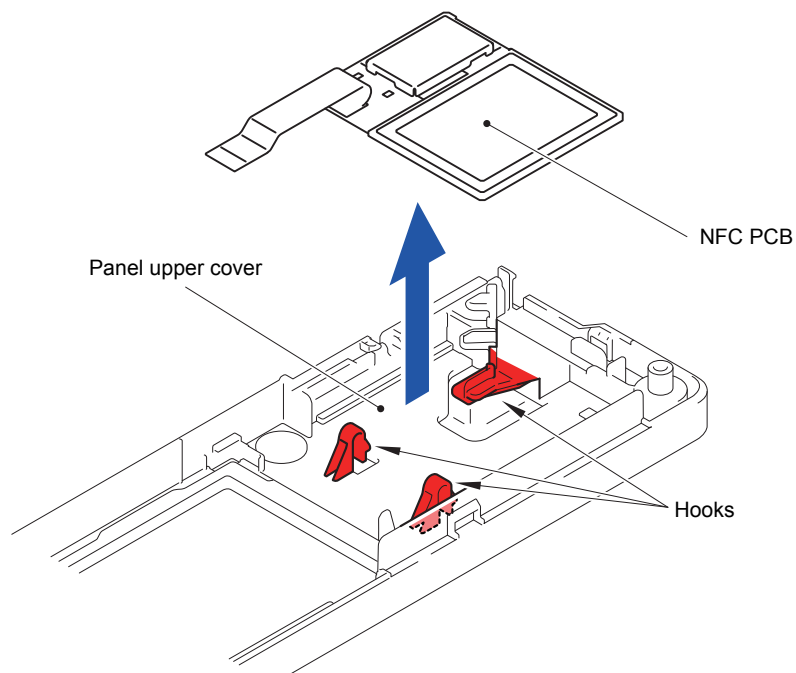


Fig. 3-90

9.30 Ink Cartridge Cover

- (1) Open the Ink cartridge cover.
- (2) Release the two Bosses and remove the Ink cartridge cover.

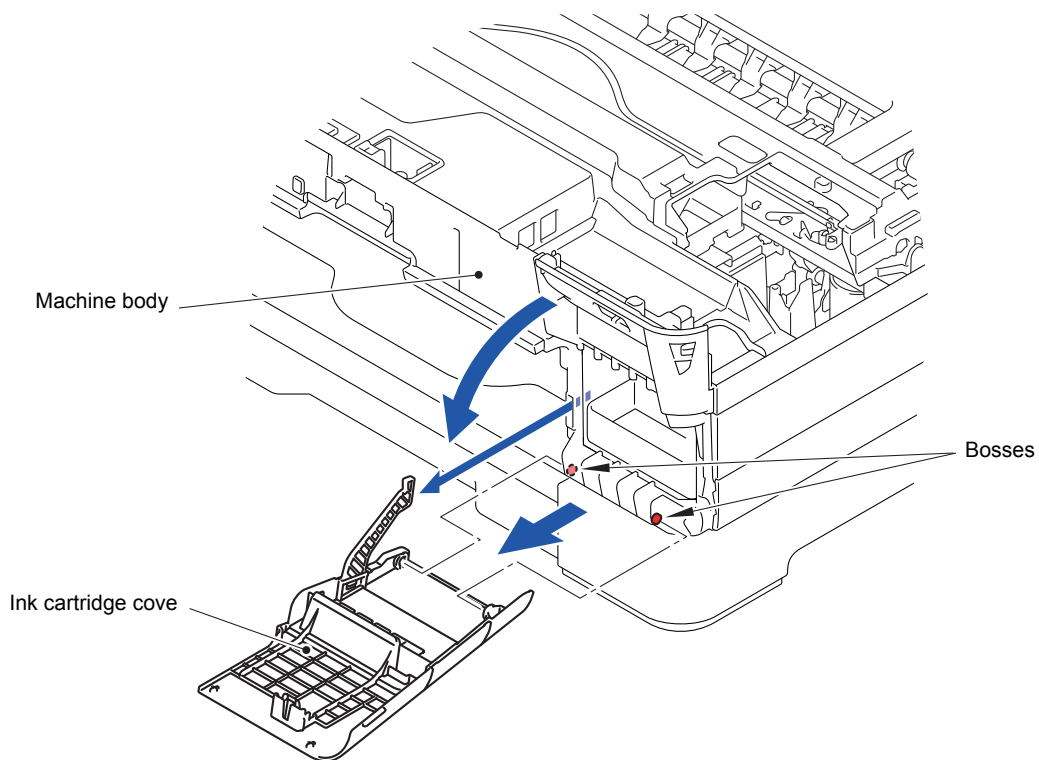


Fig. 3-91

9.31 Lower Side Cover L

- (1) Release the two Hooks at the rear side of the Lower side cover L.
- (2) Release the three Hooks at the front side of the Lower side cover L.
- (3) Slide off the Lower side cover L in the direction of the arrow.

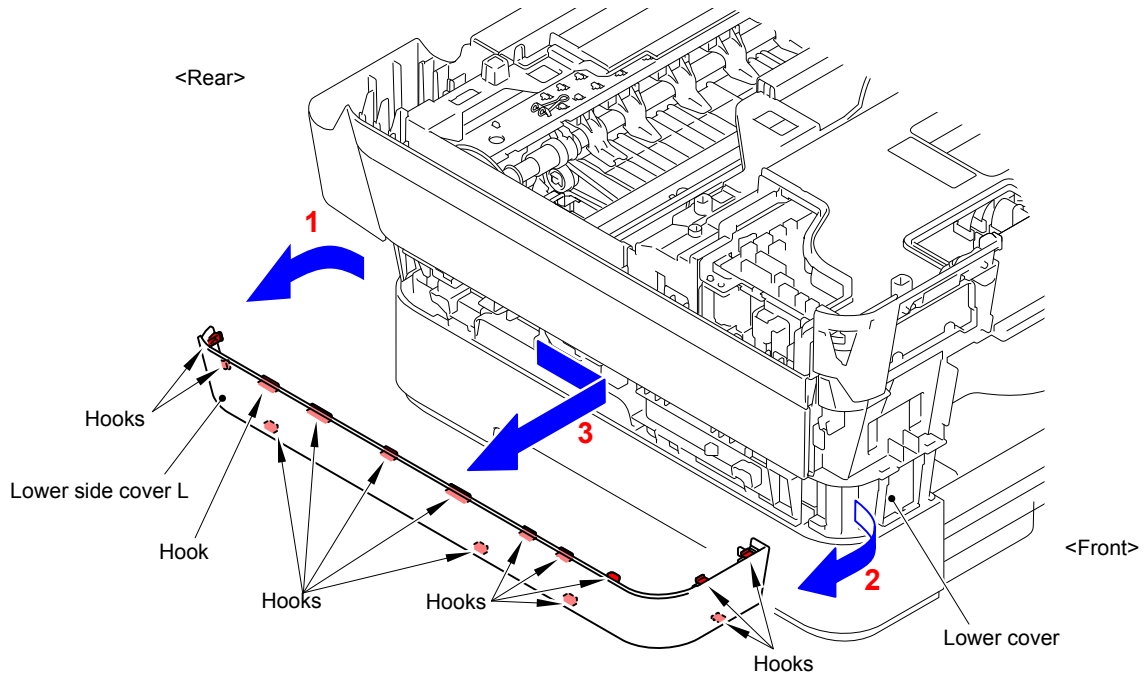


Fig. 3-92

9.32 Lower Side Cover R

- (1) Open the Jam clear cover.
- (2) Release the two Hooks at the rear side of the Lower side cover R.
- (3) Slide off the Lower side cover R in the direction of the arrow.

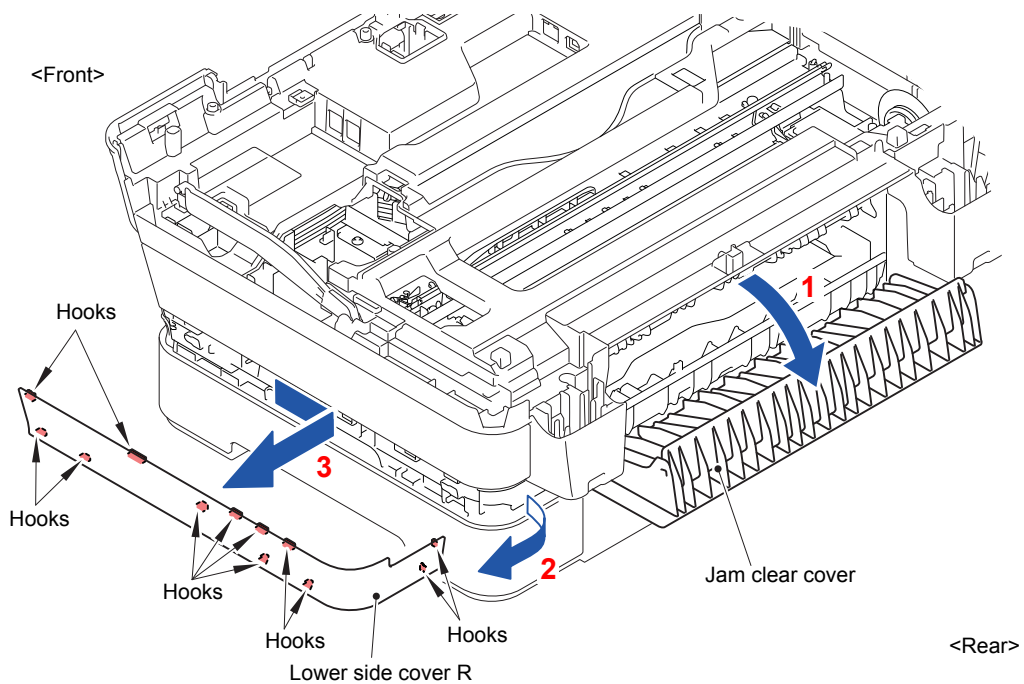


Fig. 3-93

9.33 Upper Side Cover L

- (1) Slide off the Upper side cover L in the direction of the arrow.

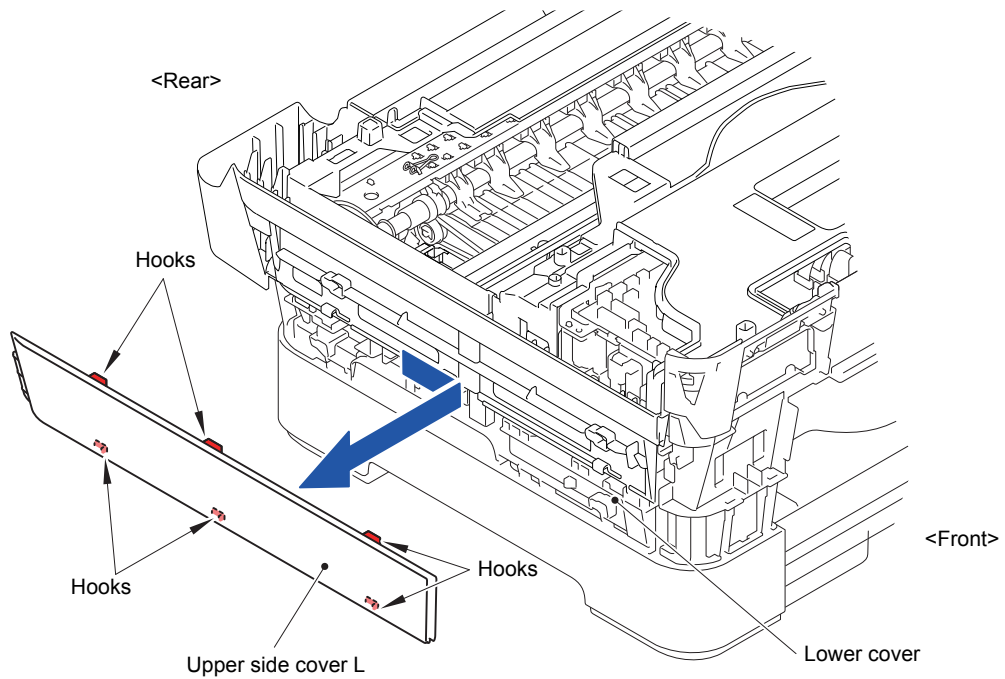


Fig. 3-94

9.34 Upper Side Cover R

- (1) Release the two Hooks at the rear side of the Upper side cover R.
- (2) Slide off the Upper side cover R in the direction of the arrow.

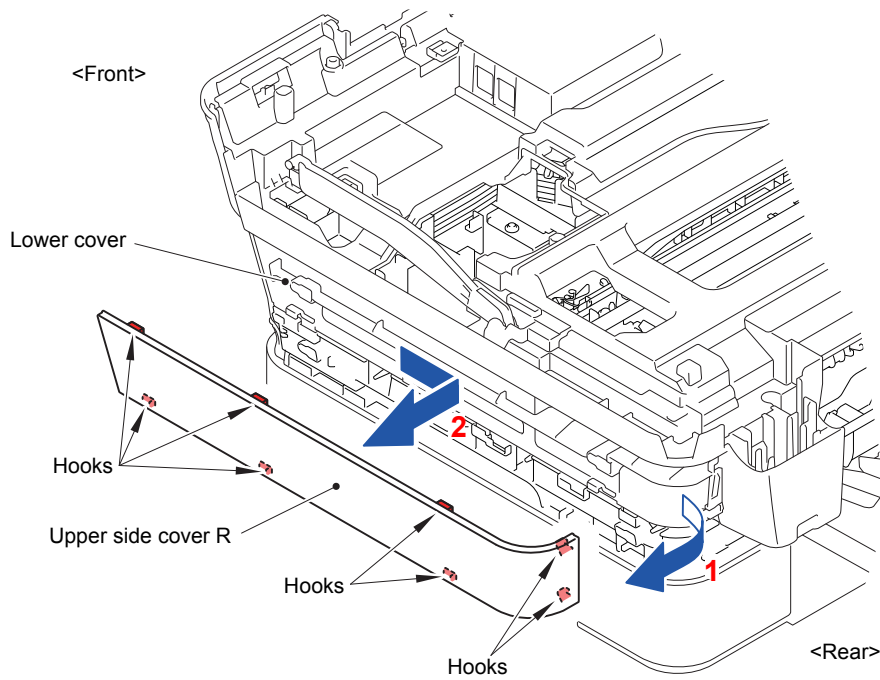


Fig. 3-95

9.35 Side Cover L and Side Cover R

(1) Release the twelve Hooks and remove the Side cover L from the Lower tray unit.

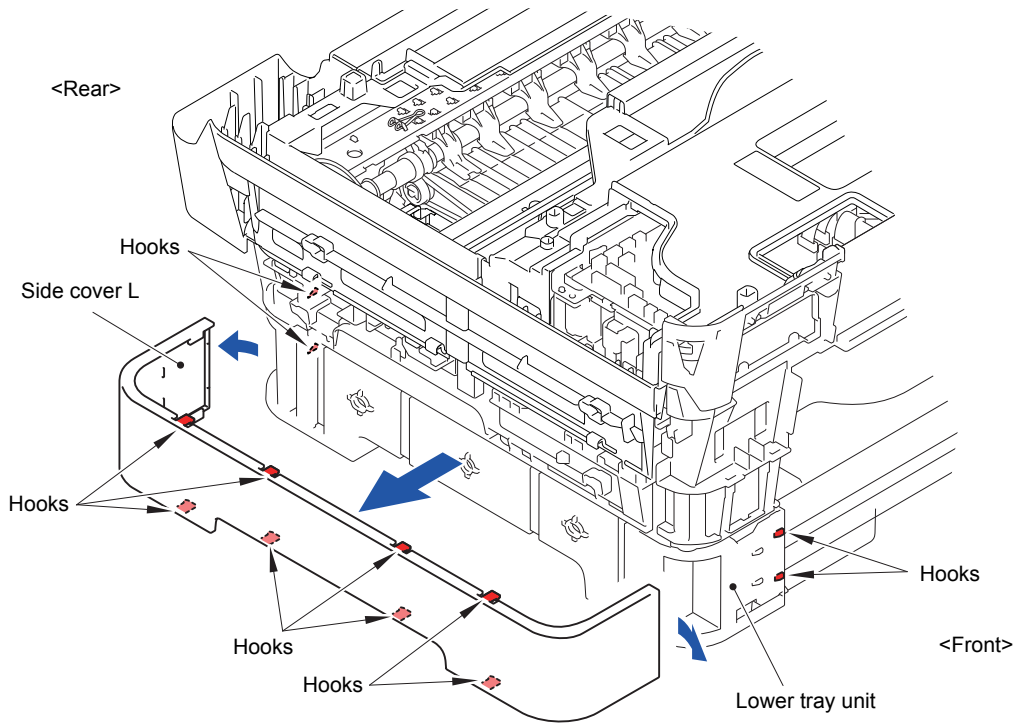


Fig. 3-96

(2) Remove the Side cover R in the same way.

9.36 Upper Cover

- (1) Release the two Bosses and remove the Scanner cover support from the Upper cover.
- (2) Remove the three screws (TAPTITE BIND B M4x12) and take off the Upper cover.

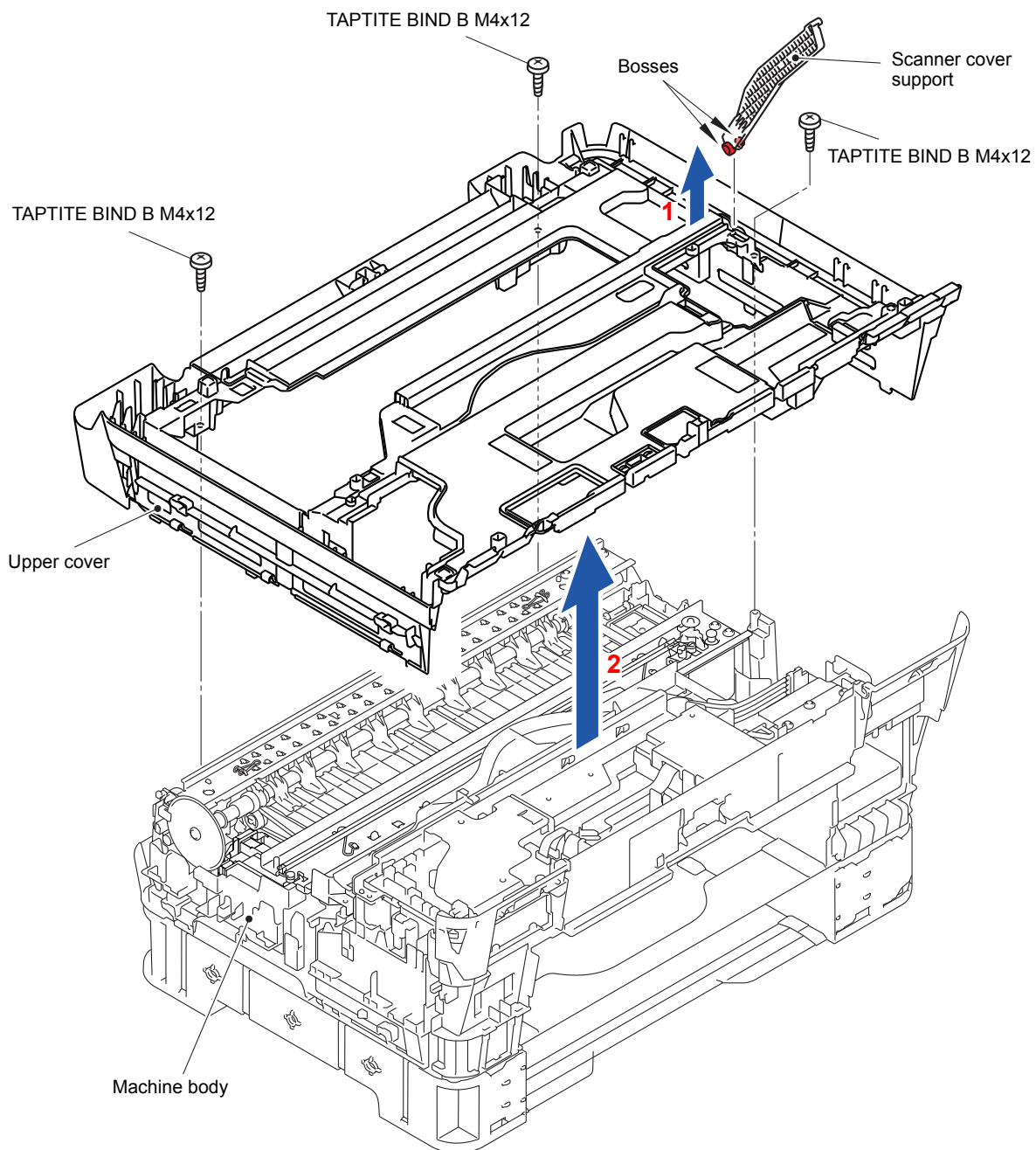


Fig. 3-97

9.37 Wireless LAN PCB ASSY

- (1) Remove the Wireless LAN PCB ASSY from the Connector of the Main PCB ASSY.
- (2) Remove the Gasket from the Wireless LAN PCB ASSY.

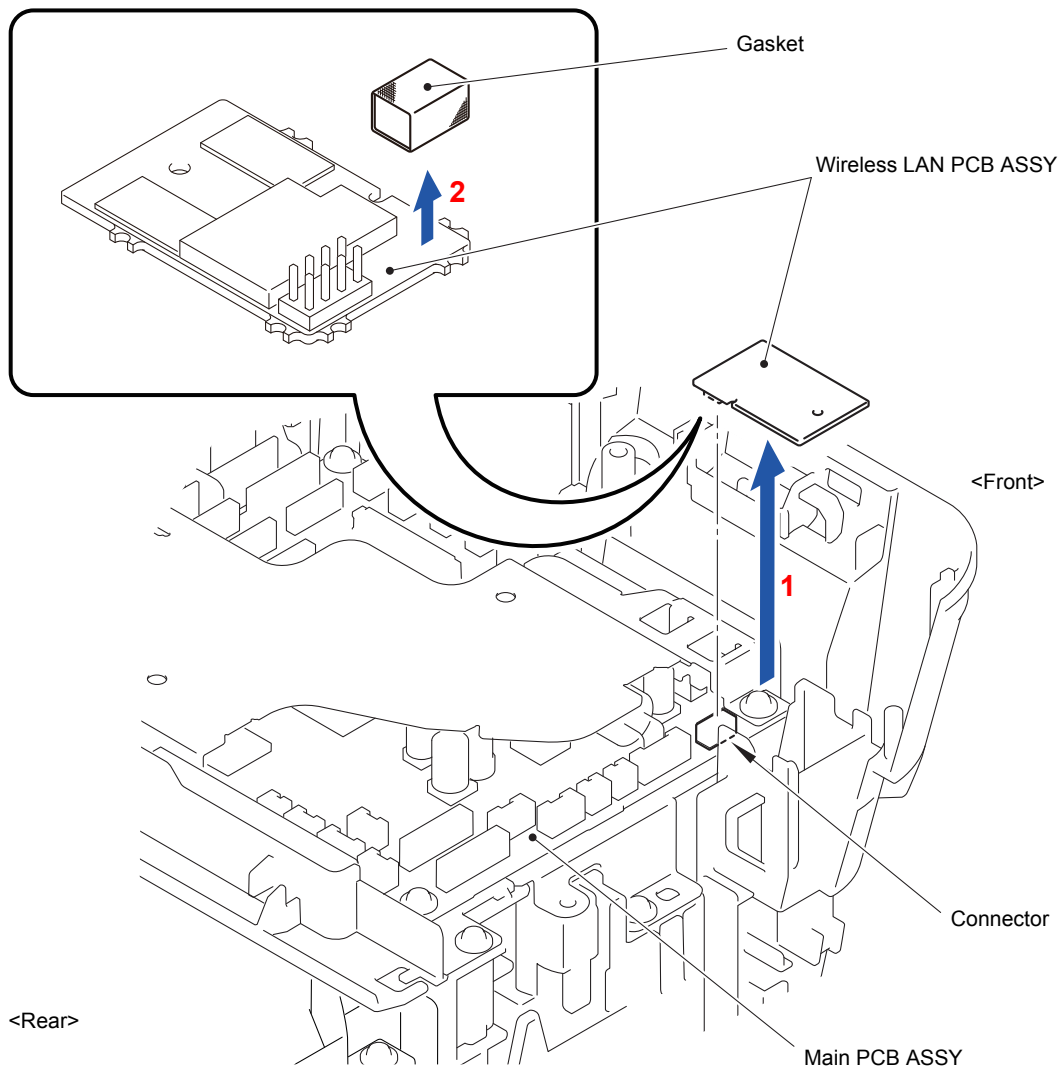


Fig. 3-98

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

9.38 Document Scanner Sensor PCB

- (1) Disconnect the Connector from the Main PCB ASSY.
- (2) Release the Hook on the Lower cover and remove the Document scanner sensor base.

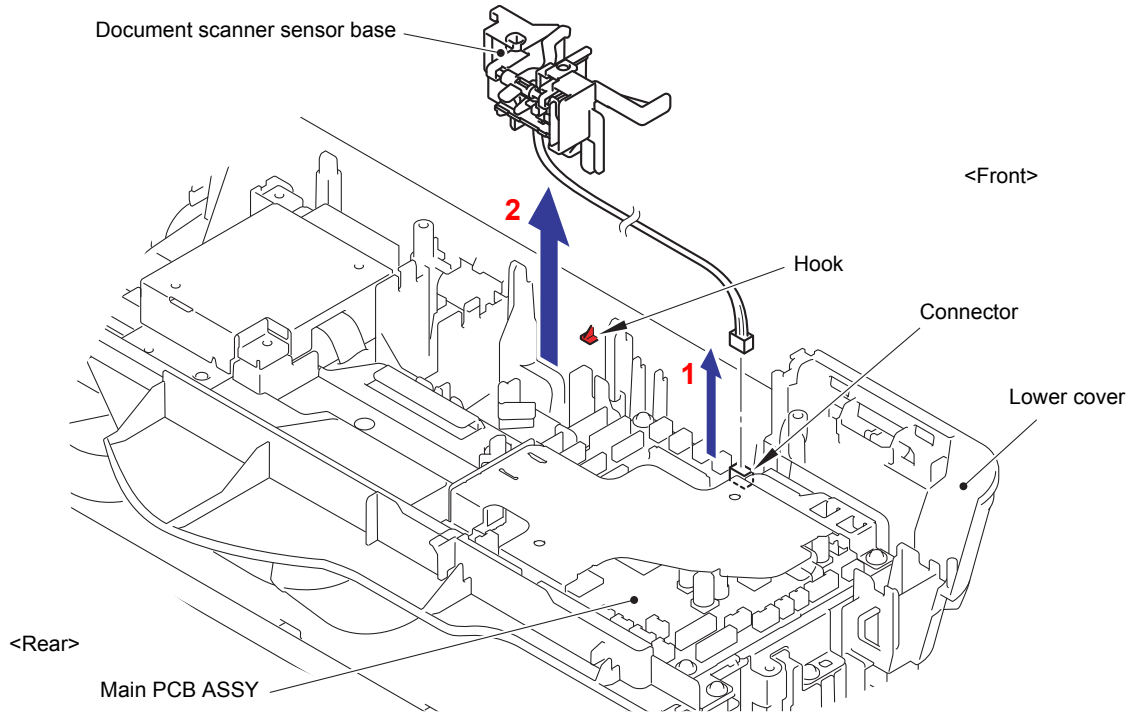


Fig. 3-99

- (3) Push the Lock arm in the direction of the arrow 3a and remove the Document scanner sensor PCB from the Document scanner sensor base.

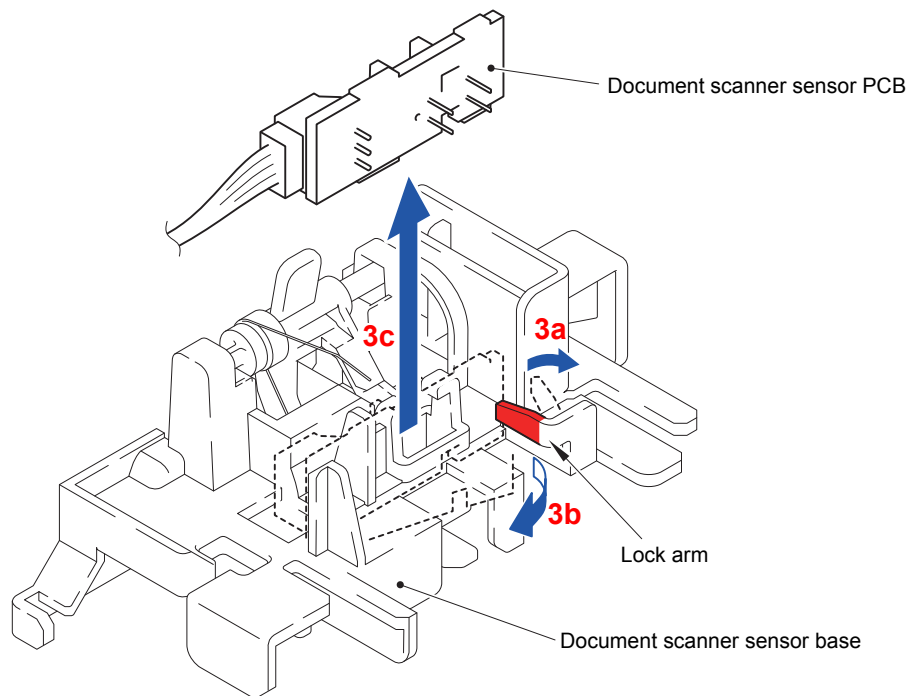


Fig. 3-100

(4) Disconnect the Connector from the Document scanner sensor PCB.

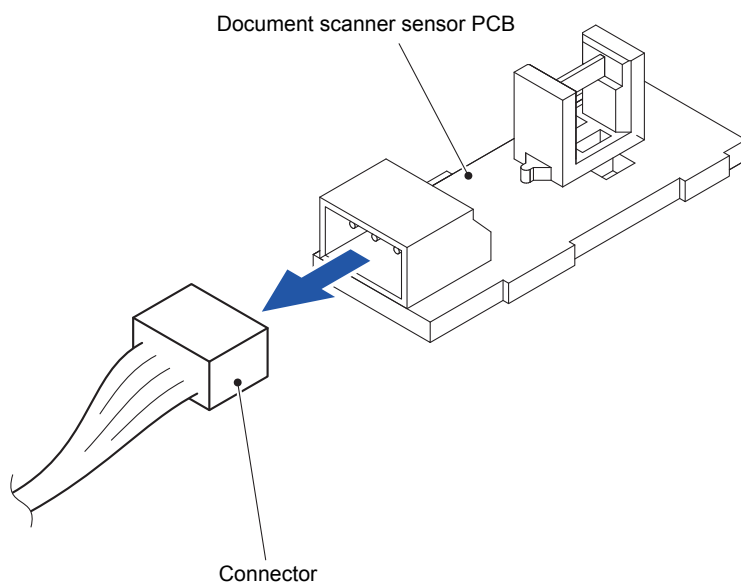


Fig. 3-101

9.39 Main PCB ASSY

- (1) Remove the two screws (TAPTITE CUP S M3x6) from the Main PCB shield.
- (2) Release the Hook and remove the Main PCB shield from the Main PCB frame.

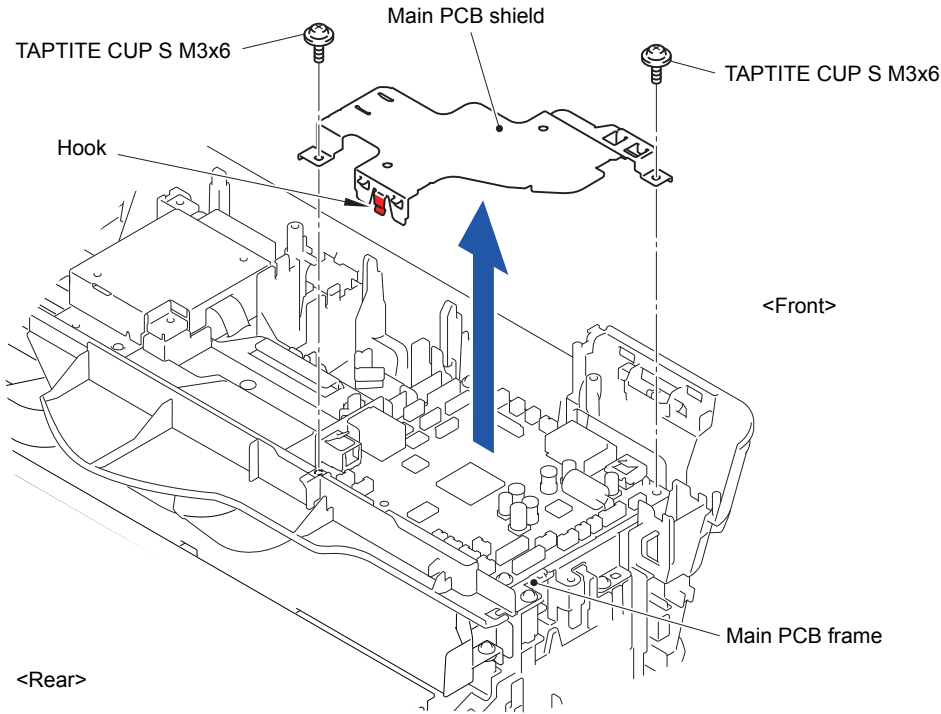


Fig. 3-102

- (3) Disconnect the nine Connectors from the Main PCB ASSY.
- (4) Disconnect the five Flat cables from the Main PCB ASSY.

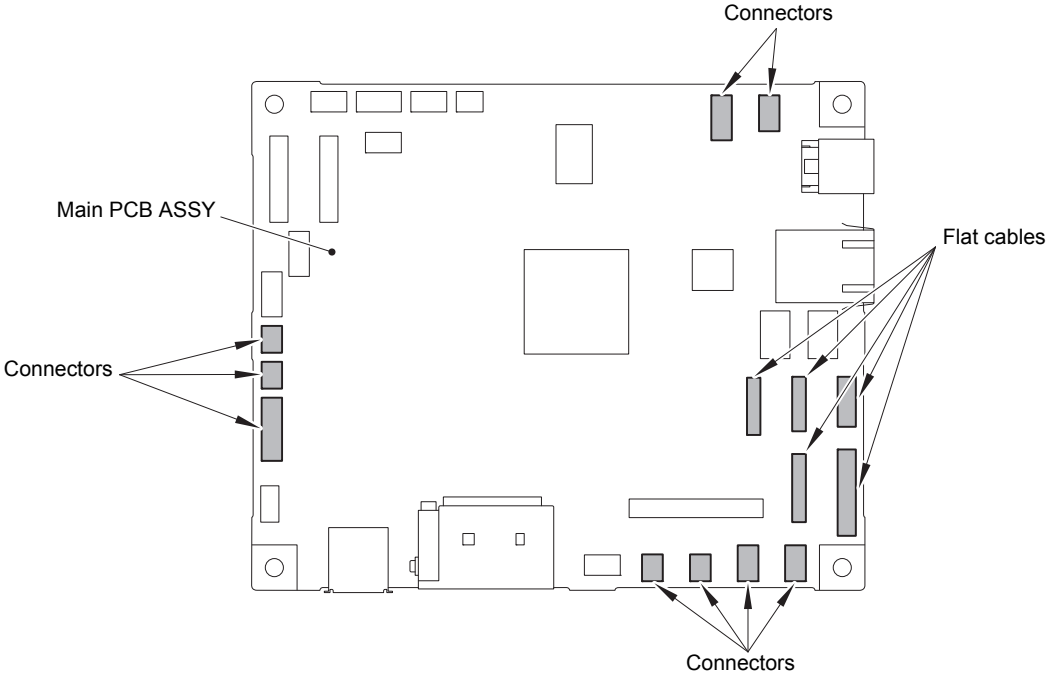


Fig. 3-103

- (5) Remove the two screws (TAPTITE CUP S M3x6) and remove the Main PCB ASSY from the Main PCB frame.

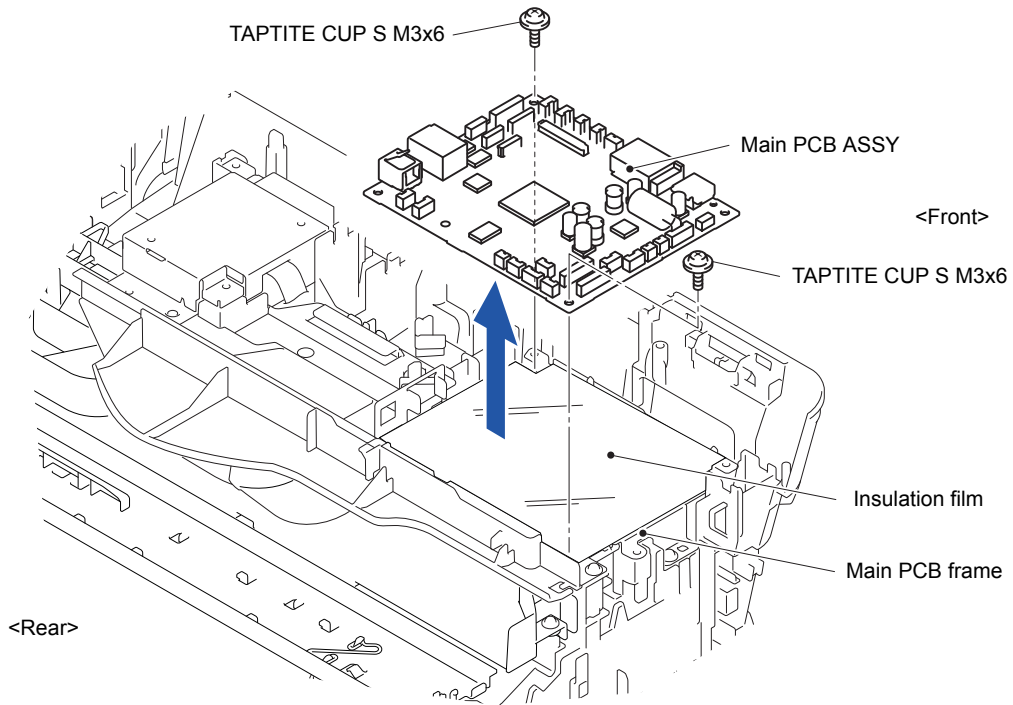


Fig. 3-104

- (6) Remove the USB ground plate from the Main PCB ASSY.
 (7) Remove the Pictbridge ground plate from the Main PCB ASSY.

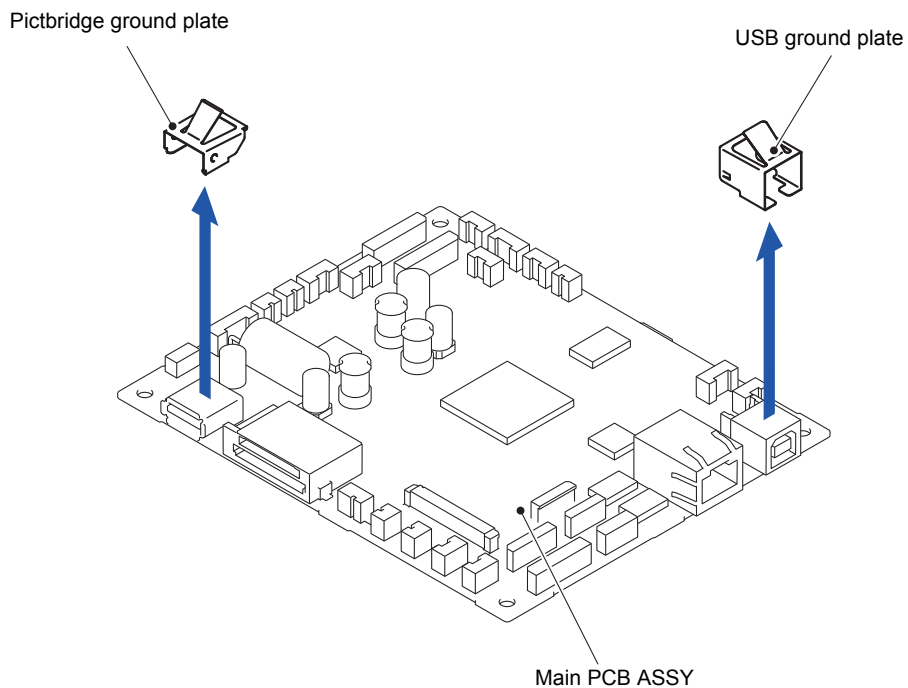


Fig. 3-105

Harness routing: Refer to "**1** Main PCB ASSY", "**2** Main PCB ASSY and MJ PCB ASSY"

9.40 MJ PCB ASSY

- (1) Release the wiring of the MJ PCB flat cable.
- (2) Remove the one screw (TAPTITE CUP S M3x6) and take off the MJ upper frame from the Main PCB frame.
- (3) Remove the one screw (TAPTITE CUP S M3x6) from the MJ PCB ASSY.
- (4) Release the Hook and remove the MJ PCB ASSY from the Main PCB frame.

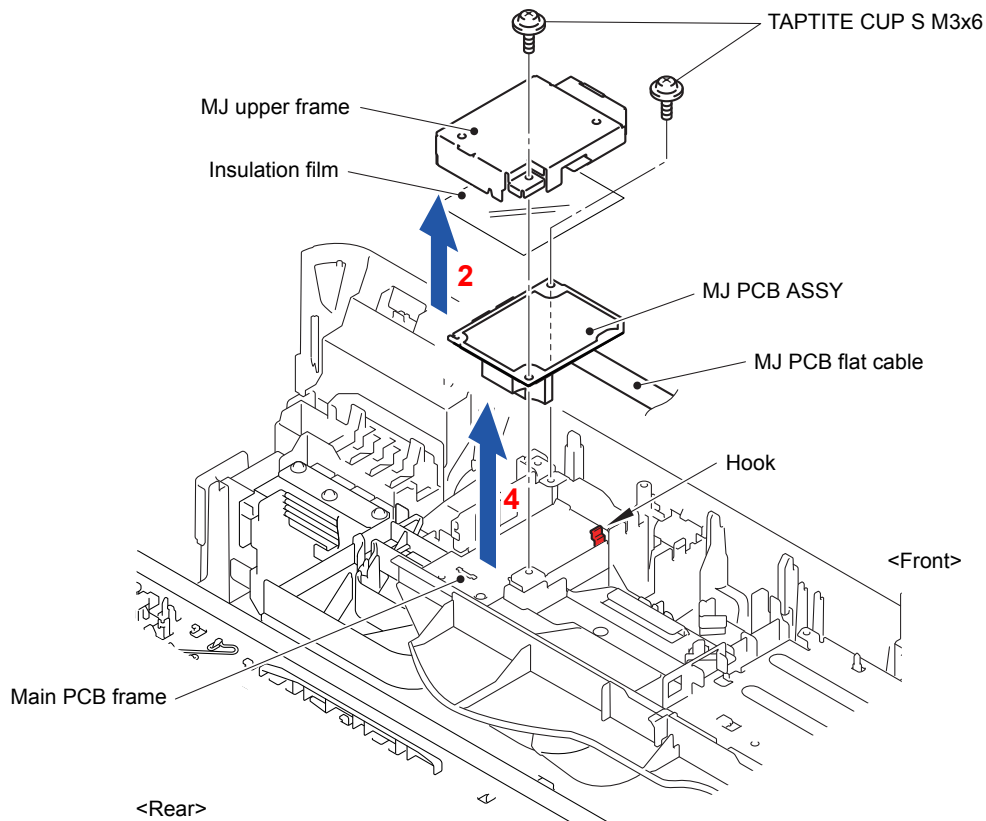


Fig. 3-106

Harness routing: Refer to "[2](#) Main PCB ASSY and MJ PCB ASSY"

9.41 Jam Clear Cover

- (1) Remove the four screws (TAPTITE BIND B M4x12) and take out the Lower cover from the Lower tray unit.

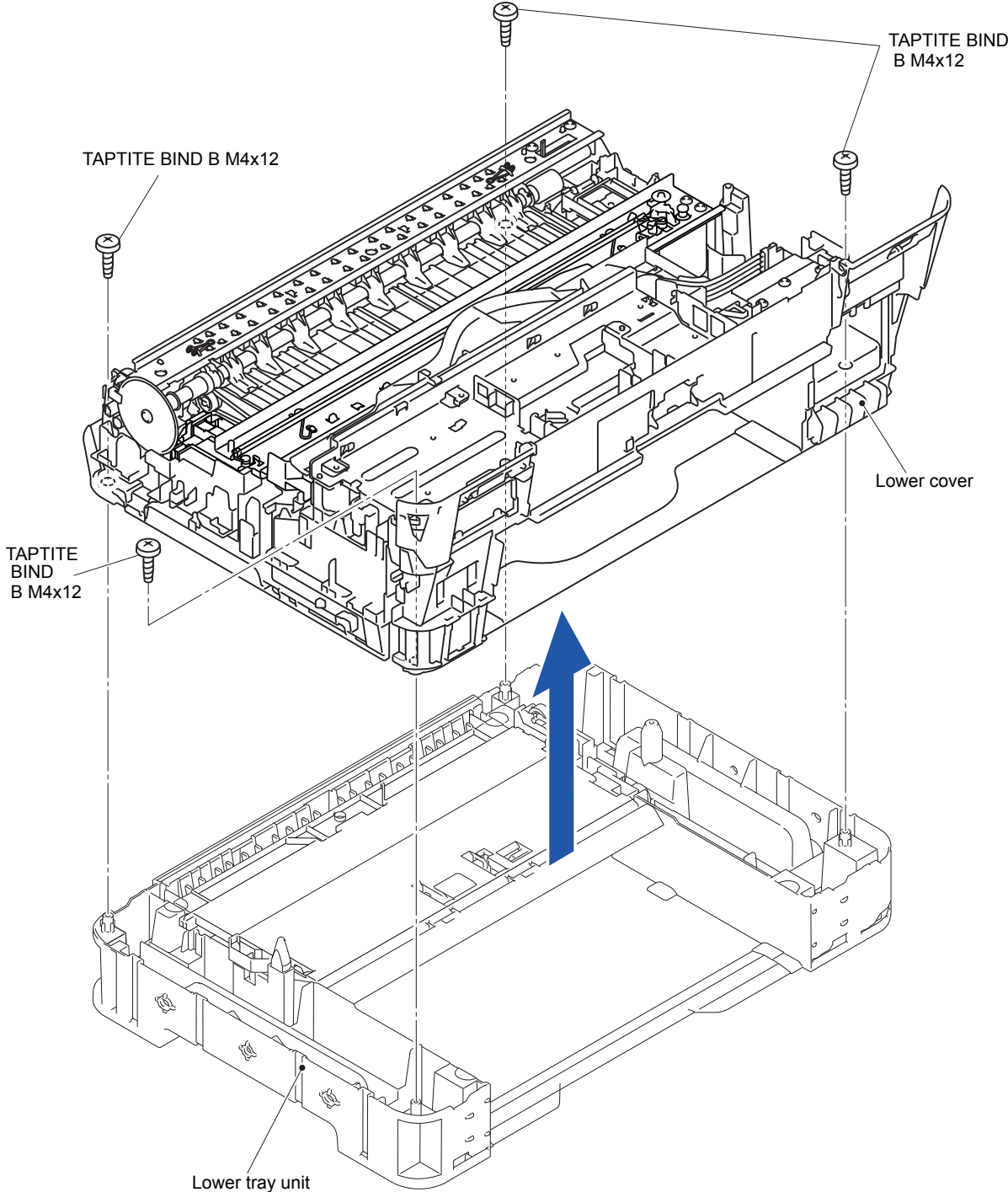


Fig. 3-107

(2) Release the two Bosses and remove the Jam clear cover from the Lower cover.

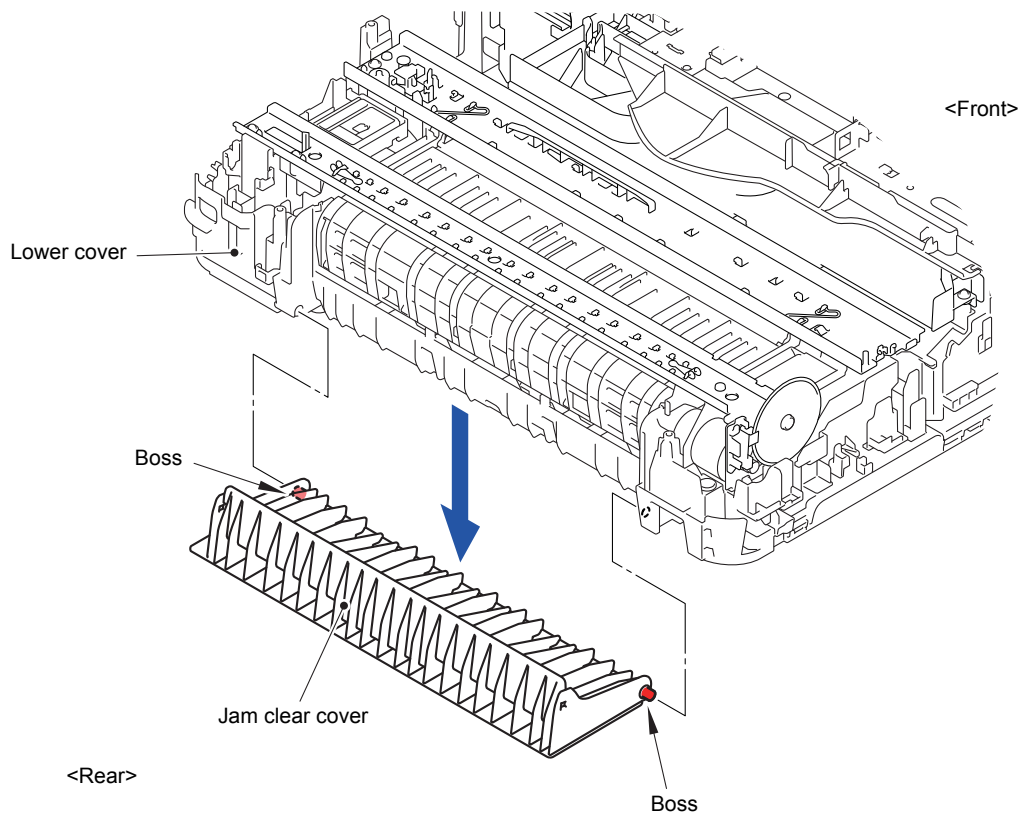


Fig. 3-108

9.42 T1 Bank ASSY

- (1) Slightly warp the Inside cover ASSY to release the Bosses and remove the ASSY.
- (2) Release the three Hooks on the bottom of the T1 bank ASSY and remove them in the direction of arrow.

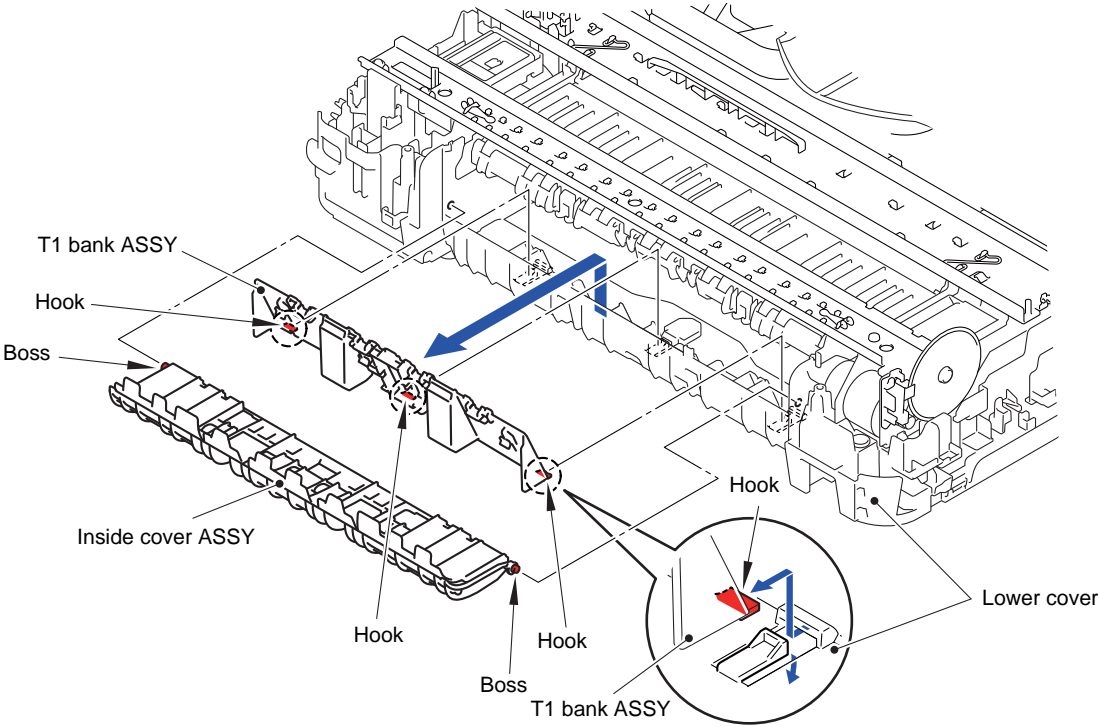


Fig. 3-109

9.43 Power Supply PCB ASSY

- (1) Release the wiring of the Switchback sensor harness and PF encoder/registration sensor harness.
- (2) Remove the one screw (TAPTITE CUP S M3x6) to release the Engine FG wire from the Main PCB frame.
- (3) Remove the one screw (TAPTITE CUP S M3x6) and two screws (TAPTITE CUP B M3x10) from the Main PCB frame.
- (4) Release the Hook on the Lower cover and remove the Main PCB frame.

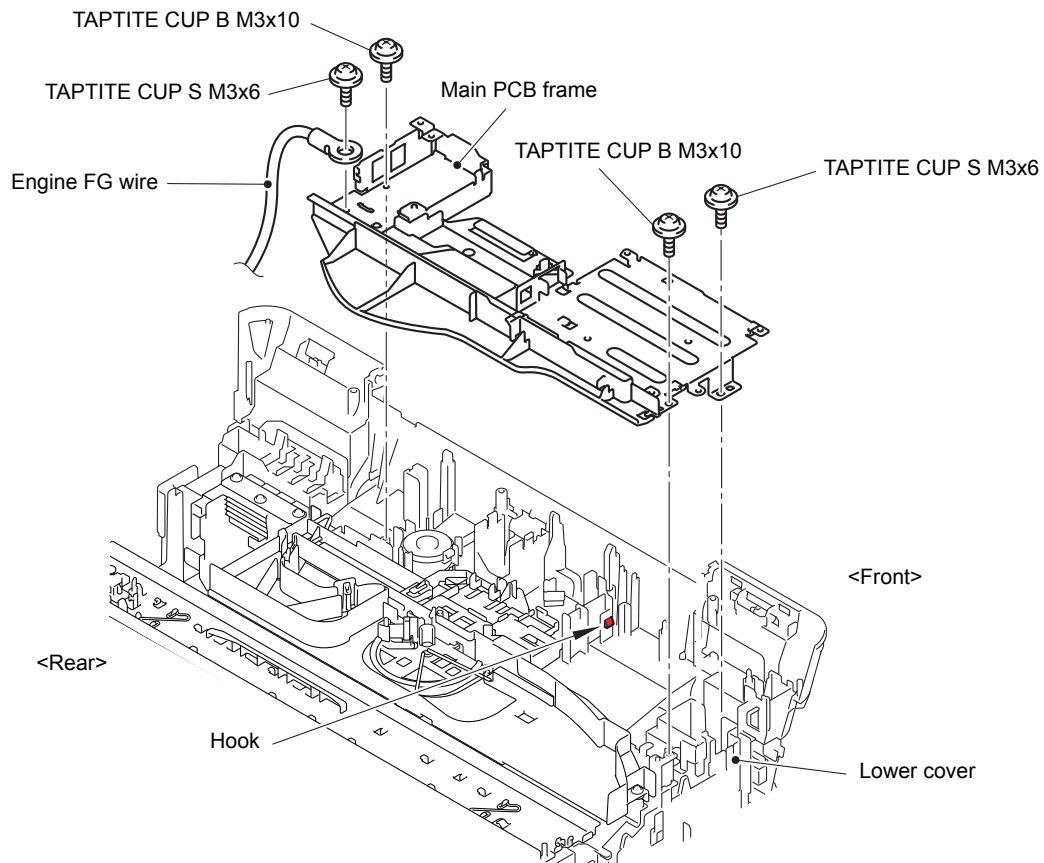


Fig. 3-110

- (5) Release the wiring of the Power supply harness.
- (6) Remove the one screw (TAPTITE CUP S M3x8) from the Lower cover.
- (7) Release the two Hooks on the Lower cover and remove the Lower power supply frame from the Lower cover.

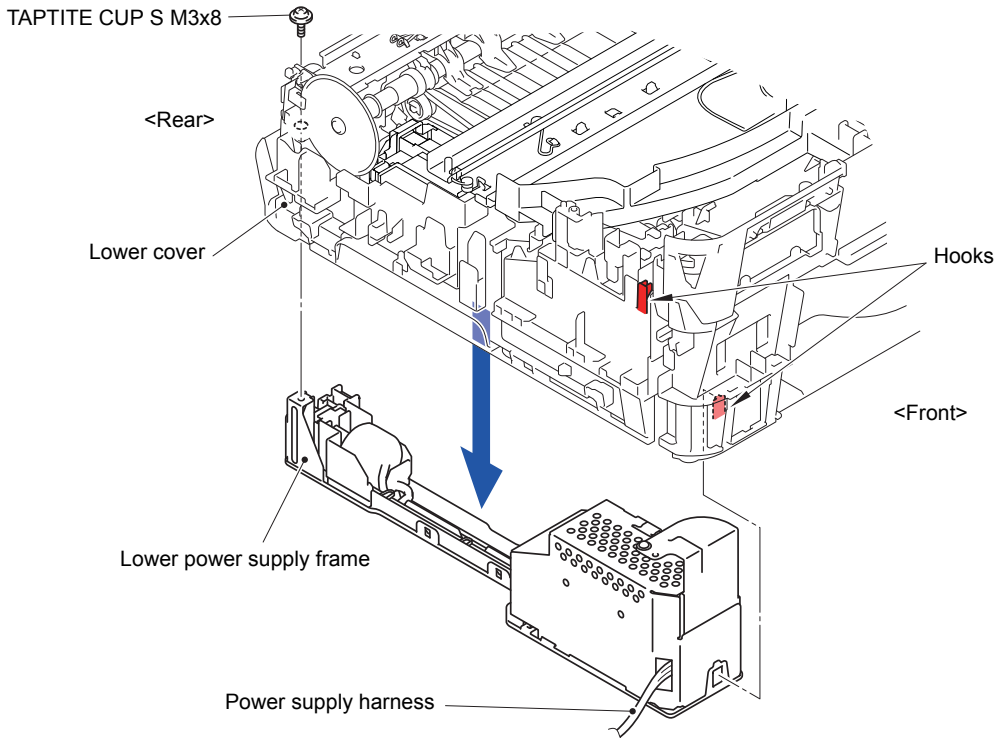


Fig. 3-111

- (8) Release the two Hooks and remove the Power supply shield from the Lower power supply frame.

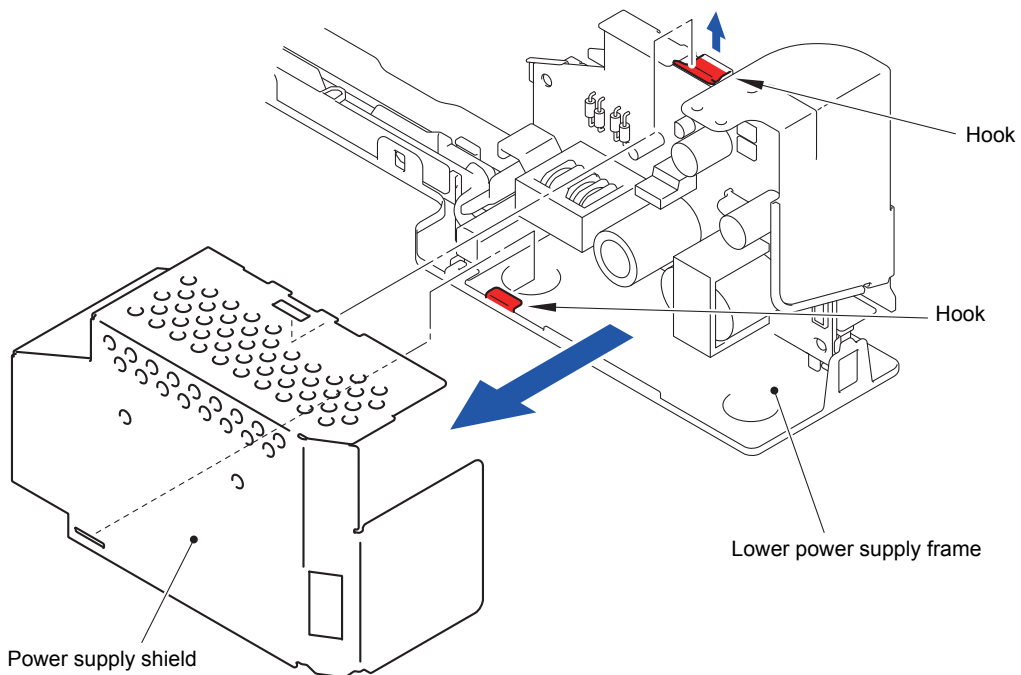


Fig. 3-112

- (9) Remove the Power cord from the Power cord holder.
- (10) Remove the three screws (TAPTITE CUP S M3x6) and remove the Power supply PCB ASSY from the Lower power supply frame.
- (11) Disconnect the Connector from the Power supply PCB ASSY.

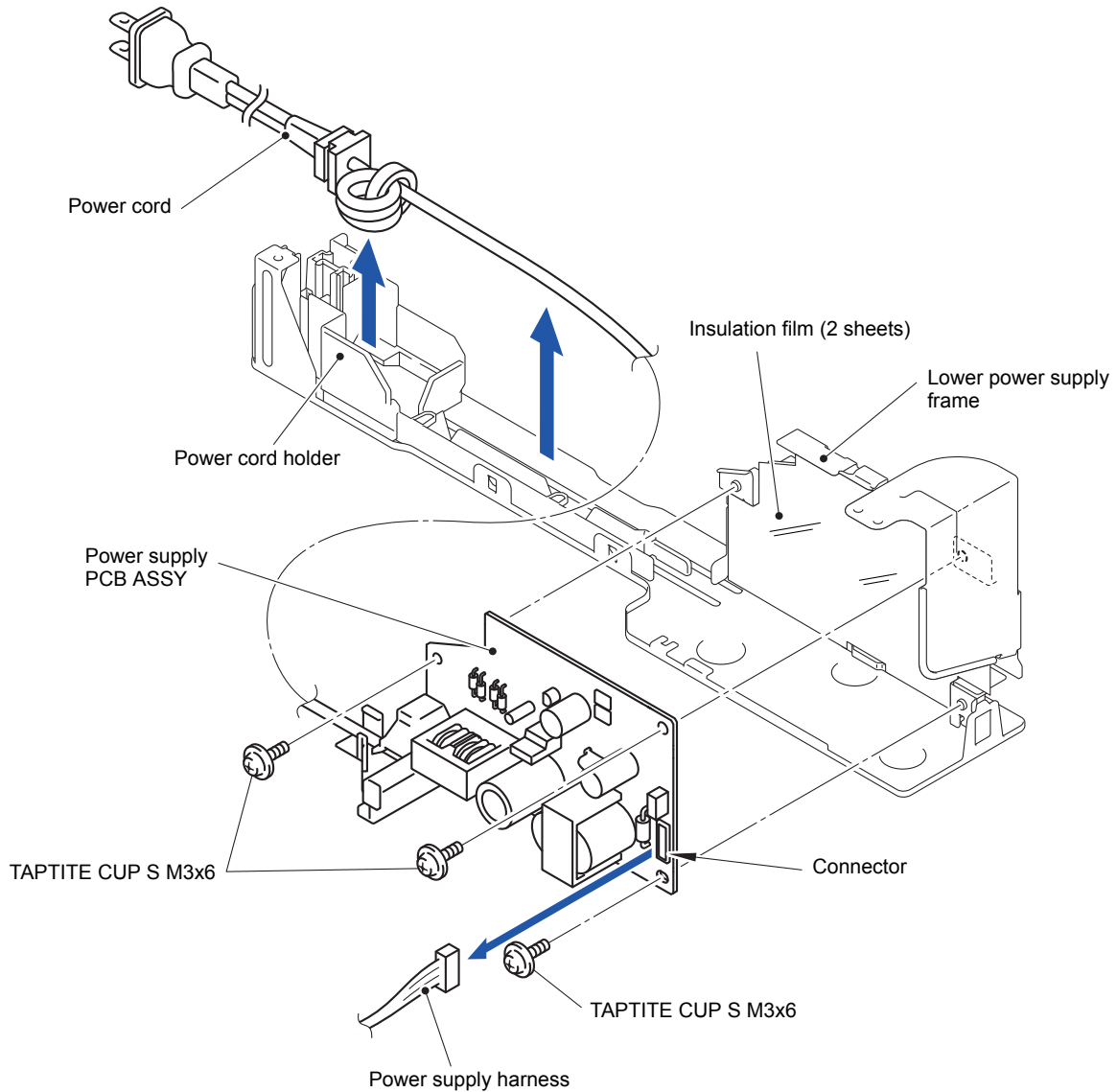


Fig. 3-113

Harness routing: Refer to "**2** Main PCB ASSY and MJ PCB ASSY", "**12** Lower cover (Left side)", "**13** Power supply PCB ASSY"

9.44 Carriage PCB ASSY

- (1) Release the wiring of the Flat cable of the Ink refill ASSY.
- (2) Release the Hook and remove the Flat core.
- (3) Release the wiring of the three Flat cables of the Carriage PCB ASSY.
- (4) Pull out the three Flat cables of the Carriage PCB ASSY from the Tube clamp.

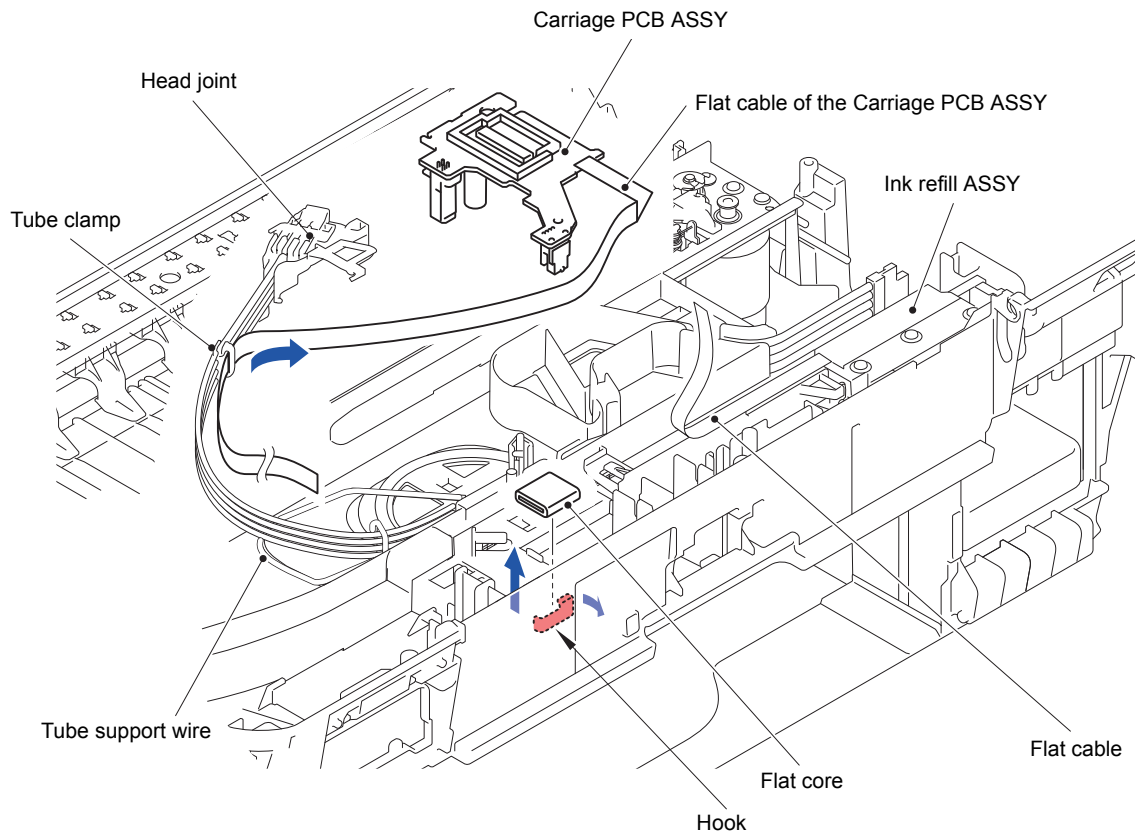


Fig. 3-114

Assembling Note: Be careful with the second side and first side of the Flat cables when inserting the three Flat cables of the Carriage PCB ASSY into the Tube clamp.

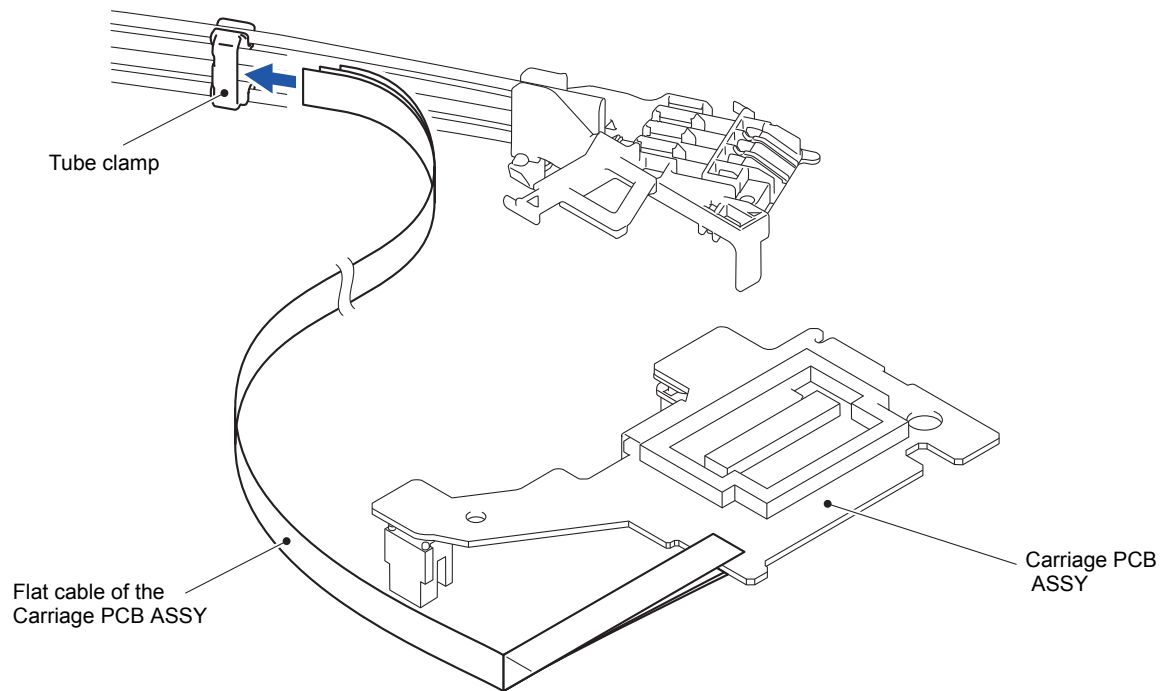


Fig. 3-115

Harness routing: Refer to "[2 Main PCB ASSY and MJ PCB ASSY](#)"

9.45 Ink Refill ASSY

- (1) Release the Ink supply tube from the Tube support wire.
- (2) Release the Ink supply tube from the Tube support plate.
- (3) Remove the Ink refill ASSY.

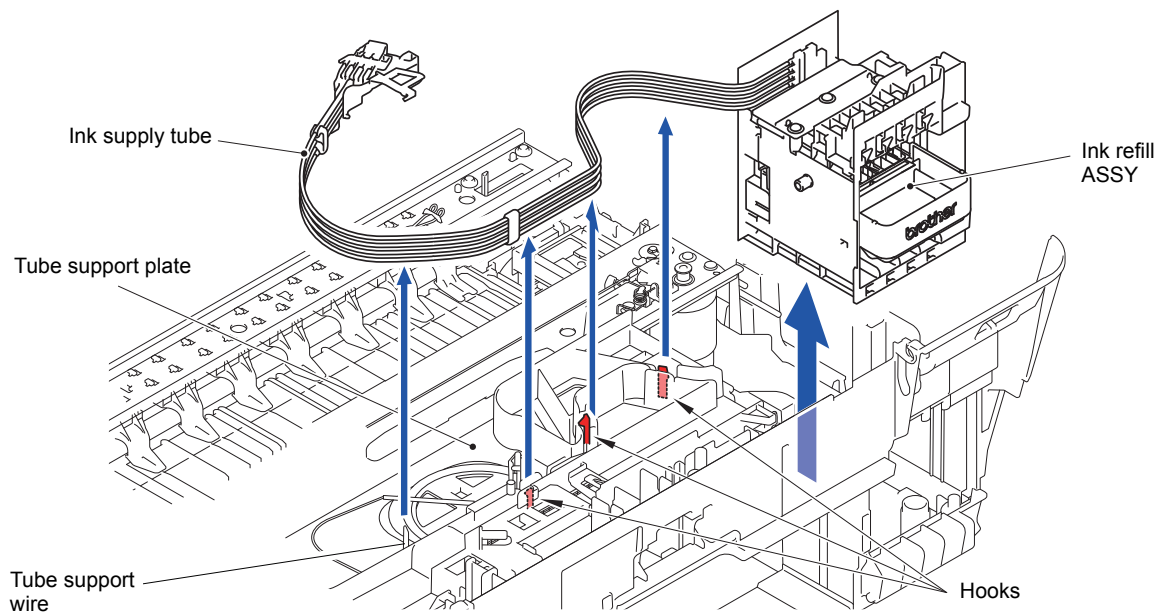


Fig. 3-116

Harness routing: Refer to "[2 Main PCB ASSY and MJ PCB ASSY](#)"

9.46 Ink Absorber Felt (for Ink Refill ASSY)

- (1) Remove the Ink absorber felt (for ink refill ASSY).

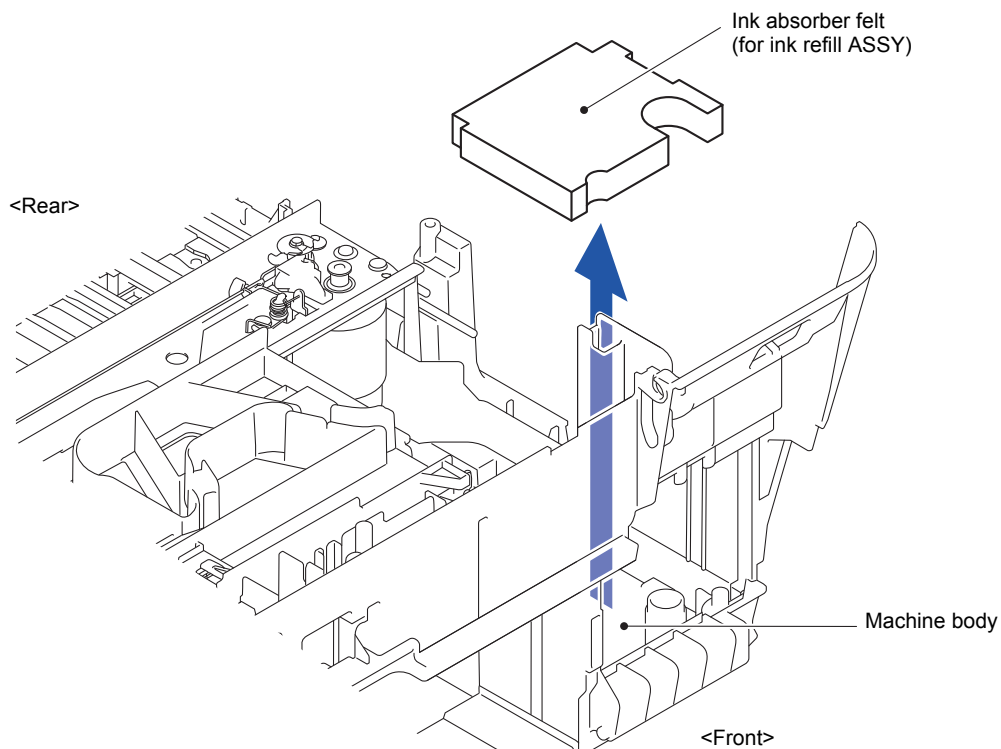


Fig. 3-117

9.47 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.

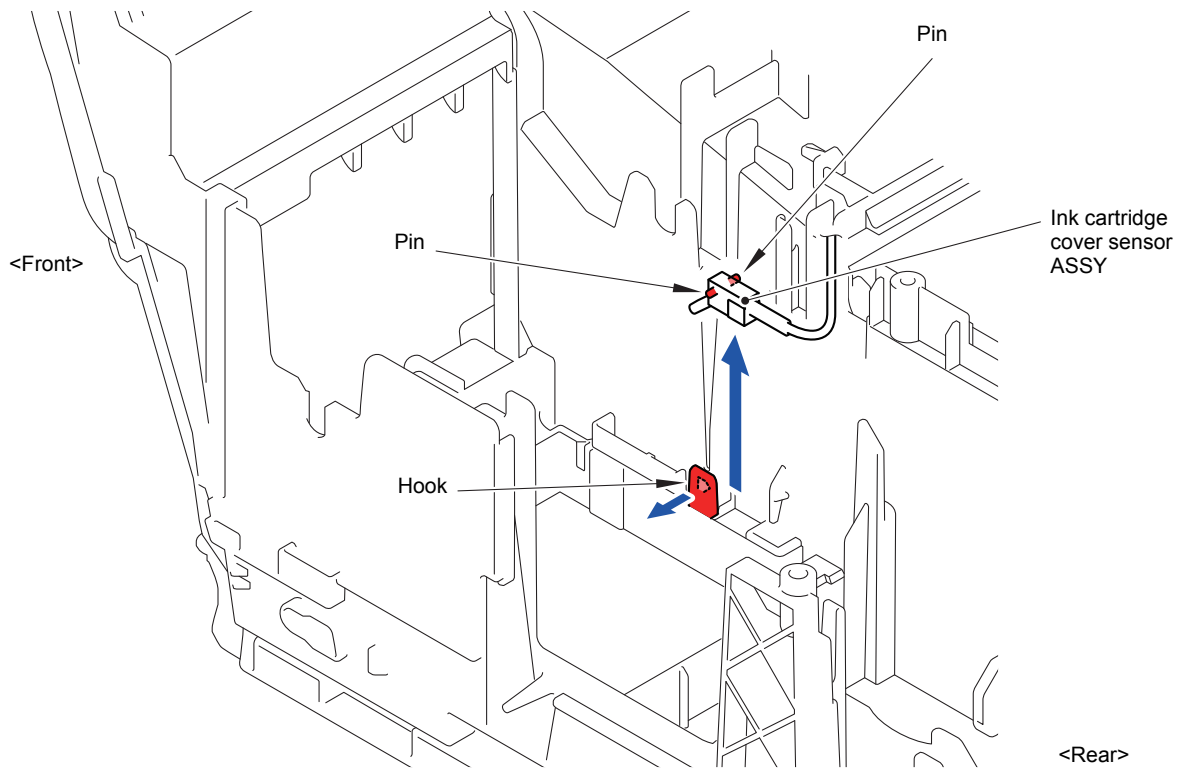


Fig. 3-118

Harness routing: Refer to "[8](#) Carriage motor harness and ink cartridge cover sensor ASSY"

9.48 CR Encoder Strip

- (1) Release the CR encoder strip from the Encoder strip spring.
- (2) Remove the CR encoder strip from the CR frame ASSY.

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

Assembling Note: Set the CR encoder strip so that the ▲-marked point comes to the position shown in the figure.

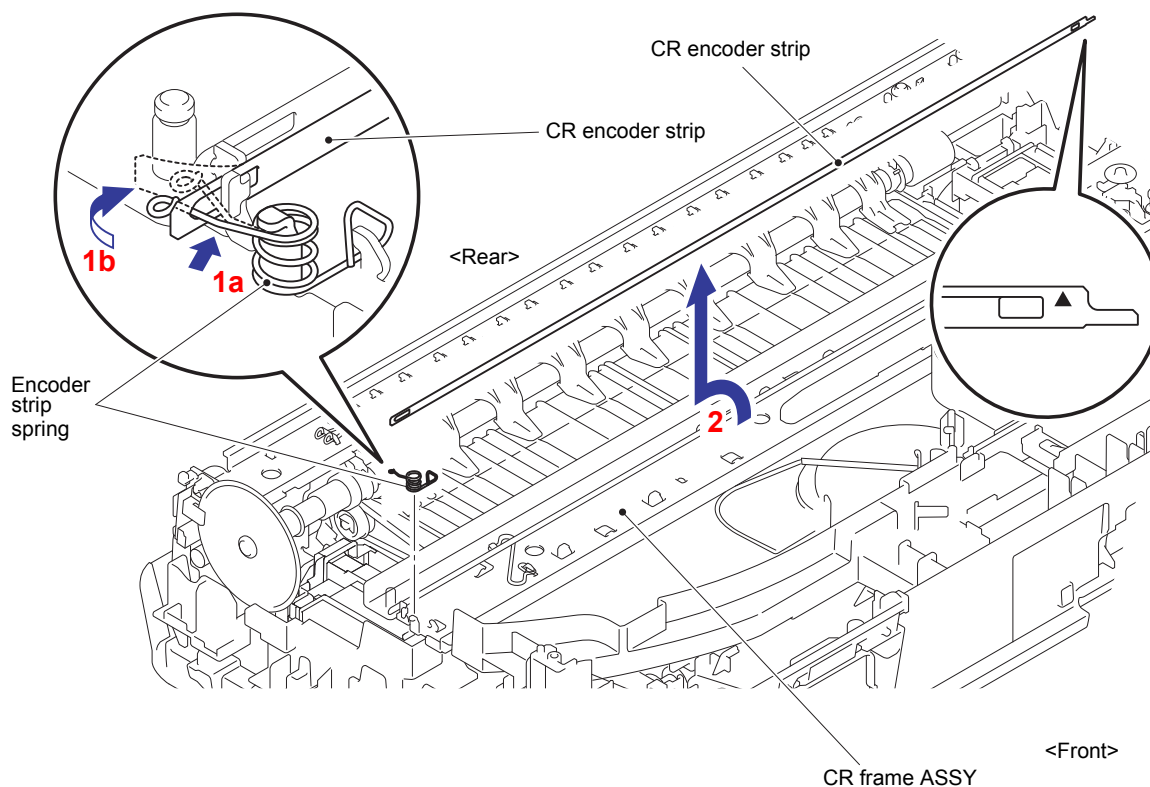


Fig. 3-119

9.49 Encoder Strip Guard Film

- (1) Release the Encoder strip guard film from the Encoder strip spring.
- (2) Remove the Encoder strip guard film from the CR frame ASSY.

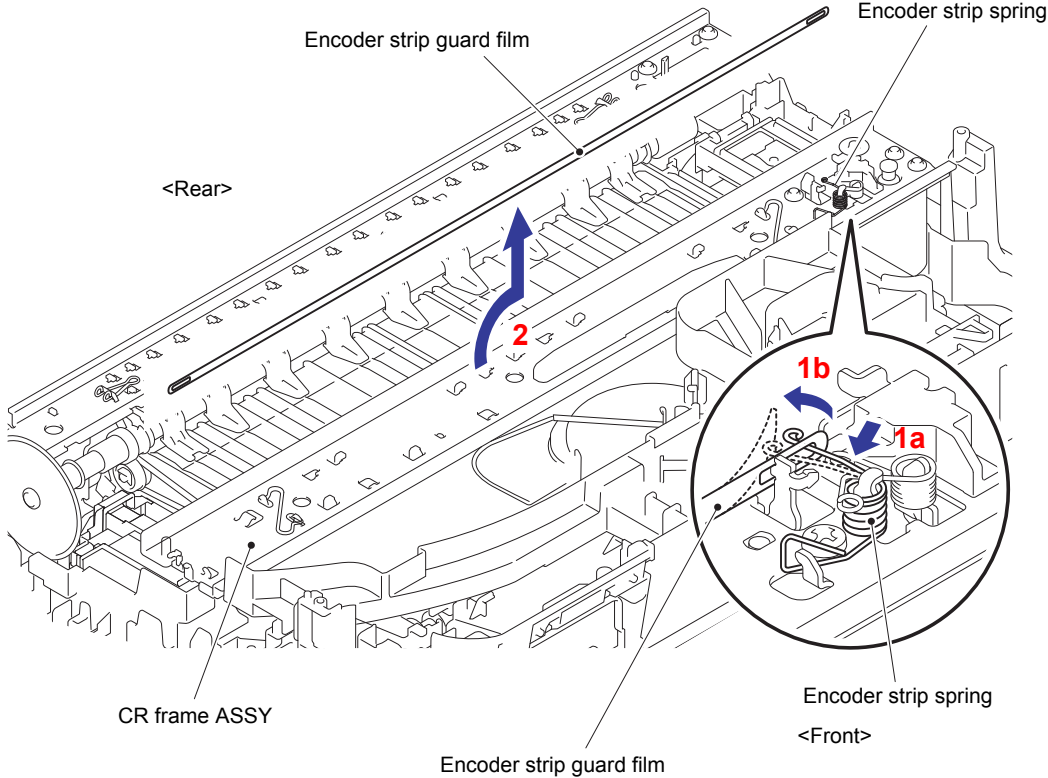


Fig. 3-120

9.50 Switchback Sensor PCB

- (1) Release the six Hooks and remove the Tube support plate.

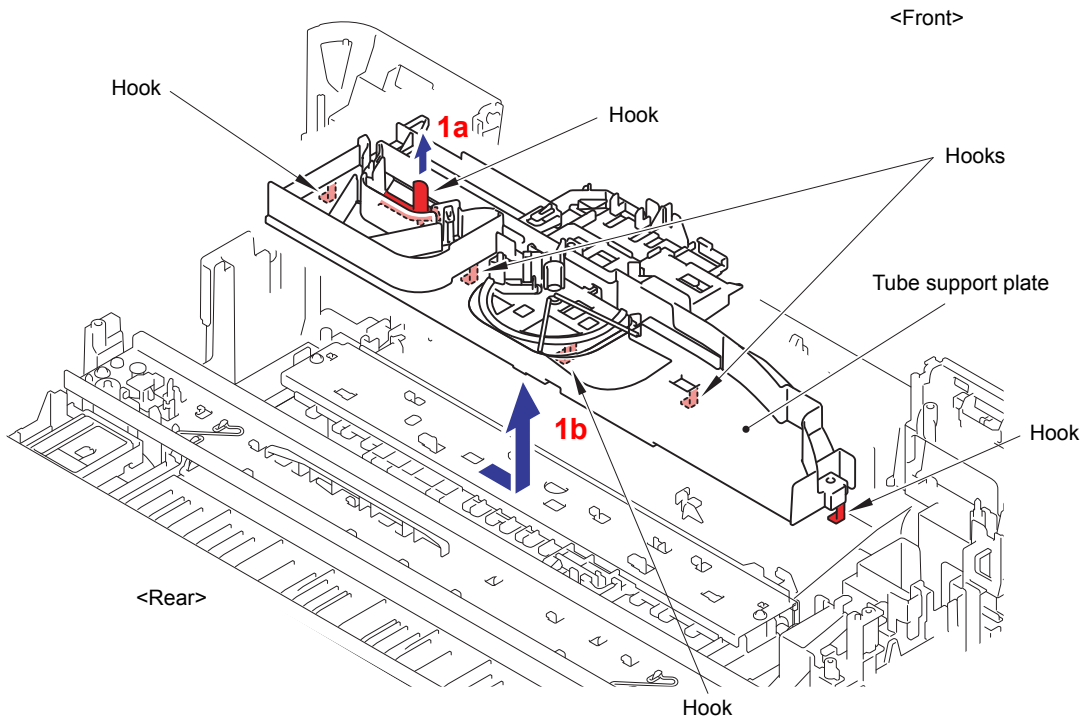


Fig. 3-121

- (2) Release the wiring of the Switchback sensor harness.
- (3) Release the two Hooks and remove the Switchback sensor PCB.

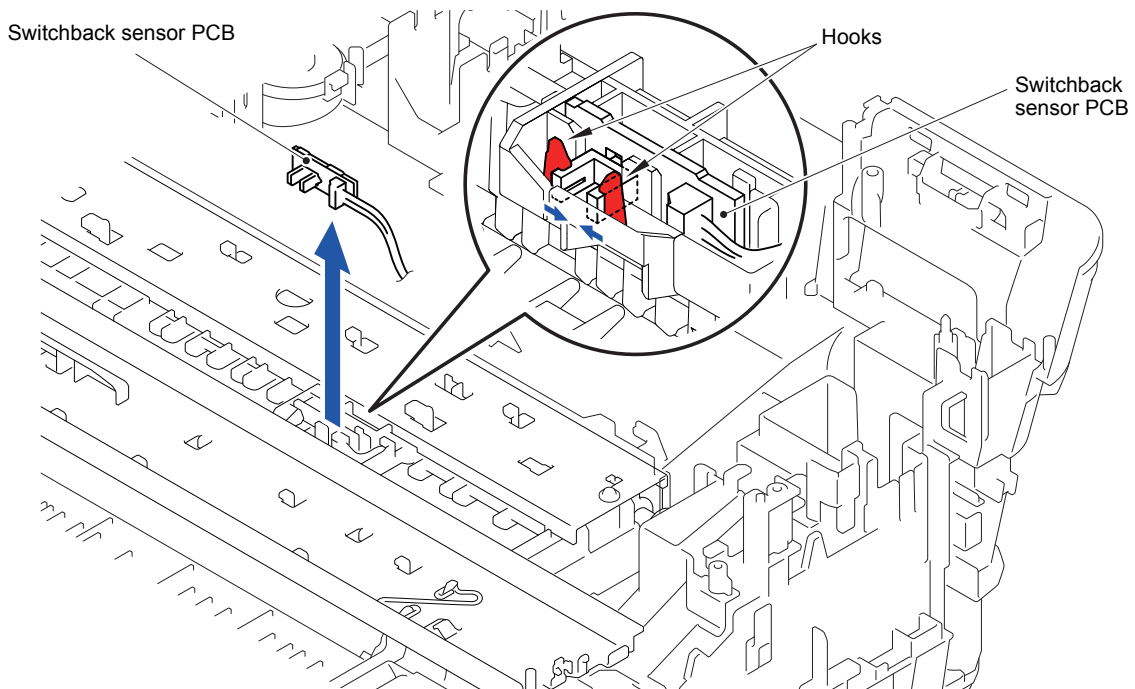


Fig. 3-122

Harness routing: Refer to "**2** Main PCB ASSY and MJ PCB ASSY", "**10** Switchback sensor PCB"

9.51 Carriage Motor ASSY

- (1) Release the wiring of the Carriage motor harness.
- (2) Remove the two screws (TAPTITE CUP B M3x10) from the CR frame ASSY.
- (3) Remove the two CR frame springs from the CR frame ASSY.
- (4) Release the Hook and remove the CR frame ASSY.

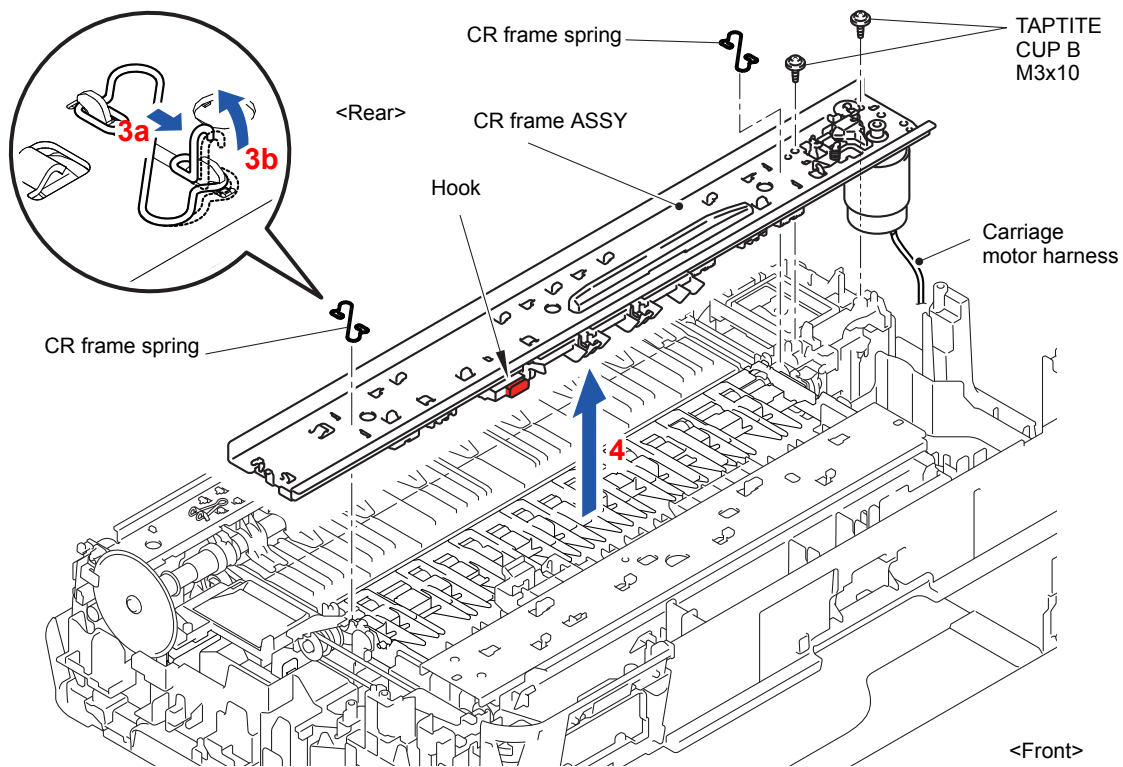


Fig. 3-123

(5) Remove the one screw (TAPTITE CUP S M3x6) from the CR frame ASSY.

Assembling Note: Tighten the screw (TAPTITE CUP S M3x6) temporarily and then perform the following procedures before mounting the Upper cover.

1) Mount the Head/carriage unit and CR timing belt to the CR frame ASSY.

2) Tighten the one screw (TAPTITE CUP S M3x6) firmly.

(6) Remove the Belt tension spring from the CR frame ASSY.

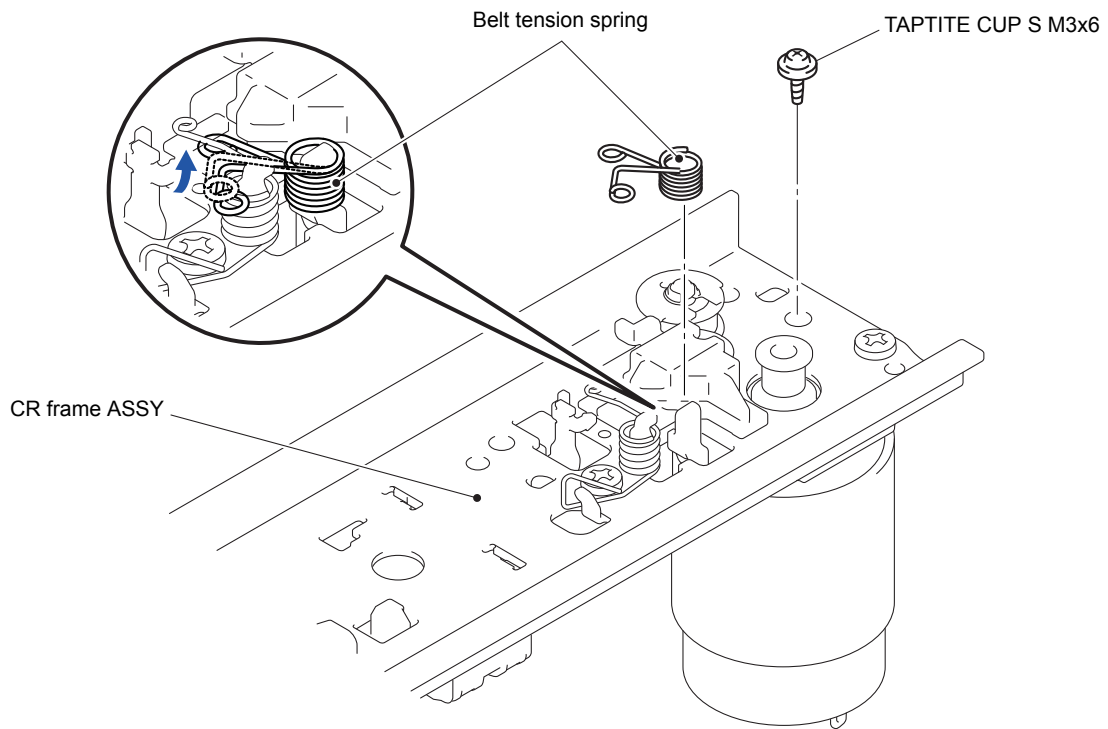


Fig. 3-124

- (7) Remove the two screws (SCREW BIND M3x6) and take off the Motor bracket from the CR frame ASSY.
- (8) Remove the two screws (SCREW BIND M3x6) and take off the Carriage motor ASSY from the Motor bracket.

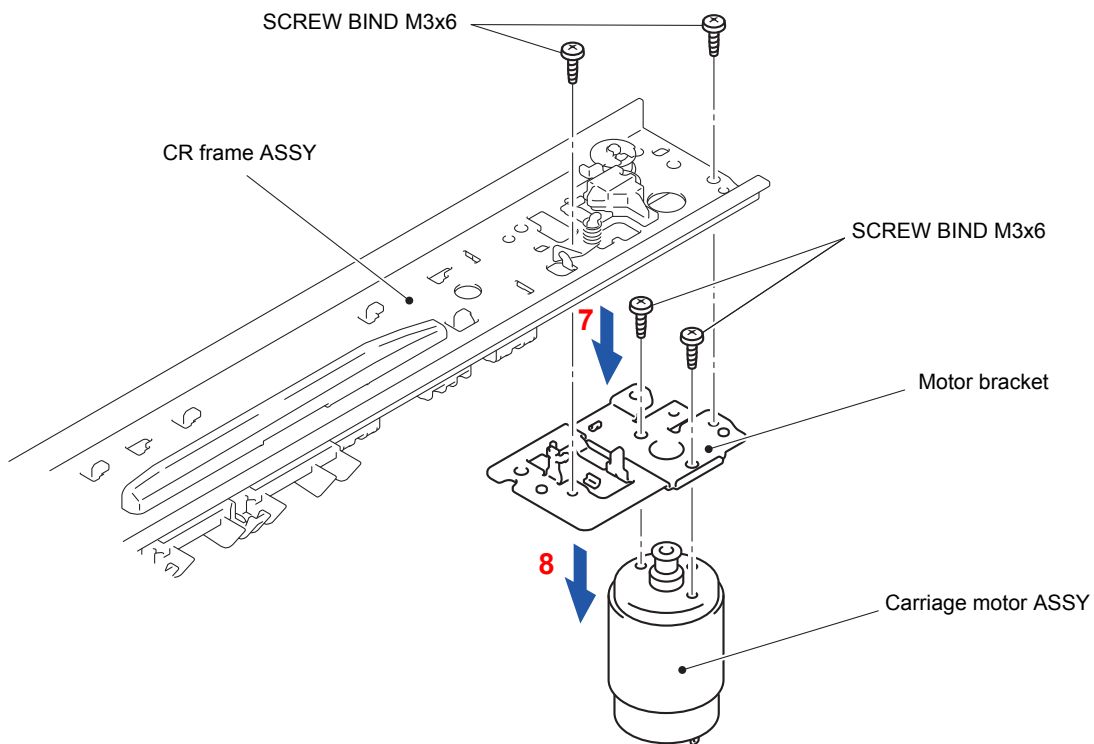


Fig. 3-125

Harness routing: Refer to "[8](#) Carriage motor harness and ink cartridge cover sensor ASSY", "[10](#) Switchback sensor PCB"

9.52 Flushing Base

(1) Remove the Flushing base from the Paper feed motor frame ASSY.

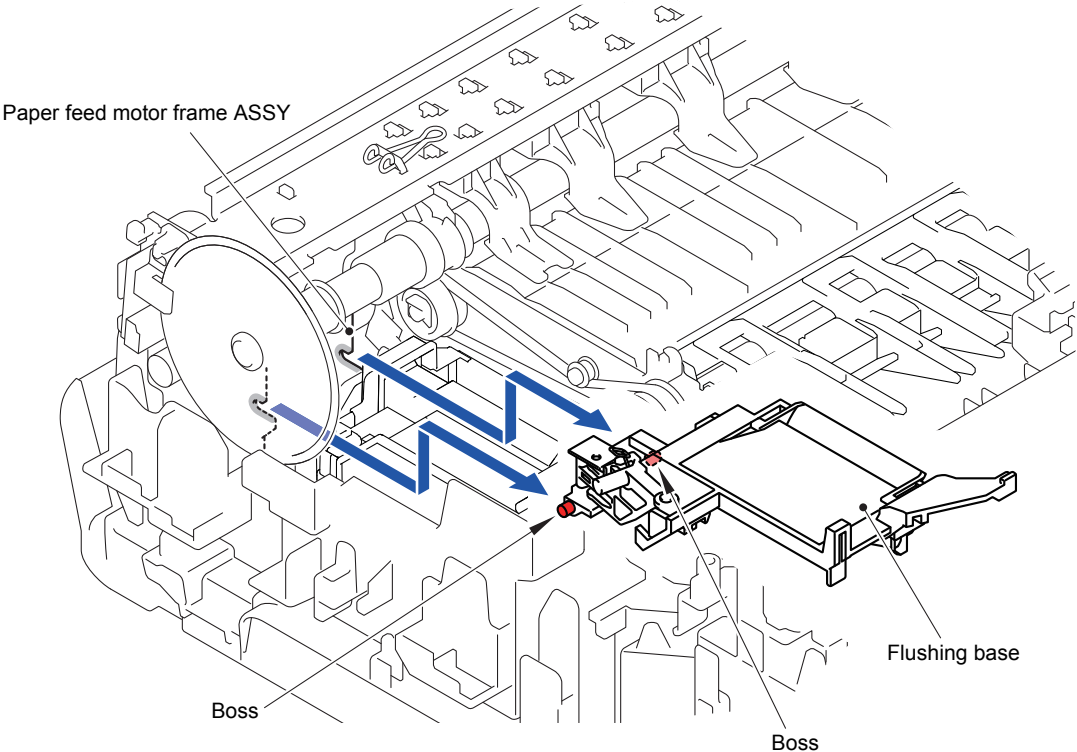


Fig. 3-126

9.53 Flushing Box

(1) Release the two Hooks and remove the Flushing box.

Assembling Note: If you replace the flushing box (without replacing the main PCB ASSY), 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.

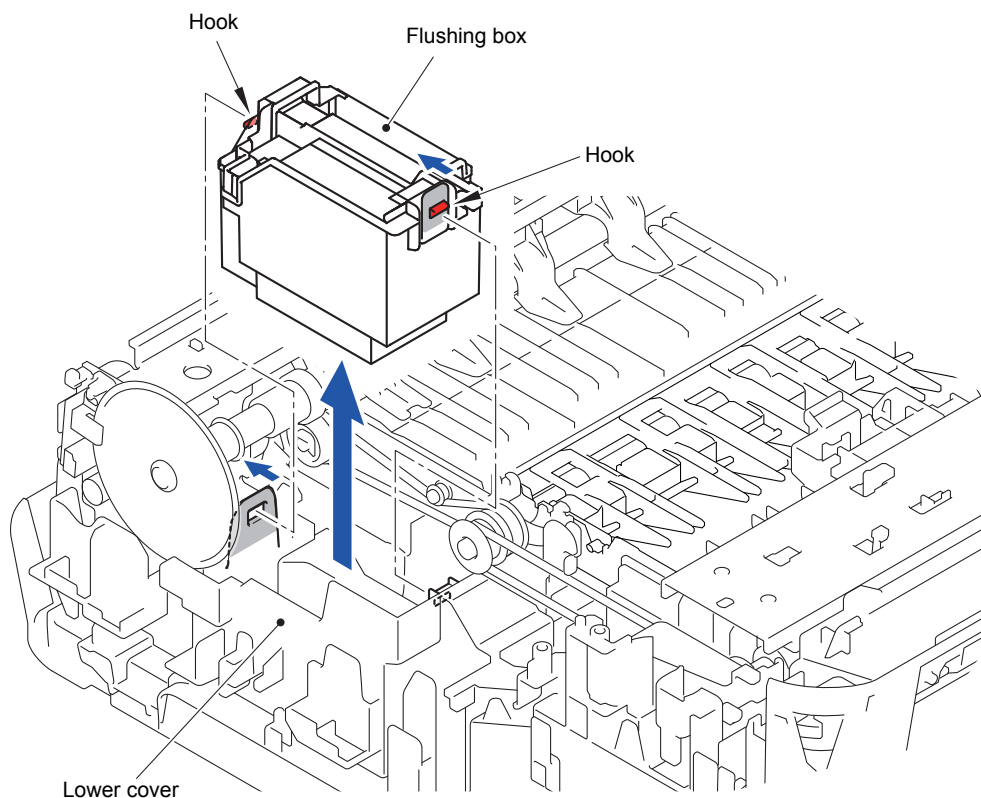


Fig. 3-127

9.54 Platen Foam and Switchback Roller

- (1) Remove the two screws (TAPTITE CUP B M3x12) and remove the Switchback frame.

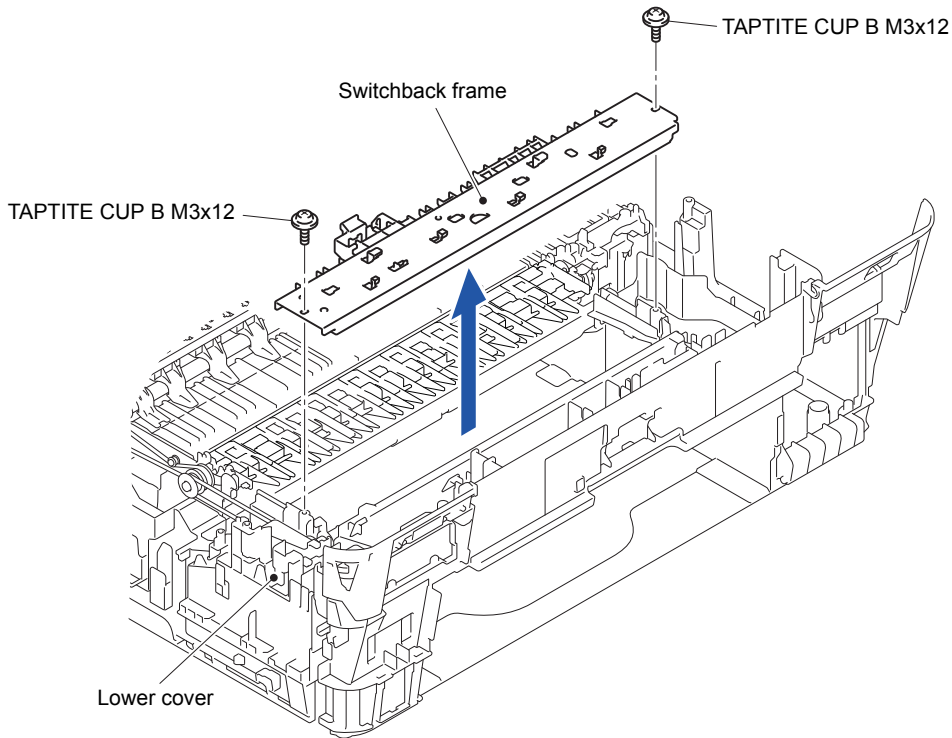


Fig. 3-128

- (2) Release the seven Hooks and remove the Switchback inner paper guide from the Paper ejection roller.
- (3) Remove the Platen foam from the Platen.

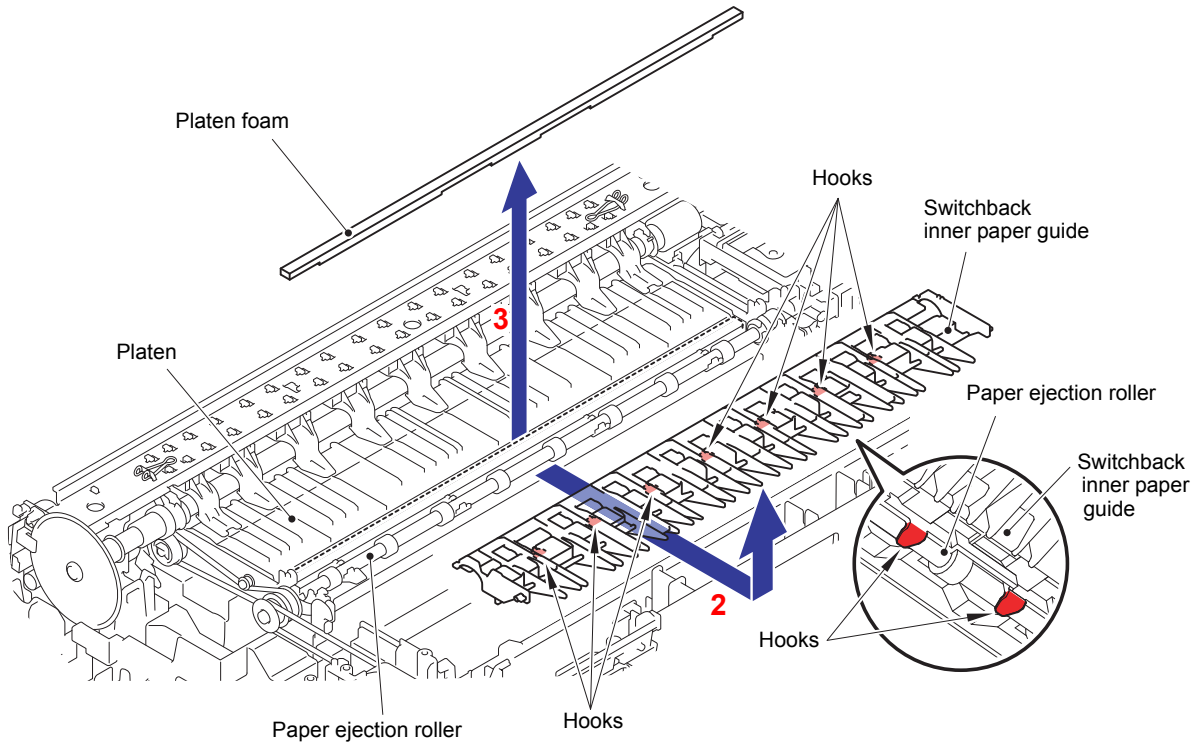


Fig. 3-129

- (4) Remove the two Switchback side frames.
- (5) Remove the Switchback roller belt from the Switchback roller and Paper ejection roller.
- (6) Remove the Switchback roller.

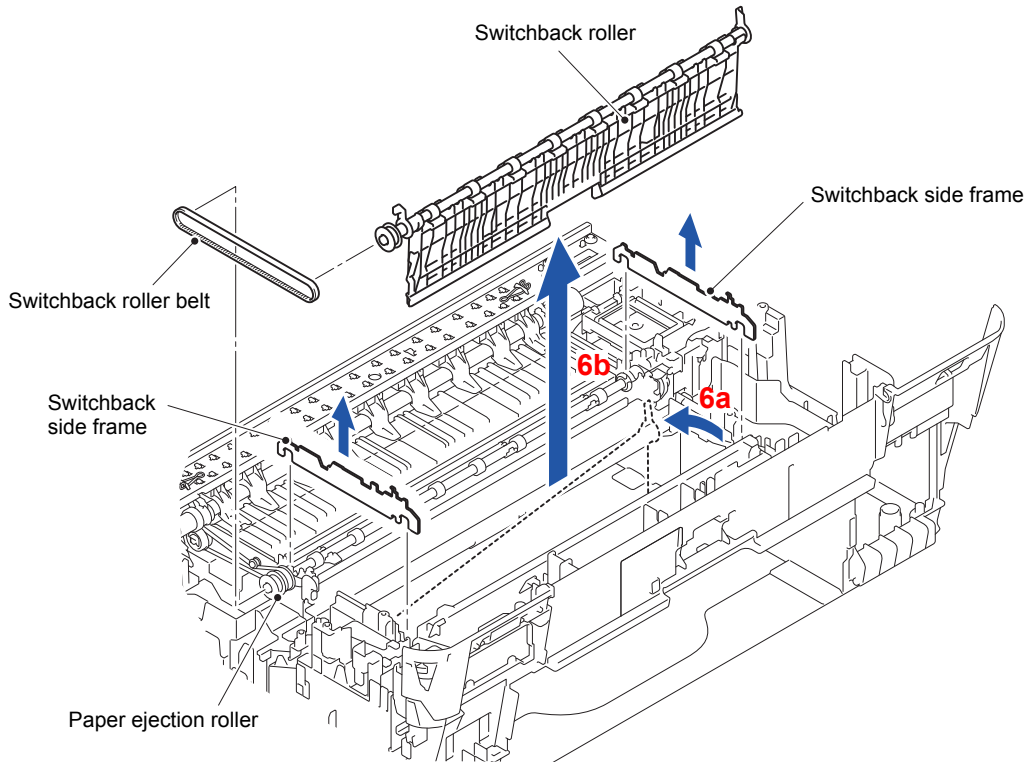


Fig. 3-130

- (7) Remove the Bushing from the Switchback outer paper guide.
- (8) Remove the Switchback roller from the Switchback outer paper guide.

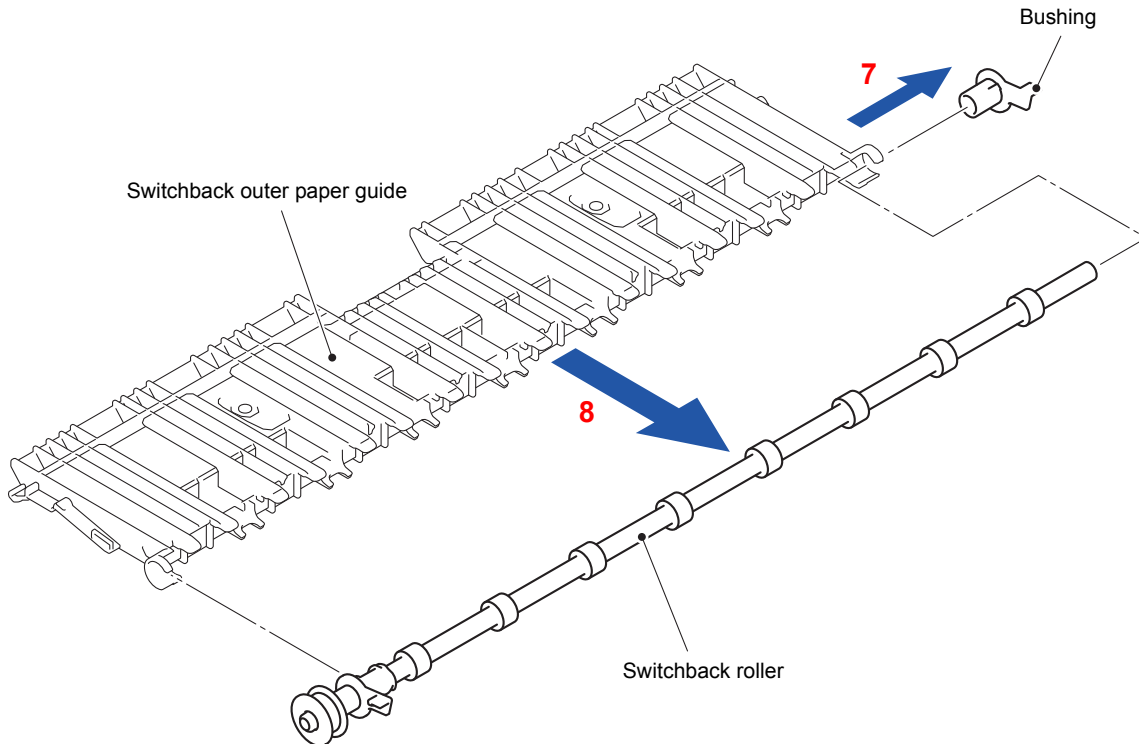


Fig. 3-131

9.55 PF Encoder Disk and PF Encoder Sensor PCB ASSY

- (1) Peel off the PF encoder disk which is secured with the Double-sided adhesive tape from the Paper feed roller.

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 from the Paper feed roller and Paper feed motor.

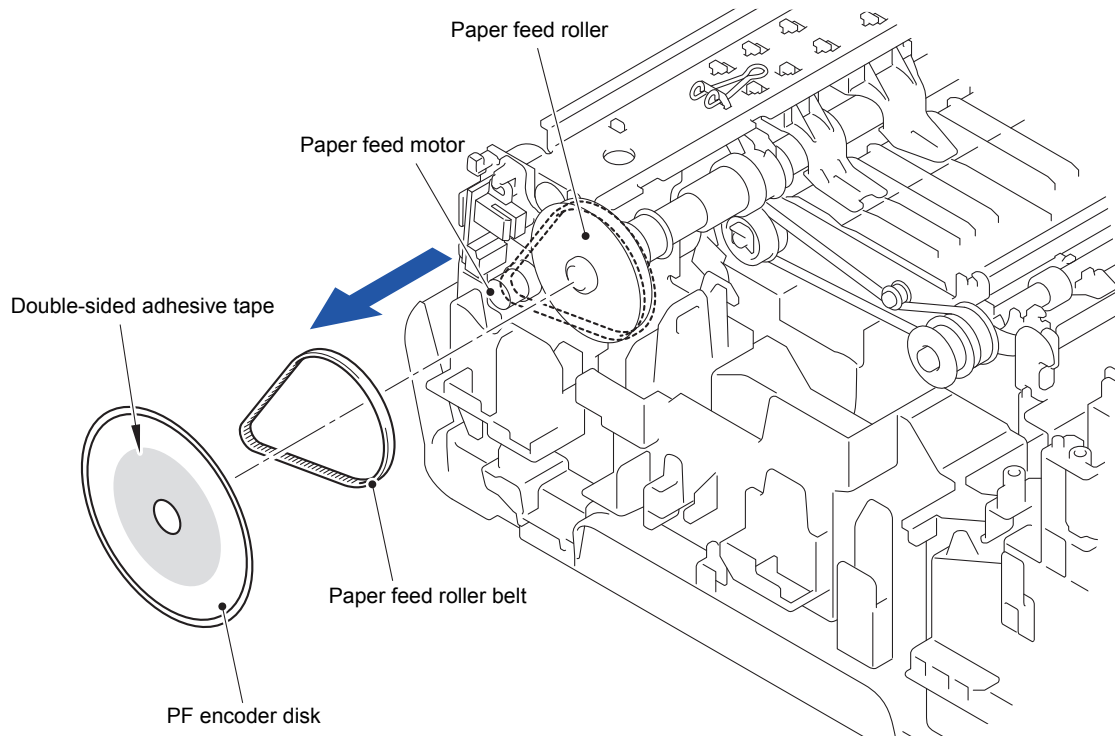


Fig. 3-132

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/registration sensor harness.
- (4) Remove the one screw (SCREW BIND M2x12) and remove the PF encoder sensor holder from the Paper feed motor frame ASSY.
- (5) Remove the PF encoder sensor PCB ASSY from the PF encoder sensor holder.
- (6) Disconnect the PF encoder/registration sensor harness from the PF encoder sensor PCB ASSY.

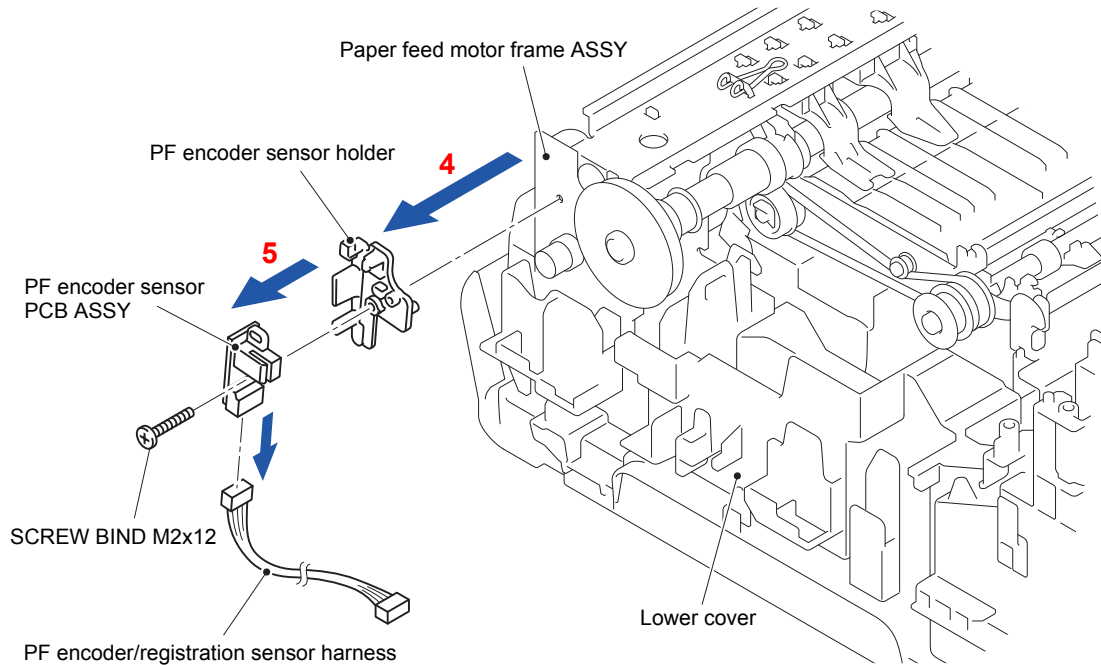


Fig. 3-133

Assembling Note: Mount the PF encoder sensor PCB ASSY as shown in the figure below.

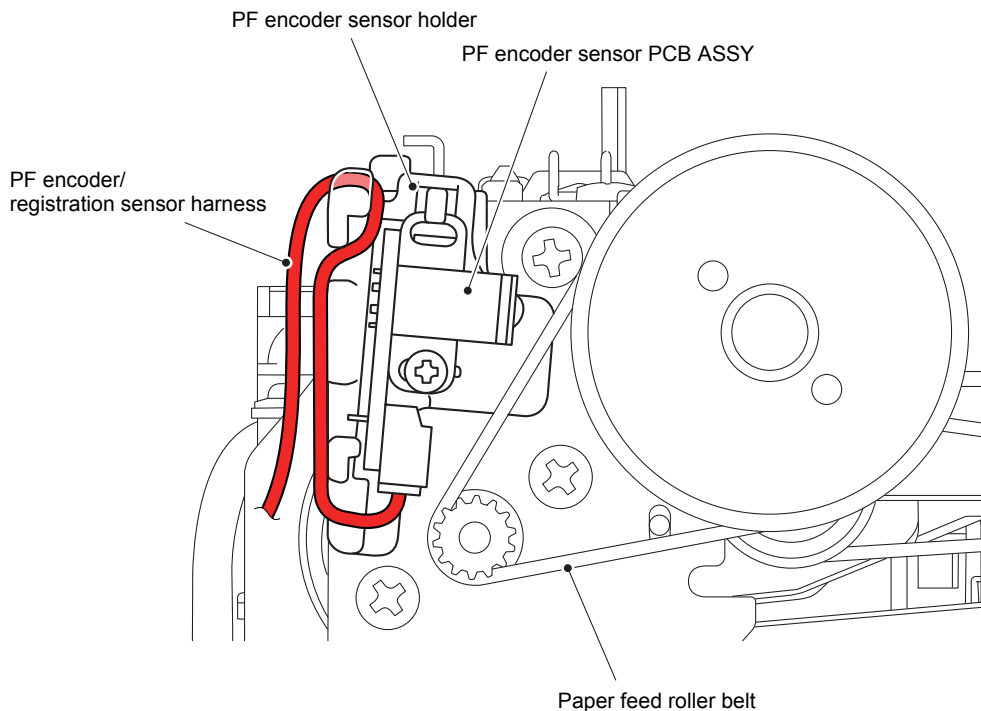


Fig. 3-134

Harness routing: Refer to "**12 Lower cover (Left side)**"

9.56 Paper Feed Motor

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

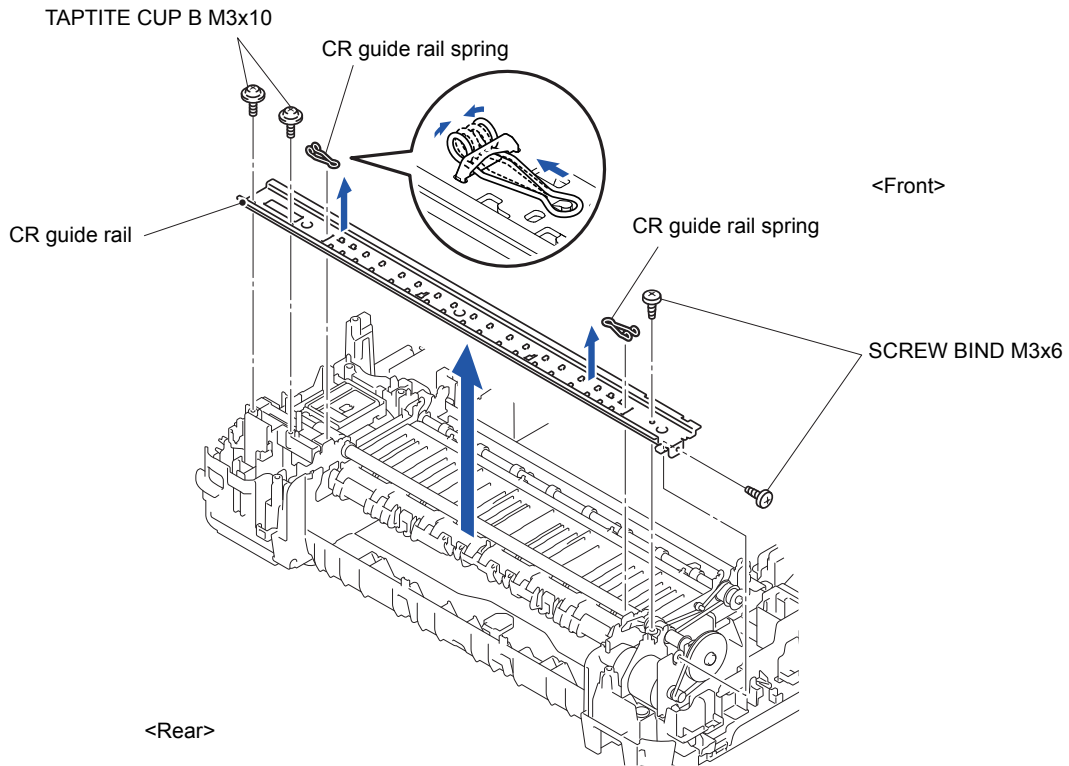
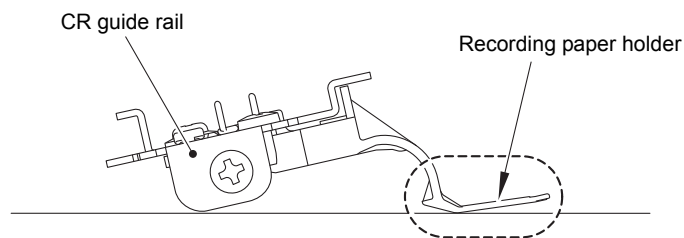


Fig. 3-135

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

Wrong



Correct

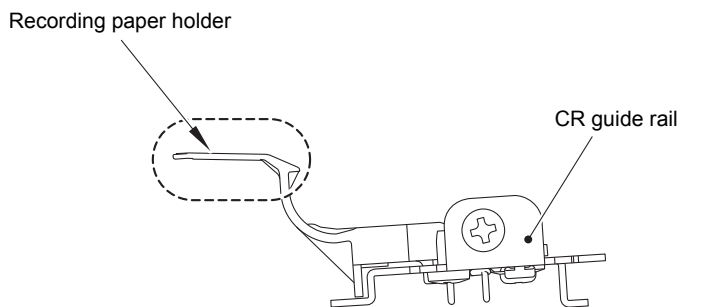


Fig. 3-136

- (4) Release the wiring of the Paper feed motor harness.
- (5) Turn the Bushing in the direction of the arrow 5 to unlock it.
- (6) Remove the Paper feed motor frame ASSY from the Paper feed roller.

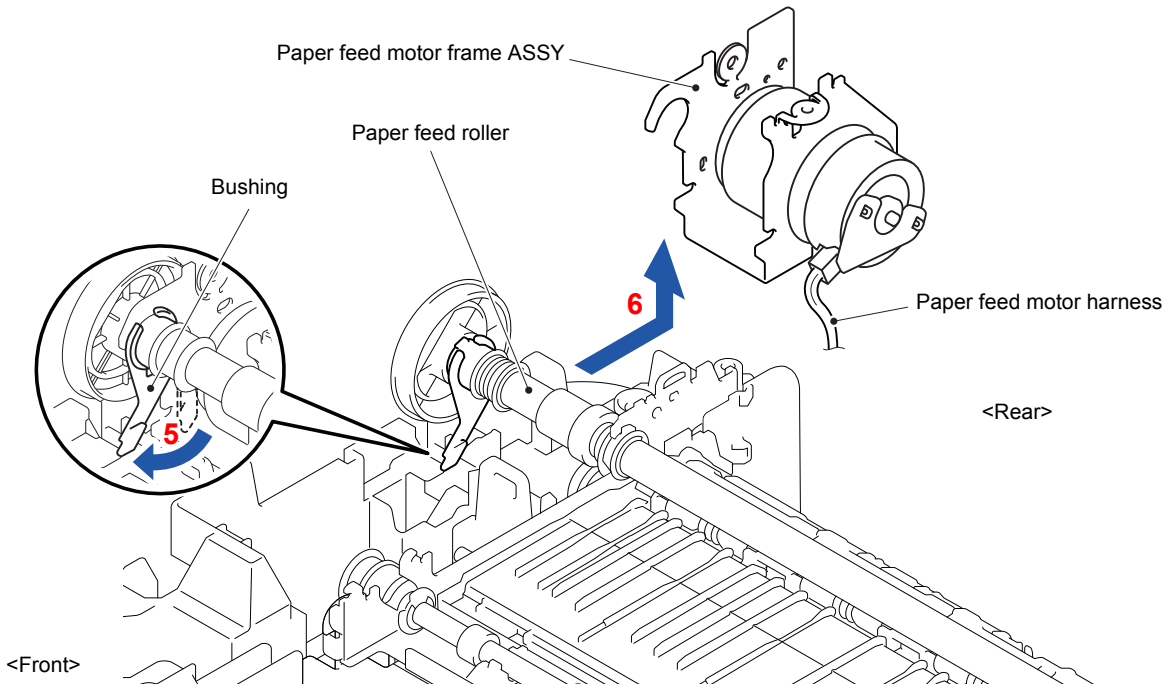


Fig. 3-137

- (7) Remove the two screws (SCREW BIND M3x6) and take off the paper feed motor from the Paper feed motor frame.

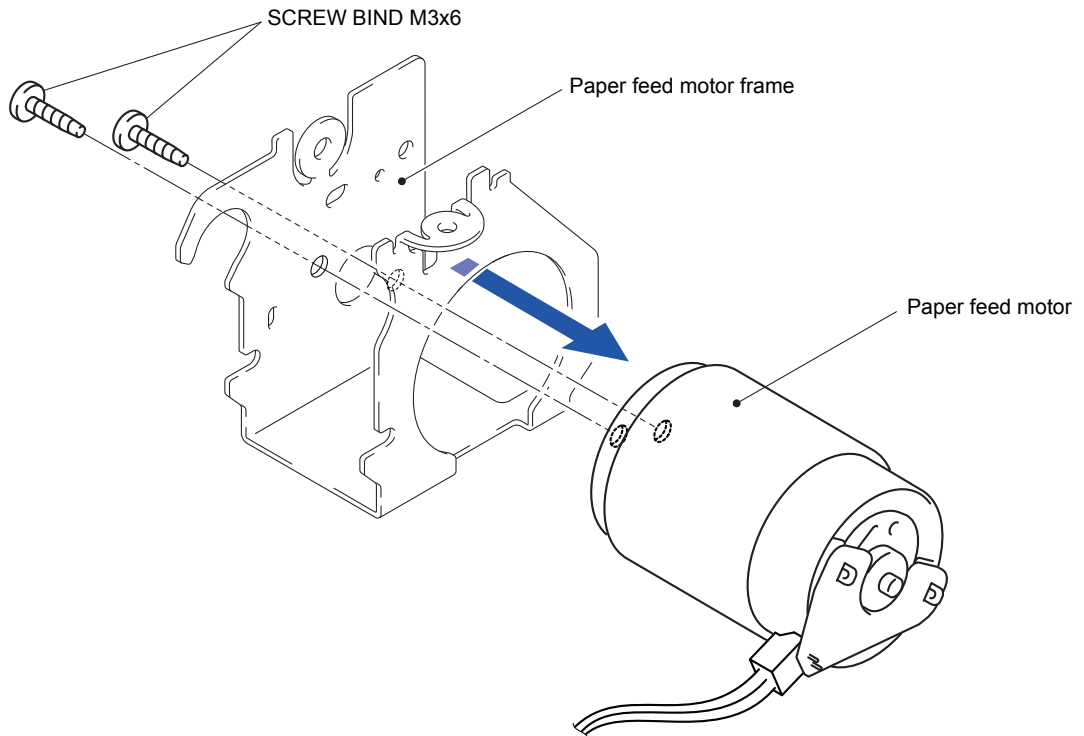


Fig. 3-138

Harness routing: Refer to "[11](#) Paper feed motor", "[12](#) Lower cover (Left side)"

9.57 Paper Feed Roller

- (1) Turn the Bushing in the direction of the arrow 1 to unlock it.
- (2) Turn the Bushing in the direction of the arrow 2 to unlock it.
- (3) Remove the Paper feed roller.

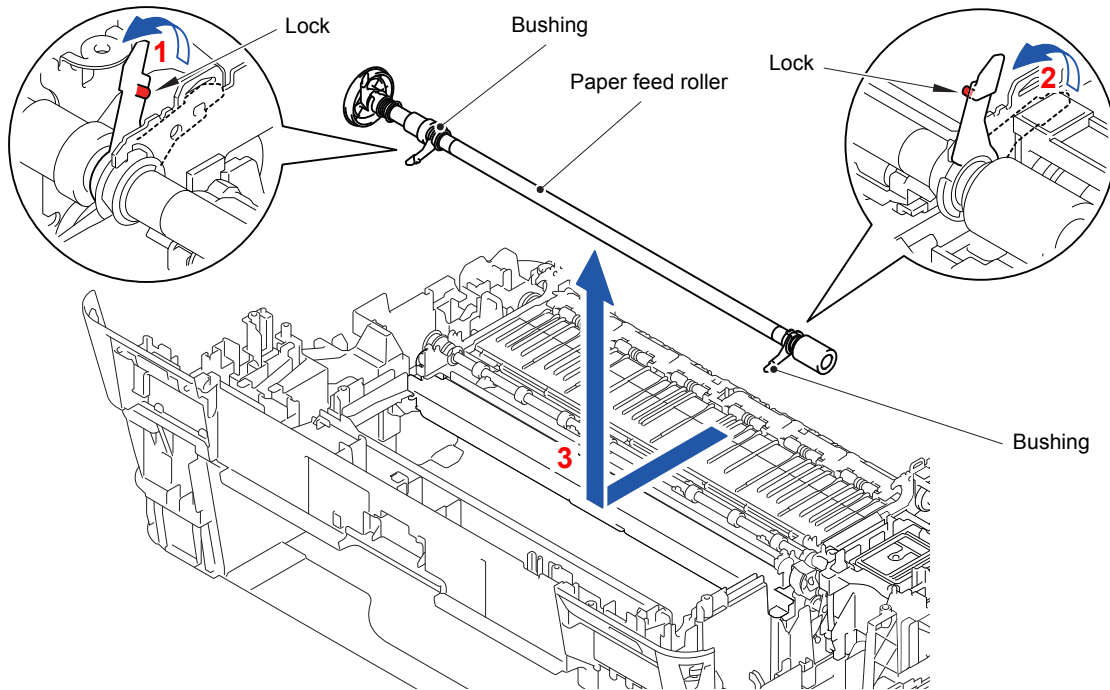


Fig. 3-139

9.58 Paper Ejection Roller and Platen

- (1) Remove the Paper feed roller belt from the Frame base and Paper ejection roller.
Note: Be careful not to lose the Idle pulley.

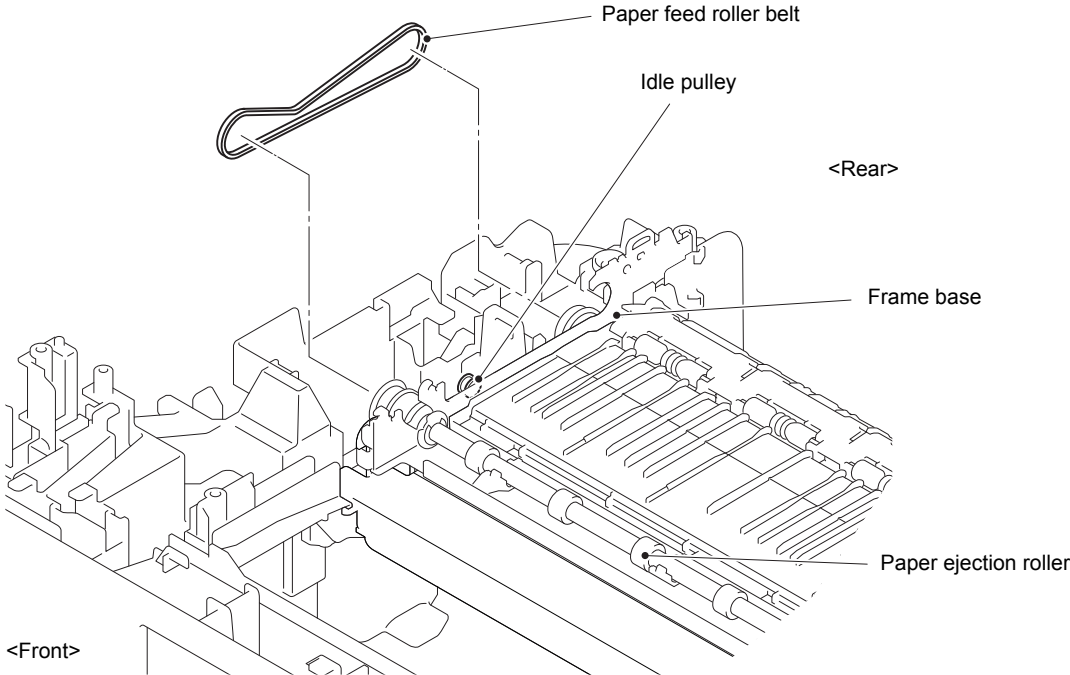


Fig. 3-140

(2) Hold the section "A" and remove the Paper ejection roller and Platen.

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

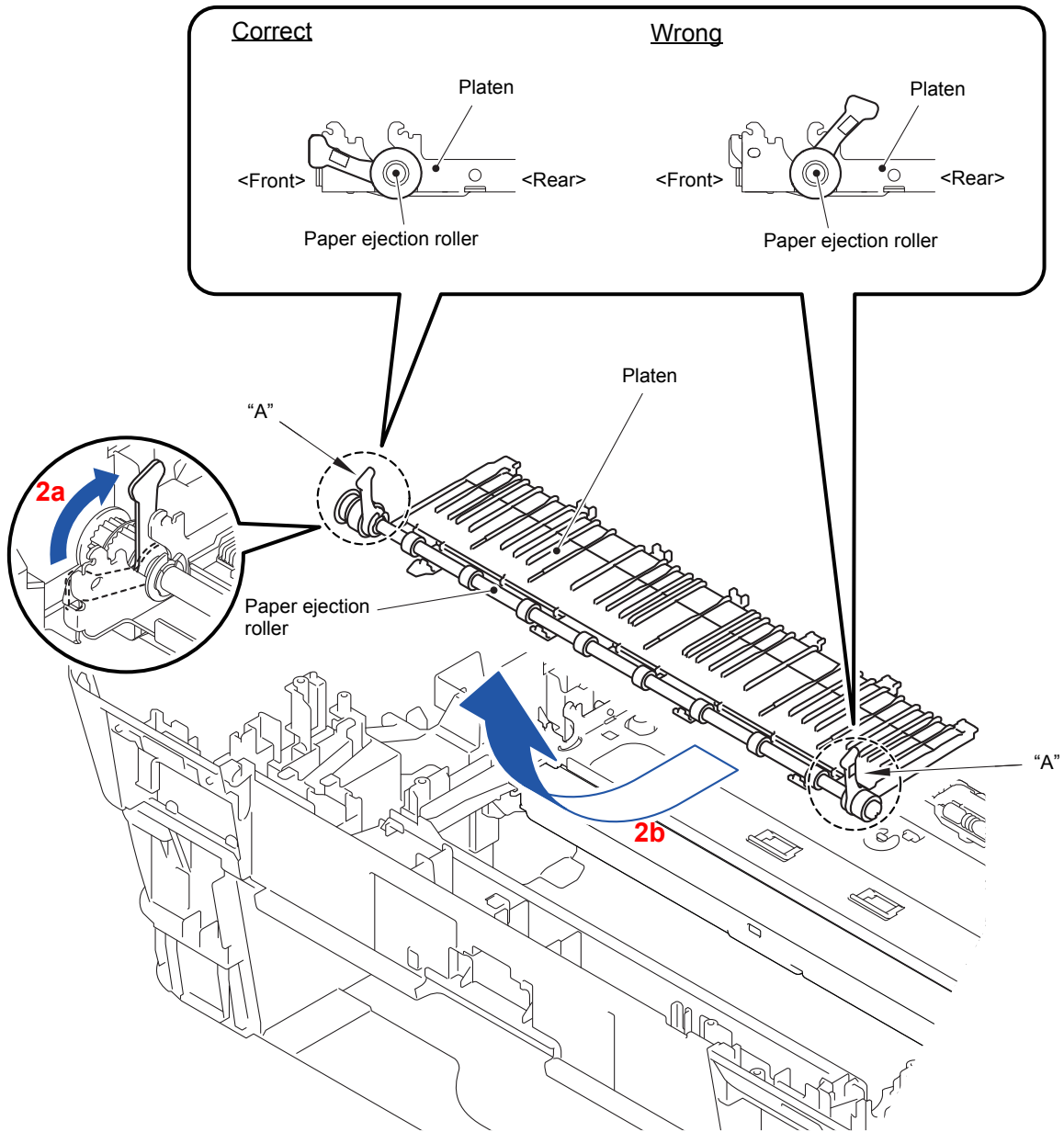


Fig. 3-141

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



Fig. 3-142

- (3) Release the four Hooks on the Platen and remove the Paper ejection roller from the Platen.
- (4) Remove the three Platen springs from the Platen.

Assembling Note: The two Platen springs at the both ends may be mounted more inside from the ones indicated in the illustration below depending on the model and production year.

Mount them to the original positions.

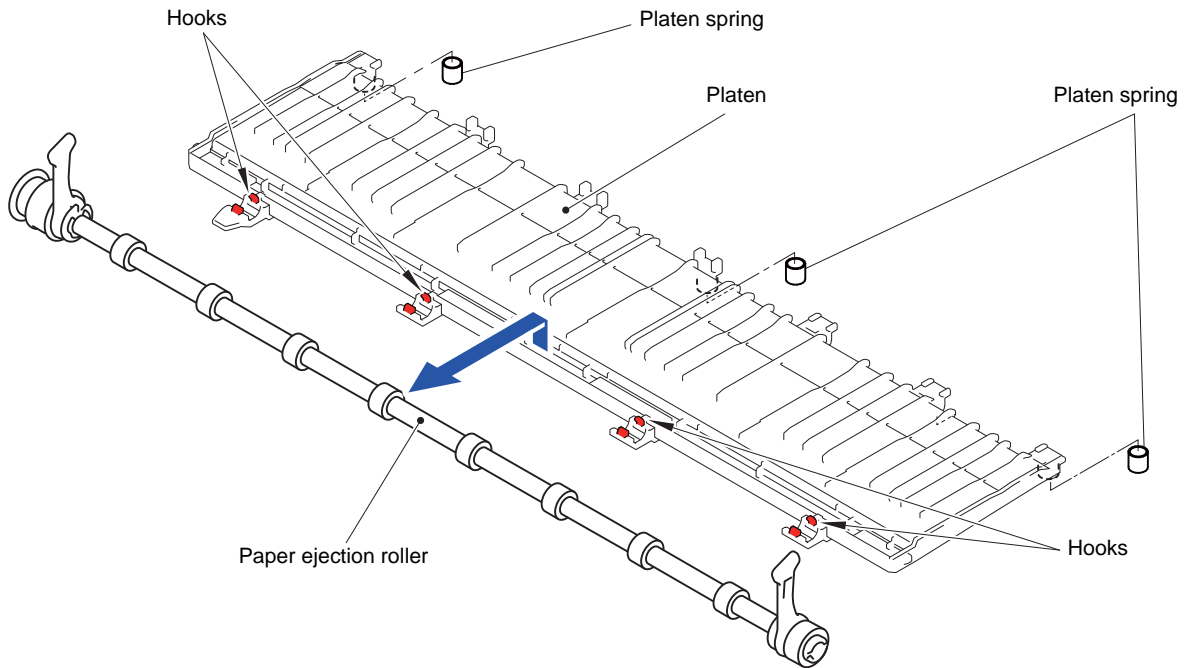


Fig. 3-143

9.59 Maintenance Unit and Ink Absorber Felt (for Maintenance Unit)

- (1) Release the wiring of the Purge cam sensor harness.
- (2) Release the Air vent tube and Drain tube from the Lower cover.
- (3) Remove the Maintenance unit.
- (4) Remove the Ink absorber felt (for maintenance unit).

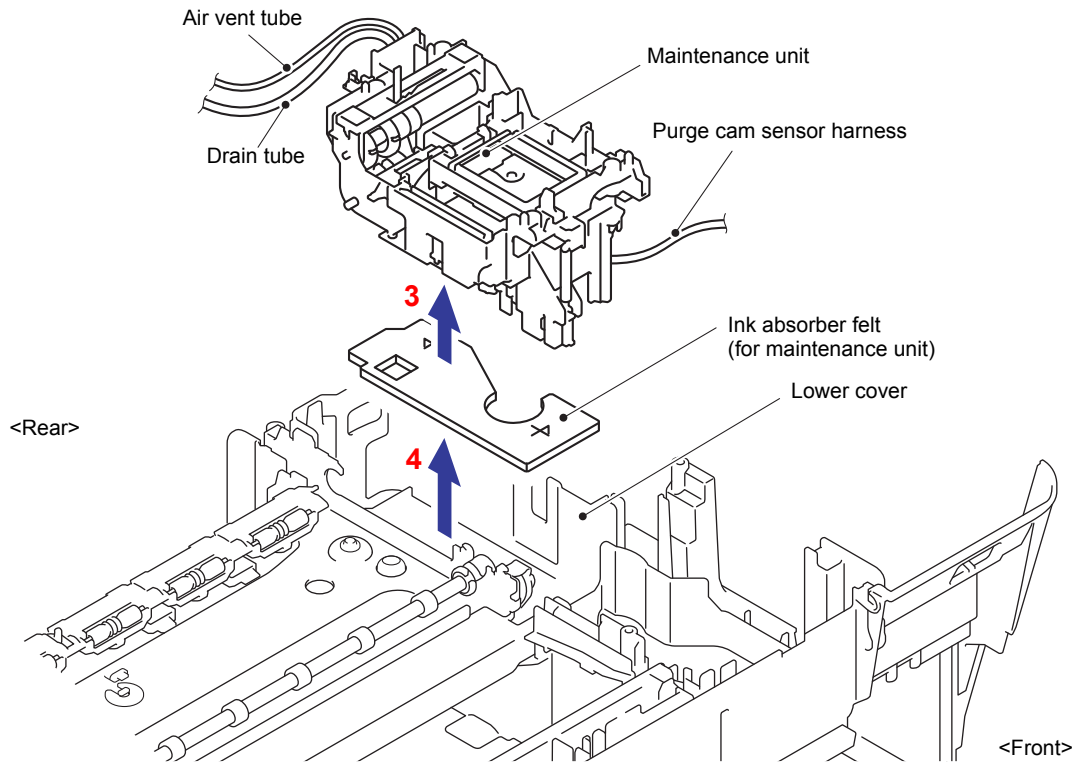


Fig. 3-144

Harness routing: Refer to "**7** Lower cover (Right side)", "**9** Air vent tube and drain tube"

9.60 Inner Chute ASSY

- (1) Take off the Gear shift prevention block.
- (2) Release the wiring of the Registration sensor harness.
- (3) Remove the Resin retaining ring from the Frame base.
- (4) Remove the one screw (TAPTITE CUP B M3x10) to release the Engine FG wire from the Frame base.
- (5) Remove the two screws (TAPTITE CUP B M3x10) and remove the Frame base.

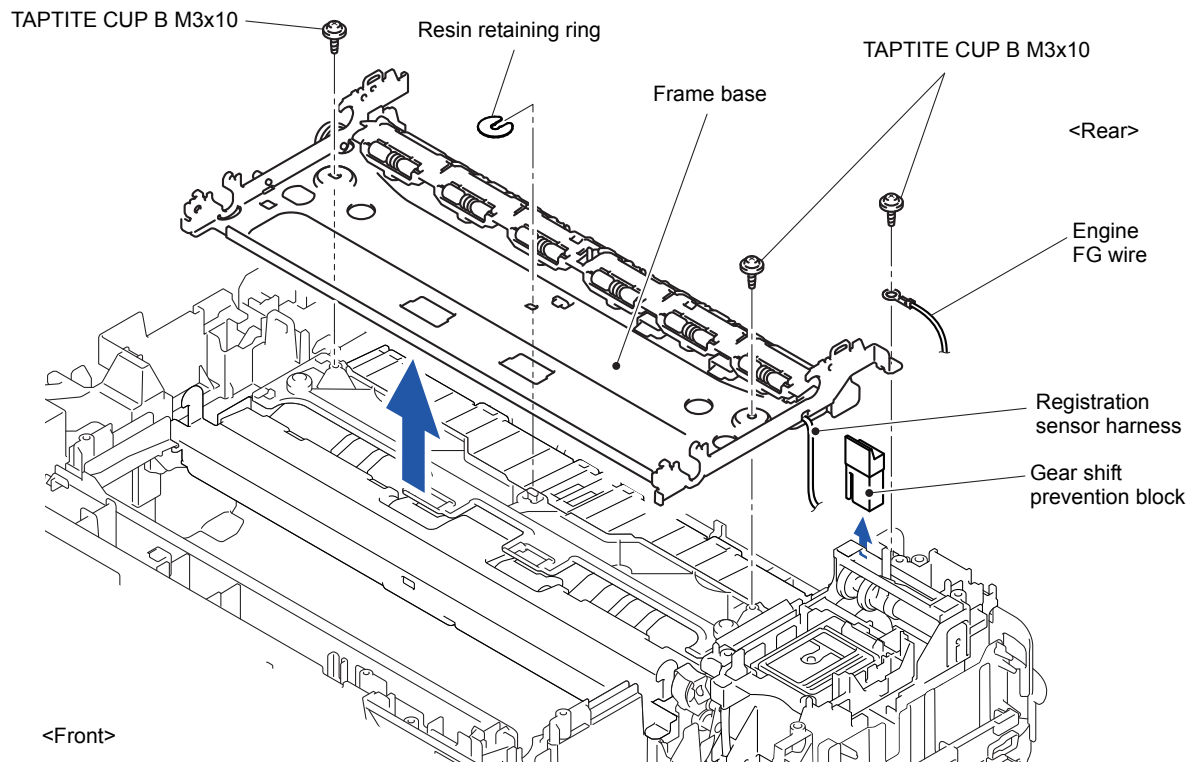


Fig. 3-145

(6) Release the Boss and remove the DX paper guide ASSY from the Frame base.

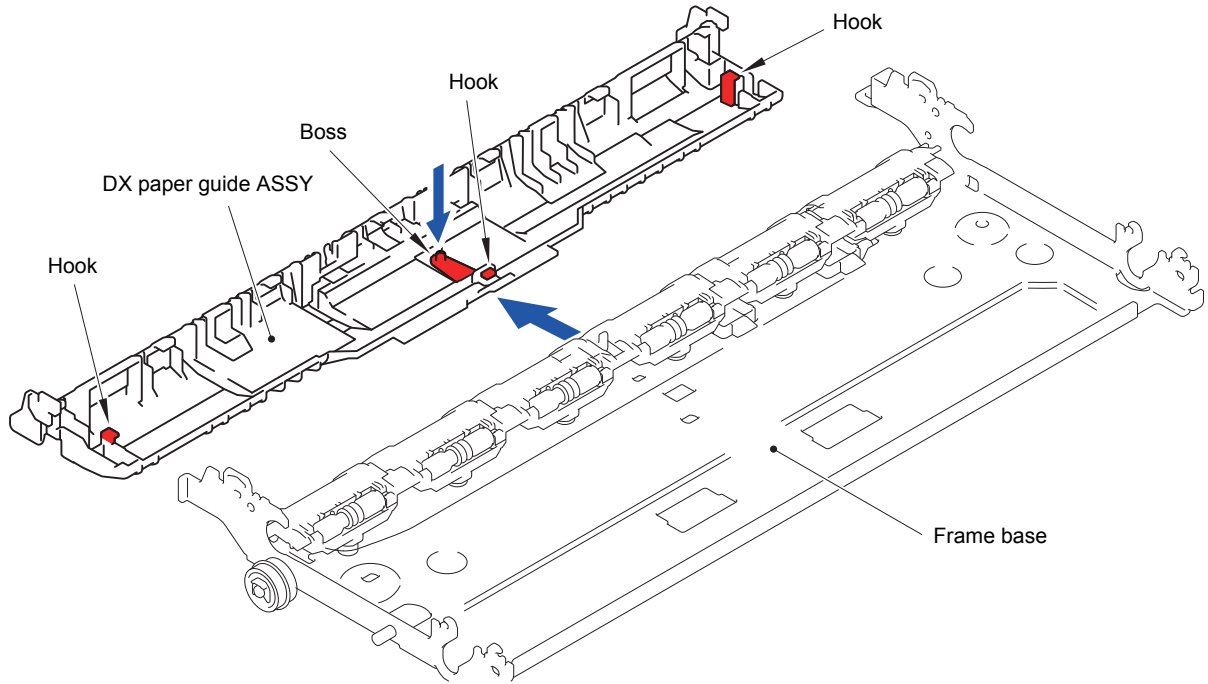


Fig. 3-146

(7) Remove the Inner chute ASSY from the Frame base.

Note: Be careful not to lose the Pressure roller spring.

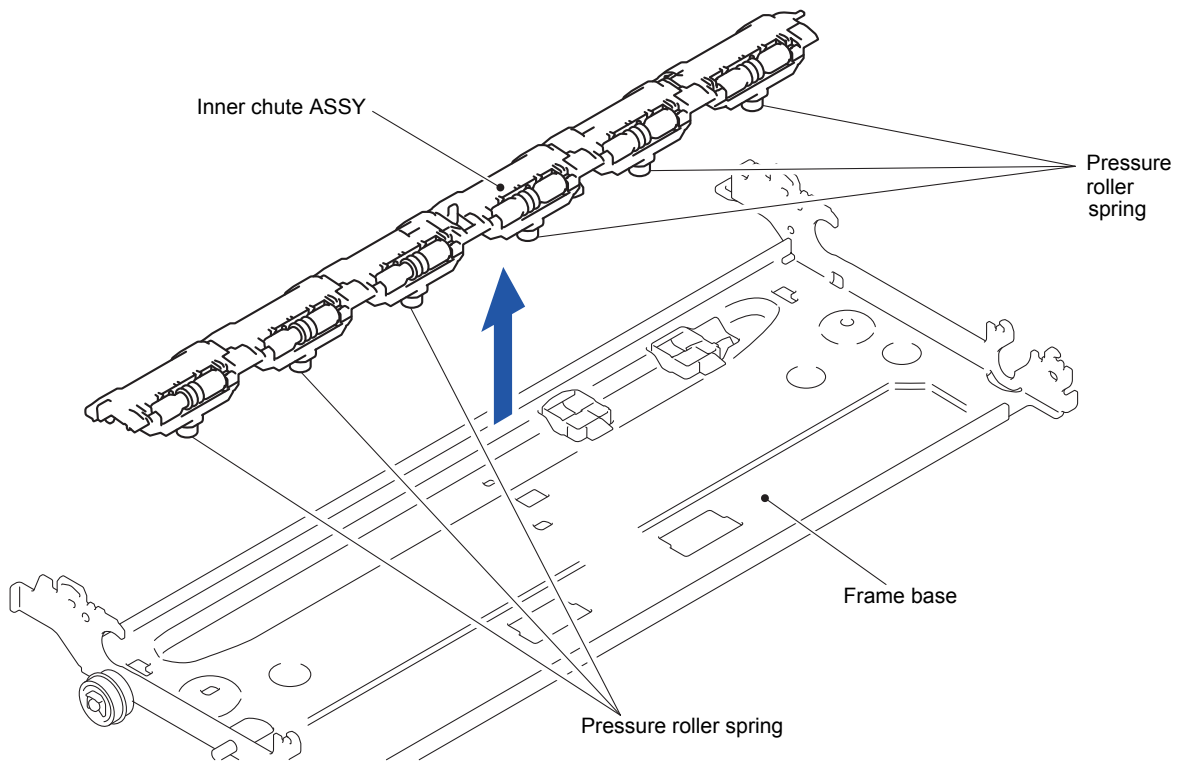


Fig. 3-147

Assembling Note:

- 1) Assemble the Inner chute ASSY to the Frame base so that the actuator of the Inner chute ASSY works correctly against the Registration sensor PCB ASSY of the Frame base.
- 2) The state of the Assembling Note: 1) must be maintained when the DX paper guide ASSY is assembled.

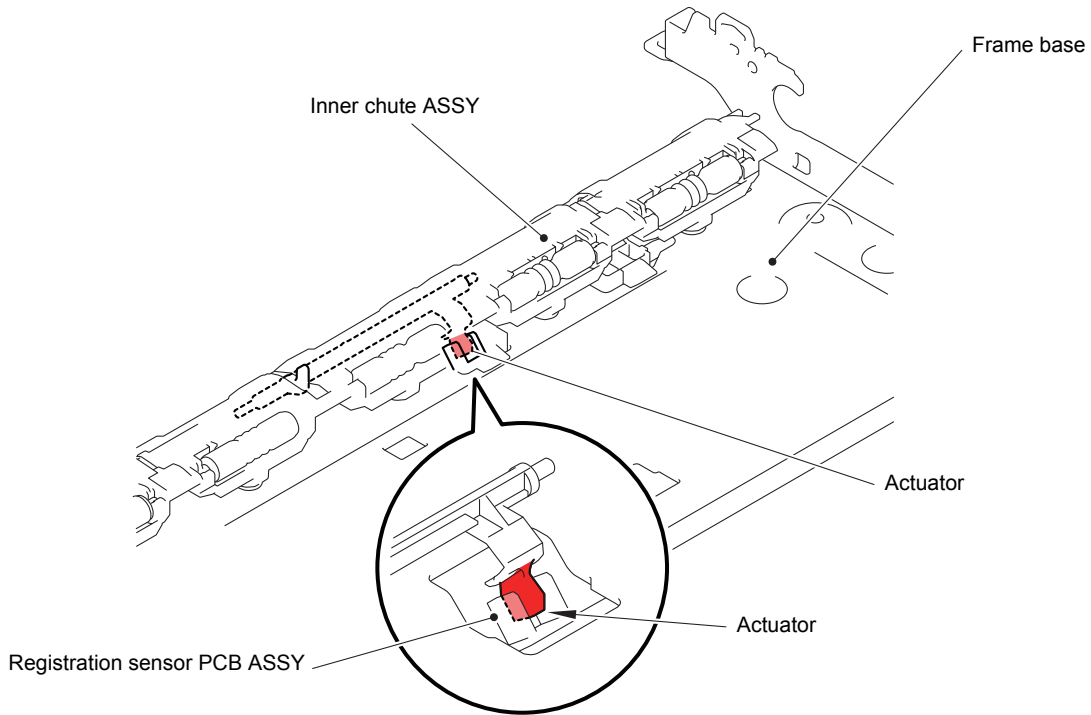


Fig. 3-148

Harness routing: Refer to "**6** Registration sensor harness", "**7** Lower cover (Right side)"

9.61 Registration Sensor PCB ASSY

- (1) Release the three Hooks and remove the Registration sensor holder from the Frame base.

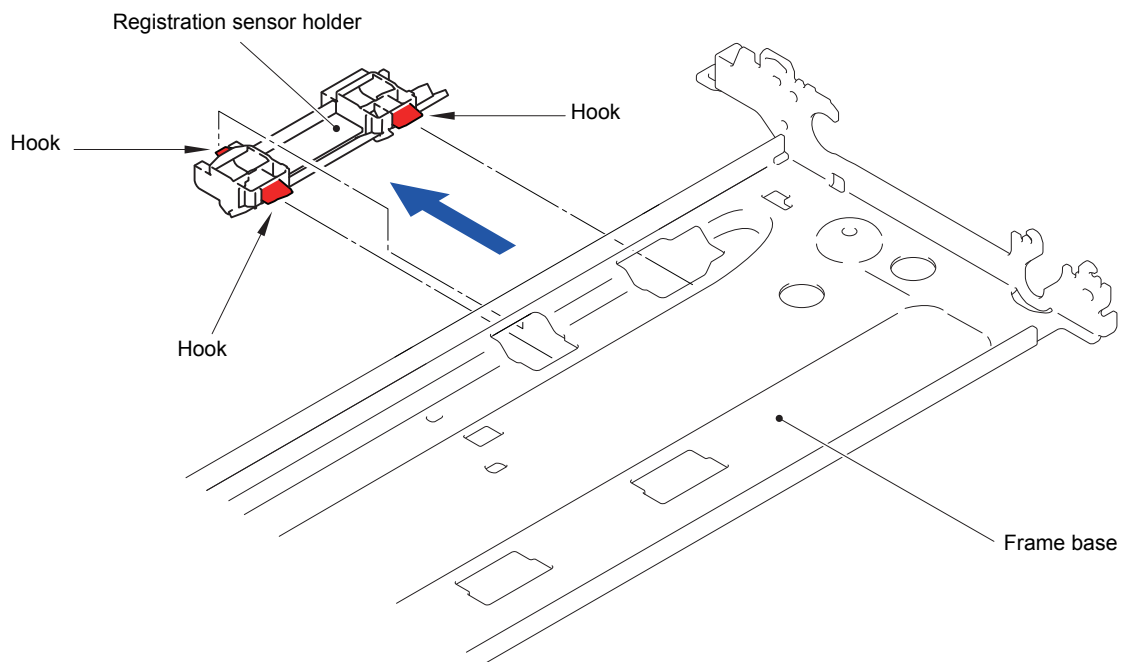


Fig. 3-149

- (2) Release the Registration sensor harness from the Hook.
- (3) Release the two Hooks and remove the Registration sensor PCB ASSY from the Registration sensor holder.

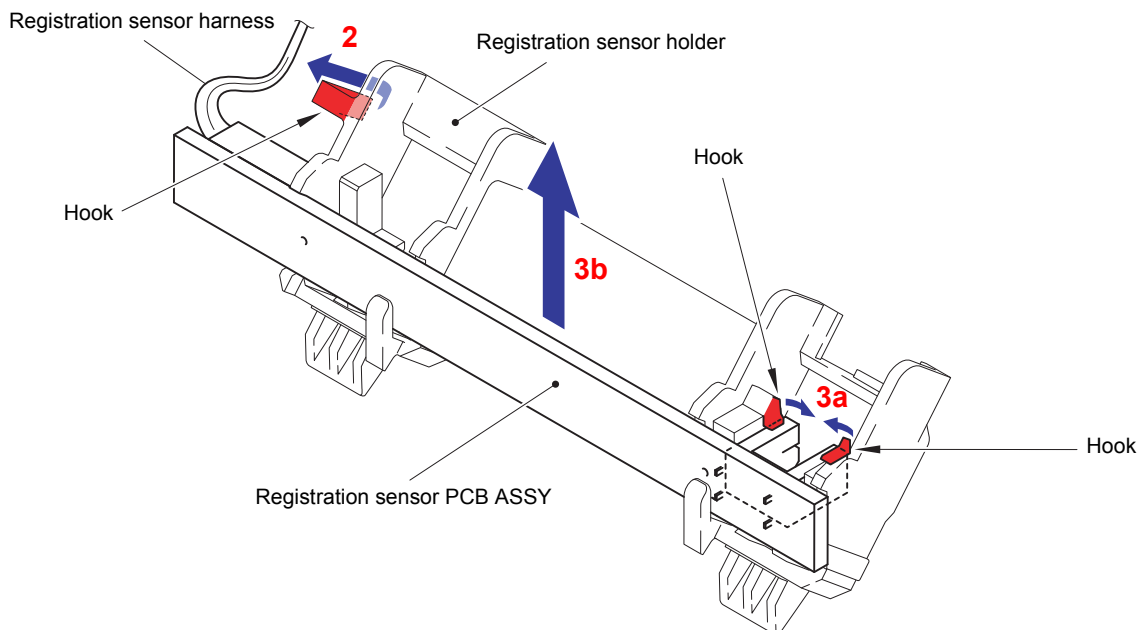


Fig. 3-150

9.62 T1 Paper Pull-in Roller

(1) Remove the two screws (TAPTITE CUP B M3x10) and remove the DX chute.

Note: Be careful not to lose the Gear shown in the figure.

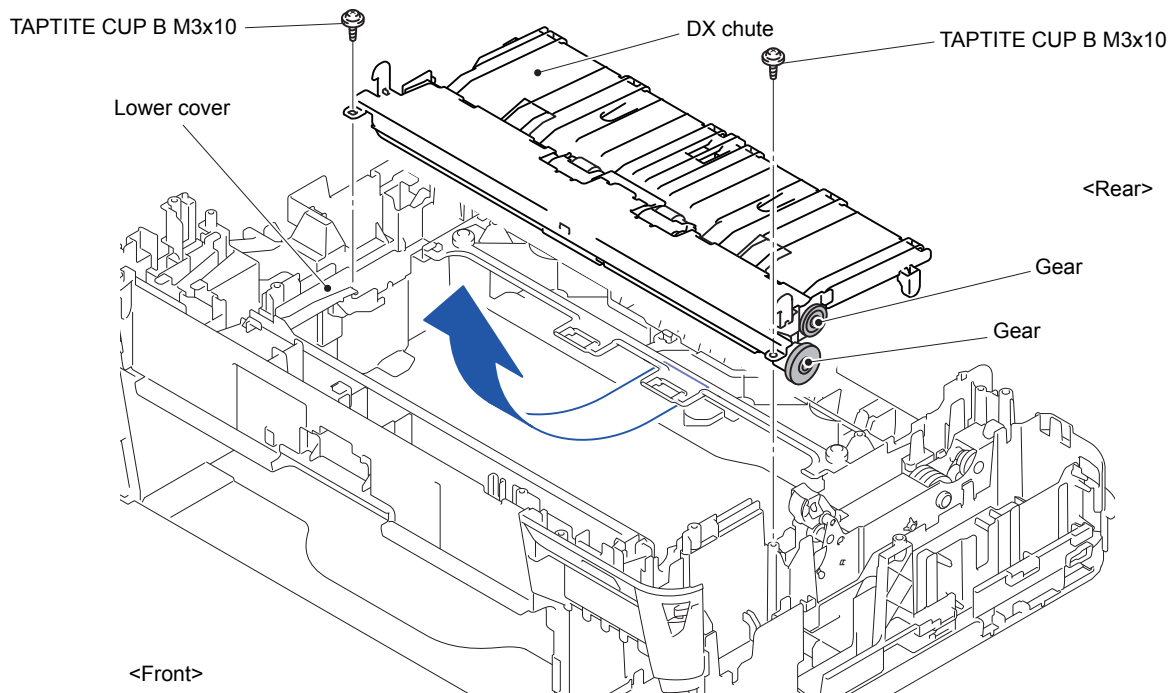


Fig. 3-151

(2) Release the four Hooks and remove the Paper pull-in roller holder from the DX chute.

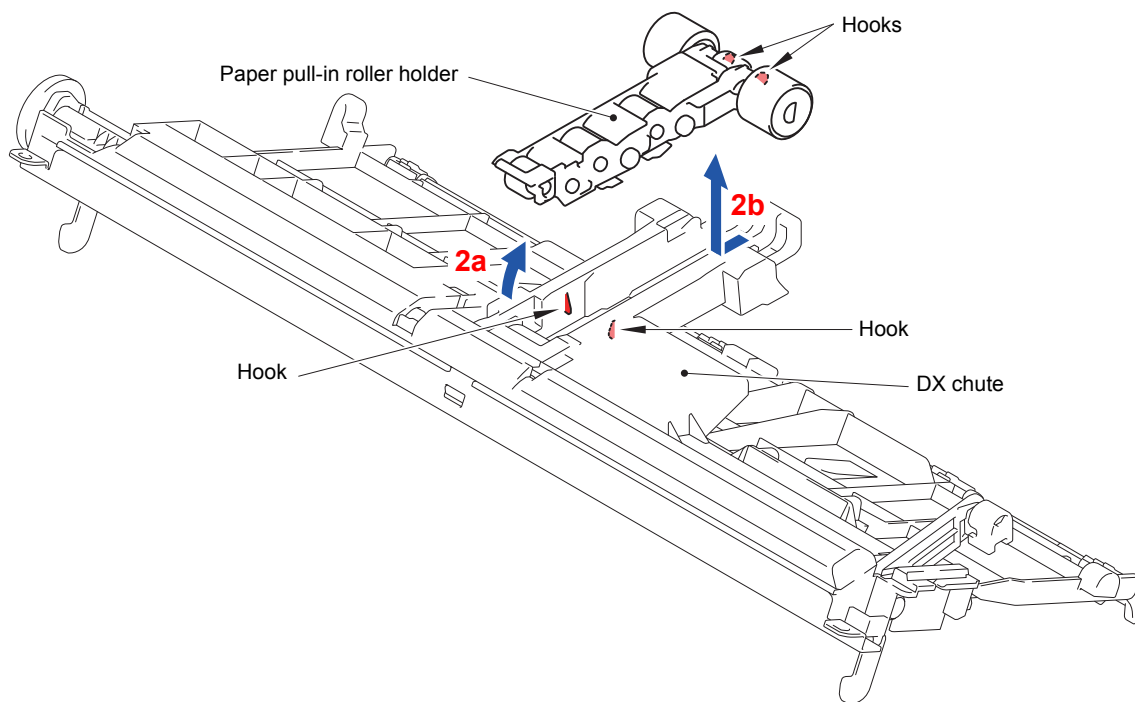


Fig. 3-152

- (3) Remove the two T1 paper pull-in rollers and ASF gear from the Paper pull-in roller holder.
- (4) Remove the two T1 paper pull-in rollers from the ASF gear.

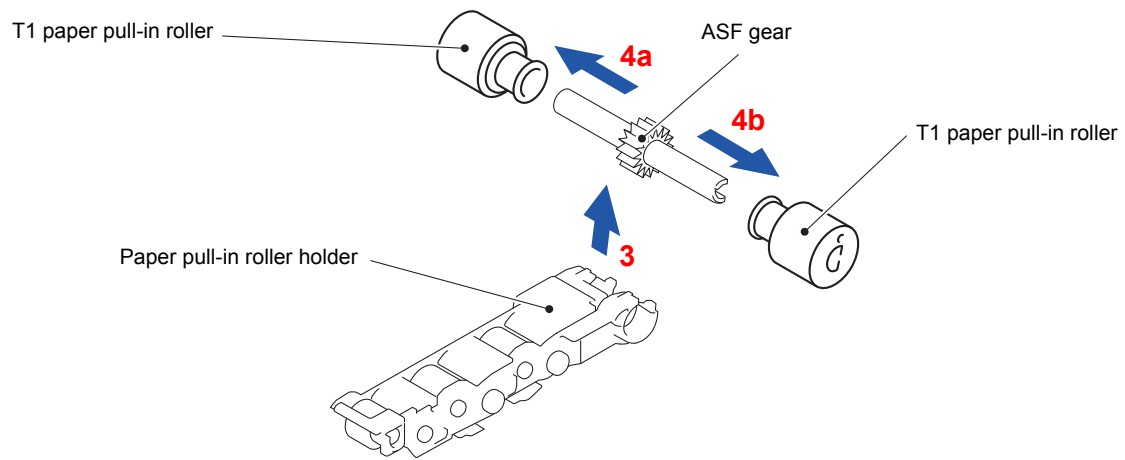


Fig. 3-153

9.63 T2 Bank ASSY

- (1) Remove the two screws (TAPTITE CUP B M3x8) from the Lower tray frame.
- (2) Release the two Hooks and remove the Lower tray frame from the Lower tray unit.

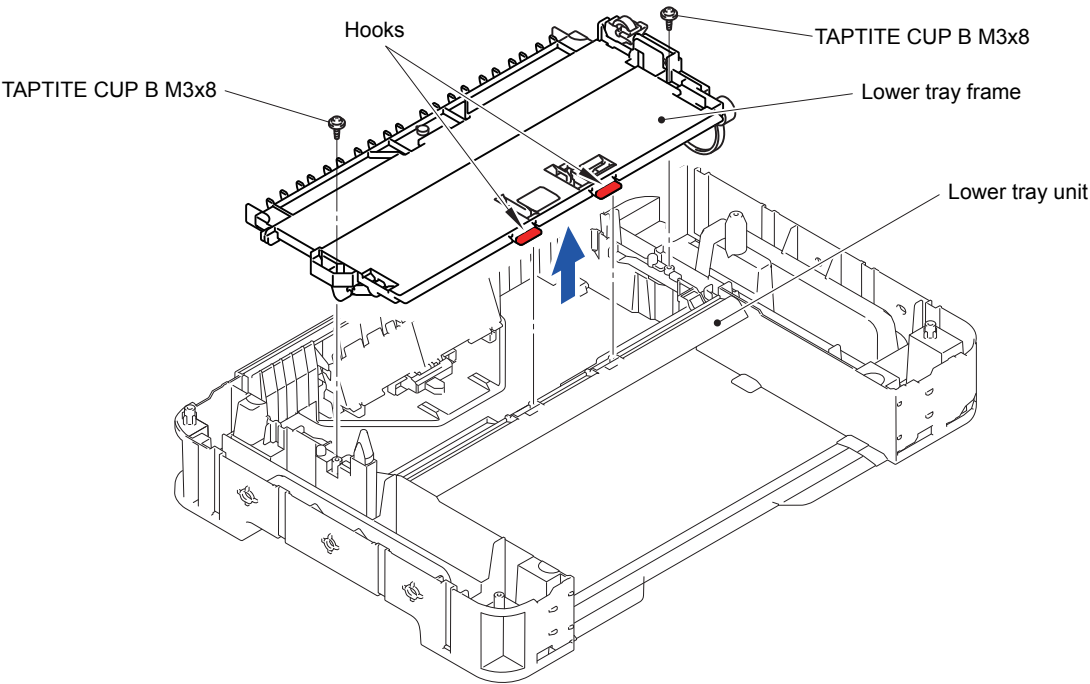


Fig. 3-154

- (3) Release the four Hooks and remove the T2 bank ASSY from the Lower tray unit.

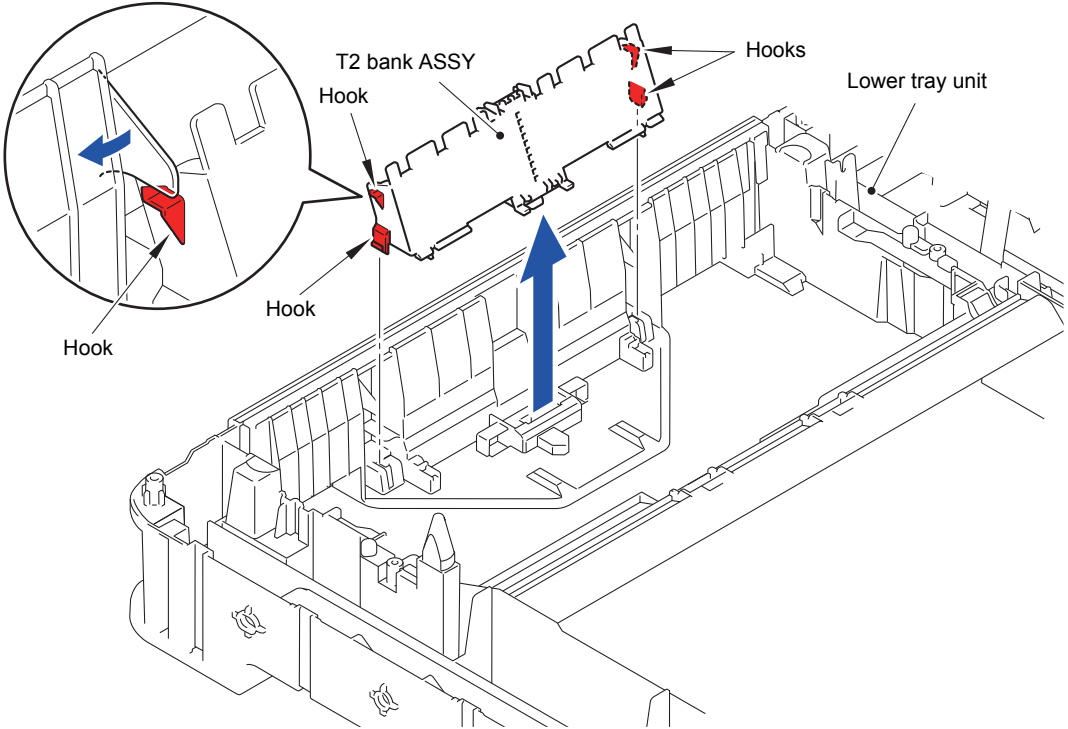


Fig. 3-155

9.64 T2 Paper Pull-in Roller

- (1) Release the four Hooks and remove the Paper pull-in roller holder from the Lower tray frame.

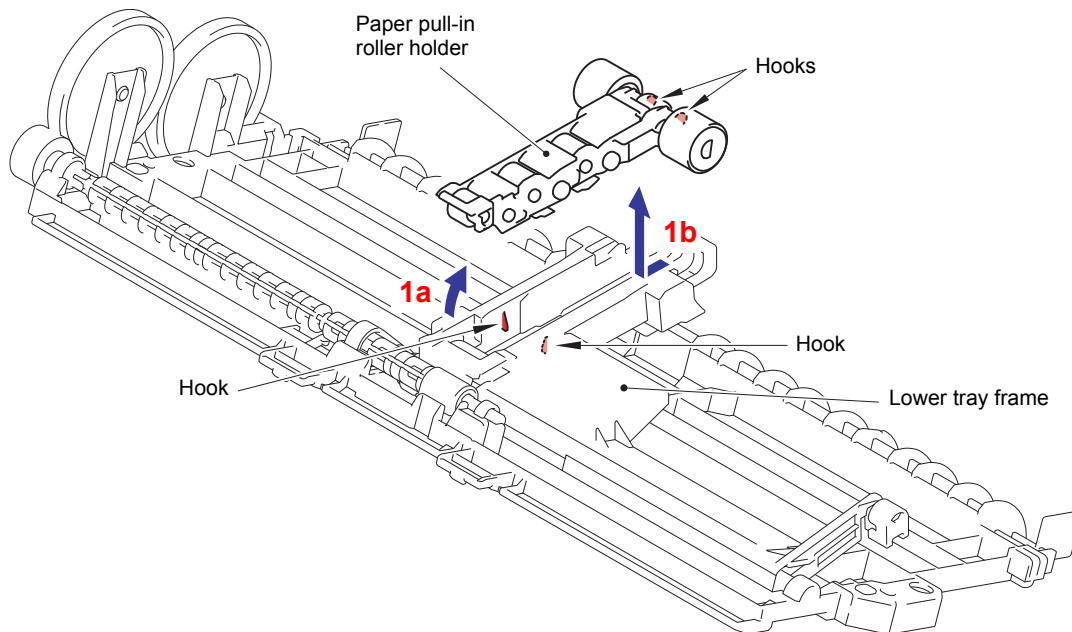


Fig. 3-156

- (2) Remove the two T2 paper pull-in rollers and ASF gear from the Paper pull-in roller holder.
- (3) Remove the two T2 paper pull-in rollers from the ASF gear.

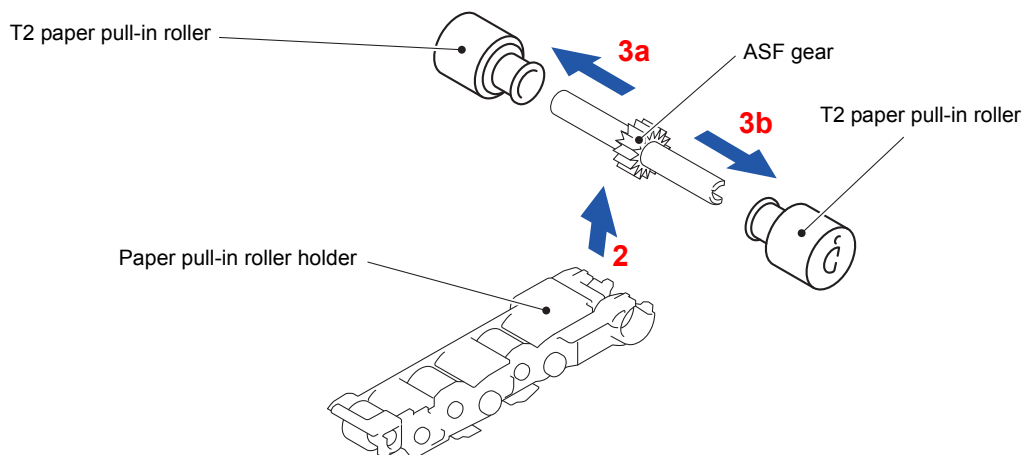


Fig. 3-157

9.65 Base Pad

(1) Peel off the Base pad from the Paper tray 1.

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

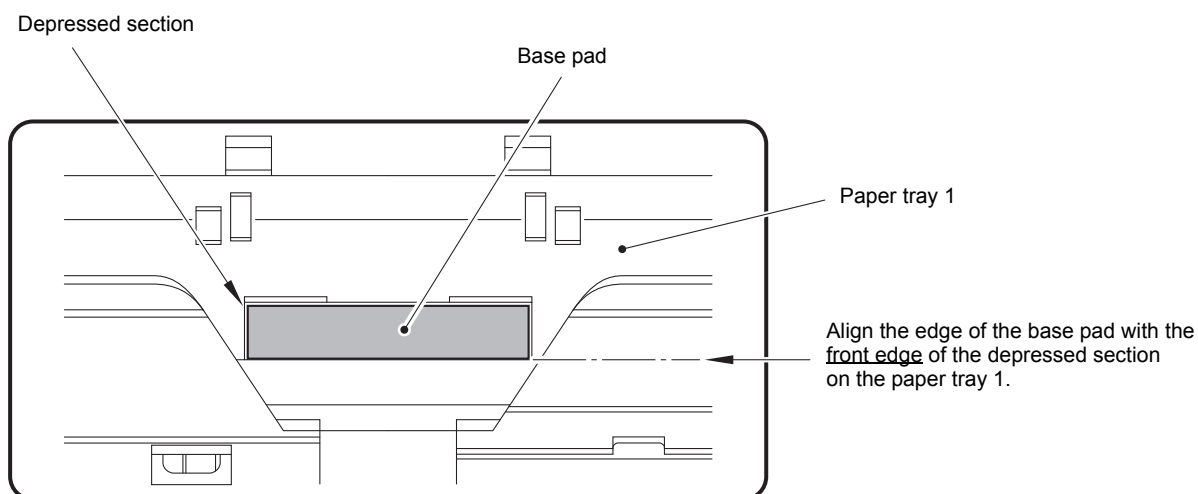
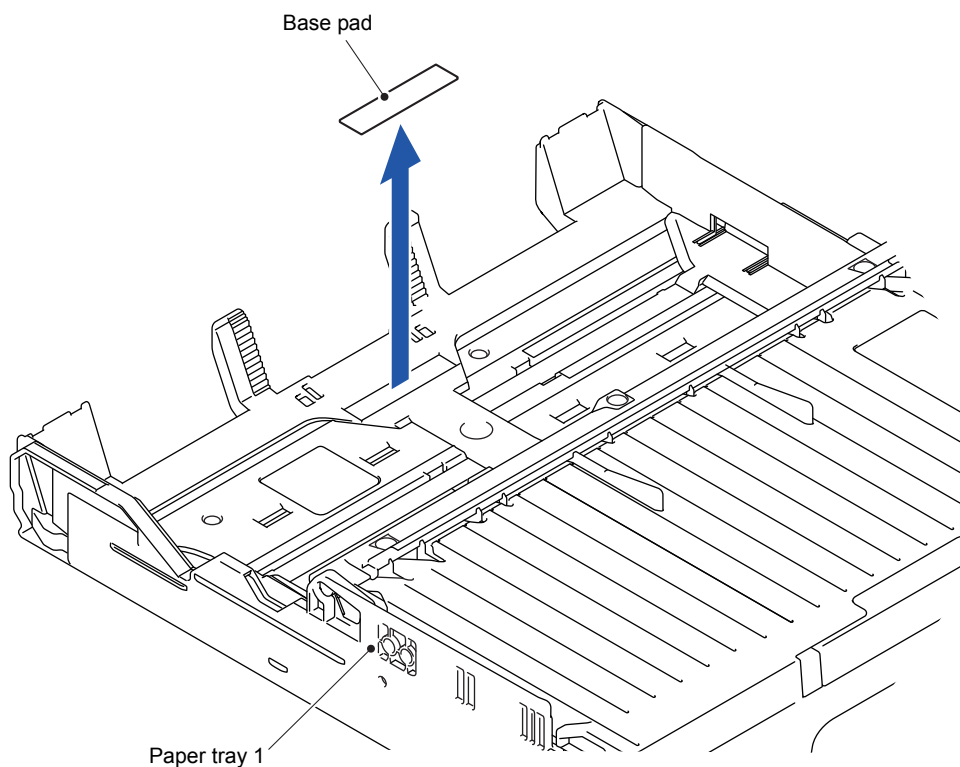


Fig. 3-158

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 1 and center the pad widthways as shown above.

(2) Peel off the Base pad of the Paper tray 2 in the same way.

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

1 IF YOU REPLACE THE MAIN PCB ASSY

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 Update the head property data (Maintenance mode 68)
- 1.8 Restore machine information (Maintenance mode 46)
- 1.9 Adjust the touch panel (Maintenance mode 78)
- 1.10 Acquisition of white/black 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® 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_BHM13.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: pfdj1_A4_BHM13.prn/pfdj2_A4_BHM13.prn)
(For letter-sized paper: pfdj1_LTR_BHM13.prn/pfdj2_LTR_BHM13.prn)
- (11) Print data for adjusting margins in borderless printing
(For A4-sized paper: mediaadj_A4_BHM13.prn)
(For letter-sized paper: mediaadj_LTR_BHM13.prn)
- (12) Print data for writing head calibration data
(head_calib1_BHM13.prn/head_carib2_BHM13.prn)
- (13) ADF copy chart data (chart_BHM13.prn)

1.1 Customize destinations (Maintenance mode 74)

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

If "Please DL ROM" 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 "Checking of CIS Travel and Setting of CIS Type."](#)

If "Please DL ROM" 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 "Please DL ROM" 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 "Updating of Firmware Using an External Memory."](#)

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 2.1 "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 "EEPROM Parameter Initialization."](#)

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 "Updating of Head Property Data and Backup/ Restoration of Head Calibration Data."](#)

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

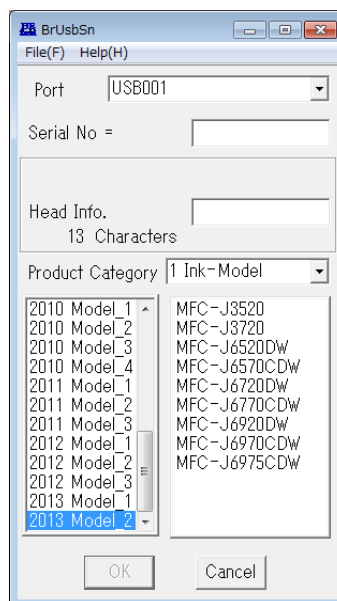
1.6 Set the serial number (Maintenance mode 80)

Set the serial number, referring to [Chapter 5, Section 1.3.32 "Display of the Equipment's Log."](#)

The serial number can also be set with the service setting tool (BrUsbSn.exe) that enables the head property data to be updated ([Section 1.7 "Update the head property data"](#)) 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.

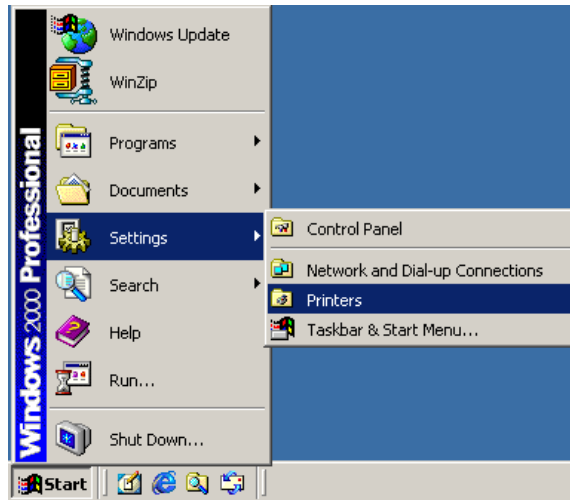


- (4) In **Product Category**, select **1 Ink-Model**.
- (5) Select **2013 Model_2**.

- (6) In **Port** on the BrUsbSn screen, select the port number assigned to the Brother Maintenance USB Printer.

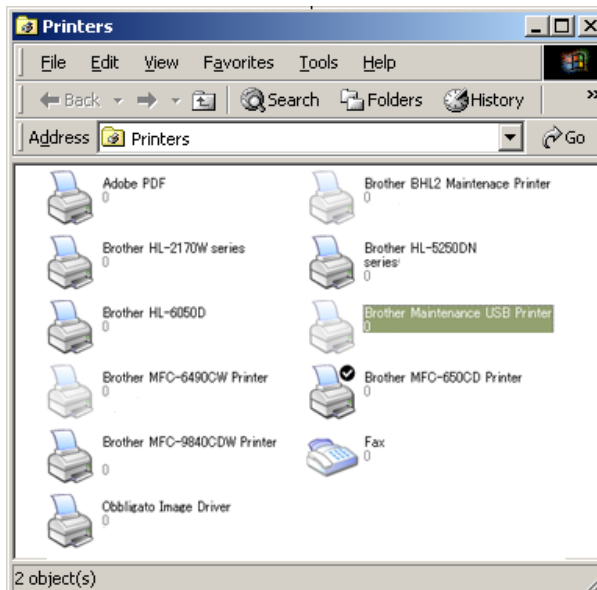
If the port number is unknown, follow steps 1) through 4) below.

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

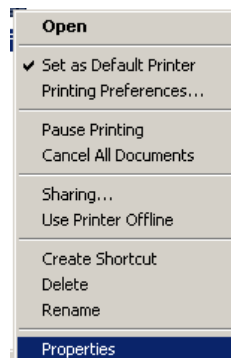


The Printers window appears as shown below.

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

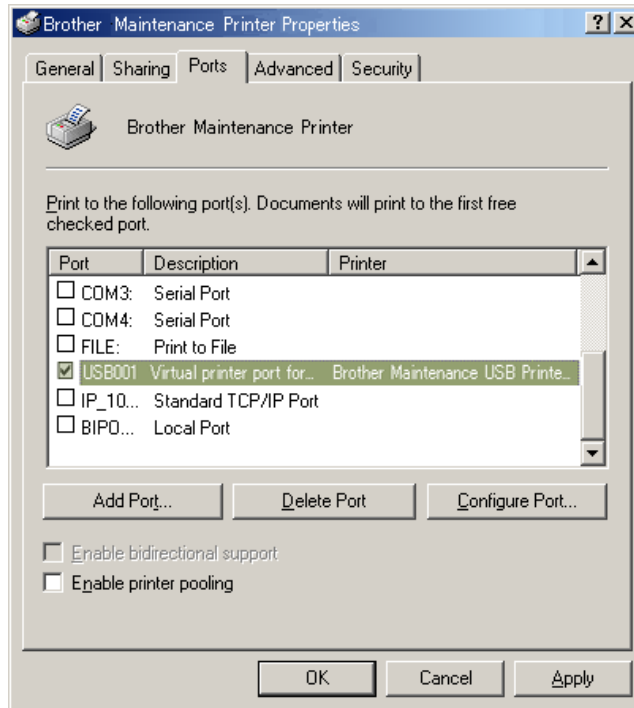


- 3) Click **Properties**.



The Brother Maintenance 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 data is printed on the bar code label attached to the head/carriage unit.



Head property data

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 head 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 data and check that the entered data is correct.

1.7 Update the head property data (Maintenance mode 68)

Update the head property data, referring to [Chapter 5, Section 1.3.25 "Updating of Head Property Data and Backup/Restoration of Head Calibration Data."](#)

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

1.8 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 "Backup of Machine Information."](#)

If the machine information is successfully restored, it is not necessary to perform operations given in Sections 1.9 to 1.14.

If the machine has failed to backup 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 "Reset purge and flushing counts."

1.9 Adjust the touch panel (Maintenance mode 78)

Adjust the touch panel, referring to [Chapter 5, Section 1.3.31 "Adjustment of Touch Panel."](#)

1.10 Acquisition of white/black level data (Maintenance mode 55)

Acquire white level data, referring to [Chapter 5, Section 1.3.17 "Acquisition of White/Black Level Data and CIS Scanner Area Setting."](#)

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 "Adjustment of Vertical Print Lines/Software Correction for Inclination/Corrugation/Ruled Lines."](#)

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

Refer to [Chapter 5, Section 1.3.19 "Updating of Paper Feeding Correction Values."](#)

1.13 Adjust margins in borderless printing (Maintenance mode 66)

Refer to [Chapter 5, Section 1.3.24 "Margin Adjustment in Borderless Printing."](#)

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, 500 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 "Creating of Head Calibration Data and Writing it into Flash ROM."](#)

1.16 Check scanning and printing

To make a final check after replacement of the main PCB ASSY, 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 "Updating of Paper Feeding Correction Values."](#)

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

Check the test patterns, refer to [Chapter 5, Section 1.3.23 "Adjustment of Vertical Print Lines/Software Correction for Inclination/Corrugation/Ruled Lines."](#)

Adjusting margins in borderless printing

Check the test patterns, referring to [Chapter 5, Section 1.3.24 "Margin Adjustment in Borderless Printing."](#)

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_BHM13.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, and the machine returns to the standby state.
- (5) Set the printed ADF copy chart facing up into the ADF.
- (6) Press the **Copy** key, set the copy quality mode to "Normal" and press the **Color Start** key to copy the ADF copy chart.

Note: - Check that the ADF copy chart does not skew.

- During copying, do not touch the ADF copy chart to prevent printed images from displacement.

- (7) Check the copied chart, referring to the "Check Items on the ADF Copy Chart" given [next page](#).

If any problem is found, perform the adjustment procedure again.

- (8) <Duplex scanning models only>

Set the ADF copy chart facing down into the ADF to perform duplex-copying.

Check if any problem is found with the ADF copy chart copied on the second side.

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 Copy Chart**



2 IF YOU REPLACE THE HEAD/CARRIAGE UNIT

<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[®] 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_BHM13.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_BHM13.prn/pfadj2_A4_BHM13.prn)
(For letter-sized paper: pfadj1_LTR_BHM13.prn/pfadj2_LTR_BHM13.prn)
- (9) Print data for adjusting margins in borderless printing
(For A4-sized paper: mediaadj_A4_BHM13.prn)
(For letter-sized paper: mediaadj_LTR_BHM13.prn)
- (10) Print data for writing head calibration data
(head_calib1_BHM13.prn/head_carib2_BHM13.prn)
- (11) ADF copy chart data (chart_BHM13.prn)

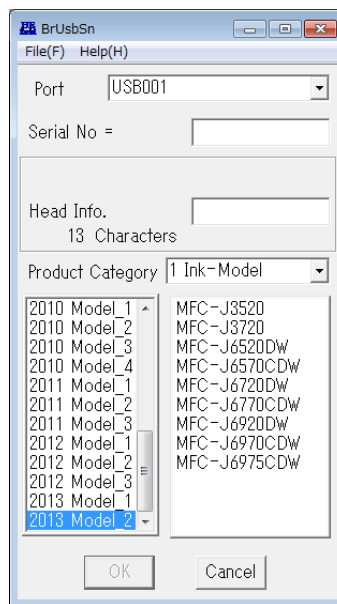
2.1 Update the head property data (Maintenance mode 68)

Update the head property data, referring to [Chapter 5, Section 1.3.25 "Updating of Head Property Data and Backup/Restoration of Head Calibration Data."](#)

The head property data can also be updated with the service setting tool (BrUsbSn.exe).

The head property data updating procedure is given below.

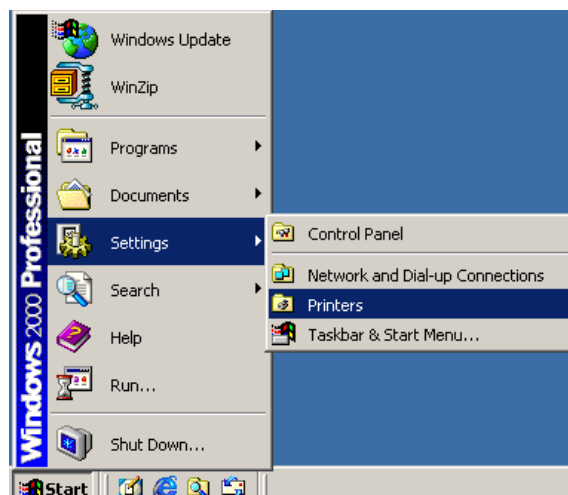
- (1) Turn the machine ON and switch it to the maintenance mode.
- (2) Connect the machine to your PC using a USB cable.
- (3) On the PC, run the service setting tool (BrUsbSn.exe) to display the following window.



- (4) In **Product Category**, select **1 Ink-Model**.
- (5) Select **2013 Model_2**.
- (6) In **Port** on the BrUsbSn screen, select the port number assigned to the Brother Maintenance USB Printer.

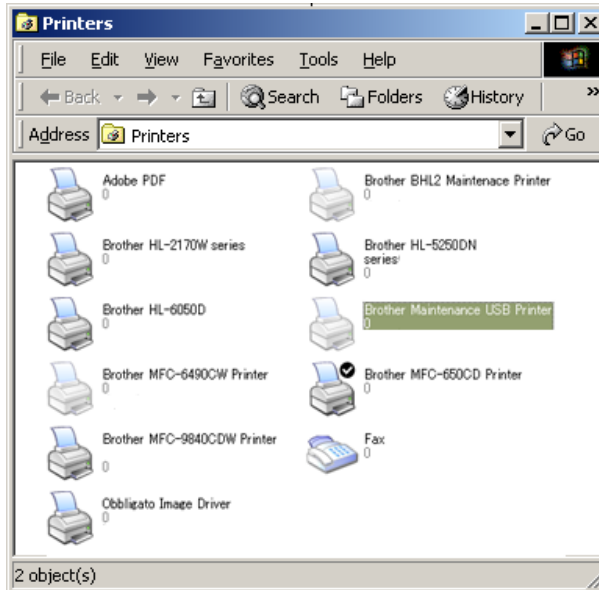
If the port number is unknown, follow steps 1) through 4) below.

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

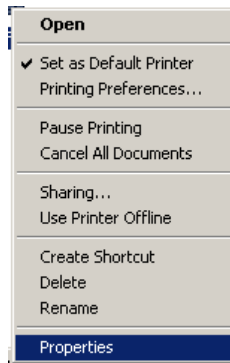


The Printers window appears as shown below.

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

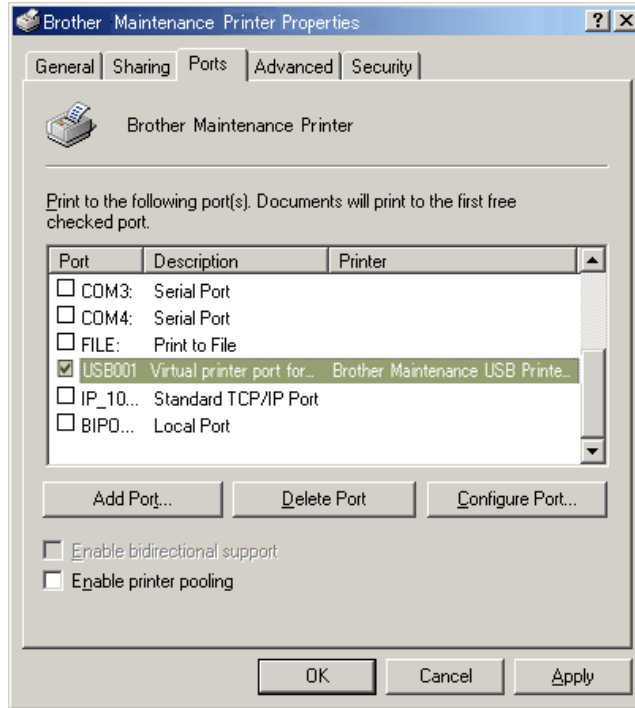


3) Click **Properties**.



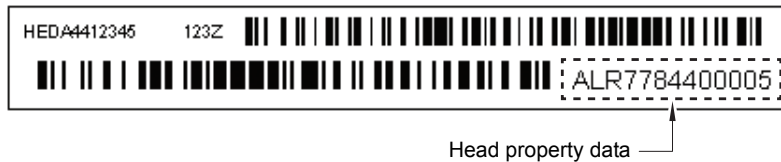
The Brother Maintenance Printer Properties window appears as shown below.

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 data is printed on the bar code label attached to the head/carriage unit.



Tip: Opening the scanner cover when the machine is on maintenance mode 75 moves the head/carriage unit to the center of its travel. This makes it possible to check the head property label through the opening. (refer to [Chapter 5, Section 1.3.28 "Move of the Head/Carriage Unit to the Center"](#)).

(8) Click the **OK** key.

(9) Wait for the confirmation screen of the head property code entered to appear, then click **Yes**.

(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 mode 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 Start** 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 "Purge Operation"**).

2.4 Adjust head inclination

- (1) On your PC, save a copy of "Corrugate_BHM13.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 that shows the most obscure red is 2, the adjustment is complete.

If the number of the block that shows the most obscure red 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 that shows the most obscure red 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 that shows the most obscure red 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.

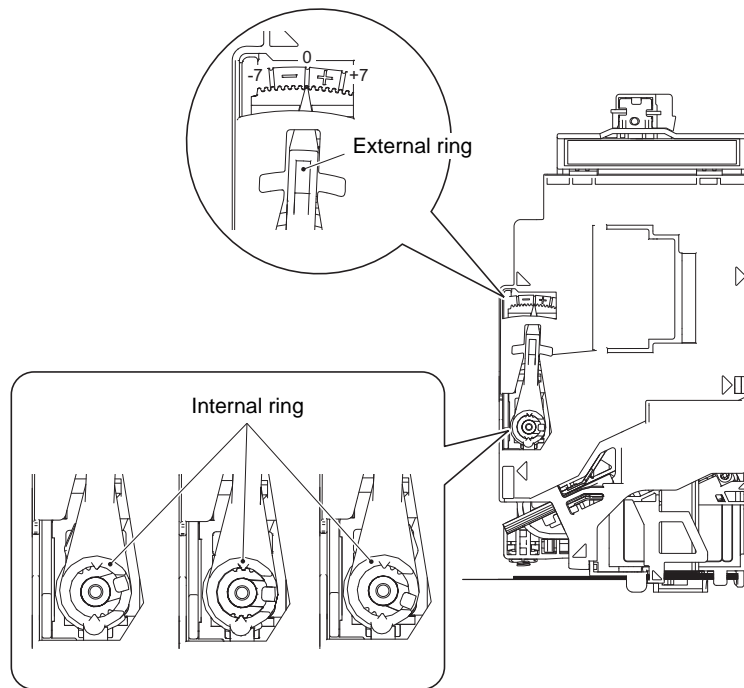


Fig. 4-1

■ Turning the rings

External ring

Apply the tip of a flat screwdriver to the groove at section "A" shown in the figure below. 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.

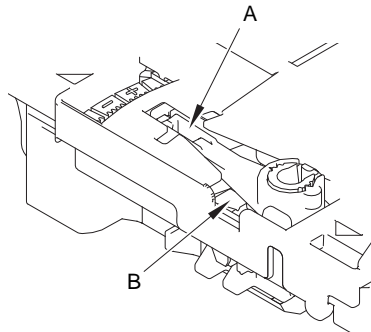


Fig. 4-2

- 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 red color 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 "Adjustment of Vertical Print Lines/Software Correction for Inclination/Corrugation/Ruled Lines."](#)

2.6 Update paper feeding correction values (Maintenance mode 58)

Refer to [Chapter 5, Section 1.3.19 "Updating of Paper Feeding Correction Values."](#)

2.7 Adjust margins in borderless printing (Maintenance mode 66)

Refer to [Chapter 5, Section 1.3.24 "Margin Adjustment in Borderless Printing."](#)

2.8 Write head calibration data (Maintenance mode 02)

Refer to [Chapter 5, Section 1.3.2 "Creating of Head Calibration Data and Writing it into Flash ROM."](#)

2.9 Check scanning and printing

Refer to [Section 1.16 "Check scanning and printing."](#)

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 data is automatically retrieved if "Retrieve Printer's Color Data Automatically" is ON (default) in **Advanced | Other print options | Retrieve Printer's Color Data** in the printer driver settings.

If "Retrieve Printer's Color Data Automatically" is OFF, the service personnel should contact the user to instruct him/her to perform the following procedure.

< Windows® >

(1) <Other than Windows 8>

On the user computer, click **Start | Settings | Printers**.

Right-click the Brother Printer driver icon. From the pull-down menu, click **Properties** to open the Properties dialog, and then click **Print Settings**.

<Windows 8 >

On the user computer, click **Settings | Control Panel | Devices and Printers**. From the pull-down menu of the Brother Printer driver, click **Print Settings**.

(2) Click **Advanced | Other print options | Retrieve Printer's Color Data**.

(3) Check that the **Use Printer's Color Data** check box is selected.

(4) Click **Retrieve Printer's Color Data**.

(5) 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 Acquisition of white/black 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[®] 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_BHM13.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 "Checking of CIS Travel and Setting of CIS Type."**

If "Please DL ROM" appears on the LCD, install the firmware using the procedure in **Chapter 5, Section 1.3.10 "Updating of Firmware Using an External Memory."**

3.2 Acquisition of white/black 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 "Acquisition of White/Black Level Data and CIS Scanner Area Setting."**

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 "Check scanning and printing."**

4 IF YOU REPLACE THE PANEL ASSY, TOUCH PANEL, LCD UNIT OR LCD PCB ASSY

<Operations>

- 4.1 Adjust the touch panel (Maintenance mode 78)
(Not required after replacement of the LCD unit)
- 4.2 Check LCD operation (Maintenance mode 12)
(Not required after replacement of the touch panel)
- 4.3 Check the operation of the control panel keys (Maintenance mode 13)
(Not required after replacement of the touch panel or LCD unit)

<Requirements>

- (1) Stylus for touch panel

4.1 Adjust the touch panel (Maintenance mode 78) (Not required after replacement of the LCD unit)

Adjust the touch panel, referring to [Chapter 5, Section 1.3.31 "Adjustment of Touch Panel."](#)

4.2 Check LCD operation (Maintenance mode 12) (Not required after replacement of the touch panel)

Check the LCD operation, referring to [Chapter 5, Section 1.3.7 "Operational Check of LCD."](#)

4.3 Check the operation of the control panel keys (Maintenance mode 13) (Not required after replacement of the touch panel or LCD unit)

Check the operation of the control panel keys, referring to [Chapter 5, Section 1.3.8 "Operational Check of Keys on Control Panel."](#)

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 "Reset purge and flushing counts."](#)

6 IF YOU REPLACE THE PAPER FEEDING RELATED PARTS and MAINTENANCE UNIT

The paper feeding related parts to be checked after replacement are listed below.

- Paper feed roller
- Switchback roller
- Carriage motor
- Paper feed motor
- CR encoder strip
- PF encoder disk
- PF encoder sensor PCB ASSY
- CR timing belt
- Paper ejection roller
- 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[®] 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_BHM13.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_BHM13.prn/pfadj2_A4_BHM13.prn)
(For letter-sized paper: pfadj1_LTR_BHM13.prn/pfadj2_LTR_BHM13.prn)
- (8) Print data for adjusting margins in borderless printing
(For A4-sized paper: mediaadj_A4_BHM13.prn)
(For letter-sized paper: mediaadj_LTR_BHM13.prn)

6.1 Check head nozzles (Maintenance mode 09)

Check head nozzles, referring to [Section 2.3 "Check head nozzles."](#)

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 "Adjustment of Vertical Print Lines/Software Correction for Inclination/Corrugation/Ruled Lines."](#)

6.3 Update paper feeding correction values (Maintenance mode 58)

Refer to [Chapter 5, Section 1.3.19 "Updating of Paper Feeding Correction Values."](#)

6.4 Adjust margins in borderless printing (Maintenance mode 66)

Refer to [Chapter 5, Section 1.3.24 "Margin Adjustment in Borderless Printing."](#)

6.5 Check printing

To make a final check after replacement of the parts, 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.

Update the paper feeding correction value

Check the test patterns, referring to [Chapter 5, Section 1.3.19 "Updating of Paper Feeding Correction Values."](#)

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

Check the test patterns, referring to [Chapter 5, Section 1.3.23 "Adjustment of Vertical Print Lines/Software Correction for Inclination/Corrugation/Ruled Lines."](#)

Adjust margins in borderless printing

Check the test patterns, referring to [Chapter 5, Section 1.3.24 "Margin Adjustment in Borderless Printing."](#)

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.

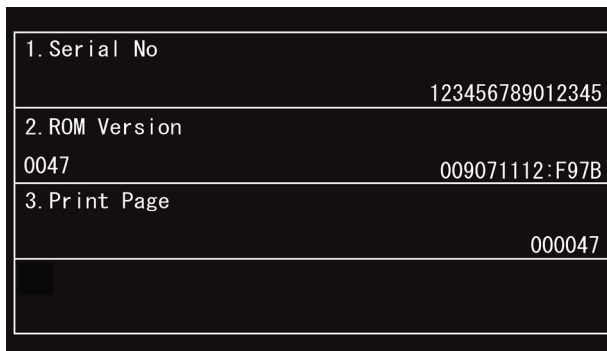
In the maintenance mode, you can perform operational checks of sensors, perform a print test, display the log information or error codes, and configure worker switches (WSW).

1.1 Entry to the Maintenance Mode

1.1.1 How to Enter the Maintenance Mode Exclusive to 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.

Note: - 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.

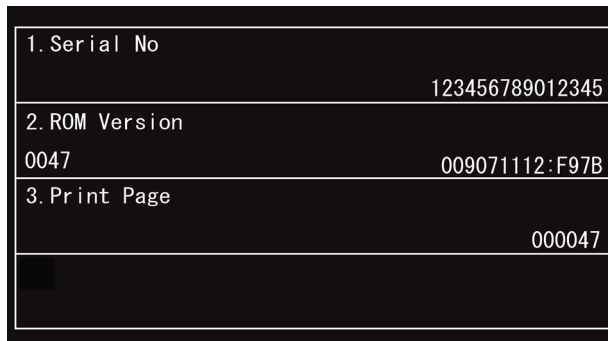
1.1.2 How to Enter the End User-accessible Maintenance Mode

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 (5-10)
08	ADF Performance Test	1.3.4 (5-12)
09	Printout of Test Pattern	1.3.5 (5-13)
10	Worker Switch (WSW) Setting	1.3.6 (5-14)
11	Printout of Worker Switch (WSW) Data	1.3.6 (5-14)
12	Operational Check of LCD	1.3.7 (5-17)
13	Operational Check of Keys on Control Panel	1.3.8 (5-19)
17 *	EEPROM Dump Transfer and Log Information Saving	1.3.9 (5-20)
28	Updating of Firmware Using an External Memory	1.3.10 (5-21)
32	Sensor Operational Check	1.3.11 (5-22)
37 *	Printout of Dial Log	1.3.12 (5-24)
46	Backup of Machine Information	1.3.13 (5-25)
52	Setting of Country/Language	1.3.14 (5-27)
53	Transfer of Received FAX Data and/or Equipment's Log	1.3.15 (5-28)
54	Fine Adjustment of Scanning Position	1.3.16 (5-30)
55	Acquisition of White/Black Level Data and CIS Scanner Area Setting	1.3.17 (5-31)
57	Cartridge IC Communication Check	1.3.18 (5-32)
58	Updating of Paper Feeding Correction Values	1.3.19 (5-33)
59	Checking of CIS Travel and Setting of CIS Type	1.3.20 (5-38)
61	Print of PRN/JPEG Files in Memory Card	1.3.21 (5-39)
63	Move of the Head/Carriage Unit to the Adjustment Position	1.3.22 (5-40)
65	Adjustment of Vertical Print Lines/Software Correction for Inclination/Corrugation/Ruled Lines	1.3.23 (5-41)
66	Margin Adjustment in Borderless Printing	1.3.24 (5-43)
68	Updating of Head Property Data and Backup/Restoration of Head Calibration Data	1.3.25 (5-45)
69	Traveling Speed Check of Head/Carriage Unit	1.3.26 (5-47)
74	Customizing Destinations	1.3.27 (5-48)
75	Move of the Head/Carriage Unit to the Center	1.3.28 (5-50)
76	Purge Operation	1.3.29 (5-51)
77	Print of the Maintenance Information	1.3.30 (5-53)
78	Adjustment of Touch Panel	1.3.31 (5-56)
80	Display of the Equipment's Log	1.3.32 (5-57)
82	Equipment Error Code Indication	1.3.33 (5-61)
87	Output of Transmission Log to the Telephone Line	1.3.34 (5-61)
88	Assurance Mode Switch Setting (AMS)	1.3.35 (5-62)
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.

Function code	01	91
Maintenance-mode functions	All of these will be initialized.	These will be initialized.
User switches Firmware switches Remote activation code Assurance mode switch settings		
Activity report Station ID data Outside line number Telephone function registration Speed dialing Group dialing Call transfer data	All of these will be initialized.	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>1</u> 001, for example, it will be initialized to <u>0</u> 001.)	

< Operating Procedure >

- (1) Press the **0** and **1** keys in this order in the initial stage of the maintenance mode. "Select 01?" is displayed on the LCD. (Or press the **9** and **1** keys in this order according to your need to display "Select 91?.")
- (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 5-8) placed on the document cover 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 >

Note: - 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, perform "Specify the CIS type (Maintenance mode 59)" if the CIS type is not set after replacing the main PCB, document scanner unit or CIS unit.
- Before proceeding to the procedure given below, perform Section 1.3.17 "Acquisition of White/Black Level Data and CIS Scanner Area Setting (Maintenance mode 55)" If it is not performed, calibration data may not be created correctly.
- 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.
U.S.A.: Xerox 4200DP 20 lb., Brother BP60PL
EU, AP and others: Xerox Business 80 g/m², Brother BP60PA

- (1) Save copies of "head_calib1_BHM13.prn" and "head_calib2_BHM13.prn" to 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 two data patterns. (2 sheets).
- (3) Set the pattern printed with "1_page" on the document cover glass of the document cover so that the ▲ mark fits on the left rear of the document cover.
- (4) 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 **X** key immediately returns the machine to the initial stage of the maintenance mode without creating head calibration data.

- (5) 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 document cover glass.

- (6) If "No. 2 Sheet Set" appears on the LCD, remove the pattern printed with "1_page" from the document cover glass and set the pattern printed with "2_page." At this point, fit the ▲ mark on the left rear of the document cover.
- (7) 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 document cover glass.

- (8) 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 ASSY.

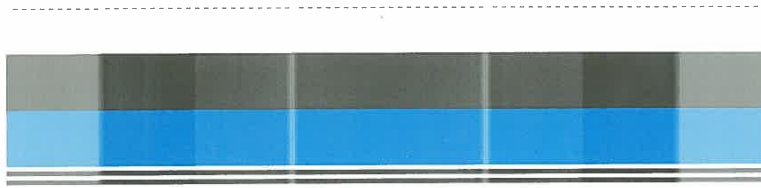
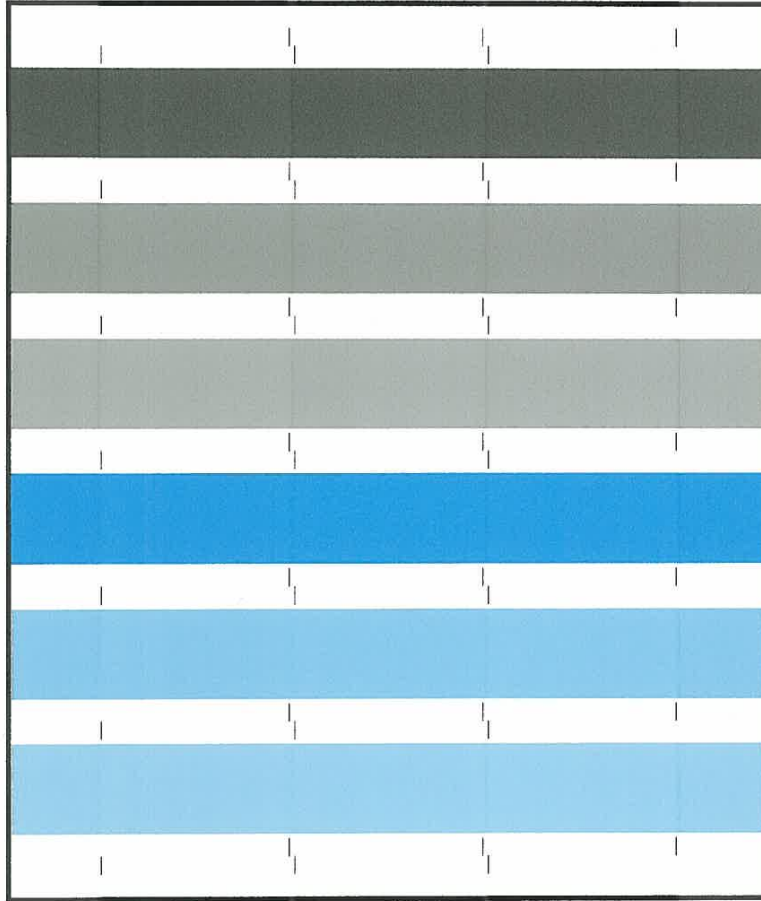
Upon completion of writing, the "Complete" appears. Press the **X** key to return to the initial stage of the maintenance mode.

Note: If an error occurs, the machine beeps and displays "Error No ***" on the LCD. Press the **X** 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"> - Clean the document cover glass. - Reset the print pattern so that the ▲ mark is aligned with the left rear of the document cover without tilt.
02	Internal image inclined.	
03	Failed to detect position.	<ul style="list-style-type: none"> - Check that there is no block missing. - Go back to step (2) and print out "Print pattern for creating head calibration data" again.
04	Failed to write head calibration data.	<ul style="list-style-type: none"> - Clean the document cover glass. - Reset the print pattern so that the ▲ mark is aligned with the left rear of the document cover without tilt. - Check that there is no block missing. - Restart the machine and perform the procedure from the beginning again. - Replace the main PCB ASSY.
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"> - Set selector 1 on AMS05 to "0" (ON) in Section 1.3.35 "Assurance Mode Switch Setting (Maintenance mode 88)" in this chapter.
06	Cannot get data due to memory full.	<ul style="list-style-type: none"> - Delete fax data and other data stored in the memory. - Replace the main PCB ASSY.
07	The document scanner unit is open.	<ul style="list-style-type: none"> - Close the document scanner unit. - Reconnect the document scanner sensor harness. - Replace the document scanner sensor. - Replace the document scanner if the boss that presses the document scanner sensor is broken. - Replace the main PCB ASSY.
09	Scanning errors other than the above.	<ul style="list-style-type: none"> - Use Section 1.3.17 "Acquisition of White/Black Level Data and CIS Scanner Area Setting (Maintenance mode 55)" in this chapter.
10	With a media being inserted, the USB cable or LAN cable is connected.	<ul style="list-style-type: none"> - Disconnect the USB cable or LAN cable.
11	The scanner cover is open.	<ul style="list-style-type: none"> - Close the scanner cover.

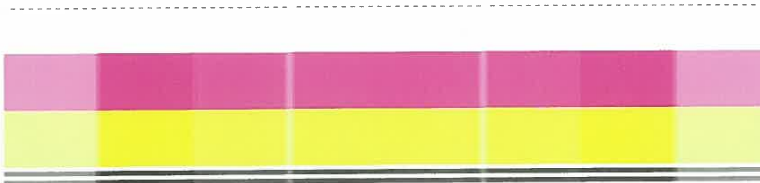
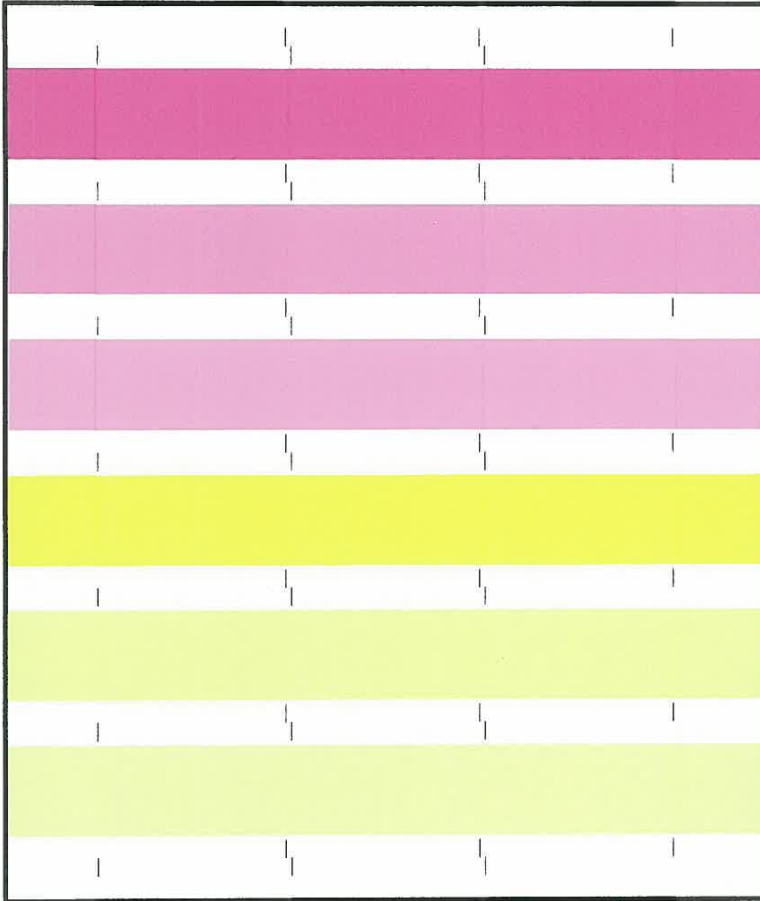
■ head_calib1_BHM13.prn data

Fit this mark on the left rear of the document cover.



■ head_calib2_BHM13.prn data

Fit this mark on the left rear of the document cover.



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.

If any error has occurred in the machine, "ME STATE STOP" appears on the LCD.

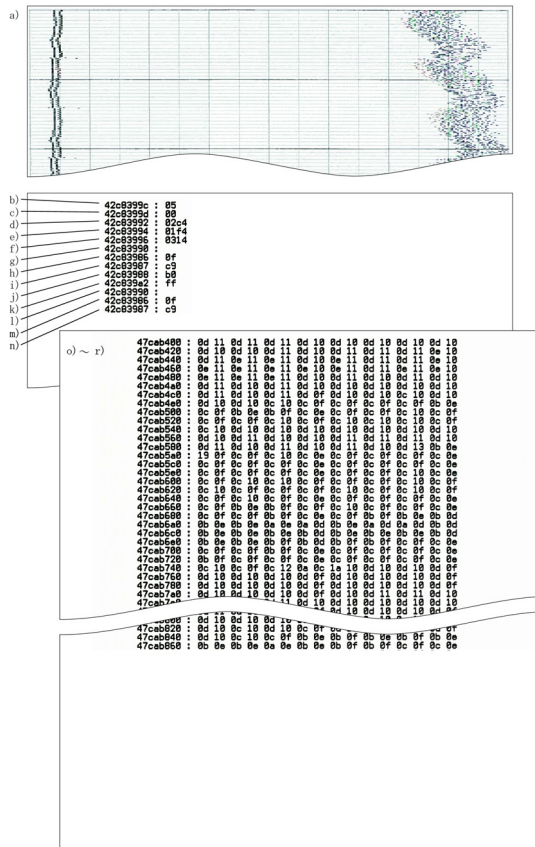
Note: If no recording paper is loaded in the paper tray, printing will be canceled.

- (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 (four sheets *)
 - * 2 sheets when the previous scanning resolution is other than 2,400 dpi
 - (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

■ **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 in the initial stage of the maintenance mode.
- (2) Press the **0** and **8** keys in this order.

The machine feeds the documents in and out while counting them and displaying "ADF CHK P.**" on the LCD. (** shows the current count.)

- (3) Press the **X** key to return the machine to the initial stage of the maintenance mode.

Notes: - If the ADF cover is open, the machine displays "ADF COVER OPEN" on the LCD and returns to the initial stage of the maintenance mode.

- 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 >

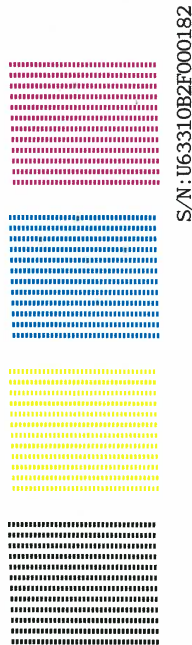
This function prints out a test pattern (Print Quality Check sheet) to allow the service personnel to check the print quality, together with the serial number.

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.

■ 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	Redial/Pause key setting and 2nd dial tone detection
WSW07	Dial tone setting 1
WSW08	Dial tone setting 2
WSW09	Protocol definition 1
WSW10	Protocol definition 2
WSW11	Busy tone setting
WSW12	Signal detection condition setting
WSW13	Modem setting
WSW14	AUTO ANS facility setting
WSW15	REDIAL facility setting
WSW16	Function setting 1
WSW17	Function setting 2
WSW18	Function setting 3
WSW19	Transmission speed setting
WSW20	Overseas communications mode setting
WSW21	TAD setting 1
WSW22	ECM and call waiting caller ID
WSW23	Communications setting
WSW24	TAD setting 2
WSW25	TAD setting 3
WSW26	Function setting 4
WSW27	Function setting 5
WSW28	Function setting 6
WSW29	Function setting 7
WSW30	Function setting 8
WSW31	Function setting 9
WSW32	Function setting 10
WSW33	Function setting 11
WSW34	Function setting 12
WSW35	Function setting 13
WSW36	Function setting 14
WSW37	Function setting 15
WSW38	V.34 transmission setting
WSW39	V.34 transmission speed

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.

The screens are displayed on the LCD in the order shown in the table below.


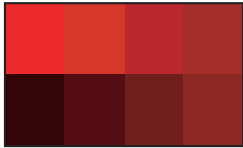







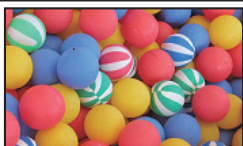


(2) Each time you press the **#** key, the LCD cycles through the screens as shown below.

Pressing the ***** key goes back to the immediately preceding screen.

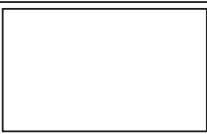
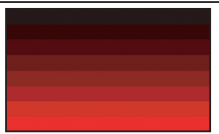

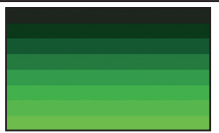








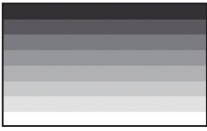
When the last screen displays, pressing the **#** key switches to Screen 1.

(3) Press the **X** key in any process of the screen cycle to return the machine to the initial stage of the maintenance mode.

<2.7 inch LCD model>

<u>Screen 1</u> Completely blank		<u>Screen 7</u> Red stepwise	
<u>Screen 2</u> All black		<u>Screen 8</u> Green stepwise	
<u>Screen 3</u> All red		<u>Screen 9</u> Blue stepwise	
<u>Screen 4</u> All green		<u>Screen 10</u> Gray stepwise	
<u>Screen 5</u> All blue		<u>Screen 11</u> Image data	
<u>Screen 6</u> All gray		<u>Screen 12</u> Stroke detection	

<3.7 inch LCD model>

<p><u>Screen 1</u> Completely blank</p>		<p><u>Screen 8</u> Red stepwise</p>	
<p><u>Screen 2</u> All black</p>		<p><u>Screen 9</u> Green stepwise</p>	
<p><u>Screen 3</u> All gray</p>		<p><u>Screen 10</u> Blue stepwise</p>	
<p><u>Screen 4</u> All red</p>		<p><u>Screen 11</u> Stroke detection</p>	
<p><u>Screen 5</u> All green</p>		<p><u>Screen 12</u> All gray</p>	
<p><u>Screen 6</u> All blue</p>		<p><u>Screen 13</u> Image data</p>	
<p><u>Screen 7</u> White stepwise</p>			

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 **X** 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 **X** key.



1.3.9 EEPROM Dump Transfer 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 saving function outputs user's panel operation log information and machine's functions 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 the memory slot of 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 ASSY has been replaced or for operations using a PC, refer to [Chapter 4, Section 1.3 "Install the firmware \(Maintenance mode 28\)."](#)

< Operating Procedure >

- (1) Turn ON your PC 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: If any of the error messages listed below appears, press the **X** 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: 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 tone signals cyclically 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
AC	ADF cover sensor	Cover closed/Cover opened
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 sensor	No recording paper/ Recording paper present
A3	Document width sensor	No document (A3)/ Document present (A3)
RB	Second side document scanning position sensor	No document/Document present
VT	Head thermistor	Normal temperature/Abnormal temperature
T1	High temperature detector in the complex IC (for main PCB)	Normal temperature/Abnormal temperature

- (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.

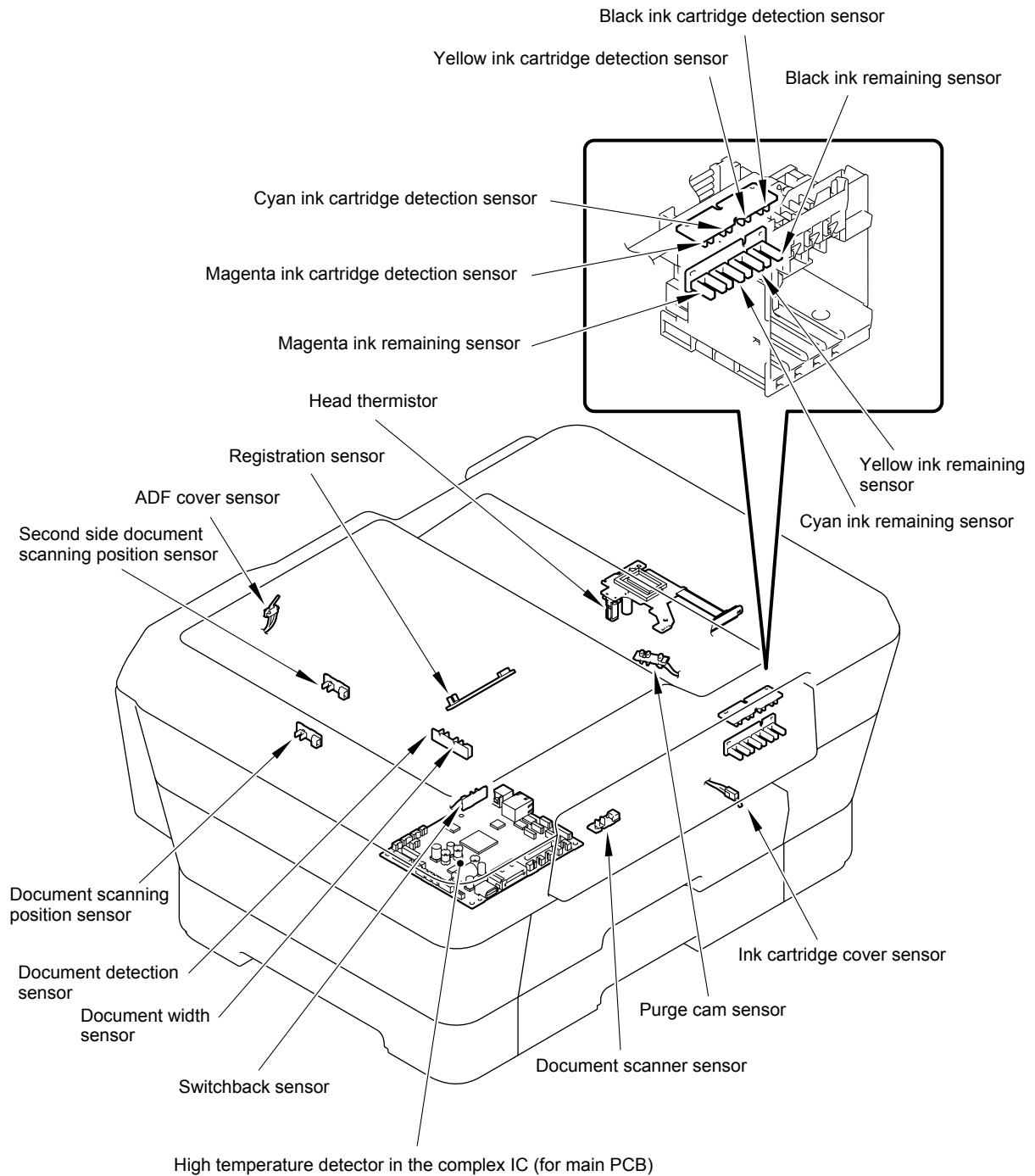


Fig. 5-1

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.

- An external memory (memory card or USB flash memory) for backup should have a free space larger than the RAM size of the machine.
- When performing this procedure for any other machine with the same external memory, delete the data previously stored in the external memory.
- 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 used in the step (1) into the memory 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.

- 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.

- 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 **X** 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	The file cannot be opened or no "BROTHER" folder exists.
Card Error	Mismatch between the serial number of the machine and that of the backup data (which is detected only in data restoration).
Machine ID Error	Mismatch of serial numbers
Write Error	A write error occurs.

Restoration Procedure

- (1) Insert the external memory containing the backup data into the memory 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.

- 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 **X** 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 "Customizing Destinations \(Maintenance mode 74\)"](#)). 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 **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' log of the machine as fax data.

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.

- 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.

Note: - 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	:13/06/2010 22:21	← Transfer start date
8CA-T17		← 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	

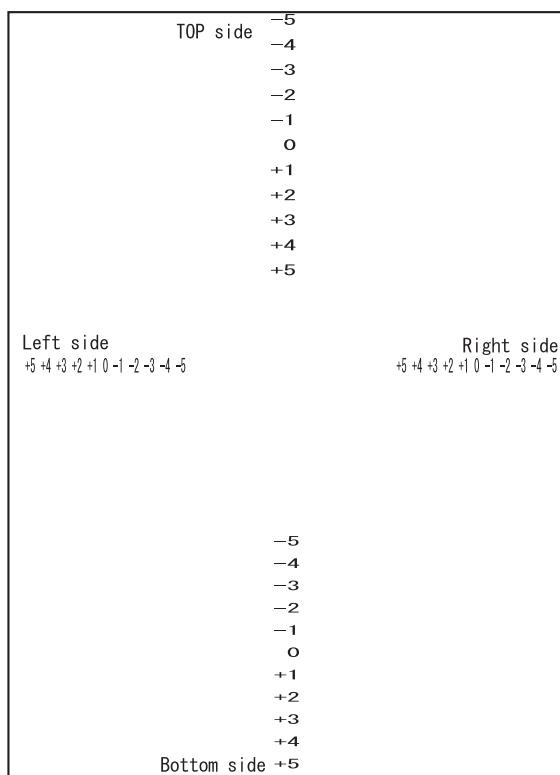
1.3.16 Fine Adjustment of Scanning Position (Maintenance mode 54)

< 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 ADJ SELECT" appears on the LCD.
- (3) To adjust the right and left edges, press the **0** key. The "RL EDGE ***" appears on the LCD.
To adjust the top edge, press the **1** key. The "TOP EDGE ***" appears on the LCD.
To adjust the bottom edge, press the **2** key. The "BOTM EDGE ***" 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.
- Pressing the **X** 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/black 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 conversion 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 **X** 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 **X** 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 Ink cartridge not loaded No IC in the ink cartridge Unstable IC setting
NG200 to NG299	Wrong response result from the IC Cartridge defective
NG300 to NG399	Succeeded in verifying IC, but the information judged as mismatching Loading mistake

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 ASSY 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_BHM13.prn" and "pfadj2_A4_BHM13.prn" to a USB flash memory or SD card. When using letter-sized paper, save copies of "pfadj1_LTR_BHM13.prn" and "pfadj2_LTR_BHM13.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 each of the 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 5-36](#)), 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 5-36](#)), 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 5-36](#)), 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 "1.LF300" appears on the LCD.
- (9) On the pfadj2 pattern (see [page 5-37](#)), check the L300 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 pfadj2 pattern (see [page 5-37](#)), 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 **X** key to return the machine to the initial stage of the maintenance mode.

For the paper feed 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 Start** 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 5-36](#)), 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 **X** 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 Start** 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 5-36](#)), 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 **X** 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 "LF300" appears on the LCD.
- (4) Press the **1** key.
The "LF300 NO. +0" appears on the LCD.
- (5) On the pfdj2 pattern (see [page 5-37](#)), check the L300 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 **X** key to return the machine to the initial stage of the maintenance mode.

For the paper feed 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 5-36](#)), 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 **X** 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 "COR_FEED NO. +0" appears on the LCD.
- (5) On the pfadj2 pattern (see [page 5-37](#)), 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 **X** 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 **X** key to return the machine to the initial stage of the maintenance mode.

■ **pfadj1 Pattern**

* BHS13 PF1 adjust - Ver 003 001 *

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

■ pfadj2 Pattern

* BHM13 PF2 adJust LETTER - Ver 001 000 * E72412C3F000261 D31 79

L300-8	-6	-4	-2	0	+2	+4	+6	+8	+10
--------	----	----	----	---	----	----	----	----	-----

CORF-8	-6	-4	-2	0	+2	+4	+6	+8	+10
--------	----	----	----	---	----	----	----	----	-----



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 ASSY, 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 tape 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 "CIS M:*/S:0 → ?" appears on the LCD. The asterisk (*) refers to the CIS type that has been automatically set. Input the CIS type (0 or 1 or 2) with any other reserved parameters in "?". After the CIS type is input and "Please DL ROM" appears, 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 alphanumeric, underline "_" and parentheses "(", including the extension .prn

JPEG file: Maximum of 16 characters consisting of alphanumeric, 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 **▲** or **▼** keys and press the **4** key.
To print the specified file repeatedly, select the target file with the **▲** or **▼** 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) "1. A4 2. LETTER" appears on the LCD.
Press either the **1** or **2** key according to the paper size, and printing starts. 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 cannot be performed when the machine error 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 ASSY, 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 (refer to the figure below).
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. (1-9)" 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.

■ Vertical Lines Check Pattern



Software correction for inclination/corrugation/ruled lines

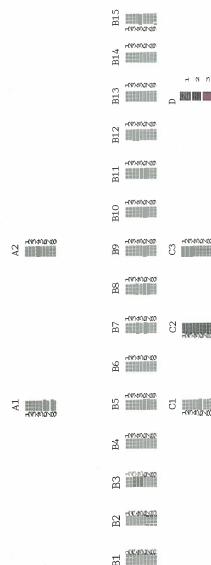
- (1) On your PC, save a copy of "Corrugate_BHM13.prn" into a USB flash memory or SD card.
- (2) Use [Section 1.3.21 "Printout of PRN/JPEG Files in Memory Card \(Maintenance mode 61\)"](#) to print a test pattern (refer to the figure below) on A4- or letter-sized paper.

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 that shows the most obscure red is 2, go to step (5).
If the number of the block that shows the most obscure red is 1 or 3, adjust the inclination of the head/carriage unit, referring to [Chapter 4, Section 2.4 "Adjust head inclination."](#)
- (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 that shows the most obscure red. 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.

■ Software Correction for Inclination/Corrugation/Ruled Lines Check Pattern



1.3.24 Margin Adjustment in Borderless Printing (Maintenance mode 66)

< Function >

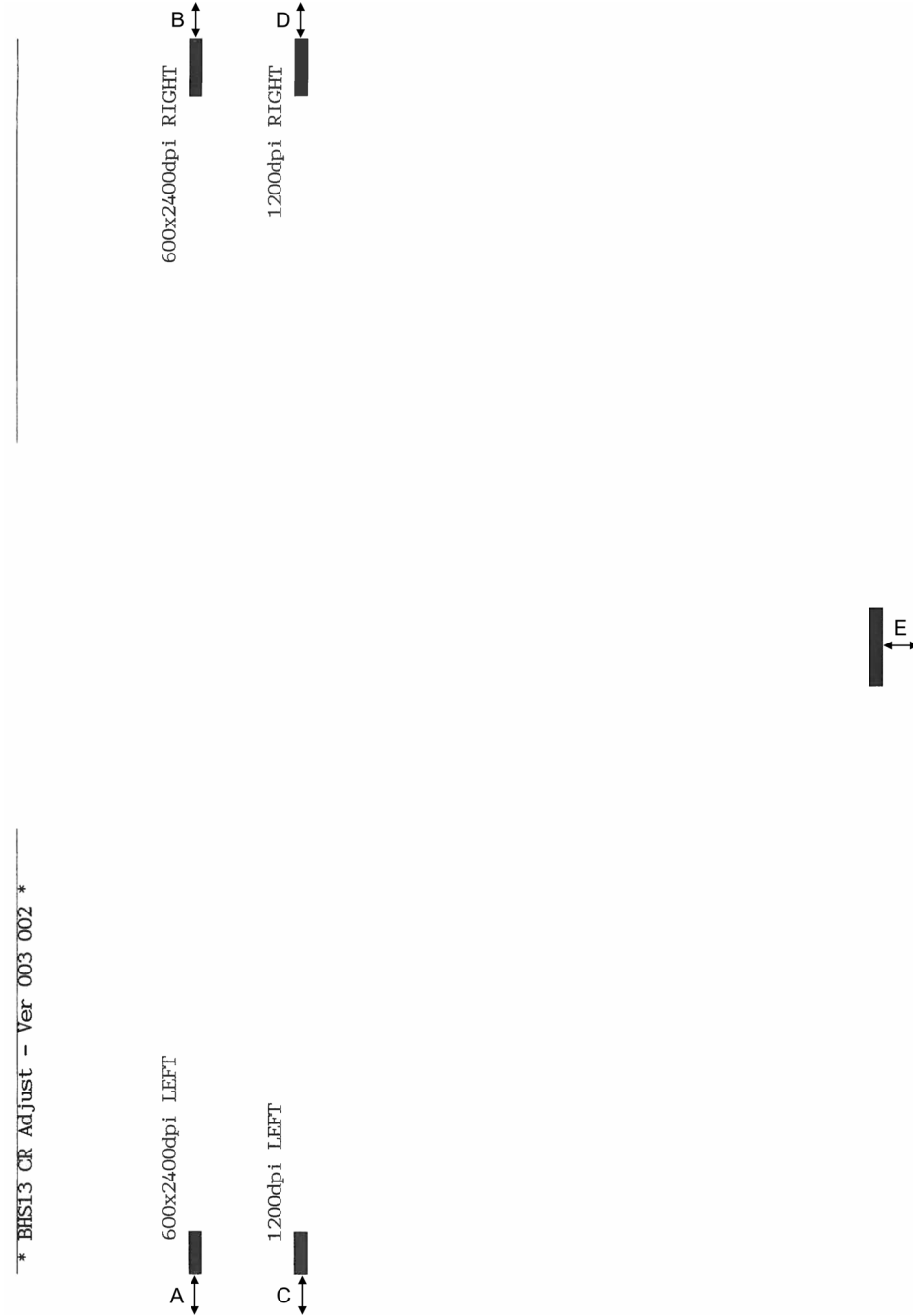
This procedure adjusts the top, left, right and bottom margins for borderless printing. Print out a margin check pattern, measure each margin, and enter the measured values.

If the head/carriage unit or main PCB ASSY 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_BHM13.prn" to a USB flash memory or SD card. When using letter-sized paper, save a copy of "mediaadj_LTR_BHM13.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 each of the above prn files 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.
The "SELECT66?" appears on the LCD.
- (5) Press the **Mono Start** key to display the "MEDIA SENSOR ADJ".
- (6) 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.
- (7) 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.
- (8) 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.
- (9) 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.
- (10) Press the **6** key two times in the initial stage of the maintenance mode.
The "SELECT66?" appears on the LCD.
- (11) Press the **Mono Start** key to display the "MEDIA SENSOR ADJ".
- (12) 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.
- (13) 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.

■ Margin Check Pattern



1.3.25 Updating of Head Property Data and Backup/Restoration of Head Calibration Data (Maintenance mode 68)

< Function >

Maintenance code 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 head property data is stored in the EEPROM on the main PCB and its property code is printed on the head property labels attached to the machine and the head/carriage unit.

If you replace the head/carriage unit, you need to enter its property code printed on the head 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 head 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."



Head property data

Tip: Opening the scanner cover when the machine is on maintenance mode 75 moves the head/carriage unit to the center of its travel. This makes it possible to check the head property label through the opening. (refer to [Section 1.3.28 "Move of the Head/Carriage Unit to the Center \(Maintenance mode 75\)"](#) in this chapter).

- (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) Press the **▶** or **◀** key to display "Media->HeadCalib" on the LCD.
- (4) Insert the external memory holding the head property 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.

Note: - 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.

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 "Please DL ROM" appears on the LCD. Load the latest firmware (refer to [Chapter 4, Section 1.3 "Install the firmware \(Maintenance mode 28\)"](#)).

(5) Pressing the **X** 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 >

	U.S.A.	Canada	Brazil	Argentina	Chile
MFC-J3520	---	---	---	---	---
MFC-J3720	---	---	---	---	---
MFC-J6520DW	0001	0002	0042	---	---
MFC-J6720DW	0101	0102	0142	0136	0136
MFC-J6920DW	0001	0002	0042	---	---
MFC-J6925DW	0201	---	---	---	---

	Germany Austria	UK Ireland	France	Holland	Belgium
MFC-J3520	---	---	---	---	---
MFC-J3720	---	---	---	---	---
MFC-J6520DW	0003	0004	0005	0009	0008
MFC-J6720DW	0103	0104	0105	0109	0108
MFC-J6920DW	0003	0004	0005	0009	0008
MFC-J6925DW	0203	0204	0205	0209	0208

	Iberia (Spain/ Portugal)	Italy	Italy/Iberia (Spain/ Portugal/ Italy)	Switzerland	Pan Nordic (Norway Sweden/ Finland/ Denmark)	CEE General
MFC-J3520	---	---	---	---	---	---
MFC-J3720	---	---	---	---	---	---
MFC-J6520DW	0065 (0015/0018)	0016	---	0010	0057 (0007/0026/ 0012/0013)	0054
MFC-J6720DW	0165 (0115/0118)	---	---	0110	0157 (0107/0126/ 0112/0113)	---
MFC-J6920DW	0065 (0015/0018)	0016	---	0010	0057 (0007/0026/ 0012/0013)	0054
MFC-J6925DW	---	---	0265 (0215/0218/ 0216)	0210	0257 (0207/0226/ 0212/0213)	---

	Israel	Russia	Oceania (Australia/ New Zealand)	Sin/Gulf.	Hong Kong
MFC-J3520	---	0248	---	0240	0228
MFC-J3720	---	0348	---	0340	---
MFC-J6520DW	0004	---	0056 (0006/0027)	---	---
MFC-J6720DW	---	---	0156 (0106/0127)	---	---
MFC-J6920DW	---	---	0056 (0006/0027)	---	---
MFC-J6925DW	---	---	---	---	---

	Indonesia	Korea	South Africa	Taiwan	China	Turkey
MFC-J3520	0229	0244	0224	0223	0220	---
MFC-J3720	0329	0344	0324	0323	0320	0325
MFC-J6520DW	---	---	---	---	---	---
MFC-J6720DW	---	---	---	---	---	---
MFC-J6920DW	---	---	---	---	---	---
MFC-J6925DW	---	---	---	---	---	---

The above information is as of September 2016. 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 Start** key. The LCD displays "Cleaning."

Upon completion of purging, the machine automatically returns to the initial stage of the maintenance mode.

Note: - 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.

- 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. (Refer to [Section 1.3.32 "Display of the Equipment's Log \(Maintenance mode 80\)"](#))

- (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. The purge or flushing count is reset, and the machine automatically returns to the initial stage of the maintenance mode.

- (4) Press the **9** key twice, and the machine returns to the standby state.

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)
		All colors	Black only	Color only	All colors	Black only	Color only	
Normal purge (NP)	Purge to be performed by user purge.	BLACK: 0.334 COLOR: 1.015	BLACK: 0.334 COLOR: 0	BLACK: 0 COLOR: 1.015	64	16	48	1
Periodical reset purge (RP)	Purge to be performed periodically. The cycle varies due to the ambient temperature.	BLACK: 0.369 COLOR: 1.189	BLACK: 0.369 COLOR: 0.210	BLACK: 0.186 COLOR: 1.189	74	26	65	2
Power purge (PP)	Purge to be performed by user purge.	BLACK: 0.580 COLOR: 2.264	BLACK: 0.580 COLOR: 0.210	BLACK: 0.186 COLOR: 2.264	132	36	113	3
Initial purge (uIP)	Purge to be performed automatically immediately after the user purchases the machine.	BLACK: 4.374 COLOR: 16.000	---	---	929	---	---	4
User reset purge (RP3)	Purge to be performed by user purge.	BLACK: 0.520 COLOR: 2.015	BLACK: 0.520 COLOR: 0.210	BLACK: 0.185 COLOR: 2.015	117	33	101	5
Engine setup purge (eIP)	Purge to be performed for refilling the tubes with ink.	BLACK: 4.374 COLOR: 13.970	---	---	832	---	---	6
Periodic expelling purge (RP2)	Purge to be performed periodically. The cycle varies due to the ambient temperature.	BLACK: 0.186 COLOR: 0.210	---	---	17	---	---	7
Periodic suction purge (SP)	Purge to be performed periodically. The cycle varies due to the ambient temperature.	BLACK: 0.183 COLOR: 0.294	---	---	22	---	---	8
Small reset purge (SRP)	Purge to be performed periodically. The cycle varies due to the ambient temperature.	BLACK: 0.369 COLOR: 0.504	BLACK: 0.369 COLOR: 0.210	BLACK: 0.186 COLOR: 0.504	40	26	31	9
Ink replacement purge	(Not to be performed by service personnel)	BLACK: 5.162 COLOR: 13.223	---	---	294	---	---	0

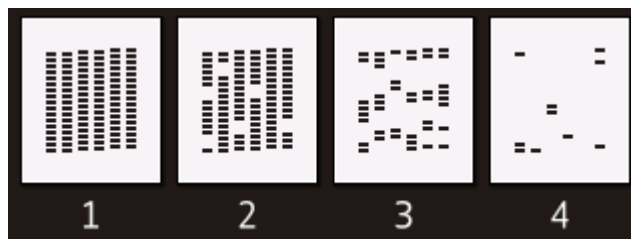
The ink usage and purge count for COLOR are total values of three colors.

There is a mode in which color ink is consumed even though the black ink purge is selected. Likewise, there is a mode in which black ink is consumed even though the color ink purge is selected.

< 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.

1.3.30 Print of the Maintenance Information (Maintenance mode 77)

< Function >

The machine prints out its log information or saves it into an external memory.

< Operating Procedure >

Printing

- (1) Press the **7** key twice in the initial stage of the maintenance mode.
The machine prints out the maintenance information.
- (2) Upon completion of the printing, the machine returns to the initial stage of the maintenance mode.

Saving into an external memory

- (1) Insert an external memory into the memory slot in the initial stage of the maintenance mode.
The "****Active" or "?" appears on the LCD (where "*****" is the name of the inserted external memory).
- (2) Press the **7** key twice to display "Print out" on the LCD.
- (3) Press the **▲** or **▼** key to select "Save Data."
- (4) Press the **Mono Start** key.
The LCD shows "*****" (where "*****" is "Model name + Lower 9 digits of the machine's serial number").
- (5) Upon completion of the saving, the machine returns to the initial stage of the maintenance mode.

```

① RTC                2013/05/08 11:08 OK
② 00:00 11:08      OK
③ MODEL             BCA-T17-001
④ COUNTRY           0000
⑤ SWITCH            29
⑥ MAIN FIRM         0A 1305071424:90B1 2409
⑦ BOOT LOADER      1212211442:2FD2
⑧ S/N              U00000L2B000091
⑨ HEAD             ALR779540000E/00/1-1-1
⑩ CISF/CISA/ENGINE/LCD 00/01/44/00
⑪ FICTBRIDGE       BROTHER/MFC-J6920DW/4.0/BR000124/1.0
⑫ DOT COUNT (BK/YL/CY/MZ) 0000097907732/0000250059742/0000077486013/0000001882105
⑬ SENSOR DOT (BK/YL/CY/MZ) 0000000000/0000000000/0000000000/0000000000
⑭ PLATEN DOT (BK/YL/CY/MZ) 0000703400/0002510043/0002171522/0002015758
⑮ LIFE COUNT (BK/YL/CY/MZ) 0000090222550/0000067252052/0000063018318/0000062189553
⑯ CLEANING DOT (BK/YL/CY/MZ) 0086834542/0247294539/0076340219/0001529797
⑰ INK CHANGE (BK/YL/CY/MZ) 00002/00000/00000/00000 00005/00001/00000/00000
⑱ INK CHANGE MISS (BK/YL/CY/MZ) 00000/00000/00000/00000
⑲ INK CHANGE DOT (BK/YL/CY/MZ) 0000000000000/0000348959310/0000021619593/0000096473235
⑳ INK CHANGE SENSOR DOT (BK/YL/CY/MZ) 0000000000/0000000000/0134217728/0266291610
㉑ INK CHANGE CLEANING DOT (BK/YL/CY/MZ) 0000000000/0348004581/0021619593/0096118322
㉒ INK INVALID DOT (BK/YL/CY/MZ) 0016953360/0115785459/0059304074/0077646198
㉓ TOTAL PAGE/LM PAGE//PRINT 0000000007/00002//00007
㉔ TOTAL SIZE//A3//OTHERS (BK/CL) 00062/00025//00000/00000//00062/00025
㉕ PAGE COUNT (PC//COPY//FAX&LIST (BK/CL/ALL)) 00000/00003/00003//00010/00000/00010//00041/00000/00041
(MEDIA//TEST PRINT) 00001//00024
㉖ PAPER SIZE (A3/A4/4x6/L) 00000-00000-00000/00005-00000-00000/00001-00000-00001/00000-00000-00000
㉗ DUPLEX PAGE/JAM/CLEANING 0000000000/00000/0000
㉘ DUPLEX PAGE COUNT (COPY (CL/BK)//PC) 00000/00000//00000
㉙ DUPLEX PAPER SIZE (A3/A4/4x6) 00000/00000/00000-00000-00000
㉚ LABEL PAGE/LABEL JAM 00000/00000
㉛ BYPASS PAGE/BYPASS JAM 00003/00001
㉜ CIS COLOR PARAM (FB/ADF) MAIN:00 SUB:01/MAIN:01 SUB:00
㉝ ADF/ADFDX/FB PAGE/ADF JAM/FAK/SCANNER 0000000000/0000000000/0000000055/000000002/00022/00000
㉞ HP ERR/ERR LOG 00/00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00
㉟ PURGE/SENSOR PURGE//WIPE//FLUSH (BK)/FLUSH (CL)/FLUSH 00244/00000/00044//0019934019/0100567616/000
㊱ PURGE KIND (BK):AUTO/MANU eIP:000/001 uIP:000/000 RP:009/001 SRP:001/000 SP:000/000 RP2:000/000
CP:002/000 NP:014/035 RP3:000/004 PP:000/004 QPP:000/001
㊲ PURGE KIND (CL):AUTO/MANU eIP:000/001 uIP:000/000 RP:009/002 SRP:000/000 SP:000/000 RP2:002/000
CP:000/000 NP:011/027 RP3:000/009 PP:000/006 QPP:000/001 tFL:00002
㊳ POWER ON TIME (HOUR) 0000000035 ㊴ POWER ON COUNT 0000000451
㊵ MAC ERR (1st-3rd) A1:1305071751:27/35:1305071750:27/A1:1305071748:27
MAC ERR (4th-6th) 30:1305071747:27/A1:1305071742:27/3C:1305071741:27
MAC ERR (7th-9th) A1:1305071740:27/3B:1305071739:27/A1:1305071738:27
㊶ COM ERROR 1/2/3 FFFF0000:1305000949/BF010000:1305071937/BF010000:1305071935
㊷ INITIAL PURGE LOG FF/0505/00/02/0A/00/01/0505/00
0040/0050/0061/007A/0088/0098/00E7/00F4/0103/013D
㊸ BACKUP DATA VERSION a
㊹ SENSOR STATUS DF:1 DR:1 CV:1 RS:1 CC:1 P1:1 AC:1
IK:1 IV:1 IC:1 IM:1 EK:1 EV:1 EC:1 EM:1
PP:1
A3:1 RB:1 VT:1 T1:1
K:2 Y:2 C:2 M:2 K?:0 Y?:0 CP:0 MP:0
㊺ INK CARTRIDGE STATE 40 20 00 02 00 00 00 00 24 00 0A 10
㊻ EXECUTED MAINTEN 00 00 00 00 00 00 00 00 00 00 00 00
㊼ EXECUTED SP_MAINTEN 00 00 00 00 00 00 00 00 00 00 00 00
㊽ CLCDDRV ERR T:00 E:9053 0400 0000 0000 0000 R:0000 0000 0000 0000
㊾ RESET HISTORY 000/0000000736
㊿ SETUP DATE 20140101

```

1	Real-time clock (RTC) check result ^{*4}	26	Printed page count for paper size and paper type ^{*1}
2	RTC backup check result ^{*4} OK: Backup completed, NG: Backup failed	27	Total page count for duplex printing/ Jam count in duplex printing/Roller cleaning count
3	Model code	28	Total page count in duplex printing
4	Country code	29	Duplex printed page count for recording paper size and type ^{*1}
5	Checksum of WSW, PSW, USW, and FSW ^{*4}	30	Total printed label count/Label jam count
6	Version of main firmware	31	Total print count in printing via manual feed slot/ Paper jam count
7	Version of boot firmware ^{*4}	32	CIS type (currently in use, parameters saved in firmware) (for two companies if two companies used)
8	Serial number	33	ADF scanning count/FB scanning count/ ADF jam count/FAX scanning count/ Scanner count
9	Head property information/ Head voltage adjustment value/ Existence of mismatched calibration data in head calibration data calibration ratio	34	Home positioning error code of the CIS unit/ Home positioning detection log data ^{*4}
10	CIS type/Engine type/LCD type	35	Purge count/Sensor purge count ^{*7} / Wipe count/Black flushing count/Color flushing count/Flushing count error detection count
11	PictBridge information ^{*4}	36	Purge count (black) ^{*2}
12	Ink drop count after replacement of ink cartridge	37	Purge count (color) ^{*2}
13	Ink drop count after detection of "Ink Low"	38	Total power-ON time
14	Ink drop count for droplets jetted out onto the platen ^{*4}	39	Power-ON count
15	Total ink drop count from a new head including flushing	40	Machine error history (Error code: Date of occurrence: Machine temperature °C at the time of occurrence)
16	Ink drop count via cleaning cycle after replacement of ink cartridge	41	Communications error history (Error code: Date of occurrence)
17	Ink cartridge change count high-yield, standard yield	42	Initial purge log ^{*4} (FF: Normal end)
18	Ink cartridge detection failure count (Cannot Detect display count)	43	Machine information backup file version ^{*4}
19	Ink drop count of ink cartridge after previous replacement	44	Sensor status ^{*3}
20	Ink drop count after detection of "Ink Low" at the previous replacement of ink cartridge	45	Ink cartridge type loaded in each slot ^{*5} Ink remaining state (0: OK 1:NG)
21	Ink drop count due to cleaning of ink cartridge after previous replacement	46	Executed maintenance codes ^{*4}
22	Ink drop count at ink remaining failure	47	Executed special maintenance codes ^{*4}
23	Total printed page count/ Printed page count for previous month/ Printed paper jam count	48	LCD error ^{*4}
24	Printed page count for paper size/ Printed page count for A3 and ledger/ Printed page count except for A3 and ledger	49	Reset count ^{*6} / Power-ON duration at the time of last reset (Total power-ON hours)
25	Page count in by printing method	50	Operation start date of the product (Current date when the user operates the product 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 codes 01 and 91
 - Maintenance code 80 (Resetting the purge and flushing counts)
- *7: Not used.

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.

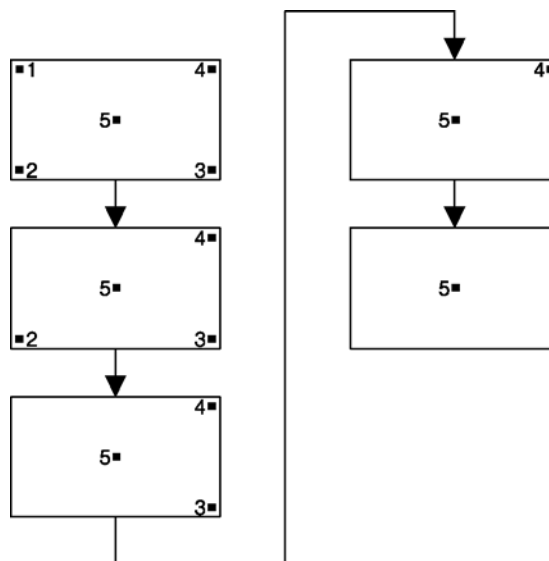
Note: - Do not use tools other than a pen designed for touch panels. Especially, never use a pointed one, e.g., a screwdriver. Using such a tool damages the touch panel.

- 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 touch panel.



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 *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
ALR777FFFFF8	Head property information
HEAD_CALIB:1-1-1	Head calibration data - Calibration ratio - Existence of mismatched calibration data (1: Exist, 0: Not exist)
CISF:00 CISA:00	First side scanning CIS type, Second side scanning CIS type
ENGINE:00	Engine type *2
PICTBRIDGE	PictBridge information *2
DK:000000001	Ink drop count after replacement of ink cartridge *3
SEN K:000000001	Ink drop count after detection of "Ink Low" *3
PLA K:000000001	Ink drop count for droplets jetted out onto the platen *3
LK:0000000000001	Total dot count *3
CLN K:000000001	Ink drop count via cleaning cycle after replacement of ink cartridge *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
INK CHG DOT	Ink drop count of ink cartridge after previous replacement *3
INK CHG SEN DOT	Ink drop count after detection of "Ink Low" at the previous replacement of ink cartridge *3
INK CHG CLEAN	Ink drop count due to cleaning of ink cartridge after previous replacement *3
INV K:000000001	Ink drop count at ink remaining failure *3
PAGE:000000002	Total printed page count *4

Items shown on the LCD	Description
LM PAGE:00002	Printed page count for previous month
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/report/list 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
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 (Not used.)
CD JAM:00000	Jam count in label printing (Not used.)
BYPASS PAGE:00001	Total print count in printing via manual feed slot
BYPASS JAM:00001	Jam count in printing via manual feed slot
PURGE:00001	Purge count *12
SEN PURGE:00001	Sensor purge count (Not used.)
eIP_BK:001/001	Purge count for purge types Auto/Manual (black) *8
eIP_CL:001/001	Purge count for purge types Auto/Manual (color) *8
WIPE:00001	Wipe count
FLSBK:0000000001	Flushing count (black) *12
FLSCL:0000000001	Flushing count (color) *12
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
COLFB M:00 S:01	First side scanning CIS type (M: Currently used; S: Retained in firmware parameter) *13
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 *2
HP_LOG1:XXXXXXXX	CIS home positioning detection log data in the document scanner unit *2
COMERR1:BF010000	Communications error history (Last 3 errors) *9
BACKUP VER:a	Machine information backup file version *2
RESET COUNT:001	Reset count *11
SET UP:20130101	Operation start date of the product (Current date when the user operates the product first after unpacking)

*1: With the item being displayed, pressing the **SET** key displays the serial number.

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 15 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: With the item being displayed, pressing the **SET** key cycles through the purge types. 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 in machine 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 simplex scanning → ADF duplex scanning → FAX scanning → Scanner scanning.
- *11: With the item being displayed, pressing the **SET** key switches to the power-ON time at which the counter has been reset.
- *12: Reset the purge count and flushing count by pressing the **2, 7, 8** and **3** keys for each state shown.
- *13: With the item being displayed, pressing the **SET** key displays the Second side scanning CIS type.

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 worker switches just as the ones described in [Section 1.3.6 "Worker Switch Setting and Printout \(Maintenance modes 10 and 11\)"](#) 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) using the numerical keys.

The following appears on the LCD:

Selector 1	Selector 8
↓	↓
AMSXX = <u>0</u> 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.

Note: - 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 code 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 logo printed recording paper is used, for example, the paper width sensor might misdetect the paper present state as "no paper loaded" due to the logo'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	Measure for black vertical streaks at trailing edge of paper	No. 5 6 0 0 : Machine correction value (default) 0 1 : 1/2 of machine correction value 1 0 : 3/2 of machine correction value 1 1 : No correction
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 5 and 6: Measure for black vertical streaks at trailing edge of paper**

When the ending edge of recording paper exits the paper feed roller, recording paper stretches to the center of the paper ejection roller in high density printing, and consequently black streaks might appear in the print result. The paper feeding amount is corrected according to the print density. Moreover, the stretch amount varies depending on the material of recording paper, and therefore the paper feeding correction value is changed based on the material to alleviate black streaks at the ending edge of recording paper.

- **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 Mono Start key is enabled, but the Color Start 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 streaks 1 0 : Improve white streaks 1 1 : Further improve black 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 streaks 1 0 : Improve white streaks 1 1 : Further improve black 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 streaks 1 0 : Improve white streaks 1 1 : Further improve black streaks
7 8	Not used.	

- Selectors 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.

- Selectors 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.

- Selectors 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, make sure to update the firmware to the latest one.

AMS07 (Printing assurance 5)

Selector No.	Function	Setting and Specifications
1	Improvement of the ruled line offset of A3, Ledger, and B4 size paper	0: Enable (default) 1: Disable
2	Improvement of the ruled line offset of A4 and Letter size paper	0: Disable (default) 1: Enable
3	Improvement of the ruled line offset of paper other than A3, Ledger, B4, A4, and Letter size paper	0: Disable (default) 1: Enable
4	Paper mode exclusively for Brother	0: Disable (default) 1: Enable
5 8	Not used.	

- Selectors 1: Improvement of the ruled line offset of A3, Ledger, and B4 size paper

Setting "0" to this selector enables control to improve the ruled line offset and perform printing in one direction during normal printing on A3, Ledger, and B4 size plain paper.

- Selectors 2: Improvement of the ruled line offset of A4 and Letter size paper

Setting "1" to this selector enables control to improve the ruled line offset and perform printing in one direction during normal printing on A4 and Letter size plain paper.

- Selectors 3: Improvement of the ruled line offset of paper other than A3, Ledger, B4, A4, and Letter size paper

Setting "1" to this selector enables control to improve the ruled line offset and perform printing in one direction during normal printing on plain paper other than A3, Ledger, B4, A4, and Letter size paper.

- Selectors 4: Paper mode exclusively for Brother

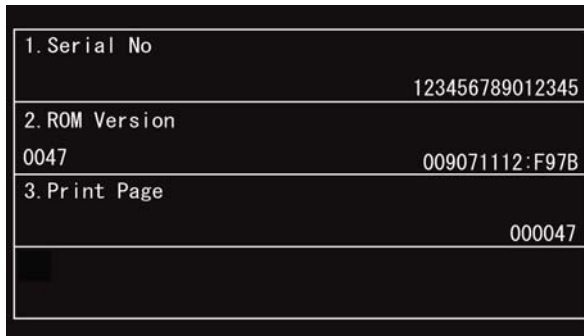
Setting "1" to this selector enables control suitable for the paper exclusively for Brother to improve printing quality and perform printing.

Note: To use AMS07, make sure to update the firmware to the latest one.

2 OTHER SERVICE FUNCTIONS

2.1 Displaying the Firmware Version

When the machine is on standby, hold down the **Home** key for approx. 5 seconds to display the following screen on the LCD.



The image shows a screenshot of an LCD display with a black background and white text. The display 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 a solid black rectangular area.

1. Serial No	123456789012345
2. ROM Version	0047 009071112:F97B
3. Print Page	000047

The firmware version displays in the **2. ROM Version** area.

2.2 Moving the Head/Carriage Unit

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.

2.3 Retrieving the Equipment Log Information

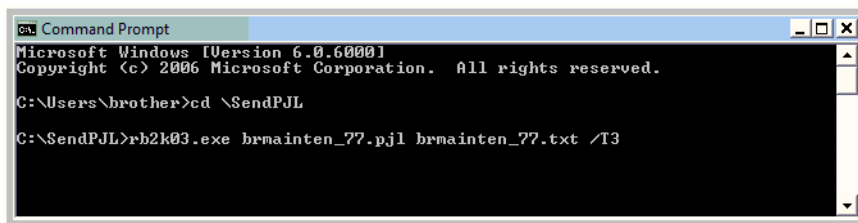
< Function >

This procedure retrieves the log information from the machine to the connected PC as electronic data.

< Operating Procedure >

- (1) Turn ON your PC.
- (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 "Entry to the Maintenance Mode"](#) 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.)



```
Command Prompt
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
```

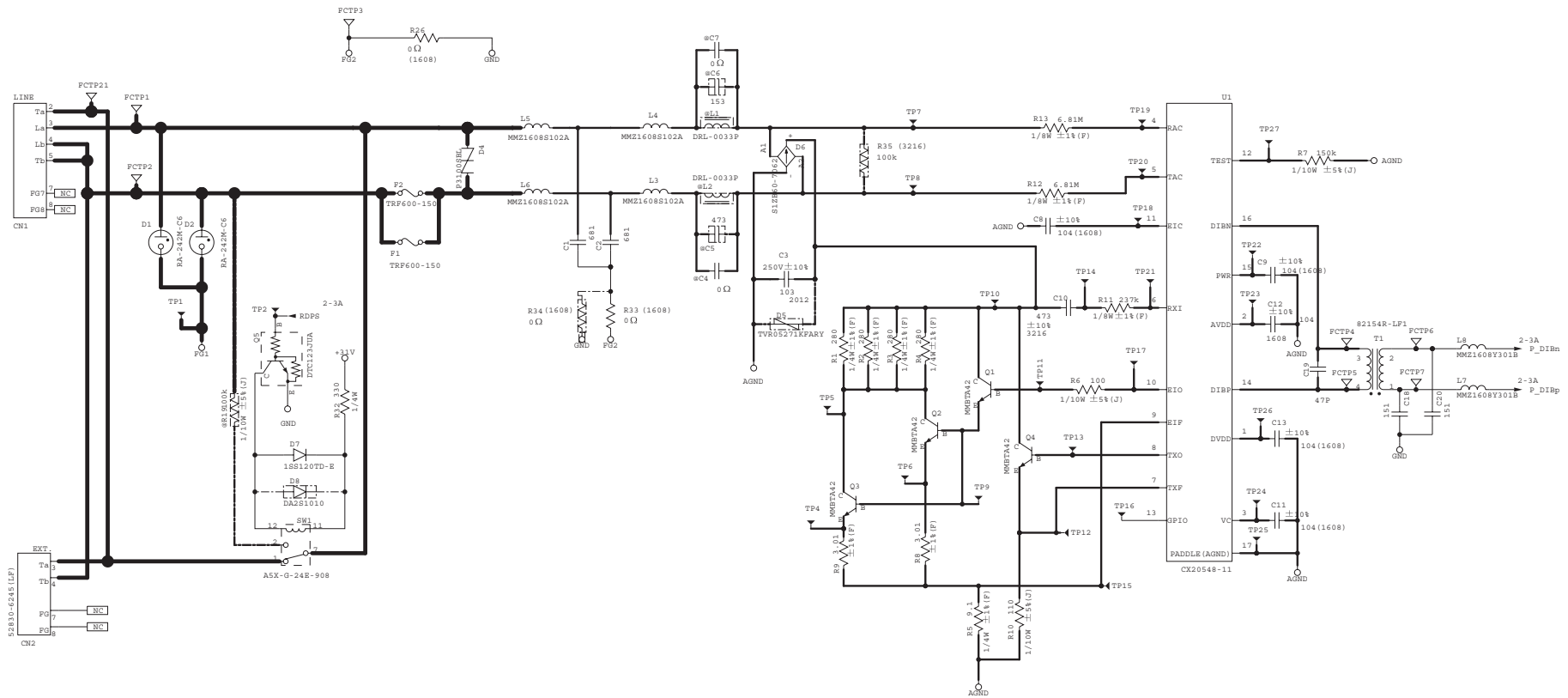
Otherwise, an error occurs.

brmainten_77.txt is created in the arbitrary folder.

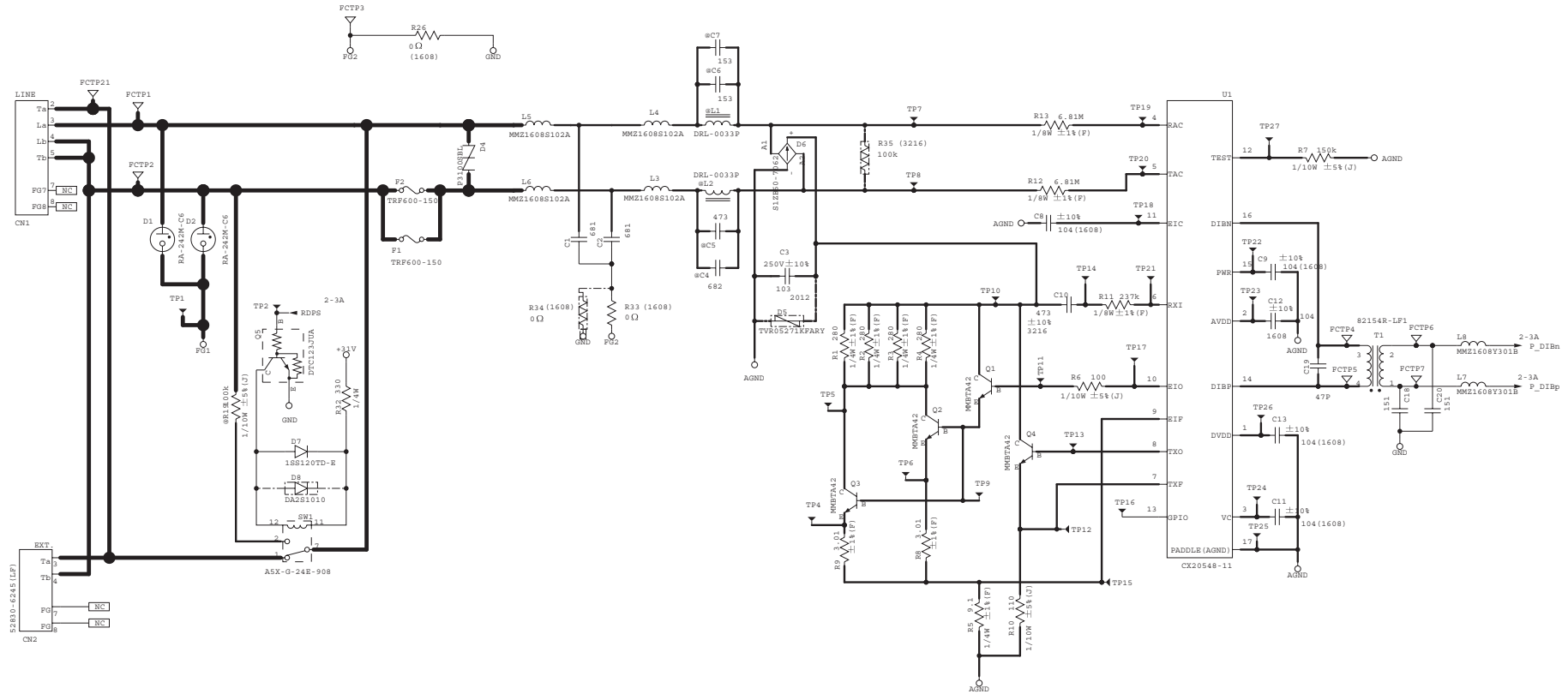
- (7) In Excel, open the created header/footer and delete texts added by the PJL stipulation.

CHAPTER 6 CIRCUIT DIAGRAMS AND WIRING DIAGRAMS

■ MJ PCB U.S.A., Canadian models



■ MJ PCB
 European, Oceanian, Asian models



CHAPTER 7 PERIODICAL MAINTENANCE

1 PERIODICAL REPLACEMENT PARTS

There are no parts to be replaced periodically.

APPENDIX 1. SERIAL NUMBERING SYSTEM

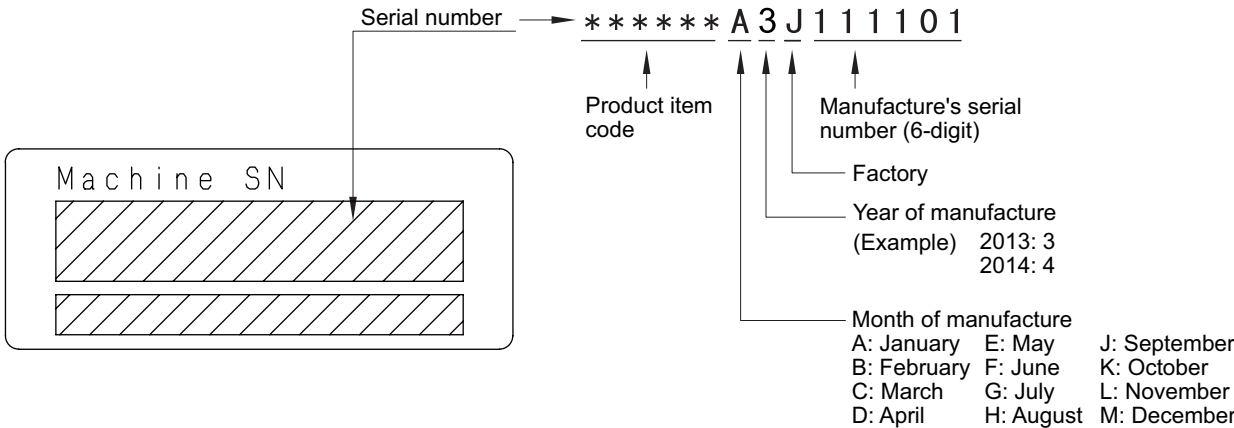
This appendix shows the location of labels put on some parts and describes the coding information for serial number and head property data.

< Reading Labels >

An individual machine has a "serial number label" for the machine itself and "head 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

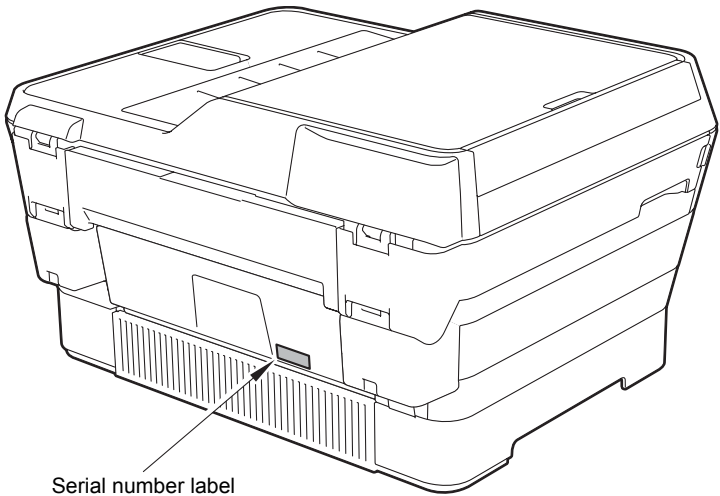


Fig. App 1-1

(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

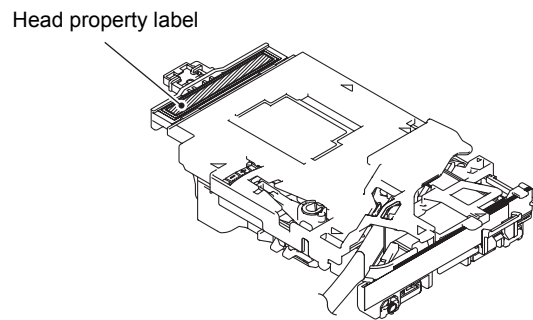


Fig. App 1-2

APPENDIX 2. DELETION OF USER SETTING INFORMATION


This appendix provides instructions on how to delete user setting information recorded in the machine.

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
- 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** to confirm.
- (9) Press **Yes** for 2 seconds to reboot the machine.

APPENDIX 3. INSTALLING THE MAINTENANCE PRINTER DRIVER

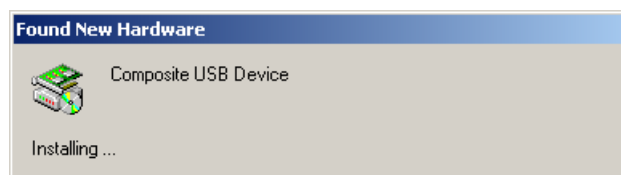
To identify machines connected via USB direct interface, the PC requires the corresponding driver for the virtual USB device. If you connect any number of machines to your PC, the same number of virtual USB devices will be automatically configured on your PC. To prevent many virtual USB devices from 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.

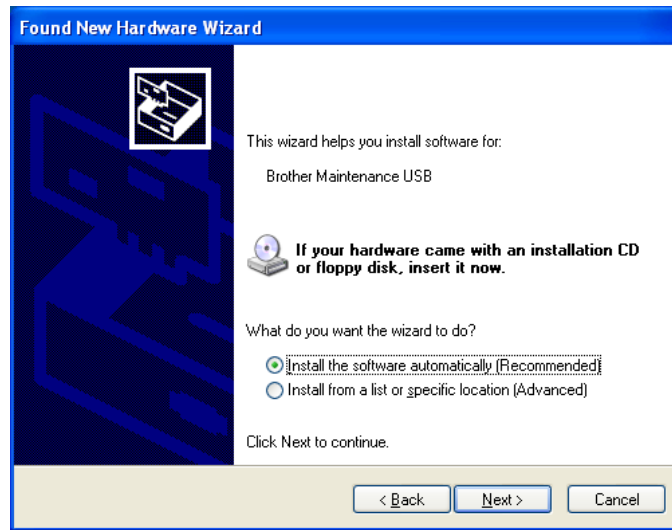
The following window appears.



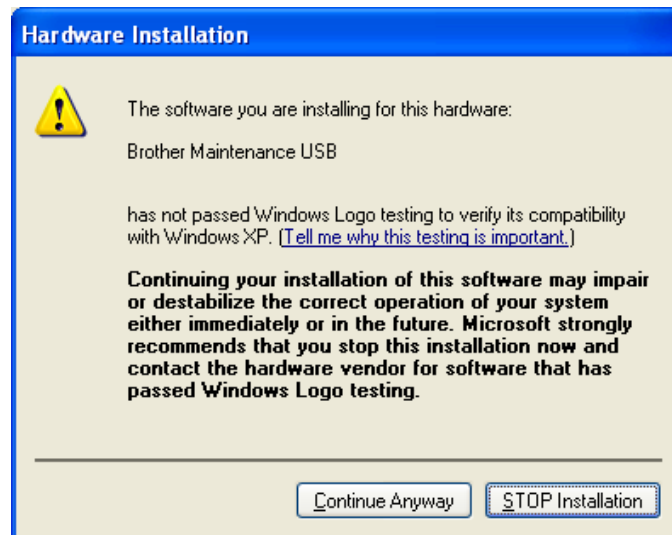
- (6) The following screen appears, indicating the detection of new hardware device by the system. Select "No, not this time." And click **Next**.

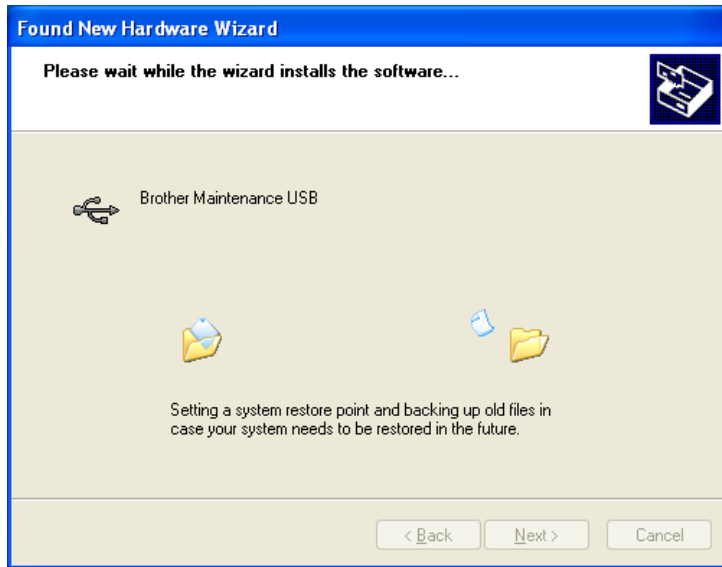


(7) Select "Install the software automatically (Recommended)" and click **Next**.



(8) Alert warning message of WHQL appears. Click **Continue Anyway** to proceed.



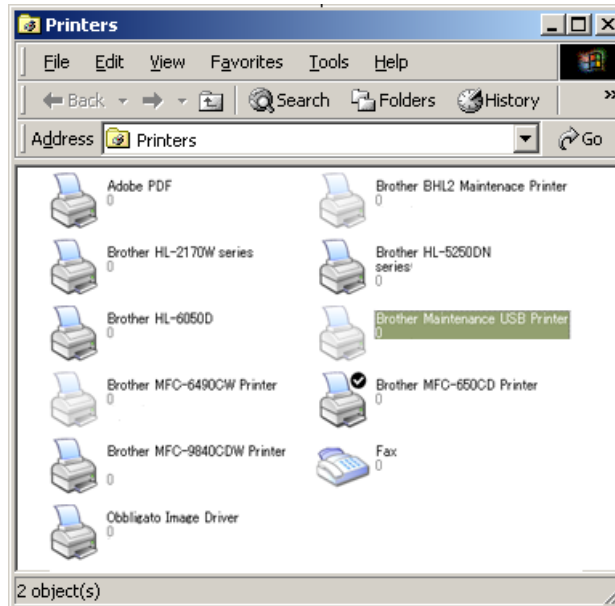


(9) Repeat steps (6) to (8) three times. Installation is completed.

(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.

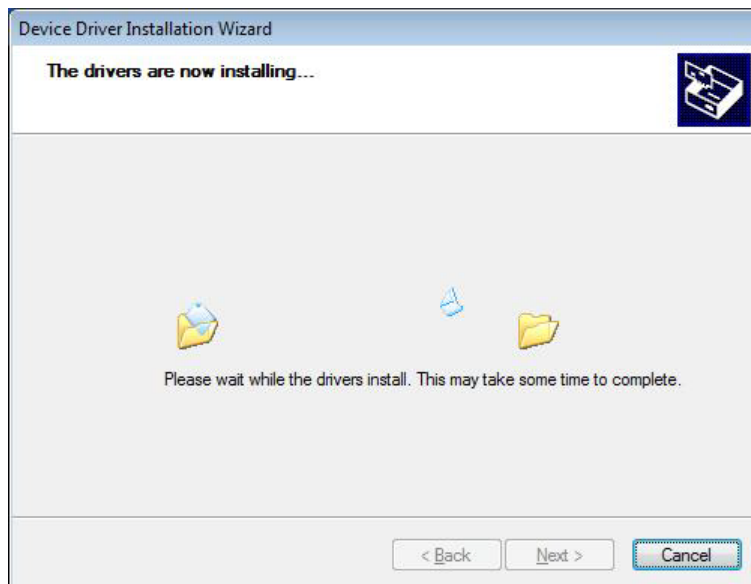


Windows Vista/Windows 7/Windows 8

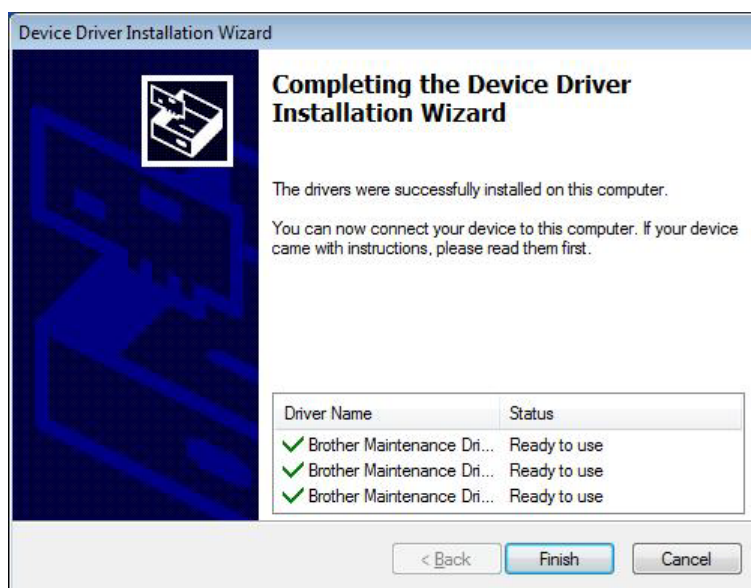
- (1) Check that the power cord of the machine is unplugged from the electrical outlet. Disconnect the USB cable that connects the machine with your PC.
- (2) Turn ON your PC.
- (3) Double-click the Setup.exe in the Brother Maintenance USB Printer held in an arbitrary folder.
- (4) Wait for the following 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.

Windows Vista/Windows 7

The following window is displayed during installation.

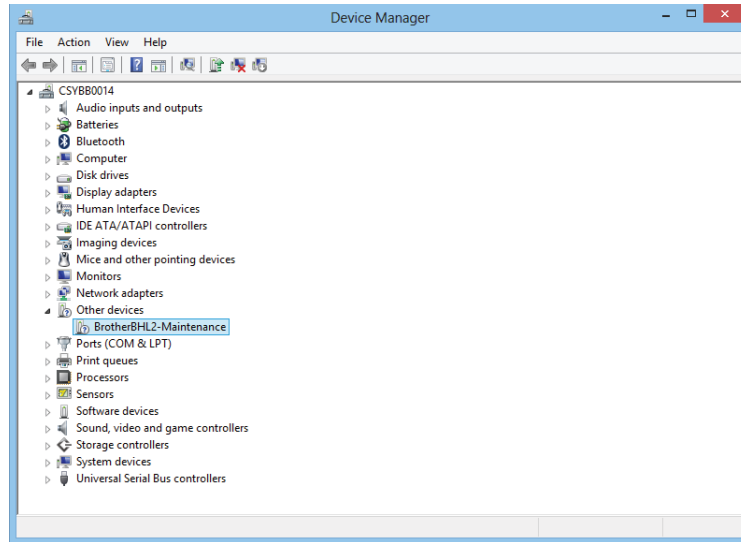


If the following window appears, the installation is completed.



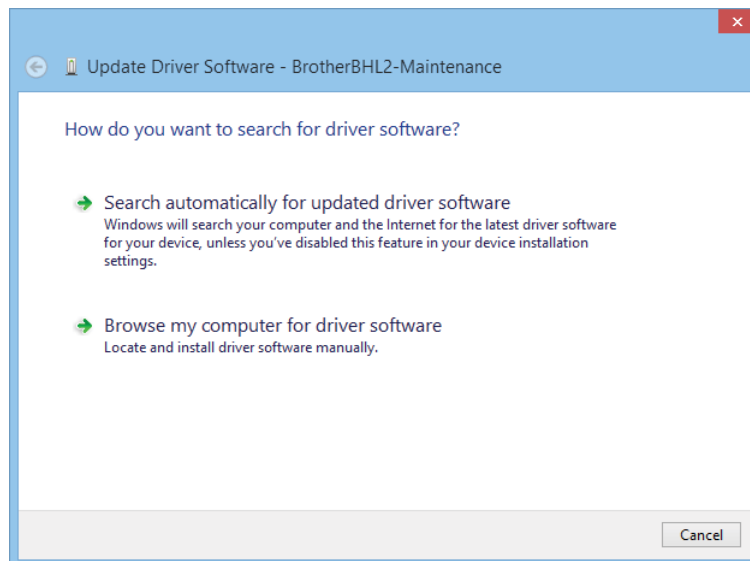
Windows 8

Open "Device Manager" from [Settings] → [Control Panel].



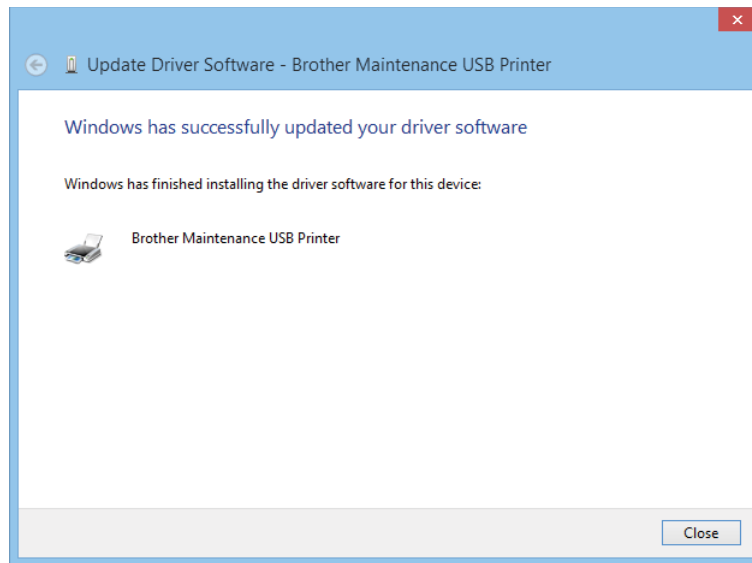
Select "Update Driver Software" from the pull-down menu of "Brother BHL2-Maintenance" in "Other devices".

When the following screen appears, click "Search automatically for updated driver software".



Select "Brother Maintenance USB Printer" and click [Next].

When the following screen appears, click [Close] to close the screen.



APPENDIX 4. REPLACEMENT OF CONDENSER ON THE MAIN PCB

This section explains the handling method when the power fails to be turned ON due to the condenser defective on the main PCB.

A4.1 HOW TO JUDGE CONDENSER DEFECTIVE

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 outl
- (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.)

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	http://www.almit.com
For Worldwide except Australia, New Zealand	KESTER	U.S.A.	KESTER245 KESTER285	http://www.kester.com
For Worldwide	AIM	CANADA	CASTIN RMA2	http://www.aimsolder.com

* 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.

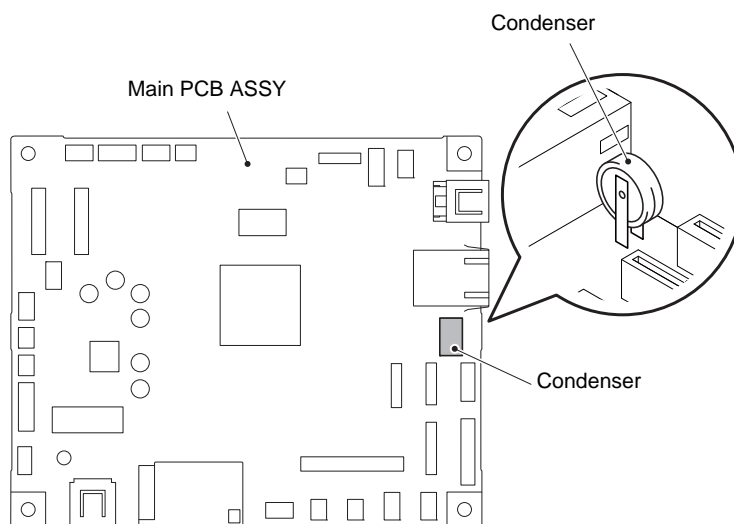


Fig. App 4-1

- (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.

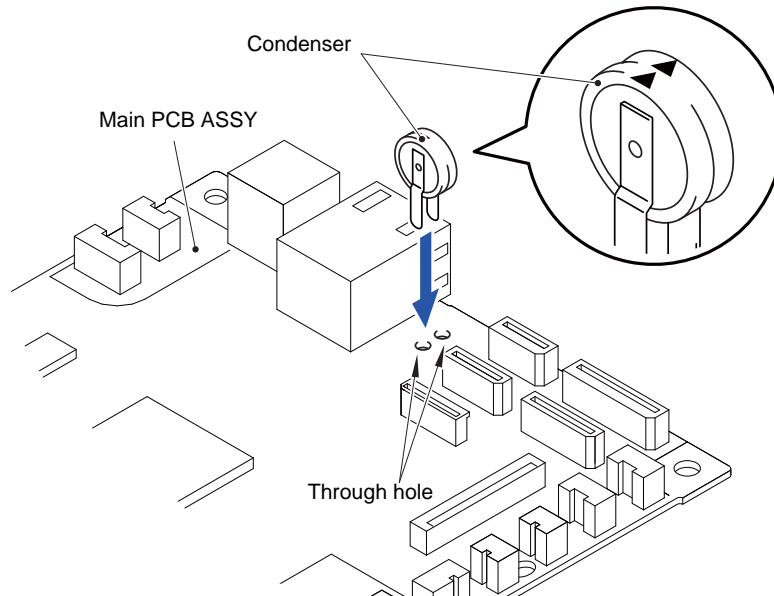


Fig. App 4-2

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.