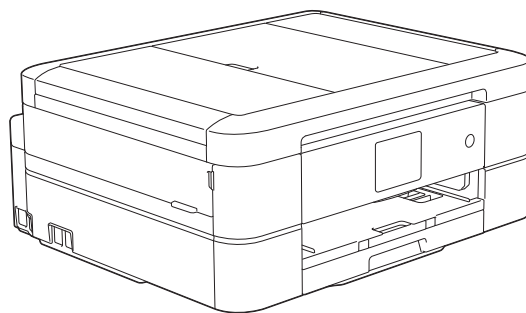**Brother Inkjet DCP/MFC**

SERVICE MANUAL

MODELS: DCP-J562DW/J785DW
MFC-J460DW/J480DW/
J485DW/J680DW/
J880DW/J885DW/
J985DW

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

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This product includes open-source software.

To see the open source licensing remarks, please go to the manual download selection on your model's home page of Brother Solutions Center at http://solutions.brother.com/.

Preface

This Service Manual is intended for use by service personnel and details the specifications, construction, and maintenance for the Brother machines noted on the front cover. It includes information required for troubleshooting and service--disassembly, reassembly, and lubrication--so that service personnel will be able to understand equipment function, repair the equipment in a timely manner and order spare parts as necessary.
To perform appropriate maintenance so that the machine is always in the best possible condition for the customer, service personnel must adequately understand and apply this manual.

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

	DCP-J562DW	DCP-J785DW	MFC-J460DW MFC-J480DW MFC-J485DW	MFC-J680DW	MFC-J880DW MFC-J885DW	MFC-J985DW
Print Head	Low	Step	Low	Step	Step	Step
LAN	---	---	---	---	√	√
Wireless LAN	√	√	√	√	√	√
NFC	---	---	---	---	√	√
Photo Capture Center	√	√	---	√	√	√
ADF	---	√	√	√	√	√
LCD	2.7 inch	2.7 inch	1.8 inch	2.7 inch	2.7 inch	2.7 inch
Touch Panel	√	√	---	√	√	√
Photo tray	√	√	---	√	√	√
Manual feed slot	√	√	---	√	√	√

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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.

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

If trouble is experienced with this equipment, for repair or warranty information, please contact Brother Customer Service. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

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

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

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

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

declares, that the products

Product Name: DCP-J562DW/MFC-J460DW/J480DW/J485DW/J680DW/J880DW/J885DW/
               J985DW

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.

■ RF Exposure Notice(USA or Canada only)

This equipment complies with FCC/IC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines in Supplement C to OET65 and RSS-102 of the IC radio frequency(RF) Exposure rules. This equipment should be installed and operated keeping the radiator at least 20cm or more away from person's body (excluding extremities: hands, wrists, feet and ankles).

Cet équipment est conforme aux limits d'exposition aux rayonnements énoncées pour unenvironnement non contolé et respecte les régles les radioélectriques (RF) de la FCC lignes directrices d'exposition dans le Supplément C à OET65 et d'exposition aux fréquences radioélectriques (RF) CNR-102 del'IC. Cet equipement doit être installé et utilisé en gardant une distance de 20 cm ou plus entre le dispositif rayonnant et le corps (à l'exception des extrémités: mains poignets, pieds et chevilles).

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■ Wireless connection(Mexico only)

The operation of this equipment is subject to the following two conditions:

It is possible that this equipment or device may not cause harmful interference, and
(1) This equipment or device must accept any interference, including interference that may cause undesired operation.

La operacion de este equipo està sujeta a las siguientes dos condiciones:

(1) Es posible que este equipo o dispositivo no cause interferencia perjuducial y
(2) Este equipo o dispositivo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operacion no deseada.

■ Industry Canada Compliance Statement (Canada only)

This device complies with Industry Canada licence-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 materiel est conforme aux specifications techniques applicables d'Industrie Canada.

NOTICE

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

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

■ For use in the USA or Canada only

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

■ LAN connection (Models with Wired LAN function only)

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/

-> select your "Manuals"
-> select your model

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 machines 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.

■ Radio interference

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

■ Recycling information in accordance with the WEEE and Battery Directive.

Product mark   Battery mark

European Union only

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

■ International ENERGY STAR® Qualification Statement

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

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

SAFETY INFORMATION

⚠️ WARNING

<u>WARNING</u> indicates a potentially hazardous situation which, if not avoided, could result in death or serious injures.

⚠️ CAUTION

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

IMPORTANT

<u>IMPORTANT</u> indicates a potentially hazardous situation which, if not avoided, may result in damage to property or loss of product functionality.

NOTE

<u>NOTE</u> specifies the operating environment, conditions for installation, or special conditions of use.

🚫 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.

Italics

Italicized typeface emphasizes an important point or refers you to a related topic.

Follow all warnings and instructions marked on the machine.

NOTE

The illustrations in this section show the MFC-J880DW.

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 (RJ-45) (Models with Wired LAN function only) cables from the machine.

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

⚡
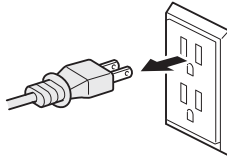
DO NOT handle the plug with wet hands.

⚡ 🔥
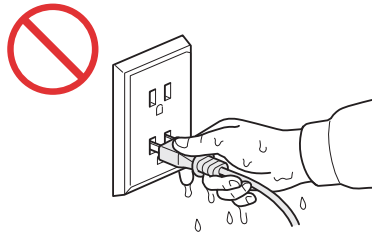
Always make sure the plug is fully inserted.

🔥

Unplug the power plug regularly to clean it. Use a dry cloth to clean the root of the plug blades and between the blades. If the power plug is plugged into the outlet over a long period, dust accumulates around the plug blades, which may cause a short circuit resulting in a fire.

⚡ 🔥

DO NOT take apart or convert the machine. This may create a cause of fire or electric shock. Such conduct may be punished by the law.

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⚠ ⚠

If the machine has been dropped or the casing has been damaged, there may be the possibility of an electrical shock. Unplug the product from the AC power outlet.

⚠ ⚠

DO NOT drop any metallic hardware or any type of liquid on the power plug of the machine. It may cause an electrical shock or a fire.

⚠ ⚠

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

⚠ ⚠

This machine should be connected to an AC power source within the range indicated on the rating label. DO NOT connect it 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.

⚠

DO NOT use this product during an electrical storm.

⚠

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

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 so could cause a fire or electrical shock. Instead, use only a dry, lint-free cloth.

DO NOT use the product near any medical electrical equipment. The radio wave emitted from the product may affect medical electrical equipment and cause a malfunction, which may result in a medical accident.

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.

If the machine becomes unusually hot, releases smoke, generates any strong smells, or if you accidentally spill any liquid on it, immediately unplug the product from the AC power outlet.

⚠ CAUTION

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.

DO NOT put your hand or any foreign objects into the ink insertion slot. Doing this may cause injury.

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To prevent injuries, be careful not to put your fingers in the areas shown in the illustrations.
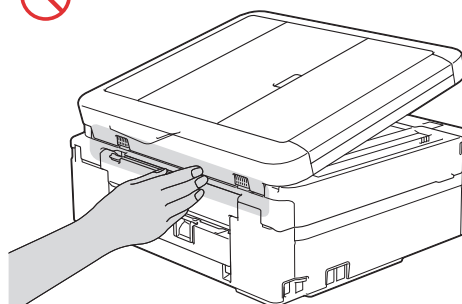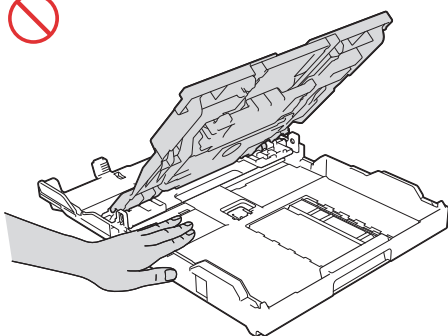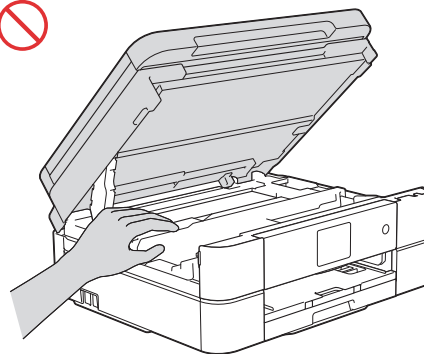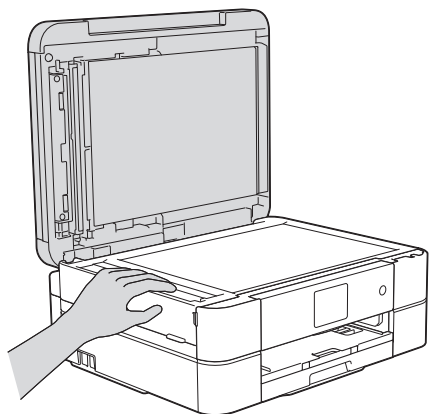
DO NOT touch the area shaded in the illustration. Doing this may cause injury to your fingers by cutting them on the edge of the product.
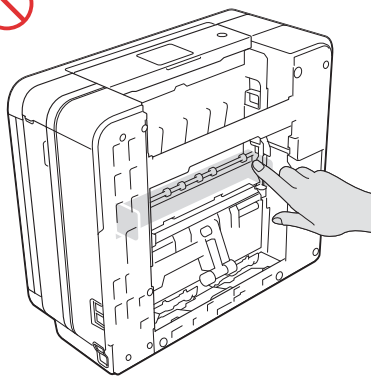
Do not apply pressure with your hand or elbow in the gray shaded area shown in the illustration below. Doing so may cause the ADF document support (1) to inadvertently open.
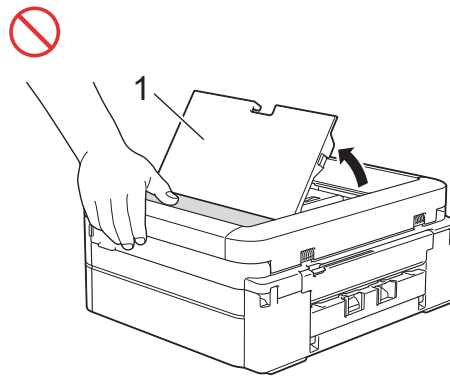
DO NOT carry the product by holding the scanner cover, the Jam Clear Cover, the manual feed slot cover (some models only), or the control panel. Doing this may cause the product to slip out of your hands and may result in injury.
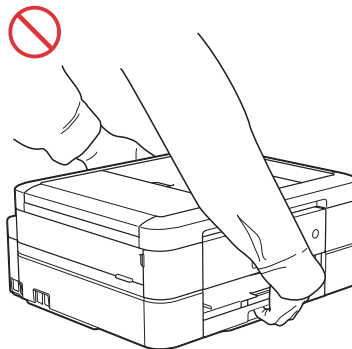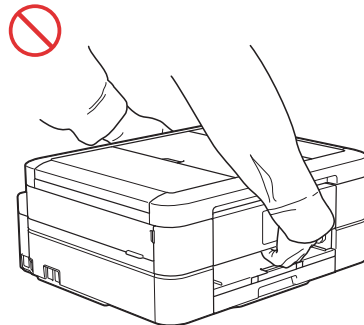
Only carry the machine by placing your hands under the entire machine.
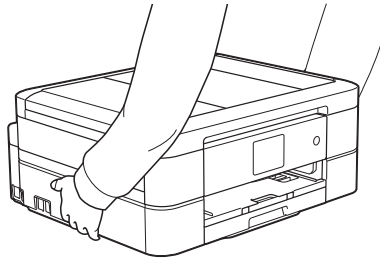
If the ink contacts your skin or gets into your eye or mouth, please follow these steps immediately:

• If the ink attaches to your skin, wash it away with water and soap immediately.
• If the ink gets into your eye, rinse it with water immediately. If left as it is, it may cause a red eye or mild inflammation. In case of any abnormality, consult with your doctor.
• If the ink gets into your mouth, spit it out, rinse your mouth, and consult your doctor immediately.
• Be careful not to get the ink in your eye when replacing the ink cartridge.
• Keep the ink cartridge out of the reach of children.
• DO NOT shake the ink cartridge hard. The ink may leak out if the cartridge is shaken or twirled hard.
• DO NOT take apart the ink cartridge. The cartridge cannot be used if it is taken apart. The ink may get in your eye or make contact with your skin while you take apart the cartridge.

IMPORTANT
• Disruption of power can wipe out information in the machine's memory.
• If the machine does not operate normally when the operating instructions are followed, adjust only those controls that are covered by the operating instructions. Incorrect adjustment of other controls may result in damage.

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.

(16) 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.

Flushing guide

Cleaner stick
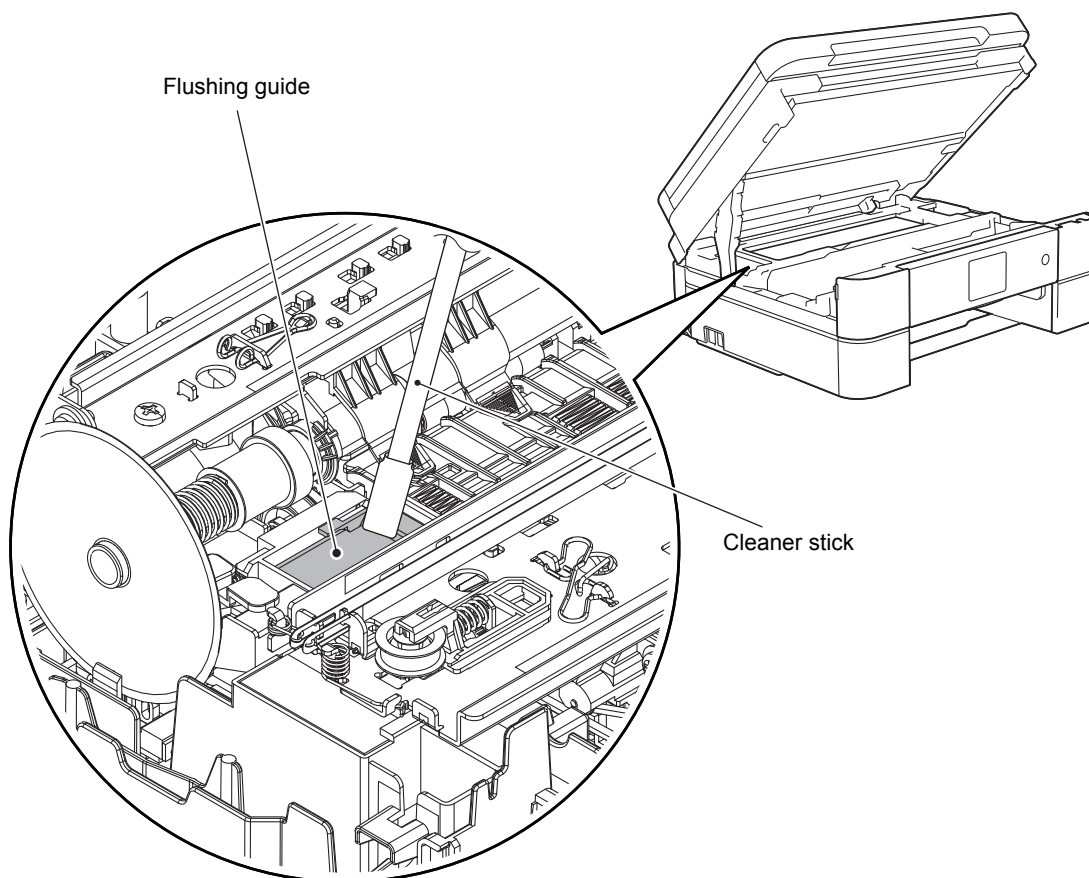
CHAPTER 1 SPECIFICATIONS

1   GENERAL

1.1   General

Model	DCP-J562DW	DCP-J785DW	MFC-J460DW MFC-J480DW MFC-J485DW	MFC-J680DW	MFC-J880DW MFC-J885DW	MFC-J985DW
Print Head	BK/C/M/Y: 210/70/70/70 nozzle	BK/C/M/Y: 210/210/210/ 210 nozzle	BK/C/M/Y: 210/70/70/70 nozzle	BK/C/M/Y: 210/210/210/210 nozzle		
Minimum Droplet Size	BK: 3 pl CMY: 1.5 pl					
Scanning Method	CIS					
CPU Speed	288 MHz					
Backup Clock	Yes (Up to 1 hour)					

1.2 Media Specification

Model	DCP-J562DW	DCP-J785DW	MFC-J460DW MFC-J480DW MFC-J485DW	MFC-J680DW	MFC-J880DW MFC-J885DW	MFC-J985DW
Media Sizes	**Standard Tray**	A4, LTR, LGL[*1], EXE, A5, A6, B5[*2] (JIS)Photo (102x152 mm/4x6"), Indexcard (127x203 mm/5x8"), Photo-2L (127x178 mm/5x7"), C5 Envelope, Com-10, DL Envelope, Monarch					
	Photo Tray	Photo (102x152 mm/4x6"), Photo-L (89x127 mm/3.5x5")		N/A	Photo (102x152 mm/4x6"), Photo-L (89x127 mm/3.5x5")		
	Manual Feed Slot	A4, LTR, LGL[*1], EXE, A5, A6, B5[*2] (JIS) Photo (102x152 mm/4x6"), Indexcard (127x203 mm/5x8"), Photo-2L (127x178 mm/5x7"), C5 Envelope, Com-10, DL Envelope, Monarch Photo-L (89x127 mm/3.5x5")		N/A	A4, LTR, LGL[*1], EXE, A5, A6, B5[*2] (JIS) Photo (102x152 mm/4x6"), Indexcard (127x203 mm/5x8"), Photo-2L (127x178 mm/5x7"), C5 Envelope, Com-10, DL Envelope, Monarch Photo-L (89x127 mm/3.5x5")		
	Duplex Print	<PC Print> A4/LTR/EXE/A5/B5 (JIS)[*2] <Copy> LTR/EXE[*3]/A4/A5					
	ADF (width/length)	N/A	148/148 mm to 215.9/355.6 mm (5.8/5.8" to 8.5/14.0")				
	Scanner Glass (width/length)	up to 215.9/297 mm (up to 8.5/11.7")					
Media Weights	**Standard Tray**	64-220 g/m^2 (17-58 lb.)					
	Photo Tray	64-220 g/m^2 (17-58 lb.)		N/A	64-220 g/m^2 (17-58 lb.)		
	Manual Feed Slot	64-300 g/m^2 (17-79 lb.)		N/A	64-300 g/m^2 (17-79 lb.)		
	Duplex Print	64-105 g/m^2 (17-28 lb.)					
	ADF	N/A	64-90 g/m^2 (17-24 lb.)				
Media Types	**Standard Tray**	Plain, Inkjet, Glossy (cast/resin), Recycled					
	Photo Tray	Plain, Inkjet, Glossy (cast/resin), Recycled		N/A	Plain, Inkjet, Glossy (cast/resin), Recycled		
	Manual Feed Slot	Plain, Inkjet, Glossy (cast/resin), Recycled		N/A	Plain, Inkjet, Glossy (cast/resin), Recycled		
	Duplex Print	Plain, Recycled					
	ADF	N/A	Plain, Recycled				

[*1] Only for US and Indonesia
[*2] Only for China, Hong Kong, Korea and Taiwan
[*3] Only for US

1.3   Paper Handling

Model		DCP-J562DW	DCP-J785DW	MFC-J460DW MFC-J480DW MFC-J485DW	MFC-J680DW	MFC-J880DW MFC-J885DW	MFC-J985DW
Paper Input (sheets)	Standard Tray	100 (80 g/m^2)					
	Photo Tray	20 (thickness: 0.25 mm)		N/A	20 (thickness: 0.25 mm)		
	Manual Feed Slot	1					
	ADF	N/A		20 (80 g/m^2)			
Output Paper Capacity (sheets)		50 (80 g/m^2)					

* For details, refer to Section 10.1 Paper.

1.4   LCD Panel

Model		DCP-J562DW	DCP-J785DW	MFC-J460DW MFC-J480DW MFC-J485DW	MFC-J680DW	MFC-J880DW MFC-J885DW	MFC-J985DW
LCD	Type & Size	2.7 inch TFT		1.8 inch TFT		2.7 inch TFT	
	Touch-Panel	Yes		N/A		Yes	

1.5   Memory

Model	DCP-J562DW	DCP-J785DW	MFC-J460DW MFC-J480DW MFC-J485DW	MFC-J680DW	MFC-J880DW MFC-J885DW	MFC-J985DW
Memory Capacity (physical: Mbytes)	128 MB					
Memory Backup (with Flash memory)	N/A				Yes	

1.6   Interface

Model		DCP-J562DW	DCP-J785DW	MFC-J460DW MFC-J480DW MFC-J485DW	MFC-J680DW	MFC-J880DW MFC-J885DW	MFC-J985DW
Host Interface		Hi-Speed USB 2.0					
LAN		N/A				Yes	
Wireless LAN		Yes					
PictBridge		N/A	Yes	N/A	Yes		
USB Memory		N/A	Yes (up to 256 GB)	N/A	Yes (up to 256 GB)		
Acceptable Media Cards (Type & Size) Media Card	Memory Stick Duo	16 MB-128 MB (Memory stick is not available. Duo only)		N/A	16 MB-128 MB (Memory stick is not available. Duo only)		
	Memory Stick Pro/ Pro Duo/ Micro	256 MB-32 GB (MagicGate: YES if not use MG function) (Memory stick Pro is not available. Pro Duo without adapter and Micro with adapter)		N/A	256 MB-32 GB (MagicGate: YES if not use MG function) (Memory stick Pro is not available. Pro Duo without adapter and Micro with adapter)		
	SD Memory Card (miniSD, microSD with Adapter)	16 MB-2 GB		N/A	16 MB-2 GB		
	SDHC Memory Card (miniSDHC, microSDHC with Adapter)	4 GB-32 GB		N/A	4 GB-32 GB		
	SDXC Memory Card	48 GB-128 GB	48 GB-256 GB	N/A	48 GB-128 GB		48 GB-256 GB
	MultiMedia Card	32 MB-2 GB		N/A	32 MB-2 GB		
	MultiMedia Card plus	128 MB-4 GB		N/A	128 MB-4 GB		
	MultiMedia Card mobile (with Adapter)	64 MB-1 GB		N/A	64 MB-1 GB		

1.7 Others

Model	DCP-J562DW	DCP-J785DW	MFC-J460DW MFC-J480DW MFC-J485DW	MFC-J680DW	MFC-J880DW MFC-J885DW	MFC-J985DW
Operating Environment Temperature (Best Print Quality)	10-35 (20-33) degrees centigrade 50-95 (68-91.4) degree fahrenheit					
Operating Environment Humidity (Best Print Quality)	20-80 (20-80) %					
Power Consumption (Operating/ Standby/Sleep mode/Off) — U.S.A	N/A			20/3.5/1.2/0.2 W		20/3.5/1.3/0.2 W
Power Consumption (Operating/ Standby/Sleep mode/Off) — Europe	19/3/0.8/0.2 W	19/3.5/1.3/0.2 W	19/3.5/1.1/0.2 W	19/3.5/1.3/0.2 W		
Power Consumption (Operating/ Standby/Sleep mode/Off) — Asia/Oceania	19/3/0.8/0.2 W	N/A	19/3.5/1.1/0.2 W	19/3.5/1.3/0.2 W		
Machine Noise (Operating)	50 dBA					
Machine Dimensions	W400 x D341 x H151 mm	W420 x D341 x H172 mm	W400 x D341 x H172 mm			W420 x D341 x H172 mm
Machine Weight — U.S.A	N/A			8.2 kg (18.1 lb)		8.3 kg (18.3 lb)
Machine Weight — Except for U.S.A	7.2 kg (15.9 lb)	8.4 kg (18.5 lb)	8.3 kg (18.3 lb)			8.5 kg (18.7 lb)

2 FAX

Model	DCP-J562DW	DCP-J785DW	MFC-J460DW MFC-J480DW MFC-J485DW	MFC-J680DW	MFC-J880DW MFC-J885DW	MFC-J985DW
Modem Speed (bps)	N/A		14,400 (FAX)			
Transmission Speed	N/A		Approx.7 sec (ITU-T Test Chart #1,MMR)			
ITU-T Group	N/A		G3			
COLOR FAX — Document (Send/Receive)	N/A		Yes/Yes (ITU-T color FAX)			
COLOR FAX — Memory (Send/Receive)	N/A		No/No (ITU-T color FAX)			

3   PRINTER

Model	DCP-J562DW	DCP-J785DW	MFC-J460DW MFC-J480DW MFC-J485DW	MFC-J680DW	MFC-J880DW MFC-J885DW	MFC-J985DW
Print Speed ESAT (mono/color) (based on ISO/IEC 24734)	12/6 ipm	12/10 ipm	12/6 ipm	12/10 ipm		
Draft Print Speed (mono/color) *time calculated including paper feeding	27/10 ppm	27/23 ppm	27/10 ppm	27/23 ppm		
Resolution (horizontal x vertical)	up to 1,200 x 6,000 dpi					
Auto Duplex Print	Yes (up to A4/LTR)					

4   COPY

Model		DCP-J562DW	DCP-J785DW	MFC-J460DW MFC-J480DW MFC-J485DW	MFC-J680DW	MFC-J880DW MFC-J885DW	MFC-J985DW
Copy Speed ESAT (based on ISO/IEC 24735) (mono/color) *This spec is for ADF model only.		N/A	6/6 ipm	6/3 ipm	6/6 ipm		
Copy Speed sESAT (based on ISO/IEC 29183) (mono/color) *This spec is for non-ADF model only		5.6/2.7 ipm	N/A				
Copy Speed FCOT (based on ISO/IEC 24735 Anex D) (mono/color)		24/33 sec	24/24 sec	24/33 sec	24/24 sec		
Resolution (horizontal x vertical)	Mono	Print: Max. 1,200 x 2,400 dpi Scan: Max. 1,200 x 1,200 dpi					
	Color	Print: Max. 1,200 x 2,400 dpi Scan: Max. 1,200 x 1,200 dpi					
Auto Duplex Copy		N/A					

5   SCANNER

Model	DCP-J562DW	DCP-J785DW	MFC-J460DW MFC-J480DW MFC-J485DW	MFC-J680DW	MFC-J880DW MFC-J885DW	MFC-J985DW
Scan speed (Mono/Color) *@100 dpi	A4: 3.35 sec/4.38 sec LTR: 3.15 sec/4.12 sec					
Resolution (horizontal x vertical) — Optical	FB: 1,200 x 2,400 dpi ADF: N/A	FB: 1,200 x 2,400 dpi ADF: 1,200 x 600 dpi				
Resolution (horizontal x vertical) — Interpolated	For XP/Vista/Windows 7/Windows 8, up to 19,200 x 19,200 dpi with Scanner Utility					

6   SOFTWARE

Model	DCP-J562DW,MFC-J460DW/ J480DW/J485DW/J680DW/J880DW/J885DW	DCP-J785DW MFC-J985DW
Driver Support OS Version — Windows	Windows XP/XP x64/Vista/7/8/8.1 Windows Server 2003/2003 x64/2008/2008 R2/2012/2012 R2	Windows XP/XP x64/Vista/7/8/8.1/10 Windows Server 2003/2003 x64/2008/2008 R2/2012/2012 R2
Driver Support OS Version — Macintosh	OS X v10.8.5/10.9.x/10.10.x	

7 NETWORK

7.1 Network

Model	All models
Internet FAX (Firmware) (version T37)	N/A

7.2 Wired

Model	DCP-J562DW	DCP-J785DW	MFC-J460DW MFC-J480DW MFC-J485DW	MFC-J680DW	MFC-J880DW MFC-J885DW	MFC-J985DW
Model Name (Ethernet)	N/A				Embedded (NC-360h)	
Network Connection (Ethernet)	N/A				Ethernet 10/100BASE-TX Auto Negotiation	

7.3 Wireless

Model		All models
Model Name (Wireless)		Embedded (NC-370w)
Network Connection (Wireless)		IEEE 802.11 b/g/n (Infrastructure/Ad-hoc) IEEE 802.11 g/n (Wi-Fi Direct)
Wireless Security		SSID (32 chr), WEP 64/128bit, WPA-PSK(TKIP/AES), WPA2-PSK(AES) **NO LEAP**
Setup Support Utility	AOSS	Yes
	WPS (Wi-Fi Protected Setup)	Yes

8   SUPPLIES/OPTIONS

Model		DCP-J562DW,MFC-J460DW/J480DW/J485DW/J680DW/J880DW/J885DW	DCP-J785DW MFC-J985DW
Ink Cartridge Yield @ ISO pattern (Pages)	Bundled Cartridges (mono/color)	208/208	2160/720
	Supply Standard Cartridges (mono/color)	260/260	N/A
	Supply High Yield Cartridges (mono/color)	550/550	2400/1200
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 control condition : Up to 5 days	

9   SERVICE INFORMATION

Model	All models
Monthly Volume	2,500 pages
Machine Life	30,000 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	Letter	8 1/2 x 11 in. (215.9 x 279.4 mm)	Yes	Yes	Yes	Yes
	A4	8.3 x 11.7 in. (210 x 297 mm)	Yes	Yes	Yes	Yes
	Legal [1]	8 1/2 x 14 in. (215.9 x 355.6 mm)	Yes	Yes	--	Yes
	Executive	7 1/4 x 10 1/2 in. (184 x 267 mm)	--	Yes	--	Yes
	JIS B5 [1]	7.2 x 10.1 in. (182 x 257 mm)	--	--	--	Yes
	A5	5.8 x 8.3 in. (148 x 210 mm)	--	Yes	--	Yes
	A6	4.1x 5.8 in. (105 x 148 mm)	--	--	--	Yes
Cards	Photo	4 x 6 in. (10 x 15 cm)	--	Yes	Yes	Yes
	Photo L	3 1/2 x 5 in. (89 x 127 mm)	--	--	--	Yes
	Photo 2L	5 x 7 in. (13 x 18 cm)	--	--	Yes	Yes
	Index Card	5 x 8 in. (127 x 203 mm)	--	--	--	Yes
Envelopes	C5 Envelope	6.4 x 9 in. (162 x 229 mm)	--	--	--	Yes
	DL Envelope	4.3 x 8.7 in. (110 x 220 mm)	--	--	--	Yes
	COM-10	4 1/8 x 9 1/2 in. (105 x 241 mm)	--	--	--	Yes
	Monarch	3 7/8 x 7 1/2 in. (98 x 191 mm)	--	--	--	Yes

[1] Supported only in some countries.

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)
	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 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)
Envelopes		20 to 25 lb (80 to 95 g/m^2)	Up to 20 mil (Up to 0.52 mm)

[1] BP71 69 lb (260 g/m^2) paper is especially designed for Brother inkjet machines.

Paper capacity of the paper trays

	Paper size	Paper types	No. of sheets
Paper Tray	Letter, Executive, A4, JIS B5 [1], Legal [1], A5, A6, Photo, Photo 2L, Index card, Envelopes (C5, Com-10, DL, Monarch)	Plain Paper	100 [2]
		Inkjet Paper	20
		Glossy Paper, Photo	20
		Index Card	30
		Envelopes	10
Photo Tray (DCP-J562DW/ J785DW, MFC-J680DW/J880DW/ J885DW/J985DW	Photo, Photo L	Plain Paper	20
		Inkjet Paper	
		Glossy Paper, Photo	
Manual Feed Slot (DCP-J562DW/ J785DW, MFC-J680DW/J880DW/ J885DW/J985DW)	Letter, Executive, A4, JIS B5 [1], Legal [1], A5, A6, Photo, Photo L, Photo 2L, Index card, Envelopes (C5, Com-10, DL, Monarch)	Plain Paper, Inkjet Paper, Glossy Paper, Photo and Envelopes	1

[1] Supported only in some countries.

[2] When using plain paper 20 lb (80 g/m^2).

Recommended print media

Brother paper

Paper Type	Item
Premium Plus Glossy Photo	
- Letter	BP71GLTR
- 4" x 6"	BP71GP20

Handle and Use 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 the photo paper.

IMPORTANT

DO NOT use the following kinds of paper:

• Damaged, curled, wrinkled, or irregularly shaped

1: 0.08 in. (2 mm) or greater curl may cause jams to occur.
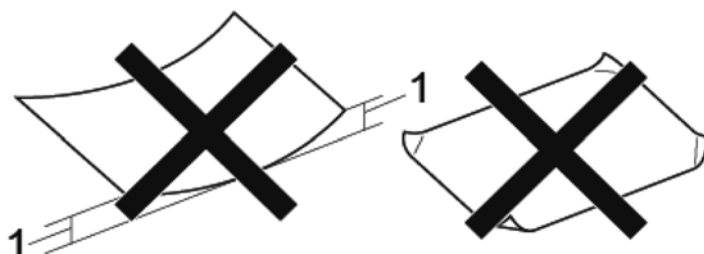
• Extremely shiny or highly textured
• Paper that cannot be arranged uniformly when stacked
• Paper made with a short grain

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Paper capacity of the output paper tray cover

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

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

10.2 Printable Area

The unprintable area depends on the settings in the application you are using. The figures below show the unprintable areas on cut-sheet paper and envelopes. The machine can print in the shaded areas of cut-sheet paper only when the Borderless print feature is available and turned on.
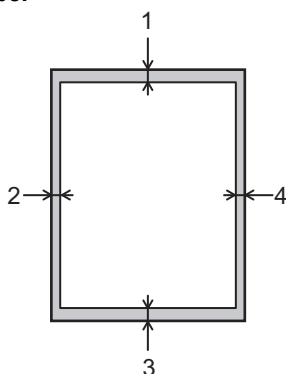
Cut-Sheet Paper   **Envelopes**
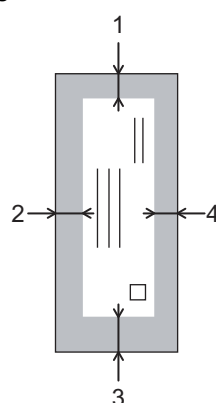
	Top (1)	Left (2)	Bottom (3)	Right (4)
Cut-Sheet	0.12 in. (3 mm)	0.12 in. (3 mm)	0.12 in. (3 mm)	0.12 in. (3 mm)
Envelopes	0.47 in. (12 mm)	0.12 in. (3 mm)	0.47 in. (12 mm)	0.12 in. (3 mm)

NOTE

- The Borderless print feature is not available for envelopes, 2-sided printing and some paper sizes, such as Legal and Executive.

CHAPTER 2   TROUBLESHOOTING

1   INTRODUCTION

This section describes the troubleshooting procedures that the service personnel needs to follow if an error or malfunction occurs in this machine. It is difficult to anticipate all of the possible problems that may occur in future and determine the appropriate troubleshooting procedures so this section covers typical cases and recovery procedures. These cases do not cover everything. However, they can help the service personnel pinpoint malfunctioning parts and serve as a reference during repair.

1.1   Precautions

Instructions described in "Precautions for Troubleshooting and/or Disassembly/Assembly" must be followed when assembling or disassembling the machine during troubleshooting. (Refer to page xxi)

1.2 Initial Check

Before proceeding with the repair, verify the following:

■ **Environmental conditions**

(1) The machine is placed on a flat, firm surface.

(2) The machine is used in clean environment with temperature of 10 to 35 degree-C and humidity of 20 to 80%.

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

(4) The machine is carried horizontally when it is relocated.

■ **Power requirements**

(1) The power supply specified on the rating plate on the machine is used. that voltage fluctuations are 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 recording paper is being used.
(Refer to Chapter 1 "10 PAPER")

(2) The recording paper is not dampened.

(3) An oblique paper or acidic paper is not used.

■ **Consumables**

(1) The ink cartridges (4 colors) are properly set.

■ **Head/carriage unit**

(1) The purge operation (Maintenance mode 76) is repeated several times.
(Refer to Chapter 5, Section 1.3.28)

■ **Others**

(1) Low temperature

Since a low temperature environment puts stress on each operation, the motor may not function normally. In this case, increase the room temperature.

■ **Cleaning**

Use a soft, dry lint-free cloth.

⚠ **WARNING**

When cleaning the machine, do not use flammable sprays and solvents such as alcohol, benzene, and paint thinners. Also, do not use these materials near the machine.

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2 OVERVIEW

2.1 Cross-section Drawings

2.1.1 Document scanning

Document feed roller 2

Document scanning position actuator

ADF separation pad

Document detection actuator

ADF document support

Document pick-up roller

Document separation roller

Document feed roller 1

CIS unit

2.1.2 Printer part

Head/carriage unit

Paper feed roller

Paper ejection roller

Registration actuator

Switchback roller

Manual feed slot

(Front)

(Rear)

Paper tray detection actuator

Duplex paper feed roller

Bank ASSY

Paper pull-in roller

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2.2 Document Feeding/Recording Paper Feeding path

2.2.1 Document feeding path

Document feeding path during ADF scanning

The scanning side is set face-down

2.2.2 Recording paper feeding path

Recording paper feeding
path during duplex-printing

Recording paper
feeding from the manual
feed slot

(Front)

(Rear)
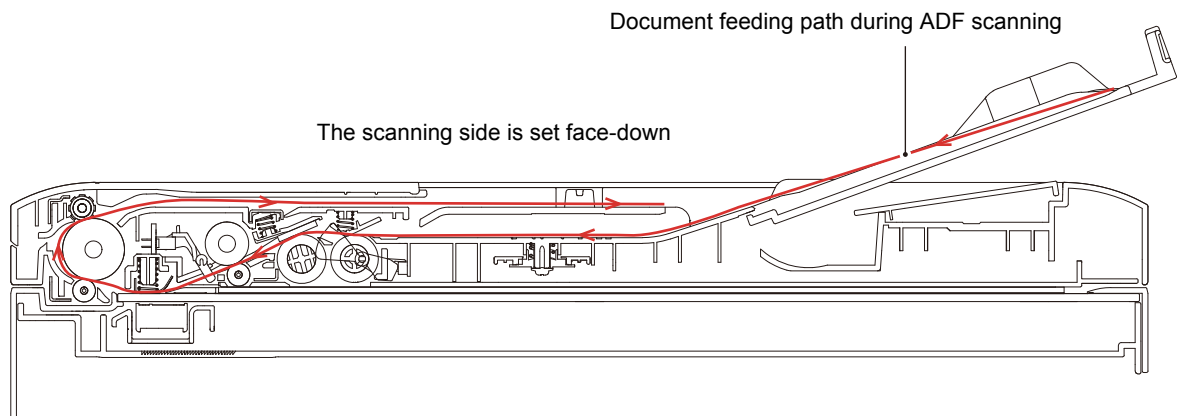
Recording paper feeding from the paper tray
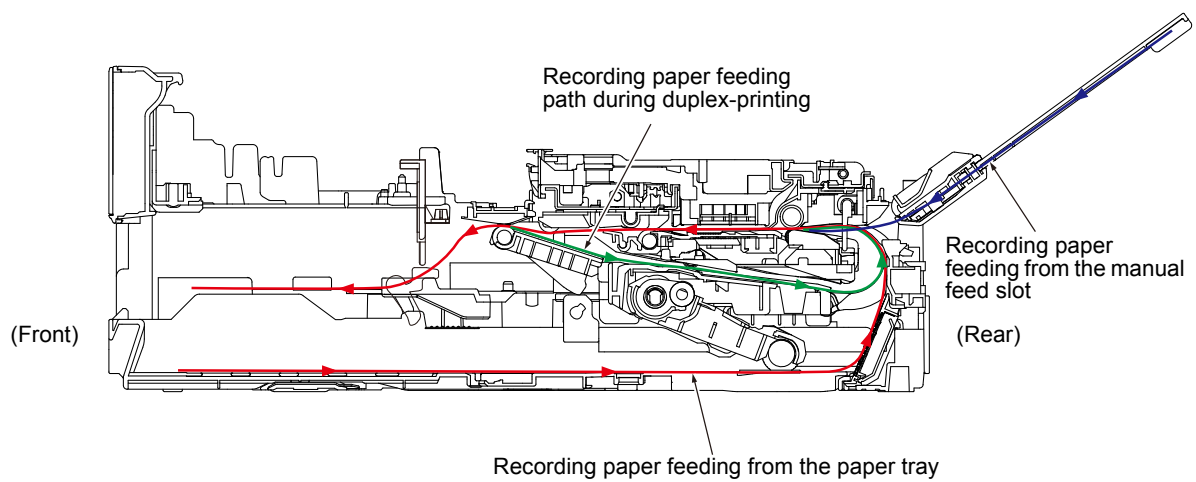
2.3 Function of Each Sensor/Roller

■ Document scanning

Part Name	Function
Document detection actuator	This detects whether documents are loaded on the document tray.
Document pick-up roller	This pulls documents loaded in the document tray.
Document separation roller, ADF separation pad	This separates documents sent through the document pick-up roller into individual sheets.
Document feed roller 1	This feeds a document to the CIS unit.
Document scanning position actuator	This detects the leading edge of document pages, indicating the scanning start position. This detects paper jamming in the ADF.
Document feed roller 2	This ejects the scanned document to ADF ejection tray support.

■ Printing part

Part Name	Function
Paper pull-in roller	This feeds the recording paper from the paper tray to the paper feed roller. After the registration actuator detects the leading edge of the paper, it pushes the recording paper against the reverse-rotating paper feed roller, and correct inclination of the paper.
Registration actuator	This detects the leading edge of the recording paper and controls the print start position. This detects the trailing edge/ending of the recording paper and determines the recording paper size. This detects paper jamming in the rear. This detects whether the recording paper is set in the case of manual feed slot printing.
Paper feed roller	This reverses the rotation when correcting inclination of the paper with the paper feed roller and the duplex paper feed roller. It feeds the recording paper to the printing start position after correction.
Paper tray detection actuator	This detects whether the paper tray is set.
Paper ejection roller	This feeds printed recording paper to the switchback roller.
Switchback roller	This ejects the recording paper to the paper ejecting tray. During duplex-printing, after feeding some of the recording papers printed in the first side to the switchback roller, its rotation is reversed to feed the recording paper to the duplex-printing path.
Duplex paper feed roller	During duplex-printing, this feeds the recording paper that are fed in the duplex paper path to the paper feed roller. After the registration actuator detects the leading edge of the paper, it pushes the recording paper against the reverserotating paper feed roller, and correct inclination of the paper.

2.4 Block Diagram

ADF unit
- Document detection Sensor PCB
- Document scanning position Sensor PCB
- ADF Motor

Scanner unit
- CIS unit
- Scanner Motor

Main PCB
- LEDD
- E2PROM
- DDR3
- USB → PC
- LAN → Ethernet
- ADC
- LAN (MAC)
- ASIC (Saffron)
- Tray Sensor
- USB Host
- ROM
- Backup ROM
- AMP → Speaker
- USB
- MS duo SD
- W-LAN

Engine
- Paper feed Motor
- PF Encoder PCB
- Registration Sensor PCB
- Purge Cam Sensor
- Carriage Motor

AC Line
- Power supply PCB
- FB Cover Sensor

Head/carriage unit
- Head unit
- Carriage PCB
  - CR Encoder sensor
  - Paper width sensor
  - Head Thermistor

Ink refil unit
- Certification Chip PCB
- Ink Empty sensor PCB
- Ink Cartridge PCB
  - Cartridge sensor
  - Internal thermistor

Control panel *1
- NFC PCB
- Panel PCB
- Touch key PCB
- ON/OFF Key PCB
- Touch Panel
- Color LCD

Panel unit *2
- LCD PCB
- Panel PCB
  - Rubber key
  - Power key
- Color LCD

- Modem
- SDAA
- Codec
- Modem PCB
- Tel line
- Ext Tel line (External)
- Ink cover sensor

*1 For Touch panel models
*2 For Non-Touch panel models

2.5   Components

ADF unit

Document scanner unit

Harness cover

Maintenance unit

Scanner cover damper

Upper cover

Carriage PCB ASSY

Scanner cover support

Ink absorber box

Document scanner cover sensor

Ink refill ASSY

CR guide rail

Registration sensor PCB ASSY

CR frame

Paper feed motor frame ASSY

Paper feed roller

Ink cartridge cover

PF encoder sensor PCB ASSY

Main PCB shield

Main PCB

Control panel ASSY

PF/Encoder sensor harness ASSY

Platen ASSY

Flushing guide

Tube support plate

Main PCB frame

Ink cartridge cover sensor ASSY

Manual feed slot ASSY

Jam clear cover

Inner media module cover

Bank ASSY

Modem PCB ASSY

Front cover

Front center cover

Power supply PCB ASSY

Lower cover

Wireless LAN PCB ASSY

Lower power supply frame

Paper tray ASSY

a2_001

3 ERROR INDICATION

This machine has self-diagnostic functions. When the machine is not working properly, it diagnoses the error, displays error messages on the LCD according to the symptoms, and helps the service personnel quickly investigate the cause of the problem.

3.1 Error Codes

Error Code	Description	Reference Page
13	Defective during duplex-printing Registration sensor detects paper feed condition at out of specified timing during switchback.	2-19
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.	2-19
17	Recording paper size error (duplex-printing/duplex-copying) (Detected by the paper width sensor and the registration sensor)	2-20
18	Paper jam during duplex-printing The registration sensor does not detect paper feed within specified pulse numbers in the second side paper re-feed.	2-20
20	Cannot identify a black ink cartridge Detected by the ink cartridge detection sensor and the ink remaining sensor.	2-21
21	Cannot identify a yellow ink cartridge Detected by the ink cartridge detection sensor and the ink remaining sensor.	2-21
22	Cannot identify a cyan ink cartridge Detected by the ink cartridge detection sensor and the ink remaining sensor.	2-21
23	Cannot identify a magenta ink cartridge Detected by the ink cartridge detection sensor and the ink remaining sensor.	2-21
24	Problem with the ink cartridge IC chip - Authentication mismatch - An incompatible cartridge was detected - It was detected that a wrong color cartridge is loaded	2-22
25	Unable to communicate with the ink cartridge IC chip. (Ink cartridge side)	2-22
26	The black ink cartridge has reached its replacement period. Ink ejection has reached the specified number of times when the ink remaining sensor determines that there is no remaining ink.	2-23
27	The yellow ink cartridge has reached its replacement period. Ink ejection has reached the specified number of times when the ink remaining sensor determines that there is no remaining ink.	2-23
28	The cyan ink cartridge has reached its replacement period. Ink ejection has reached the specified number of times when the ink remaining sensor determines that there is no remaining ink.	2-23
29	The magenta ink cartridge has reached its replacement period. Ink ejection has reached the specified number of times when the ink remaining sensor determines that there is no remaining ink.	2-23

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Error Code	Description	Reference Page
2A	No black ink cartridge loaded. Detected by the ink cartridge detection sensor	2-24
2B	No yellow ink cartridge loaded. Detected by the ink cartridge detection sensor	2-24
2C	No cyan ink cartridge loaded. Detected by the ink cartridge detection sensor	2-24
2D	No magenta ink cartridge loaded. Detected by the ink cartridge detection sensor	2-24
2E	Unable to communicate with the ink cartridge IC chip. (On the main unit side)	2-24
2F	The ink cartridge cover sensor detected an opened cover.	2-25
30	The carriage does not move. Detected by the CR encoder sensor	2-26
31	The carriage cannot return to its home position. Detected by the CR encoder sensor	2-27
32	Head capping cannot be done.	2-27
35	Abnormal stopping of the head/carriage unit Caused by factors other than recording paper jams such as encoder stains when ink is not discharging	2-28
38	Abnormal stopping of the head/carriage unit Caused by a recording paper jam when ink is not discharging	2-28
3B	Abnormal stopping of the head/carriage unit Caused by factors other than recording paper jams such as encoder stains when ink is discharging	2-29
3C	Abnormal stopping of the head/carriage unit Caused by recording paper jam when ink is discharging	2-29
3E	A problem occurred in the carriage motor and paper feed motor.	2-30
3F	Carriage motor cannot stop.	2-31
40	Casing internal thermistor problem When the power was turned on, the casing internal thermistor detected a temperature of -20 degrees centigrade or lower, or 80 degrees centigrade or higher	2-31
42	Head voltage does not turn OFF.	2-32
43	Head thermistor problem When the power was turned on, the head thermistor detected a temperature of -20 degrees centigrade or lower, or 80 degrees centigrade or higher	2-32
44	The head driver IC detected an abnormal temperature during operation or stand-by.	2-33
46	Purge count or flushing count exceeded the upper threshold.	2-33
48	It was detected that the head flat cable is not correctly inserted.	2-33
49	Head voltage does not rise.	2-34
4F	Head voltage drops quickly.	2-34

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Error Code	Description	Reference Page
50	Failed to detect that the purge cam switch is turned ON.	2-35
52	Cannot detect the home position of the purge cam.	2-35
5A	Abnormal stopping of the purge cam	2-35
5B	The maintenance unit pump abnormally stopped during exhaust/intake.	2-35
5D	Overcurrent protection was activated in the driver IC during purge cam operation.	2-35
5E	Overcurrent protection was activated in the driver IC during maintenance unit pump operation.	2-35
67	Paper tray detection sensor detects no paper tray state.	2-36
75	Head capping does not work normally.	2-36
76	Head uncapping does not work normally.	2-36
7E	Head property information not input	2-37
80	Recording paper size error (during fax/list printing) The paper width sensor detected a recording paper smaller than the specified size.	2-37
81	Recording paper size error (during operations other than fax/list printing) The registration sensor and paper width sensor detected a recording paper smaller than the specified size.	2-38
82	Recording paper jam The paper width sensor could not detect the leading edge of recording papers.	2-39
84	Recording paper jam The registration sensor stays in paper-feeding state even after completing paper ejection.	2-40
89	The paper width sensor could not detect the home position specified on the paper feed roller.	2-40
8A	The PF encoder sensor cannot detect the rotation of the paper feed motor.	2-41
8C	Overcurrent protection was activated in the driver IC during paper feed motor operation.	2-41
8F	The paper feed motor cannot stop.	2-41

Error Code	Description	Reference Page
A1	The document scanner sensor detected that the document scanner unit is open.	2-42
A2	The document scanning position sensor detected that the document has a length of 900 mm or longer.	2-42
A3	During document scanning, the document detection sensor detected that the document is pulled out. Or, the document scanning position sensor could not detect a document within the specified time.	2-43
A5	A CIS scanning result level abnormality was detected during fax sending. (During the first sending)	2-43
A6	A CIS scanning result level abnormality was detected during fax sending. (After retrying)	2-43
A7	The CIS unit type is different from the CIS type input value.	2-44
A8	Matching of color parameter failed	2-44
AF	CIS positioning problem (home position cannot be found)	2-44
BD	Black level value abnormal during scanning	2-45
DF	Modem communication failed	2-45
E0	Modem does not start normally even after resetting the modem.	2-45
E2	Wired LAN MAC address not registered	2-45
E3	Wireless LAN MAC address unregistered, wireless LAN PCB initialization failed	2-46
E6	An error occurred in the E2PROM of the main PCB.	2-46
E9	NFC PCB initialization failed	2-46
EC	LCD connection failed	2-46
ED	Touch panel initialization failed	2-47
F0	Flash file system error	2-47
FE	ROM data acquisition error	2-47

3.2 Error Messages

Error Messages	Status	Error Code	Reference
B&W 1-sided Print Only Replace Ink	Ink ejection has reached the specified number of times when the ink remaining sensor detects that the ink replacement period is approaching. Only black printing is possible.	27, 28, 29	2-23
BT Call Sign On (UK only)	The receiving mode cannot be changed since the BT Call sign is ON.		
Cannot Detect	The ink cartridge cannot be detected properly.	20, 21, 22, 23, 24, 25	2-21, 2-22
Cannot Detect Ink Volume	The ink volume cannot be detected properly.		
Cannot Print Replace Ink	Ink ejection has reached the specified number of times when the ink remaining sensor detects that the ink replacement period is approaching.	26, 27, 28, 29	2-23
Comm.Error	A problem occurred in fax communication.		2-80
Connection Failed	The receiver fax cannot set Polling.		2-80
Cover is Open.	An open scanner cover was detected. An open ink cover was detected.	A1, 2F	2-42, 2-25
Data Remaining in Memory	Data cannot be processed since the memory is full.		2-82
Disconnected	The receiver's fax machine stopped.		2-80
Document Jam	The document scanning sensor detected a document jam inside the ADF.	A2, A3	2-42, 2-43
DR Mode in Use	The receiving mode cannot be changed from manual to other modes since the Distinctive Ring mode is enabled.		
High Temperature	The head thermistor detected that the room temperature is too high.		
Hub is Unusable	A USB device equipped with a USB hub or a hub is set.		2-81
Image too Long	The image cannot be corrected because it is too large.		
Image too Small	The image cannot be trimmed because it is too small.		

Error Messages	Status	Error Code	Reference
Ink Absorber Pad Full/ Ink Absorber Full	The purge count or flushing count reached the upper threshold.	46	2-33
Ink Absorber Pad NearFull/Absorber NearFull	The purge count or flushing count will soon reach the upper threshold.		
Ink Low	The ink remaining sensor detected that the ink replacement period is approaching.		
Install Starter Ink	A cartridge without the necessary ink volume for initialization was loaded during initialization.	24	2-22
Low Temperature	The head thermistor detected that the room temperature is too low.		
Media card Error	More than one data storage device is connected.		
Media Error	A problem was detected in the memory card.		2-81
Media is Full	The memory of the media slot is full, or there are 999 or more files in the memory.		
No Caller ID	There is no Caller ID information.		
No File	There are no printable files in the memory card or the USB flash memory.		
No Ink Cartridge	No ink cartridge loaded.	2A, 2B, 2C, 2D	2-24
No Paper Fed/ Repetitive No paper Fed/ No Paper Fed Again	The registration sensor detected that there is no recording paper in paper tray.		2-48
No Response/Busy	The receiver is busy or there was no response.		2-80
Out of Fax Memory	The amount of accumulated data in the memory through Memory Receive exceeded the limit.		2-82
Out of Memory	There is not enough memory.		2-82
Paper Jam	The registration sensor, paper width sensor, and CR encoder sensor detected a paper jam.	13, 15, 18, 31, 38, 3C, 82, 84, 8A, 8C	2-19, 2-20, 2-27, 2-28, 2-29, 2-39, 2-40, 2-41

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Error Messages	Status	Error Code	Reference
Paper size Mismatch	The registration sensor and recording paper width sensor detected unspecified recording paper.	17, 80, 81	2-20, 2-37, 2-38
Paper Tray not Detected/ Tray removed Tray not detected	Paper tray detection sensor detects no paper tray state.	67	2-36
Touchscreen Init. Failed	After the power was turned on, the screen was touched before touch panel initialization could be completed.	ED	2-47
Unable to Print	Some problem occurred during printing.		
Unable to Scan	Some problem occurred during scanning.		
Unusable Device/ Disconnect device from Front connector & turn machine off & then on	An unusable USB device is connected to the machine.		2-81
Wrong Ink Cartridge	A wrong ink cartridge was set.	24	2-22
Wrong Ink Color	An ink cartridge was set in a position not matching its specified color.	24	2-22

3.3 Communications Error

Code 1	Code 2	Cause	Reference Page
10	07	No paper when document transmission is called.	
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	Loop current cannot be detected.	
11	06	Busy tone was detected after dialing or after the incoming call.	
11	07	No response from the receiver during sending.	
11	10	A tone cannot be detected after dialing.	
11	11	No response after sending Fax2 net command.	
13	12	NG response signal was received after sending Fax2 net command.	
16	09	The encryption key is not registered.	
17	07	There is no response from the receiver upon signal receipt.	
20	01	Unable to detect a flag field.	
20	02	Carrier interruption lasted for 200 msec.	
20	03	An interrupt command (continuous "1" for 7 bits or more) was detected.	
20	04	An overrun was detected.	
20	05	A 3-second or more frame was received.	
20	06	A CRC error occurred during answer back.	
20	07	An echo command was received.	
20	08	An invalid command was received.	
20	09	A command was ignored once for document setting or for dumping-out at turn-around transmission.	
20	0A	A T5 timeout error occurred.	
20	0B	CRP was received.	
20	0C	EOR and NULL were received.	
20	0D	No corresponding command was received even though the FIF Command send bit is ON.	
20	0E	EORCommand was received.	
32	01	The remote terminal only supports 2400 bps or 4800 bps V.29 specifications.	
32	02	The remote terminal is not ready to receive polling.	
32	10	The remote terminal does not have a password function, or the password function is turned OFF.	

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Code 1	Code 2	Cause	Reference Page
32	11	The remote terminal is not equipped with a confidential mailbox function, or is not ready for receiving.	Section 4.9.3 "A communications error occurs"
32	12	The remote terminal is not equipped with a relay function or is not yet finished preparing it.	
32	13	There are no confidential mails in the remote terminal.	
32	14	The available memory space of the remote terminal is less than the requirement for reception of the confidential or relay broad-casting instruction.	
32	15	The remote terminal is not equipped with cipher receiving function.	
32	16	The remote terminal is not equipped with SEP function.	
32	17	The remote terminal is not equipped with SUB function.	
32	18	The remote terminal is not equipped with color function.	
40	02	An illegal coding system was requested.	
40	03	An illegal recording width was requested.	
40	05	There was an unauthorized ECM request.	
40	06	Polling was received while preparations has not been completed.	
40	07	There was no document to send when polling was received.	
40	08	There is no data in the box number specified by F Code communications.	
40	10	The country code or manufacturer code does not match.	
40	11	A group number not registered in the relay broadcast was prompted, or the broadcast receiver's total was prompted while exceeding the maximum number of possible broadcasts.	
40	12	Retrieval was performed even though the machine is not on retrieval standby.	
40	13	Polling was received from other manufacturer's products during confidential polling stand-by.	
40	14	There is no common key registration when the common key was used.	
40	15	Red-black receiving was prompted while red-black receiving is disabled.	
40	16	Cipher communication was requested while cipher receiving is disabled.	
40	17	An invalid resolution was selected.	
40	18	Remote retrieval was prompted even though F Code remote retrieval is disabled.	
40	19	Remote registration was prompted even though F Code remote registration is disabled.	
40	20	An invalid full-color mode was requested.	
50	01	The vertical resolution capability was changed after compensating for the background color.	
63	01	The password including the last four digits of the telephone number does not match.	
63	02	The password does not match.	

Code 1	Code 2	Cause	Reference Page
63	03	The polling ID does not match.	
63	04	The prompted confidential ID and mailbox ID does not match.	
63	05	The relay broadcast ID does not match.	
63	06	The prompted retrieval ID and mailbox retrieval ID does not match.	
63	09	There is no box number specified by F Code communications.	
63	10	An SID frame was not sent during F Code remote bulletin board registration.	
63	11	An PWD frame was not sent during F Code remote confidential retrieval.	
63	12	The PIN prompted by F Code does not match.	
74	XX	DCN was received.	
80	01	Fallback is not possible.	
90	01	A video signal or a command cannot be detected within 6 seconds after CFR sending.	
90	02	A PPS that includes an invalid page count or block count was received.	
A0	03	The error correction sequence was not terminated even at the final transmission speed for fallback.	
A0	11	The receiving buffer is empty. (5-second timeout)	
A0	12	The receiving buffer became full during an operation other than receiving into memory.	
A0	13	A decoding error continued to exceed 500 lines or more.	
A0	14	A decoding error continued to exceed 15 seconds or longer.	
A0	15	Timeout: Transmission of 1 line lasted for 13 seconds or longer.	
A0	16	RTC could not be detected, or the carrier off was detected for 6 seconds.	
A0	17	RTC was detected but a command was not detected for 60 seconds or longer.	
A0	19	No image data to be sent.	
A0	20	Color fax receiving cannot be continued (remaining ink is low).	
A8	01	Receive RTN or PIN or ERR (sending side).	
A9	01	Send RTN or PIN or ERR (receiving side).	
AA	18	Receive buffer full during receiving into memory.	

Code 1	Code 2	Cause	Reference Page
B0	01	Detect polarity reversion.	
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	A PC interface error occurred.	
BF	01	The [Stop] key was pressed and communication was cancelled before fax communication could be established[*1].	
BF	02	The [Stop] key was pressed and communication was cancelled after fax communication was established[*1].	
C0	01	There is no common modulation mode or the polling has failed.	
C0	02	JM cannot perform detection.	
C0	03	CM cannot perform detection.	
C0	04	Unable to perform CJ detection.	
C0	10	V.34 negotiation or training does not end.	
C0	11	A modem error was detected during V.34 negotiation or training.	
C0	20	A modem error was detected during sending of commands.	
C0	21	A modem error was detected during receiving of commands.	
C0	22	The control channel connection timed out.	
C0	30	A modem error was detected during sending of image signals.	
C0	31	A modem error was detected during receiving of image signals.	
E0	01	1300 Hz signal detection failed the counter-communication inspection.	
E0	02	PB signal detection failed the counter-communication inspection.	
E0	03	A command was not detected from RS232C through counter-communication.	

[*1] Fax communication establishment: Fax communication is established when DIS (presentation signal of receiving conditions) is received from the calling station, and when NSS or DCS (communication test signal) is received from the calling station.

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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	Registration actuator caught on the surrounding parts	Set the registration actuator into place.
2	Registration sensor defective	Replace the registration sensor PCB ASSY.
3	Main PCB defective	Replace the main PCB ASSY.

■ Error Code 15

Paper Jam	LCD

Eject jam during printing

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

User Check
- Remove the jammed paper.
- Check if the recording paper used is according to specifications.

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

Paper size Mismatch	LCD

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

<User Check>

- Check if the recording paper used is according to specifications.

- Check if dark recording paper is not used.

Step	Cause	Solution
1	CR encoder strip stained	Clean the CR encoder strip.
2	PF encoder disk stained	Clean the PF encoder disk.
3	Registration actuator caught in the surrounding parts	Set the registration actuator into place.
4	CR encoder strip defective	Replace the CR encoder strip.
5	PF encoder disk defective	Replace the PF encoder disk.
6	Registration sensor defective	Replace the registration sensor PCB ASSY.
7	Paper width sensor defective	Replace the carriage PCB ASSY.
8	Paper feed motor defective	Replace the paper feed motor.
9	Main PCB defective	Replace the main PCB ASSY.

■ Error Code 18

Paper Jam	LCD

Paper jam during duplex-printing

The registration sensor does not detect paper feed within specified pulse numbers in the second side paper re-feed.

<User Check>

- Remove the jammed recording paper.

- Check if the recording paper used is according to specifications.

- Check if the recording paper is not curled, wrinkled or wet.

Step	Cause	Solution
1	Foreign materials in the duplex print paper path	Remove foreign materials.
2	Registration actuator caught in 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.

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■ **Error Code 20**

Cannot Detect	LCD

Cannot identify a black ink cartridge
Detected by the ink cartridge detection sensor and the ink remaining sensor.

Error Code 21

Cannot Detect	LCD

Cannot identify a yellow ink cartridge
Detected by the ink cartridge detection sensor and the ink remaining sensor.

Error Code 22

Cannot Detect	LCD

Cannot identify a cyan ink cartridge
Detected by the ink cartridge detection sensor and the ink remaining sensor.

Error Code 23

Cannot Detect	LCD

Cannot identify a magenta ink cartridge
Detected by the ink cartridge detection sensor and the ink remaining sensor.

<User Check>

- Check if an incompatible ink cartridge is loaded.

- Reload the ink cartridge.

- Replace the ink cartridge.

- During initialization, check if other cartridges not supplied were not set before the instruction to do so.

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

■ Error Code 24

Cannot Detect / Wrong Ink Color / Install Starter ink / Wrong ink Cartridge	LCD

Problem with the ink cartridge IC chip

<User Check>

- Check if an incompatible ink cartridge is loaded.

- Reload the ink cartridge.

- Replace the ink cartridge.

- Check if the wrong color ink cartridge is set.

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

■ Error Code 25

Cannot Detect	LCD

Unable to communicate with the ink cartridge IC chip. (Ink cartridge side)

<User Check>

- Check if an incompatible ink cartridge is loaded.

- Reload the ink cartridge.

- Replace the ink cartridge.

Step	Cause	Solution
1	Ink sensor flat cable connection failure	Reconnect the ink sensor flat cable.
2	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

The black ink cartridge has reached its replacement period.
Ink ejection has reached the specified number of times when the ink remaining sensor determines that there is no remaining ink.

Error Code 27

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

The yellow ink cartridge has reached its replacement period.
Ink ejection has reached the specified number of times when the ink remaining sensor determines that there is no remaining ink.

Error Code 28

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

The cyan ink cartridge has reached its replacement period.
Ink ejection has reached the specified number of times when the ink remaining sensor determines that there is no remaining ink.

Error Code 29

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

The magenta ink cartridge has reached its replacement period.
Ink ejection has reached the specified number of times when the ink remaining sensor determines that there is no remaining ink.

<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.

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■ **Error Code 2A**

No Ink Cartridge	LCD

No black ink cartridge loaded.
Detected by the ink cartridge detection sensor.

Error Code 2B

No Ink Cartridge	LCD

No yellow ink cartridge loaded.
Detected by the ink cartridge detection sensor.

Error Code 2C

No Ink Cartridge	LCD

No cyan ink cartridge loaded.
Detected by the ink cartridge detection sensor.

Error Code 2D

No Ink Cartridge	LCD

No magenta ink cartridge loaded.
Detected by the ink cartridge detection sensor.

<User Check>

- Check if an 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**

MACHINE ERROR 2E	LCD

Unable to communicate with the ink cartridge IC chip. (On the main unit side)

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

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■ **Error Code 2F**

Cover is Open	LCD

The ink cartridge cover sensor detected an opened cover.

<User Check>

- Close the ink cartridge cover.

Step	Cause	Solution
1	Ink cartridge cover sensor harness connection failure	Reconnect the ink cartridge cover sensor harness.
2	Damaged ink cartridge cover	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

The carriage does not move.
Detected by the CR encoder sensor.

<User Check>

- Remove the jammed recording paper from the engine part.

Step	Cause	Solution
1	Foreign materials inside the engine	Remove foreign materials.
2	CR encoder strip stained	Clean the CR encoder strip.
3	CR encoder strip out of place	Set the CR encoder strip into place.
4	CR timing belt out of place	Set the CR timing belt into place.
5	Ink supply tubes not properly attached	Set the ink supply tubes into place.
6	Head cover not properly attached	Set the head cover into place.
7	Carriage motor harness connection failure	Reconnect the carriage motor harness.
8	Carriage flat cable connection failure	Reconnect the carriage flat cable.
9	Maintenance unit not properly attached	Set the maintenance unit into place.
10	CR encoder strip defective	Replace the CR encoder strip.
11	CR timing belt defective	Replace the CR timing belt.
12	Carriage motor defective	Replace the carriage motor.
13	Carriage PCB defective	Replace the carriage PCB ASSY.
14	Main PCB defective	Replace the main PCB ASSY.

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■ Error Code 31

Paper Jam	LCD

The carriage cannot return to its home position.
Detected by the CR encoder sensor.

<User Check>

- Remove the jammed recording paper from the engine part.

Step	Cause	Solution
1	Foreign materials inside the engine	Remove foreign materials.
2	CR encoder strip stained	Clean the CR encoder strip.
3	Ink supply tubes not properly attached	Set the ink supply tubes into place.
4	CR guide rail not properly attached	Set the CR guide rail into place.
5	Maintenance unit not properly attached	Set the maintenance unit into place.
6	CR encoder strip defective	Replace the CR encoder strip.
7	CR encoder sensor defective	Replace the carriage PCB ASSY.
8	Maintenance unit defective	Replace the maintenance unit.
9	Main PCB defective	Replace the main PCB ASSY.

■ Error Code 32

Unable to print 32	LCD

Head capping cannot be done.

<User Check>

- Remove the jammed recording paper from the platen part and the maintenance unit part.

Step	Cause	Solution
1	Foreign materials around the maintenance unit	Remove foreign materials.
2	Maintenance unit defective	Replace the maintenance unit.
3	Main PCB defective	Replace the main PCB ASSY.

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■ Error Code 35

Unable to print 35	LCD

Abnormal stopping of the head/carriage unit
Caused by factors other than recording paper jams such as encoder stains when ink is not discharging.

<User Check>

- Remove the jammed recording paper from the engine part.

Step	Cause	Solution
1	CR encoder strip stained	Clean the CR encoder strip.
2	CR encoder strip out of place	Set the CR encoder strip into place.
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 38

Paper Jam	LCD

Abnormal stopping of the head/carriage unit
Caused by a recording paper jam when ink is not discharging.

<User Check>

- Remove the jammed recording paper from the platen part and the maintenance unit part.

Step	Cause	Solution
1	Foreign materials around the engine	Remove foreign materials.
2	CR encoder strip stained	Clean the CR encoder strip.
3	CR encoder strip out of place	Set the CR encoder strip 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.

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■ Error Code 3B

Unable to print 3B	LCD

Abnormal stopping of the head/carriage unit
Caused by factors other than recording paper jams such as encoder stains when ink is discharging.

<User Check>

- Remove the jammed recording paper from the engine part.

Step	Cause	Solution
1	CR encoder strip stained	Clean the CR encoder strip.
2	CR encoder strip out of place	Set the CR encoder strip into place.
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 3C

Paper Jam	LCD

Abnormal stopping of the head/carriage unit
Caused by a recording paper jam when ink is not discharging.

<User Check>

- Remove the jammed recording paper from the platen part and the maintenance unit part.

Step	Cause	Solution
1	Foreign materials around the engine	Remove foreign materials.
2	CR encoder strip stained	Clean the CR encoder strip.
3	CR encoder strip out of place	Set the CR encoder strip 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.

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■ Error Code 3E

Unable to print 3E	LCD

A problem occurred in the carriage motor and paper feed motor.

<User Check>
- Remove the jammed recording paper from the engine part.

Step	Cause	Solution
1	Foreign materials in the engine unit	Remove foreign materials.
2	Foreign materials in the maintenance unit	Remove foreign materials.
3	Foreign materials inside the recording paper feeding path gear	Remove foreign materials.
4	Ink supply tube's distribution tube defective	Set the ink supply tubes into place.
5	Head/carriage unit not properly attached	Set the head/carriage unit into place.
6	CR guide rail not properly attached	Set the CR guide rail into place.
7	Maintenance unit not properly attached	Set the maintenance unit into place.
8	PF encoder sensor defective	Replace the PF encoder sensor PCB ASSY.
9	CR encoder sensor defective	Replace the carriage PCB ASSY.
10	Maintenance unit defective	Replace the maintenance unit.
11	Carriage motor defective	Replace the carriage motor.
12	Paper feed motor defective	Replace the paper feed motor.
13	Main PCB defective	Replace the main PCB ASSY.

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■ Error Code 3F

Unable to print 3F	LCD

Carriage motor cannot stop.

<User Check>
- Remove the jammed recording paper from the engine part.

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.
6	Main PCB defective	Replace the main PCB ASSY.

■ Error Code 40

Unable to print 40	LCD

Casing internal thermistor problem
When the power was turned on, the casing internal thermistor detected a temperature of -20 degrees centigrade or lower, or 80 degrees centigrade or higher.

Step	Cause	Solution
1	Ink sensor flat cable connection failure	Reconnect the ink sensor flat cable.
2	Casing internal thermistor defective	Replace the ink refill ASSY.
3	Main PCB defective	Replace the main PCB ASSY.

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■ Error Code 42

Unable to print 42	LCD

Head voltage does not turn OFF.

<User Check>

- This may occur when the surrounding temperature is low. Increase the surrounding temperature before use.

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 problem
When the power was turned on, the head thermistor detected a temperature of -20 degrees centigrade or lower, or 80 degrees centigrade or higher.

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

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■ Error Code 44

Unable to print 44	LCD

The head driver IC detected an abnormal temperature during operation or stand-by.

Step	Cause	Solution
1	Insufficient ink inside the head	Perform initial purge.
2	Head property information not input	Input the head property information. (Refer to Chapter 5, Section 1.3.24)
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 46

Unable to Print 46 / Ink Absorber Pad Full / Ink Absorber Full	LCD

Purge count or flushing count overflown.

Step	Cause	Solution
1	The ink absorber box or flushing foam is full	Replace the ink absorber box or flushing foam and reset the purge count and flushing count.
2	Main PCB defective	Replace the main PCB ASSY.

For details on how to reset the purge count and flushing count, refer to Chapter 4, Section 1.14.

■ 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.

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■ **Error Code 49**

Unable to print 49	LCD

Head voltage does not rise.

Error Code 4F

Unable to print 4F	LCD

Head voltage drops quickly.

\<User Check\>

- This may occur when the surrounding temperature is low. Increase the surrounding temperature before use.

- Unplug the power cord from the outlet. Plug it again after several seconds and check if the problem has been resolved.

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.

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■ **Error Code 50**

Unable to print 50	LCD

Failed to detect that the purge cam sensor is turned ON.

Error Code 52

Unable to print 52	LCD

Cannot detect the home position of the purge cam. (Failed to detect the longest OFF status interval of the maintenance cam)

Step	Cause	Solution
1	Foreign materials in the maintenance unit part	Remove foreign materials.
2	Purge cam sensor harness connection failure	Reconnect the purge cam sensor harness.
3	Gear operation defect inside Maintenance unit or Purge cam sensor defective	Replace the maintenance unit.
4	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code 5A**

Unable to print 5A	LCD

Abnormal stopping of the purge cam.

Error Code 5B

Unable to print 5B	LCD

The maintenance unit pump abnormally stopped during exhaust/intake.

Error Code 5D

Unable to print 5D	LCD

Overcurrent protection was activated in the driver IC during purge cam operation.

Error Code 5E

Unable to print 5E	LCD

Overcurrent protection was activated in the driver IC during maintenance unit pump operation.

Step	Cause	Solution
1	Foreign materials in the maintenance unit part	Remove foreign materials.
2	Maintenance unit defective	Replace the maintenance unit.
3	Main PCB defective	Replace the main PCB ASSY.

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■ Error Code 67

Paper Tray not detected / Tray removed / Tray not detected	LCD

Paper tray detection sensor detects no paper tray state.

\<User Check\>
- Set paper tray.

Step	Cause	Solution
1	Paper tray detection actuator caught on the surrounding parts	Set the paper tray detection actuator into place.
2	Paper tray defective	Replace the paper tray.
3	Main PCB defective	Replace the main PCB ASSY.

■ Error Code 75

Unable to print 75	LCD

Head capping does not work normally.

Error Code 76

Unable to print 76	LCD

Head uncapping does not work normally.

\<User Check\>
- Remove the jammed recording paper from the platen part and the maintenance unit part.

Step	Cause	Solution
1	Foreign materials inside the maintenance unit	Remove foreign materials.
2	Foreign materials in the recording paper feeding path	Remove foreign materials.
3	Carriage motor defective	Replace the carriage motor.
4	Maintenance unit defective	Replace the maintenance unit.
5	Main PCB defective	Replace the main PCB ASSY.

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■ Error Code 7E

MACHINE ERROR 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 1.3.24)
2	Main PCB defective	Replace the main PCB ASSY.

■ Error Code 80

Paper Size Mismatch	LCD

Recording paper size error. (During fax/list printing)
The registration sensor and paper width sensor detected a recording paper smaller than the specified size.

<User Check>

- Check if the recording paper used is according to specifications.

- Check if dark recording paper is not used.

- Clean the platen.

Step	Cause	Solution
1	Registration actuator caught in 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 page xxii)
4	CR encoder strip defective	Replace the CR encoder strip.
5	PF encoder disk defective	Replace the PF encoder disk.
6	Registration sensor defective	Replace the registration sensor PCB ASSY.
7	Paper width sensor defective	Replace the carriage PCB ASSY.
8	Carriage motor defective	Replace the carriage motor ASSY.
9	Paper feed motor defective	Replace the paper feed motor.
10	Main PCB defective	Replace the main PCB ASSY.

■ Error Code 81

Paper Size Mismatch	LCD

Recording paper size error. (Other than fax/list printing)
The paper width sensor detected a recording paper smaller than the specified size.

<User Check>

- Check if the recording paper used is according to specifications.

- Check if 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.
5	Main PCB defective	Replace the main PCB ASSY.

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■ Error Code 82

Paper Jam	LCD

Recording paper jam.
The paper width sensor could not detect the leading edge of recording papers.

<User Check>

- Remove the jammed recording paper.

- Check if the recording paper used is according to specifications.

- Check if dark recording paper is not used.

- Clean the platen.

- Check if the paper tray is loaded correctly into the machine.

- Check if the jam clear cover is properly closed.

- Clean the paper pull-in roller.

Step	Cause	Solution
1	Foreign materials in the recording paper 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 feed motor harness connection failure	Reconnect the paper feed motor harness.
5	Maintenance unit not mounted in place	Set the Maintenance unit into place. (Be careful not to let the tube be sandwiched.)
6	Paper pull-in roller worn out	Replace the paper pull-in roller.
7	Paper feed roller defective	Replace the paper feed roller.
8	Paper feed motor defective	Replace the paper feed motor.
9	Paper width sensor defective	Replace the carriage PCB ASSY.
10	Main PCB defective	Replace the main PCB ASSY.

■ Error Code 84

Paper Jam	LCD

Recording paper jam.
The registration sensor stays in paper-feeding state even after completing paper ejection.

<User Check>

- Remove the jammed recording paper in platen part.

Step	Cause	Solution
1	Foreign materials in the recording paper feeding path	Remove foreign materials.
2	Registration actuator caught in the surrounding parts	Set the registration actuator into place.
3	Registration sensor defective	Replace the registration sensor PCB ASSY.
4	Paper feed roller defective	Replace the paper feed roller.
5	Paper ejection roller defective	Replace the paper ejection roller ASSY.
6	Switchback roller defective	Replace the switchback roller ASSY.
7	Main PCB defective	Replace the main PCB ASSY.

■ Error Code 89

Unable to print 89	LCD

The paper width sensor could not detect the home position specified on the paper feed roller.

Step	Cause	Solution
1	PF encoder disk stained	Clean the PF encoder disk and flushing guide. (Refer to page xxii)
2	Home position detection lever stained	Clean the Home position detection lever and flushing guide. (Refer to page xxii)
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	Flushing guide defective	Replace the flushing guide.
6	Paper width sensor defective	Replace the carriage PCB ASSY.
7	Main PCB defective	Replace the main PCB ASSY.

PF home position detection lever
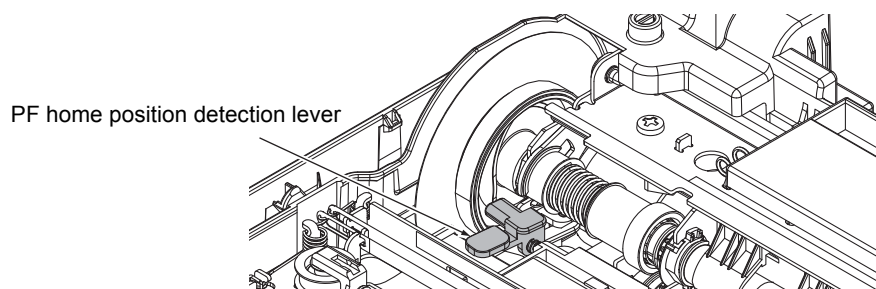
a2_002

■ **Error Code 8A**

Paper Jam	LCD

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

Error Code 8C

Paper Jam	LCD

Overcurrent protection was activated in the driver IC during paper feed motor operation.

Error Code 8F

Unable to print 8F	LCD

Paper feed motor does not stop.

<User Check>

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

Step	Cause	Solution
1	Foreign materials in the recording paper 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 encoder disk defective	Replace the PF encoder disk.
5	PF encoder sensor defective	Replace the PF encoder sensor PCB ASSY.
6	Paper feed motor defective	Replace the paper feed motor.
7	Main PCB defective	Replace the main PCB ASSY.

■ Error Code A1

Cover is Open	LCD

The scanner cover sensor detected that the document scanner unit is open.

<User Check>

- Close the document scanner unit.

Step	Cause	Solution
1	Scanner cover actuator out of place	Set the scanner cover actuator into place.
2	Scanner cover sensor harness connection failure	Reconnect the scanner cover sensor harness.
3	The boss which pushes the scanner cover actuator of the document scanner unit is damaged	Replace the document scanner.
4	Main PCB defective	Replace the main PCB ASSY.

■ Error Code A2

Document Jam	LCD

The document scanning position sensor detected that the document has a length of 900 mm or longer.

<User Check>

- Check if the document scanned is longer than the specified limit.

- Remove the jammed document.

Step	Cause	Solution
1	Document caught in the document scanning position actuator	Set the document scanning position actuator into place.
2	Document scanning position sensor defective	Replace the document scanning position sensor PCB ASSY.
3	ADF motor defective	Replace the ADF unit.
4	Main PCB defective	Replace the main PCB ASSY.

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■ Error Code A3

Document Jam	LCD

During document scanning, the document detection sensor detected that the document is pulled out. Or, the document scanning position sensor could not detect a document within the specified time.

<User Check>

- Remove the jammed document.

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

■ Error Code A5

Unable to Scan A5	LCD

Level of CIS scan result is detected as abnormal during fax sending. (During the first sending)

Error Code A6

Unable to Scan A6	LCD

Level of CIS scan result is detected as abnormal during fax sending. (After retrying)

Step	Cause	Solution
1	White level data failure	Acquire white/black level data. (Refer to Chapter 5, Section 1.3.16)
2	CIS unit defective	Replace the CIS unit.
3	White reference film stained	Clean the white reference film of the document scanner unit.
4	Scratched or damaged white reference film	Replace the document scanner unit.
5	Main PCB defective	Replace the main PCB ASSY.

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■ Error Code A7

Unable to Scan A7	LCD

The CIS unit type is different from the CIS type input value.

Step	Cause	Solution
1	CIS type data incompatible	Automatically set the CIS type. (Refer to Chapter 5, Section 1.3.19)
2	Main PCB defective	Replace the main PCB ASSY.

■ Error Code A8

Unable to Scan A8	LCD

Matching of color parameter failed.

<User Check>

- Turn the power OFF and ON by unplugging and plugging the power cord.

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

■ Error Code AF

Unable to Scan AF	LCD

CIS positioning problem. (Home position cannot be found)

Step	Cause	Solution
1	Failure in automatic setting of the CIS type	Specify the setting of the CIS type manually. (Refer to Chapter 5, Section 1.3.19.)
2	Scanner motor harness connection failure	Reconnect the scanner motor harness.
3	CIS flat cable connection failure	Reconnect the CIS flat cable.
4	Scanner belt out of place	Set the scanner belt into place.
5	CIS flat cable defective	Replace the CIS flat cable.
6	CIS unit defective	Replace the CIS unit.
7	Document scanner unit defective	Replace the document scanner unit.
8	Main PCB defective	Replace the main PCB ASSY.

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■ **Error Code BD**

MACHINE ERROR BD	LCD

Black level value abnormal during scanning.

Step	Cause	Solution
1	Black level data failure	Acquire white/black level data. (Refer to Chapter 5, Section 1.3.16)
2	CIS unit defective	Replace the CIS unit.
3	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code DF**

MACHINE ERROR DF	LCD

Modem communication failed.

Error Code E0

Unable to print E0	LCD

Modem does not start normally even after resetting the modem.

Step	Cause	Solution
1	Modem PCB flat cable connection failure	Reconnect the modem PCB flat cable.
2	Modem PCB defective	Replace the modem PCB ASSY.
3	Main PCB defective	Replace the main PCB ASSY.

■ **Error Code E2**

MACHINE ERROR E2	LCD

Wired LAN MAC address not registered.

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

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■ Error Code E3

MACHINE ERROR 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 ASSY defective	Replace the wireless LAN PCB ASSY.
3	Main PCB defective	Replace the main PCB ASSY.

■ Error Code E6

MACHINE ERROR E6	LCD

An error occurred in the E2PROM of the main PCB.

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

■ Error Code E9

MACHINE ERROR 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 ASSY.
3	Main PCB defective	Replace the main PCB ASSY.

■ Error Code EC

MACHINE ERROR EC	LCD

LCD firmware version mismatch detected.

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

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■ Error Code ED

MACHINE ERROR ED	LCD

Touch panel initialization failed.

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

■ Error Code F0

MACHINE ERROR F0	LCD

Flash file system error.

Error Code FE

MACHINE ERROR FE	LCD

ROM data acquisition error.

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

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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 Recording paper is not fed from paper tray

<User Check>

- Check if the recording paper is loaded correctly in the paper tray.

- Check that the number of recording paper loaded in the recording paper tray is within specified volume.

- 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 specifications of each type.

- Shuffle recording papers thoroughly and then reload them in the recording paper tray.

- Clean the paper pull-in roller.

- Adjust the paper guide to match the recording paper size.

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

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.
4	Bank ASSY not properly attach	Set the bank ASSY into place.
5	The grease of the switching lever guide of the maintenance unit is not enough	Apply the grease for the switching lever guide of the maintenance unit.
6	Paper feed motor harness connection failure	Reconnect the paper feed motor harness.
7	Registration actuator out of place	Set the registration actuator into place.
8	Maintenance unit not properly attach	Set the maintenance unit into place.
9	Paper feeding path parts out of place	Set the feeding path parts into place.
10	Paper pull-in roller worn out	Replace the paper pull-in roller.
11	CR encoder strip defective	Replace the CR encoder strip.
12	PF encoder disk defective	Replace the PF encoder disk.
13	CR encoder sensor defective	Replace the carriage PCB ASSY.
14	Paper feed motor defective	Replace the paper feed motor.
15	Maintenance unit defective	Replace the maintenance unit.
16	Main PCB defective	Replace the main PCB ASSY.

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4.2.2 Paper is not fed from manual feed slot

<User Check>

- Check that recording paper is loaded all the way to the end 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	Registration actuator out of place	Set the registration actuator into place.
2	Registration sensor harness connection failure	Reconnect the registration sensor harness.
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 if the recording paper is loaded correctly in the paper tray.

- Check that the number of recording paper loaded in the recording 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 specifications of each type.

- Shuffle recording papers thoroughly and then reload them in the recording paper tray.

- Check that only a single sheet of recording paper is set in the manual feed slot.

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

4.2.4 Recording paper feeding at an angle

<User Check>

- Check if the recording paper is loaded correctly in the paper tray.

- Adjust the paper tray guide to match the recording paper size.

- Check thickness of recording paper is within specifications of each type.

- Check that the number of recording paper loaded in the recording paper tray is within specified volume.

- Clean the paper pull-in roller.

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

4.2.5 Recording paper is wrinkling

<User Check>

- Check if the recording paper is loaded correctly in the paper tray.

- Try reversing the recording paper in each paper tray, or rotating direction of the paper for 180 degrees.

- Adjust the paper guide to match the recording paper size.

- Check thickness of recording paper is within specifications of each type.

- Check if the recording paper is not damp.

Step	Cause	Solution
1	Feeding path parts are out of place	Set the feeding path parts into place.

4.2.6 Recording paper jam

■ Paper tray jam

<User Check>

- Check if the recording paper is loaded correctly in the paper tray.

- Adjust the paper guide to match the recording paper size.

- Check if the recording paper loaded is smaller than the specified size.

- Check thickness of recording paper is within specifications of each type.

- Check that the number of recording paper loaded in the recording paper tray is within specified volume.

- Check that the jam clear cover is securely closed.

- Clean the paper feed roller.

- Check if there is no curling or bending in the recording paper.

Step	Cause	Solution
1	Foreign materials in the recording paper feeding path	Remove foreign materials.
2	Bank ASSY out of place	Set the bank ASSY into place.
3	Jam clear cover not mounted in place	Set the jam clear cover into place.
4	CR guide rail not properly attached	Set the CR guide rail into place.
5	Paper feeding path parts out of place	Set the paper feeding path parts into place.
6	Jam clear cover defective	Replace the jam clear cover.
7	Paper width sensor defective	Replace the carriage PCB.
8	Paper feed roller defective	Replace the paper feed roller.
9	Platen ASSY damaged, broken	Replace the platen ASSY.
10	Switching guide defective	Replace the maintenance unit.
11	Registration sensor defective	Replace the registration sensor PCB ASSY.
12	Recording paper tray defective	Replace the recording paper tray.
13	Main PCB defective	Replace the main PCB ASSY.

■ **Paper jam around manual feed slot**

<User Check>

- Check that recording paper is loaded correctly in the manual feed slot.

- Adjust the guide of manual feed slot to match the recording paper size.

- Check only a single recording paper enters.

- Check that the paper shorter than the specified size is not loaded.

- Check thickness of recording paper is within specifications of each type.

Step	Cause	Solution
1	Foreign materials around manual feed slot	Remove foreign materials.
2	Registration actuator caught in the surrounding parts	Set the registration actuator into place.
3	Platen ASSY not mounted in place	Set the platen ASSY into place.
4	Paper feed roller worn out	Replace the paper feed roller.
5	Registration sensor defective	Replace the registration sensor PCB ASSY.
6	Platen ASSY damaged, broken	Replace the platen ASSY.
7	Manual feed slot defective	Replace the manual feed slot.
8	Main PCB defective	Replace the main PCB ASSY.

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■ Paper jam near the platen

\<User Check\>

- Check if the recording paper is loaded correctly in the paper tray.

- Adjust the paper guide to match the recording paper size.

- Check if the recording paper loaded is smaller than the specified size.

- Check thickness of recording paper is within specifications of each type.

- Clean the related rollers.

Step	Cause	Solution
1	Foreign materials in the recording paper feeding path	Remove foreign materials.
2	CR encoder strip stained	Clean the CR encoder strip.
3	CR encoder strip out of place	Set the CR encoder strip into place.
4	Registration actuator caught in the surrounding parts	Set the registration actuator into place.
5	CR guide rail not properly attached	Set the CR guide rail into place.
6	Platen ASSY not mounted in place	Set the platen ASSY into place.
7	Paper feeding path parts out of place	Set the paper feeding path parts into place.
8	CR encoder strip defective	Replace the CR encoder strip.
9	Paper feed roller defective	Replace the paper feed roller.
10	Platen ASSY damaged, broken	Replace the platen ASSY.
11	Paper ejection roller defective	Replace the paper ejection roller.
12	Registration sensor defective	Replace the registration sensor PCB ASSY.
13	Main PCB defective	Replace the main PCB ASSY.

■ Paper jam near the paper ejecting tray

\<User Check\>

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

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

- Clean the switchback roller.

Step	Cause	Solution
1	Foreign materials in the recording paper feeding path	Remove foreign materials.
2	Paper feeding path parts out of place	Set the paper feeding path parts into place.
3	Switchback roller defective	Replace the switchback roller.
4	Paper ejection roller defective	Replace the paper ejection roller.
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 smaller than the specified size is not loaded.

- Check thickness of recording paper is within specifications of each type.

- Check if there is no curling or bending in the recording paper.

- Clean the related rollers.

Step	Cause	Solution
1	Foreign materials in the recording paper feeding path	Remove foreign materials.
2	Paper feeding path parts out of place	Set the paper feeding path parts into place.
3	Switchback roller defective	Replace the switchback roller.
4	Main PCB defective	Replace the main PCB ASSY.

4.2.7 Cannot perform duplex printing

<User Check>

- Set the driver settings to duplex printing.

- Use recording papers in letter size or A4 size.

- Check if the recording papers are not overlapping each other. Shuffle the papers thoroughly in the case of overlapping.

Step	Cause	Solution
1	Feeding path parts are out of place	Set the feeding path parts into place.
2	Switchback roller defective	Replace the switchback roller.
3	Main PCB defective	Replace the main PCB ASSY.

4.3 Print-image Problems

4.3.1 Defective images

Completely blank

All single color

Random color
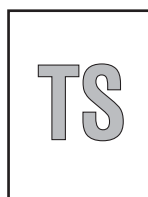
The entire image is light

The entire image is dark

Vertical stripes

White vertical streak
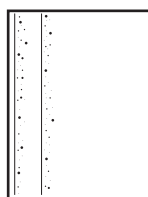
Ink splash
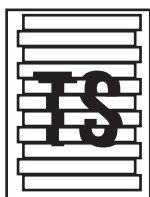
Print edges not aligned

Random missing dots

White horizontal streaks
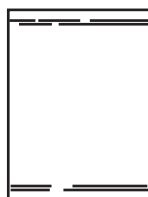
Stain on the leading/trailing edge of the recording paper

Overlapping lines over the whole page
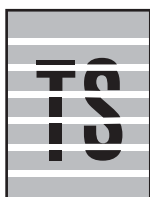
Separated lines over the whole page

Overlapping lines at the trailing edge of the recording paper
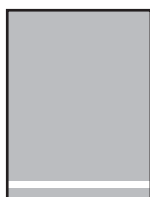
Separated lines at the trailing edge of the recording paper

Characters have shadows (ghost)
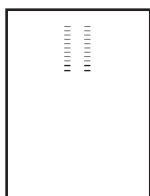
Traces of paper pull-in roller

Recording paper stained

4.3.2 Troubleshooting by print-image defect

Problems related to image defects can also be resolved by the end users 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.

■ Completely blank

<User Check>

- Check if there is an ample amount ink volume.

- Carry out head cleaning.

- Replace it with a new ink cartridge.

Step	Cause	Solution
1	Maintenance unit stained	Clean the maintenance unit. (Refer to the diagram below)
2	The head property value is incorrect	Enter the head property value. (Refer to Chapter 5, Section 1.3.24)
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	Carry out the recommended purge procedures. Refer to "Recommended purge procedures" in Chapter 5, Section 1.3.28 "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.

Cleaner stick

Maintenance unit

a2_003

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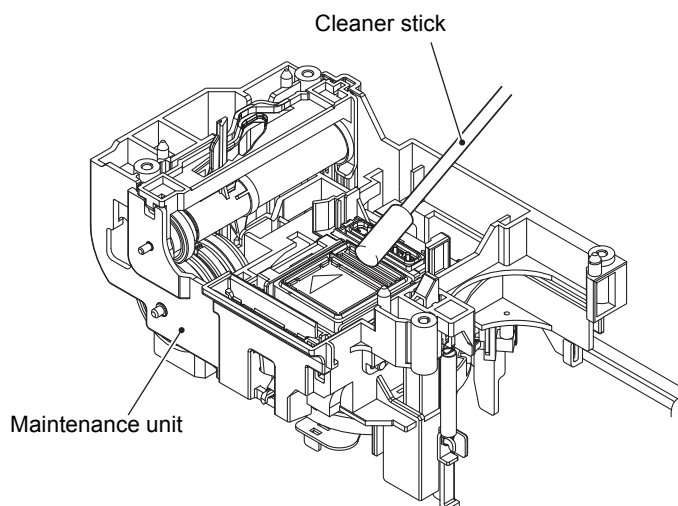
■ **All single color**

<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 Section 4.3.2 in this chapter)
2	The head property value is incorrect	Enter the head property value. (Refer to Chapter 5, Section 1.3.24)
3	Head calibration not performed	Perform head calibration. (Refer to Chapter 5, Section 1.3.2)
4	Non-discharge of ink from head	Carry out the recommended purge procedures. Refer to "Recommended purge procedures" in Chapter 5, Section 1.3.28 "Purge Operation (Maintenance mode 76)."
5	Carriage PCB defective	Replace the carriage PCB ASSY.
6	Head defective	Replace the head/carriage unit.
7	Head wiper defective	Replace the maintenance unit.
8	Main PCB defective	Replace the main PCB ASSY.

■ The entire image is light

\<User Check\>
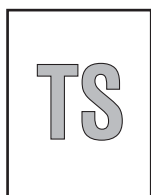
- Check if the recording paper used is according to specifications.
- Check whether the paper type setting is correct.
- Carry out head cleaning.
- Replace the ink cartridge.

Step	Cause	Solution
1	Maintenance unit stained	Clean the maintenance unit. (Refer to Section 4.3.2 in this chapter)
2	The head property value is incorrect	Enter the head property value. (Refer to Chapter 5, Section 1.3.24)
3	Head calibration not performed	Perform head calibration. (Refer to Chapter 5, Section 1.3.2)
4	Non-discharge of ink from head	Carry out the recommended purge procedures. Refer to "Recommended purge procedures" in Chapter 5, Section 1.3.28 "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.

■ The entire image is dark

\<User Check\>

- Check whether the paper type setting is correct.

Step	Cause	Solution
1	Maintenance unit stained	Clean the maintenance unit. (Refer to Section 4.3.2 in this chapter)
2	The head property value is incorrect	Enter the head property value. (Refer to Chapter 5, Section 1.3.24)
3	Head calibration not performed	Perform head calibration. (Refer to Chapter 5, Section 1.3.2)
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.

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■ **Vertical stripes**

<User Check>
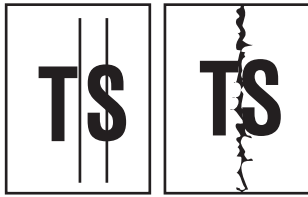
- Check if the recording paper used is according to specifications.

- Clean each roller by printing several blank sheets.

- Clean the platen.

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

■ **White vertical streak**

<User Check>

- Carry out head cleaning.

Step	Cause	Solution
1	Foreign materials inside the CR guide rail	Remove foreign materials.
2	CR encoder strip stained	Clean the CR encoder strip.
3	Non-discharge of ink from head	Carry out the recommended purge procedures. Refer to "Recommended purge procedures" in Chapter 5, Section 1.3.28 "Purge Operation (Maintenance mode 76)."
4	CR encoder strip defective	Replace the CR encoder strip.
5	Carriage motor defective	Replace the carriage motor ASSY.
6	Head defective	Replace the head/carriage unit.

Confidential

■ Ink splash

<User Check>

- Replace the ink cartridge.

Step	Cause	Solution
1	Maintenance unit stained	Clean the maintenance unit. (Refer to Section 4.3.2 in this chapter)
2	The head property value is incorrect	Enter the head property value. (Refer to Chapter 5, Section 1.3.24)
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>
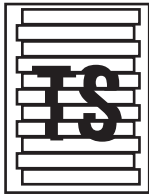
- Check if the recording paper used is according to specifications.
- Perform the printing position adjustment.

Step	Cause	Solution
1	Vertical print lines not aligned	Adjust vertical print line alignment. (Refer to Chapter 5, Section 1.3.22)
2	Head inclination is not adjusted	Adjust the head inclination. (Refer to Chapter 4, Section 2.4)
3	CR encoder strip stained	Clean the CR encoder strip.
4	CR encoder strip defective	Replace the CR encoder strip.
5	Head defective	Replace the head/carriage unit.
6	Main PCB defective	Replace the main PCB ASSY.

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■ **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 Section 4.3.2 in this chapter)
2	Non-discharge of ink from head	Carry out the recommended purge procedures. Refer to "Recommended purge procedures" in Chapter 5, Section 1.3.28 "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.

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■ White horizontal streaks

<User Check>

- Check if it is not in draft mode.

- Replace the ink cartridge.

- Carry out head cleaning.

Step	Cause	Solution
1	Maintenance unit stained	Clean the maintenance unit. (Refer to Section 4.3.2 in this chapter)
2	Paper feeding correction not aligned	Perform paper feeding correction. (Refer to Chapter 5, Section 1.3.18)
3	Head inclination is not adjusted	Adjust the head inclination. (Refer to Chapter 4, Section 2.4)
4	Head calibration not performed	Perform head calibration. (Refer to Chapter 5, Section 1.3.2)
5	Non-discharge of ink from head	Carry out the recommended purge procedures. Refer to "Recommended purge procedures" in Chapter 5, Section 1.3.28 "Purge Operation (Maintenance mode 76)."
6	PF encoder disk stained	Clean the PF encoder disk and flushing guide. (Refer to page xxii)
7	PF encoder disk defective	Replace the PF encoder disk.
8	Carriage PCB defective	Replace the carriage PCB ASSY.
9	Maintenance unit defective	Replace the maintenance unit.
10	Head defective	Replace the head/carriage unit.
11	Main PCB defective	Replace the main PCB ASSY.

■ Stain on the leading/trailing edge of the recording paper
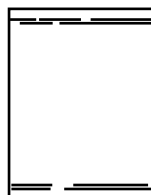
<User Check>

- Check if the recording paper used is according to specifications.

- Check if the recording paper used is not folded.

Step	Cause	Solution
1	Maintenance unit stained	Clean the maintenance unit. (Refer to Section 4.3.2 in this chapter)
2	Paper feeding correction not aligned	Perform paper feeding correction. (Refer to Chapter 5, Section 1.3.18)
3	Head defective	Replace the head/carriage unit.

■ **Overlapping lines over the whole page**

<User Check>

- Carry out head cleaning.

Step	Cause	Solution
1	Paper feeding correction not aligned	Perform paper feeding correction. (Refer to Chapter 5, Section 1.3.18)
2	Head inclination is not adjusted	Adjust the head inclination. (Refer to Chapter 4, Section 2.4)
3	PF encoder disk stained	Clean the PF encoder disk and flushing guide. (Refer to page xxii)
4	PF encoder disk defective	Replace the PF encoder disk.
5	Head defective	Replace the head/carriage unit.
6	Main PCB defective	Replace the main PCB ASSY.

■ **Separated lines over the whole page**

<User Check>

- Carry out head cleaning.

Step	Cause	Solution
1	Paper feeding correction not aligned	Perform paper feeding correction. (Refer to Chapter 5, Section 1.3.18)
2	Head inclination is not adjusted	Adjust the head inclination. (Refer to Chapter 4, Section 2.4)
3	PF encoder disk stained	Clean the PF encoder disk and flushing guide. (Refer to page xxii)
4	Non-discharge of ink from head	Carry out the recommended purge procedures. Refer to "Recommended purge procedures" in Chapter 5, Section 1.3.28 "Purge Operation (Maintenance mode 76)."
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.

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

Step	Cause	Solution
1	Paper feeding correction not aligned	Perform paper feeding correction. (Refer to Chapter 5, Section 1.3.18)
2	PF encoder disk stained	Clean the PF encoder disk and flushing guide. (Refer to page xxii)
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 not aligned	Perform paper feeding correction. (Refer to Chapter 5, Section 1.3.18)
2	PF encoder disk stained	Clean the PF encoder disk and flushing guide. (Refer to page xxii)
3	Non-discharge of ink from head	Carry out the recommended purge procedures. Refer to "Recommended purge procedures" in Chapter 5, Section 1.3.28 "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 have shadows (ghost)

<User Check>
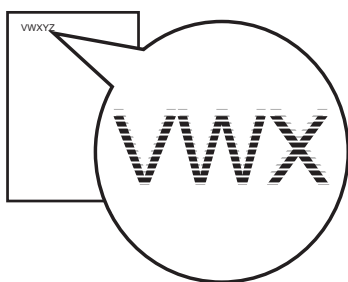
- Carry out head cleaning.

- Perform the printing position adjustment.

Step	Cause	Solution
1	Vertical print lines not aligned	Adjust vertical print line alignment. (Refer to Chapter 5, Section 1.3.22)
2	Paper feeding correction not aligned	Perform paper feeding correction. (Refer to Chapter 5, Section 1.3.18)
3	PF encoder disk stained	Clean the PF encoder disk and flushing guide. (Refer to page xxii)
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>
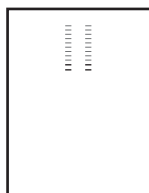
- Check if the recording paper used is according to specifications.

- Clean the paper pull-in roller.

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

■ **Recording paper stained**

\<User Check\>
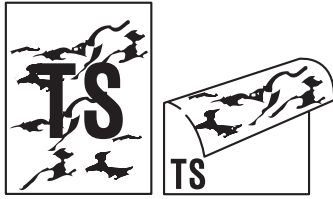
- Check whether the recording paper being used is not folded.

- Check if the recording paper used is according to specifications.

- Check if the recording paper is loaded correctly in the paper tray.

- Clean each roller by printing several blank sheets.

- Clean the platen.

Step	Cause	Solution
1	Maintenance unit stained	Clean the maintenance unit. (Refer to Section 4.3.2 in this chapter)
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.

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4.4 Software-related Problems

Software-related problems, such as not being able to print from the PC, can be resolved by end users by following the User Check items, regardless of whether test printing or printer settings printing can be done through machine operation. 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 when 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 print through a network connection

<User Check>

- Check if the LAN cable is disconnected.

- Check items in the network setting guide.

- Reset network settings. (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 the LCD

Step	Cause	Solution
1	Panel flat cable connection failure	Reconnect the panel flat cable.
2	LCD flat cable connection failure	Reconnect the LCD flat cable.
3	LCD defective	Replace the LCD.
4	Panel flat cable defective	Replace the panel flat cable.
5	ON/OFF key PCB defective	Replace the ON/OFF key PCB.
6	Panel PCB defective	Replace the panel PCB ASSY.
7	Power cord or power supply PCB defective	Replace the power cord or power supply PCB ASSY.
8	Main PCB defective	Replace the main PCB ASSY.

4.6.2   LED does not light up

Step	Cause	Solution
1	Panel flat cable connection failure	Reconnect the panel flat cable.
2	Panel flat cable defective	Replace the panel flat cable.
3	ON/OFF key PCB defective	Replace the ON/OFF key PCB.
4	Panel PCB defective	Replace the panel PCB ASSY.
5	Control panel ASSY defective	Replace the control panel ASSY.
6	Power cord or power supply PCB defective	Replace the power cord or power supply PCB ASSY.
7	Main PCB defective	Replace the main PCB ASSY.

4.6.3   The control panel does not work

Step	Cause	Solution
1	Panel flat cable connection failure	Reconnect the panel flat cable.
2	Rubber key not properly attached	Set the rubber key into place.
3	Rubber key defective	Replace the rubber key.
4	ON/OFF key PCB defective	Replace the ON/OFF key PCB.
5	Panel PCB defective	Replace the panel PCB ASSY.
6	Control panel ASSY defective	Replace the control panel ASSY.
7	Main PCB defective	Replace the main PCB ASSY.

4.6.4 Touch panel inoperative

Step	Cause	Solution
1	Touch panel unadjusted	Adjust the touch panel. (Refer to Chapter 5, Section 1.3.30)
2	Panel flat cable connection failure	Reconnect the panel flat cable.
3	Panel PCB defective	Replace the panel PCB ASSY.
4	Control panel ASSY defective	Replace the control panel ASSY.
5	Main PCB defective	Replace the main PCB ASSY.

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4.7 Document Feeding Problems

4.7.1 Document cannot be fed

<User Check>

- Check if the document is loaded correctly all the way inside the ADF document support and if "ADF READY" is displayed on the LCD.

- Check if the amount of document inside the ADF document support is not fewer than the specified amount.

Step	Cause	Solution
1	Foreign materials near the document pick-up roller	Remove foreign materials.
2	Document pick-up roller stained	Clean the document pick-up roller.
3	Document detection actuator out of place	Set the document detection actuator into place.
4	Document nip piece not mounted in place	Set the document nip piece 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 pick-up roller worn out	Replace the document separate roller ASSY.
8	Document detection sensor defective	Replace the document detection sensor PCB.
9	ADF motor defective	Replace the ADF unit.
10	Main PCB defective	Replace the main PCB ASSY.

4.7.2 Document double feeding

<User Check>

- Check if the document used is thinner than the specified thickness.

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

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4.7.3 Document jam

■ Document jam near the ADF cover

<User Check>

- Check that document is loaded all the way to the end correctly in the document tray.

- Adjust the document guide to match the document size.

- Check if the document loaded is smaller than the specified size.

- Check if the document loaded is not thicker than the specified thickness.

- Check if there is no curling or bending in the document.

- Check if the amount of document inside the ADF document support is not fewer than the specified amount.

- Close the ADF cover securely.

Step	Cause	Solution
1	Foreign materials near the ADF slot	Remove foreign materials.
2	ADF cover ASSY not mounted in place	Set the ADF cover ASSY into place.
3	Upper document chute not properly attached	Set the upper document chute into place.
4	ADF separation pad holder ASSY not properly attached	Set the ADF separation pad holder ASSY into place.
5	Document detection actuator out of place	Set the document detection actuator into place.
6	Document detection sensor defective	Replace the document detection sensor PCB ASSY.
7	ADF separation pad holder ASSY defective	Replace the ADF separation pad holder ASSY.
8	ADF drive unit defective	Replace the ADF drive unit.
9	Main PCB defective	Replace the main PCB ASSY.

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■ **Document jam inside the ADF**

<User Check>

- Check if the document is loaded correctly all the way inside the ADF document tray.

- Adjust the document guide to match the document size.

- Check if the document loaded is smaller than the specified size.

- Check if the document loaded is not thicker than the specified thickness.

Step	Cause	Solution
1	Foreign materials inside ADF	Remove foreign materials.
2	ADF harness jam between the ADF unit and the Document scanner unit	Reroute the ADF harness.
3	Document pressure bar not properly attached	Set the document pressure bar into place.
4	Upper document chute not properly attached	Set the upper document chute into place.
5	Document scanning position actuator out of place	Set the document scanning position actuator into place.
6	Document scanning position sensor harness connection failure	Reconnect the document scanning position sensor harness.
7	Document feed roller 1 and 2 not properly attached	Set the document feed roller 1 and 2 into place.
8	Document scanning position sensor defective	Replace the document scanning position sensor PCB.
9	Scratched or damaged ADF internal parts	Replace the ADF unit.
10	Main PCB defective	Replace the main PCB ASSY.

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■ Document jam near the ADF ejection part

\<User Check\>

- Close the ADF cover securely.

Step	Cause	Solution
1	Foreign materials in the ADF ejection part	Remove foreign materials.
2	ADF cover ASSY not properly attached	Set the ADF cover ASSY into place.
3	Eject film out of place, jammed	Set the eject film into place.
4	Upper document chute not properly attached	Set the upper document chute into place.
5	Document feed roller 2 not properly attached	Set the document feed roller 2 into place.
6	ADF cover damaged, broken	Replace the ADF cover ASSY.
7	ADF ejection part damaged, broken, or worn out	Replace the ADF unit.
8	Main PCB defective	Replace the main PCB ASSY.

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4.7.4　Wrinkles on documents

<User Check>

- Check if the document guide is correctly set to the document size.

- Check if documents are not curled.

- Check that document is loaded all the way to the end correctly in the document tray.

- Check that the number of documents loaded in the document tray is within specified volume.

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

4.7.5　Document size not correctly detected

<User Check>

- Check if documents are within the specified size.

Step	Cause	Solution
1	Document caught in the document scanning position actuator	Set the document scanning position actuator into place.
2	Document scanning position sensor defective	Replace the document scanning position sensor PCB ASSY.
3	ADF motor defective	Replace the ADF unit.
4	Main PCB defective	Replace the main PCB ASSY.

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4.8 Scanned-image Problems

4.8.1 Defective images
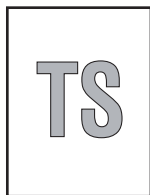
The entire image is light.

Scanning position failure
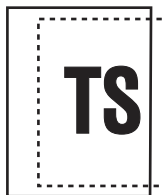
Images are dark
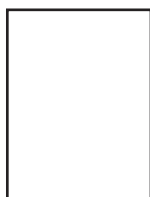
Completely blank

Vertical streaks
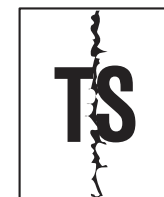
White vertical streaks
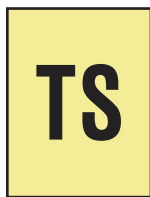
Shades in the entire image

Entire image is distorted

4.8.2 Scanned-image Problems

■ **The entire image is light.**

<User Check>
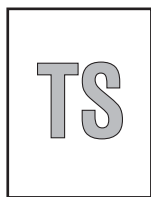
- Check if the contrast is set to "Light".

- Clean the 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	CIS unit defective	Replace the CIS unit.
3	Main PCB defective	Replace the main PCB ASSY.

■ Scanning position failure

<User Check>

- Check if the document guide is correctly set to the document size.

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

(1) ADF

Step	Cause	Solution
1	Scanning start position out of alignment	Adjust the scanning start position. (Refer to Chapter 5, Section 1.3.15)
2	Document caught in the document scanning position actuator	Set the document scanning position actuator into place.

(2) Document scanner unit

Step	Cause	Solution
1	Scanning start position out of alignment	Adjust the scanning start position. (Refer to Chapter 5, Section 1.3.15)
2	CIS unit defective	Replace the CIS unit.

■ Images are dark

<User Check>

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

Step	Cause	Solution
1	White level correction data failure	Carry out maintenance 55. (Refer to Chapter 5, Section 1.3.16)
2	CIS unit defective	Replace the CIS unit.
3	Main PCB defective	Replace the main PCB ASSY.

■ Completely blank

<User Check>
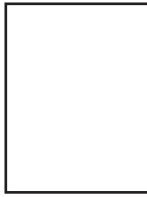
- Check if documents are not reversed.

- Make sure that the document is loaded in the ADF document support.

Step	Cause	Solution
1	White level correction data failure	Carry out maintenance 55. (Refer to Chapter 5, Section 1.3.16)
2	CIS flat cable connection failure	Reconnect the CIS flat cable.
3	Damaged CIS flat cable	Replace the CIS flat cable.
4	CIS unit defective	Replace the CIS unit.
5	Main PCB defective	Replace the main PCB ASSY.

■ Vertical streaks
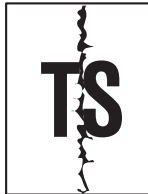
<User Check>

- Clean the document cover glass or ADF glass.

- Clean the document pressure bar.

Step	Cause	Solution
1	Foreign materials are attached to the glass surface inside the scanner unit	Remove foreign materials.
2	Foreign materials are attached to the CIS unit lens surface	Remove foreign materials.
3	CIS unit defective	Replace the CIS unit.

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■ White vertical streaks

\<User Check\>

- Clean the document cover glass or ADF glass.

- Clean the document pressure bar.

Step	Cause	Solution
1	White reference film stained	Clean the white reference film of the document scanner unit.
2	CIS unit defective	Replace the CIS unit.
3	Scratched or damaged white reference film	Replace the document scanner unit.

■ Shades in the entire image

\<User Check\>

- Clean the document cover glass or ADF glass.

- Clean the document pressure bar.

Step	Cause	Solution
1	White level correction data failure	Carry out maintenance 55. (Refer to Chapter 5, Section 1.3.16)
2	CIS unit defective	Replace the CIS unit.
3	Main PCB defective	Replace the main PCB ASSY.

■ Entire image is distorted

Step	Cause	Solution
1	CIS type mismatches	Carry out maintenance 59. (Refer to Chapter 5, Section 1.3.19)

4.9 Fax Problems

4.9.1 Fax sending cannot be performed

<User Check>

- Check if the telephone line cord is inserted correctly into the socket.

- Check if the dialing function setting (tone/pulse) is correct.

- Check if the telephone line cord is disconnected from the EXT terminal.

Step	Cause	Solution
1	Modem PCB flat cable connection failure	Reconnect the modem PCB flat cable.
2	Touch panel flat cable connection failure	Reconnect the touch panel flat cable.
3	Control panel ASSY defective	Replace the control panel ASSY.
4	Modem PCB defective	Replace the modem PCB ASSY.
5	CIS unit defective	Replace the CIS unit.
6	Main PCB defective	Replace the main PCB ASSY.

4.9.2 Cannot receive fax

<User Check>

- Check if the telephone line cord is inserted correctly into the socket.

- Check if the receiving mode setting is correct.

- Check if the telephone line cord is disconnected from the EXT terminal.

Step	Cause	Solution
1	Modem PCB flat cable connection failure	Reconnect the modem PCB flat cable.
2	Modem PCB defective	Replace the modem PCB ASSY.
3	Main PCB defective	Replace the main PCB ASSY.

4.9.3 A communications error occurs

<User Check>

- Change the special line support of the function menu or the Assurance Mode, then check if the error has been resolved.

- Check that there is no source of noise around the machine.

Step	Cause	Solution
1	Modem PCB flat cable connection failure	Reconnect the modem PCB flat cable.
2	Modem PCB defective	Replace the modem PCB ASSY.
3	Main PCB defective	Replace the main PCB ASSY.

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4.10　Other Problems

4.10.1　The machine cannot be powered on

<User Check>

- Insert the power cord securely.

Step	Cause	Solution
1	Panel flat cable connection failure	Reconnect the panel flat cable.
2	ON/OFF key PCB harness connection failure	Reconnect the ON/OFF key PCB harness.
3	ON/OFF key PCB defective	Replace the ON/OFF key PCB.
4	LCD defective	Replace the LCD.
5	Control panel ASSY defective	Replace the control panel ASSY.
6	Power cord or power supply PCB defective	Replace the power cord or power supply PCB ASSY.
7	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.

- Check if the USB cable is damaged.

- Check that a non-specified device is connected to the PictBridge terminal.

- Check if the memory card is supported.

- Check if the data format is supported.

- Format the memory card.

- Load the latest firmware.

- Disconnect and reconnect the power cord.

Step	Cause	Solution
1	Inner media module cover not properly attached	Set the inner media module cover into place.
2	Main PCB defective	Replace the main PCB ASSY.

Confidential

4.10.3 Memory card/PictBridge data cannot be read

<User Check>

- Check if the memory card is inserted correctly.

- Check if the memory card is supported.

- Check if the data format is supported.

- 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 and fax data.

- Disconnect and reconnect the power cord.

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

CHAPTER 3   DISASSEMBLY AND ASSEMBLY

1   PRECAUTIONS BEFORE PROCEEDING

For precautions during disassembly/assembly, see "Precautions for Troubleshooting and/or Disassembly/Assembly". (Refer to page: xxi)

2   PACKING
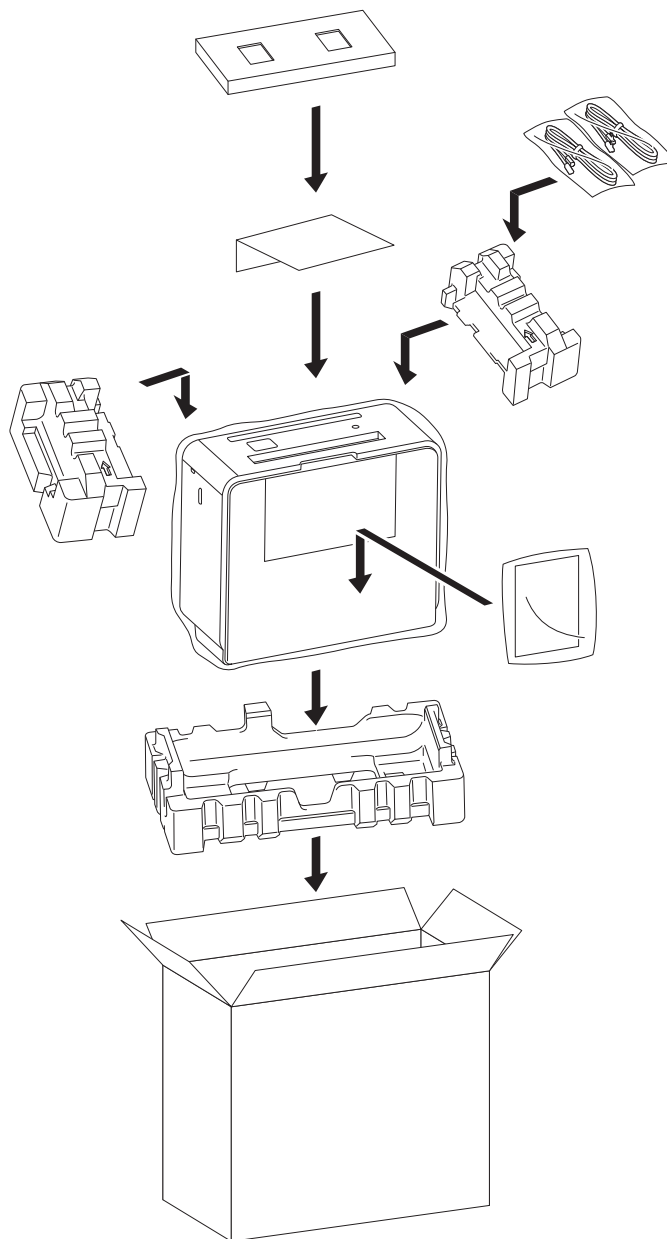
3   SCREW CATALOGUE

TAPTITE CUP B

TAPTITE CUP B M3x10	

TAPTITE CUP S

TAPTITE CUP S M3x6	

TAPTITE BIND B

TAPTITE BIND B M4x12	

SCREW BIND

SCREW BIND M2.6x4	
SCREW BIND M2x10	
SCREW BIND M3x6	

SCREW PAN (WASHER)

SCREW PAN (WASHER) M3.5x6	

4   SCREW TORQUE LIST

Location of screw	Screw type	Q'ty	Tightening torque N•m (kgf•cm)
ADF FG wire	TAPTITE CUP S M3x6	1	0.35±0.05 (3.5±0.5)
Document scanner top cover	TAPTITE CUP B M3x10	5	0.40±0.05 (4±0.5)
Scanner base plate	TAPTITE CUP B M3x10	1	0.40±0.05 (4±0.5)
Upper document chute	TAPTITE CUP B M3x10	2	0.45±0.10 (4.5±1)
Front center cover	TAPTITE BIND B M4x12	2	0.85±0.05 (8.5±0.5)
Front under cover	TAPTITE CUP B M3x10	1	0.40±0.10 (4±1)
Control panel FG wire	TAPTITE CUP S M3x6	1	0.35±0.05 (3.5±0.5)
Panel lower cover	TAPTITE CUP B M3x10	1	0.40±0.10 (4±1)
Upper cover	TAPTITE BIND B M4x12	4	0.85±0.05 (8.5±0.5)
Main PCB shield	TAPTITE CUP S M3x6	2	0.35±0.05 (3.5±0.5)
Main PCB	TAPTITE CUP S M3x6	1	0.35±0.05 (3.5±0.5)
	TAPTITE CUP B M3x10	1	0.40±0.10 (4±1)
Main PCB frame	SCREW BIND M3x6	1	0.35±0.05 (3.5±0.5)
Power supply unit	TAPTITE CUP B M3x10	1	0.40±0.10 (4±1)
Power supply grounding wire	SCREW PAN (S/P WASHER) M3.5x6	1	0.45±0.05 (4.5±0.5)
Power supply PCB	SCREW BIND M3x6	3	0.40±0.05 (4.5±0.5)
Modem upper frame	SCREW PAN (S/P WASHER) M3.5x6	1	0.45±0.05 (4.5±0.5)
Modem PCB ASSY	TAPTITE CUP S M3x6	2	0.45±0.05 (4.5±0.5)
CR frame	TAPTITE CUP B M3x10	2	0.60±0.10 (6±1)
Carriage motor	SCREW BIND M3x6	2	0.75±0.10 (7.5±1)
CR guide rail	TAPTITE CUP B M3x10	2	0.60±0.10 (6±1)
	SCREW BIND M3x6	2	0.63±0.07 (6.3±0.7)
Paper feed motor	SCREW BIND M2.6x4	2	0.44±0.06 (4.4±0.6)
PF encoder sensor PCB ASSY	SCREW BIND M2x10	1	0.15±0.05 (1.5±0.5)

5 LUBRICATION

Lubricant type (Manufacturer)	Lubrication points		Lubricant amount per point
Permalub BAN-5	Head/carriage unit	2	1.5 mm diameter ball
FLOIL BG-1319 (Kanto Kasei)	Head/carriage unit	2	1.0 mm diameter ball
	CR guide rail(top face)	21	2.0 mm diameter ball
	CR frame(top face)	21	2.0 mm diameter ball
	CR frame (inner side of the front upright edge)	27	2.0 mm diameter ball
	(inner side of the rear upright edge)	27	2.0 mm diameter ball
	CR frame (bottom face)	2	1.0 mm diameter ball
FLOIL BG-10KS (Kanto Kasei)	Platen/paper ejection roller	3	2.0 mm diameter ball
Permalub BAN-5	Paper feed roller	2	2.0 mm diameter ball
FLOIL BG-10KS (Kanto Kasei)	Paper ejection roller	2	2.0 mm diameter ball
FLOIL BG-10KS (Kanto Kasei)	Switchback roller	2	2.0 mm diameter ball
FLOIL BG-10KS (Kanto Kasei)	Paper pull-in roller	2	2.0 mm diameter ball

■ **Head/carriage unit**

Apply grease here.
(Permalub BAN-5)

Apply grease here.
(FLOIL BG-1319)
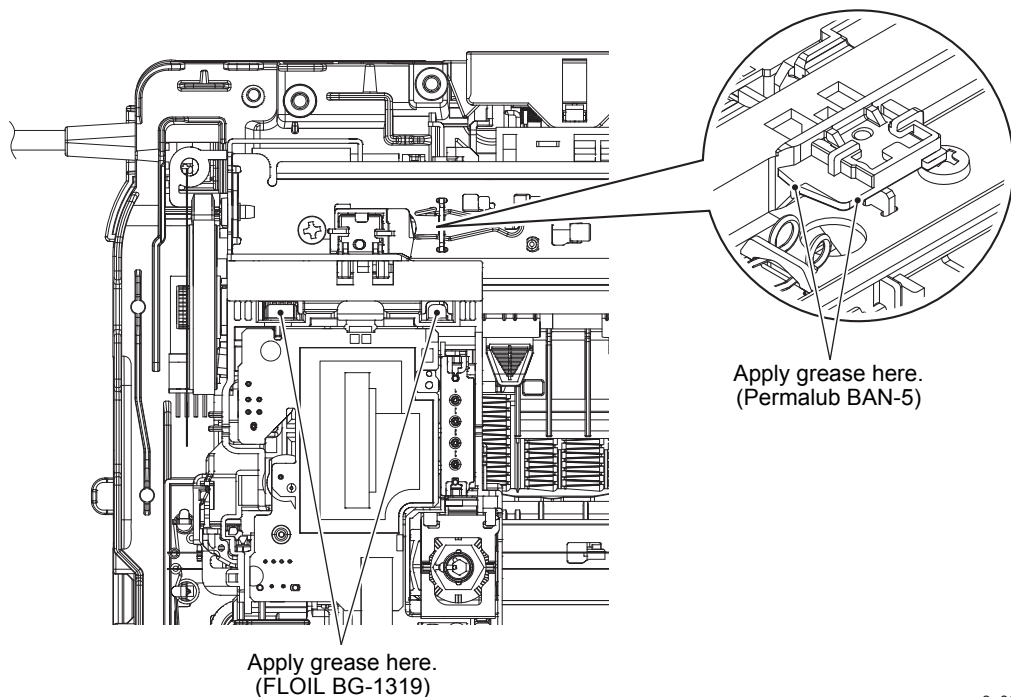
a3_002

■ CR guide rail and CR frame(top face)

Lubrication procedure

(1) Move the head/carriage unit to the left end of its travel.

(2) Before applying grease, wipe dust or dirt off the lubrication area with an alcohol soaked cloth.

(3) Move the head/carriage unit from the left to the right ends of its travel to spread the applied grease on the CR guide rail and CR frame.

(mm)

CR guide rail

14.3 mm interval×20

Apply grease here.
(FLOIL BG-1319)

Apply grease here.
(FLOIL BG-1319)

16.2 mm interval×20

CR frame

a3_004

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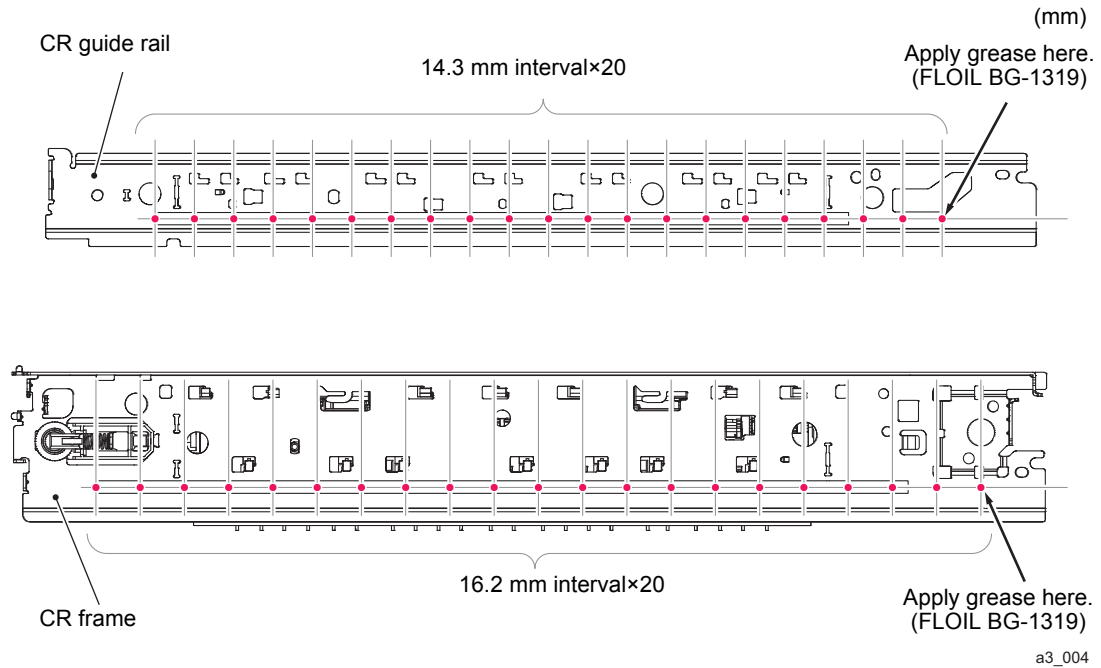
■ CR frame (inner sides of the front and rear upright edges)

Lubrication procedure

(1) Move the head/carriage unit to the left end of its travel.

(2) Before applying grease, wipe dust or dirt off the lubrication area with an alcohol soaked cloth.

(3) Move the head/carriage unit from the left to the right ends of its travel to spread the applied grease on the CR guide rail and CR frame.

(mm)

Apply grease here.
(FLOIL BG-1319)

(12.9 mm interval×26)

Home position of
Head/carriage unit

CR frame

9.3

(8.6)

(13.3mm interval×26)

13.15

1.4

3.7±0.5   5.85±0.5
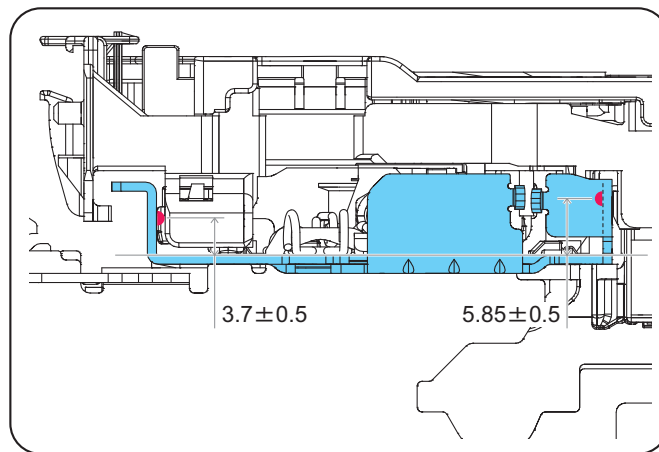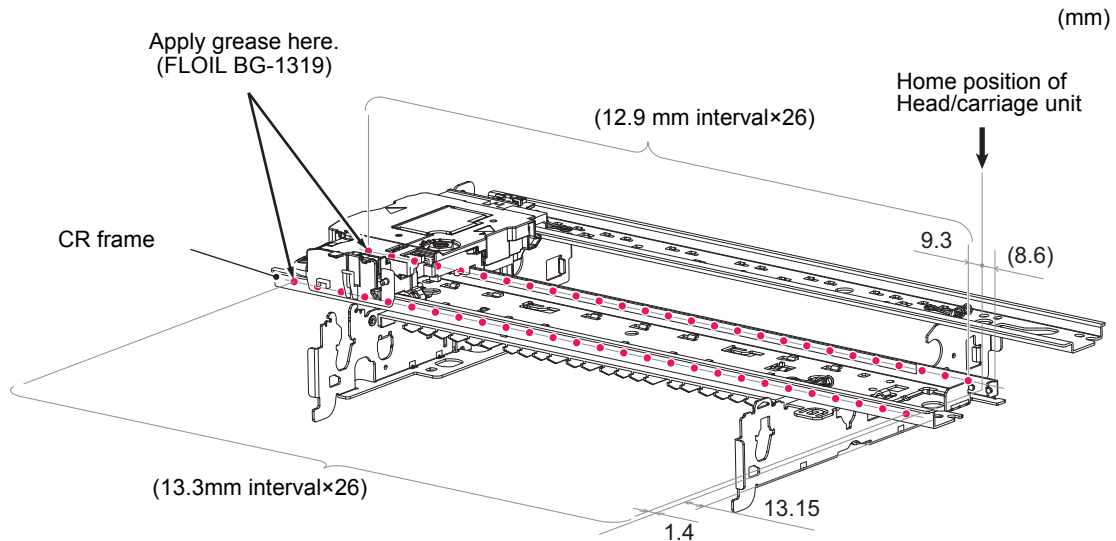
a3_104

■ CR frame (bottom face)

(mm)

CR frame

1.5 to 2

Apply grease here.
(FLOIL BG-1319)

a3_005

■ Platen/Paper ejection roller

Apply grease here.
(FLOIL BG-10KS)

a3_006

Confidential
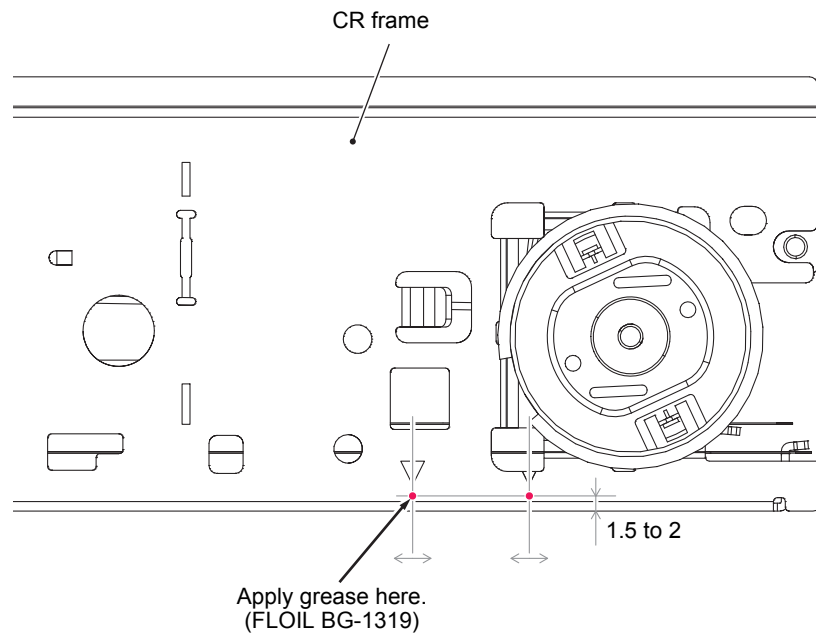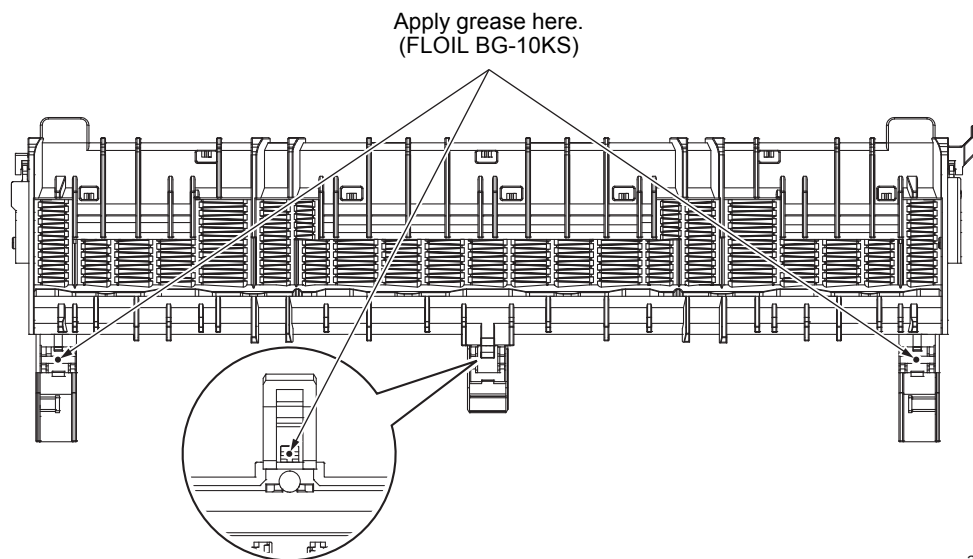
■ Paper feed roller

Lubrication procedure

(1) Apply grease to the lubrication points.

(2) Rotate the paper feed roller half a 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.

Apply grease to the shaft of the cutout (Permalub BAN-5).

Apply grease to the shaft of the cutout (Permalub BAN-5).

a3_007

Confidential

■ Paper ejection roller

Apply grease here.
(FLOIL BG-10KS)

Apply grease here.
(FLOIL BG-10KS)
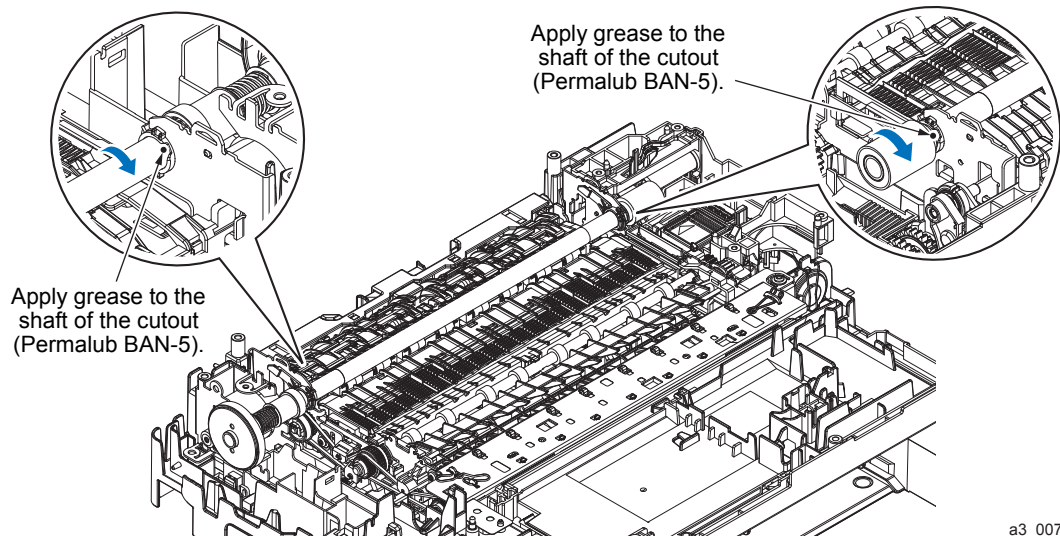
Paper ejection roller

Paper ejection roller

a3_219

■ Switchback roller

Apply grease here.
(FLOIL BG-10KS)

Switchback roller

Apply grease here.
(FLOIL BG-10KS)
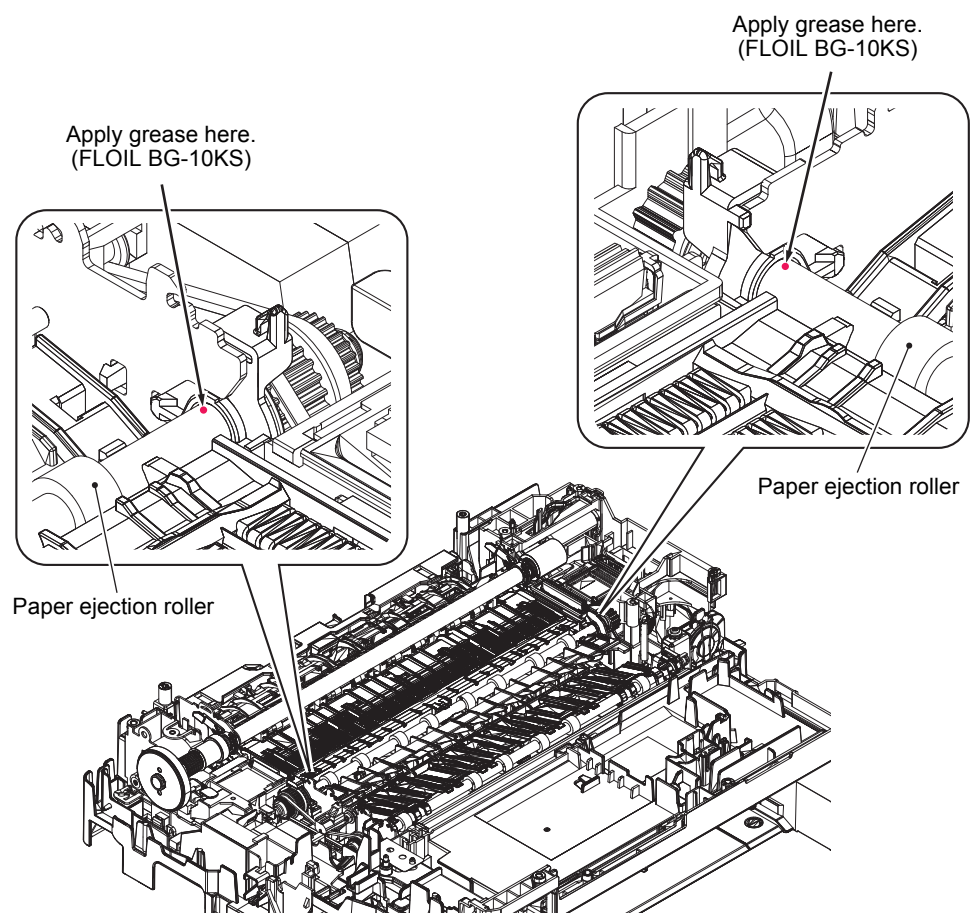
Switchback roller

a3_220

■ Paper pull-in roller

Apply grease here.
(FLOIL BG-10KS)

a3_008

Confidential
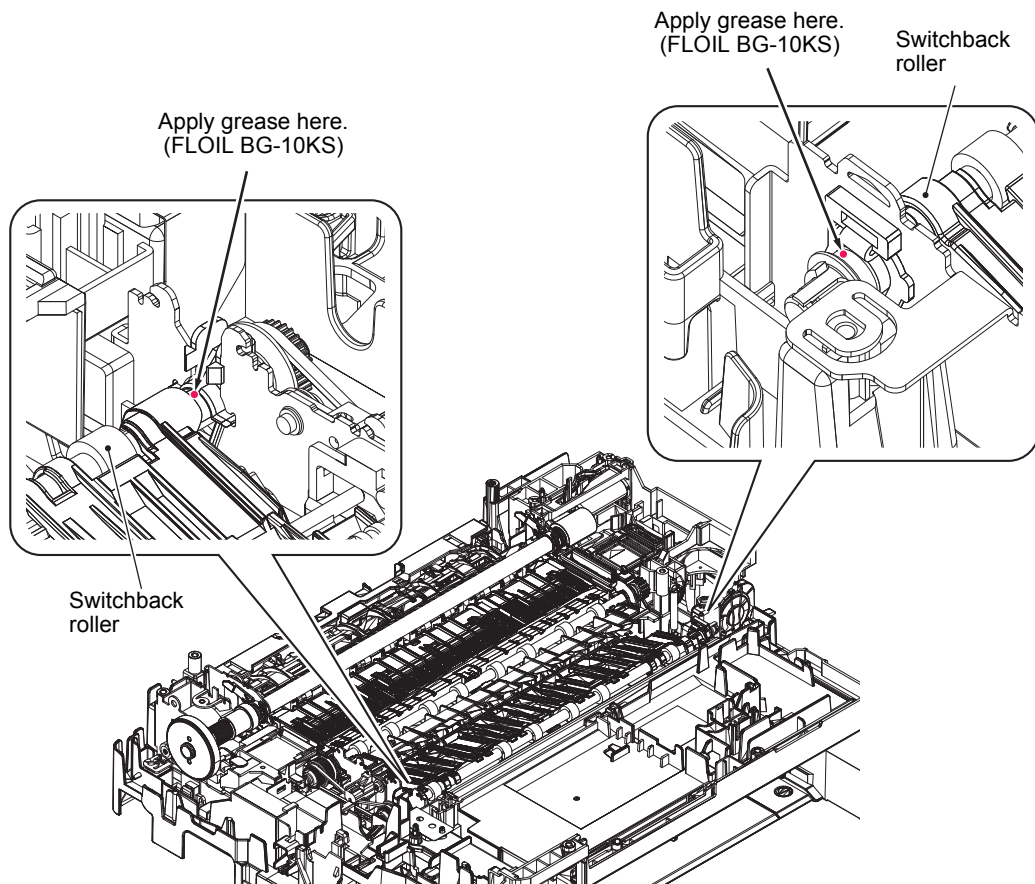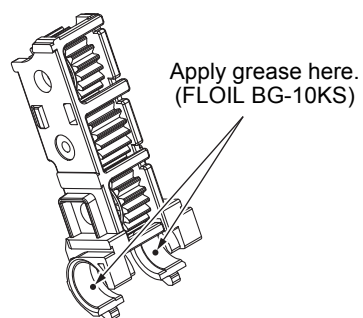
6   OVERVIEW OF GEARS

■ **ADF drive gear**
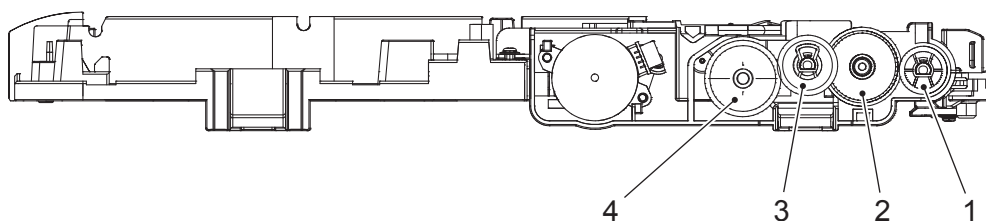
a3_009

1	LEG781001	LF2 ROLLER GEAR
2	LET690001	IDLE GEAR 62T
3	LEG779001	LF1 ROLLER GEAR
4	LEG777001	SEPARATE ROLLER GEAR OUTER

■ **Paper feed roller gear**
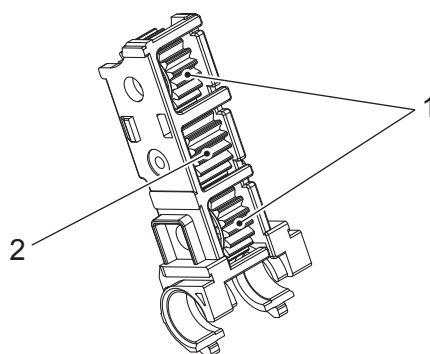
a3_010

1	LEU021001	IDEL GEAR 20 G
2	LEU020001	IDLE GEAR 21

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7   ROUTING OF HARNESSES, FLAT CABLE AND INK SUPPLY TUBES

1 Upper cover: document scanner motor harness, ADF motor harness[*1], ADF FG wire[*1], document detection sensor harness[*1], document scanning position sensor harness[*1] and CIS flat cable

CIS flat cable

*1 For models with ADF

Hooks

The Flat core should be within the frame.

Document scanner motor harness

ADF FG wire*1

Ensure that wiring does not come into contact with the Paper tray detection sensor.

ADF motor harness*1

Document scanning position sensor harness

Document detection sensor harness*1

Flat core

a3_011

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2 CIS flat cable

Cable guide
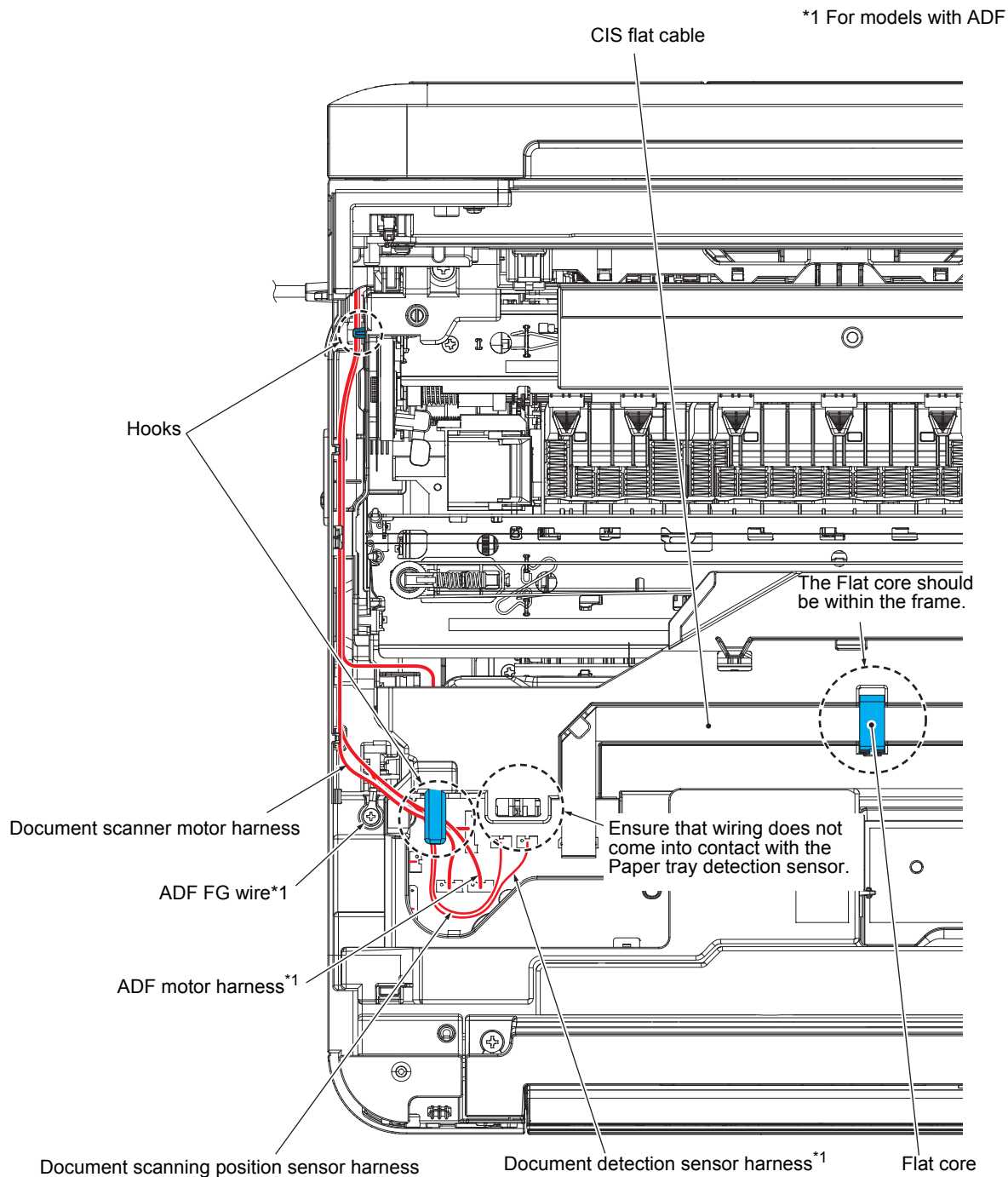
CIS flat cable

Cable guide
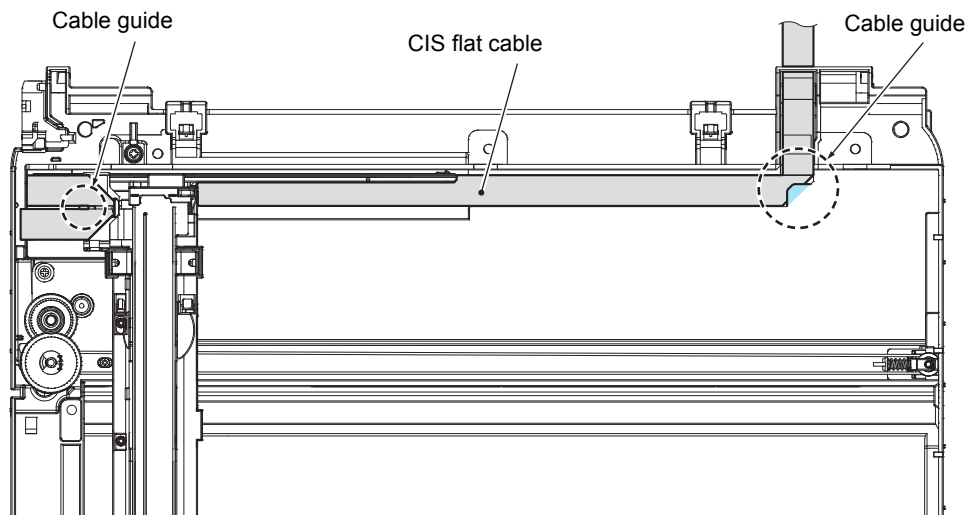
a3_012

3 Panel flat cable, Panel FG wire and Scanner cover sensor

Flat core

Do not pinch the wire.

Panel flat cable

Panel FG wire

Front under cover

The terminal of the panel FG wire should be within the frame.

a3_013

Confidential

4   Document scanner cover sensor

Cable guides

Document scanner
cover sensor harness

Cable guides

Cable guides

a3_014

5   Control panel

Touch panel flat cable

Panel flat cable

Cable guide

Panel flat cable

LCD flat cable

Cable guides

NFC PCB flat cable

ON/OFF key PCB harness

a3_015

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Document scanning position sensor harness

Document detection sensor harness

PF/Registration sensor harness

Carriage flat cable

Modem flat core

Modem flat cable

Paper feed motor harness

Carriage motor harness

Power supply harness

Speaker harness

Ink sensor flat cable

ADF motor harness

Document scanner motor harness

Purge cam switch harness

Ink cartridge cover sensor harness

Confidential

Carriage flat cable

Flat core

Cable guide

a3_017

Tube clamp(1)

Tube clamp(2)

Black

Yellow

Cyan

Magenta

Black

Yellow

Cyan

Magenta

Tube support plate   Tube support wire elbow

a3_018

Note Bind the ink tubes with the two tube clamps. Bind magenta, cyan, and yellow together from the bottom with tube clamp (1). Bind black, yellow, and cyan from the top with tube clamp (2).

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9 Lower cover right side: Purge cam switch harness, Carriage motor harness, Speaker harness and Ink cartridge cover sensor harness

Ink cartridge cover
sensor harness

Lower cover

(Ink cartridge cover sensor ASSY)

Carriage motor

Purge cam sensor harness

Ferrite core

Carriage motor harness

Speaker harness

a3_019

Confidential

10 Lower cover left rear side: PF/registration sensor harness ASSY (PF encoder sensor harness and registration sensor harness), Paper feed motor harness

CR guide rail

PF encoder disk

Lower cover

Core (with tape)

Paper feed motor harness

PF encoder sensor PCB ASSY

Registration sensor harness

PF encoder sensor harness

PF/Registration sensor harness ASSY

a3_020

Confidential

Ink supply tube

PF/Registration
sensor harness

Paper feed motor
harness

Carriage motor
harness

Carriage
flat cable

Ink sensor
flat cable

Power supply harness

Ink cartridge cover sensor harness

Speaker harness

Purge cam switch harness

Carriage motor harness

a3_021

Confidential

8   DISASSEMBLY FLOW

■ Disassembly flowchart

Disassembly/reassembly time (seconds)

9.15 Ink Cartridge Cover 5/5	9.17 Front Cover 5/5	9.18 Manual Feed Slot 5/5	9.43 Paper Pull-in Roller 15/25	9.45 Base Pad / Base Pad W 5/5

* For ADF Models Only

Ⓑ

```
9.6 ADF Top          9.7 ADF Top
Cover Front          Cover Rear
10/5                 10/5

9.8 ADF Document     9.9 ADF Cover
Support              ASSY
5/5                  10/15

                     9.10 ADF Separation
                     Pad Holder ASSY
                     5/5

9.11 Document        9.12 Document
Scanning Position    Detection Sensor
Sensor PCB ASSY      PCB ASSY
5/5                  10/15

9.13 ADF Top         9.14 Document
Cover Center         Separate Roller
5/5                  ASSY
                     35/50
```

```
9.2 Scanner
Cover Damper
/Scanner Cover
Support
10/15

9.3 Head/carriage
Unit/CR Timing
Belt
70/95

Ⓐ

9.4 Document           9.16 Control
Scanner Unit           Panel ASSY
/ADF Unit*1            40/90
/Document
Cover ASSY*2           9.19 Wireless      9.20 Jam Clear
50/60                  LAN PCB ASSY       Cover
                       5/5                5/5

*1 Models with ADF
*2 Models without ADF

9.5  CIS Unit /
CIS Flat Cable         Ⓑ
35/80

                       9.21 Upper Cover       9.44 Bank ASSY
                       25/30                  30/20
```

```
Ⓐ

9.30 CR Encode                                               9.23 Ink          9.28 Power Supply
Strip                                                        Absorber Box      PCB ASSY
10/15                                                        5/5               35/60

9.31 Carriage      9.27 Main PCB        Ⓐ                                       9.29 Modem PCB
Motor              50/80                                                        ASSY
20/35                                9.22 Carriage                             10/15
                                     PCB ASSY
9.32 Flushing                        15/30            9.24 Ink Refill
Guide              9.34 PF Encoder                    ASSY
5/5                Disk                                10/25
                   5/5
9.33 Flushing                        9.26 Ink Cartridge   9.25 Ink Absorber
Foam               9.35 Registration  Cover Sensor        Felt
15/25              Sensor PCB         ASSY                (For Ink Refill
                   ASSY               10/10               ASSY)
                   30/45                                  5/5

9.36 Paper Feed
Roller
10/15

9.39 Maintenance   9.37 Paper Feed   9.38 PF Encoder
Unit               Motor             Sensor PCB
5/5                5/5               ASSY
                                     5/10

9.40 Ink Absorber  9.41 Platen ASSY
Felt               /Paper ejection
(For Maintenance   roller
Unit)              30/45
5/5

                   9.42 Switchback
                   Roller ASSY
                   30/45
```

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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 in the machine 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 [icon] . Press **ALL settings**.

(3) Press **Fax** or **Fax/Tel**.

(4) Press **Setup Receive**.

(5) Press **Memory Receive**.

(6) Press **Fax Transfer**.

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

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

Transferring faxes to a PC

■ **Operating Procedure**

The following procedure uses the fax machine and your PC.

(1) Press the **X** key to interrupt the error (if displayed) temporarily.

(2) Press [icon] . Press **ALL settings**.

(3) Press **Fax**.

(4) Press **Setup Receive**.

(5) Press **Memory Receive**.

(6) Press **PC-Fax Receive**.

(7) If the "Run PC-Fax on your computer." appears on the LCD, press **OK**.

(8) Click **Start** | **All Programs (program)** | **Brother |** (Model name) **MFC-XXXX** | **PC-FAX Receiving** | **Receive**.

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

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

(9) Select "**<USB>**" or the PC you run in step (8), then press **OK**.

(10) Press **Backup Print:On** or **Backup Print:Off**.

Note Choosing **Backup Print:On** prints the received fax file.

(11) Press the **X** key.

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

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

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

Note that the following information cannot be backed up.

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

■ **Operating Procedure**

Back up the machine information, user setting information and other information, referring to Chapter 5, Section 1.3.12 "Backup of Machine Information (Maintenance mode 46)" and Chapter 5, Section 1.3.24 "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:

- Power cord
- Telephone line cord
- USB cable
- LAN cable
- External memory card
- Modular jack of the external telephone set from the external telephone line jack

(2) Remove the following:

- Paper tray
- Ink cartridge
- LAN port cap
- EXT cap
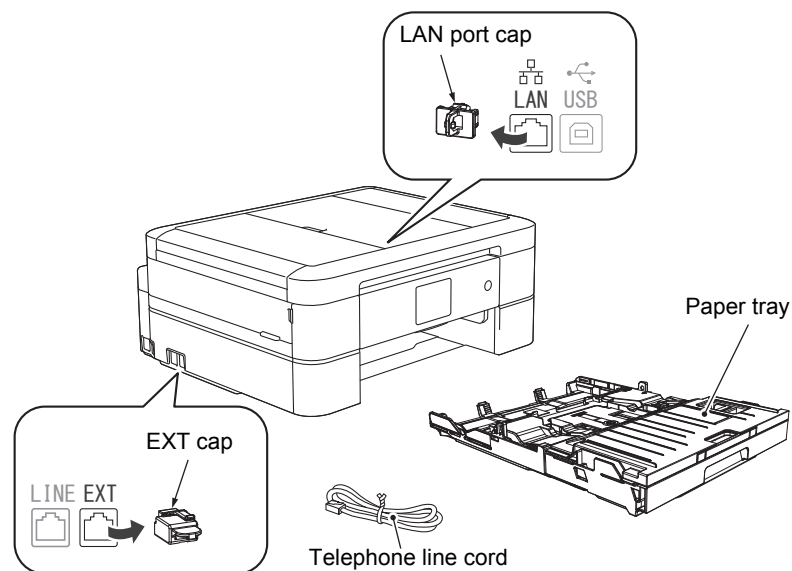
Fig. 3-1

(3) Set the Protective part.
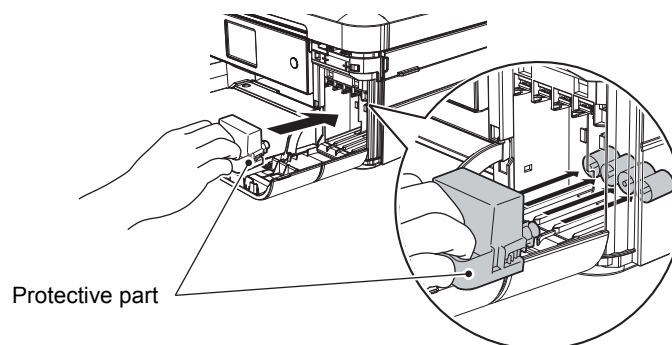
Fig. 3-2

Note Use the spare Protective part listed in the parts list rather than the one bundled with the machine.

9.2 Scanner Cover Damper/Scanner Cover Support

(1) Support the Document scanner unit by hand, press the Hook at the front end of the Scanner cover damper to the back, and release it from the Document scanner unit.

(2) Turn the Scanner cover support to the utmost back and pull it up diagonally towards you and out of the Upper cover together with the Scanner cover damper.

(3) Remove the Scanner cover damper from the Scanner cover support.
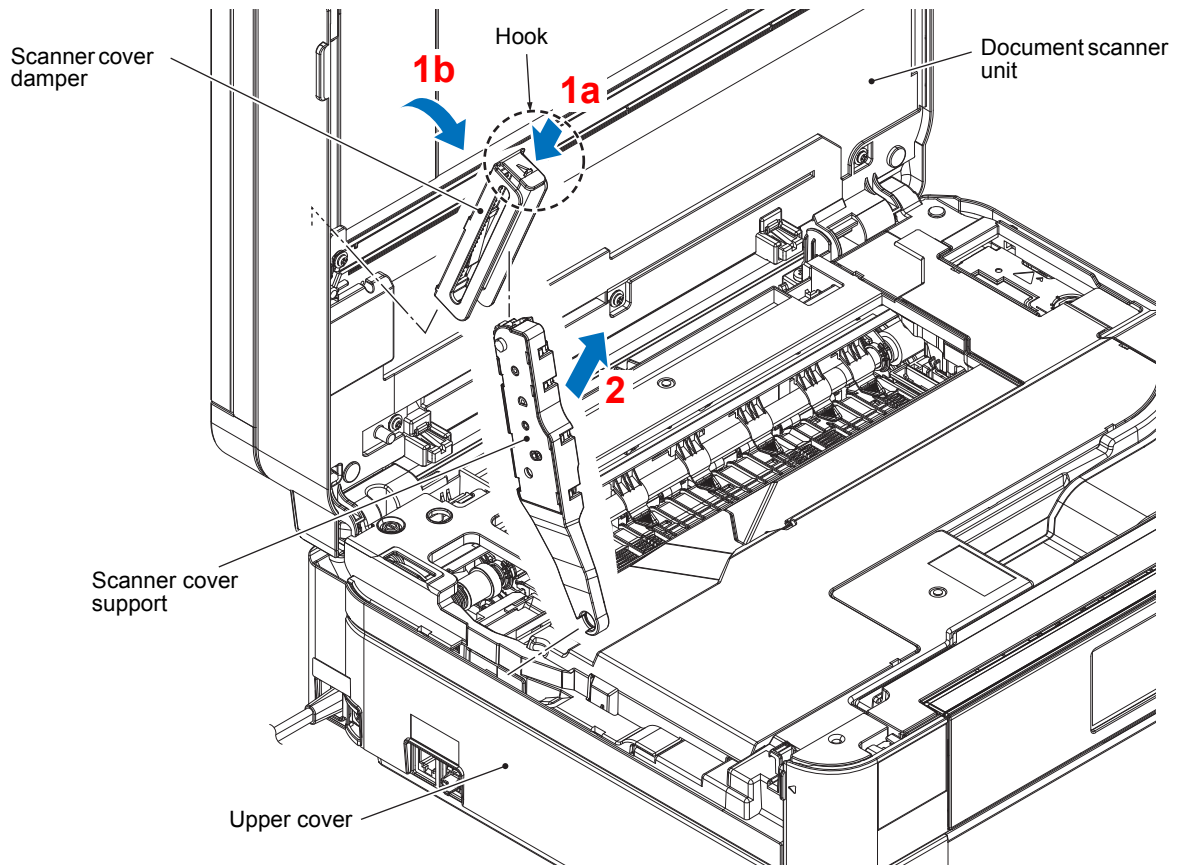
Fig. 3-3

9.3 Head/carriage Unit/CR Timing Belt

During disassembly other than removing the Ink refill ASSY, the Recording Paper Feeding Path parts, the Head/carriage parts, or the Maintenance unit, the Head/carriage unit should be kept on.

When removing the Head/carriage unit, you need to remove the Ink cartridge first and set the Protective part instead (Refer to 3-25). Insert the Protective part firmly until it Hooks on to the right side to prevent ink from leaking from the Ink supply tube and staining the Machine.

Note • When replacing the Head/carriage unit, put on a grounding wrist band and perform the job on a static mat. Also take care not to touch the conductor sections on the flat cables.

• During disassembly/assembly of the Head/carriage unit, be careful not to contaminate the CR encoder strip or PF encoder disk with ink or grease.

(1) Release the Hook ① on the Harness cover, release the Tab ②, release the Hook ③, and release the Hook ④ while moving the part to the left.

Harness cover
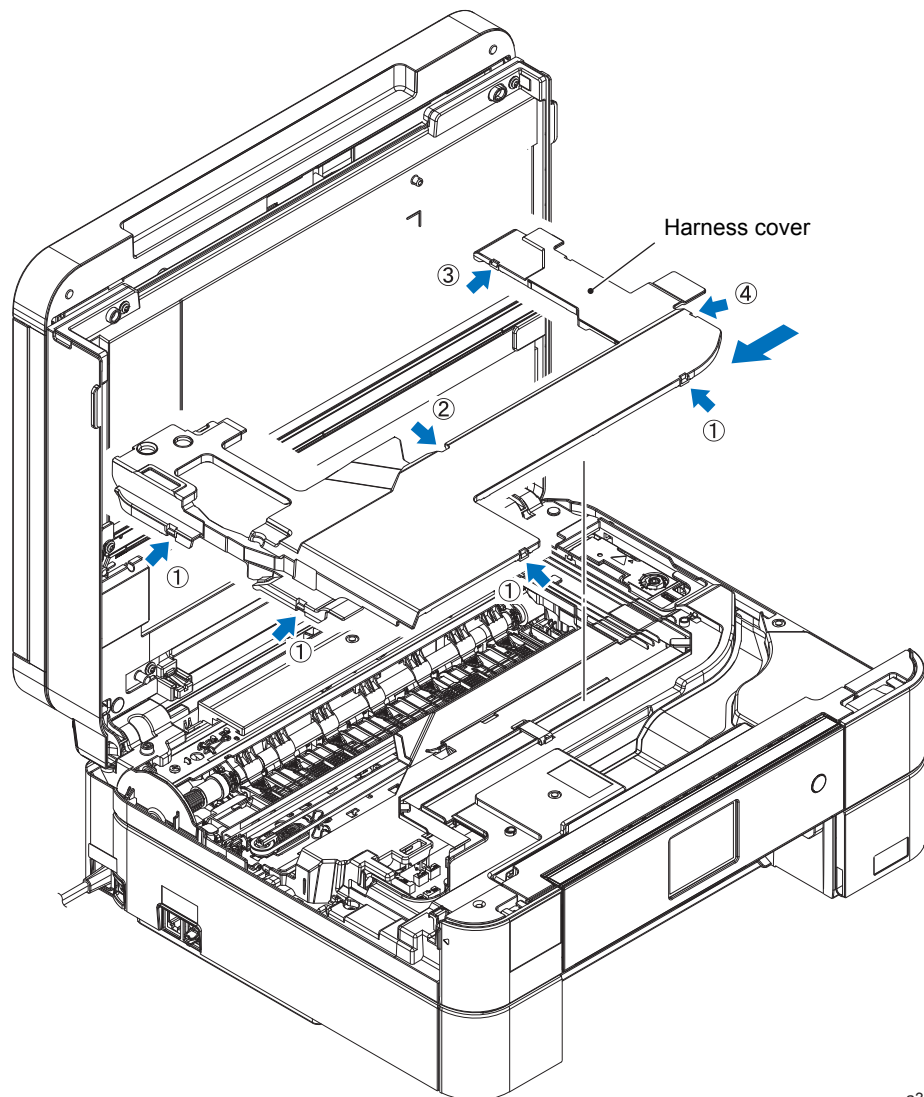
a3_025

Fig. 3-4

(2) Unlock the head lock of the Head/carriage unit.
Unlock the head lock of the Head/carriage unit in one of the following methods.

Unlocking through panel operation

1) Plug the power cord into an electrical outlet.

2) Open the Document scanner unit.
The "Cover is Open" appears on the LCD.

3) Holding down the **X** or **Stop** displayed on the panel moves the Head/carriage unit to the center of its travel.

4) Unplug the power cord from the electrical outlet.

Manual unlocking

1) Open the Document scanner unit.

2) Rotate the Paper feed roller gear in the direction indicated by the arrow until the Maintenance unit's head stopper and the Wipe rubber move down.

Paper feed roller gear

Wipe rubber
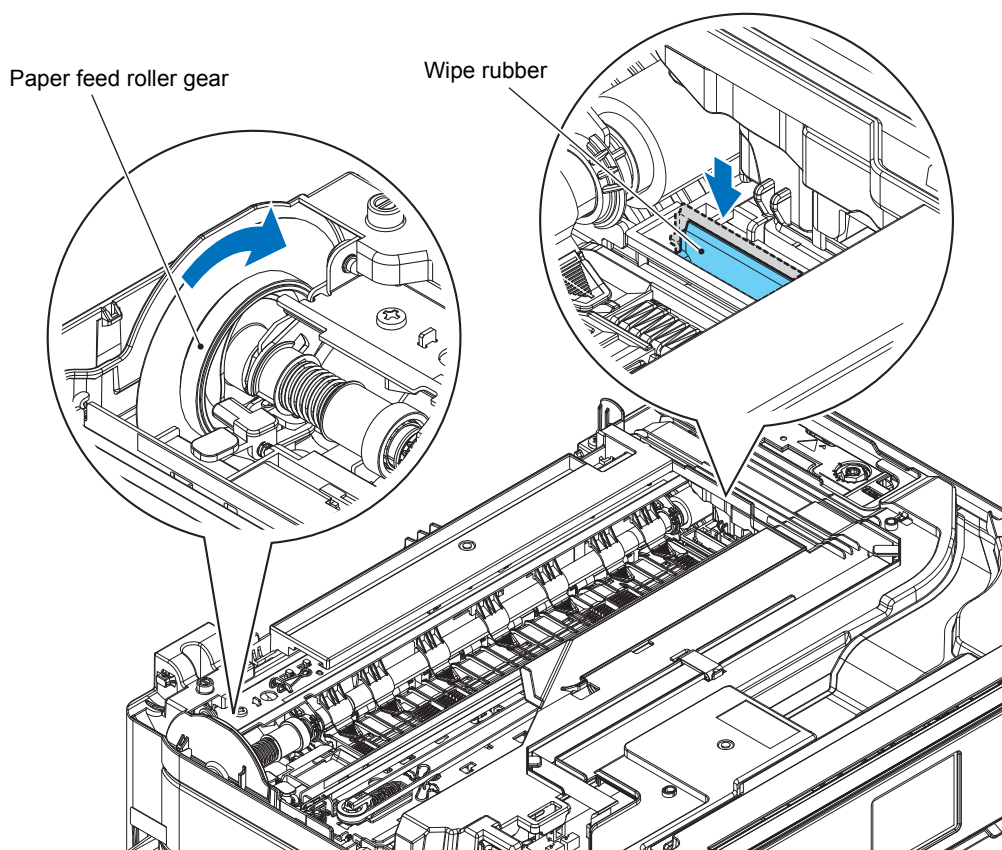
a3_026

Fig. 3-5

(3) Move the Head/carriage unit to the left end of its travel by hand (to a position where the entire Head/carriage unit can be seen).

Head/carriage unit
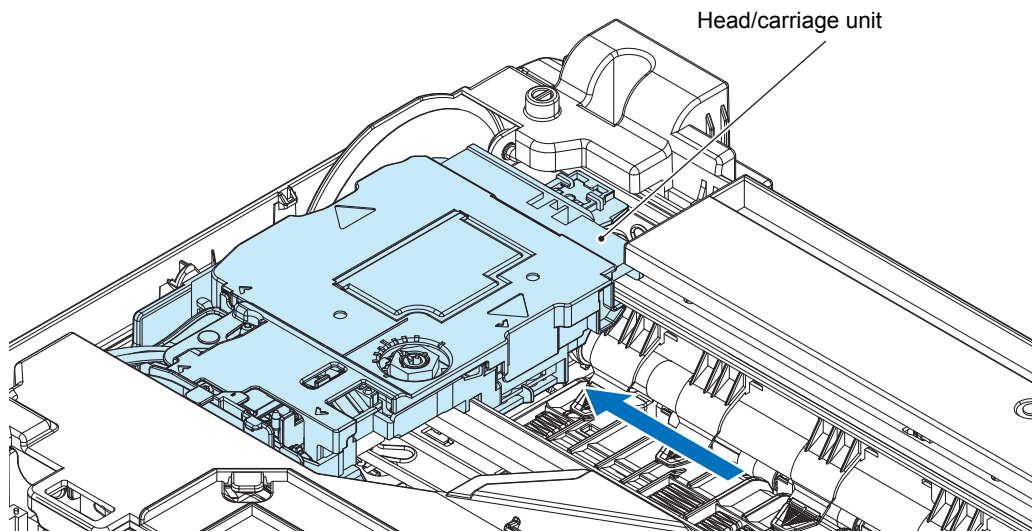
a3_027

Fig. 3-6

(4) Release the four Latches in the ▲ parts of the head cover, and remove the head cover.

Head cover

Latch

Latch

Latches
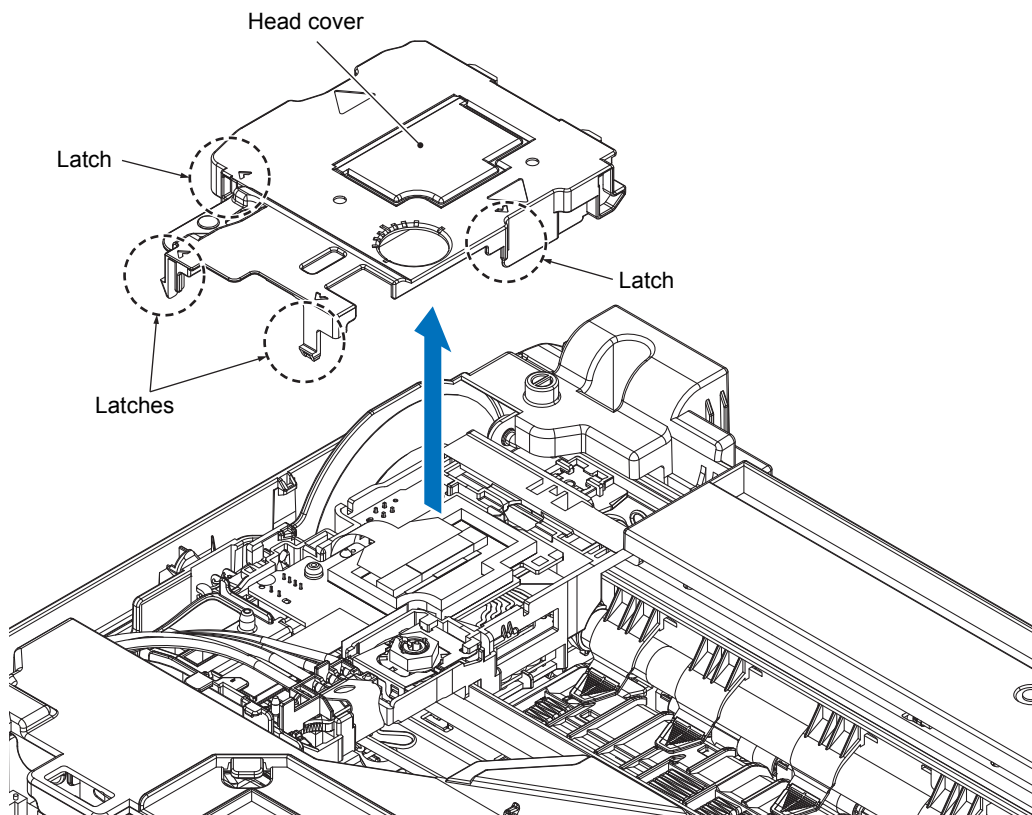
a3_028

Fig. 3-7

(5) Unlock the connector on the Carriage PCB and disconnect the Head flat cable.

(6) Remove the spring lock and slightly raise the front end of the Carriage PCB. Next, remove the Carriage flat cable from the cable guide of the Head/carriage unit and release the Boss from the opening in the film (refer to the illustration below).

(7) Take the Carriage PCB ASSY out of the Head/carriage unit and put it on the Upper cover in front of the Head/carriage unit.
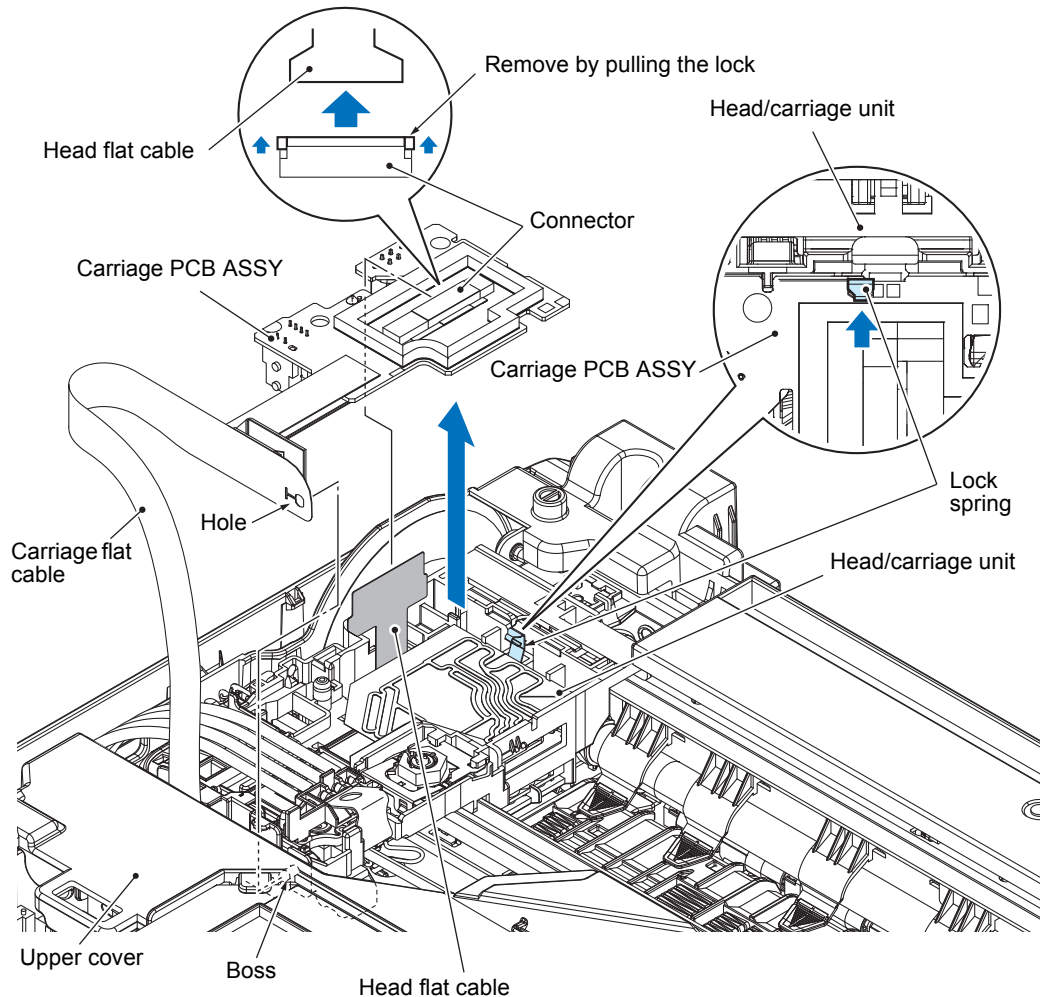
a3_029

Fig. 3-8

(8) Remove the Head joint spring.

(9) Pull the Head joint up and off the Head/carriage unit. 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.

Note Wipe off the ink remaining on the section where the Head joint was mounted with a clean, lint-free cloth.

(10) Remove the Head joint rubber (that is a part of the Head/carriage unit but may come off with the Head joint) and put it on a clean vinyl sheet while taking care not to contaminate it.
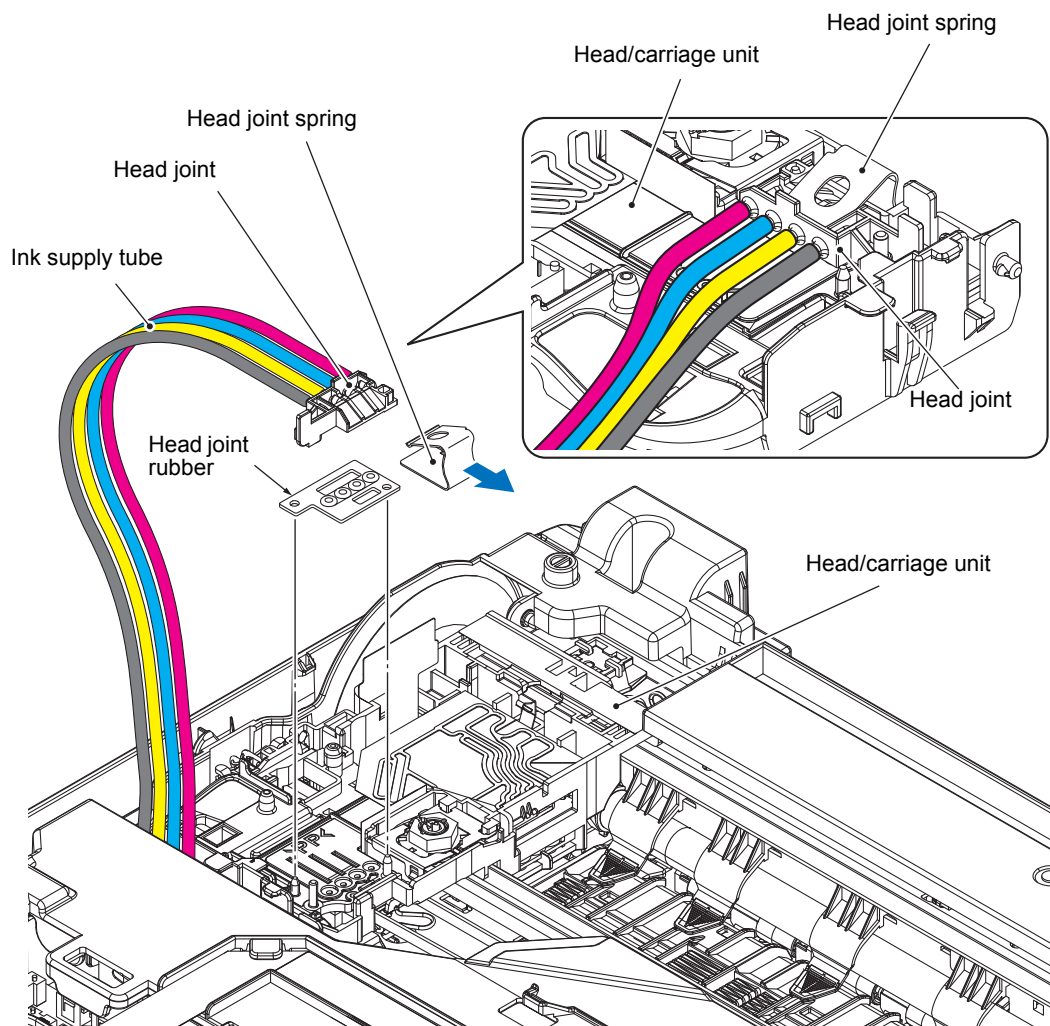
a3_030

Fig. 3-9

(11) Move the Head/carriage unit slightly to the right as shown below.

(12) While pressing the Idle pulley holder to the right, remove the CR timing belt from the Carriage motor pulley and the Idle pulley.

Note When removing the CR timing belt, do not touch the CR encoder strip or the lubrication area on the CR guide rail with your hands or with the CR timing belt.
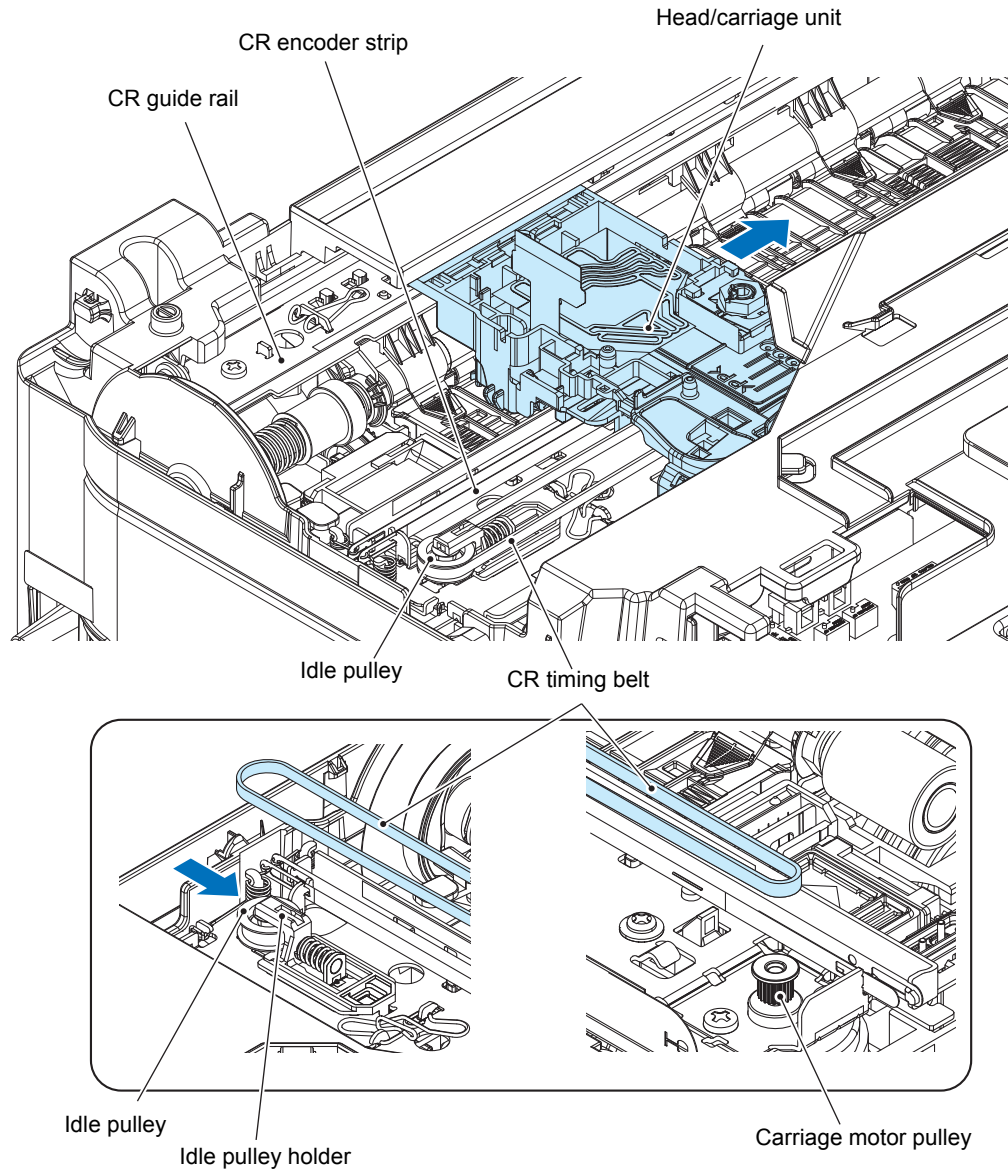
Fig. 3-10

(13) As shown below, loosely tie the CR timing belt in a bundle on the Head/carriage unit.

(14) Move the Head/carriage unit to the left side until it meets the Carriage rail notches.

(15) Lift up slightly the back side of the Encoder lock, turn it 90 degrees and remove it.
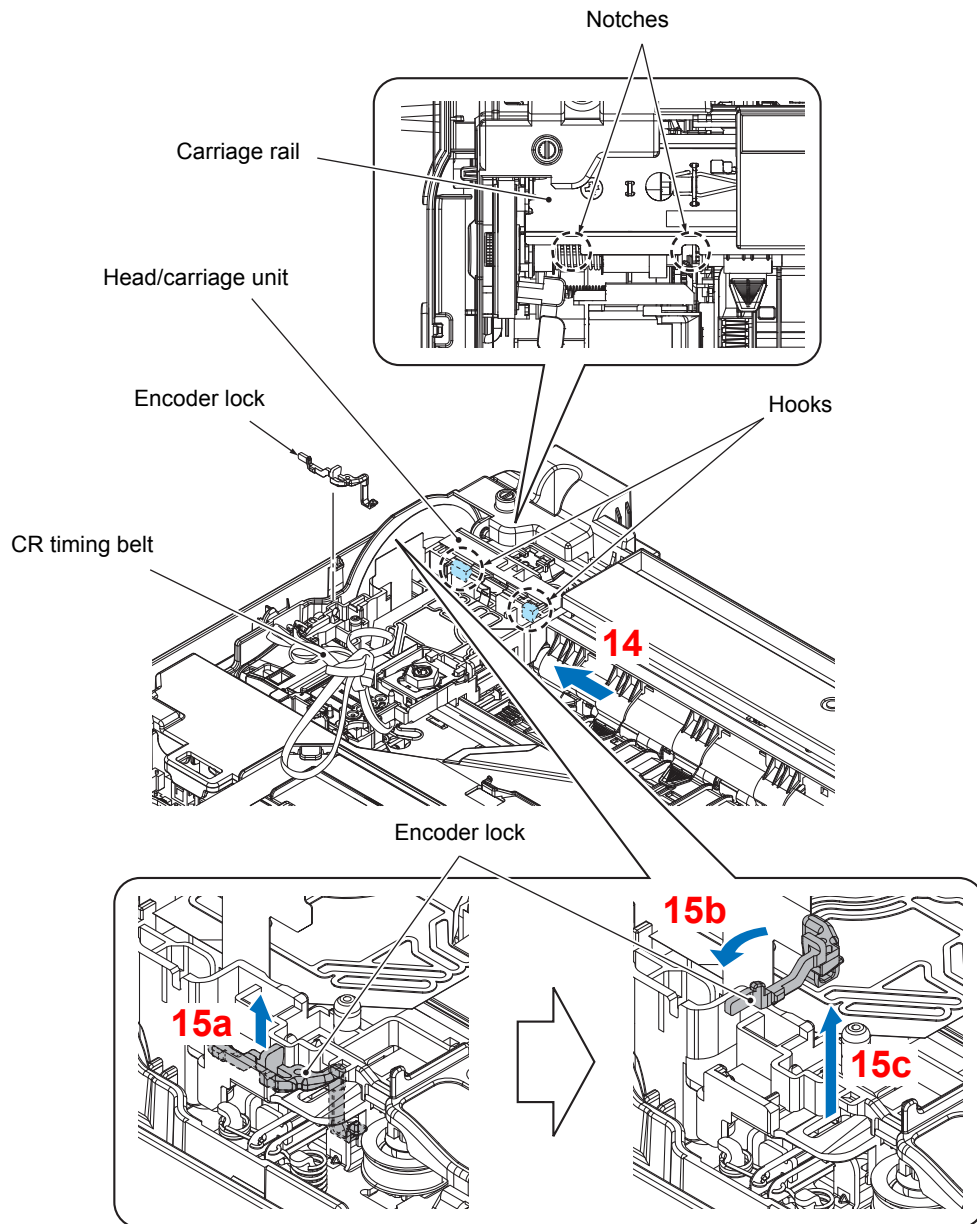
a3_032

Fig. 3-11

(16) Slightly lift the rear end of the Head/carriage unit and detach it from the (two) CR guide rail notches. Next, detach the front end from the CR frame to completely remove the Head/carriage unit.

Note Do not touch the head nozzles (the printing ends) or ink supply ports (to which Ink supply tubes are connected) of the print head. Doing so will not only stain your hands with ink but also damage the nozzles and supply ports. If you accidentally touch them, perform head cleaning.
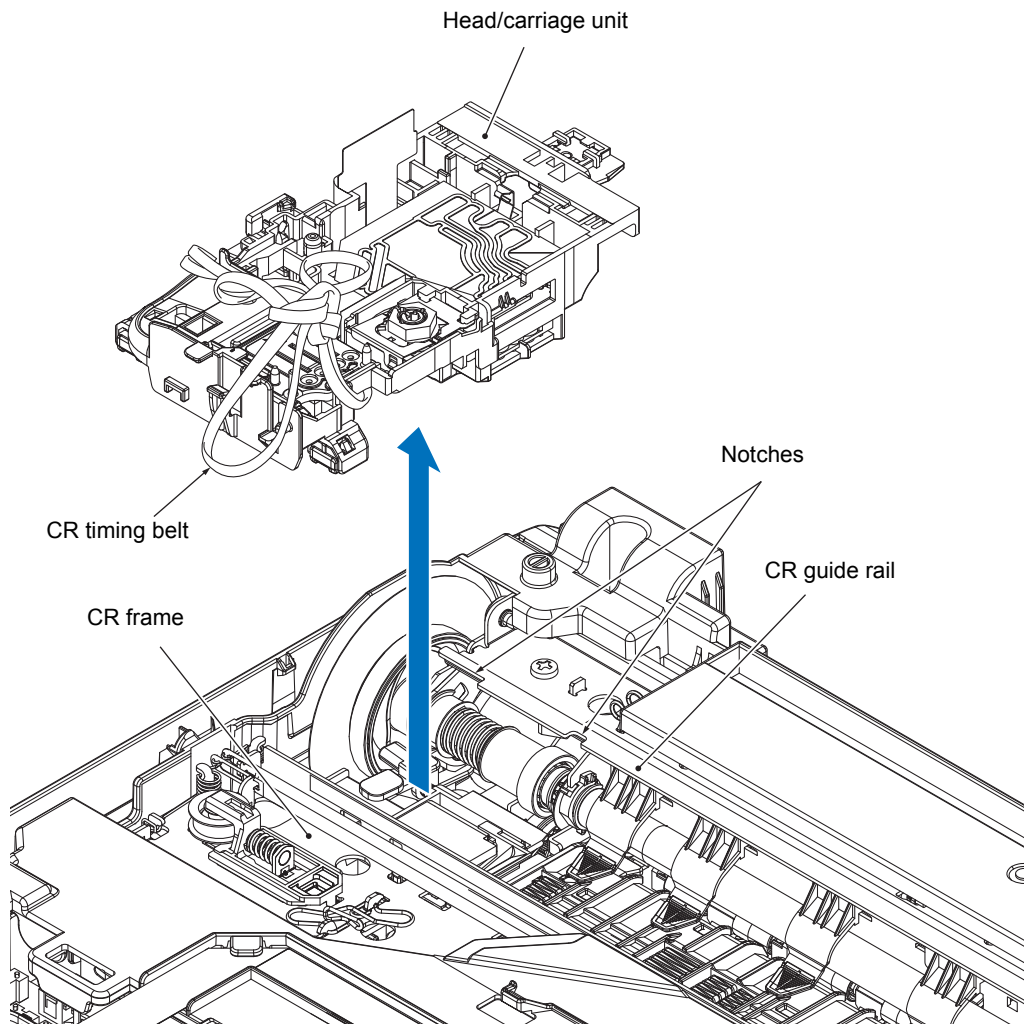
Fig. 3-12

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

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.

Latch

Head casing (upper)

Joint cap

Joint rubber

Head/carriage unit

Head casing (lower)
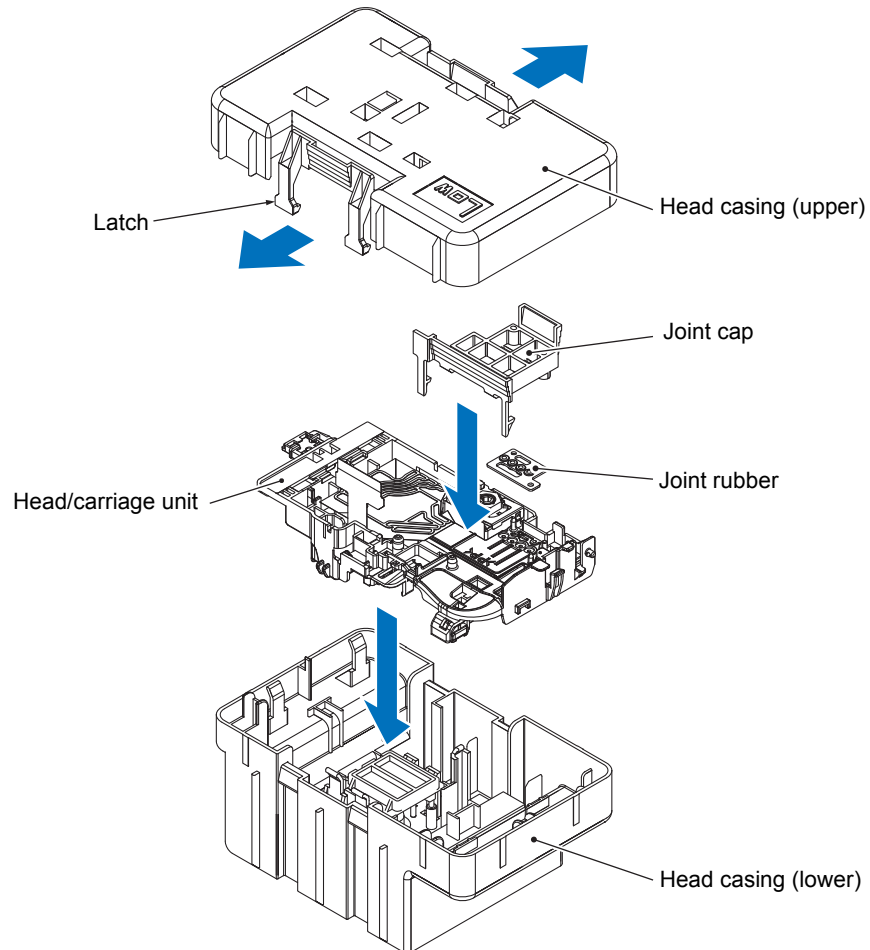
a3_034

Fig. 3-13

Assembling Note Mount the Head/carriage unit, using the following steps.

1) When mounting a new Head/carriage unit, apply lubricant to the unit, as specified in Section 5 of this chapter.

2) When mounting the CR timing belt, insert it into the Head/carriage unit so that the toothed side faces inwards as shown below and make sure that the upper and lower edges of the belt are fitted in the lower side of the Latches.

Latches
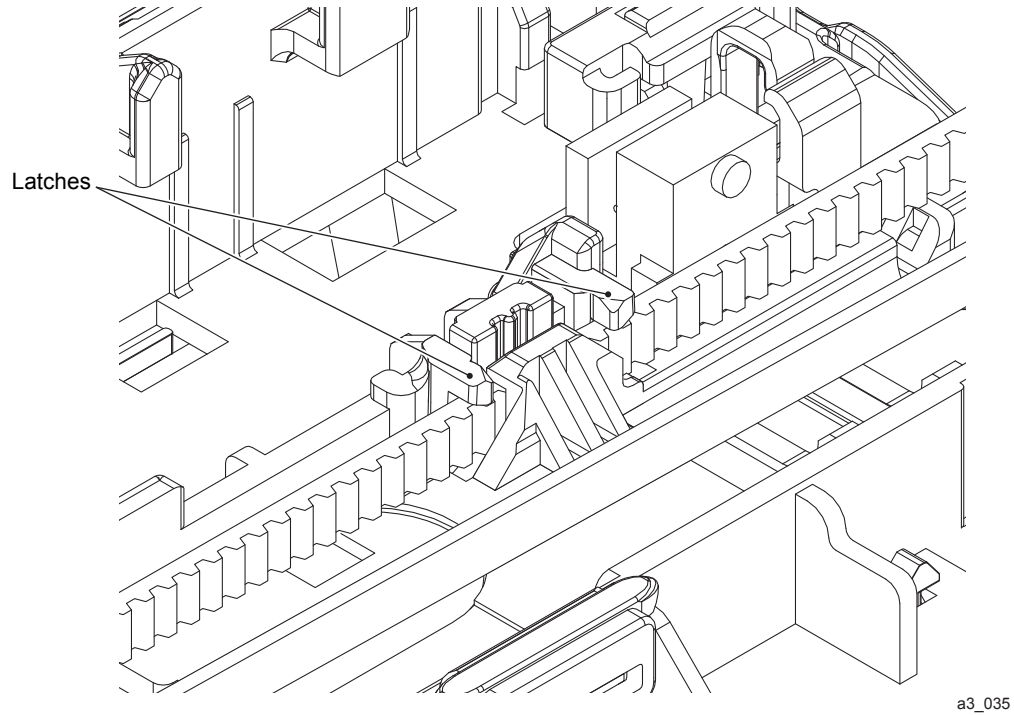
a3_035

Fig. 3-14

9.4 Document Scanner Unit/ADF Unit (Models with ADF)/Document Cover ASSY (Models without ADF)

(1) Disconnect the CIS flat cable from the Main PCB.

(2) Release the CIS flat cable from the Cable guide, and remove the Flat core from the CIS flat cable.

(3) Remove the screw[*1] (TAPTITE CUP S M3x6) and the ADF FG wire[*1].

[*1] For models with ADF

Document scanner unit

ADF unit[*1]

CIS flat cable

TAPTITE CUP S M3x6[*1]

Flat core

Cable guide

ADF FG wire[*1]
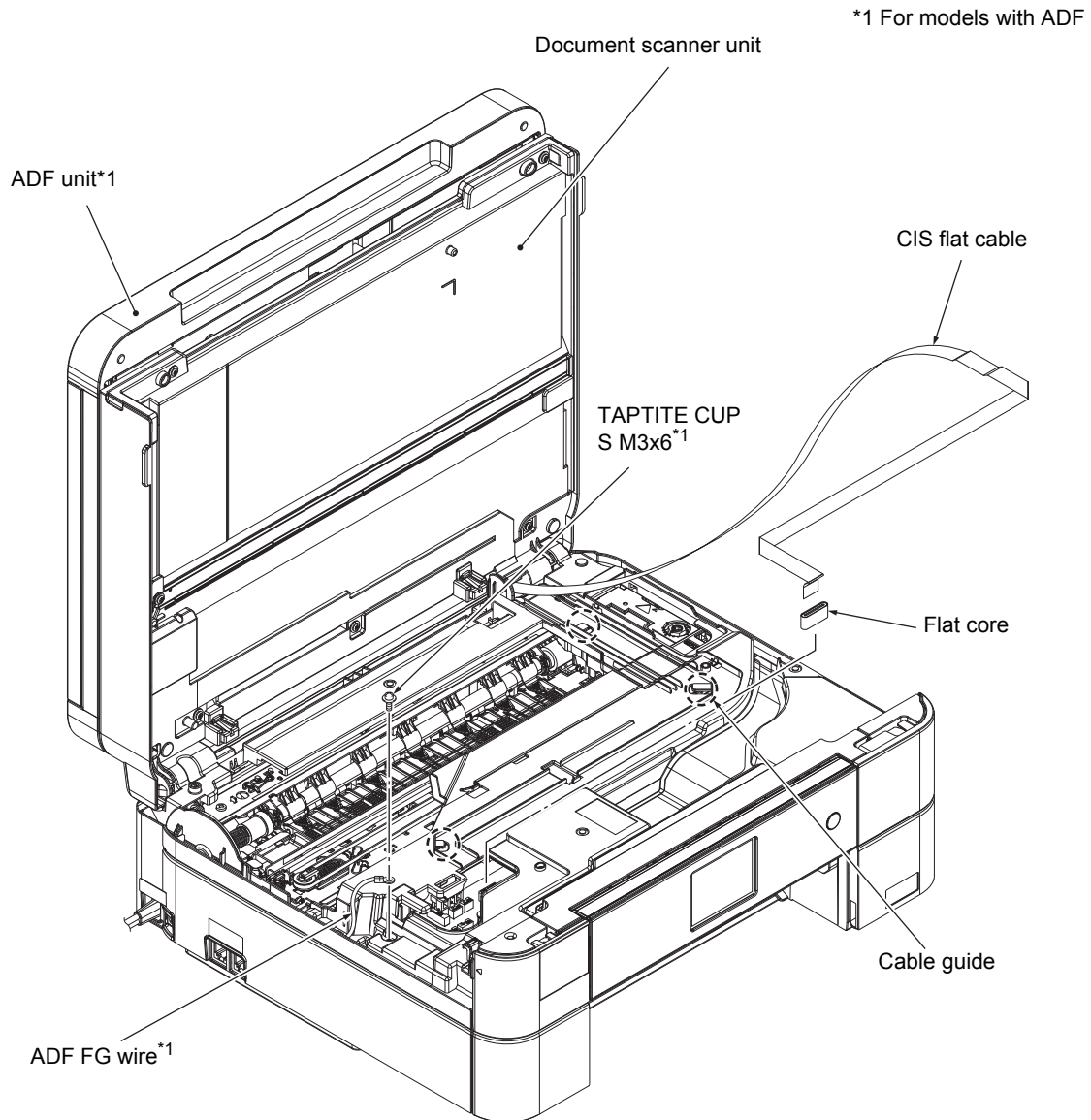
a3_036

Fig. 3-15

(4) Disconnect the following harnesses from the Main PCB:
- ADF motor harness*1
- Document scanning position sensor harness[1]
- Document detection sensor harness[1]
- Document scanner motor harness

*1 For models with ADF

ADF motor harness[1]

Document scanner motor harness

Document scanning
position sensor harness[1]

Document detection sensor harness[1]
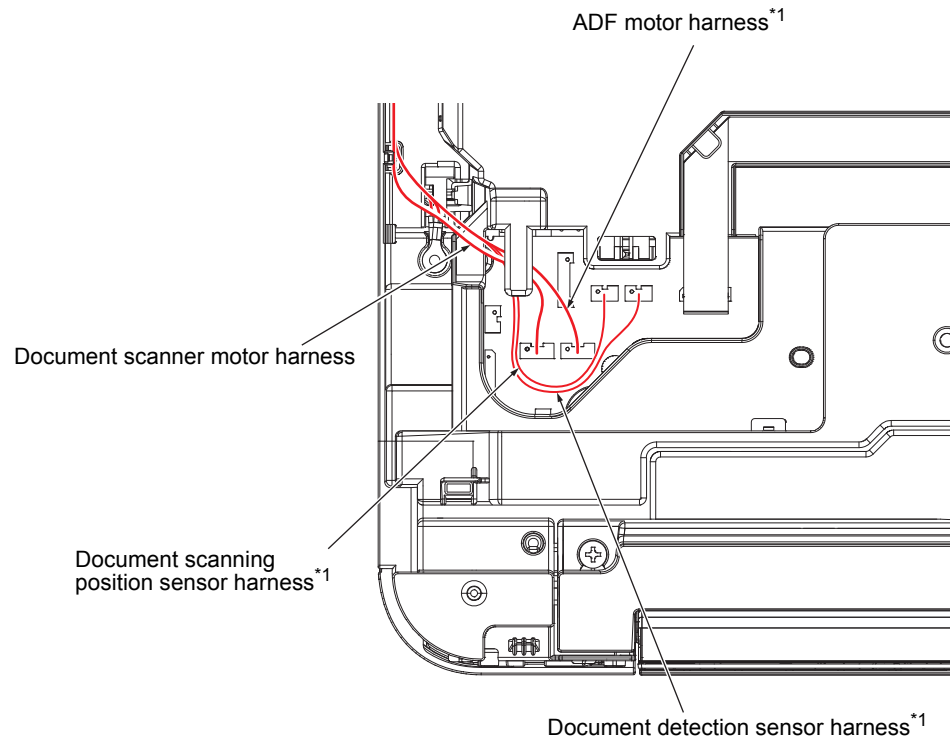
a3_037

Fig. 3-16

(5) **<For ADF Models Only>**
Remove the Document detection sensor harness, Document scanning position sensor harness, ADF motor harness and ADF FG wire from the cable guide on the Upper cover.

(6) Release the wiring of the Document scanner motor harness.

(7) Open the Document scanner unit at around 90 degrees then pull the right-side unit backwards and release the left-side Boss.

ADF unit

Document scanner unit

Boss

ADF motor harness

Document scanning position sensor harness

ADF FG wire

Document detection sensor harness

Document scanner motor harness

Upper cover
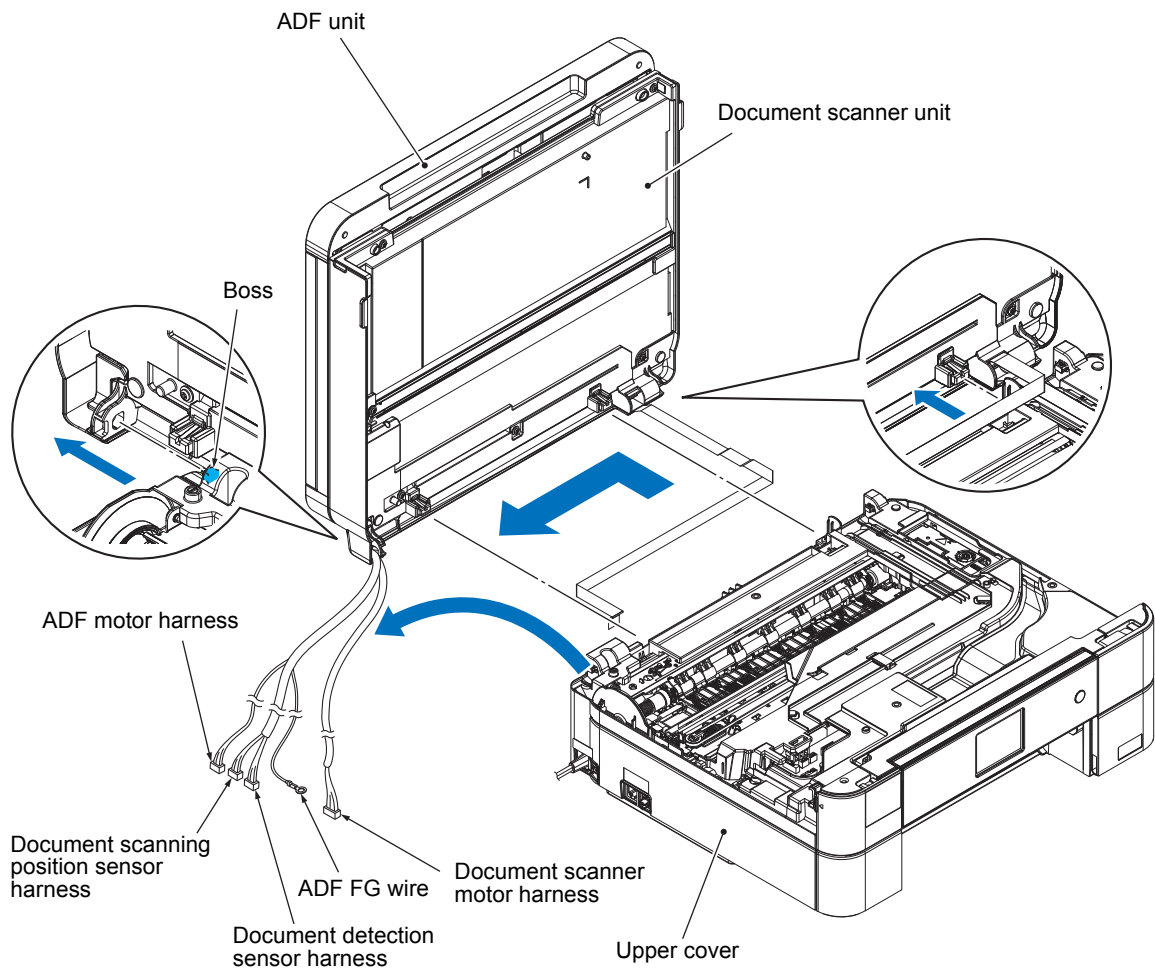
a3_107

Fig. 3-17

Assembling Note Route the Document scanning position sensor harness and Document detection sensor harness, then route the Document scanner motor harness, ADF motor harness[1], and ADF FG wire[1] as shown in Section 7. 1 in this chapter.

As in the illustration below, routing in the path indicated in the broken line may cause malfunction of the Scanner cover sensor. Be sure to route in the path indicated in the solid line.

[1] For models with ADF

Document scanner motor harness

ADF motor harness[1]

ADF FG wire[1]

Document detection sensor harness[1]

Document scanning position sensor harness[1]
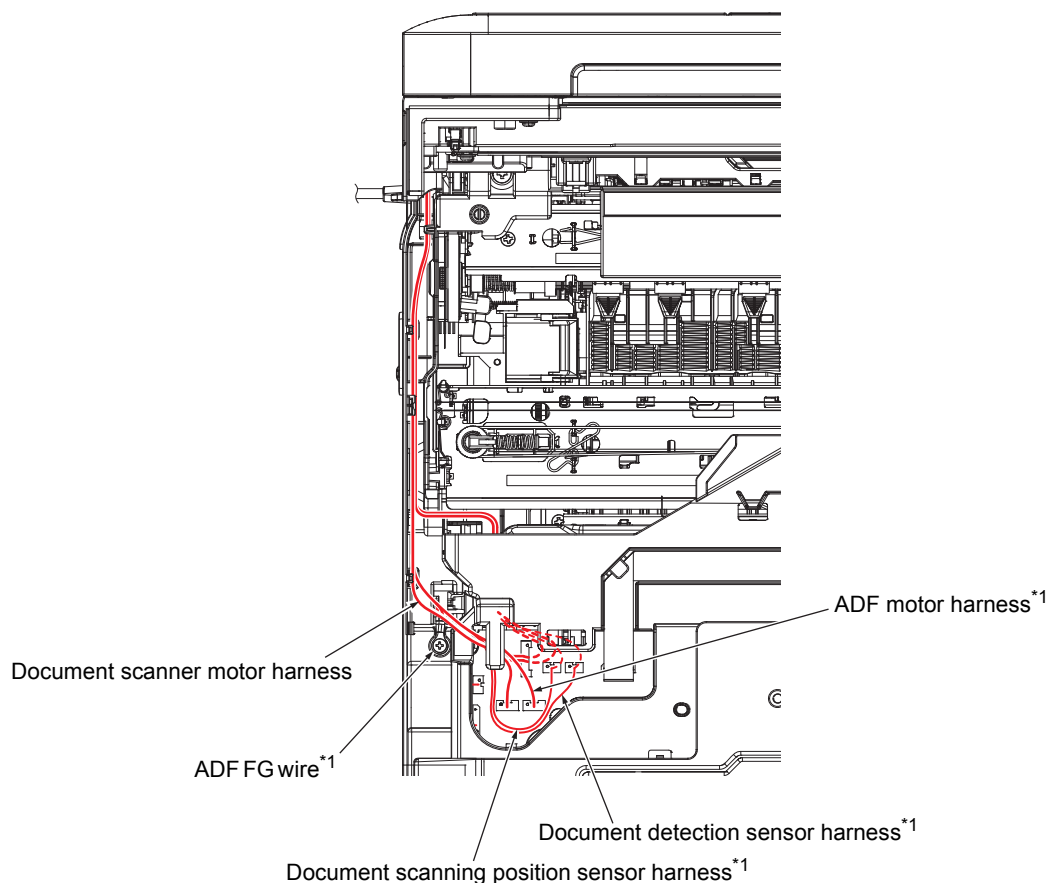
a3_039

Fig. 3-18

(8) Insert the tip of a flat screwdriver and release the Hook, and remove the Scanner harness holder.
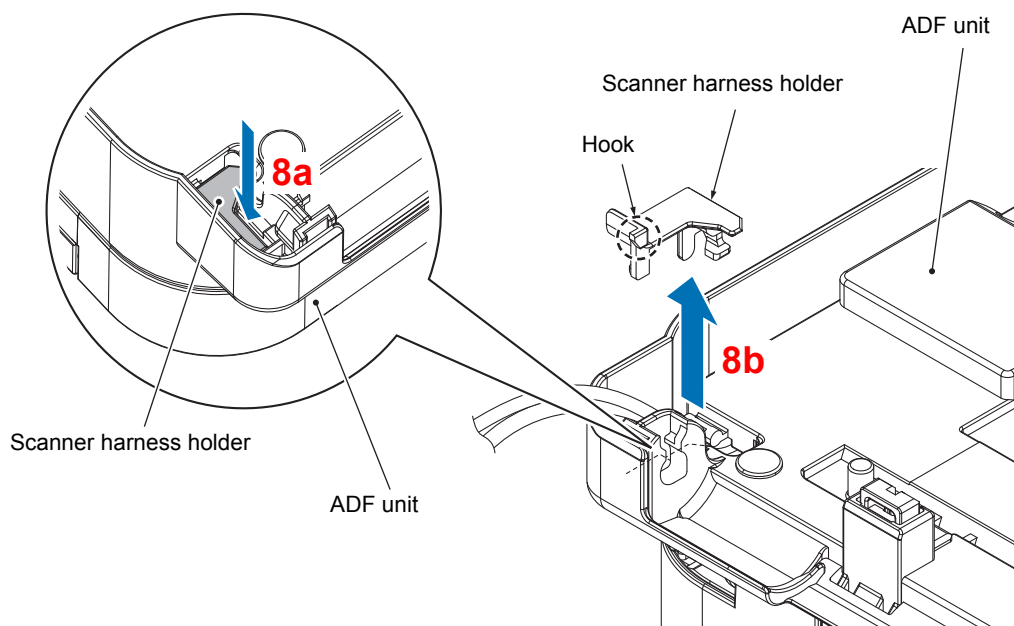
Fig. 3-19

Assembling Note When connecting the ADF unit to the Document scanner unit, press the Scanner harness holder to Face A as indicated in the illustration below, and route the Document scanning position sensor harness and the Document detection sensor harness to the Scanner harness holder, then connecting them to the Document scanner unit, for the purpose of securing looseness for the Harnesses.
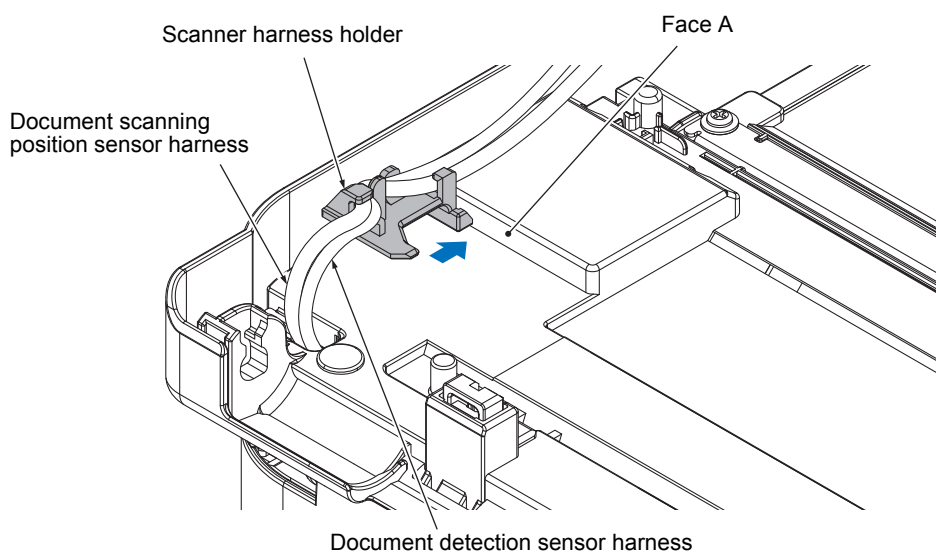
Fig. 3-20

(9) Open the ADF unit[*1], or Document cover ASSY[*2] at around 90 degrees and pull out the two Latches.

(10) Turn the ADF hinge slightly and remove it from the ADF unit[*1] or the Document cover ASSY[*2].

*1 For models with ADF
*2 For models without ADF

ADF unit*1
Document cover ASSY*2

ADF hinge

ADF hinge

Latch

Document scanner unit
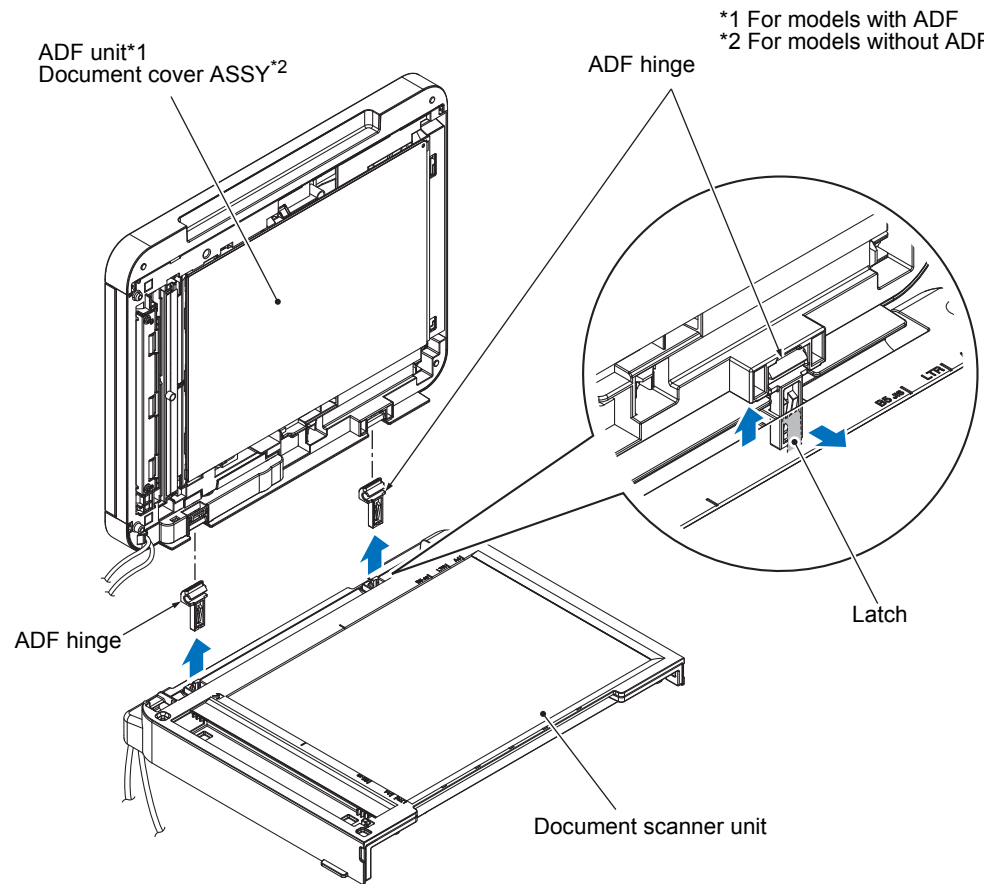
a3_042

Fig. 3-21

9.5 CIS Unit/CIS Flat Cable

Note When replacing the CIS unit and the CIS flat cable, do it in a clean, dust-free environment.

(1) Reverse the Document scanner unit.

(2) Remove the five screws (TAPTITE CUP B M3x10).

(3) Remove the screw (TAPTITE CUP B M3x10) and take off the Scanner base plate.

TAPTITE CUP B M3x10

TAPTITE CUP B M3x10

Scanner base plate

Document scanner unit
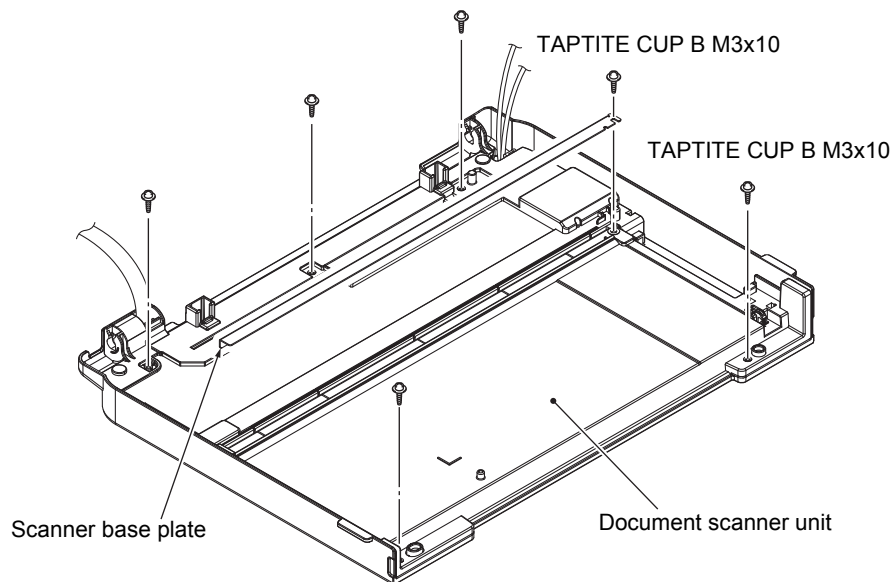
a3_043

Fig. 3-22

Assembling Note When mounting the Document scanner top cover, tighten the screws in the following order.

Scanner base plate

a3_044

Fig. 3-23

Confidential
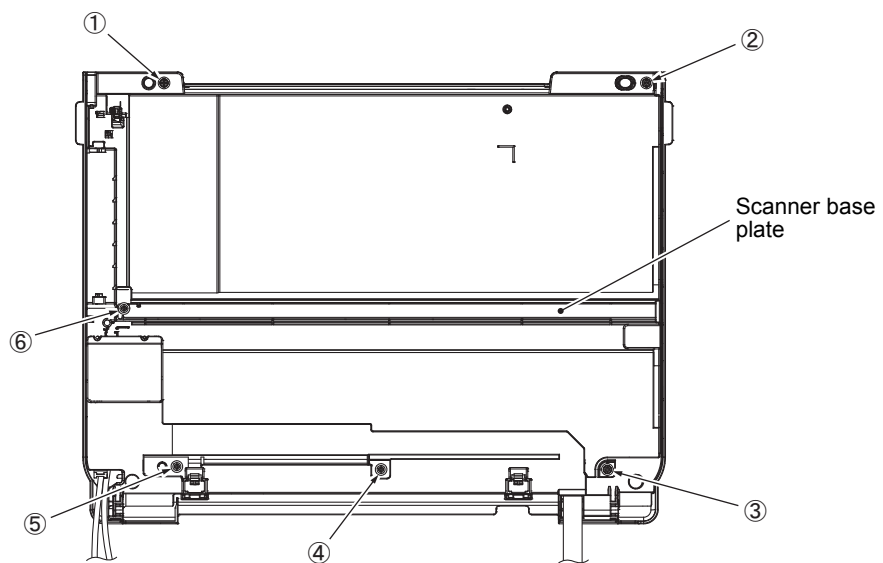
(4) Turn the Document scanner unit right side up.

(5) Remove the Document scanner top cover.

(6) Remove the CIS roller holder F, lift up the CIS carriage, and remove the CIS roller holder R.

Document scanner top cover

CIS roller holder R

CIS roller holder F

CIS carriage
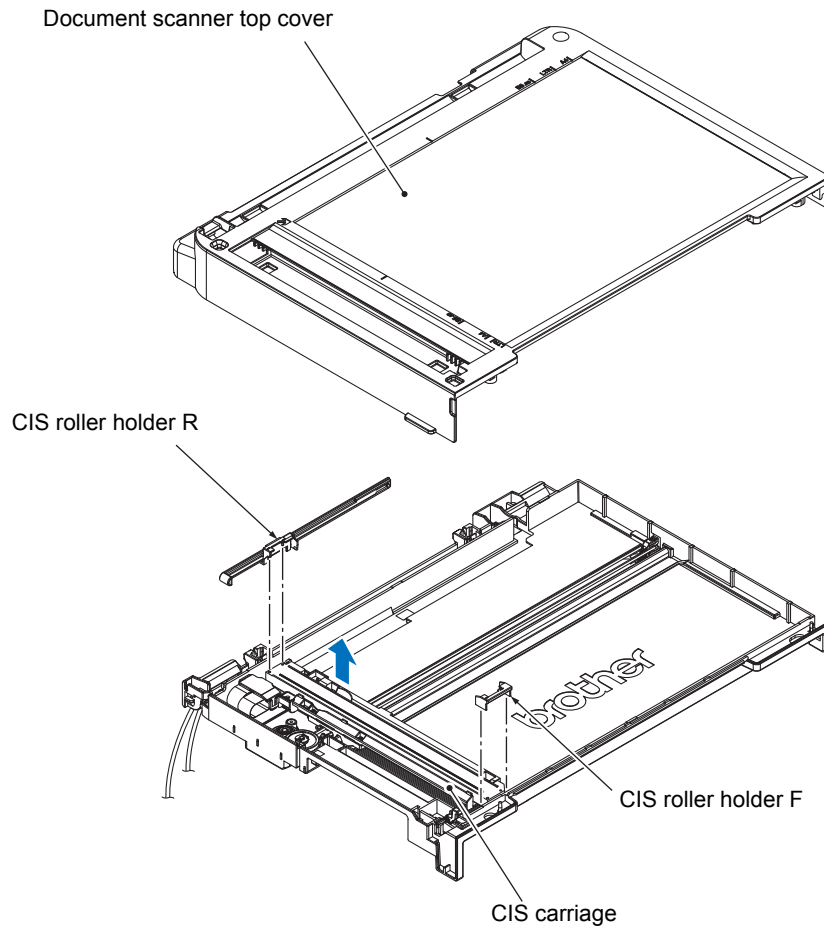
a3_045

Fig. 3-24

Assembling Note When attaching the CIS roller holder R, fit the rib into the lower side of the CIS unit.

Rib

CIS unit

CIS roller holder R
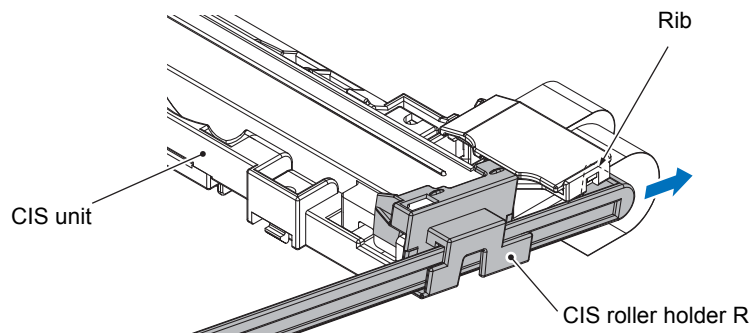
a3_046

Fig. 3-25

(7) Release the Hook, and remove the CIS flat cable cover.

(8) Turn the CIS unit 90 degrees clockwise, pull it slightly towards you, pull out the two Bosses from the CIS carriage, and remove the CIS unit upwards.

(9) Disconnect the CIS flat cable from the CIS unit.

(10) Remove the CIS flat cable from the Document scanner bottom cover.

Note Once removed, the double-sided tape will become unusable and will have to be replaced by a new tape.
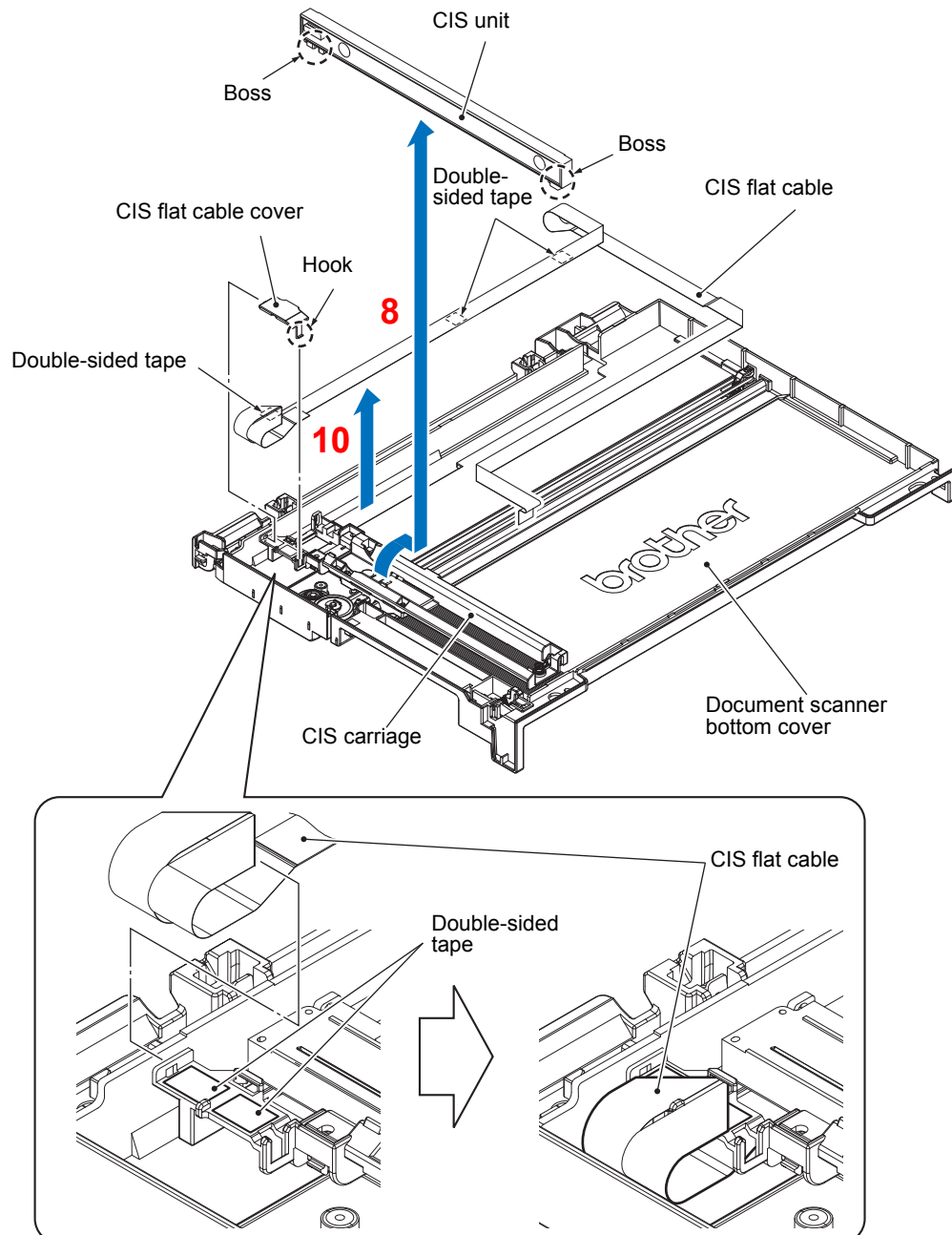
Fig. 3-26

Assembling Note Assemble new CIS flat cable following the steps below.

Note Make sure that no dust or smudge remains on the surface of the CIS flat cable.

1) Fold CIS flat cable and affix the double-sided tape as shown below.

(Unit: mm)

CIS reinforcement plate face

——— Mountain fold

- - - - Valley fold

11±1

50±1

70±1

97.2±1

45°

FFC should not overlap after bending.

45°

443.1±1.5

45°

233±1.5

994.5±7.5

45°

240.3±1.5

45°

Mark

(78)

Reinforcement plate (body side)

12.5±2

a3_048

Fig. 3-27

Confidential
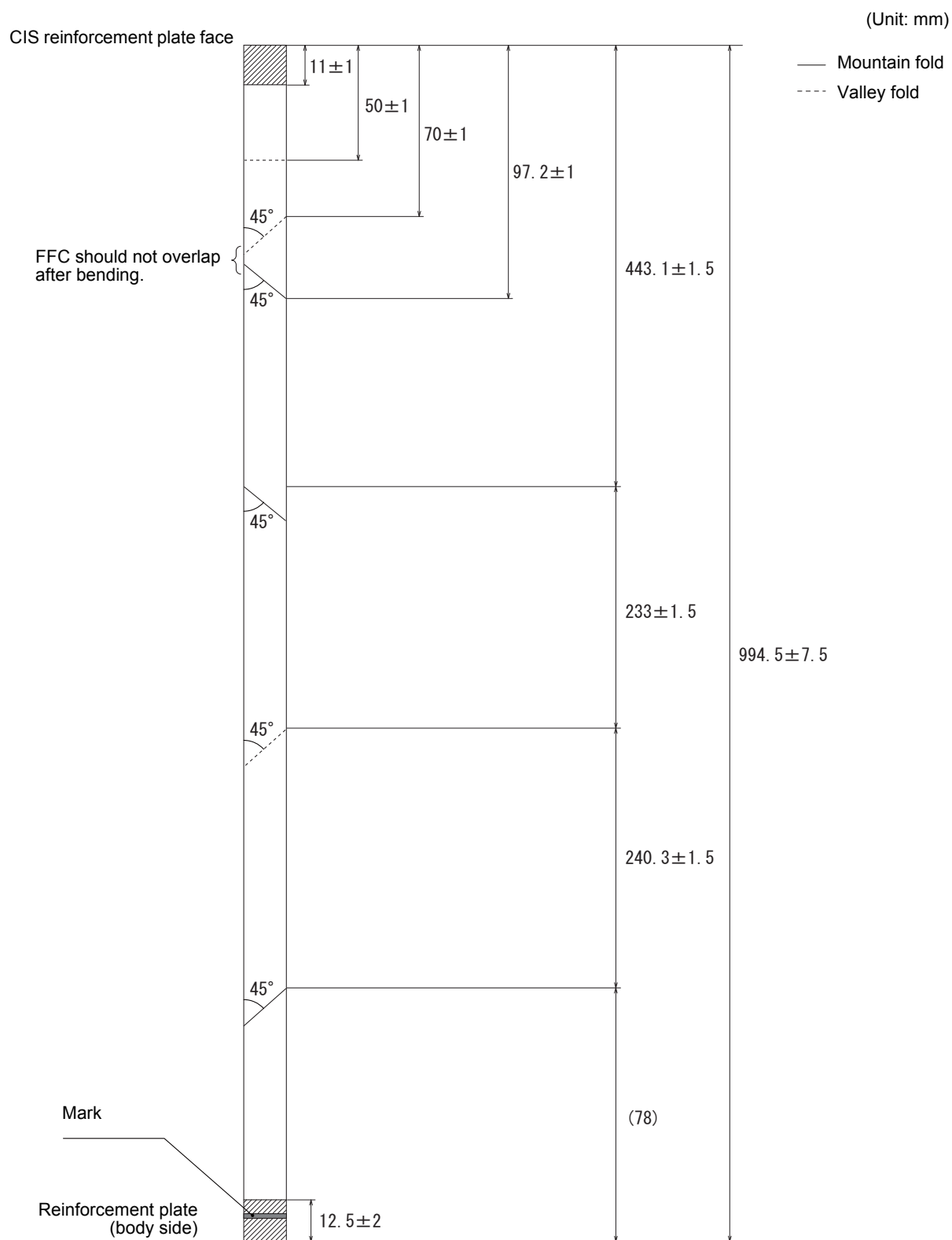
2) Connect the CIS flat cable to the CIS unit, and then route it as in the following diagram.
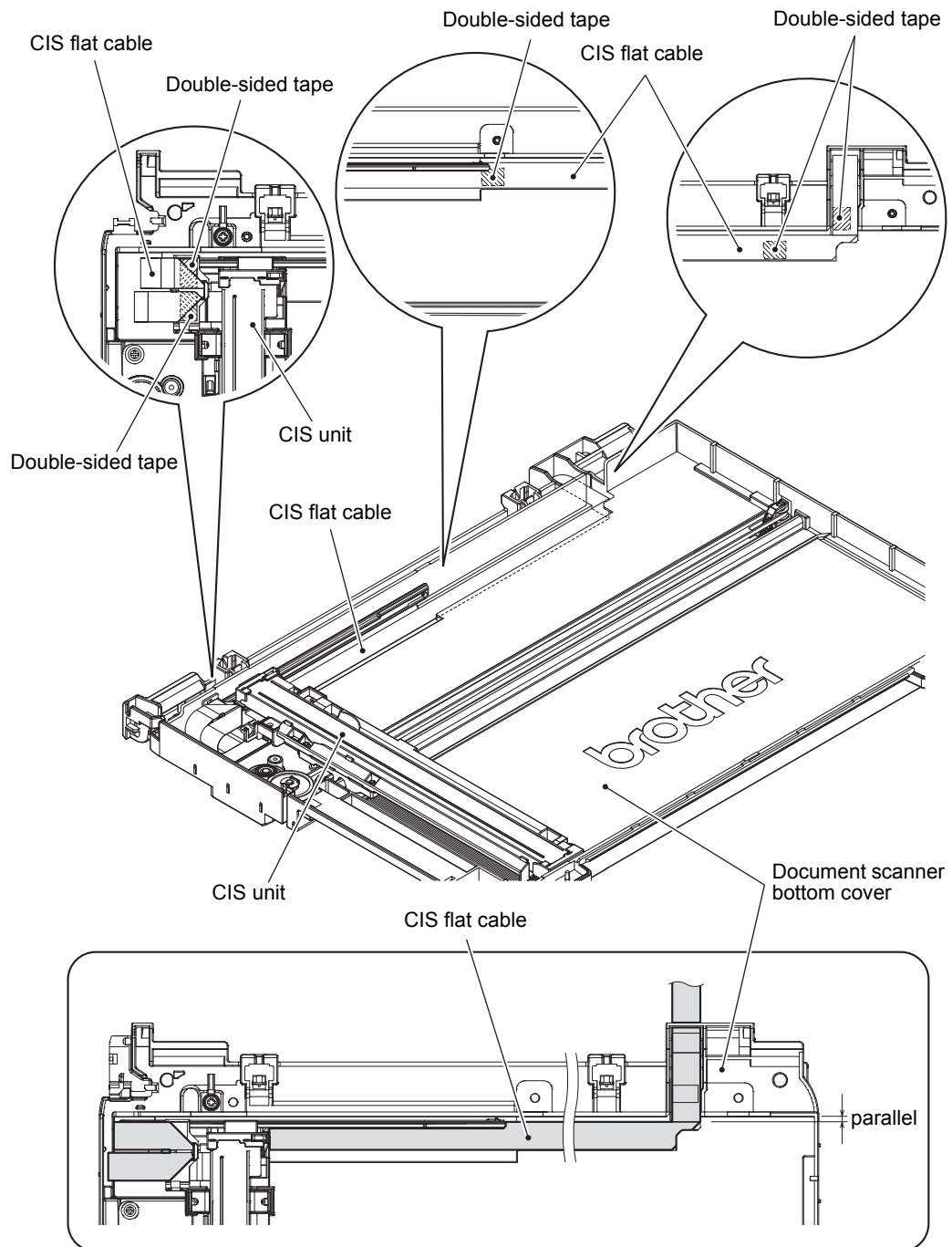
a3_049

Fig. 3-28

9.6 ADF Top Cover Front (For ADF Models Only)

(1) Reverse the ADF unit.

(2) Insert the tip of a flat screwdriver into the ADF top cover front and move it in the direction indicated by the arrow 2b. Turn the flat screwdriver and then release the Hook ①.

(3) Release the Hooks ② through ⑤ on the ADF top cover front and remove it from the ADF unit while twisting it to the front.
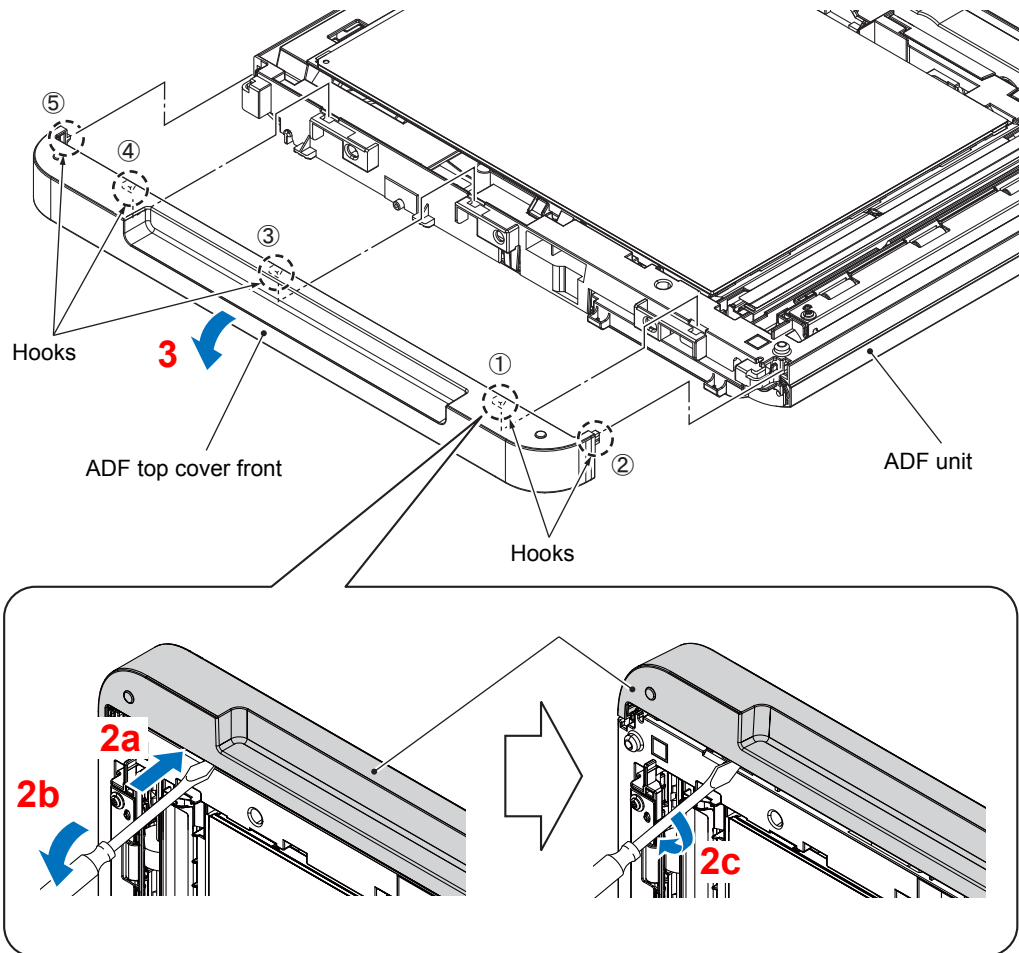
a3_050

Fig. 3-29

9.7 ADF Top Cover Rear (For ADF Models Only)

(1) Release the two Latches and the one Hook, and remove the ADF top cover rear.
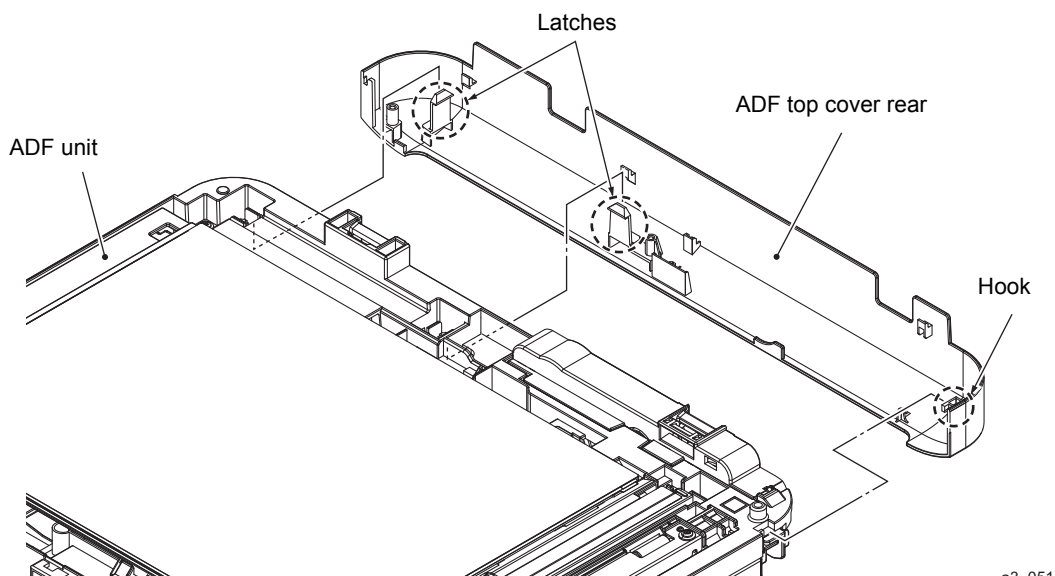
Fig. 3-30

Assembling Note When attaching the ADF top cover rear, fit the Hook first.

9.8 ADF Document Support (For ADF Models Only)

(1) Turn the ADF unit right side up.

(2) Remove the ADF document support.

Fig. 3-31

Confidential
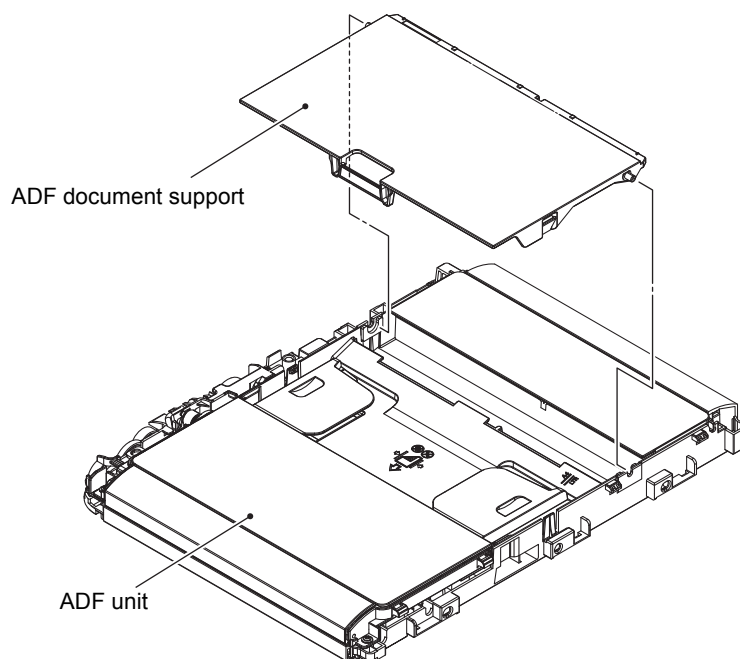
9.9 ADF Cover ASSY (For ADF Models Only)

(1) Open the ADF cover ASSY.

(2) Warp the ADF cover ASSY to release the two Bosses and remove it from the ADF unit.
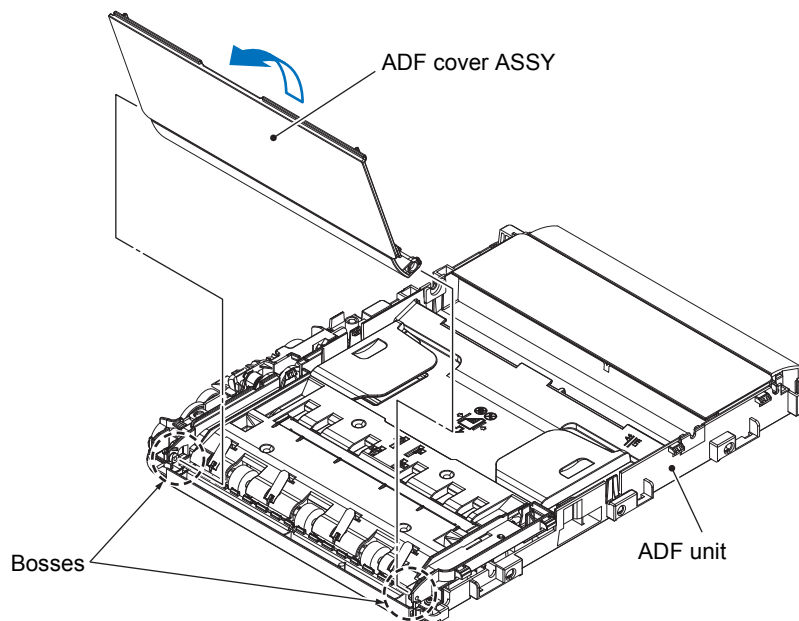
Fig. 3-32

9.10 ADF Separation Pad Holder ASSY (For ADF Models Only)

(1) Remove the two screws (TAPTITE CUP B M3x10) and lift up the left side of the Upper document chute, and pull it out to the left.

(2) Remove the ADF separation pad holder ASSY and its Spring from the Upper document chute.

Note Be careful not to let the Spring to fly out.
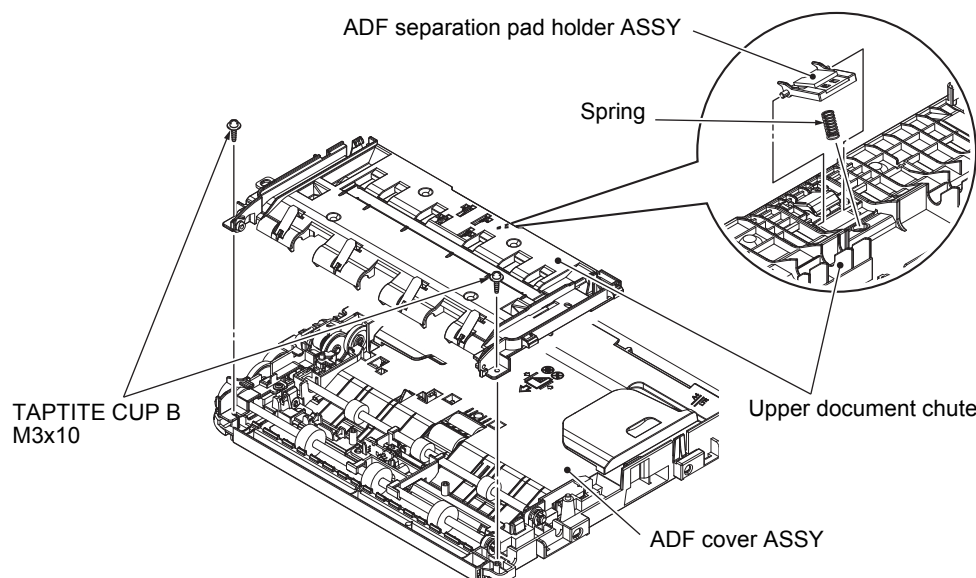
Fig. 3-33

Assembling Note Insert the Spring first into the opening then attach the ADF separation pad holder.

Confidential

9.11 Document Scanning Position Sensor PCB ASSY (For ADF Models Only)

(1) Push the Lock arm towards you, remove the front end of the Document scanning position sensor PCB ASSY from the lock arm, and take out the Document scanning position sensor PCB ASSY. Disconnect the Document scanning position sensor harness from the PCB.

Document scanning position sensor harness

Document scanning position sensor PCB ASSY

Lock arm

a3_055
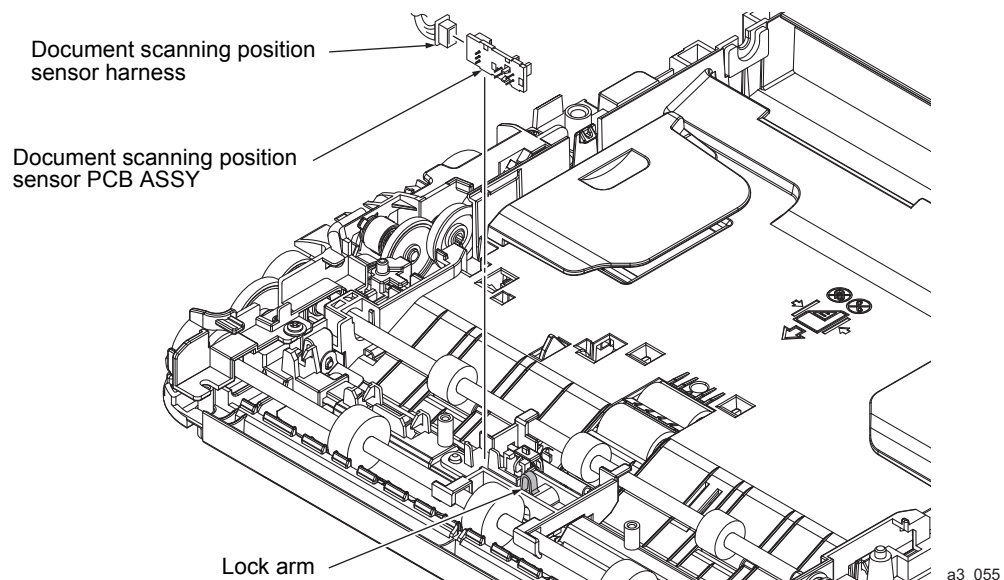
Fig. 3-34

9.12 Document Detection Sensor PCB ASSY (For ADF Models Only)

(1) Reverse the ADF unit.

(2) Using the tip of a flathead screwdriver, remove the three Latches of the Document sponge ASSY by lightly pressing them inwards.

(3) Release the two Hooks of the Document sponge ASSY and remove it from the ADF unit.
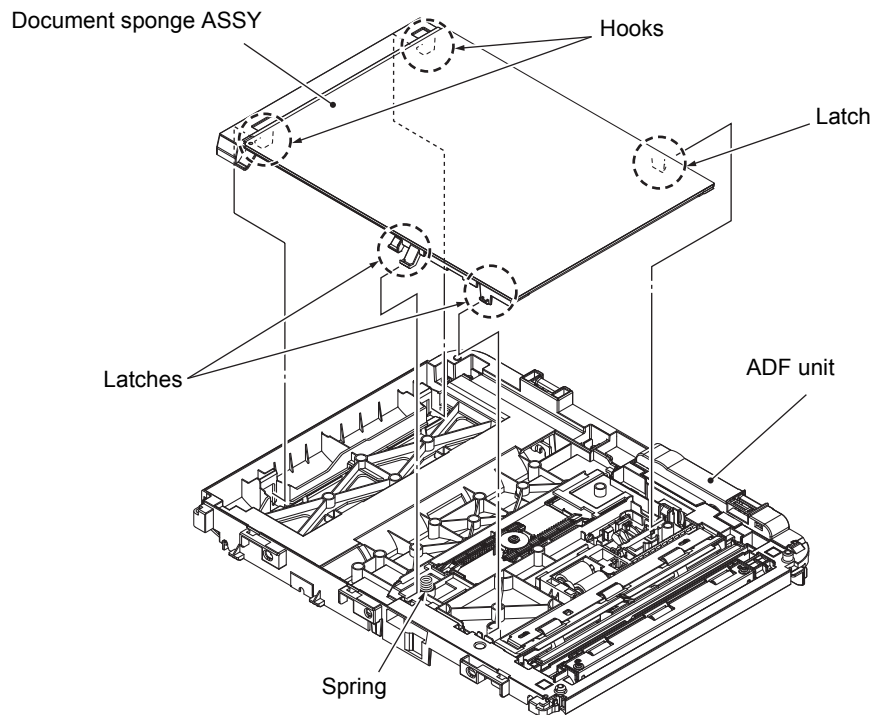
Fig. 3-35

Note Be careful not to let the Spring to fly out.

(4) Push the Lock arm to the rear, remove the rear end of the Document detection sensor PCB from the lock arm, and take out the Document detection sensor PCB ASSY. Disconnect the Document detection sensor harness from the Document detection sensor PCB.
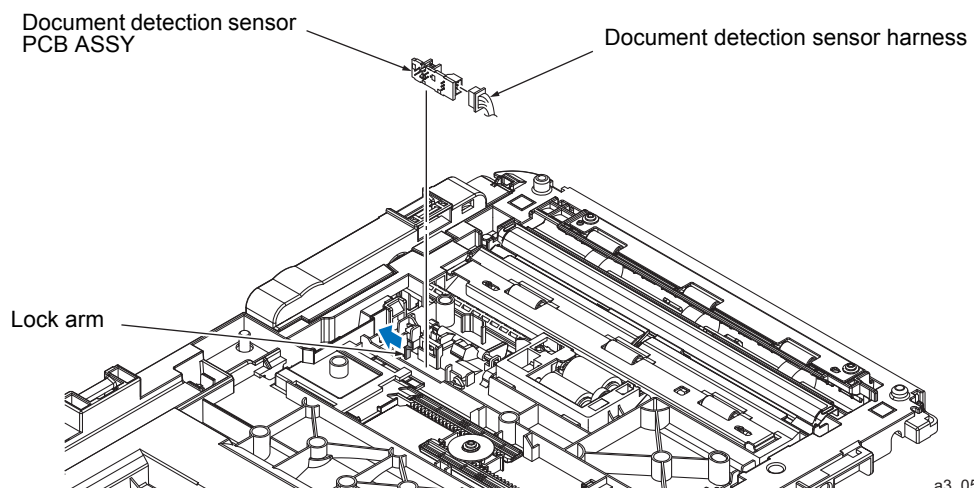
Fig. 3-36

9.13 ADF Top Cover Center (For ADF Models Only)

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

ADF top cover center

ADF unit

Hooks
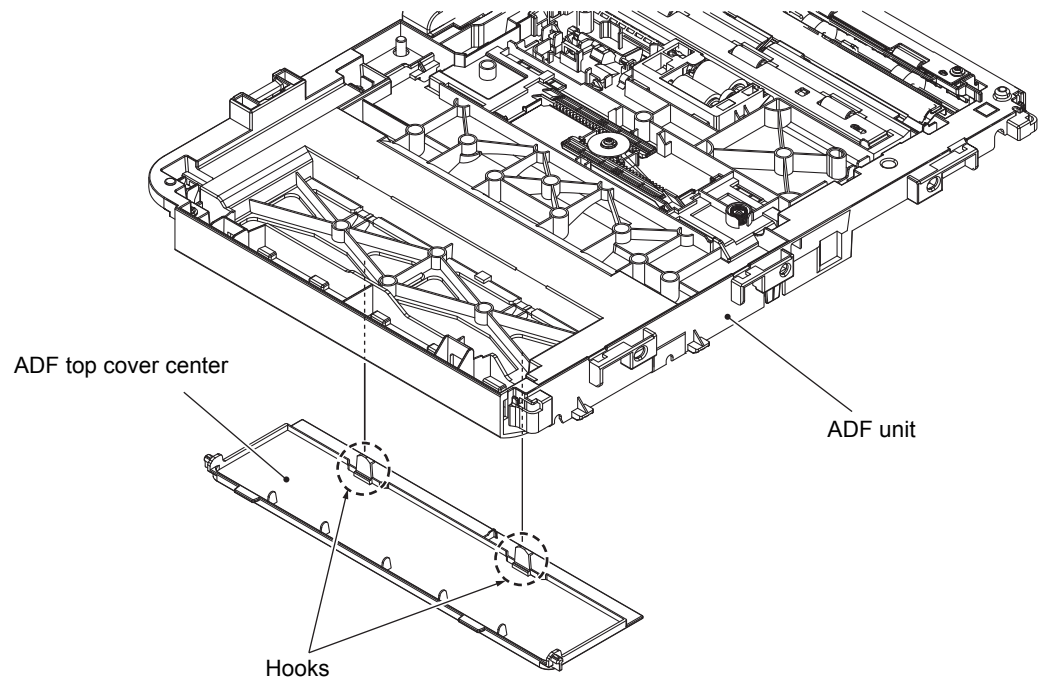
a3_058

Fig. 3-37

9.14 Document Separate Roller ASSY (For ADF Models Only)

(1) Open the Latch outwards and remove the Document feed roller 1 gear. Release the Latch at the back of the ADF unit and pull out the Document separation roller gear (outside) by turning it.

(2) Remove the Bushing from the Document feed roller 1.
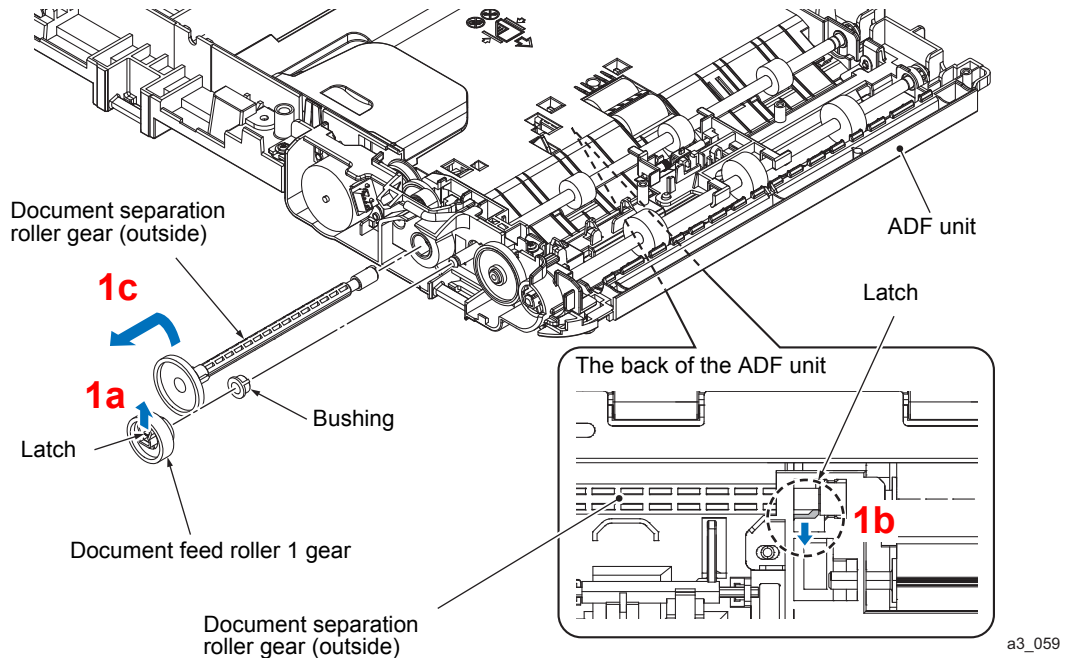
Fig. 3-38

Assembling Note Attach the gears as shown in Section 6 in this chapter.

(3) Remove the Document scanning position sensor holder ASSY from the Document feed roller 1 and 2.

(4) Remove the Document feed roller 1 by pulling them away from the Bushing and then remove it from the ADF unit.

(5) Remove the three Pinch rollers from the ADF unit.
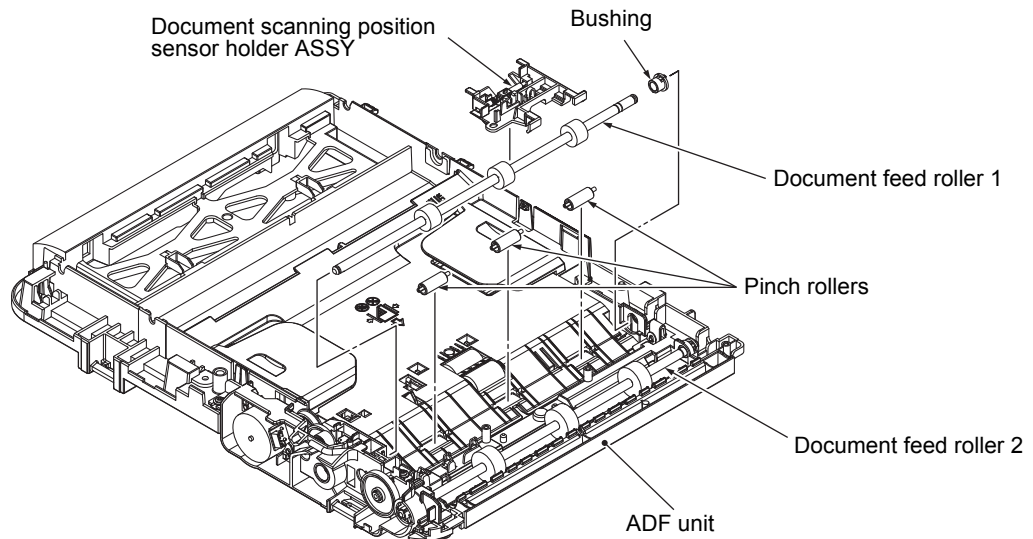
Fig. 3-39

(6) Reverse the ADF unit then press the ADF unit Hook. Remove the LF1 support plate by sliding it to the rear.

(7) Release the 2 Tabs of the Document separation roller ASSY and remove it from the ADF unit.
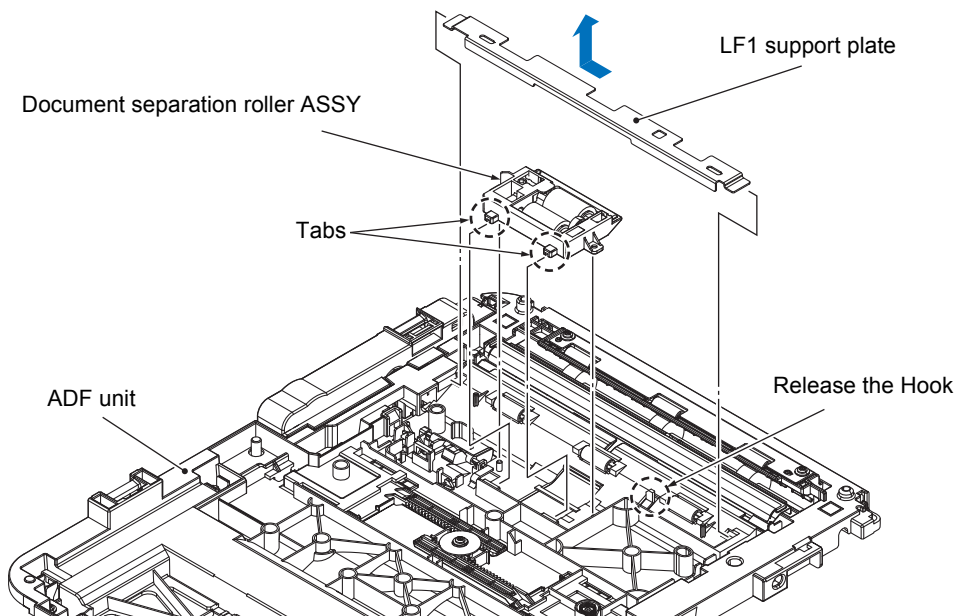
Fig. 3-40

9.15 Ink Cartridge Cover

(1) Slightly lift the front end of the Lower cover and fully open the Ink cartridge cover. Remove the Cover arm from the Lower cover by bending it to the lower, then remove it downwards from the left and right Boss of the Lower cover.
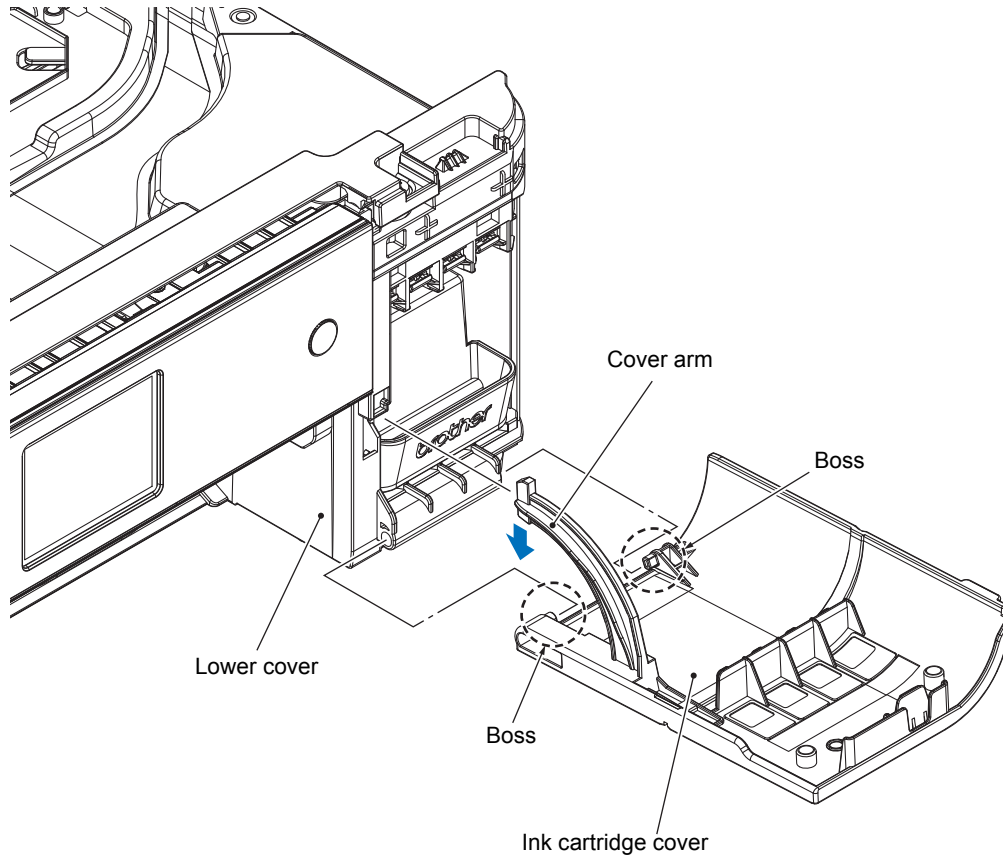
a3_062

Fig. 3-41

Assembling Note When attaching the Ink cartridge cover, lift the left and right Boss up from the bottom while the cover is fully open and fit it to the Lower cover. Set it on the slit of the Lower cover while pushing the Cover arm downward.

9.16 Control Panel ASSY

(1) Remove the two screws (TAPTITE BIND B M4x12) and take off the Front center cover.

(2) Release the two Bosses, and remove the Control panel ASSY.

(3) Release the Hook, and remove the Flat core of the Panel flat cable.

(4) Remove the screw (TAPTITE CUP B M3x10) and take off the Front under cover.

(5) Release the connector lock and disconnect the Panel flat cable from the Main PCB.

(6) Remove the screw (TAPTITE CUP S M3x6) and remove the Panel FG wire from the cable guide.

(7) Remove the screw (TAPTITE CUP B M3x10), slide the Panel lower cover in the direction of the arrow, and remove it toward the rear.

(8) Release the Panel flat cable and the Panel FG wire from the Panel lower cover.
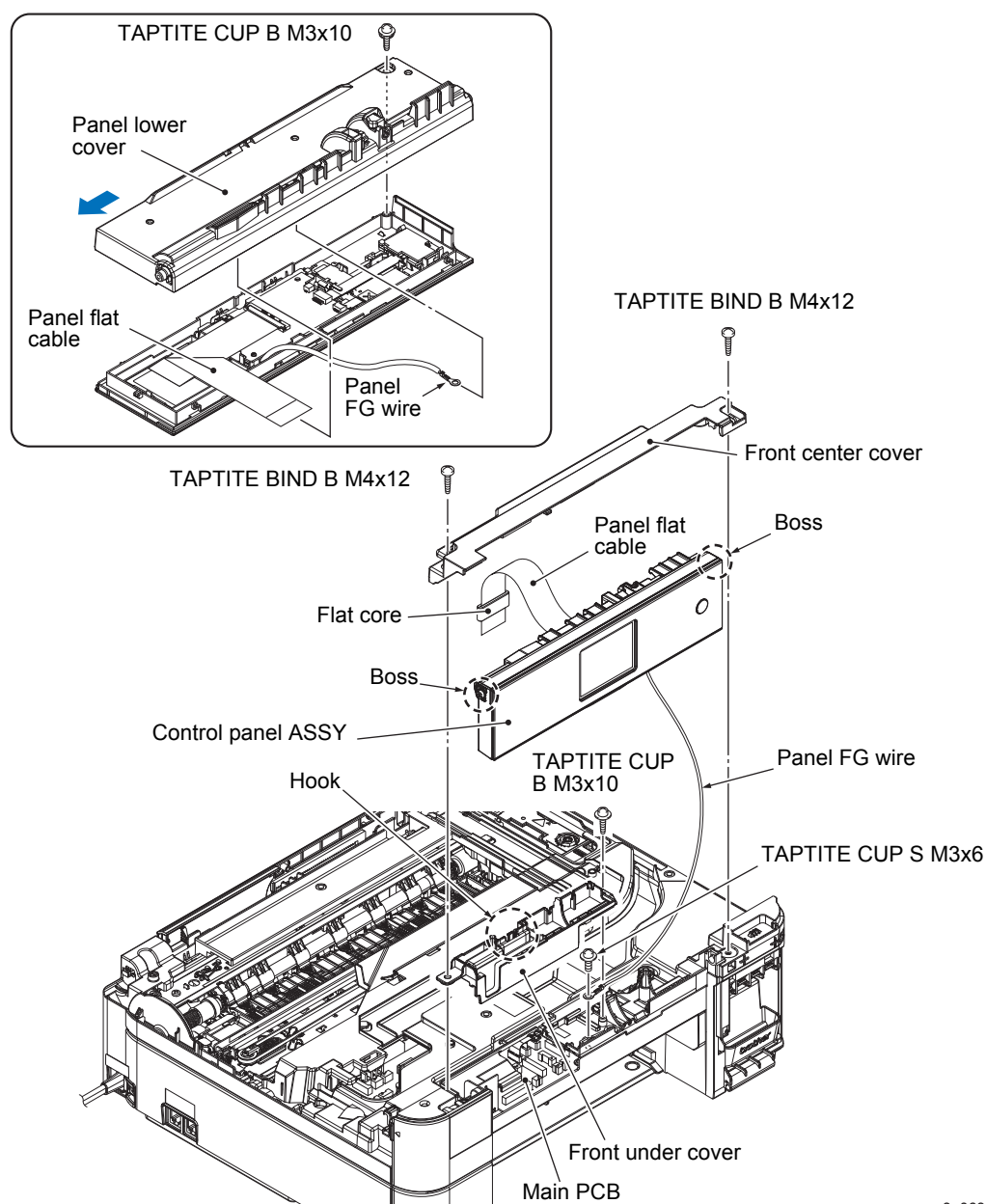
Fig. 3-42

(9) Release the wiring of the ON/OFF key PCB, and remove the connector from the Panel PCB ASSY. Release the two Hooks, and remove the ON/OFF key PCB from the Control panel ASSY.

(10) Unlock the connector and disconnect the Panel flat cable from the Panel PCB ASSY.

(11) Disconnect the NFC PCB flat cable from the Panel PCB ASSY. Release the Hook, and remove the NFC PCB from the Control panel ASSY.
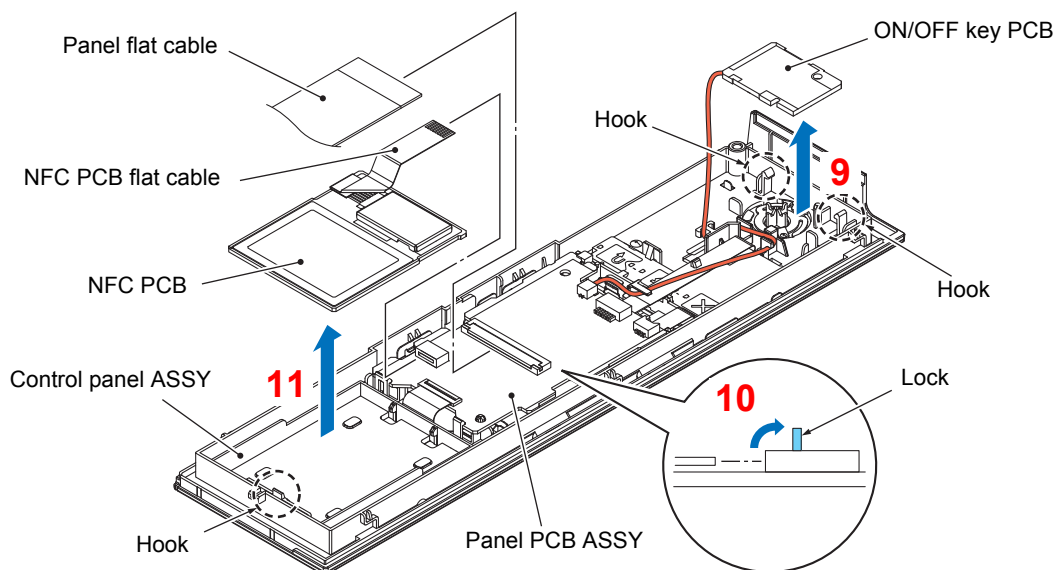
Fig. 3-43

(12) Disconnect the flat cable of the Touch key PCB from the Panel PCB ASSY, unlock the connector, and disconnect the LCD flat cable from the Panel PCB ASSY.

(13) Release the two Hooks, lift the Panel PCB ASSY from the Control panel ASSY, disconnect the Touch panel flat cable, and remove the Panel PCB ASSY.

(14) Release the two Hooks, and remove the LCD from the Control panel ASSY.
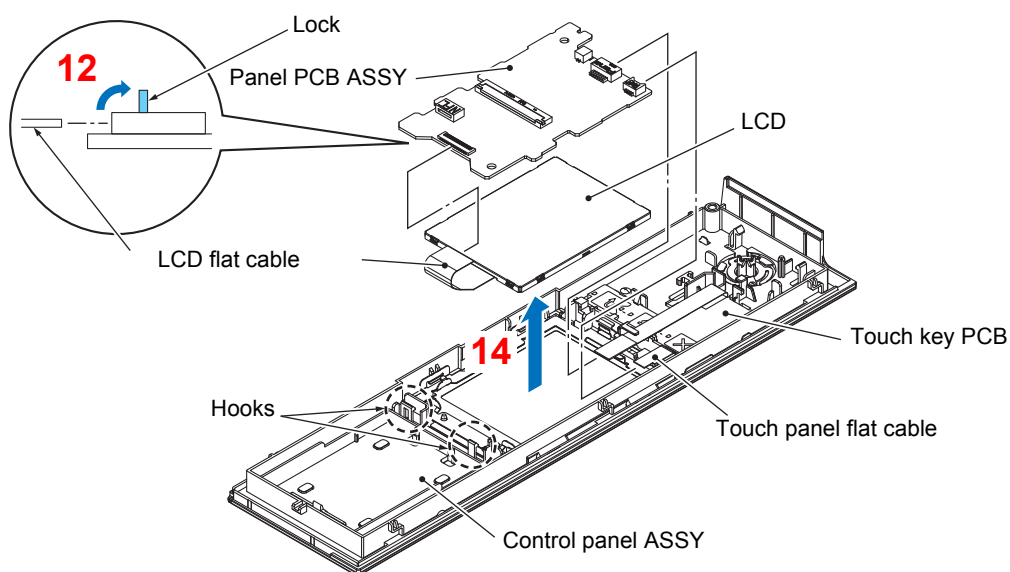
Fig. 3-44

Assembling Note

- Connect the shorter side of the reinforcement plate of the Panel flat cable to the Panel PCB ASSY.
- Fold the Panel flat cable in the position as shown below.

(Unit: mm)

—— Mountain fold
---- Valley fold
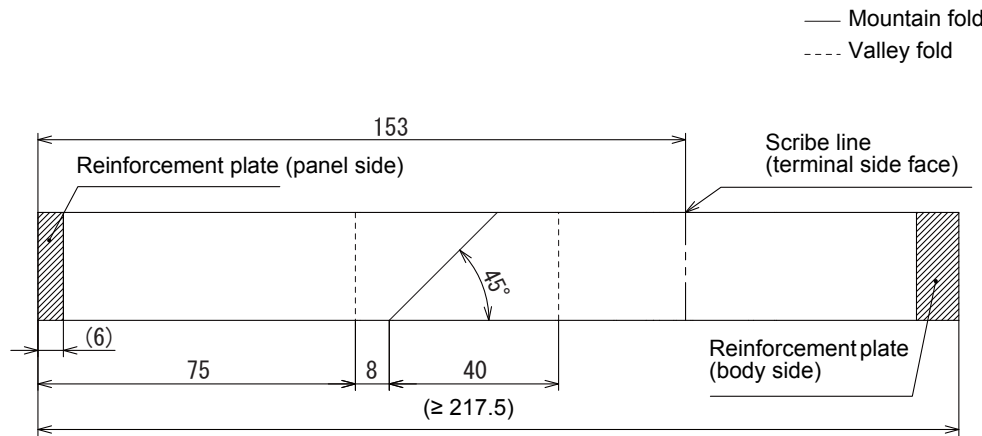
a3_066

Fig. 3-45

9.17 Front Cover

(1) Release the Hooks, open the Front cover and release the left and right Bosses, and remove the Front cover.

a3_067

Fig. 3-46

Confidential
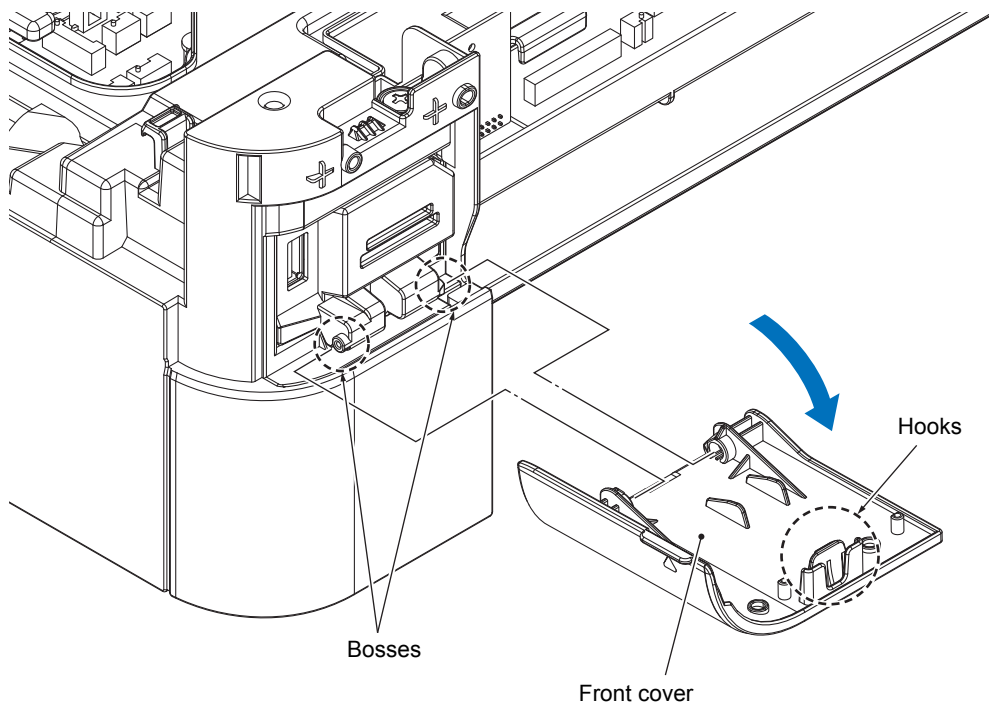
9.18 Manual Feed Slot

(1) Warp the Manual feed slot cover ASSY, release the left-side Boss, and remove the ASSY.

Boss

Manual feed slot

a3_068
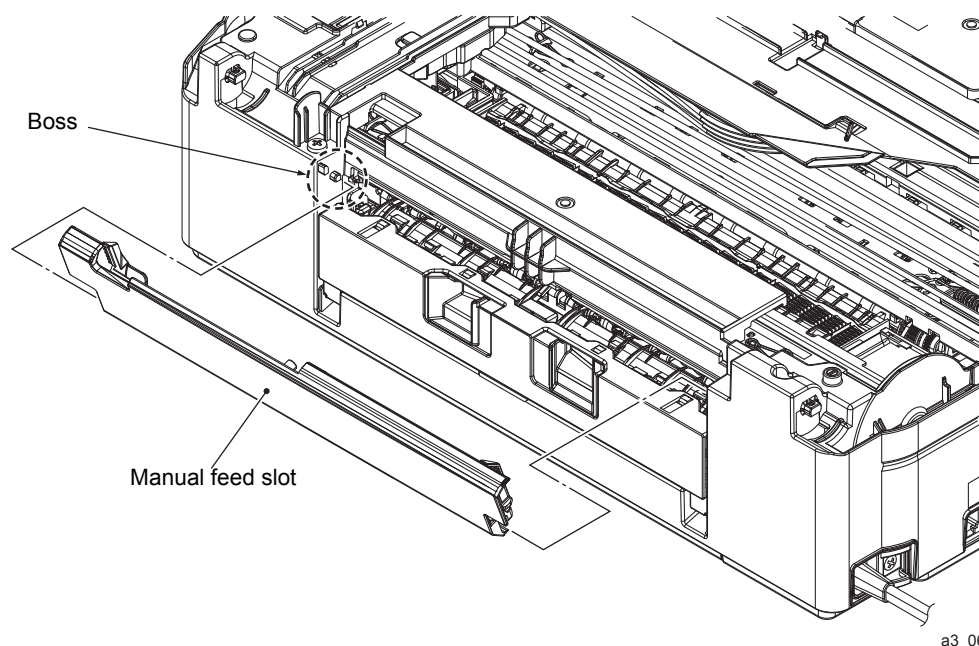
Fig. 3-47

9.19 Wireless LAN PCB ASSY

(1) Remove the Wireless LAN PCB ASSY from the Main PCB ASSY.

Note Hold the side face of the Wireless LAN PCB ASSY and remove it.

Wireless LAN
PCB ASSY

Main PCB ASSY

a3_069

Fig. 3-48

Confidential
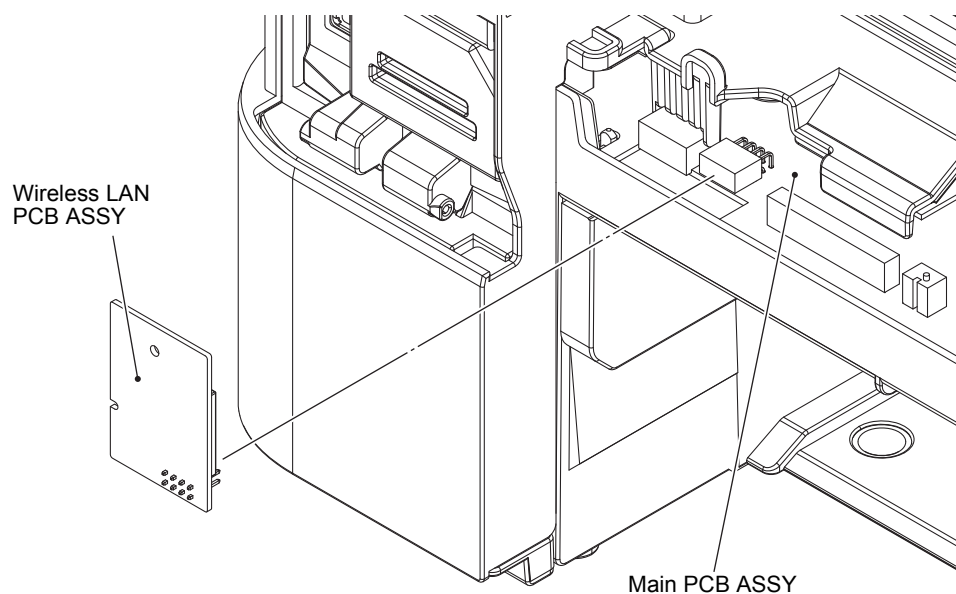
9.20 Jam Clear Cover

(1) Open the Jam clear cover.

(2) Lightly push the right edge of the Jam clear cover (viewed from the rear) inwards using a flathead screwdriver, release the Boss, then remove the Jam clear cover.

Jam clear cover

Boss
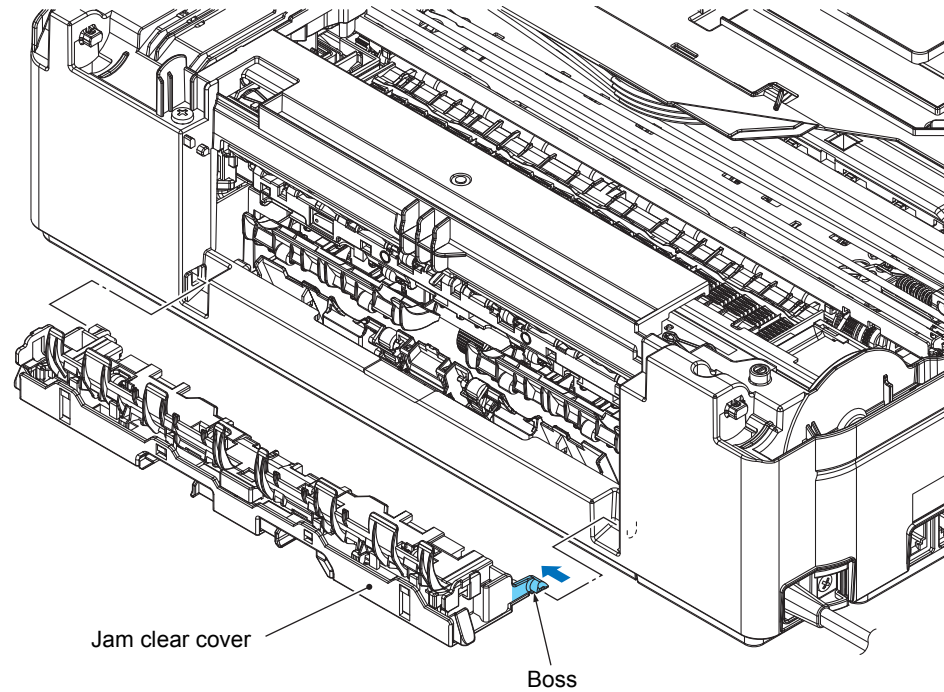
a3_070

Fig. 3-49

9.21 Upper Cover

(1) Remove the four screws (TAPTITE BIND B M4x12) from the Upper cover.

(2) Disconnect the Document scanner cover sensor connector.

(3) Hold the left and right of the Upper cover, lift it upward and remove it.

Note When lifting the Upper cover up, do not insert your hand inside the aperture on top of the platen. Doing so might stain or damage the CR encoder strip inside.
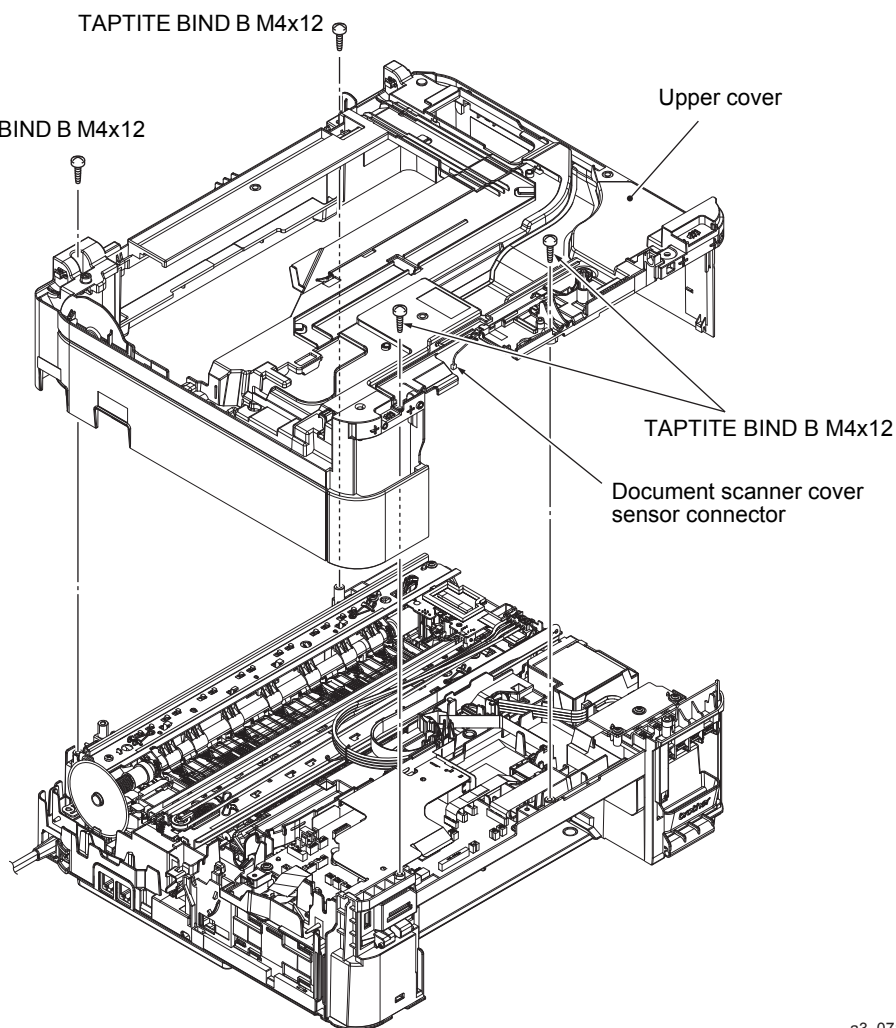
Fig. 3-50

Assembling Note

- Take note of the following when attaching the Upper cover.
  - Make sure that the Ink cartridge cover is open.
  - Check if the Head/carriage unit is in the head capping position (home position). This is to prevent the Ink supply tubes from being sandwiched between the Upper cover and Lower cover.
    (Be careful not to let the Ink supply tubes and the Carriage flat cables be sandwiched between the Upper and Lower covers when the Head/carriage unit is removed in Section9.3 in this chapter.)
  - Be careful not to deform the PF encoder disk.

(4) Release the left and right Hooks, and remove the Document scanner cover actuator.

Note Be careful not to let the Spring to fly out.
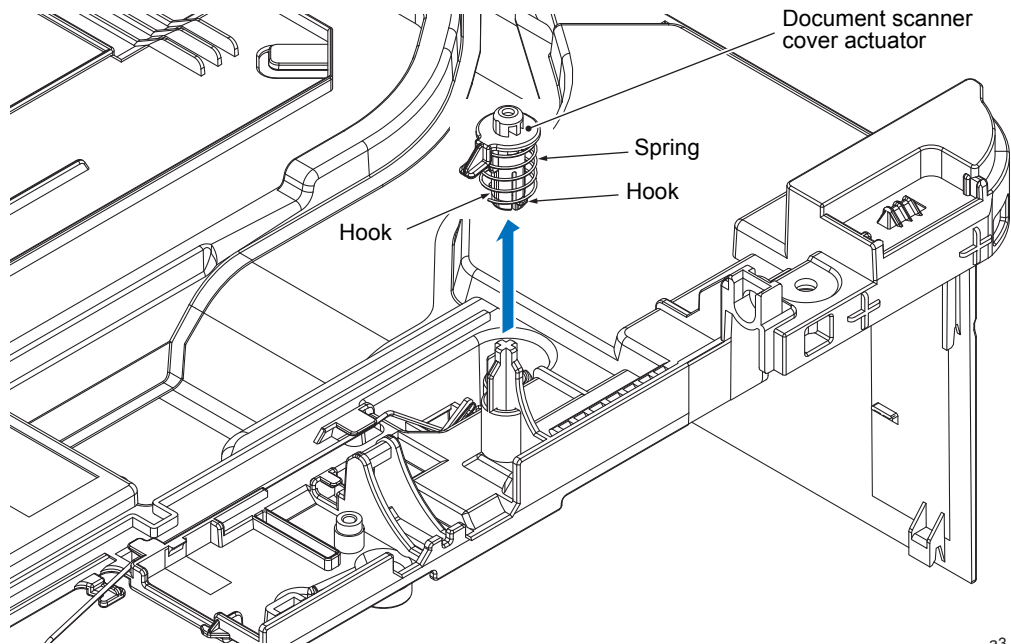
Fig. 3-51

(5) Release the wiring of the Document scanner cover sensor harness, release the left and right Hooks, and remove the Document scanner cover sensor.
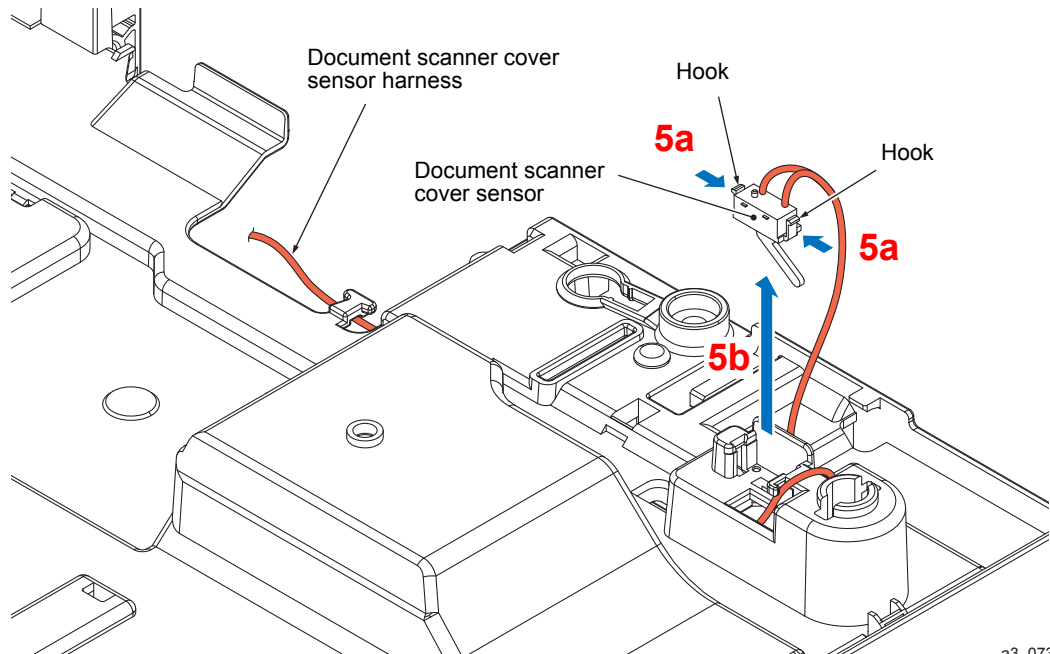
Fig. 3-52

9.22 Carriage PCB ASSY

Carriage PCB ASSY (Carriage PCB and Carriage flat cable)

Tip When the Head/carriage unit has not been removed, refer to 9.3 Head/carriage Unit/ CR Timing Belt in this chapter to remove the Carriage PCB ASSY from the Head/carriage unit.

(1) Release the Carriage flat cable from the Cable guide of the Tube support plate, release the Hook, and remove it together with the Flat core.

(2) Disconnect the Carriage flat cables from the Main PCB ASSY.
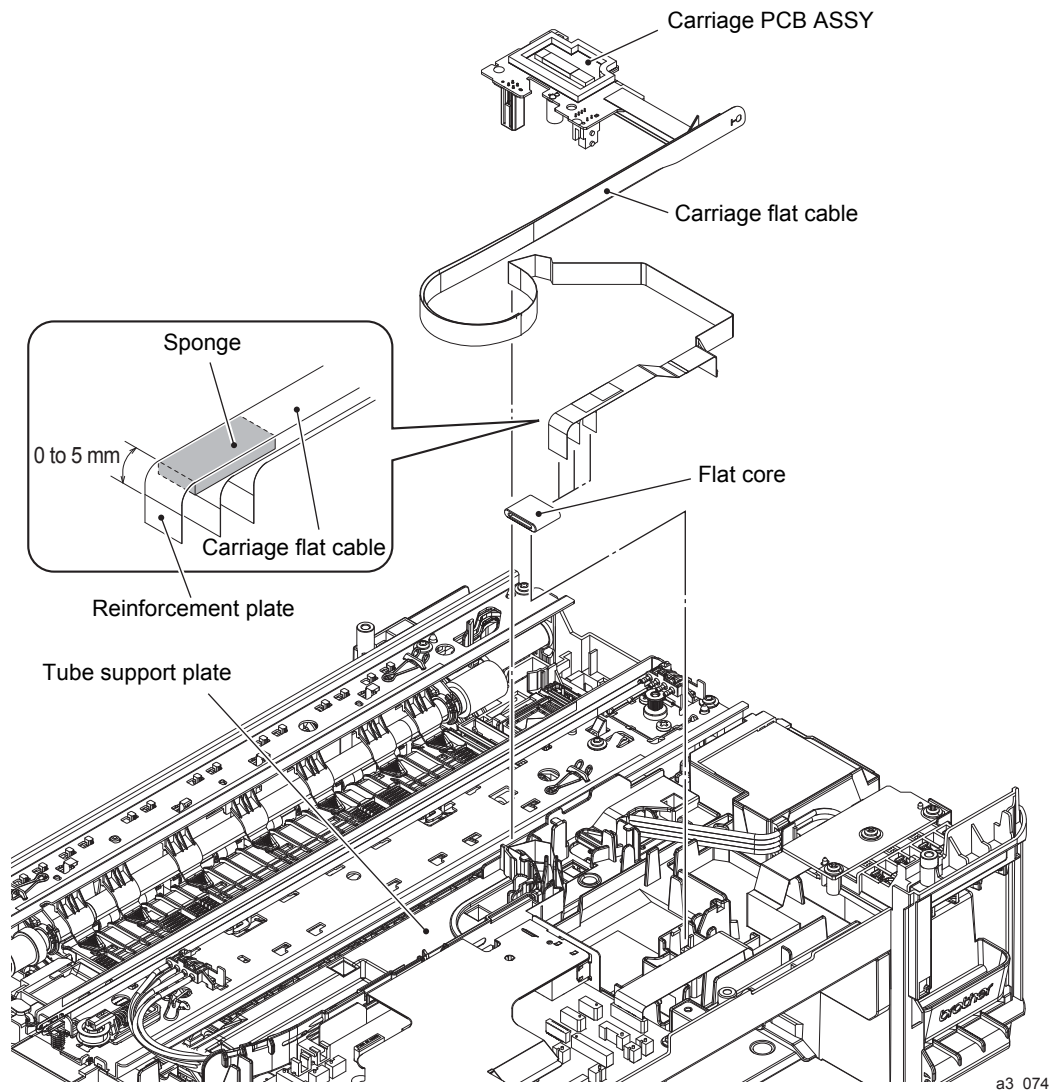
Fig. 3-53

Assembling Note

- When installing the Carriage PCB ASSY, route the Carriage flat cable as refer to Section 7. 7 in this chapter.

- When replacing the Carriage PCB ASSY, remove the Flat core from the old Carriage flat cable, and attach to the new Flat cable.

- After attaching the Flat core, attach the Sponge in the location shown in the above figure back side of the printed side on the end of the widest Carriage flat cable.

Confidential

9.23 Ink Absorber Box

Note Do not remove the Ink absorber box unless it needs to be replaced.

(1) Remove the Ink absorber box from the Lower cover, and pull out the Main drain tube and the Air vent tube from the Ink absorber box.

Note • Pinch the end of the Main drain tube with a clip in order to prevent drained ink from leaking and the machine from getting stained with leaked ink.

      • Do not place the tube that has been pulled out on the Main PCB. If ink attaches to the PCB, clean it with a dry cloth.

Assembling Note

• When connecting the Main drain tube and Air vent tube to the Ink absorber box, connect the Air vent tube to the upper port and the main drain tube to the lower port of the box. Connecting them the other way around will cause a large amount of ink to overflow during purging.

• Be careful not to connect the Main drain tube and Air vent tube to the Ink absorber box at an angle. Doing so will cause the tube to get disconnected and leak ink. After connecting the tubes, make sure that no ink is leaking.

• When the Ink absorber box is replaced (without replacing the Main PCB), follow the procedure in Chapter 4, Section 1.14 to reset the purge count.
It is also recommended to replace the Flushing foam and reset the flushing count as necessary since the flushing count may also be approaching the upper limit.

Ink absorber Box

Do not connect the Main drain tube at an angle. Connect the tube all the way seated.

Air vent tube

Main drain tube

Lower cover
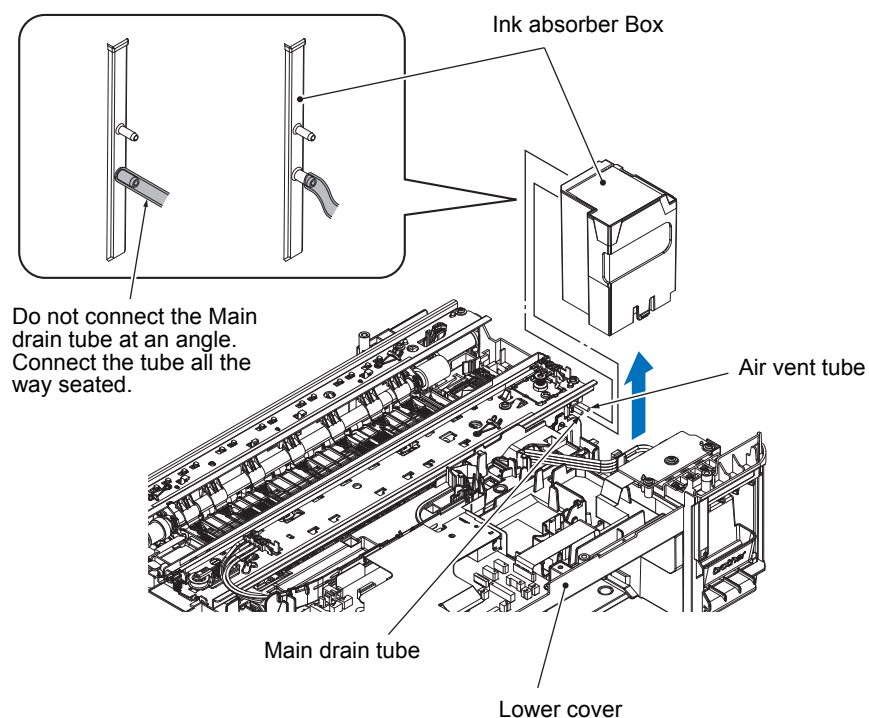
a3_105

Fig. 3-54

9.24 Ink Refill ASSY

Tip When the Head/carriage unit has not been removed, refer to 9.3 Head/carriage Unit/ CR Timing Belt in this chapter to remove the Ink supply tubes from the Head/carriage unit.

(1) Remove the Ink supply tubes (4 tubes) from the tube guide on top of the Tube support plate, take out the Sponge, and remove it from the Tube support wire.

(2) Disconnect the Ink sensor flat cable from the Main PCB.

(3) Remove the Ink sensor flat cable from the Lower cover cable guide.

(4) Take out the Ink refill ASSY.
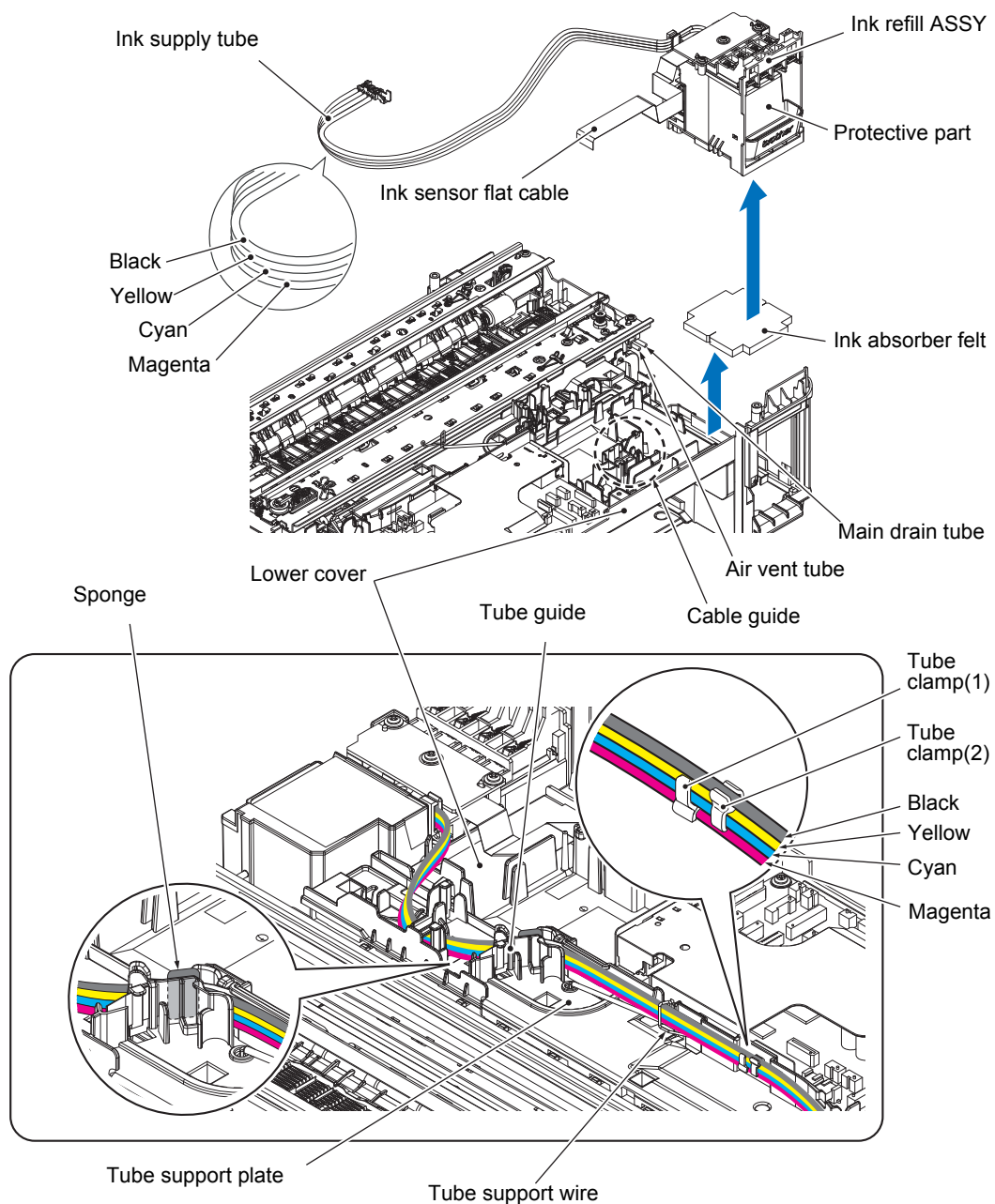
Fig. 3-55

a3_075

Note • If the protective part is removed while the Ink refill ASSY is disconnected, ink flows out of the ink tube. Do not remove it.

• The Ink absorber felt (for the ink refill ASSY) attached to the bottom of the Ink refill ASSY may get stained with ink. If there is a significant stain, replace the Ink absorber felt.

Assembling Note

• When attaching the tube clamps to the Ink supply tubes, view the machine from the front, attach the right tube clamp (1) to magenta, bind cyan and yellow, attach the left tube clamp (2) to black, and bind yellow and cyan (refer to the illustration on the previous page).

• Attach the tube clamp by aligning it to the dented part of the tube support plate shown in the illustration in the previous page.

• After installing the Ink refill ASSY, route the Ink supply tubes to the tube guide based on the color order described in the previous page without overlapping. Next, set it into the Sponge and route it to the tube support wire elbow.

9.25 Ink Absorber Felt (For Ink Refill ASSY)

(1) Take the Ink absorber felt (for the ink refill ASSY) out of the Lower cover.

9.26 Ink Cartridge Cover Sensor ASSY

(1) Remove the connector of the Ink cartridge cover sensor ASSY from the Main PCB, and release the wiring.

(2) Release the Hook and remove the Ink cartridge cover sensor ASSY.
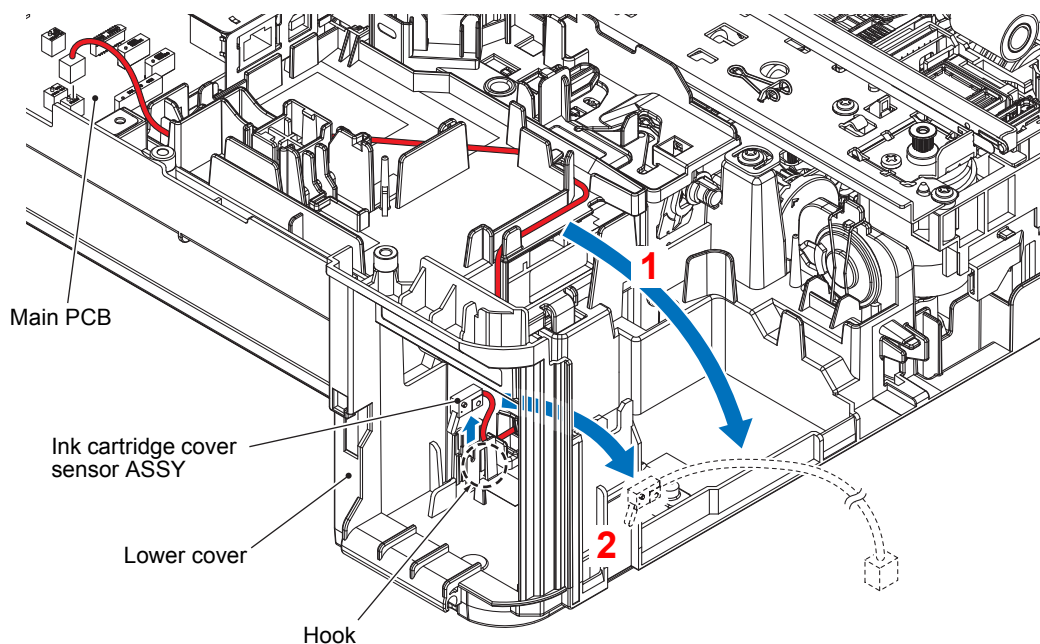
a3_076

Fig. 3-56

9.27 Main PCB

Note • Before starting work involving the Main PCB, make sure that the power cord and telephone line is unplugged from their outlets. There is a danger of electric shock while working if you leave the Power cord or telephone line plugged.

• Before removing the Main PCB, disconnect the harnesses and flat cables first, then remove the screws. Also, before reinstalling the Main PCB, tighten the screws first, then connect the harnesses and flat cables. Follow this sequence while making sure that harnesses and flat cables are not damaged by the screws and the screwdriver.

(1) Remove the Inner media module cover towards you, while pushing it downward.

Inner media module cover
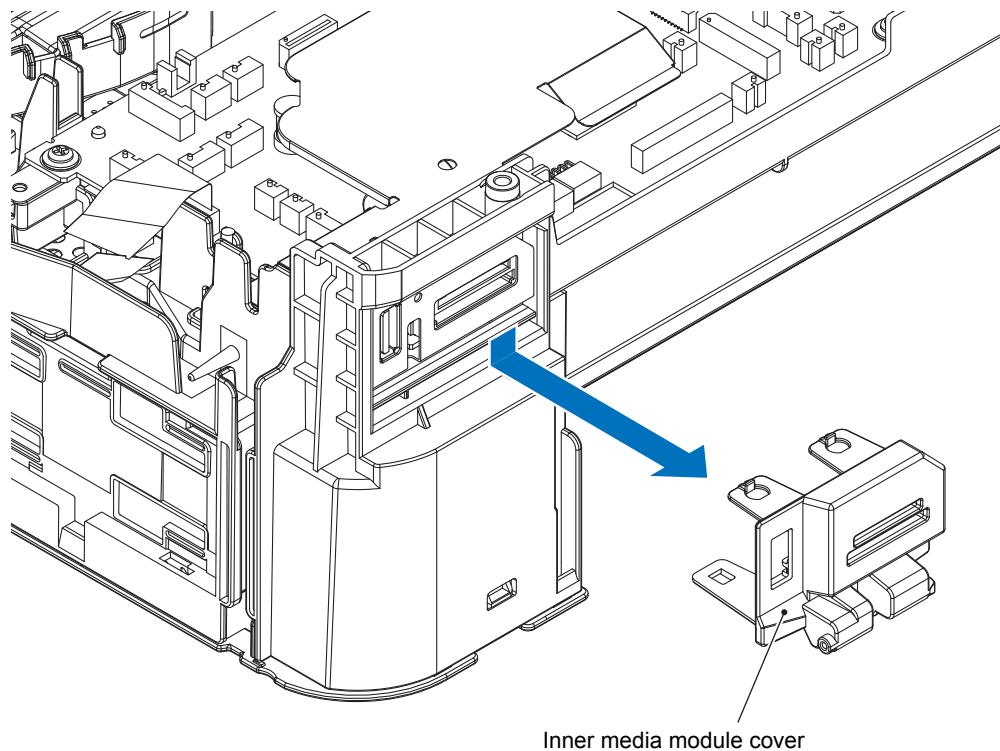
a3_077

Fig. 3-57

(2) Pull the Tube support plate tab upward, release the reverse side Boss, slide the plate to the right, and remove it from the Lower cover.

Tab (with a Boss on the back)

2a

2b

Tube support plate

Lower cover
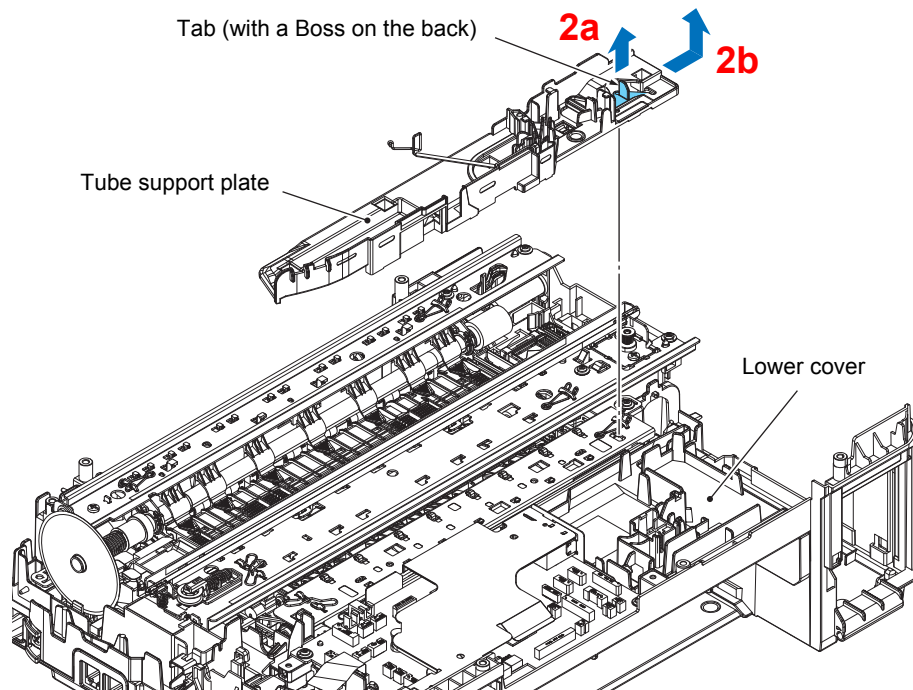
a3_078

Fig. 3-58

(3) Release the two Hooks and remove the Paper tray detection sensor holder.

(4) Remove the Actuator spring and the Paper tray detection actuator.

Hooks

Paper tray detection sensor holder

Actuator spring

Paper tray detection actuator

a3_079

Fig. 3-59

Confidential
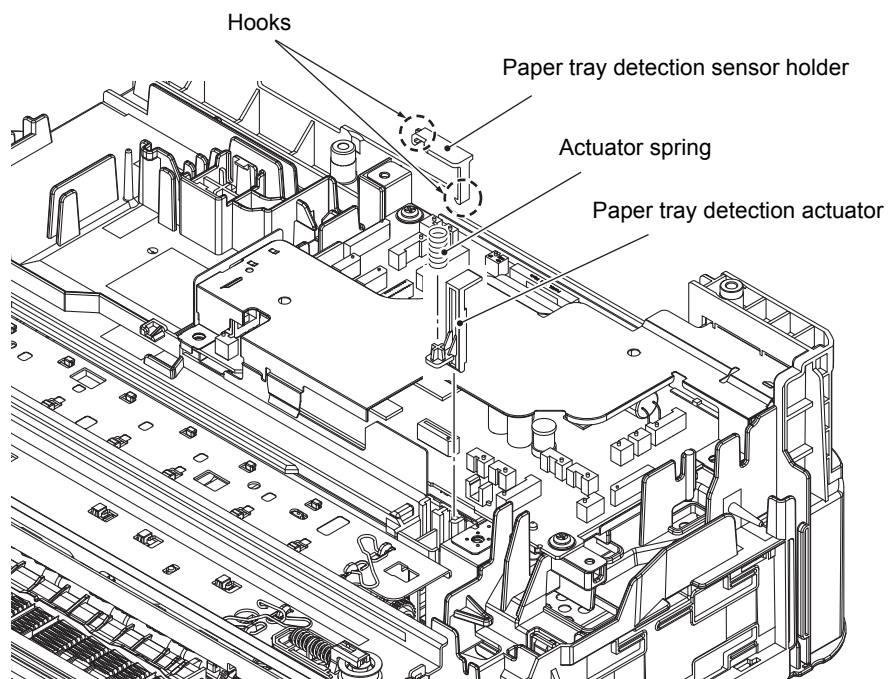
(5) Disconnect all harnesses and flat cables from the Main PCB.

Note Make sure that the Main PCB is screwed in place while connecting and disconnecting harnesses and flat cables.

a3_080

Fig. 3-60

Confidential
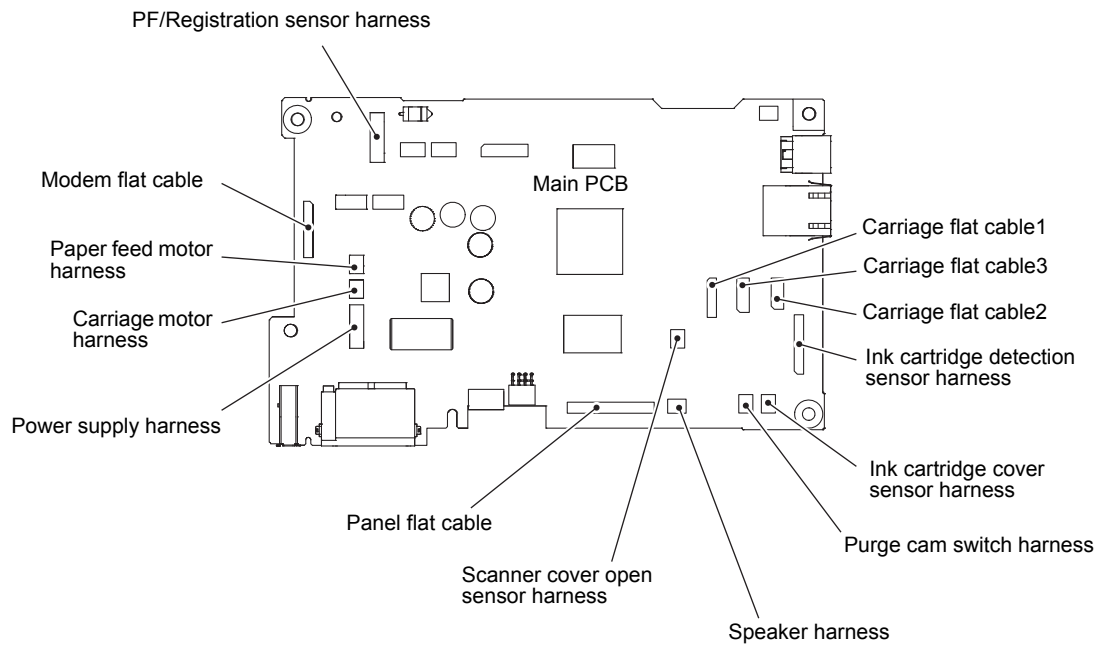
(6) Remove the two screws (TAPTITE CUP S M3x6) and remove the Main PCB shield.

(7) Remove the one screw (TAPTITE CUP S M3x6), the one screw (SCREW BIND M3×6) and the one screw (TAPTITE CUP B M3x10), and take off the Main PCB and the Main PCB frame.

(8) Remove the Main PCB from the Main PCB frame.

(9) Remove the USB ground plate.

(10) Remove the PictBridge ground plate.

TAPTITE CUP S M3x6

Main PCB shield

USB ground plate

PictBridge ground plate

TAPTITE CUP B M3x10

TAPTITE CUP S M3x6

Main PCB

SCREW BIND M3x6

Main PCB frame
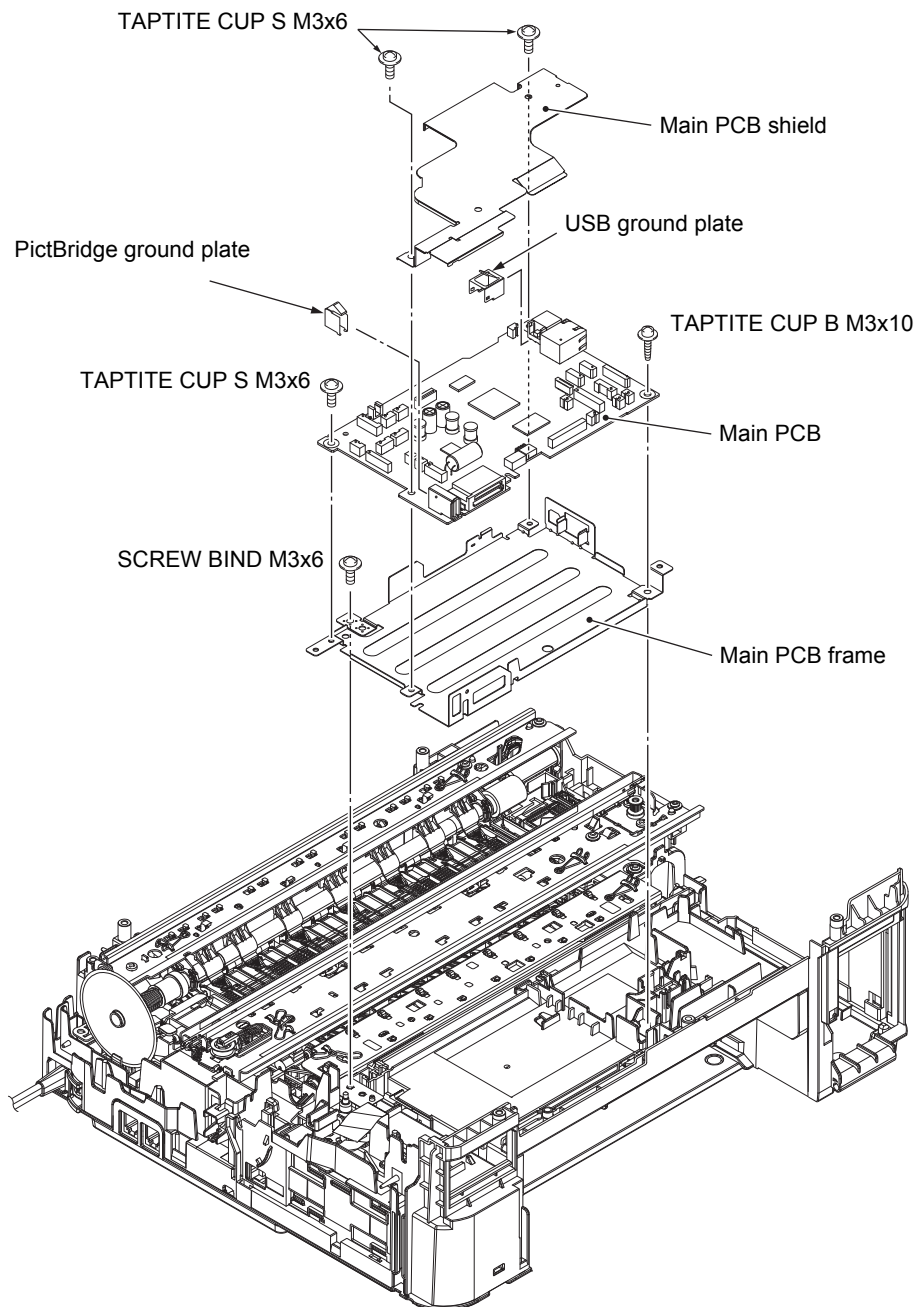
a3_081

Fig. 3-61

9.28 Power Supply PCB ASSY

(1) Release the wiring of the Paper feed motor harness.

(2) Remove the screw (TAPTITE CUP B M3x10).

(3) Remove the Power supply harness from the lower cover cable guide.

(4) As shown below, unlock two Locks of the Power supply unit, and remove it from the bottom side of the Lower cover.

(5) Release the Hook and remove the Flat core.
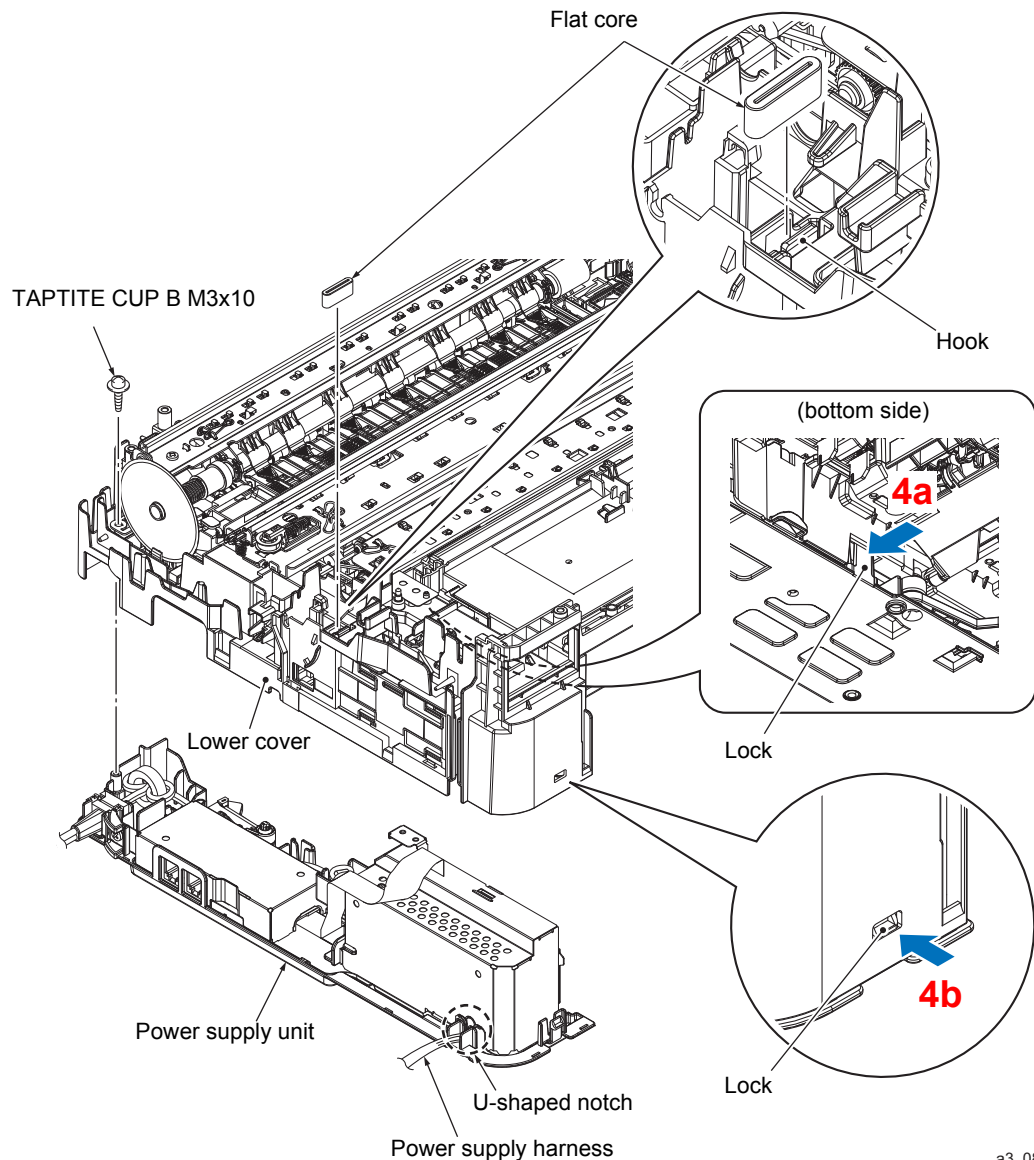
Fig. 3-62

Assembling Note

- Before attaching the Power supply unit in the Lower cover, route the Power supply harness towards the U-shaped notch on the Lower power supply frame.

- After attaching the Power supply unit, refer to the figures in Section 7. 6 in this chapter and route the respective Power supply harnesses to the Cable guide.

Confidential

(6) Remove the SCREW PAN (WASHER) 3.5x6, and disconnect the Grounding wire. (For 200V only)

(7) Remove the Power cord from the Cable guides.

(8) Remove the Power supply shield from the Lower power supply frame lock and the stopper part then pull it towards you.

(9) Disconnect the Power supply harness from the Power supply PCB.

(10) Remove the Power supply PCB insulator from the Lower power supply frame.

(11) Remove the three screws (SCREW BIND M3x6) and remove the Power supply PCB from the Lower power supply frame.
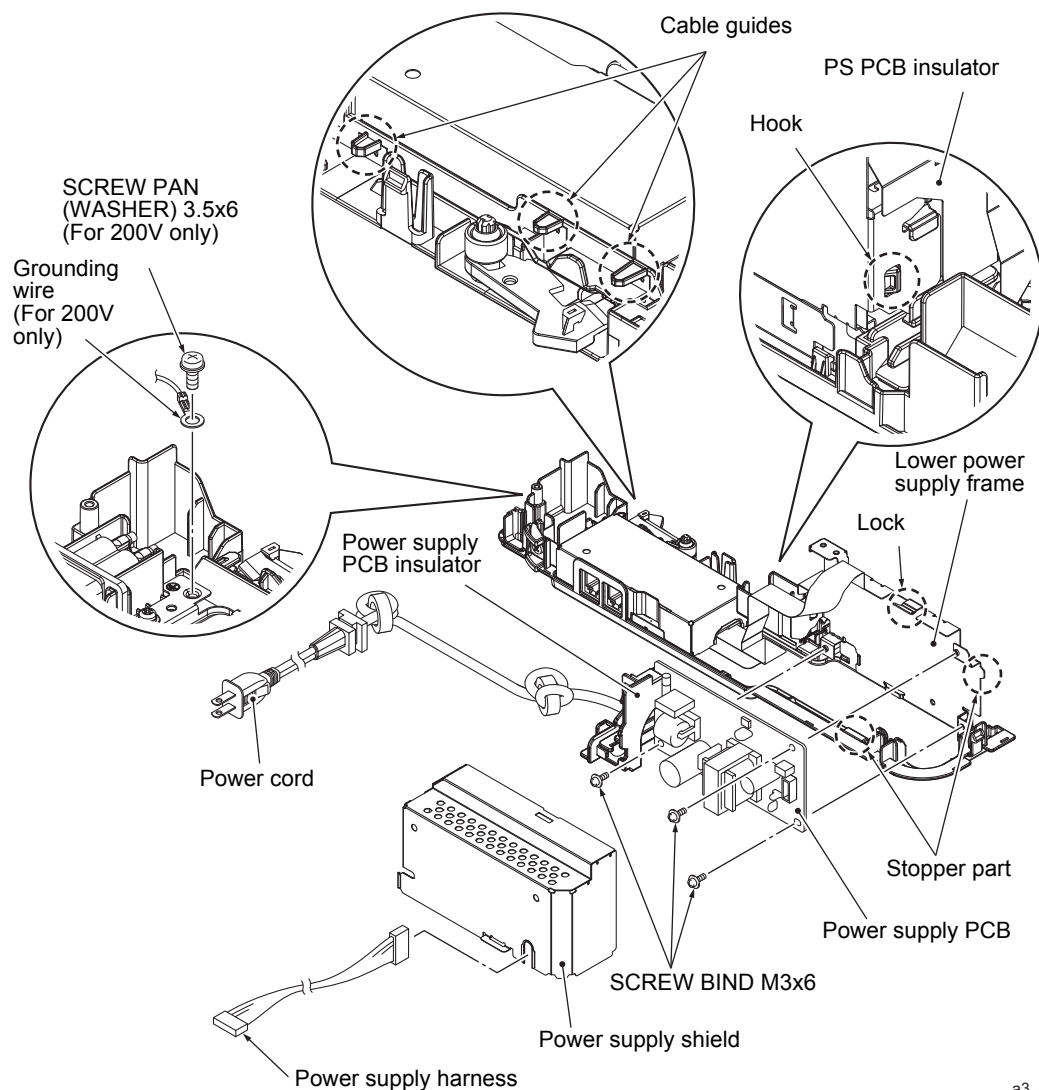
Fig. 3-63

Assembling Note

Route the Power cord correctly as shown below. Hook the Power cord to Pawls to prevent the Power cord come off from the Pawls.

Montagehinweis

Verlegen Sie das Netzkabel korrekt, und zwar so, wie unten dargestellt. Hängen Sie das Netzkabel auf die Haken und vergewissern Sie sich, dass es sich nicht von den Haken lösen kann.
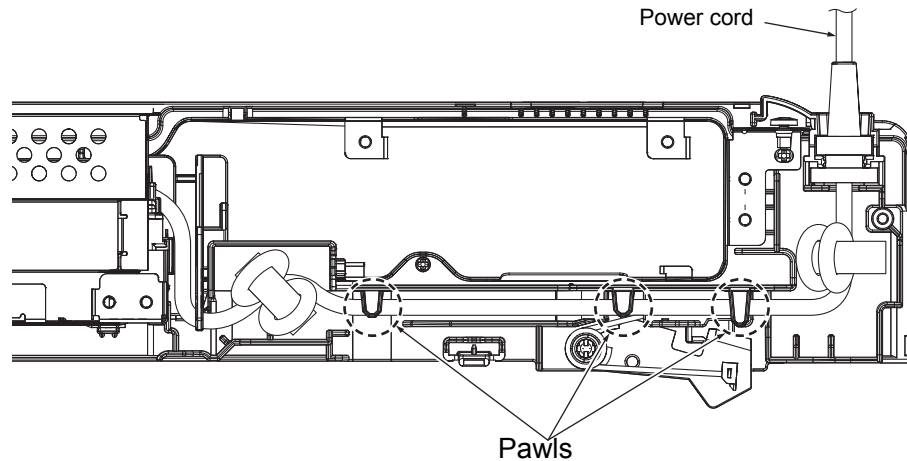
Fig. 3-64

• When installing the Power supply shield, insert the part that bends to the outside of the left end under the stopper of the Lower power supply frame, insert the front end into the Lower power supply frame rib, and fix the top slits in place by locking the Lower power supply frame.
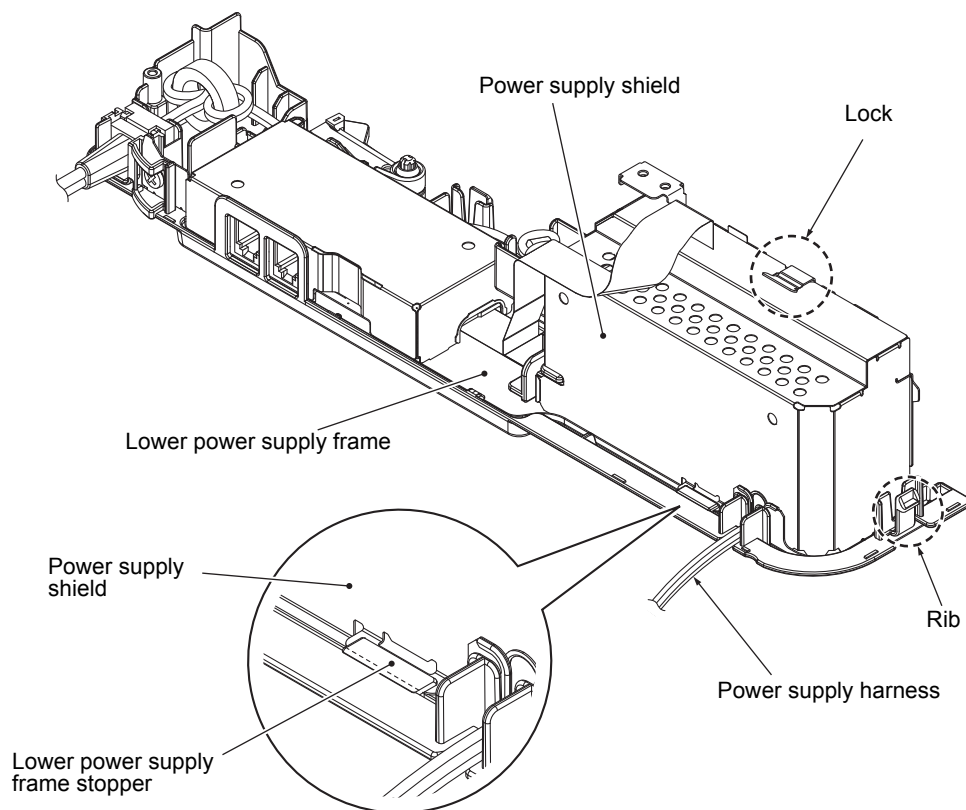
Fig. 3-65

9.29 Modem PCB ASSY

(1) Release the three Hooks and remove the Lower power supply frame from the Power supply base.

(2) Remove the screw of the SCREW PAN (WASHER) 3.5x6, and remove the Modem upper frame.

(3) Remove the two screws (TAPTITE CUP S M3x6) and remove the Modem PCB ASSY from the Lower power supply frame.
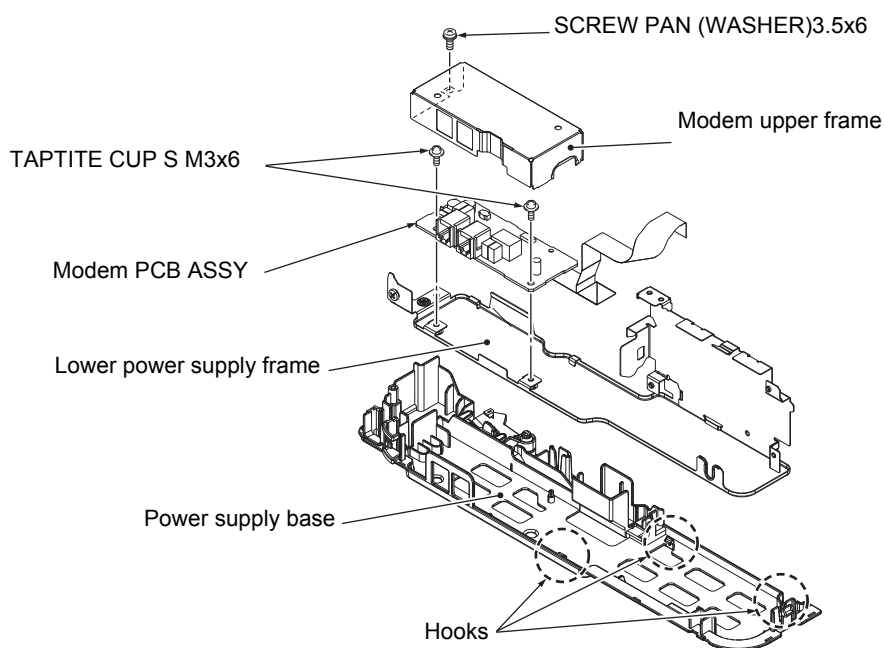
a3_086

Fig. 3-66

9.30 CR Encoder Strip

(1) On the left end of the CR frame, press the rear end of the Encoder strip spring inward and remove the left and right end of the CR encoder strip from the hook.

(2) Rotate the CR encoder strip in the direction of the arrow shown below. Remove it after aligning the left end square opening with the boss-shape of the strip support.

Note Take care not to stain or damage the CR encoder strip. If it is stained or scratched, replace it with a new one.
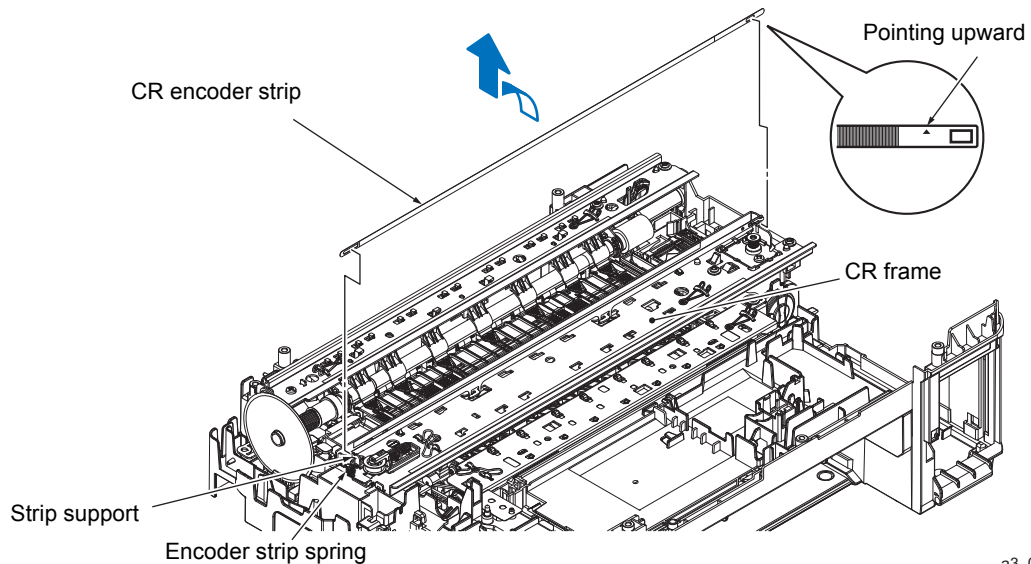
Fig. 3-67

Assembling Note Attach the CR encoder strip with the end with the ▲ mark on the right (carriage motor side) and the ▲ mark facing upward. (Refer to illustration above.)

9.31 Carriage Motor

(1) Release the wiring of the Purge cam sensor harness and the Carriage motor harness.

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

TAPTITE CUP B M3x10
CR frame spring
CR frame spring
CR frame
CR frame
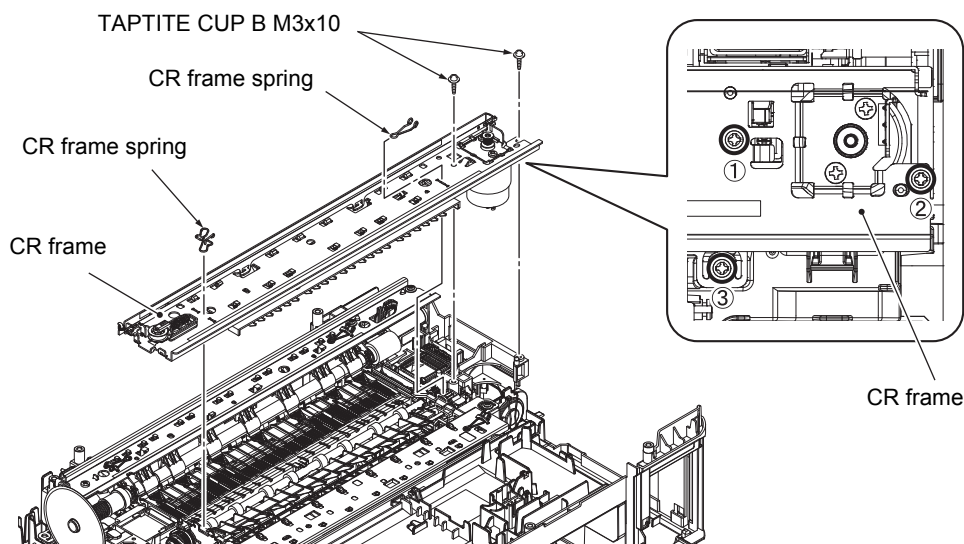
a3_088

Fig. 3-68

Assembling Note When attaching the CR frame, loosen the screws ③ and then tighten them as shown above order.

(3) Remove the two screws (SCREW BIND M3x6) from the CR frame, and remove the Carriage motor from the CR frame.

SCREW BIND M3x6
CR frame
Carriage motor
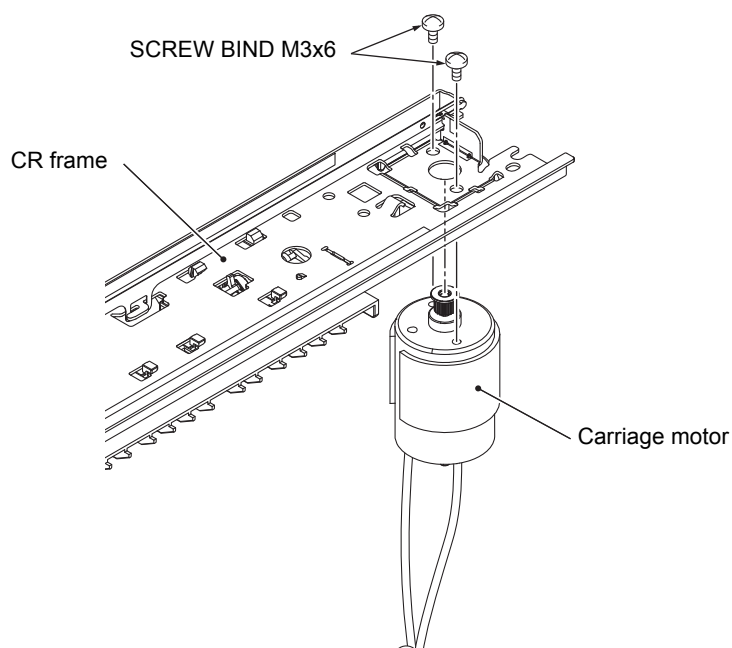
a3_089

Fig. 3-69

9.32 Flushing Guide

(1) Release the Hook and remove the Flushing guide.

9.33 Flushing Foam

(1) Using tweezers, pick up the five Flushing foams.
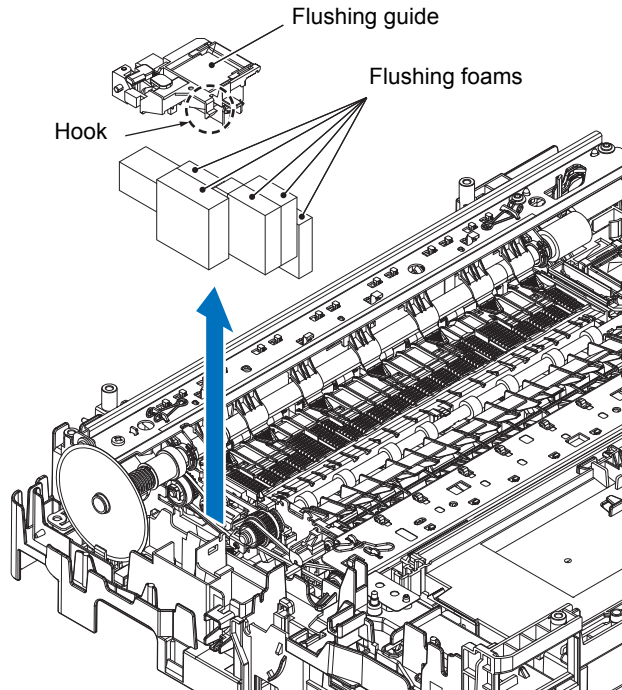
Fig. 3-70

Assembling Note When the Flushing foam is replaced (without replacing the main PCB), follow the procedure in Chapter 4, Section 1.14 to reset the flushing count.
It is also recommended to replace the ink absorber box and reset the purge count as necessary since the purge count may also be approaching the upper limit.

Confidential

9.34 PF Encoder Disk

(1) Peel off the PF encoder disk from the Paper feed roller gear L.

Note • Once removed, the PF encoder disk will become unusable and will have to be replaced with a new one.

• Remove any adhesive remaining left on the Paper feed roller gear L.

9.35 Registration Sensor PCB ASSY

(1) Release the wiring of the PF/Registration sensor harness ASSY.

(2) Remove the two screws (TAPTITE CUP B M3x10) and two screws (SCREW BIND M3x6), remove the two CR guide rail springs, and remove the CR guide rail.
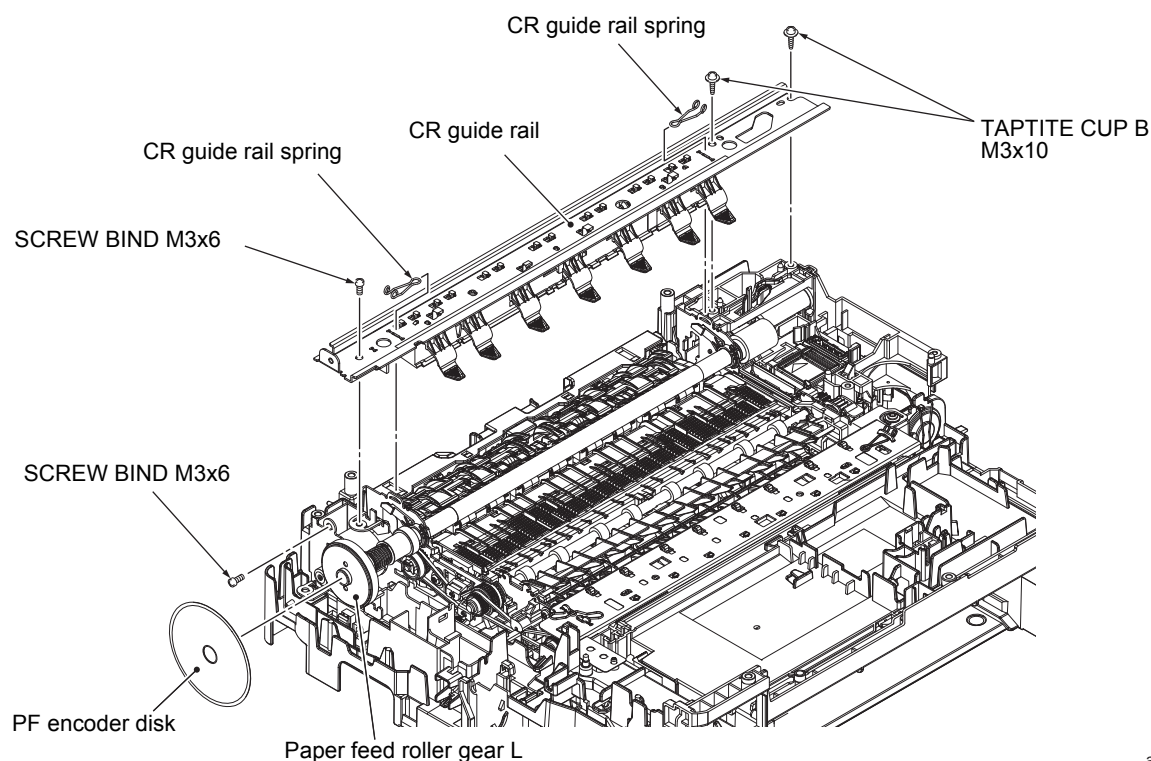
Fig. 3-71

Note Do not place the removed CR guide rail with the Paper holder down.
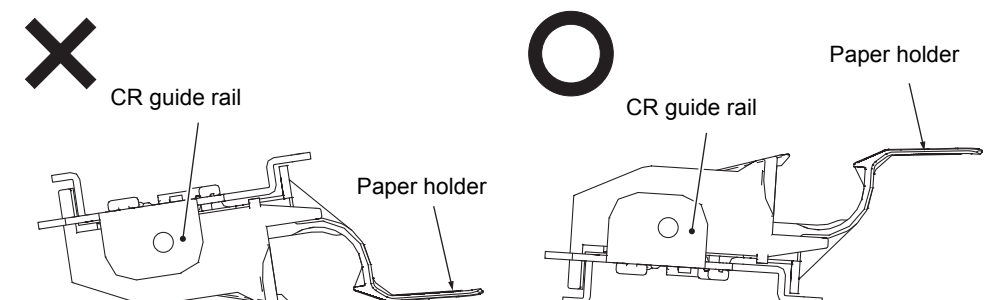
Fig. 3-72

(3) Hook the lock arm of the Inner chute ASSY from the rear using the spring hook, release the Boss part from the Main chassis opening, and remove the Inner chute ASSY by sliding it to the left (to the right when you are looking from the rear) and releasing the four locks.

(4) Release the two Hooks, and remove the Registration sensor PCB ASSY from the Inner chute ASSY.

(5) Remove the Registration sensor harness from the Registration sensor PCB ASSY.
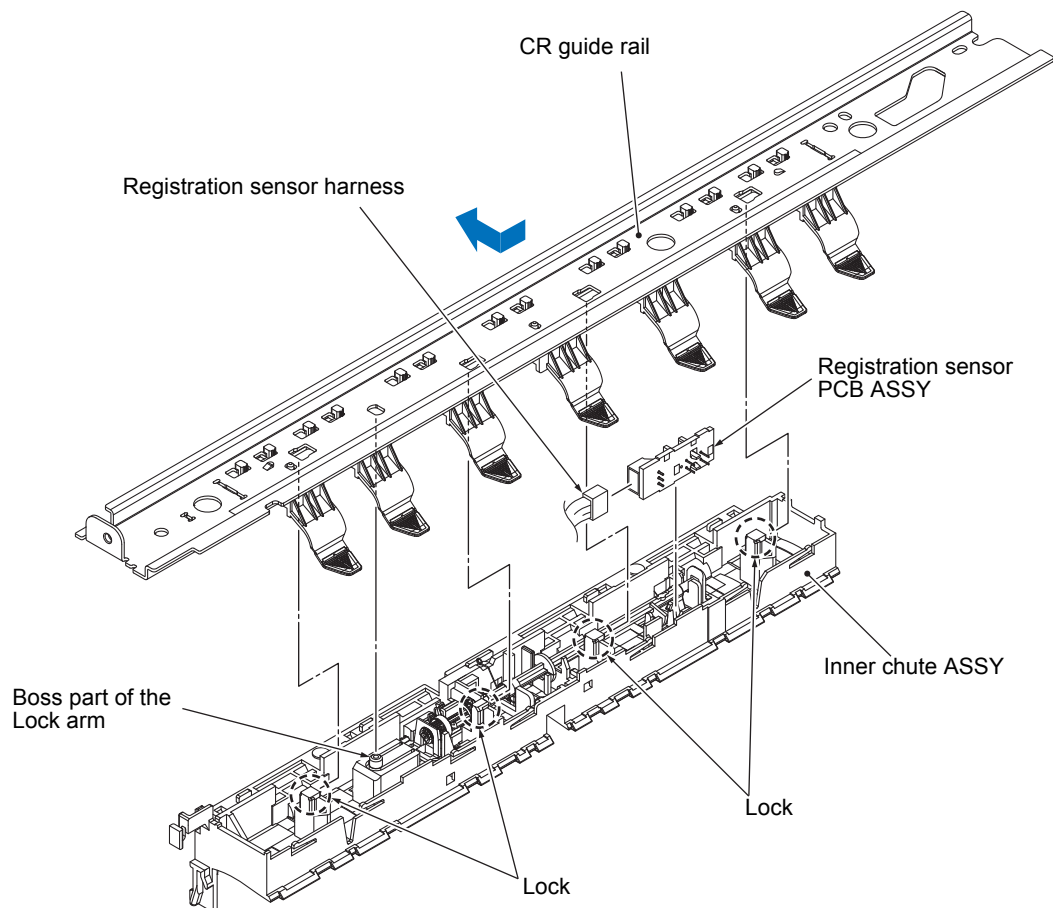
Fig. 3-73

9.36 Paper Feed Roller

(1) Pull towards you the Release levers at the left and right rear of the Paper tray.

Release lever
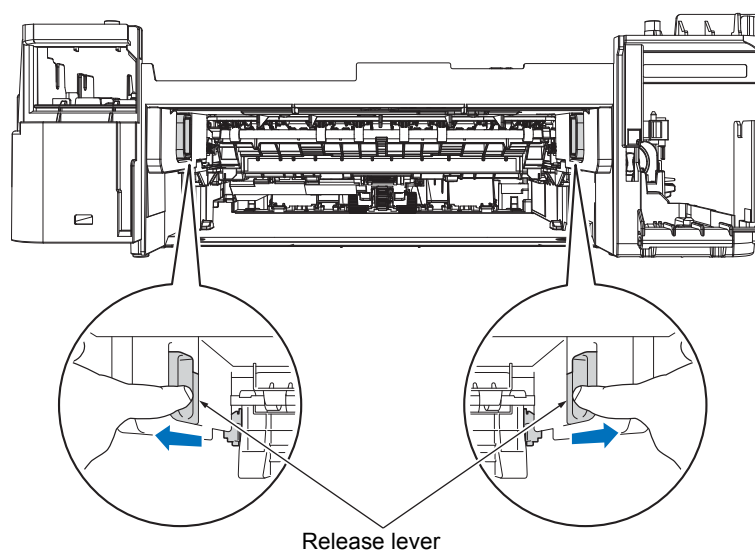
a3_094

Fig. 3-74

(2) For unlocking, turn the three Bushings at the left and right in the direction of the arrow.

(3) Remove the Paper feed roller.
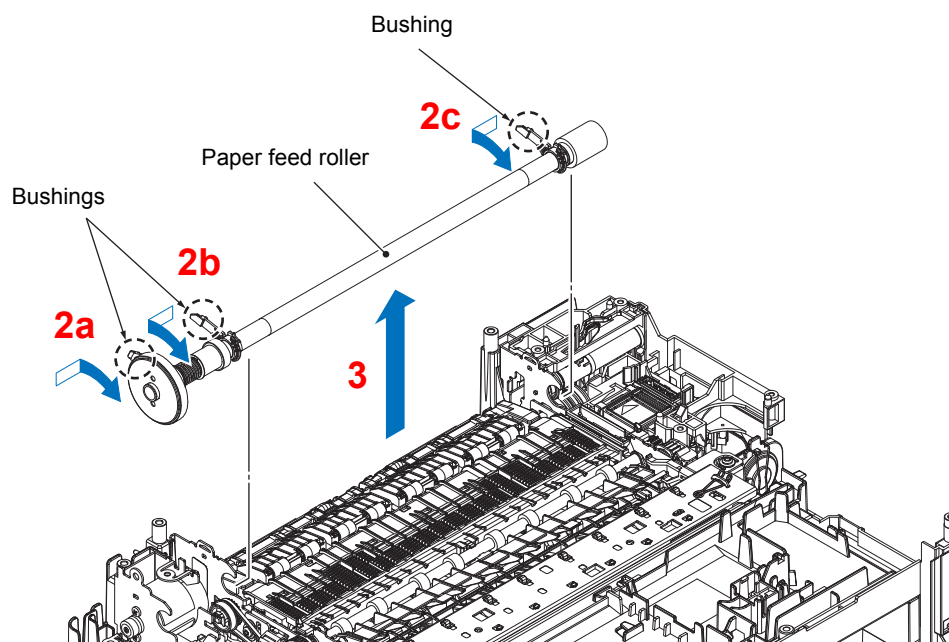
a3_095

Fig. 3-75

Assembling Note

- When mounting the Paper feed roller, hold the left and right bushing without touching the roller part.
- Make sure that the Pressure roller holder ASSY stays on the Inner frame ASSY. If it is released, pull towards you the Release levers at the left and right rear of the Paper tray while holding down the entire Pressure roller holder ASSY onto the Inner frame ASSY, thereby fitting it in.
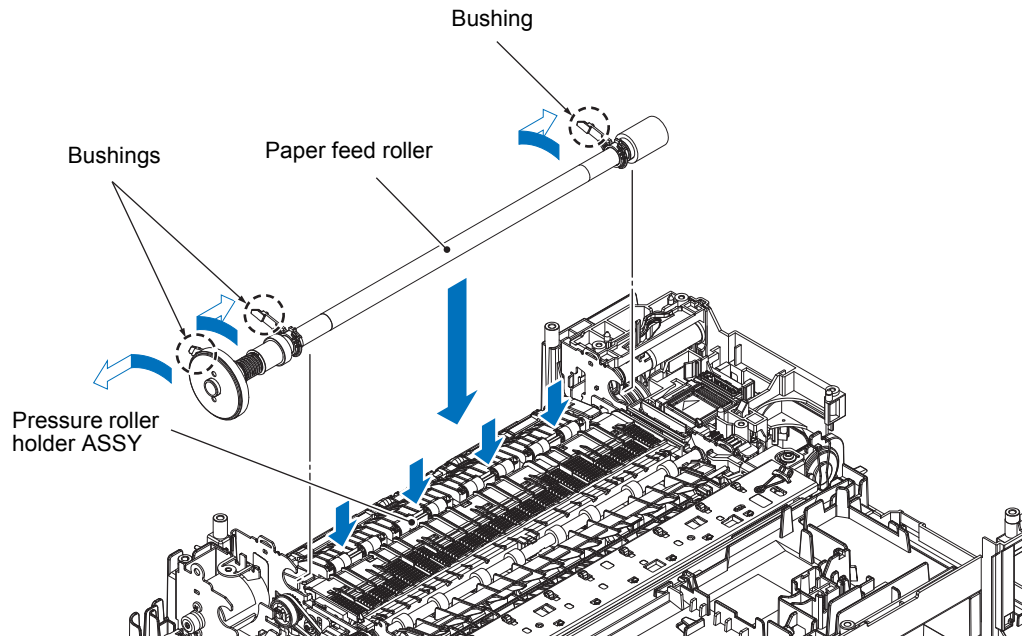
a3_096

Fig. 3-76

9.37 Paper Feed Motor

(1) Release the wiring of the Paper feed motor harness.

(2) Pull the Paper feed motor frame ASSY straight up.

(3) Remove the two screws (SCREW BIND M2.6x4) and take the Paper feed motor off the Paper feed motor frame.
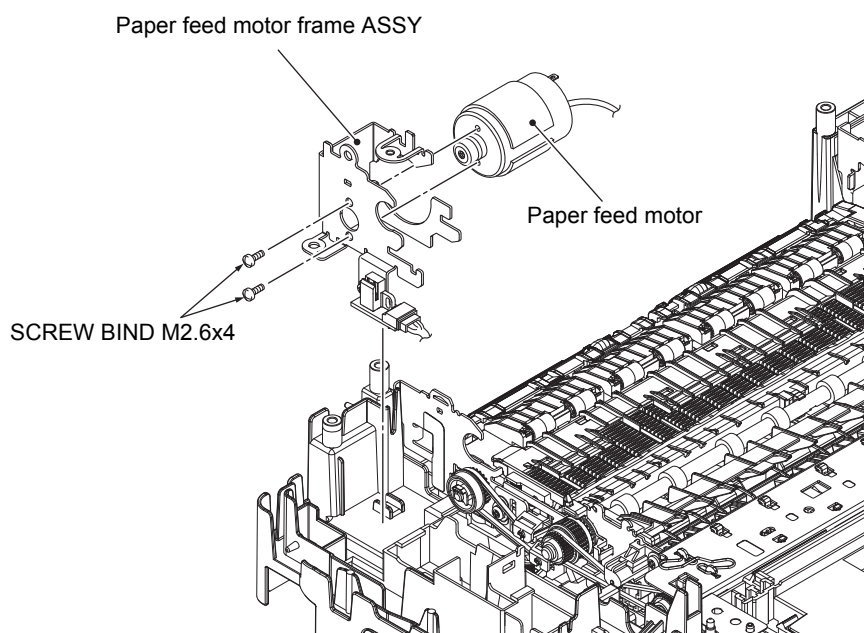
Fig. 3-77

9.38 PF Encoder Sensor PCB ASSY

(1) Remove the screw (SCREW BIND M2x10) and remove the PF encoder sensor PCB ASSY.

(2) Disconnect the PF encoder harness.

Fig. 3-78

Confidential
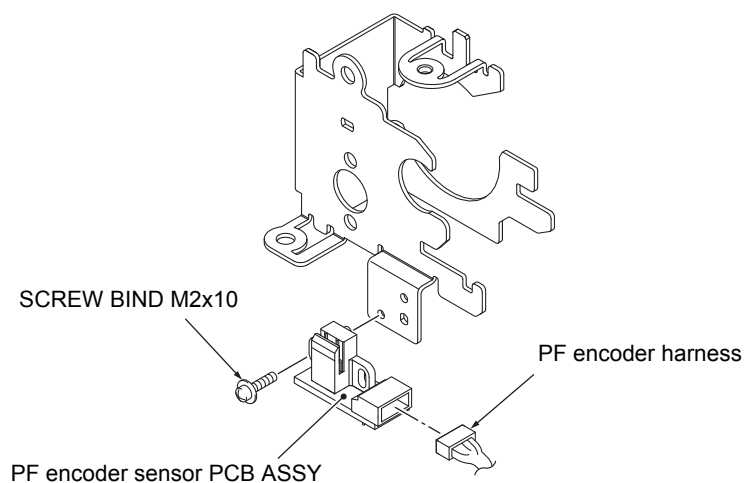
9.39 Maintenance Unit

(1) Remove the Maintenance unit.

Assembling Note

- Be careful not to let the tube be sandwiched when attaching the Maintenance unit.

- After attaching, check that the tube is not sandwiched.

- After attaching, check whether the Boss is securely seated in the hole by observing it from behind the machine.

9.40 Ink Absorber Felt (For Maintenance Unit)

(1) Remove the Ink absorber felt (for maintenance unit).
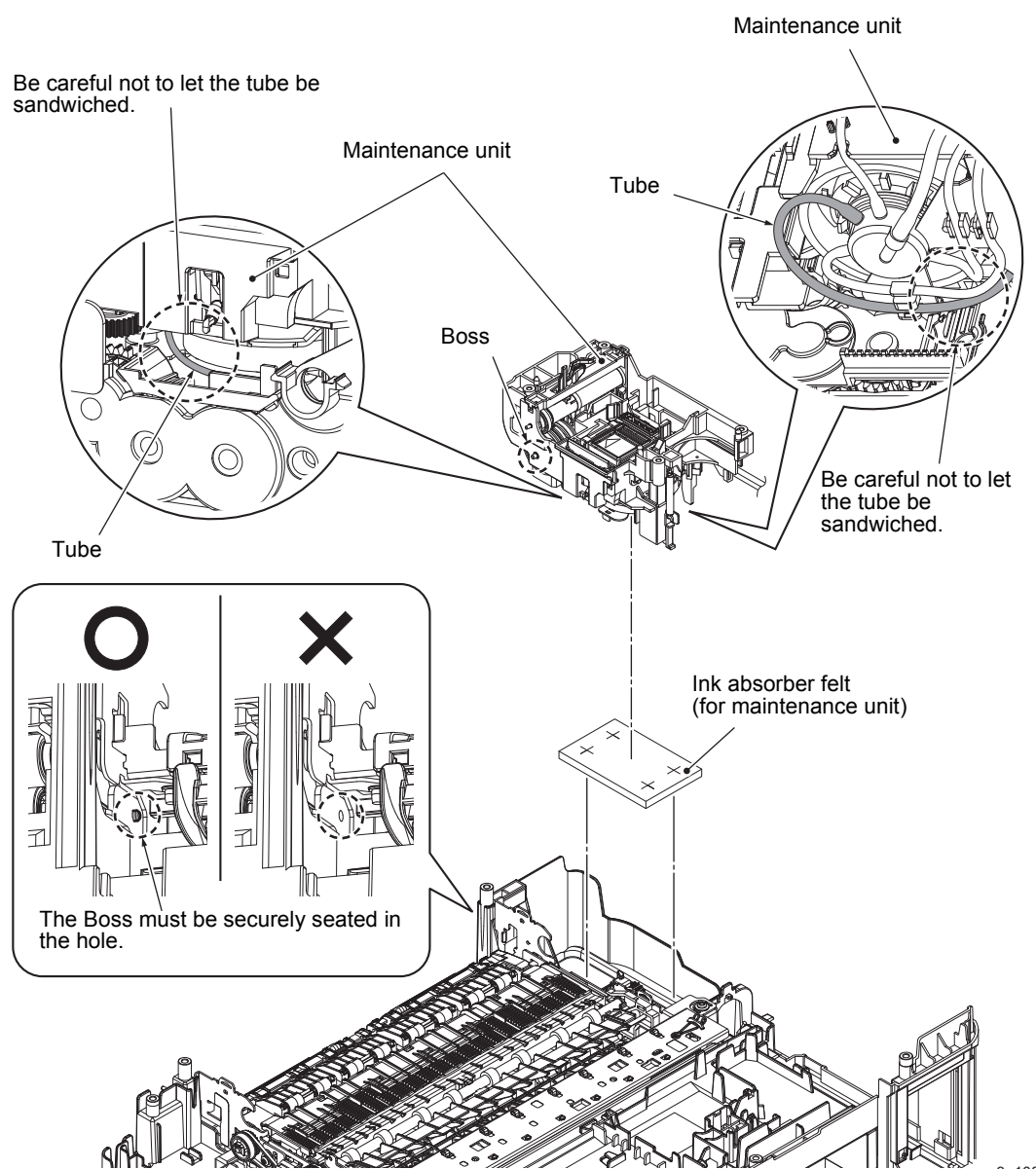
Fig. 3-79

9.41 Platen ASSY/Paper ejection roller

(1) Remove the Switchback roller belt.

(2) Remove the Paper ejection roller belt.

(3) Release the Hook of the Bushing on the Paper ejection roller, and remove the Platen ASSY.

(4) Remove the Paper ejection roller from the Platen ASSY.

Fig. 3-80

Confidential
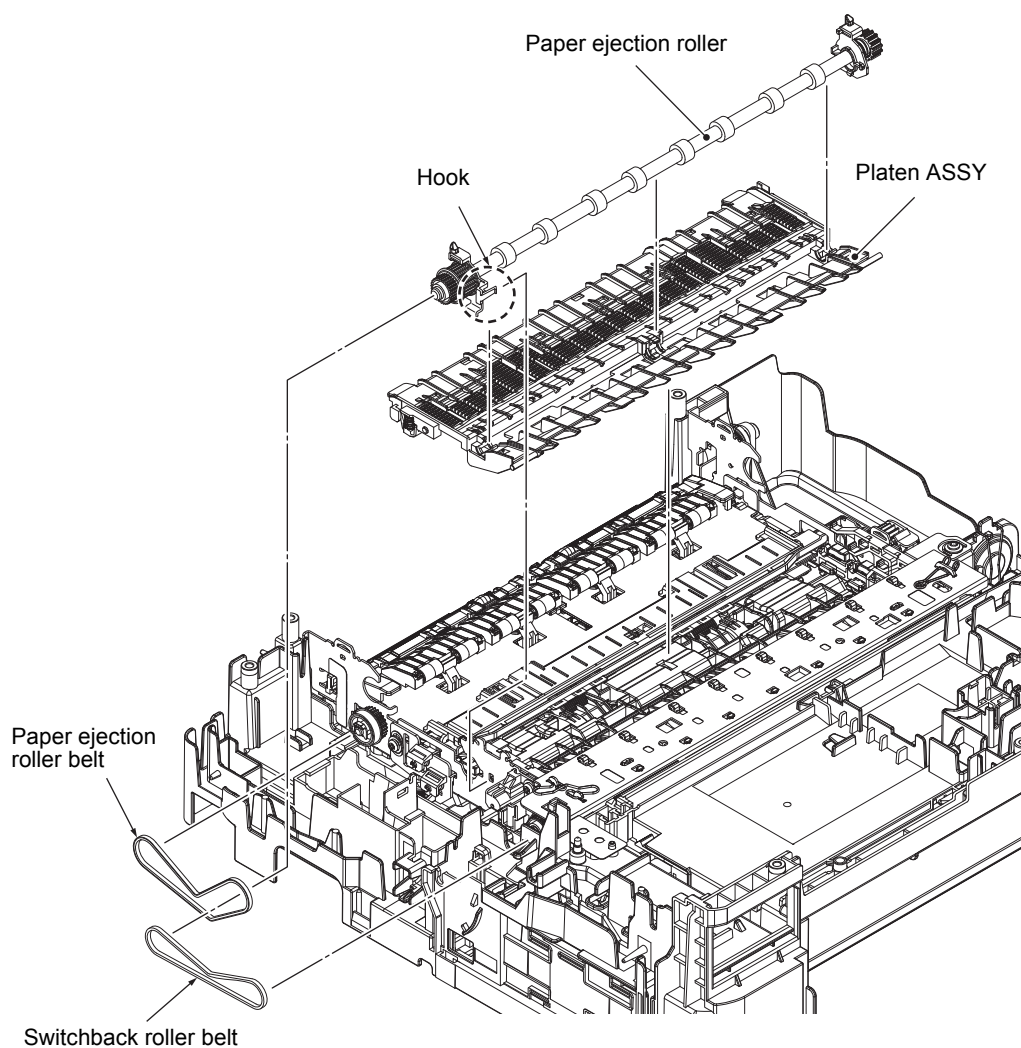
9.42 Switchback Roller ASSY

(1) Remove the two Switchback frame springs and remove the Switchback frame.

(2) Remove the Bushing from the Switchback roller.

(3) Release the two Hooks of the Switchback roller with its Bushing and remove the Switchback roller ASSY.
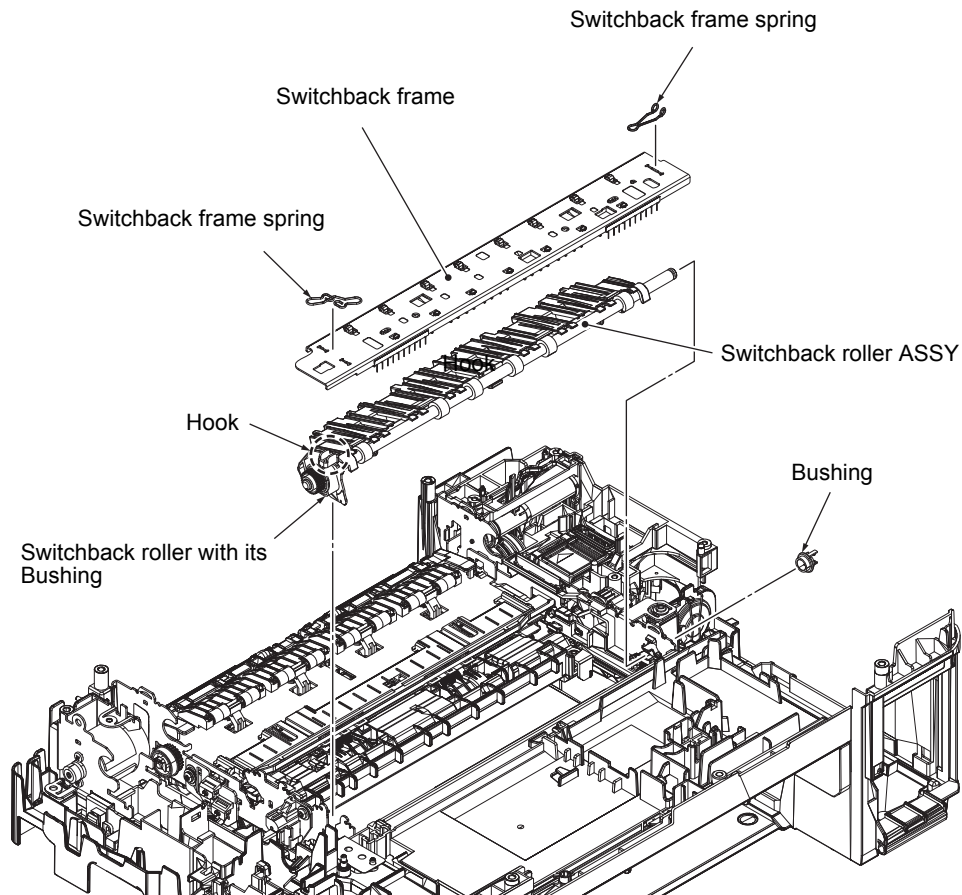
a3_106

Fig. 3-81

9.43 Paper Pull-in Roller

(1) Release the Hooks on both sides, and remove the Pull-in roller gear holder ASSY.

(2) Remove the Paper pull-in roller from the Pull-in roller gear holder ASSY.

Pull-in roller gear holder ASSY

Hook

Paper pull-in roller

Hook

Paper pull-in roller
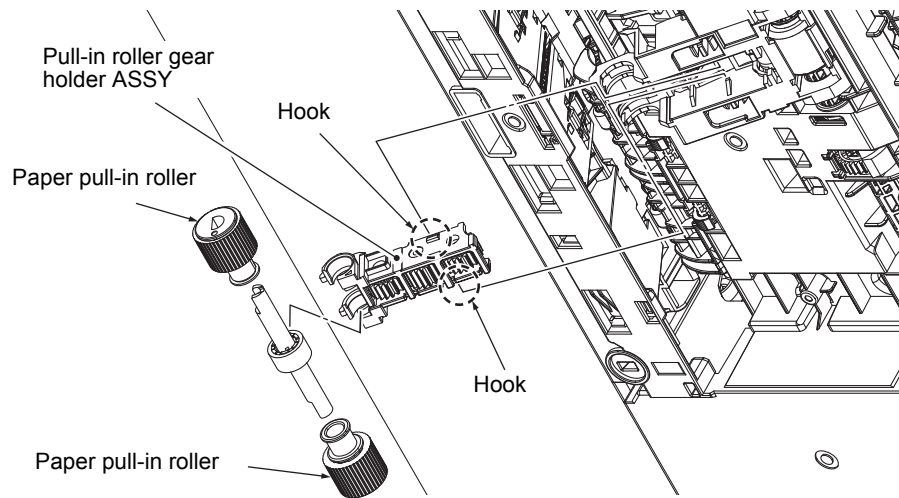
a3_101

Fig. 3-82

9.44 Bank ASSY

(1) Release the four Hooks on the bottom of the Bank ASSY.

(2) Slide off the Bank ASSY to the rear.
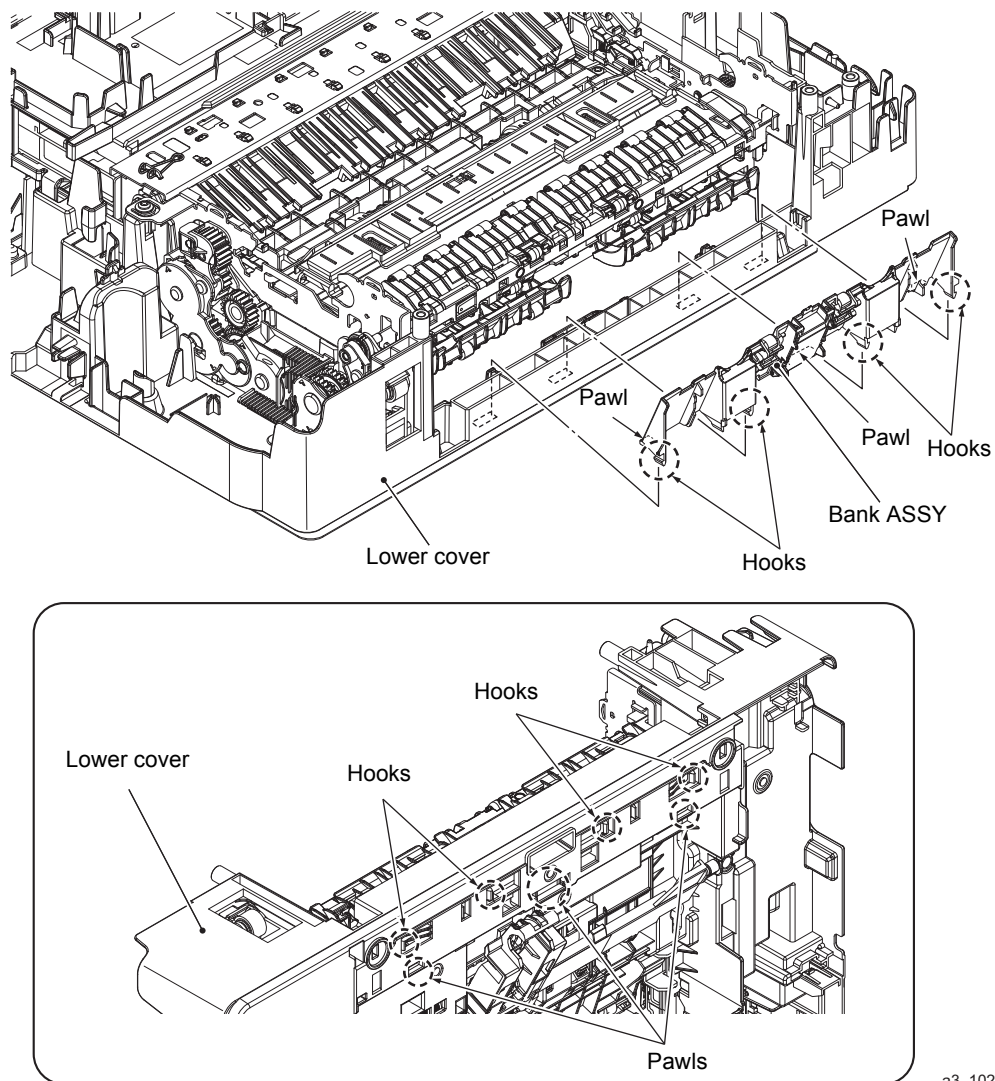
Fig. 3-83

Assembling Note When mounting the Bank ASSY, first insert the three front Pawls and set the four Hooks into place.

9.45 Base Pad/Base Pad W

(1) If the Base pad and the Base pad W need to be replaced, peel them off the bottom of the Paper tray.

Note Once removed, the Base pad and the Base pad W will become unusable and will have to be replaced by new pads.

Depressed section

Base pad W

Base pad W

Base pad

Align the edge of the Base pad W with the back edge (this line) of the Depressed section at the bottom of the Paper tray.

Depressed section

Base pad

Align the edge of the Base pad with the front edge (this line) of the Depressed section at the bottom of the Paper tray.
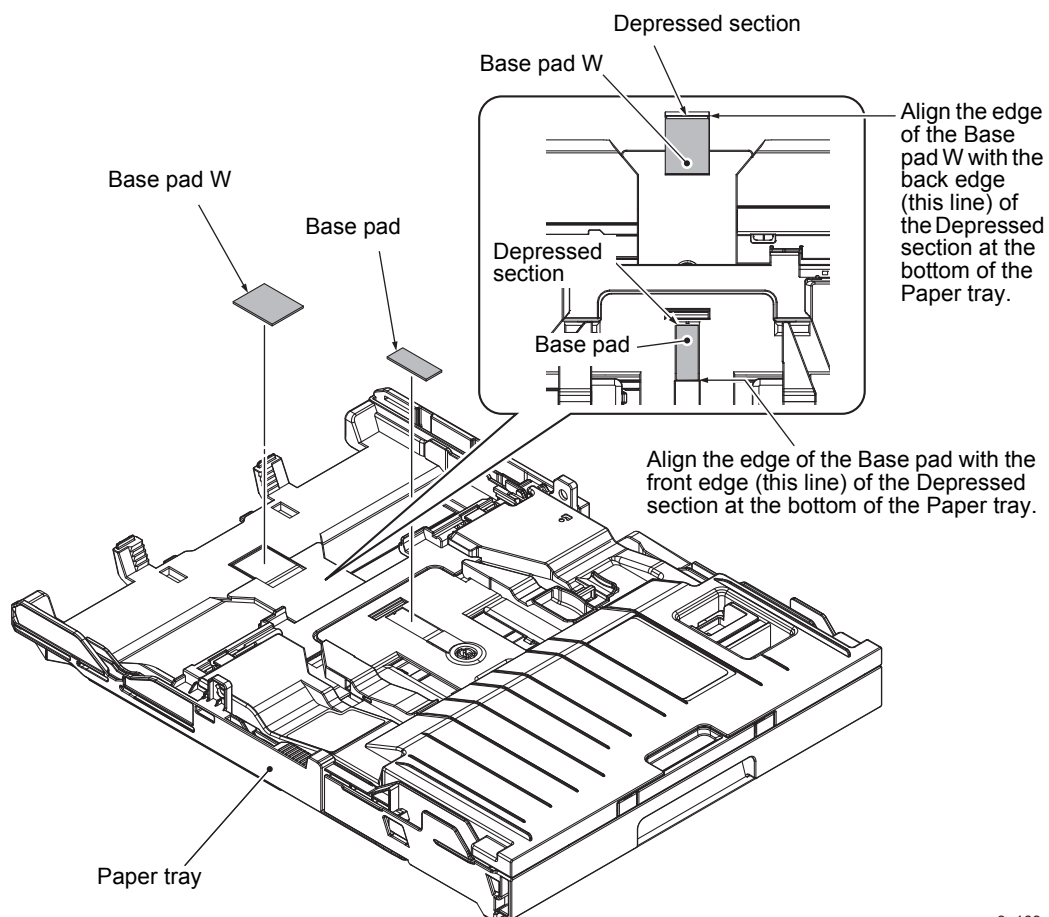
Paper tray

a3_103

Fig. 3-84

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 at the bottom of the tray and center the pad widthways as shown above.

When attaching a new Base pad W to the Paper tray, align the back edge of the pad with that of the Depressed section at the bottom of the tray and center the pad widthways as shown above.

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 foam 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 Acquire white/black level data (Maintenance mode 55)

1.11 Adjustment of 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 "brusbsn.exe" 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) Data files of print patterns

(10)Color test chart CTC-001

1.1 Customize destinations (Maintenance mode 74)

Customize destinations, referring to Chapter 5, Section 1.3.26.

If "PLS UPDATE PROG" appears on the LCD, install the firmware using the procedure in Section 1.3 below.

1.2 Set the CIS type (Maintenance mode 59)

Set the CIS type, referring to Chapter 5, Section 1.3.19.

If "PLS UPDATE PROG" appears on the LCD, install the firmware using the procedure in Section 1.3 below.

1.3 Install the firmware (Maintenance mode 28)

This procedure is not required unless "PLS UPDATE PROG" appears on the LCD in Section 1.1 or 1.2. If the message appears, install the firmware, referring to Chapter 5, Section 1.3.9.

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.

Touch panel model

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

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

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

4) Within three seconds after the above pattern appears, press ⏻ twice to display the following pattern.

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

Confidential

Non-touch panel model

1) While holding down ⏻, plug the power cord into an electrical outlet. When the following "A" pattern appears on the LCD, release ⏻ and immediately press ⏻ once to display the following "B" pattern.
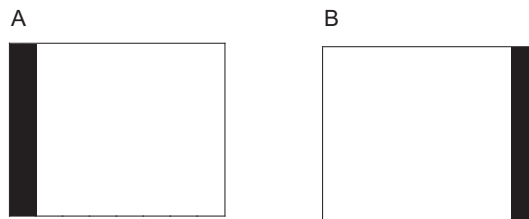
A   B

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

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

4) Within three seconds after the above pattern appears, press ⏻ twice to display the following pattern.

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

Confidential
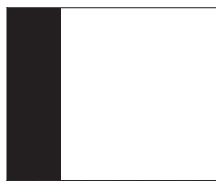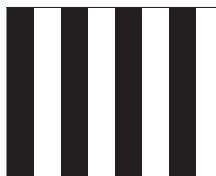
1.4 Initialize the EEPROM parameters (Maintenance mode 01)

Initialize the EEPROM parameters, referring to Chapter 5, Section 1.3.1.

1.5 Restore the head Calibration data (Maintenance mode 68)

Restore head calibration data that has been backed up in an external memory, referring to Chapter 5, Section 1.3.24.

If the restoration is successfully completed, the procedure given in Section 1.15 is not required.

1.6 Set the serial number (Maintenance mode 80)

Set the serial number, referring to Chapter 5, Section 1.3.31.

The serial number can also be set with the service setting tool (BrUsbSn.exe) that enables the head property information to be updated (Section 1.7) at the same time.

Note Update the firmware to the latest version before using the service setting tool (BrUsbSn.exe) to update the head property data.

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 **2015 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 | Devices and Printers**.

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

3) Click **Properties**.
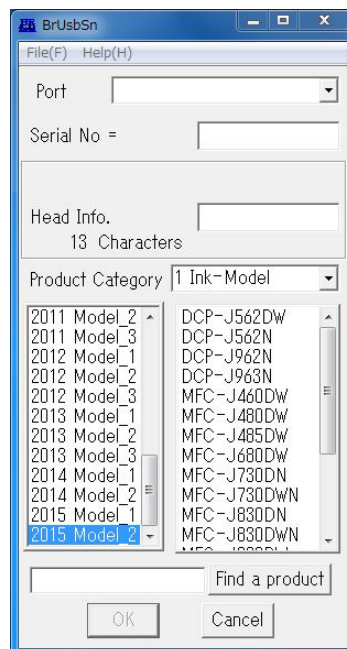
4) Click the **Ports** tab.

(7) In the **Serial No.** box on the BrUsbSn screen, type the 15-digit serial number which is printed on the serial number label attached to the machine.

(8) In the **Head Info.** box, type the 13-digit head property code. The head property info is printed on the bar code label attached to the head/carriage unit.

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

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

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

(11)Use Maintenance mode 80 to display the serial number and head property info and check that the entered data is correct.

1.7 Update the head property data (Maintenance mode 68)

Update the head property data, referring to Chapter 5, Section 1.3.24.

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

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 1.3.12.

If the machine information is successfully restored, it is not necessary to perform operations given in Sections 1.9, 1.10 and 1.14.

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

1.9 Adjust the touch panel (Maintenance mode 78)

Adjust the touch panel, referring to Chapter 5, Section 1.3.30.

1.10 Acquire white/black level data (Maintenance mode 55)

Acquire white/black level data, referring to Chapter 5, Section 1.3.16.

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

Refer to Chapter 5, Section 1.3.22.

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

Refer to Chapter 5, Section 1.3.18.

1.13 Adjust margins in borderless printing (Maintenance mode 66)

Refer to Chapter 5, Section 1.3.23.

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.

Once the purge count reaches 13,117 (Step head model)/13,800 (Low head model), and the flushing count reaches Black: 347,739,018 and Colors: 231,724,806, a message "Unable to Print 46" is displayed, and the execution of both the purge operation and the flushing operation is prohibited. If this occurs, it is required to replace the ink absorber box or the flushing foam with new ones, and reset the purge count or the flushing count in the steps described above.

1.15 Write head calibration data (Maintenance mode 02)

Write head calibration data, referring to Chapter 5, Section 1.3.2.

1.16 Check scanning and printing

To make a final check after replacement of the main PCB, print test patterns for updating the paper feeding correction values, adjustment of software correction for inclination/corrugation/ruled lines/margins in borderless printing, and then check a copy of a color test chart CTC-001.

Updating paper feeding correction values

Check the test patterns, referring to Chapter 5, Section 1.3.18.

Adjustment of software correction for inclination/corrugation/ruled lines

Check the test patterns, refer to Chapter 5, Section 1.3.22.

Adjusting margins in borderless printing

Check the test patterns, referring to Chapter 5, Section 1.3.23.

Making a copy of a color test chart CTC-001

(1) Set the printed color test chart CTC-001 on the document cover glass with its printed face down.

(2) Proceed **Copy** > **Options** > **Quality** and set to "Normal" on the home screen, press the **Color Start** key to copy the document.

(3) Check the copied color test chart CTC-001 for problems. If any problem is found, perform the adjustment procedure again.

Confidential

2 IF YOU REPLACE THE HEAD/CARRIAGE UNIT

\<Operations\>

\<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 "brusbsn.exe" 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) Data files of print patterns

Confidential

2.1 Update the head property data (Maintenance mode 68)

Update the head property data, referring to Chapter 5, Section 1.3.24.

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

Note Update the firmware to the latest version before using the service setting tool (BrUsbSn.exe) to update the head property data.

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 **2015 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 | Devices and Printers**.

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

3) Click **Properties**.
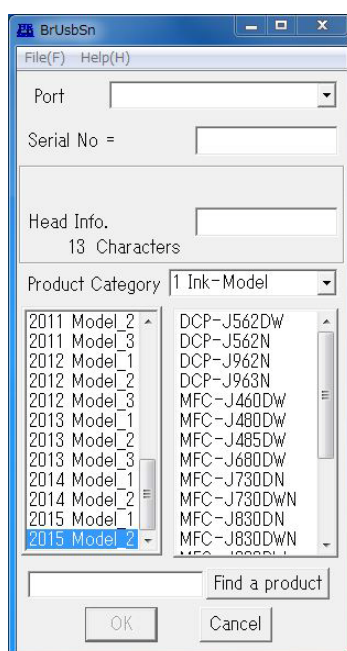
4) Click the **Ports** tab.

(7) In the **Head Info.** box, type the 13-digit head property code. The head property info is printed on the bar code label attached to the head/carriage unit.

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

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

```
HEDA4412345    123Z  ||| ||||| || || ||| | |||||| |||||||| || ||| |||||||||| ||| | ||| |||
||| || | | ||| ||||||||||||||||||| ||| |||| | ||| | ||  ALR7784400005
```

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

(10) Use Maintenance mode 80 to display the head property data and check that the entered data is correct.

2.2 Perform ink supply purge (Maintenance mode 76)

(1) Open the ink cartridge cover, set comparatively-new ink cartridges (having sufficient ink) into the ink refill ASSY, and close the ink cartridge cover.

(2) Carry out a purge operation (with maintenance code 76) using the steps below.

1) Press the **7** and **6** keys in this order.

The machine displays "CLEANING ALL" on the LCD and enters the purge mode.

2) Press the **4** and **Mono Start** or **Black 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 1.3.28).

2.4 Adjust head inclination

Before starting the procedure below, make sure to set the recording paper in the paper tray for printing check patterns.

(1) Switch the machine to the maintenance mode and press the **6, 3, Mono Start** or **Black Start**, and * keys in this order to move the head/carriage unit to the adjustment position.

(2) Open the document scanner unit.

(3) Using a spanner and an Allen wrench, place the head/carriage unit in the center with the external and internal inclination adjuster knob as shown in the diagram below.

Note Perform the adjustment by moving the head/carriage unit to the left edge which is the adjusted position. If you adjust it to another location, the CR frame may be subjected to strain.
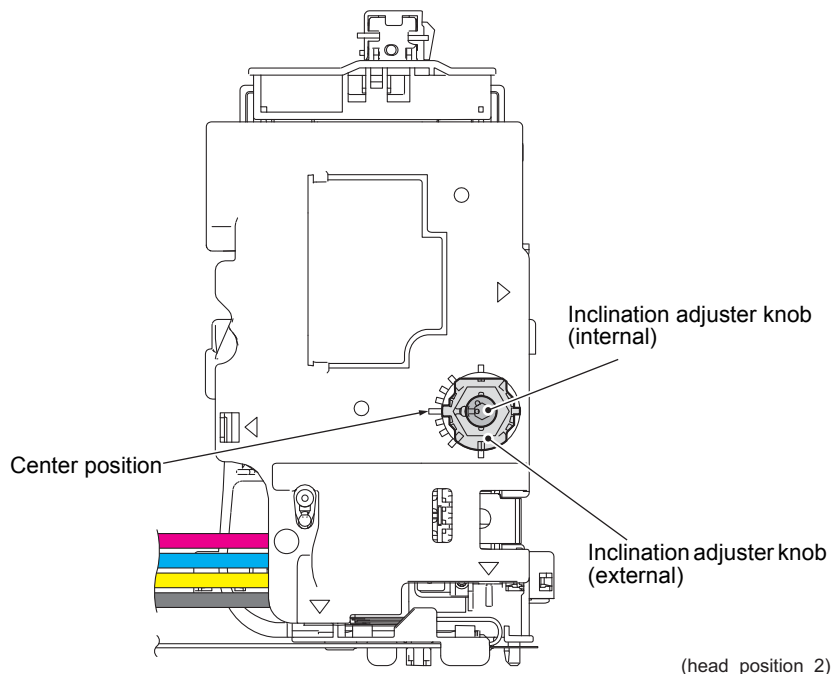

Inclination adjuster knob (internal)

Center position

Inclination adjuster knob (external)

(head_position_2)

Fig. 4-1

(4) Close the document scanner unit.

(5) Save incline_BHmini15_Step.prn (Step head model) or incline_BHmini15_Low.prn (Low head model) in a USB flash memory or SD card using your PC.

(6) Use Chapter 5 "1.3.20 Printout of PRN/JPEG Files in Memory Card (Maintenance mode 61)" in this chapter to print test patterns on A4 or letter paper.

Tip The test patterns can also be printed by opening [Filedrgs] on your PC and dragging & dropping the above files onto the Brother Maintenance USB Printer driver icon.

(7) Adjust the head inclination by following the steps below.
<u>When the block number with the least uneven printing in the configuration block A (top) is "0"</u>

1) Check the block number with the smallest print unevenness in the configuration block B (lower). Using a spanner, turn the external inclination adjuster knob according to the checked number.
For example, when +1 block print unevenness is the smallest, turn the external inclination adjuster knob one notch clockwise. If the smallest number is -1 block, turn the external inclination adjuster knob one notch counter-clockwise.

(head_position_1)
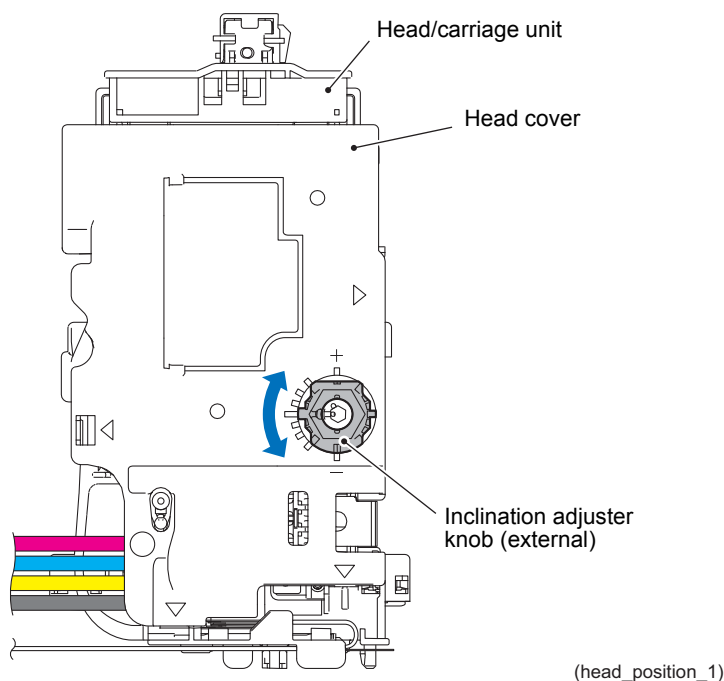
Fig. 4-2

2) After making adjustments, proceed to Step (8).
<u>When the block number with the least uneven printing in the configuration block A (top) is not "0"</u>

1) Check the block number with the smallest print unevenness in the configuration block A (top). Using an Allen wrench, turn the internal inclination adjuster knob according to the checked number.
For example, when +1 block print unevenness is the smallest, turn the internal inclination adjuster knob one notch clockwise. If the smallest number is -1 block, turn the inclination adjuster knob one notch counter-clockwise.

2) Close the document scanner unit and print the test pattern for inclination adjustment again in the same manner as Step (5).

3) Switch the machine to the maintenance mode and press the **6, 3, Mono Start** or **Black Start**, and * keys in this order to move the head/carriage unit to the adjustment position. Open the document scanner unit.

4) Check the block number with the smallest print unevenness in the configuration block B (lower). Using a spanner, turn the external inclination adjuster knob according to the checked number.
For example, when +1 block print unevenness is the smallest, turn the external inclination adjuster knob one notch clockwise. If the smallest number is -1 block, turn the external inclination adjuster knob one notch counter-clockwise.

(8) Close the document scanner unit after adjustments.
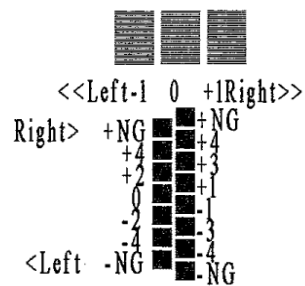The head/carriage unit will return to its home position.

(9) Go back to step (6), print out a test pattern again, and check the block number with the least uneven printing in the configuration block A (top) and configuration block B (lower) are "0".

When the block number with the least uneven printing is not "0", go back to step (1).

MINI15STEP Head-Incline-Adjust 1.10

Configuration block A (top)

<<Left-1 0 +1Right>>

Right> +NG ▊+NG
        +4 ▊+3
        +2 ▊+1

Configuration block B (lower)
        -2 ▊-1
        -4 ▊-3
<Left -NG ▊-NG

Step Head Inclination Adjustment Test Pattern

Confidential

Mini15Low incline 1.00

Configuration block A (top)

<<Left-1   0   +1Right>>

Configuration block B (lower)

+NG Right>
+NG
+4
+4
+2
+0
-2
-4
-4
-NG
-NG <Left

Low Head Inclination Adjustment Test Pattern

Confidential

2.5 Adjustment of software correction for inclination/corrugation/ruled lines (Maintenance mode 65)

Refer to Chapter 5, Section 1.3.22.

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

Refer to Chapter 5, Section 1.3.18.

2.7 Adjust margins in borderless printing (Maintenance mode 66)

Refer to Chapter 5, Section 1.3.23.

2.8 Write head calibration data (Maintenance mode 02)

Refer to Chapter 5, Section 1.3.2.

2.9 Check printing

Under Section 1.16 "Check scanning and printing" in this chapter, refer to and take steps for "Updating paper feeding correction values", "Adjustment of software correction for inclination/corrugation/ruled lines" and "Adjusting margins in borderless 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 service personnel should contact the user to instruct him/her to perform the following procedure.

Windows®

(1) On the user computer, click **Start** | **Devices and Printers** to display the Printers window.

(2) Right-click the Brother Printer driver icon to display the pull-down menu.

(3) Click **Properties** | **Print Settings** | **Advanced** | **Other print options** | **Retrieve Printer's Color Data**.

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

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

(6) Wait for the dialog to appear and click **OK**.

Macintosh

(1) On the user Mac, display the printer list and select the repaired machine.

(2) Select **Open Print Queue** | **Printer Setup** | **Utility** | **Open Printer Utility**.

(3) From the menu bar, select **Control** | **Retrieve Printer's Color Data**.

(4) Wait for the dialog to appear and click **OK**.

*For detailed instructions on how to obtain machine information, refer to the FAQ at the Brother Solution Center.

3 IF YOU REPLACE THE DOCUMENT SCANNER UNIT, ADF UNIT OR CIS UNIT

\<Operations\>

3.1 Set the CIS type (Maintenance mode 59) (Not required after replacement of the ADF unit)

3.2 Acquire white/black level data (Maintenance mode 55) (Not required after replacement of the ADF unit)

3.3 Check scanning

\<Requirements\>

(1) Color test chart CTC-001

3.1 Set the CIS type (Maintenance mode 59) (Not required after replacement of the ADF unit)

Set the CIS type, referring to Chapter 5, Section 1.3.19.

If "PLS UPDATE PROG" appears on the LCD, install the firmware using the procedure in Section 1.3.

3.2 Acquire white/black level data (Maintenance mode 55) (Not required after replacement of the ADF unit)

Acquire white/black level data, referring to Chapter 5, Section 1.3.16.

3.3 Check scanning

To make a final check after replacement, check a copy of a color test chart CTC-001.

Check scanning, referring to "Making a copy of a color test chart CTC-001" in Section 1.16.

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4 IF YOU REPLACE THE CONTROL PANEL ASSY, LCD, PANEL PCB ASSY, TOUCH KEY PCB and RUBBER KEY

\<Operations\>

4.1 Adjust the touch panel (Maintenance mode 78)

4.2 Check LCD operation (Maintenance mode 12)

4.3 Check the operation of the control panel keys (Maintenance mode 13)

\<Requirements\>

(1) Stylus

4.1 Adjust the touch panel (Maintenance mode 78)

Adjust the touch panel, referring to Chapter 5, Section 1.3.30.

4.2 Check LCD operation (Maintenance mode 12)

Check the LCD operation, referring to Chapter 5, Section 1.3.6.

4.3 Check the operation of the control panel keys (Maintenance mode 13)

Check the operation of the control panel keys, referring to Chapter 5, Section 1.3.7.

5 IF YOU REPLACE THE INK ABSORBER BOX OR FLUSHING FOAM

\<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.

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6 IF YOU REPLACE THE RECORDING PAPER FEEDING PARTS, HEAD/CARRIAGE PARTS and MAINTENANCE UNIT

The recording paper feeding path and head/carriage related parts to be adjusted after replacement are listed below.

- Paper feed roller
- Paper ejection roller
- Switchback roller
- Carriage motor
- Paper feed motor
- CR encoder strip
- PF encoder disk
- PF encoder sensor PCB ASSY
- CR timing belt

- Registration sensor PCB ASSY
- Carriage PCB ASSY
- Platen
- Flushing foam
- Flushing base
- Maintenance unit

<Operations>

6.1 Check head nozzles (Maintenance mode 09)

6.2 Adjustment of 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) Data files of print patterns

6.1 Check head nozzles (Maintenance mode 09)

Check head nozzles, referring to Section 2.3.

6.2 Adjustment of software correction for inclination/corrugation/ruled lines (Maintenance mode 65)

Refer to Chapter 5, Section 1.3.22.

6.3 Update paper feeding correction values (Maintenance mode 58)

Refer to Chapter 5, Section 1.3.18.

6.4 Adjust margins in borderless printing (Maintenance mode 66)

Refer to Chapter 5, Section 1.3.23.

6.5 Check printing

Under Section 1.16 "Check scanning and printing" in this chapter, refer to and take steps for "Updating paper feeding correction values", "Adjustment of software correction for inclination/corrugation/ruled lines" and "Adjusting margins 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 for Service Personnel

■ **Touch panel model**

< 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.
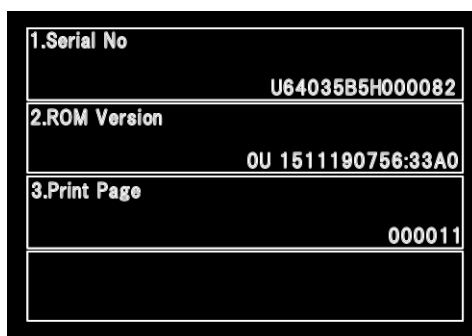
(2) Hold down the blank area at the bottom of the LCD for approx. 2 seconds to display the following screen.
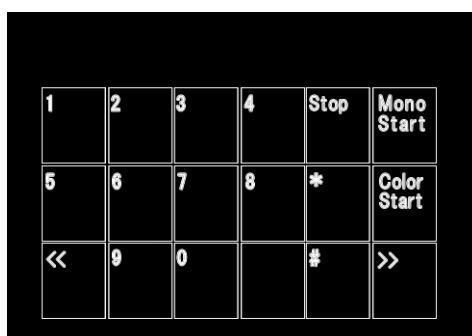
(3) Press the *****, **2**, **8**, **6** and **4** keys on the LCD in this order. The machine displays the following screen on the LCD and enters the maintenance mode.
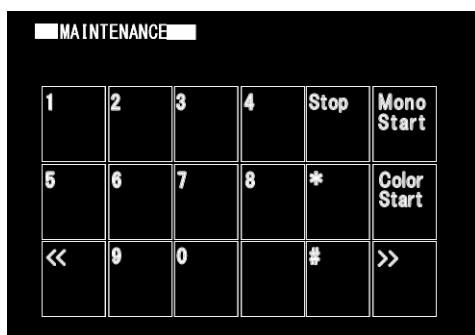
(4) To select one of the maintenance mode functions listed on the page, enter the corresponding 2-digit code using the numerical keys.

Notes • Pressing the **9** key twice in the initial stage of the maintenance mode switches the machine to standby.

　　　　• Pressing the **X** 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.

■ Non-touch panel model

<Operating Procedure>

(1) When the machine is on standby, press the **Settings** and **Black Start** buttons in order. Next, press the ▲ button 4 times. The LCD will display "■■ MAINTENANCE ■■■", and the machine will enter maintenance mode.

(2) To select one of the maintenance mode functions, specify the maintenance mode you want to use.

Notes • Pressing the **9** button twice in the initial stage of the maintenance mode switches the machine to standby.

　　　　• Pressing the **Stop/Exit** button 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.

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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)

■ **Touch panel model**

< 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
                        U64035B5H000082
2.ROM Version
                     OU 1511190756:33A0
3.Print Page
                                000011

```

(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 |   | #    | >>          |
```
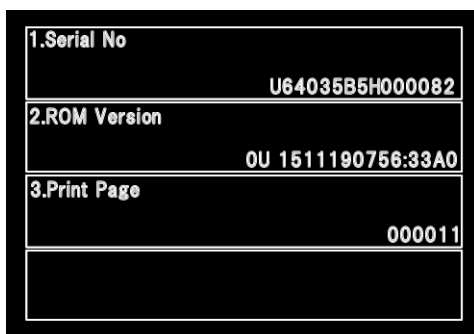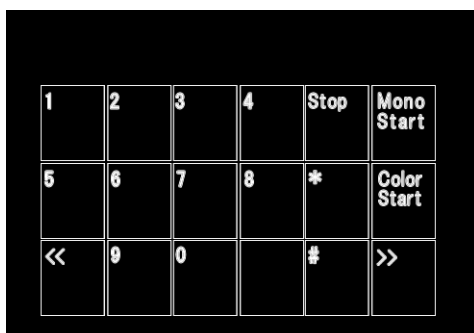
(3) Press the *****, **0** and **#** keys on the LCD in this order. The machine becomes ready to accept entry from the keys. Enter the desired maintenance code.

(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 **X** key.

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■ Non-touch panel model

\<Operating Procedure\>

(1) When the machine is on standby, press the **Settings**, **Black Start**, and **Settings** keys in order. The LCD will display "0 ■■ MAINTENANCE ■" and the machine will enter end-user accessible maintenance mode.

(2) To select one of the maintenance mode functions, use the numerical keys to directly input the maintenance mode you want to use.

(3) When each of the maintenance mode functions is completed, the machine automatically returns to standby.

Note To stop the procedure midway and return the machine to standby, press the **Stop/ Exit** key.

1.2 List of Maintenance-mode Functions

Maintenance Mode	Function	Reference Section (Page)
01	EEPROM Parameter Initialization	1.3.1 (5-6)
02	Creating of Head Calibration Data and Writing it into Flash ROM	1.3.2 (5-7)
08	ADF Performance Test	1.3.3 (5-10)
09	Printout of Test Pattern	1.3.4 (5-10)
10	Worker Switch (WSW) Setting	1.3.5 (5-11)
11	Printout of Worker Switch (WSW) Data	1.3.5 (5-11)
12	Operational Check of LCD	1.3.6 (5-14)
13	Operational Check of Keys on Control Panel	1.3.7 (5-17)
17 *	EEPROM Dump and Log Information Saving	1.3.8 (5-18)
28	Updating of Firmware Using an External Memory	1.3.9 (5-19)
32	Sensor Operational Check	1.3.10 (5-20)
37 *	Printout of Dial Log	1.3.11 (5-21)
46	Backup of Machine Information	1.3.12 (5-22)
52	Setting of Country/Language	1.3.13 (5-24)
53	Transfer of Received FAX Data and/or Equipment's Log	1.3.14 (5-25)
54	Fine Adjustment of Scanning Position	1.3.15 (5-27)
55	Acquisition of White/Black Level Data and CIS Scanner Area Setting	1.3.16 (5-28)
57	Cartridge IC Communication Check	1.3.17 (5-29)
58	Updating of Paper Feeding Correction Values	1.3.18 (5-30)
59	Checking of CIS Travel and Setting of CIS Type	1.3.19 (5-34)
61	Print of PRN/JPEG Files in Memory Card	1.3.20 (5-35)
63	Move of the Head/Carriage Unit to the Adjustment Position	1.3.21 (5-36)
65	Adjustment of Software Correction for Inclination/Corrugation/Ruled Lines	1.3.22 (5-37)
66	Margin Adjustment in Borderless Printing	1.3.23 (5-39)
68	Updating of Head Property Data and Backup/Restoration of Head Calibration Data	1.3.24 (5-42)
69	Traveling Speed Check of Head/Carriage Unit	1.3.25 (5-44)
74	Customizing Destinations	1.3.26 (5-45)
75	Move of the Head/Carriage Unit to the Flushing Position	1.3.27 (5-47)
76	Purge Operation	1.3.28 (5-48)
77	Print of the Maintenance Information	1.3.29 (5-53)
78	Adjustment of Touch Panel	1.3.30 (5-56)
80	Display of the Equipment's Log	1.3.31 (5-57)
82	Equipment Error Code Indication	1.3.32 (5-61)
87	Output of Transmission Log to the Telephone Line	1.3.33 (5-61)
88	Assurance Mode Switch Setting (AMS)	1.3.34 (5-62)
91	EEPROM Parameter Initialization	1.3.1 (5-6)
99	Exit from the Maintenance Mode	

Shaded maintenance mode functions are available to end users.

* Exclusive to the end user-accessible maintenance mode.

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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.

Data item \ Maintenance mode	01	91

Maintenance-mode functions
    User switches
    Firmware switches
    Remote activation code
    Assurance mode switch settings
	All of these will be initialized.	These will be initialized.

Activity report
Station ID data
Outside line number
Telephone function registration
    Speed dialing
    Group dialing
    Call transfer data
		These will <u>not</u> be initialized.

EEPROM customizing code (4-digit)	This will <u>not</u> be initialized. (Note that the first digit of the 4-digit code will be initialized to "0." If the code is <u>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 to display "SELECT 01?" on the LCD (or press the **9** and **1** keys in this order according to your need to display "SELECT 91?") in the initial stage of the maintenance mode.

(2) Press the **Mono Start** or **Black 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 (refer to page 5-9) placed on the document cover glass, creates the head calibration data using the scanning result, and writes it into the flash ROM on the main PCB.

< Operating Procedure >

Notes • Before proceeding to the procedure given below, use "1.3.4 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 "1.3.34 Assurance Mode Switch Setting (Maintenance mode 88)" in this chapter to check that the uneven printing correction for upper and lower ends of the nozzle is set to ON (Selector 1 on AMS05 is "0").

• Before proceeding to the procedure given below, use "1.3.16 Acquisition of White/Black Level Data and CIS Scanner Area Setting (Maintenance mode 55)" in this chapter to enable the machine to make high precision scanning.

• Make sure that both the document scanner unit and document cover are closed.

• For higher precision of uneven printing correction, it is recommended to use the recording paper specified below to print the pattern for creating head calibration data.

  US: Xerox 4200DP 20 lb., Brother BP60PL

  EU, AP and others: Xerox Business 80 g/m^2, Brother BP60PA

(1) Save a copy of "head_calib_BHmini15_Step.prn (Step head model)" or "head_calib_BHmini15_Low.prn (Low head model)" to a USB memory or SD card.

(2) Use "1.3.20 Printout of PRN/JPEG Files in Memory Card (Maintenance mode 61)" in this chapter to print the above-mentioned prn file.

Note When the original is stained or has folding lines, print it again.

(3) Set the print pattern for creating head calibration data on the document cover glass. Set the pattern so that the ▲ mark on the upper left of the document 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 machine displays "Set Sheet on FB?" on the LCD.

Note Pressing the **X** or the **Stop/Exit** key returns the machine to the initial stage of the maintenance mode without creating head calibration data.

(5) Press the **Mono Start** or **Black Start** key.

The machine displays the "Scanning" on the LCD and starts scanning the print pattern for creating head calibration data placed on the scanner glass.

(6) Upon completion of scanning, the machine displays the "Write Head Calib" on the LCD, creates the head calibration data, and writes it into the flash ROM on the main PCB.

Upon completion of writing, the machine displays "Complete". Press the **Stop/Exit** key or 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 **". Press the **Stop/ Exit** key or 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	Error Contents	Do the following
01	Failed to detect the external frame	• 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	• Check that there is no block missing. • Go back to step (2) and print out the print pattern for creating head calibration data again.
04	Failed to write head calibration data	• 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.
05	The uneven printing correction function for upper and lower ends of the nozzle is disabled with Maintenance 88	• Set selector 1 on AMS05 for uneven printing correction for upper and lower ends of the nozzle to "0" (Correction ON) in "1.3.34 Assurance Mode Switch Setting (Maintenance mode 88)" of this chapter.
06	Cannot get data due to memory full	• Delete fax data and other data stored in the memory. • Replace the main PCB ASSY.
07	The document scanner unit is open	• 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	• Use "1.3.16 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	• Disconnect the USB cable or LAN cable.

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

* mini15step picture coordinate adjust - Ver 001 008 *
S/N:U64035J4F000103

EX2 -16 -12   -8   -4   0   +4   +8   +12   +16   +20

Print Pattern for Creating Head Calibration Data

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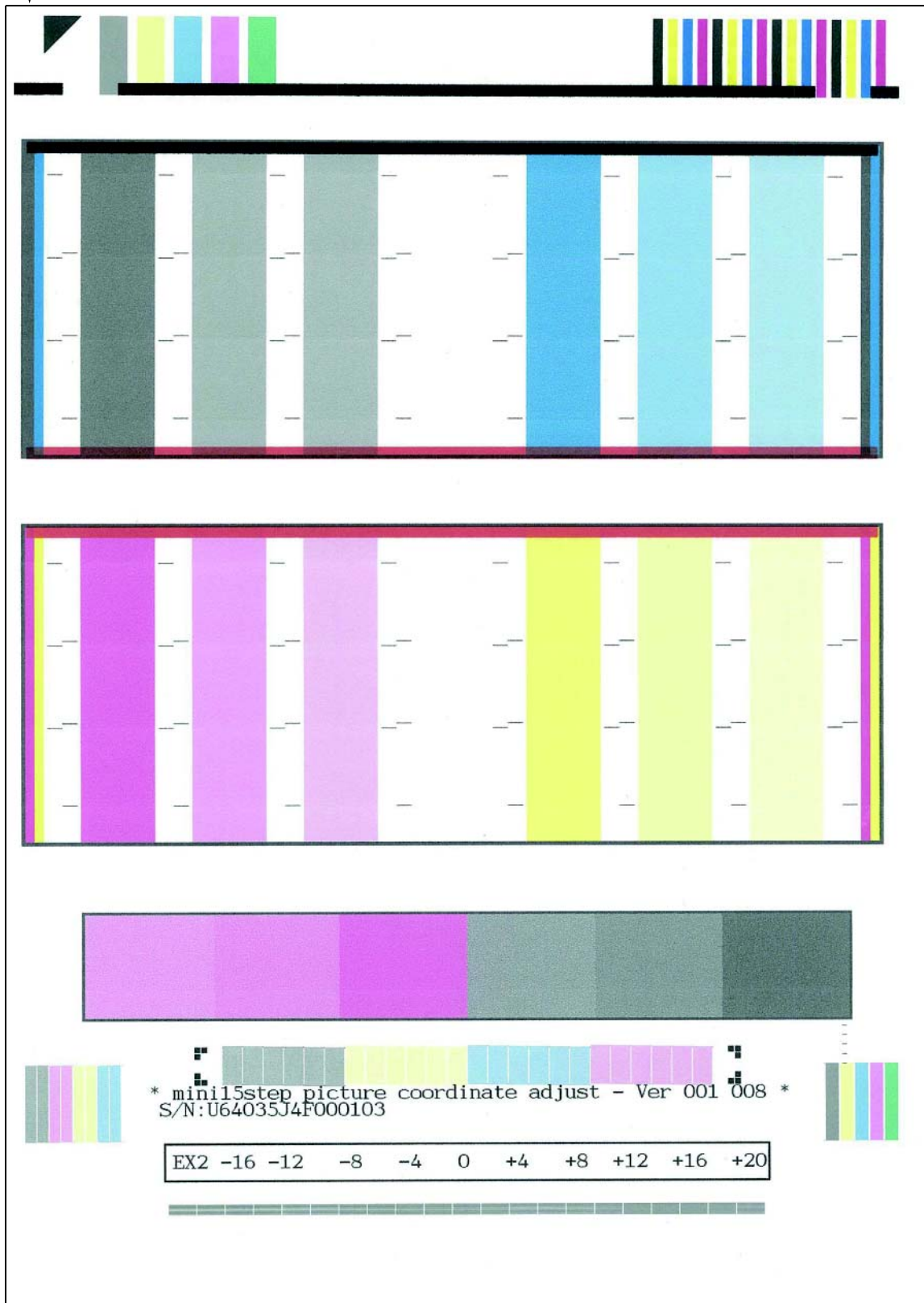
1.3.3 ADF Performance Test (Maintenance mode 08)

< Function >

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

< Operating Procedure >

(1) Set documents on the ADF unit.

The "ADF. READY" appears on the LCD.

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

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

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

Note If no document is set on the ADF, the machine displays "NO DOCUMENT" on the LCD and returns to the initial stage of the maintenance mode.

1.3.4 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 1.3.28 "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

1.3.5 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

WSW No.	Function
WSW40	V.34 modem settings
WSW41	ON-duration of the scanning light source
WSW42	Internet mail settings
WSW43	Function setting 16
WSW44	Speeding up scanning-1
WSW45	Speeding up scanning-2
WSW46	Monitor of power ON/OFF state and parallel port kept at high
WSW47	Switching between high- and full-speed USB
WSW48	USB setup latency
WSW49	End-of-copying beep
WSW50	SDAA settings
WSW51	Function setting 17
WSW52	Function setting 18
WSW53	Function setting 19
WSW54	Function setting 20
WSW55	Execution interval switching of developing bias voltage correction
WSW56	Function setting 21
WSW57	Function setting 22
WSW58	Function setting 23
WSW59	Function setting 24
WSW60	Function setting 25
WSW61	Scanning light intensity stability judgement 1
WSW62	Scanning light intensity stability judgement 2
WSW63	Function setting 26

For details about the worker switches, refer to the document separately issued.

< Operating Procedure >

(1) Press the **1** and **0** keys in this order in the initial stage of the maintenance mode.

The machine displays the "WSW00" on the LCD.

(2) Enter a worker switch number to be modified.

The following appears on the LCD:

```
        Selector 1      Selector 8
            ↓               ↓
    WSWXX = 0 0 0 0 0 0 0 0
```

(3) Press the ◄ or ► key to move the cursor to the selector position to be modified. Press the **0** or **1** key to change the setting.

(4) Press the **SET** or **OK** key. This operation saves the newly entered selector values onto the EEPROM and readies the machine for accepting a worker switch number ("WSW00").

(5) Press the **X** or **Stop/Exit** key to return the machine to the initial stage of the maintenance mode.

Notes• To cancel the setting and return to the initial stage of the maintenance mode, press the **X** or **Stop/Exit** key.

• If there is a pause of more than one minute after a single-digit number is entered for double-digit worker switch numbers, the machine automatically returns to the initial stage of the maintenance mode.

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[2] Printout of worker switch data (Maintenance mode 11)

< Function >

This function prints out the setting items of the worker switches and their contents specified.

< Operating Procedure >

(1) Press the **1** key twice in the initial stage of the maintenance mode.

The machine shows "PRINTING" on the LCD and prints out the configuration list as shown below.

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.

Configuration List

1.3.6 Operational Check of LCD (Maintenance mode 12)

< Function >

This function checks whether the LCD on the control panel works normally.

< Operating Procedure >

(1) Press the **1** and **2** keys in this order in the initial stage of the maintenance mode.

(2) <u>Non-touch panel model</u>

Each time you press the **#** key or the ▼ key, the LCD cycles through the screens as shown below.

Pressing the ***** or ▲ key returns the LCD display to the immediately preceding screen.

When Screen 13 displays, pressing the **#** or ▼ key switches to Screen 1.

<u>Touch panel model</u>
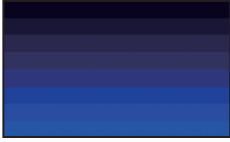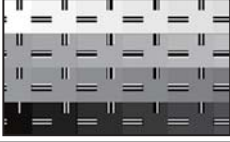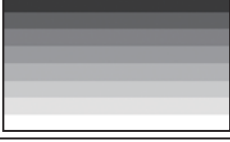
Each time you press the **Home** key, the LCD cycles through the screens as shown below.

Pressing the **Back** key goes back to the immediately preceding screen.
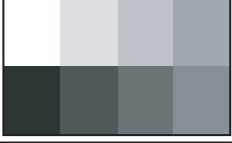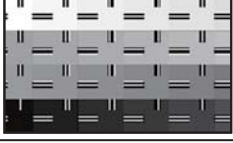
When Screen 12 displays, pressing the **Home** key switches to Screen 1.

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

Non-touch panel model

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

Touch panel model

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

1.3.7 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** or **Stop/Exit** 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** or **Stop/Exit** key.

DCP-J562DW/J785DW, MFC-J680DW/J880DW/J885DW/J985DW
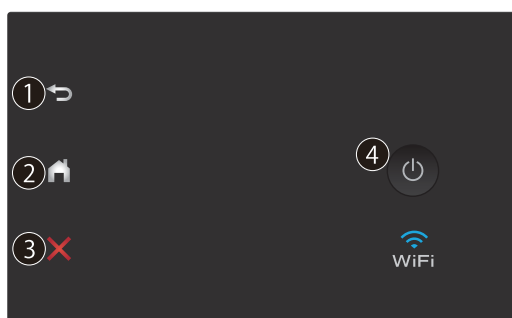
MFC-J460DW/J480DW/J485DW
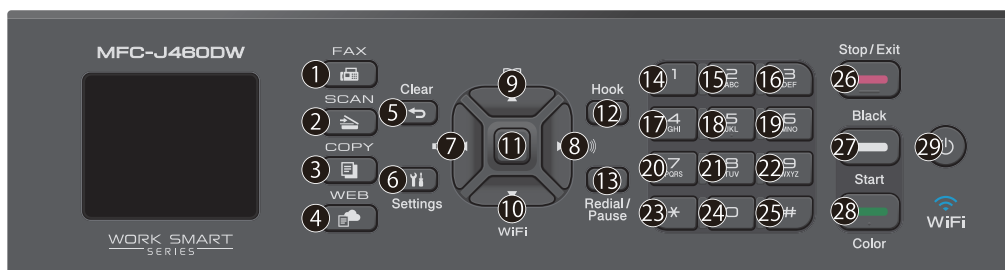
1.3.8 EEPROM Dump and Log Information Saving (Maintenance mode 17)

< Function >

The EEPROM dump function transfers the EEPROM settings made in the machine to another machine as fax data.

The log information transfer function outputs user's log information (e.g., panel operation) and machine's operation log information to a USB flash memory to save it as a CSV file.

< Operating Procedure >

EEPROM dumping

(1) Let the end user make a call to the destination machine to which he/she should transfer the EEPROM settings as fax data.

(2) If the line is connected, instruct the end user to:
   1) Switch his/her machine to the end user-accessible maintenance mode.
   2) Press the **1** and **7** keys in this order.
   3) Press the **1** key.

   The machine starts transferring the EEPROM settings to the destination machine as fax data.

Log information saving

Instruct the end user to:

(1) Switch his/her machine to the end user-accessible maintenance mode.

(2) Press the **1** and **7** keys in this order.

(3) Insert a USB flash memory to his/her machine and press the **1** key.

   The machine saves the log information in the USB flash memory as a CSV file.

1.3.9 Updating of Firmware Using an External Memory (Maintenance mode 28)

< Function >

This function updates firmware stored in the flash ROM on the main PCB using an external memory (memory card or USB flash memory). It enables updating of firmware without connecting the machine to a PC.

TIP For instructions on how to update firmware when the main PCB has been replaced or for operations using a PC, refer to .

< Operating Procedure >

(1) Switch your PC ON and insert an external memory.

(2) Create a folder named "BROTHER" in the top layer of the external memory's directory and copy the firmware file having the extension ".pjl" into that folder.

   Note Before copying, check that the firmware file name having the extension ".pjl" matches your machine. The number of files having the extension ".pjl" in the "BROTHER" folder should be 100 or less.

   Tip If a firmware file not matching the machine is used, the firmware cannot be updated, but note that you can superficially continue the operation until step (5) below without any error.

(3) Remove the external memory from the PC and insert it into the machine in the initial stage of the maintenance mode.

   Note Do not insert more than one external memory at a time.

(4) On the machine, press the **2** and **8** keys in this order.

   The file name "********.PJL" appears on the LCD.

(5) Press the ▲ or ▼ key to select the target firmware file.

(6) Press the **Mono Start** or **Black Start** key.

   "Receiving Data" appears on the LCD, and after a while, it changes to "Program Updating."

   Note Never remove the external memory from the machine when updating is in progress.

(7) Updating will complete in a few minutes, and the machine automatically restarts and returns to the standby state.

   Remove the external memory from the machine and store it in a safe place.

Note 1 If any of the error messages listed below appears, press the **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 2 After the completion of firmware updating, a file named "mfu-send.log" (which stores the execution log) is created in the layer right below the "BROTHER" folder.

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1.3.10 Sensor Operational Check (Maintenance mode 32)

< Function >

This function checks whether sensors work normally.

< Operating Procedure >

(1) Press the **3** and **2** keys in this order in the initial stage of the maintenance mode.

The machine sounds 1,100 Hz and 400 Hz tones cyclically through the following volumes for testing the speaker:
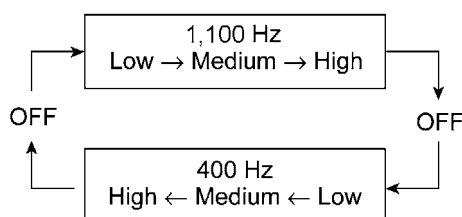
Note To stop beeping, press the **SET** or **Settings** key.

If the sensing statuses are as defined below, the LCD shows the 1st sensor group "DFDRCVRSCCP1****."

(2) Press the **Mono Start** or **Black 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 cover sensor	Document scanner closed/Document scanner 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
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
ST	Paper tray detection sensor	Paper tray present/No paper tray
VT	Head thermistor	Normal temperature/Abnormal temperature
T1	High temperature detector in the complex IC (for main PCB)	Normal temperature/Abnormal temperature

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(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** or **Stop/Exit** key to stop this operation and return the machine to the initial stage of the maintenance mode.
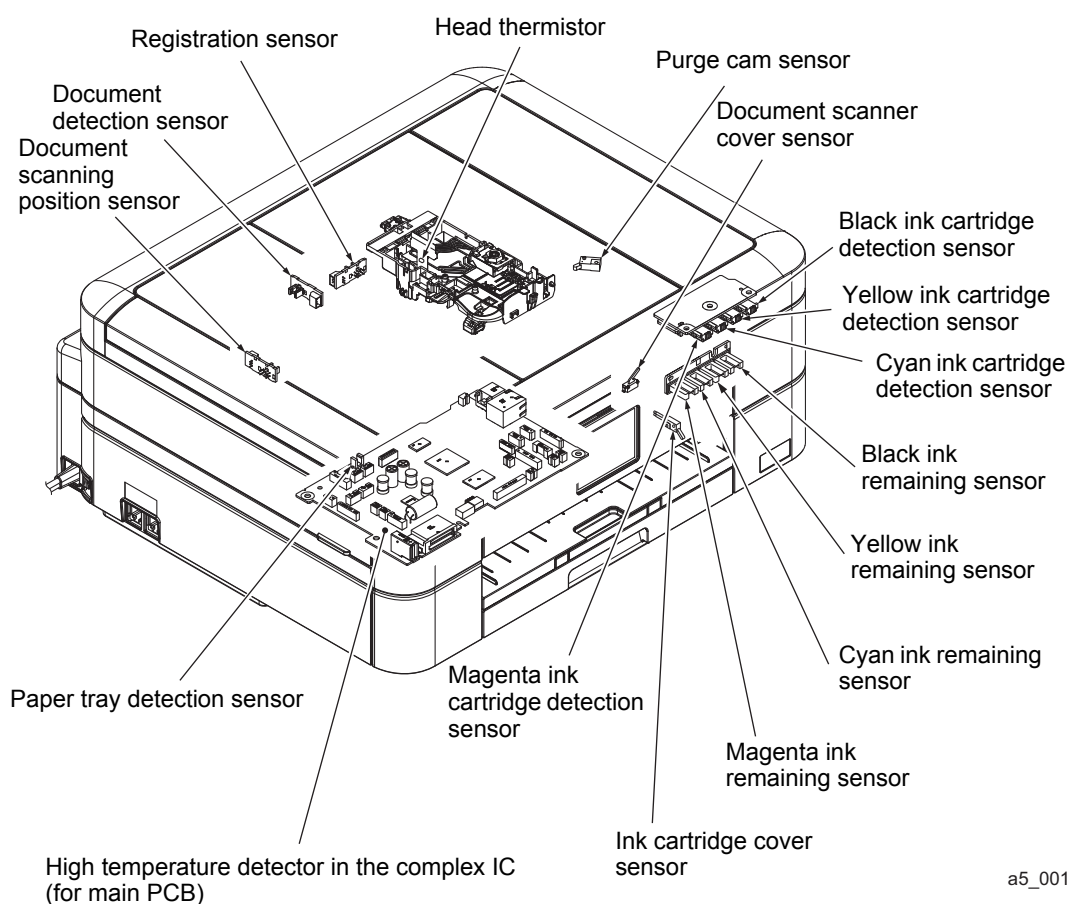
Locations of Sensors

Fig. 5-1

1.3.11 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.

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1.3.12 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

Notes • 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 into the slot of the machine in the initial stage of the maintenance mode.

The "**** Active" appears on the LCD. ("****" shows the name of the external memory inserted.)

Notes • 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.

Notes • 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	File name is invalid or no "BROTHER" folder exists.
Machine ID Error	Mismatch of serial numbers between the machine and the backup data (which is detected only in data restoration).
Write Error	Insufficient free space in external memory.

Restoration Procedure

(1) Insert the external memory containing the backup data into the slot of the machine in the initial stage of the maintenance mode.

The "**** Active" appears on the LCD. ("****" shows the name of the external memory inserted.)

Notes • 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 restoration procedure, any of the following, appears.

"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.

1.3.13 Setting of Country/Language (Maintenance mode 52)

< Function >

Machines have been customized for their destination countries with the corresponding EEPROM customizing codes (see Section 1.3.26, 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", "Pan-Nordic," "Oceania," "Italy and Iberia," and "Turkey and Gulf" 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** or **OK** key.

(2) Select the country name of the user with the ▲ and ▼ keys and press the **SET** or **OK** key to display "1.Yes 2.No."

(3) If the choice is correct, press **1.Yes**.

The machine displays "ACCEPTED" on the LCD, saves the new setting, and returns to the standby state.

1.3.14 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.

Notes • The number of files that can be transferred <u>at a time</u> 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.

• <u>To check the number of received files</u>, press the **1** key.

The "1.NO. OF JOBS" appears on the LCD.

Press the **SET** or **OK** key to display the number of received files, just as "NO. OF JOBS: 10."

• <u>To transfer the activity report only</u>, press the **2** key.

The "2.ACTIVITY" appears.

• <u>To transfer received files (together with the activity report)</u>, press the **3** key.

The "3.DOCUMENTS" appears. Note that if there is no received file, the "NO DOCUMENTS" appears.

• <u>To transfer the communication list for the latest communication</u>, press the **4** key.

The "4.COM.LIST (NEW)" appears.

• <u>To transfer the communication list for the last three errors</u>, press the **5** key.

The "5.COM.LIST (ERR3)" appears.

• <u>To transfer the maintenance information (List of Maintenance mode 77)</u>, press the **6** key.

The "6.MNT77 LIST" appears.

• <u>To transfer the user setting information</u>, press the **7** key.

The "7.USER SETTINGS" appears on the LCD.

• <u>To transfer the caller ID history</u>, press the **8** key.

The "8.CALLER ID HIST" appears on the LCD.

• <u>To transfer the outgoing call history</u>, press the **9** key.

The "9.OUTGOING CALL" appears on the LCD.

• <u>To transfer the radio wave condition list</u>, press the **0** key.

The "0.WLAN DATA" appears on the LCD.

(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** or **OK** key.

The "ENTER NO&OK" appears on the LCD.

(3) Enter the telephone number of the receiver machine and press the **SET** or **OK** key again.

(4) The machine displays the "ACCEPTED" for approx. two seconds and starts dialing to transfer data.

Notes • Be sure to type the telephone number with the numerical keys. No auto-dial numbers stored in memory can be used in this procedure.

• No station ID will be attached. A cover page and end page as shown below will be automatically attached, instead.

Cover page sample

```
=== FAX TRANSFER COVER PAGE ===

NO. OF JOBS    :001          ←———  Job number for identification
TOTAL PAGE[S] :001           ←———  Total number of pages to be transferred
NAME          :BROTHER       ←———  Station ID registered in the sender equipment
FAX           :052 824 2330  ←———  FAX number of the sender equipment
TEL           :              ←———  Telephone number of the sender equipment
TIME          :06/06/2010 22:21 ←— Transfer start date

8CA-U17                      ←———  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  ←┐
MACHINE STATUS 2    43:0906062216  ←│
MACHINE STATUS 3    48:0906022216  ←│
MACHINE STATUS 4    AF:0906062017  ←│
MACHINE STATUS 5    43:0906062017  ←├ Error codes
MACHINE STATUS 6    48:0906062017  ←│
MACHINE STATUS 7    AF:0906061756  ←│
MACHINE STATUS 8    43:0906061756  ←│
MACHINE STATUS 9    48:0906061756  ←┘
```

1.3.15 Fine Adjustment of Scanning Position (Maintenance mode 54)

< Function >

This function adjusts the scanning start and end positions.

< Operating Procedure >

(1) Press the **5** and **4** keys in this order in the initial stage of the maintenance mode.
The "SCAN ADJ SELECT" appears on the LCD.

(2) To adjust the right and left edges, press the **0** key. The "RL EGDE ******" appears on the LCD.
To adjust the top edge, press the **1** key. The "TOP EGDE ******" appears on the LCD.
To adjust the bottom edge, press the **2** key. The "BOTM EGDE ******" appears on the LCD.

(3) 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** or **Clear** key resets the correction value to 0.
• Pressing the **X** or **Stop/Exit** key returns the machine to the initial stage of the maintenance mode without making changes of the correction value.

(4) Upon completion of adjustment, press the **SET** or **OK** key. The machine displays the "ACCEPTED" on the LCD and returns to the initial stage of the maintenance mode.
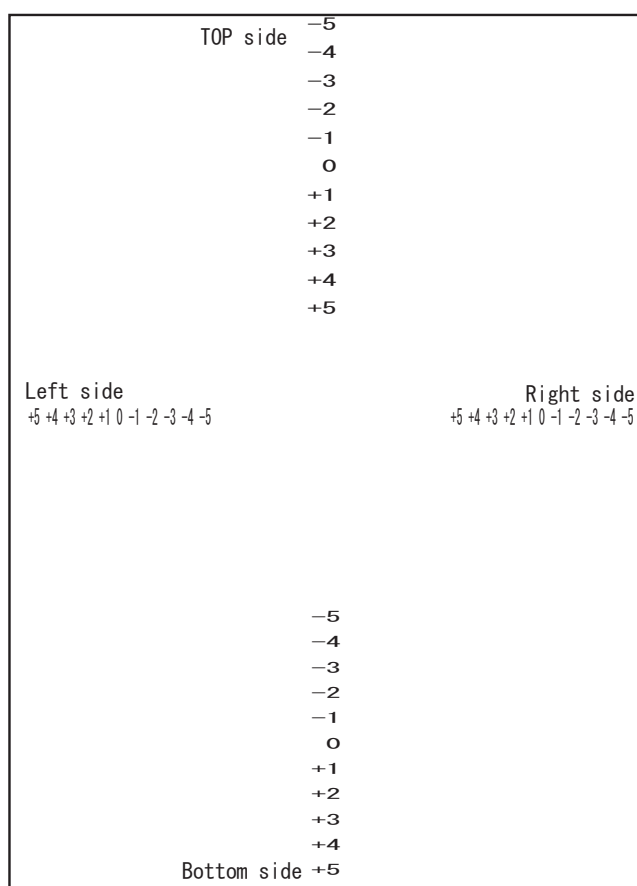
1.3.16 Acquisition of White/Black Level Data and CIS Scanner Area Setting
(Maintenance mode 55)

< Function >

This procedure allows the machine to obtain white/black level data for the CIS scanner and save it together with the CIS scanner area into the EEPROM on the main PCB.

< Operating Procedure >

(1) Press the **5** key twice in the initial stage of the maintenance mode.

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

If no error has occurred in the machine, the machine automatically goes to step (2).

(2) The machine displays the "SCANNER AREA SET" on the LCD and obtains white level data.

(3) After a few seconds, the machine saves the white/black level data and scanning width correction into the EEPROM and returns to the initial stage of the maintenance mode.

If any error is detected during this operation, the "SCANNER ERROR" appears on the LCD.

Error codes	Contents
90	Abnormal digital conversion data detected
91	Abnormal digital conversion data detected
92	Abnormal light intensity data detected
93	Abnormal white level data obtained
94	Abnormal black level data obtained
95	Scanner cover is open
9A	Failed to adjust the light intensity
9B	Failed to obtain white/black level data

To return the machine to the initial stage of the maintenance mode, press the **X** or **Stop/Exit** key.

1.3.17 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** or **Black 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** or **Stop** key to return the machine to the initial stage of the maintenance mode.

Display	Causes
NG0 to NG99	Failure of IC integrated in the machine
NG100 to NG199	No response from the IC • Ink cartridge not loaded • No IC in the ink cartridge • IC contact defective
NG200 to NG299	Wrong response result from the IC • Ink cartridge defective
NG300 to NG399	Succeeded in verifying IC, but the information judged as mismatching • Loading mistake

1.3.18 Updating of Paper Feeding Correction Values (Maintenance mode 58)

< Function >

To match the paper feeding amount with the head nozzle pitch, the machine optimizes the rotations of the paper feed roller and paper ejection roller, using the correction values stored in the EEPROM on the main PCB.

If you replace the head/carriage unit or main PCB or remove the engine-related parts, you need to update the paper feeding correction values according to the procedure given below.

< Operating Procedure >

For printout of test patterns

◆When using the USB flash memory or SD card

(1) On your PC, when using A4-sized paper, save copies of "pfadj1_A4_BHmini15.prn" and "pfadj2_A4_BHmini15.prn" to a USB flash memory or SD card. When using letter-sized paper, save copies of "pfadj1_LTR_BHmini15.prn" and "pfadj2_LTR_BHmini15.prn."

(2) Use Section 1.3.20 "Printout of PRN/JPEG Files in Memory Card (Maintenance mode 61)" to print test patterns pfadj1 and pfadj2 in this order.

◆When opening **Filedrgs** on your PC and printing by dragging & dropping

The test patterns pfadj1 and pfadj2 are printed in this order on A4-sized paper or on letter-sized paper, by opening Filedrgs and dragging & dropping either 1) pfadj1_A4_BHmini15.prn and pfadj2_A4_BHmini15.prn (when A4-sized paper is used), or 2) pfadj1_LTR_BHmini15.prn and pfadj2_LTR_BHmini15.prn (when letter-sized paper is used), 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** or **Black 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 5-33), check the blocks of PF0 row. 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** or **OK** key.

(5) The "PF1 NO. +0" appears on the LCD.

(6) On the pfadj1 pattern (see page 5-33), 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** or **OK** 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** or **OK** key.

The "EXT1 NO. +0" appears on the LCD.

(8) On the pfadj1 pattern (see), check the blocks of EX1 row. 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** or **OK** key.

The "EXT2 NO. +0" appears on the LCD.

(9) On the pfadj2 pattern (see), check the blocks of EX2 row. 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** or **OK** key.

Press the **X** or **Stop/Exit** key to return the machine to the initial stage of the maintenance mode.

For the PF roller diameter adjustment

(1) Press the **5** and **8** keys in this order in the initial stage of the maintenance mode.

The "Select 58?" appears on the LCD.

(2) Press the **Mono Start** key.

The "1. ALL" appears on the LCD.

(3) Press the ► key once.

The "1. PF 2. EXT" appears on the LCD.

(4) Press the **1** key.

The "PF1 NO. +0" appears on the LCD.

(5) On the pfadj1 pattern (see), check the blocks of PF1 row. 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** or **OK** key.

(6) In the same way, check the blocks of PF2 through PF6. Enter the number of the block that is the least uneven print and press the **SET** or **OK** key.

Press the **X** or **Stop/Exit** 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** or **Black Start** key.

The "1. ALL" appears on the LCD.

(3) Press the ► key once.

The "1. PF 2. EXT" appears on the LCD.

(4) Press the **2** key.

The "EXT1 NO. +0" appears on the LCD.

(5) On the pfadj1 pattern (see), check the blocks of EX1 row. 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** or **OK** key.

(6) In the same way, check the blocks of EX2. Enter the number of the block that is the least uneven print and press the **SET** or **OK** key.

Press the **X** or **Stop/Exit** key to return the machine to the initial stage of the maintenance mode.

For the PF roller alone adjustment

(1) Press the **5** and **8** keys in this order in the initial stage of the maintenance mode.

The "Select 58?" appears on the LCD.

(2) Press the **Mono Start** or **Black Start** key.

The "1. ALL" appears on the LCD.

(3) Press the ► key twice.

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), check the blocks of PF0 row. 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** or **OK** key.

Press the **X** or **Stop/Exit** 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** or **Black 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 on the LCD.

Press the **X** or **Stop/Exit** key to return the machine to the initial stage of the maintenance mode.
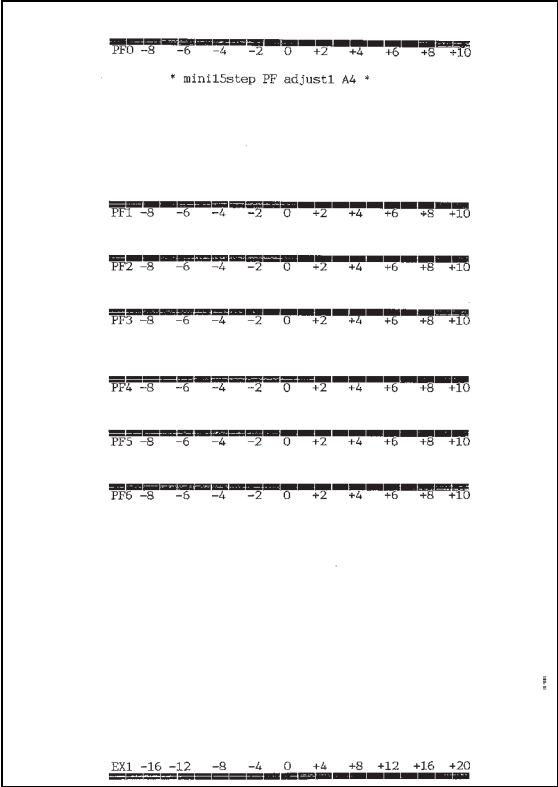
pfadj1 Pattern

pfadj2 Pattern

Confidential
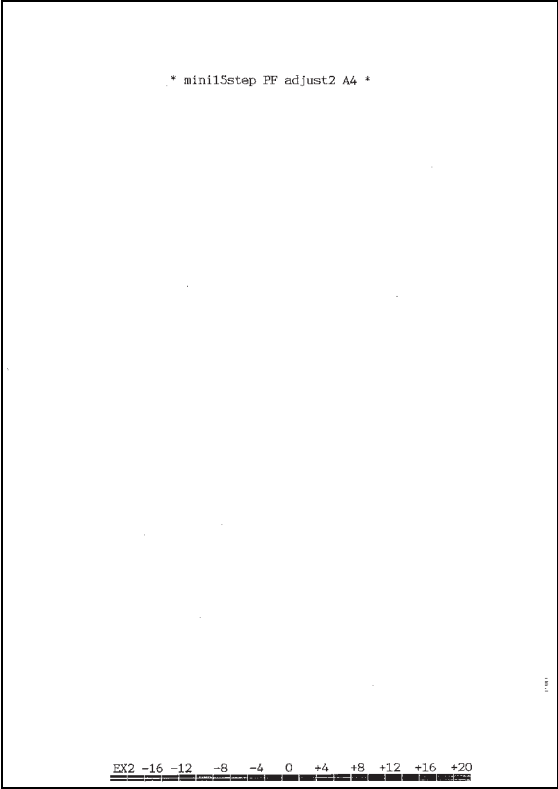
1.3.19 Checking of CIS Travel and Specifying of CIS Type (Maintenance mode 59)

< Function >

This procedure allows you to check the movement of the CIS unit integrated in the document scanner unit. The CIS unit travels to the three positions--the white reference film position, scanning start and end positions.

It also allows you to specify the CIS type into the EEPROM on the main PCB. If you replace the main PCB, you need to specify the CIS type according to the procedure given below.

< Operating Procedure >

Check the movement of the CIS unit

(1) Press the **5** and **9** keys in this order in the initial stage of the maintenance mode. The machine displays the "WAIT SCAN INIT" on the LCD, if the scanning initialization is not completed.

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** or **OK** key to display the "LED PWM :   **" on the LCD.

(4) Press the **SET** or **OK** key to display the "G PULSE :   ****" on the LCD.

(5) Press the **SET** or **OK** key to display the "1:WHT 2:FRT 3:MV" on the LCD.

Press the **1** key and then press the **SET** or **OK** key to move the CIS unit to the white reference film.
Press the **2** key and then press the **SET** or **OK** key to move the CIS unit to the scanning start position.
Press the **3** key and then press the **SET** or **OK** key to move the CIS unit to the scanning end position.

(6) Press the **X** or **Stop/Exit** 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.

The "1:MO 2:CO 3:CHG?" appears on the LCD.

(2) Press the **3** key.

The "1:AUTO 2:MANUAL" appears on the LCD.

(3) Press the **1** key.

The machine automatically sets the CIS type and returns to the initial stage of the maintenance mode.

If the completion of automatic setting of the CIS type results in mismatch between the built-in CIS unit and the firmware setting, the "PLS UPDATE PROG" appears on the LCD. If this happens, load the latest firmware.

Note If a failure in the automatic setting of the CIS type results in machine error AF, press the **2** key in step (3) and specify the CIS type manually. When "CIS TYPE*→" is displayed on the LCD (where * indicates the automatically set CIS type), enter the CIS type (0 or 1).

1.3.20 **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*

<u>File name requirements</u>

The target files are located in the root directory.

PRN file: Maximum of 16 characters consisting of alphanumerics, underline "_" and parentheses "( )", including the extension .prn

JPEG file: Maximum of 16 characters consisting of alphanumerics, underline "_" and parentheses "( )", including the extension .jpg

The maximum number of files is 999.

< Operating Procedure >

(1) Insert a memory card.

(2) Press the **6** and **1** keys in this order in the initial stage of the maintenance mode.

The "MAINTENANCE 61" appears on the LCD.

(3) To print a PRN file(s), press the **#** key; to print a JPEG file(s), press the ***** key.

Files of the selected type appear on the LCD.

(4) To print the specified file once, select the target file with the ▲/▼ keys and press the **4** key.

To print the specified file repeatedly, select the target file with the ▲/▼ keys and press the **6** key.

To print all files of the selected type once, press the **7** key.

To print all files of the selected type repeatedly, press the **9** key.

(5) The "1.A4 2.LETTER" appears on the LCD.

Pressing the **1** key or the **2** key, in accordance with the size of the recording paper, starts printing. Upon completion of printing, the machine returns to the initial stage of the maintenance mode. Pressing the **X** or **Stop/Exit** key during repeated printing returns the machine to the state showing the "MAINTENANCE 61" on the LCD.

Note This function is not available when Error Code A* or B* occurs.

1.3.21 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** or **Black 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** or **Stop/Exit** 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.

1.3.22 Adjustment of Software Correction for Inclination/Corrugation/Ruled Lines
(Maintenance mode 65)

< Function >

This procedure aligns vertical lines printed in the forward and backward directions of the head/carriage unit.

If the head/carriage unit, main PCB, or the recording paper feeding path, head/carriage parts are replaced, you need to make the adjustment given below.

< Operating Procedure >

(1) For printout of test patterns

The test pattern is printed in two sheets.

◆When using the USB flash memory or SD card

On your PC, when using A4-sized paper, save copies of "Corrugate_BHmini15_Step_A4.prn (In case of the Step head model)" or "Corrugate_BHmini15_Low_A4.prn (In case of the Low head model)" to a USB flash memory or SD card. When using letter-sized paper, save copies of "Corrugate_BHmini15_Step_LTR.prn (In case of the Step head model)", "Corrugate_BHmini15_Low_LTR.prn (In case of the Low head model)".

Use Section 1.3.20 "Printout of PRN/JPEG Files in Memory Card (Maintenance mode 61)" to print a test pattern (see page 5-38) on A4- or letter-sized paper.

◆When opening **Filedrgs** on your PC and printing by dragging & dropping

The test patterns are printed on A4-sized paper or on letter-sized paper, by opening **Filedrgs** and dragging & dropping either 1) Corrugate_BHmini15_Step_A4.prn (for a Step head model) or Corrugate_BHmini15_Low_A4.prn (for a Low head model) (when A4-sized paper is used), or 2) Corrugate_BHmini15_Step_LTR.prn (for a Step head model) or Corrugate_BHmini15_Low_LTR.prn (for a Low head model) (when letter-sized paper is used), onto the Brother Maintenance USB Printer driver icon.

(2) Press the **6** and **5** keys in this order in the initial stage of the maintenance mode.

The "MAINTENANCE 65" appears on the LCD.

(3) Press the **2** key.

The "A1 No. (1-9) 5" appears on the LCD.

(4) Check the A, find which number block shows the most indistinct vertical lines, and then enter that block number. Then press the **SET** or **OK** key.

The "B No. (1-9) 5" appears on the LCD.

(5) Wait for the block number to appear for confirmation in the same way. For each of the printed A to G1 to G13 to V, enter the number of the block that shows the most indistinct vertical lines. Then press the **SET** or **OK** key.

Press the ◄ key to return to the last block number.

Press the **X** or **Stop/Exit** key to discard the entered information and return the machine to the initial stage of the maintenance mode.

(6) After entry of the block number for V, 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.
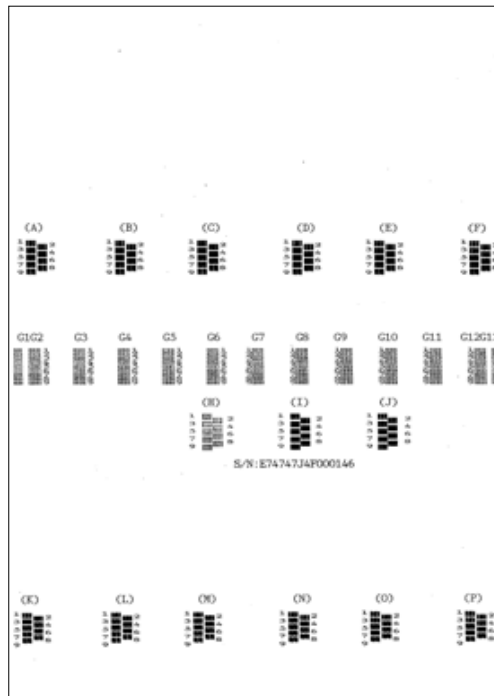
Adjustment of Software Correction for Inclination/Corrugation/Ruled Lines Check Pattern

1.3.23 Margin Adjustment in Borderless Printing (Maintenance mode 66)

< Function >

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

If the head/carriage unit or main PCB is replaced or the recording paper feeding path, head/carriage parts are disassembled, you need to make the adjustment given below.

< Operating Procedure >

Before starting the procedure below, be sure to set letter or A4 size paper in the paper tray for printing check patterns.

Printing the left, right, bottom margin check pattern

◆When using the USB flash memory or SD card

(1) On your PC, save a copy of "mediaadj_BHmini15.prn" to a USB flash memory or SD card.

(2) Use "1.3.20 Printout of PRN/JPEG Files in Memory Card (Maintenance mode 61)" in this chapter to print test patterns.

◆When opening **Filedrgs** on your PC and printing by dragging & dropping

The test patterns are printed by opening **Filedrgs** and dragging & dropping the mediaadj_BHmini15.prn onto the Brother Maintenance USB Printer driver icon.

Adjusting the left and right margins

(1) Measure the left and right margins on the printed check pattern.
The upper row of the left and right margins is for printing in 600 dpi, the middle and lower row for printing in 1,200 dpi.

	Upper row (in 600 dpi)	Middle row (in 1,200 dpi)	Lower row (in 1,200 dpi)
Left margin	2.8 mm	2.9 mm	3.0 mm
Right margin	3.1 mm	3.2 mm	3.3 mm

If all the left and right margins are within the range from 2.9 to 3.1 mm, adjustment is unnecessary. If outside the specified range, proceed to (2).

(2) If either the left or right margins is outside the specified range, press the **6** key twice.
The machine displays "SELECT 66?" on the LCD.

(3) Press the **Mono start** or **Black Start** key.
The machine displays "*.MEDIA #.REGI" on the LCD.

(4) Press the ***** key.
The machine displays "LEFT 1 :30" on the LCD.

(5) Adjust the 600 dpi left margin. Enter the measured margin value (in units of 0.1 mm) multiplied by 10.
In the example on step (1) above, the measured margin value of the left margin is 2.8 mm, so press the **2**, **8** and **SET** or **OK** keys in this order.
The machine displays "RIGHT 1 :30" on the LCD.

(6) Next, adjust the 600 dpi right margin. Enter the measured margin value (in units of 0.1 mm) multiplied by 10.

In the example on step (1) above, the measured margin value of the right margin is 3.1 mm, so press the **3**, **1** and **SET** or **OK** keys in this order.

The machine displays "LEFT2 :30" on the LCD.

(7) Next, adjust the 1,200 dpi center part dpi left margin. Enter the measured margin value (in units of 0.1 mm) multiplied by 10.

In the example on step (1) above, the measured margin value of the left margin is 2.9 mm, so press the **2**, **9** and **SET** or **OK** keys in this order.

The machine displays "RIGHT2 :30" on the LCD.

(8) Next, adjust the 1,200 dpi center part dpi right margin. Enter the measured margin value (in units of 0.1 mm) multiplied by 10.

In the example on step (1) above, the measured margin value of the left margin is 3.2 mm, so press the **3**, **2** and **SET** or **OK** keys in this order.

The machine returns to the initial stage of the maintenance mode.

(9) Print the margin check pattern again, using the procedure "Printing the left, right, bottom margin check pattern".

(10) Measure the left and right margins on the printed pattern.

If both the left and right margins are within the range from 2.9 to 3.1 mm, the adjustment is completed.

Adjusting the bottom margin

(1) Measure the bottom margin on the printed check pattern.
(Example) Bottom margin: 3.2 mm
If it is within the range from 2.9 to 3.1 mm, no adjustment is required. If not, go to step (2).

(2) If the bottom margin is out of the specified range, press the **6** key twice.
The "Select 66?" appears on the LCD.

(3) Press the **Mono Start** or **Black Start** key.
The "*.MEDIA #.REGI" appears on the LCD.

(4) Press the **#** key to display "BOTTOM :30."

(5) To adjust the bottom margin, enter the measured bottom margin value (in units of 0.1 mm) multiplied by 10.
In this example, the bottom margin measured in step (1) is 3.2 mm, so press the **3**, **2**, and **SET** or **OK** keys in this order.
The machine returns to the initial stage of the maintenance mode.

(6) Using the procedure of "Printing the left, right, bottom margin check pattern", print the margin check pattern again.

(7) Measure the bottom margin on the printed pattern.
If it is within the range from 2.9 to 3.1 mm, the adjustment is completed.

Note To reset the measured margin values newly entered in the above procedure, press the **6**, **6**, **Mono Start** or **Black Start**, **8**, **9**, **5** and **4** keys in this order in the initial stage of the maintenance mode. The machine shows "PARAMETER INIT" on the LCD and returns to the initial stage of the maintenance mode.
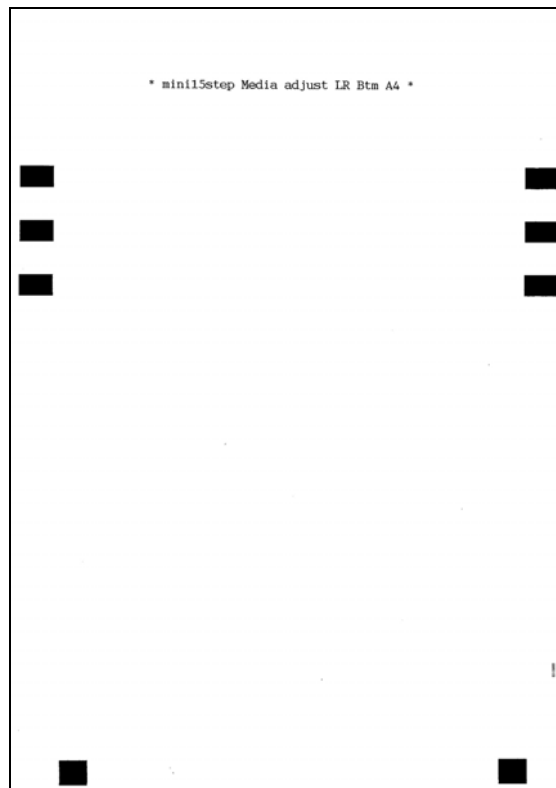
Margin Check Pattern

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

< Function >

Maintenance mode 68 provides two types of procedures--one for updating the head property data and the other for backing up the head calibration data and restoring it.

Updating the head property data

To keep the print quality, the machine optimizes the drive conditions of individual head/ carriage units according to the head property data.

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

If you replace the head/carriage unit, you need to enter its property code printed on the property label (pasted on the new spare part).

Backing up the head calibration data and restoring it

This procedure backs up the head calibration data into an external memory (memory card or USB flash memory) and restores it to the machine.

< Operating Procedure >

Head Property Data Updating Procedure

(1) Press the **6** and **8** keys in this order in the initial stage of the maintenance mode.

(2) Press the **2**, **5**, **8**, and **0** keys in this order.

The current property data stored in the EEPROM appears on the LCD and the machine is ready for entry.

(3) Check the property label pasted on a new head/carriage unit and enter the property code.

The code to be entered is 10 digits excluding the heading "ALR."

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

(4) After entry of 10-digit code, press the **SET** or **OK** 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).

<u>Head Calibration Data Backup/Restoration Procedures</u>

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 **OK**, or **Mono Start** or **Black Start** key.

The machine displays "Now Saving" on the LCD and starts the backup operation.

Upon completion of the backup operation, the machine beeps displays "Head Calib.data" on the LCD and returns to the initial stage of the maintenance mode.

Restoration procedure

(1) Press the **6** and **8** keys in this order in the initial stage of the maintenance mode.

(2) Press the **0**, **6**, **2**, and **6** keys in this order.

The "HeadCalib->Media" appears on the LCD.

(3) Use the ◄ or ► key to display "Media->HeadCalib" on the LCD and then press the **SET** or **OK** key.

(4) Insert the external memory holding the head calibration data into the memory slot.

(5) Press the **SET** or **OK**, or **Mono Start** or **Black Start** key.

The machine displays "Now Loading" on the LCD and starts the restoration operation.

Upon completion of the restoration operation, the machine displays "Complete" on the LCD and returns to the initial stage of the maintenance mode.

Notes• If the external memory inserted in step (5) holds no head calibration data, the "Can't Open File" appears on the LCD.

• This procedure should be performed with the USB cable disconnected. If it is performed with the USB cable being connected, disconnect it.

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1.3.25 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** or **Stop/Exit** key to return the machine to the initial stage of the maintenance mode.

1.3.26 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** or **Black Start** key to display the current settings on the LCD.

(3) Enter the desired customizing code.

(4) Press the **Mono Start** or **Black Start** key to save the new setting and return the machine to the initial stage of the maintenance mode.

   If the destination is changed, the "PLS UPDATE PROG" appears on the LCD. Load the latest firmware (refer to).

(5) Pressing the **X** or **Stop/Exit** 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.

< EEPROM Customizing Codes List >

Model	U.S.A	Canada	Germany	UK	France (France/ Belgium/ Netherlands/ Others)	Belgium	Netherlands	Switzerland
DCP-J562DW	-	-	0003	0004	0055 (0005/0008/ 0009/0004)	-	-	0004
DCP-J785DW	-	-	0003	0004	0055 (0005/0008/ 0009/0004)	-	-	-
MFC-J460DW	0201	-	-	-	-	-	-	-
MFC-J480DW	0001	0002	0003	0004	0005	0008	0009	0010
MFC-J485DW	0101	0102	-	-	-	-	-	-
MFC-J680DW	0001	0002	0003	0004	0005	0008	-	0010
MFC-J880DW	0001	-	0003	0004	0005	0008	0009	0010
MFC-J885DW	0101	0102	-	-	-	-	-	-
MFC-J985DW	0201	0202	0203	0204	0205	-	0209	0210

The above information is as of January 2016. Please confirm the latest firmware information which is available from your local Brother Customer Service.

Model	Italy	Israel	Pan-Nordic (Norway/Sweden/Finland/ Denmark)	Iberia (Spain/ Portugal)
DCP-J562DW	0016	-	0057 (0007)	0065 (0015/0018)
DCP-J785DW	-	-	0057 (0007)	0065 (0015/0018)
MFC-J460DW	-	-	-	-
MFC-J465DW	-	-	-	-
MFC-J480DW	0016	0004	0057 (0007/0026/ 0012/0013)	0065 (0015/0018)
MFC-J485DW	-	-	-	-
MFC-J680DW	0016	0004	0057 (0007/0026/ 0012/0013)	-
MFC-J880DW	0016	-	-	0065 (0015/0018)
MFC-J885DW	-	-	-	-
MFC-J985DW	0216	-	0257 (0207/0226/ 0212/0213)	-

Model	Oceania (Australia/New Zealand)	Singapore/Gulf	Hong Kong
DCP-J562DW	0056 (0006)	0040	-
DCP-J785DW	-	-	-
MFC-J460DW	-	-	-
MFC-J465DW	-	-	-
MFC-J480DW	0056 (0006/0027)	0040	0028
MFC-J485DW	-	-	-
MFC-J680DW	0056 (0006/0027)	0040	0028
MFC-J880DW	0056 (0006/0027)	0040	0028
MFC-J885DW	-	-	-
MFC-J985DW	-	-	-

The above information is as of January 2016. Please confirm the latest firmware information which is available from your local Brother Customer Service.

1.3.27 Move of the Head/Carriage Unit to the Flushing Position (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 flushing position, 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 flushing position.

(2) Open the document scanner cover.

The "PLS CLOSE COVER" appears on the LCD.

(3) Remove the paper particles and dust accumulated.

(4) Close the document 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** or **Stop/Exit** key with the document scanner cover unit opened for at least five seconds can also move the head/carriage unit in the same manner as above.

1.3.28 Purge Operation (Maintenance mode 76)

< Function >

The machine can carry out several types of purge operations.

< 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** or **Black Start** key. The LCD displays "CLEANING".

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

Notes • Before performing a purge operation, confirm that the ink cartridge that has enough remaining has been installed.

• This machine counts all purge operations and flushing operations performed since produced in order to prevent the ink absorber box and flushing foam from overflowing with drained and flushed ink, respectively. If purges for all four color inks are carried out at the same time, the purge count is not always equal to the total of black and color ink purge counts.

• When the purge or flushing count reaches the upper limit, the "Unable to Print 46" appears, and further purge or flushing operations are prohibited. Replace the ink absorber box or flushing foam and then reset the corresponding count using the procedure given below.

■ Resetting purge or flushing count

1) Press the **8** and **0** keys in this order in the initial stage of the maintenance mode to call up the machine's log information. (Maintenance mode 80. Refer to Section 1.3.31 in this chapter.)

2) Press the **Mono Start** or **Black Start** key several times until the purge or flushing count appears on the LCD.

3) Press the **2**, **7**, **8**, and **3** keys in this order to reset the purge or flushing count. The machine automatically returns to the initial stage of the maintenance mode.

Purge types and purge codes

Purge Types	Description	Purge Codes (to be entered with Maintenance mode 76)
Normal purge (NP)	Purge to be performed by user purge.	1
Periodical reset purge (RP)	Purge to be performed periodically. The cycle varies due to the ambient temperature.	2
Power purge (PP)	Purge to be performed by user purge.	3
Initial purge (uIP)	Purge to be performed automatically immediately after the user purchases the machine.	4
User reset purge (RP3)	Purge to be performed by user purge.	5
Engine setup purge (eIP)	Purge to be performed for refilling the tubes with ink.	6
Periodic expelling purge (RP2)	Purge to be performed periodically. The cycle varies due to the ambient temperature.	7
Periodic suction purge (SP)	Purge to be performed periodically. The cycle varies due to the ambient temperature.	8
Small reset purge (SRP)	Purge to be performed periodically. The cycle varies due to the ambient temperature.	9
Ink replacement purge	(Not to be performed by service personnel)	0
User super power reset purge (MPP)	Purge to be performed by user purge.	*

Ink usage and purge counts

<Step head model>

Purge Types	Ink Usage (ml)			Purge Counts		
	ALL	BLACK only	COLOR only	ALL	BLACK only	COLOR only
Normal purge (NP)	BLACK: 0.302 COLOR: 0.823	BLACK: 0.247 COLOR: 0.026	BLACK: 0.062 COLOR: 0.823	52	12	40
Periodical reset purge (RP)	BLACK: 0.275 COLOR: 1.262	BLACK: 0.275 COLOR: 0.214	BLACK: 0.165 COLOR: 1.262	67	21	62
Power purge (PP)	BLACK: 0.484 COLOR: 1.361	BLACK: 0.429 COLOR: 0.214	BLACK: 0.22 COLOR: 1.361	84	28	71
Initial purge (uIP)	BLACK: 3.938 COLOR: 10.406	-	-	645	-	-
User reset purge (RP3)	BLACK: 0.505 COLOR: 1.368	BLACK: 0.442 COLOR: 0.32	BLACK: 0.22 COLOR: 1.235	83	33	65
Engine setup purge (eIP)	BLACK: 3.734 COLOR: 9.583	-	-	600	-	-
Periodic expelling purge (RP2)	BLACK: 0.158 COLOR: 0.188	-	-	15	-	-
Periodic suction purge (SP)	BLACK: 0.117 COLOR: 0.386	-	-	21	-	-
Small reset purge (SRP)	BLACK: 0.275 COLOR: 0.574	BLACK: 0.275 COLOR: 0.214	BLACK: 0.165 COLOR: 0.574	37	21	32
Ink replacement purge	BLACK: 3.655 COLOR: 13.477	-	-	784	-	-
User super power reset purge (MPP)	BLACK: 0.769 COLOR: 2.134	BLACK: 0.706 COLOR: 0.32	BLACK: 0.22 COLOR: 2.001	133	45	102

<Low head model>

Purge Types	Ink Usage (ml)			Purge Counts		
	ALL	BLACK only	COLOR only	ALL	BLACK only	COLOR only
Normal purge (NP)	BLACK: 0.325 COLOR: 0.484	BLACK: 0.247 COLOR: 0.038	BLACK: 0.085 COLOR: 0.484	35	12	24
Periodical reset purge (RP)	BLACK: 0.275 COLOR: 1.225	BLACK: 0.275 COLOR: 0.226	BLACK: 0.165 COLOR: 1.225	65	21	60
Power purge (PP)	BLACK: 0.576 COLOR: 1.299	BLACK: 0.498 COLOR: 0.226	BLACK: 0.243 COLOR: 1.299	82	31	67
Initial purge (uIP)	BLACK: 3.879 COLOR: 10.209	-	-	634	-	-
User reset purge (RP3)	BLACK: 0.574 COLOR: 1.31	BLACK: 0.511 COLOR: 0.226	BLACK: 0.22 COLOR: 1.272	83	31	65
Engine setup purge (eIP)	BLACK: 3.73 COLOR: 8.379	-	-	542	-	-
Periodic expelling purge (RP2)	BLACK: 0.158 COLOR: 0.188	-	-	15	-	-
Periodic suction purge (SP)	BLACK: 0.117 COLOR: 0.324	-	-	19	-	-
Small reset purge (SRP)	BLACK: 0.275 COLOR: 0.512	BLACK: 0.275 COLOR: 0.197	BLACK: 0.165 COLOR: 0.512	34	20	29
Ink replacement purge	BLACK: 3.655 COLOR: 9.721	-	-	604	-	-
User super power reset purge (MPP)	BLACK: 0.838 COLOR: 1.721	BLACK: 0.775 COLOR: 0.226	BLACK: 0.22 COLOR: 1.683	116	44	85

The ink usage of 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.

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< 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 (Non-touch panel model: Press **#** and **4** keys simultaneously) (CPP).
    If about a half of the blocks are missing (pattern 3 in the figure below), perform Maintenance 76-F (Non-touch panel model: Press **#** and **6** keys simultaneously) (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.
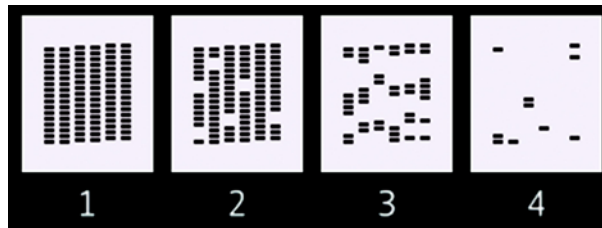
(5) Repeat the step (4) three times until there is no more missing block in the test pattern.

(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.

1.3.29 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** or **Black 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	Real-time clock (RTC) check result *1	21	Ink drop count by cleaning at the previous replacement of ink cartridge
2	RTC backup check result *1 OK: Backup completed, NG: Backup failed	22	Ink drop count at ink remaining failure
3	Model code	23	Total paper pull-in failure count ("No Paper Fed" count)
4	Country code	24	Total printed page count/Total printed page count in the previous month/Printed recording paper jam count
5	Checksum of WSW, PSW, USW, and FSW *1	25	High-level ink usage page count (count of pages that exceed a specified level of ink usage)
6	Version of main firmware	26	Printed page count for all paper sizes/ Printed page count for A3 and ledger/ Printed page count for other sizes
7	Version of boot firmware *1	27	Printed page count by printing method
8	Serial number	28	Printed page count by paper size and by paper type in duplex printing *2
9	Head property information/Head voltage correction value/Head calibration data – calibration ratio – Presence of variation calibration data (1: Exist, 0: Not exist)	29	Total printed page count in duplex printing/ Jam count in duplex printing
10	CIS type/Engine type*1/LCD type*1	30	Page count in duplex printing by printing method
11	PictBridge information *1	31	Printed page count by paper size and by paper type in duplex printing *2
12	Ink drop count after replacement of ink cartridge	32	Tray 1 total printed page count/Tray 1 jam count/Tray 2 total printed page count *3/ Tray 2 jam count *3
13	Ink drop count after detection of "Ink Low"	33	Total printed label count *3/Label jam count *3/ Total print count in printing via manual feed slot/Manual feed slot jam count/MP tray total printed page count *3/MP tray jam count *3
14	Ink drop count for droplets jetted out onto the platen *1	34	Roller cleaning count (Tray 1/Tray 2/MP tray) *3
15	Total ink drop count from a new head (including flushing)	35	Paper piece removal count *3
16	Ink drop count by cleaning from ink renewal	36	ADF scanning count/FB scanning count/ ADF jam count/FAX scanning count/ Scanner count
17	Ink cartridge change count (standard-yield and High-yield)	37	Home positioning error code of the CIS unit/ Home positioning detection log data *1
18	Ink cartridge detection failure count (Cannot Detect display count)	38	Purge count/Sensor purge count*3/Wipe count/Black flushing count/Color flushing count/Flushing count error detection count
19	Ink drop count at the previous replacement of ink cartridge	39	Purge count Auto/Manual (black) *4
20	Ink drop count after detection of "Ink Low" at the previous replacement of ink cartridge	40	Purge count Auto/Manual (color) *4

41	Total power-ON time	48	Ink cartridge type loaded in each slot *6 Ink remaining state (0: OK 1: NG)
42	Power-ON count	49	Executed maintenance modes *1
43	Machine error history (Error code: Date of occurrence: Machine temperature degree-C at the time of occurrence)	50	Executed special maintenance modes *1
44	Communications error history (Error code: Date of occurrence)	51	LCD error *1
45	Initial purge log *1 (FF: normal end)	52	Reset count *7/Power-ON duration at the time of last reset (Total Power-ON time)
46	Machine information backup file version *1	53	Operation start date of the machine (Current date when the user operates the machine first after unpacking)
47	Sensor status *5		

*1 Not required for servicing.

*2 The paper type is printed in the order of "Plain paper - Inkjet paper - Glossy paper."

*3 Not used.

*4 For details about the purge type, refer to Maintenance mode 76 (refer to Section 1.3.28 Purge Operation).

*5 For details about sensors, refer to Maintenance mode 32 (refer to Section 1.3.10 Sensor Operational Check).

*6 0: No ink cartridge loaded
   1: Standard-yield ink cartridge
   2: High-yield ink cartridge
   *: Unidentifiable ink cartridge

*7 Excluding the resets triggered by the following.
   Maintenance modes 01 and 91
   Maintenance mode 80 (Resetting the purge and flushing counts)

1.3.30 Adjustment of Touch Panel (Maintenance mode 78)

< Function >

This function adjusts the detection area on the touch panel.

Note The adjustment procedure requires a stylus with a thin tip. A commercially available stylus designed for electronic dictionaries or personal digital assistance (PDA) can be used. If you do not have it on hand, order the "TOUCH PEN" from the Brother's parts list.

< Operating Procedure >

(1) Press the **7** and **8** keys in this order in the initial stage of the maintenance mode.

The adjustment screens shown below appear on the LCD.

(2) Touch the symbols on the touch panel with a stylus in the order of top-left, bottom-left, bottom-right, top-right, and the center. After a symbol touched disappears, touch the next one.

After the fifth symbol (center) is pressed, the "OK" appears if the adjustment is normally completed. After approx. three seconds, the machine returns to the initial stage of the maintenance mode.

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

• Do not touch the touch panel with fingers. The contact area of a finger is too large to adjust the touch panel precisely.

• If no keys are pressed for one minute in the above procedure or you press the **X** key, the machine stops the procedure and returns to the initial stage of the maintenance mode.

• If the touch panel is improperly pressed or a wrong point is pressed, the "ERROR" appears on the LCD. After approx. three seconds, the screen returns to the state in step (2). Start pressing the five symbols again from the first one (top-left).

• If the "ERROR" appears on the LCD, check the panel flat cable for a contact failure, breakage, or short-circuit. If the "ERROR" continues to be displayed without any of such problems, replace the control panel ASSY.
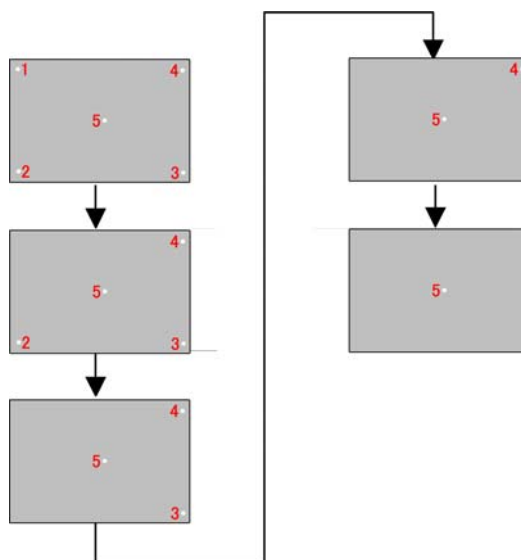
1.3.31 Display of the Equipment's Log (Maintenance mode 80)

< 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	Not shown on DCP models. RTC backup check, OK: Backup completed, NG: Backup failed *1
8CA-V19-001	Model code
COUNTRY:0001	Country code
SWITCH:82	Checksum of WSW, PSW, USW, and FSW *1
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 *1
S/N:	Serial number *2
ALR777FFFFFF8	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	CIS type
ENGINE:00	Engine type *1
PICTBRIDGE	PictBridge information *1
DK:0000000001	Ink drop count after replacement of ink cartridge *3
SEN K:0000000001	Ink drop count after detection of "Ink Low" *3
PLA K:0000000001	Ink drop count for droplets jetted out onto the platen *3
LK:0000000000001	Total dot count *3
CLN K:0000000001	Ink drop count via cleaning cycle after replacement of ink cartridge *3
INK_CH BK:00001	Ink cartridge change count (standard-yield) *3
INK_CH2 BK:00001	Ink cartridge change count (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:0000000001	Ink drop count at ink remaining failure *3
FEED NG:00001	Total paper feed error count
PAGE:0000000002	Total printed page count *4
LM PAGE:00002	Printed page count for previous month
JAM:00001	Total jam count
DARK PAGE	High-level ink usage page count *5

Items shown on the LCD	Description
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 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
TRAY1 PAGE:00001	Total paper tray 1 printed page count
TRAY1 JAM:00001	Paper tray 1 jam count
TRAY2 PAGE:00001	Total paper tray 2 printed page count (Not used)
TRAY2 JAM:00001	Paper tray 2 jam count (Not used)
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
MP TRAY PAGE:00001	Total MP tray printed page count (Not used)
MP TRAY JAM:00001	MP tray jam count (Not used)
ROLLER CLEANING	Roller cleaning count (Not used)
PP REMOVE:001	Paper piece removal count (Not used)
PURGE:00001	Purge count *8
SEN PURGE:00001	Sensor purge count (Not used)
eIP_BK:001/001	Purge count for purge types Auto/Manual (black) *9
eIP_CL:001/001	Purge count for purge types Auto/Manual (color) *9
WIPE:00001	Wipe count
FLSBK:0000000001	Flushing count (black) *8
FLSCL:0000000001	Flushing count (color) *8
FLUSHLOG:000	Flushing count error detection count
POWER:0000000353	Total power-ON time
PWCNT:0000000353	Power-ON count
ADF_JAM:00000	Document jam count in ADF scanning
FB:0000000006	Scanning page count in ADF/Flat-bed/FAX/SCANNER *10
HP_ERR_CODE:XX	CIS home positioning error in the document scanner unit *1
HP_LOG1:XXXXXXXX	CIS home positioning detection log data in the document scanner unit *1
COMERR1:BF010000	Communications error history (Last 3 errors) *11
BACKUP VER:a	Machine information backup file version *1
RESET COUNT:001	Reset count *12
SET UP:20130101	Operation start date of the machine (Current date when the user operates the machine first after unpacking)
MACHINE ERR_1:50	Machine error history (Last 9 errors) *11

*1 Not required for servicing.

*2 The serial number of the machine can be changed with the following procedure.

   1) Press the **SET** or **OK** key to display the serial number, then press the **9**, **4**, **7** and **5** keys in this order. The cursor appears at the uppermost digit of the current serial number, indicating that the machine switches to the edit mode.

   2) Enter the uppermost digit of the desired serial number with numerical keys. The cursor moves to the next lower digit. In the same way, enter the remaining 14 digits.

   <Entry of alphabet letters>

   To enter an alphabet letter, press the corresponding numerical key repeatedly until the target alphabet letter appears.

Numerical keys	Letters supported
2	2 → A → B → C
3	3 → D → E → F
4	4 → G → H → I
5	5 → J → K → L
6	6 → M → N → O
7	7 → P → Q →R → S
8	8 → T → U → V
9	9 → W → X → Y → Z

   3) Press the **SET** or **OK** key to save the newly entered setting and return the machine to the initial stage of the maintenance mode.

   With each item being displayed, press the **SET** or **OK** key to display the serial number.

*3 With each item being displayed, pressing the **SET** or **OK** key cycles through black → yellow → cyan → magenta.

*4 With each item being displayed, pressing the **SET** or **OK** 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** or **OK** key cycles through total → monochrome → color.

*6 With the item being displayed, pressing the **SET** or **OK** 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** or **OK** key cycles through A3 plain paper → A4 plain paper → 4x6 plain paper → 4x6 inkjet paper → 4x6 glossy paper.

*8 With the purge count or flushing count displayed, press the **2**, **7**, **8** and **3** keys in this order to reset the count.

*9 With the item being displayed, pressing the **SET** or **OK** key cycles through purge types. For details about the purge types, refer to Maintenance mode 76 (1.3.28 "Purge Operation (Maintenance mode 76)" in this chapter).

*10 With the item being displayed, pressing the **SET** or **OK** key cycles through Flat-bed scanning → ADF scanning → FAX scanning → Scanner scanning.

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*11 With the item being displayed, pressing the **SET** or **OK** key switches back to the last errors, one by one. With an error code being displayed, pressing the ▶ key toggles between the date when the error occurred and the ambient temperature when the error occurred (only in the case of a machine error).

*12 With the item being displayed, pressing the **SET** or **OK** key switches to the Power-ON duration at the time of last reset.

1.3.32 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** or **Black Start** key to cycle through the error codes.

(2) Press the **X** or **Stop/Exit** key to stop this operation and return the machine to the initial stage of the maintenance mode.

1.3.33 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) Non-touch panel model

When the machine is on standby, press the **Settings**, **Black Start**, and **Settings** keys in order.

Touch panel model

With the machine on standby, hold down the **Home** key to switch the LCD screen.

Hold down the lowermost blank field to switch the LCD screen.

Press the *****, **0**, **#** keys in this order.

(3) Press the **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).

(4) Upon completion of error list transmission, the machine returns to the standby state.

- At the service site

(5) Upon start of error list transmission, press the **Start** key. "Send or Receive?/1.Send 2.Receive" is displayed on the LCD screen.

(6) Press the **2** key to start the receipt of the error list.

1.3.34 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 6 (AMS01 through AMS06) that are firmware switches just as the ones described in Section 1.3.5 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 AMS06 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 06).

  The following appears on the LCD:

```
        Selector 1       Selector 8
            ↓                ↓
    AMSXX = 0 0 0 0 0 0 0 0
```

(3) Use the ◄ or ► key to move the underline cursor to the selector position to be modified.

(4) Enter the desired number (0 or 1) using the **0** and **1** keys.

(5) Press the **SET** or **OK** 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** or **Stop/Exit** key to return the machine to the initial stage of the maintenance mode.

Notes • To cancel this operation and return the machine to the initial stage of the maintenance mode during the above procedure, press the **X** or **Stop/Exit** key.

  • If there is a pause of more than one minute after a single-digit number is entered for double-digit assurance mode switch numbers, the machine will automatically return to the initial stage of the maintenance mode.

  • Initializing the EEPROM with Maintenance mode 01 or 91 initializes the AMS switch settings.

AMS01 (Printing assurance 1)

Selector No.	Function	Setting and Specifications
1	Prevention of stains on back side of leading edge of paper in borderless printing	0: Disable (default) 1: Enable
2	Not used.	

3
 	
4
	Protection of platen from no-paper printing to prevent stains (Functional restriction on the paper width sensor)	No. 3 4
		  0 0 : Enable (Determine the sensor function depending upon the print resolution selected) (default)
		  0 1 : Enable (Detect the leading edge plus right and left edges of paper)
		  1 0 : Enable (Detect the leading edge of paper)
		  1 1 : Disable (No paper detection)

5	Assurance print 1 (Printing with black, magenta and cyan inks in monochrome copy)	0: Disable (default) 1: Enable
6	Assurance print 2 (Printing with black, magenta 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: Enable (default) 1: Disable
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.

• 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 streaks at trailing edge of recording paper	No. 5 6 　0　0　: Machine correction value (default) 　0　1　: 1/2 of machine correction value 　0　0　: 2/3 of machine correction value 　1　0　: 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, change 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 streaks at trailing edge of recording paper**

  When the trailing edge of the recording paper goes through the paper feed roller, black streaks may appear on the printed paper in the case of high-density printing, because the paper is stretched around the paper ejection roller.

  While the feed amount is corrected based on printing density, the level of stretch differs by material of the recording paper. Therefore, black streaks at the trailing edge of the paper should be improved by switching the feed correction value for the 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	Not used.	
2	**Home** key switch in sleep mode	0: Blink (default)　　1: Turn off
3	Black ink print mode	0: Disable (default)　　1: Enable
4	Automatic purging for color ink	0: Enable (default)　　1: Disable
5	FAX plain paper monochrome printing direction switch	0: Bidirectional (default)　1: Unidirectional
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 2: Home key switch in sleep mode**

Select whether the **Home** key blinks or turns off when the machine is in sleep mode.

Note Update the firmware to the latest version before using this function.

• **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** key is enabled, but the **Color** 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.

• **Selector 5: FAX plain paper monochrome printing direction switch**

Switch between bidirectional and unidirectional printing for FAX plain paper monochrome printing.

• **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	ON/OFF switch for the corrugation value checking function	0: ON (default) 1: OFF
3 | 5	Not used.	

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 2: ON/OFF switch for the corrugation value checking function**

  Turn on or off the function for changing the multiplication coefficient based on the corrugation value stored in EEPROM.

- **Selectors 6 through 8: Adjustment of print head drive voltage rank**

  This selector regulates the print head drive voltage rank for adjusting the ink drop amount.

  If the black section printed on glossy paper is greenish or the printed ink does not dry quickly, increase the print head drive voltage rank to decrease the ink drop amount; if it is reddish, decrease the rank to increase the ink drop amount.

AMS06 (Printing assurance 4)

Selector No.	Function	Setting and Specifications
1 2	Improvement of white and black horizontal streaks on bottom edge of the paper during normal and high-speed printing on plain paper	No. 1 2 　0 0　: Disable (default) 　0 1　: Improve black horizontal streaks 　1 0　: Improve white horizontal streaks 　1 1　: Further improve black horizontal streaks
3 4	Improvement of white and black horizontal streaks from leading edge to center of paper during high-speed and normal print on plain paper	No. 3 4 　0 0　: Disable (default) 　0 1　: Improve black horizontal streaks 　1 0　: Improve white horizontal streaks 　1 1　: Further improve black horizontal streaks
5 6	Improvement of white and black horizontal streaks during print on glossy paper	No. 5 6 　0 0　: Disable (default) 　0 1　: Improve black horizontal streaks 　1 0　: Improve white horizontal streaks 　1 1　: Further improve black horizontal streaks
7	Extension of the lower range of printable temperatures	0: Disable (default)　1: Enable
8	Dryness control for the "highest" quality printing on plain paper	0: Disable (default)　1: Enable

- **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.

- **Selector 7: Extension of the lower range of printable temperatures**

Change the lowest printable temperature from 5 to 0 degree-C.

While switching from "Enable" to "Disable" takes effect without powering off and on the machine, switching from "Disable" to "Enable" requires powering off and on to take effect.

- **Selector 8: Dryness control for the "highest" quality printing on plain paper**

The sheet edge may get stained in the case of heavy duty printing in the "highest" quality on grain-short paper.

2 OTHER SERVICE FUNCTIONS

2.1 Displaying the Firmware Version

■ Touch panel model

(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
                            U64035B5H000082
2.ROM Version
                        0U 1511190756:33A0
3.Print Page
                                    000011

```
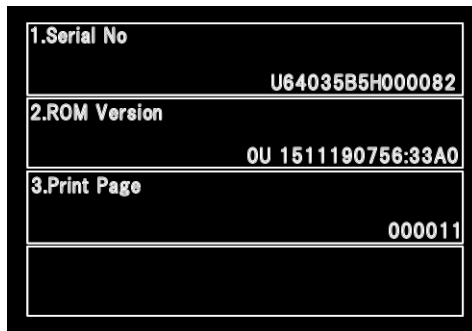
The firmware version displays in the "2. ROM Version" area.

■ Non-touch panel model

(1) When the machine is on standby, press ***** and **#** at the same time.

2.2 Moving the Head/Carriage Unit

(1) Holding down the **X** or **Stop/Exit** 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.
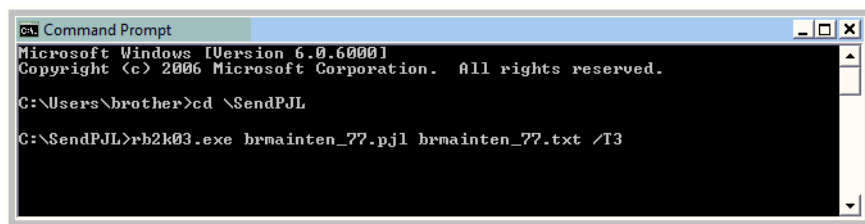
■ Operating Procedure

(1) Switch your PC on.

(2) Create an arbitrary folder in the C: directory and save the readback tool (rb2k03.exe) and PJL command file (brmainten_77.pjl) in that folder.

Note The rb2k03.exe is available only in windows XP.

(3) Switch the machine to the maintenance mode. (Refer to Section 1.1 in this chapter.)

(4) Connect the machine to the PC using a USB cable.

(5) On the PC, start Command Prompt and change to the directory where the readback tool is located.

(In the example below, a "SendPJL" folder is created in the C: directory and the readback tool is saved in that folder.)

(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
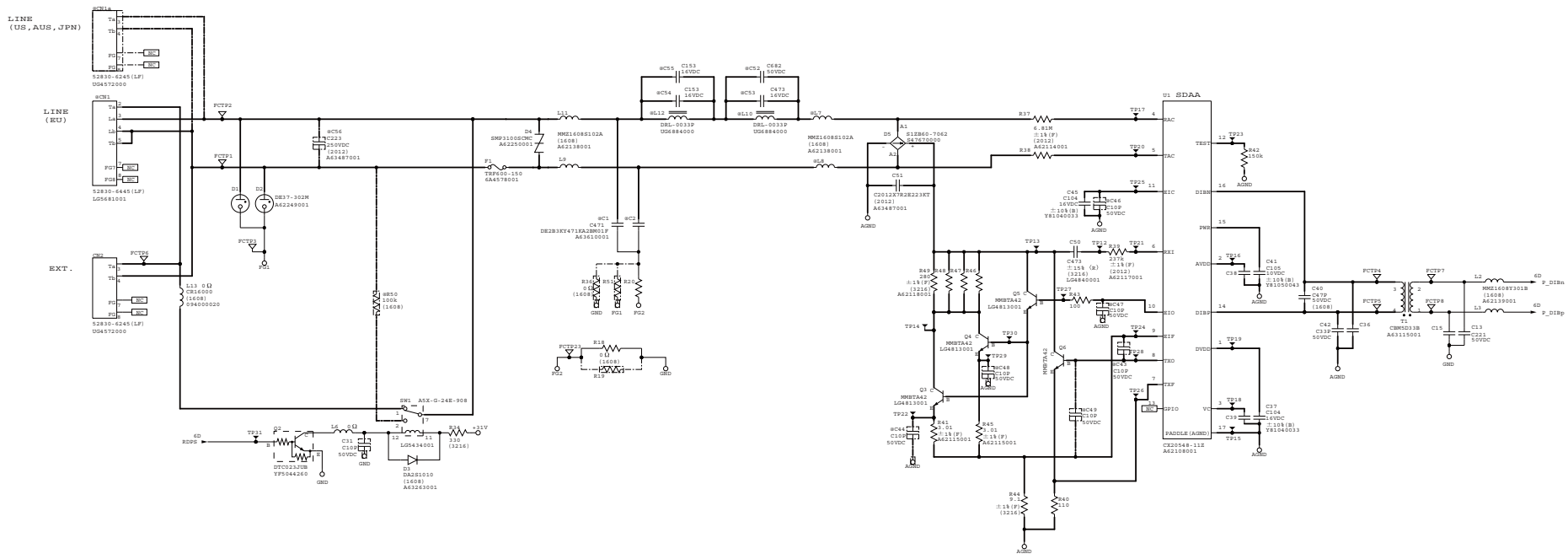
■ **Modem PCB**

U.S.A., Canadian models (Page1)

■ Modem PCB
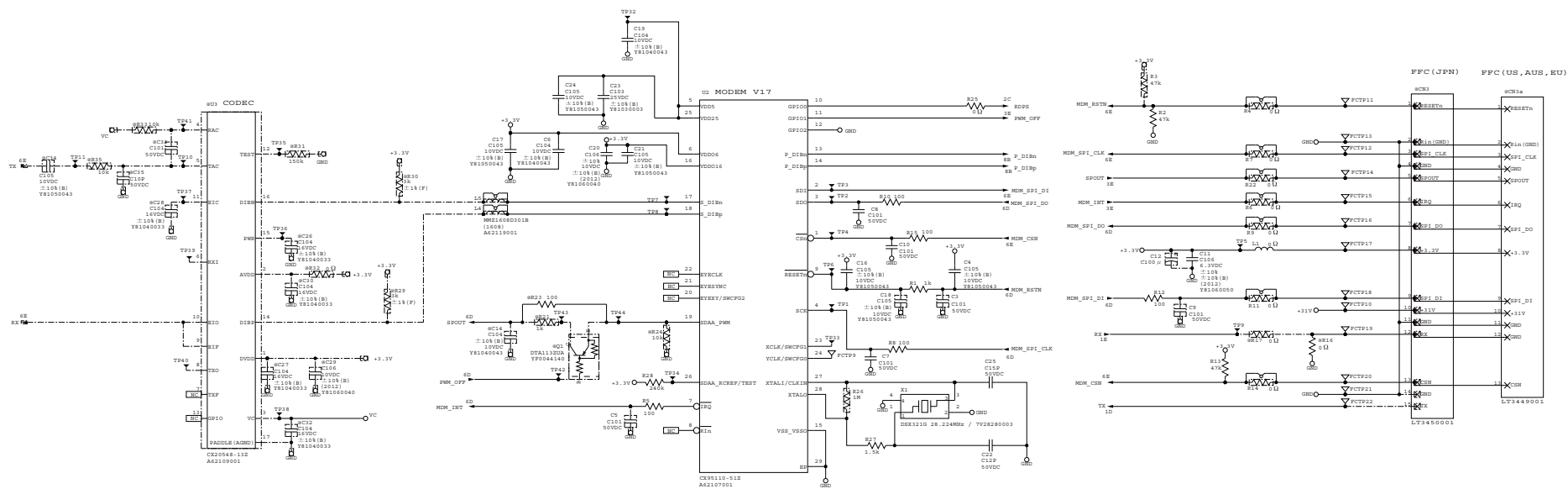## U.S.A., Canadian models (Page2)

Confidential
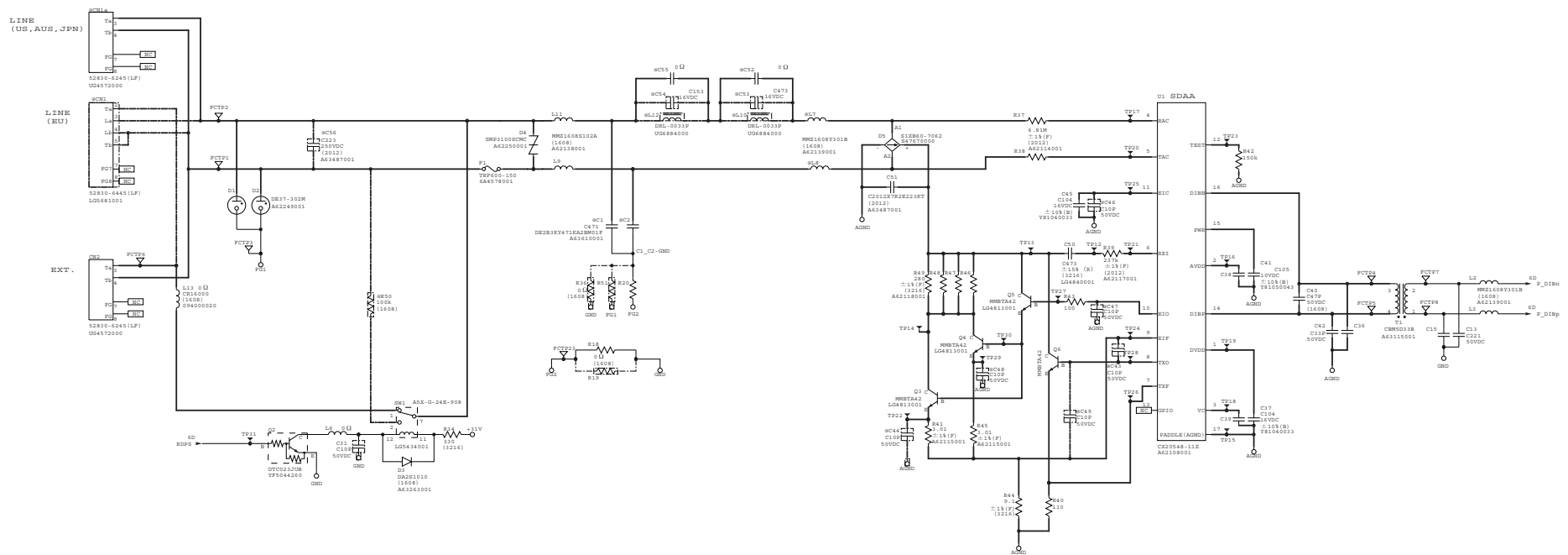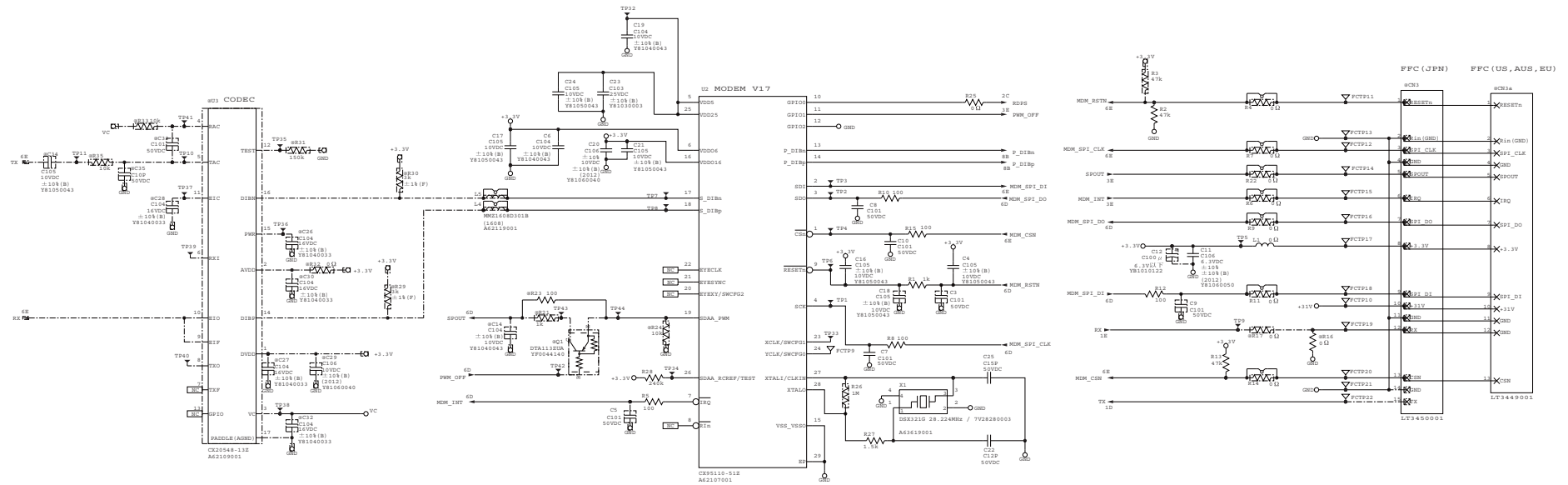
■ Modem PCB
European, Oceanian, Asian models (Page1)

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■ **Modem PCB**

European, Oceanian, Asian models (Page2)

■ Power supply PCB, 100 V series

MPW9223
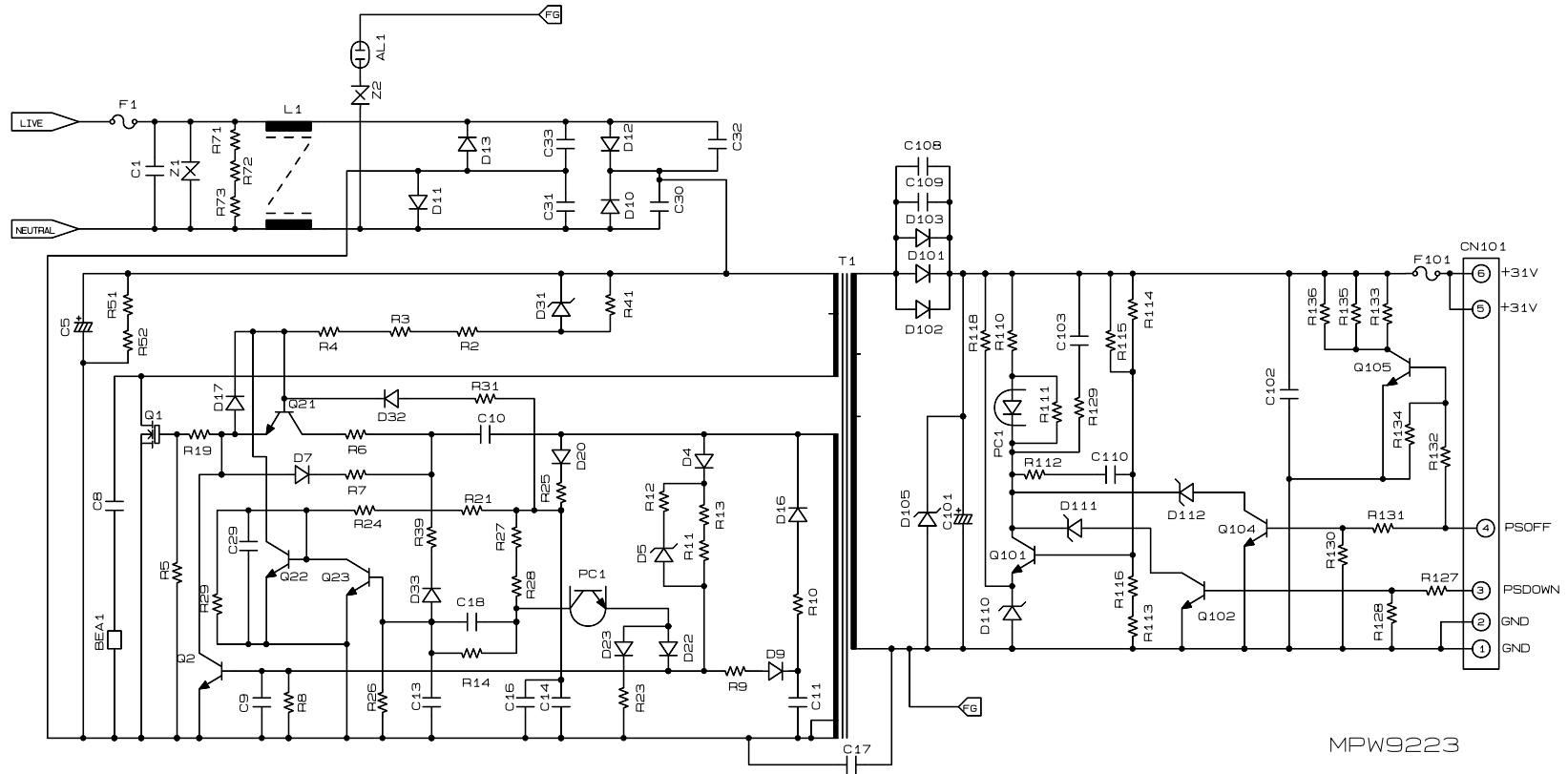
■ Power supply PCB, 200 V series

MPW9221

■ Wiring Diagram

Confidential
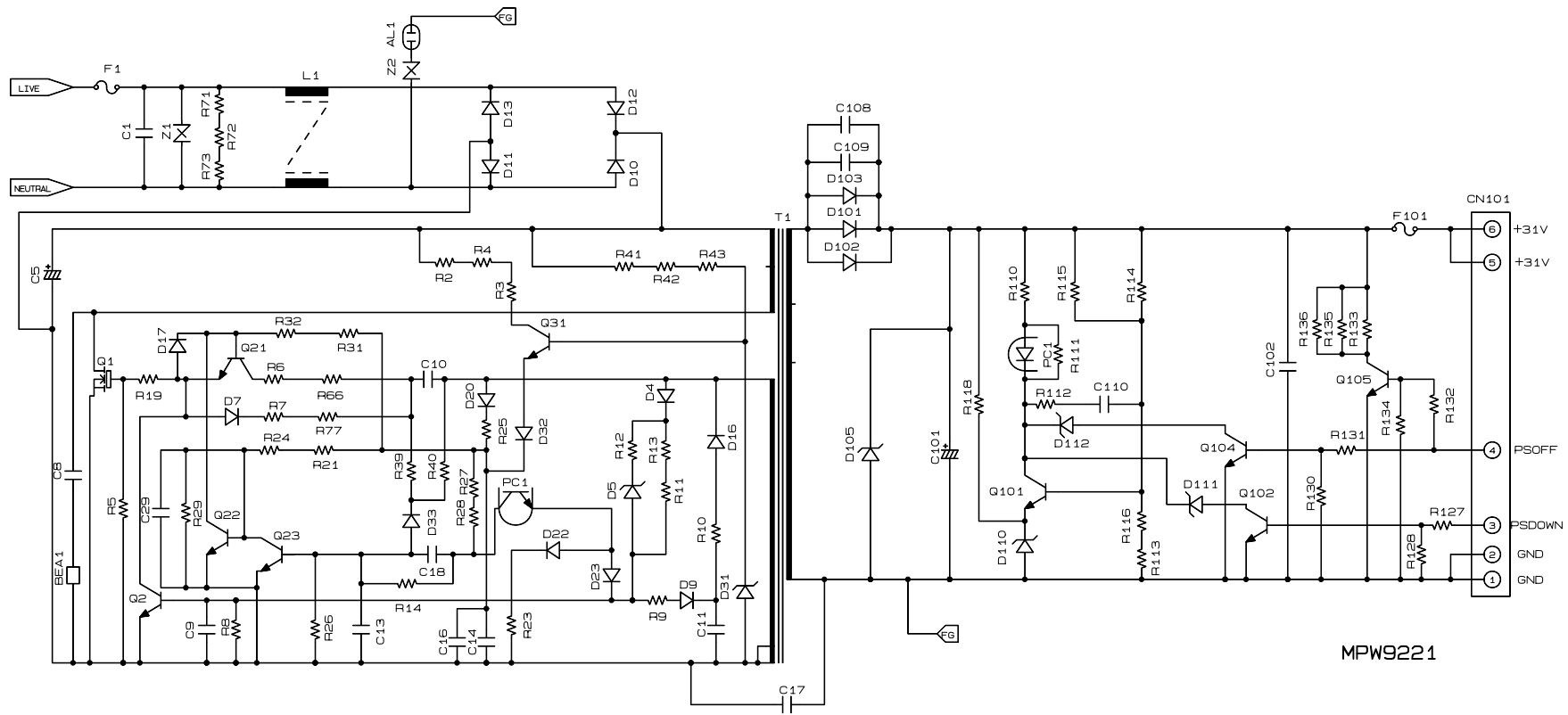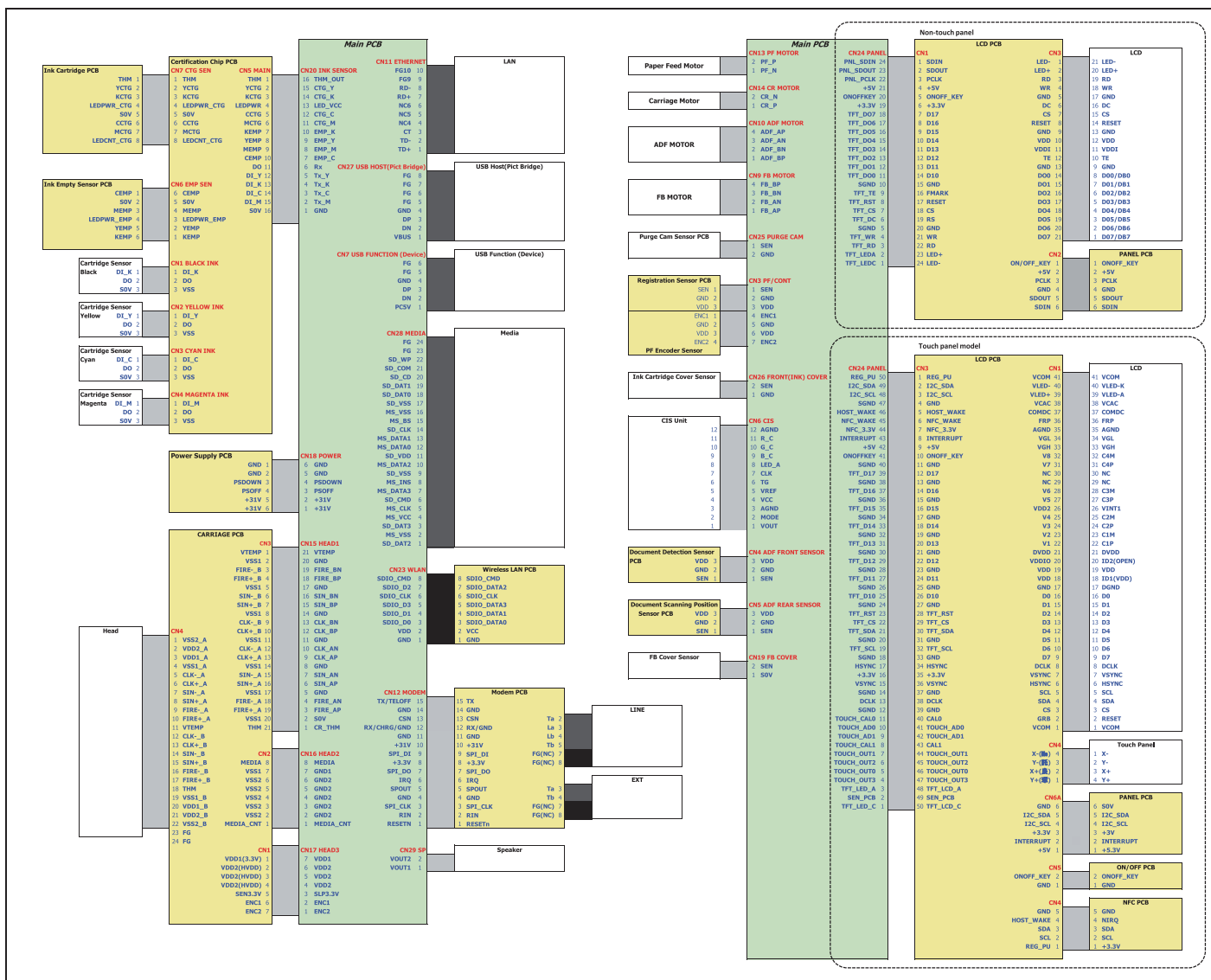
CHAPTER 7   PERIODICAL MAINTENANCE

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.
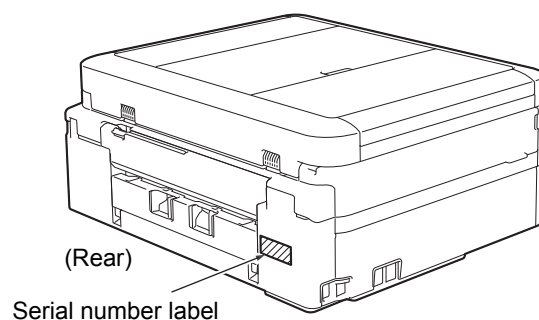
(1) Serial number label for the machine itself

Serial number → ＊＊＊＊＊＊ A 5 J 1 1 1 1 0 1

- Product item code
- Manufacture's serial number (6-digit)
- Factory
- Year of manufacture
  (Example) 2015: 5
  2016: 6
- Month of manufacture
  A: January   E: May   J: September
  B: February F: June   K: October
  C: March   G: July   L: November
  D: April   H: August M: December

Machine SN

Location

(Rear)

Serial number label
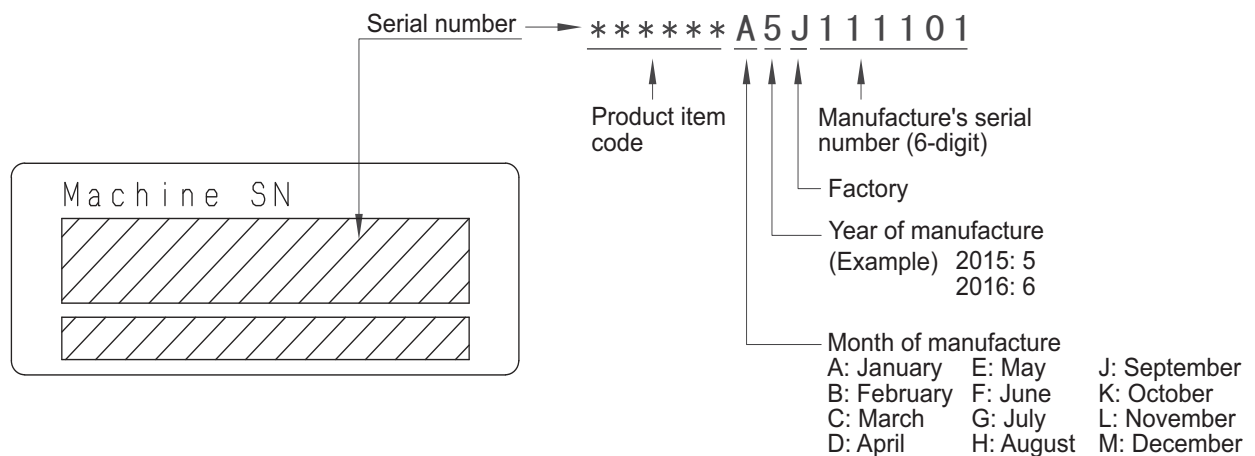
Fig. App 1-1

(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.

HEDA4412345   123Z ||||||||||||||||||||||||||||||||||||||||||||||||||||
||||||||||||||||||||||||||||||||||||||||||| ALR7784400005

■ **Head property label on the head/carriage unit**

Location

Head property label
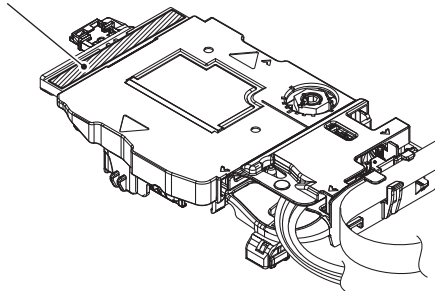
Fig. App 1-2

APPENDIX 2. DELETION OF USER SETTING INFORMATION

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

\<Touch panel model>

(1) Press .

(2) Press the ▼ or ▲ key to choose **All Settings** > **Initial Setup** > **Reset** > **All Settings** in this order.

(3) Press **Yes**.

(4) Press **Yes** for 2 seconds or more.

\<Non-Touch panel model>

(1) Press **Settings**.

(2) Press the ▼ or ▲ key to choose **Initial Setup** > **Reset** > **All Settings** in this order. Press **OK**.

(3) Press **1** to choose **Yes**.

(4) Press **1** to choose **Yes**.

# 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.

• Before starting the following procedure, confirm that the Brother Maintenance USB Printer driver has been copied to a folder in your PC.

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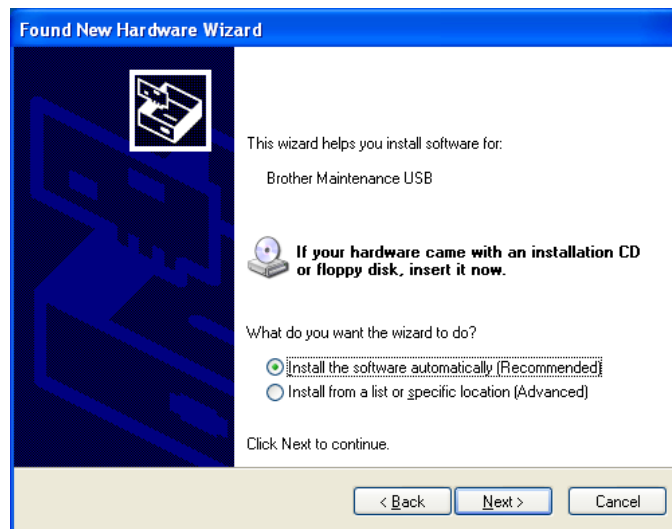
(5) Connect the machine to your PC using a USB cable.

The following window appears.
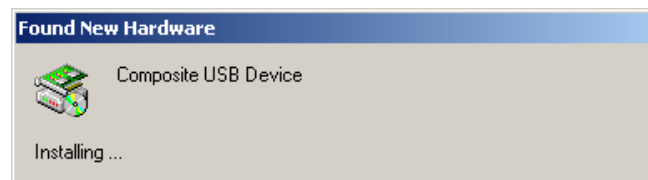
(6) The following screen appears, indicating the detection of new hardware device by the system. Select "No, not this time." And click **Next**.
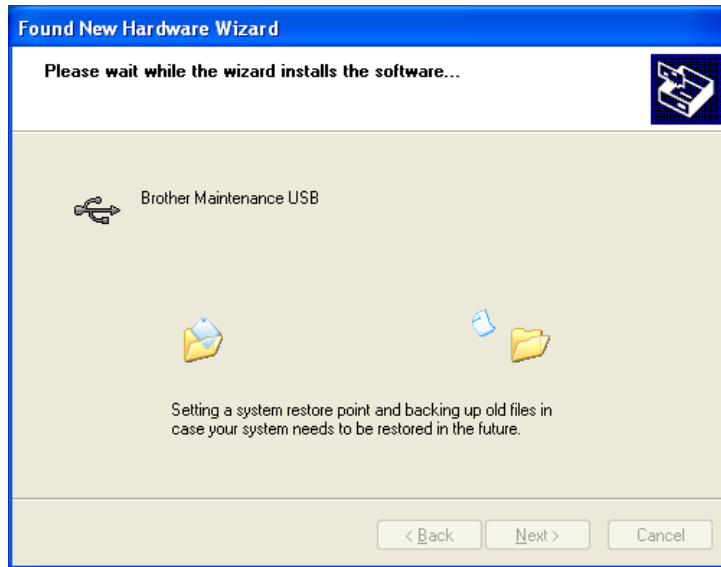
(7) Select "Install the software automatically (Recommended)" and click **Next**.

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

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(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.


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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.
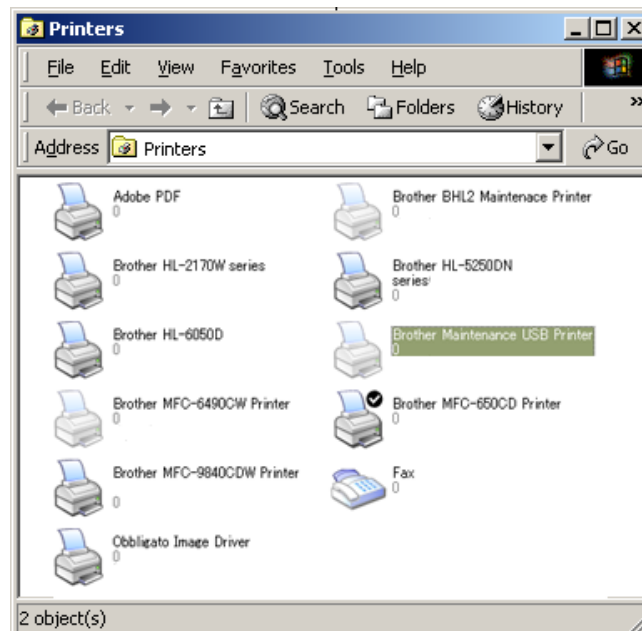
Windows Vista / Windows 7 / Windows 8 / Windows 8.1

(1) Check that the power cord of the machine is unplugged from the electrical outlet. Disconnect the USB cable that connects the machine with your PC.

(2) Turn on your PC.

(3) Click the Setup.exe in the Brother Maintenance USB Printer held in an arbitrary folder. Wait for the following screen to appear and click **Next**.
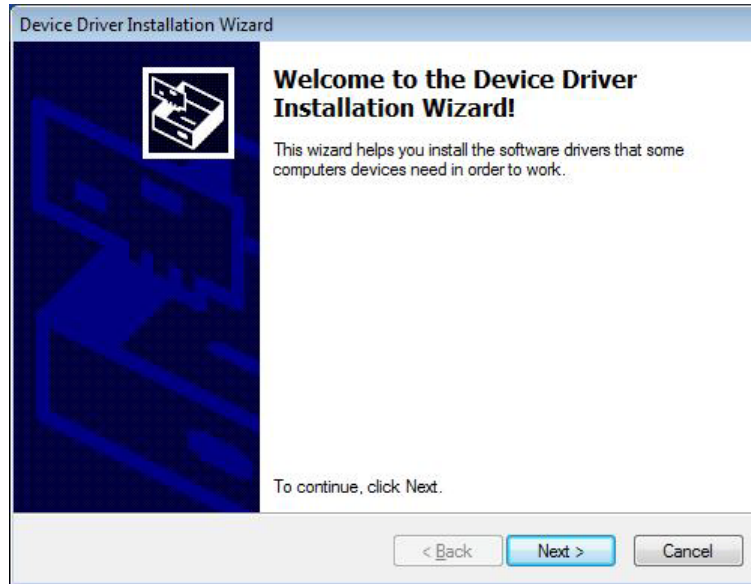
The following screen is displayed during installation.
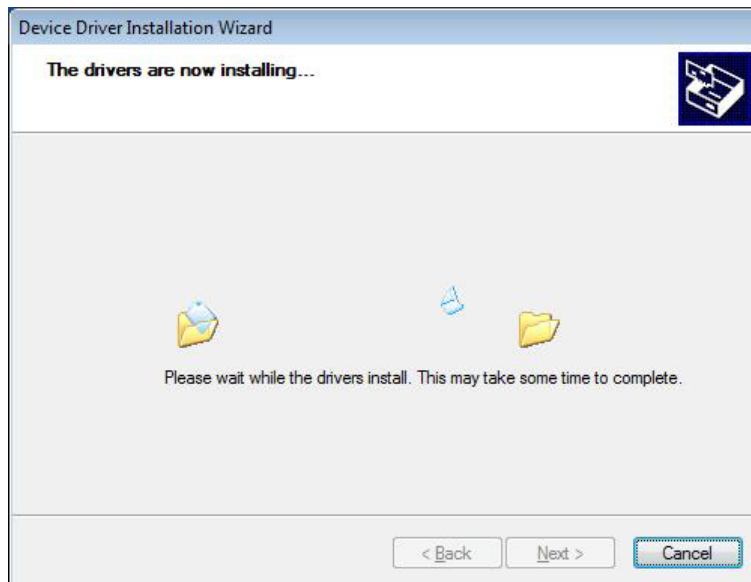
(4) Wait for the following screen to appear and click **Finish**.

(5) Plug the power cord of the machine into an electrical outlet.

(6) Switch the machine to the maintenance mode. (Refer to Chapter 5.)

(7) Connect the machine to your PC using a USB cable to start automatic installation.