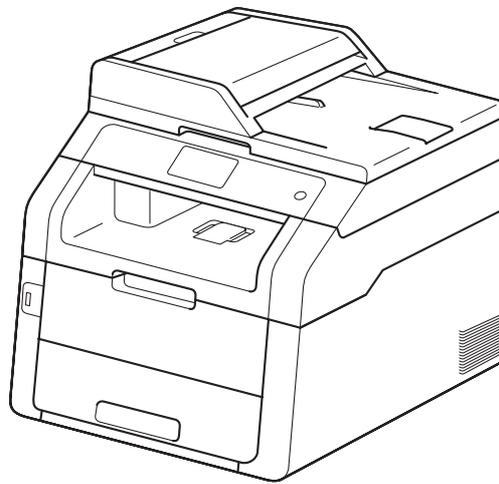




Brother Color FAX/MFC SERVICE MANUAL

**MODEL: DCP-9020CDN/9020CDW
MFC-9130CW/9140CDN
MFC-9330CDW/9340CDW**



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

February 2013
SM-FAX143
8CE4*

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

Model	DCP-9020CDN	DCP-9020CDW	MFC-9130CW	MFC-9140CDN	MFC-9330CDW	MFC-9340CDW
LCD	93.4 mm (3.7 inch)					
Touch Panel	√	√	√	√	√	√
Wired/ Wireless LAN	Wired	Wired/ Wireless	Wireless	Wired	Wired/ Wireless	Wired/ Wireless
Scanner	One-sided	One-sided	One-sided	One-sided	One-sided	Two-sided
2-sided printing	√	√	N/A	√	√	√
FAX	N/A	N/A	√	√	√	√
USB host	N/A	N/A	N/A	N/A	√	√
Speaker	N/A	N/A	√	√	√	√

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APPENDIX 1 SERIAL NUMBERING SYSTEM

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REGULATION

■ Declaration of Conformity (Europe only)

We, Brother Industries, Ltd.

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

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

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

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

Your Declaration will be downloaded as a PDF file.

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

We, Brother Industries, Ltd.

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

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

■ CE Marking for devices with Wireless LAN (Europe only) (DCP-9020CDW/MFC-9330CDW/MFC-9340CDW only)

This product supports Wireless LAN.

■ Disconnect Device



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

■ Wiring Information (U.K. only)

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

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

Warning -This product must be earthed.

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

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

■ LAN Connection (Network models only)

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

■ Radio interference

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

■ Recycling information in accordance with the WEEE and Battery Directives



Product mark



Battery mark

European Union only

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

■ **Federal Communications Commission (FCC) Declaration of Conformity (U.S.A. only)**

Responsible Party: Brother International Corporation
100 Somerset Corporate Boulevard
Bridgewater, NJ 08807-0911 U.S.A.
Telephone: (908) 704-1700

declares, that the products

Product name: DCP-9020CDN
MFC-9130CW/9330CDW/9340CDW

Model number: DCP-90, MFC-91/93

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.
- Call the dealer or an experienced radio/TV technician for help.
- (Wireless network models only)
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 shielded interface cable should be used to ensure compliance with the limits for a Class B digital device.

■ **Industry Canada Compliance Statement (Canada only)**

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

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

Operation is subject to the following two conditions:

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

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

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

■ **For use in the U.S.A. or Canada only**

These products are made for use in the U.S.A. and Canada only.

We cannot recommend using them overseas because it may violate the Telecommunications Regulations (MFC models only) of that country and the power requirements of your product may not be compatible with the power available in foreign countries. Using U.S.A. or Canada models overseas is at your own risk and may void your warranty.

■ **International ENERGY STAR® Qualification Statement**

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

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



SAFETY INFORMATION

■ Definitions of Warnings, Cautions, Notes and Memos

The following conventions are used in this manual:

Mark	Contents
	WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injuries.
	CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injuries.
	IMPORTANT indicates a potentially hazardous situation which, if not avoided, may result in damage to property or loss of product functionality.
	Prohibition icons indicate actions that must not be performed.
	Electrical Hazard icons alert you to possible electrical shock.
	Fire hazard icons alert you to the possibility of fire.
	Hot Surface icons warn you not to touch product parts that are hot.
Note	Notes tell you how you should respond to a situation that may arise or give tips about how the operation works with other features.
Memo	Memo tells you bits of knowledge to help understand the machine.

■ To use the Machine Safely

Please keep these instructions for later reference and read them before attempting any maintenance. If you do not follow these safety instructions, there is a possibility of a fire, electrical shock, burn or suffocation.

WARNING

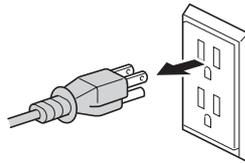


ELECTRICAL HAZARDS

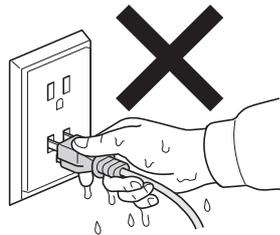
Failure to follow the warnings in this section may create the risk of an electrical shock. In addition, you could create an electrical short, which may create the risk of a fire.



There are high voltage electrodes inside the product. Before you access the inside of the product, including for routine maintenance such as cleaning, make sure you have unplugged the telephone line cord first (MFC only) and then the power cord from the AC power outlet, as well as any telephone (RJ-11) (MFC only) or Ethernet (RJ-45) cables (Network models only) from the product. Never push objects of any kind into this product through cabinet slots, since they may touch dangerous voltage points or short out parts.



DO NOT handle the plug with wet hands.



DO NOT use this product during an electrical storm.



Always make sure the plug is fully inserted. DO NOT use the product or handle the cord if the cord has become worn or frayed.



DO NOT allow this product to come into contact with water. This product should not be used around standing water, including a bath tub, sink, or swimming pool; around appliances containing water, including a refrigerator; or in a wet basement.



This product 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.

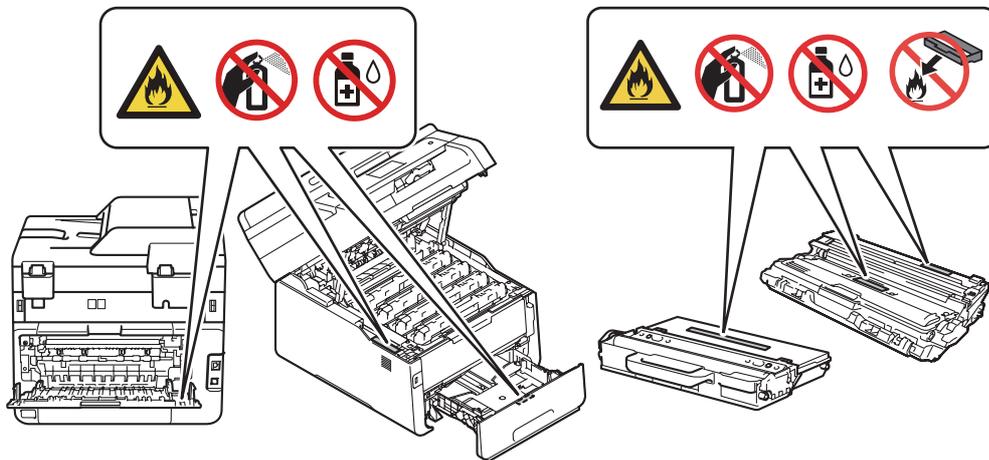


Power Cord Safety:

- This product is equipped with a 3-wire grounded plug. This plug will only fit into a grounded power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, call your electrician to replace your obsolete outlet. DO NOT attempt to defeat the purpose of the grounded plug.
- Only use the power cord supplied with this product.
- This product should be positioned so that nothing pinches or constricts the power cord. DO NOT allow anything to rest on the power cord. DO NOT place this product where people may step on the cord. DO NOT place this product in a position where the cord is stretched or where strain is otherwise put on the cord. Doing so may cause the cord to become worn or frayed.
- Brother strongly recommends that you DO NOT use any type of extension cord.



- DO NOT put a toner cartridge, a toner cartridge and drum unit assembly, or waste toner box into a fire. It could explode, resulting in injuries.
- DO NOT use flammable substances, any type of spray, or an organic solvent/liquid containing alcohol or ammonia to clean the inside or outside of the product. Doing so could cause a fire or electrical shock. Instead, use only a dry, lint-free cloth.



DO NOT attempt to operate this product when a paper jam or stray pieces of paper are inside the product. Prolonged contact of the paper with the fuser unit could cause a fire.

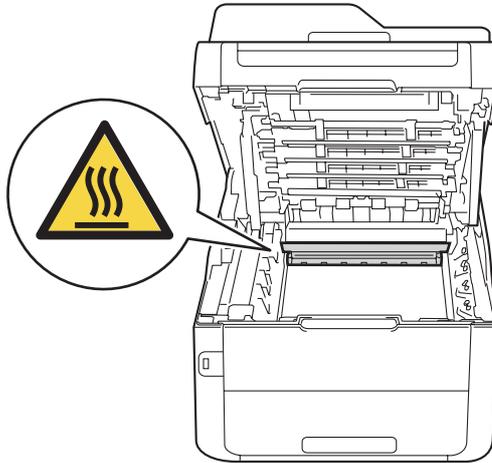


DO NOT use a vacuum cleaner to clean up scattered toner. Doing this might cause the toner dust to ignite inside the vacuum cleaner, potentially starting a fire. Please carefully clean the toner dust with a dry, lint-free soft cloth and dispose of it according to local regulations.



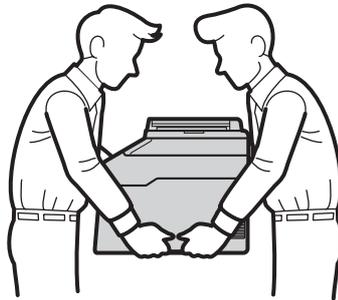
HOT SURFACE

After you have just used the product, some internal parts of the product will be extremely hot. Wait at least 10 minutes for the product to cool down before you touch the internal parts of the product.

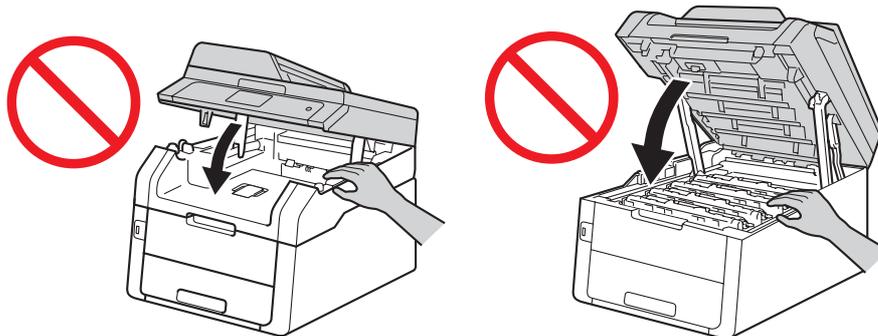


(DCP and MFC)

This product is heavy and weighs more than 20.0 kg (44.1 lb). To prevent possible injuries, at least two people should lift the product. One person should hold the front of the product, and one person should hold the back, as shown in the illustration below. Be careful not to trap your fingers when you put the product down.

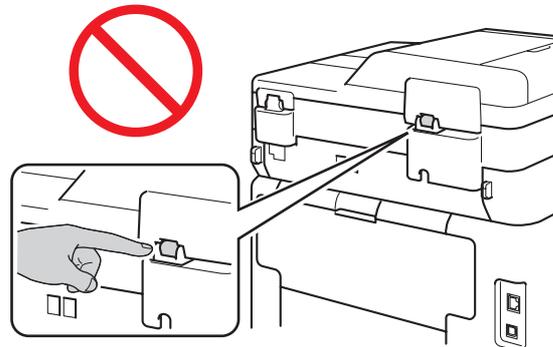


Some areas of the product can cause injury if covers (shaded) are closed with force. Take care when placing your hand in the areas shown in the illustrations, and **DO NOT** close the covers with force.





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



(MFC only)

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

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

Read all of the instructions. Save them for later reference.



(MFC only)

To reduce the risk of shock or fire, use only a No. 26 AWG or larger telecommunication line cord.

■ Unlawful use of copying equipment

It is an offence to make reproductions of certain items or documents with the intent to commit fraud. The following is a non-exhaustive list of documents which it may be unlawful to produce copies of. We suggest you check with your legal adviser and/or the relevant legal authorities if in doubt about a particular item or document:

- Currency
- Bonds or other certificates of indebtedness
- Certificates of Deposit
- Armed forces service or draft papers
- Passports
- Postage stamps (cancelled or uncanceled)
- Immigration papers
- Welfare documents
- Cheques or drafts drawn by governmental agencies
- Identifying badges or insignias

In addition, driving licenses and/or Certificates of Title to motor vehicles may not be copied under certain national laws.

Copyrighted works cannot be copied lawfully, subject to the "fair dealing" exception relating to sections of a copyrighted work. Multiple copies would indicate improper use. Works of art should be considered the equivalent of copyrighted works.

■ Standard telephone and FCC notices (MFC only)

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

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

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

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

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

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

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

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

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

If trouble is experienced with this equipment, for repair or warranty information, please contact Brother Customer Service. (see Basic User's Guide: Brother numbers) 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.

 **WARNING**



For protection against the risk of electrical shock, always disconnect all cables from the wall outlet before the equipment is installed, or modified.

 **IMPORTANT**

- This equipment may not be used on coin service lines provided by the telephone company or connected to party lines.
- Brother cannot accept any financial or other responsibilities that may be the result of your use of this information, including direct, special or consequential damages. There are no warranties extended or granted by this document.
- This product has been certified to comply with FCC standards, which are applied to the U.S.A. only. A grounded plug should be plugged into a grounded AC power outlet after checking the rating of the local power supply for the product to operate properly and safely.

■ **Equipment attachment limitations (Canada only) (MFC only)**

Note:

- This product meets the applicable Industry Canada technical specifications.
Le présent matériel est conforme aux spécifications techniques applicables d'Industrie Canada.
- 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.

CHAPTER 1 SPECIFICATIONS

1. SPECIFICATIONS LIST

1.1 General

Model		DCP-9020CDN	DCP-9020CDW
Print method		Electrophotographic/LED	
Resolution		600 x 600 dpi, 2,400 dpi (600 x 2,400 dpi) quality	
Print speed	One-sided	Monochrome/Full Color: Up to 18/19 ppm (A4/Letter size) (for the U.S.A., Europe) Monochrome/Full Color: Up to 22/23 ppm (A4/Letter size) (for China)	
		* When loading A4 or Letter size paper from the paper tray.	
	2-sided	Monochrome/Full Color: 7/7 sides per minute (3.5/3.5 sheets per minute) (A4/Letter size)	
		* When loading A4 or Letter size paper from the paper tray.	
Warm-up time	From Sleep mode	Less than 24 seconds at 73.4 F (23 °C/50 %)	
	From Power OFF → ON	Less than 30 seconds at 73.4 F (23 °C/50 %)	
First print time	From Ready mode	Monochrome/Full Color: Less than 16/16 seconds	
	From Sleep mode	Monochrome/Full Color: Less than 32/32 seconds	
CPU		StarSapphire 333 MHz	
Memory	Standard	192 MB	
Backup Clock		Up to 60 hours	
Interface		Hi-Speed USB 2.0 10Base-T/100Base-TX	

Specifications are subject to change without notice.

Model		DCP-9020CDN	DCP-9020CDW
Power consumption	Peak	Average: Approximately 1,188 W (for the U.S.A.) Average: Approximately 1,200 W (for Europe, China)	
	Printing	Average: Approximately 365 W (for the U.S.A., Europe) Average: Approximately 375 W (for China)	
	Copying	Average: Approximately 380 W	
	Ready	Average: Approximately 70 W	
	Sleep	Average: Approximately 7.0 W	
	Deep sleep	Average: Approximately 1.4 W	
	Power Off	Average: Approximately 0.05 W	
Noise Level	Sound pressure	Printing	LpAm = 53 dB (A)
		Ready	LpAm = 33 dB (A)
	Sound power	Printing	Full Color: LWAd = 6.42 B (A), Monochrome: LWAd = 6.41 B (A) (for the U.S.A., Europe) Full Color: LWAd = 6.39 B (A), Monochrome: LWAd = 6.42 B (A) (for China)
		Ready	LWAd = 4.38 B (A) (for the U.S.A., Europe) LWAd = 4.44 B (A) (for China)
Environment	Temperature	Operating: 10 to 32.5 °C Storage: 0 to 40 °C	
	Humidity	Operating: 20 to 80 % (without condensation) Storage: 10 to 90 % (without condensation)	
Dimensions (W x D x H)	Carton Size	602 x 534 x 565 mm (23.7 x 21.0 x 22.2 inch) (for the U.S.A., Europe) 612 x 554 x 575 mm (24.1 x 21.8 x 22.6 inch) (for China)	
	Machine Size	410 x 483 x 410 mm (16.1 x 19.0 x 16.1 inch)	
Weights	without Carton, with toner/drum	23.0 kg/50.7 lb	23.2 kg/51.1 lb
LCD Size		81.65 mm x 45.36 mm (3.21 x 1.79 inch)	

Specifications are subject to change without notice.

Model		MFC-9130CW	MFC-9140CDN	MFC-9330CDW	MFC-9340CDW
Print method		Electrophotographic/LED			
Resolution		600 x 600 dpi, 2,400 dpi (600 x 2,400dpi) quality			
Print speed	One-sided	Monochrome/ Full Color: Up to 18/19 ppm (A4/Letter size)	Monochrome/Full Color: Up to 22/23 ppm (A4/Letter size)		
		* When loading A4 or Letter size paper from the paper tray.			
	2-sided	N/A	Monochrome/Full Color: 7/7 sides per minute (3.5/3.5 sheets per minute) (A4/Letter size)		
		* When loading A4 or Letter size paper from the paper tray.			
Warm-up time	From Sleep mode	Less than 24 seconds at 73.4 F (23 °C/50 %)			
	From Power OFF → ON	Less than 30 seconds at 73.4 F (23 °C/50 %)			
First print time	From Ready mode	Monochrome/Full Color: Less than 16/16 seconds			
	From Sleep mode	Monochrome/Full Color: Less than 32/32 seconds			
CPU		StarSapphire 333 MHz			
Memory	Standard	192 MB			256 MB
Backup Clock		Up to 60 hours			
Interface		Hi-Speed USB 2.0 10Base-T/100Base-TX (MFC-9130CW: N/A)			

Specifications are subject to change without notice.

Model		MFC-9130CW	MFC-9140CDN	MFC-9330CDW	MFC-9340CDW	
Power consumption	Peak	Average: Approximately 1,188 W (for the U.S.A.) Average: Approximately 1,200 W (Except for the U.S.A.)				
	Printing	Average: Approximately 365 W	Average: Approximately 380 W (for the U.S.A.) Average: Approximately 375 W (Except for the U.S.A.)			
	Copying	Average: Approximately 380 W				
	Ready	Average: Approximately 70 W				
	Sleep	Average: Approximately 7.5 W				
	Deep sleep	Average: Approximately 1.8 W				
	Power Off	Average: Approximately 0.03 W (for the U.S.A.) Average: Approximately 0.05 W (Except for the U.S.A.)				
Noise Level	Sound pressure	Printing	LpAm = 53 dB (A)			
		Ready	LpAm = 33 dB (A)			
	Sound power	Printing	Full Color: LWAd = 6.42 B (A), Monochrome: LWAd = 6.41 B (A)	Full Color: LWAd = 6.39 B (A), Monochrome: LWAd = 6.42 B (A)		
		Ready	LWAd = 4.38 B (A)	LWAd = 4.44 B (A)		

Specifications are subject to change without notice.

Model		MFC-9130CW	MFC-9140CDN	MFC-9330CDW	MFC-9340CDW
Environment	Temperature	Operating: 10 to 32.5 °C Storage: 0 to 40 °C			
	Humidity	Operating: 20 to 80 % (without condensation) Storage: 10 to 90 % (without condensation)			
Dimensions (W x D x H)	Carton Size	602 x 534 x 565 mm (23.7 x 21.0 x 22.2 inch) (Except for China) 612 x 554 x 575 mm (24.1 x 21.8 x 22.6 inch) (for China)			
	Machine Size	410 x 483 x 410 mm (16.1 x 19.0 x 16.1 inch)			
Weights	without Carton, with toner/ drum	22.5 kg/49.6 lb	23.2 kg/51.1 lb (for Europe, China) 23.6 kg/52.0 lb (for Oceania, Asia)	23.2 kg/51.1 lb (for the U.S.A.) 23.4 kg/51.6 lb (for Europe) 23.6 kg/52.0 lb (for Oceania, Asia)	23.5 kg/51.8 lb
LCD Size		81.65 mm x 45.36 mm (3.21 x 1.79 inch)			

Specifications are subject to change without notice.

<Computer requirements>

Computer Platform & Operating System Version		Processor Minimum Speed	Hard Disk Space to install		Supported PC Interface ^{*2}		
			For Drivers	For Applications			
Windows [®] Operating System	Windows [®] XP Home Edition ^{*1*3}	32 bit (x86) or 64 bit (x64) processor	150 MB	310 MB	USB, 10Base-T/100Base-TX (Ethernet), Wireless IEEE 802.11 b/g/n (Infrastructure Mode/Ad-hoc Mode) IEEE 802.11 g/n (Wi-Fi Direct)		
	Windows [®] XP Professional ^{*1*3}						
	Windows [®] XP Professional x64 Edition ^{*1*3}	64 bit (x64) processor	500 MB	500 MB			
	Windows Vista [®] ^{*1*3}	32 bit (x86) or 64 bit (x64) processor				650 MB	1.2 GB
	Windows [®] 7 ^{*1*3}						
	Windows [®] 8 ^{*1*3}	32 bit (x86) or 64 bit (x64) processor	50 MB	N/A			
	Windows Server [®] 2003						
	Windows Server [®] 2003 x64 Edition					64 bit (x64) processor	
	Windows Server [®] 2008					32 bit (x86) or 64 bit (x64) processor	
	Windows Server [®] 2008 R2					64 bit (x64) processor	
	Windows Server [®] 2012						
Macintosh Operating System	Mac OS X v10.6.8	Intel [®] Processor	80 MB	400 MB			
	OS X v10.7.x						
	OS X v10.8.x						

*1 For WIA , 1,200 x 1,200 resolution. Brother Scanner Utility enables enhancing up to 19,200 x 19,200 dpi.

*2 Third-party USB ports are not supported.

*3 Nuance[™] PaperPort[™] 12SE supports Windows[®] XP Home (SP3 or greater), Windows[®] XP Professional (SP3 or greater), Windows[®] XP Professional x64 Edition (SP2 or greater), Windows Vista[®] (SP2 or greater), Windows[®] 7 and Windows[®] 8.

Specifications are subject to change without notice.

1.2 Network Connectivity

Model		DCP-9020CDN	DCP-9020CDW
Wired network	Network node type	NC-8500h	
	Network type	10Base-T/100Base-TX (Ethernet)	
	Network security	APOP, POP before SMTP, SMTP-AUTH, SSL/TLS (IPPS, HTTPS, SMTP, POP), SNMP v3 802.1x (EAP-MD5, EAP-FAST, PEAP, EAP-TLS, EAP-TTLS), Kerberos	
Wireless network	Network node type	N/A	NC-8100W
	Network type	N/A	IEEE 802.11 b/g/n (Infrastructure Mode/ Ad-hoc Mode) IEEE 802.11 g/n (Wi-Fi Direct)
	Communication mode	N/A	Infrastructure, Ad-hoc, Wi-Fi Direct
	Network security	N/A	APOP, POP before SMTP, SMTP-AUTH, SSL/TLS (IPPS, HTTPS, SMTP, POP), SNMP v3, 802.1x (LEAP, EAP-FAST, PEAP, EAP-TLS, EAP-TTLS), Kerberos WEP 64/128 bit, WPA-PSK (TKIP/AES), WPA2-PSK (AES)

Specifications are subject to change without notice.

Model		MFC-9130CW	MFC-9140CDN	MFC-9330CDW	MFC-9340CDW
Wired network	Network node type	N/A	NC-8500h		
	Network type	N/A	10Base-T/100Base-TX (Ethernet)		
	Network security	N/A	APOP, POP before SMTP, SMTP-AUTH, SSL/TLS (IPPS, HTTPS, SMTP, POP), SNMP v3, 802.1x (EAP-MD5, EAP-FAST, PEAP, EAP-TLS, EAP-TTLS), Kerberos		
Wireless network	Network node type	NC-8100W	N/A	NC-8100W	
	Network type	IEEE 802.11 b/g/n (Infrastructure Mode/ Ad-hoc Mode) IEEE 802.11 g/n (Wi-Fi Direct)	N/A	IEEE802.11b/g/n (Infrastructure Mode/ Ad-hoc Mode) IEEE 802.11 g/n (Wi-Fi Direct)	
	Communication mode	Infrastructure, Ad-hoc, Wi-Fi Direct	N/A	Infrastructure, Ad-hoc, Wi-Fi Direct	
	Network security	APOP, POP before SMTP, SMTP-AUTH, SSL/TLS (IPPS, HTTPS, SMTP, POP), SNMP v3, 802.1x (LEAP, EAP-FAST, PEAP, EAP-TLS, EAP-TTLS), Kerberos WEP 64/128 bit, WPA-PSK (TKIP/AES), WPA2-PSK (AES)	N/A	APOP, POP before SMTP, SMTP-AUTH, SSL/TLS (IPPS, HTTPS, SMTP, POP), SNMP v3, 802.1x (LEAP, EAP-FAST, PEAP, EAP-TLS, EAP-TTLS), Kerberos WEP 64/128 bit, WPA-PSK (TKIP/AES), WPA2-PSK (AES)	

Specifications are subject to change without notice.

1.3 Service Information

Model		All models
Machine life		100,000 pages (A4/Letter size) or 5 years
Part life (ADF)		Up to 50,000 pages or 5 years
Part life (Document scanner unit)		Up to 50,000 pages or 5 years
MTBF		4,000 hours
MTTR		0.5 hours
Maximum monthly volume		Up to 30,000 pages
Periodical replacement parts	Fuser unit	50,000 pages (Service replacement)
	PF kit 1	50,000 pages (Service replacement)

* As for replacement of the periodical maintenance parts, refer to “**PERIODICAL MAINTENANCE**” in Chapter 7.

Specifications are subject to change without notice.

1.4 Supplies

Model			All models
Toner cartridge	Starter Toner ^{*1}	Black	Approximately 1,000 pages (Except for China) Approximately 2,500 pages (for China)
		Cyan, Magenta, Yellow	Approximately 1,000 pages (Except for China) Approximately 2,200 pages (for China)
	Standard Toner	Black	Approximately 2,500 pages
		Cyan, Magenta, Yellow	Approximately 1,400 pages (Except for China) Approximately 2,200 pages (for China)
	High Yield Toner	Black	N/A
		Cyan, Magenta, Yellow	Approximately 2,200 pages
<p>* When printing A4/Letter size one sided pages in accordance with ISO/IEC 19798. Self life: 2 years without opening (6 months after opening)</p>			
Drum unit		<p>Life expectancy: Approximately 15,000 pages (1page/job) The life expectancy varies according to the use condition. Shelf life: 2 years</p>	
<p>The shelf life of toner cartridge and drum unit is guaranteed under the normal condition as below; (Temperature) Normal condition: 0 to 40 °C * Storage condition at the temperature of 40 to 50 °C: Up to 5 days * Storage condition at the temperature of -20 to 0 °C: Up to 5 days (Humidity) Normal condition: 35 to 85 % (without condensation) * Storage condition at the humidity of 85 to 95 %: Up to 5 days (without condensation) * Storage condition at the humidity of 10 to 35 %: Up to 5 days (without condensation)</p>			
Belt unit		<p>Life expectancy: Approximately 50,000 pages/belt unit The life expectancy varies according to use the condition.</p>	
Waste toner box		<p>Life expectancy: Approximately 50,000 pages/waste toner box</p>	

*1 Toner supplied with the machine.

Specifications are subject to change without notice.

1.5 Paper

1.5.1 Paper handling

Model		DCP-9020CDN	DCP-9020CDW	MFC-9130CW	MFC-9140CDN	MFC-9330CDW	MFC-9340CDW
Paper Input	Paper tray 1	250 sheets					
	Manual feed slot	1 sheet					
	ADF	35 sheets					
Paper Output	Face-down	100 sheets (80 g/m ²)					
	Face-up	1 sheet (Straight paper path)					
2-sided		Yes		N/A	Yes		

Specifications are subject to change without notice.

1.5.2 Media specifications

Model		All models
Media type	Paper tray 1	Plain Paper, Thin Paper, Recycled Paper
	Manual feed slot	Plain Paper, Thin Paper, Thick Paper, Thicker Paper, Recycled Paper, Bond paper, Label, Envelope, Env. Thin, Env.Thick, Glossy Paper ^{*1}
	2-sided	Plain Paper, Thin Paper, Recycled Paper
	ADF	Plain Paper, Recycled Paper
Media weight	Paper tray 1	60 to 105 g/m ² (16 to 28 lb)
	Manual feed slot	60 to 163 g/m ² (16 to 43 lb)
	2-sided	60 to 105 g/m ² (16 to 28 lb)
	ADF	64 to 90 g/m ² (17 to 24 lb)
Media size	Paper tray 1	A4, Letter, B5 (JIS), A5, A5 (Long Edge), A6, Executive, Legal ^{*2} , Folio
	Manual feed slot	Width: 76.2 to 216 mm (3.0 to 8.5 inch) Length: 116 to 355.6 mm (4.57 to 14 inch)
	2-sided	Letter, Legal ^{*2} , Folio (for the U.S.A.), A4 (for Europe, Asia, Oceania, China)
	ADF	Width 147.3 to 215.9 mm (5.8 to 8.5 inch) Length 147.3 to 356.0 mm (5.8 to 14 inch)

^{*1} When you print on glossy paper, set only a single sheet on the manual feed slot.

^{*2} Legal size paper is not available in some regions outside U.S.A. and Canada.

Specifications are subject to change without notice.

1.5.3 Type and size of paper

The machine loads paper from the installed paper tray or the manual feed slot.

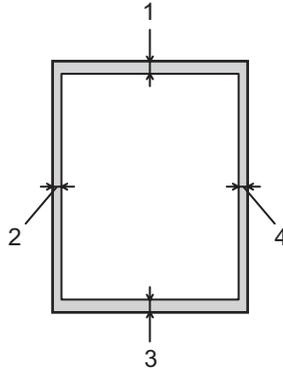
The names for the paper trays in the printer driver as follows:

The name for the paper trays	The name for the paper trays in the printer driver
Paper tray 1	Tray 1
Manual feed slot	Manual

Specifications are subject to change without notice.

1.6 Printable & Scannable Area

The figures below show maximum scannable and printable areas. The printable area is defined by subtracting the margins (shown in the list below) from each side of a paper. These areas may vary depending on the paper size or settings in the application you are using.



Usage	Document Size	Top (1), Bottom (3)	Left (2), Right (4)
FAX (Sending)	Letter	3 mm (0.12 inch)	4 mm (0.16 inch)
	A4	3 mm (0.12 inch)	ADF: 1 mm (0.04 inch) Scanner Glass: 3 mm (0.12 inch)
	Legal	3 mm (0.12 inch)	4 mm (0.16 inch)
Copy *	Letter	4 mm (0.16 inch)	4 mm (0.16 inch)
	A4	4 mm (0.16 inch)	3 mm (0.12 inch)
	Legal	4 mm (0.16 inch)	4 mm (0.16 inch)
Scan	Letter	3 mm (0.12 inch)	3 mm (0.12 inch)
	A4	3 mm (0.12 inch)	3 mm (0.12 inch)
	Legal (ADF)	3 mm (0.12 inch)	3 mm (0.12 inch)
Print	Letter	4.2 mm (0.16 inch)	4.2 mm (0.16 inch)
	A4	4.2 mm (0.16 inch)	4.2 mm (0.16 inch)
	Legal	4.2 mm (0.16 inch)	4.2 mm (0.16 inch)

* A single copy or a 1 in 1 copy

Specifications are subject to change without notice.

1.7 Telephone

Model	All models
Handset	N/A

Specifications are subject to change without notice.

1.8 FAX (Only for the models with FAX function)

Model		DCP-9020CDN	DCP-9020CDW	MFC-9130CW	MFC-9140CDN	MFC-9330CDW	MFC-9340CDW
Modem Speed		N/A		33,600 bps (FAX)			
Transmission speed		N/A		Approximately 2 seconds (ITU-T Test Chart #1, Std resolution, JBIG)			
ITU-T group		N/A		Super G3			
Color FAX	Sending	N/A					
	Receiving	N/A					
Internet FAX (ITU T.37 simple mode)		N/A		Yes (Download only)			

Specifications are subject to change without notice.

1.9 Copy

Model		DCP-9020CDN	DCP-9020CDW
Copy Speed (A4/Letter)		Monochrome/Full Color: Up to 18/19 ppm (for the U.S.A., Europe) Monochrome/Full Color: Up to 22/23 ppm (for China)	
First copy out time	From Ready mode and Paper tray	Monochrome/Full Color: Less than 19/22 seconds	
	From Sleep mode and Paper tray	Monochrome/Full Color: Less than 35/38 seconds	
Resolution		600 x 600 dpi	
Auto duplex scanning copy		N/A	

Specifications are subject to change without notice.

Model		MFC-9130CW	MFC-9140CDN	MFC-9330CDW	MFC-9340CDW
Copy Speed (A4/Letter)		Monochrome/Full Color: Up to 18/19 ppm	Monochrome/Full Color: Up to 22/23 ppm		
First copy out time	From Ready mode and Paper tray	Monochrome/Full Color: Less than 19/22 seconds			
	From Sleep mode and Paper tray	Monochrome/Full Color: Less than 35/38 seconds			
Resolution		600 x 600 dpi			
Auto duplex scanning copy		N/A			Yes

Specifications are subject to change without notice.

1.10 Scanner

Model		DCP-9020CDN	DCP-9020CDW
Resolution (Optical)	FB	Maximum scanning 1,200 (main scanning) x 2,400 dpi (sub scanning)	
	ADF	Maximum scanning 1,200 (main scanning) x 600 dpi (sub scanning)	
Resolution (Interpolated)		Maximum scanning 19,200 (main scanning) x 19,200 dpi (sub scanning)	
Scanning speed	Monochrome	2.18 seconds (Letter)/2.32 seconds (A4)	
	Color	2.90 seconds (Letter)/3.09 seconds (A4)	
Scanning speed (Duplex)	Monochrome	N/A	
	Color	N/A	

Specifications are subject to change without notice.

Model		MFC-9130CW	MFC-9140CDN	MFC-9330CDW	MFC-9340CDW
Resolution (Optical)	FB	Maximum scanning 1,200 (main scanning) x 2,400 dpi (sub scanning)			
	ADF	Maximum scanning 1,200 (main scanning) x 600 dpi (sub scanning)			
Resolution (Interpolated)		Maximum scanning 19,200 (main scanning) x 19,200 dpi (sub scanning)			
Scanning speed	Monochrome	2.18 seconds (Letter)/2.32 seconds (A4)			
	Color	2.90 seconds (Letter)/3.09 seconds (A4)			
Scanning speed (Duplex)	Monochrome	N/A		2.64 seconds (Letter)/ 2.81 seconds (A4)	
	Color	N/A		7.92 seconds (Letter)/ 8.42 seconds (A4)	

Specifications are subject to change without notice.

1.11 USB Direct Interface

Model	DCP-9020CDN	DCP-9020CDW
PictBridge	N/A	
Direct print	N/A	

Specifications are subject to change without notice.

Model	MFC-9130CW	MFC-9140CDN	MFC-9330CDW	MFC-9340CDW
PictBridge	N/A			
Direct print	N/A		PDF version 1.7, JPEG, Exif+JPEG, PRN (created by own printer driver) TIFF (scanned by Brother model), XPS version 1.0	

Specifications are subject to change without notice.

CHAPTER 2 ERROR INDICATION AND TROUBLESHOOTING

1. INTRODUCTION

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

1.1 Precautions

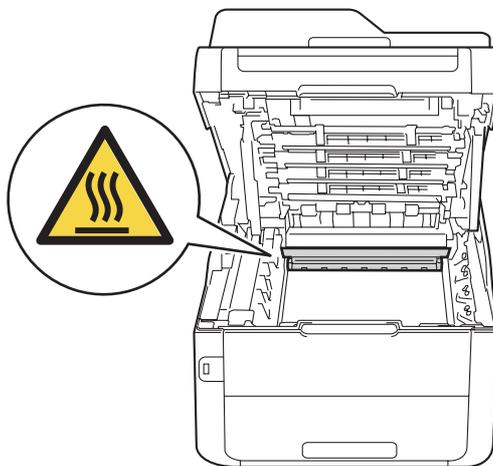
Be sure to observe and follow all the precautions to prevent any secondary problems from happening during troubleshooting.

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



WARNING

The fuser unit becomes extremely hot during operation. Wait until it has cooled down sufficiently before replacing consumable items. DO NOT remove or damage the caution label located on or around the fuser.



 **WARNING**

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



- (5) Check again that the portions and parts repaired or removed during the repair work function properly when the repair is completed.

1.2 Initial Check

Check the following items before attempting to repair the machine.

■ Operating environment

- (1) Put your machine on a flat, stable surface such as a desk that is free of vibration and shocks.
- (2) Use the machine in a well-ventilated room; use the machine within the following ranges of temperature and humidity: temperature between 10 °C and 32.5 °C (50 °F to 90.5 °F), and the relative humidity is maintained between 20 % and 80 %.
- (3) Ensure the machine is not exposed to direct sunlight, excessive heat, moisture, or dust.
- (4) Keep the machine horizontal when you carry it.

■ Power supply

- (1) The AC input power supply described on the rating plate of the machine should be within ± 10 % of the rated voltage.
- (2) The AC input power supply is within the regulated value.
- (3) The cables and harnesses are connected correctly.
- (4) The fuses are not blown.

■ Paper

- (1) A recommended type of paper is being used. (Refer to "[1.5.2 Media specifications](#)" in [Chapter 1](#).)
- (2) The paper is not damp.
- (3) The paper is not short-grained paper or acid paper.

■ Consumable parts

- (1) The drum unit (including the toner cartridge) is installed correctly.
- (2) The belt unit and waste toner box are installed correctly.

■ Others

- (1) Condensation

When the machine is moved from a cold place into a warm room, condensation may occur inside the machine, causing various problems as listed below.

- Condensation on the surface of optical devices such as the lens, reflecting mirror, and protection glass may cause light print image.
- Condensation on the optical surfaces such as the LED array may cause the print image to be light.
- If the exposure drum is cold, the electrical resistance of the photosensitive layer is increased, making it impossible to obtain the correct contrast when printing.
- Condensation on the charge unit may cause corona charge leakage.
- Condensation on the plate and separation pad may cause paper feed problems.

If condensation has occurred, leave the machine for at least two hours to allow it to reach room temperature.

If the drum unit is unpacked soon after it is moved from a cold place to a warm room, condensation may occur inside the unit which may cause incorrect images. Instruct the user to allow the unit to come to room temperature before unpacking it. This will take one or two hours.

(2) Low temperature

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

■ **Cleaning**

Use a soft dry lint-free cloth.

 **WARNING**

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

2. OVERVIEW

2.1 Cross-section Drawing

2.1.1 Printer part

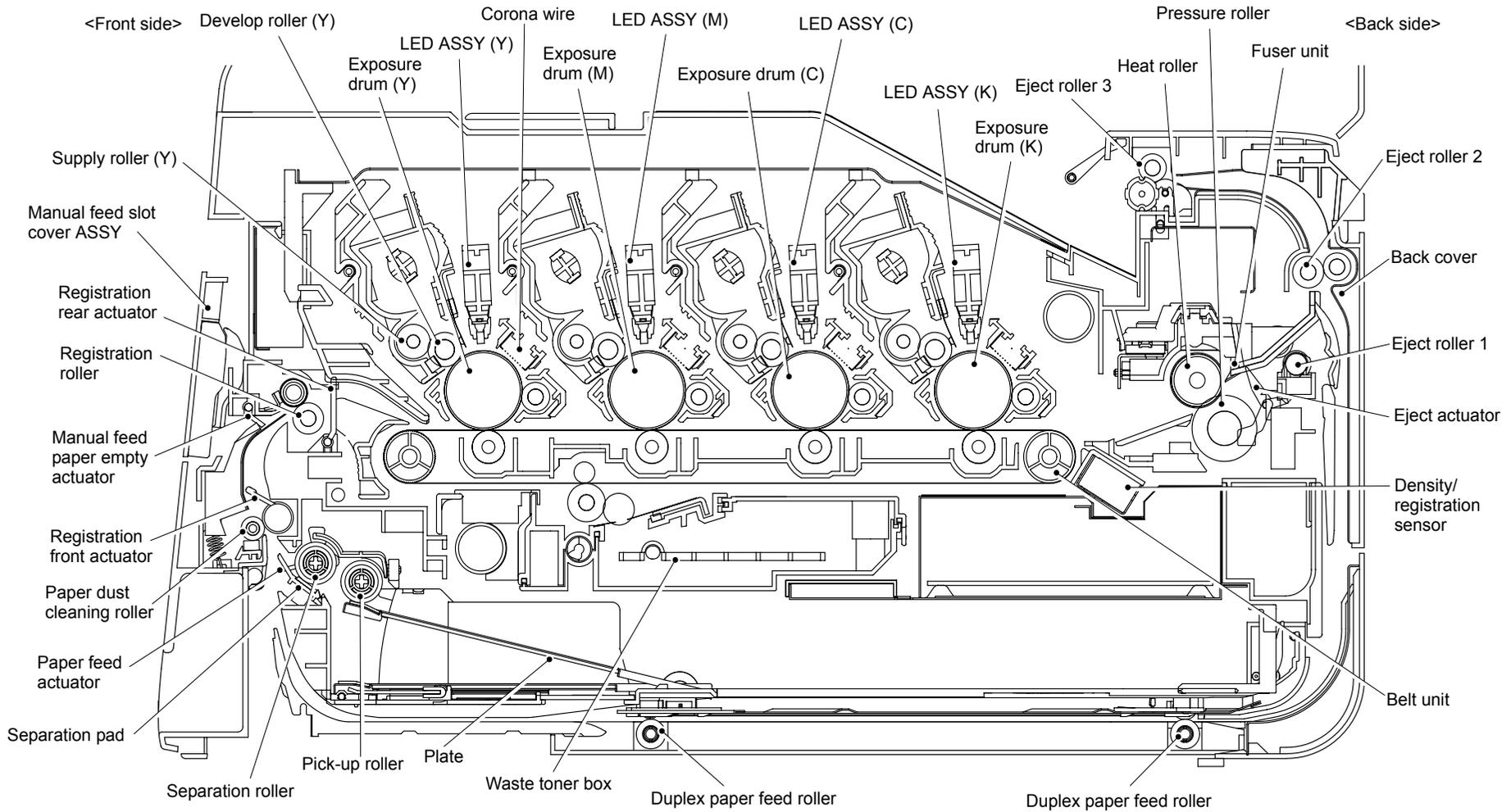


Fig. 2-1

2.1.2 ADF unit/Document scanner unit

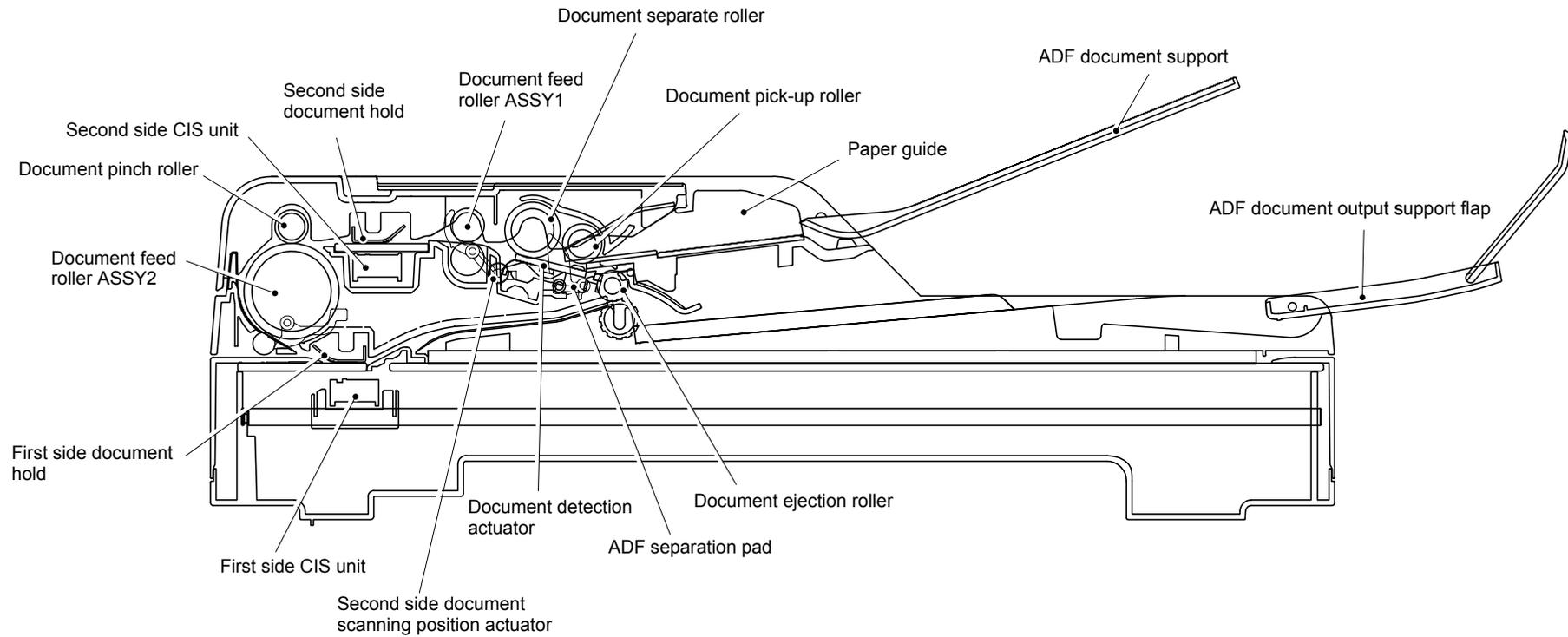


Fig. 2-2

* The one-sided scanning model is not provided with the second side document hold, second side CIS unit and second side document scanning position actuator which are shown in the above figure.

2.2 Paper Feeding

2.2.1 Printer part

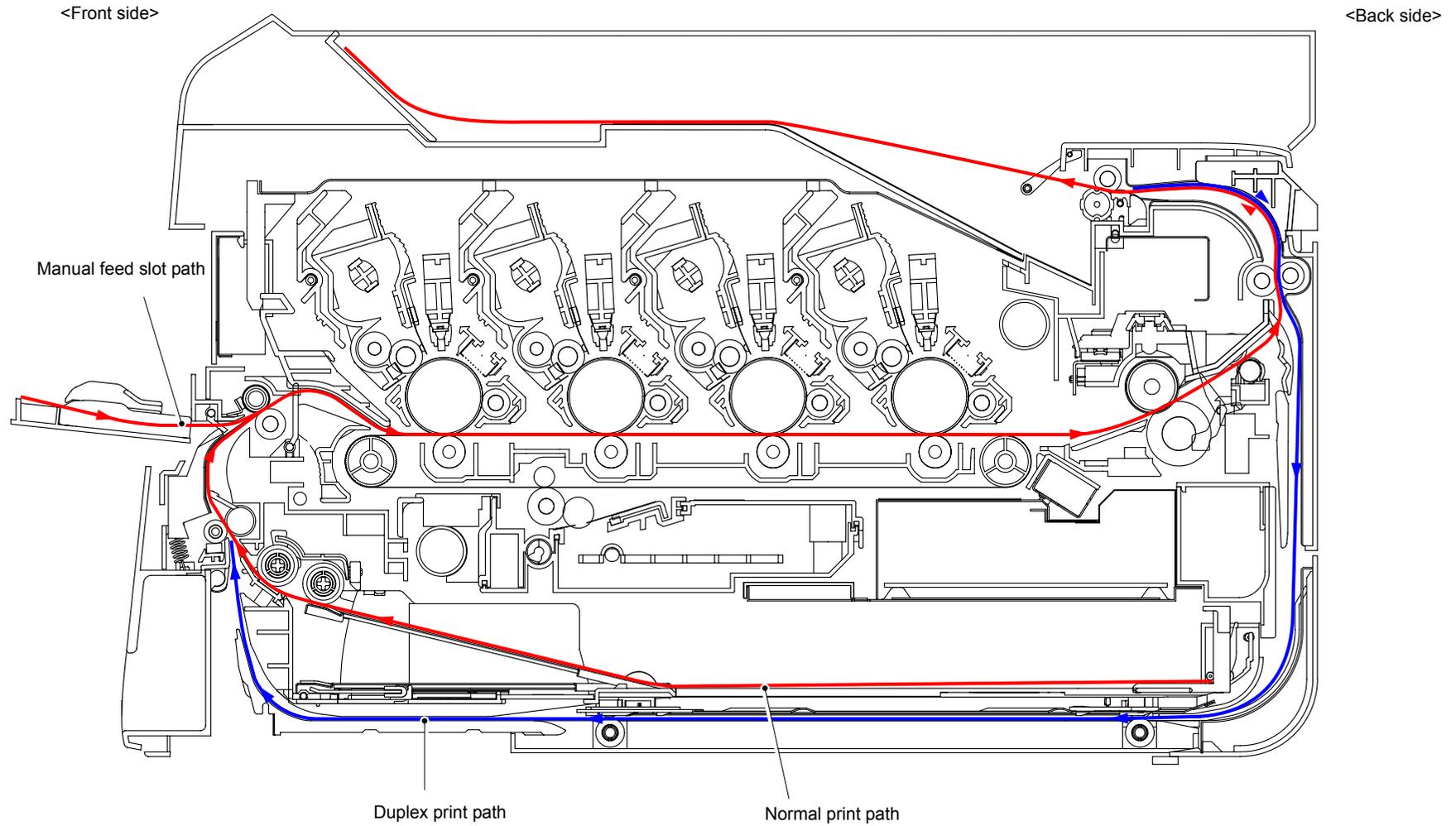


Fig. 2-3

2.2.2 Scanning part

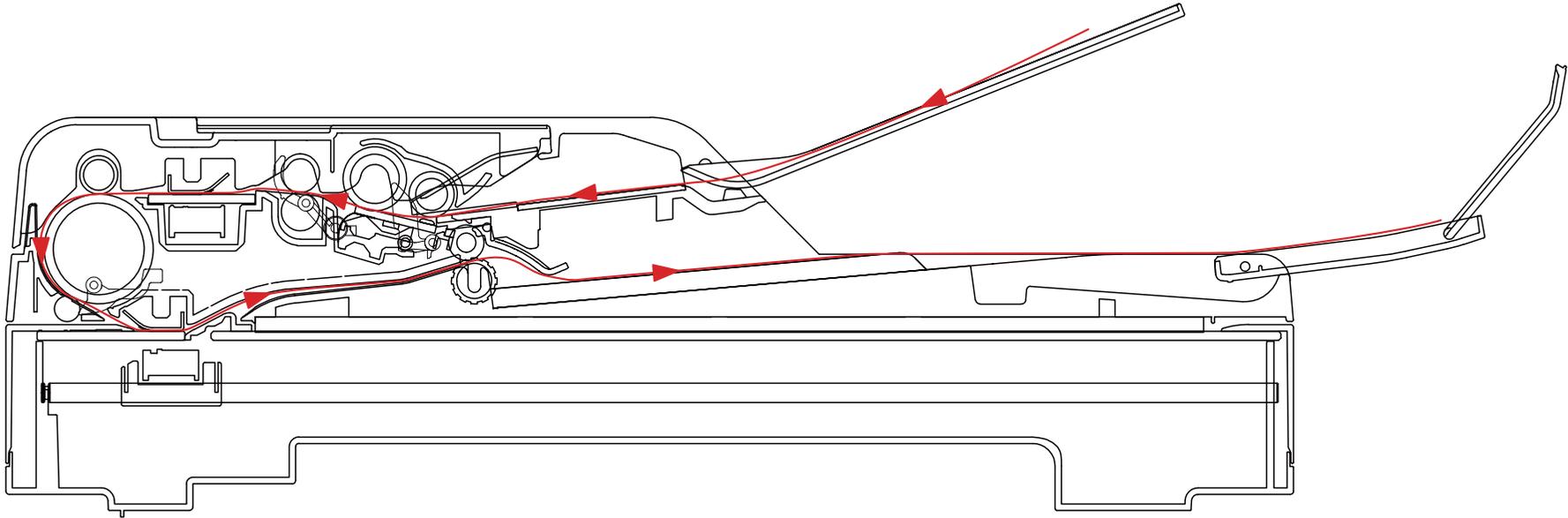


Fig. 2-4

2.3 Operation of Each Part

Part name	Operation
Pick-up roller	Feed the paper from the paper tray.
Separation roller/Separation pad	Separate into single sheet from the paper tray.
Paper feed actuator (Paper feed sensor)	Detect whether or not the paper tray is installed. Detect the paper jam of front part. Detect the rear edge of paper to adjust the timing of feeding the next paper.
Registration front actuator (Registration front sensor)	Detect the front edge of paper and control the drive of the registration roller. Detect the paper jam of front part.
Registration roller	When the front edge of the paper hit the stopped registration roller and the inclination of the paper is corrected. After correction, the paper is fed.
Registration rear actuator (Registration rear sensor)	Detect the front edge of paper to adjust the writing start position. Detect the paper jam of center part. Detect the front and rear edges of paper to detect the paper size.
Belt unit	Feed the paper to the drum unit for each color and transfer toner on the paper.
Heat roller Pressure roller	Fuse and fix the toner transferred on paper by heat and pressure, and feed the paper to the eject roller.
Eject actuator (Eject sensor)	Detect whether or not paper is ejected from the fuser unit. Detect the rear edge of paper in 2-sided printing to adjust the timing of switching the rotation of the eject roller. Detect paper jam at the rear of the machine.
Eject roller 1	Feed the paper ejected from the fuser unit to the eject roller 2.
Eject roller 2	Feed the paper ejected from the eject roller1 to the output tray. In 2-sided printing, after some sheets of paper are fed through the paper eject roller, its rotation is reversed to feed the papers to the duplex tray. (Duplex printing model only)
Duplex paper feed roller	Feed the paper passed in the duplex tray to the registration roller.
Manual feed paper empty actuator	Detect whether paper is set in the manual feed slot.
Back cover sensor	Detect whether the back cover is open.
Top cover sensor	Detect whether the joint cover ASSY is open.
Document pick-up roller	Feed the documents from the ADF document support.
Document separate roller/ ADF separation pad	Separate the documents fed from the ADF document support into a single sheet of paper each.
Document detection sensor	Detect whether documents are set in the ADF.
Document scanning position sensor	Detect the scanning start position of the first and second sides. Detect paper jam in the ADF.
Document ejection roller	Feed the documents to the output tray.
ADF cover sensor	Detect whether the ADF cover is opened or closed.
Internal temperature thermistor	Detect the internal temperature of the machine.

2.4 Block Diagram

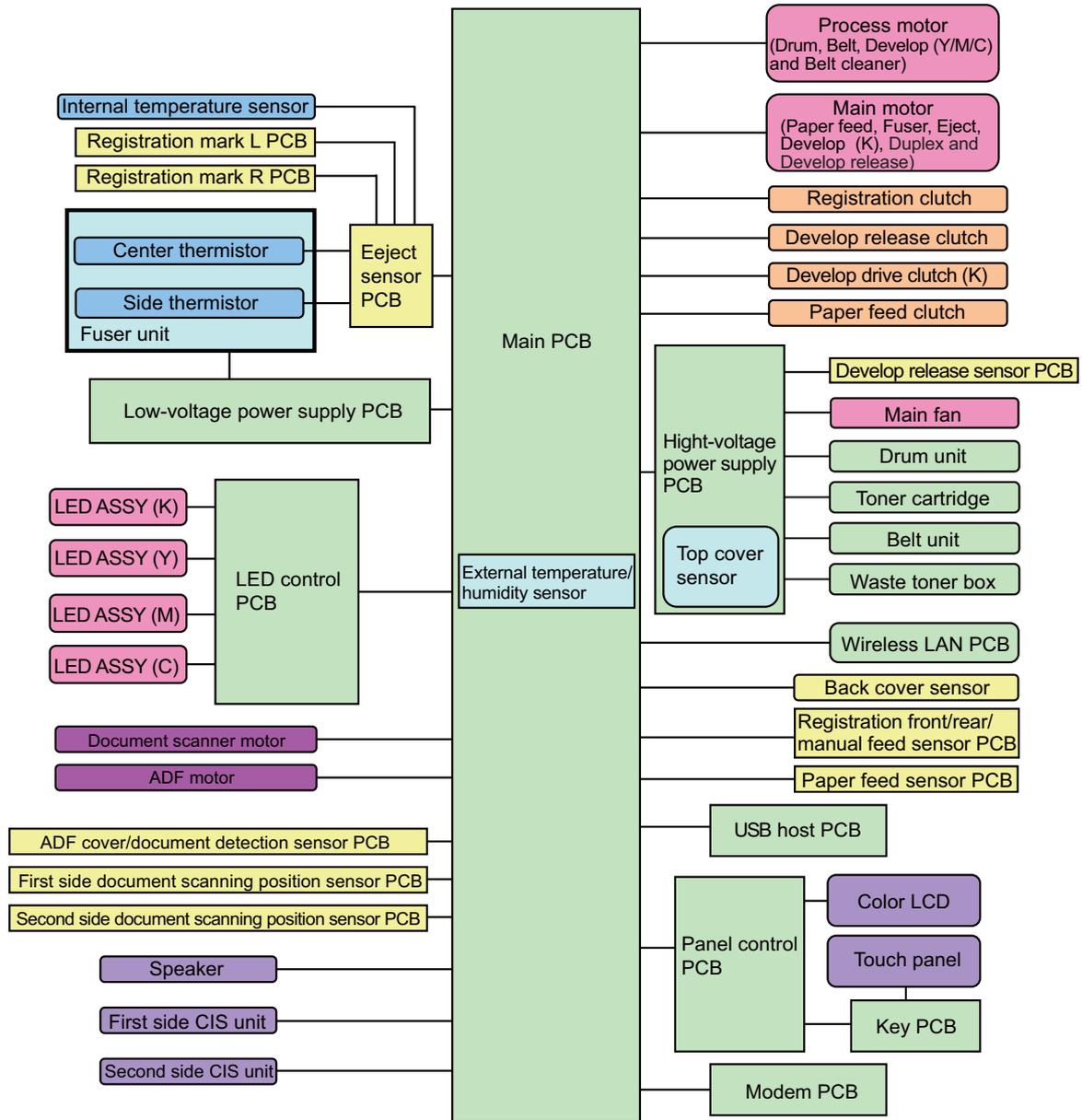


Fig. 2-5

2.5 Components

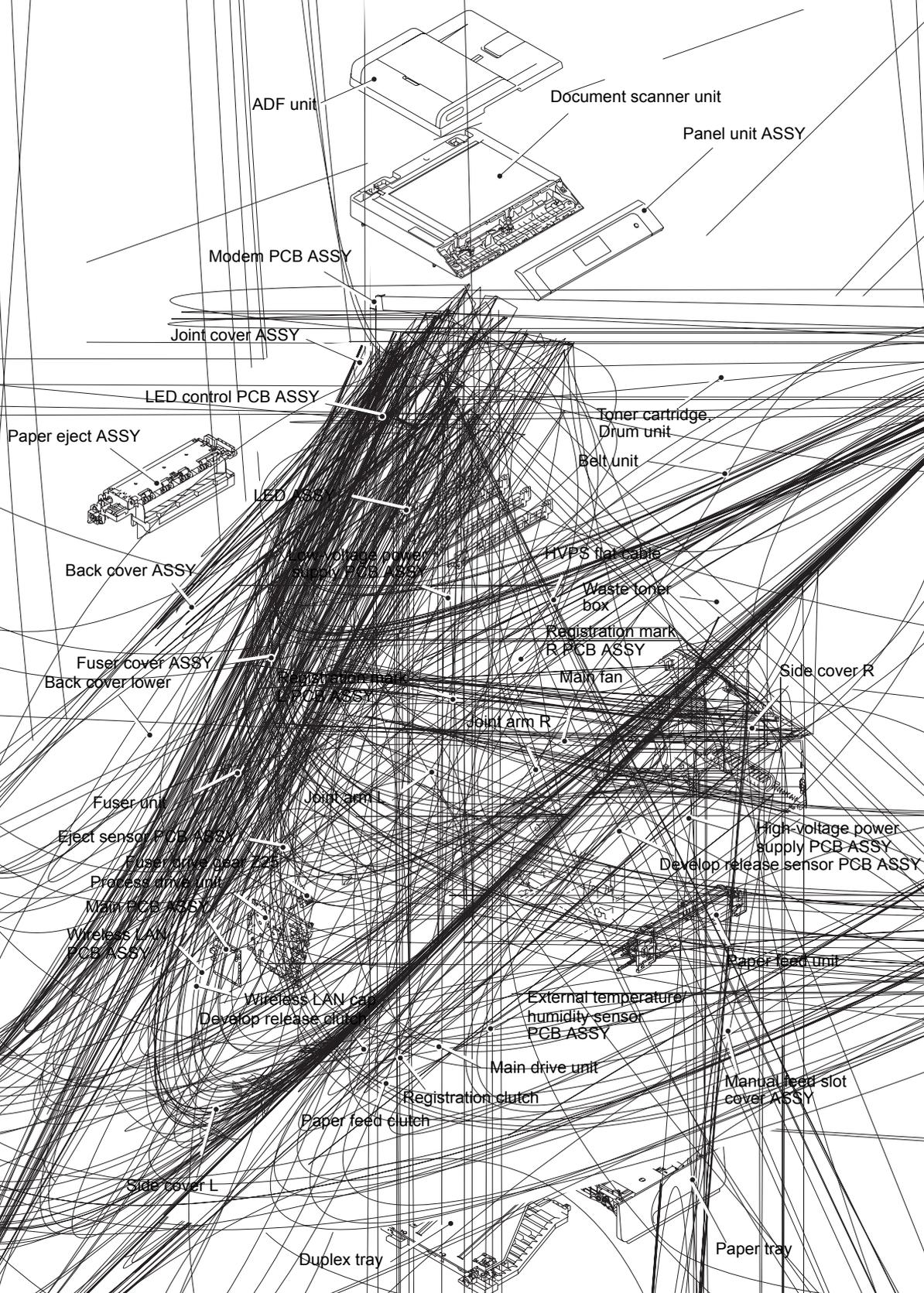


Fig. 2-6

3. ERROR INDICATIONS

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

3.1 Error Codes

The shaded errors hardly occur under normal use. They may be caused by noise around the installation site, variation in power supply voltage, or software failure.

Error codes	Problem	Refer to:	Error codes	Problem	Refer to:
0100	ASIC error or motor driver error occurred.	2-34	0502	The center thermistor of the fuser unit does not reach the specified temperature within the specified time.	2-35
0201	Synchronization signal from the main motor cannot be detected. Or the main motor speed is unstable after a set period of time.	2-34	0503	The center thermistor of the fuser unit detected a temperature higher than the specified one.	2-35
0202	Synchronization signal from the process motor cannot be detected. Or the process motor speed is unstable after a set period of time.	2-34	0504	After the center thermistor of the fuser unit was normally heated, it detected a temperature lower than the specified one.	2-35
0203	---		0505	The center thermistor of the fuser unit detected a temperature rise greater than the specified value within a set period of time.	2-35
0204	---		0506	The center thermistor of the fuser unit detected a temperature fall greater than the specified value within a set period of time.	2-35
0205	---		0507	---	
0206	---		0508	---	
0207	---		0509	---	
0208	---		050A	The center thermistor or side thermistor of the fuser unit detected some temperature error in the hardware.	2-36
0209	---				
0300	---				
0401	---				
0402	---				
0501	The center thermistor of the fuser unit does not reach the specified temperature within the specified time.	2-35			

Error codes	Problem	Refer to:	Error codes	Problem	Refer to:
050B	When the temperature of the center thermistor of the fuser unit is lower than the idle temperature, the side thermistor of the fuser unit detected a temperature higher than the specified one.	2-36	1001	---	
			1002	---	
			1003	The registration mark L PCB is dirty and cannot normally receive reflected light.	2-39
050C	When the temperature of the center thermistor of the fuser unit is higher than the idle temperature, the side thermistor of the fuser unit detected a temperature lower than the specified one.	2-36	1004	The registration mark R PCB is dirty and cannot normally receive reflected light.	2-39
			1100	---	
			1300	---	
050D	---		1400	---	
050F	---		1C00	---	
0700	---		1D01	Communication error occurred in the LED ASSY (Black).	2-40
0800	Error occurred in the internal temperature sensor.	2-37	1D02	Communication error occurred in the LED ASSY (Yellow).	2-40
0900	Machine detected that supplied power was unstable.	2-37	1D03	Communication error occurred in the LED ASSY (Magenta).	2-40
0A01	---		1D04	Communication error occurred in the LED ASSY (Cyan).	2-40
0A02	The main fan failure was detected.	2-38	1E01	Access is unavailable between the main PCB and LED control PCB.	2-41
0B01	Error in the high-voltage power supply PCB ASSY while the machine is in operation.	2-38	1E02	Read/Write is unavailable between the main PCB and LED control PCB.	2-41
0B02	Error in the high-voltage power supply PCB ASSY in the ready state.	2-38	2001	---	
0C00	Error occurred in the density sensor.	2-39	2002	---	
			2003	---	
0D01	---		2004	---	
0D02	---		2005	---	
0D03	---		2006	---	
0D04	---		2101	---	
0E00	---				

Error codes	Problem	Refer to:	Error codes	Problem	Refer to:
2102	---		2801	---	
2103	---		2802	---	
2104	---		2803	---	
2105	---		2804	---	
2201	---		2805	---	
2202	---		2806	---	
2203	---		2901	---	
2204	---		2902	---	
2205	---		2903	---	
2206	---		2904	---	
2207	---		2905	---	
2301	---		2906	---	
2302	---		2A01	---	
2401	---		2A02	---	
2402	---		2A03	---	
2403	---		2B01	---	
2404	---		2B02	---	
2405	---		2C01	---	
2408	---		2C02	---	
2409	---		2D01	---	
2501	---		2E01	---	
2502	---		2E02	---	
2503	---		2E03	---	
2504	---		2E04	---	
2601	---		2E05	---	
2602	---		2E06	---	
2603	---		2E07	---	
2604	---		2E08	---	
2605	---		2E0A	---	
2701	---		2F01	---	
2702	---		2F02	---	
2703	---		2F03	---	

Error codes	Problem	Refer to:	Error codes	Problem	Refer to:
2F04	---		4003	Number of the drum unit (Magenta) rotations reaches the upper limit soon.	2-42
2F05	---				
2F06	---				
2F07	---		4004	Number of the drum unit (Cyan) rotations reaches the upper limit soon.	2-42
2F08	---				
2F0A	---				
3001	---		4200	---	
3002	---		4201	Number of the drum unit (Black) rotations has reached the upper limit.	2-43
3003	---				
3102	---				
3202	---		4202	Number of the drum unit (Yellow) rotations has reached the upper limit.	2-43
3301	---				
3302	---				
3401	---		4203	Number of the drum unit (Magenta) rotations has reached the upper limit.	2-43
3402	---				
3501	---				
3601	---		4204	Number of the drum unit (Cyan) rotations has reached the upper limit.	2-43
3701	---				
3702	---				
3703	---		4208	---	
3801	Error occurred in the external temperature/humidity sensor.	2-41	4300	The belt unit will reach the end of life soon. (90%)	2-43
3802	---		4400	Number of pages printed with the belt unit has reached the upper limit.	2-43
3A00	Error occurred in the communication between the controller in the main PCB and engine.	2-41			
4000	---		4408	---	
4001	Number of the drum unit (Black) rotations reaches the upper limit soon.	2-42	4500	Printable pages set for the fuser unit has reached the upper limit.	2-44
			4600	---	
4002	Number of the drum unit (Yellow) rotations reaches the upper limit soon.	2-42	4700	The waste toner sensor detected that the waste toner box is almost full.	2-44

Error codes	Problem	Refer to:	Error codes	Problem	Refer to:
4800	After the waste toner sensor detected that the waste toner box was almost full, pages more than the specified number have been printed.	2-44	4D01	---	
			4E01	---	
			4F01	The new toner sensor of the toner cartridge (Black) could not detect a new cartridge properly.	2-47
4900	---				
4A00	---				
4B01	Dot counter of the toner cartridge (Black) or develop roller counter reaches the upper limit soon.	2-45	4F02	The new toner sensor of the toner cartridge (Yellow) could not detect a new cartridge properly.	2-47
			4F03	The new toner sensor of the toner cartridge (Magenta) could not detect a new cartridge properly.	2-47
			4F04	The new toner sensor of the toner cartridge (Cyan) could not detect a new cartridge properly.	2-47
4B02	Dot counter of the toner cartridge (Yellow) or develop roller counter reaches the upper limit soon.	2-45			
4B03	Dot counter of the toner cartridge (Magenta) or develop roller counter reaches the upper limit soon.	2-45			
4B04	Dot counter of the toner cartridge (Cyan) or develop roller counter reaches the upper limit soon.	2-45	5001	---	
4C01	Dot counter of the toner cartridge (Black) or develop roller counter has reached the upper limit was detected.	2-46	5002	Printable pages set for the PF kit 1 has reached the upper limit.	2-47
			5003	---	
			5004	---	
4C02	Dot counter of the toner cartridge (Yellow) or develop roller counter has reached the upper limit was detected.	2-46	5005	---	
			5100	---	
			5200	---	
4C03	Dot counter of the toner cartridge (Magenta) or develop roller counter has reached the upper limit was detected.	2-46	5301	---	
			5302	---	
			5401	---	
4C04	Dot counter of the toner cartridge (Cyan) or develop roller counter has reached the upper limit was detected.	2-46	5402	---	
			5406	---	
			5502	---	
4C05	During printing, dot counter of color toner cartridge or develop roller counter has reached the upper limit was detected.	2-46	5602	---	
			5702	---	
			5801	---	
			5802	---	
			5902	---	

Error codes	Problem	Refer to:	Error codes	Problem	Refer to:
5A02	---		6209	Immediately after power-ON or the joint cover ASSY was closed, GRID current error detected that one of the drum units (Color) was not set.	2-51
5B02	---				
5C02	---				
6001	The top cover sensor detected that the joint cover ASSY was open.	2-48	620A	Immediately after power-ON or the joint cover ASSY was closed, GRID current error detected that no drum unit (Black) was set.	2-51
6002	---				
6003	---		6300	BCLN terminal current value detected that no waste toner box was set.	2-52
6004	Eject sensor detected that fuser cover ASSY was open.	2-48			
6101	New toner detection terminal not being conducting caused the machine to detected that a toner cartridge (Black) is not set.	2-49	6400	The registration mark sensor detected that no belt unit was set.	2-53
6102	New toner detection terminal not being conducting caused the machine to detected that a toner cartridge (Yellow) is not set.	2-49	6602	---	
			6701	---	
6103	New toner detection terminal not being conducting caused the machine to detected that a toner cartridge (Magenta) is not set.	2-49	6801	The internal temperature sensor detected a temperature higher than the specified one.	2-54
6104	New toner detection terminal not being conducting caused the machine to detected that a toner cartridge (Cyan) is not set.	2-49	6802	---	
			6901	Some fuser unit errors occurred at power-ON or upon recovery from sleep mode.	2-54
6200	---		6902	After the errors was detected at the fuser unit, power was turned ON again and the error is being checked. (If power is turned OFF and ON after error code 6901 occurred, this code is displayed for about 15 minutes.)	2-54
6201	---				
6202	---				
6203	---				
6204	---				
6208	Immediately after power-ON or the joint cover ASSY was closed, GRID current error detected that no drum unit (Color) was set.	2-51	6A00	Electric discharge that may be caused by dirt on the corona wire of the drum unit was detected.	2-55

Error codes	Problem	Refer to:	Error codes	Problem	Refer to:
6B01	Electric discharge was detected when the number of the drum unit (Black) rotations had become more than twice of the upper limit.	2-56	7002	---	
			7003	---	
			7004	---	
			7100	After the registration rear sensor detected that paper has passed, eject sensor continues to detect paper pass.	2-58
6B02	Electric discharge was detected when the number of the drum unit (Yellow) rotations had become more than twice of the upper limit.	2-56	7101	---	
			7102	---	
			7103	---	
6B03	Electric discharge was detected when the number of the drum unit (Magenta) rotations had become more than twice of the upper limit.	2-56	7104	---	
			7105	---	
			7106	---	
			7200	---	
6B04	Electric discharge was detected when the number of the drum unit (Cyan) rotations had become more than twice of the upper limit.	2-56	7300	After the paper feed sensor detects paper pass, the registration front sensor does not detect paper pass after a set period of time.	2-59
			7301	---	
			7400	---	
6B0A	GRID current failure was detected in a state other than immediately after power was turned ON or the joint cover ASSY was closed.	2-57	7401	---	
			7501	---	
6C01	---		7502	---	
6C02	---		7601	---	
6C03	---		7602	---	
6C04	---		7700	After the first side is printed in 2-sided printing mode, the registration front sensor does not detect paper pass after a set period of time.	2-60
6D00	---		7701	---	
6E00	The develop release sensor detected the develop roller disengagement or engagement failure.	2-57	7702	---	
6F00	---		7703	---	
			7704	---	
			7705	---	
7000	After the registration rear sensor detects the end of paper pass, the eject sensor does not detect paper pass.	2-58	7702	---	
			7703	---	
			7704	---	
7001	---		7705	---	

Error codes	Problem	Refer to:	Error codes	Problem	Refer to:
7801	---		8604	---	
7802	---		8701	---	
7900	After the manual feed sensor detects pass of paper fed from the manual feed slot, the registration rear sensor does not detect paper pass after a set period of time. Or after the manual feed sensor detects paper pass, the registration rear sensor detects paper pass within a set period of time.	2-60	8702	---	
			8703	---	
			8801	---	
			8802	---	
			8901	---	
			8902	---	
7C00	---		8903	The back cover sensor detected the open state when 2-sided printing is started (before the registration of printing in the engine).	2-61
7D00	---				
7E00	---				
8401	---		8904	The back cover sensor detected the open state during 2-sided printing (after the registration of printing in the engine).	2-61
8402	---				
8501	The paper feed sensor detected that the paper tray was not set (before print registration in engine) in 2-sided printing.	2-61	8A01	The registration rear sensor detected that the fed paper was greater or smaller than the specified size in 2-sided printing.	2-62
8502	---				
8503	---		8A02	---	
8504	---				
8505	The paper feed sensor detected that the paper tray was not set (after print registration in engine) in 2-sided printing.	2-61	8C00	No paper is in the manual feed slot when printing from the manual feed slot.	2-62
8506	---				
8507	---		8D01	The registration rear sensor detected that the paper loaded in the paper tray was smaller than the specified size.	2-63
8508	---				
8601	---		8D02	When printing with the back cover closed, the paper size selected in the print data is smaller than the valid size.	2-63
8602	---				
8603	---				
8604	---		8E01	Upon fax reception, the paper size setting is the one other than A4, Letter, Legal, and Folio.	2-63
8701	---				
8702	---				
8703	---				

Error codes	Problem	Refer to:	Error codes	Problem	Refer to:
8E02	Upon receiving a fax or printing a list or report, the size of the paper loaded in the paper tray was detected to be shorter than Letter by 10 mm or more.	2-64	9307	Upon receiving a fax or printing a list or report, the machine detected that paper tray empty of paper.	2-65
			9401	---	
8E03	When a received fax, list, or report was printed on multiple pages, the size of the paper loaded in the paper tray was detected to be shorter than the size selected in the machine by 2 mm or more.	2-64	9402	---	
			9403	---	
			9404	---	
			9501	---	
			9502	---	
8F01	---		9503	---	
8F02	---		9504	---	
8F03	---		9505	---	
9001	---		9601	---	
9002	The size of paper loaded in the paper tray and the one specified from the driver are not same when paper is fed from the paper tray.	2-64	9608	---	
			9701	For 2-sided printing, the tray whose paper size was not supported by 2-sided printing was selected.	2-66
9003	---		9702	---	
9004	---		9703	---	
9005	---		9704	---	
9102	---		9705	---	
9103	---		9801	Error occurred with the value measured during color density adjustment performed from the control panel.	2-66
9104	---				
9105	---				
9200	---		9802	Dot counter or develop roller counter of color toner has reached the upper limit during color density adjustment performed from the control panel.	2-67
9301	---				
9302	For printing by feeding paper from the paper tray, the paper feed sensor detected that no paper was in the paper tray.	2-65	9803	Density patch measurement ended unsuccessfully during color density adjustment performed from the control panel.	2-67
9303	---				
9304	---				
9305	---				
9306	---				

Error codes	Problem	Refer to:	Error codes	Problem	Refer to:
9804	Error occurred with the value measured during density sensor sensitivity calibration.	2-67	A200	During document scanning, the first side document scanning position sensor detected that the document length was 90 cm or more.	2-72
9901	Error occurred with the value measured during regi pitch correction.	2-68	A300	Though a document was fed and conveyed by the specified distance or longer, the first side document scanning position sensor did not detect the passing of the paper.	2-72
9902	Dot counter or develop roller counter of color toner has reached the upper limit during regi pitch correction.	2-68	A400	The ADF cover sensor detected that the ADF cover was opened.	2-72
9903	Error occurred during patch data printing in regi pitch correction.	2-69	A500	Upon scanning a fax, the first side CIS white or black calibration data was not within the normal range.	2-73
9A01	Error occurred with the value measured during auto color registration performed from the control panel.	2-70	A600	Though a fax was scanned again after A500 error, the first side CIS white or black calibration data was not within the normal range.	2-73
9A02	Dot counter or develop roller counter of color toner has reached the upper limit during auto color registration performed from the control panel.	2-70	A700	The ROM color parameter does not match the first side CIS.	2-73
9A03	Error occurred during patch data printing in auto color registration performed from the control panel.	2-71	A800	When an image was scanned and processed, an error was detected in ROM color parameter.	2-73
9A04	---		A900	When an image was scanned and processed, a scanning error occurred.	2-73
9C01	---		AA00	---	
9C02	---		AB00	---	
9C03	---		AC00	Upon scanning a fax, the second side white or black calibration data was not within the normal range.	2-73
9C06	---				
9C07	---				
A000	Upon scanning the second side in duplex scanning, scanned data cannot be output with the required number of pixels and image processing is not completed successfully.	2-71			

Error codes	Problem	Refer to:	Error codes	Problem	Refer to:
AD00	First side scanned data cannot be output with the required number of pixels, and image processing cannot be completed successfully.	2-74	BF00	The first side document scanning position sensor detected that the document was 400 mm or more in length and could not be fed from the ADF in duplex feeding.	2-76
AF00	The first side CIS fails to move, remaining at the home position.	2-74	C001	Timeout occurred with access request sent to server due to incorrect server address, network disconnection, or inactive server.	2-77
B000	The first or second side CIS flat cable was detected to be not inserted correctly.	2-74			
B300	---		C002	User authentication is unavailable due to incorrect user name, incorrect password, or asynchronous date and time between the machine and server.	2-77
B400	---				
B700	During scanning, obtained voltage was above the upper limit.	2-75	C003	Access to a file is unavailable due to incorrect directory name, no write permission on directory, file write lock, or no write permission on file.	2-77
B800	During scanning, obtained voltage was below the lower limit.	2-75			
B900	During scanning, obtained white level does not increase though light intensity is increased.	2-75	C004	The current time necessary for user authentication is unavailable due to machine clock (RTC) not being set and time not being obtained through SNTP.	2-77
BA00	---				
BB00	The white level value obtained with function code 55 was outside the specified range.	2-75	C700	The memory is insufficient to expand the data of PC-Print.	2-78
BC00	Though a fax was scanned again after AC00 error, the second side white or black calibration data was not within the normal range.	2-75	C800	The memory used to store secure print data exceeded the memory size for secure print data.	2-78
			C900	---	
BD00	The black level value obtained with function code 55 was outside the specified range.	2-75	CA00	---	
			D100	An error occurred during modem initialization.	2-78
BE00	---		D200	The machine detected that the modem PCB was disconnected.	2-78
			D800	An error occurred during touch panel initialization.	2-79

Error codes	Problem	Refer to:	Error codes	Problem	Refer to:
D900	An error occurred during panel PCB initialization.	2-79	FB05	---	
			FB06	---	
DA00	After the initialization of the panel PCB, no response was sent from the panel PCB for a period of time.	2-79	FB07	---	
			FB08	---	
			FB09	---	
DB00	Communication between the main PCB and panel PCB is unavailable.	2-80	FB0A	---	
			FB0B	---	
			FB0C	---	
E000	Some ROM checksum error occurred.	2-80	FB0D	---	
			FB0E	---	
E100	Program error.	2-80	FB0F	---	
E400	---		FC01	---	
E500	Error occurred when DRAM on the main PCB ASSY was accessed.	2-81	FC02	---	
			FC03	---	
			FC04	---	
E600	Error occurred during writing to EEPROM on the main PCB ASSY.	2-81	FC05	---	
E700	---				
E900	An error occurred during key PCB initialization.	2-81			
EC00	Overcurrent was caused because a USB device that did not meet the specifications was inserted into the USB port.	2-81			
F900	Setting by country code is not entered.	2-81			
FA01	---				
FA02	---				
FA03	---				
FB01	---				
FB02	---				
FB03	---				
FB04	---				

3.2 Error Message

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

Error message		Description	Error codes	Refer to:
Upper line	Lower line			
2-sided Disabled	Close the Back Cover of the Machine	The back cover sensor detected that the back cover was open.	8903 8904	2-61
Calibration failed	See Troubleshooting chapter in User's Guide.	Adjustment of color density failed.	9801	2-66
	Insufficient Toner for Calibration	During adjustment of color density, color toner cartridge empty of toner.	9802	2-67
	Press [OK], and try again	Adjustment of color density failed.	9803 9804	2-67
Cartridge Error	Put the Toner Cartridge back in.	The new toner sensor could not detect a new cartridge properly. (Black)	4F01	2-47
	Put the Yellow #C Toner Cartridge back in.	The new toner sensor could not detect a new cartridge properly. (Yellow)	4F02	2-47
	Put the Magenta #C Toner Cartridge back in.	The new toner sensor could not detect a new cartridge properly. (Magenta)	4F03	2-47
	Put the Cyan #C Toner Cartridge back in.	The new toner sensor could not detect a new cartridge properly. (Cyan)	4F04	2-47
Cooling Down	Wait for a while	The internal temperature sensor detected a temperature higher than the specified one.	6801	2-54
Cover is Open	Close the Fuser Cover which can be found behind the Back Cover of the machine.	Eject sensor detected that fuser cover was open.	6004	2-48
	Close the Front Cover.	The top cover sensor detected that the joint cover ASSY was open.	6001	2-48
	Close the ADF Cover	The ADF cover sensor detected that the ADF cover was open.	A400	2-72
Document Jam	Clear the scanner jam, then press the Stop Key.	The document is long or not loaded.	A200 A300	2-72

Error message		Description	Error codes	Refer to:
Upper line	Lower line			
Drum !	Slide the Green tab on Drum Unit.	Immediately after power was turned ON or the joint cover ASSY was closed, detected that no drum unit was set. Or the wire was detected to be dirty.	6208 6209 620A	2-51
		An electric discharge error in the drum was detected.	6A00 6B0A	2-55 2-57
Drum End Soon	-	The number of pages printed with each drum unit indicates that the drum unit will reach the end of life soon.	4001 4002 4003 4004	2-42
Drum Stop	Replace the Drum Unit. Refer to the instructions in the carton of the new drum.	Electric discharge was detected when the number of the drum unit rotations had become more than twice of the upper limit.	6B01 6B02 6B03 6B04	2-56
Fuser Error	Turn the power off, then on again. Leave the machine for 15 min.	Some fuser unit errors occurred at power-ON or upon recovery from sleep mode.	6901	2-54
Ignore Data	Press Stop Key	Undecodable data is found during printing. Undecodable PS data is received.	---	2-122
Jam 2-sided	Pull the paper tray completely out of the machine. Check inside the machine towards the rear. Or open the Back Cover to remove the jammed paper.	After the first side is printed in 2-sided printing mode, the registration front sensor does not detect paper pass after a set period of time.	7700	2-60
Jam Inside	Open the Top Cover, pull out all four drum and toner cartridge assemblies and remove the jammed paper.	After the registration rear sensor detects the end of paper pass, the eject sensor does not detect paper pass.	7000	2-58
Jam Manual Feed	Pull out the jammed paper from Manual Feed and press Start	After the manual feed sensor detects pass of paper fed from the manual feed slot, the registration rear sensor does not detect paper pass after a set period of time.	7900	2-60

Error message		Description	Error codes	Refer to:
Upper line	Lower line			
Jam Rear	Open the Back Cover and remove the jammed paper, then press [Start].	After the registration rear sensor detected that paper has passed, the eject sensor continues to detect paper pass.	7100	2-58
Jam Tray	Pull the paper tray completely out of the machine and remove the jammed paper	After the paper feed sensor detects paper pass, the registration front sensor does not detect paper pass after a set period of time.	7300	2-59
Log Access Error	Server Timeout, contact your administrator.	Timeout occurred with access request sent to server due to incorrect server address, network disconnection, or inactive server.	C001	2-77
	Authentication Error, contact your administrator.	User authentication is unavailable due to incorrect user name, incorrect password, or asynchronous date and time between the machine and server.	C002 C003	2-77
	Wrong Date&Time, contact your administrator.	The current time necessary for user authentication is unavailable due to machine clock not being set and time not being obtained through SNTP.	C004	2-77
Manual Feed	Load paper	No paper is in the manual feed slot when printing from the manual feed slot.	8C00	2-62
No Belt Unit	Open the Top Cover, pull out all 4 Drum Units completely and install the Belt Unit.	The registration mark sensor detected that no belt unit was set.	6400	2-53
No HUB Support	-	USB device with a built-in hub was connected.	---	2-122
No Paper	Reload paper in Tray.	For printing by feeding paper from the paper tray, the paper feed sensor detected that no paper was in the paper tray.	9302	2-65
No Permission	Function Locked	The user does not have permission to perform color printing when PC print is performed.	---	2-122
No Toner	Open the Top Cover, then install Toner Cartridge. #C.	As the electrical continuity of the new toner detection terminal is broken, the machine detected that the toner cartridge was not installed.	6101 6102 6103 6104	2-49

Error message		Description	Error codes	Refer to:
Upper line	Lower line			
No Tray	The paper tray cannot be detected, re-install Tray1	The paper feed sensor detected that no tray was set.	8501 8505	2-61
No Waste Toner	Install the Waste Toner Box. Refer to the User's Guide for instructions.	BCLN terminal current value detected that no waste toner box was set.	6300	2-52
Out of Memory	Press Stop Key	The memory is insufficient to expand the data of PC-Print.	C700	2-78
	Secure Print Data is full. Press Stop Key and delete the previously stored data.	The memory used to store secure print data exceeded the memory size for secure print data.	C800	2-78
Registration failed	See Troubleshooting chapter in User's Guide.	Color registration failed.	9901	2-68
		Automatic color registration failed.	9A01	2-70
	Press [OK], and try again.	Color registration failed.	9902 9903	2-68 2-69
		Automatic color registration failed.	9A03	2-71
	Insufficient Toner for Registration.	Automatic color registration failed.	9A02	2-70
Replace Drum	-	Number of the drum unit rotations has reached the upper limit.	4201 4202 4203 4204	2-43
Replace Parts	Belt Unit	The number of pages printed with the belt unit has reached the upper limit or will reach the upper limit soon.	4300 4400	2-43
	Fuser Unit	Printable pages set for the fuser unit has reached the upper limit.	4500	2-44
	WT Box End Soon	The waste toner sensor detected that the waste toner box is almost full.	4700	2-44
	PF kit	Printable pages set for the PF kit 1 has reached the upper limit.	5002	2-47

Error message		Description	Error codes	Refer to:
Upper line	Lower line			
Replace Toner	Open the Top Cover, replace Toner Cartridge.	Dot counter of the toner cartridge or develop roller counter has reached the upper limit was detected.	4C01 4C02 4C03 4C04 4C05	2-46
Replace WT Box	Replace the Waste Toner Box inside the machine. To get to it, remove all the Drums & Toners then remove the Belt Unit.	After the waste toner sensor detected that the waste toner box was almost full, pages more than the specified number have been printed.	4800	2-44
Scanner Error	-	Some error was detected while function code 55 was being executed.	B700 B800 B900 BB00 BD00	2-75
Self-Diagnostic	Will Automatically Restart within 15 minutes.	After the error was detected at the fuser unit, power was turned ON again and the error is being checked.	6902	2-54
Short paper	Open the Back Cover and then press Start	The registration rear sensor detected that the paper loaded in the paper tray was smaller than the specified size.	8D01	2-63
Size Error 2-sided	Specify the correct paper	The registration rear sensor detected that the fed paper was greater or smaller than the specified size in 2-sided printing.	8A01	2-62
	Press Stop Key. Specify the correct paper and load the same size paper as the Printer driver setting.	For 2-sided printing, the tray whose paper size was not supported by 2-sided printing was selected.	9701	2-66
Size Mismatch	Reload correct paper in Tray1, then press Start.	The size of paper loaded in the paper tray and the one specified from the driver are not same when paper is fed from the paper tray.	9002	2-64
	Reload correct paper.	Some paper size error occurred while fax, list, or report was being printed.	8E01 8E02 8E03	2-63 2-64
Small paper	Open the Back Cover and then press Start	When printing with the back cover closed, the paper size selected in the print data is smaller than the valid size.	8D02	2-63

Error message		Description	Error codes	Refer to:
Upper line	Lower line			
Toner Error	One or more Toner Cartridges are not detected. Pull out and reinsert all 4 Toner Cartridges.	The develop release sensor detected the develop roller disengagement or engagement failure.	6E00	2-57
Toner Low	Prepare New Toner Cartridge.	Dot counter of the toner cartridge or develop roller counter reaches the upper limit soon.	4B01 4B02 4B03 4B04	2-45
Touchscreen initialization failed	Remove any material which is on the touchscreen.	An error occurred during touch panel initialization.	D800	2-79
Unusable Device	Remove the Device. Turn the power off and back on again.	Overcurrent was caused because a USB device that did not meet the specifications was inserted into the USB port.	EC00	2-81

3.3 Communications Error Code

Code 1	Code 2	Cause	Refer to:
10	07	No document loaded at the time of outgoing call for document transmission.	4.11.1
10	08	Wrong FAX number called.	4.13.1
11	01	No dial tone detected before start of dialing.	4.13.1
11	02	Busy tone detected before dialing.	4.13.1
11	03	2nd dial tone not detected.	4.13.1
11	05	No loop current detected.	4.13.1
11	06	Busy tone detected after dialing or called.	4.13.1
11	07	No response from the remote terminal in calling.	4.13.1
11	10	Tone not detected after dialing.	4.13.1
11	11	No response signal after transmission of Fax2 net command.	4.13.1
13	12	Error signal received after transmission of Fax2 net command.	4.13.1
16	09	No cipher registered.	4.13.1
17	01	Outgoing call with a number unable to be used in NGN line. (Equal to or more than 33 digits, or nonnumeric characters)	4.13.2
17	07	No response from the remote terminal in receiving.	4.13.2
1C	01	Lack of access right detected in NGN line. (T38: 403 Forbidden)	4.13.4
1C	02	File or folder (directory) not found in NGN line. (T38: 404 Not Found)	4.13.4
1C	03	Context-sensitive acceptance impossible in NGN line. (T38: 488 Not Acceptable Here)	4.13.4
1C	04	SIP (Session Initiation Protocol) connection not allowed (T38) Outgoing call with OFF selected in USW NGN fax setting or before acquisition of SIP information.	4.13.4
1C	05	Net internal error detected. (T38)	4.13.4
1C	06	SIP server timeout. (T38)	4.13.4
1C	08	Error other than 1C01, 1C02, 1C03, 1C04, 1C06, 1D01, 1D02, and 1D04 detected.	4.13.4
1D	01	State of being busy detected in NGN line. (T38: 486 Busy)	4.13.4
1D	02	State of being temporarily unavailable detected in NGN line. (T38: 480 Temporarily Unavailable)	4.13.4
1D	04	Network cable not connected (upon detecting link down) or state of not being connected to the network. (T38)	4.13.4

Code 1	Code 2	Cause	Refer to:
20	01	Flag field not detected.	4.13.4
20	02	Carrier was OFF for 200 ms or longer.	4.13.4
20	03	Abort detected ("1" in succession for 7 bits or more).	4.13.4
20	04	Overrun detected.	4.13.4
20	05	A frame for 3 seconds or more received.	4.13.4
20	06	CRC error in answerback.	4.13.4
20	07	Echo command received.	4.13.4
20	08	Invalid command received.	4.13.4
20	09	Command ignored once for document setting or for dumping-out at turn-around transmission.	4.13.4
20	0A	T5 time-out error	4.13.4
20	0B	CRP received.	4.13.4
20	0C	EOR and NULL received.	4.13.4
20	0D	Though the FIF command transmission bit is ON, the corresponding command has not been received.	4.13.4
20	0E	EOR command received.	4.13.4
20	13	After the last page was received, connection was broken without receiving DCN. (After EOP reception and CFR transmission, BYE notification was received before DCN reception.) (T38)	4.13.4
32	01	Remote terminal only with V.29 capability in 2,400 or 4,800 bps transmission.	4.13.4
32	02	Remote terminal not ready for polling.	4.13.4
32	10	Remote terminal not equipped with password function or its password switch OFF.	4.13.4
32	11	Remote terminal not equipped with or not ready for confidential mailbox function.	4.13.4
32	12	Remote terminal not equipped with or not ready for relay broadcasting function.	4.13.4
32	13	No confidential mail in the remote terminal.	4.13.4
32	14	The available memory space of the remote terminal is less than that required for reception of the confidential mail or relay broad-casting instruction.	4.13.4
32	15	Machine at the other end does not have cipher receiving function.	4.13.4
32	16	Machine at the other end does not have SEP function.	4.13.4
32	17	Machine at the other end does not have SUB function.	4.13.4
32	18	Remote terminal not equipped with color function.	4.13.4
40	02	Illegal coding system requested.	4.13.4
40	03	Illegal paper width requested.	4.13.4

Code 1	Code 2	Cause	Refer to:
40	05	ECM requested although not allowed.	4.13.4
40	06	Polled while not ready.	4.13.4
40	07	No document to send when polled.	4.11.1
40	10	Country code or manufacturer code not correct.	4.13.4
40	11	Group number not registered in relay broadcasting was selected or the total of broadcast destinations exceeded the allowed maximum destinations.	4.13.1
40	12	Retrieval was done though the machine had not been waiting for retrieval.	4.13.1
40	13	Polled by any other manufacturers' terminal while waiting for secure polling.	4.13.1
40	14	No common key is registered when a common key is used.	4.13.1
40	15	Instructions for red and black color reception while red and black reception disabled.	4.13.4
40	16	Instructions for cipher communications while cipher reception disabled.	4.13.4
40	17	Invalid resolution selected.	4.13.4
40	20	Invalid full color mode selected.	4.13.4
50	01	Vertical resolution capability changed after calibration of background color.	4.13.4
63	01	Password plus "lower 4 digits of telephone number" not coincident.	4.13.1
63	02	Password not correct.	4.13.1
63	03	Polling ID not correct.	4.13.1
63	04	Provided confidential ID and mailbox ID are different.	4.13.1
63	05	Relay broadcasting ID inconsistency	4.13.1
63	06	Provided retrieval ID and mailbox retrieval ID are different.	4.13.1
63	07	Select reception ID inconsistency	4.13.2
63	08	Cipher Key inconsistency	4.13.2
74	xx	DCN received.	4.13.4
80	01	Fallback impossible.	4.13.4
90	01	Unable to detect video signals or commands within 6 seconds after CFR is transmitted.	4.13.4
90	02	Received PPS containing invalid page count or block count.	4.13.4
A0	03	Error correction sequence not terminated even at the final transmission speed for fallback.	4.13.4
A0	11	Receive buffer empty. (5-second time-out)	4.14.7

Code 1	Code 2	Cause	Refer to:
A0	12	Receive buffer full during operation except receiving into memory.	4.14.7
A0	13	Decoding error continued on 500 lines or more.	4.13.4
A0	14	Decoding error continued for 15 seconds or more.	4.13.4
A0	15	Time-out: 13 seconds or more for one-line transmission.	4.13.4
A0	16	RTC not found or carrier OFF detected for 6 seconds.	4.13.4
A0	17	RTC found but no command detected for 60 seconds or more.	4.13.4
A0	19	No video data to be sent.	4.13.4
A0	20	Color fax continuous reception impossible (Low toner level)	4.13.4
A8	01	RTN, PIN, or ERR received (Sender)	4.13.4
A9	01	RTN, PIN, or ERR received (Recipient)	4.13.4
AA	18	Receive buffer full during receiving into memory.	4.14.7
B0	01	Polarity inversion detection	4.13.2
B0	02	Unable to receive the next-page data.	4.13.2
B0	03	Unable to receive polling even during turn-around transmission due to call reservation.	4.13.2
B0	04	PC interface error.	4.13.2
C0	01	No common modulation mode or failed to poll.	4.13.4
C0	02	Unable to detect JM.	4.13.4
C0	03	Unable to detect CM.	4.13.4
C0	04	Unable to detect CJ.	4.13.4
C0	10	Cannot finish V. 34 negotiation or training.	4.13.4
C0	11	Modem error detected during V. 34 negotiation or training.	4.13.4
C0	20	Modem error detected during sending of commands.	4.13.4
C0	21	Modem error detected during receiving of commands.	4.13.4
C0	22	Control channel connection time-out.	4.13.4
C0	30	Modem error detected during sending of video signals.	4.13.4
C0	31	Modem error detected during receiving of video signals.	4.13.4
E0	01	1300 Hz signal detection failure during opposite communication inspection operation.	4.13.4
E0	02	PB signal detection failure during opposite communication inspection operation.	4.13.4
E0	03	Command not detected from RS232C in opposite communication.	4.13.4

4. TROUBLESHOOTING

4.1 Error Cause and Remedy

■ Error code 0100

Print Unable 01
Turn the power off and then back on again.

ASIC error or motor driver error occurred.

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

■ Error code 0201

Print Unable 02
Turn the power off and then back on again.

Synchronization signal from the main motor cannot be detected. Or the main motor speed is unstable after a set period of time.

Step	Cause	Remedy
1	Main motor harness connection failure	Check the main motor harness connection and reconnect it.
2	Harness connection failure between the low-voltage power supply PCB and main PCB	Check the harness connection between the low-voltage power supply PCB and main PCB, and reconnect it.
3	Main motor failure	Replace the process drive unit.
4	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

■ Error code 0202

Print Unable 02
Turn the power off and then back on again.

Synchronization signal from the process motor cannot be detected. Or the process motor speed is unstable after a set period of time.

Step	Cause	Remedy
1	Process motor harness connection failure	Check the process motor harness connection and reconnect it.
2	Harness connection failure between the low-voltage power supply PCB and main PCB	Check the harness connection between the low-voltage power supply PCB and main PCB, and reconnect it.
3	Process motor failure	Replace the process drive unit.
4	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 0501**

Print Unable 05
Turn the power off and then back on again.

The center thermistor of the fuser unit does not reach the specified temperature within the specified time.

Error code 0502

Print Unable 05
Turn the power off and then back on again.

The center thermistor of the fuser unit does not reach the specified temperature within the specified time.

Error code 0503

Print Unable 05
Turn the power off and then back on again.

The center thermistor of the fuser unit detected a temperature higher than the specified one.

Error code 0504

Print Unable 05
Turn the power off and then back on again.

After the center thermistor of the fuser unit was normally heated, it detected a temperature lower than the specified one.

Error code 0505

Print Unable 05
Turn the power off and then back on again.

The center thermistor of the fuser unit detected a temperature rise greater than the specified value within a set period of time.

Error code 0506

Print Unable 05
Turn the power off and then back on again.

The center thermistor of the fuser unit detected a temperature fall greater than the specified value within a set period of time.

<User Check>

- Turn the power OFF and ON again after several seconds to check if the error code disappears.

Step	Cause	Remedy
1	Connection failure of the center or side thermistor harness of the fuser unit	Check the harness connection of the center or side thermistor of the fuser unit and reconnect them.
2	Connection failure of the heater harness of the fuser unit	Check the harness connection of the heater of the fuser unit and reconnect it.
3	Harness connection failure of the eject sensor PCB	Check the harness connection of the eject sensor PCB and reconnect it.
4	Harness connection failure of the low-voltage power supply PCB	Check the harness connection of the low-voltage power supply PCB and reconnect it.
5	Eject sensor PCB failure	Replace the eject sensor PCB ASSY.
6	Fuser unit failure	Replace the fuser unit.
7	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB ASSY.
8	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 050A**

Print Unable 05
Turn the power off and then back on again.

The center thermistor or side thermistor of the fuser unit detected some temperature error in the hardware.

Error code 050B

Print Unable 05
Turn the power off and then back on again.

When the temperature of the center thermistor of the fuser unit is lower than the idle temperature, the side thermistor of the fuser unit detected a temperature higher than the specified one.

Error code 050C

Print Unable 05
Turn the power off and then back on again.

When the temperature of the center thermistor of the fuser unit is higher than the idle temperature, the side thermistor of the fuser unit detected a temperature lower than the specified one.

<User Check>

- Turn the power OFF and ON again after several seconds to check if the error code disappears.

Step	Cause	Remedy
1	Connection failure of the center or side thermistor harness of the fuser unit	Check the harness connection of the center or side thermistor of the fuser unit and reconnect them.
2	Connection failure of the heater harness of the fuser unit	Check the harness connection of the heater of the fuser unit and reconnect it.
3	Harness connection failure of the eject sensor PCB	Check the harness connection of the eject sensor PCB and reconnect it.
4	Harness connection failure of the low-voltage power supply PCB	Check the harness connection of the low-voltage power supply PCB and reconnect it.
5	Eject sensor PCB failure	Replace the eject sensor PCB ASSY.
6	Fuser unit failure	Replace the fuser unit.
7	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB ASSY.
8	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 0800**

Print Unable 08
Turn the power off and then back on again.

Error occurred in the internal temperature sensor.

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

■ **Error code 0900**

Print Unable 09
Turn the power off and then back on again.

Machine detected that supplied power was unstable.

<User Check>

- Turn the power OFF and ON again after several seconds to check if the error code disappears.

Step	Cause	Remedy
1	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB ASSY. Reset the irregular power supply detection counter after replacement. (Refer to "3.1 Reset of Irregular Power Supply Detection Counter" in Chapter 4.)
2	Main PCB failure	Replace the main PCB ASSY.

Note:

The irregular power supply detection error (Error code 0900) occurs when there is a large distortion of the power supply voltage supplied to the machine. In this case, if the same power supply is used, the same error might occur again even if the low-voltage power supply PCB ASSY is replaced. For this reason, be sure to ask the user to rearrange the installation environment.

■ **Error code 0A02**

Print Unable 0A
Turn the power off and then back on again.

The main fan failure was detected.

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

■ **Error code 0B01**

Print Unable 0B
Turn the power off and then back on again

Error in the high-voltage power supply PCB ASSY while the machine is in operation.

Error code 0B02

Print Unable 0B
Turn the power off and then back on again

Error in the high-voltage power supply PCB ASSY in the ready state.

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

■ **Error code 0C00**

Print Unable 0C
Turn the power off and then back on again.

Error occurred in the density sensor.

Step	Cause	Remedy
1	Registration mark L PCB harness connection failure	Check the registration mark L PCB harness connection and reconnect it.
2	Eject sensor PCB harness connection failure	Check the eject sensor PCB harness connection and reconnect it.
3	Registration mark L PCB ASSY failure	Replace the registration mark L PCB ASSY.
4	Eject sensor PCB failure	Replace the eject sensor PCB ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 1003**

Print Unable 0B
Turn the power off and then back on again.

The registration mark L is dirty and cannot normally receive reflected light.

<User Check>

- Replace the belt unit.

Step	Cause	Remedy
1	Registration mark L PCB dirty	Clean the registration mark L PCB.
2	Registration mark L PCB harness connection failure	Check the registration mark L PCB harness connection and reconnect it.
3	Eject sensor PCB harness connection failure	Check the eject sensor PCB harness connection and reconnect it.
4	Registration mark L PCB ASSY failure	Replace the registration mark L PCB ASSY.
5	Eject sensor PCB failure	Replace the eject sensor PCB ASSY.
6	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 1004**

Print Unable 0B
Turn the power off and then back on again.

The registration mark R is dirty and cannot normally receive reflected light.

<User Check>

- Replace the belt unit.

Step	Cause	Remedy
1	Registration mark R PCB dirty	Clean the registration mark R PCB.
2	Registration mark R PCB harness connection failure	Check the Registration mark R PCB harness connection and reconnect it.
3	Eject sensor PCB harness connection failure	Check the eject sensor PCB harness connection and reconnect it.
4	Registration mark R PCB ASSY failure	Replace the registration mark R PCB ASSY.
5	Eject sensor PCB failure	Replace the eject sensor PCB ASSY.
6	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 1D01**

Print Unable 1D
Turn the power off and then back on again.

Communication error occurred in the LED ASSY (Black).

Error code 1D02

Print Unable 1D
Turn the power off and then back on again.

Communication error occurred in the LED ASSY (Yellow).

Error code 1D03

Print Unable 1D
Turn the power off and then back on again.

Communication error occurred in the LED ASSY (Magenta).

Error code 1D04

Print Unable 1D
Turn the power off and then back on again.

Communication error occurred in the LED ASSY (Cyan).

<User Check>

- Install the toner cartridge.

Step	Cause	Remedy
1	Connection failure of the flat cable of each LED ASSY	Check the flat cable connection of each LED ASSY and reconnect it.
2	LED control PCB harness connection failure	Check the LED control PCB harness connection and reconnect it.
3	Flat cable failure of each LED ASSY.	Replace the flat cable of each LED ASSY.
4	Each LED ASSY failure	Replace the each LED ASSY.
5	LED control PCB failure	Replace the LED control PCB ASSY.
6	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 1E01**

Print Unable 1E
Turn the power off and then back on again.

Access is unavailable between the main PCB and LED control PCB.

■ **Error code 1E02**

Print Unable 1E
Turn the power off and then back on again.

Read/Write is unavailable between the main PCB and LED control PCB.

Step	Cause	Remedy
1	LED control PCB harness connection failure	Check the LED control PCB harness connection and reconnect it.
2	LED control PCB failure	Replace the LED control PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 3801**

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

Error occurred in the external temperature/humidity sensor.

Step	Cause	Remedy
1	External temperature/humidity sensor harness connection failure	Check the external temperature/humidity sensor harness connection and reconnect it.
2	External temperature/humidity sensor failure	Replace the external temperature/humidity sensor PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 3A00**

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

Error occurred in the communication between the controller in the main PCB and engine.

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

■ **Error code 4001**

Drum End Soon: BK -

Number of the drum unit (Black) rotations reaches the upper limit soon.

Error code 4002

Drum End Soon: Y -

Number of the drum unit (Yellow) rotations reaches the upper limit soon.

Error code 4003

Drum End Soon: M -

Number of the drum unit (Magenta) rotations reaches the upper limit soon.

Error code 4004

Drum End Soon: C -

Number of the drum unit (Cyan) rotations reaches the upper limit soon.

<User Check>

- Prepare a new drum unit.

Step	Cause	Remedy
1	Main PCB failure if the error code remains after replacing with a new drum unit and resetting the drum counter	Replace the main PCB ASSY.

■ **Error code 4201**

Replace Drum: BK

Number of the drum unit (Black) rotations has reached the upper limit. (Printing is not stopped.)

Error code 4202

Replace Drum: Y

Number of the drum unit (Yellow) rotations has reached the upper limit. (Printing is not stopped.)

Error code 4203

Replace Drum: M

Number of the drum unit (Magenta) rotations has reached the upper limit. (Printing is not stopped.)

Error code 4204

Replace Drum: C

Number of the drum unit (Cyan) rotations has reached the upper limit. (Printing is not stopped.)

<User Check>

- Prepare a new drum unit.

Step	Cause	Remedy
1	Main PCB failure if the error code remains after replacing with a new drum unit and resetting the drum counter	Replace the main PCB ASSY.

■ **Error code 4300**

**Replace Parts
Belt Unit**

The belt unit will reach the end of life soon. (90%)

Error code 4400

**Replace Parts
Belt Unit**

Number of pages printed with the belt unit has reached the upper limit. (Printing is not stopped.)

<User Check>

- Prepare a new belt unit.

Step	Cause	Remedy
1	Main PCB failure if the error code remains after replacing with a new belt unit and resetting the belt counter	Replace the main PCB ASSY.

■ **Error code 4500**

**Replace Parts
Fuser Unit**

Printable pages set for the fuser unit has reached the upper limit. (Printing is not stopped.)

Step	Cause	Remedy
1	Main PCB failure if the error code remains after replacing with a new fuser unit and resetting the fuser unit counter	Replace the main PCB ASSY.

■ **Error code 4700**

**Replace Parts
WT Box End Soon**

The waste toner sensor detected that the waste toner box is almost full.

Error code 4800

Replace WT Box

Replace the Waste Toner Box inside the machine. To get to it, remove all the Drums & Toners then remove the Belt Unit.

After the waste toner sensor detected that the waste toner box was almost full, pages more than the specified number have been printed.

<User Check>

- Replace the waste toner box.

Step	Cause	Remedy
1	Dirt on the contact of waste toner sensor in high-voltage power supply PCB	Clean the contact in the high-voltage power supply PCB.
2	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 4B01**

Toner Low
Prepare New Toner Cartridge.

Dot counter of the toner cartridge (Black) or develop roller counter reaches the upper limit soon.

Error code 4B02

Toner Low
Prepare New Toner Cartridge.

Dot counter of the toner cartridge (Yellow) or develop roller counter reaches the upper limit soon.

Error code 4B03

Toner Low
Prepare New Toner Cartridge.

Dot counter of the toner cartridge (Magenta) or develop roller counter reaches the upper limit soon.

Error code 4B04

Toner Low
Prepare New Toner Cartridge.

Dot counter of the toner cartridge (Cyan) or develop roller counter reaches the upper limit soon.

<User Check>

- Prepare a new toner cartridge.

Step	Cause	Remedy
1	Main PCB failure if the error code remains after replacing with a new toner cartridge and resetting the toner counter	Replace the main PCB ASSY.

■ **Error code 4C01**

Replace Toner
Open the Top Cover, replace Toner Cartridge.

Dot counter of the toner cartridge (Black) or develop roller counter has reached the upper limit was detected.

Error code 4C02

Replace Toner
Open the Top Cover, replace Toner Cartridge.

Dot counter of the toner cartridge (Yellow) or develop roller counter has reached the upper limit was detected.

Error code 4C03

Replace Toner
Open the Top Cover, replace Toner Cartridge.

Dot counter of the toner cartridge (Magenta) or develop roller counter has reached the upper limit was detected.

Error code 4C04

Replace Toner
Open the Top Cover, replace Toner Cartridge.

Dot counter of the toner cartridge (Cyan) or develop roller counter has reached the upper limit was detected.

Error code 4C05

Replace Toner
Open the Top Cover, replace Toner Cartridge.

During printing, dot counter of color toner cartridge or develop roller counter has reached the upper limit was detected.

<User Check>

- Replace the toner cartridge whose counter reached the upper limit.

Step	Cause	Remedy
1	Process drive unit damaged	Replace the process drive unit.
2	Main PCB failure if the error code remains after replacing with a new toner cartridge and resetting the toner counter	Replace the main PCB ASSY.

■ **Error code 4F01**

Cartridge Error
Put the Toner Cartridge back in.

The new toner sensor of the toner cartridge (Black) could not detect a new cartridge properly.

Error code 4F02

Cartridge Error
Put the Yellow #C Toner Cartridge back in.

The new toner sensor of the toner cartridge (Yellow) could not detect a new cartridge properly.

Error code 4F03

Cartridge Error
Put the Magenta #C Toner Cartridge back in.

The new toner sensor of the toner cartridge (Magenta) could not detect a new cartridge properly.

Error code 4F04

Cartridge Error
Put the Cyan #C Toner Cartridge back in.

The new toner sensor of the toner cartridge (Cyan) could not detect a new cartridge properly.

<User Check>

- Under the instruction of repair technician, reset the toner manual.
 (Refer to "2.1 Toner Manual Reset Function" in Chapter 5.)

Step	Cause	Remedy
1	Main PCB failure if the error code remains after replacing with a new toner cartridge and resetting the toner manual	Replace the main PCB ASSY.

■ **Error code 5002**

Replace Parts
PF kit

Printable pages set for the PF kit 1 has reached the upper limit. (Printing is not stopped.)

Step	Cause	Remedy
1	PF kit 1 worn out	Replace the PF kit 1.
2	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 6001**

Cover is Open
Close the Front Cover.

The top cover sensor detected that the joint cover ASSY was open.

<User Check>

- Close the joint cover ASSY.

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

■ **Error code 6004**

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

Eject sensor detected that fuser cover ASSY was open.

<User Check>

- Close the fuser cover.

Step	Cause	Remedy
1	Paper jam at the eject actuator	Remove the jammed paper.
2	Eject actuator that has come off or that has been caught	Re-assemble the eject actuator.
3	Eject sensor PCB harness connection failure	Check the eject sensor PCB harness connection and reconnect it.
4	Fuser cover ASSY installation failure	Re-assemble the fuser cover ASSY.
5	Eject sensor PCB failure	Replace the eject sensor PCB ASSY.
6	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 6101**

No Toner
Open the Top Cover, then install Toner Cartridge. #C.

New toner detection terminal not being conducting caused the machine to detected that a toner cartridge (Black) is not set.

Error code 6102

No Toner
Open the Top Cover, then install Toner Cartridge. #C.

New toner detection terminal not being conducting caused the machine to detected that a toner cartridge (Yellow) is not set.

Error code 6103

No Toner
Open the Top Cover, then install Toner Cartridge. #C.

New toner detection terminal not being conducting caused the machine to detected that a toner cartridge (Magenta) is not set.

Error code 6104

No Toner
Open the Top Cover, then install Toner Cartridge. #C.

New toner detection terminal not being conducting caused the machine to detected that a toner cartridge (Cyan) is not set.

<User Check>

- Reset the toner cartridge.

Step	Cause	Remedy
1	Dirt on the terminal of the high-voltage power supply PCB	Clean the terminal of the high-voltage power supply PCB.
2	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

■ Electrodes location of main body

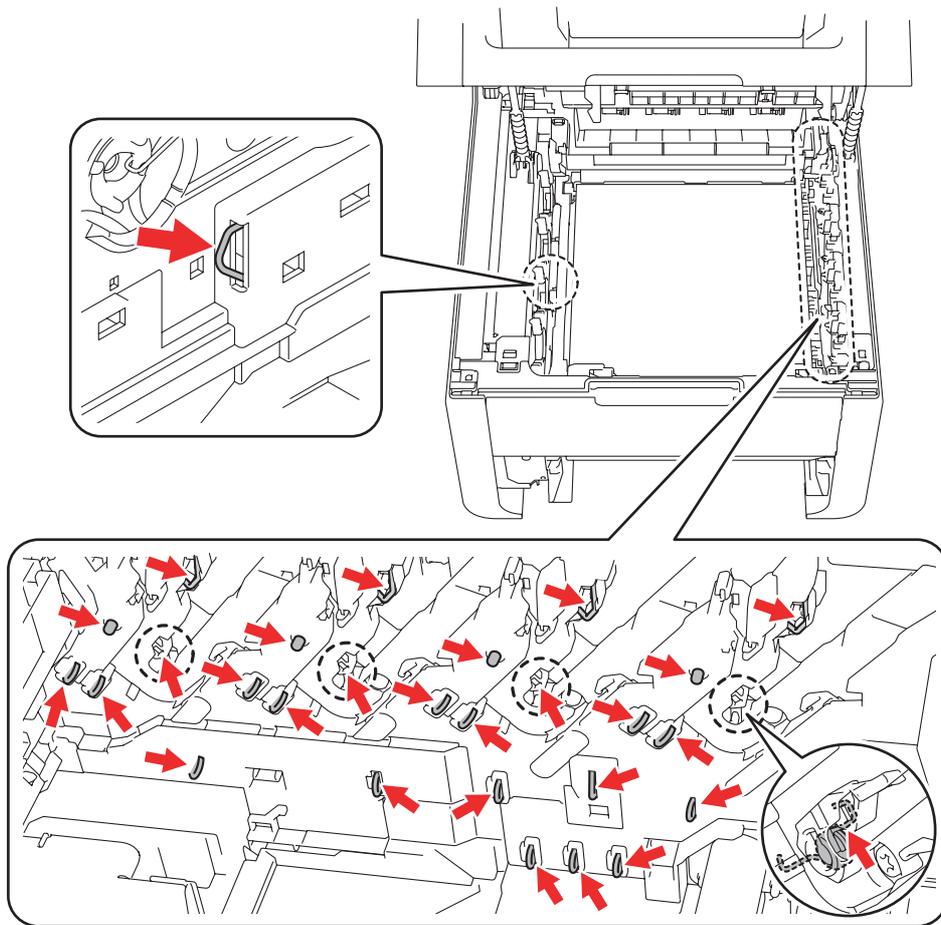


Fig. 2-7

■ **Error code 6208**

Drum !
Slide the Green tab on Drum Unit.

Immediately after power-ON or the joint cover ASSY was closed, GRID current error detected that no drum unit (Color) was set.

Error code 6209

Drum !
Slide the Green tab on Drum Unit.

Immediately after power-ON or the joint cover ASSY was closed, GRID current error detected that one of the drum units (Color) was not set.

Error code 620A

Drum !
Slide the Green tab on Drum Unit.

Immediately after power-ON or the joint cover ASSY was closed, GRID current error detected that no drum unit (Black) was set.

<User Check>

- Reset the drum unit.
- Clean the GRID terminals of the drum unit. (Refer to the figure below.)
- Slide the green tab of the drum unit a few times and clean the corona wire.

Step	Cause	Remedy
1	Dirt on the GRID terminals of the main body	Clean the GRID terminals of the main body. (Refer to fig. 2-7 (P2-50))
2	Dirt on the terminal of the high-voltage power supply PCB	Clean the terminal of the high-voltage power supply PCB.
3	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

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

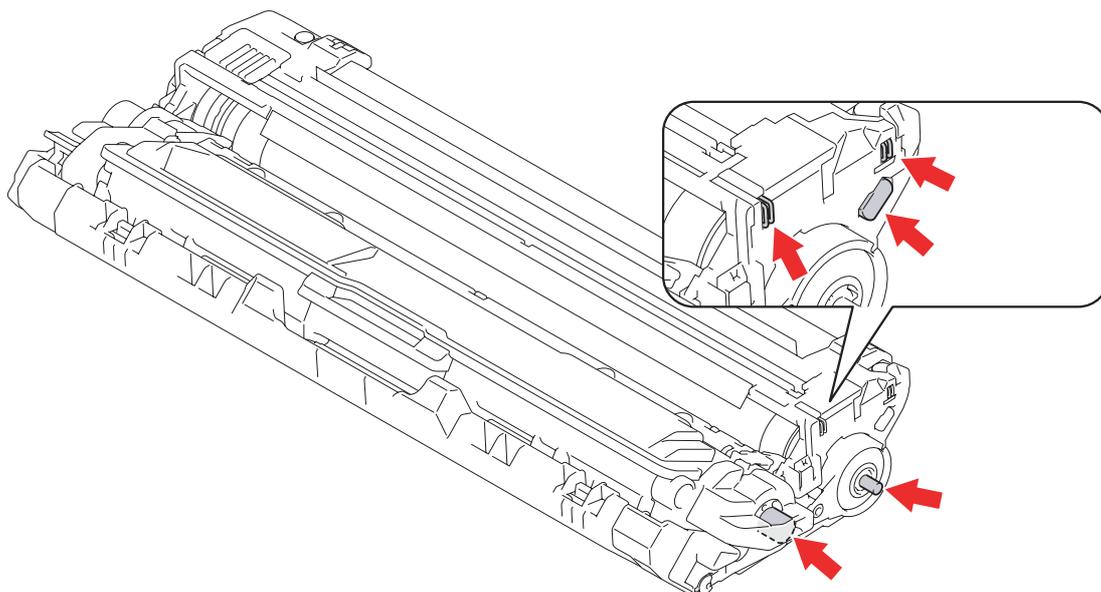


Fig. 2-8

■ Error code 6300

No Waste Toner
Install the Waste Toner Box. Refer to the User's Guide for instructions.

BCLN terminal current value detected that no waste toner box was set.

<User Check>

- Reset the waste toner box.
- Clean the BCLN terminals of the waste toner box. (Refer to the figure below.)

Step	Cause	Remedy
1	Dirt on the BCLN terminals of the main body	Clean the BCLN terminals of the main body. (Refer to fig. 2-7 (P2-50))
2	Dirt on the terminal of the high-voltage power supply PCB	Clean the terminal of the high-voltage power supply PCB.
3	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

■ Electrodes location of waste toner box

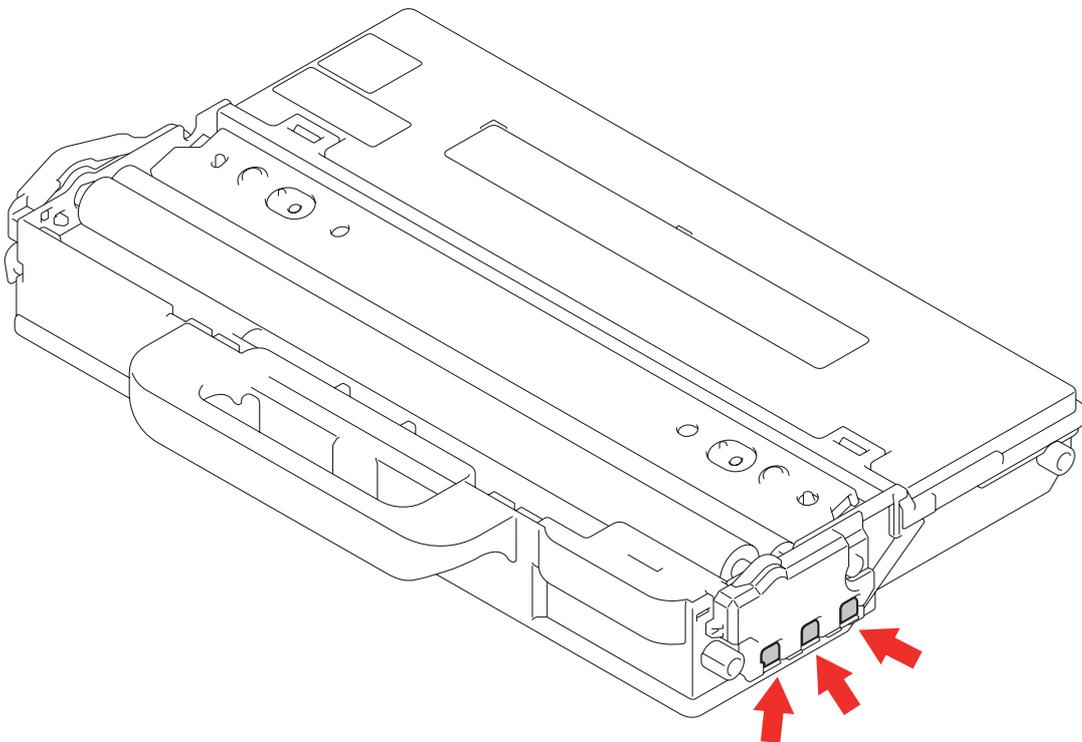


Fig. 2-9

■ **Error code 6400**

No Belt Unit
Open the Top Cover, pull out all 4 Drum Units completely and install the Belt Unit.

The registration mark sensor detected that no belt unit was set.

<User Check>

- Reset the belt unit.

Step	Cause	Remedy
1	Registration mark L PCB harness connection failure	Check the registration mark L PCB harness connection and reconnect it.
2	Eject sensor PCB harness connection failure	Check the eject sensor PCB harness connection and reconnect it.
3	Eject sensor PCB failure	Replace the eject sensor PCB ASSY.
4	Registration mark L failure	Replace the Registration mark L PCB ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

■ **Electrodes location of belt unit**

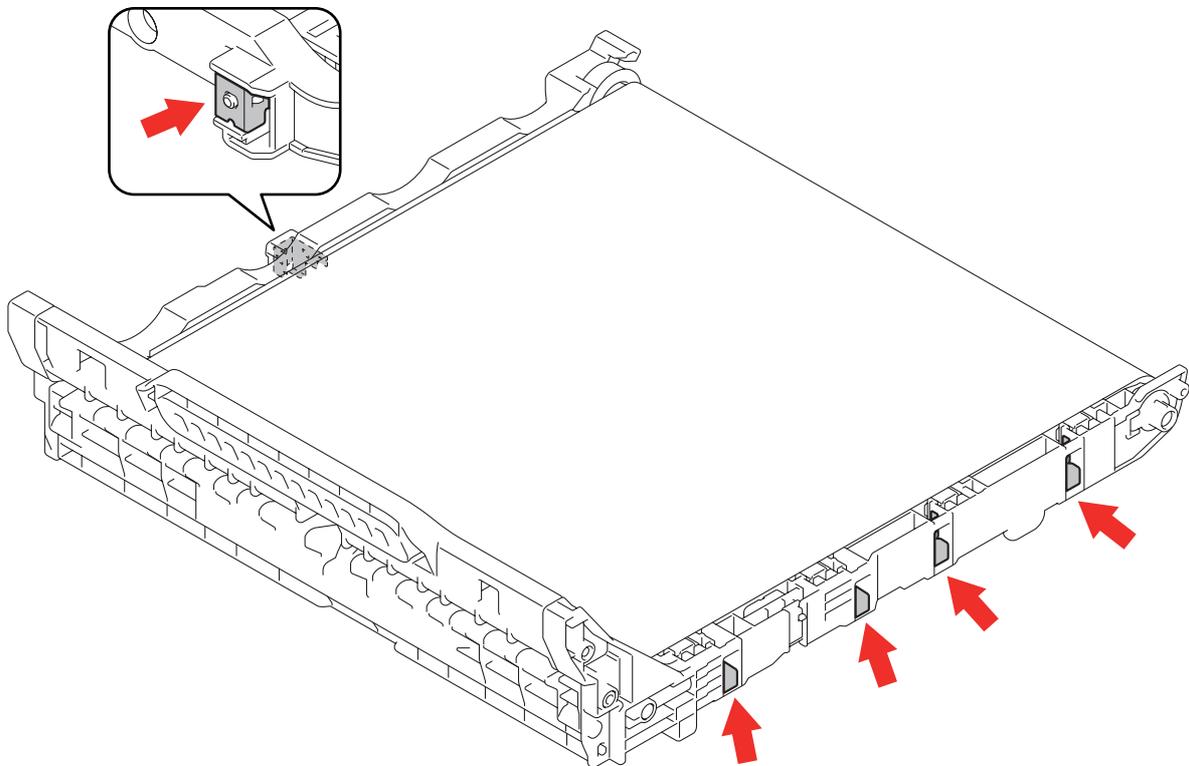


Fig. 2-10

■ **Error code 6801**

Cooling Down
Wait for a while

The internal temperature sensor detected a temperature higher than the specified one.

<User Check>

- Decrease the room temperature.
- Place the machine away from a heater.

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

■ **Error code 6901**

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

Some fuser unit errors occurred at power-ON or upon recovery from sleep mode.

Error code 6902

Self-Diagnostic
Will Automatically Restart within 15 minutes.

After the error was detected at the fuser unit, power was turned ON again and the error is being checked. (If power is turned OFF and ON after error code 6901 occurred, this code is displayed for about 15 minutes.)

Step	Cause	Remedy
1	Each harness connection failure of the fuser unit	Check each harnesses connection of the fuser unit and reconnect them.
2	Eject sensor PCB harness connection failure	Check the eject sensor PCB harness connection and reconnect it.
3	Fuser unit failure	Replace the fuser unit.
4	Eject sensor PCB failure	Replace the eject sensor PCB ASSY.
5	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB ASSY.
6	Main PCB failure	Replace the main PCB ASSY.

Note:

Turn the power OFF. After checking that the fuser unit has cooled down, turn the power ON again. After the machine is left as it is for about 10 minutes, this problem may be resolved.

■ Error code 6A00

Drum !
Slide the Green tab on Drum Unit.

Electric discharge that may be caused by dirt on the corona wire of the drum unit was detected.

<User Check>

- Slide the green tab of the drum unit a few times and clean the corona wire.
- Clean the drum unit. (Refer to [fig. 2-8 \(P2-51\)](#))
- Replace the drum unit.

Step	Cause	Remedy
1	Dirt on the GRID terminals of the main body	Clean the GRID terminals of the main body. (Refer to fig. 2-7 (P2-50))
2	Dirt on the terminal of the high-voltage power supply PCB	Clean the terminal of the high-voltage power supply PCB.
3	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 6B01**

Drum Stop

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

Electric discharge was detected when the number of the drum unit (Black) rotations had become more than twice of the upper limit.

Error code 6B02

Drum Stop

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

Electric discharge was detected when the number of the drum unit (Yellow) rotations had become more than twice of the upper limit.

Error code 6B03

Drum Stop

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

Electric discharge was detected when the number of the drum unit (Magenta) rotations had become more than twice of the upper limit.

Error code 6B04

Drum Stop

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

Electric discharge was detected when the number of the drum unit (Cyan) rotations had become more than twice of the upper limit.

<User Check>

- Replace the drum unit.

Step	Cause	Remedy
1	Dirt on the GRID terminals of the main body	Clean the GRID terminals of the main body. (Refer to fig. 2-7 (P2-50))
2	Dirt on the terminal of the high-voltage power supply PCB	Clean the terminal of the high-voltage power supply PCB.
3	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 6B0A**

Drum !
Slide the Green tab on Drum Unit.

GRID current failure was detected in a state other than immediately after power was turned ON or the joint cover ASSY was closed.

<User Check>

- Reset the drum unit.
- Clean the GRID terminals of the drum unit. (Refer to [fig. 2-8 \(P2-51\)](#))
- Slide the green tab of the drum unit a few times and clean the corona wire.

Step	Cause	Remedy
1	Dirt on the GRID terminals of the main body	Clean the GRID terminals of the main body. (Refer to fig. 2-7 (P2-50))
2	Dirt on the terminal of the high-voltage power supply PCB	Clean the terminal of the high-voltage power supply PCB.
3	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 6E00**

Toner Error
One or more Toner Cartridges are not detected. Pull out and reinsert all 4 Toner Cartridges.

The develop release sensor detected the develop roller disengagement or engagement failure.

Step	Cause	Remedy
1	Develop release sensor harness connection failure	Check the develop release sensor harness connection and reconnect it.
2	High-voltage power supply PCB harness connection failure	Check the high-voltage power supply PCB harness connection and reconnect it.
3	Develop release sensor failure	Replace the develop release sensor PCB ASSY.
4	Misalignment of develop clutch cam	Check the develop clutch cam position and re-assemble it.
5	Develop release clutch failure	Replace the develop release clutch.
6	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
7	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 7000**

Jam Inside

Open the Top Cover, pull out all four drum and toner cartridge assemblies and remove the jammed paper.

After the registration rear sensor detects the end of paper pass, the eject sensor does not detect paper pass.

<User Check>

- Remove the jammed paper.

Step	Cause	Remedy
1	Foreign object inside machine	Remove foreign object.
2	Eject actuator that has come off or that has been caught	Re-assemble the eject actuator.
3	Fuser cover installation failure	Re-assemble the fuser cover.
4	Eject sensor PCB harness connection failure	Check the eject sensor PCB harness connection and reconnect it.
5	Fuser cover failure	Replace the fuser cover.
6	Eject sensor failure	Replace the eject sensor PCB ASSY.
7	Fuser unit failure	Replace the fuser unit.
8	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 7100**

Jam Rear

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

After the registration rear sensor detected that paper has passed, eject sensor continues to detect paper pass.

<User Check>

- Remove the jammed paper.

Step	Cause	Remedy
1	Foreign object at the back of the machine	Remove foreign object.
2	Eject actuator catching on some position	Re-assemble the eject actuator.
3	Fuser cover installation failure	Re-assemble the fuser cover.
4	Back cover installation failure	Re-assemble the back cover.
5	Eject sensor failure	Replace the eject sensor PCB ASSY.
6	Back cover failure	Replace the back cover.
7	Eject roller 1 failure	Replace the fuser cover.
8	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 7300**

Jam Tray
Pull the paper tray completely out of the machine and remove the jammed paper

After the paper feed sensor detects paper pass, the registration front sensor does not detect paper pass after a set period of time.

<User Check>

- Remove the jammed paper.

Step	Cause	Remedy
1	Foreign object inside machine	Remove foreign object.
2	Paper dust cleaning roller installation failure	Re-assemble the paper dust cleaning roller.
3	Registration front actuator that has come off or that has been caught	Re-assemble the registration front actuator.
4	Registration rear actuator that has come off or that has been caught	Re-assemble the registration rear actuator.
5	Registration front/rear/manual feed sensor PCB harness connection failure	Check the registration front/rear/manual feed sensor PCB harness connection and reconnect it.
6	Registration front/rear/manual feed sensor PCB failure	Replace the registration front/rear/manual feed sensor PCB ASSY.
7	Feed roller failure	Replace the paper feed unit.
8	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 7700**

Jam 2-sided

Pull the paper tray completely out of the machine. Check inside the machine towards the rear. Or open the Back Cover to remove the jammed paper.

After the first side is printed in 2-sided printing mode, the registration front sensor does not detect paper pass after a set period of time.

<User Check>

- Remove the jammed paper.

Step	Cause	Remedy
1	Foreign object inside the duplex path	Remove foreign object.
2	Fuser cover installation failure	Re-assemble the fuser cover.
3	Back cover installation failure	Re-assemble the back cover.
4	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 7900**

Jam Manual Feed

Pull out the jammed paper from Manual Feed and press Start

After the manual feed sensor detects pass of paper fed from the manual feed slot, the registration rear sensor does not detect paper pass after a set period of time. Or after the manual feed sensor detects paper passing, the registration rear sensor detects paper pass within a set period of time.

<User Check>

- Remove paper that is crammed in the manual feed slot.
- Check if the paper whose thickness is not prescribed is used.
- Remove the jammed paper.
- Check if paper is removed after manual feed printing is started.

Step	Cause	Remedy
1	Foreign object inside the manual feed path	Remove foreign object.
2	Registration rear actuator that has come off or that has been caught	Re-assemble the registration rear actuator.
3	Registration clutch harness connection failure	Check the registration clutch harness connection and reconnect it.
4	Registration front/rear/manual feed sensor PCB harness connection failure	Check the registration front/rear/manual feed sensor PCB harness connection and reconnect it.
5	Registration rear sensor failure	Replace the paper feed unit.
6	Registration clutch failure	Replace the registration clutch.
7	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 8501**

No Tray
The paper tray cannot be detected, re-install Tray1

The paper feed sensor detected that the paper tray was not set (before print registration in engine) in 2-sided printing.

Error code 8505

No Tray
The paper tray cannot be detected, re-install Tray1

The paper feed sensor detected that the paper tray was not set (after print registration in engine) in 2-sided printing.

<User Check>

- Set the paper tray correctly.

Step	Cause	Remedy
1	Foreign object around the area from which paper tray is inserted	Remove foreign object.
2	Paper feed actuator that has come off or that has been caught	Re-assemble the paper feed actuator.
3	Paper feed sensor PCB harness connection failure	Check the paper feed sensor PCB harness connection and reconnect it.
4	Paper feed sensor PCB failure	Replace the paper feed unit.
5	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 8903**

2-sided Disabled
Close the Back Cover of the Machine

The back cover sensor detected the open state when 2-sided printing is started (before the registration of printing in the engine).

Error code 8904

2-sided Disabled
Close the Back Cover of the Machine

The back cover sensor detected the open state during 2-sided printing (after the registration of printing in the engine).

<User Check>

- Close the back cover.

Step	Cause	Remedy
1	Back cover sensor harness connection failure	Check the back cover sensor harness connection and reconnect it.
2	Back cover sensor installation failure	Re-assemble the back cover sensor.
3	Breakage of boss that presses the back cover sensor	Replace the back cover.
4	Back cover sensor failure	Replace the back cover sensor.
5	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 8A01**

Size Error 2-sided
Specify the correct paper

The registration rear sensor detected that the fed paper was greater or smaller than the specified size in 2-sided printing.

<User Check>

- Use the Letter to Legal size paper.

Step	Cause	Remedy
1	Registration rear actuator catching on some position	Re-assemble the registration rear actuator.
2	Registration rear sensor failure	Replace the paper feed unit.
3	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 8C00**

Manual Feed
Load paper

No paper is in the manual feed slot when printing from the manual feed slot.

<User Check>

- Load paper to the manual feed slot.

Step	Cause	Remedy
1	Registration front/rear/manual feed sensor PCB harness connection failure	Check the registration front/rear/manual feed sensor PCB harness connection and reconnect it.
2	Manual feed actuator catching on some position	Re-assemble the manual feed actuator.
3	Manual feed sensor failure	Replace the paper feed unit.
4	Main PCB failure	Replace the main PCB ASSY.

■ Error code 8D01

Short paper
Open the Back Cover and then press Start

The registration rear sensor detected that the paper loaded in the paper tray was smaller than the specified size.

<User Check>

- Open the back cover and print using the straight paper path.
- Load paper whose length is 140 mm or more.

Step	Cause	Remedy
1	Registration rear actuator catching on some position	Re-assemble the registration rear actuator.
2	Registration rear sensor failure	Replace the paper feed unit.
3	Main PCB failure	Replace the main PCB ASSY.

■ Error code 8D02

Small paper
Open the Back Cover and then press Start

When printing with the back cover closed, the paper size selected in the print data is smaller than the valid size.

<User Check>

- Check whether the back cover is open.

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

■ Error code 8E01

Size mismatch
Reload correct paper.

Upon fax reception, the paper size setting is the one other than A4, Letter, Legal, and Folio.

<User Check>

- Set the paper size to A4, Letter, Legal, or Folio.

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

■ **Error code 8E02**

Size mismatch
Reload correct paper.

Upon receiving a fax or printing a list or report, the size of the paper loaded in the paper tray was detected to be shorter than Letter by 10 mm or more.

Error code 8E03

Size mismatch
Reload correct paper.

When a received fax, list, or report was printed on multiple pages, the size of the paper loaded in the paper tray was detected to be shorter than the size selected in the machine by 2 mm or more.

<User Check>

- Set the paper size to A4, Letter, Legal, or Folio.

Step	Cause	Remedy
1	Registration rear actuator catching on some position	Re-assemble the registration rear actuator.
2	Registration rear sensor failure	Replace the registration front/rear/manual feed sensor PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 9002**

Size Mismatch
Reload correct paper in Tray1, then press Start.

The size of paper loaded in the paper tray and the one specified from the driver are not same when paper is fed from the paper tray.

<User Check>

- When specifying the paper in the driver, set the paper size of the paper that is actually set.

Step	Cause	Remedy
1	Registration rear actuator catching on some position	Re-assemble the registration rear actuator.
2	Registration rear sensor failure	Replace the paper feed unit.
3	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 9302**

No Paper
Reload paper in Tray.

For printing by feeding paper from the paper tray, the paper feed sensor detected that no paper was in the paper tray.

<User Check>

- Load paper to the paper tray.

Step	Cause	Remedy
1	Foreign object in pick-up roller	Remove foreign object.
2	Paper feed sensor PCB harness connection failure	Check the paper feed sensor PCB harness connection and reconnect it.
3	Paper feed actuator catching on some position	Re-assemble the paper feed actuator.
4	Paper feed sensor failure	Replace the paper feed unit.
5	Gear failure inside of process drive unit	Replace the process drive unit.
6	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 9307**

Size Mismatch
Reload paper in Tray.

Upon receiving a fax or printing a list or report, the machine detected that paper tray empty of paper.

<User Check>

- Load paper to the paper tray.

Step	Cause	Remedy
1	Registration front/rear/manual feed sensor PCB harness connection failure	Check the registration front/rear/manual feed sensor PCB harness connection and reconnect it.
2	Registration rear actuator catching on some position	Re-assemble the registration rear actuator.
3	Registration front sensor failure	Replace the registration front/rear/manual feed sensor PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 9701**

Size Error 2-sided
Press Stop Key. Specify the correct paper and load the same size paper as the Printer driver setting.

For 2-sided printing, the tray whose paper size was not supported by 2-sided printing was selected.

<User Check>

- Set the driver setting to A4 size or equal to or larger than Letter size, and set the same size of paper into the paper tray.

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

■ **Error code 9801**

Calibration failed
See Troubleshooting chapter in User's Guide.

Error occurred with the value measured during color density adjustment performed from the control panel.

<User Check>

- Check if the toner cartridges are set in the correct order of colors.
- Replace the toner cartridge.
- Replace the drum unit.
- If the belt unit has a scratch, replace it.
- If "WT Box End Soon" is displayed on the LCD and the belt unit has dirt, replace the waste toner box.

Step	Cause	Remedy
1	Registration mark sensor L dirty	Clean the registration mark sensor L.
2	Failure in printed measurement pattern image	If failure occurs when printing "2D3S YCMK__A" in "Function code 71", refer to "4.3 Image Defect Troubleshooting" in this chapter and take a measure.
3	Registration mark L PCB harness connection failure	Check the registration mark L PCB harness connection and reconnect it.
4	Eject sensor PCB harness connection failure	Check the eject sensor PCB harness connection and reconnect it.
5	Density sensor failure	Replace the registration mark L PCB ASSY.
6	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 9802**

Calibration failed
Insufficient Toner for Calibration

Dot counter or develop roller counter of color toner has reached the upper limit during color density adjustment performed from the control panel.

<User Check>

- Replace the corresponding toner cartridge.

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

■ **Error code 9803**

Calibration failed
Press [OK], and try again

Density patch measurement ended unsuccessfully during color density adjustment performed from the control panel.

Error code 9804

Calibration failed
Press [OK], and try again

Error occurred with the value measured during density sensor sensitivity calibration.

<User Check>

- Check if the toner cartridges are set in the correct order of colors.
- Replace the toner cartridge.
- Replace the drum unit.
- If the belt unit has a scratch, replace it.
- If "WT Box End Soon" is displayed on the LCD and the belt unit has dirt, replace the waste toner box.

Step	Cause	Remedy
1	Registration mark sensor L dirty	Clean the registration mark sensor L.
2	Failure in printed measurement pattern image	If failure occurs when printing "2D3S YCMK__A" in "Function code 71", refer to "4.3 Image Defect Troubleshooting" in this chapter and take a measure.
3	Registration mark L PCB harness connection failure	Check the registration mark L PCB harness connection and reconnect it.
4	Eject sensor PCB harness connection failure	Check the eject sensor PCB harness connection and reconnect it.
5	Density sensor failure	Replace the registration mark L PCB ASSY.
6	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 9901**

Registration failed
See Troubleshooting chapter in User's Guide

Error occurred with the value measured during regi pitch correction.

<User Check>

- Check if the toner cartridges are set in the correct order of colors.
- Replace the toner cartridge.
- Replace the drum unit.
- If the belt unit has a scratch, replace it.
- If "WT Box End Soon" is displayed on the LCD and the belt unit has dirt, replace the waste toner box.

Step	Cause	Remedy
1	Registration mark sensor L/ registration mark sensor R dirty	Clean the registration mark sensor L/ registration mark sensor R.
2	Registration mark L PCB/ Registration mark R PCB harness connection failure	Check the registration mark L PCB/ registration mark R PCB harness connection and reconnect it.
3	Eject sensor PCB harness connection failure	Check the eject sensor PCB harness connection and reconnect it.
4	Failure in printed measurement pattern image	If failure occurs when printing "2D3S YCMK__A" in "Function code 71", refer to "4.3 Image Defect Troubleshooting" in this chapter and take a measure.
5	Registration mark L failure	Replace the registration mark L PCB ASSY.
6	Registration mark R failure	Replace the registration mark R PCB ASSY.
7	Main PCB failure	Replace the main PCB ASSY.

■ **Error code 9902**

Registration failed
Press [OK], and try again.

Dot counter or develop roller counter of color toner has reached the upper limit during regi pitch correction.

<User Check>

- Replace the corresponding toner cartridge.

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

■ **Error code 9903**

Registration failed
Press [OK], and try again.

Error occurred during patch data printing in regi pitch correction.

<User Check>

- Check if the toner cartridges are set in the correct order of colors.
- Replace the toner cartridge.
- Replace the drum unit.
- If the belt unit has a scratch, replace it.
- If "WT Box End Soon" is displayed on the LCD and the belt unit has dirt, replace the waste toner box.

Step	Cause	Remedy
1	Registration mark sensor L/ registration mark sensor R dirty	Clean the registration mark sensor L/ registration mark sensor R.
2	Registration mark L PCB/ Registration mark R PCB harness connection failure	Check the registration mark L PCB/ registration mark R PCB harness connection and reconnect it.
3	Eject sensor PCB harness connection failure	Check the eject sensor PCB harness connection and reconnect it.
4	Failure in printed measurement pattern image	If failure occurs when printing "2D3S YCMK__A" in "Function code 71", refer to "4.3 Image Defect Troubleshooting" in this chapter and take a measure.
5	Registration mark L failure	Replace the registration mark L PCB ASSY.
6	Registration mark R failure	Replace the registration mark R PCB ASSY.
7	Main PCB failure	Replace the main PCB ASSY.

■ Error code 9A01

Registration failed
See Troubleshooting chapter in User's Guide.

Error occurred with the value measured during auto color registration performed from the control panel.

<User Check>

- Check if the toner cartridges are set in the correct order of colors.
- Replace the toner cartridge.
- Replace the drum unit.
- If the belt unit has a scratch, replace it.
- If "WT Box End Soon" is displayed on the LCD and the belt unit has dirt, replace the waste toner box.

Step	Cause	Remedy
1	Registration mark sensor L/ registration mark sensor R dirty	Clean the registration mark sensor L/ registration mark sensor R.
2	Registration mark L PCB/ Registration mark R PCB harness connection failure	Check the registration mark L PCB/ registration mark R PCB harness connection and reconnect it.
3	Eject sensor PCB harness connection failure	Check the eject sensor PCB harness connection and reconnect it.
4	Failure in printed measurement pattern image	If failure occurs when printing "2D3S YCMK__A" in "Function code 71", refer to "4.3 Image Defect Troubleshooting" in this chapter and take a measure.
5	Registration mark L failure	Replace the registration mark L PCB ASSY.
6	Registration mark R failure	Replace the registration mark R PCB ASSY.
7	Main PCB failure	Replace the main PCB ASSY.

■ Error code 9A02

Registration failed
Insufficient Toner for Registration.

Dot counter or develop roller counter of color toner has reached the upper limit during auto color registration performed from the control panel.

<User Check>

- Replace the corresponding toner cartridge.

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

■ Error code 9A03

Registration failed
Press [OK], and try again.

Error occurred during patch data printing in auto color registration performed from the control panel.

<User Check>

- Check if the toner cartridges are set in the correct order of colors.
- Replace the toner cartridge.
- Replace the drum unit.
- If the belt unit has a scratch, replace it.
- If "WT Box End Soon" is displayed on the LCD and the belt unit has dirt, replace the waste toner box.

Step	Cause	Remedy
1	Registration mark sensor L/ registration mark sensor R dirty	Clean the registration mark sensor L/ registration mark sensor R.
2	Registration mark L PCB/ Registration mark R PCB harness connection failure	Check the registration mark L PCB/ registration mark R PCB harness connection and reconnect it.
3	Eject sensor PCB harness connection failure	Check the eject sensor PCB harness connection and reconnect it.
4	Failure in printed measurement pattern image	If failure occurs when printing "2D3S YCMK__A" in "Function code 71", refer to "4.3 Image Defect Troubleshooting" in this chapter and take a measure.
5	Registration mark L failure	Replace the registration mark L PCB ASSY.
6	Registration mark R failure	Replace the registration mark R PCB ASSY.
7	Main PCB failure	Replace the main PCB ASSY.

■ Error code A000

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

Upon scanning the second side in duplex scanning, scanned data cannot be output with the required number of pixels and image processing is not completed successfully.

Step	Cause	Remedy
1	Second side CIS unit calibration data error	Perform "Function code 55". (Refer to "1.4.18 Acquisition of white level data and setting of CIS scanning area" in Chapter 5.)
2	Second side CIS unit failure	Replace the second side CIS unit.
3	Main PCB failure	Replace the main PCB ASSY.

■ **Error code A200**

Document Jam
Clear the scanner jam, then press the Stop Key.

During document scanning, the first side document scanning position sensor detected that the document length was 90 cm or more.

<User Check>

- Use documents equal to or smaller than A4 size.
- Remove the jammed paper.

Step	Cause	Remedy
1	First side document scanning position actuator catching on some position	Re-assemble the first side document scanning position actuator.
2	First side document scanning position sensor failure	Replace the first side document scanning position sensor PCB.
3	Main PCB failure	Replace the main PCB ASSY.

■ **Error code A300**

Document Jam
Clear the scanner jam, then press the Stop Key.

Though a document was fed and conveyed by the specified distance or longer, the first side document scanning position sensor did not detect the passing of the paper.

<User Check>

- Remove the jammed paper.

Step	Cause	Remedy
1	Coming off of first side document scanning position actuator.	Re-assemble the first side document scanning position actuator .
2	First side document scanning position sensor failure	Replace the first side document scanning position sensor PCB.
3	Main PCB failure	Replace the main PCB ASSY.

■ **Error code A400**

Cover is Open
Close the ADF Cover

The ADF cover sensor detected that the ADF cover was opened.

<User Check>

- Firmly close the ADF cover.

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

■ **Error code A500**

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

Upon scanning a fax, The first side CIS white or black calibration data was not within the normal range.

Error code A600

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

Though a fax was scanned again after A500 error, the first side CIS white or black calibration data was not within the normal range.

Error code A700

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

The ROM color parameter does not match the first side CIS.

Step	Cause	Remedy
1	Second side CIS unit calibration data error	Perform "Function code 55". (Refer to "1.4.18 Acquisition of white level data and setting of CIS scanning area" in Chapter 5.)
2	First side CIS unit failure	Replace the first side CIS unit.
3	Main PCB failure	Replace the main PCB ASSY.

■ **Error code A800**

-

When an image was scanned and processed, an error was detected in ROM color parameter.

Error code A900

Scan Unable A9

When an image was scanned and processed, a scanning error occurred.

Step	Cause	Remedy
1	First side/second side CIS unit calibration data error	Perform "Function code 55". (Refer to "1.4.18 Acquisition of white level data and setting of CIS scanning area" in Chapter 5.)
2	First side CIS unit failure	Replace the first side CIS unit.
3	Second side CIS unit failure	Replace the second side CIS unit.
4	Main PCB failure	Replace the main PCB ASSY.

■ **Error code AC00**

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

Upon scanning a fax, the second side white or black calibration data was not within the normal range.

Step	Cause	Remedy
1	Second side CIS unit calibration data error	Perform "Function code 55". (Refer to "1.4.18 Acquisition of white level data and setting of CIS scanning area" in Chapter 5.)
2	Second side CIS unit failure	Replace the second side CIS unit.
3	Main PCB failure	Replace the main PCB ASSY.

■ **Error code AD00**

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

First side scanned data cannot be output with the required number of pixels, and image processing cannot be completed successfully.

Step	Cause	Remedy
1	First side CIS unit calibration data error	Perform "Function code 55". (Refer to "1.4.18 Acquisition of white level data and setting of CIS scanning area" in Chapter 5.)
2	First side CIS unit failure	Replace the first side CIS unit.
3	Main PCB failure	Replace the main PCB ASSY.

■ **Error code AF00**

Scan Unable AF
Turn the power off and then back on again.

The first side CIS fails to move, remaining at the home position.

Step	Cause	Remedy
1	Dust adhered to CIS rail	Remove the dust from the CIS rail.
2	Coming off of CIS drive belt	Re-assemble the CIS drive belt.
3	Document scanner motor harness connection failure	Check the document scanner motor harness connection and reconnect it.
4	First side CIS unit failure	Replace the first side CIS unit.
5	Document scanner motor failure	Replace the document scanner unit.
6	Main PCB failure	Replace the main PCB ASSY.

■ **Error code B000**

SCANNER ERROR FB / SCANNER ERROR ADF

The first or second side CIS flat cable was detected to be not inserted correctly.

Step	Cause	Remedy
1	First side CIS harness connection failure	Check the first side CIS harness connection and reconnect it.
2	Second side CIS harness connection failure	Check the second side CIS harness connection and reconnect it.
3	First side CIS unit failure	Replace the first side CIS unit.
4	Second side CIS unit failure	Replace the second side CIS unit.
5	Main PCB failure	Replace the main PCB ASSY.

■ **Error code B700**

Scanner Error

During scanning, obtained voltage was above the upper limit.

Error code B800

Scanner Error

During scanning, obtained voltage was below the lower limit.

Error code B900

Scanner Error

During scanning, obtained white level does not increase though light intensity is increased.

Error code BB00

Scanner Error

The white level value obtained with function code 55 was outside the specified range.

Step	Cause	Remedy
1	First side CIS unit failure	Replace the first side CIS unit.
2	Second side CIS unit failure	Replace the second side CIS unit.
3	Main PCB failure	Replace the main PCB ASSY.

■ **Error code BC00**

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

Though a fax was scanned again after AC00 error, the second side white or black calibration data was not within the normal range.

Step	Cause	Remedy
1	Second side CIS unit calibration data error	Perform "Function code 55". (Refer to "1.4.18 Acquisition of white level data and setting of CIS scanning area" in Chapter 5.)
2	Second side CIS unit failure	Replace the second side CIS unit.
3	Main PCB failure	Replace the main PCB ASSY.

■ **Error code BD00**

Scanner Error

The black level value obtained with function code 55 was outside the specified range.

Step	Cause	Remedy
1	First side CIS unit failure	Replace the first side CIS unit.
2	Second side CIS unit failure	Replace the second side CIS unit.
3	Main PCB failure	Replace the main PCB ASSY.

■ **Error code BF00**

Scan Unable
Document is too longfor 2-sided scanning. Press Stop key

The first side document scanning position sensor detected that the document was 400 mm or more in length and could not be fed from the ADF in duplex feeding.

<User Check>

- Use A4 or Letter size document.

Step	Cause	Remedy
1	First side document scanning position actuator catching on some position	Re-assemble the first side document scanning position actuator.
2	First side document scanning position sensor failure	Replace the first side document scanning position sensor PCB.
3	Main PCB failure	Replace the main PCB ASSY.

■ Error code C001

Log Access Error
Server Timeout, contact your administrator.

Timeout occurred with access request sent to server due to incorrect server address, network disconnection, or inactive server.

Error code C002

Log Access Error
Authentication Error, contact your administrator.

User authentication is unavailable due to incorrect user name, incorrect password, or asynchronous date and time between the machine and server.

Error code C003

Log Access Error
Authentication Error, contact your administrator.

Access to a file is unavailable due to incorrect directory name, no write permission on directory, file write lock, or no write permission on file.

Error code C004

Log Access Error
Wrong Date&Time, contact your administrator.

The current time necessary for user authentication is unavailable due to machine clock (RTC) not being set and time not being obtained through SNTP.

<User Check>

- Refer to User's guide and reconfigure network settings.
- Check the wiring of the LAN cables.
- Check the wireless LAN settings.

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

■ **Error code C700**

**Out of Memory
Press Stop Key**

The memory is insufficient to expand the data of PC-Print.

■ **Error code C800**

**Out of Memory
Secure Print Data is full. Press Stop Key and delete the previously stored data.**

The memory used to store secure print data exceeded the memory size for secure print data.

<User Check>

- Print the print data stored in the memory.
- Divide the print data and print it.

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

■ **Error code D100**

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

An error occurred during modem initialization.

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

■ **Error code D200**

Machine Error

The machine detected that the modem PCB was disconnected.

Step	Cause	Remedy
1	Modem PCB harness connection failure	Check the modem PCB harness connection and reconnect it.
2	Modem PCB failure	Replace the modem PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

■ **Error code D800**

Touchscreen initialization failed
Remove any material which is on the touchscreen.

An error occurred during touch panel initialization.

<User Check>

- Check whether an object is placed on the touch panel.

Step	Cause	Remedy
1	Touch panel ASSY harness connection failure	Check the touch panel ASSY harness connection and reconnect it.
2	Touch panel ASSY failure	Replace the touch panel ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

■ **Error code D900**

-

An error occurred during panel PCB initialization.

<User Check>

- Check whether an object is placed on the control panel.

Step	Cause	Remedy
1	Panel PCB harness connection failure	Check the panel PCB harness connection and reconnect it.
2	Panel PCB failure	Replace the panel cover ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

■ **Error code DA00**

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After the initialization of the panel PCB, no response was sent from the panel PCB for a period of time.

Step	Cause	Remedy
1	Panel PCB failure	Replace the panel cover ASSY.
2	Main PCB failure	Replace the main PCB ASSY.

■ **Error code DB00**

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

Communication between the main PCB and panel PCB is unavailable.

Step	Cause	Remedy
1	Panel PCB harness connection failure	Check the panel PCB harness connection and reconnect it.
2	Panel PCB failure	Replace the panel cover ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

■ **Error code E000**

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

Some ROM checksum error occurred.

<User Check>

- Install the latest firmware.

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

■ **Error code E100**

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

Program error.

<User Check>

- Install the latest firmware.

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

■ **Error code E500**

Print Unable E5
Turn the power off and then back on again.

Error occurred when DRAM on the main PCB ASSY was accessed.

■ **Error code E600**

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

Error occurred during writing to EEPROM on the main PCB ASSY.

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

■ **Error code E900**

Print Unable E9
Turn the power off and then back on again.

An error occurred during key PCB initialization.

Step	Cause	Remedy
1	Key PCB or panel PCB failure	Replace the panel cover ASSY.
2	Main PCB failure	Replace the main PCB ASSY.

■ **Error code EC00**

Unusable Device
Remove the Device. Turn the power off and back on again.

Overcurrent was caused because a USB device that did not meet the specifications was inserted into the USB port.

<User Check>

- Remove the USB device that does not meet the specifications.

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

■ **Error code F900**

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Setting by country code is not entered.

Step	Cause	Remedy
1	During function code 74, power is turned OFF.	Enter the Setting by country code again. (Refer to "1.4.29 Setting by country" in Chapter 5.)
2	Main PCB failure	Replace the main PCB ASSY.

4.2 Paper Feeding Problems

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

4.2.1 No paper feeding from paper tray

<User Check>

- Check if the paper is loaded into the paper tray correctly.
- Check that too much paper is not loaded in the paper tray.
- Turn back the paper loaded in the paper tray or change the orientation of the paper by 180°.
- Check if the thickness of the paper is 60 to 105 g/m².
- Check whether tray specified a manual feed slot.
- Shuffle the papers and reload them into the paper tray.
- Clean the pick-up roller.

Step	Cause	Remedy
1	Coming off of paper feed actuator.	Re-assemble the paper feed actuator.
2	Main motor harness connection failure	Check the main motor harness connection and reconnect it.
3	Paper feed clutch harness connection failure	Check the paper feed clutch harness connection and reconnect it.
4	Paper feed sensor PCB harness connection failure	Check the paper feed sensor PCB harness connection and reconnect it.
5	Pick-up roller worn out	Replace the pick-up roller .
6	Pressing plate up/down gear damaged	Replace the each pressing plate up/down gear.
7	Paper feed clutch failure	Replace the paper feed clutch.
8	Paper feed unit failure	Replace the paper feed unit.
9	Main motor failure	Replace the process drive unit.
10	Main PCB failure	Replace the main PCB ASSY.

4.2.2 No paper feeding from the manual feed slot

<User Check>

- Check if the paper is loaded into the manual feed slot correctly.
- Check that multiple sheets of paper are not loaded in the manual feed slot.
- Check if the thickness of the paper is 60 to 163 g/m².
- Check whether tray specified a paper tray.

Step	Cause	Remedy
1	Coming off of manual feed actuator.	Re-assemble the manual feed actuator.
2	Process motor harness connection failure	Check the process motor harness connection and reconnect it.
3	Registration front/rear/manual feed sensor PCB harness connection failure	Check the registration front/rear/manual feed sensor PCB harness connection and reconnect it.
4	Registration clutch failure	Replace the registration clutch.
5	Paper feed unit failure	Replace the paper feed unit.
6	Main motor failure	Replace the process drive unit.
7	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB ASSY.
8	Main PCB failure	Replace the main PCB ASSY.

4.2.3 Double feeding

<User Check>

- Check if the paper is loaded into the paper tray correctly.
- Check that too much paper is not loaded in the paper tray.
- Turn back the paper loaded in the paper tray or change the orientation of the paper by 180°.
- Check if the thickness of the paper is 60 to 105 g/m².
- Shuffle the papers and reload them into the paper tray.

Step	Cause	Remedy
1	Separation pad or separation roller worn out	Replace the PF kit 1.

4.2.4 Wrinkles on paper

<User Check>

- Check if the paper is loaded into the each paper tray correctly.
- Turn back the paper loaded in the paper tray or change the orientation of the paper by 180°.
- Adjust the paper guide corresponding to the paper size.
- Check if the thickness of the paper is 60 to 105 g/m².
(60 to 163 g/m² for manual feed slot.)
- Check if paper is not damp.
- Check that no dust adheres to the fuser unit.
- Check whether the paper type is appropriate.

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

4.2.5 Paper inclines diagonally

<User Check>

- Check if the paper is loaded into the each paper tray correctly.
- Adjust the paper guide corresponding to the paper size.
- Check if the thickness of the paper is 60 to 105 g/m².
(60 to 163 g/m² for manual feed slot.)
- Check if too much paper is loaded in the tray.

Step	Cause	Remedy
1	Registration clutch failure	Replace the registration clutch.
2	Paper feed unit failure	Replace the paper feed unit.
3	Main PCB failure	Replace the main PCB ASSY.

4.2.6 Curl of paper

<User Check>

- Select "Reduce Paper Curl" in the driver.
- Check if the thickness of the paper is 60 to 105 g/m².
(60 to 163 g/m² for manual feed slot.)
- Perform printing with the envelope lever lowered to the position "B".
(Refer to the figure below.)
- Print with the anti curl lever set on the outside. (Refer to the figure below.)

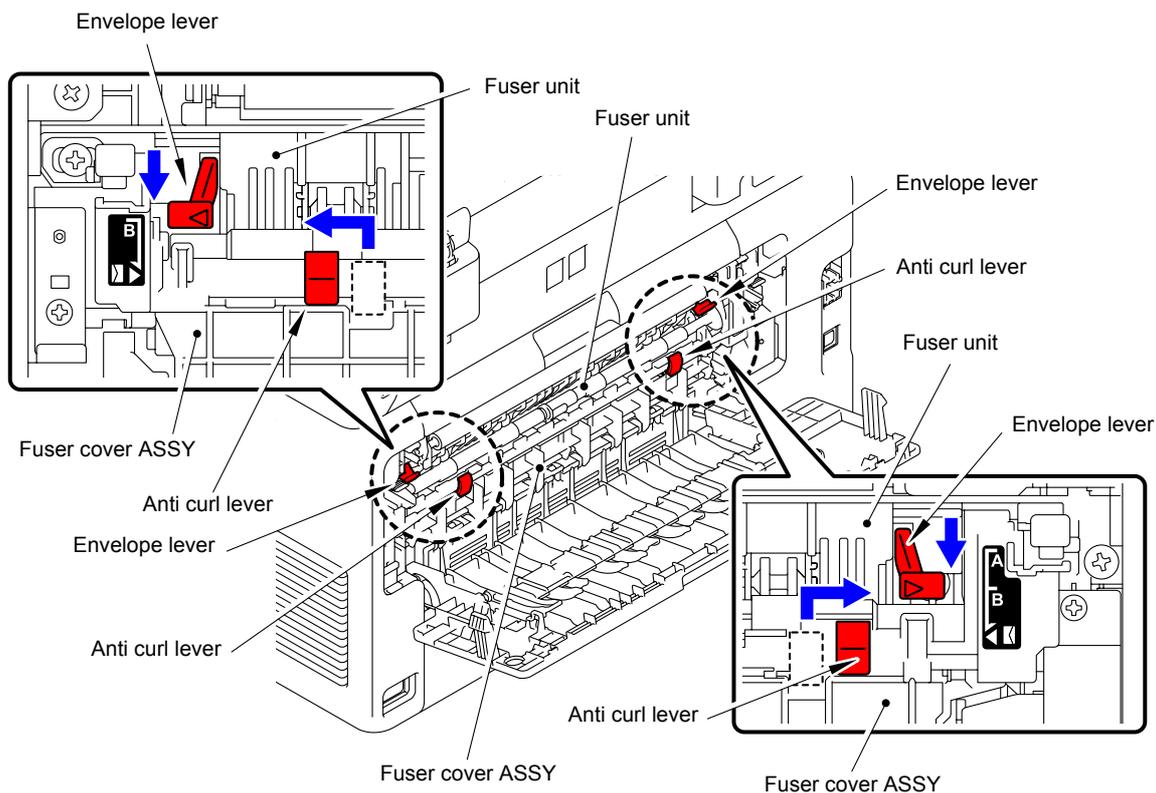


Fig. 2-11

4.2.7 Unable to perform 2-sided printing

<User Check>

- Firmly close the back cover.
- Firmly install the paper tray.
- Set driver to 2-sided printing.
- Use the paper equal to or larger than Letter size or A4 size.
(Use paper specified in each country setting.)

Step	Cause	Remedy
1	Eject actuator catching on some position	Re-assemble the eject actuator.
2	Back cover failure	Replace the back cover.
3	Duplex tray failure	Replace the duplex tray.
4	Back cover sensor failure	Replace the back cover sensor.

4.2.8 Paper jam

■ Paper jam at paper feed section

<User Check>

- Turn the orientation of the papers loaded in the paper tray by 180°.
- Shuffle the papers loaded in the paper tray and set them in the tray again.
- Check if the thickness of the paper is 60 to 105 g/m².
(60 to 163 g/m² for manual feed slot.)
- Check if a label sticks to a roller or the paper transport section.

Step	Cause	Remedy
1	Foreign object at the front of the machine	Remove foreign object. Check if a label sticks to the side or underside of a part.
2	Paper dust cleaning roller installation failure	Re-assemble the paper dust cleaning roller.
3	Registration front actuator that has come off or that has been caught	Re-assemble the registration front actuator.
4	Registration front/rear/manual feed sensor PCB harness connection failure	Check the registration front/rear/manual feed sensor PCB harness connection and reconnect it.
5	Main motor failure	Replace the process drive unit.
6	Feed roller failure	Replace the paper feed unit.
7	Main PCB failure	Replace the main PCB ASSY.

■ Paper jam at center of transport section

<User Check>

- Turn the orientation of the papers loaded in the paper tray by 180°.
- Shuffle the papers loaded in the paper tray and set them in the tray again.
- Check if the thickness of the paper is 60 to 105 g/m².
(60 to 163 g/m² for manual feed slot.)
- Check that the belt unit is properly set.
- Check if a label sticks to a roller or the paper transport section.

Step	Cause	Remedy
1	Foreign object inside machine	Remove foreign object. Check if a label sticks to the side or underside of a part.
2	Eject actuator that has come off or that has been caught	Re-assemble the eject actuator.
3	Fuser cover installation failure	Re-assemble the fuser cover.
4	Eject sensor PCB harness connection failure	Check the eject sensor PCB harness connection and reconnect it.
5	Fuser cover failure	Replace the fuser cover.
6	Eject sensor failure	Replace the eject sensor PCB ASSY.
7	Fuser unit failure	Replace the fuser unit.
8	Main PCB failure	Replace the main PCB ASSY.

■ Paper jam at paper eject section

<User Check>

- Turn the orientation of the papers loaded in the paper tray by 180°.
- Check if the thickness of the paper is 60 to 105 g/m².
(60 to 163 g/m² for manual feed slot.)
- Check if a label sticks to a roller or the paper transport section.

Step	Cause	Remedy
1	Foreign object at the back of the machine	Remove foreign object. Check if a label sticks to the side or underside of a part.
2	Eject actuator catching on some position	Re-assemble the eject actuator.
3	Fuser cover installation failure	Re-assemble the fuser cover.
4	Back cover installation failure	Re-assemble the back cover.
5	Eject sensor PCB harness connection failure	Check the eject sensor PCB harness connection and reconnect it.
6	Back cover failure	Replace the back cover.
7	Eject roller 1 failure	Replace the fuser cover.
8	Eject sensor failure	Replace the eject sensor PCB ASSY.
9	Main PCB failure	Replace the main PCB ASSY.

■ Paper jam at duplex tray section

<User Check>

- Turn the orientation of the papers loaded in the paper tray by 180°.
- Check if the thickness of the paper is 60 to 105 g/m².
(60 to 163 g/m² for manual feed slot.)
- Check if a label sticks to a roller or the paper transport section.

Step	Cause	Remedy
1	Foreign object inside the duplex path	Remove foreign object. Check if a label sticks to the side or underside of a part.
2	Fuser cover installation failure	Re-assemble the fuser cover.
3	Back cover installation failure	Re-assemble the back cover.
4	Main PCB failure	Replace the main PCB ASSY.

4.3 Image Defect Troubleshooting

4.3.1 Image defect examples

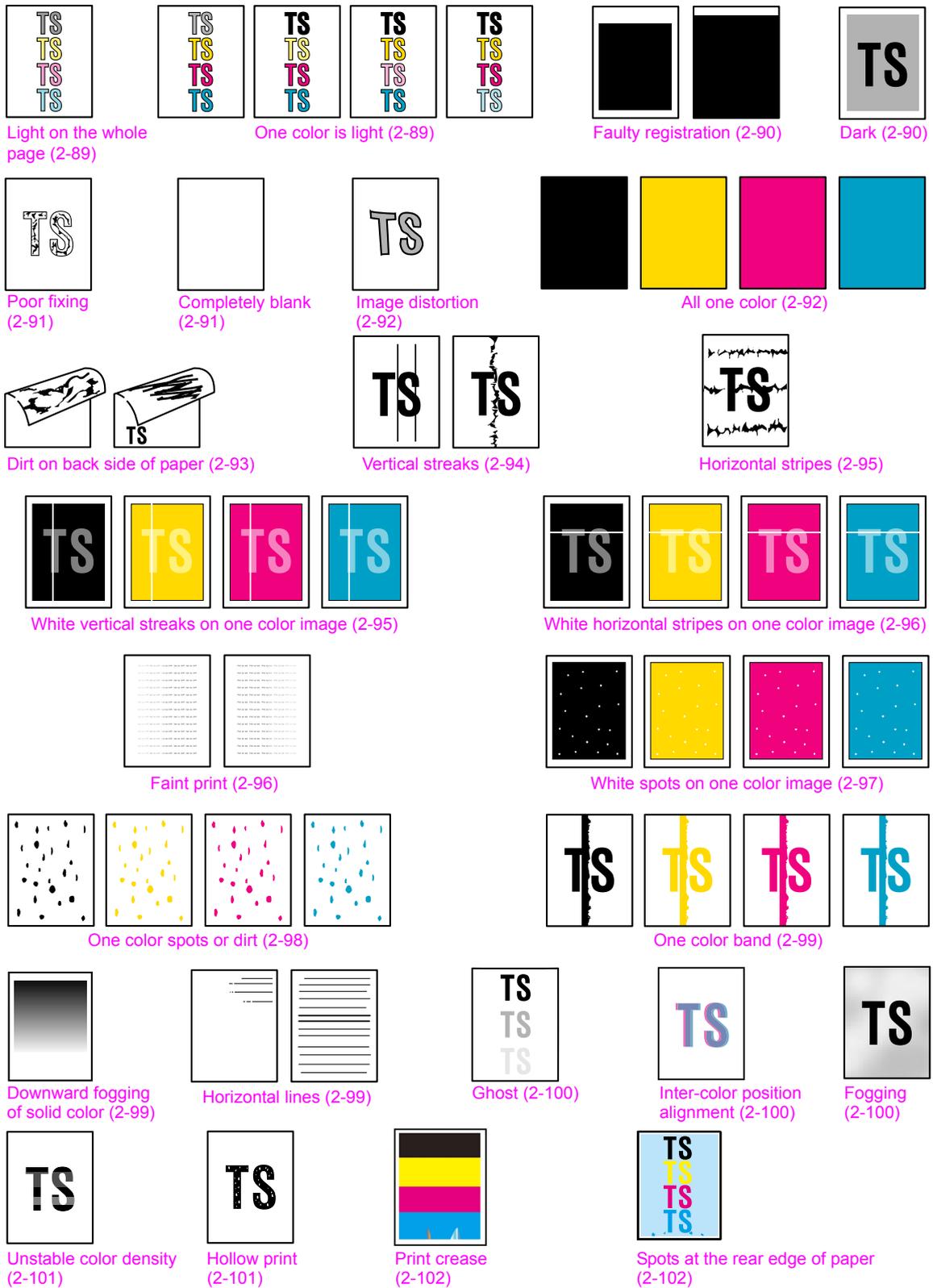
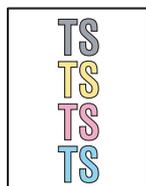


Fig. 2-12

4.3.2 Troubleshooting image defect

Image defect related problems are end user recoverable if following the User Check items. If the same problem occurs again, follow each procedure in the order of the number described in the Step column in the tables below.

■ Light on the whole page

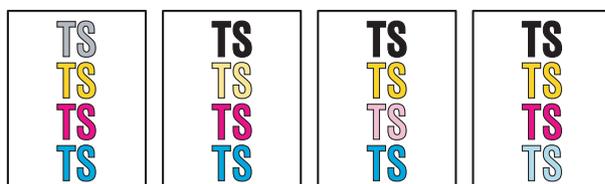


<User Check>

- Check the machine's environment. High temperature and high humidity or low temperature and low humidity conditions can cause this problem.
- If the whole page is light, toner save mode may be ON. Turn OFF the toner save mode.
- Adjust the color calibration from the control panel.
- Replace the drum unit with a new one.
- Replace the toner cartridge with a new one.
- Replace the belt unit with a new one.

Step	Cause	Remedy
1	Dirt on the GRID electrodes of main body and drum unit	Clean the GRID electrodes of the main body and the drum unit. (Refer to fig. 2-7 (P2-50) and fig. 2-8 (P2-51))
2	Fuser unit failure	Replace the fuser unit.
3	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

■ One color is light

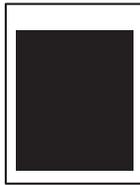


<User Check>

- Check the machine's environment. High temperature and high humidity or low temperature and low humidity conditions can cause this problem.
- If the whole page is light, toner save mode may be ON. Turn OFF the toner save mode.
- Replace the drum unit or toner cartridge with a new one.
- Adjust the color calibration from the control panel.

Step	Cause	Remedy
1	Dirt on the GRID electrodes of the main body and drum unit.	Clean the GRID electrodes of the main body and the drum unit. (Refer to fig. 2-7 (P2-50) and fig. 2-8 (P2-51))
2	Dirt on the electrodes of main body and develop roller	Clean the electrodes of the main body and the develop rollers. (Refer to fig. 2-7 (P2-50))
3	LED ASSY failure of the corresponding color	Replace the LED ASSY of corresponding color.
4	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

■ Faulty registration



<User Check>

- Check whether appropriate paper type is selected on the driver.

Step	Cause	Remedy
1	Registration rear actuator catching on some position	Re-assemble the registration rear actuator.
2	LED ASSY failure	Replace the LED ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

■ Dark

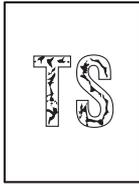


<User Check>

- Check the machine's environment. High temperature and high humidity or low temperature and low humidity conditions can cause this problem.
- Clean the corona wire of the drum unit.
- Check if a used toner cartridge is set after new toner detection.
- Adjust density with the density adjustment function.
- Replace the drum unit or toner cartridge with a new one.
- Replace the belt unit with a new one.

Step	Cause	Remedy
1	Dirt on the GRID electrodes of the main body or drum unit	Clean the GRID electrodes of the main body or drum unit. (Refer to fig. 2-7 (P2-50) and fig. 2-8 (P2-51))
2	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
3	LED ASSY of corresponding color failure	Replace the LED ASSY of corresponding color.
4	Registration mark sensor failure	Replace the registration mark L PCB ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

■ **Poor fixing**



<User Check>

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

Step	Cause	Remedy
1	Fuser unit failure	Replace the fuser unit.
2	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
3	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB ASSY.
4	LED ASSY failure	Replace the LED ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

■ **Completely blank**

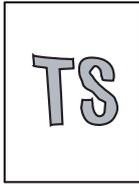


<User Check>

- Clean the corona wire of the drum unit.
- Replace the drum unit or toner cartridge with a new one.
- Install the latest firmware.

Step	Cause	Remedy
1	Dirt on the GRID electrodes of the main body or drum unit	Clean the GRID electrodes of the main body or drum unit. (Refer to fig. 2-7 (P2-50) and fig. 2-8 (P2-51))
2	LED flat cable connection failure	Check the LED flat cable connection and reconnect it.
3	LED ASSY installation failure	Re-assemble the LED ASSY.
4	LED flat cable failure	Replace the LED flat cable.
5	LED ASSY failure	Replace the LED ASSY.
6	LED control PCB failure	Replace the LED control PCB ASSY.
7	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
8	Main PCB failure	Replace the main PCB ASSY.

■ Image distortion

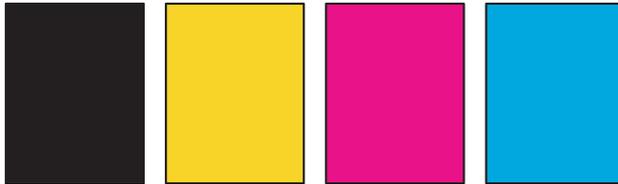


<User Check>

- Replace the belt unit with a new one.

Step	Cause	Remedy
1	LED ASSY installation failure	Install the LED ASSY properly and tighten screws securely.
2	LED ASSY failure	Replace the LED ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

■ All one color



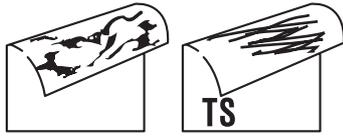
<User Check>

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

Step	Cause	Remedy
1	Dirt on the GRID electrodes of the main body or drum unit	Clean the GRID electrodes of the main body or drum unit. (Refer to fig. 2-7 (P2-50) and fig. 2-8 (P2-51))
2	Flat cable connection failure of the LED ASSY	Reconnect the flat cable of LED ASSY correctly.
3	LED flat cable failure	Replace the LED flat cable.
4	LED control PCB failure	Replace the LED control PCB ASSY.
5	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
6	LED ASSY failure	Replace the LED ASSY.
7	Main PCB failure	Replace the main PCB ASSY.

■ Dirt on back side of paper

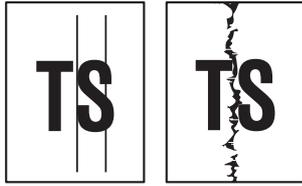
<User Check>



- This symptom might stop occurring after making several prints.
- Replace the toner cartridge with a new one.
- Replace the belt unit.
- Replace the waste toner box.

Step	Cause	Remedy
1	Dirt in the paper feed system	Wipe dirt off.
2	Dirt in the fuser unit	Replace the fuser unit.
3	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.

■ Vertical streaks



<User Check>

- Clean the corona wire of the drum unit.
- Return the cleaning tab of the corona wire to the ▲ position.
- This symptom might stop occurring after making several prints.
- Refer to the User's guide and remove the dirt on the exposure drum using a cotton swab.
- Replace the drum unit or toner cartridge with a new one.
- Clean the LED ASSY.
- Open the joint cover ASSY and the back cover, and leave them for 30 minutes or longer to draw moist air and prevent condensation.

Step	Cause	Remedy
1	Dirt in the paper feed system	Wipe dirt off.
2	FG wires and FG plate installation failure (Grounding is not performed properly)	Retighten the screws that hold the FG wires and FG plate. Repair the bend of the FG plate of the paper tray.
3	Exposure drum dirty	Perform drum cleaning. (Refer to "2.5 Drum Cleaning" in Chapter 5.)
4	LED ASSY failure	Replace the LED ASSY.
5	Scratch and dirt on fuser unit	Replace the fuser unit.

Note:

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

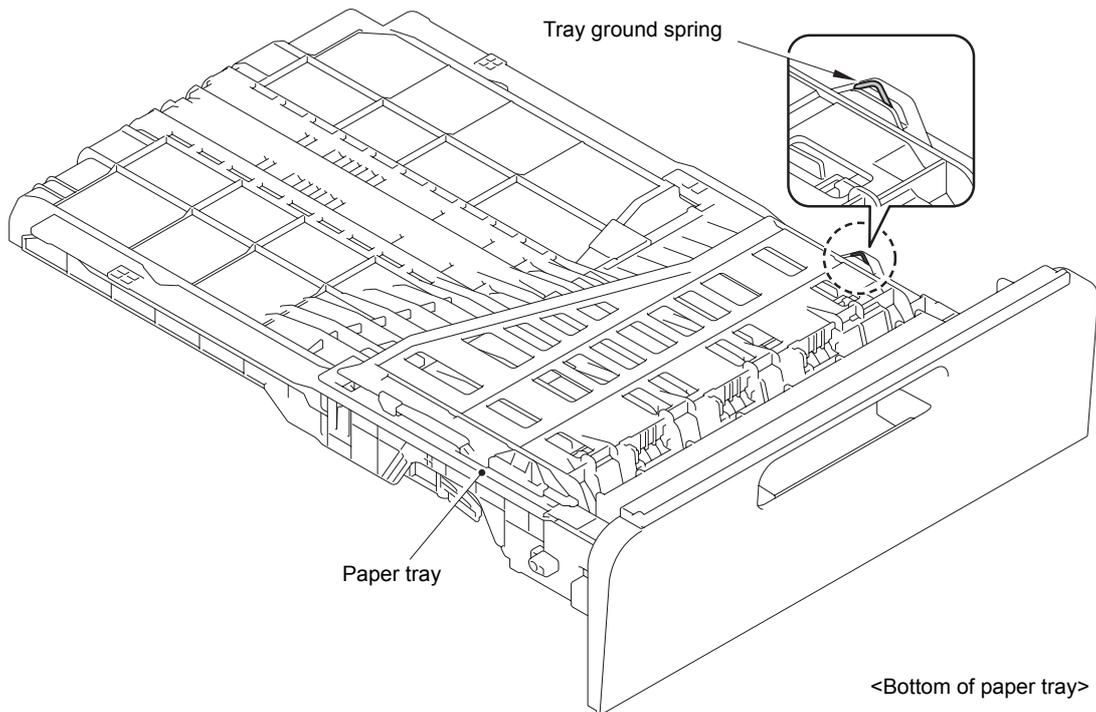


Fig. 2-13

■ Horizontal stripes



<User Check>

- Clean the corona wire of the drum unit.
- This symptom might stop occurring after making several prints.
- Refer to the User's guide and remove the dirt on the exposure drum using a cotton swab.
- Replace the drum unit or toner cartridge with a new one.

Step	Cause	Remedy
1	Dirt on charged electrode	Wipe dirt off.
2	Exposure drum dirty	Perform drum cleaning. (Refer to "2.5 Drum Cleaning" in Chapter 5.)
3	Scratch and dirt on fuser unit	Replace the fuser unit.
4	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.

■ White vertical streaks on one color image

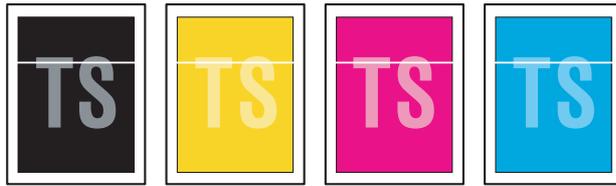


<User Check>

- Clean the inside of the machine and the corona wire of the drum unit.
(Refer to fig. 2-7 (P2-50) and fig. 2-8 (P2-51))
- Check if dust adheres to the area of the toner cartridge corresponding to the location where the white vertical streak appears.
- Refer to the User's guide and remove the dirt on the exposure drum using a cotton swab.
- Replace the drum unit or toner cartridge with a new one.
- Clean the LED ASSY.

Step	Cause	Remedy
1	Condensation	Print several pages or leave the machine for about two hours with the power turned ON.
2	Exposure drum dirty	Perform drum cleaning. (Refer to "2.5 Drum Cleaning" in Chapter 5.)
3	LED ASSY failure	Replace the LED ASSY.

■ **White horizontal stripes on one color image**



<User Check>

- This symptom might stop occurring after making several prints.
- Replace the drum unit or toner cartridge with a new one.

Step	Cause	Remedy
1	Dirt on charged electrode	Wipe dirt off.
2	Exposure drum dirty	Perform drum cleaning. (Refer to "2.5 Drum Cleaning" in Chapter 5.)
3	Scratch and dirt on fuser unit	Replace the fuser unit.
4	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.

■ **Faint print**

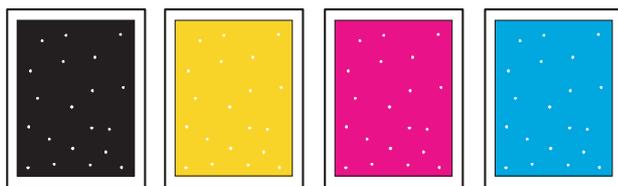


<User Check>

- Check that the machine is set on a level surface.
- Replace the drum unit or toner cartridge with a new one.
- Clean the LED ASSY.

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

■ **White spots on one color image**



<User Check>

- Check if the main fan are not blocked.
- Replace the drum unit or toner cartridge with a new one.
- Refer to the User's guide and remove the dirt on the exposure drum using a cotton swab.

Step	Cause	Remedy
1	Dirt in the paper dust cleaning roller	Referring to the figure below, clean paper dust.
2	Exposure drum dirty	Perform drum cleaning. (Refer to "2.5 Drum Cleaning" in Chapter 5.)
3	Scratch and dirt on fuser unit	Replace the fuser unit.
4	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

■ **Paper dust cleaning roller cleaning procedure**

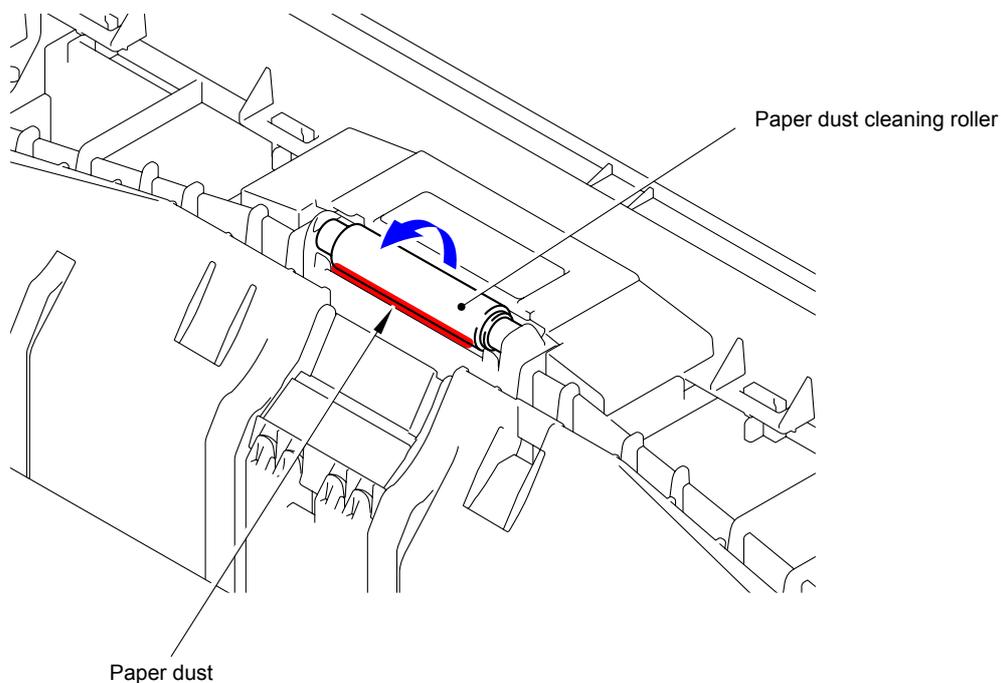
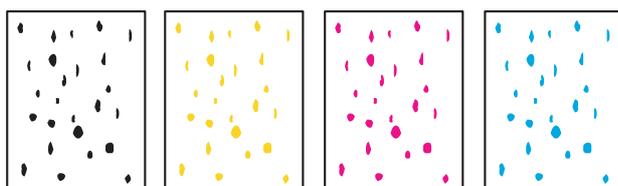


Fig. 2-14

■ One color spots or dirt



<User Check>

- Check if damp paper is used.
- Replace the drum unit or toner cartridge with a new one.
- Refer to the User's guide and remove the dirt on the exposure drum using a cotton swab.

Step	Cause	Remedy
1	Exposure drum dirty	Perform drum cleaning. (Refer to "2.5 Drum Cleaning" in Chapter 5.)
2	Scratch and dirt on fuser unit	Replace the fuser unit.
3	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

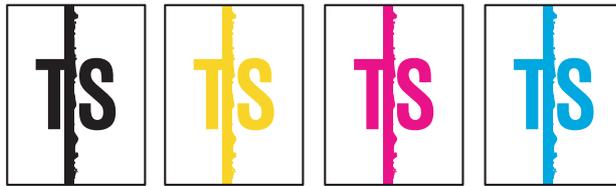
Note:

Image defects which occur periodically may be caused by a failure of the rollers. Use the diameters of the rollers or the pitches which appear in images shown in the table below to identify the cause of the problem.

<Diameters of rollers and pitches on images>

No.	Part name	Diameter	The pitch which appears in the image
1	Develop roller	Ø 13 mm	24.7 mm
2	Exposure drum	Ø 30 mm	94.2 mm
3	Heat roller of the fuser unit	Ø 21 mm	66 mm
4	Pressure roller of the fuser unit	Ø 25 mm	78.5 mm

■ **One color band**



<User Check>

- Clean the inside of the machine and the corona wire in the drum unit.
- Return the cleaning tab of the corona wire to the ▲ position.
- The paper tray ground terminal provided in the main body may be dirty. Clean the contact with a dry cloth.
- Replace the drum unit or toner cartridge with a new one.
- Clean the LED ASSY.

Step	Cause	Remedy
1	Exposure drum dirty	Perform drum cleaning. (Refer to "2.5 Drum Cleaning" in Chapter 5.)
2	Bend of tray ground spring	Replace the paper tray.
3	LED ASSY failure	Replace the LED ASSY.

■ **Downward fogging of solid color**



<User Check>

- Replace the toner cartridge with a new one.

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

■ **Horizontal lines**

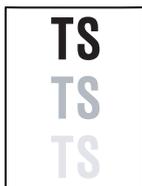


<User Check>

- This symptom might stop occurring after making several prints.
- Replace the drum unit or toner cartridge with a new one.

Step	Cause	Remedy
1	Dirt on charged electrode	Wipe dirt off.
2	Exposure drum dirty	Perform drum cleaning. (Refer to "2.5 Drum Cleaning" in Chapter 5.)
3	Scratch and dirt on fuser unit	Replace the fuser unit.
4	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.

■ Ghost

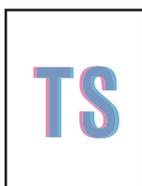


<User Check>

- Check the machine's environment. High temperature and high humidity or low temperature and low humidity conditions can cause this problem.
- Check whether appropriate paper type is selected on the driver.
- Select "Improve Toner Fixing Mode" in the driver.
- Replace the drum unit with a new one.

Step	Cause	Remedy
1	Fuser unit failure	Replace the fuser unit.
2	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

■ Inter-color position alignment

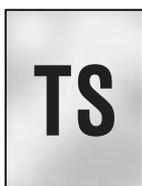


<User Check>

- Implement the adjustment of color registration (adjustment of inter-color position alignment).
- Replace the drum unit with a new one.
- Replace the belt unit with a new one.
- Replace the waste toner box with a new one.

Step	Cause	Remedy
1	Registration mark L failure	Replace the registration mark L PCB ASSY.
2	Registration mark R failure	Replace the registration mark R PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

■ Fogging



<User Check>

- Check the machine's environment. High temperature and high humidity or low temperature and low humidity conditions can cause this problem.
- This symptom might stop occurring after making several prints.
- Replace the drum unit or toner cartridge with a new one.
- Do not use acid paper.

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

Note:

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

■ Unstable color density

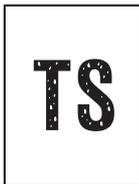


<User Check>

- Check the machine's environment. High temperature and high humidity or low temperature and low humidity conditions can cause this problem.
- Replace the belt unit with a new one.
- Replace the drum unit or toner cartridge with a new one.
- Replace the waste toner box with a new one.

Step	Cause	Remedy
1	Dirt on drum unit electrode	Clean the electrodes of the main body and drum unit. (Refer to fig. 2-7 (P2-50) and fig. 2-8 (P2-51))
2	Dirt on toner cartridge electrode	Clean the electrodes of the main body and toner cartridge. (Refer to fig. 2-7 (P2-50) and fig. 2-8 (P2-51))
3	Dirt on belt unit electrode	Clean the electrodes of the main body and belt unit. (Refer to fig. 2-7 (P2-50) and fig. 2-10 (P2-53))
4	LED ASSY failure	Replace the LED ASSY.
5	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
6	Main PCB failure	Replace the main PCB ASSY.

■ Hollow print



<User Check>

- Check the machine's environment. High temperature and high humidity or low temperature and low humidity conditions can cause this problem.
- Refer to the User's guide and remove the dirt on the exposure drum using a cotton swab.
- Replace the drum unit or toner cartridge with a new one.

Step	Cause	Remedy
1	Dirt in the paper dust cleaning roller	Clean paper dust. (Refer to fig. 2-14 (P2-97))
2	Exposure drum dirty	Perform drum cleaning. (Refer to "2.5 Drum Cleaning" in Chapter 5.)
3	Scratch and dirt on fuser unit	Replace the fuser unit.
4	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.

■ **Print crease**



<User Check>

- Check the machine's environment. High temperature and high humidity or low temperature and low humidity conditions can cause this problem.
- Change the paper to thick paper.
- Check if paper is not damp.
- Check if the thickness of the paper is properly set in the driver.
- Perform printing with the envelope lever lowered to the position "B". (Refer to [fig. 2-11 \(P2-85\)](#))

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

■ **Spots at the rear edge of paper**



<User Check>

- Check the machine's environment. High temperature and high humidity or low temperature and low humidity conditions can cause this problem.
- Perform printing with the envelope lever lowered to the position "B". (Refer to [fig. 2-11 \(P2-85\)](#))

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

4.4 Software Setting Problems

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

4.4.1 Cannot print data

<User Check>

- Check that the USB cable or LAN cable is not damaged.
- Check that the correct machine is selected if you have an interface switching device.
- Check the descriptions on the software setting in the User's guide.
- Check the driver setting.
- Restore the settings at factory shipment. (Refer to User's guide.)

Step	Cause	Remedy
1	Machine connection	When using Macintosh, check the product ID* in Macintosh and update the firmware if the product ID is not correct.
2	Main PCB failure	Replace the main PCB ASSY.

* Follow the procedures below to verify the product ID in Macintosh.

- (1) Select [About This Mac] from the [Apple] menu.
- (2) Click the [More Info...] button in the [About This Mac] dialog box.
- (3) Select [USB] under the [Hardware] in [Contents] on the left side.
- (4) Select the machine (MFC-XXXX or DCP-XXXX) from [USB Device Tree].
- (5) Check [Product ID] in [MFC-XXXX or DCP-XXXX].

■ Product ID (Hexadecimal)

DCP-9020CDW: 02D3h

DCP-9020CDN: 02B1h

MFC-9130CW: 02ADh

MFC-9140CDN: 02AEh

MFC-9330CDW: 02AFh

MFC-9340CDW: 02B0h

4.5 Network Problems

4.5.1 Cannot make a print through network connection

<User Check>

- Check the descriptions in the network User's guide.
- Check the network connection.
- Perform network reset. (Refer to User's guide.)
- Check the LAN cable.

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

4.6 Troubleshooting of the Control Panel

4.6.1 Nothing is displayed on the LCD.

Step	Cause	Remedy
1	AC cord failure	Replace the AC cord.
2	Incompatible firmware	Install the latest firmware.
3	Panel PCB harness connection failure	Check the panel PCB harness connection and reconnect it.
4	LCD harness connection failure	Check the LCD harness connection and reconnect it.
5	LCD failure	Replace the LCD.
6	Panel PCB failure	Replace the panel PCB ASSY.
7	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB ASSY.
8	Main PCB failure	Replace the main PCB ASSY.

4.6.2 Unable to perform panel operation

<User Check>

- Check whether the function lock is not set.

Step	Cause	Remedy
1	Panel unit installation failure	Reinstall the panel unit.
2	Panel PCB harness connection failure	Check the panel PCB harness connection and reconnect it.
3	Panel PCB failure	Replace the panel cover ASSY.
4	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

4.6.3 Lamp malfunction

<User Check>

- Check whether sleep mode is ON.
- Using the menu, check whether lamps can be turned ON.

Step	Cause	Remedy
1	Panel PCB harness connection failure	Check the panel PCB harness connection and reconnect it.
2	Panel PCB failure	Replace the panel cover ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

4.6.4 The touch panel does not work

Step	Cause	Remedy
1	Fine adjustment of touch panel misalignment	Perform the fine adjustment of touch panel. (Function code 61)
2	Panel PCB harness connection failure	Check the panel PCB harness connection and reconnect it.
3	Touch panel ASSY failure	Replace the touch panel ASSY.
4	Panel PCB failure	Replace the panel cover ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

4.7 Troubleshooting of the Toner Cartridge and Drum Unit

4.7.1 New toner not detected

<User Check>

- Be sure to install a new toner cartridge.

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

4.7.2 Cartridge error (Toner cartridge not detected)

Step	Cause	Remedy
1	During new toner cartridge detection, power is turned OFF or the joint cover ASSY is opened	Perform toner manual reset. (Refer to "2.1 Toner Manual Reset Function" in Chapter 5.)
2	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

4.7.3 Toner low (Even though a new toner cartridge is set, Toner low warning remains)

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

4.7.4 Drum error

<User Check>

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

Step	Cause	Remedy
1	Dirt on the GRID electrodes of the drum unit	Clean the GRID electrodes of the main body and the drum unit. (Refer to fig. 2-7 (P2-50) and fig. 2-8 (P2-51))
2	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

4.7.5 Drum unit replacement (Even though drum counter is reset, "Replace Drum" warning remains.)

Step	Cause	Remedy
1	Dirt on the GRID electrodes of the drum unit	Clean the GRID electrodes of the main body and the drum unit. (Refer to fig. 2-7 (P2-50) and fig. 2-8 (P2-51))
2	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

4.8 Troubleshooting of the Fuser Unit

4.8.1 Fuser unit failure

Step	Cause	Remedy
1	Harness connection failure between the connector of the fuser unit and eject sensor PCB	Check the harness connection between the connector of the fuser unit and eject sensor PCB, and reconnect it.
2	Harness connection failure between the connector of the fuser unit and low-voltage power supply PCB	Check the harness connection between the connector of the fuser unit and low-voltage power supply PCB, and reconnect it.
3	Harness connection failure of the eject sensor PCB	Check the harness connection of the eject sensor PCB and reconnect it.
4	Eject sensor PCB failure	Refer to "1.4.10 Operational check of sensors" in Chapter 5 and check the operations of sensors. If sensor operation failure occurs, replace the eject sensor PCB ASSY.
5	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB ASSY.
6	Fuser unit failure	Replace the fuser unit.
7	Main PCB failure	Replace the main PCB ASSY.

Note:

- Turn the power OFF and then ON again. After the machine is left as it is for about 10 minutes, this problem may be resolved.
- If test print is performed in maintenance mode for service personnel, the machine may recover from the error. However, note that if this operation is performed while the heater has not cooled down, the fuser unit may melt.

4.9 Troubleshooting of the LED ASSY

4.9.1 LED ASSY failure

<User Check>

- Turn ON the power, open the joint cover ASSY and back cover, and leave them as they are for a while.
- Clean the LED ASSY.

Step	Cause	Remedy
1	Flat cable connection failure of the LED ASSY	Check the flat cable connection of the LED ASSY and reconnect it.
2	Harness connection failure of the LED control PCB	Check the harness connection of the LED control PCB ASSY and reconnect it.
3	Flat cable failure of LED ASSY	Replace the flat cable of the LED ASSY.
4	LED ASSY failure	Replace the LED ASSY.
5	LED control PCB failure	Replace the LED control PCB ASSY.
6	Main PCB failure	Replace the main PCB ASSY.

4.10 Troubleshooting on the PCB

4.10.1 Main PCB failure

<User Check>

- Turn OFF and ON the power switch.
- Install the latest firmware.

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

4.10.2 Full memory

Memory is full.

<User Check>

- Press **Go** key and delete the accumulated data.
- Reduce the amount of data or lower the resolution.

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

4.10.3 Print overrun

Data deployment is too late.

<User Check>

- Reduce complication of the data or lower the resolution.

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

4.10.4 High-voltage power supply PCB failure

Step	Cause	Remedy
1	Harness connection failure between the high-voltage power supply PCB and main PCB ASSY	Check the harness connection between the high-voltage power supply PCB and main PCB ASSY, and reconnect it.
2	Contact failure of electrode terminal(s) of high-voltage power supply PCB	Clean the each electrode terminal of high-voltage power supply PCB.
3	High-voltage power supply PCB failure	Replace the high-voltage power supply PCB ASSY.
4	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB ASSY.
5	Main PCB failure	Replace the main PCB ASSY.

4.10.5 Low-voltage power supply PCB failure

Step	Cause	Remedy
1	Harness connection failure of the low-voltage power supply PCB	Check the harness connection of the low-voltage power supply PCB and reconnect it.
2	Low-voltage power supply PCB failure	Replace the low-voltage power supply PCB ASSY and reset the irregular power supply detection counter.
3	Main PCB failure	Replace the main PCB ASSY.

Note:

The irregular power supply detection error (Error code 0900) occurs when there is a large distortion of the power supply voltage supplied to the machine. In this case, if the same power supply is used, the same error might occur again even if the low-voltage power supply PCB ASSY is replaced. For this reason, be sure to ask the user to rearrange the installation environment.

4.10.6 Modem PCB failure

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

4.11 Document Feeding Problems

4.11.1 No feeding

<User Check>

- Load the document all the way, and check that the LCD display is changed.
- Check whether the number of loaded documents exceed 35 .
- Check whether the ADF cover is properly closed.

Step	Cause	Remedy
1	Coming off of document detection actuator	Re-assemble the document detection actuator.
2	Coming off of ADF cover actuator	Re-assemble the ADF cover actuator.
3	ADF motor harness connection failure	Check the ADF motor harness connection and reconnect it.
4	ADF cover/document detection sensor PCB harness connection failure	Check the ADF cover/document detection sensor PCB harness connection and reconnect it.
5	Document separate roller failure	Replace the document separate roller ASSY.
6	ADF cover/document detection sensor failure	Replace the ADF cover/document detection sensor PCB ASSY.
7	ADF motor failure	Replace the ADF motor ASSY.
8	Main PCB failure	Replace the main PCB ASSY.

4.11.2 Double feeding

<User Check>

- Check whether paper thinner than 64 g/m² is used as document.

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

4.11.3 Paper jam

■ Paper jam in the ADF cover

<User Check>

- Check whether paper thinner than 64 g/m² is used as document.
- Check whether paper shorter than 147.3 mm is used as document.
- Check whether the number of loaded documents exceed 35 .
- Check whether the ADF cover is properly closed.

Step	Cause	Remedy
1	Foreign object inside the area around ADF cover	Remove foreign objects inside the area around the ADF cover, if any.
2	Coming off of first side document scanning position actuator.	Re-assemble the first side document scanning position actuator.
3	First side document scanning position sensor PCB harness connection failure	Check the first side document scanning position sensor PCB harness connection and reconnect it.
4	Coming off of document pinch roller.	Re-assemble the document pinch roller.
5	Document feed roller worn out	Replace the document feed roller ASSY.
6	First side document scanning position sensor failure	Replace the first side document scanning position sensor PCB ASSY.
7	Main PCB failure	Replace the main PCB ASSY.

■ Paper jam in the ADF

<User Check>

- Check whether paper thinner than 64 g/m² is used as document.
- Check whether paper shorter than 900 mm is used as document.

Step	Cause	Remedy
1	Foreign object inside ADF	Remove foreign objects inside the ADF, if any.
2	Coming off of second side document scanning position actuator.	Re-assemble the second side document scanning position actuator.
3	Coming off of second side document hold.	Re-assemble the second side document hold.
4	Second side document scanning position sensor PCB harness connection failure	Check the second side document scanning position sensor PCB harness connection and reconnect it.
5	Second side document scanning position sensor failure	Replace the second side document scanning position sensor PCB ASSY.
6	Main PCB failure	Replace the main PCB ASSY.

■ Paper jam in the ADF paper eject section

Step	Cause	Remedy
1	Foreign object ADF paper eject section	Remove foreign objects paper eject section the ADF, if any.
2	Coming off of document ejection pinch roller.	Re-assemble the document ejection pinch roller.
3	Coming off of document ejection film.	Replace the document ejection film.
4	Document ejection roller worn out	Replace the ADF unit.
5	Main PCB failure	Replace the main PCB ASSY.

4.11.4 Wrinkles

<User Check>

- Check whether the document guide matches the document size.
- Check whether the document does not curl.

Step	Cause	Remedy
1	Document separate roller worn out	Replace the document separate roller ASSY.
2	Document feed roller worn out	Replace the document feed roller ASSY.

4.11.5 Document size cannot be correctly detected

<User Check>

- Check whether the document size is out of the specifications.

Step	Cause	Remedy
1	Document scanning position actuator catching on some position	Re-assemble the document scanning position actuator.
2	ADF motor failure	Replace the ADF motor ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

4.12 Scanning Image Defect Troubleshooting

4.12.1 Image defect examples

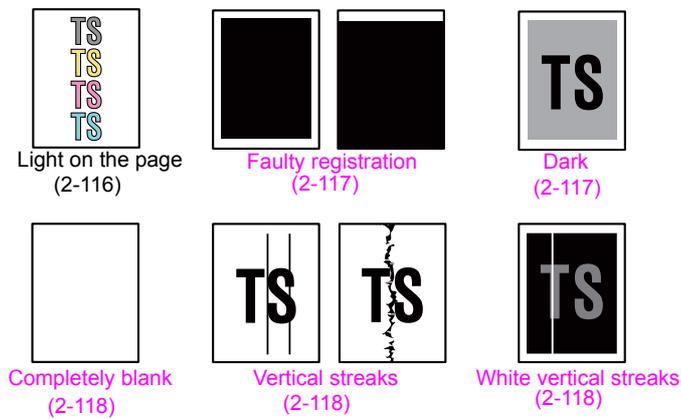
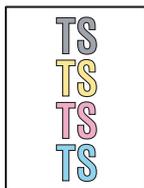


Fig. 2-15

4.12.2 Troubleshooting image defect

■ Light on the page

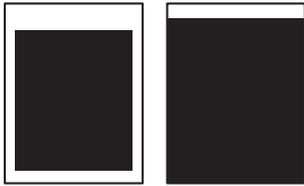


<User Check>

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

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

■ Faulty registration



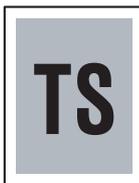
- ADF

Step	Cause	Remedy
1	Fine adjustment of scan start position misalignment	Perform the fine adjustment of scan start position. (Function code 54)
2	First side document scanning position actuator catching on some position	Re-assemble the first side document scanning position actuator.
3	First side document scanning position actuator catching on some position	Re-assemble the first side document scanning position actuator.

- Document scanner unit

Step	Cause	Remedy
1	Fine adjustment of scan start position misalignment	Perform the fine adjustment of scan start position. (Function code 54)
2	First side CIS unit failure	Replace the first side CIS unit.

■ Dark



<User Check>

- Check whether the setting of the contrast does not become dark.
- Clean the document hold.

Step	Cause	Remedy
1	White level calibration data failure	Perform the acquisition of white level data. (Function code 55)
2	Coming off of shading film in the CIS unit	Re-assemble the shading film in the CIS unit.
3	First side or second side CIS unit failure	Replace the first side or second side CIS unit.
4	Main PCB failure	Replace the main PCB ASSY.

■ **Completely blank**

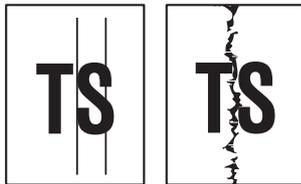


<User Check>

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

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

■ **Vertical streaks**



<User Check>

- Clean the ADF glass or document glass.
- Clean the document hold.

Step	Cause	Remedy
1	First side or second side CIS unit failure	Replace the first side or second side CIS unit.

■ **White vertical streaks**



<User Check>

- Clean the ADF glass or document glass.
- Clean the document hold.

Step	Cause	Remedy
1	First side or second side CIS unit failure	Replace the first side or second side CIS unit.

4.13 Troubleshooting of FAX Functions

4.13.1 FAX can't send it

<User Check>

- Check whether the line cord is correctly inserted into the socket.
- Check whether the dialing function setting (tone/pulse) is correct.

Step	Cause	Remedy
1	Modem PCB harness connection failure	Check the modem PCB harness connection and reconnect it.
2	Panel PCB failure	Replace the panel cover ASSY.
3	Modem PCB failure	Replace the modem PCB ASSY.
4	First side or second side CIS unit failure	Replace the first side or second side CIS unit.
5	Main PCB failure	Replace the main PCB ASSY.

4.13.2 FAX cannot be received.

<User Check>

- Check whether the line cord is correctly inserted into the socket.
- Check the reception mode settings are correct.

Step	Cause	Remedy
1	Modem PCB harness connection failure	Check the modem PCB harness connection and reconnect it.
2	Modem PCB failure	Replace the modem PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

4.13.3 No bell ring

<User Check>

- Check whether the number of telephone rings is set to zero (0).
- Check whether the bell volume is set to zero (0).

Step	Cause	Remedy
1	Speaker harness connection failure	Check the speaker harness connection and reconnect it.
2	Speaker failure	Replace the speaker unit.
3	Modem PCB failure	Replace the modem PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

4.13.4 A communication error occurs

<User Check>

- Check whether the source of noise is around the machine.

Step	Cause	Remedy
1	Modem PCB harness connection failure	Check the modem PCB harness connection and reconnect it.
2	Modem PCB failure	Replace the modem PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

4.14 Others Problems

4.14.1 The machine is not turned ON

<User Check>

- Properly insert the AC cord.

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

4.14.2 Main fan not rotate

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

4.14.3 Main motor failure

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

4.14.4 Joint cover ASSY open

Joint cover ASSY in open state.

<User Check>

- Check that the joint cover ASSY is completely closed.

Step	Cause	Remedy
1	Harness connection failure of the high-voltage power supply PCB	Check the high-voltage power supply PCB harness connection and reconnect it.
2	The member inside the joint cover ASSY that pushes the top cover sensor is broken	Replace the joint cover ASSY.
3	Top cover sensor failure	Replace the high-voltage power supply PCB ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

4.14.5 Back cover open

Back cover in open state.

<User Check>

- Check that the back cover is completely closed.
- Set duplex tray correctly.

Step	Cause	Remedy
1	Harness connection failure of the back cover sensor	Check the harness connection of the back cover sensor and reconnect it.
2	The member inside the back cover that pushes the back cover sensor is broken	Replace the back cover.
3	Back cover sensor failure	Replace the back cover switch harness ASSY.
4	Main PCB failure	Replace the main PCB ASSY.

4.14.6 Unusual noise generated from the machine

<User Check>

- Check that the covers are closed correctly.
- Set each paper tray correctly.

Step	Cause	Remedy
1	Identify the location where noise is produced since the cause of the problem changes depending on the location.	When identifying the location, check if foreign object is present around the location. (Replacement of the part set at the location.)
2	Insufficient part lubrication	Lubricate the part again.
3	Bend or failure of part	Replace the part.

4.14.7 Memory related failure

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

4.14.8 Printing related failure

<User Check>

- Check if the maximum number of pages that can be printed is exceeded.

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

4.14.9 The USB interface does not work

<User Check>

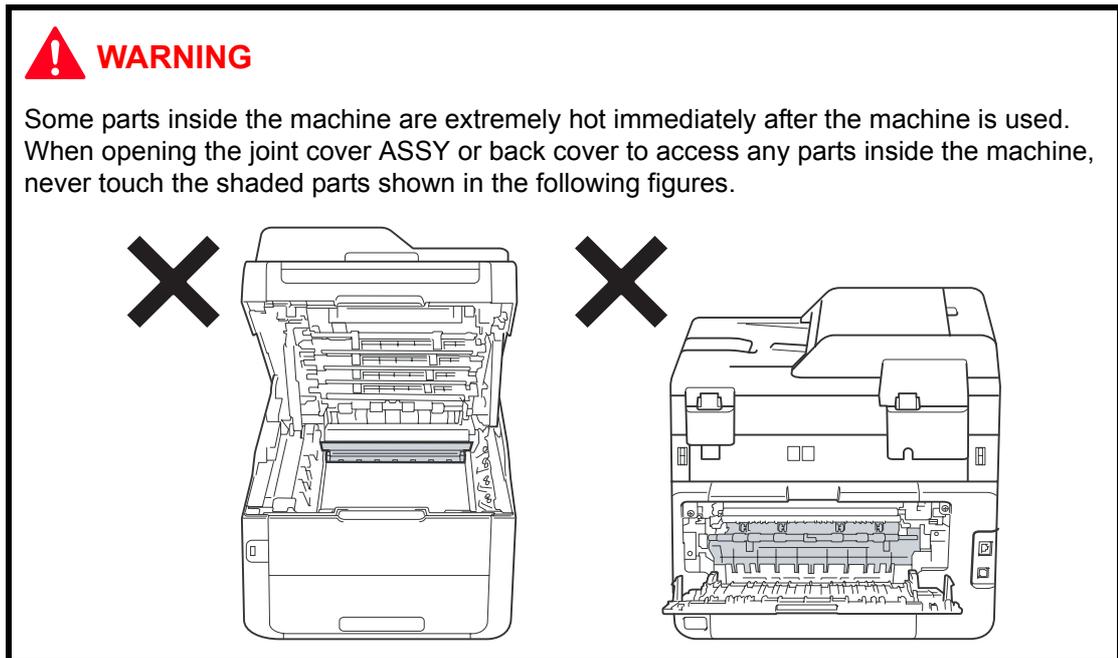
- Check if the data is supported device.
- Replace the device and check if the interface works.
- Reduce the data in the USB flash memory.

Step	Cause	Remedy
1	USB host relay PCB harness connection failure	Check the harness connection of the USB host relay PCB and reconnect it.
2	USB host PCB failure	Replace the USB host PCB ASSY.
3	Main PCB failure	Replace the main PCB ASSY.

CHAPTER 3 DISASSEMBLY AND ASSEMBLY

1. SAFETY PRECAUTIONS

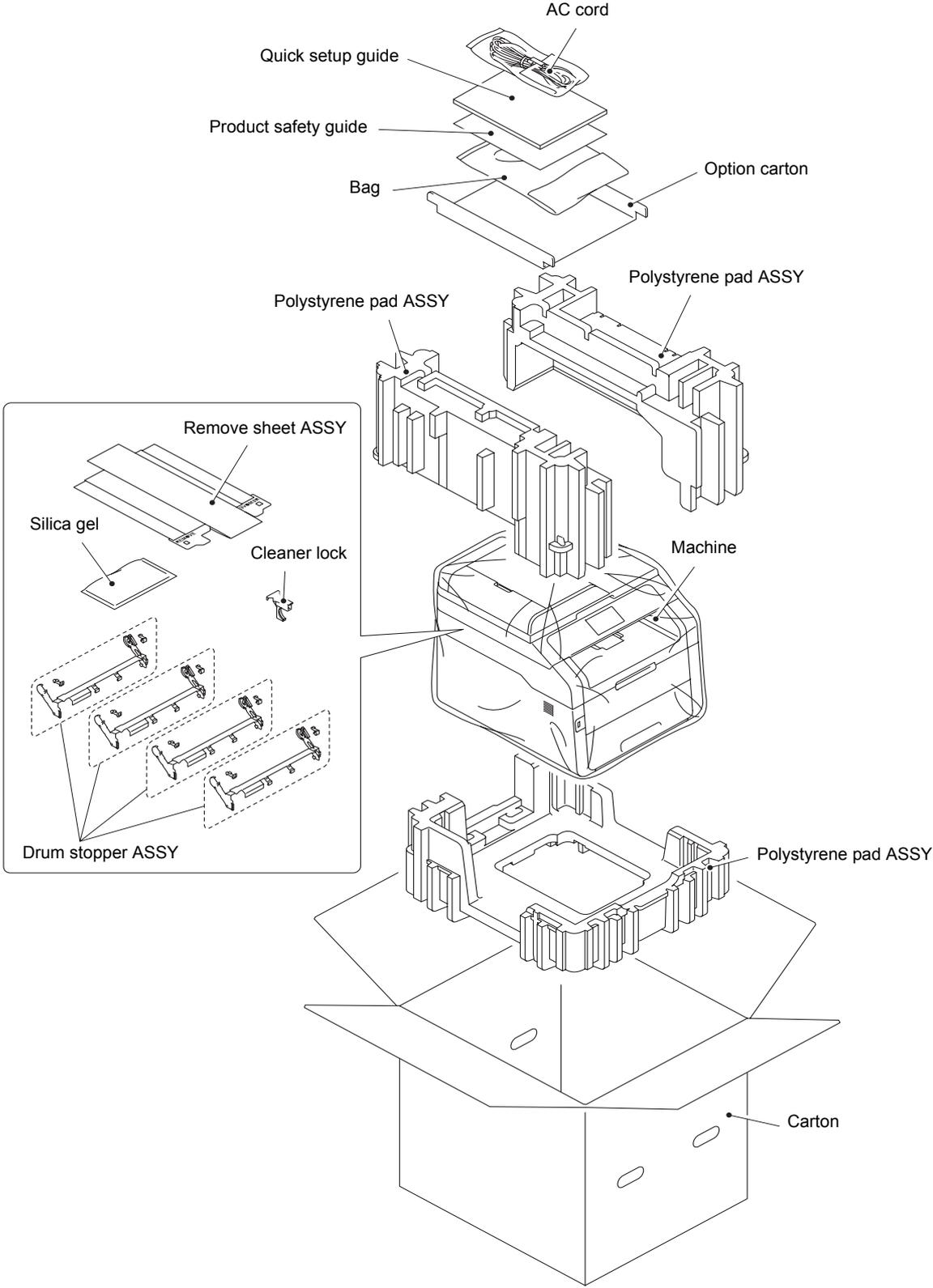
To avoid creating secondary problems by mishandling, follow the warnings and precautions below during maintenance work.



Note:

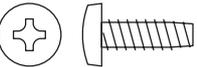
- Be careful not to lose screws, washers, or other parts removed.
- Be sure to apply grease to the gears and applicable positions specified in this chapter.
- When using soldering irons or other heat-generating tools, take care not to accidentally damage parts such as wires, PCBs and covers.
- Static electricity charged in your body may damage electronic parts. When transporting PCBs, be sure to wrap them in conductive sheets.
- When replacing the PCB and all the other related parts, put on a grounding wrist band and perform the job on a static mat. Also take care not to touch the conductor sections on the flat cables or on the wire harness.
- After disconnecting flat cables, check that each cable is not damaged at its end or shortcircuited.
- When connecting flat cables, do not insert them at an angle. After insertion, check that the cables are not at an angle.
- When connecting or disconnecting cable harness, hold the connector body, not the cables. If the connector has a lock, release the connector lock first to release it.
- After a repair, check not only the repaired portion but also handling of harnesses. Also check that other related portions are functioning properly before operational checks.
- Violently closing the joint cover without mounting the toner cartridge and the drum unit can damage this main body.
- After an assembly, recommend the operation of "dielectric strength voltage check" and "continuity check".
- There must be no damage in the insulation sheet.

2. PACKING



3. SCREW CATALOGUE

Taptite bind B

Taptite bind B M3x10	
Taptite bind B M4x12	

Screw pan (S/P washer)

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

Taptite bind S

Taptite bind S M3x5	
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Taptite pan (washer)

Taptite pan (washer) B M4x12 DA	
------------------------------------	---

Taptite cup B

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

Taptite cup S

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

4. SCREW TORQUE LIST

Note:

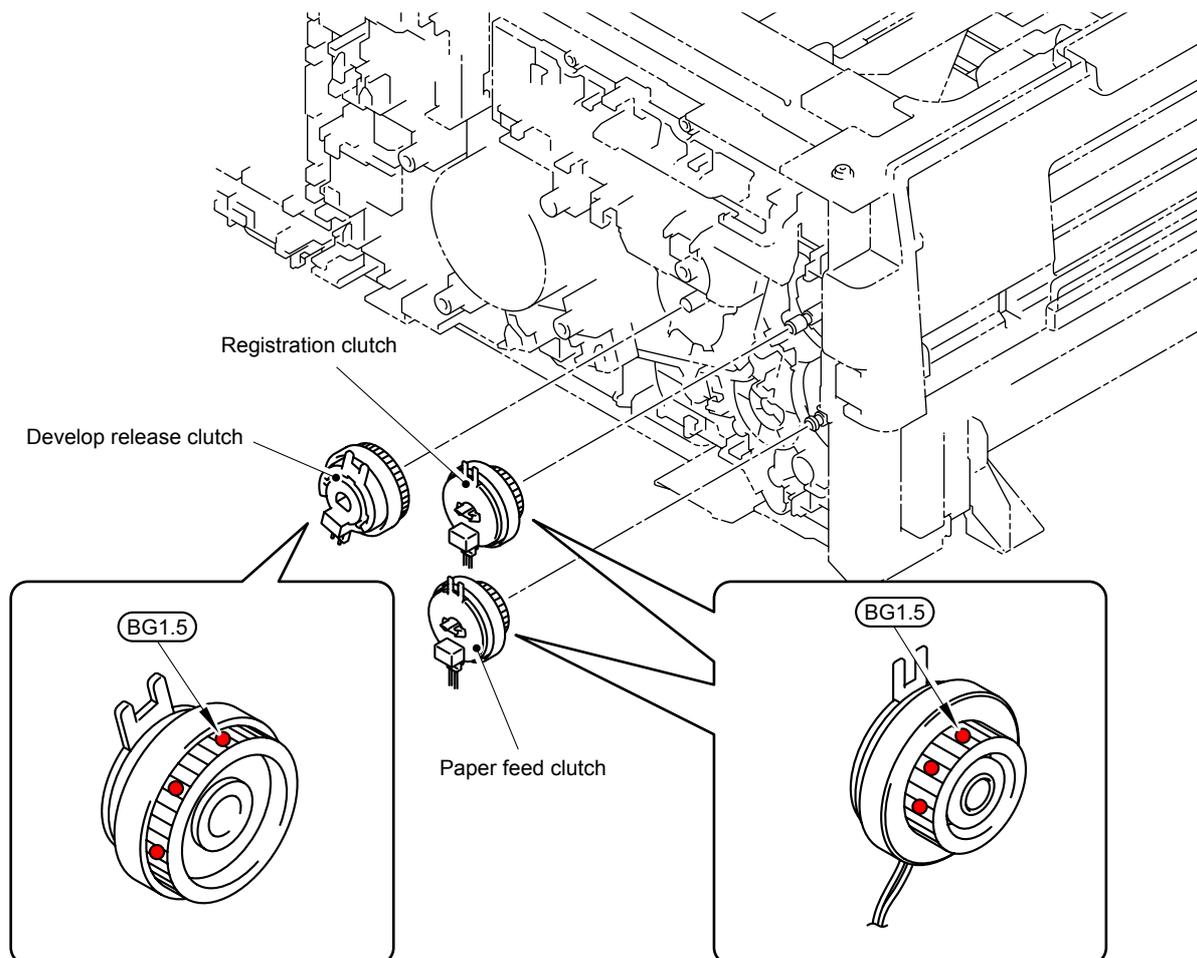
For verifying the shape of each screw, refer to “3. SCREW CATALOGUE” in this chapter.

Location of screw	Screw type	Q' ty	Tightening torque N·m (kgf·cm)
Fuser cover L	Taptite bind B M3x10	1	0.45±0.05 (4.5±0.5)
Fuser cover R	Taptite bind B M3x10	1	0.45±0.05 (4.5±0.5)
Fuser unit	Taptite pan (washer) B M4x12 DA	2	0.7±0.05 (7±0.5)
Registration sensor ASSY	Taptite bind S M3x5	1	0.5±0.1 (5±1)
Side cover L	Taptite bind B M4x12	2	0.9±0.1 (9±1)
Side cover R	Taptite bind B M4x12	2	0.9±0.1 (9±1)
Joint cover side L	Taptite bind B M4x12	1	0.7±0.1 (7±1)
Main shield cover plate	Taptite cup S M3x8 SR	4	0.7±0.1 (7±)
ADF FG harness	Taptite cup S 3.5x6 SR	1	0.5±0.05 (5±0.5)
Modem FG harness	Taptite cup S M3x8 SR	1	0.5±0.05 (5±0.5)
Panel FG harness	Taptite cup S M3x8 SR	1	0.5±0.05 (5±0.5)
Document scanner unit	Taptite bind B M4x12	1	0.8±0.1 (8±1)
Hinge ASSY L	Taptite cup S M3x12	3	0.8±0.1 (8±1)
Hinge R support	Taptite cup B M3x10	1	0.5±0.05 (5±0.5)
Hinge arm R	Taptite cup B M3x10	3	0.5±0.05 (5±0.5)
ADF unit	Taptite cup B M3x10	1	0.5±0.05 (5±0.5)
Upper ADF chute	Taptite cup B M3x10	5	0.5±0.05 (5±0.5)
Lower ADF chute	Taptite cup B 3x10	3	0.5±0.05 (5±0.5)
ADF FG harness	Taptite cup S M3x8 SR	1	0.7±0.1 (7±1)
Drive frame ASSY	Taptite cup B M3x10	3	0.5±0.05 (5±0.5)
ADF motor	Screw pan (S/P washer) M3x6	1	0.6±0.1 (6±1)
LED FG harness	Taptite pan (washer) B M4x12 DA	1	0.8±0.1 (8±1)
Joint cover open button holder	Taptite bind B M4x12	5	0.7±0.1 (7±1)
Sub frame ASSY	Taptite bind B M4x12	5	0.7±0.1 (7±1)
LED FG harness	Taptite cup S M3x8 SR	1	0.4±0.05 (4±0.5)
LED FG harness	Taptite cup S M3x8 SR	1	0.5±0.05 (5±0.5)
Modem PCB ASSY	Taptite bind B M4x12	2	0.7±0.1 (7±1)
Modem shield cover	Screw pan (S/P washer) M3.5x6	1	0.5±0.05 (5±0.5)
Modem PCB ASSY	Taptite cup S M3x6 SR	2	0.5±0.05 (5±0.5)
Joint cover side R	Taptite bind B M4x12	1	0.7±0.1 (7±1)
Joint cover back	Taptite bind B M4x12	2	0.7±0.1 (7±1)
Document scanner unit	Taptite cup B M3x10	4	0.45±0.05 (4.5±0.5)
Key PCB hold	Taptite bind S M3x5	1	0.45±0.05 (4.5±0.5)

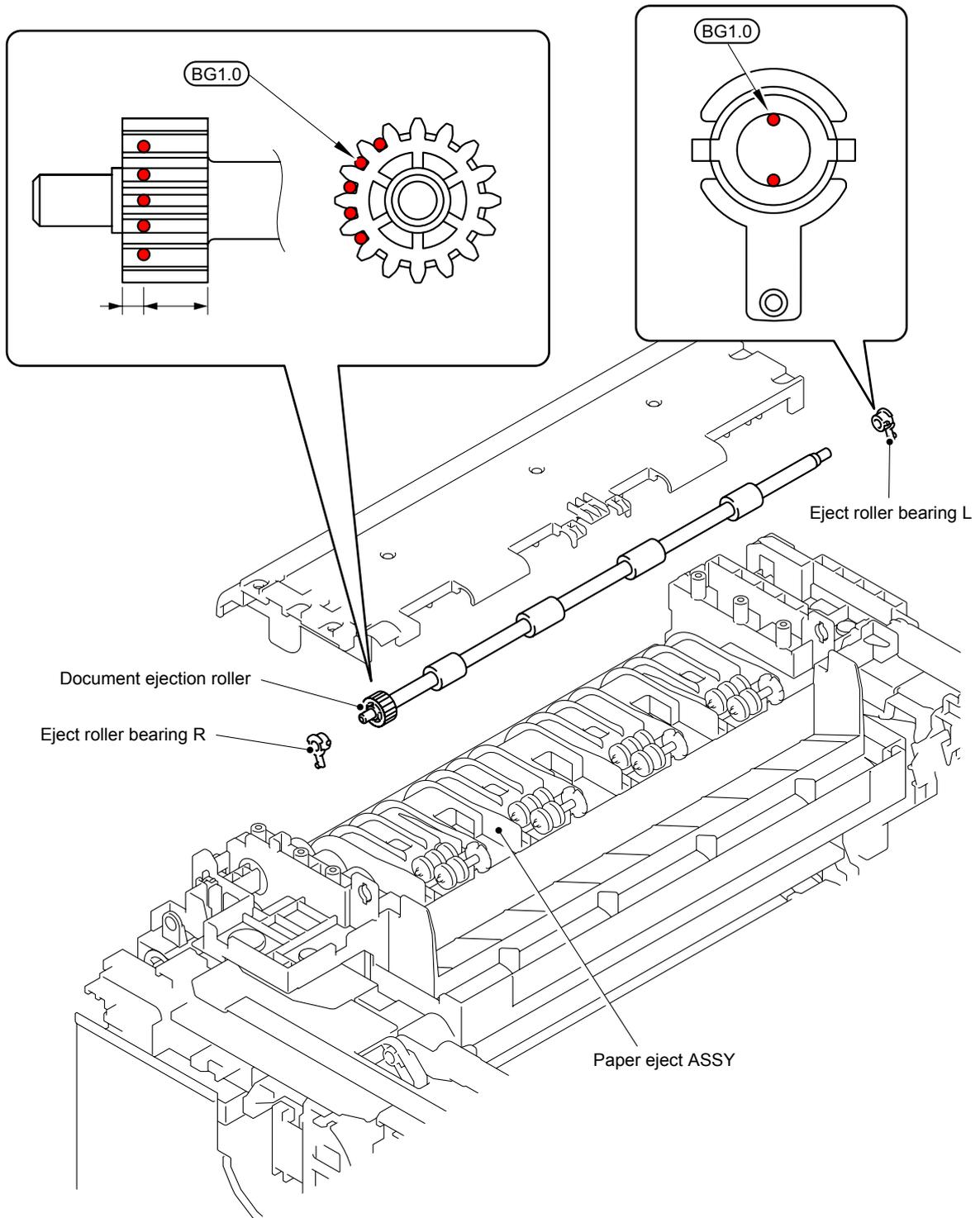
Location of screw	Screw type	Q' ty	Tightening torque N·m (kgf·cm)
Panel control PCB shield plate cover	Taptite cup B M3x10	4	0.45±0.05 (4.5±0.5)
LCD hold plate	Taptite cup B M3x10	3	0.45±0.05 (4.5±0.5)
Scanner top cover ASSY	Taptite bind B M4x12	6	0.65±0.05 (6.5±0.5)
LED PCB cover	Taptite cup S M3x8 SR	3	0.4±0.05 (4±0.5)
LED control PCB ASSY	Taptite cup S M3x8 SR	2	0.4±0.05 (4±0.5)
Duplex tray	Taptite bind B M4x12	2	0.7±0.05 (7±0.5)
Main PCB ASSY	Taptite cup S M3x8 SR	3	0.7±0.1 (7±1)
Develop clutch gear cover	Taptite cup S M3x8 SR	1	0.7±0.1 (7±1)
Flat cable guide	Taptite cup S M3x8 SR	2	0.7±0.1 (7±1)
Main shield plate	Taptite cup S M3x8 SR	2	0.7±0.1 (7±1)
LVPS FG harness	Screw pan (S/P washer) M3.5x6	1	0.4±0.05 (4±0.5)
Process drive unit	Taptite cup S M3x8 SR	2	0.7±0.05 (7±0.5)
	Taptite bind B M4x12	7	0.7±0.05 (7±0.5)
	Taptite pan (washer) B M4x12 DA	1	0.7±0.05 (7±0.5)
Main drive unit	Taptite bind B M4x12	5	0.7±0.1 (7±1)
Inner front cover	Taptite bind B M4x12	1	0.9±0.1 (9±1)
USB cover ASSY	Taptite bind B M3x10	2	0.4±0.05 (4±0.5)
USB host PCB ASSY	Taptite bind B M3x10	2	0.4±0.05 (4±0.5)
Paper feed unit	Taptite bind B M4x12	4	0.8±0.1 (8±1)
Paper eject ASSY	Taptite bind B M4x12	3	0.8±0.1 (8±1)
Back cover upper	Taptite bind B M3x10	4	0.5±0.1
HVPS ground plate front	Taptite cup S M3x8 SR	1	0.7±0.1 (7±1)
	Taptite pan (washer) B M4x12 DA	1	0.6±0.05 (6±0.5)
HVPS ground plate rear	Taptite pan (washer) B M4x12 DA	1	0.6±0.05 (6±0.5)
High-voltage power supply PCB ASSY	Taptite bind B M4x12	1	0.6±0.05 (6±0.5)
Cover plate	Taptite bind B M4x12	2	0.8±0.1 (8±1)
	Taptite bind S M3x5	1	0.5±0.1
	Taptite pan (washer) B M4x12 DA	1	0.7±0.05 (7±0.5)
LVPS FG harness	Screw pan (S/P washer) M3.5x6	1	0.4±0.05 (4±0.5)
LVPS plate lower	Taptite pan (washer) B M4x12 DA	6	0.8±0.1 (8±1)
	Taptite cup S M3x8 SR	2	0.5±0.1

5. LUBRICATION

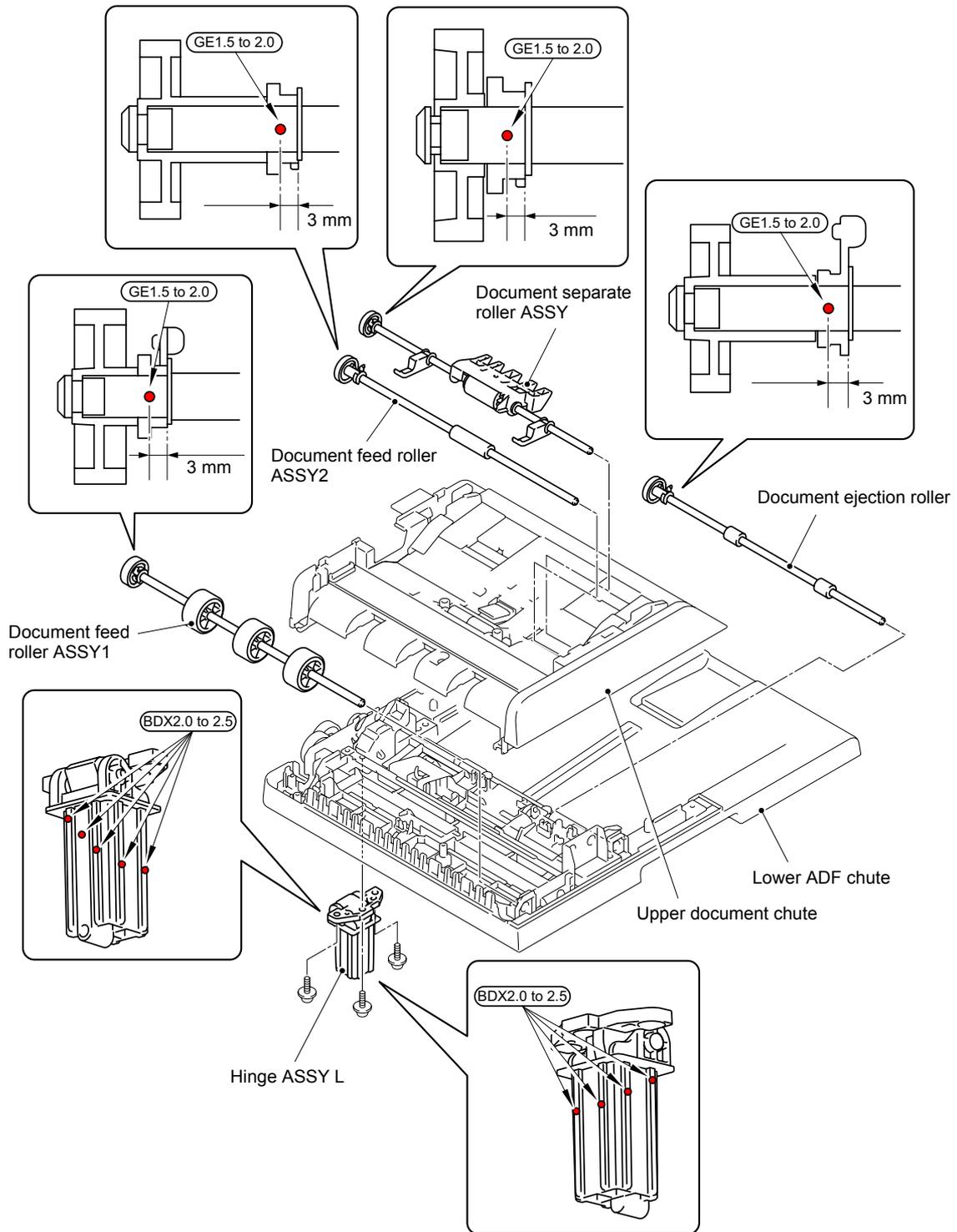
The kind of the lubricating oil (Maker name)	Lubrication point	Quantity of lubrication
FLOIL BG-10KS (Kanto Kasei)	Paper feed clutch	1.5 mm dia. ball (BG1.5)
	Develop release clutch	1.5 mm dia. ball (BG1.5)
	Registration clutch	1.5 mm dia. ball (BG1.5)
	Eject roller	1.0 mm dia. ball (BG1.0)
	Eject roller bushing	1.0 mm dia. ball (BG1.0)
FLOIL GE-676 (Kanto Kasei)	Document separate roller ASSY	1.5 to 2.0 mm dia. ball (GE1.5 to 2.0)
	Document feed roller ASSY2	1.5 to 2.0 mm dia. ball (GE1.5 to 2.0)
	Document feed roller ASSY1	1.5 to 2.0 mm dia. ball (GE1.5 to 2.0)
	Document ejection roller	1.5 to 2.0 mm dia. ball (GE1.5 to 2.0)
BDX313 (A) (Kanto Kasei)	Hinge ASSY L	2.0 to 2.5 mm dia. ball (BDX2.0 to 2.5)



BG1.5: FLOIL BG-10KS (1.5 mm dia. ball)



BG1.0: FLOIL BG-10KS (1.0 mm dia. ball)

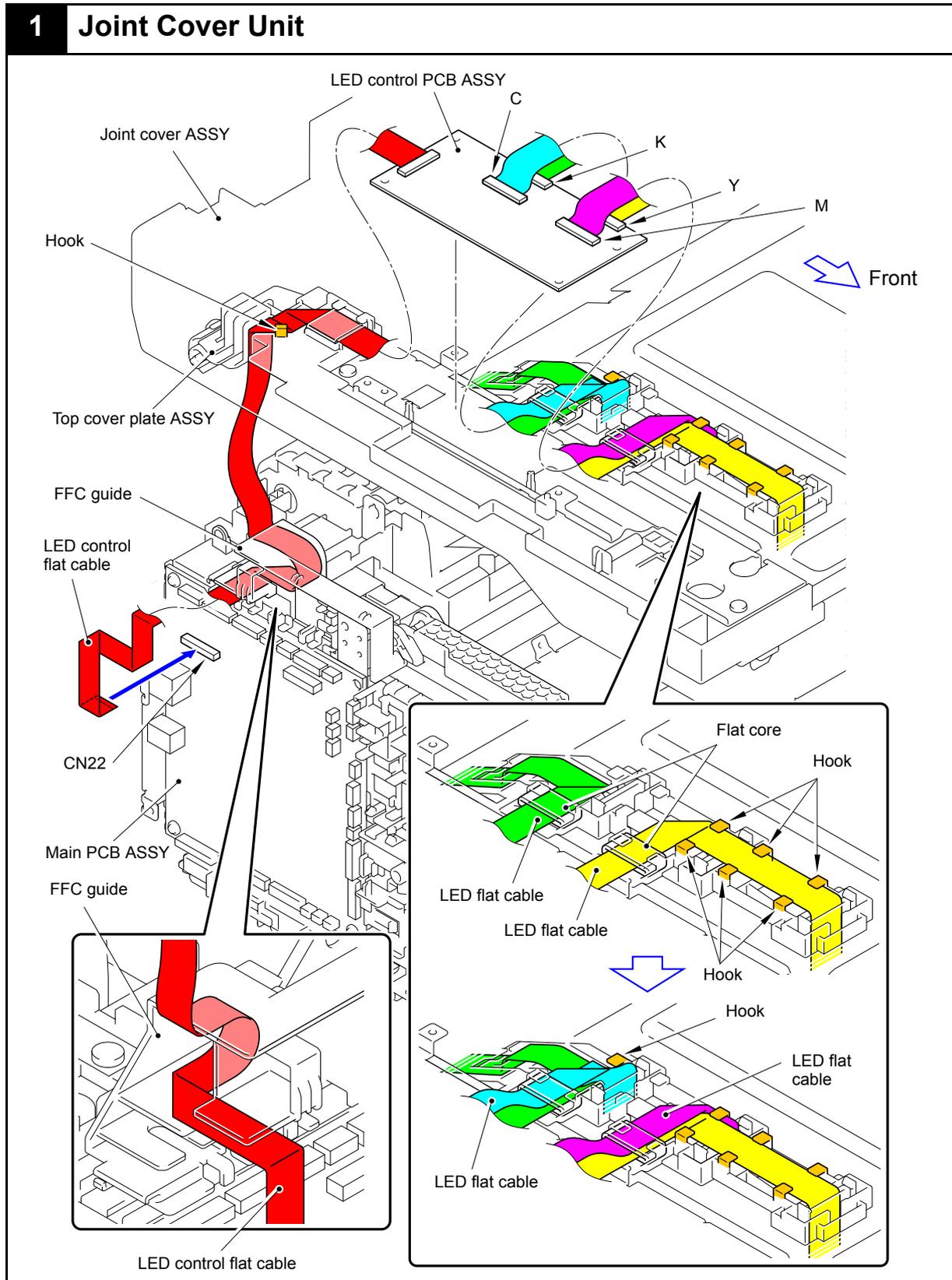


GE1.5 to 2.0: FLOIL GE-676 (1.5 to 2.0 mm dia. ball)

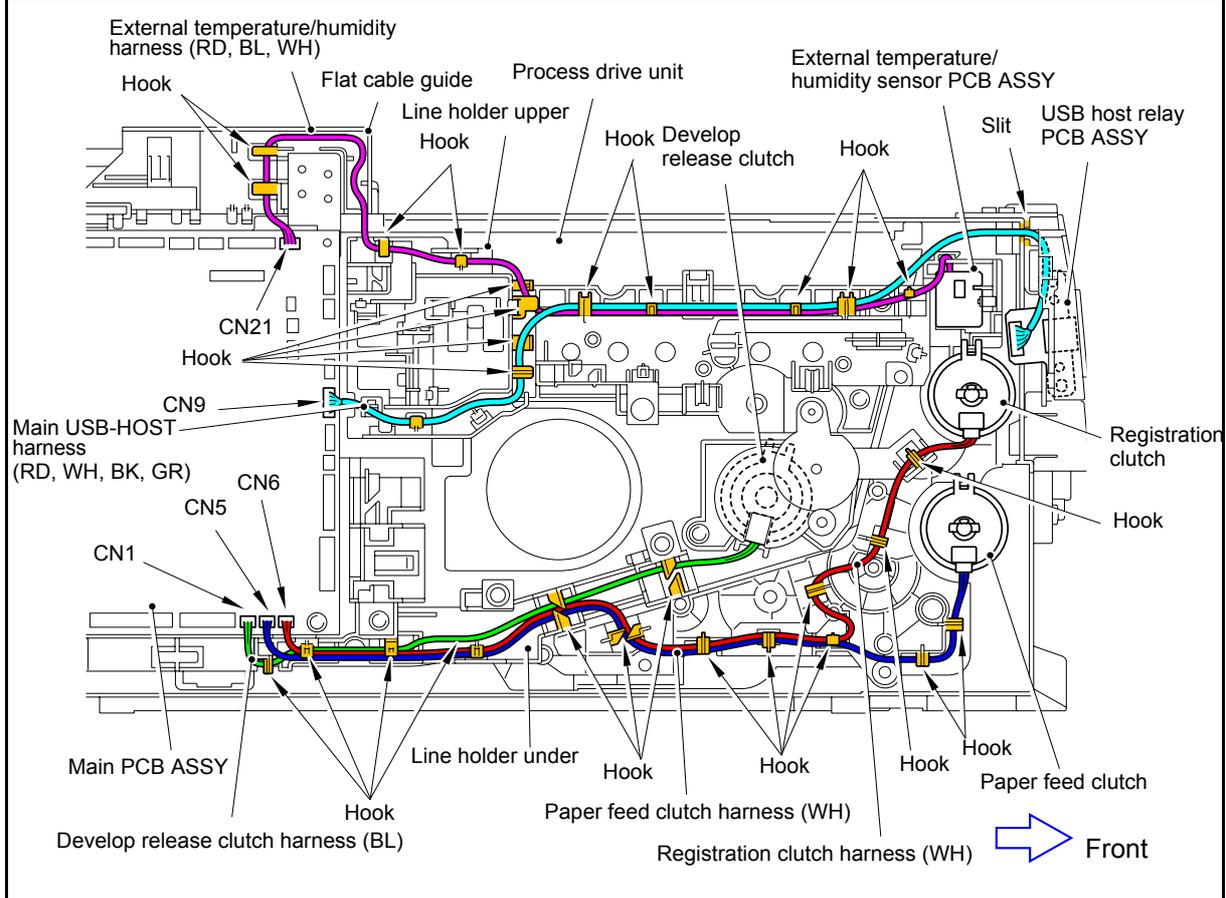
BDX2.0 to 2.5: BDX313 (A) (2.0 to 2.5 mm dia. ball)

6. HARNESS ROUTING

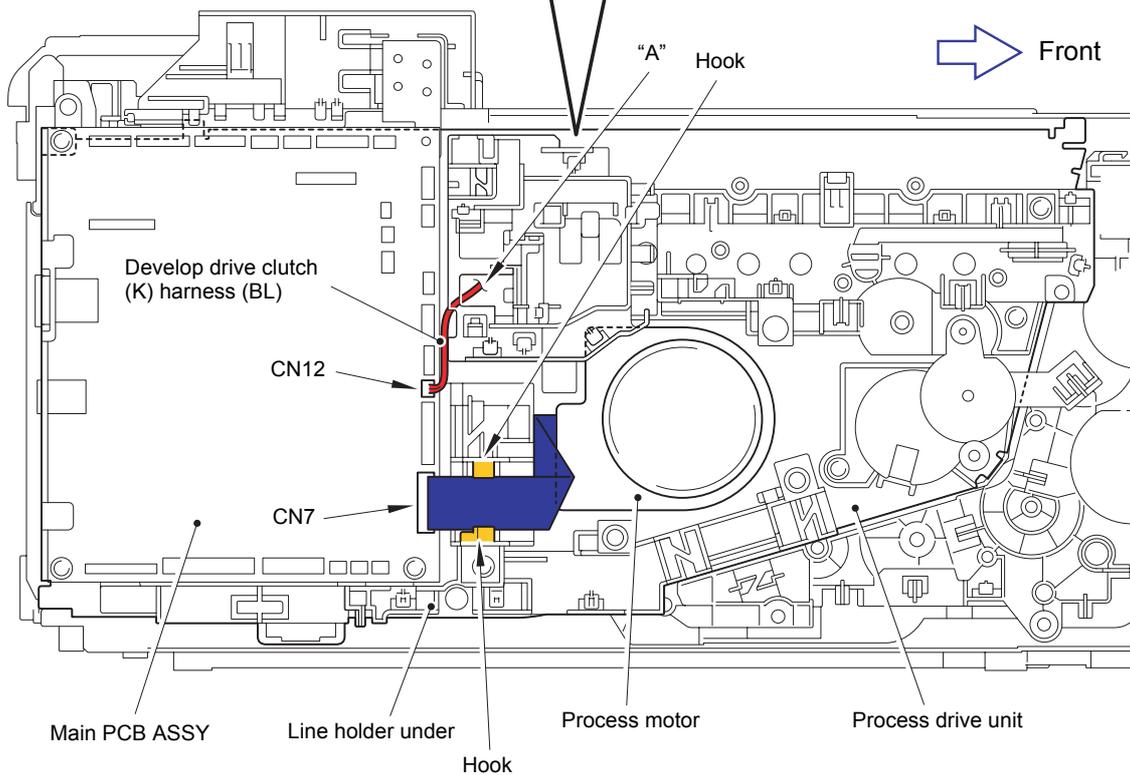
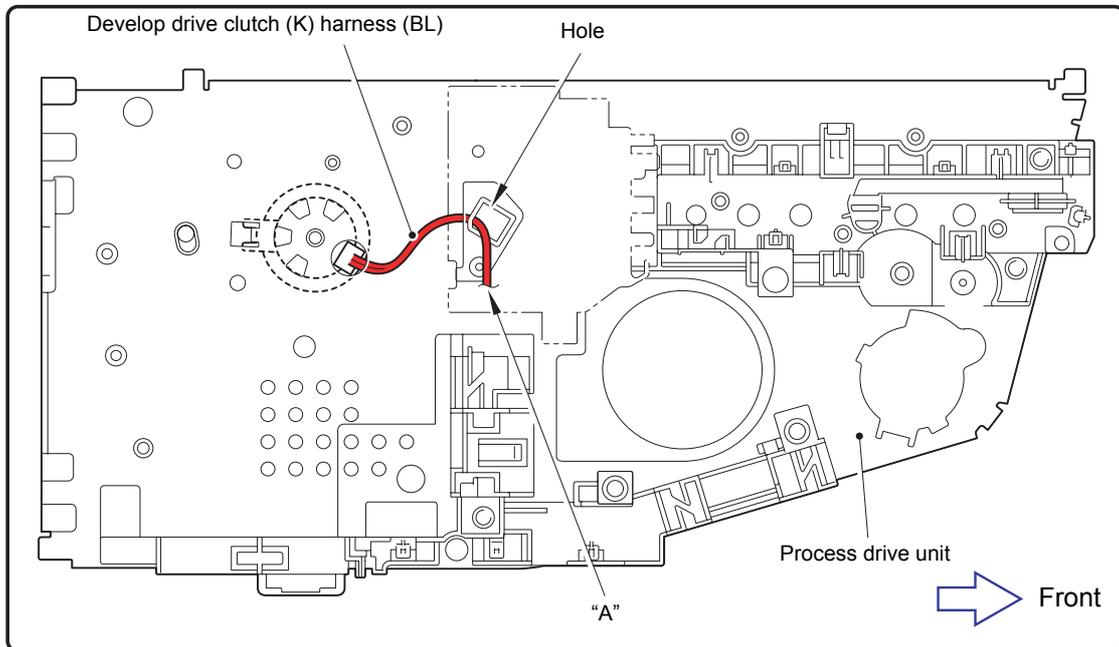
1 Joint Cover Unit



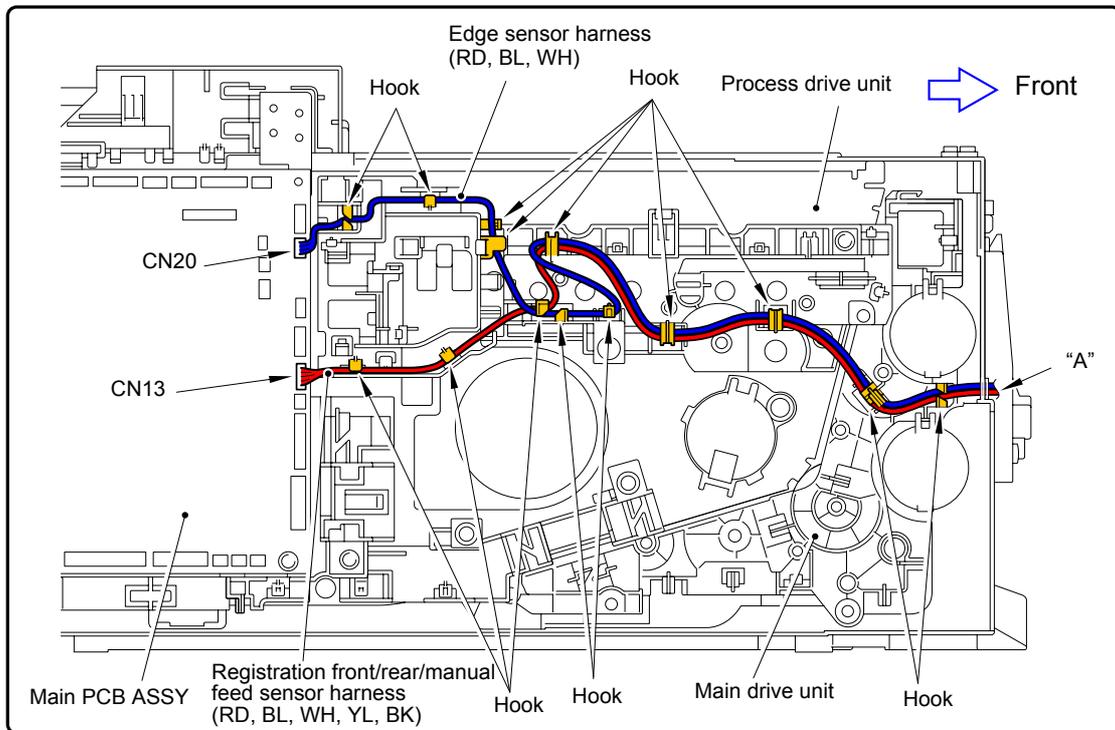
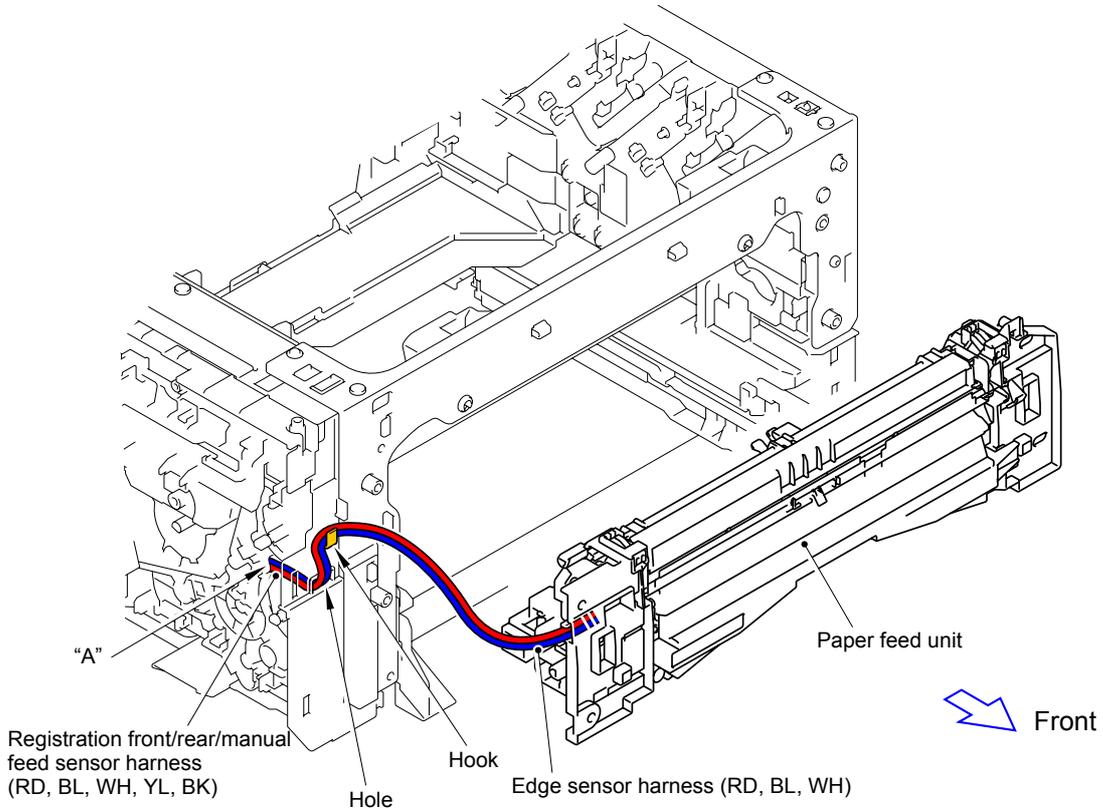
2 External Temperature/Humidity Sensor PCB ASSY, Develop Release Clutch, Registration Clutch, Paper Feed Clutch, USB Host Relay PCB ASSY



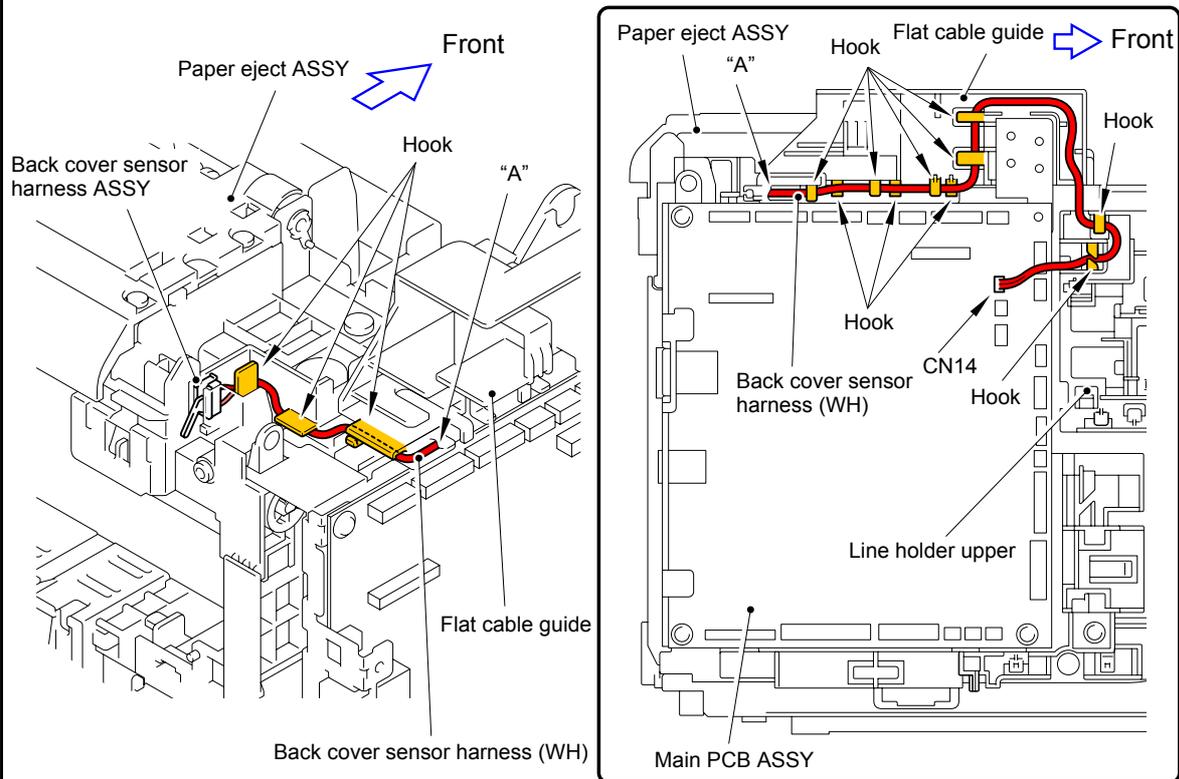
3 Process Drive Unit



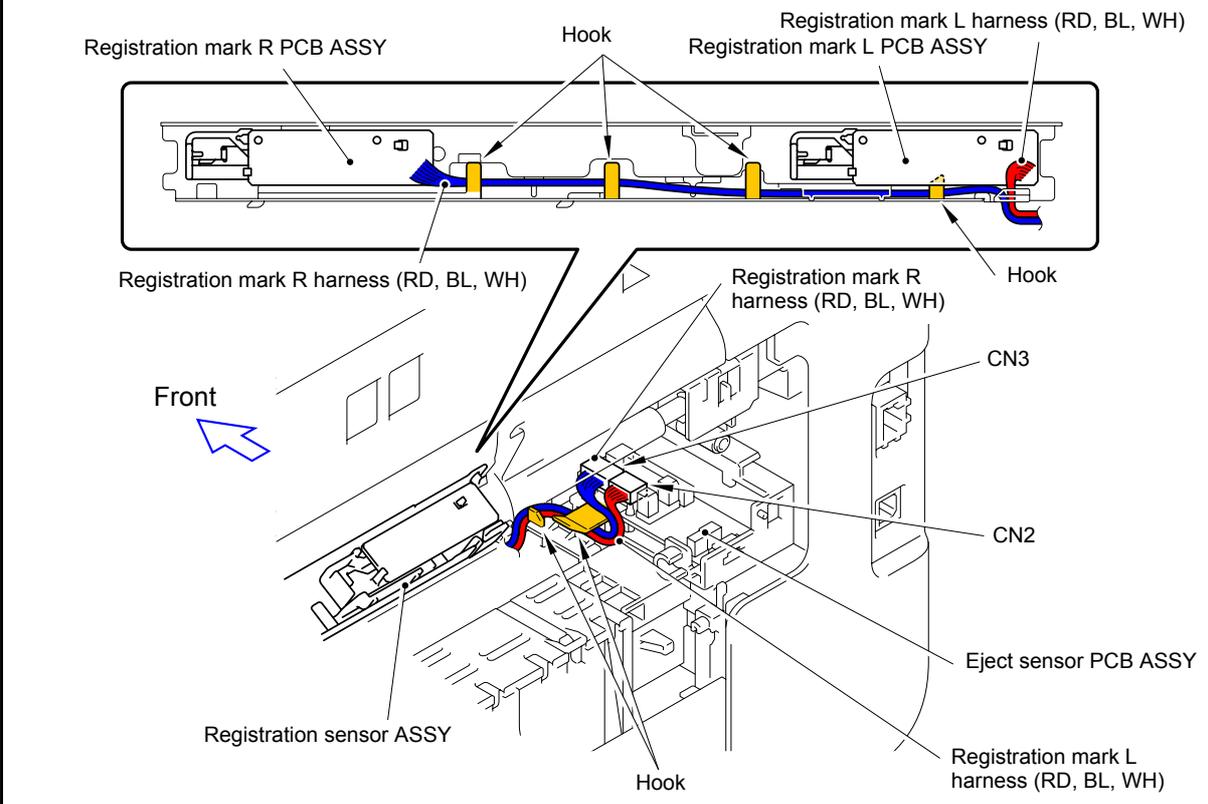
4 Paper Feed Unit



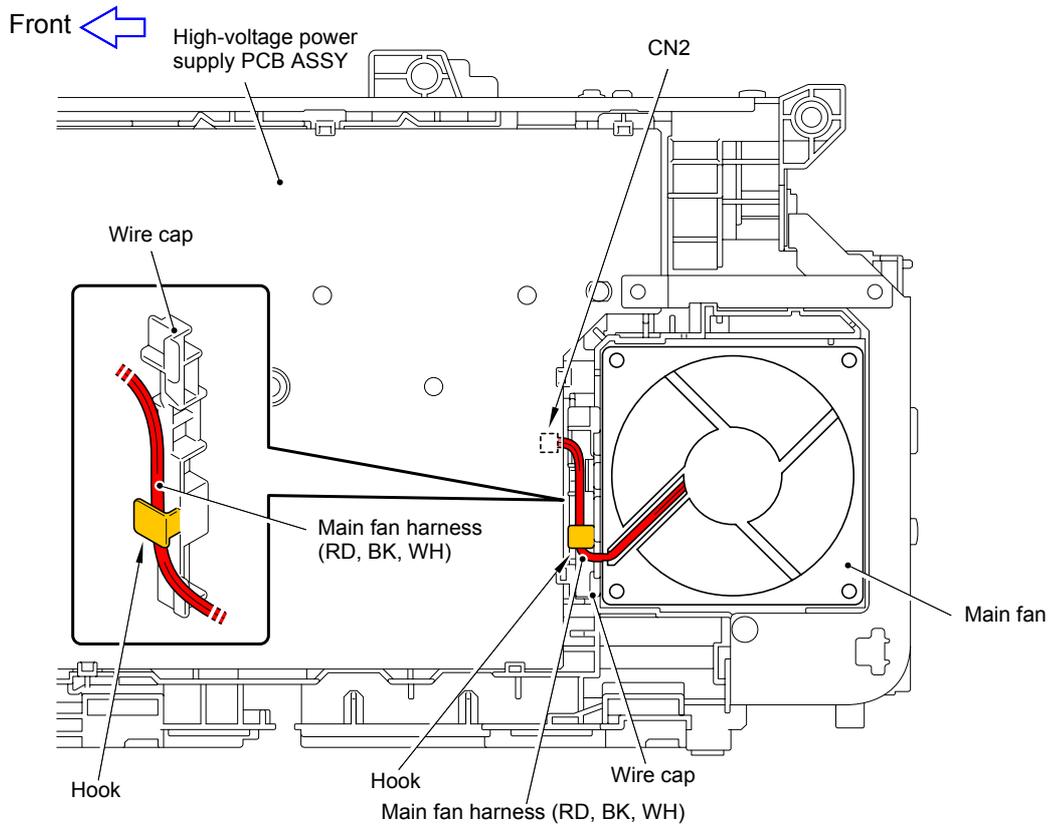
5 Back Cover Sensor Harness ASSY



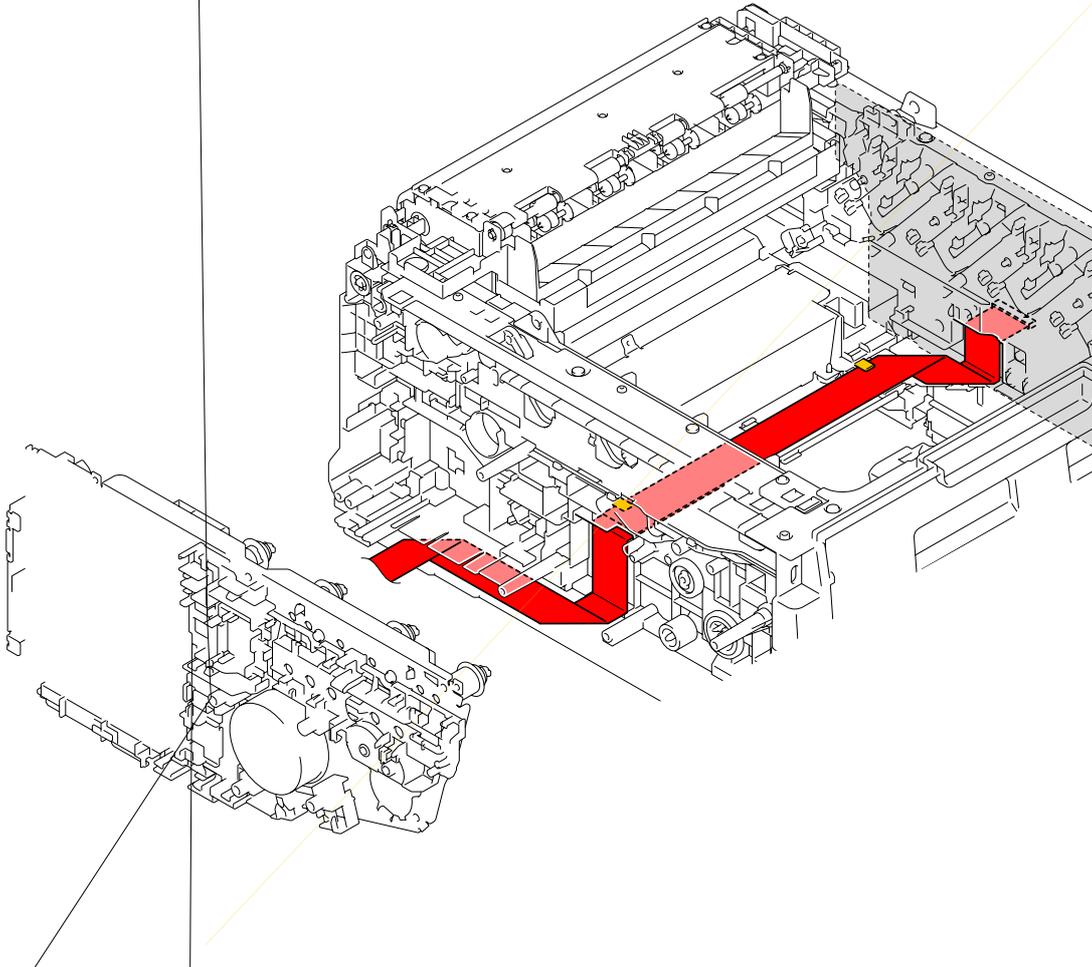
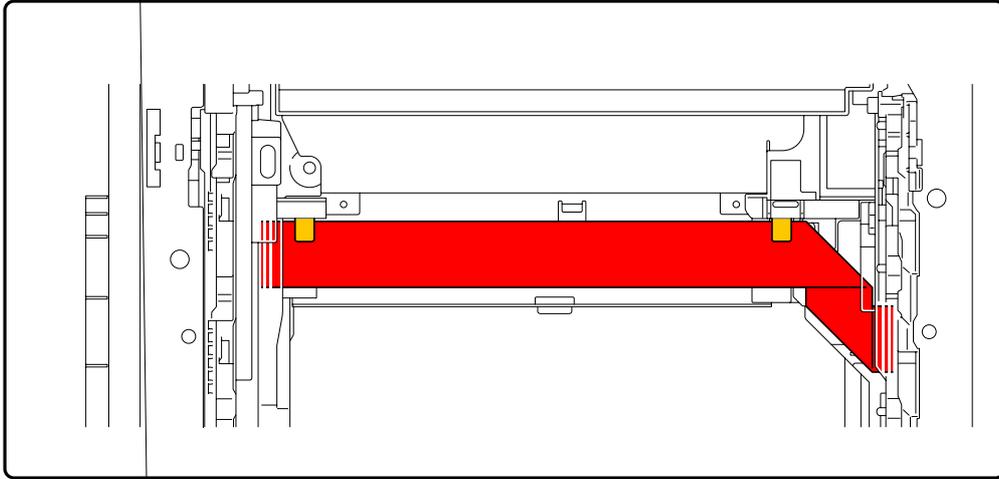
6 Registration Mark L PCB ASSY, Registration Mark R PCB ASSY



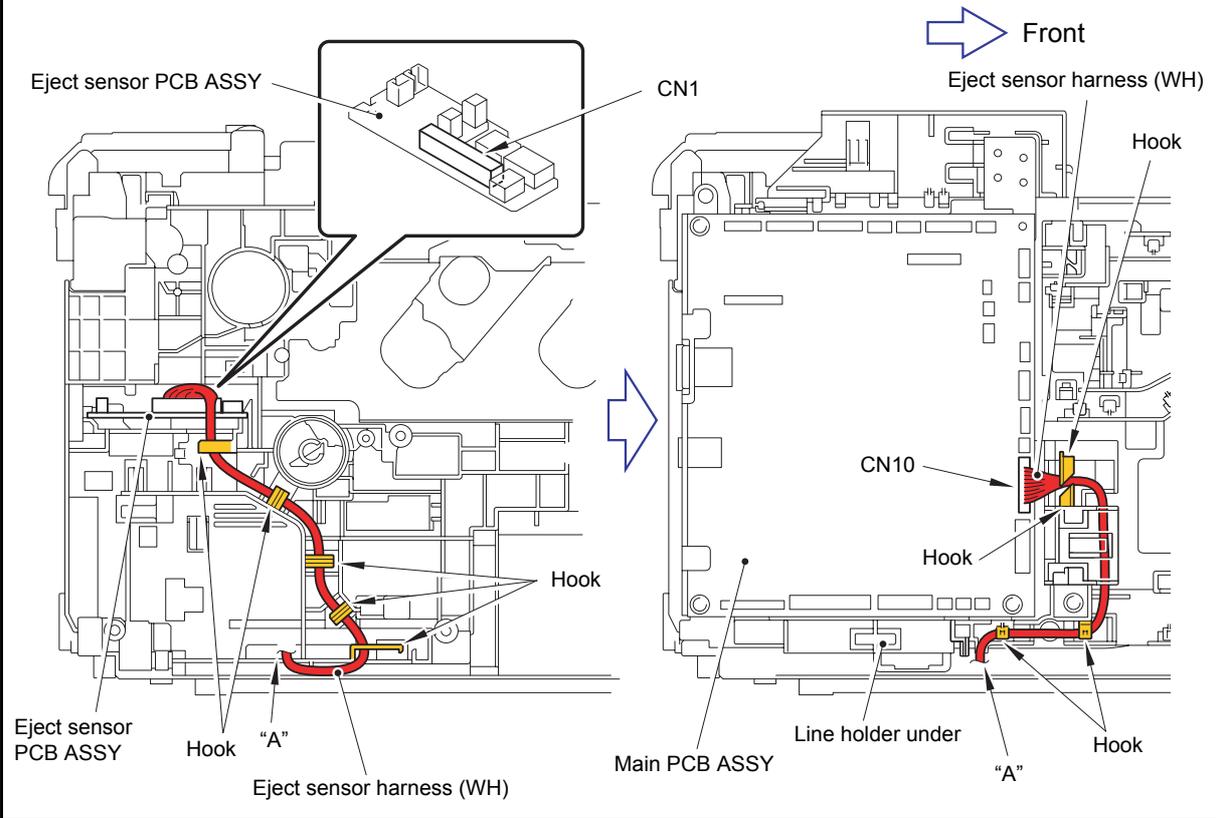
7 Main Fan



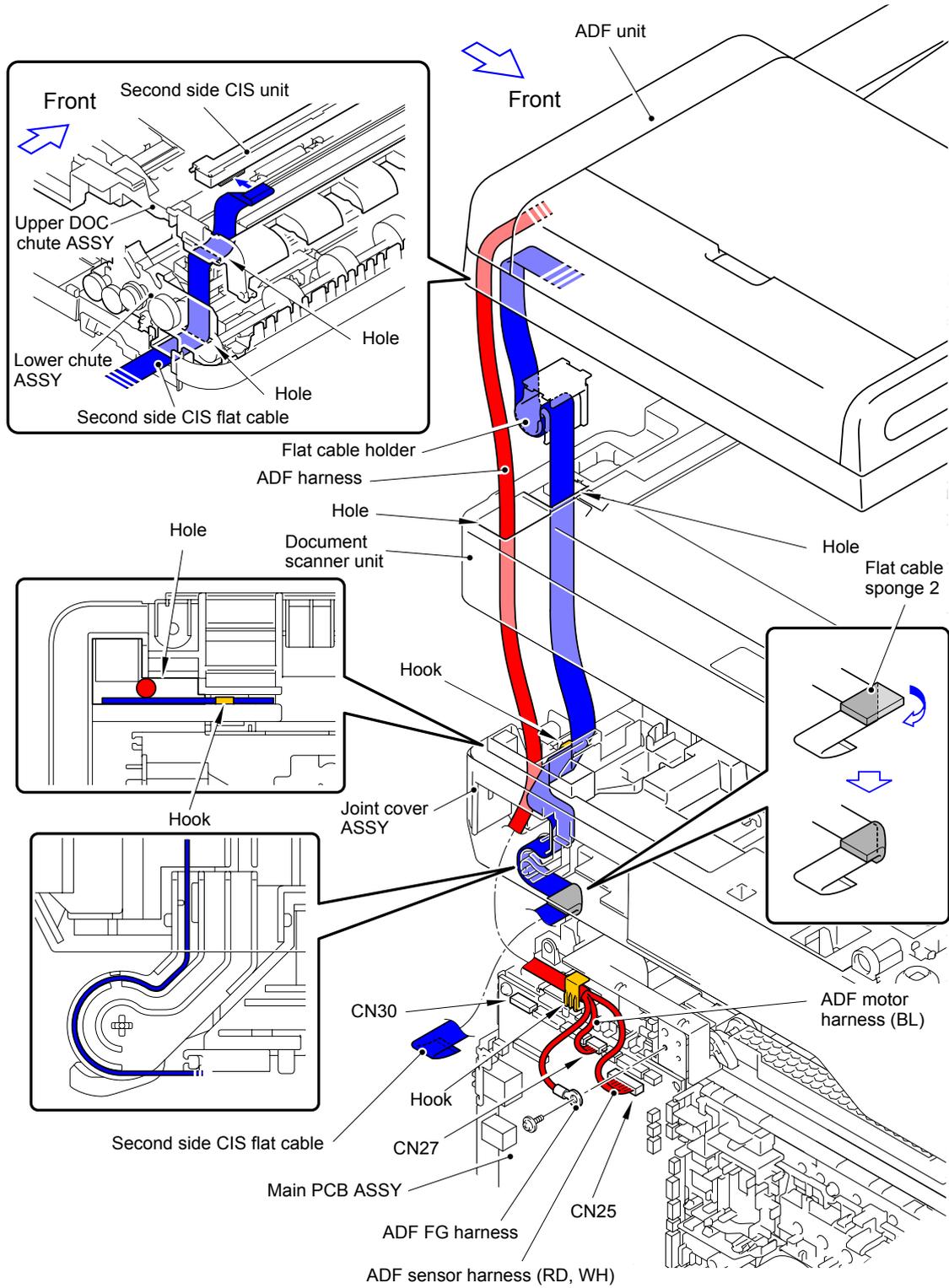
8 HVPS Flat Cable



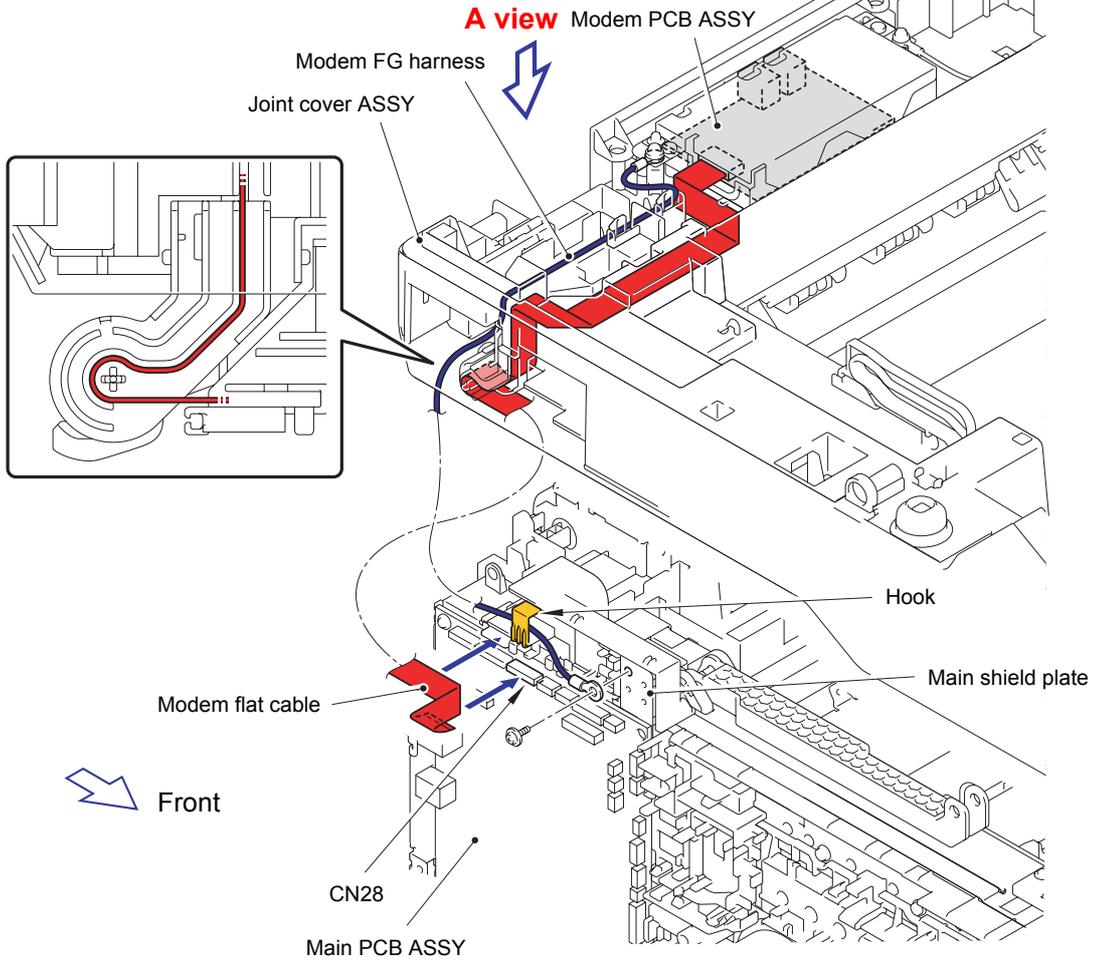
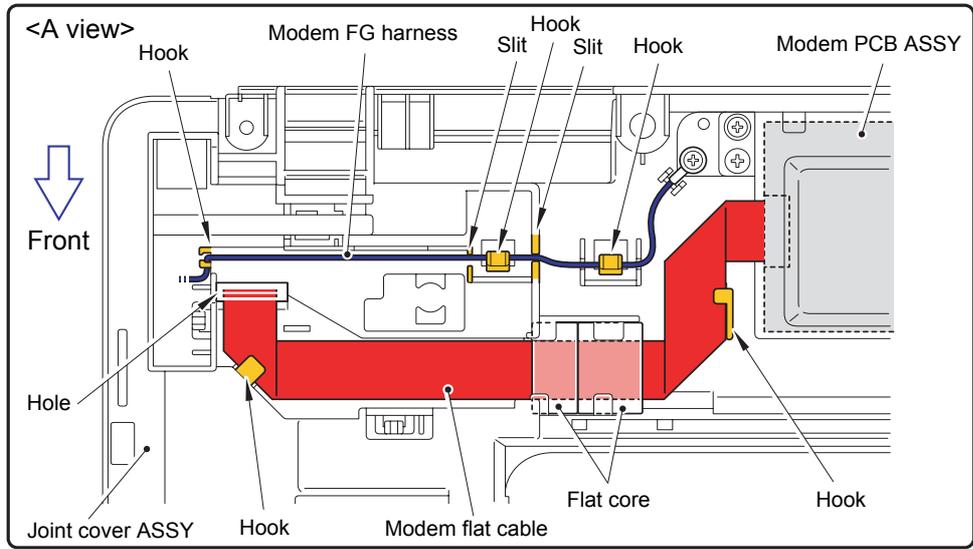
9 Eject Sensor PCB ASSY

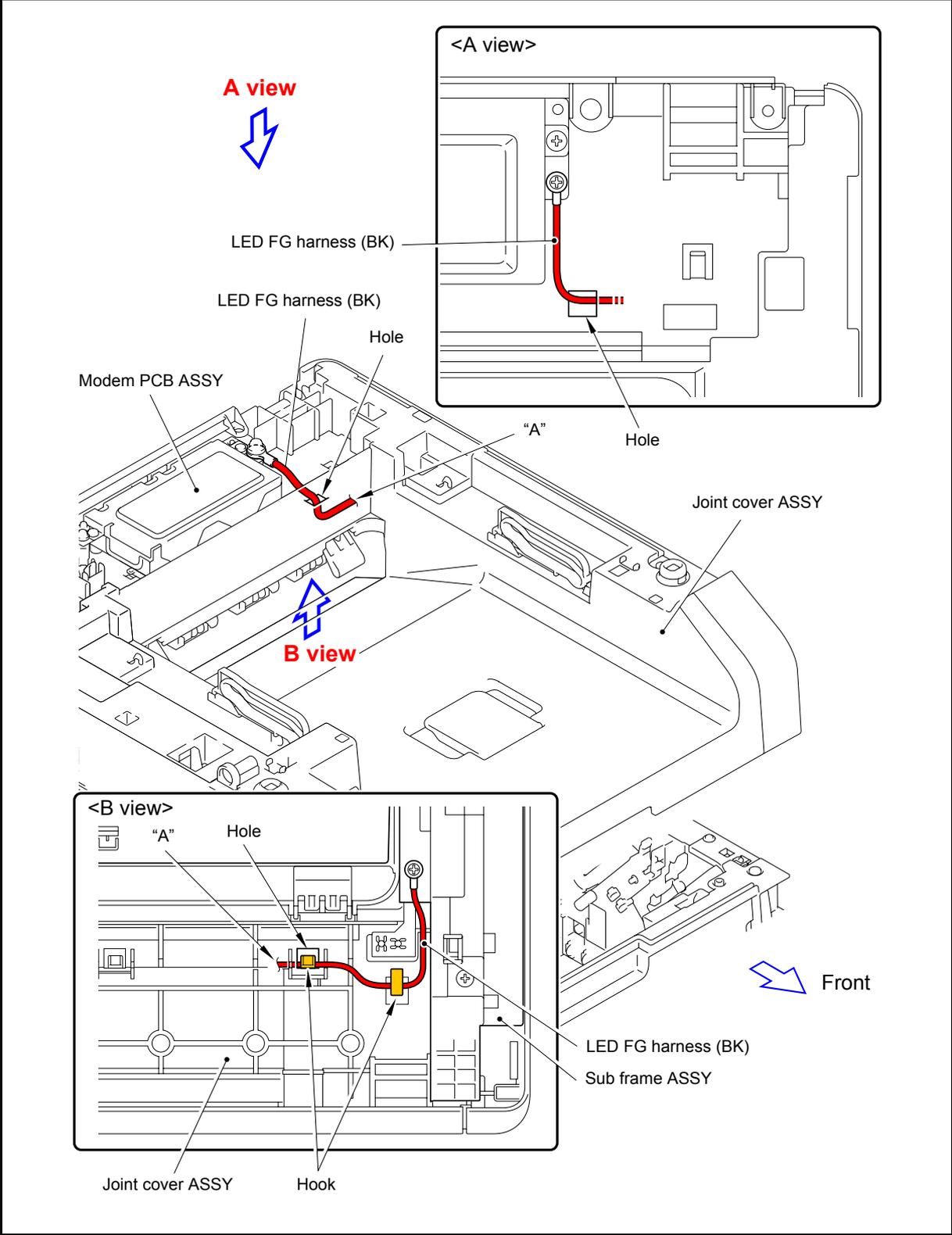


11 ADF Unit



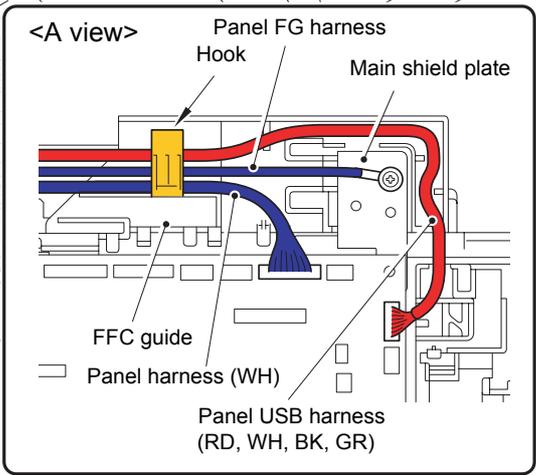
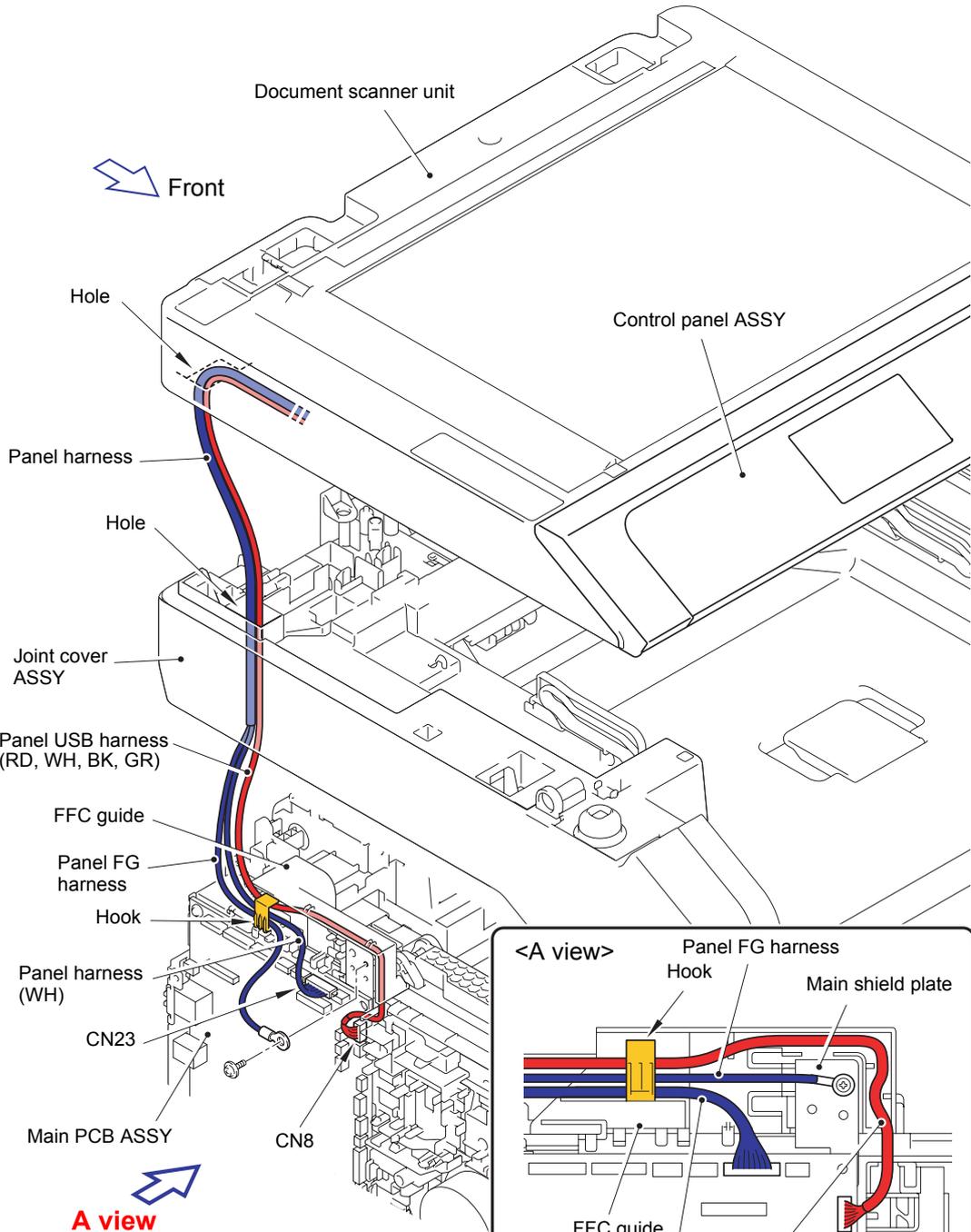
12 Modem PCB ASSY





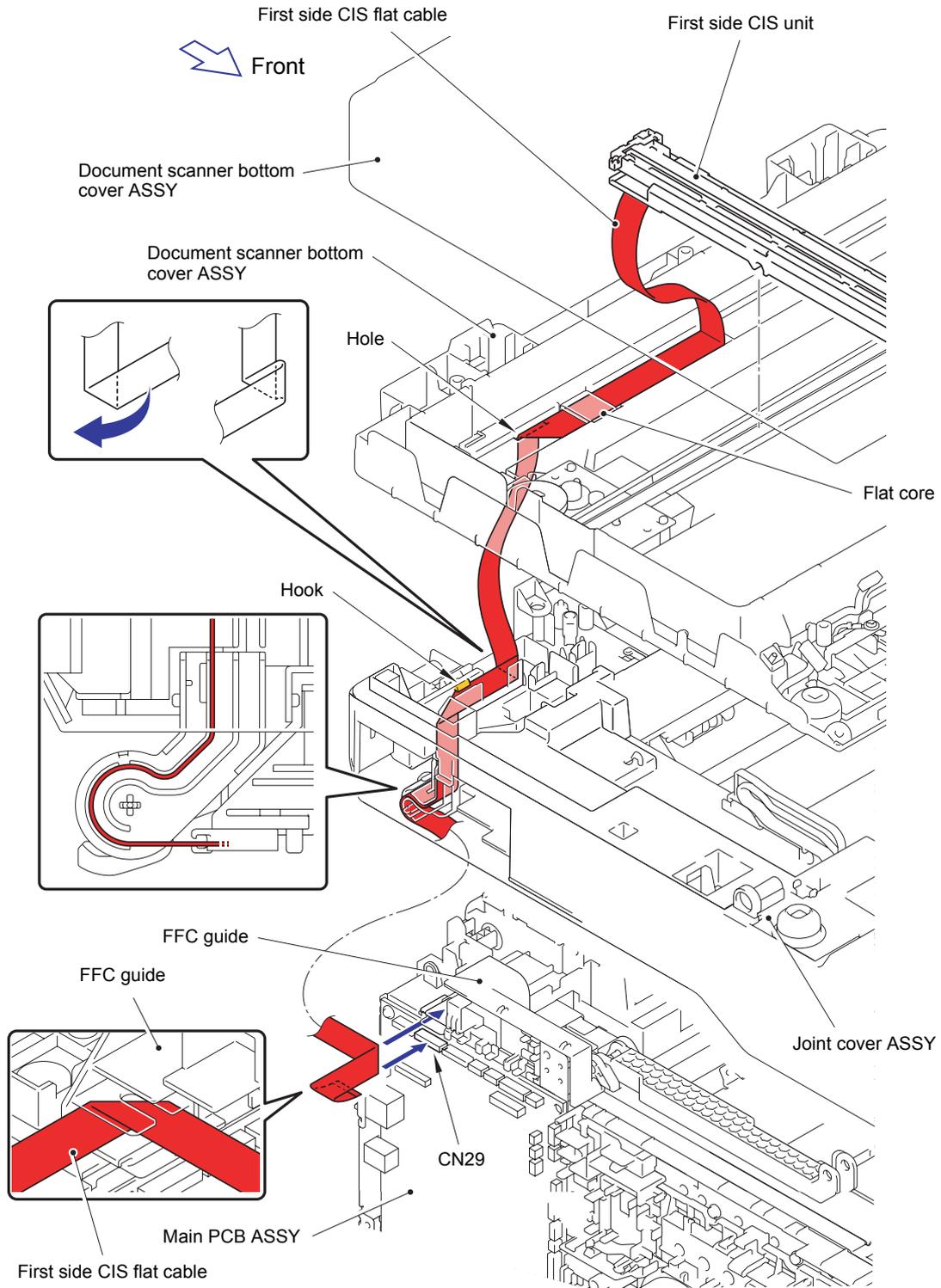


14 Control Panel ASSY



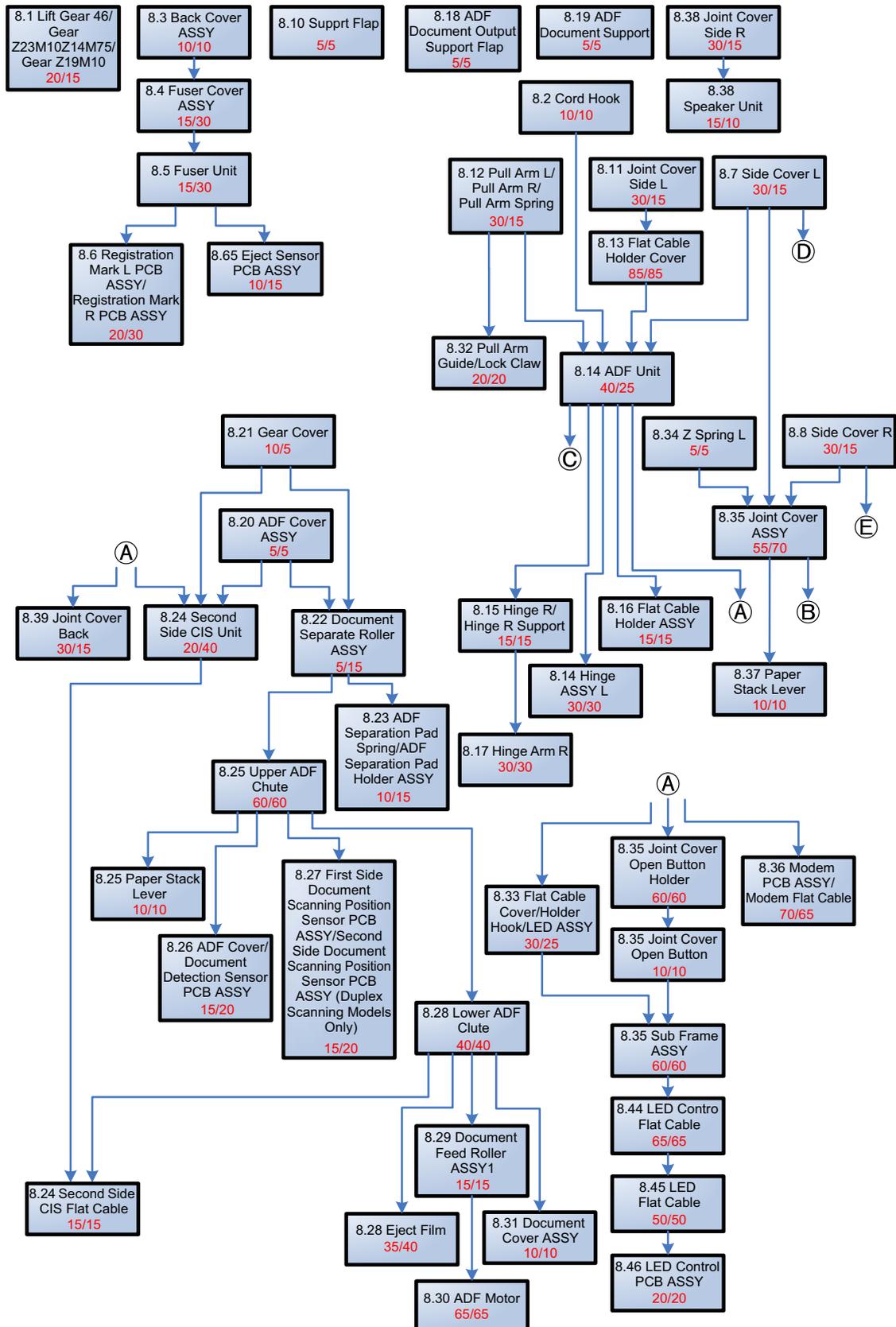
A view

15 Document Scanner Unit

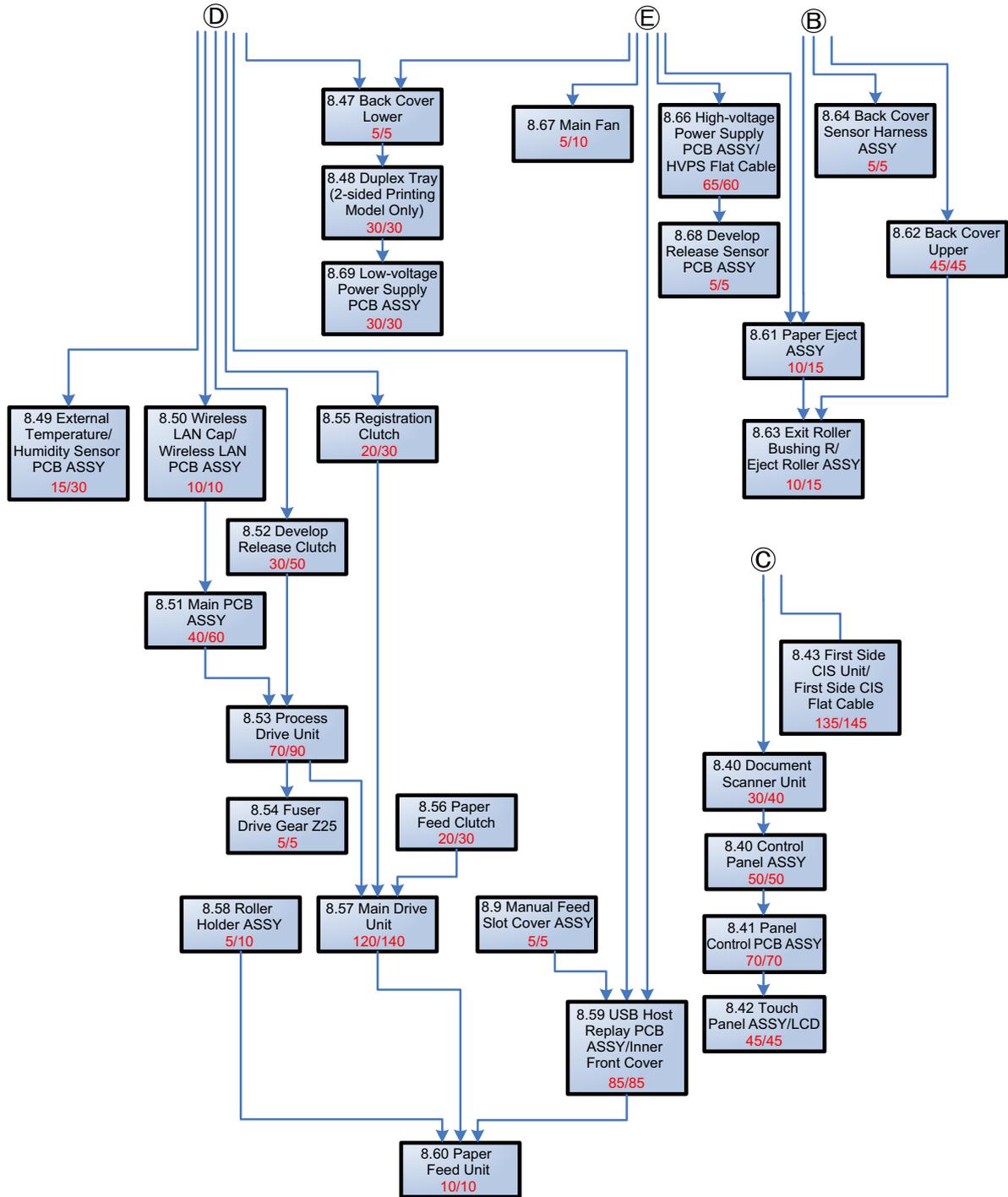


7. DISASSEMBLY FLOW

Disassembly/Re-Assembly (second)



Disassembly/Re-Assembly (second)

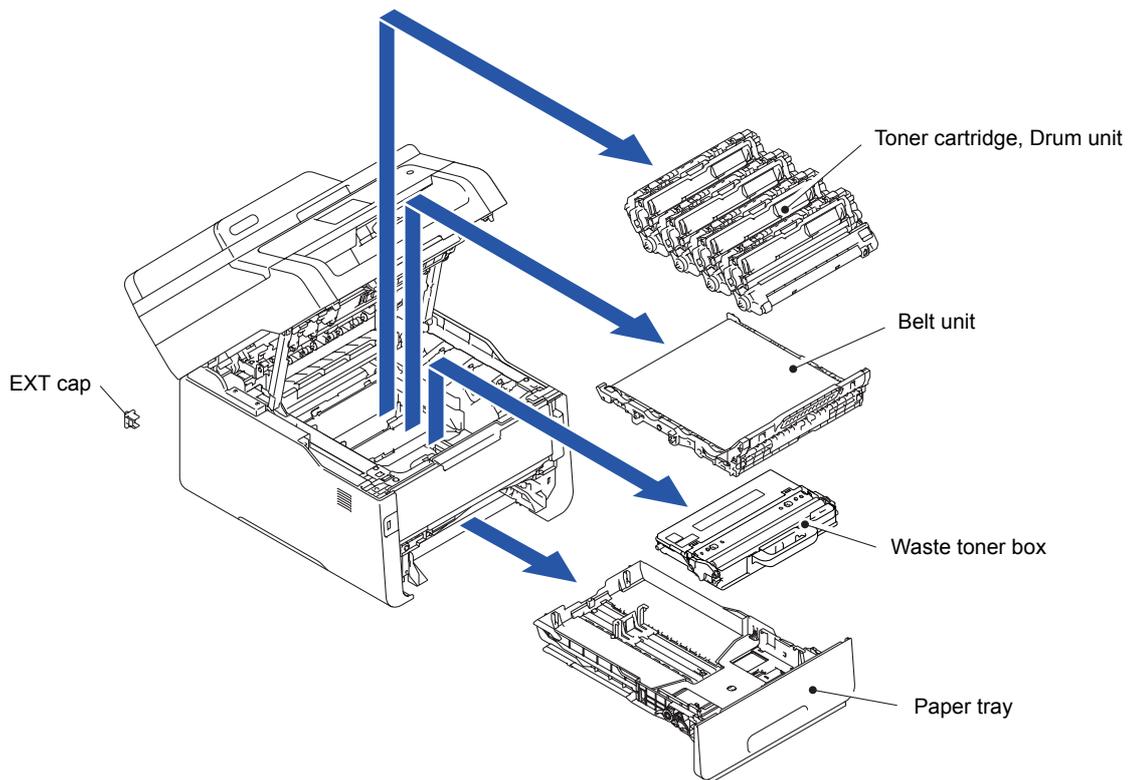


8. DISASSEMBLY PROCEDURE

■ Preparation

Prior to proceeding with the disassembly procedure,

- (1) Unplug
 - the AC cord,
 - the USB cable, if connected, and
 - the LAN cable, if connected.
- (2) Remove
 - the Paper tray,
 - the Toner cartridge,
 - the Drum unit,
 - the Belt unit, and
 - the Waste toner box.



Backup of machine information (When replacing the main PCB):

Before starting repair work, back up the machine information and user setting information. (Refer to "1.4.12 Backup of machine information" in Chapter 5.) After replacing the PCB, restore the backup data to a new PCB.

8.1 Lift Gear 46/Gear Z23M10Z14M75/Gear Z19M10

- (1) Lift the Plate up plate. Release the Hook to remove the Lift gear 46 from the Plate up plate.

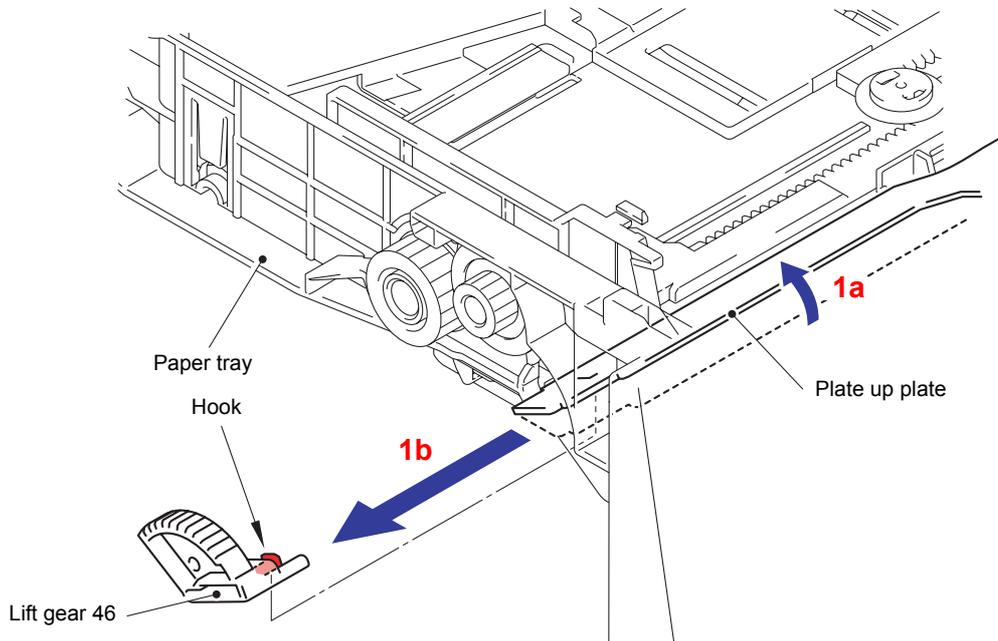


Fig. 3-1

- (2) Remove the Gear Z23M10Z14M75 from the Paper tray.
- (3) Remove the Gear Z19M10 from the Paper tray.

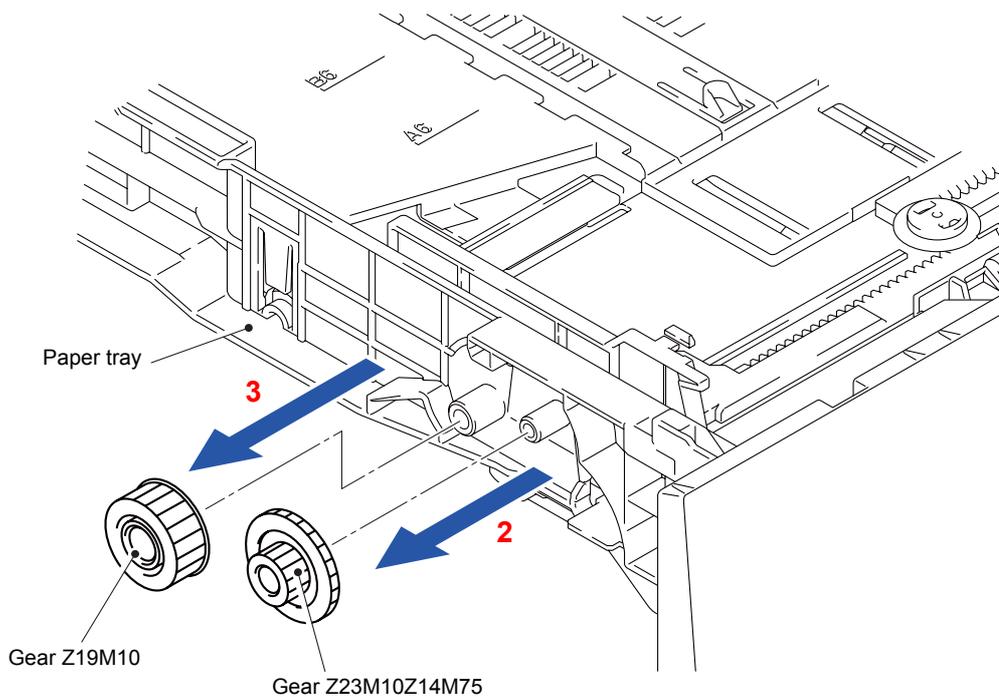


Fig. 3-2

8.2 Cord Hook

(1) Rotate the Cord hook in the direction of the arrow to remove it from the Main body.

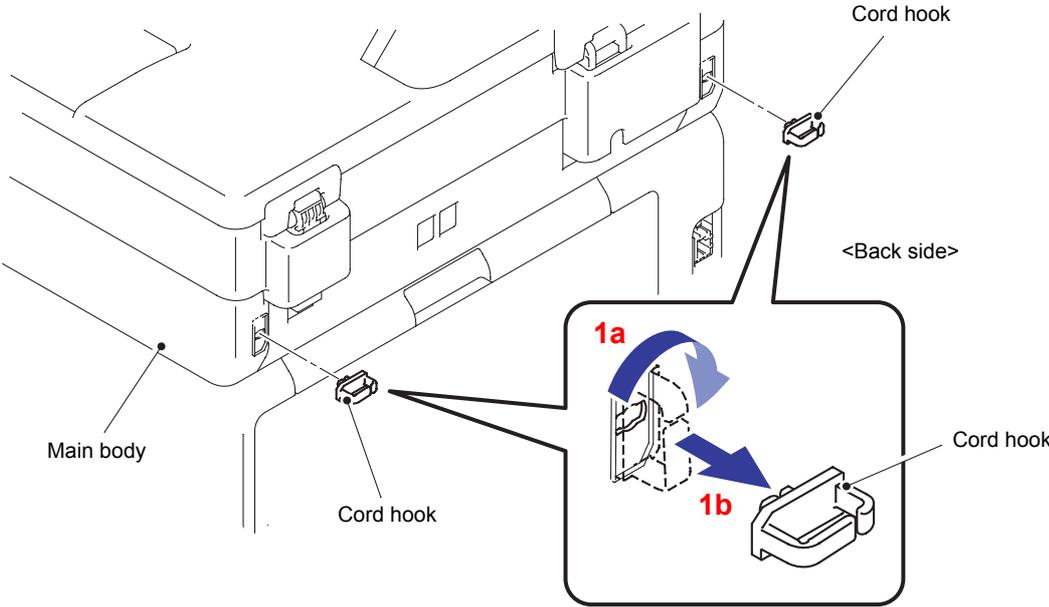


Fig. 3-3

8.3 Back Cover ASSY

(1) Open the Back cover ASSY.

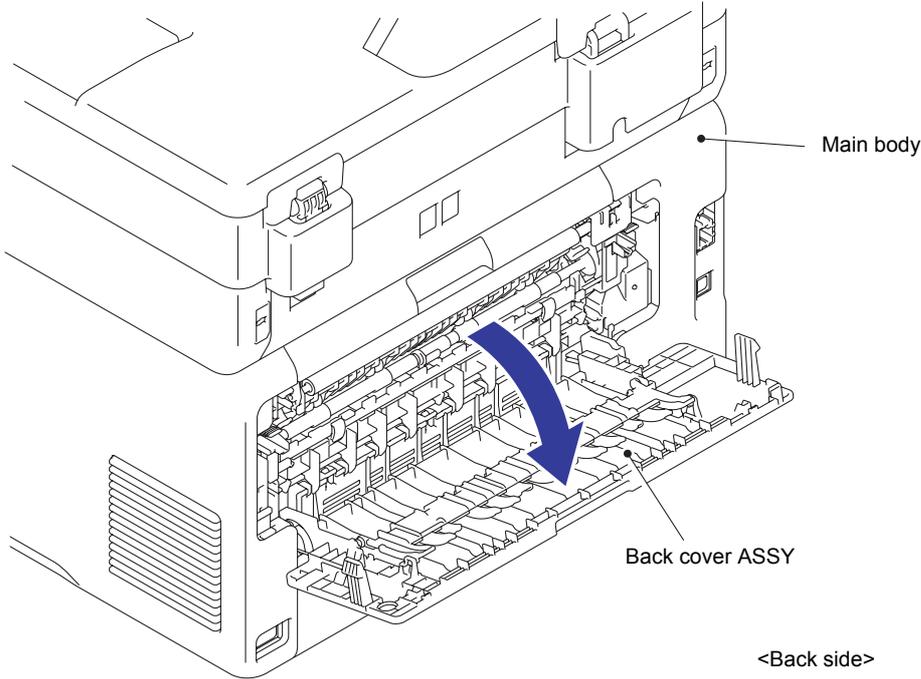


Fig. 3-4

(2) Remove the Boss and Bush of the Back cover ASSY from the Boss and Bush on the left side of the Main body.

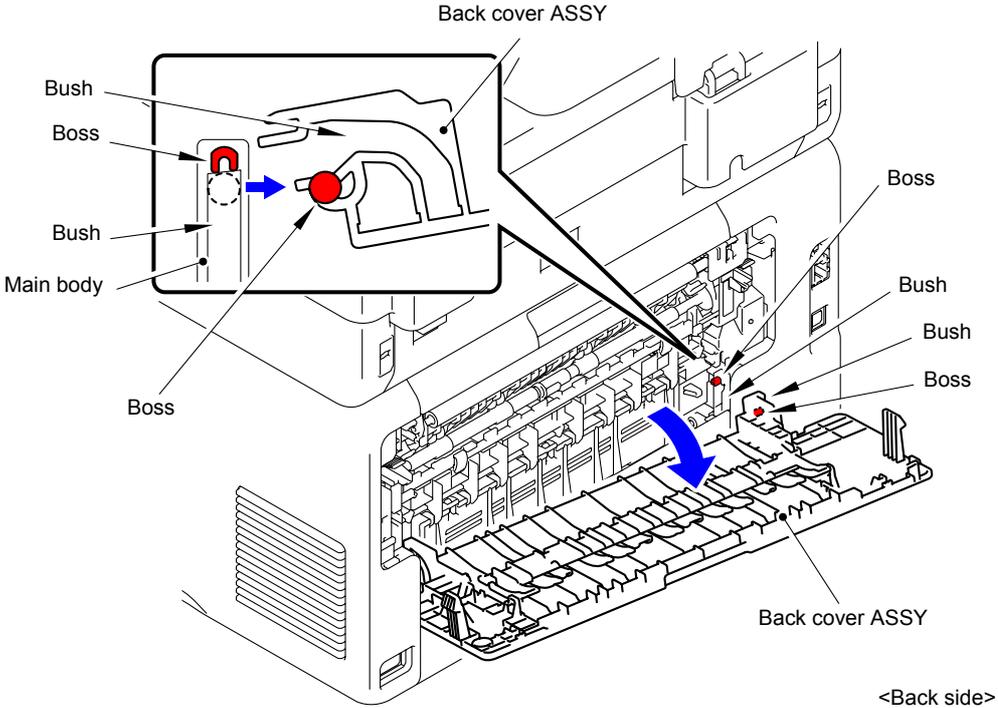


Fig. 3-5

- (3) Remove the Boss and Bush of the Back cover ASSY from the Boss and Bush on the right side of the Main body.

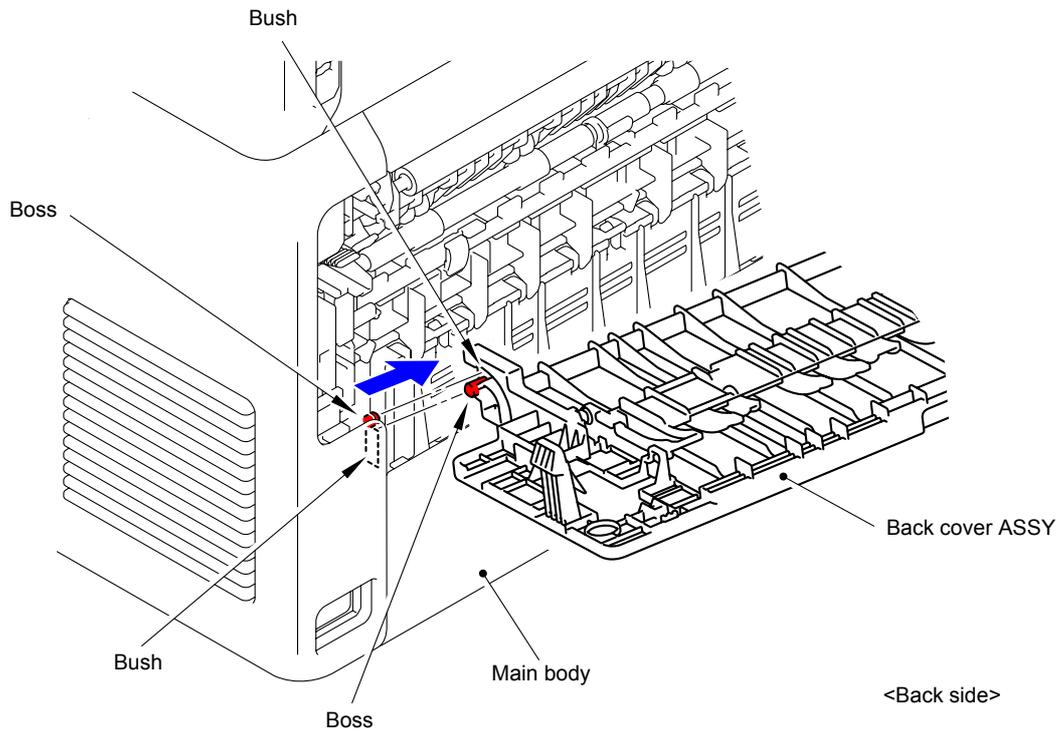


Fig. 3-6

8.4 Fuser Cover ASSY

- (1) Release the lock of the Lock lever L/R to open the Fuser cover ASSY.

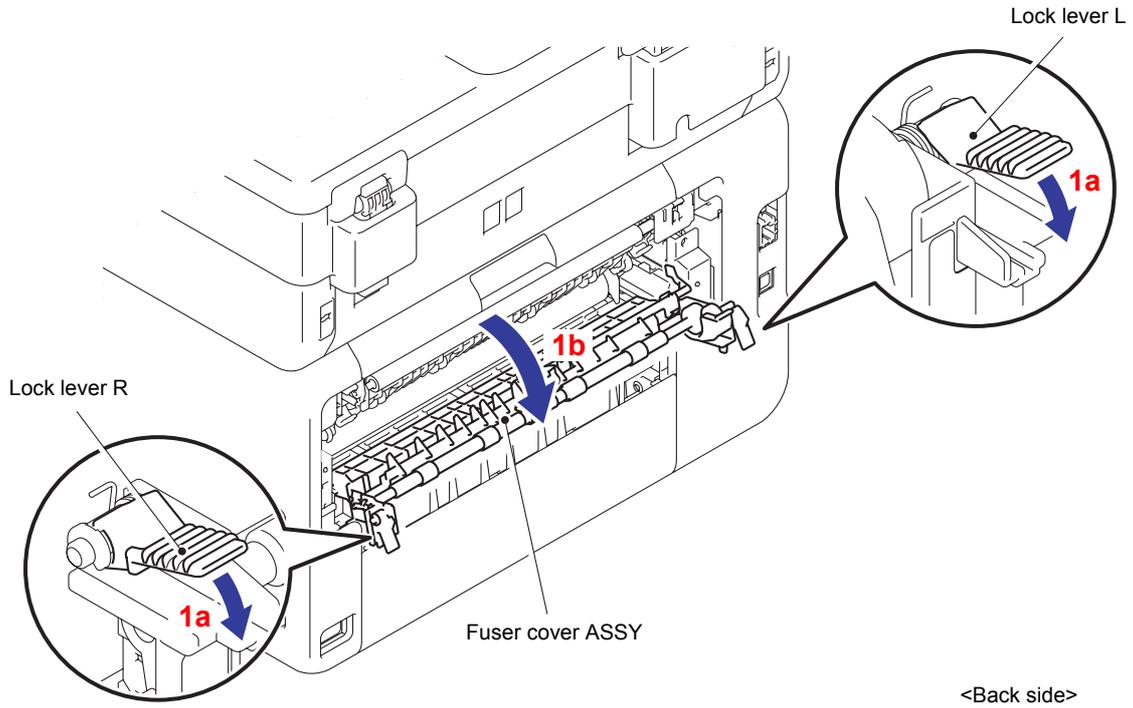


Fig. 3-7

- (2) Remove the left side Boss of the Fuser cover ASSY from the Bush of the Main body.
- (3) Remove the right side Boss of the Fuser cover ASSY from the Bush of the Main body.

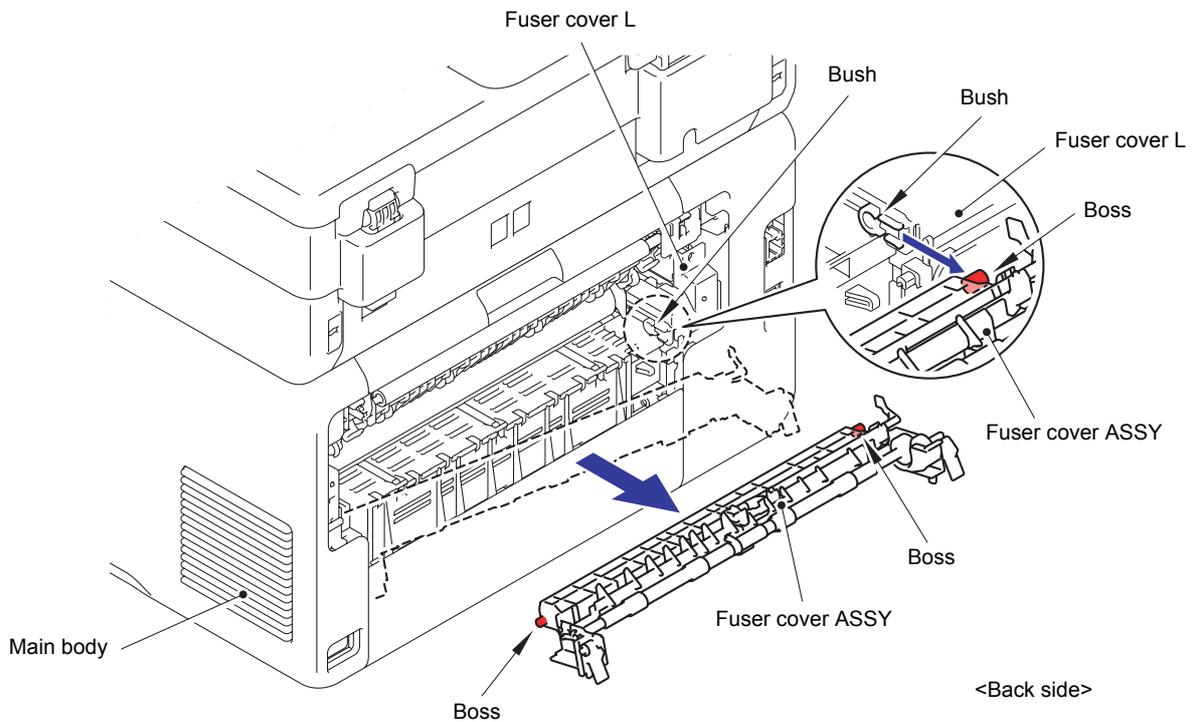


Fig. 3-8

8.5 Fuser Unit

- (1) Remove the Taptite bind B M3x10 screw from the Fuser cover L.
- (2) Remove the Pin to remove the Fuser cover L from the Main body.

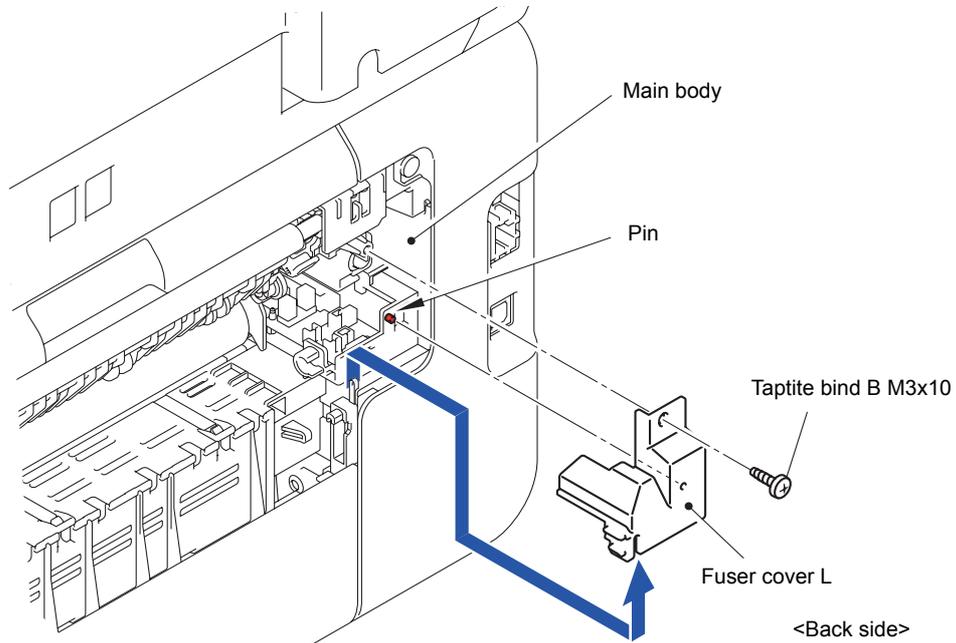


Fig. 3-9

- (3) Remove the Taptite bind B M3x10 screw to remove the Fuser cover R from the Main body.

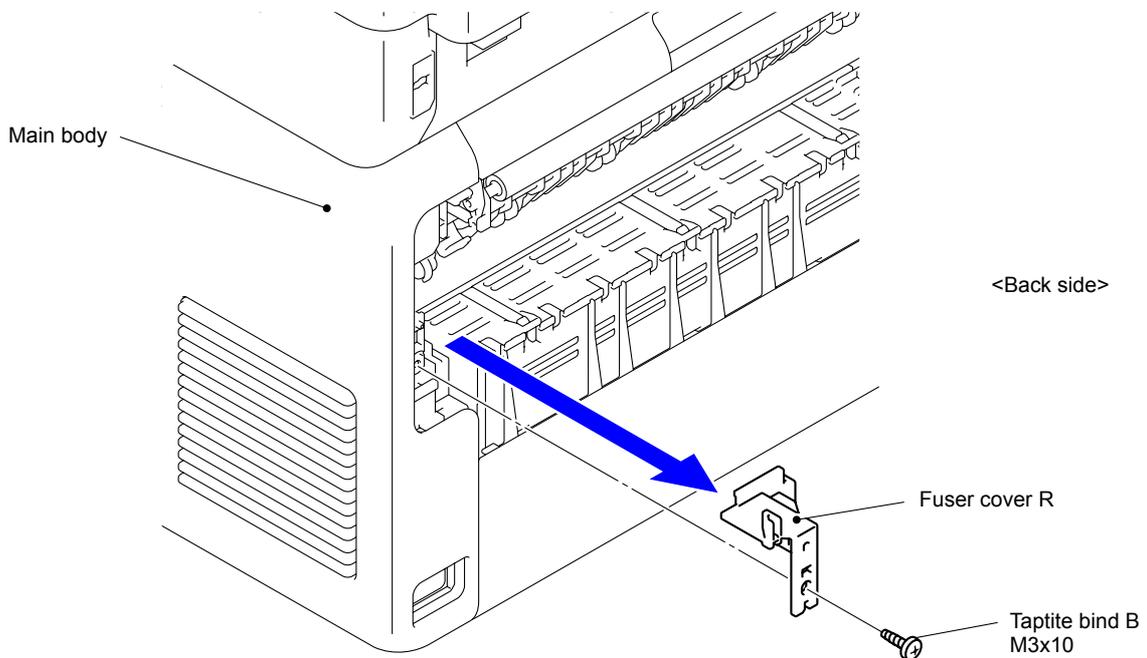


Fig. 3-10

Assembling Note:

After assembling the Fuser cover R, make sure that the Heater harness is not visible.

- (4) Disconnect the two Connectors (CN4 and CN5) from the Eject sensor PCB ASSY.

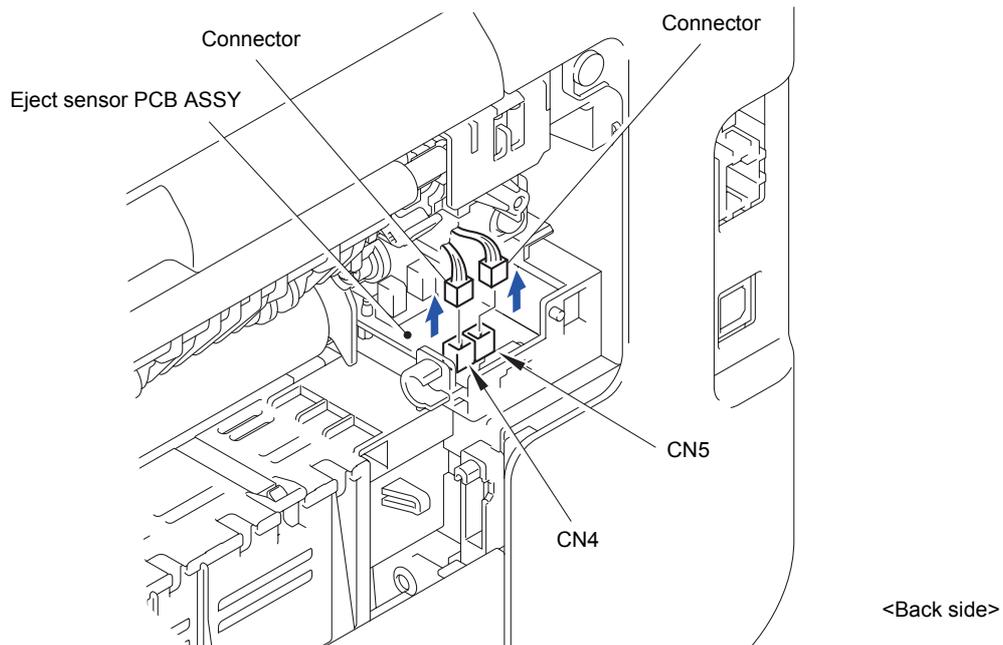


Fig. 3-11

- (5) Remove the two Taptite pan (washer) B M4x12 DA screws. Remove the Fuser unit from the Main body holding the "A" parts.
- (6) Disconnect the Electrode terminal of the Fuser unit from the Electrode terminal of the Main body.

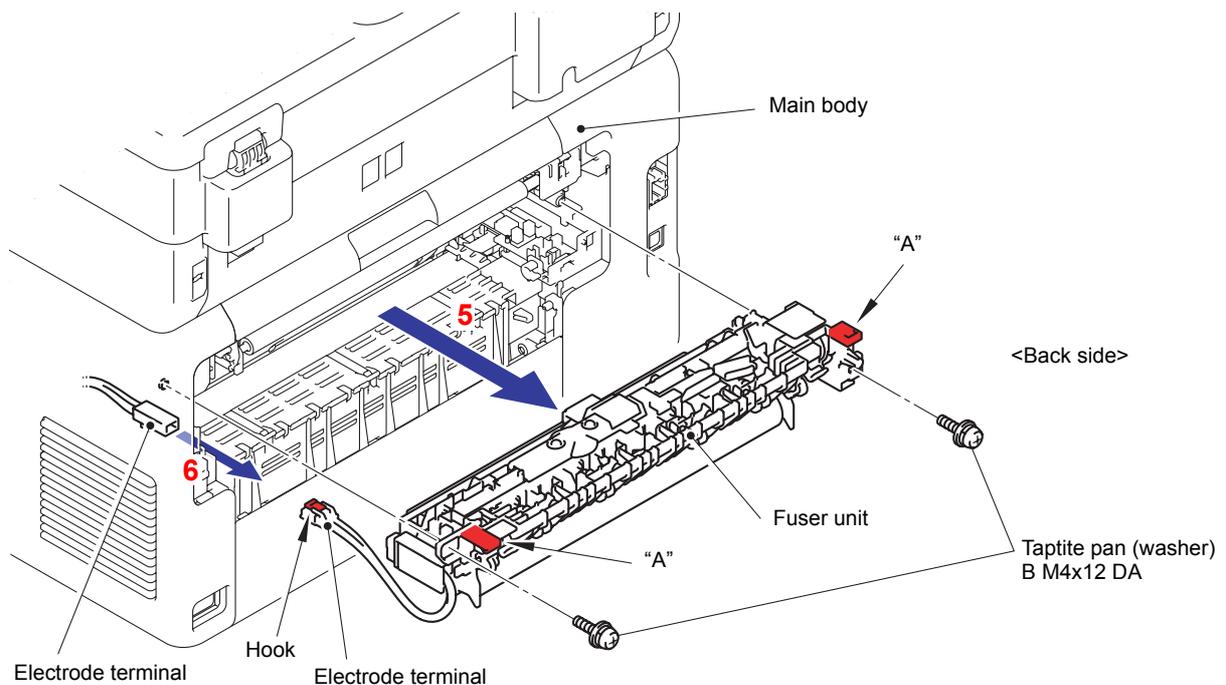


Fig. 3-12

Note:

- Do not apply a physical impact or vibration to the Fuser unit.
- Do not touch the Roller to prevent breakage of the Fuser unit.

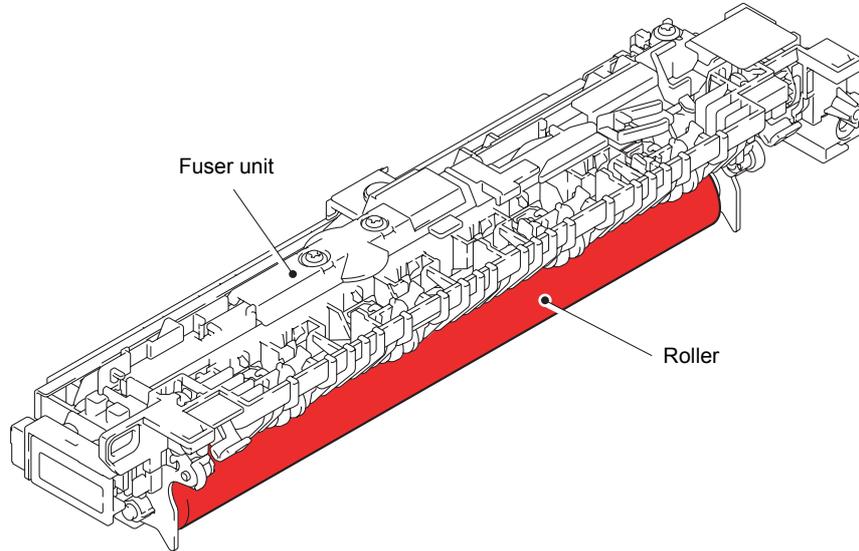


Fig. 3-13

8.6 Registration Mark L PCB ASSY/ Registration Mark R PCB ASSY

(1) Disconnect the two Connectors (CN2 and CN3) from the Eject sensor PCB ASSY.

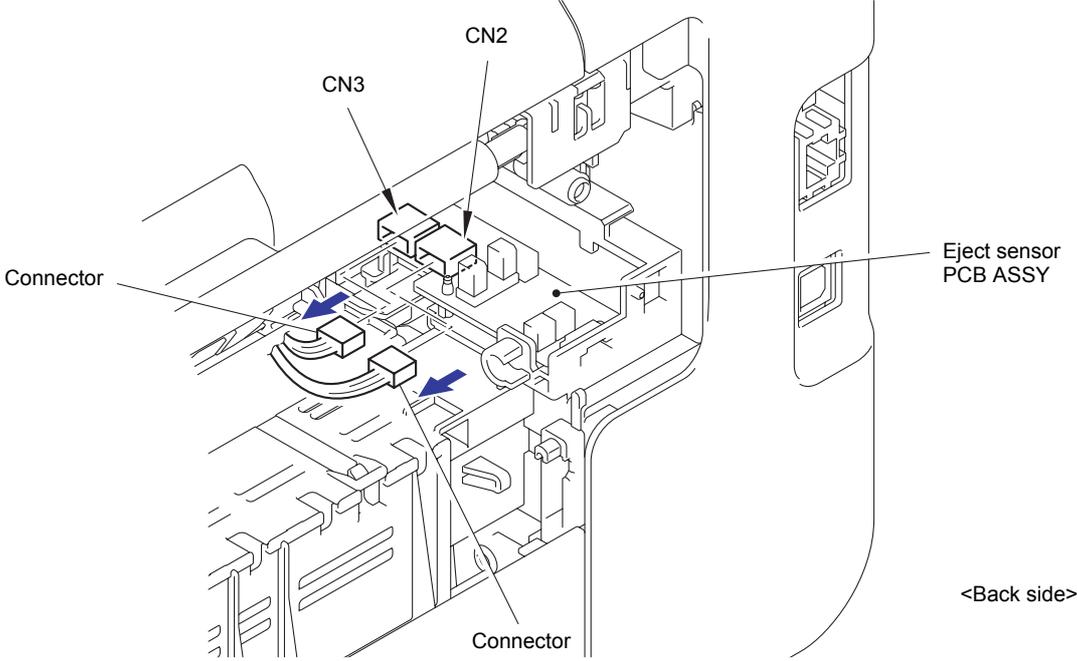


Fig. 3-14

(2) While pushing up the Lever, open the Joint cover ASSY.

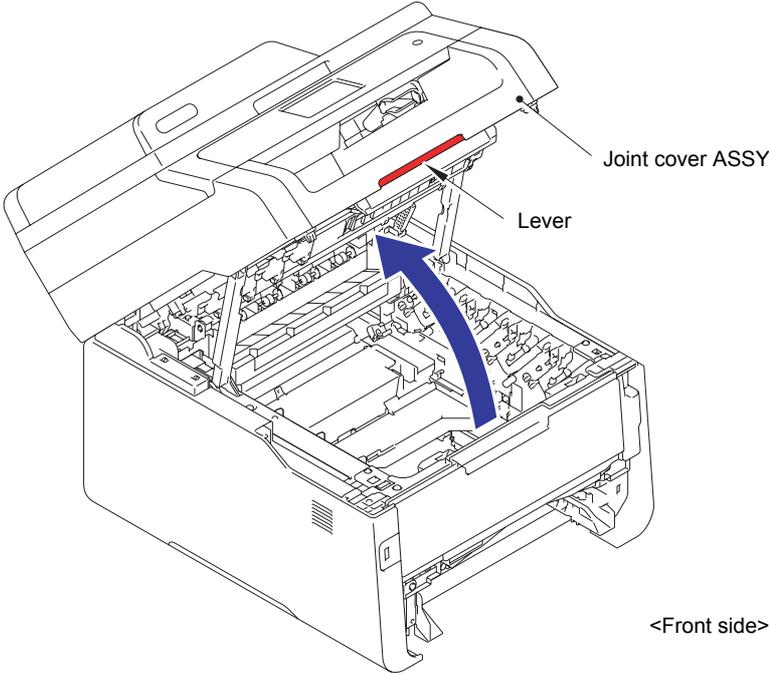
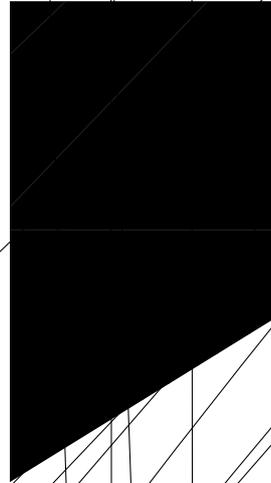


Fig. 3-15

tion sensor ASSY.



rection of 4a and release the
ASSY.

- (5) Disconnect the wiring of the Registration mark L PCB harness.
- (6) As the Boss being removed, slide the Registration mark L PCB ASSY in the direction of the arrow 6a to remove it from the Registration sensor ASSY.

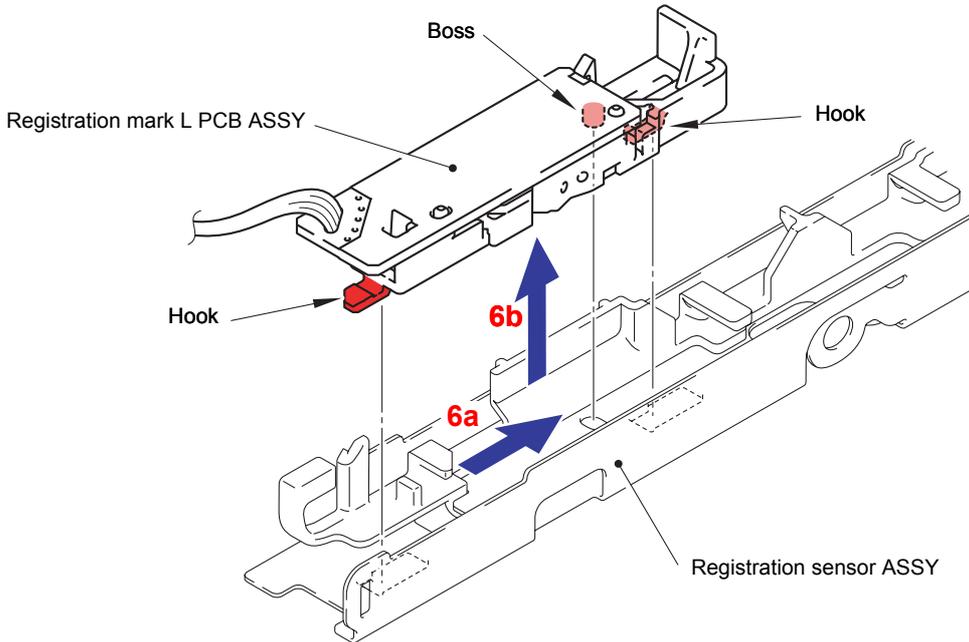


Fig. 3-18

- (7) Disconnect the wiring of the Registration mark R PCB harness.
- (8) As the Boss being removed, slide the Registration mark R PCB ASSY in the direction of the arrow 8a to remove it from the Registration sensor ASSY.

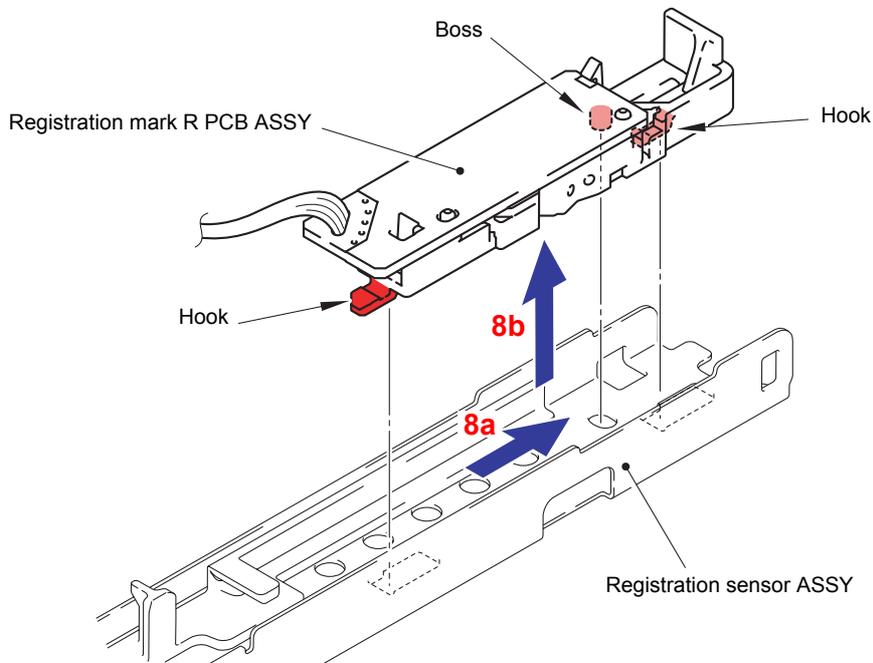


Fig. 3-19

Harness routing: Refer to "**6** Registration Mark L PCB ASSY, Registration Mark R PCB ASSY"

8.7 Side Cover L

(1) Remove the two Taptite bind B M4x12 screws from the Side cover L.

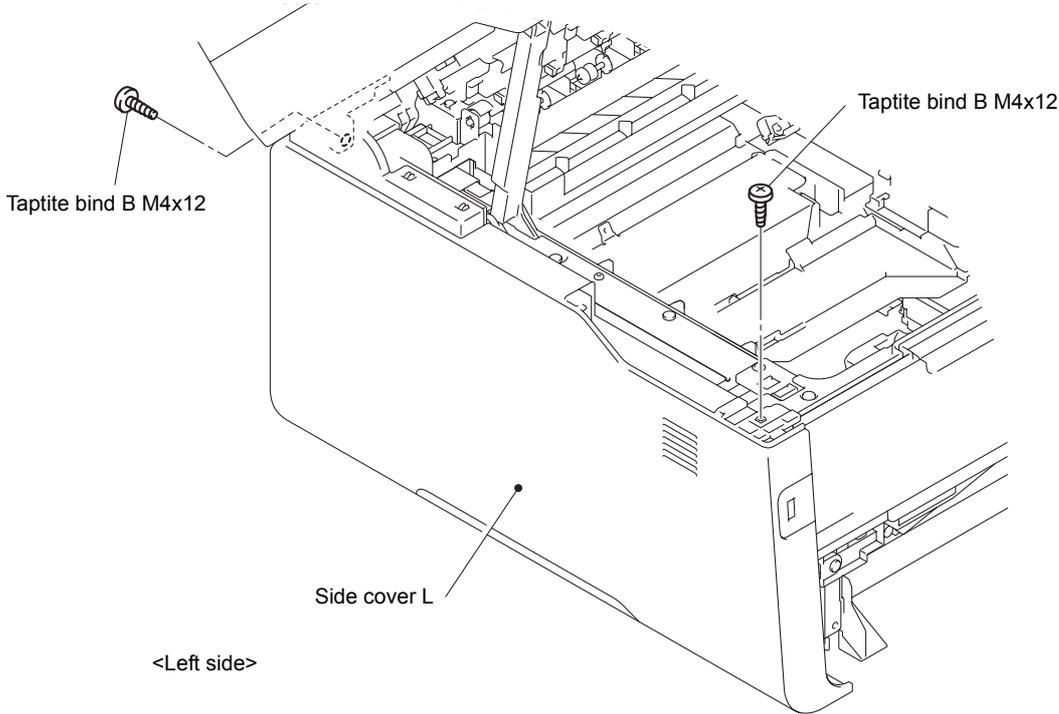


Fig. 3-20

(2) Release the two Hooks and two Bosses on the upper side and three Hooks on the bottom to remove the Side cover L from the Main body.

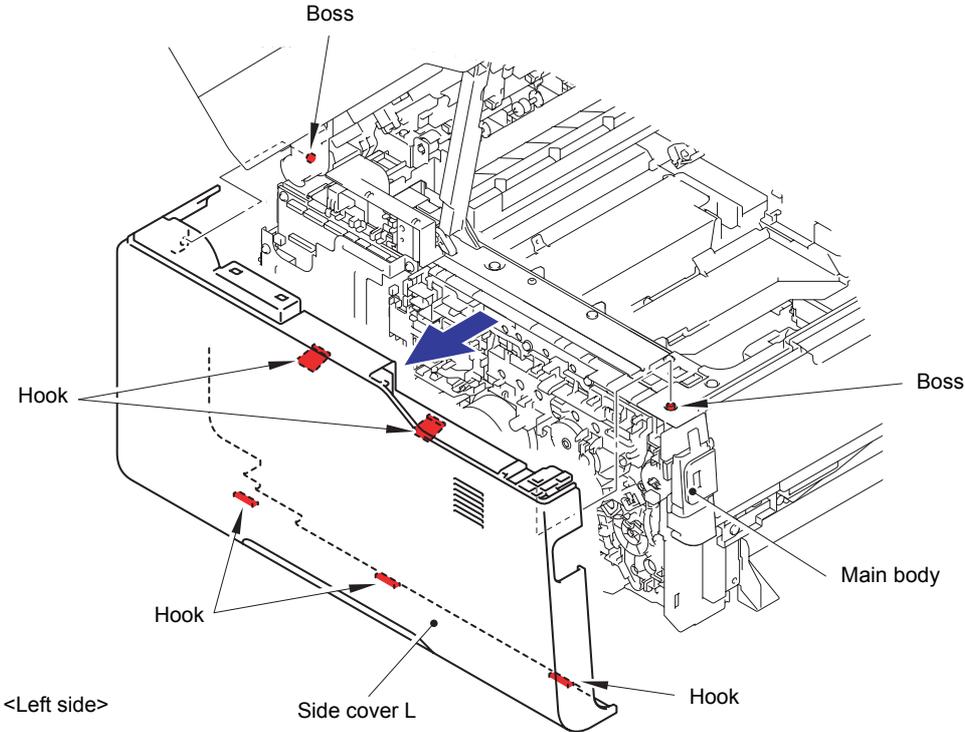


Fig. 3-21

* Inside of Side cover L

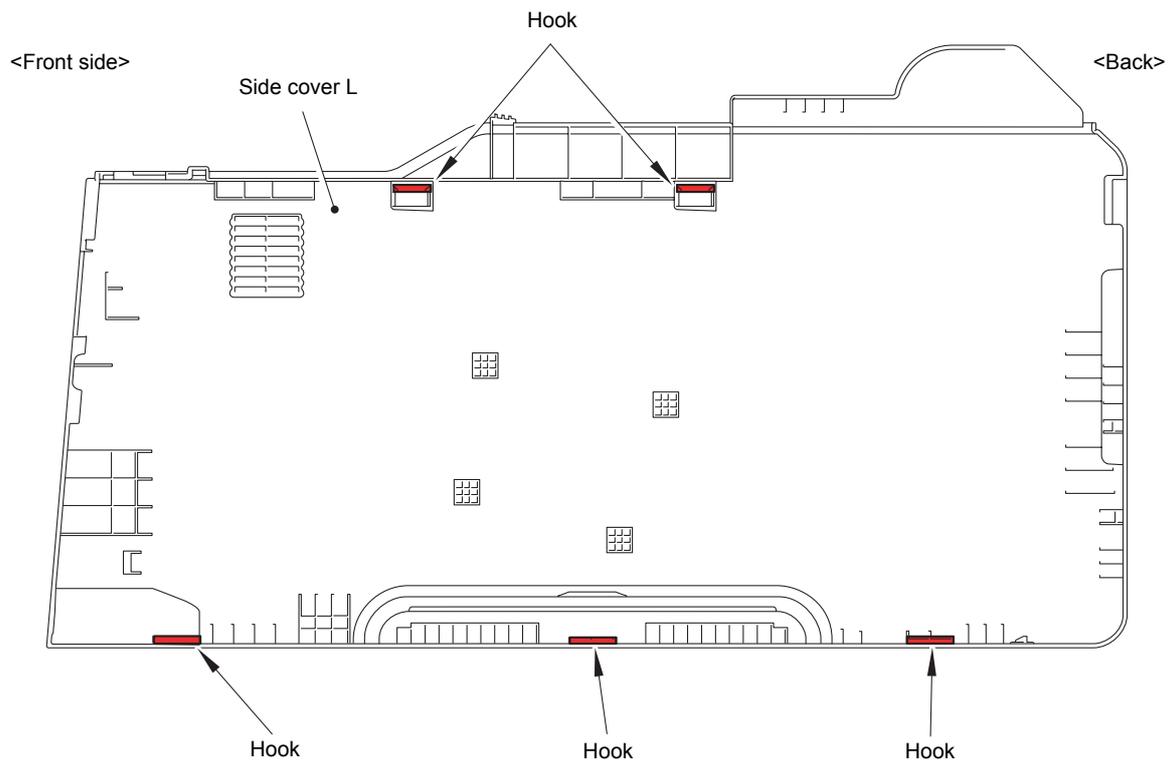


Fig. 3-22

8.8 Side Cover R

(1) Remove the two Taptite bind B M4x12 screws from the Side cover R.

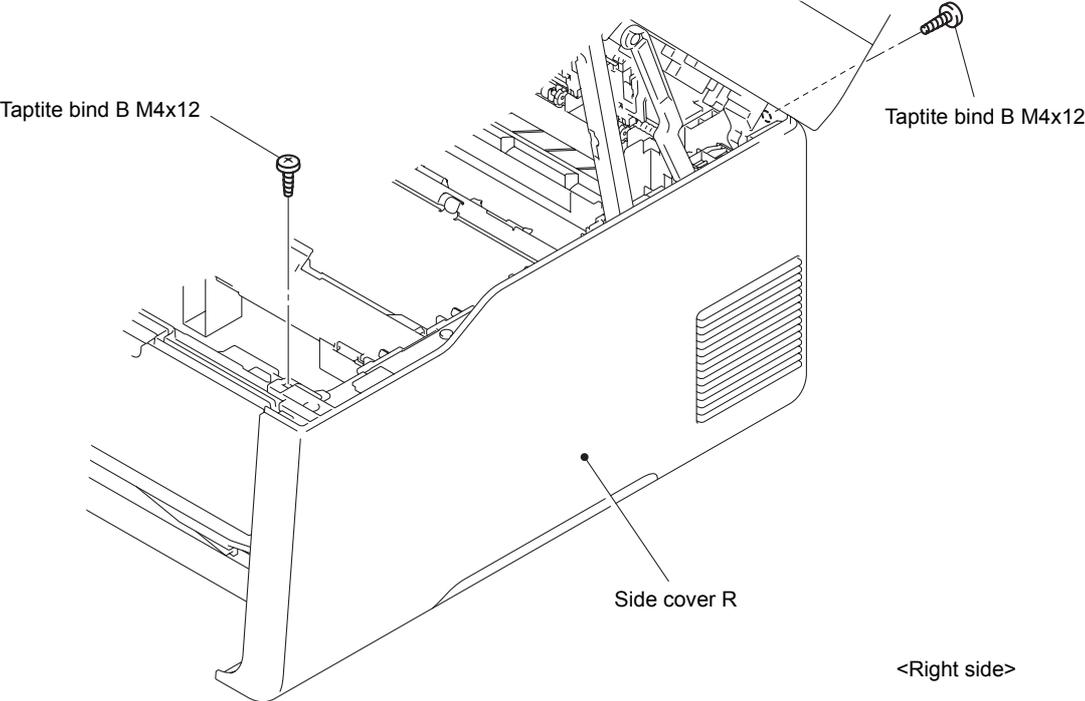


Fig. 3-23

(2) Release the two Hooks and two Bosses on the upper side and three Hooks on the bottom to remove the Side cover R from the Main body.

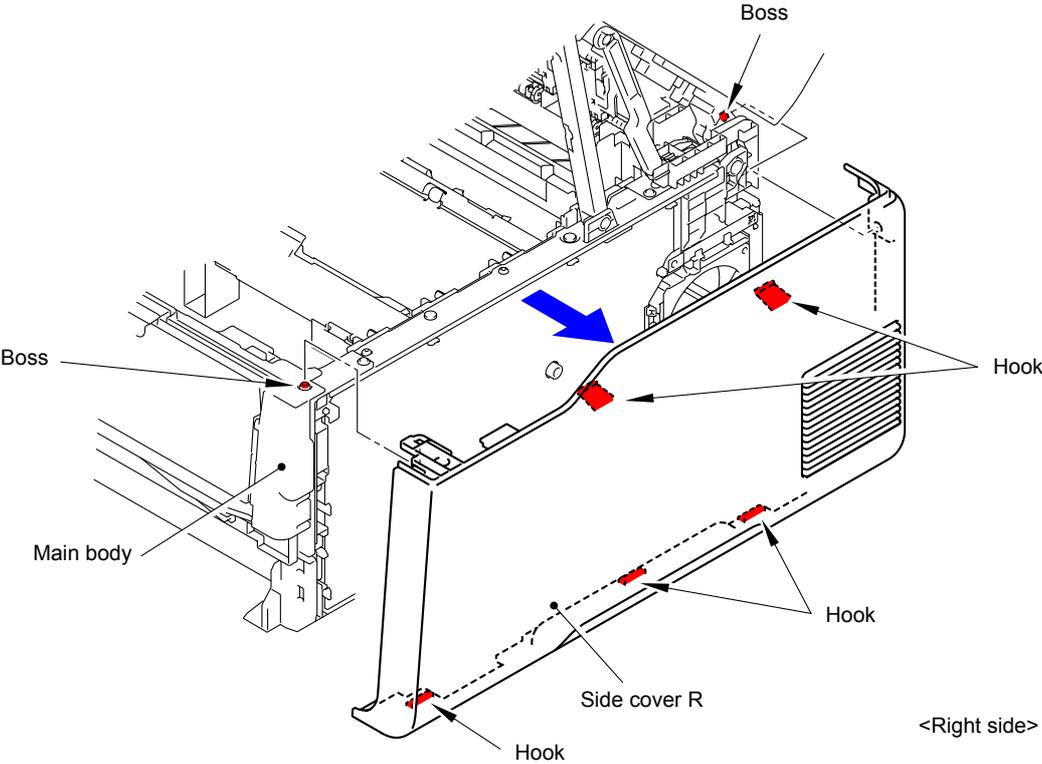


Fig. 3-24

* Inside of Side cover R

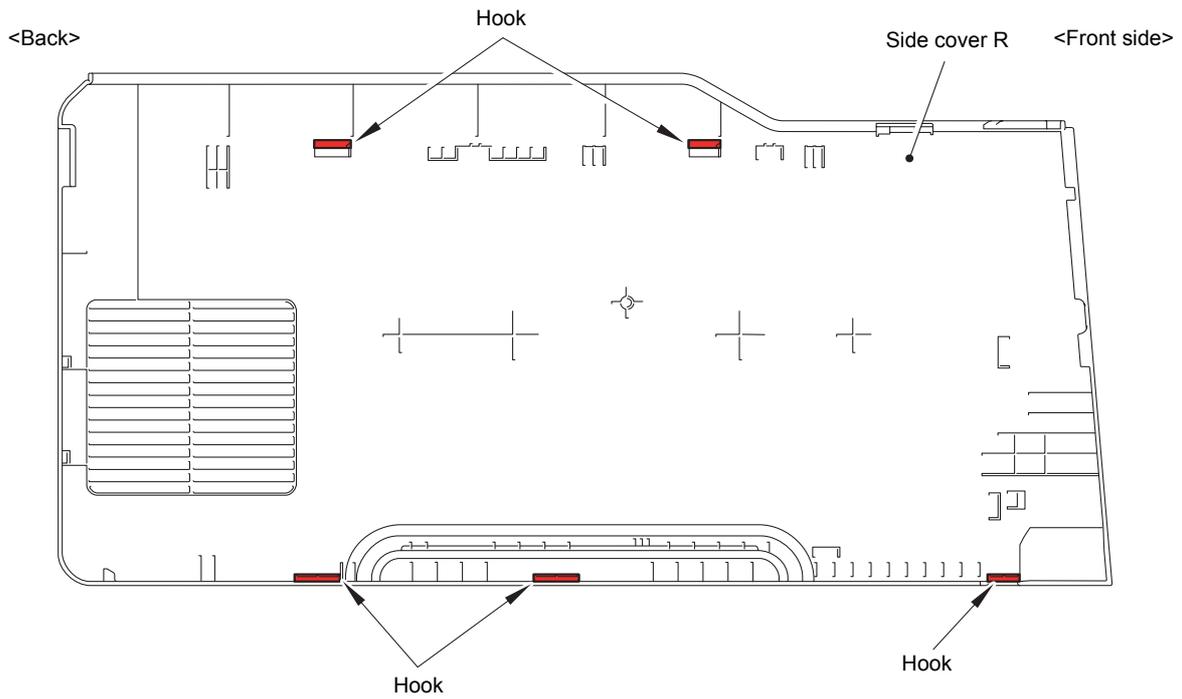


Fig. 3-25

8.9 Manual Feed Slot Cover ASSY

(1) Remove the two Pins to remove the Manual feed slot cover ASSY from the Inner front cover.

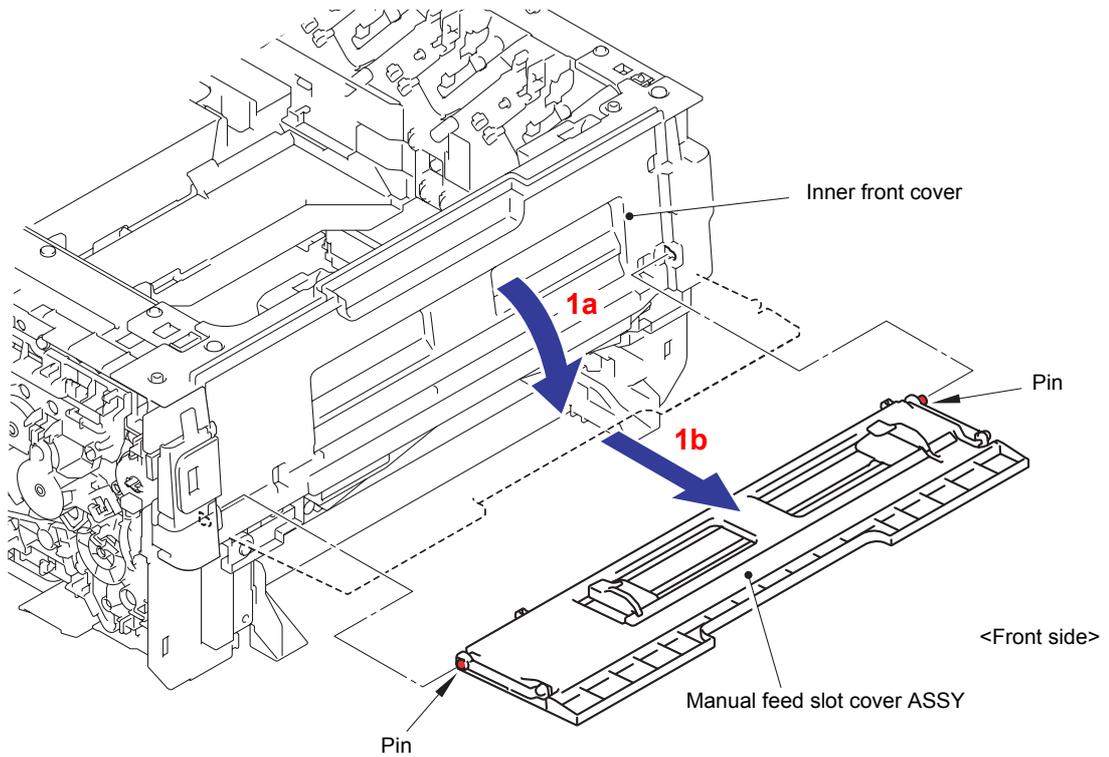


Fig. 3-26

8.11 Joint Cover Side L

- (1) Remove the Taptite bind B M4x12 screw. Release eleven Hooks to remove the Joint cover side L from the Joint cover ASSY.

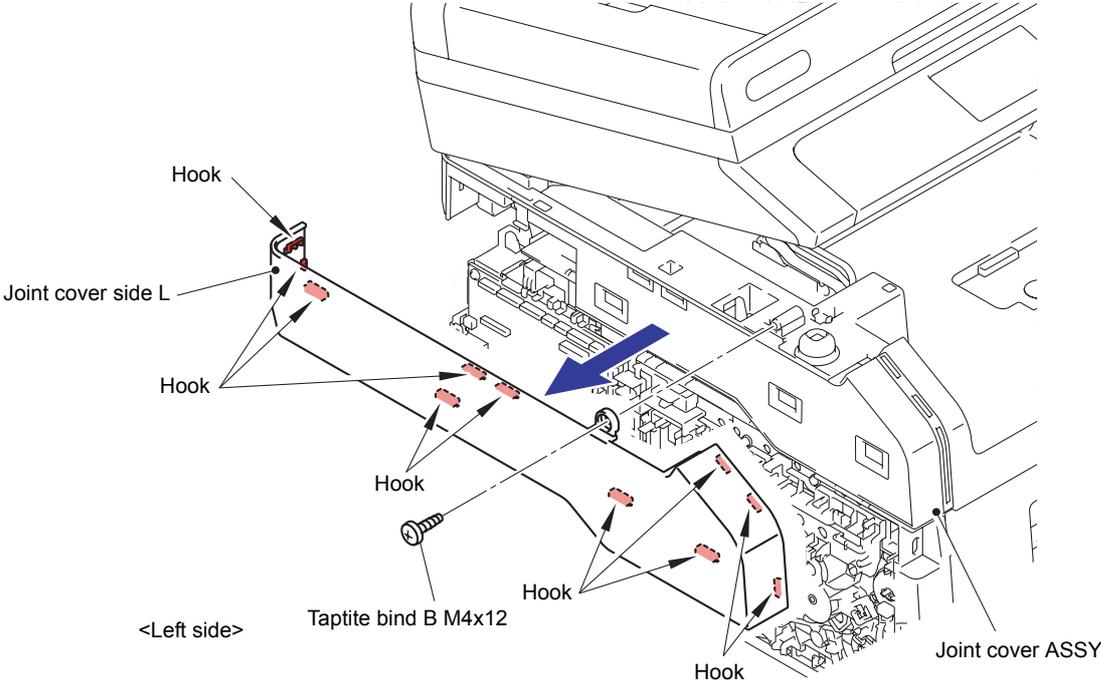


Fig. 3-29

8.12 Pull Arm L/Pull Arm R/Pull Arm Spring

- (1) Release the two Bosses by opening the Pull arms R and L at the joint of the Document scanner unit.

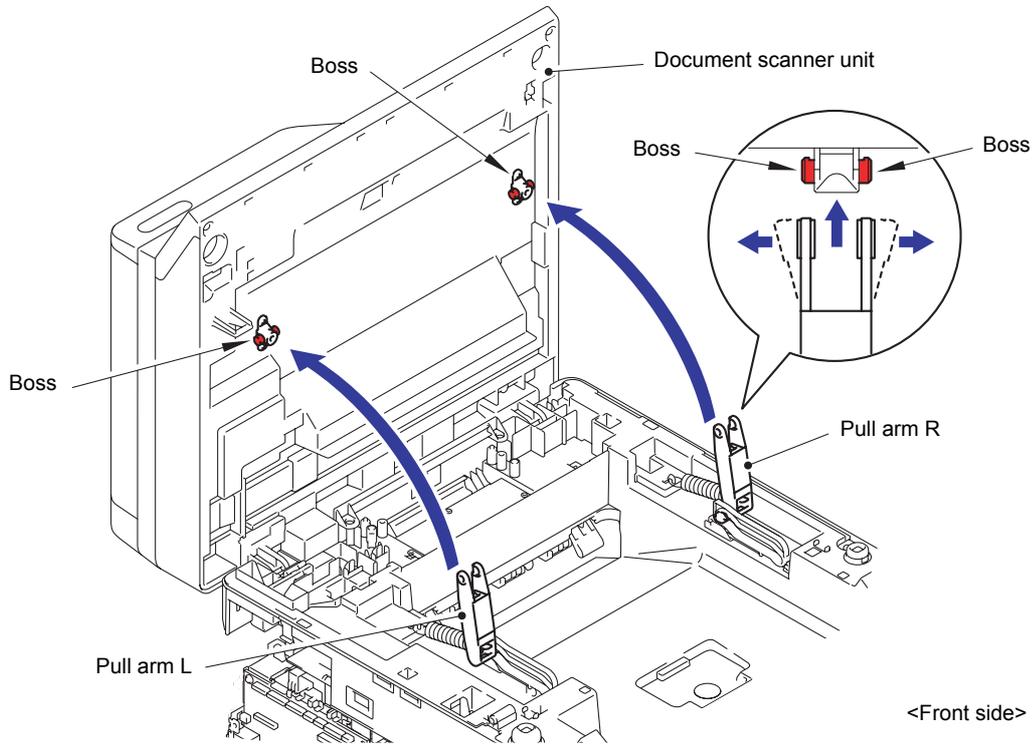


Fig. 3-30

- (2) Remove the Pull arm L and Pull arm spring from the Pull arm guide on the left side.
- (3) Remove the Pull arm R and Pull arm spring from the Pull arm guide on the right side.

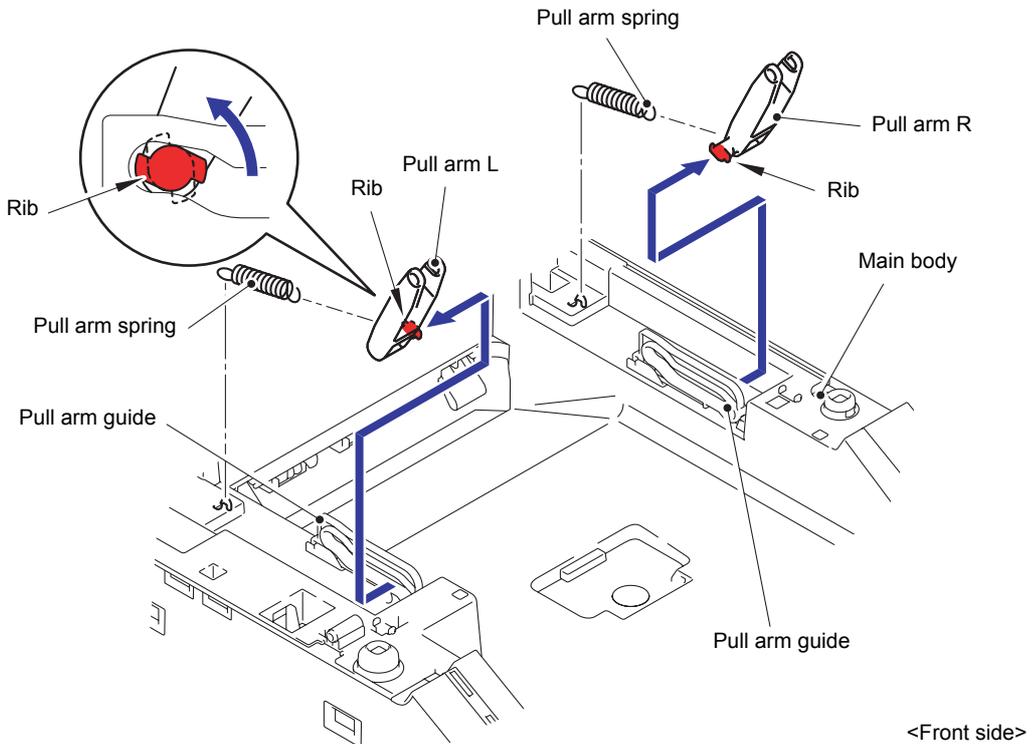


Fig. 3-31

8.13 Flat Cable Holder Cover

- (1) Remove the four Taptite cup S M3x8 SR screws to remove the Main shield cover plate from the Side frame L ASSY.

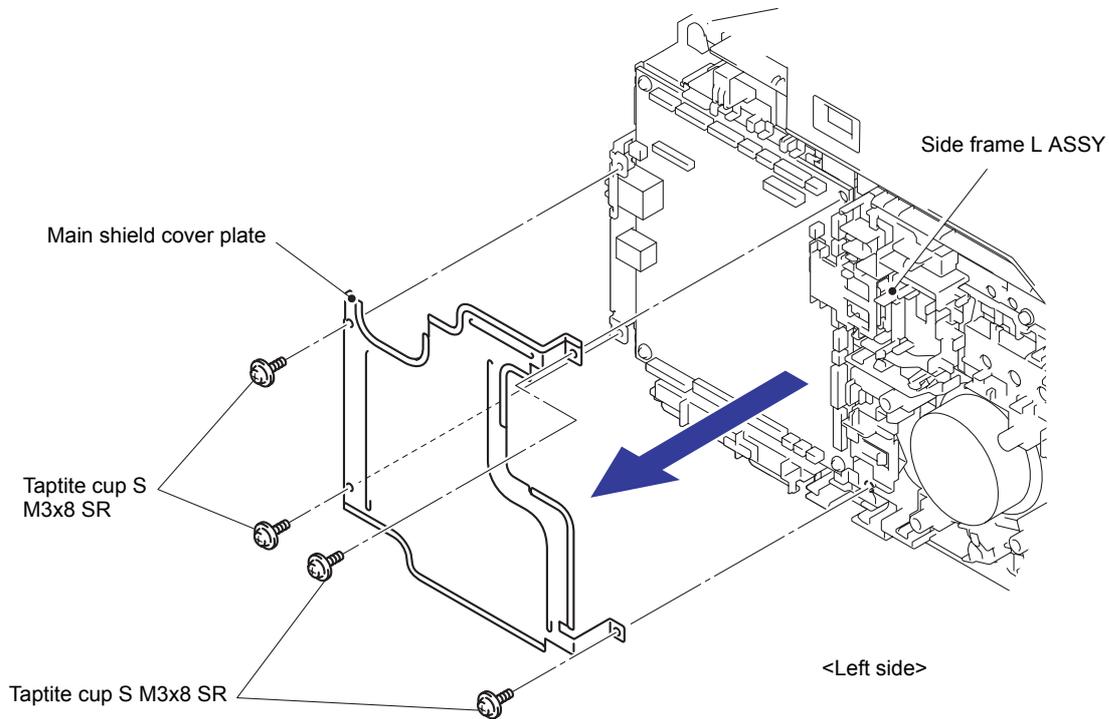


Fig. 3-32

- (2) Remove the Taptite cup S 3.5x6 SR screw to remove the ADF FG harness from the Main body.
- (3) Remove the Taptite cup S 3x8 SR screw to remove the Modem FG harness from the Main body.
- (4) Remove the Taptite cup S 3x8 SR screw to remove the Panel FG harness from the Main body.

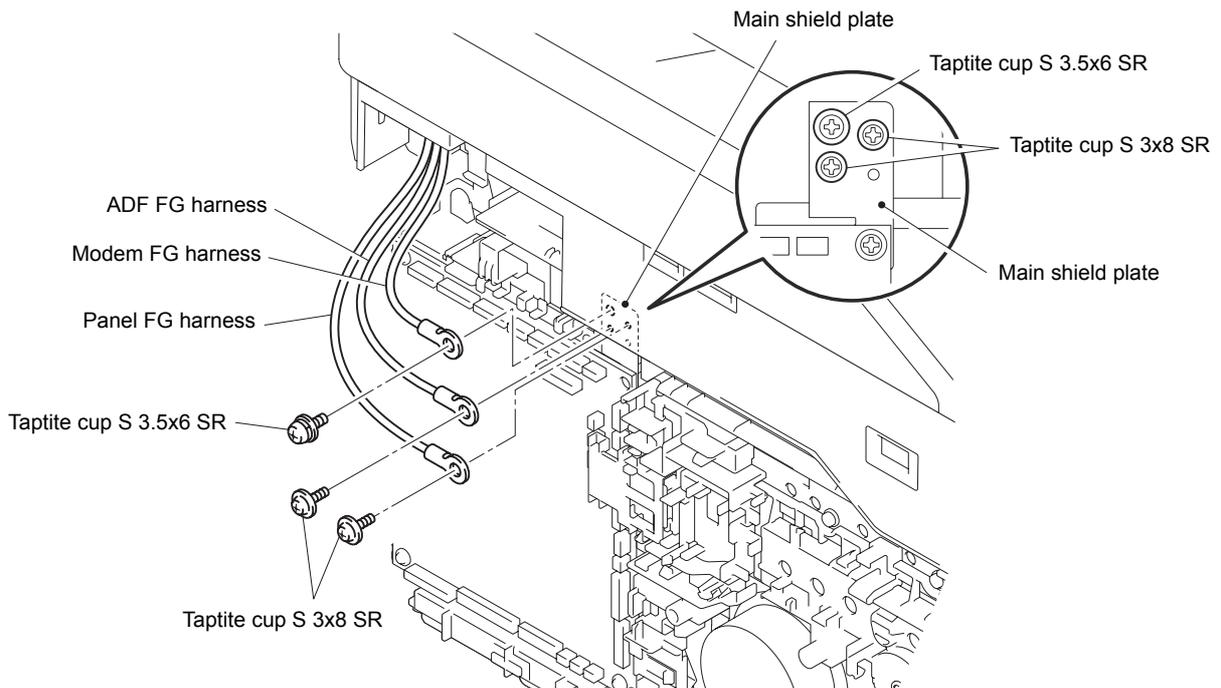


Fig. 3-33

- (5) Disconnect the six Connectors (CN8, CN23, CN24, CN25, CN26 and CN27) and two Flat cables (CN29 and CN30) from the Main PCB ASSY.

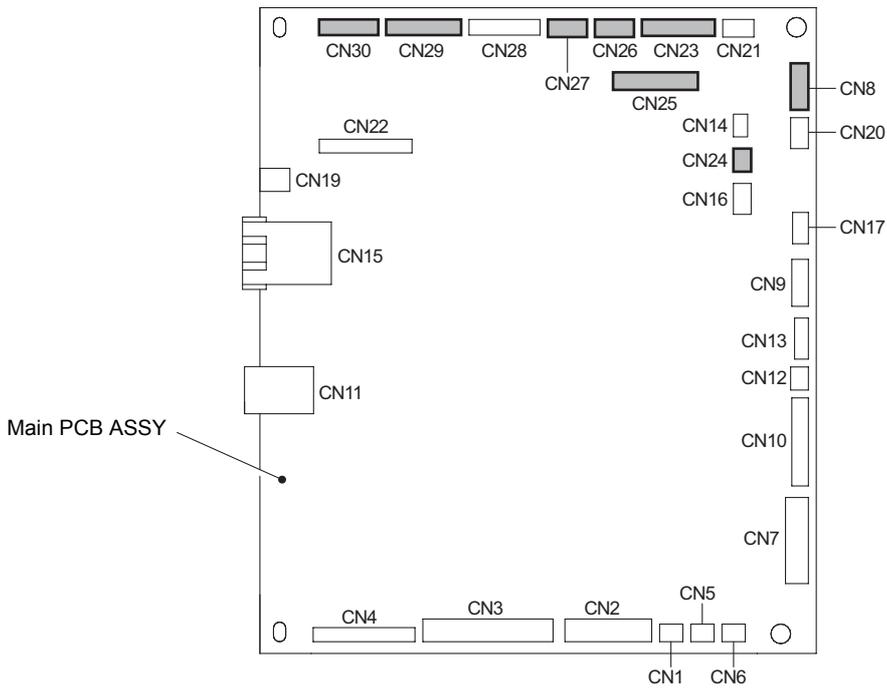


Fig. 3-34

- (6) Remove the all harnesses from the Hook.

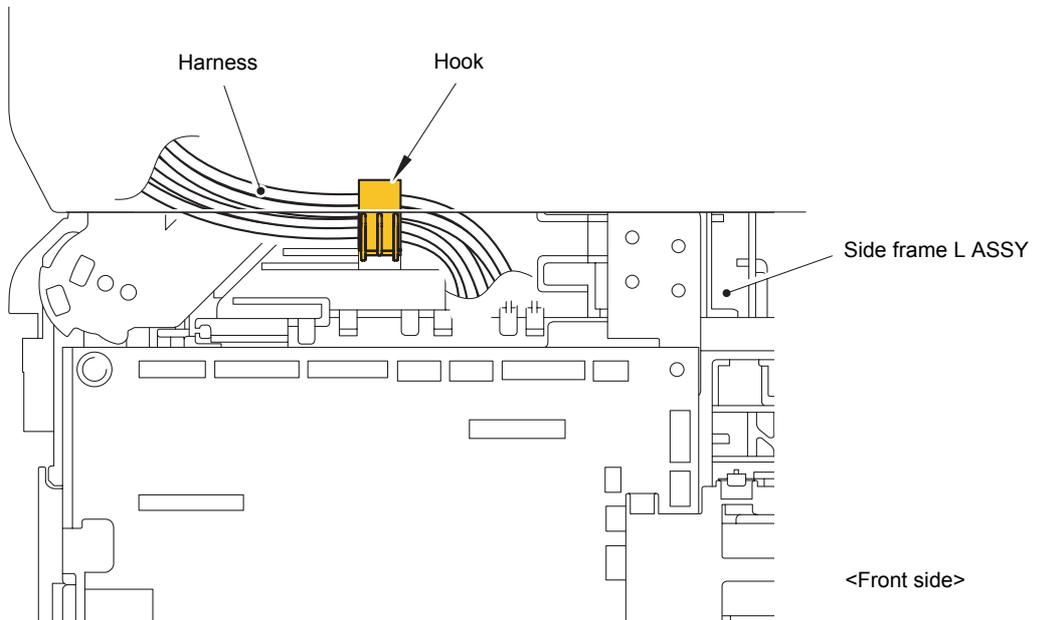


Fig. 3-35

- (7) While pushing up the Lever, open the Joint cover ASSY.

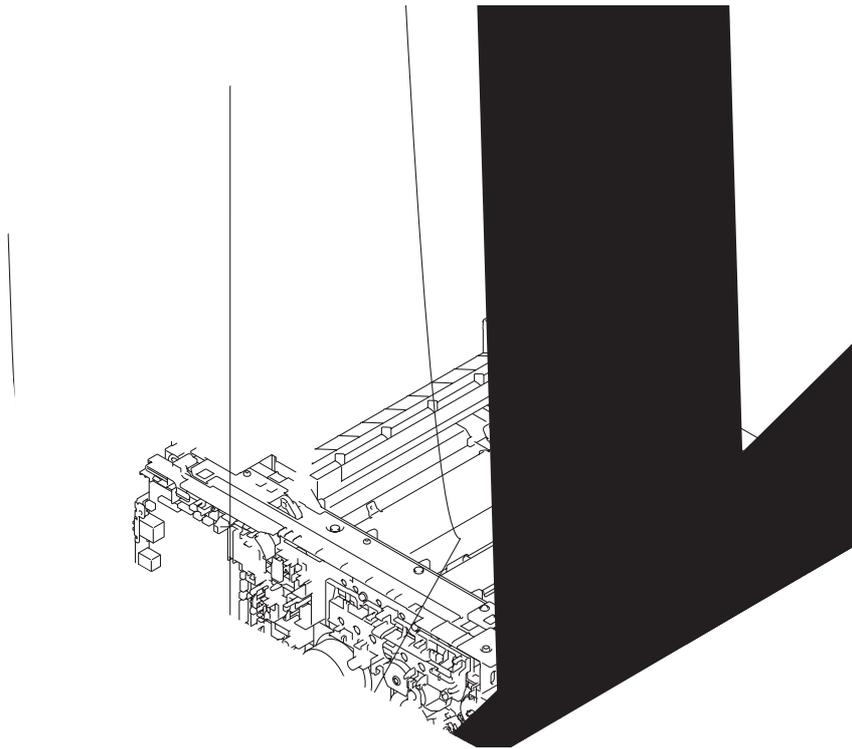


Fig. 3-36

- (8) Release the one Hook and two Bosses to remove the Flat cable holder cover from the Joint cover ASSY.

Fig. 3-37

Harness routing: Refer to " ADF Unit", " Modem PCB ASSY", " Speaker Unit",
" Control Panel ASSY", " Document Scanner Unit"

8.14 Hinge ASSY L/ADF Unit

- (1) Close the Joint cover ASSY.
- (2) While pushing up the Lever, open the Document scanner unit.

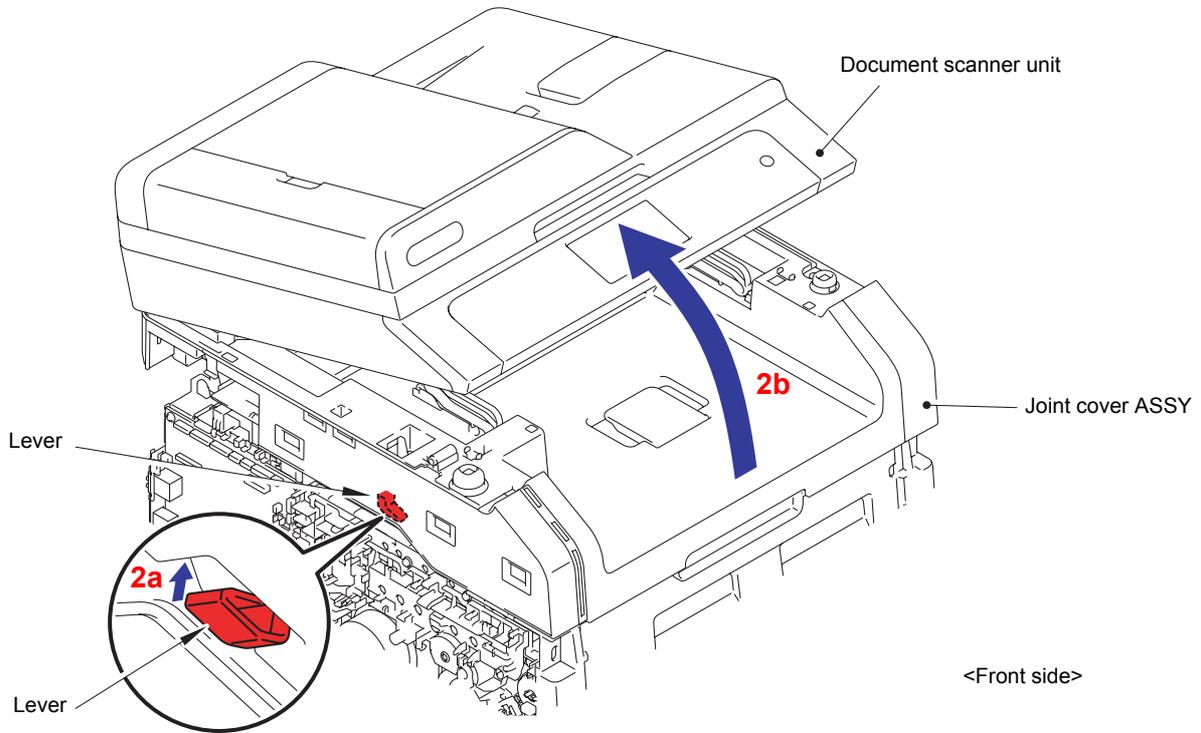


Fig. 3-38

- (3) Pull out the harness from the Joint cover ASSY.
- (4) Pull out the First side CIS flat cable from the Joint cover ASSY.
- (5) Pull out the Second side CIS flat cable from the Joint cover ASSY.

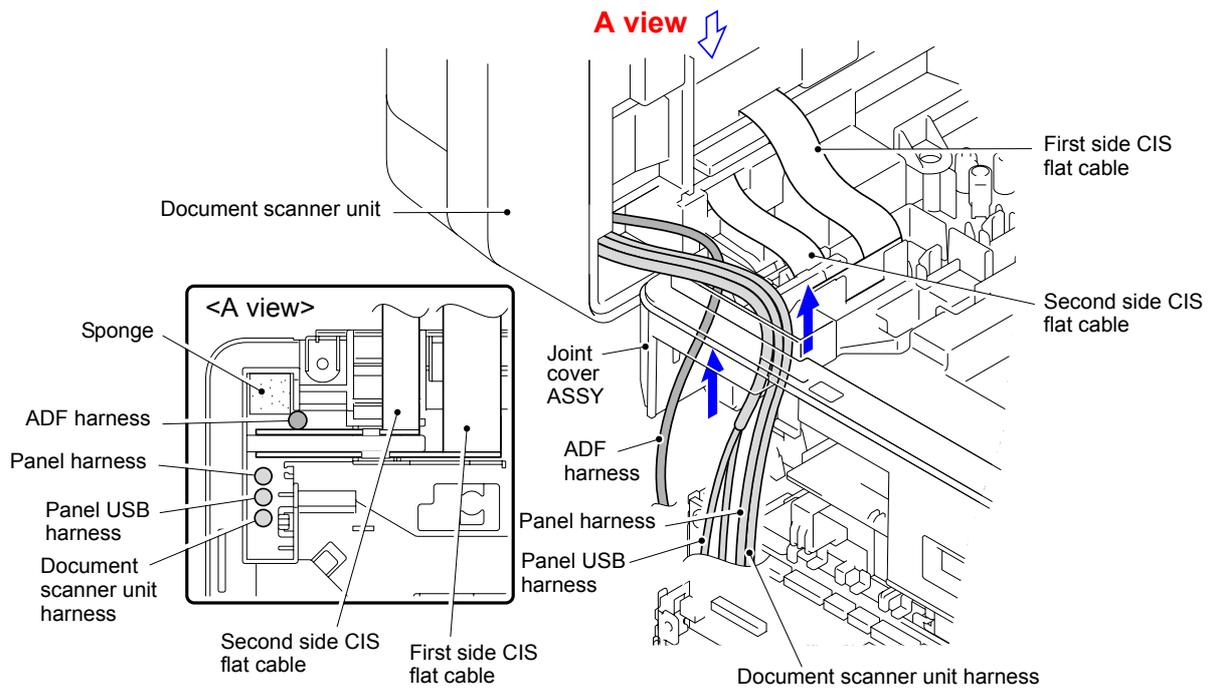


Fig. 3-39

- (6) Change the angle of the Document scanner unit as shown in the figure to remove it from the Main body.

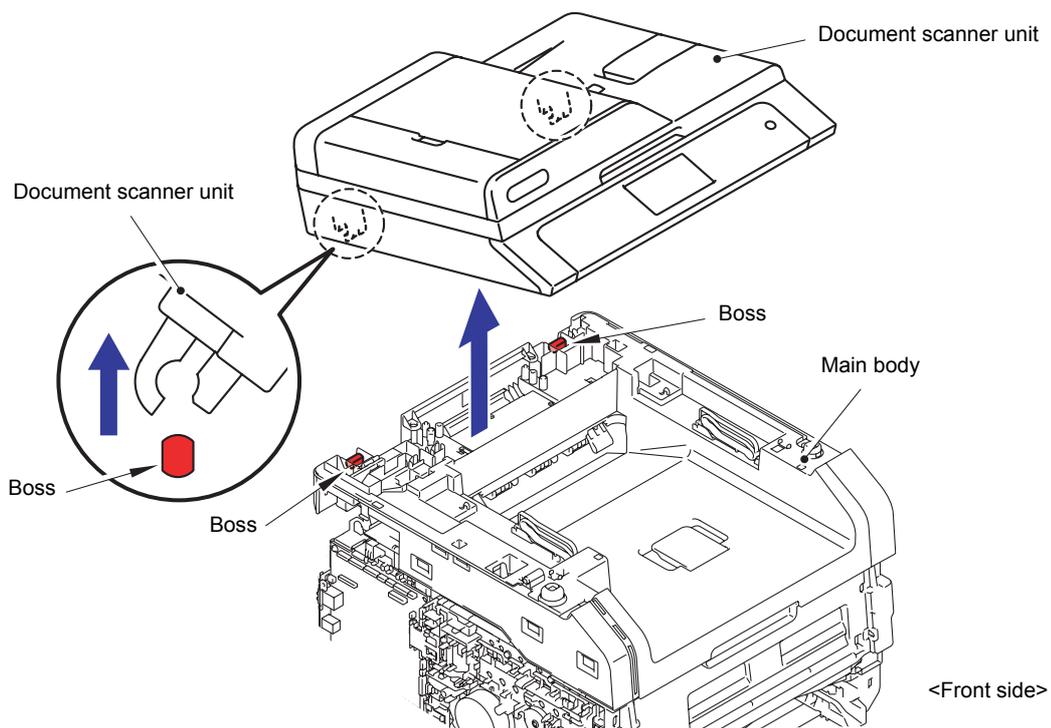


Fig. 3-40

- (7) Remove the Taptite bind B M4x12 screw from the Document scanner unit.

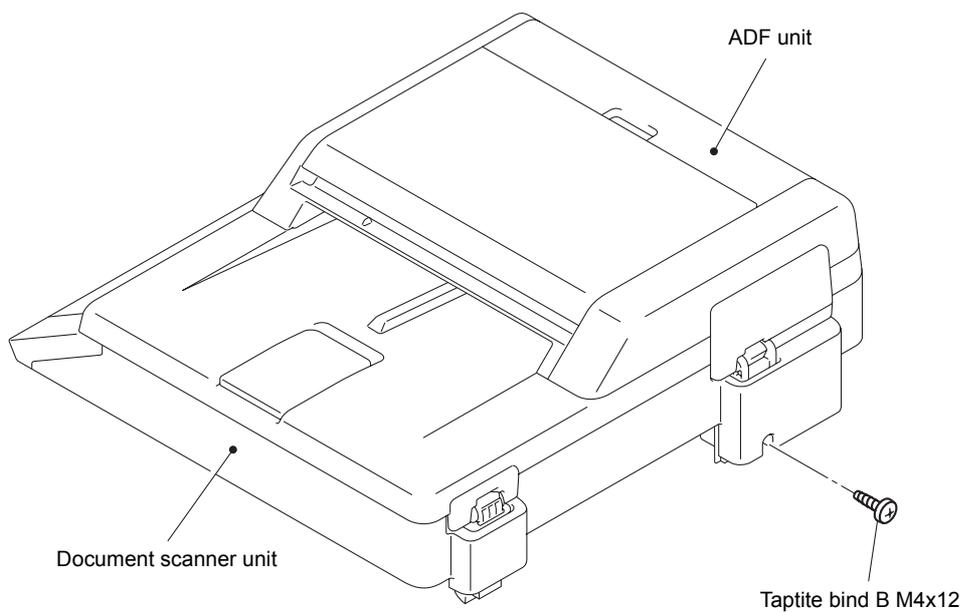


Fig. 3-41

- (8) Open the ADF unit.
- (9) Lift the ADF unit. Release the three Hooks to remove the Hinge R from the Document scanner unit.

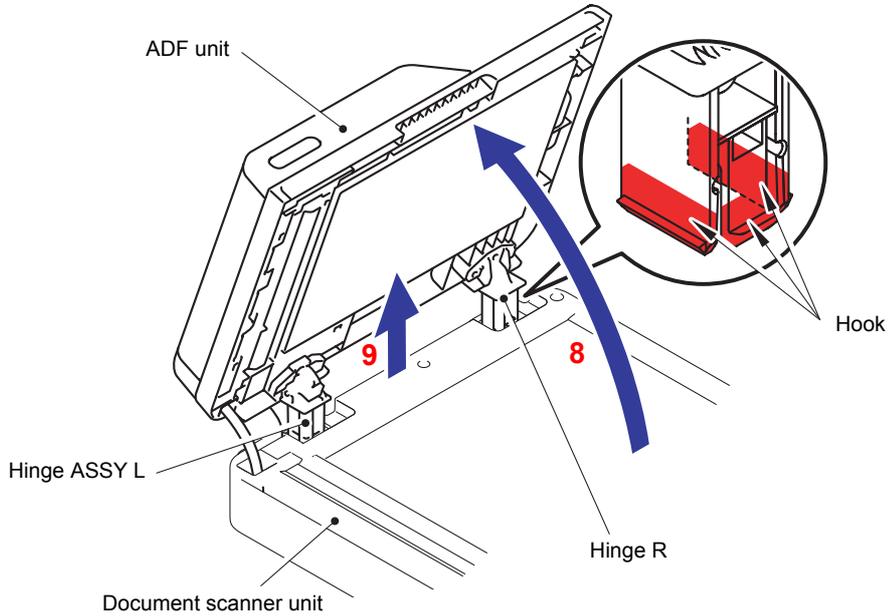


Fig. 3-42

- (10) Release the three Hooks to remove the Flat cable holder ASSY from the Document scanner unit. Pull out the Second side CIS flat cable and Harness from the Document scanner unit.

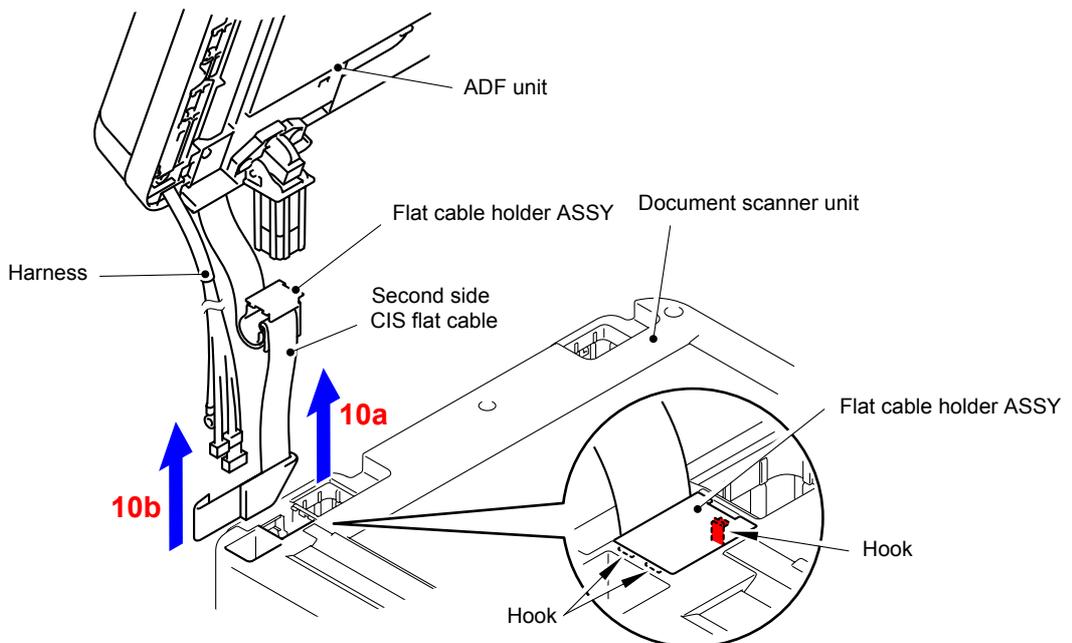


Fig. 3-43

(11) Turn the ADF unit upside down.

(12) Remove the three Taptite cup S 3x12 screws to remove the Hinge ASSY L from the ADF unit.

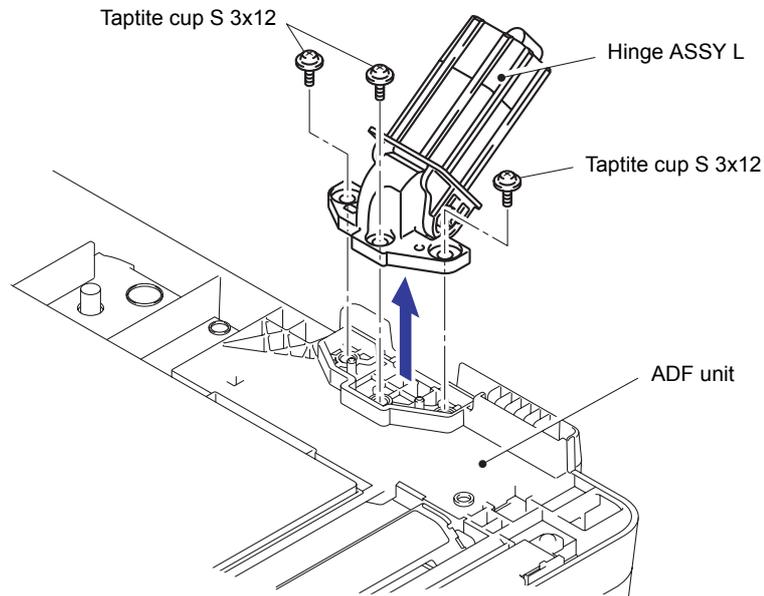


Fig. 3-44

Harness routing: Refer to "[11 ADF Unit](#)", "[15 Document Scanner Unit](#)"

8.15 Hinge R/Hinge R Support

(1) Remove the Taitite cup B 3x10 screw to remove the Hinge R support and Hinge R from the ADF unit.

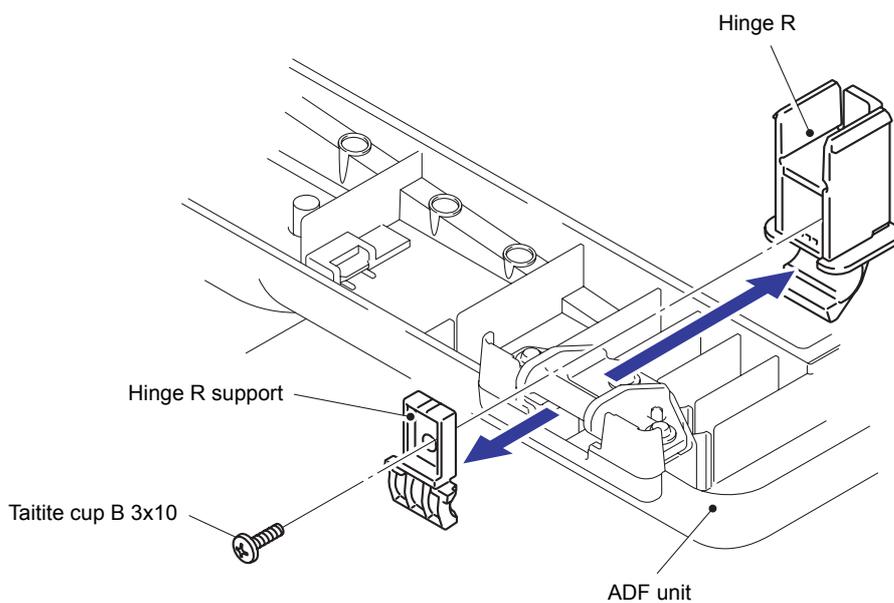


Fig. 3-45

8.16 Flat Cable Holder ASSY

- (1) Remove the Flat cable from the Flat cable holder ASSY by removing the Double-sided adhesive tape.

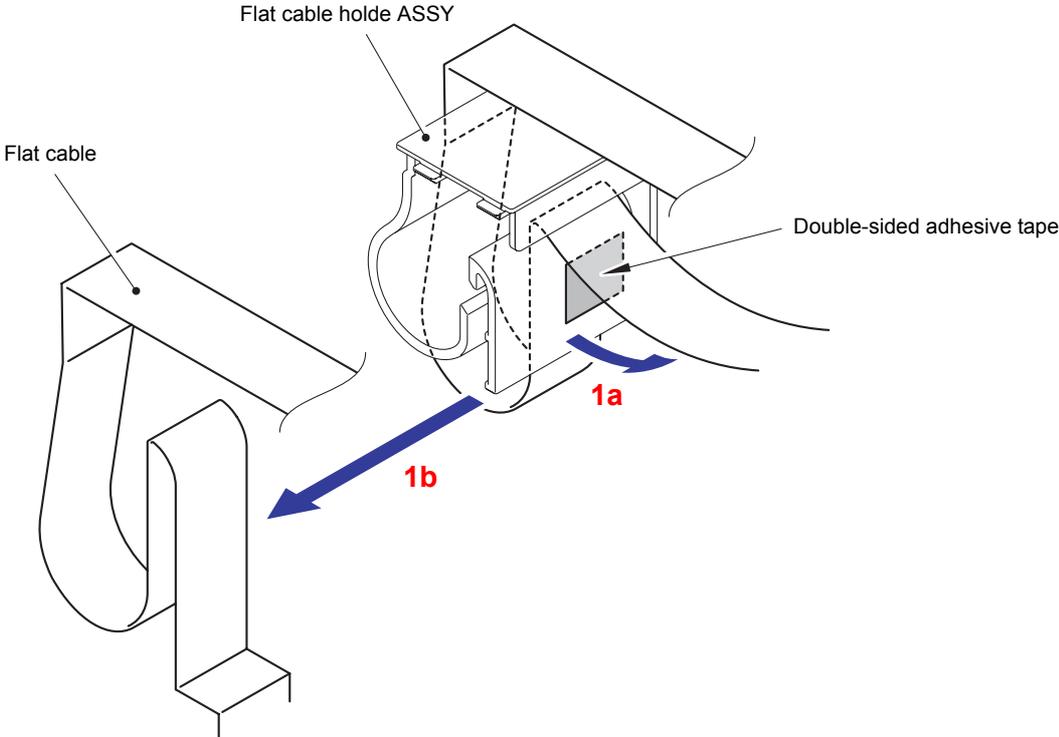


Fig. 3-46

8.17 Hinge Arm R

- (1) Remove the three Taptite cup B 3x10 screws to remove the Hinge arm R from the ADF unit.

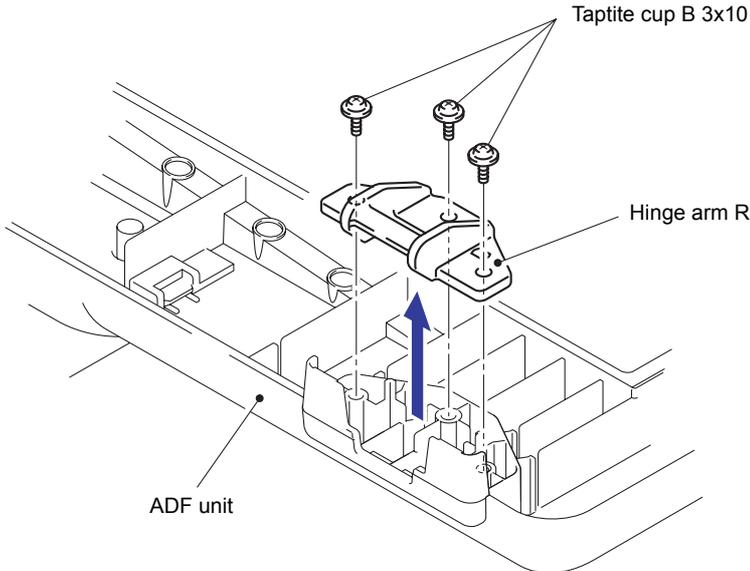


Fig. 3-47

8.18 ADF Document Output Support Flap

- (1) Return the ADF unit to the original position.
- (2) Remove the two Pins to remove the ADF document output support flap from the ADF unit.

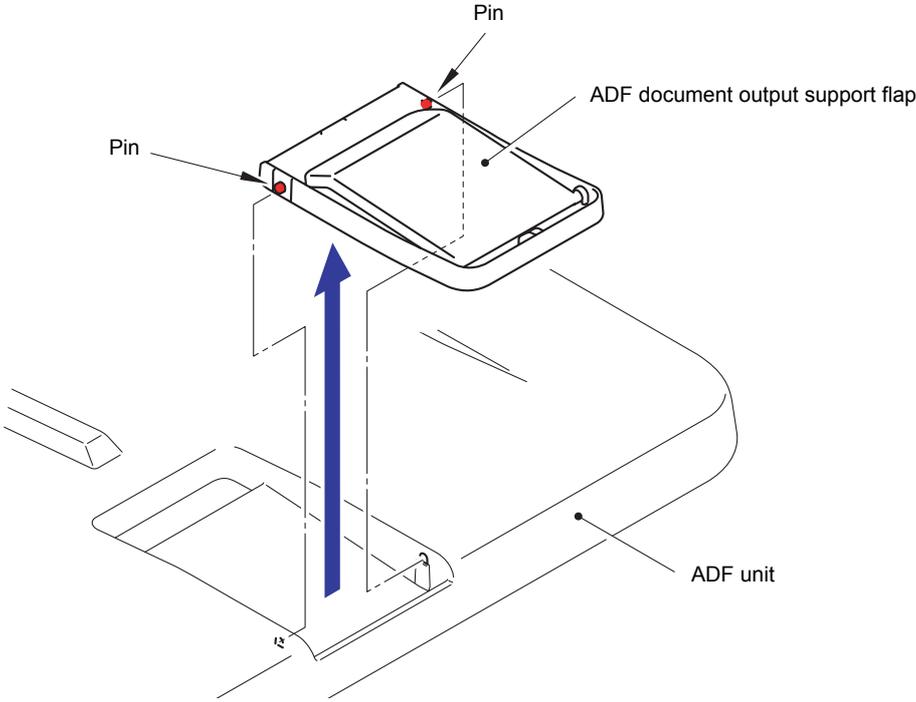


Fig. 3-48

8.19 ADF Document Support

- (1) Open the ADF document support.
- (2) Remove the two Pins to remove the ADF document support from the ADF unit.

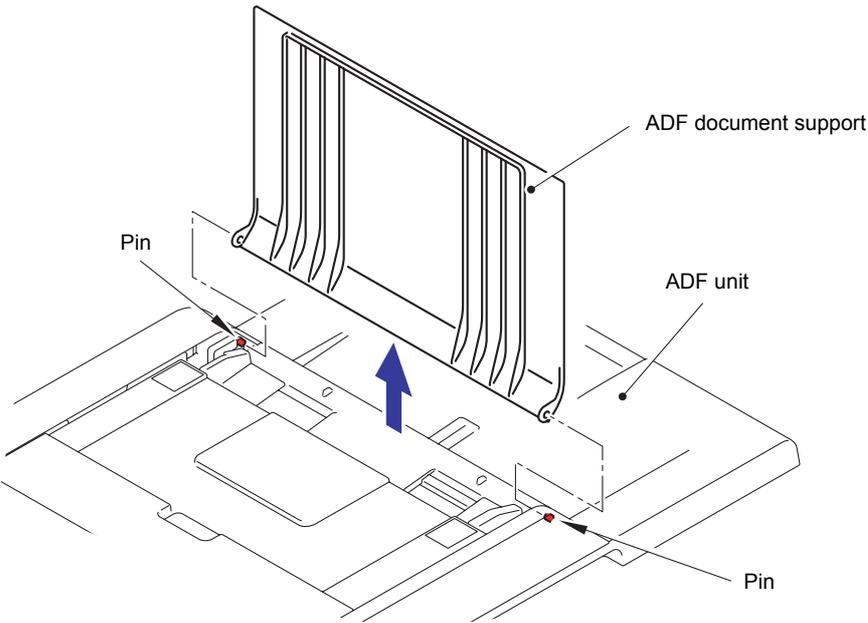


Fig. 3-49

8.20 ADF Cover ASSY

- (1) Open the ADF cover ASSY.
- (2) Remove the two Pins to remove the ADF cover ASSY from the ADF unit.

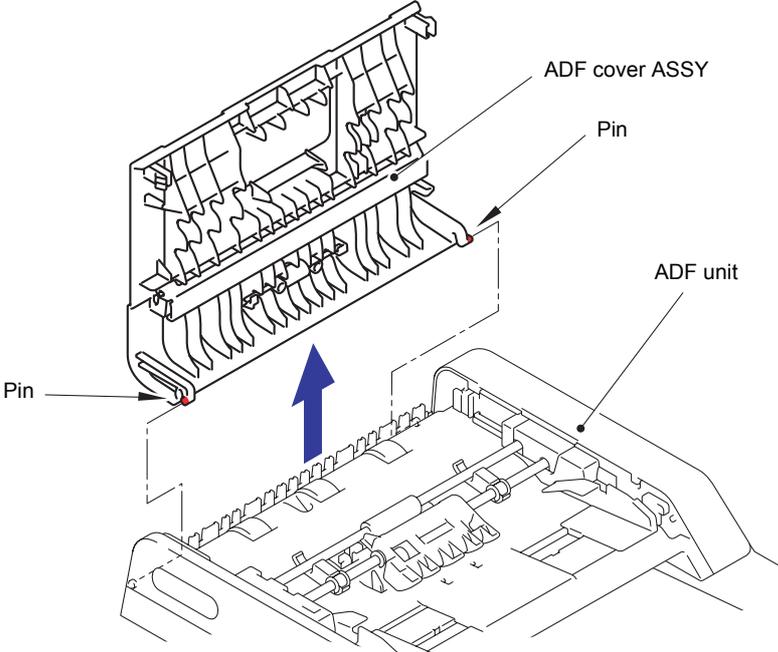


Fig. 3-50

8.21 Gear Cover

(1) Release the two Hooks of the ADF unit.

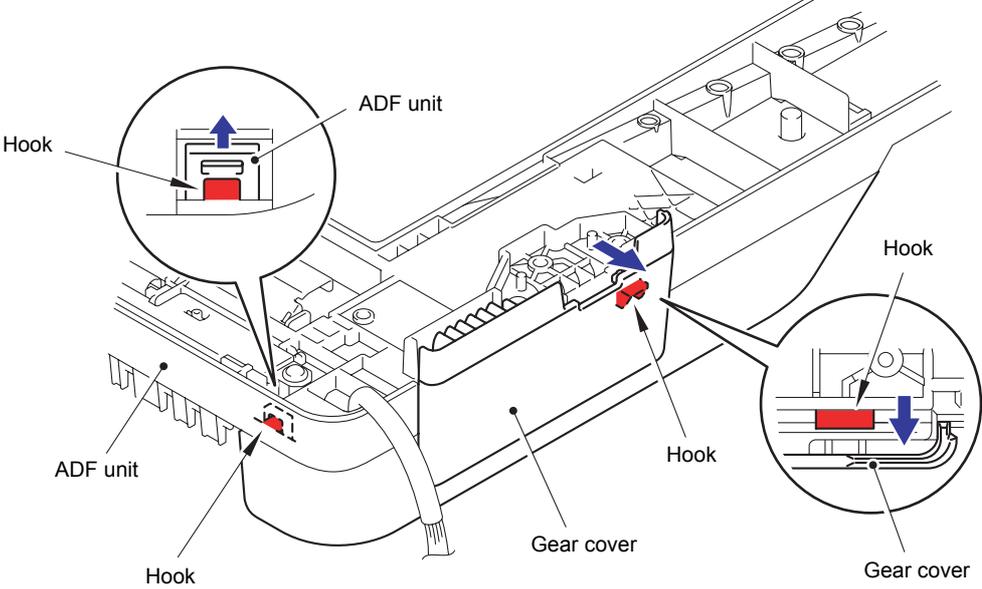


Fig. 3-51

(2) Remove the Gear cover from the ADF unit.

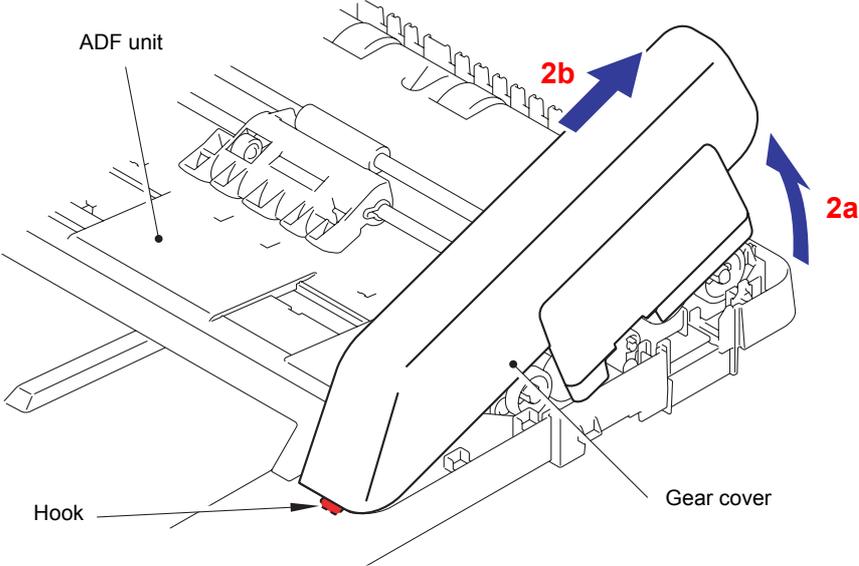


Fig. 3-52

8.22 Document Separate Roller ASSY

(1) Rotate the Conductive bushing to release the lock.

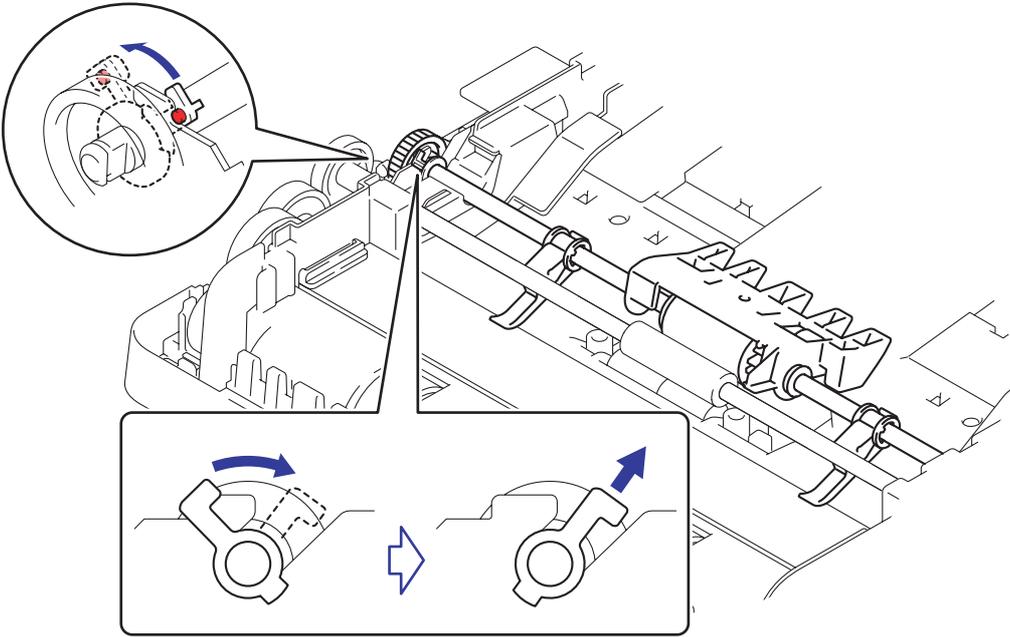


Fig. 3-53

(2) Remove the Document separate roller ASSY from the ADF unit.

Note:
When removing the Document separate roller ASSY, be careful not to damage the Flap ADF.D

Fig. 3-54

Assembling Note:

When assembling the Document separate roller ASSY, be sure to assemble it in a way that the Flap ADF comes under the Document feed roller ASSY2.

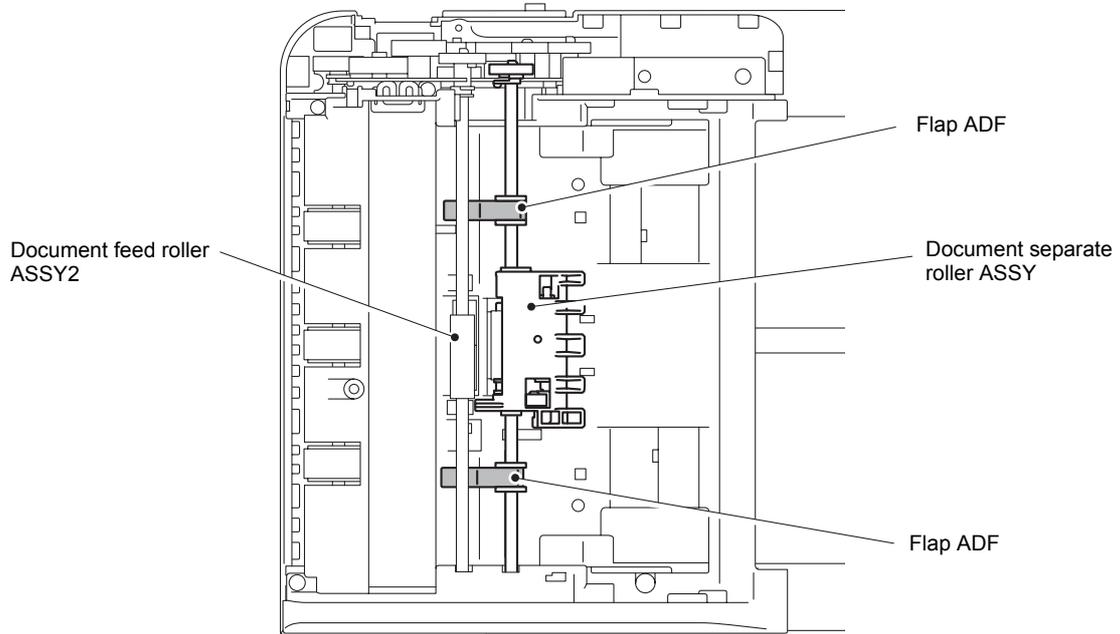


Fig. 3-55

8.23 ADF Separation Pad Spring/ ADF Separation Pad Holder ASSY

(1) Remove the two Pins to remove the ADF separation pad holder ASSY from the Upper ADF chute.

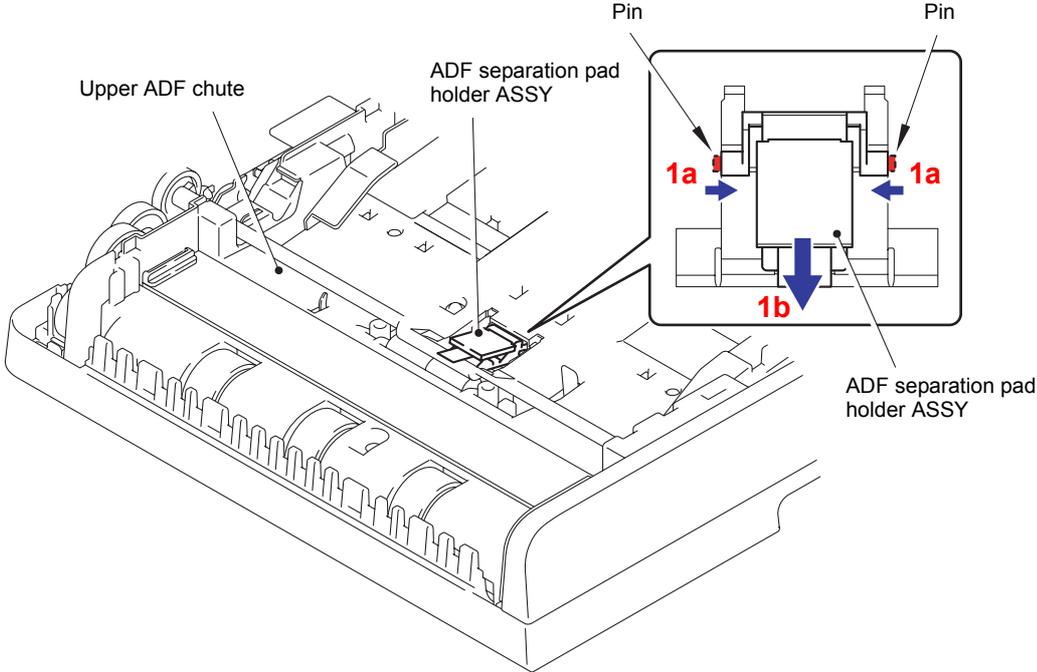


Fig. 3-56

(2) Remove the ADF separation pad spring from the Upper ADF chute.

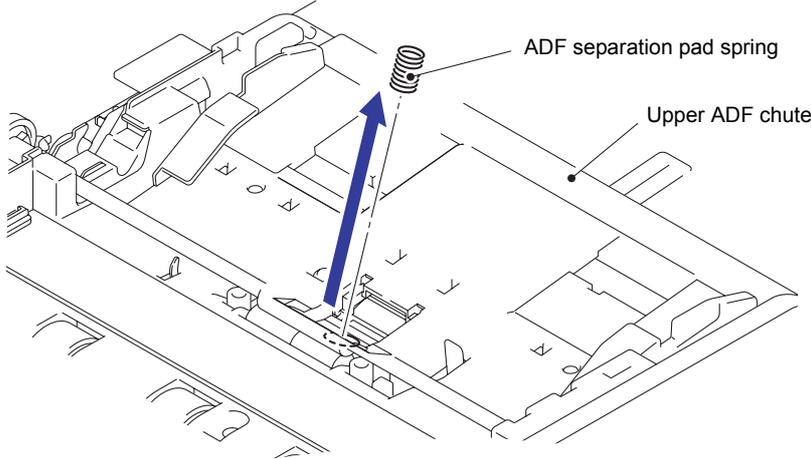


Fig. 3-57

8.24 Second Side CIS Unit/Second Side CIS Flat Cable

Note:
Disassemble it in a place without dust.

(1) Rotate the Conductive bushing to release the lock.

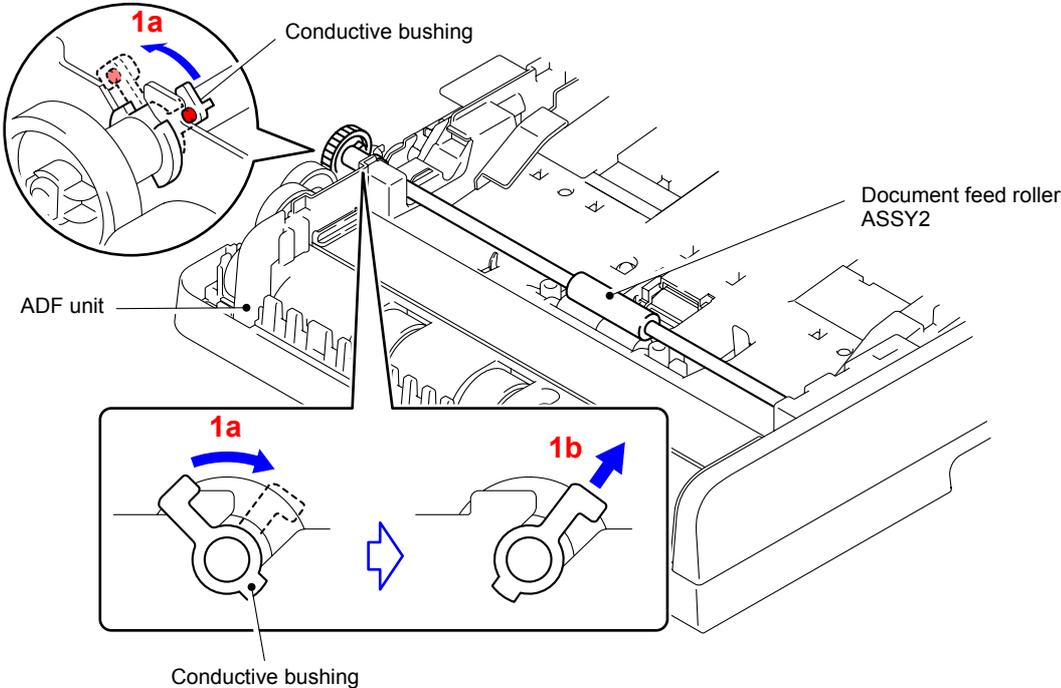


Fig. 3-58

(2) Remove the Document feed roller ASSY2 from the ADF unit.

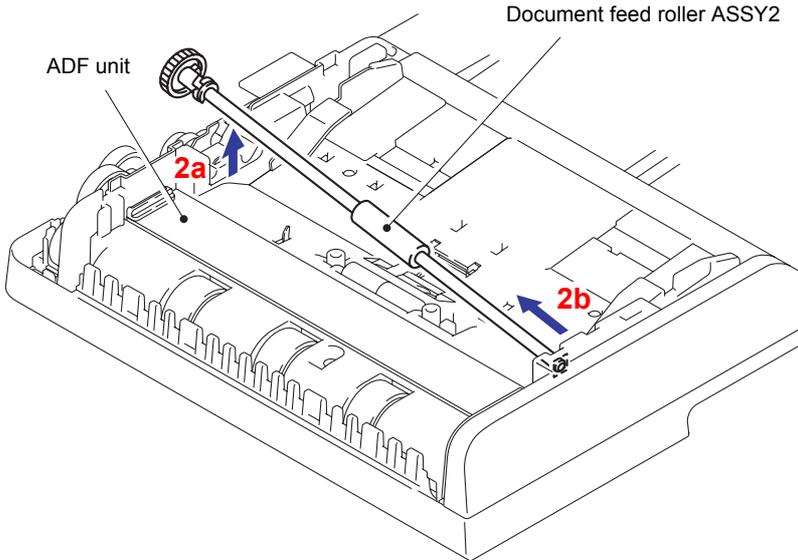


Fig. 3-59

(3) Release the two Hooks to remove the CIS glass stopper from the ADF unit.

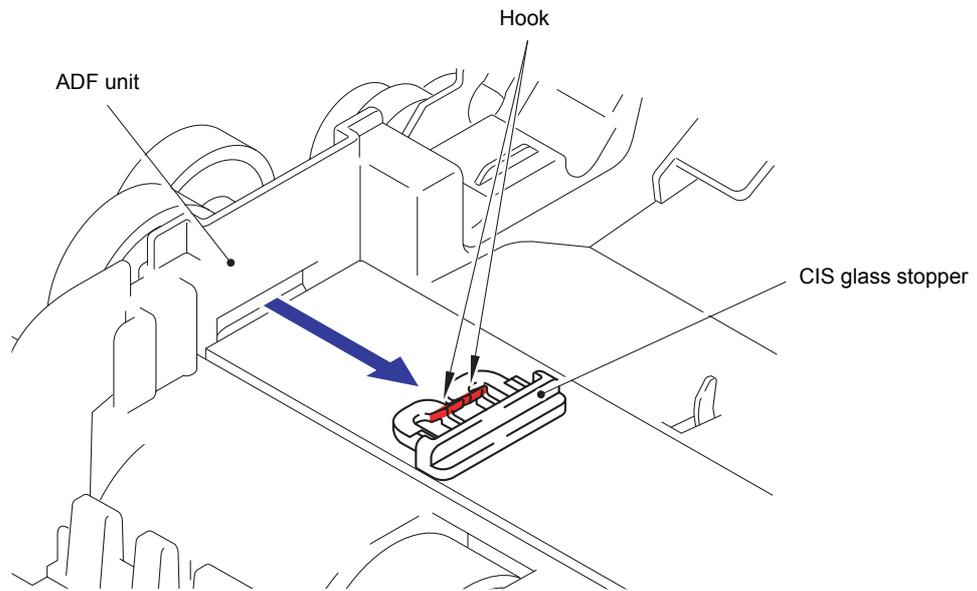


Fig. 3-60

(4) Remove the CIS glass from the ADF unit.

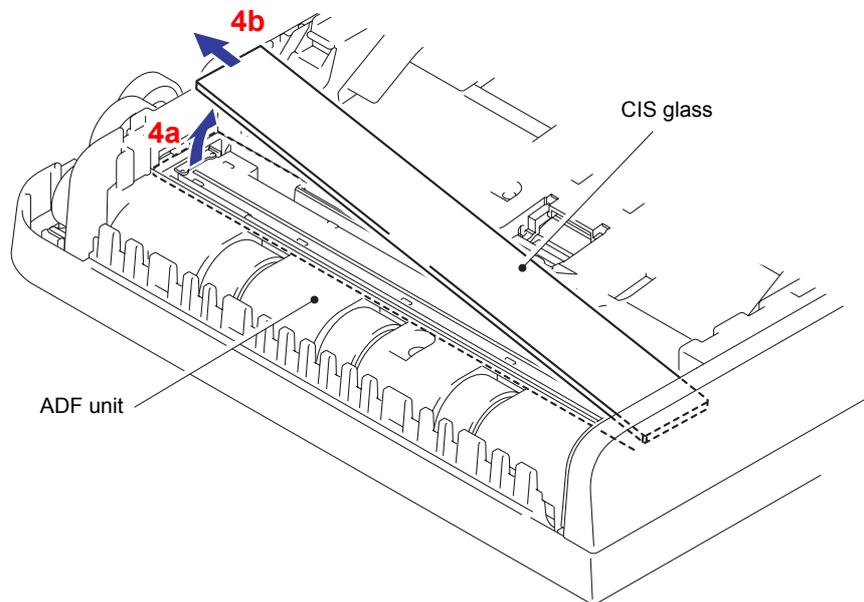


Fig. 3-61

- (5) Remove the CIS spacer from the both ends of the Second side CIS unit.

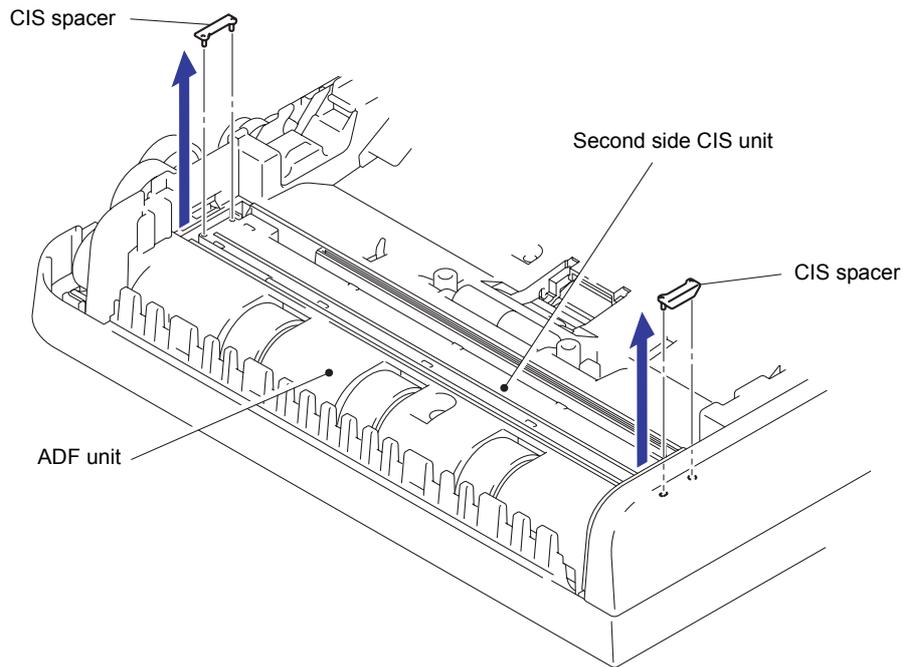


Fig. 3-62

- (6) Remove the Double-sided adhesive tape of the Scanning CIS flat cable from the ADF unit.
(7) Lift the Second side CIS unit to remove the Second side CIS flat cable.

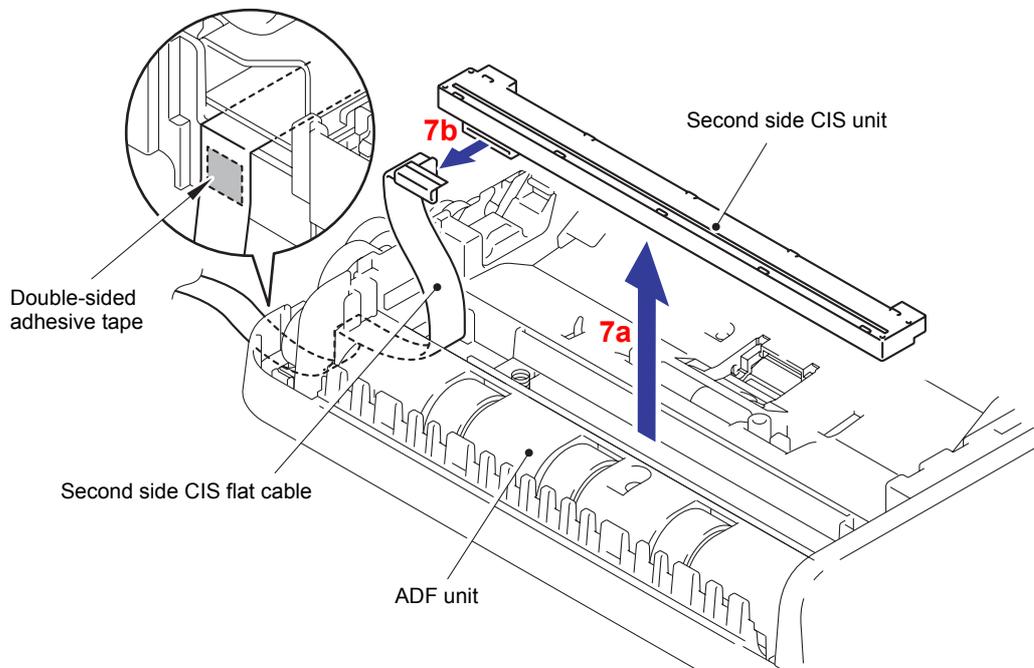


Fig. 3-63

(8) Remove the two CIS springs from the ADF unit.

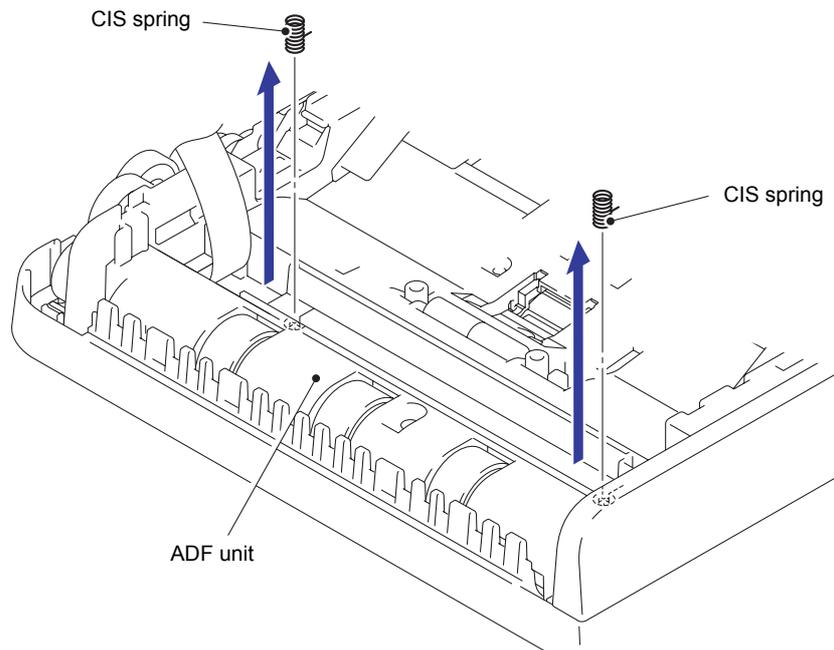


Fig. 3-64

(9) Remove the Second side CIS flat cable from the ADF unit.

(10) Remove the Flat cable sponge 2 from the Second side CIS flat cable.

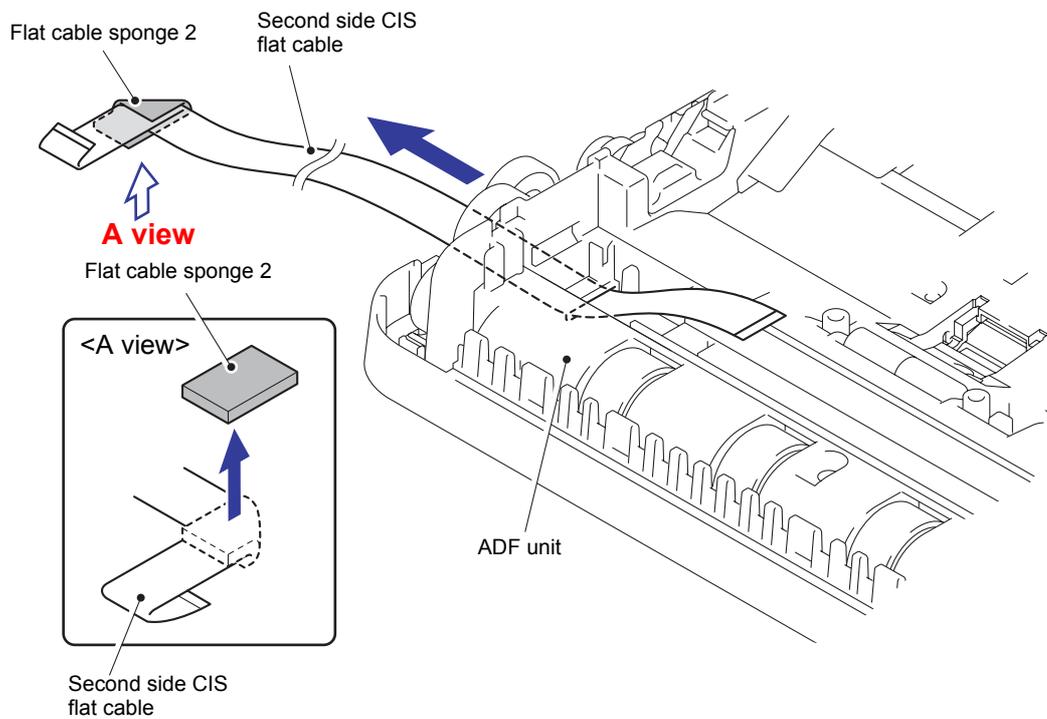


Fig. 3-65

Assembling Note:

Since the Second side CIS flat cable might be broken when you remove it from the Flat cable holder ASSY, be sure to replace it with a new Second side CIS flat cable. When assembling a new Second side CIS flat cable, be sure to assemble it in accordance with the following procedure.

< Assembling procedure >

- (1) Fold the Second side CIS flat cable at the Second side CIS unit side as shown in the how-to-fold figure below.

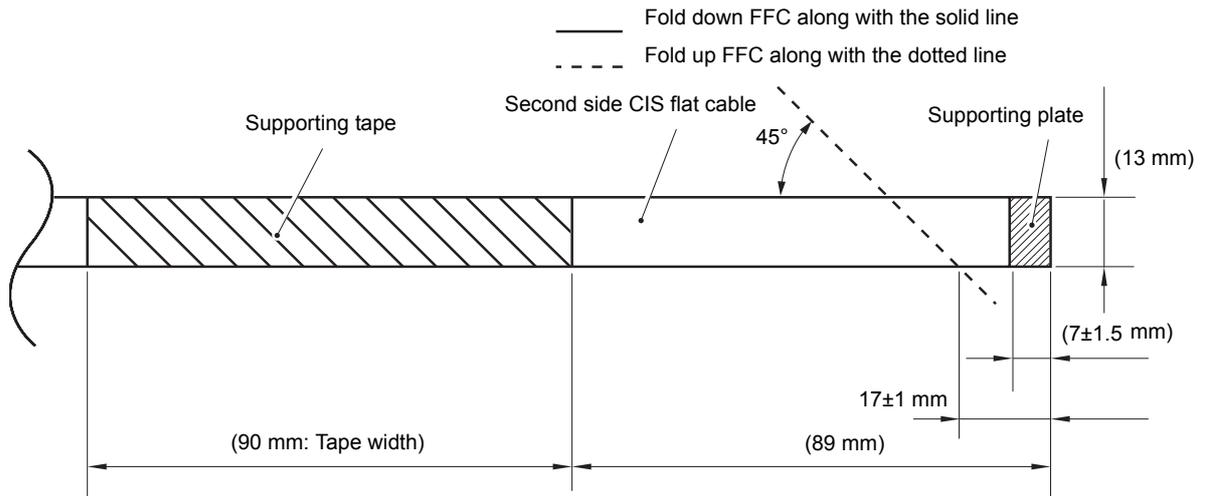


Fig. 3-66

- (2) Mount the Second side CIS flat cable at the Second side CIS unit side to the Second side CIS unit.

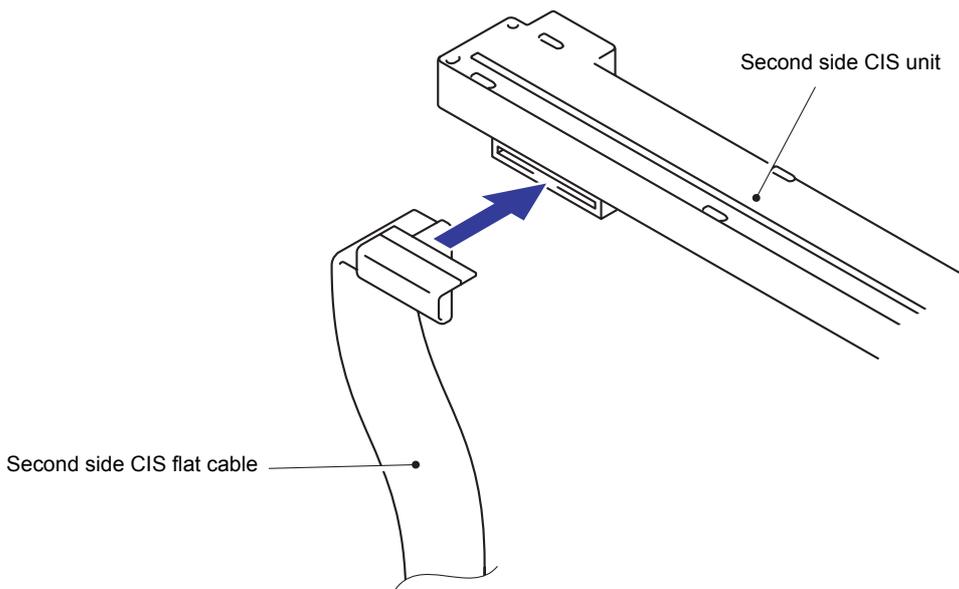


Fig. 3-67

(3) Pass the Second side CIS flat cable through the ADF unit.

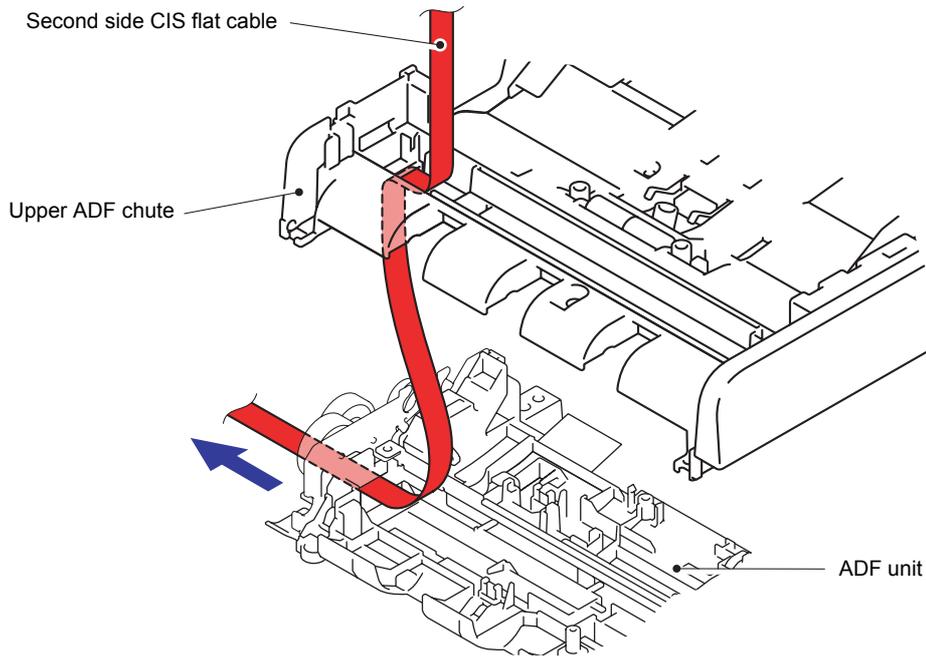


Fig. 3-68

(4) Affix Double-sided adhesive tape to the Flat cable holder ASSY as shown in the figure below. (If the Double-sided adhesive tape has already been affixed, be sure to remove it, and then affix new Double-sided adhesive tape.)

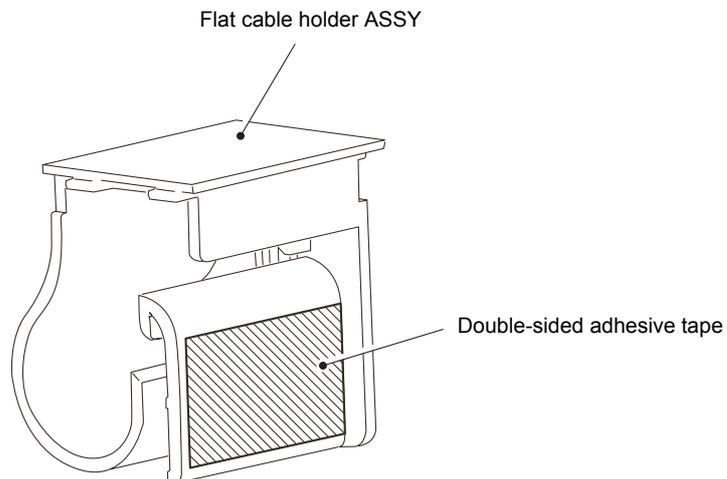


Fig. 3-69

- (5) Fold the Second side CIS flat cable at the position 208 mm away from the Second side CIS unit side.

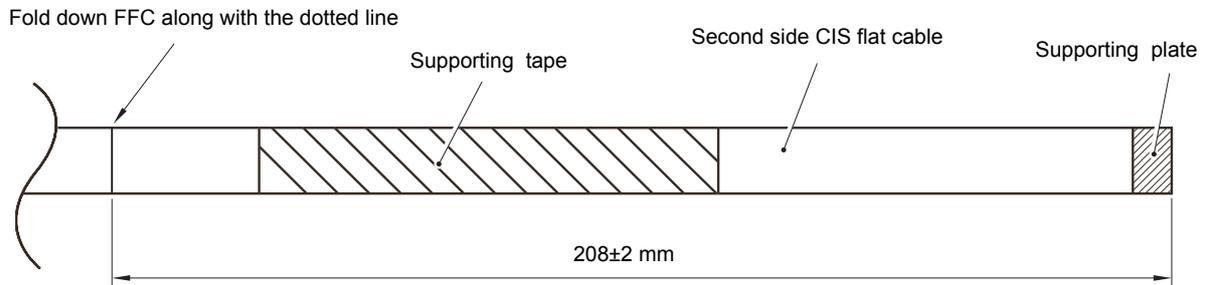


Fig. 3-70

- (6) Align the Second side CIS flat cable to the angle of the Rib of the Flat cable holder ASSY and pass it through the Flat cable holder ASSY as shown in the figure below, and then affix it to the double-sided adhesive tape affixed to the Flat cable holder ASSY.

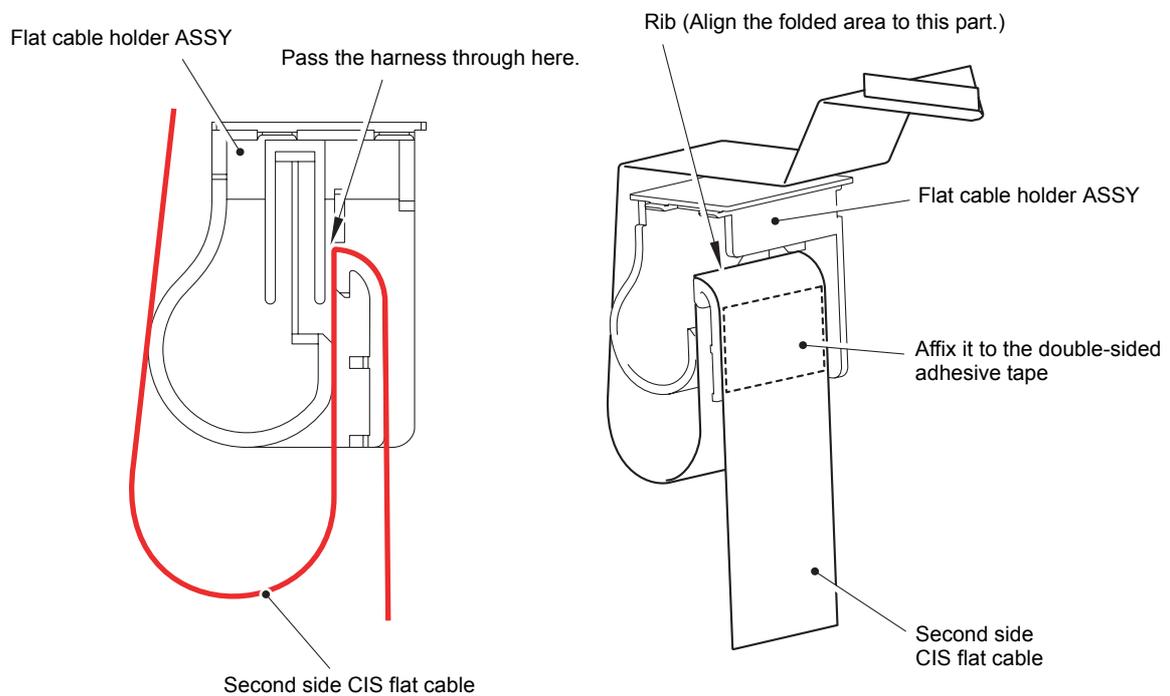


Fig. 3-71

(7) Pass the Second side CIS flat cable through the Document scanner unit.

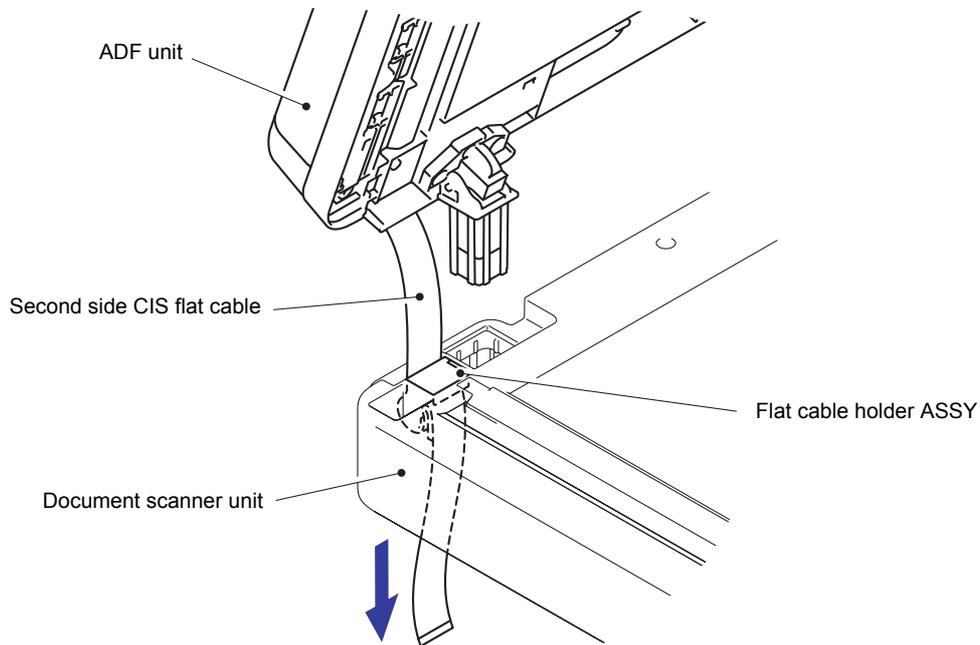


Fig. 3-72

(8) Fold the Second side CIS flat cable at the Main PCB ASSY side.

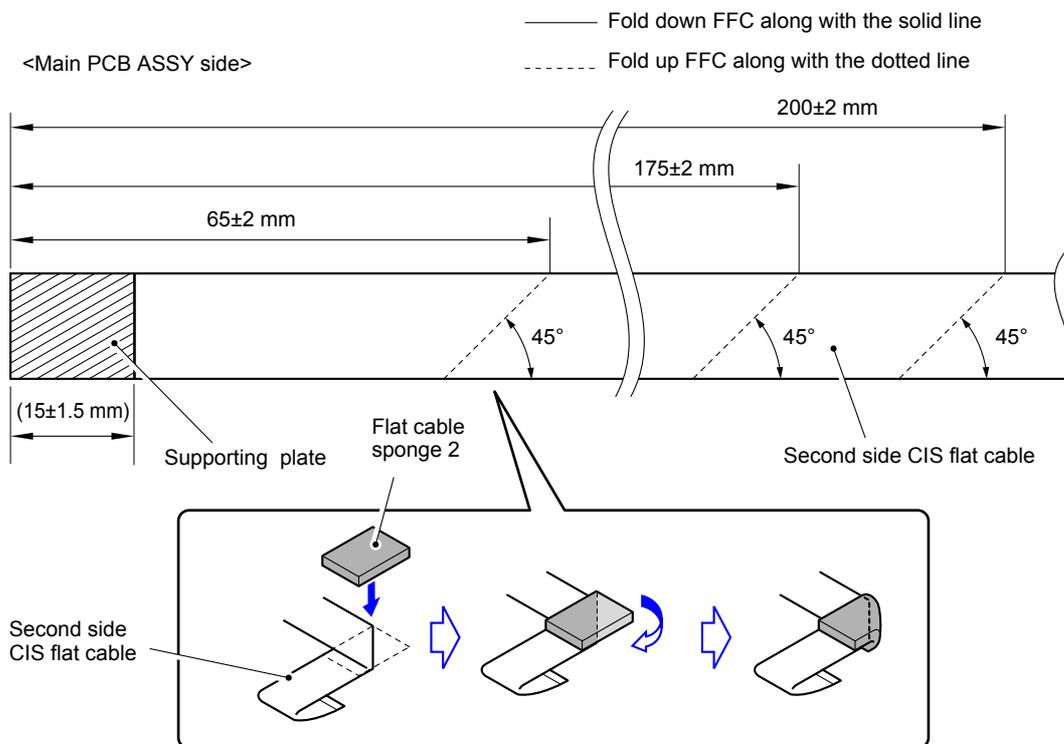


Fig. 3-73

(9) Mount the Second side CIS flat cable at the Main PCB ASSY side to the Main PCB ASSY.

8.25 Paper Stack Lever

- (1) Turn the ADF unit upside down.
- (2) Remove the Taptite cup B 3x10 screw from the ADF unit.

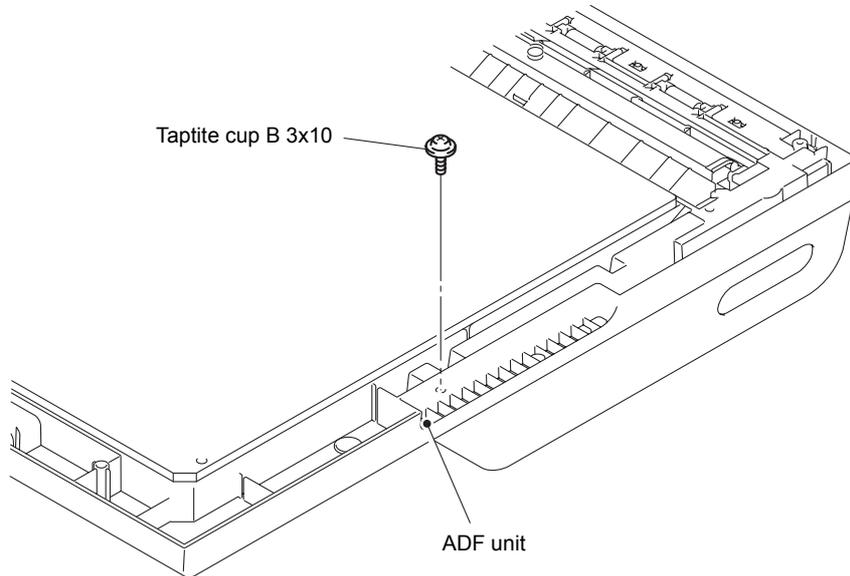


Fig. 3-74

- (3) Return the ADF unit to the original position.
- (4) Remove the five Taptite cup B 3x10 screws from the Upper ADF chute.
- (5) Remove the Upper ADF chute from the ADF unit.

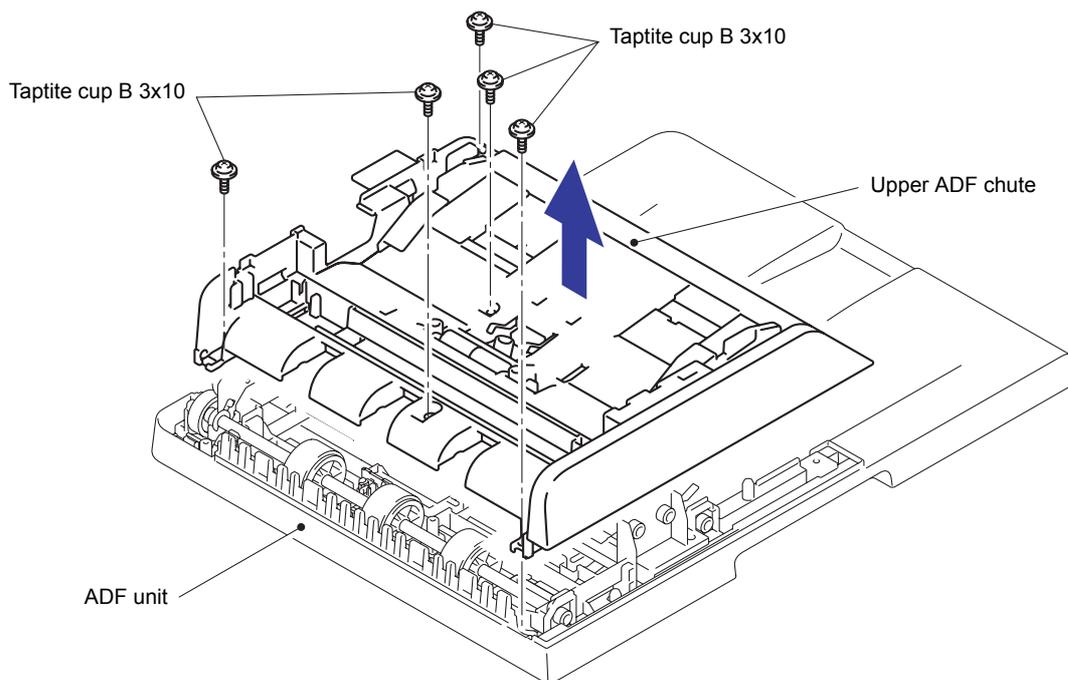


Fig. 3-75

- (6) Turn the Upper ADF chute upside down.
- (7) Remove the two Pins to remove the Paper stack lever from the left side of the Upper ADF chute.
- (8) Remove the other Paper stack lever in the same way.

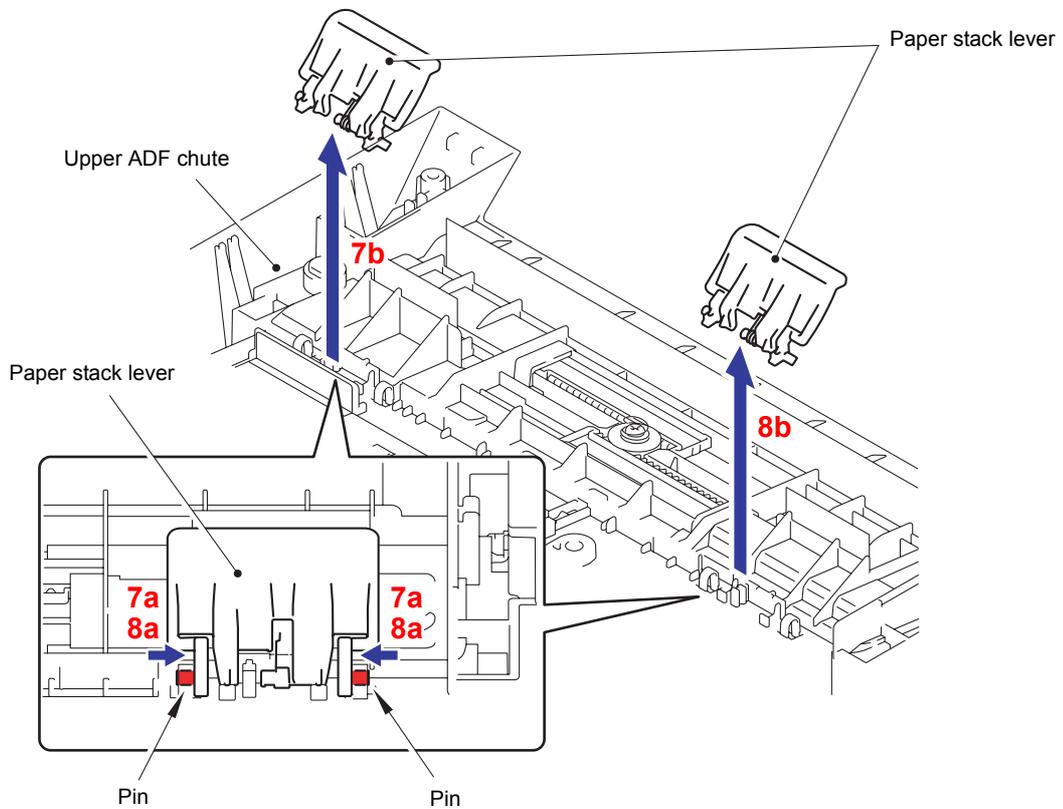


Fig. 3-76

Assembling Note:

When assembling the Paper stack lever, be sure to assemble the Paper stack lever spring as shown in the figure below.

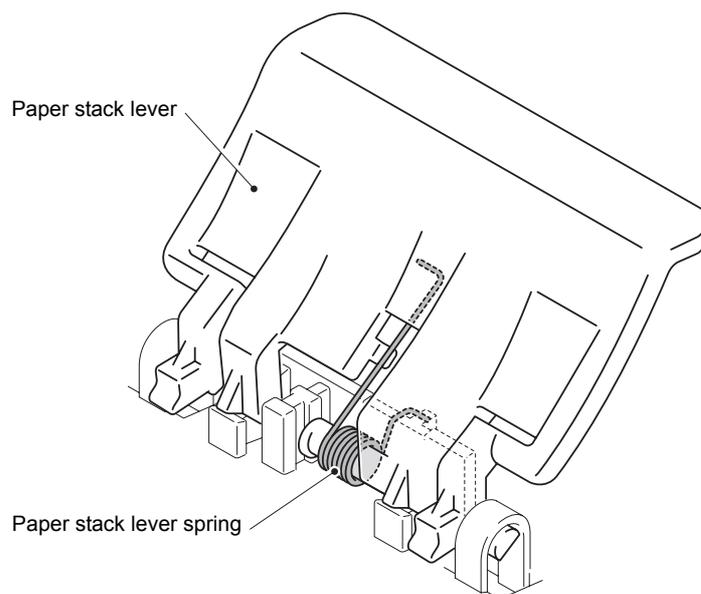


Fig. 3-77

8.26 ADF Cover/Document Detection Sensor PCB ASSY

- (1) Push the rib in the arrow direction and detach the ADF cover/document detection sensor PCB ASSY from the Lower ADF chute.

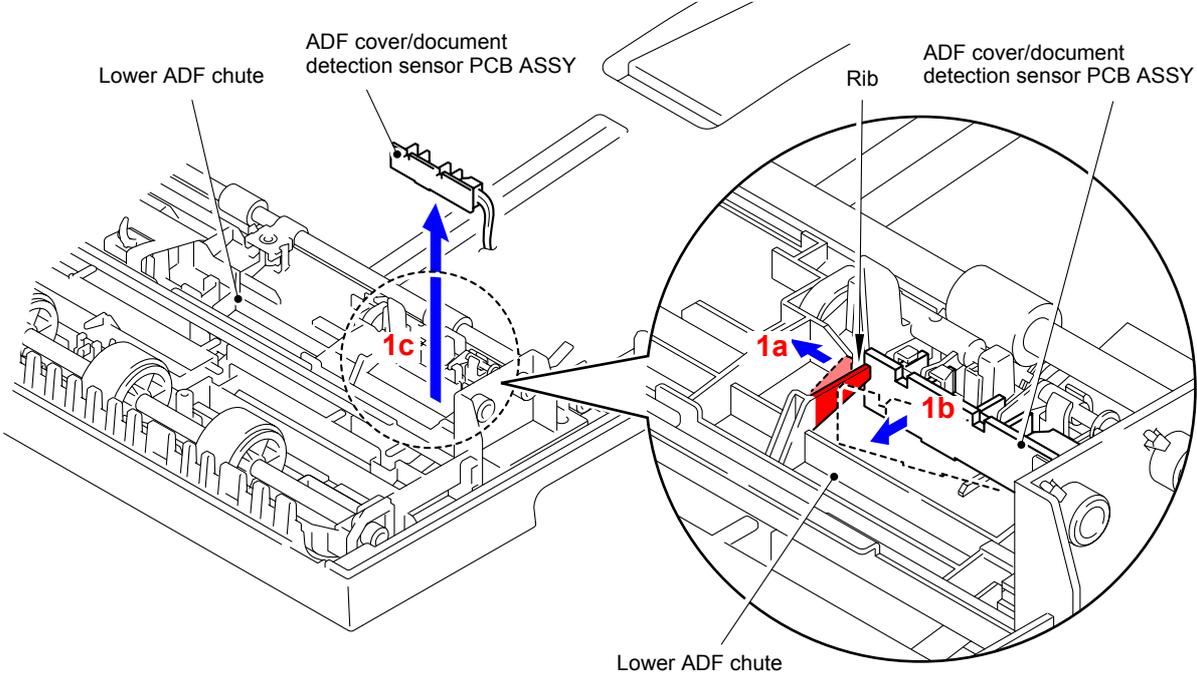


Fig. 3-78

- (2) Disconnect the Connector from the ADF cover/document detection sensor PCB ASSY.

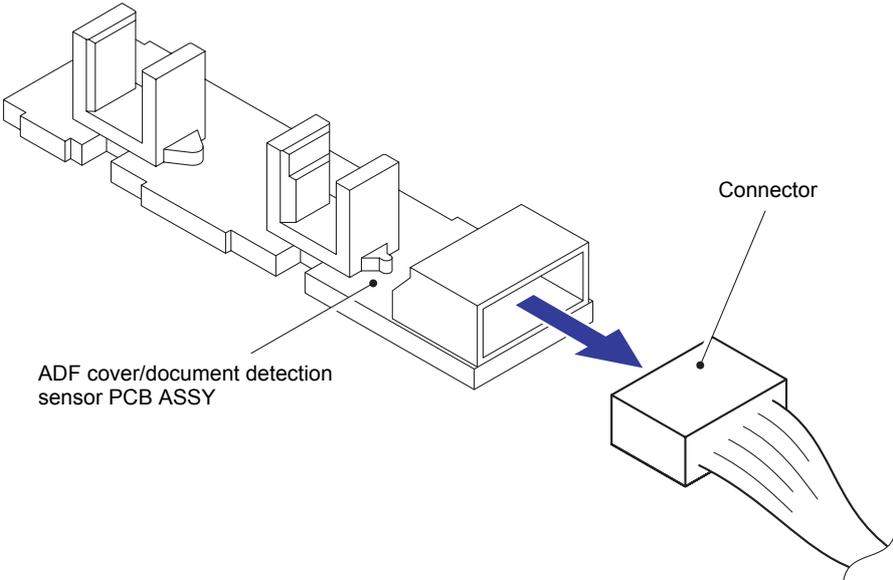


Fig. 3-79

8.27 First Side Document Scanning Position Sensor PCB ASSY/Second Side Document Scanning Position Sensor PCB ASSY (Duplex Scanning Models Only)

- (1) Flip the Film to the opposite side, push the rib in the arrow direction, and detach the Second side document scanning position sensor PCB ASSY from the Lower ADF chute.

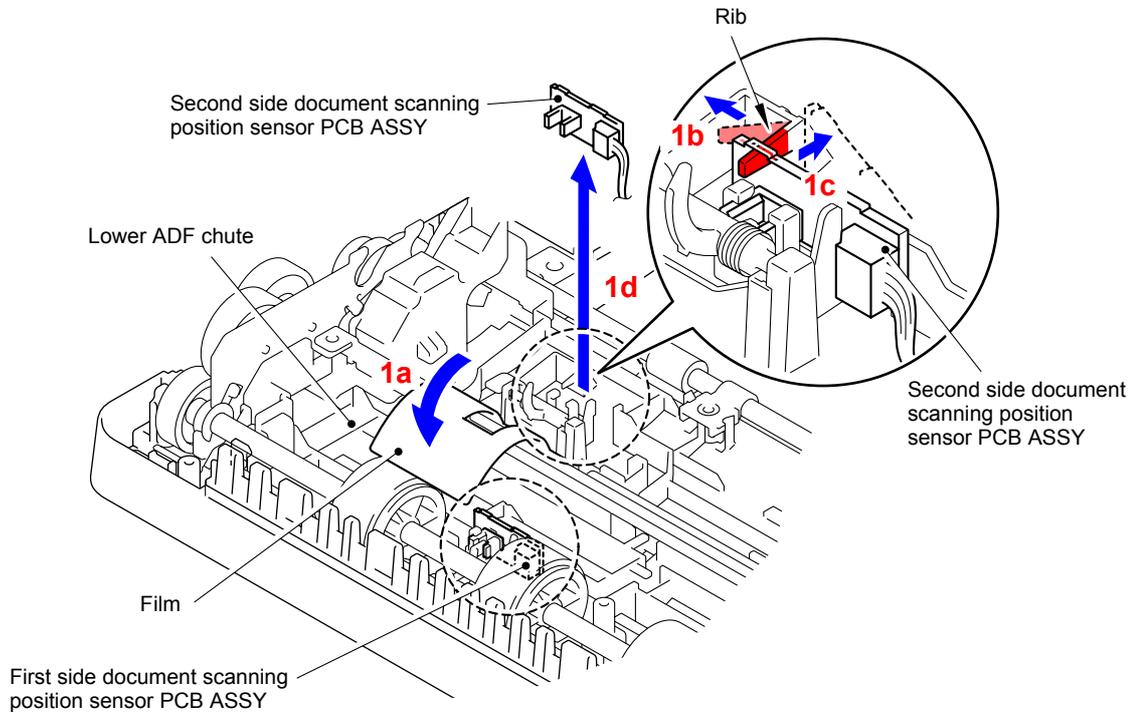


Fig. 3-80

- (2) Disconnect the Connector from the Second side document scanning position sensor PCB ASSY.

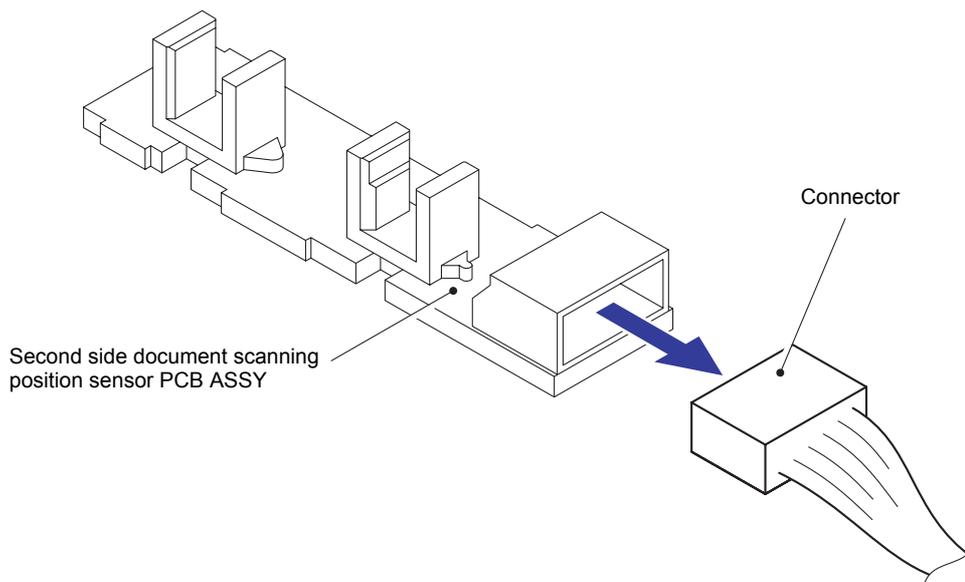


Fig. 3-81

- (3) Remove the First side document scanning position sensor PCB ASSY in the same way.

8.28 Eject Film

- (1) Remove the three Taptite cup B 3x10 screws from the Lower ADF chute.
- (2) Release the Hook to remove the Lower ADF chute from the Document cover ASSY.

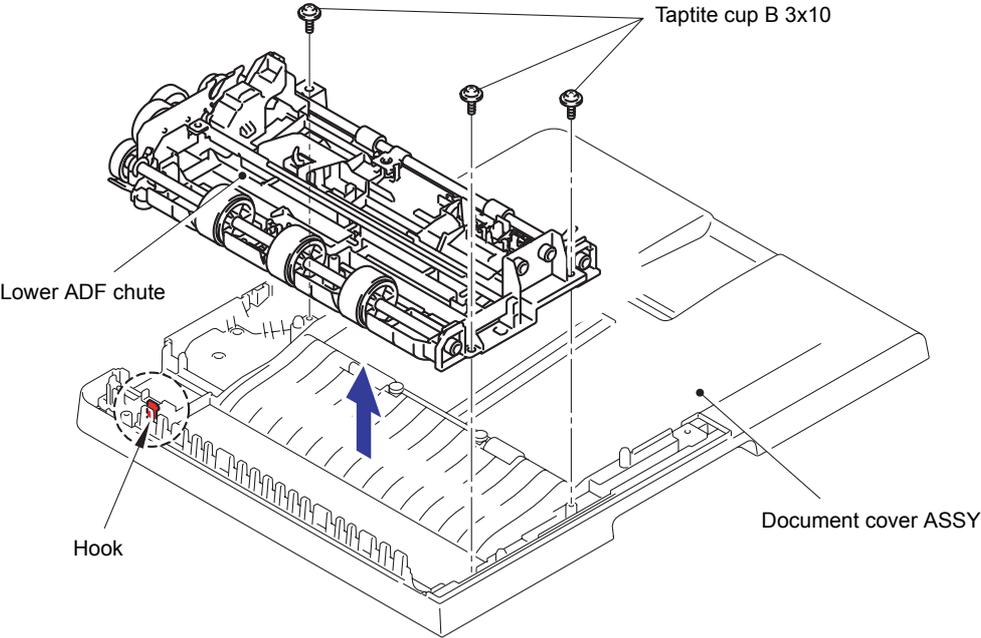


Fig. 3-82

- (3) Release the two Hooks to remove the Document ejection roller bushing from the Document ejection roller.

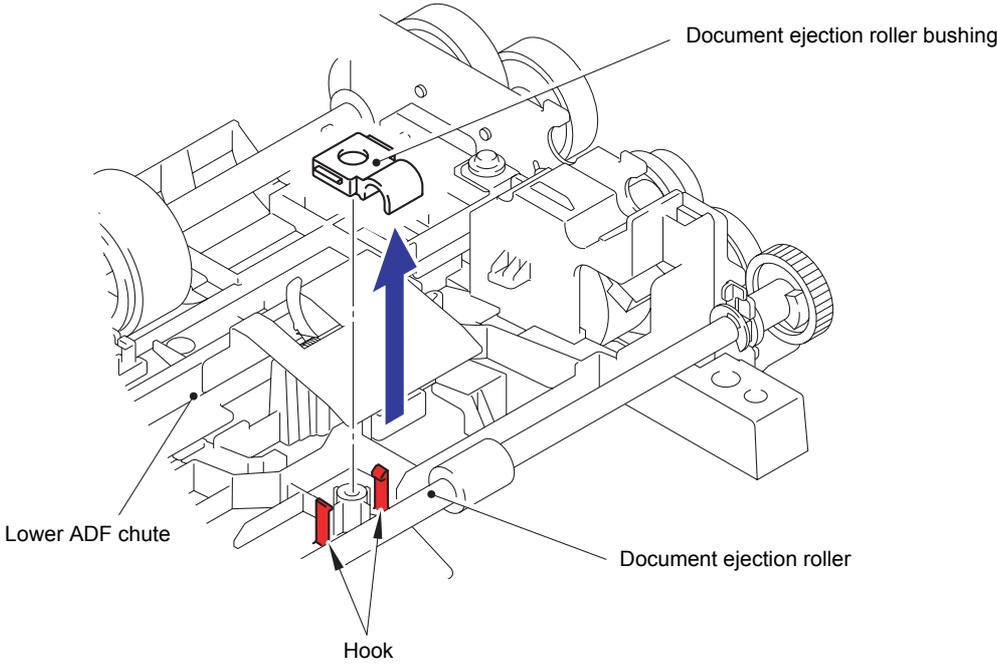


Fig. 3-83

- (4) Rotate the Conductive bushing to release the lock.

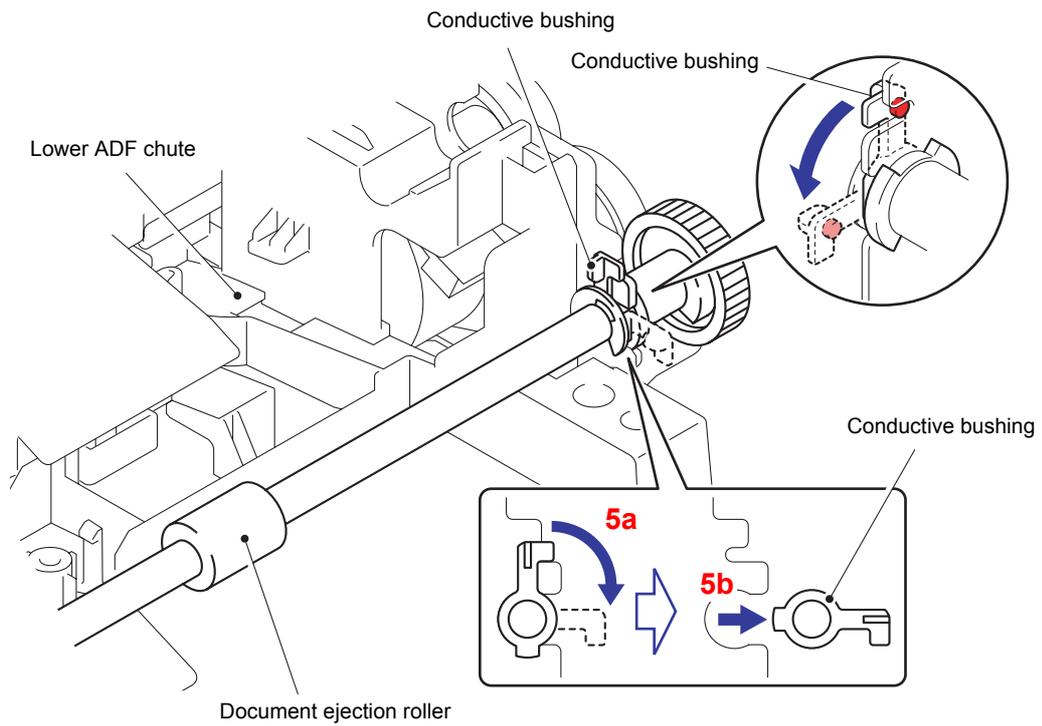


Fig. 3-84

- (5) Remove the Document ejection roller from the Lower ADF chute.

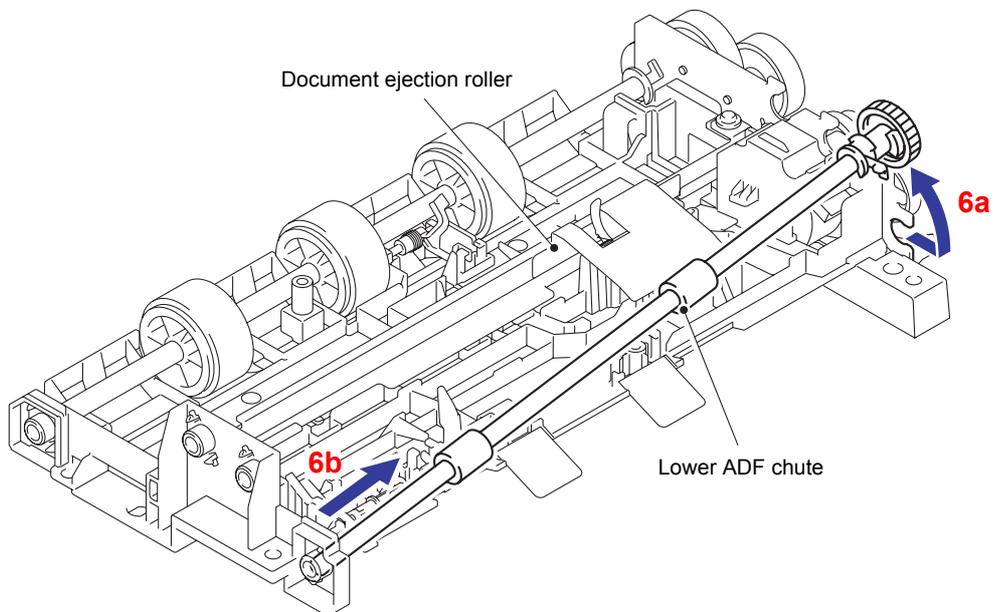


Fig. 3-85

(6) Remove the Eject film from the Lower ADF chute.

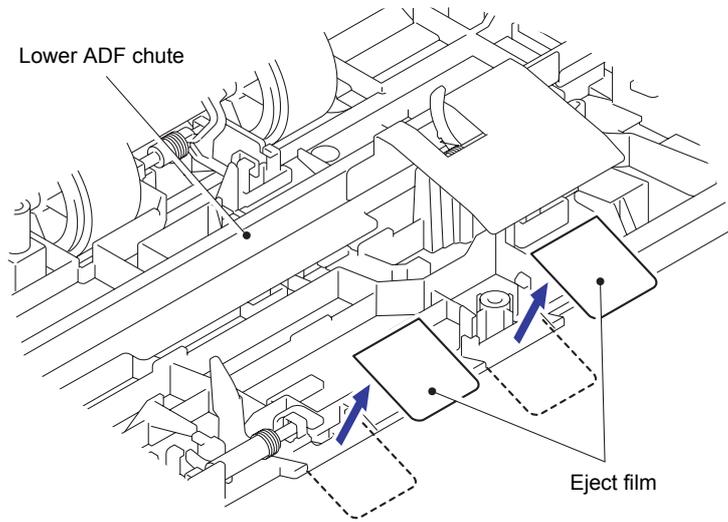


Fig. 3-86

8.29 Document Feed Roller ASSY1

- (1) Remove the Pin of the Conductive bushing and rotate it to the position shown in the figure.

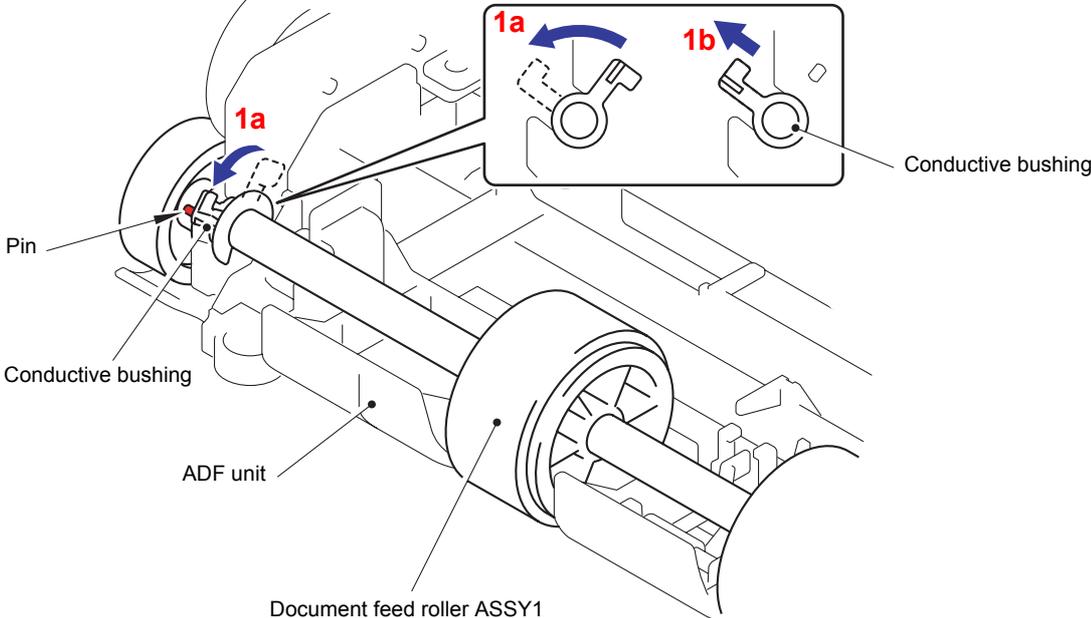


Fig. 3-87

- (2) Remove the Document feed roller ASSY1 from the Lower ADF chute.

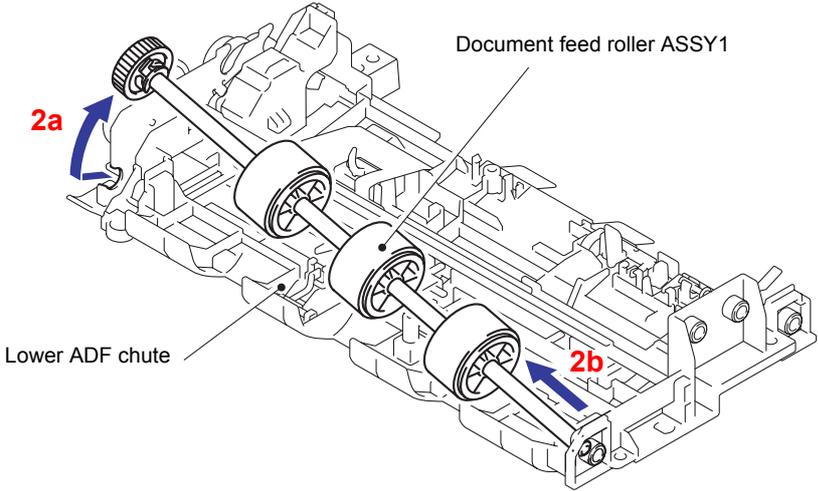


Fig. 3-88

8.30 ADF Motor

(1) Remove the Taptite cup S 3x8 SR screw from the Lower ADF chute.

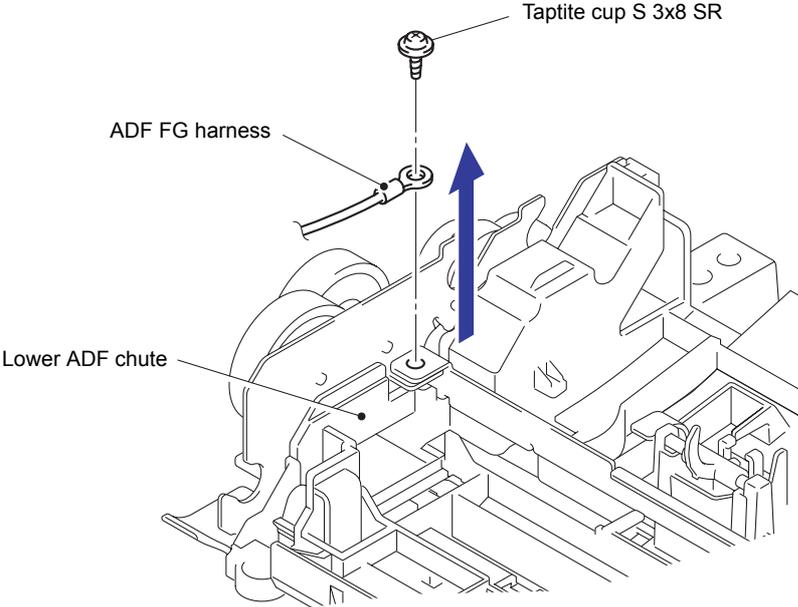


Fig. 3-89

(2) Remove the three Taptite cup B 3x10 screws to remove the Drive frame ASSY from the Lower ADF chute.

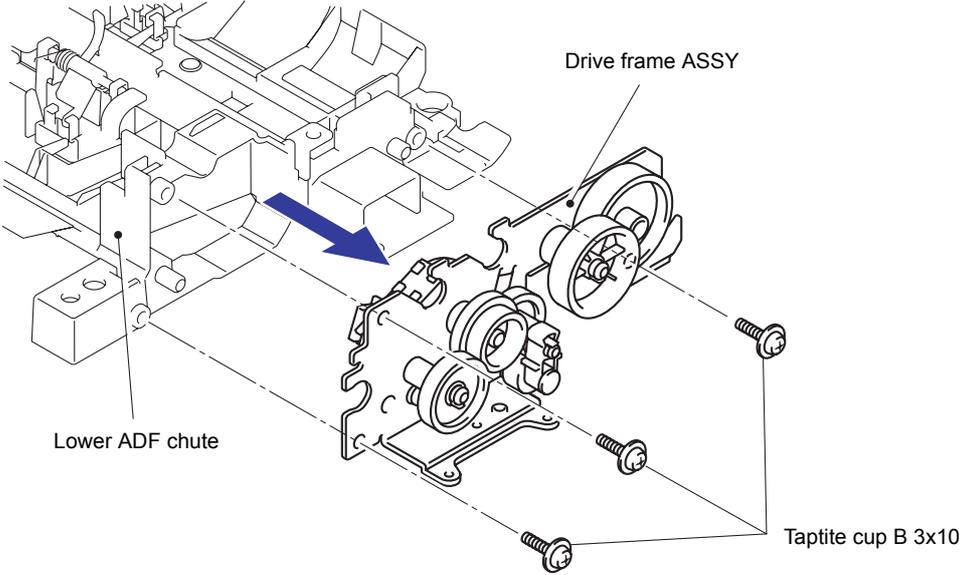


Fig. 3-90

Assembling Note:

When assembling the Drive frame ASSY, ensure that the Arm ASSY L2 are placed in the positions as shown in the figure below.

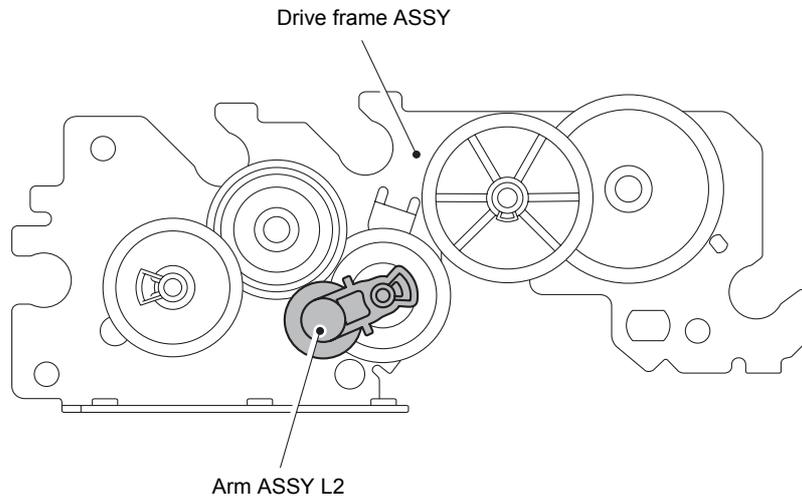


Fig. 3-91

(3) Disconnect the Connector from the ADF motor.

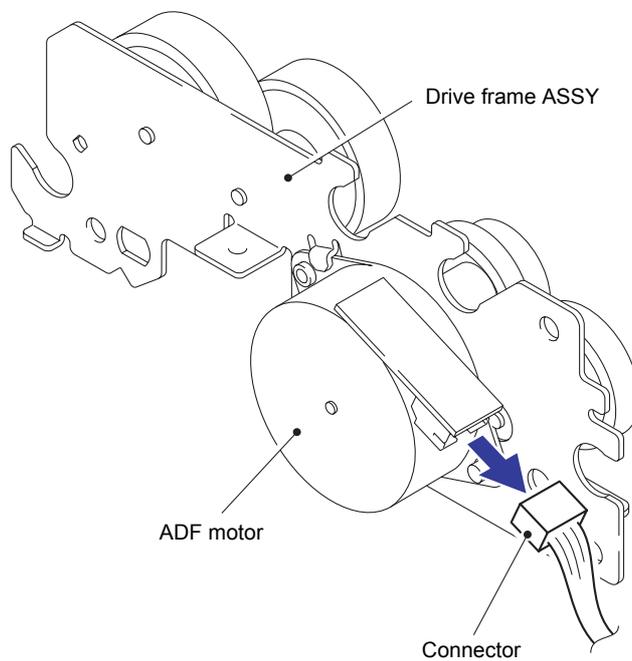


Fig. 3-92

- (4) Release the Hook to remove the Gear43 from the Drive frame ASSY.

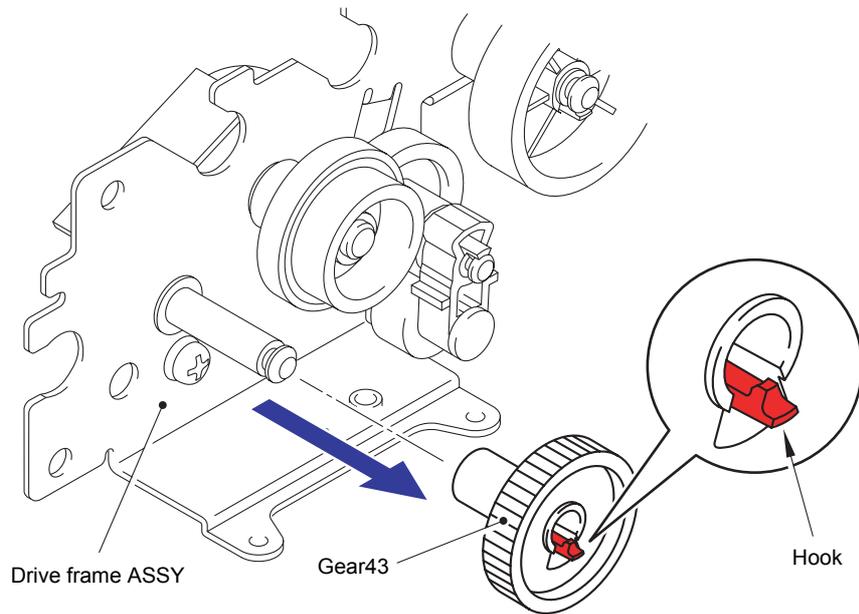


Fig. 3-93

- (5) Remove the Screw pan (S/P washer) M3x6 screw to remove the ADF motor from the Drive frame ASSY.

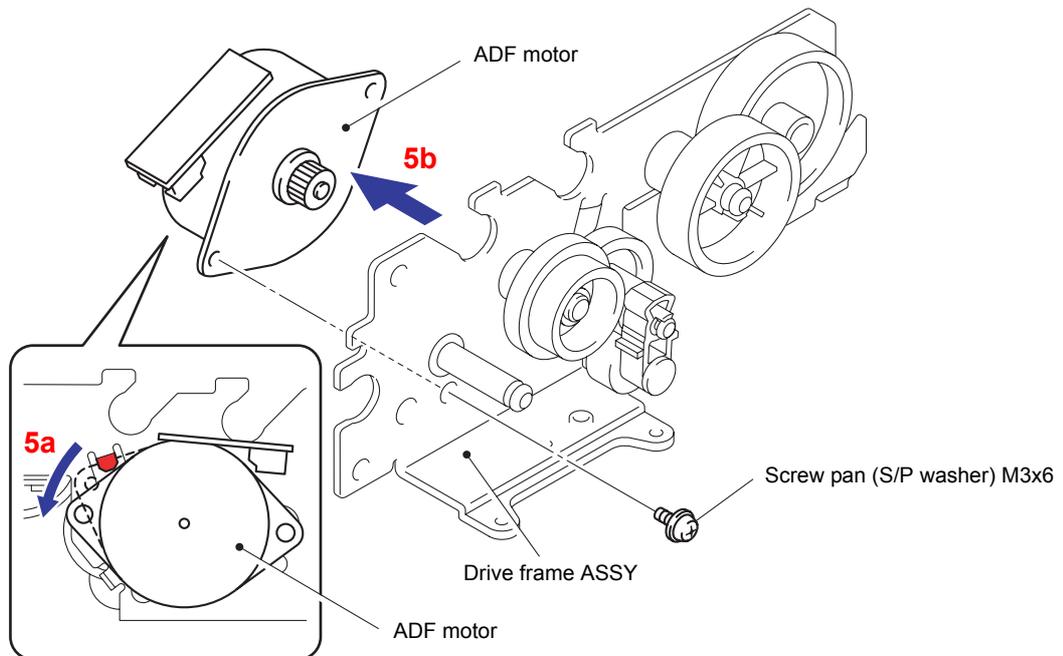


Fig. 3-94

8.31 Document Cover ASSY

- (1) Remove the three Document feed pinch roller spring shafts and three Document feed pinch rollers.

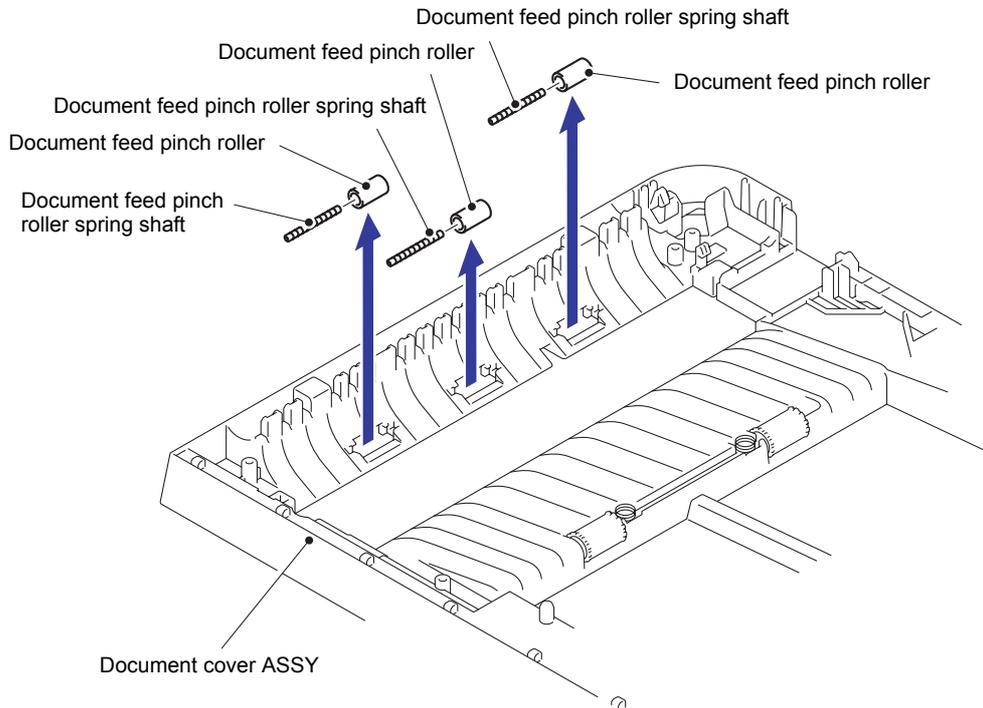


Fig. 3-95

8.32 Pull Arm Guide/Lock Claw

- (1) Remove the Lock claw and then remove the Pull arm guide from the Joint cover ASSY.

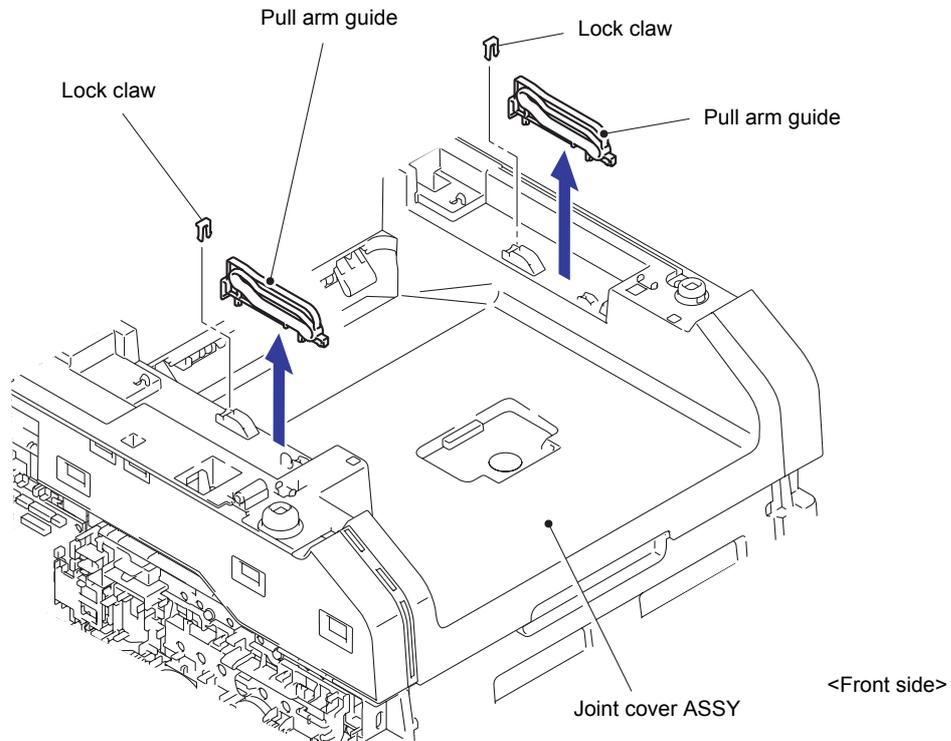


Fig. 3-96

- (2) Remove the other Lock claw and Pull arm guide in the same way.

8.33 Flat Cable Cover/Holder Hook/LED ASSY

- (1) Release the Lock. Disconnect the two Flat cables (CN22 and CN28) from the Main PCB ASSY.

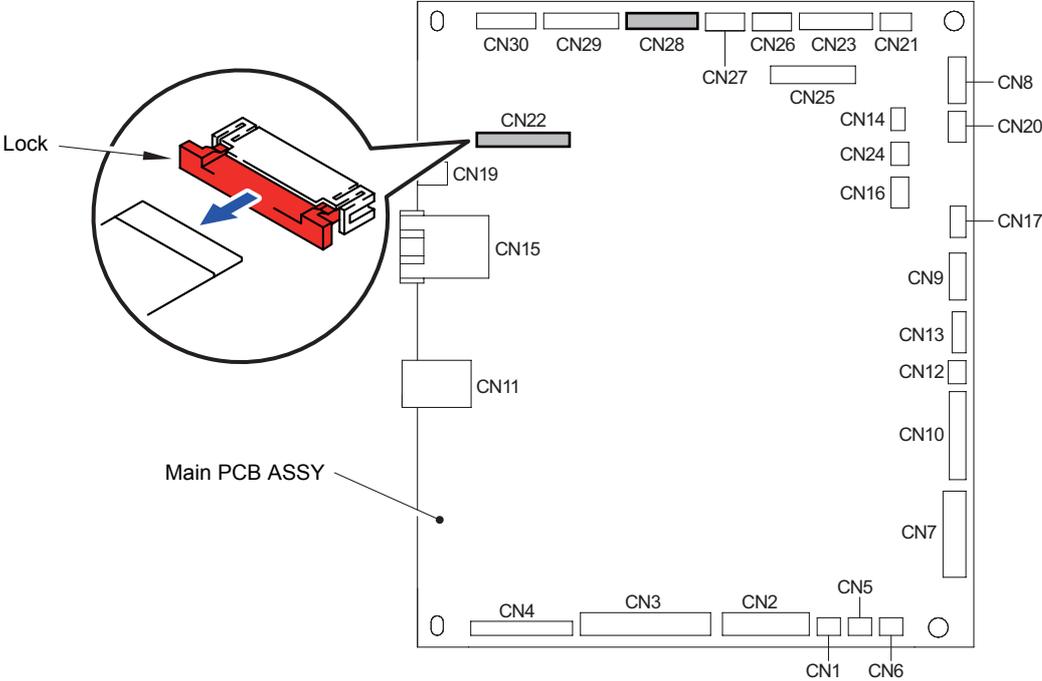


Fig. 3-97

- (2) Remove the Taptite pan (washer) B M4x12 DA screw to remove the LED FG harness from the Side frame R ASSY.

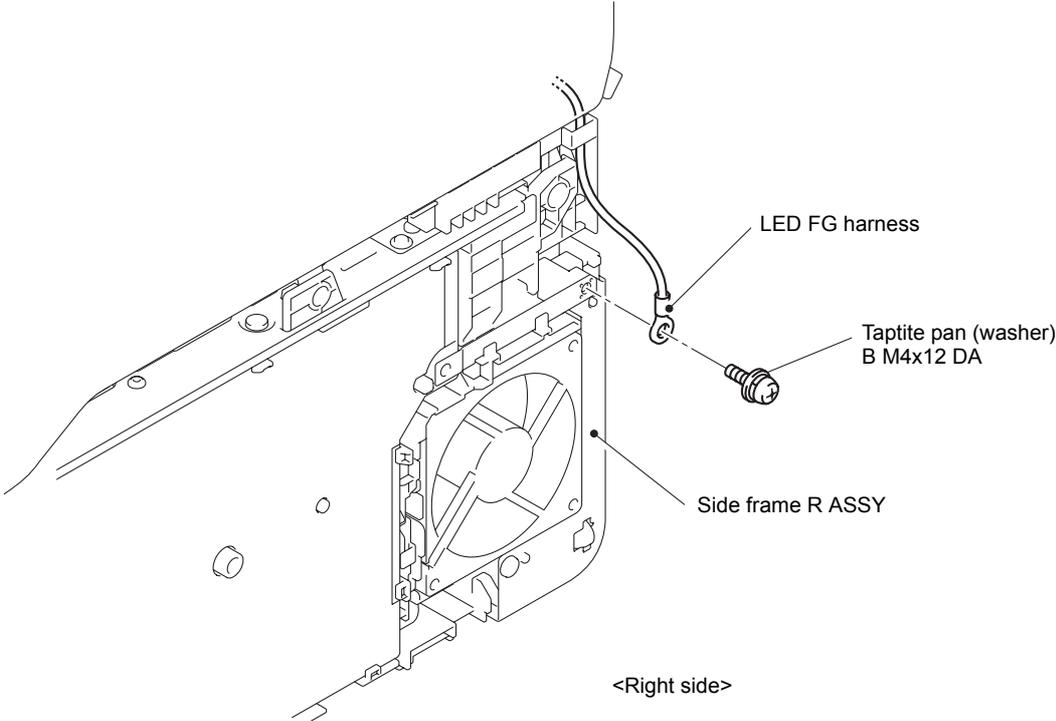


Fig. 3-98

(3) While pushing up the Lever, open the Joint cover ASSY.

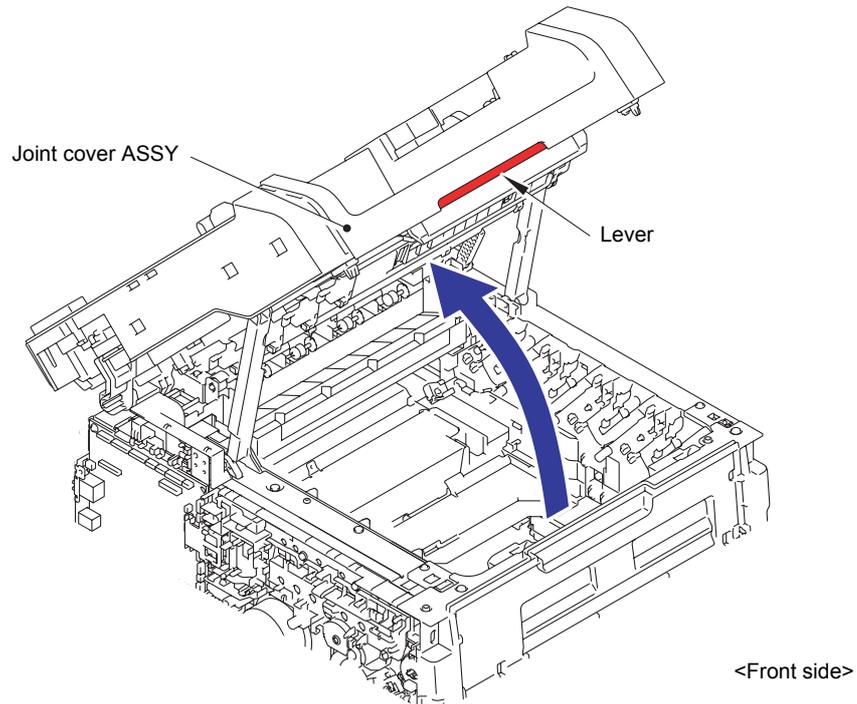


Fig. 3-99

(4) Remove the Double-sided adhesive tape and disconnect the wiring of the FFC harness: LED CTL-LPH.

(5) Disconnect the wiring of the Modem flat cable.

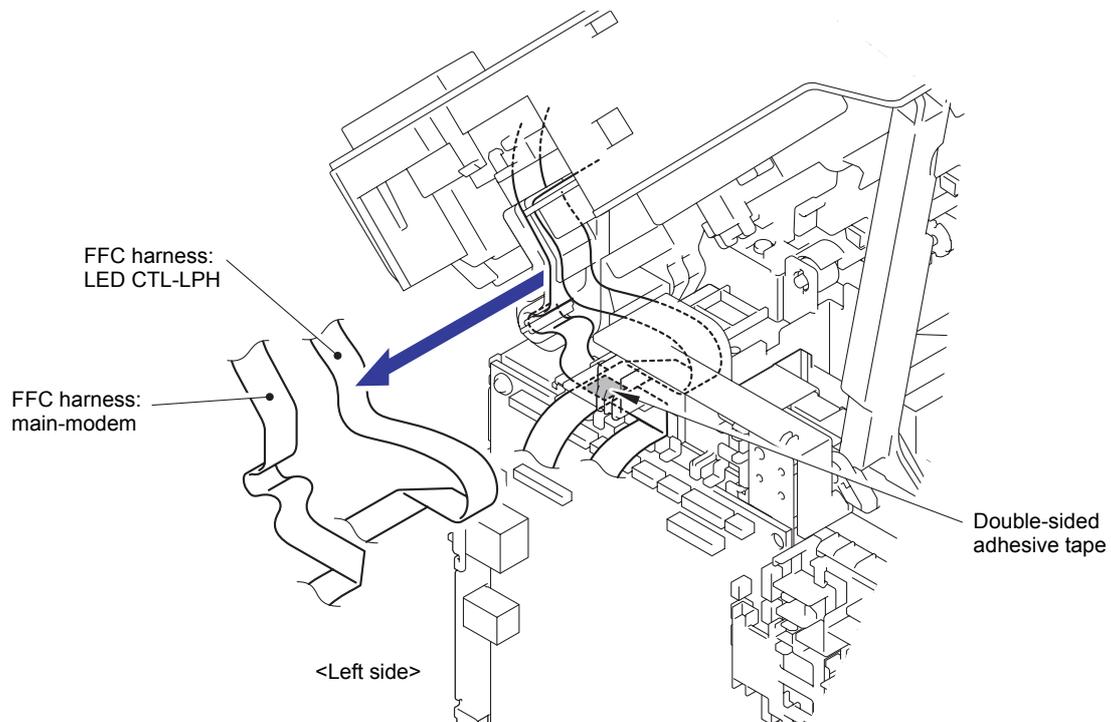


Fig. 3-100

- (6) Remove the two Pins to remove the Joint arm L from the left side of the Joint cover ASSY.
- (7) Remove the two Pins to remove the Joint arm R from the right side of the Joint cover ASSY.

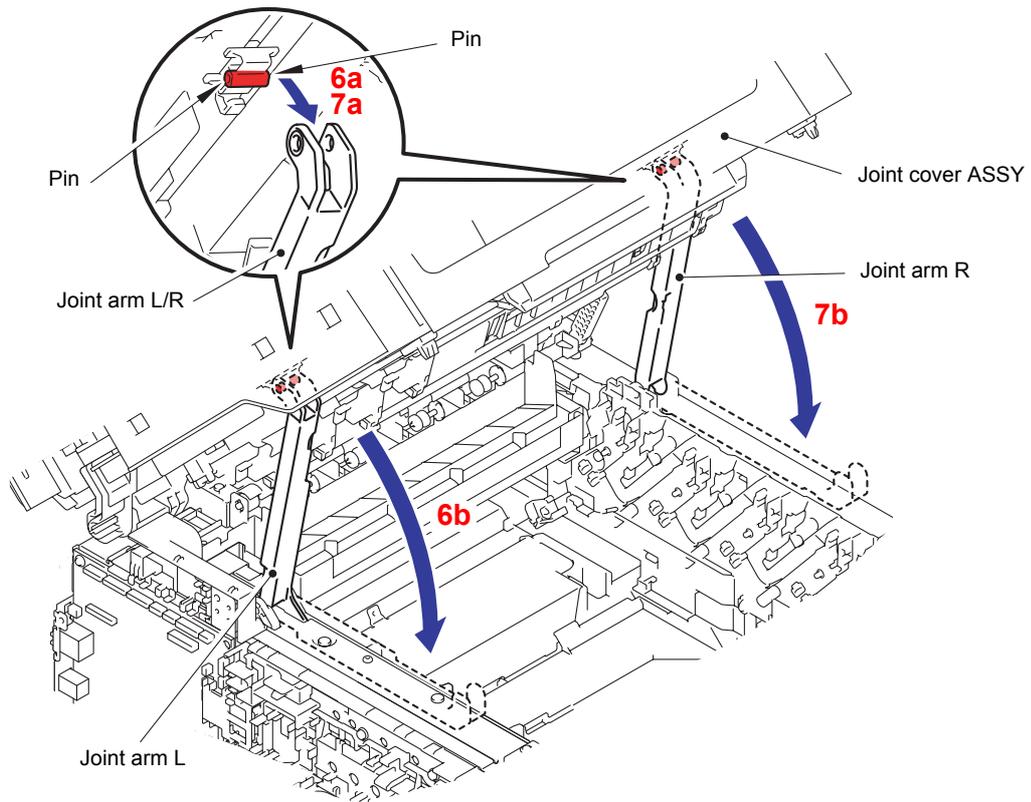


Fig. 3-101

- (8) Release the two Hooks to remove the Arm R from the Boss of the Joint cover ASSY.

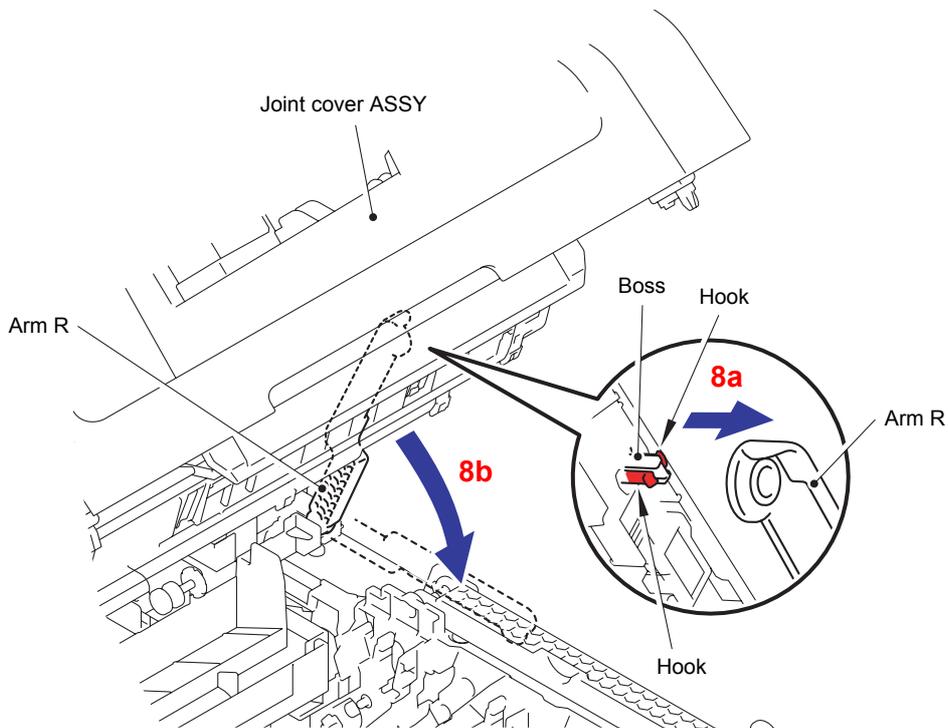


Fig. 3-102

(9) Remove the Joint cover ASSY from the two Bosses of the Main body.

Fig. 3-103

Note:

If the LED ASSY is laid down, slide the Push arm of the Sub frame ASSY in the direction of

Fig. 3-104

(10) Release the three Hooks to remove the Flat cable cover from the LED ASSY.

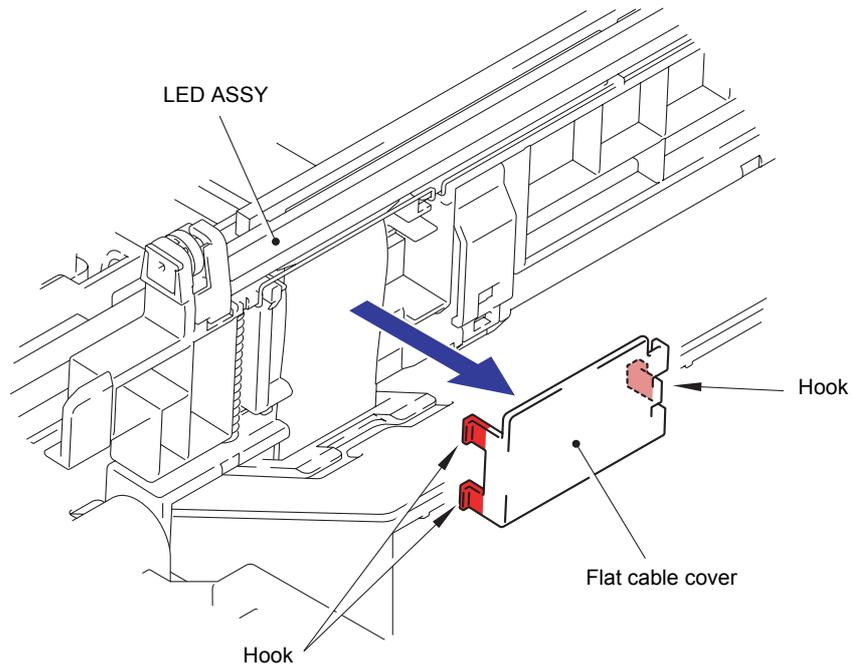


Fig. 3-105

(11) Release the Hook of the Holder hook by the driver from the back side of the LED ASSY.

(12) Release the Hook of the upper side to remove the Holder hook on the left side from the left side of the LED ASSY.

(13) Remove the Holder hook on the right side in the same way.

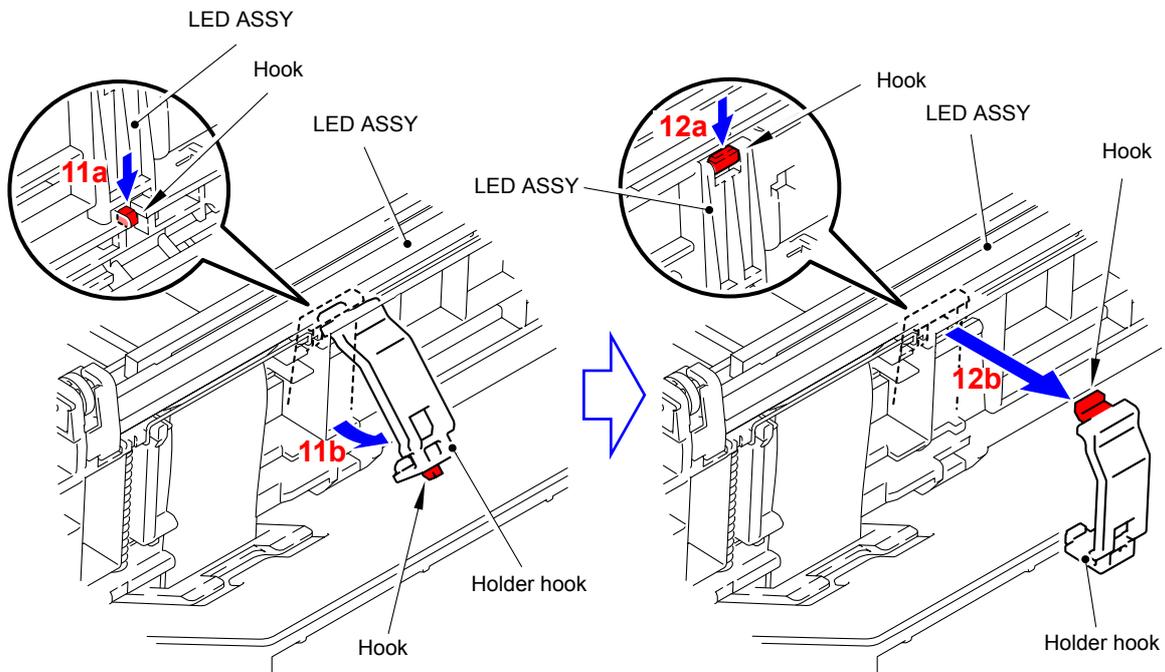


Fig. 3-106

Assembling Note:

- When you assemble the Holder hook, make sure to insert the Hook A of the Holder hook into the "A" of the LED ASSY first, and then assemble the Hook B of the Holder hook to the Holder.
- After assembling, make sure to check that the Hook A is firmly engaged to the Holder. If it is not engaged to the Holder firmly, it might cause an image failure.

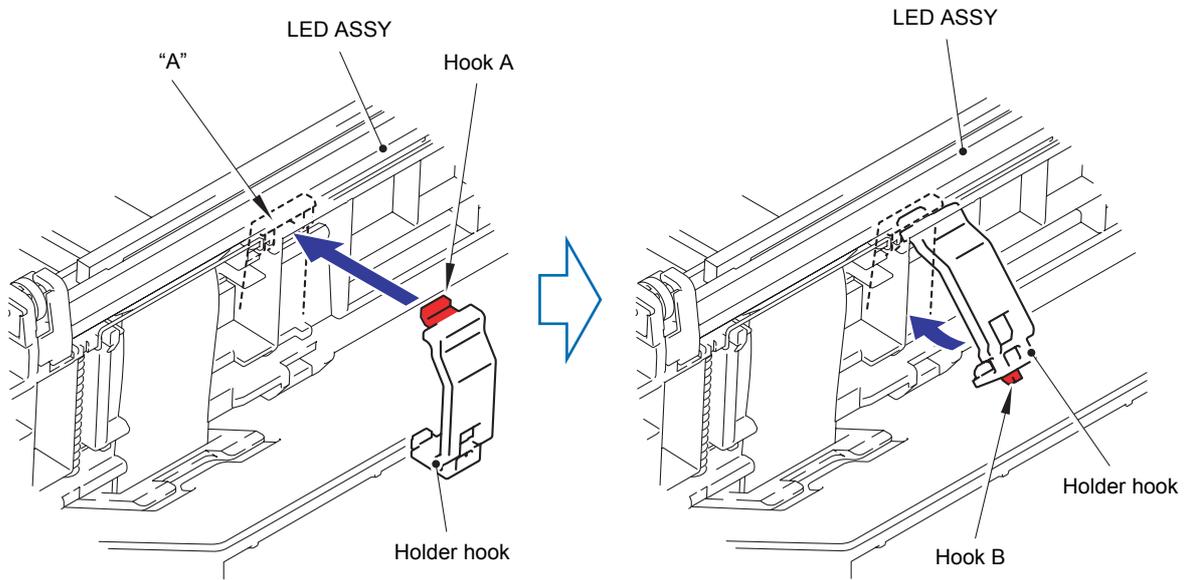


Fig. 3-107

(14) Remove the LED ASSY from the LED holder.

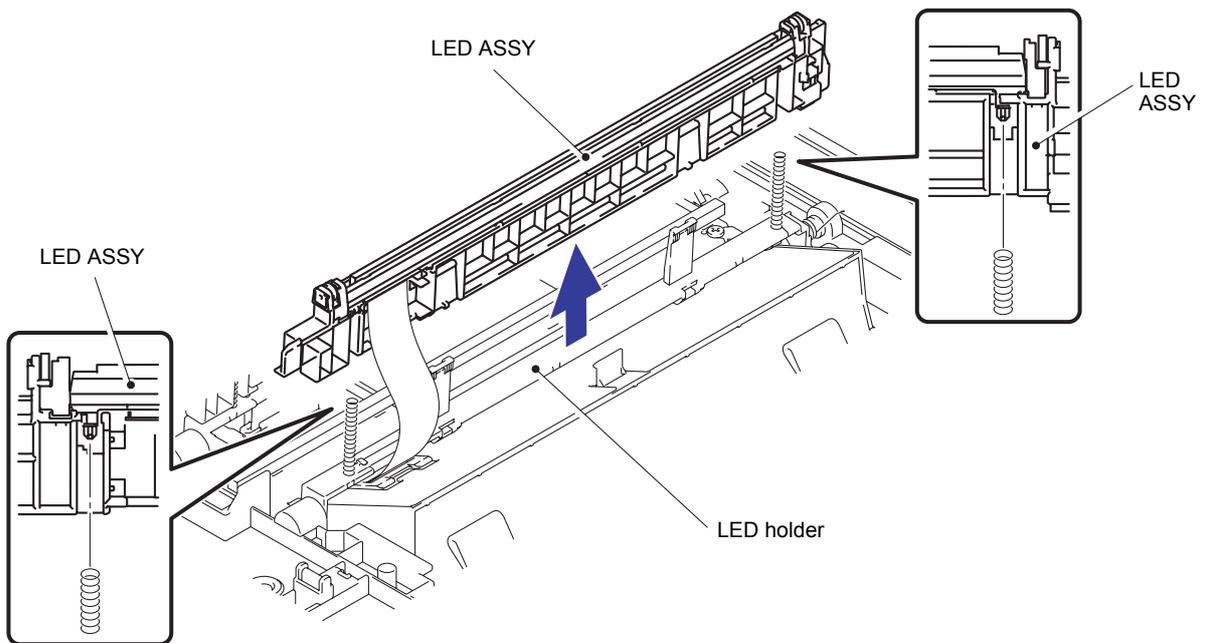


Fig. 3-108

(15) Release the lock of the Connector to disconnect the LED flat cable from the LED ASSY.

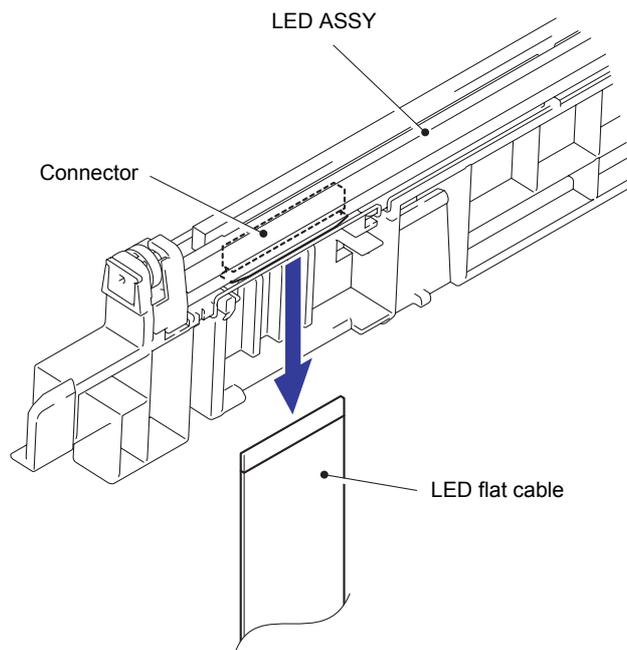


Fig. 3-109

(16) Remove the other three LED ASSYs in the same way as steps (10) to (15) above.

Assembling Note:

- The LED parts of the LED ASSY for replacement are covered with protection tapes. Make sure not to remove the protection tapes until assembling of the LED ASSY is completed. After it is assembled, make sure to remove the protection tapes.
- If the LED parts get smeared, make sure to wipe smears on the LED parts with a clean and soft cloth.

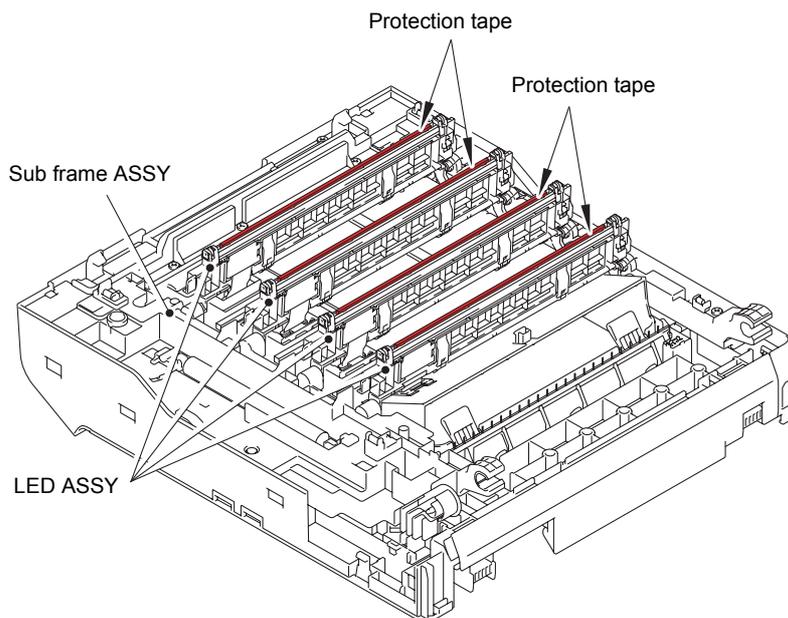


Fig. 3-110

Assembling Note:

When assembling the LED flat cable to the LED ASSY (K), fold up flat cable along with the dotted line as shown in the figure below and assemble it to the LED ASSY (K).

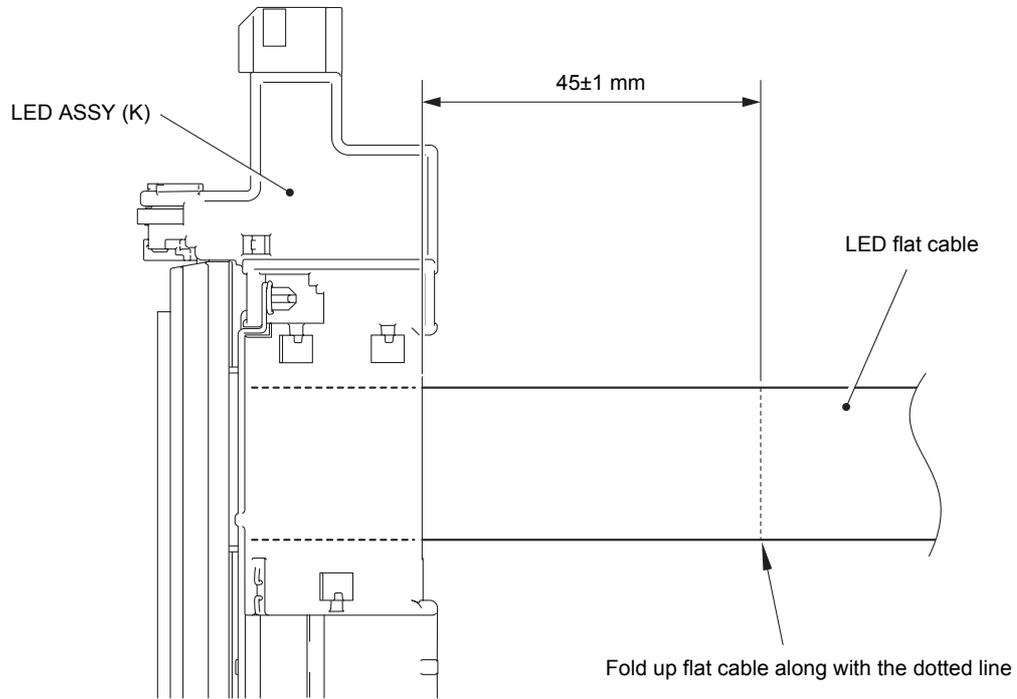


Fig. 3-111

Harness routing: Refer to "[1](#) Joint Cover Unit", "[12](#) Modem PCB ASSY"

8.34 Z Spring L

(1) Release the two Hooks to remove the Z spring L from the Boss of the LED holder.

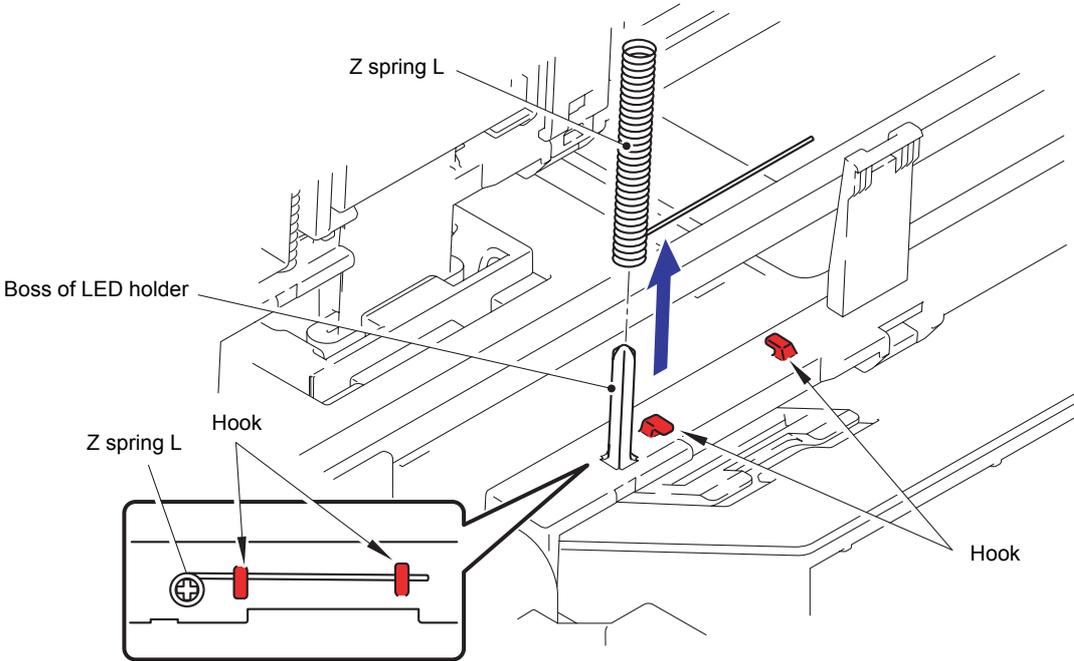


Fig. 3-112

Note:
When removing the Z spring L, be careful not to damage the Boss of the LED holder.

(2) Remove the other Z springs L in the same way.

8.35 Joint Cover ASSY

- (1) Remove the five Taptite bind M4x12 screws to remove the Joint cover open button holder from the Joint cover ASSY.

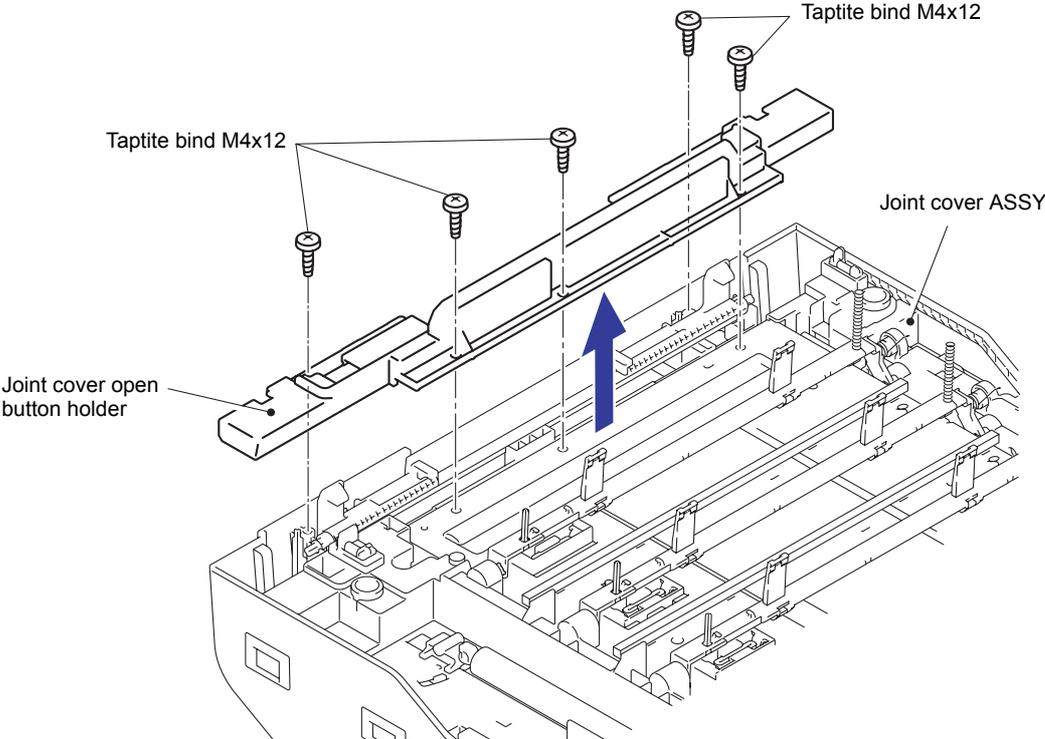


Fig. 3-113

- (2) Remove the Joint cover open button from the Joint cover ASSY.

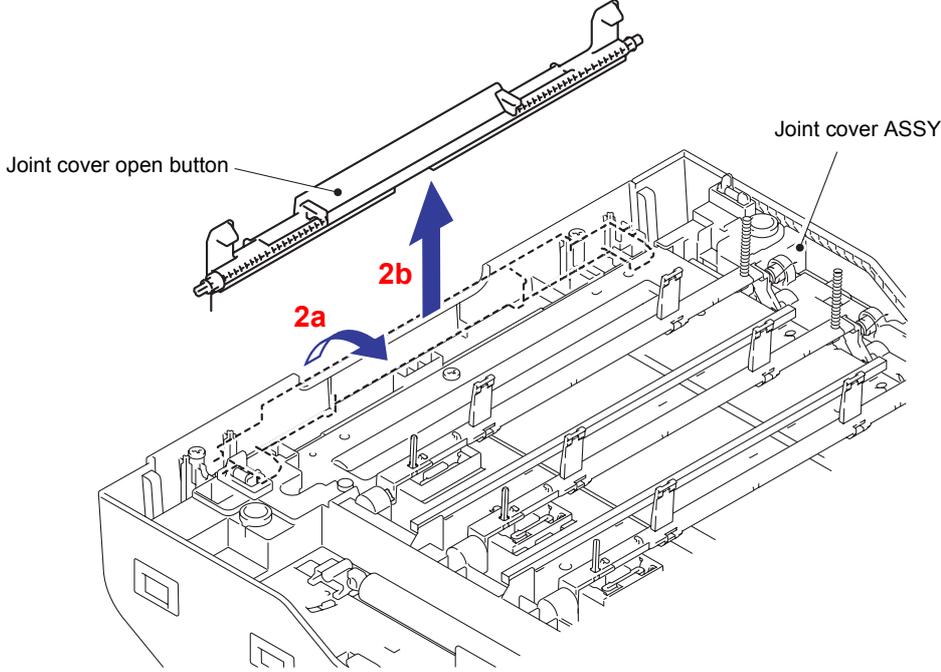


Fig. 3-114

- (5) Release the Hook to remove the Sub frame ASSY from the Joint cover ASSY.

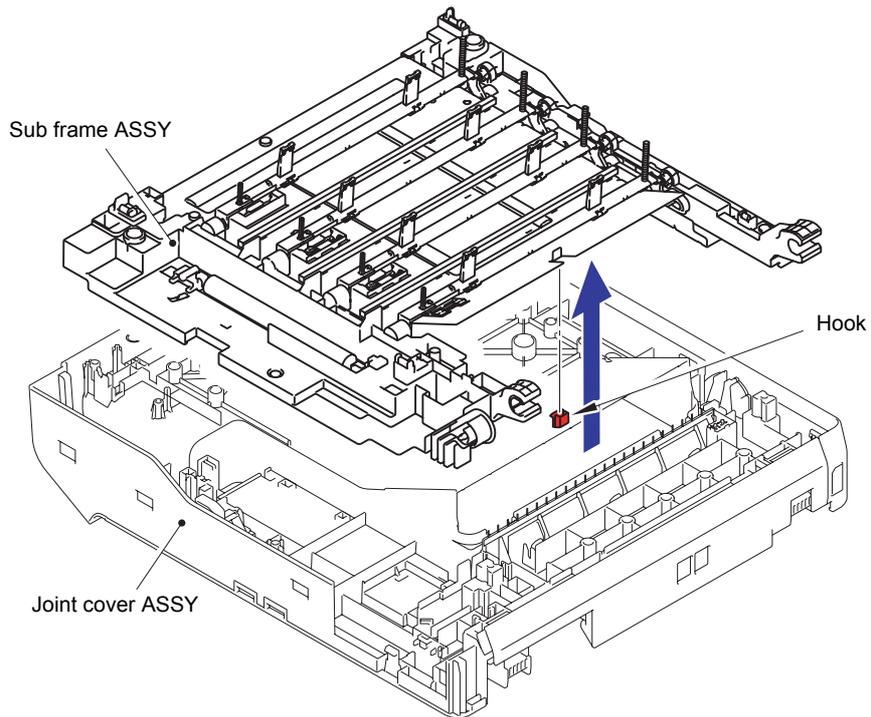


Fig. 3-117

- (6) Disconnect the wiring of the FG harness from the Joint cover ASSY.
- (7) Remove the two Flat cores of the Modem flat cable from the Joint cover ASSY.

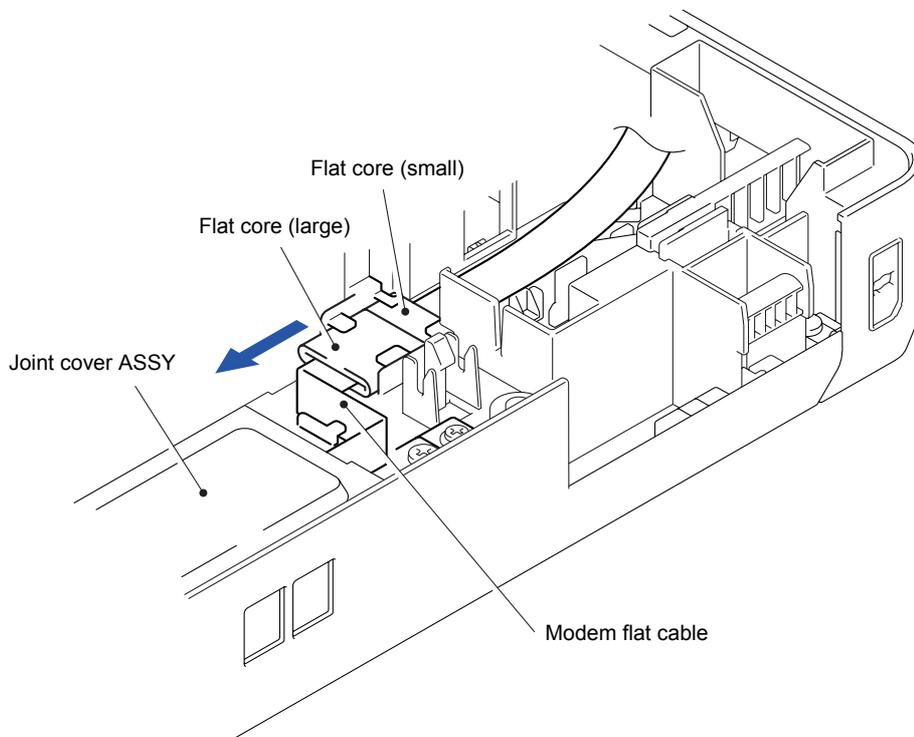


Fig. 3-118

- (8) Remove the Screw pan (S/P washer) M3.5x6 screw to remove the LED FG harness from the Modem PCB ASSY.
Remove the two Taptite bind B M4x12 screws to remove the Modem PCB ASSY from the Joint cover ASSY.

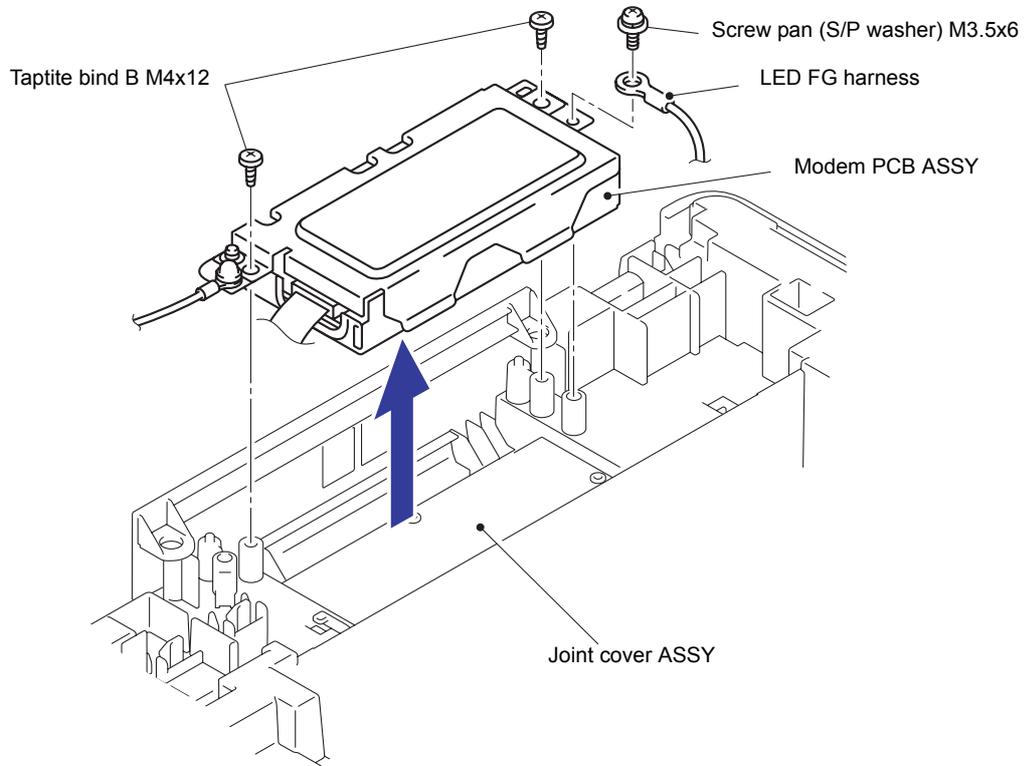


Fig. 3-119

Harness routing: Refer to "[12 Modem PCB ASSY](#)"

8.36 Modem PCB ASSY/Modem Flat Cable

- (1) Disconnect the Flat cable (CN1) from the Modem PCB ASSY.

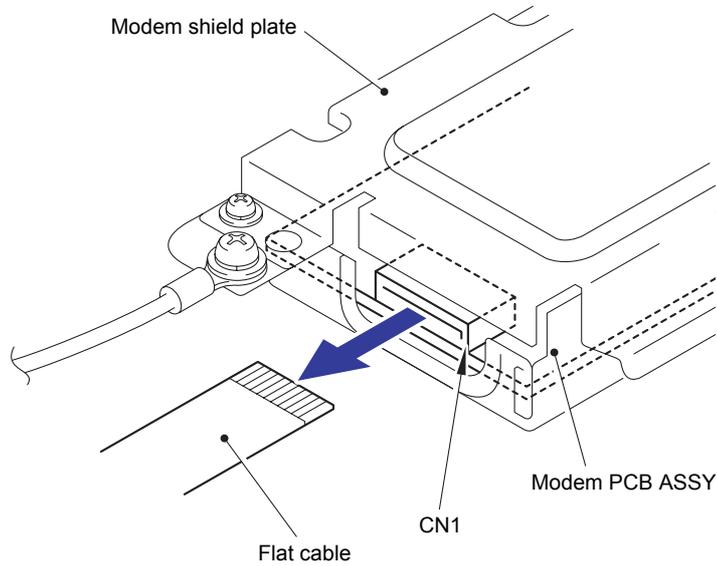


Fig. 3-120

- (2) Remove the two Flat cable sponges from the Flat cable.
- (3) Remove the two Flat cores from the Flat cable.

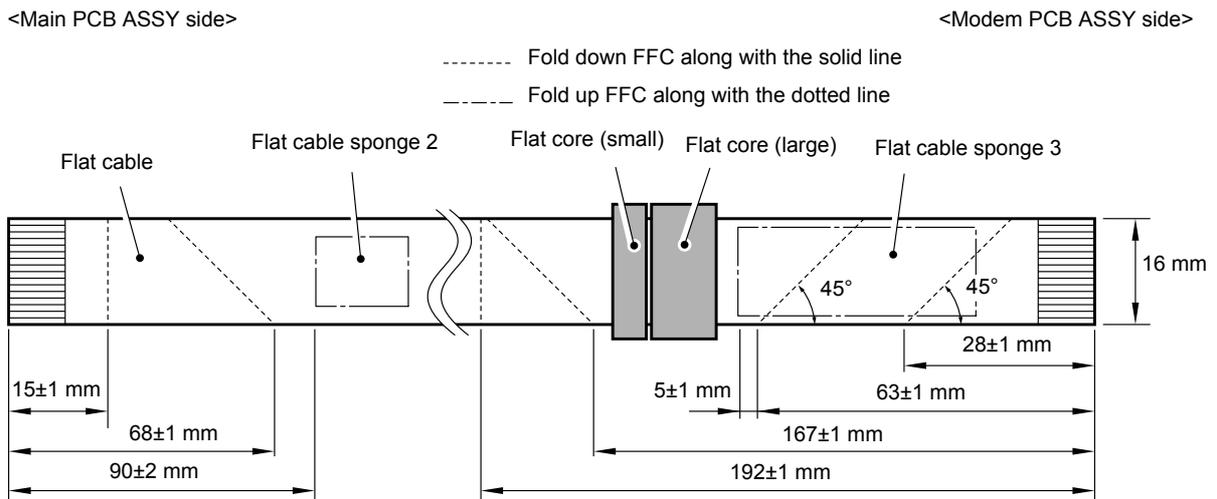


Fig. 3-121

- (4) Remove the Screw pan (S/P washer) M3.5x6 screw to remove the Modem shield cover from the Modem shield plate.

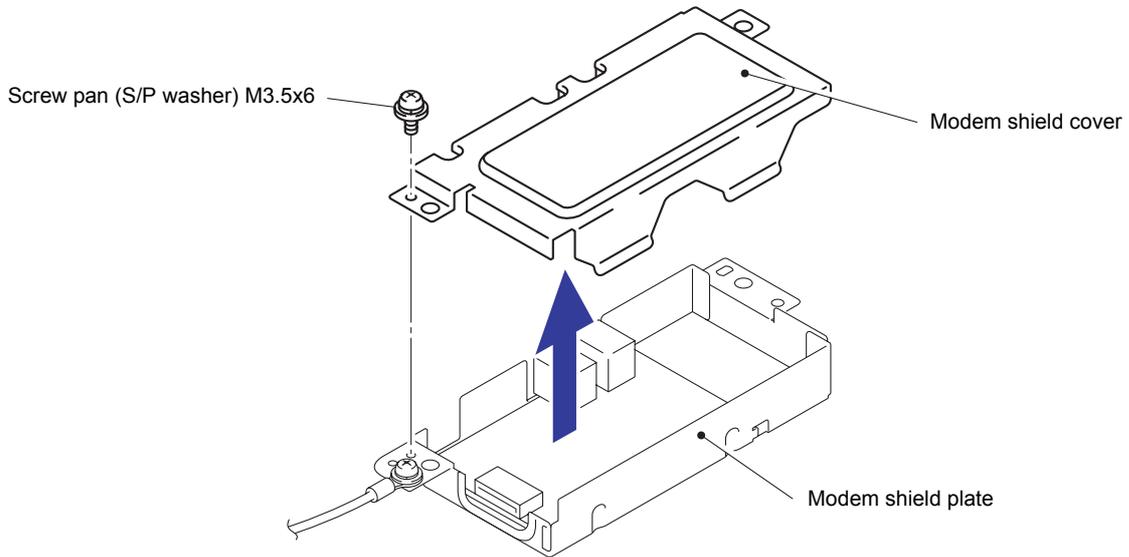


Fig. 3-122

- (5) Remove the two Taptite cup S M3x6 SR screws to remove the Modem PCB ASSY from the Modem shield plate.

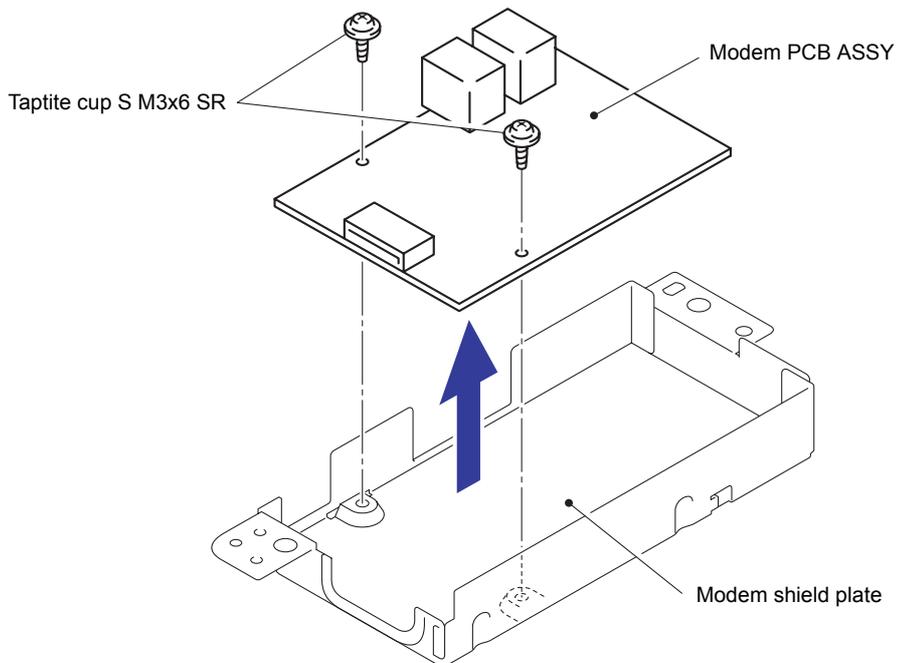


Fig. 3-123

8.37 Paper Stack Lever

- (1) Remove the two Pins to remove the Paper stack lever on the left side.
- (2) Remove the other Paper stack lever in the same way.

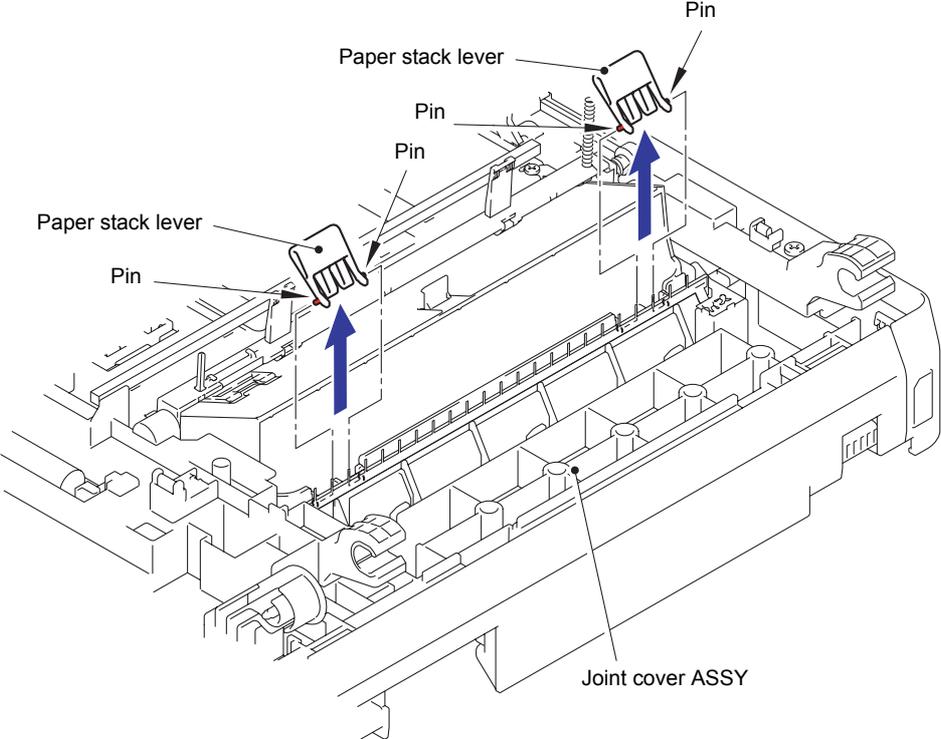


Fig. 3-124

8.38 Joint Cover Side R/Speaker Unit

- (1) Disconnect the wiring of the Speaker unit harness from the Joint cover ASSY.
- (2) Remove the Taptite bind B M4x12 screw. Release the eleven Hooks to remove the Joint cover side R from the Joint cover ASSY.

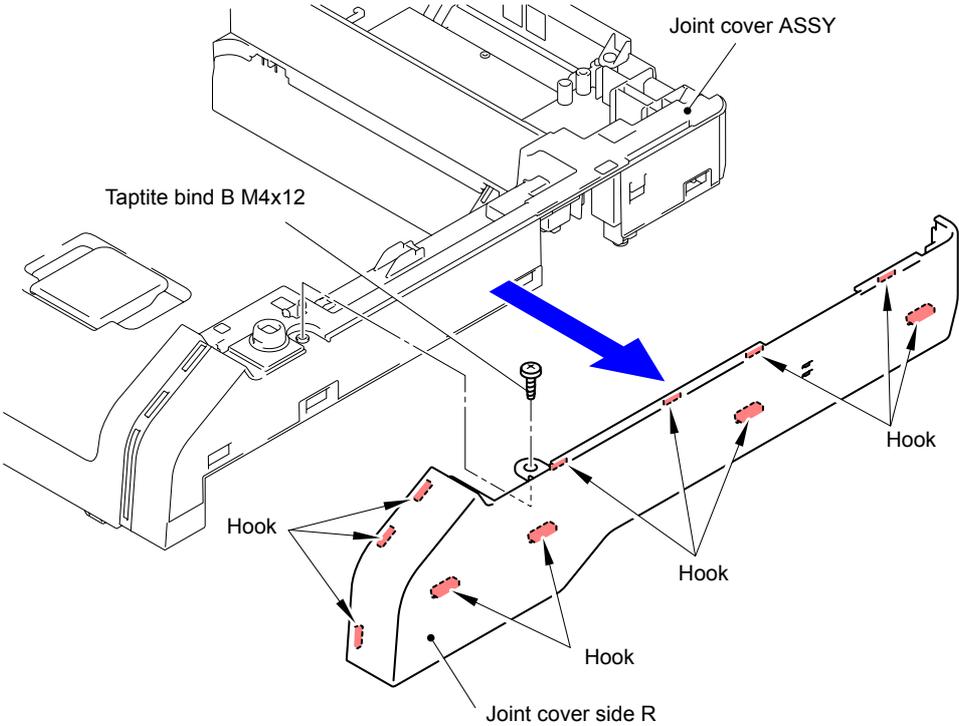


Fig. 3-125

- (3) Remove the Speaker hold spring from the Joint cover side R.

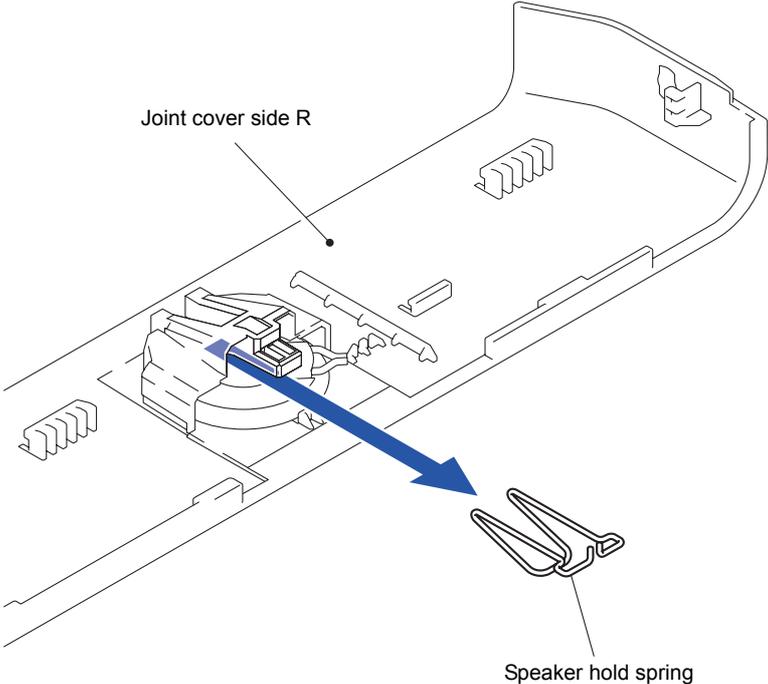


Fig. 3-126

8.40 Control Panel ASSY/Document Scanner Unit

- (1) Turn the Document scanner unit upside down.
- (2) Remove the four Taptite cup B 3x10 screws from the Document scanner unit.

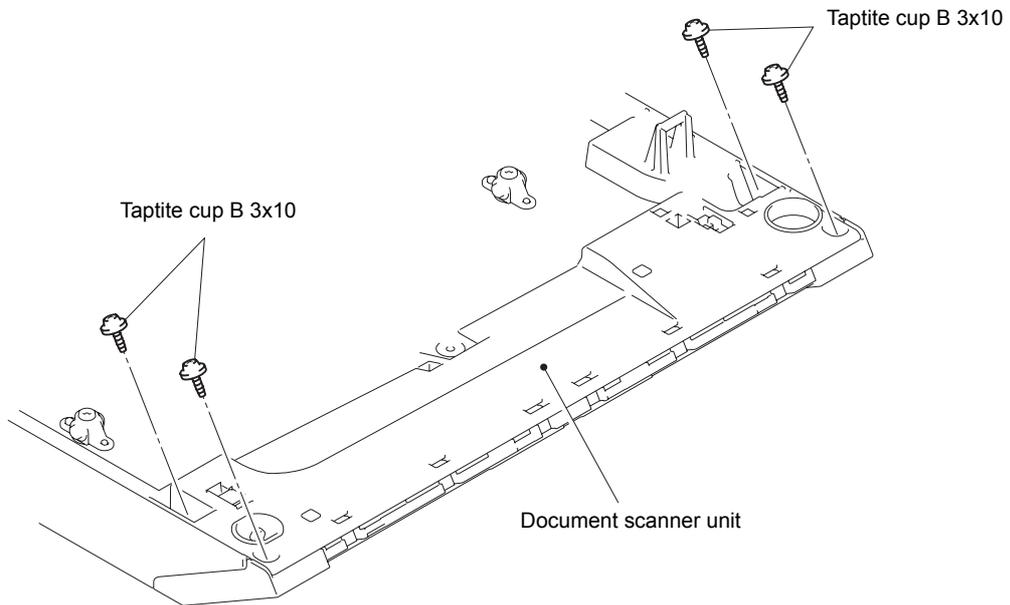


Fig. 3-129

- (3) Return the Document scanner unit to the original position.
- (4) Release the four hooks of the Control panel ASSY, and slide it in the direction of the arrow by 1 to 2 mm.

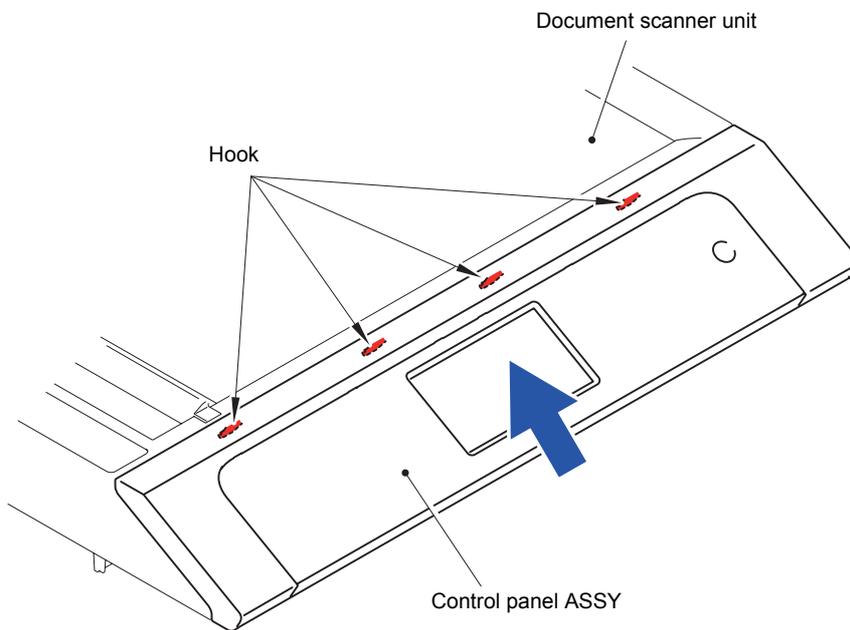


Fig. 3-130

Note:

If you slide the Control panel ASSY in the direction of the arrow until you see the fixing hole, the Key PCB flat cable may get caught in the ground spring and may be damaged. To avoid that, the amount by which you slide the ASSY must be 1 to 2 mm.

- (5) Turn the Control panel ASSY on the rear to set it upright.
- (6) Disconnect the two Connectors (CN2 and CN3) from the Panel control PCB ASSY.

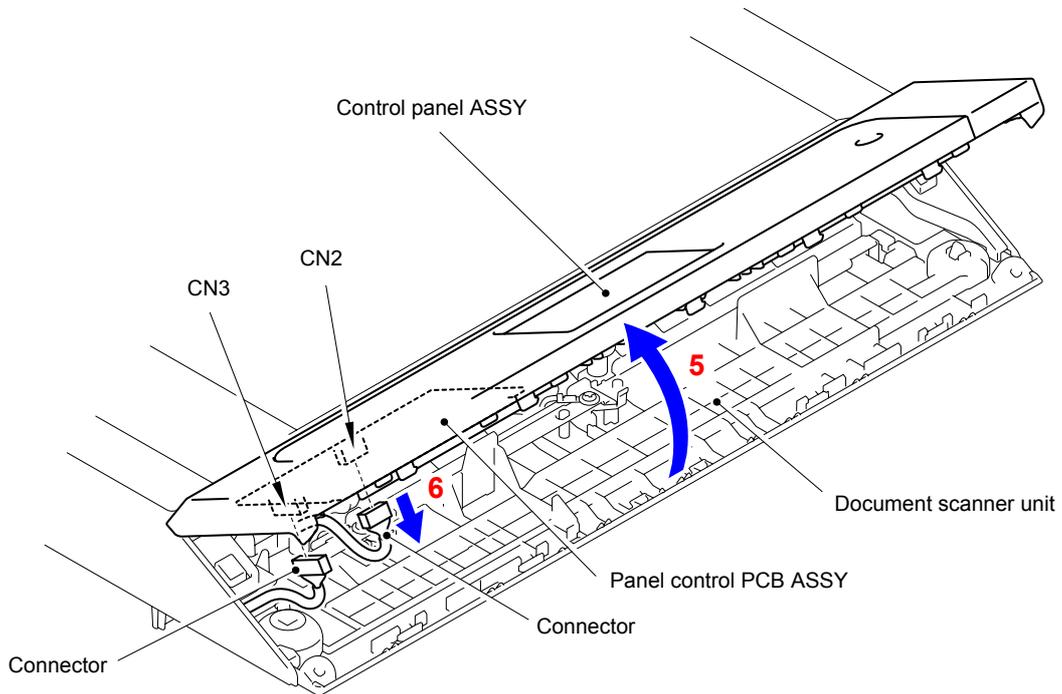


Fig. 3-131

- (7) Check that the Key PCB flat cable is not damaged.

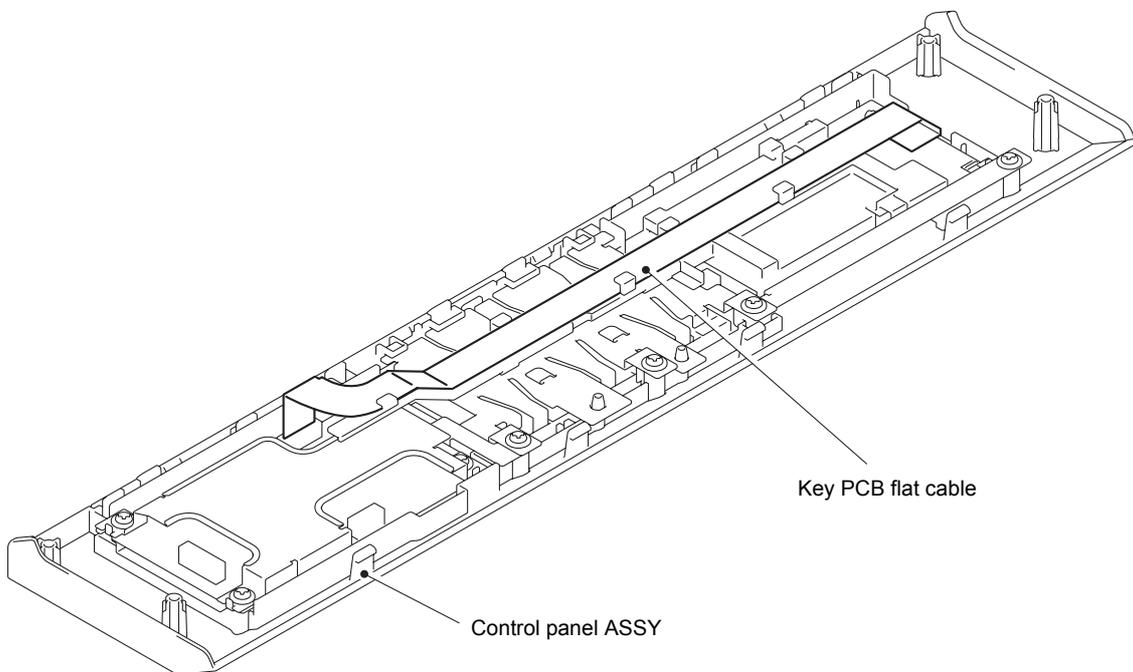


Fig. 3-132

8.41 Panel Control PCB ASSY

- (1) Remove the Key PCB flat cable from the Connector (CN5) of the Panel control PCB ASSY.
- (2) Remove the Key PCB flat cable from the Control panel ASSY.

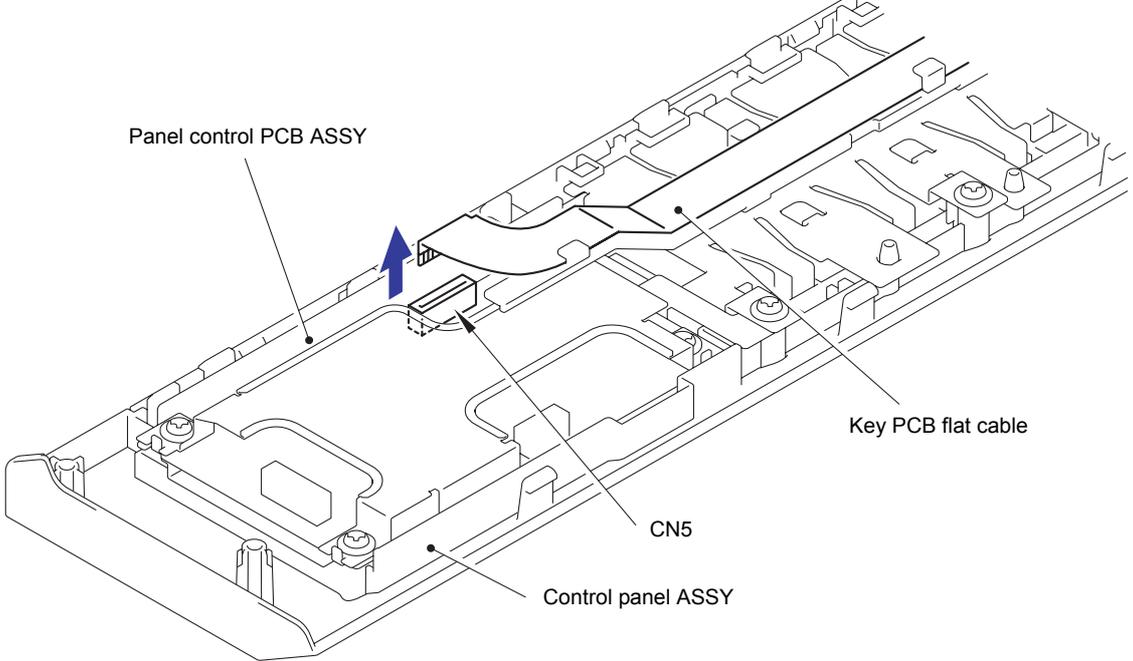


Fig. 3-133

- (3) Remove the Taptite bind S M3x5 screw. Release the three Hooks to remove the Key PCB hold from the Control panel ASSY.

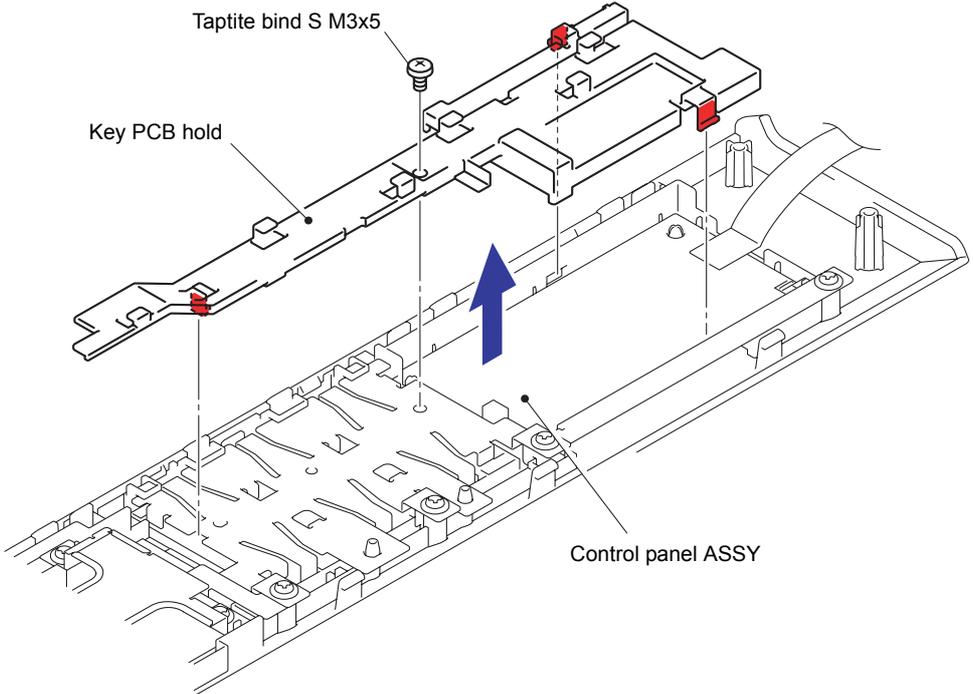


Fig. 3-134

- (4) Remove the four Taptite cup B 3x10 screws to remove the Panel control PCB shield plate cover from the Panel control PCB ASSY.

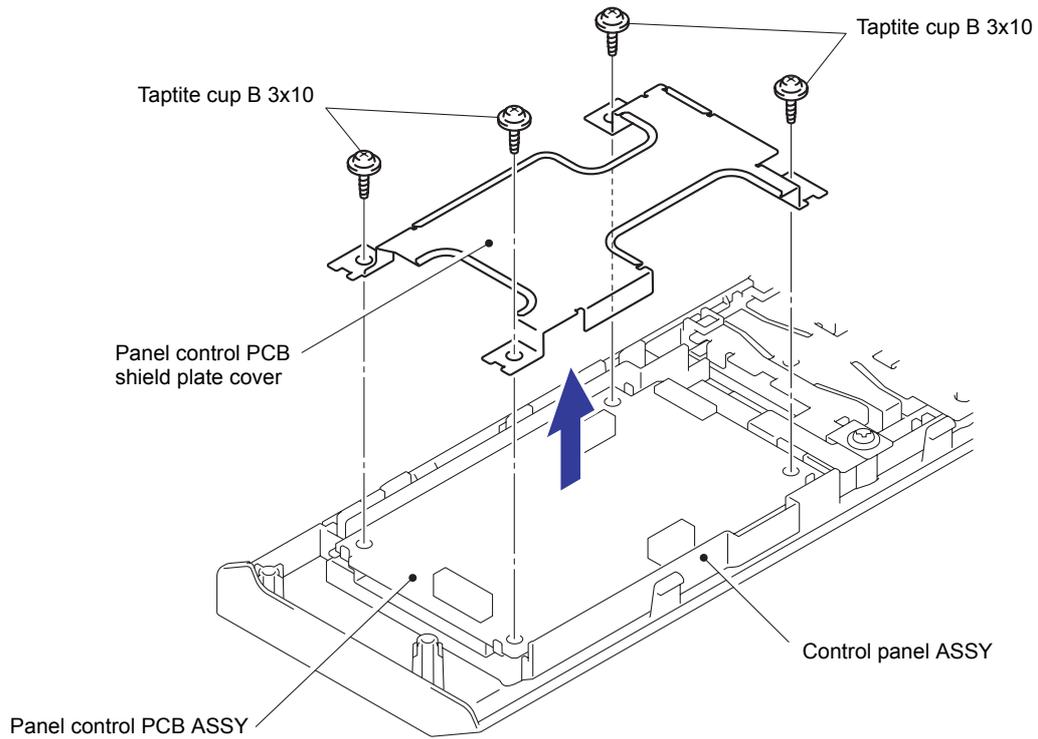


Fig. 3-135

- (5) Release the Lock to disconnect the Flat cable from the Connector (CN4) of the Panel control PCB ASSY.

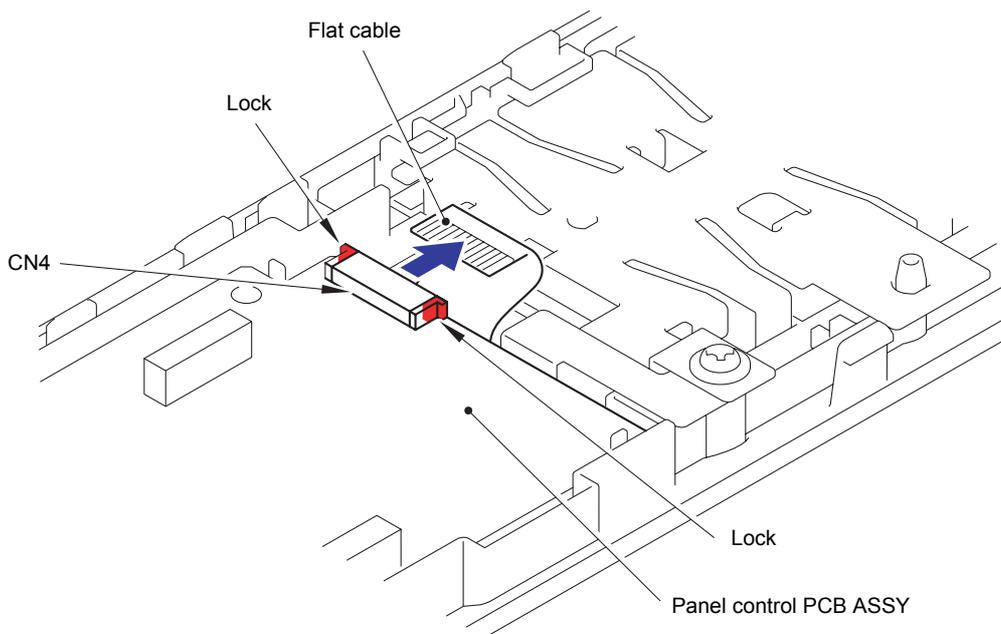


Fig. 3-136

(6) Remove the Panel control PCB ASSY from the Control panel ASSY.

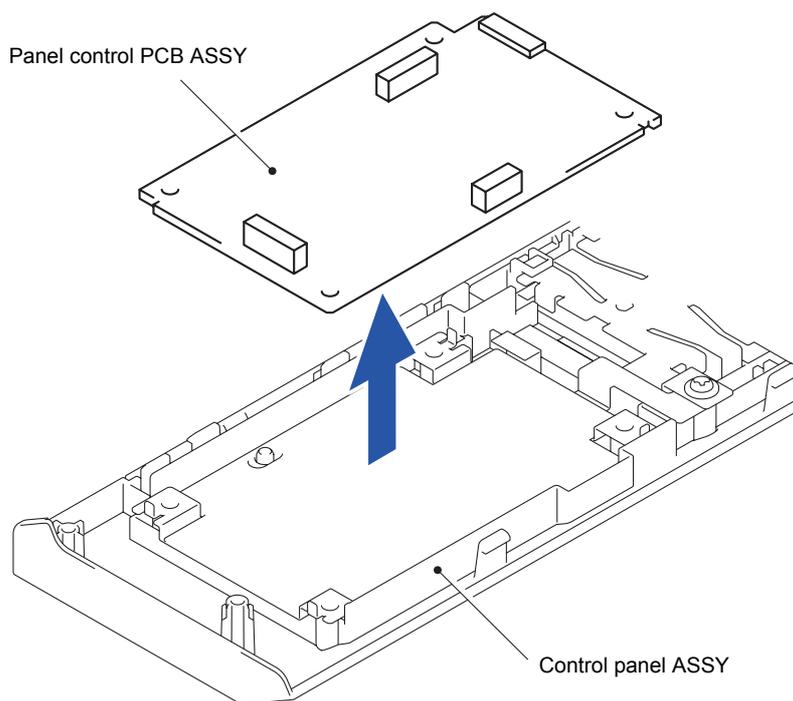


Fig. 3-137

8.42 Touch Panel ASSY/LCD

- (1) Remove the three Taptite cup B 3x10 screws. Release the twelve Hooks to remove the LCD hold plate from the Control panel ASSY.

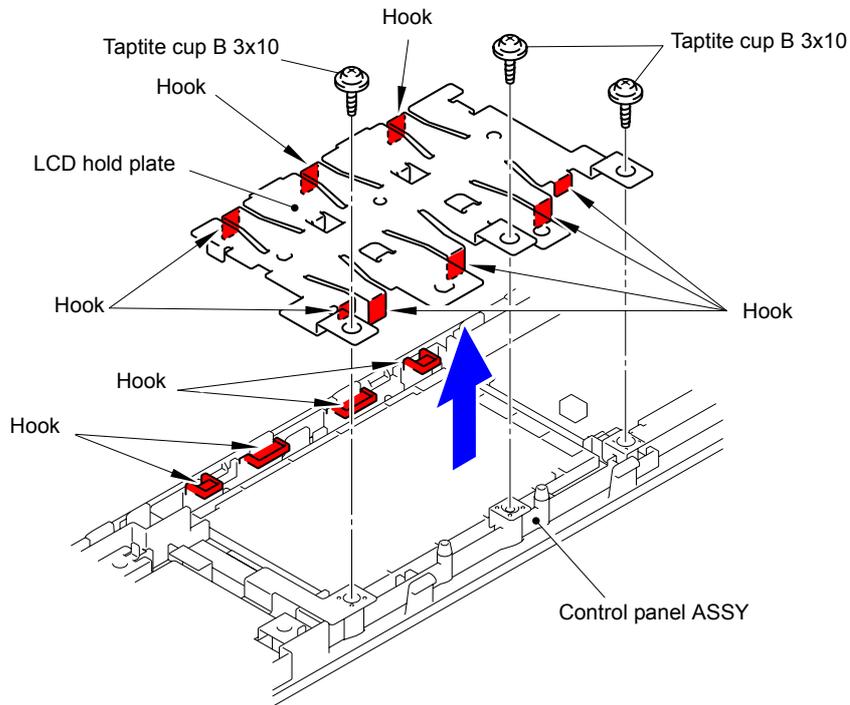


Fig. 3-138

- (2) Remove the LCD from the Control panel ASSY.
- (3) Disconnect the Flat cable from the Connector (CN1) of the Key PCB ASSY. Remove the Touch panel ASSY.

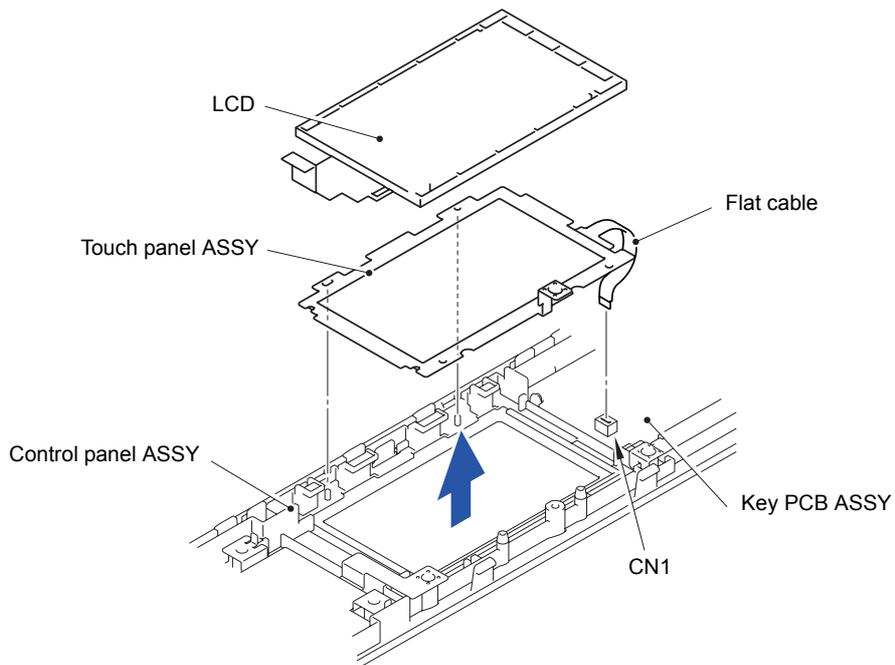


Fig. 3-139

8.43 First Side CIS Unit/First Side CIS Flat Cable

- (1) Remove the six Taptite bind B M4x12 screws to remove the Scanner top cover ASSY from the Document scanner bottom cover ASSY.

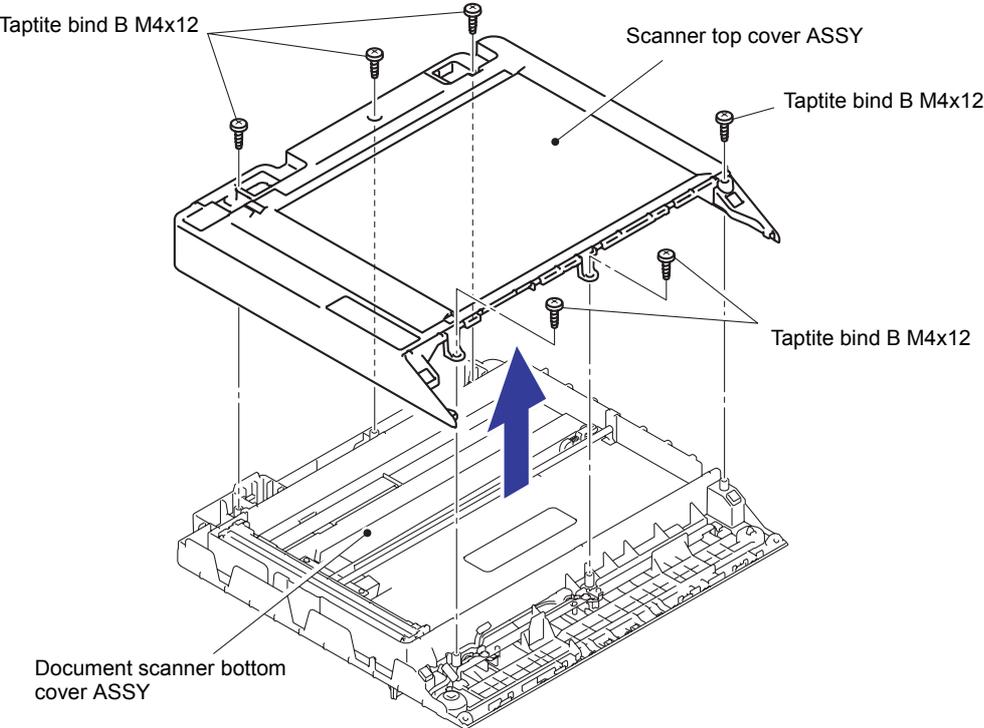


Fig. 3-140

- (2) Remove the CIS guide L and CIS guide R from the First side CIS unit.

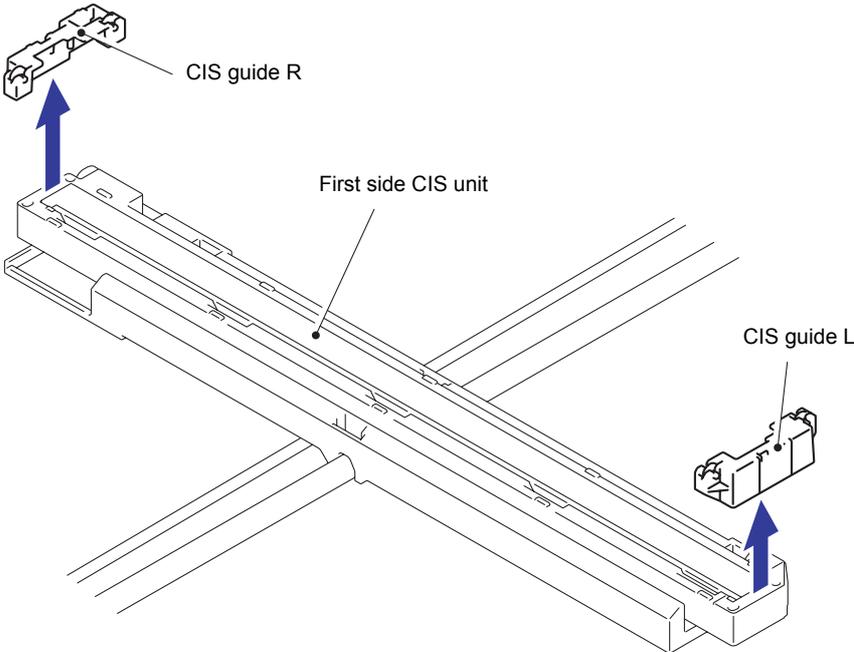


Fig. 3-141

(3) Remove the First side CIS unit from the CIS drive belt.

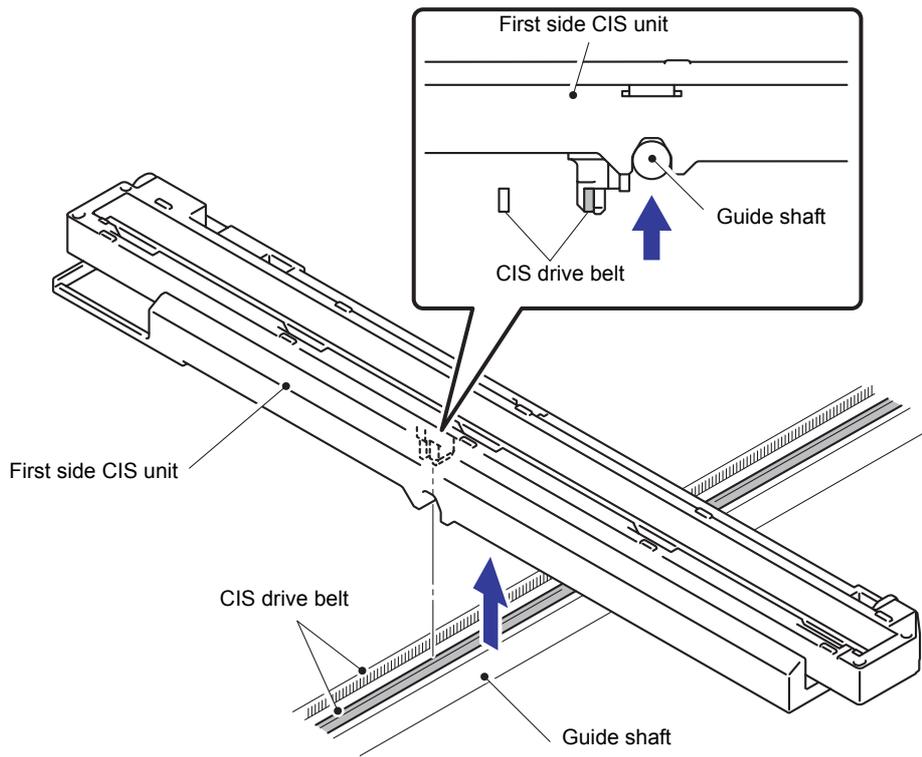


Fig. 3-142

(4) Remove the Double-sided adhesive tape from the First side CIS flat cable.

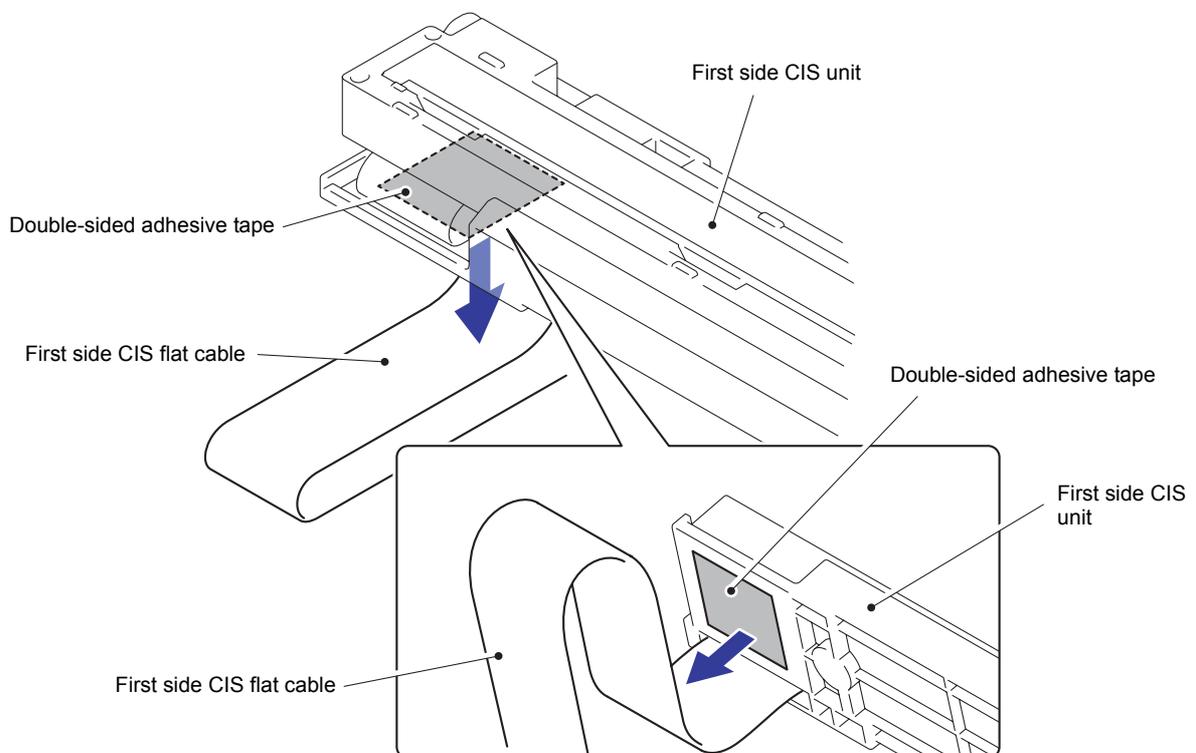


Fig. 3-143

- (5) Open the First side CIS unit to disconnect the First side CIS flat cable from the Connector (CN1) of the First side CIS unit.

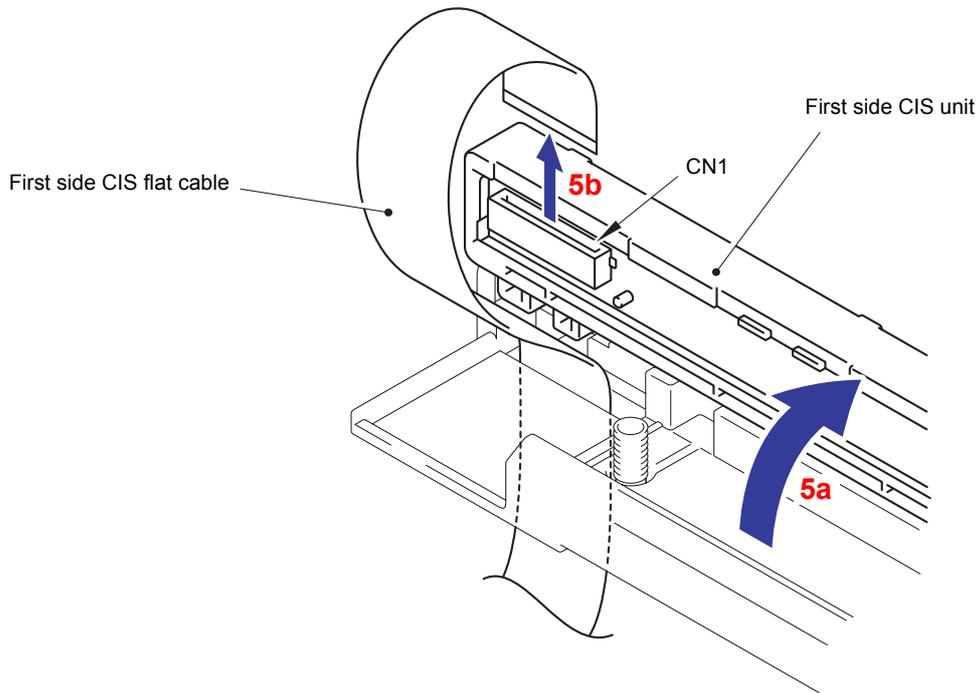


Fig. 3-144

- (6) Release the two Pins to remove the First side CIS unit from the CIS carriage.

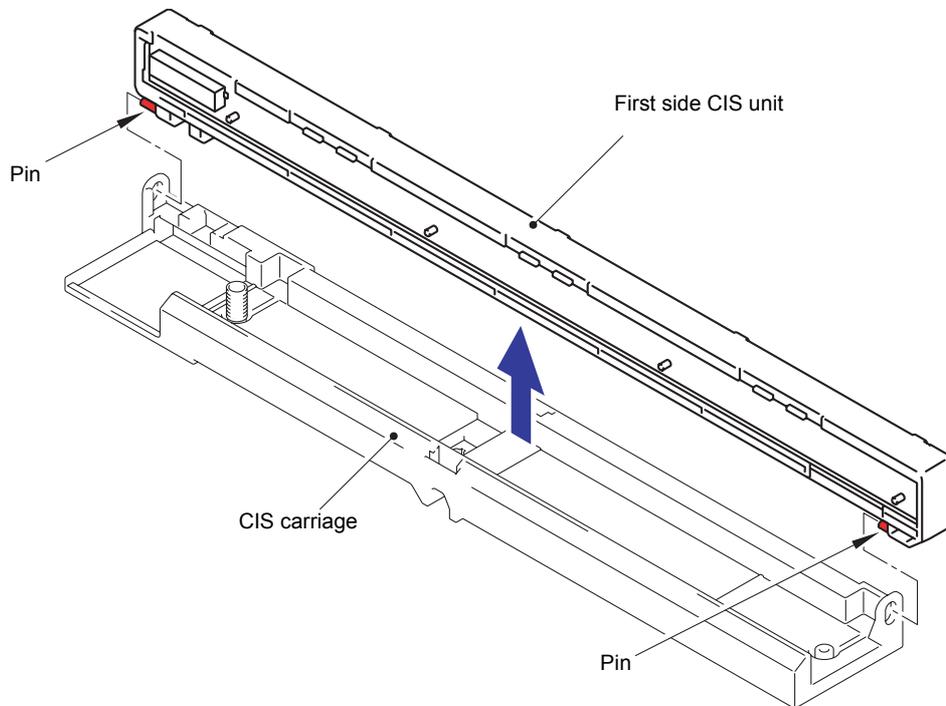


Fig. 3-145

- (7) Remove the three Double-sided adhesive tapes.

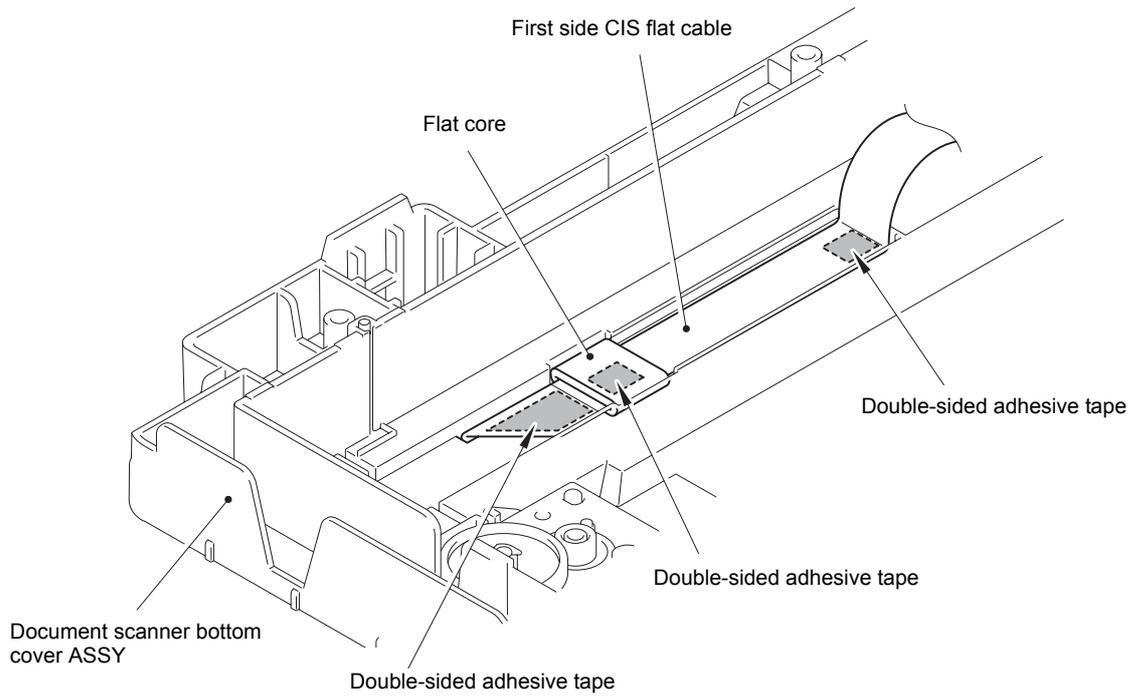


Fig. 3-146

- (8) Pull out the First side CIS flat cable from the Hole of the Document scanner bottom cover ASSY.
- (9) Remove the Flat core from the First side CIS flat cable.

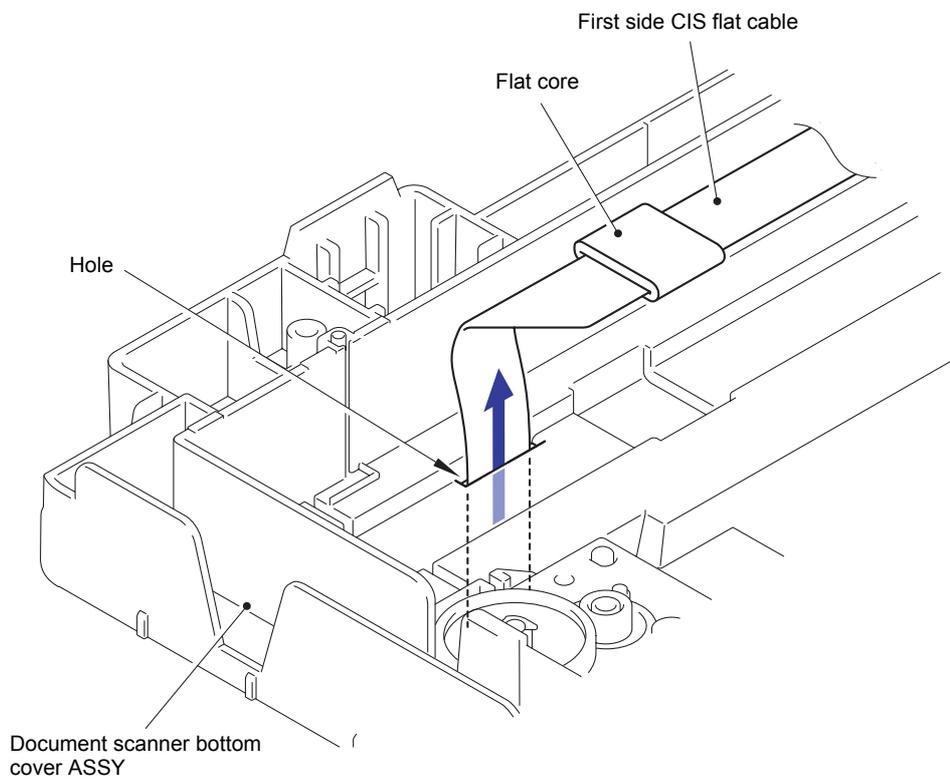


Fig. 3-147

Assembling Note:

When the Document scanner unit are replaced, be sure to fold and assemble the Document scanner unit flat cable as shown in the figure.

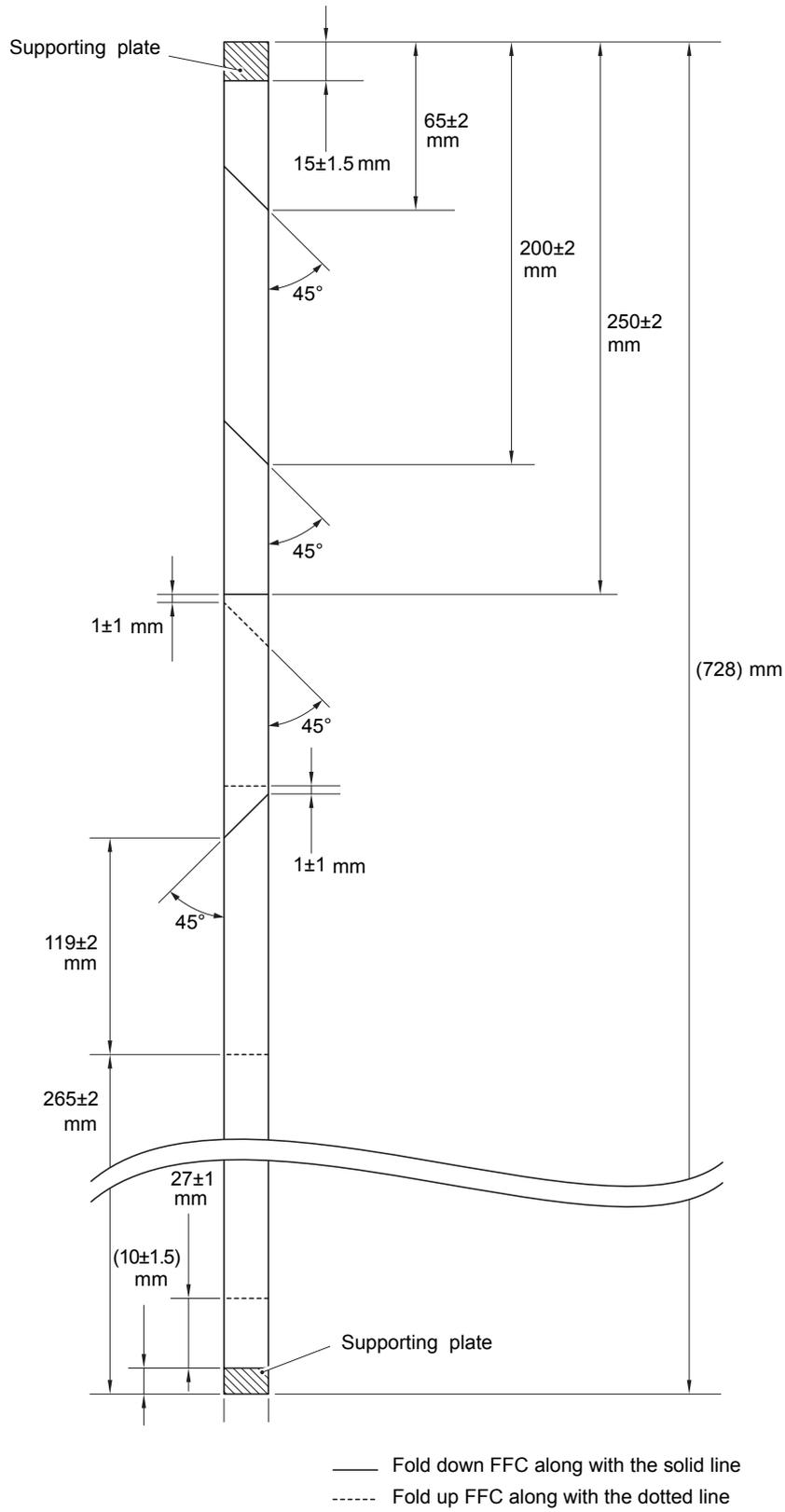


Fig. 3-148

Harness routing: Refer to "15 Document Scanner Unit"

8.44 LED Control Flat Cable

- (1) Assemble the Sub frame ASSY to the two Bosses of the Main body.

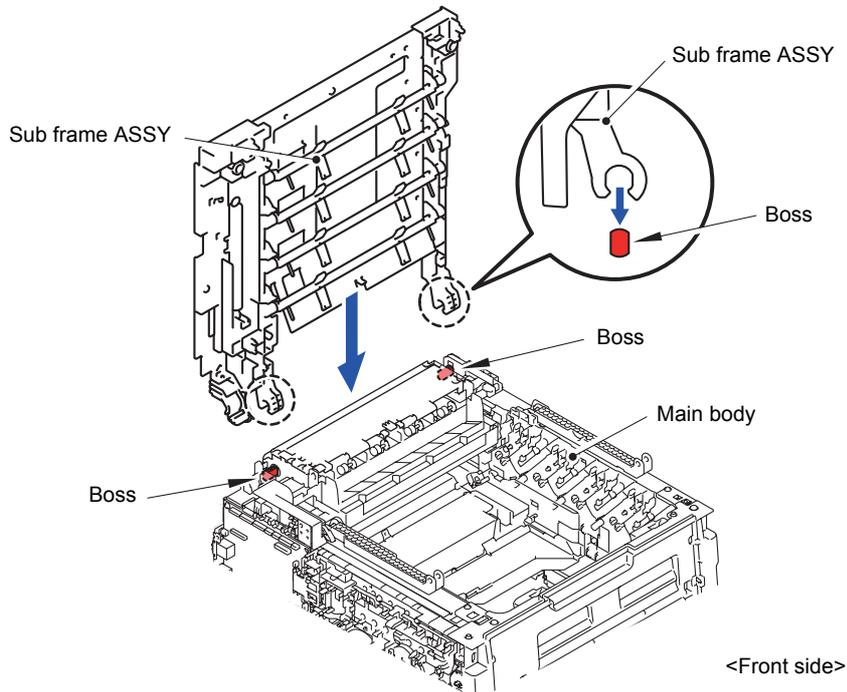


Fig. 3-149

- (2) Assemble the Joint arm L into the two Pins of the Sub frame ASSY.
- (3) Assemble the Arm R into the Boss of the Sub frame ASSY.

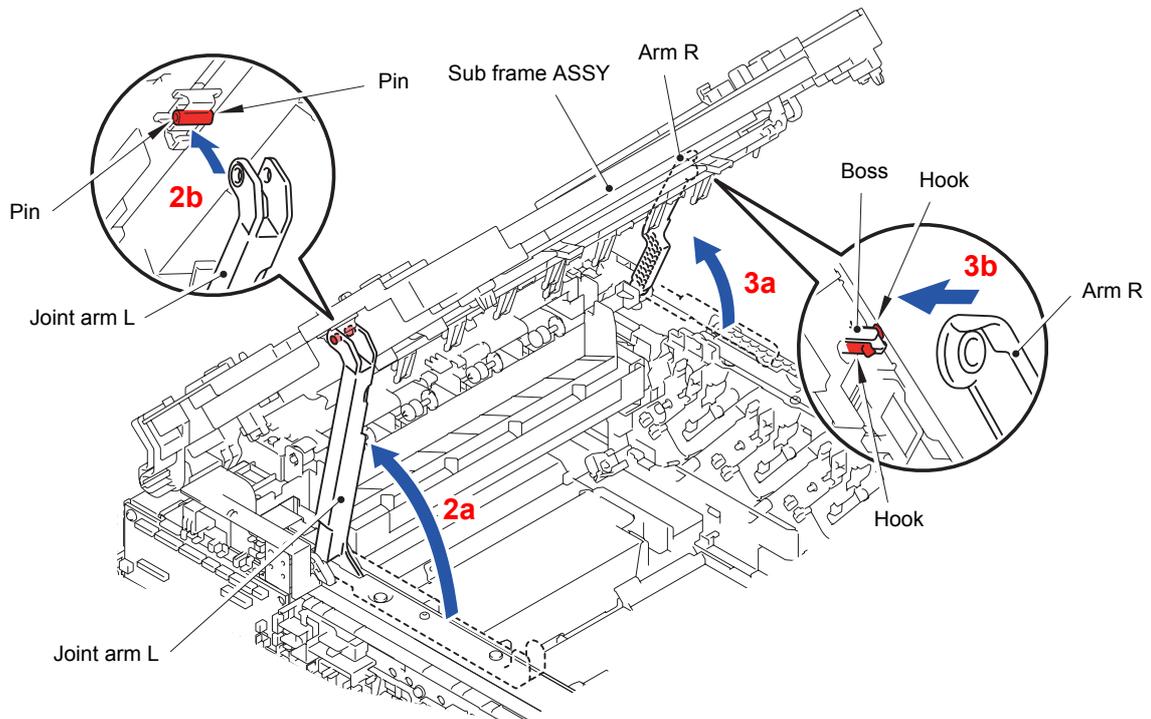


Fig. 3-150

(4) Close the Sub frame ASSY.

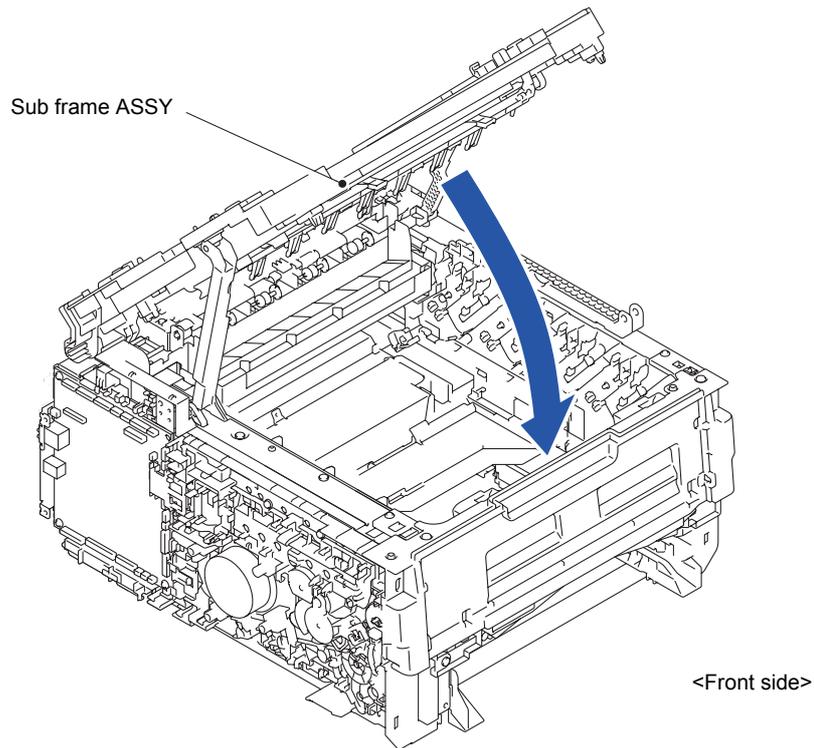


Fig. 3-151

(5) Remove the three Taptite cup S M3x8 SR screws to remove the LED PCB cover from the LED control PCB ASSY.

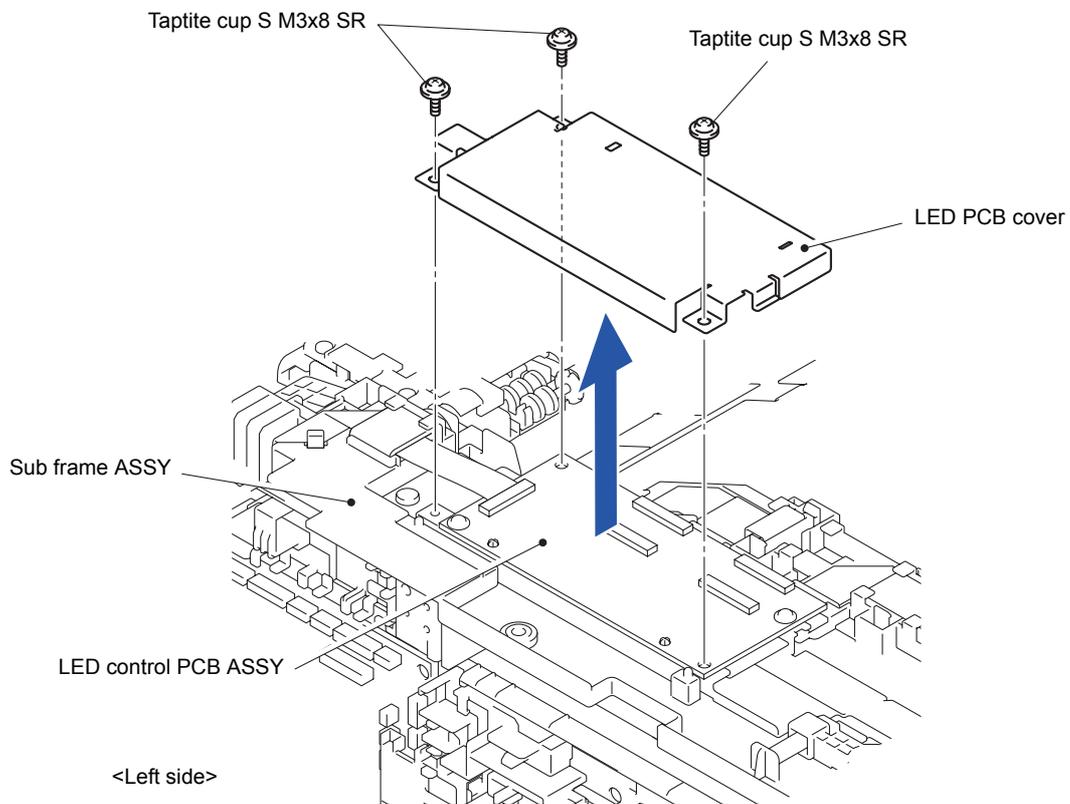


Fig. 3-152

- (6) Release the Lock to disconnect the LED control flat cable from the LED control PCB ASSY.

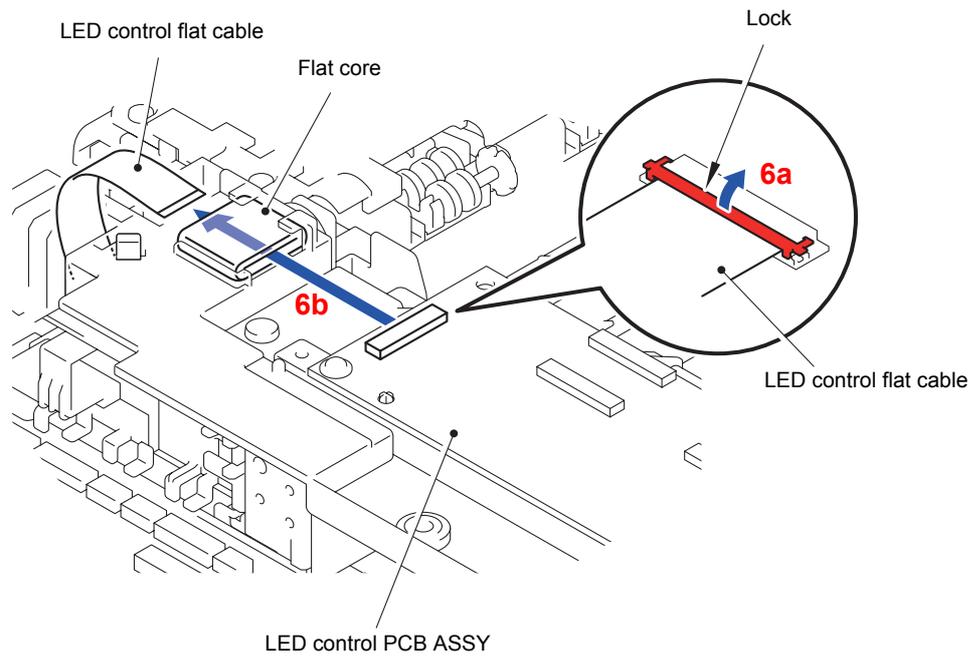


Fig. 3-153

- (7) Remove the Flat cable sponge from the LED control flat cable.

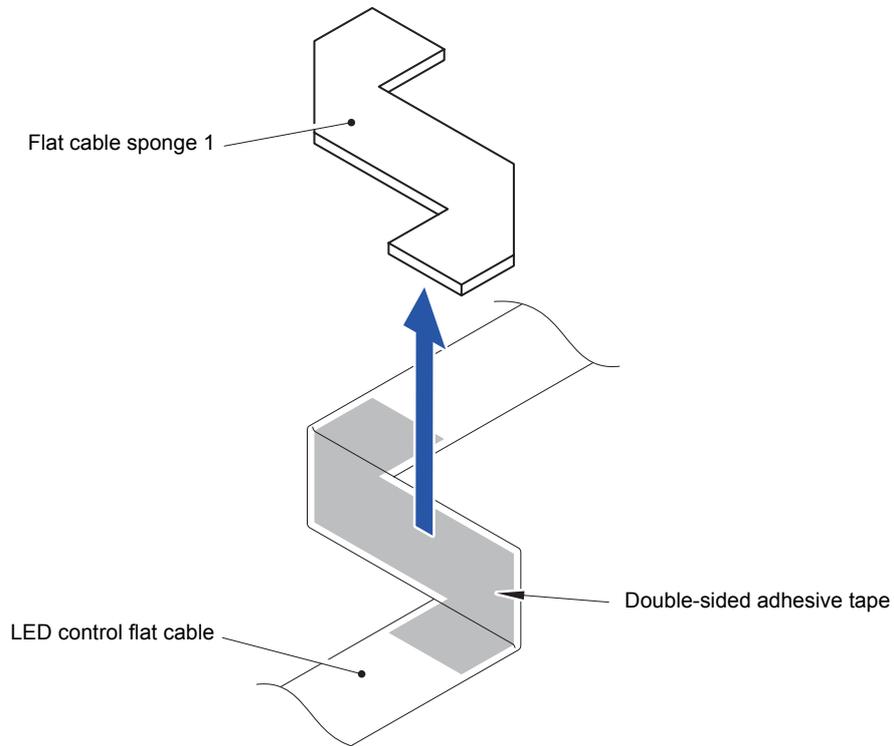


Fig. 3-154

Assembling Note:

When attaching the Flat cable sponge to the LED control flat cable, be careful not to let the Flat cable sponge extend from the LED control flat cable.

<How to Fold flat cable of the LED control flat cable>

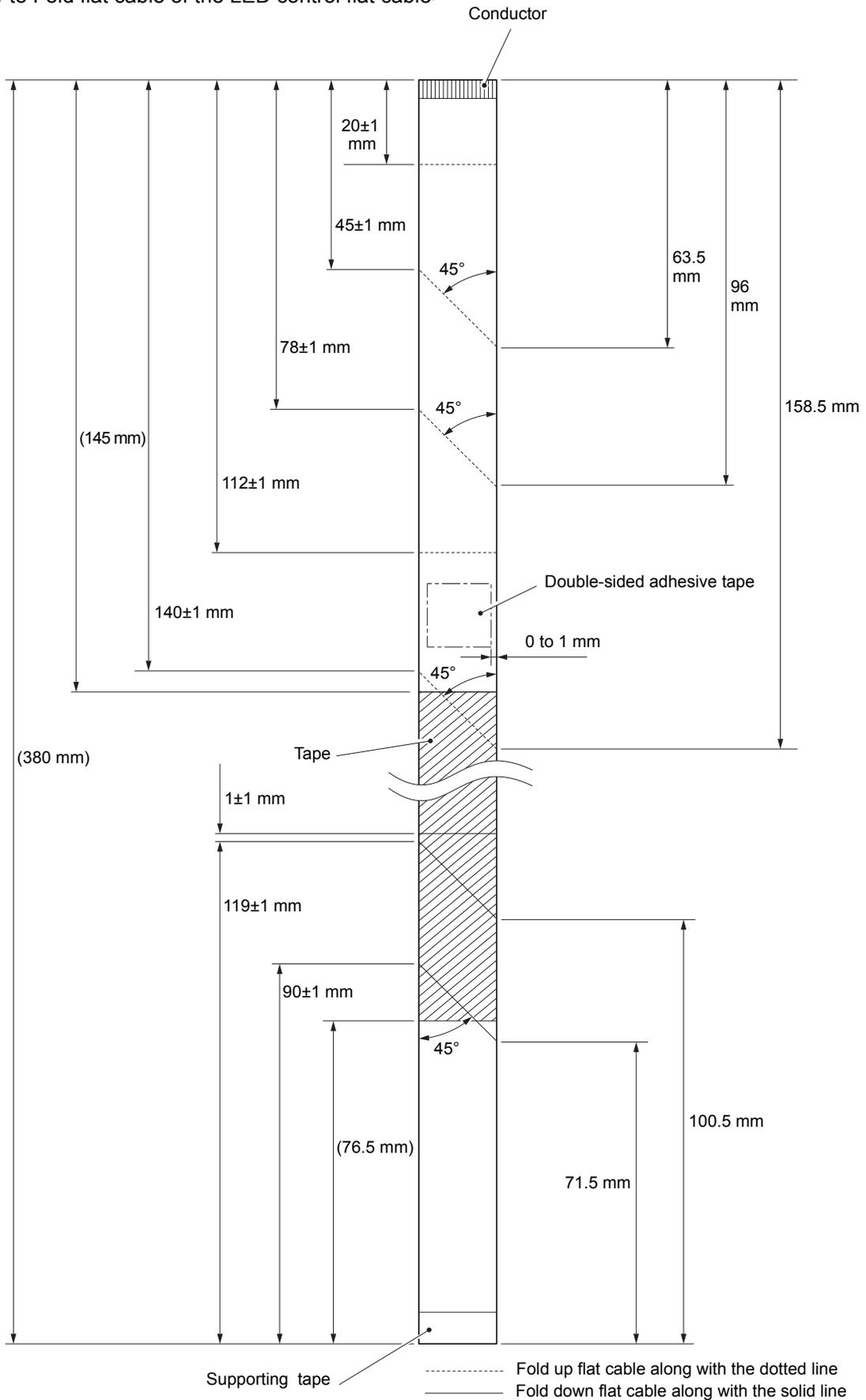


Fig. 3-155

8.45 LED Flat Cable

- (1) Release the Lock of the LED flat cable connector (CN2). Disconnect the LED flat cable (M) from the LED control PCB ASSY. Release the Lock of the LED flat cable connector (CN4). Disconnect the LED flat cable (Y) from the LED control PCB ASSY.

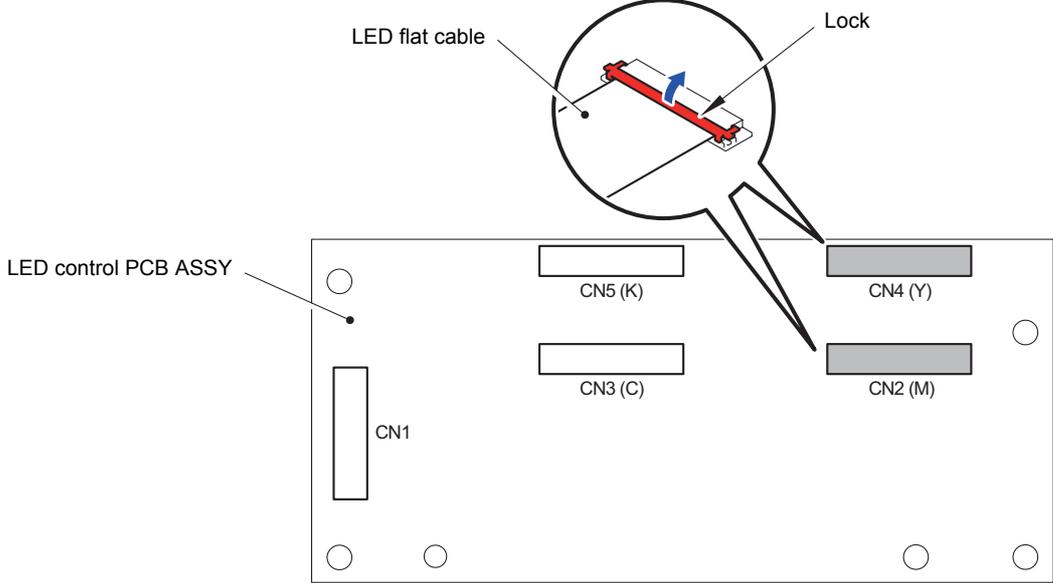


Fig. 3-156

- (2) Remove the Flat core from the two LED flat cables (Y and M) of the LED flat cable holder.

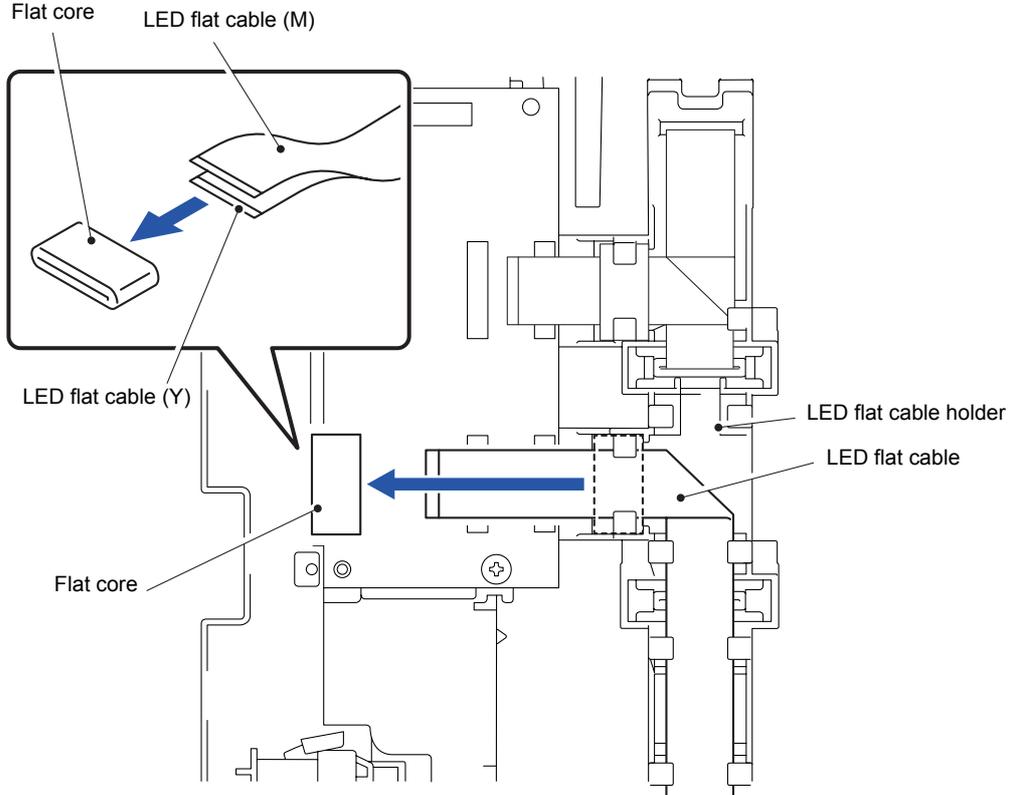


Fig. 3-157

- (3) Pull out the LED flat cable (Y) from the Flat core of the LED flat cable holder.
- (4) Pull out the LED flat cable (M) from the Flat core of the LED flat cable holder.

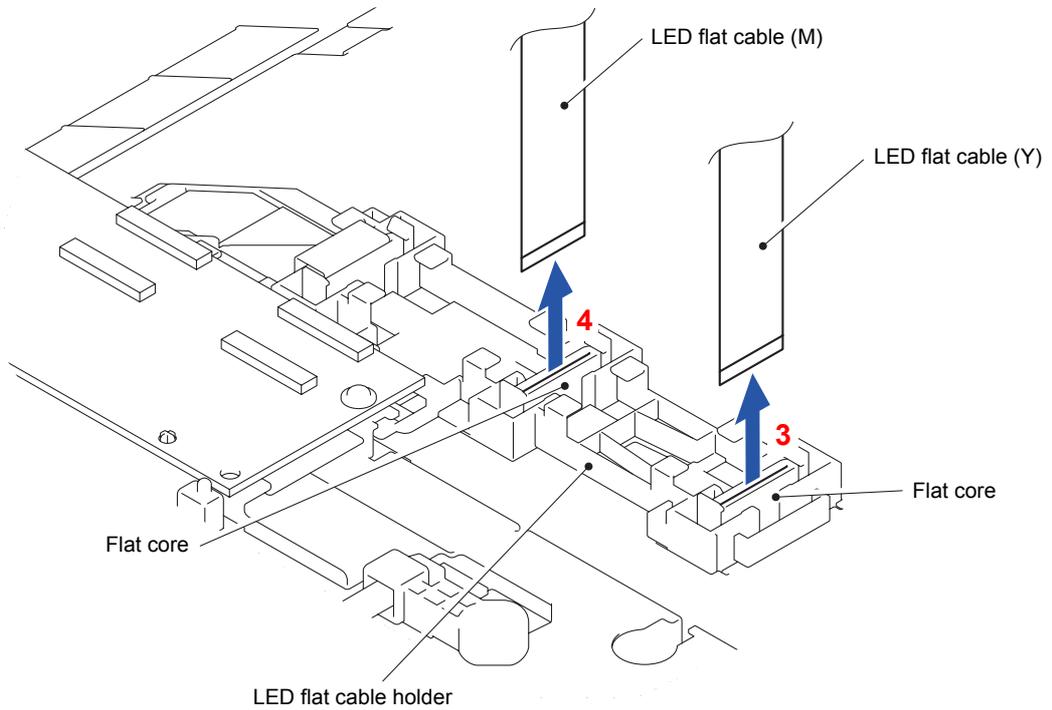


Fig. 3-158

- (5) Release the Lock of the LED flat cable connector (CN3). Disconnect the LED flat cable (C) from the LED control PCB ASSY.
Release the Lock of the LED flat cable connector (CN5). Disconnect the LED flat cable (K) from the LED control PCB ASSY.

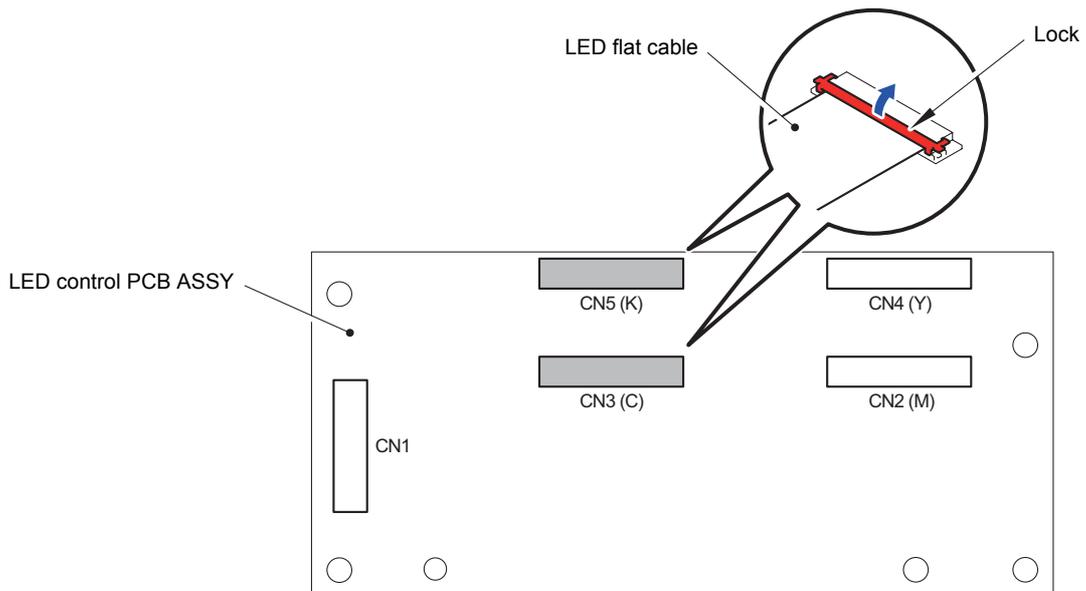


Fig. 3-159

- (6) Remove the Flat core from the two LED flat cables (C and K) of the LED flat cable holder.

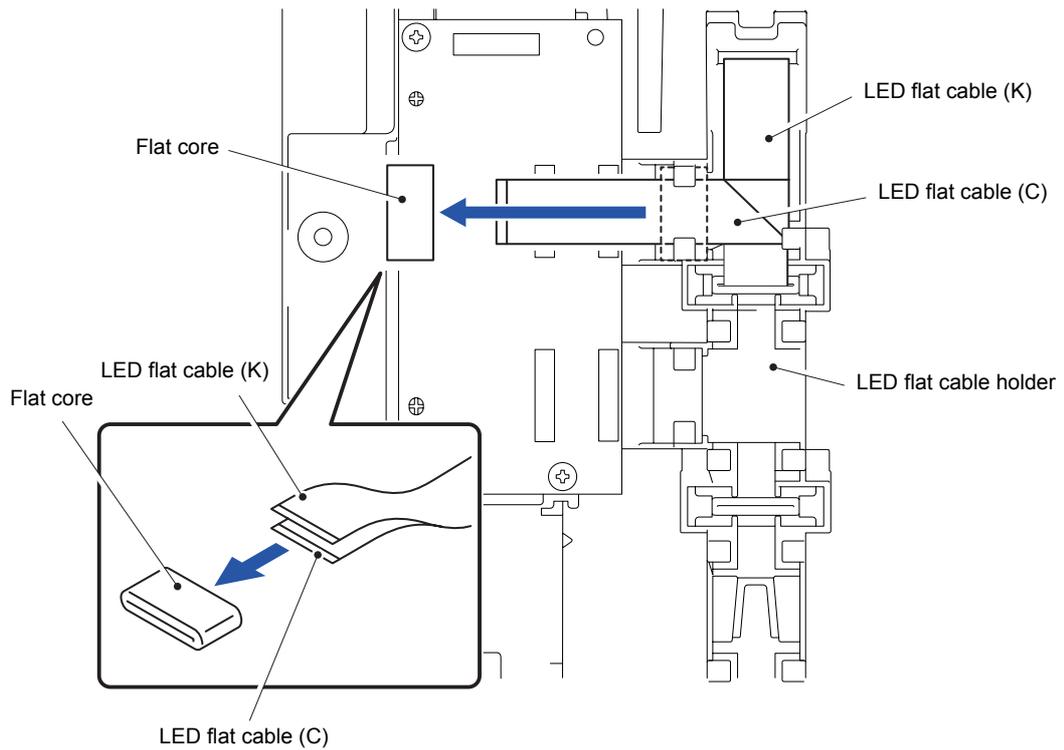


Fig. 3-160

- (7) Pull out the LED flat cable (C) from the Flat core.
(8) Pull out the LED flat cable (K) from the LED flat cable holder by removing the Double-sided adhesive tape.

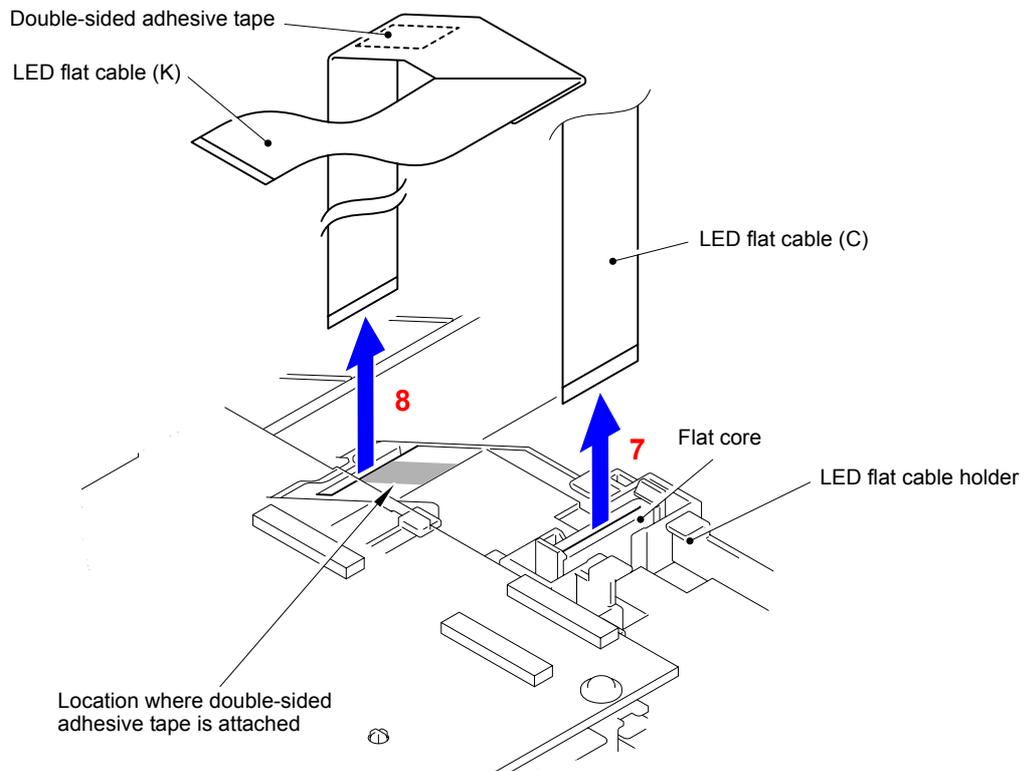


Fig. 3-161

<Flat cable>

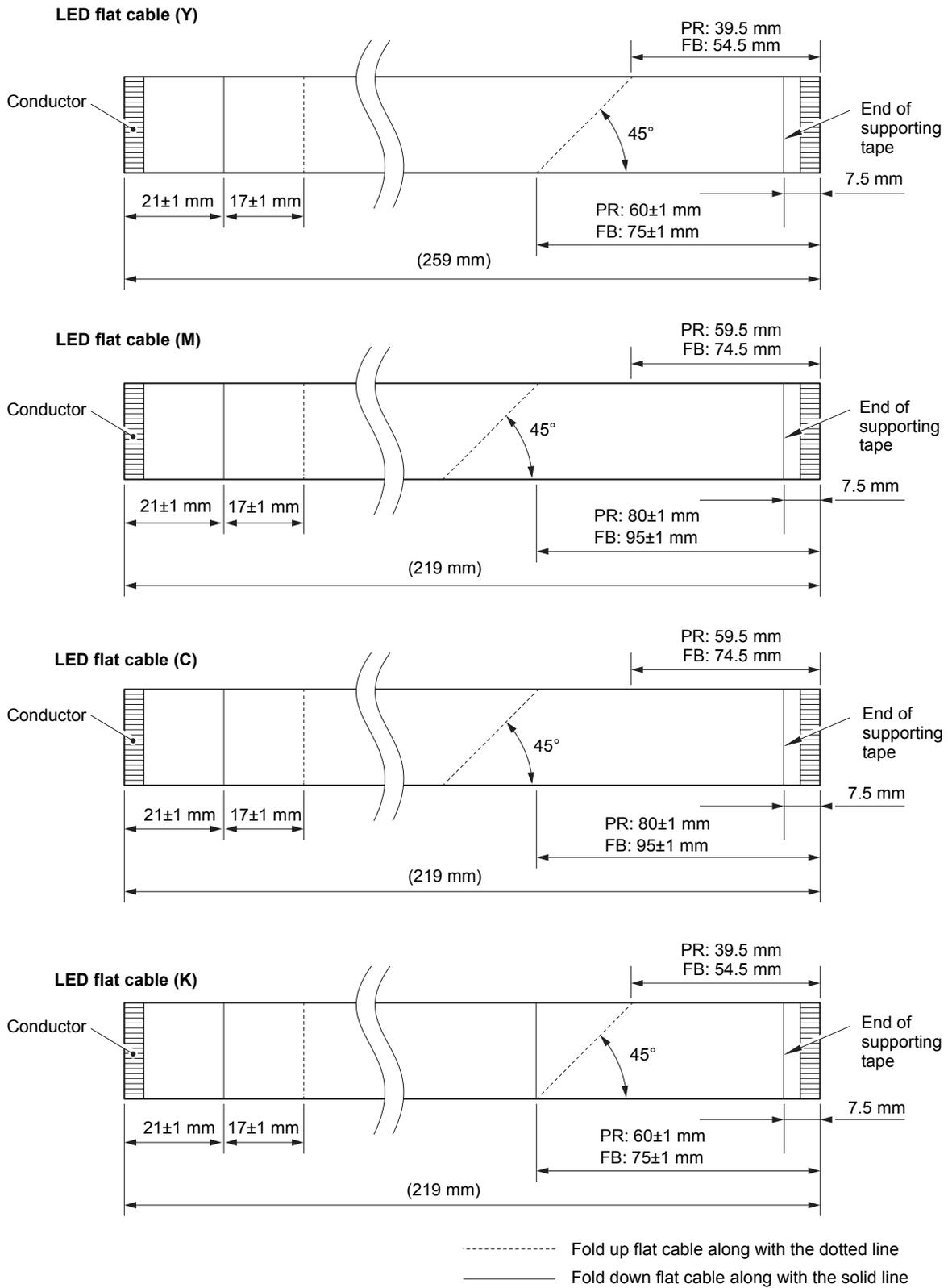


Fig. 3-162

8.46 LED Control PCB ASSY

- (1) Remove the two Taptite cup S M3x8 SR screws to remove the LED control PCB ASSY from the Sub frame ASSY.

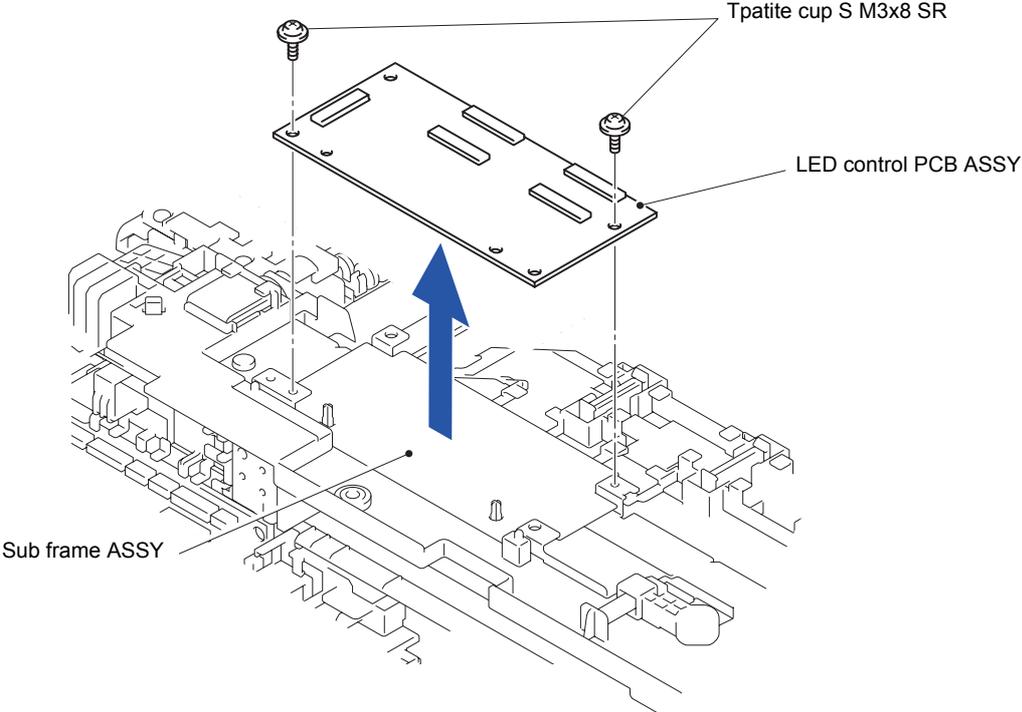


Fig. 3-163

8.47 Back cover

(1) Place the Back cover lower on the Ma² as shown in the figure below.

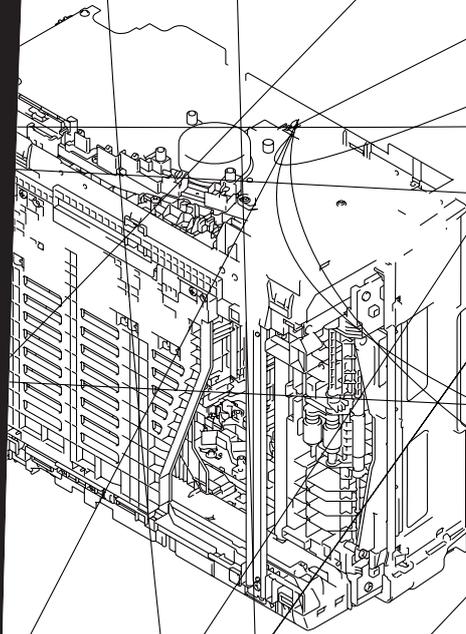


Fig. 3-164

(2) Release the Back cover lower to remove the Back cover lower from the Ma².

Fig. 3-165

8.48 Duplex Tray (2-sided Printing Model Only)

- (1) Remove the two Taptite bind B M4x12 screws. Release the two Bosses to remove the Duplex tray from the Main body.

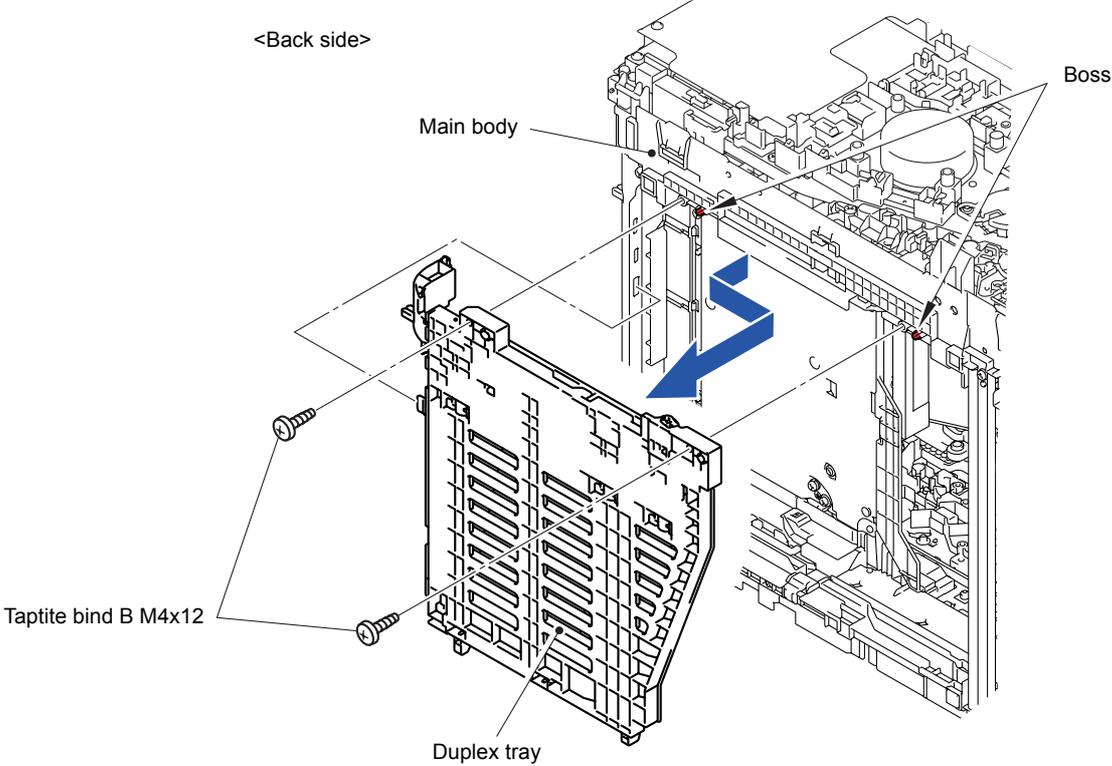


Fig. 3-166

8.49 External Temperature/Humidity Sensor PCB ASSY

- (1) Disconnect the Connector (CN21) from the Main PCB ASSY.

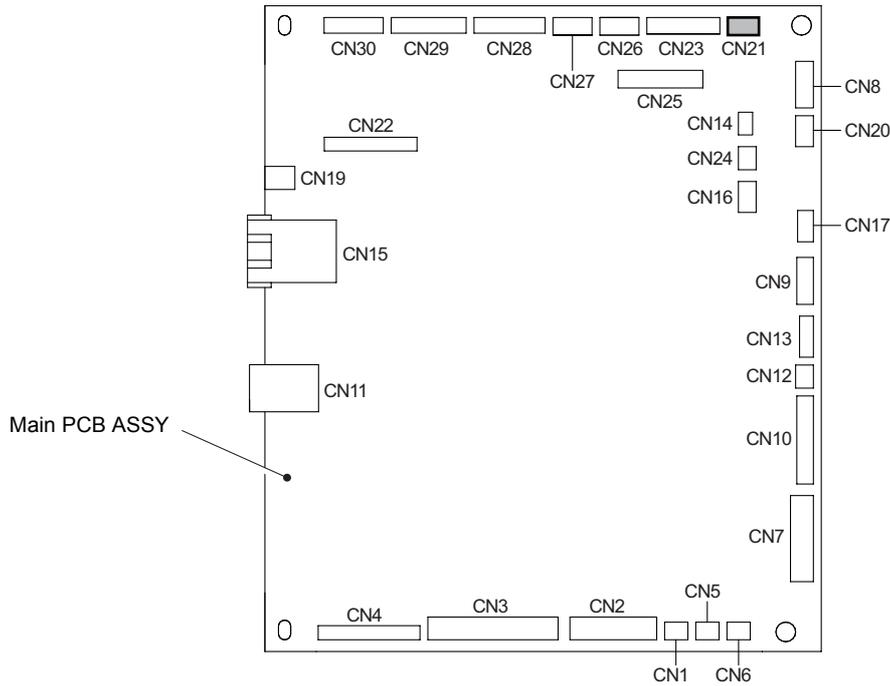


Fig. 3-167

- (2) Disconnect the wiring of the External temperature/humidity sensor harness.
- (3) Release the Hook to remove the External temperature/humidity sensor PCB ASSY from the Main PCB ASSY.

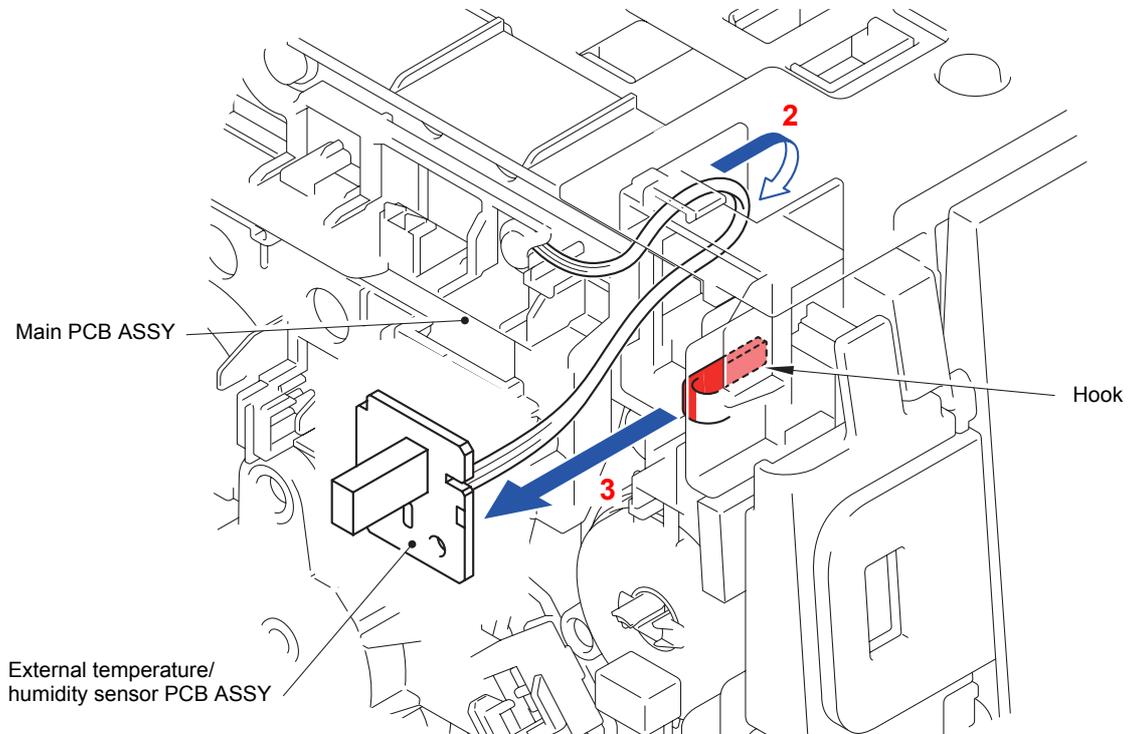


Fig. 3-168

Harness routing: Refer to "[2 External Temperature/Humidity Sensor PCB ASSY, Develop Release Clutch, Registration Clutch, Paper Feed Clutch, USB Host Relay PCB ASSY](#)"

8.50 Wireless LAN Cap/Wireless LAN PCB ASSY

- (1) Release the four Hooks to remove the Wireless LAN cap from the Line holder upper.

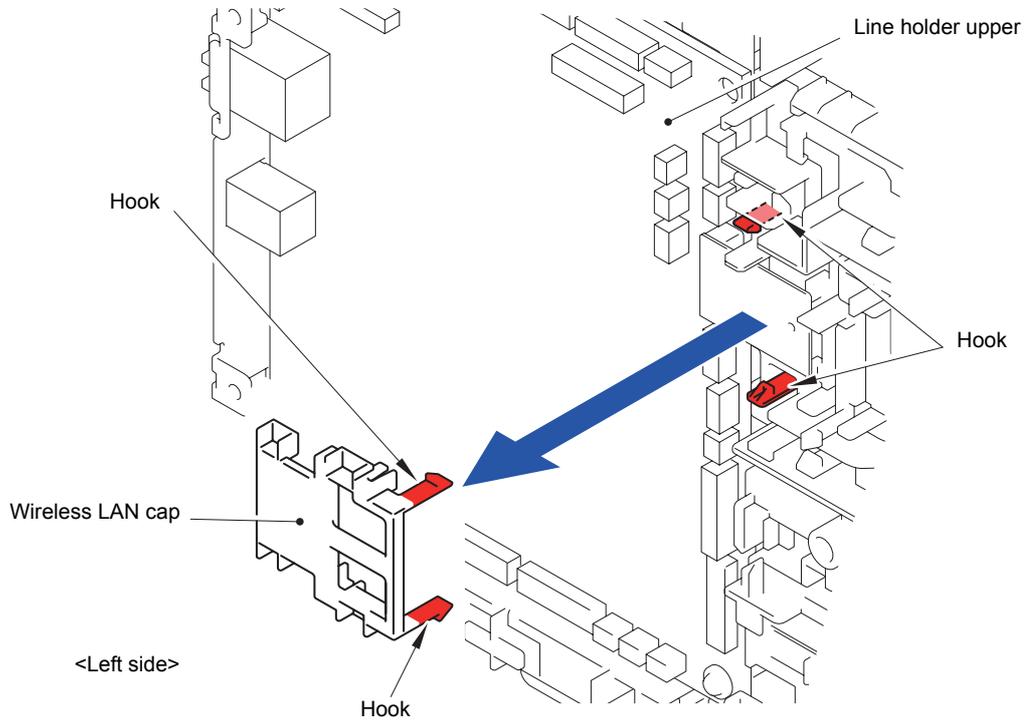


Fig. 3-169

- (2) Remove the Wireless LAN PCB ASSY from the Connector (CN17) of the Main PCB ASSY.
- (3) Remove the Spacer sponge from the Wireless LAN PCB ASSY.

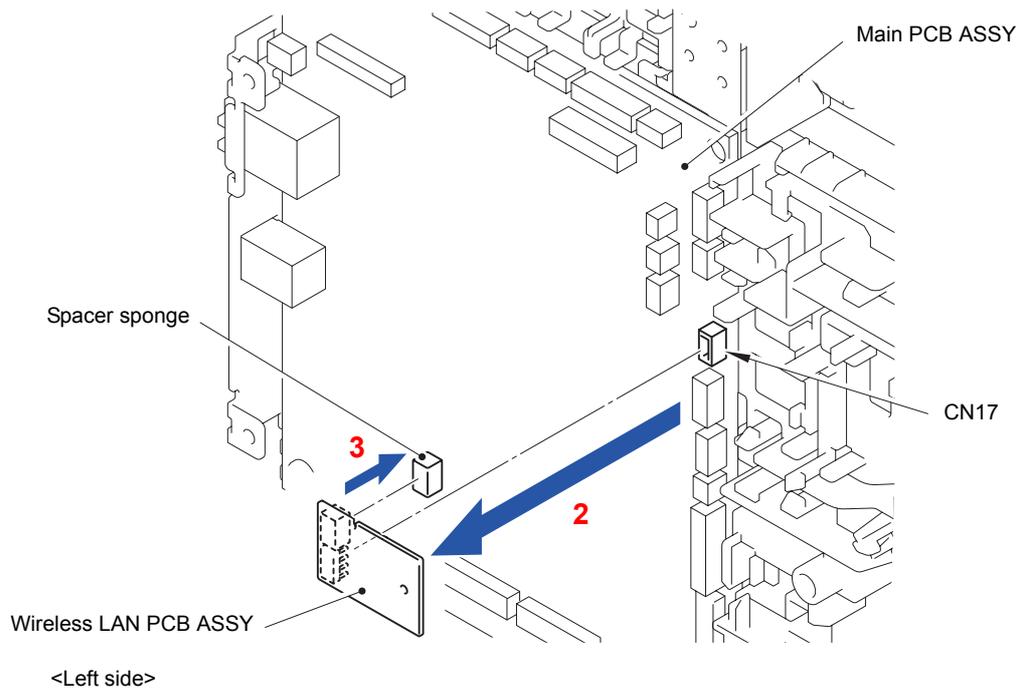


Fig. 3-170

Assembling Note:

When attaching the Spacer sponge to the Wireless LAN PCB ASSY, attach it to the position shown below. At the same time, the Double-sided adhesive tape needs to be replaced with a new one.

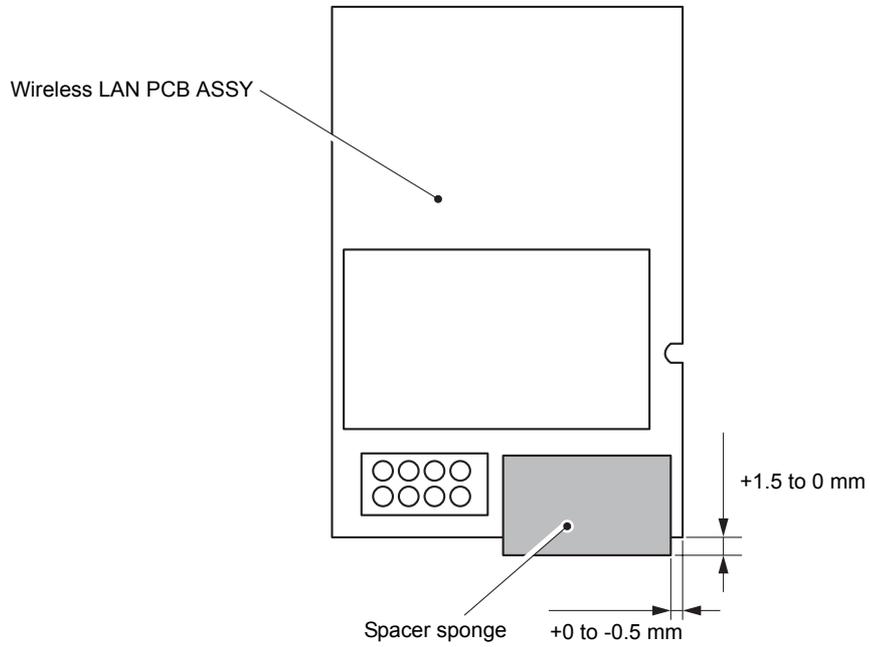


Fig. 3-171

8.51 Main PCB ASSY

- (1) Disconnect the eleven Connectors (CN1, CN4, CN5, CN6, CN9, CN10, CN12, CN13, CN14, CN16 and CN20) and three Flat cables (CN2, CN3 and CN7) from the Main PCB ASSY.

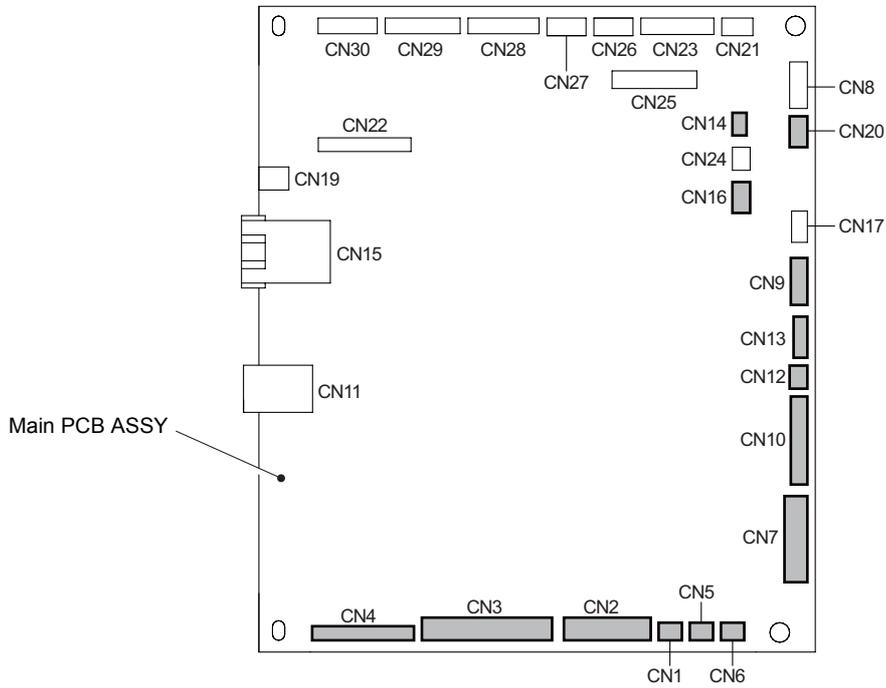


Fig. 3-172

- (2) Remove the three Taptite cup S M3x8 SR screws to remove the Main PCB ASSY from the Side frame L ASSY.

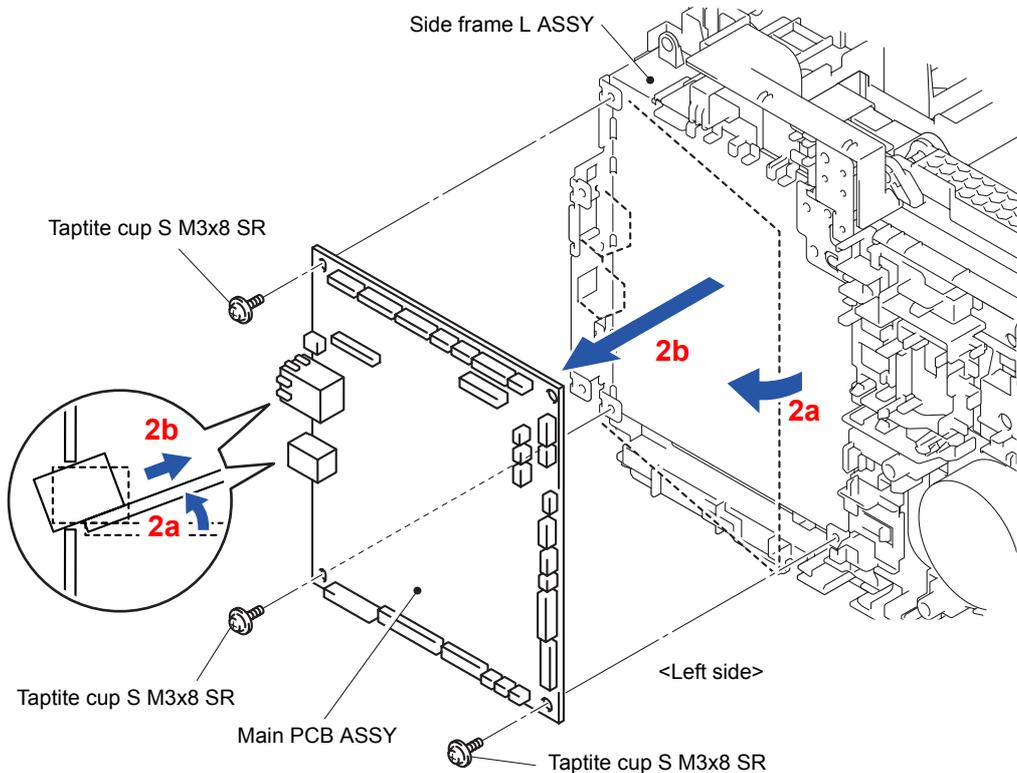


Fig. 3-173

8.52 Develop Release Clutch

- (1) Disconnect the wiring of the Registration clutch harness.
- (2) Remove the Taptite cup S M3x8 SR screw. Release the three Hooks to remove the Develop clutch gear cover from the Side frame L ASSY.

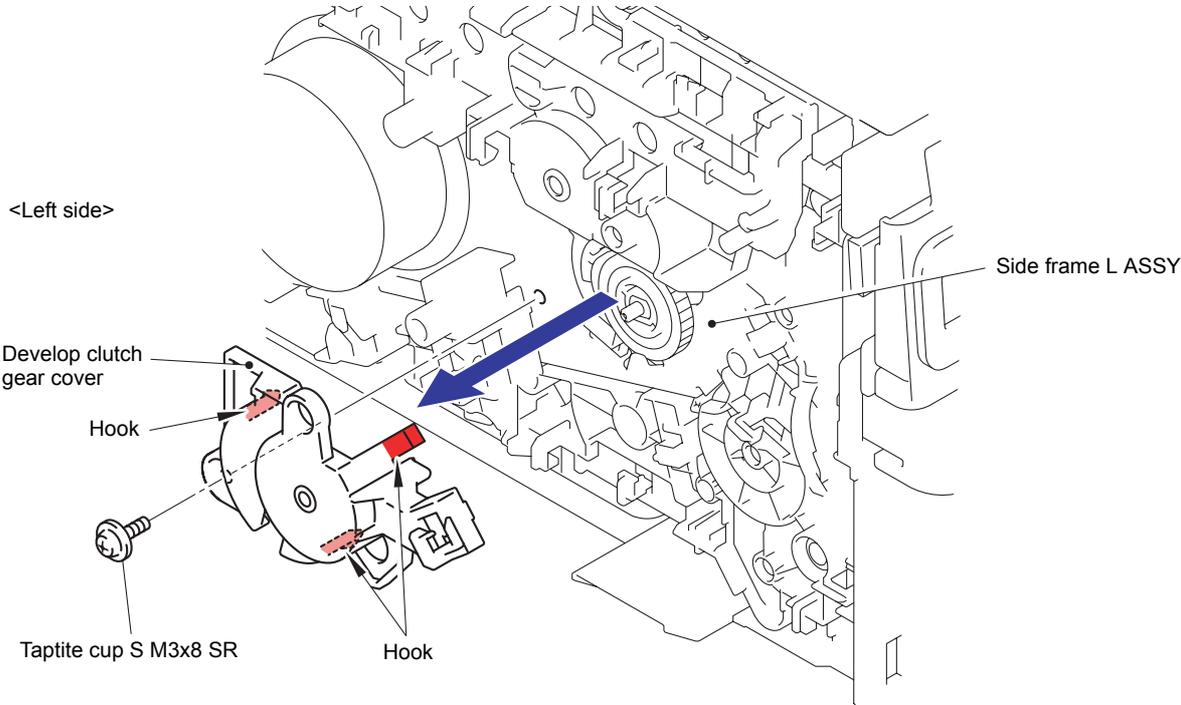


Fig. 3-174

- (3) Remove the Develop release drive gear Z33 from the Side frame L ASSY.

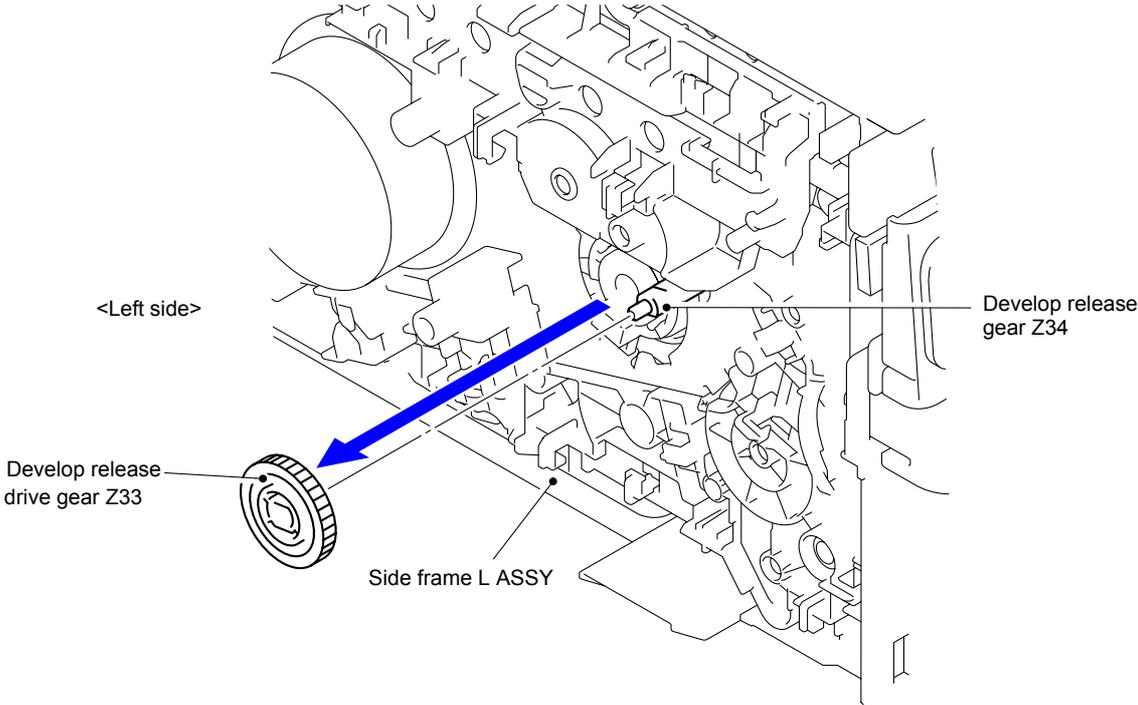


Fig. 3-175

- (4) Disconnect the wiring of the Develop release clutch harness.
- (5) Remove the Develop release clutch from the Side frame L ASSY.

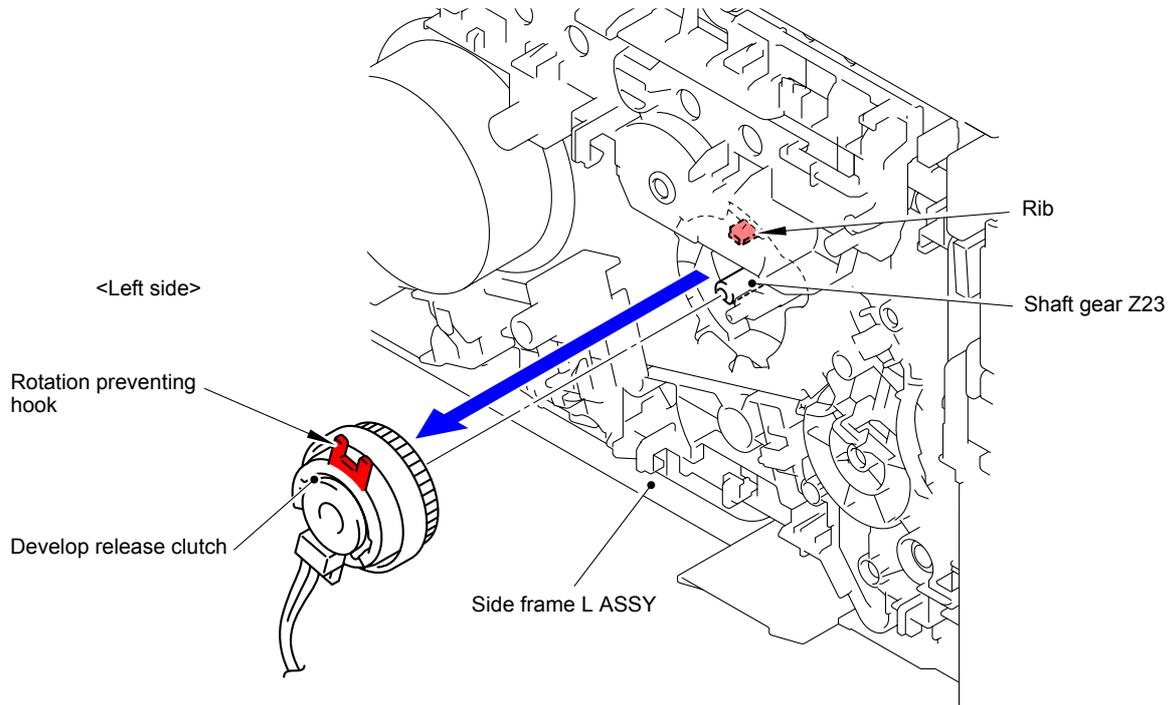


Fig. 3-176

Assembling Note:

When assembling the Develop release clutch, align the rib of the Main body and the end of the Rotation preventing hook in the figure below.

Assembling Note:

When assembling the Develop release link, be sure to assemble that the positional relationship between "A" of the Develop release cam and Develop release link is as shown in the figure.

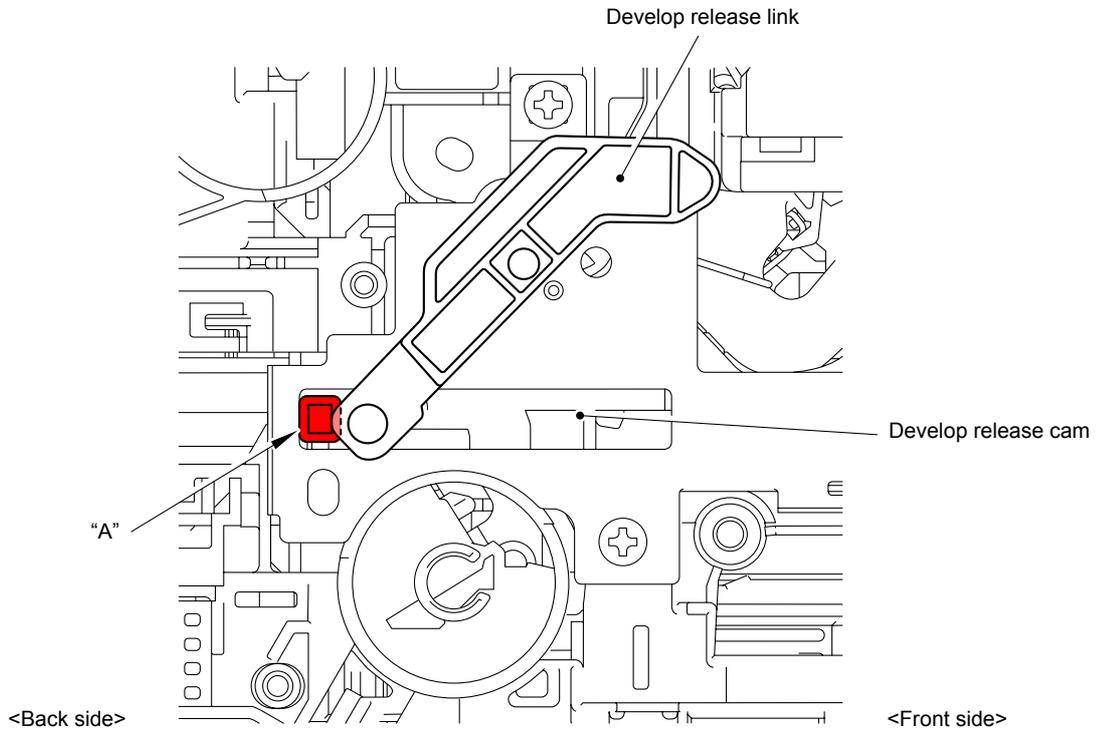


Fig. 3-177

Assembling Note:

When assembling the Develop release link holder, be sure to assemble that the positional relationship between "A" of the Develop release link and Develop release link spring is as shown in the figure. (Make sure that the portion "A" is not at the front of the spring.)

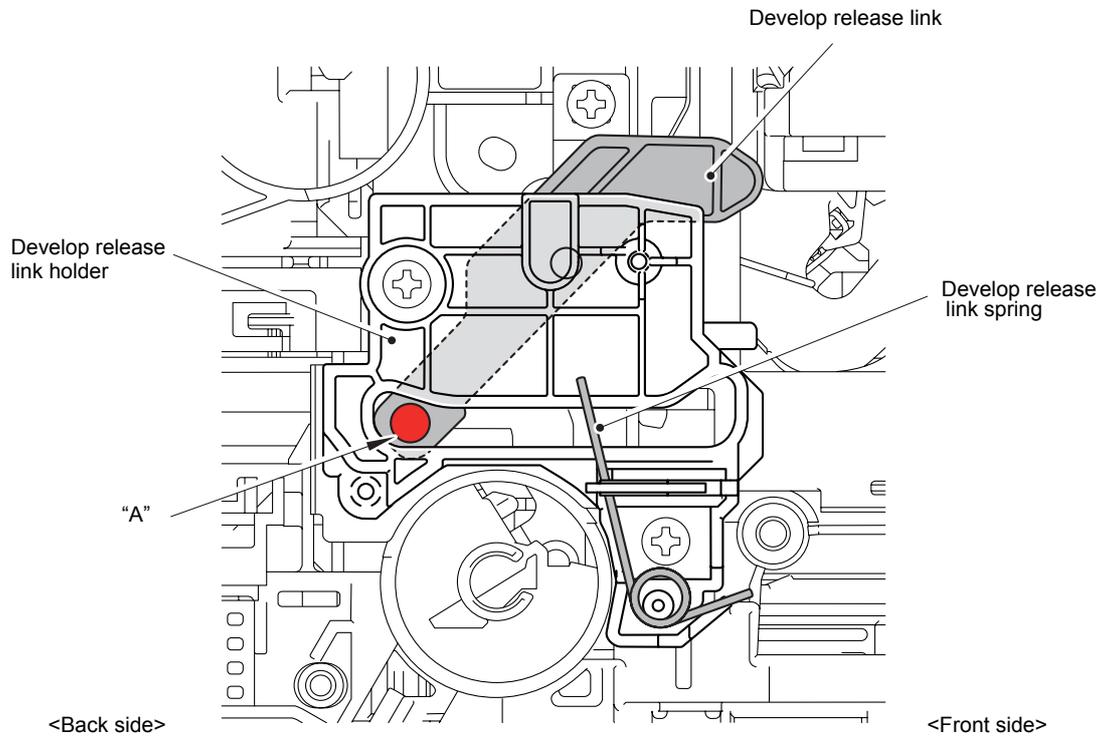


Fig. 3-178

Assembling Note:

- When assembling the Develop release clutch, develop release operation may not work properly if the Develop release cam and Develop release link are misaligned.
- When assembling the Develop clutch cam so that the end of the Develop clutch cam aligns with the reference line of the Develop release cam cover when viewed from the Hole of the Develop clutch cam cover.

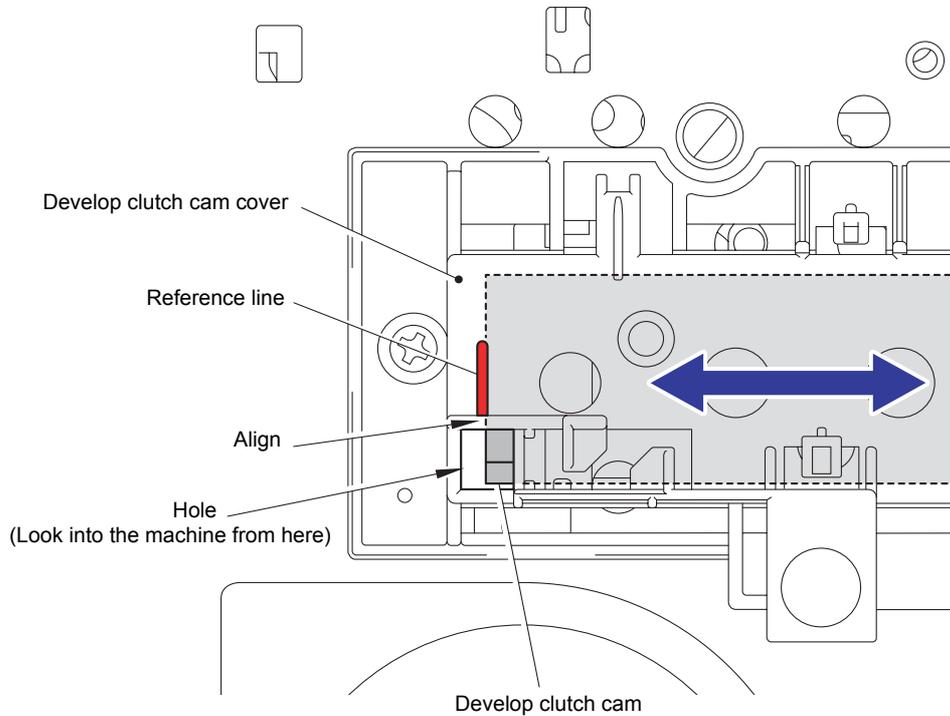


Fig. 3-179

Harness routing: Refer to "[2 External Temperature/Humidity Sensor PCB ASSY, Develop Release Clutch, Registration Clutch, Paper Feed Clutch, USB Host Relay PCB ASSY](#)"

8.53 Process Drive Unit

- (1) Disconnect the wiring of the Back cover sensor harness.
- (2) Remove the two Taptite cup S M3x8 SR screws to remove the Flat cable guide.

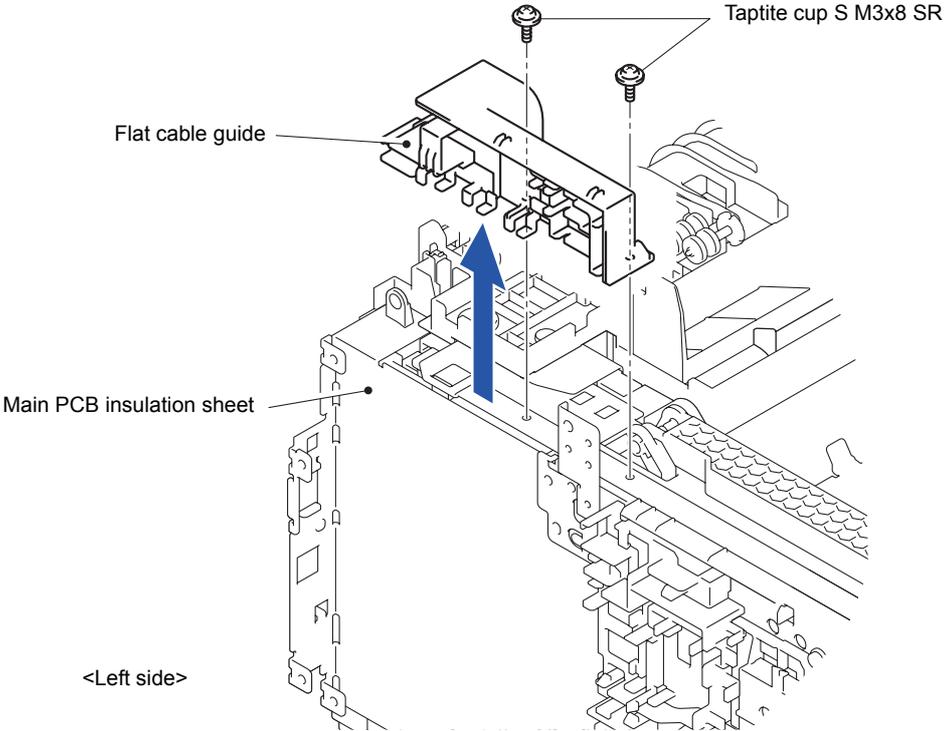


Fig. 3-180

- (3) Release the two Hooks to remove the Main PCB insulation sheet from the Side frame L ASSY.

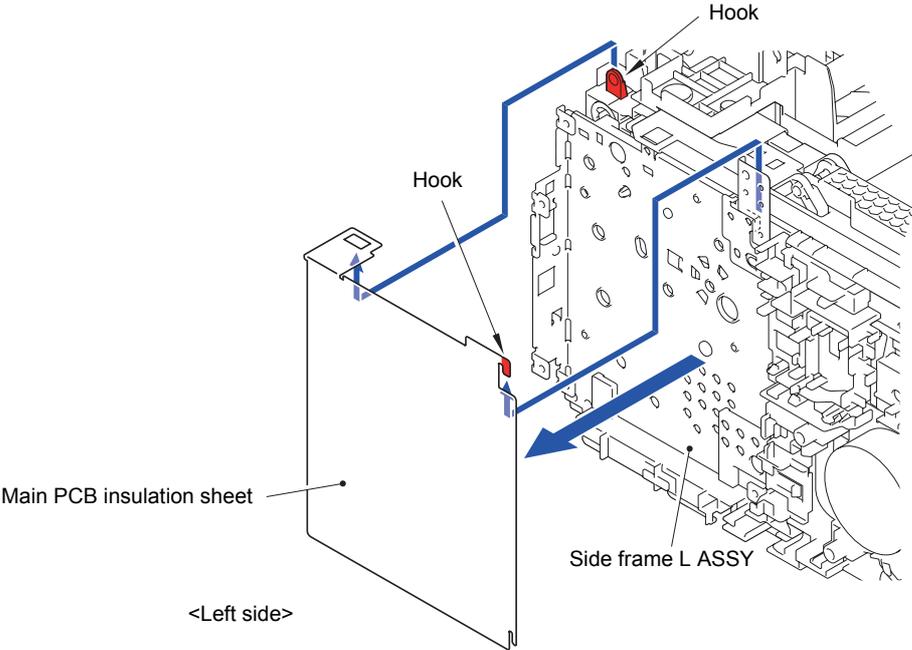


Fig. 3-181

- (4) Remove the two Taptite cup S M3x8 SR screws. Release the Hook to remove the Main shield plate from the Side frame L ASSY.

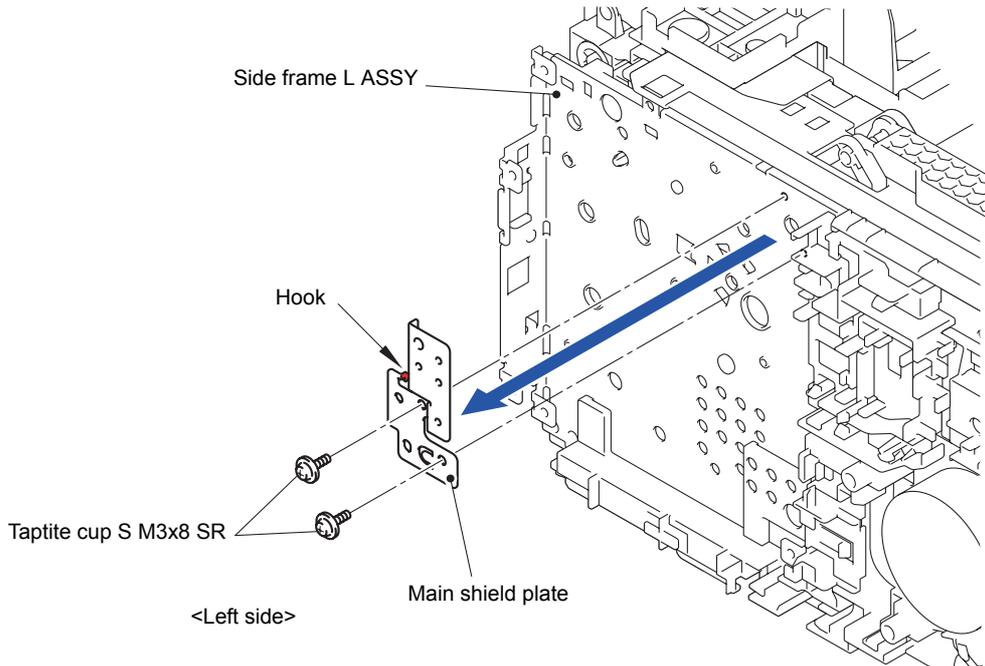


Fig. 3-182

- (5) Disconnect the wiring of the Main USB-HOST harness ASSY, Registration clutch harness, Paper feed clutch harness, Registration front/rear/manual feed sensor harness, Paper feed harness and Eject sensor PCB harness.
- (6) Release the three Hooks to remove the Line holder upper FB from the Process drive unit.

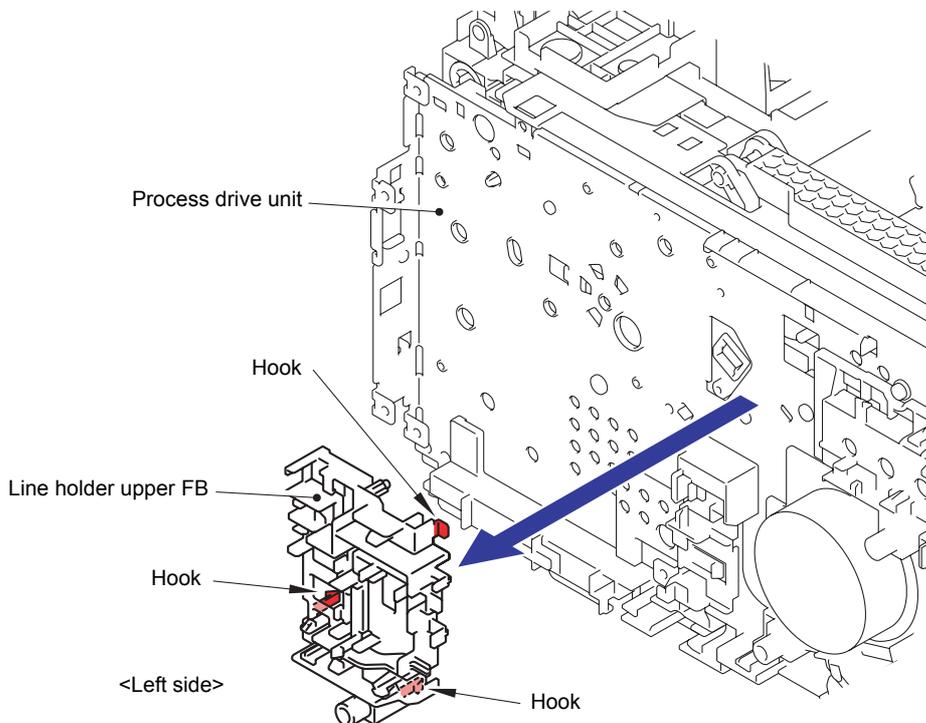


Fig. 3-183

- (7) Remove the Screw pan (S/P washer) M3.5x6 screw to remove the LVPS FG harness from the Process drive unit.

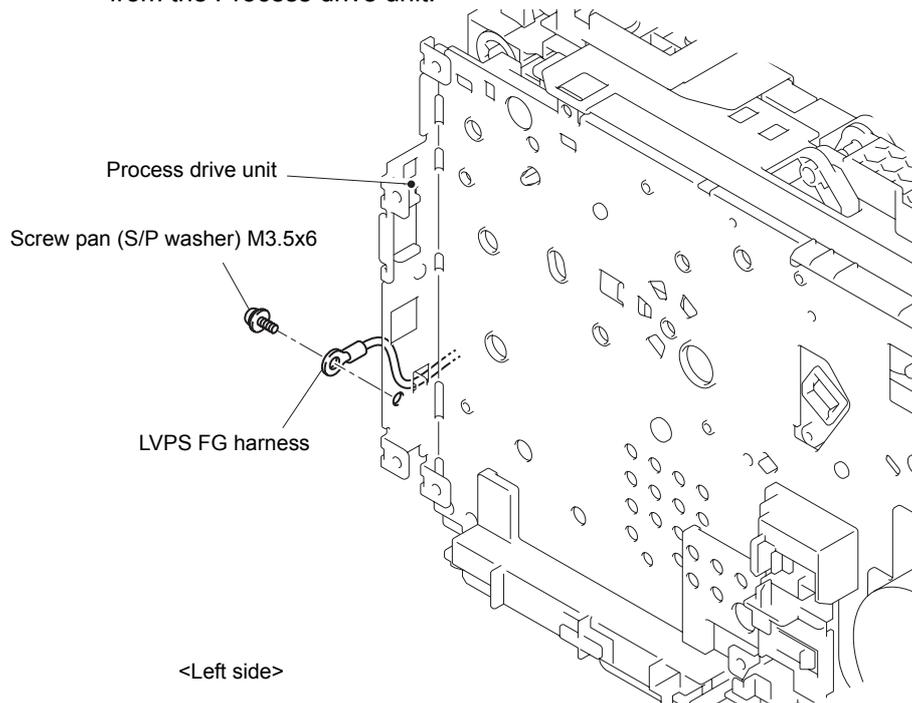


Fig. 3-184

- (8) Remove the two Taptite cup S M3x8 SR screws, seven Taptite bind B M4x12 screws, and the one Taptite pan (washer) B M4x12 DA screw. Remove the Process drive unit from the Side frame L ASSY.

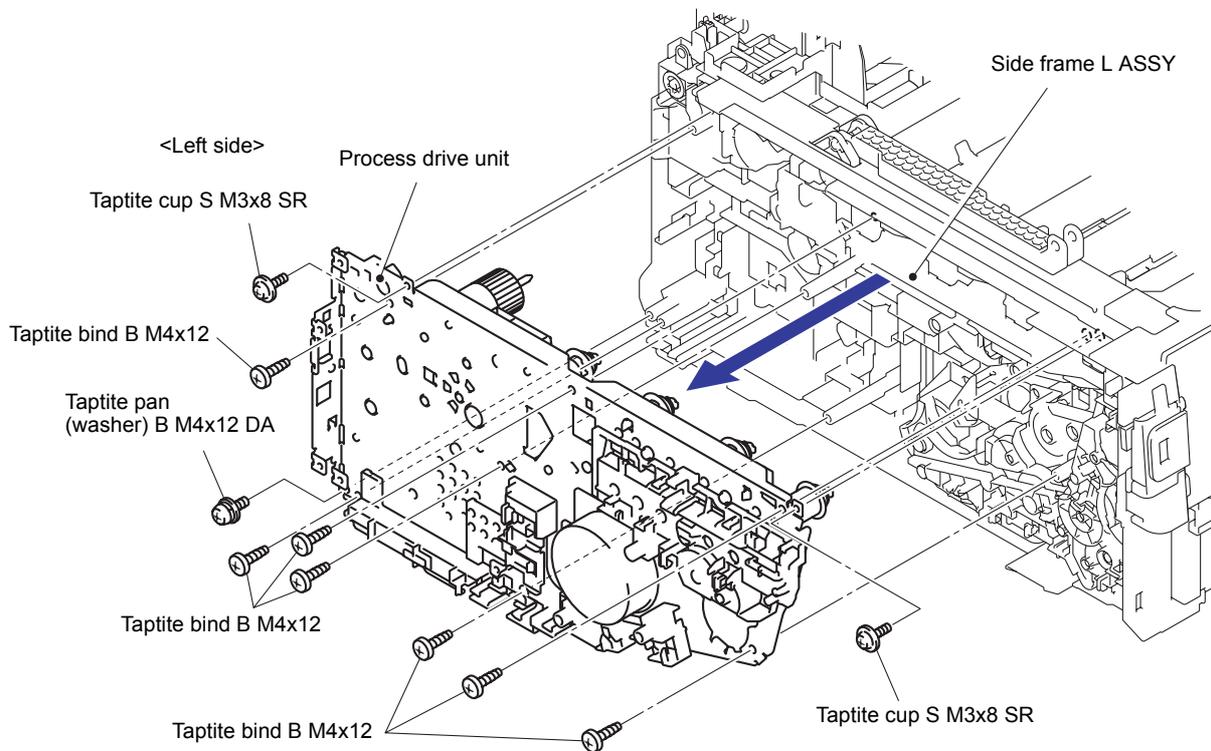


Fig. 3-185

Harness routing: Refer to " **2** External Temperature/Humidity Sensor PCB ASSY, Develop Release Clutch, Registration Clutch, Paper Feed Clutch, USB Host Relay PCB ASSY", " **4** Paper Feed Unit", " **5** Back Cover Sensor Harness ASSY", " **9** Eject Sensor PCB ASSY"

8.54 Fuser Drive Gear Z25

- (1) Release the Hook to remove the Fuser drive gear Z25 from the Process drive unit.

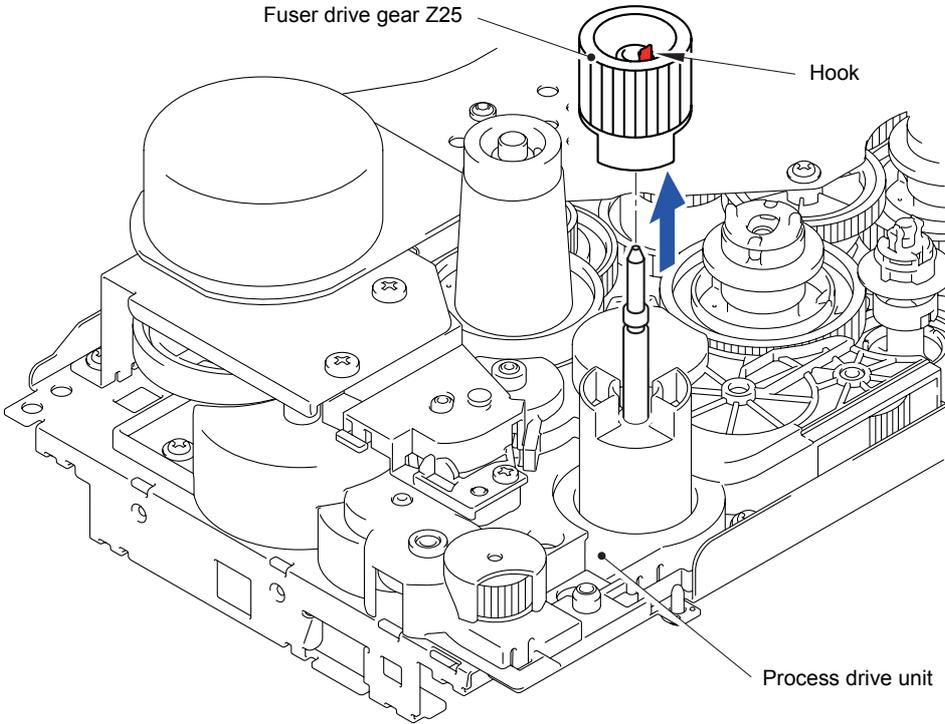


Fig. 3-186

8.55 Registration Clutch

(1) Release the Hook to remove the Registration clutch from the PF registration drive joint.

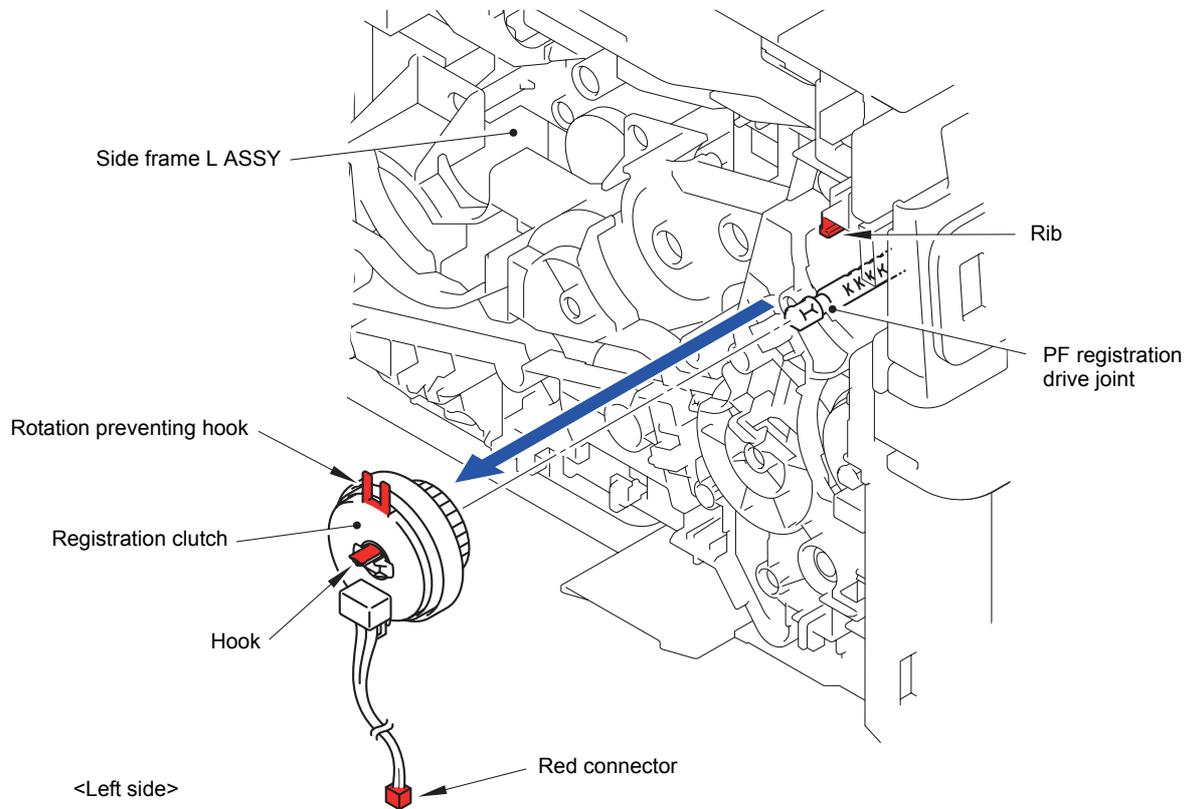


Fig. 3-187

Assembling Note:

- When assembling the Registration clutch, attach the Rotation preventing hook to the Rib of the Main body.
- Registration clutch and Paper feed clutch are both clutch parts, and they are identified with connector colors. The connector of the Registration clutch is red. Be careful not to install an incorrect clutch.

8.56 Paper Feed Clutch

- (1) Disconnect the wiring of the Paper feed clutch harness.
- (2) Release the Hook to remove the Paper feed clutch from the Separation roller drive joint.

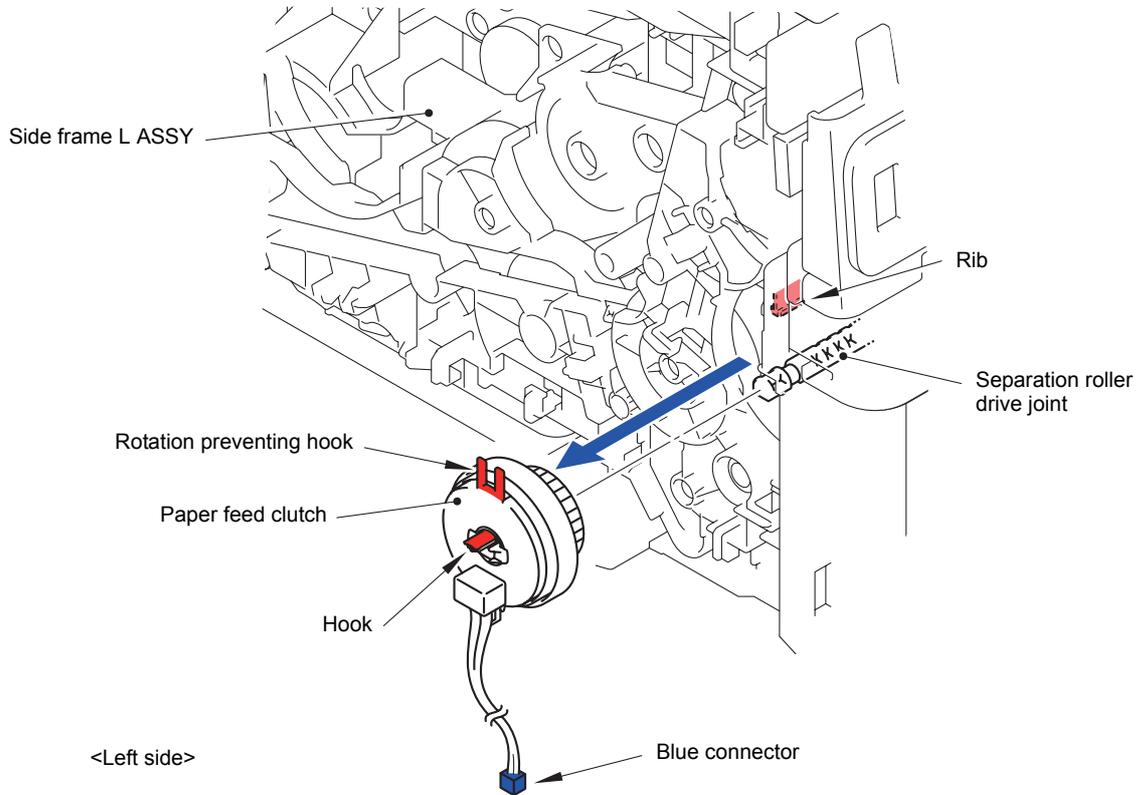


Fig. 3-188

Assembling Note:

- When assembling the Paper feed clutch, attach the Rotation preventing hook to the Rib of the Main body.
- Registration clutch and Paper feed clutch are both clutch parts, and they are identified with connector colors. The connector of the Paper feed clutch is blue. Be careful not to install an incorrect clutch.

Harness routing: Refer to "[2 External Temperature/Humidity Sensor PCB ASSY, Develop Release Clutch, Registration Clutch, Paper Feed Clutch, USB Host Relay PCB ASSY](#)"

8.57 Main Drive Unit

(1) Release the Hook to remove the Collor 6 from the PF registration drive joint.

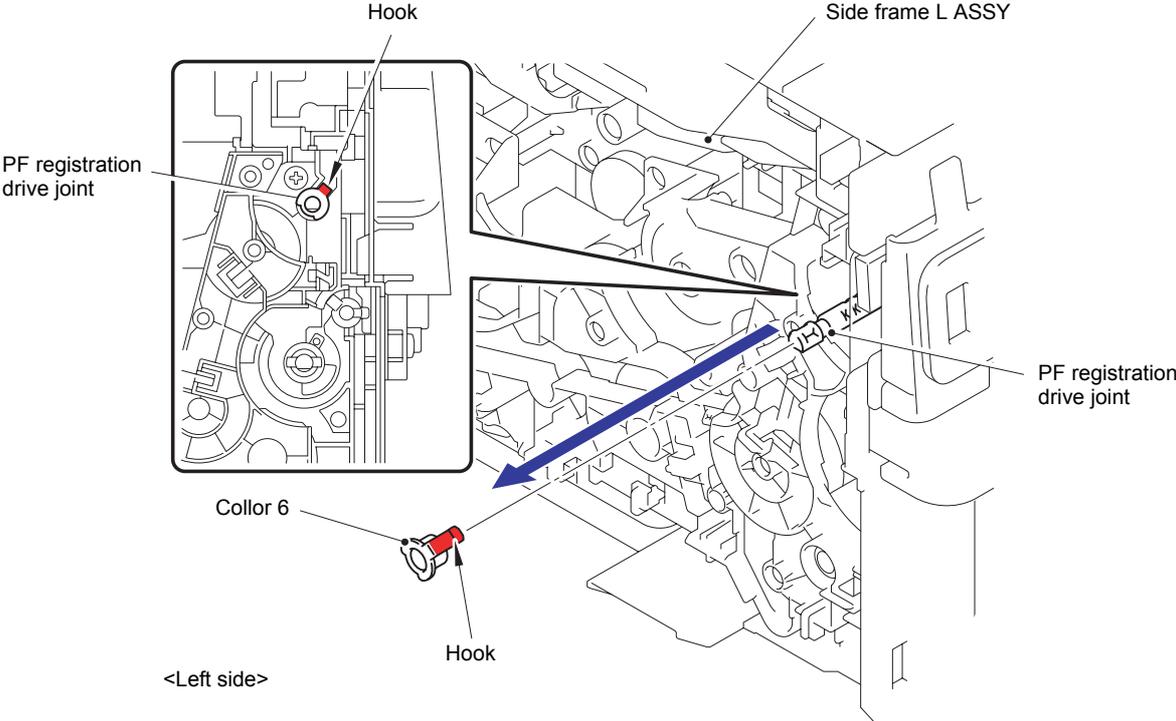


Fig. 3-189

(2) Remove the PF registration drive joint from the Side frame L ASSY.

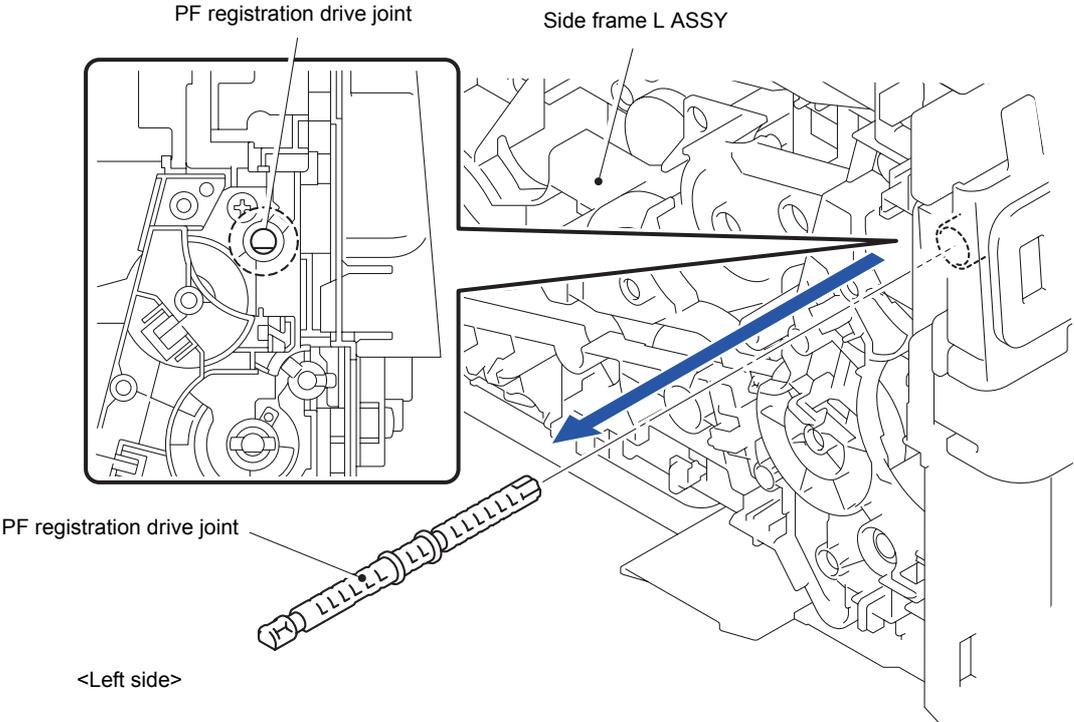


Fig. 3-190

- (3) Rotate the T1 bushing in the direction of the arrow 3a to remove it from the Separation roller drive joint.

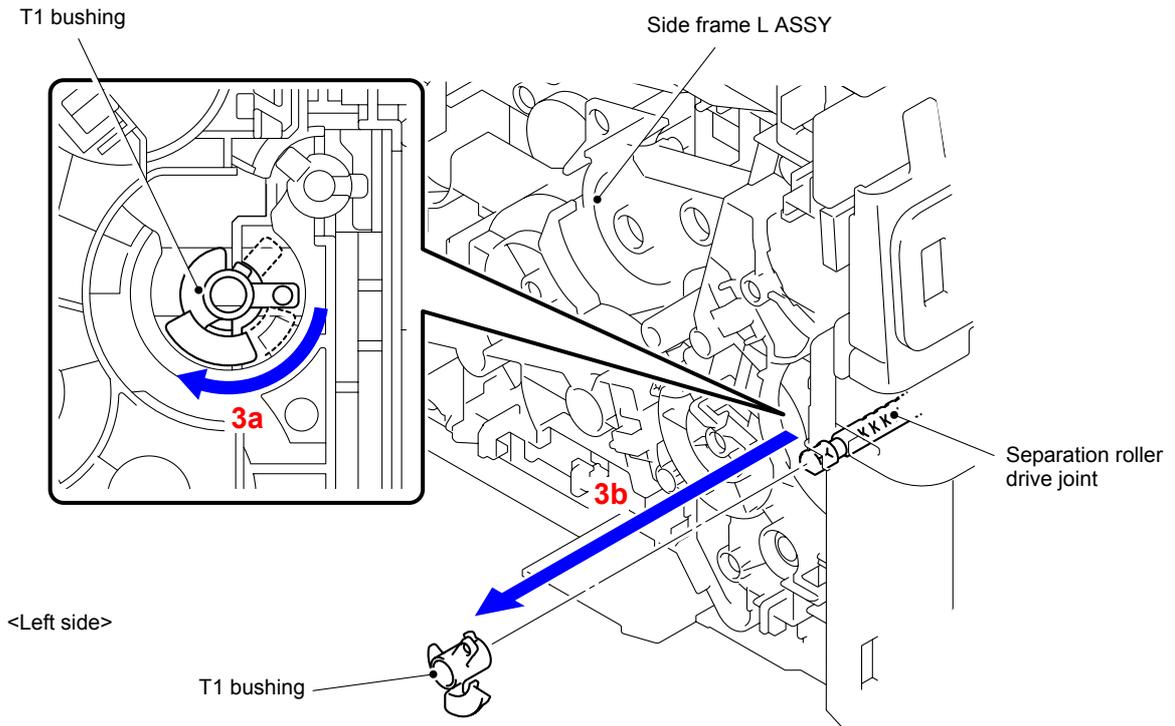


Fig. 3-191

- (4) Remove the Separation roller drive joint from the Side frame L ASSY.

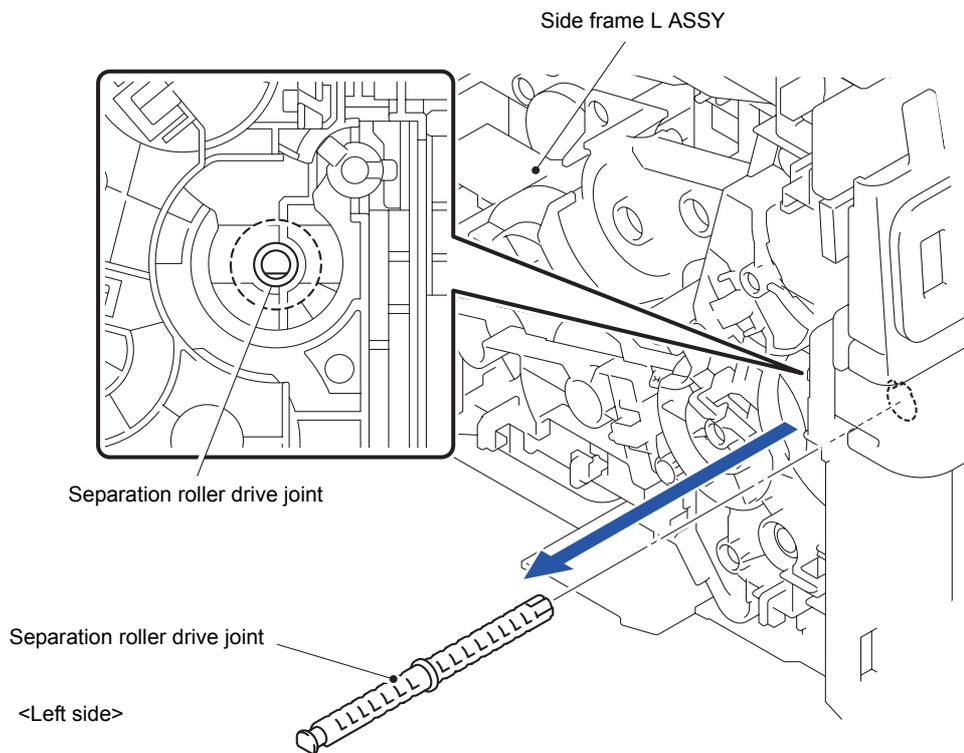


Fig. 3-192

- (5) Release the Hook to remove the PF bushing from the Feed roller drive shaft.

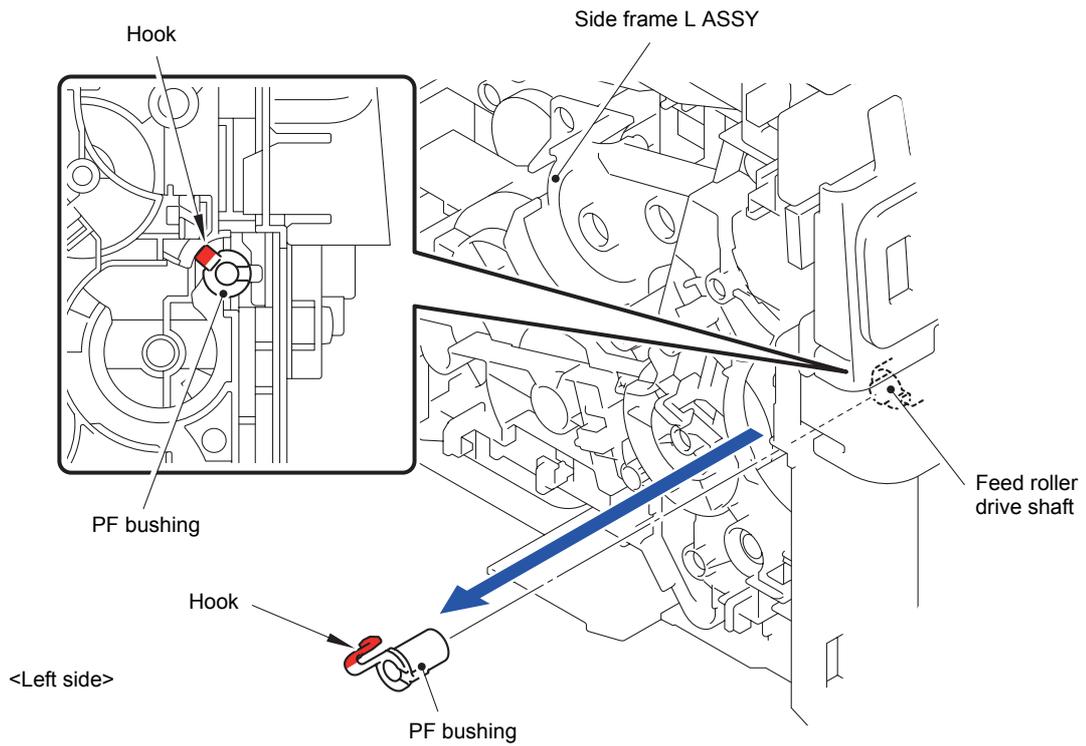


Fig. 3-193

- (6) Remove the Feed roller drive shaft from the Side frame L ASSY.

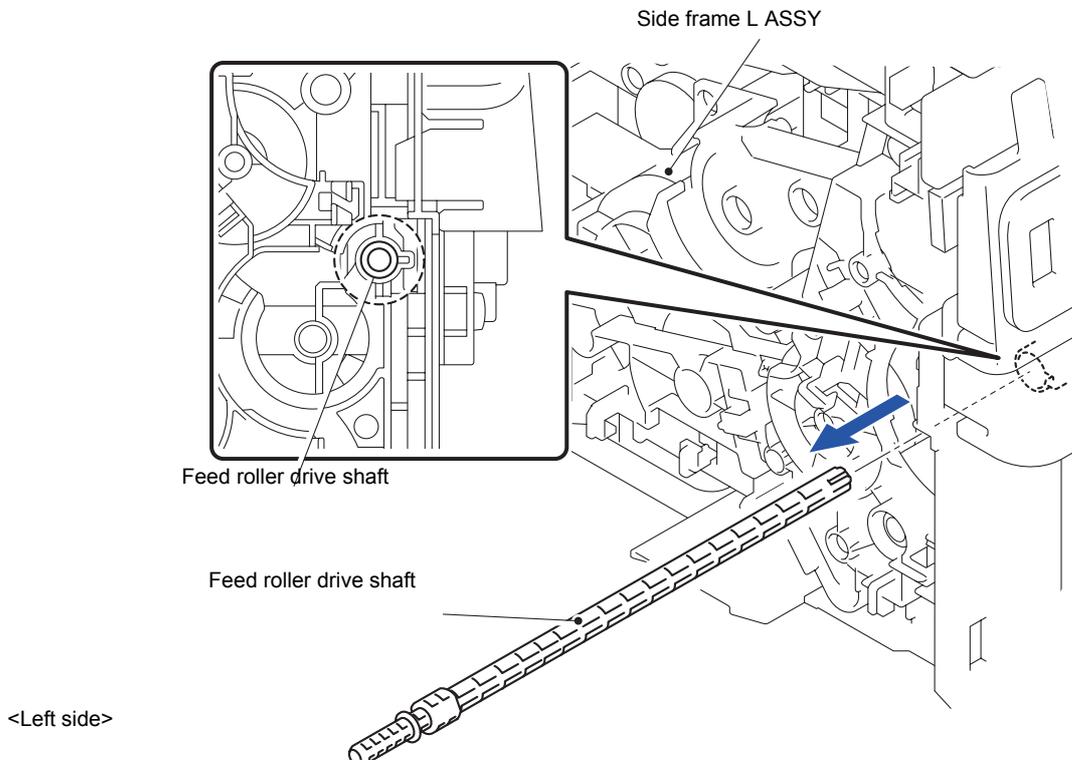


Fig. 3-194

- (7) Remove the five Taptite bind B M4x12 screws to remove the Main drive unit from the Side frame L ASSY.

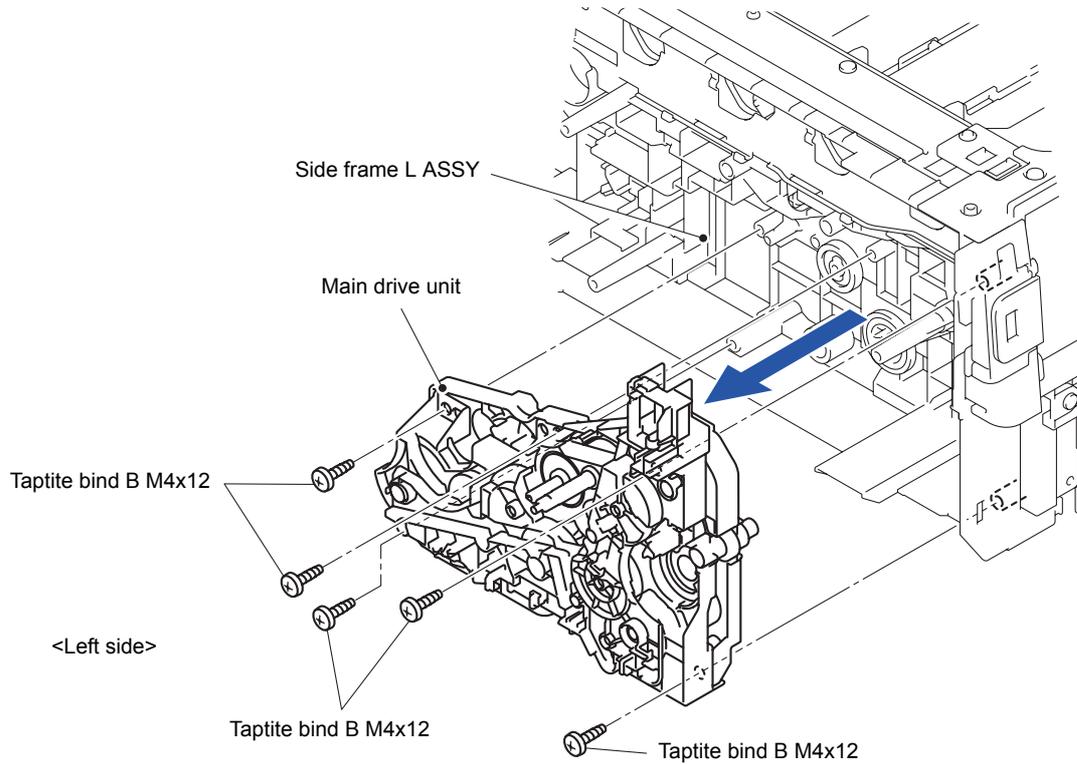


Fig. 3-195

Note:

As the two gears (DX gear Z21 and PP gear Z14-51) shown in the figure tend to come off. Be careful not to lose them.

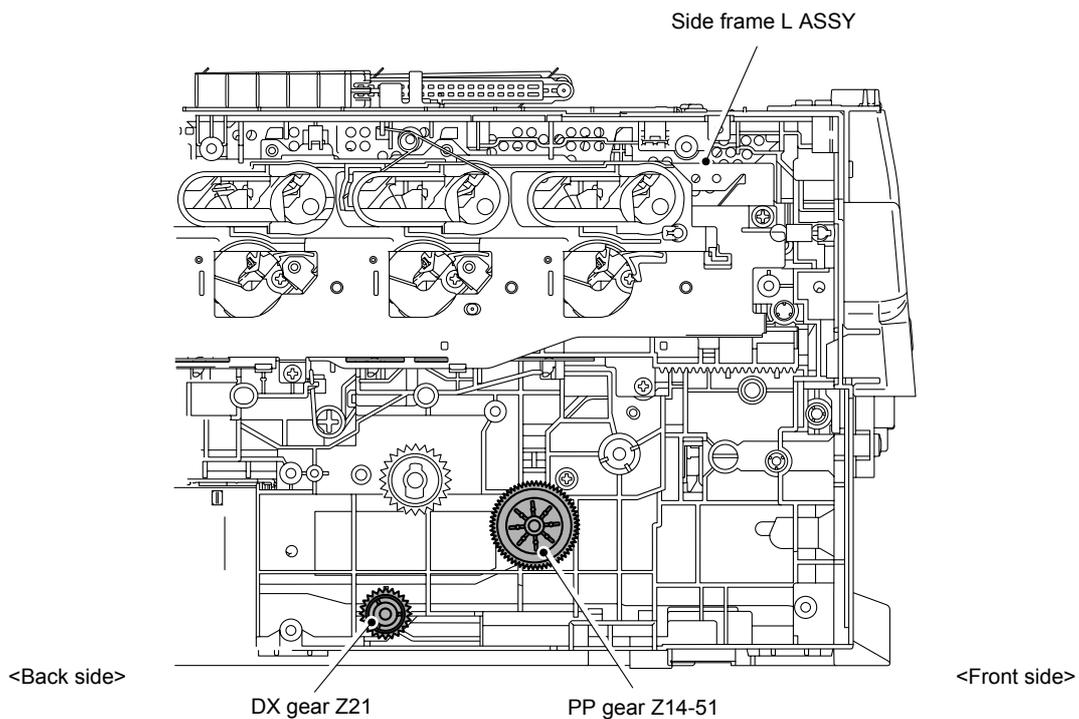


Fig. 3-196

ove "B" of the Roller holder ASSY f
in the direction of the arrow 1b.

2 3 0

Fig. 3-

ie

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3b in th

Assembling Note:

Align the Hole of the Paper feed unit to the Shaft of the Roller holder ASSY and insert it into the Hole.

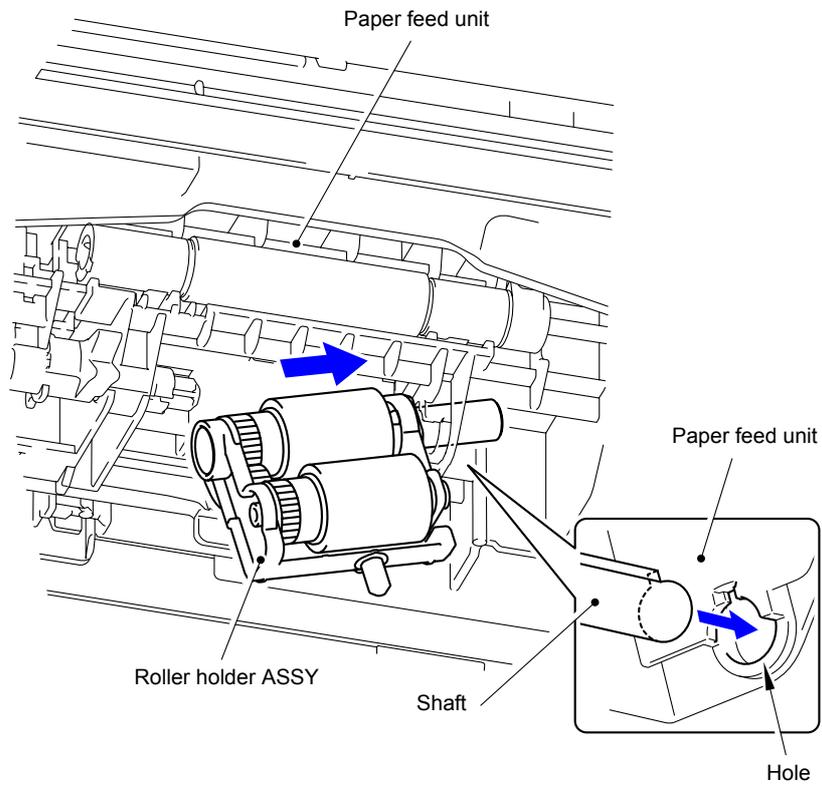


Fig. 3-199

8.59 USB Host Replay PCB ASSY/Inner Front Cover

- (1) Remove the Taptite bind B M4x12 screw. Release the two Hooks and two Bosses to remove the Inner front cover from the Main body.

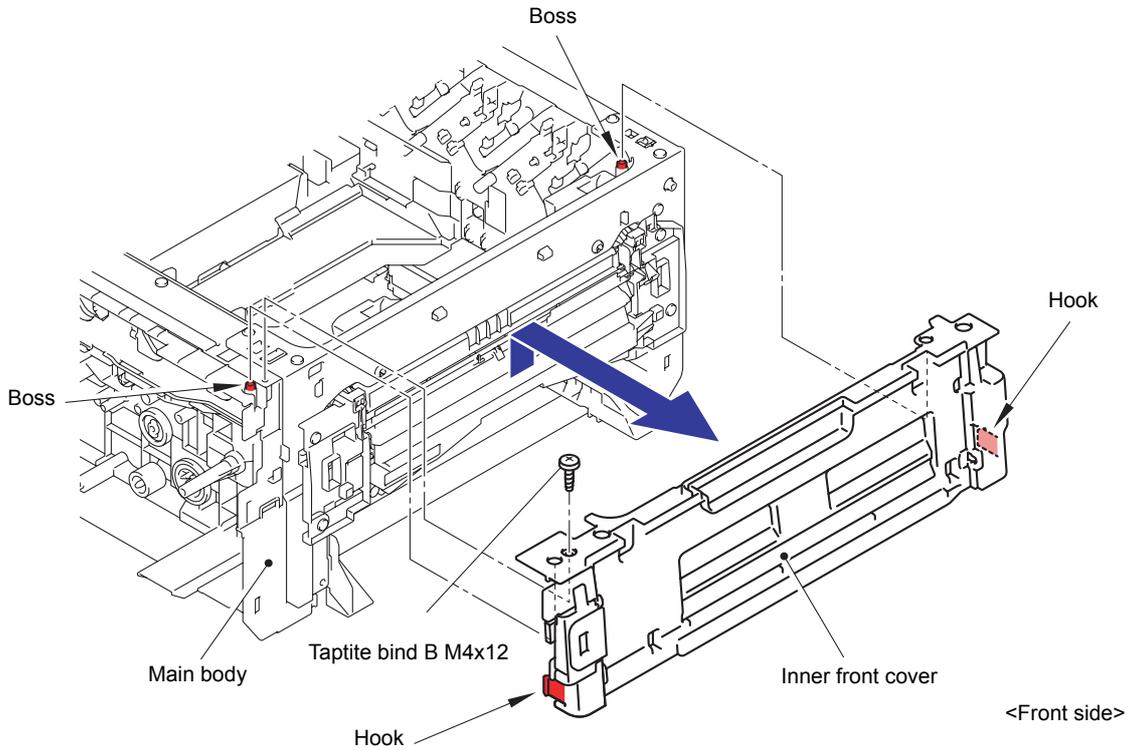


Fig. 3-200

- (2) Remove the two Taptite bind B 3x10 screws. Release the Boss to remove the USB printed ASSY from the Inner front cover.

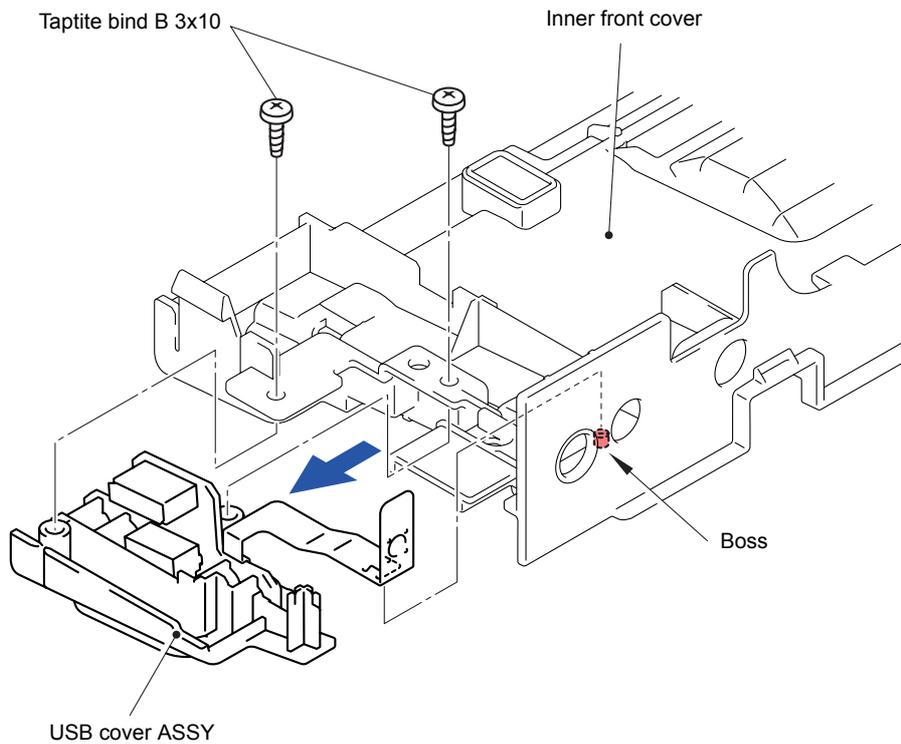


Fig. 3-201

- (3) Remove the two Taptite cup B 3x10 screws from the USB host PCB ASSY.
- (4) Release the two Bosses to remove the USB host PCB ASSY from the USB cover ASSY.

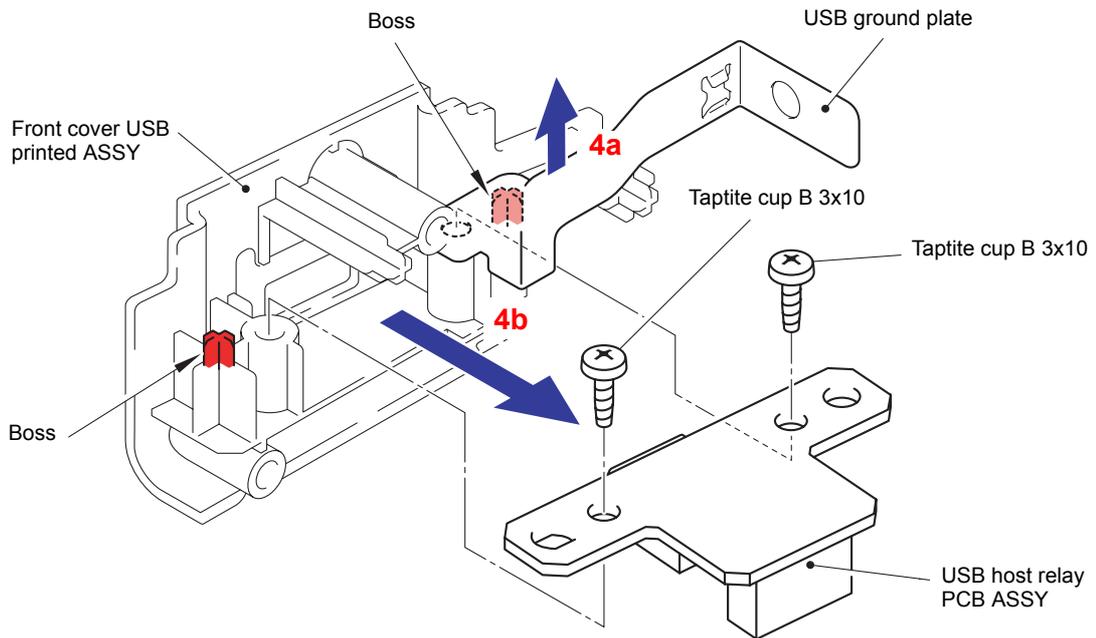


Fig. 3-202

- (5) Disconnect the Connector from the USB host PCB ASSY.

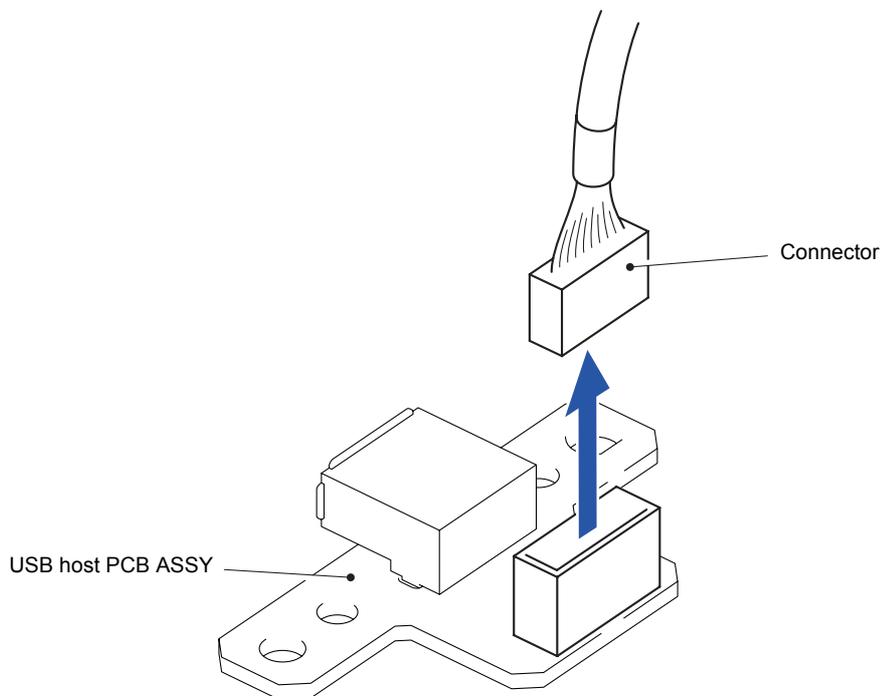


Fig. 3-203

8.60 Paper Feed Unit

- (1) Remove the Boss as bending the Lift arm in the direction of the arrow 1a to slide the Lift arm to the direction of the arrow 1b. (The Lift arm does not have to be removed.)

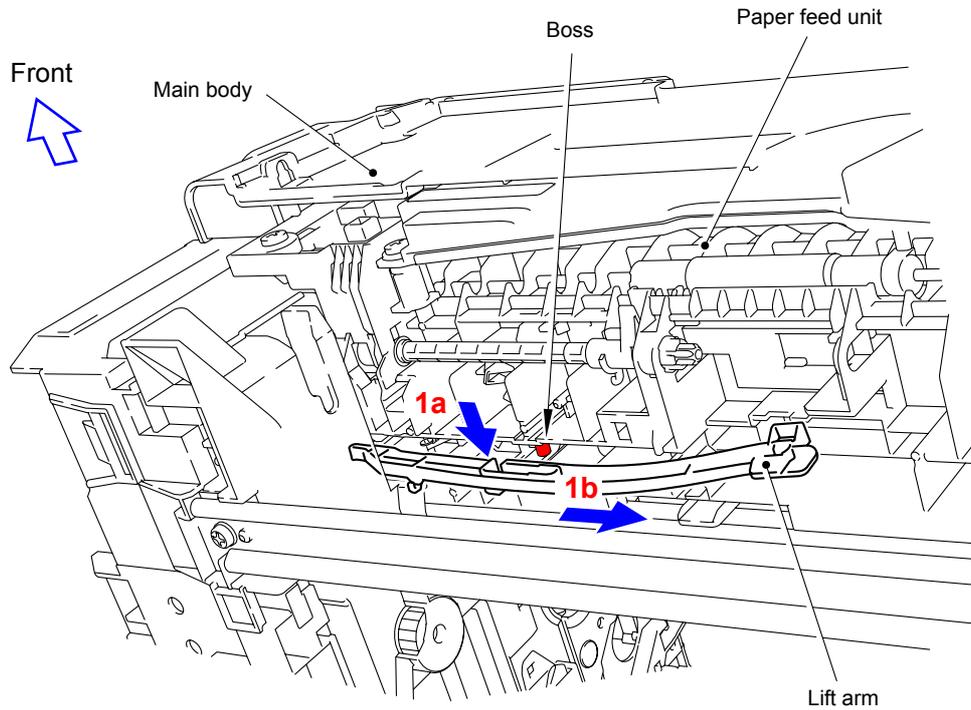


Fig. 3-204

- (2) Disconnect the wiring of the Registration front/rear/manual feed sensor harness and Paper feed harness.
- (3) Remove the four Taptite bind B M4x12 screws to remove the Paper feed unit from the Main body.

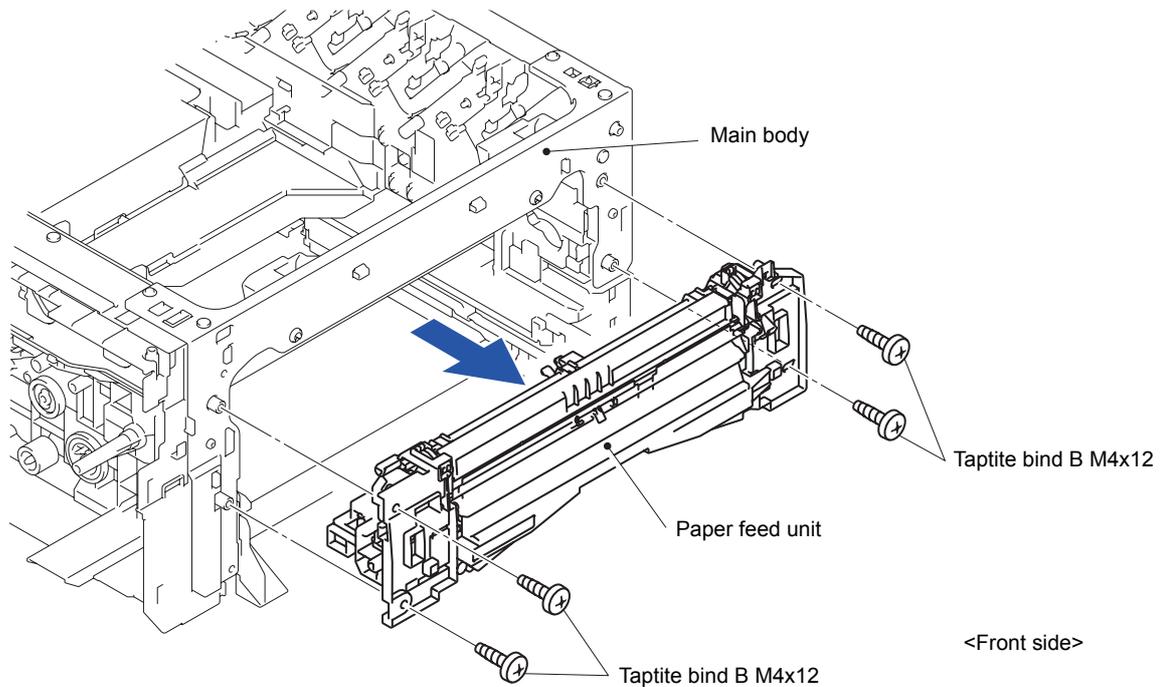


Fig. 3-205

Harness routing: Refer to "[4 Paper Feed Unit](#)"

8.61 Paper Eject ASSY

- (1) Release the Hook to remove the Cooling roller spring L from the Paper eject ASSY.
(2-sided printing model only)

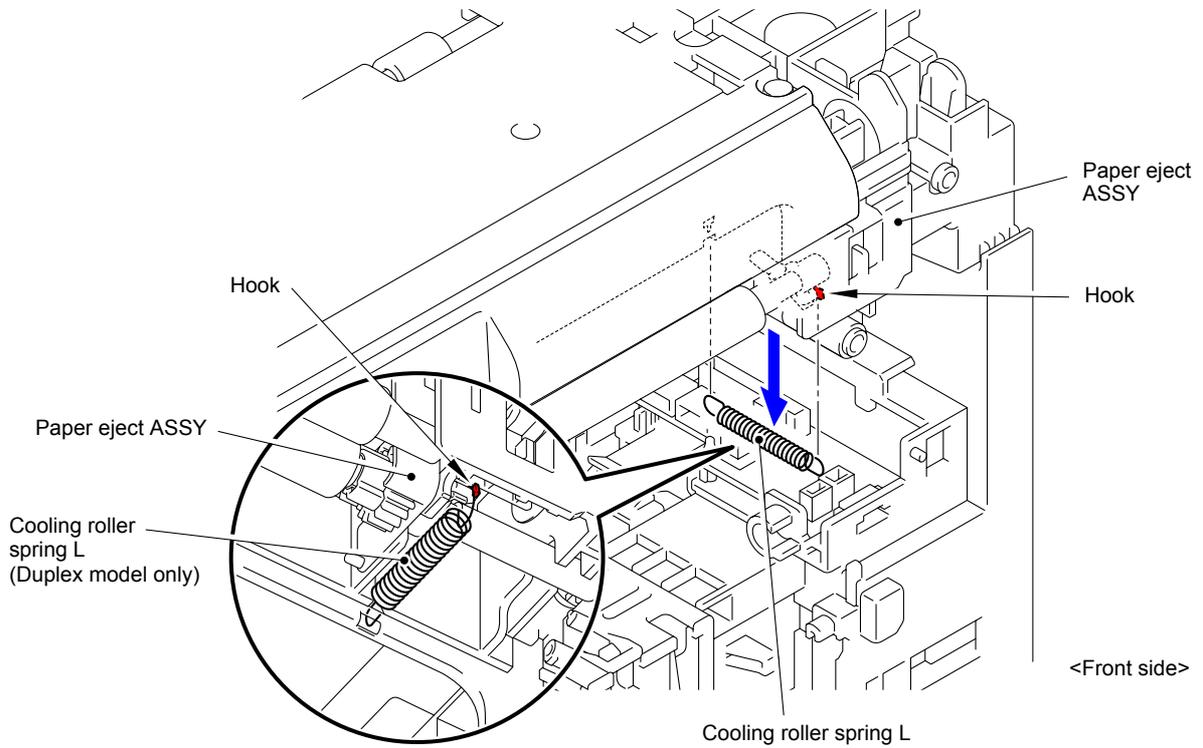


Fig. 3-206

- (2) Raise the Arm R as shown in the figure, and then remove it from the Boss of the Paper eject ASSY.

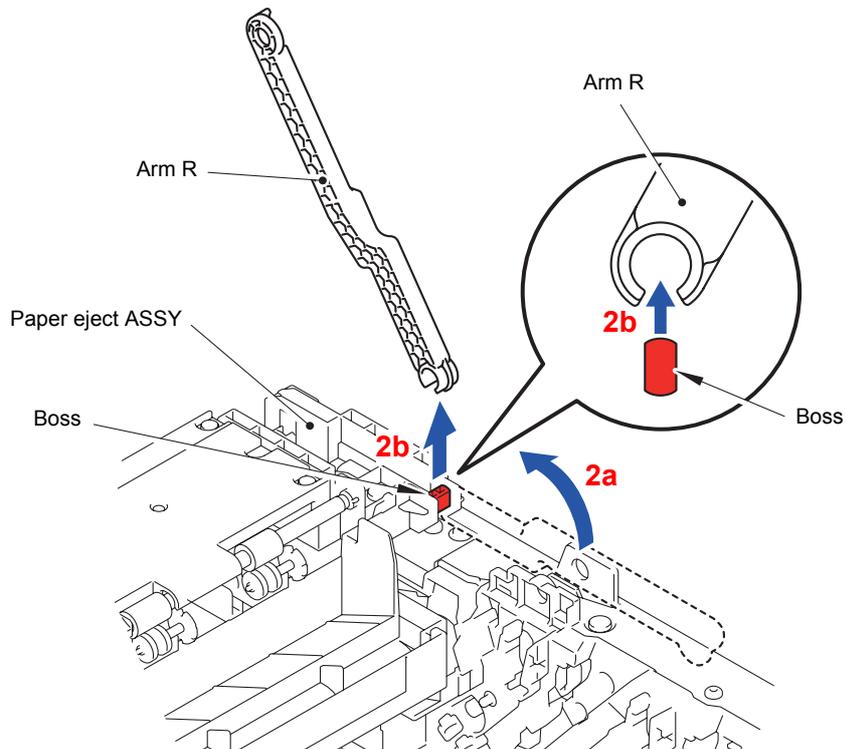


Fig. 3-207

(3) Remove the three Taptite bind B M4x12 screws from the Paper eject ASSY.

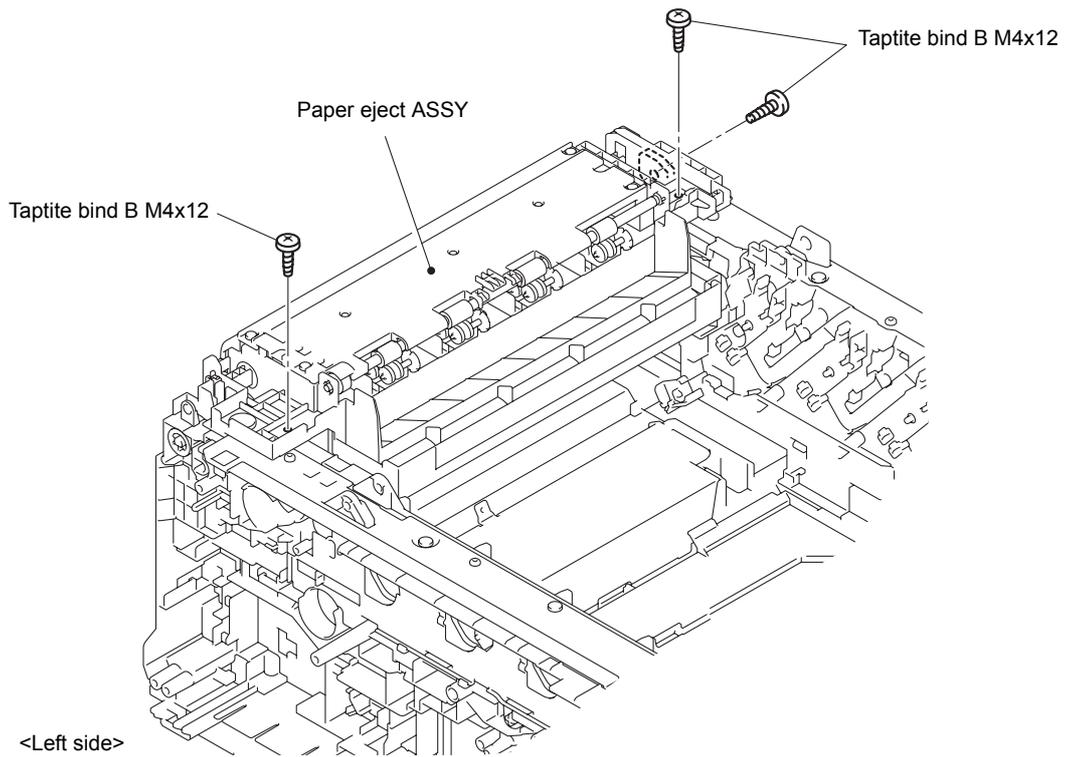


Fig. 3-208

(4) Release the two Bosses to remove the Paper eject ASSY from the Main body.

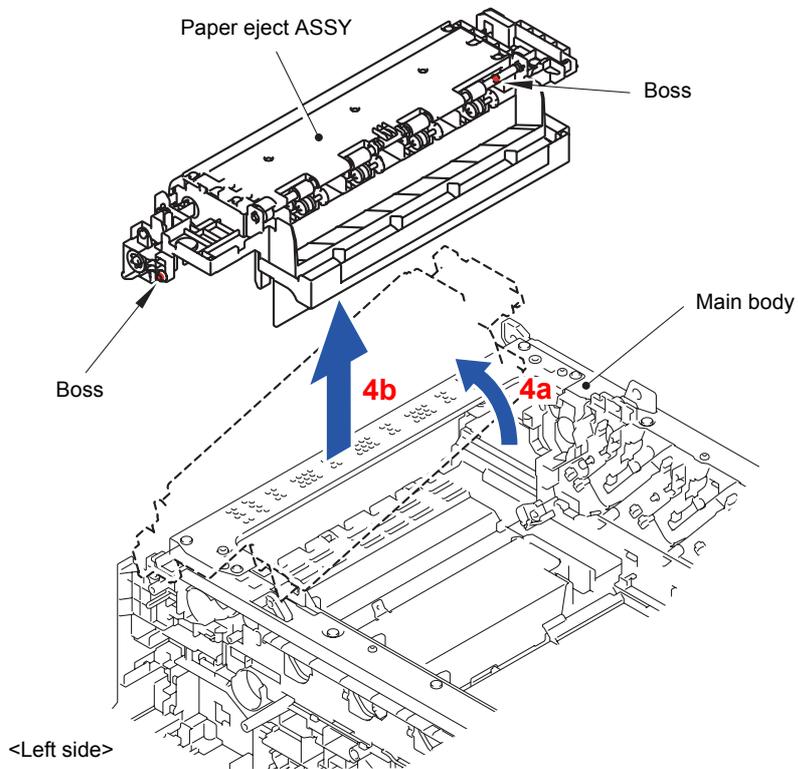


Fig. 3-209

8.62 Back Cover Upper

- (1) Remove the four Taptite bind B M3x10 screws to remove the Back cover upper from the Paper eject ASSY.

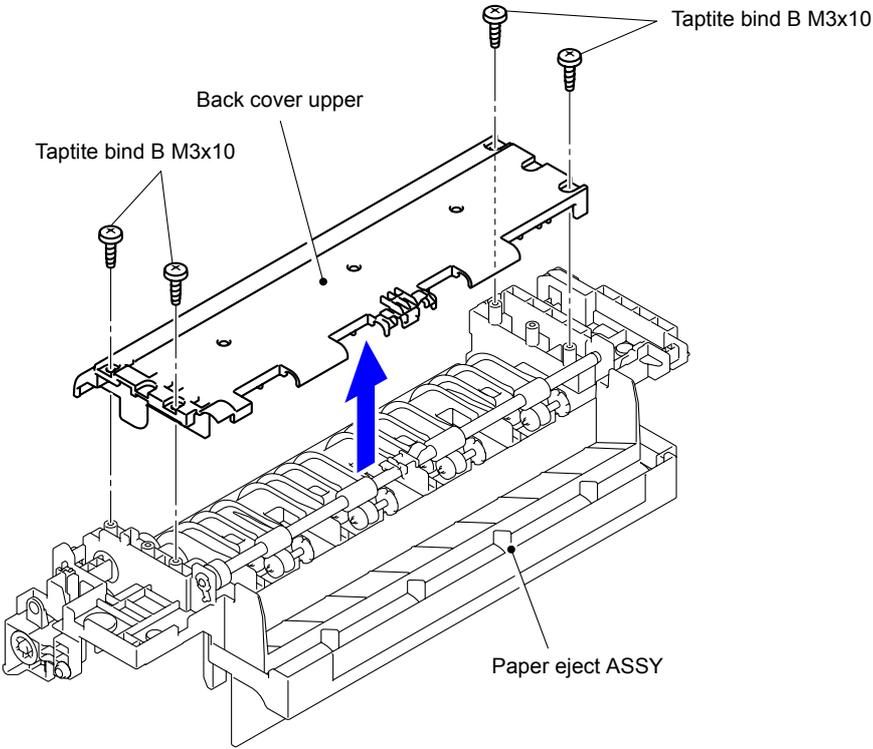


Fig. 3-210

- (2) Release the two Hooks to remove the Exit roller bushing C from the Back cover upper.

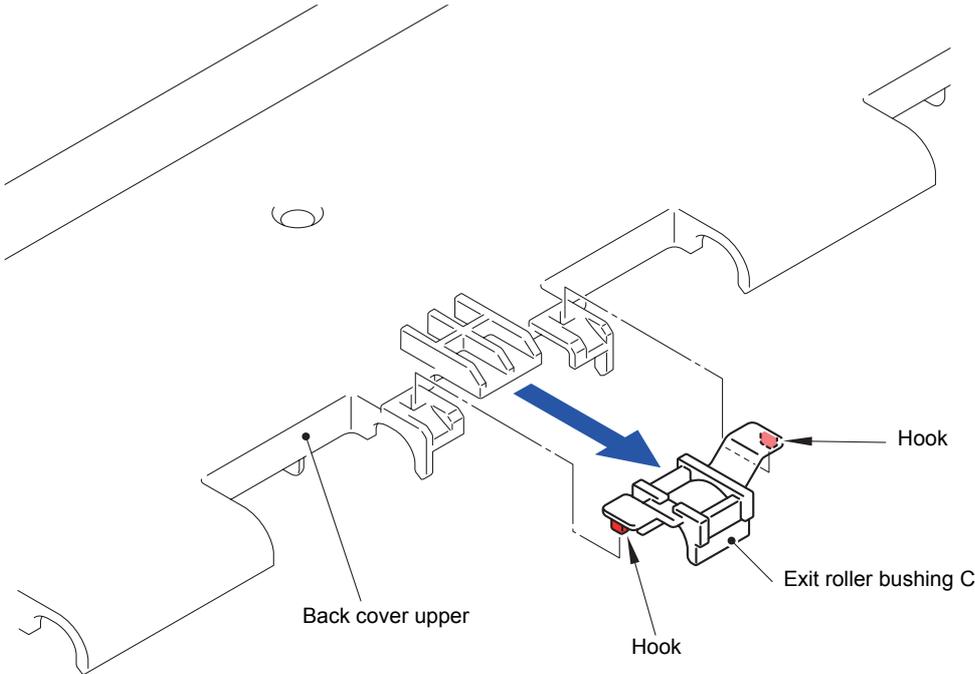


Fig. 3-211

8.63 Exit Roller Bushing R/Eject Roller ASSY

(1) Remove the Pin to remove the Exit roller bushing R from the left side of the Paper eject ASSY.

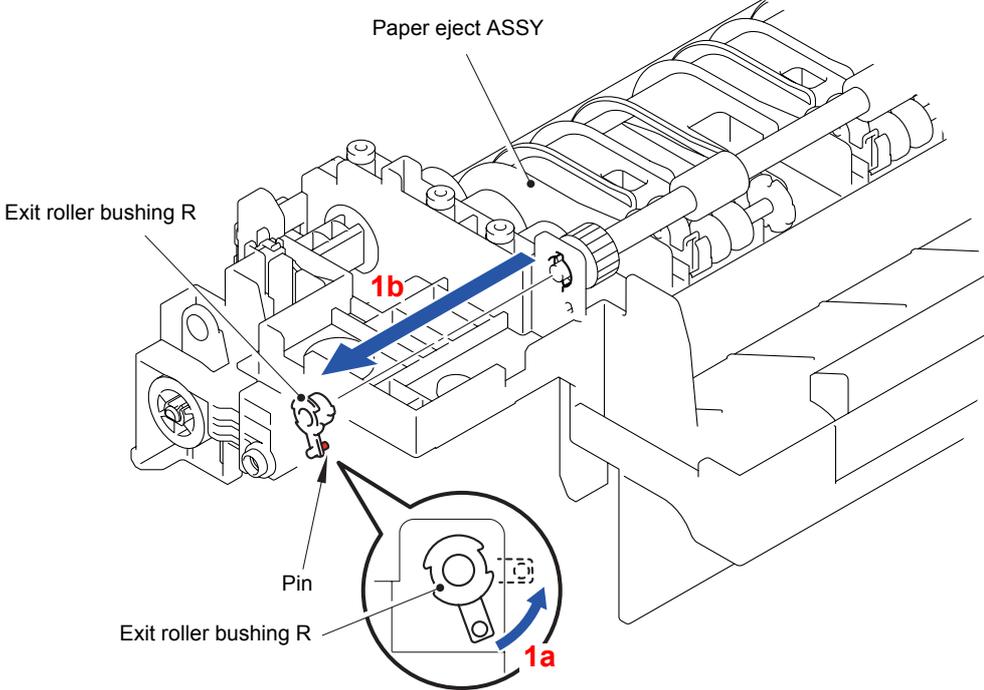


Fig. 3-212

- (2) Remove the Exit roller bushing L in the same way.
- (3) Remove the Eject roller ASSY from the Paper eject ASSY.

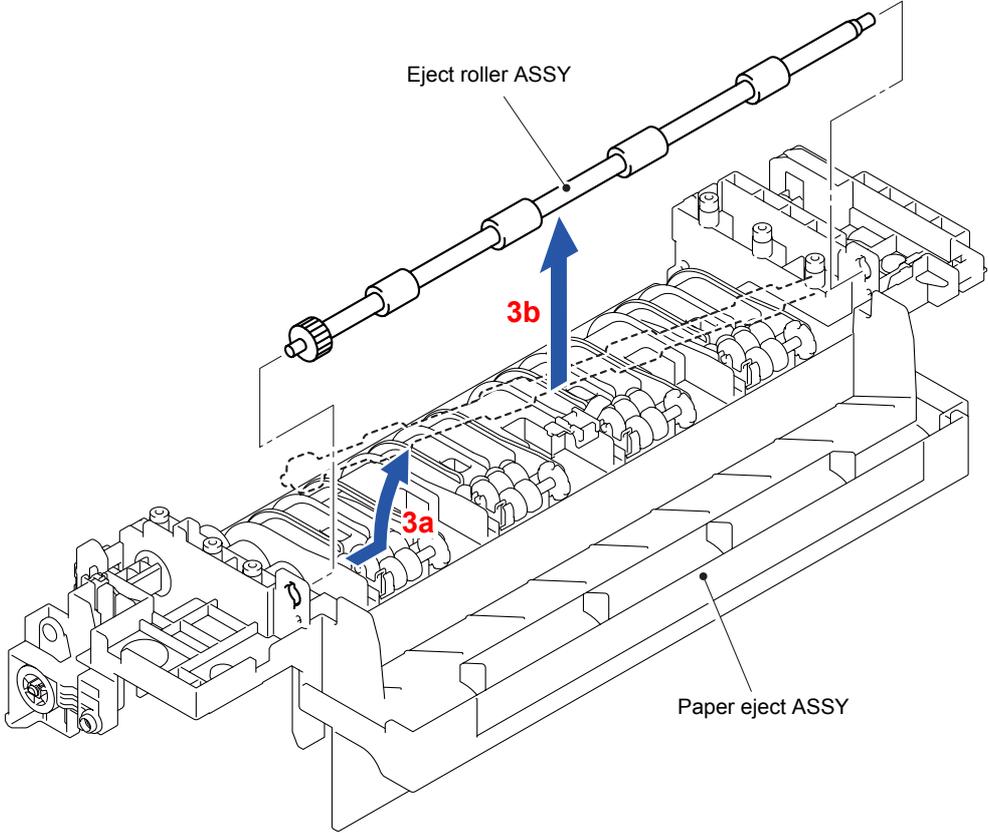


Fig. 3-213

8.64 Back Cover Sensor Harness ASSY

- (1) Release the Hook to remove the Back cover sensor harness ASSY from the Paper eject ASSY.

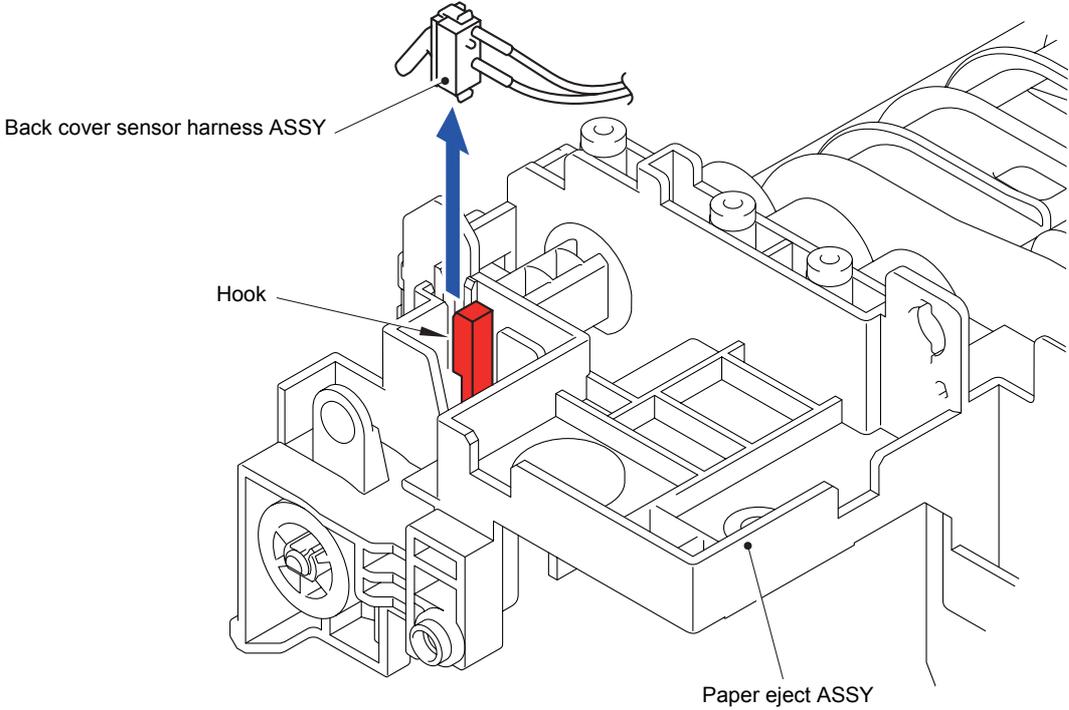
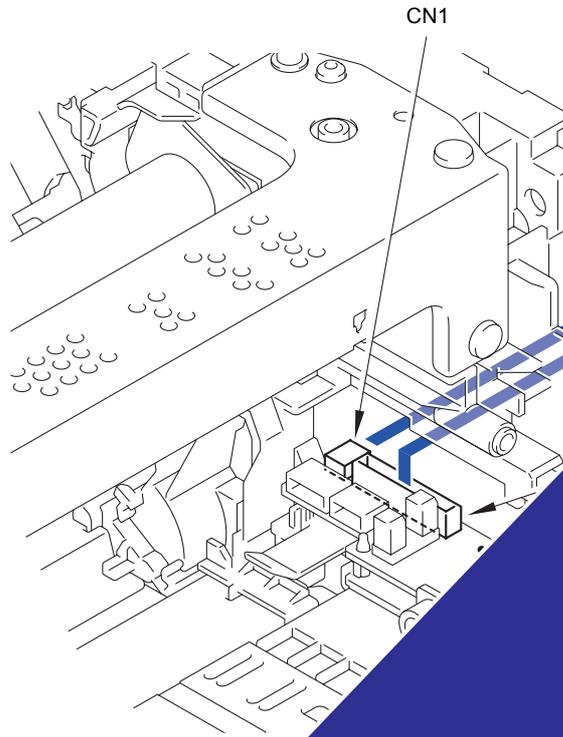


Fig. 3-214

8.65 Eject Sensor PCB ASSY

- (1) Disconnect the two Connectors (CN1 and CN3) from



- (2) Release the Hook from



8.66 High-voltage Power Supply PCB ASSY/HVPS Flat Cable

- (1) Remove the Taptite cup S M3x8 SR screw and the Taptite pan (washer) B M4x12 DA screw to remove the HVPS ground plate front from the Side frame R.

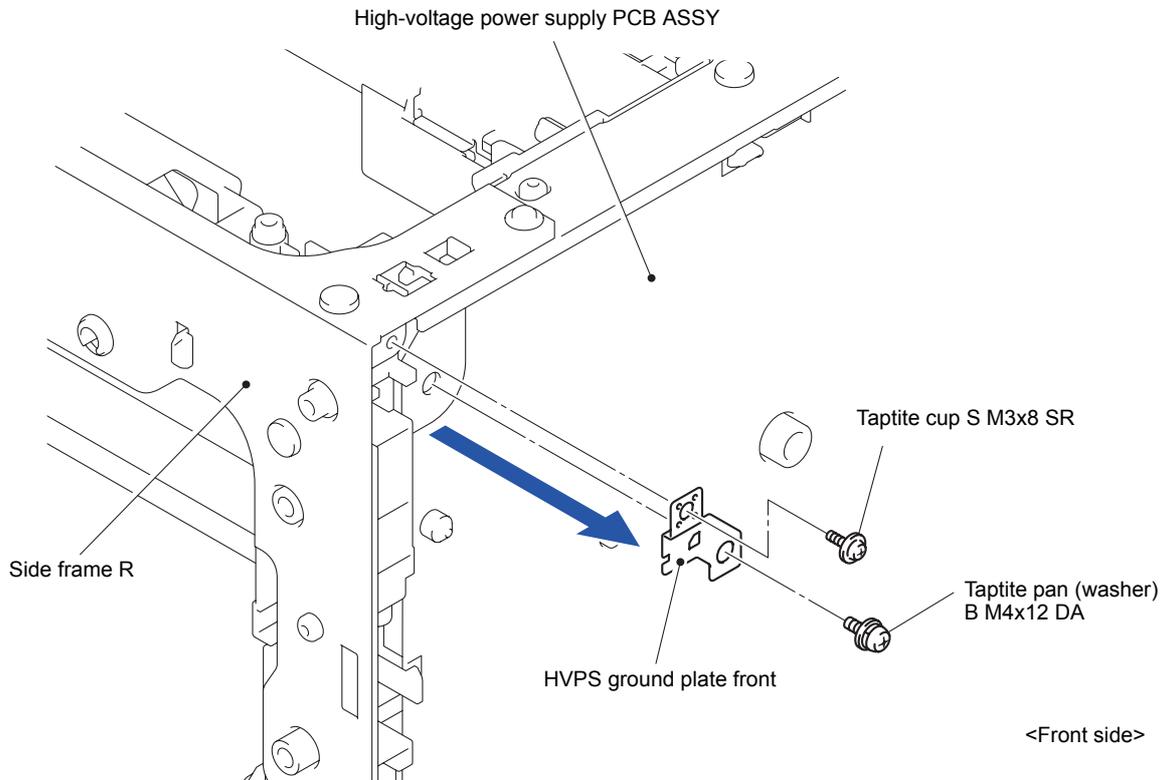


Fig. 3-217

- (2) Remove the Taptite pan (washer) B M4x12 DA screw to remove the HVPS ground plate rear from the Side frame R.

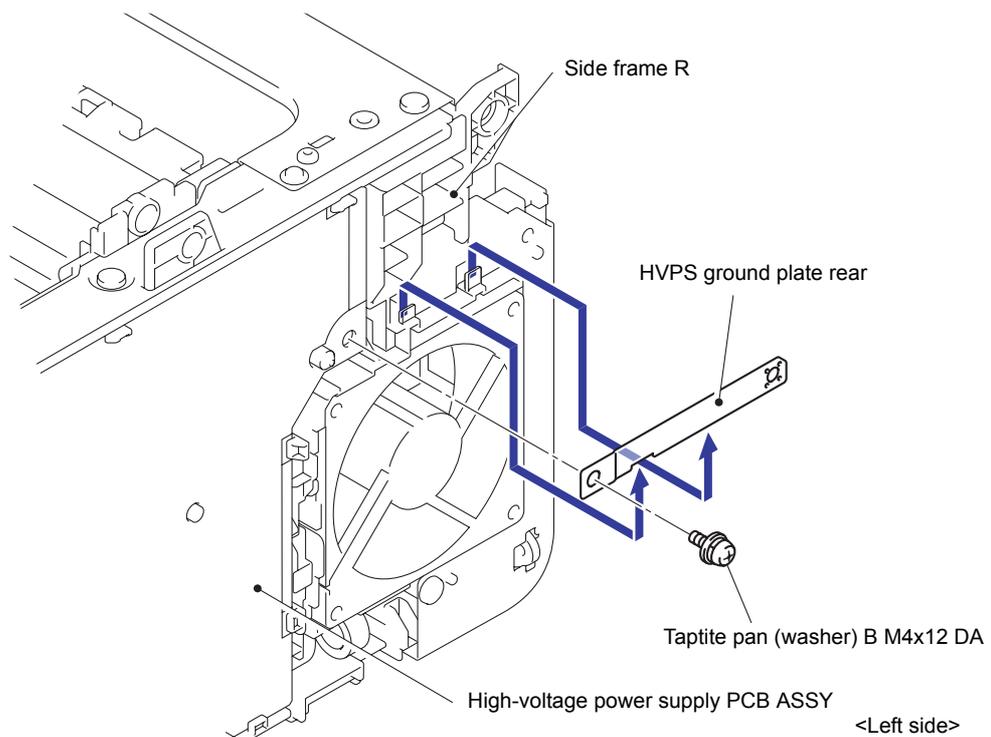


Fig. 3-218

- (3) Slide the HVPS flat cable cover in the direction of the arrow 3a as holding down the cover and remove it from the Main body.

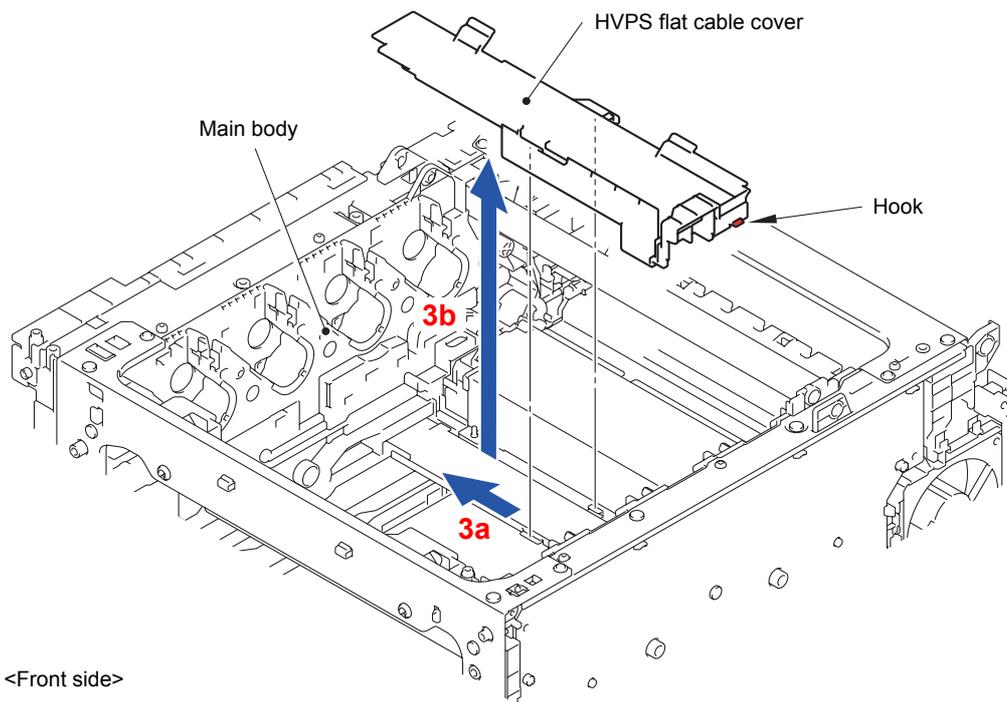


Fig. 3-219

- (4) Unhook the HVPS flat cable from the two Hooks of the Main body, and smooth out the crease.

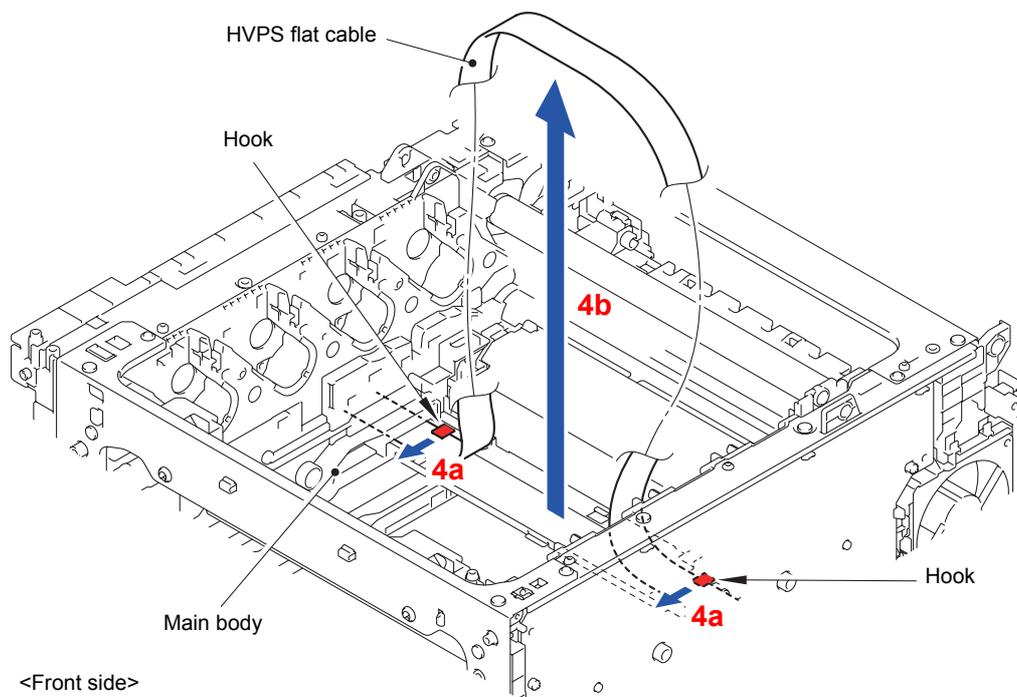


Fig. 3-220

- (5) Remove the Taptite bind B M4x12 screw to release the ten Hooks. Remove the High-voltage power supply PCB ASSY from the Main body.

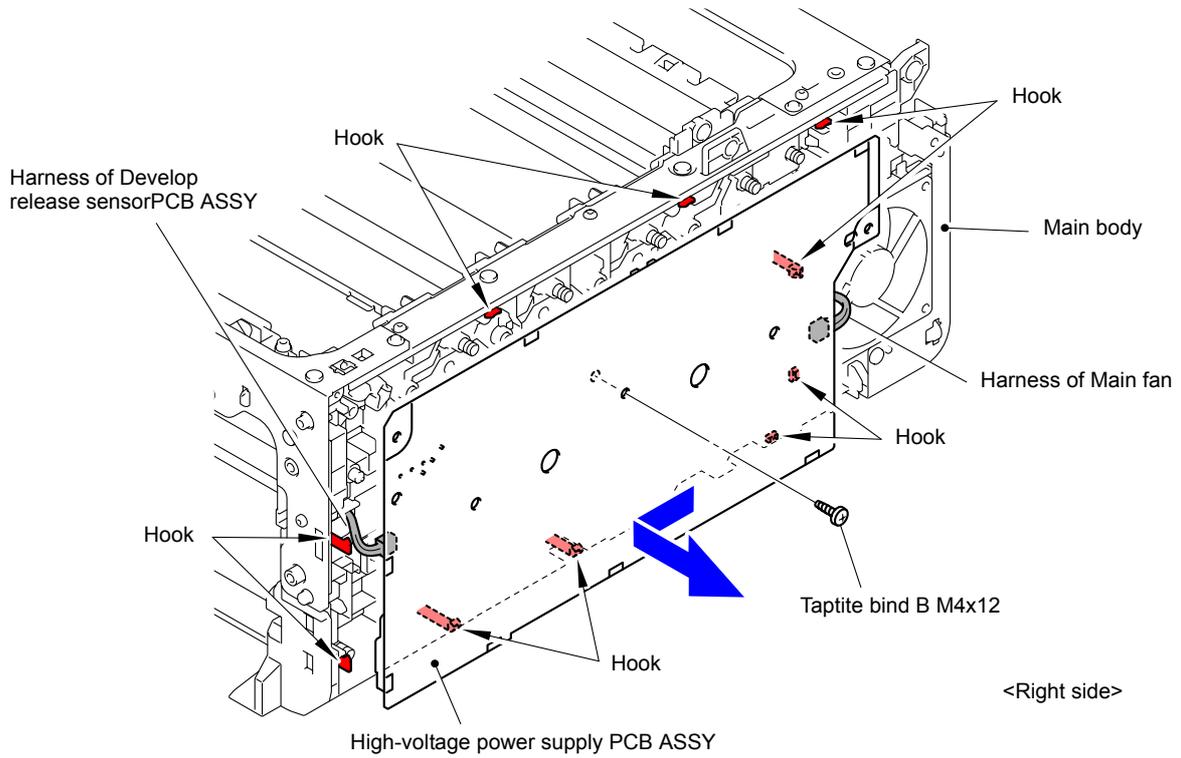


Fig. 3-221

Assembling Note:

- Be careful that the Harness of the Main fan and Harness of the Develop release sensor PCB ASSY are connected.
- Be careful not to damage the Wire cap.

- (6) Disconnect the two Connectors (CN2 and CN3) from the High-voltage power supply PCB ASSY.
- (7) Disconnect the HVPS flat cable from the Connector (CN1) of the High-voltage power supply PCB ASSY.

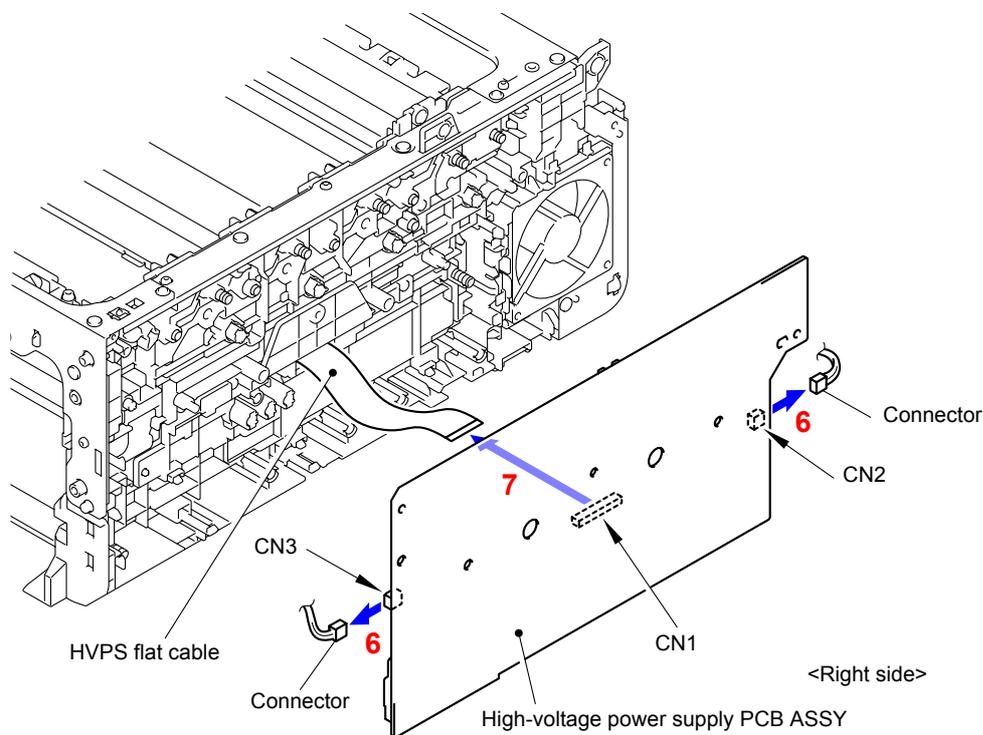


Fig. 3-222

Assembling Note:

- As the DCLN coil spring and CHG 1 coil spring tend to come out of the Side frame R, be careful not to lose them.
- When assembling the High-voltage power supply PCB ASSY, make sure that the CHG 1 coil spring and CHG 2 coil spring properly come into contact with the electrodes. If not, Drum Error will occur.

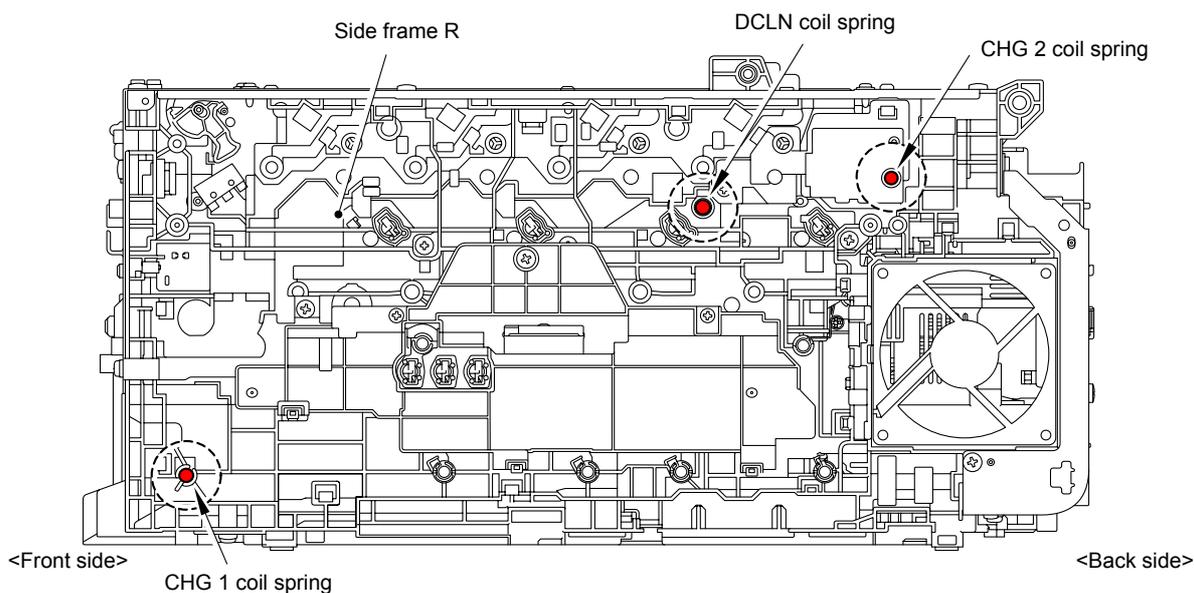


Fig. 3-223

(8) Pull out the HVPS flat cable from the Hole of the Side frame R.

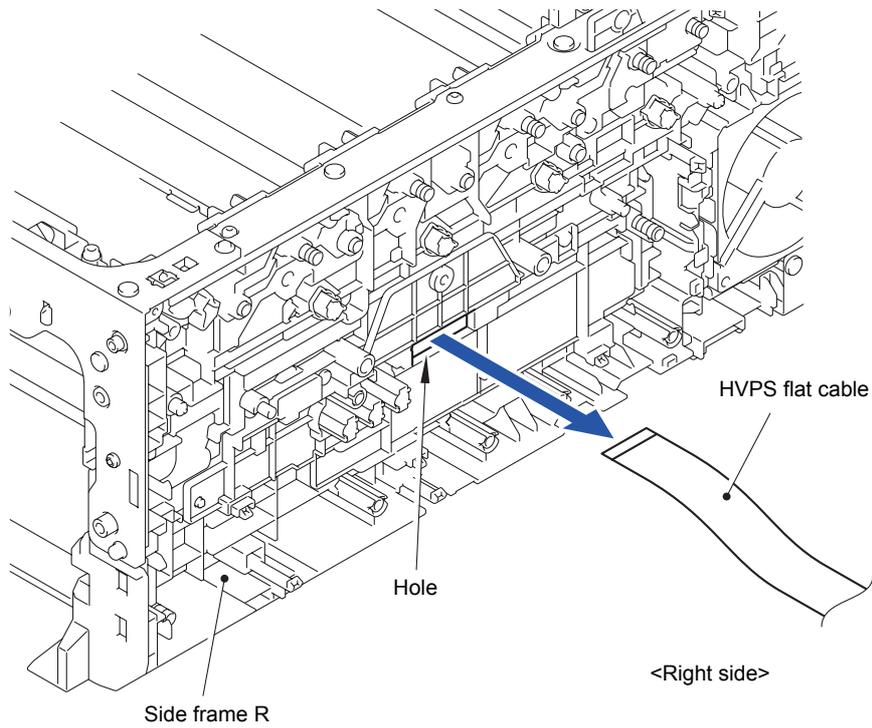


Fig. 3-224

Assembling Note:

Assembling the HVPS flat cable with its crease smoothed out.

<How to Fold flat cable of HVPS flat cable>

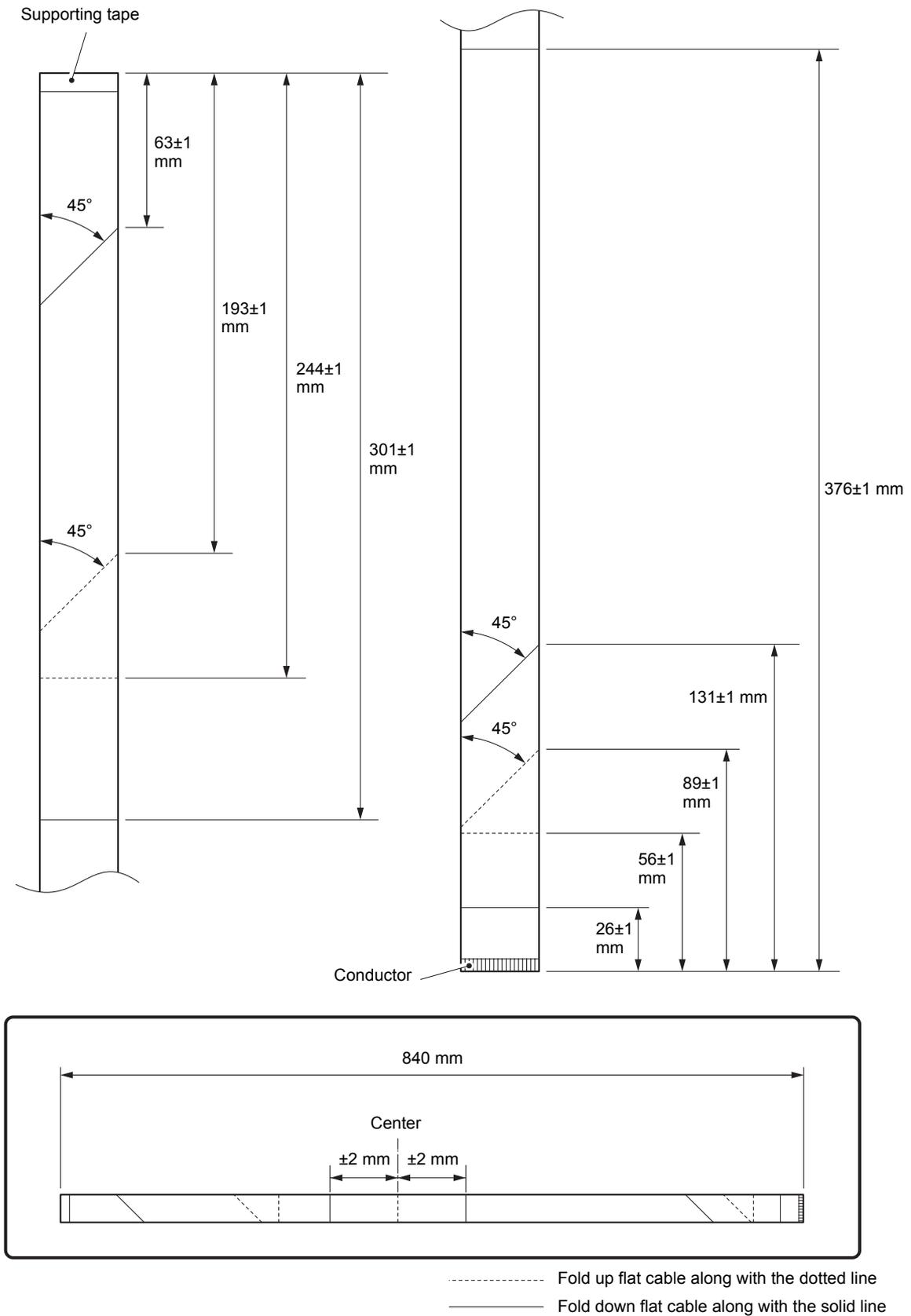


Fig. 3-225

Harness routing: Refer to " **8** HVPS Flat Cable"

8.67 Main Fan

- (1) As the two Hooks being removed, remove the Main fan from the Side frame R while rotating the motor in the direction of the arrow 1a.

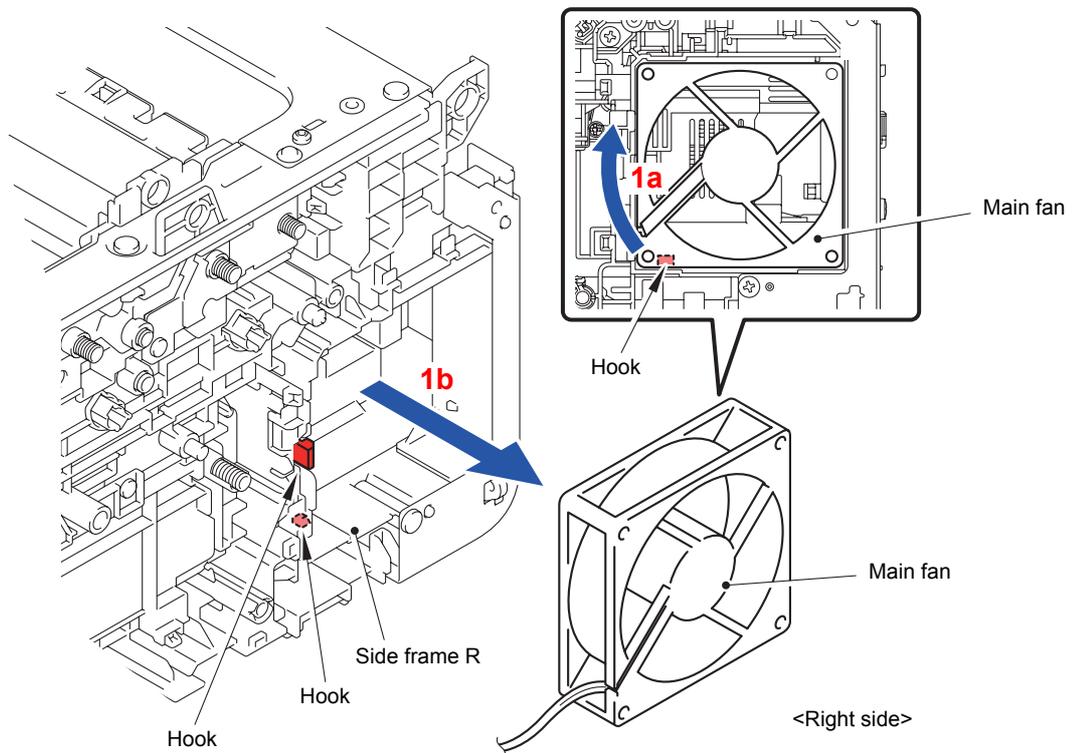


Fig. 3-226

8.68 Develop Release Sensor PCB ASSY

- (1) Release the Hook to remove the Develop release sensor PCB ASSY from the Side frame R.

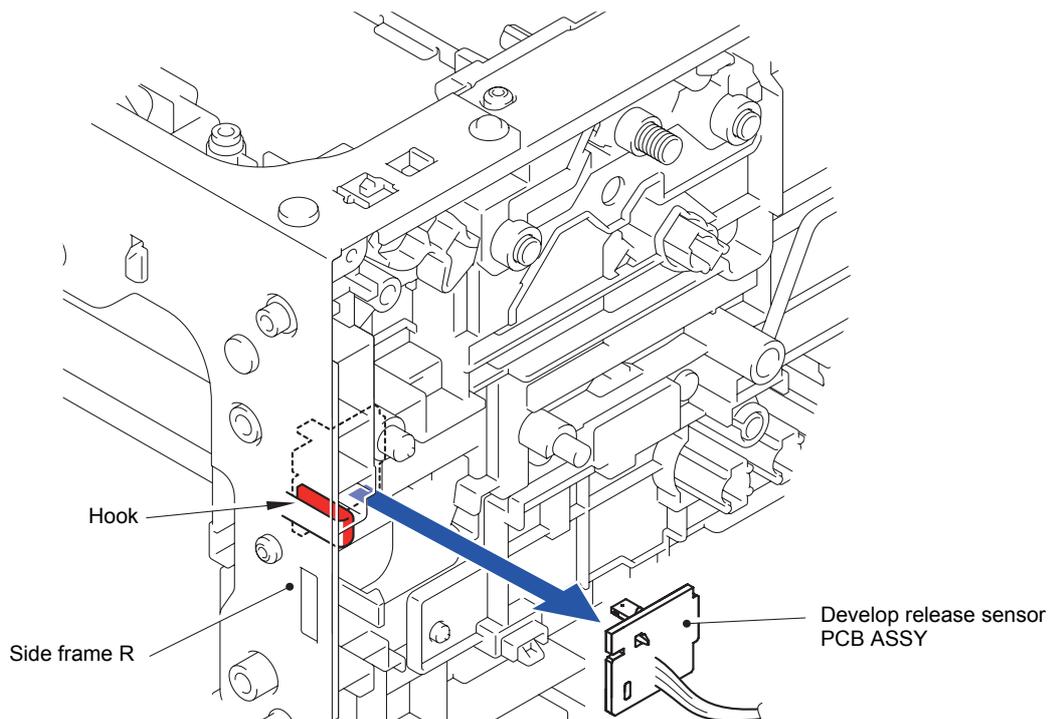


Fig. 3-227

8.69 Low-voltage Power Supply PCB ASSY

(1) Turn the Main body upside down.

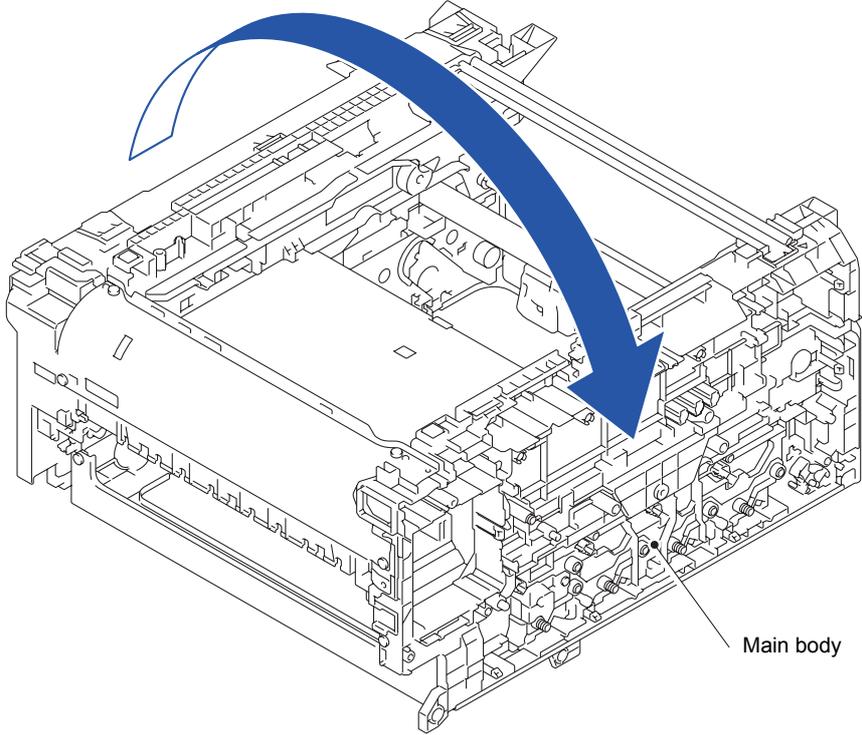


Fig. 3-228

(2) Remove the two Taptite bind B M4x12 screws, one Taptite bind S M3x5 screw, one Taptite pan (washer) B M4x12 DA screw. Release the Boss to remove the Cover plate from the Side frame R.

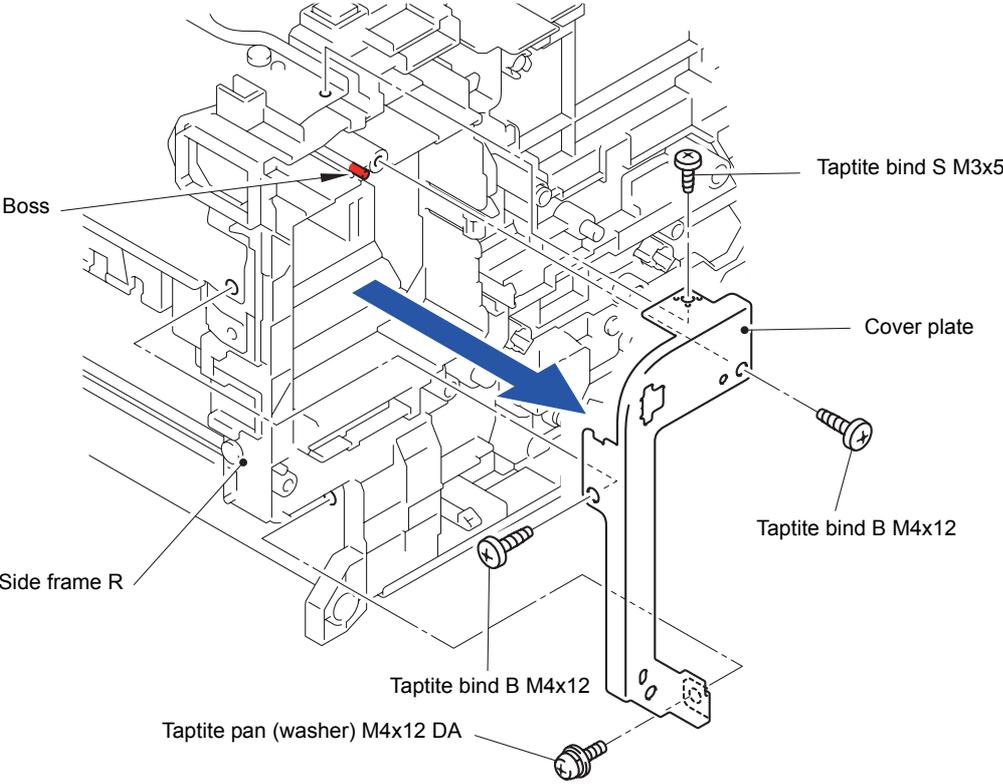


Fig. 3-229

(3) Release the two Hooks to remove the Wire cap from the Side frame R.

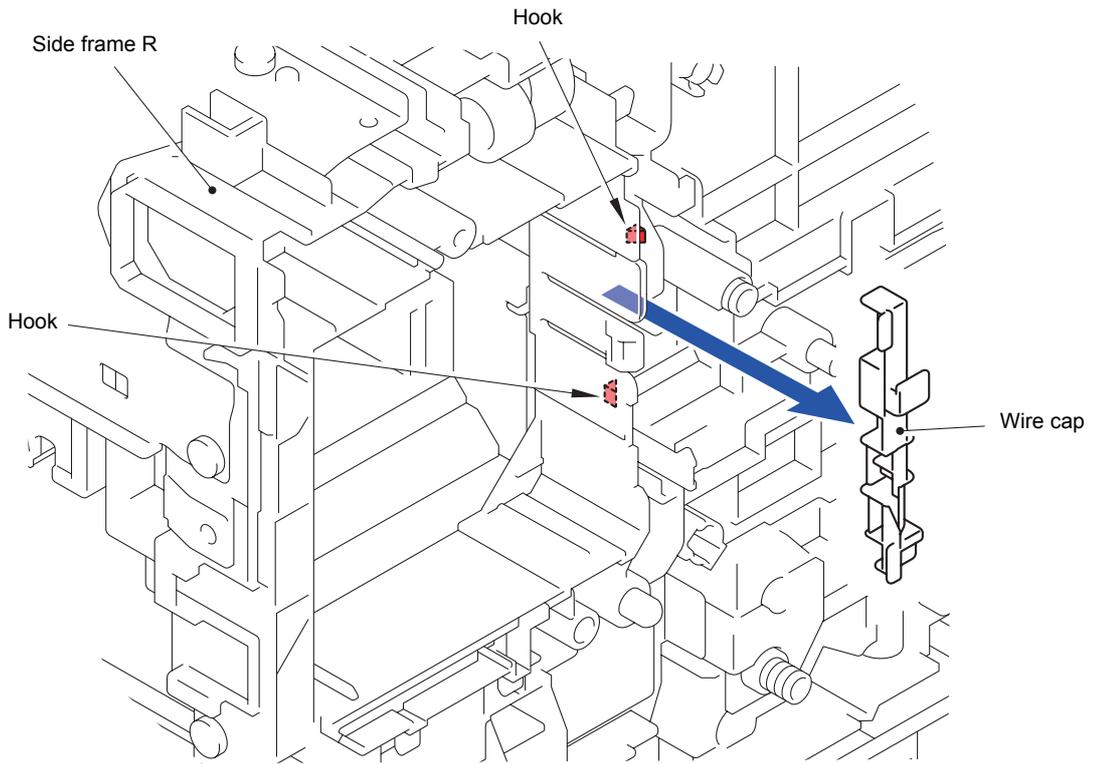


Fig. 3-230

(4) Pull out the Heater harness and Inlet harness ASSY from the Main body.

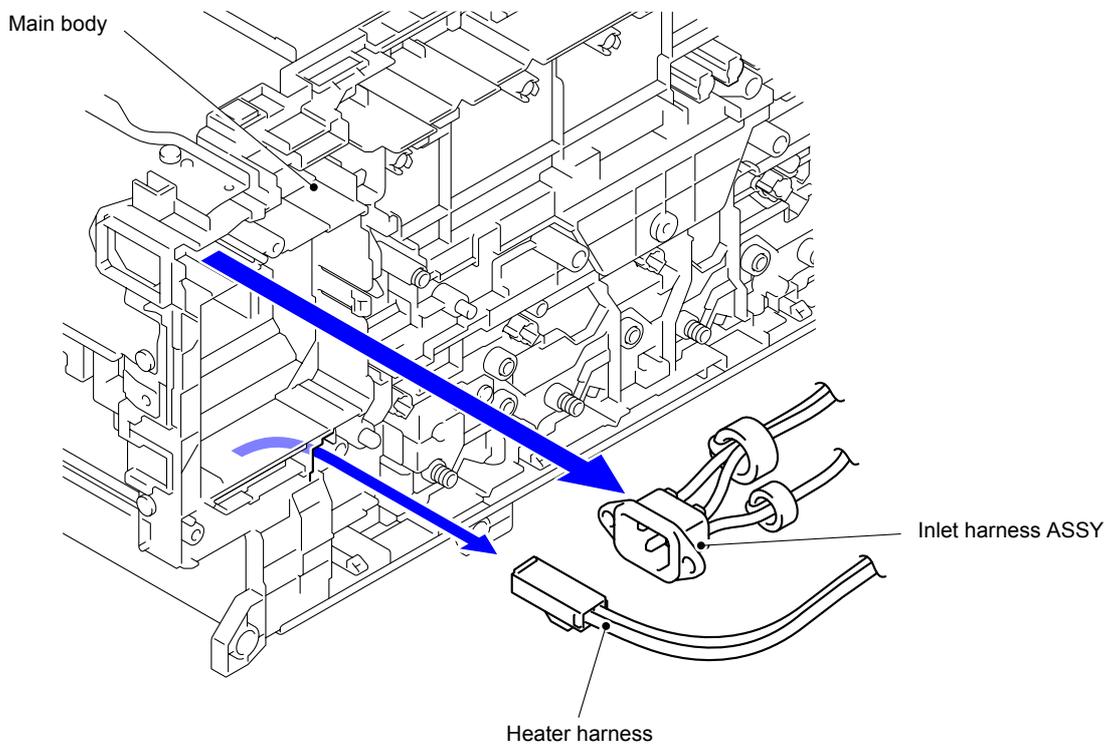


Fig. 3-231

- (5) Release the three Hooks to remove the Wire cover from the Side cover R.

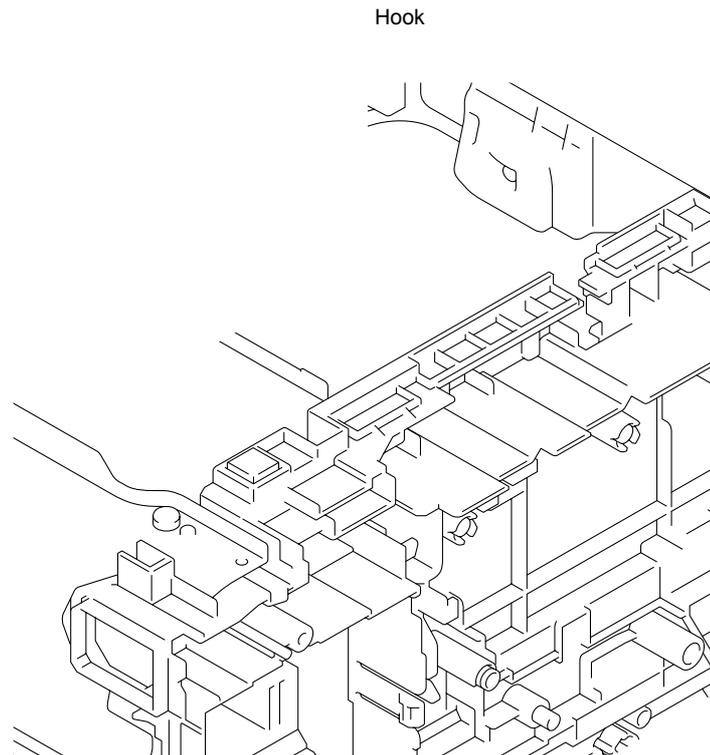


Fig. 3-232

- (6) Disconnect the wiring of the Heater harness and Inlet harness ASSY.
(7) Remove the Screw pan (S/P washer) M3.5x6 screw to remove the LVPS FG harness.
(8) Remove the six Taptite pan (washer) B M4x12 DA screws and two Taptite cup S M3x8 SR screws to remove the LVPS plate lower from the Main body.

- (9) Release the two Bosses to remove the LVPS insulation sheet lower from the Low-voltage power supply PCB ASSY.

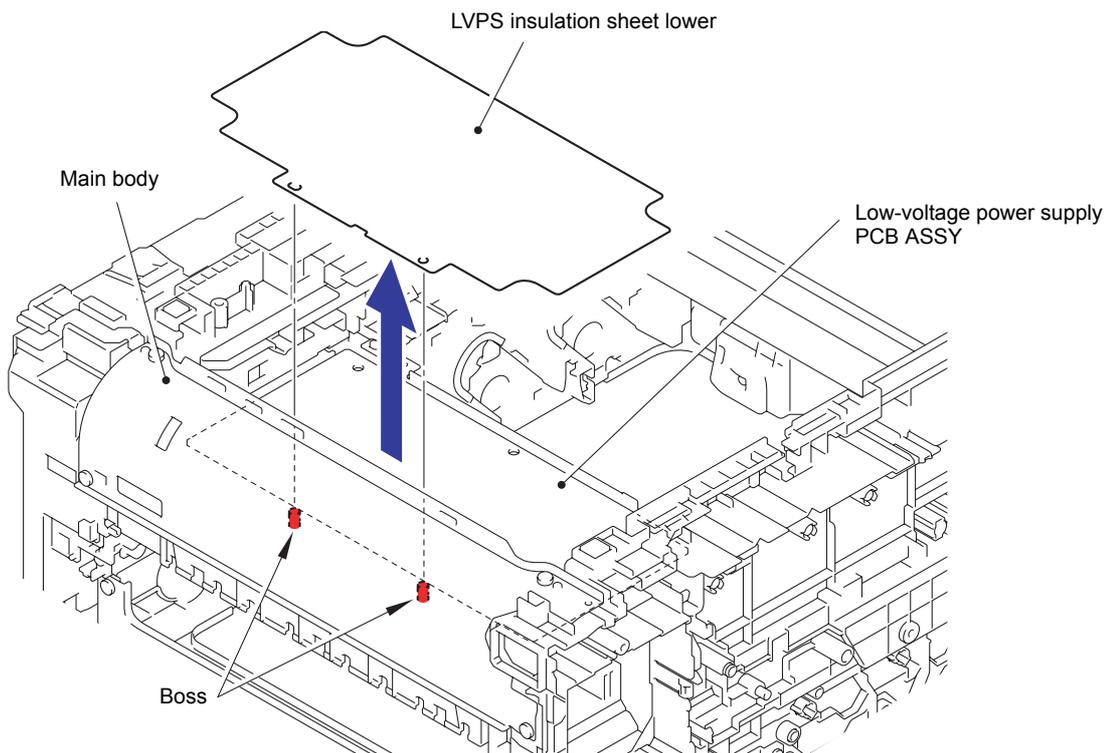


Fig. 3-234

- (10) Release the two Bosses to remove the Low-voltage power supply PCB ASSY from the Main body.

- (11) Disconnect the Connector (CN101) from the Low-voltage power supply PCB ASSY.

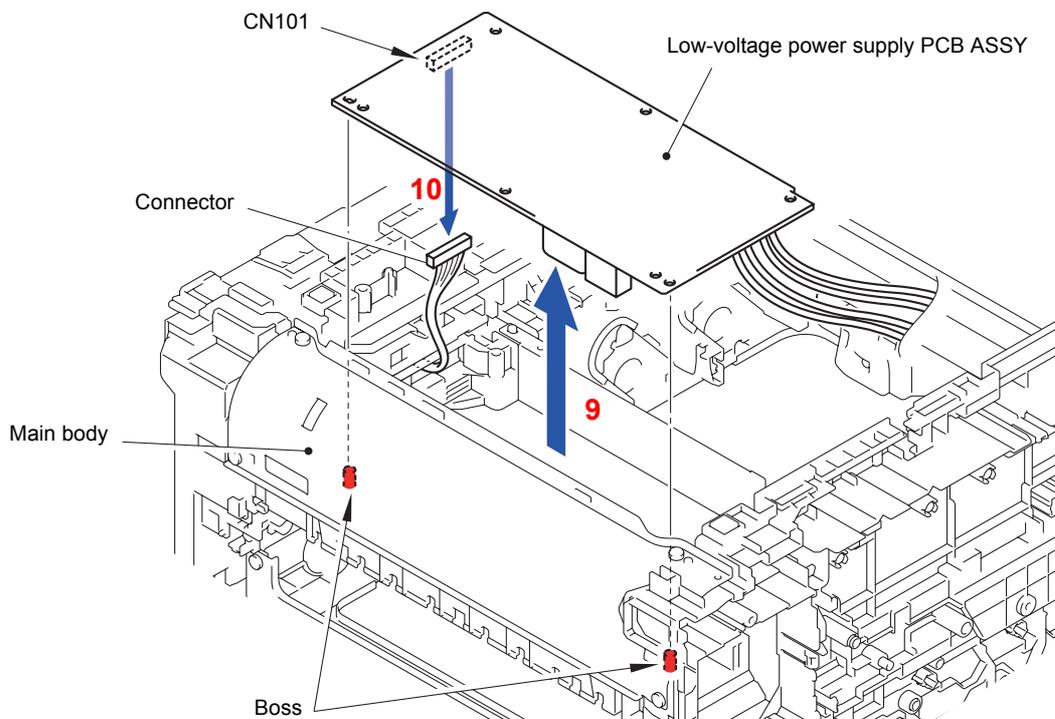


Fig. 3-235

Harness routing: Refer to "[10 Low-voltage Power Supply PCB ASSY](#)"

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

1. IF YOU REPLACE THE MAIN PCB ASSY

■ What to do when replacing the main PCB ASSY

- Installing the Firmware (Sub firmware, Panel firmware, Main firmware)
- Initialization of EEPROM of Main PCB ASSY (Function code 01)
- Setting by Country (Function code 74)
- Setting the Serial Number (Function code 80)
- Restore Machine Information (Function code 41)
- Performing the Motor Reset (Function code 57)
- Performing the Continuous Adjustments of Density and Registration Sensor (Function code 73)
- Acquisition of White Level Data (Function code 55)
- Adjustment of Touch Panel (Function code 61)

Memo:

In the **Continuous adjustments of density and registration sensor (Function code 73)**, Sensitivity adjustment of density sensor (Function code 72), Developing bias voltage correction (Function code 83), and Adjustment of color registration (Adjustment of inter-color position alignment) including registration sensor calibration (Function code 66) are executed consecutively.

■ What you need to prepare

- (1) A USB cable
- (2) Computer (Window[®] XP or later)
Create a temporary folder in the C drive.
- (3) Service setting tool (BrUsbsn.zip)
Copy it into the temporary folder that has been created in the C drive. Extract the copied file and execute "BrUsbsn.exe" file by double-clicking it.
- (4) The download utility (FILEDG32.EXE)
Copy it into the temporary folder that has been created in the C drive.
- (5) The Brother maintenance USB printer driver (MaintenanceDriver.zip)
If the maintenance printer driver is not installed, copy it into the temporary folder created in the C drive and decompress and expand the file. Refer to **APPENDIX 3 INSTALLING THE MAINTENANCE PRINTER DRIVER** to install the driver.

- (6) The firmware

Sub firmware	LZXXXX_\$.upd (Installing the firmware using computer)
Panel firmware	LZXXXX_\$.djf (Installing the firmware using USB flash memory)
Main firmware	
LZXXXX: First six digits are a parts number of the firmware. \$: Alphabet representing the revision of the firmware.	

- (7) USB flash memory
- (8) Stylus for touch panel

1.1 Installing the Firmware (Sub firmware, Panel firmware, Main Firmware)

The following two methods are available for installing the firmware.

- Installing using USB flash memory (USB direct interface model only)
- Installing using computer

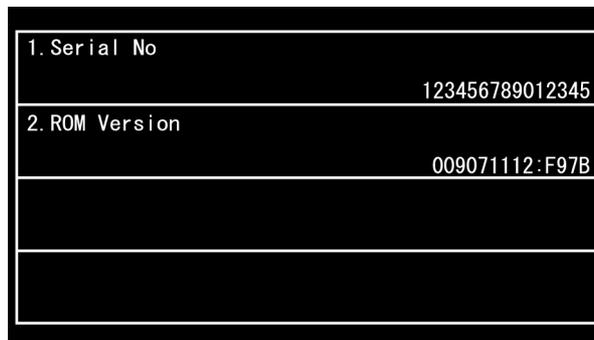
1.1.1 Checking firmware version

Check whether the firmware installed in the main PCB ASSY and the firmware installed in the panel PCB are the latest versions, there is no need to install the firmware.

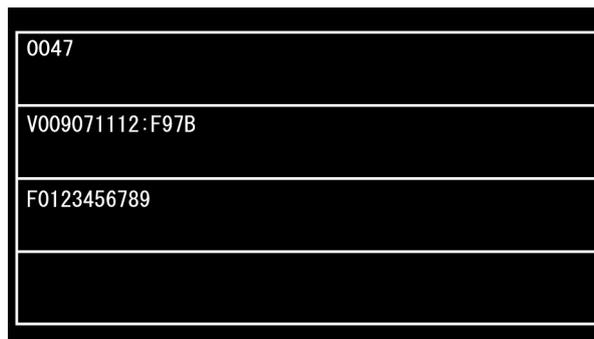
If one or both of them are not the latest versions, make sure to install the latest firmware in the PCB(s) in accordance with "[1.1.2 Installing the firmware using USB flash memory](#)" or "[1.1.3 Installing the firmware using computer](#)".

<How to check firmware version>

- (1) Hold down the **Home** key for about 5 seconds while the machine is in the ready state.
The following screen is displayed on the LCD.



- (2) Press the **ROM Version**. The following screen is displayed on the LCD.



The main firmware version is shown on the second line, and the panel firmware version on the third line.

1.1.2 Installing the firmware using USB flash memory (USB direct interface model only)

To install the machine firmware, save the program files to the USB flash memory, directly connect it to the machine, and select the program file.

Note:

- You cannot install the firmware using USB flash memory in the Deep Sleep mode. Gently touch the LCD to quit the Deep Sleep mode before installing the firmware.
- Make sure that the USB flash memory drive has enough space to save the program file.
- Install the Panel firmware, Sub firmware, and Main firmware in this order.
- If installing the firmware using a USB flash memory fails and an error message is displayed on the LCD or letters on the LCD disappear, install the firmware using a computer referring to "1.1.3 Installing the firmware using computer".

<Procedures>

- (1) Save the program files (such as LZXXXX_\$.djf) which are necessary for installing the firmware to the USB flash memory.
- (2) While the machine is in the ready state, connect the USB flash memory drive to the USB port on the front of the machine.
- (3) When the machine recognizes the USB flash memory, "Select a Function" is displayed on the LCD. Press the **Direct Print** key on the LCD. The files in the USB flash memory are displayed on the LCD.
- (4) Select and press the file name you want to install. When "Press OK to start printing" is displayed on the LCD, press the **OK** key on the LCD. "Program updating/Do not turn off" is displayed on the LCD and installation is started. During installation, do not turn off the power of the machine.
- (5) When the install is finished, the machine automatically restarts.
- (6) Repeat steps (3) to (5) to install necessary firmware.
- (7) When all firmware installation has been completed, remove the USB flash memory from the USB port.

1.1.3 Installing the firmware using computer

<Procedures>

- (1) Enter the maintenance mode.
(Refer to "1.1 How to Enter the Maintenance Mode" in Chapter 5.)
- (2) Connect the computer to the machine with the USB cable.
- (3) Open the temporary folder, double-click the "FILEDG32.EXE." to start, and select "Brother Maintenance USB Printer".
- (4) Drag and drop a necessary program file (for instance, LZXXXX_\$.upd) located in the same folder to the Brother Maintenance USB Printer icon located within the FILEDG32 screen. The files are sent to the machine and installation into the flash ROM is started.
- (5) The backlight of the LCD is turned ON and OFF repeatedly during installation. When the installation is completed, the machine reboots and returns to the ready state. Do not remove the USB cable nor turn OFF the power of the computer until the installation is completed.
- (6) Turn OFF the power of the machine, and repeat steps (4) to (5) to install necessary firmware.
- (7) Turn OFF the power of the machine, and remove the USB cable.

Note:

- Install the Panel firmware, Sub firmware, and Main firmware in this order.
- If you failed to install the firmware, turn OFF the power of the machine and turn it ON again. The machine automatically enters the firmware installation mode. Perform the installation procedures above again using the firmware with the extension ".upd".

1.2 Initialization of EEPROM of Main PCB ASSY (Function code 01)

Initialize the EEPROM of the main PCB ASSY in accordance with "1.4.1 EEPROM parameter initialization" in Chapter 5.

1.3 Setting by Country (Function code 74)

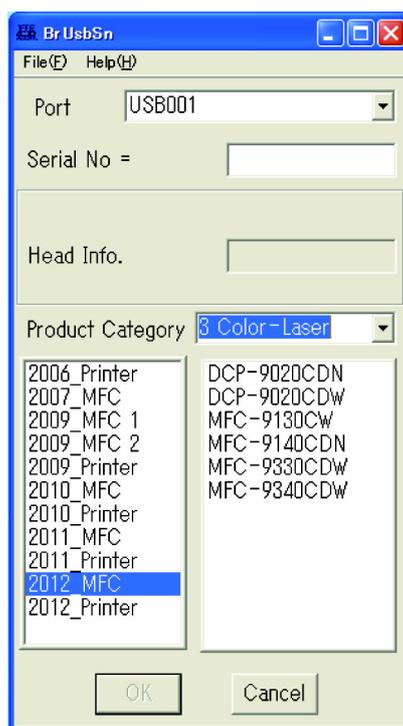
Make appropriate settings by country in accordance with "1.4.29 Setting by country" in Chapter 5.

1.4 Setting the Serial Number (Function code 80)

Referring to "1.4.32 Display of device log information" in Chapter 5, set the serial number. The serial number can be also set using the service setting tool (BrUsbSn.exe). The procedures are described below.

<Procedures>

- (1) Connect the computer to the machine with the USB cable.
- (2) Double-click the "BrUsbsn.exe" file copied into the temporary folder to start the file. The BrUsbSn screen appears as shown below.



- (3) Select "3 Color-Laser" in Product Category.
- (4) Select "2012_MFC".

- (5) In "Port" on the BrUsbSn screen, select the port assigned to Brother Maintenance USB Printer.
If the port number is unknown, follow steps below.
 - 1) Click "Start" "Settings" "Printers". The Printers screen appears.
 - 2) Right-click the Brother Maintenance USB Printer icon.
 - 3) Click "Properties". The Brother Maintenance USB Printer Properties screen appears.
 - 4) Click the Ports tab. The port for Brother Maintenance USB Printer is displayed.
- (6) Enter the serial number (the fifteen digits) of the machine into the box on the "Serial No".
- (7) Click the **OK** key. The serial number is written in the machine.

Memo:

Refer to [APPENDIX 1 SERIAL NUMBERING SYSTEM](#) to know how to read the serial number label of the machine.

1.5 Restore Machine Information (Function code 41)

Referring to "[1.4.12 Backup of machine information](#)" in [Chapter 5](#), restore the backup data of the machine information. If the data is successfully restored, the operations described in sections 1.6 to 1.9 in this chapter are not necessary. If backup data is unavailable or you fail to restore backup data, proceed to the operations described in sections 1.6 to 1.9 in this chapter.

1.6 Performing the Motor Reset (Function code 57)

Following the instructions provided in "[1.4.19 Motor reset](#)" in [Chapter 5](#), perform motor reset.

1.7 Performing the Continuous Adjustments of Density and Registration Sensors (Function code 73)

Perform continuous adjustments of density and registration sensor in accordance with "[1.4.28 Continuous adjustments of density and registration sensor](#)" in [Chapter 5](#).

Memo:

In the [Continuous adjustments of density and registration sensor \(Function code 73\)](#), [Sensitivity adjustment of density sensor \(Function code 72\)](#), [Developing bias voltage correction \(Function code 83\)](#), and [Adjustment of color registration \(Adjustment of inter-color position alignment\) including registration sensor calibration \(Function code 66\)](#) are executed consecutively.

1.8 Acquisition of White Level Data (Function code 55)

Perform the acquisition of white level data in accordance with "[1.4.18 Acquisition of white level data and setting of CIS scanning area](#)" in [Chapter 5](#).

1.9 Adjustment of Touch Panel (Function code 61)

Perform adjustment of touch panel in accordance with "[1.4.20 Adjustment of touch panel](#)" in [Chapter 5](#).

2. IF YOU REPLACE THE REGISTRATION MARK L PCB ASSY AND REGISTRATION MARK R PCB ASSY

■ What to do when replacing the registration mark L PCB ASSY and registration mark R PCB ASSY

- Performing the Continuous Adjustments of Density and Registration Sensor (Function code 73)

2.1 Performing the Continuous Adjustments of Density and Registration Sensor (Function code 73)

Perform continuous adjustments of density and registration sensor in accordance with "1.4.28 Continuous adjustments of density and registration sensor" in Chapter 5.

Memo:

In the [Continuous adjustments of density and registration sensor \(Function code 73\)](#), Sensitivity adjustment of density sensor (Function code 72), Developing bias voltage correction (Function code 83), and Adjustment of color registration (Adjustment of inter-color position alignment) including registration sensor calibration (Function code 66) are executed consecutively.

3. IF YOU REPLACE THE LOW-VOLTAGE POWER SUPPLY PCB ASSY

■ What to do when replacing the low-voltage power supply PCB ASSY

- Reset of Irregular Power Supply Detection Counter

■ What you need to prepare

- (1) A USB cable
- (2) Computer (Window[®] XP or later)
Create a temporary folder in the C drive.
- (3) The download utility (FILEDG32.EXE)
Copy it into the temporary folder that has been created in the C drive.
- (4) The Brother maintenance USB printer driver (MaintenanceDriver.zip)
If the maintenance printer driver is not installed, copy it into the temporary folder created in the C drive and decompress and expand the file. Refer to [APPENDIX 3 INSTALLING THE MAINTENANCE PRINTER DRIVER](#) to install the driver.
- (5) Irregular power supply detection counter PJI file (SQWAVE.PJI).

3.1 Reset of Irregular Power Supply Detection Counter

The irregular power supply detection counter is counted up when the machine detects irregular power supply. When the counter reaches the limit and the irregular power supply detection error is displayed, replace the low-voltage power supply PCB ASSY which may have been damaged by repeated irregular power supply and reset the irregular power supply detection counter.

In this case, if the same power supply is used, the same error might occur again even if the low-voltage power supply PCB ASSY is replaced. For this reason, be sure to ask the user to rearrange the installation environment.

- (1) Enter the maintenance mode.
(Refer to ["1.1 How to Enter the Maintenance Mode" in chapter 5.](#))
- (2) Connect the computer to the machine with the USB cable.
- (3) Double-click the "FILEDG32.EXE" to start. Select the "Brother Maintenance USB Printer".
- (4) Drag and drop SQWAVE.PJI on the "Brother Maintenance USB Printer" icon.
- (5) Turn OFF the power of the machine.

4. IF YOU REPLACE THE PROCESS DRIVE UNIT

■ What to do when replacing the process drive unit

- Performing the Motor Reset (Function code 57)

4.1 Performing the Motor Reset (Function code 57)

Following the instructions provided in "1.4.19 Motor reset" in Chapter 5, perform motor reset.

5. IF YOU REPLACE THE LED ASSY OR JOINT COVER ASSY

■ What to do when replacing the LED ASSY or joint cover ASSY

- Performing the Continuous Adjustments of Density and Registration Sensor (Function code 73)

5.1 Performing the Continuous Adjustments of Density and Registration Sensor (Function code 73)

Perform continuous adjustments of density and registration sensor in accordance with "1.4.28 Continuous adjustments of density and registration sensor" in Chapter 5.

Memo:

In the [Continuous adjustments of density and registration sensor \(Function code 73\)](#), Sensitivity adjustment of density sensor (Function code 72), Developing bias voltage correction (Function code 83), and Adjustment of color registration (Adjustment of inter-color position alignment) including registration sensor calibration (Function code 66) are executed consecutively.

6. IF YOU REPLACE THE DOCUMENT SCANNER UNIT, ADF UNIT OR CIS UNIT

■ What to do when replacing the document scanner unit, ADF unit or CIS unit

- Acquisition of White Level Data (Function code 55)

6.1 Acquisition of White Level Data (Function code 55)

Perform the acquisition of white level data in accordance with "1.4.18 Acquisition of white level data and setting of CIS scanning area " in Chapter 5.

7. IF YOU REPLACE THE CONTROL PANEL ASSY OR TOUCH PANEL ASSY

■ What to do when replacing the control panel ASSY or touch panel ASSY

- Installing the Panel Firmware
- Adjustment of Touch Panel (Function code 61)
- Operation Check of LCD (Function code 12)
- Operation Check of Control Panel Key (Function code 13)

■ What you need to prepare

- (1) A USB cable
- (2) Computer (Window[®] XP or later)
Create a temporary folder in the C drive.
- (3) Service setting tool (BrUsbsn.zip)
Copy it into the temporary folder that has been created in the C drive. Extract the copied file and execute "BrUsbsn.exe" file by double-clicking it.
- (4) The download utility (FILEDG32.EXE)
Copy it into the temporary folder that has been created in the C drive.
- (5) The Brother maintenance USB printer driver (MaintenanceDriver.zip)
If the maintenance printer driver is not installed, copy it into the temporary folder created in the C drive and decompress and expand the file. Refer to [APPENDIX 3 INSTALLING THE MAINTENANCE PRINTER DRIVER](#) to install the driver.
- (6) The firmware

Panel firmware	LZXXXX_\$.upd (Installing the firmware using computer) LZXXXX_\$.djf (Installing the firmware using USB flash memory)
LZXXXX: First six digits are a parts number of the firmware. \$: Alphabet representing the revision of the firmware.	

- (7) USB flash memory
- (8) Stylus for touch panel

7.1 Installing the Panel Firmware

The following two methods are available for installing the firmware.

- Installing using USB flash memory (USB direct interface model only)
- Installing using computer

7.1.1 Checking firmware version

Check whether the panel firmware installed is the latest version. (Refer to "[1.1.1 Checking firmware version](#)" in this chapter.)

If it is the latest version, there is no need to install the firmware.

If it is not, make sure to install the firmware in accordance with "7.1.2 Installing the firmware using USB flash memory" or "[7.1.3 Installing the firmware using computer](#)" in this chapter.

7.1.2 Installing the firmware using USB flash memory (USB direct interface model only)

To install the machine firmware, save the program file to the USB flash memory, directly connect it to the machine, and select the program file.

Note:

- You cannot install the firmware using USB flash memory in the Deep Sleep mode. Gently touch the LCD to quit the Deep Sleep mode before installing the firmware.
- Make sure that the USB flash memory drive has enough space to save the program file.
- If installing the firmware using a USB flash memory fails and an error message is displayed on the LCD or letters on the LCD disappear, install the firmware using a computer referring to "[7.1.3 Installing the firmware using computer](#)".

<Procedures>

- (1) Save the program file (such as LZXXXX_\$.djf) which is necessary for installing the firmware to the USB flash memory.
- (2) While the machine is in the ready state, connect the USB flash memory drive to the USB port on the front of the machine.
- (3) When the machine recognizes the USB flash memory, "Select a Function" is displayed on the LCD. Press the **Direct Print** key on the LCD. The files in the USB flash memory are displayed on the LCD.
- (4) Select and press the file name you want to install. When "Press OK to start printing" is displayed on the LCD, press the **OK** key on the LCD. "Program updating/Do not turn off" is displayed on the LCD and installation is started. During installation, do not turn off the power of the machine.
- (5) When the install is finished, the machine automatically restarts.
- (6) When firmware installation has been completed, remove the USB flash memory from the USB port.

7.1.3 Installing the firmware using computer

<Procedures>

- (1) Turn ON the power of the machine. Enter the maintenance mode.
(Refer to "1.1 How to Enter the Maintenance Mode" in Chapter 5.)
- (2) Connect the computer to the machine with the USB cable.
- (3) Open the temporary folder, double-click the "FILEDG32.EXE." to start, and select "Brother Maintenance USB Printer".
- (4) Drag and drop a necessary program file (for instance, LZXXXX_\$.upd) located in the same folder to the Brother Maintenance USB Printer icon located within the FILEDG32 screen. The files are sent to the machine and installation into the flash ROM is started.
- (5) The backlight of the LCD is turned ON and OFF repeatedly during installation. When the installation is completed, the machine reboots and returns to the ready state. Do not remove the USB cable nor turn OFF the power of the computer until the installation is completed.
- (6) Turn OFF the power of the machine, and remove the USB cable.

Note:

If you failed to install the firmware, turn OFF the power of the machine and turn it ON again. The machine automatically enters the firmware installation mode. Perform the installation procedures above again using the firmware with the extension ".upd".

7.2 Adjustment of Touch Panel (Function code 61)

Perform adjustment of touch panel in accordance with "1.4.20 Adjustment of touch panel" in Chapter 5.

7.3 Operation Check of LCD (Function code 12)

Perform operation check of the LCD in accordance with "1.4.7 Operational check of LCD" in Chapter 5.

7.4 Operation Check of Control Panel Key (Function code 13)

Perform operation check of the control panel key in accordance with "1.4.8 Operational check of control panel key" in Chapter 5.

8. IF YOU REPLACE THE FUSER UNIT/PF KIT 1

■ What to do when replacing the fuser unit/PF kit 1

- Reset the counter of the desired periodical replacement parts.

Periodical replacement parts whose counter can be reset. (Function code 88)

- Fuser unit
- PF Kit 1

8.1 Counter Reset after Fuser Unit/PF Kit 1 Replacement (Function code 88)

Following "[1.4.36 Counter reset after fuser unit/PF kit 1 replacement](#)" in Chapter 5, reset the counter of the desired periodical replacement parts.

CHAPTER 5 SERVICE FUNCTIONS

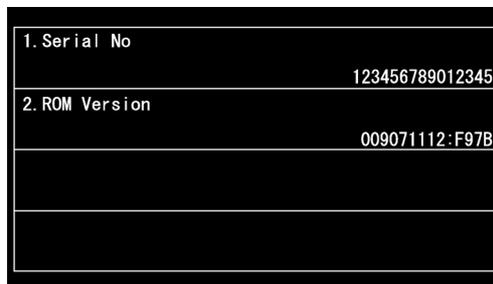
1. MAINTENANCE MODE

The maintenance mode is exclusively designed for the checking, setting and adjustments of the machine by using the keys on the control panel. You can check the operations of sensors, perform a print test, display the log information or error codes, and modify the worker switch (WSW).

1.1 How to Enter the Maintenance Mode

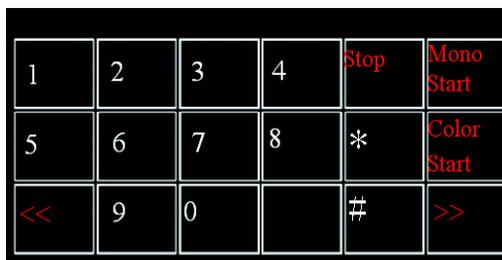
<Operating procedure>

- (1) Hold down the **Home** key for about 5 seconds while the machine is in the ready state. The following screen is displayed on the LCD.



1. Serial No	123456789012345
2. ROM Version	009071112:F97B

- (2) Hold down the blank space at the bottom of the LCD for about 2 seconds. The following screen is displayed on the LCD.



1	2	3	4	Stop	Mono Start
5	6	7	8	*	Color Start
<<	9	0		#	>>

- (3) Press the *, 2, 8, 6, and 4 keys on the LCD in this order. The following screen appears on the LCD and the machine enters the maintenance mode.



■■ MAINTNANCE ■■ 7 ■■					
1	2	3	4	Stop	Mono Start
5	6	7	8	*	Color Start
<<	9	0		#	>>

- (4) To select one of the maintenance mode functions shown in [P5-3](#), directly enter the function code that you want to use with the ten-key pad.

Note:

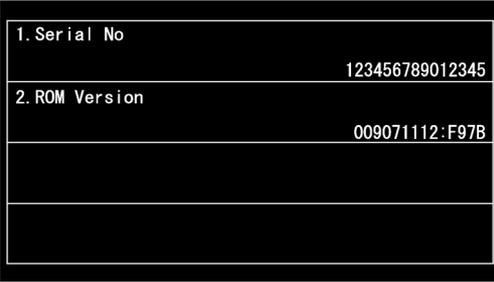
- To exit from the maintenance mode and switch to ready state, press the **9** key twice in the initial state of the maintenance mode.
- When you press the **Stop** key after entering a one-digit numerical value, the machine returns to the initial state of the maintenance mode.
- When an incorrect maintenance mode is entered, the machine returns to the initial state of the maintenance mode.

1.2 How to Enter the End User-accessible Maintenance Mode

Basically, the maintenance-mode functions listed in the [next page](#) should be accessed by service personnel only. However, you can allow end users to access some of these under the guidance of service personnel by phone, for example. The end user-accessible functions are shaded in the table given on the [next page](#). (codes 06, 09, 10, 11, 12, 25, 41, 43, 45, 52, 53, 54, 61, 66, 68, 71, 72, 77, 80, 82, 87, 88 and 91)

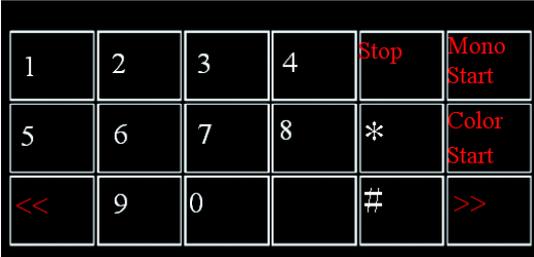
<Operating procedure>

- (1) Hold down the **Home** key for about 5 seconds while the machine is in the ready state. The following screen is displayed on the LCD.



1. Serial No	123456789012345
2. ROM Version	009071112:F97B

- (2) Hold down the blank space at the bottom of the LCD for about 2 seconds. The following screen is displayed on the LCD.



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 gets ready for the input of a function code. Enter the function code you want to use.
- (4) When each of the maintenance mode functions is completed, the machine automatically returns to the ready state.

Note:

To cancel an operation and return the machine to the ready state, press the **Stop** key.

1.3 List of Maintenance-mode Functions

Function code	Function	Refer to:
01	EEPROM parameter initialization	1.4.1 (5-5)
05	Printout of scanning compensation data	1.4.2 (5-6)
06	Placement of CIS unit in position for transportation	1.4.3 (5-11)
08	ADF performance test	1.4.4 (5-11)
09	Monochrome image quality test pattern	1.4.5 (5-12)
10	Worker switch (WSW) setting	1.4.6 [1] (5-13)
11	Printout of worker switch (WSW) data	1.4.6 [2] (5-16)
12	Operation check of LCD	1.4.7 (5-17)
13	Operational check of control panel key	1.4.8 (5-18)
25	Software version check	1.4.9 (5-19)
32	Operational check of sensors	1.4.10 (5-20)
33	LAN connection status display	1.4.11 (5-22)
41	Backup of machine information	1.4.12 (5-23)
43	PC print function setting	1.4.13 (5-25)
45	Changing return value of USB No./Switching Dither Pattern/ Switching of ON/OFF of DirectPrint Color mode-Improve Gray Color Switching of timing to execute Auto Registration Adjusting left-end print start position on second side in duplex printing (2-sided printing model only)	1.4.14 (5-29)
52	Set country/language	1.4.15 (5-32)
53	Transfer of received fax data and log information	1.4.16 (5-33)
54	Fine adjustment of scan positions	1.4.17 (5-35)
55	Acquisition of white level data and setting of CIS scanning area	1.4.18 (5-36)
57	Motor reset	1.4.19 (5-37)
61	Adjustment of touch panel	1.4.20 (5-38)
66	Adjustment of color registration (Adjustment of inter-color position alignment)	1.4.21 (5-39)
67	Print test	1.4.22 (5-42)
68	LED test pattern print	1.4.23 (5-45)
69	Frame pattern print (One-sided)	1.4.24 (5-47)
70	Frame pattern print (Two-sided)	1.4.25 (5-48)
71	Color test pattern	1.4.26 (5-49)
72	Sensitivity adjustment of density sensor	1.4.27 (5-52)
73	Continuous adjustments of density and registration sensor	1.4.28 (5-53)
74	Setting by country	1.4.29 (5-54)
77	Printout of maintenance information	1.4.30 (5-56)
78	Operational check of fans	1.4.31 (5-59)

Function code	Function	Refer to:
80	Display of device log information	1.4.32 (5-60)
82	Display of device error codes	1.4.33 (5-65)
83	Developing bias voltage correction	1.4.34 (5-66)
87	Sending of communication log information to telephone line	1.4.35 (5-67)
88	Counter reset after fuser unit/PF kit 1 replacement	1.4.36 (5-68)
91	EEPROM parameter initialization	1.4.1 (5-5)
95	Function unnecessary for maintenance work	---
99	Exit from the maintenance mode	1.4.37 (5-68)

* The functions shaded in the table above are user-accessible.

1.4 Detailed Description of Maintenance-mode Functions

1.4.1 EEPROM parameter initialization (Function code 01, 91)

<Function>

This function initializes the setting values of the operation parameters, user switches, and worker switches (WSW) registered in the EEPROM. Entering function code 01 initializes almost all of the EEPROM areas, but entering 91 does not initialize some areas, as listed below.

Data item	Function code 01	Function code 91
Printer switch (Counter information)	These will not be initialized.	These will not be initialized.
Error History		
MAC address		
Operation lock of the control panel password	These will be initialized.	These will be initialized.
Secure Function Lock		
Telephone function registration Telephone book		
Worker switch		
User switches (Items to be initialized when resetting to the factory default settings)		
Function settings except user switches (Items except the factory default settings)		
LAN settings		
Emulation settings		

<Operating procedure>

- (1) Press the **0** and **1** keys (or the **9** and **1** keys according to your need) in this order in the initial state of the maintenance mode. The "PARAMETER INIT" appears on the LCD.
- (2) Upon completion of parameter initialization, the machine returns to the initial state of the maintenance mode.

Note:

- Function code 01 is for service personnel. Function code 91 is for user support.
- If the power is turned OFF while "PARAMERER INIT" is being displayed on the LCD, the initialization of the EEPROM is not completed successfully. In this case, when the power is turned ON next time, the EEPROM is automatically initialized. After the initialization is completed, the machine returns to the initial state of the maintenance mode.

1.4.2 Printout of scanning compensation data (Function code 05)

<Function>

This function prints out the brightness level data for scanning compensation.

<Operating procedure>

Note:

- Be sure to execute this operating procedure not immediately after the power is turned ON, but after conducting the document scanning operation at least once in scanning. Since the machine initializes the brightness level data and obtains the standard value for document scanning compensation when starting scanning the document, the correct data for compensation cannot be printed out even if this operation is implemented without scanning the document.
- The print result varies depending on whether implementing color scanning or black and white scanning immediately before this operating procedure. Make sure the brightness level data you want to print and implement the operation below.

- (1) For white and black scanning, copy the document. For color scanning, implement color copy of the document.
- (2) Press the **0** and **5** keys in this order in the initial state of the maintenance mode. The "1. FRONT 2. BACK?" will appear on the LCD.
- (3) When you press the **1** or **2** key, the message "PRINTING" appears on the LCD and the machine prints the list of the data for document scanning compensation including the following data.

Note:

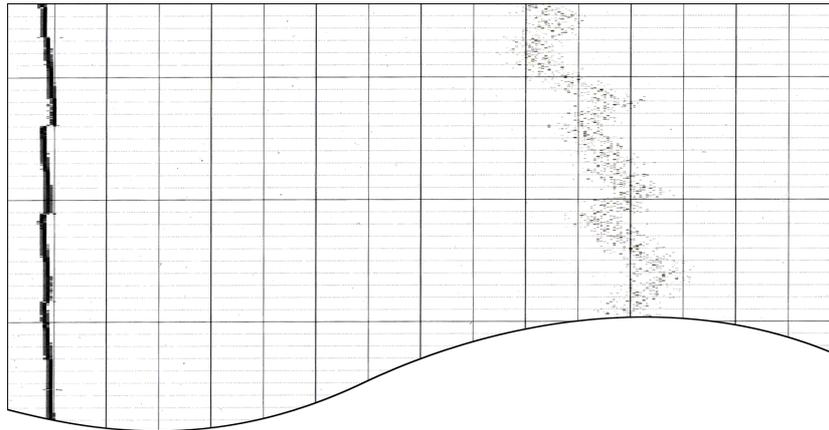
If there is no paper in the paper tray, the print job is canceled.

- (4) Upon completion of printing, the machine returns to the initial state of the maintenance mode.

■ Output data (for both monochrome and color)

a)	LED CURRENT DATA	1 Byte
b)	LED pulse data1 (UP) (G)	2 Byte
c)	LED pulse data1 (DOWN) (G)	2 Byte
d)	LED pulse data1 (UP) (B)	2 Byte
e)	LED pulse data1 (DOWN) (B)	2 Byte
f)	LED pulse data1 (UP) (R)	2 Byte
g)	LED pulse data1 (DOWN) (R)	2 Byte
h)	LED pulse data2 (UP) (G)	2 Byte
i)	LED pulse data2 (DOWN) (G)	2 Byte
j)	LED pulse data2 (UP) (B)	2 Byte
k)	LED pulse data2 (DOWN) (B)	2 Byte
l)	LED pulse data2 (UP) (R)	2 Byte
m)	LED pulse data2 (DOWN) (R)	2 Byte
n)	RLCV (AFE Parameter)	1 Byte
o)	OFFSET (AFE Parameter)	1 Byte
p)	GAIN (AFE Parameter)	2 Byte
q)	Background color compensated data	1 Byte
r)	HP detection black compensation data	2 Byte x 5
s)	Black level data	by previous scanning pixel count
t)	White level data (G)	by previous scanning pixel count
u)	White level data (B)	by previous scanning pixel count
v)	White level data (R)	by previous scanning pixel count

■ Black and white scanning (First side) (Front)



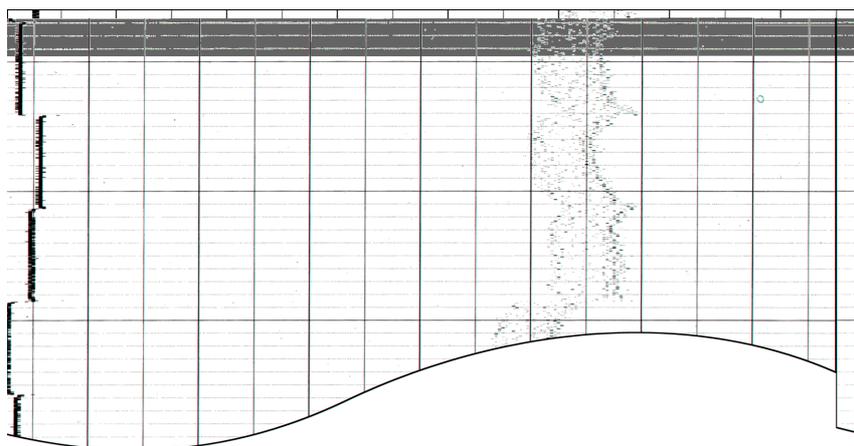
```

LED CURRENT : 01
LED PLS1UP G: 0279
LED PLS1DN G: 0677
LED PLS1UP R: 0641
LED PLS1DN
LED PLS2UP
LED PLS2DN
4e8d3000 : b4 ae b8 b5 b2 b7 bb b7 ba b4 b1 b0 ac b0 ba b8
LED PLS1UP 4e8d3020 : bb b3 b4 b4 b5 ae b7 b5 bb b5 b9 af b5 ad ba b8
LED PLS1DN 4e8d3040 : bb b8 ba af b1 b2 b1 b2 b9 b7 ba b3 af b2 b1 b1
LED PLS2UP 4e8d3060 : ba bb bd b5 b1 b0 b4 ad b5 b9 be b7 b7 b2 be b4
LED PLS2DN 4e8d3080 : fc fd fe ff ff
4e8d30a0
LED PLS2UP 4e8e0000 : 0d 0e 0c 0d 0d 0e 0d 0d 0d 0e 0d 0d 0d 0e 0d 0d
LED PLS2DN 4e8d30c0 : 0e 0e 0d 0d 0d 0d 0c 0d 0e 0e 0d 0d 0e 0e 0d 0d
AFE RLOW 4e8d30e0 : 0e 0e 0d 0e 0e 0e 0d 0e 0e 0e 0e 0e 0e 0e 0e 0e
AFE OFFSET 4e8e0e40 : 0e 0e 0d 0e 0e 0e 0d 0e 0e 0e 0e 0e 0e 0e 0e 0e
AFE GAIN 4e8d3120 : 4e8e0e60 : 0e 0e 0d 0e 0e 0e 0d 0e 0e 0e 0e 0e 0e 0e 0e 0e
BACK DATA 4e8d3140 : 4e8e0e80 : 0e 0e 0d 0e 0e 0e 0d 0e 0e 0e 0e 0e 0e 0e 0e 0e
1 : 233 4e8d3160 : 4e8e0ea0 : 0e 0e 0d 0e 0e 0e 0d 0e 0e 0e 0e 0e 0e 0e 0e 0e
2 : 246 4e8d3180 : 4e8e0ec0 : 0e 0e 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e
3 : 248 4e8d31a0 : 4e8e0ee0 : 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e
4 : 254 4e8d31c0 : 4e8e0f00 : 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e
5 : 263 4e8d31e0 : 4e8e0f20 : 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e
6 : 270 4e8d3200 : 4e8e0f40 : 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e
7 : 276 4e8d3220 : 4e8e0f60 : 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e
8 : 283 4e8d3240 : 4e8e0f80 : 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e
9 : 286 4e8d3260 : 4e8e0fa0 : 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e
10 : 290 4e8d3280 : 4e8e0fc0 : 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e
11 : 295 4e8d32a0 : 4e8e0fe0 : 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e
12 : 761
4e8d29e0 : c1 c1 c3 b7 b9 b4 be bd c3 c0 c2 b7 c1 bc c1 c1
4e8d32e0 : c1 c1 c7 bf bc bd bf b7 c1 c4 c7 c0 c2 ba c1 b7
4e8d3200 : be c3 c9 c5 c4 bd be bb bd c0 c3 bf c4 bd ba bc
4e8d32e0
4e8d3300 4e8d2a40 4e8e0600 : 0b 0c 0a 0b 0b 0c 0a 0b 0b 0c 0a 0b 0b 0c 0a 0b
4e8d3320 4e8d2a60 4e8e0620 : 0b 0c 0a 0b 0b 0b 0a 0b 0b 0c 0a 0b 0b 0c 0a 0b
4e8d3340 4e8d2a80 4e8e0640 : 0b 0c 0a 0b 0b 0c 0a 0b 0b 0c 0a 0b 0b 0c 0a 0b
4e8d3360 4e8d2aa0 4e8e0660 : 0b 0c 0a 0b 0b 0c 0a 0b 0b 0c 0a 0b 0b 0c 0a 0b
4e8d3380 4e8d2ac0 4e8e0680 : 0b 0c 0a 0b 0b 0c 0a 0b 0b 0c 0a 0b 0b 0c 0a 0b
4e8d33a0 4e8d2ae0 4e8e06a0 : 0c 0c 0a 0b 0b 0c 0a 0b 0b 0c 0a 0b 0b 0c 0a 0b
4e8d33c0 4e8d2b00 4e8e06c0 : 0b 0c 0a 0b 0c 0c 0b 0c 0c 0c 0c 0c 0c 0c 0c 0c
4e8d33e0 4e8d2b20 4e8e06e0 : 0c 0c 0b 0c 0c 0c 0b 0c 0c 0c 0c 0c 0c 0c 0c 0c
4e8d3400 4e8d2b40 4e8e0700 : 0c 0c 0b 0c 0c 0c 0b 0c 0c 0c 0c 0c 0c 0c 0c 0c
4e8d3420 4e8d2b60 4e8e0720 : 0c 0c 0b 0c 0c 0c 0b 0c 0c 0c 0c 0c 0c 0c 0c 0c
4e8d3440 4e8d2b80 4e8e0740 : 0c 0c 0b 0c 0c 0c 0b 0c 0c 0c 0c 0c 0c 0c 0c 0c
4e8d3460 4e8d2ba0 4e8e0760 : 0c 0c 0b 0c 0c 0c 0b 0c 0c 0c 0c 0c 0c 0c 0c 0c
4e8d3480 4e8d2bc0 4e8e0780 : 0d 0d
4e8d34a0 4e8d2be0 4e8e07a0 : 0c 0d 0b 0c 0c 0d 0b 0c 0c 0d 0b 0c 0c 0d 0b 0c
4e8d34c0 4e8d2c00 4e8e07c0 : 0c 0d 0b 0c 0c 0d 0b 0c 0c 0d 0b 0c 0c 0d 0b 0c
4e8d34e0 4e8d2c20 4e8e07e0 : 0c 0d 0b 0c 0c 0d 0b 0c 0c 0d 0b 0c 0c 0d 0b 0c
4e8d3500 4e8d2c40 4e8e0800 : 0d 0d 0b 0d 0d 0d 0c 0d 0d 0c 0d 0d 0c 0d 0d 0c
4e8d3520 4e8d2c60 4e8e0820 : 0d 0d 0c 0d 0d 0d 0c 0d 0d 0c 0d 0d 0c 0d 0d 0c
4e8d3540 4e8d2c80 4e8e0840 : 0d 0d 0c 0d 0d 0d 0c 0d 0d 0c 0d 0d 0c 0d 0d 0c
4e8d3560 4e8d2ca0 4e8e0860 : 0d 0d 0c 0d 0d 0d 0c 0d 0d 0c 0d 0d 0c 0d 0d 0c
4e8d3580 4e8d2cc0 4e8e0880 : 0d 0d 0c 0d 0d 0d 0c 0d 0d 0c 0d 0d 0c 0d 0d 0c
4e8d35a0 4e8d2ce0 4e8e08a0 : 0d 0d 0c 0d 0d 0d 0c 0d 0d 0c 0d 0d 0c 0d 0d 0c
4e8d35c0 4e8d2d00 4e8e08c0 : 0e 0e 0d 0e 0e 0e 0d 0e 0e 0e 0d 0e 0e 0e 0d 0e
4e8d35e0 4e8d2d20 4e8e08e0 : 0d 0d 0c 0d 0d 0d 0c 0d 0d 0c 0d 0d 0c 0d 0d 0c
4e8d3600 4e8d2d40 4e8e0900 : 0d 0d 0c 0d 0d 0d 0c 0d 0d 0c 0d 0d 0c 0d 0d 0c
4e8d3620 4e8d2d60 4e8e0920 : 0d 0e 0b 0d 12 0e 0d 0e 0e 0e 0d 0e 0e 0e 0d 0e
4e8d3640 4e8d2d80 4e8e0940 : 0e 0e 0d 0e 0e 0e 0d 0e 0e 0e 0d 0e 0e 0e 0d 0e
4e8d3660 4e8d2da0 4e8e0960 : 0e 0e 0d 0e 0e 0e 0d 0e 0e 0e 0d 0e 0e 0e 0d 0e
4e8d3680 4e8d2dc0 4e8e0980 : 0e 0e 0d 0e 0e 0e 0d 0e 0e 0e 0d 0e 0e 0e 0d 0e
4e8d36a0 4e8d2de0 4e8e09a0 : 0e 0f 0d 0e 0e 0e 0d 0e 0e 0e 0f 0d 0e 0e 0f 0d 0e
4e8d36c0 4e8d2e00 4e8e09c0 : 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e
4e8d36e0 4e8d2e20 4e8e09e0 : 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e 0e 0f 0d 0e
4e8d3700 4e8d2e40 4e8e0a00 : 0f 0f 0e 0e 0e 0f 0d 0e 0f 0d 0e 0f 0e 0f 0d 0e
4e8d3720 4e8d2e60 4e8e0a20 : 0f 0f 0e 0e 0e 0f 0d 0e 0f 0d 0e 0f 0e 0f 0d 0e
4e8d3740 4e8d2e80 4e8e0a40 : 0f 0f 0e 0e 0e 0f 0d 0e 0f 0d 0e 0f 0e 0f 0d 0e
4e8d3760 4e8d2ea0 4e8e0a60 : 0f 0f 0e 0e 0e 0f 0d 0e 0f 0d 0e 0f 0e 0f 0d 0e
4e8d3780 4e8d2ec0 4e8e0a80 : 0f 0f 0e 0f 0f 0f 0e 0f 0f 0e 0f 0f 0e 0f 0f 0e
4e8d37a0 4e8d2ee0 4e8e0aa0 : 0f 0f 0e 0f 0f 0f 0e 0f 0f 0e 0f 0f 0e 0f 0f 0e
4e8d37c0 4e8d2f00 4e8e0ac0 : 0f 0f 0e 0f 0f 0f 0e 0f 0f 0e 0f 0f 0e 0f 0f 0e
4e8d2f20 4e8e0ae0 : 0f 10 0e 0f 0f 0f 0e 0f 0f 0f 0e 0f 0f 0e 0f 0f
4e8d2f40 4e8e0b00 : 0f 10 0e 0f 0f 0f 0e 0f 0f 0f 0e 0f 0f 0e 0f 0f
4e8d2f60 4e8e0b20 : 0f 10 0e 0f 0f 0f 0e 0f 0f 0f 0e 0f 0f 0e 0f 0f
4e8d2f80 4e8e0b40 : 0f 10 0e 0f 0f 0f 0e 0f 0f 0f 0e 0f 0f 0e 0f 0f
4e8d2fa0 4e8e0b60 : 0f 10 0e 0f 0f 0f 0e 0f 0f 0f 0e 0f 0f 0e 0f 0f
4e8d2fc0 4e8e0b80 : 10 10 0f 10
4e8d2fe0 4e8e0ba0 : 10 10 0f 10
4e8e0bc0 : 10 10 0e 10 10 0f 10 10 0f 10 10 0f 10 10 0f 10
4e8e0be0 : 10 10 0f 10 10 0f 10 10 0f 10 10 0e 10 10 0f 10
4e8e0c00 : 10 10 0f 0f 10 10 0f 10 10 0f 10 10 0f 10 10 0f 10
4e8e0c20 : 10 10 0f 0f 10 10 0e 10 10 0f 0f 10 10 0e 10
4e8e0c40 : 10 10 0f 10 10 0f 0f 10 10 0f 10 10 0f 10 10 0f 10
4e8e0c60 : 10 10 0f 0f 10 10 0f 10 10 0f 10 10 0f 10 10 0f 0e
4e8e0c80 : 0d 0d 0c 0c 0d 0d 0c 0c 0d 0d 0c 0c 0d 0d 0c 0c
4e8e0ca0 : 0c 0d 0c 0c 0d 0d 0c 0c 0d 0d 0c 0c 0d 0d 0c 0c
4e8e0cc0 : 0d 0d 0c 0c 0d 0d 0c 0c 0d 0d 0c 0c 0d 0d 0c 0c
4e8e0ce0 : 0d 0d 0c 0c 0d 0d 0c 0c 0d 0d 0c 0c 0d 0d 0c 0c
4e8e0d00 : 0d 0d 0c 0d
4e8e0d20 : 0d 0d 0c 0d
4e8e0d40 : 0d 0d 0c 0d
4e8e0d60 : 0d 0d 0c 0d
4e8e0d80 : 0d 0d 0c 0d
4e8e0da0 : 0d 0d 0c 0d
4e8e0dc0 : 0d 0e 0c 0d 0d 0e 0c 0d 0d 0e 0c 0d 0d 0e 0c 0d
4e8e0de0 : 0d 0e 0c 0d 0d 0e 0c 0d 0d 0e 0c 0d 0d 0e 0c 0d

```

Fig. 5-1

■ Black and white scanning (Second side) (Back)



```

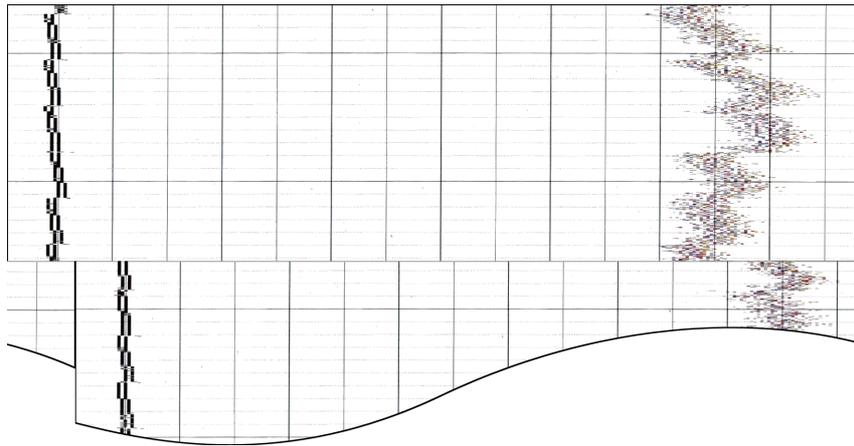
LED CURRENT :00
LED PLS1UP G:0575
LED PLS1DN G:1311
LED PLS1UP R:0b35
LED PLS1DN
LED PLS1UP 4e89f000 : 8f 8c 94 9c 9d 9d 98 8e 91 97 9d 9c 98 90 8c
LED PLS1DN 4e89f020 : 90 97 9b 9e 9d 93 8d 8e 96 9a 9c 9b 92 8d 8c 93
LED PLS2UP 4e89f040 : 9c 9d 9c 96 8d 8c 91 99 9d 98 8d 89 8d 96 9a
LED PLS2DN 4e89f060 : 9a 97 8f 8b 8b 94 93 9c 92 8d 8b 92 95 9c 99
LED PLS2UP 4e89f080 : 92 8f 8c 8b 8c 8a 8a 8c 8d 8b 8d 8d 8d 8d 8d
LED PLS2DN 4e89f0a0
LED PLS2UP 4e89f0c0 4e8ace00 : 12 12 12 11 12 12 12 12 12 12 12 12 12 12 13 12 12
LED PLS2DN 4e89f0e0 4e8ace20 : 12 12 11 12 12 12 11 12 12 12 12 12 12 12 12 12 12

```



Fig. 5-2

■ Color scanning (First side) (Front)



```

LED CURRENT : 06
LED PLS1UP G: 0049
LED PLS1DN G: 0242
LED PLS1UP R: 0049
LED PLS1DN
LED PLS1UP 4e8dc400 : c9 d0 cd c9 c4 ce c9 ca c7 cc cd cb c7 d2 cd cb
LED PLS1DN 4e8dc420 : c7 c7 cc cd c7 c8 cf d0 c5 c7 cc d1 c9 d2 ce d5
LED PLS2UP 4e8dc440 : ce cf cb de d0 d1 cb d8 d3 d5 d0 d3 d3 d0 cd d3
LED PLS2DN 4e8dc460 : ce d0 c8 cd d1 d4 cc d0 d1 d7 cc d4 cd d3 c7 d1
LED PLS2UP 4e8dc480 : c9 cf c7 c4 c7 d4 ce d1 c3 d0 c4 cf c7 cd d0 cc
LED PLS2DN 4e8dc4a0
LED PLS1UP 4e8e0e00 : 10 0e 10 0e
LED PLS1DN 4e8e0e20 : 10 0e 10 0e
AFE RLCV 4e8e0e40 : 10 0e 10 0e 10 0d 11 0d 14 0e 10 0e 10 0e 10 0e
AFE OFFSET 4e8e0e60 : 10 0e 10 0e 10 0e 13 0e 10 0e 10 0e 10 0e 10 0e
AFE GAIN 4e8e0e80 : 10 0e 10 0e 10 0e 13 0e 10 0e 10 0e 10 0e 10 0e
BACK DATA 4e8e0ea0 : 10 0e 10 0f 10 0e 10 0f 10 0f 10 0f 10 0f 10 0f
1 : 233 4e8e0ec0 : 10 0f 11 0f 10 0f 10 0f 10 0f 10 0f 10 0f 10 0f
2 : 267 4e8e0ee0 : 11 0f 11 0f
3 : 246 4e8e0f00 : 11 0f 11 0f
4 : 246 4e8e0f20 : 11 0f 11 0f
5 : 264 4e8e0f40 : 11 0f 11 0f
6 : 283 4e8e0f60 : 11 10 11 10 11 10 11 10 11 10 11 10 11 10
7 : 278 4e8e0f80 : 12 10 11 10 11 10 11 10 11 10 11 10 11 10
8 : 270 4e8e0fa0 : 12 10 11 10 11 10 11 10 11 10 11 10 11 10
9 : 266 4e8e0fb0 : 12 10 11 10 11 10 11 10 11 10 11 10 11 10
10 : 276 4e8e0fd0 : 12 10 11 10 11 10 11 10 11 10 11 10 11 10
11 : 256 4e8e0fe0 : 12 10 11 10 11 10 11 10 11 10 11 10 11 10
12 : 761 4e8dbde0 : d5 d7 cb cf de d4 cf d4 d7 dd d3 d6 d7 dc d2 cf
4e8dbe00 : d2 d3 c9 ca ce d3 c9 cb ce d3 d3 d1 d0 d7 cf ca
4e8dbe20
4e8dc6e0 4e8dbe40 4e8e0500 : 0d 0b 0c 0b 0d 0b 0d 0b 0d 0b 0d 0b 0d 0b 0d 0b
4e8dc700 4e8dbe60 4e8e0520 : 0d 0b 0d 0b
4e8dc720 4e8dbe80 4e8e0540 : 0d 0b 0d 0b
4e8dc740 4e8dbea0 4e8e0560 : 0d 0c 0e 0c 0e 0c 0d 0c 0e 0c 0d 0c 0e 0c 0e 0c
4e8dc760 4e8dbec0 4e8e0580 : 0d 0c 0e 0c 0e 0c 0d 0c 0e 0c 0d 0c 0e 0c 0e 0c
4e8dc780 4e8dbef0 4e8e05a0 : 0e 0c 0e 0c
4e8dc7a0 4e8dbf20 4e8e05c0 : 0e 0c 0e 0c
4e8dc7c0 4e8dbf40 4e8e05e0 : 0e 0c 0e 0c
4e8dc7e0 4e8dbf60 4e8e0600 : 0f 0c 0e 0d 0f 0c 0f 0d 0f 0c 0f 0c 0f 0c 0f 0d
4e8dbf80 4e8e0620 : 0f 0c 0e 0d 0f 0c 0f 0d 0f 0c 0f 0c 0f 0c 0f 0d
4e8dbfa0 4e8e0640 : 0e 0c 0e 0c 0e 0c 0e 0c 0e 0c 0f 0c 0e 0c 0e 0d
4e8dbfc0 4e8e0660 : 0f 0c 0f 0c 0f 0d 0f 0d 0f 0d 0f 0d 0f 0d 0f 0d
4e8dbfe0 4e8e0680 : 10 0e 10 0e
4e8dc000 4e8e06a0 : 10 0e 10 0e
4e8dc020 4e8e06c0 : 10 0e 10 0e
4e8dc040 4e8e06e0 : 10 0f 10 0f 11 0f 10 0f 10 0f 10 0f 11 0f 11 0f
4e8dc060 4e8e0700 : 11 0f 10 0f 11 0f 10 0f 10 0f 11 0f 10 0f 11 0f
4e8dc080 4e8e0720 : 11 0f 11 0f
4e8dc0a0 4e8e0740 : 11 0f 11 0f
4e8dc0c0 4e8e0760 : 11 0f 11 0f
4e8dc0e0 4e8e0780 : 11 0f 11 0f
4e8dc100 4e8e07a0 : 12 0f 12 10 12 0f 11 0f 12 10 11 0f 11 0f 12 0f
4e8dc120 4e8e07c0 : 11 10 11 0f 11 10 12 0f 12 10 11 10 11 10 11 10
4e8dc140 4e8e07e0 : 11 10 12 0f 11 10 12 10 11 10 11 10 11 10 12 0f
4e8dc160 4e8e0800 : 12 0c 0e 0c
4e8dc180 4e8e0820 : 0e 0c 0e 0c
4e8dc1a0 4e8e0840 : 0e 0c 0e 0c
4e8dc1c0 4e8e0860 : 0e 0d 0e 0d 0f 0d 0f 0d 0f 0d 0f 0d 0f 0d 0f 0d
4e8dc1e0 4e8e0880 : 0f 0d 0f 0d
4e8dc200 4e8e08a0 : 0f 0d 0f 0d
4e8dc220 4e8e08c0 : 0f 0d 0f 0d
4e8dc240 4e8e08e0 : 0f 0e 0f 0d 0f 0d 0f 0e 0f 0e 0f 0d 0f 0e 10 0e
4e8dc260 4e8e0900 : 10 0d 0f 0e 0f 0d 0f 0e 0f 0e 10 0e 10 0e 10 0e
4e8dc280 4e8e0920 : 10 0e 10 0e
4e8dc2a0 4e8e0940 : 10 0e 10 0e
4e8dc2c0 4e8e0960 : 10 0e 10 0e
4e8dc2e0 4e8e0980 : 10 0e 10 0e
4e8dc300 4e8e09a0 : 10 0e 10 0e 10 0d 11 0d 12 0c 0e 0c 0e 0c
4e8dc320 4e8e09c0 : 0e 0c 0e 0c
4e8dc340 4e8e09e0 : 0e 0d 0e 0d 0e 0c 0e 0c 0e 0c 0e 0c 0e 0c 0e 0c
4e8dc360 4e8e0a00 : 0e 0d 0e 0c 0e 0c 0e 0c 0e 0c 0e 0c 0e 0c 0e 0c
4e8dc380 4e8e0a20 : 0e 0d 0e 0d 0e 0c 0e 0c 0e 0c 0e 0c 0e 0c 0e 0c
4e8dc3a0 4e8e0a40 : 0f 0d 0f 0d
4e8dc3c0 4e8e0a60 : 0f 0d 0f 0d
4e8dc3e0 4e8e0a80 : 0f 0d 0f 0d
4e8e0aa0 : 0f 0d 0f 0d
4e8e0ac0 : 10 0e 0f 0d 10 0e 10 0e 10 0e 10 0e 10 0e 10 0e
4e8e0ad0 : 10 0e 10 0e
4e8e0ae0 : 10 0e 10 0e
4e8e0af0 : 10 0e 10 0e
4e8e0b00 : 10 0e 10 0e
4e8e0b20 : 0e 0c 0e 0c
4e8e0b40 : 0e 0d 0e 0d 0e 0c 0e 0c 0e 0c 0e 0c 0e 0c 0e 0c
4e8e0b60 : 0e 0d 0e 0d 0e 0c 0e 0c 0e 0c 0e 0c 0e 0c 0e 0c
4e8e0b80 : 0f 0d 0f 0d
4e8e0ba0 : 0f 0d 0f 0d
4e8e0bc0 : 0f 0d 0f 0d
4e8e0bd0 : 0f 0d 0f 0d
4e8e0be0 : 10 0e 0f 0d 10 0e 10 0e 10 0e 10 0e 10 0e 10 0e
4e8e0bf0 : 10 0e 10 0e
4e8e0c00 : 10 0e 10 0e
4e8e0c20 : 10 0e 10 0e
4e8e0c40 : 10 0e 10 0e
4e8e0c60 : 10 0e 10 0e
4e8e0c80 : 10 0e 10 0e
4e8e0ca0 : 0e 0c 0e 0c
4e8e0cc0 : 0e 0c 0e 0c
4e8e0ce0 : 0e 0d 0f 0d
4e8e0d00 : 0e 0d 0f 0d
4e8e0d20 : 0f 0d 0f 0d
4e8e0d40 : 0f 0d 0f 0d
4e8e0d60 : 0f 0d 0f 0d
4e8e0d80 : 0f 0d 0f 0d
4e8e0da0 : 10 0e 10 0e
4e8e0dc0 : 10 0e 10 0e
4e8e0de0 : 10 0e 10 0e
    
```

Fig. 5-3

■ Color scanning (Second side) (Back)

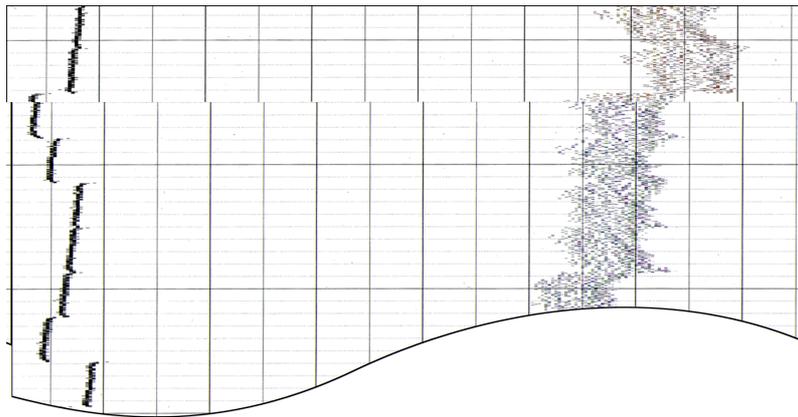


Fig. 5-4

1.4.3 Placement of CIS unit in position for transportation (Function code 06)

<Function>

This function is to move the CIS unit of the document scanner unit in position for transportation located at the left end. When you fix the machine and check its operation, you need to perform this function last before packing and shipping.

(This function does not apply to the CIS unit of the ADF unit.)

Note:

Please instruct end users to perform this function if possible before packing and shipping their machine to a sales agent or a service dealer for the purpose of repair. (For information on the procedure to make the user operate the maintenance mode, refer to "1.2 How to Enter the End User-accessible Maintenance Mode" in this chapter.)

<Operating procedure>

- (1) Press the **0** and **6** keys in this order in the initial state of the maintenance mode. "Maintenance 06" appears on the LCD and the CIS unit starts to be moved.
- (2) When the movement of the CIS unit is completed, "SCAN LOCKED" is displayed on the LCD.
- (3) Press the **Stop** key to return the machine to the initial state of the maintenance mode.

Note:

When the document scanner unit fails to move to the transport position or when this function code is executed while a reading error occurs, an error occurs and "SCAN LOCK ERROR" is displayed on the LCD.

1.4.4 ADF performance test (Function code 08)

<Function>

This function is to test the performance of the automatic document feeder (ADF). The machine counts the number of scanned pages of the documents fed from the ADF and displays the result on the LCD.

<Operating procedure>

- (1) Load documents on the ADF unit. "DOC.READY" is displayed on the LCD.
- (2) Press the **0** and **8** keys in this order in the initial state of the maintenance mode. The machine displays "ADF CHECK P:**" on the LCD and ejects documents while counting the number of scanned pages. (** indicates the current count of scanned pages.)

Memo:

For duplex scanning models, as 2 faces are scanned per a sheet of document, the page count increases by two each time a sheet of document is ejected.

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

Note:

- If the ADF cover is opened, the machine displays "NO DOCUMENT" on the LCD and returns to the ready state in the maintenance mode.
- If no documents are loaded in the ADF, the machine displays "NO DOCUMENT" on the LCD and returns to the ready state in the maintenance mode.

1.4.5 Monochrome image quality test pattern (Function code 09)

<Function>

This function allows you to print various monochrome test patterns and check the quality and if there is any image loss.

<Operating procedure>

- (1) Press the **0** and **9** keys in this order in the initial state of the maintenance mode. "PRINTING" is displayed on the LCD. Printing of a monochrome image quality test pattern (see the figure below) is started. If there is no paper in the paper tray, the print job is canceled.
- (2) When printing is finished, the machine returns to the initial state of the maintenance mode.

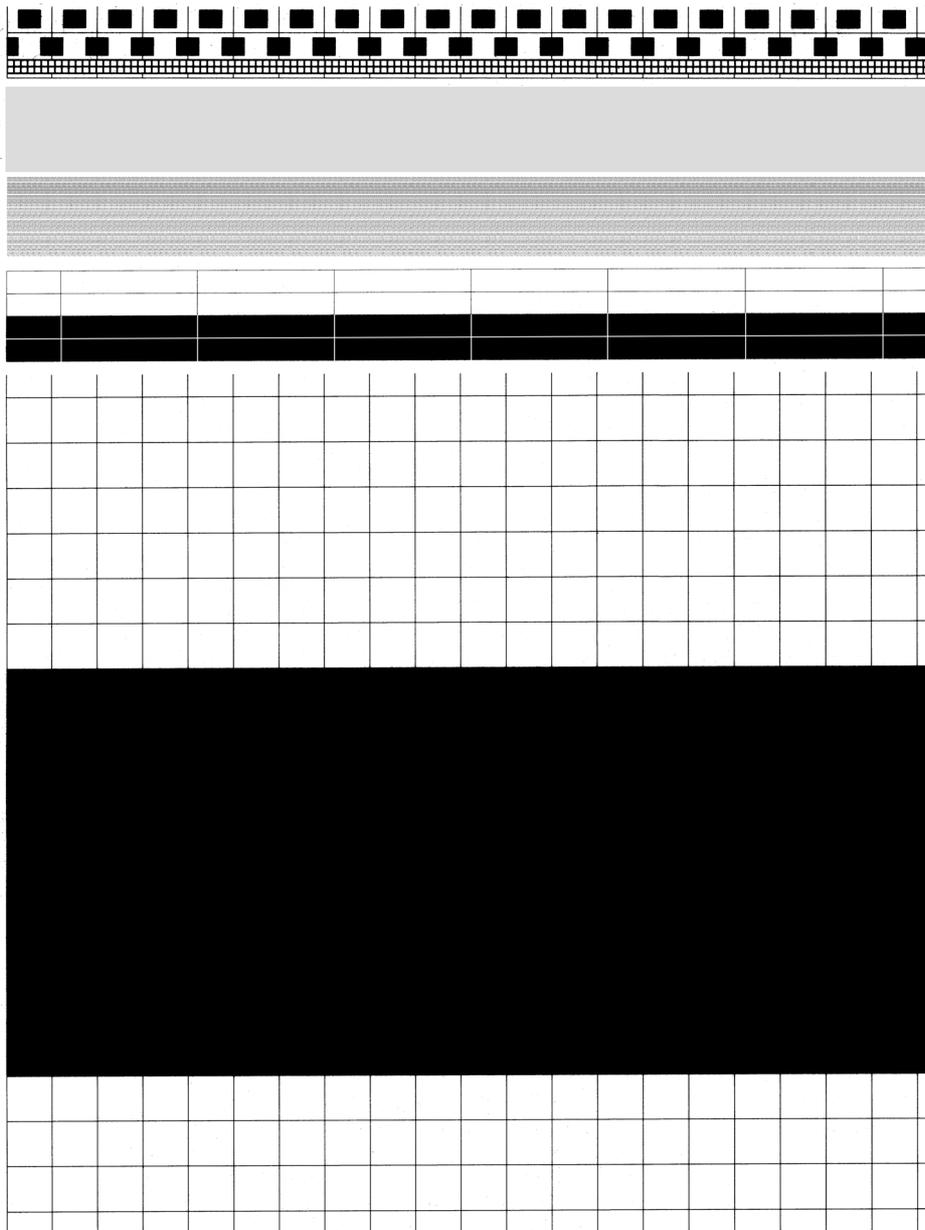


Fig. 5-5

1.4.6 Worker switch (WSW) setting and printout (Function code 10, 11)

[1] Worker switch (WSW) setting (Function code 10)

<Function>

The worker switches shown in the table below can be used to set the function to satisfy various requirements. The switch setting can be changed using the keys on the control panel. The worker switches are factory set to conform with the laws and regulations of the country the machine is shipped to. Do not change these settings unless necessary.

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

WSW No.	Function
WSW33	Function setting 11
WSW34	Function setting 12
WSW35	Function setting 13
WSW36	Function setting 14
WSW37	Function setting 15
WSW38	V.34 transmission settings
WSW39	V.34 transmission speed
WSW40	V.34 modem settings
WSW41	ON-duration of the scanning light source
WSW42	Internet mail settings
WSW43	Function setting 16
WSW44	Speeding up scanning-1
WSW45	Speeding up scanning-2
WSW46	Monitor of power ON/OFF state and parallel port kept at high
WSW47	Switching between high-speed USB 2.0 and full-speed USB 1.1
WSW48	USB setup latency
WSW49	End-of-copying beep and print in black
WSW50	SDAA settings
WSW51	Function setting 17
WSW52	Function setting 18
WSW53	Function setting 19
WSW54	Function setting 20
WSW55	Interval of time required for the developing bias voltage correction
WSW56	Function setting 21
WSW57	Function setting 22
WSW58	Function setting 23
WSW59	Function setting 24
WSW60	Function setting 25
WSW61	Scanning light intensity to judge to be stable 1
WSW62	Scanning light intensity to judge to be stable 2
WSW63	Function setting 26
WSW64	Setting the language/Default paper size
WSW65	Setting the paper support
WSW66	Reserved (Change of the setting is prohibited)
WSW67	Reserved (Change of the setting is prohibited)
WSW68	Reserved (Change of the setting is prohibited)
WSW69	Reserved (Change of the setting is prohibited)
WSW70	Reserved (Change of the setting is prohibited)
WSW71	Reserved (Change of the setting is prohibited)
WSW72	Reserved (Change of the setting is prohibited)

[2] Printout of worker switch (WSW) data (Function code 11)

<Function>

The machine prints out the setting items of the worker switches and the set details.

<Operating procedure>

- (1) Press the 1 key twice in the initial state of the maintenance mode. "PRINTING" appears on the LCD and the CONFIGURATION LIST shown below is printed. If there is no paper in the paper tray, the print job is canceled.
- (2) When printing is finished, the machine returns to the initial state of the maintenance mode.

```

                                CONFIGURATION LIST

MODEL : 8CE-417
TIME : 11/19/2012 04:24PM
REV. : U1211150930VER.A
PCI : 5.00
SUM : 7346
SER.# : X12345K2J000070

WSW01 = 00000010
1-2. DIAL FORMAT : NORMAL
3-4. BREAK TIME : 60 MS
5-6. INTERDIGIT PAUSE : 800 MS
7. DP/PB CHANGE IN USER SW : NO
8. DP/PB FIXING SELECTION : PB
WSW02 = 11111010
1-2. ON TIME : 100 MS
3-4. OFF TIME : 140 MS
5-8. LINE BEEP ATTENUATOR : 10 DB
WSW03 = 10111000
1. PARA. CNG DETECTION1 : B
2-4. NOT USED
5. PARA. CNG DETECTION2 : B
6-8. NOT USED
WSW04 = 00010110
1-4. NOT USED
5. OGM DELAY +4SEC : OFF
6-8. FLASHING TIME : 500 MS
WSW05 = 00000110
1-3. DIAL TONE DETECTION : 3.5 SEC WAITING
4. REMOTE ID DETECTION TIMEOUT : 2 SEC
5-6. BUSY TONE DETECTION (CALLING) : AFTER DIALING
7. BUSY TONE DETECTION (CALLED) : OFF
8. NOT USED
WSW06 = 00101100
1-3. PAUSE KEY : 3.5 SEC WAITING
4-6. 2ND DT DETECTION TIME : 620 MS
7. 2ND DT DETECTION CYCLE : 1 CYCLE
8. 2ND DT INTERRUPT DETECTION TIME : 30 MS
WSW07 = 01001100
1-2. FREQUENCY RANGE : INITIAL DATA
3. NOT USED
4-6. 2ND DT DETECTION LEVEL : -30 DBM
7. 1ST DT INTERRUPT DETECTION TIME : 30 MS
8. NOT USED
WSW08 = 01100111
1-3. 1ST DT DETECTION TIME : 620 MS
4-5. 1ST/2ND DT TIME OUT : 10 SEC
6-8. 1ST DT DETECTION LEVEL : -42 DBM
WSW09 = 00000000
1. ECM FRAME : 256 OCTET
2. NON STANDARD FACILITIES : ON
3-4. TIMES OF FALL BACK : 4
5. T5 TIMER : 300 SEC
6. T1 TIMER : 35 SEC
7-8. CALLING TIMEOUT : 50 SEC
WSW10 = 00010100
1. NOT USED
2. TIMING OF LAST DIGIT-MODEM CHANGE : 100 MS
3. TIMING OF OML ON CNG TRANSMISSION : 2 SEC
4. TIMING OF OML ON CED TRANSMISSION : 2 SEC
5-6. TRAINING RETRIES : 2
7. CODING METHOD MR : ON
8. CODING METHOD MMR : ON
WSW11 = 01011000
1-2. FREQUENCY RANGE : INITIAL DATA
3-8. ON/OFF TIME : 175 - 500 / 175 - 500 MS
WSW12 = 10011001
1-2. OFF DETECTION TIME : 700 MS
3-4. AUTO ANS OFF DETECTION TIME : 7 SEC
5-6. ON DETECTION TIME : 250 MS
7-8. NOT USED
```

Fig. 5-6

1.4.7 Operational check of LCD (Function code 12)

<Function>

This function allows you to check whether the LCD on the control panel works normally.

<Operating procedure>

- (1) Press the **1** and **2** keys in this order in the initial state of the maintenance mode.
- (2) Each time you press the **#** key, the LCD cycles through the displays as shown below. When you press the ***** key, the display on the LCD returns to the preceding one. When you press the **#** key with Display 7 shown on the LCD, Display 1 appears.
- (3) When the **Cancel** key is pressed, the machine returns to the initial state of the maintenance mode, regardless of the display status.

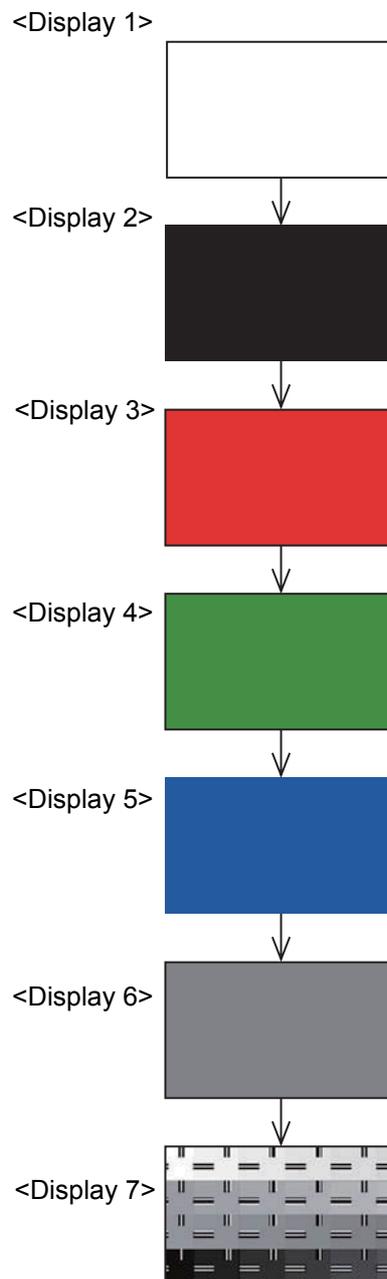


Fig. 5-7

1.4.8 Operational check of control panel key (Function code 13)

<Function>

This function allows you to check if the keys on the control panel work normally.

<Operating procedure>

- (1) Press the **1** and **3** keys in this order in the initial state of the maintenance mode.
"00" is displayed on the LCD.
- (2) Press the keys in the order designated in the figure shown below. The LCD shows the corresponding number in decimal notation each time a key is pressed.
Check that the displayed number is correct by referring to the figure below. If the keys are pressed in the incorrect order, the machine displays the "INVALID OPERATE" on the LCD.
Press the **Stop** key, and then press the correct keys.
- (3) After the last number key is pressed, the machine returns to the initial state of the maintenance mode.
To cancel this operation and return the machine to the initial state of the maintenance mode during the above procedure, press the **Stop** key.

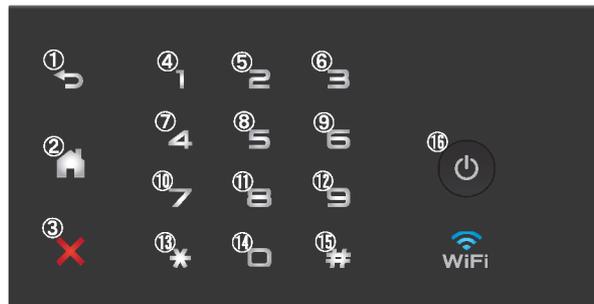


Fig. 5-8

1.4.9 Software version check (Function code 25)

<Function>

This function allows you to check the version information of the firmware or programs, or check sum information.

<Operating procedure>

- (1) Press the **2** and **5** keys in this order in the initial state of the maintenance mode. "TOTAL:Ver T" is displayed on the LCD.
- (2) When you press the **Mono Start** key, the display on the LCD changes as shown in the list below.
- (3) Press the **Stop** key to return the machine to the initial state of the maintenance mode.

LCD	Description
TOTAL:Ver A ^{*1}	Main firmware version information (A): Revision information
SUB1:Ver1.00 (P) ^{*1}	Sub firmware (PCL/PS) version information (P): Identifier of PCL/PS ^{*2}
ENG:Ver1.00	Engine firmware version information
NET:Ver1.00	Network program version information
PNL:U08102319	Panel firmware version information
PNLB:011080115	Panel boot firmware version information
i0801170900:0000	I-FAX version information
B1112312359:1234 ^{*1}	Boot program creation date
U1112312359:1234 ^{*1}	Main firmware creation date
D1112312359:1234 ^{*1}	Demo firmware creation date
P1112312359:1234 ^{*1}	Sub firmware (PCL/PS) creation date
ROM Check Sum	Check sum self-diagnosis function ^{*3}

^{*1} How to display the check sum information

Press the **SET** key when its version information is displayed on the LCD to display the check sum information. Press the **SET** key again to returns to the version information display. Press the **Mono Start** key to check the next item.

^{*2} (P) indicates that the firmware supports PCL/PS.

^{*3} There are two types of check sum information which can be checked with this function. This function checks if these two types of check sum information are matched each other. When you press the **SET** key while "ROM Check Sum" is displayed, check is automatically conducted for each ROM of each software part. When the check sum is matched, "OK" is displayed on the LCD. When all ROMs result in OK, "ROM Check Sum OK" is displayed at the end, and the operation is finished. When the check sum of any ROM is not matched, "NG" is displayed, and the display stops.

1.4.10 Operational check of sensors (Function code 32)

<Function>

This function allows you to check each of the sensors.

<Operating procedure>

- (1) Press the **3** and **2** keys in this order in the initial state of the maintenance mode. "Maintenance 32" is displayed on the LCD.
- (2) The machine beeps 400 Hz and 1,100 Hz tones cyclically through the following volumes to test the speaker.

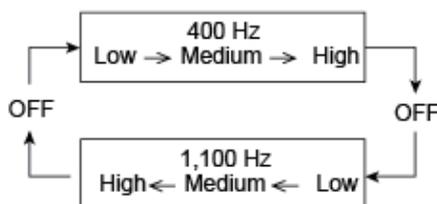


Fig. 5-9

Note:

To stop beeping, press the **SET** key.

The sensor operating conditions defined in the table below are applied. "C1MPTCRCPORMRA**" is displayed on the LCD.

- (3) Pressing the **Mono Start** key displays the next group. The table below summarizes the displays on the LCD, sensor names and detection status.

LCD	Sensors	Detection status (displayed/not displayed)
C1	Paper feed sensor	Paper not detected/detected
MP	Manual feed paper empty sensor	Paper not detected/detected
TC	Joint cover sensor	Joint cover ASSY closed/open
RC	Back cover sensor	Back cover closed/open
PO	Eject sensor	Paper not detected/detected
RM	Registration front sensor	Paper not detected/detected
RA	Registration rear sensor	Paper not detected/detected

Note:

- The "--" appears on the LCD if the sensor is OFF.
- The "**" appears on the LCD if the parts are not installed or there is no item.

LCD	Sensors	Detection status (displayed/not displayed)
MAC	Internal temperature sensor	XX °C/NG
TMP	External temperature sensor	XX °C/NG
HUM	External humidity sensor	XX %/NG

LCD	Sensors	Detection status (displayed/not displayed)
DF	Document detection sensor	Without documents/With document
DR	First side document scanning position sensor	Without documents/With document
AC	ADF cover sensor	Closed/Open
DB	Second side document scanning position sensor	Without documents/With document

Note:

If the sensor detects the unusual value, the machine displays "NG" on the LCD.

- (4) Check that the display on the LCD is changed when the detection condition of each sensor is changed. For instance, insert paper through the registration front/rear sensor, open the joint cover ASSY or the back cover, make a jam at the paper outlet, insert paper from the manual feed slot, set paper tray, etc.
- (5) Press the **Stop** key to return the machine to the initial state of the maintenance mode.

■ **Location of sensors**

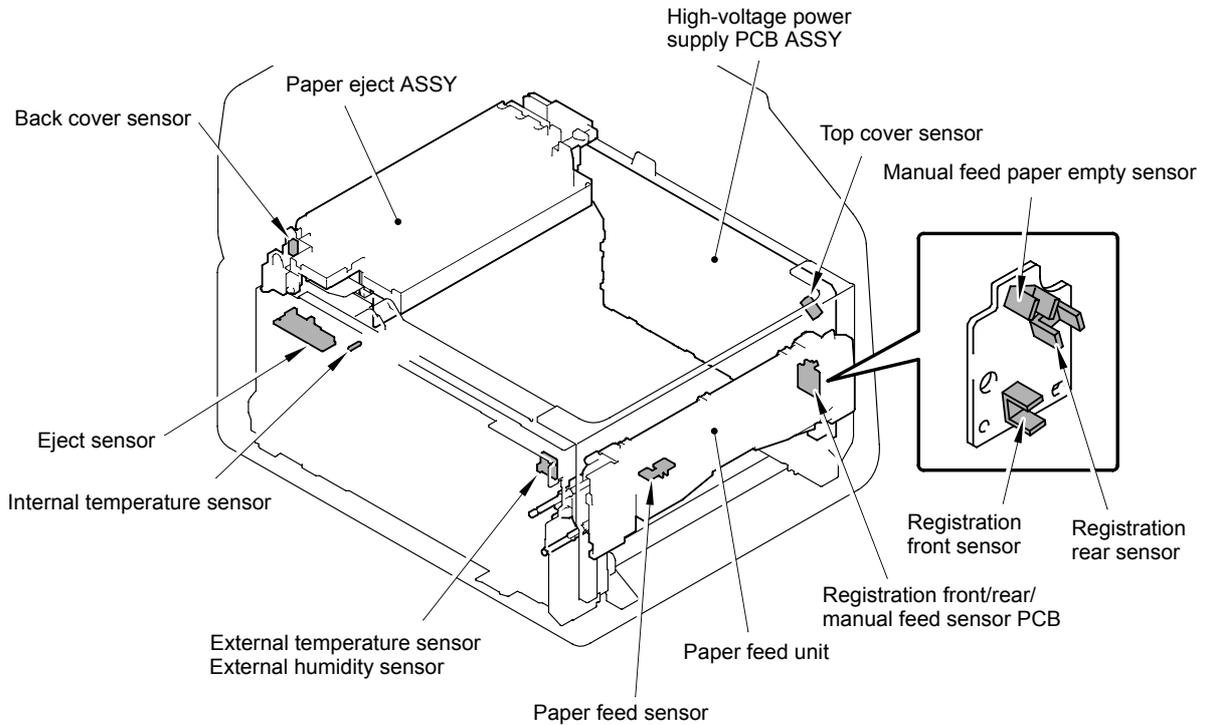


Fig. 5-10

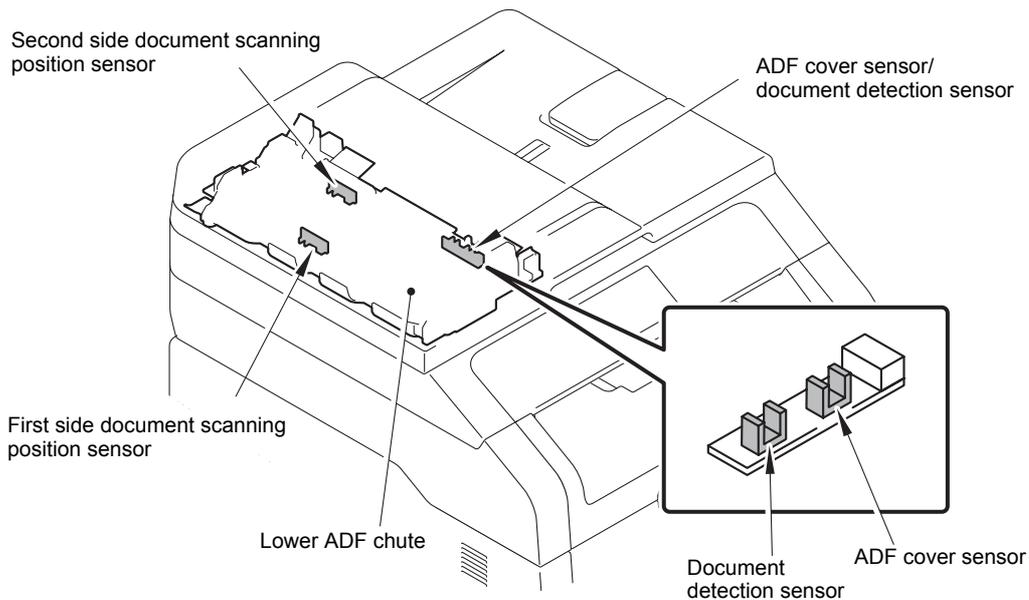


Fig. 5-11

1.4.11 LAN connection status display (Function code 33)

<Function>

This function allows you to check the status of the wired LAN connection.

<Operating procedure>

- (1) Press the **3** key twice in the initial state of the maintenance mode.
The wired LAN connection status described in the table below is displayed on the LCD.
- (2) Press the **Stop** key to return the machine to the initial state of the maintenance mode.

LCD	LAN connection status
Active 100B-FD	100B-FD
Active 100B-HD	100B-HD
Active 10B-FD	10B-FD
Active 10B-HD	10B-HD
Inactive	Not connected.

1.4.12 Backup of machine information (Function code 41)

<Function>

This procedure backs up the machine information and user setting information into an USB flash memory and restores it when necessary.

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

However, the following information is not backed up: machine serial number and device and PCB-specific information such as MAC address.

Note:

- The backup and restore procedures (refer to [next page](#)) can also be used with the maintenance mode operation by end users. However, end users are allowed to restore the user setting information (Import PI) only and not allowed to restore all the information, such as machine information and user setting information (Import ALL).
- An 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 USB flash memory, delete the data previously stored in the USB flash memory.

<Operating procedure>

Backup Procedure

- (1) Insert the USB flash memory into the slot of the machine in the initial stage of the maintenance mode. The "USB Host Connect" appears on the LCD.

Note:

If new information is backed up to the USB flash memory where the backup data of the same model is saved, the backup data is overwritten with the new information.

- (2) Press the **4** and **1** keys in this order. The "Export to USB" appears on the LCD.
- (3) Press the **Mono Start** key. The "*****.msd" appears on the LCD. ("*****" shows the name of the model.)
- (4) Press the **Mono Start** key. The "Export OK?" appears on the LCD.
- (5) Press the **Mono Start** key. The message "Please wait" appears on the LCD and back up operation of the machine information and user setting information, etc. is executed.

Note:

- Never remove the USB flash memory from the machine when exporting is in progress.
- If this procedure has been started with the maintenance mode operation by the end user, the machine returns to the ready state after showing the "Please wait" on the LCD.

- (6) The message "USB Host Connect" appears on the LCD, remove the USB flash memory and keep it in a safe place. The machine returns to the initial state of the maintenance mode.

Note:

If any of the error messages listed below appears, press the **Stop** key, and the machine returns to the initial state of the maintenance mode.

Error Message	Cause
USB Mem used	The USB flash memory is being used by another operation.
Insert USB Mem	No USB flash memory is inserted.
No file	Opening a file failed.
USB Mem Error	Accessing a file in the USB flash memory failed.
Machine ID Error	Serial number does not match.
Write Error	A write error occurred.

Restoration Procedure

- (1) Insert the USB flash memory containing the backup data into the slot of the machine in the initial state of the maintenance mode. The "USB Host Connect" appears on the LCD.

Note:

If the serial number of the backup data saved in the USB flash memory and the serial number of the machine do not match, the data cannot be restored.

- (2) Press the **4** and **1** keys in this order. The "Export to USB" appears on the LCD.
- (3) Press the **▲** or **▼** key until the desired restore method appears on the LCD.
 "Import PI" 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.
 ("*****" shows the name of the model.)
- (5) Press the **Mono Start** key. The "Reboot OK?" appears on the LCD.
- (6) Press the **Mono Start** key. The message "Please wait" appears on the LCD and restore operation of the machine data, user settings, etc. is executed.

Note:

Never remove the USB flash memory from the machine when importing is in progress.

- (7) When the machine returns to the ready state and the message "Select a Function" appears on the LCD, remove the USB flash memory and keep it in a safe place.

Note:

If any of the error messages shown in "Backup Procedure" appears, press the **Stop** key to return the machine to the initial state of the maintenance mode.

1.4.13 PC print function setting (Function code 43)

<Function>

This function is used to change the settings of the various print functions summarized in the table below.

<Operating procedure>

- (1) Press the **4** and **3** keys in this order in the initial state of the maintenance mode.
"Manual Feed" is displayed on the LCD.
- (2) Press the **▲** or **▼** key to select the function you want to set and press the **SET** key.
- (3) For fixed parameters (On/Off, etc.), press the **▲** or **▼** key, or change the parameter using the numeric keys. And press the **SET** key.
For parameters requiring numerical value entry, directly input a numeric value from the ten-key pad and press the **SET** key.
- (4) Press the **Stop** key to return the machine to the initial state of the maintenance mode.

■ Function setting

LCD	Detail description	Set value	Initial value
Manual Feed	Switching of the Manual Feed	On/Off	Off
Resolution	Resolution to print	300/600/1,200 dpi	600
Toner Save	Switching of the Toner Save	On/Off	Off
Density	Switching of the Density level	-6 to 6	0
JB-Can Time	Setting of the time until the host time-out at the Job Cancel	0 to 225 (seconds)	4
Sleep Time	Setting of the time until enter the Sleep Mode	0 to 99 (minutes)	5
Page Protection	Switching of the protection of the page memory	Off/Letter/A4/Legal/Auto	Off
Emulation	Switching of the emulation	Auto/HP/PS	Auto
Auto I/F Time	Switching of the I/F open time	1 to 99 (seconds)	5
Media Type	Switching of the paper type	Thin/Plain/Thick/Thicker/Tranparency/Recycled/Bond/Envlopes/EnvThin/EnvThick	Plain or Thin
Paper Size	Switching of the area of develop the image	Letter/Legal/A4/Executive/ISOB5/JISB5/A5/ISOB6/A6/Monarch/C5/COM10/DL/DLL/A4Long/Hagaki/Folio	Letter or A4
Copies	Switching of the print copies	1 to 99 (pages)	1
Orientation	Switching of the print direction	PortLait/Landscape	Portlait
P-Pos X-Offset	Switching of the offset print position of the landscape orientation	-500 to 500 (1/300 dpi)	0

LCD	Detail description	Set value	Initial value
P-Pos Y-Offset	Switching of the offset print position of the portrait orientation	-500 to 500 (1/300 dpi)	0
AutoFF	Switching of the auto form feed	On/Off	Off
AutoFF Time	Switching of the time-out period of the auto form feed	1 to 99 (seconds)	5
FF Surpress	Switching of the FF Suppress	On/Off	Off
Auto LF	Switching of the auto LF	On/Off	Off
Auto CR	Switching of the auto CR	On/Off	Off
Auto WRAP	Switching of the auto CRLF at the print width	On/Off	Off
Auto Skip	Switching of the Skip at the backend/tip of the paper	On/Off	On
Left Margin	Switching of the margin at the left end	0 to 145 (columus)	0
Right Margin	Switching of the margin at the right end	10 to 155 (columus)	80
Top Margin	Switching of the margin at the upper end	0 to 2.00 (inches)	0.5
Bottom Margin	Switching of the margin at the bottom end	0 to 2.00 (inches)	0.5
Lines	Number of the text lines in the page	5 to 128 (lines)	60
Error Print	Switching of the ErrorPrint of the PostScript	On/Off	On

■ Detail description

LCD	Detail description
Manual Feed	Effective for the print from the computer, or for the print of the NetWorkConfig/TestPrint/FontList/Configuration from the panel. When select the tray on the computer, the setting becomes effective. And this setting is ignored.
Resolution	Effective only for the print from the computer. When set the Resolution on the computer, the setting becomes effective. And this setting is ignored.
Toner Save	Effective for all print, and change the setting of the Function Menu. However, as for the Copy, this setting becomes invalid. When set the Toner Save on the computer, the setting becomes effective. And this setting is ignored.
Density	Effective for the print from the computer, or for the print of the NetWorkConfig/TestPrint/FontList/Configuration from the panel. Link the setting of the Toner Save. Judge the both setting, and decide the density. When set the Density on the computer, the setting becomes effective. And this setting is ignored.
JB-Can Time	Configure the setting for the time until the host time-out at the Job Cancel. The setting value is the second time scale.
Sleep Time	Configure the setting for the time until shift to the Sleep Time. Change the setting of the Function Menu.
Page Protection	Allocate the page memory used for the internal processing of data in the computer before output. Set in the PCL-Core. There is not the influence of the memory management problem of the machine.
Emulation	Configure the setting for the Emulation. Change the setting of the Function Menu. When the data includes the ENTER LANGUAGE, the setting becomes effective. And this setting is ignored.
Auto I/F Time	Configure the setting for the interface open time. The function is in the PC-Print. When the PC-Scan/Remote-SetUp works on the way, the setting becomes invalid.
Media Type	Effective for the print from the computer. When set the type of the paper on the computer, the setting becomes effective. And this setting is ignored. The default value is different by the country setting. "Thin" is the default for China and "Plain" is the default for other countries.
Paper Size	Change the image development area. Does not set the Paper Size of the Menu, set the drawing size of the PC-Print. When set the size of the paper on the computer, the setting becomes effective. And this setting is ignored. "Letter" is the default for the U.S.A. and Canada and "A4" is the default for other countries.
Copies	Effective for the print from the computer. When set the number of the copies on the computer, the setting becomes effective. And this setting is ignored.
Orientation	Configure the switching for the print direction. Effective for the print from the computer.
P-Pos X-Offset	Configure the setting for the offset print position of the landscape orientation. Effective for the print from the computer. When set the X-Offset on the computer, the setting becomes effective. And this setting is ignored.

LCD	Detail description
P-Pos Y-Offset	Configure the setting for the offset print position of the portrait orientation. Effective for the print from the computer. When set the Y-Offset on the computer, the setting becomes effective. And this setting is ignored.
AutoFF	Configure the setting for the ON/OFF of the Auto Form Feed. Effective for the print from the computer.
AutoFF Time	Configure the setting for the TimeOut, when the Auto Form Feed is ON.
FF Surpress	Configure the setting for the skip of the blank page. Effective for the print from the computer. The blank data in the Copy/Fax cannot be turned ON/OFF in this setting.
Auto LF	Configure the setting for the auto line feed.
Auto CR	Configure the setting for the auto Carriage Return.
Auto WRAP	Configure the setting for the auto CRLF at the print width.
Auto Skip	Configure the setting for the skip at the back-end/tip of the paper and add the blank space.
Left Margin	Configure the setting for the column space at the left end.
Right Margin	Configure the setting for the column space at the right end.
Top Margin	Configure the setting for the space at the top end.
Bottom Margin	Configure the setting for the space at the bottom end.
Lines	Configure the setting for the number of the lines in the PCL.
Error Print	Configure the setting for the ErrorPrint of the BR-Script3.

1.4.14 Changing return value of USB No./Switching Dither Pattern/ Switching of ON/OFF of DirectPrint Color mode-Improve Gray Color Switching of timing to execute Auto Registration Adjusting left-end print start position on second side in duplex printing (2-sided printing model only) (Function code 45)

■ Changing return value of USB No.

<Function>

When the OS of the computer is Windows Vista[®], and the computer is connected to a device through USB 2.0 full speed, the OS might fail to get the serial number of the USB device depending on the computer and USB device. When the OS fails to get the serial number, the return value may continue to increase every time the device is connected to the computer. To avoid this problem, you can fix the return value of the USB No. to "0" by setting "USBNo. = ON".

LCD	Description
USBNo. = ON	Returns the serial number of the machine. (default)
USBNo. = OFF	Returns "0".

"*" is displayed at the end of the currently specified function in the LCD display.

<Operating procedure>

- (1) Press the **4** and **5** keys in this order in the initial state of the maintenance mode.
"USBNo." is displayed on the LCD.
- (2) Press the **Mono Start** key.
When you press the **▲** or **▼** key to fix the return value of serial number to "0" or not to fix it to "0", display "USBNo. = ON" or "USBNo. = OFF", respectively.
- (3) Press the **Mono Start** key. "Accepted" is displayed on the LCD, and the machine returns to the initial state of the maintenance mode.
- (4) Turn OFF the power switch of the machine.

Note:

This function is enabled when the power of the machine is turned OFF and ON.

■ Switching Dither Pattern

<Function>

This function is to switch the dither pattern when printed letters and/or slanted lines are not smooth, and thin lines are rough or uneven.

LCD	Description
PS.DitherType=0	Dither Pattern 0 is selected. (A dither pattern which improves roughness of letters and slanted lines) (default)
PS.DitherType=1	Dither Pattern 1 is selected. (A dither pattern which alleviates banding)

"" is displayed at the end of the currently specified function in the LCD display.

<Operating procedure>

- (1) Press the **4** and **5** keys in this order in the initial state of the maintenance mode.
"USBNo." is displayed on the LCD.
- (2) Press the **▲** or **▼** key to display "PS.DitherType" and then press the **Mono Start** key.
- (3) Press the **▲** or **▼** key to select "PS.DitherType=0" or "PS.DitherType=1".
- (4) Press the **Mono Start** key. "Accepted" is displayed on the LCD, and the machine returns to the initial state of the maintenance mode.

■ Switching of ON/OFF of DirectPrint Color mode-Improve Gray Color

<Function>

This function is to switch ON/OFF of the print control for the gray color when other colors are slightly blended in the gray color or the gray color is uneven upon printing.

LCD	Description
DP.ImpGray=ON	DirectPrint Color mode - Improve Gray Color. (Print control for gray color) ON (Improves the symptom that other colors are slightly blended in the gray color.) (default)
DP.ImpGray=OFF	DirectPrint Color mode - Improve Gray Color. (Print control for gray color) OFF (Improves the unevenness of the gray color.)

"" is displayed at the end of the currently specified function in the LCD display.

<Operating procedure>

- (1) Press the **4** and **5** keys in this order in the initial state of the maintenance mode.
"USBNo." is displayed on the LCD.
- (2) Press the **▲** or **▼** key to display "DP.ImpGray" and then press the **Mono Start** key.
- (3) Press the **▲** or **▼** key to select "DP.ImpGray=ON" or "DP.ImpGray=OFF".
- (4) Press the **Mono Start** key. "Accepted" is displayed on the LCD, and the machine returns to the initial state of the maintenance mode.

■ Switching of timing to execute Auto Registration

<Function>

Relative displacement between Cyan, Magenta, Yellow, and Black is detected using the registration mark sensor, and the Auto Registration is executed at the timing when the displacement value exceeds the stipulated threshold value.

This function is to switch the threshold value which is used as the timing to execute Auto Registration.

The threshold value can be switched in three phases between High, Mid, and Low.

LCD	Description
Reg Freq=Mid	The frequency to execute Auto Registration is middle. (default)
Reg Freq=High	The frequency to execute Auto Registration is high.
Reg Freq=Low	The frequency to execute Auto Registration is low.

*** is displayed at the end of the currently specified function in the LCD display.

Note:

It can be set regardless of the Auto Registration switching function in the function menu. Even if this function is switched, it does not affect the timing to execute Auto Registration in the function menu.

<Operating procedure>

- (1) Press the **4** and **5** keys in this order in the initial state of the maintenance mode. "USBNo." is displayed on the LCD.
- (2) Press the **▲** or **▼** key to display "Reg Freq" and then press the **Mono Start** key.
- (3) Press the **▲** or **▼** key to select "Reg Freq=Mid", "Reg Freq=High" or "Reg Freq=Low".
- (4) Press the **Mono Start** key. "Accepted" is displayed on the LCD, and the machine returns to the initial state of the maintenance mode.

■ Adjusting left-end print start position on second side in duplex printing (2-sided printing model only)

<Function>

This function is to adjust the left-end print start position on the second side in the left and right direction if it is displaced in duplex printing. The adjustable range is -100 to 750 (unit: 300 dpi) (The minus direction means the left direction.)

<Operating procedure>

- (1) Press the **4** and **5** keys in this order in the initial state of the maintenance mode. "USBNo." is displayed on the LCD.
- (2) Press the **▲** or **▼** key to display "DX.XAdjust" and then press the **Mono Start** key.
- (3) "DX.XAdjust=***" is displayed on the LCD. (** represents the currently set value.)
- (4) To move the print start position to the left, press the **▼** key and decrease the value. To move the print start position to the right, press the **▲** key and increase the value.
- (5) When the value is changed to the adjustment value, press the **Mono Start** key. "Accepted" is displayed on the LCD, and the machine returns to the initial state of the maintenance mode.

1.4.15 Set country/language (Function code 52)

<Function>

This function is user accessible, and is used to customize the EEPROM according to the language, function settings, and worker switch settings.

Note:

This function is applicable to France and surrounding countries. Pan-Nordic, East Europe, Oceania, Iberia, South Africa, Turkey and Gulf areas only.

<Operating procedure>

- (1) Press the **5** and **2** keys in this order in the initial state of the maintenance mode. The machine automatically reboots and the display moves to the Country/Language settings screen. The names of the countries from which you can select one are displayed in their local languages.
- (2) Press the name of country desirable for the user. The selected country is displayed in its language for confirmation.
- (3) Press "Yes" if the displayed country is correct. The EEPROM is now customized and the machine returns to the ready state.

Note:

The country name indicated on the LCD varies depending on the area (code input in [Function code 74](#)) as shown in the table below.

France Belgium Netherlands	Oceania	Pan-Nordic	Iberia	East Europe	South Africa Turkey Gulf
France	Australia	Norge	España	Cheska republika	South Africa
België / Belgique	New Zealand	Suerige	Portugal	Magyarország	Türkiye
Nederland		Suomi	Italia	Polska	Others
Others		Danmark		България	
		Others		România	
				Slovensko	
				Slovenija	
				Hrvatska	
				Others	

1.4.16 Transfer of received fax data and log information (Function code 53)

<Function>

This function allows you to transfer received FAX data to another machine when the machine cannot print the received data due to the printing mechanism failure. Activity reports, communication lists, and machine log information can be also transferred.

Note:

- Up to 99 files can be transferred simultaneously. When you transfer 100 files or more, perform the following procedure multiple times.
- If there are both color and monochrome data 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 state of the maintenance mode.
"FAX TRANSFER" is displayed on the LCD.
 - To check the number of received files, press the **1** key.
"1.NO. OF JOBS" is displayed on the LCD.
Press the **SET** key, and the number of received files appears, just as "NO. OF JOBS: 10".
 - To transfer the activity report only, press the **2** key.
"2.ACTIVITY" is displayed on the LCD.
 - To transfer received files (together with the activity report), press the **3** key.
"3.DOCUMENTS" is displayed on the LCD.
Note that if there is no received file, the "NODOCUMENTS" appears on the LCD.
 - To transfer the communication list for the latest communication, press the **4** key.
"4.COM.LIST (NEW)" is displayed on the LCD.
 - To transfer the communication list for last three errors, press the **5** key.
"5.COM.LIST (ERR3)" is displayed on the LCD.
 - To transfer the maintenance information (the list in Function code 77), press the **6** key.
"6.MNT77LIST" is displayed on the LCD.
- (2) With the "2.ACTIVITY," "3.DOCUMENTS," "4.COM.LIST (NEW)," "5.COM.LIST (ERR3)" or "6.MNT77 LIST" being displayed, press the **SET** key.
"ENTER NO. & SET" is displayed on the LCD.
- (3) Enter the telephone number of the receiver machine and press the **SET** key again.
- (4) The machine displays the "ACCEPTED" for approximately two seconds and starts dialing to transfer data.

Note:

- Be sure to type the telephone number with the numerical keys. No one-touch dialing is allowed in this procedure.
- No station ID will be attached. A cover page and end page as shown on the [next page](#) will be automatically attached, instead.

■ Cover page sample

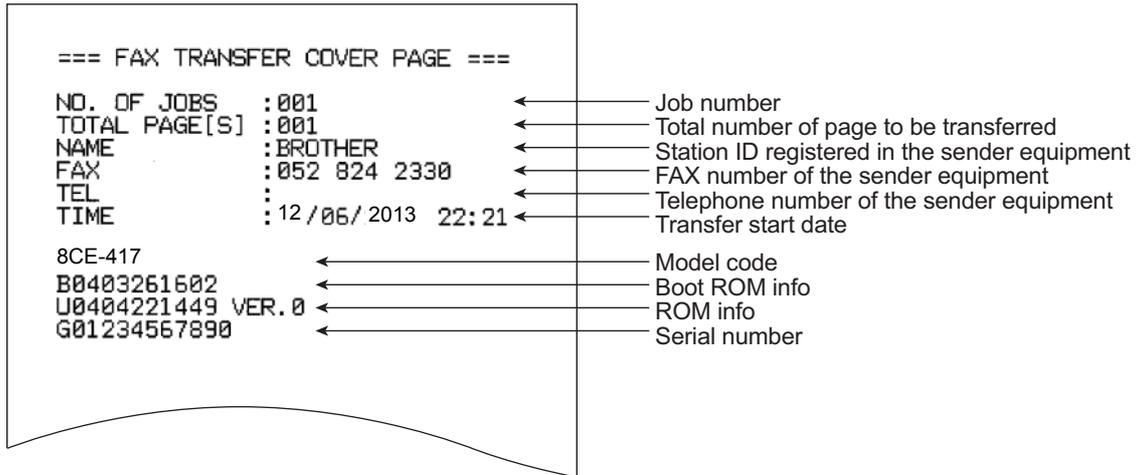


Fig. 5-12

■ End page sample

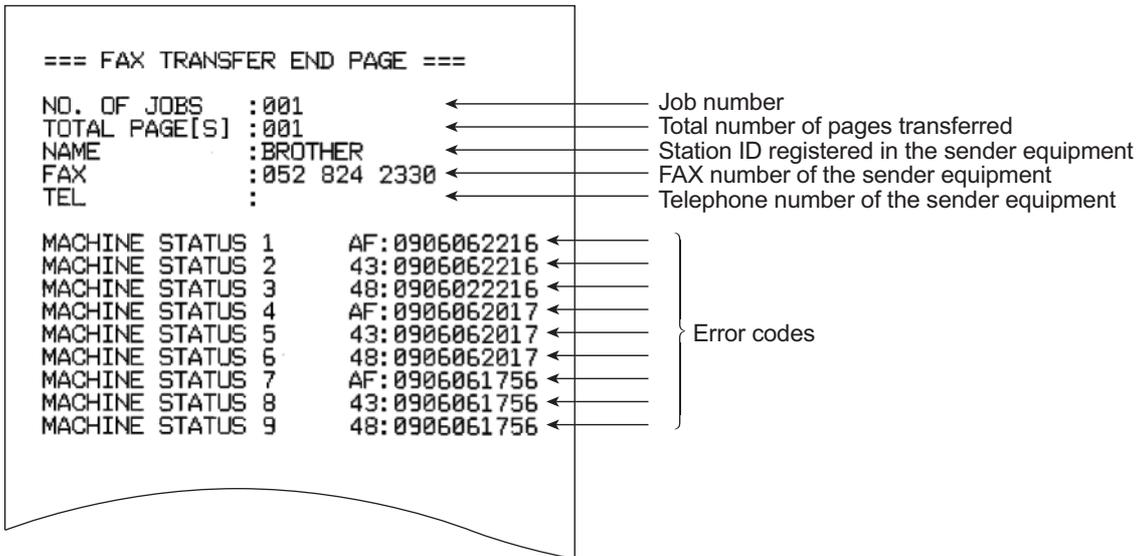


Fig. 5-13

1.4.17 Fine adjustment of scan positions (Function code 54)

<Function>

This function allows you to adjust the scan start/end positions on the ADF and document glass.

<Operating procedure>

- (1) Press the **5** and **4** keys in this order in the initial state of the maintenance mode.
"SCAN START ADJ." is displayed on the LCD.
- (2) The " ▲ : ADF ▼ : FB" will appear on the LCD after two seconds. Select one of them that you want to adjust the start position. If you want to adjust the start position of the ADF, press ▲ key, and if you want to adjust that of the document glass, press ▼ key.
- (3) Duplex scanning models
The " ▲ : FRONT ▼ : BACK" will appear on the LCD after two seconds. Select one of them that you want to adjust the start position.
Press the ▲ key for the first side, and press the ▼ key for the second side.
Single-side scanning models
Go to step (4).
- (4) The current correction value for the scanning position will be displayed on the LCD.
(Correction values can be adjusted in 11 steps from +5 to -5 (mm).)
- (5) Press the ▲ key to increase the correction value and the ▼ key to lower it.
- (6) Press the **SET** key. "ACCEPTED" is displayed on the LCD, and the machine returns to the initial state of the maintenance mode.

1.4.18 Acquisition of white level data and setting of CIS scanning area (Function code 55)

<Function>

This function allows you to acquire the white level of the CIS unit and save it together with the scanning area into the EEPROM of the main PCB.

<Operating procedure>

- (1) Press the **5** key twice in the initial state of the maintenance mode.
"Press START" is displayed on the LCD.
- (2) Press the **Mono Start** key. "SCANNER AREA SET" is displayed on the LCD and the white level data is acquired.
- (3) After a few seconds, the machine saves the correction of the white level data/scanning width in the EEPROM, and returns to the initial state of the maintenance mode. If an error is detected during this operation, "SCANNER ERROR" appears on the LCD.

(For single-side scanning model, the message "SCANNER ERROR" appears, and for duplex scanning model, the message "SCANNER ERR ADF" or "SCANNER ERR FB" appears on the LCD.)

If this occurs, press the **Stop** key to return the machine to the initial state of the maintenance mode.

1.4.19 Motor reset (Function code 57)

<Function>

If the manufacturer of the machine's motors is unidentified, identification operation is performed before a warm-up. After the operation is completed, a warm-up is performed. If the combination of main PCB and/or motors is changed, the motor identification result needs to be reset. This function allows you to reset the motor identification result.

<Operating procedure>

- (1) Press the **5** and **7** keys in this order in the initial state of the maintenance mode.
"RESET MOTOR" is displayed on the LCD.
- (2) When you press the **Mono Start** key, the motor identification result is reset and "PLZ POWER OFF/ON" is displayed on the LCD.
- (3) Turn OFF the power switch of the machine.

Note:

When the power is turned OFF and ON again after the motor identification result is reset, a motor identification operation is performed.

1.4.20 Adjustment of touch panel (Function code 61)

<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 "STYLUS" from the Brother's parts list.

<Operating procedure>

- (1) Press the **6** and **1** keys in this order in the initial state of the maintenance mode. The adjustment screens shown below appear on the LCD.
- (2) Touch the center of the symbol on the top left of the screen with a stylus. The symbol disappears upon touching it. Then touch the symbol on the bottom left. In the same way, touch the symbols on bottom right, top right, and center in this order.

Note:

- Do not use tools other than a pen designed for touch panels. Especially, never use a pointed one, e.g., a screwdriver. Using such a tool damages the touch panel.
- When performing this adjustment, do not touch the panel with your fingers. Doing so deteriorates detection accuracy and correct adjustment cannot be obtained.
- If no operation is performed for one minute or the **Cancel** key is pressed, the machine returns to the initial state of the maintenance mode.

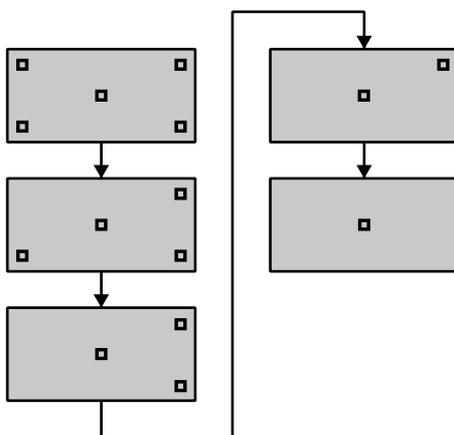


Fig. 5-14

- (3) When you press the symbol at the center (the 5th symbol), "OK" appears if the specified area is correctly adjusted. Then, the machine returns to the initial state of the maintenance mode.

Note:

If "NG" appears on the LCD and "NG" still reappears when repeating this adjustment twice or three times, check the touch panel harness for connection failure. If "NG" appears in spite of the proper connection of the harness, replace the LCD unit.

1.4.21 Adjustment of color registration (Adjustment of inter-color position alignment) (Function code 66)

<Function>

This function allows service personnel to forcibly activate the adjustment of color registration (adjustment of inter-color position alignment) function which is usually executed automatically under a specified condition. If adjustment of inter-color position alignment (auto) fails because toner reaches its life, etc, you can adjustment of inter-color position alignment manually. The end users are allowed to perform "Adjustment of inter-color position alignment without registration sensor calibration (auto)", "Printing of misregistration correction chart" and "Adjustment of inter-color position alignment (manual)" only.

Note:

If an error occurs after executing Maintenance mode 66, upgrade the firmware to the latest one. (Refer to "1.1 Installing the Firmware" in Chapter 4.) After upgrading the firmware, execute Maintenance mode 66 again.

This function has the following functions.

Function	Description	LCD
Adjustment of inter-color position alignment without registration sensor calibration (auto)	Automatically correct misregistration between colors that occurs as the number of printed pages increases and time passes.	REGISTRATION
Printing of misregistration correction chart	Print the chart that you check for an input value when manually correcting misregistration between colors.	PRINT CHART
Input of sensor offset value	Unavailable for maintenance work.	OFFSET ADJUST
Adjustment of inter-color position alignment (manual)	Using the chart, manually correct misregistration between colors that occurs as the number of printed pages increases and time passes. This is performed when automatic adjustment fails.	SET REGISTRATION
Adjustment of inter-color position alignment including registration sensor calibration (auto)	After the sensitivity adjustment of registration sensor, correct misregistration between colors that occurs as the number of printed pages increases and time passes.	ADD REGISTRATION

■ Adjustment of inter-color position alignment without registration sensor calibration (auto)

<Operating procedure>

- (1) Press the **6** key twice in the initial state of the maintenance mode. "Maintenance 66" is displayed on the LCD.
- (2) Press the **OK** key. "REGISTRATION" is displayed on the LCD.
- (3) Press the **OK** key. "PLS WAIT 66-1" is displayed on the LCD, and adjustment of inter-color position alignment is automatically done.
- (4) When this operation is completed without an error, "COMPLETED" is displayed on the LCD.
- (5) Press the **Cancel** key to return the machine to the initial state of the maintenance mode.

Memo:

If the Adjustment of inter-color position alignment without registration sensor calibration (auto) fails while being in process, "ERROR 66-1" is displayed on the LCD. Refer to the error message list on P5-41 for the troubleshooting.

■ Printing of misregistration correction chart

<Operating procedure>

- (1) Press the **6** key twice in the initial state of the maintenance mode.
"Maintenance 66" is displayed on the LCD.
- (2) Press the **OK** key. "REGISTRATION" is displayed on the LCD.
- (3) Press the **▲** or **▼** key to display "PRINT CHART" on the LCD.
- (4) Press the **OK** key. "PRINTING" is displayed on the LCD, and printing of misregistration correction chart (refer to [fig. 5-15 \(P5-41\)](#)) is printed. When printing is finished, "PRINT CHART" is displayed on the LCD.
- (5) Press the **Cancel** key to return the machine to the initial state of the maintenance mode.

■ Adjustment of inter-color position alignment (manual)

<Operating procedure>

- (1) Press the **6** key twice in the initial state of the maintenance mode.
"Maintenance 66" is displayed on the LCD.
- (2) Press the **OK** key. "REGISTRATION" is displayed on the LCD.
- (3) Press the **▲** or **▼** key to display "SET REGISTRATION" on the LCD.
- (4) Press the **OK** key. "1. MAGENTA=0" is displayed on the LCD.
Using the printed misregistration correction chart, identify the numeric value whose color is the darkest in the pattern of (1) (Magenta Left) shown in [fig. 5-15 \(P5-41\)](#).
Press the **▲** or **▼** key to display the identified numeric value.
- (5) Press the **OK** key, and enter each numeric value of the patterns (2) to (9) in the same way.
- (6) When you enter the numeric value of the pattern (9) (Yellow Right), "COMPLETED" is displayed on the LCD.
- (7) Press the **Cancel** key to return the machine to the initial state of the maintenance mode.

■ Adjustment of inter-color position alignment including registration sensor calibration (auto)

<Operating procedure>

- (1) Press the **6** key twice in the initial state of the maintenance mode.
"Maintenance 66" is displayed on the LCD.
- (2) Press the **OK** key. "REGISTRATION" is displayed on the LCD.
- (3) Press the **▲** or **▼** key to display "ADD REGISTRATION" on the LCD.
- (4) Press the **OK** key. "PLS WAIT 66-1" is displayed on the LCD and sensitivity adjustment of registration sensor and adjustment of inter-color position alignment are performed automatically.
- (5) When this operation is completed without an error, "COMPLETED" is displayed on the LCD.
- (6) Press the **Cancel** key to return the machine to the initial state of the maintenance mode.

Memo:

If the Adjustment of inter-color position alignment including registration sensor calibration (auto) fails while being in process, "ERROR 66-1" is displayed on the LCD.
Refer to the error message list on [next page](#) for the troubleshooting.

If the Adjustment of inter-color position alignment (auto) fails while being in process, "ERROR 66-1" is displayed on the LCD. If you press the ▲ or ▼ key with the error displayed, the details of the error are shown as follows. Refer to the following list for the troubleshooting.

■ **Error message list**

Error message	Measure
FAILED REGIST	Press the Mono Start key to clear the error. Perform the Adjustment of inter-color position alignment (auto) again. If the error recurs, clean the belt unit and the drum units of all four colors and then perform the adjustment again. If the error still recurs, replace the belt unit and the drum units of all four colors.
TONER EMPTY # *	Replace the empty toner cartridge and press the Mono Start key to clear the error. Perform the Adjustment of inter-color position alignment (auto) again.
NG * L:C080 R:M105	Press the Mono Start key to clear the error. Perform the Adjustment of inter-color position alignment (auto) again.
NG R-L:C030	
NG PWM L120 R180	
NG PWM R-L:080	
NG CNT R100 L100	
NG S-POSI R:080	
NG SKEW:120	
NG PWM R-P L:080	
NG XMARGIN:M191	
Cover is Open	Close the joint cover ASSY.
No Paper	Replenish paper of the A4-size paper specified in the display on the tray. Perform the Adjustment of inter-color position alignment (auto) again.
Jam Tray 1	Remove the jammed paper, and press the Mono Start key to clear the error.
Jam Rear	

* # indicates the toner color (Y, M, or C) of which cartridge became empty.

■ **Printing of misregistration correction chart**

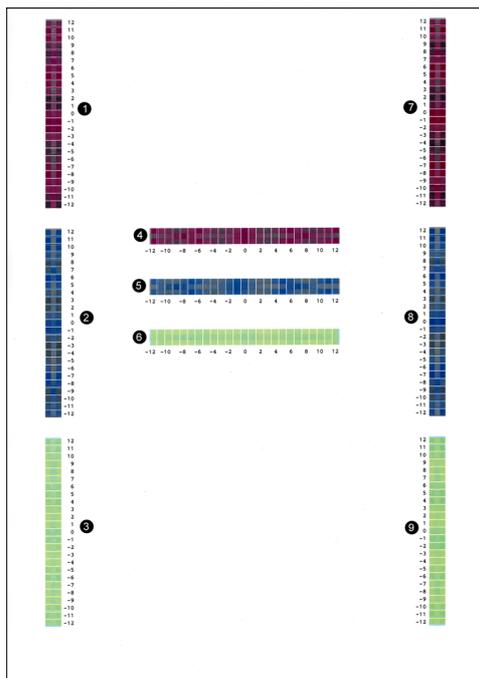


Fig. 5-15

1.4.22 Print test (Function code 67)

<Function>

This function allows you to conduct the pick-up and delivery test as printing patterns.

<Operating procedure>

- (1) Press the **6** and **7** keys in this order in the initial state of the maintenance mode. "SELECT: K 100%" is displayed on the LCD.
- (2) Referring to the table below (Print pattern), press the ▲ or ▼ key to select the desired print pattern.
- (3) Press the **SET** key. "SELECT: A4" is displayed on the LCD.
- (4) Referring to the table on the [next page \(Paper size\)](#), press the ▲ or ▼ key to select the desired paper size.
- (5) Press the **SET** key. "SELECT: PLAIN" is displayed on the LCD.
- (6) Referring to the table on the [next page \(Print specifications\)](#), press the ▲ or ▼ key to select the desired print specifications.
- (7) Press the **SET** key. "SELECT: TRAY1 SX" is displayed on the LCD.
- (8) Referring to the table on the [next page \(Print type\)](#), press the ▲ or ▼ key to select the desired print type.
- (9) Press the **SET** key. "SELECT: 1PAGE" is displayed on the LCD.
- (10) Referring to the table on the [next page \(Number of pages to be printed\)](#), press the ▲ or ▼ key to select the desired number of pages to be printed.
- (11) Press the **SET** key. "SELECT: 1P/JOB" is displayed on the LCD.
(Intermittent pattern printing only)
- (12) Referring to the table on the [next page \(Number of pages per job\)](#), press the ▲ or ▼ key to select the desired number of pages per job.
(Intermittent pattern printing only)
- (13) Press the **SET** key. "PAPER FEED TEST" is displayed on the LCD and the test pattern starts to be printed under the selected items for paper feed test.
- (14) If you press the **Stop** key, printing of test pattern is interrupted and the machine returns to the initial state of the maintenance mode.

<Print pattern>

LCD	Description
SELECT: K 100%	Black 100% solid print
SELECT: C 100%	Cyan 100% solid print
SELECT: M 100%	Magenta 100% solid print
SELECT: Y 100%	Yellow 100% solid print
SELECT: W 100%	White 100% solid print
SELECT: R 100%	Red 100% solid print
SELECT: G 100%	Green 100% solid print
SELECT: B 100%	Blue 100% solid print
SELECT: KCMY1%	Black/Cyan/Magenta/Yellow 1% intermittent pattern print *
SELECT: KCMY5%	Black/Cyan/Magenta/Yellow 5% intermittent pattern print *
SELECT: Lattice	Lattice print
SELECT: Total	Total pattern print

* Up to 500 sheets in one-sided printing and 1,000 sheets in two-sided printing in the case of job printing.

<Paper size>

LCD	Description
SELECT: A4	A4-size
SELECT: LETTER	Letter-size

<Print specifications>

LCD	Description
SELECT: PLAIN	Plain paper (Except for China)/ Plain paper (Thick) (for China)
SELECT: THICK	Thick paper
SELECT: THIN	Plain paper (Thin) (Except for China)/ Plain paper (for China)

<Print type>

LCD	Description
SELECT: TRAY1 SX	One-sided printing from paper tray
SELECT: MF SX	One-sided printing from manual feed slot
SELECT: TRAY1 DX	Two-sided printing from paper tray *
SELECT: MF DX	Two-sided printing from manual feed slot *

* Selectable only in a duplex printing model. The second side has the same pattern as the one on the first side. (Excluding the total pattern)

<Number of pages to be printed>

LCD	Description
SELECT: 1PAGE	One page printing
SELECT: CONTINUE	Continuous printing
SELECT: JOB	Intermittent printing by each unit *

* Selectable only when "KCMY1%" or "KCMY5%" is selected as print pattern and a tray other than the manual feed slot is selected as print type.

<Number of pages per job> (Intermittent pattern printing only)

LCD	Description
SELECT: 1P/JOB	Printing 1 page per job * ¹
SELECT: 2P/JOB	Printing 2 pages per job * ¹
SELECT: 5P/JOB	Printing 5 pages per job * ¹
SELECT: 2I/JOB	Printing 2 images per job * ²
SELECT: 5I/JOB	Printing 5 images per job * ² * ³
SELECT: 10I/JOB	Printing 10 images per job * ²

*¹ Selectable only when SX is selected as print type.

*² Selectable only when DX is selected as print type.

*³ One-sided printing for the 5th page.

■ Print pattern

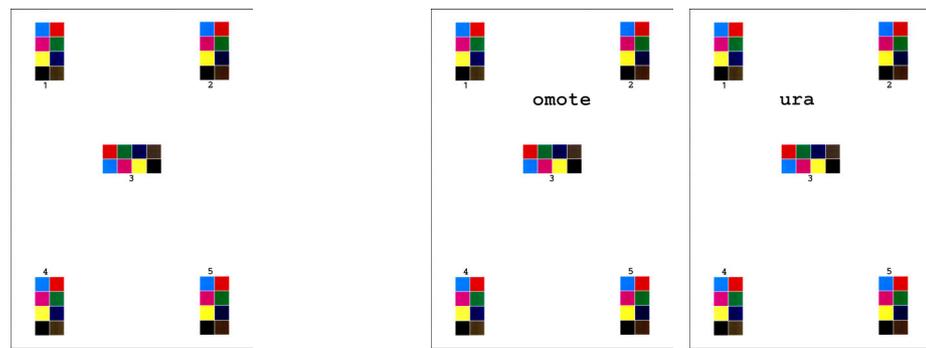
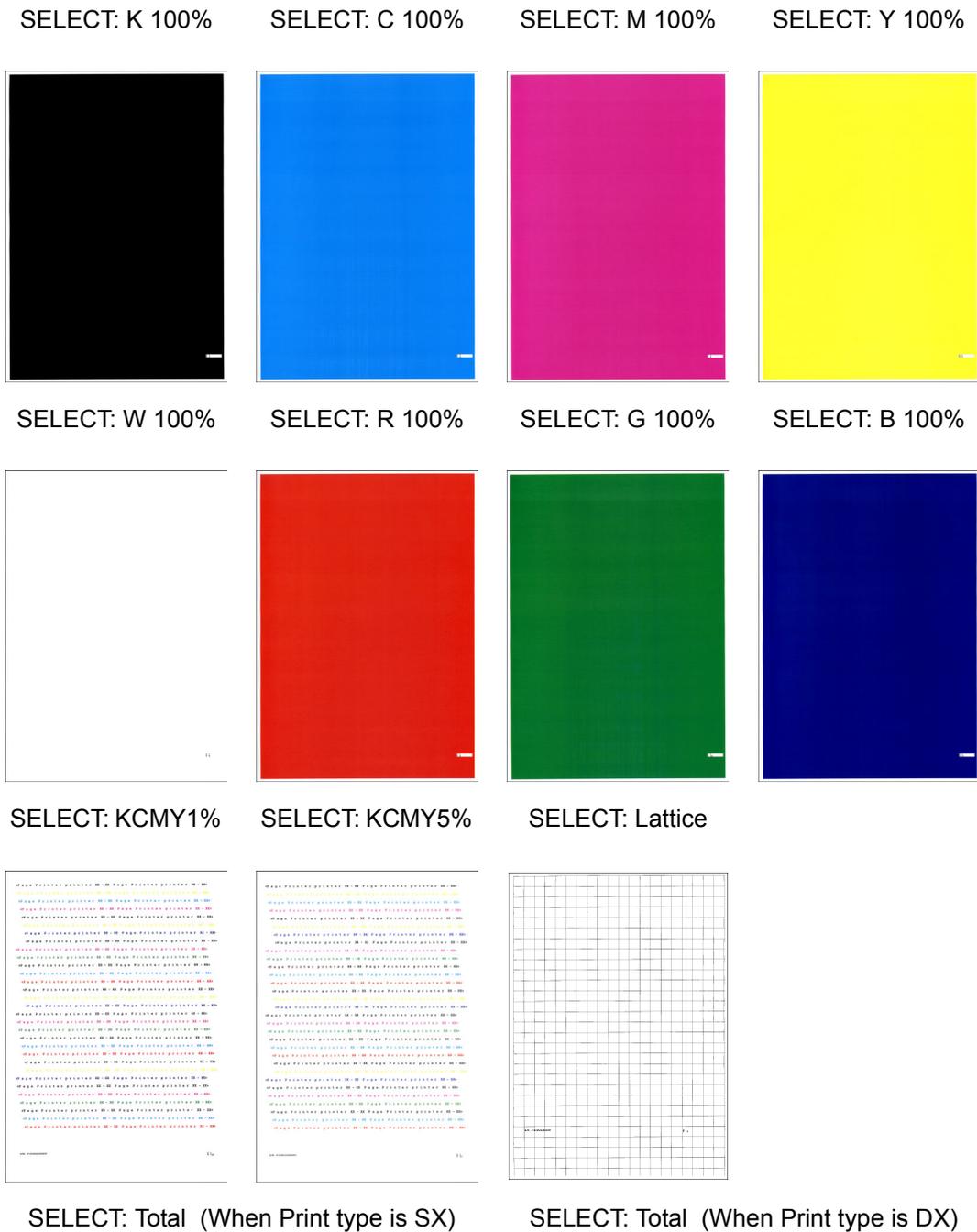


Fig. 5-16

1.4.23 LED test pattern print (Function code 68)

<Function>

This function allows you to print the LED test pattern and check the LED ASSY for its quality and float from the exposure drum.

Memo:

You can check the LED for scratches and dirt by performing print test.
(Refer to "1.4.22 Print test" in this chapter.)

<Operating procedure>

- (1) Press the **6** and **8** keys in this order in the initial state of the maintenance mode.
"PRINTING" is displayed on the LCD, and one LED test pattern (refer to [next page](#)) is printed.

Note:

When printing fails, a relevant error is displayed on the LCD. When the error factors are removed and the **Mono Start** key is pressed, the machine automatically recovers to the re-executable state. "PRINTING" is displayed on the LCD, and the LED test pattern is printed on a sheet.

- (2) When this operation is completed without an error, "M68_L" is displayed on the LCD.

LCD	Description
M68_L	Vertical/horizontal dot loss check pattern.

- (3) Press the **Stop** key to return the machine to the initial state of the maintenance mode. If an error message is displayed, remove the cause of the error referring to the measures described in the table below, and press the **Mono Start** key.

Error message	Measure
TONER EMPTY # *	Replace the empty toner cartridge.
Cover is Open	Close the joint cover ASSY .
No Paper	Load paper into the paper tray, and close the paper tray.
Jam Tray1	Remove the jammed paper, and close the paper tray.
Jam Rear	Remove the jammed paper, and close all the covers.

* # indicates the toner color (Y, M, or C) of which cartridge became empty.

■ LED test pattern (M68_L)

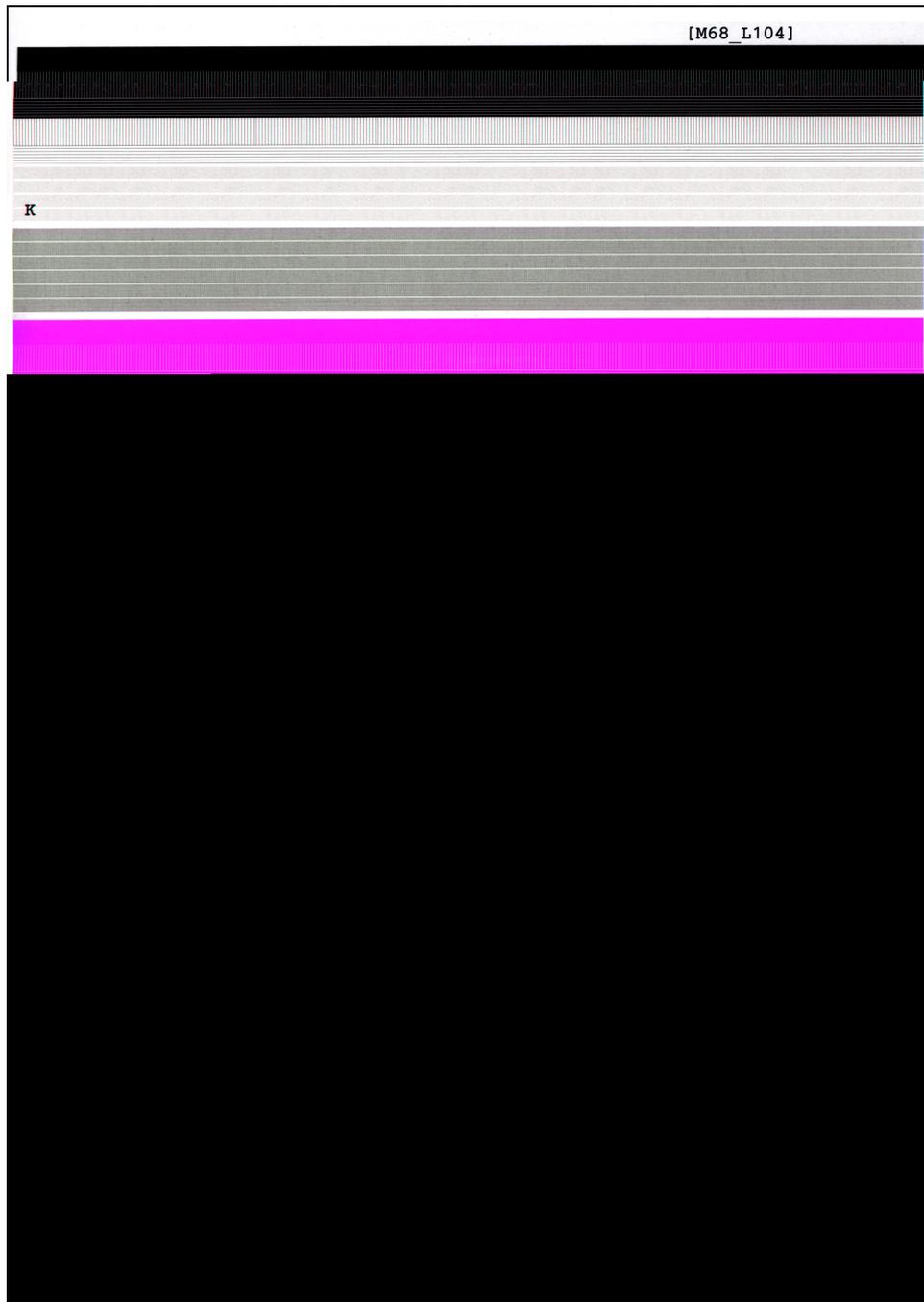


Fig. 5-17

1.4.24 Frame pattern print (One-sided) (Function code 69)

<Function>

This function allows you to print one page of the frame pattern of the external circumference in one-sided printing and check if there is print deflection.

<Operating procedure>

Before starting the procedure below, load letter-size paper for test pattern printing.

- (1) Press the **6** and **9** keys in this order in the initial state of the maintenance mode. "PRINTING" is displayed on the LCD, and the frame pattern is printed on a single side of the paper. (Refer to the figure below.)
- (2) When print is completed, "WAKU SX" is displayed on the LCD.

Note:

If printing fails, the following error indications are displayed and printing is cancelled. To print again, refer to the measures in the table below and remove the cause of the error. Then, press the **Mono Start** key. "WAKU SX" is displayed on the LCD, and press the **Mono Start** key. "PRINTING" is displayed on the LCD, and the frame pattern is printed on a single side of the paper.

- (3) To print the frame pattern again, press the **Mono Start** key.
- (4) Press the **Stop** key to return the machine to the initial state of the maintenance mode.

Error message	Measure
TONER EMPTY # *	Replace the empty toner cartridge.
Cover is Open	Close the joint cover ASSY .
No Paper	Load paper into the paper tray, and close the paper tray.
Jam Tray1	Remove the jammed paper, and close the paper tray.
Jam Rear	Remove the jammed paper, and close all the covers.

* # indicates the toner color (Y, M, or C) of which cartridge became empty.



Fig. 5-18

1.4.25 Frame pattern print (Two-sided) (Function code 70)

<Function>

This function allows you to print one page of the frame pattern of the external circumference in two-sided printing and check if there is print deflection.

<Operating procedure>

Before starting the procedure below, load paper whose size matches the default paper setting of the region.

- (1) Press the **7** and **0** keys in this order in the initial state of the maintenance mode. "PRINTING" is displayed on the LCD, and the frame pattern is printed on both sides of the paper. (Refer to the figure below.)
- (2) When print is completed, "WAKU DX" is displayed on the LCD.

Note:

If printing fails, the following error indications are displayed and printing is cancelled. To print again, refer to the measures in the table below and remove the cause of the error. Then, press the **Mono Start** key. "WAKU DX" is displayed on the LCD, and press the **Mono Start** key. "PRINTING" is displayed on the LCD, and the frame pattern is printed on both sides of the paper.

- (3) To print the frame pattern again, press the **Mono Start** key.
- (4) Press the **Stop** key to return the machine to the initial state of the maintenance mode.

Error message	Measure
TONER EMPTY # *	Replace the empty toner cartridge.
Cover is Open	Close the joint cover ASSY.
No Paper	Load paper into the paper tray, and close the paper tray.
Jam Tray1	Remove the jammed paper, and close the paper tray.
Jam Rear	Remove the jammed paper, and close all the covers.
Jam Duplex	Remove the jammed paper, and close the paper tray.
Duplex Disabled	Load paper that is compatible with the two-sided printing into the paper tray, and close the paper tray. Or close the back cover.

* # indicates the toner color (Y, M, or C) of which cartridge became empty.



Fig. 5-19

1.4.26 Color test pattern (Function code 71)

<Function>

This function allows you to print the pattern of each color and check if there is any dirty on or failure in the belt unit, developer roller, and exposure drum, etc.

<Operating procedure>

- (1) Press the **7** and **0** keys in this order in the initial state of the maintenance mode. "2D3S YCMK__A" is displayed on the LCD.
- (2) Referring to the table below (Print pattern), press the ▲ or ▼ key to select the desired print pattern.
- (3) Press the **Mono Start** key. When "2D3S YCMK__A" is selected, "PRINTING" is displayed on the LCD and a test pattern printing is started. When a print pattern other than "2D3S YCMK__A" is selected, "SELECT: A4" is displayed on the LCD. (Following steps (4) to (11) described below, select an option in each item and perform test pattern printing.)
- (4) Referring to the table on the [next page \(Paper size\)](#), press the ▲ or ▼ key to select the desired paper size.
- (5) Press the **SET** key. "SELECT: PLAIN" is displayed on the LCD.
- (6) Referring to the table on the [next page \(Print specifications\)](#), press the ▲ or ▼ key to select the desired print specifications.
- (7) Press the **SET** key. "SELECT: SX" is displayed on the LCD.
- (8) Referring to the table on the [next page \(Print type\)](#), press the ▲ or ▼ key to select the desired print type.
- (9) Press the **SET** key. "SELECT: 1PAGE" is displayed on the LCD.
- (10) Referring to the table on the [next page \(Number of pages to be printed\)](#), press the ▲ or ▼ key to select the desired number of pages to be printed.
- (11) Press the **SET** key. "PRINTING" is displayed on the LCD and the test pattern starts to be printed under the selected items for paper feed test.

Note:

If printing fails, the following error indications are displayed and printing is cancelled. To print again, refer to the measures in the table below and remove the cause of the error. Then, press the **Mono Start** key. "PRINTING" is displayed on the LCD and the color test pattern is printed.

- (12) When printing is finished, the screen returns to the print pattern display. To print the test pattern again, press the **Mono Start** or **Color Start** key.
- (13) Press the **Stop** key to return the machine to the initial state of the maintenance mode.

<Print pattern>

LCD	Description
2D3S YCMK__A	One sheet for each color with full page print mode *
2D3S M	Magenta
2D3S K	Black
2D3S C	Cyan
2D3S Y	Yellow
2D3S MCYK	4-color horizontal band

* In the full page print mode, the cleaning operation is performed between printing of Magenta and Black.

<Paper size>

LCD	Description
SELECT: LETTER	Letter-size
SELECT: A4	A4-size

<Print specifications>

LCD	Description
SELECT: PLAIN	Plain paper (Except for China)/ Plain paper (Thick) (for China)
SELECT: THICK	Thick paper
SELECT: THIN	Plain paper (Thin) (Except for China)/ Plain paper (for China)

<Print type>

LCD	Description
SELECT: SX	One-sided printing from paper tray
SELECT: DX	Two-sided printing from paper tray *

* Selectable only in a duplex printing model. The second side has the same pattern as the one on the first side.

<Number of pages to be printed>

LCD	Description
SELECT: 1PAGE	One page printing
SELECT: CONTINUE	Continuous printing

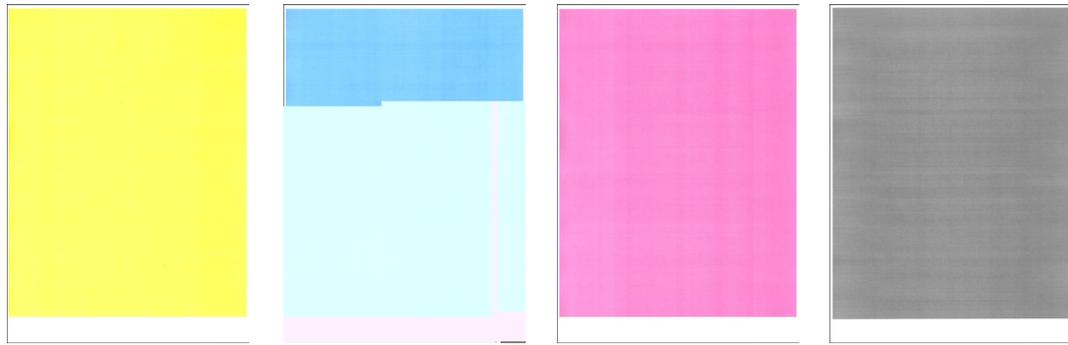
<Error message>

LCD	Description
TONER EMPTY # *	Replace the empty toner cartridge.
Cover is Open	Close the joint cover ASSY .
No Paper	Load paper into the paper tray, and close the paper tray.
Jam Tray1	Remove the jammed paper, and close the paper tray.
Jam Rear	Remove the jammed paper, and close all the covers.

* # indicates the toner color (Y, M, or C) of which cartridge became empty.

■ Color test pattern

2D3S YCMK__A

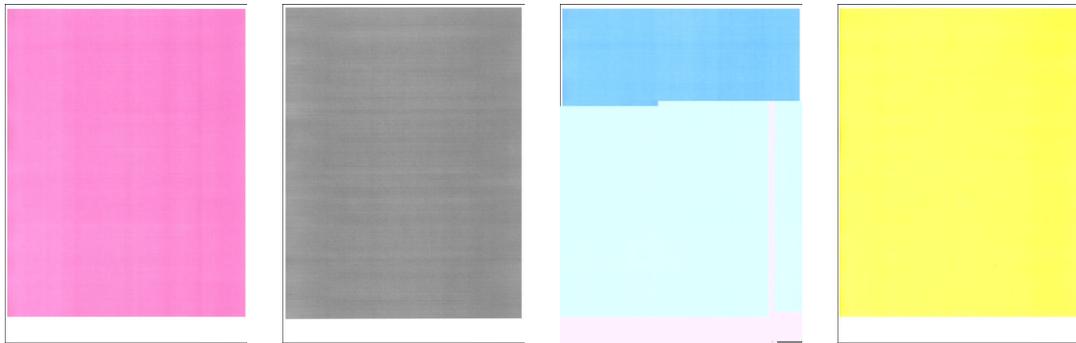


2D3S M

2D3S K

2D3S C

2D3S Y



2D3S MCYK



Fig. 5-20

1.4.27 Sensitivity adjustment of density sensor (Function code 72)

<Function>

This function allows you to print the patch data for density sensor sensitivity adjustment on the belt unit and measure the density with the density sensor. The characteristics of the density sensor are calculated based on the value measured by the density sensor, and the parameter for correcting developing bias voltage is adjusted.

<Operating procedure>

- (1) Press the **7** and **2** keys in this order in the initial state of the maintenance mode. "PLS WAIT 72" is displayed on the LCD.
- (2) When the parameter is obtained without errors, the machine returns to the initial state of the maintenance mode. If the sensitivity adjustment of the density sensor fails, "ERROR 72" is displayed on the LCD. Display the error message by pressing the **▼** key, and take the following measure that corresponds to the error message.

LCD	Description
dens_l_drk_err	<ul style="list-style-type: none"> - Check the harness connection of the eject sensor PCB and reconnect it. - Replace the registration mark L PCB ASSY. - Replace the main PCB ASSY.
belt_err	<ul style="list-style-type: none"> - Replace the belt unit. - Replace the toner cartridge and drum unit. - Replace the waste toner box.
dens_pat_err dens_calc_err	<ul style="list-style-type: none"> - Check if the toner cartridges and drum units are set in the correct order of colors. - Replace the registration mark L PCB ASSY. - Replace the LED ASSY. - Replace the high-voltage power supply PCB ASSY.
dens_led_adj_err	<ul style="list-style-type: none"> - Check the harness connection of the eject sensor PCB and reconnect it. - Replace the belt unit. - Replace the waste toner box. - Replace the registration mark L PCB ASSY. - Replace the main PCB ASSY.
lph_calc_err	<ul style="list-style-type: none"> - Securely close the joint cover ASSY . - Check the attachment of the LED ASSY, and reattach it.
TONER EMPTY # *	Replace the empty toner cartridge and press the Mono Start key to clear the error. Perform the sensitivity adjustment of the density sensor again.
Cover is Open	Close the joint cover ASSY .
Replace Toner	Replace the black toner cartridge and press the Mono Start key to clear the error. Perform the sensitivity adjustment of the density sensor again.

* # indicates the toner color (Y, M, or C) of which cartridge became empty.

1.4.28 Continuous adjustments of density and registration sensor (Function code 73)

<Function>

This function allows you to perform the following functions consecutively:
Sensitivity adjustment of density sensor (Function code 72), Developing bias voltage correction (Function code 83), and Adjustment of color registration (Adjustment of inter-color position alignment) including registration sensor calibration (Function code 66).

<Operating procedure>

- (1) Press the **7** and **3** keys in this order in the initial state of the maintenance mode.
"DDRPT2" is displayed on the LCD.
- (2) Press the **▲** or **▼** key to display "DDR" on the LCD.
- (3) Press the **SET** key. "PLS WAIT 72" is displayed on the LCD and each adjustment is performed in the following order.
 - 1) Sensitivity adjustment of density sensor (Function code 72)
LCD: PLS WAIT 72
 - 2) Developing bias voltage correction (Function code 83)
LCD: PLS WAIT 83
 - 3) Adjustment of color registration (Adjustment of inter-color position alignment) including registration sensor calibration (Function code 66)
LCD: PLS WAIT 66-1
- (4) When all operations are completed, "COMP" is displayed on the LCD. Pressing the **▼** key and **Stop** key in this order and the machine returns to the initial state of the maintenance mode.

Note:

- If each adjustment fails, "ERROR***" is displayed on the LCD and the adjustment is stopped. ("***" indicates the corresponding function code.) If you press the **▼** key with "ERROR***" displayed, the details of the error are shown.
- If the details of the error indicate one of the following, scratch or dirt on the belt unit or the drum units may cause the error: "FAILED REGIST", "NG * L:C080 R:M105", "NG R-L:C030", "NG PWM L120 R180", "NG PWM R-L:080", "NG CNT R100 L100", "NG S-POSI R:080", "NG SKEW:120", "NG PWM R-P L:080", "NG XMARGIN:M191".
In this case, replace the belt unit and the drum units of all four colors with the ones that do not have any scratch or dirt, and perform the function from step (1) again. If the function is completed successfully, mount the removed belt unit and four drum units.

1.4.29 Setting by country (Function code 74)

<Function>

This function allows you to customize the machine according to language, function settings, and worker switch settings.

<Operating procedure>

- (1) Press the **7** and **4** keys in this order in the initial state of the maintenance mode.
The present country code is displayed on the LCD.
- (2) Enter the desired country code.
- (3) Press the **Mono Start** key. The new setting is saved, and "PARAMETER INIT" is displayed on the LCD. After the setting is saved, the machine returns to the initial state of the maintenance mode.
- (4) If you press the **Stop** key while setting the code, the machine returns to the initial state of the maintenance mode without saving the country code.

Note:

If there is a pause of more than one minute, the machine will automatically return to the initial state of the maintenance mode.

■ Setting by country code list

Country		DCP-9020CDN	DCP-9020CDW	MFC-9130CW	MFC-9140CDN	MFC-9330CDW	MFC-9340CDW
U.S.A.		---	---	0201	---	0401	0501
Canada		---	---	0202	---	0402	0502
Brazil		0042	---	---	---	0442	---
Argentina		0036	---	---	---	---	---
Chile		0036	---	---	---	0436	---
German		---	3104	---	0303	0403	0503
UK		---	1104	---	0304	0404	0504
France/ Belgium/ Netherlands	France	---	1158 (1104)	---	0355 (0305)	0455 (0405)	0555 (0505)
	Belgium	---	1158 (1108)	---	0355 (0308)	0455 (0408)	0555 (0508)
	Netherlands	---	1158 (1104)	---	0355 (0309)	0455 (0409)	0555 (0509)
	Others	---	1158 (1104)	---	---	---	---
Iberia/ Italy	Spain	---	1104	---	0365 (0315)	0466 (0415)	0566 (0515)
	Portugal	---	1104	---	0365 (0318)	0466 (0418)	0566 (0518)
	Italy	---	1104	---	0316	0466 (0416)	0566 (0516)
Switzerland		---	1104	---	0310	0410	0510

Country		DCP-9020CDN	DCP-9020CDW	MFC-9130CW	MFC-9140CDN	MFC-9330CDW	MFC-9340CDW
Pan-Nordic	Norway	---	1104	---	---	0457 (0407)	---
	Sweden	---	1104	---	---	0457 (0426)	---
	Finland	---	1104	---	---	0457 (0412)	---
	Denmark	---	1104	---	---	0457 (0413)	---
	Others	---	1104	---	---	0457 (0450)	---
Russia		---	5104	---	---	0448	---
CEE-General	Czech Republic	---	1104	---	0388 (0337)	---	0588 (0537)
	Hungary	---	1104	---	0388 (0338)	---	0588 (0538)
	Poland	---	1104	---	0388 (0339)	---	0588 (0539)
	Bulgaria	---	1104	---	0388 (0332)	---	0588 (0532)
	Romania	---	1104	---	0388 (0333)	---	0588 (0533)
	Slovakia	---	1104	---	0388 (0330)	---	0588 (0530)
	Slovenia	---	1104	---	0388 (0382)	---	0588 (0582)
	Croatia	---	1104	---	0388 (0381)	---	0588 (0581)
	Others	---	1104	---	0388 (0350)	---	0588 (0550)
Gulf	South Africa	---	---	---	0374 (0324)	0474 (0424)	---
	Turkey	---	---	---	0374 (0325)	0474 (0425)	---
	Others	---	---	---	0374 (0341)	0474 (0441)	---
Singapore		---	---	---	0340	0440	---
Philippines		---	---	---	0321	0421	---
Taiwan		---	---	---	---	0423	---
Korea		---	---	---	0340	---	---
India		---	---	---	0340	---	---
Oceania	Australia	---	---	---	0356 (0306)	0406	0556 (0506)
	New Zealand	---	---	---	0356 (0327)	---	0556 (0527)
China		0020	---	---	0120	---	0220

Note:

This code list is as of February in 2013. For the latest information, please contact us.

1	Model name	23	Not necessary for maintenance work (ADF sensor log 1 to 4)
2	Serial number		
3	Model code	24	Not necessary for maintenance work (ADF sensor log 5 to 8)
4	Country code		
5	Switch checksum (factory use)	25	Not necessary for maintenance work (ADF sensor log 9 to 12)
6	Main firmware version		
7	Sub firmware version	26	Estimated remaining life of toner (Cyan)
8	Boot firmware version	27	Estimated remaining life of toner (Magenta)
9	Demo firmware version	28	Estimated remaining life of toner (Yellow)
10	Panel firmware version	29	Estimated remaining life of toner (Black)
11	Panel boot firmware version	30	Remaining life of drum unit (Cyan)
12	ROM CheckSum	31	Remaining life of drum unit (Magenta)
13	RTC check ^{*1}	32	Remaining life of drum unit (Yellow)
14	RTC backup ^{*1}	33	Remaining life of drum unit (Black)
15	Time before RTC backup ^{*1}	34	Remaining life of PF kit 1
16	Time after RTC backup ^{*1}	35	Remaining life of belt unit
17	USB ID code	36	Remaining life of fuser unit
18	RAM size	37	Total printed page
19	Function code 55 result/ Function code 72 result/ Wireless LAN country setting/ Wireless LAN output value/ WLAN Setup setup history/ Toner type CMYK (Current)/ Toner type CMYK (Previously used) ^{*2}	38	Total copied pages
		39	Total printed PC pages
		40	Total printed list/fax pages
		41	Accumulated average coverage
		42	Average coverage (Current toner)
		43	Average coverage (Previous used toner)
20	Main PCB inspection log/ High-voltage inspection log/ Number of electric discharge errors/ Number of fuser unit errors/ Process execution state (Function code 1 to 64)	44	Drum page count/Rotations of the drum
		45	Rotations of the developer roller (Current toner/Previous used toner)
		46	Total printed pages per paper tray/ Paper size/Paper type
21	Next Power On State/ Process execution state (Function code 65 to 128)/ Process execution checksum	47	Total printed pages by each toner cartridge (Current toner/Previous used toner)
		48	Rotations of the developer roller used in printing (Current toner/Previous used toner)
22	Number of color correction (hexadecimal) that has been executed (Auto registration/ Developing bias voltage correction/ Gamma correction/ Auto registration (user)/ Developing bias voltage correction (user)/Gamma correction (user)/ Registration error/ Color calibration flag)	49	Total number of paper jams/Paper jams that have occurred in each section in the machine
		50	Machine error log/Total pages printed by the time of error occurrence/Temperature and humidity at the time of error occurrence
		51	Number of times that consumables and periodical replacement parts have been replaced ^{*3}
		52	Total pages of scanning/ Document jams that have occurred in ADF
		53	Communication error log

54	Developing bias voltage value *4	58	Temperature and humidity under which Function code 77 is executed/Maximum and minimum temperature and humidity *5
55	Engine sensor log (Not necessary for maintenance work)		
56	Status log (Not necessary for maintenance work)	59	Number of times that the power is turned ON/Total power distribution time
57	Detailed code of machine error AF (home position detection machine error), detailed log of home position detection machine error (16-byte white tape data)	60	Date and time when the machine starts to be used (Date and time when the first printing is made with the driver)
		61	Date and time when the machine starts to be used (Initial set date and time of RTC)

*1 RTC: Real Time Clock

*2 00: Starter toner cartridge, 01: Standard toner cartridge, 02: High yield toner cartridge

*3 For toner cartridges, the value in the parentheses () shows the number of times that toner manual reset is performed. The # sign indicates that the most recent new toner detection was manual reset.

*4 The color toner value becomes 0V when Function code 77 is executed.

*5 The maximum and minimum temperature and humidity is updated when the machine comes out of the sleep mode.

1.4.31 Operational check of fans (Function code 78)

<Function>

This function allows you to check that the main fan is operating normally.
The rotation speed is changed among three settings: 100 %, 50 % and OFF.

<Operating procedure>

- (1) Press the **7** and **8** keys in this order in the initial state of the maintenance mode.
"F 100" is displayed on the LCD, and the main fan operates at the rotating speed of 100 %.
If the main fan is faulty, "NG" is displayed on the LCD.
- (2) Press the **Mono Start** key.
"F 50" is displayed on the LCD, and the main fan operates at the rotating speed of 50 %.
- (3) Press the **Mono Start** key. "F0" is displayed on the LCD, and the main fan stops.
- (4) Press the **Mono Start** key. "F 100" is displayed on the LCD, and the machine returns to the state described in step (1). Every time the **Mono Start** key is pressed, the displayed rotating speed changes as described in steps (1) to (3).
- (5) Press the **Stop** key to return the machine to the initial state of the maintenance mode.

1.4.32 Display of device log information (Function code 80)

<Function>

This function allows you to display log information on the LCD.

<Operating procedure>

- (1) Press the **8** and **0** keys in this order in the initial state of the maintenance mode.
"USB:*****" is displayed on the LCD.
(* represents the serial number of the machine.)
- (2) Each time you press the ▼ key, a different item is displayed.
Press the ▲ key to go back to the previous item.
- (3) Press the **Stop** key to return the machine to the initial state of the maintenance mode.

LCD	Description
USB:000G8J000166	Serial number *1
MAC:008077112233 *2	MAC Address
PCB:911309123456	Main PCB serial number
CTN_ERM:78%	Amount of remaining cyan toner estimated from coverage
CTN_RRM:67%	Amount of remaining cyan toner estimated from the number of developer rotations
MTN_ERM:78%	Amount of remaining magenta toner estimated from coverage
MTN_RRM:67%	Amount of remaining magenta toner estimated from the number of developer rotations
YTN_ERM:78%	Amount of remaining yellow toner estimated from coverage
YTN_RRM:67%	Amount of remaining yellow toner estimated from the number of developer rotations
KTN_ERM:87%	Amount of remaining black toner estimated from coverage
KTN_RRM:67%	Amount of remaining black toner estimated from the number of developer rotations
CDRM_PG:00000000	Number of pages printed with cyan drum
MDRM_PG:00000000	Number of pages printed with magenta drum
YDRM_PG:00000000	Number of pages printed with yellow drum
KDRM_PG:00000000	Number of pages printed with black drum
PFK1_PG:00000000	Number of pages where PF kit 1 has been used
FUSR_PG:00000000	Number of pages printed on fuser unit
BELT_PG:00000000	Number of pages printed on belt unit
TTL_PG:00000000	Total number of pages printed
TTL_CO:00000000	Total number of color pages printed
TTL_MO:00000000	Total number of monochrome pages printed
TTL_CI:00000000	Total number of cyan pages printed
TTL_MI:00000000	Total number of magenta pages printed
TTL_YI:00000000	Total number of yellow pages printed
TTL_KI:00000000	Total number of black pages printed

LCD	Description
TTLCOPY:00000000	Number of copy pages
CL_COPY:00000000	Number of color copy pages
MN_COPY:00000000	Number of monochrome copy pages
TTLPCPT:00000000	Number of PC prints made
CL_PCPT:00000000	Total number of PC color printed pages
MN_PCPT:00000000	Total number of PC monochrome printed pages
TTLFAX:00000000	Number of List/FAX outputs made
CL_FAX:00000000	Total number of color List/FAX printed pages
MN_FAX:00000000	Total number of monochrome List/FAX printed pages
CCVRGUSI:4.32%	Average coverage of cyan toner cartridge in use
CCVRGACC:3.47%	Accumulated average coverage of cyan toner cartridge
MCVRGUSI:4.32%	Average coverage of magenta toner cartridge in use
MCVRGACC:3.47%	Accumulated average coverage of magenta toner cartridge
YCVRGUSI:4.32%	Average coverage of yellow toner cartridge in use
YCVRGACC:3.47%	Accumulated average coverage of yellow toner cartridge
KCVRGUSI:4.32%	Average coverage of black toner cartridge in use
KCVRGACC:3.47%	Accumulated average coverage of black toner cartridge
CDRUM:00000000	Number of cyan drum rotations
MDRUM:00000000	Number of magenta drum rotations
YDRUM:00000000	Number of yellow drum rotations
KDRUM:00000000	Number of black drum rotations
CTN_RND: 00000000	Number of cyan developer roller rotations
MTN_RND: 00000000	Number of magenta developer roller rotations
YTN_RND: 00000000	Number of yellow developer roller rotations
KTN_RND: 00000000	Number of black developer roller rotations
MN_PG:00000000	Number of pages printed on paper fed from manual feed slot
TR1_PG:00000000	Number of pages printed on paper fed from paper tray
DX_PG:00000000	Number of sheets where two-sided are printed
A4+LTR:00000000	Total of pages printed on A4 and letter size paper
LG+FOL:00000000	Total of pages printed on legal and folio size paper
B5+EXE:00000000	Total of pages printed on B5 and EXE size paper
ENVLOP:00000000	Number of pages printed on envelopes
A5 :00000000	Number of pages printed on A5 size paper
OTHER :00000000	Total of pages printed on paper other than the above
PLTNRE:00000000	Total of pages printed on plain, thin, and recycled paper
TKTRBD:00000000	Total of pages printed on thick, thicker paper and bond paper
ENVTYP:00000000	Total of pages printed on envelopes, envelopes (thick), and envelopes (thin)
LABEL:00000000	Number of pages printed on label

LCD	Description
HAGAKI:00000000	Number of pages printed on post card
GLOSSY:00000000	Number of pages printed on glossy paper
TTL_JAM:00000000	Total of jammed sheets
MN_JAM:00000000	Number of sheets jammed in the manual feed slot
TR1_JAM:00000000	Number of sheets jammed in the paper tray
IN_JAM:00000000	Number of sheets jammed inside the machine
RE_JAM:00000000	Number of sheets jammed in paper eject section and back cover
DX_JAM:00000000	Number of sheets jammed during two-sided printing
POWER:00000375	Total hours of current conduction
PWRCNT:00000000	Number of times that the power is turned ON
MACERR_01:0000 *3	Machine error history (Past 10 error history)
CTN_CH:0000 *4	Number of times that the cyan toner cartridge has been replaced
MTN_CH:0000 *4	Number of times that the magenta toner cartridge has been replaced
YTN_CH:0000 *4	Number of times that the yellow toner cartridge has been replaced
KTN_CH:0000 *4	Number of times that the black toner cartridge has been replaced
CDRM_CH:0000 *4	Number of times that the cyan drum unit has been replaced
MDRM_CH:0000 *4	Number of times that the magenta drum unit has been replaced
YDRM_CH:0000 *4	Number of times that the yellow drum unit has been replaced
KDRM_CH:0000 *4	Number of times that the black drum unit has been replaced
WTNR_CH:0000 *4	Number of times that the waste toner box has been replaced
BELT_CH:0000	Number of times that the belt unit has been replaced
FUSR_CH:0000 *4	Number of times that the fuser unit has been replaced
PFK1_CH:0000 *4	Number of times that the PF kit 1 has been replaced
CTN_PG1:00000000	Number of pages printed from the currently installed cyan toner cartridge
CTN_PG2:00000000	Number of pages printed from the previous installed cyan toner cartridge
MTN_PG1:00000000	Number of pages printed from the currently installed magenta toner cartridge
MTN_PG2:00000000	Number of pages printed from the previous installed magenta toner cartridge
YTN_PG1:00000000	Number of pages printed from the currently installed yellow toner cartridge
YTN_PG2:00000000	Number of pages printed from the previous installed yellow toner cartridge
KTN_PG1:00000000	Number of pages printed from the currently installed black toner cartridge
KTN_PG2:00000000	Number of pages printed from the previous installed black toner cartridge
WTNR_PG:00000000	Number of pages printed from the waste toner box

LCD	Description
ADSX_PG:00000000	Number of pages scanned in one-sided scanning with the ADF
ADDX_PG:00000000	Number of pages scanned in two-sided scanning with the ADF
FB_PG:0000000	Number of pages scanned with the document glass
ADSX_JAM:000000	Number of jams that occurred at one-sided scanning with the ADF
ADDX_JAM:000000	Number of jams that occurred at two-sided scanning with the ADF
COMERR:	Last communication error code (Past 3 error history)
CDEV_BIAS:400V	Cyan developing bias voltage
MDEV_BIAS:400V	Magenta developing bias voltage
YDEV_BIAS:400V	Yellow developing bias voltage
KDEV_BIAS:400V	Black developing bias voltage
ENGERR01:000000 * ⁵	Engine error history (Past 10 error history)
HODN_ER:0000	Number of electric discharge errors
FUSR_ER:0000	Number of fuser unit errors
BCLN:00000000	Number of belt cleaner roller rotations
DEVSTATUS__01:00 * ⁶	Log for design analysis

*1 The serial number can be changed according to the steps below.

- 1) Press the **9**, **4**, **7**, and **5** key in this order while the serial number is displayed.
The cursor appears on the first digit of the serial number on the LCD, and edit mode is entered.
- 2) Enter the number of the first digit of the serial number using the ten-key pad.
The cursor moves to the second digit. Similarly, repeat the entering of the serial numbers of the 2nd to the last 15th digit.

<How to enter alphabets>

Keep pressing a corresponding key in the ten-key pad based on the table given below until the alphabet you want to enter is displayed.

Ten-key pad	Corresponding alphabet
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) When you press the **SET** key, the serial number is written and the machine returns to the initial state of the maintenance mode.

- *2 Not displayed in the model without Network feature
- *3 If you press the **SET** key while a machine error is displayed, the indication on the LCD changes into "PGCNT:*****". "*****" represents the total of sheets that had been printed under which the error occurred. When you press the **SET** key again, the indication on the LCD changes into "TMP:*** HUM:***". "***" represents the temperature and the humidity under which the error occurred.
- *4 If you press the **SET** key while the LCD displays the number of times that each part has been replaced, the indication changes to "DATE_XX:*****". "XX" represents the shortened characters for each part and "*****" represents the date on which the last replacement was made.
- *5 If you press the **SET** key while the engine error is displayed, the indication on the LCD changes into "TM: ***** BT:***". "TM" represents the period of time (minute) that has passed after the last occurrence of error. "BT" represents the number of time that the power has been turned ON.
- *6 If you press the **SET** key while the history is displayed, the indication on the LCD changes into "PGCNT:*****". "*****" represents the total number of sheets that had been printed under which the error occurred.

1.4.33 Display of device error codes (Function code 82)

<Function>

This function displays the most recent machine error code on the LCD.

<Operating procedure>

- (1) Press the **8** and **2** keys in this order in the initial state of the maintenance mode.
"MACHINE ERR XX" is displayed on the LCD.

Note:

If multiple errors occur, error display changes each time when you press the **Mono Start** key.

- (2) Press the **Stop** key to return the machine to the initial state of the maintenance mode.

1.4.34 Developing bias voltage correction (Function code 83)

<Function>

This function performs developing bias voltage correction to fix the density of each color toner when printed color is not correct.

Note:

Before this function is performed, there is a need that the "1.4.27 Sensitivity adjustment of density sensor (Function Code 72)" in this chapter has been done more than once. When performing this maintenance mode 83 after replacing the main PCB ASSY, make sure to perform the "1.4.27 Sensitivity adjustment of density sensor (Function Code 72)" first.

<Operating procedure>

- (1) Press the **8** and **3** keys in this order in the initial state of the maintenance mode. The machine displays "PLS WAIT 83" on the LCD and starts the developing bias voltage correction.
- (2) Upon completion of the developing bias voltage correction, the machine returns to the initial state of the maintenance mode.
If developing bias voltage correction fails, "ERROR 83" is displayed on the LCD. Display the error message by pressing the ▼ key, and take the following measure that corresponds to the error message.

Error message	Measure
FAILED DEVBIAS	Remove the error factors with the following operations and press the Mono Start key to clear the error. <ul style="list-style-type: none">- Re-insert the toner cartridge in the correct position.- Replace the toner cartridge.- Replace the drum unit.- Replace the waste toner box.- Replace the belt unit.- Replace the registration mark L/R PCB ASSY.
TONER EMPTY # *	Replace the empty toner cartridge and press the Mono Start key to clear the error. After the sensitivity adjustment of the density sensor (Function code 72) is performed, the developing bias voltage value is compensated again.
Cover is Open	Close the joint cover ASSY.
Replace Toner	Replace the black toner cartridge and press the Mono Start key to clear the error. After the sensitivity adjustment of the density sensor (Function code 72) is performed, the developing bias voltage value is compensated again.

* # indicates the toner color (Y, M, or C) of which cartridge became empty.

1.4.35 Sending of communication log information to telephone line (Function code 87)

<Function>

This function is to send the error list to a service personnel at a remote location when a FAX communication error occurs on a user's machine. Reception of the error list enables a service personnel to analyze the problem current on a user's machine.

<Operating procedure>

- Service side

(1) Make a call from the machine on the service side to the user's machine.

- User side

(1) Hold down the **Home** key in the ready state until the display on the LCD changes.

(2) Hold down the blank box at the bottom on the LCD until the display on the LCD changes.

(3) Press the *, **0**, #, **8** and **7** keys in this order. "SENDING P.01" is displayed on the LCD, and the error list is sent.

(4) When the machine finishes sending the error list, it returns to the ready state.

1.4.36 Counter reset after fuser unit/PF kit 1 replacement (Function code 88)

<Function>

After replacing a fuser unit or PF kit 1, perform this function to increase the replacement count by one and reset the "Replace ***" warning.

<Operating procedure>

- (1) Press the **8** key twice in the initial state of the maintenance mode.
"Reset-Fuser Unit" is displayed on the LCD.
- (2) Select the consumable part to be reset with the ▲ or ▼ key. The following is displayed on the LCD.
"Reset-Fuser Unit"
"Reset-PF Kit T1"
- (3) Press the **SET** key, and "*** OK?" is displayed on the LCD.
(*** indicates the selected consumable part.)
- (4) Pressing the **SET** key causes the counter of the selected consumable part to be reset and "Reset-***" is displayed on the LCD.
(*** indicates the consumable part whose counter is reset.)
- (5) Press the **Stop** key to return the machine to the initial state of the maintenance mode.

1.4.37 Exit from the maintenance mode (Function code 99)

<Function>

This function allows you to exit from the maintenance mode.

<Operating procedure>

- (1) Press the **9** key twice in the initial state of the maintenance mode.
The machine exits from the maintenance mode and return to the ready state.

2. OTHER SERVICE FUNCTIONS

2.1 Toner Manual Reset Function

This function is to manually perform the same operation as the one when a toner cartridge is replaced with a new one. The purpose of this function is to provide a means to resolve an error when a new toner cartridge cannot be recognized by the machine, and the toner life display fails to be cleared.

<Operating procedure>

- (1) Press the "Fax" icon on the LCD to illuminate the keys that have stayed OFF on the control panel, and identify the location of the * key.
- (2) Press the **Home** key to return the machine to the ready state.
- (3) Open the joint cover ASSY. Check that the message "Cover is Open" is displayed on the entire surface of the LCD. Hold down the * key for 5 seconds or longer.

Note:

Though the * key does not light up, continue holding down the key.

- (4) "Reset Menu" is displayed on the LCD. Referring to the following list, select the toner cartridge you want to reset.

LCD	Measure
K.TNR-STD	Standard black toner manual reset
K.TNR-STR	Starter black toner manual reset
C.TNR-STD	Standard cyan toner manual reset
C.TNR-HC	High yield cyan toner manual reset
C.TNR-STR	Starter cyan toner manual reset
M.TNR-STD	Standard magenta toner manual reset
M.TNR-HC	High yield magenta toner manual reset
M.TNR-STR	Starter magenta toner manual reset
Y.TNR-STD	Standard yellow toner manual reset
Y.TNR-HC	High yield yellow toner manual reset
Y.TNR-STR	Starter yellow toner manual reset

- (5) When "Reset? Yes No" appears on the LCD, press **Yes** key. "Accepted" appears on the LCD, and the manual reset of the toner cartridge is performed. When the machine finishes resetting the toner cartridge, it returns to "Reset Menu".
- (6) Press the **Home** key to return the machine to the ready state.
- (7) Close the joint cover ASSY.

2.2 Parts Life Reset Function (Drum unit/Belt unit)

This function is used to reset the relevant part counter when the user replaced a consumable part with the correct procedure, and also used to forcibly reset the relevant part counter when an error cannot be resolved because the user did not replace a consumable part with the correct procedure.

<Operating procedure>

- (1) Press "Menu" on the LCD in the ready state.
- (2) Press "All Settings" on the LCD.
- (3) Press "Machine Info." on the LCD.
- (4) Press "Parts Life" on the LCD.
- (5) When the list of consumable parts appears on the LCD, touch any key (about 4 cm from the **Home** key on the right side) that have stayed OFF on the control panel to illuminate the # key. Hold it down 5 for seconds or longer.
- (6) "Reset Menu" is displayed on the LCD. Select the consumable part you want to reset.
<Consumable parts are displayed on the LCD>
 - Drum Black(BK)
 - Drum Cyan(C)
 - Drum Magenta(M)
 - Drum Yellow(Y)
 - Belt Unit
- (7) Once "Reset? Yes No" appears on the LCD, press the **Yes** key.
"Accepted" is displayed on the LCD, and the counter is cleared.
When the machine finishes resetting, it returns to "Reset Menu".
- (8) Press the **Home** key to return the machine to the ready state.

2.3 Deletion of User Setting Information, etc.

In this machine, the user setting information is stored in the EEPROM and flash memory of the main PCB. You can delete all the data listed below at a time with the procedure given below.

- Information related to Net
- User setting information

<Operating procedure>

- (1) Press "Menu" on the LCD in the ready state.
- (2) Press "All Settings" on the LCD.
- (3) Press "Initial Setup" on the LCD.
- (4) Press "Reset" on the LCD.
- (5) Press "All Settings" on the LCD.
- (6) Once "Reset All Settings? Yes No" appears on the LCD, press the **Yes** key.
- (7) "Reboot OK? Press [Yes] for 2 seconds to confirm." will appear on the LCD. Press "Yes" for 2 seconds or longer, the user settings are cleared, and the machine returns to the ready state.

Note:

The machine returns to the ready state automatically if no panel operation is implemented for 30 seconds.

2.4 How to Recover from Errors of the Fuser Unit

How to recover from errors of the fuser unit is to use "1.4.37 Exit from the maintenance mode (Function code 99)" in the maintenance mode.



WARNING

First of all, turn OFF the power of the machine to cool the fuser unit.
When clearing an error, be sure that the fuser unit is cooled down sufficiently. If an error is cleared while the fuser unit is not cooled down, there is a possibility that the unit might be unable to be repaired.

2.5 Drum Cleaning

This function is to attach a special cleaning sheet on the belt unit and perform the cleaning of the drum.

<Operating procedure>

- (1) Press "Menu" on the LCD in the ready state.
- (2) Press "All Settings" on the LCD.
- (3) Press "Machine Info." on the LCD.
- (4) Press "Parts Life" on the LCD.
- (5) When the list of consumable parts appears on the LCD, touch any key (about 4 cm from the **Home** key on the right side) that have stayed OFF on the control panel to illuminate the * key. Hold it down 5 for seconds or longer. "Drum Cleaning/ Attach the cleaning sheet. Please refer to the included instructions." is displayed on the LCD
- (6) Open the joint cover ASSY, take out the drum unit, and attach the cleaning sheet on the belt unit. (For the method of attaching the cleaning sheet, refer to the insertion of the cleaning sheet.)
- (7) Mount the drum unit to the machine and close the joint cover ASSY.
"Drum Cleaning/ Please wait" is displayed on the LCD, and then drum cleaning starts.
- (8) After about 90 seconds, "Drum Cleaning/Drum Cleaning completed. Remove the cleaning sheet." is displayed on the LCD and the drum cleaning is completed. Open the joint cover ASSY, remove the drum unit, and remove the cleaning sheet from the belt unit.
- (9) Mount the drum unit to the machine and close the joint cover ASSY, and the machine returns to the ready state.

Note:

If the joint cover ASSY is not opened fully and closed in the step (5), "Please Wait" is displayed and the machine dose not return to the ready state. In such a case, open the joint cover ASSY fully again and close it. Then the machine returns to the ready state.

2.6 Deep Sleep Function

In addition to the sleep function with the normal specifications, the deep sleep function is prepared to reduce the power consumption.

The deep sleep function is used to stop the operation of the following functions whereas they are available in the normal sleep mode.

- Operation of the fan

<Transition conditions>

The machine goes into the deep sleep function when the user does not operate the machine (from a computer) and no warning such as an error is issued after it goes into the normal sleep mode and the main fan is stopped.

<How to Exit>

The machine comes out of deep sleep when receiving input from an external device like print data from a computer or when a key on the control panel is pressed, joint cover ASSY is opened/closed, or paper is loaded into the manual feed slot.

■ Setting of ON/OFF of the deep sleep function

<Operating procedure>

- (1) Press "Menu" on the LCD in the ready state.
- (2) Press "ALL Settings" on the LCD.
- (3) Press "General Setup" on the LCD.
- (4) Press "Ecology" on the LCD.
- (5) When the "Sleep Time" appears on the LCD, hold down the * key for 5 seconds or longer.
- (6) When "Deep Sleep On Off" appears on the LCD, select the desired setting. When the setting is changed, the machine returns to the "Sleep Time" display.
- (7) Press the **Home** key to return the machine to the ready state.

Note:

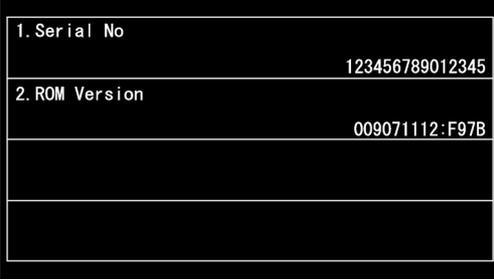
- When no operation is made for 30 seconds during the switching operation, the machine returns to the ready state.
- The initial value of Deep Sleep is set to On.

2.7 ROM Version Display

This function allows ROM version to be displayed.

<Operating procedure>

- (1) Hold down the **Home** key for about 5 seconds while the machine is in the ready state.
The following screen is displayed on the LCD.



1. Serial No	123456789012345
2. ROM Version	009071112:F97B

- (2) Press the **ROM Version**. The following screen is displayed on the LCD.



0047
V009071112:F97B
F0123456789

The main firmware version is shown on the second line, and the panel firmware version on the third line.

- (3) Press the **Cancel** key twice to return the machine to the ready state.

2.8 Demo Print Function

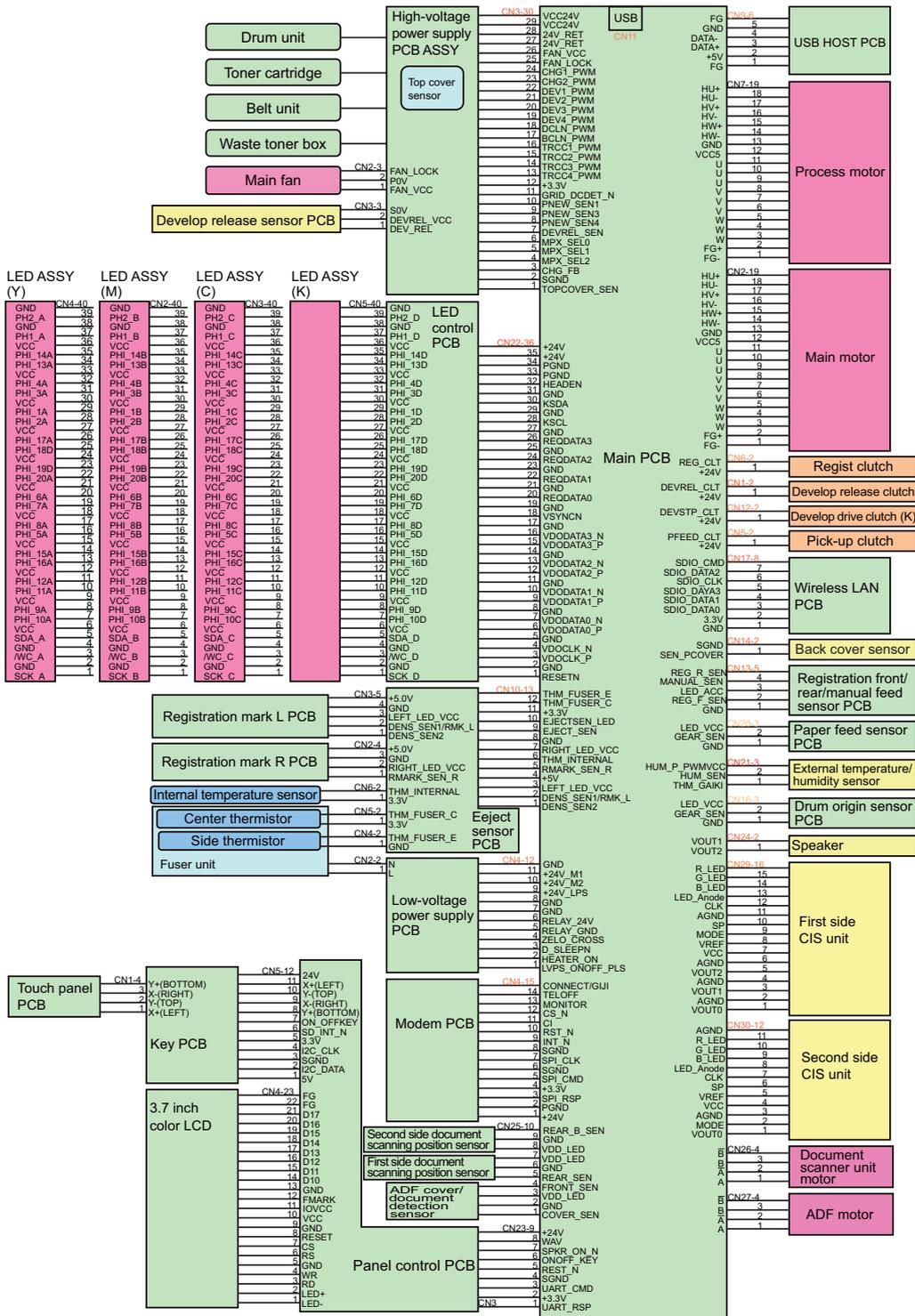
This function allows the demo data stored in the ROM to be printed.

<Operating procedure>

- (1) Hold down the "Menu" key for 2 seconds or longer on the LCD in the ready state.
- (2) "Demo" is displayed on the LCD, and press the **Start** key. Demo printing is started.
- (3) Press the **Home** key to return to the ready state.

CHAPTER 6 WIRING DIAGRAM

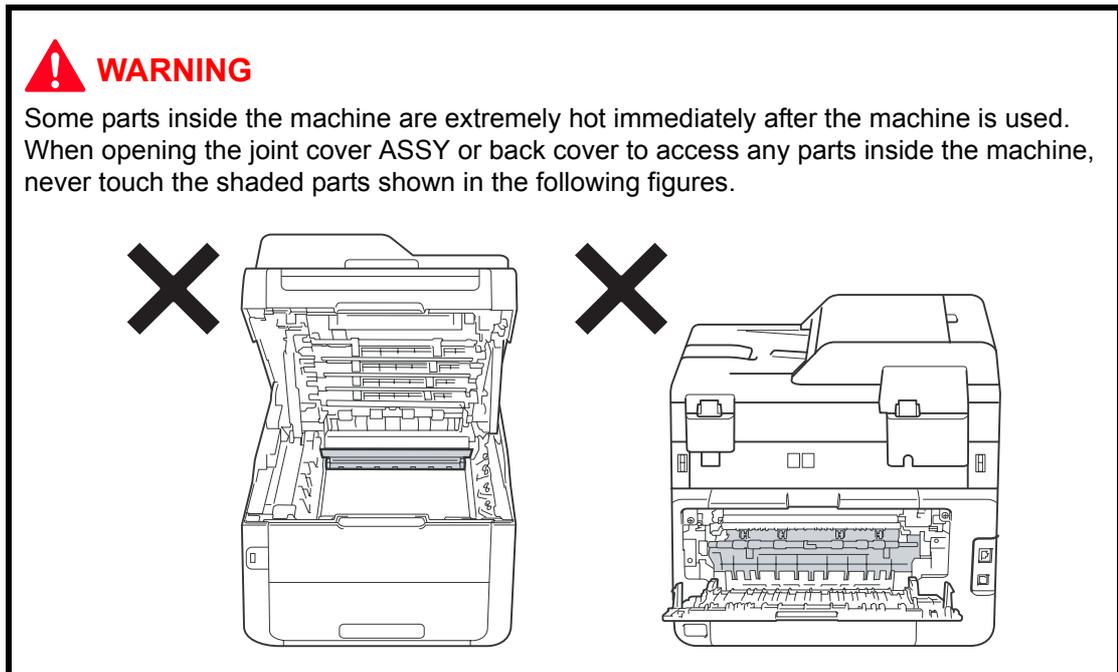
1. WIRING DIAGRAM



CHAPTER 7 PERIODICAL MAINTENANCE

1. PRECAUTIONS

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



Note:

- Be careful not to lose screws, washers, or other parts removed.
- Be sure to apply grease to the gears and applicable positions specified in this chapter.
- When using soldering irons or other heat-generating tools, take care not to accidentally damage parts such as wires, PCBs and covers.
- Static electricity charged in your body may damage electronic parts. When transporting PCBs, be sure to wrap them in conductive sheets.
- When replacing the PCB and all the other related parts, put on a grounding wrist band and perform the job on a static mat. Also take care not to touch the conductor sections on the flat cables or on the wire harness.
- After disconnecting flat cables, check that each cable is not damaged at its end or shortcircuited.
- When connecting flat cables, do not insert them at an angle. After insertion, check that the cables are not at an angle.
- When connecting or disconnecting cable harness, hold the connector body, not the cables. If the connector has a lock, release the connector lock first to release it.
- After a repair, check not only the repaired portion but also handling of harnesses. Also check that other related portions are functioning properly before operational checks.
- Violently closing the joint cover ASSY without mounting the toner cartridge and the drum unit can damage this main body.
- After an assembly, recommend the operation of "dielectric strength voltage check" and "continuity check".
- There must be no damage in the insulation sheet.

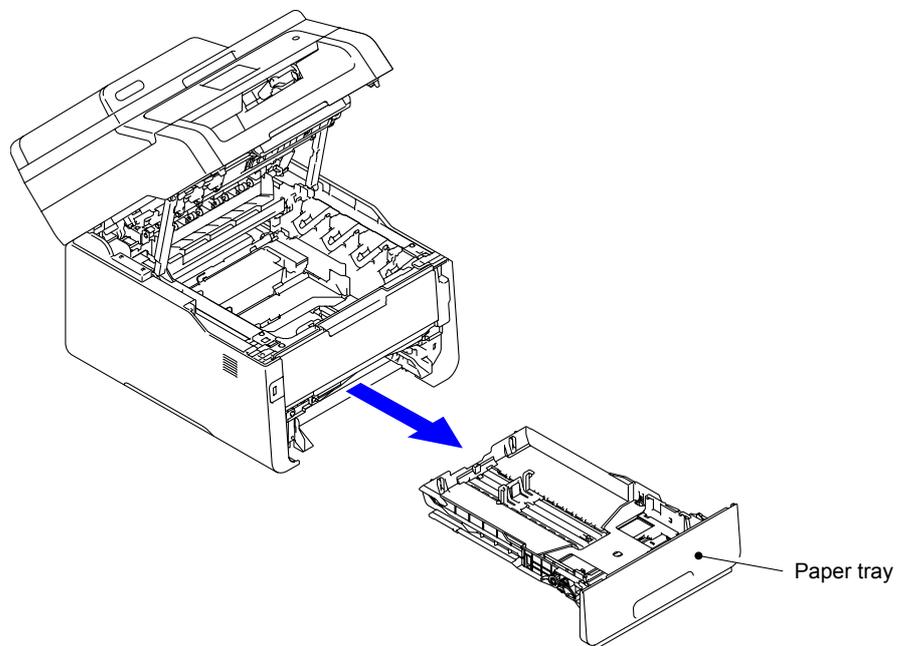
2. PERIODICAL REPLACEMENT PARTS

2.1 Procedures to Replace Periodical Replacement Parts

■ Preparation

Prior to proceeding with the disassembly procedure,

- (1) Unplug
 - the AC cord,
 - the USB cable, if connected,
 - the LAN cable, if connected.
- (2) Remove the Paper tray.



2.1.1 PF Kit 1

- (1) Release the two Hooks of the Separation pad holder ASSY from the Paper tray.
- (2) Remove the two Pins to remove the Separation pad holder ASSY from the Paper tray.

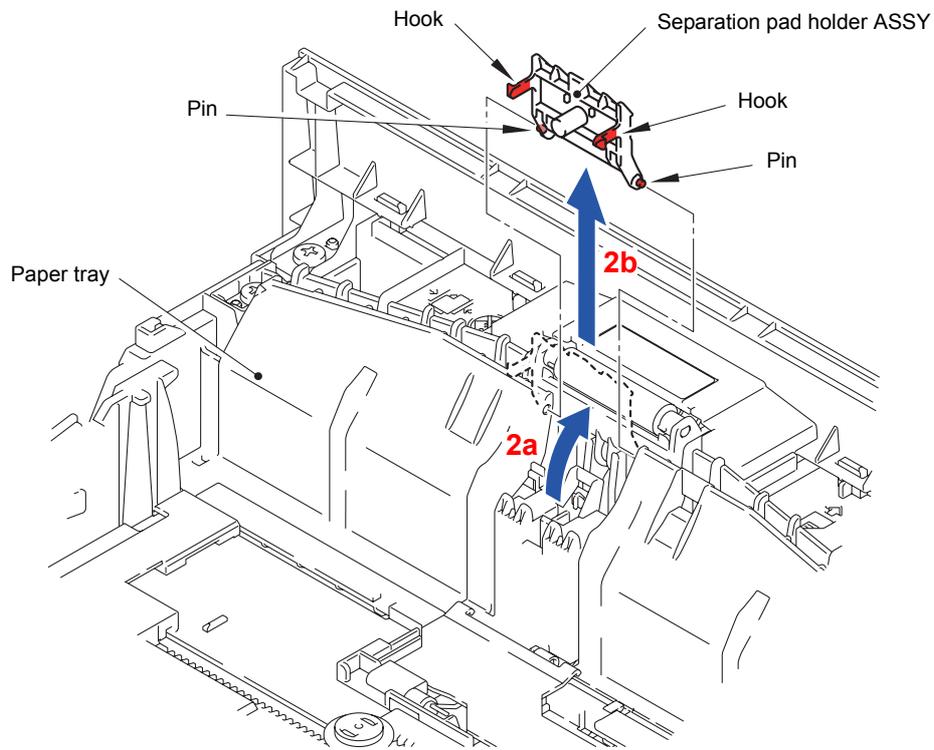


Fig. 7-1

Assembling Note:

Be sure to fit "A" of the Separation pad spring into the Boss of the Paper tray.
Fit the two Pins and two Hooks of the Separation pad holder ASSY into the Paper tray.

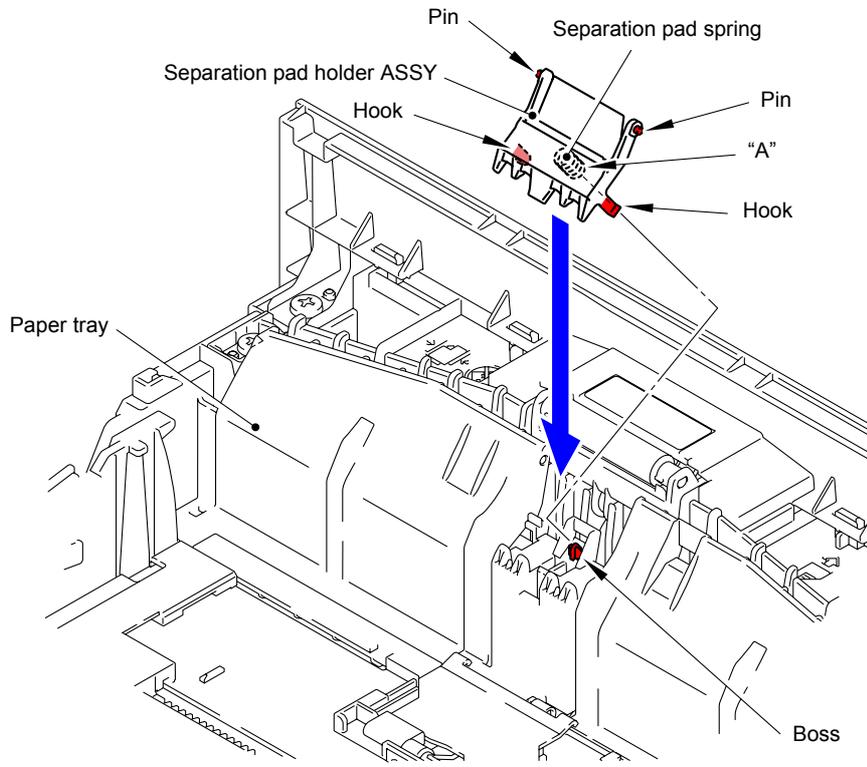


Fig. 7-2

- (3) Remove the Separation pad spring from the Boss of the Separation pad holder ASSY.

Note:

Be careful not to lose the Separation pad spring.

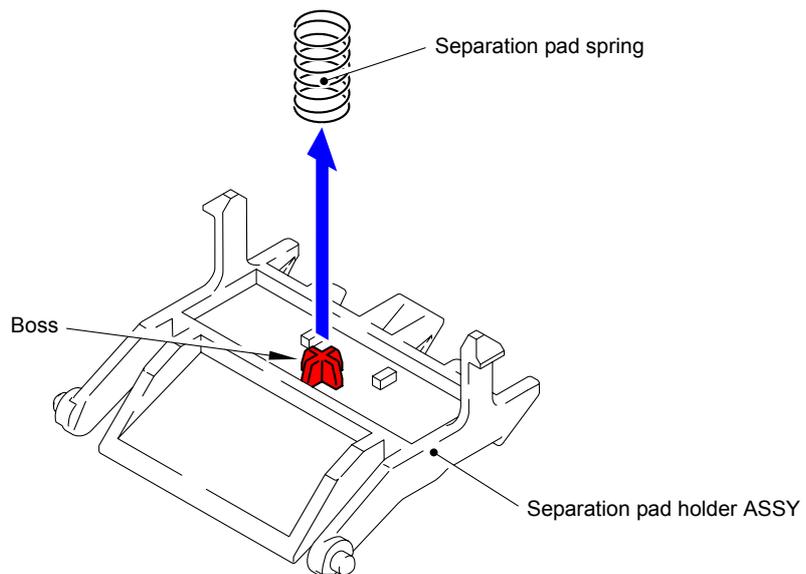


Fig. 7-3

- (4) Push the Lift arm to the back and remove "B" of the Roller holder ASSY from "A" of the Lift arm. Rotate the Roller holder ASSY in the direction of the arrow 4b.

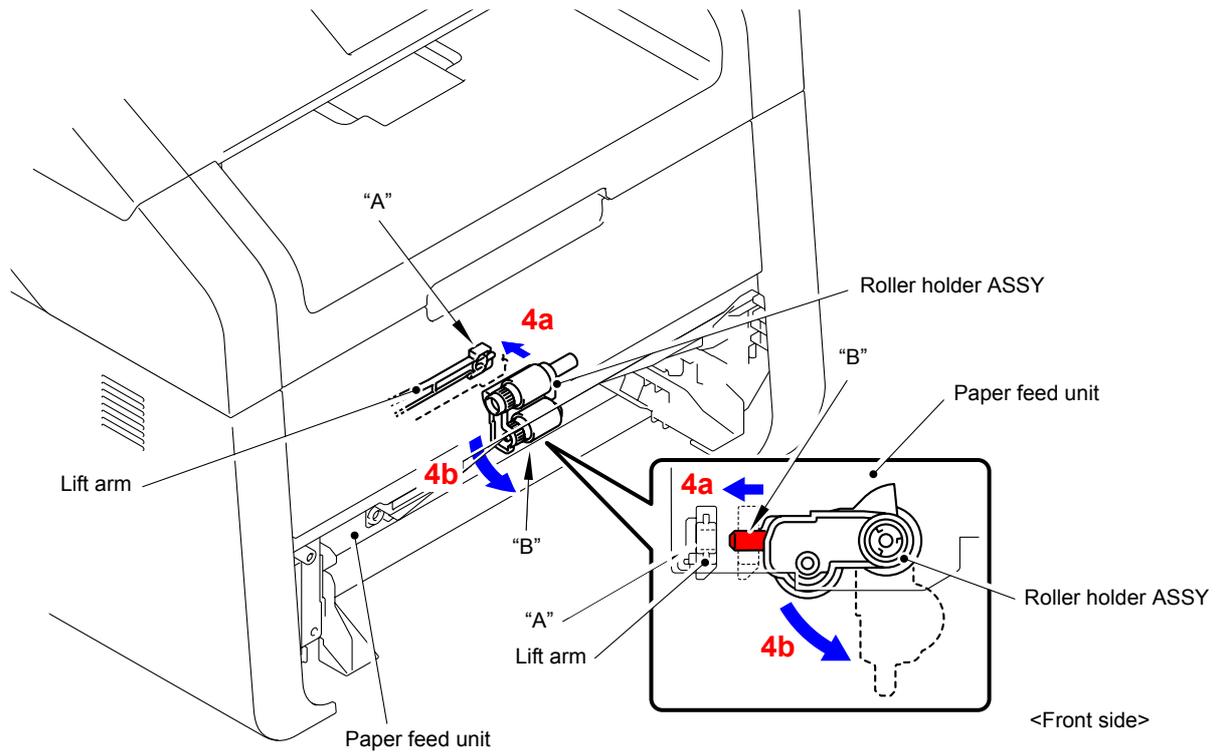


Fig. 7-4

- (5) Slide the Roller holder ASSY in the direction of the arrow 5 to remove it from the "C" of the Paper feed unit.
- (6) Slide the Roller holder ASSY in the direction of the arrow 6a and 6b in this order to remove it from the Paper feed unit.

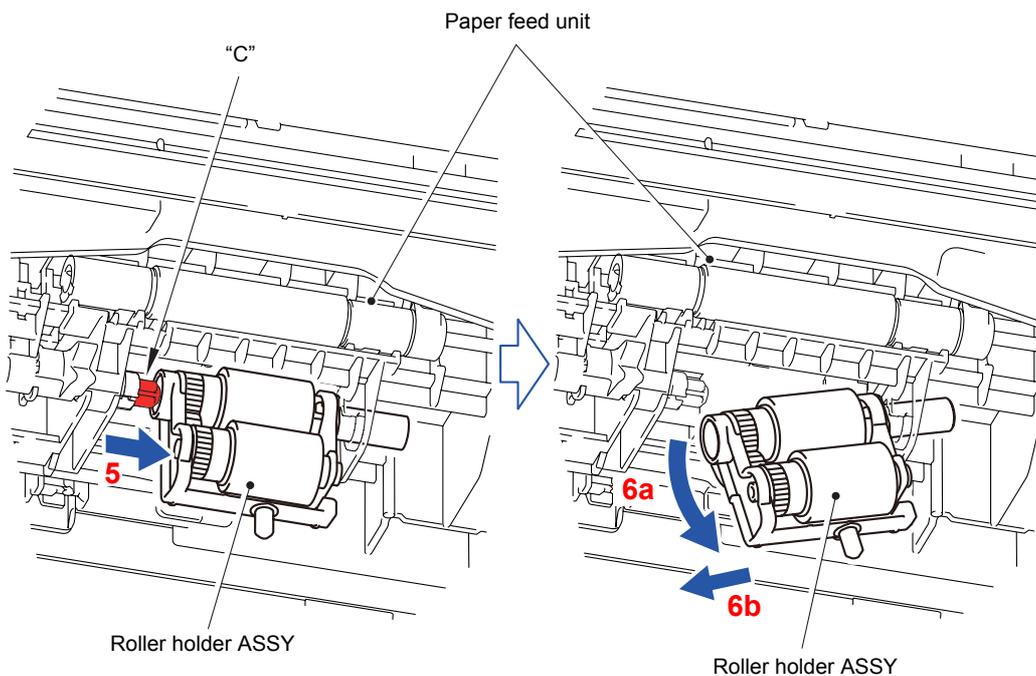


Fig. 7-5

Assembling Note:

Align the Hole of the Paper feed unit to the Shaft of the Roller holder ASSY and insert it into the Hole.

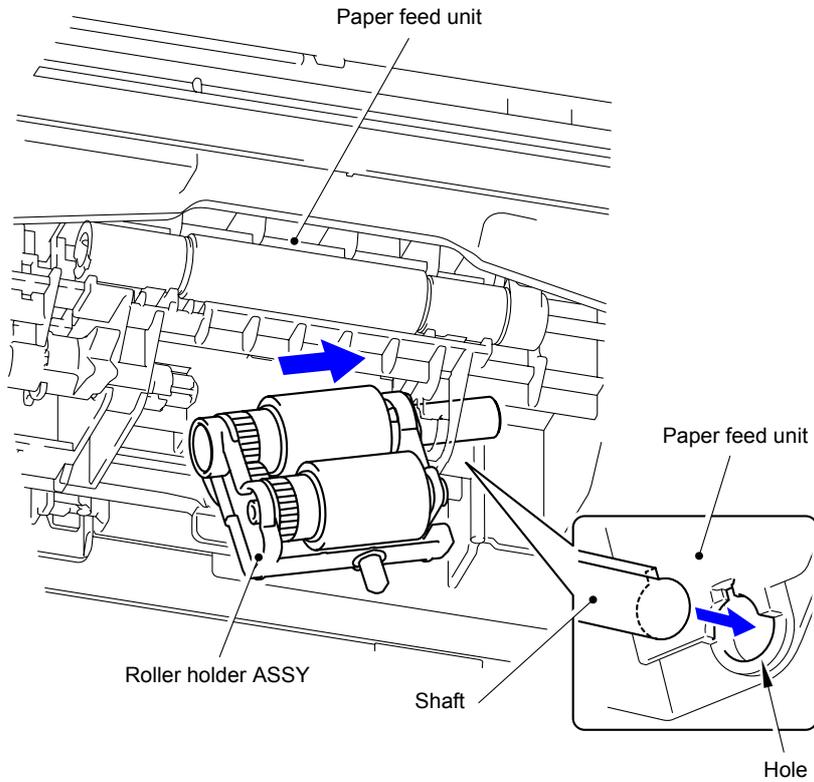


Fig. 7-6

APPENDIX 1 SERIAL NUMBERING SYSTEM

■ Serial number label (1 location)

<How to Read>

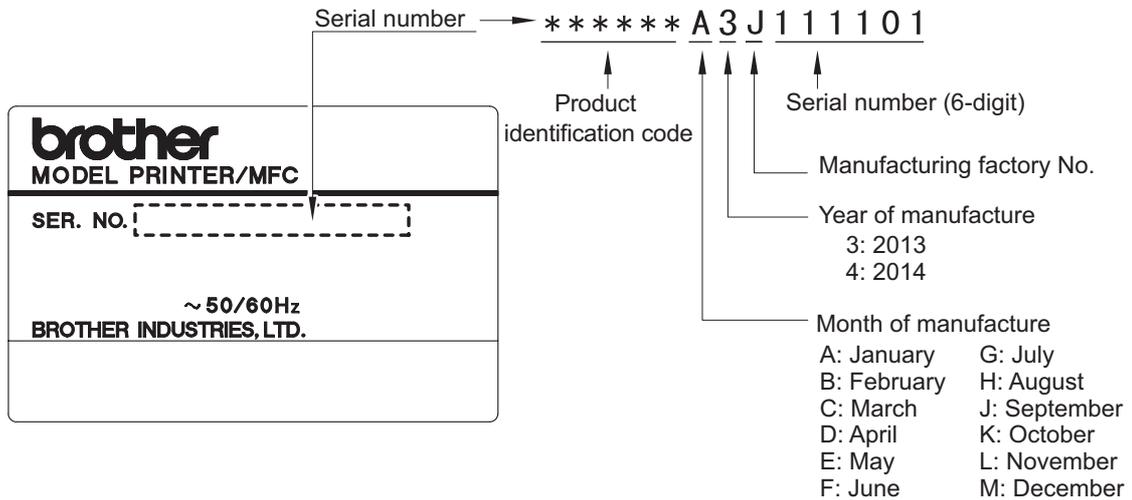


Fig. App 1-1

<Location>

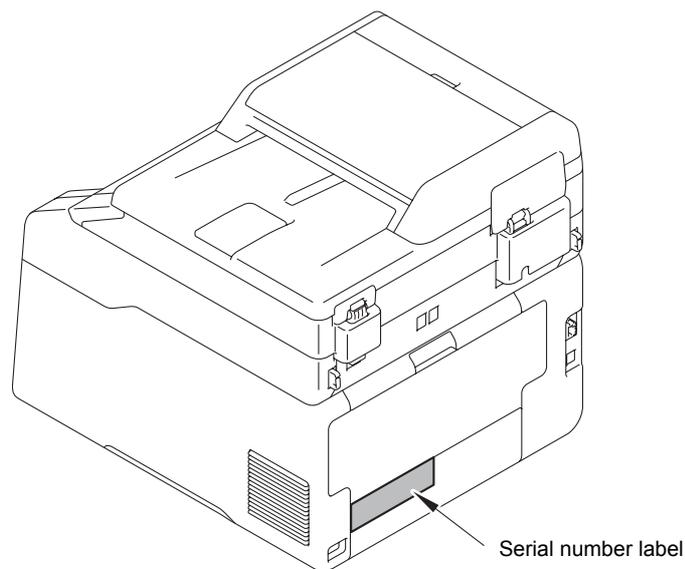


Fig. App 1-2

APPENDIX 2 DELETION OF USER SETTING INFORMATION, ETC.

In this machine, the user setting information is stored in the main PCB. You can delete the user settings information by following the procedure below.

<Operating procedure>

- (1) Press "Menu" on the LCD in the ready state.
- (2) Press "ALL Settings" on the LCD.
- (3) Press "Initial Setup" on the LCD.
- (4) Press "Reset" on the LCD.
- (5) Press "ALL Settings" on the LCD.
- (6) The message "Reset All Settings? Yes No" displayed on the LCD. Press "Yes".
- (7) The message "Reboot OK? Press [Yes] for 2 seconds to confirm." is displayed on the LCD. Hold down "Yes" for two seconds or longer to clear the user settings and return the machine to the ready state.

APPENDIX 3 INSTALLING THE MAINTENANCE PRINTER DRIVER

To identify multiple terminals connected to the computer via USB, the computer needs to configure the corresponding number of virtual USB devices using a driver or software. If you connect a multiple number of machines to your computer, the same number of virtual USB devices will be automatically configured on your computer.

To prevent an unlimited number of virtual USB devices from being configured, use the unique driver installation procedure described below to enable your computer to identify multiple terminals via one single virtual USB device.

<Procedures>

- (1) Check that the power switch of the machine is OFF. If the machine is connected to a computer, disconnect the USB cable.
- (2) Turn ON the power of the computer.
- (3) Enter the maintenance mode.
(Refer to "1.1 How to Enter the Maintenance Mode" in Chapter 5.)
- (4) Double-click "maintenance.exe" of the maintenance printer driver stored in the temporary folder to execute it.
- (5) The Device Driver Installation Wizard start up window appears. Click **Next** button to proceed.
- (6) The WHQL alert window appears three times, but click **Continue Anyway** button to proceed.
- (7) The Device Driver Installation Wizard completion window appears, click **Finish** button.
- (8) Connect the machine to your computer using the USB cable.
- (9) The Found New Hardware Wizard start up window appears, select "Install the software automatically" and click **Next** button to proceed.
- (10) As the WHQL alert window appears, click **Continue Anyway** button to proceed.
- (11) When the printer driver is successfully installed, the Found New Hardware Wizard completion window appears. Click **Finish** button.
- (12) Repeat the steps from (9) to (11) three times to complete its installation.
- (13) Disconnect the USB cable.
- (14) Press the **9** key twice. The machine exits from the maintenance mode and returns to the ready state.