



Inkjet DCP/MFC SERVICE MANUAL

MODELS: DCP375CW/395CN
MFC255CW/295CN

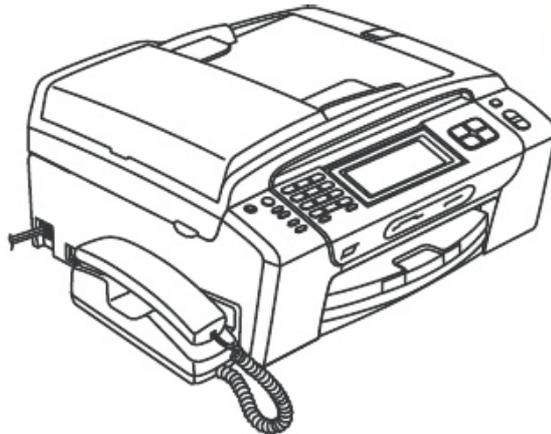
MFC495CW/795CW
DCPJ125/J315W

DCPJ515W/J715W

MFCJ220/J265W/J270W

MFCJ410/J410W/J415W

MFCJ615W/J630W
DCPJ140W



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

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Preface

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

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

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

Model	DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
RAM	32 MB	40 MB	32 MB		40 MB	48 MB
LCD	Monochrome LCD (16 charas x 1 line)	3.3-inch wide color	Monochrome LCD (16 charas x 1 line)		3.3-inch wide color	5.0-inch wide color
Touch panel	---	---	---	---	---	√
Wired LAN	√	√	---	√	√	√
Wireless LAN (WLAN PCB)	√	---	√	---	√	√
Handset (Hook switch and its PCB)	---	---	---	---	---	√
Speaker	---	---	√	√	√	√
Backup battery TAD (Microphone)	---	---	---	---	---	√
PhotoCapture Center	√ (w/o CF)	√	√ (w/o CF)		√	√
PictBridge/ USB flash memory drive	---	√	---	√	√	√
ADF	---	---	---	√	√	√
Photo tray	---	√	---	---	√	√
FAX	---	---	√	√	√	√

Model	DCPJ125	DCPJ315W	DCPJ515CW	DCPJ715CW	DCPJ140W
RAM	32 MB		40 MB		32 MB
LCD	1.9-inch STN color LCD		3.3-inch TFT color LCD		Monochrome LCD (16 charas x 1 line)
Touch panel	—	—	—	—	—
Wired LAN	—	—	—	√	—
Wireless LAN (WLAN PCB)	—	√	√	√	√
Handset (Hook switch and its PCB)	—	—	—	—	—
Speaker	—	—	—	—	—
Backup battery	—	—	—	—	—
TAD (Microphone)	—	—	—	—	—
PhotoCapture Center	√	√	√	√	—
PictBridge/ USB flash memory drive	—	—	—	√	—
ADF	—	—	—	√	—
Photo tray	—	—	√	√	—
FAX	—	—	—	—	—

Model	MFCJ220	MFCJ265W	MFCJ270W	MFCJ410	MFCJ410W	MFCJ415W	MFCJ615W	MFCJ630W
RAM	32 MB						40 MB	
LCD	1.9-inch STN color LCD						3.3-inch TFT color LCD	
Touch panel	-	-	-	-	-	-	-	-
Wired LAN	-	-	-	-	-	-	√	√
Wireless LAN (WLAN PCB)	-	√	√	-	√	√	√	√
Handset (Hook switch and its PCB)	-	-	-	-	-	-	-	-
Speaker	√	√	√	√	√	√	√	√
Backup battery	-	-	-	-	-	-	-	-
TAD (Microphone)	-	-	-	-	-	-	-	-
PhotoCapture Center	√	√	√	√	√	√	√	√
PictBridge/USB flash memory drive	-	-	-	-	-	-	√	√
ADF	-	-	-	√	√	√	√	√
Photo tray	-	-	-	-	-	-	√	√
FAX	√	√	√	√	√	√	√	√

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

How this manual is organized

This manual is made up of nine chapters and appendices.

CHAPTER 1 PARTS NAMES AND FUNCTIONS

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

CHAPTER 2 SPECIFICATIONS

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

CHAPTER 3 THEORY OF OPERATION

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

CHAPTER 4 ERROR INDICATION AND TROUBLESHOOTING

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

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

CHAPTER 5 HANDLING DATA HELD IN THE MACHINE PRIOR TO REPAIR

Describes how to handle data held in the machine to be repaired.

At the user site, if the machine cannot print FAX data received and left in the machine due to the printing mechanism defective, the service personnel should instruct the end user to follow the transfer procedure given in this chapter to transfer the FAX data to another machine before sending the machine for repair.

At the service site, the service personnel should back up the machine information and user setting information held in the machine into an external memory for restoration after repair, using the backup procedure given in this chapter.

CHAPTER 6 DISASSEMBLY/REASSEMBLY AND LUBRICATION

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

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

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

CHAPTER 7 ADJUSTMENTS AND UPDATING OF SETTINGS, REQUIRED AFTER PARTS REPLACEMENT

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

CHAPTER 8 CLEANING

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

CHAPTER 9 MAINTENANCE MODE

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

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

Appendix 1 Reading Labels

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

Appendix 2 Firmware Installation

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

Appendix 3 EEPROM Customizing Codes

Provides instructions on how to set up the EEPROM customizing codes for the various preferences exclusively designed for each destination. The specified customizing code is stored in the EEPROM mounted on the main PCB. If the main PCB is replaced, therefore, you need to set up the proper customizing code with the machine in the maintenance mode.

Customizing codes customize firmware for individual models, enabling the common firmware to be used for various models. A list of EEPROM customizing codes comes with the firmware data provided by Brother Industries.

Appendix 4 Firmware Switches (WSW)

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

Appendix 5 Wiring Diagrams

Provides the wiring diagrams that help you understand the connections between PCBs.

Appendix 6 Circuit Diagrams

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

Appendix 7 Deletion of User Setting Information

Provides instructions on how to delete user setting info recorded in the machine.

SAFETY PRECAUTIONS

Symbols used in the documentation

-  Warnings tell you what to do to prevent possible personal injury.
-  Cautions specify procedures you must follow or avoid to prevent possible minor or severe injuries.

-  Electrical Hazard icons alert you to possible electrical shock.
-  Important symbols specify procedures you must follow or avoid to prevent possible damage to the machine or other objects.

Choosing a location

Put your machine on a flat, stable surface that is free of vibration and shocks, such as a desk. Put the machine near a telephone wall jack and a standard AC power outlet. Choose a location where the temperature remains between 50° F and 95° F (10° C and 35° C).

WARNING

DO NOT put the machine near heaters, air conditioners, refrigerators, medical equipment, chemicals or water.

DO NOT connect your machine to electrical sockets on the same circuit as large appliances or other equipment that might disrupt the power supply.

CAUTION

- Avoid placing your machine in a high-traffic area.
- Avoid placing your machine on a carpet.
- DO NOT expose the machine to direct sunlight, excessive heat, moisture, or dust.
- DO NOT connect your machine to electrical outlets controlled by wall switches or automatic timers.
- Disruption of power can wipe out information in the machine's memory.
- Avoid interference sources, such as speakers or the base units of non-Brother cordless telephones.



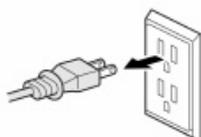
To use the machine safely

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

WARNING



There are high voltage electrodes inside the machine. Before you clean the inside of the machine, make sure you have unplugged the telephone line cord first and then the power cord from the AC power outlet. Doing this will prevent an electrical shock.



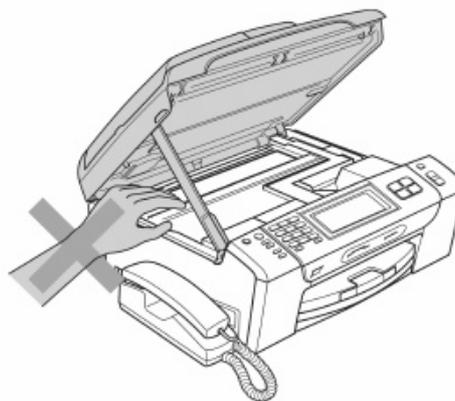
DO NOT handle the plug with wet hands. Doing this might cause an electrical shock.



DO NOT pull on the middle of the AC power cord. Doing this might cause an electrical shock.

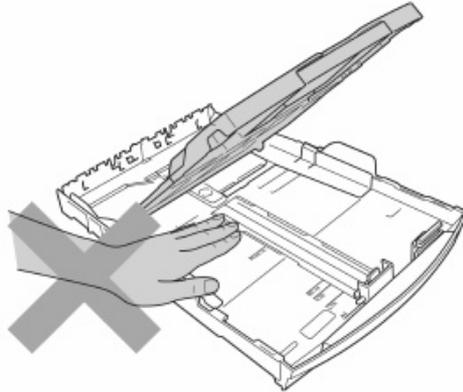


DO NOT put your hands on the edge of the machine under the document cover or the scanner cover. Doing this may cause injury.

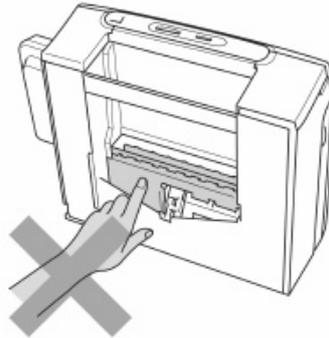
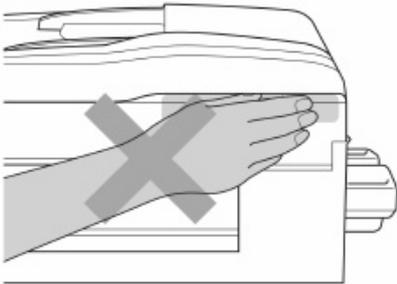




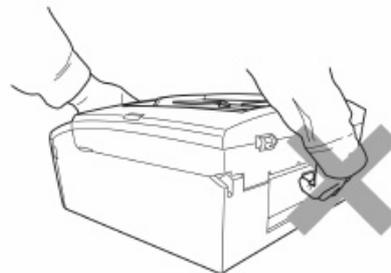
DO NOT put your hands on the edge of the paper tray under the paper tray cover. Doing this may cause injury.



DO NOT touch the area shaded in the illustration. Doing this may cause injury.



When moving the machine you must lift it from the base, by placing a hand at each side of the unit as shown in the illustration. **DO NOT** carry the machine by holding the scanner cover or Jam Clear Cover.





DO NOT use flammable substances, any type of spray, liquid or aerosol cleaners to clean the inside or outside of the machine. Doing this may cause a fire or electrical shock.



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



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



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



This product must be installed near an AC power outlet that is easily accessible. In case of an emergency, you must unplug the power cord from the AC power outlet to shut off the power completely.



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, contact a qualified electrician.



Always make sure the plug is fully inserted.



DO NOT use the machine if the power cord is frayed or damaged, doing so may cause a fire.



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



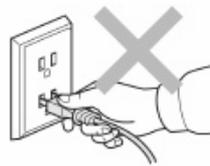
When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to people, including the following:

- 1 DO NOT use this product near water, for example, near a bath tub, wash bowl, kitchen sink or washing machine, in a wet basement or near a swimming pool.
 - 2 Avoid using this product during an electrical storm. There may be a remote risk of electric shock from lightning.
 - 3 DO NOT use this product to report a gas leak in the vicinity of the leak.
 - 4 DO NOT dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
 - 5 Use only the power cord provided with the machine.
-

CAUTION

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

DO NOT touch the Touchscreen when the machine is plugged in the power socket or turned on. Doing this may cause a machine error.



Important safety instructions

- 1 Read all of these instructions.
- 2 Save them for later reference.
- 3 Follow all warnings and instructions marked on the product.
- 4 DO NOT use this product near water.
- 5 DO NOT place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
- 6 Slots and openings in the cabinet and the back or bottom are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heater. This product should never be placed in a built-in installation unless proper ventilation is provided.
- 7 DO NOT allow anything to rest on the power cord. DO NOT place this product where people can walk on the cord.
- 8 If an extension cord is used with this product, make sure that the total ampere ratings of the products plugged into the extension cord do not exceed the extension cord ampere rating. Also, make sure that the total of all products plugged into the AC power outlet does not exceed 15 amperes (USA only).
- 9 DO NOT place anything in front of the machine that will block received faxes. DO NOT place anything in the path of received faxes.
- 10 Wait until pages have exited the machine before picking them up.
- 11 To reduce the risk of fire, electric shock and injury to people, note the following:
 - DO NOT use this product near appliances that use water, a swimming pool, or in a wet basement.
 - DO NOT use the machine during an electrical storm (there is the remote possibility of an electrical shock) or to report a gas leak in the vicinity of the leak.
- 12 Caution - To reduce the risk of fire, use only No.26 AWG or larger telecommunication line cord.



WARNING

For protection against the risk of electrical shock, always disconnect all cables from the wall outlet before servicing, modifying or installing the equipment.

This equipment may not be used on coin service lines provided by the telephone company or connected to party lines.

! CAUTION

To maintain compliance with FCC's RF exposure guidelines, use only the supplied antenna. Unauthorized antenna, modification, or attachments could damage the transmitter and may violate FCC regulations.

IMPORTANT

Changes or modifications not expressly approved by Brother Industries, Ltd. could void the user's authority to operate the equipment.

LAN connection

! CAUTION

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

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CHAPTER 1

PARTS NAMES AND FUNCTIONS

CHAPTER 1 PARTS NAMES AND FUNCTIONS

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

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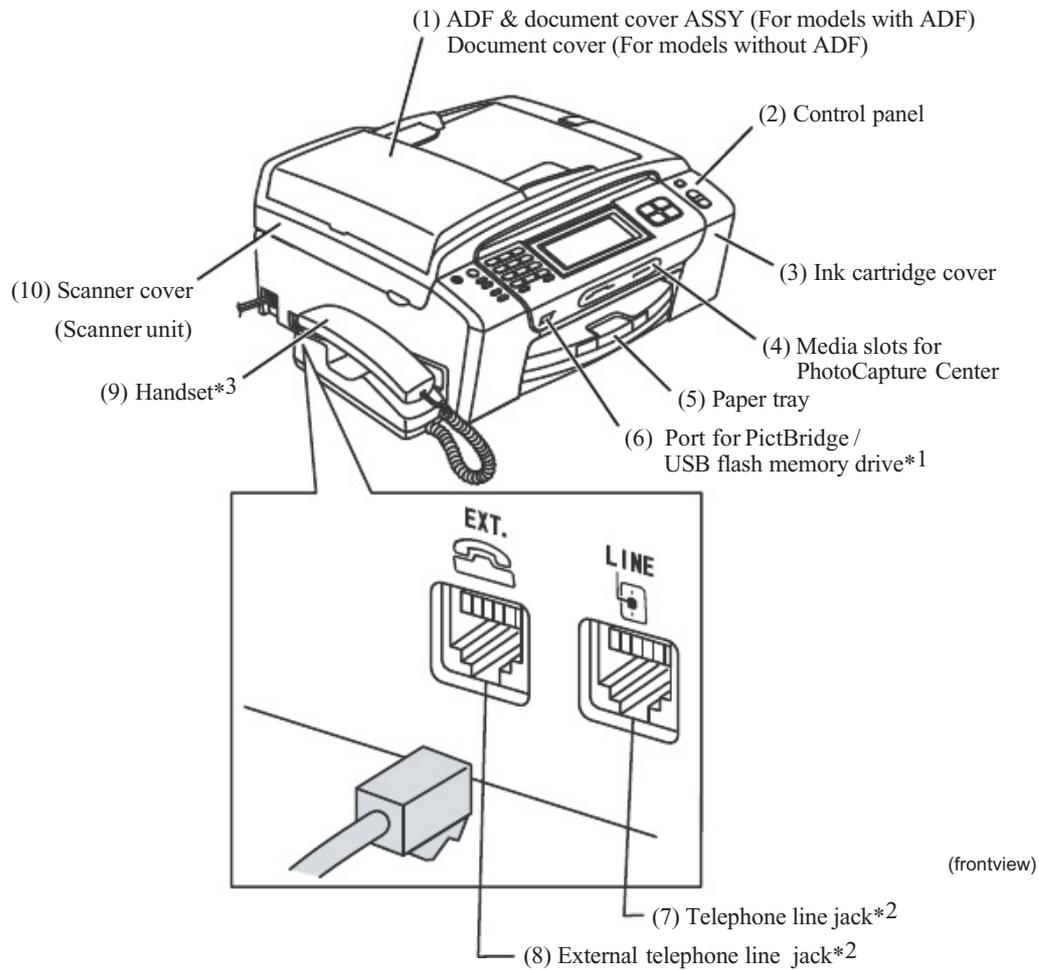
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1.1 OUTLINE

■ Machine

The illustrations in this section are based on the MFC795CW.

Front view

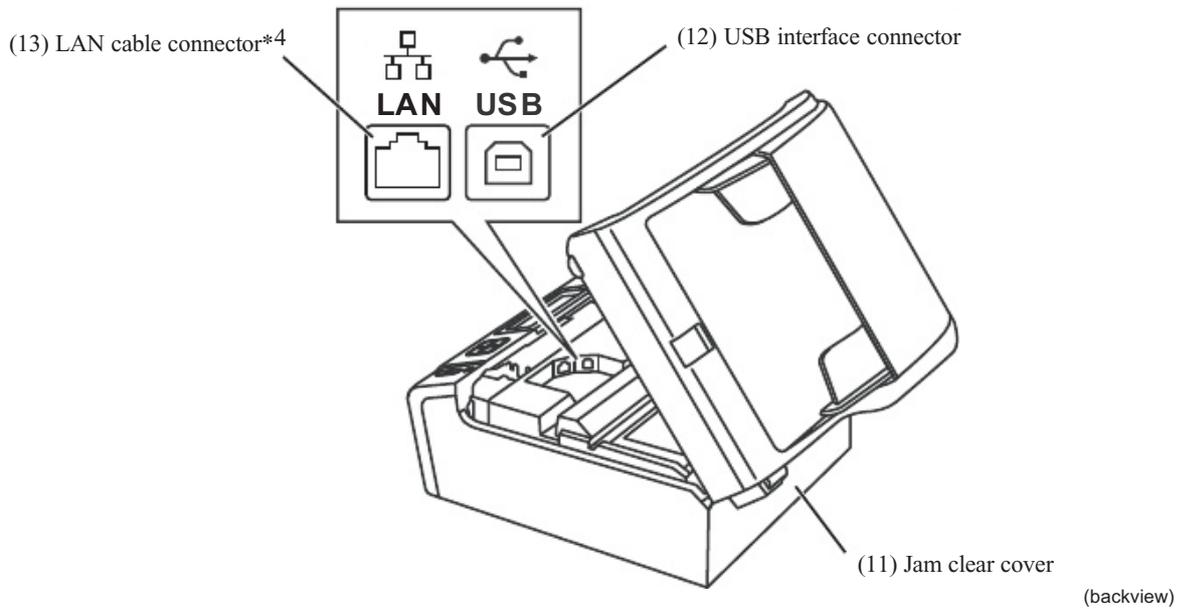


*1 For models supporting PictBridge/USB flash memory drive

*2 For MFC only

*3 For models with handset

Back view



No.	Name	Description
(1)	ADF & document cover ASSY (For models with ADF) Document cover (For models without ADF)	ADF (Only for models with ADF): Load documents (originals) here. Documents will be fed into the machine, page by page. Document cover: Open to place the document (original) on the scanner glass.
(2)	Control panel	Use the keys to operate the machine. The liquid crystal display (LCD) shows the machine operation status.
(3)	Ink cartridge cover	Open to replace ink cartridges.
(4)	Media slots for PhotoCapture Center*1	Insert a memory card here.
(5)	Paper tray	Load paper here. Paper will be fed into the machine, sheet by sheet.
(6)	Port for PictBridge / USB flash memory drive*2	Connect a digital camera (with PictBridge) to this connector using the USB cable. Insert a USB flash memory drive here.
(7)	Telephone line jack*3	Plug in the modular plug on the telephone line here.
(8)	External telephone line jack*3	Plug in the modular plug on the external telephone line here.
(9)	Handset*4	Use for telephone conversations.
(10)	Scanner cover (Scanner unit)	Open to remove jammed paper.
(11)	Jam clear cover	Open to remove paper jammed inside the machine.
(12)	USB interface connector	Connect the USB cable here.
(13)	LAN cable connector*5	Connect the LAN cable here.

*1 For models with media slots

*2 For models supporting PictBridge/USB flash memory drive

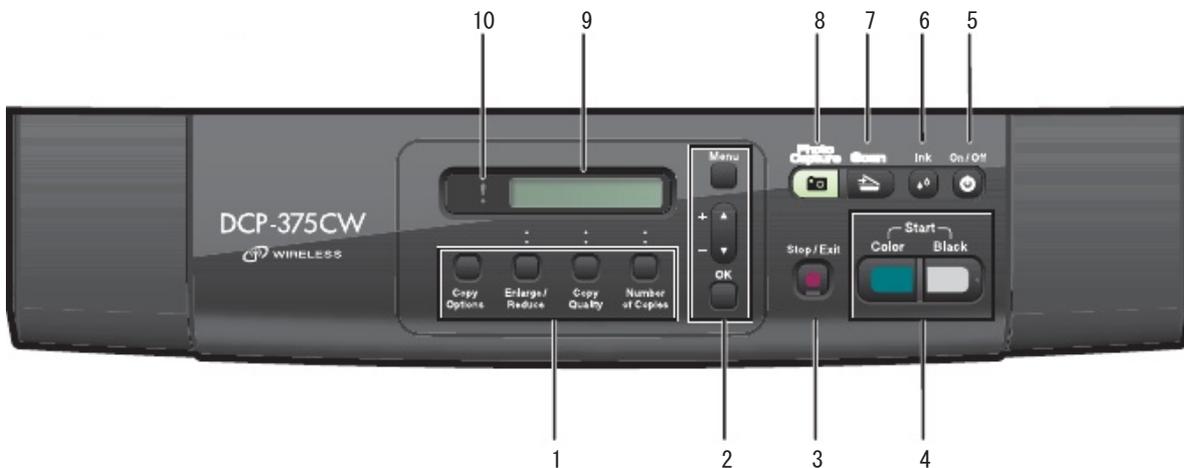
*3 For MFC only

*4 For models with handset

*5 For wired LAN-enabled models

1.2 CONTROL PANEL

DCP375CW



1 Copy keys:

Lets you temporarily change the copy settings when in copy mode.

■ Copy Options

You can quickly and easily select temporary settings for copying.

■ Enlarge/Reduce

Lets you enlarge or reduce copies depending on the ratio you select.

■ Copy Quality

Use this key to temporarily change the quality of your copies.

■ Number of Copies

Use this key to make multiple copies.

2 Menu keys:

■ Menu

Lets you access the Menu to program your settings in the machine.

■ +▲ or -▼

Press to scroll through the menus and options.

■ OK

Lets you choose and store your settings in the machine.

3 Stop/Exit

Stops an operation or exits from a menu.

4 Start keys:

■ Black Start

Lets you start making copies in black & white. Also lets you start a scanning operation (in color or black & white, depending on the scanning setting in the ControlCenter software).

■ Color Start

Lets you start making copies in full color. Also lets you start a scanning operation (in color or black & white, depending on the scanning setting in the ControlCenter software).

5 On/Off

You can turn the machine on and off.

If you turn the machine off, it will still periodically clean the print head to maintain print quality. To maintain print quality, prolong print head life, and provide the best ink cartridge economy, you should keep your machine connected to the power at all times.

6 Ink

Lets you clean the print head, check the print quality, and check the available ink volume.

7 Scan

Lets you access Scan mode.

8  **Photo Capture**

Lets you access the PhotoCapture Center[®] mode.

9 **LCD (liquid crystal display)**

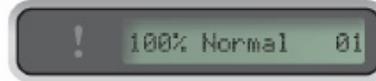
Displays messages on the screen to help you set up and use your machine.

10  **Warning LED**

Blinks in orange when the LCD displays an error or an important status message.

Warning LED indications

The Status LED (Light Emitting Diode) is a light that shows the DCP status. The LCD shows the current machine status when the machine is idle.



LED	DCP status	Description
 Off	Ready	The DCP is ready for use.
 Orange	Cover Open	The cover is open. Close the cover.
	Cannot Print	Replace the ink cartridge with a new one.
	Paper Error	Put paper in the tray or clear the paper jam. Check the LCD message.
	Other Messages	Check the LCD message.

DCP395CN



1 LCD (liquid crystal display)

Displays messages on the screen to help you set up and use your machine. Also, you can adjust the angle of the LCD screen by lifting it.

2 Number of Copies

Use this key to make multiple copies.

3 Menu keys:

- ◀ or ▶
Press to scroll backward or forward to a menu selection. Also, press to choose options.
- ▲ or ▼
Press to scroll through the menus and options.
- **Clear/Back**
Press to go back to the previous menu level.
- **Menu**
Lets you access the main menu to program the machine.
- **OK**
Lets you choose a setting.

4 Start keys:

-  **Color Start**
Lets you start making copies in full color. Also lets you start a scanning operation (in color or black & white, depending on the scanning setting in the ControlCenter software).
-  **Black Start**
Lets you start making copies in black & white. Also lets you start a scanning operation (in color or black & white, depending on the scanning setting in the ControlCenter software).

5 Stop/Exit

Stops an operation or exits from a menu.

6 On/Off

You can turn the machine on and off. If you turn the machine off, it will still periodically clean the print head to maintain print quality. To prolong print head life, provide the best ink cartridge economy, and maintain print quality, you should keep your machine connected to the power at all times.

7 Ink

Lets you clean the print head, check the print quality, and check the available ink volume.

8 Mode keys:

-  **Scan**

Lets you access Scan mode.

-  **Photo Capture**

Lets you access PhotoCapture Center[®]™ mode.

9 Warning LED

Turns orange and blinks when the LCD displays an error or an important status message.



1 Fax and telephone keys:

■ **Redial/Pause**

Redials the last number called. It also inserts a pause when programming quick dial numbers.

■ **Hook**

Press before dialing if you want to make sure a fax machine will answer, and then press **Black Start** or **Color Start**.

Also, press this key after picking up the handset of the external telephone during the F/T pseudo/double-ring.

2 Dial Pad

Use these keys to dial telephone and fax numbers and as a keyboard for entering information into the machine.

(Canada only) The # key lets you temporarily switch the dialing mode during a telephone call from Pulse to Tone.

3 Mode keys:

■  **Fax**

Lets you access Fax mode.

■  **Scan**

Lets you access Scan mode.

■  **Copy**

Lets you access Copy mode.

■  **Photo Capture**

Lets you access PhotoCapture Center® mode.

4 Menu keys:

■ **Menu**

Lets you access the main menu to program the machine.

■ **Speed Dial key**



Press to store Speed Dial and Group numbers in the machine's memory.

Lets you store, look up, and dial numbers in the memory.

■ **Volume keys**



While the machine is idle, you can press these keys to adjust the ring volume.

■ **◀**

Press to scroll backward to a menu selection.

■ **▲ or ▼**

Press to scroll through the menus and options.

■ **Clear/Back**

Press to cancel the current setting.

■ **OK**

Lets you choose a setting.

5 Start keys:

■  **Color Start**

Lets you start sending faxes or making copies in full color. Also lets you start a scanning operation (in color or black & white, depending on the scanning setting in the ControlCenter software).

■  **Black Start**

Lets you start sending faxes or making copies in black & white. Also lets you start a scanning operation (in color or black & white, depending on the scanning setting in the ControlCenter software).

6  **Stop/Exit**

Stops an operation or exits the menu.

7 Copy Options

Lets you temporarily change the copy settings when in copy mode.

8 LCD (liquid crystal display)

Displays messages on the screen to help you set up and use your machine.

9 On/Off

You can turn the machine on and off.

If you turn the machine off, it will still periodically clean the print head to maintain print quality. To maintain print quality, prolong print head life, and provide the best ink cartridge economy, you should keep your machine connected to the power at all times.

10 Fax Resolution

Lets you temporarily change the resolution when sending a fax.

MFC495CW



1 Fax and telephone keys:

■ Redial/Pause

Redials the last 30 numbers called. It also inserts a pause when programming quick dial numbers.

■ Hook

Press before dialing if you want to make sure a fax machine will answer, and then press **Black Start** or **Color Start**.

Also, press this key after picking up the handset of the external telephone during the F/T pseudo/double-ring.

2 Dial Pad

Use these keys to dial telephone and fax numbers and as a keyboard for entering information into the machine.

(Canada only) The # key lets you temporarily switch the dialing mode during a telephone call from Pulse to Tone.

3 Mode keys:

■  Fax

Lets you access Fax mode.

■  Scan

Lets you access Scan mode.

■  Copy

Lets you access Copy mode.

■  Photo Capture

Lets you access PhotoCapture Center[®] mode.

4 Menu keys:

■ Volume keys



While the machine is idle, you can press these keys to adjust the ring volume.

■ Speed Dial key



Press to store Speed Dial and Group numbers in the machine's memory.

Lets you store, look up, and dial numbers that are stored in the memory.

■ < or >

Press to scroll backward or forward to a menu selection.

Also, press to choose options.

- ▲ or ▼
Press to scroll through the menus and options.
- **Menu**
Access the main menu.
- **Clear/Back**
Press to delete characters or to go back to the previous menu level.
- **OK**
Lets you choose a setting.

5 Start keys:

-  **Color Start**
Lets you start sending faxes or making copies in full color. Also lets you start a scanning operation (in color or black & white, depending on the scanning setting in the ControlCenter software).
-  **Black Start**
Lets you start sending faxes or making copies in black & white. Also lets you start a scanning operation (in color or black & white depending on the scanning setting in the ControlCenter software).

- 6  **Stop/Exit**
Stops an operation or exits the menu.

- 7 **Ink**
Lets you clean the print head, check the print quality, and check the available ink volume.

- 8 **LCD (liquid crystal display)**
Displays messages on the screen to help you set up and use your machine.
Also, you can adjust the angle of the LCD screen by lifting it.

- 9 **On/Off**
You can turn the machine on and off.
If you turn the machine off, it will still periodically clean the print head to maintain print quality. To prolong print head life, provide the best ink cartridge economy, and maintain print quality, you should keep your machine connected to the power at all times.

MFC795CW



1 On/Off

You can turn the machine on or off. If you turn the machine off, it will still periodically clean the print head to maintain print quality. To maintain print quality, prolong print head life, and provide the best ink cartridge economy, you should keep your machine connected to the power at all times.

2 Message Center keys:

Turns the Message Center on or off.

3 Fax and telephone keys:

- **Redial**
Redials the last 30 numbers called.
- **Pause**
Inserts a pause when dialing numbers.
- **Hold**
Lets you place telephone calls on hold.
- **Speaker Phone**
Turns the speaker phone on or off.

4 Dial Pad

Use these keys to dial telephone and fax numbers and as a keyboard for entering information into the machine. This function transfers to the touchscreen when you store quick dial numbers.

(Canada only) The # key lets you temporarily switch the dialing mode during a telephone call from Pulse to Tone.

5 LCD (liquid crystal display)

This is a Touchscreen LCD. You can access the menus and options by pressing buttons displayed on the screen.

Also, you can adjust the angle of the display by lifting it.

6 Mode keys:

- **Fax**
Lets you access Fax mode.
- **Scan**
Lets you access Scan mode.
- **Copy**
Lets you access Copy mode.
- **Photo Capture**
Lets you access PhotoCapture Center[®]™ mode.

7 Microphone

Picks up your voice when you speak to another party using **Speaker Phone**.

8 Stop/Exit

Stops an operation or exits from a menu.

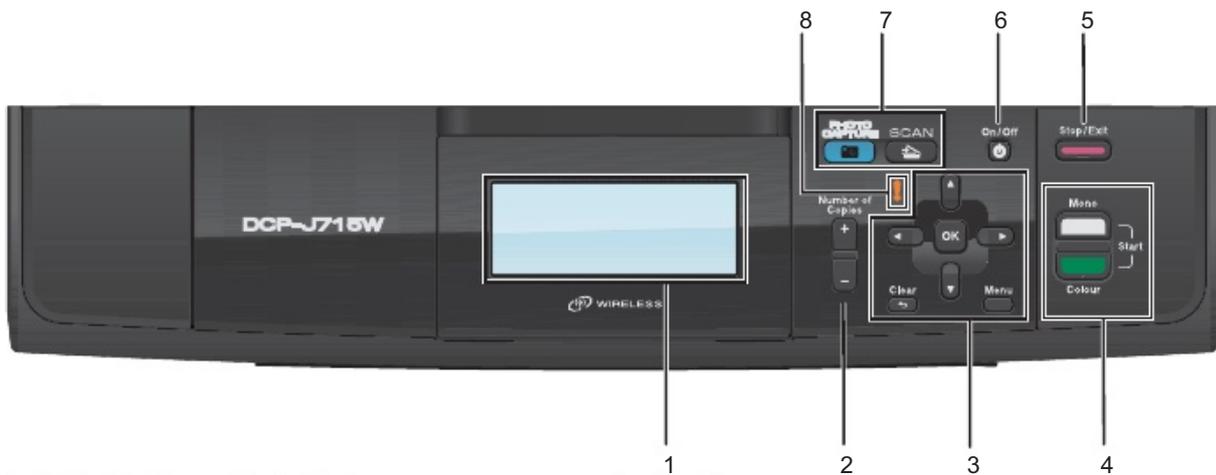
9 Start keys:

■ **Color Start**

Lets you start sending faxes or making copies in full color. Also lets you start a scanning operation (in color or black & white, depending on the scanning setting in the ControlCenter software).

■ **Black Start**

Lets you start sending faxes or making copies in black & white. Also lets you start a scanning operation (in color or black & white depending on the scanning setting in the ControlCenter software).



1 LCD (liquid crystal display)

Displays messages on the screen to help you set up and use your machine.

Also, you can adjust the angle of the LCD screen by lifting it.

2 Number of Copies

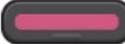
Use this key to make multiple copies.

3 Menu keys:

- ◀ or ▶
Press to scroll backward or forward to a menu selection.
Also, press to choose options.
- ▲ or ▼
Press to scroll through the menus and options.
- Clear
Press to go back to the previous menu level.
- Menu
Lets you access the main menu to program the machine.
- OK
Lets you choose a setting.

4 Start keys:

-  **Mono Start**
Lets you start making copies in monochrome. Also lets you start a scanning operation (in colour or mono, depending on the scanning setting in the ControlCenter software).
-  **Colour Start**
Lets you start making copies in full colour. Also lets you start a scanning operation (in colour or mono, depending on the scanning setting in the ControlCenter software).

5  Stop/Exit

Stops an operation or exits from a menu.

6 On/Off

You can turn the machine on and off.
If you turn the machine off, it will still periodically clean the print head to maintain print quality. To prolong print head life, provide the best ink cartridge economy, and maintain print quality, you should keep your machine connected to the power at all times.

7 Mode keys:

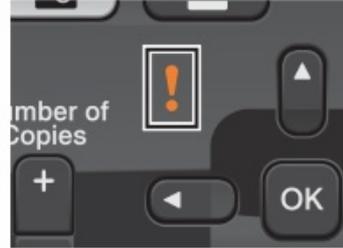
-  **SCAN**
Lets you access Scan mode.
-  **PHOTO CAPTURE**
Lets you access PhotoCapture Center™ mode.

8 Warning LED

Turns orange and blinks when the LCD displays an error or an important status message.

Warning LED indications

The Warning LED (light emitting diode) is a light that shows the status of the machine, as shown in the table.



LED	DCP status	Description
 Off	Ready	The DCP is ready for use.
 Orange	Cover open	The cover is open. Close the cover.
	Cannot Print	Replace the ink cartridge with a new one.
	Paper error	Put paper in the tray or clear the paper jam. Check the LCD message.
	Other messages	Check the LCD message.



1 Fax and telephone keys:

■ **Redial/Pause**

Redials the last 30 numbers called. It also inserts a pause when programming quick dial numbers.

■ **Hook**

Press before dialing if you want to make sure a fax machine will answer, and then press **Black Start** or **Color Start**.

Also, press this key after picking up the handset of the external telephone during the F/T pseudo/double-ring.

2 Mode keys:

■ **FAX**

Lets you access Fax mode.

■ **SCAN**

Lets you access Scan mode.

■ **COPY**

Lets you access Copy mode.

■ **PHOTO CAPTURE**

Lets you access PhotoCapture Center® mode.

3 Menu keys:

■ **Volume keys**



While the machine is idle, you can press these keys to adjust the ring volume.

■ **Speed Dial key**



▲ Press to store Speed Dial and Group numbers in the machine's memory. Lets you store, look up, and dial numbers that are stored in the memory.

■ **◀ or ▶**

Press to scroll backward or forward to a menu selection. Also, press to choose options.

■ **▲ or ▼**

Press to scroll through the menus and options.

■ **Menu**

Access the main menu.

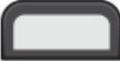
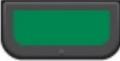
■ **Clear**

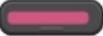
Press to delete characters or to go back to the previous menu level.

■ **OK**

Lets you choose a setting.

4 Start keys:

-  **Black Start** (Mono Start)
Lets you start sending faxes or making copies in black & white. Also lets you start a scanning operation (in color or black & white depending on the scanning setting in the ControlCenter software).
-  **Color Start** (Colour Start)
Lets you start sending faxes or making copies in full color. Also lets you start a scanning operation (in color or black & white, depending on the scanning setting in the ControlCenter software).

- 5  **Stop/Exit**
Stops an operation or exits the menu.

6 LCD (liquid crystal display)

Displays messages on the screen to help you set up and use your machine.

Also, you can adjust the angle of the LCD screen by lifting it.

7 Dial Pad

Use these keys to dial telephone and fax numbers and as a keyboard for entering information into the machine.

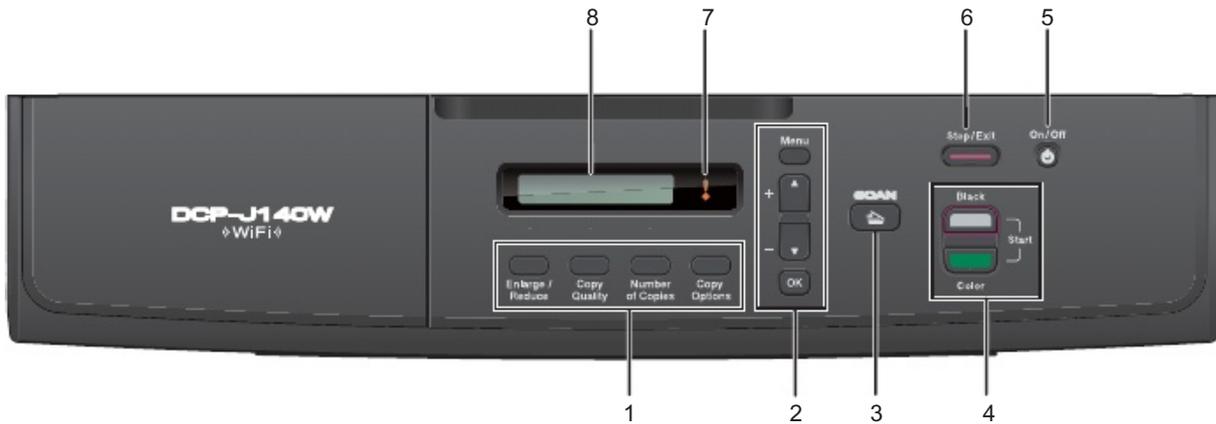
(Canada only) The # key lets you temporarily switch the dialing mode during a telephone call from Pulse to Tone.

8 On/Off

You can turn the machine on and off.

If you turn the machine off, it will still periodically clean the print head to maintain print quality. To prolong print head life, provide the best ink cartridge economy, and maintain print quality, you should keep your machine connected to the power at all times.

DCPJ140W



1 Copy keys:

Lets you temporarily change the copy settings when in copy mode.

■ Enlarge/Reduce

Lets you enlarge or reduce copies depending on the ratio you select.

■ Copy Quality

Use this key to temporarily change the quality of your copies.

■ Number of Copies

Use this key to make multiple copies.

■ Copy Options

You can quickly and easily select temporary settings for copying.

2 Menu keys:

■ Menu

Lets you access the main menu.

■ +▲ or -▼

Press to scroll through the menus and options.

■ OK

Lets you select a setting.

3 SCAN

Lets you access Scan mode.

4 Start keys:

■ Black Start

Lets you start making copies in black & white. Also lets you start a scanning operation (in color or black & white, depending on the scanning setting in the ControlCenter software).

■ Color Start

Lets you start making copies in full color. Also lets you start a scanning operation (in color or black & white, depending on the scanning setting in the ControlCenter software).

5 On/Off

You can turn the machine on and off.

If you turn the machine off, it will still periodically clean the print head to maintain print quality. To maintain print quality, prolong print head life, and provide the best ink cartridge economy, you should keep your machine connected to the power at all times.

6 Stop/Exit

Stops an operation or exits from a menu.

7 Warning LED

Blinks in orange when the LCD displays an error or an important status message.

8 LCD (liquid crystal display)

Displays messages on the screen to help you set up and use your machine.

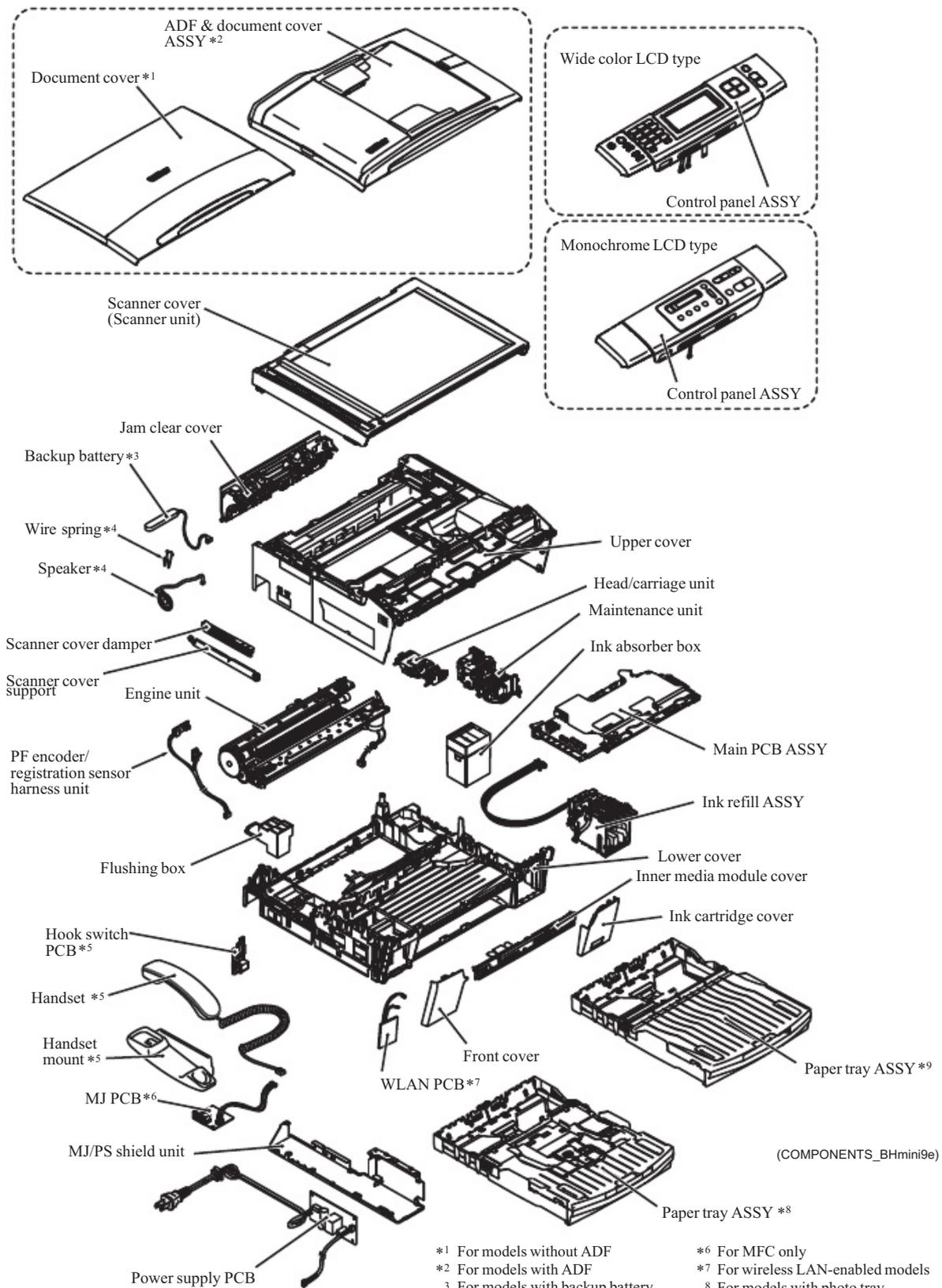
1.3 COMBINATIONS OF TWO KEYS FOR SPECIAL FUNCTIONS

The table below lists the special functions enabled by simultaneously pressing the specified combination of keys on the control panel.

Special functions	Combination of keys	Available for:
Displaying the firmware version	* + #	Models with numerical keypad on the control panel
	▲ + Stop/Exit	Models without numerical keypad on the control panel
Alternative to the Menu key on the touch panel	Scan + Copy	Models with touch panel (This function is useful when the touch panel is inoperable.)

1.4 COMPONENTS

The machine consists of the following major components:



- *1 For models without ADF
- *2 For models with ADF
- *3 For models with backup battery
- *4 For models with speaker
- *5 For models with handset

- *6 For MFC only
- *7 For wireless LAN-enabled models
- *8 For models with photo tray
- *9 For models without photo tray

CHAPTER 2

SPECIFICATIONS

CHAPTER 2 SPECIFICATIONS

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

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2.1 GENERAL

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model	DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Technology	Inkjet					
Print Head	94 nozzles/line, 4 lines					
Variable Dot Print	Yes (3 sizes)					
Minimum Droplet Size	BK: 4 pl CMY: 1.5 pl					
Scanning Method	CIS					
CPU Speed	RISC 128 MHz	RISC 192 MHz	RISC 128 MHz		RISC 192 MHz	
Backup Clock	Yes					
Simultaneous Operation	Yes					
Demo	Demo Sheet	N/A			Yes (U.S.A. only)	
	Panel Key for Demo	N/A	SCAN+PCC (LCD demo) (U.S.A./Europe only)	N/A	FAX+COPY (Print demo) (U.S.A. only)	FAX+COPY (Print + LCD demo) (U.S.A. only) FAX+COPY (LCD demo) (Europe only)
	LCD Demo	N/A	Yes (U.S.A./Europe only)	N/A	N/A	Yes (U.S.A./Europe only)
Test Print	Print Quality & Alignment Check Sheet (by pressing the Ink key. For models with touch panel, use the Ink key on the touch panel.)					

DCPJ125/I315W/I515W/I715W/I140W

Model	DCPJ125	DCPJ315W	DCPJ515W	DCPJ715W	DCPJ140W
Technology	Inkjet				
Print Head	94 nozzles/line, 4 lines				
Variable Dot Print	Yes (3 sizes)				
Minimum Droplet Size	BK: 4 pl CMY: 1.5 pl			BK: 3 pl CMY: 1.5 pl	
Scanning Method	CIS				
CPU Speed	RISC 128 MHz			RISC 192 MHz	
Backup Clock	Yes				
Simultaneous Operation	Yes				
Demo	Demo Sheet	N/A			
	Panel Key for Demo	N/A			
	LCD Demo	N/A			
Test Print	Print Quality & Alignment Check Sheet				

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model		MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
Technology		Inkjet				
Print Head		94 nozzles/line, 4 lines				
Variable Dot Print		Yes (3 sizes)				
Minimum Droplet Size		BK: 4 pl CMY: 1.5 pl				
Scanning Method		CIS				
CPU Speed		RISC 128 MHz			RISC 192 MHz	
Backup Clock		Yes				
Simultaneous Operation		Yes				
Demo	Demo Sheet	N/A	Yes (U.S.A. only) (except MFCJ270W/J630W)			
	Panel Key for Demo	N/A	FAX+COPY (Print) (U.S.A. only) (except MFCJ270W/J415W)		FAX+COPY (Print & LCD demo) (U.S.A. only)	
	LCD Demo	N/A				Yes (U.S.A. only)
Test Print		Print Quality & Alignment Check Sheet				

2.1.1 Media Specifications

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model		DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Media Sizes	Standard Tray	A4, LTR, LGL, EXE, B5 (JIS), A5, A6, Photo (102 x 152 mm/4 x 6 inches), Indexcard (127 x 203 mm/5 x 8 inches), Photo 2L (127 x 178 mm/5 x 7 inches), Post Card 1 (100 x 148 mm/3.9 x 5.8 inches), Post Card 2 (Double) (148 x 200 mm/5.8 x 7.9 inches), C5 Envelope, Com-10, DL Envelope, Monarch, JE4 Envelope					
	Photo Tray	N/A	Photo (102 x 152 mm/ 4 x 6 inches), Photo-L (89 x 127 mm/ 3.5 x 5 inches)	N/A		Photo (102 x 152 mm/4 x 6 inches), Photo-L (89 x 127 mm/3.5 x 5 inches)	
	Lower Tray	N/A					
	Duplex	N/A					
	ADF (width/length)	N/A			148/148 mm to 215.9/355.6 mm (5.8/5.8 inches to 8.5/14.0 inches)		
	Scanner Glass (width/length)	Up to 215.9/297 mm (up to 8.5/11.7 inches)					
	Media Weights	Standard Tray	64-220 g/m ² (17-58 lb.)				
Photo Tray		N/A	64-220 g/m ² (17-58 lb.)	N/A	64-220 g/m ² (17-58 lb.)		
Lower Tray		N/A					
Duplex		N/A					
ADF		N/A			64-90 g/mm ² (17-24 lb.)		

Model		DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Media Types	Standard Tray	Plain, Inkjet, Glossy (cast/resin coated), Transparency					
	Photo Tray	N/A	Plain, Inkjet, Glossy (cast/resin coated)	N/A		Plain, Inkjet, Glossy (cast/resin coated)	
	Lower Tray	N/A					
	Duplex	N/A					
	ADF	N/A			Plain		

DCPJ125/J315W/J515W/J715W/J140W

Model		DCPJ125	DCPJ315W	DCPJ515W	DCPJ715W	DCPJ140W	
Media Sizes	Standard Tray	A4, LTR, LGL, EXE, B5 (JIS)*, A5, A6, Photo (102 x 152 mm/4 x 6 inches), Indexcard (127 x 203 mm/5 x 8 inches), Photo-2L (127 x 178 mm/5 x 7 inches), Post Card 1 (100 x 148 mm/3.9 x 5.8 inches)*, Post Card 2 (Double) (148 x 200 mm/5.8 x 7.9 inches)*, C5 Envelope, Com-10, DL Envelope, Monarch, JE4 Envelope*					
	Photo Tray	N/A		Photo (102 x 152 mm/4 x 6 inches), Photo-L (89 x 127 mm/3.5 x 5 inches)	N/A		
	Lower Tray	N/A					
	Duplex	N/A					
	ADF (width/length)	N/A			148/148 mm to 215.9/355.6 mm (5.8/5.8 inches to 8.5/14.0 inches)	N/A	
	ScannerGlass (width/length)	Up to 215.9/297 mm (up to 8.5/11.7 inches)					
Media Weights	Standard Tray	64-220 g/m ² (17-58 lb.)					
	Photo Tray	N/A		64-220 g/m ² (17-58 lb.)	N/A		
	Lower Tray	N/A					
	Duplex	N/A					
	ADF	N/A			64-90 g/mm ² (17-24 lb.)	N/A	
Media Types	Standard Tray	Plain, Inkjet, Glossy (cast/resin coated), Transparency					
	Photo Tray	N/A		Plain, Inkjet, Glossy (cast/resin coated)	N/A		
	Lower Tray	N/A					
	Duplex	N/A					
	ADF	N/A			Plain	N/A	

* Except for DCPJ140W

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model		MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
Media Sizes	Standard Tray	A4, LTR, LGL, EXE, B5 (JIS), A5, A6, Photo (102 x 152 mm/4 x 6 inches), Indexcard (127 x 203 mm/5 x 8 inches), Photo-2L (127 x 178 mm/5 x 7 inches), Post Card 1 (100 x 148 mm/3.9 x 5.8 inches), Post Card 2 (Double) (148 x 200 mm/5.8 x 7.9 inches), C5 Envelope, Com-10, DL Envelope, Monarch, JE4 Envelope				
	Photo Tray	N/A				Photo (102 x 152 mm/4 x 6 inches), Photo-L (89 x 127 mm/3.5 x 5 inches)
	Lower Tray	N/A				
	Duplex	N/A				
	ADF (width/length)	N/A		148/148 mm to 215.9/355.6 mm (5.8/5.8 inches to 8.5/14.0 inches)		
	Scanner Glass (width/length)	Up to 215.9/297 mm (up to 8.5/11.7 inches)				
Media Weights	Standard Tray	64-220 g/m ² (17-58 lb.)				
	Photo Tray	N/A				64-220 g/m ² (17-58 lb.) ²
	Lower Tray	N/A				
	Duplex	N/A				
	ADF	N/A		64-90 g/mm ² (17-24 lb.)		
Media Types	Standard Tray	Plain, Inkjet, Glossy (cast/resin coated), Transparency				
	Photo Tray	N/A				Plain, Inkjet, Glossy (cast/resin coated)
	Lower Tray	N/A				
	Duplex	N/A				
	ADF	N/A		Plain		

2.1.2 Paper Handling

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model		DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Paper (Input)	Standard Tray	100 (80 g/m ²)					
	Photo Tray	N/A	20 (thickness: 0.25 mm)	N/A		20 (thickness: 0.25 mm)	
	Lower Tray	N/A					
	ADF	N/A			15 (90 g/m ²)		
Output Paper Capacity (sheets)		50 (80 g/m ²)					

DCPJ125/J315W/J515W/J715W/J140W

Model		DCPJ125	DCPJ315W	DCPJ515W	DCPJ715W	DCPJ140W
Paper Input (sheets)	Standard Tray	100 (80 g/m ²)				
	Photo Tray	N/A		20 (thickness: 0.25 mm)	N/A	
	Lower Tray	N/A				
	ADF	N/A			15 (90 g/m ²)	N/A
Output Paper Capacity (sheets)		50 (80 g/m ²)				

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model		MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
Paper Input (sheets)	Standard Tray	100 (80 g/m ²)				
	Photo Tray	N/A				20 (thickness: 0.25 mm)
	Lower Tray	N/A				
	ADF	N/A		15 (90 g/m ²)		
Output Paper Capacity (sheets)		50 (80 g/m ²)				

2.1.3 LCD/LED/Panel

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model		DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW	
LCD	Type & Size	16 x 1 line	3.3-inch Wide Color LCD	16 x 1 line		3.3-inch Wide Color LCD	5.0-inch Wide Color LCD	
	Touch-Screen	N/A					Yes	
	Backlight & Color	N/A	Yes	N/A		Yes		
Status LED Color		Orange		N/A				

DCPJ125/J315W/J515W/J715W/J140W

Model		DCPJ125	DCPJ315W	DCPJ515W	DCPJ715W	DCPJ140W
LCD	Type & Size	1.9-inch STN Color LCD		3.3-inch TFT Color LCD		16 x 1 line
	Touch-Screen	N/A				
	Backlight & Color	Yes				N/A
Status LED Color		Orange				

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model		MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
LCD	Type & Size	1.9-inch STN color LCD				3.3-inch TFT color LCD
	Touch-Screen	N/A				
	Backlight & Color	Yes				
Status LED Color		N/A				

2.1.4 Memory

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model	DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Memory Capacity (physical: megabytes)	32 MB	40 MB	32 MB		40 MB	48 MB
Memory Backup (with battery, 24 hours)	N/A					Yes (For TAD messages or fax preview only)
Backup Print: ON/OFF (in function menu)	N/A				Yes	

DCPJ125/J315W/J515W/J715W/J140W

Model	DCPJ125	DCPJ315W	DCPJ515W	DCPJ715W	DCPJ140W
Memory Capacity (physical: megabytes)	32 MB		40 MB		32 MB
Memory Backup (with battery, 24 hours)	N/A				
Backup Print: ON/OFF (in function menu)	N/A				

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model	MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
Memory Capacity (physical: megabytes)	32 MB				40 MB
Memory Backup (with battery, 24 hours)	N/A				
Backup Print: ON/OFF (in function menu)	N/A				Yes

2.1.5 Security

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model	DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Memory Security	N/A					Yes
Transmission Lock	N/A		Yes			N/A
Secure Function Lock	N/A					

DCPJ125/J315W/J515W/J715W/J140W

Model	DCPJ125	DCPJ315W	DCPJ515W	DCPJ715W	DCPJ140W
Memory Security	N/A				
Transmission Lock	N/A				
Secure Function Lock	N/A				

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model	MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
Memory Security	N/A				
Transmission Lock	Yes				
Secure Function Lock	N/A				

2.1.6 Interface

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model	DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Host Interface	USB 2.0 Hi-Speed					
LAN	Yes		N/A	Yes		
Wireless LAN	Yes	N/A	Yes	N/A	Yes	
PictBridge	N/A	Yes	N/A	Yes		
USB Flash Memory	N/A	Yes	N/A	Yes		
Acceptable Media Card	"Memory Stick" "Memory Stick Pro" "Secure Digital" "Secure Digital High Capacity" "xD Picture Card" "xD Picture Card TypeM/ TypeM+/ TypeH"	"Memory Stick" "Memory Stick Pro" "Secure Digital" "Secure Digital High Capacity" "xD Picture Card" "xD Picture Card TypeM/ TypeM+/ TypeH" "Compact Flash"	"Memory Stick" "Memory Stick Pro" "Secure Digital" "Secure Digital High Capacity" "xD Picture Card" "xD Picture Card TypeM/ TypeM+/ TypeH"	"Memory Stick" "Memory Stick Pro" "Secure Digital" "Secure Digital High Capacity" "xD Picture Card" "xD Picture Card TypeM/ TypeM+/ TypeH" "Compact Flash"		

DCPJ125/J315W/J515W/J715W/J140W

Model	DCPJ125	DCPJ315W	DCPJ515W	DCPJ715W	DCPJ140W
Host Interface	2.0			USB 2.0 Hi-Speed	
LAN	N/A			Yes	N/A
Wireless LAN	N/A	Yes			
PictBridge	N/A			Yes	N/A
USB Flash Memory	N/A			Yes	N/A
Acceptable Media Card	"Memory Stick" "Memory Stick Pro" "Secure Digital" "Secure Digital High Capacity"				N/A

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model	MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
Host Interface	2.0				USB 2.0 Hi-Speed
LAN	N/A				Yes
Wireless LAN	N/A	Yes	N/A	Yes	
PictBridge	N/A				Yes
USB Flash Memory	N/A				Yes
Acceptable Media Card	"Memory Stick" "Memory Stick Pro" "Secure Digital" "Secure Digital High Capacity"				

2.1.7 Others

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model	DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW	
On/Off Switch	Yes						
Power Source	U.S.A.: 100-120 VAC, 50/60 Hz Europe/Asia/Oceania: 220-240 VAC, 50/60 Hz						
Operating Environment Temperature (Best Print Quality)	10-35 (20-33) degrees centigrade						
Power Consumption Average (Copying/ Standby/ Sleep/OFF mode)	U.S.A.	21 / 5 / 3 / 0.45 W	24 / 6 / 3 / 0.45 W	23 / 5 / 3 / 0.7 W	26 / 6 / 3.5 / 0.85 W	28 / 6 / 3.5 / 0.5 W	30 / 7 / 4.5 / 0.55 W
	Europe/ Asia/ Oceania	21 / 5 / 3 / 0.5 W	22 / 5.5 / 3 / 0.5 W	22 / 4.5 / 3 0.75 W		28 / 6.5 / 3.5 / 0.5 W	30 / 7.5 / 4.5 / 0.6 W
Machine Noise (Operating)	50 dBA (Maximum)						
Machine Dimensions	390 x 365 x 150 mm			390 x 375 x 180 mm		460 x 375 x 180 mm	
Machine Weight	U.S.A.	7.0 kg (15.4 lb.)	7.1 kg (15.7 lb.)	7.2 kg (15.9 lb.)	7.8 kg (17.2 lb.)	8.1 kg (17.9 lb.)	8.6 kg (19.0 lb.)
	Europe/ Asia/ Oceania	(7.0 kg)	(7.3 kg)	(7.3 kg)	(7.9 kg)	(8.2 kg)	(8.7 kg)

Model	DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Energy Star Compliant	Yes					
Blue Angel	U.S.A.	N/A				
	Europe	Yes				
	Asia/ Oceania	N/A				
TCO99	N/A					

DCPJ125/J315W/J515W/J715W/J140W

Model	DCPJ125	DCPJ315W	DCPJ515W	DCPJ715W	DCPJ140W
On/Off Switch	Yes				
Power Source	U.S.A.: 100-120 VAC, 50/60 Hz Europe: 220-240 VAC, 50/60 Hz Asia/Oceania: 220-240 VAC, 50/60 Hz (except TWN model) 100-120 VAC, 50/60 Hz (TWN model)	Europe: 220-240 VAC, 50/60 Hz Asia/Oceania: 220-240 VAC, 50/60 Hz (except TWN model) 100-120 VAC, 50/60 Hz (TWN model)			U.S.A.: 100-120 VAC, 50/60 Hz Europe: 220-240 VAC, 50/60 Hz Asia/Oceania: 220 VAC, 50/60 Hz (except TWN model) 100-120 VAC, 50/60 Hz (TWN model)
Operating Environment Temperature (Best Print Quality)	10-35 (20-33) degrees centigrade				
Power Consumption	U.S.A.	18.5 / 3.5 / 1.5 / 0.45 W	N/A		18.5 / 3.5 / 1.5 / 0.45 W
Average (Copying/ Standby/ Sleep/OFF mode)	Europe/ Asia/ Oceania	17 / 3.5 / 1.5 / 0.45 W	17 / 3.5 / 2 / 0.45 W	17 / 3.5 / 2 / 0.5 W	17 / 6 / 3.5 / 0.5 W
Machine Noise (Operating)	50 dBA (Maximum)				
Machine Dimensions (W) x (D) x (H)	390 x 368 x 150 mm			390 x 375 x 180 mm	390 x 368 x 150 mm
Machine Weight	U.S.A.	6.8 kg (15.0 lb.)	N/A		6.8 kg (15.0 lb.)
	Europe/ Asia/ Oceania	6.8 kg (15.0 lb.)	6.9 kg (15.2 lb.)	7.5 kg (16.5 lb.)	6.8 kg (15.0 lb.)
Energy Star Compliant	Yes				
Blue Angel	U.S.A.	N/A			
	Europe	Yes			
	Asia/ Oceania	N/A			
TCO99	N/A				

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model		MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
On/Off Switch		Yes				
Power Source		U.S.A.: 100-120 VAC, 50/60 Hz Europe: 220-240 VAC, 50/60 Hz Asia/Oceania: 220-240 VAC; 50/60 Hz (except TWN model) 100-120 VAC; 50/60 Hz (TWN model)				
Operating Environment Temperature (Best Print Quality)		10-35 (20-33) degrees centigrade				
Power Consumption Average (Copying/ Standby/ Sleep/OFF mode)	U.S.A.	19 / 4 / 2.5 / 0.65 W			19 / 6.5 / 3.5 / 0.5 W	
	Europe/ Asia/ Oceania	19.5 / 4.5 / 2.5 / 0.65 W	19.5 / 4 / 2.5 / 0.65 W	19.5 / 4.5 / 2.5 / 0.65 W		19.5 / 6 / 3.5 / 0.5 W
Machine Noise (Operating)		50 dBA (Maximum)				
Machine Dimensions (W) x (D) x (H)		390 x 368 x 150 mm			390 x 375 x 180 mm	
Machine Weight	U.S.A.	6.8 kg (15.0 lb.)	6.9 kg (15.2 lb.)	N/A	7.8 kg (17.2 lb.)	8.0 kg (17.6 lb.)
	Europe/ Asia/ Oceania	6.8 kg (15.0 lb.)	6.9 kg (15.2 lb.)	7.8 kg (17.2 lb.)		8.0 kg (17.6 lb.)
Energy Star Compliant		Yes				
Blue Angel	U.S.A.	N/A				
	Europe	Yes				
	Asia/ Oceania	N/A				
TCO99		N/A				

2.2 TELEPHONE

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model	DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Handset	N/A					Yes (Detachable)
Digital Cordless Phone	N/A					
SKYPE API support	N/A					
Duplex Speaker Phone Key	N/A					Yes
PBX Feature (Europe Only)	N/A	Yes				
Hold/Mute	N/A					Yes
Music on Hold	N/A					
Monitoring the Line on Hold with Music	N/A					

DCPJ125/J315W/J515W/J715W/J140W

Not available.

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model	MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
Handset	N/A				
Digital Cordless Phone	N/A				
Battery Charger for Digital Cordless Phone	N/A				
Outside Telephone	N/A				
SKYPE API support	N/A				
Duplex Speaker Phone Key	N/A				
PBX Feature (Europe Only)	Yes				
Hold/Mute	N/A				
Music on Hold	N/A				
Monitoring the Line on Hold with Music	N/A				

2.2.1 Quick/Auto Dials

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model	DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
One Touch Dial	N/A					
Speed Dial	N/A		40		100 x 2 numbers	
Figures of One Touch & Speed Dial	N/A		20 digits			
Registerable Number Of Characters	N/A		16 characters			
Group Dial (Up to X groups)	N/A		Yes (6)			
Telephone Index (Search/Speed dial key)	N/A		Yes			

DCPJ125/J315W/J515W/J715W/J140W

Not available.

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model	MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
One Touch Dial	N/A				
Speed Dial	40			100 x 2 numbers	
Figures of One Touch & Speed Dial	20 digits				
Registerable Number Of Characters	16 characters				
Group Dial (Up to X groups)	Yes (6)				
Telephone Index (Search/Speed dial key)	N/A				

2.2.2 Tel Service

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model	DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Caller ID	N/A		Yes			
Call Waiting Caller ID	N/A					
Call from Caller ID List	N/A				Yes	
Call from Call List	N/A				Yes	
Call waiting Ready	N/A					
Backup Caller ID list	N/A					Yes
Call List Indication	N/A				Yes	
External TAD Interface	N/A		Yes			
Distinctive Ringing	U.S.A.	N/A		Yes		
	Europe	N/A		Yes (Denmark/United Kingdom only)		
	Asia/Oceania	N/A		Yes (Australia/New Zealand/Singapore/Hong Kong only)		

DCPJ125/J315W/J515W/J715W/J140W

Not available.

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model	MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
Caller ID	Yes				
Call Waiting Caller ID	N/A				
Call from Caller ID List	Yes				
Call from Call List	Yes				
Call waiting Ready	N/A				
Backup Caller ID list	N/A				
Call List Indication	Yes				
External TAD Interface	Yes				
Distinctive Ringing	U.S.A.	Yes			
	Europe	Yes (Denmark/United Kingdom only)			
	Asia/Oceania	Yes (Australia/New Zealand/Singapore/Hong Kong only)			

2.2.3 Message Center

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model	DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
TAD	N/A					Yes
ICM Recording Time	N/A					Maximum 29 minutes or Maximum 99 messages (Maximum 180 seconds / message)
Toll Saver	N/A					Yes
Recording Conversation	N/A					Yes (with beep)
OGM/User Recording Time (MC/TAD, F/T)	N/A					20 seconds

DCPJ125/J315W/J515W/J715W/J140W

Not available.

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Not available.

2.3 FAX

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model		DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Modem Speed		N/A		14,400 bps		33,600 bps	
Transmission Speed		N/A		Approx. 6 seconds (Brother#1, MMR)		Approx. 3 seconds (Brother#1, MMR)	
ITU-T Group		N/A		G3		Super G3	
Coding Method		N/A		Mono: MH/MR/MMR Color: JPEG			
Paper Handling Size		N/A		LTR, A4	LTR, A4, LGL (with ADF)		
Document Scanning Width		N/A		LTR (FB): 208 mm, A4 (FB): 204 mm	LTR (FB): 208 mm, A4 (FB): 204 mm, LTR/LGL (ADF): 208 mm, A4 (ADF): 208 mm		
Color FAX	Document (Send/ Receive)	N/A		Yes/Yes (ITU-T color FAX)			
	Memory (Send/ Receive)	N/A		No/No (ITU-T color FAX)			
Display FAX	Send	N/A				Yes	
	Receive	N/A				Yes	
Super Fine		N/A		Yes (TX & RX: B&W only)			
Gray Scale (Color Fax)		N/A		Mono: 64, Color: 256			
Contrast (Auto/S.Light/S.Dark)		N/A		Yes			
Dual Access		N/A		Yes (B&W only)			
Enhanced Remote Activate		N/A		Yes			
Station ID		N/A		Yes 20 digits/20 characters			
Remote Maintenance		N/A					
Remote Access		N/A				Yes	
Fax Retrieval		N/A				Yes (B&W only)	
Paging		N/A				Yes (U.S.A. only)	Yes (FAX & Voice) (U.S.A. only)

DCPJ125/J315W/J515W/J715W/J140W

Not available.

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model		MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
Modem Speed		14,400 bps				33,600 bps
Transmission Speed		Approx. 7 seconds (ITU-T Test Chart #1, MMR)				Approx. 3 seconds (ITU-T Test Chart #1, MMR)
ITU-T Group		G3				Super G3
Coding Method		Mono: MH/MR/MMR Color: JPEG				
Paper Handling Size		LTR, A4		LTR, A4, LGL (with ADF)		
Document Scanning Width		LTR (FB): 208 mm, A4 (FB): 204 mm		LTR (FB): 208 mm, A4 (FB): 204 mm, LTR/LGL (ADF): 208 mm, A4 (ADF): 208 mm		
Color FAX	Document (Send/Receive)	Yes/Yes (ITU-T color FAX)				
	Memory (Send/Receive)	No/No (ITU-T color FAX)				
Display FAX	Send	N/A				
	Receive	N/A				
Super Fine		Yes (TX & RX: B&W only)				
Gray Scale (Color Fax)		Mono: 64, Color: 256				
Contrast (Auto/S.Light/S.Dark)		Yes				
Dual Access		Yes (B&W only)				
Enhanced Remote Activate		Yes				
Station ID		Yes 20 digits/20 characters				
Remote Maintenance		N/A				
Remote Access		N/A				Yes
Fax Retrieval		N/A				Yes (B&W only)
Paging		N/A				Yes (U.S.A. only)

2.3.1 Sending

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model		DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Delayed Timer (up to 50: B&W only)		N/A				Up to 50 / B&W only	
Polled Sending (type) *B&W only	U.S.A.	N/A				Yes (Standard)	
	Europe/ Asia/ Oceania	N/A				Yes (Standard/Secure)	
Batch Transmission		N/A				Yes (B&W only/not color)	
Quick-Scan (Memory transmission) (ITU-T Test Chart #1)		N/A		Approx. 4.72 seconds/page @LTR Approx. 5.02 seconds/page @A4			
Memory Transmission	ITU-T Test Chart #1 / MMR	N/A		Up to 170 pages		Up to 400 pages	
	Brother Chart / MMR	N/A		Up to 200 pages		Up to 480 pages	
Broadcasting (Speed/ One Touch + Manual)		N/A		Yes (40 + 50 locations)		Yes (100 x 2 numbers + 50 locations)	
Fax Forwarding		N/A				Yes (B&W only)	

DCPJ125/J315W/J515W/J715W/J140W

Not available.

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model		MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
Delayed Timer (up to 50: B&W only)		N/A				Up to 50 / B&W only
Polled Sending (type) *B&W only	U.S.A.	N/A				Yes (Standard)
	Europe/ Asia/ Oceania	N/A				Yes (Standard/ Secure)
Batch Transmission		N/A				Yes (B&W only/ not color)
Quick-Scan (Memory transmission) (ITU-T Test Chart #1)		Approx. 3.24 seconds/page @LTR Approx. 3.44 seconds/page @A4				
Memory Transmission	ITU-T Test Chart #1 / MMR	Up to 170 pages				Up to 400 pages
	Brother Chart / MMR	Up to 200 pages				Up to 480 pages
Broadcasting (Speed/ One Touch + Manual)		Yes (40 + 50 locations)				Yes (100 x 2 numbers + 50 locations)
Fax Forwarding		N/A				Yes (B&W only)

2.3.2 Receiving

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model		DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Easy Receive/Fax Detect		N/A		Yes (Fax detect only)			
Polling Receiving (type) * B&W only	U.S.A.	N/A				Yes (Standard/Sequential)	
	Europe/Asia/Oceania	N/A				Yes (Standard/Sequential/Secure/Timer)	
Auto Reduction		N/A		Yes			
Out-of-Paper Reception	ITU-T Test Chart #1 / MMR	N/A		Up to 170 pages		Up to 400 pages	
	Brother Chart / MMR	N/A		Up to 200 pages		Up to 480 pages	

DCPJ125/J315W/J515W/J715W/J140W

Not available.

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model		MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
Easy Receive/Fax Detect		Yes (Fax detect only)				
Polling Receiving (type) * B&W only	U.S.A.	N/A				Yes (Standard/Sequential)
	Europe/Asia/Oceania	N/A				Yes (Standard/Sequential/Secure/Timer)
Auto Reduction		Yes				
Out-of-Paper Reception	ITU-T Test Chart #1 / MMR	Up to 170 pages			Up to 400 pages	
	Brother Chart / MMR	Up to 200 pages			Up to 480 pages	

2.3.3 PC FAX

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model	DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Color/Mono	N/A		Mono			
Sending	N/A		Yes (Network/USB)			
Receiving	N/A				Yes (Network/USB), N/A for MAC	
PC-Fax Protocol	N/A		TX: PC-FAX Driver		RX: Class 2, TX: PC-FAX Driver	
Broadcasting	N/A		Up to 50			

DCPJ125/J315W/J515W/J715W/J140W

Not available.

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model	MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
Color/Mono	Mono				
Sending	Yes (USB only)	Yes (Network/ USB)	Yes (USB only)	Yes (Network/USB)	
Receiving	N/A				Yes (Network/USB), N/A for MAC
PC-Fax Protocol	TX: PC-FAX Driver				RX: Class 2, TX: PC-FAX Driver
Broadcasting	Up to 50				

2.4 PRINTER

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model	DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Resolution (horizontal x vertical)	Up to 1200 x 6000 dpi					
Auto Duplex Print	N/A					
Manual Duplex Print	Yes					
Print Paper Margin (upper, lower, left, right)	<Borderless printing> On: 0, 0, 0, 0 mm/0, 0, 0, 0 inch (*) Off: 3, 3, 3, 3 mm/0.12, 0.12, 0.12, 0.12 inches (**) (*) Borderless for A4, LTR, A6, Photo (102 x 152 mm/4 x 6 inches), Index card (127 x 203 mm/5 x 8 inches), Photo-2L (127 x 178 mm/5 x 7 inches), Post Card 1 (100 x 148 mm/3.9 x 5.8 inches) only (**) 12, 24, 3, 3 mm / 0.47, 0.95, 0.12, 0.12 inches for envelopes					
Web Page Print	N/A					
Color Enhancement (Color Printer)	Yes					
Ink Save Mode (Firm/PC)	N/A	Yes/Yes	N/A		Yes/Yes	

DCPJ125/J315W/J515W/J715W/J140W

Model	DCPJ125	DCPJ315W	DCPJ515W	DCPJ715W	DCPJ140W
Print Speed (A4/LTR) *time calculated including paper feeding	Up to 33/27 ppm (Mono: 450 x 150 dpi/ Color: 600 x 150 dpi)	Up to 35/28 ppm (Mono: 450 x 150 dpi/ Color: 600 x 150 dpi)			Up to 33/27 ppm (Mono: 450 x 150 dpi/ Color: 600 x 150 dpi)
Resolution (horizontal x vertical)	Up to 1200 x 6000 dpi				
Auto Duplex Print	N/A				
Manual Duplex Print	Yes				
Print Paper Margin (upper, lower, left, right)	<Borderless printing> On: 0, 0, 0, 0 mm/0, 0, 0, 0 inch (*) Off: 3, 3, 3, 3 mm/0.12, 0.12, 0.12, 0.12 inches (**) (*) Borderless for A4, LTR, A6, Photo (102 x 152 mm/4 x 6 inches), Index card (127 x 203 mm/5 x 8 inches), Photo-2L (127 x 178 mm/5 x 7 inches), Post Card 1 (100 x 148 mm/3.9 x 5.8 inches) only (**) 12, 24, 3, 3 mm / 0.47, 0.95, 0.12, 0.12 inches for envelopes				
Web Page Print	N/A				Yes
Color Enhancement (Color Printer)	Yes				
Ink Save Mode (Firm/PC)	N/A		Yes/Yes		N/A

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model	MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
Print Speed (A4/LTR) *time calculated including paper feeding	Up to 33/27 ppm (Mono: 450 x 150 dpi/ Color: 600 x 150 dpi):			Up to 35/28 ppm * (Mono: 450 x 150 dpi/ Color: 600 x 150 dpi) * Up to 33/27 ppm on MFCJ410W	
Resolution (horizontal x vertical)	Up to 1200 x 6000 dpi				
Auto Duplex Print	N/A				
Manual Duplex Print	Yes				
Print Paper Margin (upper, lower, left, right)	<Borderless printing> On: 0, 0, 0, 0 mm/0, 0, 0, 0 inch (*) Off: 3, 3, 3, 3 mm/0.12, 0.12, 0.12, 0.12 inches (**) (*) Borderless for A4, LTR, A6, Photo (102 x 152 mm/4 x 6 inches), Index card (127 x 203 mm/5 x 8 inches), Photo-2L (127 x 178 mm/5 x 7 inches), Post Card 1 (100 x 148 mm/3.9 x 5.8 inches) only (**) 12, 24, 3, 3 mm / 0.47, 0.95, 0.12, 0.12 inches for envelopes				
Web Page Print	N/A				
Color Enhancement (Color Printer)	Yes				
Ink Save Mode (Firm/PC)	N/A				Yes/Yes

2.5 COPY

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model		DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Mono/Color (Color Copy)		Color					
Copy Speed (A4/LTR) *Including paperfeeding **European default is calculated by "normal mode" speed	U.S.A.	22/20 cpm (Mono/Color)		20/18 cpm (Mono/Color)	22/20 cpm (Mono/Color)	23/20 cpm (Mono/Color)	
	Europe	Belgium: 5/5 cpm Other countries: 22/20 cpm (Mono/Color)		Belgium: 5/5 cpm Other countries: 20/ 18 cpm (Mono/Color)	Belgium: 5/5 cpm Other countries: 22/ 20 cpm (Mono/Color)	Belgium: 8/8 cpm Other countries: 23/20 cpm (Mono/Color)	
	Asia/ Oceania	22/20 cpm (Mono/Color)		20/18 cpm (Mono/Color)	22/20 cpm (Mono/Color)	23/20 cpm (Mono/Color)	
Resolution (horizontal x vertical)	Mono	Print: Maximum 1200 x 1200 dpi Scan: Maximum 1200 x 1200 dpi					
	Color	Print: Maximum 600 x 1200 dpi Scan: Maximum 600 x 1200 dpi					
Multi Copy	Stack	Yes (99)					
	Sort	N/A			Yes (Mono Only)	Yes	
Reduction/Enlargement (%)	25 - 400 in 1% increments						
N in 1	2 in 1 / 4 in 1, A4/LTR only (Mono only)	2 in 1 / 4 in 1, A4/LTR only (Mono & Color)	2 in 1 / 4 in 1, A4/LTR only (Mono only)			2 in 1 / 4 in 1, A4/LTR only (Mono & Color)	
Poster	Yes (3 x 3)						
Auto Skew Adjustment	N/A						
Fit to Page	Yes						
Copy Enhancement	Book Copy (Shadow Correction & Skew Adjustment for book)	N/A	Yes	N/A			Yes
	Watermark Copy	N/A	Yes	N/A			Yes
Duplex Copy	N/A						
Copy Paper Margin (upper, lower, left, right)	3, 3, 3, 3 mm/0.12, 0.12, 0.12, 0.12 inches						
Paper Sizes (Color Copy)	Standard Tray	LTR, A4, 10 x 15 cm (4 x 6 inches), 13 x 18 cm (5 x 7 inches)	LTR, LGL, A4, A5, 10 x 15 cm (4 x 6 inches)				
	Photo Tray	N/A	10 x 15 cm (4 x 6 inches)	N/A			10 x 15 cm (4 x 6 inches)
	Lower Tray	N/A					

DCPJ125/J315W/J515W/J715W/J140W

Model		DCPJ125	DCPJ315W	DCPJ515W	DCPJ715W	DCPJ140W
Mono/Color (Color Copy)		Color				
Copy Speed (A4/LTR) <small>*Including paper feeding **European default is calculated by "normal mode" speed</small>	U.S.A.	22/20 cpm (Mono/Color)	N/A		22/20 cpm (Mono/Color)	
	Europe	Belgium: 5/5 cpm Other countries: 22/20 cpm (Mono/Color)	Belgium: 8/8 cpm Other countries: 23/20 cpm (Mono/Color)		Belgium: 5/5 cpm Other countries: 22/20 cpm (Mono/Color)	
	Asia/Oceania	22/20 cpm (Mono/Color)	23/20 cpm (Mono/Color)		22/20 cpm (Mono/Color)	
Resolution (horizontal x vertical)	Mono	Print: Maximum 1200 x 1200 dpi Scan: Maximum 1200 x 1200 dpi				
	Color	Print: Maximum 600 x 1200 dpi Scan: Maximum 600 x 1200 dpi				
Multi Copy	Stack	Yes (99)				
	Sort	N/A		Yes	N/A	
Reduction/Enlargement (%)	25 - 400 in 1% increments					
N in 1	2 in 1 / 4 in 1, A4/LTR/Executive* only (Mono & Color)					
Poster	Yes (3 x 3)					
Auto Skew Adjustment	N/A					
Fit to Page	Yes					
Copy Enhancement	Book Copy (Shadow Correction & Skew Adjustment for book)	N/A		Yes		N/A
	Watermark Copy	N/A		Yes		N/A
Duplex Copy	N/A					
Copy Paper Margin (upper, lower, left, right)	3, 3, 3, 3 mm/0.12, 0.12, 0.12, 0.12 inches					
Paper Sizes (Color Copy)	Standard Tray	LTR, LGL, A4, A5, 10 x 15 cm (4 x 6 inches), Executive*				
	Photo Tray	N/A		10 x 15 cm (4 x 6 inches)		N/A
	Lower Tray	N/A				

*US model only

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model		MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W	
Mono/Color (Color Copy)		Color					
Copy Speed (A4/LTR) <small>*Including paper feeding **European default is calculated by "normal mode" speed</small>	U.S.A.	22/20 cpm (Mono/Color)		N/A	23/20 cpm (Mono/Color)		
	Europe	Belgium: 5/5 cpm Other countries: 22/20 cpm (Mono/Color)			Belgium: 8/8 cpm Other countries: 23/20 cpm (Mono/Color)		
	Asia/Oceania	22/20 cpm (Mono/Color)			23/20 cpm (Mono/Color)		
Resolution (horizontal x vertical)	Mono	Print: Maximum 1200 x 1200 dpi Scan: Maximum 1200 x 1200 dpi					
	Color	Print: Maximum 600 x 1200 dpi Scan: Maximum 600 x 1200 dpi					
Multi Copy	Stack	Yes (99)					
	Sort	N/A		Yes		Yes	
Reduction/Enlargement (%)	25 - 400 in 1% increments						
N in 1	2 in 1 / 4 in 1, A4/LTR/Executive* only (Mono & Color)						
Poster	Yes (3 x 3)						
Auto Skew Adjustment	N/A						
Fit to Page	Yes						
Copy Enhancement	Book Copy (Shadow Correction & Skew Adjustment for book)	N/A				Yes	
	Watermark Copy	N/A				Yes	
Duplex Copy	N/A						
Print Paper Margin (upper, lower, left, right)	3, 3, 3, 3 mm/0.12, 0.12, 0.12, 0.12 inches						
Paper Sizes (Color Copy)	Standard Tray	LTR, LGL, A4, A5, 10 x 15 cm (4 x 6 inches), Executive*					
	Photo Tray	N/A				10 x 15 cm (4 x 6 inches)	
	Lower Tray	N/A					

*US model only

2.6 SCANNER

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model		DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Auto Crop (Firm/PC)		N/A	Yes/Yes	N/A		Yes/Yes	
Mono/Color (Color Scanner)		Color					
Scan Speed (Mono/Color) *@100 dpi		Maximum 3.24/4.55 seconds (LTR) Maximum 3.44/4.83 seconds (A4)					
Resolution (horizontal x vertical)	Optical	1200 x 2400 dpi					
	Interpolated	1200 x 1200 dpi (For XP/Vista, up to 19200 x 19200 dpi with Scanner Utility)					
Gray Scale (Color Scanner)		256					
Scan to	Image	Yes					
	OCR	Yes					
	E-mail	Yes					
	File	Yes					
	Media (Media Card or USB Flash Memory)	Yes (Scan to Media Card only)	Yes	Yes (Card only. USB Flash Memory is N/A.)	Yes (Scan to Media Card only)		
	FTP	N/A					
	E-mail Server	N/A					
Document Scanning Width/Length		210 mm					
Color Depth		Input: 36 bits, Output: 24 bits					

DCPJ125/J315W/J515W/J715W/J140W

Model		DCPJ125	DCPJ315W	DCPJ515W	DCPJ715W	DCPJ140W
Auto Crop (Firm/PC)		N/A		Yes/Yes		N/A
Mono/Color (Color Scanner)		Color				
Scan Speed (Mono/Color) *@100 dpi		Maximum 3.24/4.55 seconds (LTR) Maximum 3.44/4.83 seconds (A4)				Maximum 3.24/4.54 seconds (LTR) Maximum 3.44/4.83 seconds (A4)
Resolution (horizontal x vertical)	Optical	1200 x 2400 dpi				
	Interpolated	For XP/Vista/Windows 7, up to 19200 x 19200 dpi with Scanner Utility				
Gray Scale (Color Scanner)		256				

Model		DCPJ125	DCPJ315W	DCPJ515W	DCPJ715W	DCPJ140W
Scan to	Image	Yes				
	OCR	Yes				
	E-mail	Yes				
	File	Yes				
	Media (Media Card or USB Flash Memory)	Yes (JPEG/PDF) (Card only. USB Flash Memory is N/A.)			Yes (JPEG/PDF)	N/A
	FTP	N/A				
	E-mail Server	N/A				
Document Scanning Width/Length		210 mm/291 mm				
Color Depth		Input: 36 bits, Output: 24 bits				Input: 30 bits, Output: 24 bits

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model		MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
Auto Crop (Firm/PC)		N/A				Yes/Yes
Mono/Color (Color Scanner)		Color				
Scan Speed (Mono/Color) *@100 dpi		Maximum 3.24/4.55 seconds (LTR) Maximum 3.44/4.83 seconds (A4)				
Resolution (horizontal x vertical)	Optical	1200 x 2400 dpi				
	Interpolated	1200 x 1200 dpi (For XP/Vista/Windows 7, up to 19200 x 19200 dpi with Scanner Utility)				
Gray Scale (Color Scanner)		256				
Scan to	Image	Yes				
	OCR	Yes				
	E-mail	Yes				
	File	Yes				
	Media (Media Card or USB Flash Memory)	Yes (JPEG/PDF) (Card only. USB Flash Memory is N/A.)				Yes (JPEG/PDF)
	FTP	N/A				
	E-mail Server	N/A				
Document Scanning Width/Length		210 mm/291 mm				
Color Depth		Input: 36 bits, Output: 24 bits				

2.7 PHOTO CAPTURE

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model		DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Acceptable Media (Type & Size)	Media Cards	Memory Stick: 16-128 MB Memory Stick Pro: 256 MB - 16 GB					
		Secure Digital: 16 MB - 2 GB Secure Digital High Capacity: 4-16 GB					
		xD Picture Card: 16-512 MB xD Picture Card TypeM/TypeM+/TypeH: 256 MB - 2 GB					
		N/A	Compact Flash: 4 MB - 16 GB (Type1 only, Type2 & Microdrive are not compatible)	N/A		Compact Flash: 4 MB - 16 GB (Type1 only, Type2 & Microdrive are not compatible)	
	USB Flash Memory	N/A	Up to 8 GB	N/A	Up to 8 GB		
Paper Sizes	Standard Tray	LTR, A4, 10 x 15 cm (4 x 6 inches), 13 x 18 cm (5 x 7 inches)					
	Photo Tray	N/A	10 x 15 cm (4 x 6 inches)	N/A		10 x 15 cm (4 x 6 inches)	
	Lower Tray	N/A					
Paper Types	Standard Tray	Plain, Inkjet, Glossy					
	Photo Tray	N/A	Plain, Inkjet, Glossy	N/A		Plain, Inkjet, Glossy	
	Lower Tray	N/A					
Print Paper Margin (upper, lower, left, right) (PCC)	<Borderless printing> On: 0, 0, 0, 0 mm/0, 0, 0, 0 inches Off: 3, 3, 3, 3 mm/0.12, 0.12, 0.12, 0.12 inches						
Available Paper Size for Full (Maximum) Size Printing	All sizes			N/A		All sizes	
Direct Print Size for A4/LTR (N/A for A3, LGR, B4)	8 x 10 cm (3 x 4 inches), 9 x 13 cm (3.5 x 5 inches), 10 x 15 cm (4 x 6 inches), 13 x 18 cm (5 x 7 inches), 15 x 20 cm (6 x 8 inches), Maximum Size						
Borderless/Cropping (Full Auto)	Yes/Yes						
Media Format	DPOF (Ver. 1.0, Ver. 1.1) Exif DCF (Up to Ver. 2.1)						
Image Format Print by Media Card/USB Flash Memory	Photo Print: JPEG / N/A	Photo Print: JPEG/JPEG	Photo Print: JPEG / N/A	Photo Print: JPEG/JPEG			
Color Enhancement (PCC)	Yes						
Removable Disk (Media Card/USB Flash Memory)	Yes (read & write) (Card only, USB Flash Memory is N/A)	Yes (read & write) (both Card & USB Flash Memory)	Yes (read & write) (Card only, USB Flash Memory is N/A)	Yes (read & write) (both Card & USB Flash Memory)			

Model	DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Scan to Media (Media = Media Card or USB Flash Memory)	Color: JPEG/PDF B&W: TIFF/PDF (Card only, USB Flash Memory is N/A.)	Color: JPEG/PDF B&W: TIFF/PDF	Color: JPEG/PDF B&W: TIFF/PDF (Card only, USB Flash Memory is N/A.)	Color: JPEG/PDF B&W: TIFF/PDF		
Network Media Card/USB Flash Memory Access	Yes (read & write) (Card only, USB Flash Memory is N/A.)	Yes (read & write) (both Card & USB Flash Memory)	Yes (read & write) (Card only, USB Flash Memory is N/A.)	Yes (read & write) (both Card & USB Flash Memory)		
Monochrome/Sepia	N/A	Yes	N/A		Yes	
Trimming	N/A	Yes	N/A		Yes	
Search from Date	N/A	Yes	N/A		Yes	N/A
Slide-show	N/A	Yes	N/A		Yes	
Photo Enhance	N/A	Yes (Remove red-eye/Skin-Tone/Scenery/ Auto correct)	N/A		Yes (Remove red-eye/Skin-Tone/Scenery/ Auto correct)	

DCPJ125/J315W/J515W/J715W/J140W

Model		DCPJ125	DCPJ315W	DCPJ515W	DCPJ715W	DCPJ140W
Acceptable Media (Type & Size)	Media Cards	Memory Stick: 16-128 MB Memory Stick Pro: 256 MB -16 GB (MagicGate: Yes if not use MG function)				N/A
		Secure Digital: 16 MB - 2 GB (MiniSD with Adapter) Secure Digital High Capacity: 4-16 GB				N/A
	USB Flash Memory	N/A			Up to 32 GB	N/A
Paper Sizes	Standard Tray	LTR, A4, 10 x 15 cm (4 x 6 inches), 13 x 18 cm (5 x 7 inches)				N/A
	Photo Tray	N/A		10 x 15 cm (4 x 6 inches)		N/A
	Lower Tray	N/A				
Paper Types	Standard Tray	Plain, Inkjet, Glossy				N/A
	Photo Tray	N/A		Plain, Inkjet, Glossy		N/A
	Lower Tray	N/A				
Print Paper Margin (upper, lower, left, right) (PCC)		<Borderless printing> On: 0, 0, 0, 0 mm/0, 0, 0, 0 inches Off: 3, 3, 3, 3 mm/0.12, 0.12, 0.12, 0.12 inches				N/A
Available Paper Size for Full (Maximum) Size Printing		All sizes				N/A
Direct Print Size for A4/ LTR (N/A for A3, LGR, B4)		8 x 10 cm (3 x 4 inches), 9 x 13 cm (3.5 x 5 inches), 10 x 15 cm (4 x 6 inches), 13 x 18 cm (5 x 7 inches), 15 x 20 cm (6 x 8 inches), Maximum Size				N/A

Model	DCPJ125	DCPJ315W	DCPJ515W	DCPJ715W	DCPJ140W
Borderless/Cropping (Full Auto)	Yes/Yes				N/A
Media Format	DPOF (Ver. 1.0, Ver. 1.1) Exif DCF (Up to Ver. 2.1)				N/A
Image Format Print by Media Card/USB Flash Memory	Photo Print: JPEG / N/A		Photo Print: JPEG, avi, mov / JPEG, avi, mov		N/A
Color Enhancement (PCC)	Yes				N/A
Removable Disk (Media Card/USB Flash Memory)	Yes (read & write) (Card only, USB Flash Memory is N/A.)			Yes (read & write) (both Card & USB Flash Memory)	N/A
Scan to Media (Media = Media Card or USB Flash Memory)	Color: JPEG/PDF B&W: TIFF/PDF				N/A
Network Media Card/USB Flash Memory Access	N/A	Yes (read & write) (Card only. USB Flash Memory is N/A.)		Yes (read & write) (both Card & USB Flash Memory)	N/A
Monochrome/Sepia	N/A		Yes		N/A
Trimming	N/A		Yes		N/A
Search from Date	N/A		Yes		N/A
Slide-show	N/A		Yes		N/A
Photo Enhance	N/A		Yes (Remove red-eye/ Skin-Tone/Scenery/ Auto correct)		N/A

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model	MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W	
Acceptable Media (Type & Size)	Media Cards	Memory Stick: 16-128 MB Memory Stick Pro: 256 MB -16 GB (MagicGate: Yes if not use MG function)	Memory Stick: 16-128 MB (Duo with Adapter) (U.S.A./Asia/ Oceania only) Memory Stick: 16-128 MB (Europe only) Memory Stick Pro: 256 MB -16 GB (MagicGate: Yes if not use MG function)	Memory Stick: 16-128 MB Memory Stick Pro: 256 MB -16 GB (MagicGate: Yes if not use MG function)		
		Secure Digital: 16 MB - 2 GB (MiniSD with Adapter) Secure Digital High Capacity: 4-16 GB				
	USB Flash Memory	N/A			Up to 32 GB	
Paper Sizes	Standard Tray	LTR, A4, 10 x 15 cm (4 x 6 inches), 13 x 18 cm (5 x 7 inches)				
	Photo Tray	N/A			10 x 15 cm (4 x 6 inches)	
	Lower Tray	N/A				

Model		MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
Paper Types	Standard Tray	Plain, Inkjet, Glossy				
	Photo Tray	N/A			Plain, Inkjet, Glossy	
	Lower Tray	N/A				
Print Paper Margin (upper, lower, left, right) (PCC)		<Borderless printing> On: 0, 0, 0, 0 mm/0, 0, 0, 0 inches Off: 3, 3, 3, 3 mm/0.12, 0.12, 0.12, 0.12 inches				
Available Paper Size for Full (Maximum) Size Printing		All sizes				
Direct Print Size for A4/LTR (N/A for A3, LGR, B4)		8 x 10 cm (3 x 4 inches), 9 x 13 cm (3.5 x 5 inches), 10 x 15 cm (4 x 6 inches), 13 x 18 cm (5 x 7 inches), 15 x 20 cm (6 x 8 inches), Maximum Size				
Borderless/Cropping (Full Auto)		Yes/Yes				
Media Format		DPOF (Ver. 1.0, Ver. 1.1) Exif DCF (Up to Ver. 2.1)				
Image Format Print by Media Card/USB Flash Memory		Photo Print: JPEG / N/A			Photo Print: JPEG, avi, mov / JPEG, avi, mov	
Color Enhancement (PCC)		Yes				
Removable Disk (Media Card/USB Flash Memory)		Yes (read & write) (Card only. USB Flash Memory is N/A.)			Yes (read & write) (both Card & USB Flash Memory)	
Scan to Media (Media = Media Card or USB Flash Memory)		Color: JPEG/PDF B&W: TIFF/PDF				
Network Media Card/USB Flash Memory Access		N/A	Yes (read & write) (Card only. USB Flash Memory is N/A.)	N/A	Yes (read & write) (Card only. USB Flash Memory is N/A.)	Yes (read & write) (both Card & USB Flash Memory)
Monochrome/Sepia		N/A			Yes	
Trimming		N/A			Yes	
Search from Date		N/A			Yes	
Slide-show		N/A			Yes	
Photo Enhance		N/A			Yes (Remove red-eye/ Skin-Tone/ Scenery/ Auto correct)	

2.7.1 PictBridge

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model	DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Paper Size	N/A	A4, LTR, 4 x 6 inches, Printer Setting	N/A	A4, LTR, 4 x 6 inches, Printer Setting		
Paper Type	N/A	Plain Paper, Inkjet Paper, Glossy, Printer Setting	N/A	Plain Paper, Inkjet Paper, Glossy, Printer Setting		
Direct Print Size for A4/ LTR	N/A	Maximum Size only	N/A	Maximum Size only		
Borderless / Cropping (Full Auto)	N/A	Yes/No	N/A	Yes/No		
Index Print	N/A					
DPOF	N/A	Yes	N/A	Yes		
Color Enhancement	N/A	Yes	N/A	Yes		
Print Quality	N/A	Normal, Fine, Printer Setting	N/A	Normal, Fine, Printer Setting		

DCPJ125/J315W/J515W/J715W/J140W

Model	DCPJ125	DCPJ315W	DCPJ515W	DCPJ715W	DCPJ140W
Paper Size	N/A			A4, LTR, 4 x 6 inches, Printer Setting	N/A
Paper Type	N/A			Plain Paper, Inkjet Paper, Glossy, Printer Setting	N/A
Direct Print Size for A4/ LTR	N/A			Maximum Size only	N/A
Borderless / Cropping (Full Auto)	N/A			Yes/No	N/A
Index Print	N/A				
DPOF	N/A			Yes	N/A
Color Enhancement	N/A			Yes	N/A
Print Quality	N/A			Normal, Fine, Printer Setting	N/A

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model	MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
Paper Size	N/A				A4, LTR, 4 x 6 inches, Printer Setting
Paper Type	N/A				Plain Paper, Inkjet Paper, Glossy, Printer Setting
Direct Print Size for A4/ LTR	N/A				Maximum Size only
Borderless / Cropping (Full Auto)	N/A				Yes/No
Index Print	N/A				
DPOF	N/A				Yes
Color Enhancement	N/A				Yes
Print Quality	N/A				Normal, Fine, Printer Setting

2.8 SOFTWARE

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model		DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Support OS version	Windows	Windows 2K/XP/XP Professional x64/Vista					
	Mac	Mac OS X 10.3.9 (greater)					
PC Application		Win 2K Professional Win XP Home/XP Professional Win XP Professional x64 Win Vista Win Server 2003 (print only via network) Win Server 2003 x64 (print only via network) Win Server 2008 (print only via network) Mac OS X 10.3.9 - 10.4.3 Mac OS X 10.4.4 or greater					

DCPJ125/J315W/J515W/J715W/J140W

Model		DCPJ125	DCPJ315W	DCPJ515W	DCPJ715W	DCPJ140W
Support OS version	Windows	Windows 2K/XP/XP Professional x64/Vista/Windows 7				Windows XP/XP Professional X64/Vista/Windows 7
	Mac	Mac OS X 10.4.11, 10.5.x, 10.6.x				Mac OS X 10.5.8, 10.6.x, 10.7.x
PC Application		Windows, 2000 Professional ^{*1} Windows, XP Home Windows, XP Professional Windows, XP Professional x64 Edition Windows Vista, Windows, 7 Windows Server, 2003 (print only via network) Windows Server, 2003 x64 Edition (print only via network) Windows Server, 2003 R2 (print only via network) Windows Server, 2003 R2 x64 Edition (print only via network) Windows Server, 2008 (print only via network) Windows Server, 2008 R2 (print only via network) Mac OS X 10.4.11 ^{*1} , 10.5.x ^{*1} , 10.5.8 ^{*2} , 10.6.x, 10.7.x ^{*2}				

*1 Except for DCPJ140W

*2 Only for DCPJ140W

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model		MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
Support OS version	Windows	Windows 2K/XP/XP Professional x64/Vista/Windows 7				
	Mac	Mac OS X 10.4.11, 10.5.x, 10.6.x				
PC Application		Windows® 2000 Professional Windows® XP Home Windows® XP Professional Windows® XP Professional x64 Edition Windows Vista® Windows® 7 Windows Server® 2003 (print only via network) Windows Server® 2003 x64 Edition (print only via network) Windows Server® 2003 R2 (print only via network) Windows Server® 2003 R2 x64 Edition (print only via network) Windows Server® 2008 (print only via network) Windows Server® 2008 R2 (print only via network) Mac OS X 10.4.11, 10.5.x Mac OS X 10.6.x				

2.9 NETWORK

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model	DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Printer	Yes					
Scanner	Yes					
PC FAX	N/A		Yes			
Internet FAX (Firmware)	N/A					
Format (Scan to E-mail server)	N/A					
Protocols (IPv4)	ARP, RARP, BOOTP, DHCP, APIPA (Auto IP), NetBIOS/WINS, LPR/LPD, Custom Raw Port/Port9100, DNS Resolver, mDNS, FTP Server, TELNET, SNMPv1, TFTP, Scanner Port, LLTD Responder, Web Service (Print)					
Protocols (IPv6)	N/A					
LDAP	N/A					
FAX to E-mail	N/A					
RSS reader	N/A					

DCPJ125/J315W/J515W/J715W/J140W

Model	DCPJ125	DCPJ315W	DCPJ515W	DCPJ715W	DCPJ140W
Printer	N/A	Yes			
Scanner	N/A	Yes			
PC FAX	N/A				
Internet FAX (Firmware)	N/A				
Format (Scan to E-mail server)	N/A				
Protocols (IPv4)	N/A	ARP, RARP, BOOTP, DHCP, APIPA (Auto IP), WINS/NetBIOS name resolution, DNS Resolver, mDNS, LLNMR responder, LPR/LPD, Custom Raw Port/Port9100, FTP Server, SNMPv1, TFTP server, ICMP, Web Service (Print), LLTD responder			ARP, RARP, BOOTP, DHCP, APIPA (Auto IP), WINS/NetBIOS name resolution, DNS Resolver, mDNS, LLNMR responder, LPR/LPD, Custom Raw Port/Port9100, FTP Server, SNMPv1/v2c, TFTP server, ICMP, Web Services (Print/Scan)
Protocols (IPv6)	N/A				
LDAP	N/A				
FAX to E-mail	N/A				
RSS reader	N/A				

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model	MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
Printer	N/A	Yes	N/A	Yes	
Scanner	N/A	Yes	N/A	Yes	
PC FAX	N/A	Yes	N/A	Yes	
Internet FAX (Firmware)	N/A				
Format (Scan to E-mail server)	N/A				
Protocols (IPv4)	N/A	ARP, RARP, BOOTP, DHCP, APIPA (Auto IP), WINS/NetBIOS name resolution, DNS Resolver, mDNS, LLMNR responder, LPR/LPD, Custom Raw Port/Port9100, FTP Server, SNMPv1, TFTP server, ICMP, Web Service (Print), LLTD responder	N/A	ARP, RARP, BOOTP, DHCP, APIPA (Auto IP), WINS/NetBIOS name resolution, DNS Resolver, mDNS, LLMNR responder, LPR/LPD, Custom Raw Port/Port9100, FTP Server, SNMPv1, TFTP server, ICMP, Web Service (Print), LLTD responder	
Protocols (IPv6)	N/A				
LDAP	N/A				
FAX to E-mail	N/A				
RSS reader	N/A				

2.9.1 Wired

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model	DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Model name (Ethernet)	Embedded (NC-190h)		N/A	Embedded (NC-190h)		
Network connection (Ethernet)	Ethernet 10/100 BASE-TX Auto Negotiation		N/A	Ethernet 10/100 BASE-TX Auto Negotiation		

DCPJ125/J315W/J515W/J715W/J140W

Model	DCPJ125	DCPJ315W	DCPJ515W	DCPJ715W	DCPJ140W
Model name (Ethernet)	N/A			Embedded (NC-210h)	N/A
Network connection (Ethernet)	N/A			Ethernet 10/100 BASE-TX Auto Negotiation	N/A

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model	MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
Model name (Ethernet)	N/A				Embedded (NC-210h)
Network connection (Ethernet)	N/A				Ethernet 10/100 BASE-TX Auto Negotiation

2.9.2 Wireless

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model	DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Model Name (Wireless)	Embedded (NC-200w)	N/A	Embedded (NC-200w)	N/A	Embedded (NC-200w)	
Network Connection (Wireless)	IEEE 802.11b/g	N/A	IEEE 802.11b/g	N/A	IEEE 802.11b/g	
Wireless Security	SSID, WEP 64/128 bit, WPA-PSK (TKIP/AES), WPA2-PSK (AES) **NO LEAP**	N/A	SSID, WEP 64/128 bits, WPA-PSK (TKIP/AES), WPA2-PSK (AES) **NO LEAP**	N/A	SSID, WEP 64/128 bits, WPA-PSK (TKIP/AES), WPA2-PSK (AES) **NO LEAP**	
WiFi Certification	WiFi B and G	N/A	WiFi B and G	N/A	WiFi B and G	
Setup Support Utility	Secure EZ Setup	Yes	N/A	Yes	N/A	Yes
	AOSS (WLAN model only)	Yes	N/A	Yes	N/A	Yes
	WPS (WiFi Protected Setup)	Yes	N/A	Yes	N/A	Yes
Auto Switch WLAN/ WIRED LAN	N/A					
Mobile Print	N/A					

DCPJ125/J315W/J515W/J715W/J140W

Model	DCPJ125	DCPJ315W	DCPJ515W	DCPJ715W	DCPJ140W
Model Name (Wireless)	N/A	Embedded (NC-220w)			Embedded (NC-270w)
Network Connection (Wireless)	N/A	IEEE 802.11 b/g			IEEE 802.11 b/g/n
Wireless Security	N/A	SSID (32 chr), WEP 64/128 bits, WPA-PSK (TKIP/AES), WPA2-PSK (AES) **NO LEAP**			
WiFi Certification	N/A	WiFi B and G			WiFi B, G and N
Setup Support Utility	Secure EZ Setup	N/A			
	AOSS (WLAN model only)	N/A	Yes		
	WPS (WiFi Protected Setup)	N/A	Yes		
Auto Switch WLAN/ WIRED LAN	N/A				
Mobile Print	N/A				Yes

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model		MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
Model Name (Wireless)		N/A	Embedded (NC-200w)	N/A	Embedded (NC-220w)	
Network Connection (Wireless)		N/A	IEEE 802.11b/g	N/A	IEEE 802.11b/g	
Wireless Security		N/A	SSID (32 chr), WEP 64/128 bits, WPA-PSK (TKIP/AES), WPA2-PSK (AES) **NO LEAP**	N/A	SSID (32 chr), WEP 64/128 bits, WPA-PSK (TKIP/AES), WPA2-PSK (AES) **NO LEAP**	
WiFi Certification		N/A	WiFi B and G	N/A	WiFi B and G	
Setup Support Utility	Secure EZ Setup	N/A				
	AOSS (WLAN model only)	N/A	Yes	N/A	Yes	
	WPS (WiFi Protected Setup)	N/A	Yes	N/A	Yes	
Auto Switch WLAN/WIRED LAN		N/A				
Mobile Print		N/A				

2.10 SUPPLIES/OPTIONS

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model		DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW	
Ink Cartridge Model Name	U.S.A.	LC61BK, LC61C, LC61M, LC61Y		LC61BK, LC61C, LC61M, LC61Y				
	Europe	LC980BK, LC980C, LC980M, LC980Y	LC1100BK, LC1100C, LC1100M, LC1100Y	LC980BK, LC980C, LC980M, LC980Y		LC1100BK, LC1100C, LC1100M, LC1100Y		
	Asia/ Oceania	LC38BK, LC38C, LC38M, LC38Y	LC67BK, LC67C, LC67M, LC67Y	LC38BK, LC38C, LC38M, LC38Y		LC67BK, LC67C, LC67M, LC67Y		
Ink Cartridge Yield (@ISO pattern/normal)	Bundled Cartridges	U.S.A.	Approx. 300/240 pages		Approx. 300/240 pages			
		Europe/ Asia/ Oceania	Approx. 280/210 pages	Approx. 300/240 pages	Approx. 280/210 pages		Approx. 300/240 pages	
	Supply Standard Cartridges	U.S.A.	Approx. 450/325 pages		Approx. 450/325 pages			
		Europe/ Asia/ Oceania	N/A	Approx. 450/325 pages	N/A		Approx. 450/325 pages	
	Supply Low Yield Cartridges	U.S.A.	N/A					
		Europe/ Asia/ Oceania	Approx. 300/260 pages	N/A	Approx. 300/260 pages		N/A	
Supply High Yield Cartridges	U.S.A.	N/A						
	Europe/ Asia/ Oceania	N/A						
Brother Paper (for Plain, Glossy and Inkjet)	U.S.A.	Plain: LTR Inkjet: LTR Glossy (resin coated): LTR/4 x 6 inches						
	Europe/ Asia/ Oceania	Plain: A4 Inkjet: A4 Glossy (resin coated): A4/4 x 6 inches						
Recommended Paper Only for Transparency		3M 3410 Transparency Film						

DCPJ125/J315W/J515W/J715W/J140W

Model		DCPJ125	DCPJ315W	DCPJ515W	DCPJ715W	DCPJ140W	
Ink Cartridge Model Name	U.S.A.	LC61BK, LC61C, LC61M, LC61Y	N/A			LC61BK, LC61C, LC61M, LC61Y	
	Europe	LC985BK, LC985C, LC985M, LC985Y			LC1100BK, LC1100C, LC1100M, LC1100Y	LC985BK, LC985C, LC985M, LC985Y	
	Asia/Oceania	LC39BK, LC39C, LC39M, LC39Y			LC67BK, LC67C, LC67M, LC67Y	LC39BK, LC39C, LC39M, LC39Y	
Ink Cartridge Yield (@ISO pattern/normal)	Bundled Cartridges	U.S.A.	Approx. 300/240 pages	N/A		Approx. 300/240 pages	
		Europe/Asia/Oceania	Approx. 280/210 pages			Approx. 300/240 pages	Approx. 280/210 pages
	Supply Standard Cartridges	U.S.A.	Approx. 450/325 pages	N/A			Approx. 450/325 pages
		Europe/Asia/Oceania	N/A			Approx. 450/325 pages	N/A
	Supply Low Yield Cartridges	U.S.A.	N/A				
		Europe/Asia/Oceania	Approx. 300/260 pages			N/A	Approx. 300/260 pages
	Supply High Yield Cartridges	U.S.A.	N/A				
		Europe/Asia/Oceania	N/A				
	Brother Paper (for Plain, Glossy and Inkjet)	U.S.A.	Plain: LTR Inkjet: LTR Glossy (resin coated): LTR/4 x 6 inches	N/A			Plain: LTR Inkjet: LTR Glossy (resin coated): LTR/4 x 6 inches
		Europe/Asia/Oceania	Plain: A4 Inkjet: A4 Glossy (resin coated): A4/4 x 6 inches				
Recommended Paper Only for Transparency		3M 3410 Transparency Film					

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model		MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W	
Ink Cartridge Model Name	U.S.A.	LC61BK, LC61C, LC61M, LC61Y		N/A	LC61BK, LC61C, LC61M, LC61Y		
	Europe	LC985BK, LC985C, LC985M, LC985Y				LC1100BK, LC1100C, LC1100M, LC1100Y	
	Asia/Oceania	LC39BK, LC39C, LC39M, LC39Y				LC67BK, LC67C, LC67M, LC67Y	
Ink Cartridge Yield (@ISO pattern/normal)	Bundled Cartridges	U.S.A.	Approx. 300/240 pages	N/A	Approx. 300/240 pages		
		Europe/Asia/Oceania	Approx. 280/210 pages				Approx. 300/240 pages
	Supply Standard Cartridges	U.S.A.	Approx. 450/325 pages	N/A	Approx. 450/325 pages		
		Europe/Asia/Oceania	N/A				Approx. 450/325 pages
	Supply Low Yield Cartridges	U.S.A.	N/A				
		Europe/Asia/Oceania	Approx. 300/260 pages				N/A
	Supply High Yield Cartridges	U.S.A.	N/A				
		Europe/Asia/Oceania	N/A				
Brother Paper (for Plain, Glossy and Inkjet)	U.S.A.	Plain: LTR Inkjet: LTR Glossy (resin coated): LTR/4 x 6 inches	Plain: A4 Inkjet: A4 Glossy (resin coated): A4/4 x 6 inches	N/A	Plain: LTR Inkjet: LTR Glossy (resin coated): LTR/4 x 6 inches		
	Europe/Asia/Oceania	Plain: A4 Inkjet: A4 Glossy (resin coated): A4/4 x 6 inches					
Recommended Paper Only for Transparency		3M 3410 Transparency Film					

2.11 SERVICE INFORMATION

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

Model	DCP375CW	DCP395CN	MFC255CW	MFC295CN	MFC495CW	MFC795CW
Monthly Volume	2500 pages					
Machine Life	30000 pages or 5 years					
MTBF (Mean Time Between Failures)	4000 hours					
MTTR (Mean Time To Be Repaired)	30 minutes					

DCPJ125/J315W/J515W/J715W/J140W

Model	DCPJ125	DCPJ315W	DCPJ515W	DCPJ715W	DCPJ140W
Recommended monthly print volume	50 to 1000 pages				250 to 800 pages
Monthly Volume	2500 pages				
Machine Life	30000 pages or 5 years				
MTBF (Mean Time Between Failures)	4000 hours				
MTTR (Mean Time To Be Repaired)	30 minutes				

MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

Model	MFCJ220	MFCJ265W/J270W	MFCJ410	MFCJ410W/J415W	MFCJ615W/J630W
Recommended monthly print volume	50 to 1000 pages				
Monthly Volume	2500 pages				
Machine Life	30000 pages or 5 years				
MTBF (Mean Time Between Failures)	4000 hours				
MTTR (Mean Time To Be Repaired)	30 minutes				

2.12 PAPER

2.12.1 Paper Specifications

Paper type and size for each operation

Paper Type	Paper Size		Usage			
			Fax	Copy	Photo Capture	Printer
Cut Sheet	Letter	215.9 x 279.4 mm (8 1/2 x 11 inches)	Yes	Yes	Yes	Yes
	A4	210 x 297 mm (8.3 x 11.7 inches)	Yes	Yes	Yes	Yes
	Legal	215.9 x 355.6 mm (8 1/2 x 14 inches)	Yes	Yes	--	Yes
	Executive	184 x 267 mm (7 1/4 x 10 1/2 inches)	--	Yes	--	Yes
	B5 (JIS)	182 x 257 mm (7.2 x 10.1 inches)	--	--	--	Yes
	A5	148 x 210 mm (5.8 x 8.3 inches)	--	Yes	--	Yes
	A6	105 x 148 mm (4.1 x 5.8 inches)	--	--	--	Yes
Cards	Photo	10 x 15 cm (4 x 6 inches)	--	Yes	Yes	Yes
	Photo L	89 x 127 mm (3 1/2 x 5 inches)	--	--	--	Yes
	Photo 2L	13 x 18 cm (5 x 7 inches)	--	--	Yes	Yes
	Index Card	127 x 203 mm (5 x 8 inches)	--	--	--	Yes
	Post Card 1	100 x 148 mm (3.9 x 5.8 inches)	--	--	--	Yes
	Post Card 2 (Double)	148 x 200 mm (5.8 x 7.9 inches)	--	--	--	Yes
Envelopes	C5 Envelope	162 x 229 mm (6.4 x 9 inches)	--	--	--	Yes
	DL Envelope	110 x 220 mm (4.3 x 8.7 inches)	--	--	--	Yes
	COM-10	105 x 241 mm (4 1/8 x 9 1/2 inches)	--	--	--	Yes
	Monarch	98 x 191 mm (3 7/8 x 7 1/2 inches)	--	--	--	Yes
	JE4 Envelope	105 x 235 mm (4.1 x 9.3 inches)	--	--	--	Yes
Transparencies	Letter	215.9 x 279.4 mm (8 1/2 x 11 inches)	--	Yes	--	Yes
	A4	210 x 297 mm (8.3 x 11.7 inches)	--	Yes	--	Yes
	Legal	215.9 x 355.6 mm (8 1/2 x 14 inches)	--	Yes	--	Yes
	A5	148 x 210 mm (5.8 x 8.3 inches)	--	Yes	--	Yes

Paper weight, thickness and capacity

Paper Type		Weight	Thickness	No. of sheets
Cut Sheet	Plain Paper	64 to 120 g/m ² (17 to 32 lb.)	0.08 to 0.15 mm (3 to 6 mil)	100 ^{*1}
	Inkjet Paper	64 to 200 g/m ² (17 to 53 lb.)	0.08 to 0.25 mm (3 to 10 mil)	20
	Glossy Paper	Up to 220 g/m ² (Up to 58 lb.)	Up to 0.25 mm (Up to 10 mil)	20 ^{*2 *3}
Cards	Photo 4 x 6 inches	Up to 220 g/m ² (Up to 58 lb.)	Up to 0.25 mm (Up to 10 mil)	20 ^{*2 *3}
	Index Card	Up to 120 g/m ² (Up to 32 lb.)	Up to 0.15 mm (Up to 6 mil)	30
	Post Card	Up to 200 g/m ² (Up to 53 lb.)	Up to 0.25 mm (Up to 10 mil)	30
Envelopes		75 to 95 g/m ² (20 to 25 lb.)	Up to 0.52 mm (Up to 20 mil)	10
Transparencies		--	--	10

^{*1} Up to 100 sheets of plain paper 80 g/m² (20 lb.).

^{*2} For Photo 4 x 6 inches paper and Photo L 3.5 x 5 inches paper, use the photo bypass tray (in USA) or the photo paper tray (in Canada).

^{*3} BP71 260 g/m² (69 lb.) paper is especially designed for Brother inkjet machines.

Recommended print media

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

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

Brother paper

Paper Type	Item	Paper Type	Item
Letter Plain	BP60PL100 (USA only)	A4 Plain	BP60PA
Letter Glossy Photo	BP71GLTR, BP61GLL (USA only)	A4 Glossy Photo	BP71GA4
Letter Inkjet (Matte)	BP60ML (USA only)	A4 Inkjet (Matte)	BP60MA
4 x 6 inches Glossy Photo	BP71GP, BP61GLP (USA only)	10 x 15 cm Glossy Photo	BP71GP

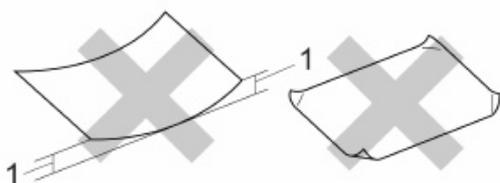
Handling and using print media

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

IMPORTANT

DO NOT use the following kinds of paper:

- Damaged, curled, wrinkled, or irregularly shaped paper



- 1 2 mm (0.08 inches) or greater curve may cause jams to occur
- Extremely shiny or highly textured paper
- Paper that cannot be arranged uniformly when stacked
- Paper made with a short grain

Paper capacity of the output paper tray cover

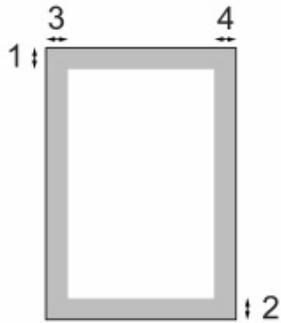
Up to 50 sheets of Letter, Legal or A4
80 g/m² (20 lb.) paper.

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

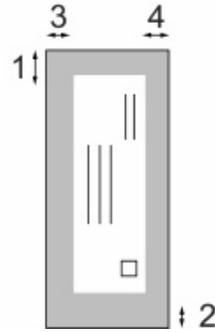
2.12.2 Printable Area

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

Cut Sheet Paper



Envelopes



	Top (1)	Bottom (2)	Left (3)	Right (4)
Cut Sheet	3 mm (0.12 inches)	3 mm (0.12 inches)	3 mm (0.12 inches)	3 mm (0.12 inches)
Envelopes	12 mm (0.47 inches)	24 mm (0.95 inches)	3 mm (0.12 inches)	3 mm (0.12 inches)



Note

The Borderless feature is not available for envelopes.

CHAPTER 3

THEORY OF OPERATION

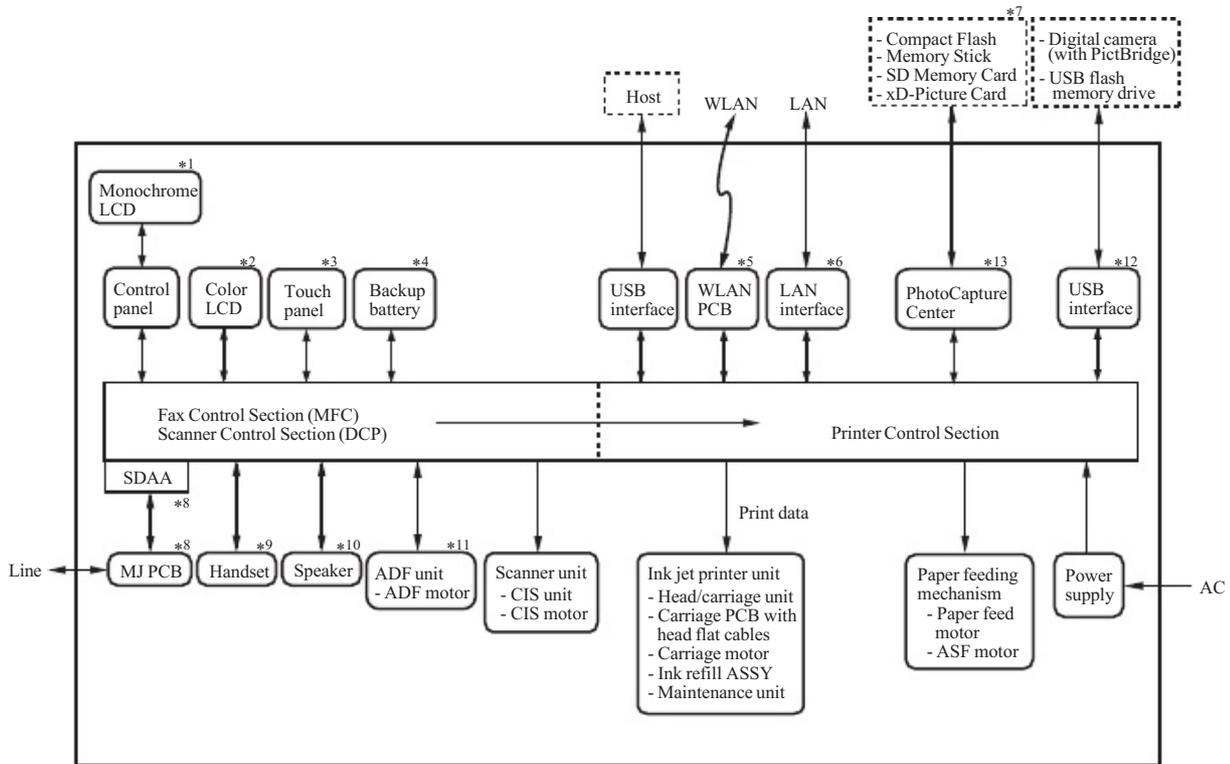
CHAPTER 3 THEORY OF OPERATION

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

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3.1 OVERVIEW



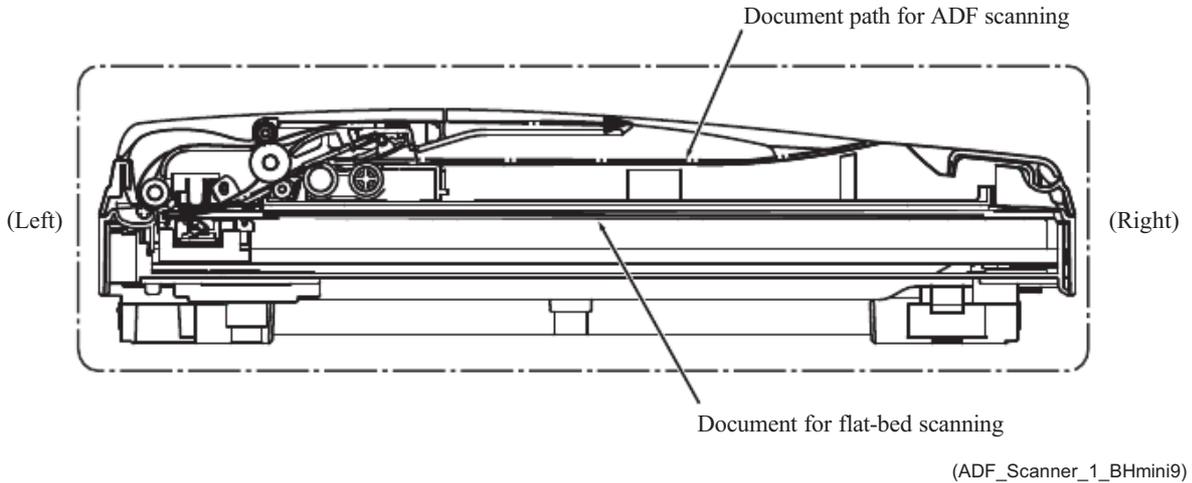
(Overview_BHmini9e_E)

- *1 For models with monochrome LCD
- *2 For models with color LCD
- *3 For models with touch panel
- *4 For models with backup battery
- *5 For wireless LAN-enabled models
- *6 For wired LAN-enabled models
- *7 Some models do not support all memory cards.
- *8 For MFC only
- *9 For models with handset
- *10 For models with speaker
- *11 For models with ADF
- *12 For models supporting PictBridge/USB flash memory drive
- *13 For models with media slots

3.2 MECHANICAL COMPONENTS

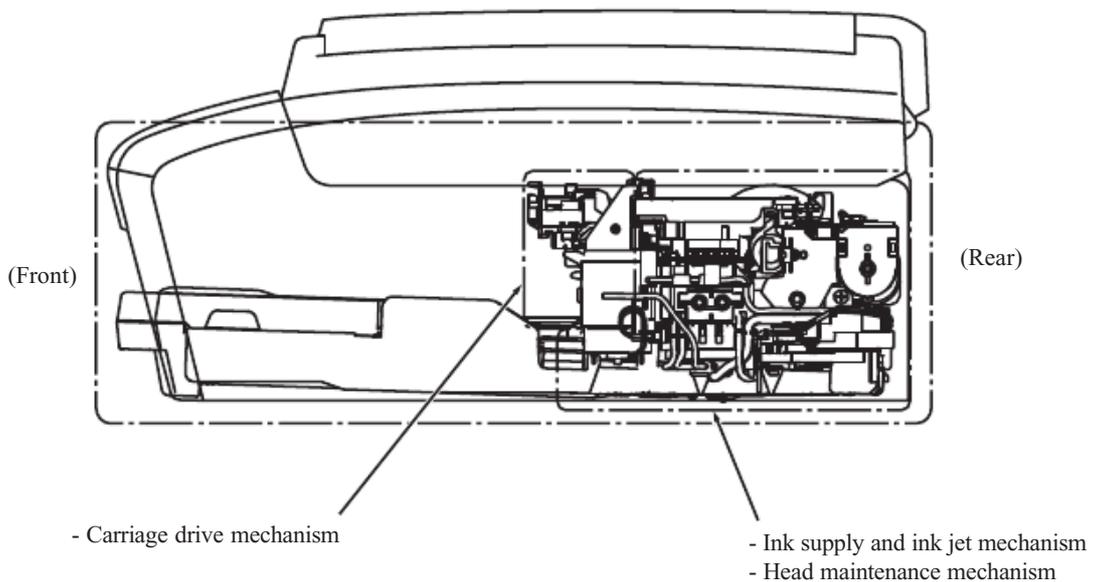
This machine consists of the scanner mechanism and printing mechanism. It uses motors (five in models with ADF and four in models without ADF), three encoders (PF encoder, ASF encoder, and CR encoder), various sensors, and two thermistors.

■ Scanner Mechanism

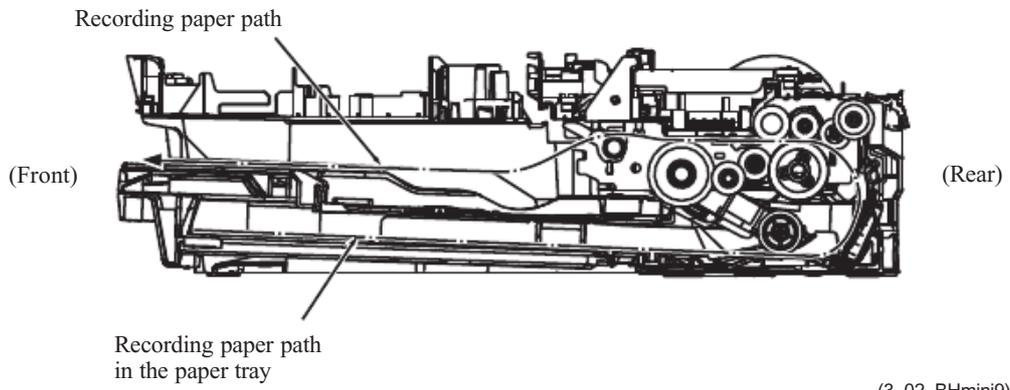


■ Printing Mechanism

Ink supply and ink jet mechanism, head maintenance mechanism, and carriage drive mechanism.



Paper pulling-in, registration, feeding and ejecting mechanisms



■ Scanner Mechanism (See Section 3.2.1.)	- Document scanning mechanism	CIS motor (stepping motor)
	- Automatic document feeder (ADF) mechanism ^{*1}	ADF motor ^{*1} (stepping motor)
■ Printing Mechanism (See Section 3.2.2.)	- Ink supply and ink jet mechanism (See Section 3.2.2.1.)	
	- Head maintenance mechanism (See Section 3.2.2.2.) (Head capping and carriage lock) +	ASF motor ^{*2} (DC motor) +
	(Purge, air removing, and head wiper)	Paper feed motor (DC motor)
	- Carriage drive mechanism (See Section 3.2.2.3.)	Carriage motor (DC motor)
	- Paper pulling-in, registration, feeding and ejecting mechanisms (See Section 3.2.2.4.)	ASF motor ^{*2} (DC motor) + Paper feed motor (DC motor)
■ Encoders (See Section 3.2.3.)	- Paper feed motor encoder (PF encoder)	
	- ASF motor encoder (ASF encoder)	
	- Carriage motor encoder (CR encoder)	
■ Sensors (See Section 3.2.3.)	- Document front sensor ^{*1}	
	- Document rear sensor ^{*1}	
	- Scanner cover sensor	
	- Ink cartridge cover sensor	
	- Registration sensor	
	- Paper width (media) sensor	
	- Purge cam switch	
	- Cap lift cam switch	
	- Ink empty sensors (black, yellow, cyan and magenta)	
- Ink cartridge detection sensors (black, yellow, cyan and magenta) ^{*3}		
- Hook switch		
■ Thermistors (See Section 3.2.3.)	- Head thermistor	
	- Casing internal temperature thermistor	

*1 For models with ADF

*2 ASF motor: Auto Sheet Feeder motor

*3 For models with handset

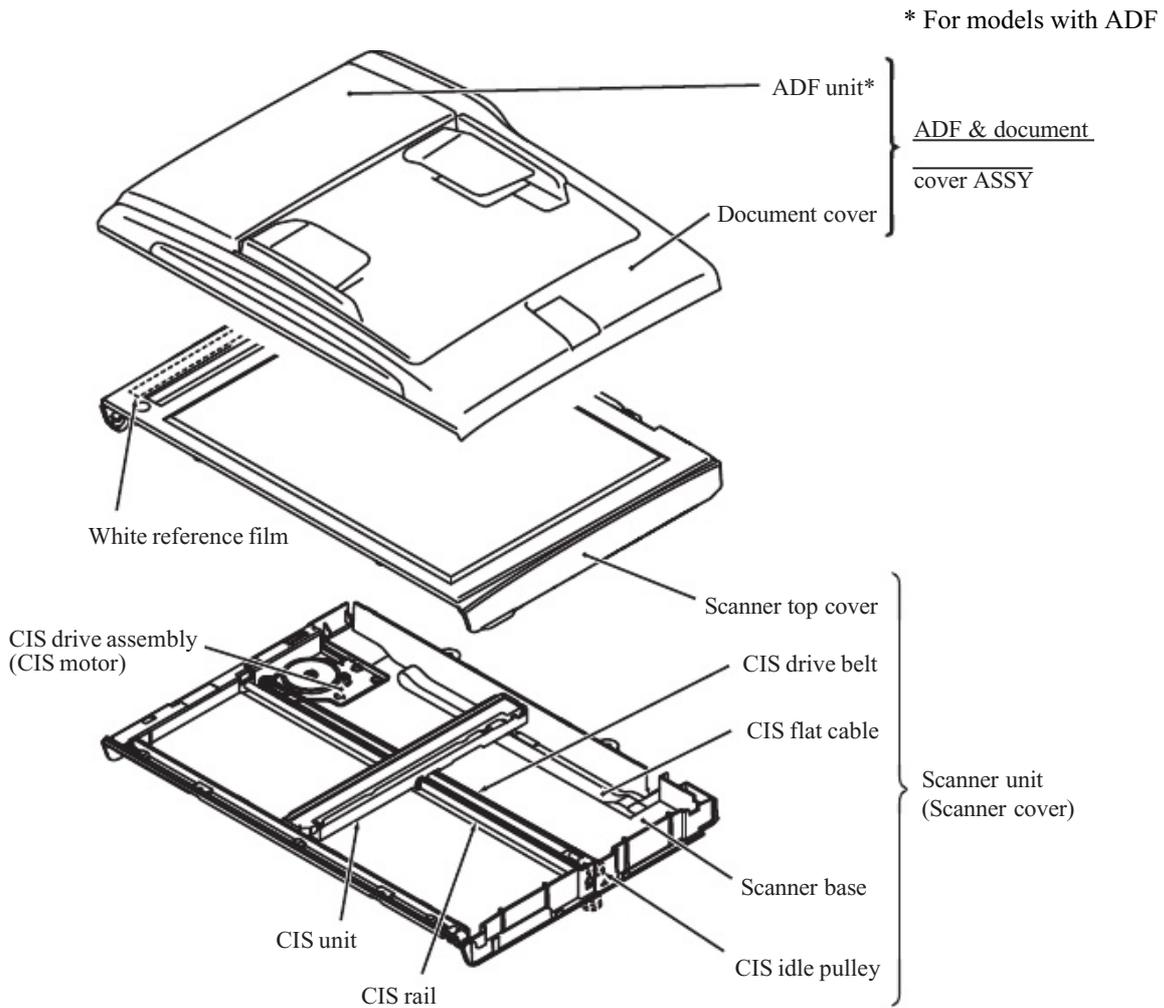
3.2.1 Scanner Mechanism

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

The scanner unit consists of a scanner top cover, CIS unit, CIS drive assembly, and scanner base.

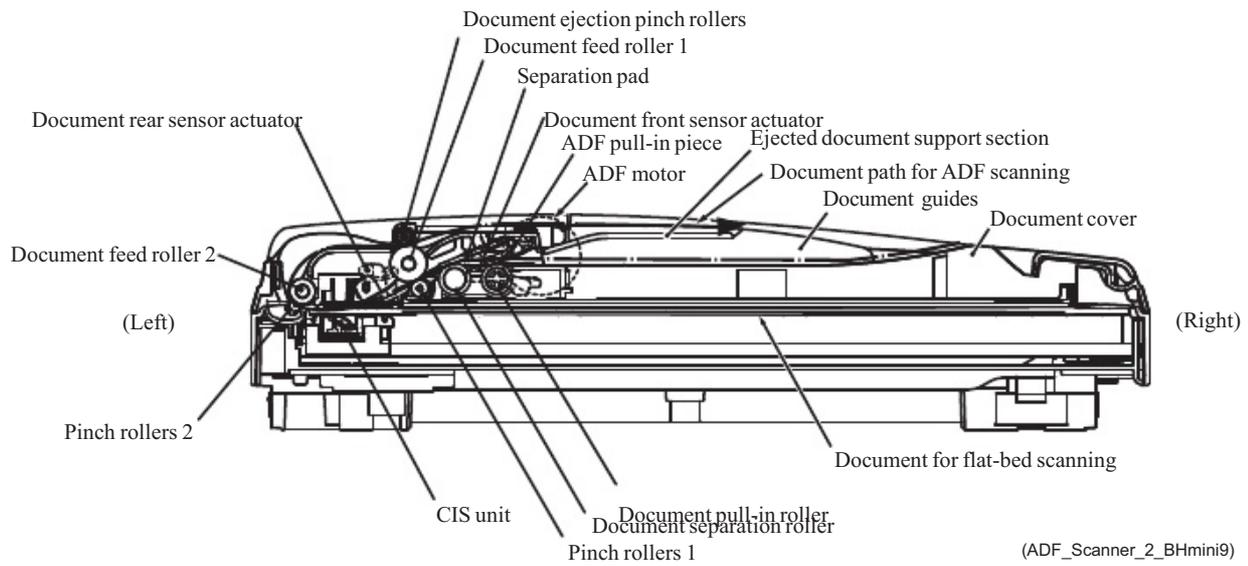
The detailed illustration on the next page shows the components making up the ADF: document pull-in roller, document separation roller, document feed rollers, ADF motor, and document front and rear sensors.

For further details on the sensors, see [Section 3.2.3](#).



(3_03)

Models with ADF



Models with ADF offer two types of scanning: ADF scanning and flat-bed scanning. They automatically switch to the former at the start of a scan operation if the document front sensor inside the ADF detects a document. Models without ADF offer only flat-bed scanning.

(1) ADF scanning: Document moves across stationary CIS unit (Only for models with ADF)

Placing a document *face down* in the ADF activates the document front sensor, switching to ADF scanning.

The CIS drive mechanism (details below) operates for each scanning command executed. First, the CIS motor moves the CIS unit to the white reference film for white level compensation. Secondly, the ADF motor rotates the document pull-in roller* to pull the document into the ADF. (*This roller is used in this series of machines in order to pull in documents horizontally placed.) Thirdly, the CIS motor again moves the CIS unit to the ADF scanning position.

The document separation roller feeds the pages one at a time, *starting from the bottom*, to the document feed rollers (1 and 2), which rotate to move the page in a curve left, up, and right. The page is scanned as it passes over the CIS unit. It then leaves the machine *face up* onto the ejected document support section of the document guides. The machine ejects subsequent pages under this one to preserve the document page order.

(2) Flat-bed scanning: CIS unit moves under stationary document

The user lifts the document cover, places a page (or open book) *face down* on the glass plate, and closes the document cover.

The CIS drive mechanism (details below) operates for each scanning command executed. The CIS unit first moves to the white reference film for white level compensation. It then moves right, scanning as it goes. It returns to its home position after the scan.

CIS drive mechanism

The contact image sensor (CIS) unit rides along the CIS rail, driven by the CIS drive belt.

Clockwise motion of the CIS motor moves the unit to the right; counterclockwise motion, to the left.

This unit consists of the document illumination LED array, the lens array gathering the light reflected from the scanned image, the CIS PCB converting the light input to pixel data output, and the CIS glass.

The CIS unit used in the machine supports color scanning. In scanning color documents, the CIS unit illuminates them by turning on the red (R), green (G), and blue (B) LEDs alternately. In scanning monochrome documents, it turns on the green LEDs only.

3.2.2 Printing Mechanism

The printing mechanism consists of the following.

- Ink supply and ink jet mechanism (Section 3.2.2.1)
- Head maintenance mechanism (Section 3.2.2.2)
- Carriage drive mechanism (Section 3.2.2.3)
- Paper pulling-in, registration, feeding and ejecting mechanisms (Section 3.2.2.4)

The **ink supply mechanism** supplies ink to the head/carriage unit, in which the **ink jet mechanism** sprays ink droplets from the head nozzles onto paper.

The major components of the ink supply mechanism (shown on page 3-10) are:

- Ink refill assembly: This secures the ink cartridges and connects them to the corresponding ink supply tubes.
- Ink supply tubes: These supply the head/carriage unit with ink fed from the ink cartridges via the ink refill assembly.

The major components of the ink jet mechanism (head/carriage unit shown on page 3-12) are:

- Front end: This is an ink-jet head consisting of piezoelectric plate (PZT), metal plates, nozzle plate, and head driver. It jets out ink to produce images on paper.
- Back end: This consists of damper assemblies and air vent unit. Each damper assembly dampens the ink pressure fluctuations in the corresponding ink supply tube and collects air bubbles that result from pressure changes on the ink.

To keep the optimum head performance, the **head maintenance mechanism** (shown on page 3-31) uses the rotational torque of the ASF motor* to cap the head nozzles in order to prevent them from drying up. It also uses the rotational torque of the paper feed motor to purge for removing air bubbles from the head/carriage unit and wipe off any ink remaining on the head nozzle surface.

The **carriage drive mechanism** (shown on page 3-32) moves the head/carriage unit with a carriage motor (DC motor) along the recording paper. The CR encoder sensor mounted on the head/carriage unit scans the CR encoder strip and monitors the current head position relative to the home position and the current travel speed.

The **paper pulling-in, registration, feeding and ejecting mechanisms** are driven by the ASF motor* and paper feed motor (both are DC motors).

The major components are:

- Paper tray: Recording paper is stored in this tray.
- Paper pull-in rollers (shown on page 3-37): These rollers pull in paper into the machine.
- Bank ASSY (shown on page 6-90): This separates paper, sheet by sheet to feed it into the printing section.
- Jam clear cover (shown on page 3-36): Opening this cover allows the user to access paper jammed. It also guides paper pulled in from the paper tray into the printing section.

*ASF motor: Auto Sheet Feeder motor

- Paper feed roller (shown on [page 3-37](#)):
This roller performs paper registration and feeds paper to the printing section precisely.
- Paper ejection roller (shown on [page 3-36](#)):
This roller ejects paper and keeps paper tension tight.
- ASF motor* (shown on [page 3-37](#)):
This motor pulls in paper, switches the paper feed operation modes, and drives the head capping mechanism and carriage lock mechanism of the maintenance unit.
- Paper feed motor (shown on [page 3-37](#)):
This motor feeds recording paper and drives the purge mechanism, air removing mechanism and head wiper mechanism of the maintenance unit.
- Clutch gears L and R (shown on [page 3-37](#)):
Clutch gear L switches the transmission route of the ASF motor rotation between the paper pulling-in mechanism and the head capping & carriage lock mechanisms.
Clutch gear R transmits the rotational torque of the paper feed motor to the purge gear (for purge, air removing and head wiper mechanisms).
- ASF rotary encoder:
This generates a signal indicating the rotation speed of the ASF motor shaft. The signal is sent to the controller and used for controlling the paper pull-in position and speed.
- PF rotary encoder:
This generates a signal indicating the rotation speed of the PF roller gear. The signal is sent to the controller and used for controlling the paper feed position and speed.

*ASF motor: Auto Sheet Feeder motor

3.2.2.1 Ink supply and ink jet mechanism

[1] Overview

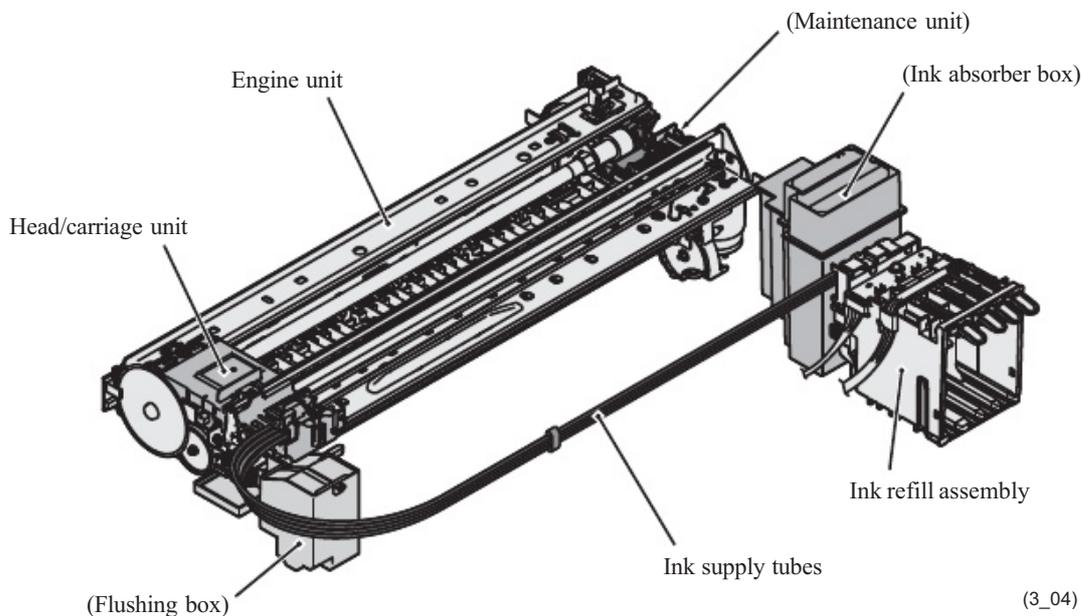
The ink supply and ink-jet mechanism consists of the head/carriage unit, four ink cartridges, ink refill assembly, and four ink supply tubes.

The head/carriage unit scans the surface of the recording paper, jetting out ink supplied through the ink supply tubes onto the paper to produce images. For further details, see "[3] Head/carriage unit" below.

The four ink cartridges (black, yellow, cyan, and magenta) are mounted on the ink refill assembly. For further details, see "[4] Ink cartridges" below.

The ink refill assembly secures the ink cartridges and connects them to the corresponding ink supply tubes. For further details, see "[5] Ink refill assembly" below.

The ink supply tubes supply the head/carriage unit with ink fed from the ink cartridges via the ink refill assembly. For further details, see "[6] Ink supply tubes" below.



[2] Features

A distinct feature of this machine is the use of ink supply tubes between the ink cartridges and the head/carriage unit. Relieving the head/carriage unit of the task of carrying heavy ink cartridges back and forth across the page, the approach generally adopted by other ink-jet printers, offers the following advantages.

- Smaller unit size--lower height, in particular
- Lower power consumption
- Lower noise levels
- Lower vibration

During print operation, the ink-jet mechanism inside the head/carriage unit sprays ink droplets from the head nozzles. The loss of this ink from the head produces a negative pressure that replenishes the head with ink from the ink tank through the supply tubes.

Note, however, that the above ink flow is only possible when the ink supply tubes are full of ink. The factory therefore primes the ink supply path by applying strong suction to the head nozzles with the maintenance unit to suck both air and ink through the ink supply tubes.

Leaving too long interval between this priming and actual use, however, risks air bubbles, increased viscosity, and other quality issues with the ink in the supply tubes. Before using this machine for the first time, therefore, this machine automatically replaces the ink supply path contents with fresh ink using an initial purge, a repeat of this priming operation.

When the machine is on standby, a constant negative pressure (which is produced according to the difference in height between the head/carriage unit and ink cartridges) is applied to the rear of the print head, thus preventing ink from leading out of those nozzles.

Note: The above applies only as long as this machine rests on a horizontal surface. Standing this machine on end or even just tilting it backwards with the print head uncapped risks overcoming this slight negative pressure preventing ink leakage from the head nozzles.

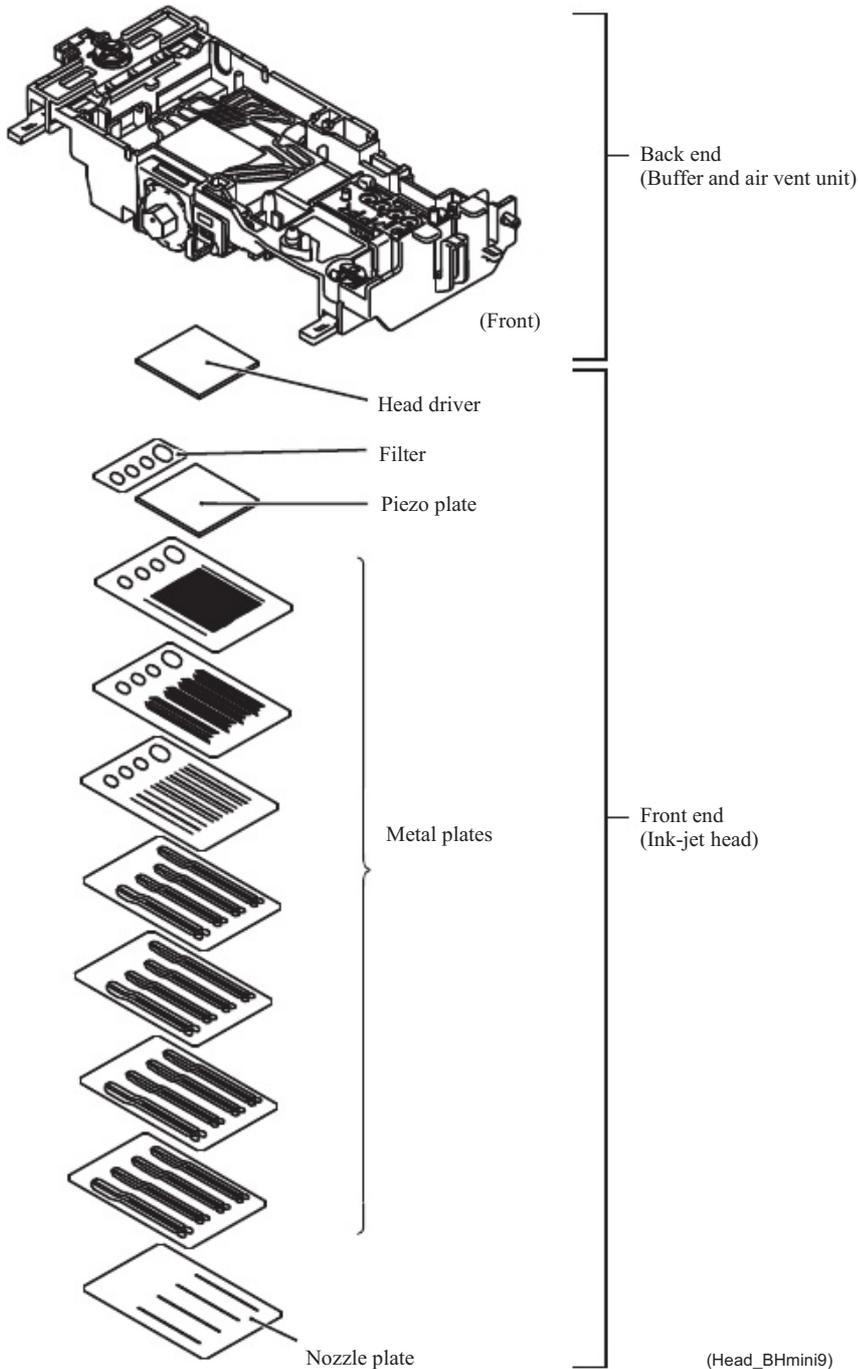
Piezoelectric ceramic actuators inside the print head convert this ink to droplets sprayed onto the paper. For further details, see "[3] Head/carriage unit" below.

[3] Head/carriage unit

The head/carriage unit consists of a front end (ink-jet head) and a back end (damper and air vent unit) as shown below.

The front end consists of metal plates laminated together and etched to form ink flow channels.

Piezoelectric ceramic actuators generate the spray pressure. The response of individual front ends to applied voltages and waveforms varies, however, because of the nature of piezoelectric materials, fluctuation in manufacturing accuracy, and other factors. The front end therefore leaves the production line with head property labels giving property data. The manufacturer writes this property data to the EEPROM on the main PCB incorporating this unit. Based on the property data of the front end, the processor drives piezoelectric ceramic actuators to insure consistent performance without fluctuations.

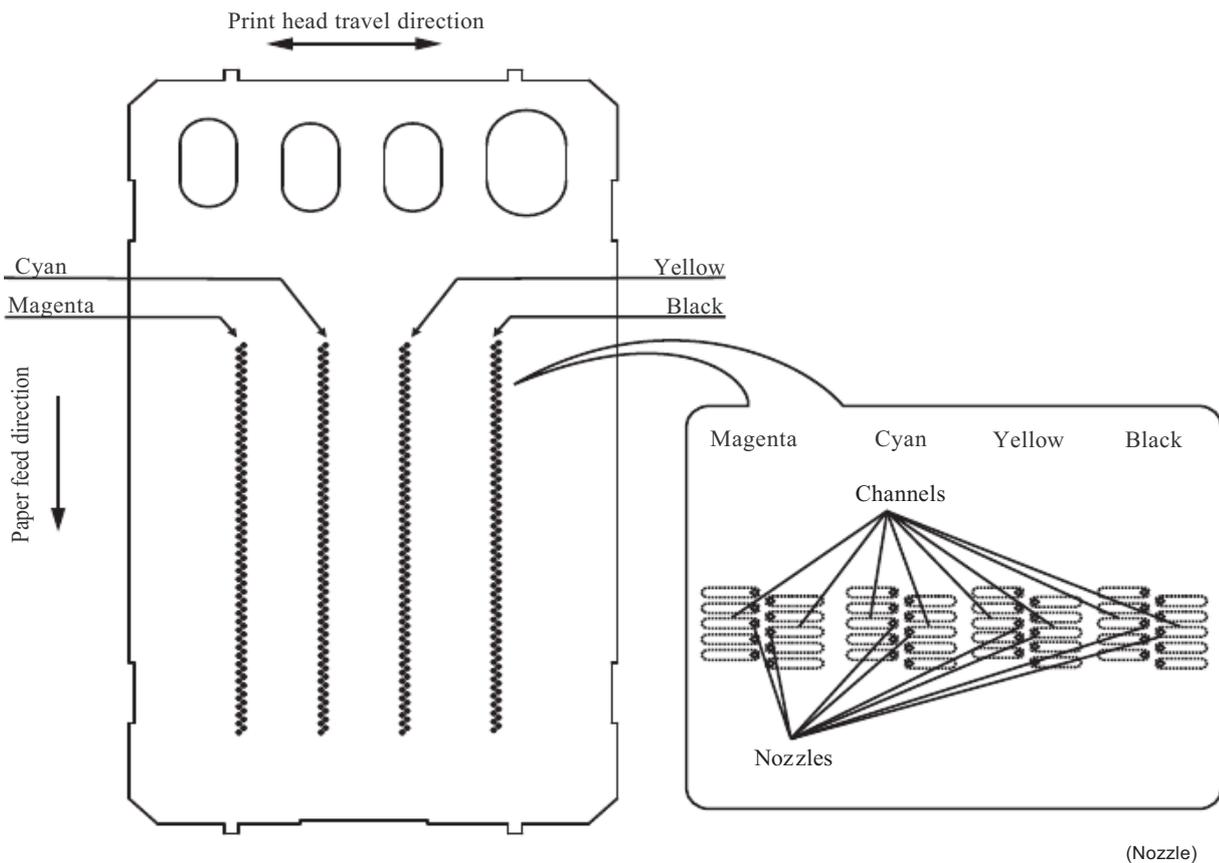


■ Front end

Front end components and their main roles

- Piezoelectric plate
Applying a voltage stretches the plate, serving as the actuator for spraying ink. Consisting of thin piezoelectric plates laminated together, this plate can be driven even by a low voltage.
- Filter
This removes foreign materials from the ink.
- Metal plates
These form the head nozzle pressure chambers, ink flow paths, and manifolds.
- Nozzle plate
This plate has a total of 376 nozzles--47 nozzles x 2 lines staggered x 4 rows (black, yellow, cyan, and magenta).
- Head driver
This flexible circuit board holds the piezoelectric driver chip.

Nozzle array (head bottom plate viewed from the top)



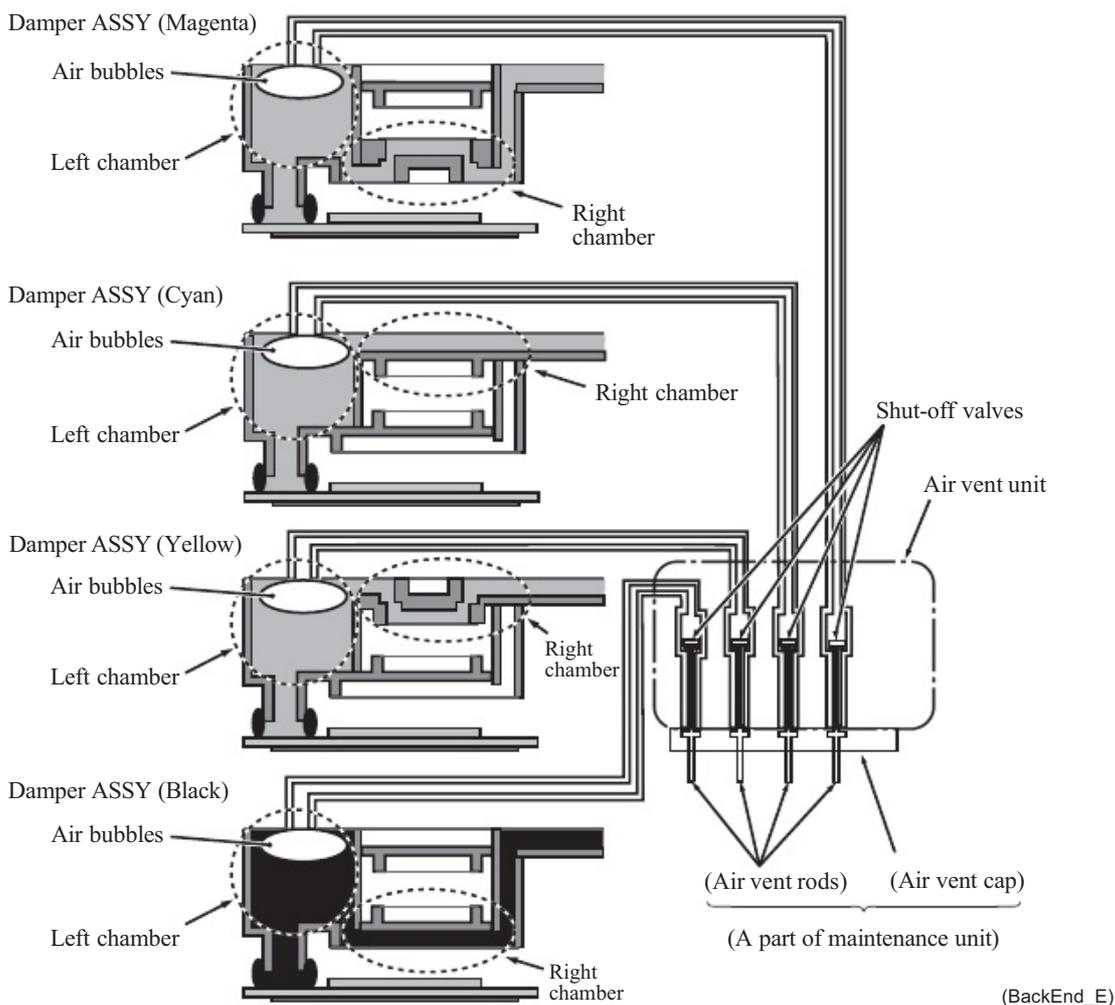
Ink spray function

The head employs drop-on-demand ink-jet printing.

Print commands to the drive circuit apply a bias voltage to the layer electrodes on the piezoelectric ceramic surface stretching the elements perpendicular to that surface. Drive signals removing this voltage for specific channel electrodes allow the piezoelectric elements to return to their original shape, sucking ink into the corresponding channels*. Reapplying the bias voltage stretches the elements once again, applying pressure to the ink, spraying it from the head nozzle. The ink drop hits the paper on the platen, forming a dot.

* Pressure chambers for individual nozzles

■ Back end



Back end components and their main roles

- Damper assemblies

Each assembly has two roles: dampening the ink pressure fluctuations* in the ink supply tube as the carriage moves and collecting air bubbles that grow in the ink flow path.

* Ink pressure fluctuations: As the head/carriage unit travels, inertia means that the ink remains in the same place, temporarily raising or lowering the pressure in the right chamber.

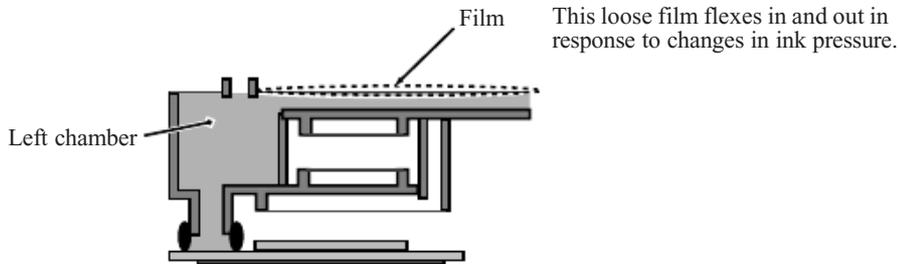
- Air vent unit

At regular scheduled intervals, this vents any air bubbles that have accumulated in the damper assemblies. The air vent rods in the maintenance unit push up the shut-off valves, opening the air vent flow paths.

Damping

Without damping, ink pressure fluctuations directly affect the size of ink-jet head droplets, risking lower print quality.

Each damper assembly has two chambers. The one on the right in the illustration below has a loose film across its top and serves as a damper. The film immediately flexes in and out in response to falls and rises in pressure, adjusting the chamber volume to counteract pressure fluctuations in the ink supply tubes.

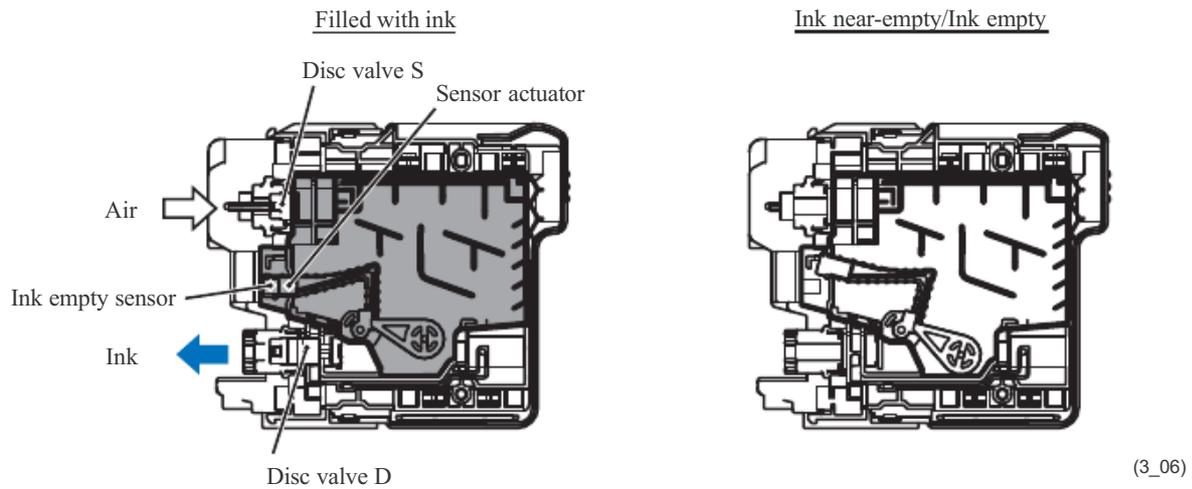


(DamperFunc)

Air buffering

Liquid ink contains trace amounts of air. These molecules coalesce into air bubbles as the piezoelectric ceramic actuators vary the pressure on the ink in the ink-jet head channel. (See the illustration on [page 3-13](#).) Removing as many of these bubbles as possible before the ink reaches the ink-jet head is essential to maintaining proper print quality. The above illustration shows how the damper assemblies provide air buffers, the chambers on the left, for consolidating these air bubbles away from the ink-jet head and vent flow paths for purging them at regular scheduled intervals.

[4] Ink cartridges



Ink cartridge features

This machine uses four ink cartridges: a black one and three color ones with a slightly lower capacity. It features horizontal insertion in the ink refill base over plastic needles.

Each cartridge has two ports: one supplying the ink for printing and another intaking air to replace that ink. Both ports have a disc valve preventing ink leakage. When a cartridge is mounted over the plastic needles in the ink refill base, these valves are opened to secure flow paths for both the ink and the air.

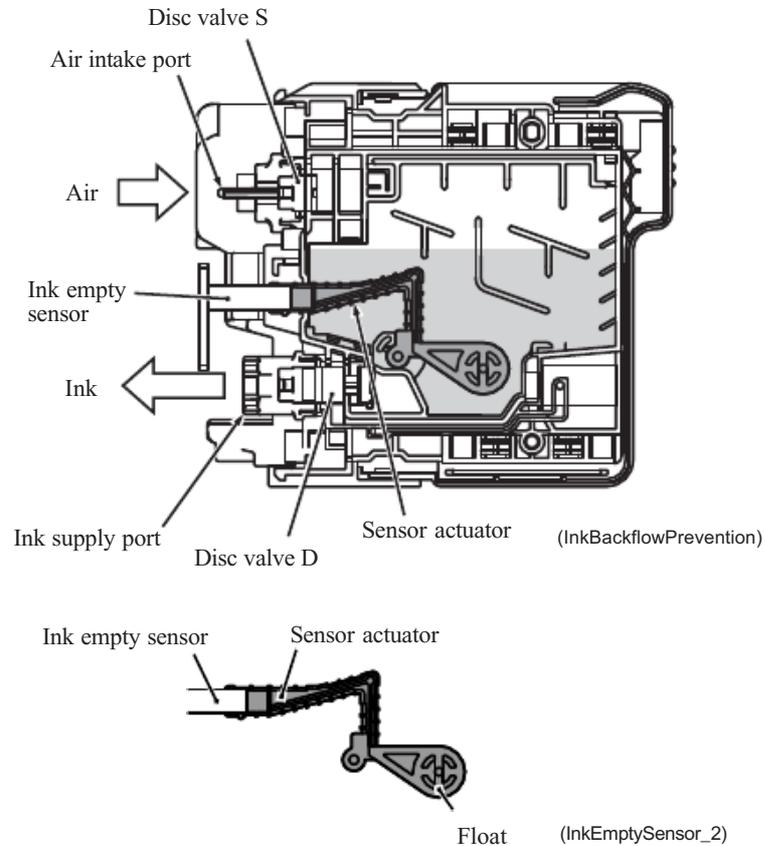
These ink cartridges are single-use affairs. There is no provision for refilling them. The design reduces environment load by using only burnable materials yielding no toxic substances.

Inks

This machine uses dye-based inks for colors and pigment-based ink for black. Using the pigment-based black ink reduces fuzziness from print character outlines, boosts resolution for black dots, and produces clearer images on plain paper.

Ink near-empty/ink empty detection

The ink refill assembly has four ink empty sensors (photosensors of transparent type) that monitor the ink levels with sensor actuators inside the ink cartridges.

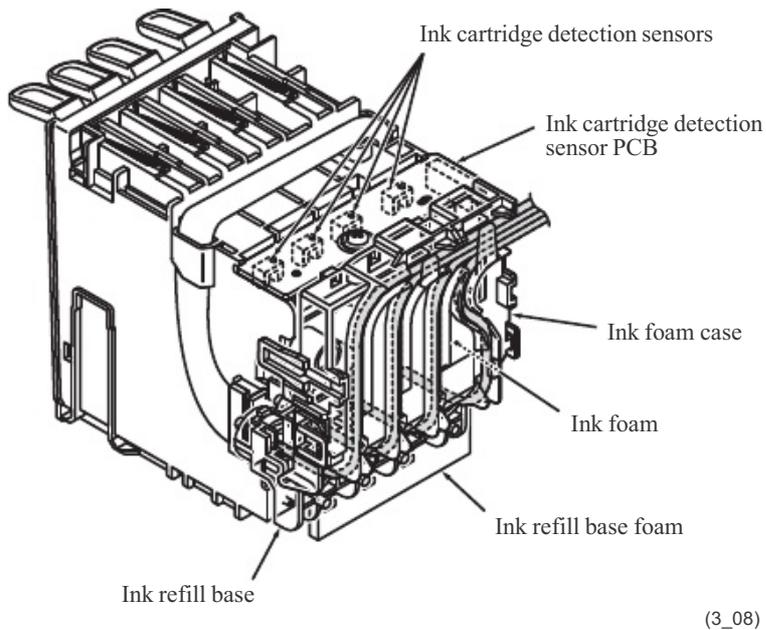
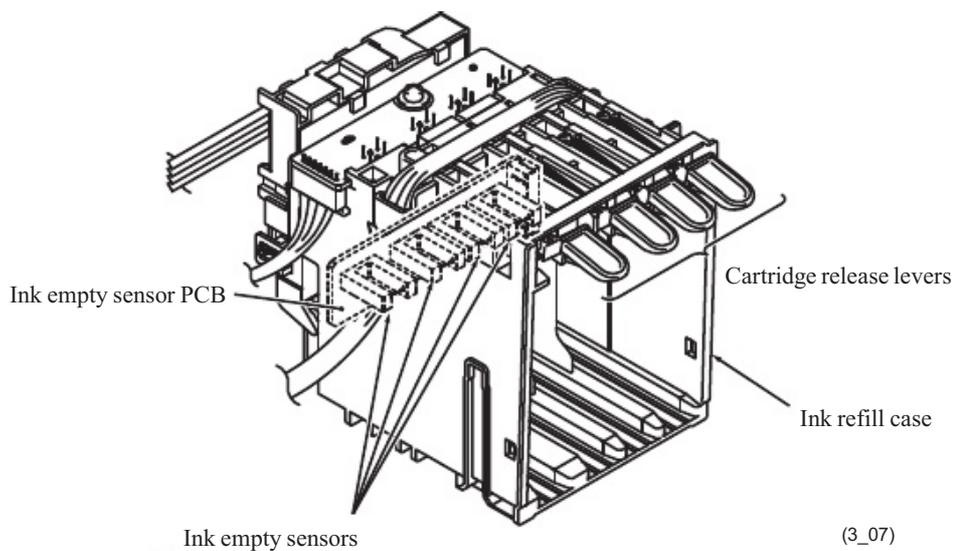


Attached to one end of the sensor actuator is a float. When there is ink in the cartridge, buoyancy lifts the float, rotating the sensor actuator about a pivot near the center of the actuator to block the light beam to the ink empty sensor, indicating that there is ink.

As the ink level in the ink cartridge drops, however, the float falls, eventually moving the sensor actuator out of the beam.

Light hitting the sensor outputs the "ink near-empty" signal to the controller that shows the "Ink low" message and activates a firmware counter tracking ink usage during ink-jet printing, purges, and other operations. When this counter reaches a predetermined limit, the firmware regards it as "ink empty" and shows the "Cannot Print" message to prompts the user to replace it.

[5] Ink refill assembly



Ink refill assembly components and their main roles

- Ink refill case
- Cartridge release levers
- Ink refill base and its foam
- Ink cartridge detection sensors (on the ink cartridge detection sensor PCB)
- Ink empty sensors (on the ink empty sensor PCB)
- Ink foam and its case

Pushing the ink cartridges into the ink refill case until they click secures them and forces the cartridges' ink supply ports into close contact with the ink refill base to prevent ink leakage. Pressing down the cartridge release lever pops the ink cartridge out of the ink refill case.

The ink from the ink cartridges flows through the ink flow channels provided in the ink refill base into the ink supply tubes. As the ink level in an ink cartridge drops, the pressure inside falls, drawing air in the ink cartridge.

~~The ink cartridge detection sensors~~ detect ink cartridges inserted when the machine power is ON.

The ink empty sensors detect ink remaining in the ink cartridges loaded. An ink empty sensor actuator blocking the light beam to an ink empty sensor indicates that there is ink in the ink cartridge. When ink runs low, the actuator moves out of the beam, activating the sensor ("Ink near-empty") and showing the "Ink low" message.

If any of the ink cartridges is replaced with the one having different ink volume when the machine power is OFF, the corresponding ink cartridge detection sensor and ink empty sensor issue different signals when the power is turned ON next time so that the controller prompts the user to reload the ink cartridge.

At the back of the ink refill case is an ~~ink foam~~ that absorbs any ink that leaks from the air intake ports of the ink cartridges loaded when the machine is tilted during transportation or in storage, preventing ink spread in the machine.

[6] Ink supply tubes

These are made of low-density polyethylene (LDPE) providing a highly impermeable barrier against air ingress and drying out of the ink during extended periods of nonuse. This material is also soft and highly flexible to better withstand the sharp and frequent bending associated with high-speed head operation repeatedly over extended periods.

3.2.2.2 Head maintenance mechanism

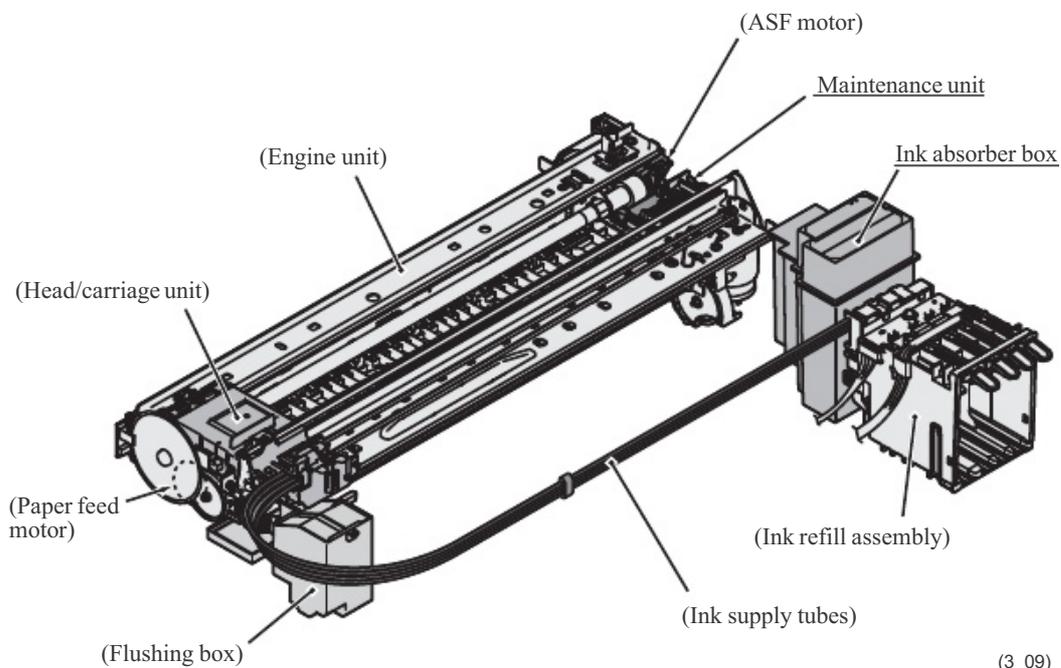
[1] Overview

The head maintenance mechanism, which keeps the optimum head performance, consists of the maintenance unit and the ink absorber box. (See the illustration below.)

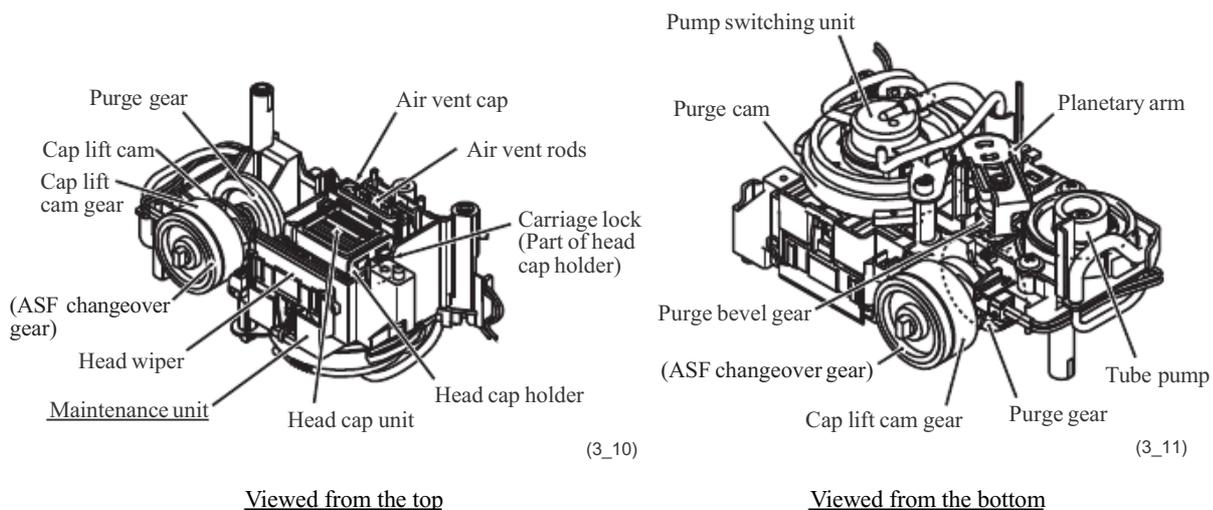
The maintenance unit has the following mechanisms.

- Head capping mechanism (See [page 3-24.](#))
- Carriage lock mechanism (See [page 3-24.](#))
- Purge mechanism (See [page 3-25.](#))
- Air removing mechanism (See [page 3-27.](#))
- Head wiper mechanism (See [page 3-28.](#))

The ink absorber box absorbs the ink sucked out by purge operations.



[2] Maintenance unit components



- Cap lift cam and its gear

These parts transmit the rotational torque of the ASF motor transmitted via the clutch gear L to the head cap holder. (See [4] "[Power transmission route to the head maintenance mechanism and motor rotational direction.](#)")

- Head cap unit

When the power is off or the machine is not printing, the head cap unit fits tightly over the print head to prevent the head nozzles from drying up and to seal the head nozzles for purge operations to suck up old ink.

- Head cap holder

This lifts up the head cap unit to fit it tightly over the print head to seal the head nozzles. (The head cap holder is driven by the ASF motor.)

- Carriage lock

This is a part of the head cap holder. It locks the head/carriage unit in its home position so that the head cap unit protects the head nozzles.

- Purge gear and purge bevel gear

These gears transmit the rotational torque of the paper feed motor via the clutch gear R to the planetary arm. (See [4] "[Power transmission route to the head maintenance mechanism and motor rotational direction.](#)")

- Planetary arm

This switches the rotational torque of the paper feed motor (transmitted via the purge gear and purge bevel gear) to the pump switching unit or tube pump depending on the direction of paper feed motor rotation.

- Purge cam

This rotating cam drives the pump switching unit, the air vent rods, and the head wiper. Each drive position of the purge cam is detected by the purge cam switch. (See [Section 3.2.3.](#))

- Pump switching unit

This switches the application target of the negative pressure generated by the tube pump between the head cap for black ink, the one for color ink, and the air vent cap. Usually the pump switching unit is switched to the opening tube to the atmospheric air so that the pressure in the head caps and air vent cap is equal to the normal atmospheric pressure.

- Air vent cap and rods

The air vent cap and rods remove air bubbles trapped in the damper assemblies in the back end of the head/carriage unit.

During air venting with the tube pump, the air vent cap fits tightly over the air vent unit in the head/carriage unit so that the negative pressure applies to the air vent unit. Pushing up the air vent rods opens the shut-off valves inside the air vent unit, removing air bubbles trapped in the damper assemblies. (For the air vent unit, see [Section 3.2.2.1, \[3 \]](#).)

- Head wiper

As the head/carriage unit moves, this wipes off any ink remaining on the head nozzle surface.

- Tube pump

A roller squeezes the main drain tube looped inside, forcing their contents toward the ink absorber box and creating negative pressure.

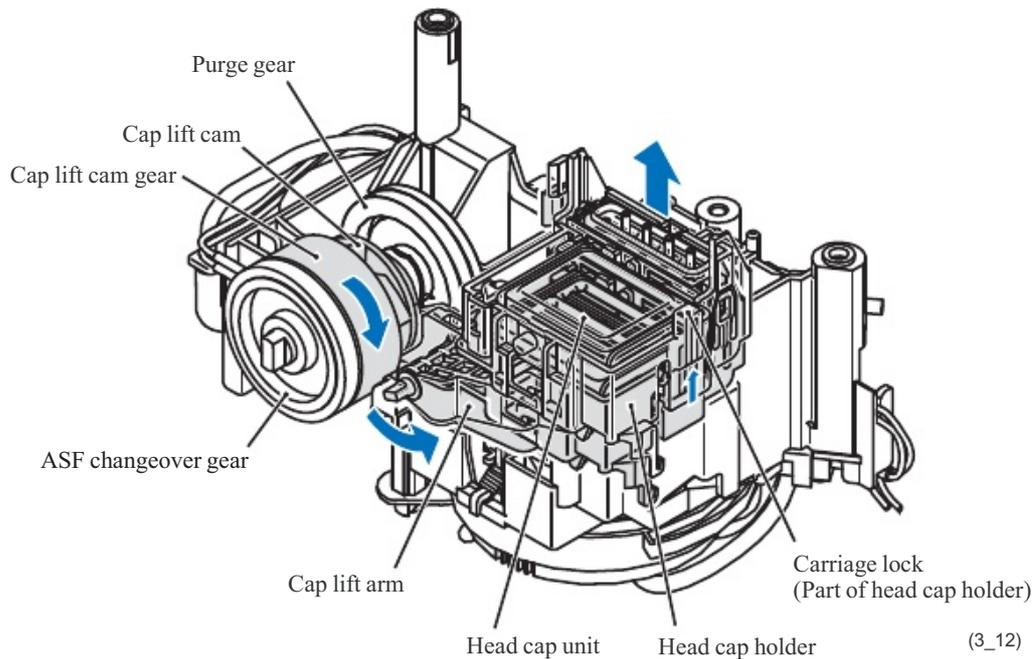
[3] Mechanisms constituting the head maintenance mechanism

(1) Head capping mechanism

The ASF motor drives the head capping mechanism. When the power is off or the machine is not printing, this mechanism fits the head cap unit (which contains two head caps) tightly over the print head to prevent the head nozzles from drying up and to keep dust off the head nozzle surface.

The head cap unit is mounted on the head cap holder and supported by the spring.

When the head/carriage unit returns to its home position, it presses the mode switching lever (shown on pages 3-30 and 3-31) to the right so that the clutch gear L engages with the cap lift cam gear (purge mode). Driving the ASF motor rotates the cap lift cam so that the cap lift arm raises the head cap holder, fitting it tightly over the head nozzle surface.



(2) Carriage lock mechanism

This mechanism locks the head/carriage unit to prevent the head nozzles from getting out of the head cap unit accidentally due to external vibration or impact when the machine is not printing, when the power is off, or during transport.

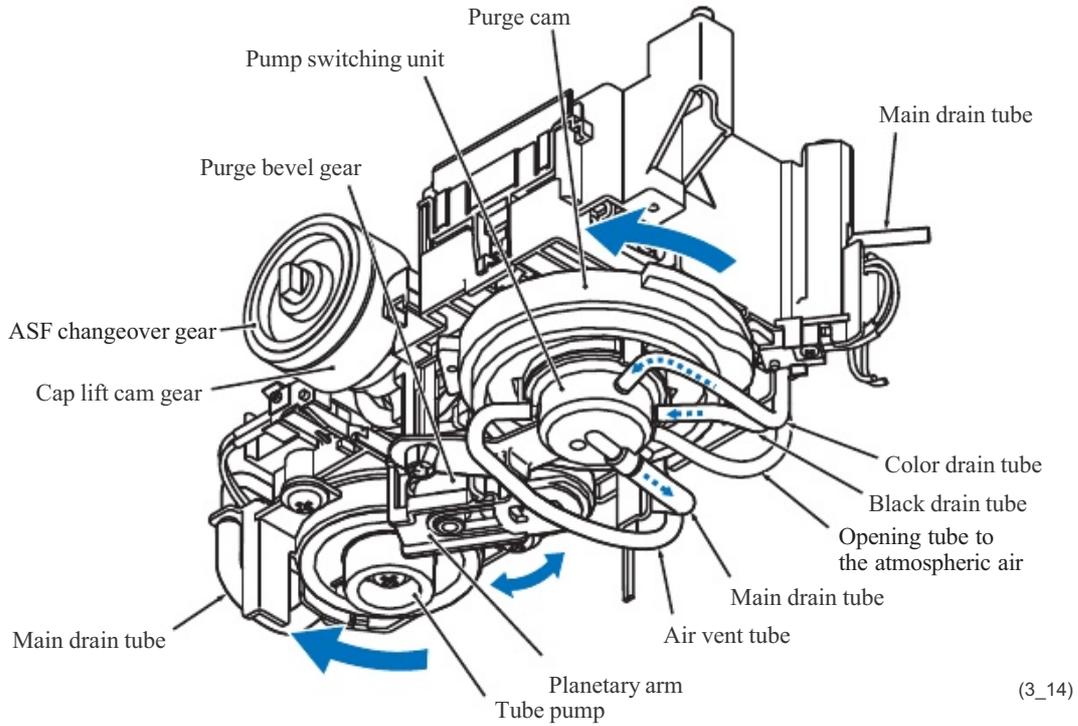
A part of the head cap holder acts as a carriage lock. When the head cap holder rises in head capping operation, the carriage lock also comes up to lock the head/carriage unit.

(3) Purge mechanism

The paper feed motor drives the purge mechanism.

The counterclockwise rotation of the paper feed motor drives the purge cam that aligns the pump switching unit with either the black or color ink drain position.

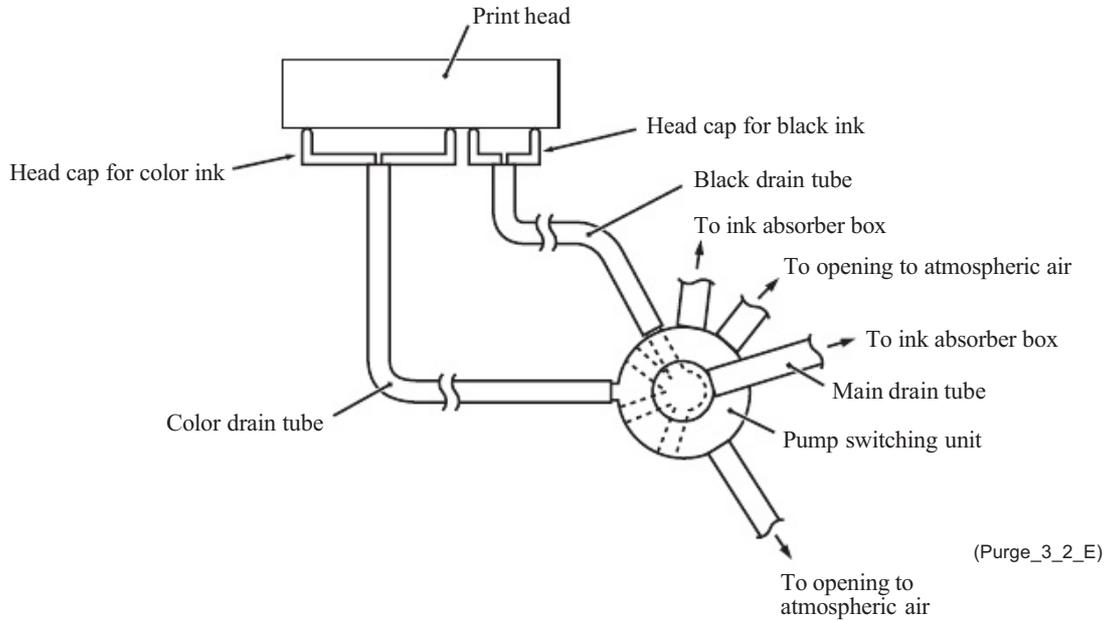
Next, the paper feed motor reverses to activate the tube pump, producing negative pressure to drain the air and old ink from the head nozzles and channels into the ink absorber box.



(3.1) Switching pump

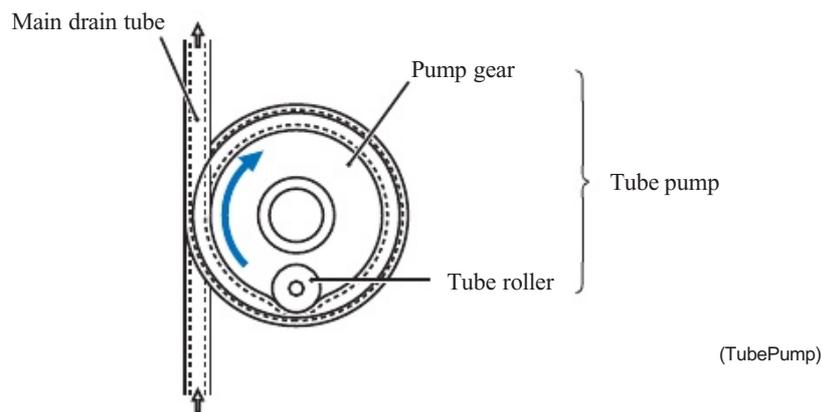
The pump switching unit switches the application target of the negative pressure generated by the pump between the head cap for black ink, the one for color ink, and the air vent cap.

When the purge cam is in a head capping position and the head cap unit fits tightly over the print head, the pump switching unit is switched to the opening tube to the atmospheric air so that the pressure in the head caps and air vent cap returns to the normal atmospheric pressure.



(3.2) Draining ink

The tube pump consists of a pump gear and tube roller. As the pump gear rotates, the tube roller on its circumference squeezes the main drain tube looped around the pump gear, forcing its content toward the ink absorber box and creating negative pressure.

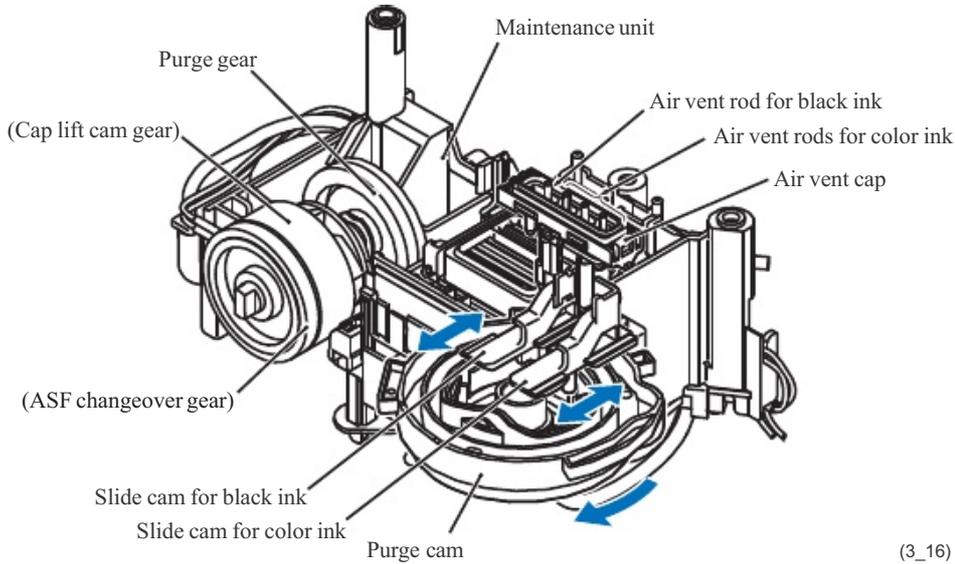


For details about the power transmission route to the head maintenance mechanism, see [4] below.

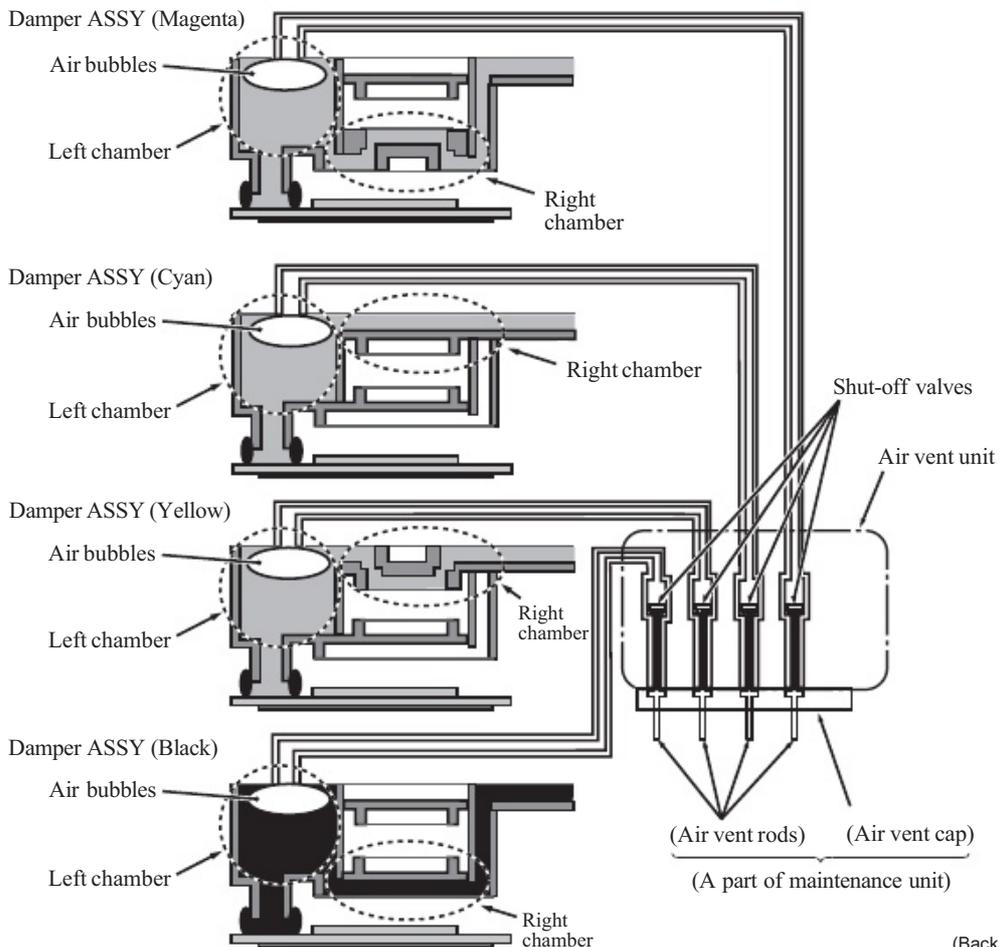
(4) Air removing mechanism

Other two positions of the purge cam shift two slide cams--one for black ink, the other for color inks, producing vertical motion of a single air vent rod for black ink and three air vent rods for color ink, respectively.

Pushing up the air vent rods opens the shut-off valves inside the air vent unit of the head/carriage unit. Simultaneously adding negative pressure from the tube pump removes air trapped in the damper assemblies.



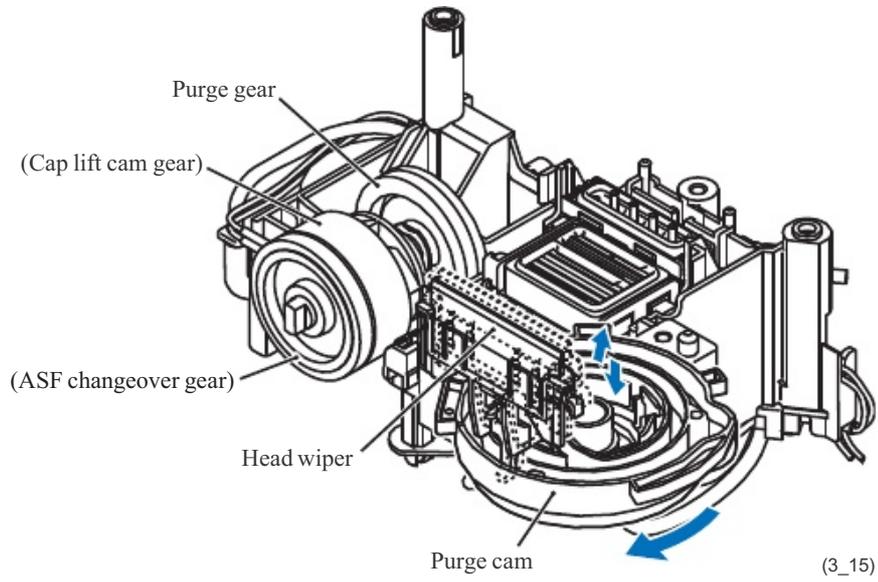
(3_16)



(BackEnd_E)

(5) Head wiper mechanism

After the purge operation, the purge cam pushes up the head wiper, wiping off any ink remaining on the head nozzle surface as the head/carriage unit moves from right to left.



[4] Power transmission route to the head maintenance mechanism and motor rotational direction

This mechanism draws its power from two motors--the ASF motor (DC motor) in the right rear corner of the engine chassis and the paper feed motor (DC motor) on the left side. The ASF motor is mounted in the ASF motor holder combined with the maintenance unit.

ASF motor → Maintenance unit (head capping and carriage lock mechanisms)

As shown on the next page, the rotational torque of the ASF motor is always transmitted via the ASF/maintenance drive gear and idle gear 16 to the clutch gear L.

When the mode switching lever is in the left position (ASF mode), the clutch gear L also meshes with the ASF changeover gear.

When the head/carriage unit moves to the right end of its travel, a tab on the carriage rear panel pushes the mode switching lever to the right (purge mode). The clutch gear spring pushes the clutch gear L to the right, away from the ASF changeover gear, to mesh with the cap lift cam gear. This way, the ASF motor drives the head capping and carriage lock mechanisms. (See page 3-31 for the related components.)

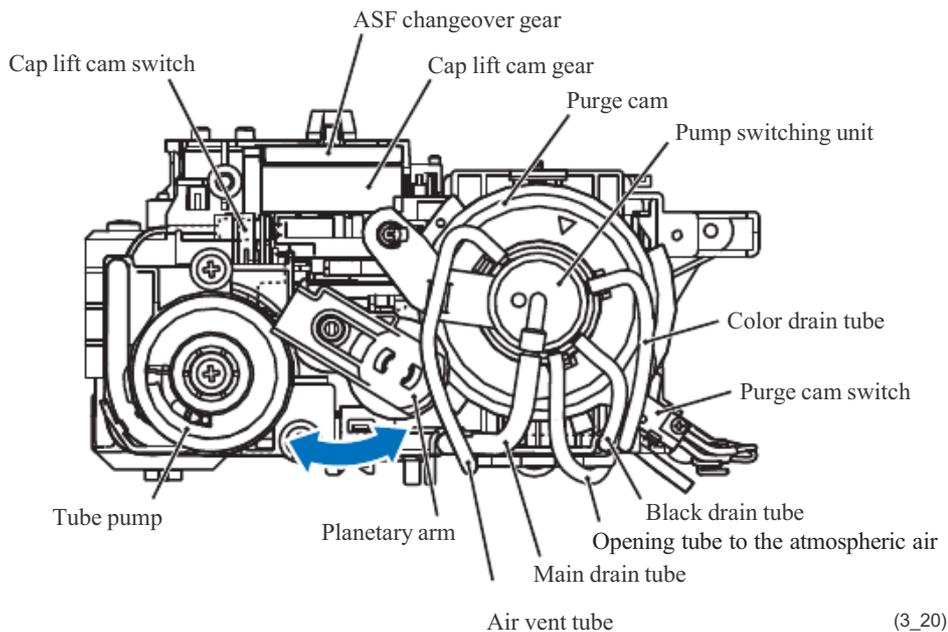
Paper feed motor → Maintenance unit (purge, air removing and head wiper mechanisms)

As shown on the next page, the paper feed motor drives the PF roller gear L that rotates the paper feed roller. At the right end of the roller is the PF roller gear R that always meshes with the clutch gear R.

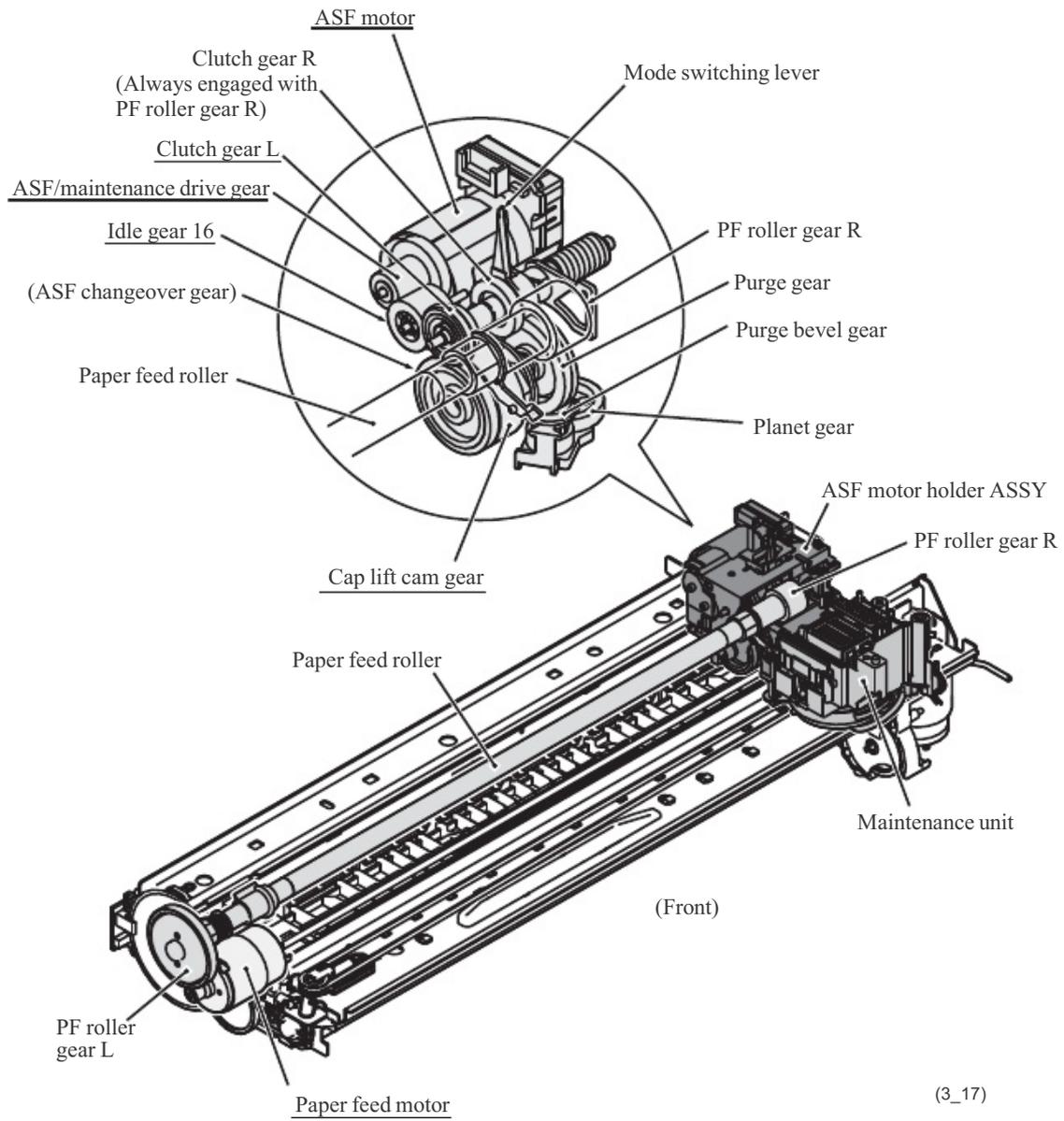
When the mode switching lever is in the left position (ASF mode), the clutch gear R does not mesh with the purge gear but it is just idling.

When the head/carriage unit moves to the right end of its travel, a tab on the carriage rear panel pushes the mode switching lever to the right (purge mode). The clutch gear spring pushes the clutch gear R to the right to mesh with the purge gear.

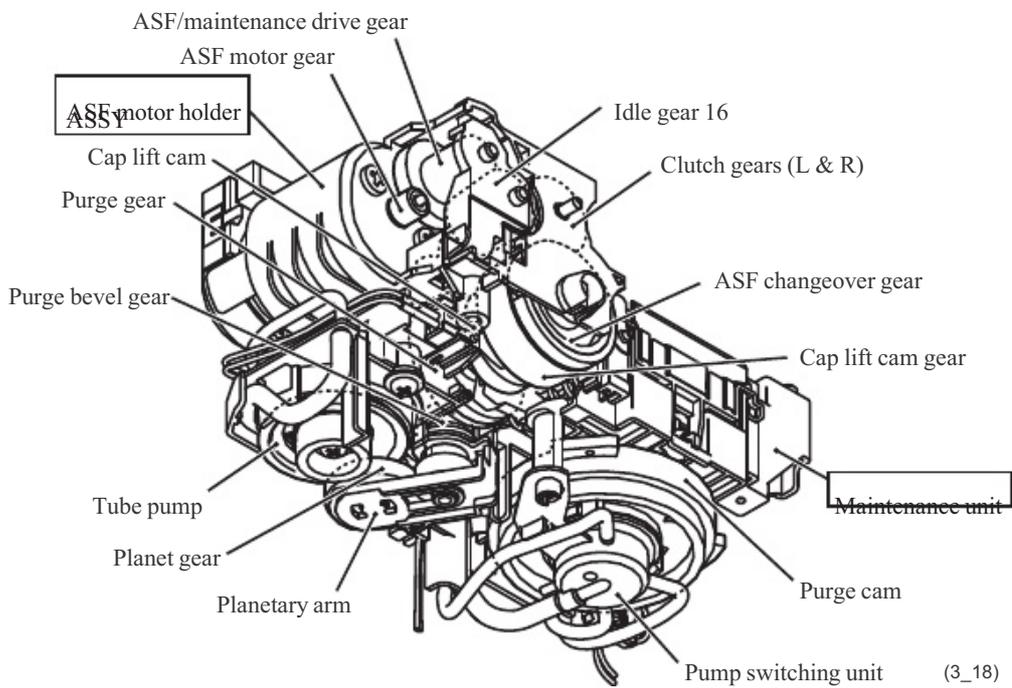
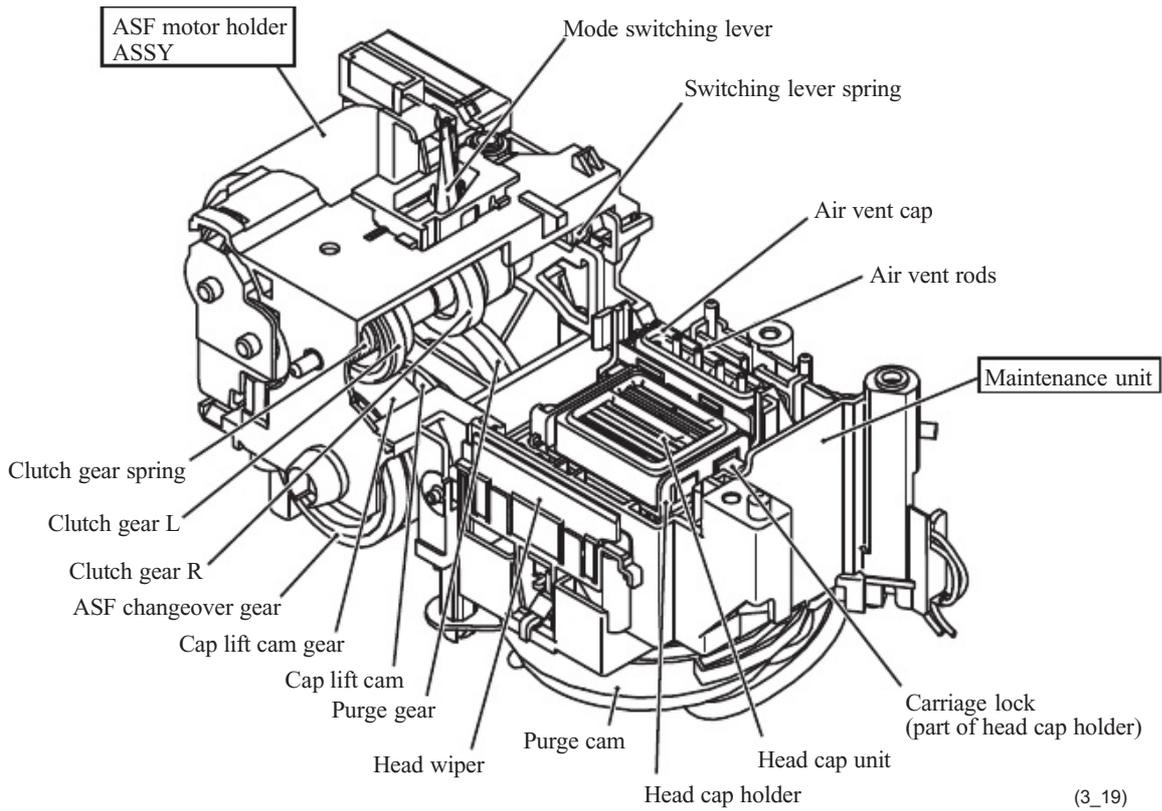
As the paper feed motor rotates counterclockwise, the planetary arm meshes with the purge cam (as shown below), driving the purge mechanism (pump switching unit), air removing mechanism and head wiper mechanism. On the contrary, the clockwise motor rotation causes the planetary arm to mesh with the tube pump gear, driving the purge mechanism (tube pump). (See page 3-31 for the related components.)



(3_20)



(3_17)



[5] Purge types, ink usage, purge counts, and purge codes

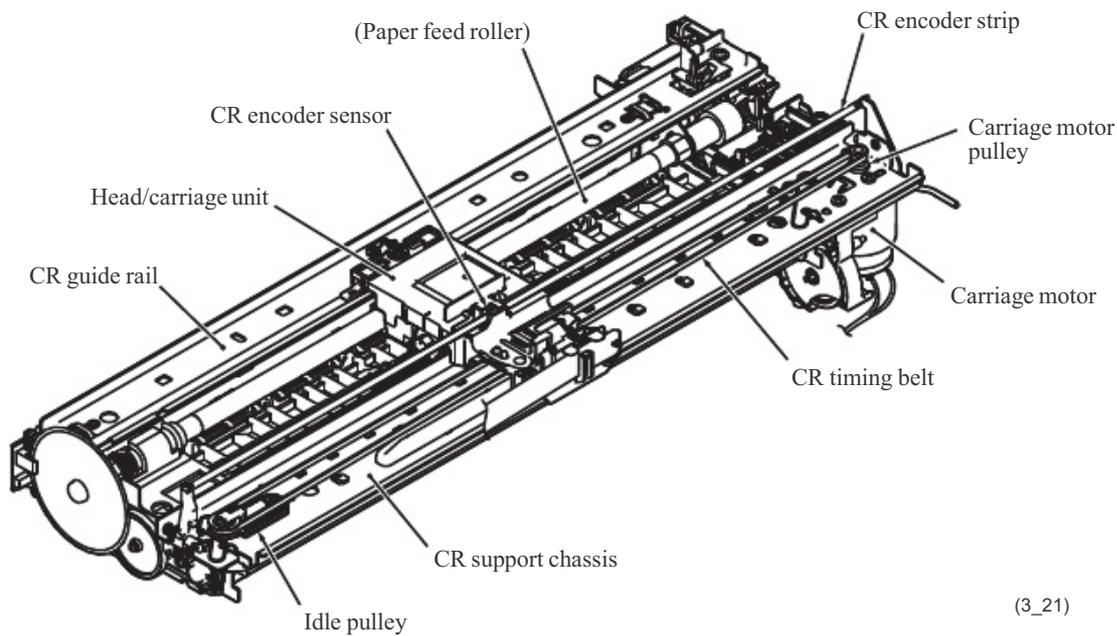
Refer to the table given on [page 9-57](#).

3.2.2.3 Carriage drive mechanism

The head/carriage unit, which integrates the print head unit and carriage, is supported and guided by the CR guide rail and CR support chassis. The CR timing belt transmits the carriage motor rotation to the head/carriage unit. Clockwise motor rotations move the head/carriage unit to the right; counterclockwise ones to the left.

The CR encoder sensor on the top of the head/carriage unit scans the CR encoder strip above the CR support chassis to monitor the current head position relative to the home position. The controller uses this signal for robust control ensuring uniform speed.

The CR encoder strip is a clear film striped in a 1/150 inch cycle. It offers a choice of three travel speeds of the head/carriage unit, 57.7, 43.3 and 21.7 ips, to match the print resolution.



Adjusting the print head angle relative to carriage

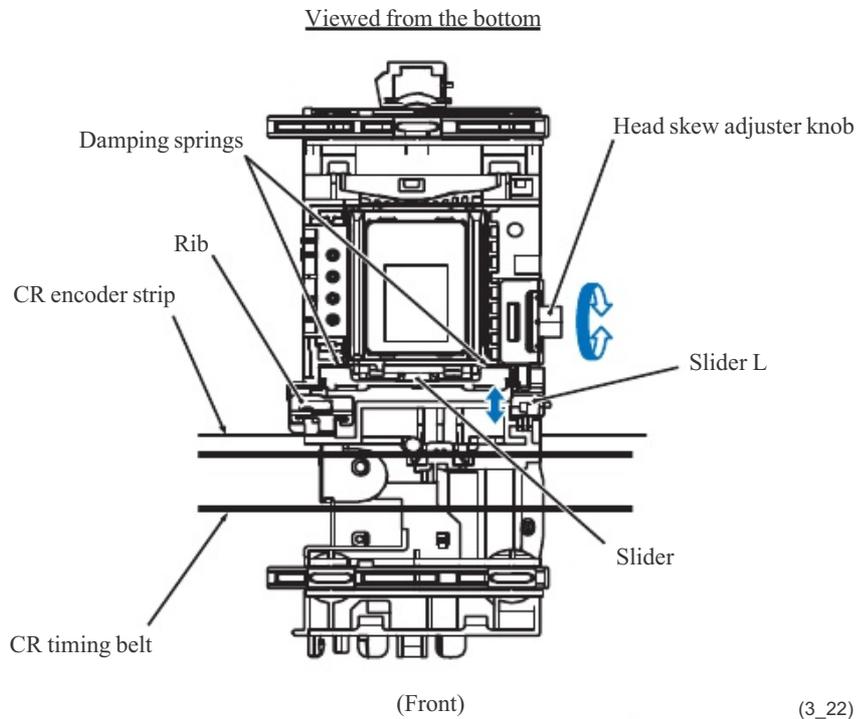
For optimal image printing, the print head nozzle array must be perpendicular to the head/carriage unit's line of travel. Manufacturing limitations, however, make perfect alignment impossible during mass production. The angle must be adjusted at the individual machine level.

The following describes this adjustment mechanism's components and their roles.

Slider L, the slider, and the rib attach the head/carriage unit to the CR support chassis. The rib acts as a pivot for the slider's damping springs pressing the head/carriage unit to the rear. Slider L has a head skew adjuster knob that shifts the slider back and forth, adjusting the angle of this backward pressure. Rotating the head skew adjuster knob tilts the entire head/carriage unit, thus adjusting the head nozzle vertical angle relative to the carriage unit's line of travel.

This knob offers 11 settings, from -5 to +5.

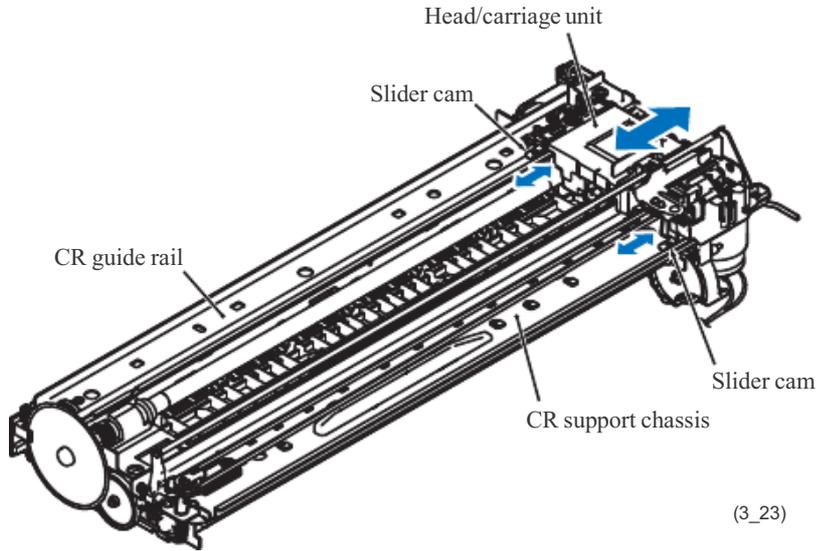
For the adjustment procedure, refer to [Chapter 7, Section 7.2, \[4 \]](#).



Height adjustment of the head/carriage unit

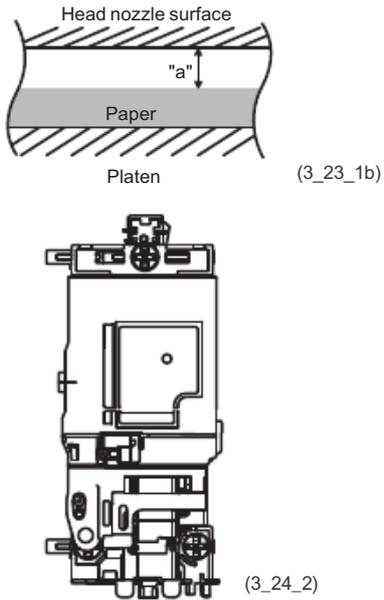
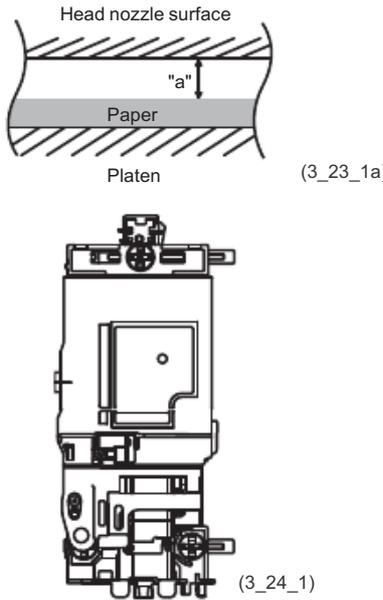
For optimal image printing, a pair of slider cams mounted on the head/carriage unit switches the height of the head/carriage unit against the CR guide rail and support chassis between two levels--2.3 mm (for thick paper and envelopes) and 1.6 mm (for other types of paper) in order to bring the optimum distance between the head nozzle surface and paper.

The slider cams can be switched by hitting against the stoppers at the right and left ends of the CR guide rail and CR support chassis.



For "thick paper and envelopes" and "other types of paper":

The machine adjusts the distance from the platen to the head/carriage unit to 2.3 mm for "thick paper and envelopes" and 1.6 mm for "other types of paper" in order to keep the distance ("a") constant.

For "thick paper and envelopes"	For "other types of paper" (Paper other than thick paper and envelopes)
 <p>(3_23_1b)</p> <p>(3_24_2)</p>	 <p>(3_23_1a)</p> <p>(3_24_1)</p>

As listed below, the printer driver on the connected PC or the paper type setting on the machine controls the slider cams to determine the height of the head/carriage unit.

Controlled by:	Adjustment for:	
	Thick paper and envelopes	Other types of paper
Printer driver (in printing from the PC)	Yes	Yes
Paper type setting (in copying and printing via PhotoCapture Center)	No	Yes

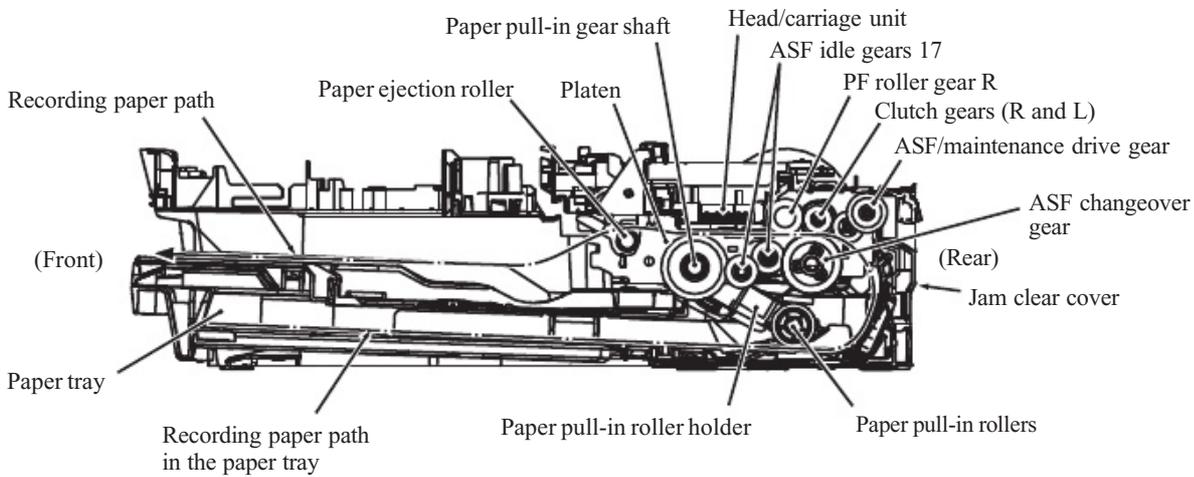
3.2.2.4 Paper pulling-in, registration, feeding and ejecting mechanisms

These mechanisms are driven via a gear train by two motors--paper feed motor located on the left side of the engine chassis and ASF motor in the right rear corner. (See the illustration on the next page.)

The following illustration is a cross-sectional view of the machine viewed from the right. Place the recording paper *face down* in the paper tray. This paper first proceeds to the rear, bends upward, heads back toward the front, passes under the head/carriage unit for printing, and finally comes out onto the top of the paper tray cover.

The machine supports two paper feed modes--"normal SF mode" and "high-speed feed mode." Depending upon the selected print quality, either of these two modes applies as listed below.

Print Quality	Fast, Normal	Other quality
Paper Feed Mode	High-speed feed mode	Normal SF mode



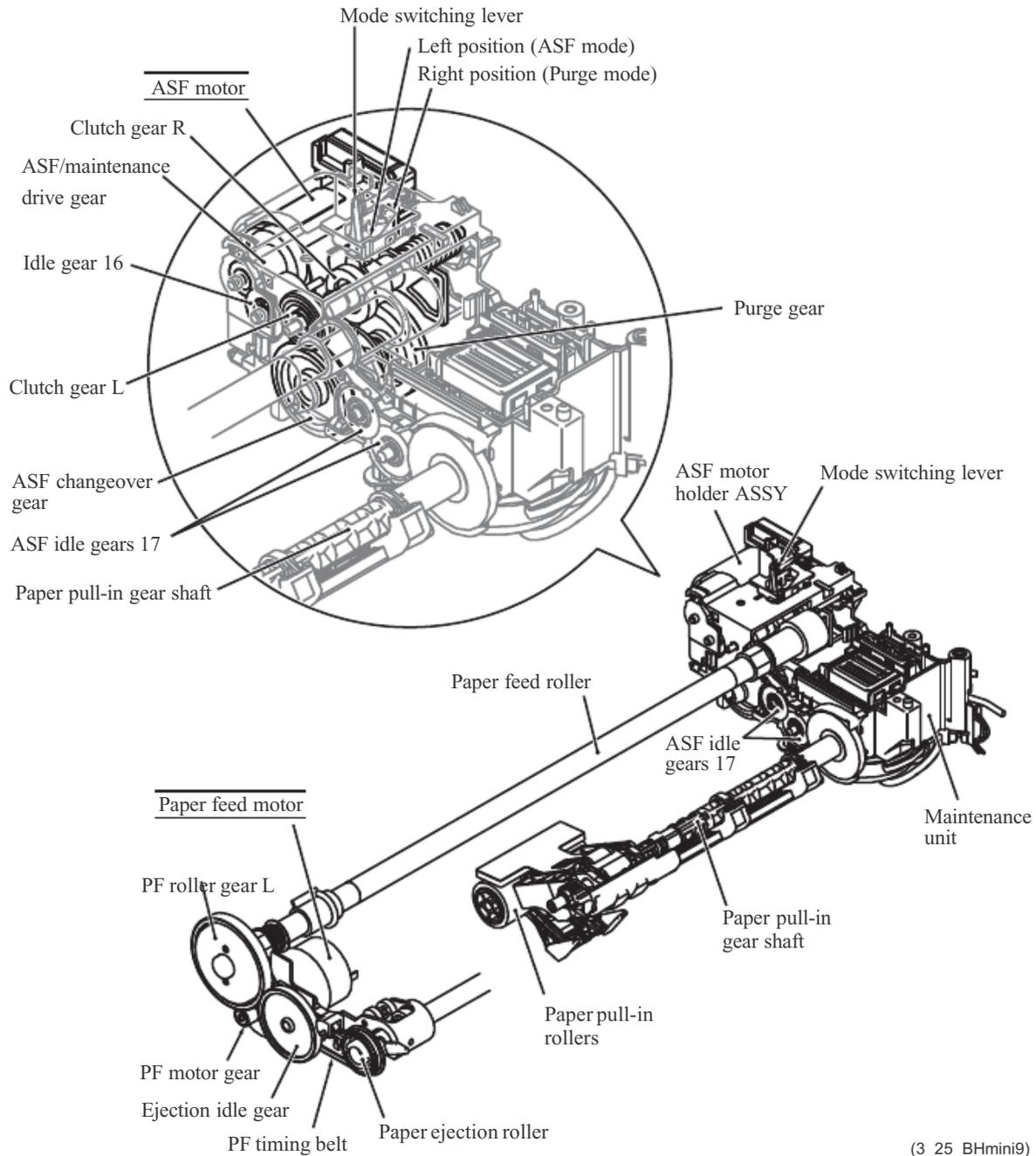
(3_02_1_BHmini9)

Power transmission routes of the ASF motor and paper feed motor

The rotational torque of the ASF motor is transmitted to the ASF/maintenance drive gear which always meshes with the clutch gear L, as described in Section 3.2.2.2, [4].

When the mode switching lever is in the left position (normal SF or high-speed feed mode), the clutch gear L also meshes with the ASF changeover gear which transmits the ASF motor rotation via a gear train to the paper pull-in rollers.

The rotational torque of the paper feed motor is transmitted via the PF roller gear L to the paper feed roller that advances paper to the printing start position.



(3_25_BHmini9)

Normal SF and high-speed feed modes

Normal SF mode

1st stage The ASF motor rotates *clockwise* (when viewed from the output gear side) and its rotational torque is transmitted to the ASF/maintenance drive gear that is always connected via the idle gear 16 to the clutch gear L. When the mode switching lever is placed in the left position, the clutch gear L also meshes with the ASF changeover gear.

The rotational torque is further transmitted from the ASF changeover gear via the two ASF idle gears 17, paper pull-in gear shaft and the gear train in the paper pull-in roller holder. Consequently, the paper pull-in rollers turn in the *forward* direction to pull in a sheet of paper loaded in the paper tray.

2nd stage After the pulled-in paper pushes the registration sensor actuator to turn the sensor on, the ASF motor further rotates *clockwise* for the predetermined period to align (register) the leading edge of the paper with the paper feed roller. (Registration)

3rd stage The ASF motor stops and the paper feed motor starts rotating *clockwise* to rotate the PF roller gear L that rotates the paper feed roller in the *forward* direction to advance the paper to the printing start position.

The rotational torque of the PF roller gear L is also transmitted via the ejection idle gear and PF timing belt to the paper ejection roller that rotates in the *forward* direction to eject the paper printed.

High-speed feed mode

1st stage Just as in the normal SF mode, the *clockwise* rotation of the ASF motor pulls in a sheet of paper loaded in the paper tray.

The difference from the normal SF mode is that the paper feed motor also rotates *clockwise* at the same time as the ASF motor. The paper feed roller rotates in the *forward* direction.

2nd stage When the paper fed by the paper pull-in rollers reaches the paper feed roller, the roller is already rotating in the *forward* direction; therefore, the paper continues to advance to the printing start position.

Registration sensor activation has no effect on the paper feeding operation in the high-speed feed mode.

Even during printing of the first sheet of paper, the ASF motor keeps rotating *clockwise* to rotate the paper pull-in rollers in the *forward* direction. Immediately after the first sheet leaves the paper tray, the paper pull-in rollers continuously pull in paper sheet by sheet. After the last sheet of paper advances to the printing start position, the ASF motor stops.

The paper feed roller always rotates faster than the paper pull-in rollers; therefore, the trailing edge of the preceding sheet will not overlap with the leading edge of the subsequent one

Just as in the normal SF mode, the rotational torque of the PF roller gear L is also transmitted via the ejection idle gear and PF timing belt to the paper ejection roller that rotates in the *forward* direction to eject the paper printed.

Movable platen*

*For models with movable platen

The movable platen has movable ribs that move in synchronization with the leading or trailing edge of advancing paper. It realizes the following.

- Increased printing speed in borderless printing
- Eliminating paper deflection that could occur in printing on the trailing edge of paper

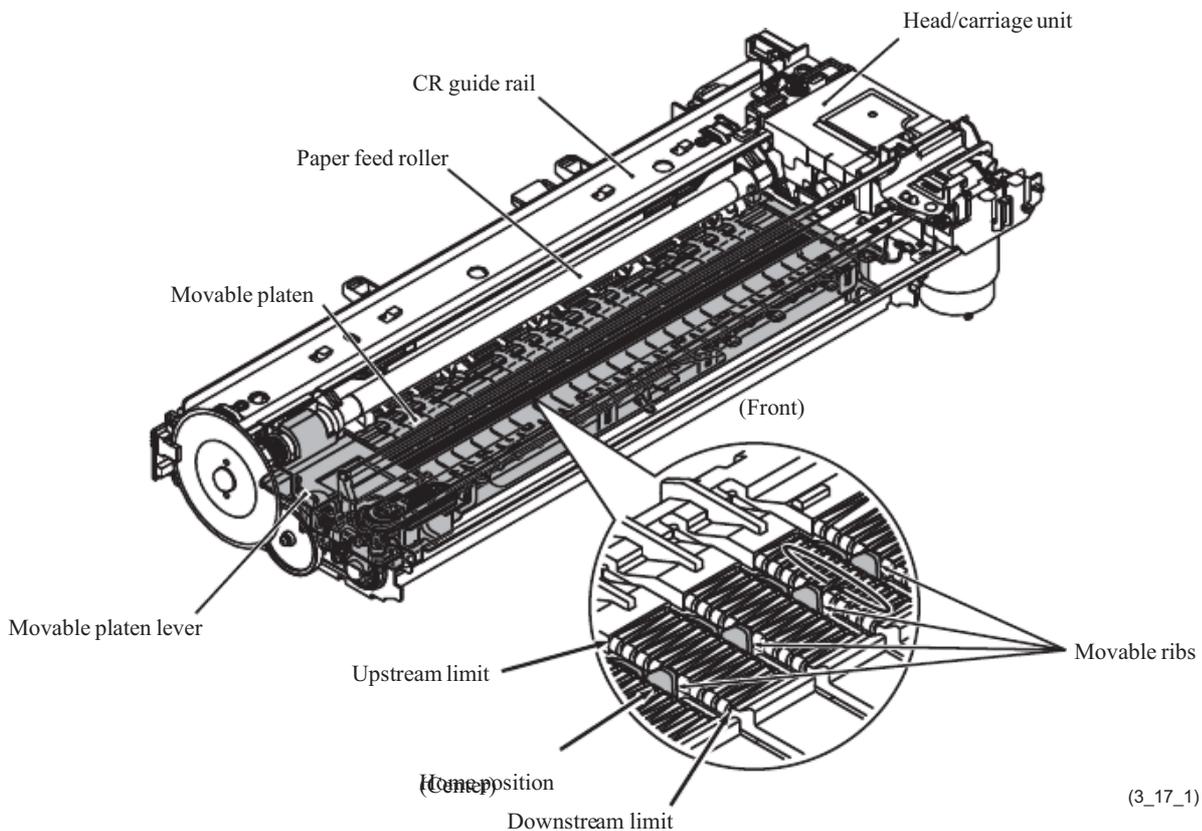
Synchronization with leading edge of paper

When the leading edge of the paper reaches the movable rib drive position, the head/carriage unit moves to the left end of its travel and pushes the upper end of the movable platen lever, releasing its lower end that blocks the rotation of the movable platen cam gear. This triggers driving the movable platen mechanism.

The mechanism transmits the paper feed motor rotation to the movable ribs. They move from the home position (center) to the upstream limit of the movable range to wait for the leading edge of the paper to come. They move in synchronization with the leading edge of the paper advancing. When they reach the downstream limit, they return to the home position. This is a sequence of the movable rib operation.

Synchronization with trailing edge of paper

When the registration sensor detects the trailing edge of the paper, the motor further feeds the paper for the predetermined amount. After that, the head/carriage unit pushes the upper end of movable platen lever again. Just as for the leading edge of paper, the movable ribs move to the upstream limit of the movable range to wait for the trailing edge of the paper advancing to come and then move in synchronization with the trailing edge. When the movable ribs have reached the downstream limit and the printing operation has completed, they return to the home position.



Other controls

Paper feed position and speed control

A PF encoder disk with the resolution of 300 dpi (0.084 mm pitch) is mounted on the PF roller gear L. The PF encoder sensor uses it to generate a signal indicating the gear rotation speed--in other words, the paper feed roller speed--to the controller for use in controlling paper feed position and speed.

Paper stop position control

The controller uses the PF encoder signal for proportional, integration, differential (PID) control of the paper feed motor to produce high-resolution precision paper positioning during printing. This signal also determines the motor parameters for rapidly and precisely positioning the paper.

Fixed-speed paper feed

This operation rotates the paper feed roller to feed the paper at a constant speed regardless of load fluctuations. The primary application is ejecting paper when printing is complete--in other words, in situations where precision stop position control is not needed.

Paper feeding amount control

There is variation in the head nozzle pitch of individual head/carriage units, as well as in the shape of the paper feed and ejection rollers. To make those parts match each other, therefore, updating the paper feeding correction value (Function code 58) is necessary (see [Chapter 9, Section 9.4.16](#)).

3.2.3 Sensors and Actuators

This machine uses the following sensors and thermistors.

Sensor Name	Sensor Type	Location
Document front sensor *1	Photosensor	On the document front sensor PCB in the ADF unit*1
Document rear sensor *1	Photosensor	On the document rear sensor PCB in the ADF unit *1
Scanner cover sensor	Carbon switch	On the control panel PCB
Ink cartridge cover sensor	Carbon switch	
Registration sensor	Photosensor	On the registration sensor PCB
Paper width sensor (media sensor)	Photosensor	On the carriage PCB
Head thermistor	Thermistor	
CR encoder sensor	Photosensor	
PF encoder sensor	Photosensor	On the PF encoder PCB
ASF encoder sensor	Photosensor	In the ASF motor unit
Purge cam switch	Mechanical switch	On the maintenance unit
Cap lift cam switch	Mechanical switch	
Casing internal temperature thermistor	Thermistor	On the ink empty sensor PCB inside the ink refill assembly
Ink empty sensors (four)	Photosensor	
Ink cartridge detection sensors (four)	Photosensor	On the ink cartridge detection sensor PCB on the ink refill assembly
Hook switch*2	Photosensor	On the hook switch PCB in the lower cover *2

*1 For models with ADF

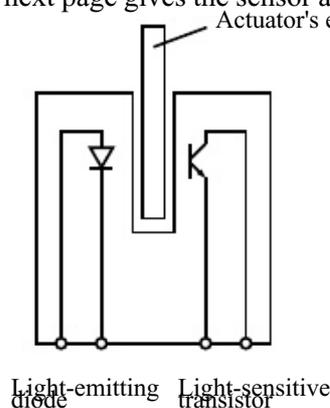
*2 For models with handset

- The document front sensor detects whether there is a document in the ADF.
- The document rear sensor detects the leading and trailing edges of document pages, indicating to the control circuitry the point at which to start reading and when page scanning is complete.
- The scanner cover sensor detects whether the scanner cover (scanner unit) is properly closed.
- The ink cartridge cover sensor detects whether the ink cartridge cover is properly closed.
- The registration sensor detects the leading and trailing edges of paper for use in determining print start and end timings and detecting paper jams.
- The paper width (media) sensor checks whether recording paper is A4 or greater in width at the start of recording of FAX data received. With this sensor signal, the controller prevents the print head from printing on the outside of paper in borderless printing. It also protects the platen from no-paper printing when a paper jam occurs, preventing stains on the platen and the back side of paper.
- The head thermistor detects the temperature inside the head/carriage unit. According to the sensor information, the controller adjusts the head driver to compensate for changes in ink viscosity.

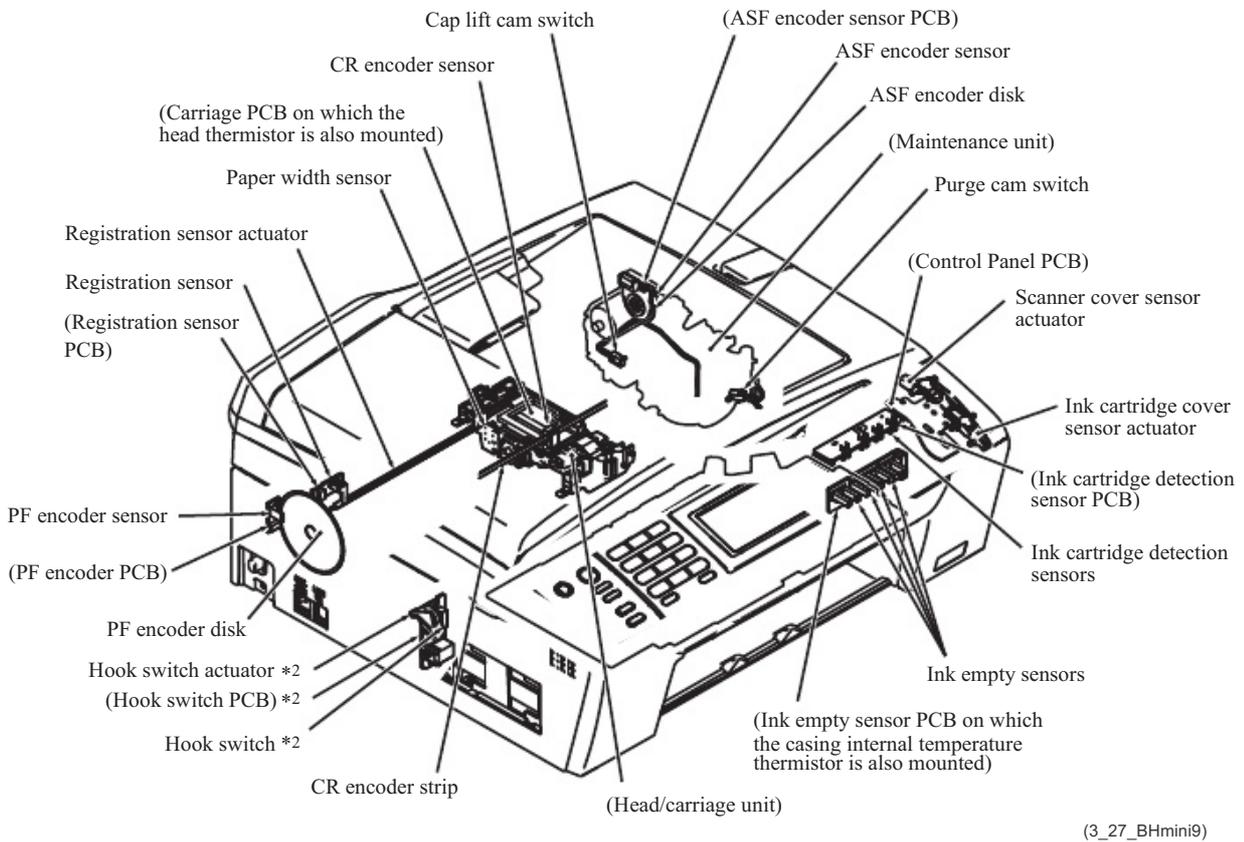
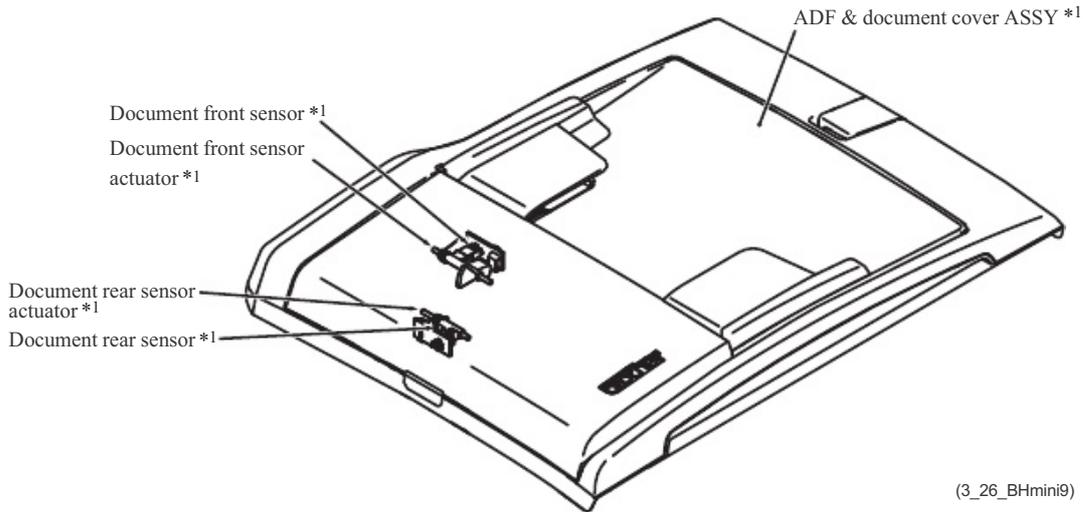
- The carriage motor (CR) encoder sensor monitors the current position and speed of the head/ carriage unit. If the controller detects a head's travel speed error, it interprets the error state as a paper jam or any foreign material getting into the carriage travel path and stops the operation.
- The paper feed motor (PF) encoder sensor monitors the PF roller rotation angle and speed for use in optimizing paper feed amount and speed.
- The Auto Sheet Feeder motor (ASF) encoder sensor monitors the rotation angle and speed of the ASF motor shaft for use in optimizing paper pull-in amount and speed.
- The purge cam switch detects the drive positions of the purge cam.
- The cap lift cam switch detects the drive positions of the cap lift cam.
- The casing internal temperature thermistor monitors the temperature inside the machine. With this thermistor signal, the controller determines the periodical automatic purge interval since the casing internal temperature is almost equal to the ambient temperature of ink inside the ink cartridges.
- There are four ink empty sensors, one for each color. The sensor actuator inside the ink cartridge usually blocks the light path to indicate the presence of ink. When ink runs low (near-empty state), the arm moves out of the beam, activating the sensor. The "Ink low" message appears.
- There are four ink cartridge detection sensors, one for each color. The sensor detects whether an ink cartridge is loaded.
- The hook switch* detects whether the handset is on the handset mount. (*For models with handset)

Most sensors are photointerrupters consisting of a light-emitting diode and a light-sensitive transistor as shown below. The only exception is the paper width sensor, which uses reflective

type. The illustration on the next page gives the sensor and actuator locations.



The scanner cover sensor and the ink cartridge cover sensor use a carbon switch that consists of a carbon on the rubber keypad and a carbon contact printed on the control panel PCB. Opening the scanner cover or the ink cartridge cover releases the corresponding sensor actuator so that the actuator is pressed against the rubber keypad by the spring force. Accordingly, the carbon on the rubber keypad comes into contact with the carbon contact on the control panel PCB. The conduction results in a voltage level change of the IC port, signaling the cover open.



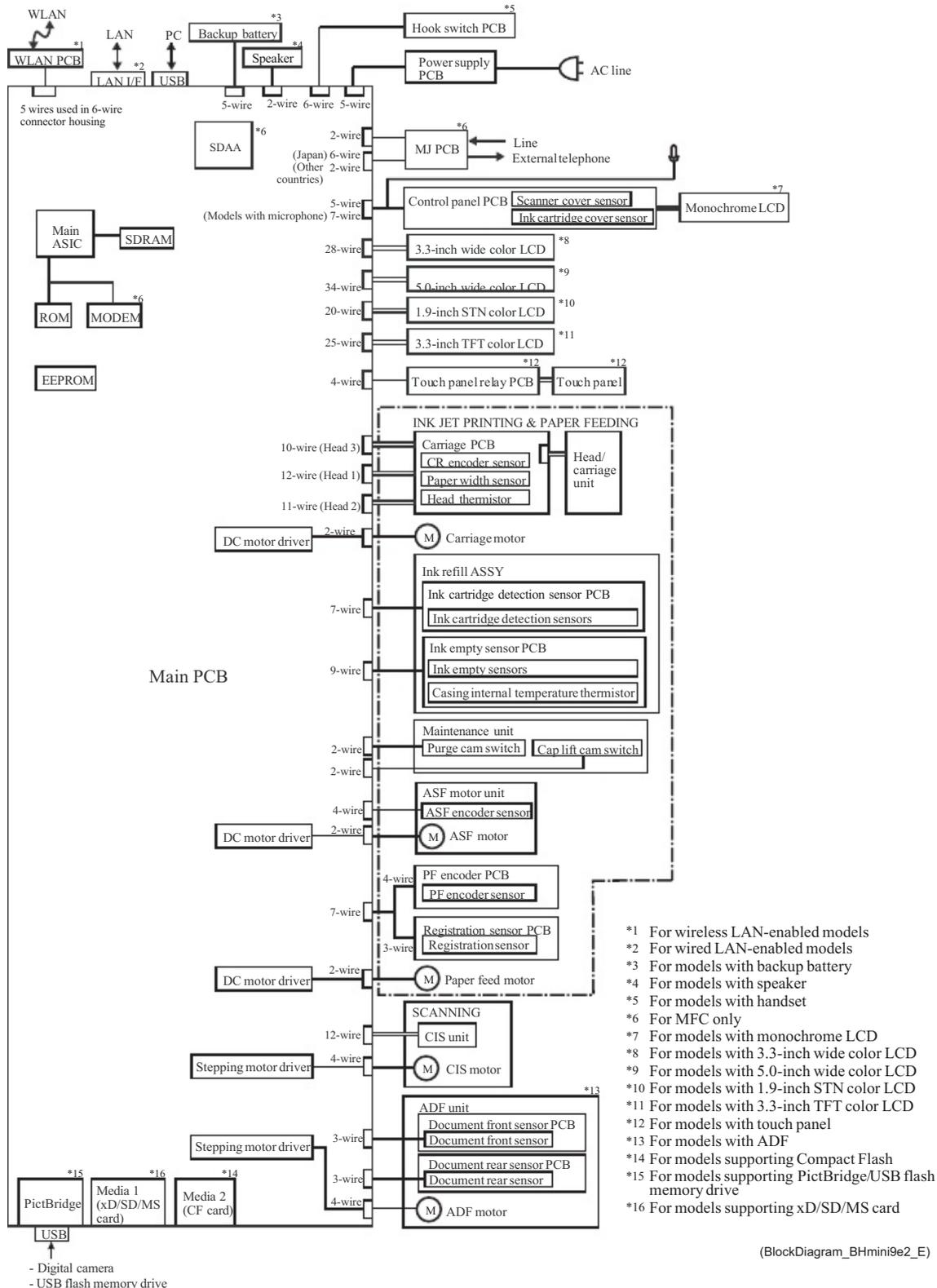
*1 For models with ADF
 *2 For models with handset

Sensors and Actuators Locations

3.3 CONTROL ELECTRONICS

3.3.1 Components

The following illustration shows the hardware components. The corresponding wiring diagrams appear in Appendix 5.



CHAPTER 4

ERROR INDICATION AND TROUBLESHOOTING

CHAPTER 4 ERROR INDICATION AND TROUBLESHOOTING

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

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

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4.1 ERROR INDICATION

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

4.1.1 Equipment Errors

If an equipment error occurs in the machine, the machine emits an audible alarm (five short beeps twice) (MFC only) and shows the error message on the LCD. For the error messages, see [1] below.

To display detailed error information, use Function code 82 described in [Chapter 9, Section 9.4.30](#) (that is, switch the machine to the maintenance mode and then access Function code 82). Following the MACHINE ERROR, one of the error codes listed in [2] will appear on the LCD.

[1] Error messages appearing on the LCD

Error Message	Cause	Action
<p>B&W Print Only Replace Ink</p>	<p>One or more of the color ink cartridges are empty.</p> <p>While this message appears on the LCD, each operation works in the following way:</p> <ul style="list-style-type: none"> ■ Printing If you click Grayscale in the Advanced tab of the printer driver you can use the machine as a black & white printer for approximately four weeks depending on the number of pages you print. ■ Copying If the paper type is set to Plain Paper or Inkjet Paper, you can make copies in black & white. ■ Faxing If the paper type is set to Plain Paper or Inkjet Paper, the machine will receive and print the faxes in black & white. If a sending machine has a color fax, the machine's handshake will ask that the fax be sent as black & white. <p>If the paper type is set to Other Glossy or Brother BP71, the machine will stop all print operations. If you unplug the machine, or take out the empty ink cartridge, you cannot use the machine until you change to a new ink cartridge. Replace the empty ink cartridges.</p>	<p>Replace the empty ink cartridge.</p>
<p>BT Call Sign On*</p>	<p>BT Call Sign is set to ON. You cannot change the Receive Mode from Manual to another mode.</p>	<p>Set BT Call Sign to OFF.</p>

*For Europe MFC only

Error Message	Cause	Action
Cannot Detect	You installed a new ink cartridge too quickly and the machine did not detect it.	Take out the new ink cartridge and re-install it slowly until it clicks.
	If you are not using genuine Brother Innobella™ ink the machine may not detect the ink cartridge.	Use a new Genuine Brother Innobella™ Ink Cartridge.
	An ink cartridge is not installed properly.	Take out the new ink cartridge and re-install it slowly until it clicks.
Cannot Print Replace Ink	One or more of the ink cartridges are empty. The machine will stop all print operations. While memory is available, black & white faxes will be stored in the memory. If a sending machine has a color fax, the machine's 'handshake' will ask that the fax be sent as black & white. If the sending machine has the ability to convert it, the color fax will be stored in the memory as a black & white fax.	Replace the empty ink cartridges.
Comm.Error*	Poor telephone line quality caused a communication error.	Send the fax again or connect the machine to another telephone line.
Connection Fail*	You tried to poll a fax machine that is not in Polled Waiting mode.	Check the other fax machine's polling setup.
Cover is Open.	The scanner cover is not completely closed.	Lift the scanner cover and then close it again.
	The ink cartridge cover is not completely closed.	Firmly close the ink cartridge cover until it clicks.
Data Remaining	Print data is left in the machine's memory.	Press Stop/Exit . The machine will cancel the job and clear it from the memory. Try to print again.
Disconnected*	The other person or other person's fax machine stopped the call.	Try to send or receive again.
Document Jam	The document was not inserted or fed properly, or the document scanned from the ADF was too long.	Take out any paper from the ADF that is not jammed. If document is jammed in the top of the ADF unit, open the ADF cover. If document is jammed inside the ADF unit, lift the document cover. Then, pull the jammed document out to the right.
DR Mode in Use*	The machine is set to Distinctive Ring mode. You cannot change the Receive Mode from Manual to another mode.	Set Distinctive Ring to off.
High Temperature	The print head is too warm.	Allow the machine to cool down.

*For MFC only

Error Message	Cause	Action
Hub is Unusable.	A Hub or USB Flash memory drive with Hub has been connected to the USB direct interface.	A Hub or USB Flash memory drive with Hub are not supported. Unplug the device from the USB direct interface.
Image Too Long.	The proportions of your photo are irregular so effects could not be added.	Choose a regularly proportioned image.
Image Too Small.	The size of your photo is too small to trim.	Choose a larger image.
Ink Absorber Full Ink Box Full Unable to Clean 46 Unable to Init 46 Unable to Print 46	The ink absorber box or flushing box is full. These components are periodic maintenance items that may require replacement after a period of time to ensure optimum performance from your Brother machine. The need to replace these items and the time period before replacement is dependent on the number of purges and flushes required to clean the ink system. These boxes acquire amounts of ink during the different purging and flushing operations. The number of times a machine purges and flushes for cleaning varies depending on different situations. For example, frequently powering the machine on and off will cause numerous cleaning cycles since the machine automatically cleans upon power up. The use of non-Brother ink may cause frequent cleanings because non-Brother ink could cause poor print quality which is resolved by cleaning. The more cleaning the machine requires the faster these boxes will fill up.	The ink absorber box or flushing box will need to be replaced. Other reasons for cleaning are: <ol style="list-style-type: none"> 1 Machine automatically cleans after clearing a printer jam. 2 Machine automatically cleans after sitting idle for more than 30 or 45 days (infrequent use). 3 Machine automatically cleans itself after the ink cartridges have been replaced 12 times.
Ink Absorber NearFull Ink Box Near Full	The ink absorber box or flushing box is nearly full.	The ink absorber box or flushing box will need to be replaced.

Error Message	Cause	Action
Ink low	One or more of the ink cartridges are running out of ink. If a sending machine has a color fax, the machine's 'handshake' will ask that the fax be sent as black & white. If the sending machine has the ability to convert it, the color fax will be printed at your machine as a black & white fax.	Order a new ink cartridge. You can continue printing until the LCD shows Cannot Print.
Low Temperature	The print head is too cold.	Allow the machine to warm up.
Media Error	The memory card is either corrupted, improperly formatted, or there is a problem with the card.	Put the card firmly into the slot again to make sure it is in the correct position. If the error remains, check the media drive (slot) of the machine by putting in another memory card that you know is working.
Media is Full.	The memory card or USB flash memory drive you are using already contains 999 files.	Your machine can only save to your memory card or USB flash memory drive if it contains less than 999 files. Try deleting unused files to free some space and try again.
No Caller ID*	There is no incoming call history. You did not receive calls or you have not subscribed to the Caller ID service from your telephone company.	If you want to use the caller ID feature, call your telephone company.
No Cartridge No Ink Cartridge	An ink cartridge is not installed properly.	Take out the new ink cartridge and re-install it slowly until it clicks.
No File	The memory card or USB Flash memory drive in the media drive does not contain a .JPG file.	Put the correct memory card or USB Flash memory drive into the slot again.

*For MFC only

Error Message	Cause	Action
No Paper Fed	The machine is out of paper or paper is not properly loaded in the paper tray, or the Jam Clear Cover is not closed properly.	Do one of the following: <ul style="list-style-type: none"> ■ Refill the paper in the paper tray, and then press Black Start or Color Start. ■ Remove the paper and load it again and then press Black Start or Color Start. Close the Jam Clear Cover properly.
	Paper is jammed in the machine.	Remove the jammed paper.
No Response/Busy*	The number you dialed does not answer or is busy.	Verify the number and try again.
Not Registered*	You tried to access a Speed Dial number that is not programmed.	Set up the Speed Dial number.
Out of Fax Memory	The fax memory is full.	Do one of the following: <ul style="list-style-type: none"> ■ Clear the data in the memory. To gain extra memory, you can turn off Memory Receive. ■ Print the faxes that are in the memory.
Out of Memory	The machine's memory is full.	Fax sending or copy operation in progress Do one of the following: <ul style="list-style-type: none"> ■ Press Stop/Exit and wait until the other operations in progress finish and then try again. ■ Clear the data in the memory. To gain extra memory, you can turn off Memory Receive. ■ Print the faxes that are in the memory.
	The memory card or USB flash memory drive you are using does not have enough free space to scan the document.	Delete unused files from your memory card or USB Flash memory drive to make some free space and then try again.
Paper Jam	Paper is jammed in the machine.	Open the Jam Clear Cover (at the back of the machine) and remove the jammed paper.
Replace Ink	One or more of the ink cartridges do not contain enough amount of ink.	Replace the ink cartridges.
Touchscreen initialization failed	The machine is plugged in the power socket or turned on with the Touchscreen pressed.	Unplug the machine from AC power outlet or turn the machine off. Make sure that you remove any material which is on the Touchscreen. Then plug in the power socket or turn the machine on again. Do not touch the Touchscreen until default screen is appeared.

*For MFC only

Error Message	Cause	Action
<p><u>For models with color LCD</u></p> <p>Unable to Clean XX Unable to Init. XX Unable to Print XX Unable to Scan XX Unable to use Phone XX *</p> <p><u>For models with monochrome LCD</u></p> <p>Clean Unable XX Init. Unable XX Print Unable XX Scan Unable XX</p>	<p>The self diagnostic function has detected a problem.</p> <p>—OR—</p> <p>A foreign object such as a clip or ripped paper is in the machine.</p>	<p>Open the scanner cover and look inside the machine for foreign objects and paper scraps. If the error message continues, disconnect the machine from the power for several minutes, then reconnect it.</p>
<p>Unusable Device Disconnect device from front connector & turn machine off & then on</p>	<p>A broken device has been connected to the USB direct interface.</p>	<p>Unplug the device from the USB direct interface, then press On/Off to turn the machine off and then on again.</p>
<p>Unusable Device Please Disconnect USB Device.</p>	<p>A USB device or USB Flash memory drive that is not supported has been connected to the USB direct interface.</p> <p>For more information, visit us at http://solutions.brother.com.</p>	<p>Unplug the device from the USB direct interface.</p>
<p>Wrong Ink Color</p>	<p>A color ink cartridge has been installed in the Black ink cartridge position.</p>	<p>Check which ink cartridges are not matched by color to their ink cartridge positions and move them to their proper positions.</p>
<p>Wrong Paper Size</p>	<p>Paper is not the correct size.</p>	<p>Check that the machine's Paper Size setting matches the size of paper in the tray.</p>

*For MFC only

[2] Error codes contained in "MACHINE ERROR XX" messages

Using Function code 82 (described in [Chapter 9, Section 9.4.30](#)) displays the most recent error in the format of "MACHINE ERROR XX." The XX represents one of the error codes listed in this section.

XX in error messages "Unable to Clean XX" to "Unable to use Phone XX" (for models with color LCD) and "Clean Unable XX" to "Scan Unable XX" (for models with monochrome LCD) given in item [1] also represents one of these error codes.

Note: When checking a PCB as instructed in the "Solution" column, also check its harness.

Note: To check sensors, use Function code 32 described in [Chapter 9, Section 9.4.9](#) (that is, press the **3** and **2** keys in the maintenance mode).

Error Code (Hex)	Symptom	Probable Cause	Solution
20 21 22 23	Cannot identify the ink cartridge loaded because the signal values detected by the corresponding ink empty sensor and ink cartridge detection sensor are different from the specified values.	<p>Ink cartridge not loaded correctly</p> <p>20: Black ink 21: Yellow ink 22: Cyan ink 23: Magenta ink</p> <ul style="list-style-type: none"> - Ink cartridge loaded after the ink cartridge cover has been left open for 10 minutes or more - Ink cartridge replaced when the power is OFF - Ink cartridge loaded very quickly - Ink cartridge halfway taken in and out 	Reload the corresponding ink cartridge.
		Ink cartridge partially broken	Replace the ink cartridge.
		The ink cartridge loaded is not the specified one	Load the specified ink cartridge.
		Ink empty sensor defective	Replace the ink refill ASSY.
		Main PCB defective	Replace the main PCB.
24, 25	Not used.		

Error Code (Hex)	Symptom	Probable Cause	Solution
26 27 28 29	Light path to the ink empty sensor not blocked.	Running out of ink 26: Black ink 27: Yellow ink 28: Cyan ink 29: Magenta ink	Replace or reload the ink cartridge.
		Ink empty sensor defective	Replace the ink refill ASSY.
		Main PCB defective	Replace the main PCB.
2A 2B 2C 2D	Cannot detect ink cartridges.	Ink cartridge not loaded 2A: Black ink 2B: Yellow ink 2C: Cyan ink 2D: Magenta ink	Replace or reload the ink cartridge.
		Ink cartridge broken	Replace the ink cartridge.
		Ink cartridge detection sensor defective	Replace the ink refill ASSY.
		Main PCB defective	Replace the main PCB.
2E	Not used.		
2F	Ink cartridge cover opened.	Ink cartridge cover sensor (carbon switch) defective	Replace the control panel PCB.
		Ink cartridge cover's tab broken	Replace the ink cartridge cover.
		Ink cartridge cover sensor actuator unhooked	Set the ink cartridge cover sensor actuator into place.
		Rubber keypad defective	Replace the rubber keypad.
		Control panel PCB defective	Replace the control panel PCB.
		Main PCB defective	Replace the main PCB.

Error Code (Hex)	Symptom	Probable Cause	Solution
3* (except 3E)	Head/carriage unit travel error.	Software malfunction	Open and close the scanner cover. Unplug and plug the AC cord.
		Any obstacles on the travel path of the head/carriage unit	Clean and lubricate the CR guide rail and CR support chassis.
		CR encoder strip stained or scratched	Replace the CR encoder strip.
		CR timing belt come off	Set the CR timing belt in to place.
		Carriage PCB defective	Replace the carriage PCB ASSY.
		Head/carriage unit broken	Replace the head/carriage unit.
		Carriage motor defective	Replace the carriage motor.
		Main PCB defective	Replace the main PCB.
		Power supply PCB defective	Replace the power supply PCB.
Maintenance unit defective	Replace the maintenance unit.		
3E	Recording error related to ASF motor, paper feed motor, and carriage motor.	ASF encoder disk, PF encoder disk, or CR encoder strip stained or scratched	Replace the ASF motor ASSY, PF encoder disk, or CR encoder strip.
		ASF, PF, or CR encoder defective	Replace the ASF motor ASSY, PF encoder PCB, or carriage PCB.
		ASF, PF, or CR motor defective	Check the ASF motor, paper feed motor, and carriage motor, then replace the defective one(s).
		Main PCB defective	Replace the main PCB.
40	The casing internal temperature thermistor has detected abnormal temperature in the machine.	Casing internal temperature thermistor defective	Replace the ink refill ASSY.
		Main PCB defective	Replace the main PCB.
41	Not used.		
42	The head drive voltage has not dropped from the high to low level within the specified period.	Piezoelectric ceramic actuator or head driver defective	Replace the head/carriage unit.
		Carriage PCB defective	Replace the carriage PCB ASSY.
		Main PCB defective	Replace the main PCB.

Error Code (Hex)	Symptom	Probable Cause	Solution
43	The head thermistor has been opened or shorted abnormally.	Head flat cables not connected correctly	Correct those flat cables.
		Head flat cables broken	Replace the carriage PCB ASSY.
		Carriage PCB defective	
		Main PCB defective	Replace the main PCB.
44	The temperature of the print head driver has risen abnormally. The head driver chip temperature sensor in the head driver detects abnormally high temperature.	Head property parameters incorrect in the EEPROM	Enter the correct parameter values.
		Air bubbles in the head/carriage unit	Perform the initial purge.
		Head flat cables and carriage-head flat cable not connected correctly	Correct those flat cables.
		Head flat cables broken	Replace the carriage PCB ASSY.
		Carriage-head flat cable broken	Replace the head/carriage unit.
		Head/carriage unit broken	
		Main PCB defective	Replace the main PCB.
45	Not used.		
46	The number of performed purge sequences has reached the limit. The ink absorber box may be filled with drained ink.	Purge counter overflown	Replace both the ink absorber box and flushing box and reset their counters. (When you need to replace the ink absorber box or flushing box, replace both.) (Refer to page 7-39 or page 9-57 .)
	The number of flushing operations has reached the limit. The flushing box may be filled with drained ink.	Flushing counter overflown	
47	Not used.		
48	Weak connection of the head flat cables.	Head flat cables or carriage-head flat cable broken or not connected	Correct the connection of the head flat cables.
			Replace the carriage PCB ASSY.
			Replace the head/carriage unit.
			Replace the main PCB.

Error Code (Hex)	Symptom	Probable Cause	Solution
49	The head drive voltage has not risen to the specified level.	Head flat cables and carriage-head flat cable not connected correctly	Correct those flat cables.
		Head/carriage unit defective	Replace the carriage PCB ASSY.
			Replace the head/carriage unit.
		Main PCB defective	Replace the main PCB.
Power supply PCB defective	Replace the power supply PCB.		
4A-4E	Not used.		
4F	The head drive voltage has dropped from the high to low level in an abnormally short period. The head drive voltage has not risen to the specified level within the specified period in the self-diagnosis.	Piezoelectric ceramic actuator defective (Cracks or rare short)	Replace the carriage PCB ASSY.
			Replace the head/carriage unit.
		Main PCB defective	Replace the main PCB.
50 51	The purge cam switch does not come ON or OFF even after the purge cam has been driven by the specified number of pulses.	Planetary arm assembly not engaged correctly	Set the maintenance unit into place.
If the planetary arm does not move smoothly, clean it.			
Purge cam switch harness not connected correctly		Correct the connection.	
Purge cam switch broken		Replace the maintenance unit.	
Gear(s) on the maintenance unit broken			
Paper feed motor defective		Replace the engine unit.	
Power supply PCB defective		Replace the power supply PCB.	
Main PCB defective	Replace the main PCB.		

Error Code (Hex)	Symptom	Probable Cause	Solution
52	The purge cam switch does not come ON at each detection point.	Planetary arm assembly not engaged correctly	Set the maintenance unit into place. If the planetary arm does not move smoothly, clean it.
		Purge cam switch harness not connected correctly	Correct the connection to the main PCB.
		PF encoder sensor defective	Replace the PF encoder/ registration sensor harness unit.
		ASF motor defective	Replace the ASF motor.
		Purge cam switch broken	Replace the maintenance unit.
		Gear(s) on the maintenance unit broken Abnormal load applied to the purge cam	
		Paper feed motor broken	Replace the engine unit.
		Main PCB defective	Replace the main PCB.
		53-56	Not used.
57	The head/carriage unit does not return to the home position (capping position).	Head cap unit, head wiper or other parts on the maintenance unit interfering with the head/carriage unit	Set these parts back into place. If any part on the maintenance unit does not operate smoothly, replace the unit.
		ASF motor defective	Replace the ASF motor.
		CR encoder strip stained	Replace the CR encoder strip.
		Any obstacles on the travel path of the head/carriage unit	Clean the CR guide rail and CR support chassis.
		Carriage PCB ASSY defective	Replace the carriage PCB ASSY.
		Carriage motor defective	Replace the carriage motor.
		Head/carriage unit defective	Replace the head/carriage unit.
		Main PCB defective	Replace the main PCB.
		Power supply PCB defective	Replace the power supply PCB.

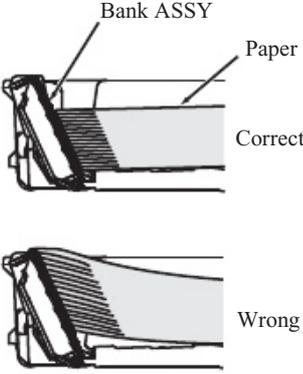
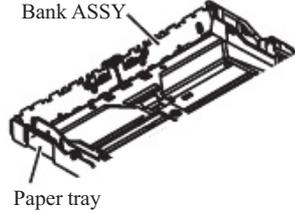
Error Code (Hex)	Symptom	Probable Cause	Solution
58, 59	Not used.		
5A 5B 5C	Abnormal stop of purge cam being driven	Foreign materials in the machine	Remove foreign materials.
		PF encoder disk being in contact with the upper cover and deformed	Replace the PF encoder disk.
		PF encoder PCB defective	Replace the PF encoder PCB.
		Main drain tubes bent	Replace the ink absorber box.
		Clutch gear broken	Replace the maintenance unit.
		Purge cam gear broken	
		Abnormal load applied to the purge cam	
		Planetary arm assembly broken	
		Paper feed motor defective	Replace the engine unit.
		PF roller gear L broken	
		Engine unit defective	
		Main PCB defective	Replace the main PCB.
		Power supply PCB defective	Replace the power supply PCB.
		5D	Current protection for the driver IC activated when the purge cam was being driven.
Replace the clutch gear.			
Replace the PF encoder disk.			
Replace the PF encoder PCB.			
5E	Current protection for the driver IC activated when the pump was in operation.		Replace the maintenance unit.
			Replace the main PCB.
			Replace the power supply PCB.
			Replace the engine unit.

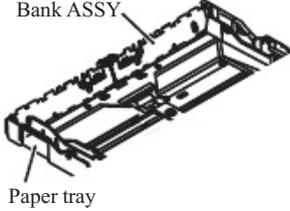
Error Code (Hex)	Symptom	Probable Cause	Solution
5F	Not used.		
60 61 62	The paper width sensor (media sensor) cannot detect the right and left edges of recording paper.	Paper not in solid white paper being used	Use recommended paper.
Platen contaminated		Clean the platen.	
Paper width sensor (media sensor) adjustment failure		Readjust the left and right margins.	
Paper width sensor defective Head flat cables broken		Replace the carriage PCB ASSY.	
Main PCB defective		Replace the main PCB.	
63-6B	Not used.		
6C	Current protection activated due to an overload applied to the paper feed motor.	Foreign materials in the paper path	Remove foreign materials and close the scanner cover (scanner unit).
Paper feed motor defective		Replace the engine unit.	
Main PCB defective		Replace the main PCB.	
6D, 6E	Not used.		
6F	ASF motor does not stop at the intended timing.	Malfunction caused by overload	Open and close the scanner cover (scanner unit). Unplug and plug the AC cord.
Relevant motor harness not connected correctly		Correct the connection.	
ASF encoder sensor defective ASF motor defective		Replace the ASF motor ASSY.	
Main PCB defective		Replace the main PCB.	
70 71	Cannot detect the ON/OFF state of cap lift cam switch.	Cap lift cam switch defective	Replace the maintenance unit.
ASF encoder sensor defective ASF motor defective		Replace the ASF motor ASSY.	
Main PCB defective		Replace the main PCB.	

Error Code (Hex)	Symptom	Probable Cause	Solution
72	Cannot detect the origin of the cap lift cam.	Cap lift cam switch defective	Replace the maintenance unit.
		ASF encoder sensor defective	Replace the ASF motor ASSY.
		ASF motor defective	
		Main PCB defective	Replace the main PCB.
73	Fails to switch the cap lift cam positions.	Cap lift cam switch defective	Replace the maintenance unit.
		ASF encoder sensor defective	Replace the ASF motor ASSY.
		ASF motor defective	
		Main PCB defective	Replace the main PCB.
74-79	Not used.		
7A	Abnormal stop of cap lift cam.	Foreign materials in the head capping mechanism	Remove foreign materials and clean the mechanism.
		ASF encoder sensor defective	Replace the ASF motor ASSY.
		ASF motor defective	
		Cap lift cam switch defective	Replace the maintenance unit.
		Main PCB defective	Replace the main PCB.
7B-7C	Not used.		
7D	Current protection for the driver IC activated when the cap lift cam was being driven.	Foreign materials in the head capping mechanism.	Remove foreign materials and clean the mechanism.
		ASF encoder sensor defective	Replace the ASF motor ASSY.
		ASF motor defective	
		Cap lift cam switch defective	Replace the maintenance unit.
		Main PCB defective	Replace the main PCB.
7E	No head parameters stored in the EEPROM. (This code may appear only in the maintenance mode.)	No head property data has been entered	Enter the head property data.
		Main PCB defective	Replace the main PCB.
7F	Not used.		

Error Code (Hex)	Symptom	Probable Cause	Solution
80	At the start of FAX message printing, the paper width sensor detects that paper is smaller than A4 size in width.*	Paper smaller than the specified size loaded in the paper tray	Load the correct size of paper.
		Paper width sensor (media sensor) not adjusted	Adjust the margin for borderless printing with Function code 66 in the maintenance mode.
		Paper width sensor defective	Replace the carriage PCB ASSY.
		Main PCB defective	Replace the main PCB.
81	In printing except FAX and list printing, the paper width sensor detects that paper is smaller than the specified size in width.	Paper not in solid white being used	Use recommended paper.
		Paper smaller than the specified size loaded in the paper tray	- Load the correct size of paper. - Press the Color Start or Black Start key.
		Paper width sensor not adjusted	Adjust the margin for borderless printing with Function code 66 in the maintenance mode.
		Paper width sensor defective	Replace the carriage PCB ASSY.
		Main PCB defective	Replace the main PCB.
82	Recording paper jam in paper pull-in operation. (Although the registration sensor detects the paper, the paper width sensor fails to detect the leading edge of paper.)	Foreign materials in the paper path	Remove foreign materials.
		Paper printed or paper with blackish leading edge fed	Replace the paper with blank paper.
		Head flat cable connection failure	Insert the head flat cables correctly.
		Paper width sensor defective	Replace the carriage PCB ASSY.
		Main PCB defective	Replace the main PCB.

* For MFC only

Error Code (Hex)	Symptom	Probable Cause	Solution
83	Recording paper jam. (At the start of paper feeding, the registration sensor is already ON.)	Paper double feeding caused by incorrect loading in the paper tray 	Reload paper.
		Bank ASSY deformed 	Replace the bank ASSY.
		Registration sensor actuator unhooked	Set the registration sensor actuator into place.
		Registration sensor actuator defective	Replace the registration sensor actuator.
		Main PCB defective	Replace the main PCB.
		Registration sensor defective	Replace the PF encoder/ registration sensor harness unit.

Error Code (Hex)	Symptom	Probable Cause	Solution
84	Recording paper jam. (The registration sensor sticks to ON after completion of paper ejection operation.)	Foreign materials in the paper path	Remove foreign materials.
		Registration sensor actuator caught on the surrounding parts	Correct the surrounding parts on which the actuator caught.
		Registration sensor actuator defective	Replace the registration sensor actuator.
		Registration sensor defective	Replace the PF encoder/ registration sensor harness unit.
		PF timing belt come off	Set the PF timing belt into place.
		Paper feed motor defective	Replace the engine unit.
		The paper ejection roller does not rotate correctly	
		Main PCB defective	Replace the main PCB.
85-87	Not used.		
88	Recording paper jam. (Even after paper pulling-in operation, the registration sensor is still ON.)	Jam clear cover not closed correctly	Close the jam clear cover correctly.
		Registration sensor harness not connected correctly	Correct the connection.
		Bank ASSY deformed  Bank ASSY Paper tray	Replace the bank ASSY.
		Paper pull-in rollers defective	Replace the paper pull-in rollers.
		Mode switching lever (at the right end of CR guide rail) not sliding smoothly	Clean the mode switching lever.
		At the ends of the paper feed roller shaft, any gear(s) damaged	Replace the engine unit.
		Paper feed motor defective	
		Main PCB defective	Replace the main PCB.
89	Not used.		

Error Code (Hex)	Symptom	Probable Cause	Solution
8A	The PF encoder sensor cannot detect the rotation of the paper feed motor.	Foreign materials in the machine	Remove foreign materials.
		Paper feed motor harness not connected correctly	Reconnect the paper feed motor harness.
		Abnormal load applied to the paper feed roller PF-related gear(s) broken	Replace the PF-related gear(s).
		PF encoder disk stained or scratched	Replace the PF encoder disk.
		PF encoder sensor defective	Replace the PF encoder/ registration sensor harness unit.
		Paper feed motor defective	Replace the engine unit.
		Main PCB defective	Replace the main PCB.
8B	The PF encoder sensor detects that the paper feed motor stops suddenly.	Abnormal load applied to the paper feed roller PF-related gear(s) broken	Replace the PF-related gear(s).
		PF encoder disk stained or scratched	Replace the PF encoder disk.
		PF encoder sensor defective	Replace the PF encoder/ registration sensor harness unit.
		Paper feed motor defective	Replace the engine unit.
		Main PCB defective	Replace the main PCB.
8C	Current protection for the driver IC activated in paper feeding operation.	The driving current has exceeded the limit due to an abnormal load applied to the PF-related gears and rollers.	Replace the PF encoder disk.
			Replace the engine unit.
			Replace the main PCB.
8D, 8E	Not used.		
8F	The PF encoder sensor detects that the paper feed motor is being driven and cannot be stopped.	Software malfunction	Open and close the scanner cover. Unplug and plug the AC cord.
		Paper feed motor harness not connected correctly	Correct the connection.
		Main PCB defective	Replace the main PCB.

Error Code (Hex)	Symptom	Probable Cause	Solution
90-A0	Not used.		
A1	The scanner cover sensor detects that the scanner cover (scanner unit) is opened.	Scanner cover sensor (carbon switch) broken	Replace the control panel PCB.
		Scanner cover sensor actuator unhooked	Set the scanner cover sensor actuator into place.
		Rubber keypad defective	Replace the rubber keypad.
		Control panel PCB defective	Replace the control panel PCB.
		Main PCB defective	Replace the main PCB.
A2	The document rear sensor detects a document of 90 cm* or longer during scanning or ejecting.	Document jam	Remove the jammed document.
		Foreign materials in the machine	Remove foreign materials.
		Document rear sensor actuator caught on the surrounding parts	Correct the surrounding parts on which the actuator caught.
		Document rear sensor broken	Replace the document rear sensor PCB.
		Document feed roller 2 defective or not rotating	Replace the ADF unit.
		Main PCB defective	Replace the main PCB.
A3	The document rear sensor does not come ON during document pull-in operation.	Document jam	Remove the jammed document.
		Foreign materials in the machine	Remove foreign materials.
		Document rear sensor actuator caught on the surrounding parts	Correct the surrounding parts on which the actuator caught.
		Document rear sensor broken	Replace the document rear sensor PCB.
		ADF motor defective	Replace the ADF motor.
		ADF-related gear(s) broken	Replace the ADF unit.
		Main PCB defective	Replace the main PCB.
A4	Not used.		

* This value is default and can be modified by WSW16, selector 7.

Error Code (Hex)	Symptom	Probable Cause	Solution
A5	The white level data is not compensated properly (1st time)*.	CIS defective White reference film stained in the scanner cover	Replace the scanner cover (scanner unit).
A6	The white level data is not compensated properly (retry)*.	Main PCB defective	Replace the main PCB.
A7	Mismatch between the type of the CIS mounted and EEPROM data.	Scanner cover containing the improper CIS type mounted at repair	Check the CIS type mounted and enter the new CIS type into the EEPROM with Function code 59 in the maintenance mode. (Refer to Chapter 9, Section 9.4.17.)
A8	Color parameter matching error. (Used for monitoring bugs at the factory.)	---	Install the latest firmware.
A9-AE	Not used.		
AF	The CIS unit does not travel to the specified position.	CIS flat cable broken or not connected properly	- Correct the cable connection. - Replace the scanner cover (scanner unit).
		CIS motor harness not connected properly	Correct the harness connection.
		CIS motor defective	Replace the scanner cover (scanner unit).
		CIS drive unit defective	
		CIS defective	Replace the main PCB.
B0-B8	Not used.		
B9	Light intensity error of the LED array. (Exceeding the upper limit)	CIS defective	Replace the scanner cover (scanner unit).
		Main PCB defective	Replace the main PCB.
BA-BC	Not used.		
BD	Black level data error.	CIS defective	Replace the scanner cover (scanner unit).
		Main PCB defective	Replace the main PCB.

* For MFC only

Error Code (Hex)	Symptom	Probable Cause	Solution
BE-DE	Not used.		
DF, E0	Modem error. ^{*1}	SDAA chip defective	Turn the machine off and then on.
		Main PCB defective	Replace the main PCB.
E1	Not used.		
E2	Wired LAN MAC address not registered. ^{*2}	MAC address not written into the main PCB correctly	Replace the main PCB.
E3	Wireless LAN MAC address not registered. ^{*3}	WLAN PCB defective	Replace the WLAN PCB.
E4	Not used.		
E5	Write error in EEPROM on the cordless PCB. ^{*4}	The base ID code and cordless handset ID code registered are mismatched.	Reregister the cordless handset ID code.
			Replace the cordless handset.
			Replace the cordless PCB.
E6	Write error in EEPROM.	Main PCB defective	Replace the main PCB.
E7	No communication between cordless PCB and cordless handset. ^{*4}	The base ID code and cordless handset ID code registered are mismatched.	Reregister the cordless handset ID code.
			Replace the cordless handset.
			Replace the cordless PCB.
E8, E9	Not used.		
EA	Document removed at phase B. ^{*1}	Document front sensor actuator caught on the surrounding parts	Correct the surrounding parts on which the actuator caught.
		Document front sensor defective	Replace the document front sensor PCB.
		Main PCB defective	Replace the main PCB.

*1 For MFC only

*2 For wired LAN-enabled models

*3 For wireless LAN-enabled models

*4 For models with cordless handsets

Error Code (Hex)	Symptom	Probable Cause	Solution
EB	Not used.		
EC	Color LCD connection detection failure.	LCD flat cable not connected correctly	Correct the connection.
		LCD unit defective	Replace the LCD unit.
		Main PCB defective	Replace the main PCB.
ED	Touch panel initialization failure at the time of power ON.* ²	Touch panel in contact with something during initialization at the time of power ON.	Clean the touch panel, then turn the machine off and then on again.
		Touch panel defective	Replace the LCD unit.
		Touch panel PCB defective	
		Main PCB defective	Replace the main PCB.
EE-F6	Not used.		
F7	Media module detection failure.* ³	Main PCB defective	Replace the main PCB.
F8	Battery harness* ⁴ connection failure. (Available in the maintenance mode only)	Battery harness not connected correctly	Correct the connection.
F9-FF	Not used.		

*1 Phase B: FAX negotiation stage between sending machine and receiving machine

*2 For models with touch panel

*3 For models with PhotoCapture Center

*4 For models with backup battery

4.1.2 Communications Errors (For MFC only)

If a communications error occurs, the machine:

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

■ Definition of Error Codes on the Communications List

(1) Calling

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

* Available in German models only.

(2) Command reception

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

(3) Compatibility [checking the NSF and DIS]

Code 1	Code 2	Causes
32	01	Remote terminal only with V.29 capability in 2400 or 4800 bps transmission.
32	02	Remote terminal not ready for polling.
32	10	Remote terminal not equipped with password function or its password switch OFF.
32	11	Remote terminal not equipped with or not ready for confidential mailbox function.
32	12	Remote terminal not equipped with or not ready for relay broadcasting function.
32	13	No confidential mail in the remote terminal.
32	14	The available memory space of the remote terminal is less than that required for reception of the confidential or relay broadcasting instruction.
32	18	Remote terminal not equipped with color function.

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

Code 1	Code 2	Causes
40	02	Illegal coding system requested.
40	03	Illegal recording width requested.
40	05	ECM requested although not allowed.
40	06	Polled while not ready.
40	07	No document to send when polled.
40	10	Nation code or manufacturer code not coincident.
40	13	Polled by any other manufacturers' terminal while waiting for secure polling.
40	17	Invalid resolution selected.
40	20	Invalid full-color mode requested.

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

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

(6) ID checking

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

(7) DCN reception

Code 1	Code 2	Causes
74		DCN received.

(8) TCF transmission/reception

Code 1	Code 2	Causes
80	01	Fallback impossible.

(9) Signal isolation

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

(10) Video signal reception

Code 1	Code 2	Causes
A0	03	Error correction sequence not terminated even at the final transmission speed for fallback.
A0	11	Receive buffer empty. (5-second time-out)
A0	12	Receive buffer full during operation except receiving into memory.
A0	13	Decoding error continued on 500 lines.
A0	14	Decoding error continued for 10 seconds.
A0	15	Time-out: 13 seconds or more for one-line transmission.
A0	16	RTC not found and carrier OFF signal detected for 6 seconds.
A0	17	RTC found but no command detected for 60 seconds.
AA	18	Receive buffer full during receiving into memory.
A0	19	No video data to be sent.
A0	20	Unable to continue to receive color FAX. (Remaining ink insufficient)
A8	01	RTN, PIN, or ERR received at the calling terminal.*
A9	01	RTN, PIN, or ERR received at the called terminal.*

* Available in German models only

(11) General communications-related

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

* Establishment of FAX communication

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

(12) Maintenance mode

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

(13) Equipment error

Code 1	Code 2	Causes
FF	<u>X X</u>	Equipment error. (For <u>X X</u> , refer to Section 4.1.1 [2] .)

4.2 TROUBLESHOOTING

4.2.1 Introduction

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

4.2.2 Precautions

Be sure to observe the following to prevent the secondary troubles from happening in addition to the safety precautions given in [Chapter 6, Section 6.1](#).

- (1) Always unplug the AC power cord from the outlet when removing the covers and PCBs, adjusting the mechanisms, or conducting continuity testing with a circuit tester.
- (2) When disconnecting the connectors, do not pull the lead wires but hold the connector housings.
- (3) 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 head/carriage unit, put on a grounding wrist band and perform the job on a static mat. Also take care not to touch the conductor sections on the flat cables.

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

4.2.3 Checking Prior to Troubleshooting

Prior to proceeding to the troubleshooting procedures given in [Section 4.2.4](#), make the following initial checks:

Environmental conditions

Check that:

- (1) The machine is placed on a flat, firm surface.
- (2) The machine is used in a clean environment at or near normal room temperature (10°C to 35°C) with normal relative humidity (20 to 80%).
- (3) The machine is not exposed to direct sunlight or harmful gases.

Power requirements

Check that:

- (1) The power supply specified on the rating plate on the machine is used. The supply voltage stays within the rating $\pm 10\%$.
- (2) Each voltage level on AC input lines and DC lines is correct.
- (3) All cables and harnesses are firmly connected.

Recording paper

Check that:

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

Ink cartridges

- (1) Check that all of four ink cartridges are loaded.

Head/carriage unit

- (1) Repeat the purge operation (Function code 76) several times. (Refer to [Chapter 9, Section 9.4.26.](#))

4.2.4 Troubleshooting Based on Problem Type

[1] Control panel and LCD problems

Problem	Check:
(1) LCD shows nothing.	<ul style="list-style-type: none"> • LCD and its flat cable • Panel-main harness • Control panel PCB-to-PCB harness (for models with touch panel) • Control panel PCB • Power supply PCB • Main PCB
(2) Control panel inoperative.	<ul style="list-style-type: none"> • Panel-main harness • Control panel PCB • Rubber keypads • Main PCB
(3) Touch panel inoperative.	<ul style="list-style-type: none"> • Adjust the touch panel with Function code 78 in the maintenance mode. (Refer to Chapter 9, Section 9.4.28.) • Touch panel harness • Touch panel relay PCB (in the LCD unit) • LCD unit • Main PCB

[2] FAX/Telephone problems (For MFC only)

Problem	Check:
(1) No faxes will be able to be sent.	<ul style="list-style-type: none"> • Hook switch* • Rubber keypads • Control panel PCB • Main PCB • MJ PCB
(2) Speed dialing will not work.	<ul style="list-style-type: none"> • Ordinary dialing function <p>If it works normally, check the main PCB; if not, refer to item (1) above.</p>
(3) Dial does not switch between tone and pulse.	<ul style="list-style-type: none"> • Main PCB
(4) The ringer does not sound.	<ul style="list-style-type: none"> • Speaker harness • Speaker • Main PCB • MJ PCB
(5) No phone call can be made with the handset.*	<ul style="list-style-type: none"> • Curled cord • Handset • Hook switch PCB • Main PCB

* For models with handset

Problem	Check:
(6) No phone call can be made with the cordless handset.*	<ul style="list-style-type: none"> • Cordless handset • Cordless PCB • Main PCB • MJ PCB
(7) The delayed fax timer cannot be set.	<ul style="list-style-type: none"> • Rubber keypads • Control panel PCB • Main PCB

* For models with cordless handsets

[3] Communications problems (For MFC only)

Problem	Check:
(1) No tone is transmitted.	<ul style="list-style-type: none"> • Main PCB • MJ PCB

[4] Paper/document feeding problems

Problem	Check:
(1) The "Enter Fax No." message does not appear although documents are set.*	<ul style="list-style-type: none"> • Sensors by using Function code 32 in the maintenance mode (Refer to Chapter 9, Section 9.4.9.) • Document front sensor actuator • Document front sensor PCB • Main PCB
(2) Document not fed.*	<ul style="list-style-type: none"> • ADF and its related sections • Foreign materials in the document path • ADF motor and its harness • Document feed roller and its related gears • Document front and rear sensor PCBs • Main PCB
(3) Document double feeding*	<ul style="list-style-type: none"> • ADF parts
(4) Document jam*	<ul style="list-style-type: none"> • Document rear sensor actuator • Foreign materials in the document path • Sensors by using Function code 32 in the maintenance mode (Refer to Chapter 9, Section 9.4.9.) • ADF motor • Main PCB

* For models with ADF

Problem	Check:
(5) Recording paper not fed.	<ul style="list-style-type: none"> • Paper pull-in roller holder • PE actuator • Base pad in the paper tray • Jam clear cover • PF-related gears • Main PCB • Paper feed motor • ASF-related gears • ASF motor
(6) Recording paper jam	<ul style="list-style-type: none"> • Paper feeding mechanism • Foreign materials in the paper path • Check that the carriage-head flat cable is connected to the carriage PCB. • Carriage PCB • Main PCB

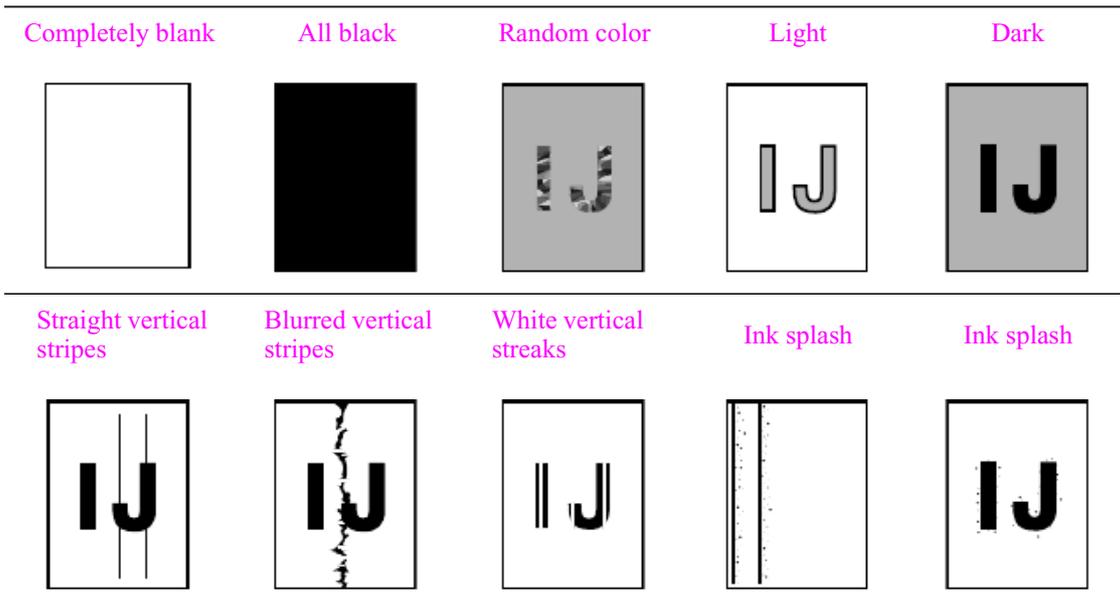
[5] Print-image problems

If there is any problem with any image printed, first make a copy using the machine.

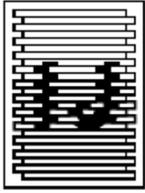
If the copied image is normal, the cause of the problem may be the sending station (e.g., PC and digital camera) or the memory card* inserted; if it is abnormal, proceed with the following checks:

*For models with PhotoCapture Center

Examples of Defective Images



Print edges not aligned



Random missing dots



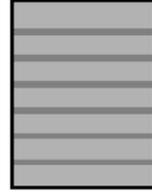
White horizontal streaks



Stained leading edge of recording paper



Overlapping lines over the whole page



Separated lines over the whole page



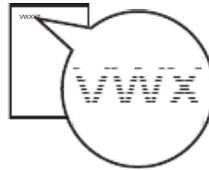
Overlapping lines at the trailing edge of the recording paper



Separated lines at the trailing edge of the recording paper



Characters having shadows (ghost)



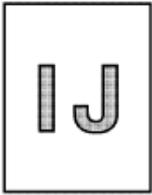
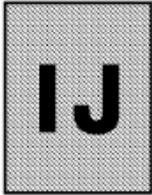
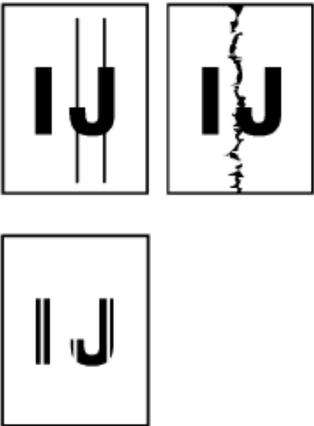
Stains in the center of, or over the whole page of, the recording paper

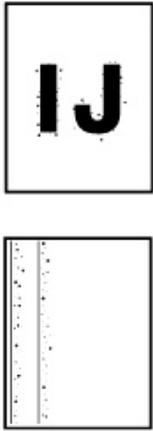
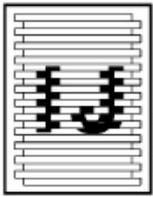


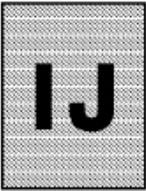
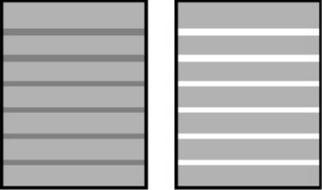
Dirt on the back of paper

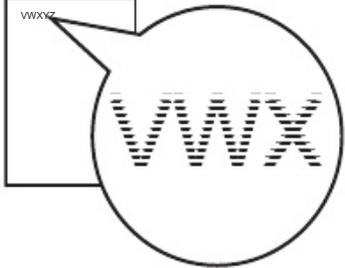
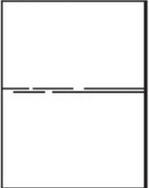


Problem	Action to be taken
<p>(1) Completely blank</p> 	<p><u>At the scanner</u> Check that the document is placed facing in the correct direction.</p> <p>In ADF scanning (available only in models with ADF), is the document placed <i>face down</i> in the document tray? In flat-bed scanning, is the document placed <i>face down</i> on the scanner glass?</p> <p>Check the following components:</p> <ul style="list-style-type: none"> - Scanner cover (CIS flat cable) - Main PCB
<p>(2) Random color</p> 	<p><u>At the printer</u></p> <ul style="list-style-type: none"> • Check the ink cartridges. If any cartridges have run out of ink, replace them. • Perform a head cleaning operation. • Check the connection of the head flat cables on the main PCB. (If either of those cables is broken or damaged, replace it.) • Check the head property data. (Refer to Chapter 9, Section 9.4.22.) • Replace the CR encoder strip. • Replace the head/carriage unit. • Replace the main PCB. • Clean the head caps and wiper of the maintenance unit with a Rubycel stick. For the cleaning procedure, refer to Chapter 8, Section 8.2 "CLEANING THE MAINTENANCE UNIT." • Replace the maintenance unit. • Check that the drain tubes are not bent.
<p>(3) All black</p> 	<p><u>At the scanner</u> Check the following components:</p> <ul style="list-style-type: none"> - Scanner cover (CIS flat cable) - Main PCB <p><u>At the printer</u> Check the following components:</p> <ul style="list-style-type: none"> - Head/carriage unit and carriage PCB ASSY - Main PCB

Problem	Action to be taken
<p>(4) Light</p> 	<p><u>At the scanner</u> Check the following components:</p> <ul style="list-style-type: none"> - Scanner cover (CIS unit) - Main PCB <p><u>At the printer</u> Check the following components:</p> <ul style="list-style-type: none"> - Ink cartridges - Head/carriage unit and carriage PCB ASSY - Main PCB - Power supply PCB - Head property data (Refer to Chapter 9, Section 9.4.22.) - Maintenance unit
<p>(5) Dark</p> 	<p><u>At the scanner</u> Check the following components:</p> <ul style="list-style-type: none"> - Scanner cover (CIS unit) - Main PCB <p><u>At the printer side</u></p> <ul style="list-style-type: none"> • Perform the purge operation (Function code 76) several times to remove dust or air bubbles from its nozzles. If the problem persists, replace the head/carriage unit. (Refer to Chapter 9, Section 9.4.26.) • Check the following components: <ul style="list-style-type: none"> - Ink cartridges - Head/carriage unit and carriage PCB ASSY - Main PCB - Power supply PCB - Head property data (Refer to Chapter 9, Section 9.4.22.) - Maintenance unit
<p>(6) Straight or blurred, black or white, vertical stripes</p> 	<p><u>Scanner</u></p> <ul style="list-style-type: none"> • Check the following components: <ul style="list-style-type: none"> - Scanner cover (CIS unit) - Scanner glass <p><u>Printer</u></p> <ul style="list-style-type: none"> • Check whether paper is coming into contact with any components other than the ones it should during ejecting. • Check the CR encoder strip for stains or scratches. (If the CR encoder strip is not hooked properly, correct it.)

Problem	Action to be taken
<p>(7) Ink splash</p> 	<p><u>Printer</u></p> <ul style="list-style-type: none"> • Perform the purge operation (Function code 76) several times to remove dust or air bubbles from its nozzles. (Refer to Chapter 9, Section 9.4.26.) • Check the ink cartridges. Any of them has run out of ink or the ink viscosity has been increased, so replace it. • Check the head property data (Refer to Chapter 9, Section 9.4.22.) • Check that the main drain tube is not bent. • Replace the head/carriage unit. • Replace the main PCB. • Replace the power supply PCB. • Replace the maintenance unit.
<p>(8) Print edges not aligned</p> 	<p><u>Printer</u></p> <ul style="list-style-type: none"> • Check the alignment of vertical print lines with Function code 65 in the maintenance mode. (Refer to Chapter 9, Section 9.4.20.) • Perform the print head skew compensation with the head skew adjuster knob. Refer to Chapter 7, Section 7.2, [4]. • Check the head/carriage unit. • Check the CR encoder strip for stains or scratches. (If the CR encoder strip is not hooked properly, correct it.) • Correct the positioning error of the head/carriage unit. (Refer to Chapter 7, Section 7.2, [4].) • Check the height adjustment mechanism of the head/carriage unit (Refer to Chapter 3, Section 3.2.2.3.) • If the "head-platen gap offset" is enabled with assurance mode switch AMS 02 (Function code 88), align the vertical print lines (Function code 65). (Refer to Chapter 9, Sections 9.4.32 and 9.4.20.)
<p>(9) Random missing dots</p> 	<p><u>Printer</u></p> <ul style="list-style-type: none"> • Perform the purge operation (Function code 76) several times to remove dust or air bubbles from its nozzles. (Refer to Chapter 9, Section 9.4.26.) • Check the ink cartridges. If any cartridges have run out of ink, replace them. • Check that the carriage-head flat cable is connected to the carriage PCB. • Replace the head/carriage unit. • Check the connection of the head flat cables on the main PCB. (If either of those cables is broken or damaged, replace it.) • Replace the main PCB. • Clean the head caps and wiper of the maintenance unit with a Rubycel stick. For the cleaning procedure, refer to Chapter 8, Section 8.2 "CLEANING THE MAINTENANCE UNIT." • Replace the maintenance unit.

Problem	Action to be taken
<p>(10) White horizontal streaks</p> 	<ul style="list-style-type: none"> • Perform the purge operation (Function code 76) several times to remove dust or air bubbles from its nozzles. (Refer to Chapter 9, Section 9.4.36.) • Replace the head/carriage unit. • Check the paper feed-related rollers. • Perform the print head skew compensation with the head skew adjuster knob. Refer to Chapter 7, Section 7.2, [4]. • Clean the head caps and wiper of the maintenance unit with a Rubycel stick. For the cleaning procedure, refer to Chapter 8, Section 8.2 "CLEANING THE MAINTENANCE UNIT."
<p>(11) Stained leading edge of recording paper</p> 	<p><u>Printer</u></p> <ul style="list-style-type: none"> • Perform a head cleaning operation. • Check that the head/carriage unit is set into place. • Check the height adjustment mechanism of the head/carriage unit (Refer to Chapter 3, Section 3.2.2.3.) • If the "head-platen gap offset" is enabled with assurance mode switch AMS 02 (Function code 88), align the vertical print lines (Function code 65). (Refer to Chapter 9, Sections 9.4.32 and 9.4.20.)
<p>(12) Overlapping or separated lines over the whole page</p> 	<ul style="list-style-type: none"> • Adjust the paper feeding correction value of the paper feed roller with Function code 58 in the maintenance mode. (Refer to Chapter 7, Section 7.2, [5].) • Perform the print head skew compensation with the head skew adjuster knob. Refer to Chapter 7, Section 7.2, [4].
<p>(13) Overlapping or separated lines at the trailing edge of the recording paper</p> 	<ul style="list-style-type: none"> • Adjust the paper feeding correction value of the paper ejection roller with Function code 58 in the maintenance mode. (Refer to Chapter 7, Section 7.2, [5].)

Problem	Action to be taken
<p>(14) Characters having shadows (ghost)</p> 	<ul style="list-style-type: none"> • Adjust the paper feeding correction values of the paper feed roller and paper ejection roller with Function code 58 in the maintenance mode. • (Refer to Chapter 7, Section 7.2, [5].) • Correct the positioning error of the head/carriage unit with Function code 63 in the maintenance mode. (Refer to Chapter 7, Section 7.2, [4].) • Replace the PF encoder disk. • Replace the PF encoder PCB.
<p>(15) Stains in the center of, or over the whole page of, the recording paper</p> 	<ul style="list-style-type: none"> • Use the specified type of paper. (Do not use short grain paper.) • Enable the "secure paper feed mode" referring to the USER'S GUIDE.
<p>(16) Dirt on the back of paper</p> 	<ul style="list-style-type: none"> • Clean the paper pull-in rollers and paper ejection roller. • Clean the platen.

[6] PC-driven printing problems

Problem	Action to be taken
<p>(1) PC-driven printing is impossible.</p>	<ul style="list-style-type: none"> • Interface with the host computer • PC interface cable • Main PCB • USB interface • Network interface

[7] Printing from memory cards--Compact Flash, Memory Stick, SD Memory Card, xD-Picture Card^{*1} (For models with PhotoCapture Center) and USB flash memory drive^{*2}

Problem	Action to be taken
(1) No image data can be read.	<ul style="list-style-type: none"> • Insertion direction of memory cards <ul style="list-style-type: none"> - Insert a Compact Flash card, SD Memory Card, or xD-Picture Card with the label side facing up. - Insert a Memory Stick card with the cutout corner leading and facing towards the left. • Memory cards <ul style="list-style-type: none"> - Formatted? - Any data in the memory card? - Images stored in the memory card are in EXIF2.0-compliant JPEG file format (having extension.JPG)? • Main PCB
(2) More than one memory card cannot be recognized.	<ul style="list-style-type: none"> • The machine can recognize only a single memory card at a time even if it has two cards in the two slots. Only the first inserted one can be recognized. <p>If only a single memory card is inserted, refer to item (1) above.</p>
(3) Media printing is impossible.	<ul style="list-style-type: none"> • Check whether the memory is full.

[8] Wireless LAN (WLAN)^{*3}

Problem	Action to be taken
(1) PC-driven printing via the wireless LAN is impossible.	<p>Check the following:</p> <ul style="list-style-type: none"> - The address has not been changed at both the machine and PC. - Connection between the WLAN PCB and the main PCB - WLAN PCB

*1 Some models do not support all memory cards.

*2 For models supporting PictBridge/USB flash memory drive

*3 For wireless LAN-enabled models

[9] Others

Problem	Action to be taken
(1) When the power is turned on (when the AC power cord is plugged into an electrical outlet), the scanner makes a grating noise.	Check the following components: <ul style="list-style-type: none"> - Scanner cover (CIS flat cable) - Main PCB
(2) The paper tray cannot be removed.	<ul style="list-style-type: none"> • Remove foreign materials. (If necessary, disassemble the machine.) • Replace the paper tray.
(3) The machine cannot be turned on.	<ul style="list-style-type: none"> • Replace the AC power cord. • Replace the power supply PCB. • Replace the main PCB.
(4) Mobile printing cannot work.	Replace the main PCB.

4.2.5 Problems Encountered Frequently in the Past

This section lists the three problems most frequently encountered during on-site service in the past.

- Paper jams
- Ink-related problems
- Auto document feeder (ADF) failure (For models with ADF)

[1] Paper jams

A paper jam may occur not only due to machine malfunction but also to the user's actions.

NOTE: In some cases, foreign material that has found its way into the machine without the user realizing can be the cause of a paper jam. Instruct the user to place nothing on top of the machine that might fall into it.

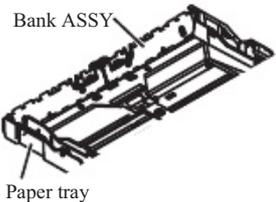
NOTE: When removing foreign materials from the machine, take special care not to contaminate or scratch the CR encoder strip. If the encoder strip is contaminated or scratched, replace it. (Refer to [Chapter 6, Section 6.1.12.](#))

NOTE: After removing jammed paper from the machine, be sure to check that no fragment of paper remains in the machine.

Problems due to the user's actions

Check	Possible causes	Problems that may result
Recording paper	Paper not suited to use with the machine was used.	Paper with labels attached, for example, may leave labels inside the machine.
For foreign materials	Fragments of paper that were left behind when previous paper jams occurred. Foreign materials such as tacks have found their way into the machine.	Foreign materials can hinder the paper feed.

Problems due to machine malfunction

Check	Possible causes	Problems that may result
Star wheels on star wheel support	Star wheels became dislocated when paper jam occurred.	Dislocated star wheels can hinder paper feed.
Sensors and actuators	Any sensor(s) not working.	If a sensor does not turn on, the related roller(s) will not rotate.
Bank ASSY	The bank ASSY is deformed. 	A deformed section on the bank ASSY can cause double-feeding.
CR encoder strip	The CR encoder strip is stained or displaced.	A stained CR encoder strip can cause a carriage drive error during printing that will stop the printing operation.
Jam clear cover	The jam clear cover is scratched.	The jam clear cover can hinder paper feed.

[2] Ink-related problems

Problems of this nature may arise not only due to machine malfunction but also to the user's actions.

IMPORTANT: In many cases, the user fails to set ink cartridges in place.

Problems due to the user's actions

Check	Possible causes	Problems that may result
Ink cartridges	<ul style="list-style-type: none"> - Ink cartridges are not inserted fully into the ink refill ASSY. - One or more of the ink cartridges are not loaded. - One or more of the ink cartridges has run out of ink. 	The machine will not be able to print.

Problems due to machine malfunction

Check	Possible causes	Problems that may result
Head/carriage unit	<ul style="list-style-type: none"> - Air bubbles, high viscosity ink, or foreign materials have found their way into the head/carriage unit. - Head flat cables are broken. - The carriage-head flat cable has not been inserted into the carriage PCB. 	Dot missing occurs on the printout. The machine will not be able to print or drive the head/carriage unit.
Maintenance unit	<ul style="list-style-type: none"> - Air bubbles, high viscosity ink, or foreign materials get into the maintenance unit. - Torque not transmitted. - Drain tube bent or pinched. 	Head cleaning operation will not be possible and/or the maintenance unit will not work.
FB unit*	The CIS unit is weak in identifying colors.	The quality of print colors in copying operation will be low.

* FB unit: ADF & document cover ASSY and scanner cover (scanner unit)

[3] Auto document feeder (ADF) malfunction (For models with ADF)

An ADF failure may occur not only due to machine malfunction but also to the user's actions.

Problems due to the user's actions

Check	Possible causes	Problems that may result
Document guides	The document guides are not positioned to match the width of document(s) loaded.	Documents will skew.
Inside the ADF	<ul style="list-style-type: none"> - Foreign materials have found their way into ADF. - The size of the document loaded is smaller than the specified size. 	<p>Foreign materials can hinder document feeding.</p> <p>The document will jam inside the ADF.</p>

Problems due to machine malfunction

Check	Possible causes	Problems that may result
ADF	The spring plates of the ADF parts are deformed.	A document will stop halfway through feeding.
	The ADF parts are deformed or worn.	Two or more sheets of documents will be fed through at once.
Document front sensor	<ul style="list-style-type: none"> - The document front sensor is defective. - The document front sensor actuator is deformed. 	<p>No document will be drawn in or recognized by the machine.</p> <p>Even placing a document in the ADF cannot switch to "ADF scanning."</p>
Document rear sensor	<ul style="list-style-type: none"> - The document rear sensor is defective. - The document rear sensor actuator is deformed. 	A document will stop halfway through feeding or will not be recognized by the machine.
ADF motor	The ADF motor does not rotate.	No document will be drawn in.
Main PCB	The motor driver IC is defective.	No document will be drawn in.

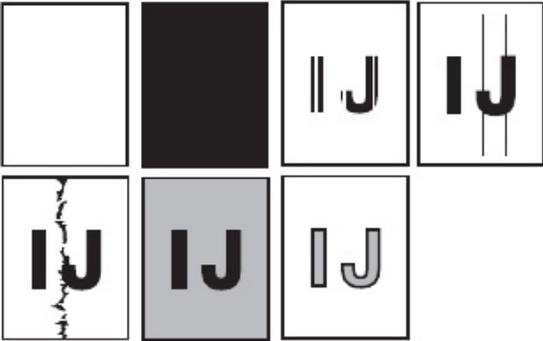
4.2.6 Possible Component Defects and Resulting Problems

This section lists possible component defects and what happens due to them. It also describes what happens if the necessary adjustments or data settings into the memories is not made.

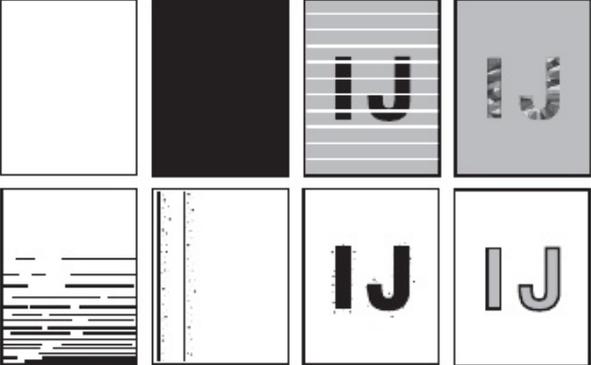
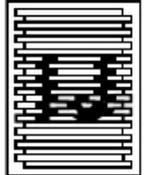
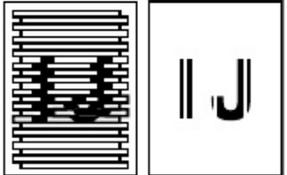
[1] ADF mechanism (For models with ADF)

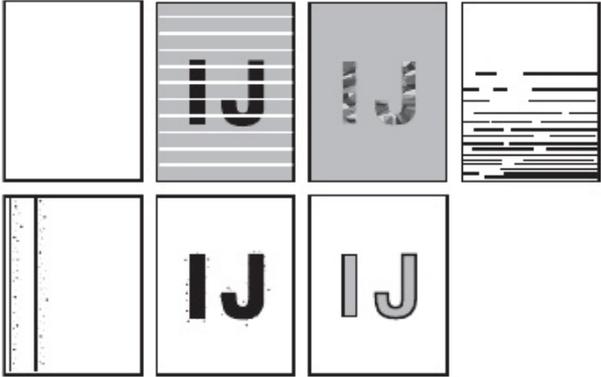
Defective component	Result	Error codes
ADF motor	- Document will not be able to be fed.	---
Document feed roller	- Documents will jam. - Documents will skew. - Documents will not be able to be fed.	A2, A3
Separation pad	- Two or more sheets of documents will be fed at once.	---
Document front sensor actuator	- Document draw-in operation will not start even though documents have been set.	A3
Document rear sensor actuator	- Document draw-in operation will continue even though all documents have been fed into the machine.	A2, A3

[2] Scanner mechanism

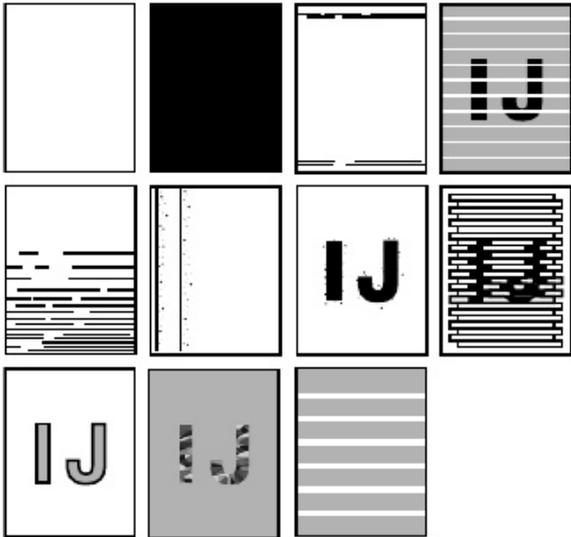
Defective component	Result	Error codes
CIS unit	<p>- Any of the following images may appear on the printout:</p>  <p>- When the power is turned on, abnormal noises will be heard from the machine.</p> <p>- Any of the following errors occurs:</p> <ul style="list-style-type: none"> - Dark level offset data level error for scanning - Gain control data level error for scanning - Scan area right/left edge detection error - Horizontal scanning edge reduction/enlargement detection error in scanning area setting - White/black level data error - Scan starting edge detection error 	BD, AF
CIS flat cable	<p>- When the power is turned on, the "Init Unable AF" appears on the LCD.</p>	AF
Scanner drive unit	<p>- When the power is turned on, abnormal noises will be heard from the machine.</p>	---

[3] Head/carriage unit drive and purge mechanisms

Defective component	Result	Error codes
Head/carriage unit	<ul style="list-style-type: none"> - Any of the following images may appear on the printout: 	---
Carriage motor	<ul style="list-style-type: none"> - The head/carriage unit will not be able to travel normally. - When the power is turned on, the "Init Unable 3*" appears on the LCD. - The following image may appear on the printout: 	30, 31, 32, 33
CR encoder strip	<ul style="list-style-type: none"> - The head/carriage unit will not be able to travel normally. - Any of the following images may appear on the printout: 	30, 31, 32, 33
Ink cartridge PCB	<ul style="list-style-type: none"> - The "Cannot Print" message will appear even though there is ink. - Even though the ink runs out, the "Cannot Print" message does not appear. 	26, 27, 28, 29
Paper width sensor (Media sensor)	<ul style="list-style-type: none"> - A paper jam will occur. 	80, 82
	<ul style="list-style-type: none"> - Printing on the platen without paper. 	---
	<ul style="list-style-type: none"> - The recording paper width will be incorrectly detected. 	17

Defective component	Result	Error codes
Maintenance unit Head caps or wiper	- Any of the following images may appear on the printout: 	---
Tube pump	- The tube pump will not draw out ink from the head nozzles.	---
Purge cam switch	- The purge cam switch will not detect the purge cam ON/OFF timing.	50, 51, 52
Cap lift cam switch	- The cap lift cam switch will not detect the ON/OFF timing of the cap lift cam.	70, 71, 72

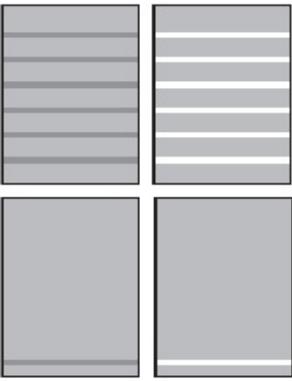
[4] Print head mechanism

Defective component	Result	Error codes
Head/carriage unit and carriage PCB ASSY	- Any of the following images may appear on the printout: 	---

[5] Sheet feeder (SF) mechanism

Defective component	Result	Error codes
Bank ASSY (shown on page 4-45)	- Two or more sheets of paper will be fed at once. - No paper will be fed.	82, 83, 88

[6] Paper feeding mechanism

Defective component	Result	Error codes
Paper feed roller Paper ejection roller (If the paper feed roller or paper ejection roller is defective, it is necessary to replace the engine unit.)	- Any of the following images may appear on the printout: 	---
Paper pull-in rollers (stained) Paper ejection roller (stained) Platen (stained)	- The following image may appear on the printout: 	---
PF encoder disk PF encoder sensor	- The following image may appear on the printout: 	---
Carriage PCB	- No paper will be fed.	88

[7] Speaker

Defective component	Result	Error codes
Speaker	<ul style="list-style-type: none"> - No key clicks will be heard. - The ringer will not sound. (For MFC only) - No tone will be transmitted. (For MFC only) 	---

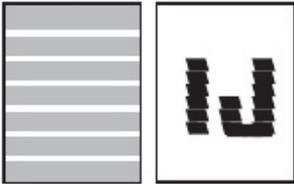
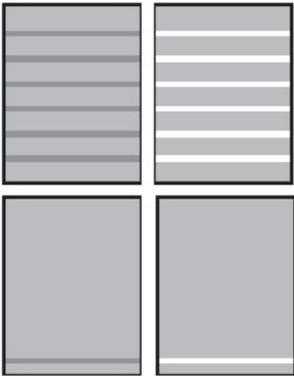
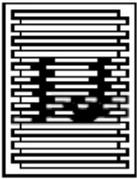
[8] Control panel

Defective component	Result	Error codes
Rubber keypad	<ul style="list-style-type: none"> - Keys will not work. 	---
Control panel PCB	<ul style="list-style-type: none"> - Keys will not work. - The LEDs will not light. 	---
LCD	<ul style="list-style-type: none"> - The LCD will show nothing. 	---
Touch panel relay PCB	<ul style="list-style-type: none"> - Keys on the touch panel will not work. 	---

[9] PCBs

Defective component	Result	Error codes
Main PCB	<ul style="list-style-type: none"> - No faxes will be able to be sent. (For MFC only) - No phone calls will be able to be made. - Copying will not be possible. - PC-driven printing will not be possible. - Scanning will not be possible. - The machine will not be able to be turned on. - Any of the following images may appear on the printout: <div style="text-align: center;">  </div> <ul style="list-style-type: none"> - The ringer will not sound. (For MFC only) 	---
MJ PCB (For MFC only)	<ul style="list-style-type: none"> - No faxes will be able to be sent. - No phone calls will be able to be made. - The ringer will not sound. - No tone will be detected. - The machine will not be able to switch to the external telephone. 	D*
Power supply PCB	<ul style="list-style-type: none"> - The machine will not be able to be turned on. - The LED will not light. - The LCD will show nothing. 	---

[10] Adjustments/data in the memories

Adjustment/data setting error in the following components:	Result	Refer to:	Error codes
EEPROM customizing code	- The machine will not work as specified for that model or that shipping destination.	- Chapter 9, Section 9.4.24 - Appendix 3	
ID code	- The machine will not be able to be identified by the PC connected to it via USB.	- Chapter 7, Section 7.3, [8]	
Head property data (in the EEPROM)	- The print quality will deteriorate.	- Chapter 7, Section 7.2, [1] - Chapter 9, Section 9.4.22	
Correction of head positioning error	<p>- Any of the following images may appear on the printout:</p> 	- Chapter 7, Section 7.2, [4]	
Updating of the paper feeding correction value for the paper feed roller/paper ejection roller (Function code 58)	<p>- Any of the following images may appear on the printout:</p> 	- Chapter 7, Section 7.2, [5] - Chapter 9, Section 9.4.16	
Setting of the CIS scanner area	<p>- The white and black level data will not be compensated properly. - The scanning center position will not be centered. - The enlargement/reduction ratio of copies will go wrong.</p>	- Chapter 9, Section 9.4.15	
Alignment of vertical print lines	<p>- The following image may appear on the printout:</p> 	- Chapter 7, Section 7.2, [6] - Chapter 9, Section 9.4.20	

CHAPTER 5

HANDLING DATA HELD IN THE MACHINE PRIOR TO REPAIR

CHAPTER 5 HANDLING DATA HELD IN THE MACHINE PRIOR TO REPAIR

This chapter describes how to handle data held in the machine to be repaired.

At the user site, if the machine cannot print FAX data received and left in the machine due to the printing mechanism defective, the service personnel should instruct the end user to follow the transfer procedure given in this chapter to transfer the FAX data to another machine before sending the machine for repair.

At the service site, the service personnel should back up the machine information and user setting information held in the machine into an external memory for restoration after repair, using the backup procedure given in this chapter.

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5.1 AT THE USER SITE

5.1.1 Transferring Received FAX Data

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

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

Note: The DCP does not support this function.

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

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

■ Operating Procedure

- (1) Press the **Stop/Exit** key to interrupt the error temporarily, if the LCD shows an error message.
- (2) Press the **Menu** key.
- (3) Press the **▲** or **▼** to choose **Service**.
Press the **OK** key (**Photo Capture** key for models having no **OK** key).
- (4) Press the **▲** or **▼** to choose **Data Transfer**.
Press the **OK** key.
- (5) Press the **▲** or **▼** to choose **Fax Transfer**.
Press the **OK** key.
- (6) Do one of the following:
 - If the LCD shows **No Data**, there are no faxes left in the machine's memory.
Press the **Stop/Exit** key.
 - Enter the fax number to which faxes will be forwarded.
- (7) Press the **Black Start** key.
The machine will automatically return to standby mode.

5.2 AT THE SERVICE SITE

5.2.1 Backing up Machine Information

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

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

Note that the following information cannot be backed up.

- Serial number of the machine
- MAC address
- Call and caller ID records
- ~~Activity report~~
- Fax data sent (Delayed-timer sent data, redialed sent data, and polled sent data)

■ Operating Procedure

- (1) On the PC, create a "Brother" folder in an external memory to be used for saving backup data.
- (2) Switch the machine to the maintenance mode using the steps below. (Refer to [Chapter 9](#).)

Models without touch panel

Press the **Menu** and **Black Start (Mono Start)** keys in this order. Next press the **▲** key four times.

Models with touch panel

Press the **Menu** key on the touch panel and the **Black Start (Mono Start)** key on the control panel. Next press the **Scan** key four times.

TIP: When the touch panel is inoperable, simultaneously press the **Scan** and **Copy** keys on the control panel, instead of the **Menu** key, and press the **Black Start (Mono Start)** key. Next press the **Scan** key four times.

TIP: Models equipped with a numerical keypad on the control panel can enter the maintenance mode in the same way as conventional models; that is, by pressing the **Menu**, *****, **2**, **8**, **6** and **4** keys in this sequence.

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

- (3) Back up the machine information and user setting information, referring to [Chapter 9, Section 9.4.11 "Backup of Machine Information \(Function code 46\) \(User-accessible\)."](#)

CHAPTER 6

DISASSEMBLY/REASSEMBLY AND LUBRICATION

CHAPTER 6 DISASSEMBLY/REASSEMBLY AND LUBRICATION

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

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

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

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6.1 DISASSEMBLY/REASSEMBLY

■ Safety Precautions

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

- (1) Before replacing parts or units, unplug the power cord and telephone line*.

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

* For MFC only

- (2) Be careful not to lose screws, washers, or other parts removed for parts replacement.
- (3) When using soldering irons and other heat-generating tools, take care not to damage the resin parts such as wires, PCBs, and covers.

- (4) Static electricity charged in your body may damage electronic parts.

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

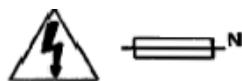
- (5) Be sure to reinsert self-tapping screws correctly, if removed.
- (6) Tighten screws to the torque values listed on the next page.
- (7) When connecting or disconnecting cable connectors, hold the connector bodies not the wires. If the connector has a lock, always slide the connector lock to unlock it.
- (8) Before reassembly, apply the specified lubricant to the specified points. (Refer to [Section 6.2](#) in this chapter.)
- (9) After repairs, check not only the repaired portion but also that the connectors and other related portions function properly before operation checks.
- (10) Once the head/carriage unit prints, it will start head locking operation after five seconds from the end of printing. The head locking operation will take 5 to 10 seconds. NEVER unplug the power cord before the machine completes the head locking operation; doing so will make the head/carriage unit unusable and require replacement with a new head/carriage unit.

When you receive the machine from the user or when you pack it for sending it back to the user, check the head locking state.

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

When connecting flat cables, do not insert them at an angle. After insertion, check again that the cables are not at an angle.

- (12)



CAUTION
DOUBLE POLE/NEUTRAL FUSING

■ Tightening Torque

Location of screw	Screw type	Q'ty	Tightening torque N•m (kgfcm)
Grounding wire (for ADF drive unit) *1	Taptite, cup S M3x6	1	0.40±0.1 (4±1)
ADF reinforcement plate *1	Taptite, cup B M3x12	1	0.50±0.1 (5±1)
ADF unit *1	Taptite, bind B M4x12	5*5	0.70±0.1 (7±1)
	Taptite, cup B M3x8	1*5	0.50±0.1 (5±1)
	Taptite, cup B M3x12	1*5	0.50±0.1 (5±1)
	Taptite, cup B M3x10	7*6	0.50±0.1 (5±1)
ADF drive unit *1	Taptite, cup B M3x12	2	0.50±0.1 (5±1)
ADF motor *1 (Together with grounding wire *1 using one screw)	Screw, pan (s/p washer) M3x6	2	0.70±0.1 (7±1)
Document roller holder *1	Taptite, cup B M3x8	1	0.50±0.1 (5±1)
Control panel ASSY	Taptite, cup B M3x10	3	0.40±0.1 (4±1)
Grounding wire (for LCD unit) *2	Taptite, cup S M3x6	1	0.40±0.1 (4±1)
Control panel base	Taptite, bind B M3x8	2*3	0.40±0.1 (4±1)
Upper cover	Taptite, bind B M4x12	6	0.70±0.1 (7±1)
(Together with front cover)	Taptite, cup B M3x10	1	0.40±0.1 (4±1)
Grounding wire (for WLAN PCB) *4	Taptite, cup S M3x10	1*7	0.40±0.1 (4±1)
	Taptite, cup S M3x6	1*8	0.40±0.1 (4±1)
Main PCB shield	Taptite, cup S M3x6	3(2)*9	0.40±0.1 (4±1)
	Taptite, cup B M3x10	1	0.40±0.1 (4±1)
Main PCB	Taptite, cup S M3x6	3*10	0.40±0.1 (4±1)
	Taptite, cup B M3x10	4*11	0.40±0.1 (4±1)
Main PCB shield frame (Together with MJ/PS shield unit)	Taptite, cup B M3x10	3 (2, 1)*12	0.40±0.1 (4±1)
	Screw, pan (s/p washer) M3x8	1	0.40±0.1 (4±1)
MJ/PS shield unit (Together with engine unit)	Screw, pan (s/p washer) M3x8	1	0.40±0.1 (4±1)
	Taptite, cup S M3x6	1	0.40±0.1 (4±1)
Grounding wire (for power cord) (200 V series only)	Screw, pan (washer) M4x8DB	1	0.60±0.1 (6±1)
Power supply PCB	Taptite, cup S M3x8	3	0.40±0.1 (4±1)
MJ shield	Screw, pan (s/p washer) M3x8	1	0.40±0.1 (4±1)
MJ PCB (MFC only)	Taptite, cup S M3x6	1	0.40±0.1 (4±1)
Ink cartridge detection sensor PCB	Taptite, cup B M3x8	1	0.50±0.1 (5±1)
Chassis support	Taptite, cup B M3x12	1	0.60±0.1 (6±1)
Engine unit	Taptite, cup B M3x12	1	0.60±0.1 (6±1)
Maintenance unit	Taptite, cup B M3x10	3	0.60±0.1 (6±1)
ASF (Auto Sheet Feeder) motor	Screw, pan (s/p washer) M3x5	2	0.70±0.1 (7±1)
Carriage motor	Screw, bind M3x6	2	0.60±0.1 (6±1)
PF encoder PCB	Screw, bind M2x12	1	0.15±0.05 (1.5±0.5)

*1 For models with ADF

*2 For models with touch panel

*3 For models with color LCD

*4 For wireless LAN-enabled models

*5 DCP375CW/395CN and MFC255CW/295CN/495CW/795CW

*6 DCPJ125/J315W/J515W/J715W and MFCJ220/J265W/J270W/J410W/J410W/J415W/J615W/J630W

*7 DCP375CW and MFC255CW, DCPJ315W/J515W/J715W and MFCJ265W/J270W/J410W/J415W/J615W/J630W

*8 MFC495CW/795CW

*9 Three screws for DCP375CW and MFC255CW/295CN,

DCPJ715W and MFCJ615W/J630W

Two screws for other models

*10 For models except DCP395CN and MFC495CW/795CW

*11 DCP395CN and MFC495CW/795CW

*12 Three screws for DCP375CW and MFC255CW/295CN, DCPJ715W and MFCJ615W/J630W

Two screws for DCPJ125 and MFCJ220,

One screw for DCPJ315W/J515W and MFCJ265W/J270W/J410W/J410W/J415W

■ Preparation

Prior to proceeding with the disassembly procedure,

- (1) Be sure to back up the machine information and user setting information into an external memory. If the main PCB is replaced, restore the backup data to the new main PCB after completion of reassembling. Failure to back up the machine information requires the ink

absorber box and flushing box to be replaced after replacement of the main PCB.

For detailed backup and restoration procedures, refer to [Chapter 9, Section 9.4.11 "Backup of Machine Information \(Function code 46\) \(User-accessible\)."](#)

- (2) Unplug the following:

- Power cord from the electrical outlet (or from the machine in the case of 200 V series)
- Modular jack of the telephone line^{*1}
- Modular jack of the curled cord (and remove the handset)^{*2}
- USB cable, if connected
- LAN cable, if connected^{*3}
- Digital camera USB cable or USB flash memory drive, if connected^{*4}
- Modular jack of the external telephone set from the external telephone line jack^{*1}, if connected (if not, remove the EXT cap)

- (3) Remove the following:

- Paper tray ASSY
- Handset mount^{*2} (see the illustration on the next page)

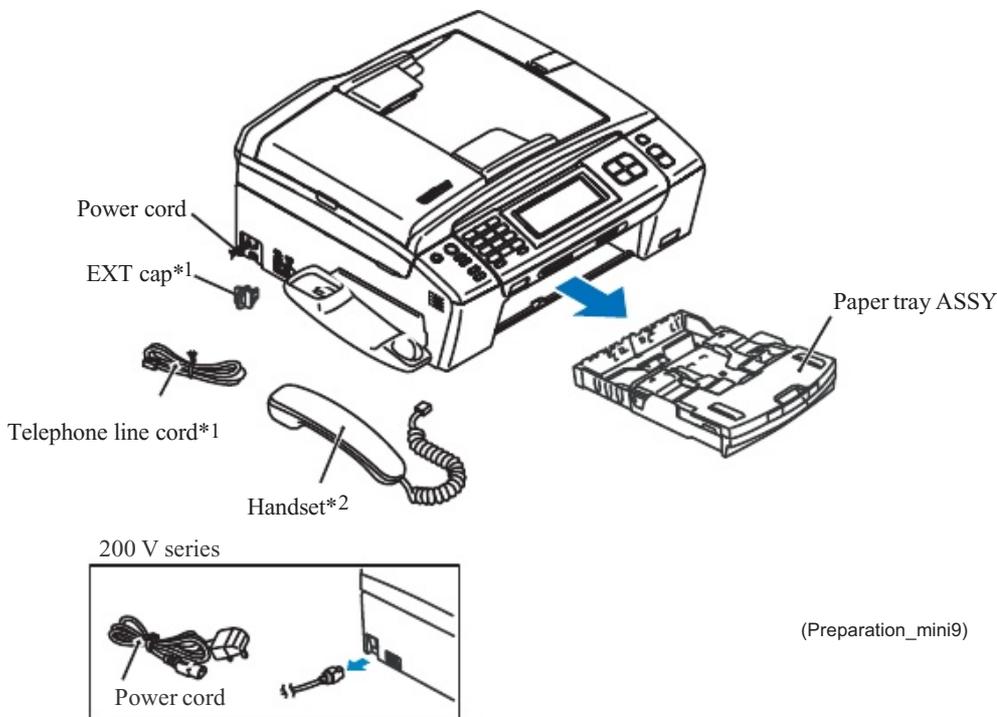
- (4) Remove memory cards if inserted in the machine.

*1 For MFC only

*2 For models with handset

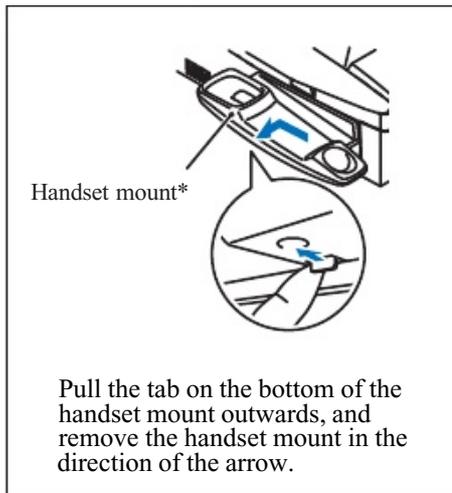
*3 For wired LAN-enabled models

*4 For models supporting PictBridge/USB flash memory drive

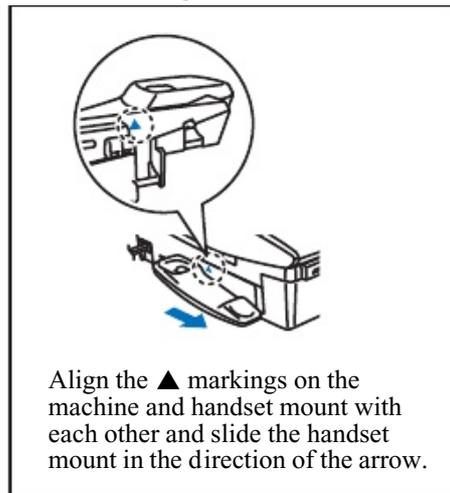


(Preparation_mini9)

Removing the handset mount*

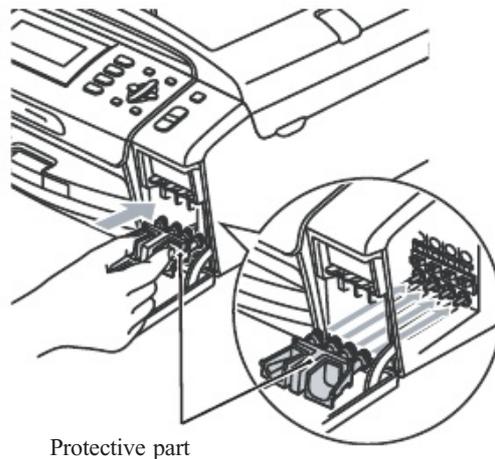


Installing the handset mount*



(Handset_mount)
* For models with handset

- (5) Remove all four ink cartridges and set the protective part instead. Check that the small tabs on both sides of the protective part fit in the holes provided in the ink refill ASSY.

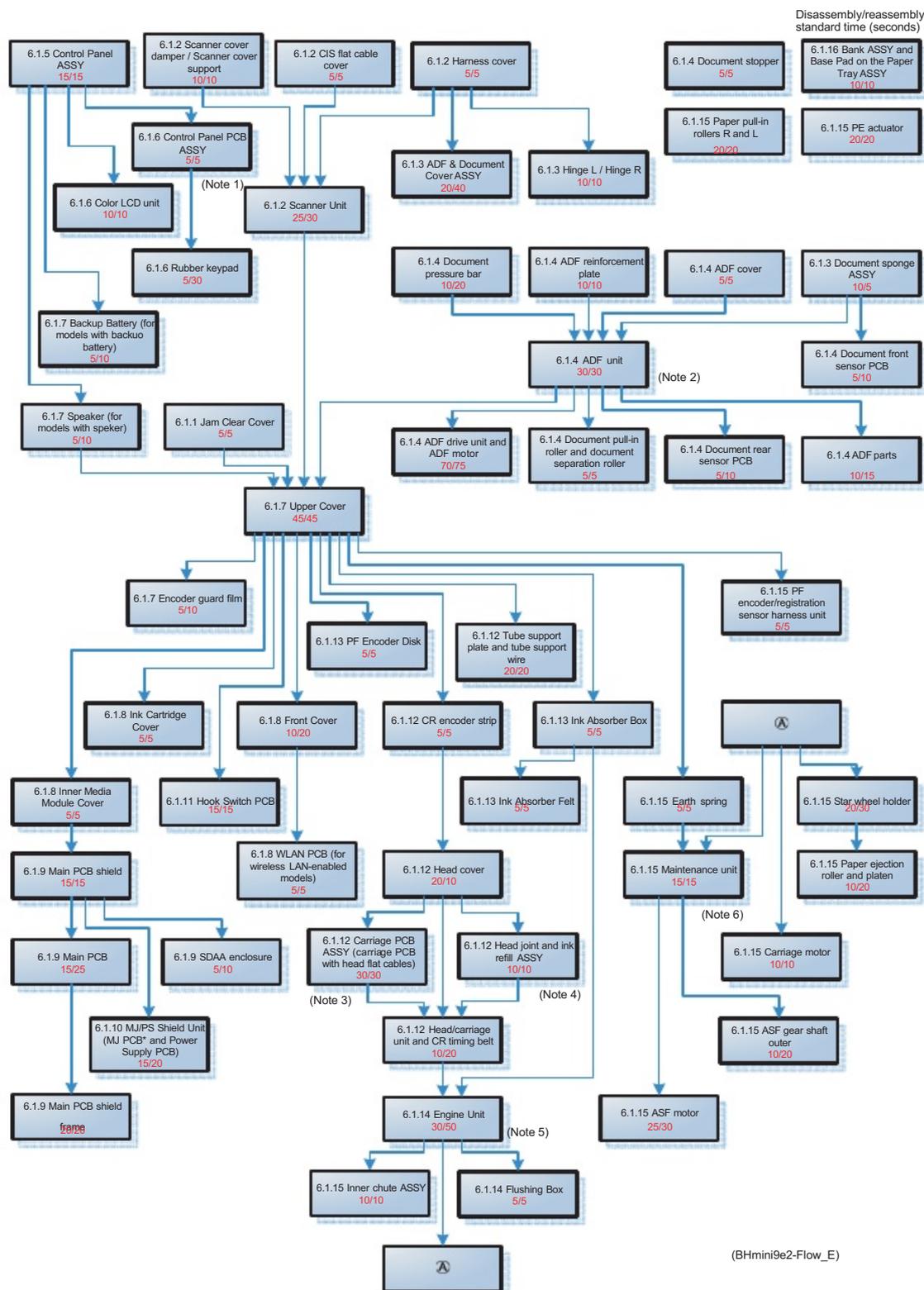


(Protective_part_mini9)

■ How to Access the Target Component

- On the next page is a disassembly flowchart which helps you access the target components. To remove the maintenance unit, first find it on the flowchart and note its section number (Section 6.1.15 in this case). To access it, you need to remove all the parts above the maintenance unit on the flowchart (Sections 6.1.1, 6.1.2, 6.1.5, 6.1.7, and 6.1.14 in this case) before the unit itself can be removed.
- Unless otherwise specified, all parts should be replaced in the opposite order to which they were removed to reassemble the machine.

■ Disassembly Flowchart



Sensors, encoders, and thermistors

(Note 1) The control panel PCB has the scanner cover sensor and ink cartridge cover sensor.

(Note 2) The ADF unit has the document front and rear sensor PCBs.

(Note 3) The carriage PCB in the head/carriage unit has the paper width sensor, head thermistor, and CR encoder sensor.

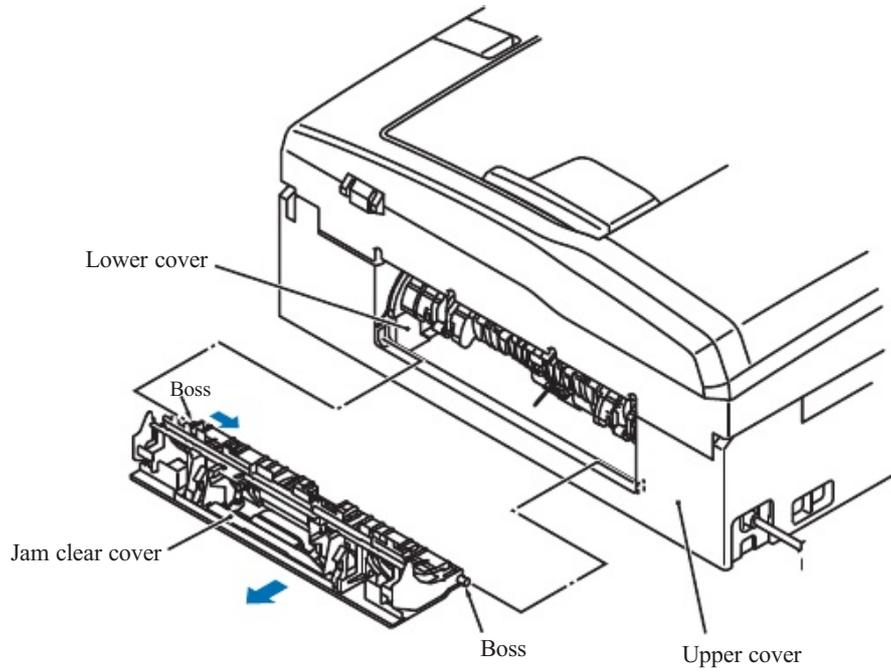
(Note 4) The ink refill ASSY has the ink cartridge detection sensor PCB (having four ink cartridge detection sensors) and ink empty sensor PCB (having four ink empty sensors and the casing internal temperature thermistor).

(Note 5) The engine unit has the registration sensor PCB and PF encoder PCB (having PF encoder sensor).

(Note 6) The maintenance unit has the purge cam switch and cap lift cam switch. The ASF motor unit has the ASF encoder sensor.

6.1.1 Jam Clear Cover

- (1) Open the jam clear cover.
- (2) Release the *left* boss on the jam clear cover from the lower cover while pressing the left end of the jam clear cover inwards with the tip of a flat screwdriver.



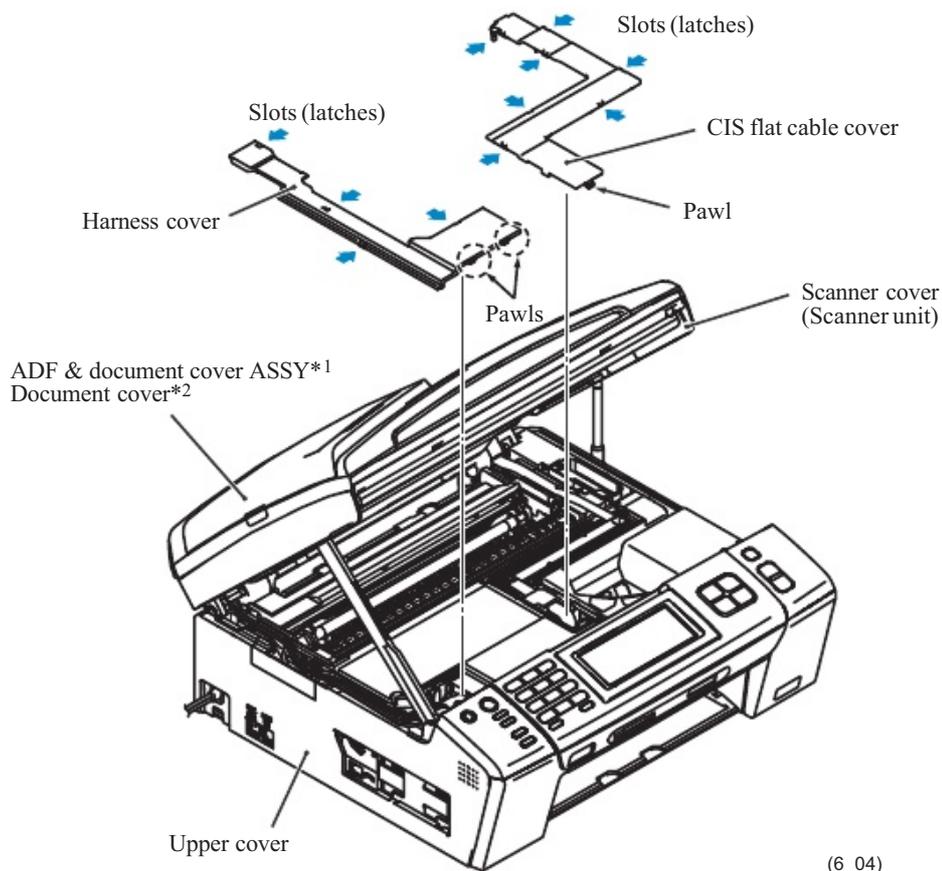
(6_03)

6.1.2 Scanner Cover (Scanner Unit)

The scanner cover should be removed together with the ADF & document cover ASSY (for models with ADF) or document cover (for models without ADF). For the removal and disassembly procedures of the ADF & document cover ASSY, refer to [Sections 6.1.3](#) and [6.1.4](#), respectively.

- (1) Open the scanner cover until it locks.
- (2) Remove the CIS flat cable cover and the harness cover by inserting the tip of a flat screwdriver into the slots and releasing the latches.

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



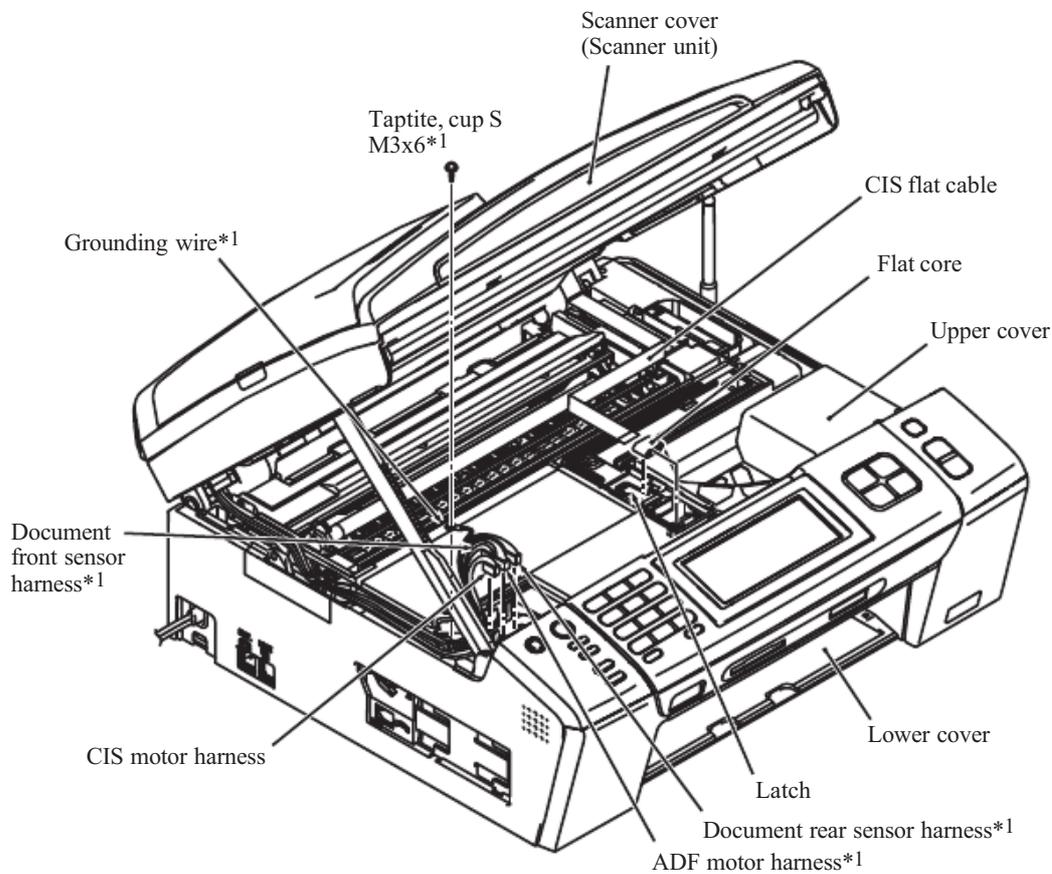
- (3) Disconnect the CIS flat cable from the main PCB, pull it to the rear through the flat core, and then release it from the cable guides. Unlatch the flat core and take it out of the upper cover.

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

insertion, check again that it is not at an angle.

- (4) **Models with ADF:** Release the grounding wire by removing the screw.
- (5) Disconnect the following harness(es) from the main PCB.
- CIS motor harness (4-wire)
 - ADF motor harness (4-wire)*1
 - Document front sensor harness (3-wire)*1
 - Document rear sensor harness (3-wire)*1

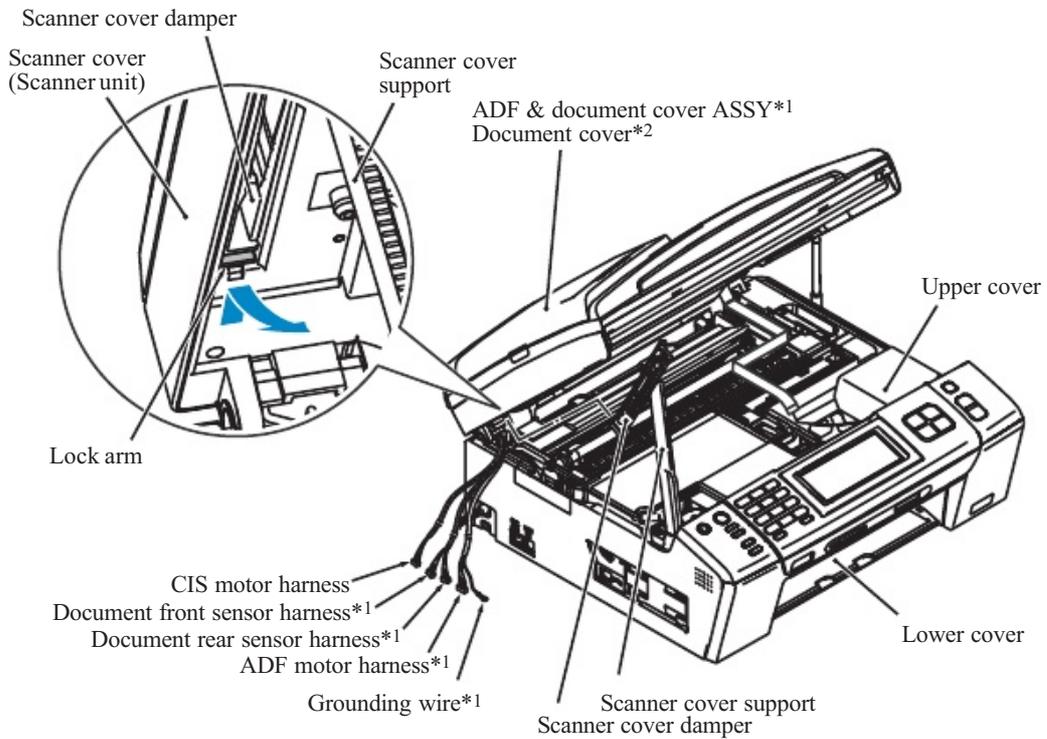
*1 For models with ADF



(6_05_mini9e)

- (6) Release the harness(es) and grounding wire *1 from the cable guides provided at the left end of the upper cover.
- (7) While supporting the scanner cover by hand, pull the lock arm provided on the rear of the scanner cover damper and release the damper from the scanner cover.

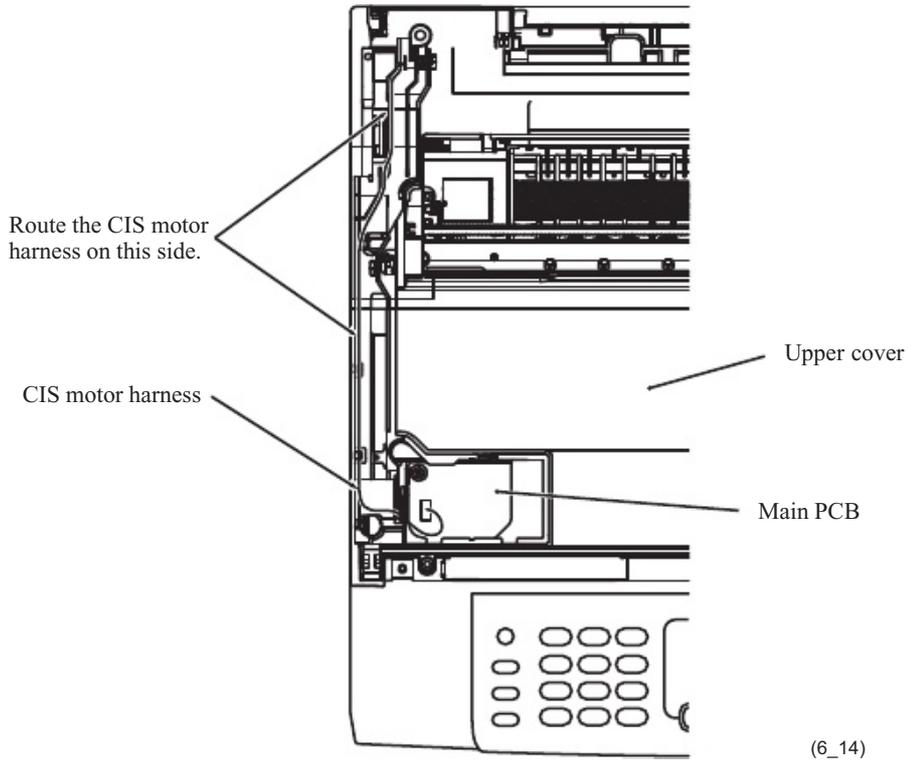
*1 For models with ADF
 *2 For models without ADF



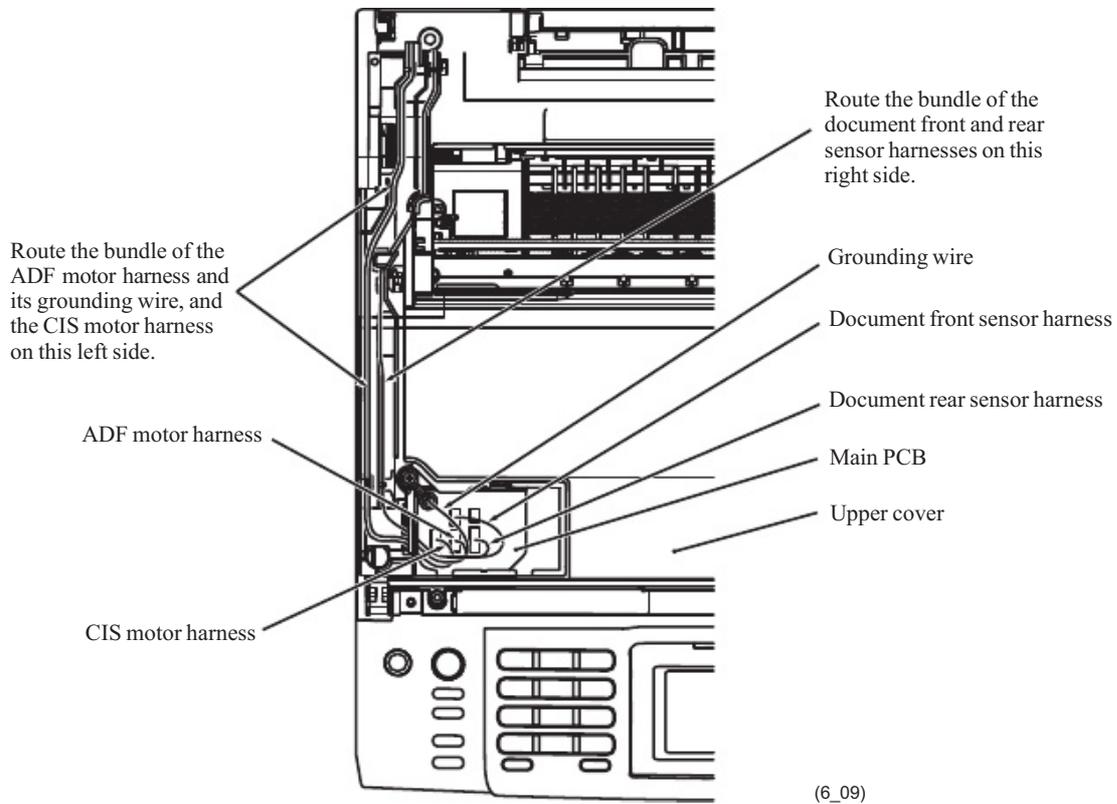
(6_06_mini9e)

Assembling Notes

Models without ADF: Route the CIS motor harness as shown below.

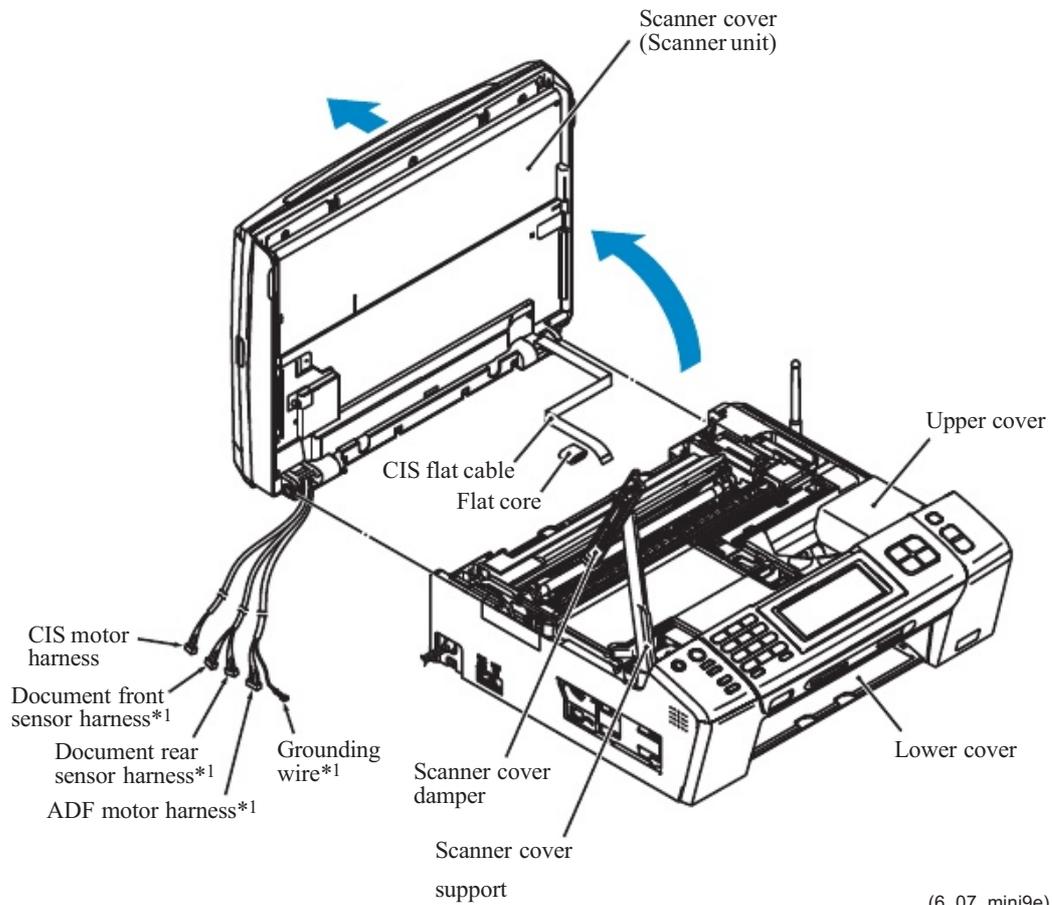


Models with ADF: Route the document front and rear sensor harnesses, CIS motor harness, ADF motor harness and grounding wire as shown below.



(8) Open the scanner cover at approx. 80° and pull it to the rear and off the machine.

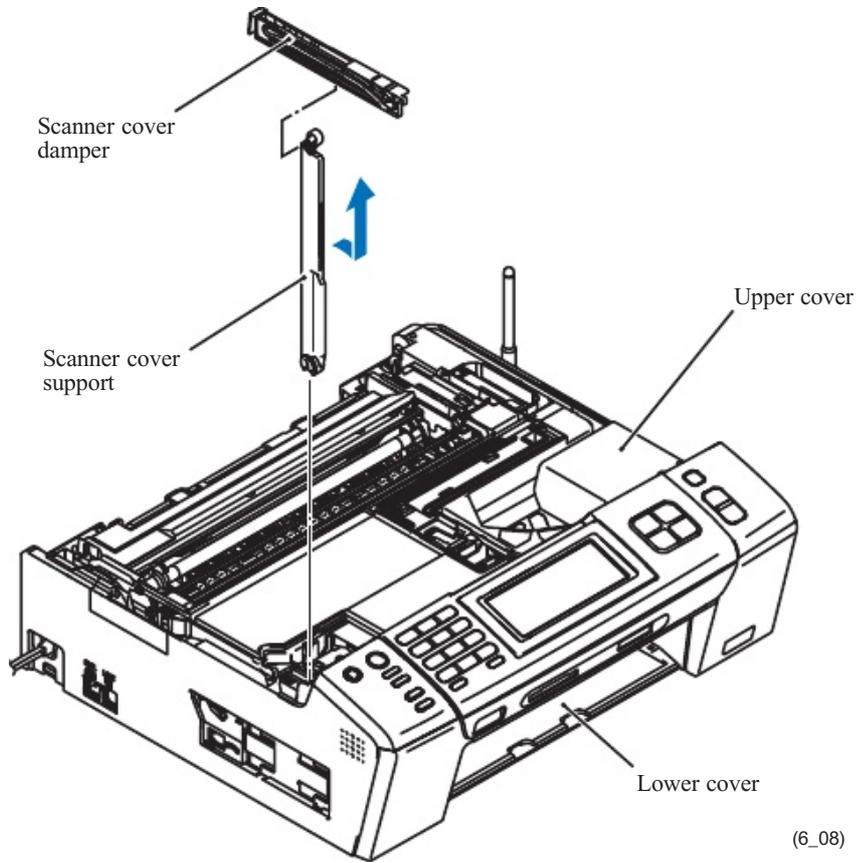
*1 For models with ADF



(6_07_mini9e)

Assembling Note: If you replace the scanner cover, specify the CIS type into the EEPROM in the maintenance mode (Function code 59), referring to [Chapter 9, Section 9.4.17](#). After that, acquire the white level data and set the CIS scanner area in the maintenance mode (Function code 55), referring to [Chapter 9, Section 9.4.15](#).

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



(6_08)

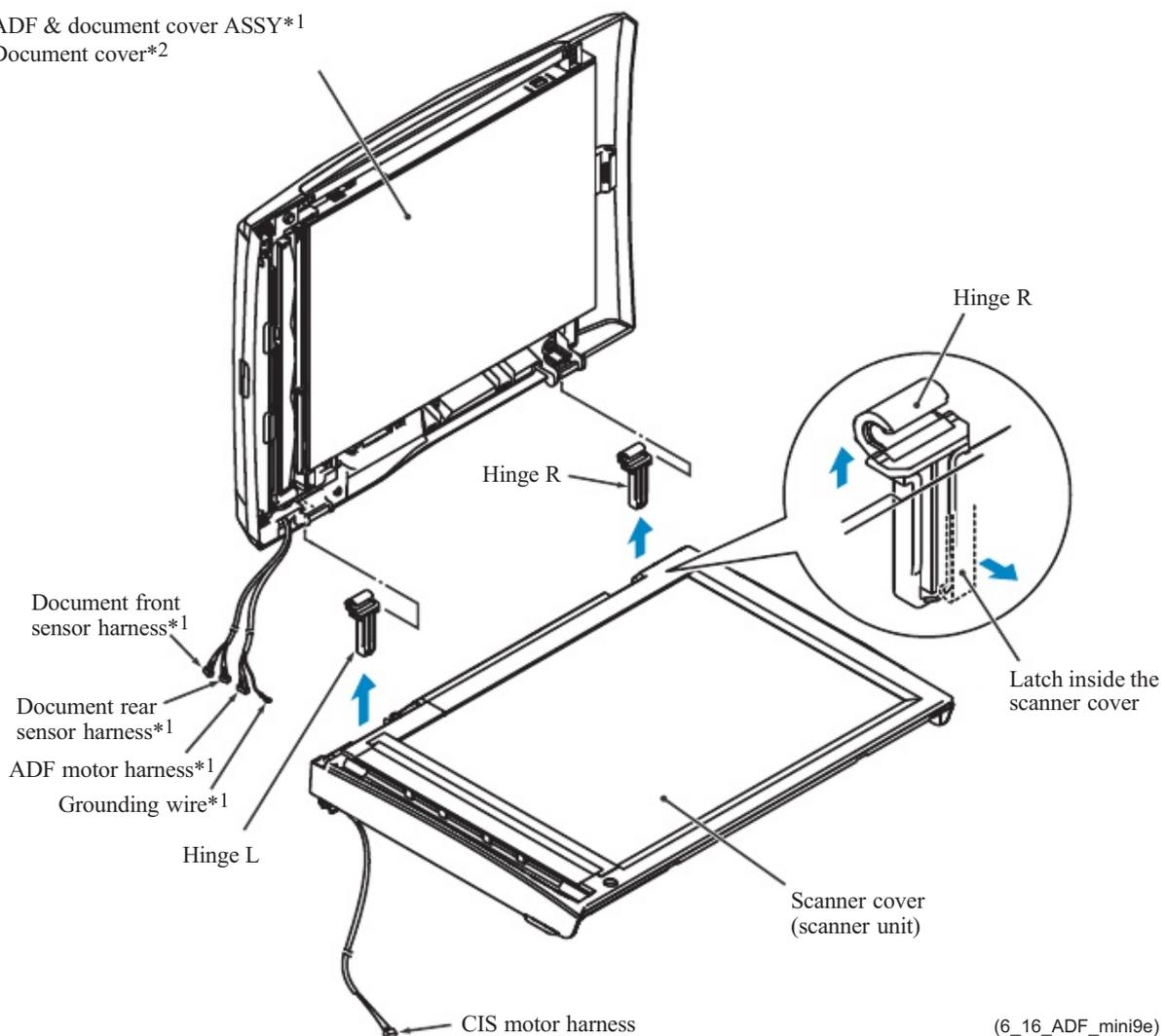
6.1.3 ADF & Document Cover ASSY*¹ Document Cover*²

*1 For models with ADF

*2 For models without ADF

- (1) Turn the ADF & document cover ASSY*¹ (document cover*²) upright and slightly lift it up.
- (2) Insert the tip of a flat screwdriver into the slit provided at the front of hinge R, push the latch inside the scanner cover to the front, and release hinge R from the scanner cover.
- (3) Just as in step (2), release hinge L and then pull the ADF & document cover ASSY*¹ (document cover*²) up and off the scanner cover.
- (4) Slightly turn hinges R and L and remove them from the ADF & document cover ASSY*¹ (document cover*²).

ADF & document cover ASSY*¹
Document cover*²

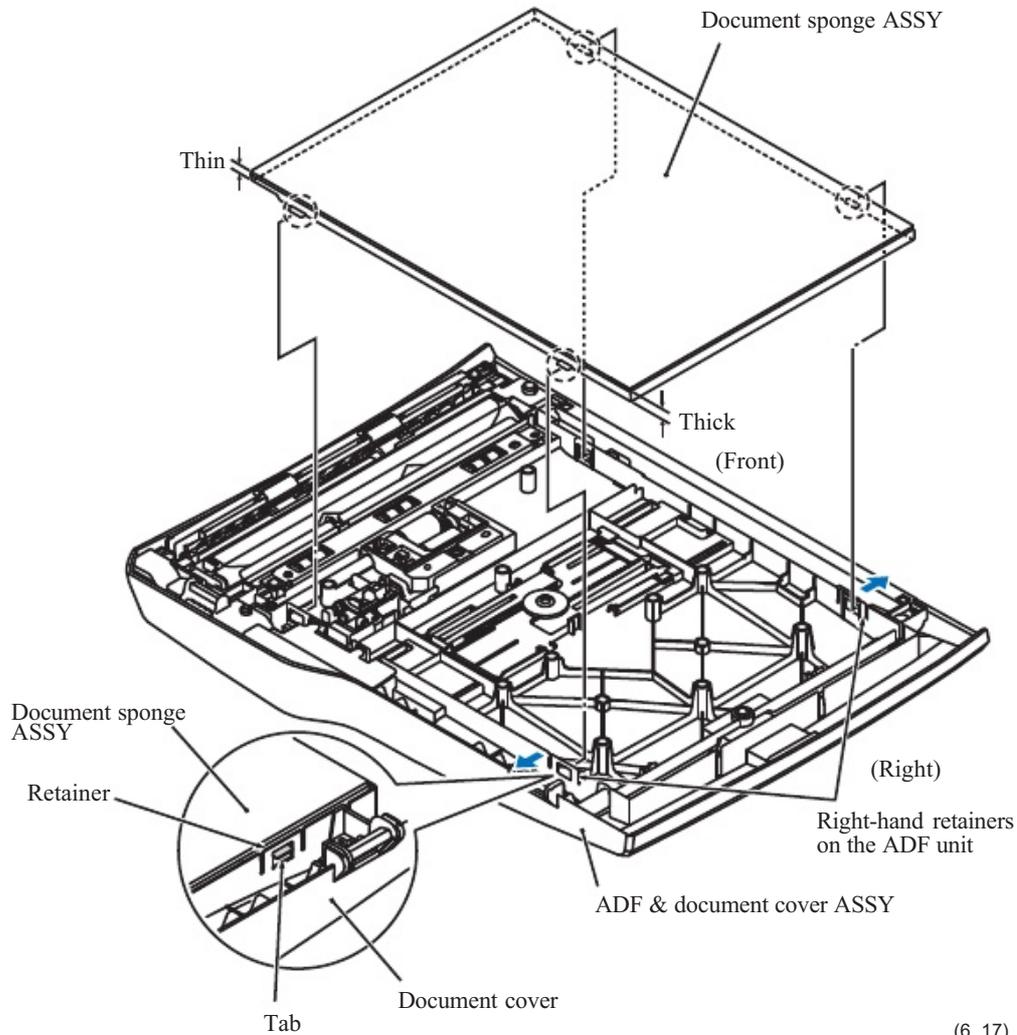


(6_16_ADF_mini9e)

Assembling Note: When mounting the ADF & document cover ASSY*¹ on the scanner cover, put a magazine or a stack of paper about 2 to 3 cm (one inch) thick between them to secure room for looseness of harnesses. Do not use the one that may scratch or contaminate the scanner glass.

For models with ADF, remove the document sponge ASSY using the following steps.

- (5) Pull the two right-hand retainers on the ADF unit outwards and release the two right-hand tabs of the document sponge ASSY.
- (6) While slightly warping the document sponge ASSY, release the left rear tab of the document sponge ASSY from the retainer. Then remove the ASSY from the ADF & document cover ASSY.



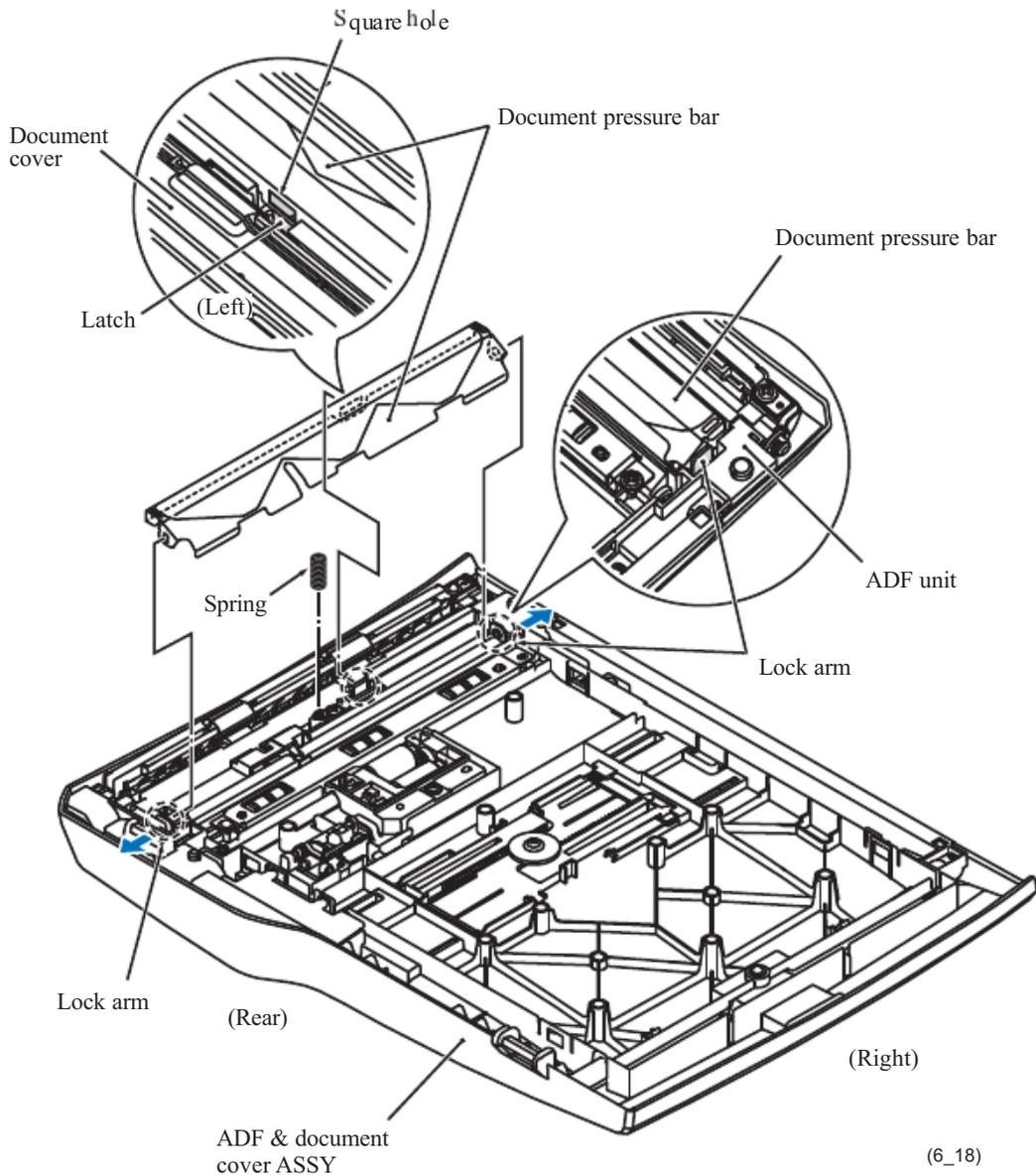
(6_17)

Assembling Note: When mounting the document sponge ASSY, orient it so that the thin end faces to the left. First insert the left front tab into the retainer provided on the ADF unit and then insert the left rear tab while warping the document sponge ASSY. Next push down the right side of the document sponge ASSY into place.

6.1.4 Disassembly of ADF & Document Cover ASSY (for models with ADF)

Document pressure bar

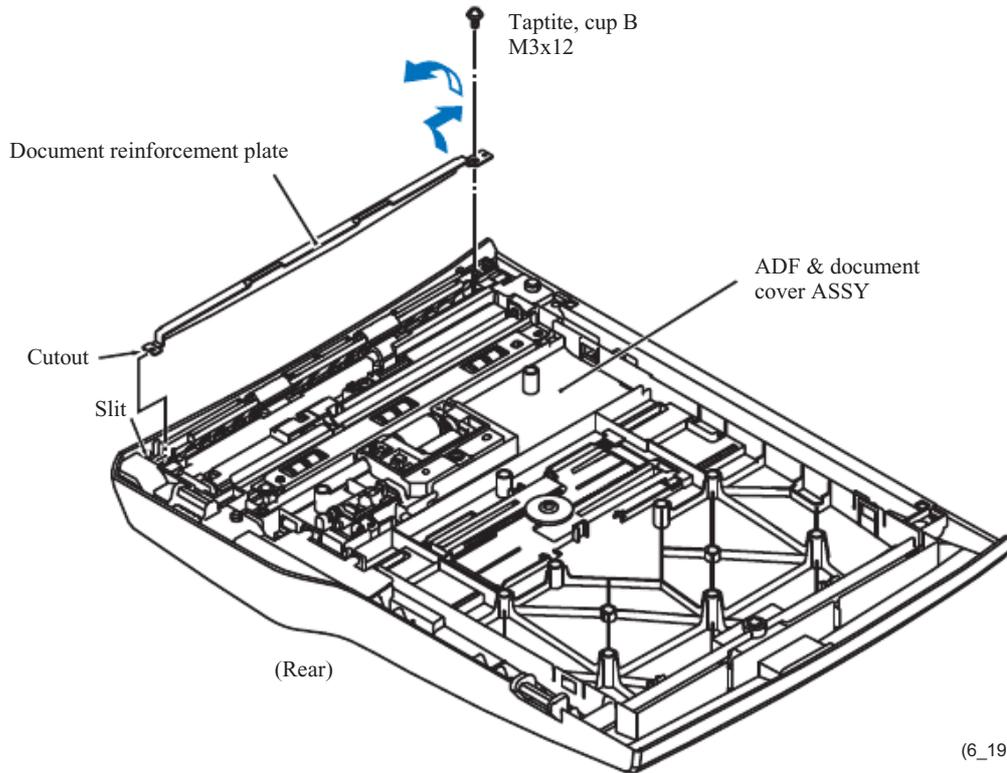
- (1) Place the ADF & document cover ASSY upside down.
- (2) Pull the rear lock arm outwards to release the rear end of the document pressure bar. Push the rear end of the bar to the front, up and leftwards to release the left end of the bar from the latch provided on the ADF unit. The spring also comes off.



Assembling Note: When handling the document pressure bar, be careful not to stain or scratch the white reference film on the bar.

ADF reinforcement plate

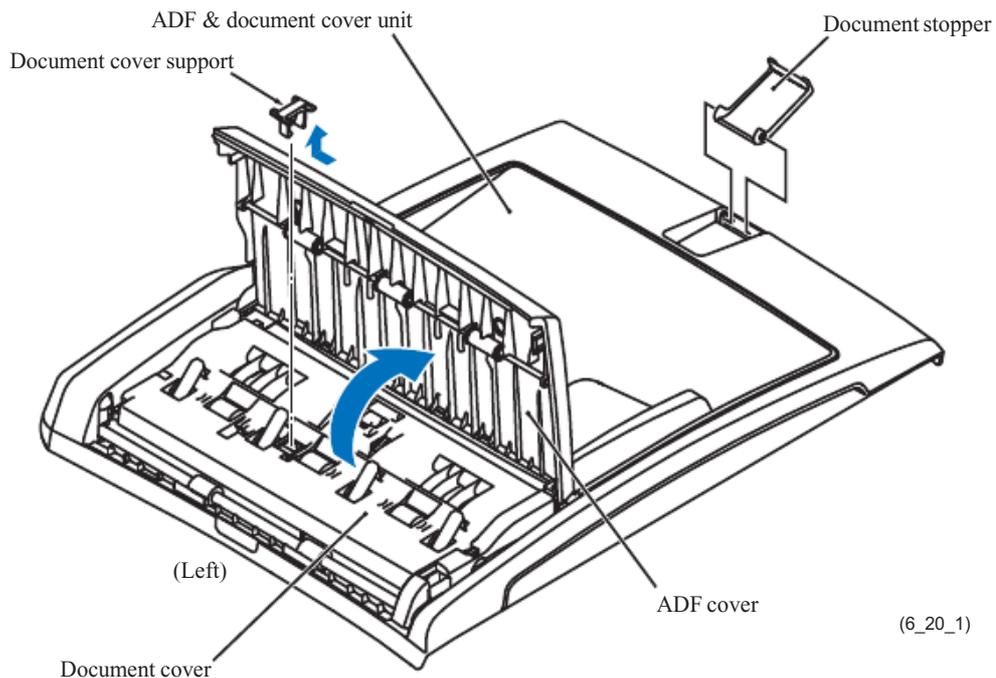
- (3) Remove the screw, slightly lift up the front end of the ADF reinforcement plate, slightly slide the plate to the front, and turn it upright.



(6_19)

Document stopper

- (4) Turn the ADF & document cover ASSY right side up.
- (5) Remove the document stopper.
- (6) Open the ADF cover.
- (7) Lightly pull up the rear end of the document cover support with the tip of a flat screwdriver and remove the support in the direction of the arrow shown below.

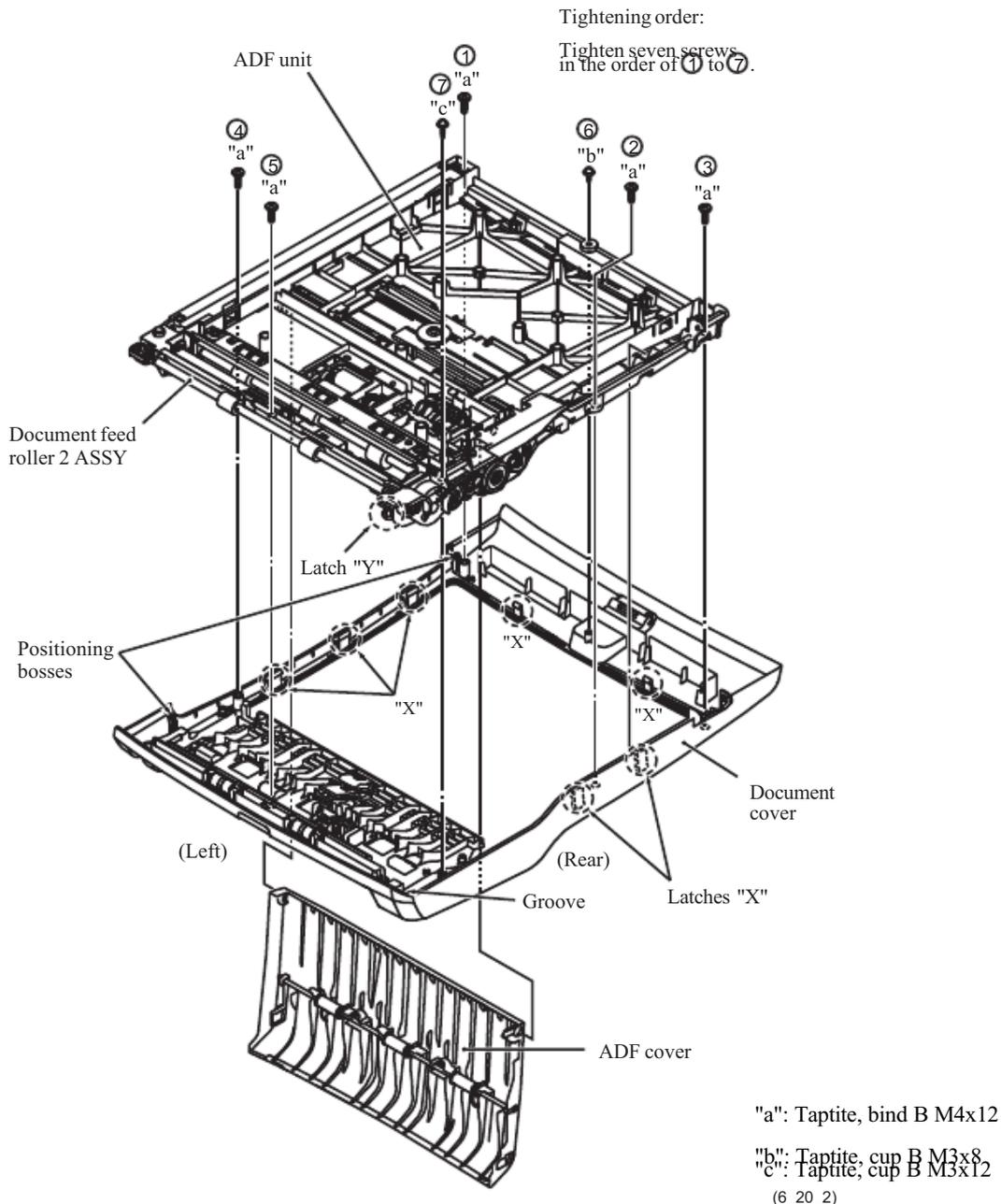


(6_20_1)

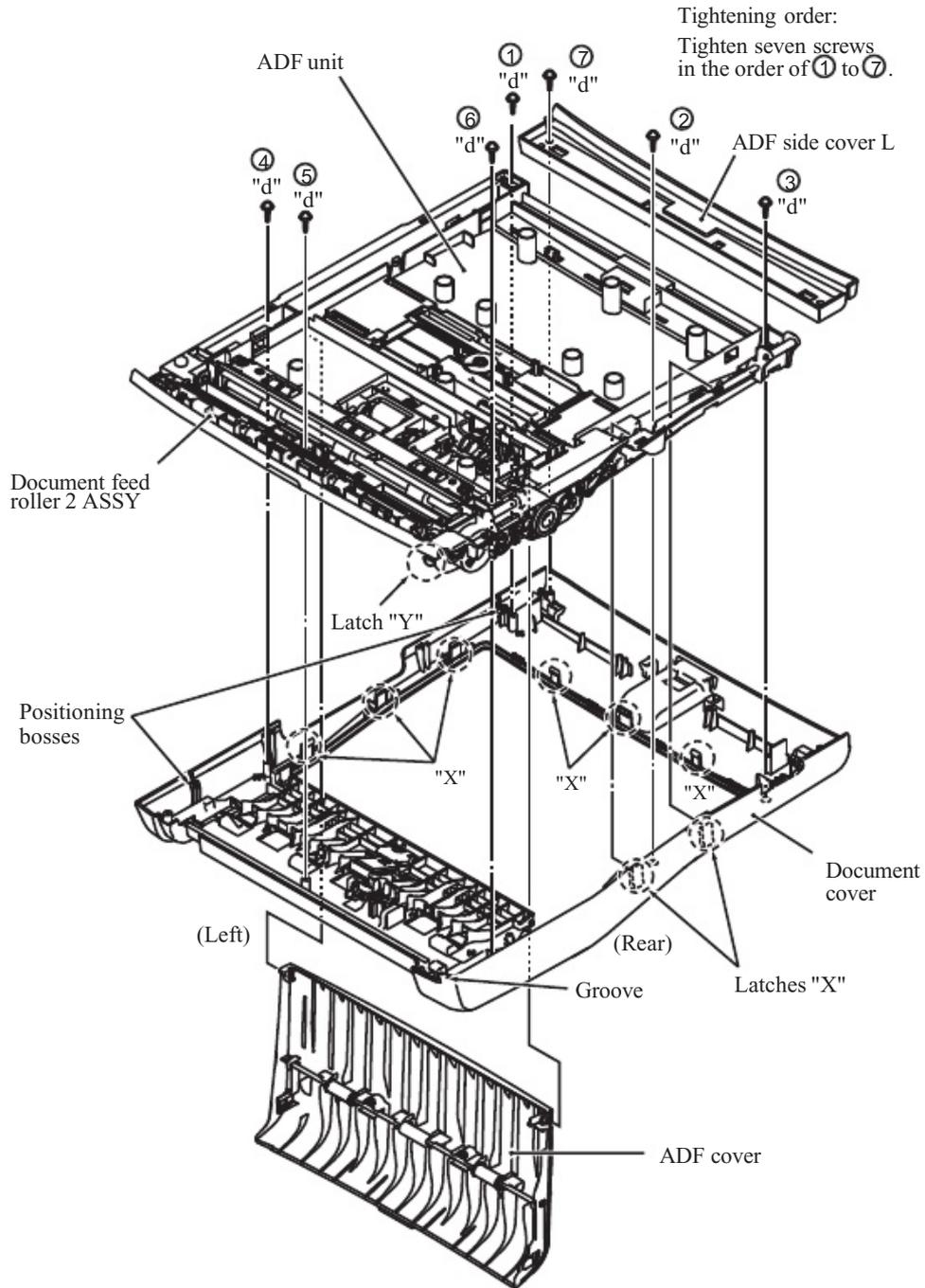
Separating the ADF unit from the document cover

- (8) Turn the ADF & document cover ASSY upside down.
- (9) Remove the seven screws from the ADF unit.
 DCP375CW/395CN and MFC255CW/295CN/495CW/795CW: Five "a," one "b," and one "c" screws
 DCPJ125/J315W/J515W/J715W and MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W:
 Seven "d" screws
- (10) Release seven/eight "X" latches provided on the document cover and lift up the right end of the ADF unit at approx. 30°.
 DCP375CW/395CN and MFC255CW/295CN/495CW/795CW: Seven "X" latches
 DCPJ125/J315W/J515W/J715W and MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W:
 Eight "X" latches
- (11) Press "Y" latch on the ADF unit outwards to release it from the document cover and then slide the ADF unit to the upper right, being careful with the document feed roller 2 ASSY. The ADF cover also comes off.

DCP375CW/395CN and MFC255CW/295CN/495CW/795CW



DCPJ125/J315W/J515W/J715W and MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/
J630W



(6_20_2_mini9e2)

"d": Taptite, cup B M3x10

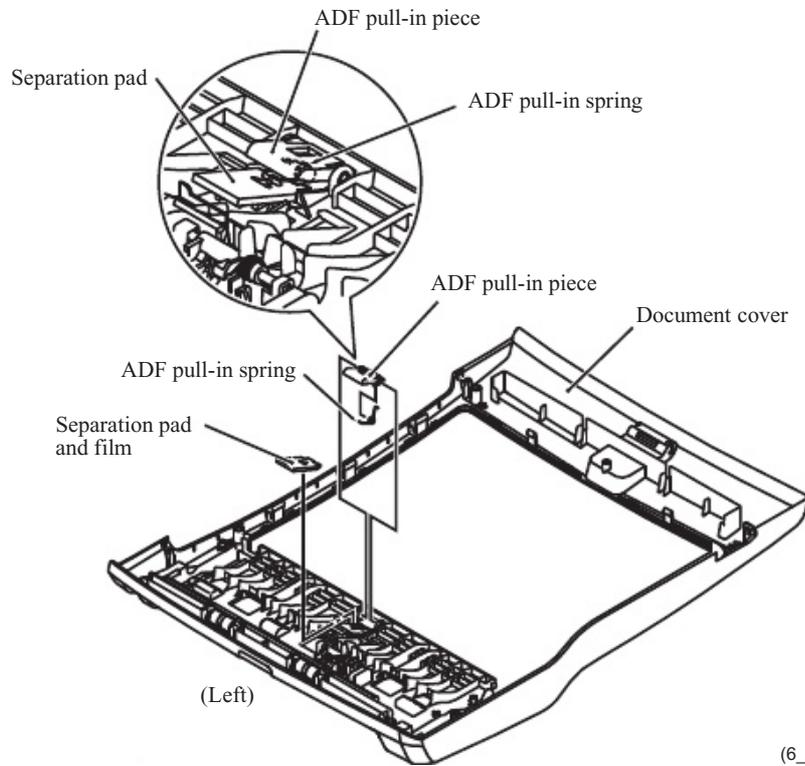
Assembling Note: When mounting the ADF unit on the document cover (page 6-17 or 6-18), follow the steps below.

- 1) First fit the "Y" latch provided on the left rear corner of the ADF unit into the groove in the document cover and then put the ADF unit into the document cover.
- 2) Before locking the ADF unit with seven/eight "X" latches, turn the ADF & document cover ASSY right side up.
- 3) Fit the rear end of the ADF cover into the hole provided in the ADF unit and then fit the front end over the boss on the ADF unit.
- 4) Close the ADF cover and turn the ADF & document cover ASSY upside down.
- 5) Secure the ADF unit to the document cover with seven/eight "X" latches and tighten seven screws in the order of ① to ⑦ as shown on page 6-17 or 6-18.

ADF parts

(12) Remove the ADF pull-in piece and its spring from the document cover.

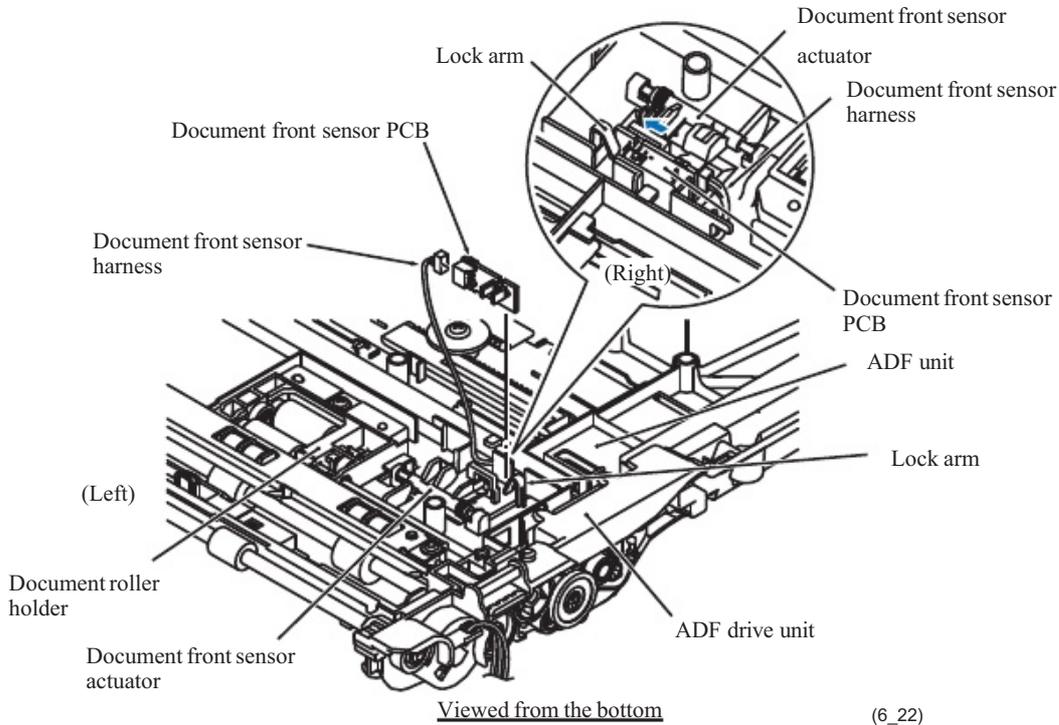
(13) Slightly pull up the right end of the separation pad, slide it to the right, and remove it from the document cover.



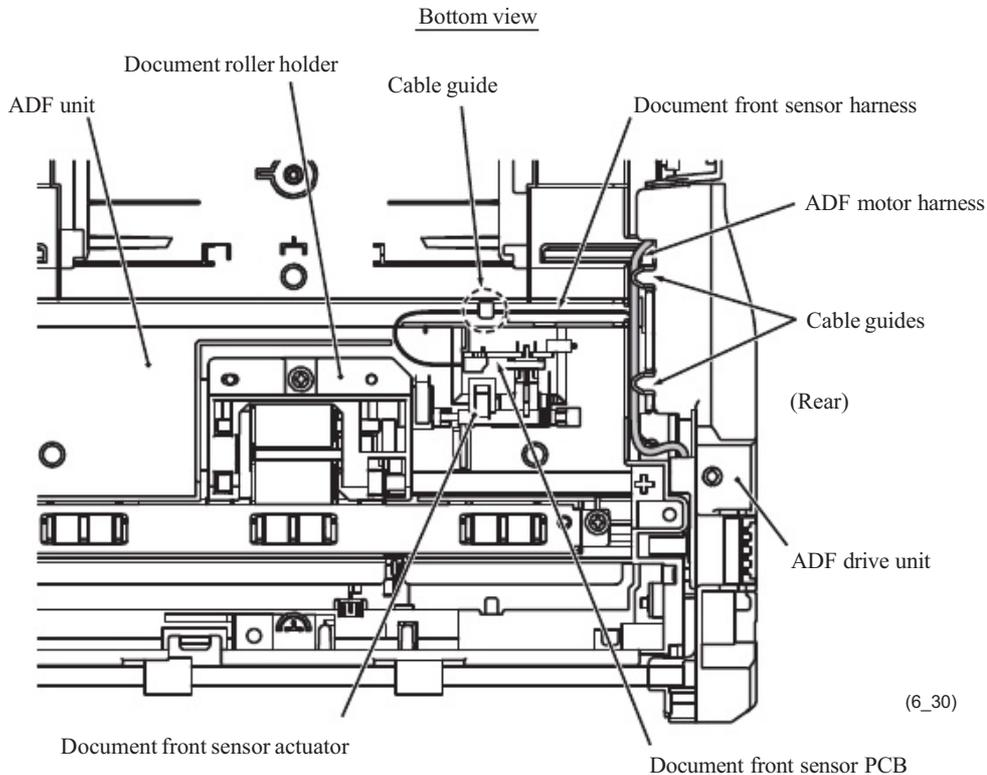
(6_21)

Document front sensor PCB

(14) Pull the lock arm outwards and take out the document front sensor PCB. Then disconnect the document front sensor harness from the PCB and release it from the cable guides provided on the ADF unit.

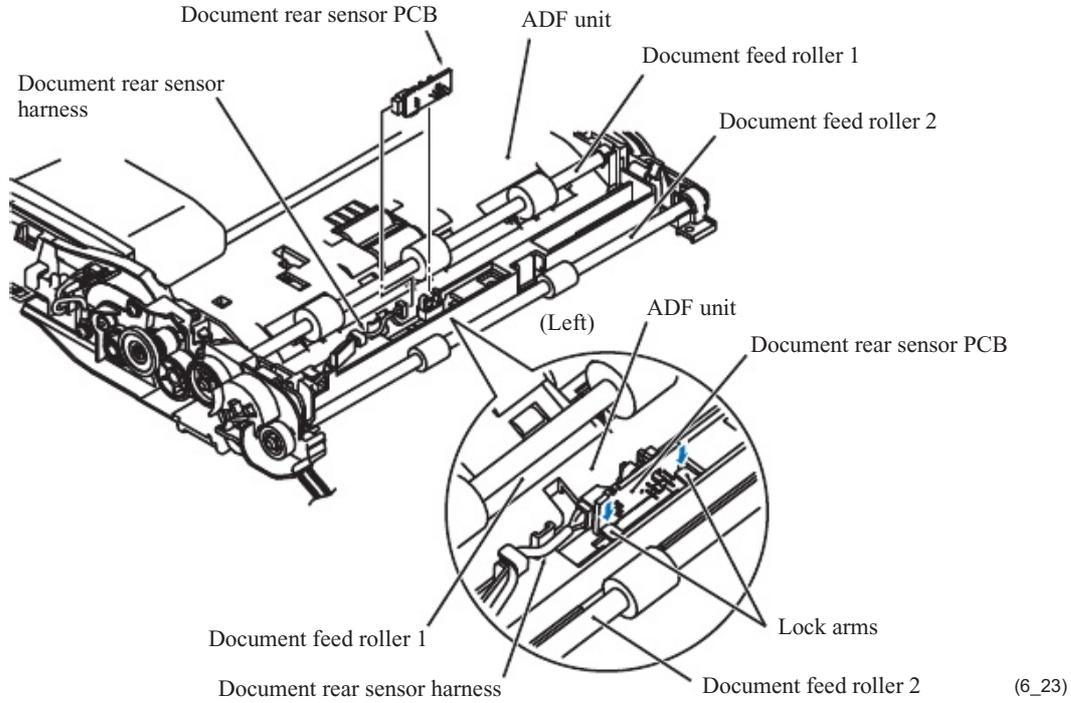


Assembling Note: Route the document front sensor harness through the cable guides provided on the ADF unit as shown below. Also route the ADF motor harness through the cable guides together with the document front sensor harness.

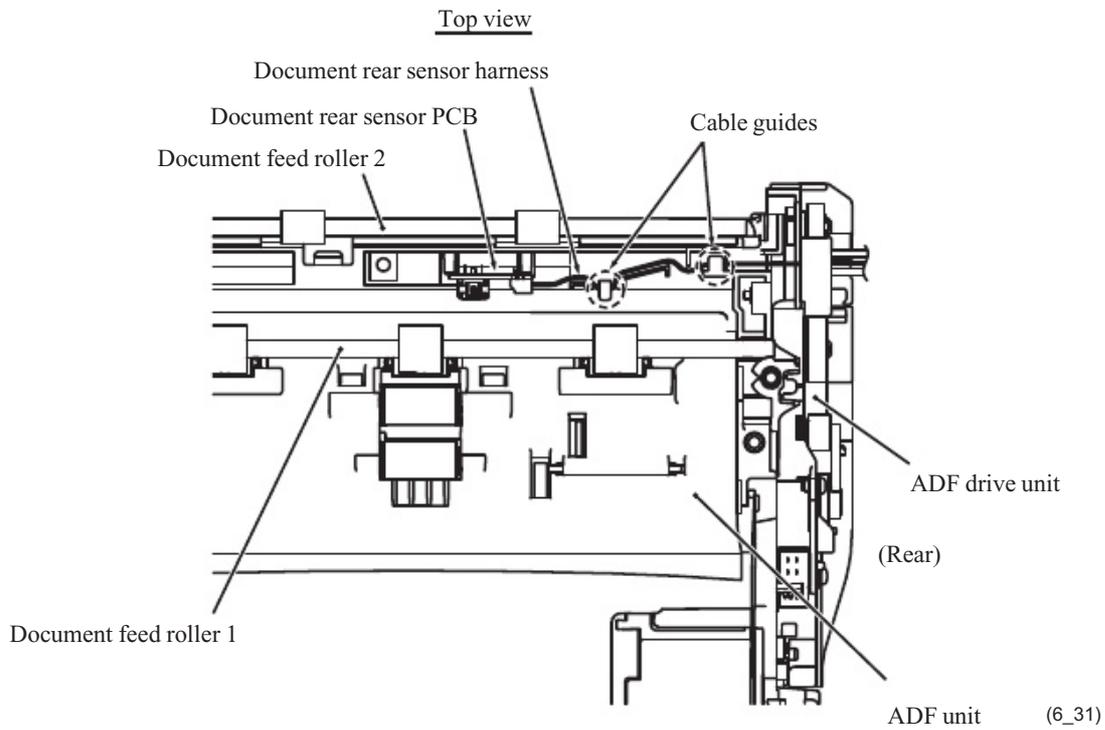


Document rear sensor PCB

- (15) Turn the ADF unit right side up.
- (16) Lightly push down the two lock arms and take out the document rear sensor PCB. Then disconnect the document rear sensor harness from the PCB and release it from the cable guides provided on the ADF unit.



Assembling Note: Route the document rear sensor harness through the cable guides provided on the ADF unit as shown below.



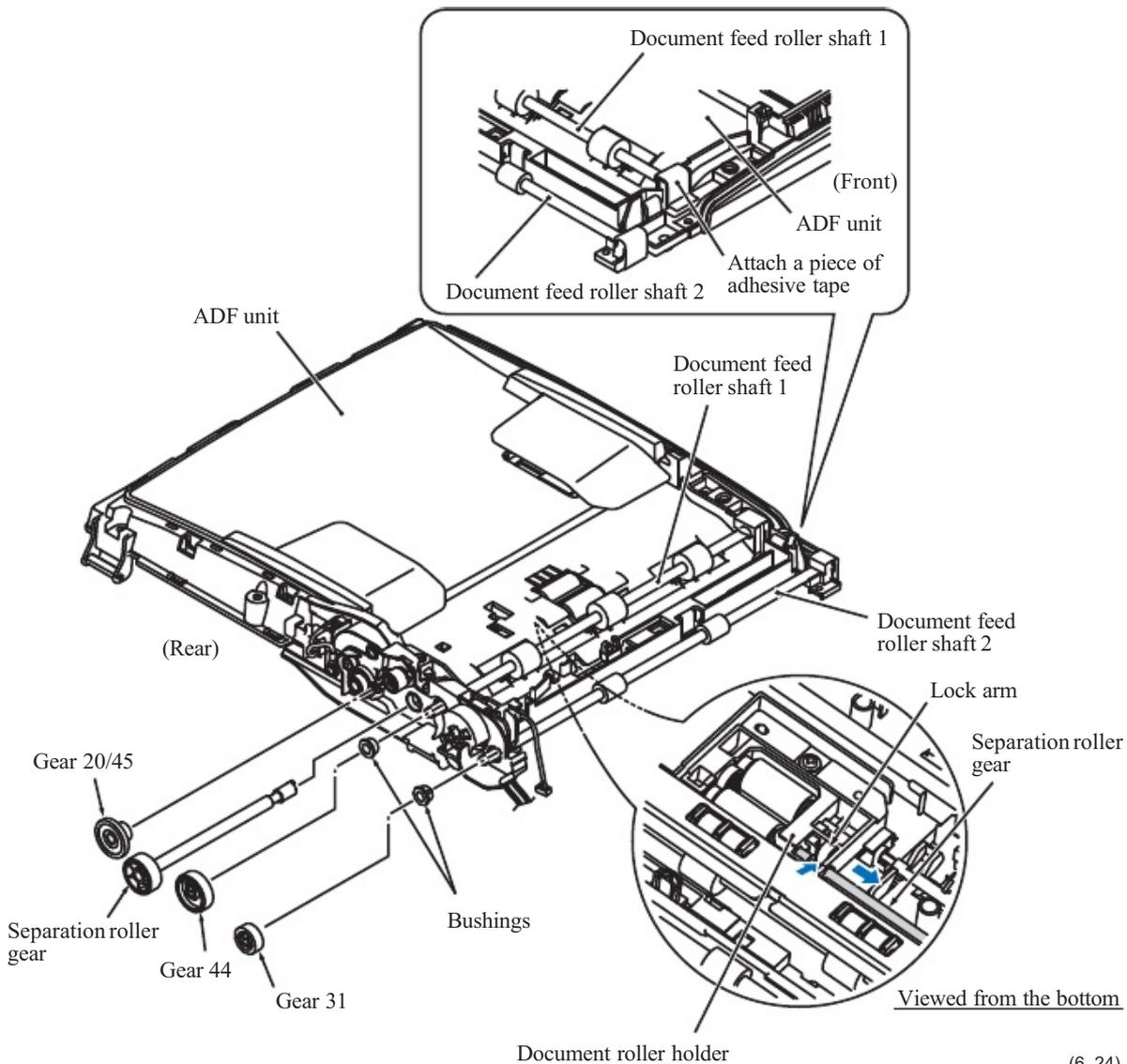
ADF drive unit and ADF motor

(17) Remove gears 44 and 31 by releasing their latches. Slide the document feed roller shafts 1 and 2 to the front slightly and remove their bushings.

NOTE: To prevent the three sets of a pinch roller and its spring shaft (located beneath the rollers on the document feed roller shaft 1) from dropping, keep the document feed roller shaft 1 in the original position after removal of gear 44 and its bushing using a piece of adhesive tape.

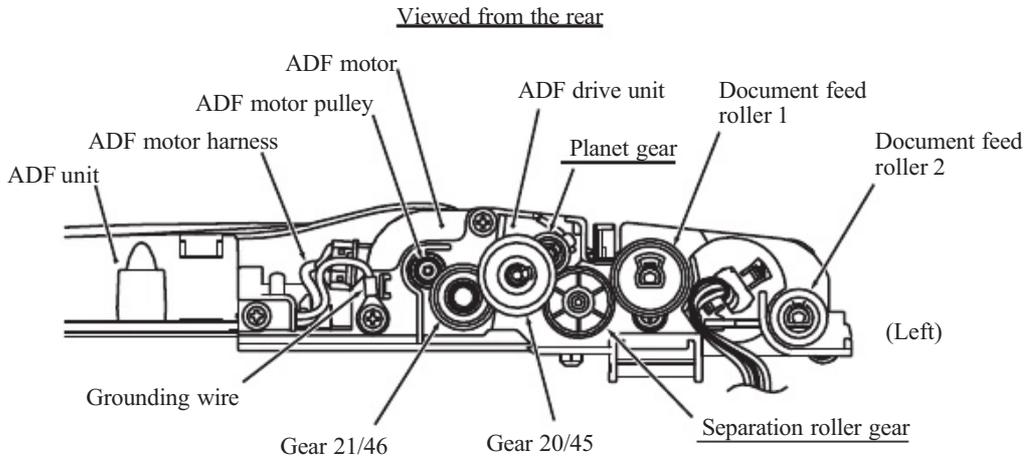
(18) Remove gear 20/45 by releasing its latch.

(19) On the bottom of the ADF unit, lightly press the lock arm on the document roller holder and pull out the separation roller gear.



(6_24)

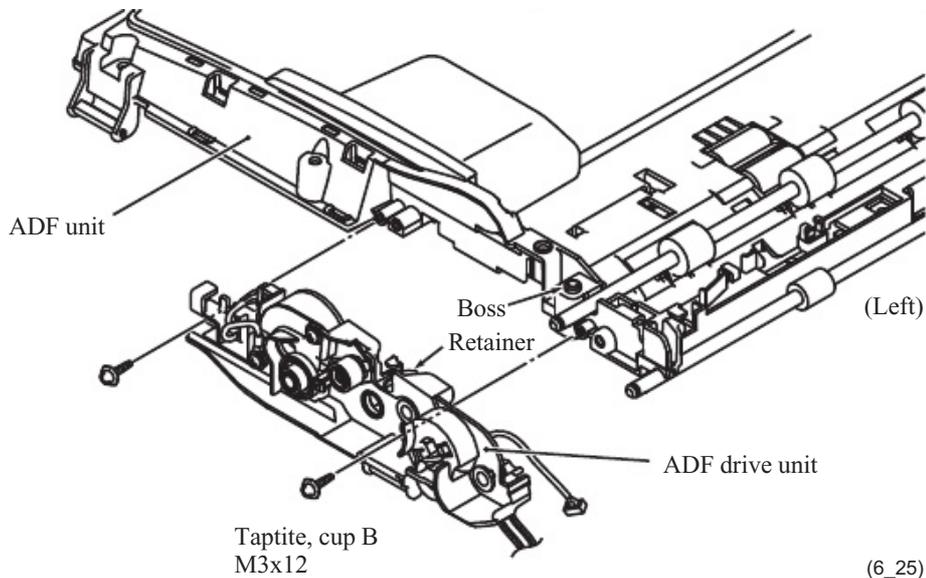
Assembling Note: When mounting the document separation roller gear on the ADF unit, turn the planet gear counterclockwise to put it in the upper position beforehand. (See the illustration below.)



When mounting the separation roller gear,
put the planet gear in the upper position. (6_29)

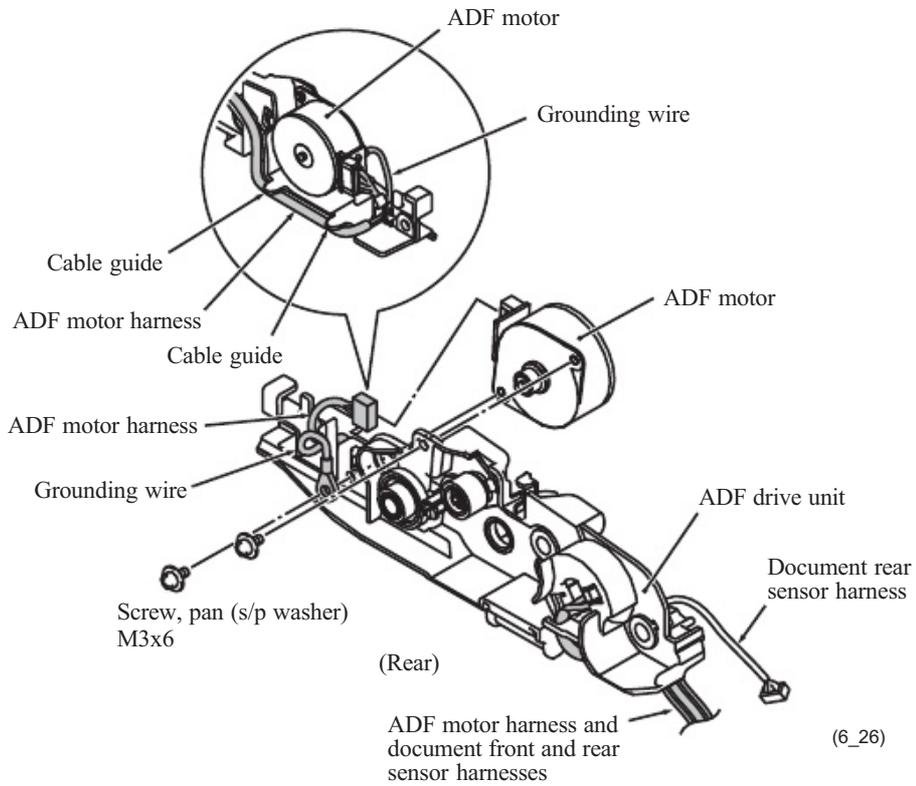
(20) Remove the two screws from the ADF drive unit.

(21) Remove the ADF drive unit while releasing the retainer from the boss provided on the ADF unit.



Assembling Note: When mounting the ADF drive unit on the ADF unit, route the ADF motor harness and its grounding wire and the document front sensor harness below the cable guides (see [page 6-21](#)).

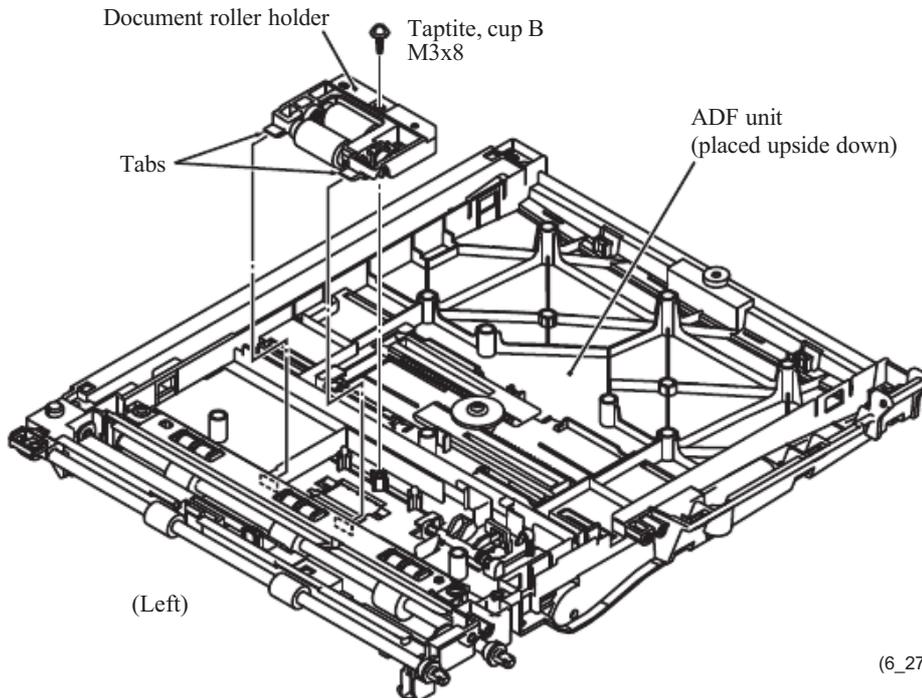
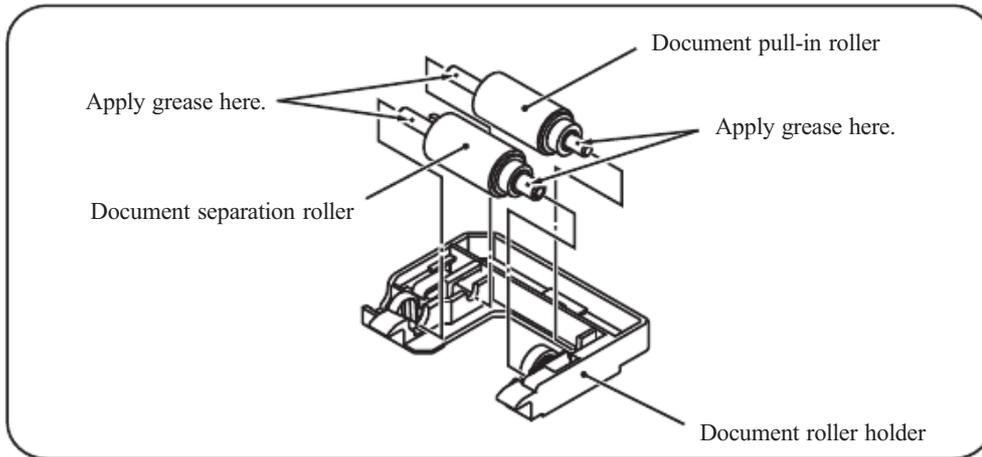
(22) Remove the two screws, take the ADF motor off the ADF drive unit, and disconnect the ADF motor harness from the motor.



Assembling Note: When securing the ADF motor to the ADF drive unit with two screws, be sure to secure the grounding wire also with one of those screws. (See the illustration above.)

Document pull-in roller and document separation roller

- (23) Place the ADF unit upside down.
- (24) Remove the screw from the document roller holder.
- (25) Release the two tabs on the left end of the document roller holder from the ADF unit and take it out.
- (26) Remove the document pull-in roller and document separation roller from the document roller holder.



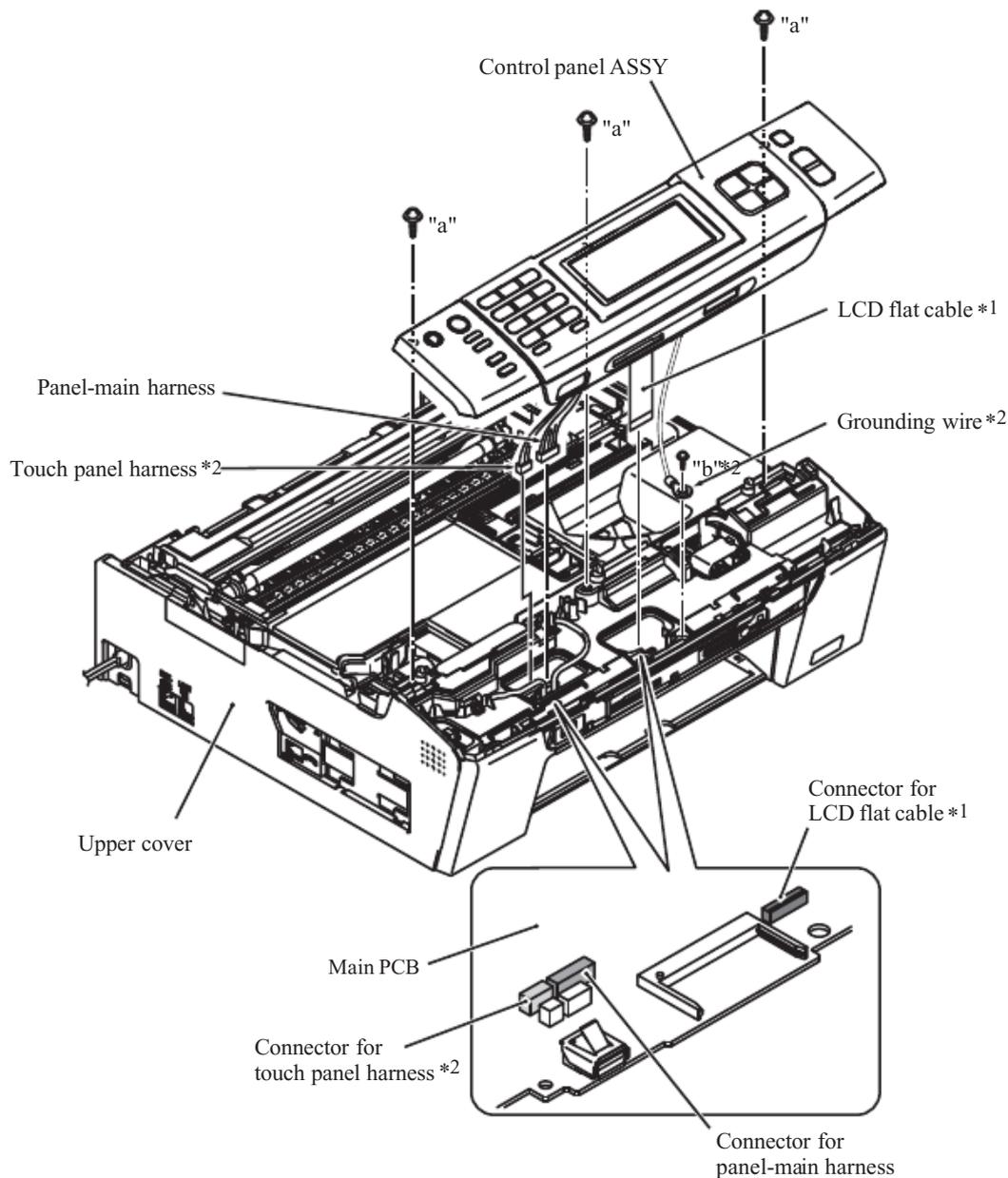
Assembling Note: Before mounting the document roller holder on the ADF unit, apply the specified lubricant to the specified points, referring to [Section 6.2](#).

6.1.5 Control Panel ASSY

*1 For models with color LCD
 *2 For models with touch panel

- (1) Remove three screws from the control panel ASSY.
- (2) Pull up the rear end of the control panel ASSY and turn it up slightly.
NOTE: Do not pull the control panel ASSY away from the machine since it is connected to the machine with a short LCD flat cable *1 and harness(es).
- (3) While holding the control panel ASSY at an angle of approx. 45°, disconnect the panel-main harness, touch panel harness *2, grounding wire *2, and LCD flat cable *1 from the main PCB.

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

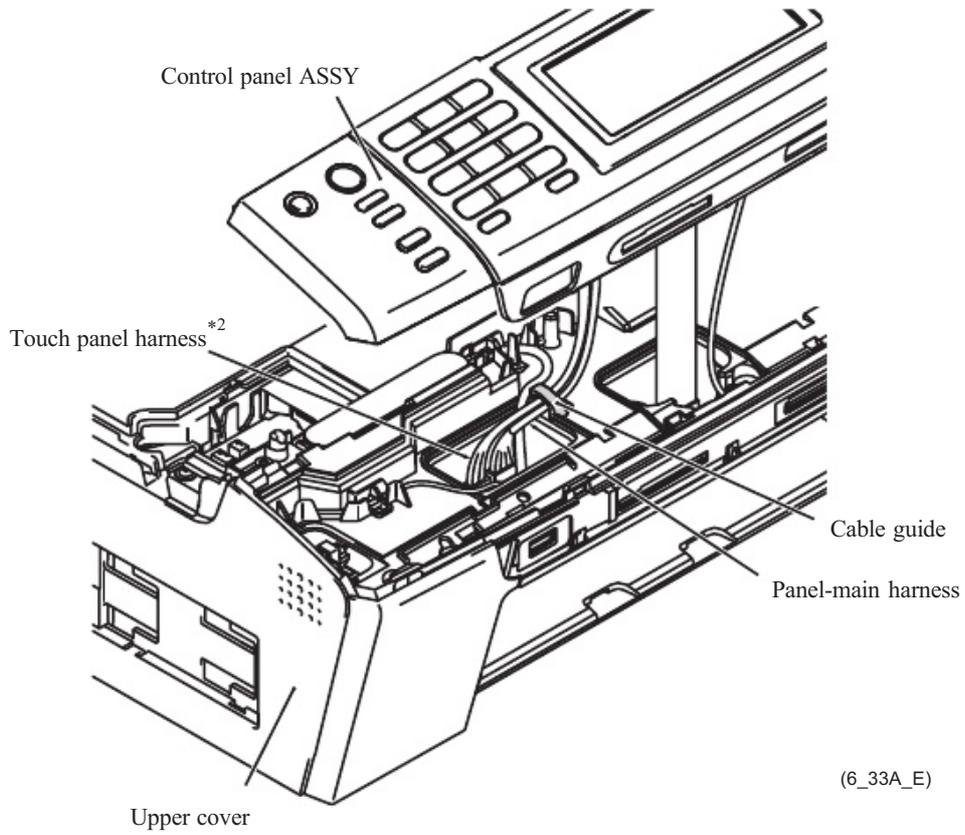


(6_33)

"a": Taptite, bind B M3x10
 "b": Taptite, cup S M3x6

Assembling Note: When connecting the panel-main harness and touch panel harness*2 to the main PCB, route them through the cable guide provided on the upper cover as shown below.

*2 For models with touch panel



6.1.6 Disassembly of Control Panel ASSY

(The control panel ASSY contains the media module cover.)

*1 For models with microphone

*2 For models with touch panel

Models with color LCD

- (1) Place the control panel ASSY upside down.
- (2) Release the three/four "x" latches and take the control panel PCB ASSY (consisting of two PCBs) out of the control panel base.

DCP395CN and MFC495CW/795CW: Three "x" latches

DCPJ125/J315W/J515W/J715W and MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W:
Four "x" latches

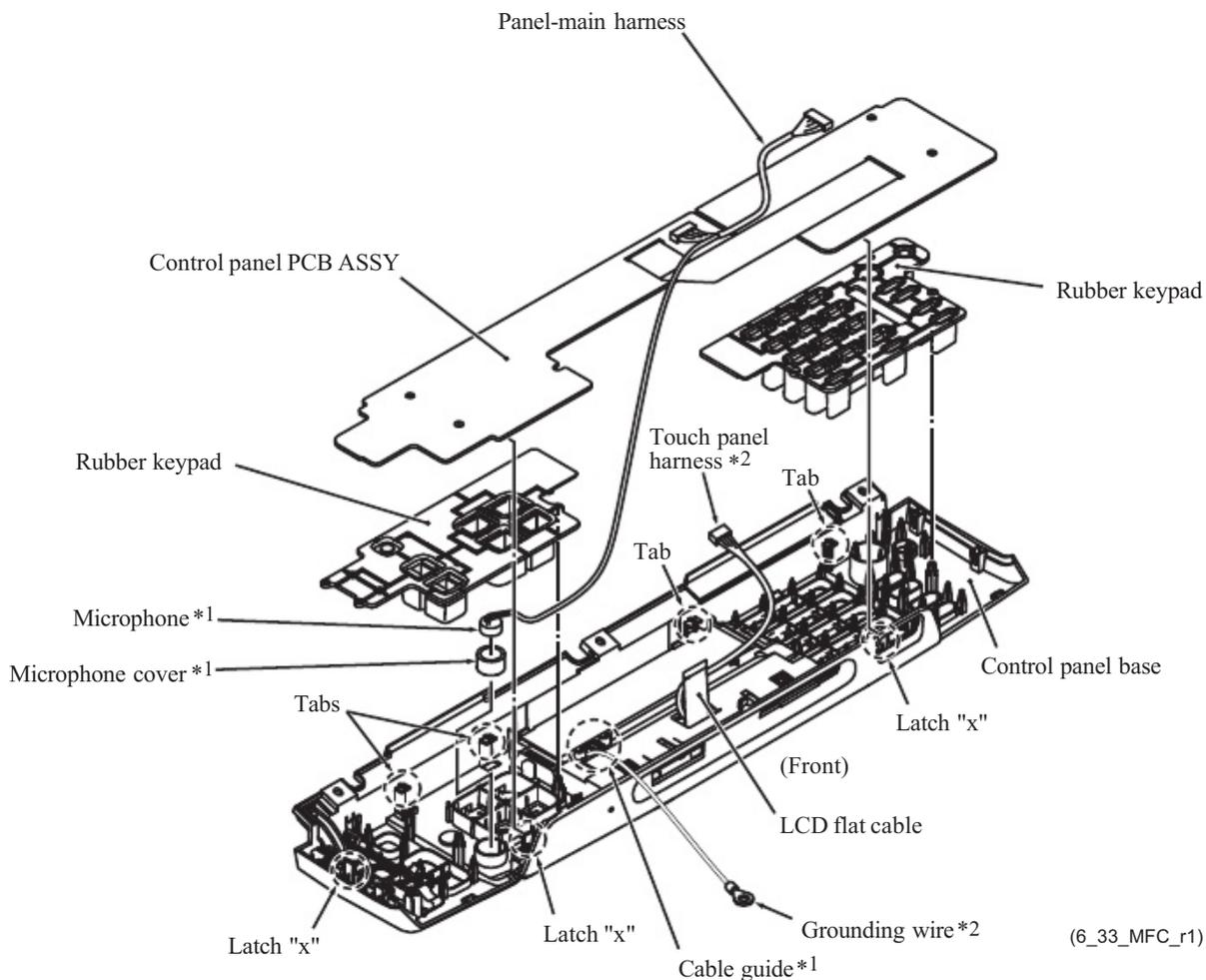
NOTE: Models with microphone: Before removing the control panel PCB ASSY, release the microphone harness^{*1} (a part of panel-main harness) from the cable guides on the control panel base and take the microphone^{*1} and its cover^{*1} out of the control panel base.

Assembling Note: When mounting the control panel PCB ASSY, first fit it below the four tabs (see the illustration given below and on the next page) on the control panel base and then secure it with three/four "x" latches.

- (3) Remove the rubber keypads (and keys depending upon the model).

DCP395CN and MFC495CW/795CW

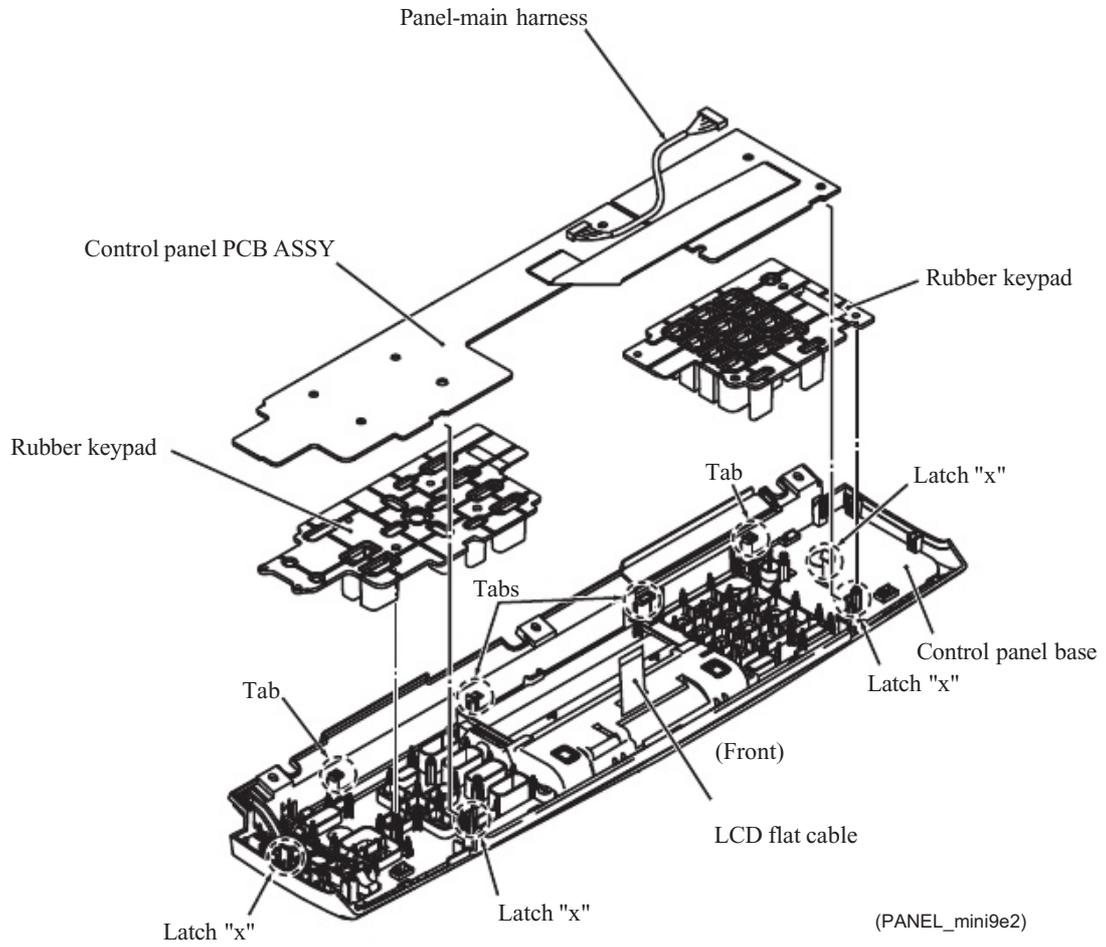
The illustration below shows the control panel ASSY of the MFC795CW. It differs depending upon the model.



(6_33_MFC_r1)

DCPJ125/J315W/J515W/J715W and MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/
J630W

The illustration below shows the control panel ASSY of the MFCJ615W. It differs depending upon the model.

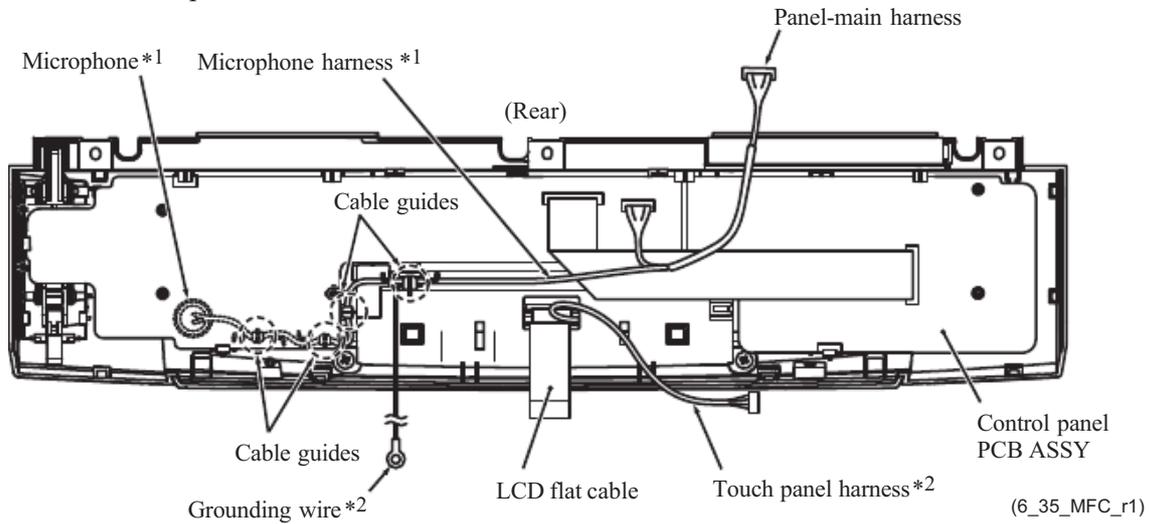


*1 For models with microphone

*2 For models with touch panel

Assembling Notes:

- **Models with microphone:** Before mounting the rubber keypads, route the microphone harness^{*1} (a part of the panel-main harness) through the cable guides provided on the control panel base as shown below.



- After completion of assembling of the control panel ASSY, wipe fingerprints or dust off the LCD surface with a soft cloth.

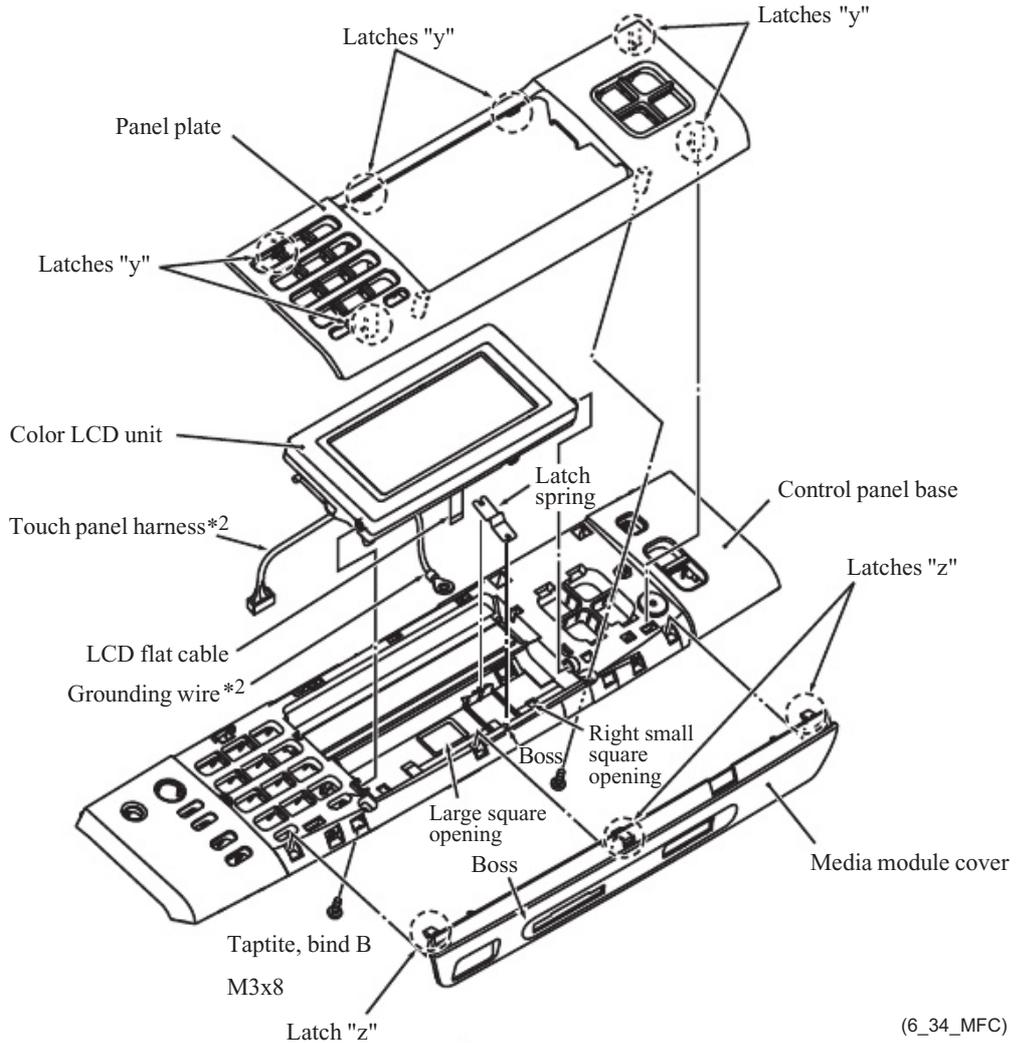
- (4) Remove the two screws from the control panel base.
- (5) Release the six "y" latches provided on the panel plate from the control panel base. The panel plate, color LCD unit, and latch spring come off.

NOTE: Take care not to drop the color LCD unit. Also take care not to lose the latch spring.

DCP395CN and MFC495CW/795CW

- (6) Release the three "z" latches and remove the media module cover from the control panel base.

*2 For models with touch panel



*2 For models with touch panel

*3 For models with flat core in the control panel base

Assembling Note: When assembling the media module cover, control panel base, latch spring, color LCD unit, and panel plate, follow the steps below.

- 1) Place the control panel base right side up.
- 2) DCP395CN and MFC495CW/795CW Fit the three "z" latches of the media module cover into the openings provided in the control panel base.
- 3) Set the latch spring on the control panel base with its convex section facing up so that the hole and cutout provided in the latch spring become fitted over the front and rear bosses on the control panel base, respectively, as shown on the previous page.
- 4) A new color LCD unit is covered with a protection sheet. Before setting it, remove the protection sheet.
- 5) Route the LCD flat cable and the touch panel harness^{*2} through the large square opening of the control panel base; route the grounding wire^{*2} through the right small square opening (viewed from the top). (See the illustration on the previous page.) And set the LCD unit on the control panel base.
- 6) Assemble the panel plate and the control panel base, taking care not to apply pressure to the media module cover.

Models with monochrome LCD

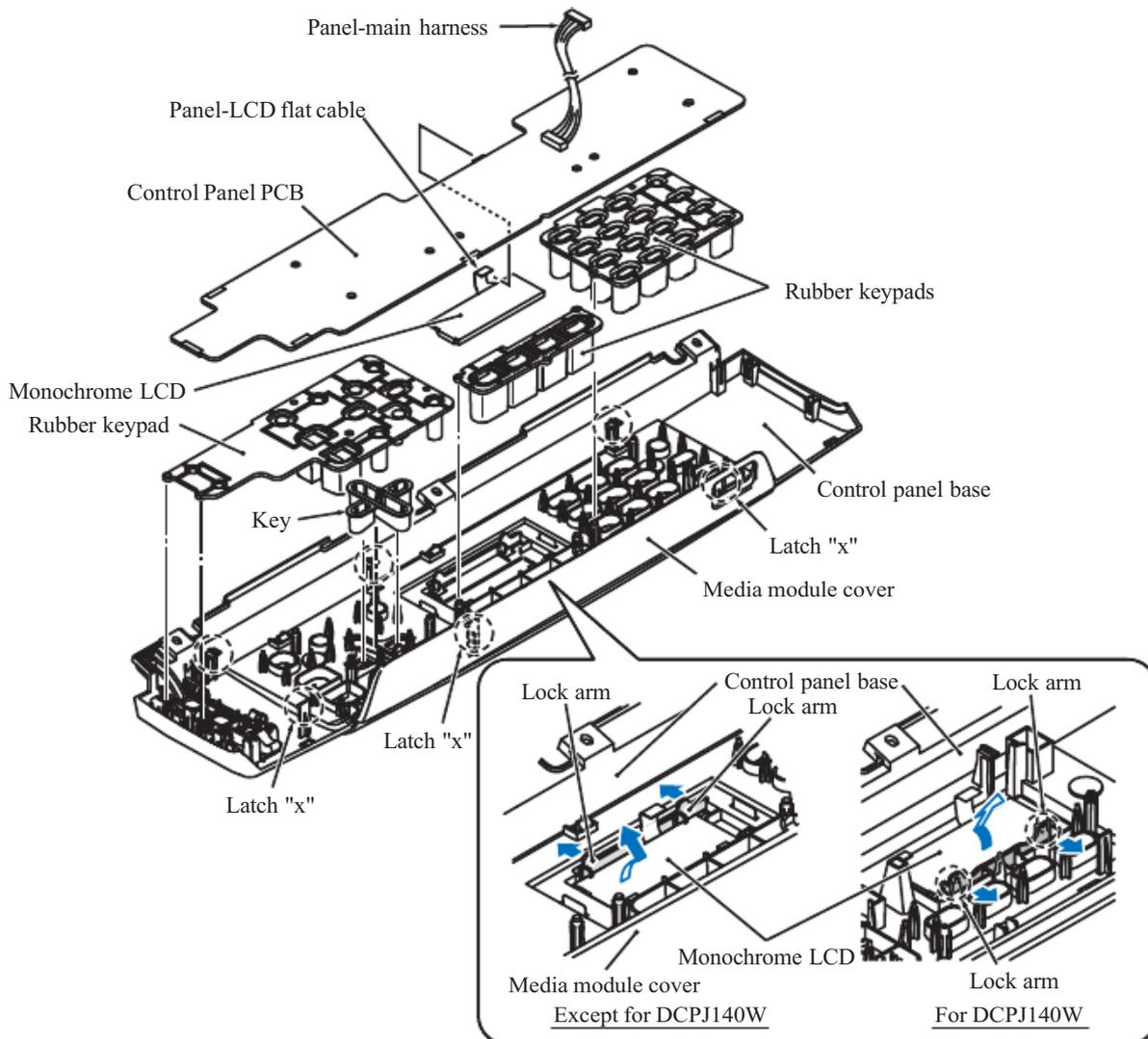
- (1) Place the control panel ASSY upside down.
- (2) Pull the three "x" latches and remove the control panel PCB.

NOTE: Do not pull the control panel PCB away from the control panel ASSY since it is connected to the monochrome LCD mounted on the control panel base with a short panel-LCD flat cable.

- (3) Disconnect the panel-LCD flat cable from the control panel PCB after releasing the connector lock.

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

- (4) Remove the rubber keypads (and keys depending upon the model).
- (5) Lightly press the two lock arms as shown below and remove the monochrome LCD.



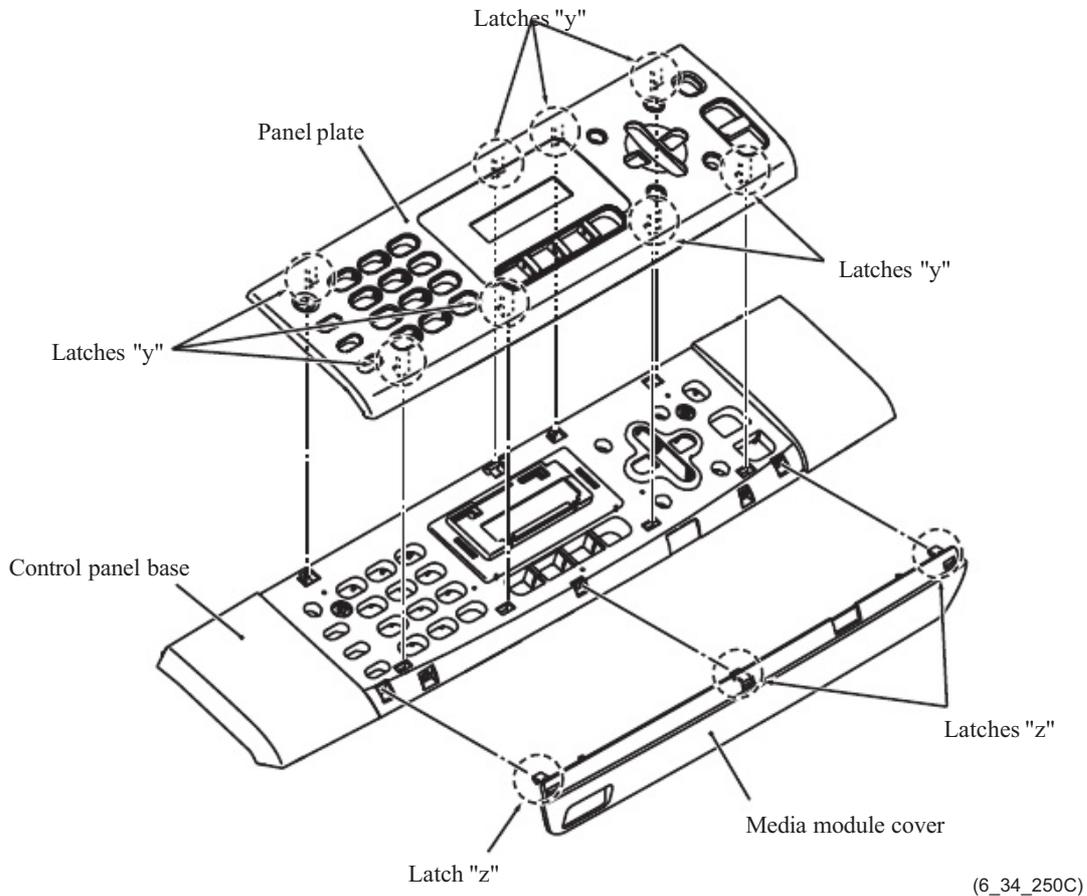
(6_33_250C)

Assembling Notes:

- Before setting the LCD back into place, wipe fingerprints or dust off the LCD surface and control panel window with a soft cloth.
- A new LCD is covered with a protection sheet. Before setting it, remove the protection sheet.

- (6) Release the eight or five "y" latches and remove the panel plate from the control panel base.
- (7) Release the three "z" latches and remove the media module cover from the control panel base. *

* For DCP375CW/395CN and MFC255CW/295CN/495CW/795CW



(6_34_250C)

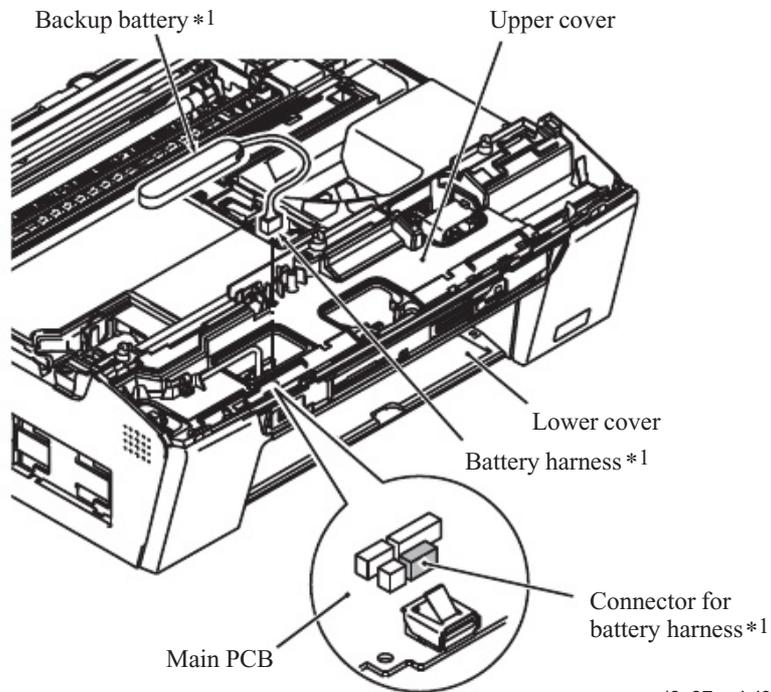
Assembling Note: Assemble the panel plate and the control panel base, taking care not to apply pressure to the media module cover.

6.1.7 Backup Battery (for models with backup battery), Speaker (for models with speaker), Upper Cover, and Encoder Guard Film

NOTE: Make sure that the jam clear cover has been removed.

- (1) Disconnect the battery harness *1 from the main PCB and remove the backup battery *1 from the upper cover.

*1 For models with backup battery



(6_37_mini9e)

⚠ DANGER

- Never disassemble or recharge the battery.
- Never dispose of the battery in fire.

⚠ WARNING

- There is a danger of explosion if the battery is incorrectly replaced.
- When replacing the battery, use the spare part authorized by Brother Industries.
- Batteries used should be disposed of in accordance with the local codes and regulations.

⚠ GEFAHR

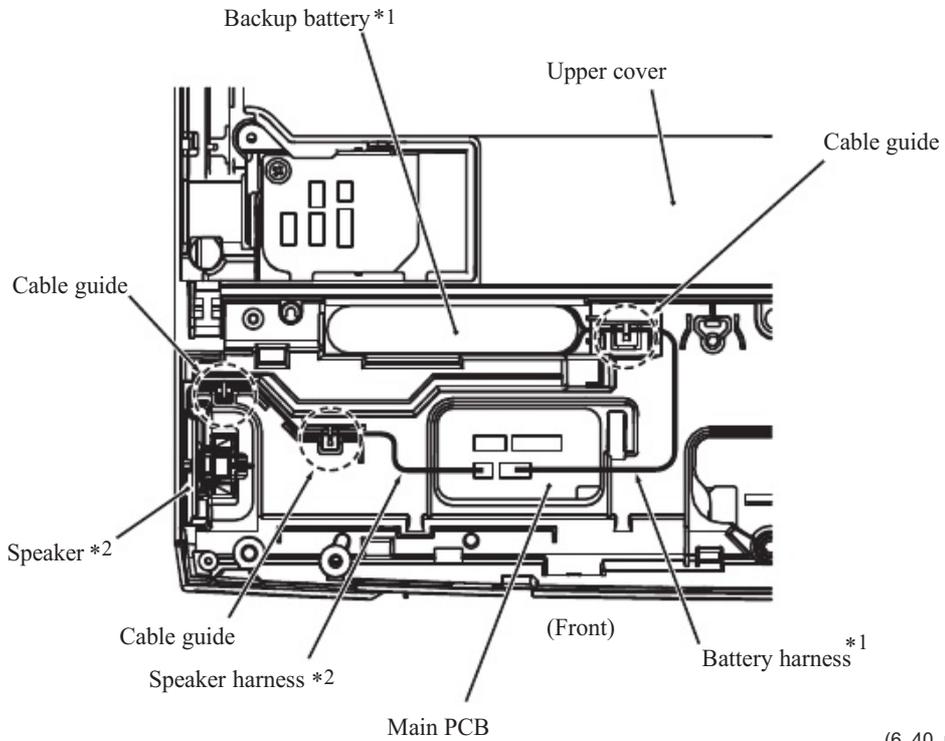
- Die Batterie niemals zerlegen oder wieder aufladen.
- Die Batterie niemals durch Verbrennen entsorgen.

⚠ WARNUNG

- Wenn die Batterie inkorrekt ausgewechselt wird, besteht Explosionsgefahr.

*1 For models with backup battery
*2 For models with speaker

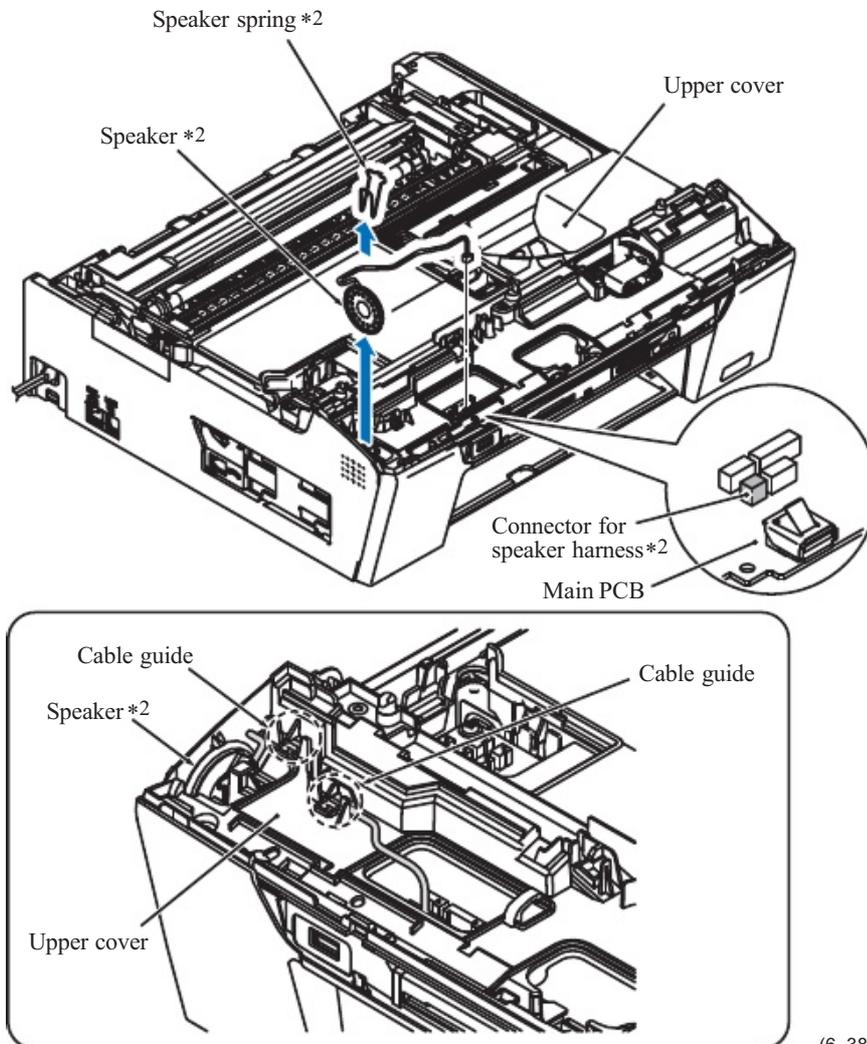
Assembling Note: When setting the backup battery ^{*1}, route the battery harness ^{*1} through the cable guide on the upper cover as shown below.



(6_40_r1)

- (2) Disconnect the speaker harness*² from the main PCB and release it from the cable guides provided on the upper cover.
- (3) Remove the speaker spring (wire spring)*² and the speaker*² from the pocket provided on the upper cover.

*2 For models with speaker



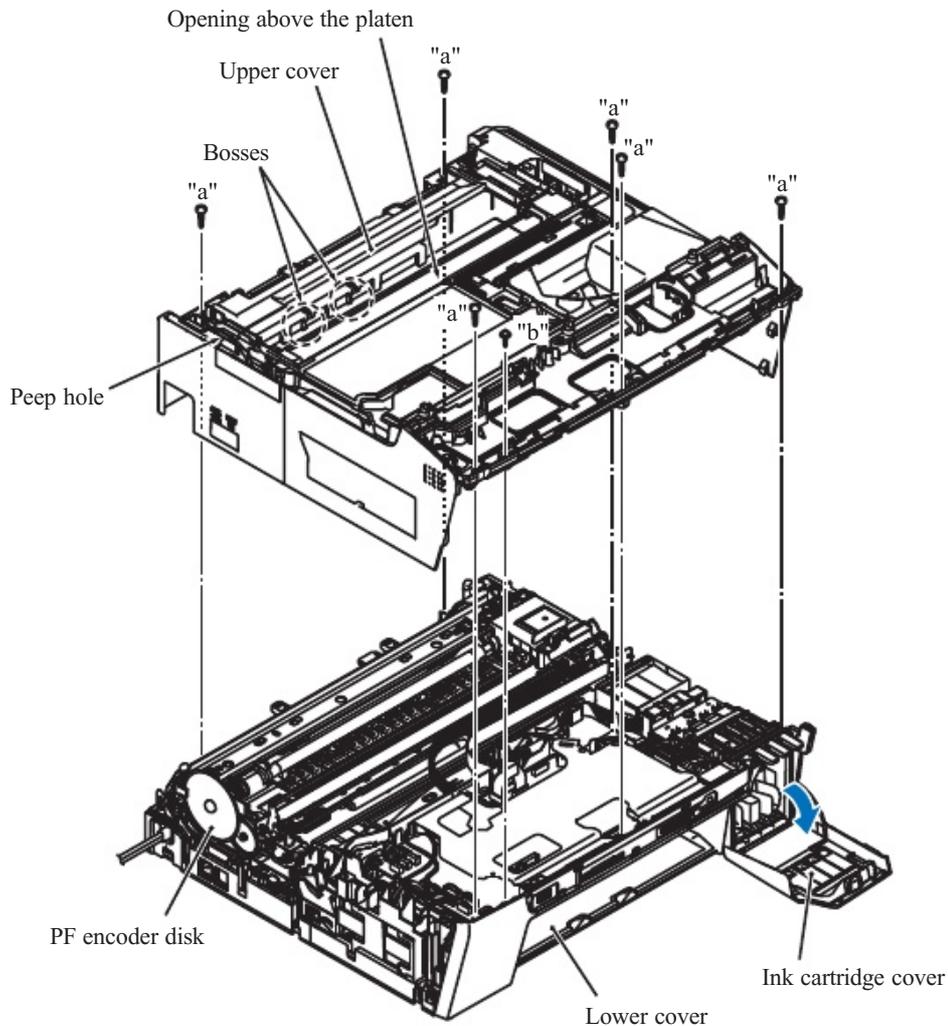
(6_38_mini9e_E)

Assembling Note:

After mounting the speaker*² and its spring*² into the pocket provided on the upper cover, route the speaker harness*² through the cable guide on the upper cover as shown on the previous page.

- (4) Open the ink cartridge cover.
- (5) Remove the seven screws (six "a" and one "b" screws) from the upper cover.
- (6) Release the two bosses provided on the bottom rear of the upper cover from the lower cover using the tip of a flat screwdriver from the bottom, and then lift the upper cover up and off the lower cover.

NOTE: When lifting up the upper cover, do not put your hands in the opening above the platen (shown below). Doing so may damage or stain the CR encoder strip inside.



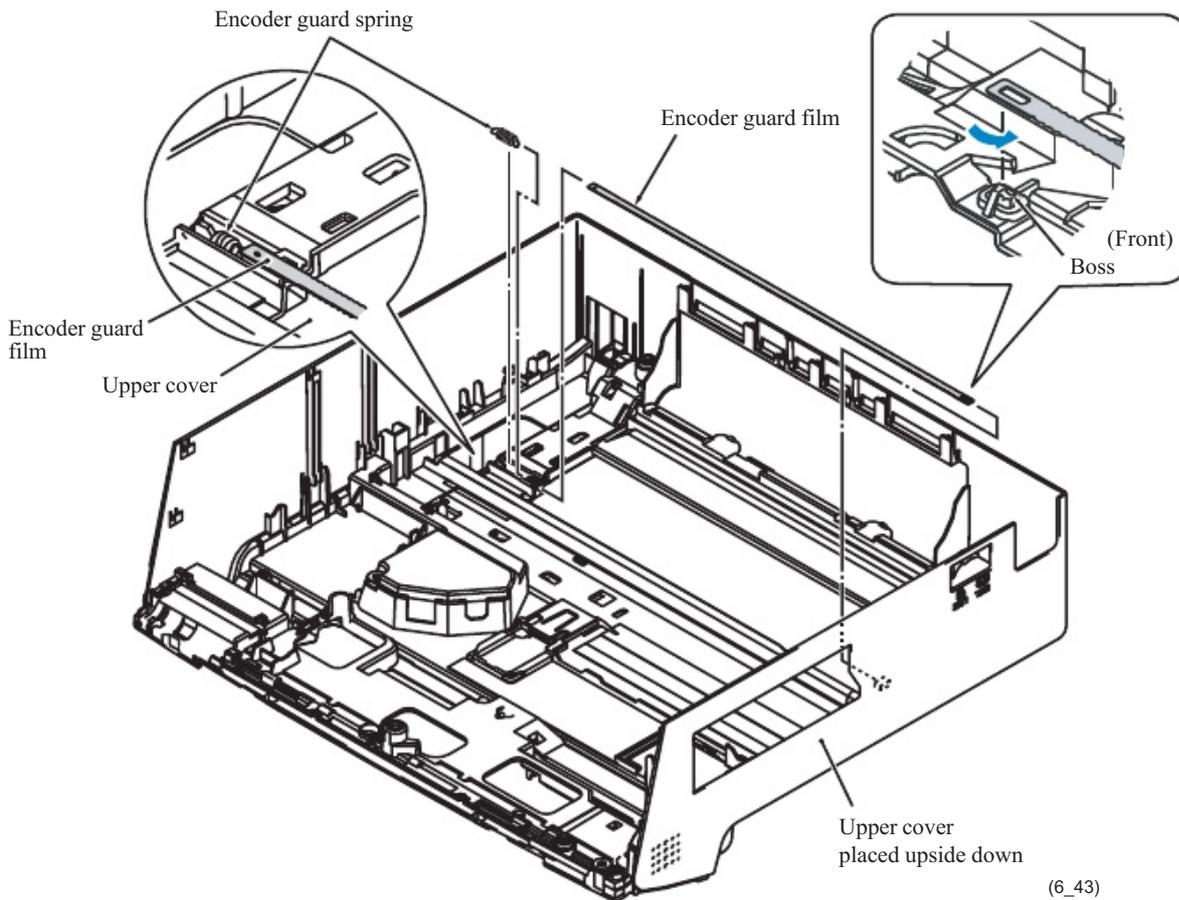
(6_39_mini9e)

"a": Taptite, bind B M4x12
 "b": Taptite, cup B M3x10

Assembling Note:

- When mounting the upper cover:
 - Make sure that the jam clear cover is not mounted.
 - Make sure that the ink cartridge cover is open
 - Make sure that the head/carriage unit is placed in the head capping position (home position). This prevents the ink supply tubes from getting crushed between the upper and lower covers.
 - Take care not to deform the PF encoder disk
- After mounting the upper cover, check that the PF encoder disk is not bent or deformed through the peep hole. (See the illustration on the previous page.)

- (7) Place the upper cover upside down.
- (8) Unhook the encoder guard spring from the spring guides provided on the upper cover.
- (9) Release the other end (no spring) of the encoder guard film from the upper cover.
- (10) Remove the encoder guard spring from the film, slide the film inwards, and take it out of the upper cover.



6.1.8 Ink Cartridge Cover, Inner Media Module Cover, Front Cover, and WLAN PCB (for wireless LAN-enabled models)

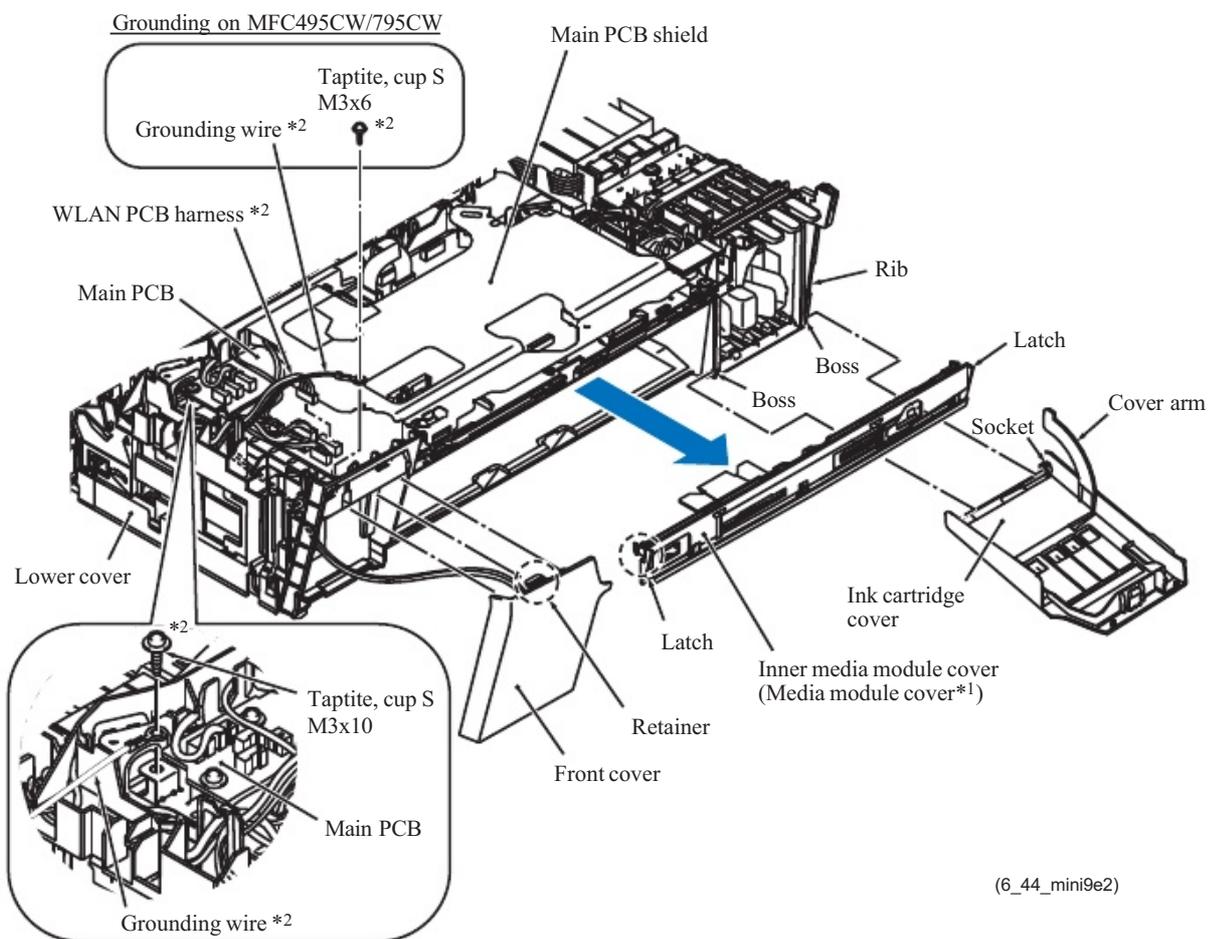
- (1) Lightly lift up the front end of the lower cover and remove the ink cartridge cover by releasing its cover arm from the lower cover.
- (2) On the inside of the front cover, release the retainer and slightly open the cover. Then release the latches at the right and left ends of the inner media module cover (media module cover*¹) and remove the cover to the front.

*1 For DCPJ125/J315W/J515W/J715W/J140W and MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W

For wireless LAN-enabled models, skip to step (4). For models not supporting wireless LAN, proceed to step (3).

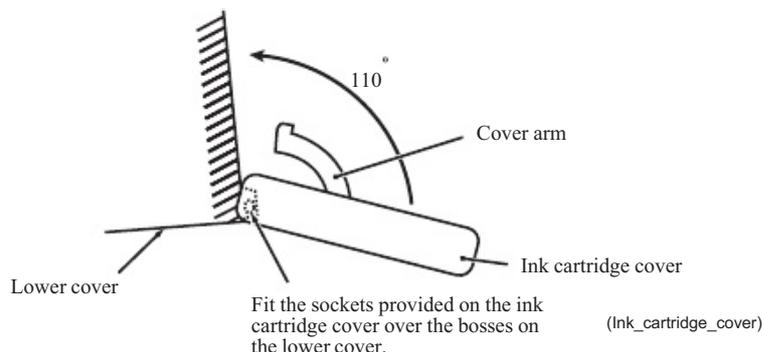
- (3) Lightly lift up the front end of the lower cover and remove the front cover.

*2 For wireless LAN-enabled models except for DCPJ140W



Grounding on DCP375CW/J315W/J515W/J715W and MFC255CW/J265W/J270W/J410W/J415W/J615W/J630W

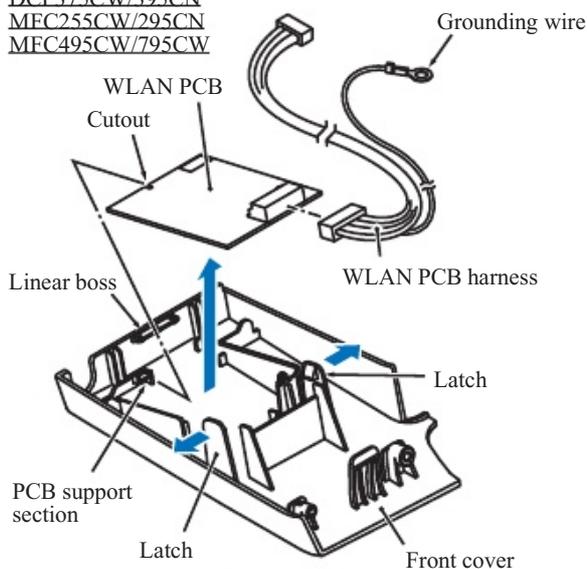
Assembling Note: When mounting the ink cartridge cover, lightly lift up the front end of the lower cover, fit the two sockets over the bosses on the lower cover at the angle shown below and rotate the ink cartridge cover. Then, set the cover arm on the rib on the right side of the lower cover (see the illustration above).



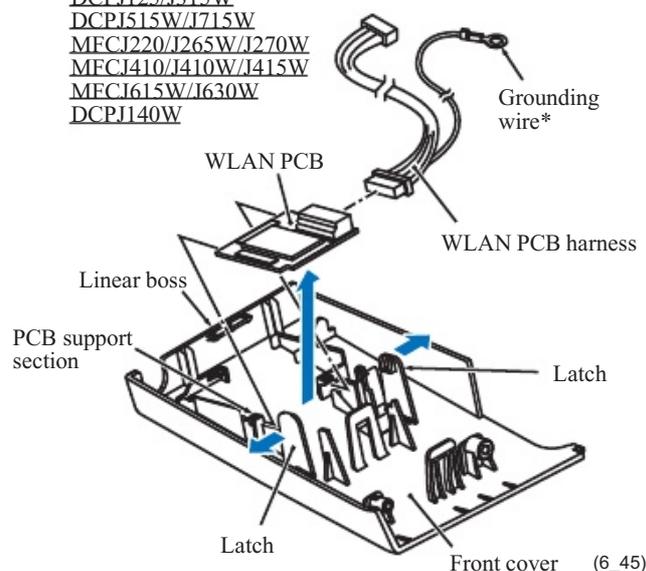
For wireless LAN-enabled models, remove the front cover and WLAN PCB using the following steps.

- (4) Release the grounding wire* by removing the screw and disconnect the WLAN PCB harness from the main PCB. (See the illustration on the previous page.) Then release the grounding wire and WLAN PCB harness from the cable guides provided on the lower cover.
- (5) Lightly lift up the front end of the lower cover and remove the front cover together with the WLAN PCB.
- (6) Release the two latches on the front cover and take out the WLAN PCB.

DCP375CW/395CN
MFC255CW/295CN
MFC495CW/795CW



DCPJ125/I315W
DCPJ515W/I715W
MFC1220/I265W/I270W
MFC1410/I410W/I415W
MFC1615W/I630W
DCPJ140W



Assembling Notes:

• For wireless LAN-enabled models

- When mounting the front cover and WLAN PCB onto the lower cover, route the WLAN PCB harness and grounding wire* as shown on the previous page.
- When securing the grounding wire to the main PCB shield frame with a screw, set the crimped section of the grounding terminal in the slit provided in the lower cover.
- When mounting the WLAN PCB on the front cover, fit the cutout of the WLAN PCB to the PCB support section inside the cover.
- When mounting the front cover, lightly lift up the front end of the lower cover and fit the linear boss provided on the inside bottom of the front cover over the bottom of the lower cover.

* Except for DCPJ140W

6.1.9 Main PCB

Caution: Before replacement of the main PCB, back up the machine information and user setting information, referring to [Chapter 9, Section 9.4.11 "Backup of Machine Information \(Function code 46\) \(User-accessible\)." After replacement, restore the backed up information to the new PCB. Failure to do so requires replacing also the ink absorber box and flushing box after replacement of the main PCB.](#)

Caution: Before accessing the main PCB, make sure that the power cord is unplugged from the electrical outlet and the telephone line (MFC only) is disconnected; otherwise, an electric shock could occur.

Caution: At the time of removal of the main PCB, untightening screws should be preceded by disconnection of the harnesses and flat cables, and at the time of installation, connection of the harnesses and flat cables, by tightening of screws. Observing this sequence prevents harnesses and flat cables from getting crushed or damaged by screws or screwdrivers.

(1) Disconnect the following harnesses and flat cables from the main PCB

Caution: Do not remove the screws from the main PCB before disconnecting harnesses and flat cables.

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

- Ink cartridge detection sensor harness (7-wire)
- Ink empty sensor harness (9-wire)
- ASF* encoder harness (4-wire) (*Auto Sheet Feeder)
- Purge cam switch harness (2-wire)
- Cap lift cam switch harness (2-wire)
- Power supply harness (5-wire)

- PF encoder/registration sensor harness (7-wire)
- Paper feed motor harness (2-wire)
- ASF* motor harness (2-wire)
- Carriage motor harness (2-wire)
- Hook switch harness (6-wire)^{*1}
- Main-MJ (EXT) harness^{*2} (2-wire^{*3} or 6-wire^{*4}, black)
- Head flat cable 1 (12-wire)
- Head flat cable 2 (11-wire)
- Head flat cable 3 (10-wire)

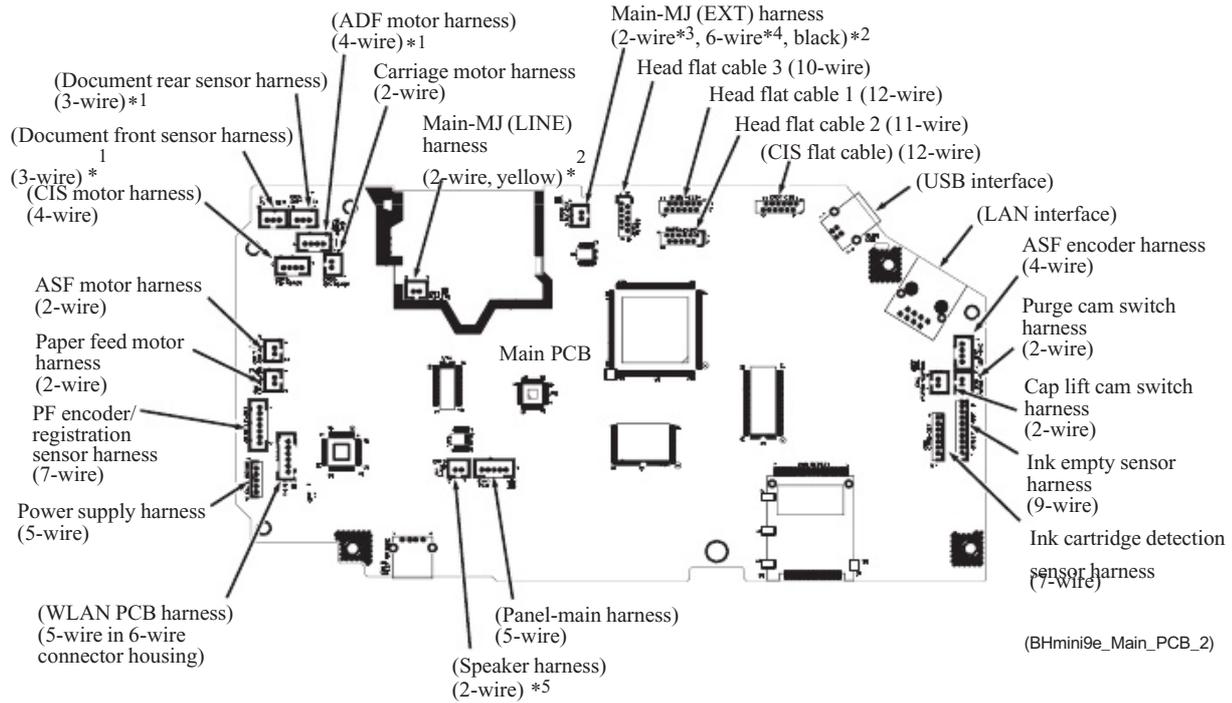
*1 For models with handset

*2 For MFC only

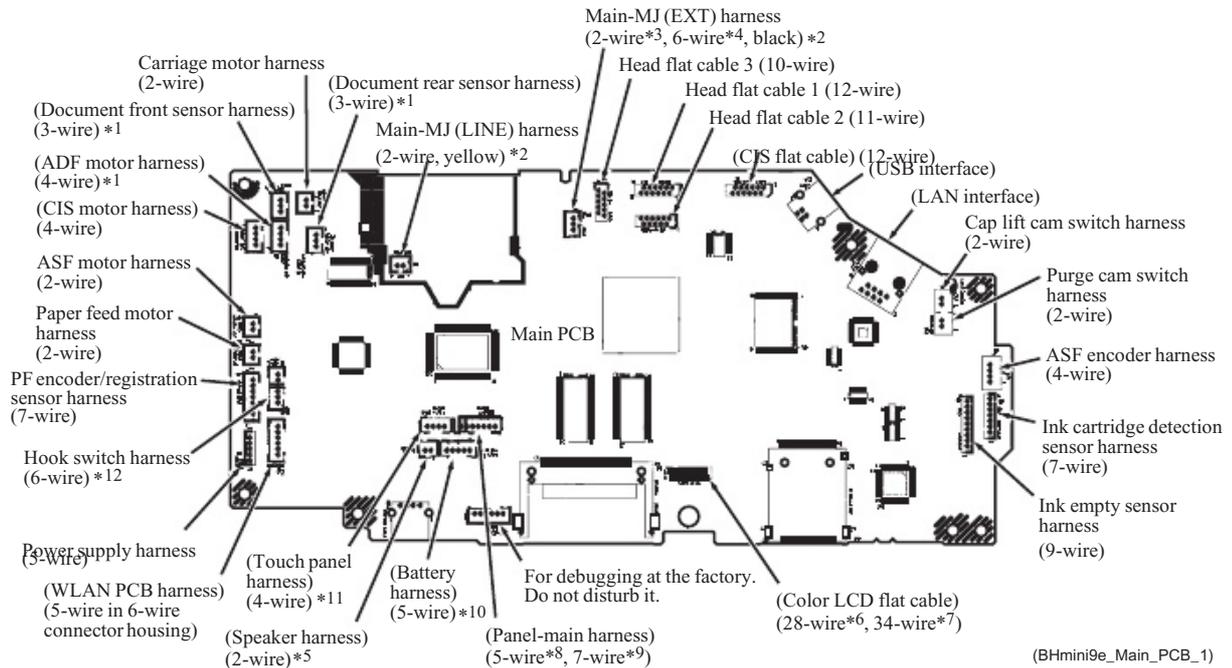
*3 For models destined for countries except Japan

*4 For Japanese models

DCP375CW and MFC255CW/295CN

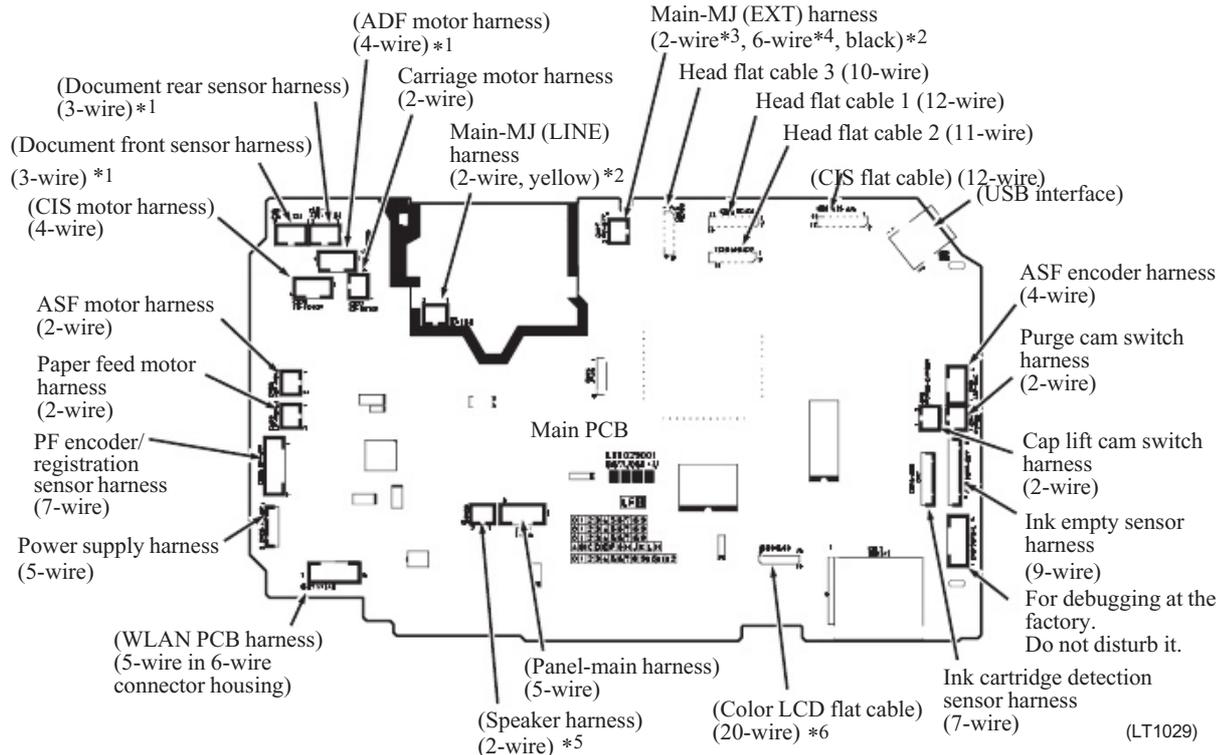


DCP395CN and MFC495CW/795CW



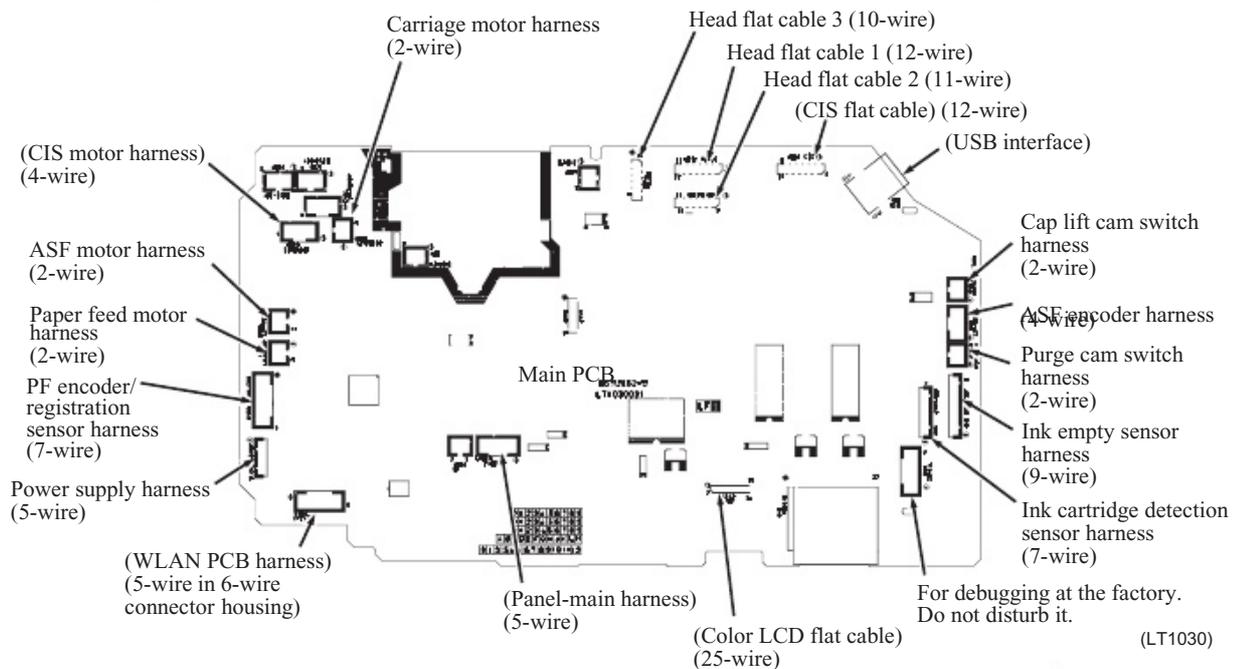
- *1 For models with ADF
- *2 For MFC only
- *3 For models destined for countries except Japan
- *4 For Japanese models
- *5 For models with speaker
- *6 For models with 3.3-inch color LCD
- *7 For models with 5.0-inch color LCD
- *8 For models without microphone
- *9 For models with microphone
- *10 For models with backup battery
- *11 For models with touch panel
- *12 For models with handset

DCPI125/I315W/I140W and MFC.I220/I265W/I270W/I410/I410W/I415W/I410W

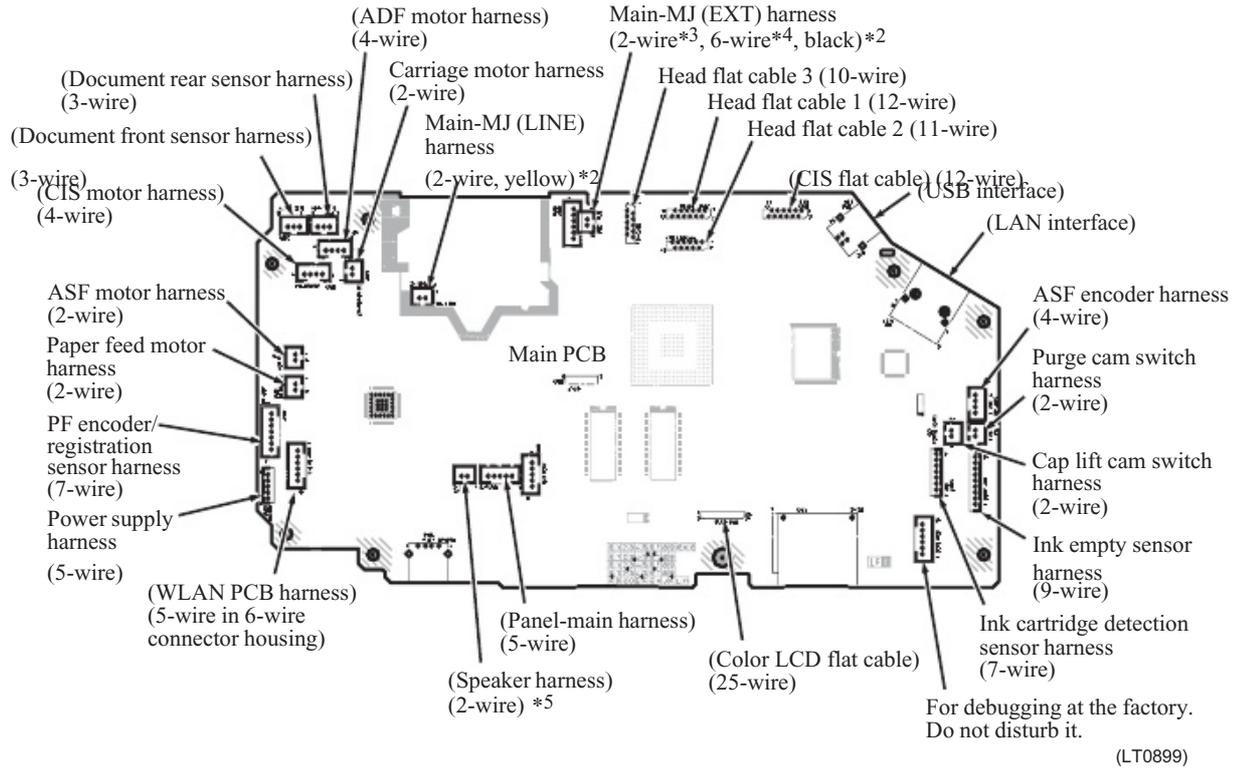


- *1 For models with ADF
- *2 For MFC only
- *3 For models destined for countries except Japan
- *4 For Japanese models
- *5 For models with speaker
- *6 For models with color LCD

DCPI515W



DCPJ715W and MFCJ615W/J630W



- *2 For MFC only
- *3 For models destined for countries except Japan
- *4 For Japanese models
- *5 For models with speaker

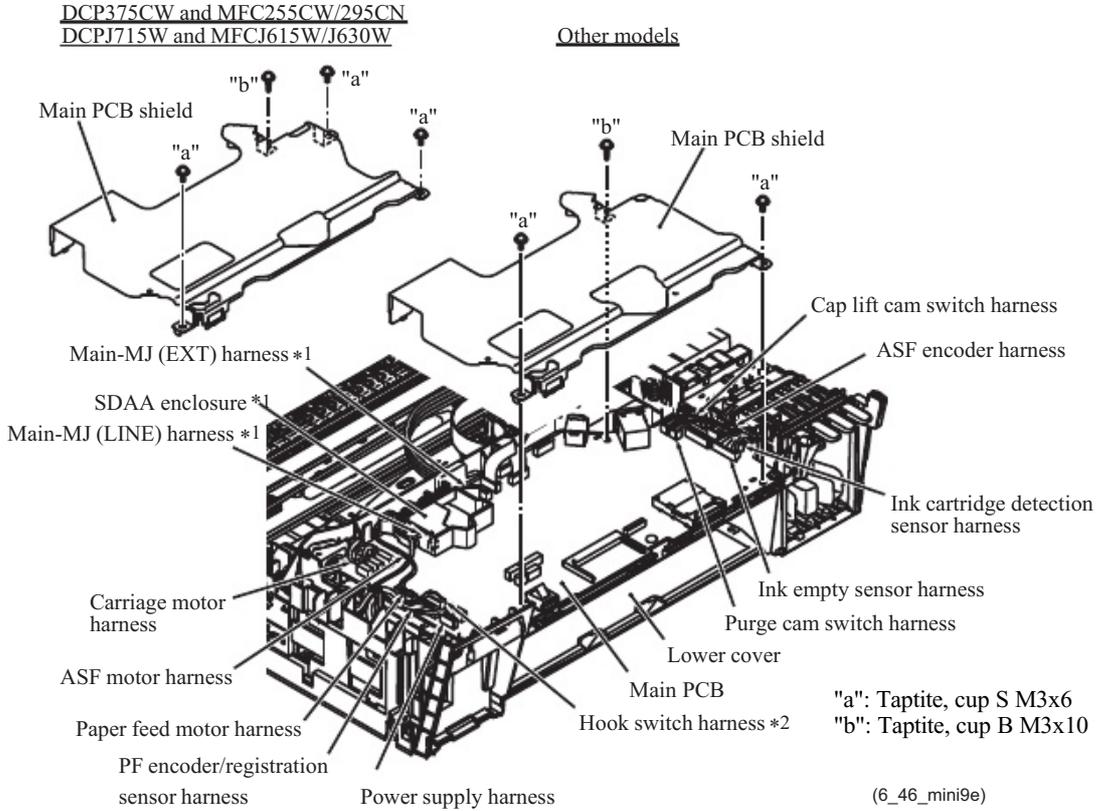
(2) Remove the four/three screws from the main PCB shield and lift it up.

DCP375CW and MFC255CW/295CN, DCPJ715W and MFCJ615W/J630W: Three "a" and one "b" screws

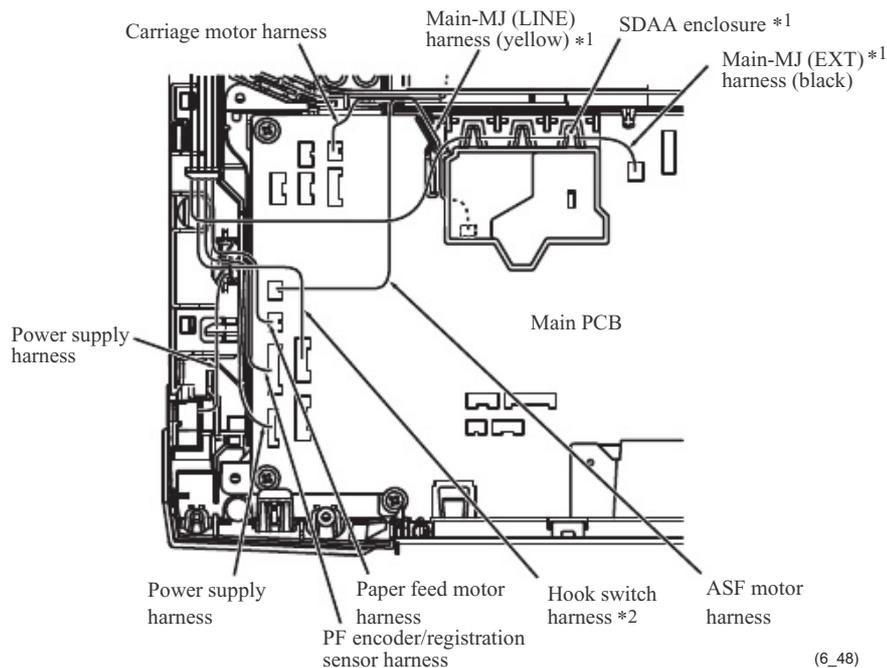
Other models: Two "a" and one "b" screws

*1 For MFC only

*2 For models with handset



Assembling Notes: Before securing the main PCB shield, route the harnesses on the top of the lower cover as shown below. Make sure that the main-MJ (EXT) harness *1 and main-MJ (LINE) harness *1 are routed through the SDAA enclosure *1. (See the illustration given on page 6-51 for the routing of those harnesses on the left side of the lower cover.)



(3) **For MFC:** Release the main-MJ (EXT) harness from the cable guides provided on the SDAA enclosure. Press the right and left ends of the SDAA enclosure inwards and remove it from the main PCB. Then disconnect the main-MJ (LINE) harness (2-wire, yellow) from the main PCB.

(4) Remove the three/four screws from the main PCB and lift it up.

DCP375CW and MFC255CW/295CN, DCPJ715W and MFCJ615W/J630W:

Three "e" screws

DCP395CN and MFC495CW/795CW: Four "c" screws

DCPJ125/J315W/J515W/J140W and MFCJ220/J265W/J270W/J410/J410W/J415W:

Three "e" screws

(5) Remove the screws from the main PCB shield frame and lift it up.

DCP375CW and MFC255CW/295CN, DCPJ715W and MFCJ615W/J630W:

Three "c" and one "d" screws (The "d" also secures the MJ/PS shield unit.)

DCP395CN and MFC495CW/795CW: Screw "d" (The "d" also secures the MJ/PS shield unit.)

DCPJ125 and MFCJ220:

Two "c" and one "d" screws (The "d" also secures the MJ/PS shield unit.)

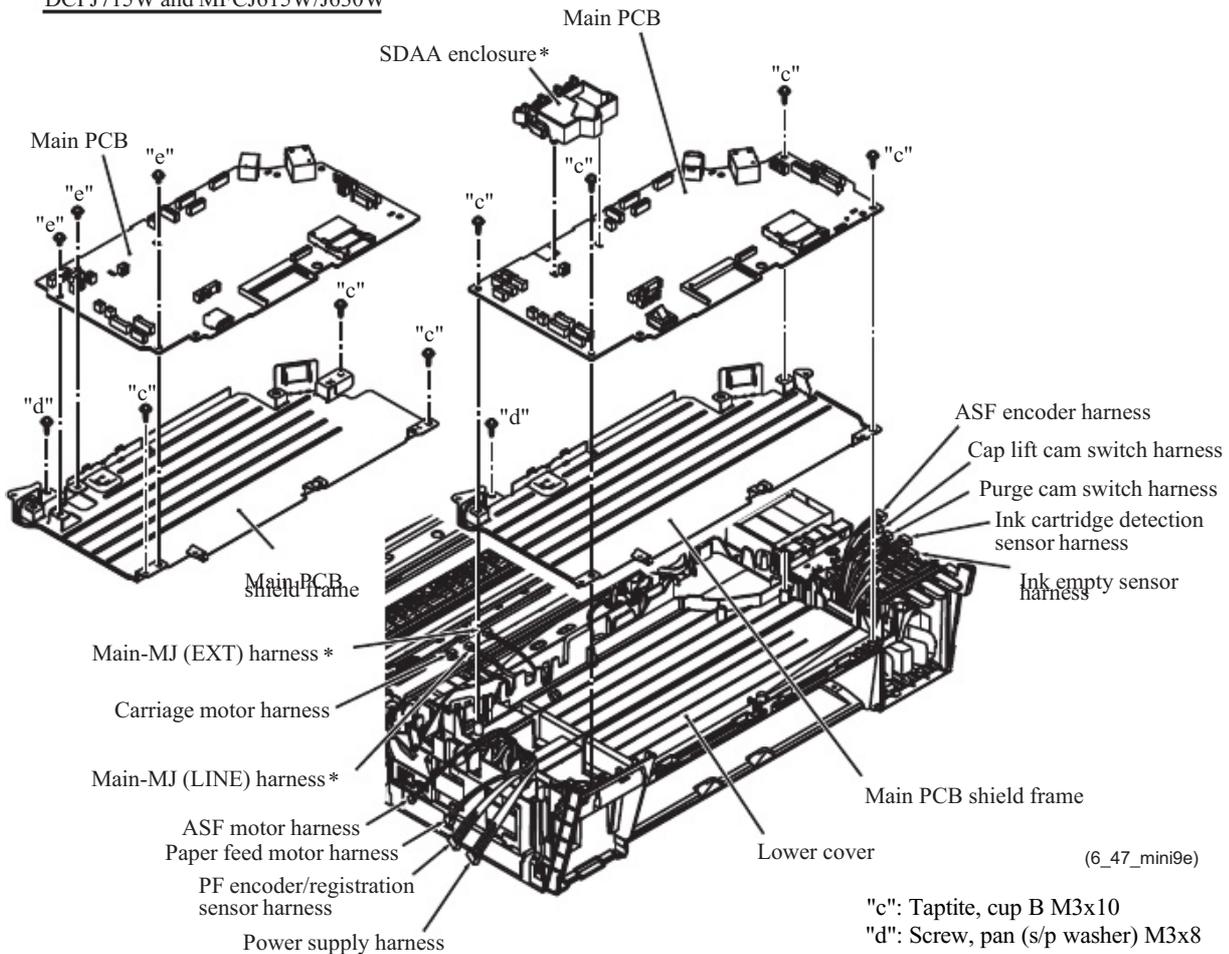
DCPJ315W/J515W/J140W and MFCJ265W/J270W/J410/J410W/J415W:

One "c" and one "d" screws (The "d" also secures the MJ/PS shield unit.)

* For MFC only

DCP375CW and MFC255CW/295CN
DCPJ715W and MFCJ615W/J630W

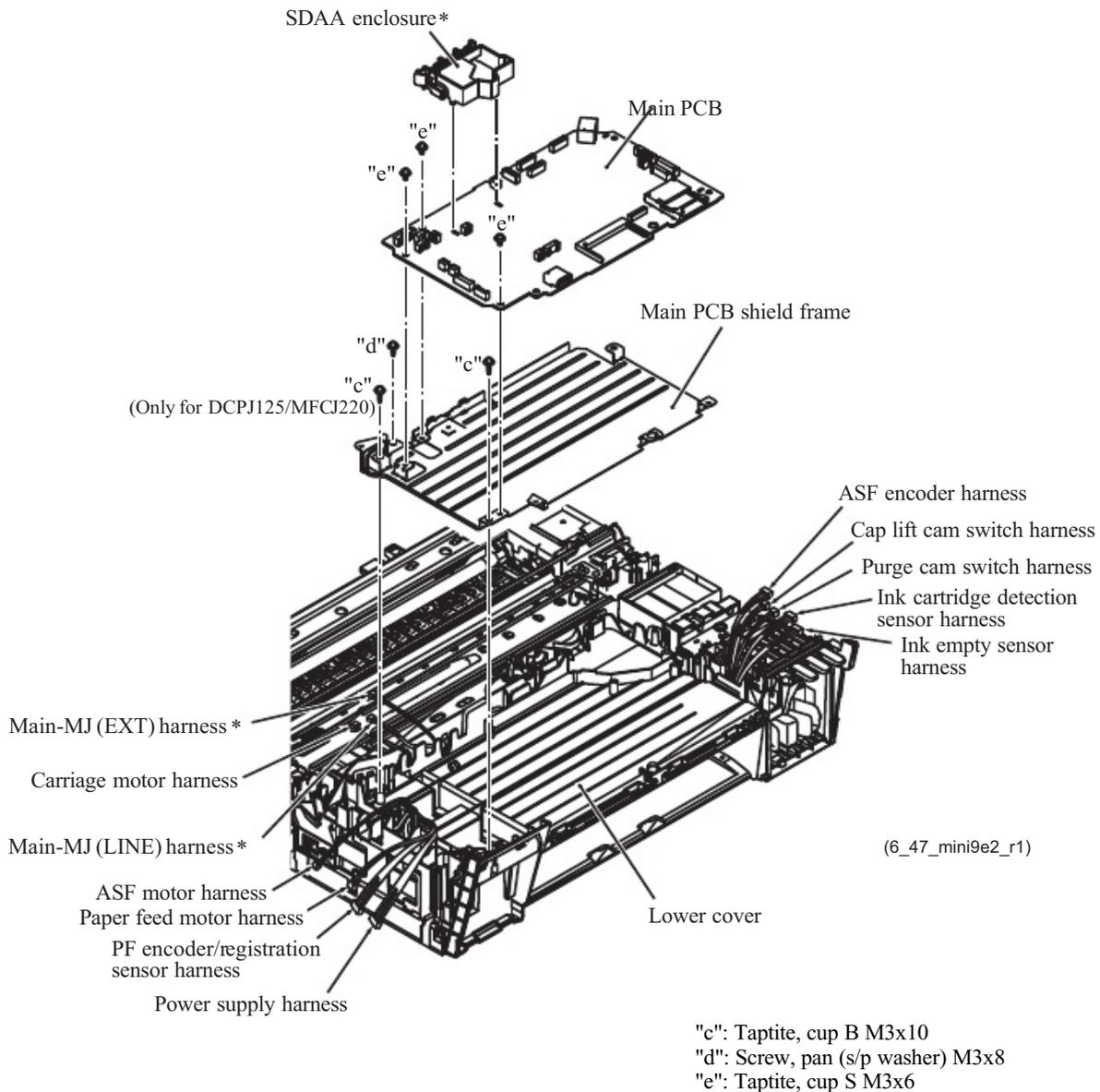
DCP395CN and MFC495CW/795CW



(6_47_min9e)

* For MFC only

DCPJ125/J315W/J515W/J140W and MFCJ220/J265W/J270W/J410/J410W/J415W

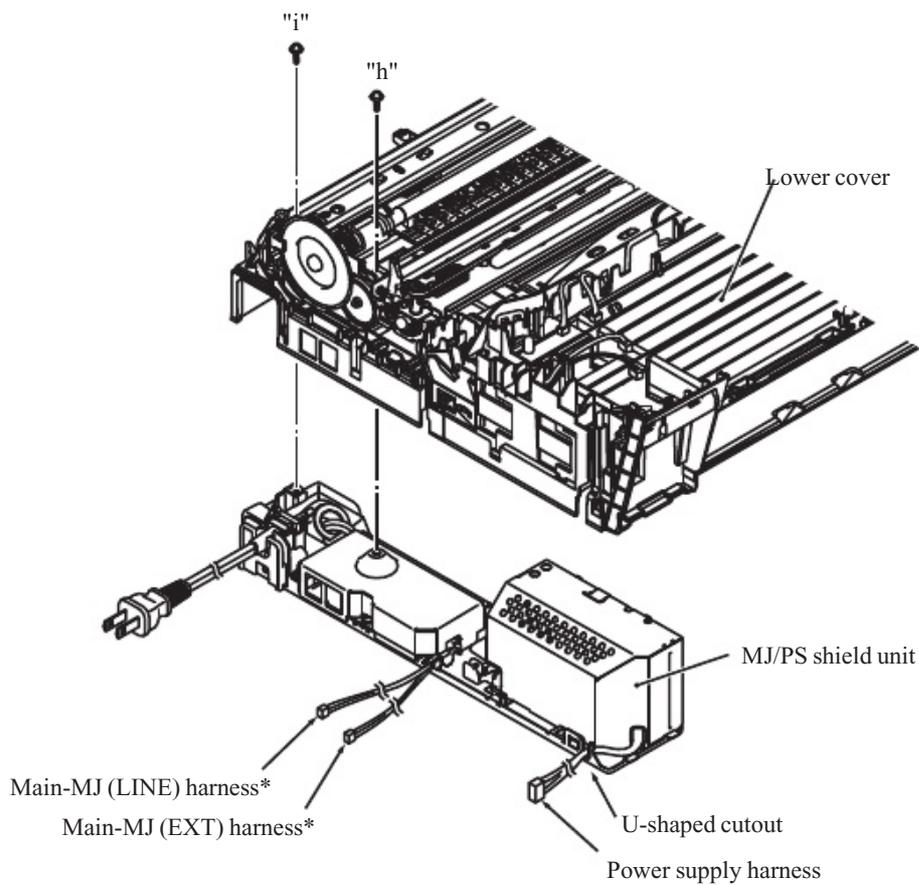


Assembling Note: If you replace the main PCB, you need to load programs onto the flash ROM, restore the machine information that has been backed up in an external memory (refer to [Chapter 9, Section 9.4.11](#)), and make specified adjustments of various settings (refer to [Chapter 7, Section 7.3](#)). Make sure beforehand that the head/carriage unit is mounted.

6.1.10 MJ/PS Shield Unit (MJ PCB* and Power Supply PCB)

* For MFC only

- (1) If the main PCB shield frame has not been removed, disconnect the power supply harness, main-MJ (LINE) harness* and main-MJ (EXT) harness* from the main PCB, then remove screw "d" (shown on the previous page) from the main PCB shield frame.
- (2) Remove the two screws ("h" and "i") as shown below.
- (3) Release the harnesses from the cable guides provided on the lower cover and remove the MJ/PS shield unit from underside of the lower cover.



(6_49)

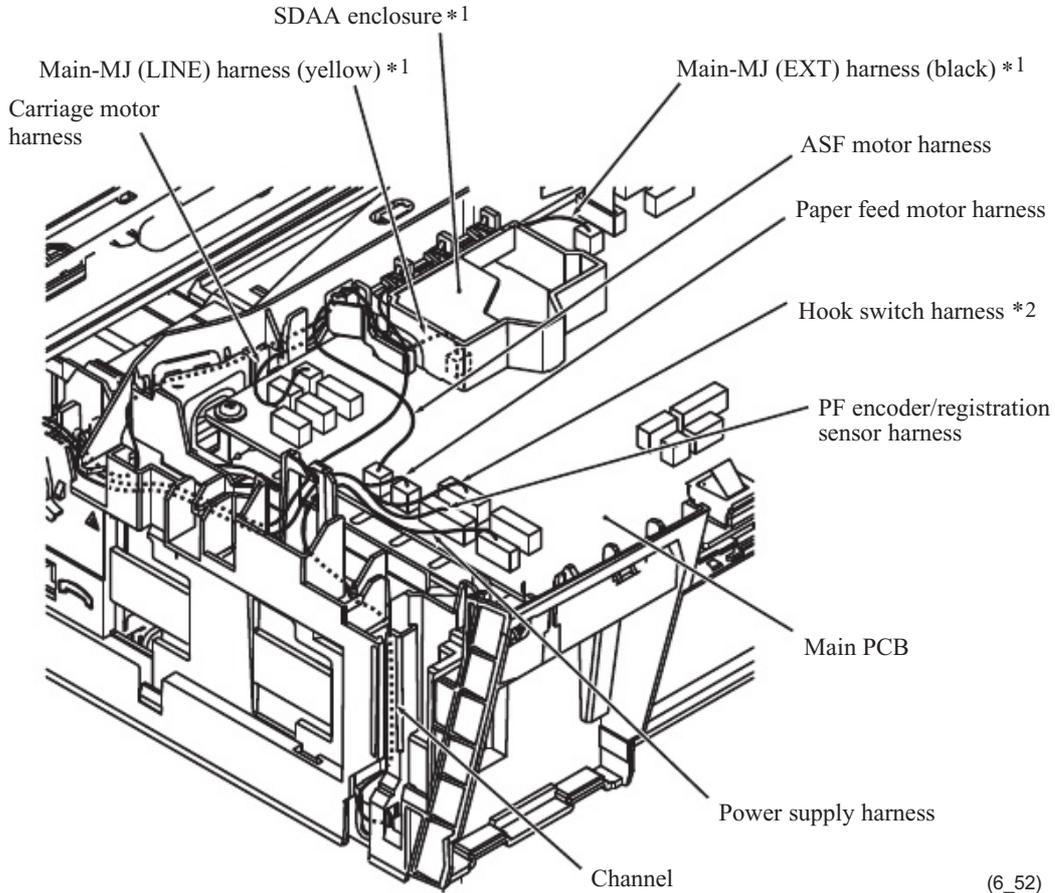
"h": Screw, pan (s/w washer) M3x8
"i": Pan head S M3x6

Assembling Notes: When mounting the MJ/PS shield unit onto the lower cover, route the power supply harness through the U-shaped cutout (shown on the previous page) provided in the lower MJ/PS shield.

After mounting the MJ/PS shield unit, route the power supply harness through the channel and route the main-MJ (EXT) harness^{*1} and main-MJ (LINE) harness^{*1} on the left side of the lower cover as shown below.

*1 For MFC only

*2 For models with handset



(6_52)

The subsequent procedure for the 100 V series is given on pages 6-52 to 6-54, and that for the 200 V, on pages 6-55 to 6-57.

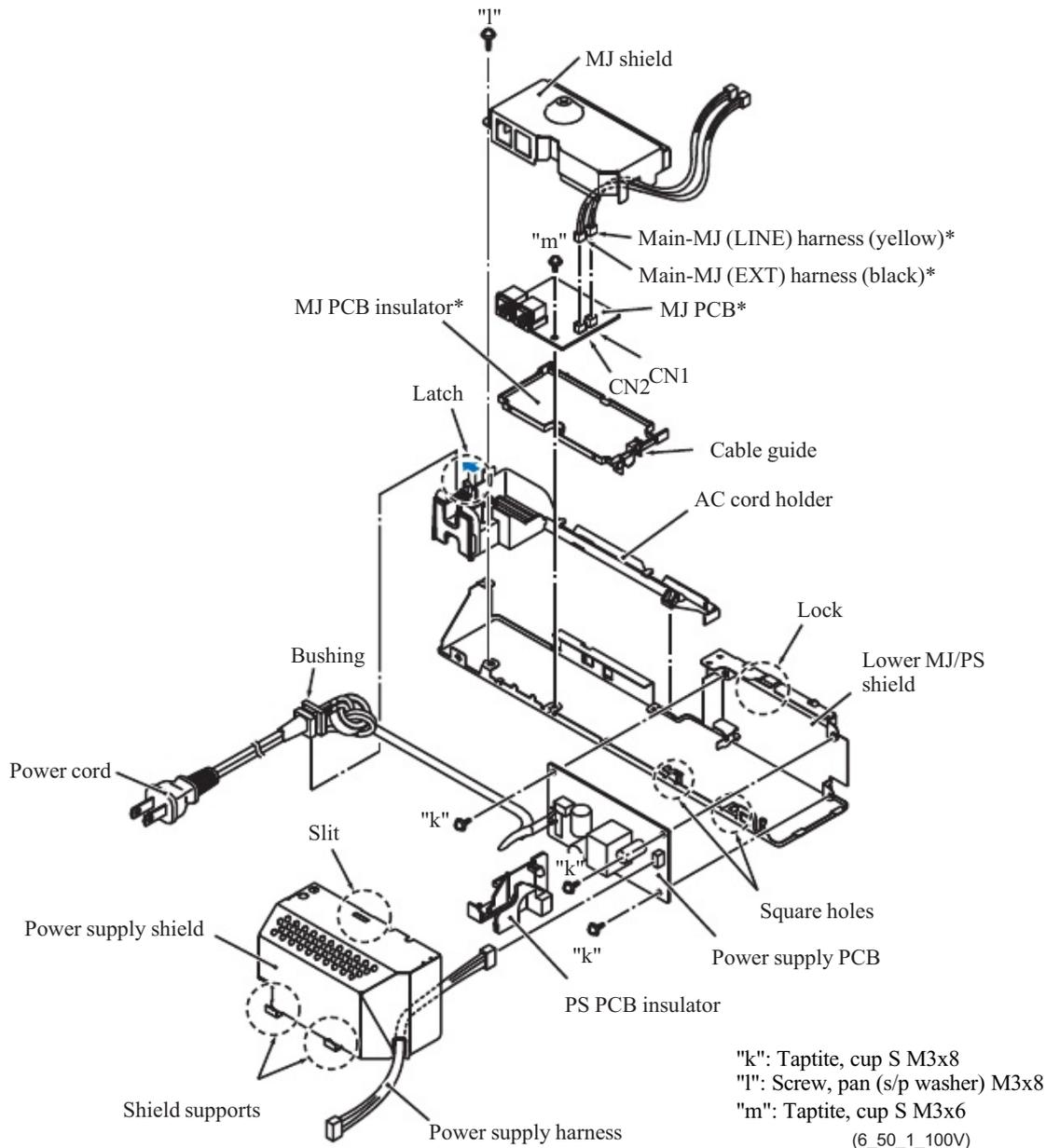
For 100 V series

- (4) Unlatch the power cord bushing and pull it up from the AC cord holder. Then release the power cord from the cable guides provided on the AC cord holder (shown on page 6-54).
- (5) Remove the power supply shield from the lower MJ/PS shield.
- (6) Remove three screws "k" from the power supply PCB.
- (7) Detach the PS PCB insulator from the power cord.
- (8) Remove the AC cord holder from the lower MJ/PS shield.

For MFC

- (9) Remove screw "l" and remove the MJ shield from the lower MJ/PS shield.
- (10) Remove screw "m"* from the MJ PCB* and take it off the lower MJ/PS shield.
- (11) Remove the MJ PCB insulator* from the lower MJ/PS shield.

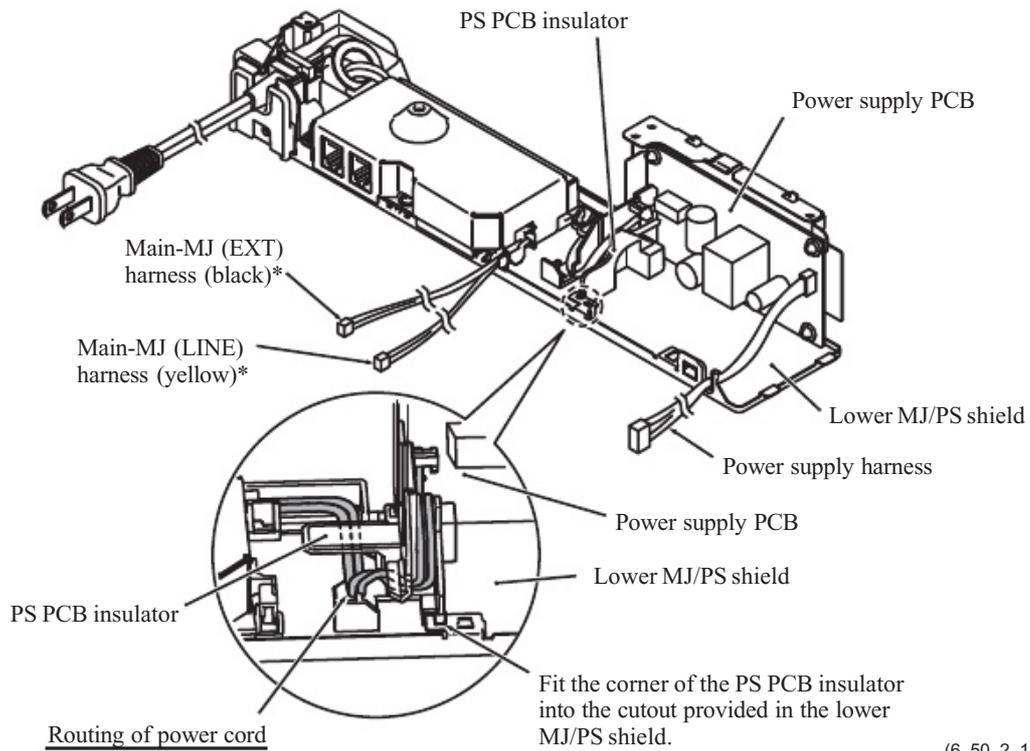
* For MFC only



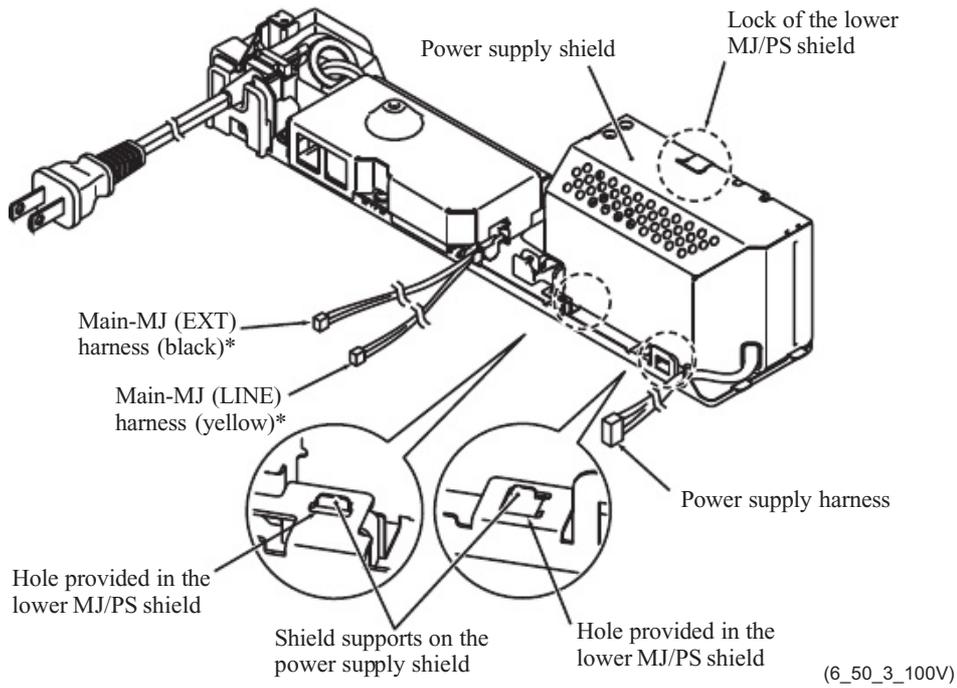
Assembling Notes:

- Before mounting the MJ shield, route the main-MJ (LINE) and (EXT) harnesses* through the cable guide provided on the MJ PCB insulator*. (See the previous page.)
- Route the power cord through the PS PCB insulator (see below) and the cable guides provided on the AC cord holder (see the next page). Fit the corner of the PS PCB insulator into the cutout provided in the lower MJ/PS shield as shown below.
- When mounting the power supply shield on the lower MJ/PS shield, insert two shield supports of the power supply shield into the two square holes provided in the lower MJ/PS shield. Make sure that the lock of the lower MJ/PS shield (as shown on the next page) fits in the slit provided in the top of power supply shield. (See the previous page.)

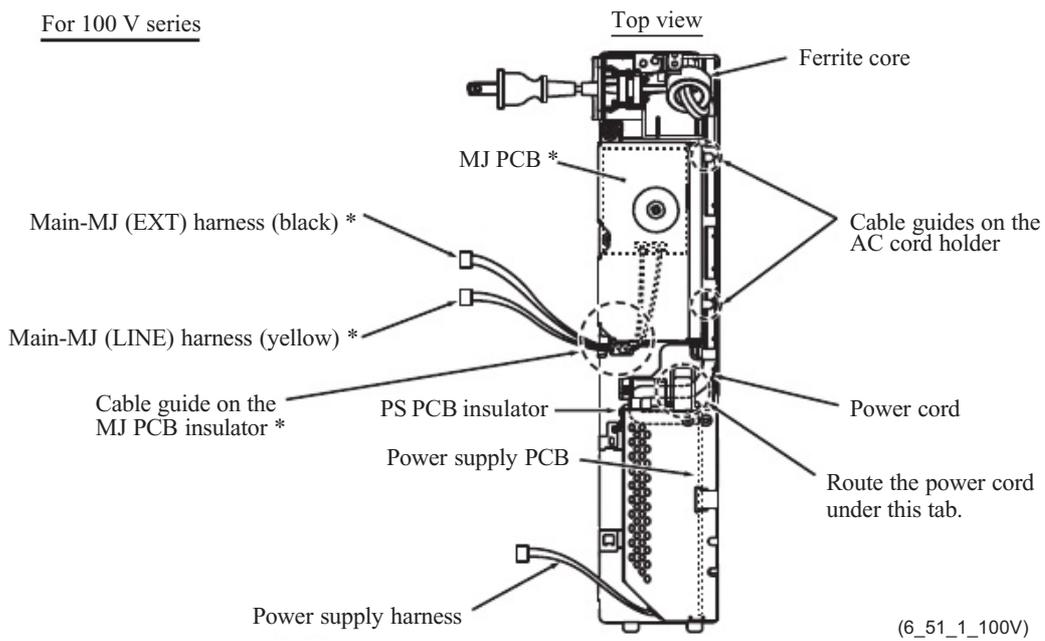
* For MFC only



(6_50_2_100V)



For 100 V series



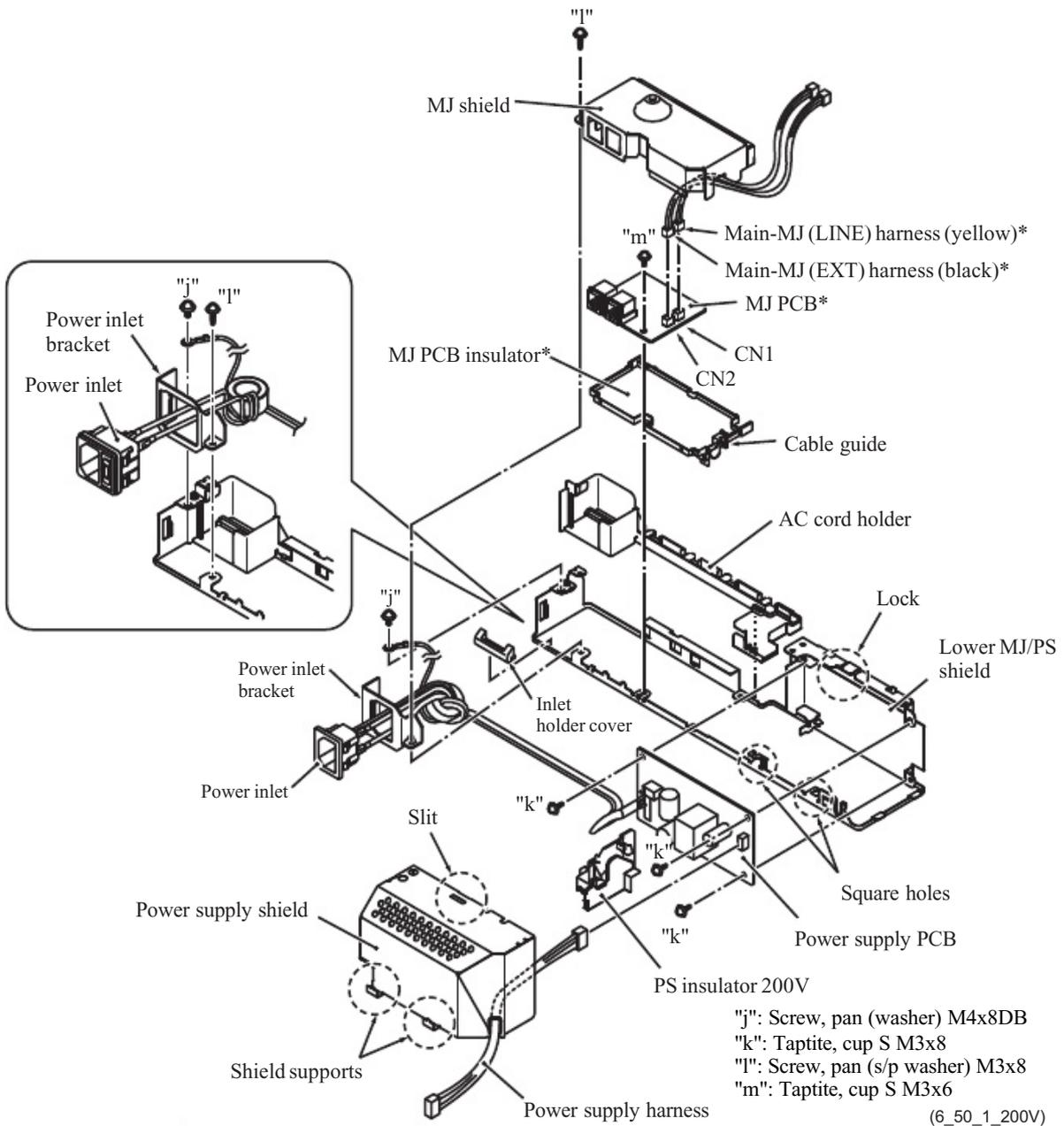
For 200 V series

- (4) Remove screw "j" and remove the inlet holder cover and the power inlet together with its bracket. Release the power cord from the cable guides. (See page 6-57.)
- (5) Remove the power supply shield from the lower MJ/PS shield.
- (6) Remove three screws "k" from the power supply PCB.
- (7) Detach the PS insulator 200 V from the power cord.
- (8) Remove the AC cord holder from the lower MJ/PS shield.

For MFC

- (9) Remove screw "l" and remove the MJ shield from the lower MJ/PS shield.
- (10) Remove screw "m"* from the MJ PCB* and take it off the lower MJ/PS shield.
- (11) Remove the MJ PCB insulator* from the lower MJ/PS shield.

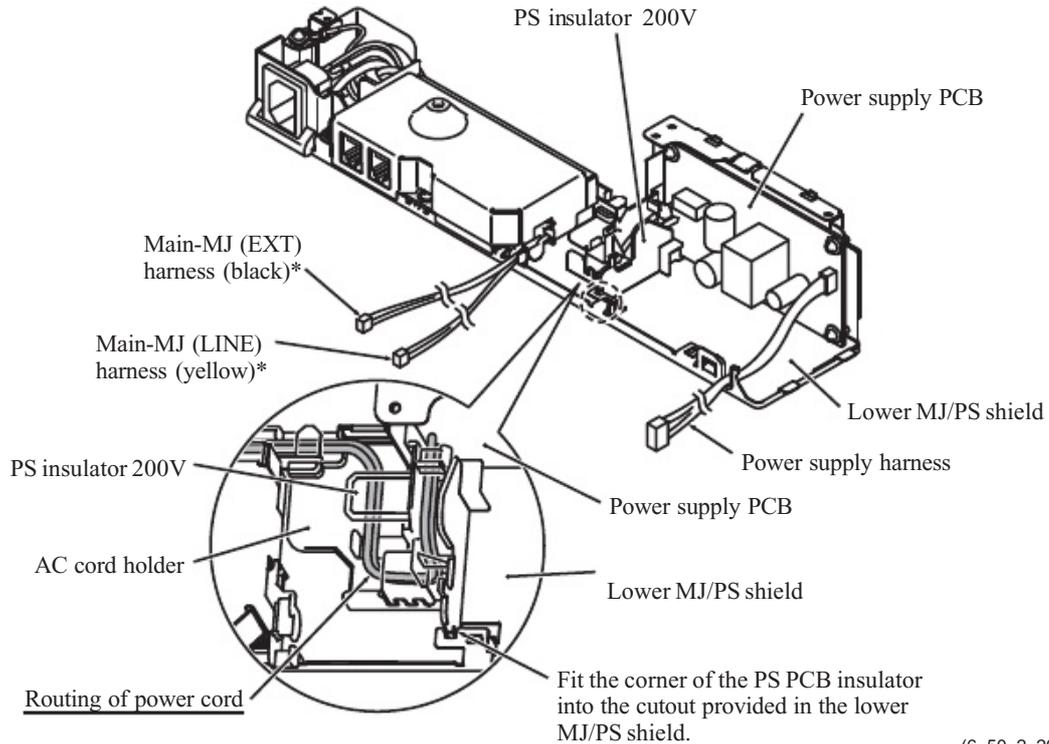
* For MFC only



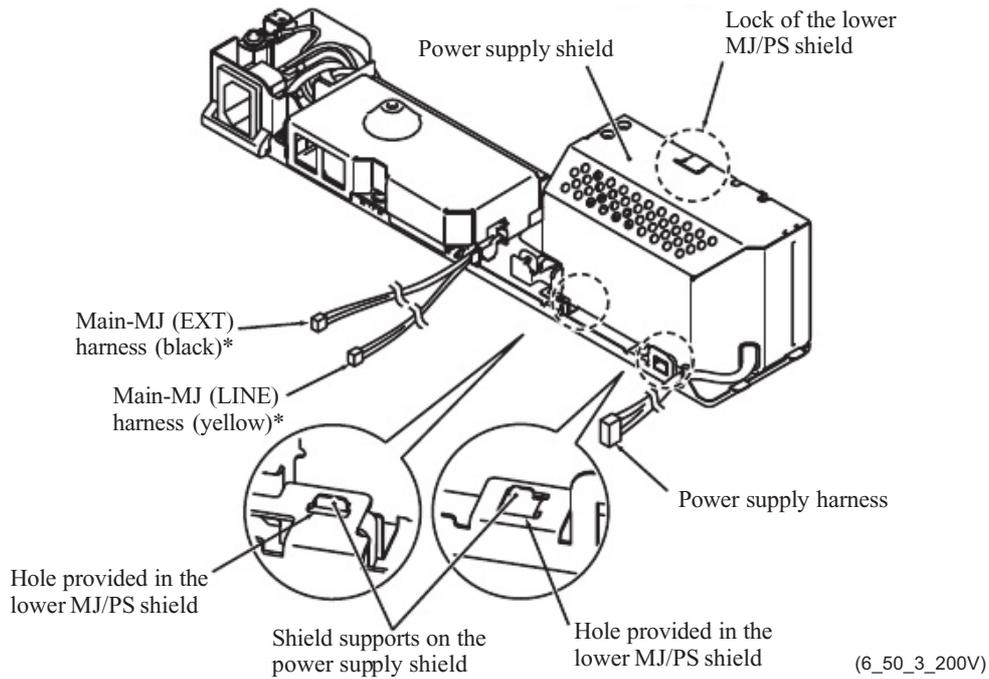
Assembling Notes:

- Before mounting the MJ shield, route the main-MJ (LINE) and (EXT) harnesses* through the cable guide provided on the MJ PCB insulator*. (See the previous page.)
- Route the power cord through the PS insulator 200 V (see below) and the cable guides provided on the AC cord holder (see [page 6-57](#)). Fit the corner of the PS PCB insulator into the cutout provided in the lower MJ/PS shield as shown below.
- When mounting the power supply shield on the lower MJ/PS shield, insert two shield supports of the power supply shield into the two square holes provided in the lower MJ/PS shield. Make sure that the lock of the lower MJ/PS shield (as shown on the next page) fits in the slit provided in the top of power supply shield. (See the previous page.)

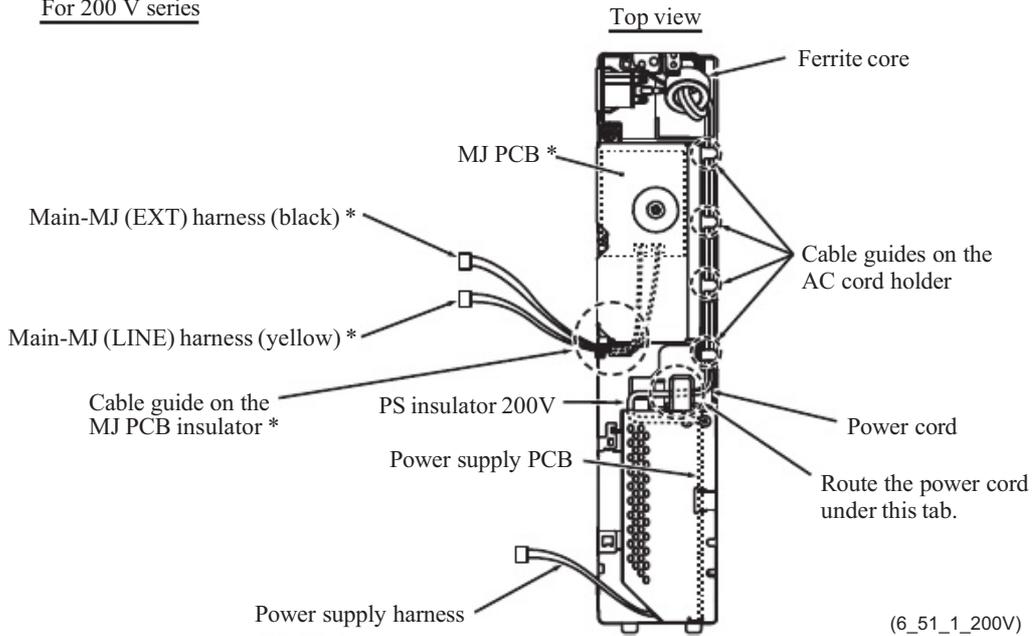
* For MFC only



(6_50_2_200V)



For 200 V series



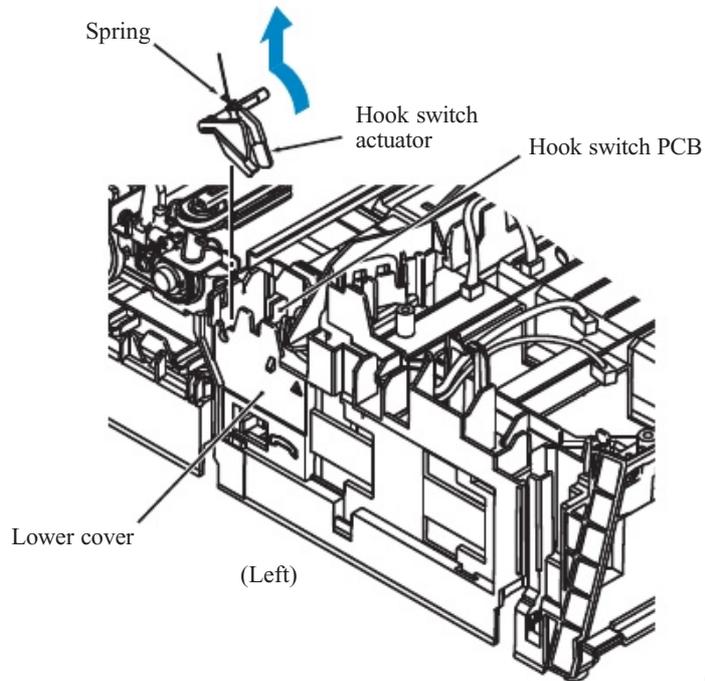
*For MFC only

Note for models with a power inlet having a built-in fuse

If the fuse built in the power inlet has blown, the power supply PCB could also be damaged. Be sure to replace the whole power supply PCB ASSY, not just the fuse. Never use any substitute or short-circuit the fuse terminals with conductors. Using a power inlet with an unauthorized fuse will cause a fire or accident.

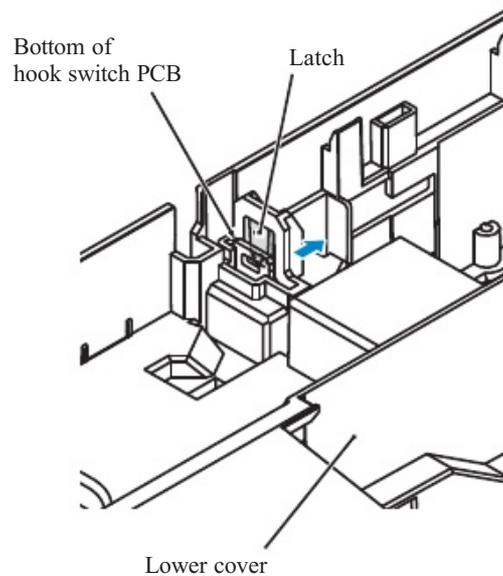
6.1.11 Hook Switch PCB (for models with handset)

- (1) Make sure that the MJ/PS shield unit has been removed.
- (2) Make sure that the hook switch harness has been disconnected from the main PCB.
- (3) Release the hook switch actuator from the lower cover, turn it counterclockwise (viewed from the left), and remove it together with the spring.



(6_53)

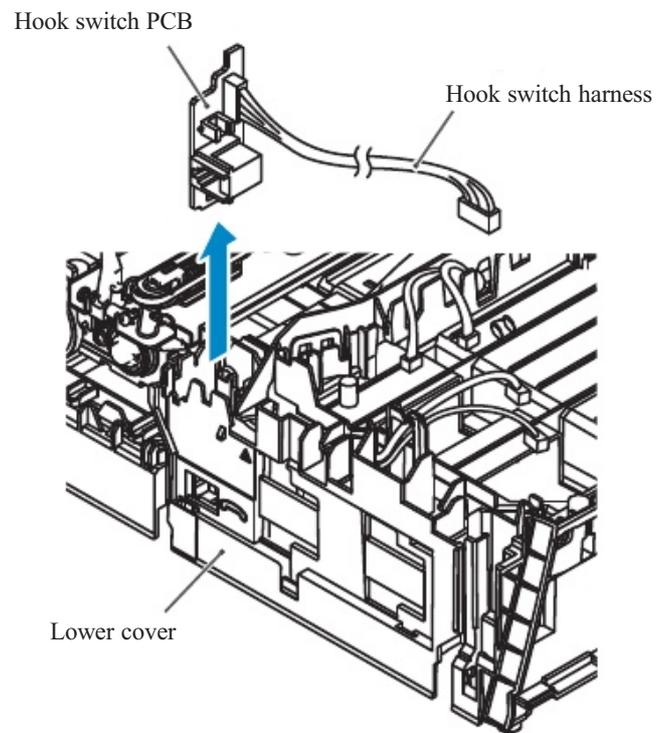
- (4) Place the machine on its right end and support it by hand.
- (5) Press the latch (the black plastic part on the lower cover) that locks the bottom of the hook switch PCB, to release the PCB.



(6_54)

(6) Place the machine right side up.

(7) Lift the hook switch PCB up and out of the lower cover.



(6_55)

6.1.12 Head/Carriage Unit and Ink Refill ASSY

During disassembly jobs, except when removing the ink refill ASSY or engine unit (including the maintenance unit), leave the head/carriage unit in the machine.

Before removing the head/carriage unit, ink refill ASSY or engine unit, you need to remove all four ink cartridges and set the protective part instead (see page 6-4). Be sure to insert the protective part into place to prevent ink remaining in the ink supply tubes from leaking and the machine from getting stained with leaked ink. (Check that the small tabs on both sides of the protective part fit in the holes provided in the ink refill ASSY.)

Note: Make sure that the power cord is unplugged from the electrical outlet.

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

Note: During the removal or installation job for the head/carriage unit, take care not to contaminate the CR encoder strip, PF encoder disk, or ASF encoder disk (in the ASF motor unit) with ink or grease.

Note: If you replace the head/carriage unit, also replace the ink cartridges. This is because sufficient ink volume is necessary for refilling the ink supply tubes after replacement of the head/carriage unit.

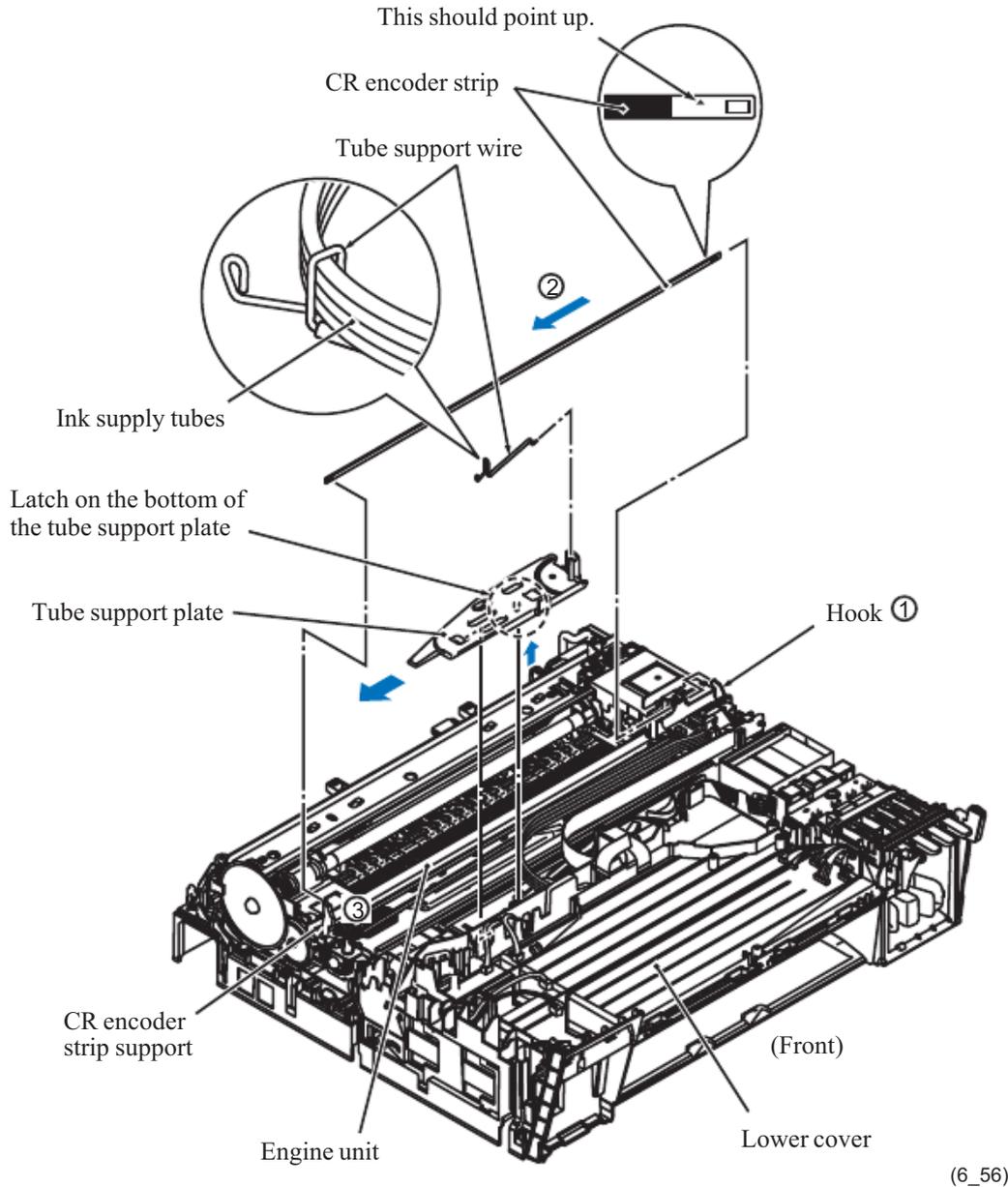
CR encoder strip

- (1) While lightly pushing the CR encoder strip support on the left end of the engine unit inwards, unhook the right end of the CR encoder strip from the hook (①). (See the illustration on the next page.)
- (2) Slide the CR encoder strip to the left (②) and out of the head cover. At the left end of the CR encoder strip, align the rectangular hole in the strip with the boss of the strip support (③) and take the strip off.

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

Tube support plate and tube support wire

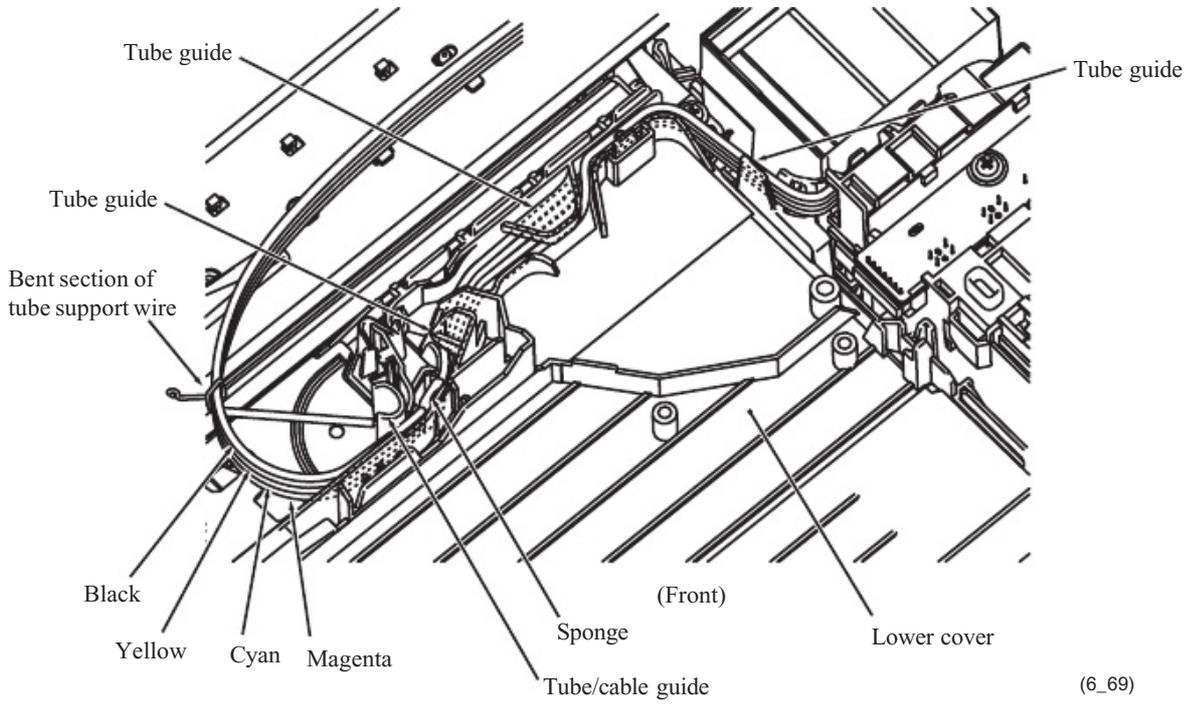
- (3) Release the four ink supply tubes from the tube support wire.
- (4) Pull up the latch and slide the tube support plate to the left, and then take the plate out of the lower cover together with the tube support wire.
- (5) Remove the tube support wire from the tube support plate.



Assembling Note: After mounting the head cover, set the CR encoder strip so that the ▲-marked end is to the right (carriage motor side) and the mark points upwards as shown above, using the following steps.

- 1) Hook the left end of the CR encoder strip on the left-hand strip support, aligning the rectangular hole provided in the strip with the boss of the strip support.
- 2) Pass the strip through the CR encoder sensor located on the head/carriage unit by inserting it into the opening of the head cover from left to right.
- 3) Hook the right end of the strip while pushing the left-hand strip support inwards.

Assembling Note: After making sure that the ink supply tubes are routed between the tube/cable guide and the lower cover, pass the ink supply tubes through the bent section of the tube support wire as shown below.



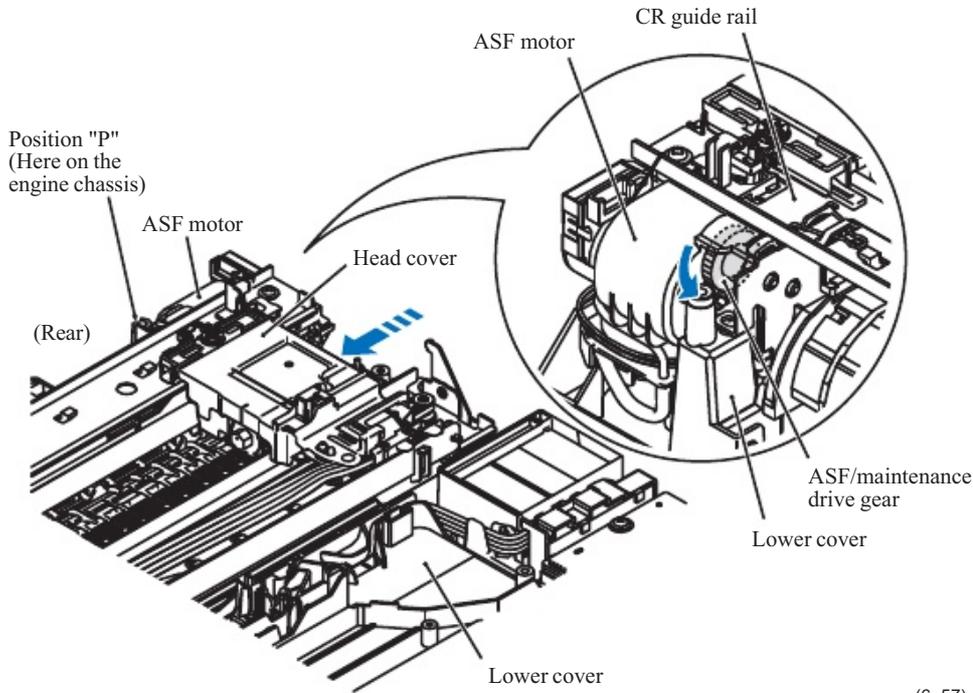
(6_69)

Head cover

- (6) Move the head/carriage unit to position "P" (shown below) by hand.

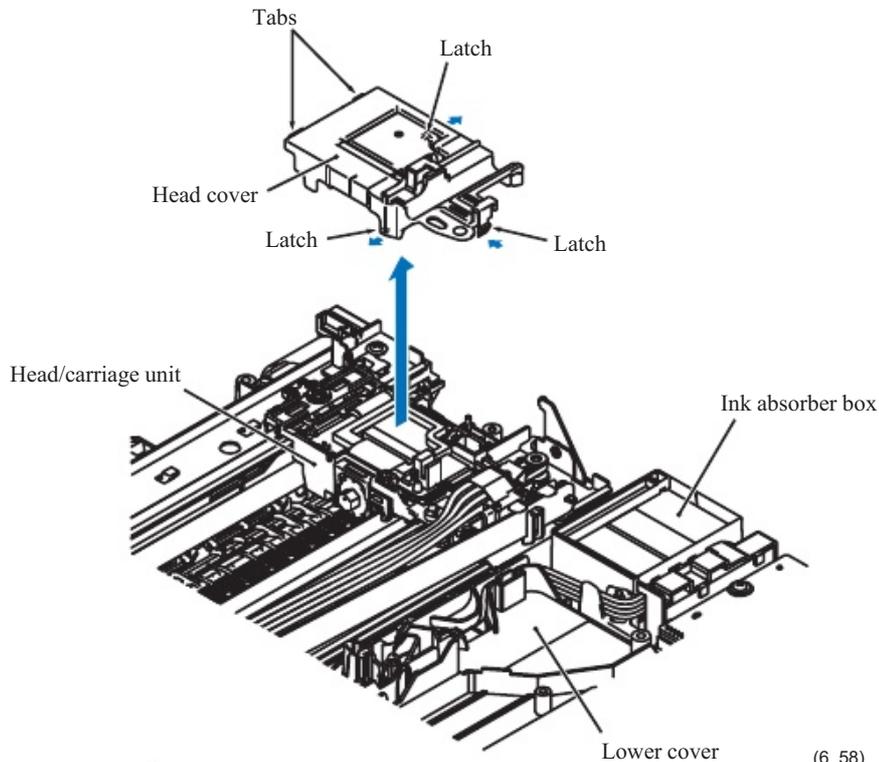
Assembling Note: When accessing the head/carriage unit placed on the engine unit, put the head/carriage unit in position "P" (on the right edge of the engine chassis).

Note: If the head/carriage unit does not move, rotate the ASF/maintenance drive gear counterclockwise (viewed from the left) by hand to unlock the head/carriage unit and move it to position "P."



(6_57)

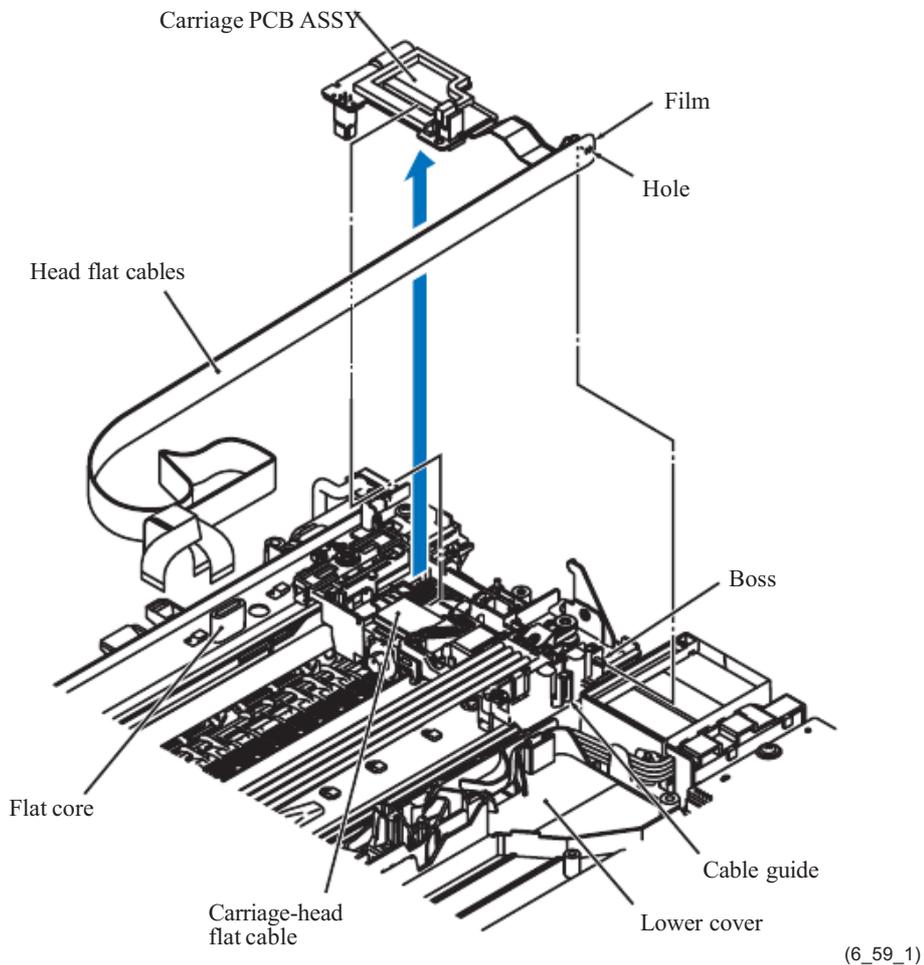
- (7) Unlatch the head cover from the head/carriage unit and pull it up.



(6_58)

Carriage PCB ASSY (carriage PCB with head flat cables)

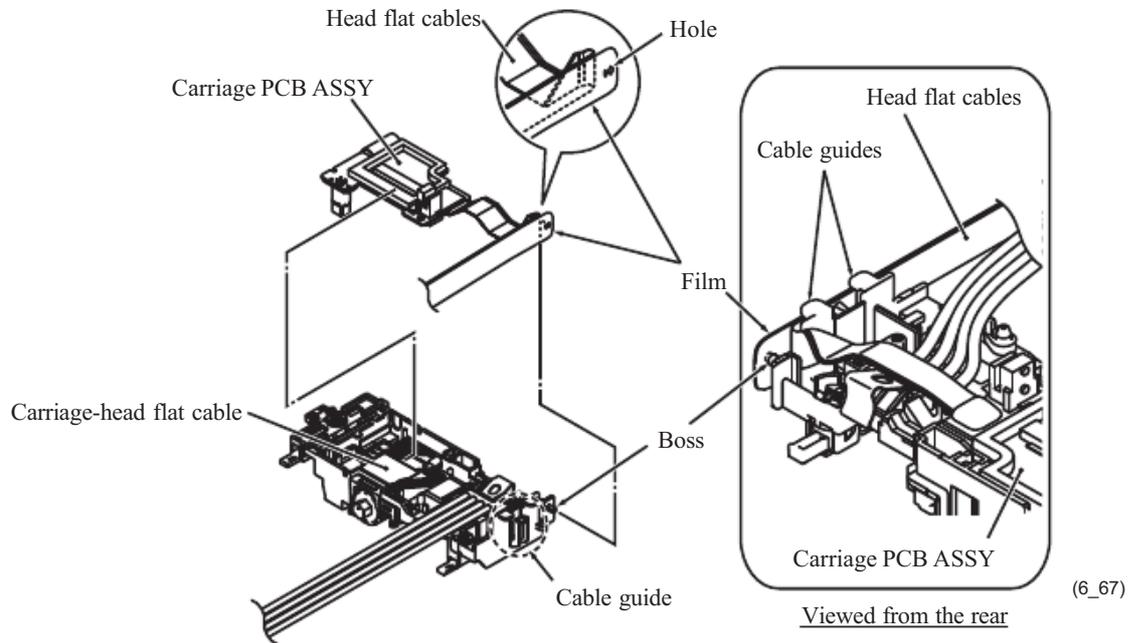
- (8) Unlock the connector on the carriage PCB and disconnect the carriage-head flat cable.
Note: After disconnecting the flat cable, check that it is not damaged at its end or short-circuited. When connecting the flat cable, do not insert it at an angle. After insertion, check again that it is not at an angle.
- (9) Release the head flat cables from the cable guides provided on the upper cover and take them out together with the flat core.
Note: When replacing the carriage PCB ASSY, remove the flat core from the old head flat cables and set it to the new ones.
- (10) Release the head flat cables from the cable guide provided on the head/carriage unit and release the film from the boss.
- (11) Lift up the carriage PCB ASSY.



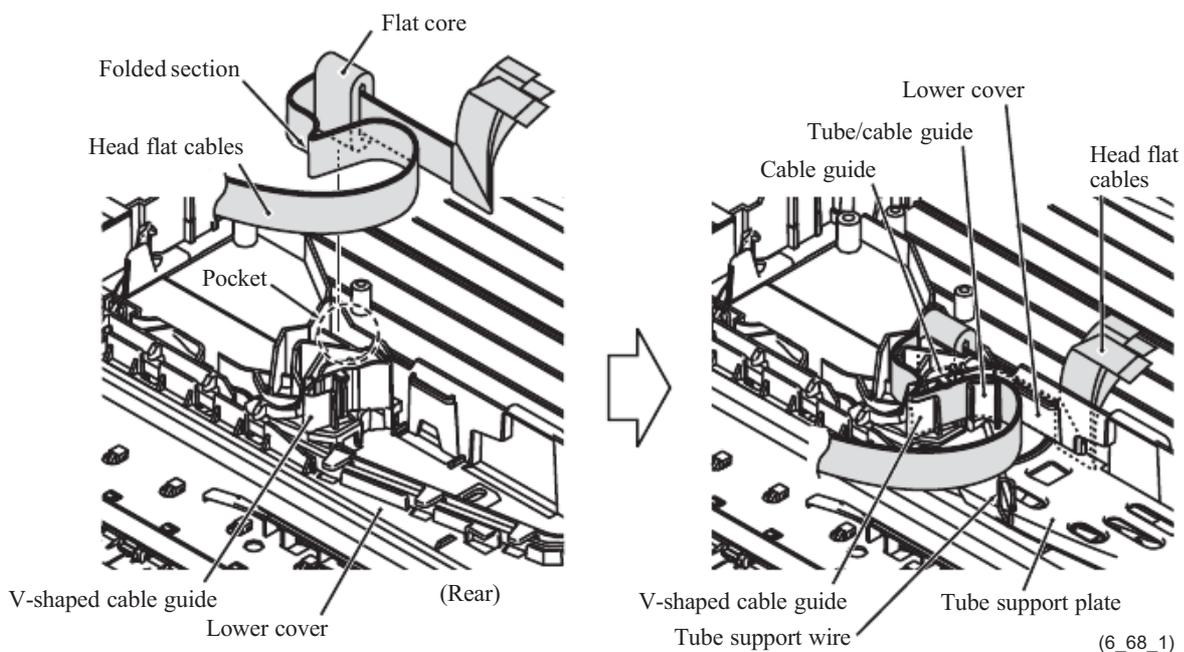
Assembling Note: When mounting the carriage PCB ASSY, route the head flat cables, observing instructions given on the next page.

Routing the Head Flat Cables When Mounting the Carriage PCB ASSY

- 1) Mount the carriage PCB ASSY on the head/carriage unit (see the previous page).
- 2) On the head/carriage unit, route the head flat cables through the cable guide and fit the hole in the film over the boss as shown below.



- 3) Pass the head flat cables through the flat core, fit the folded section of them (with film) over the V-shaped cable guide and set the flat core in the pocket on the lower cover.
- 4) Set the tube support wire onto the tube support plate. Then, mount the tube support plate so that the head flat cables (and ink supply tubes) pass between the tube/cable guide on the support plate and the lower cover.



Head joint and ink refill ASSY

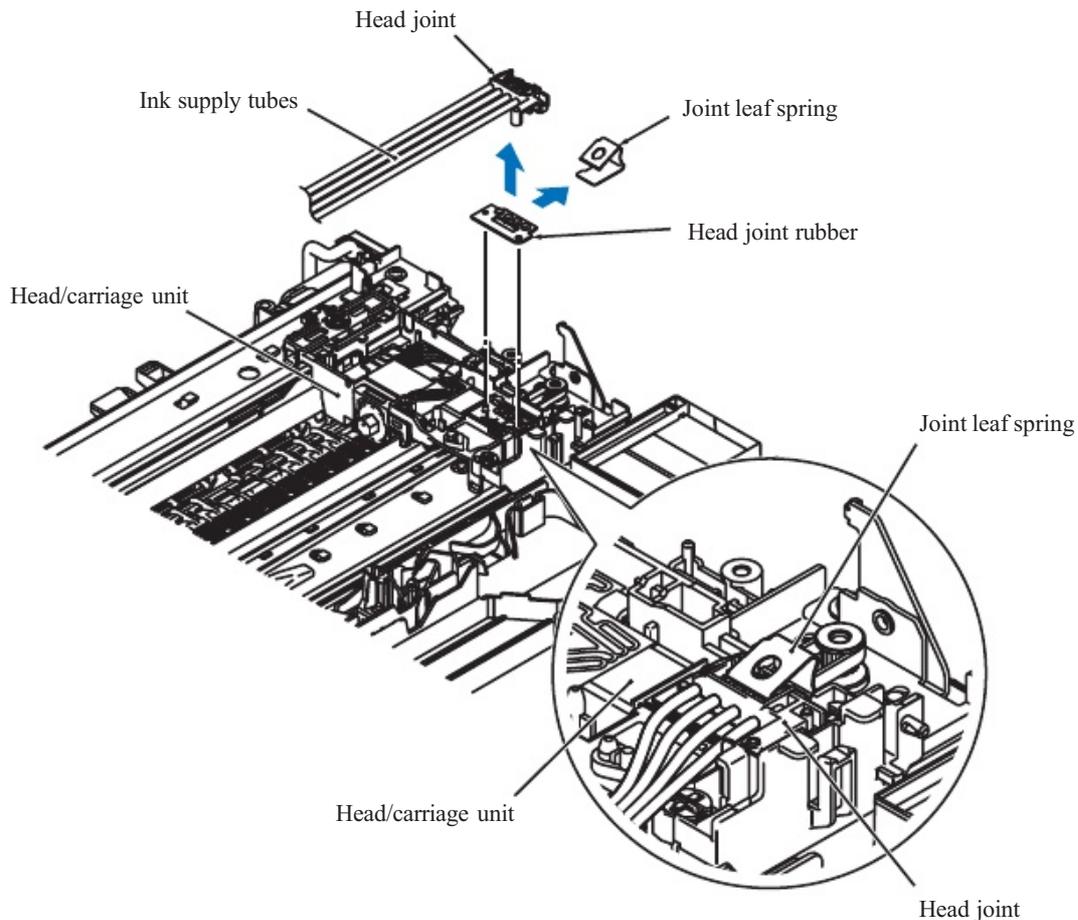
(12) Pull out the joint leaf spring to the right to release the head joint.

(13) Pull the head joint up and off the head/carriage unit.

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

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

Note: Wrap the head joint in a clean, lint-free cloth and keep it higher than the ink supply tubes to prevent ink remaining in the ink supply tubes from leaking and the machine from getting stained with leaked ink.



(6_60_1)

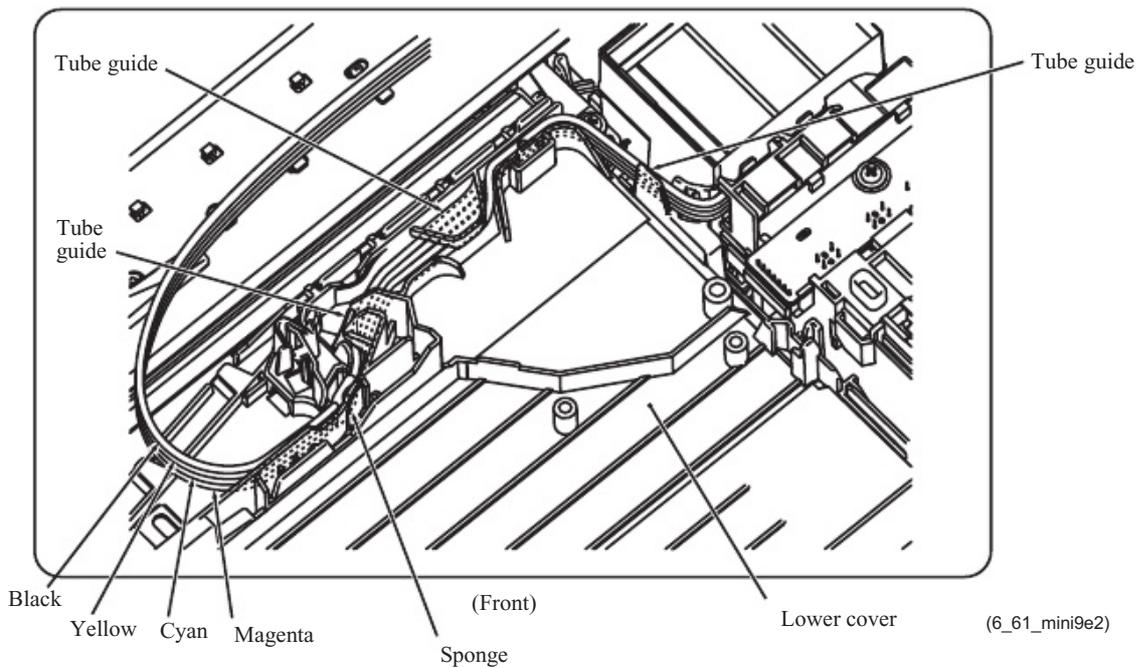
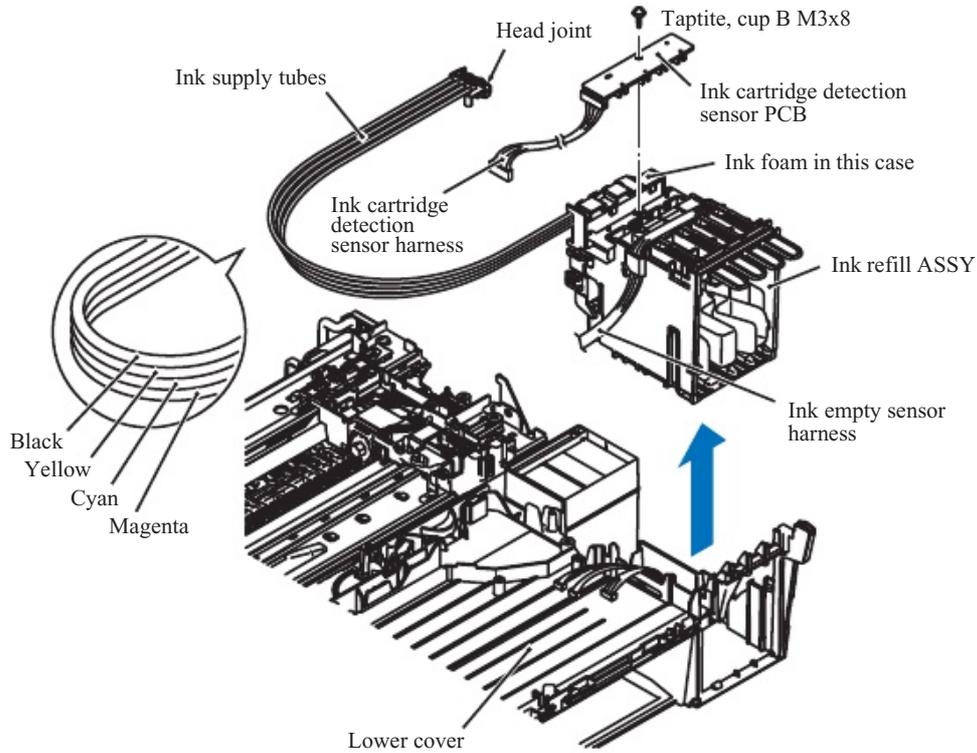
Assembling Note: Before setting the head joint, make sure that the head joint rubber is set on the head/carriage unit as shown above. Then secure the head joint to the head/carriage unit with the joint leaf spring.

- (14) Take out the ink supply tubes routed on the lower cover.
- (15) If the main PCB has not been removed, disconnect the ink cartridge detection sensor harness and the ink empty sensor harness from the main PCB.
- (16) Lift the ink refill ASSY up and out of the lower cover.

Note:

On the back of the ink refill ASSY is an ink foam that may be stained with ink. If it is excessively stained, replace it.

- (17) Remove the screw from the ink cartridge detection sensor PCB and lift up the PCB.



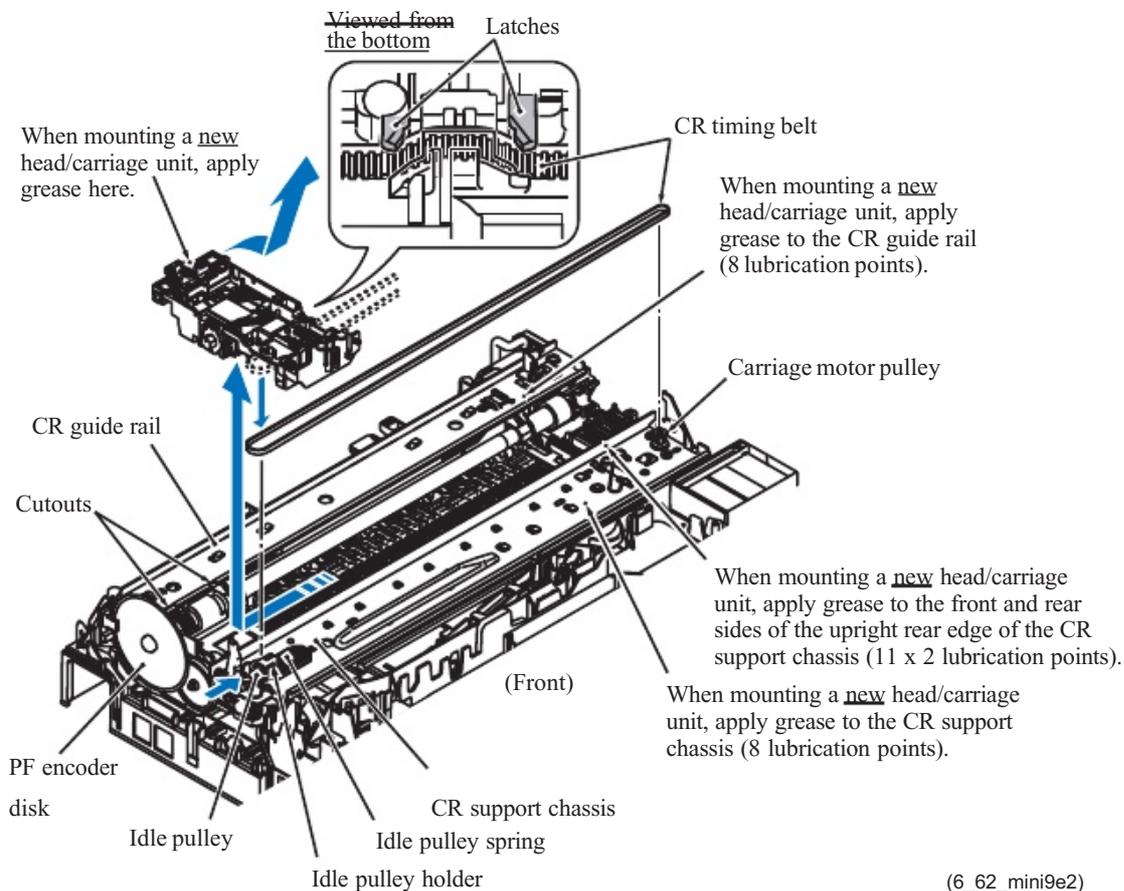
Assembling Note: After mounting the ink refill ASSY, route the ink supply tubes on the lower cover, aligning the four colors in the order as shown above.

Head/carriage unit and CR timing belt

Note: During the removal or installation of the head/carriage unit, take care not to contaminate the PF encoder disk with ink or grease.

- (18) While pressing the idle pulley holder to the right, remove the CR timing belt from the carriage motor pulley and idle pulley.
- (19) Move the head/carriage unit to the left end of its travel by hand.
- (20) Lift the head/carriage unit (with the CR timing belt) up and off the engine unit in the direction of the arrow shown below.
- (21) Remove the CR timing belt from the head/carriage unit.

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



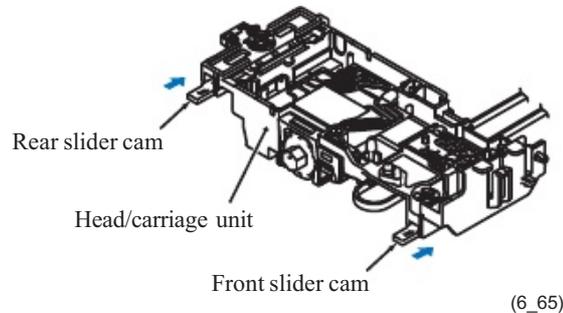
Assembling Notes:

- When handling the head/carriage unit, put on a grounding wrist band and perform the job on a static mat. Also take care not to touch the conductor sections on the flat cables.
- When mounting the CR timing belt, insert it into the slit provided in the head/carriage unit so that the toothed side faces inwards as shown above. Make sure that the belt is fully inserted inside the latches.

- When mounting a new head/carriage unit, apply the specified lubricant to the specified points, referring to [Section 6.2](#).

Also, after mounting a new head/carriage unit, apply the specified lubricant to the specified points on the sliding surfaces of the CR guide rail and CR support chassis, referring to [Section 6.2](#).

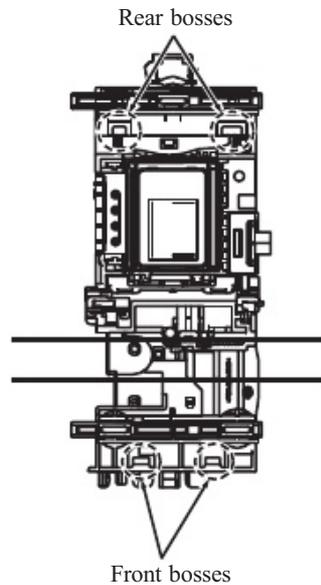
- Before mounting the head/carriage unit on the engine unit, be sure to move the front and rear slider cams to the rightmost position to prevent them from scratching or damaging the PF encoder disk.



(6_65)

- When mounting the head/carriage unit on the left end of the engine unit, first fit the front end over the CR support chassis (shown on the previous page) and then set the rear end onto the CR guide rail. Make sure that the two front bosses (see below) provided on the bottom of the head/carriage unit catch the front edge of the CR support chassis and the two rear bosses are fitted in the two cutouts (shown on the previous page) in the CR guide rail.

Viewed from the bottom



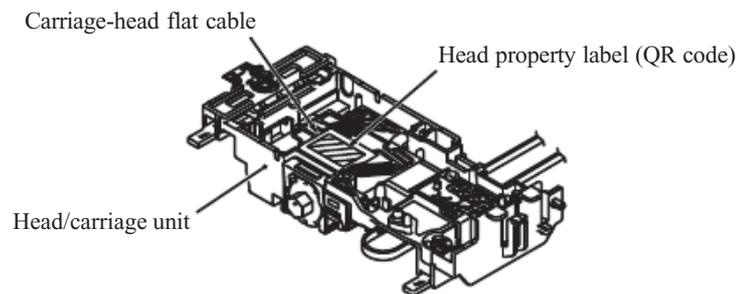
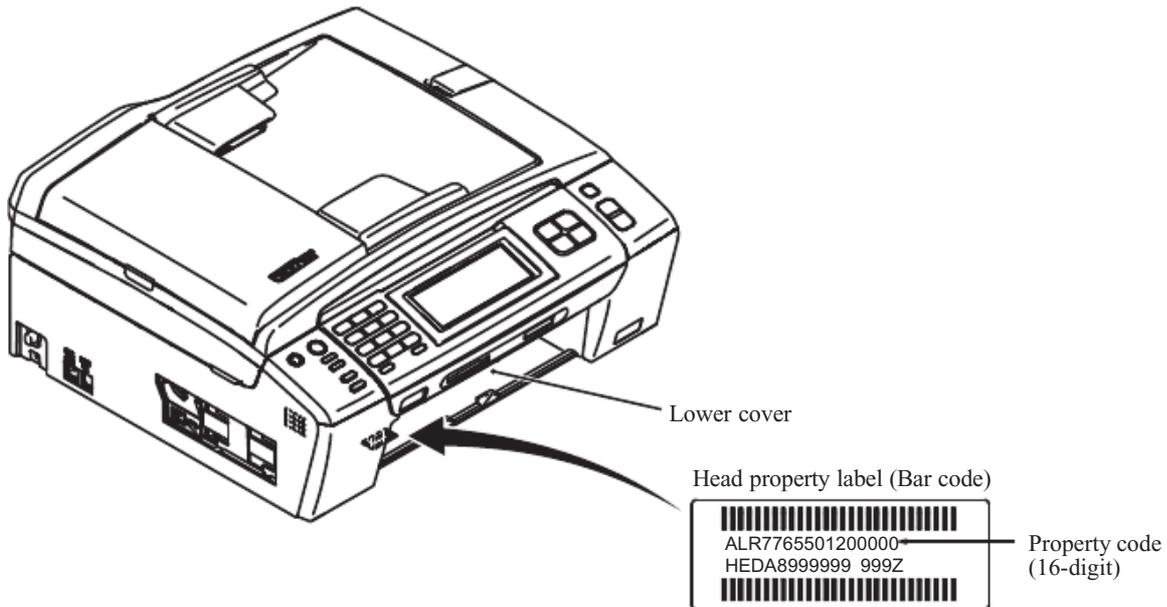
(6_66)

- After mounting the head/carriage unit, slide it by hand to check that it smoothly moves to the right and left ends of its travel.
- After replacement of the head/carriage unit, check that the CR encoder strip and PF encoder disk are free of grease and ink. If they are stained with grease or ink, replace them.

(22) A head/carriage unit is assigned a property code that represents the properties unique to that head/carriage unit. The property code is printed on head property labels--bar code label and QR code label, each of which is attached to the lower cover and carriage-head flat cable, respectively.

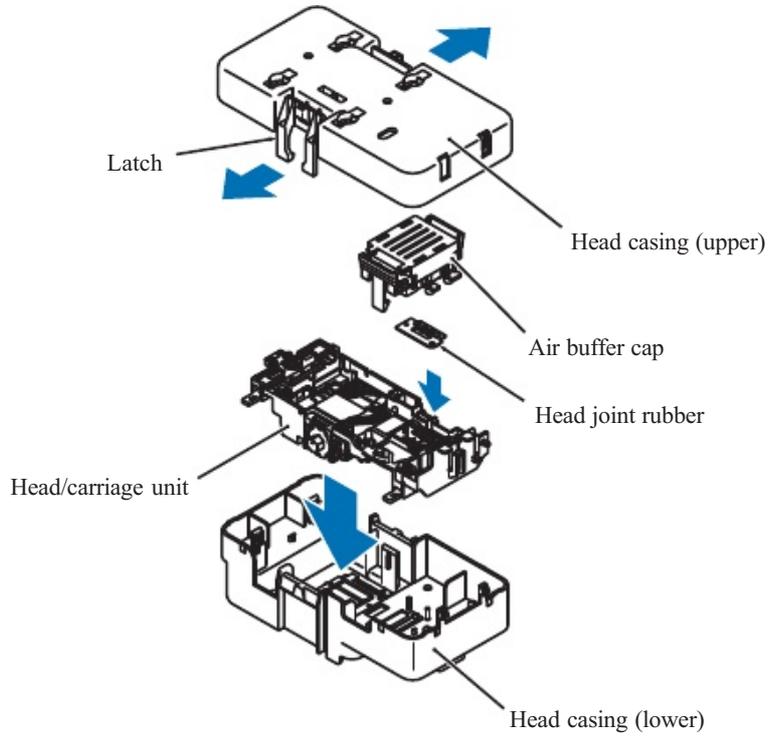
When you remove the head/carriage unit and store it separately from the machine, remove the property label (bar code label) from the lower cover and store it together with the head/carriage unit.

If you replace the head/carriage unit, attach the property label (bar code label) that comes with the new head/carriage unit to the lower cover as shown below.



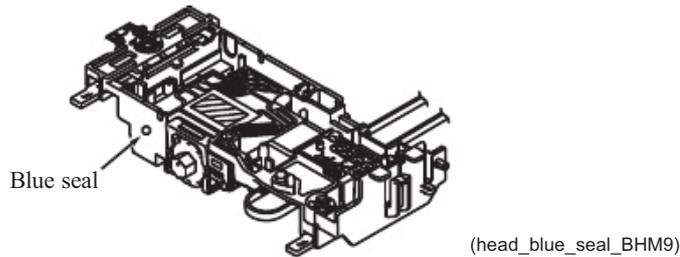
(6_63)

Note: When storing the head/carriage unit for a long period, be sure to put a head joint rubber and an air buffer cap on the head/carriage unit and store the unit in the head casing, as shown below. Leaving the head/carriage unit out of the casing will cause the head nozzles and ink supply ports to dry up, resulting in a damaged head.



(6_64)

Assembling Note: After replacement of the head/carriage unit, make adjustments specified in [Chapter 7, Section 7.2](#). (For the head/carriage unit having a round, blue seal, perform the head replacement purge; for the unit having no seal, perform the initial purge. See [Section 7.2, \[2 \]](#).)



6.1.13 Ink Absorber Box, Ink Absorber Felts, and PF Encoder Disk

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

Note: When replacing the ink absorber box, pull out the main drain tubes from the maintenance unit. A spare ink absorber box is supplied together with two main drain tubes.

- (1) Pull out the main drain tubes from the joints on the maintenance unit.

Note: Pinch the ends of the main drain tubes with a clip in order to prevent drained ink from leaking and the machine from getting stained with leaked ink.

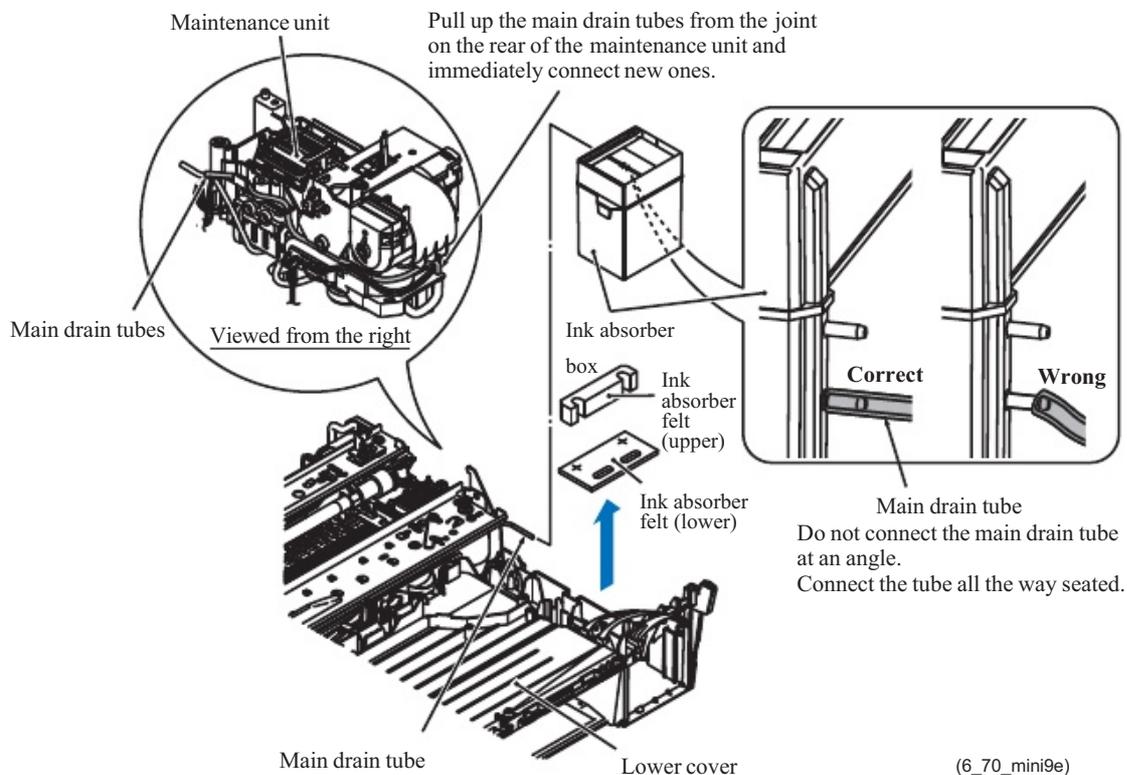
Note: Do not place the main drain tubes that have been pulled out on the main PCB. If the PCB is stained with leaked ink, wipe it off with a dry cloth.

- (2) Pull the ink absorber box (together with the main drain tubes) up and out of the lower cover.

- (3) Immediately set a new ink absorber box and connect its new drain tubes to the joints on the maintenance unit and the ink absorber box.

Note: If the ink absorber box or its surroundings are stained with ink, wipe them off with a cloth.

- (4) Take the ink absorber felts (upper and lower) out of the lower cover.



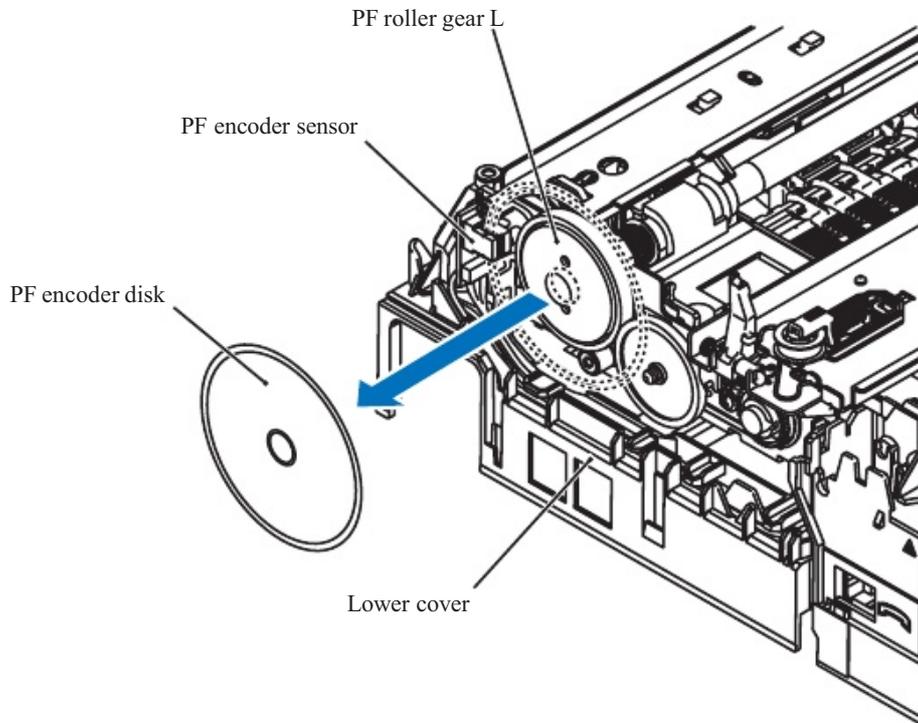
Assembling Notes:

- Do not connect new main drain tubes at an angle. The tubes connected at an angle come off easily, resulting in ink leakage. After connection, check that there is no ink leakage.
- If you replace the ink absorber box (without replacing the main PCB), you also need to replace the flushing box (see [Section 6.1.14](#)) and reset both the purge and flushing counters as specified in [Chapter 7, Section 7.5](#).

- (5) Peel off the PF encoder disk from the PF roller gear L only when it should be replaced.

Note: Once removed, the PF encoder disk will become unusable and a new disk will have to be put back in.

Note: Remove any adhesive remaining left on the PF roller gear L.



(6_71)

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

6.1.14 Engine Unit and Flushing Box

During disassembly jobs, except when removing the ink refill ASSY or engine unit (including the maintenance unit), leave the head/carriage unit in the machine.

Before removing the head/carriage unit, ink refill ASSY or engine unit, you need to replace all four ink cartridges with the protective part (see [page 6-4](#)).

Assembling Note: If you replace the engine unit, make adjustments specified in [Chapter 7, Section 7.2](#).

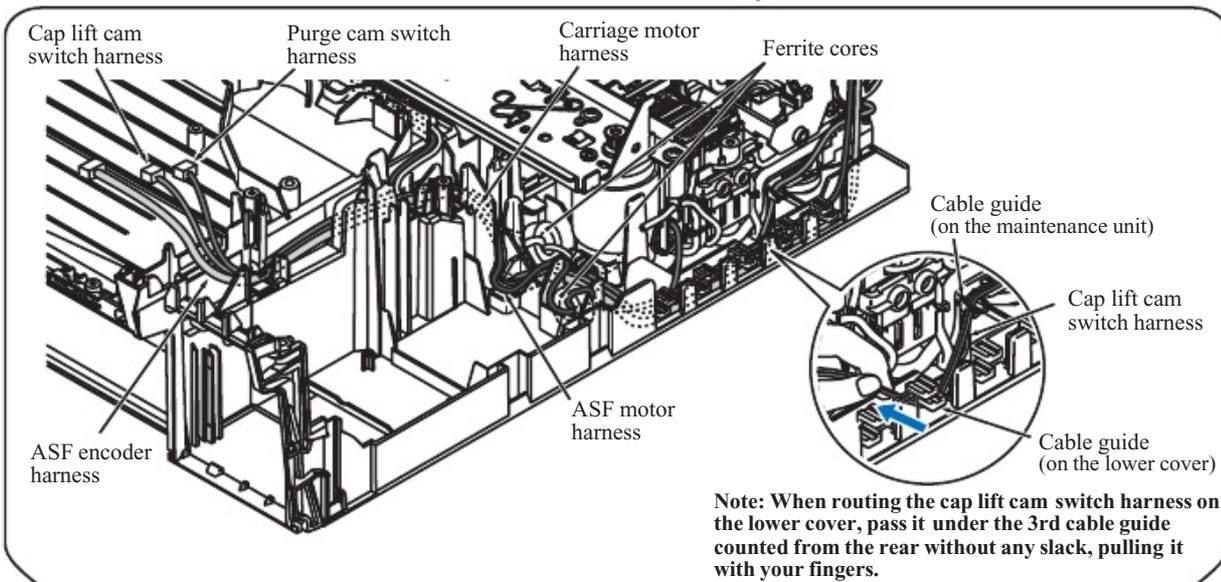
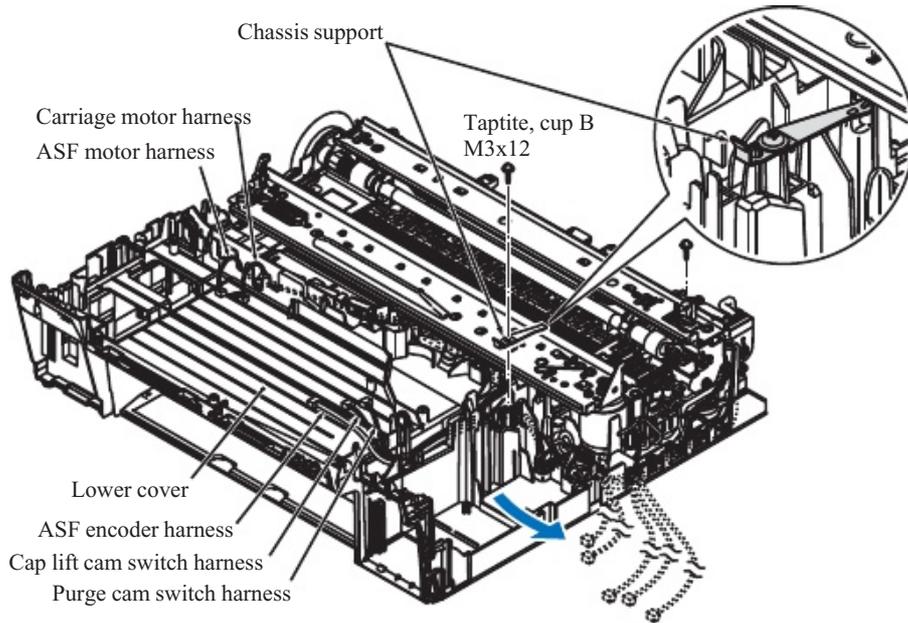
Assembling Note: When routing the cap lift cam switch harness, first check that it passes through the cable guide on the maintenance unit and then pass it under the 3rd cable guide (on the lower cover) counted from the rear, pulling it with your fingers as shown on [page 6-75](#).

After routing the harness, make sure that there is no slack in the harness. If slacked, the harness interferes with the planet gear on the maintenance unit, causing MACHINE ERROR 50.

- (1) If the MJ/PS shield unit has not been removed, you need to remove screw "h" shown on [page 6-50](#).
- (2) Remove the chassis support by removing the screw. (See the next page.)

Assembling Note: Insert the chassis support into the cutout provided in the right end of the engine chassis as shown below.

- (3) Remove the screw from the rear of the engine unit.
- (4) Take the carriage motor harness, ASF motor harness, purge cam switch harness, and cap lift cam switch harness out of the harness guides provided on the lower cover.



(6_72_1)

- (5) Take the paper feed motor harness and PF encoder/registration sensor harness out of the harness guides provided on the lower cover.

Assembling Note: Route the harnesses as shown on the next page.

- (6) Lift the engine unit up and out of the lower cover in the direction of the arrow shown below, holding the inner chute located beneath the CR guide rail.

Note: Do not hold the CR guide rail.

Note: If the ink absorber box does not need to be replaced, be sure to take it out of the lower cover together with the engine unit. Do not disconnect the main drain tubes from the ink absorber box. Once disconnected, the tubes will become unusable and new parts will have to be put back in.

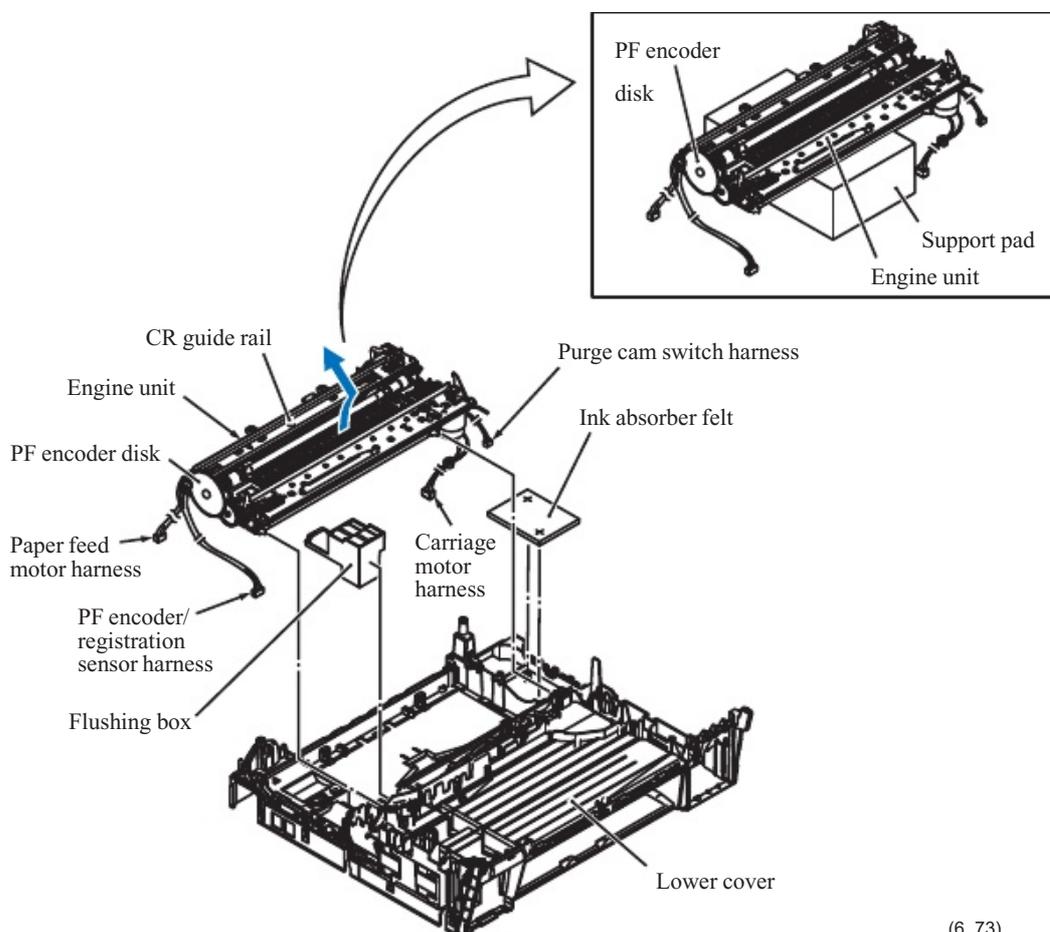
Note: Do not place the engine unit directly on a flat surface; doing so may break the PF encoder disk and gears. Be sure to place a support pad under the engine unit as shown below.

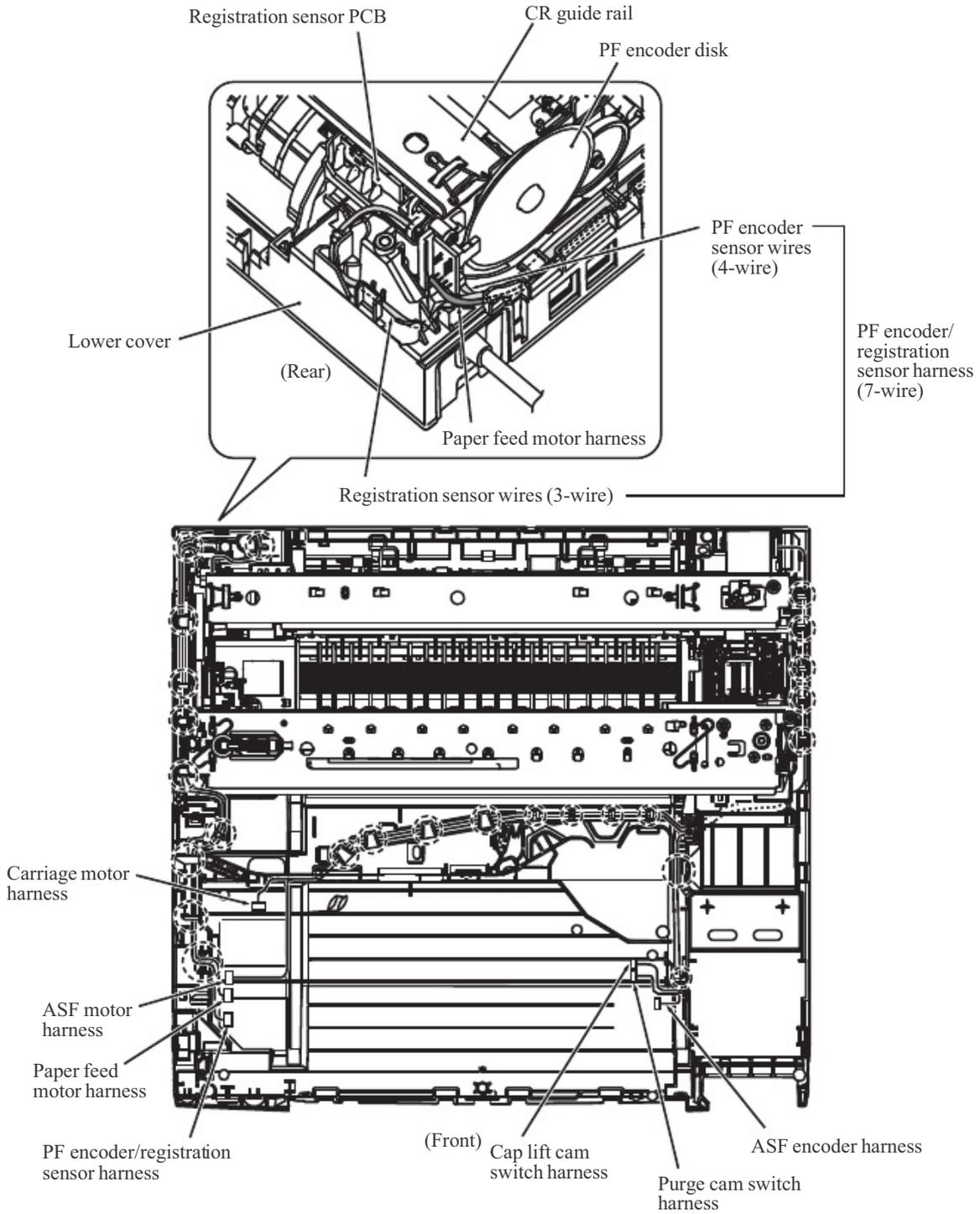
Assembling Notes:

- Before mounting the engine unit on the lower cover, make sure that the PF encoder/registration sensor harness is routed through the cable guides on the inner chute as shown on the next page and [page 6-89](#).
- When mounting the engine unit on the lower cover, be careful not to crush the harnesses between the unit and the cover. Mount the engine unit parallel to the lower cover so that the screws are tightened securely.

- (7) Take the flushing box and ink absorber felt out of the lower cover.

Assembling Note: If you replace the flushing box (without replacing the main PCB), you also need to replace the ink absorber box (see [Section 6.1.13](#)) and reset both the flushing and purge counters as specified in [Chapter 7, Section 7.5](#).





(6_74_1)

6.1.15 Components on the Engine Unit

(Earth spring, Maintenance unit, ASF motor*, Carriage motor, Star wheel holder, Paper ejection roller, Platen, Inner chute ASSY, Registration sensor actuator, PF encoder/ registration sensor harness unit, Paper pull-in rollers R and L, ASF gear shaft outer, and PE actuator)

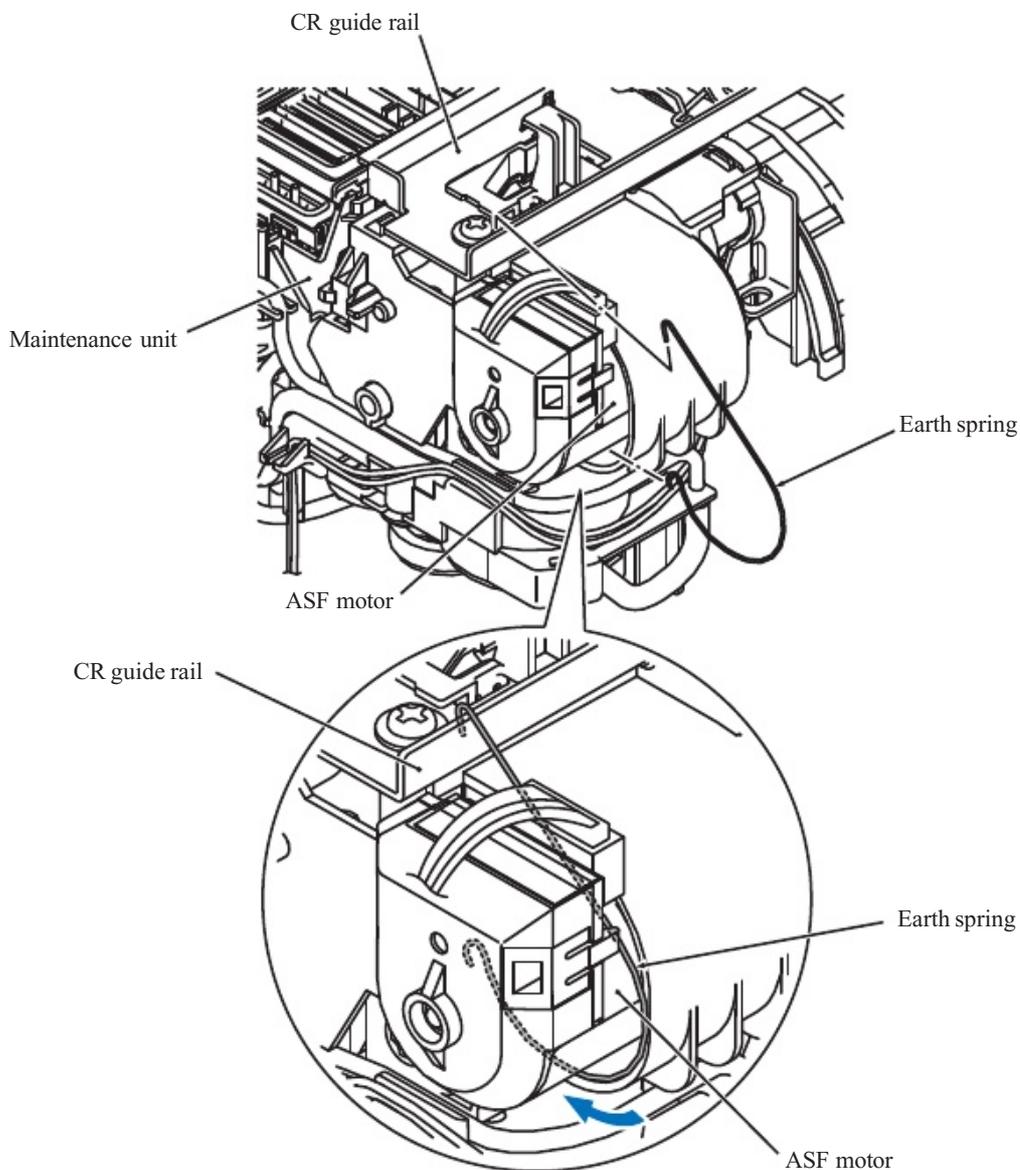
*ASF motor: Auto Sheet Feeder motor

Earth spring

- (1) Release the upper and lower ends of the earth spring from the CR guide rail and the ASF motor holder, respectively.

Assembling Note: When mounting the earth spring, take care not to contaminate it with grease.

First hook the upper end on the CR guide rail and insert the lower end under the ASF motor. The earth spring twines around the ASF motor by itself with the spring force. After mounting it, check that the earth spring is in contact with the metal part of the ASF motor.



(6_75)

Maintenance unit

Note: If the maintenance unit does not need to be replaced, do not disconnect the main drain tubes. Once disconnected, the tubes will become unusable and new parts will have to be put back in. A spare maintenance unit is supplied together with two main drain tubes.

(2) Release the right end of the switching lever guide from the maintenance unit and remove it.

Assembling Notes:

- When mounting the switching lever guide on the maintenance unit, apply the specified lubricant to the specified point, referring to [Section 6.2](#).
- When mounting the switching lever guide on the maintenance unit, put it on the CR guide rail and then lightly press it.

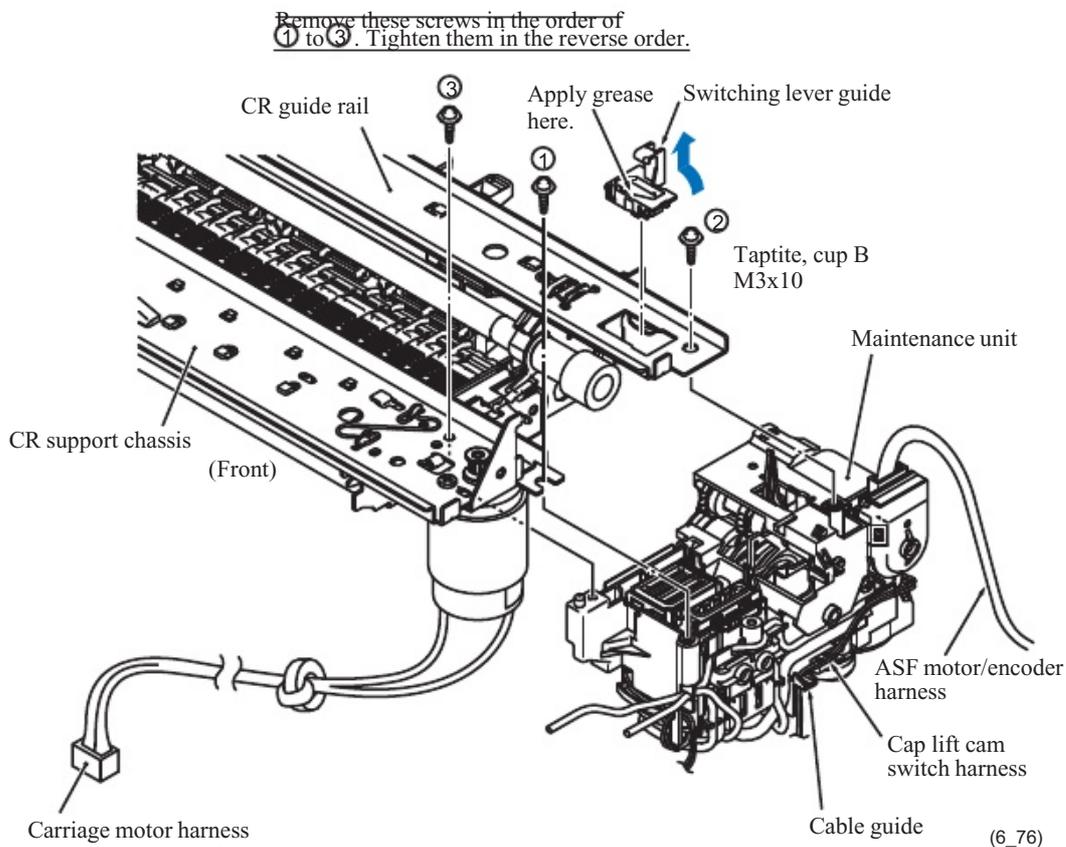
(3) If the ink absorber box has not been removed, pull out the main drain tubes from the ink absorber box.

Note: Pinch the ends of the main drain tubes with a clip in order to prevent drained ink from leaking and the machine from getting stained with leaked ink.

(4) Remove the three screws in the order of ① to ③ (as shown below) from the maintenance unit and detach the maintenance unit from the engine unit.

Assembling Notes:

- When mounting the maintenance unit on the engine unit, fit the two bosses of the shaft holder (on the left side of the maintenance unit) into the two holes under the CR guide rail.
- When securing the maintenance unit with three screws, tighten these screws in the order of ③→②→① as shown below.
- When routing the cap lift cam switch harness, pass it through the cable guide on the maintenance unit. (See the illustration below and on [page 6-75](#).)

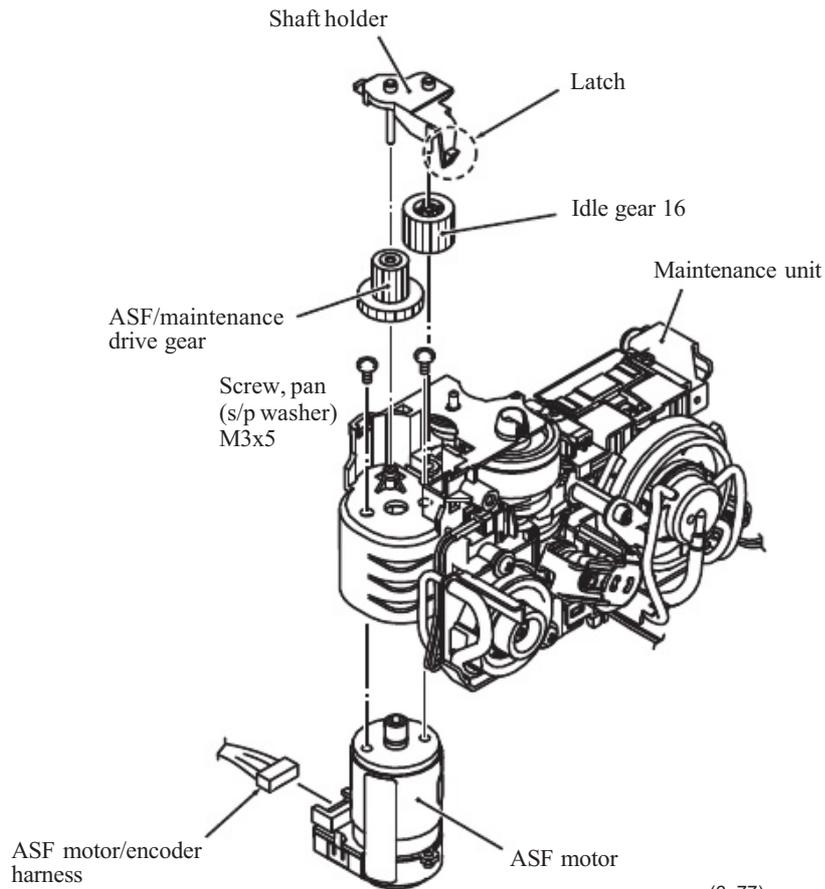


ASF motor

- (5) Unlatch the shaft holder and remove it from the maintenance unit.
- (6) Remove the idle gear 16 and the ASF/maintenance drive gear.
- (7) Remove the ASF motor from the maintenance unit by removing the two screws.

Assembling Note: When mounting the ASF motor on the maintenance unit, first fit the small hole of the ASF motor on the small boss inside the ASF motor holder, then secure the motor with the two screws.

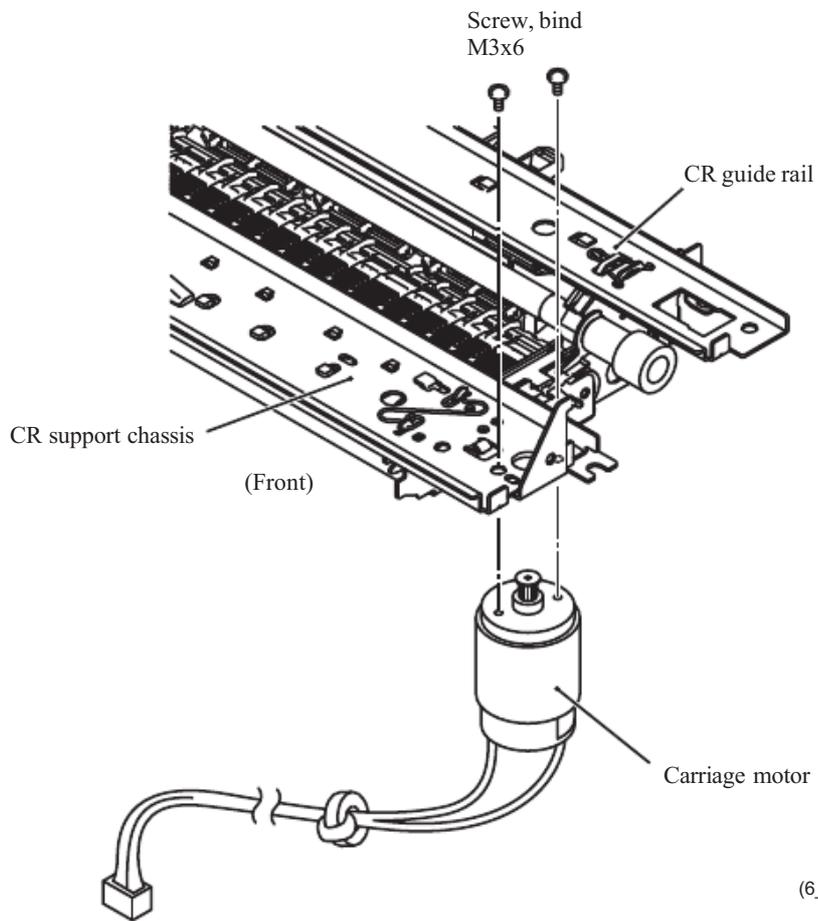
- (8) Disconnect the ASF motor/encoder harness from the ASF motor.



(6_77)

Carriage motor

- (9) Remove the carriage motor from the engine unit by removing the two screws.



Star wheel holder

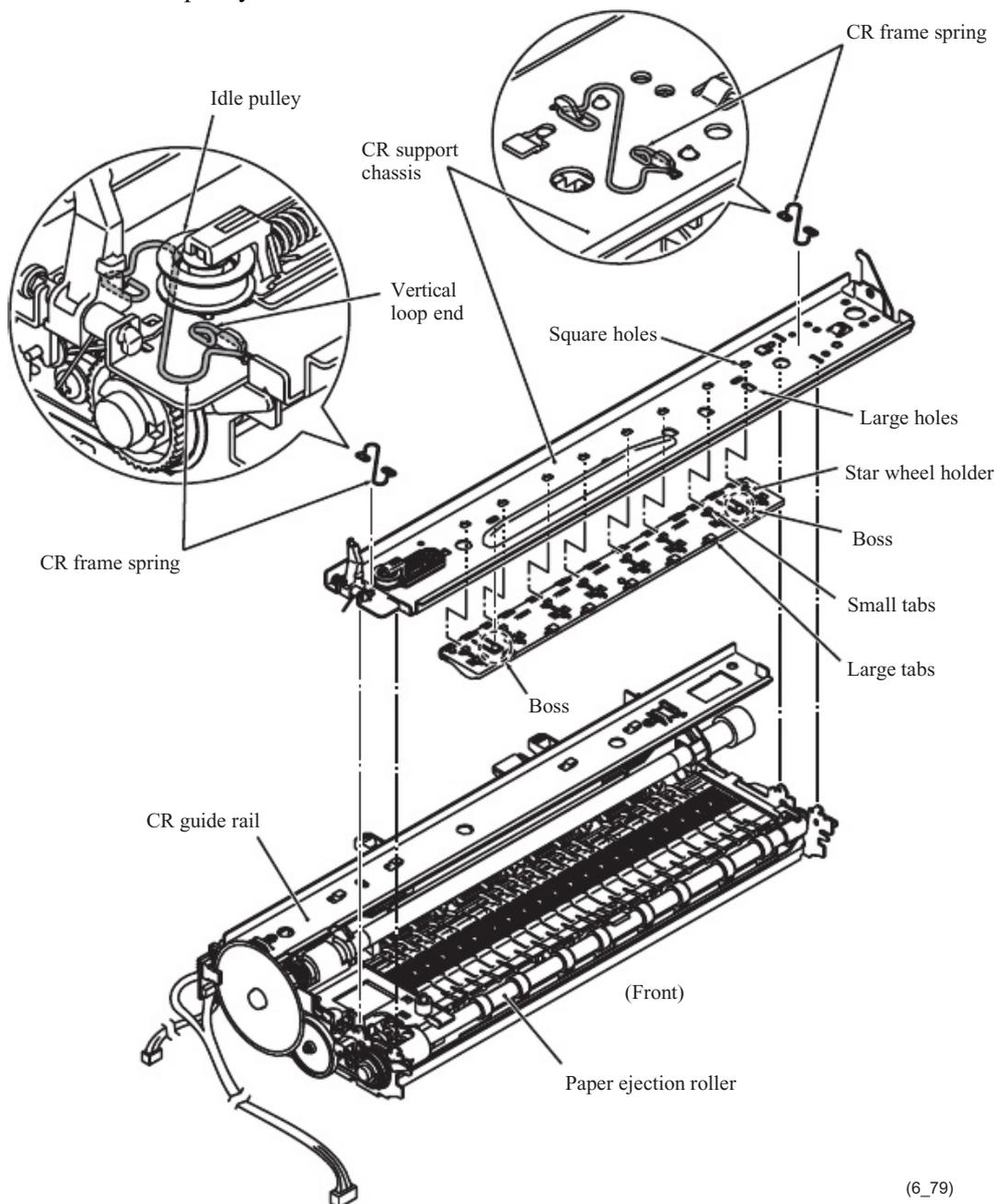
(10) Remove two CR frame springs from the CR support chassis.

(11) Lift up the CR support chassis.

(12) While lightly pressing down the two bosses that fit in the oval holes provided in the CR support chassis, slide the star wheel holder to the front to release the small tabs from the square holes of the CR support chassis and remove it.

Assembling Notes:

- When mounting the star wheel holder under the CR support chassis, first set the large tabs on the star wheel holder in the large holes provided in the CR support chassis, then slide the star wheel holder to the rear to set the small tabs in the square holes provided in the CR support chassis.
- When securing the CR support chassis to the engine unit with the CR frame springs, set those springs so that their vertical loop ends come to the front. Pass the left spring under the idle pulley.

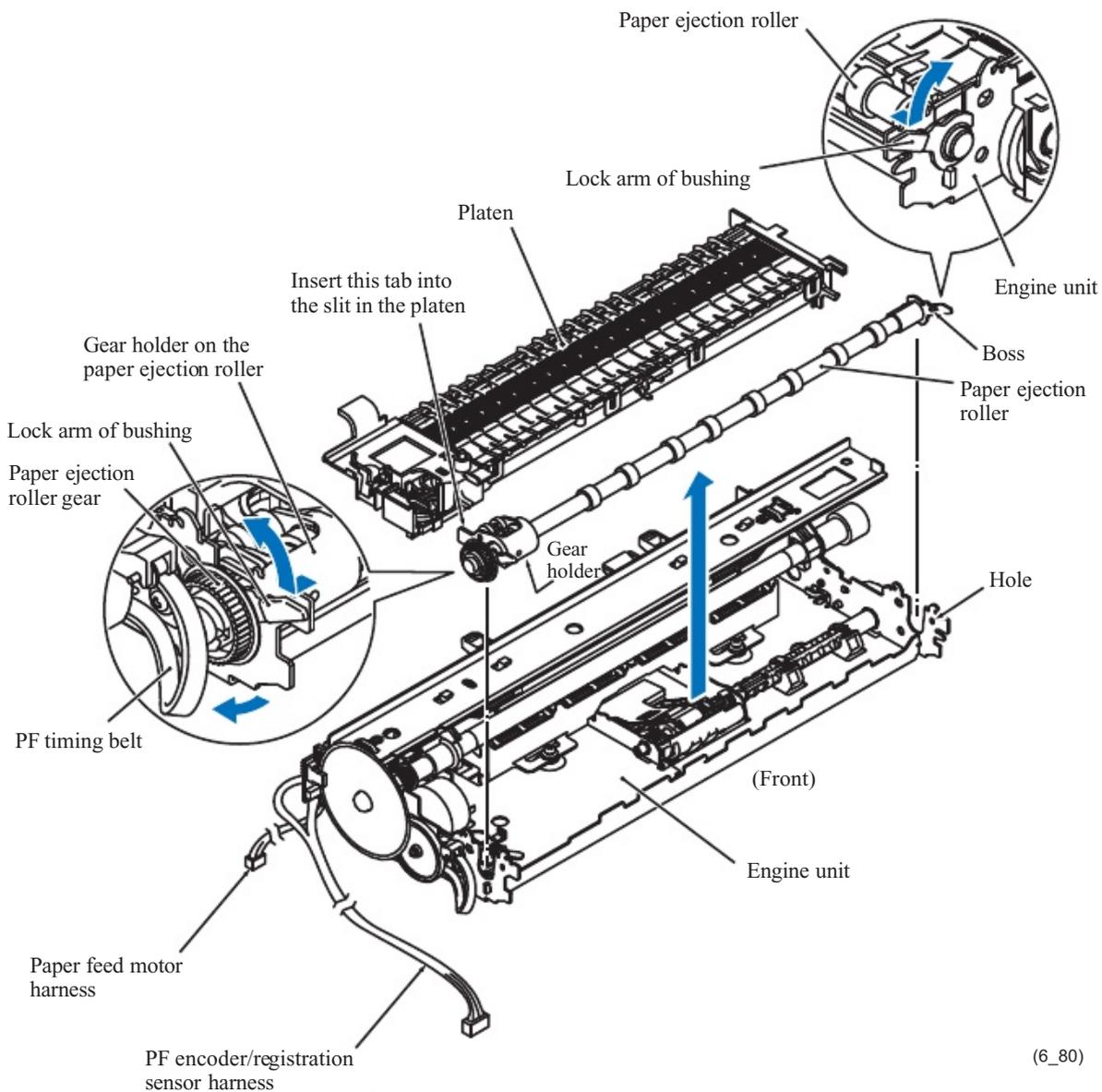


(6_79)

Paper ejection roller and platen

- (13) Release the PF timing belt from the paper ejection roller gear.
- (14) Pull the lock arm of the bushing at each end of the paper ejection roller outwards and turn it upright.
- (15) Lift the paper ejection roller and remove the platen from the engine unit.

Assembling Note: When mounting the paper ejection roller, first insert the tab of the gear holder on its left side into the slit in the platen, set the roller's bushings into the engine chassis, and then fit the bosses on the lock arms of the bushings into the holes provided in the engine chassis as shown below.



(6_80)

Inner chute ASSY, registration sensor actuator, and PF encoder/registration sensor harness unit*

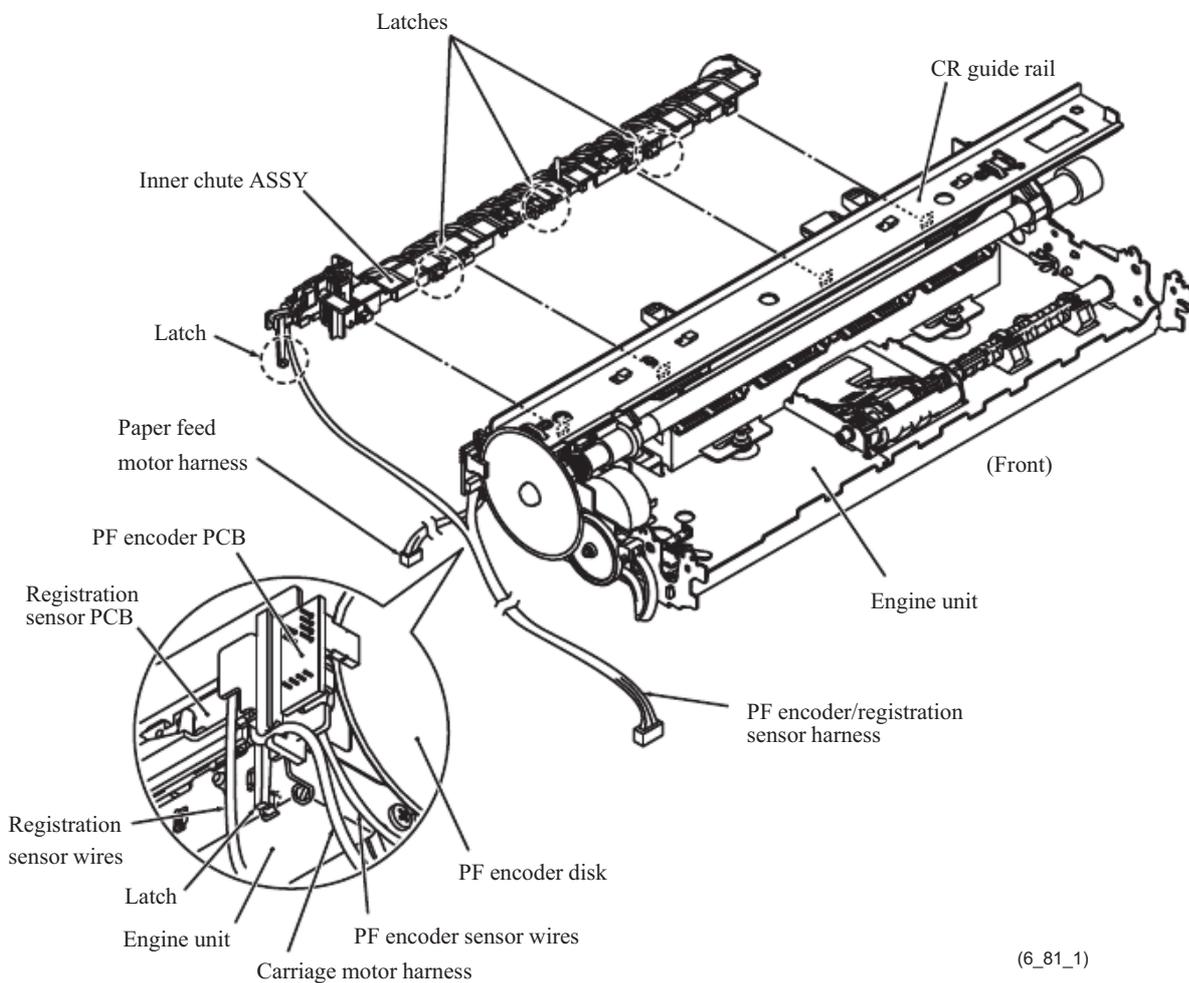
* The PF encoder/registration sensor harness unit consists of a PF encoder PCB, registration sensor PCB, and PF encoder/registration sensor harness.

- (16) Release the three latches of the inner chute ASSY from the engine unit. First pull and release the rightmost latch (viewed from the rear) and then the remaining two ones.

Note: Do not pull the inner chute ASSY away from the engine unit since it is connected to the engine unit with the PF encoder/registration sensor harness.

Assembling Note: When mounting the inner chute on the engine unit, first set the left two latches and then the rightmost one.

- (17) Release the PF encoder/registration sensor harness from the cable guides on the inner chute ASSY. (The routing detail is shown on the next page.)

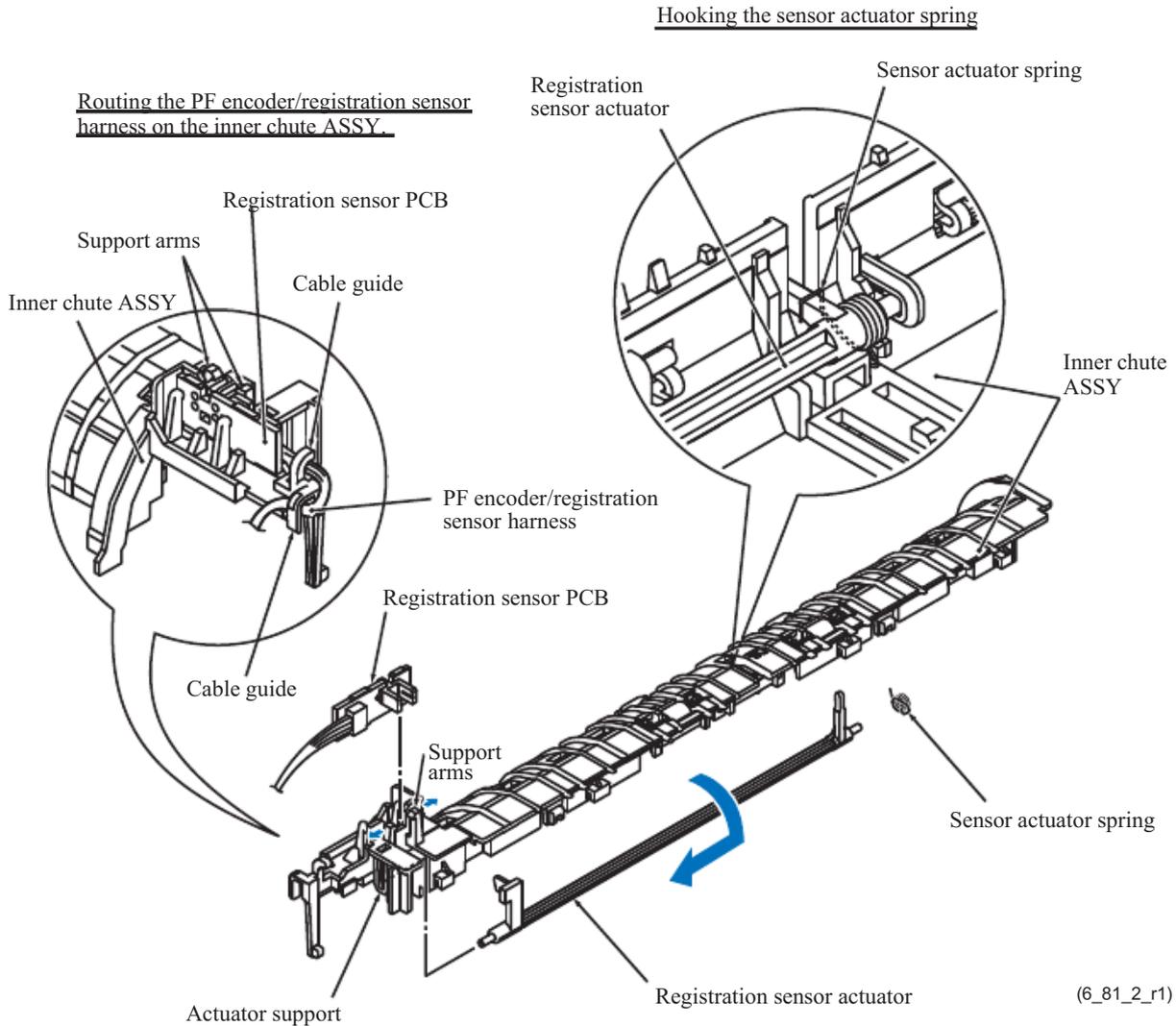


(18) Turn the registration sensor actuator in the direction of the arrow shown below and take it off the inner chute ASSY. The sensor actuator spring comes off.

(19) Take the registration sensor PCB out of the support arms.

Note: The registration sensor PCB and the PF encoder PCB are assembled with their harnesses. To completely release the registration sensor PCB from the engine unit, therefore, you need to remove the PF encoder PCB at the next step.

Assembling Note: Before mounting the inner chute on the engine unit, set the registration sensor actuator and its spring. Also set the registration sensor PCB and route the PF encoder/registration sensor harness. See the illustration below.



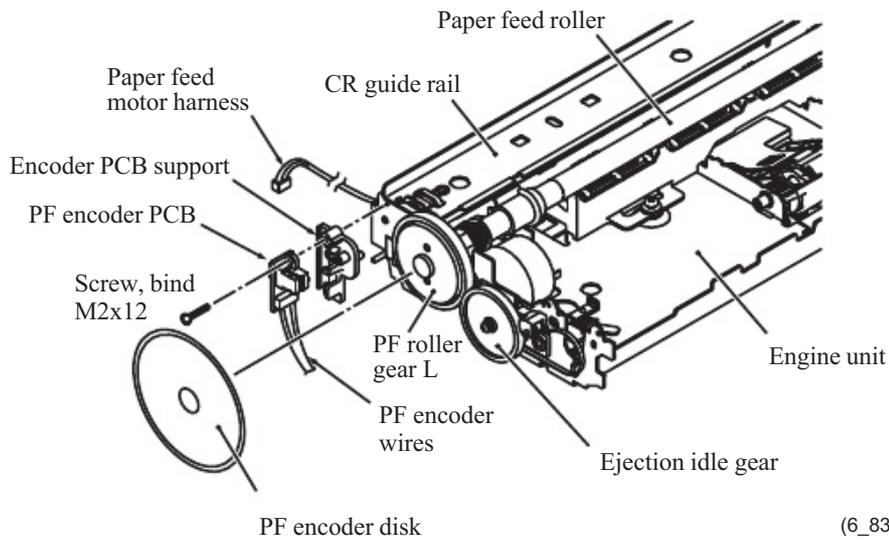
(20) At the left end of the engine unit, remove the screw that secures the PF encoder PCB and its support to the engine unit, taking care not to touch the PF encoder disk (if it has not been removed in [Section 6.1.13](#)). Then remove the PF encoder PCB and its support to completely release the PF encoder/registration sensor harness unit.

(21) If the PF encoder disk needs to be replaced, peel it off from the PF roller gear L.

Note: Once removed, the PF encoder disk will become unusable and a new disk will have to be put back in.

Note: Remove any adhesive remaining left on the PF roller gear L.

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



(6_83)

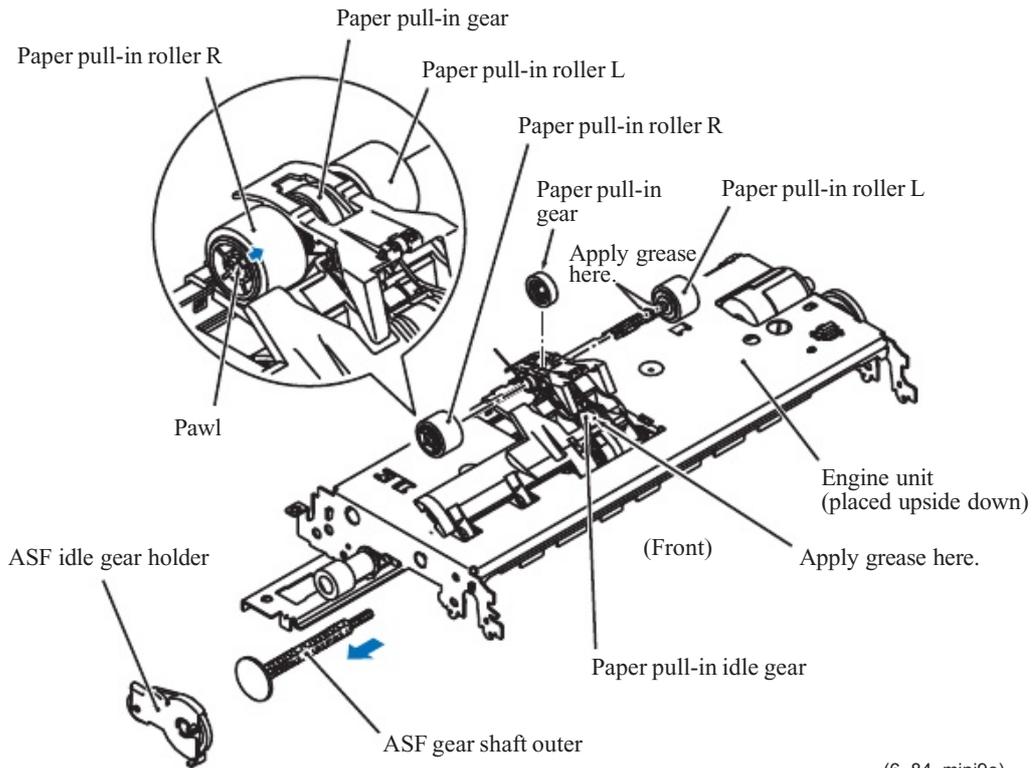
Paper pull-in rollers R and L, and ASF gear shaft outer

(22) Pull the pawl outwards and remove the paper pull-in roller R. Then pull out the paper pull-in roller L while turning it. The paper pull-in gear also comes off.

Assembling Note: Before mounting the paper pull-in roller L, apply the specified lubricant to the specified points, referring to [Section 6.2](#).

(23) Remove the ASF idle gear holder from the right side of the engine unit.

(24) Pull the ASF gear shaft outer to the right and out of the engine unit.



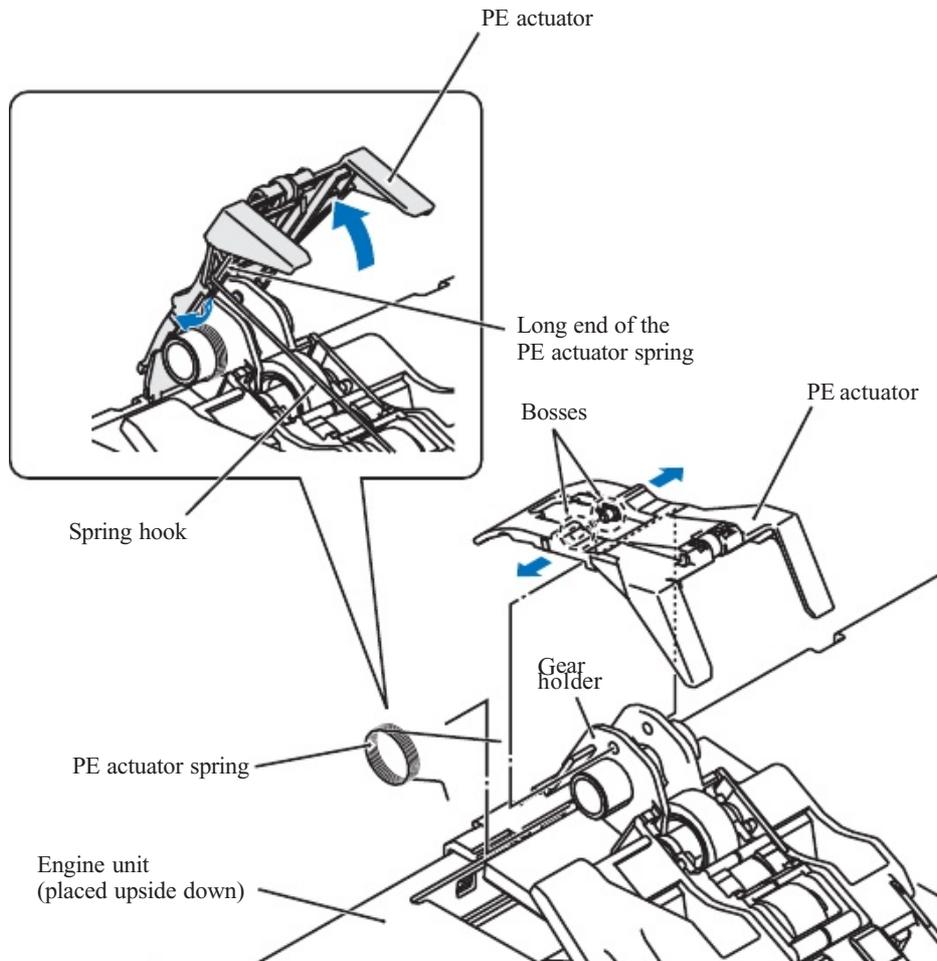
(6_84_mini9e)

PE actuator

(25) Lift up the front end of the PE actuator as shown below. Using the spring hook or the like, release the long end of the PE actuator spring from the groove provided in the PE actuator, and then remove the spring.

Note: When releasing the spring, hold it taking care not to let the spring bounce off.

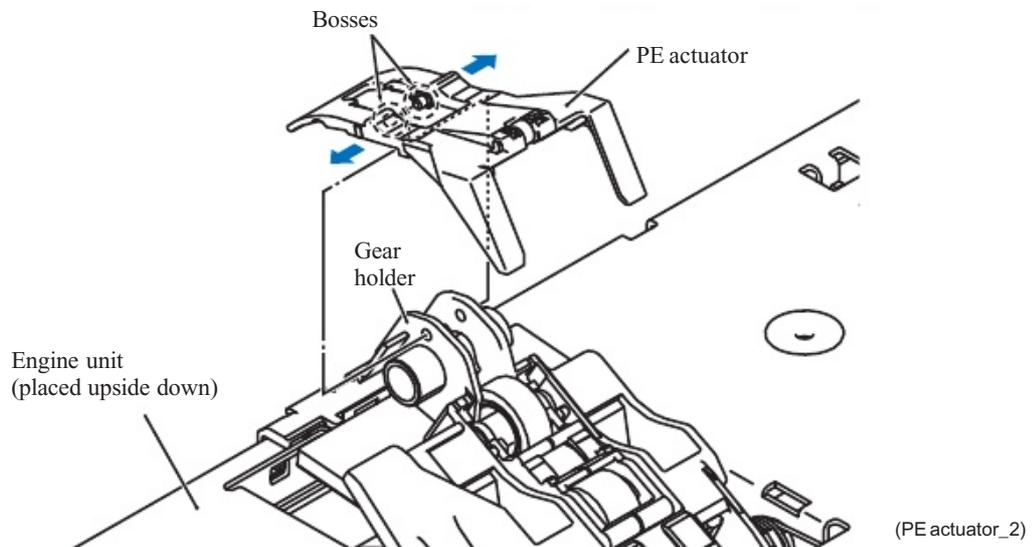
(26) Pull the PE actuator outward at the point connected with the gear holder, release its bosses from the gear holder, and take it off.



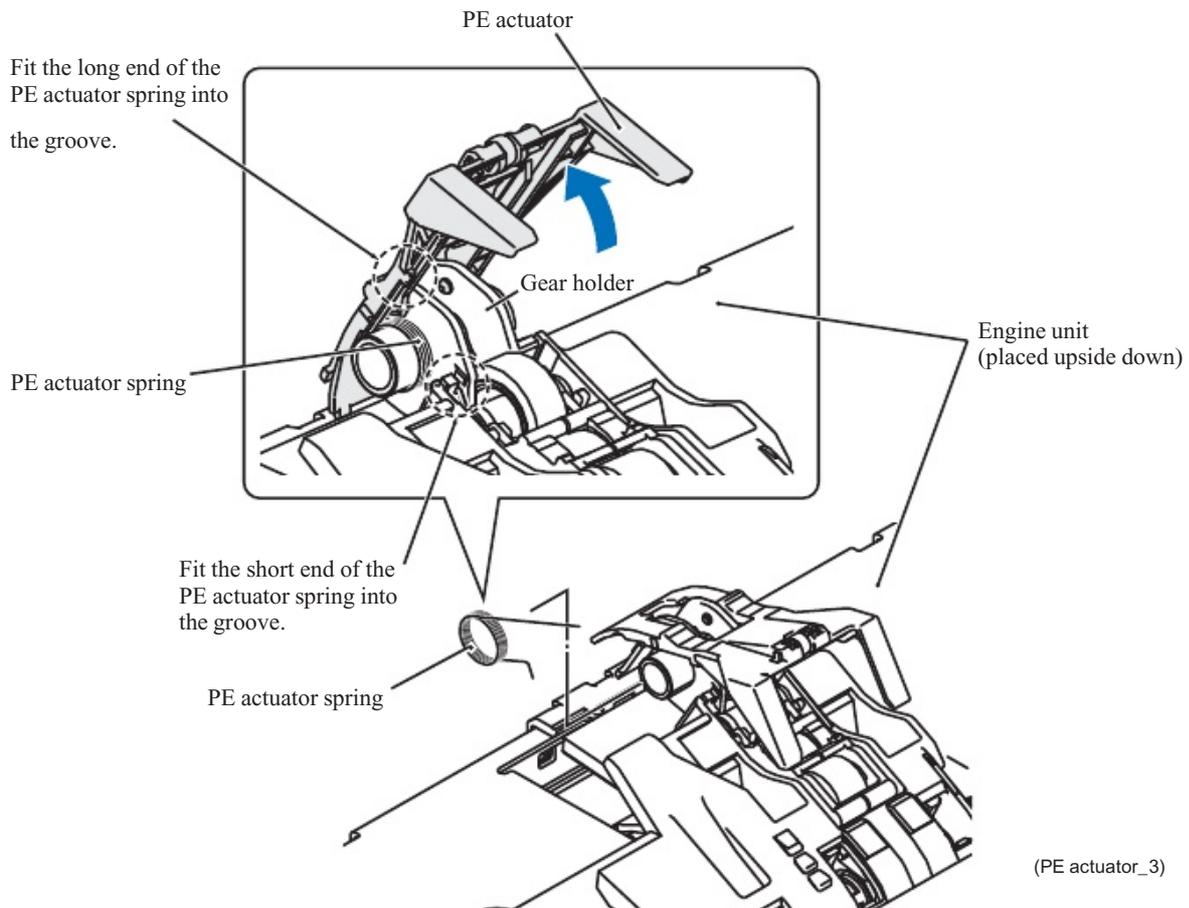
(PE actuator_1)

Assembling Note: First mount the PE actuator on the gear holder and then set the spring back into place, using the following steps.

- 1) Fit either one of the bosses on the PE actuator into the hole in the gear holder, pull the PE actuator outward, and fit the other one.



- 2) Lift up the front end of the PE actuator. After fitting the short end of the PE actuator spring into the groove provided in the gear holder, set the spring back into place, and then fit the long end into the groove in the PE actuator.



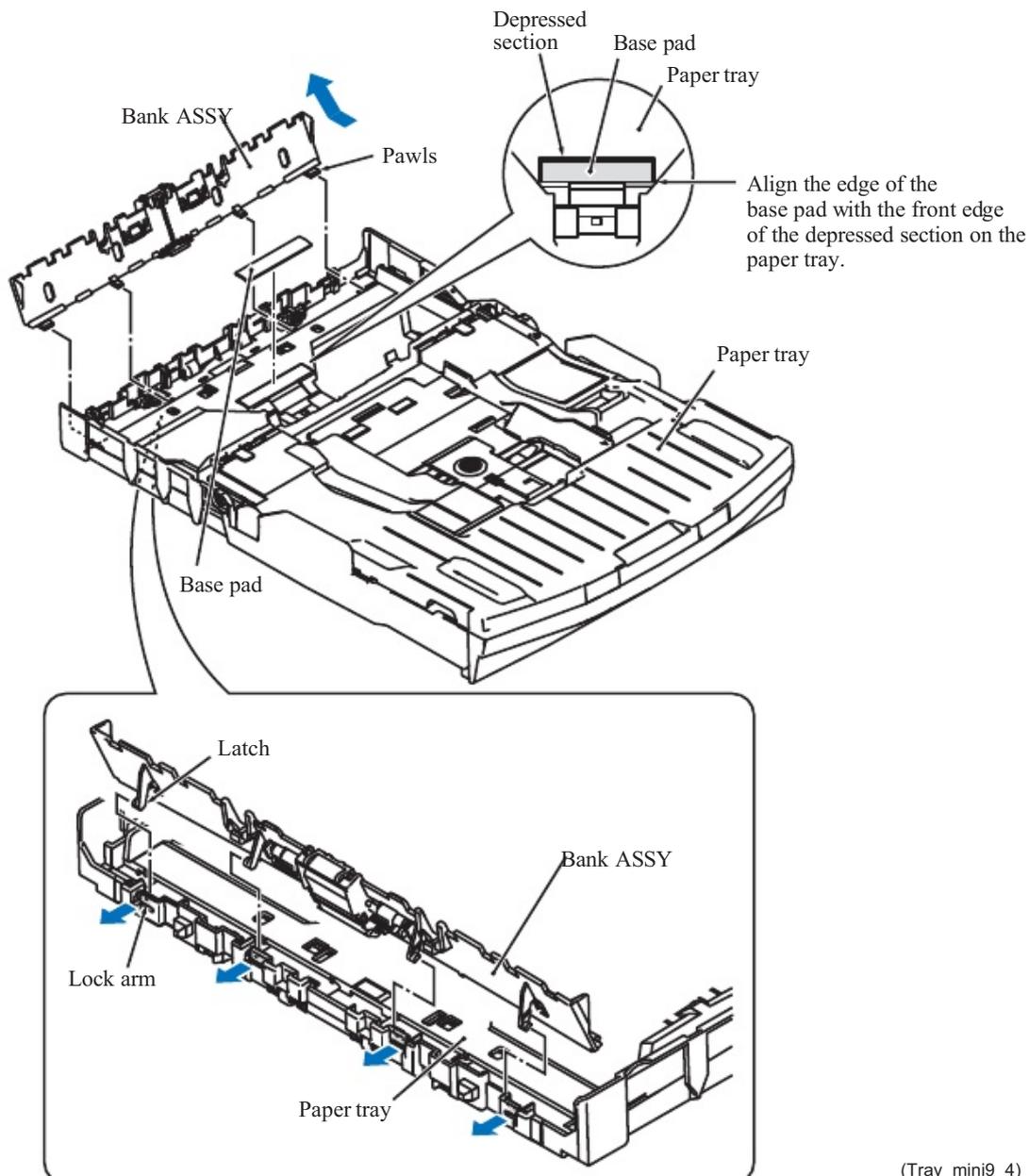
6.1.16 Bank ASSY and Base Pad on the Paper Tray ASSY

- (1) Pull the four lock arms on the rear of the paper tray outwards and release the four latches of the bank ASSY. Then pull the bank ASSY up and out of the paper tray.
- (2) If the base pad needs to be replaced, peel it off the bottom of the paper tray.

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

Assembling Notes:

- When attaching a new base pad to the paper tray, align the edge of the base pad with the front edge of the depressed section on the paper tray as shown below.
- When mounting the bank ASSY, first insert the four pawls into the openings in the paper tray and then press the inside of the bank ASSY so that the latches snap into place.



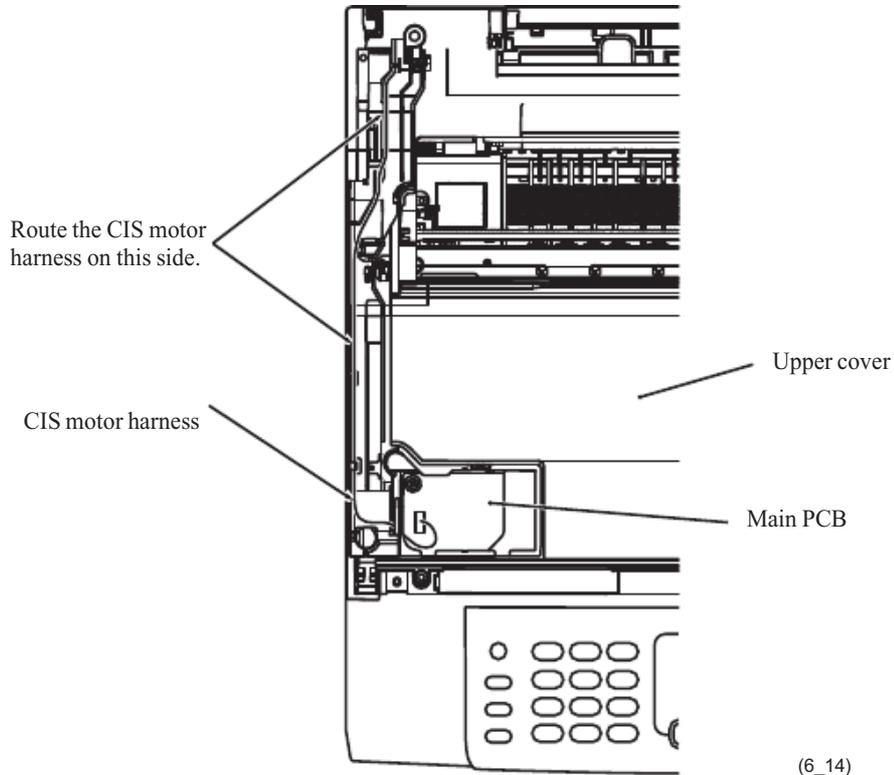
(Tray_mini9_4)

6.1.17 Routing of the Harnesses, Flat Cables, and Ink Supply Tubes

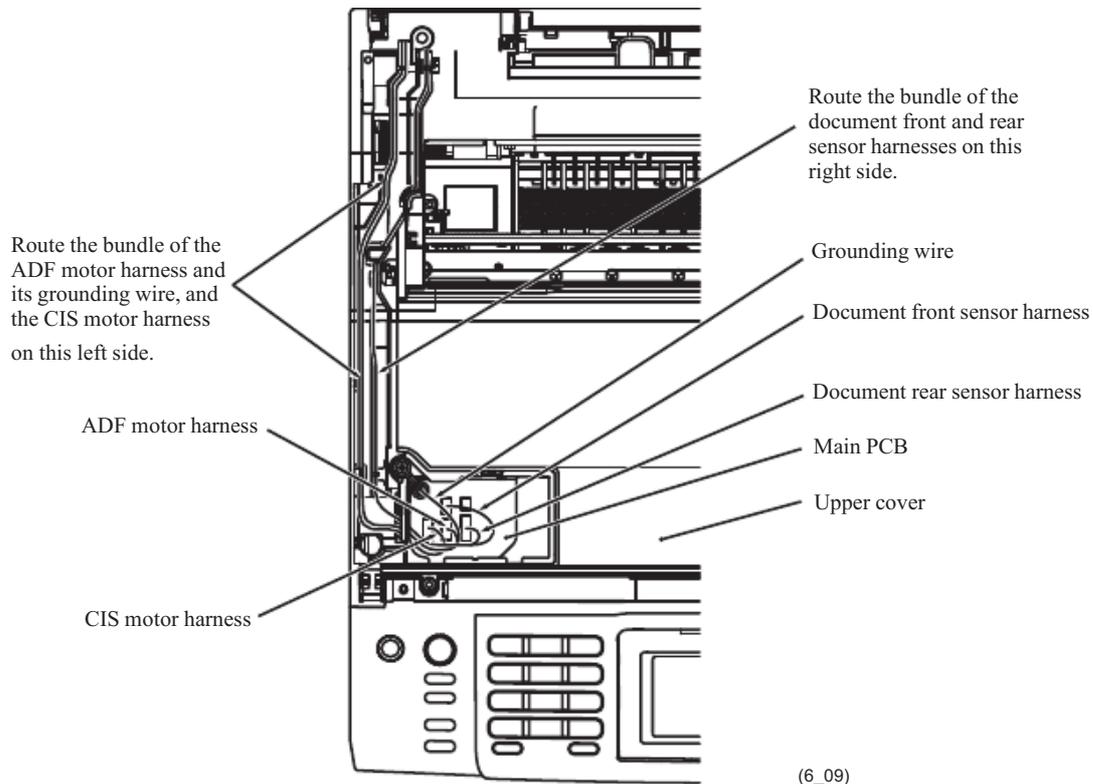
Routing A: Document front and rear sensor harnesses*, CIS motor harness, ADF motor harness* and grounding wire* on the upper cover

* For models with ADF

■ Models without ADF

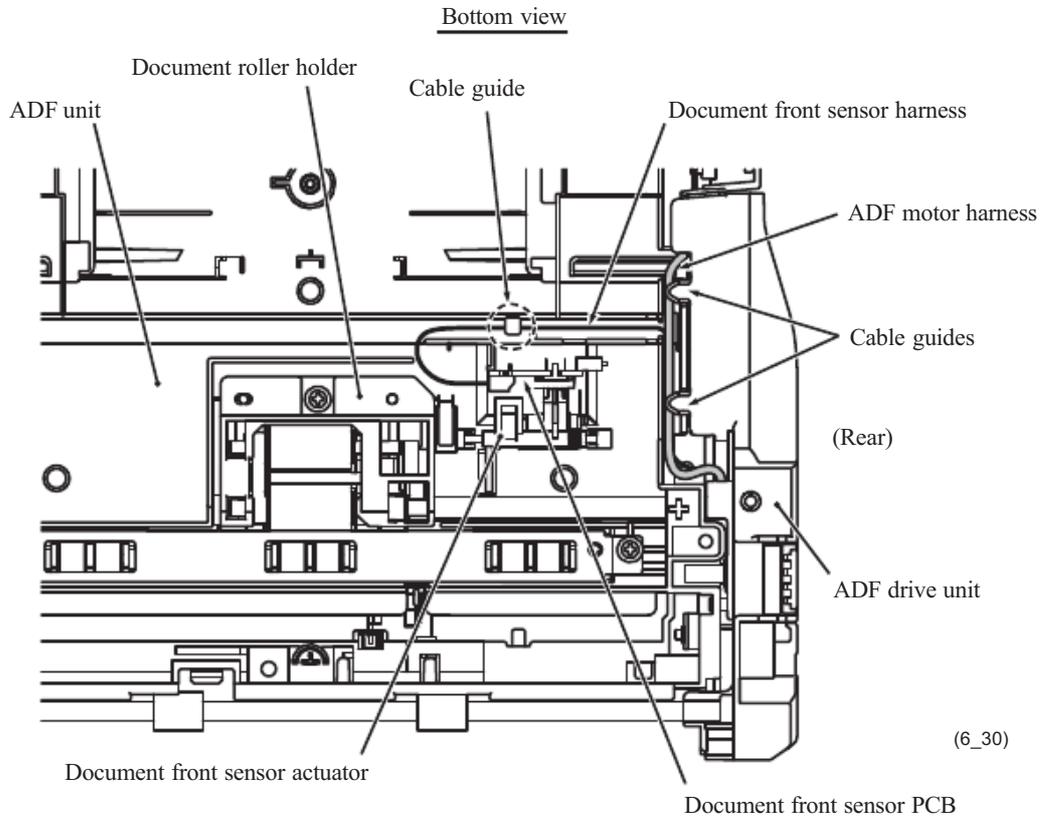


■ Models with ADF

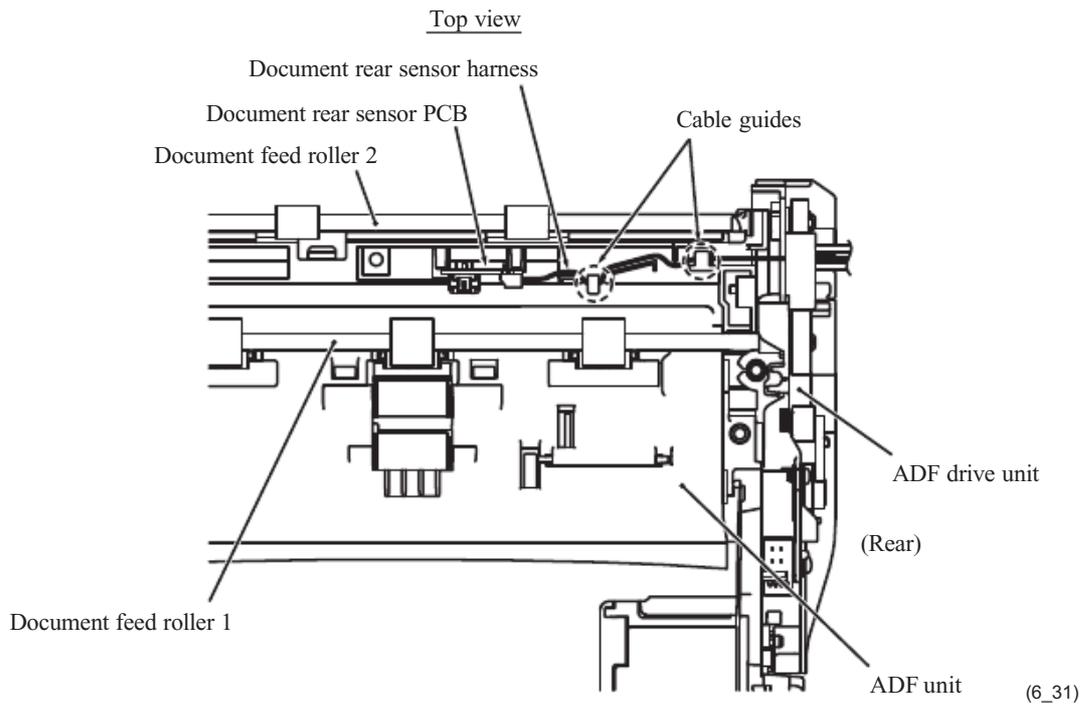


Routing B: Document front and rear sensor harnesses on the ADF unit (for models with ADF)

- On the ADF unit (viewed from the bottom)

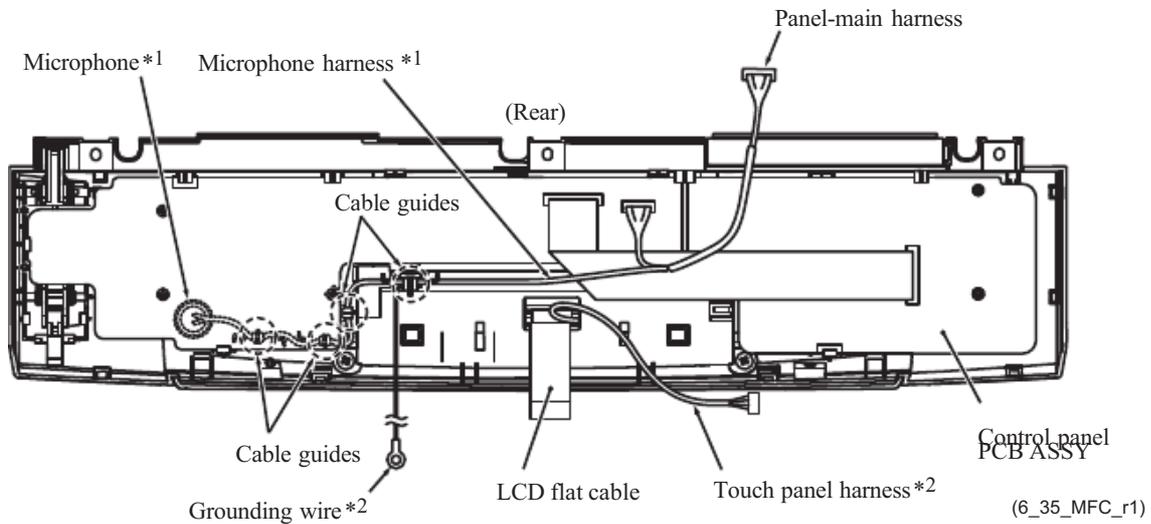


- On the ADF unit (top view)

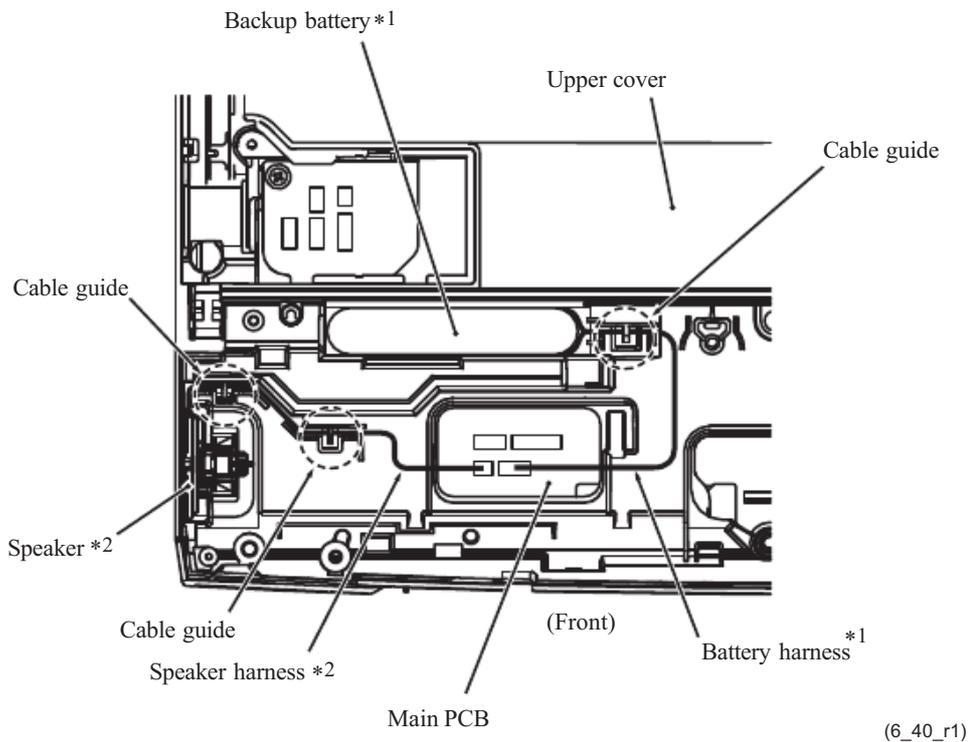


Routing C: Microphone harness (a part of the panel-main harness) on the control panel ASSY (for models with microphone)

*1 For models with microphone
 *2 For models with touch panel

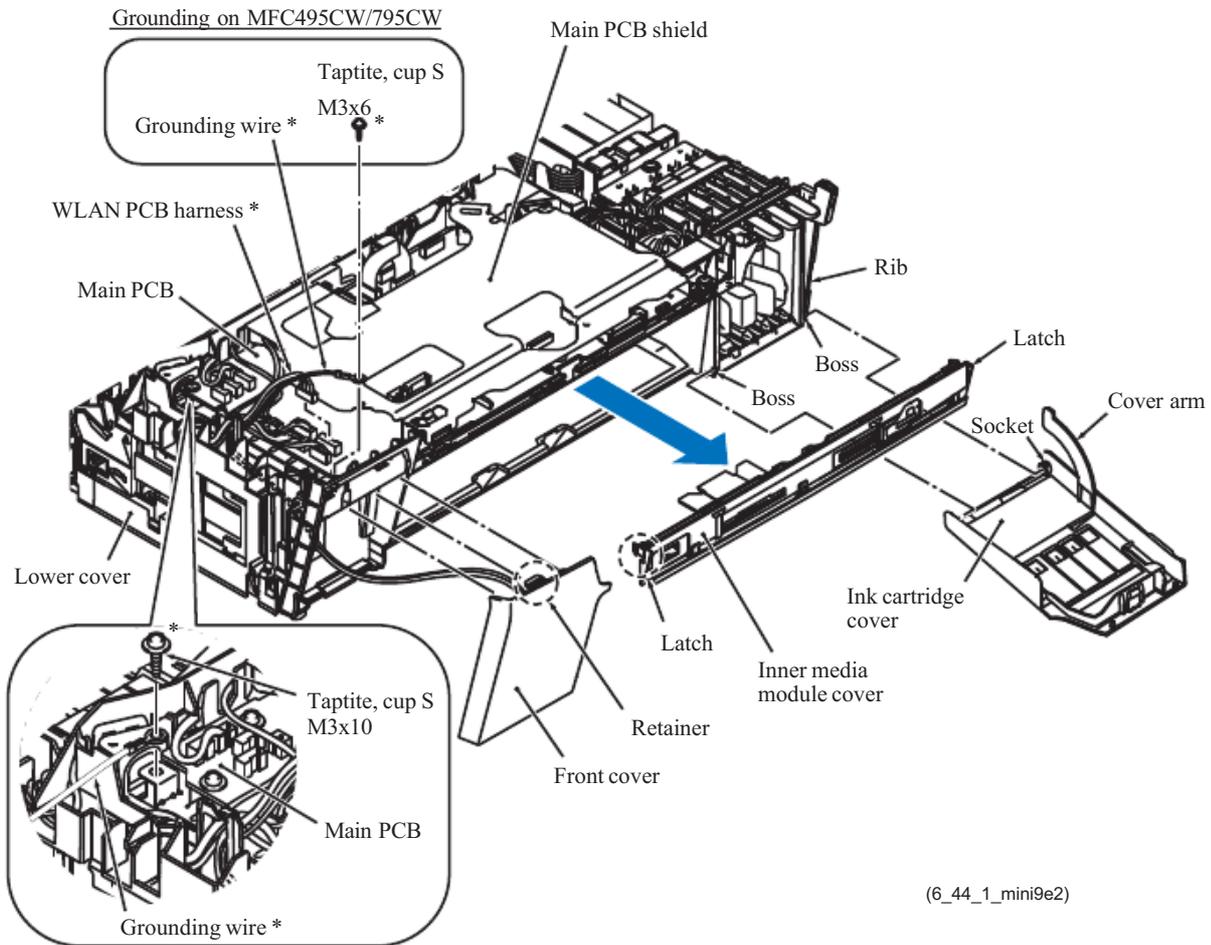


Routing D: Battery harness (for models with backup battery) and speaker harness (for models with speaker)



Routing E: WLAN PCB harness (for wireless LAN-enabled models)

* For wireless LAN-enabled models



(6_44_1_mini9e2)

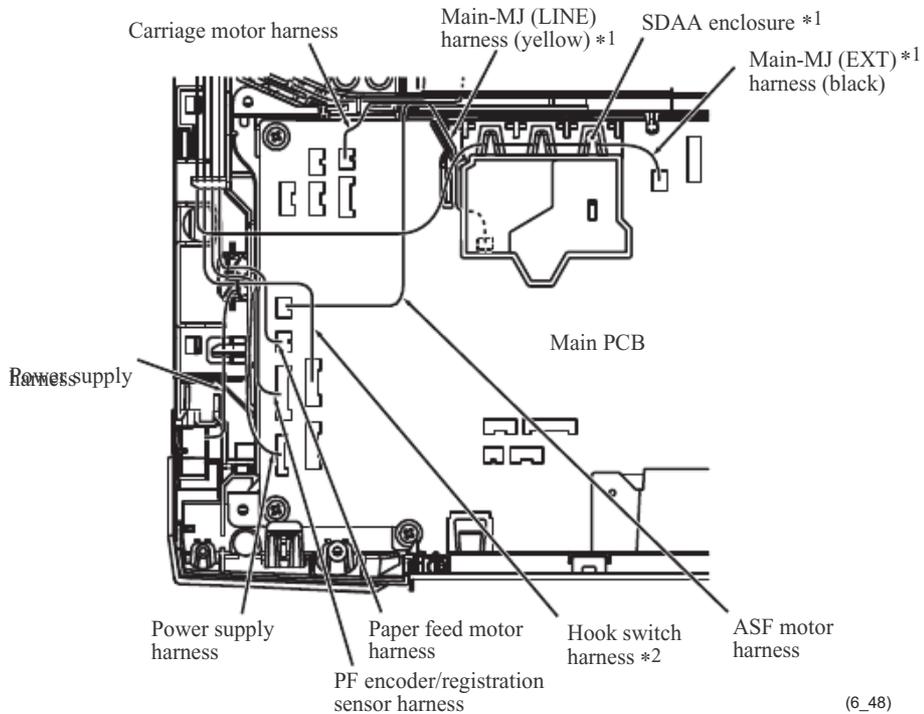
Grounding on DCP375CW/J315W/J515W/J715W
and MFC255CW/J265W/J270W/J410W/J415W/J615W/J630W

Routing F: Carriage motor harness, ASF motor harness, paper feed motor harness, PF encoder/registration sensor harness, power supply harness, main-MJ (EXT) harness*1, main-MJ (LINE) harness*1, and hook switch harness*2 on the lower cover

*1 For MFC only

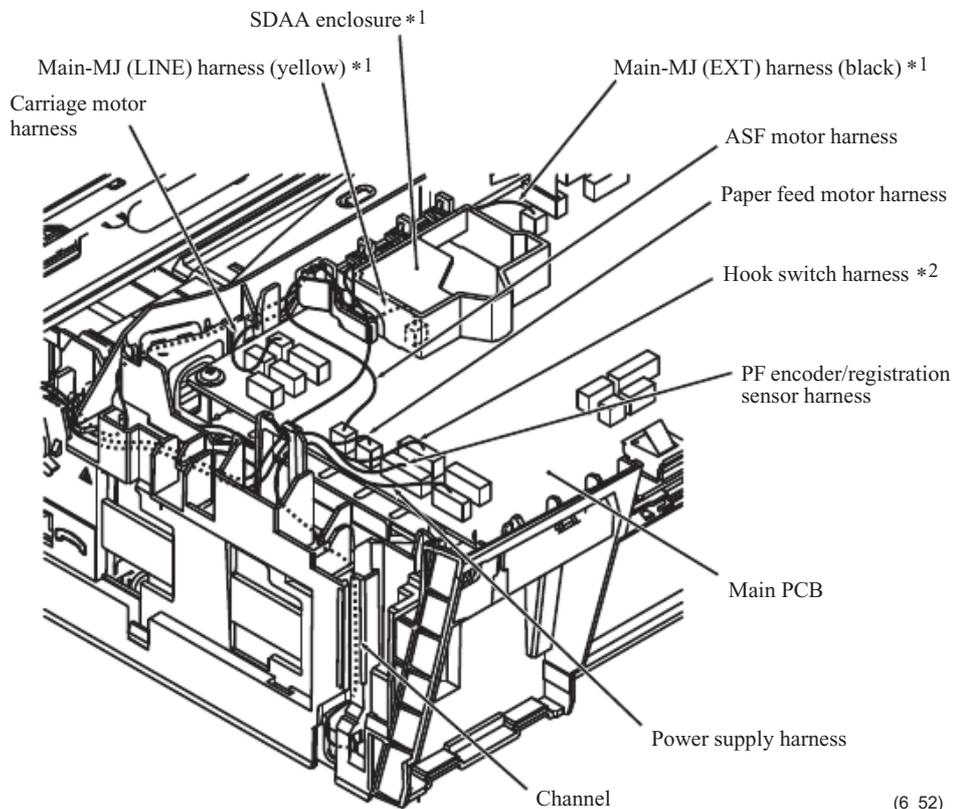
*2 For models with handset

■ On the SDAA enclosure*1



(6_48)

■ On the lower cover

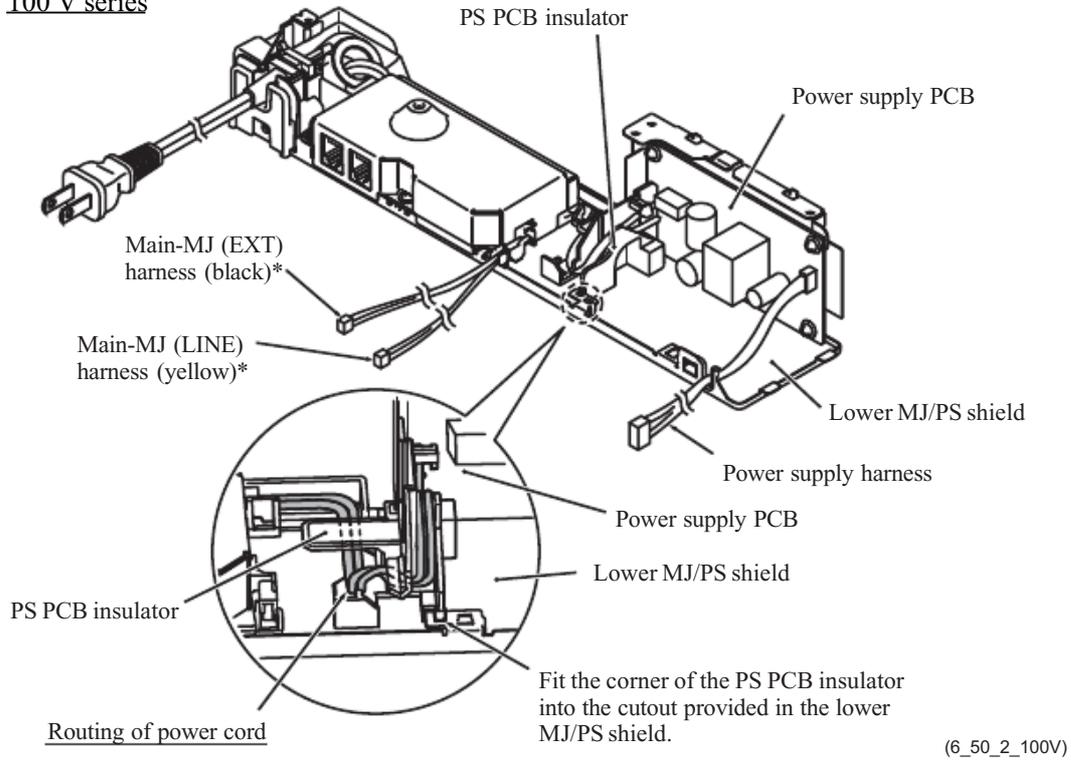


(6_52)

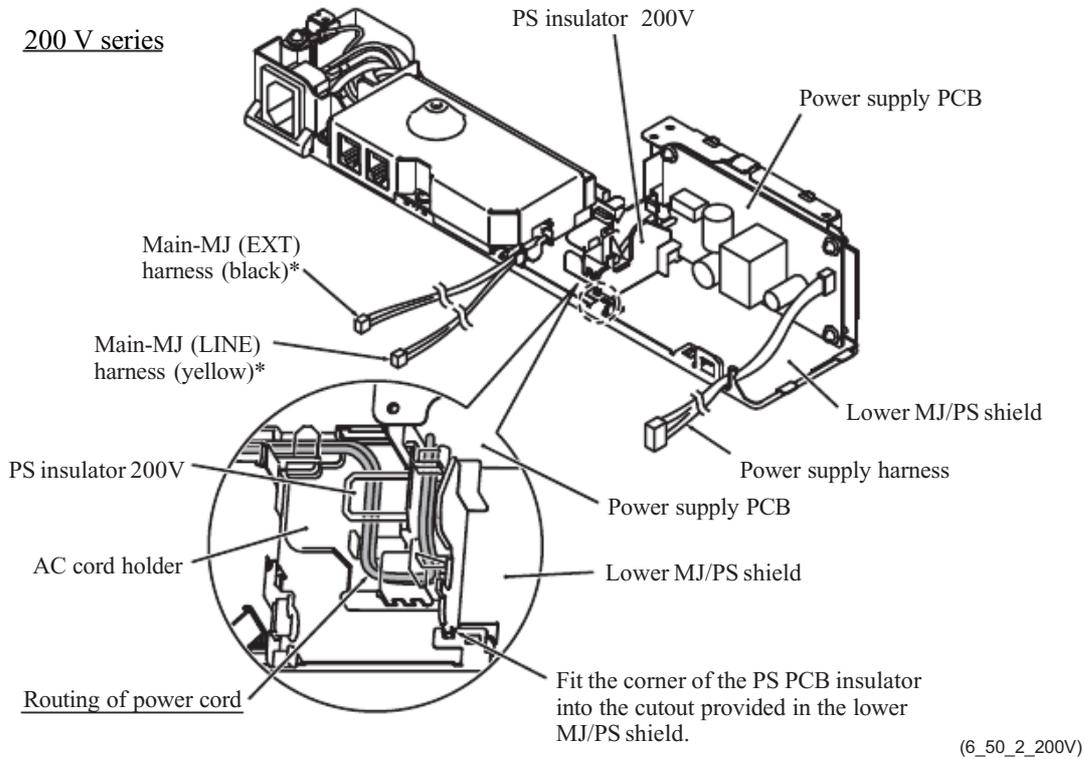
Routing G: Power supply harness, power cord, main-MJ (LINE) harness*, main-MJ (EXT) harness* in the MJ/PS shield unit

* For MFC only

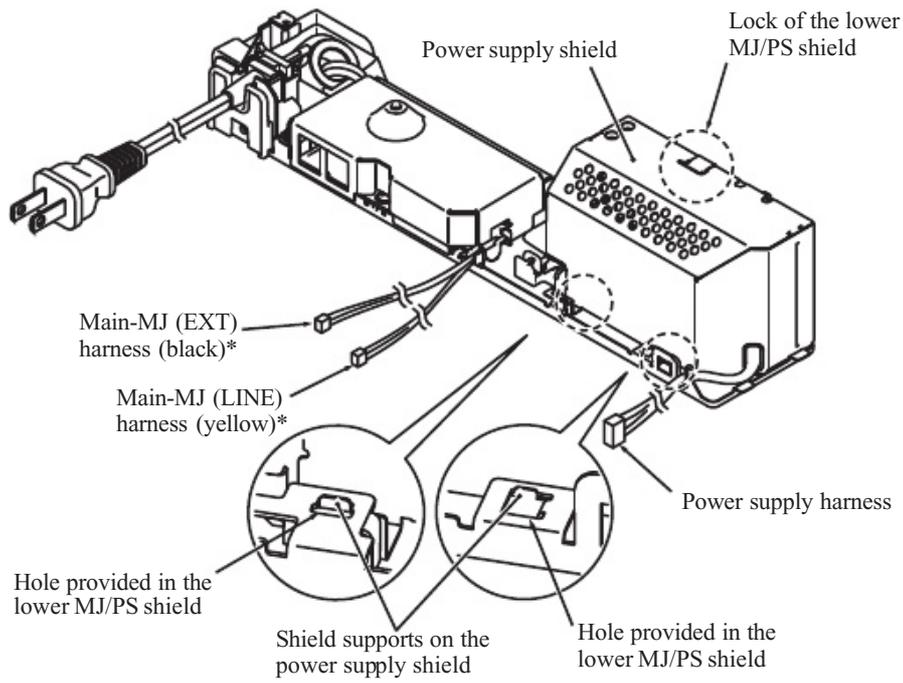
100 V series



200 V series



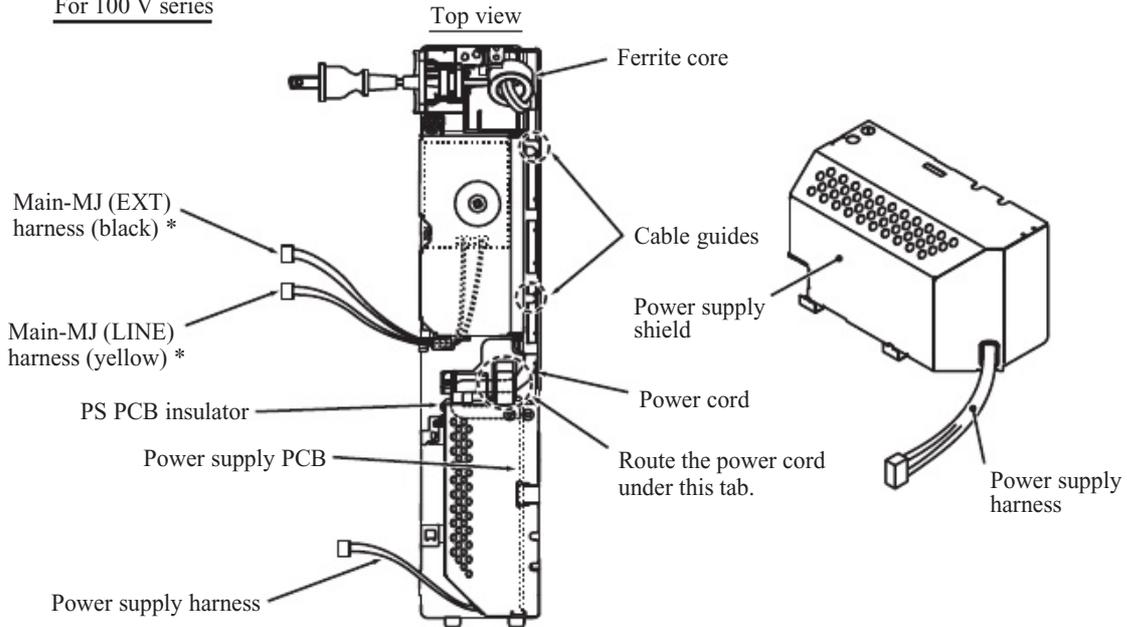
* For MFC only



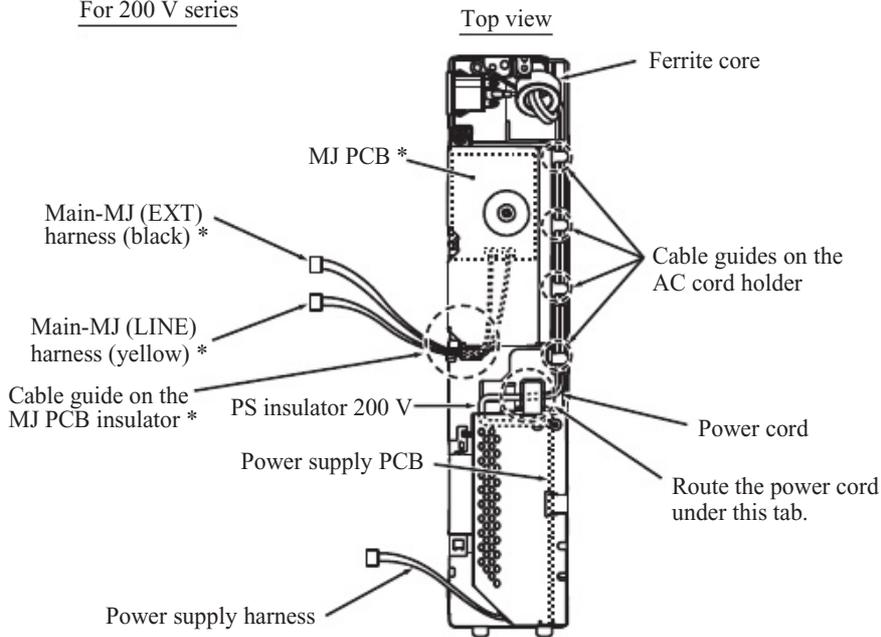
(6_50_3_100V_200V)

* For MFC only

For 100 V series

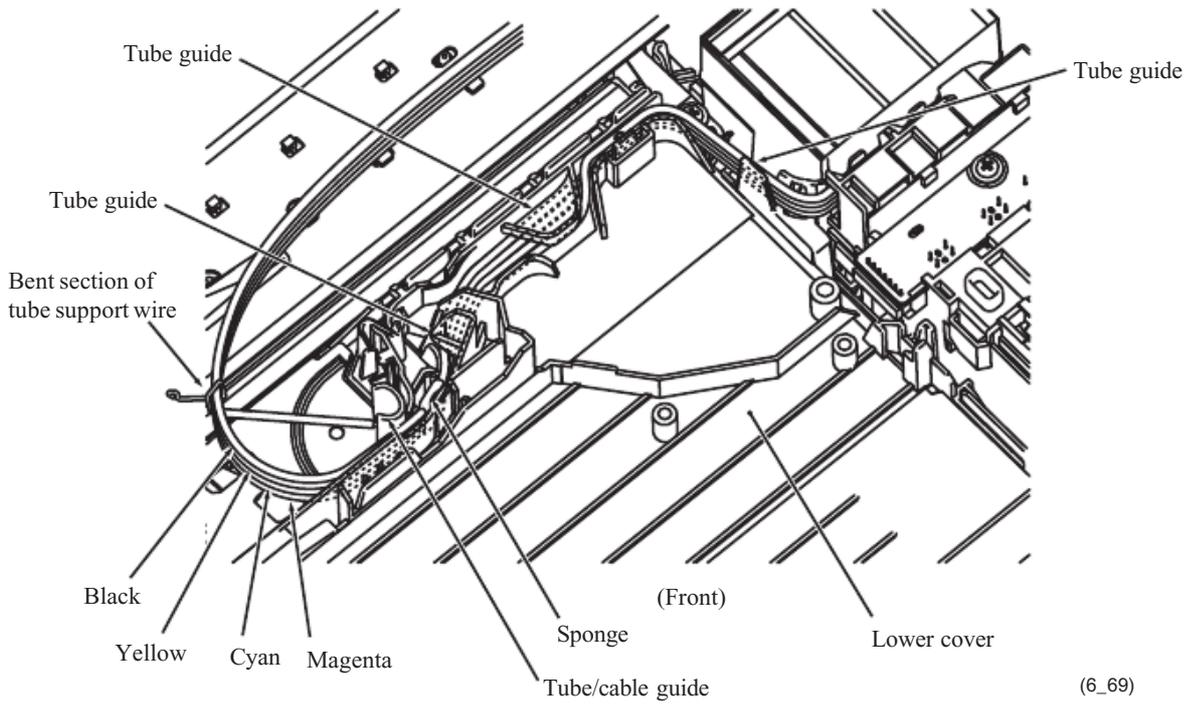


For 200 V series

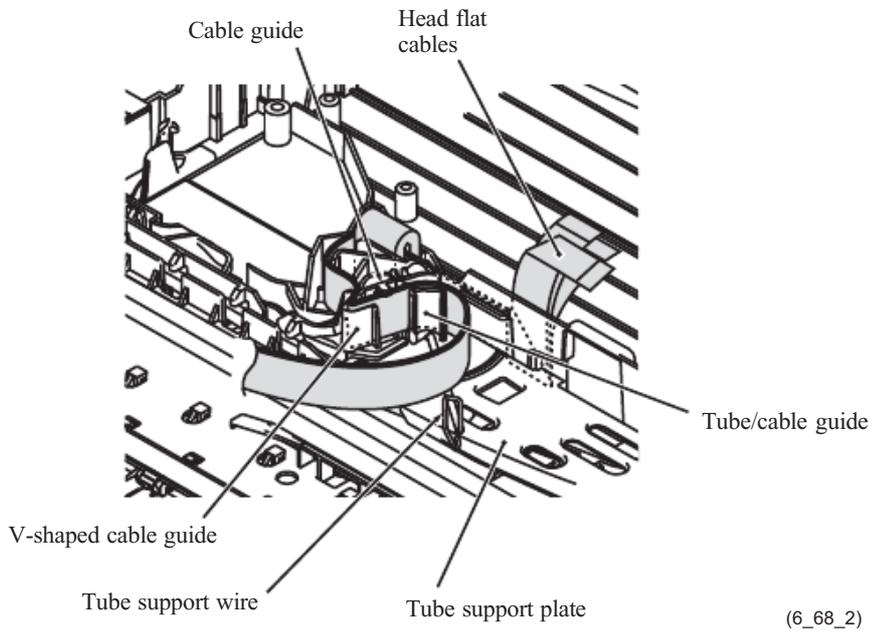


(6_51_2)

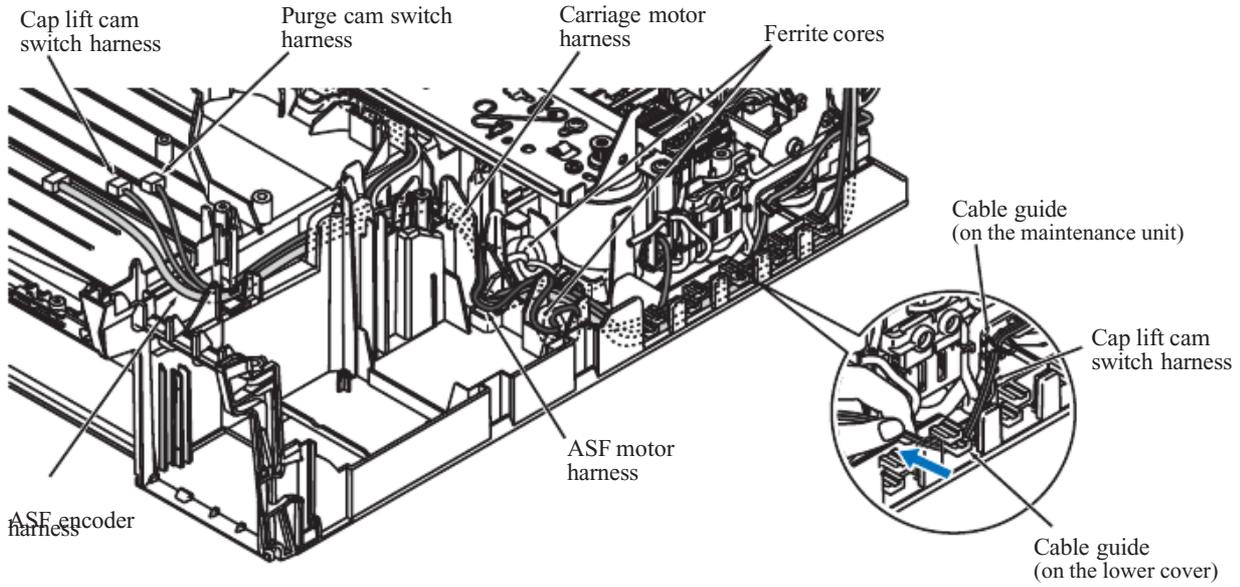
Routing H: Ink supply tubes



Routing I: Head flat cables



Routing J: Purge cam switch harness, cap lift cam switch harness, carriage motor harness, and ASF motor/encoder harness on the lower cover

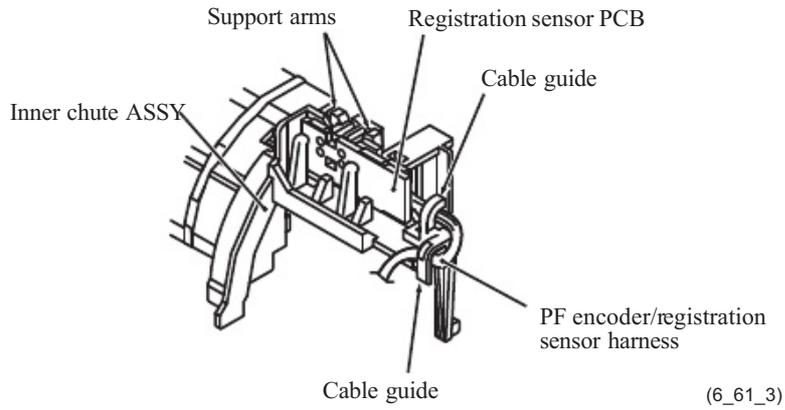


Note: When routing the cap lift cam switch harness on the lower cover, pass it under the 3rd cable guide counted from the rear without any slack, pulling it with your fingers.

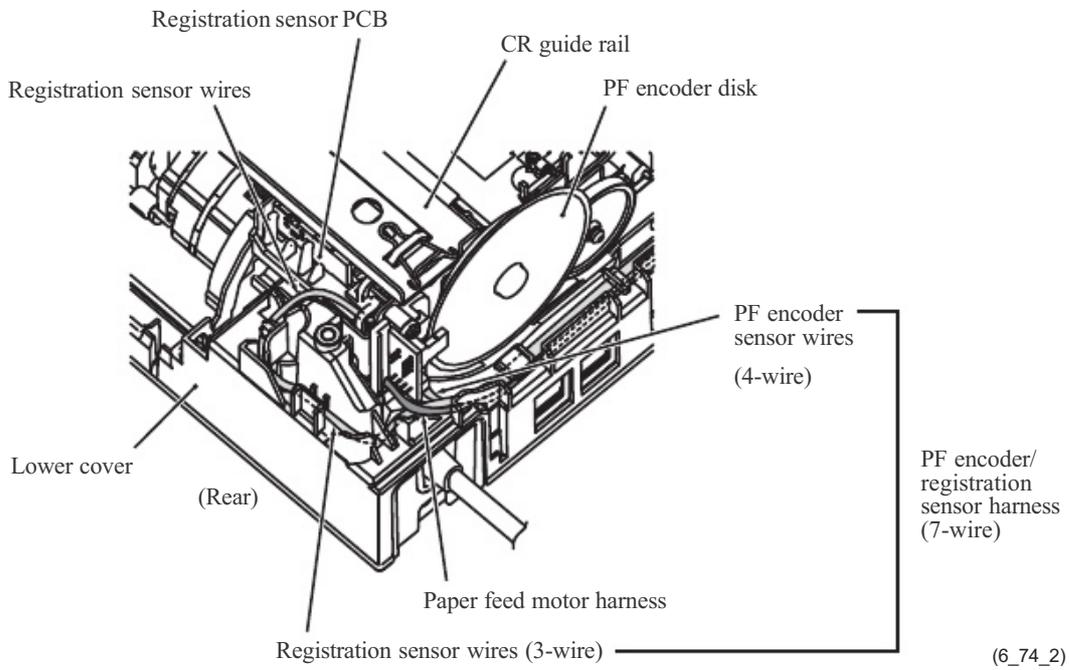
(6_72_2)

Routing K: PF encoder/registration sensor harness

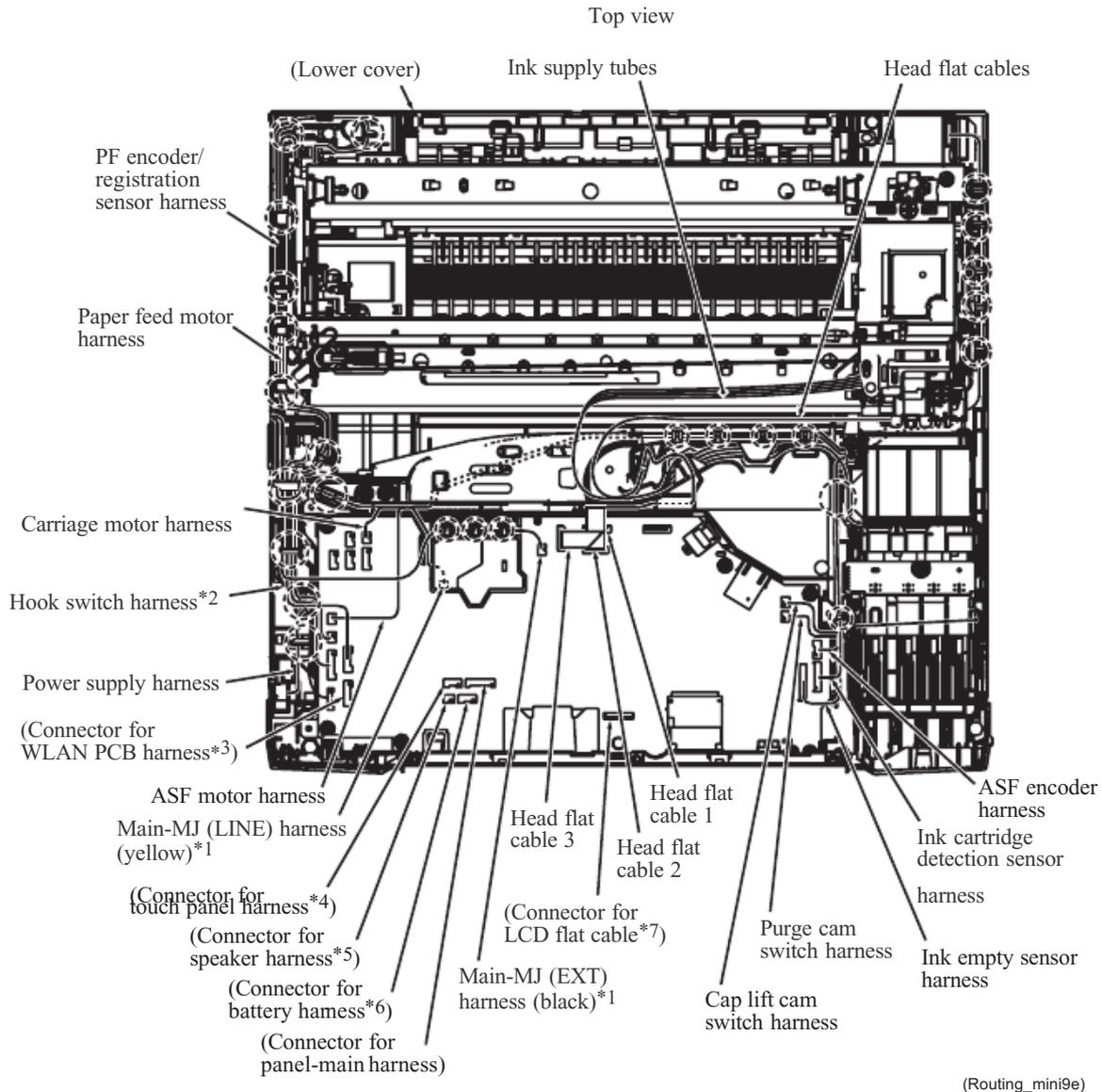
■ On the inner chute ASSY



■ On the lower cover



Routing L: Harnesses, flat cables and ink tubes on the lower cover



- *1 For MFC only
- *2 For models with handset
- *3 For wireless LAN-enabled models
- *4 For models with touch panel
- *5 For models with speaker
- *6 For models with backup battery
- *7 For models with color LCD

6.2 LUBRICATION

Apply the specified lubricants to the lubrication points as shown below.

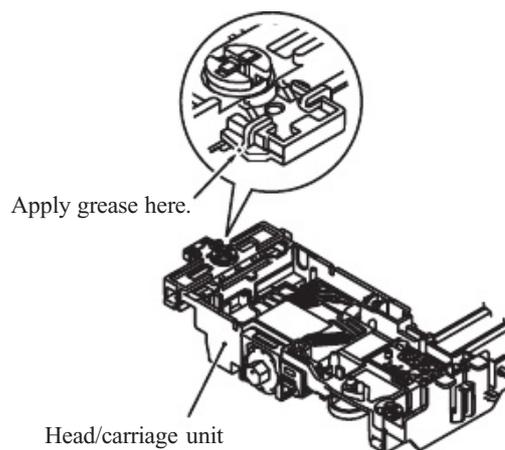
Lubricant type (Manufacturer)	Lubrication points		Lubricant amount per point
Permalub BAN-5 (Nippon Koyu)	Head/carriage unit	1	1.5 mm diameter ball
	Motor plate and CR guide rail (bottom edges)	4	1 mm diameter ball
	Switching lever guide	1	3 mm diameter ball
FLOIL BG1319 (Kanto Kasei)	CR guide rail (upper face)	8	2 mm diameter ball
	CR support chassis (upper face)	8	
	CR support chassis (front and rear sides of upright rear edge)	22	
Molykote EM-30LP (Dow Corning)	Document pull-in roller ^{*1}	2	2 mm diameter ball
	Document separation roller ^{*1}	2	2 mm diameter ball
	Paper pull-in idle gear	1	3 mm diameter ball
	Paper pull-in roller L	2	1 mm diameter ball
	Paper ejection roller ^{*2}	6	2 mm diameter ball

*1 For models with ADF

*2 For DCPJ125/J315W/J515W and MFCJ220/J265W/
J270W/J410/J410W/J415W

■ Head/carriage unit

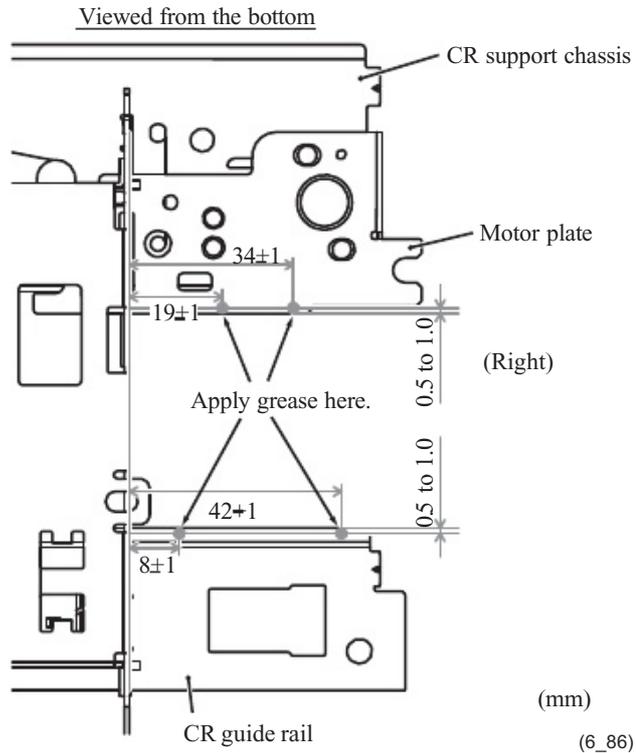
Apply a 1.5 mm diameter ball of grease (Permalub BAN-5) to the lubrication points below.



(6_90)

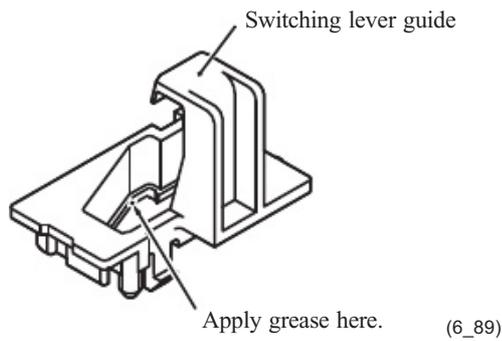
■ Motor plate and CR guide rail (bottom edges)

Apply a 1 mm diameter ball of grease (Permalub BAN-5) to the lubrication points below.



■ Switching lever guide

Apply a 3 mm diameter ball of grease (Permalub BAN-5) to the lubrication point below.

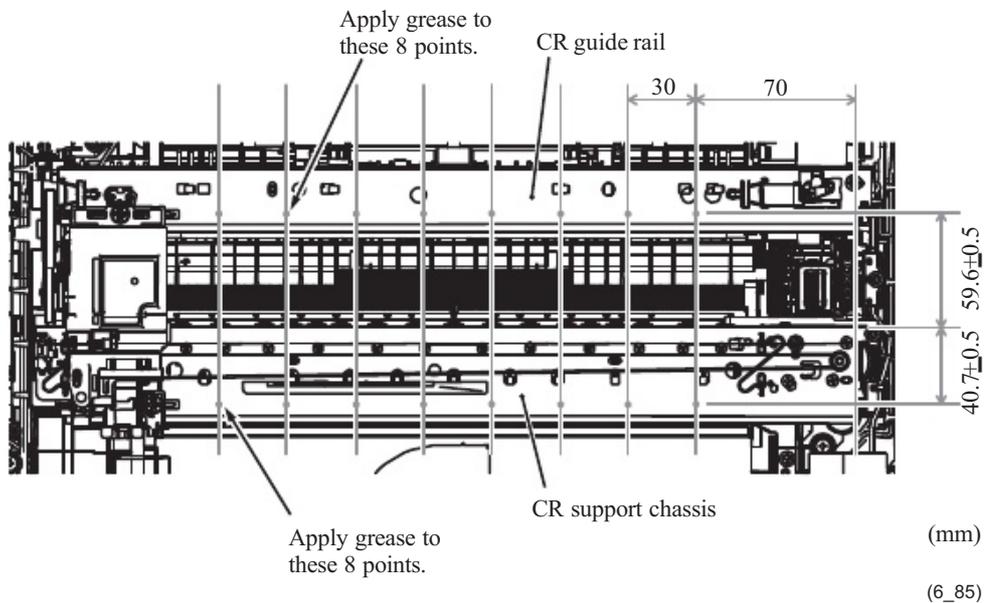


■ CR guide rail and CR support chassis (upper face)

Apply a 2 mm diameter ball of grease (FLOIL BG1319) to each of the 16 lubrication points below.

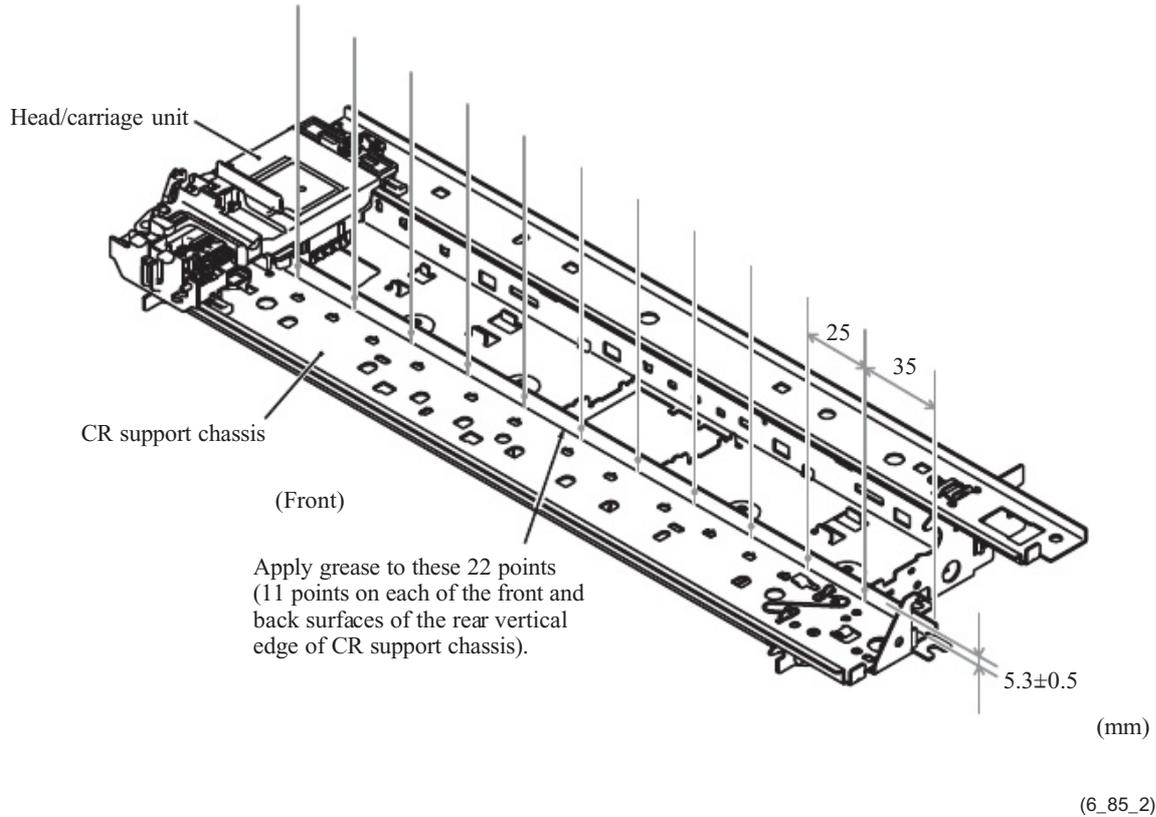
Lubrication procedure

- (1) Move the head/carriage unit to the left end of its travel and hit it against the stoppers provided at the left end of the CR guide rail and support chassis. This is to make the pair of slider cams protrude to the right from the head/carriage unit, making the gap between the head and the platen 1.6 mm.
- (2) Before applying grease, wipe dirt or dusts off the lubrication area with an alcohol soaked cloth.
- (3) Apply grease to the 16 lubrication points on the CR guide rail and support chassis as specified below, with the head/carriage unit placed on the left end of its travel.
- (4) Move the head/carriage unit from the left to the right ends of its travel to spread the applied grease on the CR guide rail and chassis.



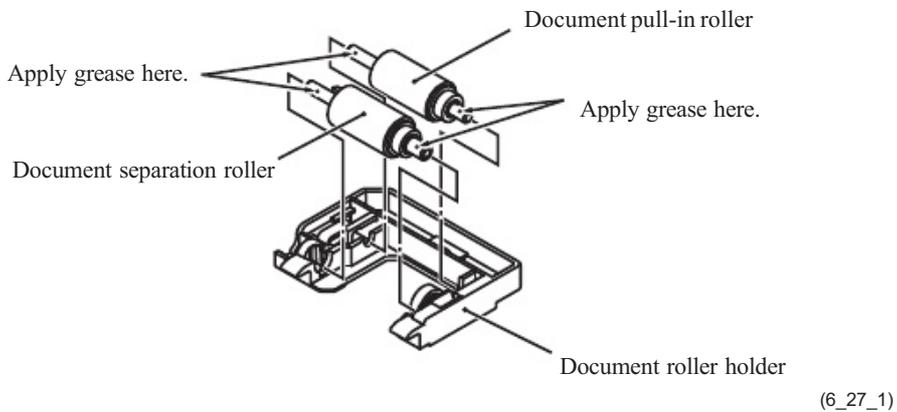
■ CR support chassis (front and rear sides of upright rear edge)

Apply a 2 mm diameter ball of grease (FLOIL BG1319) to each of the 22 lubrication points (front and back surfaces of the rear vertical edge of CR support chassis) as shown below.



■ Document pull-in roller and document separation roller in the document roller holder (For models with ADF)

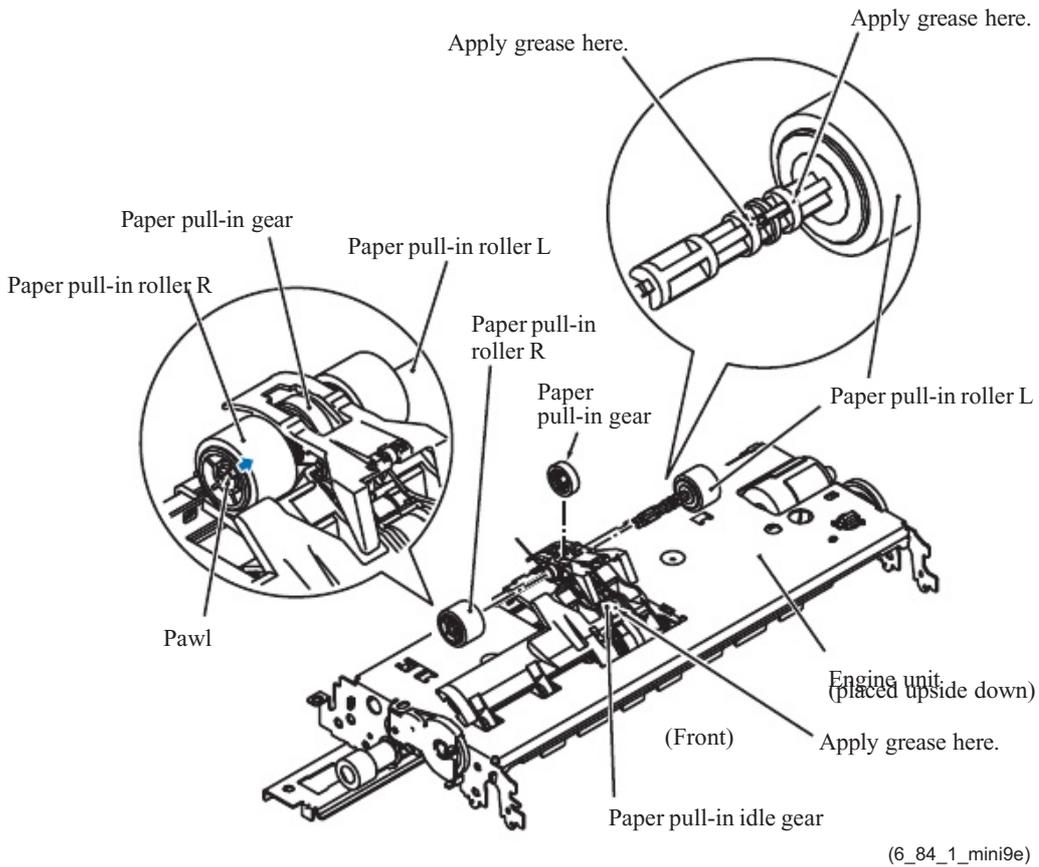
Apply a 2 mm diameter ball of grease (Molykote EM-30LP) to each of the lubrication points below.



■ Paper pull-in idle gear and paper pull-in roller L

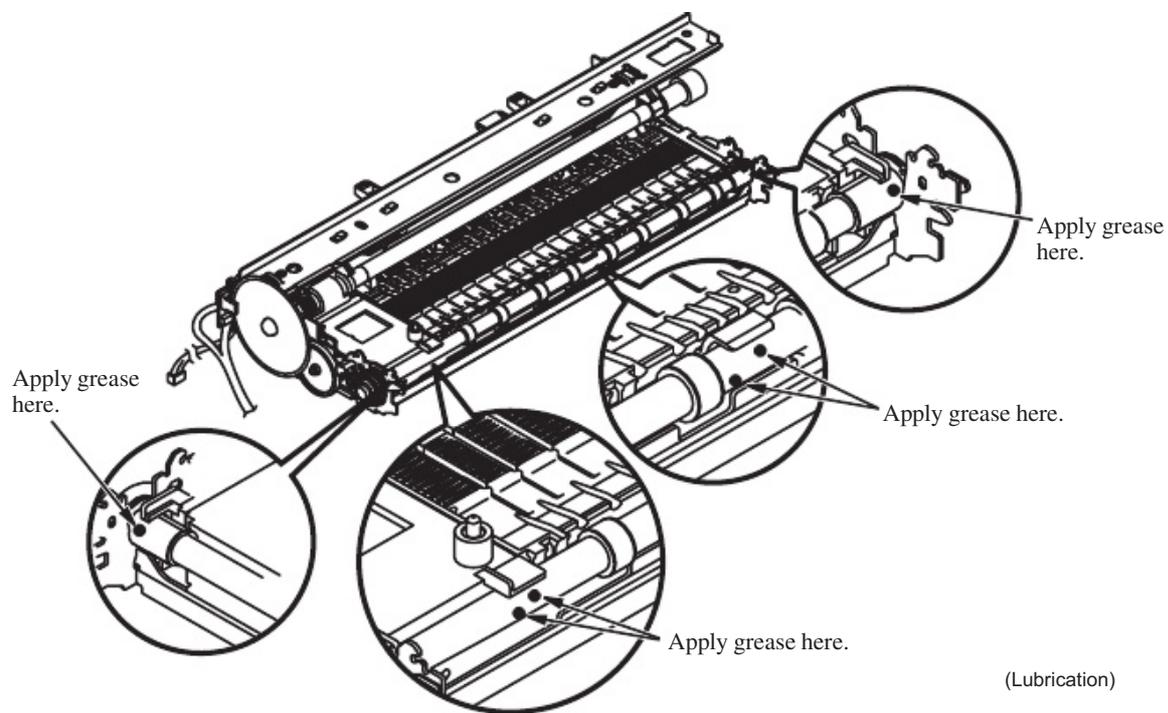
Apply a 3 mm diameter ball of grease (Molykote EM-30LP) to the lubrication point on the paper pull-in idle gear as shown below. After applying the grease at the center of a gear teeth, rotate the gear until the lubrication point is hidden by the adjacent gear, taking care not to touch the paper pull-in rollers.

Apply a 1 mm diameter ball of grease (Molykote EM-30LP) to the lubrication points on the paper pull-in roller L as shown below.



■ Paper ejection roller
(DCPJ125/J315W/J515W and MFCJ220/J265W/J270W/J410/J410W/J415W)

Apply a 2 mm diameter ball of grease (Molykote EM-30LP) to the lubrication points shown below.



CHAPTER 7
ADJUSTMENTS AND UPDATING OF SETTINGS,
REQUIRED AFTER PARTS REPLACEMENT

CHAPTER 7 ADJUSTMENTS AND UPDATING OF SETTINGS, REQUIRED AFTER PARTS REPLACEMENT

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

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7.1 PREPARATION

7.1.1 Requirements

Before proceeding to perform any adjustments or update any settings, you need the executables,

data files, spare parts and supplies (provided by Brother Industries) and must set up your PC.
Note: Before starting any operation involving printing of check patterns, be sure to set letter-size recording paper.

Note: Executables and data files listed below should be saved in an arbitrary folder in your PC beforehand.

Executables and Data Files Required for Adjustments and Updating of Settings

	Brother Maintenance USB Printer driver	brusbsn.exe	brusbsn.ini	filedg32.exe	incline.prn
Head/carriage unit, Engine unit (Section 7.2)	√	√	√	√	√
Main PCB (Section 7.3)	√	√	√	√	√
ADF & document cover ASSY, ADF-related parts *1 (Section 7.4)	√			√	
Ink absorber box, Flushing box (Section 7.5)					
Control panel ASSY, Control panel PCB (Section 7.6)					
LCD unit (Section 7.7)					
FB unit, Scanner cover (Section 7.8)				√	

	pf_exitadj_a4.prn	media_bottomadj_a4.prn	qualbh9.prn	chart.prn
Head/carriage unit, Engine unit (Section 7.2)	√	√	√	
Main PCB (Section 7.3)	√	√	√	√
ADF & document cover ASSY, ADF-related parts *1 (Section 7.4)				√
Ink absorber box, Flushing box (Section 7.5)				
Control panel ASSY, Control panel PCB (Section 7.6)				
LCD unit (Section 7.7)				
FB unit, Scanner cover (Section 7.8)				√

*1 For models with ADF

Spare Parts and Supplies Required for Adjustments and Updating of Settings

	Recording paper (Letter-size)	Ink cartridges	Protective part
Head/carriage unit, Engine unit (Section 7.2)	√	√	√
Main PCB (Section 7.3)	√	√	
ADF & document cover ASSY, ADF-related parts* ¹ (Section 7.4)	√	√	
Ink absorber box, Flushing box (Section 7.5)			
Control panel ASSY, Control panel PCB (Section 7.6)			
LCD unit (Section 7.7)			
FB unit, Scanner cover (Section 7.8)	√	√	

*1 For models with ADF

Note: Use a PC/AT-compatible computer running Windows 2000 or later.

7.1.2 Installing the Maintenance USB Printer Driver

If you want to change the programs stored in the flash ROM on the main PCB or after you replace the main PCB, load the desired programs to the flash ROM.

Loading requires a PC/AT-compatible computer running Windows 2000 or later.

Caution: During loading, never turn off your PC or the machine, unplug the USB interface cable, interrupt loading, or load invalid data. If you do so, loading will fail, causing the PCB to be unusable. You will have to replace the main PCB and load programs to a new PCB.

Preparation

You need the Brother Maintenance USB Printer driver and filedg32.exe (provided by Brother Industries). Save them in an arbitrary folder in your PC.

Installing the Brother Maintenance USB Printer driver

To identify machines connected via USB direct interface, the PC requires the corresponding driver for the virtual USB device. If you connect any number of machines to your PC, the same number of virtual USB devices will be automatically configured on your PC. To prevent many virtual USB devices from being configured, use the unique driver installation procedure described below that enables your PC to identify terminals via one single virtual USB device.

NOTES:

- Once this installation procedure is carried out for a PC, no more driver/software installation will be required for that PC to identify machines. If the Brother Maintenance USB Printer driver has been already installed to your PC according to this procedure, skip this section.
- Before proceeding to the procedure given below, make sure that the Brother Maintenance USB Printer driver is stored in your PC.

- (1) Check that the power switch of the machine is turned off. Disconnect the USB cable that connects the machine with your PC.
- (2) Turn on your PC.
- (3) Turn on the power switch of the machine.
- (4) Switch the machine to the maintenance mode using the steps below. (Refer to [Chapter 9](#).)

Models without touch panel

Press the **Menu** and **Black Start (Mono Start)** keys in this order. Next press the **▲** key four times.

Models with touch panel

Press the **Menu** key on the touch panel and the **Black Start (Mono Start)** key on the control panel. Next press the **Scan** key four times.

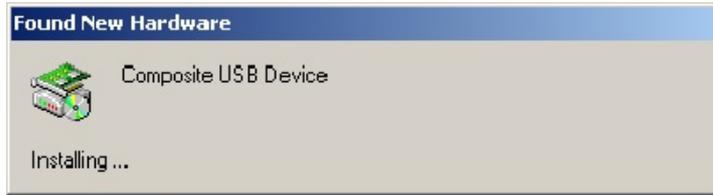
TIP: When the touch panel is inoperable, simultaneously press the **Scan** and **Copy** keys on the control panel, instead of the **Menu** key, and press the **Black Start (Mono Start)** key. Next press the **Scan** key four times.

TIP: Models equipped with a numerical keypad on the control panel can enter the maintenance mode in the same way as conventional models; that is, by pressing the **Menu**, *****, **2**, **8**, **6** and **4** keys in this sequence.

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

- (5) Connect the machine to your PC using the USB cable.

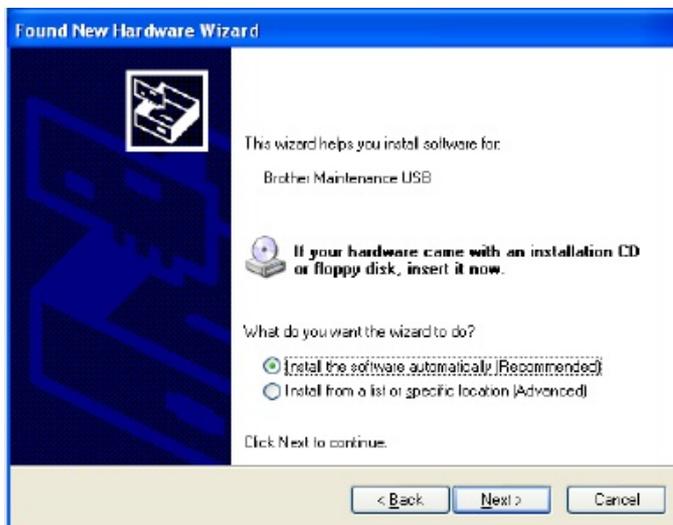
The following window appears.



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



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



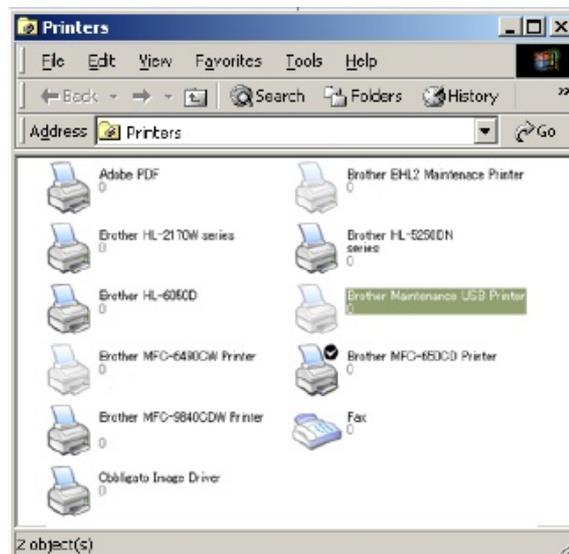
- (8) Alert warning message of WHQL appears. Click **Continue Anyway** to proceed.



- (9) Repeat steps (6) to (8) three times. Installation is completed.
- (10) If the Brother Maintenance USB Printer driver is successfully installed, the following message screen appears. Click **Finish** to return.



NOTE: In order to check whether the printer driver is successfully installed, click **Start | Settings | Printers** to call up the Printers window. Then, check that the Brother Maintenance USB Printer icon is shown.



7.2 IF YOU REPLACE THE HEAD/CARRIAGE UNIT OR ENGINE UNIT

[1] Update the head property code stored in the EEPROM on the main PCB

- (1) Make sure that the machine's power cord is unplugged from an electrical outlet.

If the machine is connected to a PC, unplug the USB cable.

- (2) Switch on the PC.
- (3) Plug the machine's power cord into an electrical outlet.
- (4) Switch the machine to the maintenance mode using the steps below. (Refer to [Chapter 9](#).)

Models without touch panel

Press the **Menu** and **Black Start (Mono Start)** keys in this order. Next press the **▲** key four times.

Models with touch panel

Press the **Menu** key on the touch panel and the **Black Start (Mono Start)** key on the control panel. Next press the **Scan** key four times.

TIP: When the touch panel is inoperable, simultaneously press the **Scan** and **Copy** keys on the control panel, instead of the **Menu** key, and press the **Black Start (Mono Start)** key. Next press the **Scan** key four times.

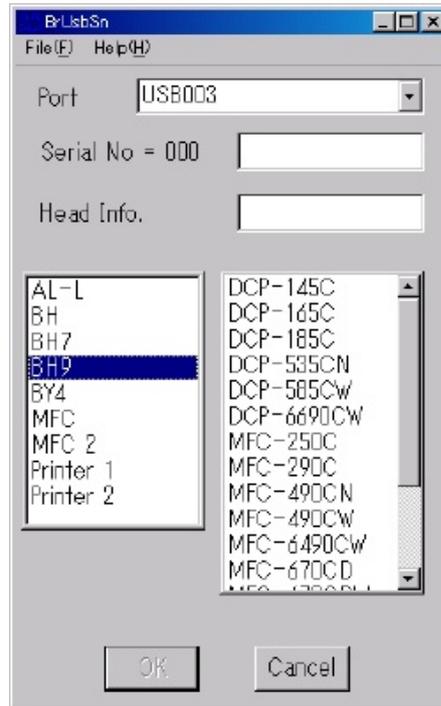
TIP: Models equipped with a numerical keypad on the control panel can enter the maintenance mode in the same way as conventional models; that is, by pressing the **Menu**, *****, **2**, **8**, **6** and **4** keys in this sequence.

The machine beeps for approx. one second (MFC only) and displays "■■ MAINTENANCE ■■■" on the LCD, indicating that it is placed in the initial stage of

the maintenance mode, a mode in which the machine is ready to accept entry from the keys.

- (5) Connect the machine to the PC using a USB cable.

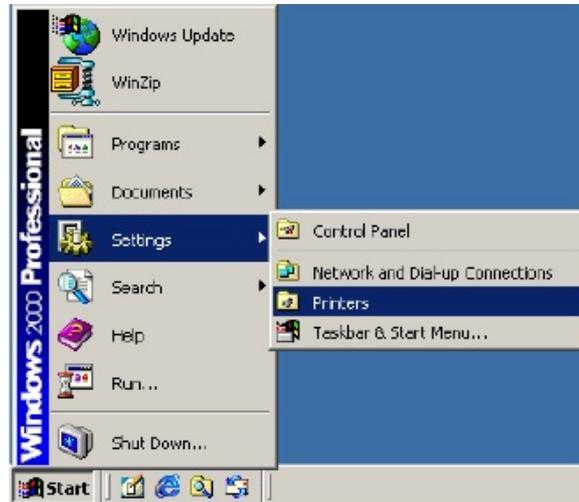
- (6) On the PC, run the ID/head property setup utility (brusbsn.exe) in the folder created. The following window appears.



- (7) On the model menu, click **BH9**.

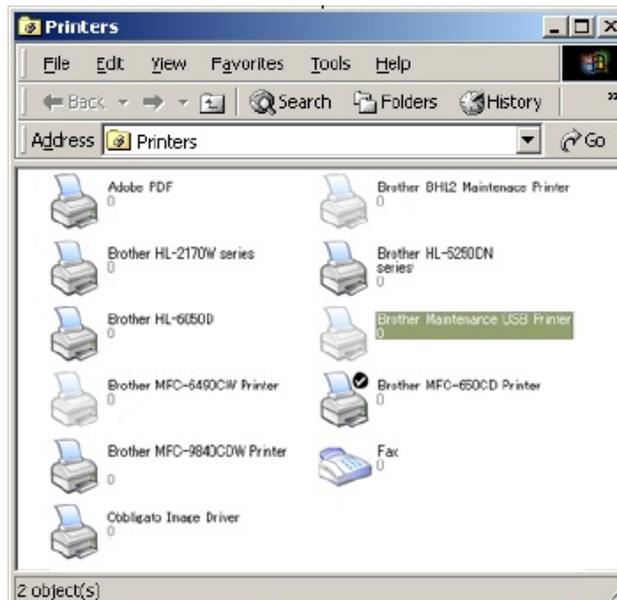
- (8) In **Port** on the BrUsbSn screen, select the port number assigned to the Brother Maintenance USB Printer. If the port number is unknown, follow steps 1) through 4) below.

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



The Printers window appears as shown below.

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

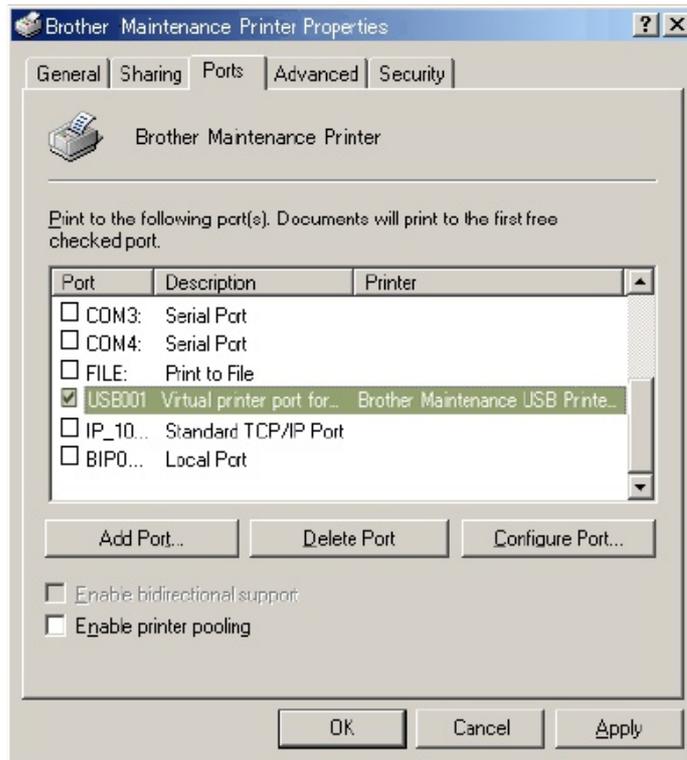


3) Click **Properties**.



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

4) Click the **Ports** tab.



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

(9) In the **Head Info** box on the BrUsbSp screen (page 7-8), type the 16-digit property code (e.g., ALR7765501200000) which is printed on the bar code label attached to the lower cover. Click the **OK** button.

(10) To check that the entered head property code is correct (using function code 68 in **Chapter 9, Section 9.4.22**), press the **6** and **8** keys in this order. Then press the **2**, **5**, **8**, and **0** keys in this order. For models without numerical keypad, enter 6, 8, 2, 5, 8, and 0 in this order using the **▲**, **▼** and **OK** keys.

The LCD shows the current head property code (16-digit code) stored in the EEPROM on the main PCB.

(11) Check that the character string entered in step (9) appears.

If it is OK, press the **Stop/Exit** key.

If something other than that appears, check the connection between the PC and machine and go back to step (6).

[2] Clean the new head/carriage unit (Function code 76)

- (1) Open the ink cartridge cover, set new ink cartridges into the ink refill ASSY, and close the ink cartridge cover.
- (2) Carry out a purge operation (with function code 76) using the steps below. (See [Chapter 9, Section 9.4.26.](#))

Press the **7** and **6** keys in this order. (For models without numerical keypad, enter 7 and 6 in this order using the **▲**, **▼** and **OK** keys.)

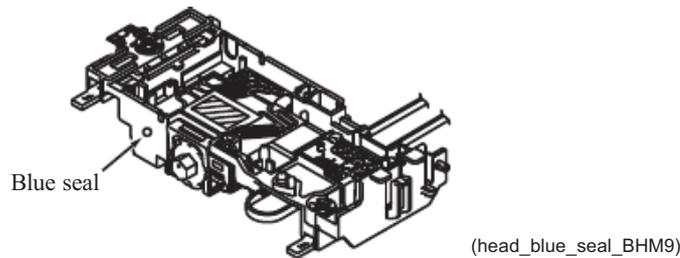
The machine displays "CLEANING ALL" on the LCD and enters the purge mode.

For the head/carriage unit having a round, blue seal*, press the **0** and **Black Start (Mono Start)** keys in this order to start the head replacement purge. (For models without numerical keypad, enter 0 using the **▲**, **▼** and **OK** keys and then press the **Black Start (Mono Start)** key.)

For the one having no seal, press the **4** and **Black Start (Mono Start)** keys in this order to start the initial purge. (For models without numerical keypad, enter 4 using the **▲**, **▼** and

OK keys and then press the **Black Start (Mono Start)** key.)

* Some spare head/carriage units have a round, blue seal on their left sides as shown below.



The machine starts a head replacement purge or an initial purge that refills the ink supply tubes and the new print head with fresh ink.

[3] Print out a test pattern (Function code 09)

To check that the head/carriage unit normally sprays ink droplets from *all* head nozzles, print out a test pattern with function code 09 (see [Chapter 9, Section 9.4.4](#)) with the following steps.

Before starting the operation below, be sure to set letter- or A4-size paper in the paper tray for printing check patterns.

- (1) Press the **0** and **9** keys in this order. (For models without numerical keypad, enter 0 and 9 using the **▲**, **▼** and **OK** keys.)
- (2) If a missing dot or any other print problem is found, go back to [2] above to clean the head/carriage unit again.



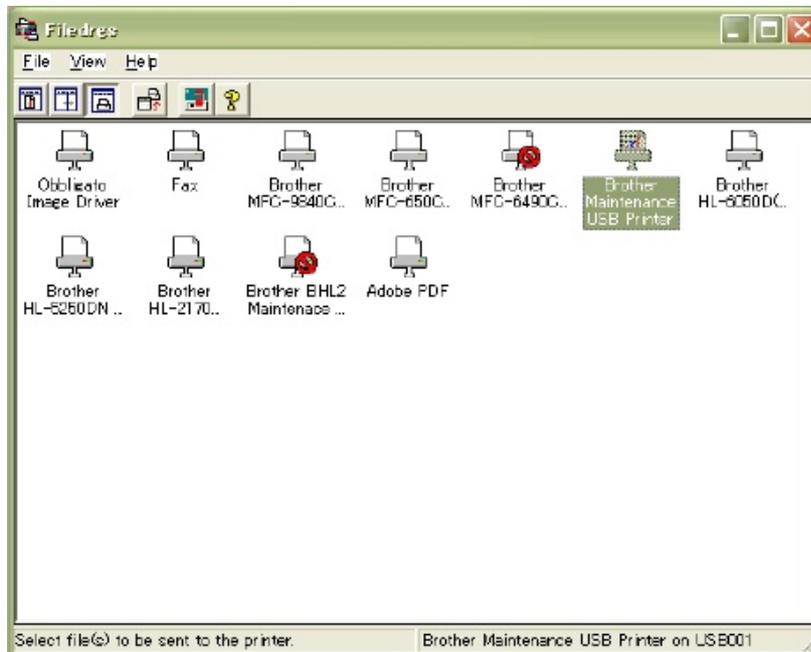
Test Pattern

[4] Correct the positioning error of the head/carriage unit

Before starting the operation below, be sure to set letter-size paper in the paper tray for printing check patterns.

- (1) Run "filedrgs.exe" in the folder created.

The Filedrgs window appears as shown below.

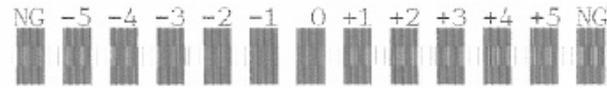
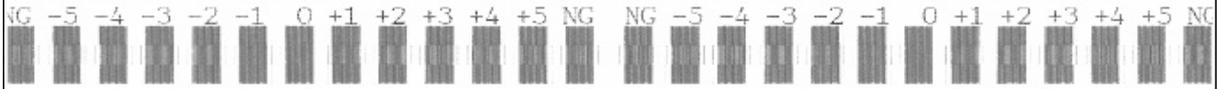


- (2) Drag and drop the "incline.prn" icon onto the Brother Maintenance USB Printer driver icon in the Filedrgs window shown above.

The machine displays the "RECEIVING DATA" on the LCD and prints out the "Incline Adjust" test pattern shown on the next page.

- (3) Out of the three rows of the "Incline Adjust" test pattern (on the next page), check the middle row and select the block that is the least uneven print. Make a note of that block number.

* mini9 INCLINE adjust check - Ver 002 *



Head Positioning Test Pattern

- (4) Move the head/carriage unit to the center of its travel with function code 63 (see [Chapter 9, Section 9.4.19](#)) using the following key operation.

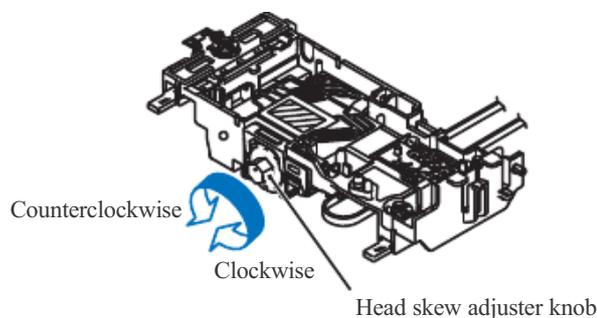
Models with numerical keypad: Press the **6**, **3**, and **Black Start (Mono Start)** keys in this order to display "START 63?" on the LCD. Next, press the * key.

NOTE: In models with touch panel, to display the numeral, * and # keys, it is necessary to switch the software keypad between the numerical and function keypads by pressing the **Scan** and **Copy** keys simultaneously.

Models without numerical keypad: Enter 6 and 3 using the **▲**, **▼** and **OK** keys and then press the **Black Start (Mono Start)** key to display "START 63?" on the LCD. Next, enter * using the **▲**, **▼** and **OK** keys.

- (5) Turn the head skew adjuster knob by the number of divisions specified by the pattern number you recorded in step (3), using a spanner.

If block +1 is the least uneven print, for example, turn the head skew adjuster knob clockwise by one division; if block -1, turn it counterclockwise by one division.



(head_skew_adjuster_knob_BHM9)

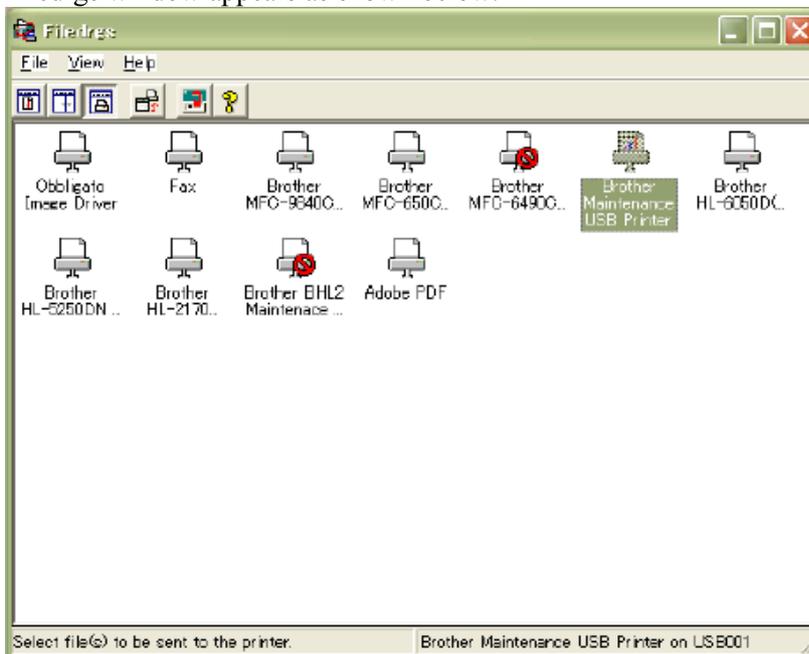
- (6) After completion of the adjustment, press the **Stop/Exit** key. The head/carriage unit returns to the home position (head capping position).

[5] Update the paper feeding correction value (Function code 58)

Before starting the operation below, be sure to set letter-size paper in the paper tray for printing check patterns.

- (1) On your PC, run "fileldg32.exe" in the folder created in [Section 7.1.1](#).

The Filedrgs window appears as shown below.



- (2) Drag and drop the "pf_exitadj_a4.prn" onto the Brother Maintenance USB Printer driver icon in the Filedrgs window shown above.

The machine displays the "RECEIVING DATA" on the LCD and prints out "PF & EXIT adjust check" pattern (see [page 7-18](#) for a sample printout).

For the paper feed roller adjustment

- (3) On the machine, press the **5** and **8** keys in this order. (For models without numerical keypad, enter 5 and 8 in this order using the **▲**, **▼** and **OK** keys.)

Models except DCPJ140W

The "1.PF 2.EXIT" appears on the LCD.

DCPJ140W

The "Select 58?" appears on the LCD. Press the **Black Start (Mono Start)** key to display the "1.PF 2.EXIT."

- (4) To select the paper feed roller adjustment, press the **1** key. (For models without numerical keypad, enter 1 using the **▲**, **▼** and **OK** keys.)

The "PF ADJ NO. +0" appears on the LCD.

- (5) Out of the upper three rows in the "PF & EXIT adjust check" pattern (on [page 7-18](#)), check the middle row and select the block that is the least uneven print. Make a note of that block number.

If the least unevenness seems to be far to the left of -8, regard it as -8; if it seems to be far to the right of +8, regard it as +8. In this case, you need to check whether the paper feed roller and head/carriage unit are set into place.

- (6) Enter the number of the least uneven block found in step (5).

For example, if the number of the least uneven block is +4, press the **4** key when the "PF ADJ NO. +0" is displayed on the LCD. (For models without numerical keypad, enter 4 using the ▲, ▼ and **OK** keys.)

If the number is -4, press the ▼ key to display the "PF ADJ NO. -0" and press the **4** key.

(For models without numerical keypad, enter ▼ and 4 using the ▲, ▼ and **OK** keys.)

NOTE: In models with touch panel, if the ▲, ▼, ►, and ◀ keys are not displayed on the software keypad, it is necessary to switch the software keypad between the numerical and function keypads by pressing the **Scan** and **Copy** keys simultaneously.

NOTE: In models with touch panel, switching between "+" and "-" entries can be done by pressing the **Scan** and **Copy** keys, respectively, instead of the ▼ key. To enter a "+" value, press the **Scan** key; to enter a "-" value, press the **Copy** key.

Then press the **OK** key (**Photo Capture** key for models without **OK** key), and the machine returns to the initial stage of the maintenance mode.

For the paper ejection roller adjustment

- (7) On the machine, press the **5** and **8** keys in this order. (For models without numerical keypad, enter 5 and 8 using the ▲, ▼ and **OK** keys.)

Models except DCPJ140W

The "1.PF 2.EXIT" appears on the LCD.

DCPJ140W

The "Select 58?" appears on the LCD. Press the **Black Start (Mono Start)** key to display the "1.PF 2.EXIT."

- (8) To select the paper ejection roller adjustment, press the **2** key. (For models without numerical keypad, enter 2 using the ▲, ▼ and **OK** keys.)

The "EXIT ADJ NO. +0" appears on the LCD.

- (9) In the "PF & EXIT adjust check" pattern (on [page 7-18](#)), check the lower two rows and select the block that is the least uneven print on each row. Make a note of the average of the two block numbers.

If the number of the block that is the least uneven print is 0 on one row, and it is -2 on the other row, for example, the average is -1.

- (10) Enter the average obtained in step (9) in the same way as in step (6).

Then press the **OK** key (**Photo Capture** key for models without **OK** key), and the machine returns to the initial stage of the maintenance mode.

* mini9 PF&EXIT adjust check - Ver 001 *

(NG)-8 -6 -4 -2 0 +2 +4 +6 +8(NG)

(NG)-8 -6 -4 -2 0 +2 +4 +6 +8(NG)

(NG)-8 -6 -4 -2 0 +2 +4 +6 +8(NG)

(NG)-8 -6 -4 -2 0 +2 +4 +6 +8(NG)

(NG)-8 -6 -4 -2 0 +2 +4 +6 +8(NG)

Paper Feeding Check Pattern for the Paper Feed Roller and Paper Ejection Roller

[6] Align vertical print lines (Function code 65)

Before starting the operation below, be sure to set letter-size paper in the paper tray for printing check patterns.

Models except DCPJ140W

- (1) Press the **6** and **5** keys in this order in the initial stage of the maintenance mode. Then press the **1** key. For models without numerical keypad, enter 6, 5, and 1 in this order using the **▲**, **▼** and **OK** keys.

The machine displays the "PRINTING" on the LCD and prints three sets of vertical alignment check pattern A (see [pages 7-21](#) and [7-22](#) for a sample printout) in monochrome for 450 dpi, 600 dpi and 1200 dpi, each of which consists of #0 through #8 blocks. #0 block is a reference line of full alignment.

The "450DPI NO. (1-8)" appears on the LCD.

- (2) For 450 dpi, check the printed vertical alignment check patterns and find which number block shows full alignment. Enter that block number by using the numerical keys. The "600DPI NO. (1-8)" appears on the LCD.
- (3) For 600 dpi, perform the same operation as in step (2).
The "1200DPI NO. (1-8)" appears on the LCD.
- (4) For 1200 dpi, perform the same operation as in step (2).

The machine automatically returns to the initial stage of the maintenance mode.

NOTE: If #1 or #8 block is fully aligned so that you press the **1** or **8** key (or you enter 1 or 8 using the **▲**, **▼**, and **OK** keys) in the above procedure, then go back to step (1) to confirm that #4 or #5 block becomes aligned.

DCPJ140W

- (1) Enter 6, 5, and 1 in this order using the ▲, ▼ and **OK** keys in the initial stage of the maintenance mode.

The machine displays "PRINTING" on the LCD and prints vertical alignment check pattern B of rows (A) to (D) (see [page 7-23](#) for a sample printout). Each of the rows consists of #1 through #9 blocks.

The "A NO. (1-9)" appears on the LCD.

- (2) Check the (A) row, find which number block shows most indistinct vertical lines, and then enter that block number using the ▲, ▼ and **OK** keys.

The "B NO. (1-9)" appears on the LCD.

- (3) Check the (B) row, find which number block shows most indistinct vertical lines, and then enter that block number using the ▲, ▼ and **OK** keys.

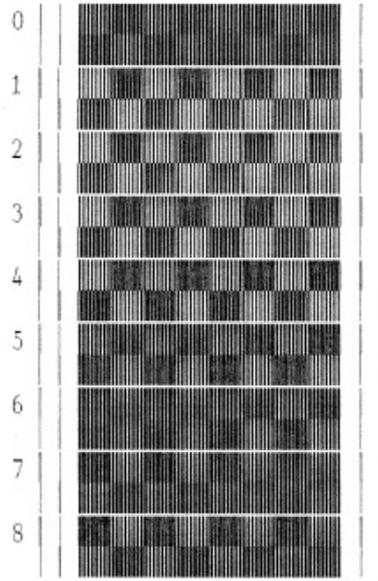
The "C NO. (1-9)" appears on the LCD.

- (4) In the same way, enter the block number of most indistinct vertical lines for the (C) and (D) rows.

The machine automatically returns to the initial stage of the maintenance mode.

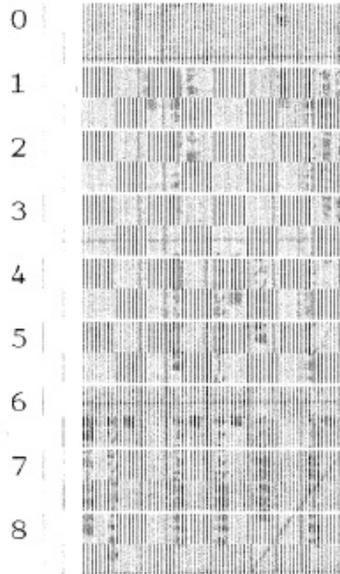
NOTE: If #1 or #9 block is fully aligned so that you enter 1 or 9 using the ▲, ▼ and **OK** keys in the above procedure, the machine shows "PRINTING" on the LCD and prints the vertical alignment check pattern again. Go back to step (2) and make adjustments again.

450dpi

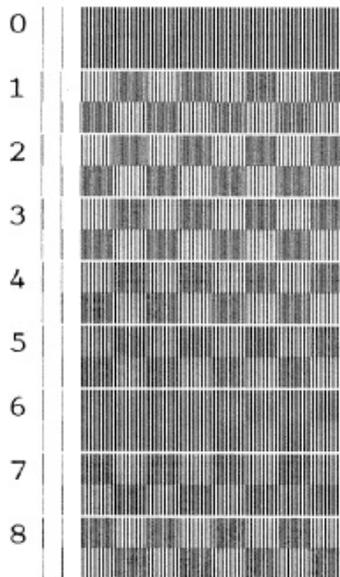


Vertical Alignment Check Pattern A (1/2)

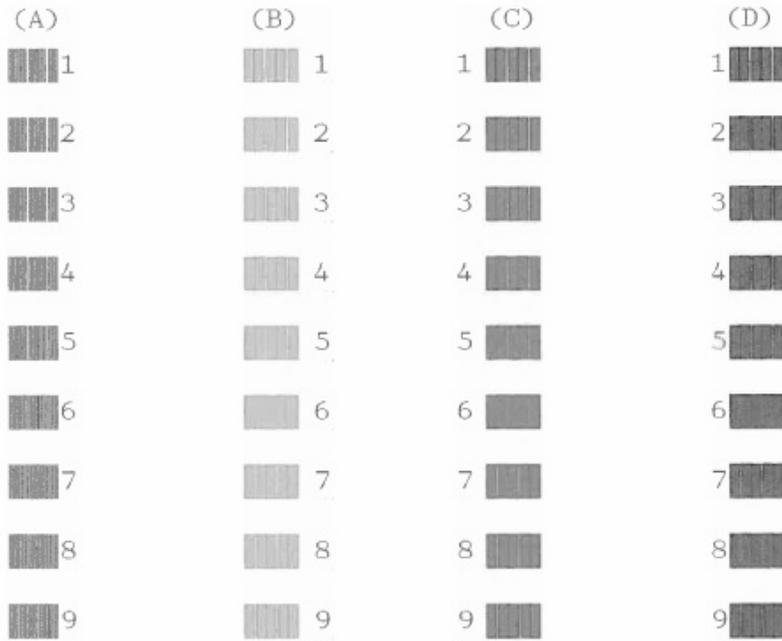
600dpi



1200dpi



Vertical Alignment Check Pattern A (2/2)



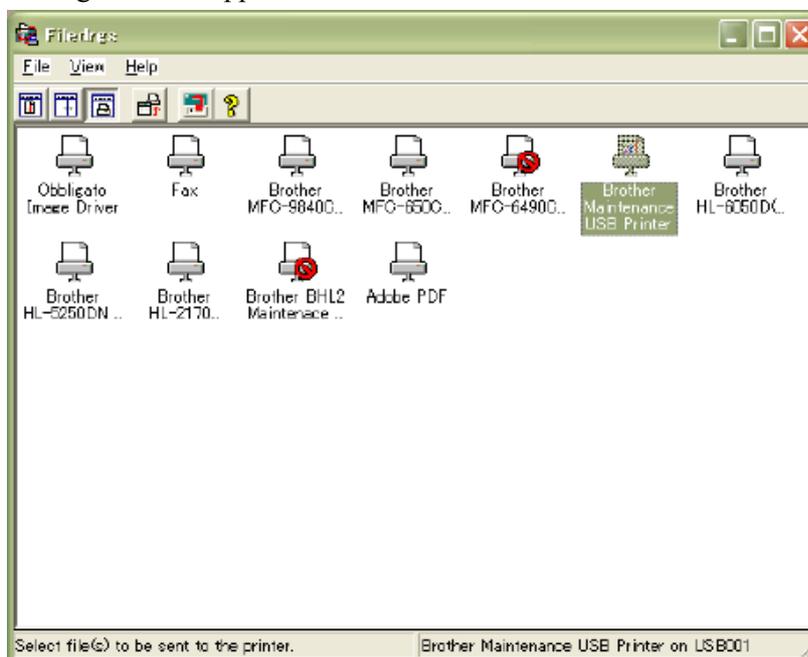
Vertical Alignment Check Pattern B

[7] Adjust margins in borderless printing (Function code 66)

Before starting the operation below, be sure to set letter-size paper in the paper tray for printing check patterns.

- (1) On the PC, run "filedrg32.exe" in the folder created in [Section 7.1.1](#).

The Filedrgs window appears as shown below.



- (2) Drag and drop the "media_bottomadj_a4.prn" onto the Brother Maintenance USB Printer driver icon in the Filedrgs window shown above.

The machine displays the "RECEIVING DATA" on the LCD and prints out the "MEDIA & BOTTOM CHECK" pattern (see [page 7-27](#) for a sample printout). This is for checking the left, right, and bottom margins.

Left and right margin adjustment

- (3) Measure the left and right margins on the printed pattern.

The upper row is printed in 600 dpi, and the lower row, in 1200 dpi.

(Example) 600 dpi Left: 0.8 mm, Right: 1.1 mm
 1200 dpi Left: 0.9 mm, Right: 1.2 mm

If both of the left and right margins are within the range from 0.9 to 1.1 mm, no adjustment is required. If not, go to step (4).

- (4) If either of the left and right margins is out of the specified range, press the **6** key twice and the ***** key on the machine. (For models without numerical keypad, enter 6, 6, and * using the **▲**, **▼** and **OK** keys.)

The "LEFT: 10" appears on the LCD.

- (5) To adjust the left margin in 600 dpi, enter the measured value (in units of 0.1 mm) multiplied by 10.
In this example, the left margin measured in step (3) is 0.8 mm, so press the **0, 8**, and **OK** keys.
NOTE: In models having no **OK** key on the control panel, press the **Photo Capture** key.
The "RIGHT1: 10" appears on the LCD.
- (6) To adjust the right margin in 600 dpi, enter the measured value (in units of 0.1 mm) multiplied by 10.
In this example, the right margin measured in step (3) is 1.1 mm, so press the **1, 1**, and **OK** keys.
The "LEFT2: 10" appears on the LCD.
- (7) To adjust the left margin in 1200 dpi, enter the measured value (in units of 0.1 mm) multiplied by 10.
In this example, the right margin measured in step (3) is 0.9 mm, so press the **0, 9**, and **OK** keys.
The "RIGHT2: 10" appears on the LCD.
- (8) To adjust the right margin in 1200 dpi, enter the measured value (in units of 0.1 mm) multiplied by 10.
In this example, the right margin measured in step (3) is 1.2 mm, so press the **1, 2**, and **OK** keys.
Upon completion of the entry, the machine automatically returns to the initial stage of the maintenance mode.
- (9) Go back to step (2) and print out the "MEDIA & BOTTOM CHECK" pattern again.
- (10) Measure the left and right margins on the printed pattern.
If both of the left and right margins are within the range from 0.9 to 1.1 mm, the adjustment is completed.

Bottom margin adjustment

- (11) Measure the bottom margin on the printed pattern.
(Example) Bottom margin: 3.1 mm
If it is within the range from 2.9 to 3.1 mm, no adjustment is required. If not, go to step (12).
- (12) If the bottom margin is out of the specified range, press the **6** key twice and the **#** key on the machine. (For models without numerical keypad, enter 6, 6, and # using the **▲**, **▼** and **OK** keys.)
NOTE: In models with touch panel, to display the numerical, * and # keys, it is necessary to switch the software keypad between the numerical and function keypads by pressing the **Scan** and **Copy** keys simultaneously.
The "BOTTOM: 30" appears on the LCD.

(13) To adjust the bottom margin, enter the measured value (in units of 0.1 mm) multiplied by 10.

In this example, the bottom margin measured in step (11) is 3.1 mm, so press the **3**, **1**, and **OK** keys. (For models without numerical keypad, enter 3 and 1 using the **▲**, **▼** and **OK** keys and then press the **OK** key again.)

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

(14) Go back to step (2) and print out the "MEDIA & BOTTOM CHECK" pattern again.

(15) Measure the bottom margin on the printed pattern.

If it is within the range from 2.9 to 3.1 mm, the adjustment is completed.

600dpi LEFT:0.9-1.1mm



600dpi RIGHT:0.9-1.1mm



1200dpi LEFT:0.9-1.1mm



1200dpi RIGHT:0.9-1.1mm



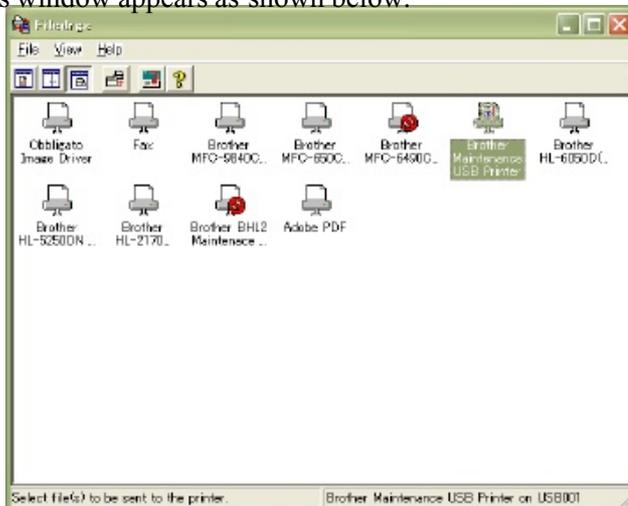
Left, Right, and Bottom Margins Check Pattern

[8] Print out a total quality check pattern

Before starting the operation below, be sure to set letter-size paper in the paper tray for printing check patterns.

- (1) On your PC, run "filedrgs.exe" in the folder created in [Section 7.1.1](#).

The Filedrgs window appears as shown below.



- (2) Drag and drop the "qualbh9.pm" ("qual_dcp140.pm" for DCPJ140W) onto the Brother Maintenance USB Printer driver icon in the Filedrgs window shown above.

The machine displays the "RECEIVING DATA" on the LCD and prints out the "Total Quality Check Pattern" (see the next page for a sample printout).

- (3) Check the printed check pattern. If any problem is found, go back to the related item (any of [4] through [7] above) and make adjustments again.

A: Leading-edge print start position	Check that the top margin is within 3 ± 1 mm and the first printed line is not inclined.
B: Paper feed roller adjustment	Check the result of PF roller compensation. Check that the section number with the lightest checkered pattern is within ± 2 . Go back to Section 7.2 [5] .
C: Margin adjustment for borderless printing (600 dpi)	Check that there is no left or right margin in 600 dpi. Go back to Section 7.2 [7] .
D: Adjustment of vertical print lines	Models except DCPJ140W: Check in the center column with OK that each block for 450 dpi, 600 dpi and 1200 dpi shows full alignment. DCPJ140W: Check in each of columns (A) to (D) that the center block shows full alignment. Go back to Section 7.2 [6] .
E: Head positioning adjustment	Check the result of the head skew adjustment. Check that the section number with the lightest checkered pattern is within ± 2 . Go back to Section 7.2 [4] .
F: Margin adjustment for borderless printing (1200 dpi)	Check that there is no left or right margin in 1200 dpi. Go back to Section 7.2 [7] .
G: Paper ejection roller adjustment	Check the result of the paper ejection roller compensation. Check that the section number with the lightest checkered pattern is within ± 2 . Go back to Section 7.2 [5] .

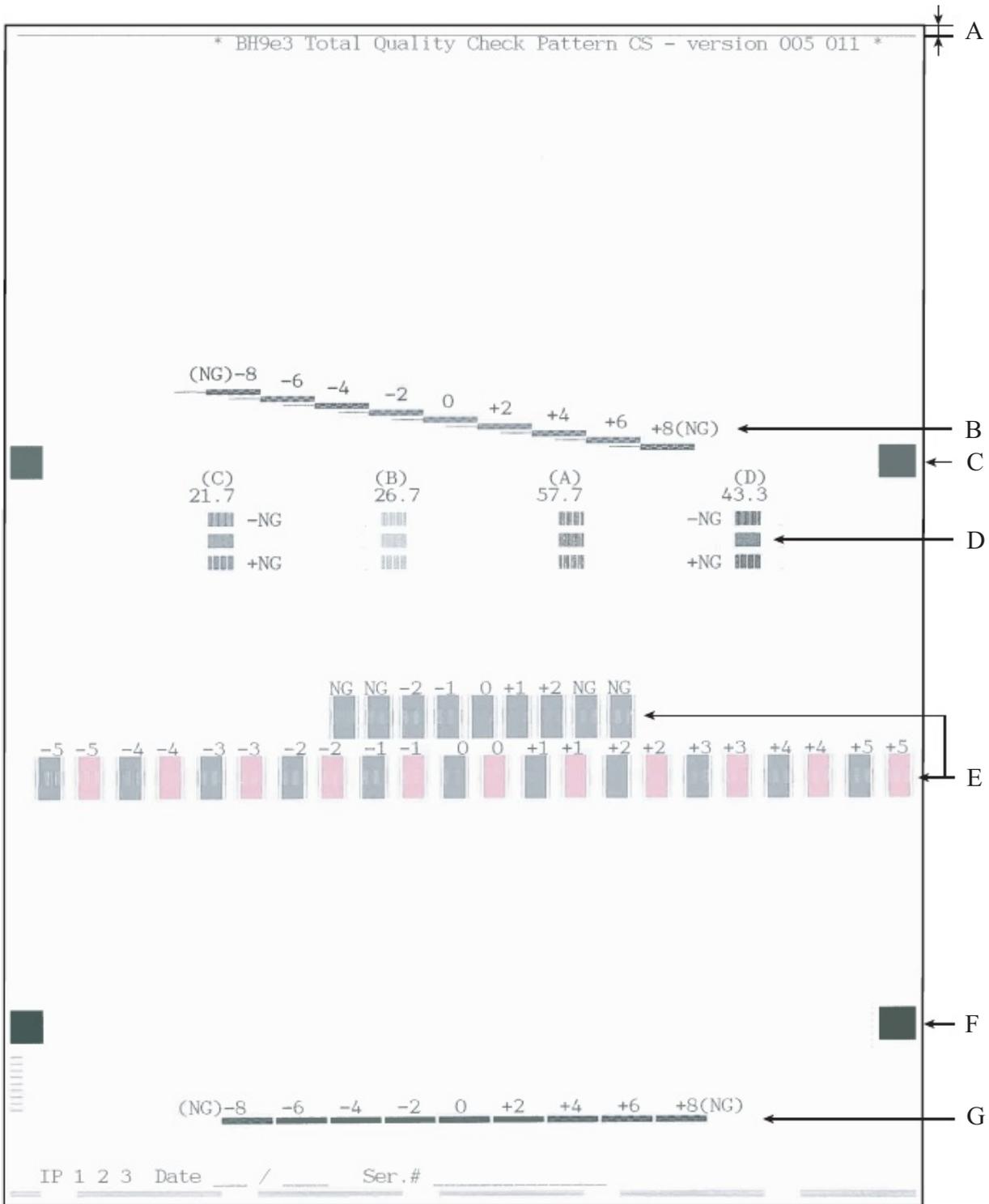
- (4) Repeat steps (2) and (3) until no problem is found.

Models except DCPJ140W



Total Check Pattern

- A: Leading-edge print start position
- B: Paper feed roller adjustment
- C, F: Margin adjustments for borderless printing
- D: Adjustment of vertical print lines
- E: Head positioning adjustment
- G: Paper ejection roller adjustment



Total Check Pattern

- A: Leading-edge print start position
- B: Paper feed roller adjustment
- C, F: Margin adjustments for borderless printing
- D: Adjustment of vertical print lines
- E: Head positioning adjustment
- G: Paper ejection roller adjustment

[9] Switch back to standby

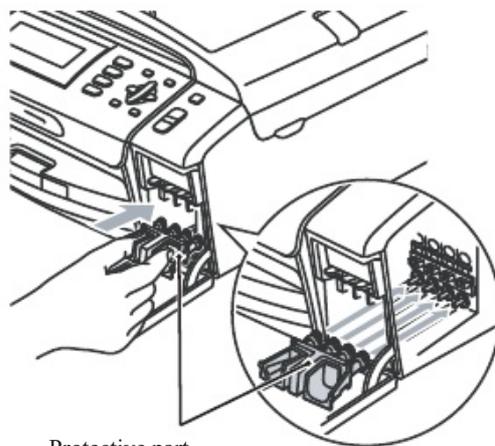
After completion of the adjustment, disconnect the USB cable.

Then press the **9** key twice to return to the standby state. (For models without numerical keypad, enter 9 and 9 using the **▲**, **▼** and **OK** keys.)

Note: Be sure to disconnect the USB cable first. Returning to standby without disconnecting the USB cable runs "Found New Hardware Wizard" that starts USB driver installation (as described in [Section 7.1.2](#)).

[10] Replace the ink cartridges with the protective part

Remove all four ink cartridges and set the protective part instead. Check that the small tabs on both sides of the protective part fit in the holes inside the ink refill ASSY.



Protective part

(Protective_part_mini9)

7.3 IF YOU REPLACE THE MAIN PCB

Note: If you replace the main PCB, it is necessary to make a backup of the machine information and user setting information into an external memory before starting disassembly of the machine. After the completion of reassembling jobs, restore the backup data to the new main PCB. For detailed procedure of the backup and restoration, refer to [Chapter 9, Section 9.4.11 "Backup of Machine Information \(Function code 46\) \(User-accessible\)."](#)

[1] Load update programs/data

■ If the main PCB is replaced with a new one:

Load the desired programs onto the flash ROM. Refer to [Appendix 2, page App. 2-5](#).

■ If the main PCB loaded with programs is used (Updating existing programs):

Change the programs stored in the flash ROM. Refer to [Appendix 2, page App. 2-7](#).

[2] Initialize the EEPROM on the main PCB (Function code 01)

Refer to [Chapter 9, Section 9.4.1](#).

[3] Customize the EEPROM on the main PCB (Function code 74)

Refer to [Chapter 9, Section 9.4.24](#).

[4] Specify the CIS type (Function code 59)

Refer to [Chapter 9, Section 9.4.17](#).

[5] Check the control panel PCB for normal operation (Function code 13)

Refer to [Chapter 9, Section 9.4.7](#).

[6] Check the sensor operation (Function code 32)

Refer to [Chapter 9, Section 9.4.9](#).

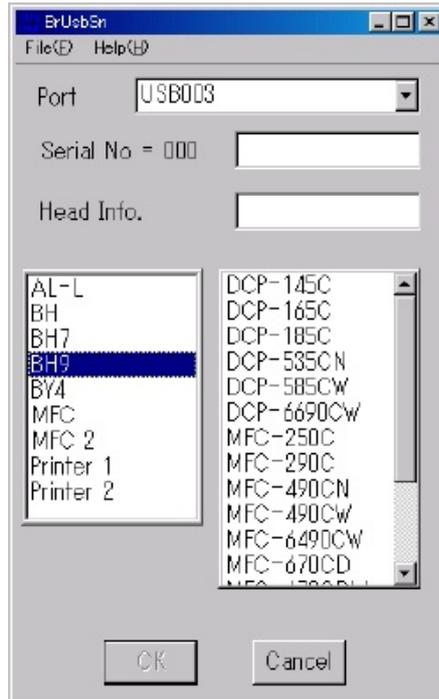
[7] Acquire white level data and set CIS scanner area (Function code 55)

Refer to [Chapter 9, Section 9.4.15](#).

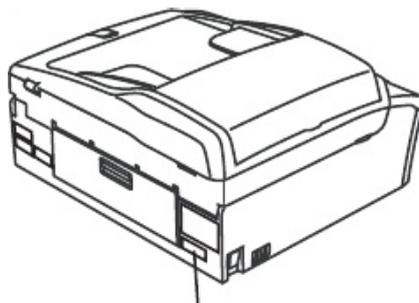
[8] Set an ID code and update the head property code

Note: Make sure that the Brother Maintenance USB Printer driver has been installed to your PC. To do it, click **Start | Settings | Printers** to call up the Printers window and confirm that the Brother Maintenance USB Printer icon (shown on the sample window on [page 7-9](#)) is displayed. If the driver has not been installed, install it referring to [Section 7.1.2](#).

- (1) Make sure that your PC is turned off, then connect the machine to your PC using a USB cable.
- (2) Switch your PC on.
- (3) On your PC, run the ID/head property utility (brusbsn.exe) in the folder created in [Section 7.1.1](#). The following window appears.



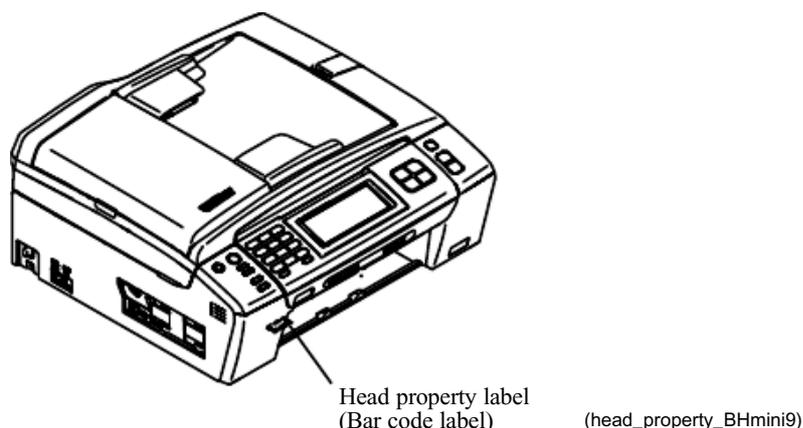
- (4) On the model menu, click **BH9**.
- (5) In **Port** on the BrUsbSn screen, select the port number assigned to the Brother Maintenance USB Printer. If the port number is unknown, follow the instructions given in [Section 7.2 \[1 \], step \(8\)](#).
- (6) In the **Serial No.** box on the BrUsbSn screen, type the 9-digit serial number (e.g., D6F11101) printed on the nameplate labeled to the machine as an ID code.



Serial number label

(app01b_1)

- (7) In the **Head Info.** box, type the 16-digit property code (e.g., ALR7765501200000) which is printed on the bar code label attached to the lower cover. Click the **OK** button.



- (8) Check whether the entered character strings (ID code and head property code) are correct with the following procedure.

In the initial stage of the maintenance mode, press the **8** and **0** keys in this order to call up the log information on the LCD. (For models without numerical keypad, enter 8 and 0 in this order using the **▲**, **▼** and **OK** keys.)

Then press the **Black Start (Mono Start)** key several times until the ID code appears on the LCD. Check that the displayed code is that string entered in step (6).

Next, press the **Black Start (Mono Start)** key once to display the head property code. Check that the displayed code is the string entered in step (7).

If both are OK, proceed to [9] below.

If something wrong is displayed, check the connection between the PC and machine and go back to step (2).

[9] Restore machine information (Function code 46)

Restore the machine information and user setting information that have been saved in an external memory, referring to [Chapter 9, Section 9.4.11](#).

If the machine has failed to back up the machine information into an external memory at the start of repair, replace the ink absorber box and flushing box, and then reset each of the purge and flushing counters with the following procedure.

If the machine information is successfully restored, it is not necessary to perform operations given in sections [10] to [12], [14] and [15].

- (1) Switch the machine to the maintenance mode using the steps below. (Refer to [Chapter 9](#).)

Models without touch panel

Press the **Menu** and **Black Start (Mono Start)** keys in this order. Next press the **▲** key four times.

Models with touch panel

Press the **Menu** key on the touch panel and the **Black Start (Mono Start)** key on the control panel. Next press the **Scan** key four times.

TIP: When the touch panel is inoperable, simultaneously press the **Scan** and **Copy** keys on the control panel, instead of the **Menu** key, and press the **Black Start (Mono Start)** key.

Next press the **Scan** key four times.

TIP: Models equipped with a numerical keypad on the control panel can enter the maintenance mode in the same way as conventional models; that is, by pressing the **Menu**, *****, **2**, **8**, **6** and **4** keys in this sequence.

The machine beeps for approx. one second (MFC only) and displays "■■ MAINTENANCE ■■" on the LCD, indicating that it is placed in the initial stage of

the maintenance mode, a mode in which the machine is ready to accept entry from the keys.

- (2) Press the **8** and **0** keys in this order. (For models without numerical keypad, enter 8 and 0 in this order using the **▲**, **▼** and **OK** keys.)
- (3) Press the **Black Start (Mono Start)** key several times until the purge (or flushing) count appears on the LCD.
- (4) Press the **2**, **7**, **8**, and **3** keys in this order to reset the purge (or flushing) count. (For models without numerical keypad, enter 2, 7, 8, and 3 in this order using the **▲**, **▼** and **OK** keys.)
- (5) Press the **Stop/Exit** key to return to the initial stage of the maintenance mode.
- (6) Press the **9** key twice to exit from the maintenance mode. (For models without numerical keypad, enter 9 twice using the **▲**, **▼** and **OK** keys.)

[10] Update the paper feeding correction value (Function code 58)

Refer to [Section 7.2, \[5 \]](#).

[11] Align vertical print lines (Function code 65)

Refer to [Section 7.2, \[6 \]](#).

[12] Adjust margins in borderless printing (Function code 66)

Refer to [Section 7.2, \[7 \]](#).

[13] Print out an ADF copy chart and make a copy of that chart in ADF scanning (For models with ADF)

Refer to [Section 7.4 \[1 \]](#).

[14] Check LCD operation and specify the LCD type (Function code 12)

Refer to [Chapter 9, Section 9.4.6](#).

[15] Adjust the touch panel (Function code 78) (For models with touch panel)

Refer to [Chapter 9, Section 9.4.28](#).

[16] Print out a total quality check pattern

Refer to [Section 7.2, \[8 \]](#).

[17] Switch back to standby

Refer to [Section 7.2, \[9 \]](#).

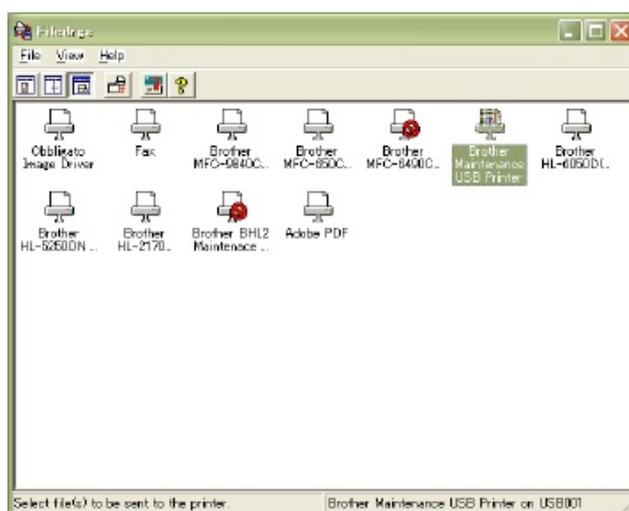
7.4 IF YOU REPLACE THE ADF & DOCUMENT COVER ASSY OR ADF-RELATED PARTS (FOR MODELS WITH ADF)

[1] Print out an ADF copy chart and make a copy of that chart in ADF scanning

Before starting the operation below, be sure to set letter-size paper in the paper tray for printing and making a copy of the check pattern. To get the accurate print data, we suggest using the Brother genuine plain paper PB60 or other higher quality one (DO NOT USE glossy paper).

- (1) On your PC, run "filedrg32.exe" in the folder created in [Section 7.1.1](#).

The Filedrgs window appears as shown below.



- (2) Drag and drop the "chart.prn" onto the Brother Maintenance USB Printer driver icon in the Filedrgs window shown above.

The machine displays the "RECEIVING DATA" on the LCD and prints out the "ADF COPY CHART" (see [page 7-38](#) for a sample printout).

- (3) Press the **9** key twice to return to the standby state. (For models without numerical keypad, enter 9 twice using the **▲**, **▼** and **OK** keys.)
- (4) Fully insert the top edge of the printed "ADF COPY CHART" *with face down* into the ADF, then fit the document guides to the document size.

Set the copy quality mode to "**Best**" and press the **Color Start** key to make a copy.

Note: Check that the document does not skew.

Note: During copying, do not touch the document to prevent printed images from displacement.

- (5) Check the copied chart referring to the "Check Items on the ADF COPY CHART" given on [page 7-38](#).

If any problem is found, remove the newly mounted ADF unit or ADF-related parts once and set it (them) into place, or check and correct the connection of ADF-related harnesses.

Check Items on the ADF COPY CHART

Check that the copied chart has none of the following defects.

A: Contrast chart 1

- Black or white vertical streaks
- Patchy color
- Missing dots

B: Color blocks

- Patchy color
- Second black block printed in yellow or red
- Area expansion of block(s)
- Third blocks printed too light
- Frames of white blocks missing or discolored

Note: Vertical streaks in color blocks are negligible.

C: Contrast chart 2

- Vertical streaks in 0.3 to 0.5 blocks
(Vertical streaks only in 0.2 block is negligible.)
- Patchy color in 0.3 to 0.5 blocks
(Patchy color only in 0.2 block is negligible.)
- Missing dots in 0.2 to 0.5 blocks

D: Resolution chart

- Overlapping lines (diagonal or horizontal) in 4 to 6 mm blocks
- Curved lines in 4 to 6 mm blocks
- Black or color vertical streaks in 4 to 6 mm blocks
- Discoloration in 4 to 6 mm blocks

E: Whole page

- Ghost (image printed on the blank area)
- Color horizontal streaks
- Black vertical band

ADF COPY CHART No.2

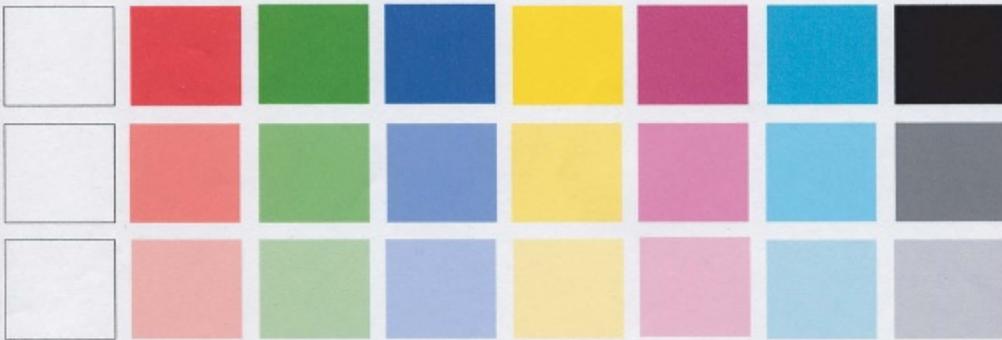
DATE :
SERIAL NO :

2008.03.26

IPAPPROVE

0.2

0.3



0.2

0.3

0.4

0.5

4

5

6

8

A

B

C

D

ADF Copy Chart

7.5 IF YOU REPLACE THE INK ABSORBER BOX OR FLUSHING BOX

When either the ink absorber box or flushing box is replaced, you should replace both of them.

[1] Reset each of the purge and flushing counters

- (1) Switch the machine to the maintenance mode using the steps below. (Refer to [Chapter 9](#).)

Models without touch panel

Press the **Menu** and **Black Start (Mono Start)** keys in this order. Next press the **▲** key four times.

Models with touch panel

Press the **Menu** key on the touch panel and the **Black Start (Mono Start)** key on the control panel. Next press the **Scan** key four times.

TIP: When the touch panel is inoperable, simultaneously press the **Scan** and **Copy** keys on the control panel, instead of the **Menu** key, and press the **Black Start (Mono Start)** key. Next press the **Scan** key four times.

TIP: Models equipped with a numerical keypad on the control panel can enter the maintenance mode in the same way as conventional models; that is, by pressing the **Menu**, *****, **2**, **8**, **6** and **4** keys in this sequence.

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

- (2) Press the **8** and **0** keys in this order in the initial stage of the maintenance mode. (For models without numerical keypad, enter 8 and 0 using the **▲**, **▼** and **OK** keys.)
- (3) Press the **Black Start (Mono Start)** key several times until the purge (or flushing) count appears on the LCD.
- (4) Press the **2**, **7**, **8**, and **3** keys in this order to reset the purge (or flushing) count. (For models without numerical keypad, enter 2, 7, 8, and 3 in this order using the **▲**, **▼** and **OK** keys.)
- (5) Press the **Stop/Exit** key to return to the initial stage of the maintenance mode.
- (6) Press the **9** key twice to exit from the maintenance mode. (For models without numerical keypad, enter 9 twice using the **▲**, **▼** and **OK** keys.)

Tip: This machine counts all purge operations and flushing operations performed since produced in order to prevent the ink absorber box and flushing box from overflowing with drained and flushed ink, respectively. An initial purge, for example, advances the counter by $133 + 316 = 449$.

When the purge or flushing counter approaches 5760 or 568181818, respectively, the "MACHINE ERROR 46" appears, and further purge or flushing operations are prohibited. Replace the ink absorber box and flushing box, and then reset their counters.

7.6 IF YOU REPLACE THE CONTROL PANEL ASSY OR CONTROL PANEL PCB

- [1] Check LCD operation and specify the LCD type (Function code 12)
Refer to [Chapter 9, Section 9.4.6](#).
- [2] Check the operation of the control panel PCB (Function code 13)
Refer to [Chapter 9, Section 9.4.7](#).
- [3] Adjust the touch panel (Function code 78) (For models with touch panel)
Refer to [Chapter 9, Section 9.4.28](#).

7.7 IF YOU REPLACE THE LCD UNIT

- [1] Check LCD operation and specify the LCD type (Function code 12)
Refer to [Chapter 9, Section 9.4.6](#).

7.8 IF YOU REPLACE THE FB UNIT* OR SCANNER COVER (SCANNER UNIT)

* FB unit: ADF & document cover ASSY and scanner cover (scanner unit)

- [1] Load update programs/data
 - If the main PCB is replaced with a new one:
Load the desired programs onto the flash ROM. Refer to [Appendix 2, page App. 2-5](#).
 - If the main PCB loaded with programs is used (Updating existing programs):
Change the programs stored in the flash ROM. Refer to [Appendix 2, page App. 2-7](#).
- [2] Specify the CIS type (Function code 59)
Refer to [Chapter 9, Section 9.4.17](#).
- [3] Acquire white level data and set CIS scanner area (Function code 55)
Refer to [Chapter 9, Section 9.4.15](#).
- [4] Print out an ADF copy chart and make a copy of that chart in ADF scanning (For models with ADF)
Refer to [Section 7.4 \[1 \]](#).

CHAPTER 8

CLEANING

CHAPTER 8 CLEANING

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

For the cleaning procedures of the head/carriage unit, scanner unit, and platen, refer to the User's Guide.

CONTENTS

8.1	CLEANING THE EXTERNAL AND INTERNAL SURFACE OF THE MACHINE....	8-1
8.2	CLEANING THE MAINTENANCE UNIT	8-2

8.1 CLEANING THE EXTERNAL AND INTERNAL SURFACE OF THE MACHINE

- (1) If the external surface of the machine is stained, clean it with a soft, clean and lint-free

cloth.

Note: Do not use isopropyl alcohol (IPA) to remove dirt or stains from the molding parts. Doing so may cause cracks in those parts. Do not use IPA to clean the touch panel either.

- (2) If the inside of the machine is stained, first unplug the power cord from the electrical outlet and then clean it with a soft, clean and lint-free cloth.

Note: Do not use liquid or aerosol cleaners.

- (3) If the PF encoder disk or CR encoder strip is stained, replace it with a new one. Do not try to clean it.

8.2 CLEANING THE MAINTENANCE UNIT

- (1) Plug the power cord of the machine into an electrical outlet.
- (2) Switch the machine to the maintenance mode using the steps below. (Refer to [Chapter 9](#).)

Models without touch panel

Press the **Menu** and **Black Start (Mono Start)** keys in this order. Next press the **▲** key four times.

Models with touch panel

Press the **Menu** key on the touch panel and the **Black Start (Mono Start)** key on the control panel. Next press the **Scan** key four times.

TIP: When the touch panel is inoperable, simultaneously press the **Scan** and **Copy** keys on the control panel, instead of the **Menu** key, and press the **Black Start (Mono Start)** key. Next press the **Scan** key four times.

TIP: Models equipped with a numerical keypad on the control panel can enter the maintenance mode in the same way as conventional models; that is, by pressing the **Menu**, *****, **2**, **8**, **6** and **4** keys in this sequence.

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

- (3) Move the head/carriage unit to the center of its travel (function code 63 in [Chapter 9, Section 9.4.19](#)) using the steps below.

Models with numerical keypad

Press the **6**, **3**, **Black Start (Mono Start)**, and ***** keys in this order.

Models without numerical keypad

Enter **6** and **3** in this order using the **▲**, **▼**, and **OK** keys, and then press the **Black Start (Mono Start)** key. Next enter ***** using the **▲**, **▼**, and **OK** keys.

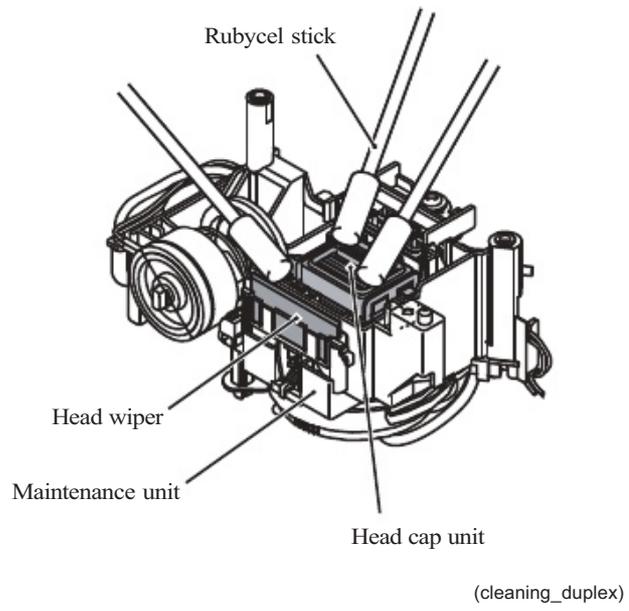
- (4) Unplug the power cord of the machine from the electrical outlet.
- (5) Open the scanner cover (scanner unit).
- (6) Clean the head cap unit and wiper of the maintenance unit with a "Rubycel" stick that is a cleaner stick provided as a spare part. (See the illustration on the next page.)

Note: Do not use a cotton swab that may leave lint on the cleaned sections. Lint left on the maintenance unit will affect the print performance.

Note: Use a new Rubycel stick and do not use the used one for any other maintenance units.

Note: During the cleaning jobs, take care not to touch the head caps or wiper directly by hand or scratch their surfaces. Do not remove them from the head cap holder.

- (7) Close the scanner cover.
- (8) Plug the power cord of the machine into an electrical outlet.
- (9) Hear the head/carriage unit moving. After the moving sound stops, unplug the machine's power cord from the electrical outlet.



CHAPTER 9

MAINTENANCE MODE

CHAPTER 9 MAINTENANCE MODE

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

* In operations for the maintenance mode in models with touch panel, keys of the software keypad displayed on the touch panel are also used. Only when a key needs to be limited to the one on the control panel or on the touch panel, this chapter describes a key, for example, as "the **Copy** key on the control panel" or "the **Scan** key on the touch panel." If a description says just "the **5** key," you can use either the **5** key of the numerical keypad on the control panel or the **5** key of the software keypad on the touch panel.

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

NOTE: This chapter includes descriptions of facsimile functions which a DCP does not support.

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9.1 ENTRY INTO THE MAINTENANCE MODE

■ For models without touch panel

- (1) Press the **Menu** and **Black Start (Mono Start)** keys in this order. Next press the **▲** key four times to switch the machine to the maintenance mode.

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

TIP: Models with numerical keypad on the control panel can enter the maintenance mode in the same way as conventional models; that is, by pressing the **Menu**, *****, **2**, **8**, **6** and **4** keys in this order.

- (2) To select one of the maintenance-mode functions listed in [Section 9.2](#), enter the corresponding 2-digit function code with the numerical keys on the control panel. (The details of each maintenance-mode function are described in [Section 9.4](#).)

- NOTES**
- To exit from the maintenance mode and switch to standby, press the **9** key twice in the initial stage of the maintenance mode. For models without numerical keypad, press the **▲/▼** key several times to display **9** on the LCD and then press the **OK** key. Repeat this operation to enter **9** again.
 - Pressing the **Stop/Exit** key after entering only one digit restores the machine to the initial stage of the maintenance mode.
 - If an invalid function code is entered, the machine resumes the initial stage of the maintenance mode.

■ For models with touch panel

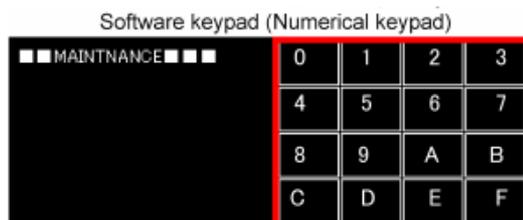
- (1) Press the **Menu** key.



TIP: When the touch panel is inoperable, simultaneously press the **Scan** and **Copy** keys on the control panel, instead of the **Menu** key.

- (2) Press the **Black Start (Mono Start)** key on the control panel. Next press the **Scan** key four times.

The machine beeps for approx. one second (MFC only) and displays "■■ MAINTENANCE ■■" on the touch panel, indicating that it is placed in the initial stage of the maintenance mode, a mode in which the machine is ready to accept entry from the keys.

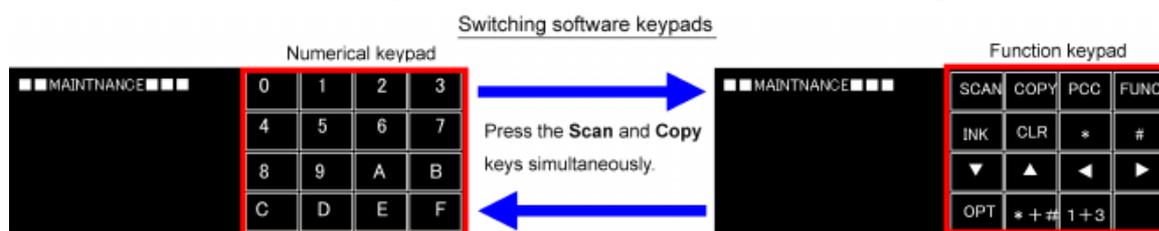


- (3) To select one of the maintenance-mode functions listed in [Section 9.2](#), enter the corresponding 2-digit function code with the numerical keys. (The details of each maintenance-mode function are described in [Section 9.4](#).)

TIP: Models with numerical keypad on the control panel can enter the maintenance mode in the same way as conventional models; that is, by pressing the **Menu** (or **Scan** and **Copy** keys simultaneously), *, **2**, **8**, **6** and **4** keys in this order.

NOTES • To exit from the maintenance mode and switch to standby, press the **9** key twice in the initial stage of the maintenance mode.

- Pressing the **Stop/Exit** key after entering only one digit restores the machine to the initial stage of the maintenance mode.
- If an invalid function code is entered, the machine resumes the initial stage of the maintenance mode.
- Pressing the **Scan** and **Copy** keys simultaneously switches the software keypad on the touch panel between the numerical and function keypads.



- In some functions (e.g., adjustment of touch panel with Function code 78 in [Section 9.4.28](#)), the software keypad is not available.
- In the maintenance mode, the functions listed below are assigned to the keys on the control panel.

Keys on the control panel	Functions assigned
Scan key	▲
Copy key	▼
Photo Capture key	OK

Pressing the **Scan** or **Copy** key several times scrolls the display to find a desired function on the touch panel and pressing the **Photo Capture** key selects the function.

9.2 LIST OF MAINTENANCE-MODE FUNCTIONS

Maintenance-mode Functions

Function Code	Function	Reference Section (Page)
01	EEPROM Parameter Initialization	9.4.1 (9-5)
05	Printout of Scanning Compensation Data	9.4.2 (9-6)
08	ADF Performance Test	9.4.3 (9-8)
09	Test Pattern	9.4.4 (9-9)
10	Firmware Switch Setting	9.4.5 (9-11)
11	Printout of Firmware Switch Data	9.4.5 (9-14)
12	Operational Check of LCD and Specifying of the LCD Type	9.4.6 (9-16)
13	Operational Check of Control Panel PCB (Check of Keys)	9.4.7 (9-19)
28	Updating of Firmware Using an External Memory	9.4.8 (9-22)
32	Sensor Operational Check	9.4.9 (9-23)
37	Printout of Dial Log	9.4.10 (9-25)
46	Backup of Machine Information	9.4.11 (9-26)
52	Setting of Country/Language	9.4.12 (9-28)
53	Transfer of Received FAX Data and/or Equipment's Log	9.4.13 (9-29)
54	Fine Adjustment of Scanning Start/End Position	9.4.14 (9-31)
55	Acquisition of White Level Data and CIS Scanner Area Setting	9.4.15 (9-33)
58	Updating of Paper Feeding Correction Value	9.4.16 (9-34)
59	Checking of CIS Travel and Specifying of CIS Type	9.4.17 (9-37)
61	Printout of PRN Files in Memory Card	9.4.18 (9-40)
63	Travel Check of the Head/Carriage Unit and Initial Setup Mode	9.4.19 (9-42)
65	Alignment of Vertical Print Lines in Monochrome	9.4.20 (9-43)
66	Margin Adjustment in Borderless Printing	9.4.21 (9-48)
68	Updating of Property Data	9.4.22 (9-52)
69	Head/Carriage Unit Traveling Speed Check	9.4.23 (9-53)
74	EEPROM Customizing	9.4.24 (9-54)
75	Travel of Head/Carriage Unit (for removing paper particles and dust accumulated on the maintenance unit)	9.4.25 (9-55)
76	Purge Operation	9.4.26 (9-56)
77	Print of the Equipment's Log	9.4.27 (9-58)
78	Adjustment of Touch Panel	9.4.28 (9-61)
80	Display of the Equipment's Log	9.4.29 (9-62)
82	Equipment Error Code Indication	9.4.30 (9-68)
87	Output of Transmission Log to the Telephone Line	9.4.31 (9-68)
88	Assurance Mode Switch Setting	9.4.32 (9-69)
91	EEPROM Parameter Initialization (except the telephone number storage area)	9.4.1 (9-5)
99	Exit from the Maintenance Mode	----- (9-1)
(Menu +#, 2, 7, 9, 0, 0)	Cancellation of the Pin TX Lock Mode (Not applicable to Japanese and U.S.A. models)	9.4.33 (9-80)

: A function that the end user can use. (Refer to [Section 9.3.](#))

9.3 USER-ACCESS TO THE MAINTENANCE MODE

Basically, the maintenance-mode functions listed on the previous page should be accessed by service personnel only. However, you can allow end users to access some of these under the guidance of service personnel (e.g., by telephone).

The user-accessible functions (codes 10 to 12, 37, 46, 52, 53, 66, 75, 76, 80, 82, 87, 88, and 91) are *shaded* in the table given on the previous page. Function code 10 accesses the firmware switches, each of which has eight selectors. You should not allow end users to access all of those selectors, but you can allow them to access user-accessible selectors which are *shaded* in the firmware switch tables in [Appendix 4](#).

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

(1) **Models without touch panel**

Press the **Menu**, **Black Start (Mono Start)**, and **Menu** keys in this order.

TIP: For models with numerical keypad, you may press the **Menu**, **Black Start (Mono Start)**, and **0** keys instead in the same way as conventional models.

Models with touch panel

Press the **Menu** key on the touch panel (or the **Scan** and **Copy** keys on the control panel simultaneously). Next, press the **Black Start (Mono Start)** key and then press the **Scan** and **Copy** keys simultaneously.

TIP: For models with numerical keypad on the control panel, you may press the **Menu** key on the touch panel (or the **Scan** and **Copy** keys on the control panel simultaneously), the

Black Start (Mono Start) key, and the **0** key on the numerical keypad instead in the same way as conventional models.

- (2) When the machine shows "0 ■■■ MAINTENANCE ■■" on the LCD, indicating that the machine is ready to accept a function code number, enter a desired user-accessible code.
- (3) To make the machine return to standby, press the **Stop/Exit** key. When each of the user-accessible functions is completed, the machine automatically returns to standby.

9.4 DETAILED DESCRIPTION OF MAINTENANCE-MODE FUNCTIONS

9.4.1 EEPROM Parameter Initialization (Function code 01, 91)

■ Function

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

Function code	01	91
Maintenance-mode functions	All of these will be initialized.	These will be initialized.
User switches Firmware switches Remote activation code * Assurance mode switch settings		
Activity report * Station ID data * Outside line number * Telephone function registration * Speed dialing Group dialing Call transfer data		These will <u>not</u> be initialized.
EEPROM customizing code (4-digit)	This will <u>not</u> be initialized. (Note that the first digit of the 4-digit code will be initialized to "0." If the code is 1001, for example, it will be initialized to <u>0</u> 001.)	

* For MFC only

NOTE: If you replace the main PCB with the one used for any other machine, carry out this procedure and then customize the EEPROM (function code 74 in [Section 9.4.24](#)).

■ Operating Procedure

- (1) Press the **0** and **1** keys (or the **9** and **1** keys according to your need) in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 0 and 1 (or 9 and 1 according to your need) in this order using the **▲**, **▼** and **OK** keys.

The "SELECT 01?" ("SELECT 91?") appears on the LCD.

- (2) Press the **Black Start (Mono Start)** key.

The "PARAMETER INIT" appears on the LCD.

- (3) Upon completion of parameter initialization, the machine returns to the initial stage of the maintenance mode.

9.4.2 Printout of Scanning Compensation Data (Function code 05)

■ Function

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

■ Operating Procedure

Do not start this function merely after powering on the machine but start it after carrying out a sequence of scanning operation. Unless the machine has carried out any scanning operation, this function cannot print out correct scanning compensation data. This is because at the start of scanning operation, the machine initializes white and black level data and takes in the scanning compensation reference data.

NOTE: If this function is used after monochrome scanning, only the green data is valid.

NOTE: Be sure to disconnect the USB cable from the machine before proceeding to the procedure below.

- (1) Press the **0** and **5** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 0 and 5 in this order using the **▲**, **▼** and **OK** keys.

Models except DCPJ140W

The machine shows "PRINTING" on the LCD and prints out the scanning compensation data list (see the next page) containing items a) to l) given below.

DCPJ140W

The "DUMP 0:GRA 1:ALL" appears on the LCD.

To print out the scanning compensation data list (see the next page) containing items a) to h) given below, press the **0** key; to print it out containing all of a) to l), press the **1** key.

During printing, "PRINTING" appears on the LCD.

- a) Black/white data graph
- b) LED PWM data for color image (1 byte)*¹
- c) LED PWM data for monochrome image (1 byte)*¹
- d) LED light intensity pulse data for green image (2 bytes)
- e) LED light intensity pulse data for blue image (2 bytes)
- f) LED light intensity pulse data for red image (2 bytes)
- g) LED light intensity pulse data for monochrome image (2 bytes)*¹
- h) Background color compensation data (1 byte)*²
- i) Black level data
- j) White level data for red image
- k) White level data for green image
- l) White level data for blue image

*1 DCPJ140W only.

*2 Data for background color compensation (filtering out background color) to be performed in monochrome copying of a document printed on colored paper.

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

NOTE: If any data is abnormal, its code will be printed in inline style.

9.4.3 ADF Performance Test (Function code 08)

■ Function

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

This function is applicable to the models with ADF.

■ Operating Procedure

- (1) Set documents. (Allowable up to the ADF capacity.)

The "ADF READY" appears on the LCD.

- (2) Press **0** and **8** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 0 and 8 in this order using the **▲**, **▼** and **OK** keys.

The machine feeds the documents in and out while counting them and displaying the current count on the LCD as shown below.

ADF CHK P.01



Current count (1st page in this example)

- (3) After counting all documents, the machine shows the final count. To return the machine to the initial stage of the maintenance mode, press the **Stop/Exit** key.

9.4.4 Test Pattern (Function code 09)

■ Function

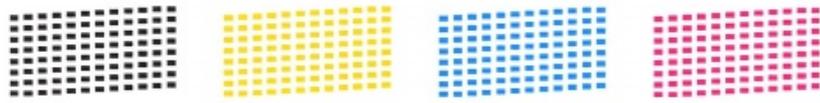
This function prints out a test pattern (Print Quality Check sheet) to allow the service personnel to check the print quality.

Before starting the operation below, be sure to set letter- or A4-size paper in the paper tray for printing check patterns.

■ Operating Procedure

Press the **0** and **9** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 0 and 9 in this order using the **▲**, **▼** and **OK** keys.

The figure on the next page shows a test pattern which is printed on the Print Quality Check sheet. You can check the print quality with the test pattern.



Test Pattern

9.4.5 Firmware Switch Setting and Printout (Function codes 10 and 11) (User-accessible)

[A] Firmware switch setting

■ Function

The machine incorporates the following firmware switch functions which can be activated with the procedures using the control panel keys.

The firmware switches have been set at the factory in conformity to the communications standards and codes of each country. Do not disturb them unless necessary. Some firmware switches may not be applicable in some versions. The firmware switch data list indicates "Not used." for those inapplicable switches.

Firmware Switches (WSW01 through WSW60)

WSW No.	Function
WSW01	Dial pulse setting
WSW02	Tone signal setting
WSW03	PBX mode setting
WSW04	TRANSFER facility setting
WSW05	1st dial tone and busy tone detection
WSW06	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 <i>(Not used.)</i>
WSW30	Function setting 8 <i>(Not used.)</i>
WSW31	Function setting 9
WSW32	Function setting 10
WSW33	Function setting 11

Firmware Switches (WSW01 through WSW60) *Continued*

WSW No.	Function
WSW34	Function setting 12
WSW35	Function setting 13 <i>(Not used.)</i>
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 21
WSW44	Speeding up scanning-1 <i>(Not used.)</i>
WSW45	Speeding up scanning-2 <i>(Not used.)</i>
WSW46	Monitor of power ON/OFF state and parallel port kept at high
WSW47	Switching between high- and full-speed USB
WSW48	USB setup latency
WSW49	End-of-copying beep and black ink print mode
WSW50	SDAA settings
WSW51	Function setting 16
WSW52	Function setting 17 <i>(Not used.)</i>
WSW53	Function setting 18
WSW54	Function setting 19
WSW55	Function setting 20 <i>(Not used.)</i>
WSW56	Function setting 21
WSW57	Function setting 22
WSW58	Function setting 23
WSW59	Function setting 24
WSW60	Function setting 25

■ Operating Procedure

- (1) Press the **1** and **0** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 1 and 0 in this order using the **▲**, **▼** and **OK** keys.

The machine displays the "WSW00" on the LCD and becomes ready to accept a firmware switch number.

- (2) Enter the desired number from the firmware switch numbers (01 through 60).

The following appears on the LCD:

Selector 1 Selector 8
 ↓ ↓
WSWXX = 0 0 0 0 0 0 0 0

- (3) Use the **◀** and **▶** keys to move the cursor to the selector position to be modified.

NOTE: For models with touch panel, if the **▲**, **▼**, **▶**, and **◀** keys are not displayed on the software keypad, it is necessary to switch the software keypads between the numerical and function keypads by pressing the **Scan** and **Copy** keys simultaneously.

- (4) Enter the desired number using the **0** and **1** keys. For models without numerical keypad, enter the desired number (0 or 1) using the **▲**, **▼** and **OK** keys.
- (5) Press the **OK** key (**Photo Capture** key for models without **OK** key). This operation saves the newly entered selector values onto the EEPROM and readies the machine for accepting a firmware switch number.
- (6) Repeat steps (2) through (5) until the modification for the desired firmware switches is completed.
- (7) Press the **Stop/Exit** key to return the machine to the initial stage of the maintenance mode.

NOTES

- To cancel this operation and return the machine to the initial stage of the maintenance mode during the above procedure, press the **Stop/Exit** key.
- If there is a pause of more than one minute after a single-digit number is entered for double-digit firmware switch numbers, the machine will automatically return to the initial stage of the maintenance mode.

■ Details of Firmware Switches

The details of the firmware switches are described in [Appendix 4](#) in which the user-accessible selectors of the firmware switches are *shaded*.

[B] Printout of firmware switch data

■ Function

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

■ Operating Procedure

- (1) Press the **1** key twice in the initial stage of the maintenance mode. For models without numerical keypad, enter 1 twice using the **▲**, **▼** and **OK** keys.

The "PRINTING" appears on the LCD.

- (2) The machine prints out the configuration list as shown on the next page.
- (3) Upon completion of printing, the machine returns to the initial stage of the maintenance mode.

CONFIGURATION LIST

MODEL : BCA-J19-881
 TIME : 01/01/2009 07:48
 REV. : UB88219113OVER.1
 PCI : 5.00
 SUM : 5900
 SER.# : BR0188F001736

WSW81 = 00000000	1-2. DIAL FORMAT	:	NORMAL
	3-4. BREAK TIME	:	60 MS
	5-6. INTERDIGIT PAUSE	:	800 MS
	7. DP/PB CHANGE IN USER SW	:	YES
	8. DP/PB FIXING SELECTION	:	FS
WSW82 = 11111010	1-2. ON TIME	:	100 MS
	3-4. OFF TIME	:	140 MS
	5-8. LINE RECP ATTENUATOR	:	18 DB
WSW83 = 10110000	1. PARA. ONG DETECTION1	:	B
	2-4. NOT USED	:	
	5. PARA. ONG DETECTION2	:	A
	6-8. NOT USED	:	
WSW84 = 00010110	1. NOT USED	:	
	2-3. DETECT DUAL TONE IN ICM	:	A
	4. DETECT TONE LEVEL IN ICM	:	HIGH
	5. ADDITIONAL DELAY OF OML ON-OGM	:	0 SEC
	6-8. FLASHING TIME	:	500 MS
WSW85 = 00000110	7. DIAL TONE DETECTION	:	3.5 SEC WAITING
	8. REMOTE ID DETECTION TIMEOUT	:	2 SEC
	5-6. BUSY TONE DETECTION (CALLING)	:	AFTER DIALING
	7. BUSY TONE DETECTION (CALLED)	:	OFF
	8. NOT USED	:	
WSW86 = 00101100	1-3. PAUSE KEY	:	3.5 SEC WAITING
	4-6. 2ND DT DETECTION TIME	:	800 MS
	7. 2ND DT DETECTION CYCLE	:	1 CYCLE
	8. 2ND DT INTERRUPT DETECTION TIME	:	30 MS
WSW87 = 01001100	1-2. FREQUENCY RANGE	:	INITIAL DATA
	3. NOT USED	:	
	4-5. 2ND DT DETECTION LEVEL	:	-30 DBM
	7. 1ST DT INTERRUPT DETECTION TIME	:	30 MS
	8. NOT USED	:	
WSW88 = 01100111	1-3. 1ST DT DETECTION TIME	:	800 MS
	4-5. 1ST/2ND DT TIME OUT	:	10 SEC
	6-8. 1ST DT DETECTION LEVEL	:	-42 DBM
WSW89 = 00000000	1. EOM FRAME	:	256 OCTET
	2. NON STANDARD FACILITIES	:	ON
	3-4. TIMES OF FALL BACK	:	4
	5. TS TIMER	:	300 SEC
	6. T1 TIMER	:	35 SEC
	7-8. CALLING TIMEOUT	:	55 SEC
WSW90 = 00010100	1. NOT USED	:	
	2. TIMING OF LAST DIGIT-MODEM CHANGE	:	100 MS
	3. TIMING OF OML ON ONG 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
WSW91 = 01110000	1-2. FREQUENCY RANGE	:	INITIAL DATA
	3-8. ON/OFF TIME	:	175 - 600 / 175 - 600 MS
WSW92 = 00000000	1. EOM RX	:	ON
	2. CALL WAITING CALLER ID	:	OFF
	3. NOT USED	:	
WSW93 = 00001110	1. FIX TOF CHECK	:	TOP
	2-3. TOF ERROR LIMIT	:	0%
	4-5. RTN CRITERION	:	14%
	6-7. NOT USED	:	
	8. ATTENUATOR LIMIT	:	YES
WSW94 = 10000000	1-4. D.T. DETECT TIME IN ICM	:	0 SEC
	5-8. NOT USED	:	
WSW95 = 00000000	1. REGISTRATION SENSOR JAM	:	EJECT
	2-7. NOT USED	:	
WSW96 = 00000000	1. USB HIGH SPEED / FULL SPEED	:	AUTO
	2. ANS-M-DIS LONG WAIT	:	ENABLE
	3-7. PROFILE CHARCODE	:	LATINI
	8. DTMF DETECTION IMPROVEMENT	:	OFF
WSW97 = 00000000	1-5. NOT USED	:	
	6. ONG DETECTION RESULT ACT REPORT)	:	OFF
	7-8. ENABLE REVERSE POLARITY INT DELAY TIME	:	500 MSEC
	9-8. NOT USED	:	

Configuration List

9.4.6 Operational Check of LCD and Specifying of the LCD Type (Function code 12) (User-accessible)

■ Function

This function allows you to check whether the LCD works normally. It should be used to specify the LCD type if the 3.3-inch LCD unit or main PCB is replaced.

■ Operating Procedure

Checking the display state of the LCD

If the 3.3-inch LCD unit or main PCB has been replaced, first specify the LCD type using the procedure given on the next page before proceeding to the following steps.

- (1) Press the **1** and **2** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 1 and 2 using the **▲**, **▼** and **OK** keys.
- (2) Press the **▲** key (**Scan** key for models without **▲** key on the control panel).
The LCD shows the following screen.

For models with color LCD

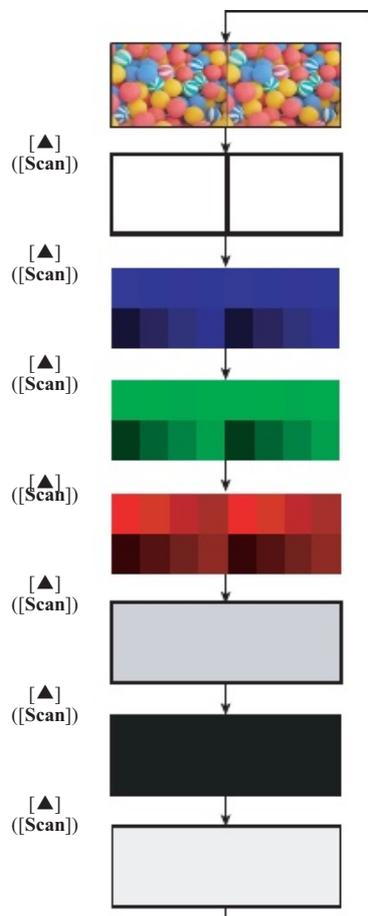


For models with monochrome LCD

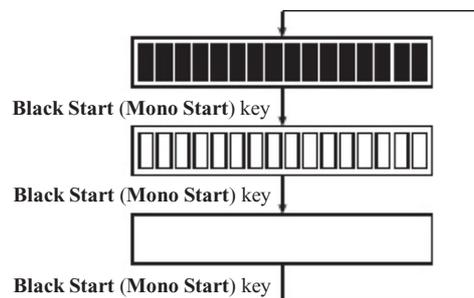


- (3) For models with color LCD: Each time you press the **▲** key (**Scan** key for models without **▲** key on the control panel), the LCD cycles through the displays as shown below.
For models with monochrome LCD: Each time you press the **Black Start (Mono Start)** key, the LCD cycles through the displays as shown below.

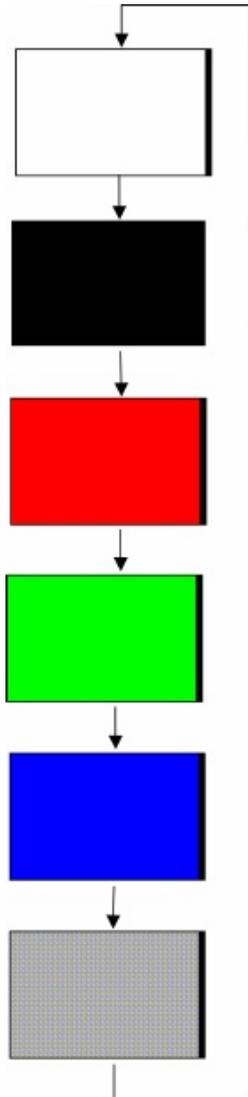
DCP395CN and MFC495CW



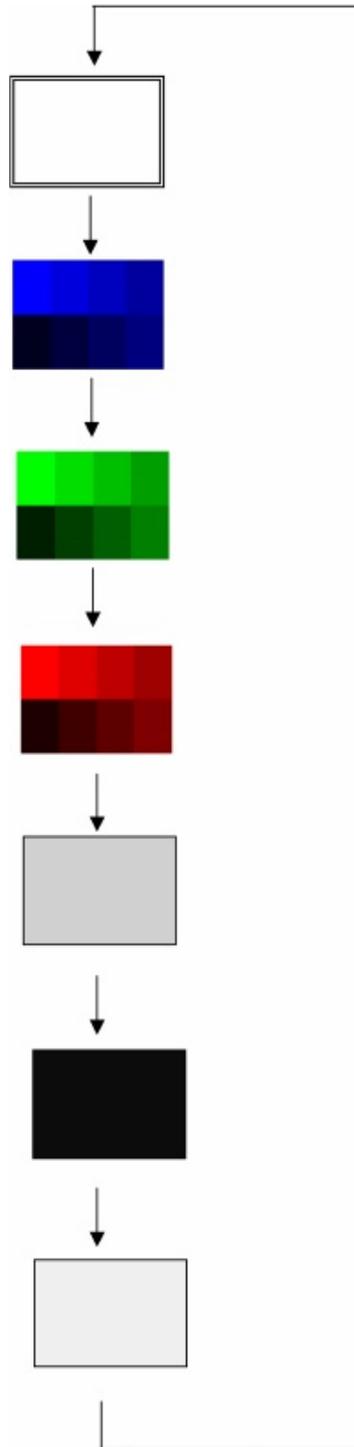
DCP375CW/J140W and MFC255CW/295CN



MFC795CW, DCPJ515W/J715W
and MFCJ615W/J630W



DCPJ125/J315W and
MFCJ220/J265W/J270W/J410/
J410W/J415W



- (4) Press the **Stop/Exit** key in any process of the above display cycle. The machine returns to the initial stage of the maintenance mode.

Specifying the LCD type (Only for DCP395CN/MFC495CW)

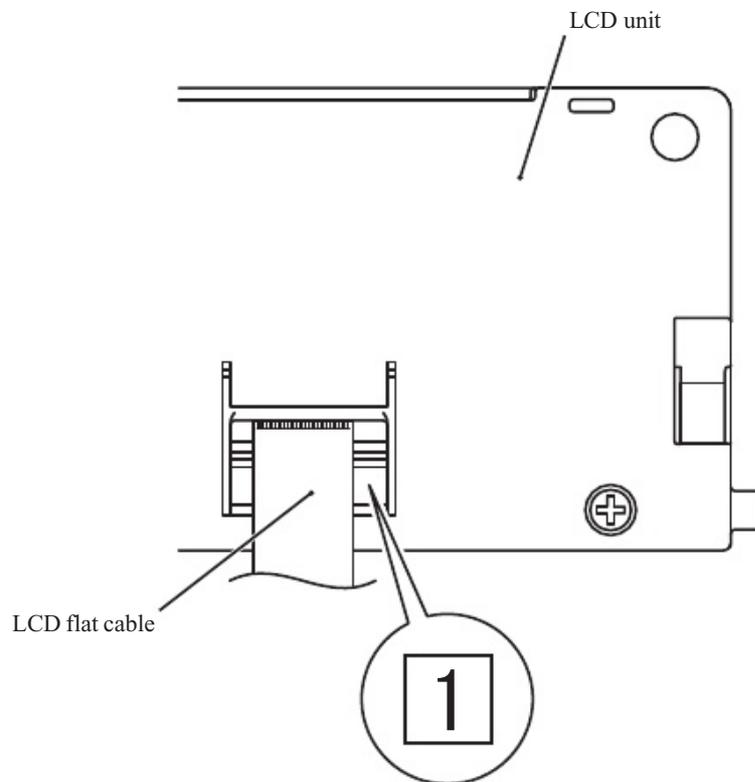
If the 3.3-inch LCD unit or main PCB has been replaced, specify the LCD type using the procedure below.

- (1) Press the **1** and **2** keys in this order in the initial stage of the maintenance mode. (For models without numerical keypad, enter 1 and 2 in this order using the **▲**, **▼** and **OK** keys.)
- (2) Press the **▲** key (**Scan** key for models without **▲** key on the control panel).

The LCD shows the screen given below.



- (3) Press the **3** key. (For models without numerical keypad, press the **Color Start** key.)
The LCD shows "LCD TYPE SET." (For models without numerical keypad, the LCD shows "LCD TYPE SET 0.")
- (4) If 1 (enclosed by a square □) is printed at the location shown below, press the **1** key; if not, press the **0** key. (For models without numerical keypad, press the **Color Start** key to switch between "LCD TYPE SET 0" and "LCD TYPE SET 1" and then press the **OK** key.)
- (5) Press the **Stop/Exit** key to return to the initial stage of the maintenance mode.
- (6) Press the **9** key twice to exit from the maintenance mode and switch to standby. (For models without numerical keypad, enter 9 twice using the **▲**, **▼** and **OK** keys.)
The new setting goes into effect.
- (7) Enter the maintenance mode again referring to [Section 9.1](#).
- (8) Perform the operational check of the LCD on [page 9-16](#).



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

■ Function

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

■ Operating Procedure

- (1) Press the **1** and **3** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 1 and 3 in this order using the **▲**, **▼** and **OK** keys.

The "00 " will appear on the LCD.

- (2) Press the keys in the order designated in the illustration 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 illustration below.

If a key is pressed out of order, the machine beeps (MFC only) and displays the "INVALID OPERATE" on the LCD. To return to the status ready to accept key entry for operational check, press the **Stop/Exit** key.

- (3) After the last number key is pressed, the machine beeps (MFC only) and returns to the initial stage of the maintenance mode.

To terminate this operation, press the **Stop/Exit** key. The machine returns to the initial stage of the maintenance mode.

DCP375CW



DCP395CN



Key Entry Order

MFC255CW/295CN



MFC495CW



MFC795CW



DCPJ125/J315W/J515W/J715W



Key Entry Order

9.4.8 Updating of Firmware Using an External Memory (Function code 28)

■ Function

This function updates firmware stored in the flash ROM on the main PCB using an external memory (memory card or USB flash memory). It enables updating of firmware without connecting the machine to a PC.

TIP: For instructions on how to update firmware when the main PCB has been replaced or for operations using a PC, refer to [Appendix 2 "Firmware Installation."](#)

■ Operating Procedure

- (1) Switch your PC ON and insert an external memory.
- (2) Create a folder named "BROTHER" in the top layer of the external memory's directory and copy the firmware file having the extension .pjl into that folder.

NOTE: Before copying, check that the file name of the firmware matches with your machine. Be sure to save only one firmware file having the extension .pjl in the "BROTHER" folder. Otherwise, the firmware cannot be updated correctly.

TIP: If a firmware file not matching the machine is used, the firmware cannot be updated, but note that you can superficially continue the operation until step (5) below without any error.

TIP: For how to obtain the firmware file, refer to [Appendix 2 "Firmware Installation."](#)

- (3) Remove the external memory from the PC and insert it into the machine in the initial stage of the maintenance mode.

NOTE: Do not insert more than one external memory at a time.

NOTE: One external memory should be exclusively used for one model. Do not use one external memory for more than one model.

- (4) On the machine, press the **2** and **8** keys in this order. For models without numerical keypad, enter 2 and 8 in this order using the **▲**, **▼** and **OK** keys.

The file name *****.pjl appears on the LCD. Check that ***** is identical with the file name that has been copied into the external memory.

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

The "Receiving Data" appears on the LCD, and after a while, "Program Updating" appears.

NOTE: Pressing the **Color Start** key does not start updating.

NOTE: Never remove the external memory from the machine when the updating is in progress.

- (6) Updating will complete in a few minutes, and the machine automatically restarts and returns to the standby state.

Remove the external memory from the machine and store it in a safe place.

NOTE 1: If any of the error messages listed below appears, press the **Stop/Exit** key, and the machine returns to the initial stage of the maintenance mode.

Error Message	Cause
Card is used	The external memory is being used by another operation.
Insert Card	No external memory is inserted.
No file	- No "BROTHER" folder in the external memory - Invalid file name - More than one file having the extension .pjl in the folder
Card Error	External memory defective

NOTE 2: After the completion of firmware updating, a file named "mfu-send.log" (which stores the execution log) is created in the layer right below the "BROTHER" folder.

9.4.9 Sensor Operational Check (Function code 32)

■ Function

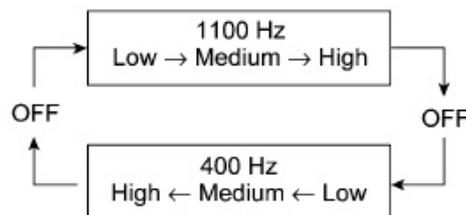
This function allows you to check the following:

- Document front sensor (for models with ADF)
- Document rear sensor (for models with ADF)
- Scanner cover sensor
- Registration sensor
- Ink cartridge cover sensor
- Purge cam switch
- Cap lift cam switch
- Ink cartridge detection sensors (black, yellow, cyan, and magenta)
- Ink empty sensors (black, yellow, cyan, and magenta)
- Head thermistor (in the head driver chip)
- Casing internal temperature thermistor (in the complex IC)
- Hook switch (for models with handset)

■ Operating Procedure

- (1) Press the **3** and **2** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 3 and 2 in this order using the **▲**, **▼** and **OK** keys.

The machine sounds 1100 Hz and 400 Hz tones cyclically through the following volumes for testing the speaker (MFC only):



NOTE: To stop beeping, in models without touch panel, press the **Menu** or **OK** key; in models with touch panel, press the **Photo Capture** key.

If the sensing statuses are as listed on the next page, the LCD will show "DFDRCVRSCCP1CP**," "IKIYICIMEKEYECEM," "*****VTHKCRTH," and "*****," which can be switched by pressing the **Black Start (Mono Start)** key.

Given below is the relationship between the LCD indication, sensor name and sensor status.

LCD	Sensors	Sensing status
DF	Document front sensor ^{*1}	No document detected.
DR	Document rear sensor ^{*1}	No document detected.
CV	Scanner cover sensor	Scanner cover closed.
RS	Registration sensor	No recording paper detected.
CC	Ink cartridge cover sensor	Ink cartridge cover closed.
P1	Purge cam switch	Any of the cam driving positions
CP	Cap lift cam switch	Any of the cam driving positions
IK	Black ink cartridge detection sensor	Black ink cartridge loaded.
IY	Yellow ink cartridge detection sensor	Yellow ink cartridge loaded.
IC	Cyan ink cartridge detection sensor	Cyan ink cartridge loaded.
IM	Magenta ink cartridge detection sensor	Magenta ink cartridge loaded.
EK	Black ink empty sensor	Black ink remaining
EY	Yellow ink empty sensor	Yellow ink remaining
EC	Cyan ink empty sensor	Cyan ink remaining
EM	Magenta ink empty sensor	Magenta ink remaining
VT	Head thermistor	Driver chip temperature within the allowable range.
HK	Hook switch ^{*2}	On-hook state.
CR	Carriage motor driver thermistor ^{*3}	Normal temperature detected.
TH	Casing internal temperature thermistor	Normal temperature detected.

*1 For models with ADF

*2 For models with handset

*3 The "CR" is always displayed even on models not equipped with a carriage motor driver thermistor.

- (2) Change the detecting conditions (e.g., open the scanner cover or insert paper through the registration sensor or remove the ink cartridges), and then check that the indication on the LCD changes according to the sensor states.
- (3) To stop this operation and return the machine to the initial stage of the maintenance mode, press the **Stop/Exit** key.

9.4.10 Printout of Dial Log (Function code 37) (User-accessible)

- **Function**

The machine prints out a list of telephone numbers dialed.

- **Operating Procedure**

(1) Press the **3** and **7** keys in this order in the initial stage of the maintenance mode.

The machine displays the "PRINTING" on the LCD and prints out a list of telephone numbers that the machine has dialed.

9.4.11 Backup of Machine Information (Function code 46) (User-accessible)

■ Function

This function backs up the following machine information and user setting information into an external memory (memory card or USB flash memory) and restores it when necessary.

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

Note that the following information cannot be backed up.

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

NOTE: The user can use the backup and restoration (given on the next page) procedures, except "Import all" in the restoration procedure.

NOTE: An external memory (memory card or USB flash memory) for backup should have a free space larger than the RAM size of the machine.

NOTE: When performing this procedure for any other machine with the same external memory, delete the data previously stored in the external memory.

NOTE: Do not use a Memory Stick; using it may fail to transfer data correctly.

■ Backup Procedure

- (1) On the PC, create a "Brother" folder in an external memory to be used for saving backup data.
- (2) Insert the external memory into the slot of the machine in the initial stage of the maintenance mode.

The "**** Active" appears on the LCD. (**** shows the name of the external memory inserted.)

NOTE: Do not insert more than one external memory at a time.

NOTE: If an external memory already containing backup data of the same model is inserted, the following backup procedure will overwrite the existing data with new data.

- (3) Press the **4** and **6** keys in this order. For models without numerical keypad, enter 4 and 6 in this order using the **▲**, **▼** and **OK** keys.

The "Export to Card" appears on the LCD.

- (4) Press the **Black Start (Mono Start)** key.

The "*****.msd" appears on the LCD. The "*****" is unique to each model.

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

The "Export to Card" appears again on the LCD.

- (6) Press the **Black Start (Mono Start)** key.

The "Please wait" appears on the LCD.

NOTE: Never remove the external memory from the machine when the exporting is in progress.

NOTE: If this procedure has been started with the user-access (see [Section 9.3](#)), the machine returns to the standby state after showing the "Please wait" on the LCD.

- (7) Wait for the machine to automatically return to the initial stage of the maintenance mode or show "**** Active" on the LCD.

Remove the external memory from the machine and keep it in a safe place.

NOTE: If any of the error messages listed below appears, press the **Stop/Exit** key, and the machine returns to the initial stage of the maintenance mode.

Error Message	Cause
Card is used	The external memory is being used by another operation.
Insert Card	No external memory is inserted.
No file	- No "BROTHER" folder in the external memory - Invalid file name
Card Error	Failed to open the file.
Machine ID Error	Mismatch of serial numbers between the machine and the backup data (which is detected only in data restoration).
Write Error	Writing to an external memory failed due to insufficient capacity.

■ Restoration Procedure

- (1) Insert the external memory containing the backup data into the slot of the machine in the initial stage of the maintenance mode.

The "**** Active" appears on the LCD.

NOTE: Do not insert more than one external memory at a time.

NOTE: If the serial number in the backup data stored in the external memory does not match that of the machine, data restoration cannot be performed.

- (2) Press the **4** and **6** keys in this order. For models without numerical keypad, enter 4 and 6 in this order using the **▲**, **▼** and **OK** keys.

The "Export to Card" appears on the LCD.

- (3) Press the **▲** or **▼** key (**Scan** or **Copy** key for models without **▲** or **▼** key) until the desired item, any of the following, appears on the LCD.

"Import from Card" for restoring only user setting information

"Import all" for restoring all backup data including machine information

- (4) Press the **Black Start (Mono Start)** key.

The "*****.msd" appears on the LCD. The "*****" is unique to each model.

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

The "Import from Card" or "Import all" appears again on the LCD.

- (6) Press the **Black Start (Mono Start)** key.

The "Please wait" appears on the LCD.

NOTE: Never remove the external memory from the machine when the exporting is in progress.

- (7) Wait for the machine to automatically return to the initial stage of the maintenance mode or show "**** Active" on the LCD.

Remove the external memory from the machine and place it in a safe place.

NOTE: If any of the error messages shown above appears, press the **Stop/Exit** key, and the machine returns to the initial stage of the maintenance mode.

9.4.12 Setting of Country/Language (Function code 52) (User-accessible)

■ Function

Machines have been customized for their destination countries with the corresponding EEPROM customizing codes (see [Section 9.4.24](#), Function code 74). However, some customizing codes are shared by two or more destination countries, so the machines customized by these codes require further specifying individual destination countries or languages.

Usually, the user specifies the destination country or language on the LCD screen called up automatically when turning the machine on first after purchase. In the same way, the service personnel also specifies it if the main PCB is replaced; however, if he/she skips the specification process at that timing, be sure to perform the procedure given below.

EEPROM Customizing Code	Countries
**53	Germany and Austria
**55	France, Belgium, and Netherlands
**56	Australia and New Zealand
**57	Norway, Sweden, Finland, and Denmark
**65	Spain, Portugal, and Andorra

■ Operating Procedure

- (1) Press the **5** and **2** keys in this order. For models without numerical keypad, enter 5 and 2 in this order using the **▲**, **▼** and **OK** keys.

The "Set Country / Press OK" appears on the LCD.

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

The country name appears on the LCD.

- (3) Use the **▲** and **▼** keys (**Scan** and **Copy** keys for models without **▲** and **▼** keys) to display the desired country or language.

NOTE: For selectable countries and languages, refer to the tables shown above.

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

The country name and "1. Yes 2. No" appear on the LCD.

- (5) Press the **1** key. For models without numerical keypad, enter 1 using the **▲**, **▼** and **OK** keys.

The machine shows "Accepted" on the LCD, saves the new setting, and returns to the standby state.

9.4.13 Transfer of Received FAX Data and/or Equipment's Log (Function code 53) (User-accessible)

■ Function

This function transfers received FAX data to another machine. It is useful when the machine cannot print received data due to the printing mechanism defective.

This function is applicable to the MFC only.

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

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

TIP: If an error persists even after the use of this function, use Function code 46 to save received FAX data into an external memory. (Refer to [Chapter 9, Section 9.4.11.](#))

■ Operating Procedure

(1) Press the **5** and **3** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 5 and 3 in this order using the **▲**, **▼** and **OK** keys. The "FAX TRANSFER" appears on the LCD.

(2) To check the number of received files, press the **1** key. For models without numerical keypad, enter 1 using the **▲**, **▼** and **OK** keys.

The "1.NO. OF JOBS" appears on the LCD.

Press the **OK** key (**Photo Capture** key for models without **OK** key), and the number of received files appears, just as "NO. OF JOBS: 10."

Pressing the **Stop/Exit** key returns the machine to the "FAX TRANSFER" state.

(3) Select data to transfer as follows.

To transfer the activity report only, press the **2** key. For models without numerical keypad, enter 2 using the **▲**, **▼** and **OK** keys. The "2.ACTIVITY" appears.

To transfer received files (together with the activity report), press the **3** key. For models without numerical keypad, enter 3 using the **▲**, **▼** and **OK** keys.

The "3.DOCUMENTS" appears. Note that if there is no received file, pressing the **OK** key in step (4) displays the "NO DOCUMENTS."

To transfer the communication list for the latest communication, press the **4** key. For models without numerical keypad, enter 4 using the **▲**, **▼** and **OK** keys.

The "4.COM.LIST (NEW)" appears.

To transfer the communication list for the last three errors, press the **5** key. For models without numerical keypad, enter 5 using the **▲**, **▼** and **OK** keys.

The "5.COM.LIST (ERR3)" appears.

(4) With the "2.ACTIVITY," "3.DOCUMENTS," "4.COM.LIST (NEW)," or "5.COM.LIST (ERR3)" being displayed in step (3), press the **OK** key (**Photo Capture** key for models without **OK** key).

The "ENTER NO. & OK" appears.

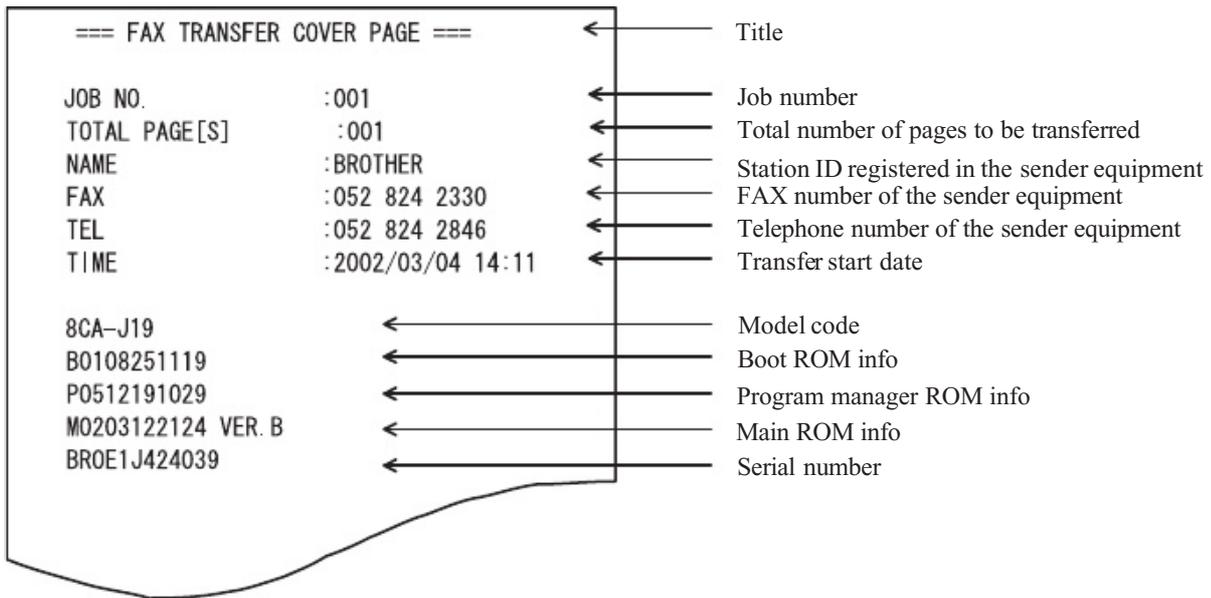
(5) Enter the telephone number of the receiver machine and press the **OK** key (**Photo Capture** key for models without **OK** key) again.

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

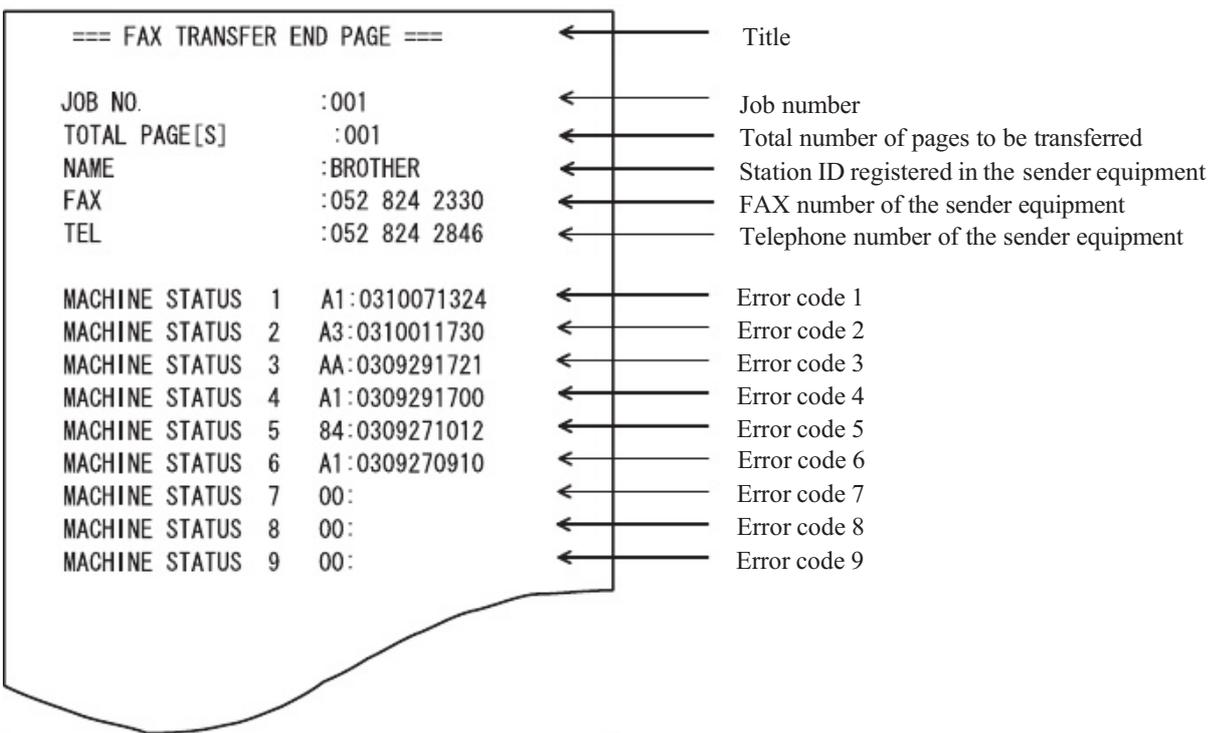
The machine displays the "ACCEPTED" for approx. two seconds and starts dialing to transfer data.

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

Cover page sample



End page sample



9.4.14 Fine Adjustment of Scanning Start/End Position (Function code 54)

■ Function

This function allows you to adjust the scanning start/end position.

For models without an ADF, selecting "1.ADF" in steps (2) and (3) below produces nothing.

Select "2.FB" to adjust the start/end position of flat-bed scanning.

■ Operating Procedure

Models except DCPJ140W

- (1) Press the **5** and **4** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 5 and 4 in this order using the **▲**, **▼** and **OK** keys.

The "SCAN START ADJ." appears on the LCD.

- (2) Wait for the LCD to display the "1.ADF 2.FB."

- (3) Press the **1** or **2** key. For models without numerical keypad, enter 1 or 2 using the **▲**, **▼** and **OK** keys. The current scanning position correction value appears.

You can adjust the correction value to 11 levels from +5 to -5 (mm).

- (4) To increase the correction value, press the **▶** key; to decrease it, press the **◀** key.

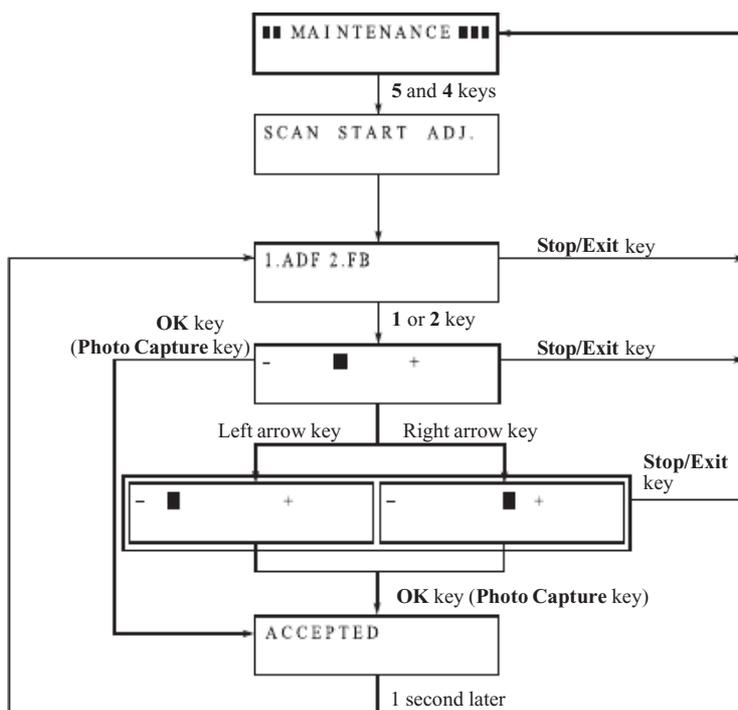
NOTE: In models with touch panel, if the **▶** and **◀** keys are not displayed on the software keypad, it is necessary to switch the software keypads between the numerical and function keypads by pressing the **Scan** and **Copy** keys simultaneously.

If you press the **Stop/Exit** key, the machine returns to the initial stage of the maintenance mode without making change of the correction value.

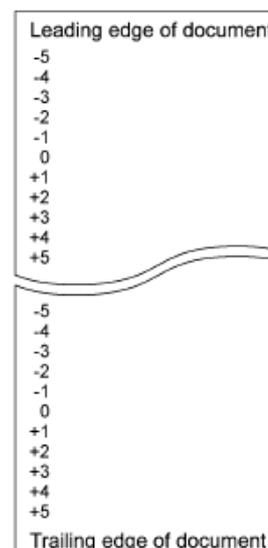
- (5) Press the **OK** key (**Photo Capture** key for models without **OK** key).

The "ACCEPTED" appears on the LCD. After one second, the LCD returns to the "1.ADF 2.FB" screen.

- (6) Press the **Stop/Exit** key to return to the initial stage of the maintenance mode.



Note: The relationship between the scanning start/end positions and their correction values is shown below.



DCPJ140W

- (1) Enter 5 and 4 in this order using the ▲, ▼ and **OK** keys in the initial stage of the maintenance mode.

The "SCAN ADJ SELECT" appears on the LCD.

- (2) To adjust the right and left edges of horizontal scanning, enter 0 to display "RL EDGE *" on the LCD.

To adjust the top edge of vertical scanning, enter 1 to display "TOP EDGE *."

To adjust the bottom edge of vertical scanning, enter 2 to display "BOTM EDGE *."

In the messages above, an asterisk (*) denotes the current correction value.

- (3) Measure the right, left, top and bottom margins on the printout of scanned data.

- (4) Enter the measured values (in units of 0.1 mm) multiplied by 10.

To increase the current correction value by 10 (1.0 mm), press the ▲ key; to decrease it, press the ▼ key. Then press the **OK** key.

To increase the current correction value by 1 (0.1 mm), press the ► key; to decrease it, press the ◀ key. Then press the **OK** key.

NOTE: Pressing the **Stop/Exit** key instead of the **OK** key cancels the newly entered values and returns to the initial stage of the maintenance mode.

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

The machine displays "ACCEPTED" on the LCD and returns to the initial stage of the maintenance mode.

9.4.15 Acquisition of White Level Data and CIS Scanner Area Setting (Function code 55)

■ Function

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

■ Operating Procedure

- (1) Close the document cover.
- (2) Press the **5** key twice in the initial stage of the maintenance mode. For models without numerical keypad, enter 5 twice using the **▲**, **▼** and **OK** keys.

The "SCANNER AREA SET" appears on the LCD.

The machine automatically obtains white level data.

- (3) If this operation completes normally, the machine returns to the initial stage of the maintenance mode

If any error is detected, the "SCANNER ERROR" appears on the LCD. To return the machine to the initial stage of the maintenance mode, press the **Stop/Exit** key.

NOTE: This operation may not complete normally due to high levels of ambient lighting. In such a case, perform the above procedure again in an environment not subject to ambient lighting.

9.4.16 Updating of Paper Feeding Correction Value (Function code 58)

■ Function

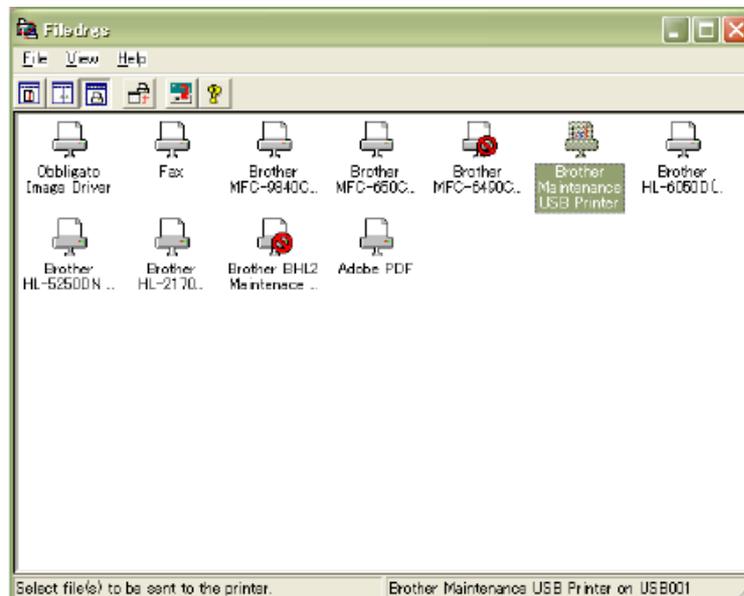
To keep the paper feeding performance in the best condition for quality print, the controller optimizes the rotation of the paper feed roller, using the correction value stored in the EEPROM on the main PCB.

If you replace the engine unit or head/carriage unit, you need to update the paper feeding correction value according to the procedure given here.

■ Operating Procedure

- (1) Switch on your PC.
- (2) Place the machine in the maintenance mode (see [Section 9.1](#)) and set letter-size paper in the paper tray to print check patterns.
- (3) Connect the machine to your PC using a USB cable.
- (4) On your PC, run "filedrg32.exe" in the folder created in [Section 7.1.1](#).

The Filedrgs window appears as shown below.



- (5) Drag and drop the "pf_exitadj_a4.prn" onto the Brother Maintenance USB Printer driver icon in the Filedrgs window shown above.

The machine displays the "RECEIVING DATA" on the LCD and prints out "PF & EXIT adjust check" pattern (see [page 9-36](#) for a sample printout).

For the paper feed roller adjustment

- (6) On the machine, press the **5** and **8** keys in this order. For models without numerical keypad, enter 5 and 8 in this order using the **▲**, **▼** and **OK** keys.

Models except DCPJ140W

The "1.PF 2.EXIT" appears on the LCD.

DCPJ140W

The "Select 58?" appears on the LCD. Press the **Black Start (Mono Start)** key to display the "1.PF 2.EXIT."

- (7) To select the paper feed roller adjustment, press the **1** key. (For models without numerical keypad, enter 1 using the ▲, ▼ and **OK** keys.)

The "PF ADJ NO. +0" appears on the LCD.

- (8) Out of the upper three rows in the "PF & EXIT adjust check" pattern (on [page 9-36](#)), check the middle row and select the block that is the least uneven print. Make a note of that block number.

If the least unevenness seems to be far to the left of -8, regard it as -8; if it seems to be far to the right of +8, regard it as +8. In this case, you need to check whether the paper feed roller and head/carriage unit are set into place.

- (9) Enter the number of the least uneven block found in step (8).

For example, if the number of the least uneven block is +4, press the **4** key while the "PF ADJ NO. +0" is displayed on the LCD. (For models without numerical keypad, enter 4 using the ▲, ▼ and **OK** keys.)

If the number is -4, press the ▼ key to display the "PF ADJ NO. -0" and press the **4** key. (For models without numerical keypad, enter ▼ and 4 using the ▲, ▼ and **OK** keys.)

NOTE: In models with touch panel, if the ▲, ▼, ►, and ◀ keys are not displayed on the software keypad, it is necessary to switch the software keypads between the numerical and function keypads by pressing the **Scan** and **Copy** keys simultaneously.

NOTE: In models with touch panel, switching between "+" and "-" entries can be done by pressing the **Scan** and **Copy** keys, respectively, instead of the ▼ key. To enter a "+" value, press the **Scan** key; to enter a "-" value, press the **Copy** key.

Then press the **OK** key (**Photo Capture** key for models without **OK** key), and the machine returns to the initial stage of the maintenance mode.

For the paper ejection roller adjustment

- (10) On the machine, press the **5** and **8** keys in this order. (For models without numerical keypad, enter 5 and 8 in this order using the ▲, ▼ and **OK** keys.)

Models except DCPJ140W

The "1.PF 2.EXIT" appears on the LCD.

DCPJ140W

The "Select 58?" appears on the LCD. Press the **Black Start (Mono Start)** key to display the "1.PF 2.EXIT."

- (11) To select the paper ejection roller adjustment, press the **2** key. (For models without numerical keypad, enter 2 using the ▲, ▼ and **OK** keys.)

The "EXIT ADJ NO. +0" appears on the LCD.

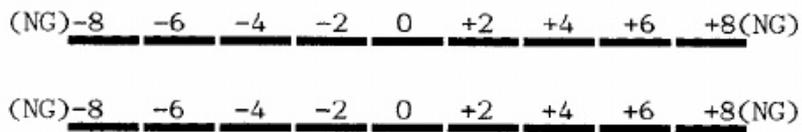
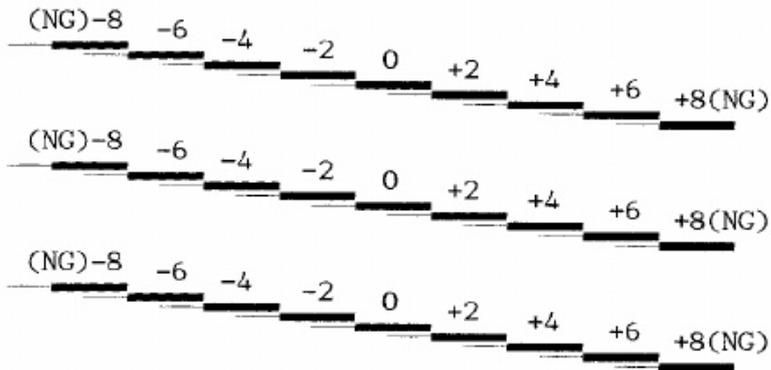
- (12) In the "PF & EXIT adjust check" pattern (on [page 9-36](#)), check the lower two rows and select the block that is the least uneven print on each row. Make a note of the average of the two block numbers.

If the number of the block that is the least uneven print is 0 on one row, and it is -2 on the other row, for example, the average is -1.

- (13) Enter the average obtained in step (12) in the same way as in step (9).

Then press the **OK** key (**Photo Capture** key for models without **OK** key), and the machine returns to the initial stage of the maintenance mode.

* mini9 PF&EXIT adjust check - Ver 001 *



Paper Feeding Check Pattern for the Paper Feed Roller and Paper Ejection Roller

9.4.17 Checking of CIS Travel and Specifying of CIS Type (Function code 59)

■ Function

This procedure allows you to check the movement of the CIS unit integrated in the scanner cover (scanner unit). The CIS unit travels to the three positions--the white reference film position, scanning start and end positions.

It also allows you to specify the CIS type into the EEPROM on the main PCB. If you replace the scanner cover or the main PCB, you need to specify the CIS type according to the procedure given below.

■ Operating Procedure

-- Check the movement of the CIS unit --

- (1) Press the **5** and **9** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 5 and 9 in this order using the **▲**, **▼** and **OK** keys.

The "1:MO 2:CO 3:CHG?" appears on the LCD.

- (2) To call up the CIS travel menu, press the **1** key. For models without numerical keypad, enter 1 using the **▲**, **▼** and **OK** keys.

(The "3:CHG" is for specifying the CIS type, as described on the next page. The "2:CO" is for checking scanning clocks at the factory, so do not access it.)

Models except DCPJ140W

The "0:30 1:60 2:12 1" appears on the LCD.

DCPJ140W

The "RESO TYPE SET1" appears on the LCD."

- (3) Press the **OK** key (**Photo Capture** key for models without **OK** key).
The "LED PWM : **" appears on the LCD.

- (4) Press the **OK** key (**Photo Capture** key for models without **OK** key).

The "G PULSE : ****" appears on the LCD.

- (5) Press the **OK** key (**Photo Capture** key for models without **OK** key).

The "1:WHT 2:FRT 3:MV" appears.

- (6) Press the **1**, **2**, or **3** key, then press the **OK** key (**Photo Capture** key for models without **OK** key). For models without numerical keypad, enter 1, 2, or 3 using the **▲**, **▼** and **OK** keys, and then press the **OK** key again.

The CIS unit moves to the scanning end position, white reference film position, or scanning start position, respectively.

- (7) Press the **Stop/Exit** key, and the CIS unit returns to the home position.

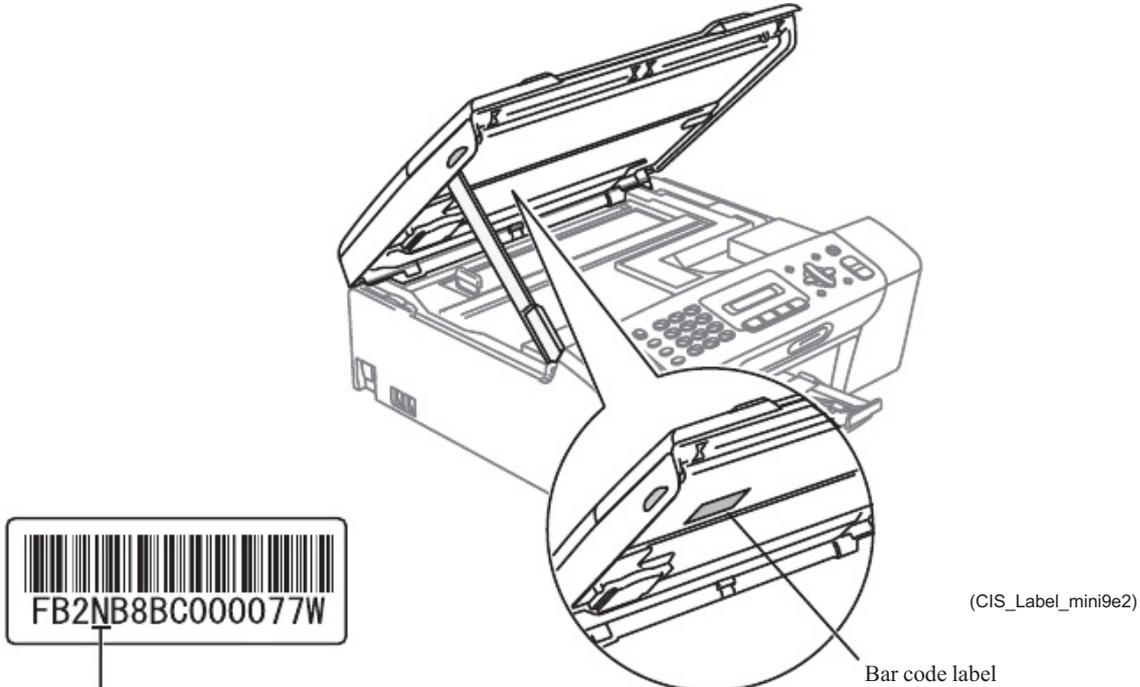
The machine returns to the initial stage of the maintenance mode.

-- Specify the CIS type --

Note: Before proceeding to the CIS type specification procedure, be sure to update the firmware to the latest version. Otherwise, an error may occur.

- (1) Open the scanner cover and check the CIS type (particular code) in the bar code label.

Note: The DCPJ140W does not require this checking step.



Particular code in the bar code label	A	B	C	D	E	F	N	P	S	T	No bar code label
DCP195C	0	-	0	-	-	-	4	4	1, 0, 4	1	0, 4
DCP197C	0	-	0	-	-	-	4	4	1, 0, 4	1	0, 4
DCP365CN	0	-	0	-	-	-	4	4	1, 0, 4	1	0, 4
DCP375CW	0	-	0	-	-	-	4	4	1, 0, 4	1	0, 4
DCP373C	0	-	0	-	-	-	4	4	1, 0, 4	1	0, 4
DCP377C	0	-	0	-	-	-	4	4	1, 0, 4	1	0, 4
DCP395CN	0	-	0	-	-	-	4	4	1, 0, 4	1	0, 4
MFC255CW	0	-	0	-	-	-	4	4	1, 0, 4	1	0, 4
MFC253CW	0	-	0	-	-	-	4	4	1, 0, 4	1	0, 4
MFC257CW	0	-	0	-	-	-	4	4	1, 0, 4	1	0, 4
MFC295CN	0	-	0	-	-	-	4	4	1, 0, 4	1	0, 4
MFC495CW	0	-	0	-	-	-	4	4	1, 0, 4	1	0, 4
MFC795CW	0	-	0	-	-	-	4	4	1, 0, 4	1	0, 4
MFC675CD	0	-	0	-	-	-	4	4	1, 0, 4	1	0, 4
MFC675CDW	0	-	0	-	-	-	4	4	1, 0, 4	1	0, 4
MFC695CDN	0	-	0	-	-	-	4	4	1, 0, 4	1	0, 4
MFC695CDWN	0	-	0	-	-	-	4	4	1, 0, 4	1	0, 4
MFC735CD	0	-	0	-	-	-	4	4	1, 0, 4	1	0, 4
MFC735CDW	0	-	0	-	-	-	4	4	1, 0, 4	1	0, 4
MFC935CDN	0	-	0	-	-	-	4	4	1, 0, 4	1	0, 4
MFC935CDWN	0	-	0	-	-	-	4	4	1, 0, 4	1	0, 4
DCPJ125	1	1	2	2	0	0	-	-	-	-	-
DCPJ315W	1	1	2	2	0	0	-	-	-	-	-
DCPJ515W	1	1	2	2	0	0	-	-	-	-	-
DCPJ715W	1	1	2	2	0	0	-	-	-	-	-
MFCJ220	1	1	2	2	0	0	-	-	-	-	-
MFCJ265W	1	1	2	2	0	0	-	-	-	-	-
MFCJ410	1	1	2	2	0	0	-	-	-	-	-
MFCJ415W	1	1	2	2	0	0	-	-	-	-	-
MFCJ615W	1	1	2	2	0	0	-	-	-	-	-

Check the particular code in the bar code label and find the numeral(s) assigned to the particular code for the model name in this table. Press the corresponding numerical key(s) in the CIS type specification procedure.

- (2) Press the **5** and **9** keys in this order in the initial stage of the maintenance mode. (For models without numerical keypad, enter 5 and 9 in this order using the **▲**, **▼** and **OK** keys.)

The "1:MO 2:CO 3:CHG?" appears on the LCD.

- (3) To call up the CIS type menu, press the **3** key.

(The "1:MO" is for checking the CIS travel, as described on [page 9-37](#). The "2:CO" is for checking scanning clocks at the factory, so do not access it.)

Models except DCPJ140W

The "CIS TYPE SET" appears on the LCD.

Check the particular code in the bar code label as shown on the previous page ("N" in this sample). Next, find the numeral(s) assigned to the particular code for the model name in the table and press the corresponding numerical key (e.g., **4** key for the DCP197C).

If the code is "S," first press the **1** key. If the machine returns to the initial stage of the maintenance mode, the CIS type specification procedure is successfully completed. If the machine error AF occurs, perform steps (2) and (3) again and press the **0** key. If the machine returns to the initial stage of the maintenance mode, the procedure is successfully completed. If the machine error AF occurs again, perform steps (2) and (3) again and press the **4** key. The machine returns to the initial stage of the maintenance mode.

In the case of "No bar code label," first press the **0** key. If the machine returns to the initial stage of the maintenance mode, the CIS type specification procedure is successfully completed. If the machine error AF occurs, perform steps (2) and (3) again and press the **4** key. The machine returns to the initial stage of the maintenance mode.

DCPJ140W

The machine automatically sets the CIS type and displays "PLS UPDATE PROG" on the LCD for two seconds.

Load the latest firmware to the machine. If nothing appears on the LCD, no loading is required.

9.4.18 Printout of PRN Files in Memory Card (Function code 61)

This function is applicable to the DCPJ125/J315W/J515W/J715W and MFCJ220/J265W/J270W/J410/J410W/J415W/J615W/J630W.

■ Function

This function prints out PRN files stored in a memory card supported by the PhotoCaptureCenter.

A maximum of 63 files named "file_*.prn" can be printed, where ** is a numeral from 01 to 63. Files having other names will be ignored.

The following three print modes are available.

- Printing the specified file once
- Printing all files repeatedly
- Printing the specified file repeatedly

■ Operating Procedure

-- Printing the specified file once --

- (1) Press the **6** and **1** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 6 and 1 in this order using the **▲**, **▼** and **OK** keys.

The "MAINTENANCE 61" appears on the LCD.

- (2) Press the **#** key and two numerical keys corresponding to the 2-digit number (01 to 63) of the PRN file to be printed. For models without numerical keypad, enter **#** and the 2-digit file number using the **▲**, **▼** and **OK** keys.

The machine starts printing.

Upon completion of printing, the machine goes back to step (2).

- (3) To stop this operation and return the machine to the initial stage of the maintenance mode, press the **Stop/Exit** key.

-- Printing all files repeatedly --

- (1) Press the **6** and **1** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 6 and 1 in this order using the **▲**, **▼** and **OK** keys.

The "MAINTENANCE 61" appears on the LCD.

- (2) Press the **#** key and then press the **0** key twice. For models without numerical keypad, enter **#** and then 0 twice in this order using the **▲**, **▼** and **OK** keys.

The machine repeatedly prints all files, starting from the heading file.

- (3) To stop printing, press the **#** key and then press the **9** key twice. For models without numerical keypad, enter **#** and then 9 twice in this order using the **▲**, **▼** and **OK** keys.

After completion of printing of the current file, the machine stops printing.

- (4) To stop this operation and return the machine to the initial stage of the maintenance mode, press the **Stop/Exit** key.

-- Printing the specified file repeatedly --

- (1) Press the **6** and **1** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 6 and 1 in this order using the **▲**, **▼** and **OK** keys.
- (2) Press the **#**, **9**, and **8** keys in this order. For models without numerical keypad, enter #, 9, and 8 in this order using the **▲**, **▼** and **OK** keys.

Press the **#** key and two numerical keys corresponding to the 2-digit number (01 to 63) of the PRN file to be printed. For models without numerical keypad, enter # and the 2-digit file number using the **▲**, **▼** and **OK** keys.

The machine repeatedly prints the specified file only.

- (3) To stop printing, press the **#** key and then press the **9** key twice. For models without numerical keypad, enter # and then 9 twice in this order using the **▲**, **▼** and **OK** keys.
After completion of printing of the current file, the machine stops printing.
- (4) To stop this operation and return the machine to the initial stage of the maintenance mode, press the **Stop/Exit** key.

9.4.19 Travel Check of the Head/Carriage Unit and Initial Setup Mode (Function code 63)

■ Function

This procedure moves the head/carriage unit to the center of its travel (Function code 63 + *).

NOTE: In models with touch panel, press the **Black Start (Mono Start)** key, press the **Scan** and **Copy** keys simultaneously, and then press the * key.

It can also enable or disable the initial setup mode when the power is applied at the next time (Function code 63 + 1 or Function code 63 +3).

■ Operating Procedure

- (1) Press the **6** and **3** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 6 and 3 in this order using the **▲**, **▼** and **OK** keys.

The "SELECT 63?" appears on the LCD.

- (2) Press the **Black Start (Mono Start)** key.
The "START 63?" appears on the LCD.

- (3) To make the head/carriage unit travel to the center of its travel, press the * key. For models without numerical keypad, enter * using the **▲**, **▼** and **OK** keys.

NOTE: In models with touch panel, to display the numerical, * and # keys, it is necessary to switch the software keypad between the numerical and function keypads by pressing the **Scan** and **Copy** keys simultaneously.

After completion of head replacement or adjustment jobs, press the **Stop/Exit** key. The head/carriage unit returns to the home position and then locks itself.

TIP: Holding down the **Stop/Exit** key for more than five seconds with the scanner cover opened can also move the head/carriage unit in the same manner as above.

- (4) To enable or disable the initial setup mode when the power is applied at the next time, perform steps (1) and (2) again and then press the **1** or **3** key, respectively. For models without numerical keypad, enter 1 or 3 using the **▲**, **▼** and **OK** keys.

If you enable the initial setup mode, wait until the "INIT" appears on the LCD and the head/carriage unit becomes locked. When the "HEAD LOCKED" appears, turn the power off.

NOTE: Enabling the initial setup mode resets all counts which can be displayed with Function code 80 (described in [Section 9.4.29 "Display of the Equipment's Log \(Function code 80\) \(User-accessible\)"](#)).

If you disable the initial setup mode, the machine displays the "NOT INIT" on the LCD and returns to the initial stage of the maintenance mode.

9.4.20 Alignment of Vertical Print Lines in Monochrome (Function code 65)

■ Function

This function allows you to align vertical lines printed in the forward and backward direction of the head/carriage unit.

If the head/carriage unit or main PCB is replaced with a new one, you need to make the adjustment given in this section.

NOTE: If the head/carriage unit is replaced, you need to make other adjustments in addition. Refer to [Chapter 7, Section 7.2 \[4 \]](#).

■ Operating Procedure

Before starting the operation below, be sure to set letter-size paper in the paper tray for printing check patterns.

Models except DCPJ140W

- (1) Press the **6** and **5** keys in this order in the initial stage of the maintenance mode. Then press the **1** key. For models without numerical keypad, enter 6, 5, and 1 in this order using the **▲**, **▼** and **OK** keys.

The machine displays the "PRINTING" on the LCD and prints three sets of vertical alignment check pattern A (see [pages 9-45](#) and [9-46](#) for a sample printout) in monochrome for 450 dpi, 600 dpi and 1200 dpi, each of which consists of #0 through #8 blocks. #0 block is a reference line of full alignment.

The "450DPI NO. (1-8)" appears on the LCD.

- (2) For 450 dpi, check the printed vertical alignment check patterns and find which number block shows full alignment. Enter that block number by using the numerical keys. The "600DPI NO. (1-8)" appears on the LCD.

- (3) For 600 dpi, perform the same operation as in step (2).

The "1200DPI NO. (1-8)" appears on the LCD.

- (4) For 1200 dpi, perform the same operation as in step (2).

The machine automatically returns to the initial stage of the maintenance mode.

NOTE: If #1 or #8 block is fully aligned so that you press the **1** or **8** key (or you enter 1 or 8 using the **▲**, **▼**, and **OK** keys) in the above procedure, then go back to step (1) to confirm that #4 or #5 block becomes aligned.

DCPJ140W

- (1) Enter 6, 5, and 1 in this order using the ▲, ▼ and **OK** keys in the initial stage of the maintenance mode.

The machine displays "PRINTING" on the LCD and prints vertical alignment check pattern B of rows (A) to (D) (see [page 9-47](#) for a sample printout). Each of the rows consists of #1 through #9 blocks.

The "A NO. (1-9)" appears on the LCD.

- (2) Check the (A) row, find which number block shows most indistinct vertical lines, and then enter that block number using the ▲, ▼ and **OK** keys.

The "B NO. (1-9)" appears on the LCD.

- (3) Check the (B) row, find which number block shows most indistinct vertical lines, and then enter that block number using the ▲, ▼ and **OK** keys.

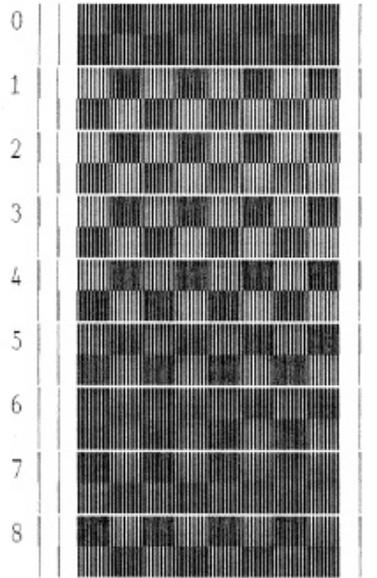
The "C NO. (1-9)" appears on the LCD.

- (4) In the same way, enter the block number of most indistinct vertical lines for the (C) and (D) rows.

The machine automatically returns to the initial stage of the maintenance mode.

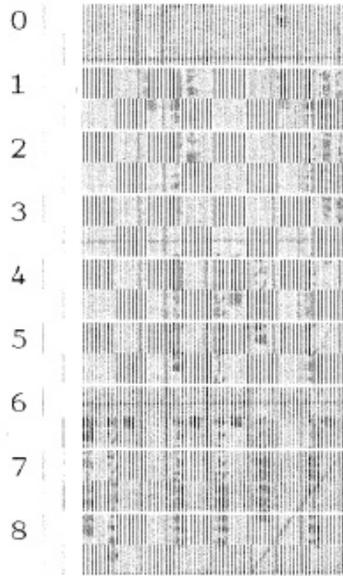
NOTE: If #1 or #9 block is fully aligned so that you enter 1 or 9 using the ▲, ▼ and **OK** keys in the above procedure, the machine shows "PRINTING" on the LCD and prints the vertical alignment check pattern again. Go back to step (2) and make adjustments again.

450dpi

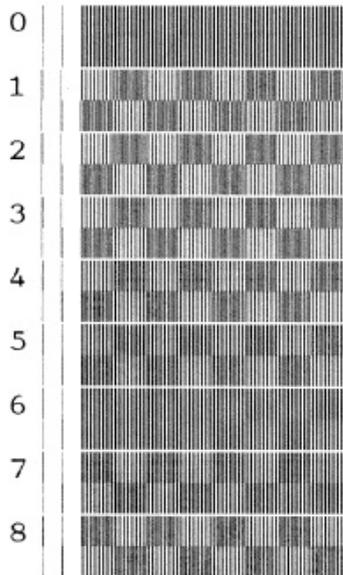


Vertical Alignment Check Pattern A (1/2)

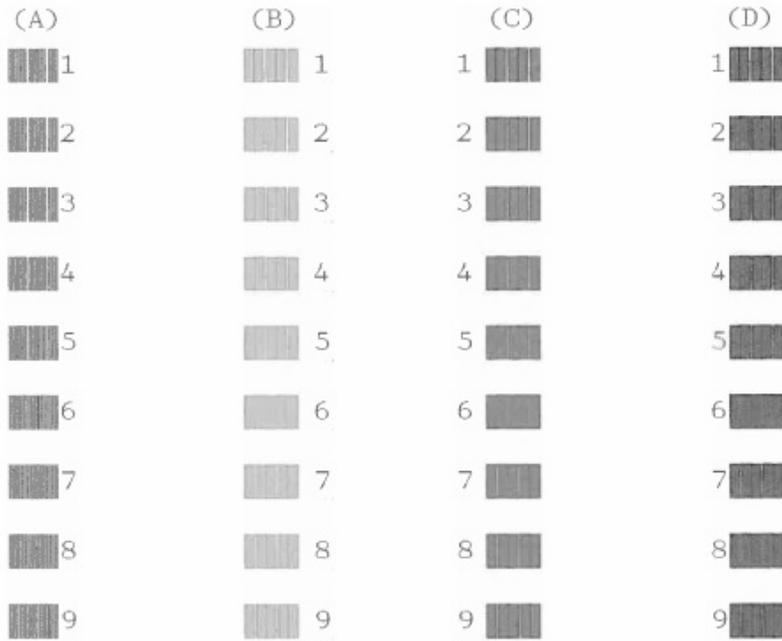
600dpi



1200dpi



Vertical Alignment Check Pattern A (2/2)



Vertical Alignment Check Pattern B

9.4.21 Margin Adjustment in Borderless Printing (Function code 66) (User-accessible)

■ Function

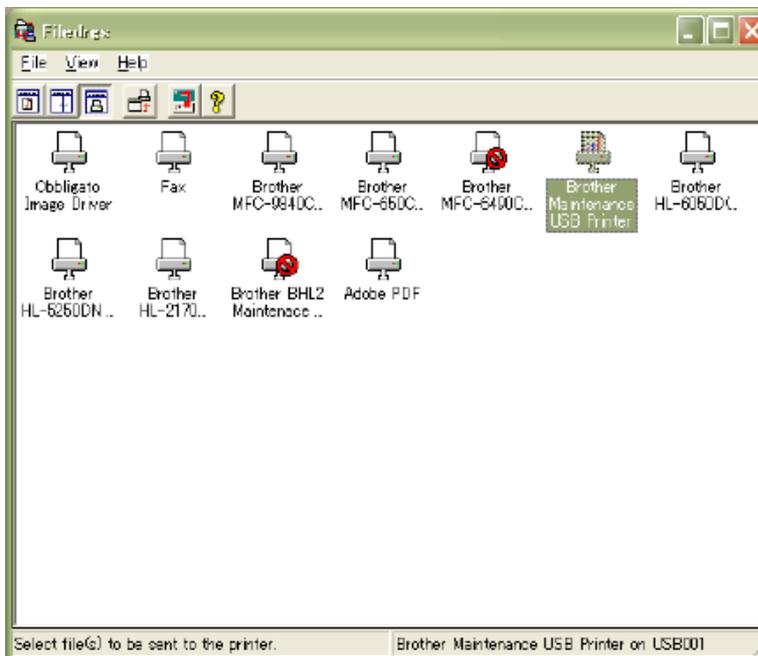
This function allows you to adjust the left, right and bottom margins for borderless printing.

You print out a margin check pattern, measure each margin, and enter the correction values.

■ Operating Procedure

- (1) Switch on your PC.
- (2) Place the machine in the maintenance mode (see [Section 9.1](#)) and set letter-size paper in the paper tray to print margin check patterns.
- (3) Connect the machine to your PC using a USB cable.
- (4) On the PC, run "filedrgs.exe" in the folder created in [Section 7.1.1](#).

The Filedrgs window appears as shown below.



- (5) Drag and drop the "media_bottomadj_a4.prn" onto the Brother Maintenance USB Printer driver icon in the Filedrgs window shown above.

The machine displays the "RECEIVING DATA" on the LCD and prints out the "MEDIA & BOTTOM CHECK" pattern (see [page 9-51](#) for a sample printout). This is for checking the left, right, and bottom margins.

Left and right margin adjustment

- (6) Measure the left and right margins on the printed pattern.

The upper row is printed in 600 dpi, and the lower row, in 1200 dpi.

(Example) 600 dpi Left: 0.8 mm, Right: 1.1 mm
 1200 dpi Left: 0.9 mm, Right: 1.2 mm

If both of the left and right margins are within the range from 0.9 to 1.1 mm, no adjustment is required. If not, go to step (7).

- (7) If either of the left and right margins is out of the specified range, press the **6** key twice and the ***** key on the machine. For models without numerical keypad, enter 6, 6, and * in this order using the **▲**, **▼** and **OK** keys.
The "LEFT: 10" appears on the LCD.
- (8) To adjust the left margin in 600 dpi, enter the measured value (in units of 0.1 mm) multiplied by 10.
In this example, the left margin measured in step (6) is 0.8 mm, so press the **0**, **8**, and **OK** keys.
NOTE: For models having no **OK** key on the control panel, press the **Photo Capture** key.
The "RIGHT1: 10" appears on the LCD.
- (9) To adjust the right margin in 600 dpi, enter the measured value (in units of 0.1 mm) multiplied by 10.
In this example, the right margin measured in step (6) is 1.1 mm, so press the **1**, **1**, and **OK** keys. For models without numerical keypad, enter 1 and 1 using the **▲**, **▼** and **OK** keys and then press the **OK** key again.
The "LEFT2: 10" appears on the LCD.
- (10) To adjust the left margin in 1200 dpi, enter the measured value (in units of 0.1 mm) multiplied by 10.
In this example, the right margin measured in step (6) is 0.9 mm, so press the **0**, **9**, and **OK** keys. For models without numerical keypad, enter 0 and 9 using the **▲**, **▼** and **OK** keys and then press the **OK** key again.
The "RIGHT2: 10" appears on the LCD.
- (11) To adjust the right margin in 1200 dpi, enter the measured value (in units of 0.1 mm) multiplied by 10.
In this example, the right margin measured in step (6) is 1.2 mm, so press the **1**, **2**, and **OK** keys. For models without numerical keypad, enter 1 and 2 using the **▲**, **▼** and **OK** keys and then press the **OK** key again.
Upon completion of the entry, the machine automatically returns to the initial stage of the maintenance mode.
- (12) Go back to step (5) and print out the "MEDIA & BOTTOM CHECK" pattern again.
- (13) Measure the left and right margins on the printed pattern.
If both of the left and right margins are within the range from 0.9 to 1.1 mm, the adjustment is completed.

Bottom margin adjustment

- (14) Measure the bottom margin on the printed pattern.
(Example) Bottom margin: 3.1 mm
If it is within the range from 2.9 to 3.1 mm, no adjustment is required. If not, go to step (15).
- (15) If the bottom margin is out of the specified range, press the **6** key twice and the **#** key on the machine. For models without numerical keypad, enter 6, 6, and # in this order using the **▲**, **▼** and **OK** keys.
NOTE: In models with touch panel, to display the numerical, * and # keys, it is necessary to switch the software keypad between the numerical and function keypads by pressing the **Scan** and **Copy** keys simultaneously.
The "BOTTOM: 30" appears on the LCD.

(16) To adjust the bottom margin, enter the measured value (in units of 0.1 mm) multiplied by 10.

In this example, the bottom margin measured in step (14) is 3.1 mm, so press the **3**, **1**, and **OK** keys.

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

(17) Go back to step (5) and print out the "MEDIA & BOTTOM CHECK" pattern again.

(18) Measure the bottom margin on the printed pattern.

If it is within the range from 2.9 to 3.1 mm, the adjustment is completed.

600dpi LEFT:0.9-1.1mm



600dpi RIGHT:0.9-1.1mm



1200dpi LEFT:0.9-1.1mm



1200dpi RIGHT:0.9-1.1mm



Left, Right, and Bottom Margins Check Pattern

9.4.22 Updating of Property Data (Function code 68)

■ Function

To keep the print quality, the controller optimizes the drive conditions of individual head/carriage units according to the property data. For instance, the controller optimizes the head drive strength, ink jet-out timing and other drive conditions according to the electromechanical properties unique to individual head/carriage units and ambient temperature.

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

If you replace the head/carriage unit with a new spare part, you need to enter its property code printed on the property label (that comes with the new spare part) and replace the old property label on the machine (see [Appendix 1](#) for the label location) with the new one. If the old part may be used in future, store the old property label also with the old part.

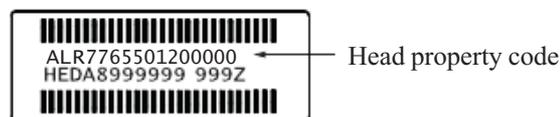
■ Operating Procedure

- (1) Press the **6** and **8** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 6 and 8 in this order using the **▲**, **▼** and **OK** keys.
- (2) Press the **2**, **5**, **8**, and **0** keys in this order. For models without numerical keypad, enter 2, 5, 8, and 0 in this order using the **▲**, **▼** and **OK** keys.

The current property data stored in the EEPROM appears on the LCD and the machine is ready for entry.

- (3) Check the property label that comes with a new head/carriage unit and then enter the property code.

The code to be entered is 13 digits excluding the heading alphabets.



For models without numerical keypad, to enter numerical codes, press the **▲/▼** key several times to display the numerical code to be entered and then press the **OK** key. Repeat this operation for each numerical code.

If the customizing code contains letters "A" through "F," on models with a numerical keypad on the control panel, press the **1** through **6** keys while holding down the **#** key, respectively. On models with a touch panel, press the "A" through "F" keys on the software keypad.

- (4) Press the **OK** key (**Photo Capture** key for models without **OK** key).

The machine beeps (MFC only), shows the "INPUT ACCEPTED" on the LCD, and writes the entered property code into the EEPROM. Then it returns to the initial stage of the maintenance mode.

NOTE: If the entered data contains any checksum error, the machine beeps (MFC only), shows the "INPUT ERROR" and returns to the ready-to-enter state. Go back to step (3).

9.4.23 Head/Carriage Unit Traveling Speed Check (Function code 69)

■ Function

This function checks whether or not the traveling speed of the head/carriage unit is within the specified range.

This procedure should be performed when you replace the head/carriage unit or carriage motor or CR encoder strip, or when you loosen the CR timing belt, or when you apply lubrication to head/carriage unit.

■ Operating Procedure

- (1) Press the **6** and **9** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 6 and 9 in this order using the **▲**, **▼** and **OK** keys.

The machine starts aging the head/carriage unit, showing the "CR AGING" on the LCD.

In each of travel speeds 57.7, 43.3 and 21.7 (57.7, 43.3, 21.7 and 26.7 for the DCPJ140W)

inches/second, the machine checks whether the maximum and minimum speeds are within the specified range.

- If the maximum and minimum speeds in all of the three travel speeds are within the range, the "57O 43O 21O" ("57O 43O 21O 27O" for the DCPJ140W) appears on the LCD.
- If any one is out of the range, the machine shows some message, e.g., "57O 43O 21X" on the LCD. This sample message indicates that the speed variation is within the allowable range when the head/carriage unit travels at 57.7 and 43.3 inches/second; however, it is out of the range at 21.7 inches/second.

- (2) Press the **Stop/Exit** key to return to the initial stage of the maintenance mode.

9.4.24 EEPROM Customizing (Function code 74)

The "EEPROM Customizing Codes List" is given on the following pages.

■ Function

This function allows you to customize the EEPROM according to language, function settings, and firmware switch settings.

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

■ Operating Procedure

- (1) Press the **7** and **4** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 7 and 4 in this order using the **▲**, **▼** and **OK** keys.

The "SELECT 74?" appears on the LCD.

- (2) Press the **Black Start (Mono Start)** key, and the current customizing code appears.
- (3) Enter the desired customizing code. (Refer to [Appendix 3 "EEPROM Customizing Codes List" on page App. 3-2.](#))
For models without numerical keypad, to enter numerical codes, press the **▲/▼** key several times to display the numerical code to be entered and then press the **OK** key. Repeat this operation for each numerical code.

If the customizing code contains letters "A" through "F," on models with a numerical keypad on the control panel, press the **1** through **6** keys while holding down the **#** key, respectively. On models with a touch panel, press the "A" through "F" keys on the software keypad.

The newly entered code appears.

NOTE: *If a wrong 4-digit code is entered, the machine will malfunction.*

- (4) Press the **Black Start (Mono Start)** key.

Models except DCPJ140W

The machine saves the setting and returns to the initial stage of the maintenance mode.

DCPJ140W

The "Please DL ROM" appears on the LCD. Load the latest firmware to the machine.

If you press the **Stop/Exit** key or no keys are pressed for one minute in the above procedure, the machine stops the procedure and returns to the initial stage of the maintenance mode.

9.4.25 Travel of Head/Carriage Unit (for removing paper particles and dust accumulated on the maintenance unit) (Function code 75) (User-accessible)

■ Function

This function is used to remove paper particles and dust accumulated between the maintenance unit and head/carriage unit. Using this function moves the head/carriage unit to the center of its travel, allowing you to easily remove the paper particles and dust accumulated.

■ Operating Procedure

- (1) Press the **7** and **5** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 7 and 5 in this order using the **▲**, **▼** and **OK** keys.

The "PLS OPEN COVER" appears on the LCD.

- (2) Open the scanner cover.

The head/carriage unit moves to the center of its travel.

- (3) Remove the paper particles and dust accumulated.

- (4) Close the scanner cover.

The head/carriage unit moves back to the home position and the machine returns to the initial stage of the maintenance mode.

TIP: Holding down the **Stop/Exit** key for more than five seconds with the scanner cover opened can also move the head/carriage unit in the same manner as above.

9.4.26 Purge Operation (Function code 76) (User-accessible)

■ Function

The machine can carry out several types of purge operations--head replacement purge, normal purge, periodical reset purge, power purge, initial purge, user reset purge, and engine setup purge. This function allows you to select the desired purge type and carry it out.

TIP: The purge types and their details are described on the next page.

■ Operating Procedure

- (1) Press the **7** and **6** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 7 and 6 in this order using the **▲**, **▼** and **OK** keys.

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

- (2) Press the **◀** or **▶** key to display the target color for purge.

NOTE: In models with touch panel, if the **▲**, **▼**, **▶**, and **◀** keys are not displayed on the software keypad, it is necessary to switch the software keypads between the numerical and function keypads by pressing the **Scan** and **Copy** keys simultaneously.

Each time the **◀** or **▶** key is pressed, the "CLEANING ALL," "CLEANING BLACK," "CLEANING MAGENTA," "CLEANING CYAN," or "CLEANING YELLOW" appears cyclically.

"CLEANING ALL": Purge for all four color inks

"CLEANING BLACK": Purge for black ink

"CLEANING MAGENTA" / "CLEANING CYAN" / "CLEANING YELLOW": Any color choice performs purge for all three color inks.

- (3) Enter the purge code according to the table on the next page.
- (4) Press the **Black Start (Mono Start)** key.

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

Purge types, ink usage, purge counts, and purge codes

Purge Types	Description	Ink Usage	Purge Counts	Purge Codes (In the maintenance mode, Function code 76)
Head replacement purge (See Note below.)	This is a specially prepared purge for eradicating mixed color inks.	Black: 2.697 ml Per color: 2.620 ml	Black: 122 3 colors: 366	0
Normal purge	This purge operation removes dried ink sticking to the head nozzles.	Black: 0.150 ml Per color: 0.130 ml	Black: 7 3 colors: 19	1
Periodical reset purge	This purge operation removes air bubbles that have accumulated in the ink supply tubes.	Black: 0.471 ml Per color: 0.320 ml	Black: 22 3 colors: 45	2
Power purge	More powerful than a periodical reset purge, this purge operation is for removing stubborn clogging from the head nozzles and ink supply tubes.	Black: 0.531 ml Per color: 0.380 ml	Black: 25 3 colors: 54	3
Initial purge (See Note below.)	When the user loads ink cartridges for the first time, this purge operation automatically runs to refill the ink supply tubes and print head with fresh ink.	Black: 2.907 ml Per color: 2.290 ml	Black: 133 3 colors: 316	4
User reset purge	This purge operation should be performed if the print quality problem persists after a user has performed the purge operation repeatedly by pressing the Ink (Ink Management) key.	Black: 0.471 ml Per color: 0.320 ml	Black: 22 3 colors: 45	5
Engine setup purge	This purge operation refills the ink supply tubes with ink when there is no ink in those tubes.	Black: 2.907 ml Per color: 2.290 ml	Black: 133 3 colors: 316	6

The above information is as of April 1, 2010.

(Note) If the head/carriage unit is replaced with a spare part having a round, blue seal on its left side (shown in [Appendix 1, "\(2\) Head property labels"](#)), perform the head replacement purge. If it is replaced with the one having no seal, perform the initial purge.

This machine counts all purge operations and flushing operations performed since produced in order to prevent the ink absorber box and flushing box from overflowing with drained and flushed ink, respectively. An initial purge, for example, advances the counter by 133 + 316 = 449.

When the purge or flushing counter approaches 5760 or 568181818, respectively, the "MACHINE ERROR 46" appears, and further purge or flushing operations are prohibited. Replace the ink absorber box and flushing box, and then reset their counters. (Refer to the [Chapter 7, Section 7.5](#) for the reset procedure.)

⑨	Serial number of the machine
⑩	Head property code
⑪	CIS type/Engine type/LCD type
⑫	Version of cordless handset (Internal host/firmware/CP) (only for models with a cordless handset)
⑬	PictBridge information (only for models supporting PictBridge)
⑭	Ink drop count, indicating how many droplets have been jetted out from each of the current ink cartridges (including droplets used for purging)
⑮	Ink drop count after detection of "Ink Low," indicating how many droplets have been jetted out from each of the current ink cartridges after detection of "Ink Low"
⑯	Ink drop count, indicating how many droplets have been jetted out from each of the ink cartridges onto the platen in borderless printing
⑰	Total ink drop count, indicating how many droplets the machine has jetted out from each of the ink cartridges since produced (excluding droplets used for purging)
⑱	Ink cartridge change count Left: Bundled ink cartridges Right: Supply ink cartridges
⑲	Ink cartridge detection failure count, indicating how many times an undetectable cartridge has been inserted
⑳	Total printed page count (since the machine was produced)/Total jam count
㉑	Printed page count for copy, PC print, memory card, fax & list print
㉒	ADF scanning page count/Flat-bed scanning page count/ADF jam count
㉓	Home positioning error code of the CIS unit/Home positioning detection log data Only for DCPJ140W
㉔	Purge count/Wiper count/Flushing count, since the machine was produced
㉕	Purge count by purge type (automatic/manual) eIP: Engine setup purge count tIP: Initial purge count RP: Periodical reset purge count SRP: Small reset purge count SP: Periodical suction purge count RP2: Periodical vent purge count CP: Ink cartridge replacement purge count NP: Normal purge count RP3: User reset purge count PP: Power reset purge count QPP: Power purge count tFL: Periodical flushing count (only after color printing)
㉖	Printed page count for paper sizes and types Plain paper-Inkjet paper-Glossy paper for each of A3/A4/4x6/L
㉗	Total printed page count in duplex printing/Jam count in duplex printing/Paper pull-in rollers (paper pick-up rollers) cleaning count in duplex printing (This item is printed, but not required for servicing.)
㉘	Total copy page count in duplex printing//Total PC print count in duplex printing (This item is printed, but not required for servicing.)
㉙	Printed page count for paper sizes and paper types in duplex printing A4: Plain paper only 4 x 6: Plain paper - Inkjet paper (This item is printed, but not required for servicing.)
㉚	Total power-ON time
㉛	Machine error history
㉜	Communications error history

③③	Base ID/Cordless handset 1 ID/Cordless handset 2 ID/Cordless handset 3 ID/Cordless handset 4 ID (only for models with cordless handset)
③④	Initial purge log
③⑤	Machine information backup file version (See Function code 46.)
③⑥	Sensor status (See Function code 32 for sensor names.)
③⑦	Ink cartridge type loaded in each slot 0: No cartridge loaded 1: Bundled cartridge 2: Supply cartridge *: Unidentifiable ink cartridge
③⑧	Not required for servicing
③⑨	Not required for servicing
④①	Timing info and damage info when Error EC has occurred T: Timing info (0: No error, 1: Error at the start of operation, 2: Error during usual operation) E: Expected value of information read R: Damaged value of information read
④①	Reset count*/Power-ON duration at the time of last reset * Excluding the resets triggered by the following Function codes 01 and 91 Function code 80 (Resetting the purge and flushing counts)

9.4.28 Adjustment of Touch Panel (Function code 78)

■ Function

This function adjusts the detection area on the touch panel.

NOTE: The adjustment procedure requires a stylus with a thin tip. A commercially available stylus designed for electronic dictionaries or personal digital assistance (PDA) can be used. If you do not have it on hand, order the "TOUCH PEN" from the Brother's parts list.

This function is applicable to the models with touch panel.

■ Operating Procedure

- (1) Press the **7** and **8** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 7 and 8 in this order using the **▲**, **▼** and **OK** keys.

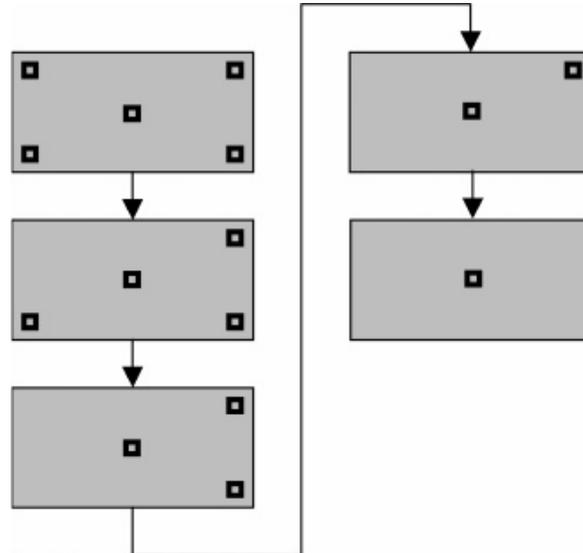
The adjustment screens shown below appear on the LCD.

- (2) Touch the symbols on the touch panel with a stylus in the order of top-left, bottom-left, bottom-right, top-right, and the center. After a symbol touched disappears, touch the next one.

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.

NOTE: Do not touch the touch panel with fingers. The contact area of a finger is too large to adjust the touch panel precisely.

NOTE: If no keys are pressed for one minute in the above procedure or you press the **Stop/Exit** key, the machine stops the procedure and returns to the initial stage of the maintenance mode.



After the fifth symbol (center) is pressed, the "OK" appears if the adjustment is normally completed. After approx. three seconds, the machine returns to the initial stage of the maintenance mode.

NOTE: If the touch panel is improperly pressed or a wrong point is pressed, the "NG" appears on the LCD. After approx. three seconds, the screen returns to the state in step (2). Start pressing the five symbols again from the first one (top-left).

If the "NG" appears, repeat this procedure two or three times. If the "NG" persists even after that, check the touch panel harness for a contact failure, breakage, or short-circuit. If the "NG" continues to be displayed without any of such problems, replace the LCD unit.

9.4.29 Display of the Equipment's Log (Function code 80) (User-accessible)

■ Function

The machine can display its log information on the LCD.

This procedure allows you to reset the purge count. It is necessary to reset the purge count when the ink absorber box is replaced with a new one without replacing the main PCB.

■ Operating Procedure

- (1) Press the **8** and **0** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 8 and 0 in this order using the **▲**, **▼** and **OK** keys.

The calendar clock appears on the LCD.

- (2) Press the **Black Start (Mono Start)** key to call up the following log information items on the LCD, one by one.

NOTE: Some information items do not appear or the display sequence differs slightly depending upon models.

TIP: Items in the shaded fields in the table below

When one of the log items in the shaded fields is displayed, pressing the **2**, **7**, **8**, and **3** keys in this order resets the displayed log information to zero.

00: 00 00: 00 OK	RTC backup check (not required for servicing) (Not shown on DCP)
8CA***	Model code
COUNTRY:	Country code (See Appendix 3.)
SW TCH:	Checksum of WSW, PSW, USW, and FSW (not required for servicing)
MAI N:	Version and production date of main firmware
***** P****	Checksum of main firmware Version and production date of sub firmware
B****	Version and production date of boot firmware
CLBS I H:	Version of cordless handset's internal host (not required for servicing) (Shown only on models with a cordless handset)
CLBS FW	Version of cordless handset firmware (Shown only on models with a cordless handset)
CLBS CP:	Version of cordless handset's communications package (not required for servicing) (Shown only on models with a cordless handset)
USB: * ¹	Serial number of the machine
ALR**** CIS: * ²	Head property code CIS type (Function code 59)
ENGI NE:	Engine type (not required for servicing)
PI CTBRI DGE: * ³	PictBridge information (Shown only on models supporting PictBridge/USB flash memory drive)
DOT K: * ⁴	Ink drop count, indicating how many droplets have been jetted out from each of the ink cartridges (including droplets used for purging)
SEN K: * ⁴	Ink drop count after ink near-empty, indicating how many droplets have been jetted out from each of the ink cartridges after the ink empty sensor detects near-empty
PLA K: * ⁴	Ink drop count, indicating how many droplets have been jetted out onto the platen in borderless printing

LK: *4	Total ink drop count, indicating how many droplets the machine has jetted out from each of the ink cartridges since produced (excluding droplets used for purging)
I NK CH BK: *4	Ink cartridge change count (Bundled cartridge)
I NK CH2 BK: *4	Ink cartridge change count (Supply cartridge)
CHGM SS_BK: *4	Ink cartridge change count, indicating how many times an unauthorized ink cartridge has been sensed
J AM	Jam count, indicating how many times a paper jam has occurred.
PAGE:	Total printed page count, indicating how many pages have been printed since the machine was produced
PC:	PC print page count, indicating how many pages the machine has printed as an output device of the connected PC
COLORCOPY:	Color copy page count, indicating how many copies in color have been made
MONOCOPY:	Black copy page count, indicating how many copies in monochrome have been made
MEDI A:	Memory card print page count, indicating how many pages have been printed from the memory card data (On models without PhotoCapture Center, this counter is always fixed at "0.")
FAX:	FAX page count, indicating how many received FAX pages have been printed (Shown on MFC only)
PURGE:	Purge count, indicating how many times the purge operation has been carried out
eI P_BK: *5	Purge history for purge types of black ink
eI P_CL: *5	Purge history for purge types of color inks
W PE:	Wiper count, indicating how many times the wiper operation has been carried out
FLUSH:	Flushing count, indicating how many times the flushing operation has been carried out
A3P: *6	Print history for paper sizes and types
DX_J AM	Jam count in duplex printing
DX_P:	Total page count in duplex printing, indicating how many pages have been printed in duplex printing since the machine was produced
DX_CLEAN:	Paper pull-in rollers (paper pick-up rollers) cleaning count in duplex printing
DX_PC:	PC print page count in duplex printing, indicating how many pages the machine has printed as an output device of the connected PC
DX_COLORCOPY:	Color copy page count in duplex printing, indicating how many copies have been made in color
DX_MONOCOPY:	Black copy page count in duplex printing, indicating how many copies have been made in monochrome
DX_A4P: *7	Total A4 page count in duplex printing, indicating how many A4 pages have been printed since the machine was produced
POWER:	Total power-ON time
MACH NE_ERR_1 *8	Machine error history
ADF_J AM	ADF paper jam count, indicating how many times a paper jam has occurred (Shown on models with ADF)
ADF:	ADF page count, indicating how many pages the ADF has fed (Shown on models with ADF)
FB:	Flat-bed page count, indicating how many documents have been scanned
HP_ERR_CODE: *9	Home positioning error code of CIS unit (Latest error) Only for DCPJ140W

HP_LOG1: *10	Home positioning detection log data (Byte 0 to 3 of 16 bytes) Only for DCPJ140W
COMERR1: *11	Communications error history
CLI D0:	Base ID code (Shown on models with a cordless handset)
CLI D1:	(Shown on models with a cordless handset)
CLI D2:	ID code of cordless handset 2 (Shown on models with a cordless handset)
CLI D3:	ID code of cordless handset 3 (Shown on models with a cordless handset)
DCLPN:	PIN code of cordless handset (Shown on European models with a cordless handset)
BACKUP VER:	Backup data file version of machine information (Function code 46)
RESET COUNT*12	Reset count

After all of the log information items above are displayed, pressing the **Black Start (Mono Start)** key returns the screen to the calendar clock in step (1) above.

- (3) To stop this operation and return the machine to the initial stage of the maintenance mode, press the **Stop/Exit** key.

In the following notes, the **OK** key is used. For models having no **OK** key on the control panel, use the **Photo Capture** key instead of the **OK** key.

*1 DCPJ140W "S/N:" appears instead of "USB:."

With the S/N being displayed, pressing the **OK** key toggles between the following two indications.

S/ N:	Serial number information
*****	Serial number of the machine

Machine serial number change procedure

The serial number of the machine can be changed with the following procedure.

Models with numerical keypad:

- 1) With the serial number being displayed, press the **OK** key and then press the **9, 4, 7** and **5** keys in this order.

The uppermost digit of the current serial number flashes.

- 2) Enter the uppermost digit of the desired serial number with numerical keys, then press the **▶** key to move the cursor to the next lower digit. In the same way, enter the remaining 14 digits.

Entry of alphabet letters

To enter an alphabet letter, press the corresponding numerical key repeatedly until the target alphabet letter appears.

Numerical keys	Letters supported
2	2 → A → B → C
3	3 → D → E → F
4	4 → G → H → I
5	5 → J → K → L
6	6 → M → N → O
7	7 → P → Q → R → S
8	8 → T → U → V
9	9 → W → X → Y → Z

- 3) Upon completion of entry of all digits, press the **OK** key.

The machine saves the newly entered setting and returns to the initial stage of the maintenance mode.

To cancel the entry of a serial number halfway through the above procedure, press the **Stop/Exit** key. The machine returns to the initial stage of the maintenance mode.

Models without numerical keypad:

- 1) With the serial number being displayed, press the **OK** key and then enter **9, 4, 7** and **5** using the **▲ / ▼** and **OK** keys.

The cursor appears at the uppermost digit of the current serial number.

- 2) Use the **▲ / ▼** keys to display the uppermost digit of the desired serial number, then press the **OK** key.

- 3) Use the **▲** key to display the **▶** key on the LCD, then press the **OK** key to move the cursor to the next lower digit.

Use the **▲ / ▼** keys to display the corresponding digit of the desired serial number, then press the **OK** key. In the same way, enter the 3rd to 15th digits of the desired serial number.

- 4) Upon completion of entry of all digits, press the **OK** key.

The machine saves the newly entered setting and returns to the initial stage of the maintenance mode.

To cancel the entry of a serial number halfway through the above procedure, press the **Stop/Exit** key. The machine returns to the initial stage of the maintenance mode.

*2 For DCPJ140W "CISF:" appears instead of "CIS:."

- *3 With the PictBridge information being displayed, pressing the **OK** key cycles through the following items.

PI CTBRI DGE:	PictBridge information
BROTHER	Vendor name
_**	Model name
**/ **	Profile version/DPS version (not required for servicing)
BR000**	PictBridge serial number (not required for servicing)

*4 With the log information being displayed, pressing the **OK** key cycles through black, yellow, cyan, and magenta.

*5 With a purging count being displayed, pressing the **OK** key cycles through the following items.

e_l_p ul P_	Engine setup purge count (automatic/manual) Initial purge count
RP_	Periodical reset purge count
SRP_	Small reset purge count
SP_	Periodical suction purge count
RP2_	Periodical vent purge count
CP_	Ink cartridge replacement purge count
NP_	Normal purge count
RP3_	User reset purge count
PP_	Power reset purge count
QPP_	Power purge count
t_FLSX	Periodical flushing count (only after printing in color)

*6 With the total page count of the paper size and type being displayed, pressing the **OK** key cycles through the following items.

A3P	Total printed page count of A3 plain paper
A3I	Total printed page count of A3 inkjet paper
A3G	Total printed page count of A3 glossy paper
A4P	Total printed page count of A4 plain paper
A4I	Total printed page count of A4 inkjet paper
A4G	Total printed page count of A4 glossy paper
46P	Total printed page count of 4 x 6 inch and postcard plain paper
46I	Total printed page count of 4 x 6 inch and postcard inkjet paper
46G	Total printed page count of 4 x 6 inch and postcard glossy paper
LP	Total printed page count of letter plain paper
LI	Total printed page count of letter inkjet paper
LG	Total printed page count of letter glossy paper

*7 With the total page count of the paper size and type in duplex printing being displayed, pressing the **OK** key cycles through the following items.

DX_A3P	Total printed page count on A3-size, plain paper in duplex printing
DX_A4P	Total printed page count on A4-size, plain paper in duplex printing
DX_46P	Total printed page count on 4 x 6 plain paper in duplex printing
DX_46I	Total printed page count on 4 x 6, inkjet paper in duplex printing
DX_46G	Total printed page count on 4 x 6, glossy paper in duplex printing

*8 With a machine error code being displayed, pressing the **OK** key cycles through recent nine errors that have occurred.

*9 Displays the following home positioning error codes of the CIS unit.

E1:	Vertical scanning rough detection error
E2:	Horizontal scanning rough detection error
E3:	Vertical scanning edge detection error
E4: 00:	Horizontal scanning edge detection error No error detected

*10 Displays 16 bytes of white reference film data detected.

HP_LOG1:	Home positioning detection log data (Byte 0 to 3 of 16 bytes)
HP_LOG2:	Home positioning detection log data (Byte 4 to 7 of 16 bytes)
HP_LOG3:	Home positioning detection log data (Byte 8 to 11 of 16 bytes)
HP_LOG4:	Home positioning detection log data (Byte 12 to 15 of 16 bytes)

*11 With a communications error code being displayed, pressing the **OK** key cycles through the latest error, 2nd latest error, and 3rd latest error.

*12 Excluding the resets triggered by the followin

Function codes 01 and 91

Function code 80 (Resetting the purge and flushing counts)

With the reset count displayed, pressing the **OK** key displays the following.

POWER:	Power-ON duration at the time of last reset
--------	---

9.4.30 Equipment Error Code Indication (Function code 82) (User-accessible)

■ Function

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

■ Operating Procedure

- (1) Press the **8** and **2** keys in this order in the initial stage of the maintenance mode. For models without numerical keypad, enter 8 and 2 in this order using the **▲**, **▼** and **OK** keys.

The LCD shows the "MACHINE ERROR X X."

- (2) To stop this operation and return the machine to the initial stage of the maintenance mode, press the **Stop/Exit** key.

9.4.31 Output of Transmission Log to the Telephone Line (Function code 87) (User-accessible)

■ Function

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

This function is applicable to the MFC only.

■ Operating Procedure

- (1) If the user's machine has a transmission-related problem, call the user's machine at a remote location from your machine.
- (2) If the line is connected, have the user perform the following:

- 1) Press the **Menu**, **Black Start (Mono Start)**, and **0** keys in this order.

TIP: In models with touch panel, if the touch panel is inoperable, simultaneously press the **Scan** and **Copy** keys on the control panel instead of the **Menu** key, then press the **Black Start (Mono Start)** and **0** keys in this order.

- 2) Press the **8** and **7** keys in this order.

The above operation makes the user's machine send CNG to your machine for sending the transmission log.

- (3) If you hear the CNG sent from the user's machine, press the **Black Start (Mono Start)** key of your machine.

Your machine will start to receive the transmission log from the user's machine.

9.4.32 Assurance Mode Switch Setting (Function code 88) (User-accessible)

■ Function

The machine incorporates five assurance mode switches (AMS01 through AMS05) that are firmware switches just as the ones described in [Section 9.4.5](#).

When the machine does not function normally because the usage environments or operating conditions are not usual, the assurance mode switches provide workarounds to make the machine usable by changing the machine settings to untypical ones.

The user is allowed to access the assurance mode switches under the guidance of service personnel (e.g., by telephone).

The details about AMS01 through AMS05 are described on the following pages.

■ Operating Procedure

- (1) Press the **8** key twice in the initial stage of the maintenance mode. For models without numerical keypad, enter 8 twice using the **▲**, **▼** and **OK** keys. The machine displays "AMS00" on the LCD and becomes ready to accept an assurance mode switch number.

- (2) Enter the desired number from the assurance mode switch numbers (01 through 05).

The following appears on the LCD:

Selector 1	Selector 8
↓	↓
AMSXX = 0 0 0 0 0 0 0	

- (3) Use the right and left arrow keys to move the cursor to the selector position to be modified.
NOTE: In models with touch panel, if the **▲**, **▼**, **▶**, and **◀** keys are not displayed on the software keypad, it is necessary to switch the software keypads between the numerical and function keypads by pressing the **Scan** and **Copy** keys simultaneously.
- (4) Enter the desired number (0 or 1) using the **0** and **1** keys. For models without numerical keypad, enter 0 or 1 using the **▲**, **▼** and **OK** keys.
- (5) Press the **OK** key (**Photo Capture** key for models without **OK** key). This operation saves the newly entered selector values onto the EEPROM and readies the machine for accepting an assurance mode switch number.
- (6) Repeat steps (2) through (5) until the modification for the desired assurance mode switches is completed.
- (7) Press the **Stop/Exit** key to return the machine to the initial stage of the maintenance mode.

- NOTES:**
- To cancel this operation and return the machine to the initial stage of the maintenance mode during the above procedure, press the **Stop/Exit** key.
 - If there is a pause of more than one minute after a single-digit number is entered for double-digit assurance mode switch numbers, the machine will automatically return to the initial stage of the maintenance mode.
 - Initializing the EEPROM with Function code 01 or 91 initializes the AMS switch settings.

AMS01 (Printing assurance 1)

Selector No.	Function	Setting and Specifications
1	Prevention of stains on back side of leading edge of paper in borderless printing	0: Disable (default) 1: Enable
2	Not used.	
3 4	Protection of platen from no-paper printing to prevent stains (Functional restriction on the paper width sensor)	No. 3 4 0 0 : Enable (Determine the sensor function depending upon the print resolution selected) (default) 0 1 : Enable (Detect the leading edge plus right and left edges of paper) 1 0 : Enable (Detect the leading edge of paper) 1 1 : Disable (No paper detection)
5	Assurance print 1 (Printing with black and cyan inks in monochrome copy)	0: Disable (default) 1: Enable
6	Assurance print 2 (Printing with black and cyan inks in monochrome FAX reception and in list output)	0: Disable (default) 1: Enable
7 8	Workaround for false jam detection (Functional restriction on the paper width sensor)	No. 7 8 0 0 : Detect both the leading edge and width of paper (default) 0 1 : Detect both the leading edge and width of paper 1 0 : Detect only the leading edge of paper 1 1 : No detection

- Selector 1: Prevention of stains on back side of leading edge of paper in borderless printing
Setting this selector to "1" reduces the protruding amount of the leading edge of recording paper to the platen groove to minimize stains that could be caused by ink mist on the back side of the leading edge. Enabling this function reduces the throughput than disabling it.

- Selectors 3 and 4: Protection of platen from no-paper printing to prevent stains (Functional restriction on the paper width sensor)

The setting made by these selectors applies to such printing that is assumed to be at a high resolution, that is, printing from a PC or memory card, copying, and printing via PictBridge*.

* For models supporting PictBridge/USB flash memory drive

If these selectors are set to "0, 0," the machine automatically determines the functions of the paper width sensor depending upon the print resolution selected. Therefore, in low resolution printing, e.g. when the "Fast" print quality is selected, the paper width sensor is automatically disabled. On the contrary, in high resolution printing, e.g. when the "Highest" print quality is selected, the sensor is automatically enabled.

Setting these selectors to "1, 1" disables the paper width sensor to save the sensing time for higher throughput.

- Selectors 5 and 6: Assurance print 1 and 2

Enabling assurance print 1 or 2 causes the machine to mix black ink (pigment-based) and a little of cyan ink (dye-based) to use in monochrome copy or in monochrome FAX reception and list output, respectively.

If black ink is not jetted out normally, cyan ink can be substituted for black ink in printing.

This ensures that in list printing (in which data once printed will be deleted) the data will be preserved as a printout.

- Selectors 7 and 8: Workaround for false jam detection (Functional restriction on the paper width sensor)

The setting made by these selectors applies to the list and index printing and test printing.

When logo printed recording paper is used, for example, the paper width sensor might misdetect the paper present state as "no paper loaded" due to the logo's color. Limiting the paper width sensor functions with these selectors avoids detecting such a false paper jam.

AMS02 (Printing assurance 2)

Selector No.	Function		Setting and Specifications	
1	Head-platen gap offset for prevention of stains on recording paper	For glossy paper	0: Disable (default)	1: Enable
2		For recording paper except glossy paper	0: Disable (default)	1: Enable
3 5	Paper feed amount compensation (for preventing banding at the leading edge of recording paper fed from the photo tray)		No. 3 4 5 0 0 0: Enable for 4 x 6 postcards (default) 1 0 0: Enable for Photo L-size paper in Japan Others: Disable	
6	Registration time offset to slipping in plain paper feeding		0: Disable (default)	1: Enable
7	Unidirectional print for higher print quality		0: Disable (default)	1: Enable
8	Improvement of paper feeding reliability		0: Disable (default)	1: Enable

- Selectors 1 and 2: Head-platen gap offset for prevention of stains on recording paper

If using curled or thick recording paper results in a stained print face of the paper, increase the gap between the head nozzles and the platen with these selectors to reduce stains. Enabling the head-platen gap offset increases the gap from 1.6 to 2.3 mm. (The details are given in the table on the next page.)

Selectors 3 and 4 on AMS05 specifies whether to enable or disable the settings made here when borderless printing is enabled or disabled. By default, the head-platen gap offset function is enabled only when borderless printing is disabled. For the head-platen gap offset for A3, B4, and ledger-sized plain paper, see selector 6 on AMS05.

Recording paper	Print quality selected	Head-platen gap offset		
		OFF	ON for glossy paper (Selector 1 = "1")	ON for recording paper except glossy paper (ink jet paper, plain paper, or transparency) (Selector 2 = "1")
Brother premium glossy photo paper	"Highest"	1.6 mm	2.3 mm	---
	"Photo"			
	"Fine"			
Other glossy paper	"Highest"			
	"Photo"			
	"Fine"			
Inkjet paper	"Photo"	1.6 mm	---	2.3 mm
	"Fine"			
Plain paper (except the above)	"Fine"			
	"Normal"			
	"Fast Normal"			
	"Fast"			

- Selectors 3 to 5: Paper feed amount compensation (for preventing banding at the leading edge of recording paper fed from the photo tray)

This compensation function is usually enabled for preventing banding (horizontal streaks) from occurring at the leading edge of recording paper fed from the photo tray.

When postcards or small size paper are fed from the standard paper tray, however, this compensation function can be counterproductive. If so, disable the function, and the print quality may be improved.

- Selector 6: Registration time offset to slipping in plain paper feeding

Enabling the registration time offset with this selector increases the registration time (during which the paper feed roller rotates in the reverse direction), avoiding the occurrence of a paper feeding timeout error even if the paper cannot reach the registration sensor actuator within the predetermined registration time due to slipping of the paper pull-in rollers against paper in the paper tray.

Selecting the "Fast" print quality disables the registration time offset even if it is enabled with this selector.

NOTE: Selecting the "Glossy paper" automatically enables the registration time offset.

- Selector 7: Unidirectional print for higher print quality

The machine prints bidirectionally by default. To get higher print quality, set this selector to "1" to switch to the unidirectional print mode in which printing is performed only when the head/carriage unit travels from left to right. Note that the unidirectional print mode sacrifices the print speed.

Print object	Unidirectional print
Print FAX message received ^{*1}	Yes
Copy	Yes
Print from PC	No
Print from memory cards or via PictBridge ^{*2}	Yes
Print memory card index or PictBridge index ^{*2}	Yes
Print a list	Yes
Print a test pattern	No

*1 For the MFC only

*2 For models supporting PictBridge/USB flash memory drive

- Selector 8: Improvement of paper feeding reliability

Setting this selector to "1" improves the paper feeding reliability, sacrificing the print speed.

AMS03 (Maintenance assurance 1)

Selector No.	Function	Setting and Specifications
1	Protection of head caps from drying	0: Disable (default) 1: Enable
2 3	Auto capping start time	No. $\begin{matrix} 2 & 3 \\ 0 & 0 \end{matrix}$: 30 seconds (default) $\begin{matrix} 0 & 1 \\ 1 & 0 \end{matrix}$: 5 seconds $\begin{matrix} 1 & 0 \\ 1 & 1 \end{matrix}$: 15 seconds $\begin{matrix} 1 & 1 \\ 1 & 1 \end{matrix}$: 300 seconds
4	Purge more powerful than normal purge	0: Disable (default) 1: Enable
5 6	Not used.	
7	Automatic purging interval programmed for matching the ambient temperature (for color ink)	0: Enable (default) 1: Disable
8	Automatic purging interval programmed for matching the ambient temperature (for black ink)	0: Enable (default) 1: Disable

- Selector 1: Protection of head caps from drying

If the protection function is enabled with this selector, the head/carriage unit automatically returns to the home position (head capping position) for flushing each time the machine prints the specified number of pages in order to protect the inside of the head caps from drying up. This function is useful in a dry environment or for heavy duty print per printing cycle.

- Selectors 2 and 3: Auto capping start time

If data transfer from the PC stops midway through printing for some reason in the PC, the head/carriage unit automatically returns to the home position (head capping position) after the specified auto capping start time (default: 30 seconds) to prevent the head surface from drying up. At the restart of printing after the auto capping operation, print image unevenness could occur. To avoid it, increase the auto capping start time with these selectors.

- Selector 4: Purge more powerful than normal purge

Setting this selector to "1" automatically selects a purge more powerful than the normal purge from the first if the purge is initiated immediately after printing.

- Selectors 7 and 8: Automatic purging interval programmed for matching the ambient temperature

The "automatic purging interval programmed for matching the ambient temperature" is enabled by default. If the machine is set in an excessively hot or cold place, therefore, the automatic purging interval becomes short, resulting in increased ink waste.

Disabling this interval enables the one programmed for the ordinary temperature. In the first printing after a long no-print period, however, the print quality may lower.

AMS04 (Maintenance assurance 2)

Selector No.	Function	Setting and Specifications
1	Line monitor volume (Not used.)	0: Normal (default) 1: Extra-high
2	Not used.	
3	Black ink print mode	0: Printable with black ink only for a certain amount after detection of ink empty state 1: Printable with black ink only regardless of color ink remaining.
4	Automatic purging for color ink	0: Enable (default) 1: Disable
5	Not used.	
6 7	Automatic purging interval	No. 6 7 0 0 : 30 days (black and color) 0 1 : 20 days (black), 30 days (color) 1 0 : 30 days (black), no purge (color) 1 1 : No purge (black and color)
8	Automatic purging for black ink	0: Enable (default) 1: Disable

- Selector 3: Black ink print mode

If any color ink runs out, printing is no longer possible by default. Setting this selector to "1" allows the machine to function as a monochrome printer, making it possible to print with black ink only even in an ink empty state as listed below.

Printing FAX message received*1	Monochrome printing only possible. (A color FAX message will be printed in monochrome.)
Printing from a PC	Monochrome printing only possible.
Copying	Monochrome printing only possible. The Black Start (Mono Start) key is enabled, but the Color Start key is disabled.
Printing from memory cards Printing via PictBridge*2	No printing possible. No printing possible.
Printing lists	Monochrome printing only possible.
Purge operation	Purge operation possible for black ink only, not possible for all-color or any specific color.

*1 For the MFC only

*2 For models supporting PictBridge/USB flash memory drive

TIP: Difference between selector 3 on AMS04 and selector 8 on WSW49 (See [page App. 4-52.](#))

Both selector 3 on AMS04 and selector 8 on WSW49 specify the similar black ink print mode that applies if any color ink runs out. The difference is that the former allows the machine to print all data received as a monochrome printer with black ink only; the latter to ignore the ink empty state, receive both color and black data, and print it, resulting in a printout missing color components.

- Selectors 4 and 8: Automatic purging for color ink and for black ink

The machine periodically performs an automatic purge by default. The automatic purge, however, wastes ink when no printing has occurred. To avoid it, disable the automatic purge with these selectors. In the first printing after a long no-print period, disabling it may lower the print quality.

Setting selector 4 or 8 to "1" disables the setting made by selectors 6 and 7.

- Selectors 6 and 7: Automatic purging interval

These selectors allow you to select the automatic purge interval to reduce ink consumption. Setting these selectors to "1, 1" (No purge) disables the setting made by selectors 4 and 8.

AMS05 (Printing assurance 3)

Selector No.	Function	Setting and Specifications
1 2	Not used.	
3 4	Enabling/disabling the head-platen gap offset settings (made by selectors 1 and 2 on AMS02 and selector 6 on AMS05)	No. 3 4 0 0 : Enable (when borderless printing is disabled) (default) 0 1 : Enable (when borderless printing is enabled) 1 0 : Disable (regardless of borderless printing) 1 1 : Enable (regardless of borderless printing)
5	Reduction of occurrences of paper jams	0: Disable (default) 1: Enable
6	Head-platen gap offset for prevention of stains on recording paper (For A3, B4, and ledger-sized plain paper)	0: Disable 1: Enable (Only when borderless printing is disabled) (default)
7 8	Reduction of banding in borderless printing (Limit of the number of head nozzles to be used)	No. 7 8 0 0 : Disable for all paper sizes (without limit) 0 1 : Enable for all paper sizes (with limit) 1 0 : Enable for paper in a size larger than 4 x 6 (with limit), Disable for paper in 4 x 6 size or smaller (without limit) 1 1 : Enable for all paper sizes (with limit)

- Selectors 3 and 4: Enabling/disabling the head-platen gap offset settings (made by selectors 1 and 2 on AMS02 and selector 6 on AMS05)

These selectors specify whether to enable or disable the head-platen gap offset settings made by selectors 1 and 2 on AMS02 and selector 6 on AMS05, depending upon whether borderless printing is disabled or enabled.

The combination of selectors 1 and 2 on AMS02 and selectors 3, 4 and 6 on AMS05 provides 12 types of settings (see the following pages) for preventing stains from being produced due to paper friction against the print head in high-duty printing.

- Selector 5: Reduction of occurrences of paper jams

Enable this function when paper jams occur. This function reduces occurrences of paper jams by slowing down the paper feeding speed. It is effective only for plain paper.

- Selector 6: Head-platen gap offset for prevention of stains on recording paper (For A3, B4, and ledger-sized plain paper)

If using A3, B4, or ledger-sized plain paper results in a stained print face due to warped paper, increase the gap between the head nozzles and the platen with this selector to reduce stains.

If this function is enabled, the machine prints unidirectionally.

Selectors 3 and 4 on AMS05 specifies whether to enable or disable the settings made here when borderless printing is enabled or disabled. By default, the head-platen gap offset function is enabled only when borderless printing is disabled. For the head-platen gap offset for glossy paper or small-sized plain paper, see selectors 1 and 2 on AMS02.

Combination of AMS02 and AMS05

	Assurance mode switch	Enable head-platen gap offset					
		when borderless printing is disabled		when borderless printing is enabled		Regardless of borderless printing setting	
Enable only for glossy paper (in any size)	AMS02	10*****	(1)	10*****	(2)	10*****	(3)
	AMS05	**00****		**01****		**11****	
Enable for plain paper, inkjet paper, or transparency (in any size)	AMS02	01*****	(4)	01*****	(5)	01*****	(6)
	AMS05	**00****		**01****		**11****	
Enable for any type of paper (in any size)	AMS02	11*****	(7)	11*****	(8)	11*****	(9)
	AMS05	**00****		**01****		**11****	
Enable only for plain paper (in A3, B4, and ledger sizes)	AMS02	00*****	(10)	00*****	(11)	00*****	(12)
	AMS05	**00*1**		**01*1**		**11*1**	
Disable	AMS02	00*****					
	AMS05	**00*0**					

Users' problems/requests and 12 combination patterns of AMS02 and AMS05 settings

Users' problems and requests	Enable head-platen gap offset (for desired target paper and borderless printing)	Combination pattern of AMS02 and AMS05 settings
Stains on glossy paper. Minor stains acceptable, rather than taking longer print time with borderless printing enabled.	Enable only for glossy paper (in any size). Enable only when borderless printing is disabled.	(1)
Stains on glossy paper. Minor stains not acceptable in printing with borderless printing disabled. But not acceptable with borderless printing enabled.	Enable only for glossy paper (in any size). Enable only when borderless printing is enabled.	(2)
Stains on glossy paper. Stains not acceptable, regardless of borderless printing setting.	Enable only for glossy paper (in any size). Enable regardless of borderless printing setting.	(3)
Stains on paper except glossy paper. Minor stains acceptable, rather than taking longer print time with borderless printing enabled.	Enable for plain paper, inkjet paper, or transparency (in any size). Enable only when borderless printing is disabled	(4)
Stains on paper except glossy paper. Minor stains acceptable in printing with borderless printing disabled. But not acceptable with borderless printing enabled.	Enable for plain paper, inkjet paper, or transparency (in any size). Enable only when borderless printing is enabled.	(5)
Stains on paper except glossy paper. Stains not acceptable, regardless of borderless printing setting.	Enable for plain paper, inkjet paper, or transparency (in any size). Enable regardless of borderless printing setting.	(6)
Stains on any type of paper. Minor stains acceptable, rather than taking longer print time with borderless printing enabled.	Enable for any type of paper (in any size). Enable only when borderless printing is disabled.	(7)

Users' problems and requests	Enable head-platen gap offset (for desired target paper and borderless printing)	Combination pattern of AMS02 and AMS05 settings
Stains on any type of paper. Minor stains acceptable in printing with borderless printing disabled. But not acceptable with borderless printing enabled.	Enable for any type of paper (in any size). Enable only when borderless printing is enabled.	(8)
Stains on any type of paper. Stains not acceptable, regardless of borderless printing setting.	Enable for any type of paper (in any size). Enable regardless of borderless printing setting.	(9)
Stains on A3, B4, or ledger sized plain paper. Minor stains acceptable, rather than taking longer print time with borderless printing enabled.	Enable for A3, B4, and ledger plain paper. Enable only when borderless printing is disabled.	(10)
Stains on A3, B4, or ledger sized plain paper. Minor stains acceptable in printing with borderless printing disabled. But not acceptable with borderless printing enabled.	Enable for A3, B4, and ledger plain paper. Enable only when borderless printing is enabled.	(11)
Stains on A3, B4, or ledger sized plain paper. Stains not acceptable, regardless of borderless printing setting.	Enable for A3, B4, and ledger plain paper. Enable regardless of whether borderless printing setting.	(12)

- Selectors 7 and 8: Reduction of banding in borderless printing (Limit of the number of head nozzles to be used)

Enabling this function limits the number of head nozzles to be used in borderless printing to reduce banding.

The default is "0, 0" for models with movable platen and "1, 1" for other models.

AMS06 (Printing assurance 4)

Selector No.	Function	Setting and Specifications																																				
1 5	Not used.																																					
6 8	Adjustment of print head drive voltage rank	<table border="0"> <tr> <td>No.6</td> <td>7</td> <td>8</td> <td></td> </tr> <tr> <td>0</td> <td>0</td> <td>0:</td> <td>+0</td> </tr> <tr> <td>1</td> <td>0</td> <td>0:</td> <td>-0</td> </tr> <tr> <td>0</td> <td>0</td> <td>1:</td> <td>+1</td> </tr> <tr> <td>0</td> <td>1</td> <td>0:</td> <td>+2</td> </tr> <tr> <td>0</td> <td>1</td> <td>1:</td> <td>+3</td> </tr> <tr> <td>1</td> <td>0</td> <td>1:</td> <td>-1</td> </tr> <tr> <td>1</td> <td>1</td> <td>0:</td> <td>-2</td> </tr> <tr> <td>1</td> <td>1</td> <td>1:</td> <td>-3</td> </tr> </table>	No.6	7	8		0	0	0:	+0	1	0	0:	-0	0	0	1:	+1	0	1	0:	+2	0	1	1:	+3	1	0	1:	-1	1	1	0:	-2	1	1	1:	-3
No.6	7	8																																				
0	0	0:	+0																																			
1	0	0:	-0																																			
0	0	1:	+1																																			
0	1	0:	+2																																			
0	1	1:	+3																																			
1	0	1:	-1																																			
1	1	0:	-2																																			
1	1	1:	-3																																			

- Selectors 6 through 8: Adjustment of print head drive voltage rank
This selector regulates the print head drive voltage rank for adjusting the ink drop amount.
If the black section printed on glossy paper is greenish or the printed ink does not dry quickly, increase the print head drive voltage rank to decrease the ink drop amount; if it is reddish, decrease the rank to increase the ink drop amount.

9.4.33 Cancellation of the Pin TX Lock Mode (Not applicable to Japanese and U.S.A. models)

■ Function

This procedure can cancel the Pin TX lock mode. Use this procedure if the user forgets his/her

password entered when setting the Pin TX lock mode so as not to exit from the mode.

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

NOTE: The DCP does not support this function.

■ Operating Procedure

(1) Models without touch panel

When the PIN TX LOCK is displayed on the LCD, press the **Menu** and **#** keys *at the same time*. Within two seconds, start to press the **2**, **7**, **9**, **0**, and **0** keys.

~~Models with touch panel~~

When the PIN TX LOCK is displayed on the LCD, press the **Copy** and **#** keys *at the same time*. Within two seconds, start to press the **2**, **7**, **9**, **0**, and **0** keys.

The Pin TX lock mode will be canceled and the machine returns to the calendar clock screen.

Appendix 1. Reading Labels

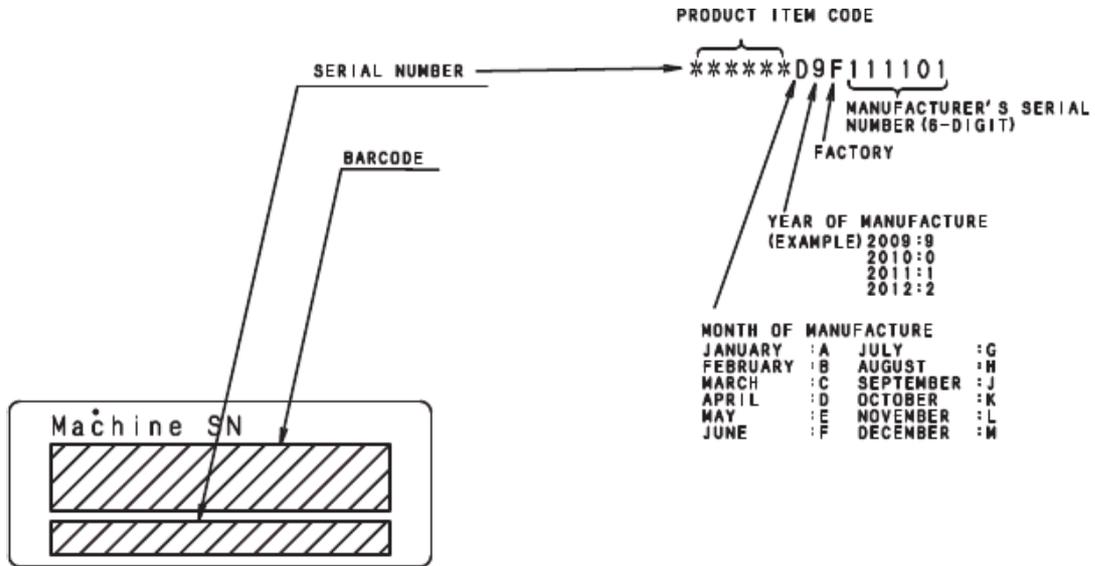
This appendix shows the location of labels put on some parts and describes the coding information for serial number and head property data.

Reading Labels

An individual machine has a "serial number label" for the machine itself and "property labels" for the head/carriage unit.

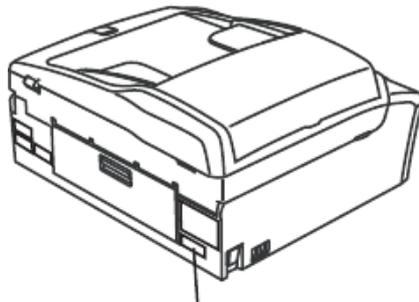
This section lists the coding information for those serial number and head property data.

(1) Serial number label for the machine itself



(app01a)

Location



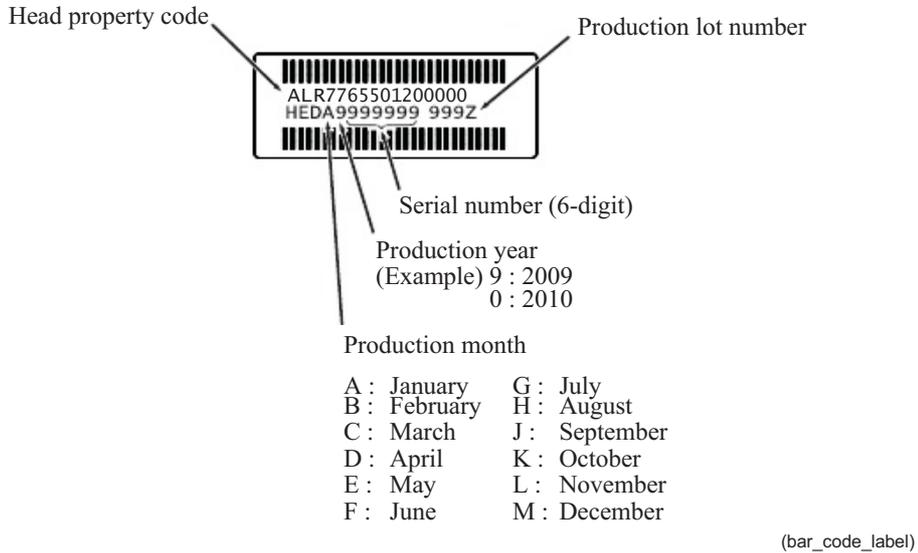
Serial number label

(app01b_1)

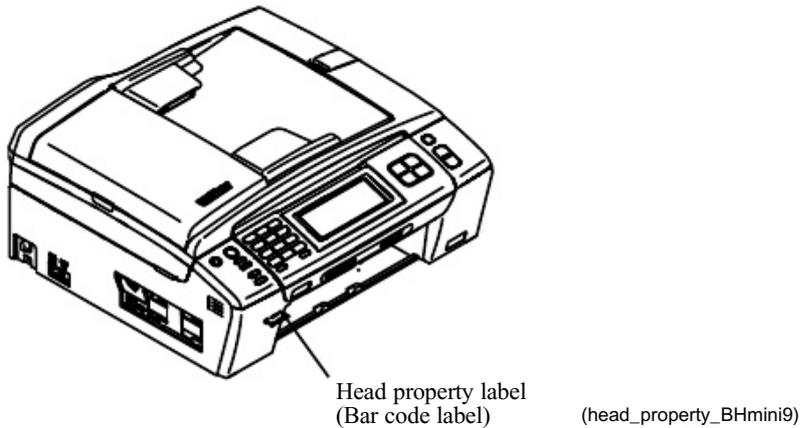
(2) Head property labels

The property code of the head/carriage unit is printed on head property labels--bar code label and QR code label, each of which is attached to the lower cover and the head/carriage unit, respectively.

■ On the lower cover

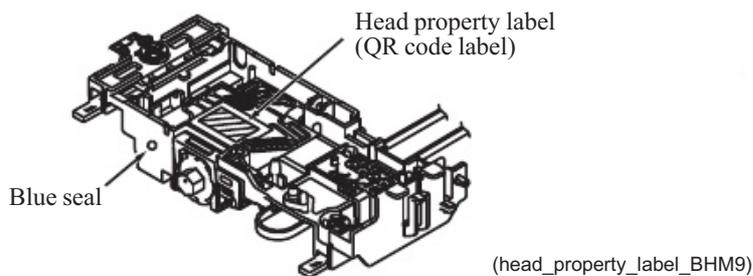


Location



■ On the head/carriage unit

Location



Note: Depending on whether the head/carriage unit has a round, blue seal on its left side, the purge type to be performed differs. Refer to [Chapter 7, Section 7.2 \[2 \]](#).

Appendix 2. Firmware Installation

This appendix provides instructions on how to change firmware stored in the flash ROM on the main PCB or load firmware to a new main PCB from the host PC.

A2.1 Loading the Programs to the Flash ROM	App. 2-1
[1] Preparation.....	App. 2-1
[2] Installing the Brother Maintenance USB Printer driver.....	App. 2-1
[3] Loading the programs onto the flash ROM of the machine	App. 2-5
[3.1] If the main PCB is replaced with a new one.....	App. 2-5
[3.2] If the main PCB loaded with programs is used (Updating existing programs)	App. 2-7
■ To load programs from the PC	App. 2-7
■ To load programs using an external memory	App. 2-8

A2.1 Loading the Programs to the Flash ROM

If you want to change the programs stored in the flash ROM on the main PCB or after you replace the main PCB, load the desired programs to the flash ROM.

Loading requires a PC/AT-compatible computer running Windows 2000 or later.

Caution: During loading, never turn off your PC or the machine, unplug the USB interface cable, interrupt loading or load invalid data. If you do so, loading will fail, causing the PCB to be unusable. You will have to replace the main PCB and load programs to a new PCB.

[1] Preparation

You need the Brother Maintenance USB Printer driver and filedg32.exe (provided by Brother Industries). Save them in an arbitrary folder in your PC.

[2] Installing the Brother Maintenance USB Printer driver

To identify machines connected via USB direct interface, the PC requires the corresponding driver for the virtual USB device. If you connect any number of machines to your PC, the same number of virtual USB devices will be automatically configured on your PC. To prevent many virtual USB devices from being configured, use the unique driver installation procedure described below that enables your PC to identify terminals via one single virtual USB device.

NOTES: • Once this installation procedure is carried out for a PC, no more driver/software installation will be required for that PC to identify machines. If the Brother Maintenance USB Printer driver has been already installed to your PC according to this procedure, skip this section.

- Before proceeding to the procedure given below, make sure that the Brother Maintenance USB Printer driver (listed in [Chapter 7, Section 7.1.1](#)) is stored in your PC.

- (1) Check that the power switch of the machine is turned off. Disconnect the USB cable that connects the machine with your PC.
- (2) Turn on your PC.
- (3) Turn on the power switch of the machine.
- (4) Switch the machine to the maintenance mode using the steps below. (Refer to [Chapter 9](#).)

Models without touch panel

Press the **Menu** and **Black Start (Mono Start)** keys in this order. Next press the **▲** key four times.

Models with touch panel

Press the **Menu** key on the touch panel and the **Black Start (Mono Start)** key on the control panel. Next press the **Scan** key four times.

TIP: When the touch panel is inoperable, simultaneously press the **Scan** and **Copy** keys on the control panel, instead of the **Menu** key, and press the **Black Start (Mono Start)** key. Next press the **Scan** key four times.

TIP: Models equipped with a numerical keypad on the control panel can enter the maintenance mode in the same way as conventional models; that is, by pressing the **Menu**,

*****, **2**, **8**, **6** and **4** keys in this sequence.

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

- (5) Connect the machine to your PC using a USB cable.

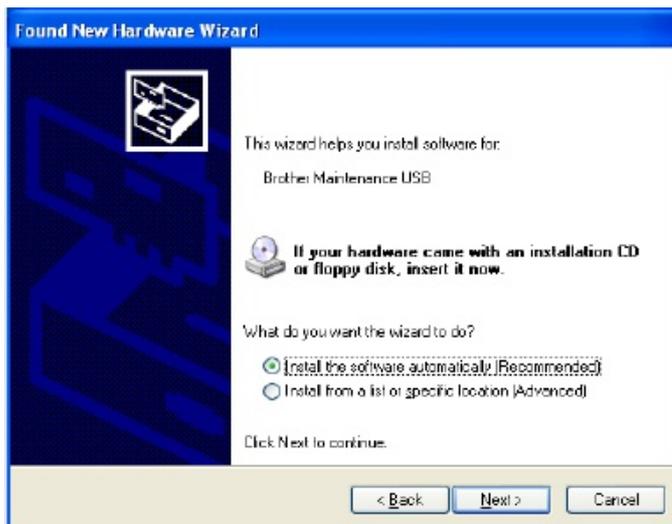
The following window appears.



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



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



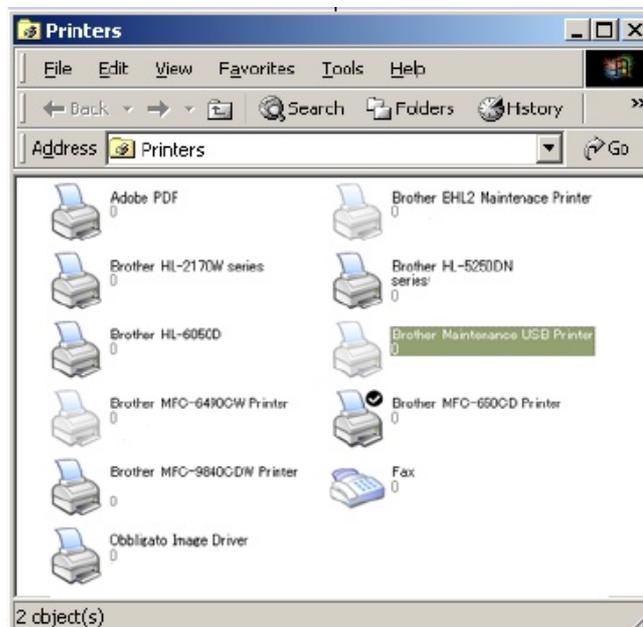
(8) Alert warning message of WHQL appears. Click **Continue Anyway** to proceed.



- (9) Repeat steps (6) to (8) three times. Installation is completed.
- (10) If the Brother Maintenance USB Printer driver is successfully installed, the following message screen appears. Click **Finish** to return.



NOTE: In order to check whether the printer driver is successfully installed, click **Start | Settings | Printers** to select the Printers window. Then, check that the Brother Maintenance USB Printer icon is shown.



[3] Loading the programs onto the flash ROM of the machine

[3.1] If the main PCB is replaced with a new one

Unplug the power cord of the machine from the electrical outlet and disconnect the USB cable that connects the machine with your PC.

(1) On the machine, follow the steps below to enter the firmware loading mode.

In the following steps 1) through 4), key names enclosed in parentheses apply to the models having no numerical keypad on the control panel.

- 1) Plug the power cord into an electrical outlet with the **0** key, **Scan** key, or **Scan + Black Start** keys held down and keep holding the key(s) down until the following appears on the LCD. While the key(s) is held down, the machine beeps (MFC only).



- 2) Hold down the **1** key, **Photo Capture** key, or **Black Start** key until the following appears on the LCD. While the key is held down, the machine beeps (MFC only).



- 3) Hold down the **2** key (**Black Start/Mono Start** key) until the following appears on the LCD. While the **2** key (**Black Start/Mono Start** key) is held down, the machine beeps (MFC only).



- 4) Hold down the **3** key, **Color Start** key, or **Black Start** key until the following appears on the LCD. While the key is held down, the machine beeps (MFC only).



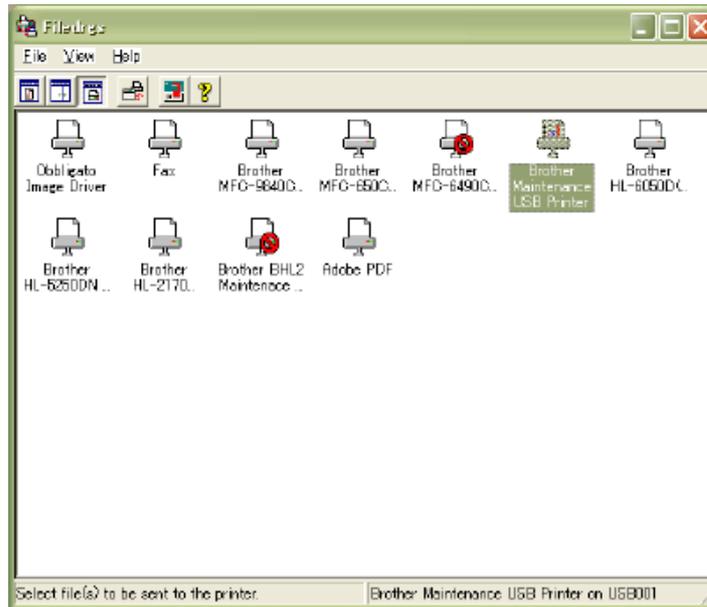
When the black and white pattern shown above is displayed, the machine is ready to receive programs or data for firmware installation from the connected PC.

Note: Pressing a wrong key or no key within the specified time in steps 1) through 4) above causes an error. If it happens, unplug the power cord and go back to step 1) above.

- (2) Connect the machine to your PC using a USB cable.

- (3) On your PC, run "filedrg32.exe."

The Filedrags window will appear as shown below.



- (4) Drag and drop the firmware (e.g., LZ0023_A.pmu) onto the Brother Maintenance USB Printer driver icon in the Filedrags window.

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

After approx. 2 to 5 minutes, the loading operation is complete and the machine automatically reboots and returns to the standby state.

- (5) Display the version of the firmware installed on the LCD using the following steps to check it.

Models with numerical keypad on the control panel

Simultaneously press the * and # keys.

Models without numerical keypad on the control panel

Simultaneously press the ▲ and Stop/Exit keys.

- Sample version number shown on the monochrome LCD: A0307252244:CF30

- Sample version number shown on the color LCD: 0A630619103:FE46

(The top line shows the version number.) P0601242005:4123

B0601242005:1C8D

If the displayed version number is identical with the firmware version you installed, the loading operation has been successfully finished.

Note: If loading operation ends abnormally, turn the machine off and on. Wait for the machine to emit a long beep (MFC only) and automatically enter the firmware loading mode, and then perform the loading procedure above again.

[3.2] If the main PCB loaded with programs is used (Updating existing programs)

The current main PCB (not replaced) or the main PCB replaced with the one used for any other machine has been loaded with programs, so update existing programs using the procedure given below.

Unplug the power cord from the electrical outlet and make sure that the machine is connected with your PC using a USB cable.

Models with numerical keypad on the control panel: While holding down the **5** key, plug the power cord into an electrical outlet.

Models without numerical keypad on the control panel:

Except for DCPJ140W While holding down the **Scan** key, plug the power cord into an electrical outlet.

Then press the **Mono Start** key (**Black Start** key).

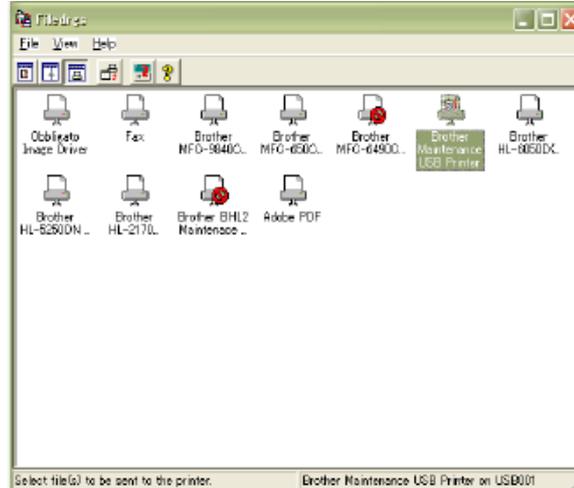
For DCPJ140W While holding down the **Scan** + **Stop** keys, plug the power cord into an electrical outlet.

The black and white pattern appears on the LCD as shown on the previous page. The machine is ready to receive programs or data for firmware installation from the connected PC.

■ **To load programs from the PC**

(1) On your PC, run "fileldrg32.exe."

The Filedrgrs window will appear as shown below.



(2) Drag and drop the firmware (e.g., LZ0023_A.pmu) onto the Brother Maintenance USB Printer driver icon in the Filedrgrs window shown above.

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

After approx. 2 to 5 minutes, the loading operation is complete and the machine automatically reboots and returns to the standby state.

- (3) On the machine, display the version of the firmware installed on the LCD using the following steps to check it.

Models with numerical keypad on the control panel

Simultaneously press the * and # keys.

Models without numerical keypad on the control panel

Simultaneously press the ▲ and **Stop/Exit** keys.

- Sample version number shown on the monochrome LCD: A0307252244:CF30

- Sample version number shown on the color LCD: 0A630619103:FE46

(The top line shows the version number.) P0601242005:4123

B0601242005:1C8D

If the displayed version number is identical with the firmware version you installed, the loading operation has been successfully finished.

Note: If loading operation ends abnormally, turn the machine off and on. Wait for the machine to emit a long beep (MFC only) and automatically enter the firmware loading mode, and then perform the loading procedure above again.

■ **To load programs using an external memory**

Refer to [Chapter 9, Section 9.4.8](#).

Note: If program loading with an external memory fails, load programs from the PC following the instructions given on [page App. 2-7](#).

Appendix 3. EEPROM Customizing Codes

This appendix provides instructions on how to set up the EEPROM customizing codes for the various preferences exclusively designed for each destination. The specified customizing code is stored in the EEPROM mounted on the main PCB. If the main PCB is replaced, therefore, you need to set up the proper customizing code with the machine in the maintenance mode.

Note: Customizing codes customize firmware for individual models, enabling the common firmware to be used for various models. A list of EEPROM customizing codes comes with the firmware data provided by Brother Industries.

EEPROM Customizing Codes

This function allows you to customize the EEPROM according to language, function settings, and firmware switch settings.

Refer to the "EEPROM Customizing Codes List" on the following pages.

■ Operating Procedure

- (1) Switch the machine to the maintenance mode using the steps below. (Refer to [Chapter 9](#).)

Models without touch panel

Press the **Menu** and **Black Start (Mono Start)** keys in this order. Next press the **▲** key four times.

Models with touch panel

Press the **Menu** key on the touch panel and the **Black Start (Mono Start)** key on the control panel. Next press the **Scan** key four times.

TIP: When the touch panel is inoperable, simultaneously press the **Scan** and **Copy** keys on the control panel, instead of the **Menu** key, and press the **Black Start (Mono Start)** key. Next press the **Scan** key four times.

TIP: Models equipped with a numerical keypad on the control panel can enter the maintenance mode in the same way as conventional models; that is, by pressing the **Menu**, *****, **2**, **8**, **6** and **4** keys in this sequence.

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

- (2) Press the **7** and **4** keys in this order in the initial stage of the maintenance mode.
For models without numerical keypad, to enter numerical codes, press the **▲/▼** key several times to display the numerical code to be entered and then press the **OK** key. Repeat this operation for each numerical code.

The "SELECT 74?" appears on the LCD.

- (3) Press the **Black Start (Mono Start)** key, and the current customizing code appears.

- (4) Enter the desired customizing code.

For models without numerical keypad, to enter numerical codes, press the **▲/▼** key several times to display the numerical code to be entered and then press the **OK** key. Repeat this operation for each numerical code.

If the customizing code contains letters "A" through "F," on models with a numerical keypad on the control panel, press the **1** through **6** keys while holding down the **#** key, respectively. On models with a touch panel, press the "A" through "F" keys on the software keypad.

The newly entered code appears.

NOTE: If a wrong 4-digit code is entered, the machine will malfunction.

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

The machine saves the setting and returns to the initial stage of the maintenance mode.

If you press the **Stop/Exit** key or no keys are pressed for one minute in the above procedure, the machine stops the procedure and returns to the initial stage of the maintenance mode.

■ EEPROM Customizing Codes List

Table 1

Destination	US	Can	UK	Ger	Fra
	USA, Mexico	Canada	UK, Ireland	Germany	France, French Polynesia, Ivory Coast, Morocco, New Caledonia, Reunion, Senegal, Tunisia
Country code	01	02	04	03	05
DCP195C	---	---	0104	0104	0155 (0105/0108/0109/0104)
DCP197C	---	---	0504	---	---
DCP365CN	---	---	0004	0004	0055 (0005/0008/0009/0004)
DCP373CW	---	---	0204	---	---
DCP375CW	0101	---	0104	0104	0155 (0105/0108/0109/0104)
DCP395CN	0001	---	0004	0004	0055 (0005/0008/0009/0004)
MFC253CW	---	---	0204	---	---
MFC255CW	0001	0002	0004	0003	0005
MFC257CW	---	---	0304	---	---
MFC295CN	0101	0102	0104	0103	0105
MFC495CW	0001	0002	---	---	---
MFC795CW	0001	0002	0004	0003	0005

Destination	Ita	Spa	Port	Ibe	Swi	Hol
	Italy, San Marino	Spain	Portugal	Spain, Portugal, Andorra	Switzerland	Netherlands
Country code	16	15	18	65	10	09
DCP195C	0115	0115	0115	0115	0104	0155 (0109)
DCP197C	0515	---	---	---	---	---
DCP365CN	0015	0015	0015	0015	0004	0055 (0009)
DCP375CW	0115	0115	0115	0115	0104	0155 (0109)
DCP395CN	0015	0015	0015	0015	0004	0055 (0009)
MFC255CW	0016	0015	0018	---	0010	0009
MFC257CN	0316	---	---	---	---	---
MFC295CN	0116	0115	0118	---	0110	0109
MFC495CW	---	---	---	---	---	---
MFC795CW	0016	0015	0018	---	---	---

Destination	Bel	Pan Nordic	Aus	Ire
	Belgium, Luxemburg	Norway, Sweden, Finland, Denmark, Iceland	Austria	Ireland
Country code	08	57	14	11
DCP195C	0155	0107	0104	0104
DCP365CN	(0108) 0055 (0008)	(0157) ---	0004	0004
DCP375CW	0155 (0108)	0107 (0157)	0104	0104
DCP395CN	0055 (0008)	---	0004	0004
MFC255CW	0008	---	---	0004
MFC295CN	0108	0157 (0107/0126/0112/0113)	0103	0104
MFC495CW	---	---	---	---
MFC795CW	---	---	---	0004

Destination	CEE General	Israel	Russia	S. Africa	Poland
	Czech, Hungary, Poland, Rumania, Bulgaria, Cyprus, Malta, Nigeria, Estonia, Latvia	Israel	Russia	S. Africa	Poland
Country code	88	17	48	24	39
DCP195C	0154	0154	0148	0104	---
DCP365CN	0054	0054	---	---	---
DCP375CW	0154	0154	0148	---	---
DCP395CN	0054	0054	---	---	---
MFC255CW	---	0054	---	0024	---
MFC295CN	0154	0154	---	---	0139
MFC495CW	---	---	---	---	---
MFC795CW	---	0004	---	0024	0039

Destination	Sin/Gulf		Turkey	HK
	Singapore, Malaysia, Philippines, Indonesia, Vietnam, U.A.E., India	Iran, Iraq, Libya, Syria	Turkey	Hong Kong
Country code	40		---	28
DCP195C	0104	0104	0154	0128
DCP375CW	0104	---	0154	0128
DCP395CN	---	---	---	---
MFC255CW	0040	---	0054	0028
MFC295CN	0140	0140	---	0128
MFC495CW	---	---	---	---
MFC795CW	0040	---	0004	---

Destination	Oceania	Taiwan	China
	Australia, New Zealand, Fiji, Papua New Guinea, Samoa, Tonga	Taiwan	China
Country code	56	23	20
DCP195C	0104	0123	---
DCP375CW	0104	0123	---
DCP395CN	0004	---	---
MFC255CW	0056 (0006/0027)	0023	---
MFC257CW	0356 (0306/0327)	---	---
MFC295CN	0156 (0106/0127)	---	---
MFC495CW	---	---	---
MFC795CW	0056 (0006/0027)	0023	0020

Table 2

Destination	US	Can	Brazil	Argentina	Chile	UK
	USA, Mexico	Canada	Brazil	Argentina, Uruguay, Paraguay	Chile, Peru, Bolivia	UK, Ireland, Iceland
Country code	01	02	42	31	36	04
DCPJ125	0001	---	0018	0015	0015	0004
DCPJ315W	---	---	---	---	---	0004
DCPJ515W	---	---	---	---	---	0004
DCPJ715W	---	---	---	---	---	0004
MFCJ220	0001	---	---	---	---	---
MFCJ265W	0001	0002	---	---	---	0004
MFCJ270W	0201	---	---	---	---	---
MFCJ410	---	---	---	0140	0140	0104
MFCJ410W	0301	---	---	---	---	---
MFCJ415W	0101	0102	---	---	---	0104
MFCJ615W	0001	0002	---	0040	0040	0004
MFCJ630W	0101	---	---	---	---	---
DCPJ140W	0001	---	0042	0036	0036	0004

Destination	Ger	Fra	Ita	Spa	Port
	Germany, Austria	France, Belgium, Holland, Luxembourg, Morocco, Algeria, Tunisia, Monaco	Italy, San Marino, Vatican	Spain, Andorra	Portugal
Country code	03	05	16	15	18
DCPJ125	0053 (0003/0014)	0055 (0005/0008/0009/0004)	0016	0065 (0015)	0065 (0018)
DCPJ315W	0053 (0003/0014)	0055 (0005/0008/0009/0004)	0016	0065 (0015)	0065 (0018)
DCPJ515W	0053 (0003/0014)	0055 (0005/0008/0009/0004)	0016	0065 (0015)	0065 (0018)
DCPJ715W	0053 (0003/0014)	0055 (0005/0008/0009/0004)	0016	0065 (0015)	0065 (0018)
MFCJ220	0003	0005	0016	---	0018
MFCJ265W	0003	0005	0016	0015	0018
MFCJ410	0103	---	0116	0115	0118
MFCJ415W	0103	0105	---	0115	0118
MFCJ615W	0003	0005	0016	0015	0018
DCPJ140W	0053 (0003/0014)	0055 (0005/0008/0009/0004)	0016	0065 (0015)	0065 (0018)

Destination	Ibe	Swi	Hol	Bel	Pan Nordic
	Spain, Portugal, Andorra	Swiss, Liechtenstein	Holland	Belgium	Norway, Sweden, Finland, Denmark, Iceland
Country code	65	10	09	08	57
DCPJ125	0065 (0015/0018)	0004	0055 (0009)	0055 (0008)	0007 (0057)
DCPJ315W	0065	0004	0055	0055	0007
DCPJ515W	(0015/0018) 0065 (0015/0018)	0004	(0009) 0055 (0009)	(0008) 0055 (0008)	(0057) 0007 (0057)
DCPJ715W	0065 (0015/0018)	0004	0055 (0009)	0055 (0008)	0007 (0057)
MFCJ220	---	0010	0009	---	---
MFCJ265W	---	---	0009	---	---
MFCJ410	---	0110	---	0108	0157 (0107/0126/0112/0113)
MFCJ415W	---	0110	0109	---	---
MFCJ615W	---	0010	0009	0008	0057 (0007/0026/0012/0013)
DCPJ140W	(0015/0018) 0065 (0015/0018)	0004	(0009)	(0008)	0057

Destination	Aus	Ire	CEE General	Israel	Russia
	Austria	Ireland	Czech, Hungary, Poland, Rumania, Bulgaria, Slovakia, Croatia, Slovenia, Montenegro, Serbia, Macedonia, Albania, Bosnia and Herzegovina, Israel, Greece, Cyprus, Malta, Estonia, Latvia, Lithuania	Israel	Russia, Belarus, Kazakhstan, Ukraine, Armenia, Uzbekistan, Kyrgyz Republic, Georgia, Tajikistan, Turkmenistan, Moldova
Country code	14	11	88	17	48
DCPJ125	0053 (0014)	---	0054	0054	---
DCPJ315W	0053 (0014)	0004	0054	---	0048
DCPJ515W	0053 (0014)	0004	0054	---	0048
DCPJ715W	0053 (0014)	0004	0054	---	---
MFCJ220	0014	---	0054	0054	---
MFCJ265W	0014	---	---	0054	0048
MFCJ410	0114	0104	---	0154	---
MFCJ415W	0114	0104	---	---	---
MFCJ615W	0014	0004	---	0054	---
DCPJ140W	0053 (0014)	0004	0054	---	---

Destination	Poland	Sin/Gulf	S. Africa	Turkey
	Poland	Singapore, Malaysia, Philippines, Indonesia, Vietnam, U.A.E., India	S. Africa	Turkey
Country code	39	40	24	25
DCPJ125	0054	0004	0004	---
DCPJ315W	0054	0004	---	0054
DCPJ515W	0054	---	---	---
DCPJ715W	0054	0004	---	---
MFCJ220	0039	0040	0024	0054
MFCJ265W	0039	0040	---	---
MFCJ410	---	---	---	---
MFCJ415W	0139	0140	---	---
MFCJ615W	0039	0040	---	---
DCPJ140W	0054	0004	0004	---

Destination	HK	Oceania	Korea	Taiwan	Indonesia	China
	Hong Kong	Australia, New Zealand, Fiji, Papua New Guinea, Samoa, Tonga	South Korea	Taiwan	India, Indonesia	China
Country code	28	56	44	23	29	20
DCPJ125	0028	0004	---	---	---	---
DCPJ315W	0028	0004	---	---	---	---
DCPJ515W	---	0004	---	---	---	---
DCPJ715W	---	0004	---	---	---	---
MFCJ220	0028	0056 (0006/0027)	0044	---	---	0020
MFCJ265W	---	0056 (0006/0027)	---	---	---	0020
MFCJ410	0128	0156 (0106/0127)	0144	0123	---	0120
MFCJ415W	---	0156 (0106/0127)	---	0123	---	---
MFCJ615W	0028	0056 (0006/0027)	---	---	---	0020
DCPJ140W	0004	0004	0004	---	0004	---

The above information is as of April 2012. The up-to-date information is available from your local Brother Customer Service.

Appendix 4. Firmware Switches (WSW)

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

Note: Each of the firmware switches has eight selectors. You should not allow end users to access all of those selectors, but you can allow them to access user-accessible selectors which are *shaded* in the firmware switch tables in this appendix.

Note: The firmware switch setting procedure is given in [Chapter 9, Section 9.4.5](#) (Function code 10).

WSW No.	Function	Refer to:
WSW01	Dial pulse setting	App. 4-3
WSW02	Tone signal setting	App. 4-5
WSW03	PBX mode setting	App. 4-6
WSW04	TRANSFER facility setting	App. 4-7
WSW05	1st dial tone and busy tone detection	App. 4-8
WSW06	Pause key setting and 2nd dial tone detection	App. 4-10
WSW07	Dial tone setting 1	App. 4-12
WSW08	Dial tone setting 2	App. 4-13
WSW09	Protocol definition 1	App. 4-14
WSW10	Protocol definition 2	App. 4-15
WSW11	Busy tone setting	App. 4-16
WSW12	Signal detection condition setting	App. 4-17
WSW13	Modem setting	App. 4-18
WSW14	AUTO ANS facility setting	App. 4-19
WSW15	REDIAL facility setting	App. 4-20
WSW16	Function setting 1	App. 4-21
WSW17	Function setting 2	App. 4-22
WSW18	Function setting 3	App. 4-23
WSW19	Transmission speed setting	App. 4-24
WSW20	Overseas communications mode setting	App. 4-25
WSW21	TAD setting 1	App. 4-26
WSW22	ECM and call waiting caller ID	App. 4-27
WSW23	Communications setting	App. 4-28
WSW24	TAD setting 2	App. 4-29
WSW25	TAD setting 3	App. 4-30
WSW26	Function setting 4	App. 4-31
WSW27	Function setting 5	App. 4-32
WSW28	Function setting 6	App. 4-33
WSW29	Function setting 7	(Not used.) App. 4-34
WSW30	Function setting 8	(Not used.) App. 4-35
WSW31	Function setting 9	App. 4-36
WSW32	Function setting 10	App. 4-37
WSW33	Function setting 11	App. 4-38
WSW34	Function setting 12	App. 4-39
WSW35	Function setting 13	(Not used.) App. 4-40
WSW36	Function setting 14	App. 4-41
WSW37	Function setting 15	App. 4-42
WSW38	V.34 transmission setting	App. 4-43
WSW39	V.34 transmission speed	App. 4-44
WSW40	V.34 modem settings	App. 4-45
WSW41	ON-duration of the scanning light source	App. 4-46
WSW42	Internet mail settings	App. 4-47
WSW43	Function setting 21	App. 4-47
WSW44	Speeding up scanning-1	(Not used.) App. 4-48
WSW45	Speeding up scanning-2	(Not used.) App. 4-49
WSW46	Monitor of power ON/OFF state and parallel port kept at high	App. 4-50

WSW47	Switching between high- and full-speed USB	App. 4-51
WSW48	USB setup latency	App. 4-52
WSW49	End-of-copying beep and black ink print mode	App. 4-52
WSW50	SDAA settings	App. 4-53
WSW51	Function setting 16	App. 4-54
WSW52	Function setting 17 <i>(Not used.)</i>	App. 4-55
WSW53	Function setting 18	App. 4-56
WSW54	Function setting 19	App. 4-57
WSW55	Function setting 20 <i>(Not used.)</i>	App. 4-58
WSW56	Function setting 21	App. 4-58
WSW57	Function setting 22	App. 4-59
WSW58	Function setting 23	App. 4-60
WSW59	Function setting 24	App. 4-62
WSW60	Function setting 25	App. 4-63

WSW01 (Dial pulse setting)

Selector No.	Function	Setting and Specifications
1 2	Dial pulse generation mode	No. 1 2 0 0 : N 0 1 : N+1 1 0 : 10-N 1 1 : N
3 4	Break time length in pulse dialing	No. 3 4 0 0 : 60 ms 0 1 : 67 ms 1 0 : 40 ms (for 16 PPS) 1 1 : 64 ms (at 106-ms intervals)
5 6	Inter-digit pause	No. 5 6 0 0 : 800 ms 0 1 : 850 ms 1 0 : 950 ms 1 1 : 600 ms
7	Switching between pulse (DP) and tone (PB) dialing, by the function switch	0: Yes 1: No
8	Default dialing mode, pulse (DP) or tone (PB) dialing	0: PB 1: DP

ms: millisecond(s)

- Selectors 1 and 2: Dial pulse generation mode

These selectors set the number of pulses to be generated in pulse dialing.

N: Dialing "N" generates "N" pulses. (Dialing "0" generates 10 pulses.)

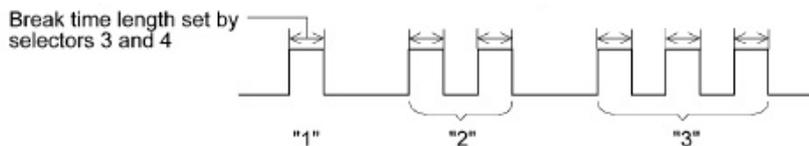
N + 1: Dialing "N" generates "N + 1" pulses.

10 - N: Dialing "N" generates "10 - N" pulses.

- Selectors 3 and 4: Break time length in pulse dialing

These selectors set the break time length in pulse dialing.

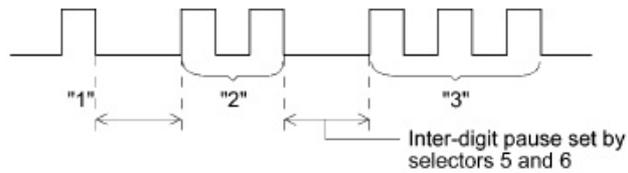
(Example: If "1," "2," and "3" are dialed when N is set by selectors 1 and 2.)



- Selectors 5 and 6: Inter-digit pause

These selectors set the inter-digit pause in pulse dialing.

(Example: If "1," "2," and "3" are dialed when N is set by selectors 1 and 2.)



- Selector 7: Switching between pulse (DP) and tone (PB) dialing, by the function switch

This selector determines whether or not the dialing mode can be switched between the pulse (DP) and tone (PB) dialing by using the function switch.

- Selector 8: Default dialing mode, pulse (DP) or tone (PB) dialing

This selector sets the default dialing mode (pulse dialing or tone dialing) which can be changed by the function switch. If the user switches it with the function switch when selector 7 is set to "0," the setting specified by this selector will also be switched automatically.

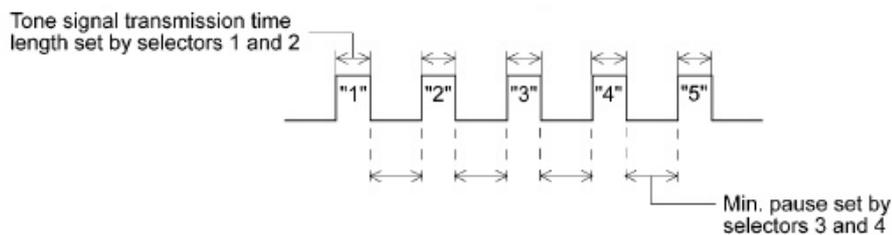
WSW02 (Tone signal setting)

Selector No.	Function	Setting and Specifications
1 2	Tone signal transmission time length	No. 1 2 0 0 : 70 ms 0 1 : 80 ms 1 0 : 90 ms 1 1 : 100 ms
3 4	Min. pause in tone dialing	No. 3 4 0 0 : 70 ms 0 1 : 80 ms 1 0 : 90 ms 1 1 : 140 ms
5 8	Attenuator for pseudo ring backtone to the line (selectable in the range of 0-15 dB, in 1 dB increments)	0: 0 dB 1: 8 dB 0: 0 dB 1: 4 dB 0: 0 dB 1: 2 dB 0: 0 dB 1: 1 dB

ms: millisecond(s)

- Selectors 1 through 4: Tone signal transmission time length and Min. pause in tone dialing
These selectors set the tone signal transmission time length and minimum pause in tone dialing.

(Example: If "1," "2," "3," "4," and "5" are dialed.)



- Selectors 5 through 8: Attenuator for pseudo ring backtone to the line
These selectors are used to adjust the sound volume of a ring backtone in the F/T mode, an on-hold sound, or a beep generated as a signal during remote control operation or at the start of ICM recording.

The larger the value specified by these selectors, the greater the attenuation.

WSW03 (PBX* mode setting)

Selector No.	Function	Setting and Specifications
1	CNG detection when sharing a modular wall socket with a telephone	0: A 1: B
2 4	Detection time length of PBX* dial tone, required for starting dialing (Not used.)	No. 2 3 4 0 0 0 : 50 ms 0 0 1 : 210 ms 0 1 0 : 500 ms 0 1 1 : 800 ms 1 0 0 : 900 ms 1 0 1 : 1.5 sec. 1 1 0 : 2.0 sec. 1 1 1 : 2.5 sec.
5	CNG detection when sharing a modular wall socket with a telephone	0: A 1: B
6 7	Dial tone detection in PBX* (Not used.)	No. 6 7 0 0 : No detection (3.5 sec. WAIT) 0 1 : No detection (5 sec. WAIT) 1 0 : No detection (7 sec. WAIT) 1 1 : Detection (Frequency only)
8	Not used.	

sec.: second(s), ms: millisecond(s)

* PBX: Private branch exchange

Note: Selectors 2 through 4, 6 and 7 are not applicable where no PBX is installed.

- Selectors 1 and 5: CNG detection when sharing a modular wall socket with a telephone

These selectors determine whether or not the machine detects a CNG signal when a line is connected to a telephone sharing a modular wall socket with the machine. Upon detection of CNG signals by the number of cycles specified by these selectors, the machine interprets CNG as an effective signal and then starts FAX reception.

Selector		Cycle
No. 1	No. 5	
0 (A)	0 (A)	0.5 cycle
0 (A)	1 (B)	1.0 cycle
1 (B)	0 (A)	1.5 cycles
1 (B)	1 (B)	2.0 cycles

- Selectors 2 through 4: Detection time length of PBX dial tone, required for starting dialing
(Not used.)

Upon detection of the PBX dial tone for the time length specified by these selectors, the machine starts dialing.

These selectors are effective only when both selectors 6 and 7 are set to "1" (Detection).

- Selectors 6 and 7: Dial tone detection in PBX (Not used.)

These selectors activate or deactivate the dial tone detection function which detects a dial tone when a line is connected to the PBX.

Setting both of these selectors to "1" activates the dial tone detection function so that the machine starts dialing upon detection of a dial tone when a line is connected.

Other setting combinations deactivate the dial tone detection function so that the machine starts dialing after the specified WAIT (3.5, 5.0, or 7.0 seconds) without detection of a dial tone when a line is connected.

WSW04 (TRANSFER facility setting)

Selector No.	Function	Setting and Specifications
1	Earth function in transfer facility (<i>Not used.</i>)	0: Provided 1: Not provided
2 3	Dual tone detection frequency in ICM recording (<i>Not used.</i>)	No. 2 3 0 0 : 350 and 440 Hz (A) 0 1 : 440 and 480 Hz (B) 1 0 : 480 and 620 Hz (C) 1 1 : 480 and 620 Hz (C)
4	Dual tone detection sensitivity in ICM recording (<i>Not used.</i>)	0: Normal 1: High
5	Time to be added to the setting specified by selectors 3 and 4 of WSW24 (Time length from CML ON to start of pseudo ring backtone transmission)	0: Not added 1: +4 seconds added
6 8	Break time length for flash function	No. 6 7 8 0 0 0 : 80 ms 0 0 1 : 100 ms 0 1 0 : 110 ms 0 1 1 : 120 ms 1 0 0 : 200 ms 1 0 1 : 250 ms 1 1 0 : 500 ms 1 1 1 : 700 ms

ms: millisecond(s)

Note: Selectors 6 through 8 are not applicable in those countries where no transfer facility is supported.

Note: Selectors 2 through 4 are applicable to models with built-in TAD.

- Selector 1: Earth function in transfer facility (Not used.)

This selector determines whether or not the earth function is added to the transfer setting menu to be accessed by the function switch.

- Selectors 2 and 3: Dual tone detection frequency in ICM recording (Not used.)
If the machine detects either of the frequencies set by these selectors in ICM recording, it disconnects the line. For example, if these selectors are set to "0, 0," the machine disconnects the line upon detection of 350 Hz or 440 Hz.
- Selector 4: Dual tone detection sensitivity in ICM recording (Not used.)
Setting this selector to "1" increases the tone detection sensitivity in ICM recording.
- Selectors 6 through 8: Break time length for flash function
These selectors set the break time length.
This setting is effective only when the flash function is selected for the Speed Dial key by using the function switch.

WSW05 (1st dial tone and busy tone detection)

Selector No.	Function	Setting and Specifications
1 3	1st dial tone detection	No. 1 2 3 0 0 0 : 3.5 sec. WAIT 0 0 1 : 7.0 sec. WAIT 0 1 0 : 10.5 sec. WAIT 0 1 1 : 14.0 sec. WAIT 1 0 0 : 17.5 sec. WAIT 1 0 1 : 21.0 sec. WAIT 1 1 0 : 24.5 sec. WAIT 1 1 1 : Detection (Without WAIT)
4	Max. pause time allowable for remote ID code detection	0: 2 seconds 1: 1 second
5 6	Busy tone detection in automatic sending mode	No. 5 6 0 0 : No detection 0 1 : Detection only after dialing 1 0 : No detection 1 1 : Detection before and after dialing
7	Busy tone detection in automatic receiving mode	0: Yes 1: No
8	Not used.	

sec.: second(s)

Note: Selectors 5 through 7 are not applicable in those countries where no busy tone detection is supported.

- Selectors 1 through 3: 1st dial tone detection

These selectors activate or deactivate the 1st dial tone detection function which detects the 1st dial tone issued from the PSTN when a line is connected to the PSTN.

Setting all of these selectors to "1" activates the dial tone detection function so that the machine starts dialing upon detection of a dial tone when a line is connected. (However, in those countries which support no dial tone detection function, e.g., in the U.S.A., setting these selectors to "1" makes the machine start dialing after a WAIT of 3.5 seconds.) For the detecting conditions of the 1st dial tone, refer to WSW07 and WSW08.

Other setting combinations deactivate the dial tone detection function so that the machine starts dialing after the specified WAIT (3.5, 7.0, 10.5, 14.0, 17.5, 21.0, or 24.5 seconds) without detection of a dial tone when a line is connected to the PSTN.

- Selector 4: Max. pause time allowable for remote ID code detection

This selector sets the maximum pause time allowable for detecting the second digit of a remote ID code after detection of the first digit in remote reception.

If selector 4 is set to "0" (2 seconds), for instance, only a remote ID code whose second digit is detected within 2 seconds after detection of the first digit will become effective so as to activate the remote function.

- Selectors 5 and 6: Busy tone detection in automatic sending mode

These selectors determine whether or not the machine automatically disconnects a line upon detection of a busy tone in automatic sending mode.

Setting selector 6 to "0" ignores a busy tone so that the machine does not disconnect the line.

Setting selectors 5 and 6 to "0" and "1," respectively, makes the machine detect a busy tone

only after dialing and disconnect the line.

Setting both of selectors 5 and 6 to "1" makes the machine detect a busy tone before and after dialing and then disconnect the line.

- Selector 7: Busy tone detection in automatic receiving mode

This selector determines whether or not the machine automatically disconnects the line upon detection of a busy tone in automatic receiving mode.

WSW06 (Pause key setting and 2nd dial tone detection)

Selector No.	Function	Setting and Specifications
1 3	Pause key setting and 2nd dial tone detection	No. 1 2 3 0 0 0 : No pause 0 0 1 : 3.5 sec. WAIT 0 1 0 : 7 sec. WAIT 0 1 1 : 10.5 sec. WAIT 1 0 0 : 14 sec. WAIT 1 0 1 : 2nd dial tone detection both in DP and push-button (PB) dialing system 1 1 0 : 2nd dial tone detection only in pulse dialing (DP) system 1 1 1 : 2nd dial tone detection both in DP and push-button (PB) dialing system
4 6	Detection of international tone	No. 4 5 6 0 0 0 : 50 ms 0 0 1 : 210 ms 0 1 0 : 500 ms 0 1 1 : 800 ms 1 0 0 : 900 ms 1 0 1 : 1.5 sec. 1 1 0 : 2.0 sec. 1 1 1 : 2.5 sec.
7	No. of 2nd dial tone detection cycles	0: 1 cycle 1: 2 cycles
8	Allowable instantaneous interrupt during reception of 2nd dial tone	0: 30 ms 1: 50 ms

sec.: second(s), ms: millisecond(s)

Note: Selectors 4 through 8 are not applicable in those countries where no dial tone detection is supported, e.g., U.S.A.

- Selectors 1 through 3: Pause key setting and 2nd dial tone detection

Selectors

1 2 3

0	0	0	No WAIT is inserted even if the Pause key is pressed.
0	0	1	If you press the Pause key during dialing, the machine will insert WAIT as defined in the above table.
0	1	0	
0	1	1	If the Pause key is pressed repeatedly, the machine inserts the specified WAIT multiplied by the number of depressions. It applies also in hook-up dialing.
0	0	0	
1	0	1	When these selectors are set to "1, 0, 1":
1	1	0	Each time you press the Pause key in dialing, the machine will wait for the 2nd dial tone to be sent via the communications line regardless of pulse dialing or tone dialing. When these selectors are set to "1, 1, 0": If you press the Pause key in pulse dialing, the machine will first wait for the 2nd dial tone to be sent via the communications line. After that, pressing the Pause key will cause the machine to insert a WAIT of 3.5 seconds. In tone dialing, the machine will insert a WAIT of 3.5 seconds.
1	1	1	
			When these selectors are set to "1, 1, 1": If you press the Pause key, the machine will first wait for the 2nd dial tone to be sent via the communications line regardless of pulse dialing or tone dialing. After that, pressing the Pause key will cause the machine to insert a WAIT of 3.5 seconds. (In those countries where no dial tone detection function is supported, setting these selectors to "1, 0, 1," "1, 1, 0," or "1, 1, 1" inserts a WAIT of 3.5 seconds.)

- Selectors 4 through 6: Detection of international tone

Upon detection of the 2nd dial tone for the time length specified by these selectors, the machine starts dialing.

This setting is effective only when the 2nd dial tone detection function is activated by selectors 1 through 3 (Setting 101, 110, or 111).

This function does not apply in those countries where no dial tone detection function is supported.

- Selector 7: No. of 2nd dial tone detection cycles

This selector sets the number of dial tone detection cycles required for starting dialing.

- Selector 8: Allowable instantaneous interrupt during reception of 2nd dial tone

This selector sets the allowable instantaneous interrupt period that should be ignored during reception of the 2nd dial tone.

WSW07 (Dial tone setting 1)

Selector No.	Function	Setting and Specifications
1 2	Dial tone frequency band control	No. 1 2 0 0 : Narrows by 10 Hz Initial value 0 1 : 1 0 : Widens by 10 Hz 1 1 : Widens by 10 Hz
3	Line current detection (<i>Not used.</i>)	0: No 1: Yes
4 6	2nd dial tone detection level ($Z = 600\Omega$)	No. 4 5 6 0 0 0 : -21 dBm 0 0 1 : -24 dBm 0 1 0 : -27 dBm 0 1 1 : -30 dBm 1 0 0 : -33 dBm 1 0 1 : -36 dBm 1 1 0 : -39 dBm 1 1 1 : -42 dBm
7	Allowable instantaneous interrupt during reception of 1st dial tone	0: 30 ms 1: 50 ms
8	Not used.	

ms: millisecond(s)

Note: Selectors 1, 2, 4 through 7 are not applicable in those countries where no dial tone or line current detection is supported, e.g., U.S.A.

Note: Selector 3 is not applicable to those models having no loop current detection function.

- Selectors 1 and 2: Dial tone frequency band control

These selectors set the frequency band for the 1st dial tone and busy tone (before dialing) to be detected.

This setting is effective only when selectors 1 through 3 on WSW05 are set to "1,1,1."

- Selector 3: Line current detection (Not used.)

This selector determines whether or not to detect a line current before starting dialing.

- Selectors 4 through 6: 2nd dial tone detection level

These selectors set the detection level of the 2nd dial tone.

- Selector 7: Allowable instantaneous interrupt during reception of 1st dial tone

This selector sets the allowable instantaneous interrupt period that should be ignored during reception of the 1st dial tone.

WSW08 (Dial tone setting 2)

Selector No.	Function	Setting and Specifications
1 3	1st dial tone detection time length	No. 1 2 3 0 0 0 : 50 ms 0 1 0 : 500 ms 0 1 1 : 800 ms 1 0 0 : 900 ms 1 0 1 : 1.5 sec. 1 1 0 : 2.0 sec. 1 1 1 : 2.5 sec.
4 5	Time-out length for 1st and 2nd dial tone detection	No. 4 5 0 0 : 10 sec. 0 1 : 20 sec. 1 0 : 15 sec. 1 1 : 30 sec.
6 8	Detection level of 1st dial tone and busy tone before dialing	No. 6 7 8 0 0 0 : -21 dBm 0 0 1 : -24 dBm 0 1 0 : -27 dBm 0 1 1 : -30 dBm 1 0 0 : -33 dBm 1 0 1 : -36 dBm 1 1 0 : -39 dBm 1 1 1 : -42 dBm

sec.: second(s), ms: millisecond(s)

Note: The WSW08 is not applicable in those countries where no dial tone detection is supported, e.g., U.S.A.

- Selectors 1 through 3: 1st dial tone detection time length

Upon detection of the 1st dial tone for the time length set by these selectors, the machine starts dialing.

This setting is effective only when selectors 1 through 3 on WSW05 are set to "1,1,1."

- Selectors 4 and 5: Time-out length for 1st and 2nd dial tone detection

These selectors set the time-out length for the 1st and 2nd dial tone detection so that the machine waits dial tone input for the specified time length and disconnects itself from the line when no dial tone is inputted.

WSW09 (Protocol definition 1)

Selector No.	Function	Setting and Specifications
1	Frame length selection	0: 256 octets 1: 64 octets
2	Use of non-standard commands	0: Allowed 1: Prohibited
3	No. of retries	No. 3 4
4		0 0 : 4 times 0 1 : 3 times 1 0 : 2 times 1 1 : 1 time
5	T5 timer	0: 300 sec. 1: 60 sec.
6	T1 timer	0: 35 sec. 1: 40 sec.
7	Timeout for response from the called station in automatic sending mode	No. 7 8
8		0 0 : 55 sec. (in U.S.A. and Canadian models) 60 sec. (in other models) 0 1 : 140 sec. 1 0 : 90 sec. 1 1 : 35 sec.

sec.: second(s)

Note: Selectors 1 through 5 are not applicable in those models which do not support ECM.

- Selector 1: Frame length selection

Usually a single frame consists of 256 octets (1 octet = 8 bits). For communications lines with higher bit error rate, however, set selector 1 to "1" so that the machine can divide a message into 64-octet frames.

Remarks: The error correction mode (ECM) is a facsimile transmission manner in which the machine divides a message into frames for transmission so that if any data error occurs on the transmission line, the machine retransmits only those frames containing the error data.

- Selector 2: Use of non-standard commands

If this selector is set to "0," the machine can use non-standard commands (the machine's native-mode commands, e.g., NSF, NSC, and NSS) for communications. If it is set to "1,"

the machine will use standard commands only.

- Selectors 3 and 4: No. of retries

These selectors set the number of retries in each specified modem transmission speed.

- Selector 5: T5 timer

This selector sets the time length for the T5 timer.

- Selector 6: T1 timer

This selector sets the time length for the T1 timer.

- Selectors 7 and 8: Timeout for response from the called station in automatic sending mode

If the machine (calling station) receives no response (no G3 command) from the called terminal in automatic sending mode for the period specified by these selectors, it disconnects the line.

WSW10 (Protocol definition 2)

Selector No.	Function	Setting and Specifications
1	Not used.	
2	Time length from transmission of the last dial digit to CML ON	0: 100 ms 1: 50 ms
3	Time length from CML ON to CNG transmission	0: 2 sec. 1: 4 sec.
4	Time length from CML ON to CED transmission (except for facsimile-to-telephone switching)	0: 0.5 sec. 1: 2 sec.
5 6	No. of training retries	No. 5 6 0 0 : 1 time 0 1 : 2 times 1 0 : 3 times 1 1 : 4 times
7	Encoding system (Compression)	MR 0: Allowed 1: Not allowed
8		MMR 0: Allowed 1: Not allowed

sec.: second(s), ms: millisecond(s)

- Selector 2: Time length from transmission of the last dial digit to CML ON
This selector sets the time length from when the machine transmits the last dial digit until the CML relay comes on.
- Selector 3: Time length from CML ON to CNG transmission
This selector sets the time length until the machine transmits a CNG after it turns on the CML relay.
- Selector 4: Time length from CML ON to CED transmission
This selector sets the time length until the machine transmits a CED after it turns on the CML relay. This setting does not apply to switching between facsimile and telephone.
- Selectors 5 and 6: No. of training retries
These selectors set the number of training retries to be repeated before automatic fallback.
- Selectors 7 and 8: Encoding system (Compression)
This selector determines whether or not to allow the use of the MR/MMR coding system.

WSW11 (Busy tone setting)

Selector No.	Function	Setting and Specifications
1 2	Busy tone frequency band control	No. 1 2 0 0 : Narrows by 10 Hz Initial value 1 0 : Widens by 10 Hz 1 1 : Widens by 10 Hz
3	ON/OFF time length ranges for busy tone (More than one setting allowed)	1: 250-750/250-750 ms
4		1: 400-600/400-600 ms
5		1: 175-440/175-440 ms
6		1: 100-1000 ms/17-660 ms
7		1: 110-410/320-550 ms
8		1: 100-660/100-660 ms

ms: millisecond(s)

Note: WSW11 is not applicable in those countries where no busy tone detection is supported.

Note: The setting of WSW11 is effective only when selectors 5 and 6 on WSW05 are set to "0, 1" or "1, 1" (Busy tone detection).

- Selectors 1 and 2: Busy tone frequency band control
These selectors set the frequency band for busy tone to be detected.
- Selectors 3 through 8: ON/OFF time length ranges for busy tone
These selectors set the ON and OFF time length ranges for busy tone to be detected. If more than one selector is set to "1," the ranges become wider. For example, if selectors 4 and 5 are set to "1," the ON and OFF time length ranges are from 175 to 600 ms.

WSW12 (Signal detection condition setting)

Selector No.	Function	Setting and Specifications
1 2	Min. detection period required for interpreting incoming calling signal (CI) as OFF	No. 1 2 0 0 : 1500 ms 0 1 : 500 ms 1 0 : 700 ms 1 1 : 900 ms
3 4	Max. detection period for incoming calling signal (CI) being OFF	No. 3 4 0 0 : 6 sec. 0 1 : 7 sec. 1 0 : 9 sec. 1 1 : 11 sec.
5 6	Min. detection period required for acknowledging incoming calling signal (CI) as ON	No. 5 6 0 0 : 800 ms (1000 ms*) 0 1 : 200 ms 1 0 : 250 ms 1 1 : 150 ms
7	Line connection timing (<i>Not used.</i>)	0: Ringer-OFF period (default) 1: Ringer-ON period
8	Not used.	

sec.: second(s), ms: millisecond(s)

*1000 milliseconds in Chinese models.

- Selectors 1 through 4: Min. detection period required for interpreting incoming calling signal (CI) as OFF
Max. detection period for incoming calling signal (CI) being OFF

If the machine detects the OFF state of a CI signal for the period greater than the value set by selectors 1 and 2 and less than the value set by selectors 3 and 4, it interprets the CI signal as OFF.

- Selectors 5 and 6: Min. detection period required for acknowledging incoming calling signal (CI) as ON

These selectors set the period required to make the machine acknowledge itself to be called. That is, if the machine continuously detects a CI signal with the frequency set by selectors 1 through 4 on WSW14 during the period set by these selectors 5 and 6, then it acknowledges the call.

- Selector 7: Line connection timing (Not used.)

If a line is connected in a ringer-ON period, FAX models equipped with an SDAA circuit may malfunction due to the ringer voltage. To make the line connection stable, this selector should be set to "0" so that a line is connected in a ringer-OFF period.

WSW13 (Modem setting)

Selector No.	Function	Setting and Specifications
1 2	Cable equalizer	No. 1 2 0 0 : 0 km 0 1 : 1.8 km 1 0 : 3.6 km 1 1 : 5.6 km
3 4	Reception level	No. 3 4 0 0 : -43 dBm 0 1 : -47 dBm 1 0 : -49 dBm 1 1 : -51 dBm
5 8	Modem attenuator	0: 0 dB 1: 8 dB 0: 0 dB 1: 4 dB 0: 0 dB 1: 2 dB 0: 0 dB 1: 1 dB

The modem should be adjusted according to the user's line conditions.

- Selectors 1 and 2: Cable equalizer

These selectors are used to improve the pass-band characteristics of analogue signals on a line. (Attenuation in the high-band frequency is greater than in the low-band frequency.)

Set these selectors according to the distance from the telephone switchboard to the machine.

- Selectors 3 and 4: Reception level

These selectors set the optimum receive signal level.

- Selectors 5 through 8: Modem attenuator

These selectors are used to adjust the transmitting level attenuation of the modem when the reception level at the remote station is improper due to line loss. This function applies for G3 protocol signals.

Setting two or more selectors to "1" produces addition of attenuation assigned to each selector.

If selector 8 on WSW23 is set to "0," this setting is so limited that 10 dB (1 dB in France) or higher setting only is effective. Note that in Japan and China, 9 dB or higher and 2 dB or higher settings only are effective, respectively, regardless of whether selector 8 on WSW23 is set to "0."

WSW14 (AUTO ANS facility setting)

Selector No.	Function	Setting and Specifications
1 2	Frequency band selection (lower limit) for incoming calling signal (CI)	No. 1 2 0 0 : 13 Hz 1 0 : 23 Hz 1 1 : 20 Hz
3 4	Frequency band selection (upper limit) for incoming calling signal (CI)	No. 3 4 0 0 : 30 Hz 0 1 : 55 Hz 1 0 : 70 Hz 1 1 : 200 Hz
5 8	No. of rings in AUTO ANS mode	No. 5 6 7 8 0 0 0 0 : Fixed to once 0 0 0 1 : 1 to 6 times 0 0 1 0 : 1 to 8 times 0 0 1 1 : 2 to 8 times 0 1 0 0 : 1 to 2 times 0 1 0 1 : 1 to 3 times 0 1 1 0 : 1 to 4 times 0 1 1 1 : 1 to 5 times 1 0 0 0 : 2 to 3 times 1 0 0 1 : 2 to 4 times 1 0 1 0 : 2 to 5 times 1 0 1 1 : 2 to 6 times 1 1 0 0 : 1 to 10 times 1 1 0 1 : 2 to 10 times 1 1 1 0 : 3 to 5 times 1 1 1 1 : 4 to 10 times

- Selectors 1 through 4: Frequency band selection for incoming calling signal (CI)

These selectors are used to select the frequency band of CI for activating the AUTO ANS facility.

In the French models, if the user sets the PBX to OFF from the control panel, the setting made by selectors 1 and 2 will take no effect and the frequency's lower limit will be fixed to 32 Hz. (Even if the setting made by these selectors does not apply, it will be printed on the configuration list.)

- Selectors 5 through 8: No. of rings in AUTO ANS mode

These selectors set the number of rings to initiate the AUTO ANS facility.

WSW15 (REDIAL facility setting)

Selector No.	Function	Setting and Specifications
1 2	Redial interval	No. 1 2 0 0 : 5 minutes 1 0 : 2 minutes 1 1 : 3 minutes
3 6	No. of redialings	No. 3 4 5 6 0 0 0 0 : 16 times 0 0 0 1 : 1 times 0 0 1 0 : 2 times 0 0 1 1 : 3 times 1 1 1 1 : 15 times
7	Redialing to the called station on the other end sending no response	0: Yes 1: No
8	CRP option	0: Disable 1: Enable

- Selectors 1 through 6: Redial interval and No. of redialings

The machine redials by the number of times set by selectors 3 through 6 at intervals set by selectors 1 and 2.

- Selector 8: CRP option

If a command error occurs in the machine (calling station), the machine usually waits for three seconds and then makes a retry three times. This CRP option is a request command that can be sent from the called station for requesting the calling station to retry the failed command immediately.

WSW16 (Function setting 1)

Selector No.	Function	Setting and Specifications
1	Not used.	
2	ITU-T (CCITT) superfine recommendation	0: OFF 1: ON
3 6	Not used.	
7	Max. document length limitation	0: 400 cm 1: 90 cm
8	Stop key pressed during reception	0: Not functional 1: Functional

Note: Selector 7 is applicable to models with ADF unit.

- Selector 2: ITU-T (CCITT) superfine recommendation
 If this selector is set to "1," the machine communicates in ITU-T (CCITT) recommended superfine mode (15.4 lines/mm). If it is set to "0," it communicates in native superfine mode.
- Selector 7: Max. document length limitation
 This selector is used to select the maximum length of a document to be sent.
- Selector 8: Stop key pressed during reception
 If this selector is set to "1," pressing the **Stop** key can stop the current receiving operation.
 The received data will be lost.

WSW17 (Function setting 2)

Selector No.	Function	Setting and Specifications
1 2	Off-hook alarm	No. 1 2 0 0 : No alarm Always valid 1 0 : Valid except when 'call reservation' is selected. 1 1 : Valid except when 'call reservation' is selected.
3 4	Not used.	
5	Calendar clock type	0: U.S.A. type 1: European type
6	Not used.	
7	Non-ring reception	0: OFF 1: ON
8	Not used.	

- Selectors 1 and 2: Off-hook alarm

These selectors activate or deactivate the alarm function which sounds an alarm when the communication is completed with the handset being off the hook.

- Selector 5: Calendar clock type

If this selector is set to "0" (USA), the MM/DD/YY hh:mm format applies; if it is set to "1" (Europe), the DD/MM/YY hh:mm format applies: DD is the day, MM is the month, YY is the last two digits of the year, hh is the hour, and mm is the minute.

- Selector 7: Non-ring reception

Setting this selector to "1" makes the machine receive calls without ringer sound if the Ring Delay is set to 0.

WSW18 (Function setting 3)

Selector No.	Function	Setting and Specifications
1	Registration of station IDs of PCs sharing a FAX machine	0: Permitted 1: Prohibited
2 3	Detection enabled time for CNG or "no tone"	No. 2 3 0 0 : 40 sec. 0 1 : 0 sec. (No detection) 1 0 : 5 sec. 1 1 : 80 sec.
4 5	Not used.	
6	Registration of station ID	0: Permitted 1: Prohibited
7 8	Tone sound monitoring	No. 7 8 0 0 : No monitoring 0 1 : No monitoring 1 0 : Up to phase B at the calling station only 1 1 : All transmission phases both at the calling and called stations

sec.: second(s)

- Selectors 2 and 3: Detection enabled time for CNG or "no tone"
After the line is connected via the external telephone or by picking up the handset of the machine, the machine can detect a CNG signal or "no tone" for the time length specified by these selectors. The setting specified by these selectors becomes effective only when selector 8 on WSW20 is set to "1."
- Selector 6: Registration of station ID
Setting this selector to "0" permits the registration of station ID for Austrian and Czech models.
- Selectors 7 and 8: Tone sound monitoring
These selectors set monitoring specifications of the tone sound inputted from the line.

WSW19 (Transmission speed setting)

Selector No.	Function	Setting and Specifications
1 3	First transmission speed choice for fallback	No. 1 2 3 No. 0 0 0 : 2,400 bps 0 0 1 : 4,800 bps 0 1 0 : 7,200 bps
4 6	Last transmission speed choice for fallback	0 1 1 : 9,600 bps 1 0 0 : 12,000 bps 1 0 1 : 14,400 bps 1 1 0 : 14,400 bps 1 1 1 : 14,400 bps
7	V.34 mode	0: Permitted 1: Prohibited
8	V.17 mode	0: Permitted 1: Prohibited

Note: Selector 7 takes effect only in models supporting V.34 mode.

- Selectors 1 through 6: First and last choices of transmission speed for fallback

These selectors are used to set the MODEM speed range. With the first transmission speed choice specified by selectors 1 through 3, the machine attempts to establish the transmission link via the MODEM. If the establishment fails, the machine automatically steps down to the next lowest speed and attempts to establish the transmission link again. The machine repeats this sequence while stepping down the transmission speed to the last choice specified by selectors 4 through 6.

If the MODEM always falls back to a low transmission speed (e.g., 4,800 bps), set the first transmission speed choice to the lower one (e.g., modify it from 12,000 bps to 7,200 bps) in order to deactivate the high-speed MODEM function and reduce the training time for shorter transmission time.

Generally, to save the transmission time, set the last transmission speed choice to a higher one.

- Selector 7: V.34 mode

Permitting the V.34 mode with this selector makes WSW38 to WSW40, and WSW41 (selectors 5 to 8) effective.

WSW20 (Overseas communications mode setting)

Selector No.	Function	Setting and Specifications
1	EP* tone prefix	0: OFF 1: ON
2	Overseas communications mode (Reception)	0: 2100 Hz 1: 1100 Hz
3	Overseas communications mode (Transmission)	0: OFF 1: Ignores DIS once.
4 5	Min. time length from reception of CFR to start of transmission of video signals	No. 4 5
		0 0 : 100 ms
		0 1 : 200 ms
		1 0 : 300 ms
		1 1 : 400 ms
6 7	At CNG detection, elimination of chattering noise	No. 6 7
		0 0 : Yes, at both ON/OFF timings
		0 1 : Yes, at OFF timing
		1 0 : No
		1 1 : No
8	Limitation on CNG detection	0: OFF 1: ON

ms: millisecond(s)
* EP: Echo protection

Note: Selectors 6 and 7 are applicable to models equipped with an SDAA circuit.

- Selector 1: EP tone prefix

Setting this selector to "1" makes the machine transmit a 1700 Hz echo protection (EP) tone immediately preceding training in V.29 modulation system to prevent omission of training signals.

Prefixing an EP tone is useful when the machine fails to transmit at the V.29 modem speed and always has to fall back to 4,800 bps transmission.

The setting made by this selector takes effect only when the Overseas Mode is set to ON.

- Selectors 2 and 3: Overseas communications mode

These selectors should be used if the machine malfunctions in overseas communications.

According to the communications error state, select the signal specifications.
Setting selector 2 to "1" allows the machine to use 1100 Hz CED signal instead of 2100 Hz in receiving operation. This prevents malfunctions resulting from echoes, since the 1100 Hz signal does not disable the echo suppressor (ES) while the 2100 Hz signal does.

Setting selector 3 to "1" allows the machine to ignore a DIS signal sent from the called station once in sending operation. This operation suppresses echoes since the first DIS signal immediately follows a 2100 Hz CED (which disables the ES) so that it is likely to be affected by echoes in the disabled ES state. However, such a disabled ES state will be removed soon so that the second and the following DIS signals are not susceptible to data distortion due to echoes. Note that some models when called may cause error by receiving a self-outputted DIS.

The setting made by selector 3 takes effect only when the Overseas Communications Mode is set to ON. (The setting made by selector 2 is always effective.)

- Selector 8: Limitation on CNG detection

If this selector is set to "1," the machine detects a CNG signal according to the condition preset by selectors 2 and 3 on WSW18 after a line is connected. If it is set to "0," the machine detects a CNG signal as long as the line is connected.

WSW21 (TAD setting 1)

Selector No.	Function	Setting and Specifications
1 5	"No tone" detection period during recording of ICM (Max. waiting time for voice signal) (Not used.)	No. 1 2 3 4 5 0 0 0 0 0 : No detection 0 0 0 0 1 : 1 sec. 0 0 0 1 0 : 2 sec. 0 0 0 1 1 : 3 sec. 0 0 1 1 0 : 6 sec. (default) 1 1 1 1 1 : 31 sec.
6 7	Taping the call (Not used.)	No. 6 7 0 0 : Enable (signaling for U.S.A.) 0 1 : Enable (signaling for countries except U.S.A.) 1 0 : Enable (without signaling) 1 1 : Disable
8	Erasure of message stored in the memory after the message transfer	0: Yes 1: No

sec.: second(s)

Note: Selectors 1 through 5 are applicable to models equipped with ICM recorder.

Note: Selectors 6 through 8 are applicable to models with a built-in TAD.

- Selectors 1 through 5: "No tone" detection period during recording of ICM (Max. waiting time for voice signal) (Not used.)

If the machine detects "no tone"* during recording of ICM for the time length specified by these selectors, it automatically stops recording ICM and disconnects the line. (*Tone whose level is less than the threshold specified by selectors 1 through 3 on WSW33 is interpreted as "no tone.")

- Selectors 6 and 7: Taping the call (Not used.)

These selectors select whether or not to tape the call. Setting them to "1, 0" enables taping the call without signaling to the calling station that the call is being taped.

- Selector 8: Erasure of message stored in the memory after the message transfer

Setting this selector to "0" will erase the message recorded in the memory after the document retrieval feature transfers the message.

WSW22 (ECM and call waiting caller ID)

Selector No.	Function	Setting and Specifications	
1	ECM* in sending	0: ON	1: OFF
2	ECM* in receiving	0: ON	1: OFF
3	Call Waiting Caller ID	0: ON	1: OFF
4	Not used.		
5	Acceptable TCF bit error rate (%) (Only at 4,800 bps) (Not used.)	0: 0%	1: 8%
		0: 0%	1: 4%
8		0: 0%	1: 2%
		0: 0%	1: 1%

* ECM: Error correction mode

Note: Selector 3 is applicable to the American models.

Note: Selectors 5 through 8 are applicable to the Chinese, Taiwanese and Asian models only.

- Selector 3: Call Waiting Caller ID

Setting this selector to "0" allows the user to decide whether or not to interrupt the current call when a new call comes in. If Call Waiting Caller ID service is available in the area and the user subscribes to it, he/she can see information about his/her incoming call on the LCD.

- Selectors 5 through 8: Acceptable TCF bit error rate (%) (Not used.)

Setting two or more selectors to "1" produces addition of percent assigned to each selector.

If you set selectors 7 and 8 to "1," the acceptable TCF bit error rate will be 3%.

WSW23 (Communications setting)

Selector No.	Function	Setting and Specifications
1	Starting point of training check (TCF)	0: From the head of a series of zeros 1: From any arbitrary point
2 3	Allowable training error rate	No. 2 3 0 0 : 0% 0 1 : 0.5% 1 0 : 1% 1 1 : 2%
4 5	Decoding error rate for transmission of RTN	No. 4 5 0 0 : 16% 0 1 : 14% 1 0 : 10% 1 1 : 8%
6 7	Not used.	
8	Limitation of attenuation level	0: Yes 1: No

Note: Selector 8 is not applicable to the French models.

- Selector 1: Starting point of training check (TCF)

At the training phase of receiving operation, the called station detects for 1.0 second a training check (TCF) command, a series of zeros which is sent from the calling station for 1.5 seconds to verify training and give the first indication of the acceptability of the line. This selector sets the starting point from which the called station should start counting those zeros. If this selector is set to "0," the called station starts counting zeros 100 milliseconds after the head of a series of zeros is detected.

If it is set to "1," the called station starts counting zeros upon detection of 10-millisecond successive zeros 50 milliseconds after the head of a series of zeros is detected. In this case, if the detection of 10-millisecond successive zeros is too late, the data counting period will become less than 1.0 second, making the called station judge the line condition unacceptable.

- Selectors 2 and 3: Allowable training error rate

The called station checks a series of zeros gathered in training (as described in Selector 1) according to the allowable training error rate set by these selectors. If the called station judges the line condition to be accepted, it responds with CFR; if not, it responds with FTT.

- Selectors 4 and 5: Decoding error rate for transmission of RTN

The machine checks the actual decoding errors and then transmits an RTN according to the decoding error rate (Number of lines containing an error per page ÷ Total number of lines per page) set by these selectors.

- Selector 8: Limitation of attenuation level

Setting this selector to "0" limits the transmitting level of the modem to 10 dB (1 dB in France).

This setting has priority over the settings selected by WSW02 (selectors 5 through 8) and WSW13 (selectors 5 through 8).

WSW24 (TAD setting 2)

Selector No.	Function	Setting and Specifications
1 2	Maximum OGM recording time (<i>Not used.</i>)	No. 1 2 0 0 : 15 sec. 0 1 : 20 sec. 1 0 : 30 sec. 1 1 : 50 sec.
3 4	Time length from CML ON to start of pseudo ring backtone transmission	No. 3 4 0 0 : 4 sec. 0 1 : 3 sec. 1 0 : 2 sec. 1 1 : 1 sec.
5 8	Attenuator for playback of ICM/OGM to the line (Selectable from the range of 0-15 dB) (<i>Not used.</i>)	No. 5 6 7 8 : 0 dB 0 0 0 1 : 1 dB 0 0 1 0 : 2 dB 1 1 1 1 : 15 dB

sec.: second(s)

- Selectors 1 and 2: Maximum OGM recording time (Not used.)
These selectors specify the allowable maximum recording time for an OGM.
- Selectors 3 and 4: Time length from CML ON to start of pseudo ring backtone transmission
These selectors specify the length of time from CML-ON up to the start of pseudo ring backtone transmission.

In models with an OGM facility, the settings made by these selectors also apply to the length of time from CML-ON up to the start of OGM transmission.
- Selectors 5 through 8: Attenuator for playback of ICM/OGM to the line (Not used.)
Setting two or more selectors to "1" produces addition of attenuation assigned to each selector.

This setting is not limited by selector 8 on WSW23.

WSW25 (TAD setting 3)

Selector No.	Function	Setting and Specifications
1 2	Delay time for starting "no tone" detection in the external TAD mode	No. 1 2 0 0: 0 sec. 0 1: 8 sec. 1 0: 16 sec. 1 1: 24 sec.
3 4	Threshold level of "no tone" detection in the external TAD mode (Not used.)	No. 3 4 0 0: -43 dB (A) 0 1: -46 dB (B) 1 0: -49 dB (C) 1 1: -51 dB (D)
5 7	Pause between paging number and PIN	No. 5 6 7 0 0 0 : 2 sec. 0 0 1 : 4 sec. 0 1 0 : 6 sec. 0 1 1 : 8 sec. 1 0 0 : 10 sec. 1 0 1 : 12 sec. 1 1 0 : 14 sec. 1 1 1 : 16 sec.
8	Not used.	

sec.: second(s)

Note: Selectors 1 through 4 are not applicable to the U.S.A. models, models without "no tone" detecting function in the external TAD mode, or models with Rockwell modem V24.

Note: Selectors 5 through 7 are applicable to the U.S.A. models only.

- Selectors 1 and 2: Delay time for starting "no tone" detection in the external TAD mode (Not used.)

These selectors take effect only in the external TAD mode. The machine delays starting detection of "no tone" by the time length specified by these selectors.

The total length of the delay time specified by these selectors and the maximum waiting time specified by WSW21 (selectors 1 through 5) should not exceed 40 seconds.

- Selectors 3 and 4: Threshold level of "no tone" detection in the external TAD mode (Not used.)

These selectors specify the threshold level of "no tone" detection in the external TAD mode.

- Selectors 5 through 7: Pause between paging number and PIN

These selectors set the pause time between a telephone number being paged and PIN (personal identification number) for the paging feature.

WSW26 (Function setting 4)

Selector No.	Function	Setting and Specifications
1	Not used.	
2		
3	Dialing during document reading into the temporary memory in in-memory message transmission	0: Disable 1: Enable
4	No. of CNG cycles to be detected (when the line is connected via the external telephone except in the external TAD mode or via the built-in telephone)	No. 4 5
5		0 0 : 0.5 (A) 0 1 : 1 (B) 1 0 : 1.5 (C) 1 1 : 2 (D)
6	No. of CNG cycles to be detected (when the line is connected via the external telephone in the external TAD mode, via the built-in telephone in the TAD mode, or via the machine in the automatic reception of the F/T mode)	No. 6 7
7		0 0 : 0.5 (A) 0 1 : 1 (B) 1 0 : 1.5 (C) 1 1 : 2 (D)
8	Not used.	

- Selector 3: Dialing during document reading into the temporary memory in in-memory message transmission

If this selector is set to "0," the machine waits for document reading into the memory to complete and then starts dialing. This enables the machine to list the total number of pages in the header of the facsimile message.

- Selectors 4 and 5: No. of CNG cycles to be detected (when the line is connected via the external telephone except in the external TAD mode or via the built-in telephone)

The machine interprets a CNG as an effective signal if it detects the CNG by the number of cycles specified by these selectors when the line is connected via the external telephone except in the external TAD mode or via the built-in telephone.

- Selectors 6 and 7: No. of CNG cycles to be detected (when the line is connected via the external telephone in the external TAD mode, via the built-in telephone in the TAD mode, or via the machine in the automatic reception of the F/T mode)

The machine interprets a CNG as an effective signal if it detects the CNG by the number of cycles specified by these selectors when the line is connected via the external telephone in the external TAD mode, via the built-in telephone in the TAD mode, or via the machine in the automatic reception of the F/T mode.

WSW27 (Function setting 5)

Selector No.	Function	Setting and Specifications
1	Not used.	
2	Ringer OFF setting	0: Yes 1: No
3	Automatic playback of OGM when switched to the TAD mode (<i>Not used.</i>)	0: No 1: Yes
4	Detection of distinctive ringing pattern	0: Yes 1: No
5	Not used.	
6	Recording quality (<i>Not used.</i>)	0: Normal 1: High
7	Recording time for high recording quality (<i>Not used.</i>)	0: Short (9.6 kbps) 1: Long (8.8 kbps)
8	Not used.	

Note: Selectors 4 and 5 are applicable to the U.S.A. models only.

- Selector 2: Ringer OFF setting
This selector determines whether or not the ringer can be set to OFF.

- Selector 3: Automatic playback of OGM when switched to the TAD mode (*Not used.*)
This selector determines whether or not to automatically play back an OGM the moment the machine switches to the TAD mode.

- Selector 4: Detection of distinctive ringing pattern
If this selector is set to "1," the machine detects only the number of rings; if it is set to "0," the machine detects the number of rings and the ringing time length to compare the detected ringing pattern with the registered distinctive one.

- Selector 6: Recording quality (*Not used.*)
This selector determines the recording quality for the OGM and ICM. Selecting "1" (High) increases the quality, sacrificing the recording time.

- Selector 7: Recording time for high recording quality (*Not used.*)
This setting takes effect when selector 6 is set to "1" (High). Setting this selector to "0" (Short) further increases the recording quality, sacrificing the recording time.

The recording quality and time to be applied when this selector is set to "1" (Long) are higher and shorter than the ones to be applied when selector 6 is set to "0" (Normal).

The recording quality and time determined by this selector being set to "1" (Long) are higher and shorter than the ones determined by selector 6 being set to "0" (Normal).

WSW28 (Function setting 6)

Selector No.	Function	Setting and Specifications
1 3	Transmission level of DTMF high-band frequency signal	No. 1 2 3 0 0 0 : 0 dB 0 0 1 : +1 dB 0 1 0 : +2 dB 0 1 1 : +3 dB 1 0 0 : 0 dB 1 0 1 : -1 dB 1 1 0 : -2 dB 1 1 1 : -3 dB
4 6	Transmission level of DTMF low-band frequency signal	No. 4 5 6 0 0 0 : 0 dB 0 0 1 : +1 dB 0 1 0 : +2 dB 0 1 1 : +3 dB 1 0 0 : 0 dB 1 0 1 : -1 dB 1 1 0 : -2 dB 1 1 1 : -3 dB
7 8	Not used.	

- Selectors 1 through 6: Transmission level of DTMF high-/low-band frequency signal
 These selectors are intended for the manufacturer who tests the machine for the Standard.
 Never access them.

WSW29 (Function setting 7) (Not used.)

Selector No.	Function	Setting and Specifications
1 3	Compression threshold level for voice signals inputted via the telephone line in the built-in TAD operation	No. 1 2 3 0 0 0 : -47.0 dBm (A) 0 0 1 : -48.5 dBm (B) 0 1 0 : -50.0 dBm (C) 0 1 1 : -51.5 dBm (D) 1 0 0 : -53.0 dBm (E) 1 0 1 : -54.5 dBm (F) 1 1 0 : -56.0 dBm (G) 1 1 1 : OFF (H)
4 6	Compression threshold level for voice signals inputted via the handset in the built-in TAD operation	No. 4 5 6 0 0 0 : -44.0 dBm (A) 0 0 1 : -45.5 dBm (B) 0 1 0 : -47.0 dBm (C) 0 1 1 : -48.5 dBm (D) 1 0 0 : -50.0 dBm (E) 1 0 1 : -51.5 dBm (F) 1 1 0 : -53.0 dBm (G) 1 1 1 : OFF (H)
7	Impedance switching control in pulse dialing	0: OFF 1: ON
8	Prompt beep when the memory area for the activity report becomes full	0: No 1: Yes

Note: Selectors 1 through 6 are applicable to models with built-in TAD.

Note: Selectors 7 and 8 are applicable only to the European versions.

- Selectors 1 through 6: Compression threshold level for voice signals inputted via the telephone line in the built-in TAD operation
 If voice signals inputted via the telephone line are below the level specified by these selectors, the TAD interprets those received voice signals as no signal, compressing the recording time.
- Selector 8: Prompt beep for activity report
 This selector determines whether or not to beep if the memory area for the activity report becomes full, for prompting you to print out the report. (Printing it out will clear the memory area.)

WSW30 (Function setting 8) (Not used.)

Selector No.	Function	Setting and Specifications																																													
1 3	Dial tone/busy tone detection level during recording of ICM	<table border="0"> <tr> <td>No.</td> <td>1</td> <td>2</td> <td>3</td> <td></td> </tr> <tr> <td></td> <td>0</td> <td>0</td> <td>0</td> <td>: -38.0 dBm (A)</td> </tr> <tr> <td></td> <td>0</td> <td>0</td> <td>1</td> <td>: -39.5 dBm (B)</td> </tr> <tr> <td></td> <td>0</td> <td>1</td> <td>0</td> <td>: -41.0 dBm (C)</td> </tr> <tr> <td></td> <td>0</td> <td>1</td> <td>1</td> <td>: -42.5 dBm (D)</td> </tr> <tr> <td></td> <td>1</td> <td>0</td> <td>0</td> <td>: -44.0 dBm (E)</td> </tr> <tr> <td></td> <td>1</td> <td>0</td> <td>1</td> <td>: -45.5 dBm (F)</td> </tr> <tr> <td></td> <td>1</td> <td>1</td> <td>0</td> <td>: -47.0 dBm (G)</td> </tr> <tr> <td></td> <td>1</td> <td>1</td> <td>1</td> <td>: -48.5 dBm (H)</td> </tr> </table>	No.	1	2	3			0	0	0	: -38.0 dBm (A)		0	0	1	: -39.5 dBm (B)		0	1	0	: -41.0 dBm (C)		0	1	1	: -42.5 dBm (D)		1	0	0	: -44.0 dBm (E)		1	0	1	: -45.5 dBm (F)		1	1	0	: -47.0 dBm (G)		1	1	1	: -48.5 dBm (H)
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	1	1	0	: -47.0 dBm (G)																																											
	1	1	1	: -48.5 dBm (H)																																											
4 8	Not used.																																														

Note: Selectors 1 through 3 are applicable to models with built-in TAD.

- Selectors 1 through 3: Dial tone/busy tone detection level during recording of ICM

If the machine (called station) detects dial tone (400 Hz continuously) or busy tone (400 Hz intermittently) exceeding the detection level specified by these selectors for the period specified by selectors 1 through 4 on WSW35, then it interprets the calling station as being disconnected. The machine stops TAD recording and disconnects the line.

WSW31 (Function setting 9)

Selector No.	Function	Setting and Specifications
1	Not used.	
2	Limitation of reduction ratio in copying	0: Yes 1: No
3	Not used.	
4	(Do not disturb this selector.)	
5	Minimum ON and OFF duration of ringer signals effective in distinctive ringing	0: 130 ms 1: 90 ms
6 8	Not used.	

ms: millisecond(s)

Note: Selector 5 is applicable only to the U.S.A. models.

- Selector 2: Limitation of reduction ratio in copying

When the user selects a ratio less than 70%, if the reduction ratio is limited ("0"), the machine prints in 70% (fixed); if not limited ("1"), the machine prints in the reduction ratio matching the horizontal scanning width of recording paper.

- Selector 5: Minimum ON and OFF duration of ringer signals effective in distinctive ringing

The ringer pattern consists of short and long rings, e.g., short-short-long rings. This selector sets the minimum ON and OFF duration of ringer signals that are required for the machine to interpret ringer signals as being ON or OFF. This is to prevent components of a ringer pattern from being misinterpreted due to chattering in distinctive ringing.

The machine monitors ringer signals at 10-millisecond intervals. If the signal is ON, the machine counts +1; if it is OFF, it counts -1. If the counter increments up to +5 or +13 when this selector is set to "1" (90 milliseconds) or "0" (130 milliseconds), respectively, the machine interprets the current signal as being ON.

If the counter returns to zero, the machine interprets the signal as being OFF.

If the Distinctive Ring is set to OFF, this selector is not effective.

WSW32 (Function setting 10)

Selector No.	Function	Setting and Specifications
1 4	Not used.	
5 6	Default resolution	No. 5 6 0 0 : Standard 0 1 : Fine 1 0 : Super fine 1 1 : Photo
7 8	Default contrast	No. 7 8 0 0 : Automatic 0 1 : Automatic 1 0 : Super light 1 1 : Super dark

- Selectors 5 and 6: Default resolution

These selectors set the default resolution which applies when the machine is turned on or completes a transaction.

- Selectors 7 and 8: Default contrast

These selectors set the default contrast which applies when the machine is turned on or completes a transaction.

WSW33 (Function setting 11)

Selector No.	Function	Setting and Specifications
1 3	Threshold level of "no tone" detection during recording of ICM (<i>Not used.</i>)	No. 1 2 3 0 0 0 : -48 dBm (A) 0 0 1 : -50 dBm (B) 0 1 0 : -52 dBm (C) 0 1 1 : -54 dBm (D) 1 0 0 : -56 dBm (E) 1 0 1 : -58 dBm (F) 1 1 0 : -60 dBm (G) (default) 1 1 1 : -62 dBm (H)
4 5	FAX receiving speed to be kept within the transmission speed limit to the PC (<i>Not used.</i>)	No. 4 5 0 0 : 14,400 bps 0 1 : 12,000 bps 1 0 : 9,600 bps 1 1 : 7,200 bps
6	Report output of polled transmission requests	0: Yes 1: No
7 8	Comfortable noise level (<i>Not used.</i>)	No. 7 8 0 0 : OFF 0 1 : Low (A) 1 0 : Medium (B) 1 1 : High (C)

Note: Selectors 1 through 3 are applicable to models with built-in TAD.

- Selectors 1 through 3: Threshold level of "no tone" detection during recording of ICM (*Not used.*)
If the tone level during recording of ICM is less than the threshold setting made by these selectors, the tone is interpreted as "no tone." When the "no tone" state is kept for the period specified by selectors 1 through 5 on WSW21, the machine stops recording of ICM and disconnects the line.
- Selectors 4 and 5: FAX receiving speed to be kept within the transmission speed limit to the PC
(*Not used.*)
To transmit FAX data being received from other machine to the connected PC, you may need to keep the FAX receiving speed within the transmission speed limit specified for the PC. In an initial negotiation sequence for transmission, the machine responds to the calling station with the allowable FAX receiving speed specified by these selectors.
- Selectors 7 and 8: Comfortable noise level (*Not used.*)
These selectors set the level of noise to be added during playing-back of voice signals recorded with no-signal compression.
If they are set to "0, 0," no noise will be added.

WSW34 (Function setting 12)

Selector No.	Function	Setting and Specifications
1 3	Erasing time length of ICM tone recorded preceding the tone detection starting point in the case of automatic line disconnection due to no voice signal received (Not used.)	No. 1 2 3 0 0 0 : 0 sec. 0 1 0 : 2 sec. 0 1 1 : 3 sec. 1 0 0 : 4 sec. 1 0 1 : 5 sec. 1 1 0 : 6 sec. 1 1 1 : 7 sec.
4 5	No. of CNG cycles to be detected (when the line is connected via the external telephone in the external TAD mode or via the machine in F/T mode) (Not used.)	No. 4 5 0 0 : 0.5 (A) 0 1 : 1 (B) 1 0 : 1.5 (C) 1 1 : 2 (D)
6 7	Number of DTMF tone signals for inhibiting the detection of CNG during external TAD operation	No. 6 7 0 0 : 3 0 1 : 2 1 0 : 1 1 1 : OFF
8	Not used.	

sec.: second(s)

Note: Selectors 1 through 5 are applicable to models with built-in TAD.

- Selectors 1 through 3: Erasing time length of ICM tone recorded preceding the tone detection starting point in the case of automatic line disconnection due to no voice signal received (Not used.)

If the machine has disconnected the line after detection of disconnection tone in ICM recording, it erases tone recorded preceding the tone detection starting point for the time length set by these selectors.

- Selectors 4 and 5: No. of CNG cycles to be detected (when the line is connected via the external telephone in the external TAD mode or via the machine in F/T mode)
(Not used.)

The machine interprets a CNG as an effective signal if it detects a CNG signal by the number of cycles specified by these selectors when the line is connected via the external telephone in the external TAD mode or via the machine in F/T mode.

- Selectors 6 and 7: Number of DTMF tone signals for inhibiting the detection of CNG during external TAD operation

If the machine receives this specified number of DTMF tone signals during external TAD operation, it will not detect CNG afterwards.

If these selectors are set to "1, 1," the CNG detection will not be inhibited.

WSW35 (Function setting 13) (Not used.)

Selector No.	Function	Setting and Specifications
1 4	Max. detection period of dial tone/ busy tone during recording of ICM	No. 1 2 3 4 0 0 0 0 : No detection 0 0 0 1 : 1 sec. 0 0 1 0 : 2 sec. 0 1 0 0 : 4 sec. 1 1 1 1 : 15 sec.
5 8	Not used.	

sec.: second(s)

Note: Selectors 1 through 4 are applicable to models with built-in TAD.

- Selectors 1 through 4: Max. detection period of dial tone/busy tone during recording of ICM
 If the machine (called station) detects dial tone or busy tone exceeding the detection level specified by selectors 1 through 3 on WSW30 for the period specified by these selectors, then it interprets the state as the calling station's breaking the connection, stops recording the ICM, and disconnects the line.

WSW36 (Function setting 14)

Selector No.	Function	Setting and Specifications
1	ECP mode*	0: ON 1: OFF
2	Recovery from Inactive PC Interface	0: Disable 1: Enable
3	PC Power-off Recognition Time	0: Normal 1: Long
4	Not used.	
5	Escape from phase C	0: Yes 1: No
6 8	Extension of incoming calling signal (CI) frequency band specified by selectors 1 through 4 on WSW14	No. 6 7 8 0 0 0 : 0 (Ignored) 0 0 1 : 4 (448 Hz) 0 1 0 : 8 (244 Hz) 0 1 1 : 12 (162 Hz) 1 0 0 : 16 (122 Hz) 1 0 1 : 20 (97 Hz) 1 1 0 : 24 (81 Hz) 1 1 1 : 28 (69 Hz)

*ECP (Enhanced Capabilities Port)

Note: Selectors 2 and 3 on WSW36 take effect only when the "Monitoring the PC ON/OFF state" is enabled with selectors 1 and 2 on WSW46.

- Selector 1: ECP mode*

The ECP mode enhances the normal bidirectional communications between the machine and the connected PC for higher transmission speed.

- Selector 2: Recovery from Inactive PC Interface

If the machine recognizes via the STB signal line that the connected PC is powered off, it will turn the PC interface outputs Low to protect the PC from hazards that could be caused by weak electric current accidentally flown from the machine.

This selector determines whether or not the machine should recover from the inactive PC interface to normal interfacing state upon receipt of data from the PC.

- Selector 3: PC Power-off Recognition Time

This selector sets the time length from when the machine detects the PC powered off until it recognizes the detected state as power-off.

If selector 2 is set to "0," it is recommended that selector 3 be set to "1"; otherwise, the machine may mistakenly detect PC powered off.

- Selector 5: Escape from phase C

This selector determines whether or not the machine will escape from phase C when it detects an RTC (Return to Control) in non-ECM mode or an RCP (Return to Control Partial page) in ECM mode.

- Selectors 6 through 8: Extension of incoming calling signal (CI) frequency band specified by selectors 1 through 4 on WSW14

At the start of reception, if the machine detects the frequency of a CI signal specified by selectors 1 through 4 on WSW14, it starts the ringer sounding. However, the machine may fail to detect the CI signal normally due to noise superimposed at the time of reception. To prevent it, use selectors 6 through 8 on WSW36.

If the machine detects higher frequencies than the setting made here, it regards them as noise and interprets the detecting state as being normal, allowing the ringer to keep sounding according to the preset number of ringers (until it starts automatic reception of FAX data in the FAX mode or enters the TAD mode in the TEL mode).

WSW37 (Function setting 15)

Selector No.	Function	Setting and Specifications
1	Printout of the stored image data of an unsent document onto an error report	0: No 1: Yes
2	Erasure of the stored image data of an unsent document at the time of the subsequent in-memory message transmission	0: No 1: Yes
3 8	Not used.	

- Selector 1: Printout of the stored image data of an unsent document onto an error report
This selector determines whether or not to print out the 1st-page image data of a document onto the error report if the document image data stored in the temporary memory cannot be transmitted normally.
- Selector 2: Erasure of the stored image data of an unsent document at the time of the subsequent in-memory message transmission
If in-memory message transmission fails repeatedly when selector 1 is set to "1," the temporary memory will be occupied with image data. Setting selector 2 to "1" will automatically erase the stored 1st-page image data of an unsent document at the time of the subsequent in-memory message transmission only when recording paper or toner runs out.

WSW38 (V.34 transmission settings)

Selector No.	Function	Setting and Specifications
1 2	Setting of the equalizer	No. 1 2 0 0 : Automatic 0 1 : Automatic 1 0 : Fixed to 4 points 1 1 : Fixed to 16 points
3	Sending level of guard tone at phase 2	0: Normal - 7 db 1: Normal
4	Stepping down the transmission speed at fallback each	0: 2,400 bps 1: 4,800 bps
5 6	Automatic control of modem's EQM gain for proper transmission speed choice	No. 5 6 0 0 : For higher transmission speed than the current setting 0 1 : No change from the current setting 1 0 : For lower transmission speed than the current setting 1 1 : For further lower transmission speed than the setting made by 1, 0
7	Redialing when a communications error occurs	0: ON 1: OFF
8	Detection of CED for stopping CNG	0: ON 1: OFF

Note: WSW38 takes effect only when the V.34 mode is permitted (WSW19, selector 7) in models supporting V.34 mode.

- Selectors 1 and 2: Setting of the equalizer

These selectors set the equalizer's training level to be applied if the machine fails to send training due to weak line connection. If these selectors are set to "0, 0" or "0, 1," the modem will automatically set the appropriate training level.

- Selector 3: Sending level of guard tone at phase 2

This selector sets the sending level of guard tone for 1800 Hz to be sent at Phase 2 in the V.34 mode.

- Selector 4: Stepping down the transmission speed at fallback each

This selector determines how much the modem steps down the transmission speed at fallback when called by the remote station. If this selector is set to "1," the modem may step down the transmission speed from 33,600 bps to 28,800 bps by one-time fallback.

- Selectors 5 and 6: Automatic control of modem's EQM gain for proper transmission speed choice

These selectors determine how the modem controls the EQM (Eye Quality Monitor) gain for proper choice of the transmission speed, which applies if the modem selects higher transmission speed than the possible speed so that it always repeats falling back.

- Selector 8: Detection of CED for stopping CNG

If this selector is set to "0," the detection time of CED specified by WSW43, selectors 4 and 5 will apply.

WSW39 (V.34 transmission speed)

Selector No.	Function	Setting and Specifications
1 4	First transmission speed choice for fallback	No. 1 2 3 4 No. 5 6 7 8 0 0 0 0 : 2,400 bps 0 0 0 1 : 4,800 bps 0 0 1 0 : 7,200 bps 0 0 1 1 : 9,600 bps 0 1 0 0 : 12,000 bps 0 1 0 1 : 14,400 bps 0 1 1 0 : 16,800 bps 0 1 1 1 : 19,200 bps
5 8	Last transmission speed choice for fallback	1 0 0 0 : 21,600 bps 1 0 0 1 : 24,000 bps 1 0 1 0 : 26,400 bps 1 0 1 1 : 28,800 bps 1 1 0 0 : 31,200 bps 1 1 0 1 : 33,600 bps 1 1 1 0 : 33,600 bps 1 1 1 1 : 33,600 bps

Note: WSW39 takes effect only when the V.34 mode is permitted (WSW19, selector 7) in models supporting V.34 mode. For the transmission speed setting in other modes, refer to WSW19.

- Selectors 1 through 8: First and last choices of transmission speed for fallback

These selectors are used to set the modem speed range. With the first transmission speed choice specified by selectors 1 through 4, the machine attempts to establish the transmission link via the modem. If the establishment fails, the machine automatically steps down to the next highest speed and attempts to establish the transmission link again. The machine repeats this sequence while stepping down the transmission speed to the last choice specified by selectors 5 through 8.

If the modem always falls back to a low transmission speed (e.g., 24,000 bps), set the first transmission speed choice to the lower one (e.g., modify it from 31,200 bps to 26,400 bps) in order to deactivate the high-speed modem function and reduce the training time for shorter transmission time.

WSW39 will be limited by selectors 3 through 8 on WSW40.

WSW40 (V.34 modem settings)

Selector No.	Function	Setting and Specifications			
1	Not used.				
2					
3 8	Masking of symbol rate(s)	Not masking		Masking	
		No. 3	0	1	3429 symbols/sec
		No. 4	0	1	3200 symbols/sec
		No. 5	0	1	3000 symbols/sec
		No. 6	0	1	2800 symbols/sec
		No. 7	-	-	Not used.
		No. 8	0	1	2400 symbols/sec

sec.: second(s)

Note: WSW40 takes effect only when the V.34 mode is permitted (WSW19, selector 7) in models supporting V.34 mode.

- Selectors 3 through 8: Masking of symbol rate(s)

These selectors allow you to limit the transmission speed range in V.34 mode by masking the desired symbol rate(s). Transmission speeds assigned to the symbol rates are listed on the next page. The setting made by these selectors will limit the setting made by selectors 1 through 4 on WSW39.

If selector 3 is set to "1" to mask the 3429 symbols/second when the first transmission speed choice is 33,600 bps (specified by selectors 1 through 4 of WSW39), for example, then the allowable maximum transmission speed will be limited to 31,200 bps. If selector 8 is set to "1" to mask the 2400 symbols/second when the first transmission speed choice is 33,600 bps, then the allowable maximum transmission speed remains 33,600 bps.

If selector 8 is set to "1" to mask the 2400 symbols/second when the first transmission speed choice is 21,600 bps (specified by selectors 1 through 4 on WSW39), then the allowable maximum transmission speed remains 21,600 bps but the minimum transmission speed will be limited to 4,800 bps.

Symbol rate	Transmission speed (bps)	Symbol rate	Transmission speed (bps)	Symbol rate	Transmission speed (bps)
2400	2,400	3000	4,800	3429	4,800
	4,800		7,200		7,200
	7,200		9,600		9,600
	9,600		12,000		12,000
	12,000		14,400		14,400
	14,400		16,800		16,800
	16,800		19,200		19,200
	19,200		21,600		21,600
	21,600		24,000		24,000
	2800		4,800		3200
7,200		28,800	31,200		
9,600		4,800	33,600		
12,000		7,200			
14,400		9,600			
16,800		12,000			
19,200		14,400			
21,600		16,800			
24,000		19,200			
26,400		21,600			
		24,000			
		26,400			
		28,800			
	31,200				

WSW42 (Internet mail settings)

Selector No.	Function	Setting and Specifications
1	Access to the incoming mail (POP3) server (Periodical or on-demand)	0: Disable 1: Enable
2	Access to the outgoing mail (SMTP) server	0: Disable 1: Enable
3	I-FAX relay	0: Disable 1: Enable
4 8	Not used.	

Note: WSW42 is applicable to models equipped with LAN interface.

WSW43 (Function setting 21)

Selector No.	Function	Setting and Specifications
1	Insertion of mail header into outgoing mails	0: Yes 1: No
2 3	Wait time for PC-Fax reception (Class 2) and FPTS command transmission	No. 2 3 0 0 : 50 ms 0 1 : 100 ms 1 0 : 150 ms 1 1 : 0 ms
4 5	Detection time of 2100 Hz CED or ANSam	No. 4 5 0 0 : 200 ms 0 1 : 300 ms 1 0 : 400 ms 1 1 : 500 ms
6	Not used.	
7	Automatic start of remote maintenance	0: No 1: Yes
8	JPEG coding	0: Disable 1: Enable

ms: millisecond(s)

Note: Selector 1 is applicable to models equipped with LAN interface.

- Selector 1: Insertion of mail header into outgoing mails
Setting this selector to "1" inserts the station ID as a header into outgoing mails.
- Selector 8: JPEG coding
Setting this selector to "0" disables the machine from sending/receiving JPEG color images and from receiving JPEG monochrome images.

WSW44 (Speeding up scanning-1) (Not used.)

Selector No.	Function	Setting and Specifications
1 5	Not used.	
6 8	Effective time length of the white level compensation data obtained beforehand	No. 6 7 8 0 0 0 : Obtained compensation data ineffective 0 0 1 : 1 min. 0 1 0 : 3 min. 0 1 1 : 5 min. 1 0 0 : 10 min. 1 0 1 : 15 min. 1 1 0 : 20 min. 1 1 1 : 30 min.

min.: minute(s)

- Selectors 6 through 8: Effective time length of the white level compensation data obtained beforehand

If you set documents in the ADF and the document front sensor detects them, the controller will make correction of the reference voltage to be applied to white level compensation for document scanning before the **Start** key is pressed.

These selectors determine how long compensation data obtained beforehand will keep effective.

WSW45 (Speeding up scanning-2) (Not used.)

Selector No.	Function	Setting and Specifications
1 3	Delay time from when documents are set until the ADF starts drawing them in	No. 1 2 3 0 0 0 : No automatic drawing-in 0 0 1 : 1 sec. 0 1 0 : 2 sec. 0 1 1 : 3 sec. 1 0 0 : 4 sec. 1 0 1 : 5 sec. 1 1 0 : 6 sec. 1 1 1 : 7 sec.
4 6	Periodical correction intervals of the reference voltage to be applied to white level compensation for document scanning, during standby	No. 4 5 6 0 0 0 : No correction of reference voltage during standby 0 0 1 : 10 sec. 0 1 0 : 30 sec. 0 1 1 : 1 min. 1 0 0 : 3 min. 1 0 1 : 5 min. 1 1 0 : 10 min. 1 1 1 : 30 min.
7	Standby position of the CIS unit	0: CIS home position 1: Location of the white reference film
8	Line polarity reversal detector	0: Disable 1: Enable

sec.: second(s), min.: minute(s)

- Selectors 1 through 3: Delay time from when documents are set until the ADF starts drawing them in
 These selectors determine how long the ADF will delay automatic drawing-in of documents (to the scanning standby position) after you set them in the ADF, as well as determining whether or not the ADF automatically draws in documents.
- Selectors 4 through 6: Periodical correction intervals of the reference voltage applied to white level compensation for document scanning, during standby
 These selectors set the correction intervals (in seconds) of the reference voltage to be applied to white level compensation for document scanning during standby, as well as determining whether or not the controller makes the reference voltage correction during standby. (Conventionally, the correction has been made immediately before the start of actual scanning)
 This function takes effect in copying. Making the correction during standby may shorten the preparation time for copying.
Note: Do not access these selectors.
- Selector 7: Standby position of the CIS unit
 This selector determines whether the standby position of the CIS unit should be the home position or the location of the white reference film (attached to the inside of the scanner top cover). If the location of the reference film is selected, the CIS unit will not return to the home position so as to shorten the travel time, decreasing the preparation time for copying.
- Selector 8: Line polarity reversal detector
 When the remote station breaks the connection, a line polarity reversal occurs. Enabling the polarity reversal detector with this selector allows the machine to detect the polarity reversal if detected when the user is leaving a message on the station's answering machine.

WSW46 (Monitor of power ON/OFF state and parallel port kept at high)

Selector No.	Function	Setting and Specifications
1 2	Monitoring the PC ON/OFF state	No. 1 2 0 0 : Disable 0 1 : Monitor SELECT IN 1 0 : Monitor STROBE 1 1 : Monitor both SELECT IN and STROBE
3	Parallel port output pins kept at high level	0: Enable 1: Disable
4	Previous filtering parameters for white level compensation	0: Enable 1: Disable
5	Prevention of ink splashing in ink near-empty state	0: Enable 1: Disable
6 8	Waiting time for scanning for a single copy (Not used.)	No. 6 7 8 0 0 0 : Without WAIT 0 0 1 : 1 sec. 0 1 0 : 2 sec. 0 1 1 : 3 sec. 1 0 0 : 4 sec. 1 0 1 : 5 sec. 1 1 0 : 6 sec. 1 1 1 : 7 sec.

sec.: second(s)

Note: Selector 4 is not applicable to models equipped with flat-bed scanner.

- Selectors 1 and 2: Monitoring the PC ON/OFF state

For the related functions, refer to WSW36, selectors 2 and 3.

- Selector 3: Parallel port output pins kept at high level

Setting this selector to "0" will keep all parallel output pins of the machine at high level. Use this setting if Resource Manager (bundled with MFC models) installed to WindowsNT running on the connected PC fails to monitor the power ON/OFF state of the machine.

- Selector 4: Previous filtering parameters for white level compensation (Not used.)

At the start of scanning operation, the machine usually initializes white and black level data stored in the EEPROM by scanning the white reference film attached to the inside of the scanner top cover. After long use of the machine, however, the film may be contaminated with dust or dirt. Accordingly, incorrect white level data will be set up so that white vertical streaks will be brought on the scanning result.

Setting this selector to "0" (Enable) will apply previously saved white level data instead of new incorrect compensation.

- Selector 5: Prevention of ink splashing in ink near-empty state

Setting this selector to "0" (Enable) prevents ink splashing by decreasing the head drive voltage when the ink near-empty state is detected.

WSW47 (Switching between high- and full-speed USB)

Selector No.	Function	Setting and Specifications
1	Handling paper at the occurrence of a paper feed timing error	0: Eject paper w/o print 1: Print on the current paper
2	Reduction of document size in real-time transmission	0: No 1: Yes
3 4	Delay of FAX line disconnection when switching to the pseudo-ringing external telephone (<i>Not used.</i>)	No. 3 4 0 0 : 200 ms 0 1 : 400 ms 1 0 : 700 ms 1 1 : 1000 ms
5	Disable the ringer of external telephone at non-ring reception (<i>Not used.</i>)	0: No 1: Yes
6	Not used.	
7	Disable the ringer of external telephone with CAR signal when caller ID service is available (<i>Not used.</i>)	0: No 1: Yes
8	Switching between high-speed USB and full-speed USB	0: Auto switching between high-speed USB (ver. 2.0) and full-speed USB (ver. 1.1) 1: Fixed to full-speed USB (ver. 1.1)

Note: Selector 1 is applicable only to models equipped with flat-bed scanner.

Note: Selectors 3 and 4 are applicable only to models supporting pseudo-ringing of a connected external telephone.

- Selector 1: Handling paper at the occurrence of a paper feed timing error (*Not used.*)
When feeding paper to the print start position, the machine might cause a feed timing error so that the registration sensor goes ON signaling the presence of paper. This selector determines whether the machine prints on the current paper or ejects the current paper without printing and prints on the next paper.
- Selector 2: Reduction of document size in real-time transmission
Setting this selector to "1" reduces the document size from B4 to A4 in real-time transmission.
- Selectors 3 and 4: Delay of FAX line disconnection when switching to the pseudo-ringing external telephone (*Not used.*)
When the machine receives a phone call, it can make the connected external telephone ring (so called pseudo-ringing). During pseudo-ringing, if you pick up the handset of the external telephone, the line might be disconnected due to cut-off of the line current.
To hold the line, the machine may supply line current by making use of the pulse generator circuit that forms a parallel loop. This way the FAX line disconnection may be delayed. These selectors determine the delay period.

WSW48 (USB setup latency)

Selector No.	Function	Setting and Specifications
1	Not used.	
2		
3 5	Number of PCs registrable to each of TWAIN-enabled applications over a network	No. 3 4 5 0 0 0 : 25 0 0 1 : 50 0 1 0 : 75 0 1 1 : 100 1 0 0 : 125 1 0 1 : 150 1 1 0 : 175 1 1 1 : 200
6 8	USB setup latency (<i>Not used.</i>)	No. 6 7 8 0 0 0 : Default period 0 0 1 : Shorter 1 0 1 0 : Longer 1 0 1 1 : Longer 2 1 0 0 : Longer 3 1 0 1 : Longer 4 1 1 0 : Shorter 2 1 1 1 : Shorter 3

- Selectors 6 through 8: USB setup latency (Not used.)
These selectors should not be disturbed.

WSW49 (End-of-copying beep and black ink print mode)

Selector No.	Function	Setting and Specifications
1 2	Not used.	
3	End-of-copying beep (<i>Not used.</i>)	0: Yes 1: No
4 5	Command flag detection time	No. 4 5 0 0 : 150 ms 0 1 : 350 ms 1 0 : 550 ms 1 1 : 750 ms
6 7	CCD warmup time adjustment	No. 6 7 0 0 : No adjustment 0 1 : 80% 1 0 : 120% 1 1 : 150%
8	Black ink print mode	0: Disable (default) 1: Enable

ms: millisecond(s)

- Selectors 4 and 5: Command flag detection time
After receiving a command flag, the machine will wait for the command that should follow for the time length specified by these selectors.
- Selector 8: Black ink print mode
If any color ink runs out, printing is no longer possible by default. Setting this selector to "1" allows the machine to ignore the ink empty state and print data with black ink only, resulting in a printout missing color components.
Note: The assurance mode switch setting made by Selector 3 on AMS04 (triggered with function code 88 described in Chapter 9, Section 9.4.32) allows the machine to print all color and black data as a monochrome printer with black ink only.

WSW50 (SDAA settings)

Selector No.	Function	Setting and Specifications
1 2	Percentage voltage for interpreting the external telephone as being hooked up (based on the network's standard voltage)	No. 1 2 0 0 : 50% 0 1 : 80% 1 0 : 30% 1 1 : No detection
3	DC mask curve table to be applied when the line is connected	0: Apply the initial value specified by local regulations 1: Apply table DC5 prepared specially
4	AC impedance to be applied when the line is connected	0: 600Ω termination 1: ZR termination
5 6	Current control to be applied immediately after connection of the line	No. 5 6 0 0 : Standard 0 1 : Increase start-up current for termination 1 0 : Fine current control for termination 1 1 : Not used. (equal to "0, 0")
7 8	AC voltage threshold for detection of ring	No. 7 8 0 0 : 19 V 0 1 : 11 V 1 0 : 25 V 1 1 : 31 V

Note: WSW50 is applicable to models equipped with an SDAA circuit.

- Selectors 5 and 6: Current control to be applied immediately after connection of the line
FAX models equipped with an SDAA circuit (on which an NTU chip is mounted) might not be connected to a broad band line such as an ADSL (Asynchronous Digital Subscriber Line) in a stable condition. If those models fail to connect to such a line, try to change the current control to be applied immediately after connection of the line by using selectors 5 and 6.
If selectors 5 and 6 are set to "0" and "1," respectively, the SDAA draws more current, decreasing the period required to terminate the current control. If they are set to "1" and "0," the SDAA finely controls precision of the termination current against the voltage to characteristics of the network termination. Selecting either control may solve an unstable connection problem.

WSW51 (Function setting 16)

Selector No.	Function	Setting and Specifications
1	Output of communications error report when transmission verification report is disabled	0: Enable 1: Disable
2	CR motor control for reducing torque fluctuation (<i>Not used.</i>)	0: Activate 1: Deactivate
3 4	Cordless handset transmitter volume (<i>Not used.</i>)	No. 3 4 0 0 : Middle (default) 0 1 : Low 1 0 : High 1 1 : Very high
5 7	Transmitter level and echo suppression	No. 5 6 7 0 0 0 : Transmitter level 0 & echo suppression OFF 0 0 1 : Transmitter level 1 & echo suppression ON 0 1 0 : Transmitter level 2 & echo suppression ON 0 1 1 : Transmitter level 3 & echo suppression ON
8	Switching from ink near-empty state (if detected) to ink empty when opening the scanner cover (<i>Not used.</i>)	0: Yes 1: No (No change from ink near-empty)

Note: Selectors 3 and 4 are applicable to models equipped with cordless handset.

- Selector 2: CR motor control for reducing torque fluctuation (Not used.)
When the CR motor runs, the motor torque may vary so as to cause the head/carriage unit travel velocity to fluctuate, affecting the print quality. Setting this selector to "0" activates the CR motor control that regulates the motor drive current to reduce torque fluctuation, running the CR motor smoothly.
- Selectors 5 through 7: Transmitter level and echo suppression
Transmitter level 0 sets the transmitter volume to a maximum. As the level increases, the volume decreases. The transmitter level can also be changed by the user switch and its setting is interlocked with the setting made by these selectors.

Enabling the echo suppression suppresses echoes in both the receiver and transmitter.
- Selector 8: Switching from ink near-empty state (if detected) to ink empty when opening the scanner cover (Not used.)

If this selector is set to "0," opening the scanner cover in the ink near-empty state ("Ink low" message) switches to the ink empty state ("Cannot print" message), prompting the user to replace ink cartridges.

WSW52 (Function setting 17) (Not used.)

Selector No.	Function	Setting and Specifications
1 3	Transmitter level and echo suppression for cordless handsets	No. 1 2 3 0 0 0 : Echo suppressor OFF 0 0 1 : Transmitter level 1 & echo suppression ON 0 1 0 : Transmitter level 2 & echo suppression ON 0 1 1 : Transmitter level 3 & echo suppression ON
4 6	External telephone pseudo ring signal frequency	No. 4 5 6 0 0 0 : 16 Hz 0 0 1 : 20 Hz 0 1 0 : 24 Hz 0 1 1 : 28 Hz 1 0 0 : 32 Hz 1 0 1 : 16 Hz 1 1 0 : 16 Hz 1 1 1 : 16 Hz
7	Caller ID display (number display) being kept ON even after switching back to TEL from FAX mode	0: Enable 1: Disable
8	Dial number being displayed during faxing	0: Enable 1: Disable

- Selectors 4 through 6: External telephone pseudo ring signal frequency
These selectors provide a choice of pseudo ring sounds of the external telephone.
- Selector 7: Caller ID display (number display) being kept ON even after switching back to TEL from FAX mode
Enabling this function keeps the caller ID display ON even after the machine switches back to the TEL mode from the FAX mode.
- Selector 8: Dial number being displayed during faxing
Setting this selector to "0" enables the machine to keep displaying the dial number of the FAX receiver on the LCD until the end of faxing.

WSW53 (Function setting 18)

Selector No.	Function	Setting and Specifications
1 2	Not used.	
3 4	FSK receive timing delay for caller ID	No. 3 4 0 0 : 0 ms 0 1 : 100 ms 1 0 : 150 ms 1 1 : 200 ms
5 6	Allowable instantaneous interrupt period during reception of caller ID	No. 5 6 0 0 : 20 ms 0 1 : 10 ms 1 0 : 30 ms 1 1 : 0 ms
7	CNG detection retry after detection of invalid CNG	0: Yes 1: No
8	JPEG decompressor	0: ASIC (default) 1: Software

Note: Selector 8 is applicable to models equipped with PhotoCapture Center.

- Selectors 3 through 6: FSK receive timing delay for caller ID
Allowable instantaneous interrupt period during reception of caller ID
If a communications error occurs during a telephone conversation when the user has subscribed to the caller ID service, change the settings of these selectors, and it may improve the communications state. First, change the settings of selectors 3 and 4. If the error persists, change the settings of selectors 5 and 6.
- Selector 8: JPEG decompressor
By default, the ASIC (Application specified integrated circuit) in the machine decompresses the compressed JPEG data in a memory card inserted. If it fails to decompress the data and reproduce the image normally, switch from the ASIC to any proven decompressor software with this selector.

WSW54 (Function setting 19)

Selector No.	Function	Setting and Specifications
1 2	PictBridge command delay time	No. 1 2 0 0 : 100 ms (default) 0 1 : 0 ms 1 0 : 50 ms 1 1 : 200 ms
3	Extension of the "No. of CNG cycles to be detected" for Easy Receive mode	0: No 1: + 2 cycles
4	Recovery of cordless handset ID (<i>Not used.</i>)	0: Enable 1: Disable
5 6	Caller ID tone alert detection period	No. 5 6 0 0 : 10 ms (default) 0 1 : 20 ms 1 0 : 30 ms 1 1 : 40 ms
7	Transmission of caller ID wetting pulse	0: Enable 1: Disable (default)
8	Switching between DTMF and FSK for caller ID	0: DTMF 1: FSK (default)

ms: millisecond(s)

Note: Selectors 1 and 2 are applicable to PictBridge-enabled models.

Note: Selector 4 is applicable to models with cordless handset.

Note: Selectors 5 through 7 are applicable to the UK models.

Note: Selector 8 is applicable to the Chinese models.

- Selectors 1 and 2: PictBridge command delay time

These selectors specify the PictBridge command delay time that applies when the machine responds to the digital camera connected via PictBridge during negotiation. If the machine fails to receive data from the digital camera, change the delay time.

- Selector 3: Extension of the "No. of CNG cycles to be detected" for Easy Receive mode

In Easy Receive mode, if the machine fails to detect the CNG even after the setting made by selectors 4 and 5 on WSW26, extend the "No. of CNG cycles to be detected" by two cycles.

- Selector 4: Recovery of cordless handset ID (*Not used.*)

Enabling this function automatically writes the cordless handset ID registered on the main PCB onto the cordless PCB when the power is turned on if the ID on the cordless PCB is discrepant with the one on the main PCB.

- Selectors 5 and 6: Caller ID tone alert detection period

If the machine misdetects a tone alert for a caller ID, adjust the detection period with these selectors.

- Selector 7: Transmission of caller ID wetting pulse
If the machine fails to display a caller ID due to a wetting pulse transmitted after the detection of a tone alert, disable the transmission of caller ID wetting pulse.
- Selector 8: Switching between DTMF and FSK for caller ID
If the machine fails to receive a caller ID, switch from DTMF to FSK. This setting is equivalent to the DTMF/FSK setting made from the menu.

WSW55 (Function setting 20) (Not used.)

Selector No.	Function	Setting and Specifications
1		
8	---	

WSW56 (Function setting 21)

Selector No.	Function	Setting and Specifications
1	PS emulation (<i>Not used.</i>)	0: Disable 1: Enable
2	Not used.	
3	Reprinting (<i>Not used.</i>)	0: Disable 1: Enable
4	Wireless LAN functions	0: Enable (default) 1: Disable
5		
	Not used.	
8		

Note: Selector 4 is applicable to wireless LAN-enabled models.

- Selector 4: Wireless LAN functions
To disable the wireless LAN (WLAN) functions, set this selector to "1" and turn the machine power off and then on.

WSW57 (Function setting 22)

Selector No.	Function	Setting and Specifications
1 3	Caller ID judgment voltage level to discriminate caller ID event from ring event	No. 1 2 3 0 0 0 : 0 V 0 0 1 : 5 V (default) 0 1 0 : 10 V 0 1 1 : 15 V 1 0 0 : 20 V 1 0 1 : 25 V 1 1 0 : 30 V 1 1 1 : Maximum
4 6	Caller ID judgment voltage level to detect line polarity reversal	No. 4 5 6 0 0 0 : 0 V 0 0 1 : 5 V (default) 0 1 0 : 10 V 0 1 1 : 15 V 1 0 0 : 20 V 1 0 1 : 25 V 1 1 0 : 30 V 1 1 1 : Maximum
7	Time limit for judging a caller ID burst ring (<i>Not used.</i>)	0: Enable (default) 1: Disable
8	Start key on the machine after dialing with cordless handset (<i>Not used.</i>)	0: Disable (default) 1: Enable

Note: Selectors 1 through 7 are applicable to the European models.

Note: Selector 8 is applicable to models with a cordless handset.

- Selectors 1 through 3: Caller ID judgment voltage level to discriminate caller ID event from ring event

If the machine misdetects a caller ID event as a ring event due to voltage variation, it fails to display a caller ID. If it happens, increase the judgment voltage level provided that the setting made by these selectors is equal to or more than the setting made by selectors 4 through 6.

- Selectors 4 through 6: Caller ID judgment voltage level to detect line polarity reversal

If the machine fails to detect a line polarity reversal for a caller ID due to a great difference between the line voltage when a polarity reversal occurs and the one at the steady state, it fails to display a caller ID. If it happens, increase the judgment voltage level provided that the setting made by these selectors is equal to or less than the setting made by selectors 1 through 3.

- Selector 7: Time limit for judging a caller ID burst ring (*Not used.*)

The time limit for judging a caller ID burst ring is enabled by default so that receiving a burst ring out of the specified time limit causes the machine to interpret it as an ordinary call involving no caller ID signal, resulting in no caller ID display.

When the machine fails to display a caller ID if you have the caller ID subscriber service from your telephone company, disable the time limit with this selector to receive a caller ID burst ring independent of the burst ring time.

- Selector 8: **Start** key on the machine after dialing with cordless handset (*Not used.*)

Pressing the **Start** key on the machine to send a fax during a telephone conversation with the cordless handset cannot start a sending operation by default. Setting this selector to 1 enables the **Start** key pressed even after dialing with cordless handset.

WSW58 (Function setting 23)

Selector No.	Function	Setting and Specifications
1 3	Prevention against line disconnection during ICM recording (Percentage of guard tone response time relative to end-of-call tone ON time)	No. 1 2 3 0 0 0 : Disable 0 1 0 : 20% 0 1 1 : 30% (default) 1 0 0 : 40% 1 0 1 : 50% 1 1 0 : 60% 1 1 1 : 70%
4	Trimming of R key signal issued from cordless handset--For connection to base unit with PBX OFF (Not used.)	0: Disable 1: Enable (default)
5	Call transfer to cordless handset from telephone(s) connected in parallel with the machine (base unit) (Not used.)	0: Enable 1: Disable (default)
6	Extension of the "No. of CNG cycles to be detected" (which allows two cycles to be added to the cycles specified by selectors 6 and 7 on WSW26 and selectors 4 and 5 on WSW34)	0: No 1: +2 cycles
7 8	No. of busy tone detection cycles	No. 7 8 0 0 : -1 cycle 0 1 : +0 cycles (default) 1 0 : +1 cycle 1 1 : +2 cycles

Note: Selectors 1 through 3 are applicable to models equipped with TAD.

Note: Selector 4 is applicable to European models with a cordless handset.

Note: Selector 5 is applicable to U.S.A. models with a cordless handset.

- Selectors 1 through 3: Prevention against line disconnection during ICM recording (Percentage of guard tone response time relative to end-of-call tone ON time)

If the machine misdetects an ICM tone as an end-of-call tone, it disconnects the line even during recording of the ICM. If it happens, change the percentage of the guard tone response time relative to the end-of-call tone ON time with these selectors.

If the percentage of the actual guard tone response time is more than the setting made by these selectors, the machine interprets it as no detection of end-of-call tone, continuing recording the ICM.

- Selector 4: Trimming of R key signal issued from cordless handset--For connection to base unit with PBX OFF (Not used.)

For European models, a cordless handset can be registered to up to four base units.

On the cordless handset registered to more than one base unit, if you have programmed an **R** key press as part of a number stored in a Speed-Dial location, you can dial using a Speed-Dial location stored in the handset when connected to the base unit in which *PBX is set to ON*.

When the cordless handset is connected to any other base unit in which *PBX is set to OFF*, however, using a Speed-Dial location may dial an unintended telephone number or cause a malfunction due to the programmed **R** key signal preceding the intended number. To avoid such problems, enable the **R** key signal trimming function with this selector so that the base unit dials trimming the received **R** key signal.

- Selector 5: Call transfer to cordless handset from telephone(s) connected in parallel with the machine (base unit) (Not used.)

Enabling this function allows the machine (base unit) to transfer a call transferred from telephone(s) connected in parallel with the machine to the cordless handset.

WSW59 (Function setting 24)

Selector No.	Function	Setting and Specifications																																																																																											
1	Transmission of USB serial number to PC	0: Enable (default) 1: Disable																																																																																											
2	Extension of the waiting time between ANSam and DIS	0: Enable (default) 1: Disable																																																																																											
3 7	Checking of the specified character code set when displaying or printing the folder/file names stored in memory cards or USB flash memory drives	<table border="0"> <tr> <td>No.</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td></td> </tr> <tr> <td></td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0: ASCII (default for U.S.A/ European models)</td> </tr> <tr> <td></td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>1: Latin1 (CP1252)</td> </tr> <tr> <td></td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0: Latin2 (CP1250)</td> </tr> <tr> <td></td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> <td>1: Cyrillic (CP1251)</td> </tr> <tr> <td></td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0: SJIS (CP932) (default for Japanese models)</td> </tr> <tr> <td></td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> <td>1: Thai (CP874)</td> </tr> <tr> <td></td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> <td>0</td> <td>0: Korean (CP949)</td> </tr> <tr> <td></td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> <td>1</td> <td>1: Traditional Chinese (CP950)</td> </tr> <tr> <td></td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0: Simplified Chinese (CP936) (default for Chinese and Asia & Pacific models)</td> </tr> <tr> <td></td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>1</td> <td>1: Arabic (CP1256)</td> </tr> <tr> <td></td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> <td>0</td> <td>Reserved.</td> </tr> <tr> <td></td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td></td> </tr> </table>	No.	3	4	5	6	7			0	0	0	0	0	0: ASCII (default for U.S.A/ European models)		0	0	0	0	1	1: Latin1 (CP1252)		0	0	0	1	0	0: Latin2 (CP1250)		0	0	0	1	1	1: Cyrillic (CP1251)		0	0	1	0	0	0: SJIS (CP932) (default for Japanese models)		0	0	1	0	1	1: Thai (CP874)		0	0	1	1	0	0: Korean (CP949)		0	0	1	1	1	1: Traditional Chinese (CP950)		0	1	0	0	0	0: Simplified Chinese (CP936) (default for Chinese and Asia & Pacific models)		0	1	0	0	1	1: Arabic (CP1256)		0	1	0	1	0	Reserved.		1	1	1	1	1	
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	1	1	1	1	1																																																																																								
8	Improvement of DTMF detection function (to minimize the effects of momentary power failure or noise)	0: Disable 1: Enable (default)																																																																																											

Note: Selector 2 takes effect only when the V.34 mode is permitted (WSW19, selector 7) in models supporting V.34 mode.

- Selector 1: Transmission of USB serial number to PC
By default, the machine transmits the USB serial number to the connected PC.
If Windows Vista is running on the PC, the transmission of the USB serial number to the PC might cause a problem. If it happens, disable the transmission with this selector.
- Selector 2: Extension of the waiting time between ANSam and DIS
Setting this selector to "0" extends the waiting time between the ANSam and DIS in order to secure the time required for switching the calling machine's echo suppressor in transmission from a G3 to G4 FAX machine.

- Selectors 3 through 7: Checking of the specified character code set when displaying or printing the folder/file names stored in memory cards or USB flash memory drives
Setting these selectors to "0, 0, 0, 0, 0" does not check any character code set. When folder/file names stored in memory cards or USB flash memory drives contain Chinese characters, for example, those characters may get garbled in displaying on the color LCD or printing indexes. If it happens, select the character code set of the language in use with these selectors.
- Selector 8: Improvement of DTMF detection function (to minimize the effects of momentary power failure or noise)
When DTMF cannot be detected due to a momentary power failure or noise, try to use this selector.

WSW60 (Function setting 25)

Selector No.	Function	Setting and Specifications
1	Not used.	
2 3	Key repeat start time and interval for the touch panel	No. 2 3 0 0 : 0.5 sec. 0 1 : 1.0 sec. 1 0 : 1.5 sec. 1 1 : 2.0 sec.
4 5	Adjustment of temporary connection timing of Caller ID	No. 4 5 0 0 : No adjustment (default) 0 1 : Fast 1 0 : Standard 1 1 : Slow
6	Output of CNG detection result to the activity report	0: Disable (default) 1: Enable
7 8	Delay time from detection of a line polarity reversal until permission of polarity reversal interrupt	No. 7 8 0 0 : 500 ms 0 1 : 750 ms 1 0 : 1000 ms 1 1 : 1500 ms

sec.: second(s), ms: millisecond(s)

Note: Selectors 2 and 3 are applicable to models with touch panel.

Note: Selectors 4 and 5 are applicable to Japanese models.

- Selectors 2 and 3: Key repeat start time and interval for the touch panel
These selectors specify the key repeat start time and interval for the touch panel.
The time (in seconds) specified by these selectors apply to both the key repeat start time and interval. If these selectors are set to "0, 0," however, the key repeat start time is 0.5 second, but the interval is changed from 0.5 second that applies to the first 2.5 seconds to 0.2 second that applies after the first 2.5 seconds.

- Selectors 4 and 5: Adjustment of temporary connection timing of Caller ID
If the machine cannot receive Caller ID, try to adjust the temporary connection timing of Caller ID with these selectors.

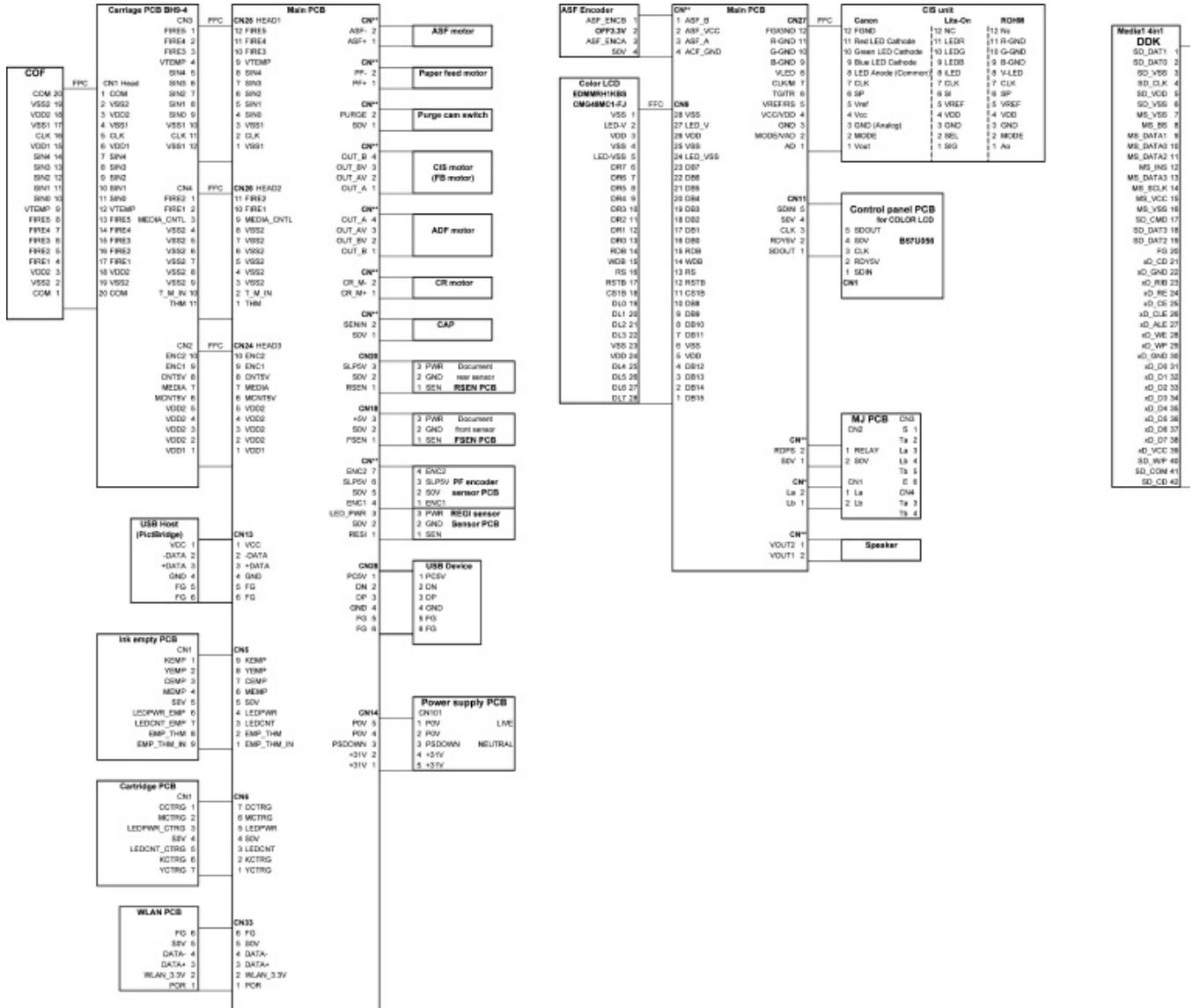
- Selector 6: Output of CNG detection result to the activity report
Setting this selector to "1" (Enable) changes the items to be listed in the activity report as follows.
 - FAX NO./NAME → CNG DETECTION STATE (Tone detection status, calling/called status)
 - DURATION → RCV MODE (FAX receive mode setting)
 - PAGE(S) → EASY RCV (Easy Receive setting)
 - RESULT → TRIGGER (FAX receive trigger)

- Selectors 7 and 8: Delay time from detection of a line polarity reversal until permission of polarity reversal interrupt
If the machine cannot receive Caller ID due to switching noises from the telephone switchboard, adjust the delay time from the detection of a line polarity reversal until permission of polarity reversal interrupt with these selectors.

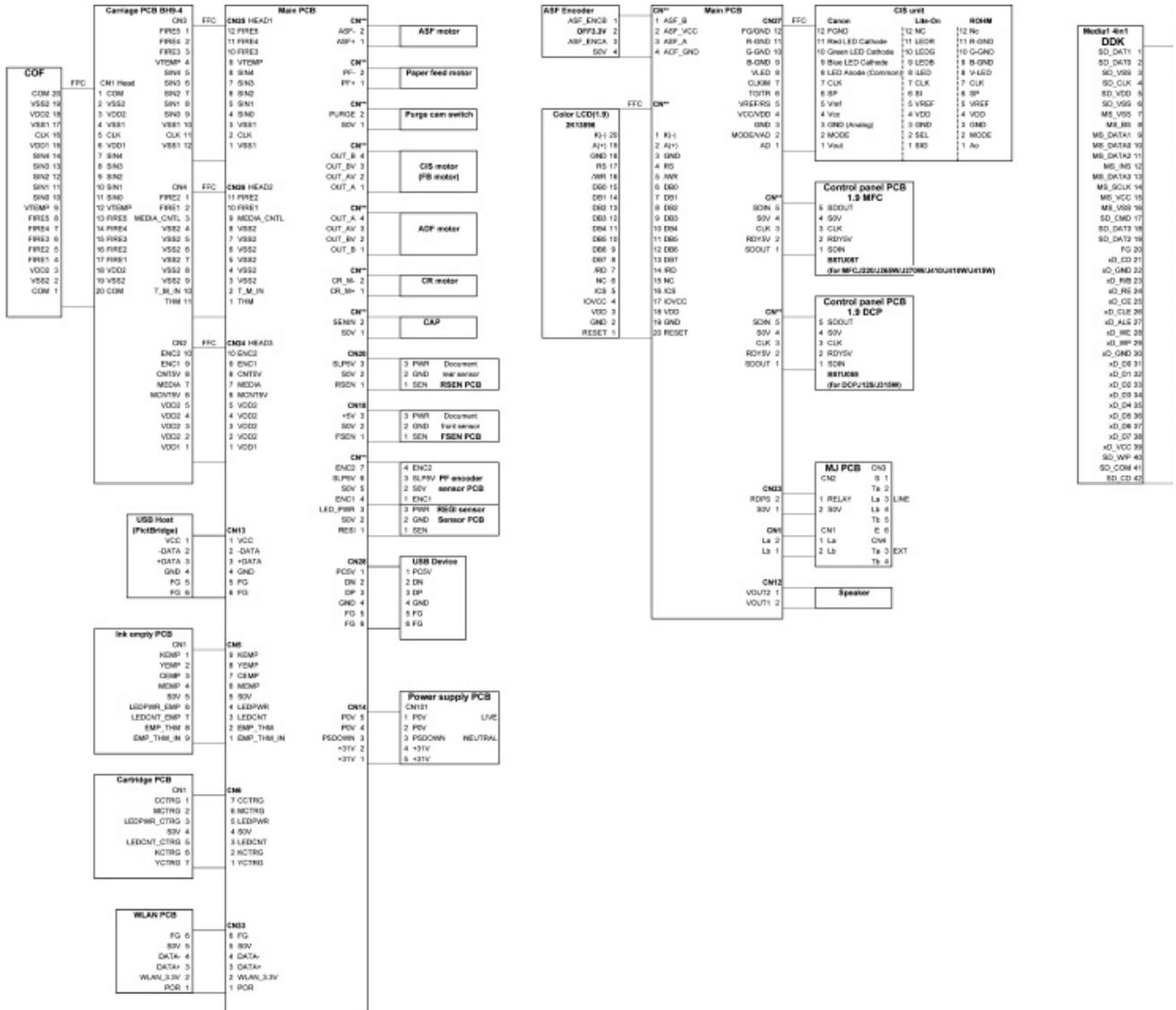
Appendix 5. Wiring Diagrams

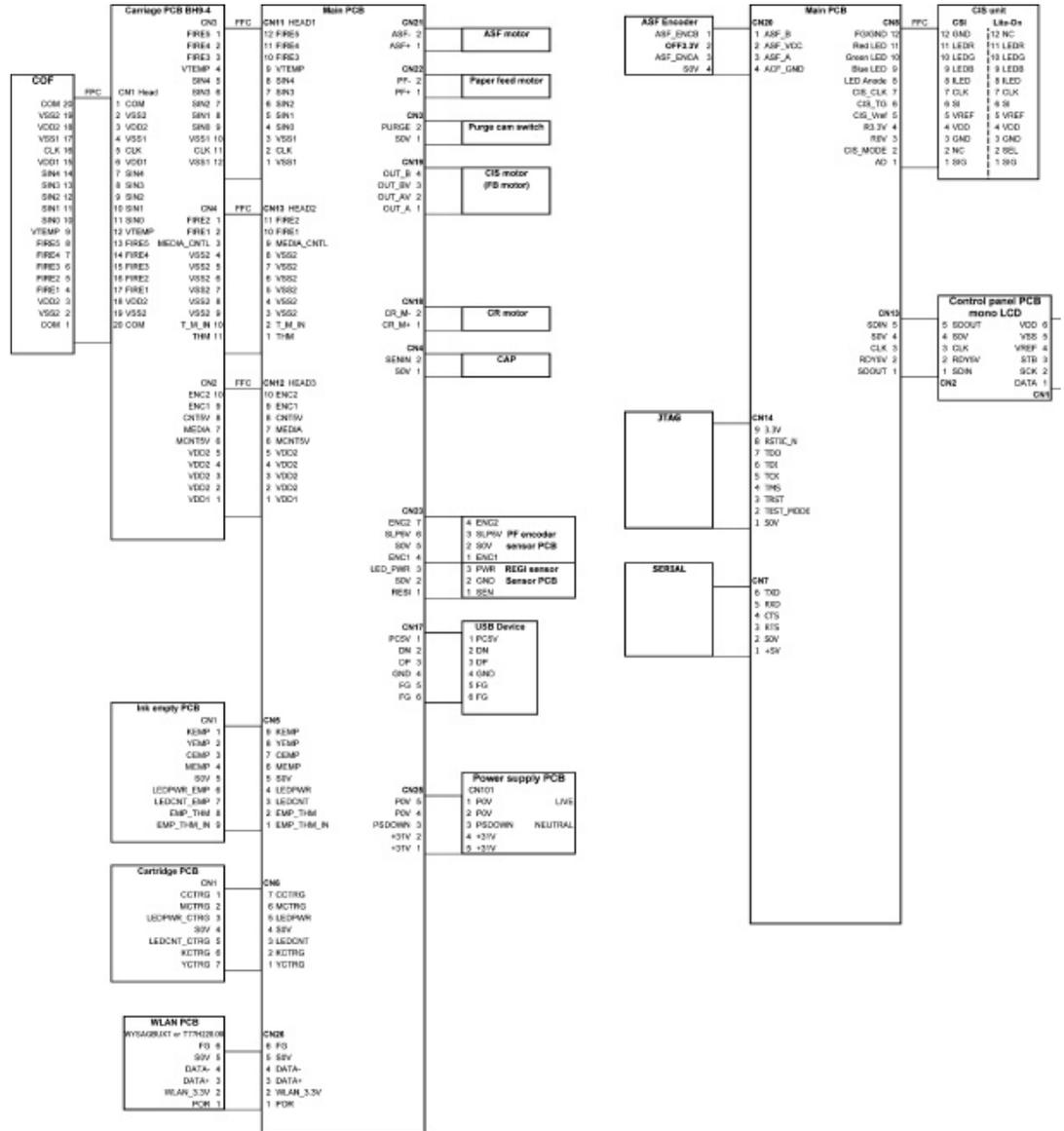
This appendix provides the wiring diagrams that help you understand the connections between PCBs.

DCPJ515W



DCPJ125/J315W
MFCJ220/J265W/J270W/J410/J410W/J415W





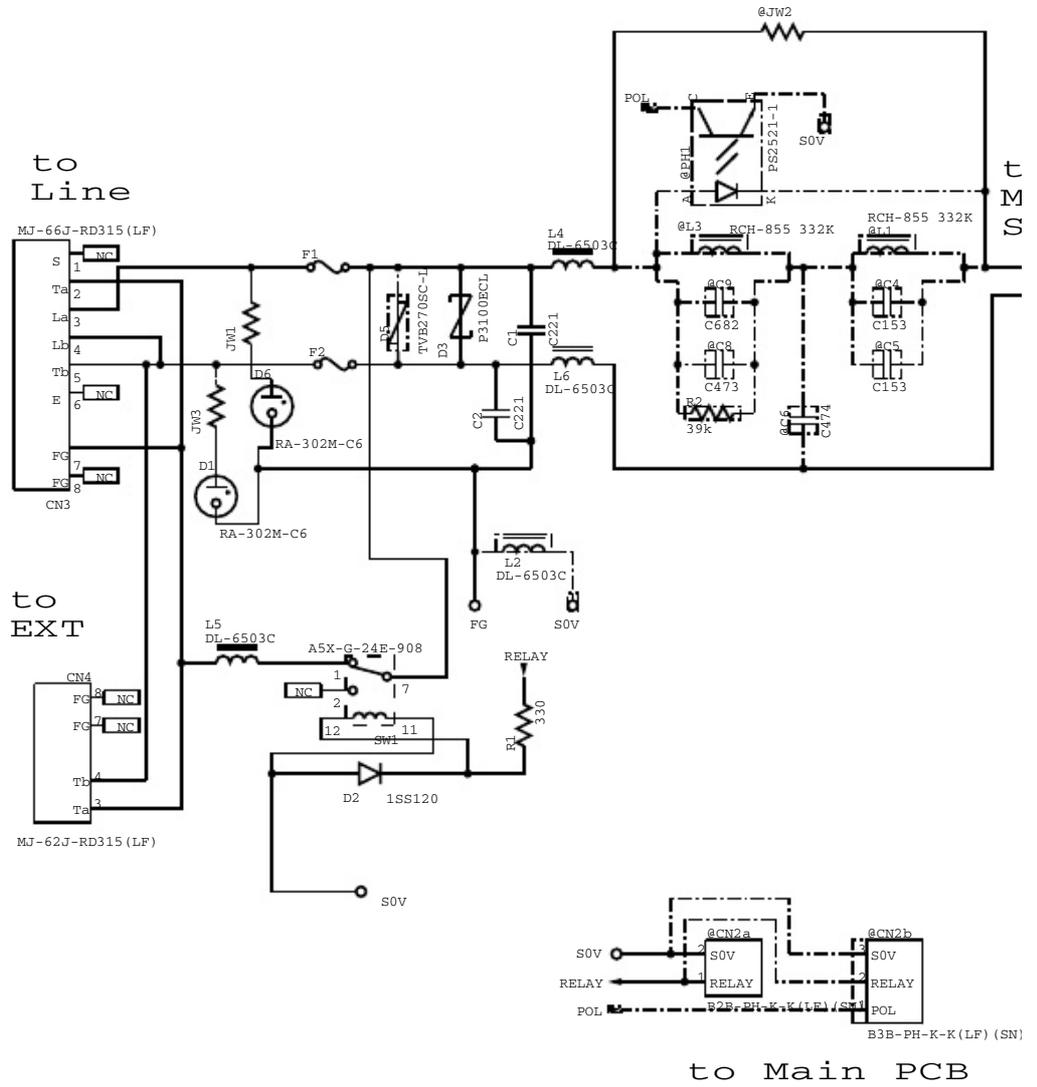
Appendix 6. Circuit Diagrams

This appendix provides the circuit diagrams of the MJ PCB and power supply PCB.

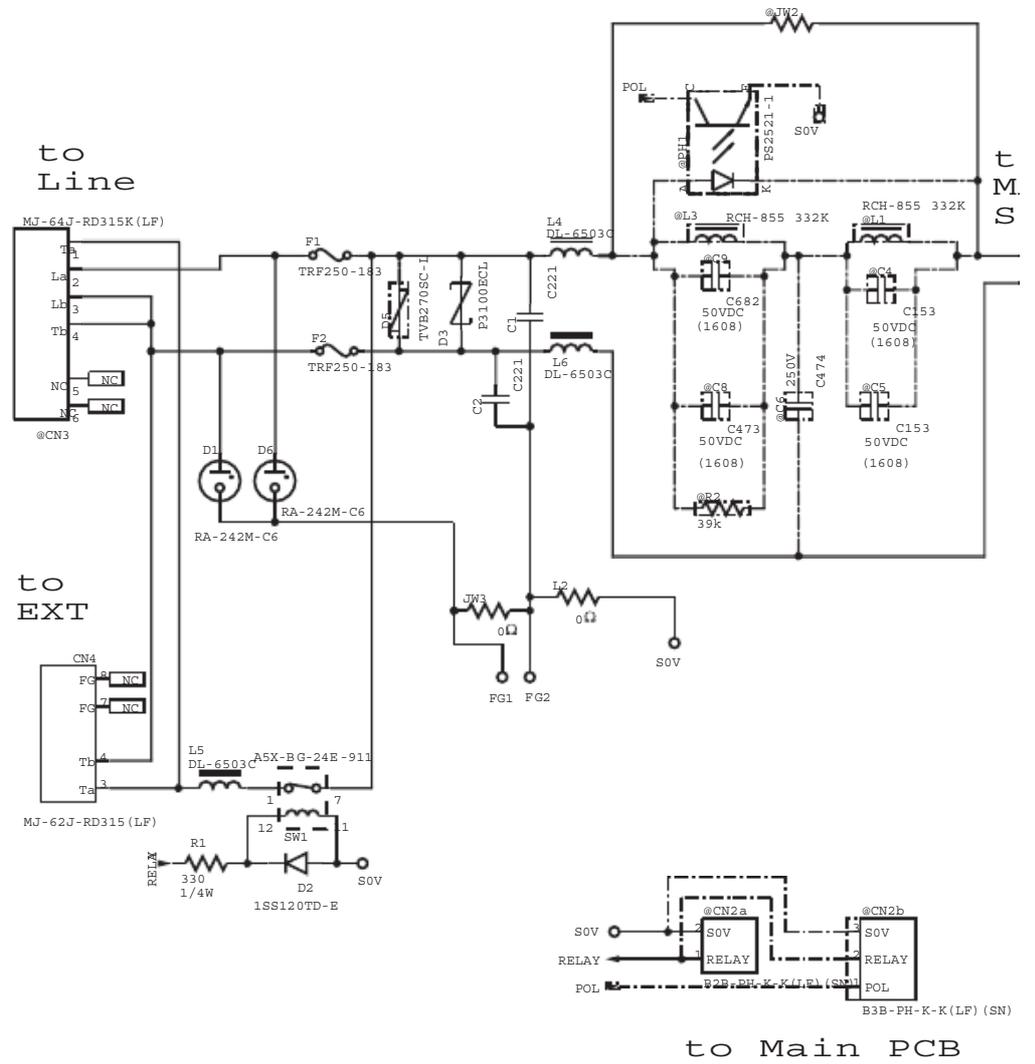
- A. MJ PCB (U.S.A., Canadian, Asian, and Oceanian models)
- A. MJ PCB (European models)
- A. MJ PCB (S. African models)
- B. Power supply PCB (100 V series)
- B. Power supply PCB (200 V series)

A. MJ PCB (U.S.A., Canadian, Asian, and Oceanian models)
MFC255CW/295CN/495CW/795CW

MJ PCB



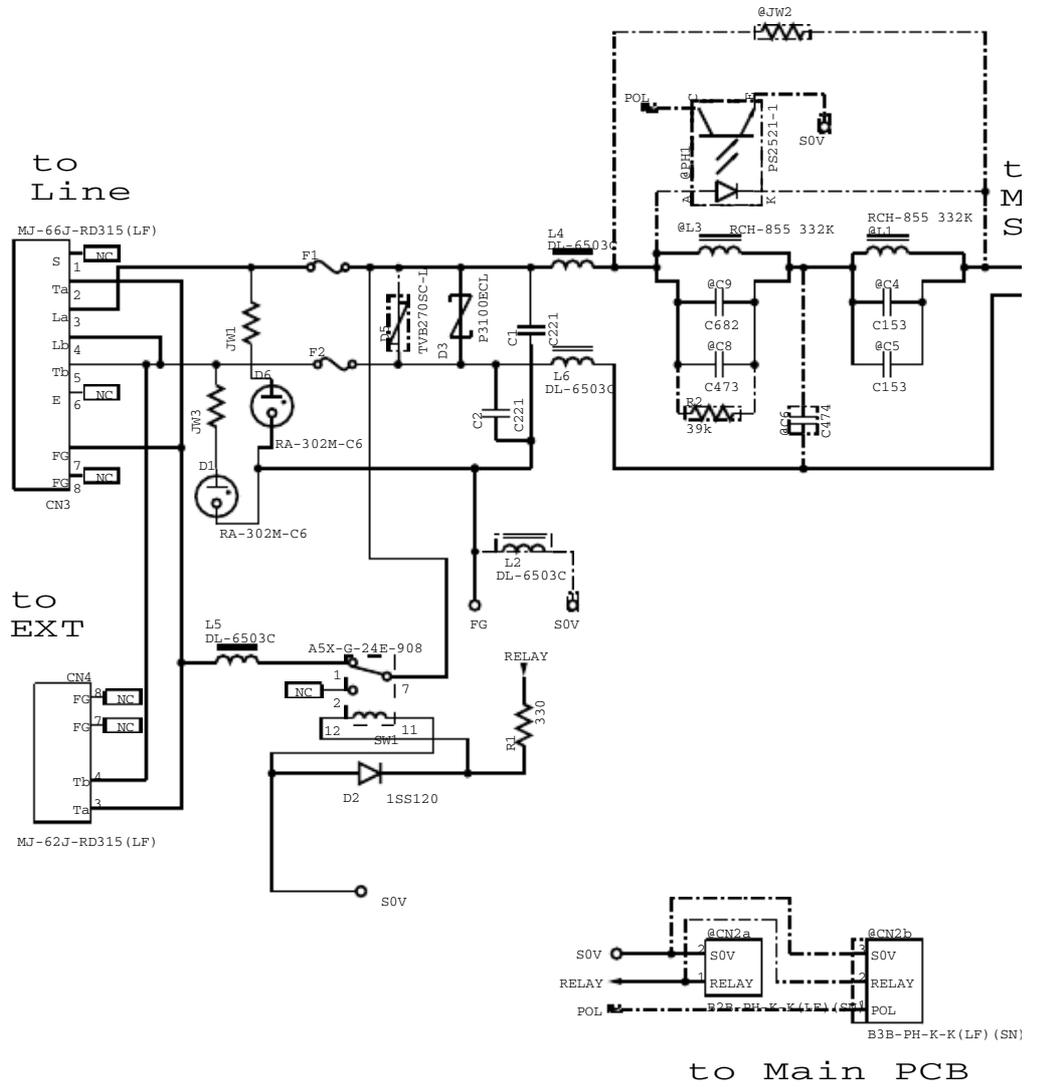
MJ PCB

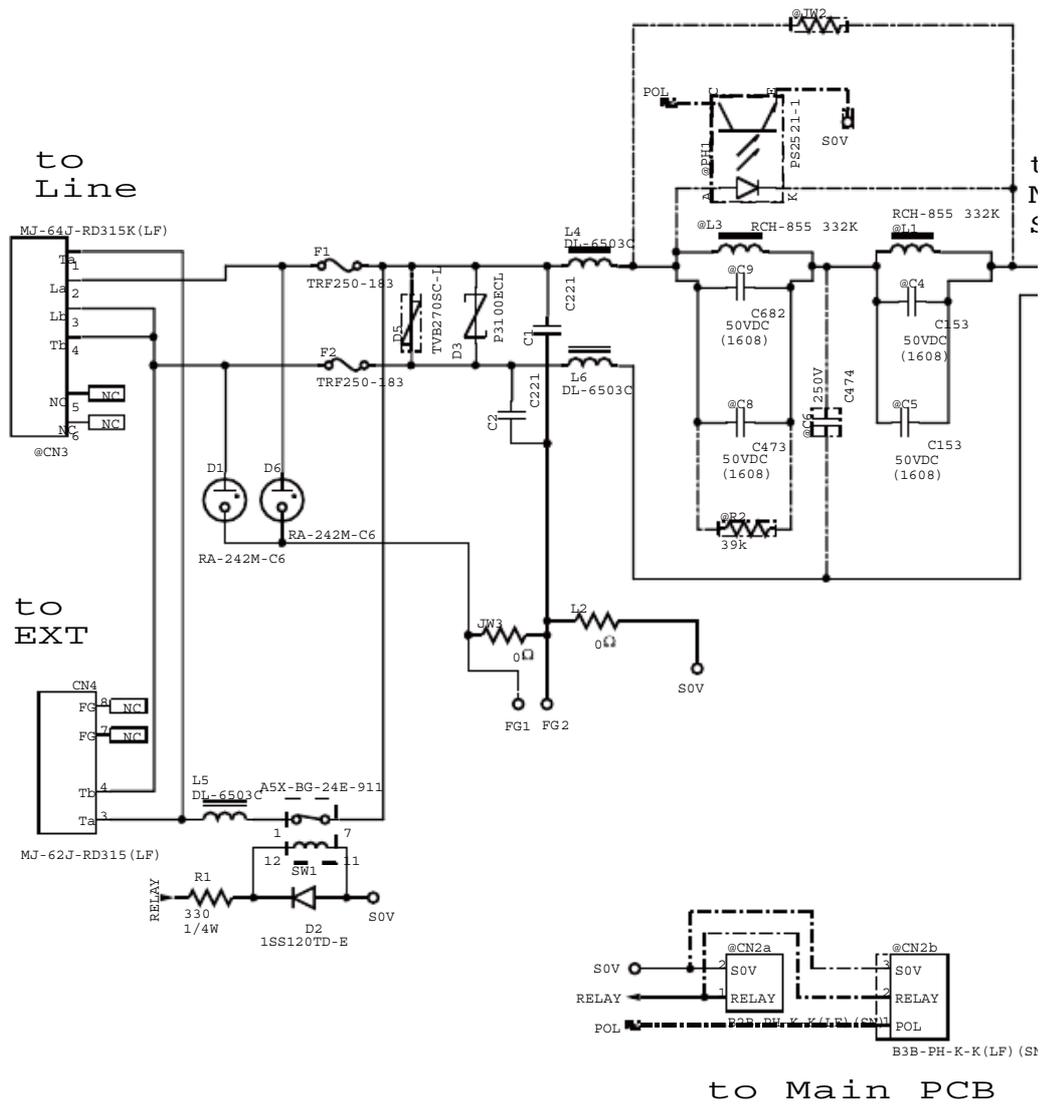


App. 6-2

A. MJ PCB (European models)
MFC255CW/295CN/495CW/795CW

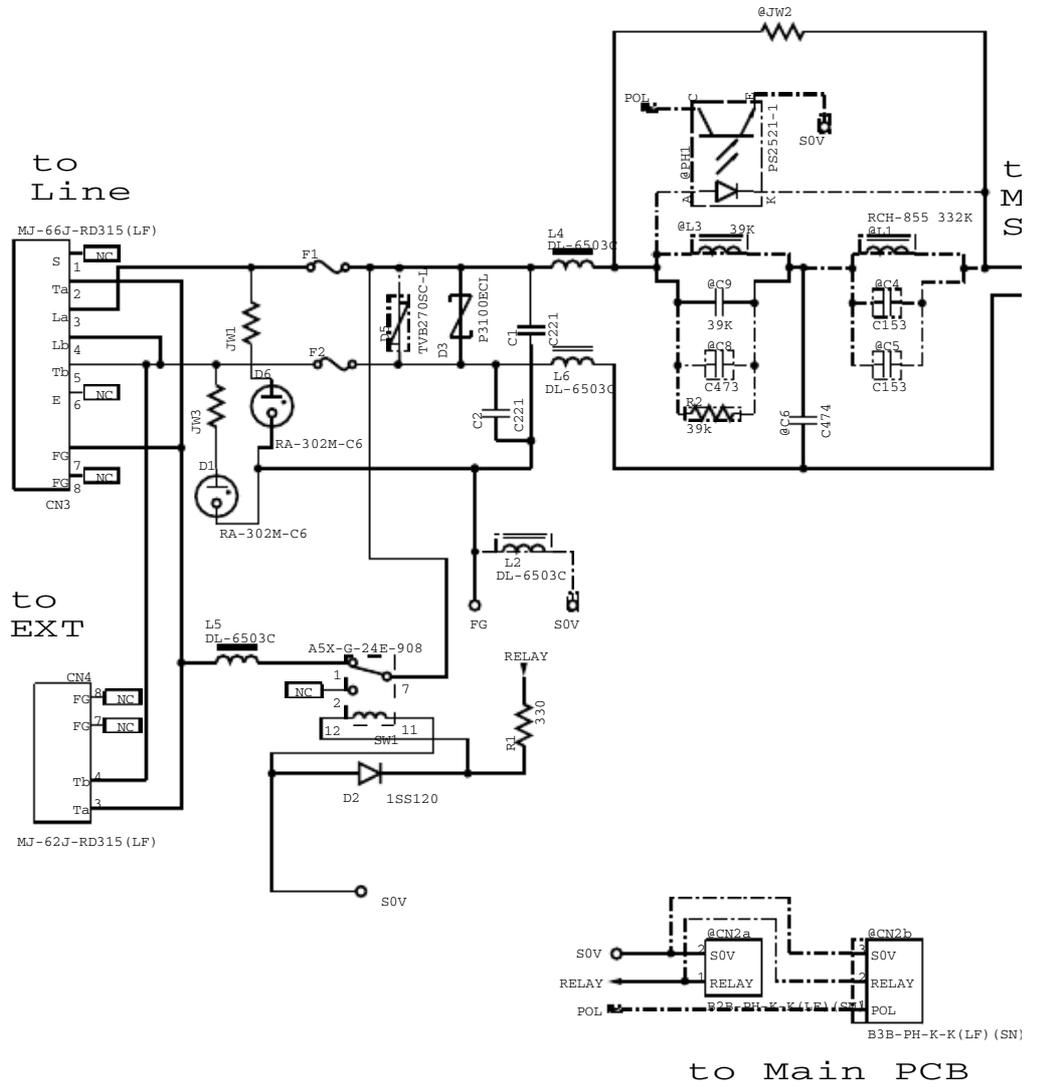
MJ PCB



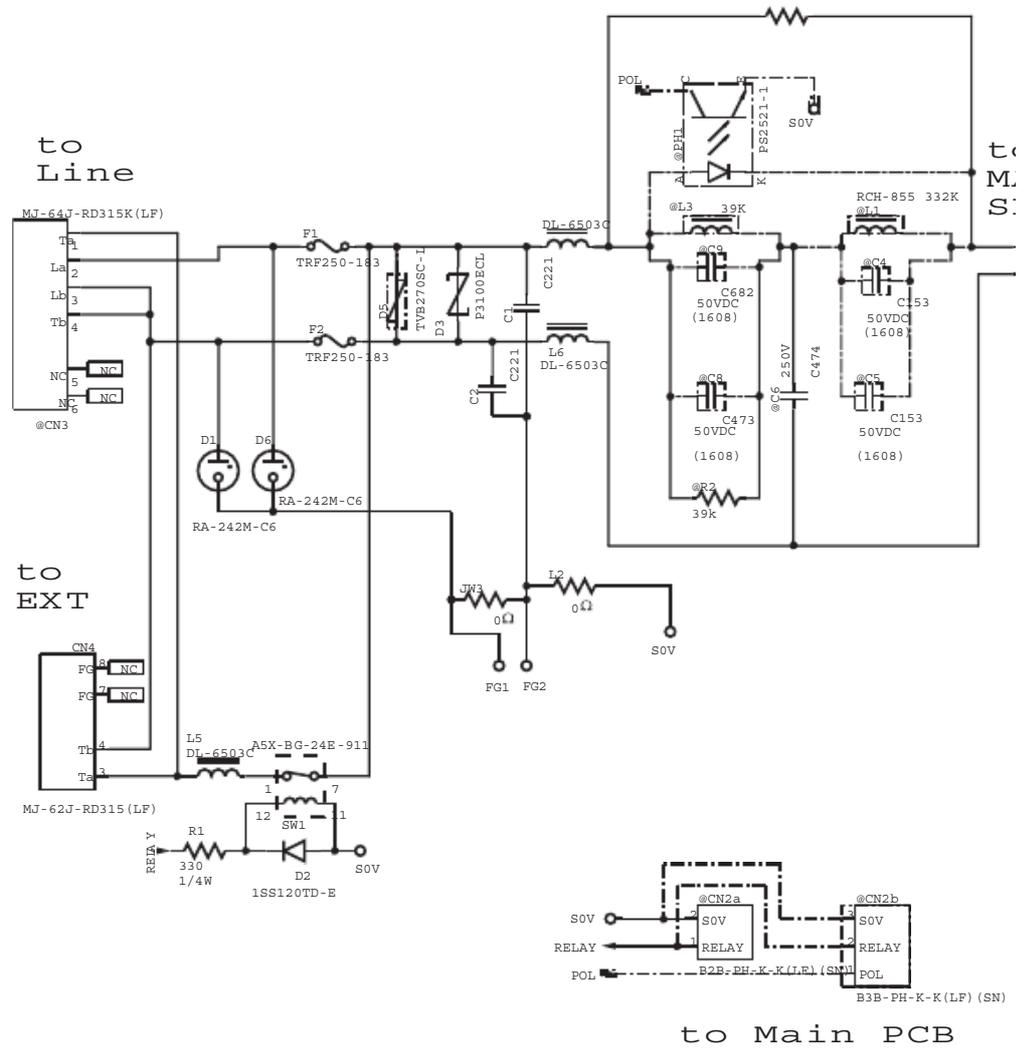


A. MJ PCB (S. African models)
MFC255CW/295CN/495CW/795CW

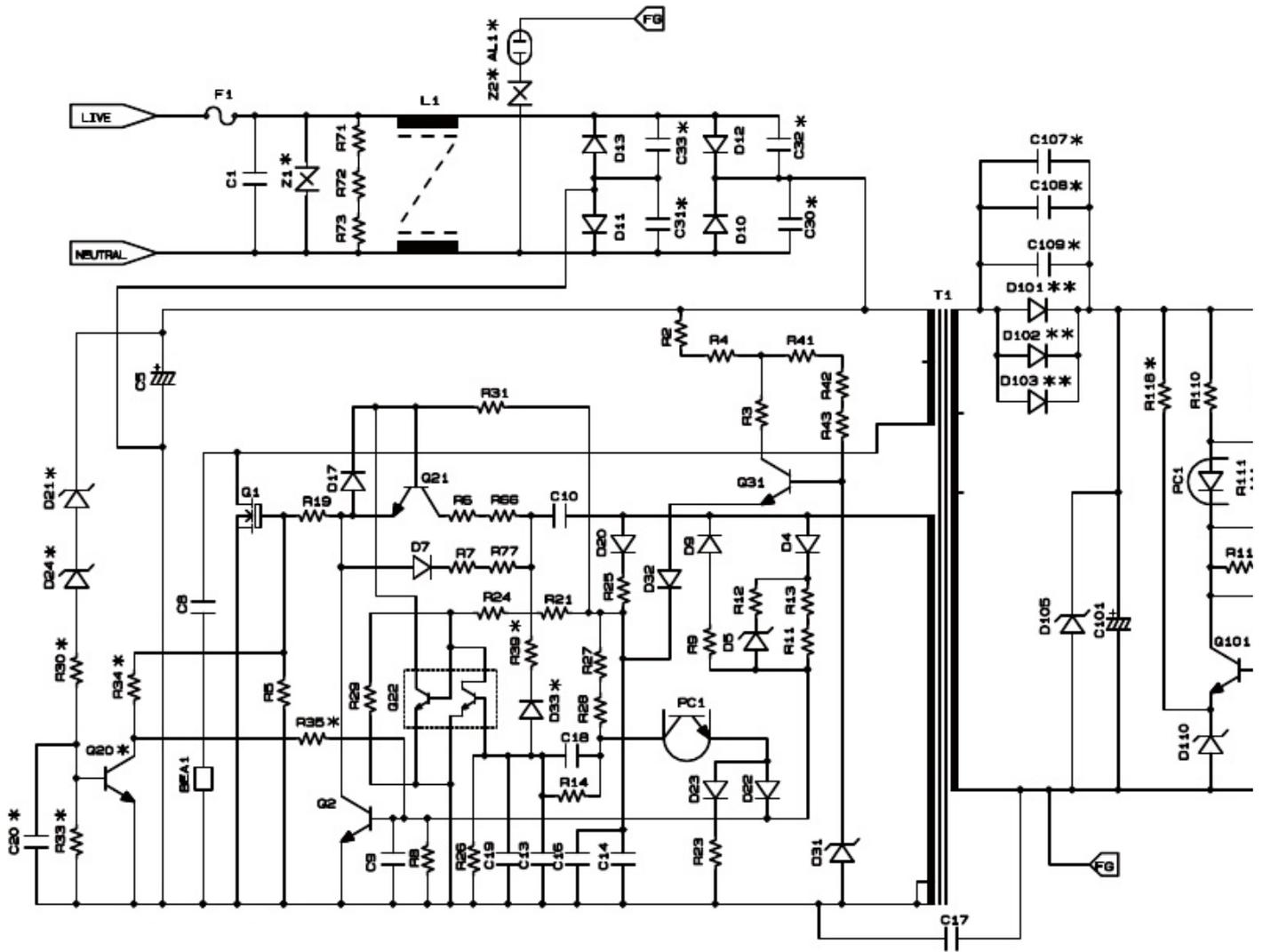
MJ PCB



MJ PCB



B. Power supply PCB (200 V series)



Appendix 7. Deletion of User Setting Information

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

A7.1 Deleting User Setting Info from the Machine.....App. 7-1

A7.1 Deleting User Setting Info from the Machine

The user setting information in the machine is recorded in the EEPROM on the main PCB. The operating procedure given below deletes the following information.

- User's name and telephone number
 - Speed dialing
 - Group dialing
 - Dial record (stored for redialing)
 - Receiver info for fax transfer (The transfer setting will also be canceled.)
 - Data stored in the memory (Received data and voice messages will also be deleted.)
 - Fax preview
 - Fax data not yet transferred in PC-Fax receiving (Fax data already transferred to the PC will not be deleted.)
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