



**FACSIMILE EQUIPMENT
SERVICE MANUAL**

**MODELS: MFC820CW
MFC640CW
DCP340CW**

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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.

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 TRANSFER OF DATA LEFT IN THE MACHINE TO BE SENT FOR REPAIR

Describes how to transfer data left in the machine to be sent for repair. The service personnel should instruct end users to follow the transfer procedure given in this chapter if the machine at the user site cannot print received data due to the printing mechanism defective. End users can transfer received data to another machine to prevent data loss.

CHAPTER 5 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 a disassembly order flow that guides you through a shortcut to the object components.

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

CHAPTER 6 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 7 CLEANING

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

CHAPTER 8 MAINTENANCE MODE

Describes the maintenance mode which is exclusively designed for the purpose of checks, settings and adjustments 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, paper feed roller or paper ejection roller (if they 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).

CHAPTER 9 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.

Appendix 1 Serial Numbering System

Shows the location of serial number labels put on some parts and lists the coding information pertaining to the serial numbers.

Appendix 2 Firmware Installation

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

No hardware replacement is required for updating.

Appendix 3 Customizing Codes According to Shipping Destination

Provides instructions on how to set up the customizing codes for the various preferences exclusively designed for each destination (e.g. language). Those codes are stored in the memory (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. They come 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 Viewing the Event Log File

When installing the printer driver, the installer logs events that occur during the installation process in the event log file. This appendix views a sample of the event log file. Selecting Start | Program | Brother | MFL-Pro Suite *model name* | Installation Diagnostics reads out the event log file.


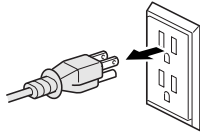

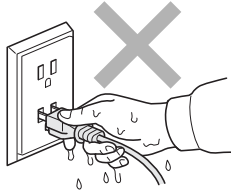

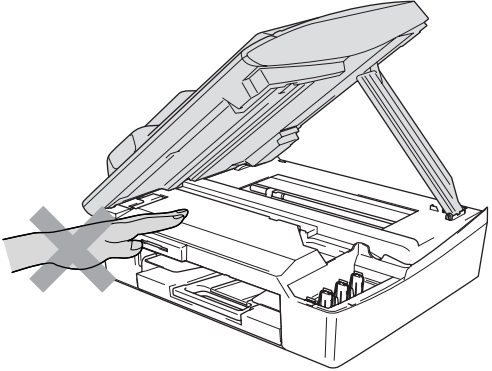

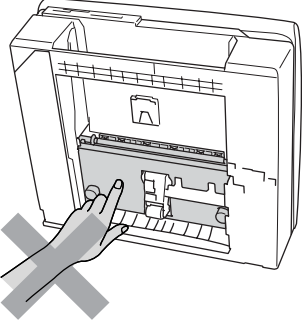

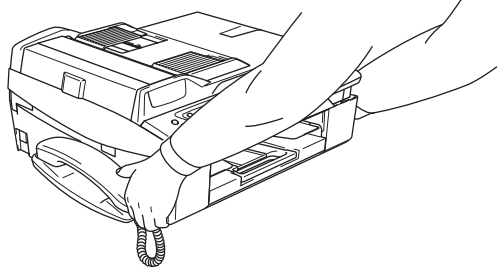
This manual describes the models and their versions destined for major countries. The specifications and functions are subject to change depending upon each destination.

SAFETY PRECAUTIONS

To use the machine safely

Please refer to these instructions for later reference and before attempting any maintenance.

WARNING

	<p>There are high voltage electrodes inside the machine. Before you clean the machine, make sure you have unplugged the telephone line cord first and then the power cord from the AC power outlet.</p> 		<p>Do not handle the plug with wet hands. Doing this might cause an electrical shock.</p> 
	<p>To prevent injuries, be careful not to put your hands on the edge of the machine under the scanner cover.</p> 		<p>To prevent injuries, be careful not to touch the area shaded in the illustration.</p> 
	<p>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.</p> 		

⚠ WARNING

- Use caution when installing or modifying telephone lines. Never touch telephone wires or terminals that are not insulated unless the telephone line has been disconnected 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 emergencies, you must disconnect the power cord from the AC power outlet in order to shut off power completely.
- To reduce the risk of shock or fire, use only a No. 26 AWG or larger telecommunication line cord.

⚠ 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.
- When lifting up the machine, hold it from the base. Holding the scanning cover (scanner unit) leaves the machine body inclined, disengaging the scanner cover from the machine body or letting the machine body fall.

IMPORTANT SAFETY INSTRUCTIONS

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, 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. Use only the power cord provided with the MFC.

SAVE THESE INSTRUCTIONS

Choosing a location

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

Caution

- Avoid placing your MFC in a high-traffic area.
- Avoid placing your MFC on the carpet.
- Do not place near heaters, air conditioners, water, chemicals, or refrigerators.
- Do not expose the MFC to direct sunlight, excessive heat, moisture, or dust.
- Do not connect your MFC to electrical outlets controlled by wall switches or automatic timers.
- Disruption of power can wipe out information in the MFC's memory.
- Do not connect your MFC to electrical outlets on the same circuit as large appliances or other equipment that might disrupt the power supply.
- Avoid interference sources, such as speakers or the base units of cordless phones.



CHAPTER 1

PARTS NAMES & FUNCTIONS

CHAPTER 1 PARTS NAMES & FUNCTIONS

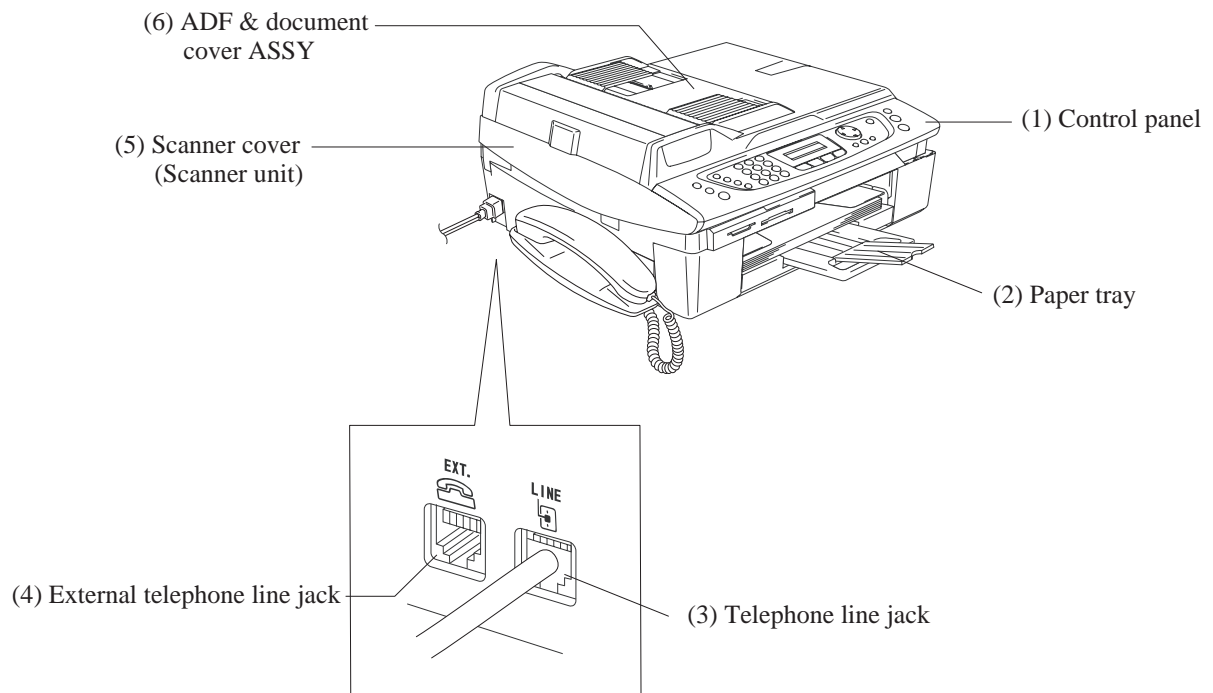
This chapter contains external views and names of components and describes their functions. Information about the keys on the control panel is included to help you check operation or make adjustments.

CONTENTS

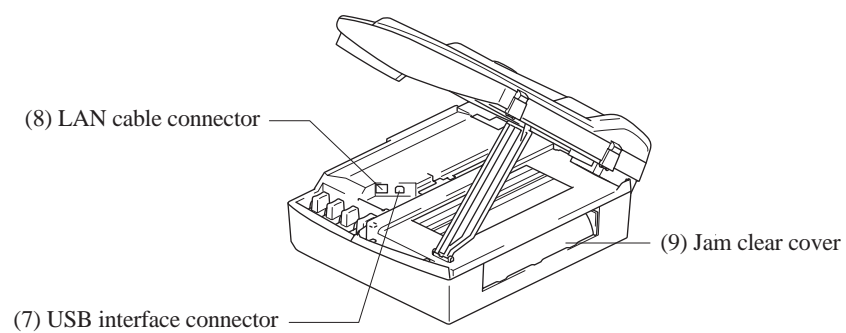
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1.1 OUTLINE

Front view



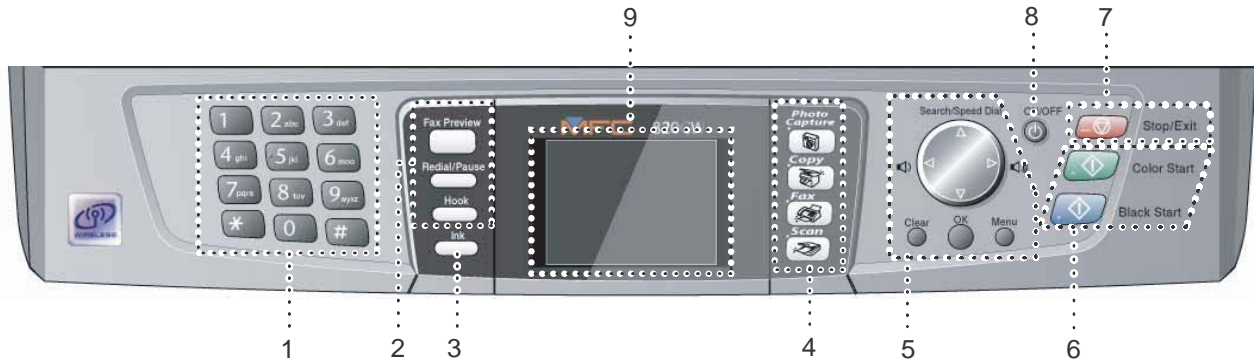
Rear view







No.	Name	Description
(1)	Control panel	Use the keys to operate the machine. The liquid crystal display (LCD) shows the machine operation status.
(2)	Paper tray	Load paper here. Paper will be fed into the machine, sheet by sheet.
(3)	Telephone line jack	Plug in the modular plug on the telephone line here.
(4)	External telephone line jack	Plug in the modular plug on the external telephone line here.
(5)	Scanner cover (Scanner unit)	Open to load ink cartridges or remove jammed paper.
(6)	ADF & document cover ASSY	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.
(7)	USB interface connector	Connect the USB cable here.
(8)	LAN cable connector	Connect the LAN cable here.
(9)	Jam clear cover	Open to remove paper jammed inside the machine.

1.2 CONTROL PANEL

■ MFC820CW



1. Dial Pad
<p>Use these keys to dial telephone and fax numbers and as a keyboard for entering information into the machine.</p> <p>The # key lets you temporarily switch the dialing mode during a telephone call from Pulse to Tone.</p>
2. FAX keys
<p>Fax Preview Lets you preview incoming faxes on the LCD.</p> <p>Redial/Pause Redials the last number you called. It also puts a pause in Quick-Dial numbers.</p> <p>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 an external telephone during the F/T double/pseudo-ring.</p>

3. Ink
<p>Lets you clean the print head, check the print quality, and check the available ink volume.</p>
4. Mode keys
<p> PhotoCapture Lets you access the PhotoCapture Center™ mode.</p> <p> Copy Lets you access Copy mode.</p> <p> Fax Lets you access Fax mode.</p> <p> Scan Lets you access Scan mode.</p>

5. Menu keys

Volume keys

In Fax mode, you can press these keys to adjust the volume.

Search/Speed Dial

Lets you look up numbers that are stored in the dialing memory. It also lets you dial stored numbers by pressing # and a two-digit number.



Press to scroll backward to a menu selection.



Press to scroll forward to a menu selection.

▲ or ▼

Press to scroll through the menus and options.

Menu

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

OK

Lets you store your settings in the machine.

Clear

Press to cancel the current setting.

6. 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 ControlCenter2 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, depending on the scanning setting in the ControlCenter2 software).

7. Stop/Exit



Stop/Exit

Stops an operation or exits from a menu.

8. On/Off

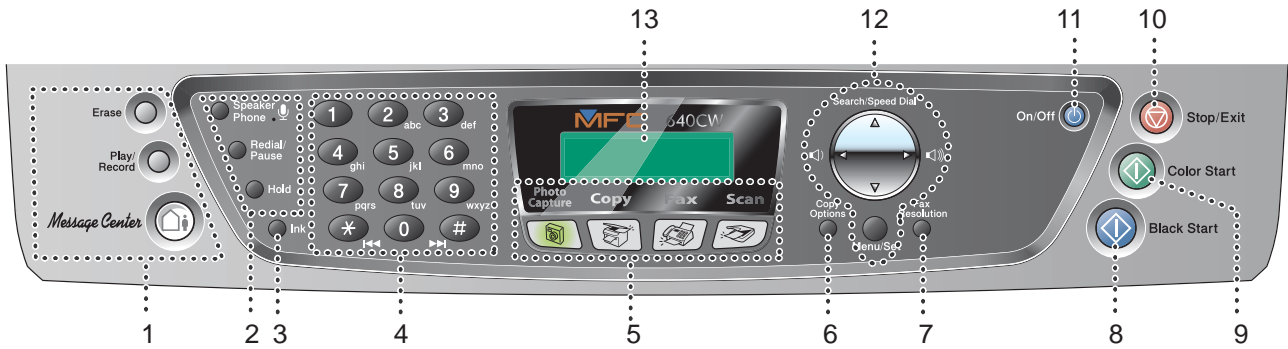
You can turn the machine on or off.



9. 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 display by lifting it.



■ MFC640CW



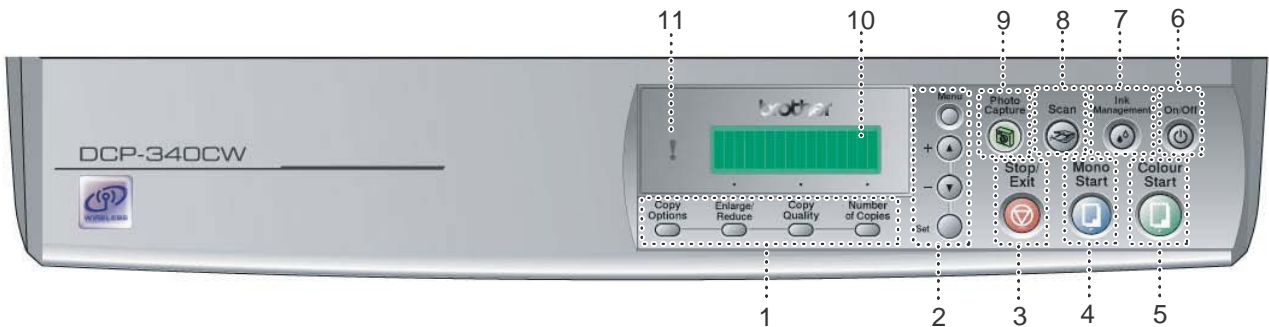
1. Message Center keys
<p> MC On/Off Lets you activate the Message Center and will blink if you have new messages.</p> <p>Play/Record Lets you listen to voice messages stored in memory. Also, lets you record telephone calls.</p> <p>Erase Lets you delete voice messages, all fax messages or all messages.</p>
2. Telephone keys
<p> Microphone Picks up your voice when you speak to another party using Speaker Phone.</p> <p>Speaker Phone Lets you speak to another party without lifting the handset.</p> <p>Redial/Pause Redials the last number you called. It also inserts a pause in quick dial numbers.</p> <p>Hold Lets you place telephone calls on hold.</p>

3. Ink
<p>Lets you clean the print head, check the print quality, and check the available ink volume.</p>
4. Dial Pad
<p>Use these keys to dial telephone and fax numbers and as a keyboard for entering information into the machine.</p> <p>The # key lets you temporarily switch the dialing mode during a telephone call from Pulse to Tone.</p>
5. Mode keys
<p> PhotoCapture Lets you access the PhotoCapture Center™ mode.</p> <p> Copy Lets you access Copy mode.</p> <p> Fax Lets you access Fax mode.</p> <p> Scan Lets you access Scan mode.</p>

6. Copy Options
You can quickly and easily select temporary settings for copying.
7. Fax Resolution
Adjusts the resolution when you send a fax.
8. Black Start
 Black Start Lets you start sending faxes or making copies in black and white. Also lets you start a scanning operation (in color or mono, depending on the scanning setting in the ControlCenter2 software).
9. Color Start
 Color Start Lets you start sending faxes or making copies in full color. Also lets you start a scanning operation (in color or mono, depending on the scanning setting in the ControlCenter2 software).
10. Stop/Exit
 Stop/Exit Stops an operation or exits from the menu.




11. On/Off
You can turn the machine on or off.
12. Navigation keys
<p>Menu/Set The same key is used for Menu and Set operations. Lets you access the Menu to program and store your settings in the machine.</p> <p> In fax mode, you can press these keys to adjust the volume.</p> <p>▲ Search/Speed Dial Lets you look up numbers that are stored in the dialing memory. It also lets you dial stored numbers by pressing # and a two-digit number.</p> <p> Press to scroll backward to a menu selection.</p> <p>▲ or ▼ Press to scroll through the menus and options.</p>
13. Liquid Crystal Display (LCD)
Displays messages on the screen to help you set up and use your machine. The LCD examples in this User's Guide are for models with a two-line display. There may be slight differences between the examples and models that have a one-line display.

■ DCP340CW



1. Copy keys (Temporary settings)
<p>Copy Options You can quickly and easily select temporary settings for copying.</p> <p>Enlarge/Reduce Lets you enlarge or reduce copies depending on the ratio you select.</p> <p>Copy Quality Use this key to temporarily change the quality for copying.</p> <p>Number of Copies Use this key to make multiple copies.</p>
2. Menu keys
<p>Menu Lets you access the Menu to program.</p> <p>+ or - </p> <p>Press to scroll through the menus and options. Also you can use these keys to enter the number.</p> <p>Set Lets you store your settings in the machine.</p>

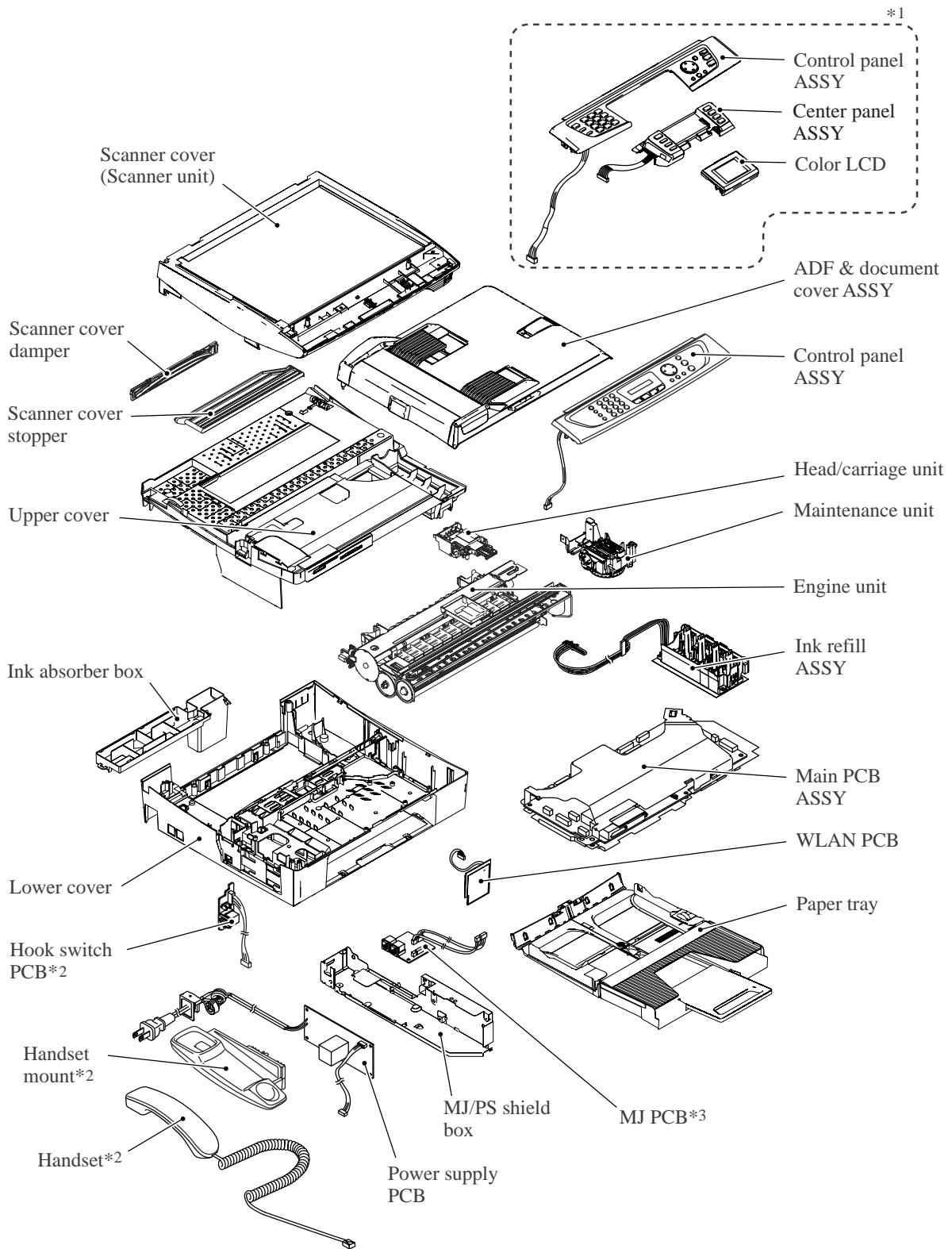
3. Stop/Exit
<p></p> <p>Stops an operation or exits from the menu.</p>
4. Mono Start
<p></p> <p>Lets you start making copies in black and white. Also, lets you start a scanning operation (in color or black, depending on the scanning setting in the ControlCenter2 software).</p>
5. Color Start
<p></p> <p>Lets you start making copies in full color. Also, lets you start a scanning operation (in color or black, depending on the scanning setting in the ControlCenter2 software).</p>
6. On/Off
<p></p> <p>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.</p>

7. Ink Management
 <p>Lets you clean the print head, check the print quality, and check the available ink volume.</p>
8. Scan
 <p>Lets you access Scan mode.</p>
9. PhotoCapture
 <p>Lets you access the PhotoCapture Center™.</p>

10. Liquid Crystal Display (LCD)
<p>Displays messages on the screen to help you set up and use your machine.</p> <p>The LCD examples in this guide are for models with a one-line display.</p> <p>There may be slight differences between the examples provided and models with a two-line display.</p>
11. Warning LCD
<p>!</p> <p>Turns red when LCD displays an error or an important status message.</p>

1.3 COMPONENTS

The machine consists of the following major components:



*1 MFC820CW
 *2 MFC640CW
 *3 MFC820CW/640CW

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

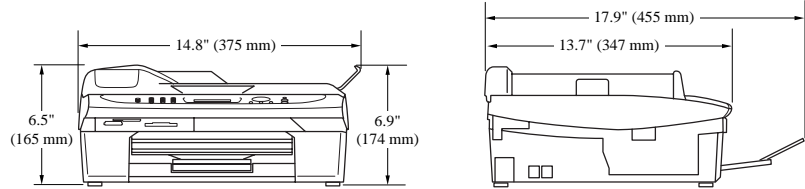
2.1.1 General Specifications

Memory Capacity	16 MB
Automatic Document Feeder (ADF)	Up to 10 sheets
Paper Tray	100 sheets (20 lb.)
Printer Type	Ink Jet
Print Method	Piezo with 74 nozzles for each of three colors + a pair of 74 nozzles for black
Liquid Crystal Display (LCD)	
MFC820CW:	2.5-inch color
MFC640CW/DCP340CW:	16 characters x 2 lines
Operating Environment	50 to 95°F (10 to 35°C)
Best Print Quality	68 to 91°F (20 to 33°C)
Power Source	100 to 120 VAC, 50/60 Hz (U.S.A./Canada) 230 VAC, 50/60 Hz (Europe/Asia)
Power Consumption	
MFC640CW U.S.A./Canadian models:	Minimum: under 3.5 W Standby: 9.5 W or less (25°C) Peak: 27 W or less
MFC640CW European/Asian models:	Minimum: under 4.0 W Standby: 9.5 W or less (25°C) Peak: 26 W or less

Dimensions (W x D x H)

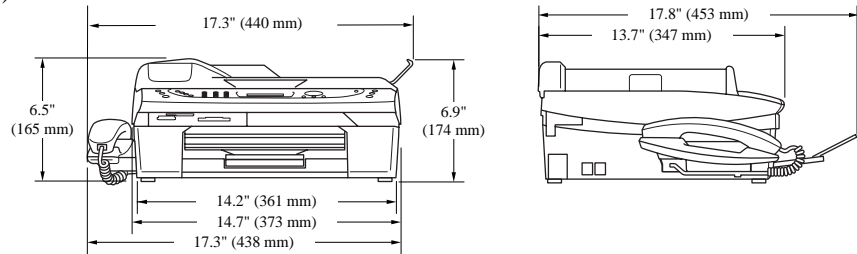
MFC820CW/DCP340CW

14.7 x 13.7 x 6.5 inches (373 x 347 x 165 mm)
 (with paper tray and document stopper opened) 14.8 x 17.9 x 6.9 inches (375 x 455 x 174 mm)



MFC640CW

17.3 x 13.7 x 6.5 inches (438 x 347 x 165 mm)
 (with paper tray and document stopper opened) 17.3 x 17.8 x 6.9 inches (440 x 453 x 174 mm)



Weight

MFC820CW

(Machine proper)	13.2 lb. (6 kg)	
(In package)	17.6 lb. (8 kg)	U.S.A./Canadian models
	18.9 lb. (8.6 kg)	European/Asian models

MFC640CW

(Machine proper)	13.4 lb. (6.1 kg)	
(In package)	17.6 lb. (8 kg)	U.S.A./Canadian models
	18.9 lb. (8.6 kg)	European/Asian models

DCP340CW

(Machine proper)	13.2 lb. (6 kg)	European models
(In package)	17.6 lb. (8 kg)	European models

2.1.2 Paper Specifications

Recommended Paper

Brother Paper

Paper Type	Item	Paper Type	Item
Letter Plain	BP60PL	A4 Plain	BP60PA
Letter Glossy	BP60GLL	A4 Glossy	BP60GLA
Letter Inkjet (Photo Matte)	BP60ML	A4 Inkjet (Photo Matte)	BP60MA

Transparencies: 3M Transparency Film

Paper Type and Size for Each Operation

Paper Type	Paper Size		Usage			
			Fax	Copy	PhotoCapture	Printer
Cut Sheet	Letter	8 1/2" x 11" (216 x 279 mm)	Yes	Yes	Yes	Yes
	A4	8.3" x 11.7" (210 x 297 mm)	Yes	Yes	Yes	Yes
	Legal	8 1/2" x 14" (216 x 356 mm)	Yes	Yes	-	Yes
	Executive	7 1/4" x 10 1/2" (184 x 267 mm)	-	-	-	Yes
	JIS B5	7.2" x 10.1" (182 x 257 mm)	-	-	-	Yes
	A5	5.8" x 8.3" (148 x 210 mm)	-	Yes	-	Yes
	A6	4.1" x 5.8" (105 x 148 mm)	-	-	-	Yes
Cards	Photo	4" x 6" (102 x 152 mm)	-	Yes	Yes	Yes
	Photo L	3 1/2" x 5" (89 x 127 mm)	-	-	-	Yes
	Photo 2L	5" x 7" (127 x 178 mm)	-	-	Yes	Yes
	Index Card	5" x 8" (127 x 203 mm)	-	-	-	Yes
	Post Card 1	3.9" x 5.8" (100 x 148 mm)	-	-	-	Yes
	Post Card 2 (Double)	5.8" x 7.9" (148 x 200 mm)	-	-	-	Yes
Envelopes	C5 Envelope	6.4" x 9" (162 x 229 mm)	-	-	-	Yes
	DL Envelope	4.3" x 8.7" (110 x 220 mm)	-	-	-	Yes
	COM-10	4 1/8" x 9 1/2" (105 x 241 mm)	-	-	-	Yes
	Monarch	3 7/8" x 7 1/2" (98 x 191 mm)	-	-	-	Yes
	JE4 Envelope	4.1" x 9.3" (105 x 235 mm)	-	-	-	Yes
Transparencies	Letter	8 1/2" x 11" (216 x 279 mm)	-	Yes	-	Yes
	A4	8.3" x 11.7" (210 x 297 mm)	-	Yes	-	Yes

Paper Weight, Thickness and Capacity

Paper Type		Weight	Thickness	No. of sheets
Cut Sheet	Plain Paper	17 to 32 lb (64 to 120 g/m ²)	0.003" to 0.006" (0.08 to 0.15 mm)	100
	Inkjet Paper	17 to 53 lb (64 to 200 g/m ²)	0.003" to 0.01" (0.08 to 0.25 mm)	20
	Glossy Paper	Up to 58 lb (Up to 220 g/m ²)	Up to 0.01" (Up to 0.25 mm)	20
Cards	Photo Card	Up to 64 lb (Up to 240 g/m ²)	Up to 0.01" (Up to 0.28 mm)	20
	Index Card	Up to 32 lb (Up to 120 g/m ²)	Up to 0.006" (Up to 0.15 mm)	30
	Post Card	Up to 53 lb (Up to 200 g/m ²)	Up to 0.01" (Up to 0.23 mm)	30
Envelopes		-	Up to 0.02" (Up to 0.52 mm)	10
Transparencies		-	-	10

* Up to 50 sheets for Legal size paper (20 lb).

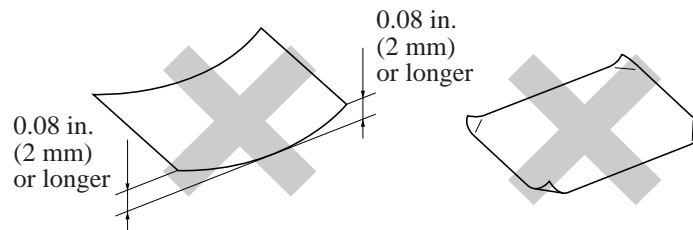
* Up to 100 sheets of 20 lb.

Paper Capacity of the Output Paper Support

Output Paper Support	<p>Up to 25 sheets of 20 lb (Letter)</p> <ul style="list-style-type: none"> ■ Transparencies or glossy paper must be picked up from the output paper support one page at a time to avoid smudging. ■ Legal paper cannot be stacked on the output paper support.
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⊘ Do not use paper or envelopes:

- that are damaged, curled, wrinkled, or irregularly shaped



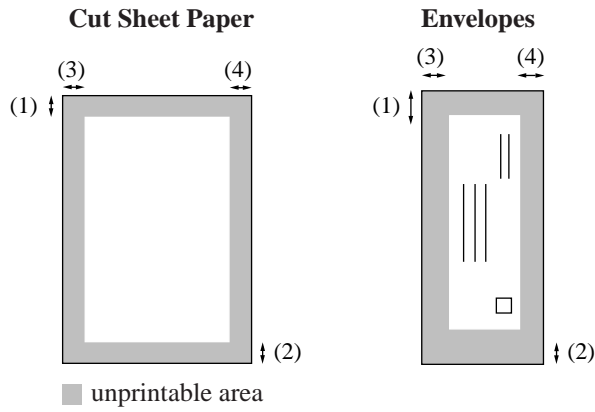
- that are extremely shiny or highly textured
- that were previously printed by a printer
- that cannot be arranged uniformly when stacked
- that are made with a short grain

⊘ Do not use envelopes:

- that are of a baggy construction
- that are embossed (have raised writing on them)
- that have clasps on them
- that are not sharply creased
- that are preprinted on the inside

2.1.3 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.



Paper	(1) Top	(2) Bottom	(3) Left	(4) Right
Cut sheet	0.12 in. (0 in.)*	0.12 in. (0 in.)*	0.12 in. (0 in.)*	0.12 in. (0 in.)*
Envelopes	0.47 in.	0.94 in.	0.12 in.	0.12 in.

* When you set the Borderless feature to On.
 Printable area depends on the Printer driver settings.
 The figures above are approximate and the printable area may vary depending on the type of cut sheet paper you are using.

2.2 SPECIFICATIONS LIST

AREA	EUR	USA	EUR	ASIA/OCE/ CHN	USA	EUR	ASIA/OCE/ CHN
Model name	DCP-340CW	MFC-640CW	MFC-640CW	MFC-640CW	MFC-820CW	MFC-820CW	MFC-820CNW
GENERAL							
Print Engine	BH3 (KKCMY) 74 nozzles/line	BH3 (KKCMY) 74 nozzles/line	BH3 (KKCMY) 74 nozzles/line	BH3 (KKCMY) 74 nozzles/line	BH3 (KKCMY) 74 nozzles/line	BH3 (KKCMY) 74 nozzles/line	BH3 (KKCMY) 74 nozzles/line
Technology	Inkjet	Inkjet	Inkjet	Inkjet	Inkjet	Inkjet	Inkjet
Scanning Method	CIS	CIS	CIS	CIS	CIS	CIS	CIS
CPU Speed	RISC 128MHz	RISC 128MHz	RISC 128MHz	RISC 128MHz	RISC 128MHz	RISC 128MHz	RISC 128MHz
Back up Clock	1 hour	1 hour	1 hour	1 hour	1 hour	1 hour	1 hour
Operating Environment Temperature (BestPrintQuality)	5 - 35 (20-33) degrees Centigrade	5 - 35 (20-33) degrees Centigrade	5 - 35 (20-33) degrees Centigrade	5 - 35 (20-33) degrees Centigrade	5 - 35 (20-33) degrees Centigrade	5 - 35 (20-33) degrees Centigrade	5 - 35 (20-33) degrees Centigrade
Humidity	20 - 80 %(without condensation)	20 - 80 %(without condensation)	20 - 80 %(without condensation)	20 - 80 %(without condensation)	20 - 80 %(without condensation)	20 - 80 %(without condensation)	20 - 80 %(without condensation)
On/Off Switch	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demo Model	-	Yes	-	-	Yes	-	-
Panel Key for demo sheet	-	Press[Copy] &[Fax] mode key at the same time.	-	-	Press[Copy] &[Fax] mode key at the same time.	-	-
Simultaneous Operator	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Test Sheet	Yes:Print Quality/Alignme nt (in Ink Key)	Yes:Print Quality/Alignme nt (in Ink Key)	Yes:Print Quality/Alignme nt (in Ink Key)	Yes:Print Quality/Alignme nt (in Ink Key)	Yes:Print Quality/Alignme nt (in Ink Key)	Yes:Print Quality/Alignme nt (in Ink Key)	Yes:Print Quality/Alignme nt (in Ink Key)
Min. Input of ADF (Width/Height)	5.8"/5.8"(147/ 147mm)	5.8"/5.8"(147/ 147mm)	5.8"/5.8"(147/ 147mm)	5.8"/5.8"(147/ 147mm)	5.8"/5.8"(147/ 147mm)	5.8"/5.8"(147/ 147mm)	5.8"/5.8"(147/ 147mm)
Max. Input of ADF (Width/Height)	8.5"/14" (216/356mm)	8.5"/14" (216/356mm)	8.5"/14" (216/356mm)	8.5"/14" (216/356mm)	8.5"/14" (216/356mm)	8.5"/14" (216/356mm)	8.5"/14" (216/356mm)
Max. Input of Glass (Width/Height)	8.5"/11.7", 216/297mm	8.5"/11.7", 216/297mm	8.5"/11.7", 216/297mm	8.5"/11.7", 216/297mm	8.5"/11.7", 216/297mm	8.5"/11.7", 216/297mm	8.5"/11.7", 216/297mm
Min. Output of Auto Cut sheet	3.5"/5.0", 89/127mm	3.5"/5.0", 89/127mm	3.5"/5.0", 89/127mm	3.5"/5.0", 89/127mm	3.5"/5.0", 89/127mm	3.5"/5.0", 89/127mm	3.5"/5.0", 89/127mm
Max. Output of Auto Cut sheet	8.5"/14.0", 216/356mm	8.5"/14.0", 216/356mm	8.5"/14.0", 216/356mm	8.5"/14.0", 216/356mm	8.5"/14.0", 216/356mm	8.5"/14.0", 216/356mm	8.5"/14.0", 216/356mm
Sheet Weight (Paper tray)	64 -220 g/m2 (17 - 48 lb.)	64 -220 g/m2 (17 - 48 lb.)	64 -220 g/m2 (17 - 48 lb.)	64 -220 g/m2 (17 - 48 lb.)	64 -220 g/m2 (17 - 48 lb.)	64 -220 g/m2 (17 - 48 lb.)	64 -220 g/m2 (17 - 48 lb.)
Sheet Weight (ADF)	64-90g/mm2 (17-24lb.)	64-90g/mm2 (17-24lb.)	64-90g/mm2 (17-24lb.)	64-90g/mm2 (17-24lb.)	64-90g/mm2 (17-24lb.)	64-90g/mm2 (17-24lb.)	64-90g/mm2 (17-24lb.)
ADF(pages)	Yes (10)	Yes (10)	Yes (10)	Yes (10)	Yes (10)	Yes (10)	Yes (10)
Paper Capacity(sheets)	100 (80 g/m2)	100 (80 g/m2)	100 (80 g/m2)	100 (80 g/m2)	100 (80 g/m2)	100 (80 g/m2)	100 (80 g/m2)
Output Paper Capacity(sheets)	25	25	25	25	25	25	25
Optional Paper Tray (sheets)	-	-	-	-	-	-	-
Brother Paper (for Plain,Glossy and Inkjet)	A4 Plain / A4 Glossy/ A4 Inkjet/ 4x6in Glossy	LTR Plain / LTR Glossy/ LTR Inkjet/	A4 Plain / A4 Glossy/ A4 Inkjet/ 4x6in Glossy	A4 Plain / A4 Glossy/ A4 Inkjet/ 4x6in Glossy	LTR Plain / LTR Glossy/ LTR Inkjet/	A4 Plain / A4 Glossy/ A4 Inkjet/ 4x6in Glossy	A4 Plain / A4 Glossy/ A4 Inkjet/ 4x6in Glossy
Recommended Paper (Only for Transparency)	3M 3410 Transparency film	3M 3410 Transparency film	3M 3410 Transparency film	3M 3410 Transparency film	3M 3410 Transparency film	3M 3410 Transparency film	3M 3410 Transparency film
LCD Size	Standard 16 x 2 lines	Standard 16 x 2 lines	Standard 16 x 2 lines	Standard 16 x 2 lines	2.5in Color LCD	2.5in Color LCD	2.5in Color LCD
Preview Function via Color LCD	-	-	-	-	Yes (PCC/Copy/Sc an/FAX)	Yes (PCC/Copy/Sc an/FAX)	Yes (PCC/Copy/Sc an/FAX)
LCD Back Light & Color	Yellow green	Yellow green	Yellow green	Yellow green	-	-	-
LCD Language	Depending on countries	English (+French for CAN model)	Depending on countries	English	English (+French for CAN model)	Depending on countries	English
Illuminated Mode Key	PCC	PCC/Copy/Fax /Scan	PCC/Copy/Fax /Scan	PCC/Copy/Fax /Scan	PCC/Copy/Fax /Scan	PCC/Copy/Fax /Scan	PCC/Copy/Fax /Scan
Memory Capacity (physical: Mbytes)	RAM 16MB	RAM 16MB	RAM 16MB	RAM 16MB	RAM 16MB	RAM 16MB	RAM 16MB
Memory Backup (with battery 24hour)	-	Yes	Yes	Yes	Yes	Yes	Yes

AREA	EUR	USA	EUR	ASIA/OCE/ CHN	USA	EUR	ASIA/OCE/ CHN
Model name	DCP-340CW	MFC-640CW	MFC-640CW	MFC-640CW	MFC-820CW	MFC-820CW	MFC-820CNW
Back Up Print:ON/OFF Feature (in function Menu)	-	Yes	Yes	Yes	Yes	Yes	Yes
Memory Security	-	-	Yes	Yes	-	Yes	Yes
Transmission Lock	-	-	-	-	-	-	-
Dimensions w/ Carton (WxDxH)	21.7X8.9X17.7inch 552X225X450mm	21.7X8.9X17.7inch 552X225X450mm	19.7X8.9X17.7inch 500X225X450mm	19.7X8.9X17.7inch 500X225X450mm	19.7X8.9X17.7inch 500X225X450mm	19.7X8.9X17.7inch 500X225X450mm	19.7X8.9X17.7inch 500X225X450mm
Dimensions w/o Carton (WxDxH) * tray is not openec	14.7X13.6X5.3inch 373X345X135mm	17.2X13.7X6.5inch 438X347X165mm	14.7X13.7X6.5inch 373X347X165mm	14.7X13.7X6.5inch 373X347X165mm	14.7X13.7X6.5inch 373X347X165mm	14.7X13.7X6.5inch 373X347X165mm	14.7X13.7X6.5inch 373X347X165mm
Dimensions w/o Carton with tray is opened	14.7X17.8X5.3inch 373X453X135mm	17.3X17.8X6.9inch 440X453X174mm	14.8X17.9X6.9inch 375X455X174mm	14.8X17.9X6.9inch 375X455X174mm	14.8X17.9X6.9inch 375X455X165mm	14.8X17.9X6.9inch 375X455X165mm	14.8X17.9X6.9inch 375X455X165mm
Weight w/ Carton	17.6 lb (8 kg)	17.6 lb (8 kg)	18.9 lb (8.6 kg)	18.9 lb (8.6 kg)	17.6 lb (8 kg)	18.9 lb (8.6 kg)	18.9 lb (8.6 kg)
Weight w/o Carton	13.2 lb (6 kg)	13.4 lb (6.1 kg)	13.4 lb (6.1 kg)	13.2 lb (6.0 kg)	13.2 lb (6.0 kg)	13.2 lb (6.0 kg)	13.2 lb (6.0 kg)
Body Color = Top Cover	NEW DARK BLUE METALIC	NEW DARK BLUE METALIC	NEW DARK BLUE METALIC	NEW DARK BLUE METALIC	NEW DARK BLUE METALIC	NEW DARK BLUE METALIC	NEW DARK BLUE METALIC
Body Color = Panel cover	NEW DARK BLUE METALIC +C-LCD	NEW DARK BLUE METALIC +C-LCD	NEW DARK BLUE METALIC +C-LCD	NEW DARK BLUE METALIC +C-LCD	NEW DARK BLUE METALIC +C-LCD	NEW DARK BLUE METALIC +C-LCD	NEW DARK BLUE METALIC +C-LCD
Body Color = Bottom	Dark gray	Dark gray	Dark gray	Dark gray	Dark gray	Dark gray	Dark gray
Body Color = Bottom Cover (Engine unit)	Dark gray	Dark gray	Dark gray	Dark gray	Dark gray	Dark gray	Dark gray
Power Source	AC 220-240 V 50/60Hz	AC 120 V 50/60Hz	AC 220-240 V 50/60Hz	AC 220-240 V 50/60Hz	AC 120 V 50/60Hz	AC 220-240 V 50/60Hz	AC 220-240 V 50/60Hz
Power Consumption (Peak/Minimum/Standby)							
Energy Star Compliant (USA Only)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Machine Noise (Operating)	Approx. 45dB (Best copy mode)	Approx. 45dB (Best copy mode)	Approx. 45dB (Best copy mode)	Approx. 45dB (Best copy mode)	Approx. 45dB (Best copy mode)	Approx. 45dB (Best copy mode)	Approx. 45dB (Best copy mode)
Total print pages (Internal counter/(In Maintenance)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Copy pages (Internal counter/ In Maintenance)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PC print pages (Internal counter/ In Maintenance)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fax RX pages (Internal counter// In Maintenance)	-	Yes	Yes	Yes	Yes	Yes	Yes
PCC pages (Internal counter /In Maintenance)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ink Gauge Indication	Yes (in Ink Key/ Status Monitor)	Yes (in Ink Key/ Status Monitor)	Yes (in Ink Key/ Status Monitor)	Yes (in Ink Key/ Status Monitor)	Yes (in Ink Key/ Status Monitor)	Yes (in Ink Key/ Status Monitor)	Yes (in Ink Key/ Status Monitor)
LIST/REPORT							
Activity Report/Journal Report	-	Yes (up to 200)	Yes (up to 200)	Yes (up to 200)	Yes (up to 200)	Yes (up to 200)	Yes (up to 200)
Transmission Verification Report	-	Yes (in Menu Table)	Yes (in Menu Table)	Yes (in Menu Table)	Yes (in Menu Table)	Yes (in Menu Table)	Yes (in Menu Table)
Cover page	-	-	-	-	-	-	-
Help List	Yes (in Reports menu)	Yes (in Reports menu)	Yes (in Reports menu)	Yes (in Reports menu)	Yes (in Reports menu)	Yes (in Reports menu)	Yes (in Reports menu)
Call Back Message	-	-	-	-	-	-	-
Caller ID List	-	Yes(in CallerID Menu)	-	Yes(in CallerID Menu) Depends on	Yes(in CallerID Menu)	-	Yes(in CallerID Menu) Depends on
Quick Dial List Empty box is not printed	-	Yes (in Reports menu)	Yes (in Reports menu)	Yes (in Reports menu)	Yes (in Reports menu)	Yes (in Reports menu)	Yes (in Reports menu)
Tel Index List	-	-	-	-	Yes(ABC)	Yes(ABC)	Yes(ABC)
Memory Status List	-	-	-	-	-	-	-
System Setup(User Setting) List	Yes (in Reports Menu)	Yes (in Reports Menu)	Yes (in Reports Menu)	Yes (in Reports Menu)	Yes (in Reports Menu)	Yes (in Reports Menu)	Yes (in Reports Menu)
Order Form	-	-	-	-	-	-	-
INTERFACE							
External TAD Interface	-	Yes	Yes	Yes	Yes	Yes	Yes
Host Interface	2.0(@FULL-SPEED)	2.0(@FULL-SPEED)	2.0(@FULL-SPEED)	2.0(@FULL-SPEED)	2.0(@FULL-SPEED)	2.0(@FULL-SPEED)	2.0(@FULL-SPEED)
LAN	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wireless LAN	Yes	Yes	Yes	Yes	Yes	Yes	Yes

AREA	EUR	USA	EUR	ASIA/OCE/ CHN	USA	EUR	ASIA/OCE/ CHN
Model name	DCP-340CW	MFC-640CW	MFC-640CW	MFC-640CW	MFC-820CW	MFC-820CW	MFC-820CNW
Cable included	-	-	-	-	-	-	-
PictBridge	-	-	-	-	-	-	-
Acceptable Media Card	CF/MS/SD(MC)/SM/xD	CF/MS/SD(MC)/SM/xD	CF/MS/SD(MC)/SM/xD	CF/MS/SD(MC)/SM/xD	CF/MS/SD(MC)/SM/xD	CF/MS/SD(MC)/SM/xD	CF/MS/SD(MC)/SM/xD
SUPPLIES/ OPTIONS							
Bundled Ink (Life / Yield)	BK:500pages(Normal 5%)	BK:500pages(Normal 5%)	BK:500pages(Normal 5%)	BK:500pages(Normal 5%)	BK:500pages(Normal 5%)	BK:500pages(Normal 5%)	BK:500pages(Normal 5%)
	C/M/Y:400pages(Normal 5%)	C/M/Y:400pages(Normal 5%)	C/M/Y:400pages(Normal 5%)	C/M/Y:400pages(Normal 5%)	C/M/Y:400pages(Normal 5%)	C/M/Y:400pages(Normal 5%)	C/M/Y:400pages(Normal 5%)
Supply Ink Cartridge (Life / Yield)	BK:500pages(Normal 5%)	BK:500pages(Normal 5%)	BK:500pages(Normal 5%)	BK:500pages(Normal 5%)	BK:500pages(Normal 5%)	BK:500pages(Normal 5%)	BK:500pages(Normal 5%)
	C/M/Y:400pages(Normal 5%)	C/M/Y:400pages(Normal 5%)	C/M/Y:400pages(Normal 5%)	C/M/Y:400pages(Normal 5%)	C/M/Y:400pages(Normal 5%)	C/M/Y:400pages(Normal 5%)	C/M/Y:400pages(Normal 5%)
Supply Ink Cartridge (Life / Yield) *HighCapacity	-	-	-	-	-	-	-
Options	-	-	-	-	-	-	-
SERVICE INFORMATION							
Monthly Volume	2500 pages	2500 pages	2500 pages	2500 pages	2500 pages	2500 pages	2500 pages
Machine Life (year)	30,000 pages or 5 years	30,000 pages or 5 years	30,000 pages or 5 years	30,000 pages or 5 years	30,000 pages or 5 years	30,000 pages or 5 years	30,000 pages or 5 years
MTBF (Mean Time Between Failures)	4,000 hours	4,000 hours	4,000 hours	4,000 hours	4,000 hours	4,000 hours	4,000 hours
MTTR (Mean Time To BE Repaired)	30 min.	30 min.	30 min.	30 min.	30 min.	30 min.	30 min.
TELEPHONE							
Handset	-	Yes	Yes	Yes	-	-	-
Hook	-	Yes (SPK)	Yes (SPK)	Yes (SPK)	Yes	Yes	Yes
Off Hook Alarm	-	-	-	-	-	-	-
Duplex Speaker Phone	-	Yes	Yes	Yes	-	-	-
Power Failure Phone	-	-	-	-	-	-	-
Power Failure Dialing	-	-	-	-	-	-	-
Chain Dialing	-	Yes	Yes	Yes	Yes	Yes	Yes
Automatic Redial	-	Yes (1time/5min)	Yes (3time/5min)	Yes (3times/5min)	Yes (1time/5min)	Yes (3time/5min)	Yes (3times/5min)
Recall (For ASIA)	-	-	-	Yes	-	-	-
PBX Feature (EUR Only / NA for Asia and US anc	-	-	Yes	-	-	Yes	-
Handset Volume	-	yes(2steps+Amplify)	-	-	-	-	-
Speaker Volume	-	Yes (3 steps + OFF)	Yes (3 steps + OFF)	Yes (3 steps + OFF)	Yes (3 steps + OFF)	Yes (3 steps + OFF)	Yes (3 steps + OFF)
Ring Volume	-	Yes (3 steps + OFF)	Yes (3 steps + OFF)	Yes (3 steps + OFF)	Yes (3 steps + OFF)	Yes (3 steps + OFF)	Yes (3 steps + OFF)
Hold/Mute Key	-	Yes (Hook/Hold key)	Yes (Mute)	Yes (Mute)	-	-	-
Music on Hold	-	-	-	-	-	-	-
Monitoring the Line on Hold with Music	-	-	-	-	-	-	-
One-Touch Dial	-	-	-	-	-	-	-
Speed Dial	-	80	80	80	80	80	80
Figures of One-Touch & Speed Dial	-	20 digits	20 digits	20 digits	20 digits	20 digits	20 digits
Resisterable Number Of Characters	-	15 characters	15 characters	15 characters	15 characters	15 characters	15 characters
Group Dial (Up to X groups)	-	Yes (6)	Yes (6)	Yes (6)	Yes (6)	Yes (6)	Yes (6)
Telephone Index (Search/Speed dial key)	-	Yes	Yes	Yes	Yes	Yes	Yes
Backup Caller ID list	-	Yes	-	Yes (ARL/NZ/SIN/HK only)	Yes	-	-
Caller ID	-	Yes	-	Yes (ARL/NZ/SIN/HK only)	Yes	-	Yes (ARL/NZ/SIN/HK only)
Call Waiting Caller ID	-	-	-	-	-	-	-
Call from Caller ID List	-	-	-	-	Yes	-	Yes

AREA	EUR	USA	EUR	ASIA/OCE/ CHN	USA	EUR	ASIA/OCE/ CHN
Model name	DCP-340CW	MFC-640CW	MFC-640CW	MFC-640CW	MFC-820CW	MFC-820CW	MFC-820CNW
Call from Call List	-	-	-	-	Yes	Yes	Yes
Call waiting Ready (Only for USA)	-	-	-	-	-	-	-
Distinctive Ringing	-	Yes	Yes (UK,DEN only)	Yes (ARL/NZ/SIN/ HK only)	Yes	Yes (UK,DEN only)	Yes (ARL/NZ/SIN/ HK only)
COLOR FAX							
Modem Speed(bps)	-	14,400(Fax)	14,400(Fax)	14,400(Fax)	14,400(Fax)	14,400(Fax)	14,400(Fax)
Transmission Speed(sec.)	-	Approx.6 sec (Brother#1, MMR)	Approx.6 sec (Brother#1, MMR)	Approx.6 sec (Brother#1, MMR)	Approx.6 sec (Brother#1, MMR)	Approx.6 sec (Brother#1, MMR)	Approx.6 sec (Brother#1, MMR)
ITU-T Group	-	G3	G3	G3	G3	G3	G3
Display FAX Rx	-	-	-	-	Yes	Yes	Yes
Coding Method	-	Mono:MH/MR/ MMR, Color:JPEG	Mono:MH/MR/ MMR, Color:JPEG	Mono:MH/MR/ MMR, Color:JPEG	Mono:MH/MR/ MMR, Color:JPEG	Mono:MH/MR/ MMR, Color:JPEG	Mono:MH/MR/ MMR, Color:JPEG
Fax/Tel Switch	-	Yes (by H/S or S.Phone key)	Yes (Speaker Phone key)	Yes (Speaker Phone key)	Yes (Hook key)	Yes (Hook key)	Yes (Hook key)
Super Fine	-	Yes (TX & RX:B&W only)	Yes (TX & RX:B&W only)	Yes (TX & RX:B&W only)	Yes (TX & RX:B&W only)	Yes (TX & RX:B&W only)	Yes (TX & RX:B&W only)
Gray Scale	-	Mono:64, Color:256	Mono:64, Color:256	Mono:64, Color:256	Mono:64, Color:256	Mono:64, Color:256	Mono:64, Color:256
Contrast (Auto/S.Light/S.Dark)	-	Yes	Yes	Yes	Yes	Yes	Yes
Dual Access	-	Yes (B&W only)	Yes (B&W only)	Yes (B&W only)	Yes (B&W only)	Yes (B&W only)	Yes (B&W only)
Enhanced Remote	-	Yes	Yes	Yes	Yes	Yes	Yes
Station ID (20digits/20characters)	-	Yes 20digits/ 20characters	Yes 20digits/ 20characters	Yes 20digits/ 20characters	Yes 20digits/ 20characters	Yes 20digits/ 20characters	Yes 20digits/ 20characters
Remote Maintenance	-	Yes	Yes	Yes	Yes	Yes	Yes
RX Mode Indication	-	LCD	LCD	LCD	LCD	LCD	LCD
Resolution Indication	-	LCD	LCD	LCD	LCD	LCD	LCD
Paper Handling Size	-	LTR,A4+LEGA L	LTR,A4+LEGA L	LTR,A4+LEGA L	LTR,A4+LEGA L	LTR,A4+LEGA L	LTR,A4+LEGA L
Document Scanning	-	208mm	208mm	208mm	208mm	208mm	208mm
Delayed Timer (up to 50:B&W only)	-	Up to 50 / B&W only	Up to 50 / B&W only	Up to 50 / B&W only	Up to 50 / B&W only	Up to 50 / B&W only	Up to 50 / B&W only
Polled Sending (type) *B&W only	-	Yes(Std.)	Yes (Std/Secure)	Yes (Std/Secure)	Yes(Std.)	Yes (Std/Secure)	Yes (Std/Secure)
Next-Fax Reservation	-	Yes (Dual Access)	Yes (Dual Access)	Yes (Dual Access)	Yes (Dual Access)	Yes (Dual Access)	Yes (Dual Access)
Batch Transmission	-	Yes (B&W only /not color)	Yes (B&W only /not color)	Yes (B&W only /not color)	Yes (B&W only /not color)	Yes (B&W only /not color)	Yes (B&W only /not color)
Quick-Scan(Memory transmission)	-	Approx.4.72sec/page@LTR	Approx.4.72sec/page@LTR	Approx.4.72sec/page@LTR	Approx.4.72sec/page@LTR	Approx.4.72sec/page@LTR	Approx.4.72sec/page@LTR
	-	Approx. 5.02 sec./page@A4	Approx. 5.02 sec./page@A4	Approx. 5.02 sec./page@A4	Approx. 5.02 sec./page@A4	Approx. 5.02 sec./page@A4	Approx. 5.02 sec./page@A4
Memory Transmission (ITU-T Test Chart #1/MMR)	-	UP to 400 Pages	UP to 400 Pages	UP to 400 Pages	UP to 400 Pages	UP to 400 Pages	UP to 400 Pages
Memory Transmission (Brother Chart/ MMR)	-	UP to 480 Pages	UP to 480 Pages	UP to 480 Pages	UP to 480 Pages	UP to 480 Pages	UP to 480 Pages
ECM(Error Correction Mode)	-	Yes	Yes	Yes	Yes	Yes	Yes
Error Re-Transmissior	-	-	-	-	-	-	-
Broadcasting (Speed+OneTouch+Manu)	-	Yes (130 locations)	Yes (130 locations)	Yes (130 locations)	Yes (130 locations)	Yes (130 locations)	Yes (130 locations)
Manual Broadcasting	-	Yes(50 locations)	Yes(50 locations)	Yes(50 locations)	Yes(50 locations)	Yes(50 locations)	Yes(50 locations)
Easy Receive/Fax Detec	-	Yes	Yes	Yes	Yes	Yes	Yes
Polling Receiving (type) *B&W only	-	Yes (Std/Seq)	Yes (Std/Seq/Secu re/Timer)	Yes (Std/Seq/Secu re/Timer)	Yes (Std/Seq)	Yes (Std/Seq/Secu re/Timer)	Yes (Std/Seq/Secu re/Timer)
Auto Reduction	-	Yes	Yes	Yes	Yes	Yes	Yes
Out-of-Paper Reception (ITU-T Test Chart	-	UP to 400 Pages	UP to 400 Pages	UP to 400 Pages	UP to 400 Pages	UP to 400 Pages	UP to 400 Pages

AREA	EUR	USA	EUR	ASIA/OCE/ CHN	USA	EUR	ASIA/OCE/ CHN
Model name	DCP-340CW	MFC-640CW	MFC-640CW	MFC-640CW	MFC-820CW	MFC-820CW	MFC-820CNW
Out-of-Paper Reception (Brother Chart/ MMR)	-	UP to 480 Pages	UP to 480 Pages	UP to 480 Pages	UP to 480 Pages	UP to 480 Pages	UP to 480 Pages
Color FAX (Memory Send/Receive)	-	N/A (If the machine is under the condition of error in printing, the machine receives color fax in memory temporarily)	N/A (If the machine is under the condition of error in printing, the machine receives color fax in memory temporarily)	N/A (If the machine is under the condition of error in printing, the machine receives color fax in memory temporarily)	N/A (If the machine is under the condition of error in printing, the machine receives color fax in memory temporarily)	N/A (If the machine is under the condition of error in printing, the machine receives color fax in memory temporarily)	N/A (If the machine is under the condition of error in printing, the machine receives color fax in memory temporarily)
Remote Access	-	Yes	Yes	Yes	Yes	Yes	Yes
Fax Retrieval	-	Yes (B&W only)	Yes (B&W only)	Yes (B&W only)	Yes (B&W only)	Yes (B&W only)	Yes (B&W only)
Fax Forwarding	-	Yes (B&W only)	Yes (B&W only)	Yes (B&W only)	Yes (B&W only)	Yes (B&W only)	Yes (B&W only)
Paging	-	Yes(FAX& VOICE)	-	-	Yes	-	-
Color FAX (Document Send/Receive)	-	Yes/Yes (ITU-color FAX)	Yes/Yes (ITU-color FAX)	Yes/Yes (ITU-color FAX)	Yes/Yes (ITU-color FAX)	Yes/Yes (ITU-color FAX)	Yes/Yes (ITU-color FAX)
FAX to Card	-	-	-	-	-	-	-
COLOR PRINTER							
Color/Monoc	Color	Color	Color	Color	Color	Color	Color
Engine Type	BH3 (KKCMY) 74 nozzles/line	BH3 (KKCMY) 74 nozzles/line	BH3 (KKCMY) 74 nozzles/line	BH3 (KKCMY) 74 nozzles/line	BH3 (KKCMY) 74 nozzles/line	BH3 (KKCMY) 74 nozzles/line	BH3 (KKCMY) 74 nozzles/line
Resolution (horizontal x vertical)	up to 1200x6000 dpi	up to 1200x6000 dpi	up to 1200x6000 dpi	up to 1200x6000 dpi	up to 1200x6000 dpi	up to 1200x6000 dpi	up to 1200x6000 dpi
Speed(ppm) Simple	20/15ppm (Mono/Color: 600x150 dpi)	20/15ppm (Mono/Color: 600x150 dpi)	20/15ppm (Mono/Color: 600x150 dpi)	20/15ppm (Mono/Color: 600x150 dpi)	20/15ppm (Mono/Color: 600x150 dpi)	20/15ppm (Mono/Color: 600x150 dpi)	20/15ppm (Mono/Color: 600x150 dpi)
Fonts CD Based	Yes (35 TrueType)	Yes (35 TrueType)	Yes (35 TrueType)	Yes (35 TrueType)	Yes (35 TrueType)	Yes (35 TrueType)	Yes (35 TrueType)
Paper Handling Size (Paper Tray)	A4, LTR, LGL, EXE, JISB5, A5, A6, Photo(4x6"/102x152mm), Indexcard(5x8"/127x203mm), Photo L (3.5x5"/89x127mm), Photo2L(5x7"/127x178mm), Post Card 1(3.9x5.8"/100x148mm), Post Card 2 (Double)(5.8x7.8"/148x200mm), C5 Envelope, Com-10, DL Envelope, Monarch, JE4 Envelope.	A4, LTR, LGL, EXE, JISB5, A5, A6, Photo(4x6"/102x152mm), Indexcard(5x8"/127x203mm), Photo L (3.5x5"/89x127mm), Photo2L(5x7"/127x178mm), Post Card 1(3.9x5.8"/100x148mm), Post Card 2 (Double)(5.8x7.8"/148x200mm), C5 Envelope, Com-10, DL Envelope, Monarch, JE4 Envelope.	A4, LTR, LGL, EXE, JISB5, A5, A6, Photo(4x6"/102x152mm), Indexcard(5x8"/127x203mm), Photo L (3.5x5"/89x127mm), Photo2L(5x7"/127x178mm), Post Card 1(3.9x5.8"/100x148mm), Post Card 2 (Double)(5.8x7.8"/148x200mm), C5 Envelope, Com-10, DL Envelope, Monarch, JE4 Envelope.	A4, LTR, LGL, EXE, JISB5, A5, A6, Photo(4x6"/102x152mm), Indexcard(5x8"/127x203mm), Photo L (3.5x5"/89x127mm), Photo2L(5x7"/127x178mm), Post Card 1(3.9x5.8"/100x148mm), Post Card 2 (Double)(5.8x7.8"/148x200mm), C5 Envelope, Com-10, DL Envelope, Monarch, JE4 Envelope.	A4, LTR, LGL, EXE, JISB5, A5, A6, Photo(4x6"/102x152mm), Indexcard(5x8"/127x203mm), Photo L (3.5x5"/89x127mm), Photo2L(5x7"/127x178mm), Post Card 1(3.9x5.8"/100x148mm), Post Card 2 (Double)(5.8x7.8"/148x200mm), C5 Envelope, Com-10, DL Envelope, Monarch, JE4 Envelope.	A4, LTR, LGL, EXE, JISB5, A5, A6, Photo(4x6"/102x152mm), Indexcard(5x8"/127x203mm), Photo L (3.5x5"/89x127mm), Photo2L(5x7"/127x178mm), Post Card 1(3.9x5.8"/100x148mm), Post Card 2 (Double)(5.8x7.8"/148x200mm), C5 Envelope, Com-10, DL Envelope, Monarch, JE4 Envelope.	A4, LTR, LGL, EXE, JISB5, A5, A6, Photo(4x6"/102x152mm), Indexcard(5x8"/127x203mm), Photo L (3.5x5"/89x127mm), Photo2L(5x7"/127x178mm), Post Card 1(3.9x5.8"/100x148mm), Post Card 2 (Double)(5.8x7.8"/148x200mm), C5 Envelope, Com-10, DL Envelope, Monarch, JE4 Envelope.

AREA	EUR	USA	EUR	ASIA/OCE/ CHN	USA	EUR	ASIA/OCE/ CHN
Model name	DCP-340CW	MFC-640CW	MFC-640CW	MFC-640CW	MFC-820CW	MFC-820CW	MFC-820CNW
Print Paper Margin (upper, lower, left, right)	Borderless ON:0, 0, 0, 0* OFF:0.12, 0.12, 0.12, 0,12"/3,3,3,3mm ** * Borderless For A4 ,/LTR/A6/Photo(4x6"/102x152mm), Indexcard(5x8"/127x203mm), Photo L (3.5x5"/89x127mm), Photo 2L(5x7"/127x178mm), Post Card 1(3.9x5.8"/100x148mm)only ** 0.47x0.95x0.12x0.12"/12,24,3,3mm for Envelops	Borderless ON:0, 0, 0, 0* OFF:0.12, 0.12, 0.12, 0,12"/3,3,3,3mm ** * Borderless For A4 ,/LTR/A6/Photo(4x6"/102x152mm), Indexcard(5x8"/127x203mm), Photo L (3.5x5"/89x127mm), Photo 2L(5x7"/127x178mm), Post Card 1(3.9x5.8"/100x148mm)only ** 0.47x0.95x0.12x0.12"/12,24,3,3mm for Envelops	Borderless ON:0, 0, 0, 0* OFF:0.12, 0.12, 0.12, 0,12"/3,3,3,3mm ** * Borderless For A4 ,/LTR/A6/Photo(4x6"/102x152mm), Indexcard(5x8"/127x203mm), Photo L (3.5x5"/89x127mm), Photo 2L(5x7"/127x178mm), Post Card 1(3.9x5.8"/100x148mm)only ** 0.47x0.95x0.12x0.12"/12,24,3,3mm for Envelops	Borderless ON:0, 0, 0, 0* OFF:0.12, 0.12, 0.12, 0,12"/3,3,3,3mm ** * Borderless For A4 ,/LTR/A6/Photo(4x6"/102x152mm), Indexcard(5x8"/127x203mm), Photo L (3.5x5"/89x127mm), Photo 2L(5x7"/127x178mm), Post Card 1(3.9x5.8"/100x148mm)only ** 0.47x0.95x0.12x0.12"/12,24,3,3mm for Envelops	Borderless ON:0, 0, 0, 0* OFF:0.12, 0.12, 0.12, 0,12"/3,3,3,3mm ** * Borderless For A4 ,/LTR/A6/Photo(4x6"/102x152mm), Indexcard(5x8"/127x203mm), Photo L (3.5x5"/89x127mm), Photo 2L(5x7"/127x178mm), Post Card 1(3.9x5.8"/100x148mm)only ** 0.47x0.95x0.12x0.12"/12,24,3,3mm for Envelops	Borderless ON:0, 0, 0, 0* OFF:0.12, 0.12, 0.12, 0,12"/3,3,3,3mm ** * Borderless For A4 ,/LTR/A6/Photo(4x6"/102x152mm), Indexcard(5x8"/127x203mm), Photo L (3.5x5"/89x127mm), Photo 2L(5x7"/127x178mm), Post Card 1(3.9x5.8"/100x148mm)only ** 0.47x0.95x0.12x0.12"/12,24,3,3mm for Envelops	Borderless ON:0, 0, 0, 0* OFF:0.12, 0.12, 0.12, 0,12"/3,3,3,3mm ** * Borderless For A4 ,/LTR/A6/Photo(4x6"/102x152mm), Indexcard(5x8"/127x203mm), Photo L (3.5x5"/89x127mm), Photo 2L(5x7"/127x178mm), Post Card 1(3.9x5.8"/100x148mm)only ** 0.47x0.95x0.12x0.12"/12,24,3,3mm for Envelops
Variable Dot Print	Yes (3 sizes)	Yes (3 sizes)	Yes (3 sizes)	Yes (3 sizes)	Yes (3 sizes)	Yes (3 sizes)	Yes (3 sizes)
Minimum Droplet Size	3 pl	3 pl	3 pl	3 pl	3 pl	3 pl	3 pl
Color Enhancement	Yes	Yes	Yes	Yes	Yes	Yes	Yes
COLOR COPY							
Color/Monoc	Color	Color	Color	Color	Color	Color	Color
Speed(cpm) *time calculated excluding paper feeding **EU's default is calculated by "normal mode"speed.	17/11cpm	17/11cpm	17/11cpm	17/11cpm	17/11cpm	17/11cpm	17/11cpm
Multi Copy(Stack)	Yes (Up to 99)	Yes (Up to 99)	Yes (Up to 99)	Yes (Up to 99)	Yes (Up to 99)	Yes (Up to 99)	Yes (Up to 99)
Multi Copy(Sort)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Reduction/Enlargement (%)	25 -- 400 in 1% increments	25 -- 400 in 1% increments	25 -- 400 in 1% increments	25 -- 400 in 1% increments	25 -- 400 in 1% increments	25 -- 400 in 1% increments	25 -- 400 in 1% increments
Resolution (horizontal x vertical)	Print: Max. 600x1200 dpi Scan: Max. 600x1200 dpi	Print: Max. 600x1200 dpi Scan: Max. 600x1200 dpi	Print: Max. 600x1200 dpi Scan: Max. 600x1200 dpi	Print: Max. 600x1200 dpi Scan: Max. 600x1200 dpi	Print: Max. 600x1200 dpi Scan: Max. 600x1200 dpi	Print: Max. 600x1200 dpi Scan: Max. 600x1200 dpi	Print: Max. 600x1200 dpi Scan: Max. 600x1200 dpi
N in 1	2in1/4in1 A4/LTR only (Mono&Color)	2in1/4in1 A4/LTR only (Mono&Color)	2in1/4in1 A4/LTR only (Mono&Color)	2in1/4in1 A4/LTR only (Mono&Color)	2in1/4in1 A4/LTR only (Mono&Color)	2in1/4in1 A4/LTR only (Mono&Color)	2in1/4in1 A4/LTR only (Mono&Color)
Poster	Yes (3x3)	Yes (3x3)	Yes (3x3)	Yes (3x3)	Yes (3x3)	Yes (3x3)	Yes (3x3)
Image Enhancement	-	-	-	-	-	-	-
Paper Handling Size (Paper Tray)	Letter/Legal/A4/A5/4"x6"(10(W)x15(H)cm)	Letter/Legal/A4/A5/4"x6"(10(W)x15(H)cm)	Letter/Legal/A4/A5/4"x6"(10(W)x15(H)cm)	Letter/Legal/A4/A5/4"x6"(10(W)x15(H)cm)	Letter/Legal/A4/A5/4"x6"(10(W)x15(H)cm)	Letter/Legal/A4/A5/4"x6"(10(W)x15(H)cm)	Letter/Legal/A4/A5/4"x6"(10(W)x15(H)cm)
Media Type (Paper Tray)	Plain, Inkjet, Glossy, Transparency	Plain, Inkjet, Glossy, Transparency	Plain, Inkjet, Glossy, Transparency	Plain, Inkjet, Glossy, Transparency	Plain, Inkjet, Glossy, Transparency	Plain, Inkjet, Glossy, Transparency	Plain, Inkjet, Glossy, Transparency
Print Paper Margin (upper, lower, left, right)	0.12, 0.12, 0.12, 0.12" (3,3,3,3mm)	0.12, 0.12, 0.12, 0.12" (3,3,3,3mm)	0.12, 0.12, 0.12, 0.12" (3,3,3,3mm)	0.12, 0.12, 0.12, 0.12" (3,3,3,3mm)	0.12, 0.12, 0.12, 0.12" (3,3,3,3mm)	0.12, 0.12, 0.12, 0.12" (3,3,3,3mm)	0.12, 0.12, 0.12, 0.12" (3,3,3,3mm)
Duplex Copy	-	-	-	-	-	-	-
Resolution Indication	LCD	LCD	LCD	LCD	LCD	LCD	LCD
COLOR SCANNER							
Color/Monoc	Color	Color	Color	Color	Color	Color	Color
Resolution (horizontal x vertical)	600x2400 dpi	600x2400 dpi	600x2400 dpi	600x2400 dpi	600x2400 dpi	600x2400 dpi	600x2400 dpi
Interpolated Resolution (dpi)	up to 19200x19200 dpi (For XP, with special tool. 1200x1200dpi for XP w/o special tool)	up to 19200x19200 dpi (For XP, with special tool. 1200x1200dpi for XP w/o special tool)	up to 19200x19200 dpi (For XP, with special tool. 1200x1200dpi for XP w/o special tool)	up to 19200x19200 dpi (For XP, with special tool. 1200x1200dpi for XP w/o special tool)	up to 19200x19200 dpi (For XP, with special tool. 1200x1200dpi for XP w/o special tool)	up to 19200x19200 dpi (For XP, with special tool. 1200x1200dpi for XP w/o special tool)	up to 19200x19200 dpi (For XP, with special tool. 1200x1200dpi for XP w/o special tool)

AREA	EUR	USA	EUR	ASIA/OCE/ CHN	USA	EUR	ASIA/OCE/ CHN
Model name	DCP-340CW	MFC-640CW	MFC-640CW	MFC-640CW	MFC-820CW	MFC-820CW	MFC-820CNW
Gray Scale	256	256	256	256	256	256	256
Document Scanning width	Max. 210mm	Max. 210mm	Max. 210mm	Max. 210mm	Max. 210mm	Max. 210mm	Max. 210mm
Scan Image	Yes (scan key)	Yes (scan key)	Yes (scan key)	Yes (scan key)	Yes (scan key)	Yes (scan key)	Yes (scan key)
Scan / OCR	Yes (scan key)	Yes (scan key)	Yes (scan key)	Yes (scan key)	Yes (scan key)	Yes (scan key)	Yes (scan key)
Scan to E-mail	Yes (scan key)	Yes (scan key)	Yes (scan key)	Yes (scan key)	Yes (scan key)	Yes (scan key)	Yes (scan key)
Scan to File	Yes (scan key)	Yes (scan key)	Yes (scan key)	Yes (scan key)	Yes (scan key)	Yes (scan key)	Yes (scan key)
Scan to Card	Yes (scan key)	Yes (scan key)	Yes (scan key)	Yes (scan key)	Yes (scan key)	Yes (scan key)	Yes (scan key)
Scan speed (Mono/Color) *@100dpi	Max. 3.54/5.58 sec @Letter_size Max. 3.76/5.93 sec @A4_size	Max. 3.54/5.58 sec @Letter_size Max. 3.76/5.93 sec @A4_size	Max. 3.54/5.58 sec @Letter_size Max. 3.76/5.93 sec @A4_size	Max. 3.54/5.58 sec @Letter_size Max. 3.76/5.93 sec @A4_size	Max. 3.54/5.58 sec @Letter_size Max. 3.76/5.93 sec @A4_size	Max. 3.54/5.58 sec @Letter_size Max. 3.76/5.93 sec @A4_size	Max. 3.54/5.58 sec @Letter_size Max. 3.76/5.93 sec @A4_size
Color Depth (Input/Output)	36/24 bit color processing (Actual In/Out = 30/24 bit)	36/24 bit color processing (Actual In/Out = 30/24 bit)	36/24 bit color processing (Actual In/Out = 30/24 bit)	36/24 bit color processing (Actual In/Out = 30/24 bit)	36/24 bit color processing (Actual In/Out = 30/24 bit)	36/24 bit color processing (Actual In/Out = 30/24 bit)	36/24 bit color processing (Actual In/Out = 30/24 bit)
MESSAGE CENTER							
TAD	-	Yes	Yes	Yes	-	-	-
ICM Recording Time	-	Max.29minutes Or Max.99 messages (Max.180sec./ 1message.)	Max.29minutes Or Max.99 messages (Max.180sec./ 1message.)	Max.29minutes Or Max.99 messages (Max.180sec./ 1message.)	-	-	-
Toll Saver	-	Yes	Yes	Yes	-	-	-
Memo/Recording Conversations	-	Yes	Yes	Yes	-	-	-
OGM (MC/TAD,F/T)	-	Yes	Yes	Yes	-	-	-
User Recording OGM TIME (MC/TAD, F/T)	-	Yes (20sec.)	Yes (20sec.)	Yes (20sec.)	-	-	-
PC FAX							
Supplier	-	Brother	Brother	Brother	Brother	Brother	Brother
Color/Monoc	-	Mono	Mono	Mono	Mono	Monoc	Mono
Sending	-	Yes (Network/ USB)	Yes (Network/ USB)	Yes (Network/ USB)	Yes (Network/ USB)	Yes (Network/ USB)	Yes (Network/ USB)
Receiving	-	Yes (Network/ USB)	Yes (Network/ USB)	Yes (Network/ USB)	Yes (Network/ USB)	Yes (Network/ USB)	Yes (Network/ USB)
PC-Fax Protocol	-	RX : Class 2 TX : PC-FAX Driver	RX : Class 2 TX : PC-FAX Driver	RX : Class 2 TX : PC-FAX Driver	RX : Class 2 TX : PC-FAX Driver	RX : Class 2 TX : PC-FAX Driver	-
Broadcasting	-	up to 50	up to 50	up to 50	up to 50	up to 50	up to 50
Support OS Version (Refer to "Application&OS"							
Others	Web	-	Web	-	-	Web	-
PHOTO CAPTURE CENTER							
Acceptable Media Card & Size	Smart Media (3.3V):4MB-128MB Compact Flash (Type-1only, N/A for Type2&Micro- Drive):4MB-2GB Memory Stick:16MB-128MB (Duo with Adofter) Memory Stick Pro:256MB-1GB (MagicGate:Yes if not use MG function) Secure Digital (SD & MMC):16MB- 1GB (MiniSD with Adofter) xD Picture Card:16-512MB xD Picture Card Type M: 512MB- 1GB	Smart Media (3.3V):4MB-128MB Compact Flash (Type-1only, N/A for Type2&Micro- Drive):4MB-2GB Memory Stick:16MB-128MB (Duo with Adofter) Memory Stick Pro:256MB-1GB (MagicGate:Yes if not use MG function) Secure Digital (SD & MMC):16MB- 1GB (MiniSD with Adofter) xD Picture Card:16-512MB xD Picture Card Type M: 512MB- 1GB	Smart Media (3.3V):4MB-128MB Compact Flash (Type-1only, N/A for Type2&Micro- Drive):4MB-2GB Memory Stick:16MB-128MB (Duo with Adofter) Memory Stick Pro:256MB-1GB (MagicGate:Yes if not use MG function) Secure Digital (SD & MMC):16MB- 1GB (MiniSD with Adofter) xD Picture Card:16-512MB xD Picture Card Type M: 512MB- 1GB	Smart Media (3.3V):4MB-128MB Compact Flash (Type-1only, N/A for Type2&Micro- Drive):4MB-2GB Memory Stick:16MB-128MB (Duo with Adofter) Memory Stick Pro:256MB-1GB (MagicGate:Yes if not use MG function) Secure Digital (SD & MMC):16MB- 1GB (MiniSD with Adofter) xD Picture Card:16-512MB xD Picture Card Type M: 512MB- 1GB	Smart Media (3.3V):4MB-128MB Compact Flash (Type-1only, N/A for Type2&Micro- Drive):4MB-2GB Memory Stick:16MB-128MB (Duo with Adofter) Memory Stick Pro:256MB-1GB (MagicGate:Yes if not use MG function) Secure Digital (SD & MMC):16MB- 1GB (MiniSD with Adofter) xD Picture Card:16-512MB xD Picture Card Type M: 512MB- 1GB	Smart Media (3.3V):4MB-128MB Compact Flash (Type-1only, N/A for Type2&Micro- Drive):4MB-2GB Memory Stick:16MB-128MB (Duo with Adofter) Memory Stick Pro:256MB-1GB (MagicGate:Yes if not use MG function) Secure Digital (SD & MMC):16MB- 1GB (MiniSD with Adofter) xD Picture Card:16-512MB xD Picture Card Type M: 512MB- 1GB	Smart Media (3.3V):4MB-128MB Compact Flash (Type-1only, N/A for Type2&Micro- Drive):4MB-2GB Memory Stick:16MB-128MB (Duo with Adofter) Memory Stick Pro:256MB-1GB (MagicGate:Yes if not use MG function) Secure Digital (SD & MMC):16MB- 1GB (MiniSD with Adofter) xD Picture Card:16-512MB xD Picture Card Type M: 512MB- 1GB

AREA	EUR	USA	EUR	ASIA/OCE/ CHN	USA	EUR	ASIA/OCE/ CHN
Model name	DCP-340CW	MFC-640CW	MFC-640CW	MFC-640CW	MFC-820CW	MFC-820CW	MFC-820CNW
Paper Handling Size & Type (Paper Tray)	Letter Glossy/4"x6"(10x15cm) Glossy/5"x7"(13x18cm) Glossy /A4 Glossy/Letter Plai-4 Plain/Letter Inkjet/A4 Inkjet/4"x6"(10x15cm) Inkjet	Letter Glossy/4"x6"(10x15cm) Glossy/5"x7"(13x18cm) Glossy /A4 Glossy/Letter Plai-4 Plain/Letter Inkjet/A4 Inkjet/4"x6"(10x15cm) Inkjet	Letter Glossy/4"x6"(10x15cm) Glossy/5"x7"(13x18cm) Glossy /A4 Glossy/Letter Plai-4 Plain/Letter Inkjet/A4 Inkjet/4"x6"(10x15cm) Inkjet	Letter Glossy/4"x6"(10x15cm) Glossy/5"x7"(13x18cm) Glossy /A4 Glossy/Letter Plai-4 Plain/Letter Inkjet/A4 Inkjet/4"x6"(10x15cm) Inkjet	Letter Glossy/4"x6"(10x15cm) Glossy/5"x7"(13x18cm) Glossy /A4 Glossy/Letter Plai-4 Plain/Letter Inkjet/A4 Inkjet/4"x6"(10x15cm) Inkjet	Letter Glossy/4"x6"(10x15cm) Glossy/5"x7"(13x18cm) Glossy /A4 Glossy/Letter Plai-4 Plain/Letter Inkjet/A4 Inkjet/4"x6"(10x15cm) Inkjet	Letter Glossy/4"x6"(10x15cm) Glossy/5"x7"(13x18cm) Glossy /A4 Glossy/Letter Plai-4 Plain/Letter Inkjet/A4 Inkjet/4"x6"(10x15cm) Inkjet
Print Paper Margin (upper, lower, left, right)	Borderless (For all size) ON:0, 0, 0,0 OFF:0.12, 0.12, 0.12, 0.12"/3,3,3,3mm	Borderless (For all size) ON:0, 0, 0,0 OFF:0.12, 0.12, 0.12, 0.12"/3,3,3,3mm	Borderless (For all size) ON:0, 0, 0,0 OFF:0.12, 0.12, 0.12, 0.12"/3,3,3,3mm	Borderless (For all size) ON:0, 0, 0,0 OFF:0.12, 0.12, 0.12, 0.12"/3,3,3,3mm	Borderless (For all size) ON:0, 0, 0,0 OFF:0.12, 0.12, 0.12, 0.12"/3,3,3,3mm	Borderless (For all size) ON:0, 0, 0,0 OFF:0.12, 0.12, 0.12, 0.12"/3,3,3,3mm	Borderless (For all size) ON:0, 0, 0,0 OFF:0.12, 0.12, 0.12, 0.12"/3,3,3,3mm
Available paper size for full (Max) size printing	All size	All size	All size	All size	All size	All size	All size
Direct Print Size for A4/LTR	4x3"(10x8cm)/ 5x3.5"(13x9cm) / 6x4"(15x10cm)/ 7x5"(18x13cm)/ 8"x6"(20x15cm) / Max.Size	4x3"(10x8cm)/ 5x3.5"(13x9cm) / 6x4"(15x10cm)/ 7x5"(18x13cm)/ 8"x6"(20x15cm) / Max.Size	4x3"(10x8cm)/ 5x3.5"(13x9cm) / 6x4"(15x10cm)/ 7x5"(18x13cm)/ 8"x6"(20x15cm) / Max.Size	4x3"(10x8cm)/ 5x3.5"(13x9cm) / 6x4"(15x10cm)/ 7x5"(18x13cm)/ 8"x6"(20x15cm) / Max.Size	4x3"(10x8cm)/ 5x3.5"(13x9cm) / 6x4"(15x10cm)/ 7x5"(18x13cm)/ 8"x6"(20x15cm) / Max.Size	4x3"(10x8cm)/ 5x3.5"(13x9cm) / 6x4"(15x10cm)/ 7x5"(18x13cm)/ 8"x6"(20x15cm) / Max.Size	4x3"(10x8cm)/ 5x3.5"(13x9cm) / 6x4"(15x10cm)/ 7x5"(18x13cm)/ 8"x6"(20x15cm) / Max.Size
Borderless / Cropping(Full Auto)	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes
Media Format	DPOF, Exif, DCF	DPOF, Exif, DCF	DPOF, Exif, DCF	DPOF, Exif, DCF	DPOF, Exif, DCF	DPOF, Exif, DCF	DPOF, Exif, DCF
Image Format Print by PCC Scan to Card	Photo Print: JPEG Scan to Card: JPEG/PDF (Color), TIFF/PDF (B&W)	Photo Print: JPEG Scan to Card: JPEG/PDF (Color), TIFF/PDF (B&W)	Photo Print: JPEG Scan to Card: JPEG/PDF (Color), TIFF/PDF (B&W)	Photo Print: JPEG Scan to Card: JPEG/PDF (Color), TIFF/PDF (B&W)	Photo Print: JPEG Scan to Card: JPEG/PDF (Color), TIFF/PDF (B&W)	Photo Print: JPEG Scan to Card: JPEG/PDF (Color), TIFF/PDF (B&W)	Photo Print: JPEG Scan to Card: JPEG/PDF (Color), TIFF/PDF (B&W)
Color Enhancement	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Removable Disk	Yes (read & write)	Yes (read & write)	Yes (read & write)	Yes (read & write)	Yes (read & write)	Yes (read & write)	Yes (read & write)
Network PCC	Yes (read & write)	Yes (read & write)	Yes (read & write)	Yes (read & write)	Yes (read & write)	Yes (read & write)	Yes (read & write)
NETWORK							
Standard/Option(User Option or Dealer Option)	Yes:Standard	Yes:Standard	Yes:Standard	Yes:Standard	Yes:Standard	Yes:Standard	Yes:Standard
Model name (Ether)	Embedded (NC-110h)	Embedded (NC-110h)	Embedded (NC-110h)	Embedded (NC-110h)	Embedded (NC-110h)	Embedded (NC-110h)	Embedded (NC-110h)
Model name (Wireless)	Embedded (NC-120w)	Embedded (NC-120w)	Embedded (NC-120w)	Embedded (NC-120w)	Embedded (NC-120w)	Embedded (NC-120w)	Embedded (NC-120w)
Printer	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Scanner	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PC FAX	-	Yes	Yes	Yes	Yes	Yes	Yes
Internet FAX (Firmware)	-	-	-	-	-	-	-
Format (Scan to E-mail server)	-	-	-	-	-	-	-
ITU SUB Addressing	-	-	-	-	-	-	-
Support OS version	Win98(SE)/Me /2K/XP	Win98(SE)/Me /2K/XP	Win98(SE)/Me /2K/XP	Win98(SE)/Me /2K/XP	Win98(SE)/Me /2K/XP	Win98(SE)/Me /2K/XP	Win98(SE)/Me /2K/XP
Support OS version	PC-Print: Mac OS 9.1-9.2, 10.2.4(greater) Scan: OS 10.2.4(greater)	PC-Print/Fax: Mac OS 9.1-9.2, 10.2.4(greater) Scan: Mac	PC-Print/Fax: Mac OS 9.1-9.2, 10.2.4(greater) Scan: Mac	PC-Print/Fax: Mac OS 9.1-9.2, 10.2.4(greater) Scan: Mac	PC-Print/Fax: Mac OS 9.1-9.2, 10.2.4(greater) Scan: Mac	PC-Print/Fax: Mac OS 9.1-9.2, 10.2.4(greater) Scan: Mac	PC-Print/Fax: Mac OS 9.1-9.2, 10.2.4(greater) Scan: Mac

AREA	EUR	USA	EUR	ASIA/OCE/ CHN	USA	EUR	ASIA/OCE/ CHN
Model name	DCP-340CW	MFC-640CW	MFC-640CW	MFC-640CW	MFC-820CW	MFC-820CW	MFC-820CNW
Network connection (Ether)	Ethernet 10/100BASE-TX Auto Negotiation	Ethernet 10/100BASE-TX Auto Negotiation	Ethernet 10/100BASE-TX Auto Negotiation	Ethernet 10/100BASE-TX Auto Negotiation	Ethernet 10/100BASE-TX Auto Negotiation	Ethernet 10/100BASE-TX Auto Negotiation	Ethernet 10/100BASE-TX Auto Negotiation
Support Protocols	TCP/IP	TCP/IP	TCP/IP	TCP/IP	TCP/IP	TCP/IP	TCP/IP
Protocols	ARP/RARP, BOOTP, DHCP, APIPA, NetBIOS, WINS	ARP/RARP, BOOTP, DHCP, APIPA, NetBIOS, WINS	ARP/RARP, BOOTP, DHCP, APIPA, NetBIOS, WINS	ARP/RARP, BOOTP, DHCP, APIPA, NetBIOS, WINS	ARP/RARP, BOOTP, DHCP, APIPA, NetBIOS, WINS	ARP/RARP, BOOTP, DHCP, APIPA, NetBIOS, WINS	ARP/RARP, BOOTP, DHCP, APIPA, NetBIOS, WINS
Protocols	LPR/LPD, Port9100	LPR/LPD, Port9100	LPR/LPD, Port9100	LPR/LPD, Port9100	LPR/LPD, Port9100	LPR/LPD, Port9100	LPR/LPD, Port9100
Protocols	mDNS, FTP, TELNET, SNMP, TFTP, Scanner port	mDNS, FTP, TELNET, SNMP, TFTP, Scanner port	mDNS, FTP, TELNET, SNMP, TFTP, Scanner port	mDNS, FTP, TELNET, SNMP, TFTP, Scanner port	mDNS, FTP, TELNET, SNMP, TFTP, Scanner port	mDNS, FTP, TELNET, SNMP, TFTP, Scanner port	mDNS, FTP, TELNET, SNMP, TFTP, Scanner port
Network connection (Wireless)	IEEE 802.11b/g	IEEE 802.11b/g	IEEE 802.11b/g	IEEE 802.11b/g	IEEE 802.11b/g	IEEE 802.11b/g	IEEE 802.11b/g
Wireless Security	WEP 128bit SSID (32 chr) WPA-Personal (TKIP)	WEP 128bit SSID (32 chr) WPA-Personal (TKIP)	WEP 128bit SSID (32 chr) WPA-Personal (TKIP)	WEP 128bit SSID (32 chr) WPA-Personal (TKIP)	WEP 128bit SSID (32 chr) WPA-Personal (TKIP)	WEP 128bit SSID (32 chr) WPA-Personal (TKIP)	WEP 128bit SSID (32 chr) WPA-Personal (TKIP)
Network Management (BAdmin Professional)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Network Management (Network Remote Setup)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Remote Set Up (USB)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Network Management (MIB-II as well as Brother private MIB)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Network reset	Yes (in LAN Menu)	Yes (in LAN Menu)	Yes (in LAN Menu)	Yes (in LAN Menu)	Yes (in LAN Menu)	Yes (in LAN Menu)	Yes (in LAN Menu)
Wireless Network reset	Yes (in LAN Menu)	Yes (in LAN Menu)	Yes (in LAN Menu)	Yes (in LAN Menu)	Yes (in LAN Menu)	Yes (in LAN Menu)	Yes (in LAN Menu)
Others							
Optional I/F	-	-	-	-	-	-	-

CHAPTER 3

THEORY OF OPERATION

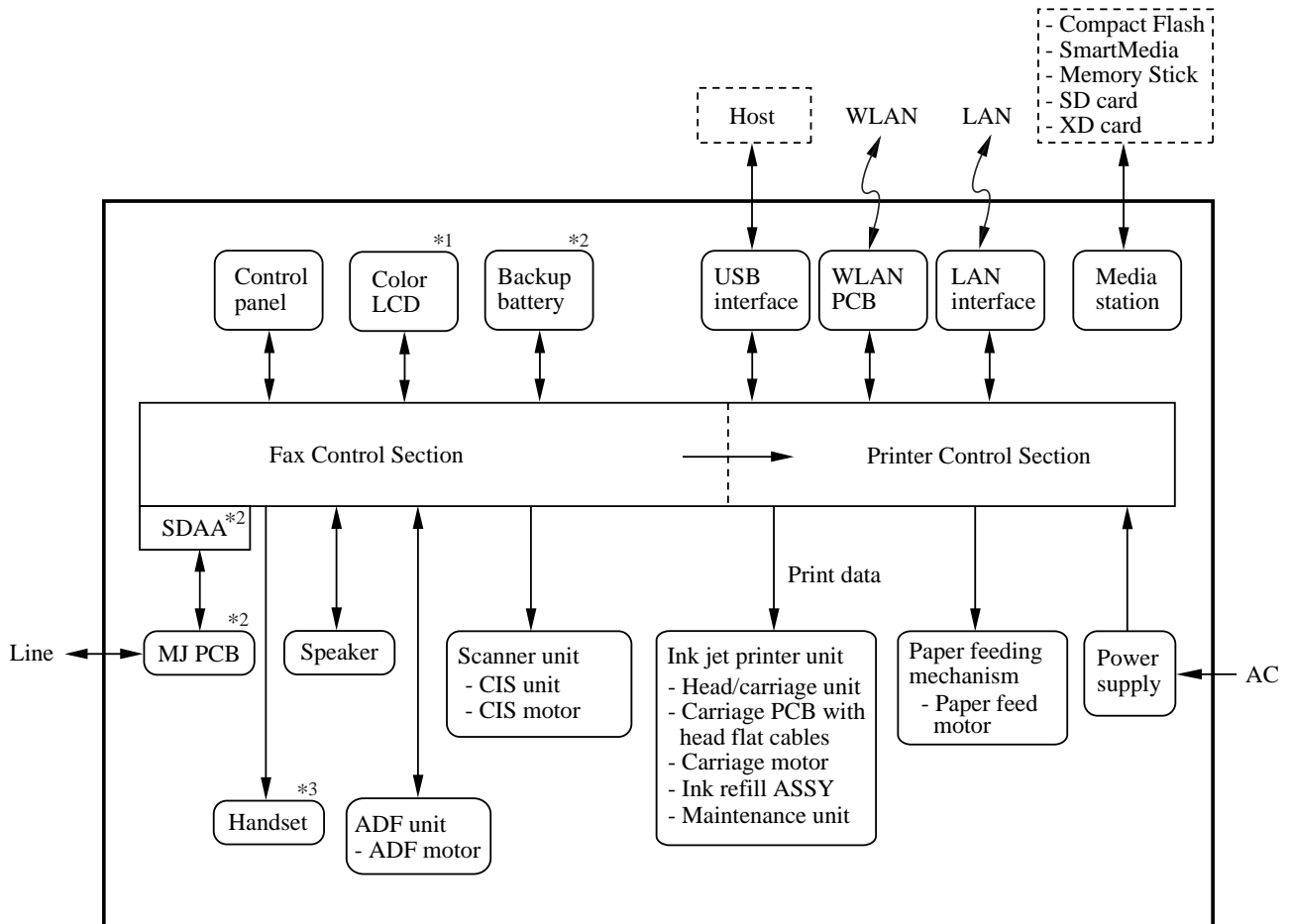
CHAPTER 3 THEORY OF OPERATION

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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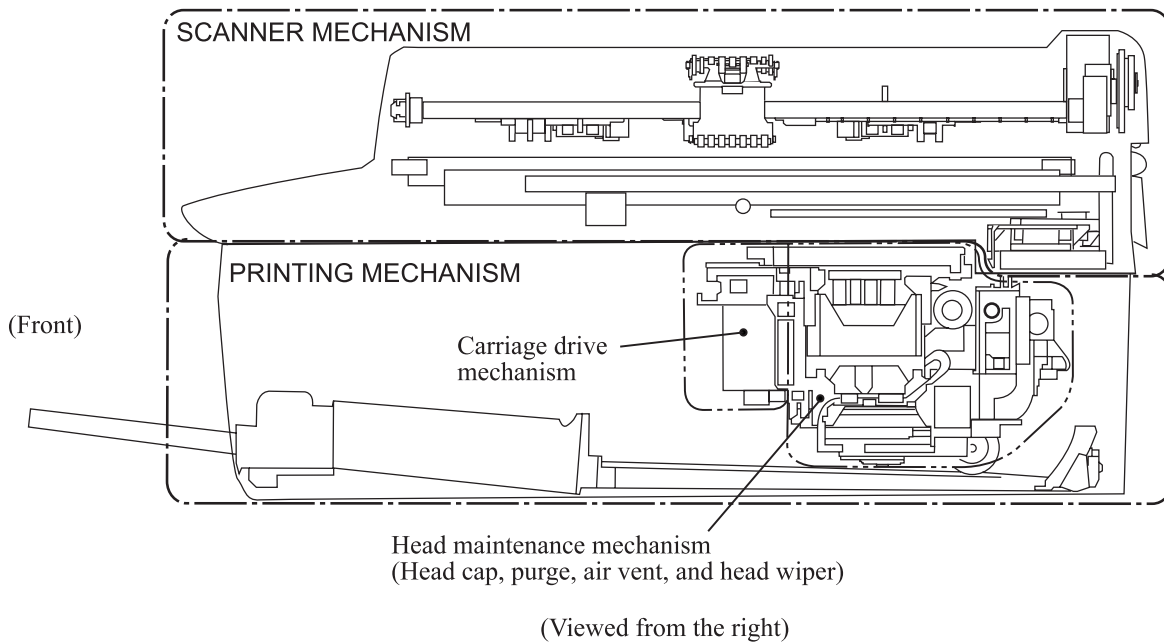
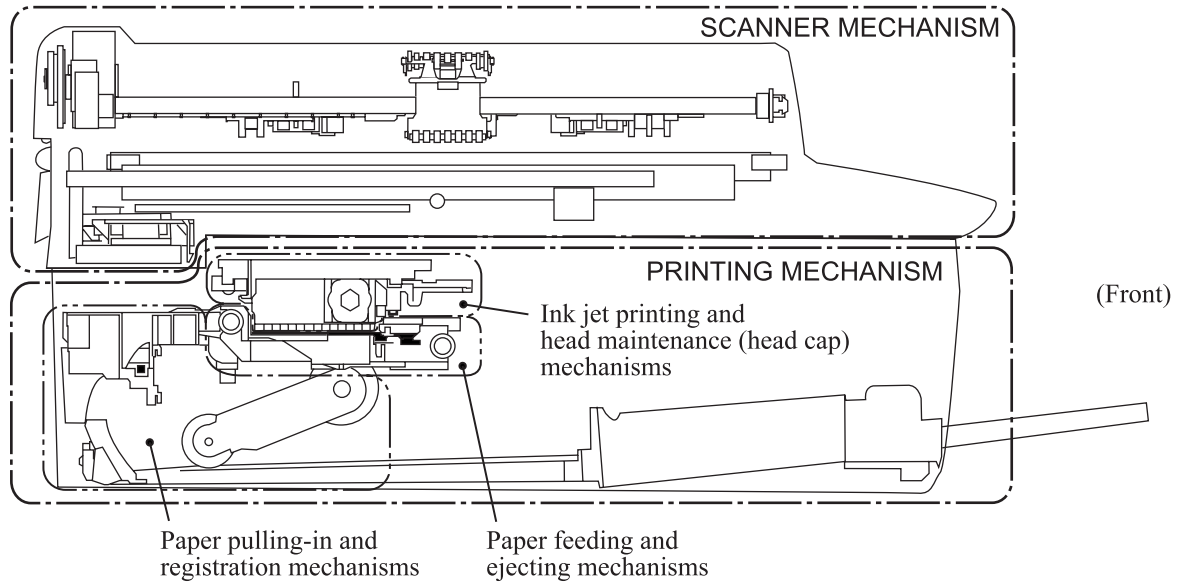
3.1 OVERVIEW



- *1 MFC820CW
- *2 MFC820CW/MFC640CW
- *3 MFC640CW

3.2 MECHANICAL COMPONENTS

This machine consists of the following mechanisms and uses four motors, two encoders, various sensors, and a head thermistor.



■ Scanner Mechanism (See Section 3.2.1.)	- Document scanning mechanism	CIS motor (stepping motor)
	- Automatic document feeder (ADF) mechanism	ADF motor (stepping motor)
■ Printing Mechanism (See Section 3.2.2.)	- Paper pulling-in, registration, paper feeding, and ejecting mechanisms (See Section 3.2.2.1.)	Paper feed motor (DC motor)
	- Ink supply and ink jet mechanism (See Section 3.2.2.2.)	
	- Head maintenance mechanism (carriage lock, head caps, purge, vent, and head wiper) (See Section 3.2.2.3.)	Paper feed motor (DC motor)
	- Carriage drive mechanism (See Section 3.2.2.4.)	Carriage motor (DC motor)
■ Encoders (See Section 3.2.3.)	- Carriage motor (CR) encoder	
	- Paper feed motor (PF) encoder	
■ Sensors (See Section 3.2.3.)	- Document front and rear sensors	
	- Scanner open sensor	
	- Registration sensor	
	- Paper width (media) sensor	
	- Ink cartridge sensors	
	- Purge cam switch	
- Hook switch sensor (MFC640CW)		
■ Thermistor (See Section 3.2.3.)	- Head thermistor	

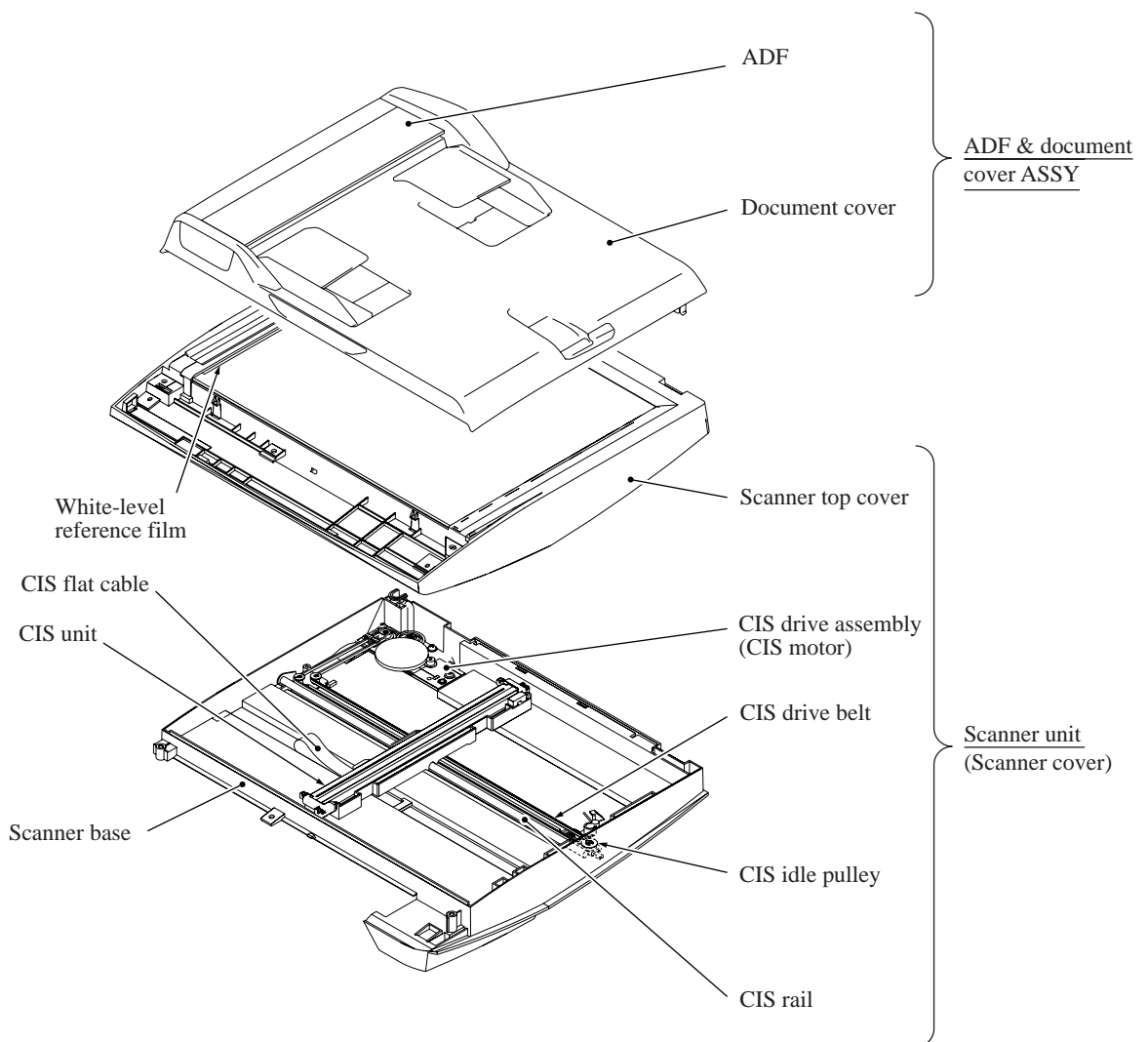
3.2.1 Scanner Mechanism

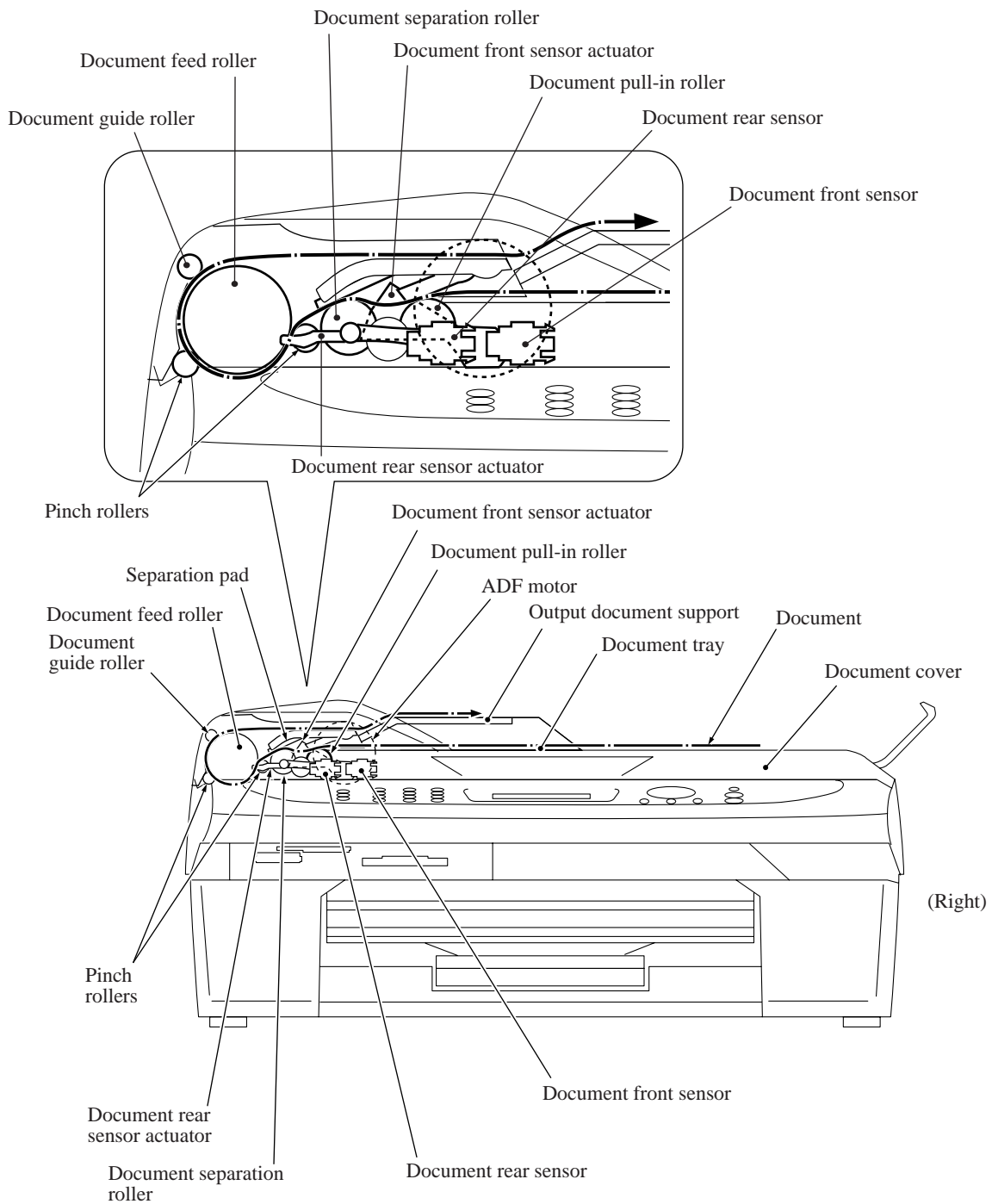
This mechanism consists of the automatic document feeder (ADF), document cover, and scanner unit (scanner cover).

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 roller, ADF motor, and document front and rear sensors.

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





Models with ADFs 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 ADFs offer only flat-bed scanning.

(1) ADF scanning: Document moves across stationary CIS unit

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

The CIS drive mechanism (details below) operates for each scanning command executed. The CIS unit first moves to the white-level reference film for white level compensation and then to the ADF scanning position.

The ADF motor then rotates the document pull-in roller to pull the document into the ADF. This new roller has become necessary because this machine has a horizontal document path. The document separation roller feeds the pages one at a time, *starting from the bottom*, to the document feed roller, which rotates 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 document eject support. The machine inserts 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-level 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 left; counterclockwise motion, to the right. This unit consists of the document illumination LED array, the lens array gathering the light reflected from the scanned image, and the CIS PCB converting the light input to pixel data output.

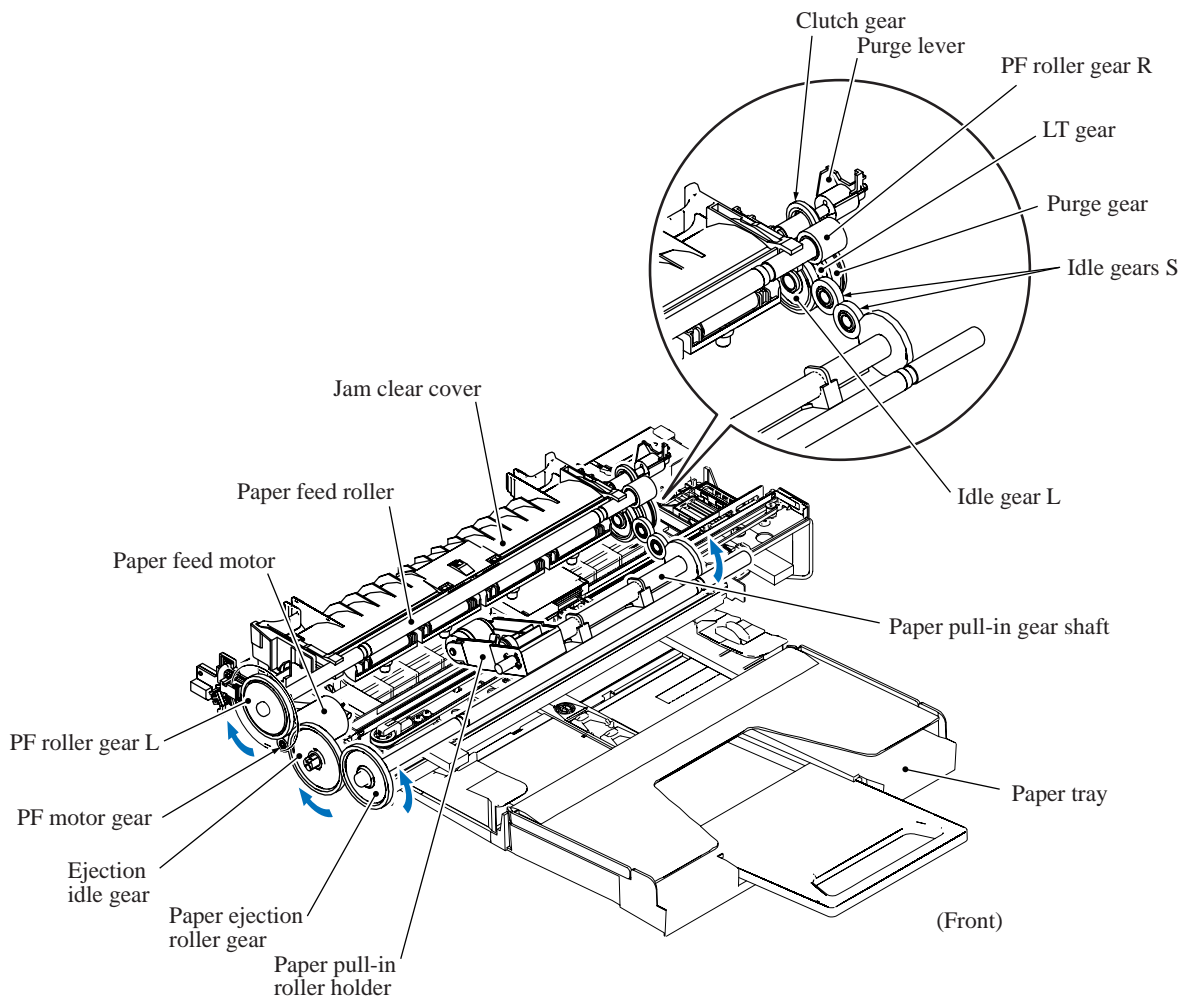
First, the paper feed motor rotates counterclockwise (when viewed from the output gear side). The motor rotation passes to the PF roller gear L and, via the ejection idle gear, the ejection roller gear to rotate the paper feed and ejection rollers in the reverse direction.

At the right end of the paper feed roller is the PF roller gear R which is always engaged with the clutch gear and the idle gear L. The latter transmits the motor rotation via the idle gears S and the paper pull-in gear shaft to the paper pull-in roller holder so that the paper pull-in roller pulls in a sheet of paper.

While the paper pull-in roller pulls the paper, the paper feed roller rotates in the reverse direction to align (register) the leading edge of the paper.

Registration sensor activation switches the paper feed motor to clockwise rotation to rotate the paper feed roller in the forward direction to feed the paper. During this paper feed operation, the planetary gear inside the paper pull-in roller holder prevents rotational torque from reaching the paper pull-in roller.

The above paper pulling-in and feeding operations take place when the head/carriage unit is in printing operation. When the head/carriage unit reaches the purge position, the clutch gear becomes disengaged from the idle gear L and engaged with the purge gear. For further details on the head maintenance mechanism, see [Section 3.2.2.3](#).



The outer circumference of the PF roller gear L functions as a 300 dpi (0.084 mm pitch) encoder disk which the PF encoder sensor uses 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. This signal from the PF encoder is a 2-phase one, for a maximum position detection resolution 300 dpi four times or 1200 dpi.

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 past a gap.

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 and correcting the positioning error of the head/carriage unit are necessary (see [Chapter 6](#)).

3.2.2.2 Ink supply and ink jet mechanism

[1] Overview

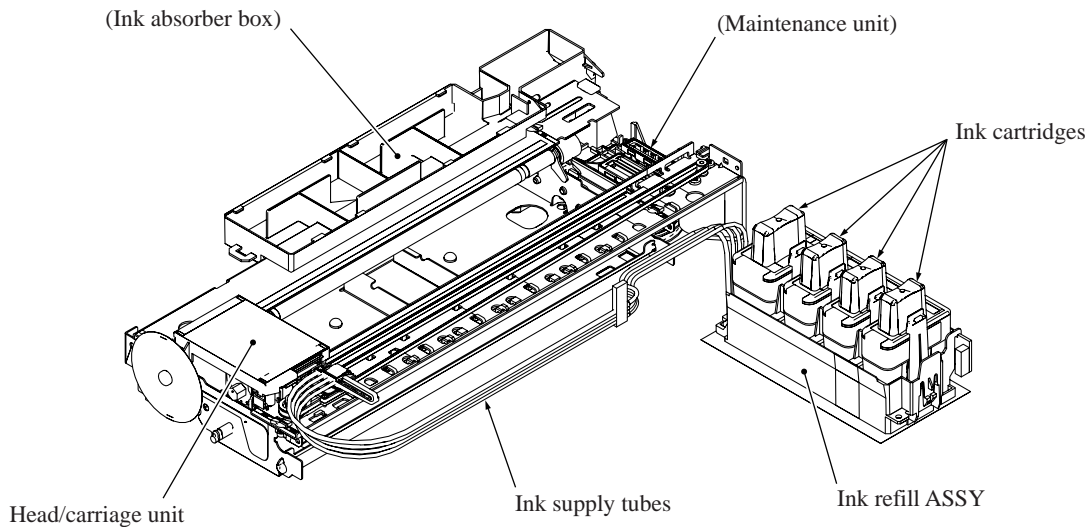
The ink supply and ink-jet mechanism consists of the head/carriage unit, four ink cartridges, ink refill assembly, and ink supply tubes.

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. Ribs inside the cartridge slots prevent wrong cartridge insertion and color mixups. For further details, see "[5] Ink refill assembly" below.

The ink supply tubes supply the head/carriage unit with ink from the ink cartridges. 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

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, the user must totally replace the ink supply path contents with fresh ink using an initial purge, a repeat of this priming operation. The cartridges that ship with the machine contain just that amount of ink extra over the ones sold as consumables.

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 head/carriage unit, 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.

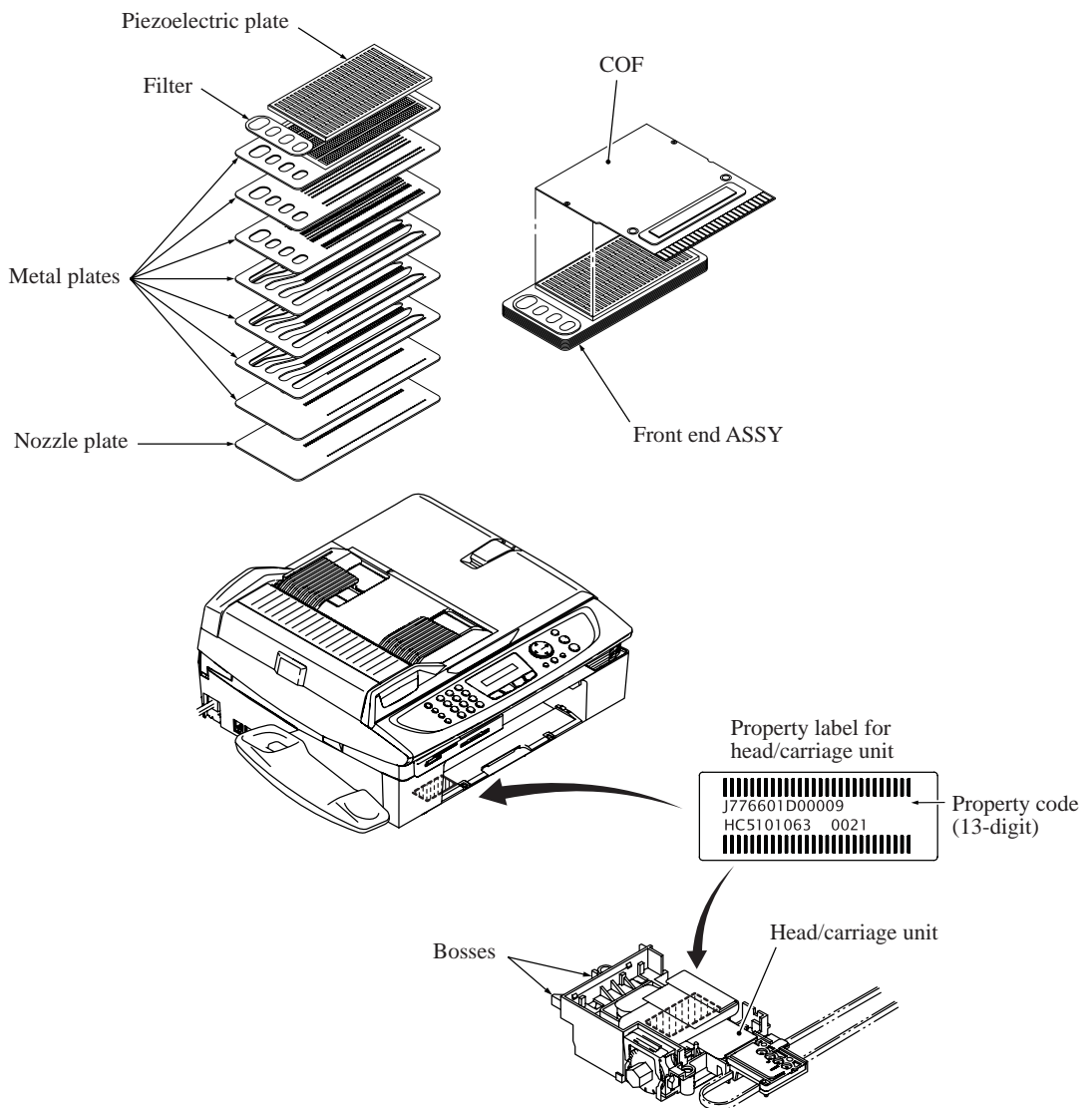
[3] Head/carriage unit

The head/carriage unit consists of a front end (ink-jet head) and a back end (buffer and air vent unit). The front end consists of metal plates laminated together and etched to form ink flow channels. (See illustration.)

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 a bar code giving property data. The manufacturer writes this data to the EEPROM on the main PCB incorporating this unit to insure consistent performance without fluctuations.

These labels appear on the head/carriage unit itself and on the lower cover of the machine. Replacing the head/carriage unit requires writing 12 of the 13 property data digits on the label included with the new unit into the EEPROM with maintenance mode function code 68 and applying the new property label on the lower cover. Replacing the main PCB requires similar property data updates.

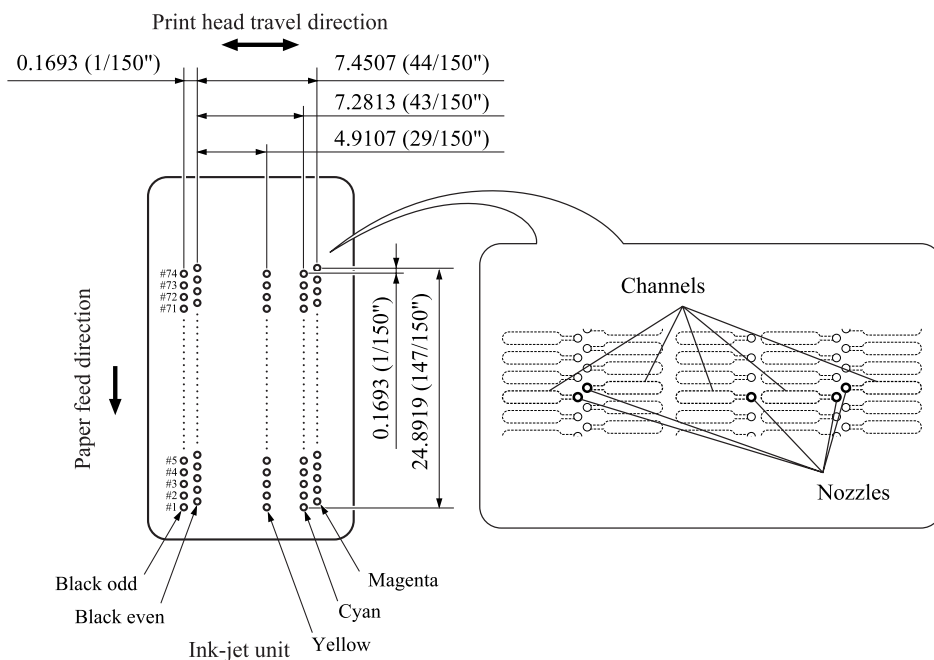
■ Front end



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 matter from the ink.
- Metal plates
These form the print nozzle pressure chambers, ink flow paths, and manifolds.
- Nozzle plate
This plate has 370 nozzles in five staggered lines with 74 nozzles each: two (148 nozzles) for black and one each for the three color inks.
- COF
This flexible circuit board holds the piezoelectric driver chip.

Nozzle array (head bottom plate)

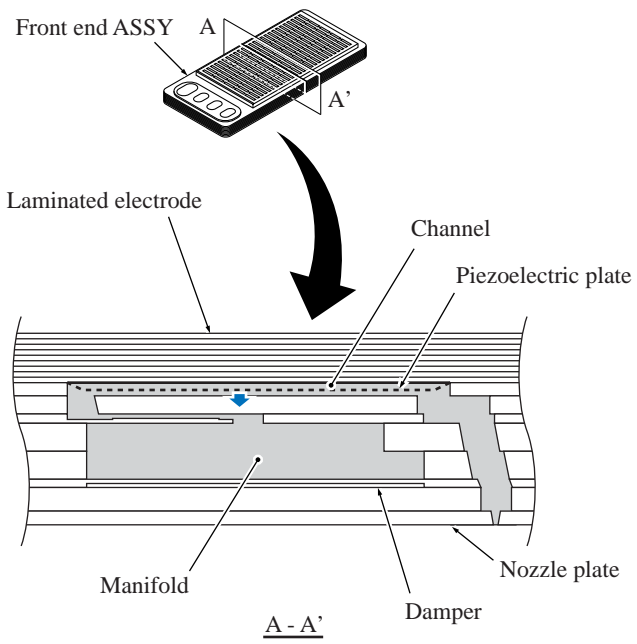


Ink spray function

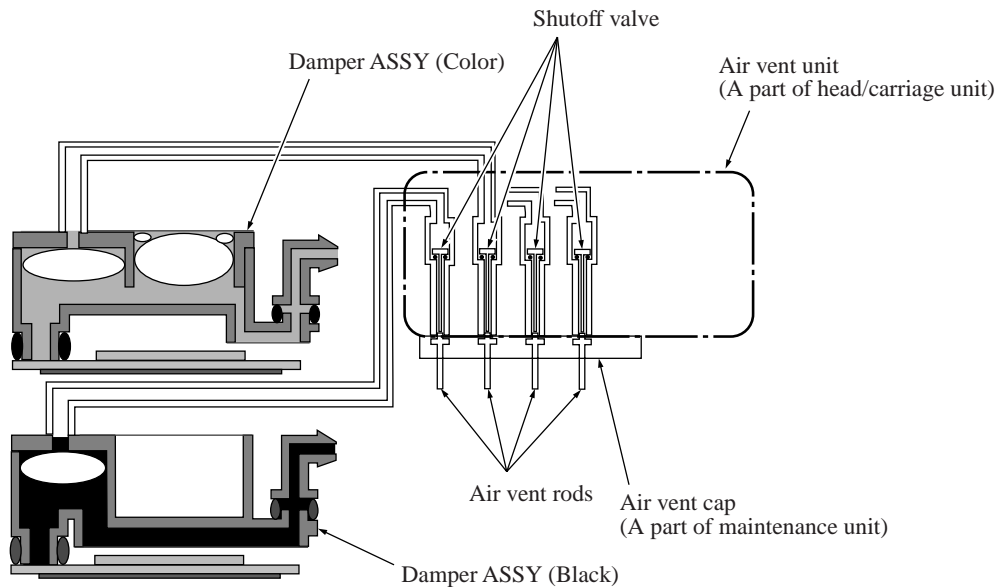
The head employs drop-on-demand ink-jet printing.

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 print 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 assembly
This has two roles: dampening the ink pressure fluctuations** in the tubes as the carriage moves and collecting air bubbles that result from pressure changes on the ink.
** Ink pressure fluctuations: As the head/carriage unit travels, inertia means that the ink remains in the same place, temporarily raising the pressure in the tubes.
- Air vent unit
At regular scheduled intervals, this vents any air bubbles that have accumulated in the damper assembly.
- Air vent cap
This fits tightly over the air vent unit to allow the negative pressure from the pump to suck air bubbles out of the unit.
- Air vent rods
These open air vent flow paths by pushing up the normally closed shut-off valves inside the air vent unit.

Damping

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

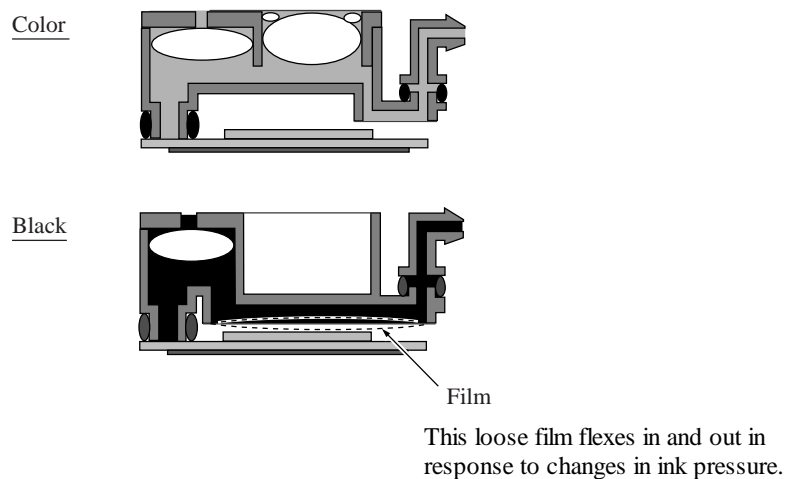
The damper structure for black differs from that for the colors (C, M, and Y) because black has twice nozzles used for each color, meaning higher ink flow rates and bigger pressure fluctuations.

- Color dampers

The three color damper assemblies each have two chambers. The one on the right in the illustration serves as the damper. The air at the top constitutes a cushion that expands and contracts to absorb the pressure fluctuations caused by the inertia of the ink in the supply tubes as the head/carriage unit travels.

- Black damper

The black damper assembly is not partitioned into two chambers. Instead, it has a loose film across the bottom of its single chamber. This film immediately flexes in and out in response to rises and falls in pressure, adjusting the chamber volume to counteract pressure fluctuations in the ink supply tubes.



Air buffering

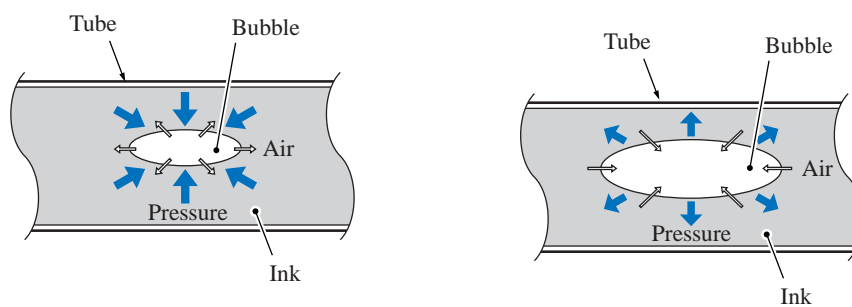
Liquid ink contains trace amounts of air. These molecules coalesce into air bubbles as the piezoelectric ceramic actuators vary the pressure on the ink in the ink-jet head channel. (See the illustration on [page 3-13](#).) Removing as many of these bubbles as possible before the ink reaches the ink-jet head is essential to maintaining proper print quality. The above illustrations show 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.

Air bubble growth

Liquid ink contains trace amounts of air. The amount varies with the pressure on the ink because increasing the pressure raises the ink's ability to absorb air from its surroundings and lowering the pressure forces the ink to give up some of this air.

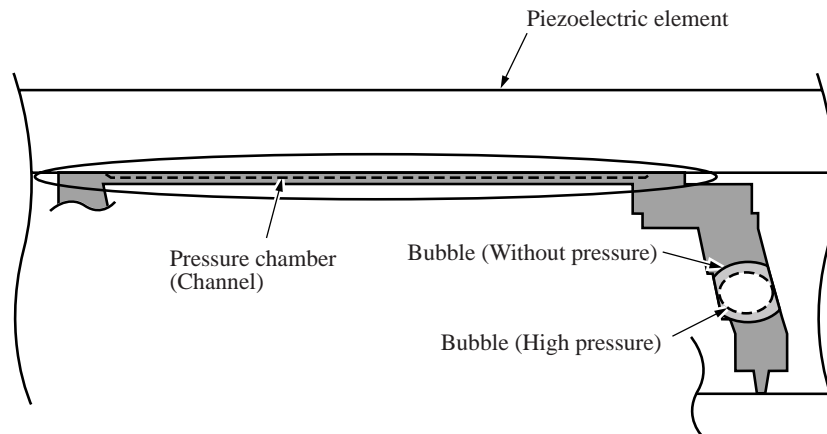
The ink pressure fluctuations generated by the piezoelectric ceramic actuators repeatedly expand and contract any air bubbles, causing them to gradually grow larger as the ink pressure changes repeatedly expand and contract them.

The design therefore compensates by allowing the purging/flushing of air bubbles during printing to keep the amount of air dissolved in the ink to a minimum.



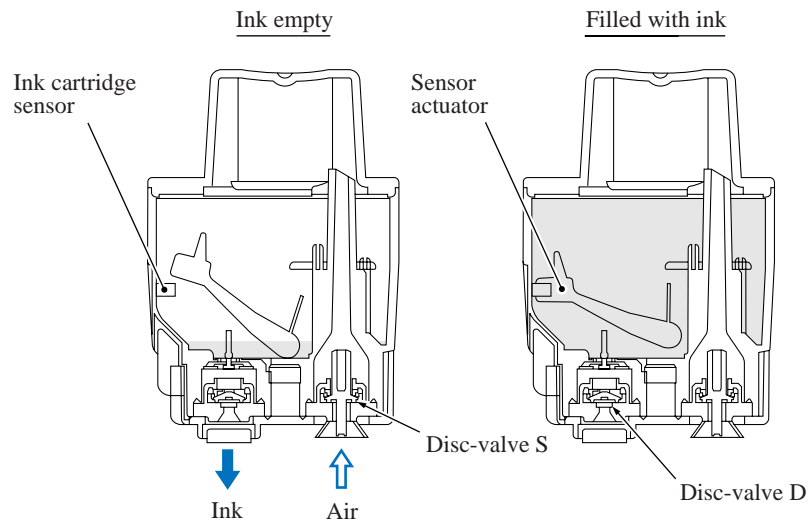
What's so bad about air bubble growth?

Pressure fluctuations do not affect the volume of a liquid (ink), but Boyle's Law says that the volume of a gas (air) varies with the pressure on it. The main issue with air bubbles in the ink flow path is their damping effect, absorbing the pressure from the piezoelectric ceramic actuators and thus degrading ink-jet performance.



The above illustration shows an example of an extremely large air bubble reaching the print nozzle from the channel ink flow path; the dotted line, the changes resulting from applying a voltage to the laminated electrode, expanding the piezoelectric ceramic actuator. Note how contraction of the air bubble absorbs the pressure from the piezoelectric ceramic actuator, preventing ink ejection.

[4] Ink cartridges



Ink cartridge features

This machine uses four ink cartridges: a black one and three color ones with a slightly lower capacity.

Previous versions featured horizontal insertion over metal needles fixed to the chassis. This one features vertical mounting in the ink refill base over plastic needles.

This vertical arrangement requires two ports in the bottom of the cartridge: one supplying the ink for printing and another supplying air to replace that ink. Both ports have disc valves preventing ink leakage. Mounting a cartridge over the plastic needles in the ink refill base forces these valves open to secure flow paths for both the ink and the air.

Inks

"Removing air"

An earlier page explained how too much air in the ink risks air bubbles degrading ink-jet performance. The manufacturing process prevents such air bubbles with a step, deaeration, that removes air from the ink before injection into the cartridge. Vacuum packaging then prevents air contamination during shipping and storage.

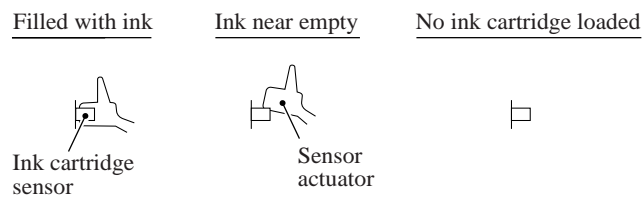
"Pigment-based ink"

Previous Brother machines used only dye-based inks. This one switches to a pigment-based ink for black only, reducing fuzziness from print character outlines, boosting resolution for black dots, and producing clearer images on plain paper.

This machine provides separate head caps and individual vent unit drive mechanisms for this black pigment-based ink and its dye-based color counterparts. Such special design measures are necessary because any mixing of the two types triggers a chemical reaction producing residue clogging head nozzles, filters, maintenance unit piping, and other components, degrading print performance.

Ink cartridge components and their main roles

- Disc valve S
A plastic needle in the refill base opens this valve to supply air to the ink cartridge. Removing the ink cartridge closes this valve to prevent leakage due to ink backflow.
- Disc valve D
A plastic needle in the refill base opens this valve to allow ink to flow out of the ink cartridge. Removing the ink cartridge closes this valve to prevent leakage.
- Sensor arm
This arm indicates the amount of ink remaining. Certain positions cut the light beam to the ink cartridge sensor on the ink cartridge PCB inside the ink refill assembly.



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

Ink near-empty detection

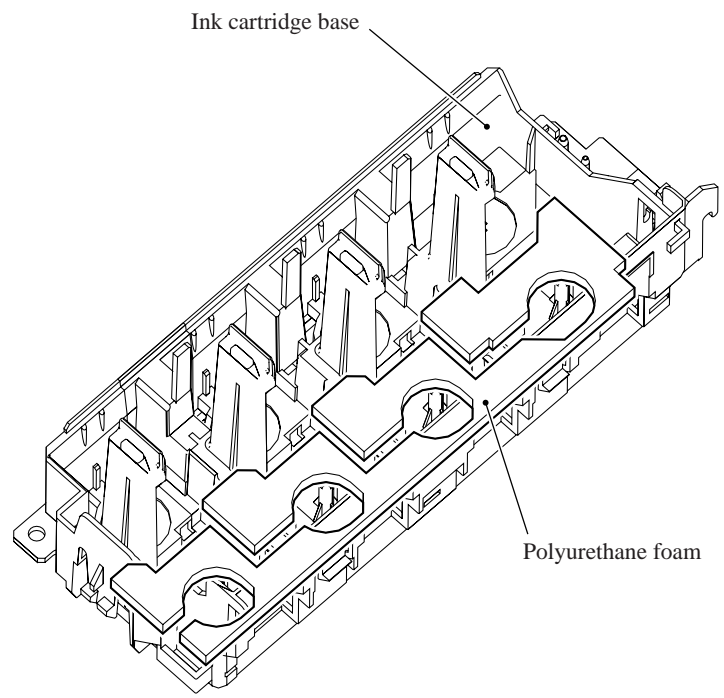
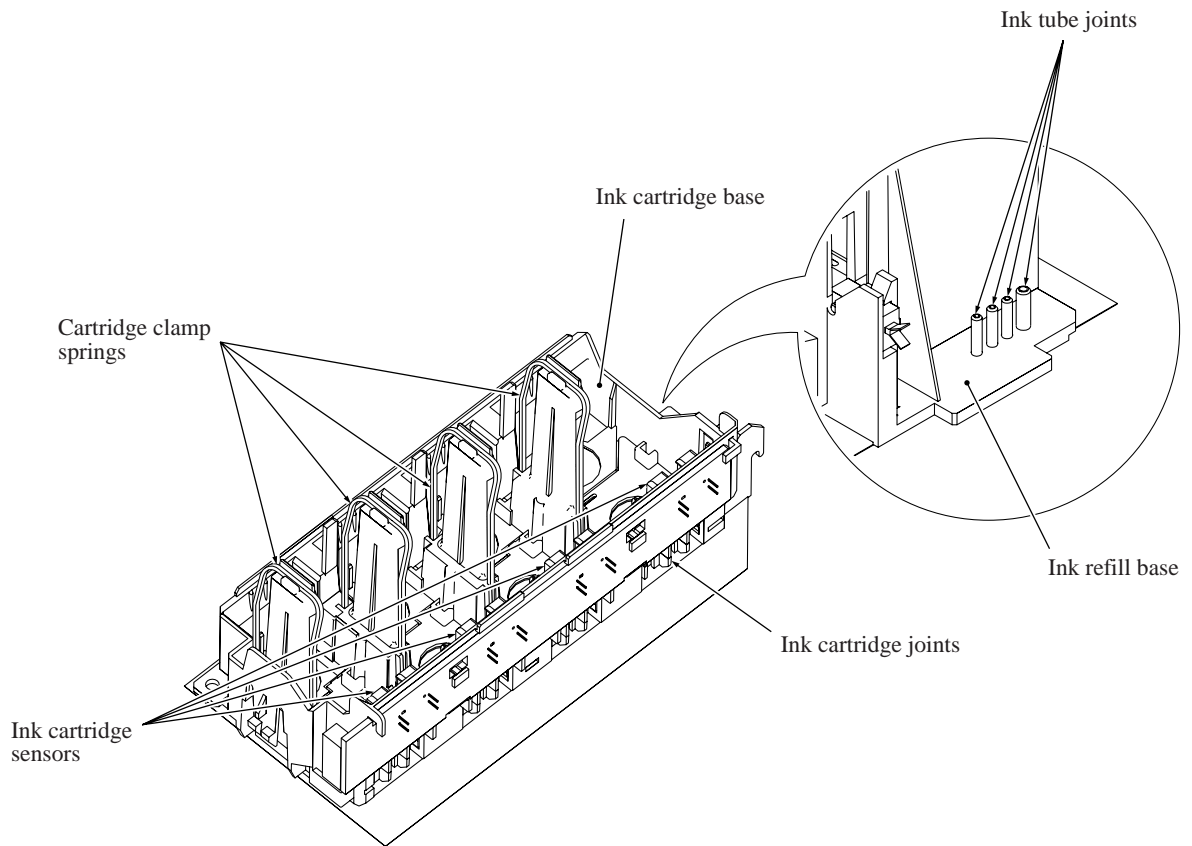
The ink refill assembly has four ink cartridge sensors (photosensors of transparent type) that monitor the ink levels with sensor arms inside the ink cartridges.

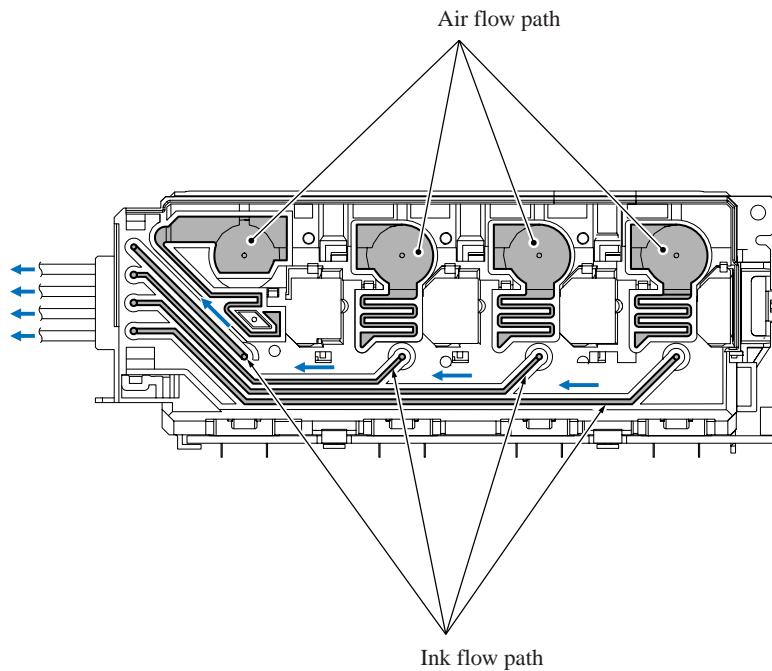
Attached to one end of the sensor arm is a float. When there is ink in the cartridge, buoyancy lifts the float, rotating the sensor arm about a pivot near the center of the arm to block the light beam to the sensor, indicating that there is ink. As the ink level in the ink cartridge drops, however, the float falls, eventually moving the sensor arm out of the beam.

Light hitting the sensor is the signal that ink is running low ("Ink near-empty"), activating a firmware counter tracking ink usage during ink-jet printing, purges, and other operations. When this counter reaches a predetermined limit, the firmware considers the "ink empty" and prompts the use to replace it.

Removing an ink cartridge from its slot also causes light to hit the corresponding sensor. The firmware differentiates this from the above "running low" situation by interpreting any intervening activation of the scanner open sensor as indicating that the user has opened the scanner to remove that ink cartridge, so considers the "ink empty".

[5] Ink refill assembly





Ink refill assembly components and their main roles

- Ink refill base
This holds the ink cartridges and feeds ink from them to the ink supply tubes.
- Cartridge clamp springs
These force the ink cartridges into close contact with the ink cartridge joint to prevent ink leakage.
- Joint head
This lifts the disc valves S and D, allowing ink to flow out of the ink cartridges and air to flow in. It also incorporates measures to prevent insertion of the wrong ink cartridges.
- Ink cartridge sensors
These detect when the ink cartridges are running out of ink ("Ink near-empty").
- Polyurethane foam
This absorbs any ink that leaks from the ink cartridges, limiting its spread and thus reducing the risk of damage to other components.

Ink refill assembly

The cartridge clamp springs force the ink cartridge ink supply ports into close contact with the joint head to prevent ink leakage.

The ink from the ink cartridges flows along paths in the ink refill base and through connectors into the ink supply tubes. As the ink level in an ink cartridge drops, the pressure inside falls, drawing in air from the air supply port in the ink refill base.

Polyurethane foam absorbs any ink that leaks from the ink cartridges, limiting its spread and thus reducing the risk of damage to other components.

An ink cartridge sensor arm blocking light to a cartridge sensor indicates that there is ink in the ink cartridge. When ink runs low, the arm moves out of the beam, activating the sensor. (Note that the firmware also interprets a missing ink cartridge as running low on ink.)

[6] Ink supply tubes

These are made of an elastomer 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.

3.2.2.3 Head maintenance mechanism

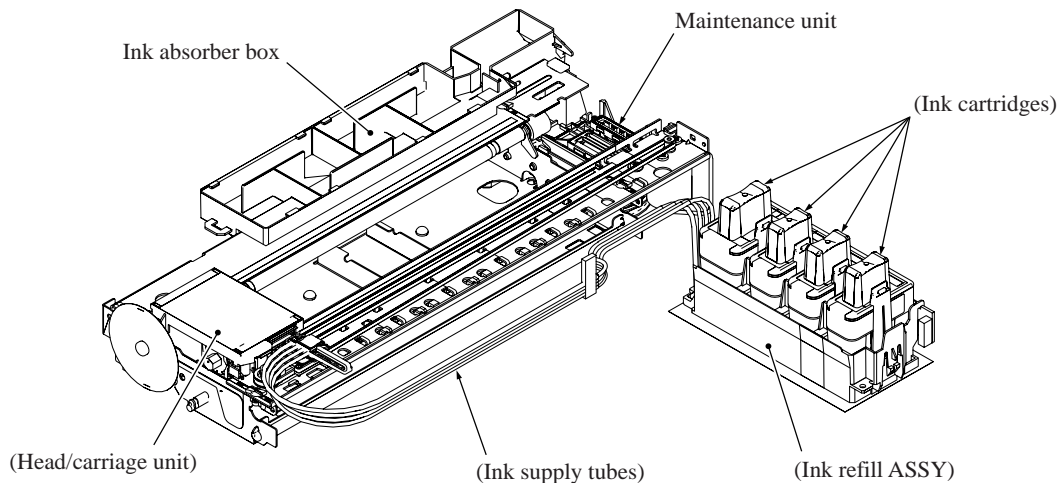
[1] Maintenance mechanism components

The head maintenance mechanism consists of the maintenance unit and the ink absorber box. (See the illustration below.)

The maintenance unit has the following functions.

- Locking the head/carriage unit
- Capping the head nozzles to prevent them from drying up (See [page 3-26.](#))
- Purging for restoring optimum head performance by removing old ink from the head nozzles (See [page 3-27.](#))
- Removing air bubbles from the print head (See [page 3-15.](#))
- Cleaning with the wiper (See [page 3-31.](#))

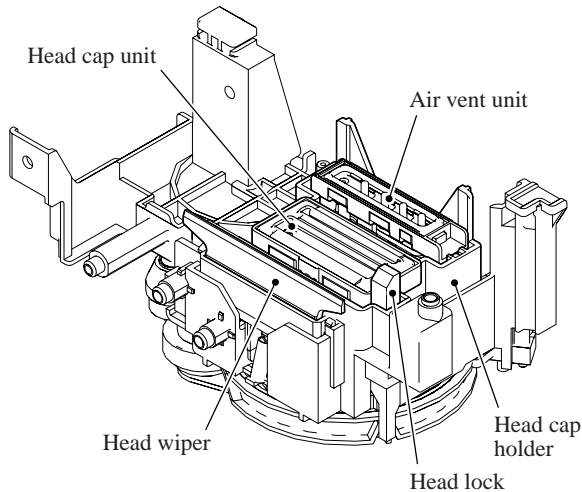
The ink absorber box absorbs the ink sucked out by purge operations.



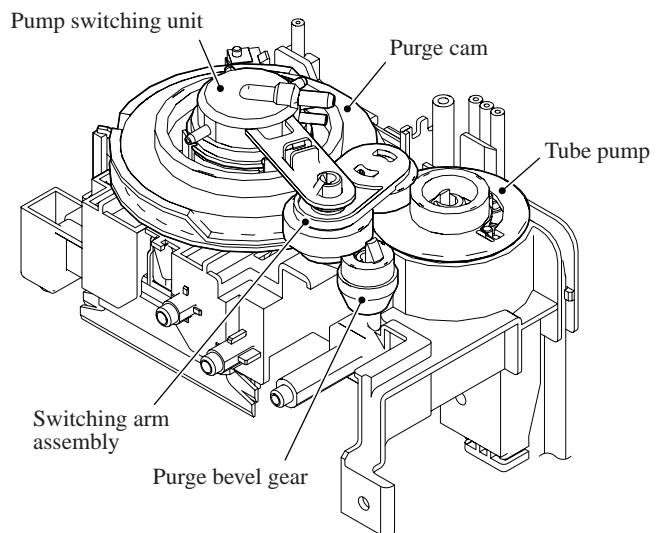
[2] Maintenance unit components

- Pump switching unit
This switches the negative pressure from the tube pump and the atmosphere to the black and color head caps, the air vent unit, etc.
- Purge cam
This rotating cam drives the carriage lock, the switching unit, the air vent rods, the head wiper, etc.
- Head/carriage lock
This locks the head/carriage unit in its home position.

- Planetary arm
This switches power to the tube pump and pump switching unit depending on the direction of paper feed motor rotation.
- Bevel gear
This transmits the power from the clutch gear to the planetary arm.
- Tube pump
A roller squeezes the ink drain tubes looped inside, forcing their contents toward the ink absorber box and creating negative pressure.
- Head caps
When the power is off or there is no printing, these fit 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.
- Air vent rods
Pushing these up opens the shut-off valves inside the air vent unit, expelling air trapped in the manifolds.
- Head wiper
As the head/carriage unit moves, this wipes off any ink remaining on the head nozzle surface.
- Head cap holder
This moves to the right together with the head/carriage unit as the latter returns to its home position. Rightward motion of the head cap holder turns the lift arms, fitting the head caps tightly over the print head to seal the head nozzles.



Viewed from the top



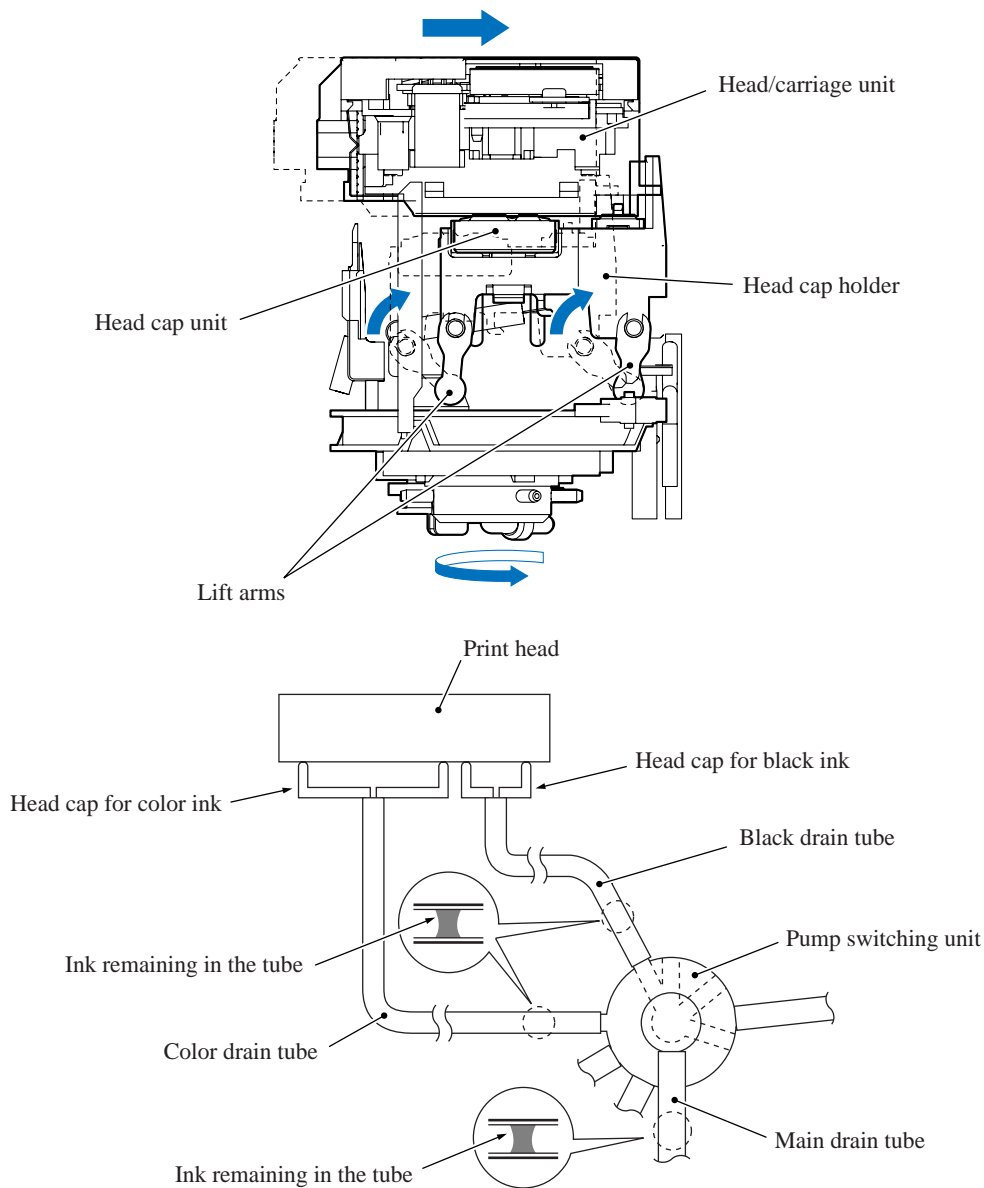
Viewed from the bottom

[3] Head capping mechanism

When the power is off or the machine is not printing, this mechanism fits the head caps tightly over the print head to prevent the head nozzles from drying up and to keep dust off the print nozzle surface.

The pump switching unit connects the spaces inside the caps to the atmosphere to prevent internal pressure fluctuations due to environmental changes from damaging the menisci. The ink remaining inside these spaces seals them. (See the illustration below.)

This mechanism moves with the head/carriage unit. When the head/carriage unit returns to its home position, it presses against the head cap holder in the maintenance unit. The lift arms in the maintenance unit raise the head caps, fitting them tightly over the head nozzle surface to protect them.

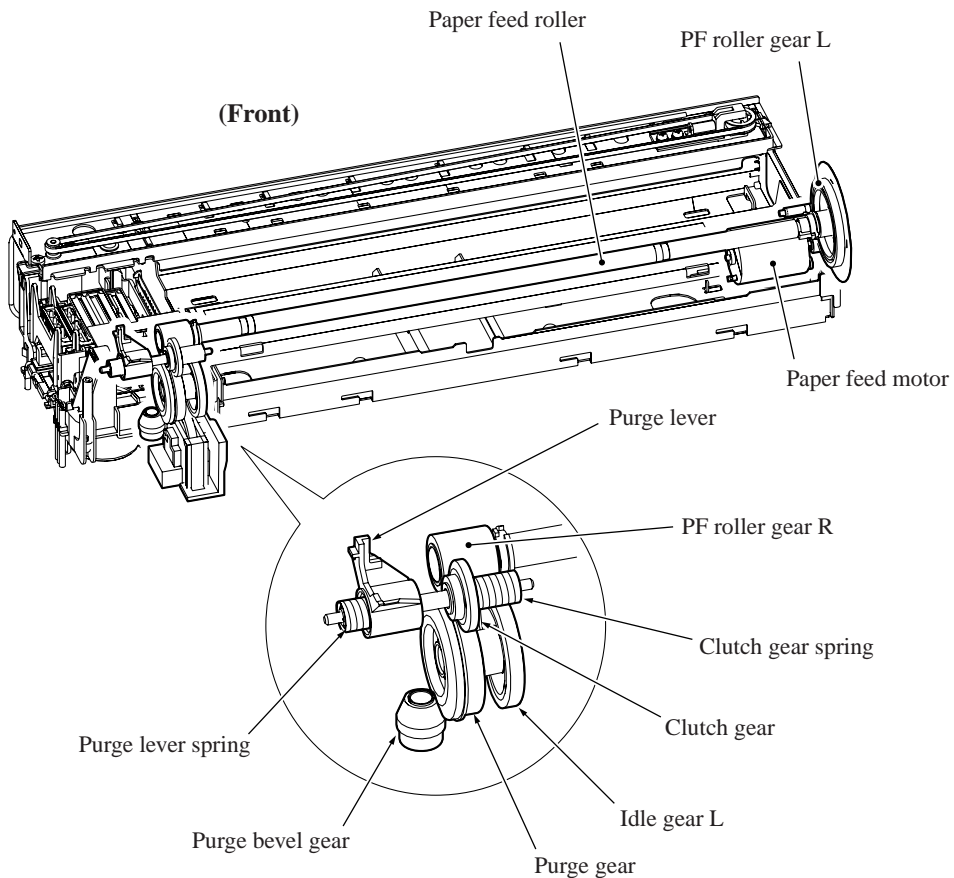


[4] Purge mechanism

This mechanism draws its power from the paper feed motor on the left side of the main chassis.

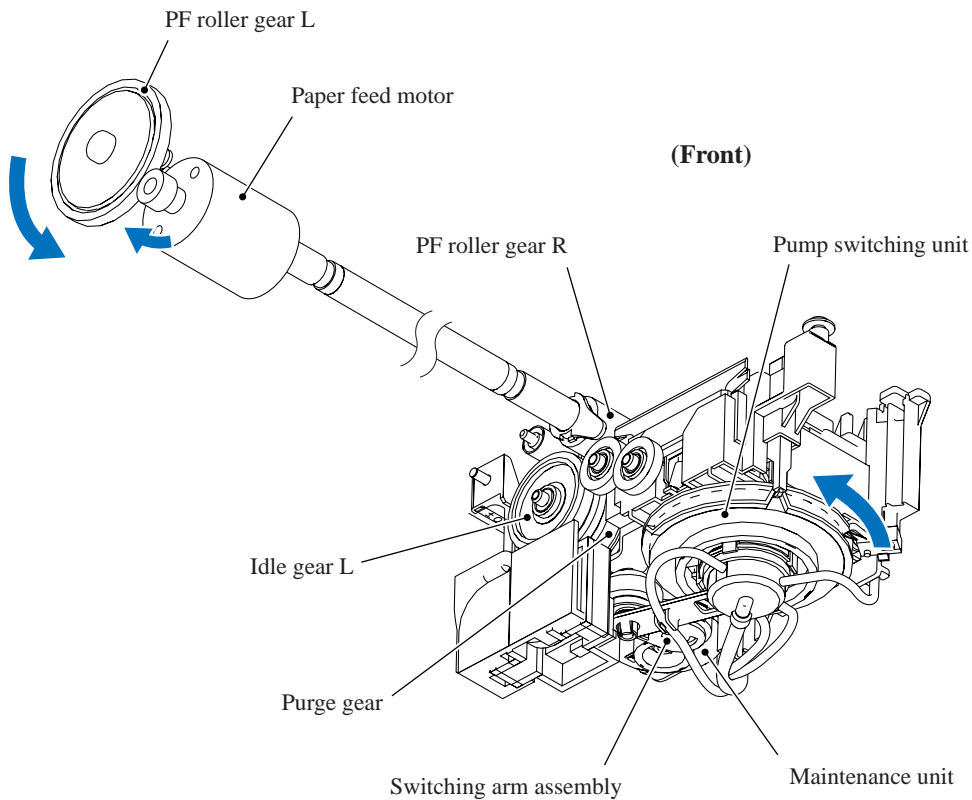
Gears between paper feed motor and maintenance unit

As described in [Section 3.2.2.1](#), the motor drives the PF roller gear L that rotates the paper feed roller. At the right end of the roller (left in the illustration because the view is from the rear) is the PF roller gear R, which always meshes with the clutch gear.



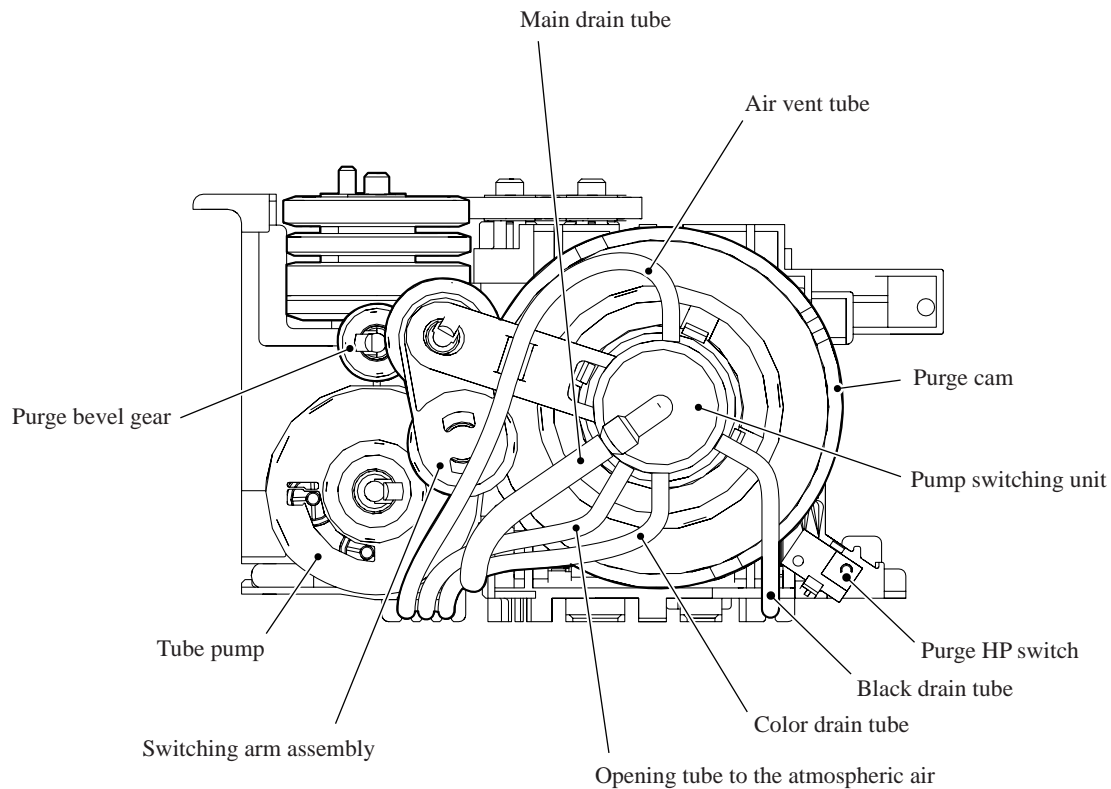
When the head/carriage unit travels from the left to right to reach the purge position, a tab on the carriage rear panel pushes the purge lever to the right (left in the illustration). The clutch gear spring pushes the clutch gear to the right, away from idle gear L, to mesh with the purge gear. At the purge position, therefore, the maintenance unit transmits the paper feed motor rotation to the bevel gear.

On the other hand, when the head/carriage unit moves left from the purge position, the tab on the carriage rear panel releases the purge lever, allowing a spring to force the purge lever and the clutch gear to the left. The purge lever spring is stronger, so forces the clutch gear spring back, disengaging it from the purge gear.



Switching arm assembly inside maintenance unit

When the paper feed motor is driving the maintenance unit, counterclockwise (when viewed from the output gear side) rotation drives the purge cam; clockwise rotation, the tube pump.



Purge cam mechanism

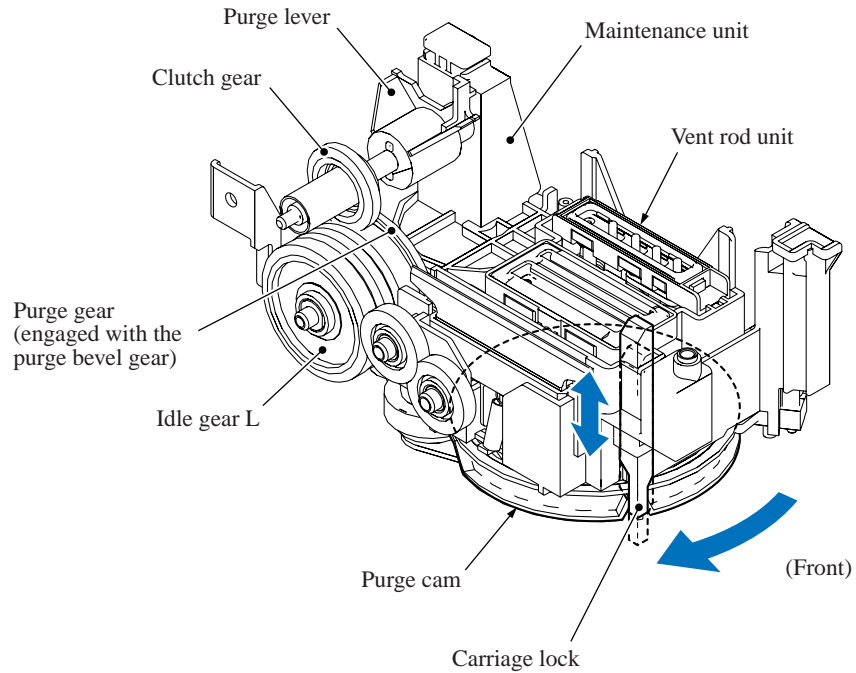
The purge cam is so designed that:

- the carriage lock pops out to lock the head/carriage unit before purging and pops in before cleaning with the head wiper (this lock also secures the head/carriage unit during transportation),
- the pump switching unit switches application of the negative pressure from the pump between the black head nozzles, the color head nozzles, and the air vent rod unit. When the purge cam is in the head capping position, the pump switching unit opens their interiors to normal atmospheric pressure.
- the head wiper comes out to clean the nozzle surface, and
- the air vent rods are pushed up via the slide cams to expel air trapped.

The purge cam switch detects the cam drive positions. (See [Section 3.2.3.](#))

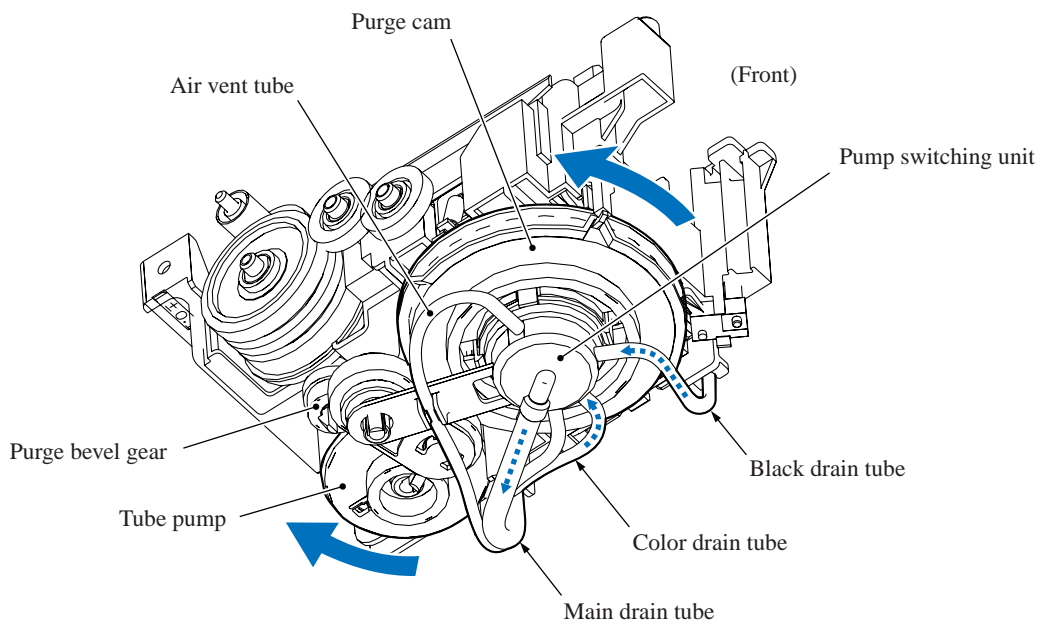
(1) Carriage lock

Driving the purge cam pushes the carriage lock up and down. During the purge operation, the carriage lock pops out and locks the head/carriage unit to align ink-jet units with the mating head caps. After the purge operation, but before cleaning with the head wiper starts, the purge cam pulls in the carriage lock and releases the head/carriage unit. When the power is off, the carriage lock is released, pressing the head caps against the print head.



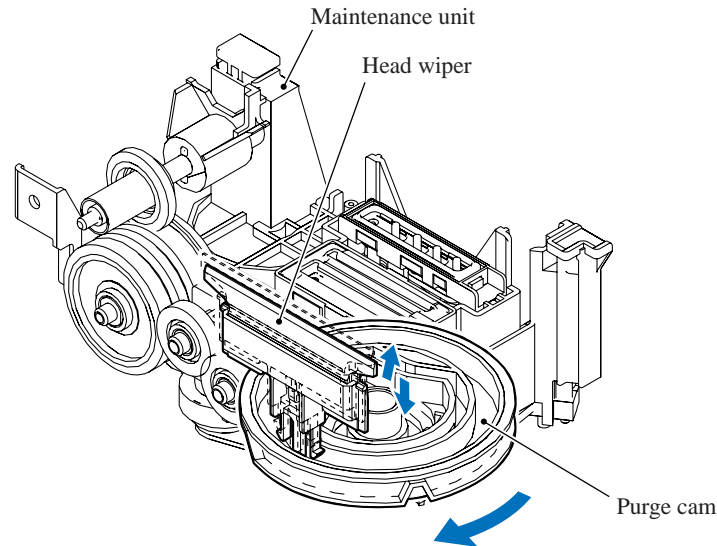
(2) Purging

Driving the purge cam to the pump switching unit's black or color position reverses the paper feed motor and activates 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) Head wiper

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.

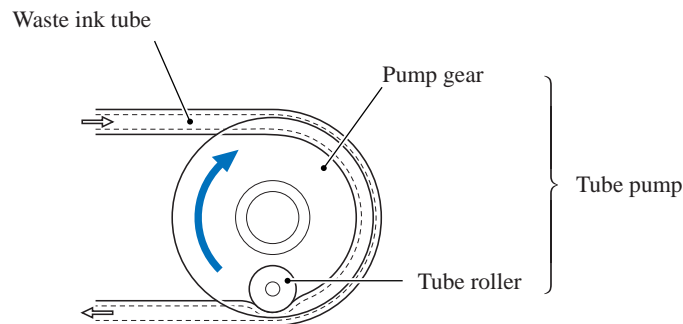


(4) Switching pump

The pump switching unit switches the negative pressure from the pump between the black head nozzles, the color head nozzles, and the air vent rod unit. Another position returns all these components to normal atmospheric pressure.

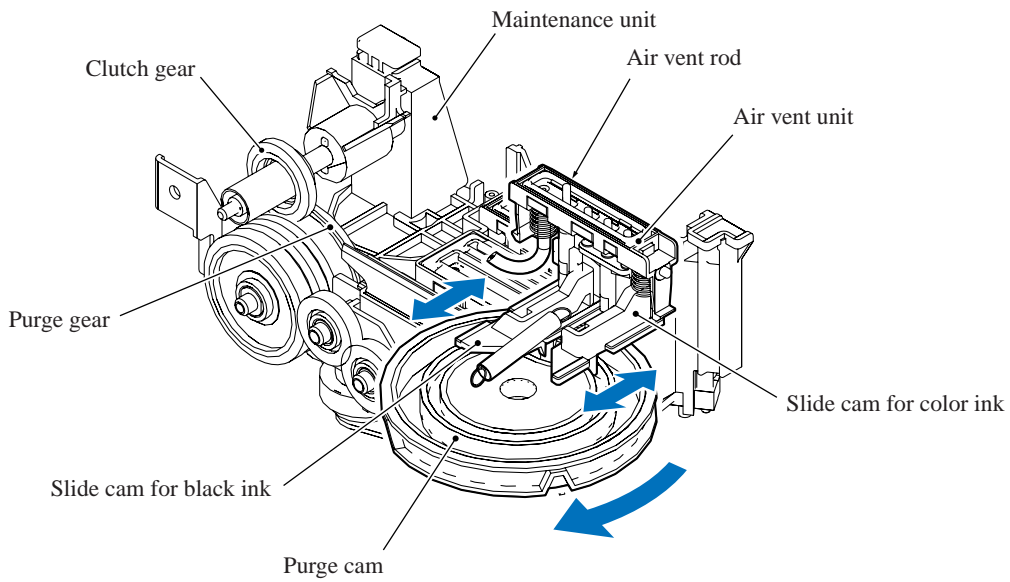
When the purge cam is in head capping position, the carriage lock fits the head caps tightly over the print head, and the pump switching unit is opened to the atmosphere.

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



(5) Removing air

Another position of the purge cam shifts the slide cams, producing vertical motion of the air vent rods. 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 expels air trapped in the manifolds.



Purge types, ink used, purge counts, and purge trigger keys

Purge Types	Description	Ink Used	Purge Counts (See Note 2.)	Keys to trigger the purge, to be followed by Black Start key (See Note 1 for the DCP340CW.)
Normal purge	This purge operation removes dried ink sticking to the head nozzles.	Black: 0.3 mL Color: 0.15 mL	Black: 15 Color: 22	1 key
Power purge	More powerful than a reset purge, this purge operation is for removing stubborn clogging from the head nozzles and ink supply tubes.	Black: 0.85 mL Color: 0.55 mL	Black: 43 Color: 86	3 key
Initial purge	Run automatically when the user powers up this machine for the first time, this purge operation refills the ink supply tubes and print head with fresh ink.	Black: 3.63 mL Color: 2.61 mL	Black: 187 Color: 420	4 key
Reset purge	This purge operation removes any bubbles that have accumulated in the ink supply tubes.	Black: 0.55 mL Color: 0.4 mL	Black: 28 Color: 63	5 key
Engine setup purge	This purge operation refills the ink supply tubes with ink when there is no ink in those tubes.	Black: 3.93 mL Color: 2.76 mL	Black: 202 Color: 443	6 key
Cartridge replacement purge	This purge operation must follow ink cartridge replacement.	Black: 0.3 mL Color: 0.15 mL	Black: 15 Color: 22	7 key
Ink drain purge (not used)	This purge operation drains all ink from the supply system, permitting repairs without the risk of scattering ink all over the surroundings.	--	--	
Initial liquid substitute purge (not used)	This purge operation substitutes ink in the ink supply tubes and print head with initial liquid.	--	--	--

(Note 1) To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered on the LCD and then press the **Set** key. After that, press the **Mono Start** key.

Ink cartridge capacities

Ink cartridge type		Contents	Usable portion
Spare cartridges	Black ink cartridge	18.0 mL	Approx. 16.9 mL
	Color ink cartridges	11.3 mL	Approx. 10.5 mL
Initial cartridges (that ship with the machine)	Black ink cartridge	21.5 mL	Approx. 20.4 mL
	Color ink cartridges	14.2 mL	Approx. 13.4 mL

Ink cartridge lifetimes

Print conditions: 3 pages/day (monochrome print, 5% duty)

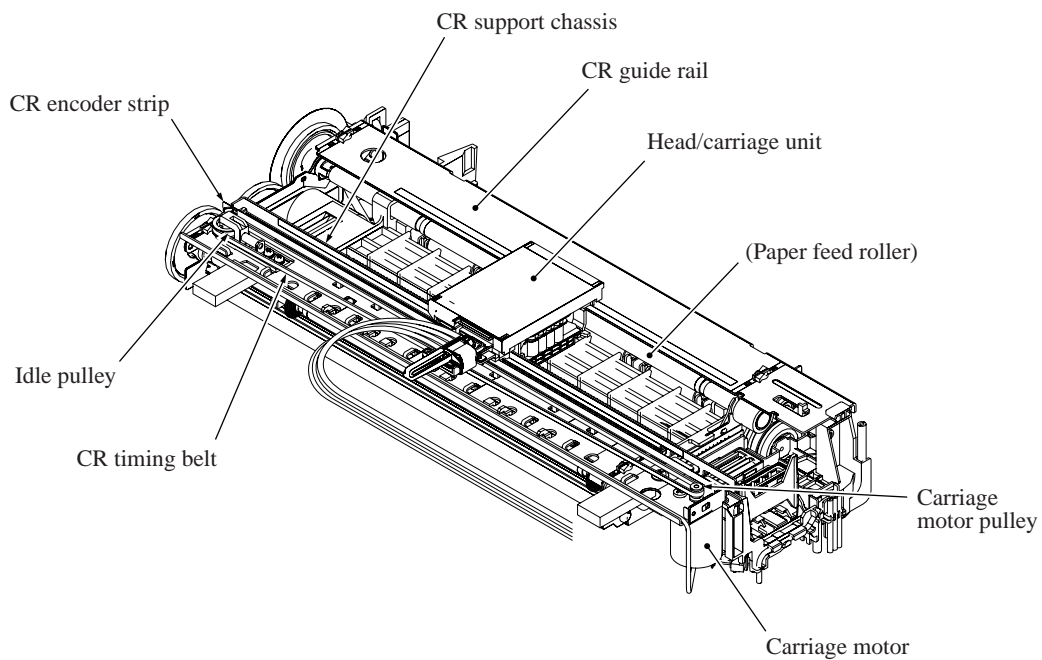
Ambient temperature: 5 to 25°C

Ink Cartridge Type	Projected Lifetime
Black ink cartridge	Approx. 4.6 months
Color ink cartridges	Approx. 6.9 months

3.2.2.4 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 (1/25.4 inch pitch) transmits the carriage motor rotation to the carriage. Clockwise motor rotations move the carriage to the right; counterclockwise ones to the left.

The CR encoder sensor on the back of the head/carriage unit scans the CR encoder strip under the engine chassis to monitor the current head position relative to the home position. The controller uses this signal for proportional, integration, differential (PID) control ensuring uniform speed. The strip's 1/150 dpi markings offer a choice of four speeds to match the print resolution: 40.0, 33.3, 32.0, and 20.0 ips.



Aging

Maintenance mode function code 69 is for adjusting the initial PWM value. The firmware automatically adjusts this CR drive parameter as the head/carriage unit works to minimize speed deviations and to match the current mechanism. This aging sometimes resolves problems with ink clogging uneven operation.

For further details on maintenance function code 69, see [Chapter 8, Section 8.4.17](#).

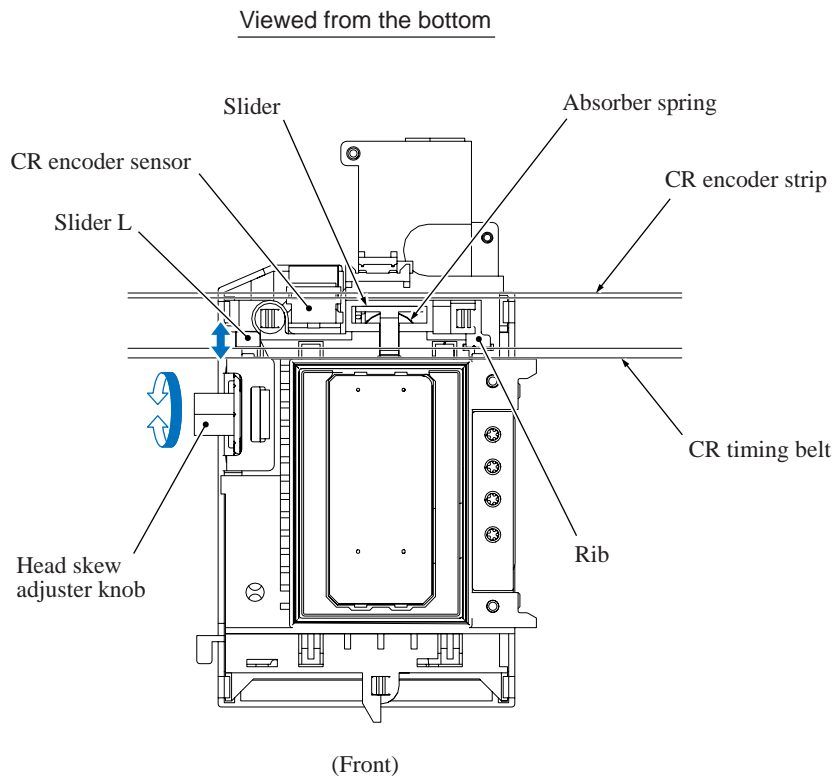
Adjusting print head angle relative to carriage

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

This knob offers 15 settings, from -7 to +7.



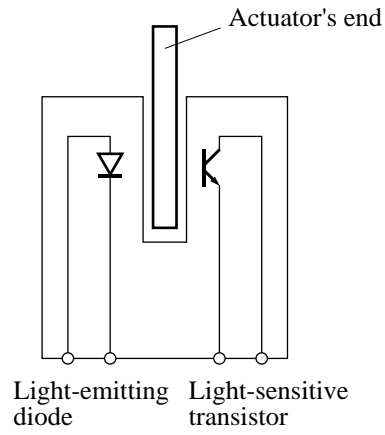
3.2.3 Sensors and Actuators

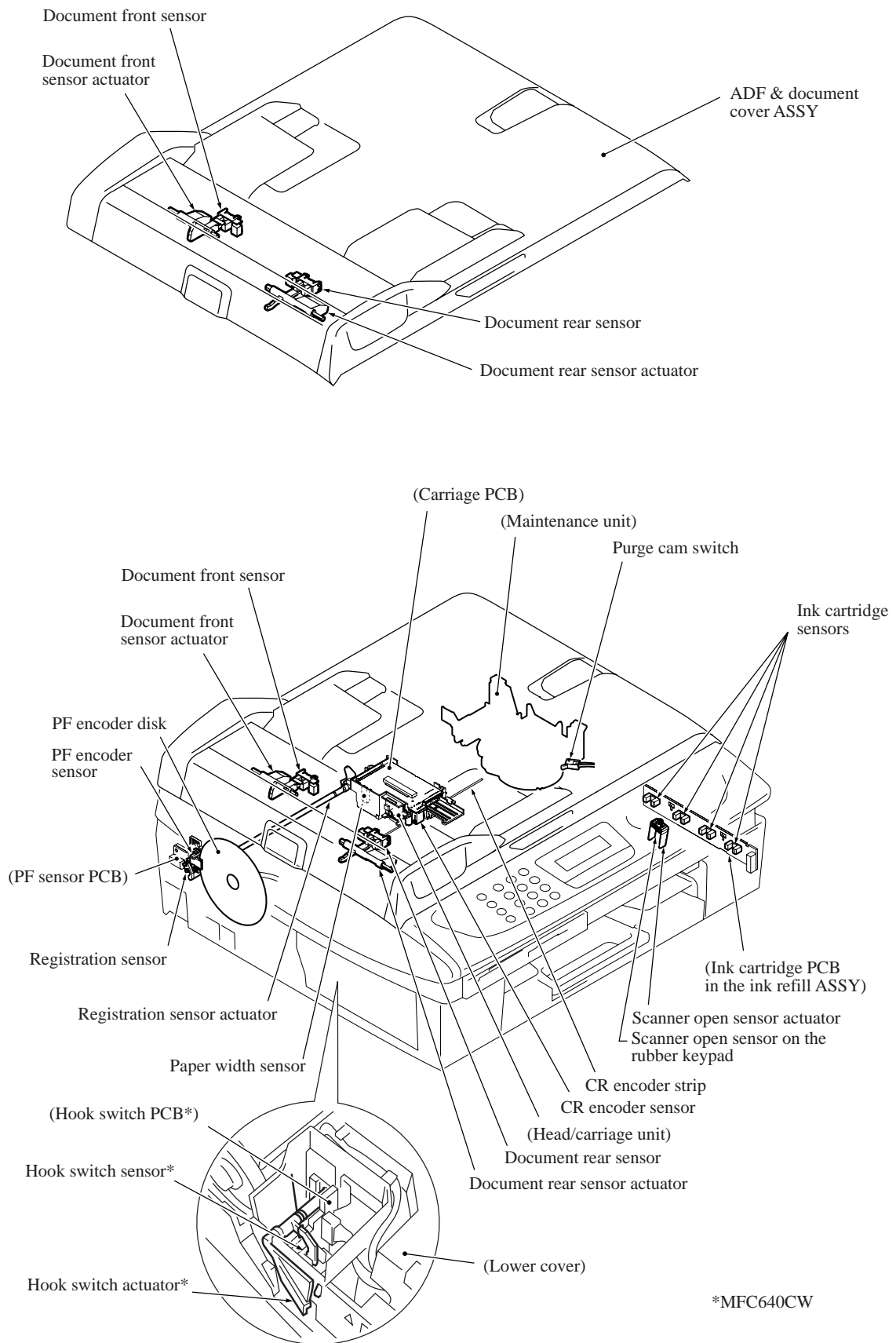
This machine uses the following sensors and thermistor.

Sensor Name	Sensor Type	Location
Document front sensor	Photosensor	In the ADF unit
Document rear sensor	Photosensor	In the ADF unit
Scanner open sensor	Mechanical switch	In the rubber keypad in the control panel ASSY
Paper width sensor	Photosensor	On the carriage PCB
Head thermistor	Thermistor	
CR encoder sensor	Photosensor	
PF encoder sensor	Photosensor	On the PF sensor PCB
Registration sensor	Photosensor	
Purge cam switch	Mechanical switch	On the maintenance unit
Ink cartridge sensors (four)	Photosensor	On the ink cartridge PCB inside ink refill assembly
Hook switch sensor (MFC640CW)	Photosensor	On the hook switch PCB in the lower cover

- 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 open sensor detects whether the scanner cover (scanner unit) is properly closed.
- The paper width (media) sensor detects the right and left paper edges, as well as the paper width in near-edge printing.
- The head thermistor detects the temperature of the print engine. 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 head/carriage unit's current position and speed. An error in the head's travel speed usually indicates a paper jam.
- 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 registration sensor detects the leading and trailing edges of paper for use in determining registration timing and detecting paper jams.
- The purge cam switch detects the drive positions of the purge cam.
- There are four ink cartridge 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), the arm moves out of the beam, activating the sensor. The same signal also indicates whether there is an ink cartridge present.
- The hook switch sensor detects whether the handset is on the handset mount. (MFC640CW)

Most sensors are photointerrupters consisting of a light-emitting diode and a light-sensitive transistor. The only exception is the paper width sensor, which uses reflective tape. The illustration on the next page gives the sensor and actuator locations.





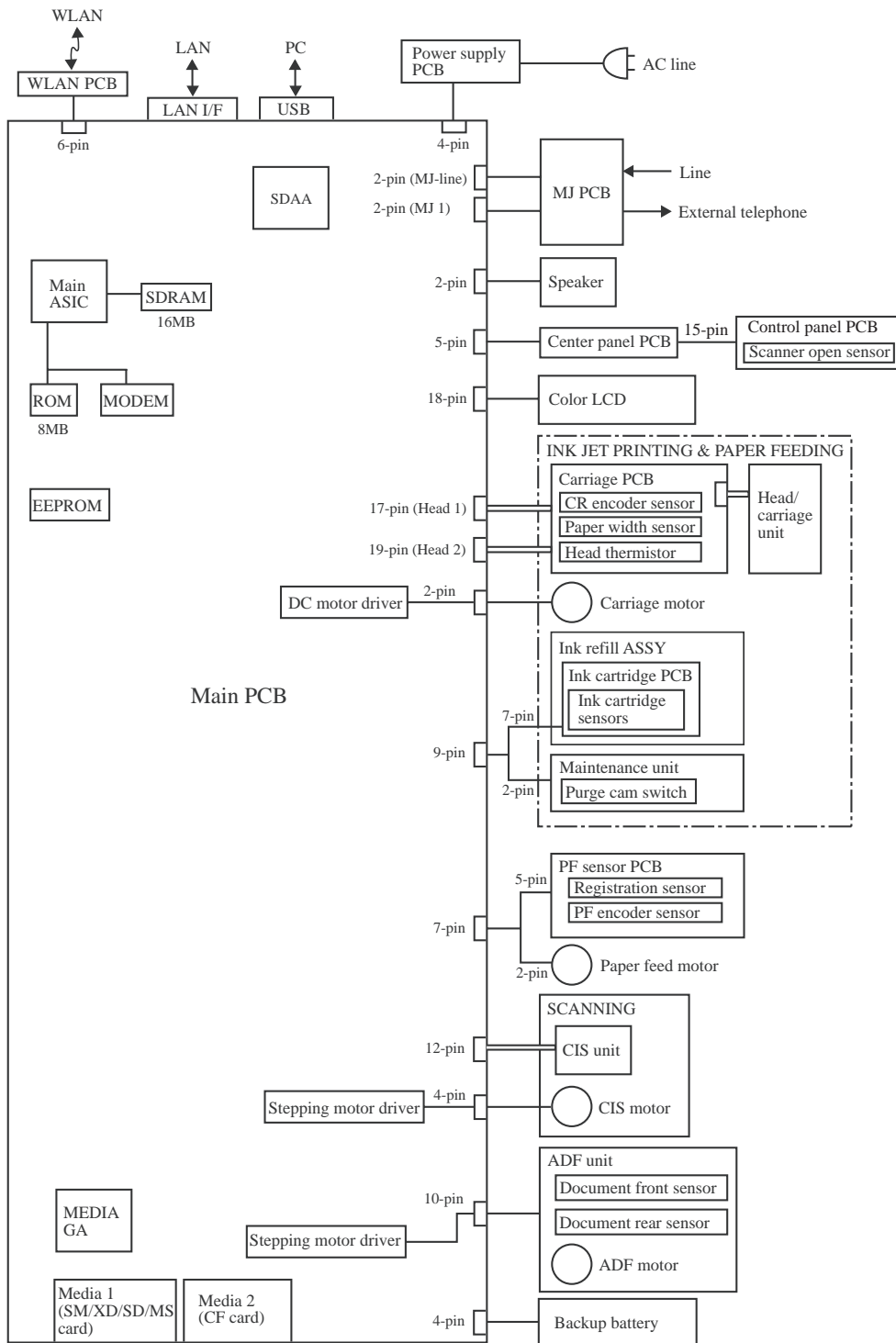
Sensors and Actuators Locations

3.3 CONTROL ELECTRONICS

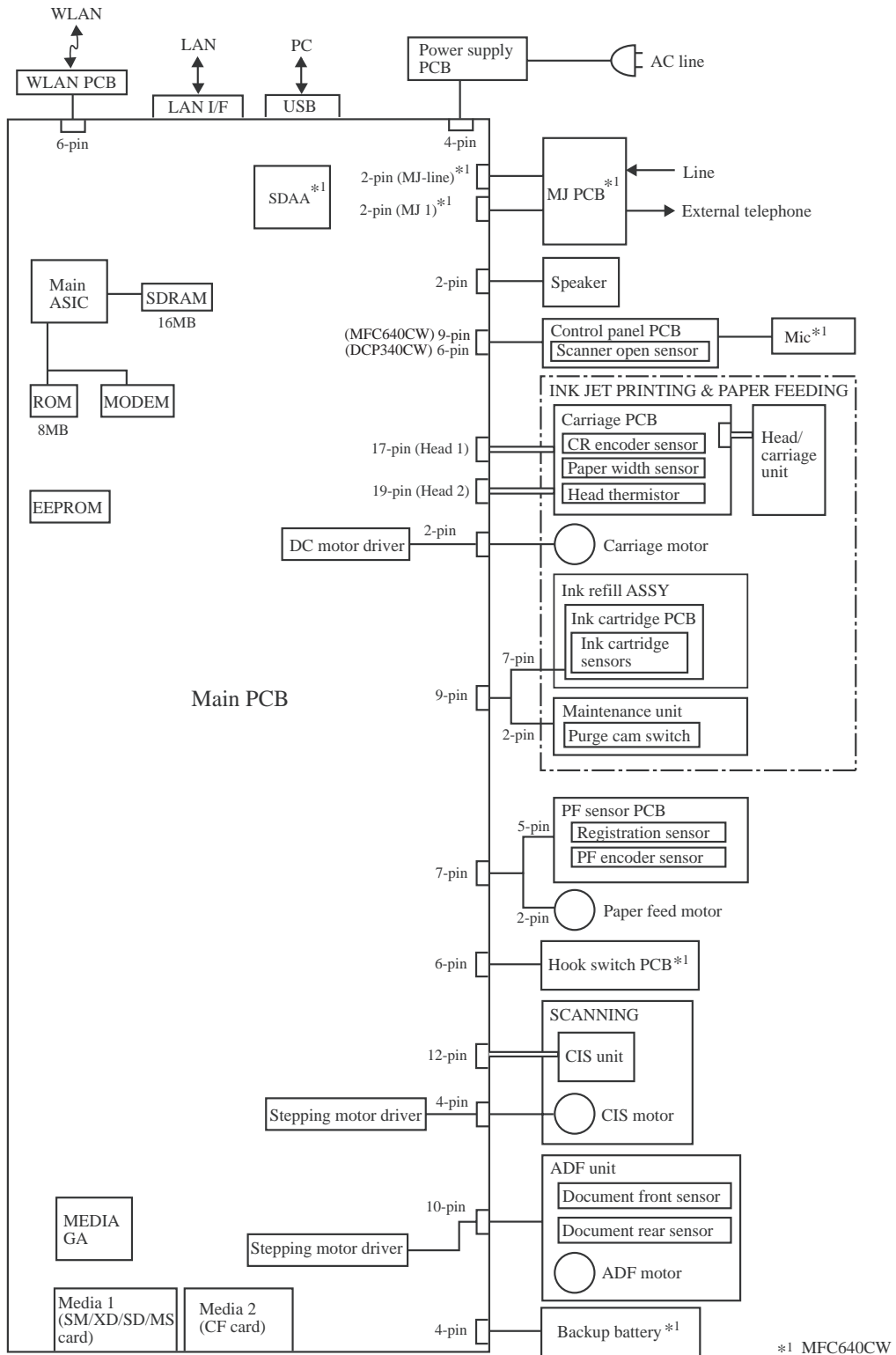
3.3.1 Components

The following illustrations show the hardware components for MFC820CW, MFC640CW and DCP340CW. The corresponding wiring diagrams appear in [Appendix 5](#).

MFC820CW



MFC640CW/DCP340CW



*1 MFC640CW

CHAPTER 4

TRANSFER OF DATA LEFT IN THE MACHINE TO BE SENT FOR REPAIR

CHAPTER 4 TRANSFER OF DATA LEFT IN THE MACHINE TO BE SENT FOR REPAIR

This chapter describes how to transfer data left in the machine to be sent for repair. The service personnel should instruct end users to follow the transfer procedure given in this chapter if the machine at the user site cannot print received data due to the printing mechanism defective. End users can transfer received data to another machine to prevent data loss.

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4.1 TRANSFERRING RECEIVED FAX DATA

When the machine at the user site requires to be repaired, unplugging the power cord from the wall socket for sending the machine for repair will lose received FAX data if unprinted and 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: This function is not applicable to the DCP340CW.

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

(In the following procedure, key names enclosed in parentheses apply to the MFC820CW.)

- (1) Connect the machine to be repaired (that has received data in the memory) to the telephone line.
- (2) Switch the machine on.
- (3) Press the **Menu/Set (Menu)**, **Black Start**, **0**, **5** and **3** keys in this order to access user-accessible functions of the maintenance mode.

The "FAX TRANSFER" appears on the LCD.

- (4) To check the number of received files, press the **1** key.

The "1.NO. OF JOBS" appears on the LCD.

Press the **Menu/Set (OK)** key, and the number of received files appears, just as "NO. OF JOBS: 10."

- (5) To transfer the activity report only, press the **2** key.

The "2.ACTIVITY" appears.

To transfer received files together with the activity report, press the **3** key.

The "3.DOCUMENTS" appears. Note that if there is no received file, the "NO DOCUMENTS" appears.

- (6) To transfer the communication list for the latest communication, press the **4** key.

The "4.COM.LIST (NEW)" appears.

To transfer the communication list for last three errors, press the **5** key.

The "5.COM.LIST (ERR3)" appears.

- (7) With the "2.ACTIVITY," "3.DOCUMENTS," "4.COM.LIST (NEW)," or "5.COM.LIST (ERR3)" being displayed, press the **Menu/Set (OK)** key.

The "ENTER NO. &SET" appears.

- (8) Enter the telephone number of the receiver machine and press the **Menu/Set (OK)** key again.

NOTE: Be sure to type the telephone number with the numerical keys. No one-touch 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

```

=== FAX TRANSFER COVER PAGE ===

NO. OF JOBS      :001
TOTAL PAGE[S]   :001
NAME            :BROTHER
FAX             :052 824 2330
TEL             :
TIME            :01/02/2004 22:21

8CA-811
B0403261602
U0404221449 VER.0
G01234567890
  
```

← Job number
 ← Total number of pages to be transferred
 ← Station ID registered in the sender equipment
 ← FAX number of the sender equipment
 ← Telephone number of the sender equipment
 ← Transfer start date
 ← Model code
 ← Boot ROM info
 ← ROM info
 ← Serial number

End page sample

```

=== FAX TRANSFER END PAGE ===

NO. OF JOBS      :001
TOTAL PAGE[S]   :001
NAME            :BROTHER
FAX             :052 824 2330
TEL             :

MACHINE STATUS 1  AF:0401022216
MACHINE STATUS 2  43:0401022216
MACHINE STATUS 3  48:0401022216
MACHINE STATUS 4  AF:0401022017
MACHINE STATUS 5  43:0401022017
MACHINE STATUS 6  48:0401022017
MACHINE STATUS 7  AF:0401011756
MACHINE STATUS 8  43:0401011756
MACHINE STATUS 9  48:0401011756
  
```

← Job number
 ← Total number of pages transferred
 ← Station ID registered in the sender equipment
 ← FAX number of the sender equipment
 ← Telephone number of the sender equipment
 ← Error codes

CHAPTER 5

DISASSEMBLY/REASSEMBLY AND LUBRICATION

CHAPTER 5 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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5.1 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 machine.

- (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 such as aluminum foil.

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 5.2](#) 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.

■ Tightening Torque

Location of screw	Screw type	Q'ty	Tightening torque N•m (kgf•cm)
Grounding wire	Taptite, cup S M3x6	1	0.39 ±0.1 (4 ±1)
ADF & document cover ASSY	Taptite, bind B M4x12	2	0.78 ±0.1 (8 ±1)
Document guide	Taptite, B M3x6	1	0.49 ±0.1 (5 ±1)
Grounding wire	Taptite, cup S M3x6	1	0.59 ±0.1 (6 ±1)
ADF motor	Screw, pan (s/p washer) M3x6	1	0.59 ±0.1 (6 ±1)
ADF reinforcement plate	Taptite, cup B M3x10	2	0.49 ±0.1 (5 ±1)
Control panel ASSY (Scanner cover)			
MFC820CW	Taptite, cup B M3x10	4	0.39 ±0.1 (4 ±1)
MFC640CW/DCP340CW	Taptite, cup B M3x12	3	0.59 ±0.1 (6 ±1)
Center panel ASSY*	Taptite, bind B M3x8	2	0.39 ±0.1 (4 ±1)
Color LCD*	Taptite, bind B M3x6	1	0.20 ±0.06 (2 ±0.6)
Upper cover			
	Taptite, bind B M4x12	4	0.69 ±0.1 (7 ±1)
MFC820CW	Taptite, cup S M3x6	2	0.38 ±0.1 (4 ±1)
Main PCB shield	Taptite, cup S M3x6	1	0.39 ±0.1 (4 ±1)
	Taptite, cup B M3x8	2	0.29 ±0.1 (3 ±1)
Main PCB	Taptite, cup B M3x8	3	0.29 ±0.1 (3 ±1)
	Taptite, cup S M3x6	1	0.39 ±0.1 (4 ±1)
Main PCB shield frame	Screw, pan (s/p washer) M3x8	1	0.39 ±0.1 (4 ±1)
MJ/PS shield box	Taptite, cup S M3x6	2	0.39 ±0.1 (4 ±1)
MJ shield	Screw, pan (washer) M3x8DB	1	0.39 ±0.1 (4 ±1)
MJ PCB	Taptite, cup S M3x6	1	0.39 ±0.1 (4 ±1)
Power supply PCB	Taptite, cup S M3x6	4	0.39 ±0.1 (4 ±1)
Maintenance unit (top)	Taptite, cup B M3x8	1	0.59 ±0.1 (6 ±1)
Maintenance unit (right side)	Taptite, cup S M3x6	1	0.78 ±0.1 (8 ±1)
Carriage motor	Screw, bind M3x3	2	0.39 ±0.1 (4 ±1)
PF sensor PCB	Screw, bind M2.6x8	1	0.49 ±0.1 (5 ±1)
Paper feed motor	Screw, bind M3x3	2	0.39 ±0.1 (4 ±1)

* Provided on the MFC820CW

■ Preparation

Prior to proceeding with the disassembly procedure,

(1) Unplug

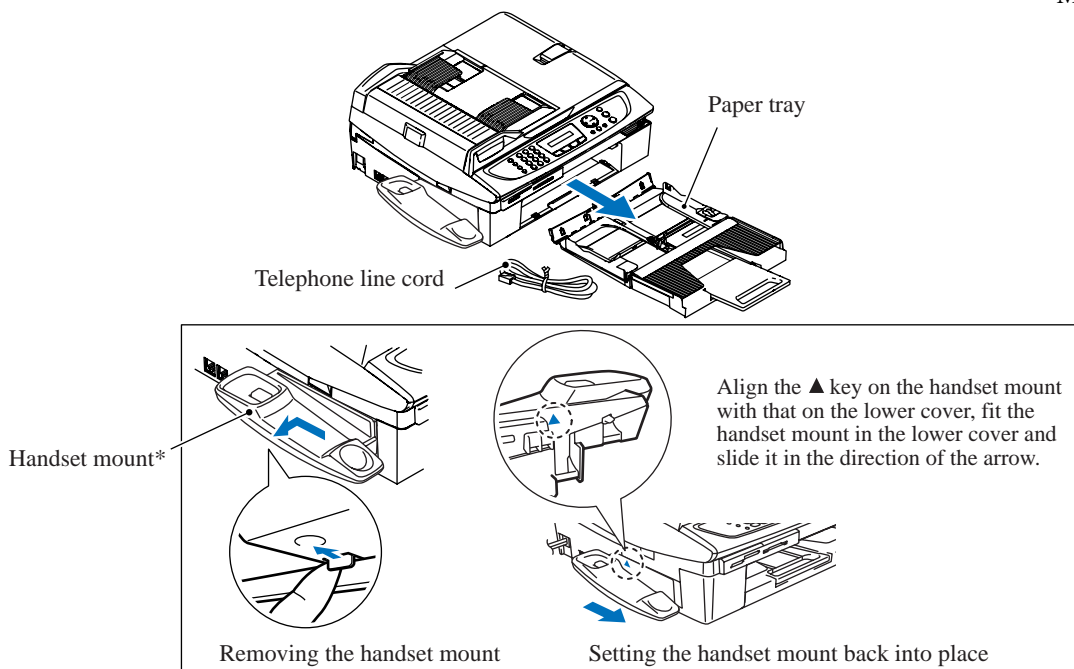
- the power cord from the electrical outlet,
- the modular jack of the telephone line,
- the modular jack of the handset (and remove the handset)*,
- the USB cable, if connected (not shown below), and
- the modular jack of the external telephone set if connected (not shown below).

(2) Remove

- the paper tray and
- the handset mount (by pulling the tab and sliding the handset mount in the direction of the arrow shown below)*.

(3) Remove memory cards if inserted in the machine.

*MFC640CW



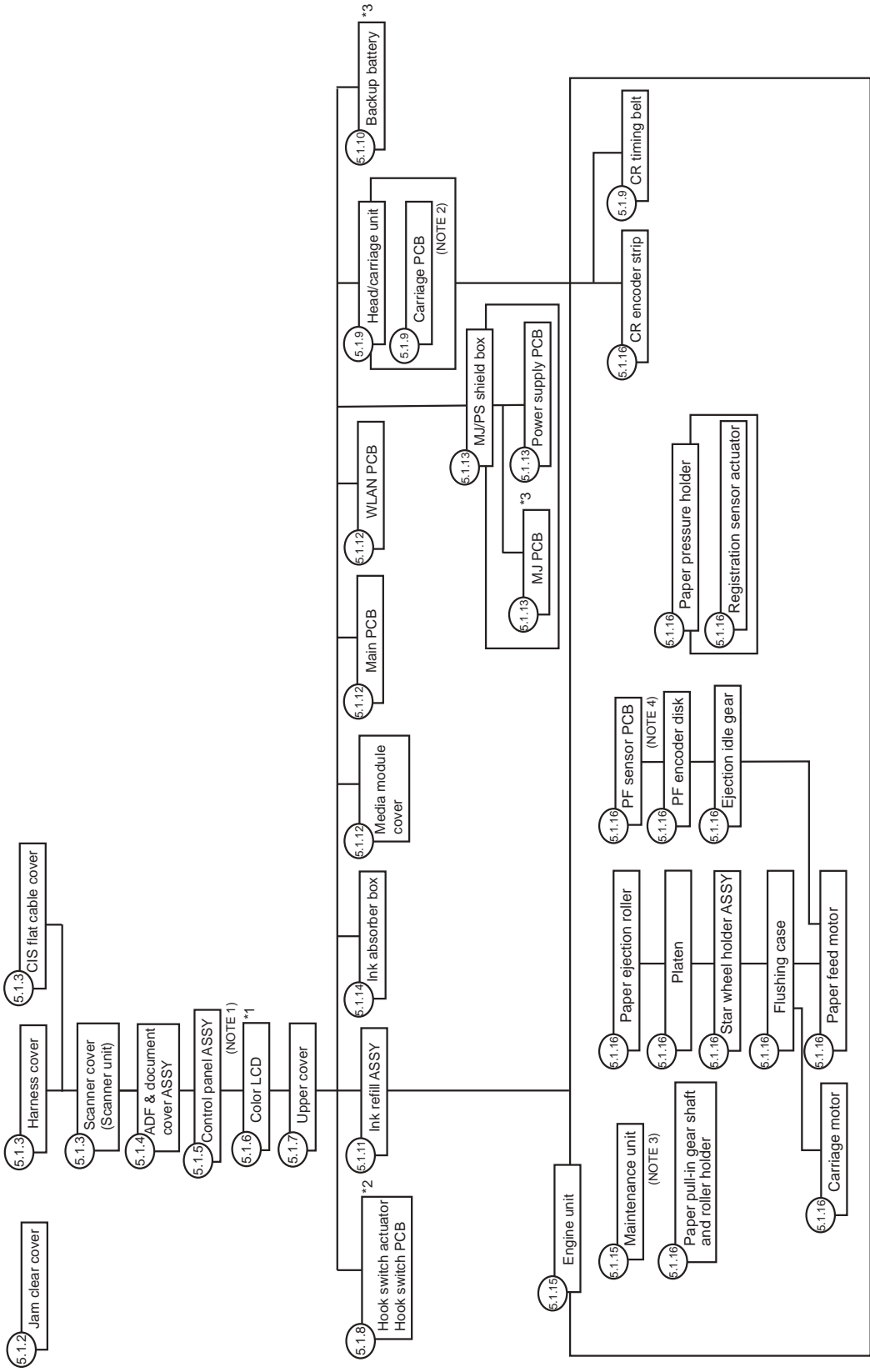
During disassembly jobs except when removing the ink refill ASSY or engine unit (including the maintenance unit), leave the head/carriage unit and all four ink cartridges in the machine.

When removing the head/carriage unit, ink refill ASSY or engine unit, you need to remove the ink cartridges and drain the ink from the ink refill ASSY and head/carriage unit beforehand.

■ 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 number (5.1.15 in this case). To access it, you need to remove all the parts above the maintenance unit on the flowchart (5.1.3, 5.1.4, 5.1.5, 5.1.6, 5.1.7, 5.1.11 and 5.1.15 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) On the control panel PCB is a scanner open sensor.
 (NOTE 2) On the carriage PCB are a paper width sensor, CR encoder sensor and head thermistor.
 (NOTE 3) On the maintenance unit is a purge cam switch.
 (NOTE 4) On the PF sensor PCB are a registration sensor and PF encoder sensor.

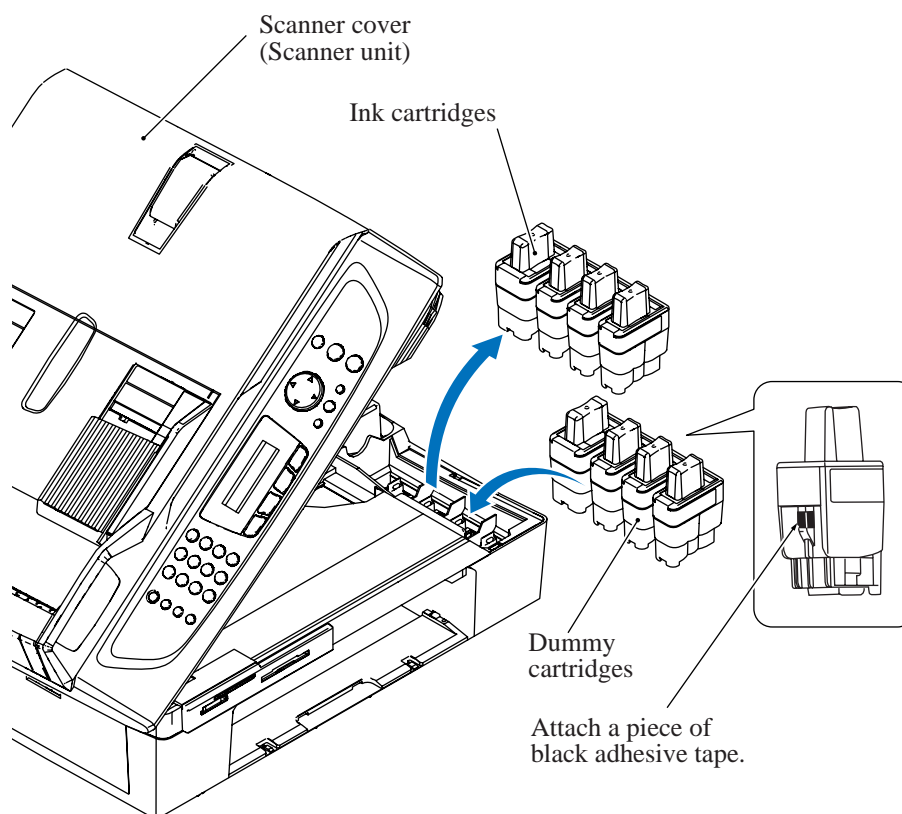
*1 MFC820CW
 *2 MFC640CW
 *3 MFC820CW/640CW

5.1.1 Draining the Ink from the Ink Tubes

-- Be sure to perform draining before removing the head/carriage unit, ink refill ASSY or engine unit. --

- (1) Open the scanner cover (scanner unit) and pull out all four ink cartridges.
- (2) As shown below, attach a piece of black vinyl adhesive tape to each of four dummy cartridges to prevent the ink cartridge sensors from detecting ink near-empty.

Then load those dummy cartridges into the cartridge slots and close the scanner cover.



- (3) Plug the power cord into an electrical outlet.

MFC640CW/820CW

- (4) Press the **Menu/Set (Menu)** and **Black Start** keys. Next press the **▲** key four times to make the machine enter the maintenance mode.

The "■■■ MAINTENANCE ■■■" appears on the LCD.

TIP: FAX models equipped with numerical keypads can enter the maintenance mode in the same way as conventional models; that is, by pressing the **Menu/Set (Menu)**, *****, **2**, **8**, **6** and **4** keys in this sequence.

- (5) Carry out "Initial purge" (with Function code 76) by pressing the **7**, **6**, **4** and **Black Start** keys. For details, refer to [Chapter 8, Section 8.4.20 "Purging Operation."](#)

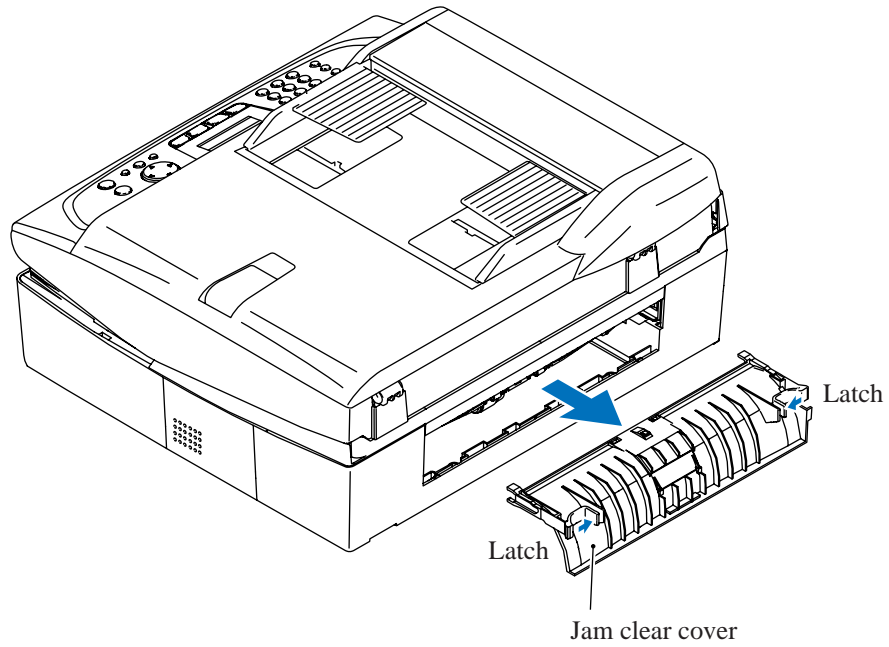
- (6) Make the head/carriage unit travel to the head replacement position (with Function code 63) by pressing the **6**, **3** and ***** keys.
For details, refer to [Chapter 8, Section 8.4.13 "Travel Check of the Head/Carriage Unit and Initial Setup Mode."](#)
- (7) Unplug the power cord from the electrical outlet.
- (8) Replace the dummy cartridges loaded in step (2) with protective ones.

DCP340CW

- (4) Press the **Menu** and **Mono Start** keys. Next press the **▲** key four times to make the machine enter the maintenance mode.
The "**■■ MAINTENANCE ■■**" appears on the LCD.
- (5) Carry out "Initial purge" (with Function code 76) by using the **▲** and **Set** keys as follows:
Press the **▲** key several times to display 7 on the LCD and then press the **Set** key. In the same way, enter 6 and 4.
For details, refer to [Chapter 8, Section 8.4.20 "Purging Operation."](#)
- (6) Make the head/carriage unit travel to the head replacement position (with Function code 63) by using the **▲** and **Set** keys as follows:
Press the **▲** key several times to display 6 on the LCD and then press the **Set** key. In the same way, enter 3 and *****.
For details, refer to [Chapter 8, Section 8.4.13 "Travel Check of the Head/Carriage Unit and Initial Setup Mode."](#)
- (7) Unplug the power cord from the electrical outlet.
- (8) Replace the dummy cartridges loaded in step (2) with protective ones.

5.1.2 Jam Clear Cover

- (1) Press the two latches inwards and pull the jam clear cover out of the machine.

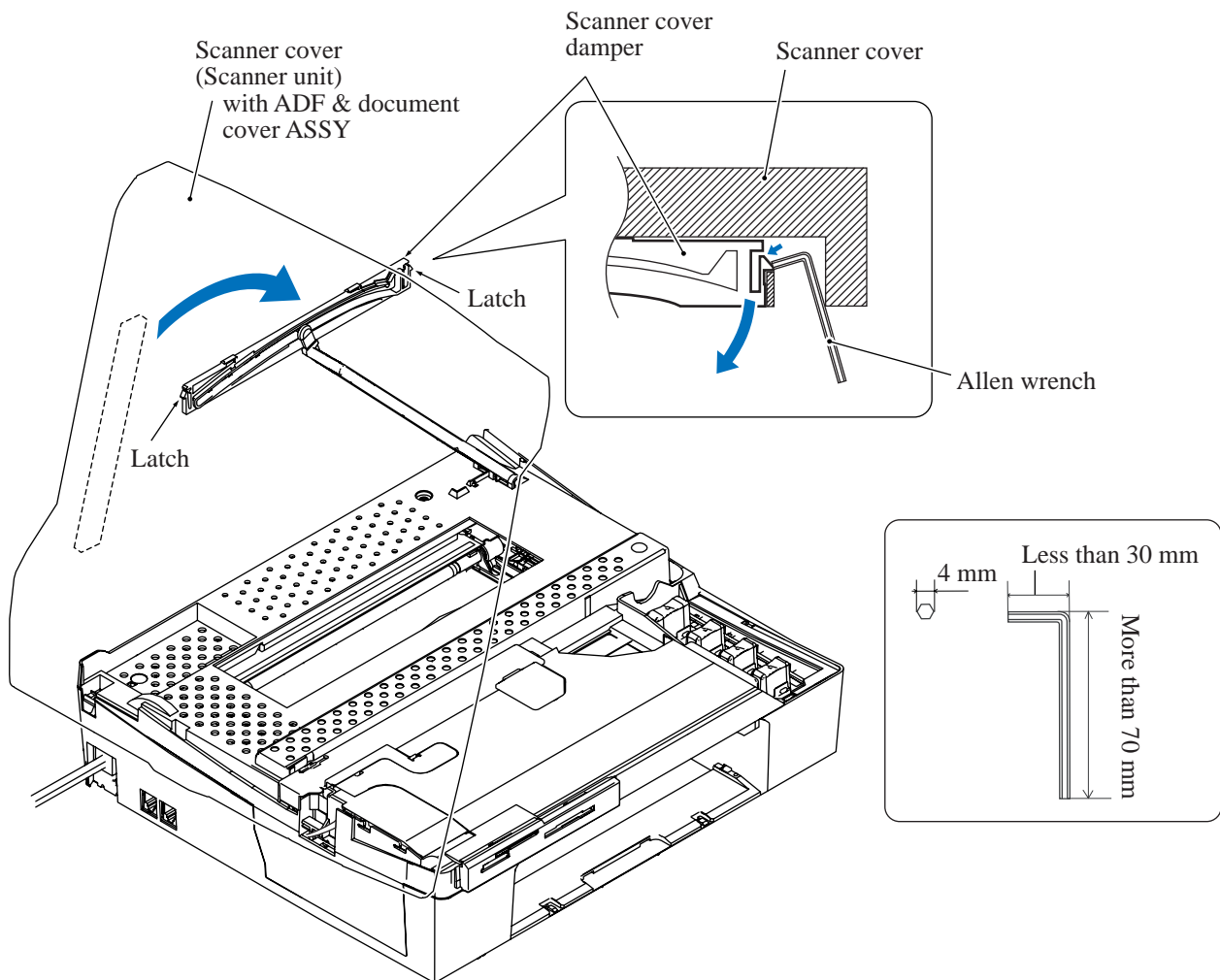


5.1.3 Scanner Cover (Scanner Unit)

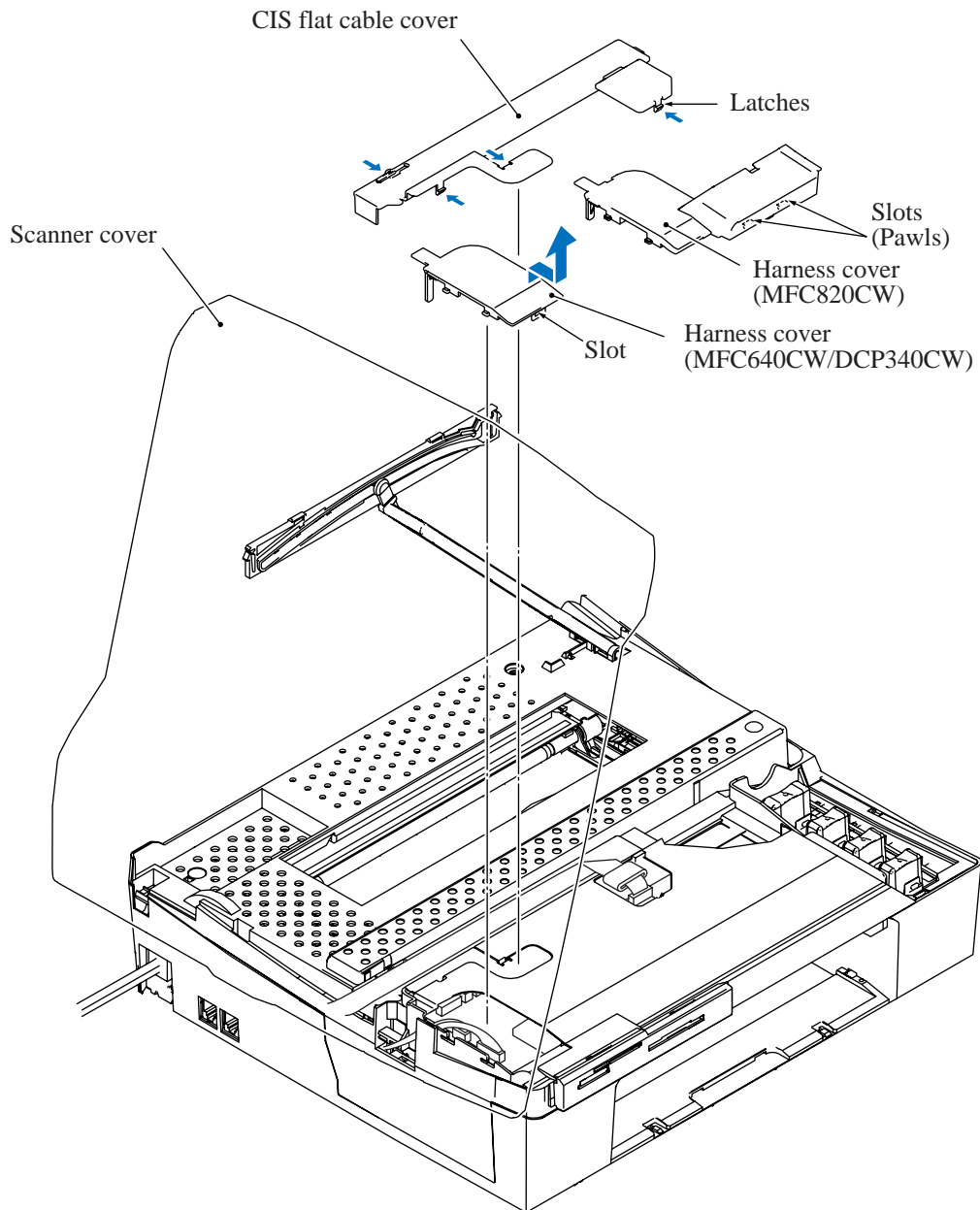
The scanner cover should be removed together with the ADF & document cover ASSY whose removal procedure is given in [Section 5.1.4](#).

- (1) Open the scanner cover to the left until it locks.
- (2) While supporting the scanner cover by hand, unlatch the scanner cover damper from the scanner cover using an Allen wrench (max. 30 mm x min. 70 mm) as shown below and pull it off the scanner cover.

NOTE: If using the Allen wrench cannot remove the scanner cover easily, use curved-point tweezers, taking care not to deform the tip of the tweezers.



- (3) Open the scanner cover further and keep supporting it at an angle of approx. 80° or below while performing steps (4) through (7) below.
- (4) Insert the tip of a flat screwdriver into the slot (two slots on the MFC820CW) provided in the front end of the harness cover and slide the harness cover to the front.
- (5) Release the four latches of the CIS flat cable cover and lift it up.



(6) Release the grounding wire by removing the screw.

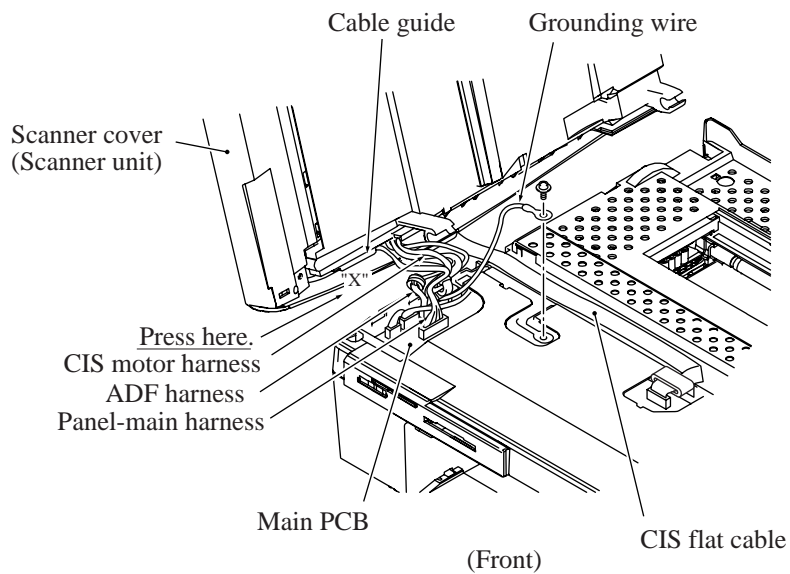
MFC640CW/DCP340CW Disconnect the following cables and harnesses from the main PCB.

- the CIS flat cable,
- the panel-main harness,
- the CIS motor harness, and
- the ADF harness

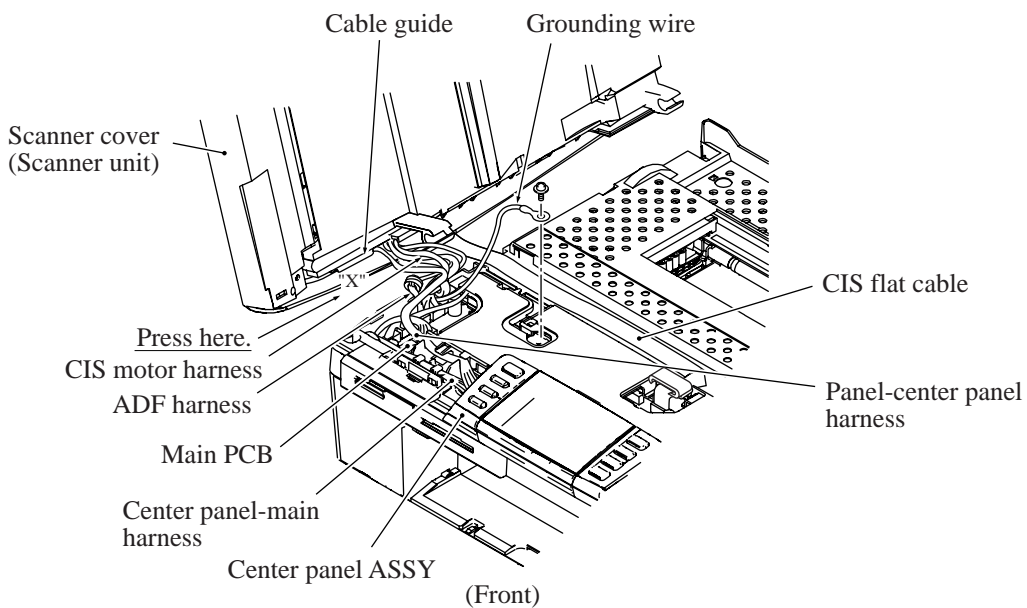
MFC820CW Disconnect the panel-center panel harness from the center panel PCB. Then disconnect the following cables and harnesses from the main PCB.

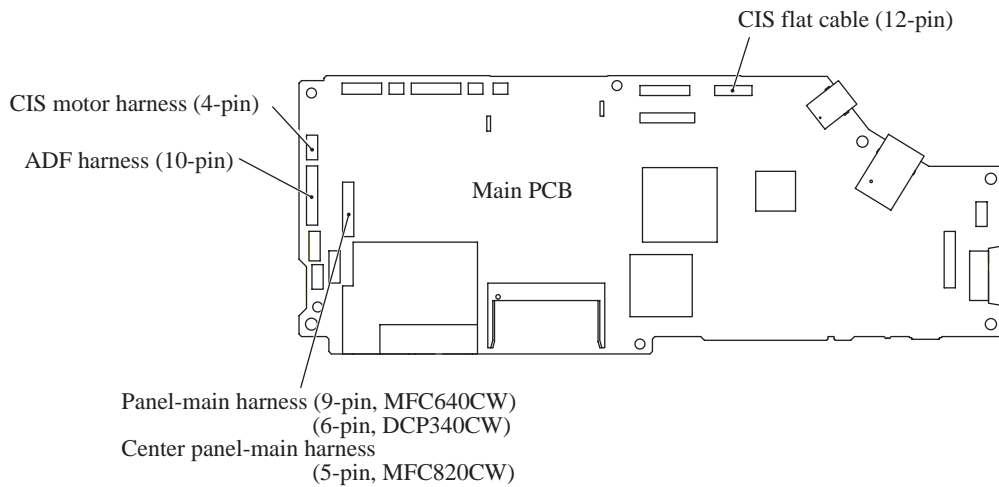
- the CIS flat cable,
- the CIS motor harness, and
- the ADF harness

MFC640CW/DCP340CW



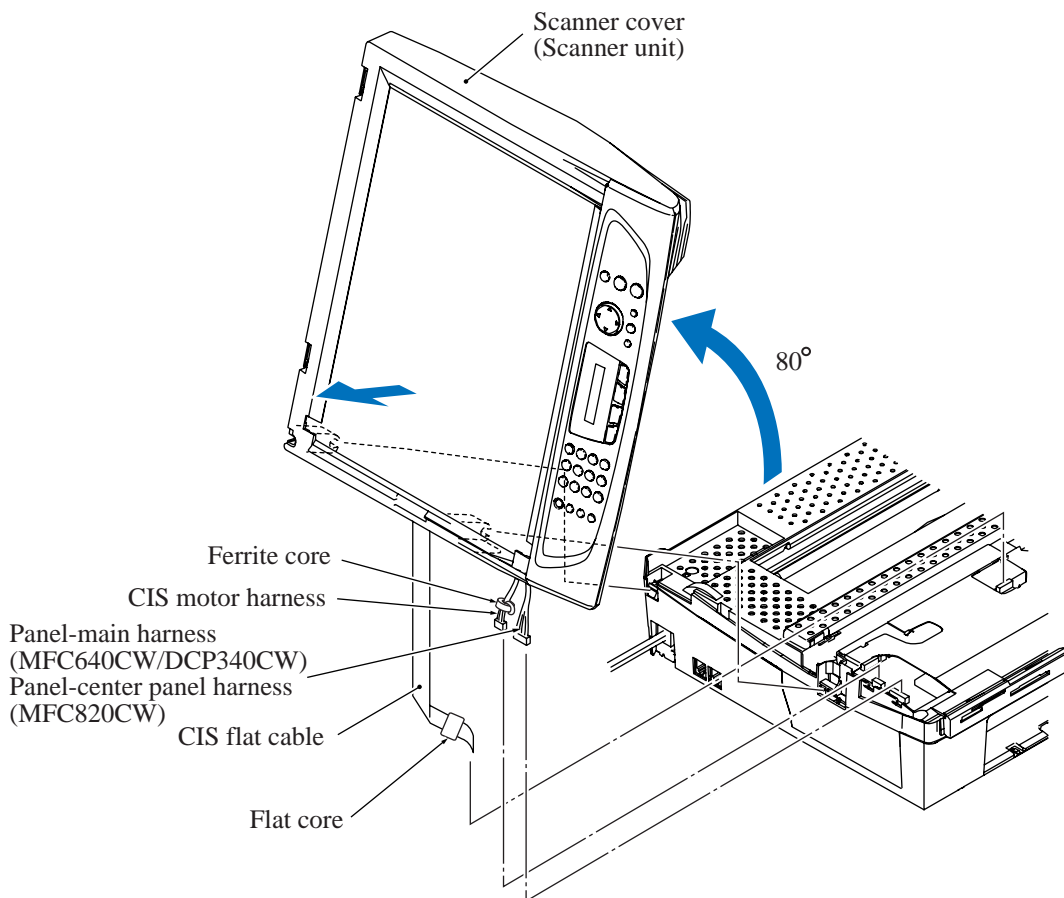
MFC820CW



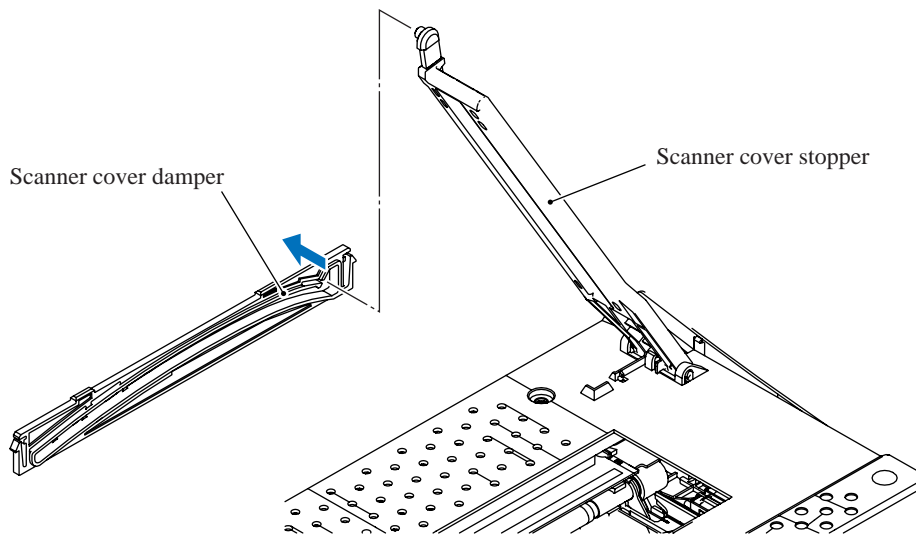


- (7) Press section "X" (shown on the previous page) on the left edge of the scanner cover outwards to provide enough gap and pull out the panel-main harness (MFC640CW/DCP340CW) or panel-center panel harness (MFC820CW) from the cable guide.
- (8) Open the scanner cover at approx. 80° and pull it to the left and off the machine.

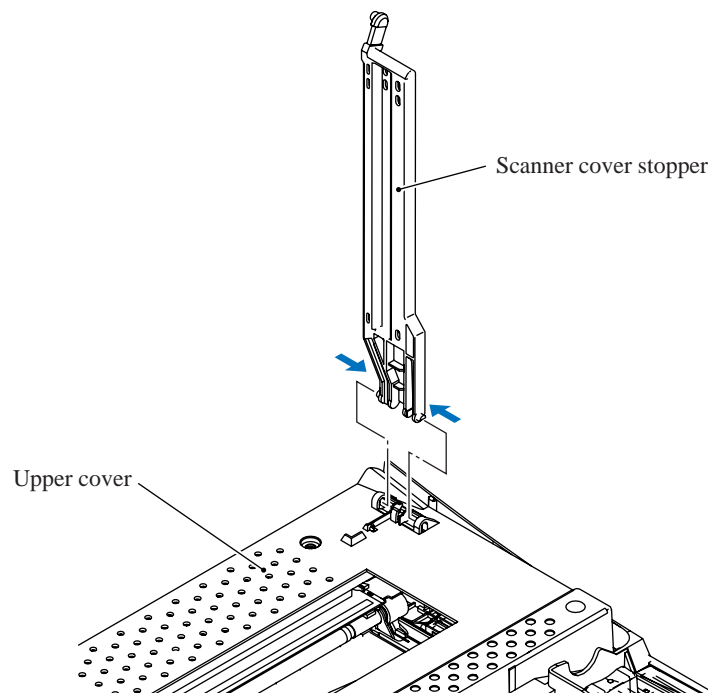
NOTE: When replacing the scanner cover, remove the ferrite core from the CIS motor harness of the old scanner cover and set it to that of the new scanner cover. Wind the CIS motor harness round the ferrite core by one turn.



(9) As shown below, remove the scanner cover damper from the scanner cover stopper.

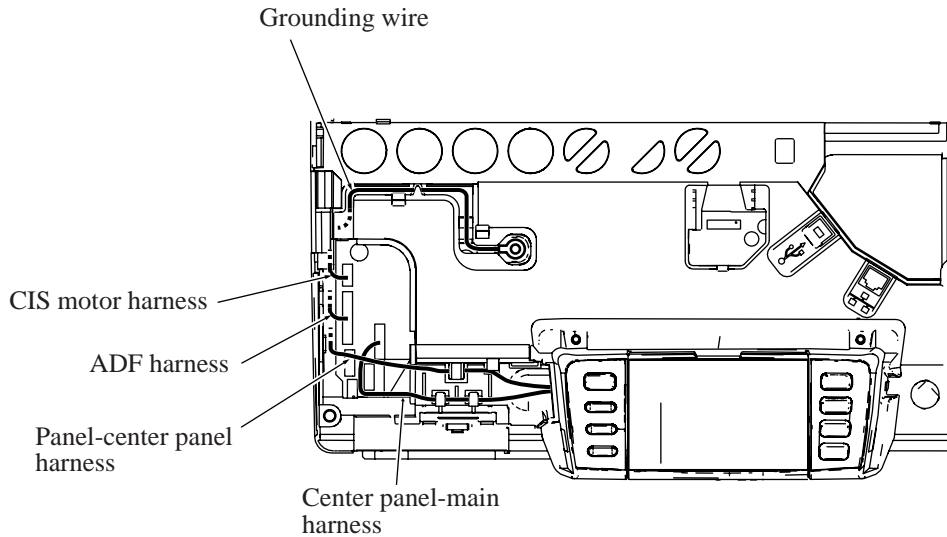


(10) Turn the scanner cover stopper upright and remove it from the upper cover by pressing the front and rear locks.

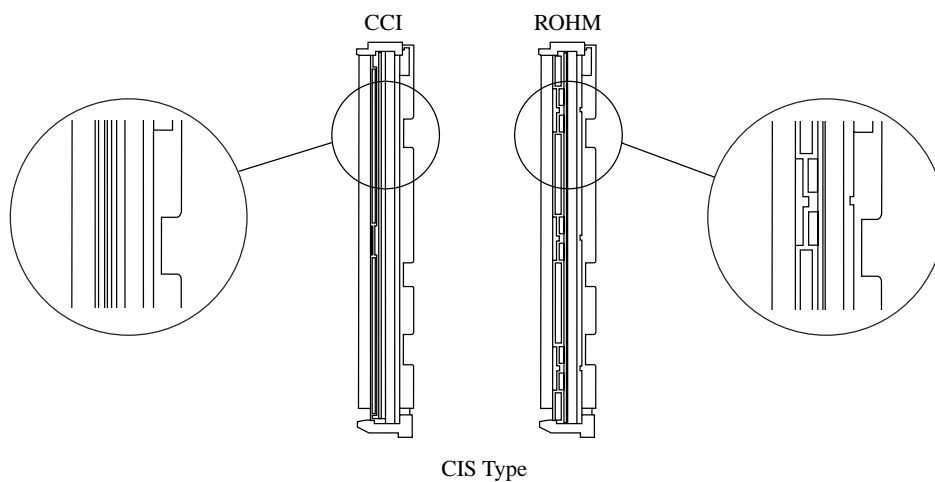


■ **Reassembling Notes**

- When replacing the scanner cover, remove the ferrite core from the CIS motor harness of the old scanner unit and set it to that of the new one. Wind the CIS motor harness round the ferrite core by one turn.
- **MFC820CW** Route the center panel-main harness and panel-center panel harness as shown below.



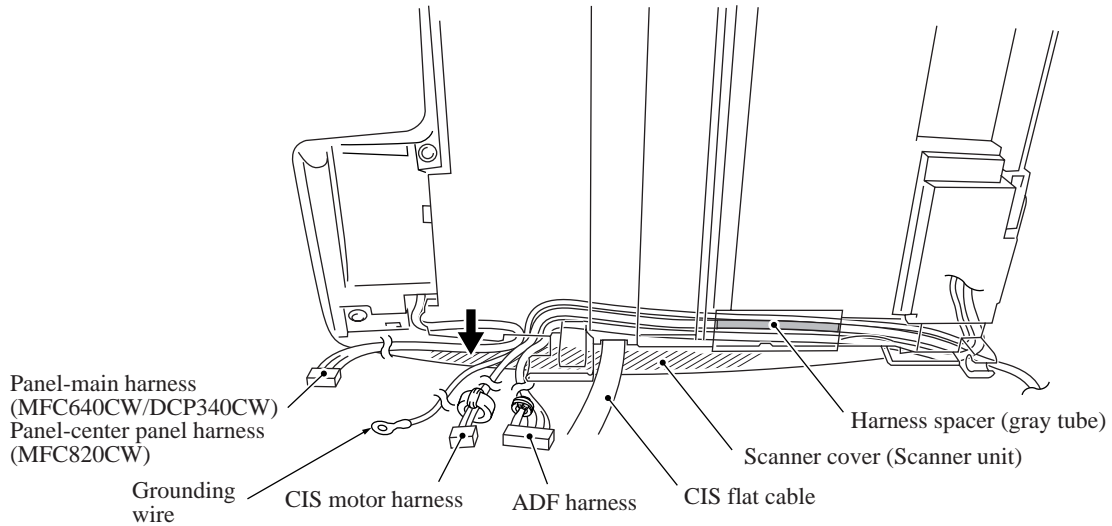
- Before connecting the panel-main harness (MFC640CW/DCP340CW) or center panel-main harness (MFC820CW) to the main PCB, press section "X" on the left edge of the scanner cover outwards to provide enough gap and route the panel-main harness through the cable guide on the underside of the scanner cover as shown on [page 5-10](#).
- After completion of reassembly, check the type of the CIS unit (see below) integrated in the new scanner cover by traveling the CIS unit to the scanning end position and specify the CIS type (CCI or ROHM), referring to [Chapter 8, Section 8.4.12](#) (Function code 59).



5.1.4 ADF & Document Cover ASSY

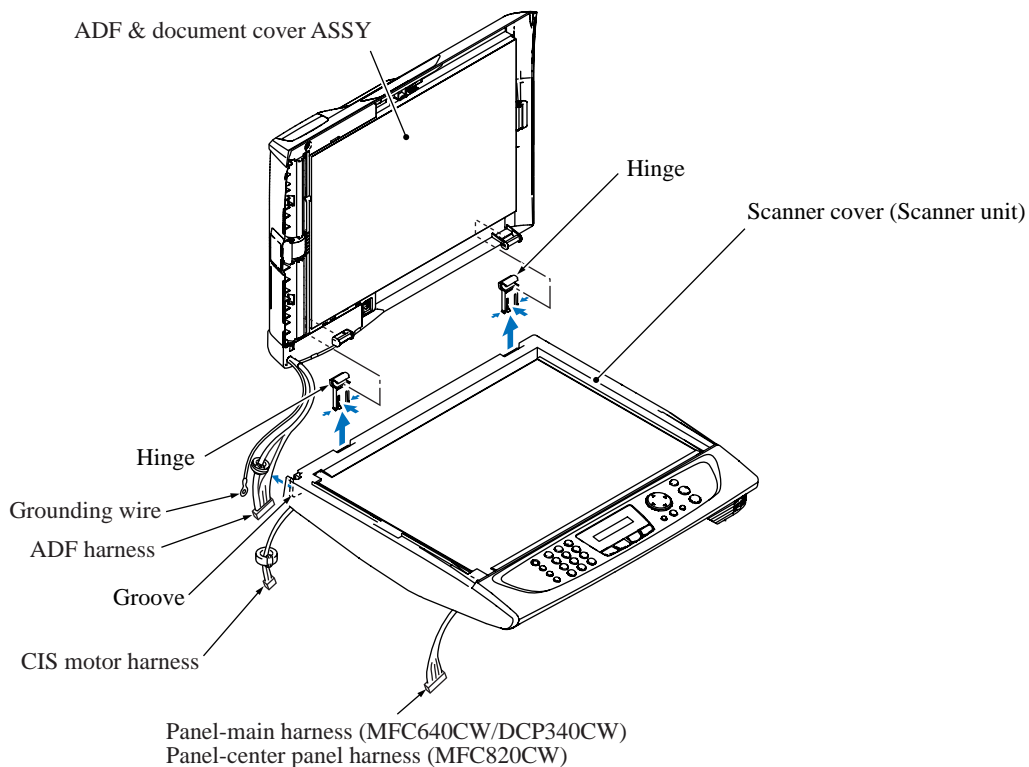
- (1) As shown below, press the hatched section on the left edge of the scanner cover outwards to provide enough gap and pull out the ADF harness, CIS motor harness, and grounding wire from the cable guide.

The harness spacer (gray tube) sandwiched between the ADF harness and CIS motor harness also comes off.



- (2) Turn the ADF & document cover ASSY upright, unlatch two hinges from the underside of the scanner cover with a flat screwdriver, and lift up the ASSY.

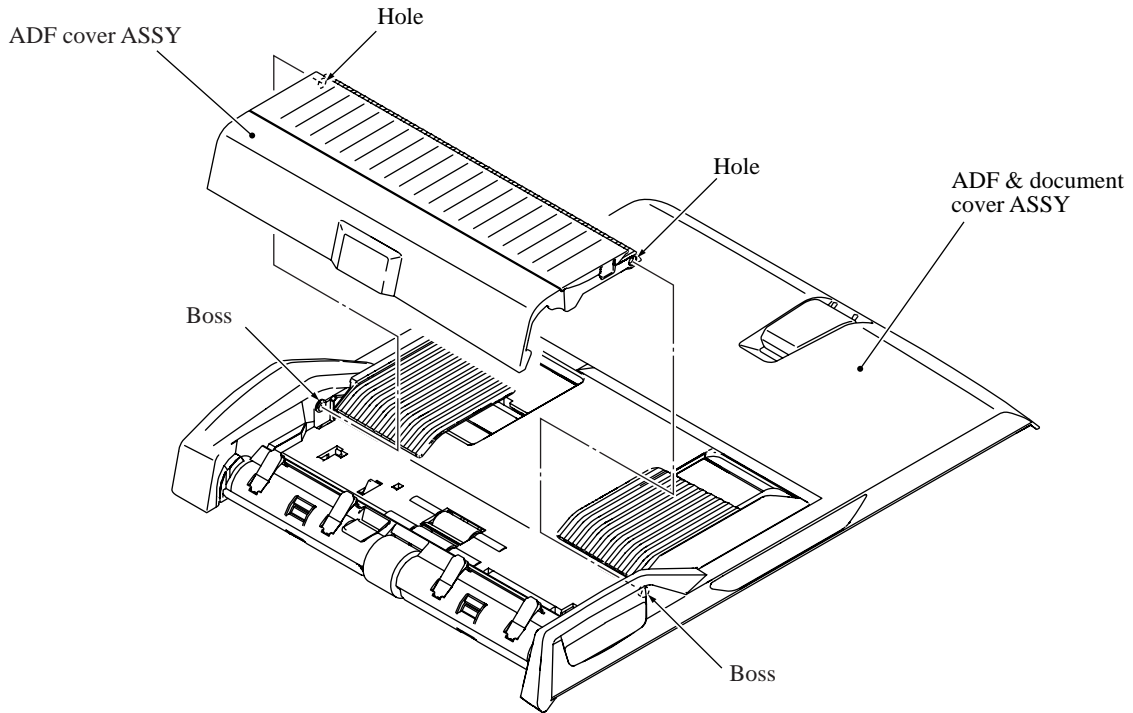
Slightly turn those hinges and remove them from the ASSY.



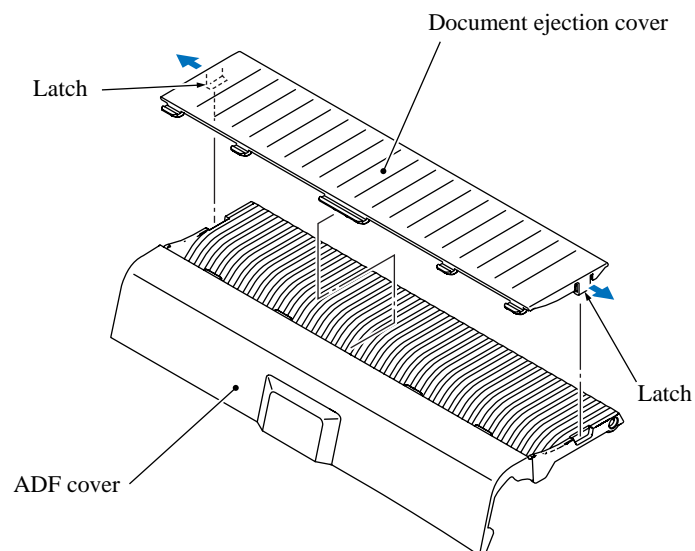
< Disassembly of the ADF & document cover ASSY >

ADF cover ASSY

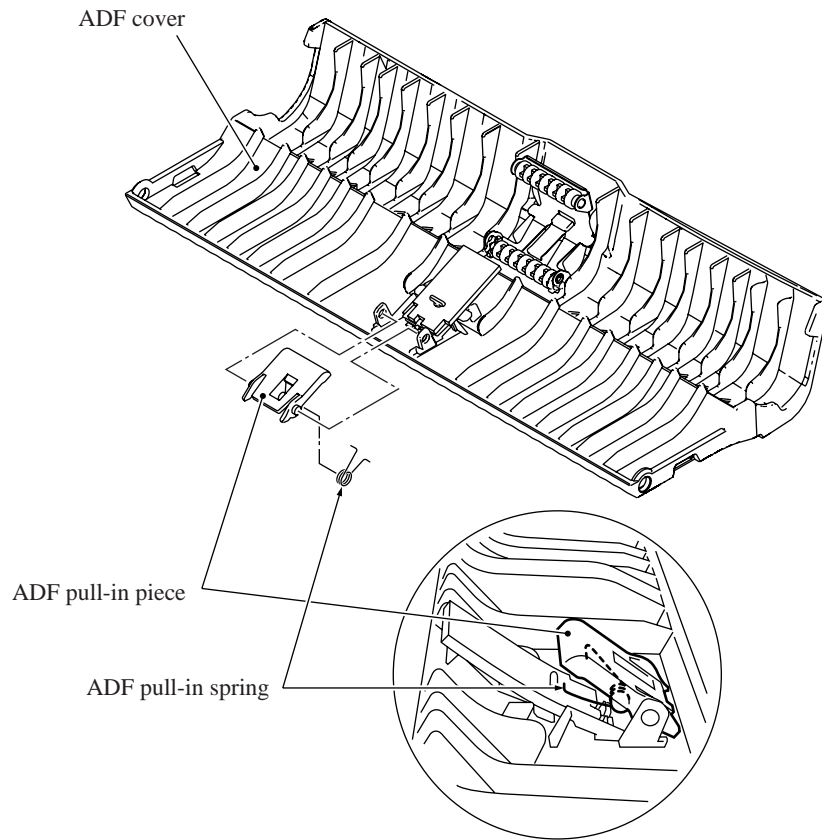
- 1) Slightly warp the ADF cover ASSY and remove it from the bosses provided on the front and rear side of the ADF & document cover ASSY.



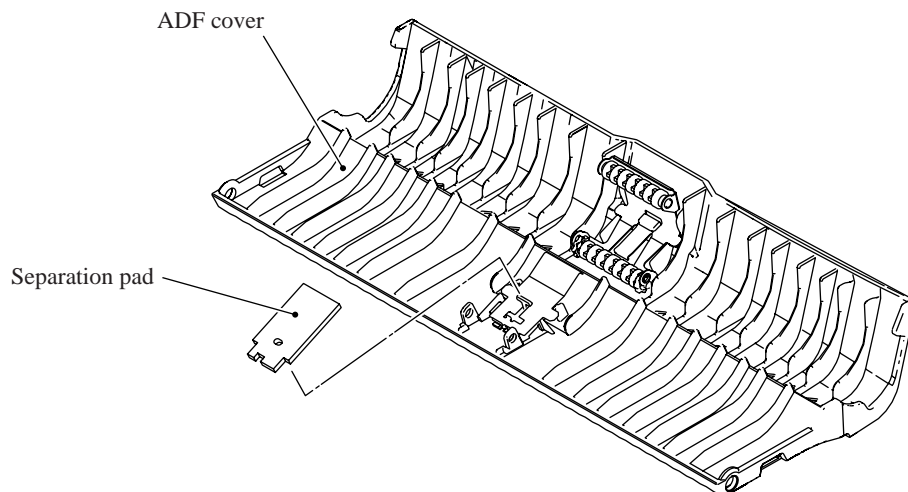
- 2) Unlatch the document ejection cover from the ADF cover.



- 3) Remove the ADF pull-in piece and its spring from the ADF cover.



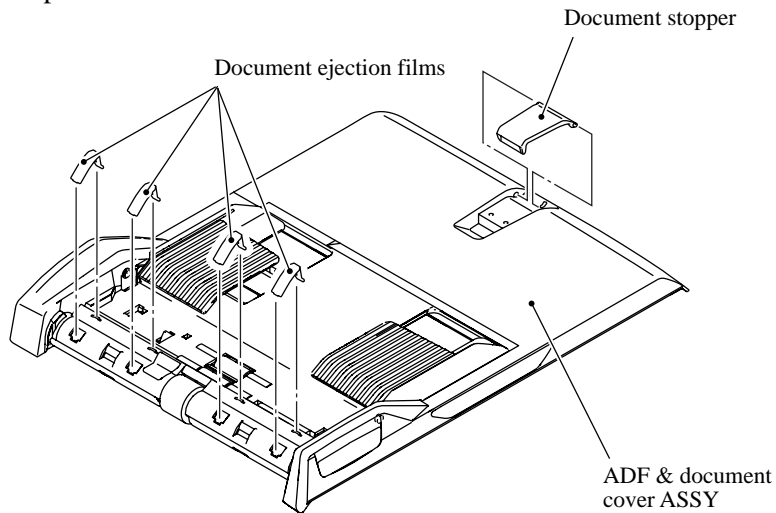
- 4) Remove the separation pad from the ADF cover.



Document stopper and document ejection films

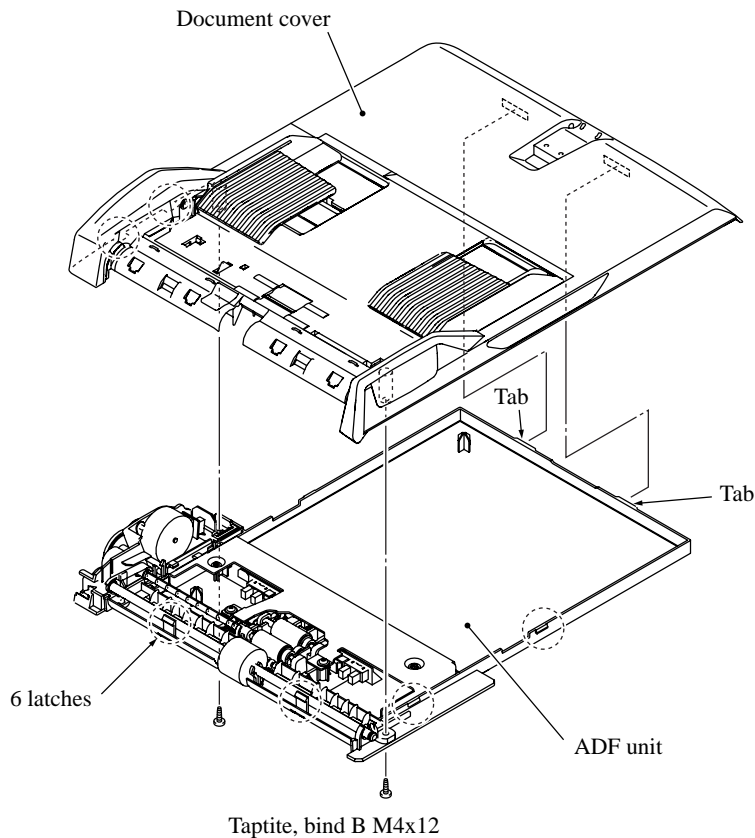
- 5) Remove the document stopper.
- 6) Remove the document ejection films.

NOTE: Once removed, the document ejection films will become unusable and new parts will have to be put back in.



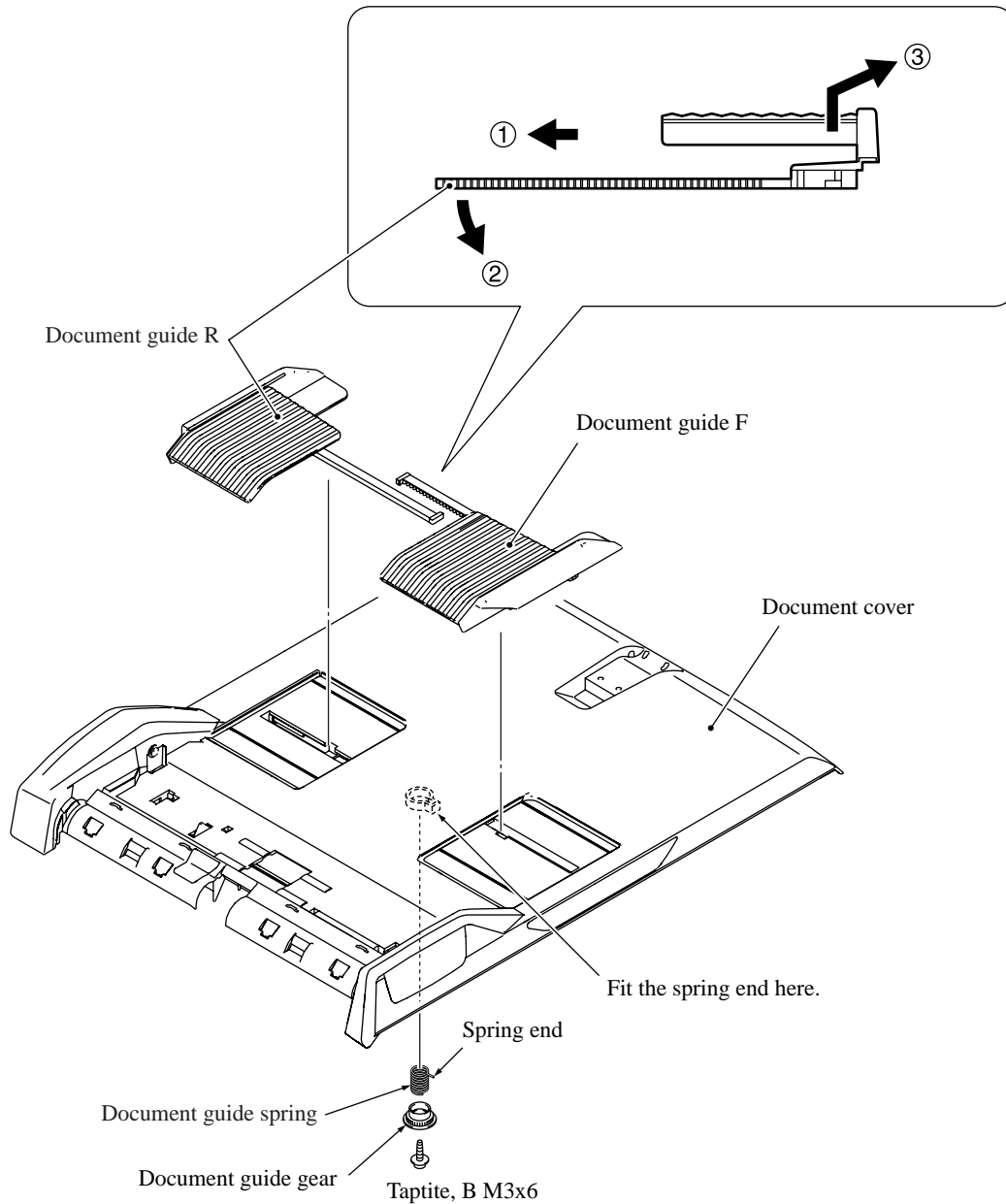
Separating the document cover and the ADF unit

- 7) Remove the two screws from the ADF unit and unhook the six latches on the ADF unit from the document cover. Slide the document cover to the right to release it from the two tabs on the right end of the ADF unit.



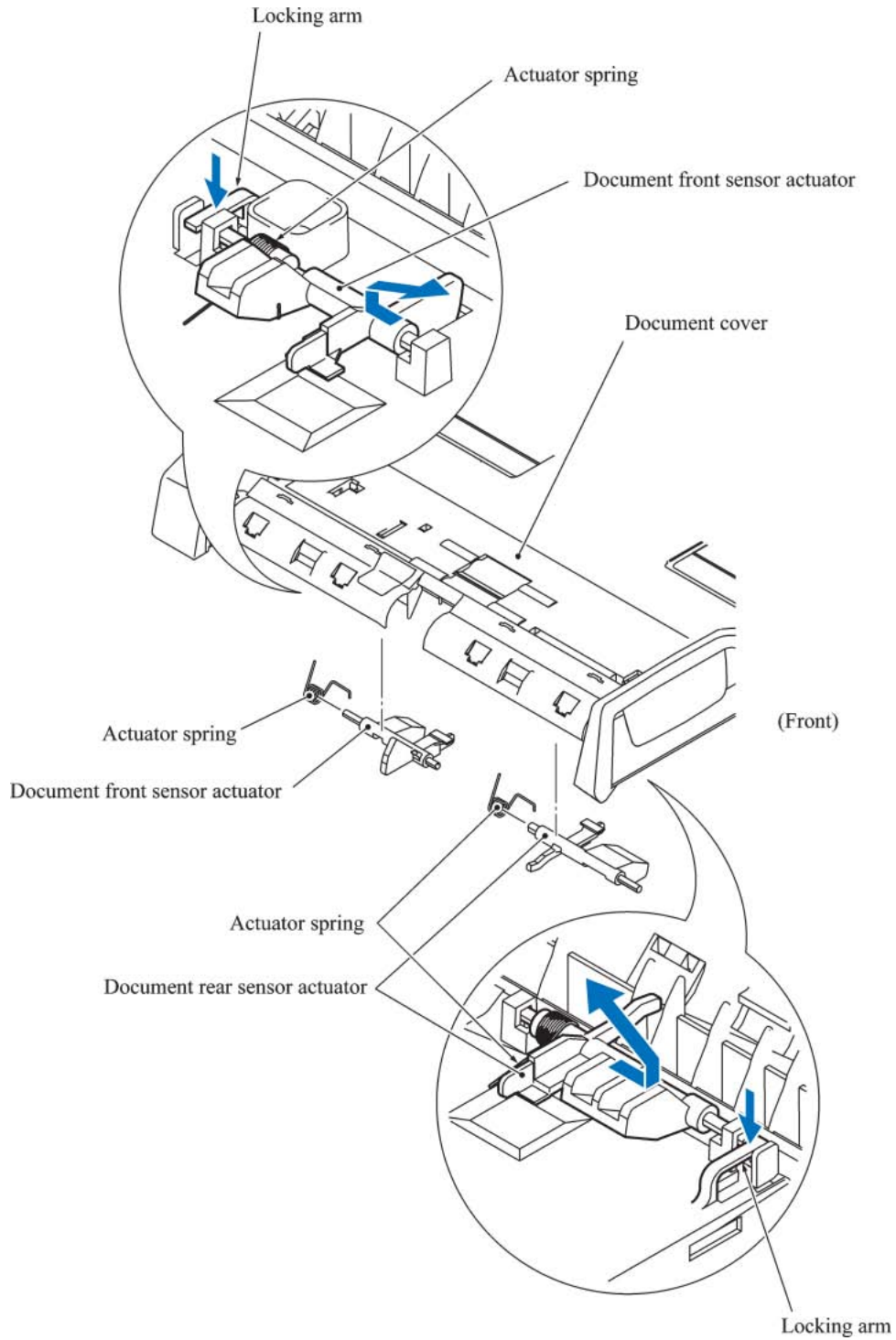
Document guides (F and R)

- 8) Remove the screw from the document guide gear. Take the document guide gear and its spring out of the document cover.
- 9) As shown below, slide each of the document guides F and R inwards (①), pull down the bottom end (②), slide it inwards further, and take it up (③).



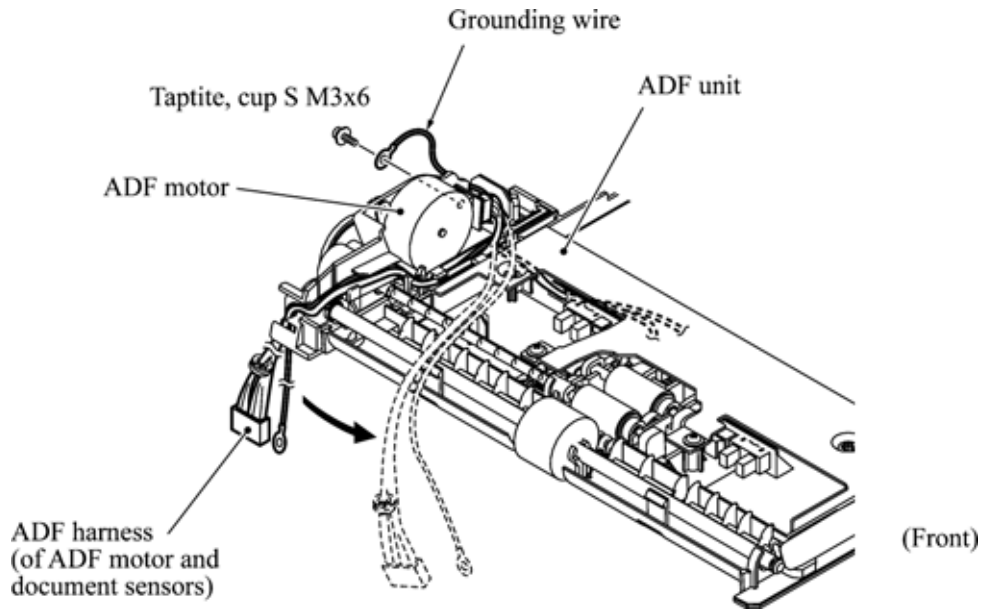
Document front and rear sensor actuators

- 10) Lightly press the locking arm for each of the document front and rear sensor actuators, slide the actuator towards the locking arm, and remove it in the direction of the arrow shown below.
The actuator springs also come off.

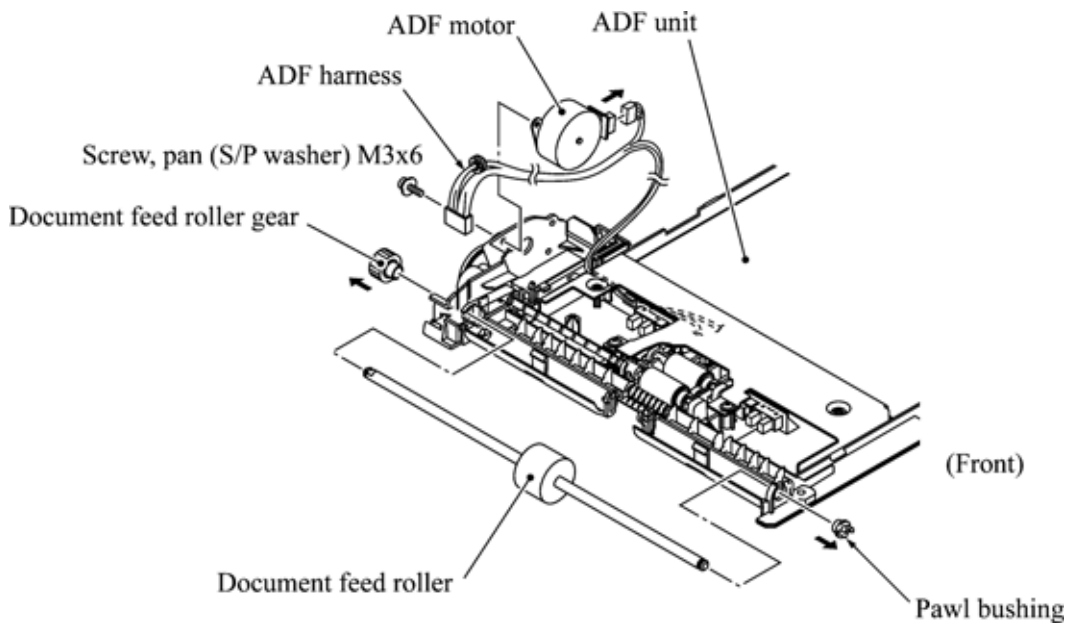


ADF motor and document feed roller

- 11) Take the ADF harness and grounding wire out of the harness guide provided on the ADF unit.
- 12) Remove the screw that secures the grounding wire and ADF motor together.

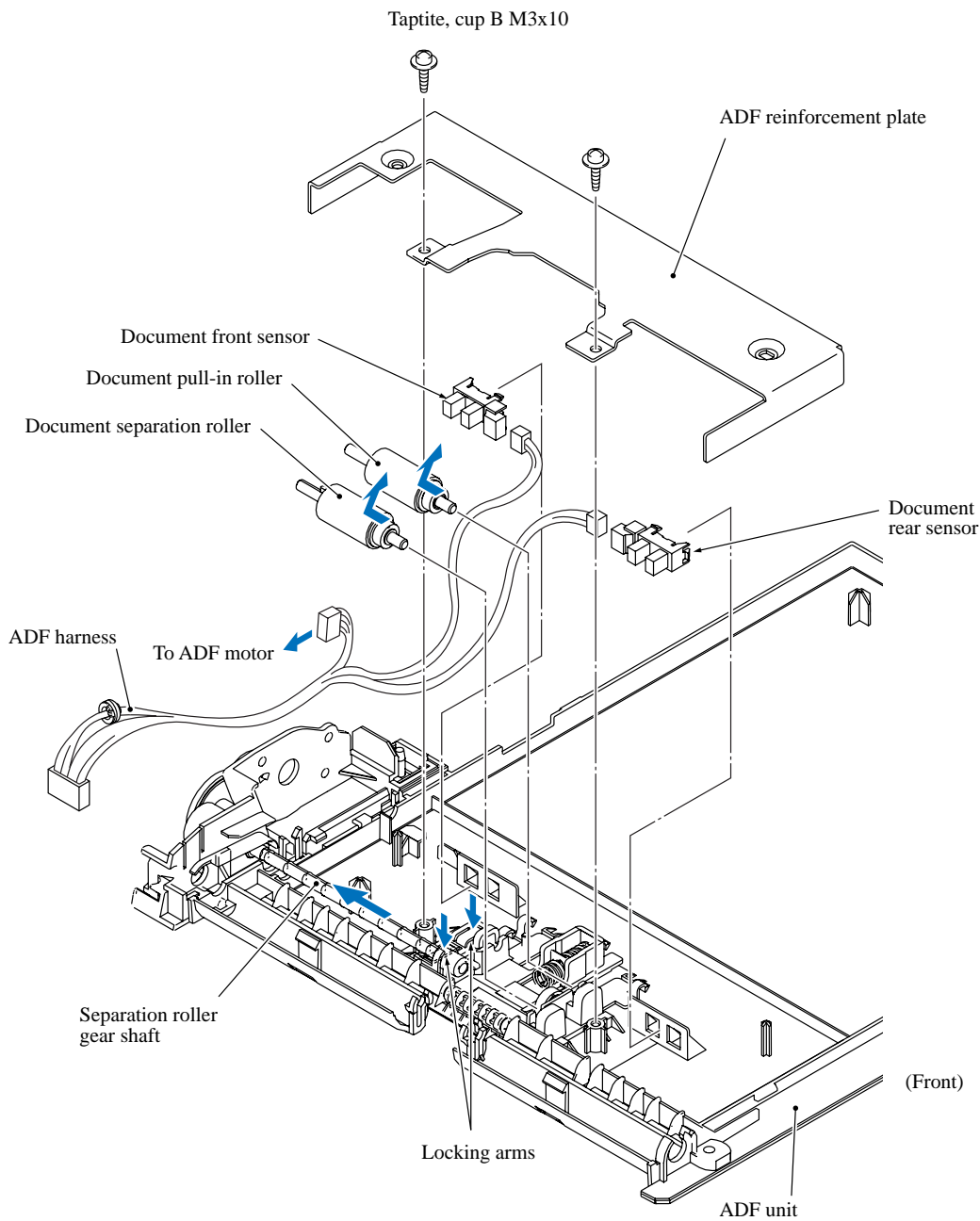


- 13) Remove the screw from the ADF motor and disconnect the ADF harness from the motor.
- 14) Remove the pawl bushing from the front end of the document feed roller shaft and remove the document feed roller gear from the read end. Take the document feed roller out of the ADF unit.



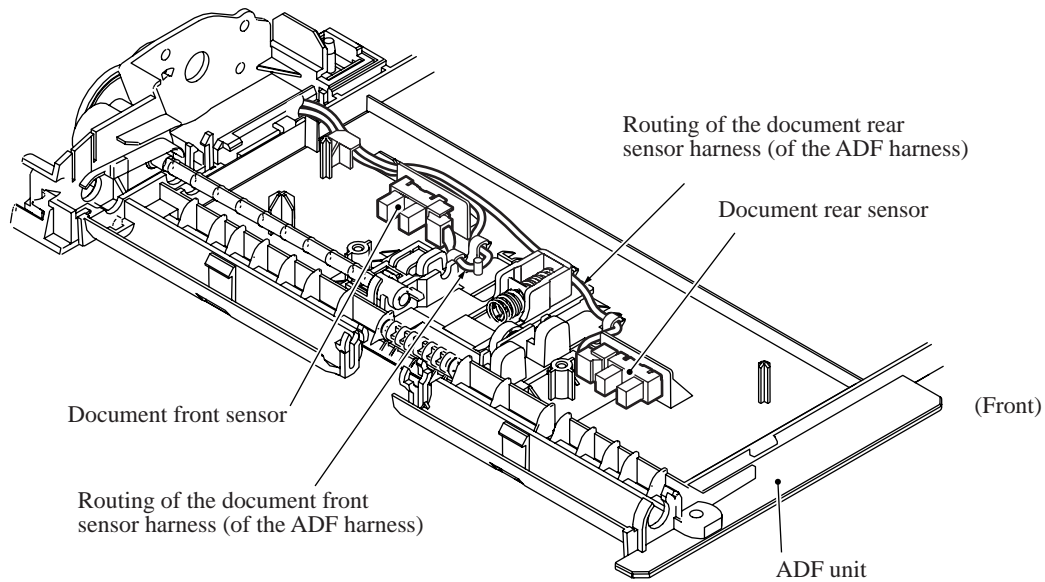
Document front and rear sensors, document pull-in roller, and document separation roller

- 15) Remove the two screws and take the ADF reinforcement plate off the ADF unit.
- 16) Remove the document front and rear sensors by unhooking the three latches each. Disconnect the ADF harness from each sensor.
- 17) Remove the document pull-in roller by lightly pressing the corresponding locking arm and sliding the roller to the rear.
Remove the document separation roller by lightly pressing the corresponding locking arm and sliding the separation roller gear shaft to the rear.
(The document pull-in roller and separation roller are compatible with each other.)



■ Reassembling Notes

- Route the ADF harness (consisting of the ADF motor harness and document front and rear sensor harnesses) on the ADF unit as shown below.



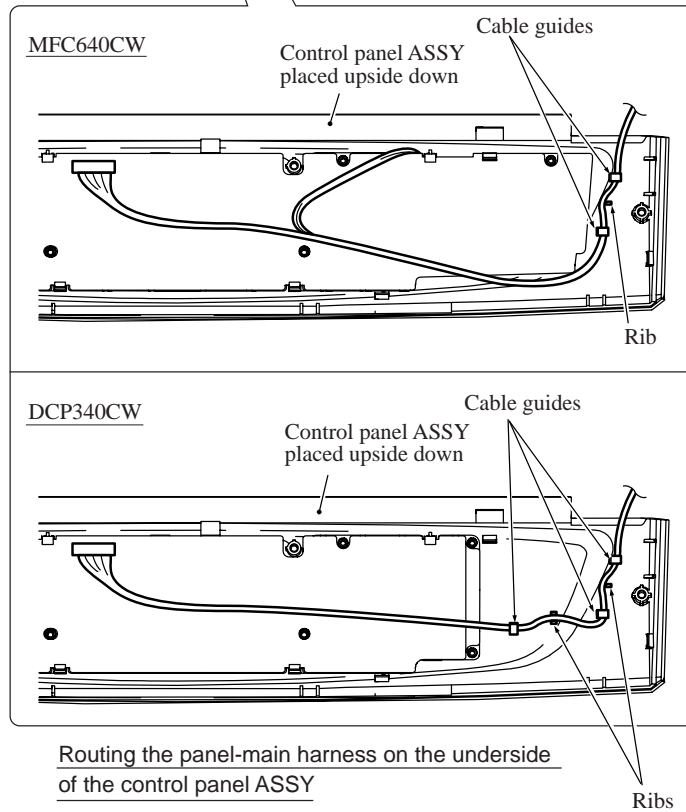
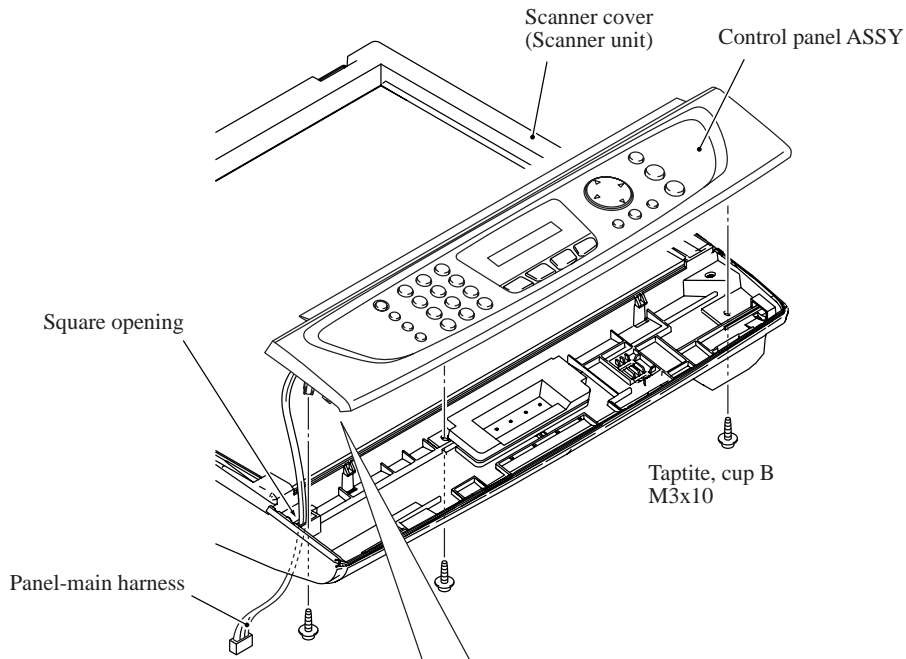
- When installing the ADF & document cover ASSY to the scanner cover (scanner unit), route the ADF harness and grounding wire through the groove provided in the left rear corner of the scanner cover (see the illustration at the bottom of [page 5-14](#)).

After installation, route the ADF harness, grounding wire, and CIS motor harness on the underside of the scanner cover. Sandwich the harness spacer between the ADF harness and CIS motor harness (see the illustration at the top of [page 5-14](#)).

5.1.5 Control Panel ASSY and Scanner Open Sensor Actuator

MFC640CW/DCP340CW

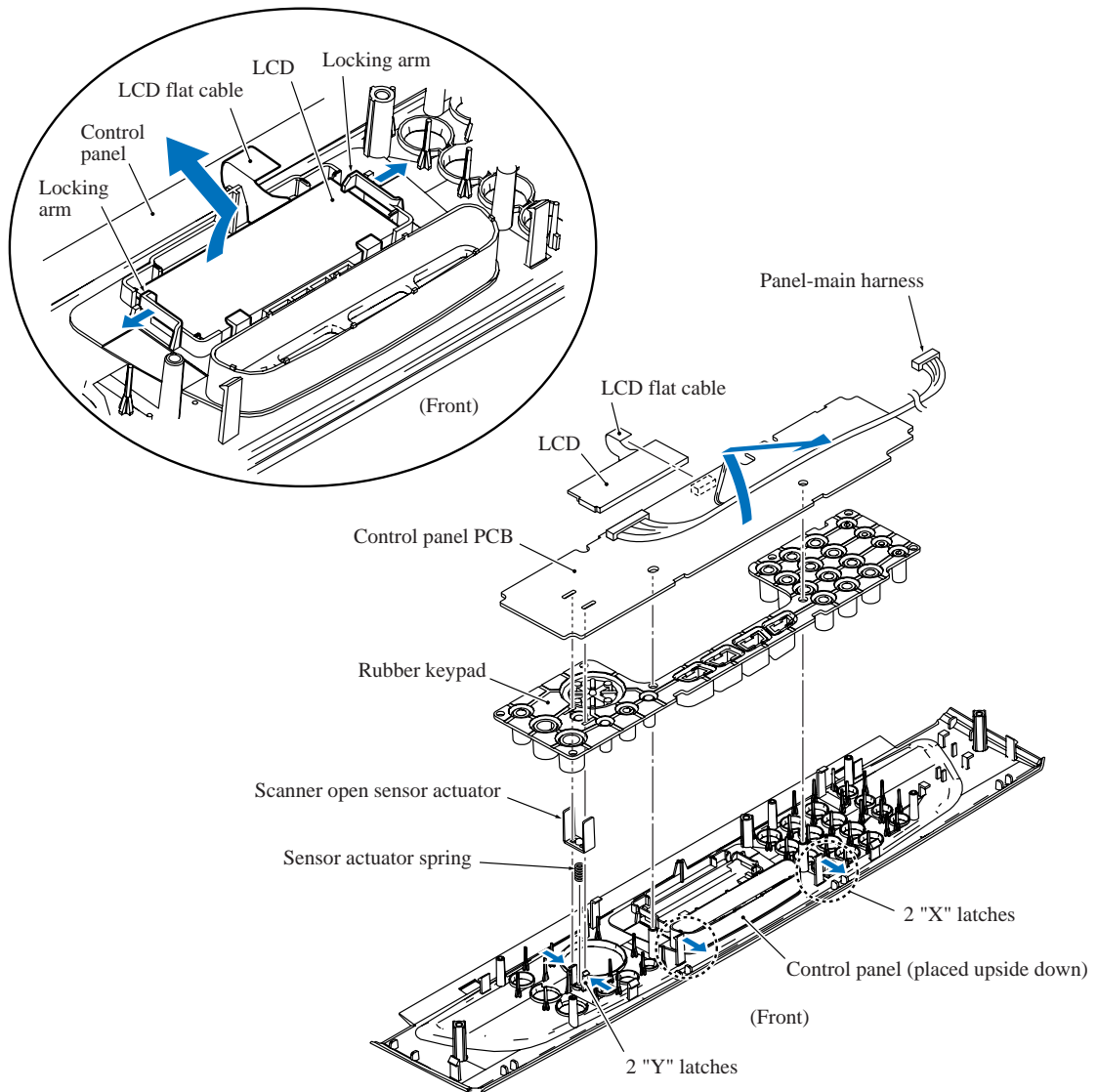
- (1) Turn the scanner cover (scanner unit) upside down, push the left side outwards, and take out the panel-main harness.
- (2) Remove the three screws from the underside of the scanner cover.
- (3) Pull up the rear end of the control panel ASSY and take it off the scanner cover.



Routing the panel-main harness on the underside of the control panel ASSY

Disassembly of the control panel ASSY

- 1) Place the control panel ASSY upside down. Pull the two "X" latches outwards to release the front edge of the control panel PCB and remove it to the front.
- 2) Unlock the connector on the control panel PCB and disconnect the LCD flat cable.
- 3) Remove the rubber keypad.
- 4) Press the two "Y" latches inwards to release the scanner open sensor actuator. The actuator spring also comes off.
- 5) Remove the microphone from the control panel.
- 6) Pull the locking arms outwards and take out the LCD while pulling the LCD flat cable gently.
(The illustration given below is based on the MFC640CW.)

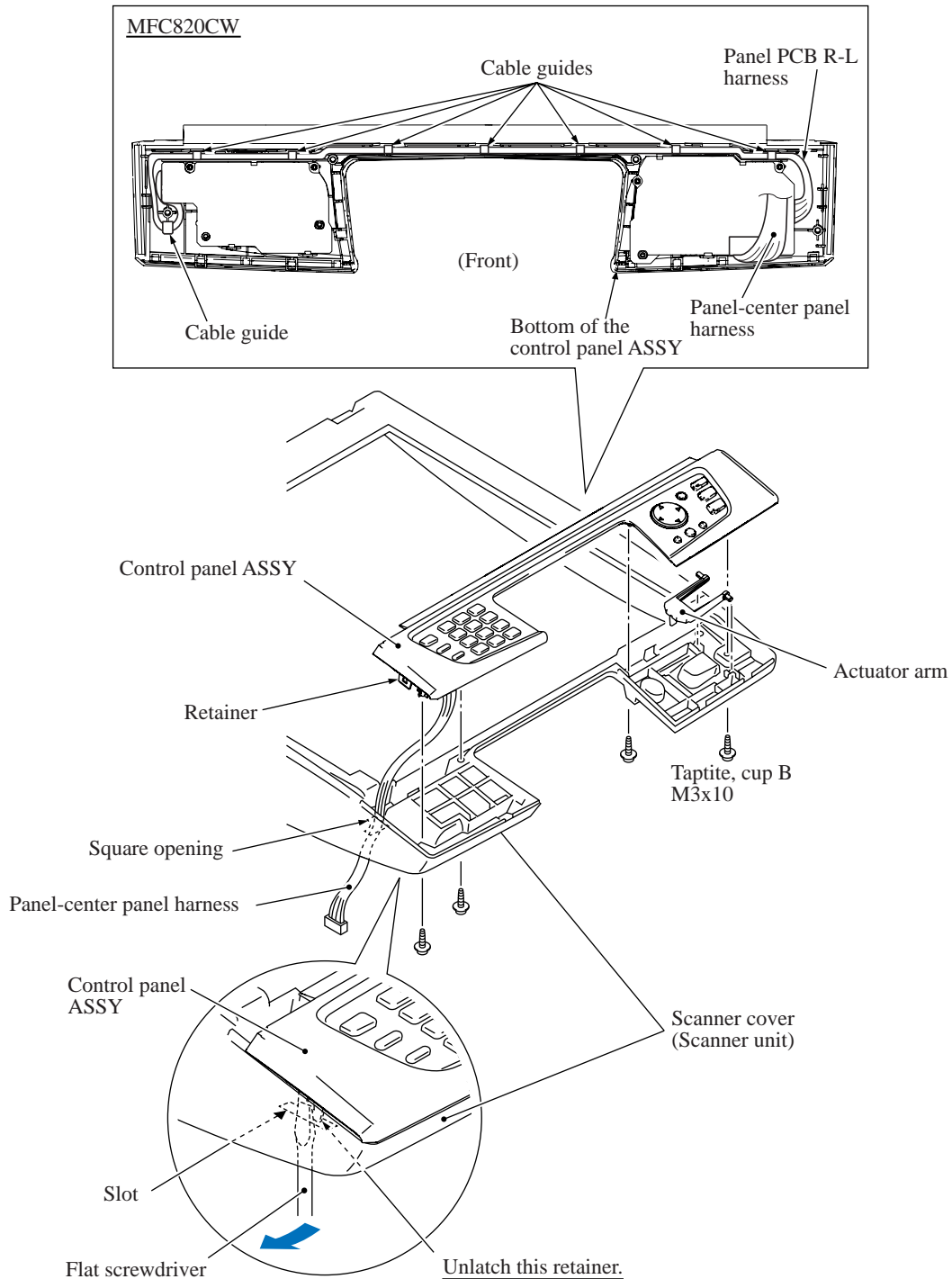


■ Reassembling Notes

- Before setting the LCD back to the control panel, 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.
- When setting the control panel ASSY back to the scanner cover, pass the panel-main harness through the square opening provided in the scanner cover (see the illustration on the previous page.)

MFC820CW

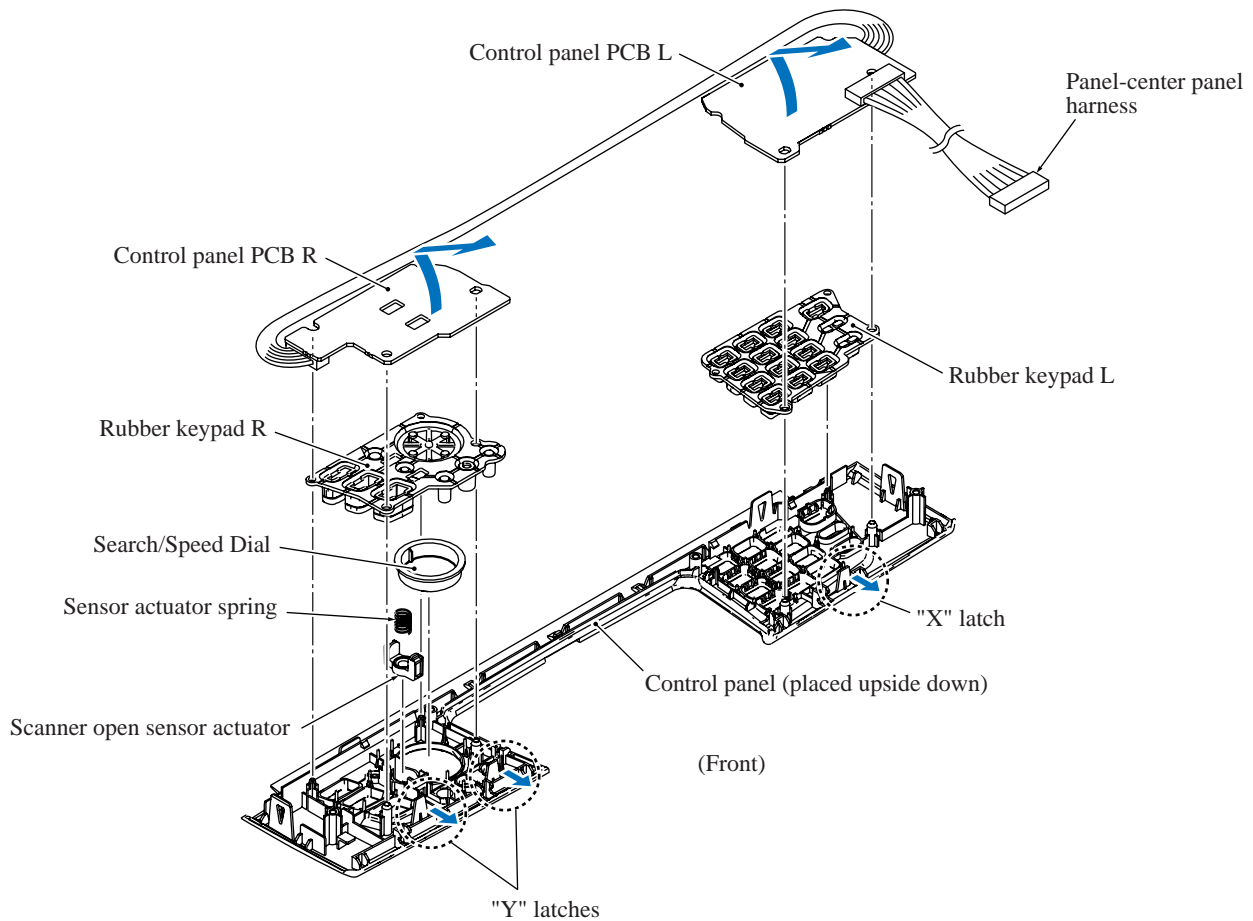
- (1) Turn the scanner cover (scanner unit) upside down.
- (2) Remove the four screws from the underside of the scanner cover.
- (3) Insert the tip of a flat screwdriver through the slot provided in the bottom of the scanner cover, unlatch the retainer on the control panel ASSY, and pull up the left end of the control panel ASSY. Take it off the scanner cover, while warping it.
- (4) Remove the actuator arm from the scanner cover.



Disassembly of the control panel ASSY

- 1) Place the control panel ASSY upside down.
- 2) Pull the "X" latch outwards to release the front edge of the control panel PCB L and remove it to the front. Remove the rubber keypad L.
- 3) Pull the two "Y" latches outwards to release the front edge of the control panel PCB R and remove it to the front. Remove the rubber keypad R.

Remove the scanner open sensor actuator. The actuator spring also comes off.



■ Reassembling Notes

- When setting the control panel ASSY back to the scanner cover, pass the panel-center panel harness through the square opening provided in the scanner cover (see the illustration on the previous page.)

5.1.6 Center Panel ASSY and Color LCD (MFC820CW)

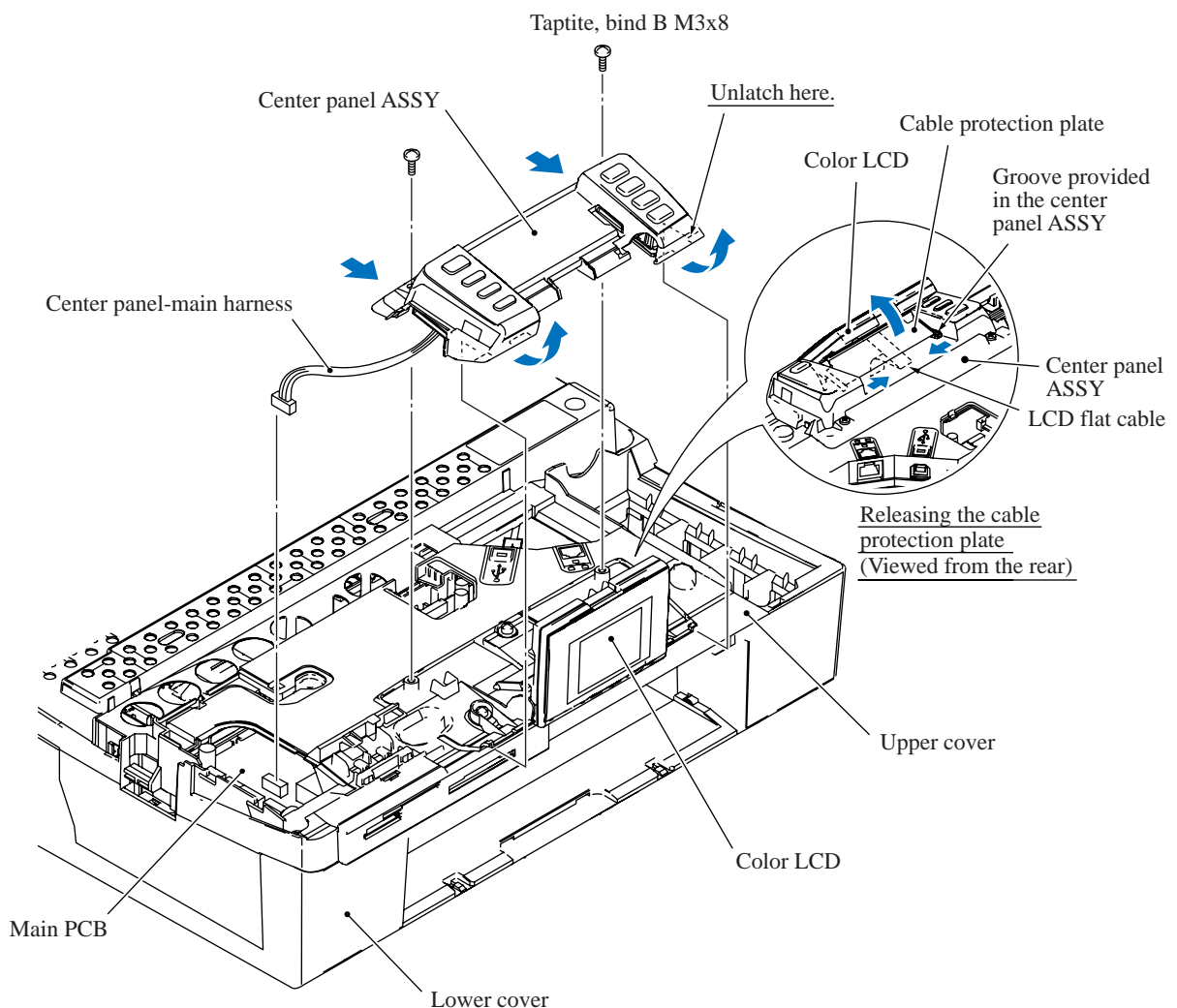
- (1) Disconnect the center panel-main harness from the main PCB.
- (2) Turn up the color LCD towards you to an angle of approx. 45°. Release the right and left bosses provided on the cable protection plate (black plastic plate) from the center panel ASSY by warping the plate.
- (3) Remove the center panel ASSY using the following procedure.

Remove the two screws from the center panel ASSY.

Slightly lift up the right rear corner of the center panel ASSY and press it to the front, then pull up the front edge of the right center panel to unlatch it from the upper cover.

In the same way, unlatch the front edge of the left center panel from the upper cover.

Remove the center panel ASSY.



- (4) Remove the color LCD using the following procedure.

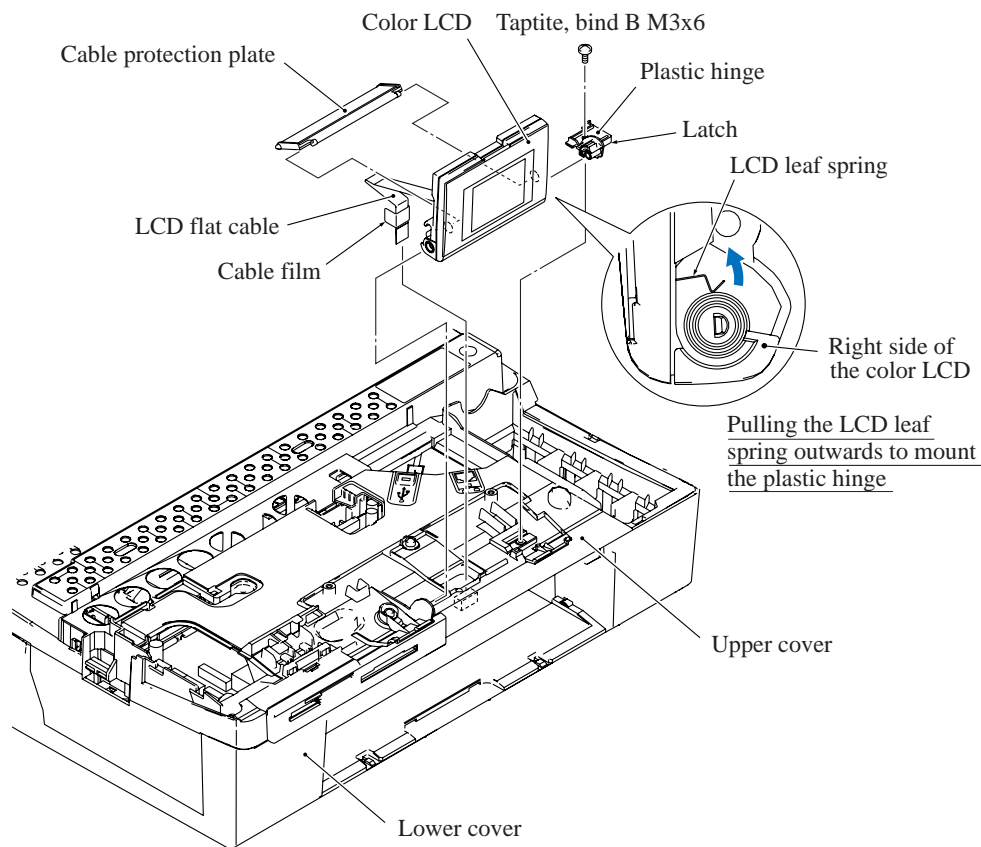
Disconnect the LCD flat cable from the main PCB.

Remove the screw from the plastic hinge that secures the color LCD. (See the next page.)

Press the latch on the plastic hinge to the rear and remove the hinge to the right.

The color LCD also comes off.

- (5) Warp the cable protection plate and release it from the color LCD.



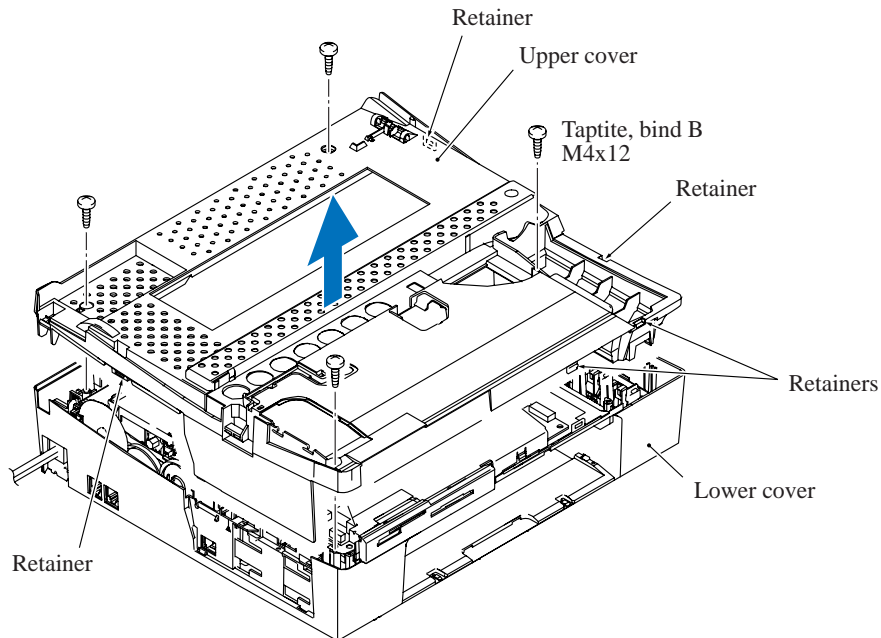
■ Reassembling Notes

- 1) Set the cable protection plate to the color LCD so that the LCD flat cable runs under the cable protection plate. Make sure that the cable is folded as shown above.
- 2) While pulling the LCD leaf spring outwards, mount the plastic hinge onto the color LCD and fully turn it clockwise (viewed from the right).
- 3) Temporarily put the assembly of the color LCD and the plastic hinge on the upper cover. While lightly pressing down the plastic hinge, slide the color LCD to the left and fit its left end over the boss provided on the upper cover. Slide the plastic hinge to the left until it latches.
- 4) While pressing the plastic hinge to the left, secure it with the screw.
- 5) Connect the LCD flat cable to the main PCB by pressing down its cable film.
- 6) Mount the center panel ASSY onto the upper cover using the following procedure.
 - Turn the color LCD upright.
 - Align the rear end of the center panel ASSY with the upper cover while pressing down the LCD flat cable. Make sure that the center panel-main harness runs through the left opening in the center panel ASSY.
 - While pulling the front end of the right (left) center panel rightwards (leftwards), close the color LCD to an angle of approx. 45°.
 - Slightly lift up the right rear corner of the center panel ASSY and press it to the front, then push down the front edge of the right center panel to snap it into place.
 - In the same way, push down the front edge of the left center panel to snap it into place.
 - Secure the center panel ASSY to the upper cover with two screws.
- 7) After mounting the color LCD, wipe fingerprints or dust off the LCD surface with a soft cloth.

5.1.7 Upper Cover

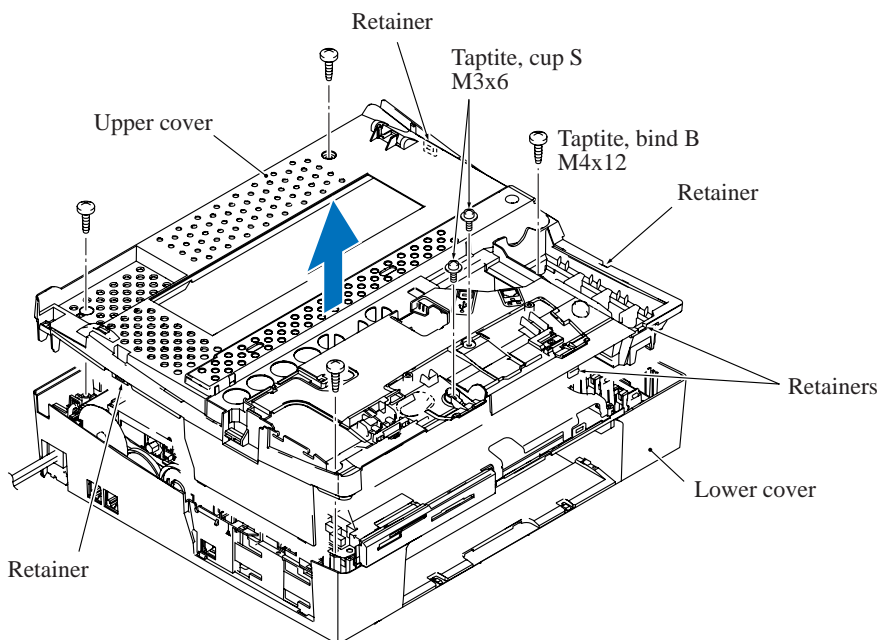
MFC640CW/DCP340CW

- (1) Remove the four screws from the upper cover.
- (2) Release the five retainers provided on the upper cover and lift up the upper cover.



MFC820CW

- (1) Remove the six screws from the upper cover.
- (2) Release the five retainers provided on the upper cover and lift up the upper cover.



■ Reassembling Notes

- When mounting the upper cover:

Make sure that the head/carriage unit is placed in the head capping position to prevent the ink supply tubes from getting crushed between the upper and lower covers.

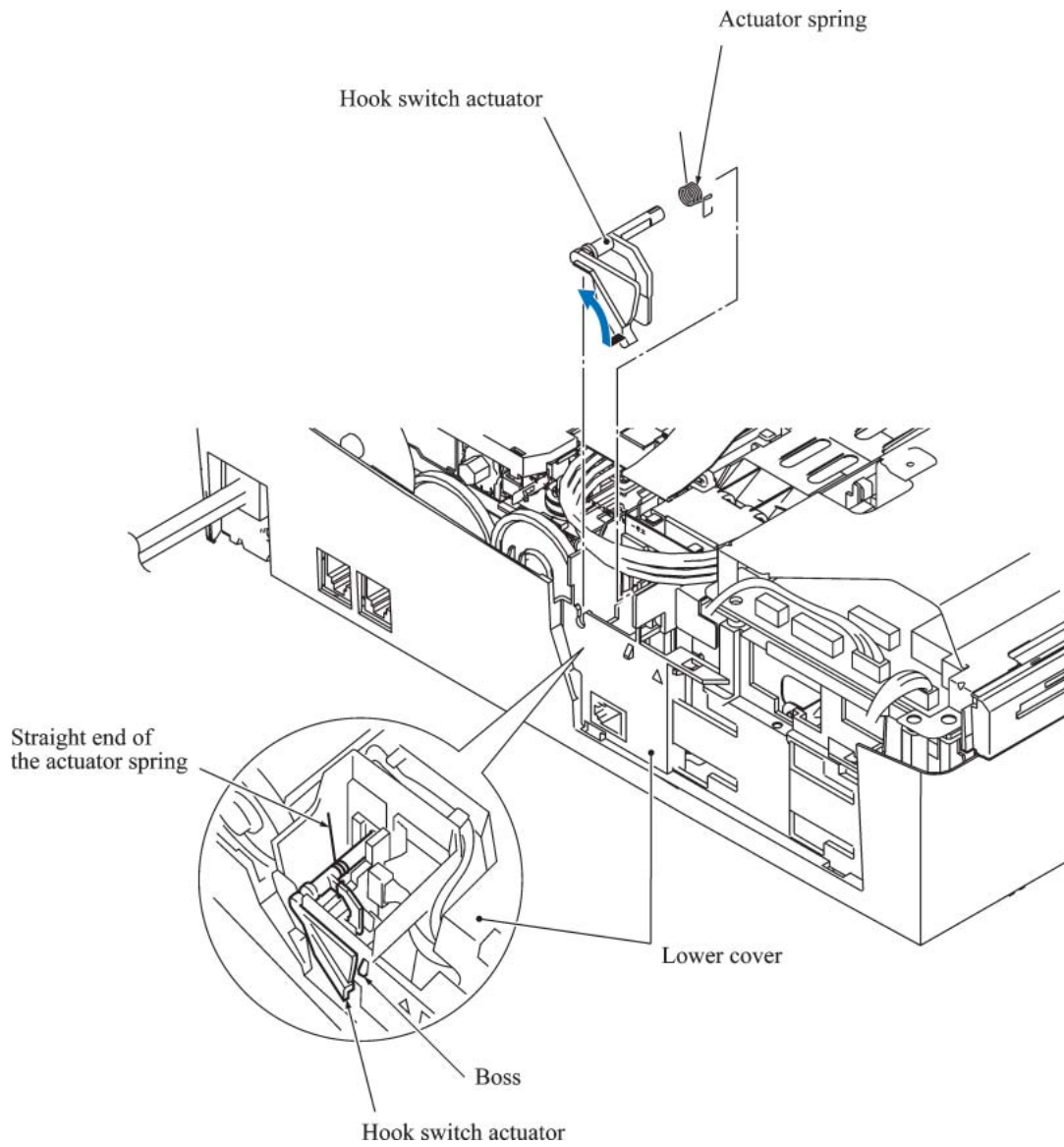
Take care not to deform the PF encoder disk.

Be careful not to pinch the ink absorber box. If pinched, the ink absorber box presses down the paper pressure holder (shown on [page 5-61](#)), resulting in a paper jam.

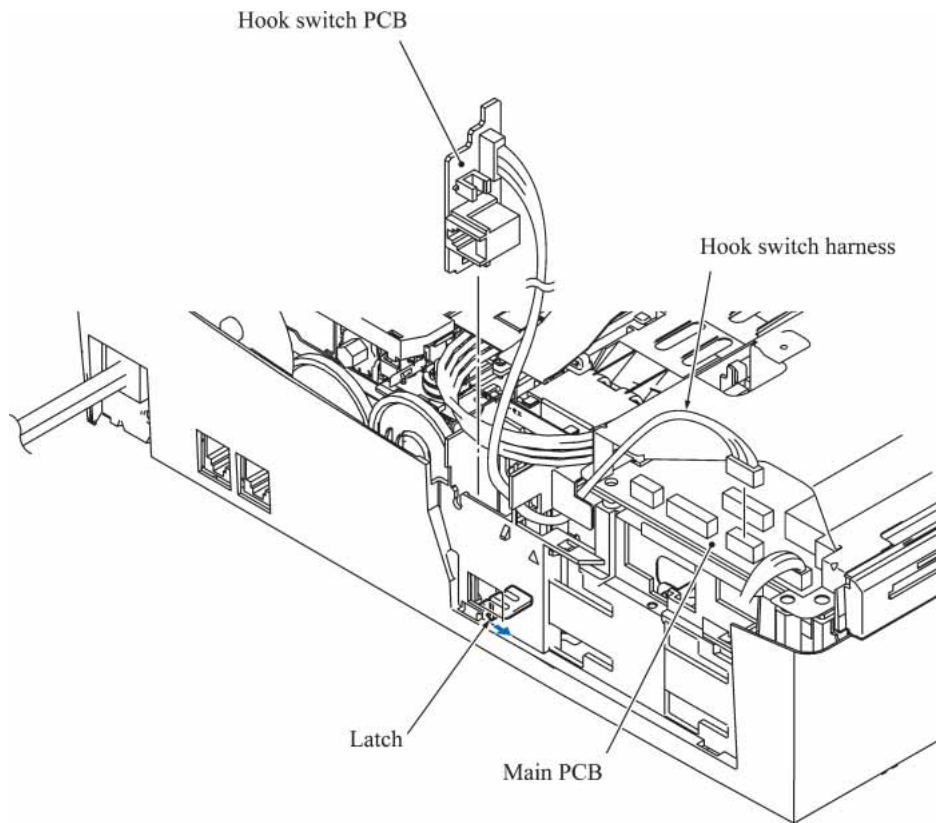
5.1.8 Hook Switch Actuator and Hook Switch PCB (MFC640CW)

- (1) Pull the hook switch actuator outwards, turn it counterclockwise to release it from the boss, and take it up and out of the lower cover.

The actuator spring also comes off.



- (2) Disconnect the hook switch harness from the main PCB.
- (3) Insert the tip of a flat screwdriver through the square cutout provided in the bottom of the machine, release the latch to the front, and lift up the hook switch PCB.



5.1.9 Head/Carriage Unit

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

Before removing the head/carriage unit, ink refill ASSY or engine unit, you need to replace the current ink cartridges with dummy ones and drain ink from the ink refill ASSY and head/carriage unit (see [Section 5.1.1](#)). After ink draining, be sure to set protective cartridges instead of dummy ones.

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: To replace the head/carriage unit, you need to turn the machine on and let the head/carriage unit travel to the head replacement position as described in [Section 5.1.1 \(Function code 63\)](#). Do not move the head/carriage unit by hand when the machine is turned off. However, if the head/carriage unit fails to move in [Section 5.1.1](#), rotate the ejection idle gear shown on the next page counterclockwise (viewed from the left) by hand to unlock the head/carriage unit and move it to the head replacement position.

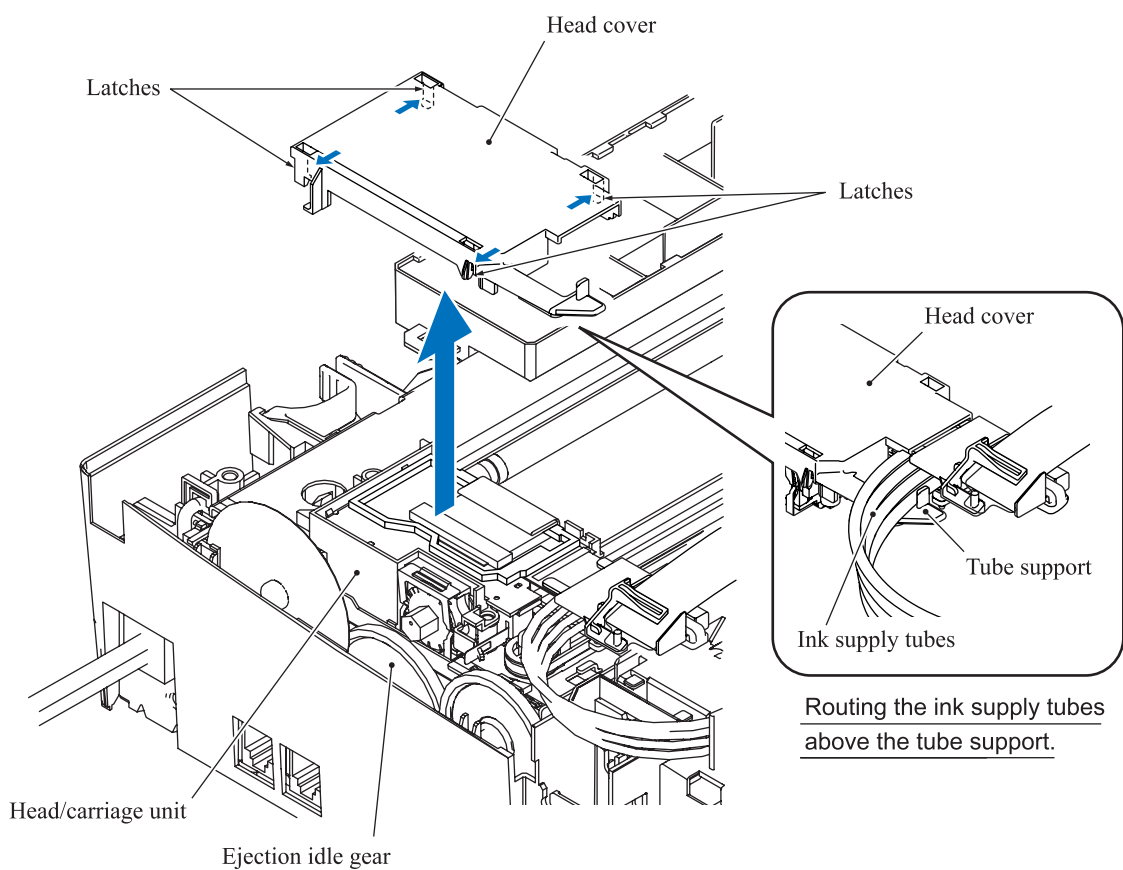
NOTE: If you replace the head/carriage unit, also replace the ink cartridges. This is because sufficient ink volume is necessary for refilling the ink supply tubes after replacement of the head/carriage unit.

Draining the ink from the ink supply tubes and moving the head/carriage unit to the head replacement position (Refer to Section 5.1.1.)

- (1) Make sure that:
- the ink in the ink refill ASSY and head/carriage unit has been drained,
 - all four ink cartridges have been replaced with protective cartridges,
 - the head/carriage unit is placed in the head replacement position, and
 - the power cord is unplugged from the electrical outlet.

Removing the head cover

- (2) Unlatch the head cover from the head/carriage unit and pull it up.



Removing the carriage PCB and head flat cables

- (3) Disconnect the head flat cables 1 and 2 from the main PCB and pull them out to the rear through the opening provided in the lower cover as shown below.

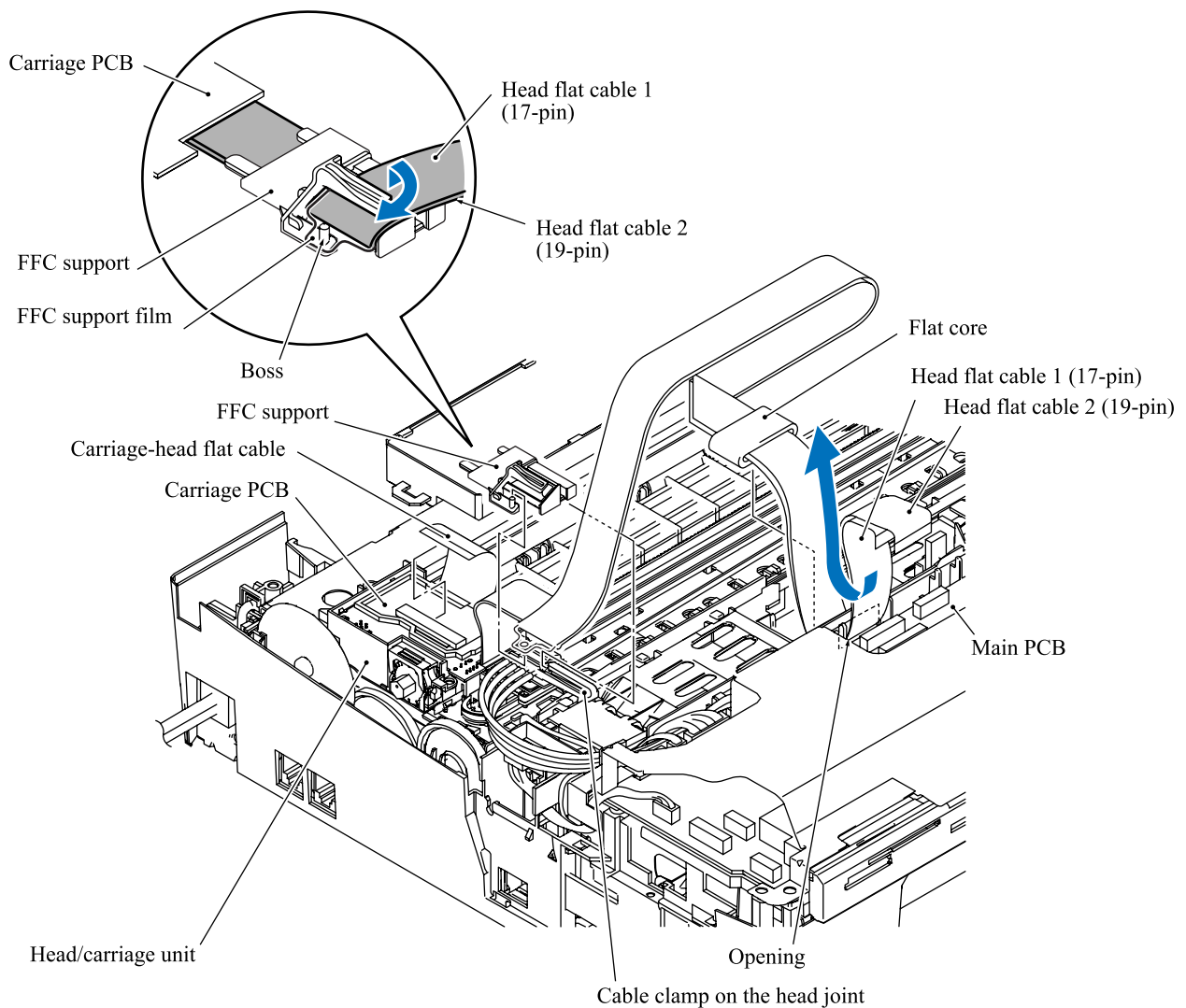
NOTE: Take care not to drop the flat core from the head flat cables.

- (4) Slide the FFC support to the rear and lightly pull up the cable clamp to release the support from the cable clamp.

- (5) Remove the head flat cables from the FFC support.

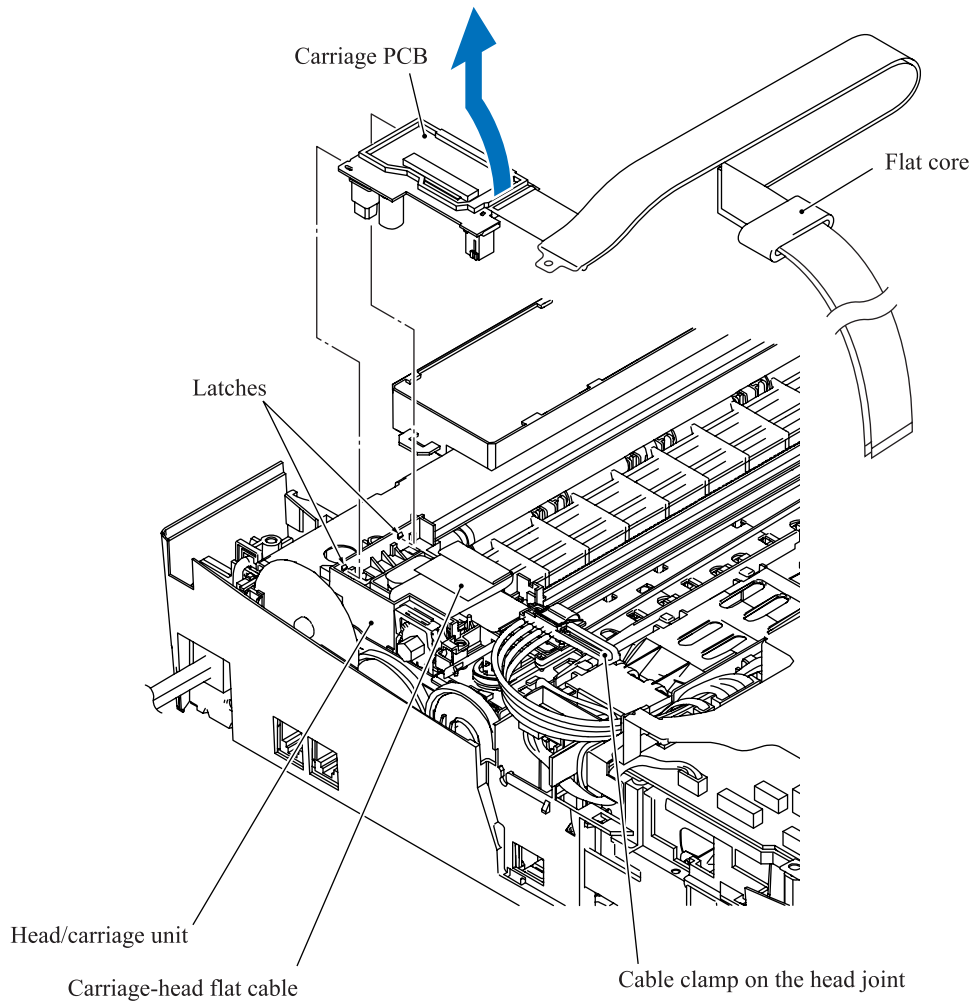
NOTE: For easier removal, first release the left end of the FFC support film from the boss on the FFC support and turn the head flat cables clockwise.

Removing the head flat cables from the FFC support



- (6) Unlock the connector on the carriage PCB and disconnect the carriage-head flat cable.

- (7) Pull up the front edge of the carriage PCB to release the rear edge from the two latches provided on the head/carriage unit. Then lift the carriage PCB up and out of the head/carriage unit.



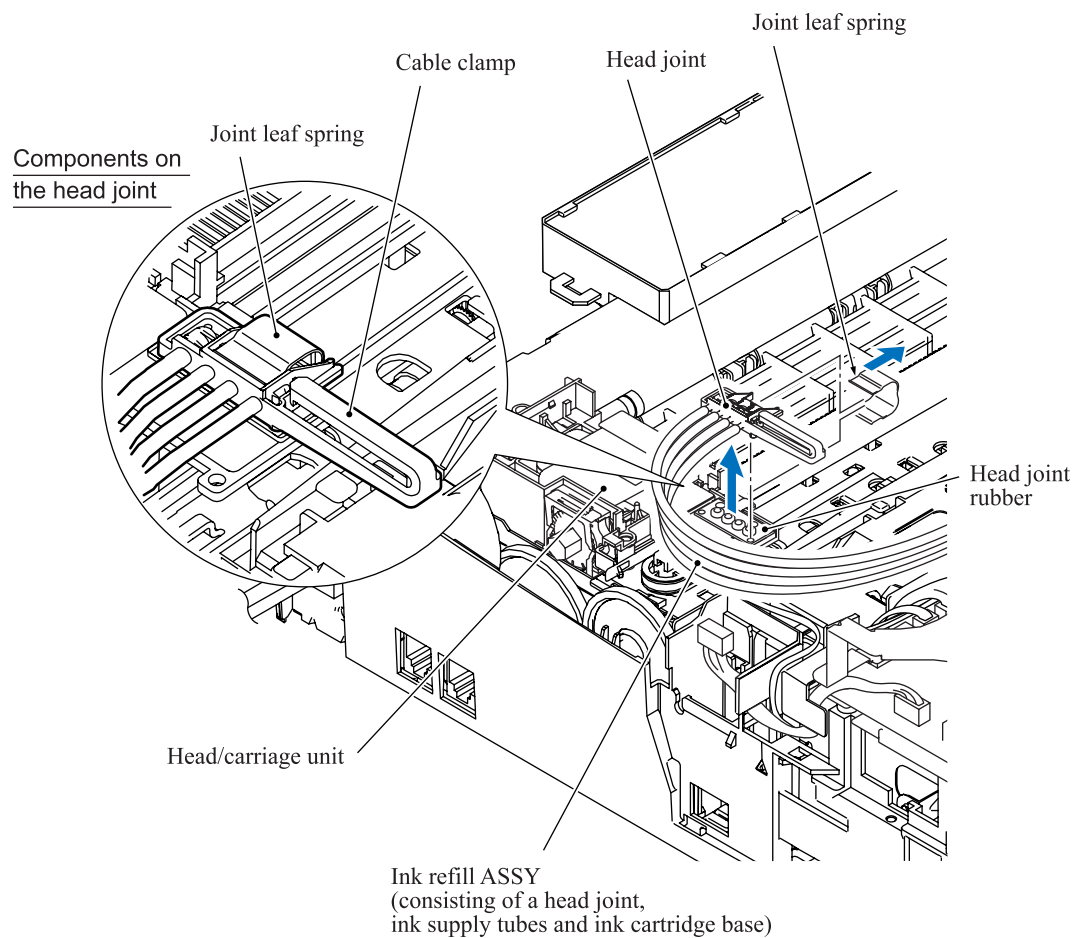
Removing the head joint

- (8) Pull the joint leaf spring to the right to release the head joint.
- (9) 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 be attached to 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 to prevent ink remaining in the ink supply tubes from leaking and the machine from getting stained with leaked ink.



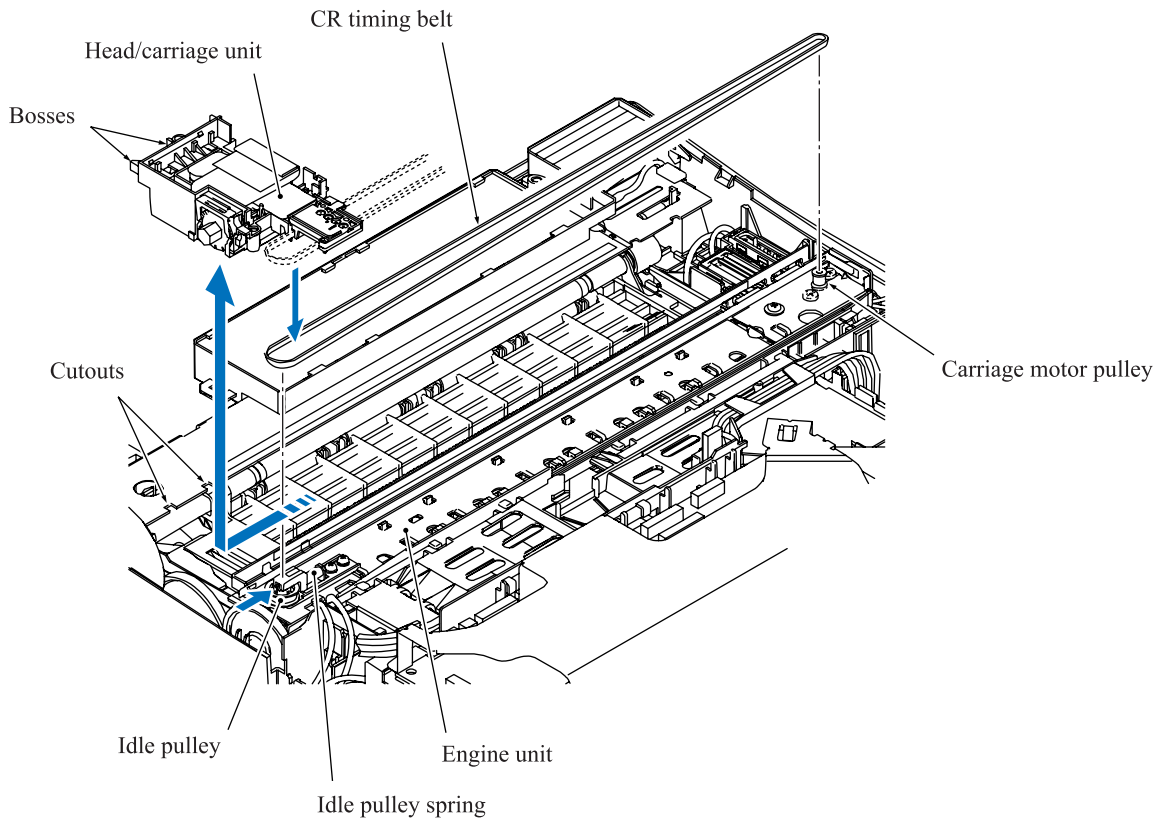
Removing the head/carriage unit and CR timing belt

NOTE: During the removal or installation job for the head/carriage unit, take care not to contaminate the CR encoder strip or PF encoder disk with grease applied to the head/carriage unit.

- (10) While pressing the idle pulley to the right, remove the CR timing belt from the carriage motor pulley and idle pulley.
- (11) Move the head/carriage unit to the left end of its travel.
- (12) Align the bosses on the head/carriage unit with the cutouts in the engine unit and lift the head/carriage unit up and off the engine unit.

NOTE: Do not touch the print 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, clean them with a special-purpose cleaning stick and liquid.

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

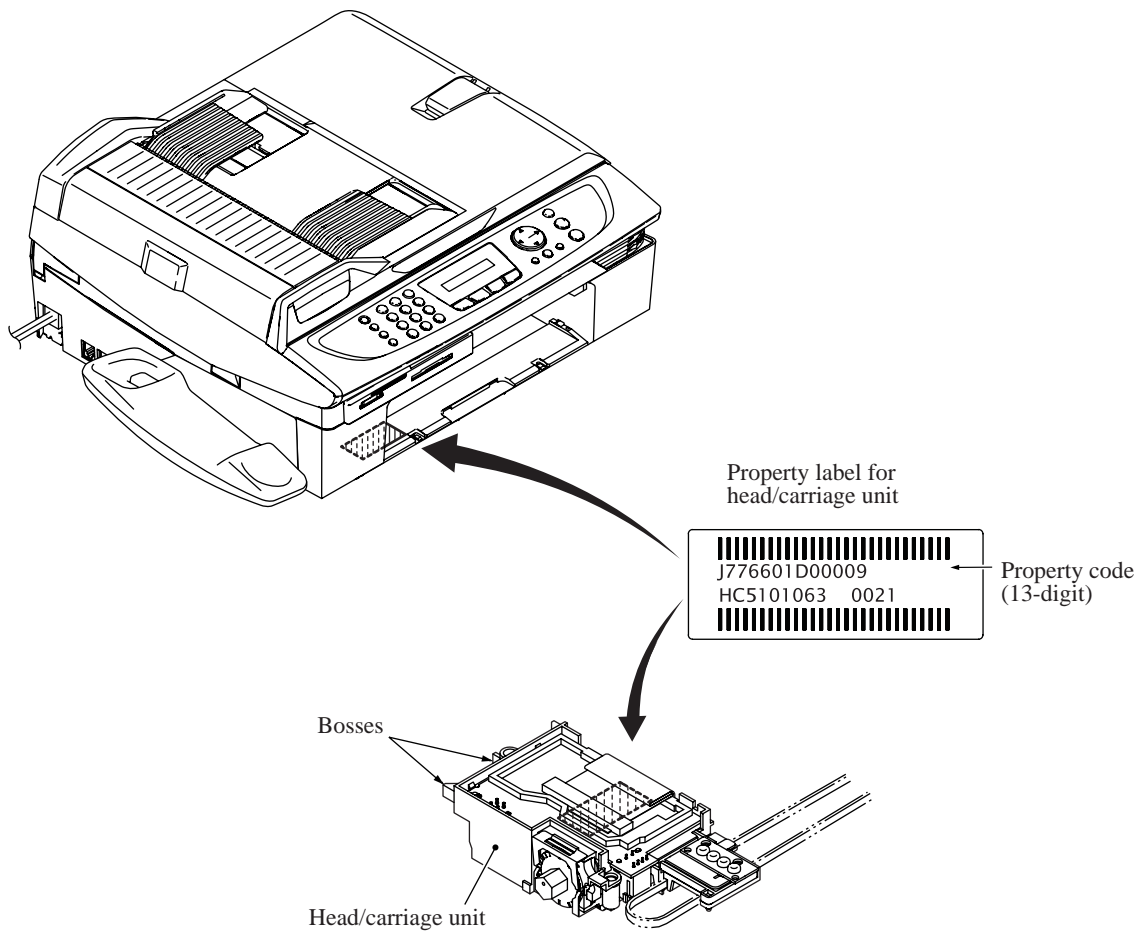


- (14) A head/carriage unit is assigned a property code that represents the properties unique to that head/carriage unit. The property code is printed on a property label that is attached to the carriage-head flat cable and the machine.

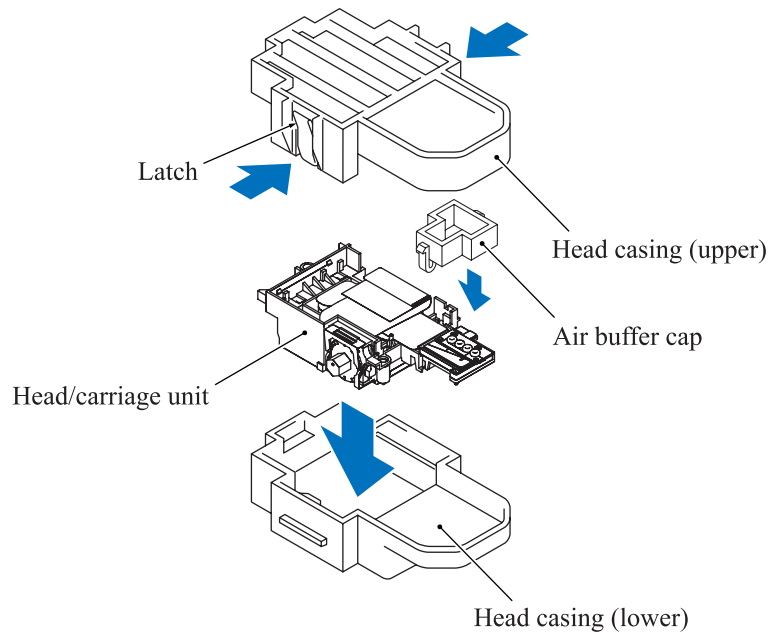
When you remove the head/carriage unit and store it separately from the machine, remove the property label from the machine and store it together with the head/carriage unit.

If you replace the head/carriage unit, attach the property label that comes with the new head/carriage unit to the machine as shown below.

Viewed from the bottom



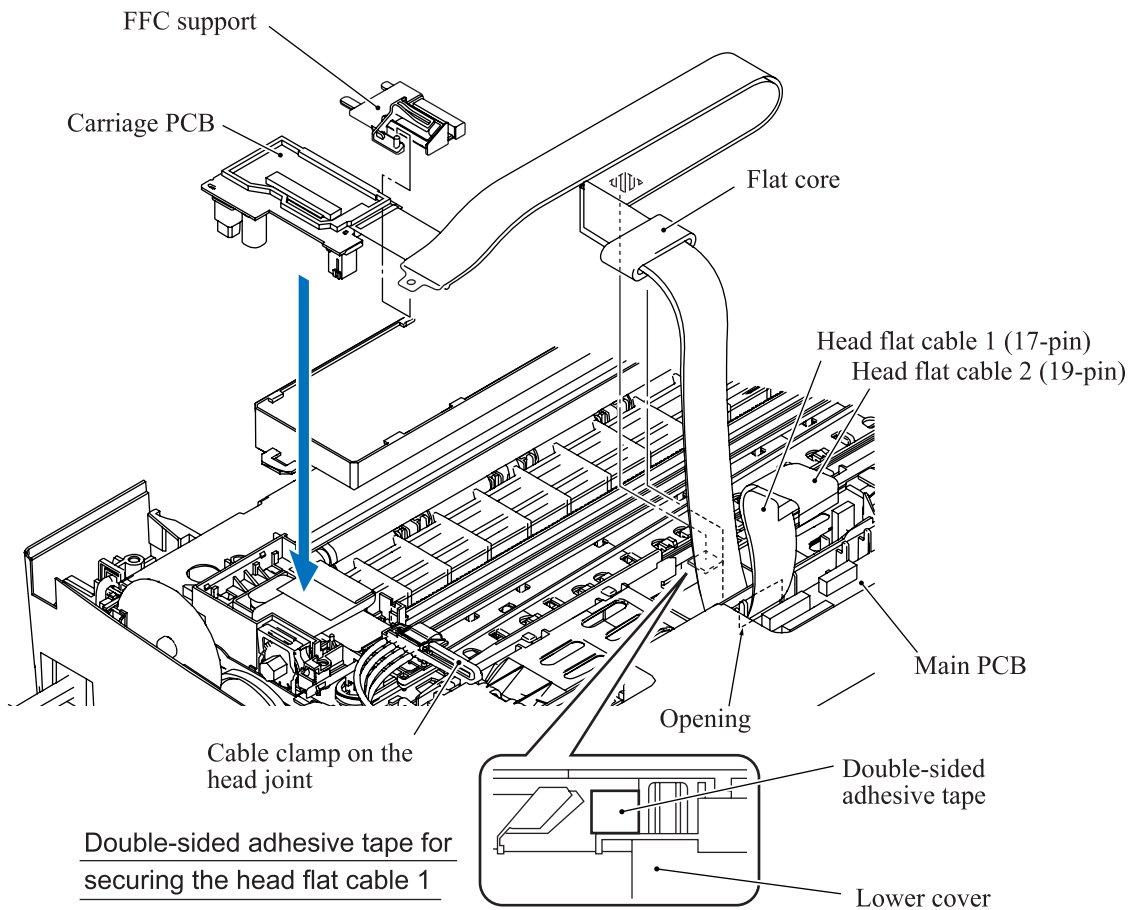
NOTE: When storing the head/carriage unit for a long period, be sure to put an air buffer cap on the head/carriage unit and store the unit in the head casing, as shown below. Leaving the head/carriage unit out of the casing will cause the print nozzles and ink supply ports to dry up, resulting in a damaged head.



■ Reassembling 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 you set a new head/carriage unit to the machine, apply lubricant to the 5 points specified in [Section 5.2](#).
- After replacement of the head/carriage unit, check that the CR encoder strip and PF encoder disk are free of grease. If they are stained with grease, replace them.
- If you replace the head/carriage unit, make adjustments specified in [Chapter 6, Section 6.2](#).
- When mounting the head/carriage unit, route the head flat cables and attach the FFC support, using the following procedure. (See the illustration on the next page.)
 - 1) Attach a piece of double-sided adhesive tape, which is used to secure the head flat cable 1 to the lower cover, to the position shown on the next page.
 - 2) Attach the CR timing belt to the head/carriage unit, then mount the head/carriage unit to the engine unit.
 - 3) Make sure that the head joint rubber is set on the head/carriage unit. Then secure the head joint to the head/carriage unit with the joint leaf spring.
 - 4) Set the FFC support to the head flat cables. (See the illustration on [page 5-35](#).)
 - 5) Mount the carriage PCB with head flat cables onto the head/carriage unit.

- 6) Fit the FFC support to the head joint, sliding it along the joint's cable clamp.
- 7) Route the head flat cable 1 as shown on [page 5-35](#) and secure it to the lower cover with the double-sided adhesive tape attached in 1) above.
- 8) Mount the head cover.

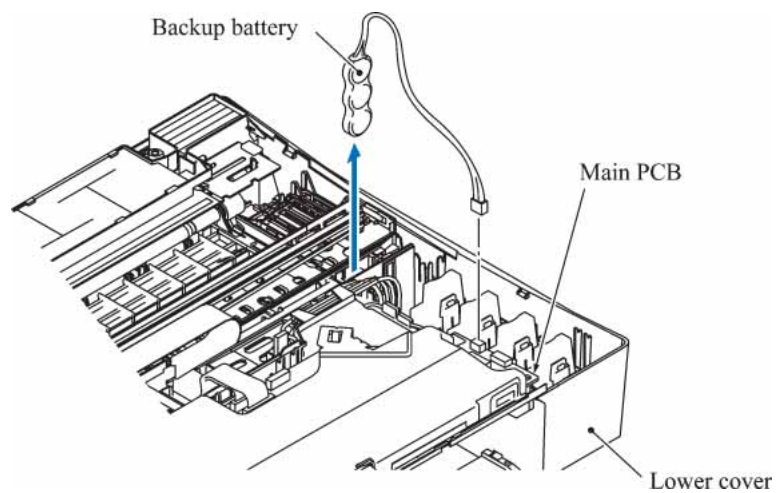


5.1.10 Backup Battery (MFC640CW/820CW)

- (1) Disconnect the battery harness from the main PCB.
- (2) Release the ink supply tubes routed on the lower cover from the tube guides.

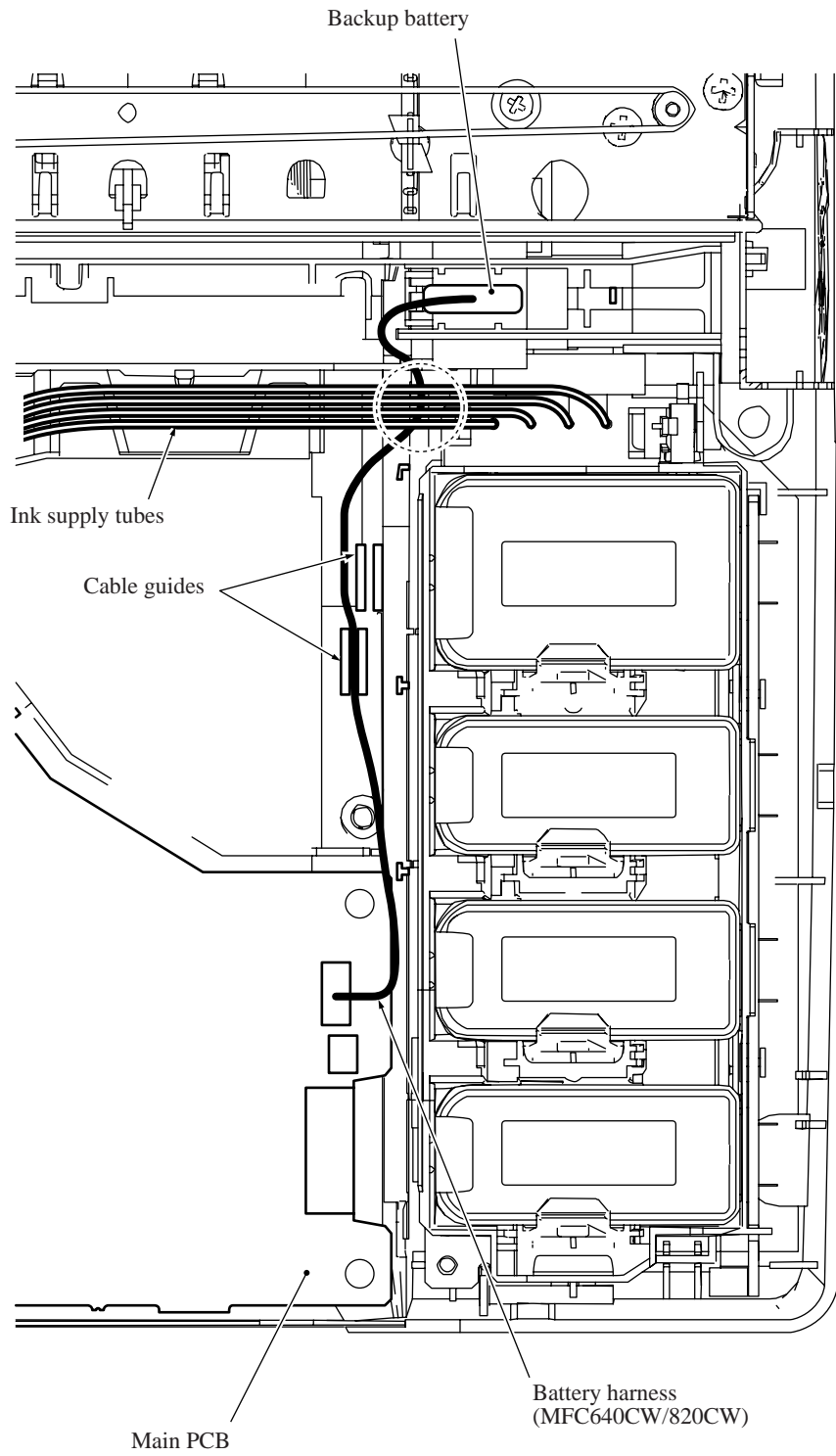
NOTE: Releasing those tubes makes it easy to release the battery harness from the hook provided on the lower cover since the battery harness is routed beneath those tubes. (See [Section 5.1.17, Routing E.](#))

- (3) Release the battery harness from the hook and remove the backup battery.



■ **Reassembling Notes**

- Route the battery harness beneath the ink supply tubes as shown below.

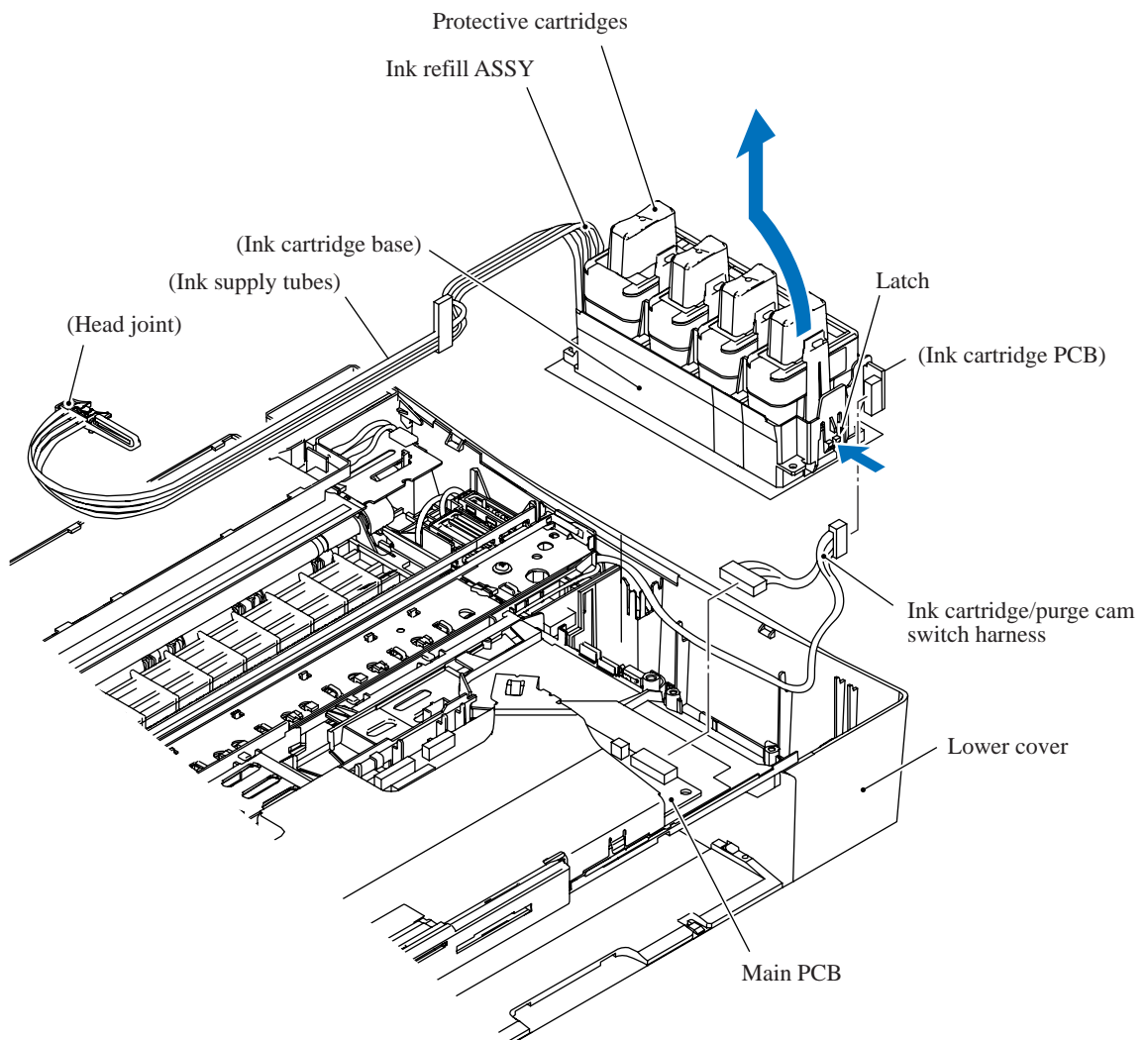


5.1.11 Ink Refill ASSY

- (1) Take the ink supply tubes routed on the lower cover out of the machine.
- (2) Press the latch provided on the front side of the ink cartridge base inwards with a flat screwdriver and lift the ink cartridge base up and out of the lower cover.

NOTE: Inside the ink cartridge base is an ink absorber foam that may be stained with ink. If it is excessively stained, replace the ink refill ASSY.

- (3) Disconnect the ink cartridge/purge cam switch harness from the main PCB and the ink cartridge PCB.

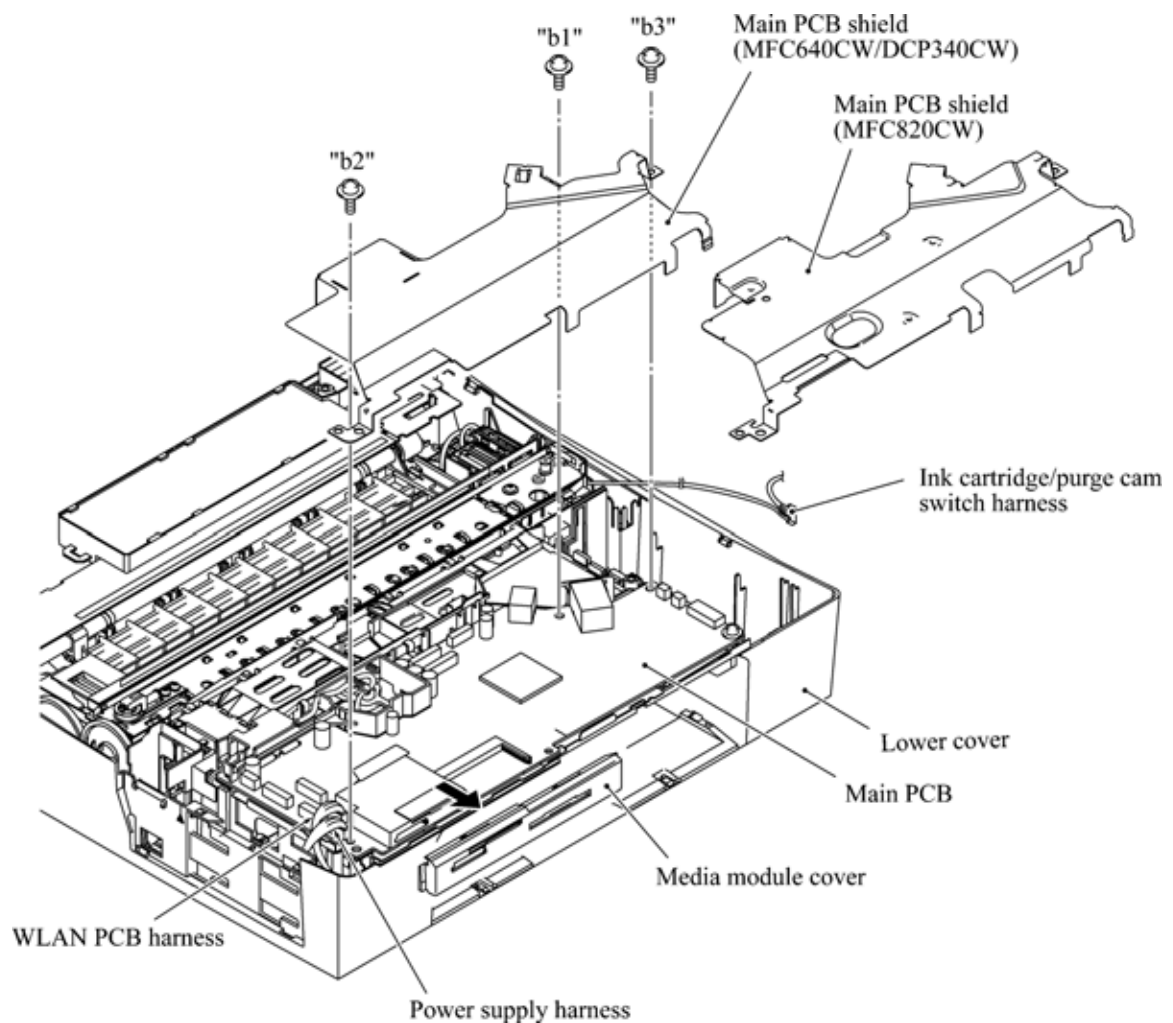


5.1.12 Media Module Cover, Main PCB, and WLAN PCB

CAUTION: Before accessing the main PCB, make sure that the power cord is unplugged from the electrical outlet and the telephone line 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.

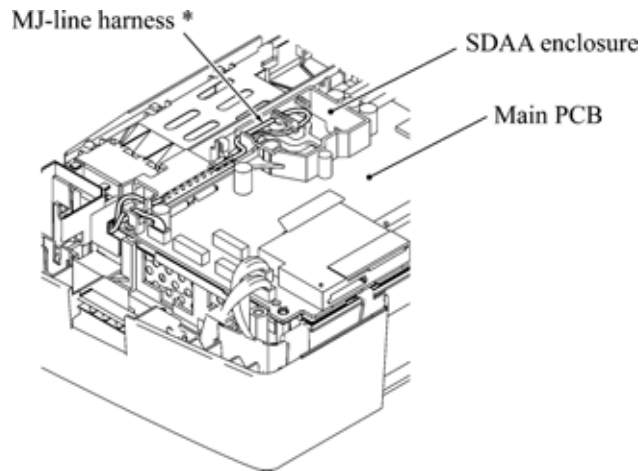
- (1) Remove the media module cover towards you.
- (2) Remove three screws "b1" through "b3" from the main PCB shield and lift it up.



"b1" and "b3": Taptite, cup B M3x8
"b2": Taptite, cup S M3x6

- (3) Disconnect the MJ-line harness* from the main PCB.
- (4) Remove the SDAA enclosure from the main PCB.

*Not provided on the DCP340CW.



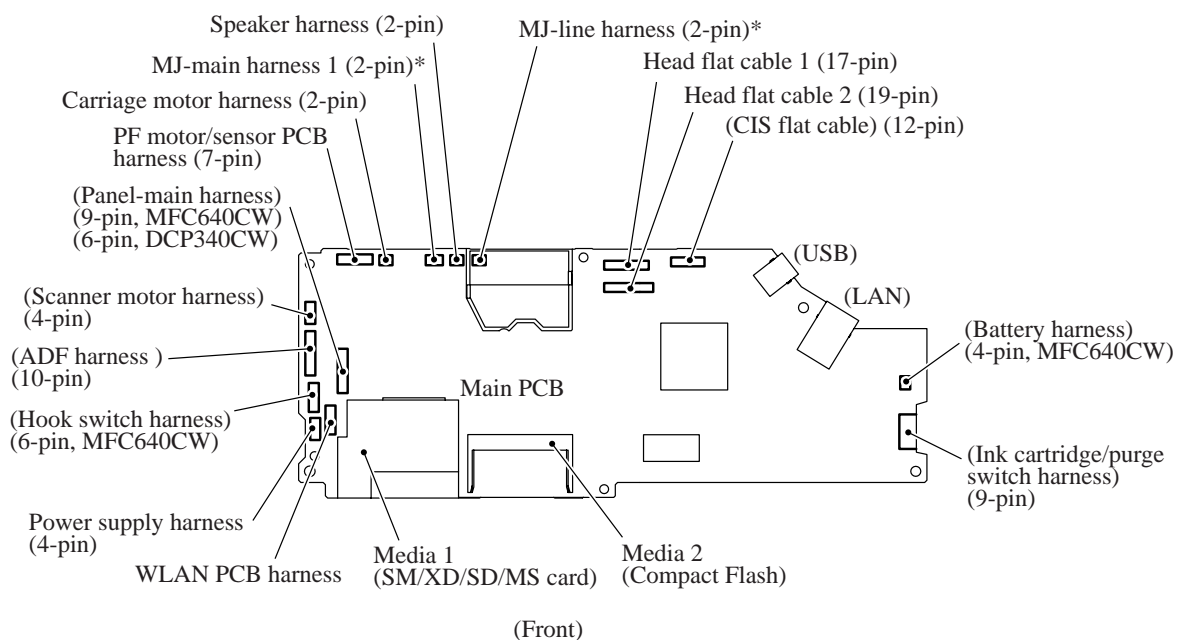
- (5) Disconnect the following harnesses and flat cables from the main PCB.

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

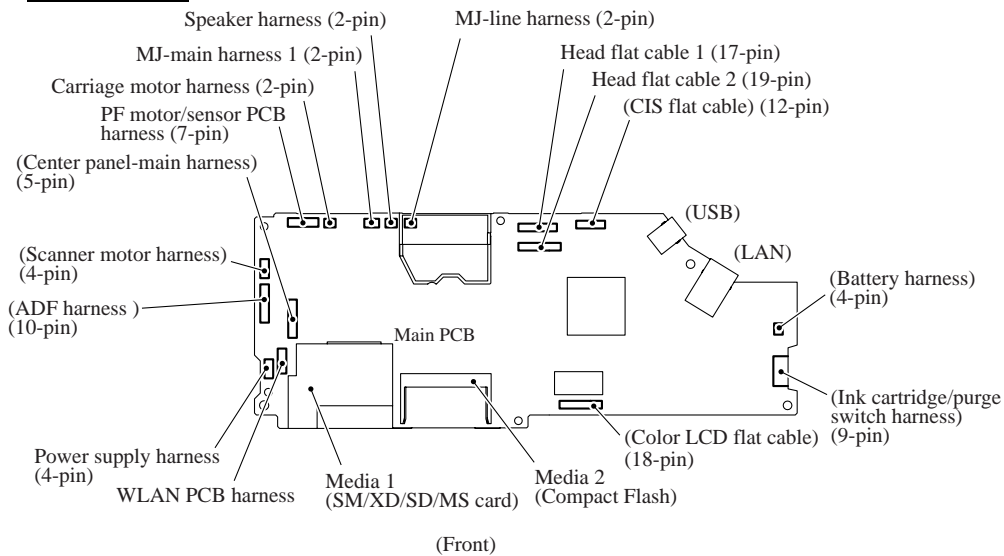
- WLAN PCB harness
- Power supply harness (4-pin)
- PF motor/sensor PCB harness (7-pin)
- Carriage motor harness (2-pin)
- MJ-main harness 1 (2-pin)*
- Speaker harness (2-pin)
- Head flat cable 1 (17-pin)
- Head flat cable 2 (19-pin)

MFC640CW/DCP340CW

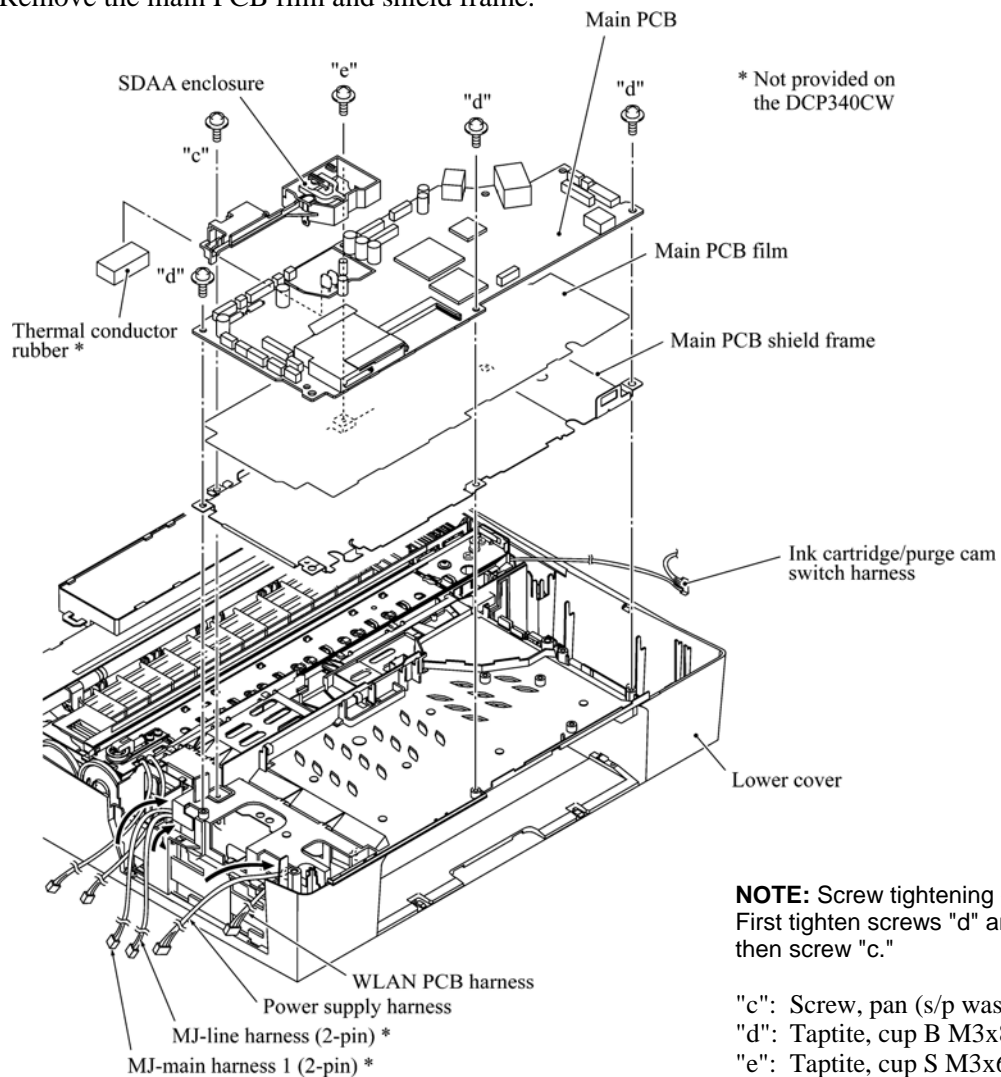
* Not provided on the DCP340CW.



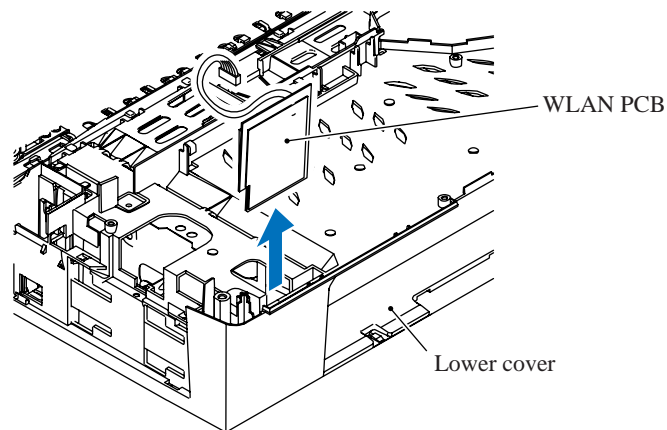
MFC820CW



- (6) Remove four screws (three "d" and one "e" screws) from the main PCB, then lift up the PCB.
- (7) Remove screw "c" from the main PCB shield frame.
- (8) Remove the main PCB film and shield frame.

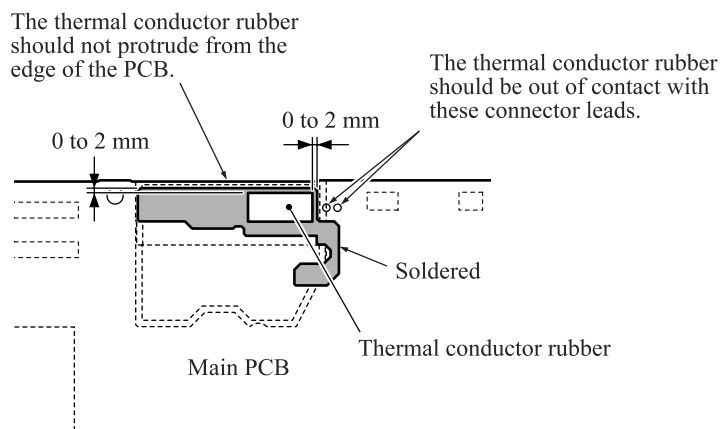


- (9) **MFC640CW/820CW, European/Oceanian/Asian models** The thermal conductor rubber is attached to the solder side of the main PCB. When replacing the main PCB, gently remove the thermal conductor rubber from the main PCB and attach it to a new PCB. (For details, see the reassembling notes below.)
- (10) Pull the WLAN PCB up and out of the lower cover.



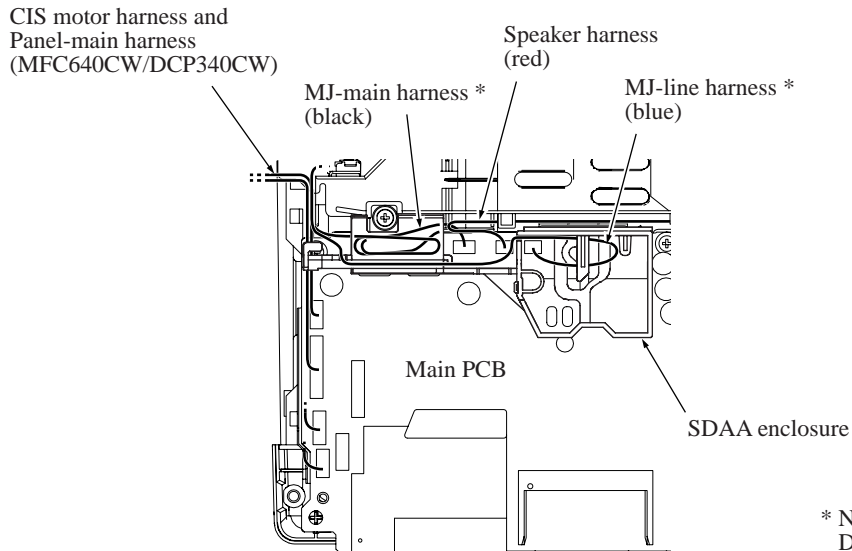
■ **Reassembling Notes**

- **MFC640CW/820CW, European/Oceanian/Asian models** If the main PCB is replaced, attach the thermal conductor rubber removed from the old PCB to a new one as specified below.



- When securing the main PCB and its shield frame, first tighten four screws "d" and "e" and then screw "c." See the previous page.

- **MFC640CW/820CW** Before securing the main PCB shield, connect the MJ-line harness and MJ-main harness to the main PCB and route them through the SDAA enclosure as shown below.

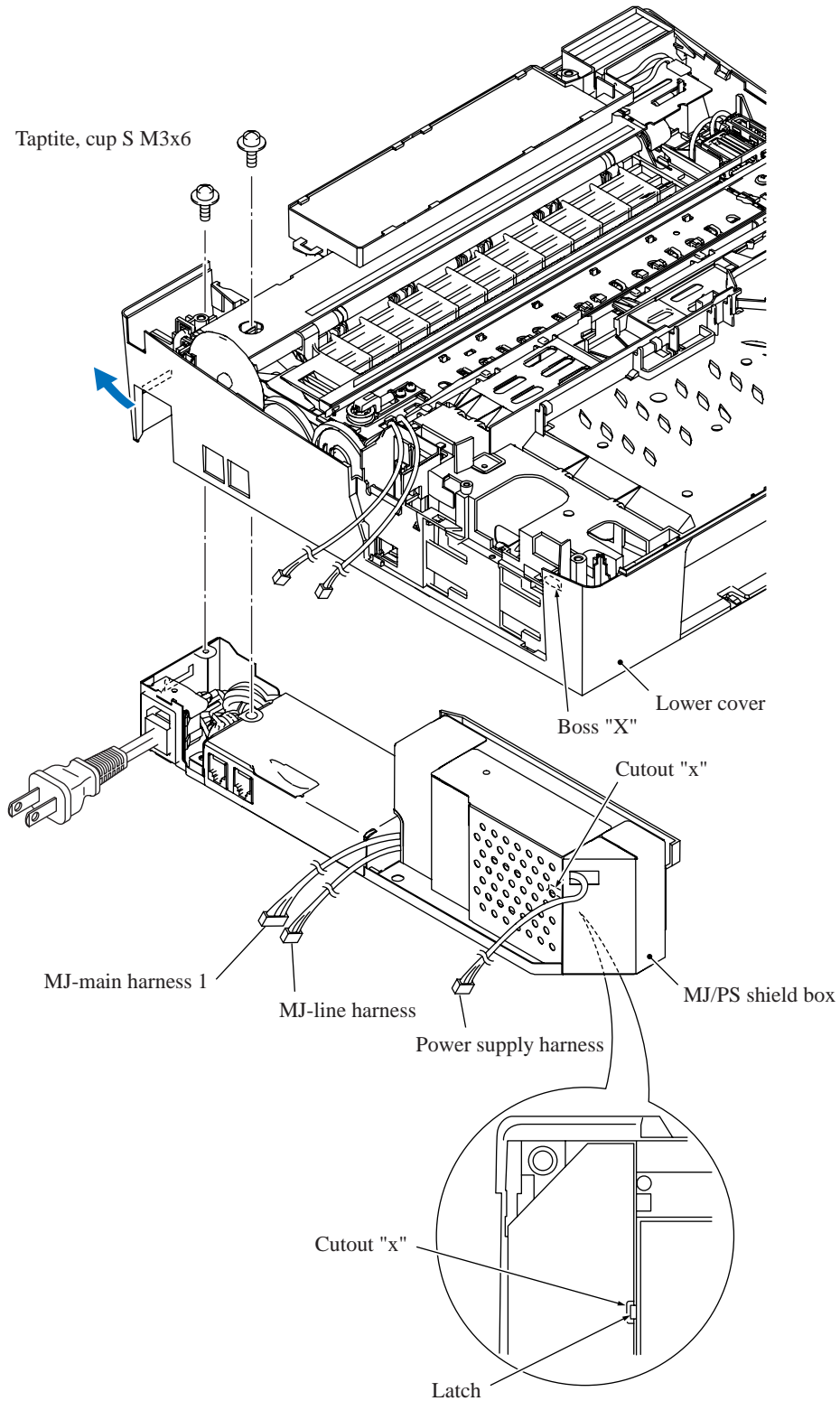


- If you replace the main PCB, also replace the ink absorber box. Otherwise, drained ink may overflow after long-term use.
- If you replace the main PCB, you need to make the specified adjustments and updating of settings stored in the flash ROM while referring to [Chapter 6, Section 6.3](#). Before starting, make sure that the head/carriage unit is installed.

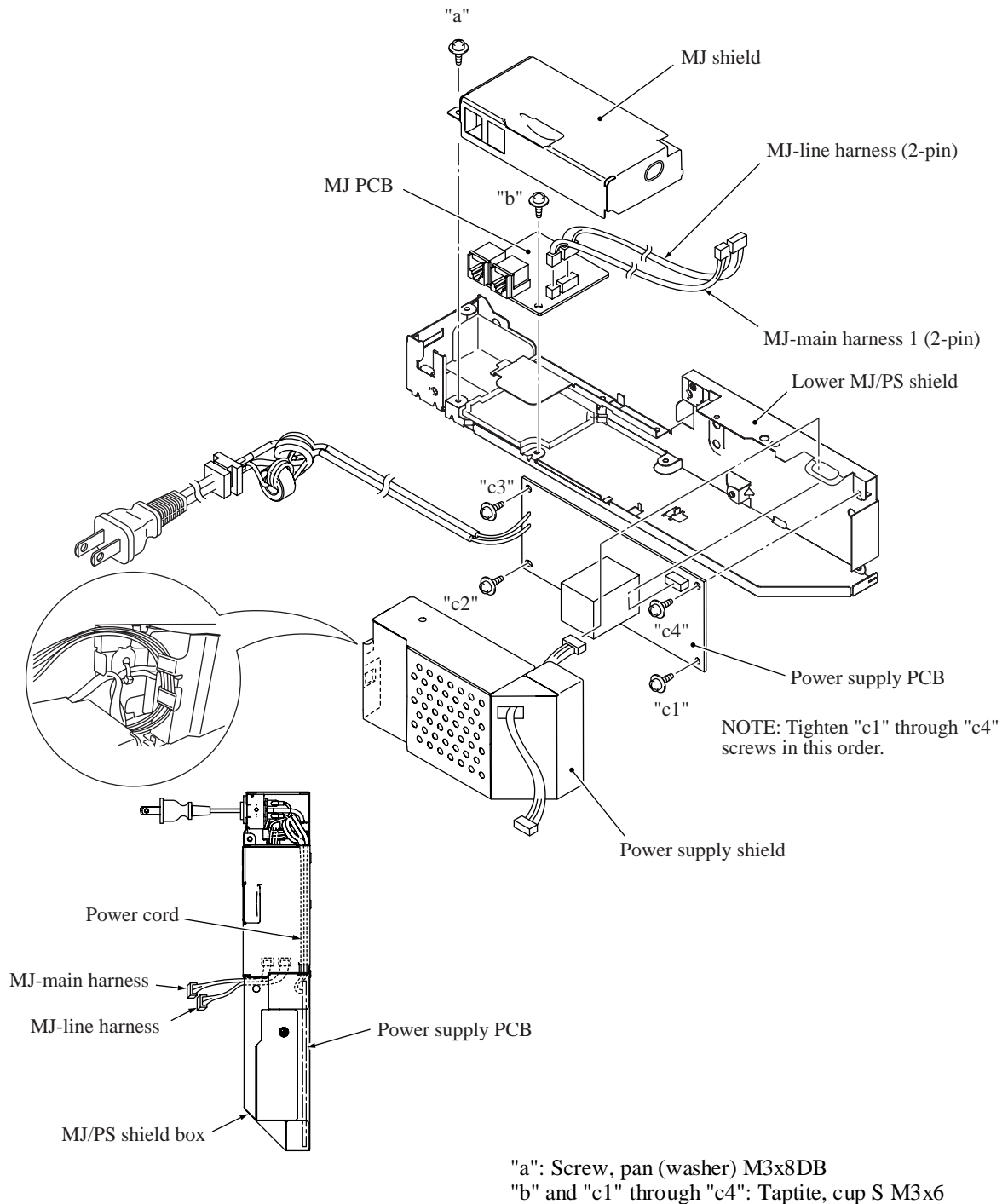
5.1.13 MJ/PS Shield Box, MJ PCB* and Power Supply PCB

*Not provided on the DCP340CW

- (1) Remove the two screws.
- (2) Insert the tip of a flat screwdriver through square cutout "x" and push boss "X" inwards to release the MJ/PS shield box.



- (3) Remove screw "a" from the MJ shield and take it off the lower MJ/PS shield.
- (4) Remove the power supply shield.
- (5) Remove four screws ("c1" through "c4") from the power supply PCB.
- (6) Remove screw "b" from the MJ PCB and take it off the lower MJ/PS shield.



■ Reassembling Notes

- When securing the power supply PCB, tighten "c1," "c2," "c3," and "c4" screws in this order.

5.1.14 Ink Absorber Box

- (1) Pull out the two tubes (main drain tube and opening tube to the atmospheric air) from the ink absorber box.

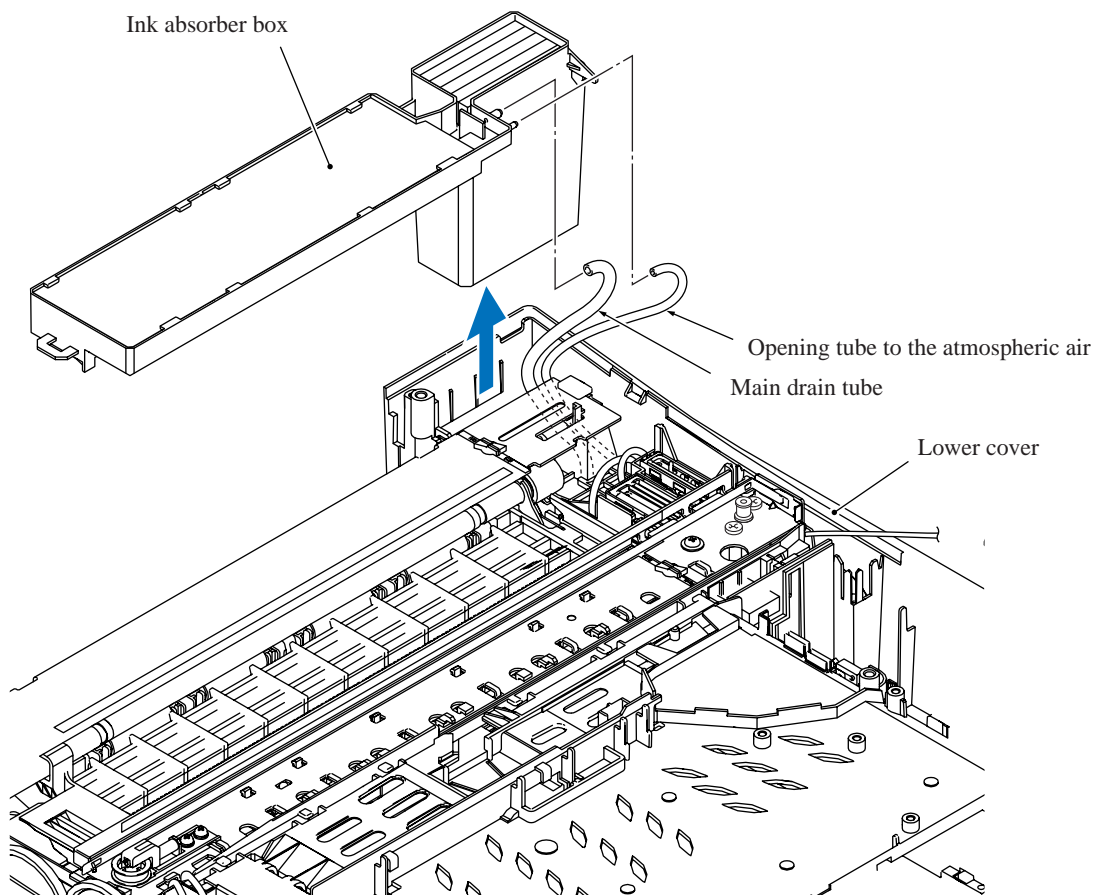
NOTE: Pinch the end of the main drain tube with a clip to prevent drained ink from leaking and the machine from getting stained with leaked ink.

NOTE: Wrap the end of the opening tube to the atmospheric air in tissue paper to prevent drained ink from leaking and the machine from getting stained with leaked ink.

- (2) Lift the ink absorber box up and out of the lower cover.

NOTE: Do not remove the ink absorber box unless it needs to be replaced. When replacing it, set a new one immediately to prevent the machine from getting stained with drained ink.

NOTE: If the ink absorber box or its surroundings are stained with ink, wipe them off with a cloth.



■ Reassembling Notes

- If you replace the ink absorber box (without replacing the main PCB), you need to reset the purge counter in the EEPROM to zero according to the procedure below.

MFC640CW/820CW

- 1) Press the **Menu/Set (Menu)** and **Black Start** keys. Next press the **▲** key four times to make the machine enter the maintenance mode.

The "■■ MAINTENANCE ■■■" appears on the LCD.

TIP: FAX models equipped with numerical keypads can enter the maintenance mode in the same way as conventional models; that is, by pressing the **Menu/Set (Menu)**, *****, **2**, **8**, **6** and **4** keys in this sequence.

- 2) Press the **8** and **0** keys in this order to display the equipment's log. (Function code 80 described in [Chapter 8, Section 8.4.21](#).)
- 3) Press the **Black Start** key several times until the purge count appears on the LCD.
- 4) Press the **2**, **7**, **8** and **3** keys to reset the purge count to zero.
- 5) Press the **9** key twice to return to the standby state.

DCP340CW

- 1) Press the **Menu** and **Mono Start** keys. Next press the **▲** key four times to make the machine enter the maintenance mode.

The "■■ MAINTENANCE ■■■" appears on the LCD.

- 2) Display the equipment's log (with Function code 80) by using the **▲** and **Set** keys as follows:
Press the **▲** key several times to display 8 on the LCD and press the **Set** key. Again press the **▲** key several times to display 0 and press the **Set** key.
- 3) Press the **Mono Start** key several times to display the purge count on the LCD.
- 4) Reset the purge count to zero by using the **▲** and **Set** keys as follows:
Press the **▲** key several times to display 2 on the LCD and then press the **Set** key. In the same way, enter 7, 8, and 3.
- 5) Exit from the maintenance mode by using the **▲** and **Set** keys as follows:
Press the **▲** key several times to display 9 on the LCD and then press the **Set** key. Again press the **▲** key several times to display 9 and press the **Set** key.

TIP: This machine counts all purge operations performed since produced in order to prevent the ink absorber box from overflowing with drained ink. An initial purge, for example, advances the counter by $187 + 420 = 607$. When the counter approaches 6400, "MACHINE ERROR 46" appears, and further purge operations are prohibited. Replace the ink absorber box and reset the purge counter.

5.1.15 Engine Unit and Maintenance Unit

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

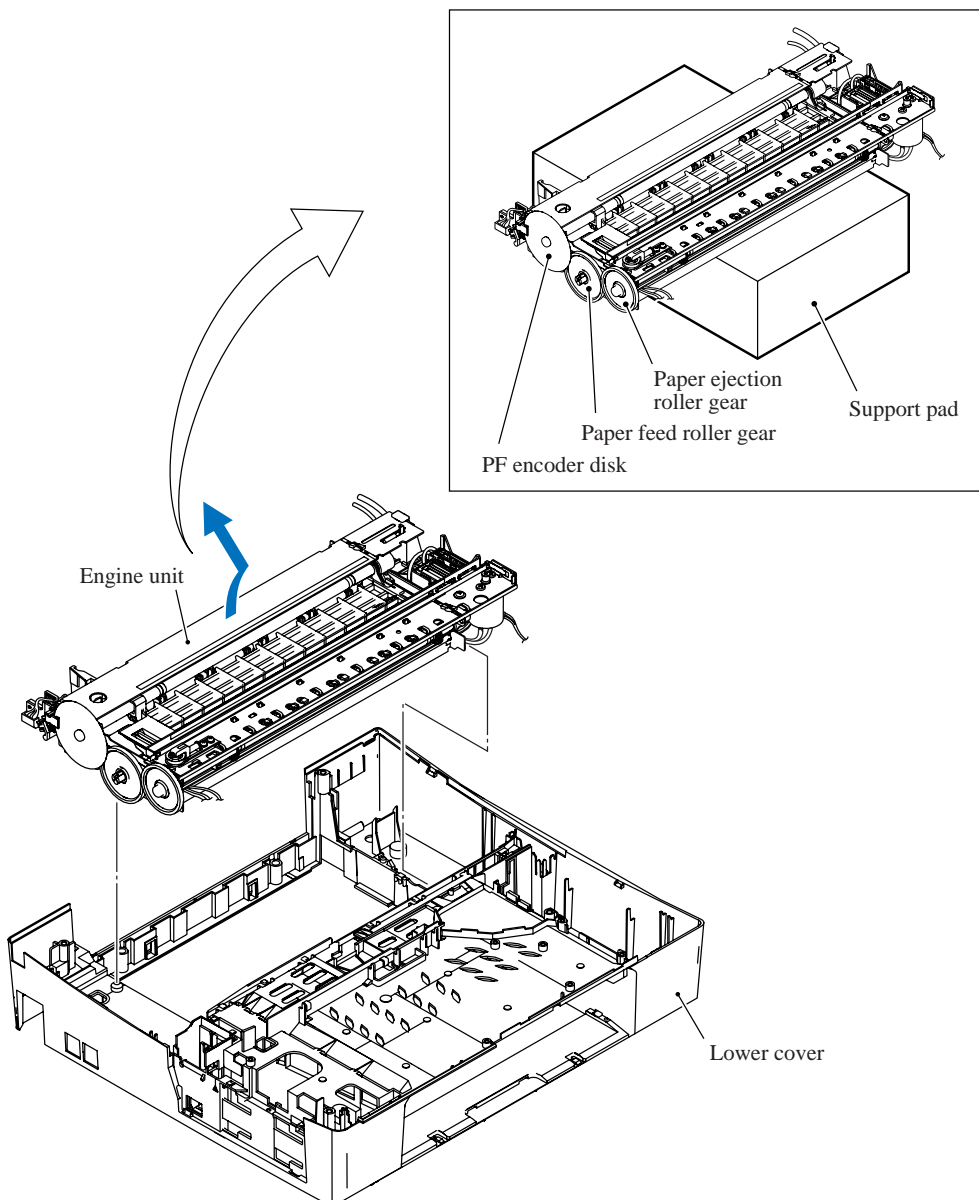
Before removing the head/carriage unit, ink refill ASSY or engine unit, you need to replace the current ink cartridges with dummy ones and drain ink from the ink refill ASSY and head/carriage unit (see [Section 5.1.1](#)). After ink draining, be sure to set protective cartridges instead of dummy ones.

Removing the engine unit

- (1) Lift the engine unit up and out of the lower cover.

NOTE: When handling the engine unit, hold it at the both ends with both hands taking care not to touch the PF encoder disk. Do not hold it with one hand at the center, particularly at the carriage rail section.

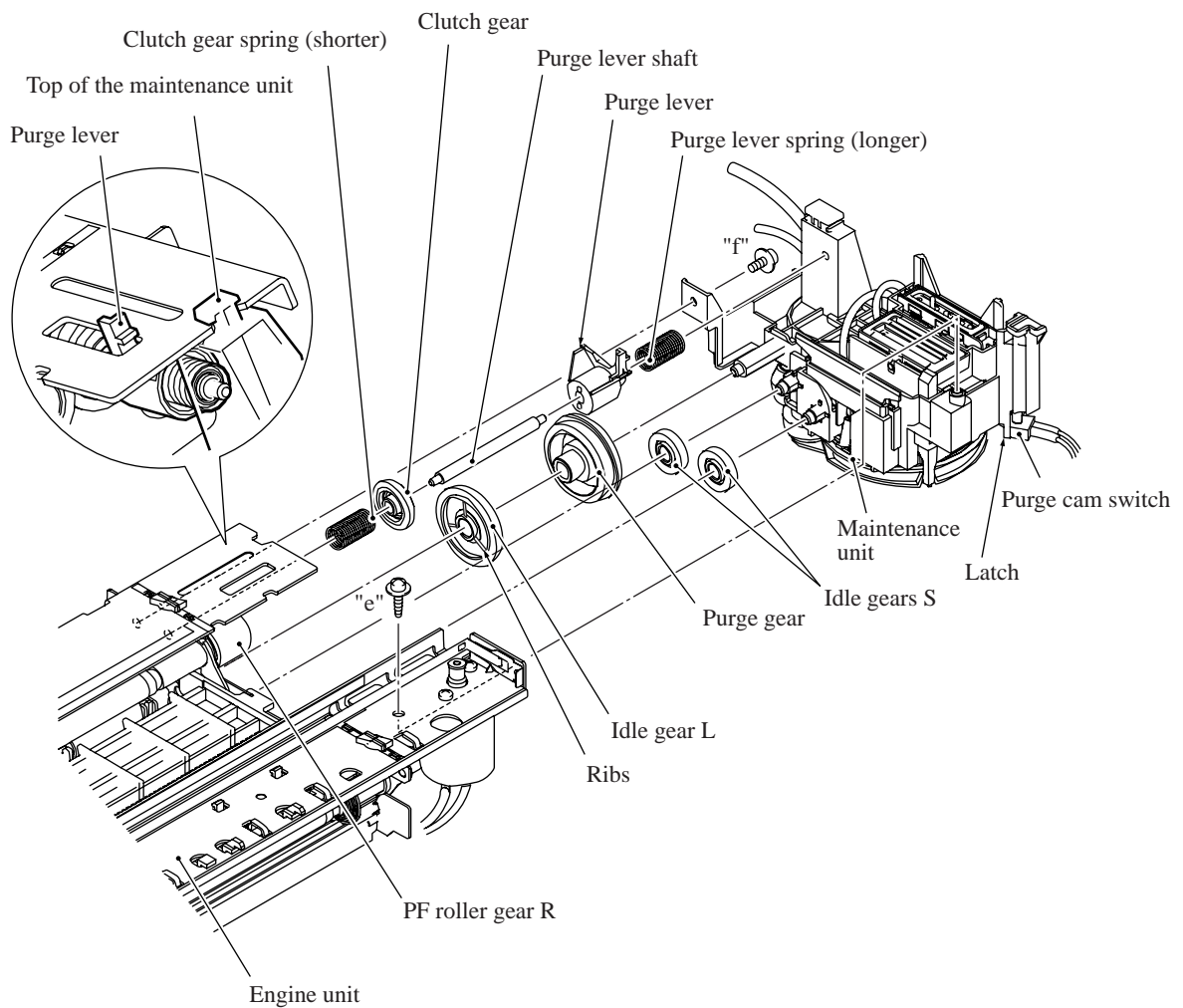
NOTE: Do not place the engine unit directly on a flat surface; doing so may break the PF encoder disk and gears. Be sure to place a support pad under the engine unit as illustrated below.



Removing the maintenance unit and related parts

- (2) Remove two screws, "e" from the top of the engine unit and "f" from the right side of the maintenance unit.
- (3) Remove the maintenance unit.
- (4) Unlatch the purge cam switch from the maintenance unit.
- (5) Remove the purge-related parts from the engine unit as shown below.

NOTE: Take care not to let the springs bounce off.



"e": Taptite, cup B M3x8

"f": Taptite, cup S M3x6

Reassembling Note: When setting the idle gear L back into place, face its ribs inwards.

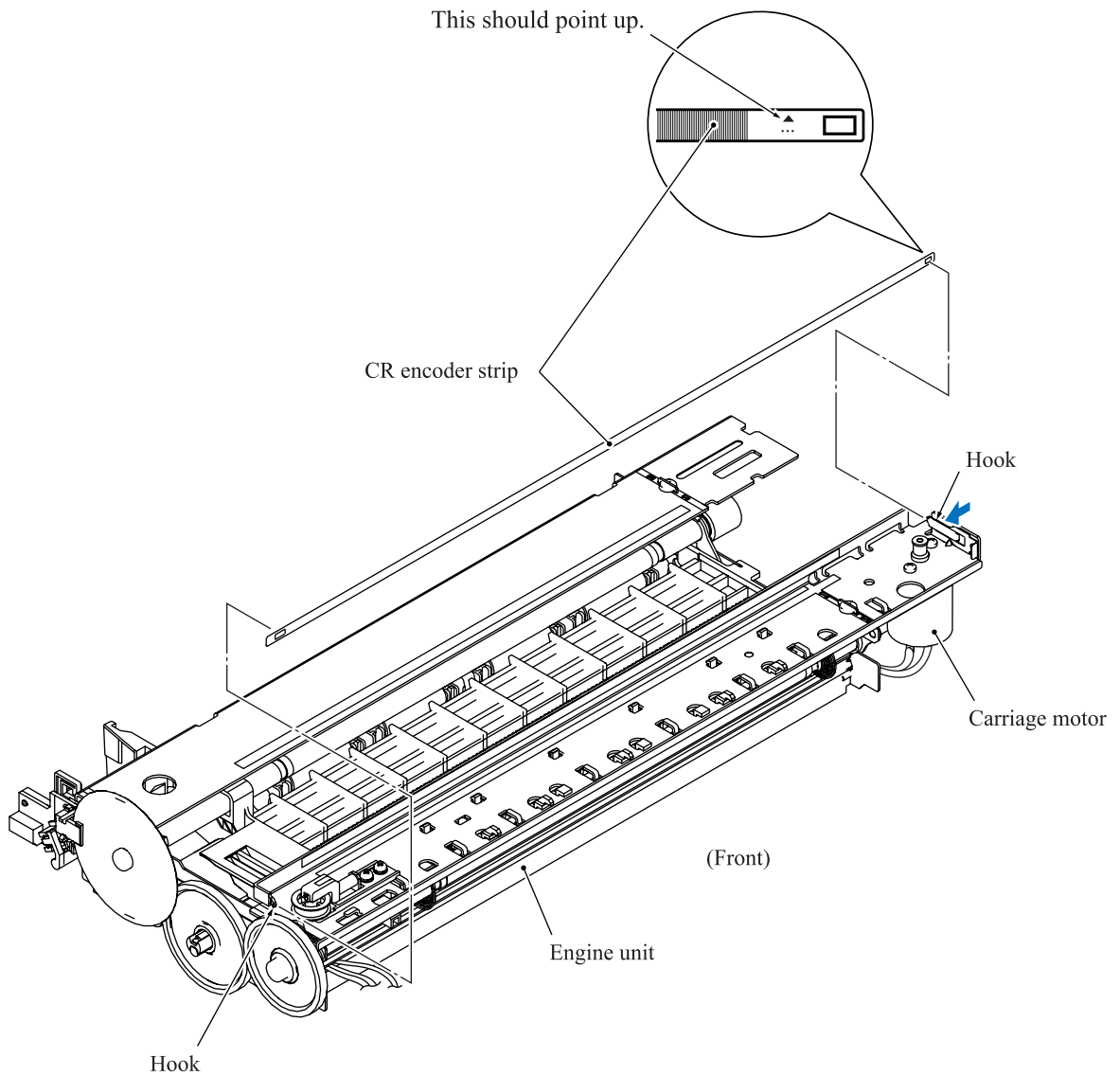
Reassembling Note: If you replace the engine unit, make adjustments specified in [Chapter 6, Section 6.2](#).

5.1.16 Components on the Engine Unit

Removing the CR encoder strip

- (1) Unhook the CR encoder strip from the engine unit.

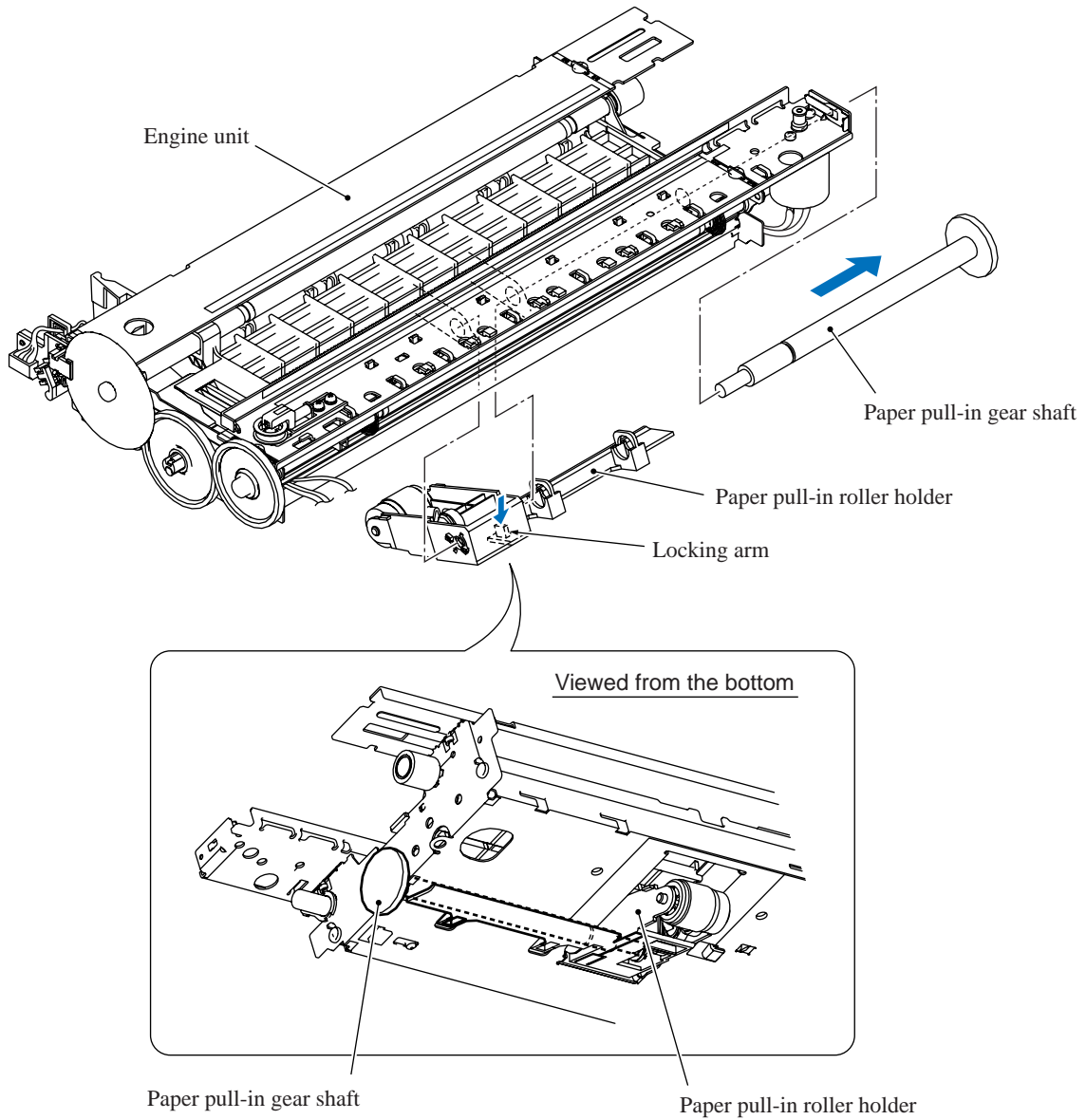
NOTE: Take care not to scratch or damage the encoder strip. If it becomes dirty, wipe it with a soft, dry cloth. If it is stained with ink, replace it.



Reassembling Note: Pass the CR encoder strip through the CR encoder sensor located at the back of the head/carriage unit so that the ▲-marked end is to the right (carriage motor side) and the ▲ mark points upwards.

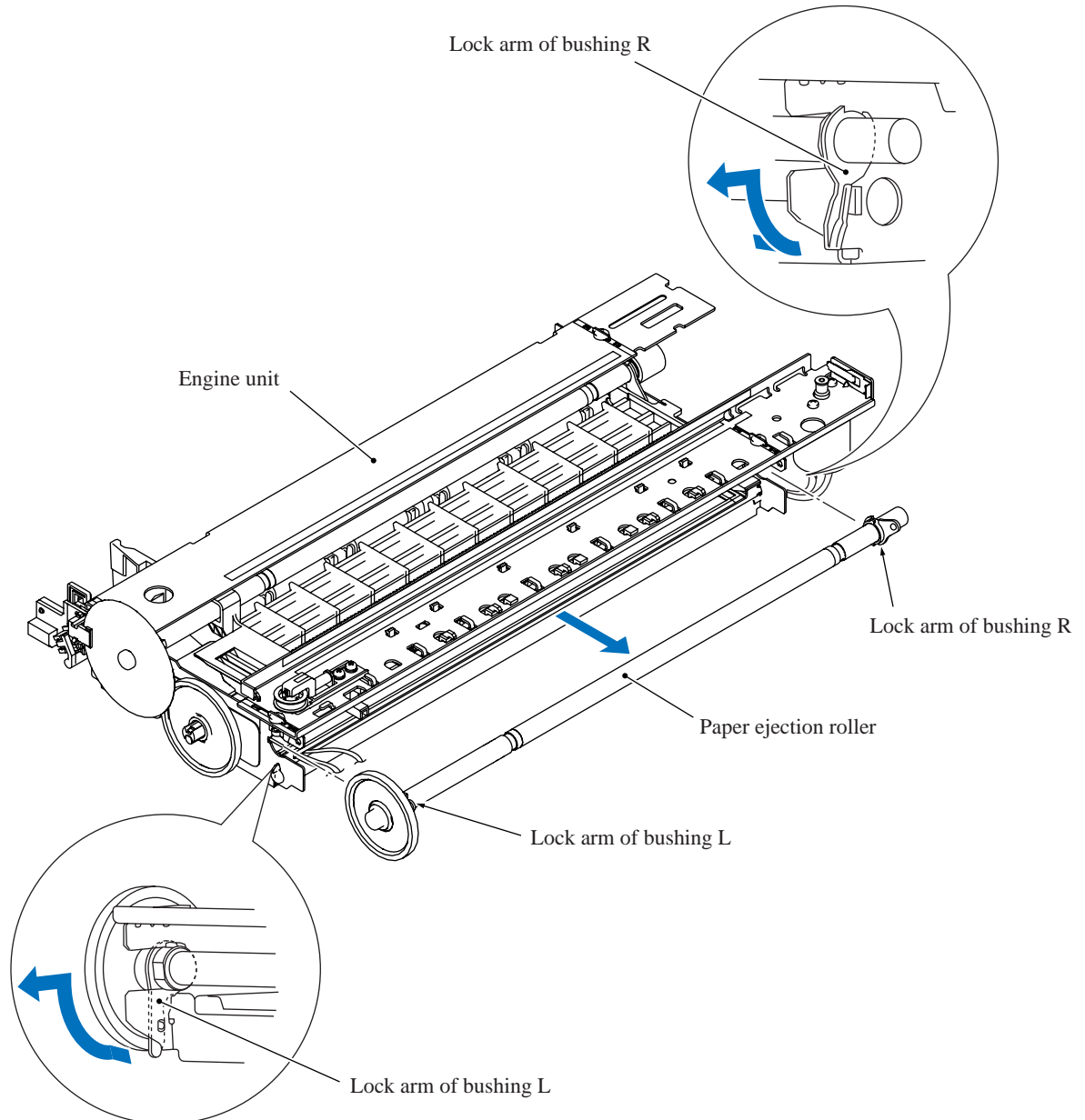
Removing the paper pull-in gear shaft and roller holder

- (2) Press the locking arm and pull out the paper pull-in gear shaft to the right.
- (3) Remove the paper pull-in roller holder.



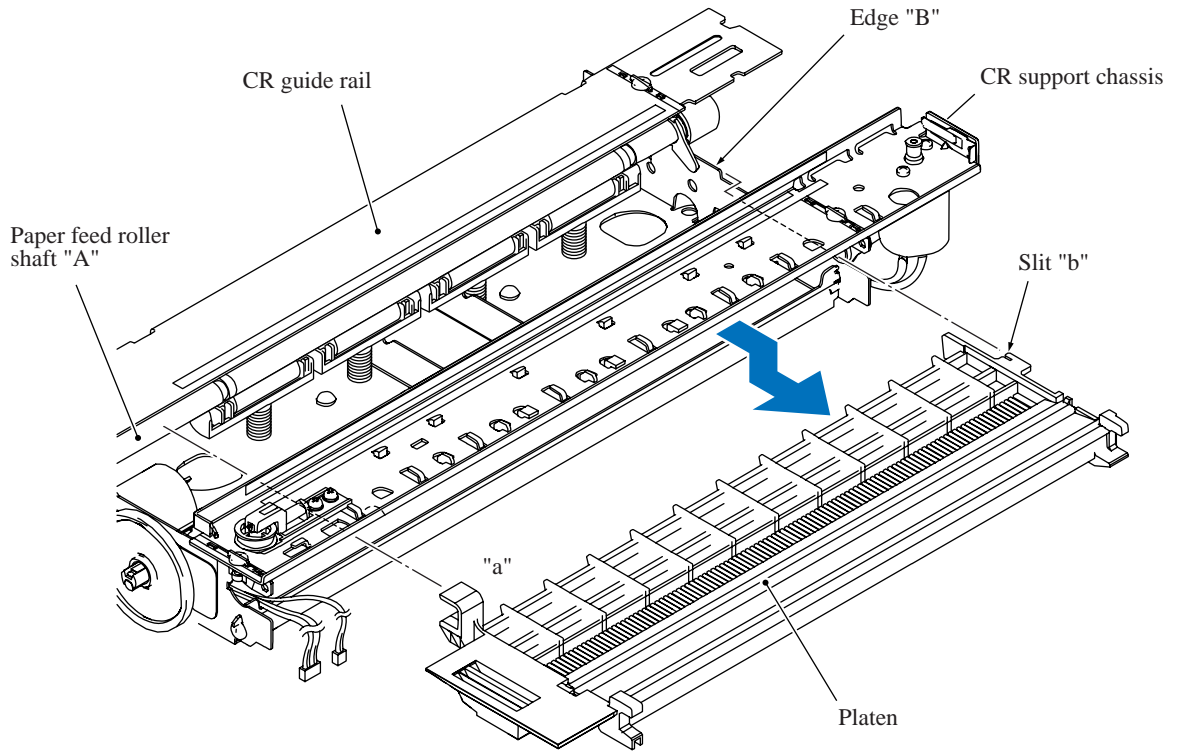
Removing the paper ejection roller

- (4) At the left end of the paper ejection roller, release the lock arm of bushing L from the hole provided in the chassis of the engine unit and turn bushing L clockwise (viewed from the right).
At the right end, release the lock arm of bushing R from the chassis and turn it clockwise to the horizontal position, then remove the paper ejection roller towards you.



Removing the platen

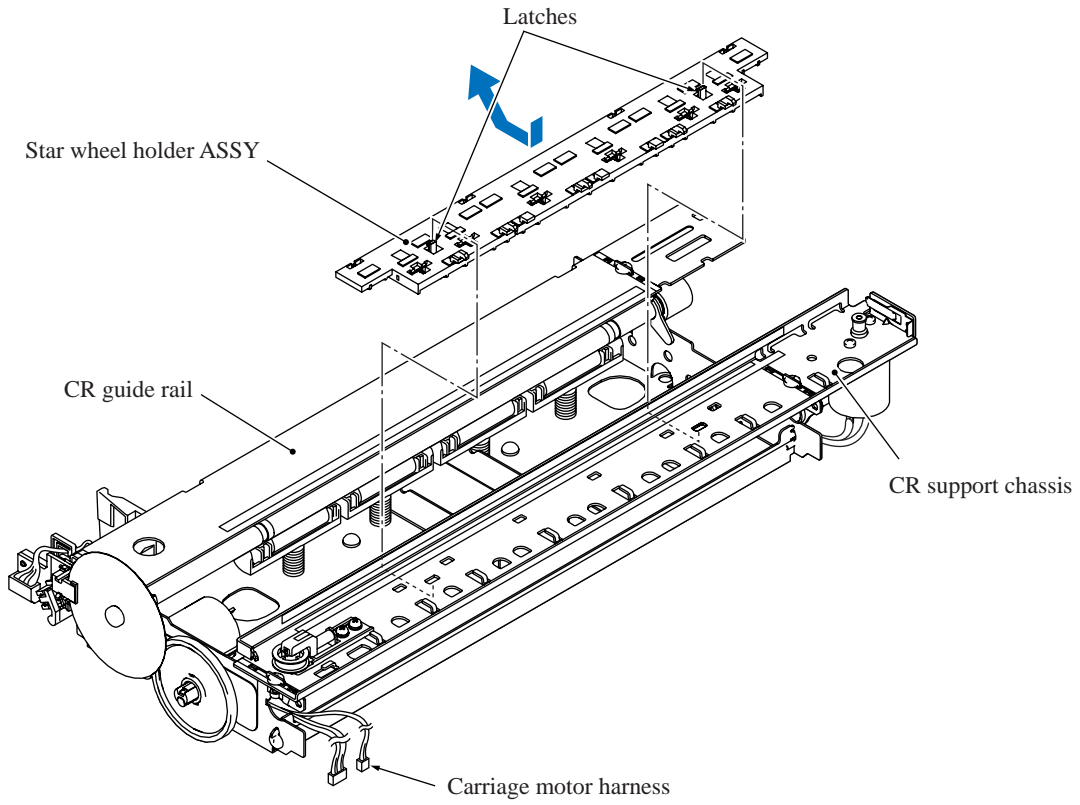
(5) Pull out the platen towards you.



Reassembling Note: Make sure that section "a" and slit "b" on the platen are fitted over paper feed roller shaft "A" and edge "B," respectively.

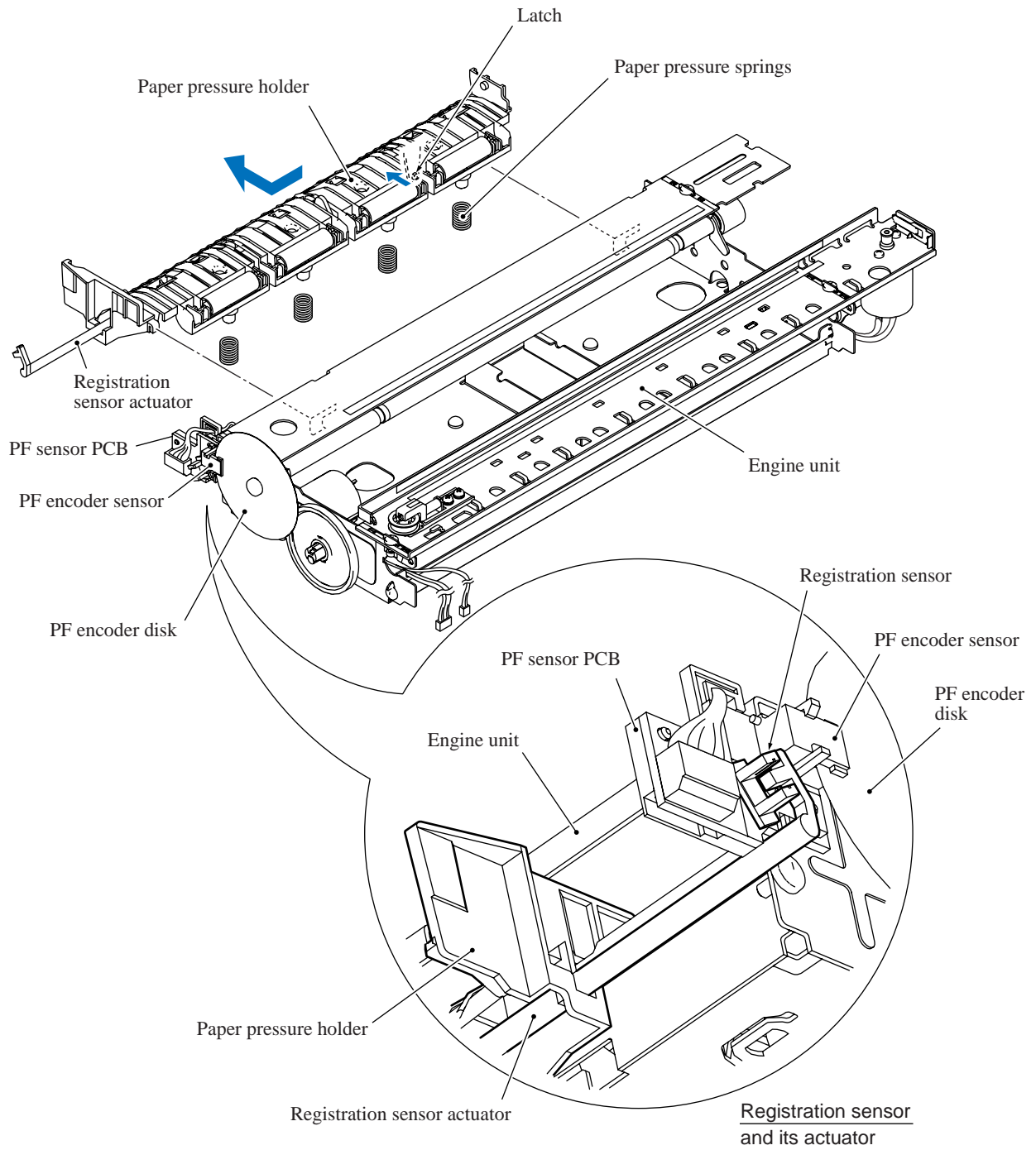
Removing the star wheel holder ASSY

- (6) Release the two latches provided on the star wheel holder ASSY from the CR support chassis and take the ASSY out of the engine unit.

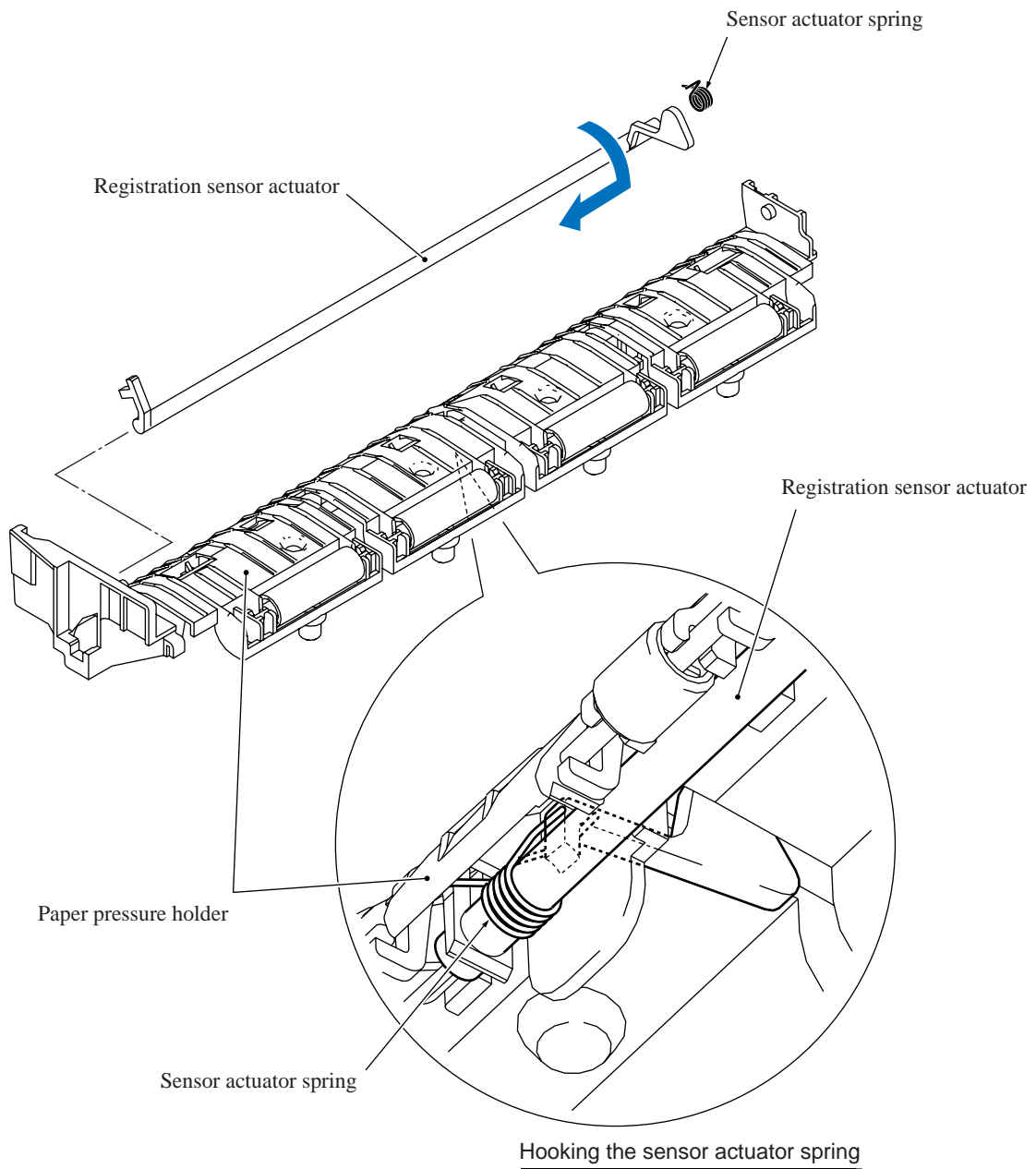


Removing the paper pressure holder and registration sensor actuator

- (7) Release the latch provided on the paper pressure holder from the engine unit and remove the holder to the left and rear. The four paper pressure springs also come off.

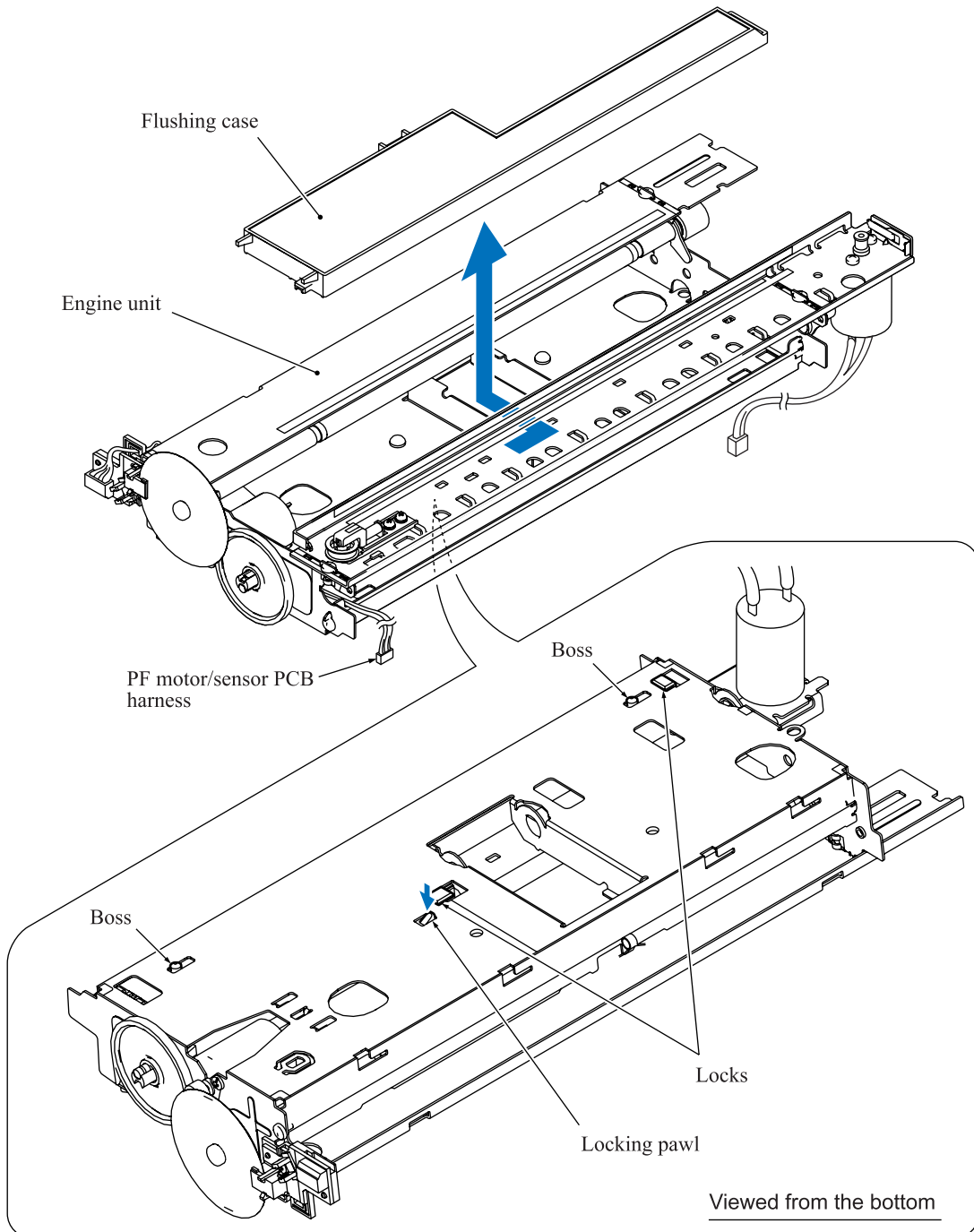


- (8) Unhook the sensor actuator spring from the paper pressure holder and turn the registration sensor actuator in the direction of the arrow as shown below to release it.



Removing the flushing case

- (9) Press the locking pawl from the bottom of the flushing case and slide the case to the right and rear.



Reassembling Note: If you replace the flushing case, you need to reset the flushing counter in the EEPROM to zero according to the procedure below.

MFC640CW/820CW

- 1) Press the **Menu/Set (Menu)** and **Black Start** keys. Next press the **▲** key four times to make the machine enter the maintenance mode.

The "■■ MAINTENANCE ■■" appears on the LCD.

TIP: FAX models equipped with numerical keypads can enter the maintenance mode in the same way as conventional models; that is, by pressing the **Menu/Set (Menu)**, *****, **2**, **8**, **6** and **4** keys in this sequence.

- 2) Press the **8** and **0** keys in this order to display the equipment's log. (Function code 80 described in [Chapter 8, Section 8.4.21.](#))
- 3) Press the **Black Start** key several times until the flushing count appears on the LCD.
- 4) Press the **2**, **7**, **8** and **3** keys to reset the flushing count to zero.
- 5) Press the **9** key twice to return to the standby state.

DCP340CW

- 1) Press the **Menu** and **Mono Start** keys. Next press the **▲** key four times to make the machine enter the maintenance mode.

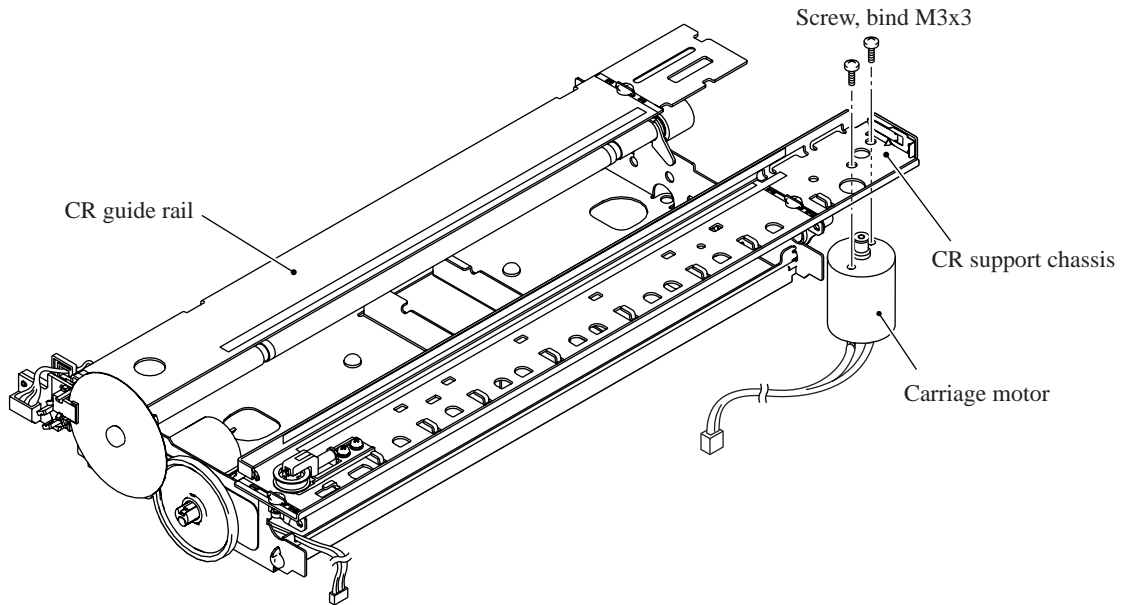
The "■■ MAINTENANCE ■■" appears on the LCD.

- 2) Display the equipment's log (with Function code 80) by using the **▲** and **Set** keys as follows:
Press the **▲** key several times to display 8 on the LCD and press the **Set** key. Again press the **▲** key several times to display 0 and press the **Set** key.
- 3) Press the **Mono Start** key several times to display the flushing count on the LCD.
- 4) Reset the flushing count to zero by using the **▲** and **Set** keys as follows:
Press the **▲** key several times to display 2 on the LCD and then press the **Set** key. In the same way, enter 7, 8, and 3.
- 5) Exit from the maintenance mode by using the **▲** and **Set** keys as follows:
Press the **▲** key several times to display 9 on the LCD and then press the **Set** key. Again press the **▲** key several times to display 9 and press the **Set** key.

TIP: This machine counts all flushing operations performed since produced in order to prevent the flushing case from overflowing with flushed ink. When the counter approaches **6400**, "MACHINE ERROR 46" appears, and further flushing operations are prohibited. Replace the flushing case and reset the flushing counter.

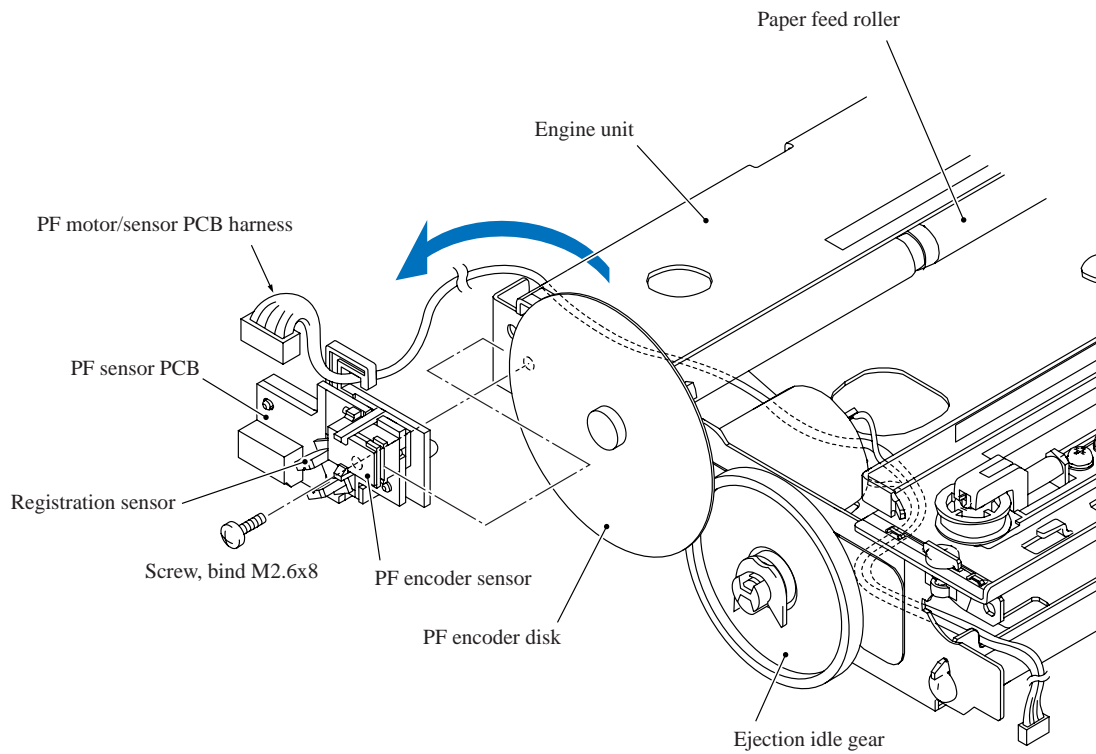
Removing the carriage motor

(10) Release the carriage motor from the engine unit by removing the two screws.



Removing the PF sensor PCB

- (11) Disconnect the PF motor/sensor PCB harness from the PF sensor PCB.
- (12) Remove the screw from the PF sensor PCB and release the PCB from the engine unit, taking care not to touch the PF encoder disk.



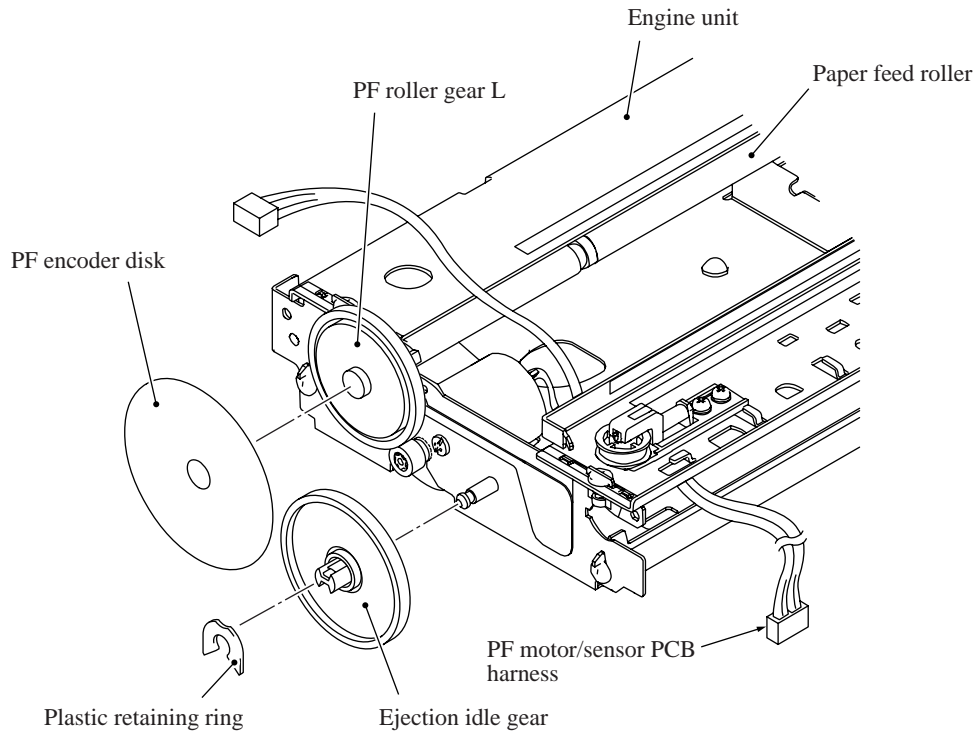
Removing the PF encoder disk, plastic retaining ring, ejection idle gear and paper feed motor

(13) Peel off the PF encoder disk from the PF roller gear only when it should be replaced.

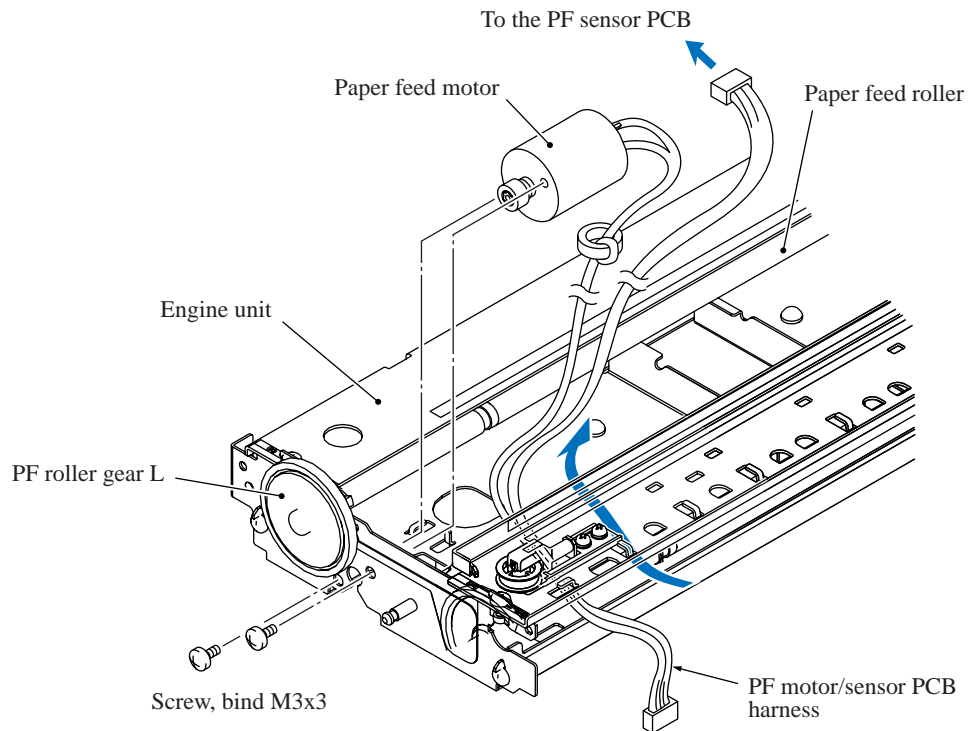
NOTE: Once removed, the PF encoder disk will become unusable and a new disk will have to be put back in.

NOTE: Remove any adhesive remaining left on the PF roller gear.

(14) Remove the plastic retaining ring and ejection idle gear.



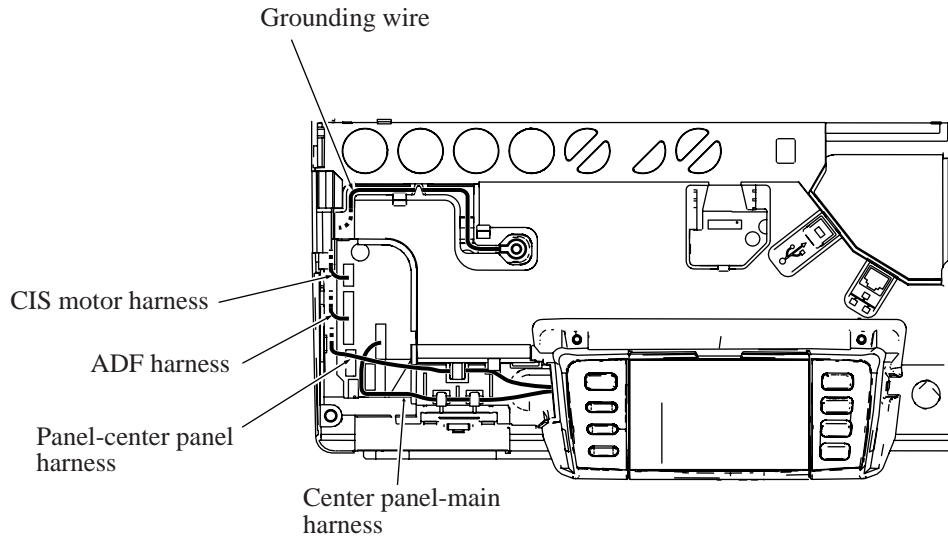
(15) Remove the two screws and release the paper feed motor from the engine unit.



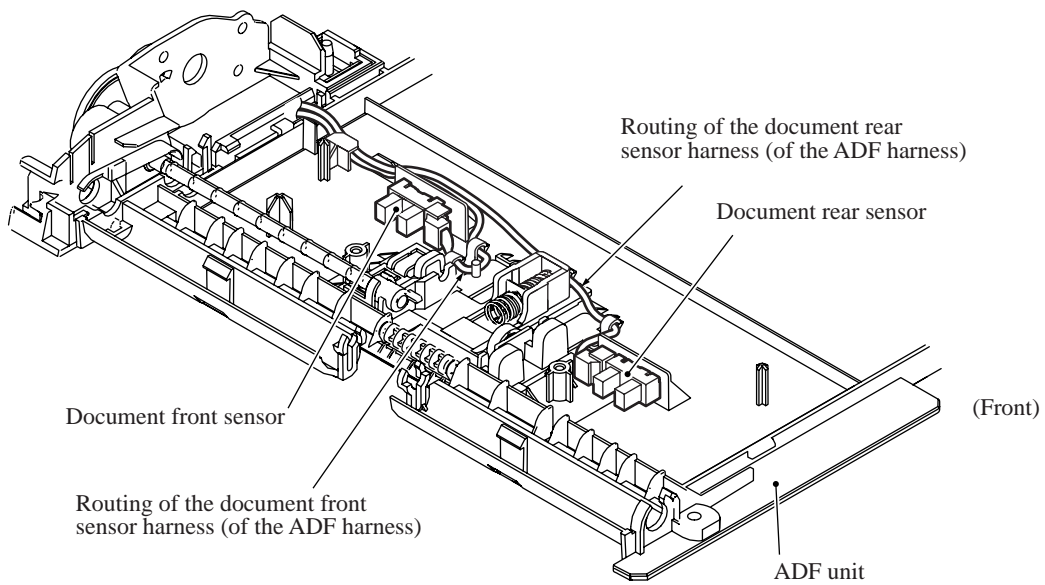
Reassembling Note: When attaching the PF encoder disk to the PF roller gear, put on clean gloves to protect the disk surface from dust or fingerprints.

5.1.17 Routing of the Harnesses and Flat Cables

Routing A: Center panel-main harness and panel-center panel harness on the upper cover (MFC820CW)

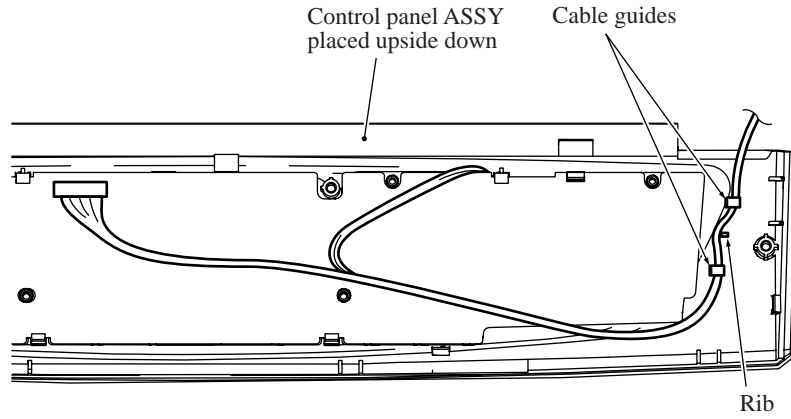


Routing B: ADF harness on the ADF unit

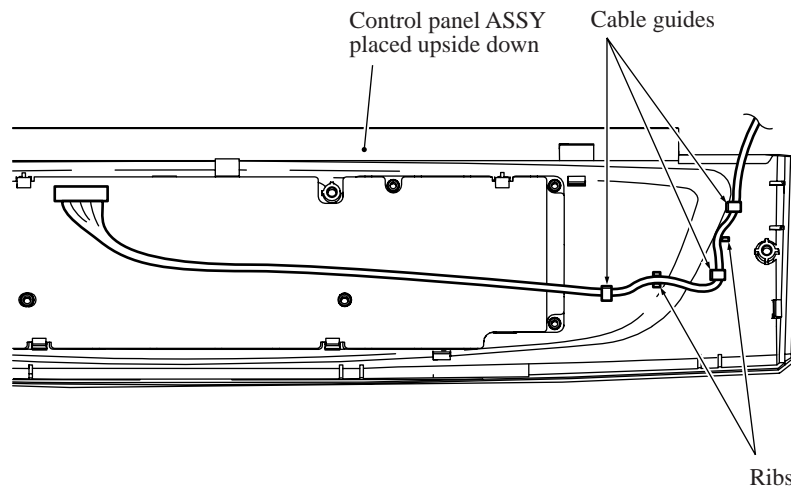


Routing C: Panel-main harness (MFC640CW/DCP340CW) or panel-center panel harness (MFC820CW) on the underside of the control panel ASSY

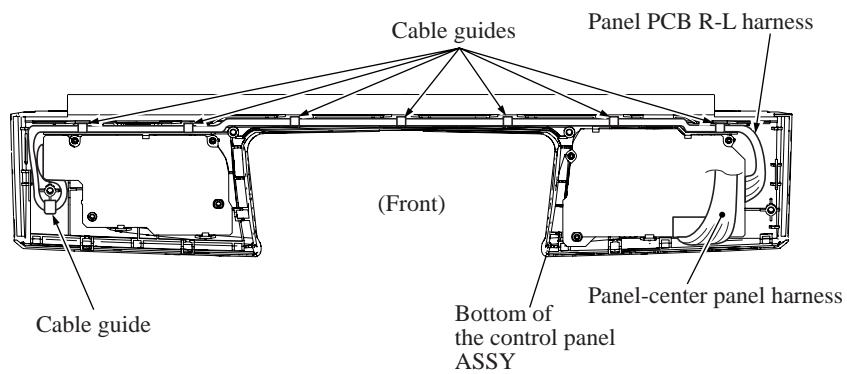
MFC640CW



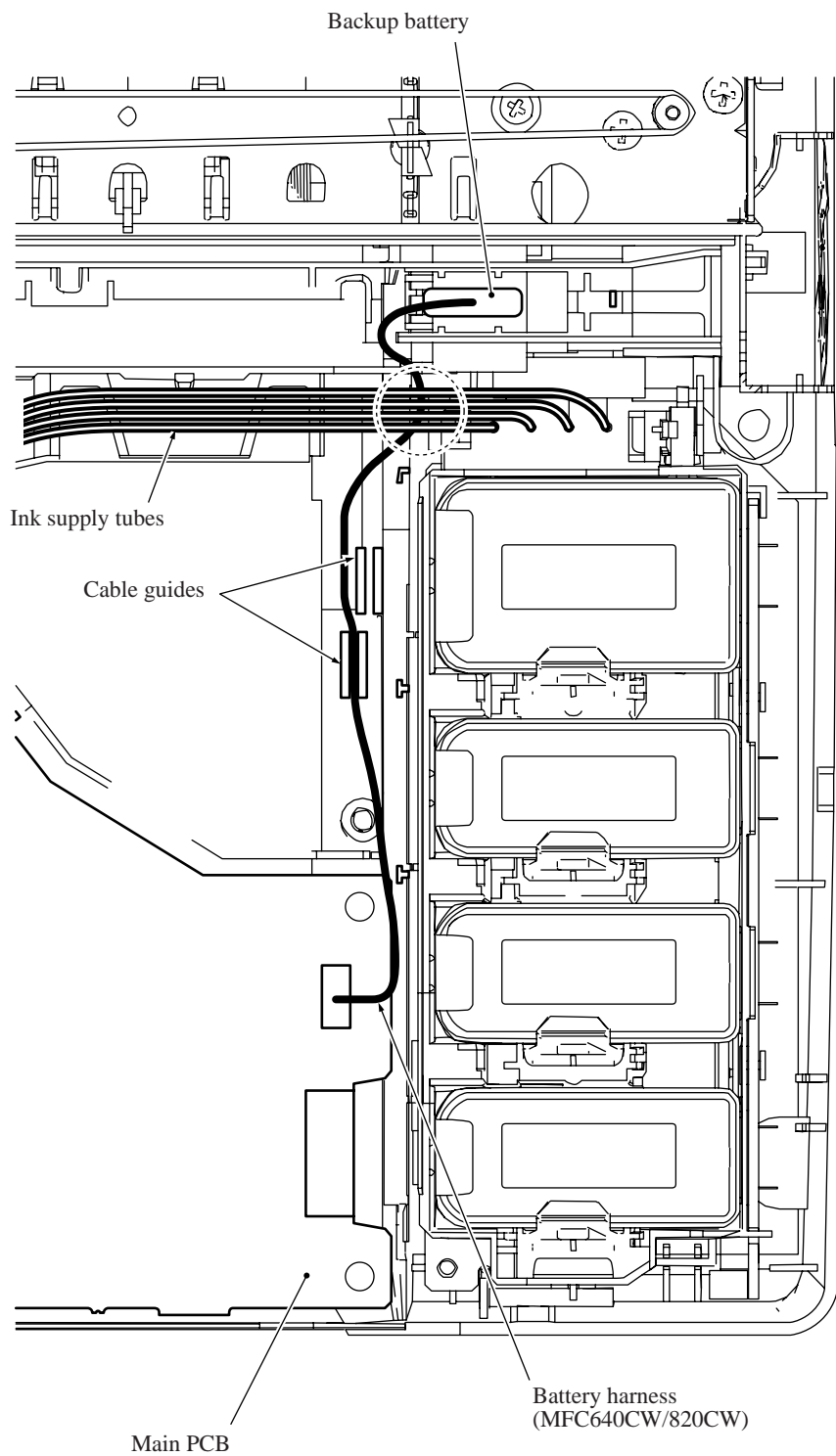
DCP340CW



MFC820CW



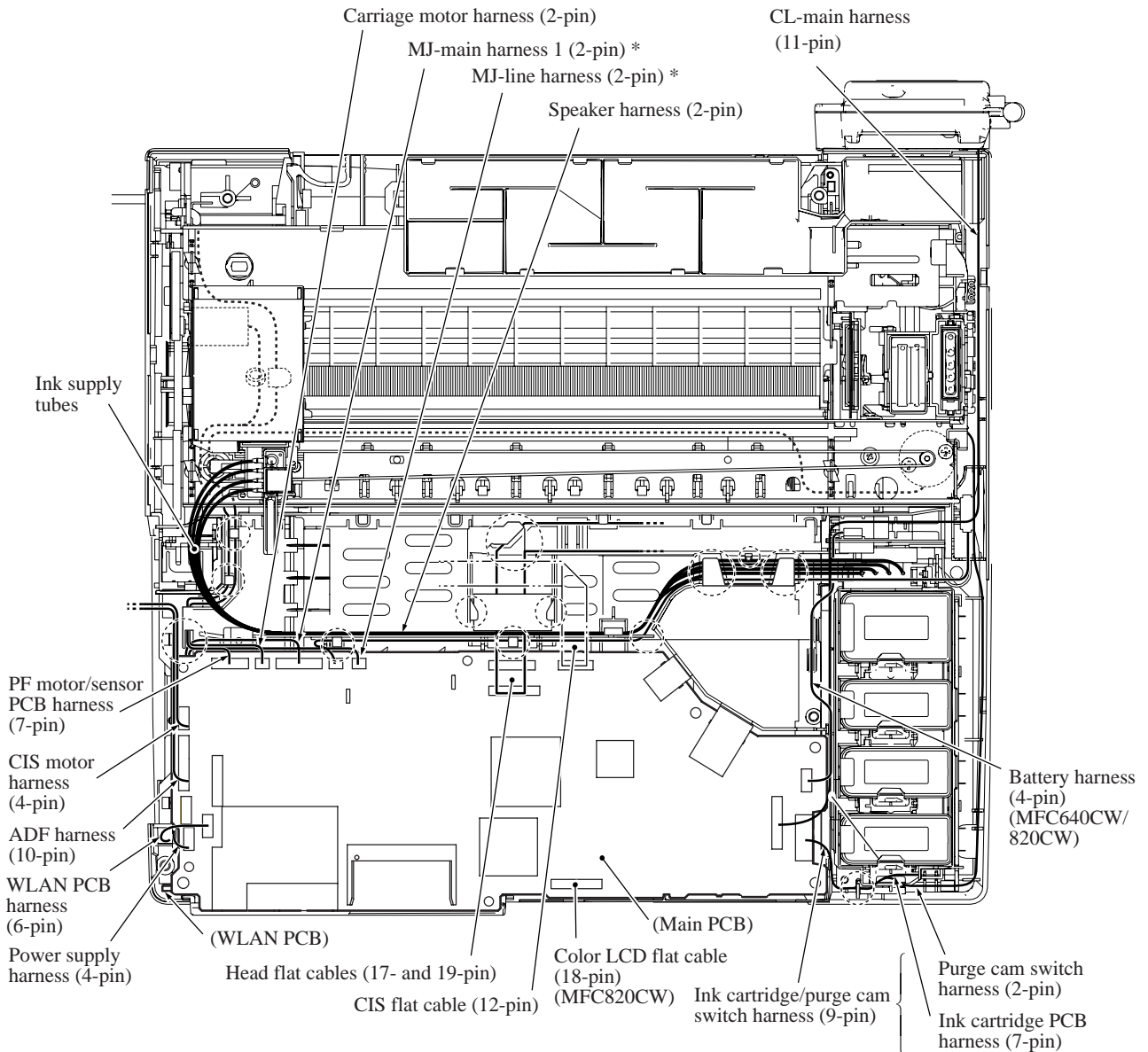
Routing D: Backup battery harness and ink supply tubes



Routing E: Harnesses, flat cables and ink tubes on the lower cover

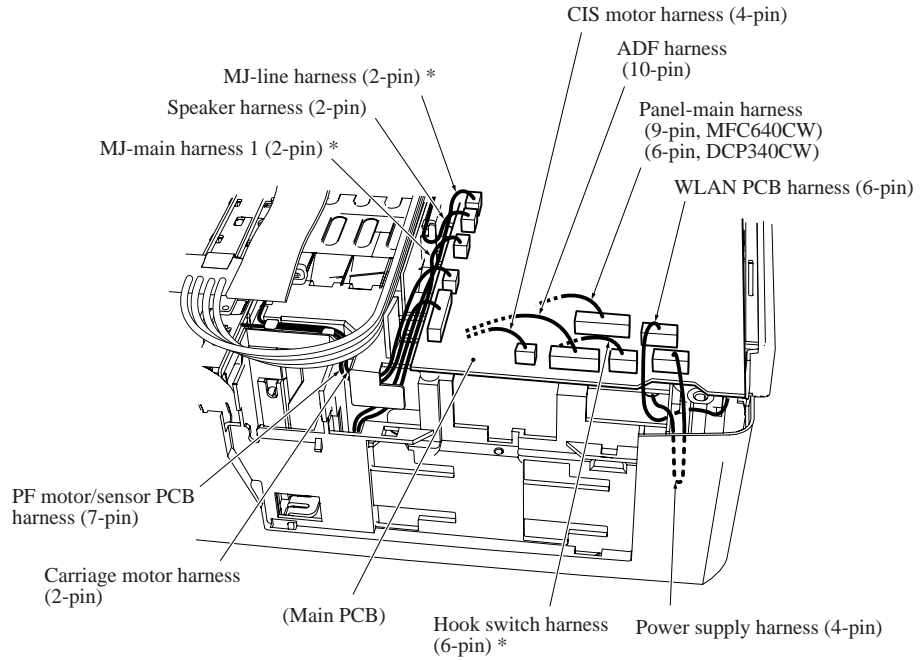
Top view

* Not provided on the DCP340CW



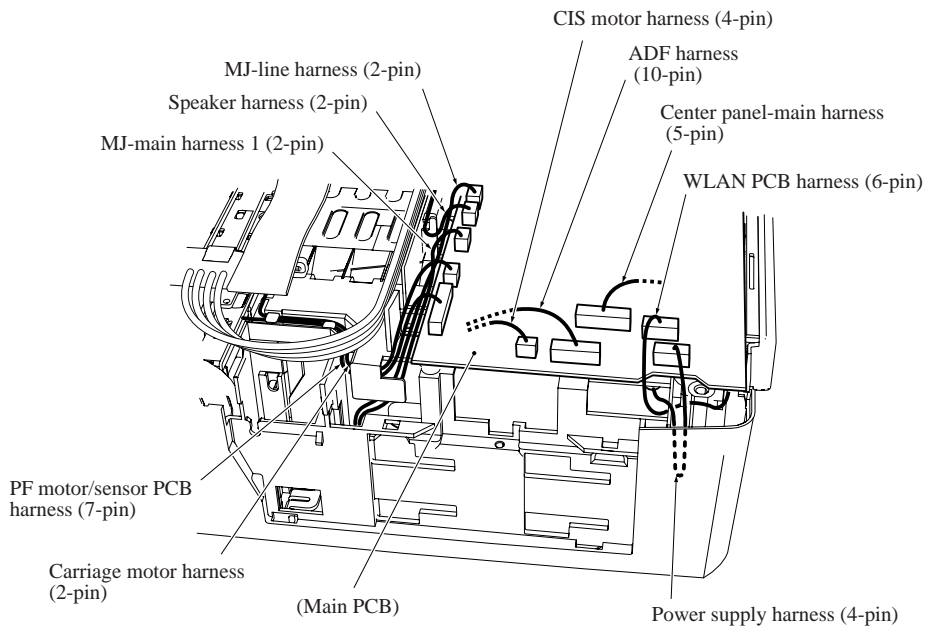
MFC640CW/DCP340CW

Viewed from the left



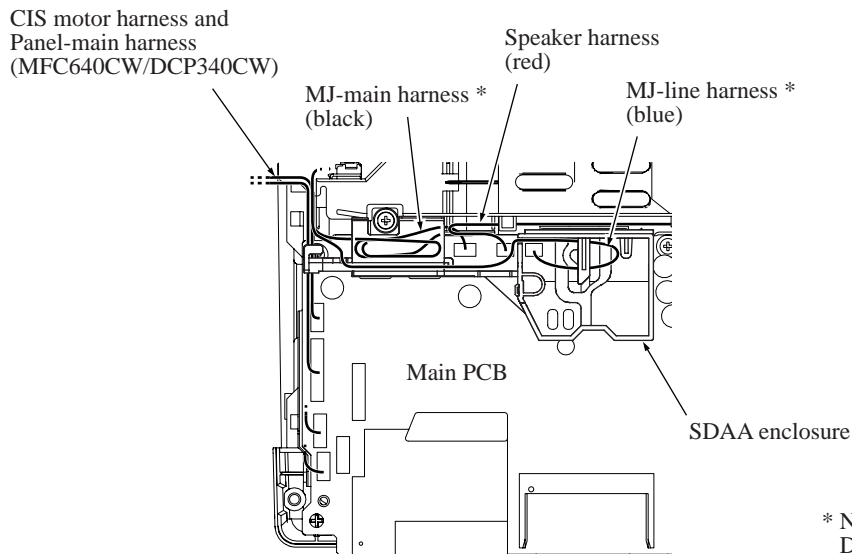
* Not provided on the DCP340CW

MFC820CW



Routing F: MJ-main harness* and MJ-line harness* through the SDAA enclosure

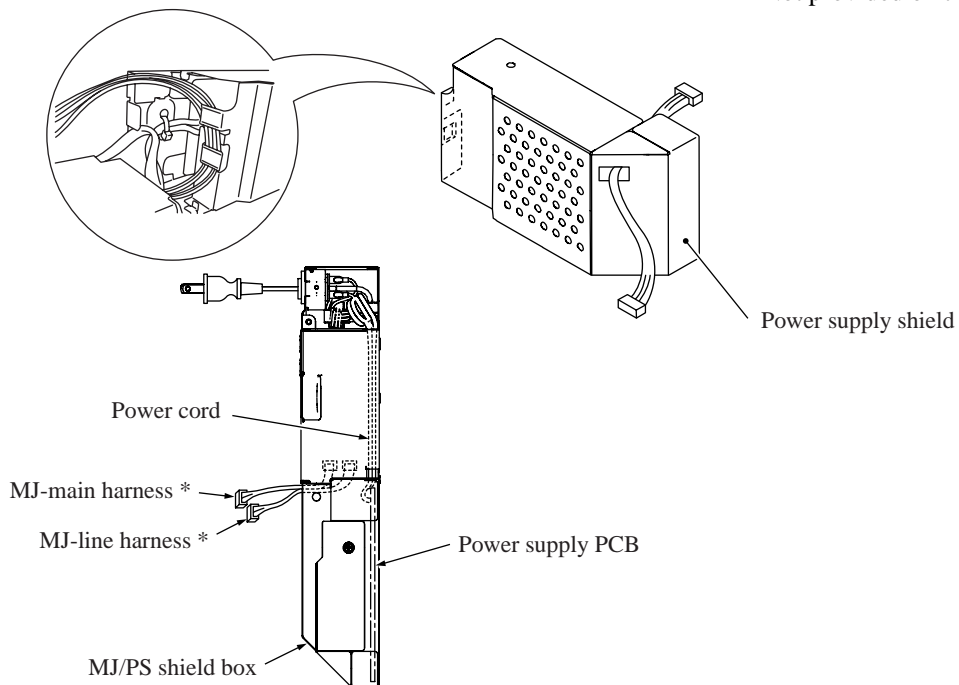
*Not provided on the DCP340CW.



* Not provided on the DCP340CW

Routing G: Power cord, MJ-main harness* and MJ-line harness* in the MJ/PS shield box

*Not provided on the DCP340CW.



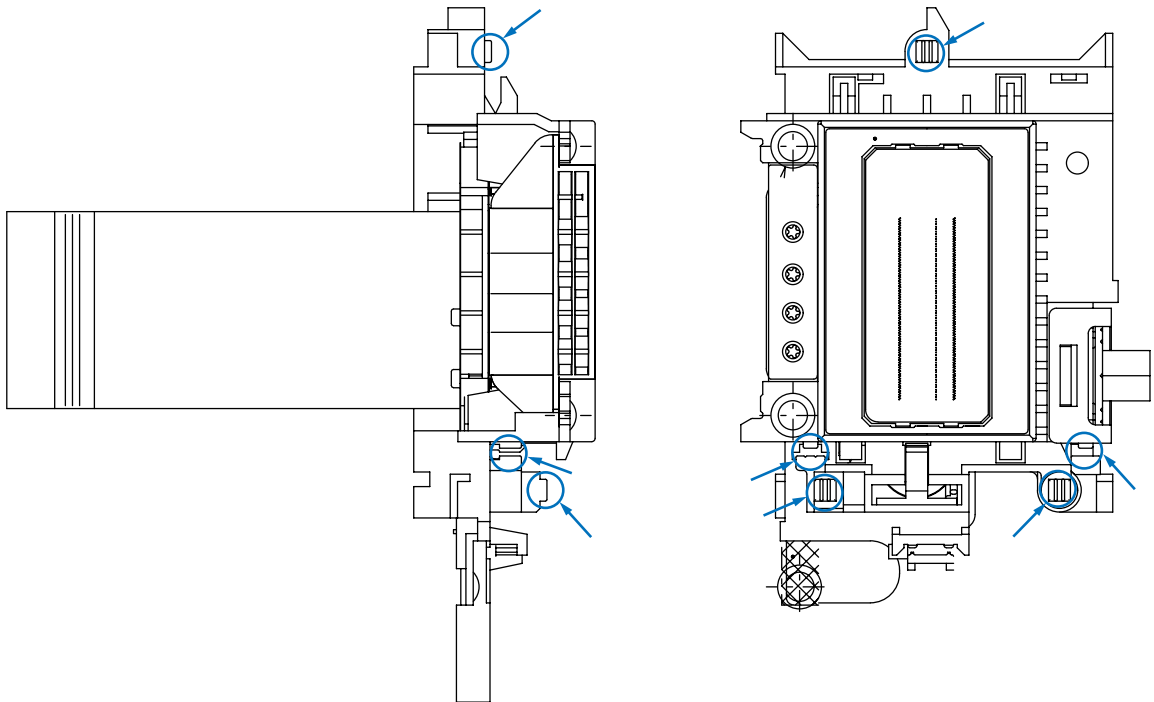
5.2 LUBRICATION

Apply the specified lubricants to the lubrication points as shown below.

Lubricant type (Manufacturer)	Lubrication points	Lubricant amount
Molykote EM-60L (Dow Corning)	Head/carriage unit	3 mm dia. ball
Molykote EM-30LG (Dow Corning)	Document pull-in roller Document separation roller	4 mm dia. ball

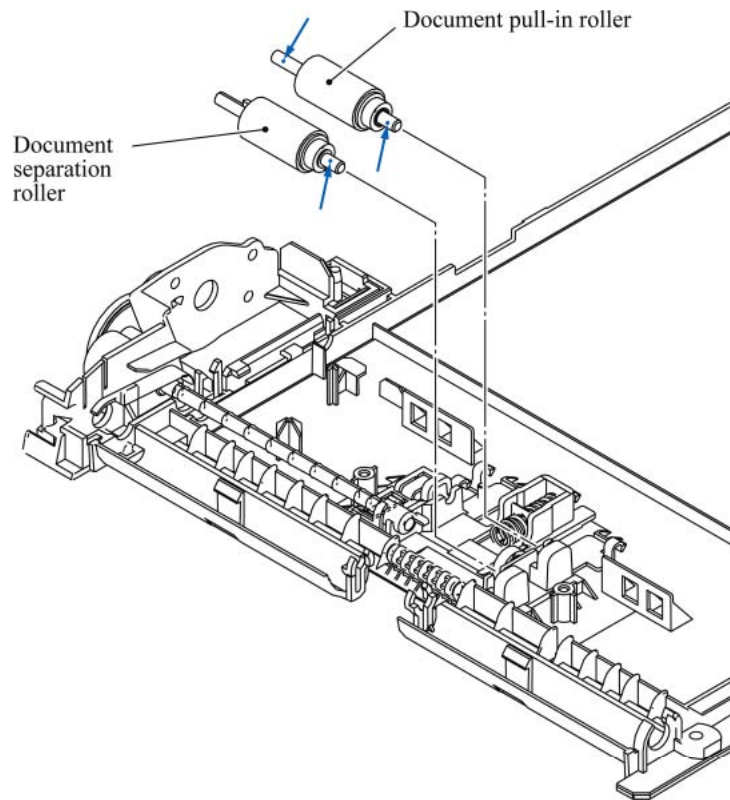
■ Head/carriage unit

Apply a 3 mm dia. ball of grease (Molykote EM-60L) to each of the following lubrication points.



■ Document pull-in roller and document separation roller

Apply a 4 mm dia. ball of grease (Molykote EM-30LG) to each of the following lubrication points.



CHAPTER 6

ADJUSTMENTS AND UPDATING OF SETTINGS, REQUIRED AFTER PARTS REPLACEMENT

CHAPTER 6 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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6.1 PREPARATION

6.1.1 Requirements

Before proceeding to perform any adjustments or update any settings, you need to have the executables, files, spare parts and supplies (provided by Brother Industries) on hand and set up your PC.

NOTE: Use a PC/AT-compatible computer running Windows 98SE, Windows Me, Windows 2000 Professional, or Windows XP Home/Professional.

Executables and Files Required for Adjustments and Updating of Settings

	BHL2-Maintenance Printer driver	BrUsbsn.exe	brusbsn.ini	FILEDG32.exe
Head/carriage unit Engine unit (Section 6.2)	√	√	√	√
Main PCB (Section 6.3)	√	√	√	√
Ink absorber box (Section 6.4)				
Control panel PCB (for models with backlights) (Section 6.5)				

	INCLINE.PRN	PFROLL.PRN	EDGE_CHECK.PRN
Head/carriage unit Engine unit (Section 6.2)	√	√	√
Main PCB (Section 6.3)	√	√	√
Ink absorber box (Section 6.4)			
Control panel PCB (for models with backlights) (Section 6.5)			

NOTE: Executables and files listed above should be saved in an arbitrary folder in your PC beforehand.

Spare Parts and Supplies Required for Adjustments and Updating of Settings

	Recording paper	Ink cartridges	Dummy cartridges
Head/carriage unit Engine unit (Section 6.2)	√	√	√
Main PCB (Section 6.3)	√	√	
Ink absorber box (Section 6.4)			
Control panel PCB (for models with backlights) (Section 6.5)			

6.1.2 Loading the Update Programs/Data to the Machine

If you want to update the current programs/data stored in the flash ROM on the main PCB or after you replace the main PCB, load the update programs/data to the flash ROM.

Loading requires a PC/AT-compatible computer running Windows 98/98SE, Windows Me, Windows 2000 Professional, or Windows XP Home/Professional.

CAUTION: During loading, do not turn the power off, interrupt loading, or load invalid data. If you do so, loading will fail, causing the PCB to be unusable. You will need to replace the main PCB and load update programs/data to a new PCB.

Preparation

You need to have the BHL2-Maintenance Printer driver and FILEDG32.exe (provided by Brother Industries) on hand. Save them in an arbitrary folder in your PC.

Installing the BHL2-Maintenance Printer driver

To identify terminals connected via USB interface, a PC requires the corresponding virtual USB devices to be implemented by driver/software. If you connect any number of machines to your PC, therefore, the same number of virtual USB devices will be automatically configured on your PC. To prevent virtual USB devices from being configured limitlessly, use the unique driver installation procedure described below that enables your PC to identify terminals via a single virtual USB device.

NOTE: Once this installation procedure is carried out for a PC, no more driver/software installation will be required for that PC to identify machines. If the BHL2-Maintenance Printer driver has been already installed to your PC according to this procedure, skip this section.

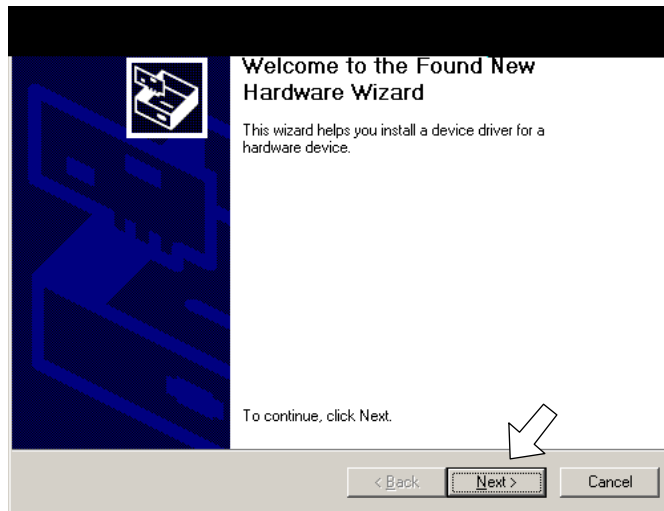
NOTE: Before proceeding to the procedure given below, make sure that the BHL2-Maintenance Printer driver (listed in [Chapter 6, Section 6.1.1](#)) is stored in your PC.

- (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 your PC.
- (3) Plug the machine's power cord into an electrical outlet.
- (4) Enter the maintenance mode.
- (5) Connect the machine to your PC using the USB cable.

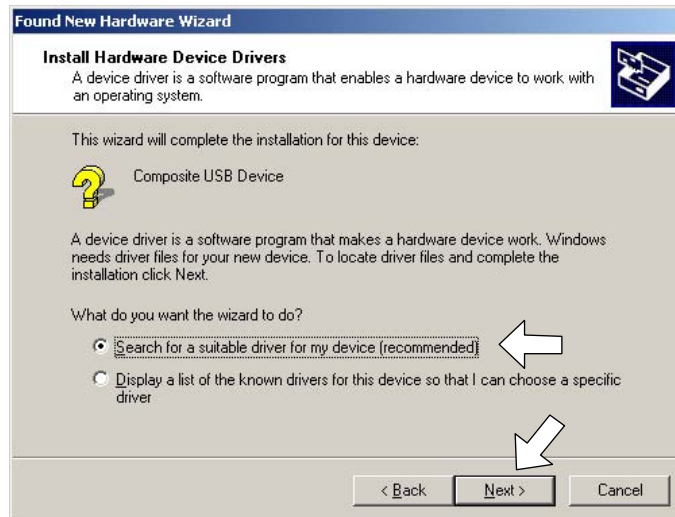
The following window appears.



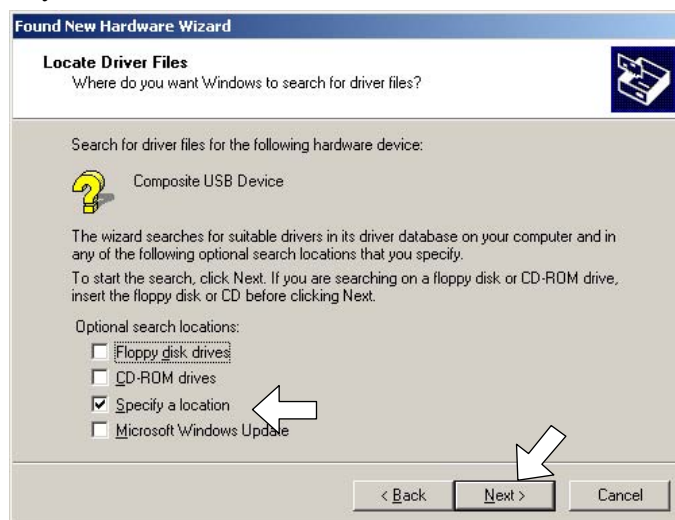
- (6) The following screen appears, indicating the detection of new hardware device by the system. Click **Next** to proceed.



- (7) Select "Search for a suitable driver for my device (recommended)" and click **Next**.



- (8) Select "Specify a location" and click **Next**.

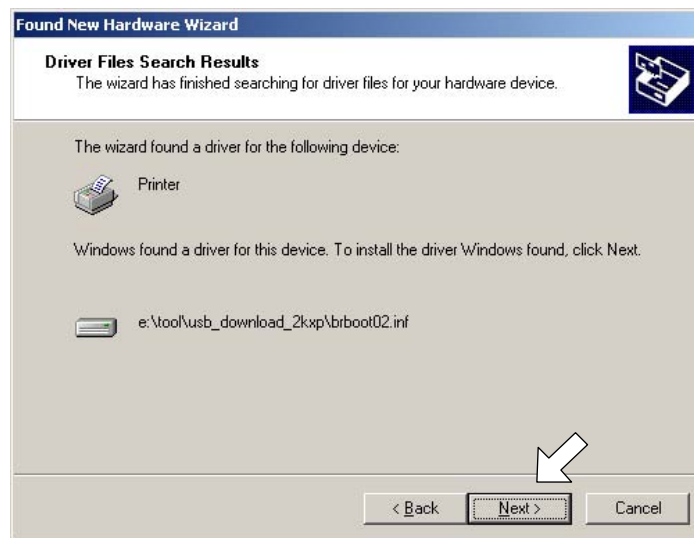


- (9) Select the folder where the copy of the BHL2-Maintenance Printer driver is located (or click **Browse** to specify it), then click **OK**.

(This sample screen is captured on the Windows 2000 desktop.)



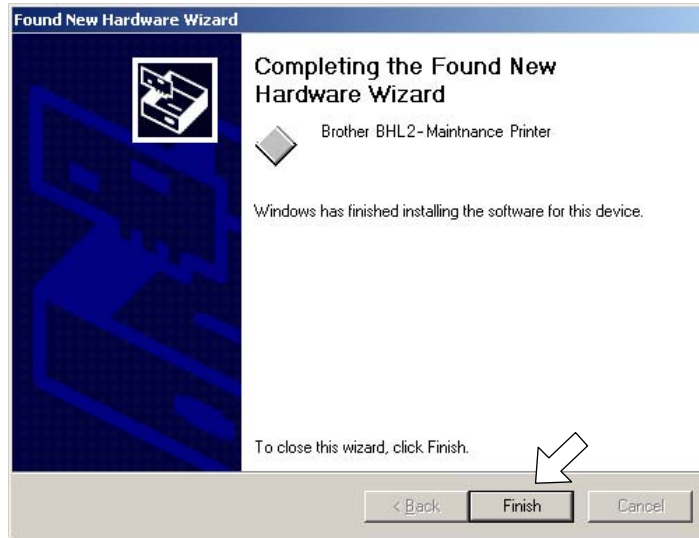
- (10) Click **Next**.



- (11) To proceed, click **Yes**.

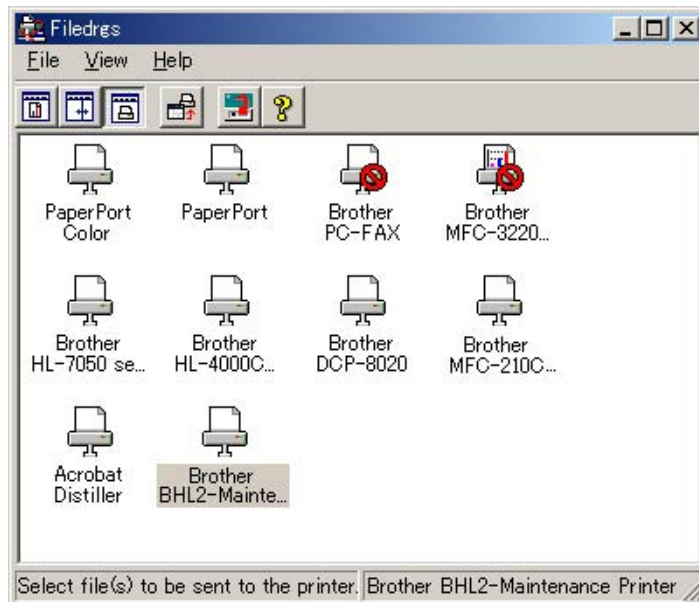


(12) If the driver is successfully installed, the following message window appears. Click **Finish** to return to Windows.



NOTE: After completion of the driver installation, if the machine exits the maintenance mode, the "Found New Hardware Wizard" screen in step (6) appears again. Click **Cancel**.

NOTE: To check that the printer driver is successfully installed, click **Start|Settings|Printers** to call up the Printers window as shown below and confirm that the BHL2-Maintenance Printer icon is displayed.



6.2 IF YOU REPLACE THE HEAD/CARRIAGE UNIT OR ENGINE UNIT

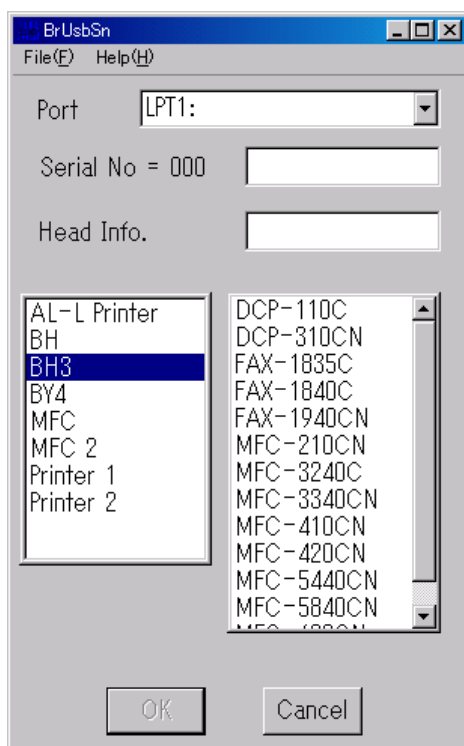
[1] Update the head property information stored in the EEPROM on the main PCB

In the following procedure, key names enclosed in parentheses apply to the MFC820CW.

- (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) Press the **Menu/Set (Menu)** and **Black Start (Mono Start)** keys. Next press the **▲** key four times to make the machine enter the maintenance mode.

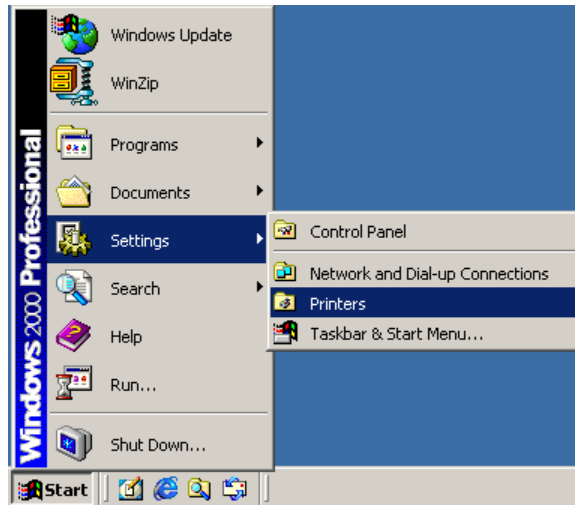
TIP: Models equipped with numerical keypads can enter the maintenance mode in the same way as conventional models; that is, by pressing the **Menu/Set (Menu)**, *****, **2**, **8**, **6** and **4** keys in this sequence.

- (5) Connect the machine to the PC using the USB cable.
- (6) On the PC, run the ID/head property setup utility (BrUsbsn.exe) in the folder created. The following window appears.

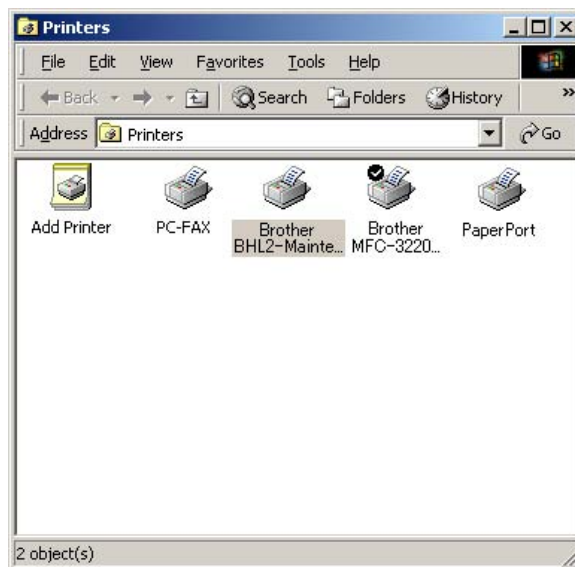


- (7) On the **Model** menu, click **BH3**.

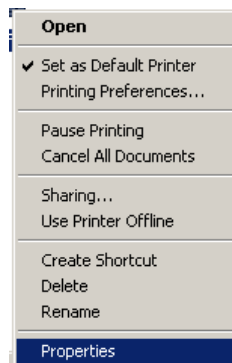
- (8) In **Port**, select the port number assigned to the BHL2-Maintenance Printer.
To confirm the port number, follow the instructions below.
Click **Start | Settings | Printers**.



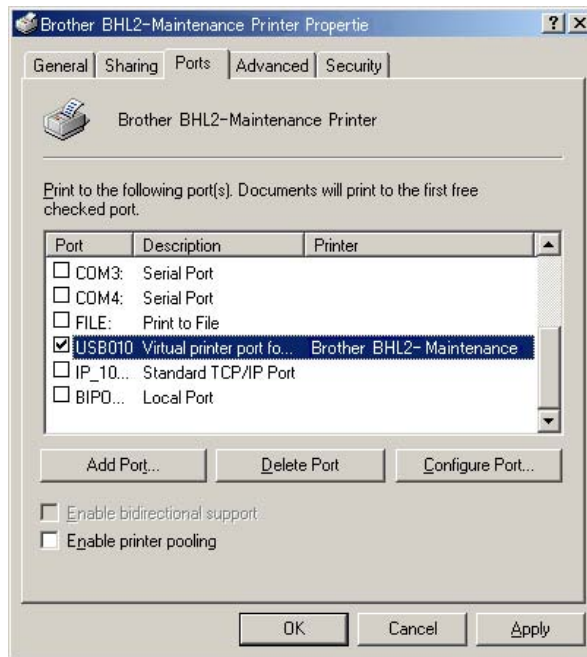
The Printers window appears as shown below.
Right-click the BHL2-Maintenance Printer icon.



Click **Properties**.



The BHL2-Maintenance Printer Properties window appears as shown below.
Click the **Ports** tab.



The port number assigned to the Brother BHL2-Maintenance Printer, USB010 in this example, is one that has been selected in **Port** on the BrUsbSn screen (page 6-6).

- (9) In the **Head Info.** box on the BrUsbSn screen (page 6-6), type 12 digits (e.g., 776601D00009) out of the 13-digit property code (enclosed with asterisks, e.g., *J776601D00009*) which is printed on the bar code label attached to the head/carriage unit. Click the **OK** button.
- (10) To check that the entered head property is correct (using Function code 68 in Chapter 8, Section 8.4.16.):

MFC820CW/640CW

Press the **6** and **8** keys in this order. Then press the **2, 5, 8, 0** keys in this order.

DCP340CW

Enter 6, 8, 2, 5, 8, and 0 by using the **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The LCD shows the current head property information (12-digit code) stored in the EEPROM on the main PCB.

- (11) Check that the character string entered in step (9) is displayed in "XXXXXXXXXXXXX."
If it is OK, press the **Stop/Exit** key.
If something other than that is displayed in XXXXXXXXXXXXXXXX, check the connection between the PC and machine and go back to step (6).

[2] Clean the new head/carriage unit

MFC820CW/640CW

- (1) Open the scanner unit (scanner cover), set new ink cartridges into the ink refill ASSY, and close the scanner unit.
- (2) Carry out "Initial purge" (with Function code 76) using the steps below. (See [Chapter 8, Section 8.4.20.](#))

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

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

Press the **4** and **Black Start** keys in this order.

The machine starts an initial purge that refills the ink supply tubes and the new print head with fresh ink.

DCP340CW

- (1) Open the scanner unit (scanner cover), set new ink cartridges into the ink refill ASSY, and close the scanner unit.
- (2) Carry out "Initial purge" (with Function code 76) using the steps below. (See [Chapter 8, Section 8.4.20.](#))

Enter 7 and 6 by using the **▲** and **Set** keys.*

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

Enter 4 by using the **▲** and **Set** keys.*

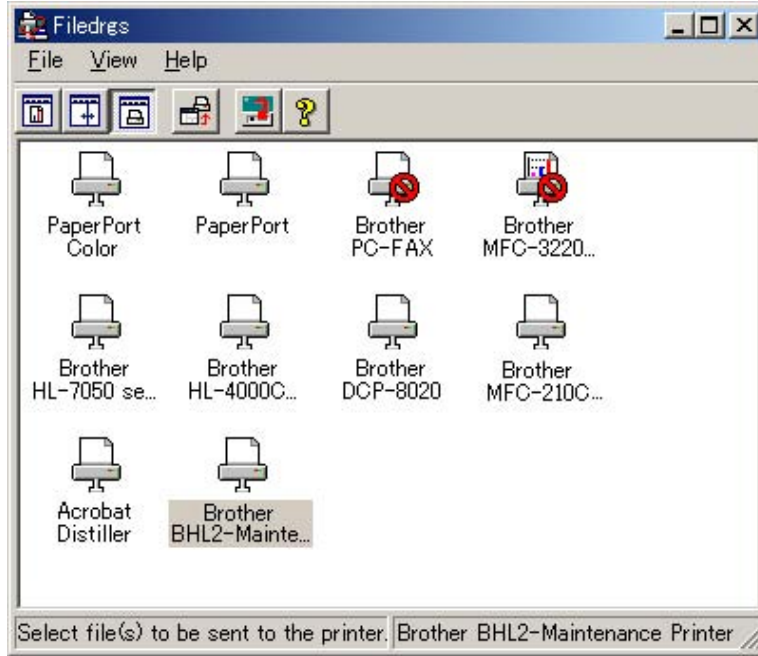
The machine starts an initial purge that refills the ink supply tubes and the new print head with fresh ink.

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

[3] Correct the positioning error of the head/carriage unit

- (1) Run "FILEDrg32.exe" in the folder created.

The Filedrgs window appears as shown below.

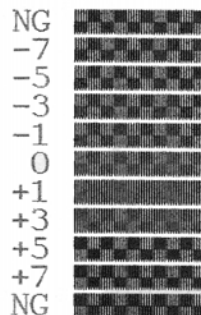


- (2) Drag and drop the "INCLINE.PRN" icon onto the BHL2-Maintenance Printer icon in the Filedrgs window shown above.

The "Incline Adjust" test chart will be printed out.

- (3) Check the printed test patterns and select the one that is the least uneven print. Make a note of that pattern number.

Incline Adjust - Ver. 002



Head Positioning Test Pattern

- (4) Move the head/carriage unit to the head replacement position (with Function code 63) using the following key operation.

MFC820CW/640CW

Press the **6**, **3**, and ***** keys in this order.

DCP340CW

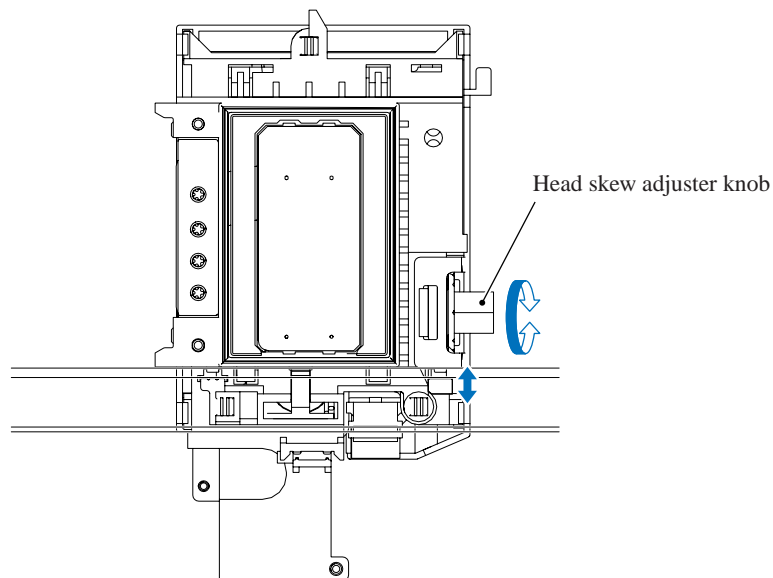
Enter 6, 3, and * by using the **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

For details, refer to [Chapter 8, Section 8.4.13 "Travel Check of the Head/Carriage Unit and Initial Setup Mode."](#)

- (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.

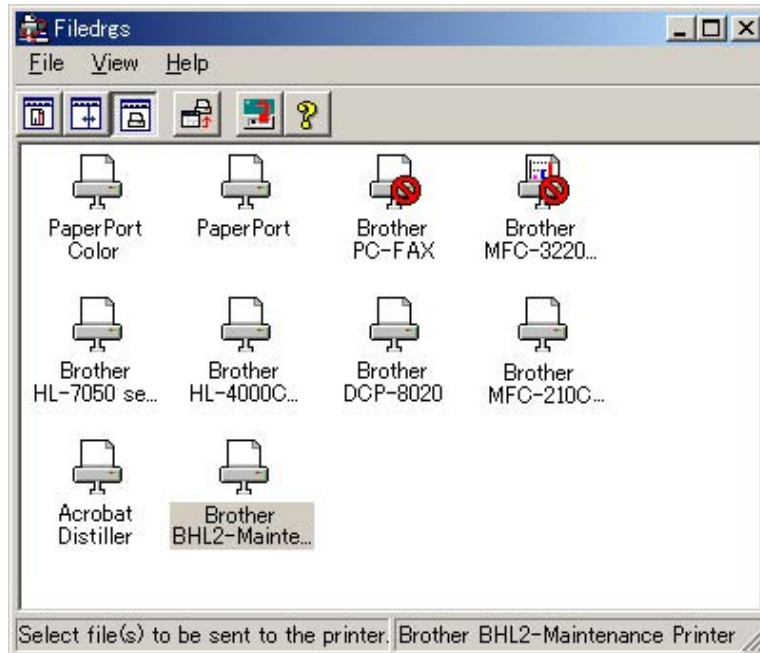
If pattern +1 is the least uneven print, for example, turn the head skew adjuster knob to the front by one division; if pattern -1, turn the lever to the rear by one division.



[4] Update the paper feeding correction value

- (1) Run "FILEDRGS.exe" in the folder created in [Section 6.1.1](#).

The Filedrgs window appears as shown below.



- (2) Drag and drop the "PFROLL.PRN" onto the BHL2-Maintenance Printer icon in the Filedrgs window shown above.

The machine displays the "RECEIVING DATA" on the LCD and prints out "PF adjust check" patterns (see [page 6-14](#) for a sample printout).

- (3) MFC820CW/640CW

Press the **5** and **8** keys on the machine.

DCP340CW

Enter 5 and 8 by using the **▲** and **Set** keys on the machine.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The "1.PF 2.EXIT" appears on the LCD.

- (4) MFC820CW/640CW

To select the paper feed roller adjustment, press the **1** key.

DCP340CW

To select the paper feed roller adjustment, enter 1 by using the **▲** and **Set** keys.*

The "PF ADJ NO. +0" appears on the LCD.

- (5) Check PF adjust check pattern "A" (on the next page) and select the one that is the least uneven print. Make a note of that pattern number.

If the unevenness is far to the left of check pattern -8, regard it as -8; if it is far to the right of check pattern +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 check pattern found in step (5).

MFC820CW/640CW

For example, if the number of the least uneven check pattern is +4, press the ▲ and 4 keys; if -4, press the ▼ and 4 keys. (To enter +, use the ▲ key; to enter -, use the ▼ key.)

DCP340CW

For example, if the number of the least uneven check pattern is +4, enter + and 4; if -4, enter - and 4 by using the ▲ and **Set** keys.*

(*To enter a plus/minus symbol or numerical code on models having no numerical keypad, press the ▲ key several times to display the ▲/▼ or numerical code to be entered, respectively, and then press the **Set** key. Repeat this operation for each symbol or numerical code.)

The machine automatically returns to the initial stage of the maintenance mode.

- (7) MFC820CW/640CW

Press the **5** and **8** keys on the machine.

DCP340CW

Enter 5 and 8 by using the ▲ and **Set** keys on the machine.*

(*To enter a numerical code on models having no numerical keypad, press the ▲ key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The "1.PF 2.EXIT" appears on the LCD.

- (8) MFC820CW/640CW

To select the paper ejection roller adjustment, press the **2** key.

DCP340CW

To select the paper ejection roller adjustment, enter 2 by using the ▲ and **Set** keys.*

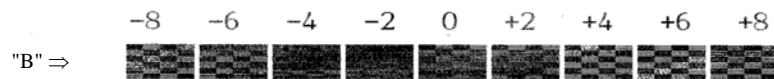
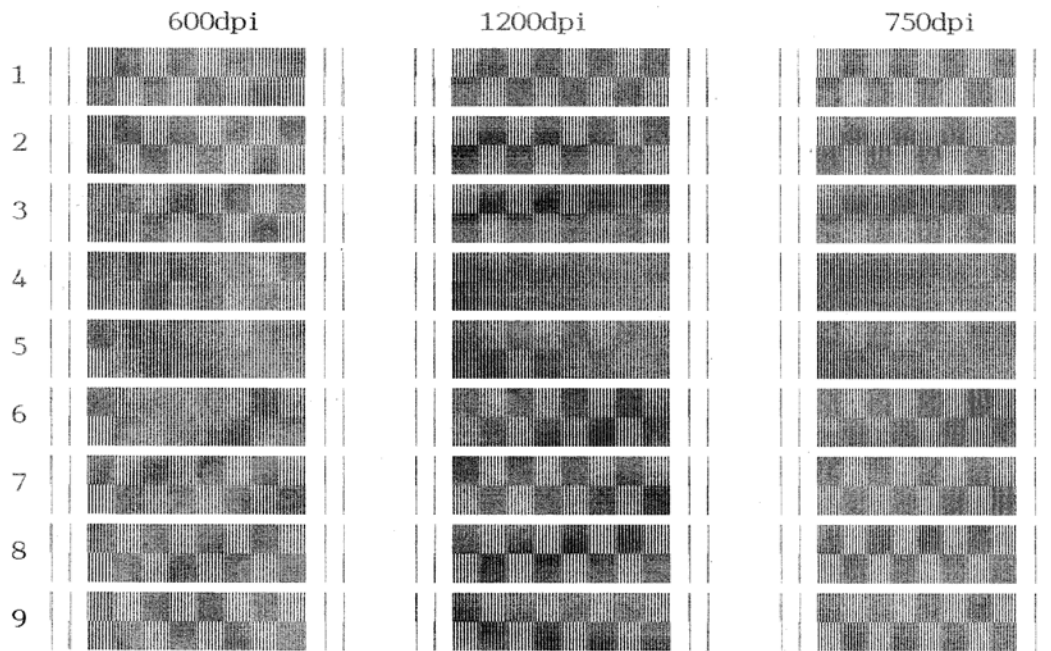
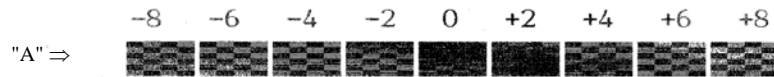
The "EXIT ADJ NO. +0" appears on the LCD.

- (9) Check PF adjust check pattern "B" (on the next page) and select the one that is the least uneven print. Make a note of that pattern number.

- (10) Enter the number of the least uneven check pattern found in step (9) in the same way as in step (6).

The machine automatically returns to the initial stage of the maintenance mode.

* BH3 PF adjust check - Ver 007c *



Paper Feeding Check Patterns for the Paper Feed Roller and Paper Ejection Roller

[5] Align vertical print lines

(1) MFC820CW/640CW

Press the **6**, **5** and **1** keys in this order.

DCP340CW

Enter 6,5, and 1 by using the **▲** and **Set** keys on the machine.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The machine prints out a set of vertical alignment check patterns (see the next page) which consist of #0 to #8 lines for each of the 600 dpi and 1200 dpi, and #1 to #8 for 750 dpi.

If the vertical alignment is ON, #0 line (each in the 600 dpi and 1200 dpi printouts) shows vertically aligned lines as given on the next page.

The "600DPI NO.(1-8)" appears on the LCD.

(2) Check the printed vertical alignment check patterns for the 600 dpi and find which number line shows full alignment.

MFC820CW/640CW

If the line is other than No. 5, enter that line number by using the numerical keys.

DCP340CW

If the line is other than No. 5, enter that line number by using the **▲** and **Set** keys.*

The "1200DPI NO.(1-8)" appears.

(3) For the 1200 dpi, perform the same operation as in step (2).

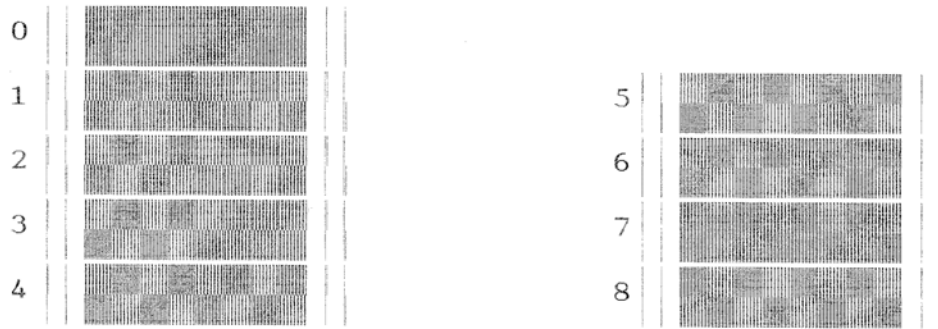
The "750DPI NO.(1-8)" appears.

(4) For the 750 dpi, perform the same operation as in step (2).

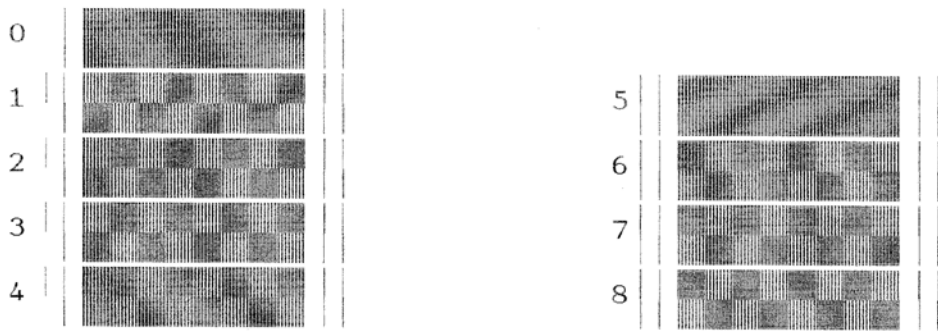
The machine automatically returns to the initial stage of the maintenance mode.

NOTE: If #1 or #8 line is fully aligned so that you press the **1** or **8** key (or you enter 1 or 8 and press the **Set** key) in the above procedure, then go back to step (1) to confirm that #0 line becomes aligned.

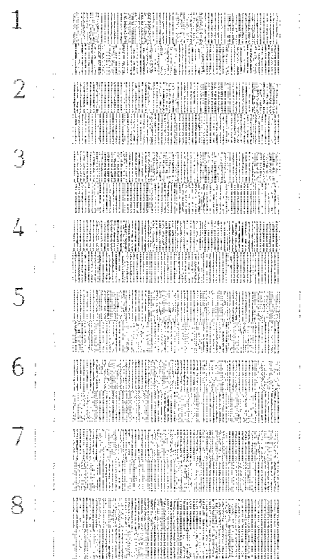
600DPI



1200DPI



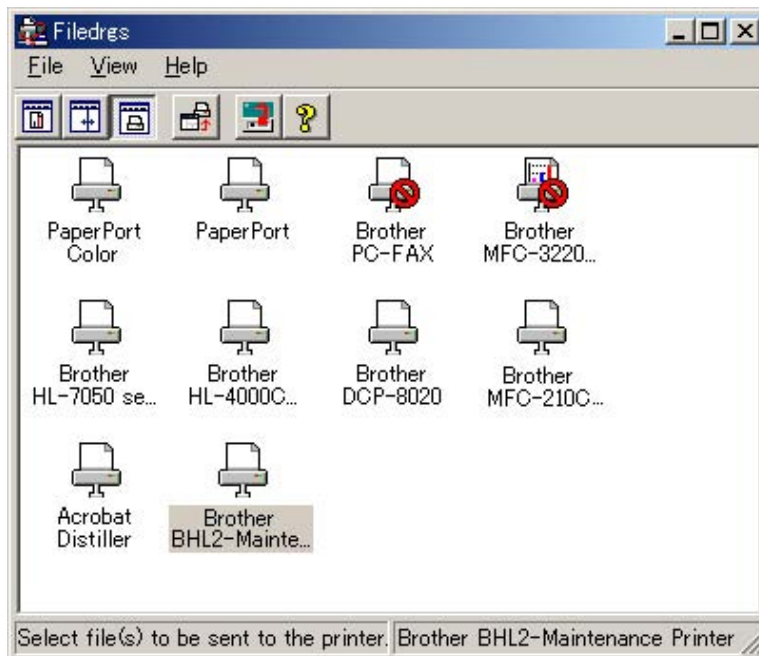
750DPI



Vertical Alignment Check Patterns

[6] Margin adjustment in near-edge printing

- (1) On the PC, run "FILEDRG32.exe" in the folder created in [Section 6.1.1](#).
The Filedrgs window appears as shown below.



- (2) Drag and drop the "EDGE_CHECK.PRN" onto the BHL2-Maintenance Printer icon in the Filedrgs window shown above.

The machine displays the "RECEIVING DATA" on the LCD and prints out the margin check pattern (see [page 6-19](#) for a sample printout).

- (3) Measure the left and right margins on the printout.

(Example) Left: 1.0 mm, Right: 1.3 mm

If both margins are within the range from 0.9 to 1.1 mm, no adjustment is required.

- (4) MFC820CW/640CW

If either margin is out of the specified range, press the **6** key twice on the machine.

DCP340CW

If either margin is out of the specified range, enter 6 twice by using the **▲** and **Set** keys on the machine.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The "MEDIA SENSOR ADJ" appears again.

- (5) MFC820CW/640CW

To make the machine ready for data entry, press the * key.

DCP340CW

To make the machine ready for data entry, enter * by using the **▲** and **Set** keys.*

In the following procedure, key names enclosed in parentheses apply to the MFC820CW.

- (6) Enter the measured value (in units of 0.1 mm) multiplied by 10.

(Example) Left: 10, Right: 13

MFC820CW/640CW

In this example, press the **1, 0, Menu/Set (OK), 1, 3,** and **Menu/Set (OK)** keys.

DCP340CW

In this example, enter 1, 0, 1, and 3 by using the **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

- (7) Upon completion of the entry, the machine automatically returns to the initial stage of the maintenance mode.

Go back to step (2) and print out the margin check pattern again.

- (8) Measure the left and right margins on the printout.

If both margins are within the range from 0.9 to 1.1 mm, the adjustment is completed.

TIP: To reset the newly entered values to defaults, press the **Black Start** key or **Mono Start** key.

* BH3 MEDIA CHECK - Version 0.02 *

LEFT:0.9-1.1mm

RIGHT:0.9-1.1mm



Margin Check Pattern

[7] Print out a test pattern

MFC820CW/640CW

Press the **0** and **9** keys in this order.

DCP340CW

Enter 0 and 9 by using the **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

Refer to [Chapter 8, Section 8.4.3](#).

[8] Switch back to standby

MFC820CW/640CW

After completion of the adjustment, disconnect the USB cable and then press the **9** key twice to return to the standby state.

DCP340CW

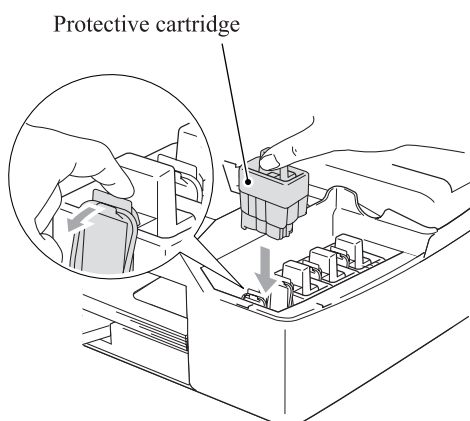
After completion of the adjustment, disconnect the USB cable and then enter 9 twice by using the **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

NOTE: Be sure to disconnect the USB cable first. Returning to the standby state without disconnecting the USB cable runs "Found New Hardware Wizard" that starts USB driver installation (as described in [Section 6.1.2](#)). Enable the initial setup mode (see [Chapter 8, Section 8.4.13](#)).

[9] Replace the ink cartridges with protective ones

Replace the ink cartridges with protective ones.



6.3 IF YOU REPLACE THE MAIN PCB

NOTE: If you replace the main PCB, also replace the ink absorber box. Using the machine without replacing the ink absorber box for a long period may cause an overflow of drained ink from the ink absorber box, thereby staining the machine.

[1] Load update programs/data

- If the main PCB is replaced with a new one, load the update programs/data onto the flash ROM. Refer to [Appendix 2, page App. 2-5](#).
- If the main PCB is replaced with the one used for other machines, follow the steps below.
 - (1) Update the firmware stored in the flash ROM. Refer to [Appendix 2, page App. 2-7](#).
 - (2) Reset the purge counter to zero with the following procedure.

MFC820CW/640CW

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

NOTE: Make a note of the log information displayed on the LCD on the machine's repair log sheet as well as leaving a comment that the log information stored in the EEPROM is different from the actual record.

- 2) Press the **Black Start** key several times until the purge count appears on the LCD.
- 3) Press the **2, 7, 8,** and **3** keys in this order to reset the purge count to zero.
- 4) Press the **Stop/Exit** key to return to the initial stage of the maintenance mode.
- 5) Press the **9** key twice to exit from the maintenance mode.

DCP340CW

- 1) Enter 8 and 0 by using the **▲** and **Set** keys.*

NOTE: Make a note of the log information displayed on the LCD on the machine's repair log sheet as well as leaving a comment that the log information stored in the EEPROM is different from the actual record.

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

- 2) Press the **Mono Start** key several times until the purge count appears on the LCD.
- 3) Enter 2, 7, 8, and 3 by using the **▲** and **Set** keys.*
This resets the purge counter to zero.
- 4) Press the **Stop/Exit** key to return to the initial stage of the maintenance mode.
- 5) Enter 9 twice by using the **▲** and **Set** keys to exit the maintenance mode.*

[2] Initialize the EEPROM on the main PCB (Function code 01)

Refer to [Chapter 8, Section 8.4.1](#).

[3] **Customize the EEPROM on the main PCB (Function code 74)**

Refer to [Chapter 8, Section 8.4.18](#).

[4] **Check the control panel PCB for normal operation (Function code 13)**

Refer to [Chapter 8, Section 8.4.6](#).

[5] **Make a sensor operational check (Function code 32)**

Refer to [Chapter 8, Section 8.4.7](#).

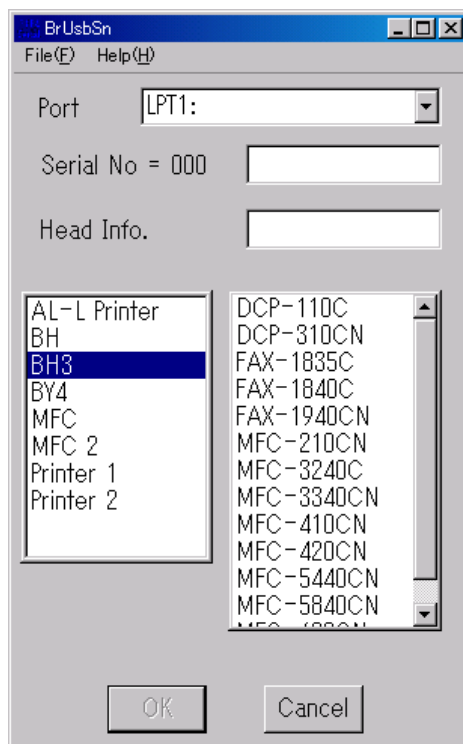
[6] **Acquire white level data and set the CIS scanner area (Function code 55)**

Refer to [Chapter 8, Section 8.4.10](#).

[7] **Set an ID code and update the head property information**

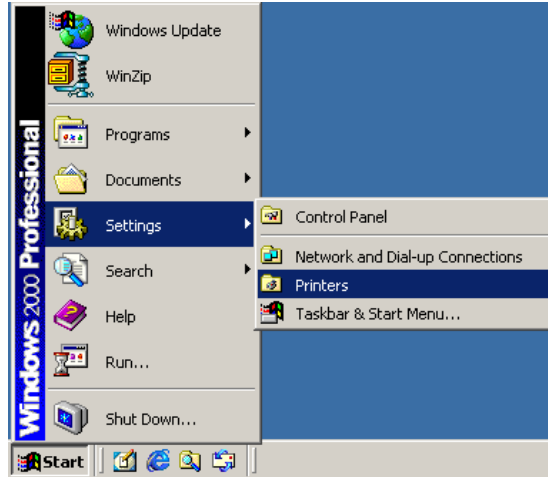
NOTE: Make sure that the BHL2-Maintenance Printer driver has been installed to your PC. To do it, click **Start|Settings|Printers** to call up the Printers window and confirm that the BHL2-Maintenance Printer icon (shown on the sample window on [page 6-10](#)) is displayed. If the driver has not been installed, install it referring to [Section 6.1.2](#).

- (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 6.1.1](#). The following window appears.

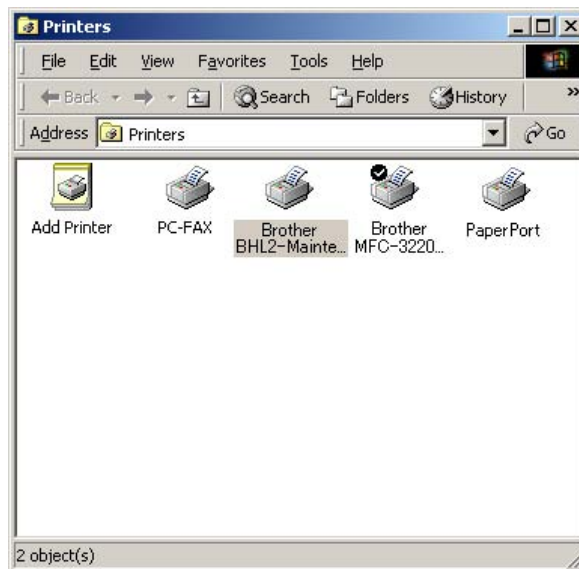


- (4) On the **Model** menu, click **BH3**.

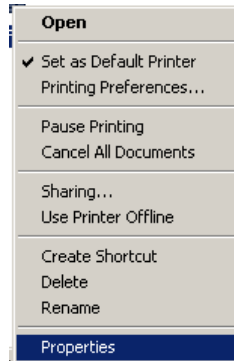
- (5) In **Port**, select the port number assigned to the BHL2-Maintenance Printer driver.
To confirm the port number, follow the instructions below.
Click **Start|Settings|Printers**.



The Printers window appears as shown below.
Right-click the BHL2-Maintenance Printer driver icon.

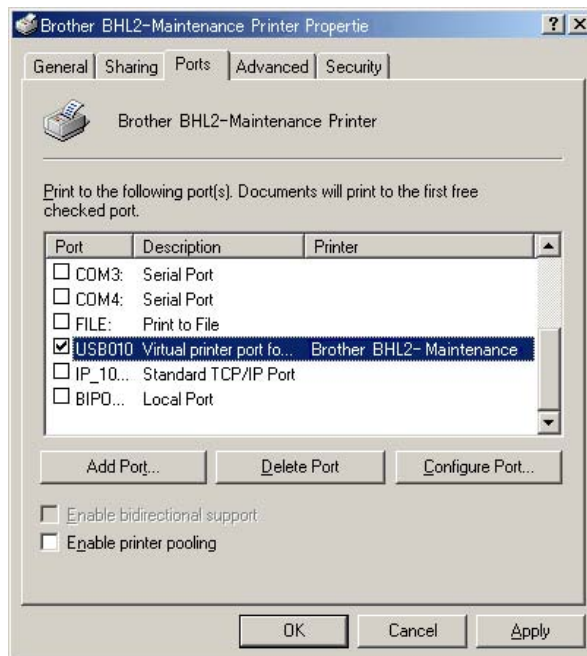


Click **Properties**.



The BHL2-Maintenance Printer Properties window appears as shown below.

Click the **Ports** tab.



The port number assigned to the BHL2-Maintenance Printer, USB010 in this example, is one that has been selected in **Port** on the BrUsbSn screen (page 6-22).

- (6) In the **Serial No = BRO** box on the BrUsbSn screen (page 6-22), type the 9-digit serial number (e.g., M2J012345) printed on the nameplate labeled to the machine as an ID code.
- (7) In the **Head Info.** box, type 12 digits (e.g., 776601D00009) out of the 13-digit property code (enclosed with asterisks, e.g., *J776601D00009*) which is printed on the bar code label attached to the head/carriage unit. Click the **OK** button.

- (8) Check whether the entered character strings (ID code and head property information) are correct with the following procedure.

MFC820CW/640CW

Press the **8** and **0** keys in this order. Then press the **Black Start** key several times, and the ID code appears on the LCD. Check that the displayed code is that string entered in step (6).

Next, press the **6** and **8** keys in this order. Then press the **2, 5, 8, 0** keys in this order, and the head property code appears on the LCD. Check that the displayed code is that string entered in step (7).

DCP340CW

Enter 8 and 0 by using the **▲** and **Set** keys.* Then press the **Mono Start** key several times, and the ID code appears on the LCD. Check that the displayed code is that string entered in step (6).

Next, enter 6, 8, 2, 5, 8, and 0 by using the **▲** and **Set** keys*, and the head property code appears on the LCD. Check that the displayed code is that string entered in step (7).

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

- (9) If both are OK, proceed to [8] below.

If something wrong is displayed, check the connection between the PC and machine and go back to step (2).

[8] Update the paper feeding correction value

Refer to [Section 6.2, \[4 \]](#).

[9] Align vertical print lines

Refer to [Section 6.2, \[5 \]](#).

[10] Margin adjustment in near-edge printing

Refer to [Section 6.2, \[6 \]](#).

[11] Adjust the light intensity of the LCD backlight (for models with backlights)

Refer to [Chapter 8, Section 8.4.5](#).

[12] Specify the CIS type

Refer to [Chapter 8, Section 8.4.12](#).

[13] Switch back to standby

Refer to [Section 6.2, \[8 \]](#).

6.4 IF YOU REPLACE THE INK ABSORBER BOX

Reset the purge counter to zero with the following procedure.

MFC820CW/640CW

(Key names enclosed in parentheses apply to the MFC820CW.)

- (1) Press the **Menu/Set (Menu)** and **Black Start** keys. Next press **▲** key four times to make the machine enter the maintenance mode.
- (2) Press the **8** and **0** keys in this order in the initial stage of the maintenance mode.
- (3) Press the **Black Start** key several times until the purge count appears on the LCD
- (4) Press the **2, 7, 8,** and **3** keys in this order to reset the purge count to zero.
- (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.

DCP340CW

- (1) Press the **Menu** and **Mono Start** keys. Next press the **▲** key four times to make the machine enter the maintenance mode.
- (2) Enter 8 and 0 by using the **▲** and **Set** keys.*
(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)
- (3) Press the **Mono Start** key several times until the purge count appears on the LCD.
- (4) Enter 2, 7, 8, and 3 by using the **▲** and **Set** keys to reset the purge count to zero.*
- (5) Press the **Stop/Exit** key to return to the initial stage of the maintenance mode.
- (6) Enter 9 twice by using the **▲** and **Set** keys to exit from the maintenance mode.*

6.5 IF YOU REPLACE THE CONTROL PANEL PCB (MODELS WITH BACKLIGHTS)

Adjust the light intensity of the backlight.

Refer to [Chapter 8, Section 8.4.5](#).

6.6 IF YOU REPLACE THE SCANNER COVER (SCANNER UNIT)

Check the CIS type and write it to the EEPROM.

Refer to [Chapter 5, Section 5.1.3](#) and [Chapter 8, Section 8.4.12](#).

CHAPTER 7

CLEANING

CHAPTER 7 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.

CONTENTS

7.1	CLEANING THE MAINTENANCE UNIT	7-1
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For the cleaning procedures of the head/carriage unit, scanner, and platen, refer to the User's Guide.

7.1 CLEANING THE MAINTENANCE UNIT

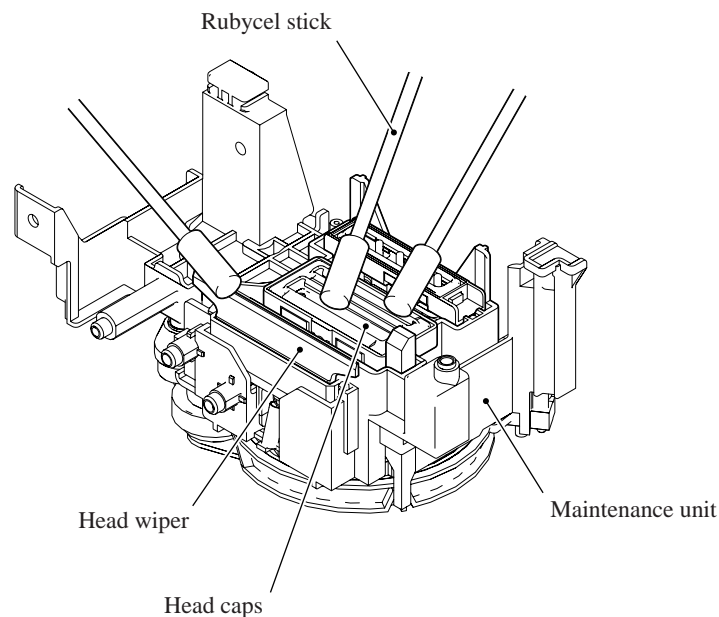
- (1) Unplug the machine's power cord from the wall socket.
- (2) Plug the power cord again. After you hear the head/carriage unit moving out of the home position for initialization, unplug the power cord again. The head/carriage unit will stop at the middle of the travel.
- (3) Open the scanner cover (scanner unit).
- (4) Clean the two head caps and wiper of the maintenance unit with a "Rubycel" stick that is a head cleaner stick provided as a spare part.

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.

- (5) Close the scanner cover.
- (6) Hear the head/carriage unit moving. After the moving sound stops, unplug the machine's power cord from the wall socket.



CHAPTER 8

MAINTENANCE MODE

CHAPTER 8 MAINTENANCE MODE

This chapter describes the maintenance mode which is exclusively designed for the purpose of checks, settings and adjustments 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, paper feed roller or paper ejection roller (if they 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).

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8.1 ENTRY INTO THE MAINTENANCE MODE

MFC820CW/640CW

(Key names enclosed in parentheses apply to the MFC820CW.)

Press the **Menu/Set (Menu)** and **Black Start** keys. Next press the **▲** key four times to make the machine enter the maintenance mode.

TIP: FAX models equipped with numerical keypads can enter the maintenance mode in the same way as conventional models; that is, by pressing the **Menu/Set (Menu)**, *****, **2**, **8**, **6** and **4** keys in this sequence.

DCP340CW

Press the **Menu** and **Mono Start** keys. Next press the **▲** key four times to make the machine enter the maintenance mode.

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.

To select one of the maintenance-mode functions listed in [Section 8.2](#), 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 8.4](#).)

NOTES • MFC820CW/640CW

To exit from the maintenance mode and switch to standby, press the **9** key twice in the initial stage of the maintenance mode.

DCP340CW

To exit from the maintenance mode and switch to standby, enter 9 twice by using the **▲** and **Set** keys in the initial stage of the maintenance mode.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

- 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.

8.2 LIST OF MAINTENANCE-MODE FUNCTIONS

Maintenance-mode Functions

Function Code	Function	Reference Section (Page)
01	EEPROM Parameter Initialization	8.4.1 (8-5)
05	Printout of Scanning Compensation Data	8.4.2 (8-6)
09	Test Pattern	8.4.3 (8-8)
10	Firmware Switch Setting	8.4.4 (8-10)
11	Printout of Firmware Switch Data	8.4.4 (8-13)
12	Operational Check of LCD	8.4.5 (8-15)
13	Operational Check of Control Panel PCB (Check of Keys)	8.4.6 (8-17)
32	Sensor Operational Check	8.4.7 (8-19)
53	Transfer of Received FAX Data and/or Equipment's Log	8.4.8 (8-21)
54	Fine Adjustment of Scanning Start/End Position	8.4.9 (8-23)
55	Acquisition of White Level Data and CIS Scanner Area Setting	8.4.10 (8-24)
58	Updating of Paper Feeding Correction Value	8.4.11 (8-25)
59	Specifying of CIS Type	8.4.12 (8-29)
63	Travel Check of Head/Carriage Unit and Initial Setup Mode	8.4.13 (8-31)
65	Alignment of Vertical Print Lines in Monochrome	8.4.14 (8-32)
66	Margin Adjustment in Near-edge Printing	8.4.15 (8-35)
68	Updating of Property Data	8.4.16 (8-38)
69	Head/Carriage Unit Traveling Speed Check	8.4.17 (8-40)
74	EEPROM Customizing	8.4.18 (8-41)
75	Travel of Head/Carriage Unit (for Recovery from Paper Jam Caused at Maintenance Unit)	8.4.19 (8-42)
76	Purging Operation	8.4.20 (8-43)
80	Display of the Equipment's Log	8.4.21 (8-46)
82	Equipment Error Code Indication	8.4.22 (8-49)
87	Output of Transmission Log to the Telephone Line	8.4.23 (8-49)
91	EEPROM Parameter Initialization (except the telephone number storage area)	8.4.1 (8-5)
99	Exit from the Maintenance Mode	---- (8-1)
Menu/Set (Menu) + #, 2, 7, 9, 0, 0	Cancellation of the Pin TX Lock Mode (Not applicable to U.S.A. models)	8.4.24 (8-50)

8.3 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, 11, 12, 53, 66, 75, 76, 80, 82, 87, 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.

MFC820CW/640CW

(Key names enclosed in parentheses apply to the MFC820CW.)

- (1) Press the **Menu/Set (Menu)**, **Black Start**, **Menu/Set (Menu)**, and **Black Start** keys in this order.

TIP: For the FAX models equipped with numerical keypads, you may press the **Menu/Set**, **Black Start**, and **0** keys instead in the same way as conventional models.

The "MAINTENANCE 10" appears on the LCD.

- (2) To access function code 10, press the **Menu/Set (OK)** key.

To access any other function code, call up the desired code using the ▲ and ▼ keys or numerical keys.

Then press the **Menu/Set (OK)** key.

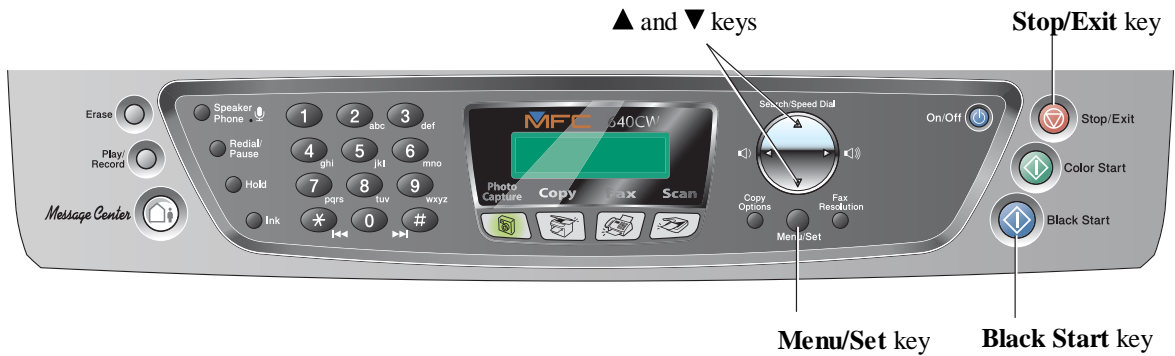
For function code 10, access the desired firmware switch according to the operating procedure described in [Appendix 4](#).

- (3) To switch the machine back to the standby state, press the **Stop/Exit** key. When each of the user-accessible functions is completed, the machine automatically returns to the standby state.

MFC820CW



MFC640CW



DCP340CW

- (1) Press the **Menu**, **Mono Start**, **Menu**, and **Mono Start** keys in this order.

The "MAINTENANCE 10" appears on the LCD.

- (2) To access the function code 10, press the **Set** key.

To access any other function code, press the **▲** or **▼** key several times until the desired code appears. Then press the **Set** key.

For function code 10, access the desired firmware switch according to the operating procedure described in Appendix 4.

- (3) To make the machine return to the standby state, press the **Stop/Exit** key. When each of the user-accessible functions is completed, the machine automatically returns to the standby state.

DCP340CW



8.4 DETAILED DESCRIPTION OF MAINTENANCE-MODE FUNCTIONS

8.4.1 EEPROM Parameter Initialization (Function code 01, 91)

■ Function

The machine initializes the parameters, user switches, and firmware switches registered in the EEPROM, to the initial values. Entering the 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
Data item		
Maintenance-mode functions	All of these will be initialized.	These will be initialized.
User switches Firmware switches Remote activation code*		
Activity report* Station ID data* Outside line number* Telephone function registration* One-touch dialing Speed dialing Group dialing		These will <u>not</u> be initialized.
EEPROM customizing code (4-digit)	This will <u>not</u> be initialized. (Note that the first digit of the 4-digit code will be initialized to "0." If the code is <u>1</u> 001, for example, it will be initialized to <u>0</u> 001.)	

*Not provided in the DCP340CW.

NOTE: If you replace the main PCB with the one used for any other machine, carry out this procedure and then customize the EEPROM (maintenance-mode function code 74 in [Section 8.4.18](#)).

■ Operating Procedure

(1) MFC820CW/640CW

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.

DCP340CW

Enter 0 and 1 by using the **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The "PARAMETER INIT" will appear on the LCD.

(2) Upon completion of parameter initialization, the machine returns to the initial stage of the maintenance mode.

8.4.2 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: Be sure to disconnect the USB cable from the machine before proceeding to the procedure below.

(1) MFC820CW/640CW

Press the **0** and **5** keys in this order in the initial stage of the maintenance mode.

DCP340CW

Enter 0 and 5 by using the **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The "PRINT" will appear on the LCD.

(2) The machine prints out the scanning compensation data list containing the following:

- a) Black/white data graph
- b) LED light intensity pulse data for green image (2 bytes)
- c) LED light intensity pulse data for blue image (2 bytes)
- d) LED light intensity pulse data for red image (2 bytes)
- e) Compensation data for background color (1 byte)
- f) Black level data (4970 bytes)
- g) White level data for red image (4970 bytes)
- h) White level data for green image (4970 bytes)
- i) White level data for blue image (4970 bytes)

(3) Upon completion of recording of the compensation data list, the machine returns to the initial stage of the maintenance mode.

NOTE: When the machine prints monochrome images after monochrome scanning, only the green data is valid.

NOTE: If any data is abnormal, its code will be printed in inline style.

8.4.3 Test Pattern (Function code 09)

■ Function

This function, much like the copying function, prints out a test pattern (PRINT QUALITY CHECK SHEET) to allow the service personnel to check for print quality.

■ Operating Procedure

MFC820CW/640CW

Press the **0** and **9** keys in this order in the initial stage of the maintenance mode.

DCP340CW

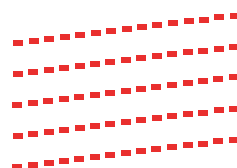
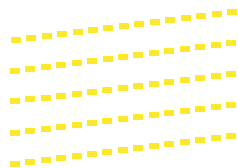
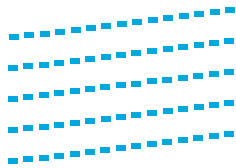
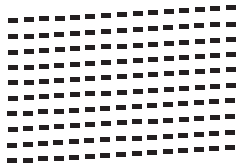
Enter 0 and 9 by using the **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The figure on the next page shows a test pattern which is printed on the PRINT QUALITY CHECK SHEET. According to the instructions printed on the sheet, you can check or correct the print quality.

Print Quality Check

1. Check the quality of the four-color blocks formed by the short lines.
2. If all the short lines are clear and visible, the quality is acceptable. Select **(Yes)**.
If you can see missing short lines, select **(No)** to begin the color cleaning process and follow the prompts on the LCD.



Test Pattern

8.4.4 Firmware Switch Setting and Printout (Function codes 10 and 11)

[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 WSW51)

WSW No.	Function
WSW01	Dial pulse setting
WSW02	Tone signal setting
WSW03	PABX mode setting
WSW04	TRANSFER facility setting
WSW05	1st dial tone and busy tone detection
WSW06	Pause key setting and 2nd dial tone detection
WSW07	Dial tone setting 1
WSW08	Dial tone setting 2
WSW09	Protocol definition 1
WSW10	Protocol definition 2
WSW11	Busy tone setting
WSW12	Signal detection condition setting
WSW13	Modem setting
WSW14	AUTO ANS facility setting
WSW15	REDIAL facility setting
WSW16	Function setting 1
WSW17	Function setting 2
WSW18	Function setting 3
WSW19	Transmission speed setting
WSW20	Overseas communications mode setting
WSW21	TAD setting 1
WSW22	ECM and call waiting caller ID
WSW23	Communications setting
WSW24	TAD setting 2
WSW25	TAD setting 3
WSW26	Function setting 4
WSW27	Function setting 5
WSW28	Function setting 6
WSW29	Function setting 7
WSW30	Function setting 8
WSW31	Function setting 9
WSW32	Function setting 10
WSW33	Function setting 11

Firmware Switches (WSW01 through WSW51) *Continued*

WSW No.	Function
WSW34	Function setting 12
WSW35	Function setting 13
WSW36	Function setting 14
WSW37	Function setting 15
WSW38	V.34 transmission settings
WSW39	V.34 transmission speed
WSW40	V.34 modem settings
WSW41	ON-duration of the scanning light source
WSW42	Internet mail settings
WSW43	Function setting 21
WSW44	Speeding up scanning-1
WSW45	Speeding up scanning-2
WSW46	Monitor of power ON/OFF state and parallel port kept at high
WSW47	Switching between high- and full-speed USB
WSW48	USB setup latency
WSW49	End-of-copying beep and print in black
WSW50	SDAA settings
WSW51	Function setting 16
WSW52	Not used.
WSW53	Function setting 18

■ Operating Procedure

MFC820CW/640CW

(Key names enclosed in parentheses apply to the MFC820CW.)

- (1) Press the **1** and **0** keys in this order in the initial stage of the maintenance mode.
The machine displays the "WSW00" on the LCD and becomes ready to accept a firmware switch number.
- (2) Enter the desired number from the firmware switch numbers (01 through 53).
The following appears on the LCD:

Selector 1
Selector 8
↓
↓
 WSWXX = 0 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.
- (4) Enter the desired number using the **0** and **1** keys.
- (5) Press the **Menu/Set (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 **Menu/Set (OK)** or **Stop/Exit** key to return the machine to the initial stage of the maintenance mode.

- NOTES:**
- To cancel this operation and return the machine to the initial stage of the maintenance mode during the above procedure, press the **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.

DCP340CW

- (1) Enter 1 and 0 by using the **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The machine displays the "WSW00" on the LCD and becomes ready to accept a firmware switch number.

- (2) Enter the numbers at the ten's place and unit's place of the desired number from the firmware switch numbers (01 through 51) by using the **▲** and **Set** keys.*

The following appears on the LCD:

Selector 1 Selector 8
↓ ↓
WSWXX = 0 0 0 0 0 0 0

- (3) To move the cursor to the right (left) by one position, press the **▲** key several times to display **▶** (**◀**) on the LCD and press the **Set** key. Repeat this operation to move the cursor to the selector position to be modified.
- (4) Enter 1 and 0 by using the **▲** and **Set** keys.*
- (5) Press the **Set** 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 and contents specified by the firmware switches.

■ Operating Procedure

(1) MFC820CW/640CW

Press the **1** key twice in the initial stage of the maintenance mode.

DCP340CW

Enter 1 twice by using the **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The "PRINTING" will appear on the LCD.

- (2) The machine prints out the configuration list as shown in the figure below.
- (3) Upon completion of printing, the machine returns to the initial stage of the maintenance mode.

CONFIGURATION LIST

MODEL : 8CA-817-001
 TIME : 81/09/2009 22:59
 REV. : U0506271037VER.T
 PCI : 5.00
 SUM : 2E5A
 SER.# : BR0F5F010068

WSW01 = 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	: PB
WSW02 = 11110100	1-2. ON TIME	: 100 MS
	3-4. OFF TIME	: 140 MS
	5-8. LINE BEEP ATTENUATOR	: 10 DB
WSW03 = 10110000	1. PARA. CNG DETECTION1	: B
	2-4. NOT USED	
	5. PARA. CNG DETECTION2	: A
	6-8. NOT USED	
WSW04 = 00010110	1. NOT USED	
	2-3. DETECT DUAL TONE IN ICM	: A
	4. DETECT TONE LEVEL IN ICM	: HIGH
	5. NOT USED	
	6-8. FLASHING TIME	: 500 MS
WSW05 = 00000110	1-3. DIAL TONE DETECTION	: 3.5 SEC WAITING
	4. REMOTE ID DETECTION TIMEDOUT	: 2 SEC
	5-5. BUSY TONE DETECTION (CALLING)	: AFTER DIALING
	7. BUSY TONE DETECTION (CALLED)	: OFF
	8. NOT USED	
WSW06 = 00101100	1-3. PAUSE KEY	: 3.5 SEC WAITING
	4-6. 2ND DT DETECTION TIME	: 800 MS
	7. 2ND DT DETECTION CYCLE	: 1 CYCLE
	8. 2ND DT INTERRUPT DETECTION TIME	: 30 MS
WSW07 = 01001100	1-2. FREQUENCY RANGE	: INITIAL DATA
	3. NOT USED	
	4-6. 2ND DT DETECTION LEVEL	: -30 DBM
	7. 1ST DT INTERRUPT DETECTION TIME	: 30 MS
	8. NOT USED	
WSW08 = 01100111	1-3. 1ST DT DETECTION TIME	: 800 MS
	4-5. 1ST/2ND DT TIME OUT	: 10 SEC
	6-8. 1ST DT DETECTION LEVEL	: -42 DBM
WSW09 = 00000000	1. ECM FRAME	: 256 OCTET
	2. NON STANDARD FACILITIES	: ON
	3-4. TIMES OF FALL BACK	: 4
	5. T5 TIMER	: 300 SEC
	6. T1 TIMER	: 35 SEC
	7-8. CALLING TIMEDOUT	: 55 SEC
WSW10 = 00010100	1. NOT USED	
	2. TIMING OF LAST DIGIT-MODEM CHANGE	: 100 MS
	3. TIMING OF CML ON CNG TRANSMISSION	: 2 SEC
	4. TIMING OF CML ON CED TRANSMISSION	: 2 SEC
	5-6. TRAINING RETRIES	: 2
	7. CODING METHOD MR	: ON
	8. CODING METHOD MMR	: ON
WSW11 = 01011000	1-2. FREQUENCY RANGE	: INITIAL DATA
	3-8. ON/OFF TIME	: 175 - 600 / 175 - 600 MS
WSW12 = 1	1-2. OF	
	3-4. AL	
	5-6. CN	
	7-8. NC	
WSW13 = 0	1-2. CA	
	3-4. RE	
	5-8. AT	
WSW14 = 0	1. PARA. CNG DETECTION1	: B
	2-4. NOT USED	
	5. PARA. CNG DETECTION2	: A
	6-8. NOT USED	
WSW15 = 0	1-2. IN	
	3-6. RE	
	7. NC	
	8. CR	
WSW16 = 0	1. NC	
	2. CO	
	3-6. NC	
	7. DC	
	8. ST	
WSW17 = 0	1-2. OF	
	3-4. NC	
	5. DA	
	6. NE	
	7. NC	
	8. NC	
WSW18 = 1	1. NC	
	2-3. CN	
	4-5. NC	
	6. RT	
	7-8. FA	
WSW19 = 1	1-3. D	
	4-5. TX	
	6-8. TX	
WSW20 = 1	1. V.	
	2. S.	
	3-4. S.	
	5. NC	
	6-8. NC	
WSW21 = 0	1. EF	
	2. ON	
	3. ON	
	4-5. CF	
	6-7. CN	
	8. CN	
WSW22 = 0	1. EC	
	2. EC	
	3. CA	
	4-8. NC	
WSW23 = 0	1-3. SC	
	4-5. NK	
	6. PC	
	7-8. CC	
WSW24 = 1	1. FIX TCF CHECK	: TOP
	2-3. TCF ERROR LIMIT	: 0%
	4-5. RTN CRITERION	: 14%
	6-7. NOT USED	
	8. ATTENUATOR LIMIT	: YES
WSW25 = 1	1-3. CL	
	4-5. NOT USED	
	6-7. DTMF DIGIT FOR CNG DETECTION	: 3
	8. NOT USED	
WSW26 = 1	1-2. D	
	3. D.T. DETECT TIME IN ICM	: 8 SEC
	4-8. NOT USED	
WSW27 = 1	1. NC	
	2. NC	
	3. NC	
	4. BL	
	5. D.	
	6-8. NK	
WSW28 = 1	1-4. NK	
	5-6. HC	
	7-8. HC	
WSW29 = 1	1-3. SC	
	4-5. NK	
	6. PC	
	7-8. CC	
WSW30 = 1	1. EF	
	2. ON	
	3. ON	
	4-5. CF	
	6-7. CN	
	8. CN	
WSW31 = 1	1. EC	
	2. EC	
	3. CA	
	4-8. NC	
WSW32 = 1	1-3. SC	
	4-5. NK	
	6. PC	
	7-8. CC	
WSW33 = 1	1. FIX TCF CHECK	: TOP
	2-3. TCF ERROR LIMIT	: 0%
	4-5. RTN CRITERION	: 14%
	6-7. NOT USED	
	8. ATTENUATOR LIMIT	: YES
WSW34 = 1	1-3. CL	
	4-5. NOT USED	
	6-7. DTMF DIGIT FOR CNG DETECTION	: 3
	8. NOT USED	
WSW35 = 10000000	1-4. D.T. DETECT TIME IN ICM	: 8 SEC
	5-8. NOT USED	
WSW44 = 1	1. REGISTRATION SENSOR JAM	: EJECT
	2-7. NOT USED	
	8. USB HIGH SPEED / FULL SPEED	: AUTO
WSW45 = 1	1-6. NOT USED	
	7. RECEIVE INFORMATION DISPLAY	: ON
	8. SENDING DIAL DISPLAY	: ON
WSW46 = 1	1-8. NOT USED	
WSW47 = 00000000	1-8. NOT USED	
WSW48 = 1	1-2. OF	
	3-4. AL	
	5-6. CN	
	7-8. NC	
WSW49 = 1	1-2. CA	
	3-4. RE	
	5-8. AT	
WSW50 = 1	1. NC	
	2. CO	
	3-6. NC	
	7. DC	
	8. ST	
WSW51 = 1	1-2. OF	
	3-4. AL	
	5-6. CN	
	7-8. NC	
WSW52 = 1	1-2. CA	
	3-4. RE	
	5-8. AT	
WSW53 = 00000000	1-8. NOT USED	
WSW54 = 1	1-6. NOT USED	
	7. RECEIVE INFORMATION DISPLAY	: ON
	8. SENDING DIAL DISPLAY	: ON
WSW55 = 1	1-8. NOT USED	

Configuration List

8.4.5 Operational Check of LCD (Function code 12)

■ Function

This function allows you to check whether the LCD on the control panel works normally.

For models with backlights, the light intensity also can be adjusted.

■ Operating Procedure

Checking the display state of the LCD:

(1) MFC820CW/640CW

Press the **1** and **2** keys in this order in the initial stage of the maintenance mode.

DCP340CW

Enter 1 and 2 in the initial stage of the maintenance mode by using the **▲** and **Set** keys.*

The LCD shows the screen given at right.

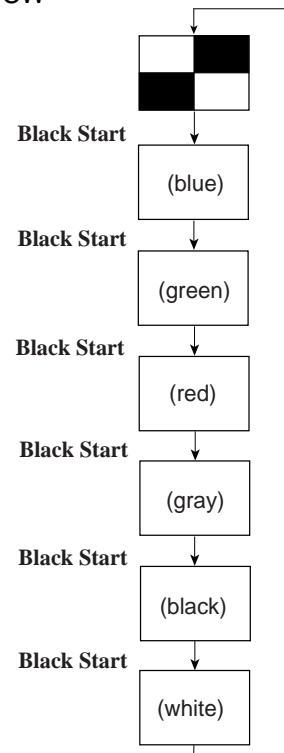
(2) Press the **Black Start (Mono Start)** key.

Each time you press the **Black Start (Mono Start)** key, the LCD cycles through the displays shown at right.

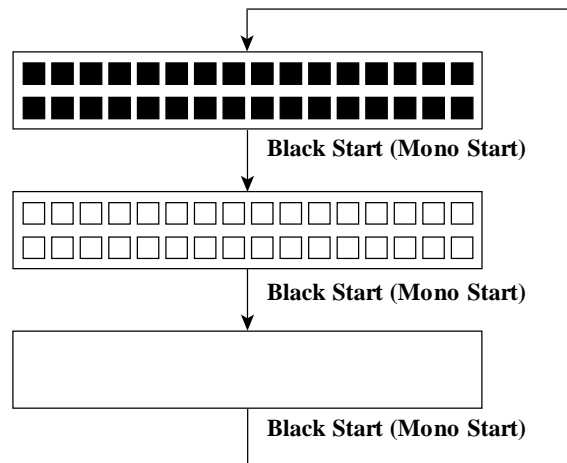
(3) Press the **Stop/Exit** key in any process of the above display cycle. The machine beeps for one second and returns to the initial stage of the maintenance mode.

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

MFC820CW



MFC640CW/DCP340CW



Adjusting the light intensity of the backlight:

- (1) MFC640CW
Press the **1** and **2** keys in this order in the initial stage of the maintenance mode.

DCP340CW

Enter 1 and 2 in the initial stage of the maintenance mode by using the **▲** and **Set** keys.*

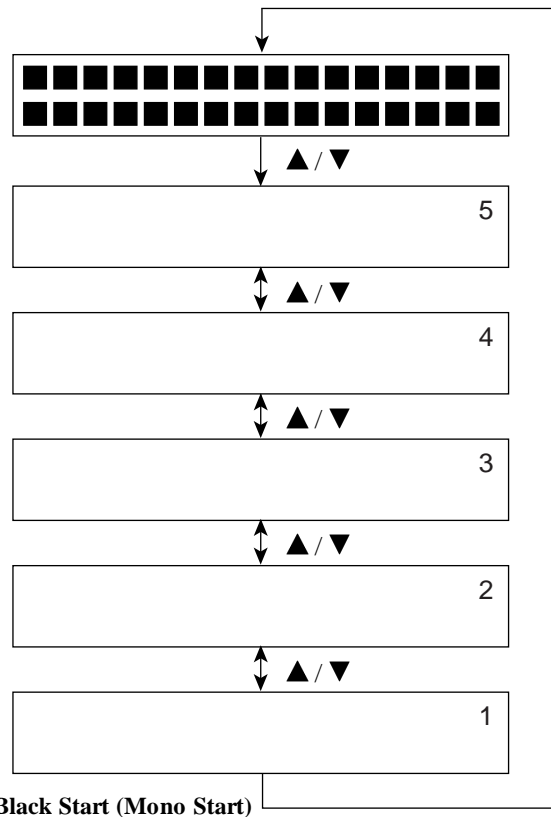
- (2) MFC640CW
To increase the intensity, press the **▲** key; to decrease it, press the **▼** key.

DCP340CW

Enter **▲** or **▼** by using the **▲** and **Set** keys.*

NOTE: The light intensity can be adjusted to five levels.

- (3) Press the **Black Start (Mono Start)** key.



- (4) No key operation for one minute returns the machine to the initial stage of the maintenance mode.

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

8.4.6 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) MFC820CW/640CW

Press the **1** and **3** keys in this order in the initial stage of the maintenance mode.

DCP340CW

Enter 1 and 3 in the initial stage of the maintenance mode by using the **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

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 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 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.

MFC820CW

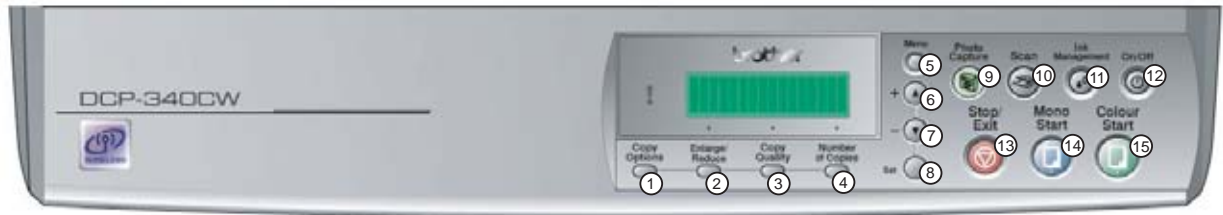


MFC640CW



Key Entry Order (1)

DCP340CW



Key Entry Order (2)

8.4.7 Sensor Operational Check (Function code 32)

■ Function

This function allows you to check the following:

- Document front sensor
- Document rear sensor
- Scanner open sensor
- Registration sensor
- Purge cam switch
- Black ink cartridge sensor
- Yellow ink cartridge sensor
- Cyan ink cartridge sensor
- Magenta ink cartridge sensor
- Head driver chip temperature sensor
- Hook switch (MFC640CW)

■ Operating Procedure

(1) MFC820CW/640CW

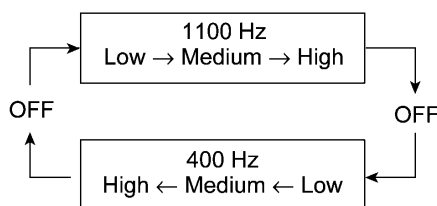
Press the **3** and **2** keys in this order in the initial stage of the maintenance mode.

DCP340CW

Enter 3 and 2 in the initial stage of the maintenance mode by using the **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The machine sounds 1100 Hz and 400 Hz tones cyclically through the following volumes for testing the speaker:



NOTE: To stop beeping, press the **Menu/Set (OK, Set)** key.

If the sensing status are as listed below, the LCD will show "DFDRCVRS P1 " and "IKIYICIMVTHK ", 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	No document detected.
DR	Document rear sensor	No document detected.
CV	Scanner open sensor	Scanner unit closed.
RS	Registration sensor	No recording paper detected.
P1	Purge cam switch	Purge cam switch ON.
IK	Black ink cartridge sensor	Black ink cartridge loaded (Black ink present).
IY	Yellow ink cartridge sensor	Yellow ink cartridge loaded (Yellow ink present).
IC	Cyan ink cartridge sensor	Cyan ink cartridge loaded (Cyan ink present).
IM	Magenta ink cartridge sensor	Magenta ink cartridge loaded (Magenta ink present).
VT	Head driver chip temperature sensor	Driver chip temperature within the allowable range.
HK	Hook switch*	On-hook state.

* MFC640CW

The HK is displayed even on those models not equipped with their related sensors.

- (2) Change the detecting conditions (e.g., open the scanner unit 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.

8.4.8 Transfer of Received FAX Data and/or Equipment's Log (Function code 53)

■ Function

This function transfers received FAX data to another machine. It is useful when the machine cannot print received data due to the printing mechanism defective.

NOTE: This function is available in the MFC820CW/640CW.

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

(Key names enclosed in parentheses apply to the MFC820CW.)

- (1) Press the **5** and **3** keys in this order in the initial stage of the maintenance mode.
The "FAX TRANSFER" appears on the LCD.
- (2) To check the number of received files, press the **1** key.
The "1.NO. OF JOBS" appears on the LCD.
Press the **Menu/Set (Menu)** key, and the number of received files appears, just as "NO. OF JOBS: 10."
- (3) To transfer the activity report only, press the **2** key.
The "2.ACTIVITY" appears.
To transfer received files (together with the activity report), press the **3** key.
The "3.DOCUMENTS" appears. Note that if there is no received file, the "NO DOCUMENTS" appears.
- (4) To transfer the communication list for the latest communication, press the **4** key.
The "4.COM.LIST (NEW)" appears.
To transfer the communication list for last three errors, press the **5** key.
The "5.COM.LIST (ERR3)" appears.
- (5) With the "2.ACTIVITY," "3.DOCUMENTS," "4.COM.LIST (NEW)," or "5.COM.LIST (ERR3)" being displayed, press the **Menu/Set (OK)** key.
The "ENTER NO. &SET" appears.
- (6) Enter the telephone number of the receiver machine and press the **Menu/Set (OK)** key again.
NOTE: Be sure to type the telephone number with the numerical keys. No one-touch 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

=== FAX TRANSFER COVER PAGE ===		
NO. OF JOBS	:001	← Job number
TOTAL PAGE[S]	:001	← Total number of pages to be transferred
NAME	:BROTHER	← Station ID registered in the sender equipment
FAX	:052 824 2330	← FAX number of the sender equipment
TEL	:	← Telephone number of the sender equipment
TIME	:01/02/2004 22:21	← Transfer start date
8CA-811		← Model code
B0403261602		← Boot ROM info
U0404221449 VER.0		← ROM info
G01234567890		← Serial number

End page sample

=== FAX TRANSFER END PAGE ===		
NO. OF JOBS	:001	← Job number
TOTAL PAGE[S]	:001	← Total number of pages transferred
NAME	:BROTHER	← Station ID registered in the sender equipment
FAX	:052 824 2330	← FAX number of the sender equipment
TEL	:	← Telephone number of the sender equipment
MACHINE STATUS 1	AF:0401022216	←
MACHINE STATUS 2	43:0401022216	←
MACHINE STATUS 3	48:0401022216	←
MACHINE STATUS 4	AF:0401022017	←
MACHINE STATUS 5	43:0401022017	←
MACHINE STATUS 6	48:0401022017	←
MACHINE STATUS 7	AF:0401011756	←
MACHINE STATUS 8	43:0401011756	←
MACHINE STATUS 9	48:0401011756	←

} Error codes

8.4.9 Fine Adjustment of Scanning Start/End Position (Function code 54)

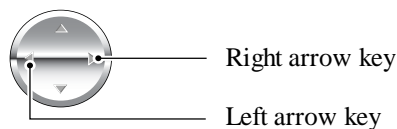
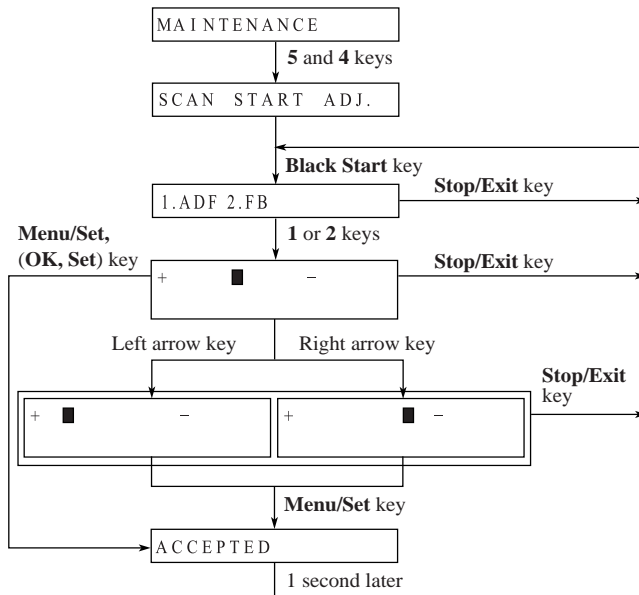
This function is available in models with ADFs.

■ Function

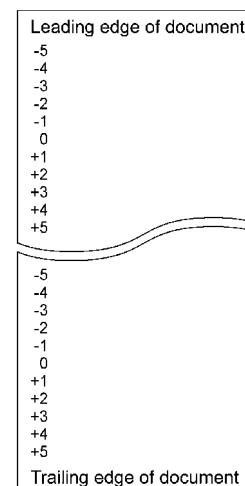
This function allows you to adjust the scanning start/end position.

■ Operating Procedure

- (1) Press the **5** and **4** keys in this order in the initial stage of the maintenance mode.
The "SCAN START ADJ." appears on the LCD.
- (2) Press the **Black Start** key (**Mono Start** key on DCP340CW). The "1.ADF 2.FB" appears on the LCD.
- (3) Press the **1** or **2** key, and 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 left arrow key; to decrease it, press the right arrow key.
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 **Menu/Set** key (**OK** key on MFC820CW, **Set** key on DCP340CW).
The "ACCEPTED" appears on the LCD. After one second, the machine returns to the initial stage of the maintenance mode.



NOTE: The relationship between the scanning start/end positions and their correction values is shown below.



8.4.10 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) MFC820CW/640CW

Press the **5** key twice in the initial stage of the maintenance mode.

DCP340CW

Enter **5** twice in the initial stage of the maintenance mode by using the **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The "SCANNER AREA SET" will appear on the LCD.

The machine automatically obtains white level data.

- (2) If this operation completes normally, the machine returns to the initial stage of the maintenance mode.

If any error is noted, the "SCANNER ERROR" appears on the LCD. To return the machine to the initial stage of the maintenance mode, press the **Stop/Exit** key.

8.4.11 Updating of Paper Feeding Correction Value (Function code 58)

■ Function

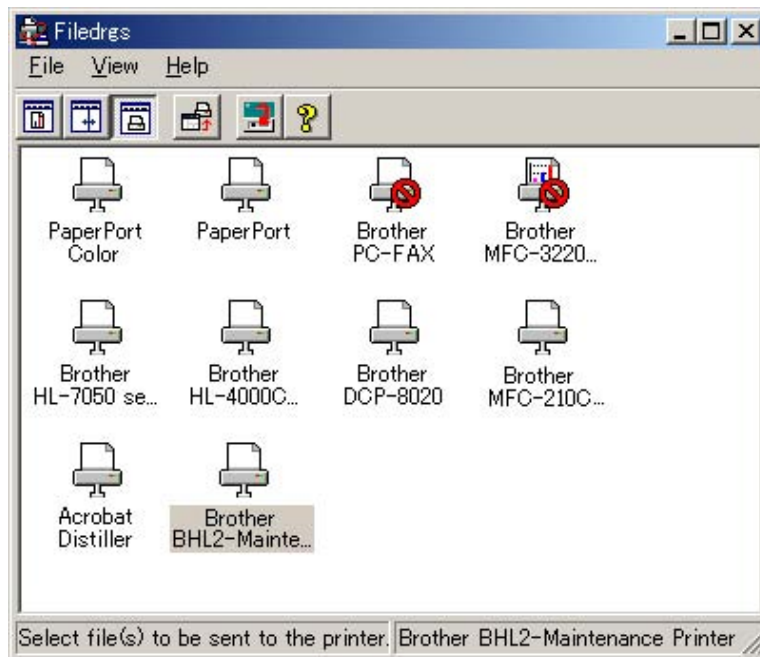
To keep the paper feeding performance in the best condition for quality print, the controller optimizes the rotation of the paper feed roller, using the correction value stored in the EEPROM on the main PCB.

If you replace the engine unit, paper ejection roller, 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 8.1.](#))
- (3) Connect the machine to your PC using the USB cable.
- (4) Run "FILEDG32.exe" in the folder created in [Section 6.1.1.](#)

The Filedrgs window appears as shown below.



- (5) Drag and drop the "PFROLL.PRN" onto the BHL2-Maintenance Printer icon in the Filedrgs window shown above.

The machine displays the "RECEIVING DATA" on the LCD and prints out "PF adjust check" patterns (see [page 8-28](#) for a sample printout).

(6) MFC820CW/640CW

Press the **5** and **8** keys on the machine.

DCP340CW

Enter 5 and 8 by using the **▲** and **Set** keys on the machine.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The "1.PF 2.EXIT" appears on the LCD.

(7) MFC820CW/640CW

To select the paper feed roller adjustment, press the **1** key.

DCP340CW

To select the paper feed roller adjustment, enter 1 by using the **▲** and **Set** keys.*

The "PF ADJ NO. +0" appears on the LCD.

- (8) Check the PF adjust check patterns ("A" on [page 8-28](#)) and select the one that is the least uneven print. Make a note of that pattern number.

If the unevenness is far to the left of check pattern -8, regard it as -8; if it is far to the right of check pattern +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 check pattern found in step (7).

MFC820CW/640CW

For example, if the number of the least uneven check pattern is +4, press the **▲** and **4** keys; if -4, press the **▼** and **4** keys. (To enter +, use the **▲** key; to enter -, use the **▼** key.)

DCP340CW

For example, if the number of the least uneven check pattern is +4, enter + and 4; if -4, enter - and 4 by using the **▲** and **Set** keys.*

(*To enter a plus/minus symbol or numerical code on models having no numerical keypad, press the **▲** key several times to display the **▲/▼** or numerical code to be entered, respectively, and then press the **Set** key. Repeat this operation for each symbol or numerical code.)

The machine automatically returns to the initial stage of the maintenance mode.

(10) MFC820CW/640CW

Press the **5** and **8** keys on the machine.

DCP340CW

Enter 5 and 8 by using the **▲** and **Set** keys on the machine.*

The "1.PF 2.EXIT" appears on the LCD.

(11) MFC820CW/640CW

To select the paper ejection roller adjustment, press the **2** key.

DCP340CW

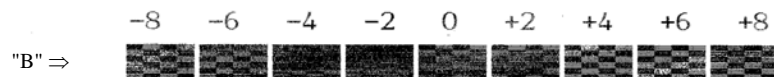
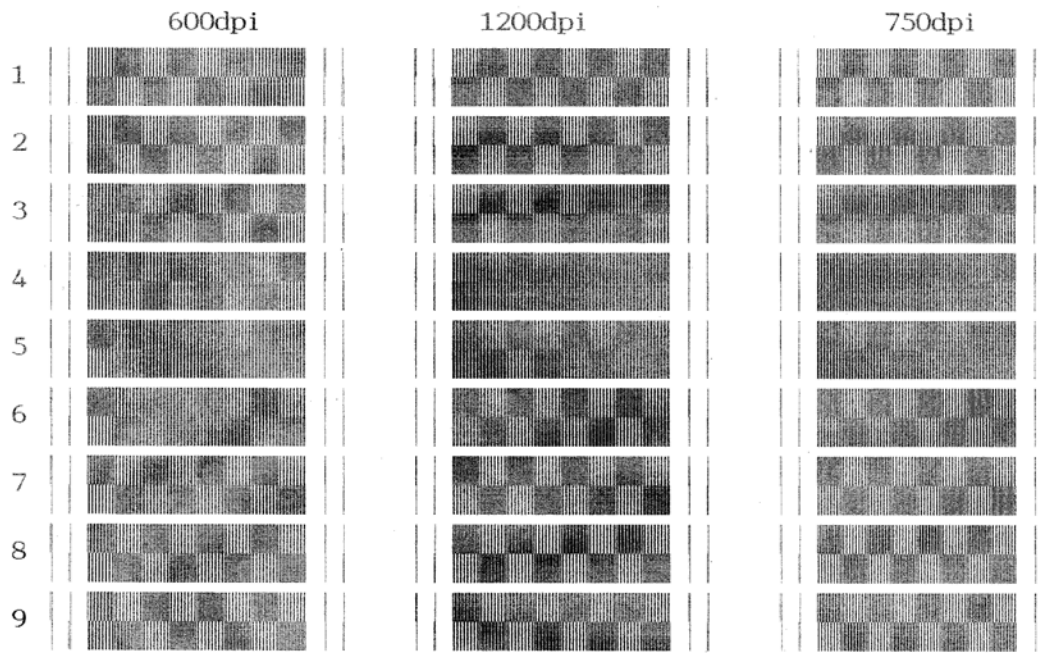
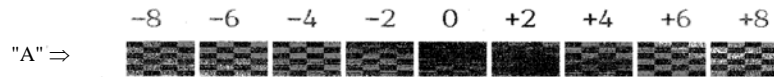
To select the paper ejection roller adjustment, enter 2 by using the **▲** and **Set** keys.*

The "EXIT ADJ NO. +0" appears on the LCD.

- (12) Check the PF adjust check patterns ("B" on [page 8-28](#)) and select the one that is the least uneven print. Make a note of that pattern number.
- (13) Enter the number of the least uneven check pattern found in step (11).

The machine automatically returns to the initial stage of the maintenance mode.

* BH3 PF adjust check - Ver 007c *



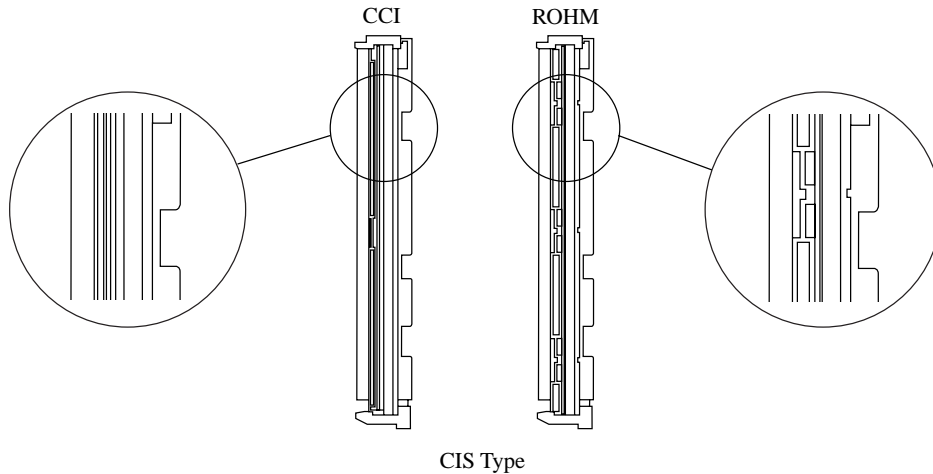
Paper Feeding Check Pattern for the Paper Feed Roller and Paper Ejection Roller

8.4.12 Specifying of CIS Type (Function code 59)

■ Function

This procedure allows you to visually check the type of the CIS unit integrated in the scanner cover (scanner unit) by traveling the CIS unit to the scanning end position and specify the CIS type (CCI or ROHM) for modifying the related parameter in the EEPROM.

If you replace the scanner cover or main PCB, you need to specify the CIS type according to the procedure given here.



■ Operating Procedure

-- Check the CIS type by traveling the CIS unit --

MFC820CW/640CW

(Key names enclosed in parentheses apply to the MFC820CW.)

- (1) Press the **5** and **9** keys in this order in the initial stage of the maintenance mode.
The "1:MO 2:CO 3:CHG" appears on the LCD.
- (2) Press the **1** key.
MFC640CW: The "0:30 1:60 2:12" appears on the LCD.
MFC820CW: The "1:WHT 2:FRT 3:MV" (CIS travel menu) appears on the LCD.
- (3) MFC640CW: Press the **Menu/Set** key three times. Accordingly, the "LED PWM," "G PULSE," and "1:WHT 2:FRT 3:MV" (CIS travel menu) appear on the LCD in this order.
- (4) Press the **3** and **Menu/Set (OK)** keys in this order to move the CIS unit to the scanning end position.
Pressing the **1** (or **2**) and **Menu/Set (OK)** keys moves the CIS unit to the white-level reference film position (or the scanning start position).
- (5) To exit the CIS travel operation, press the **Stop/Exit** key.
The machine returns to the initial stage of the maintenance mode.

DCP340CW

- (1) Enter 5 and 9 in the initial stage of the maintenance mode by using the **▲** and **Set** keys.*
(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The "1:MO 2:CO 3:CHG" appears on the LCD. This menu is for checking scanning clocks at the factory. Skip this menu and call up the CIS travel menu by performing steps (2) through (4).

- (2) Enter 1 by using the **▲** and **Set** keys.*

The "LED PWM: " appears.

- (3) Press the **Set** key.

The "G PULSE: " appears.

- (4) Press the **Set** key.

The "1:WHT 2:FRT 3:MV" appears on the LCD.

NOTE: Entering 1 may call up the debug screen to be used at the factory. Display the "1:WHT 2:FRT 3:MV."

- (5) Enter 3 using the **▲** and **Set** keys.*

Press the **Set** key to move the CIS unit to the scanning end position.

Entering 1 or 2 moves the CIS unit to the white-level reference film position or the scanning start position, respectively.

- (6) To stop the CIS unit, press the **Stop/Exit** key.

The machine returns to the initial stage of the maintenance mode.

-- Specify the CIS type --

MFC820CW/640CW

- (1) Press the **5** and **9** keys in this order in the initial stage of the maintenance mode.

The "1:MO 2:CO 3:CHG" appears on the LCD.

- (2) Press the **3** key.

The "0:C 1:RS 2:Q" appears on the LCD.

- (3) If the CIS unit is CCI type, press the **0** key; if it is ROHM type, press the **1** key.

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

DCP340CW

- (1) Enter 5 and 9 in the initial stage of the maintenance mode by using the **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The "1:MO 2:CO 3:CHG" appears on the LCD.

- (2) Enter 3 using the **▲** and **Set** keys.*

The "0:C 1:RS 2:Q" appears on the LCD.

- (3) If the CIS unit is CCI type, enter 0; if it is ROHM type, enter 1, using the **▲** and **Set** keys.

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

8.4.13 Travel Check of the Head/Carriage Unit and Initial Setup Mode (Function code 63)

■ Function

This procedure moves the head/carriage unit to the head replacement position (Function code 63 + *).

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

MFC820CW/640CW

- (1) Press the **6** and **3** keys in this order in the initial stage of the maintenance mode.

The "MAINTENANCE 63" will appear on the LCD.

- (2) To make the head/carriage unit travel to the head replacement position, press the * key.

After completion of head replacement or adjustment jobs, press the **Stop/Exit** key. The head/carriage unit returns to the home position where the head/carriage unit will be locked.

- (3) To enable or disable the initial setup mode when the power is applied at the next time, press the **1** or **3** key, respectively.

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 8.4.21 "Display of the Equipment's Log"](#)) to zero.

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.

DCP340CW

- (1) Enter 6 and 3 in the initial stage of the maintenance mode by using the **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The "MAINTENANCE 63" will appear on the LCD.

- (2) To make the head/carriage unit travel to the head replacement position, enter * by using the **▲** and **Set** keys.*

After completion of head replacement or adjustment jobs, press the **Stop/Exit** key. The head/carriage unit returns to the home position where the head/carriage unit will be locked.

- (3) To enable or disable the initial setup mode when the power is applied at the next time, enter 1 or 3 by using the **▲** and **Set** keys, respectively.

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 8.4.21 "Display of the Equipment's Log"](#)) to zero.

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.

8.4.14 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 with a new one, you need to make other adjustments in addition. Refer to [Chapter 6, Section 6.2](#).

■ Operating Procedure

(1) MFC820CW/640CW

Press the **6** and **5** keys in this order in the initial stage of the maintenance mode. Then press the **1** key.

DCP340CW

Enter 6, 5, and 1 in the initial stage of the maintenance mode by using the **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The machine displays the "MAINTENANCE 65" on the LCD and prints two sheets of check patterns as shown on [page 8-34](#).

-
On the 1st sheet, two sets of vertical alignment check patterns in monochrome are printed for 600 dpi and 1200 dpi, each of which consists of #1 through #8 blocks. If the vertical alignment is ON, #5 block (each in the 600 and 1200 dpi printouts) shows vertically aligned lines.

On the 2nd sheet, the vertical alignment check pattern is printed for 750 dpi.

-
The "600DPI NO. (1-8)" appears on the LCD.

(2) On the 1st sheet, check the printed vertical alignment check patterns for 600 dpi in monochrome and find which number block shows full alignment.

MFC820CW/640CW

If the block is other than #5, enter that block number by using the numerical keys.

DCP340CW

If the block is other than #5, enter that block number by using the **▲** and **Set** keys.*.

The "1200DPI NO.(1-8)" appears on the LCD.

(3) For 1200 dpi, perform the same operation as in step (2).

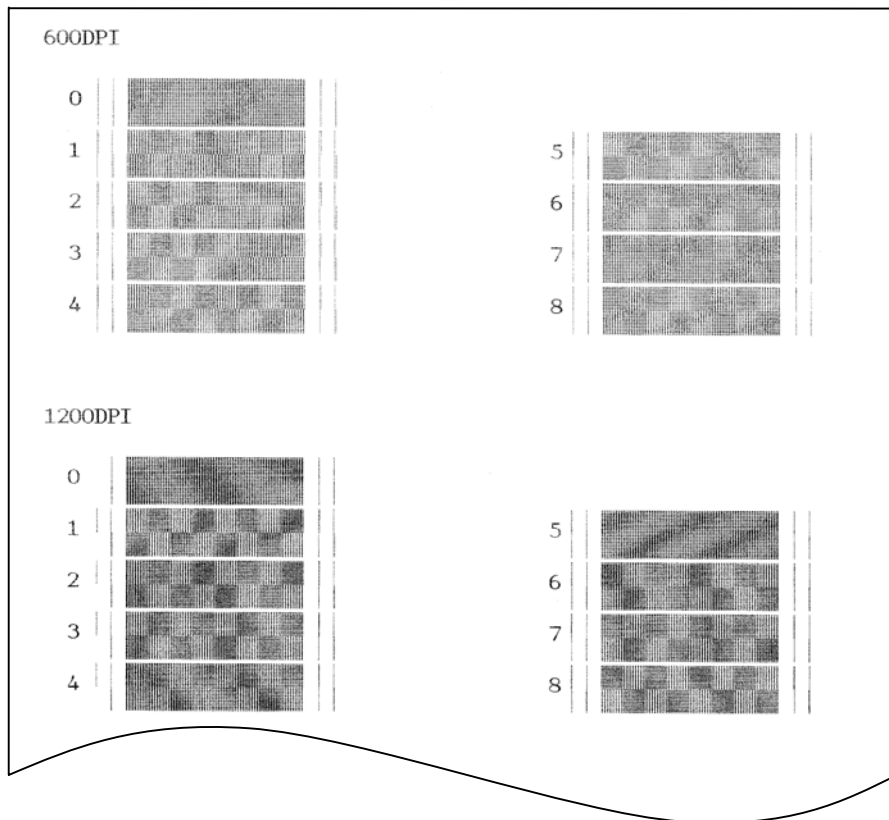
The "750DPI NO.(1-8)" appears on the LCD.

- (4) On the 2nd sheet, check the printed vertical alignment pattern for 750 dpi and perform the same operation as in step (2).

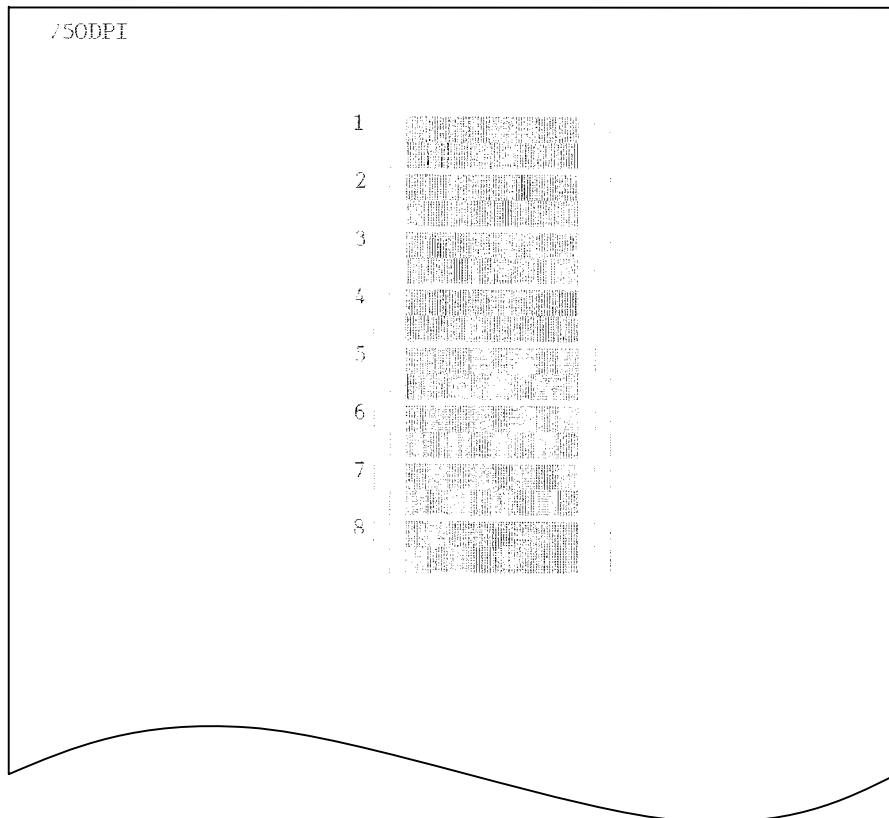
The machine automatically returns to the initial stage of the maintenance mode.

NOTE: If #1 or #8 block is fully aligned so that you press the **1** or **8** key (or you enter 1 or 8) in the above procedure, then go back to step (1) to confirm that #5 block becomes aligned.

1st sheet



2nd sheet



Vertical Alignment Check Patterns

8.4.15 Margin Adjustment in Near-edge Printing (Function code 66)

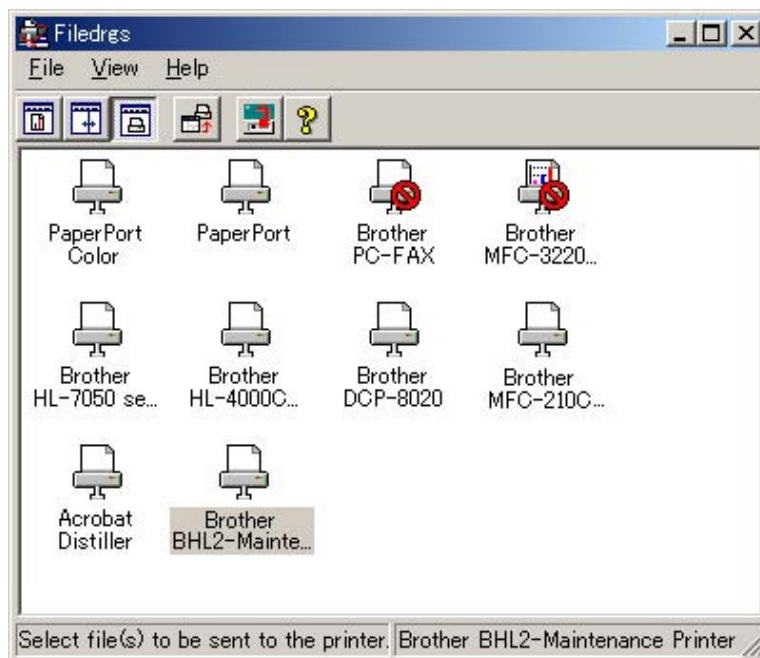
■ Function

This function allows you to adjust the left and right margins for near-edge printing. You print out a set of margin check patterns, measure the margins, and enter the correction values.

■ Operating Procedure

- (1) Switch on your PC.
- (2) Place the machine in the maintenance mode.
- (3) Connect the machine to your PC using the USB cable.
- (4) On the PC, run "FILEDG32.exe" in the folder created in [Section 6.1.1](#).

The Filedrgs window appears as shown below.



- (5) Drag and drop the "EDGE_CHECK.PRN" onto the BHL2-Maintenance Printer icon in the Filedrgs window shown above.

The machine displays the "RECEIVING DATA" on the LCD and prints out the margin check pattern (see [page 8-37](#) for a sample printout).

- (6) Measure the left and right margins on the printout.

(Example) Left: 1.0 mm, Right: 1.3 mm

If both margins are within the range from 0.9 to 1.1 mm, no adjustment is required.

(7) MFC820CW/640CW

If either margin is out of the specified range, press the **6** key twice on the machine.

DCP340CW

If either margin is out of the specified range, enter 6 twice by using the **▲** and **Set** keys on the machine.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The "MEDIA SENSOR ADJ" appears again.

(8) MFC820CW/640CW

To make the machine ready for data entry, press the * key.

DCP340CW

To make the machine ready for data entry, enter * by using the **▲** and **Set** keys.*

(9) Enter the measured value (in units of 0.1 mm) multiplied by 10.

(Example) Left: 10, Right: 13

MFC820CW/640CW

In this example, press **1, 0, Menu/Set (Menu), 1, 3,** and **Menu/Set (OK)** keys.

DCP340CW

In this example, enter 1, 0, 1, and 3 by using the **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

(10) Upon completion of the entry, the machine automatically returns to the initial stage of the maintenance mode.

Go back to step (5) and print out the margin check pattern again.

(11) Measure the left and right margins on the printout.

If both margins are within the range from 0.9 to 1.1 mm, the adjustment is completed.

TIP: To reset the newly entered values to defaults, press the **Black Start** or **Mono Start** key.

* BH3 MEDIA CHECK - Version 0.02 *

LEFT:0.9-1.1mm

RIGHT:0.9-1.1mm



Margin Check Pattern

8.4.16 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 label which is attached to the machine.

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 bottom of the machine 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) MFC820CW/640CW

Press the **6** and **8** keys in this order in the initial stage of the maintenance mode.

DCP340CW

Enter 6 and 8 in the initial stage of the maintenance mode by using the **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

(2) MFC820CW/640CW

Press the **2**, **5**, **8**, and **0** keys in this order.

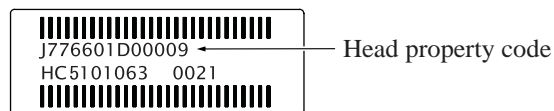
DCP340CW

Enter 2, 5, 8, and 0 by using the **▲** and **Set** 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 12 digits excluding the heading alphabet.



MFC820CW/640CW

To enter letters "A" through "F," press the **1** through **6** keys while holding down the **#** key, respectively.

DCP340CW

To enter letters "A" through "F," enter A through F by using the **▲** and **Set** keys.*

- (4) Press the **Menu/Set** key (**OK** key on MFC820CW, **Set** key on DCP340CW).

The machine beeps, 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, shows the "INPUT ERROR," and then returns to the ready-to-enter state. Go back to step (3).

8.4.17 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, carriage motor, or CR encoder strip or when you loosen the timing belt.

■ Operating Procedure

(1) MFC820CW/640CW

Press the **6** and **9** keys in this order in the initial stage of the maintenance mode.

DCP340CW

Enter 6 and 9 in the initial stage of the maintenance mode by using **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The machine starts aging the head/carriage unit, showing the "CR AGING" on the LCD.

In each of travel speeds 40, 33.3, 32.0 and 20, the machine checks whether the maximum and minimum speeds are within the specified range.

If both are within the range, the machine automatically returns to the initial stage of the maintenance mode.

If either one is out of the range, the machine beeps and shows some message, e.g., "40O 33X 32X 20O" on the LCD. This sample message indicates that the speed variation is within the allowable range when the head/carriage unit travels at 40 or 20 inches/sec.; however, it is out of the range at 33 or 32 inches/sec.

To return to the initial stage of the maintenance mode, press the **Stop/Exit** key.

8.4.18 EEPROM Customizing (Function code 74)

Customizing codes comes with the firmware data provided by Brother Industries.

■ 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) MFC820CW/640CW

Press the **7** and **4** keys in this order in the initial stage of the maintenance mode.

DCP340CW

Enter 7 and 4 in the initial stage of the maintenance mode by using **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The current customizing code (e.g., 0001 in the case of MFC820CW U.S.A. model) appears.

(2) Enter the desired customizing code (e.g., 0002 in the case of MFC820CW Canadian model).

MFC820CW/640CW

To enter letters "A" through "F," press the **1** through **6** keys while holding down the **#** key, respectively.

DCP340CW

To enter letters "A" through "F," enter A through F by using the **▲** and **Set** keys.*

The newly entered code appears.

NOTE: If a wrong 4-digit code is entered, the machine will malfunction.

(3) 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.

8.4.19 Travel of Head/Carriage Unit (for Recovery from Paper Jam Caused at Maintenance Unit) (Function code 75)

■ Function

This function is used for paper jam recovery. If a paper jam occurs at the maintenance unit, using this function moves the head/carriage unit to the center of its travel, allowing you to easily remove the jammed paper.

■ Operating Procedure

(1) MFC820CW/640CW

Press the **7** and **5** keys in this order in the initial stage of the maintenance mode.

DCP340CW

Enter 7 and 5 keys in the initial stage of the maintenance mode by using **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The head/carriage unit moves to the center of its travel and the "PLS OPEN COVER" appears on the LCD.

(3) Open the scanner cover.

The "PLS CLOSE COVER" appears on the LCD. Remove the paper jammed.

(4) Close the scanner cover.

The head/carriage unit moves back to the home position.

The machine returns to the initial stage of the maintenance mode.

8.4.20 Purging Operation (Function code 76)

■ Function

The machine can carry out several types of purging operations--normal purge, power purge, initial purge, reset purge, engine setup purge, cartridge replacement purge, ink drain purge, and initial liquid substitute 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) MFC820CW/640CW

Press the **7** and **6** keys in this order in the initial stage of the maintenance mode.

DCP340CW

Enter 7 and 6 in the initial stage of the maintenance mode by using **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

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

(2) MFC820CW/640CW

Press the **◀** or **▶** key to select all colors, black, magenta, cyan, or yellow. Any color choice performs all color purge.

DCP340CW

Enter **◀** or **▶** by using the **▲** and **Set** keys to select all colors, black, magenta, cyan, or yellow. Any color choice performs all color purge.

(3) Select the purge type according to the table on the next page.

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

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

Purge types, ink used, purge counts, and purge trigger keys

Purge Types	Description	Ink Used	Purge Counts (See Note 2.)	Keys to trigger the purge, to be followed by Black Start key (See Note 1 for the DCP340CW.)
Normal purge	This purge operation removes dried ink sticking to the head nozzles.	Black: 0.3 mL Color: 0.15 mL	Black: 15 Color: 22	1 key
Power purge	More powerful than a reset purge, this purge operation is for removing stubborn clogging from the head nozzles and ink supply tubes.	Black: 0.85 mL Color: 0.55 mL	Black: 43 Color: 86	3 key
Initial purge	Run automatically when the user powers up this machine for the first time, this purge operation refills the ink supply tubes and print head with fresh ink.	Black: 3.63 mL Color: 2.61 mL	Black: 187 Color: 420	4 key
Reset purge	This purge operation removes any bubbles that have accumulated in the ink supply tubes.	Black: 0.55 mL Color: 0.4 mL	Black: 28 Color: 63	5 key
Engine setup purge	This purge operation refills the ink supply tubes with ink when there is no ink in those tubes.	Black: 3.93 mL Color: 2.76 mL	Black: 202 Color: 443	6 key
Cartridge replacement purge	This purge operation must follow ink cartridge replacement.	Black: 0.3 mL Color: 0.15 mL	Black: 15 Color: 22	7 key
Ink drain purge (not used)	This purge operation drains all ink from the supply system, permitting repairs without the risk of scattering ink all over the surroundings.	--	--	
Initial liquid substitute purge (not used)	This purge operation substitutes ink in the ink supply tubes and print head with initial liquid.	--	--	--

(Note 1) To enter a numerical code on models having no numerical keypad, press the ▲ key several times to display the numerical code to be entered and then press the **Set** key. After that, press the **Mono Start** key.

(Note 2) This machine counts all purge operations and flushing operations performed since produced in order to prevent the ink absorber box and flushing case from overflowing with drained and flushed ink, respectively. An initial purge, for example, advances the counter by $187 + 420 = 607$. When the purge or flushing counter approaches 6400 or 403645833, respectively, the "MACHINE ERROR 46" appears, and further purge or flushing operations are prohibited. Replace the ink absorber box or flushing case, and then reset the purge or flushing counter with the following procedure.

■ Resetting purge or flushing counter

MFC820CW/640CW

- 1) Press the **Menu/Set (Menu)** and **Black Start** keys. Next press the **▲** key four times to enter the maintenance mode.

TIP: FAX models equipped with numerical keypads can enter the maintenance mode in the same way as conventional models; that is, by pressing the **Menu/Set**, *****, **2**, **8**, **6** and **4** keys in this sequence.

- 2) Press the **8** and **0** keys in this order in the initial stage of the maintenance mode to call up the machine's log information. (Function code 80. Refer to [Chapter 8, Section 8.4.21.](#))
- 3) Press the **Black 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 to zero.
- 5) Press the **Stop/Exit** key to return to the initial stage of the maintenance mode.
- 6) Press the **9** key twice to return to the standby state.

DCP340CW

- 1) Press the **Menu** and **Mono Start** keys. Next press the **▲** key four times to make the machine enter the maintenance mode.
- 2) Press the **▲** key several times to display 8 on the LCD and then press the **Set** key. Again press the **▲** key several times to display 0 and then press the **Set** key
- 3) Press the **Mono Start** key several times until the purge or flushing count appears on the LCD.
- 4) Reset the purge or flushing count to zero by using the **▲** and **Set** keys as follows:
Press the **▲** key several times to display 2 on the LCD and then press the **Set** key. In the same way, enter 7, 8 and 3.
- 5) Exit from the maintenance mode by using the **▲** and **Set** keys as follows:
Press the **▲** key several times to display 9 on the LCD and then press the **Set** key. Again press the **▲** key several times to display 9 and press the **Set** key.

8.4.21 Display of the Equipment's Log (Function code 80)

■ 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) MFC820CW/640CW

Press the **8** and **0** keys in this order in the initial stage of the maintenance mode.

The calendar clock appears on the LCD.

(2) Press the **Black Start** key. Each time the key is pressed, one of the following log information items appears on the LCD in the order given below.

10th) Head property code

14th) Ink drop count, indicating how many droplets have been jetted out from each of the ink cartridges*¹

15th) Ink drop count after near-empty, indicating how many droplets have been jetted out from each of the ink cartridges*¹ after the ink cartridge sensor detects near-empty.

16th) Total ink drop count, indicating how many droplets the machine has been jetted out from each of the ink cartridges*¹ since produced

17th) Ink cartridge change count, indicating how many times ink cartridge replacement has been made for each color*¹

18th) Jam count, indicating how many times a paper jam has occurred

19th) Total page count, indicating how many pages have been printed since the machine was produced

20th) PC print page count, indicating how many pages the machine has been printed as an output device of the connected PC

21st) Color copy page count, indicating how many copies in color have been made

22nd) Black copy page count, indicating how many copies in monochrome have been made

23rd) Media card print page count, indicating how many pages have been printed from the media card data

24th) FAX page count, indicating how many received FAX pages have been printed

25th) Purge count, indicating how many times the purge operation has been carried out

With the purge count displayed, pressing the **2**, **7**, **8** and **3** keys in this order resets the purge count to zero.

26th) Purging record for each purge type

27th) Wiper count, indicating how many times the wiper operation has been carried out

28th) Flushing count, indicating how many times the flushing operation has been carried out

29th) Total power-ON time

30th) Error code of the most recent machine error*²

31st) Flat-bed page count, indicating how many documents have been scanned

32nd) Error code of the most recent communications error*³

33rd) ADF page count, indicating how many pages the ADF has been fed

34th) ADF paper jam count, indicating how many times a paper jam has occurred

If you press the **Black Start** key, the screen goes back to the calendar clock in step (1) above.

- (3) To stop this operation and return to the machine to the initial stage of the maintenance mode, press the **Stop/Exit** key.
- *¹ To check each of the four ink cartridges, press the **Menu/Set (OK)** key. Pressing the key cycles through black, yellow, cyan, and magenta.
- *² When a machine error code is displayed, pressing the **Menu/Set (OK)** key cycles through recent nine errors that have occurred.
- *³ When a communications error code is displayed, pressing the **Menu/Set (OK)** key cycles through the latest error, 2nd latest error, and 3rd latest error.

DCP340CW

- (1) Enter 8 and 0 in the initial stage of the maintenance mode by using the **▲** and **Set** keys.*
(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

The calendar clock appears on the LCD.

- (2) Press the **Mono Start** key. Each time the key is pressed, one of the following log information items appears on the LCD in the order given below.
 - 10th) Head property code
 - 14th) Ink drop count, indicating how many droplets have been jetted out from each of the ink cartridges*¹
 - 15th) Ink drop count after near-empty, indicating how many droplets have been jetted out from each of the ink cartridges*¹ after the ink cartridge sensor detects near-empty.
 - 16th) Total ink drop count, indicating how many droplets the machine has been jetted out from each of the ink cartridges*¹ since produced
 - 17th) Ink cartridge change count, indicating how many times ink cartridge replacement has been made for each color*¹
 - 18th) Jam count, indicating how many times a paper jam has occurred
 - 19th) Total page count, indicating how many pages have been printed since the machine was produced
 - 20th) PC print page count, indicating how many pages the machine has been printed as an output device of the connected PC
 - 21st) Color copy page count, indicating how many copies in color have been made
 - 22nd) Black copy page count, indicating how many copies in monochrome have been made
 - 23rd) Media card print page count, indicating how many pages have been printed from the media card data
 - 24th) Purge count, indicating how many times the purge operation has been carried out
With the purge count displayed, entering 2, 7, 8, and 3 by using the **▲** and **Set** keys resets the purge count to zero.
 - 25th) Purging record for each purge type
 - 26th) Wiper count, indicating how many times the wiper operation has been carried out
 - 27th) Flushing count, indicating how many times the flushing operation has been carried out

28th) Total power-ON time

29th) Error code of the most recent machine error*²

30th) Flat-bed page count, indicating how many documents have been scanned

31st) Error code of the most recent communications error*³

32nd) ADF page count, indicating how many pages the ADF has been fed

33rd) ADF paper jam count, indicating how many times a paper jam has occurred

If you press the **Mono Start** key, the screen goes back to the calendar clock in step (1) above.

- (3) To stop this operation and return to the machine to the initial stage of the maintenance mode, press the **Stop/Exit** key.

*¹ To check each of the four ink cartridges, press the **Set** key. Pressing the key cycles through black, yellow, cyan, and magenta.

*² When a machine error code is displayed, pressing the **Set** key cycles through recent nine errors that have occurred.

*³ When a communications error code is displayed, pressing the **Set** key cycles through the latest error, 2nd latest error, and 3rd latest error.

8.4.22 Equipment Error Code Indication (Function code 82)

■ Function

This function displays an error code of the last error on the LCD.

■ Operating Procedure

(1) MFC820CW/640CW

Press the **8** and **2** keys in this order in the initial stage of the maintenance mode.

DCP340CW

Enter 8 and 2 in the initial stage of the maintenance mode by using the **▲** and **Set** keys.*

(*To enter a numerical code on models having no numerical keypad, press the **▲** key several times to display the numerical code to be entered and then press the **Set** key. Repeat this operation for each numerical code.)

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.

8.4.23 Output of Transmission Log to the Telephone Line (Function code 87) (Not applicable to DCP340CW)

■ 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.

■ Operating Procedure

(Key names enclosed in parentheses apply to the MFC820CW.)

- (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/Set (Menu)**, **Redial/Pause**, 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** key of your machine.

Your machine will start to receive the transmission log from the user's machine.

8.4.24 Cancellation of the Pin TX Lock Mode (Not applicable to U.S.A. models or DCP340CW)

■ 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.

■ Operating Procedure

(Key names enclosed in parentheses apply to the MFC820CW.)

- (1) When the PIN TX LOCK is displayed on the LCD, press the **Menu/Set (Menu)** 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.

CHAPTER 9

ERROR INDICATION AND TROUBLESHOOTING

CHAPTER 9 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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9.1 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 and communications errors.

For the communications errors, the machine also prints out the transmission verification report and the communications list.

9.1.1 Equipment Errors

If an equipment error occurs, the machine emits an audible alarm (continuous beeping) for approximately 4 seconds and shows the error message on the LCD. For the error messages, see [1] below.

To display detailed error information, use maintenance-mode function code 82 described in [Chapter 8, Section 8.4.22](#) (that is, make the machine enter the maintenance mode and then press the **8** and **2** keys). Following the MACHINE ERROR, one of the error codes listed in [2] will appear on the LCD.

[1] Error messages appearing on the LCD

MFC640CW/DCP340CW

Messages on the LCD	Probable Cause
Comm.Error	Poor phone line quality caused a communication error. (This message does not appear on the DCP340CW.)
Connection Fail	You tried to poll a machine that is not in Polled Waiting mode. (This message does not appear on the DCP340CW.)
Cover is Open	The scanner cover is not closed completely.
Data Remaining	Print data remains in the machine's memory. Print data remains in the machine's memory. The USB cable was unplugged while the computer was sending the data to the machine.
Disconnected	The other person or other person's machine stopped the call. (This message does not appear on the DCP340CW.)
Document Jam	The document fed from ADF was longer than the specified length. The document is jammed in the machine.
DR Mode in Use	The machine is set to Distinctive Ring mode. You cannot change the Receive Mode from Manual to another mode. (This message does not appear on the DCP340CW.)

Messages on the LCD	Probable Cause
High Temperature	The temperature inside the machine is high.
Ink Empty	One or more of the ink cartridges is empty. The machine will stop all print operations. While memory is available, black and white faxes will be received into memory. If a sending machine has a color fax, the machine's 'handshake' will request that the fax be sent as black and white. If the sending machine has the ability to convert it, the color fax will be received into memory as a black and white fax.
Low Temperature	The temperature inside the machine is low.
Media Error	The media card is either bad formatted or it contains data damaged.
Near Empty	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 request that the fax be sent as black and white. If the sending machine has the ability to convert it, the color fax will be received into memory as a black and white fax.
No Cartridge	This message appears when the power is first turned on by the user after purchase. After that, it no longer appears.
No File	The media card in the media drive does not contain a .JPG file.
No Paper Fed	The machine is out of paper. The paper is jammed in the machine.
No Response/Busy	The number you dialed does not answer or is busy.
Not Registered	You tried to access a Speed Dial number that is not programmed. (This message does not appear on the DCP340CW.)
Out of Memory	The amount of memory is insufficient to store data.
Paper Jam	The paper is jammed in the machine.
Unable to Change Unable to Clean Unable to Init. Unable to Print Unable to Scan	The machine has a mechanical problem. OR A foreign obstacle, such as a clip or ripped paper, is in the machine.
Wrong Paper Size	At the start of FAX reception, the paper size is set to less than A4 size on the function menu. This message prompts the user to set correct paper size for preventing FAX image loss. (This message does not appear on the DCP340CW.)

MFC820CW

Messages on the LCD	Probable Cause
BT Call Sign On (For UK only)	BT Call Sign is set to ON. You cannot change the Receive Mode from Manual to another mode.
Comm.Error	Poor phone line quality caused a communication error.
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 closed completely.
Data Remaining	Print data is left in the machine's memory. (Re-start printing from your computer.)
	Print data is left in the machine's memory. The USB cable was unplugged while the computer was sending the data to the machine. (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.
Document Jam	The document was not inserted or fed properly, or the document scanned from the ADF was too long.
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.
Ink Empty	One or more of the ink cartridges is empty. The machine will stop all print operations. While memory is available, black and 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 and white. If the sending machine has the ability to convert it, the color fax will be stored in the memory as a black and white fax.
Low Temperature	The print head is too cold.

Messages on the LCD	Probable Cause
Media Error	The media card is either corrupted, improperly formatted, or there is a problem with the media card.
Near Empty	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 and white. If the sending machine has the ability to convert it, the color fax will be received into memory as a black and white fax.
No Cartridge	An ink cartridge is not installed properly.
No File	The media card in the media drive does not contain a .JPG file.
No Paper Fed	The machine is out of paper or paper is not properly loaded in the paper tray.
	The paper is jammed in the machine.
No Response/Busy	The number you dialed does not answer or is busy.
Not Registered	You tried to access a Speed Dial number that is not programmed.
Out of Memory	The machine's memory is full.
Paper Jam	Paper is jammed in the machine.
Wrong Paper Size	Paper is not the correct size.
Unable to Change Unable to Clean Unable to Init. Unable to Print Unable to Scan	The machine has a mechanical problem.

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

If the LCD shows the "UNABLE TO PRINT" message, you can display the detailed error code following the MACHINE ERROR by using maintenance-mode function code 82 described in [Chapter 8, Section 8.4.22](#).

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

NOTE: To check sensors, use maintenance-mode function code 32 described in [Chapter 8, Section 8.4.7](#) (that is, press the **3** and **2** keys in the maintenance mode).

Error Code (Hex)	Symptom	Probable Cause	Solution
25	Not used.		
26 27 28 29	Cannot detect ink cartridges.	The ink has run out or the ink cartridge is not set into place. 26: Black ink 27: Yellow ink 28: Cyan ink 29: Magenta ink	Reload ink cartridges, referring to the Owner's Manual.
		Ink cartridge PCB defective	Replace the ink refill ASSY.
		Main PCB defective	Replace the main PCB.
2A-2F	Not used.		
3*	Head/carriage unit travel error	Any obstacles on the travel path of the head/carriage unit	Clean the CR guide rail and CR support chassis.
		Carriage PCB broken	Replace the carriage PCB.
		Head/carriage unit broken	Replace the head/carriage unit.
		CR encoder strip stained or scratched	Replace the CR encoder strip.
		Carriage motor broken	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.

Error Code (Hex)	Symptom	Probable Cause	Solution
40-41	Not used.		
42	The head drive voltage has not dropped from the high to low level within the specified period.	Piezoelectric (PZT) ceramic actuator defective	Replace the head/carriage unit.
			Replace the power supply PCB.
			Replace the main PCB.
43	The head thermistor has been opened or shorted abnormally.	Head flat cables broken	Replace the head flat cables.
		Head flat cables and carriage-head flat cable not connected correctly	Correct those flat cables.
		Carriage PCB defective	Replace the carriage PCB.
		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 COF detect abnormally high temperature.	Head property parameters incorrect in the EEPROM	Enter the correct parameter values.
		Head/carriage unit broken	Replace the head/carriage unit.
		Head flat cables and carriage-head flat cable not connected correctly	Correct those flat cables.
		Head flat cables broken	Replace the carriage PCB.
		Carriage-head flat cable broken	Replace the head/carriage unit.
		Main PCB defective	Replace the main PCB.
45	Not used.		
46	The number of performed purge sequences has reached the limit.	Purge counter overflown	Replace the ink absorber box and reset the purge counter to zero.
	The number of flushing operations has reached the limit.	Flushing counter overflown	Replace the flushing case and reset the flushing counter to zero.
47	Not used.		

Error Code (Hex)	Symptom	Probable Cause	Solution
48	Weak connection of the head flat cables.	Head flat cables or carriage-head flat cable broken or not connected	Replace those cables or correct their connection.
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.
		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.	Piezoelectric (PZT) ceramic actuator defective (Cracks or rare short)	Replace the head/carriage unit.
			Replace the power supply PCB.
			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.	Switching arm assembly not engaged correctly	If the switching arm does not move smoothly, clean it.
		Ink cartridge/purge switch harness not connected correctly	Correct the connection.
		Purge cam switch broken	Replace the purge cam switch.
		Gear(s) on the maintenance unit broken	Replace the maintenance unit.
		Paper feed motor broken	Replace the paper feed motor.
		Main PCB defective.	Replace the main PCB.
52	The purge cam switch does not come ON at each detection point.	Switching arm assembly not engaged correctly	If the switching arm does not move smoothly, clean it.
		Gear(s) on the maintenance unit broken Abnormal load applied to the purge cam	Replace the maintenance unit.
		Paper feed motor broken	Replace the paper feed motor.
		Main PCB defective	Replace the main PCB.

Error Code (Hex)	Symptom	Probable Cause	Solution
53-56	Not used.		
57	After a purging operation, the head/carriage unit will 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.
		CR encoder strip stained	Clean 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 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.
58, 59	Not used.		
5A	The purge cam stops abnormally when it is in operation.	Purge cam gear broken Abnormal load applied to the purge cam	Replace the maintenance unit.
5B	The pump stops abnormally during air ventilation.	PF encoder disk being in contact with the upper cover and deformed PF roller gear L broken	Replace the PF encoder disk. Replace the engine unit.
5C	The pump stops abnormally during purging operation.	Switching arm assembly broken Foreign materials in the machine Clutch gear broken PF sensor PCB defective Main PCB defective Power supply PCB defective Paper feed motor defective	Replace the maintenance unit. Remove foreign materials. Replace the clutch gear. Replace the PF sensor PCB. Replace the main PCB. Replace the power supply PCB. Replace the paper feed motor.

Error Code (Hex)	Symptom	Probable Cause	Solution
5D-5F	Not used.		
60 61 62	Paper width sensor (media sensor) error.	Paper width sensor broken	Clean the platen. Replace the carriage PCB ASSY.
		Head flat cables or carriage-head flat cable broken	Replace the carriage PCB ASSY.
		Main PCB defective	Replace the main PCB.
63-7C	Not used.		
7D	Any of the ink dot counters has counted up to the specified number of dots, meaning the end of the head service life. (Not used.)	The service life of the head/carriage unit has been expired.	Replace the head/carriage unit.
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	Print engine error. (Not used.)		
80	At the start of FAX message printing, the controller 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.
		Platen stained	Clean the platen.
		Paper width sensor broken	Replace the carriage PCB ASSY.
		Paper width sensor not adjusted	Adjust the margin for near-edge printing with Function code 66 in the maintenance mode.
		Main PCB defective	Replace the main PCB.

Error Code (Hex)	Symptom	Probable Cause	Solution
81	Recording paper jam. (The paper width sensor keeps detecting paper even after completion of paper ejection.)	Foreign materials in the paper path	Remove foreign materials.
		The paper ejection roller does not rotate correctly	Replace the paper ejection roller. (Engine unit)
		Paper width sensor broken	Replace the carriage PCB ASSY.
		Main PCB defective	Replace the main PCB.
82	Recording paper jam in paper pull-in operation. (The paper width sensor fails to detect the leading edge of paper.)	Foreign materials in the paper path.	Remove foreign materials.
		Paper not loaded correctly in the paper tray	Reload 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.
83	Recording paper jam. (The registration sensor detects paper abnormally early in paper feeding operation.)	Paper is not correctly set in the paper tray	Reload paper.
		Separation pad damaged	Replace the paper tray.
		Registration sensor actuator unhooked	Set the registration sensor actuator into place.
		Main PCB defective	Replace the main PCB.
		PF encoder sensor defective	Replace the PF sensor PCB.

Error Code (Hex)	Symptom	Probable Cause	Solution
84	Recording paper jam. (The registration sensor stays ON after completion of paper ejection operation.)	The paper ejection roller does not rotate correctly	Replace the paper ejection roller. (Engine unit)
		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 broken	Replace the PF sensor PCB.
		Main PCB defective	Replace the main PCB.
85, 86	Not used.		
87	The paper feed motor has not stopped at the correct position. (Not used.)	Abnormal load applied to the paper feed roller	Check the PF roller gear and its related gears.
		PF encoder disk stained or scratched	Replace the PF encoder disk.
		PF encoder sensor defective	Replace the PF sensor PCB.
		Paper feed motor broken	Replace the paper feed motor.
		Main PCB defective	Replace the main PCB.

Error Code (Hex)	Symptom	Probable Cause	Solution
88	Recording paper jam. (Even after paper pulling-in operation, the registration sensor is still OFF.)	Recording paper not loaded correctly	Instruct the user to load the recording paper correctly.
		Objects, such as bits of paper or chips, are in the paper tray	Remove the objects from the paper tray.
		Registration sensor broken	Replace the registration sensor.
		Separation pad damaged	Replace the paper tray.
		Paper pull-in roller holder defective	Replace the paper pull-in roller holder.
		Purge lever at the right end of the paper feed roller shaft not slid smoothly	Clean the purge lever.
		Any one of the gears at the both side of the paper feed roller shaft are damaged	Replace the paper feed roller ASSY with a normal part.
		Paper feed motor broken	Replace the paper feed motor ASSY.
	Main PCB defective.	Replace the main PCB.	
89	Not used.		

Error Code (Hex)	Symptom	Probable Cause	Solution
8A	The paper feed motor does not rotate.	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 sensor PCB.
		Paper feed motor defective	Replace the paper feed motor.
		Main PCB defective	Replace the main PCB.
8B	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 sensor PCB.
		Paper feed motor defective	Replace the paper feed motor.
		Main PCB defective	Replace the main PCB.
8C	Not used.		
8D	The paper feed motor rotates in the reverse direction.	PF encoder disk stained or scratched	Replace the PF encoder disk.
		PF encoder disk dislocated	Replace the PF encoder disk.
		PF encoder sensor defective	Replace the PF sensor PCB.
		Abnormal load applied to the paper feed roller	Check the PF roller gear and its related gears.
		Paper feed motor broken	Replace the paper feed motor.
		Main PCB defective	Replace the main PCB.

Error Code (Hex)	Symptom	Probable Cause	Solution
8E	Max. speed error in the paper feed motor. (Not used.)	Abnormal load applied to the paper feed roller	Check the PF roller gear and its related gears.
		PF encoder disk stained or scratched	Replace the PF encoder disk.
		PF encoder sensor defective	Replace the PF sensor PCB.
		Paper feed motor broken	Replace the paper feed motor.
		Main PCB defective	Replace the main PCB.
8F-A0	Not used.		
A1	Scanner cover (scanner unit) opened.	Scanner open sensor broken	Replace the rubber keypad.
		Scanner open sensor actuator unhooked	Set the scanner open sensor actuator into place.
		Control panel PCB defective	Replace the control panel PCB.
A2	Document length exceeding the scan limitation.	Document jam	Remove the jammed document.
	During scanning, 90 cm or longer of a document is detected.	Document rear sensor actuator caught on the surrounding parts	Correct the surrounding parts on which the actuator caught.
	During document feeding or ejecting, 400 cm or longer of a document is detected.	Document rear sensor broken	Replace the document rear sensor.
A3	The document rear sensor does not come ON during document pull-in operation.	Document jam	Remove the jammed document.
		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.

Error Code (Hex)	Symptom	Probable Cause	Solution
A4	50% or more faulty of white level data. (Not used.)	CIS flat cable not connected properly	Correct the connection.
		CIS defective	Replace the scanner cover (scanner unit).
		Main PCB defective	Replace the main PCB.
A5	FAX scanning failure (1st time)	CIS defective White-level reference film stained in the scanner cover	Replace the scanner cover (scanner unit).
A6	FAX scanning failure (retry)		
A7	Mismatch between the CIS type and EEPROM data	Scanner cover containing the improper CIS type mounted at repair	Check the CIS type and write it to the EEPROM by using maintenance-mode function code 59. (Refer to Chapter 8, Section 8.4.12.)
		Main PCB defective	
A8-AB	Not used.		
AC	Less than 50% faulty of white level data. (Not used.)	CIS defective	Replace the scanner cover (scanner unit).
		Main PCB defective	Replace the main PCB.
AD-AE	Not used.		
AF	CIS positioning error.	CIS flat cable broken or not connected	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).
		Drive unit defective	Replace the scanner cover (scanner unit).
		CIS defective	Replace the scanner cover (scanner unit).
		Main PCB defective	Replace the main PCB.

Error Code (Hex)	Symptom	Probable Cause	Solution
B0	Not used.		
B1	Dark level offset data level error for scanning. (Not used.)	CIS defective	Replace the scanner cover (scanner unit).
		Main PCB defective	Replace the main PCB.
B2	Gain control data level error for scanning. (Not used.)	CIS defective	Replace the scanner cover (scanner unit).
		Main PCB defective	Replace the main PCB.
B3	Scan area left edge detection error. (Not used.)	CIS defective	Replace the scanner cover (scanner unit).
		White film stained in the scanner unit.	Replace the scanner cover (scanner unit).
B4	Scan area right edge detection error. (Not used.)	CIS defective	Replace the scanner cover (scanner unit).
		White film stained in the scanner unit.	Replace the scanner cover (scanner unit).
B5	Horizontal scanning edge reduction detection error in scanning area setting (Not used.)	—	—
B6	Horizontal scanning edge enlargement detection error in scanning area setting (Not used.)	—	—
B7	A/D converter reference voltage error (at High level). (Not used.)	Main PCB defective	Replace the main PCB.
B8	A/D converter reference voltage error (at Low level). (Not used.)	Main PCB defective	Replace the main PCB.
B9	Light emission 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.

Error Code (Hex)	Symptom	Probable Cause	Solution
BA	Not used.		
BB	White level data error.	CIS defective	Replace the scanner cover (scanner unit).
		Main PCB defective	Replace the main PCB.
BC	Not used.		
BD	Black level data error.	CIS defective	Replace the scanner cover (scanner unit).
		Main PCB defective	Replace the main PCB.
BE	Scan starting edge detection error.	CIS defective	Replace the scanner cover (scanner unit).
		CIS flat cable broken or not connected	Correct the cable connection. Replace the scanner cover (scanner unit).
		Main PCB defective	Replace the main PCB.
		White film stained in the scanner unit.	Replace the scanner cover (scanner unit).
BF-CF	Not used.		
D*	Modem error.	Main PCB defective	Replace the main PCB.
E0-E3	Not used.		
E4	Out of recording paper. (Not used.)	The paper tray cannot feed paper	Replace the paper tray.
		Registration sensor actuator unhooked	Set the registration sensor actuator into place.
		Main PCB defective	Replace the main PCB.
		Clutch gear not switched between the idle gear L and purge gear	Check the engagement of the clutch gear and clean it.
E5	Not used.		
E6	Write error in EEPROM.	Main PCB defective	Replace the main PCB.

Error Code (Hex)	Symptom	Probable Cause	Solution
E7	Not used.		
E8	Data scanning error during transmission.	CIS defective	Replace the scanner cover (scanner unit).
		Main PCB defective	Replace the main PCB.
E9	Not used.		
EA	Document removed at phase B.*	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.
		Main PCB defective	Replace the main PCB.
EB-ED	Not used.		
EE	Playback IC error.	Main PCB defective	Replace the main PCB.
EF-F2	Not used.		
F3, F5	Internal software error.	Main PCB defective	Replace the main PCB.
F4	Not used.		
F6	PC interface error.	Main PCB defective	Replace the main PCB.
F7	Not used.		
F8	Battery harness connection failure (Available in the maintenance mode only)	Battery harness not inserted correctly.	Correct the connection.
F9-FE	Not used.		
FF	Memory management error.	Main PCB defective	Replace the main PCB.

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

9.1.2 Communications Errors

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 ms 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.

(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</u> <u>X</u>	Equipment error (For <u>X</u> <u>X</u> , refer to Section 9.1.1 [2] .)

9.2 TROUBLESHOOTING

9.2.1 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.

9.2.2 Precautions

Be sure to observe the following to prevent the secondary troubles from happening:

- (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)
 - Before handling the PCBs, touch a metal portion of the machine to discharge static electricity charged in your body.
 - When repairing the PCBs, handle them with extra care.

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.

9.2.3 Checking prior to Troubleshooting

Prior to proceeding to the troubleshooting procedures given in [Section 9.2.4](#), 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.
- (4) None of the fuses are blown.

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) Check that the carriage-head flat cable is connected to the carriage PCB.
- (2) Repeat the head purging operation several times.
- (3) Clean the print surface of the head/carriage unit. (Refer to the User's Guide.)

9.2.4 Troubleshooting based on problem type

[1] Control panel problems

Problem	Check:
(1) LCD shows nothing.	<ul style="list-style-type: none"> • Panel-main harness (MFC640CW/DCP340CW) • LCD flat cable or color LCD (MFC820CW) • Control panel PCB (MFC640CW/DCP340CW) • Power supply PCB • Main PCB
(2) Control panel inoperative.	<ul style="list-style-type: none"> • Panel-main harness (MFC640CW/DCP340CW) • Panel-center panel harness or center panel-main harness (MFC820CW) • Control panel PCB • Center panel PCB (MFC820CW) • Rubber keypad • Main PCB
(3) Center panel inoperative. (MFC820CW)	<ul style="list-style-type: none"> • Panel-center panel harness or center panel-main harness (MFC820CW) • Center panel PCB • Main PCB

[2] Telephone problems

Problem	Check:
(1) No phone call can be made.	<ul style="list-style-type: none"> • Rubber keypad • Control panel PCB • Main PCB • MJ PCB
(2) Speed dialing will not work.	<ul style="list-style-type: none"> • Ordinary dialing function (other than the speed and one-touch dialing) <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) Telephone does not ring.	<ul style="list-style-type: none"> • Speaker • Main PCB • MJ PCB

[3] Communications problems

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

[4] Paper/document feeding problems

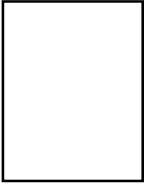
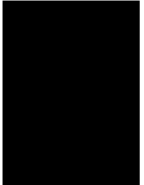

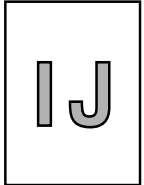
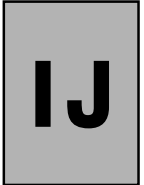
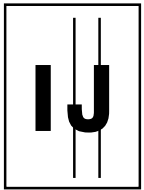
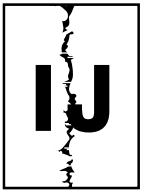
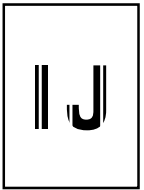
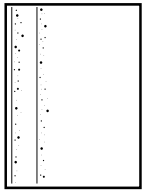
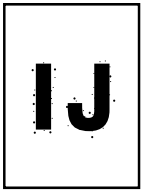
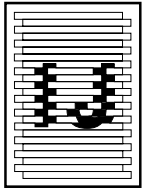

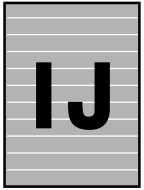
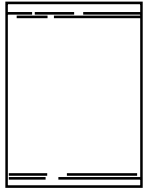
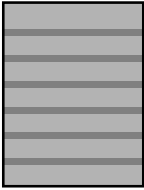
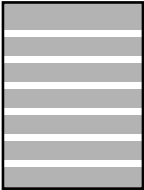
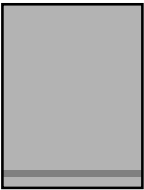
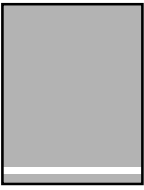
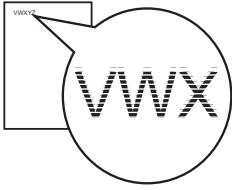
Problem	Check:
(1) The "Enter Fax No." message does not appear although documents are set.	<ul style="list-style-type: none">• Sensors by using maintenance-mode function code 32. (Refer to Chapter 8, Section 8.4.7.)• Document front sensor actuator• Main PCB
(2) Document not fed.	<ul style="list-style-type: none">• ADF and its related sections• ADF motor and its harness• Document feed rollers and their related gears• Main PCB
(3) Document double feeding	<ul style="list-style-type: none">• ADF parts
(4) Document jam	<ul style="list-style-type: none">• ADF motor• Document rear sensor actuator• Main PCB
(5) Recording paper not fed.	<ul style="list-style-type: none">• PF-related gears• Main PCB• Paper feed motor• Paper tray
(6) Recording paper jam	<ul style="list-style-type: none">• Paper feeding mechanism• Check that the carriage-head flat cable is connected to the carriage PCB.

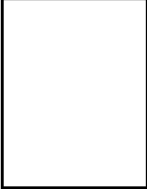
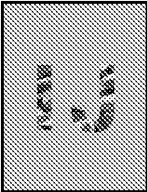
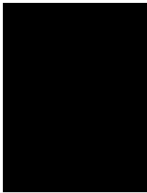
[5] **Print-image problems**

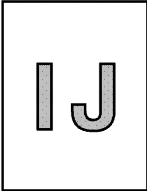
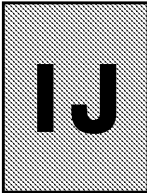
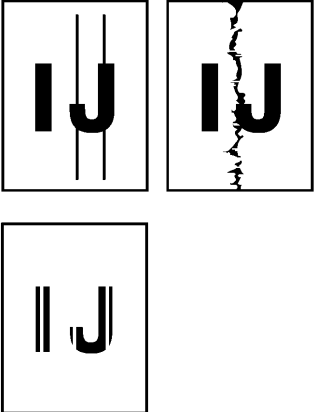
If there is any problem with any image received or sent, first make a copy of it using the machine.

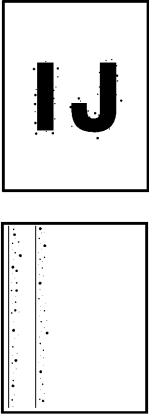
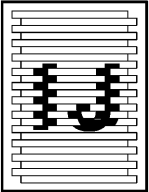

If the copied image is normal, the cause of the problem may be the remote terminal; if it is abnormal, proceed with the following checks:

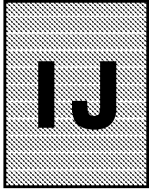
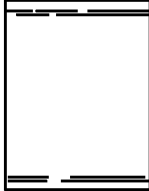
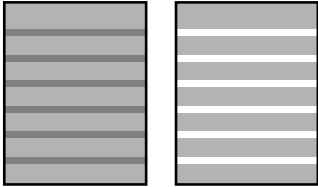
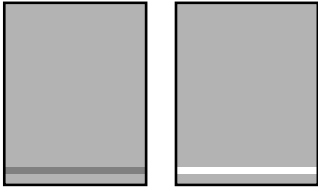
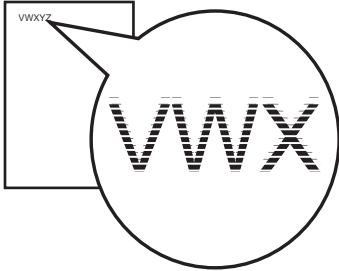
Examples of Defective Images

Completely blank	All black	Random color	Light	Dark
				
Straight vertical stripes	Blurred vertical stripes	White vertical streaks	Ink splash	Ink splash
				
Print edges not aligned	Random missing dots	White horizontal streaks	Stained leading edge of recording paper	Overlapping lines over the whole page
				
Separated lines over the whole page	Overlapping lines at the trailing edge of the recording paper	Separated lines at the trailing edge of the recording paper	Ghost	
				

Problem	Action to be taken
<p>(1) Completely blank</p> 	<p><u>At the scanner</u></p> <p>Check that the document is placed facing in the correct direction. In ADF scanning (available only in models with ADF units), is the document placed <i>face down</i> in the document tray? In flat-bed scanning also, is the document placed <i>face down</i> on the scanner glass?</p>
<p>(2) Random color</p> 	<p>Check the following components:</p> <ul style="list-style-type: none"> - CIS flat cable - Main PCB - CIS unit <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. • 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 7, Section 7.1 "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></p> <p>Check the following components:</p> <ul style="list-style-type: none"> - CIS flat cable - CIS unit - Main PCB <p><u>At the printer</u></p> <p>Check the following components:</p> <ul style="list-style-type: none"> - Head/carriage unit - Main PCB

Problem	Action to be taken
<p>(4) Light</p> 	<p><u>At the scanner</u></p> <p>Check the following components:</p> <ul style="list-style-type: none"> - CIS unit - Main PCB <p><u>At the printer</u></p> <p>Check the following components:</p> <ul style="list-style-type: none"> - Ink cartridges - Head/carriage unit - Main PCB - Power supply PCB - Head property info (to be installed to the main PCB from the connected PC. Refer to Chapter 8, Section 8.4.16.) - Maintenance unit
<p>(5) Dark</p> 	<p><u>At the scanner</u></p> <p>Check the following components:</p> <ul style="list-style-type: none"> - CIS unit - Main PCB <p><u>At the printer side</u></p> <ul style="list-style-type: none"> • Perform the head purging operation several times to remove dust or air bubbles from its nozzles. If the problem persists, replace the head/carriage unit. <p>Check the following components:</p> <ul style="list-style-type: none"> - Ink cartridges - Head/carriage unit - Main PCB - Power supply PCB - Head property info (to be installed to the main PCB from the connected PC. Refer to Chapter 8, Section 8.4.16.) - Maintenance unit
<p>(6) Straight or blurred vertical stripes</p> 	<p><u>Scanner</u></p> <p>Check the following components:</p> <ul style="list-style-type: none"> - 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 head purging operation several times to remove dust or air bubbles from its nozzles. • Check the ink cartridges. Any of them has run out of ink or the ink viscosity has been increased, so replace it. • 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 using maintenance-mode function code 65. (Refer to Chapter 8, Section 8.4.14.) • 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 6, Section 6.2, [3].)
<p>(9) Random missing dots</p> 	<p><u>Printer</u></p> <ul style="list-style-type: none"> • Perform the head purging operation several times to remove dust or air bubbles from its nozzles. • 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 7, Section 7.1 "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 head purging operation several times to remove dust or air bubbles from its nozzles. • Replace the head/carriage unit. • Check the paper feed-related rollers. • Perform the print head skew compensation with the head screw adjuster knob. Refer to Chapter 3, Section 3.2.2.4. • Clean the head caps and wiper of the maintenance unit with a Rubycel stick. For the cleaning procedure, refer to Chapter 7, Section 7.1 "CLEANING THE MAINTENANCE UNIT."
<p>(11) Stained leading edge of recording paper</p> 	<p><u>Printer</u></p> <ul style="list-style-type: none"> • Press the Ink button to perform a head cleaning operation. • Check that the head/carriage unit is set into place.
<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. (Refer to Chapter 6, Section 6.2, [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. (Refer to Chapter 6, Section 6.2, [4].)
<p>(14) Ghost</p> 	<ul style="list-style-type: none"> • Adjust the paper feeding correction value of the paper feed roller and paper ejection roller. (Refer to Chapter 8, Section 8.4.11.) • Correct the positioning error of the head/carriage unit. (Refer to Chapter 6, Section 6.2, [3].) • Replace the PF encoder disk. • Replace the PF sensor PCB.

[6] PC-driven printing problems

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

[7] Memory card driven printing (SmartMedia, Compact Flash, Memory Stick, SD card, or XD)

Trouble	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 SmartMedia or Memory Stick card with the cutout corner leading and facing up. - Insert a Compact Flash card with the label side facing towards the left. • Memory cards <ul style="list-style-type: none"> - Formatted? - Any data in the media? - Images stored in the media are in EXIF2.0-compliant JPEG file format (having extension .JPG)? • Main PCB
(2) More than one media card cannot be recognized.	<ul style="list-style-type: none"> • The machine can recognize only a single media 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 media 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)

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

[9] Others

Trouble	Action to be taken
(1) When the power is turned on (when the power cord is plugged into an outlet), the scanner makes a grating noise.	Check the following components: <ul style="list-style-type: none">- CIS flat cable- Scanner cover (Scanner unit)- Main PCB

9.2.5 Problems encountered frequently in the past

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

- Paper jams
- Error message "MACHINE ERROR 4F"
- Ink-related problems
- Auto document feeder (ADF) failure

[1] Paper jams

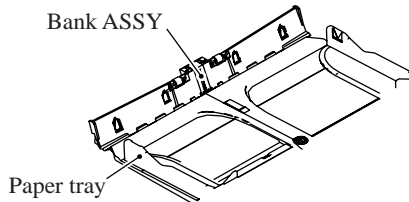
A paper jam may occur not only due to machine malfunction but also to the user's actions.

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

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 has worn thin. 	A worn section on the bank ASSY can cause double-feeding.
CR encoder strip	The CR encoder strip is stained.	A stained CR encoder strip can cause a carriage drive error during printing that will stop the printing operation.

[2] "MACHINE ERROR 41" error message

The error message "MACHINE ERROR 41" appears if the head drive voltage drops from the high to low level in an abnormally short period. The source of the problem is either the head/carriage unit or power supply PCB.

Check	Possible causes	Problems that may result
Head/carriage unit	<ul style="list-style-type: none"> - The carriage-head flat cable is disconnected from the carriage PCB. - Piezoelectric (PZT) ceramic actuator defective (Cracks or rare short) 	At the start of printing or head cleaning operation, correct voltage will not be applied to the electrodes on the surface of the PZT ceramic actuator (described in Chapter 3, Section 3.2.2.2).
Power supply PCB	<ul style="list-style-type: none"> - A power failure when the machine was in operation resulted in a damaged part. - Exposure to power surges caused by lightning damaged electronic devices on the power supply PCB. 	The head drive voltage will be too low to drive the print head.
Main PCB	Voltage detection circuit defective	The head drive voltage becomes too high or low.

[3] 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.
Data setting required after replacement	The related ink dot counter(s) was not reset after replacement of ink cartridge(s).	After the machine is used for a while, the "INK EMPTY XXX" message will appear and the machine will no longer 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. - Head flat cables have not been inserted into the carriage PCB. 	<p>Dot missing occurs on the printout.</p> <p>The machine will not be able to print or drive the head/carriage unit.</p>
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.
CIS unit	The CIS unit is weak in identifying colors.	The quality of print colors in copying operation will be low.

[4] Auto document feeder (ADF) malfunction

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 on the upper ADF chute	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>
Scanner cover (Scanner unit)	The scanner cover is not closed properly.	The "Cover is Open" message will appear and the machine will no longer operate.

Problems due to machine malfunction

Check	Possible causes	Problems that may result
Main PCB	The motor driver IC is defective.	Documents will not be able to be drawn in.
ADF	The spring plates of the ADF parts are deformed.	Documents 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 rear sensor	<ul style="list-style-type: none">- The document rear sensor is defective.- The document rear sensor actuator is deformed.	Documents will stop halfway through feeding or the machine will not be able to recognize them.

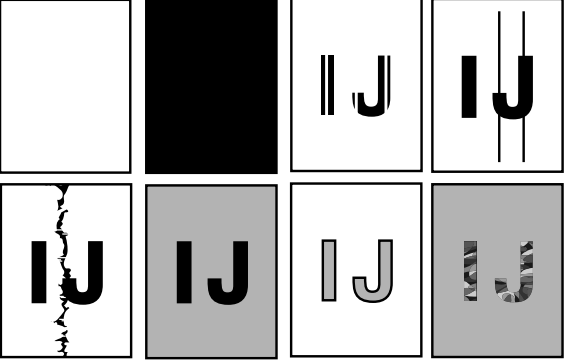
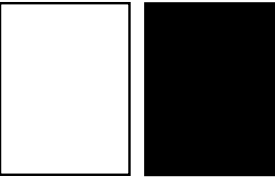
9.2.6 Possible component defects and resulting problems

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.


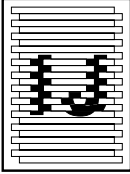
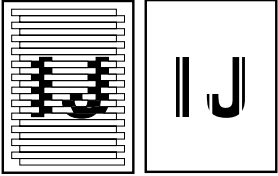
[1] ADF mechanism

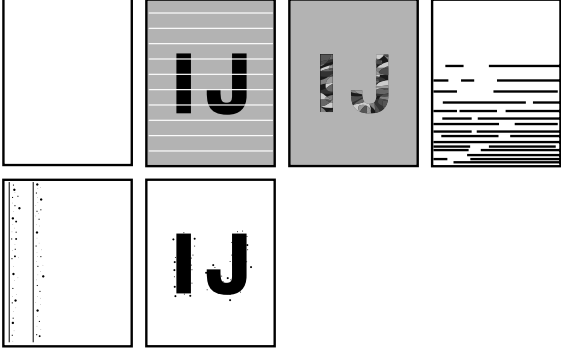
Defective component	Result	Error codes
ADF motor	- Document will not be able to be fed.	---
Document feed roller	- Documents will jam. - Documents will skew. - Documents will not be able to be fed.	A2, A3
Separation rubber	- Two or more sheets of documents will be fed at once.	---
Document front sensor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

[2] Scanner mechanism

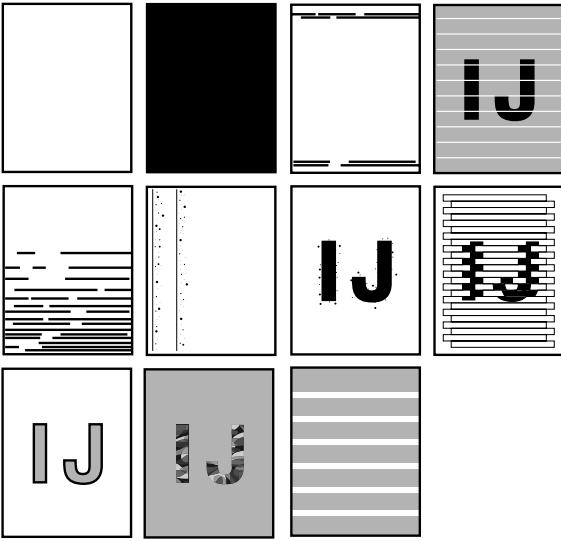
Defective component	Result	Error codes
CIS unit	<p>- Any of the following images may appear on the printout of sent, copied, or scanned data:</p>  <p>- When the power is turned on, abnormal noises will be heard from the machine.</p> <p>- Any of the following errors occurs:</p> <ul style="list-style-type: 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 - Machine error A7 	A7, B9, BB, BD
CIS flat cable	<p>- Any of the following images may appear on the printout of sent, copied, or scanned data:</p> 	---
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 of sent, copied, or scanned data: 	---
Carriage motor	<ul style="list-style-type: none"> - The head/carriage unit will not be able to travel normally. - The following image may appear on the printout of sent, copied, or scanned data: 	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 of sent, copied, or scanned data: 	30, 31, 32, 33
Ink cartridge PCB	<ul style="list-style-type: none"> - The "INK EMPTY XXX" message will appear even though there is ink. - Even though the ink has run out, the "INK EMPTY XXX" message will not appear. 	26, 27, 28, 29
Paper width sensor	<ul style="list-style-type: none"> - A paper jam will occur. 	84, 88
	<ul style="list-style-type: none"> - Print on the platen without paper. 	80

Defective component	Result	Error codes
Maintenance unit Head caps or wiper	<p data-bbox="592 360 1174 427">- Any of the following images may appear on the printout of sent, copied, or scanned data:</p> 	---
Purge pump	<p data-bbox="592 864 1230 931">- The purge pump will not draw out ink from the head nozzles.</p>	---
Purge cam switch	<p data-bbox="592 960 1225 1028">- The purge cam switch will not detect the purge cam ON/OFF timing.</p>	50, 51, 52

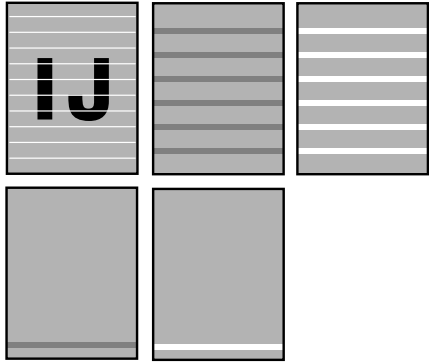
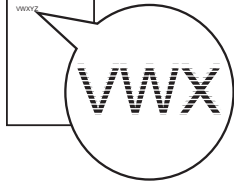
[4] Print head mechanism

Defective component	Result	Error codes
Head/carriage unit	<p data-bbox="592 1274 1174 1341">- Any of the following images may appear on the printout of sent, copied, or scanned data:</p> 	---

[5] ASF mechanism

Defective component	Result	Error codes
Bank ASSY (shown on page 9-37)	<ul style="list-style-type: none"> - Two or more sheets of paper will be fed at once. - Paper will jam. 	82, 83, 88

[6] Paper feeding mechanism

Defective component	Result	Error codes
Paper feed roller Paper ejection roller	<ul style="list-style-type: none"> - Any of the following images may appear on the printout of sent, copied, or scanned data: 	---
PF encoder disk PF encoder sensor	<ul style="list-style-type: none"> - The following image may appear on the printout of sent, copied, or scanned data: 	---

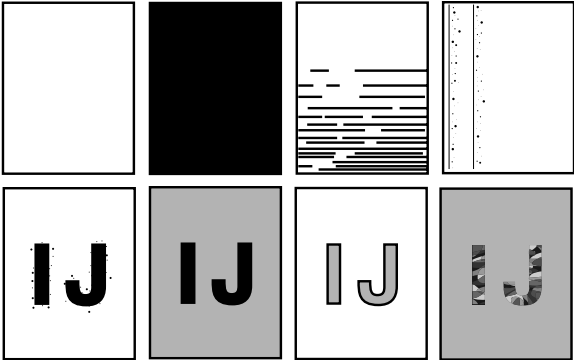
[7] Speaker

Defective component	Result	Error codes
Speaker	<ul style="list-style-type: none"> - No key clicks will be heard. - Abnormal noises will be heard from the machine. - The telephone will not ring. - No tone will be transmitted. 	---

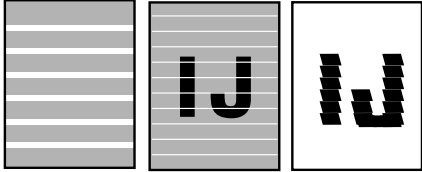
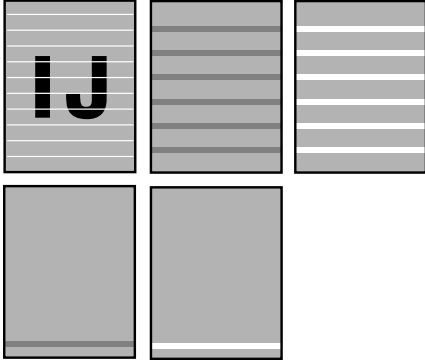
[8] Control panel

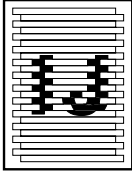
Defective component	Result	Error codes
Rubber keypad	- Keys will not work.	---
Control panel PCB	- The LCD will show nothing. - Keys will not work.	---

[9] PCBs

Defective component	Result	Error codes
Main PCB	<ul style="list-style-type: none"> - No faxes will be able to be sent. - 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 of sent, copied, or scanned data: <div style="text-align: center;">  </div> <ul style="list-style-type: none"> - The telephone will not ring. - No tone will be detected. - The machine will not be able to switch to the external telephone. 	---
MJ PCB	<ul style="list-style-type: none"> - No faxes will be able to be sent. - No phone calls will be able to be made. - The telephone will not ring. - 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 printed image will become lighter. 	---

[10] Adjustments/data in the memories

Adjustment/data setting not performed	Result	Refer to:	Error codes
Proper customizing code (in the EEPROM)	- The machine will not work correctly at the shipping destination.	- Chapter 8, Section 8.4.18 - Appendix 3	
ID code	- The machine will not be able to be identified by the PC connected to it when more than one machine is connected to that PC via USB.	- Chapter 6, Section 6.3, [7]	
Head property data (in the EEPROM)	- The print quality will deteriorate.	- Chapter 6, Section 6.2, [1] - Chapter 8, Section 8.4.16	
Correction of head positioning error	<p>- Any of the following images may appear on the printout of sent, copied, or scanned data:</p> 	- Chapter 6, Section 6.2, [3]	
Updating of the paper feeding correction value for the paper feed roller/paper ejection roller	<p>- Any of the following images may appear on the printout of sent, copied, or scanned data:</p> 	- Chapter 6, Section 6.2, [4] - Chapter 8, Section 8.4.11	
Setting of the CIS scanner area	<p>- The white and black level data will not be compensated properly.</p> <p>- The scanning center position will not be centered.</p>	- Chapter 8, Section 8.4.10	B3, B4, B5, B6

Adjustment/data setting not performed	Result	Refer to:	Error codes
Alignment of vertical print lines	<p data-bbox="550 421 1005 515">- The following image may appear on the printout of sent, copied, or scanned data:</p> 	<ul style="list-style-type: none"> <li data-bbox="1053 421 1276 488">- Chapter 6, Section 6.2, [5] <li data-bbox="1053 492 1244 555">- Chapter 8, Section 8.4.14 	

MFC820CW
MFC640CW
DCP340CW

Appendix 1. Serial Numbering System

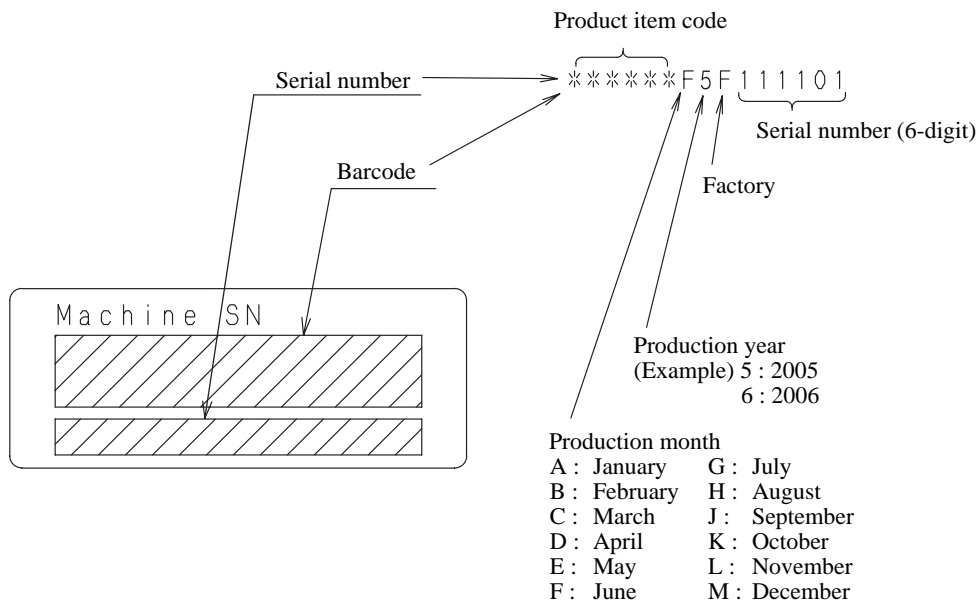
This appendix shows the location of serial number labels put on some parts and lists the coding information pertaining to the serial numbers.

SERIAL NUMBERING SYSTEM

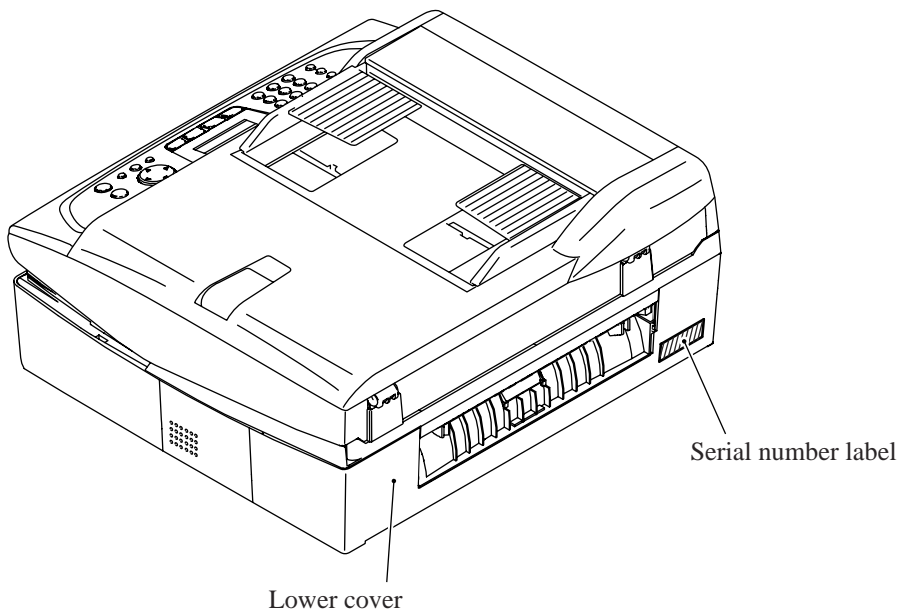
Individual machines have a serial number label for the machine itself and a property label for the head/carriage unit. Individual ink cartridges also have a serial number label.

This section lists the coding information for those serial numbers and property codes.

(1) Serial number label for the machine itself

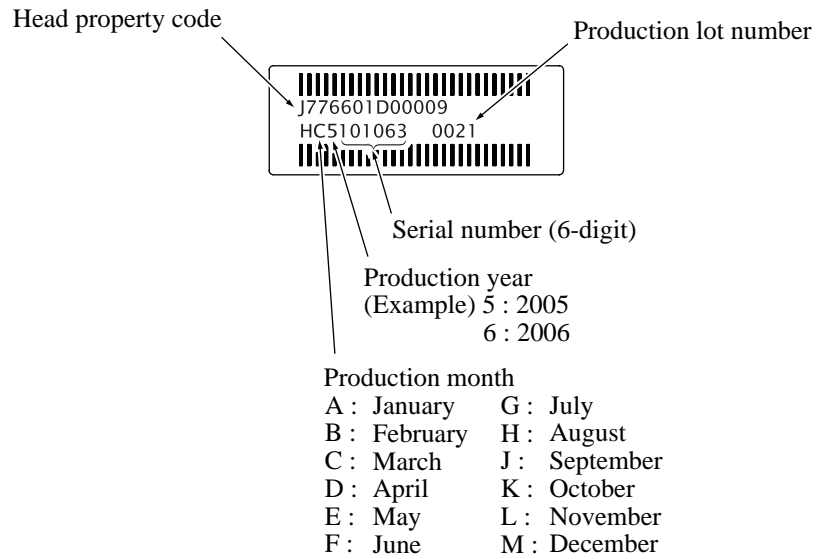


Location

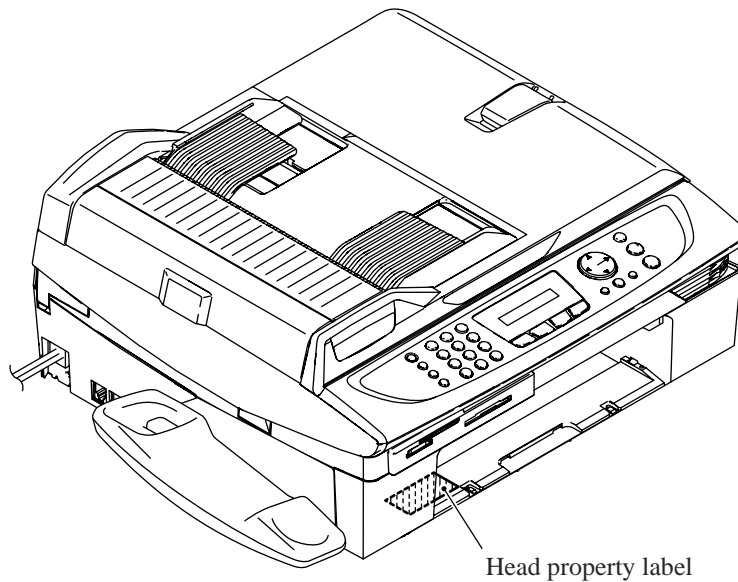


(2) Head property label

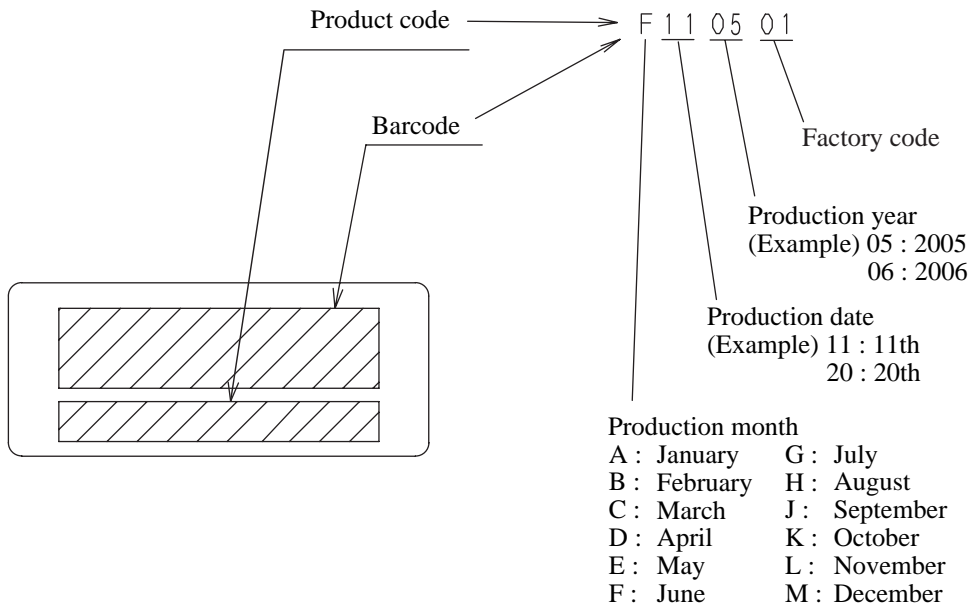
■ Property label for the head/carriage unit



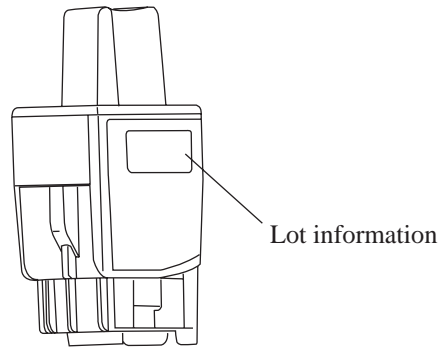
Location



(3) Serial number label for ink cartridges



Location



MFC820CW
MFC640CW
DCP340CW

Appendix 2. Firmware Installation

This appendix provides instructions on how to update firmware stored in the flash ROM on the main PCB or load firmware to a new main PCB from the host PC.

No hardware replacement is required for updating.

A2.1 Loading the Update Programs/Data to the Flash ROMApp. 2-1

A2.1 Loading the Update Programs/Data to the Flash ROM

If you want to update the current programs/data stored in the flash ROM on the main PCB or after you replace the main PCB, load the update programs/data to the flash ROM.

Loading requires a PC/AT-compatible computer running Windows 98/98SE, Windows Me, Windows 2000 Professional, or Windows XP Home/Professional.

CAUTION: During loading, do not turn the power off, interrupt loading, or load invalid data. If you do so, loading will fail, causing the PCB to be unusable. You will need to replace the main PCB and load update programs/data to a new PCB.

Preparation

You need to have the BHL2-Maintenance Printer driver and FILEDG32.exe (provided by Brother Industries) on hand. Save them in an arbitrary folder in your PC.

Installing the BHL2-Maintenance Printer driver

(In the following procedure, key names enclosed in parentheses apply to the MFC820CW or DCP340CW.)

To identify terminals connected via USB interface, a PC requires the corresponding virtual USB devices to be implemented by driver/software. If you connect any number of machines to your PC, therefore, the same number of virtual USB devices will be automatically configured on your PC. To prevent virtual USB devices from being configured limitlessly, use the unique driver installation procedure described below that enables your PC to identify terminals via a single virtual USB device.

NOTE: Once this installation procedure is carried out for a PC, no more driver/software installation will be required for that PC to identify machines. If the BHL2-Maintenance Printer driver has been already installed to your PC according to this procedure, skip this section.

NOTE: Before proceeding to the procedure given below, make sure that the BHL2-Maintenance Printer driver (listed in [Chapter 6, Section 6.1.1](#)) is stored in your PC.

- (1) Make sure that the power cord of the machine is unplugged from the electrical outlet.

If the machine is connected to a PC, unplug the USB cable.

- (2) Switch on your PC.
- (3) Plug the power cord of the machine into an electrical outlet.
- (4) Press the **Menu/Set (Menu)** and **Black Start (Mono Start)** keys. Next press the **▲** key four times to make the machine enter the maintenance mode. (Refer to [Chapter 8](#).)

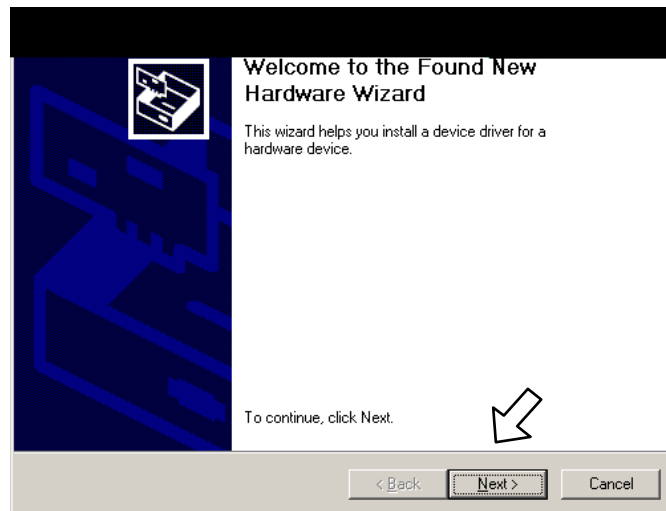
TIP: FAX models equipped with numerical keypads can enter the maintenance mode in the same way as conventional models; that is, by pressing the **Menu/Set (Menu)**, *****, **2**, **8**, **6** and **4** keys in this sequence.

- (5) Connect the machine to your PC using a USB cable.

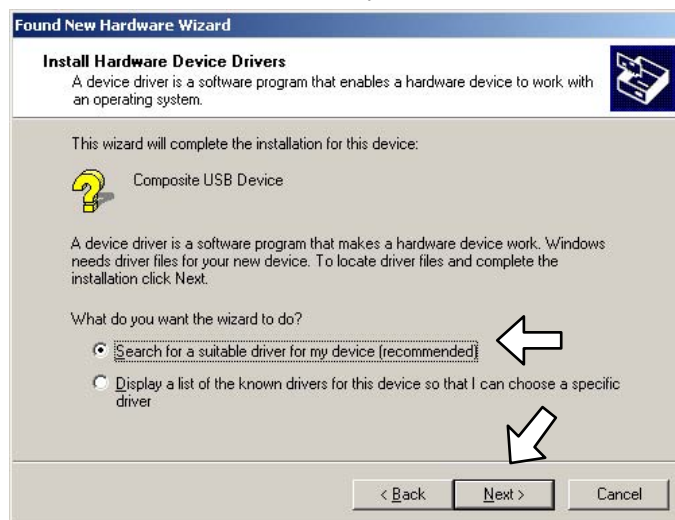
The following window appears.



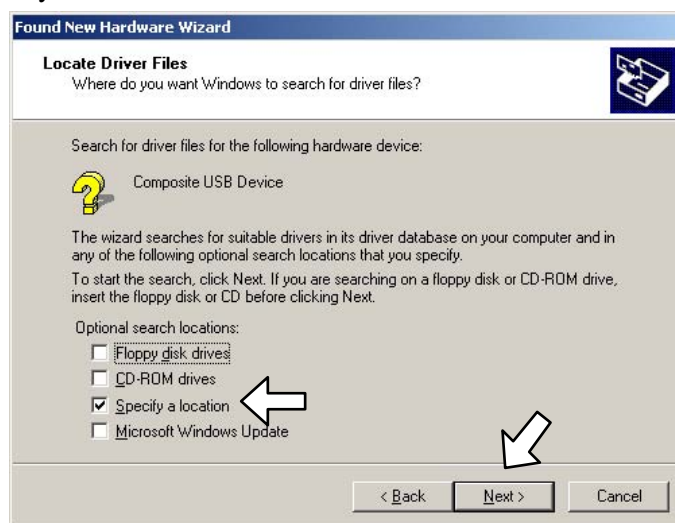
- (6) The following screen appears, indicating the detection of new hardware device by the system. Click **Next** to proceed.



- (7) Select "Search for a suitable driver for my device (recommended)" and click **Next**.

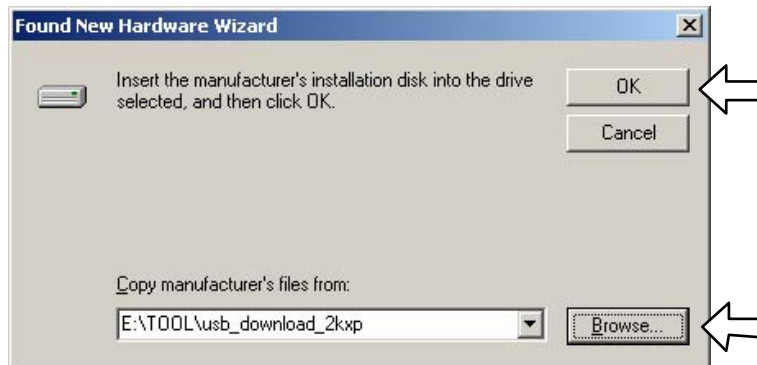


- (8) Select "Specify a location" and click **Next**.



(9) Select the folder where the copy of the BHL2-Maintenance Printer driver is located (or click **Browse** to specify it), then click **OK**.

(This sample screen is captured on the Windows 2000 desktop.)



(10) Click **Next**.



(11) To proceed, click **Yes**.

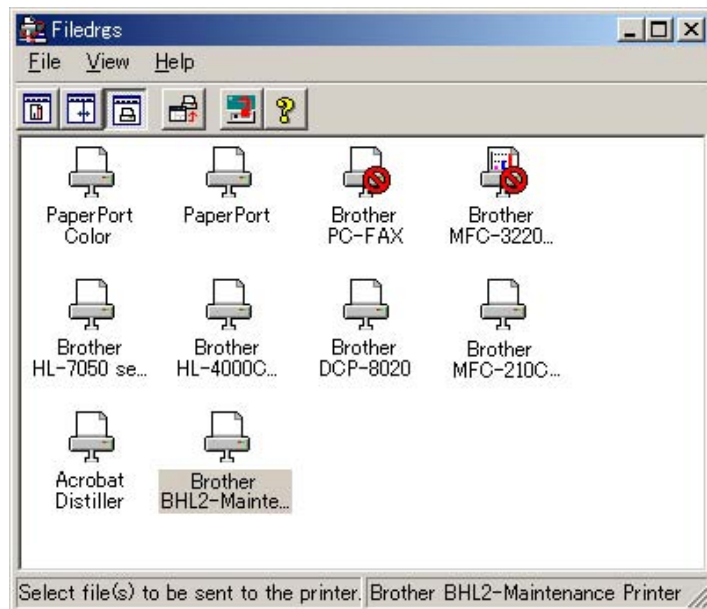


(12) If the driver is successfully installed, the following message window appears. Click **Finish** to return to Windows.



NOTE: After completion of the driver installation, if the machine exits the maintenance mode, the "Found New Hardware Wizard" screen in step (6) appears again. Click **Cancel**.

NOTE: To check that the printer driver is successfully installed, click **Start|Settings|Printers** to call up the Printers window as shown below and confirm that the Brother BHL2-Maintenance Printer icon is displayed.



Loading the update programs/data onto the flash ROM of the machine

■ After replacing the main PCB with a new one

After the installation procedure of the printer driver, proceed to the firmware loading operation.

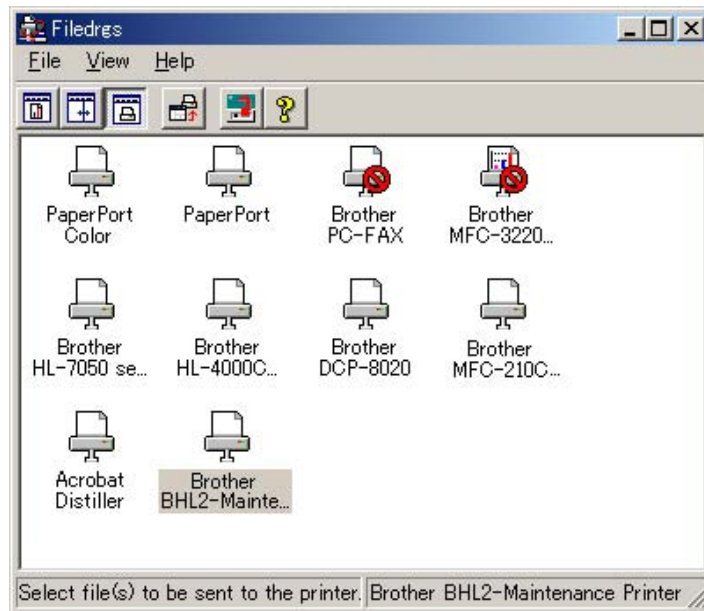
When the power is first applied to the FAX machine equipped with a new main PCB, the machine automatically enters the maintenance mode.

Make sure that the machine is connected with your PC using a USB cable.

NOTE: Never turn off the machine or PC or unplug the USB cable during loading.

(1) Run "FILEDRGS.exe."

The Filedrgs window will appear as shown below.



(2) Drag and drop the firmware (e.g., LZ0023_A.pjl) onto the BHL2-Maintenance Printer icon in the Filedrgs window shown above.

NOTE: Use a firmware file after extracting. It is a self-extracting file having the extension .exe. Double-click the exe file to extract it.

When loading operation starts, the machine beeps intermittently. After approx. 2 to 5 minutes, the loading operation is complete and the machine automatically reboots and returns to the standby state.

(3) MFC820CW/640CW

Press the * and # keys at the same time when the machine is on standby. The firmware version appears on the LCD.

DCP340CW

Press the **Menu** and **Mono Start** keys. Next press the ▲ key four times to make the machine enter the maintenance mode.

Press the ▲ key several times to display 8 on the LCD and then press the **Set** key. Again press the ▲ key several times to display 0 and press the **Set** key. (See Chapter 8, Section 8.4.21.)

Press the **Mono Start** key several times to display the firmware version.

In this example, if "A0307252244:CF30" appears, it means that the loading operation has been successfully finished.

- (4) If loading operation finishes abnormally, turn the machine off and on. The machine automatically enters the load mode and emits a large beep. Perform the loading procedure above again.

■ **After replacing the main PCB with the one used for other machines or when updating program/data**

After the installation procedure of the printer driver, proceed to the firmware loading operation.

If the printer driver has been installed so that you start from loading firmware, unplug the power cord from the electrical outlet.

Make sure that the machine is connected with your PC using a USB cable.

MFC820CW/640CW

While holding down the **5** key, plug the power cord into an electrical outlet.

DCP340CW

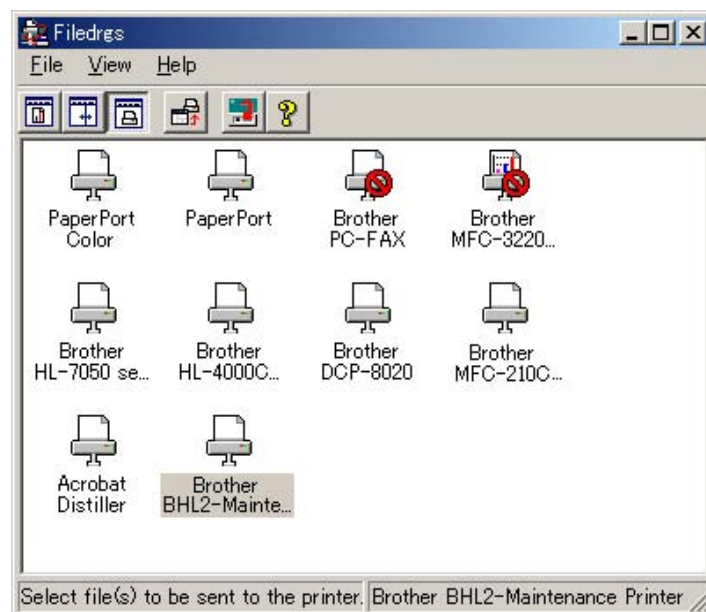
While holding down the **Number of Copies** key, plug the power cord into an electrical outlet.

The machine should show the black and white pattern on the LCD.

NOTE: Never unplug the machine's or PC's power cord or the USB cable during loading.

(1) Run "FILEDRG32.exe."

The Filedrgs window will appear as shown below.



(2) Drag and drop the firmware (e.g., LZ0023_ A.upd) onto the BHL2-Maintenance Printer icon in the Filedrgs window shown above.

NOTE: Use a firmware file after extracting. It is a self-extracting file having the extension .exe. Double-click the exe file to extract it.

When loading operation starts, the machine beeps intermittently. After approx. 2 to 5 minutes, the loading operation is complete and the machine automatically reboots and returns to the standby state.

(3) MFC820CW/640CW

Press the * and # keys at the same time when the machine is on standby. The firmware version appears on the LCD.

DCP340CW

Press the **Menu** and **Mono Start** keys. Next press the ▲ key four times to make the machine enter the maintenance mode.

Press the ▲ key several times to display 8 on the LCD and then press the **Set** key. Again press the ▲ key several times to display 0 and press the **Set** key. (See [Chapter 8, Section 8.4.21.](#))

Press the **Mono Start** key several times to display the firmware version.

In this example, if "A0307252244:CF30" appears, it means that the loading has been successfully finished.

- (4) If loading finishes abnormally, turn the machine off and on. The machine automatically enters the load mode and emits a large beep. Perform the loading procedure above again.

MFC820CW
MFC640CW
DCP340CW

Appendix 3. Customizing Codes According to Shipping Destination

This appendix provides instructions on how to set up the customizing codes for the various preferences exclusively designed for each destination (e.g. language). Those codes are stored in the memory (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. They come 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.

Customizing codes come with the firmware data provided by Brother Industries.

■ Operating Procedure

MFC820CW/640CW

(In the following procedure, key names enclosed in parentheses apply to the MFC820CW.)

- (1) Press the **Menu/Set (Menu)** and **Black Start** keys. Next press the **▲** key four times to make the machine enter the maintenance mode.

The machine beeps for approx. one second and displays "■■ MAINTENANCE ■■■" on the LCD.

- (2) Press the **7** and **4** keys in this order in the initial stage of the maintenance mode.

The current customizing code appears (e.g., 0001 in the case of MFC820CW U.S.A. model).

- (3) Enter the desired customizing code (e.g., 0002 in the case of MFC820CW Canadian model).

The newly entered code appears.

***NOTE:** If a wrong 4-digit code is entered, the machine will malfunction.*

- (4) Press the **Black 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.

DCP340CW

- (1) Press the **Menu** and **Mono Start** keys. Next press the **▲** key four times to make the machine enter the maintenance mode.

The machine beeps for approx. one second and displays "■■ MAINTENANCE ■■■" on the LCD.

- (2) Start customizing the EEPROM (with Function code 74) by using the **▲** and **Set** keys as follows:

Press the **▲** key several times to display 7 on the LCD and then press the **Set** key. Again press the **▲** key several times to display 4 and then press the **Set** key

The current customizing code appears (e.g., 0004 in the case of DCP340CW).

- (3) Enter the desired customizing code by using the **▲** and **Set** keys as follows:

To enter 0007, for example, press the **▲** key several times to display 0 on the LCD and then press the **Set** key. In the same way, enter 0, 0, and 7.

The newly entered code appears.

***NOTE:** If a wrong 4-digit code is entered, the machine will malfunction.*

- (4) Press the **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.

MFC820CW
MFC640CW
DCP340CW

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.

WSW No.	Function	Refer to:
WSW01	Dial pulse setting	App. 4-2
WSW02	Tone signal setting	App. 4-3
WSW03	PABX mode setting	App. 4-4
WSW04	TRANSFER facility setting	App. 4-5
WSW05	1st dial tone and busy tone detection	App. 4-6
WSW06	Pause key setting and 2nd dial tone detection	App. 4-8
WSW07	Dial tone setting 1	App. 4-10
WSW08	Dial tone setting 2	App. 4-11
WSW09	Protocol definition 1	App. 4-12
WSW10	Protocol definition 2	App. 4-13
WSW11	Busy tone setting	App. 4-14
WSW12	Signal detection condition setting	App. 4-15
WSW13	Modem setting	App. 4-16
WSW14	AUTO ANS facility setting	App. 4-17
WSW15	REDIAL facility setting	App. 4-18
WSW16	Function setting 1	App. 4-19
WSW17	Function setting 2	App. 4-20
WSW18	Function setting 3	App. 4-21
WSW19	Transmission speed setting	App. 4-22
WSW20	Overseas communications mode setting	App. 4-23
WSW21	TAD setting 1	App. 4-24
WSW22	ECM and call waiting caller ID	App. 4-25
WSW23	Communications setting	App. 4-26
WSW24	TAD setting 2	App. 4-27
WSW25	TAD setting 3	App. 4-28
WSW26	Function setting 4	App. 4-29
WSW27	Function setting 5	App. 4-30
WSW28	Function setting 6	App. 4-31
WSW29	Function setting 7	App. 4-32
WSW30	Function setting 8	App. 4-33
WSW31	Function setting 9	App. 4-34
WSW32	Function setting 10	App. 4-35
WSW33	Function setting 11	App. 4-36
WSW34	Function setting 12	App. 4-37
WSW35	Function setting 13	App. 4-38
WSW36	Function setting 14	App. 4-39
WSW37	Function setting 15	App. 4-40
WSW38	V.34 transmission settings	App. 4-41
WSW39	V.34 transmission speed	App. 4-42
WSW40	V.34 modem settings	App. 4-43
WSW41	ON-duration of the scanning light source	App. 4-45
WSW42	Internet mail settings	App. 4-46
WSW43	Function setting 21	App. 4-46
WSW44	Speeding up scanning-1	App. 4-47
WSW45	Speeding up scanning-2	App. 4-48
WSW46	Monitor of power ON/OFF state and parallel port kept at high	App. 4-49
WSW47	Switching between high- and full-speed USB	App. 4-50
WSW48	USB setup latency	App. 4-51
WSW49	End-of-copying beep and print in black	App. 4-51
WSW50	SDAA settings	App. 4-52
WSW51	Function setting 16	App. 4-53
WSW52	Not used.	App. 4-54
WSW53	Function setting 18	App. 4-54

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

● **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.)

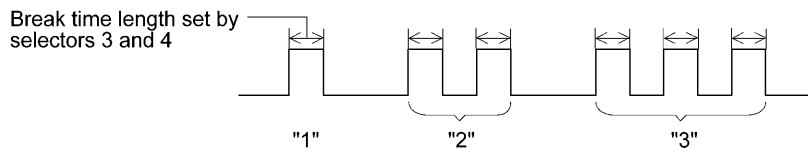
N + 1: Dialing "N" generates "N + 1" pulses.

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.

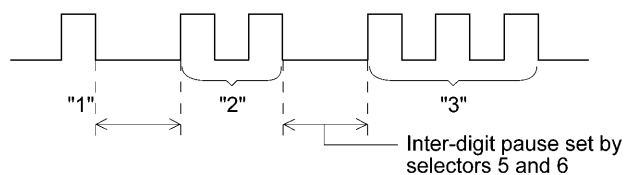
(Example: If "1," "2," and "3" are dialed when N is set by selectors 1 and 2.)



● **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**

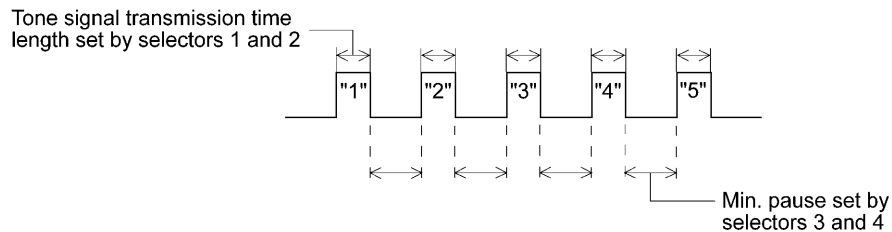
This selector sets the default dialing mode (pulse dialing or tone dialing) which can be changed by the function switch. If the user switches it with the function switch when selector 7 is set to "0," the setting specified by this selector will also be switched automatically.

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

- **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 (PABX* 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 PABX* 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 PABX* (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.	

* PABX: Private automatic branch exchange

NOTE: Selectors 2 through 4, 6 and 7 are not applicable where no PABX 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 PABX dial tone, required for starting dialing (Not used.)**

Upon detection of the PABX dial tone for the time length set 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 PABX (Not used.)**

These selectors activate or deactivate the dial tone detection function which detects a dial tone when a line is connected to the PABX.

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 sec.) 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 (Not used.)	0: Provided 1: Not provided
2 3	Dual tone detection frequency in ICM recording	No. 2 3 0 0 : 350 and 440 Hz (A) 0 1 : 440 and 480 Hz (B) 1 0 : } 1 1 : } 480 and 620 Hz (C)
4	Dual tone detection sensitivity in ICM recording	0: Normal 1: High
5	Not used.	
6 8	Break time length for flash function	No. 6 7 8 No. 6 7 8 0 0 0 : 80 ms 1 0 1 : 250 ms 0 0 1 : 100 ms 1 1 0 : 500 ms 0 1 0 : 110 ms 1 1 1 : 700 ms 0 1 1 : 120 ms 1 0 0 : 200 ms

NOTE: Selectors 1 and 5 through 8 are not applicable in those countries where no transfer facility is supported.

NOTE: Selectors 2 through 4 are applicable to models equipped with built-in TADs.

- **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**

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 or 440 Hz.

- **Selector 4: Dual tone detection sensitivity in ICM recording**

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 : 2.5 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 auto-matic 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 auto-matic receiving mode	0: Yes 1: No
8	Not used.	

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 (2.5, 7.0, 10.5, 14.0, 17.5, or 21.0 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 : 2.5 sec. WAIT 1 1 0 : 2nd dial tone detection only in pulse dialing (DP) system 1 0 1 : } 2nd dial tone detection 1 1 1 : } 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 : 250 ms 0 1 0 : 500 ms 0 1 1 : 620 ms 1 0 0 : 800 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

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. 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	1	0	
0	1	1	
1	0	0	
1	0	1	When these selectors are set to "1, 0, 1": 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. 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.)
1	1	0	
1	1	1	

- **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 0 1 : Initial value 1 X : Widens by 10 Hz
3	Line current detection (Not used.)	0: No 1: Yes
4 6	2nd dial tone detection level (Z = 600Ω)	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.	

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 of 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 0 1 : 250 ms 0 1 0 : 500 ms 0 1 1 : 620 ms 1 0 0 : 800 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

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 of 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.

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

- **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 0 1 : Initial value 1 x : 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

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 of 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	0: Ringer-OFF period (default) 1: Ringer-ON period
8	Not used.	

*1000 ms 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 of WSW14 during the period set by these selectors 5 and 6, then it acknowledges the call.

- **Selector 7: Line connection timing**

If a line is connected in a ringer-ON period, FAX models equipped with SDAA circuits 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 of 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 of 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 0 1 : 15 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 : Fixed to 2 times 0 0 1 0 : Fixed to 3 times 0 0 1 1 : Fixed to 4 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 0 1 : 1 minute 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	Not used.	
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 equipped with ADF units.

- **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 0 1 : Always valid 1 X : 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	Not used.	
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 X : 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

- **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 of 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. 4 5 6 0 0 0 : 2,400 bps 0 0 1 : 4,800 bps 0 1 0 : 7,200 bps 0 1 1 : 9,600 bps 1 0 0 : 12,000 bps 1 0 1 : } 14,400 bps 1 1 0 : } 1 1 1 : }
4 6	Last transmission speed choice for fallback	
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.

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 X : No
8	Limitation on CNG detection	0: OFF 1: ON

* EP: Echo protection

NOTE: Selectors 6 and 7 are applicable to models equipped with SDAA circuits.

● **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 4800 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.)

- **Selectors 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 of 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	Max. waiting time for voice signal	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 1 0 0 0 : 8 sec. 1 1 1 1 1 : 31 sec.
6 7	Taping the call	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

NOTE: Selectors 1 through 5 are applicable to models equipped with ICM recorders.

NOTE: Selectors 6 and 7 are applicable to models with internal TADs.

NOTE: Selector 8 is applicable to models equipped with TADs.

- **Selectors 1 through 5: Max. waiting time for voice signal**

In the TAD mode, the machine waits for voice signal for the time length specified by these selectors before it automatically shifts to the facsimile message receive mode or disconnects the line.

- **Selectors 6 and 7: Taping the call**

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 8	Acceptable TCF bit error rate (%) (Only at 4800 bps) (Not used.)	0: 0%	1: 8%
		0: 0%	1: 4%
		0: 0%	1: 2%
		0: 0%	1: 1%

* ECM: Error correction mode

NOTE: Selector 3 is applicable to the American models only.

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		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 ms 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-ms successive zeros 50 ms after the head of a series of zeros is detected. In this case, if the detection of 10-ms 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	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 : 2 sec. 1 0 : 6 sec. 1 1 : 8 sec.
5 8	Attenuator for playback of ICM/OGM to the line (Selectable from the range of 0-15 dB)	0: 0 dB 1: 8 dB 0: 0 dB 1: 4 dB 0: 0 dB 1: 2 dB 0: 0 dB 1: 1 dB

- **Selectors 1 and 2: Maximum OGM recording time**

These selectors set 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 set the length of time from CML-ON up to the start of pseudo ring backtone transmission.

In models with OGM facilities, 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**

Setting two or more selectors to "1" produces addition of attenuation assigned to each selector.

This setting is not limited by selector 8 of WSW23.

WSW25 (TAD setting 3)

Selector No.	Function	Setting and Specifications
1 4	Not used.	
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.	

NOTE: Selectors 5 through 7 are applicable to the U.S.A. models only.

- **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 2	Not used.	
3	Dialing during document reading into the temporary memory in in-memory message transmission	0: Disable 1: Enable
4 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)	No. 4 5 0 0 : 0.5 (A) 0 1 : 1 (B) 1 0 : 1.5 (C) 1 1 : 2 (D)
6 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)	No. 6 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	0: No 1: Yes
4	Detection of distinctive ringing pattern (Not used.)	0: Yes 1: No
5		
6	Recording quality	0: Normal 1: High
7	Recording time for high recording quality	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**

This selector determines whether or not to automatically play back an OGM the moment the machine switches to the TAD mode.

- **Selectors 4 and 5: Detection of distinctive ringing pattern (Not used.)**

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**

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**

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)

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 equipped with built-in TADs.

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)

Selector No.	Function	Setting and Specifications
1 3	Dial tone/busy tone detection level during recording of ICM (Not used.)	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)
4 8	Not used.	

NOTE: Selectors 1 through 3 are applicable to models equipped with internal TADs.

- **Selectors 1 through 3: Dial tone/busy tone detection level during recording of ICM (Not used.)**

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 of 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	Default reduction rate for failure of automatic reduction during recording	0: 100% 1: 70%
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.	

NOTE: Selector 5 is applicable only to the U.S.A. models.

- **Selector 2: Default reduction rate for failure of automatic reduction during recording**

This selector sets the default reduction rate to be applied if the automatic reduction function fails to record one-page data sent from the calling station in a single page of the current recording paper.

If it is set to "0," the machine records one-page data at full size (100%) without reduction; if it is set to "1," the machine records it at 70% size.

- **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-ms 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" (50 ms) or "0" (130 ms), 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 X : 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	Detection threshold level of "no tone" during recording of ICM	No. 1 2 3 0 0 0 : -42.5 dBm (A) 0 0 1 : -44.0 dBm (B) 0 1 0 : -45.5 dBm (C) 0 1 1 : -47.0 dBm (D) 1 0 0 : -48.5 dBm (E) 1 0 1 : -50.0 dBm (F) 1 1 0 : -51.5 dBm (G) 1 1 1 : -53.0 dBm (H)
4 5	FAX receiving speed to be kept within the transmission speed limit to the PC	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 (Not used.)	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 equipped with internal TADs.

- **Selectors 1 through 3: Detection threshold level of "no tone" during recording of ICM**

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 of WSW21, the machine disconnects the line.

- **Selectors 4 and 5: FAX receiving speed to be kept within the transmission speed limit to the PC**

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	No. 1 2 3 0 0 0 : 0 sec. 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 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)	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.	

NOTE: Selectors 1 through 5 are applicable to models equipped with built-in TADs.

- **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**

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)**

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)

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.	

NOTE: Selectors 1 through 4 are applicable to models equipped with internal TADs.

- **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 of WSW30 for the period specified by these selectors, then it disconnects the line.

WSW36 (Function setting 14)

Selector No.	Function	Setting and Specifications
1	ECP mode* (Not used.)	0: ON 1: OFF
2	Recovery from Inactive PC Interface (Not used.)	0: Disable 1: Enable
3	PC Power-off Recognition Time (Not used.)	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 of 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)

● **Selector 1: ECP mode (Not used.)**

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 (Not used.)**

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 (Not used.)**

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 of WSW14**

At the start of reception, if the machine detects the frequency of a CI signal specified by selectors 1 through 4 of 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 of 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 X : 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: 2400 bps 1: 4800 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 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, X," 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 33600 bps to 28800 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 : 2400 bps 0 0 0 1 : 4800 bps 0 0 1 0 : 7200 bps 0 0 1 1 : 9600 bps 0 1 0 0 : 12000 bps 0 1 0 1 : 14400 bps 0 1 1 0 : 16800 bps 0 1 1 1 : 19200 bps
5 8	Last transmission speed choice for fallback	1 0 0 0 : 21600 bps 1 0 0 1 : 24000 bps 1 0 1 0 : 26400 bps 1 0 1 1 : 28800 bps 1 1 0 0 : 31200 bps 1 1 0 1 : 33600 bps 1 1 1 0 : 33600 bps 1 1 1 1 : 33600 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 of WSW40.

WSW40 (V.34 modem settings)

Selector No.	Function	Setting and Specifications				
1 2	Not used.					
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	

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 of WSW39.

If selector 3 is set to "1" to mask the 3429 symbols/second when the first transmission speed choice is 33600 bps (specified by selectors 1 through 4 of WSW39), for example, then the allowable maximum transmission speed will be limited to 31200 bps. If selector 8 is set to "1" to mask the 2400 symbols/second when the first transmission speed choice is 33600 bps, then the allowable maximum transmission speed remains 33600 bps.

If selector 8 is set to "1" to mask the 2400 symbols/second when the first transmission speed choice is 21600 bps (specified by selectors 1 through 4 of WSW39), then the allowable maximum transmission speed remains 21600 bps but the minimum transmission speed will be limited to 4800 bps.

Symbol rate	Transmission speed (bps)	Symbol rate	Transmission speed (bps)	Symbol rate	Transmission speed (bps)
2400	2400	3000	4800	3429	4800
	4800		7200		7200
	7200		9600		9600
	9600		12000		12000
	12000		14400		14400
	14400		16800		16800
	16800		19200		19200
	19200		21600		21600
	21600		24000		24000
	2800		4800		3200
7200		28800	31200		
9600		4800	33600		
12000		7200			
14400		9600			
16800		12000			
19200		14400			
21600		16800			
24000		19200			
26400		21600			
		24000			
		26400			
		28800			
	31200				

WSW41 (ON-duration of the scanning light source)

Selector No.	Function	Setting and Specifications
1 3	ON-duration of the scanning light source at room temperature (Not used.)	No. 1 2 3 0 0 0 : 16 hours 0 0 1 : 24 hours 0 1 0 : 12 hours 0 1 1 : 8 hours 1 0 0 : 4 hours 1 0 1 : 2 hours 1 1 0 : 10 minutes 1 1 1 : 0 minute
4	Not used.	
5 8	Modem attenuator	No. 5 6 7 8 0 0 0 0 : -10 dBm 0 0 0 1 : -11 dBm 0 0 1 0 : -12 dBm 0 0 1 1 : -13 dBm 0 1 0 0 : -14 dBm 1 1 1 1 : -25 dBm

- **Selectors 1 through 3: ON-duration of the scanning light source at room temperature (Not used.)**

If the scanning operation is started when the scanning light source is off, then it will come on for scanning. These selectors determine how long the light source is ON after scanning.

If these selectors are set to "1, 1, 1," the light source goes off immediately after the scanning sequence.

- **Selectors 5 through 8: Modem attenuator**

These selectors are used to adjust the transmitting level of the modem when the reception level at the remote station is improper due to line loss. This function applies to super G3 protocol signals.

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	Not used.	
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

- **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)

Selector No.	Function	Setting and Specifications
1 5	Not used.	
6 8	Effective time length of the white level compensation data obtained beforehand (Not used.)	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.

NOTE: Selectors 6 through 8 are applicable only to models equipped with ADF units.

- **Selectors 6 through 8: Effective time length of the white level compensation data obtained beforehand (Not used.)**

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 **Copy** key is pressed.

These selectors determine how long compensation data obtained beforehand will keep effective.

WSW45 (Speeding up scanning-2)

Selector No.	Function	Setting and Specifications
1 3	Delay time from when documents are set until the ADF starts drawing them in (Not used.)	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 (Not used.)	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 (Not used.)	0: CIS home position 1: Location of the white-level reference film
8	Not used.	

NOTE: WSW45 is applicable only to models equipped with ADF units.

- **Selectors 1 through 3: Delay time from when documents are set until the ADF starts drawing them in (Not used.)**

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 (Not used.)**

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 (Not used.)**

This selector determines whether the standby position of the CIS unit should be the home position or the location of the white-level 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.

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 (Not used.)	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 (Not used.)	0: Enable 1: Disable
4	Previous filtering parameters for white level compensation (Not used.)	0: Enable 1: Disable
5 8	Not used.	

NOTE: Selector 4 is not applicable to models equipped with flat-bed scanners.

- **Selectors 1 and 2: Monitoring the PC ON/OFF state (Not used.)**

For the related functions, refer to WSW36, selectors 2 and 3.

- **Selector 3: Parallel port output pins kept at high level (Not used.)**

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-level 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" (Enabled) will apply previously saved white level data instead of new incorrect compensation.

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	Not used.	
3 4	Delay of FAX line disconnection when switching to the pseudo-ringing external telephone	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	0: No 1: Yes
6	Not used.	
7	Disable the ringer of external telephone with CAR signal when caller ID service is available	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 scanners.

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**

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.

- **Selectors 3 and 4: Delay of FAX line disconnection when switching to the pseudo-ringing external telephone**

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.

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 : 80% 0 1 : 90% 1 0 : 70% 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 SDAA circuits.

● **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 approach nearer to the specified DC curve that specifies the current vs. voltage 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	0: Activate 1: Deactivate
3 7	Not used.	
8	Switching from ink near-empty to ink empty when opening the scanner cover	0: Yes 1: No (No change from ink near-empty)

- **Selector 2: CR motor control for reducing torque fluctuation**

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.

- **Selector 8: Switching from ink near-empty to ink empty when opening the scanner cover**

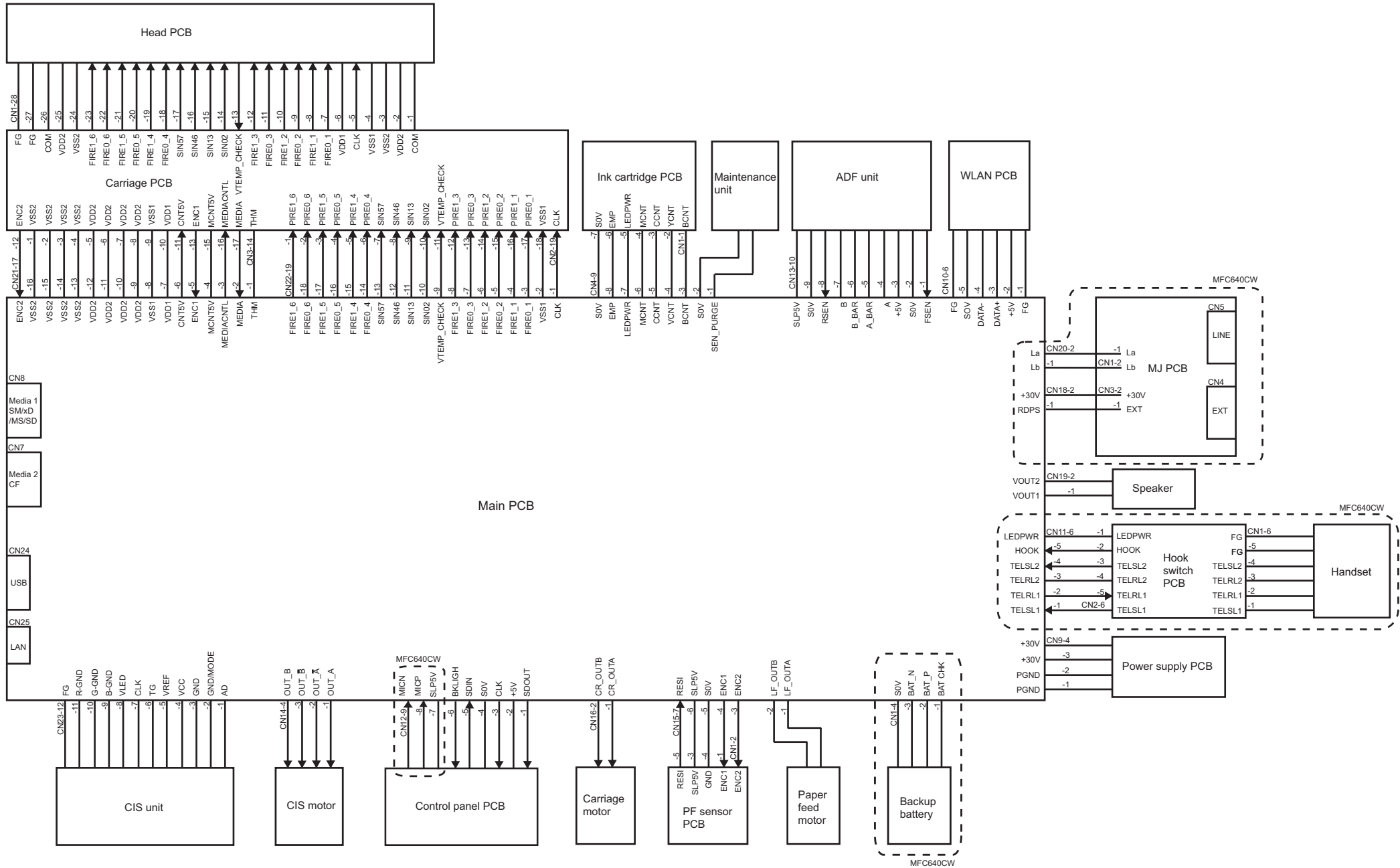
If this selector is set to "0," opening the scanner cover switches from ink near-empty (if detected) to ink empty state, prompting the user to replace the near-empty ink cartridge(s) immediately.

MFC820CW
MFC640CW
DCP340CW

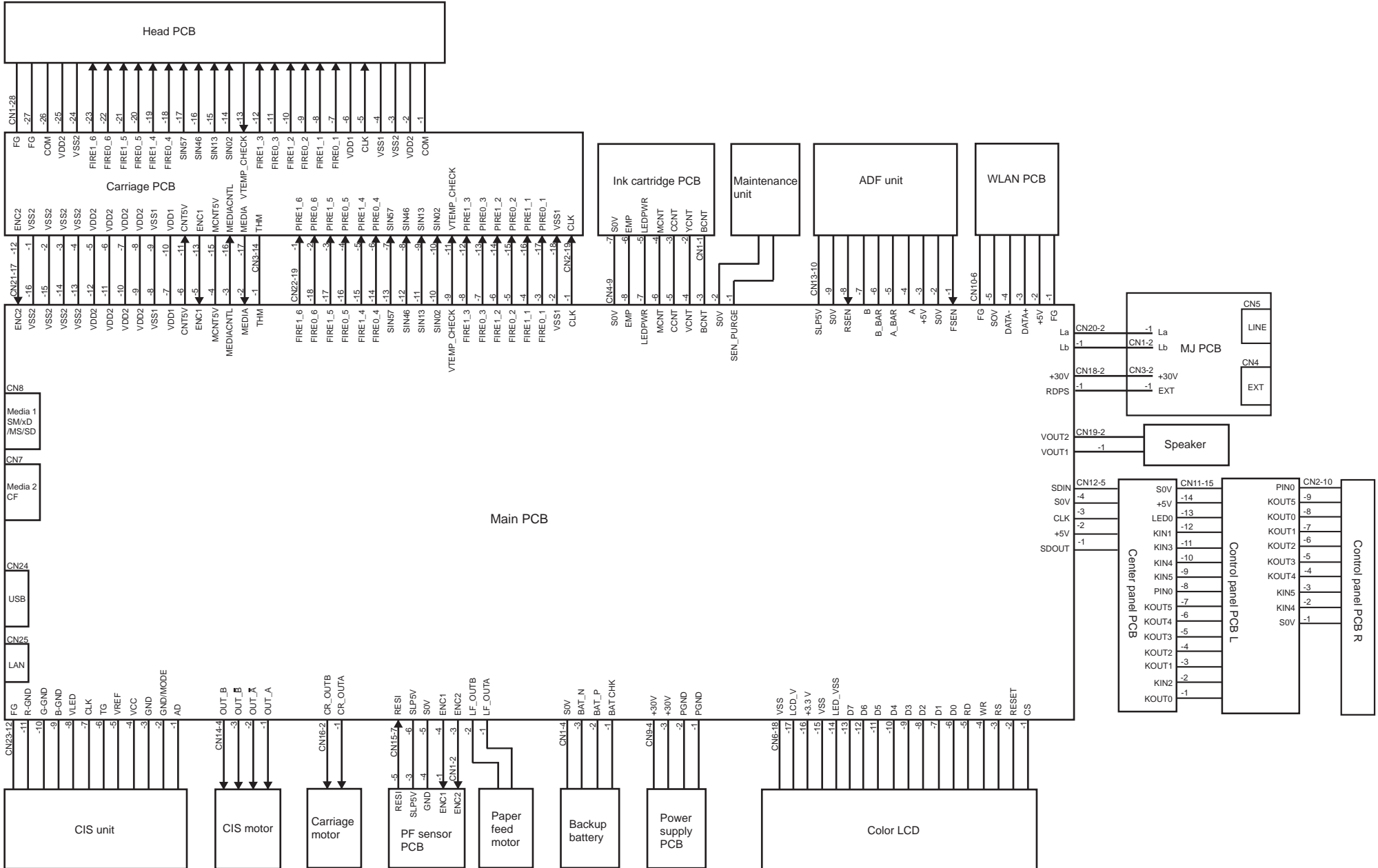
Appendix 5. Wiring Diagrams

This appendix provides the wiring diagrams that help you understand the connections between PCBs.

MFC640CW/DCP340CW



MFC820CW



MFC820CW
MFC640CW
DCP340CW

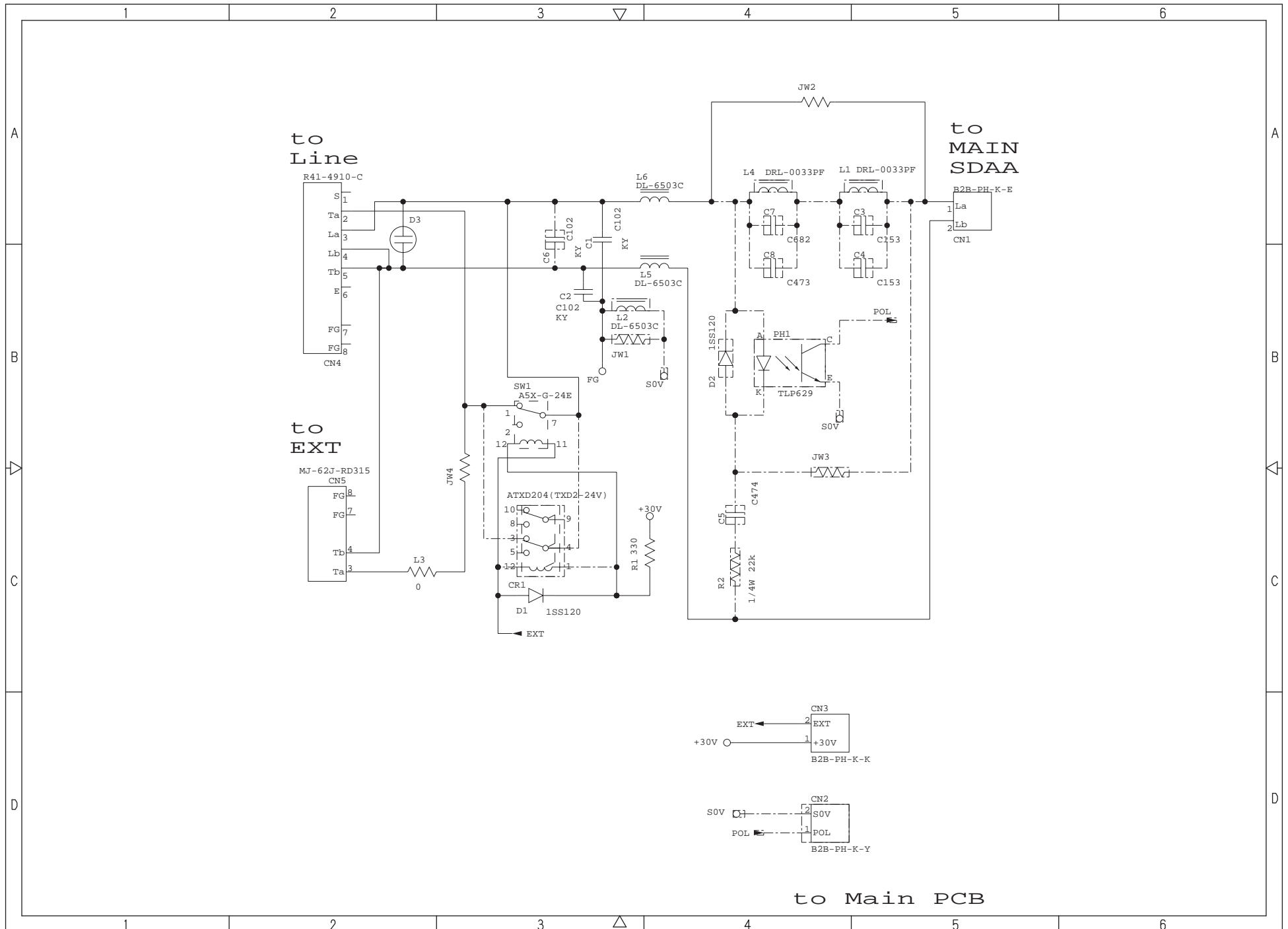
Appendix 6. Circuit Diagrams

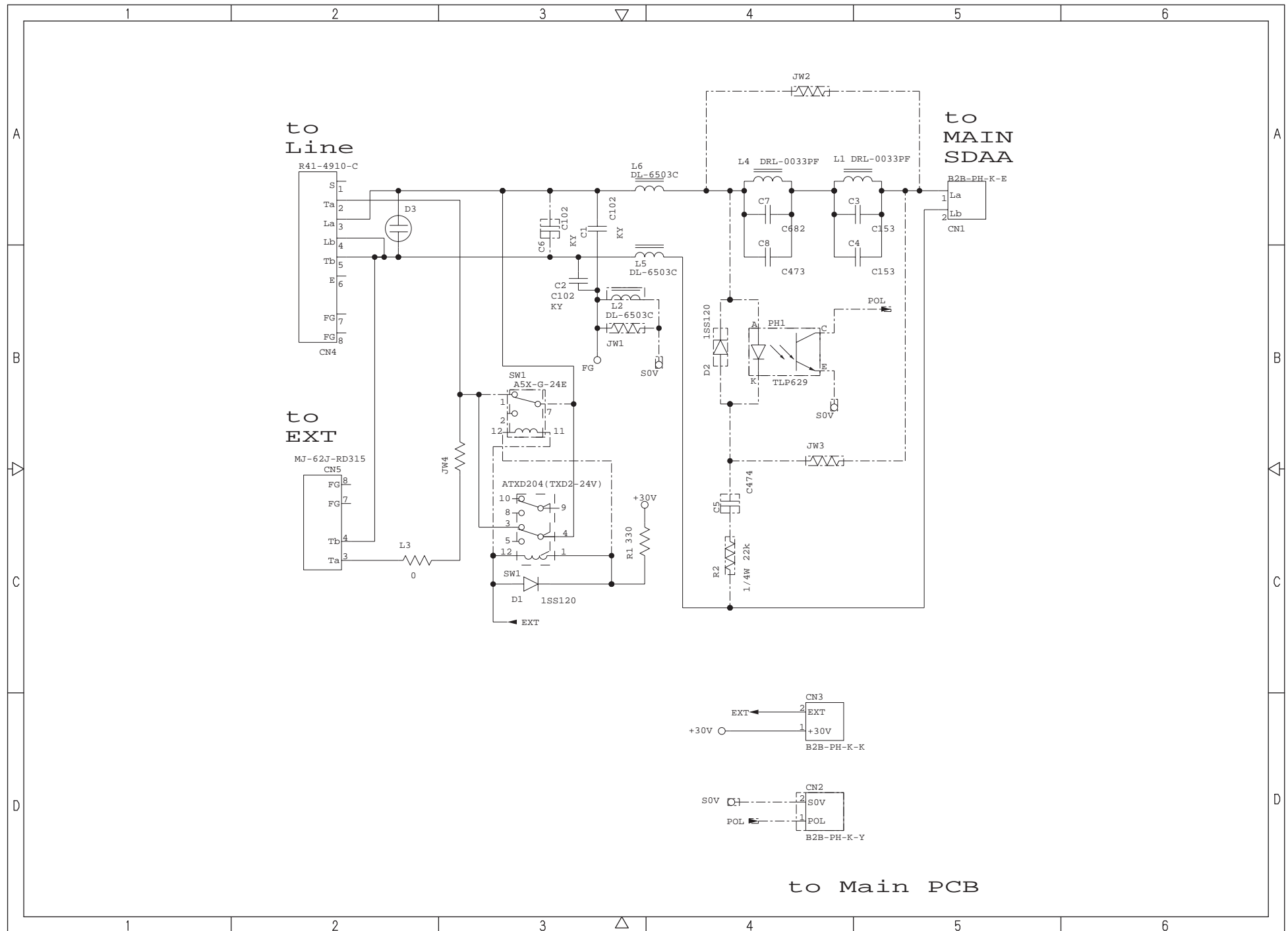
This appendix provides the circuit diagrams of the MJ PCB and power supply PCB.

- A. MJ PCB (U.S.A., Canadian and Asian models except DCP340CW)
MJ PCB (European models except DCP340CW)
- B. Power supply PCB (U.S.A. and Canadian models)
Power supply PCB (European, Asian and Oceanian models)

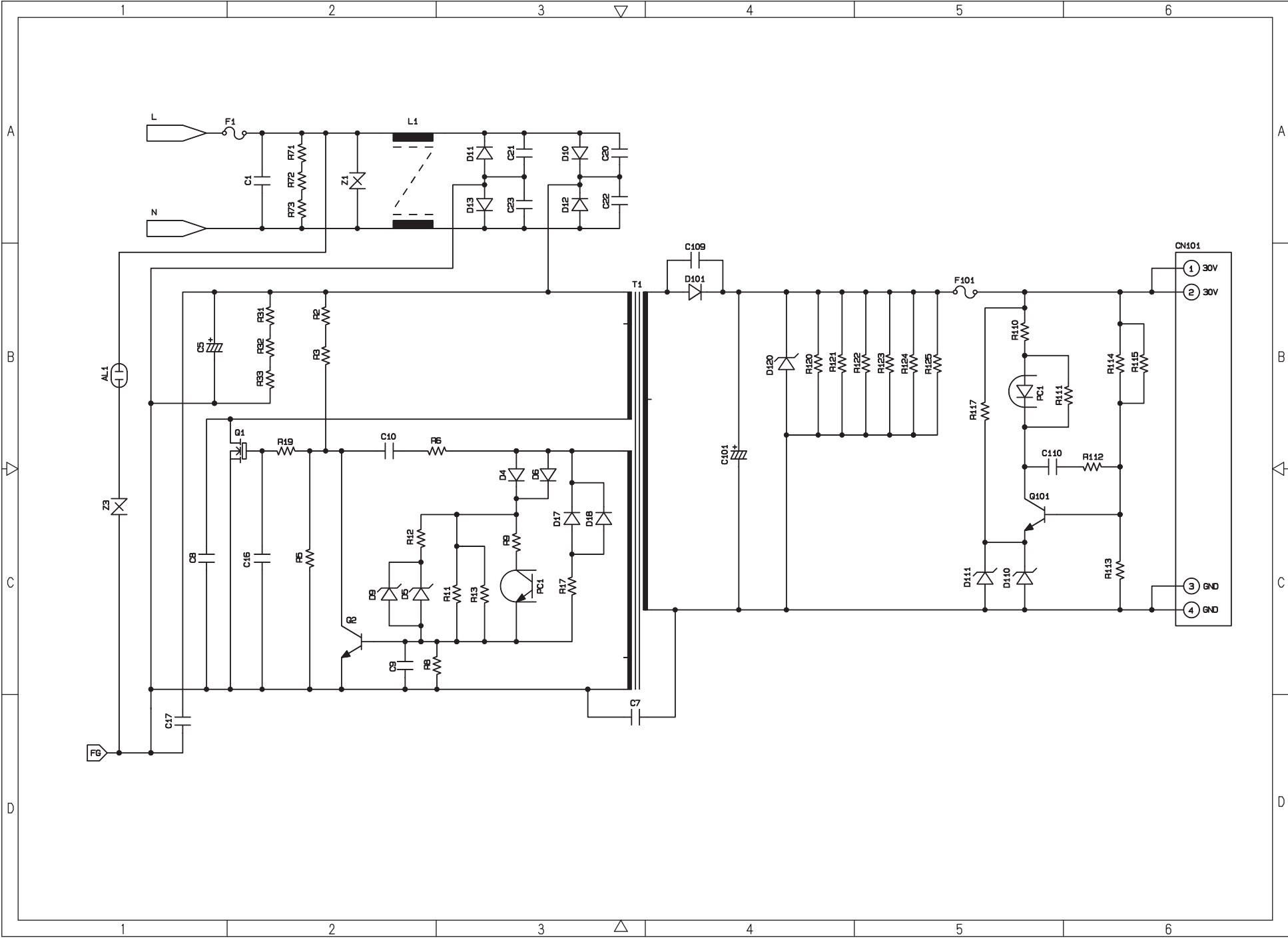
A. MJ PCB

(U.S.A., Canadian and Asian models except DCP340CW)

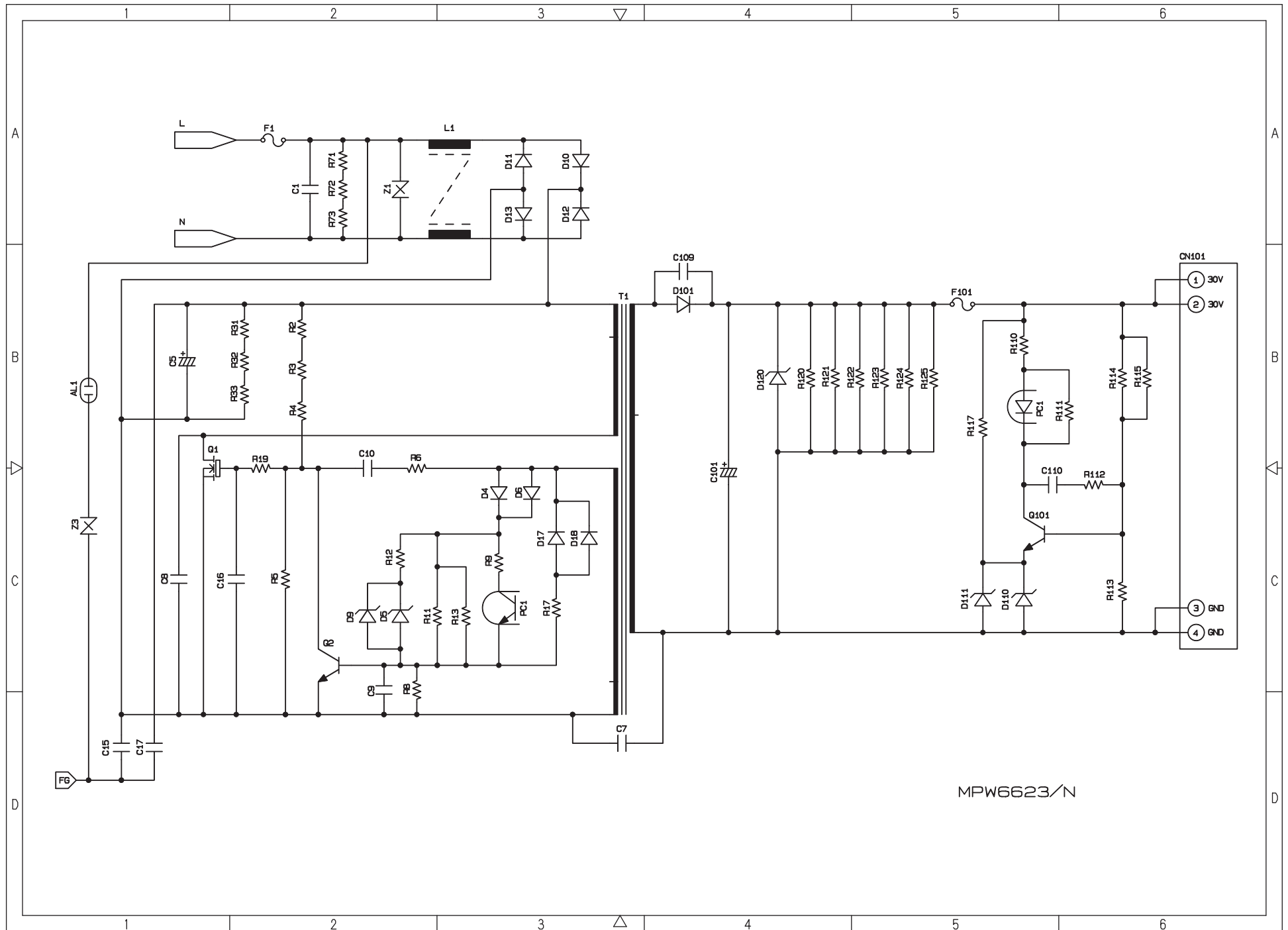




B. Power Supply PCB
(U.S.A. and Canadian models)



B. Power Supply PCB
(European, Asian and Oceanian models)



MPW6623/N

MFC820CW
MFC640CW
DCP340CW

Appendix 7. Viewing the Event Log File

When installing the printer driver, the installer logs events that occur during the installation process in the event log file. This appendix views a sample of the event log file. Selecting Start | Program | Brother | MFL-Pro Suite *model name* | Installation Diagnostics reads out the event log file.

BH3 installation log file

C:\Documents and Settings\All Users\Application Data\Brother\BrLog\BrI\INSTL.log

*****Debug Write Start 2004/07/25 19:28:44*****

Brother(R) Debug Output DLL Version 1.1

Copyright(c) 2004 Brother Industries, Ltd. All Rights Reserved.

***** SYSTEM INFORMATION *****

Function Name: INSTL
CPU Vender: GenuineIntel
Cpu Name: Intel Pentium III
FPU: Supprrted
TSC: Supprrted
MSR: Supprrted
CMOV: Supprrted
MMX: Supprrted
3DNow!: Not Supprrted
SSE_INT: Supprrted
SSE_FP: Supprrted
3DNow! Ext: Not Supprrted
FCMOV: Supprrted
OS Informations:
Windows 2000 Professional Service Pack 2 OS version 5.0.2195
Memory Informations:
Current memory load 28% Total physical memory = 255MB
Available physical memory = 181MB
Total pagefile = 618MB
Available pagefile = 553MB
Total virtual memory = 2047MB
Available virtual memory = 2022MB

***** SYSTEM INFORMATION *****

[00325207] 040000 INF: InstallationIniFilePath = C:\Program Files\Brother\Brmf\04b\Brmf\info.ini

[00325207] 040000 INF: Function Data -----

[00325207] 040000 INF: INIDATA PRT = 1
[00325207] 040000 INF: INIDATA SCN = 1
[00325207] 040000 INF: INIDATA FAXTX = 1
[00325207] 040000 INF: INIDATA FAXRX = 1
[00325207] 040000 INF: INIDATA RSP = 1
[00325217] 040000 INF: INIDATA MEDIA = 7
[00325217] 040000 INF: INIDATA COM = 8 9 10
[00325217] 040000 INF: INIDATA USBID = USBVID_0419 PID_016E
[00325217] 040000 INF: INIDATA LPTID = LPTENUM\Brother\MFC-5840CN USB P 11 85F4
[00325217] 040000 INF: INIDATA PRTNAME = Brother MFC-5840CN USB P 12 r
[00325217] 040000 INF: INIDATA SCNNAME = Brother MFC-5840CN USB 13
[00325217] 040000 INF: INIDATA FAXNAME = Brother PC-FAX #2 14
[00325217] 040000 INF: INIDATA INSTPATH = C:\Program Files\Brother\ 15 f\04b
[00325217] 040000 INF: INIDATA PORTNAME = USB006 16
[00325217] 040000 INF: INIDATA MODELNAME = MFC-5840CN 17
[00325217] 040000 INF: INIDATA INTERFACE = U 18
[00325217] 040000 INF: -----

1

2

6

*1 Header Information
Each start-up creates a new set of information

*2 PC System Information

*3 OS Start-up Time

*4 Error Level

*5 INF: Information / ERR: Error

*6 Information to be checked
(Functions set up by integrated installer)

PRT: Printer driver
SCN: Scanner driver
FAXTX: FAX sending driver
FAXRX: FAX receiving software
RSP: Remote Setup software
MEDIA: Media Drive driver

*7 All models indicate "0" because BH3 doesn't check Media Drive

*8 COM Port Number

*9 Brother ID

*10 MODEL ID (! Machine ID is serial number, not obtained here)

*11 USB connection also requires LPTID

*12 Printer Driver Name

*13 Scanner Driver Name

*14 PC-FAX Sending Driver Name

*15 Folder Name to be installed

*16 USB Port Number

*17 Model Name

*18 Connection Mode (USB / LPT / LAN)

USB Normal

Confidential

```

[00325217] 040000 INF: Win2K
[00325217] 040000 INF: ----- Printer Driver Check Start -----
[00325217] 040000 INF: PARAM MODEL NAME      MFC-5840CN
[00325217] 040000 INF: PARAM CMP PRINTER NAME  Brother MFC-5840CN USB Printer
[00325217] 040000 INF: PARAM INTERFACE        USB
[00325217] 040000 INF: PARAM PRINTER ID
[00325217] 040000 INF: PARAM MODE          0
[00325227] 040000 INF: PARAM CMP NAME CHANGE  Brother MFC-5840CN USB Printer
[00325227] 040000 INF: PARAM CMP NAME CHANGE  Brother MFC-5840CN USB Printer
[00325227] 040000 INF: PARAM CMP NAME CHANGE  Brother MFC-5840CN USB Printer
[00325227] 040000 INF: EXIST DRIVER NAME    = Brother MFC-5840CN USB Printer
[00325227] 040000 INF: LOCAL PORT NAME      = USB006
[00325227] 040000 INF: ----- Printer Driver Check End -----

```

19

*19 Installation Check Detail

*20 Printer Driver Installation Check

20

```

[00325227] 040000 INF: ----- Scanner Driver Check Start -----
[00325497] 040000 INF: Initialize() Result = 0
[00325497] 040000 INF: Scanner Install = OK
[00325497] 040000 INF: ----- Scanner Driver Check End -----

```

23

*22 Scanner Driver Installation Check

*23 Scanner Error Code

*24 If Scanner Install =OK, Scanner Driver is properly installed.

24

22

```

[00325497] 040000 INF: ----- FAXTX Driver Check Start -----
[00325497] 040000 INF: PARAM MODEL NAME      PC-FAX
[00325497] 040000 INF: PARAM CMP PRINTER NAME  Brother PC-FAX #2
[00325497] 040000 INF: PARAM INTERFACE        USB
[00325497] 040000 INF: PARAM PRINTER ID
[00325497] 040000 INF: PARAM MODE          0
[00325507] 040000 INF: EXIST DRIVER NAME    = Brother PC-FAX #2
[00325507] 040000 INF: PC-FAX PORT NAME      = USB006
[00325507] 040000 INF: ----- FAXTX Driver Check End -----

```

25

*25 FAX(Tx) Driver Installation Check

*26 If there is EXIST DRIVER NAME, PC-FAX sending driver is properly installed.

26

```

[00325507] 040000 INF: ----- FAXRX Check Start -----
[00325507] 040000 INF: FAXRX FILE CHECK
[00325507] 040000 INF: ----- FAXRX Check End -----

```

28

*27 FAX(Rx) File Check

*28 If FAXRX FILE CHECK =OK, FAX receiving file is properly copied.

27

```

[00325507] 040000 INF: ----- RSP Check Start -----
[00325507] 040000 INF: RSP FILE CHECK =
[00325507] 040000 INF: ----- RSP Check End -----

```

30

*29 Remote Setup File Check

*30 If RSP FILE CHECK =OK, RSP file is properly copied.

29

```

[00325507] 040000 INF: ----- Serial Port Check Start -----
[00326508] 040000 INF: FAXRX Connect OK
[00326508] 040000 INF: RSP Connect OK
[00326528] 040000 INF: ----- Serial Port Check End -----

```

32

*31 Serial Port (COM Port Driver Check)

*32 FAX receiving and RSP are communicating properly with COM port.

31

[00326528] 040000 INF: ----- Enumerate Host Controllers Check Start -----
[00326649] 040000 INF: USB Host Controller: \\.\HCD0 = Intel 82371AB/EB PCI to USB Universal Host Controller

[00327280] 040000 INF: ----- Connect Device Information Start ----- [34]
[00327280] 040000 INF: Port1: Dev1 = USB Composite Device
[00327280] 040000 INF: ----- Connect Device Information End -----

[00328181] 040000 INF: ----- Printer Connect Check Start -----
[00328181] 040000 INF: PARAM MODEL NAME MFC-5840CN
[00328181] 040000 INF: PARAM CMP PRINTER NAME Brother MFC-5840CN USB Printer
[00328181] 040000 INF: PARAM INTERFACE USB
[00328181] 040000 INF: PARAM PRINTER ID 7&19fa3abd&0&USB006
[00328181] 040000 INF: PARAM MODE 1
[00328191] 040000 INF: Get Printer ID = USBPRINT\BROTHERMFC-5840CN7&19FA3ABD&0&USB006

[00328191] 040000 INF: Printer ID is agreement!
[00328191] 040000 INF: REAL PORT = USB006 [36]

[00328191] 040000 INF: ----- Printer Port Check Start -----
[00328191] 040000 INF: PRINTER PORT CHECK = USB [37]
[00328191] 040000 INF: INTERFACE = USB [38]
[00328191] 040000 INF: PORT CHECK = OK [39]

[00328191] 040000 INF: ----- Printer Port Check End -----
[00328191] 040000 INF: PARAM MODEL NAME PC-FAX
[00328191] 040000 INF: PARAM CMP PRINTER NAME Brother PC-FAX #2
[00328191] 040000 INF: PARAM INTERFACE USB
[00328191] 040000 INF: PARAM PRINTER ID 7&19FA3ABD&0&USB006
[00328191] 040000 INF: PARAM MODE 1

[00328191] 040000 INF: ----- Fax Port Check Start -----
[00328191] 040000 INF: FAX PORT CHECK = USB006 [41]
[00328191] 040000 INF: INTERFACE = USB [42]
[00328191] 040000 INF: PORT CHECK = OK [43]
[00328191] 040000 INF: ----- Fax Port Check End -----
[00328191] 040000 INF: ----- Printer Connect Check End -----

[00328191] 040000 INF: ----- Connect Device Information Start -----
[00328191] 040000 INF: Port1: Dev1 = Brother MFC-5840CN USB [44] ter
[00328191] 040000 INF: ----- Connect Device Information End -----

[00328621] 040000 INF: ----- Scanner Connect Check Start ----- [45]
[00328872] 040000 INF: Initialize() Result = 0 [46]
[00329302] 040000 INF: ChkStiDevice() Result = 0
[00329302] 040000 INF: ChkWiaDevice() Result = 3
[00331215] 040000 INF: ChkTwainDs() Result = 0
[00331215] 040000 INF: Get ScannerName = Brother MFC-5840CN USB
[00331656] 040000 INF: GetDefaultTwds() Result = 0
[00331656] 040000 INF: Get DefaultDS = TWAIN_32 Brother MFL Pro Scanner
[00332177] 040000 INF: GetPortName() Result = 0
[00332177] 040000 INF: Get PortName = \\.\BrUsca [47]
[00332617] 040000 INF: ChkDevCommunication() Result [48]
[00332617] 040000 INF: Scanner Connect = OK
[00332617] 040000 INF: ----- Scanner Connect Check End -----

[33]

*33 Communication Check
*34 USB device is connected to USB Port1.
If other USB devices are connected to USB Port2, it will be also indicated.
! If no device is recognized, HUB might be connected to the port. In this case, displace it.

[35]

*35 Printer Driver Communication Check

[36]

*36 Port Name created by installer

[37]

*37 Communication Check to this port

[38]

*38 Port Type (USB/LPT/LAN)

[39]

*39 Communication Check Result

[40]

*40 PC-FAX Sending Driver Check

[41]

*41 Communication Check to this port

[42]

*42 Port Type (USB/LPT/LAN)

[43]

*43 Communication Check Result

[44]

*44 No meaning (Ignore)

[45]

*45 Scanner Driver Communication Check

[46]

*46 Scanner Error Code (Refer to the Scanner Error Code List)

[47]

*47 Port Name the scanner is using

[48]

*48 ! If USB ID is not correct, it indicates "6"

USB Normal

Confidential

[00334049] 040000 INF: ----- Media Connect Check Start ----- [49]
[00334049] 040000 INF: ----- Media Connect Check End -----

*49 BH3 doesn't check the media drive driver.

[00334049] 040000 INF: ----- Connect Device Information Start -----
[00334049] 040000 INF: Port1: Dev1 = Brother MFC-5840CN USB Device [50]
[00334049] 040000 INF: ----- Connect Device Information End -----

*50 No meaning (Ignore)

[00334049] 040000 INF: ----- Connect Device Information Start -----
[00334049] 040000 INF: Port1: Dev1 = USB Printing Support [51]
[00334049] 040000 INF: Port1: Dev2 = Brother MFC-5840CN USB [52]
[00334049] 040000 INF: Port1: Dev3 = Brother MFC-5840CN USB Remote Setup Port [52] (COM5)
[00334049] 040000 INF: Port1: Dev4 = USB Mass Storage Device
[00334049] 040000 INF: ----- Connect Device Information End -----

*51 It indicates connected devices
(A connected device can be indicated including other company's products)
*52 If another device is connected to USB Port2, it is also indicated.

[00334049] 040000 INF: USB Hub Information: [Port1] DeviceConnected = USB Composite Device [53]
[00334049] 040000 INF: USB Hub Information: [Port2] NoDeviceConnected = NoDeviceConnected

*53 It indicates that each port is connected to devices or not.

[00334049] 040000 INF: ----- Enumerate Host Controllers Check End -----

[00334510] 040000 INF: ----- USB Chip information Check Start -----
[00334510] 040000 INF: USB Chip0(Device25) = Intel 82371AB/EB PCI to ISA bridge (ISA mode)
[00334510] 040000 INF: USB Chip1(Device26) = Intel(r) 82371AB/EB PCI Bus Master IDE Controller
[00334510] 040000 INF: USB Chip2(Device27) = Intel 82371AB/EB PCI to USB Universal Host Controller [54]
[00334510] 040000 INF: USB Chip3(Device28) = Intel 82443BX Pentium(r) II Processor to PCI Bridge
[00334510] 040000 INF: USB Chip4(Device29) = Intel 82443BX Pentium(r) II Processor to AGP Controller
[00334510] 040000 INF: ----- USB Chip information Check End -----

*54 USB Chip Information

[00334510] 040000 INF: ----- ADD/REMOVE APPLICATION Check Start -----
[00334510] 040000 INF: AddRemove Display Name: DisplayName1 = Brother HL-5070
[00334510] 040000 INF: AddRemove Display Name: DisplayName2 = NVIDIA Windows 2000 Display Drivers
[00334510] 040000 INF: AddRemove Display Name: DisplayName3 = Microsoft Visual Studio 6.0 Enterprise Edition
[00334510] 040000 INF: AddRemove Display Name: DisplayName4 = Microsoft Web Publishing Wizard 1.53
[00334510] 040000 INF: AddRemove Display Name: DisplayName5 = Microsoft Office 2000 Premium [55]
[00334510] 040000 INF: AddRemove Display Name: DisplayName6 = Brother MFL-Pro Suite
[00334510] 040000 INF: AddRemove Display Name: DisplayName7 = Brother Drivers
[00334510] 040000 INF: AddRemove Display Name: DisplayName8 = WebFldrs
[00334510] 040000 INF: AddRemove Display Name: DisplayName9 = Brother Drivers
[00334510] 040000 INF: ----- ADD/REMOVE APPLICATION Check End -----

*55 Add/Remove Application Information

```

[00341109] 040000 57 ----- Process Information Start -----
[00341109] 010000 ERR: Process1=
[00341109] 010000 ERR: Process2=
[00341109] 010000 ERR: Process3=\SystemRoot\System32\smss.exe
[00341109] 010000 ERR: Process4=
[00341109] 010000 ERR: Process5=\\??\C:\WINNT\system32\winlogon.exe
[00341109] 010000 ERR: Process6=C:\WINNT\system32\services.exe
[00341109] 010000 ERR: Process7=C:\WINNT\system32\lsass.exe
[00341109] 010000 ERR: Process8=C:\WINNT\system32\svchost.exe
[00341109] 010000 ERR: Process9=C:\WINNT\system32\spoolsv.exe
[00341109] 010000 ERR: Process10=C:\WINNT\System32\svchost.exe
[00341109] 010000 ERR: Process11=C:\WINNT\system32\regsvc.exe
[00341109] 010000 ERR: Process12=C:\WINNT\system32\MSTask.exe
[00341109] 010000 ERR: Process13=C:\WINNT\System32\WBEM\WinMgmt.exe
[00341109] 010000 ERR: Process14=C:\WINNT\Explorer.EXE
[00341109] 010000 ERR: Process15=C:\Program Files\Brownie\brstswnd.exe
[00341109] 010000 ERR: Process16=C:\Program Files\Brownie\Brcdcom.exe
[00341109] 010000 ERR: Process17=\\apngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Setup.exe
[00341109] 010000 ERR: Process18=\\apngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Setup.exe
[00341109] 010000 ERR: Process19=\\apngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Diagnosis\BR_collect.exe
[00341109] 040000 INF: ----- Process Information End -----

```

56 *56 Process Information which is running
! If you failed to install and virus checker was running, displace it.

*57 ERRs are just a bug. Fix with ALL

```

[00341109] 040000 INF: ----- Startup Information Start -----
[00341109] 040000 INF: STARTUP: = Microsoft Office.lnk
[00341109] 040000 INF: STARTUP: = Status Monitor.lnk
[00341109] 040000 INF: ----- Startup Information End -----

```

58 *58 Startup Registration
! If you failed to install and virus checker was running, displace it.

```

[00347739] 040000 INF: ----- Installation Diagnostics Result Start -----

```

```

[00347739] 040000 INF: PRT = OK
[00347739] 040000 INF: PRT_INST = OK
[00347739] 040000 INF: PRT_PORT = USB006

```

```

[00347739] 040000 INF: SCN = OK
[00347739] 040000 INF: SCN_INST = OK
[00347739] 040000 INF: SCN_PORT = \\.\BrUscan0

```

```

[00347739] 040000 INF: FAXTX = OK
[00347739] 040000 INF: FAXTX_INST = OK
[00347739] 040000 INF: FAXTX_PORT = USB006

```

```

[00347739] 040000 INF: FAXRX = OK
[00347739] 040000 INF: FAXRX_INST = OK
[00347739] 040000 INF: FAXRX_PORT = COM5:

```

```

[00347739] 040000 INF: RSP = OK
[00347739] 040000 INF: RSP_INST = OK
[00347739] 040000 INF: RSP_PORT = COM5:

```

```

[00347739] 040000 INF: ----- Installation Diagnostics Result End -----
*****Debug Write End 2004/07/25 19:29:10*****

```

59 *59 Installation Diagnostics Result (OK / NG(Installation) / NG(Communication))

60 *60 Printer Driver Integrated Diagnostic Result

61 *61 Printer Driver Installation Result

62 *62 Printer Driver Port

63 *63 Scanner Driver Integrated Diagnostic Result

64 *64 Scanner Driver Installation Result

65 *65 Scanner Driver Port

66 *66 PC-FAX Sending Driver Integrated Diagnostic Result

67 *67 PC-FAX Sending Driver Installation Result

68 *68 PC-FAX Sending Driver Port

69 *69 PC-FAX Receiving Driver Integrated Diagnostic Result

70 *70 PC-FAX Receiving Driver Installation Result

71 *71 PC-FAX Receiving Driver Port

72 *72 RSP Software Integrated Diagnostic Result

73 *73 RSP Software Installation Result

74 *74 RSP Software Port

BH3 installation log file

C:\Documents and Settings\All Users\Application Data\Brother\BrLog\BrtlNSTL.log

*****Debug Write Start 2004/07/25 19:26:59*****

Brother(R) Debug Output DLL Version 1.1
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***** SYSTEM INFORMATION *****

Function Name: **INSTL**
CPU Vender: GenuineIntel
Cpu Name: Intel Pentium III
FPU: Supprted
TSC: Supprted
MSR: Supprted
CMOV: Supprted
MMX: Supprted
3DNow!: Not Supprted
SSE_INT: Supprted
SSE_FP: Supprted
3DNow! Ext: Not Supprted
FCMOV: Supprted
OS Informations:
Windows 2000 Professional Service Pack 2 OS version 5.0.2195
Memory Informations:
Current memory load 28% Total physical memory = 255MB
Available physical memory = 183MB
Total pagefile = 618MB
Available pagefile = 557MB
Total virtual memory = 2047MB
Available virtual memory = 2022MB

***** SYSTEM INFORMATION *****

[00220757] 040000 INF: InstallationIniFilePath = C:\Program Files\Brother\Brmf104b\Brmfinfo.ini
[00220787] 040000 INF: Function Data -----
[00220787] 040000 INF: INIDATA PRT = 1
[00220787] 040000 INF: INIDATA SCN = 1
[00220787] 040000 INF: INIDATA FAXTX = 1
[00220787] 040000 INF: INIDATA FAXRX = 1
[00220787] 040000 INF: INIDATA RSP = 1
[00220787] 040000 INF: INIDATA MEDIA = 7
[00220787] 040000 INF: INIDATA COM = 8
[00220787] 040000 INF: INIDATA USBID = USB\VID_04F9&PID_016E
[00220787] 040000 INF: INIDATA LPTID = LPTENUM\BrotherMFC-5840 11 35F4
[00220787] 040000 INF: INIDATA PRTNAME = Brother MFC-5840CN USB Pr 12
[00220787] 040000 INF: INIDATA SCNNAME = Brother MFC-5840CN USB 13
[00220787] 040000 INF: INIDATA FAXNAME = Brother PC-FAX #2 14
[00220787] 040000 INF: INIDATA INSTPATH = C:\Program Files\Brother\ 15 104b
[00220787] 040000 INF: INIDATA PORTNAME = USB006 16
[00220787] 040000 INF: INIDATA MODELNAME = MFC-5840CN 17
[00220787] 040000 INF: INIDATA INTERFACE = U 18
[00220787] 040000 INF: -----

*1 Header Information
Each start-up creates a new set of information

*2 PC System Information

*3 OS Start-up Time
*4 Error Level
*5 INF: Information / ERR: Error

*6 Information to be checked
(Functions set up by integrated installer)
PRT: Printer driver
SCN: Scanner driver
FAXTX: FAX sending driver
FAXRX: FAX receiving software
RSP: Remote Setup software
MEDIA: Media Drive driver

*7 All models indicate "0" because BH3 doesn't check Media Drive
*8 COM Port Number
*9 Brother ID
*10 MODEL ID (! Machine ID is serial number, not obtained here)
*11 USB connection also requires LPTID
*12 Printer Driver Name
*13 Scanner Driver Name
*14 PC-FAX Sending Driver Name
*15 Folder Name to be installed
*16 USB Port Number
*17 Model Name
*18 Connection Mode (USB / LPT / LAN)


```

[00220787] 040000 INF: Win2K
[00220837] 040000 INF: ----- Printer Driver Check Start -----
[00220847] 040000 INF: PARAM MODEL NAME      MFC-5840CN
[00220847] 040000 INF: PARAM CMP PRINTER NAME  Brother MFC-5840CN USB Printer
[00220847] 040000 INF: PARAM INTERFACE        USB
[00220847] 040000 INF: PARAM PRINTER ID
[00220847] 040000 INF: PARAM MODE          0
[00220857] 040000 INF: PARAM CMP NAME CHANGE  Brother MFC-5840CN USB Printer
[00220857] 040000 INF: PARAM CMP NAME CHANGE  Brother MFC-5840CN USB Printer
[00220857] 040000 INF: PARAM CMP NAME CHANGE  Brother MFC-5840CN USB Printer
[00220857] 040000 INF: EXIST DRIVER NAME    = Brother MFC-5840CN USB Printer
[00220857] 040000 INF: LOCAL PORT NAME     = USB006
[00220857] 040000 INF: ----- Printer Driver Check End -----

```

*19 Installation Check Detail
 *20 Printer Driver Installation Check

```

[00220857] 040000 INF: ----- Scanner Driver Check Start -----
[00221158] 040000 INF: Initialize() Result = 5
[00221158] 040000 INF: Scanner Install = OK
[00221158] 040000 INF: ----- Scanner Driver Check End -----

```

*22 Scanner Driver Installation Check
 *23 Scanner Error Code:5 = The specified device is not connected (only USB connection).
 *24 If Scanner Install =OK, Scanner Driver is properly installed.

```

[00221158] 040000 INF: ----- FAXTX Driver Check Start -----
[00221158] 040000 INF: PARAM MODEL NAME      PC-FAX
[00221158] 040000 INF: PARAM CMP PRINTER NAME  Brother PC-FAX #2
[00221158] 040000 INF: PARAM INTERFACE        USB
[00221158] 040000 INF: PARAM PRINTER ID
[00221158] 040000 INF: PARAM MODE          0
[00221158] 040000 INF: EXIST DRIVER NAME    = Brother PC-FAX #2
[00221158] 040000 INF: PC-FAX PORT NAME     = USB006
[00221158] 040000 INF: ----- FAXTX Driver Check End -----

```

*25 FAX(Tx) Driver Installation Check
 *26 If there is EXIST DRIVER NAME, PC-FAX sending driver is properly installed.

```

[00221168] 040000 INF: ----- FAXRX Check Start -----
[00221168] 040000 INF: FAXRX FILE CHECK = OK
[00221168] 040000 INF: ----- FAXRX Check End -----

```

*27 FAX(Rx) File Check
 *28 If FAXRX FILE CHECK =OK, FAX receiving file is properly copied.

```

[00221168] 040000 INF: ----- RSP Check Start -----
[00221168] 040000 INF: RSP FILE CHECK = OK
[00221168] 040000 INF: ----- RSP Check End -----

```

*29 Remote Setup File Check
 *30 If RSP FILE CHECK =OK, RSP file is properly copied.

```

[00221168] 040000 INF: ----- Serial Port Check Start -----
[00221168] 010000 ERR: Open Serial Port Failure
[00221168] 010000 ERR: Port Name = \\.\COM5
[00221168] 040000 INF: ----- Serial Port Check End -----

```

*31 Serial Port (COM Port Driver Check)
 *32 PC-FAXRX is not available due to serial port failure..

```

[00221288] 040000 INF: ----- Enumerate Host Controllers Check Start -----
[00221288] 040000 INF: USB Host Controller:  \\.\HCD0 = Intel 82371AB/EB PCI to USB Universal Host Controller
[00221288] 040000 INF: USB Hub Information:  [Port1] NoDeviceConnected = NoDeviceConnected
[00221288] 040000 INF: USB Hub Information:  [Port2] NoDeviceConnected = NoDeviceConnected
[00221288] 040000 INF: ----- Enumerate Host Controllers Check End -----

```

*33 Communication Check
 *34 No device is connected to USB or no device is recognized because of HUB.
 Communication check is not attempted because the connection is not recognizable.

[00221669] 040000 INF: ----- USB Chip information Check Start -----
[00221669] 040000 INF: USB Chip0(Device25) = Intel 82371AB/EB PCI to ISA bridge (ISA mode)
[00221669] 040000 INF: USB Chip1(Device26) = Intel(r) 82371AB/EB PCI Bus Master IDE Controller
[00221669] 040000 INF: USB Chip2(Device27) = Intel 82371AB/EB PCI to USB Universal Host Controller
[00221669] 040000 INF: USB Chip3(Device28) = Intel 82443BX Pentium(r) II Processor to PCI Bridge
[00221669] 040000 INF: USB Chip4(Device29) = Intel 82443BX Pentium(r) II Processor to AGP Controller
[00221669] 040000 INF: ----- USB Chip information Check End -----

*54 USB Chip Information

[00221669] 040000 INF: ----- ADD/REMOVE APPLICATION Check Start -----
[00221669] 040000 INF: AddRemove Display Name: DisplayName1 = Brother HL-5070
[00221669] 040000 INF: AddRemove Display Name: DisplayName2 = NVIDIA Windows 2000 Display Drivers
[00221669] 040000 INF: AddRemove Display Name: DisplayName3 = Microsoft Visual Studio 6.0 Enterprise Edition
[00221669] 040000 INF: AddRemove Display Name: DisplayName4 = Microsoft Web Publishing Wizard 1.53
[00221679] 040000 INF: AddRemove Display Name: DisplayName5 = Microsoft Office 2000 Premium
[00221679] 040000 INF: AddRemove Display Name: DisplayName6 = Brother MFL-Pro Suite
[00221679] 040000 INF: AddRemove Display Name: DisplayName7 = Brother Drivers
[00221679] 040000 INF: AddRemove Display Name: DisplayName8 = WebFldrs
[00221679] 040000 INF: AddRemove Display Name: DisplayName9 = Brother Drivers
[00221679] 040000 INF: ----- ADD/REMOVE APPLICATION Check End -----

*55 Add/Remove Application Information

[00235399] 040000 [57] ----- Process Information Start -----
[00235429] 010000 ERR: Process1=
[00235429] 010000 ERR: Process2=
[00235429] 010000 ERR: Process3=\SystemRoot\System32\smss.exe
[00235429] 010000 ERR: Process4=
[00235429] 010000 ERR: Process5=?\C:\WINNT\system32\winlogon.exe
[00235429] 010000 ERR: Process6=C:\WINNT\system32\services.exe
[00235429] 010000 ERR: Process7=C:\WINNT\system32\lsass.exe
[00235429] 010000 ERR: Process8=C:\WINNT\system32\svchost.exe
[00235429] 010000 ERR: Process9=C:\WINNT\system32\spoolsv.exe
[00235429] 010000 ERR: Process10=C:\WINNT\System32\svchost.exe
[00235429] 010000 ERR: Process11=C:\WINNT\system32\regsvc.exe
[00235429] 010000 ERR: Process12=C:\WINNT\system32\IMSTask.exe
[00235429] 010000 ERR: Process13=C:\WINNT\System32\WBEM\WinMgmt.exe
[00235429] 010000 ERR: Process14=C:\WINNT\Explorer.EXE
[00235429] 010000 ERR: Process15=C:\Program Files\Brownie\brstswnd.exe
[00235429] 010000 ERR: Process16=C:\Program Files\Brownie\Brcdcom.exe
[00235429] 010000 ERR: Process17=\\apngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Setup.exe
[00235429] 010000 ERR: Process18=\\apngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Setup.exe
[00235429] 010000 ERR: Process19=\\apngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Diagnosis\BR_collect.exe
[00235459] 040000 INF: ----- Process Information End -----

*56 Process Information running now

*57 ERRs are just a bug. Fix with ALL

[00235459] 040000 INF: ----- Startup Information Start -----
[00235459] 040000 INF: STARTUP: = Microsoft Office.lnk
[00235459] 040000 INF: STARTUP: = Status Monitor.lnk
[00235459] 040000 INF: ----- Startup Information End -----

*58 Startup Registration

[00242088] 040000 INF: ----- Installation Diagnostics Result Start -----
[00242088] 010000 ERR: PRT = NG (Communication) 60
[00242088] 010000 ERR: PRT_INST = OK 61
[00242088] 010000 ERR: PRT_PORT = USB006 62

[00242088] 010000 ERR: SCN = NG (Communication) 63
[00242088] 010000 ERR: SCN_INST = OK 64
[00242088] 010000 ERR: SCN_PORT = --- 65

[00242088] 010000 ERR: FAXTX = NG (Communication) 66
[00242088] 010000 ERR: FAXTX_INST = OK 67
[00242088] 010000 ERR: FAXTX_PORT = USB006 68

[00242088] 010000 ERR: FAXRX = NG (Communication) 69
[00242088] 010000 ERR: FAXRX_INST = OK 70
[00242088] 010000 ERR: FAXRX_PORT = COM5: 71

[00242088] 010000 ERR: RSP = NG (Communication) 72
[00242088] 010000 ERR: RSP_INST = OK 73
[00242088] 010000 ERR: RSP_PORT = COM5: 74

[00242088] 040000 INF: ----- Installation Diagnostics Result End -----

59

- *59 Installation Diagnostics Result (OK / NG(Installation) / NG(Communication))
- *60 Printer Driver Installation Failure (CANNOT Communicate)
- *61 Printer Driver Installation Result
- *62 Printer Driver Port

- *63 Scanner Driver Installation Failure (CANNOT Communicate)
- *64 Scanner Driver Installation Result
- *65 Scanner Driver Port

- *66 PC-FAX Sending Driver Installation Failure(CANNOT Communicate)
- *67 PC-FAX Sending Driver Installation Result
- *68 PC-FAX Sending Driver Port

- *69 PC-FAX Receiving Software Installation Failure(CANNOT Communicate)
- *70 PC-FAX Receiving Software Installation Result
- *71 PC-FAX Receiving Software Port

- *72 RSP Software Installation Failure (CANNOT Communicate)
- *73 RSP Software Installation Result
- *74 RSP Software Port

*****Debug Write End 2004/07/25 19:27:25*****

BH3 installation log file

C:\Documents and Settings\All Users\Application Data\Brother\BrLog\BrtINSTL.log

*****Debug Write Start 2004/07/25 19:33:41*****

Brother(R) Debug Output DLL Version 1.1
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***** SYSTEM INFORMATION *****

Function Name: INSTL
 CPU Vender: GenuineIntel
 Cpu Name: Intel Pentium III
 FPU: Suppported
 TSC: Suppported
 MSR: Suppported
 CMOV: Suppported
 MMX: Suppported
 3DNow!: Not Suppported
 SSE_INT: Suppported
 SSE_FP: Suppported
 3DNow! Ext: Not Suppported
 FCMOV: Suppported
 OS Informations:
 Windows 2000 Professional Service Pack 2 OS version 5.0.2195
 Memory Informations:
 Current memory load 28% Total physical memory = 255MB
 Available physical memory = 181MB
 Total pagefile = 618MB
 Available pagefile = 554MB
 Total virtual memory = 2047MB
 Available virtual memory = 2022MB

1

*1 Header Information
Each start-up creates a new set of information

2

*2 PC System Information

*3 OS Start-up Time
*4 Error Level
*5 INF: Information / ERR: Error

***** SYSTEM INFORMATION *****

[00622414] 040000 INF: InstallationIniFilePath = C:\Program Files\Brother\Brmf104b\Brmfinfo.ini
 [00622414] 040000 INF: Function Data -----
 [00622414] 040000 INF: INIDATA PRT = 1
 [00622414] 040000 INF: INIDATA SCN = 1
 [00622414] 040000 INF: INIDATA FAXTX = 1
 [00622414] 040000 INF: INIDATA FAXRX = 1
 [00622414] 040000 INF: INIDATA RSP = 1
 [00622414] 040000 INF: INIDATA MEDIA = 7
 [00622414] 040000 INF: INIDATA COM = 8 9 1
 [00622414] 040000 INF: INIDATA USBID = USB\VID_04F9&PID_016F
 [00622414] 040000 INF: INIDATA LPTID = LPTENUM\BrotherMFC-5840 11 12 13 15F5
 [00622414] 040000 INF: INIDATA PRTNAME = Brother MFC-5555840CN USB 12 nter
 [00622414] 040000 INF: INIDATA SCNNNAME = Brother MFC-5555840CN USB 13
 [00622424] 040000 INF: INIDATA FAXNAME = Brother PC-FAX #3 14
 [00622424] 040000 INF: INIDATA INSTPATH = C:\Program Files\Brother\B 15 104c
 [00622424] 040000 INF: INIDATA PORTNAME = USB006 16
 [00622424] 040000 INF: INIDATA MODELNAME = MFC-5850CN 17
 [00622424] 040000 INF: INIDATA INTERFACE = U 18
 [00622424] 040000 INF: -----

6

*6 Information to be checked
(Functions set up by integrated installer)
PRT: Printer driver
SCN: Scanner driver
FAXTX: FAX sending driver
FAXRX: FAX receiving software
RSP: Remote Setup software
MEDIA: Media Drive driver

*7 All models indicate "0" because BH3 doesn't check Media Drive
*8 COM Port Number
*9 Brother ID
*10 MODEL ID (! Machine ID is serial number, not obtained here)
*11 USB connection also requires LPTID
*12 Printer Driver Name
*13 Scanner Driver Name
*14 PC-FAX Sending Driver Name
*15 Folder Name to be installed
*16 USB Port Number
*17 Model Name
*18 Connection Mode (USB / LPT / LAN)

Insatallation Failure

Confidential

```

[00622424] 040000 INF: Win2K
[00622424] 040000 INF: ----- Printer Driver Check Start -----
[00622424] 040000 INF: PARAM MODEL NAME      MFC-5850CN
[00622424] 040000 INF: PARAM CMP PRINTER NAME  Brother MFC-5555840CN USB Printer
[00622424] 040000 INF: PARAM INTERFACE      USB
[00622424] 040000 INF: PARAM PRINTER ID
[00622424] 040000 INF: PARAM MODE          0
[00622434] 040000 INF: PARAM CMP NAME CHANGE  Brother MFC-5555840CN USB Printer
[00622434] 040000 INF: PARAM CMP NAME CHANGE  Brother MFC-5555840CN USB Printer
[00622434] 040000 INF: PARAM CMP NAME CHANGE  Brother MFC-5555840CN USB Printer
[00622434] 040000 INF: PARAM CMP NAME CHANGE  Brother MFC-5555840CN USB Printer
[00622434] 040000 INF: PARAM CMP NAME CHANGE  Brother MFC-5555840CN USB Printer
[00622434] 040000 INF: ----- Printer Driver Check End -----

[00622434] 040000 INF: ----- Scanner Driver Check Start -----
[00622454] 040000 INF: Initialize() Result = 4
[00622454] 010000 ERR: Scanner Install = NG
[00622454] 040000 INF: ----- Scanner Driver Check End -----

[00622454] 040000 INF: ----- FAXTX Driver Check Start -----
[00622454] 040000 INF: PARAM MODEL NAME      PC-FAX
[00622454] 040000 INF: PARAM CMP PRINTER NAME  Brother PC-FAX #3
[00622454] 040000 INF: PARAM INTERFACE      USB
[00622454] 040000 INF: PARAM PRINTER ID
[00622454] 040000 INF: PARAM MODE          0
[00622454] 040000 INF: ----- FAXTX Driver Check End -----

[00622454] 040000 INF: ----- FAXRX Check Start -----
[00622454] 040000 INF: FAXRX FILE CHECK = NG
[00622454] 040000 INF: ----- FAXRX Check End -----

[00622454] 040000 INF: ----- RSP Check Start -----
[00622454] 040000 INF: RSP FILE CHECK = NG
[00622454] 040000 INF: ----- RSP Check End -----

[00622454] 040000 INF: ----- Serial Port Check Start -----
[00623465] 040000 INF: FAXRX Connect OK
[00623465] 040000 INF: RSP Connect OK
[00623485] 040000 INF: ----- Serial Port Check End -----

[00623485] 040000 INF: ----- Enumerate Host Controllers Check Start -----
[00623605] 040000 INF: USB Host Controller:  \\.\HCD0 = Intel 82371AB/EB PCI to USB Universal Host Controller
[00623766] 040000 INF: USB Hub Information:  [Port1] DeviceConnected = USB Composite Device
[00623766] 040000 INF: USB Hub Information:  [Port2] NoDeviceConnected = NoDeviceConnected
[00623766] 040000 INF: ----- Enumerate Host Controllers Check End -----

```

19

*19 Installation Check Detail
*20 Printer Driver Installation Check

20

21

*21 If there is no EXIST DRIVER NAME, Driver is not properly installed.

22

*22 Scanner Driver Installation Check
*23 Scanner Error (4= The specified device is not installed)
*24 Scanner Driver is not properly installed.

23

24

25

*25 FAX(Tx) Driver Installation Check

26

*26 If there is no EXIST DRIVER NAME, PC-FAX sending driver is not properly installed.

27

*27 FAX(Rx) File Check
*28 If FAXRX FILE CHECK =NG, FAX sending driver is not properly installed.

28

29

*29 Remote Setup File Check
*30 If RSP FILE CHECK =NG, Remote Setup is not properly installed.

30

31

*31 Serial Port (COM Port Driver Check)
*32 FAX sending and RSP are not properly installed, but communication is available.
FAX receiving and RSP can be used properly, if file exists

32

33

*33 Communication Check
*34 The installation was not successful, and failed to check USB device.

34

[00624216] 040000 INF: ----- USB Chip information Check Start -----
[00624216] 040000 INF: USB Chip0(Device25) = Intel 82371AB/EB PCI to ISA bridge (ISA mode)
[00624216] 040000 INF: USB Chip1(Device26) = Intel(r) 82371AB/EB PCI Bus Master IDE Controller
[00624216] 040000 INF: USB Chip2(Device27) = Intel 82371AB/EB PCI to USB Universal Host Controller
[00624216] 040000 INF: USB Chip3(Device28) = Intel 82443BX Pentium(r) II Processor to PCI Bridge
[00624216] 040000 INF: USB Chip4(Device29) = Intel 82443BX Pentium(r) II Processor to AGP Controller
[00624216] 040000 INF: ----- USB Chip information Check End -----

*54 USB Chip Information

[00624216] 040000 INF: ----- ADD/REMOVE APPLICATION Check Start -----
[00624216] 040000 INF: AddRemove Display Name: DisplayName1 = Brother HL-5070
[00624216] 040000 INF: AddRemove Display Name: DisplayName2 = NVIDIA Windows 2000 Display Drivers
[00624216] 040000 INF: AddRemove Display Name: DisplayName3 = Microsoft Visual Studio 6.0 Enterprise Edition
[00624216] 040000 INF: AddRemove Display Name: DisplayName4 = Microsoft Web Publishing Wizard 1.53
[00624216] 040000 INF: AddRemove Display Name: DisplayName5 = Microsoft Office 2000 Premium
[00624216] 040000 INF: AddRemove Display Name: DisplayName6 = Brother MFL-Pro Suite
[00624216] 040000 INF: AddRemove Display Name: DisplayName7 = Brother Drivers
[00624216] 040000 INF: AddRemove Display Name: DisplayName8 = WebFldrs
[00624216] 040000 INF: AddRemove Display Name: DisplayName9 = Brother Drivers
[00624216] 040000 INF: ----- ADD/REMOVE APPLICATION Check End -----

*55 Add/Remove Application Information

[00625218] 040000 INF: ----- Installation Diagnostics Result Start -----
[00625218] 010000 ERR: PRT = NG (Installation) *59 Installation Diagnostics Result (OK / NG(Installation) / NG(Communication))
[00625218] 010000 ERR: PRT_INST = NG *60 Printer Driver Installation Failure (Failure to install file)
[00625218] 010000 ERR: PRT_PORT = --- *61 Scanner Driver Installation Result
[00625218] 010000 ERR: PRT_PORT = --- *62 Printer Driver Port

[00625218] 010000 ERR: SCN = NG (Installation) *63 Scanner Driver Installation Failure (Failure to install file)
[00625218] 010000 ERR: SCN_INST = NG *64 Scanner Driver Installation Result
[00625218] 010000 ERR: SCN_PORT = --- *65 Scanner Driver Port

[00625218] 010000 ERR: FAXTX = NG (Installation) *66 PC-FAX Sending Driver Installation Failure (Failure to install file)
[00625218] 010000 ERR: FAXTX_INST = NG *67 PC-FAX sending Driver Installation Result
[00625218] 010000 ERR: FAXTX_PORT = --- *68 PC-FAX Sending Driver Port

[00625218] 010000 ERR: FAXRX = NG (Installation) *69 PC-FAX Receiving Driver Installation Failure (Failure to install file)
[00625218] 010000 ERR: FAXRX_INST = NG *70 PC-FAX receiving Software Installation Result
[00625218] 010000 ERR: FAXRX_PORT = COM5: *71 PC-FAX Receiving Software Port

[00625218] 010000 ERR: RSP = NG (Installation) *72 RSP Software Installation Failure (Failure to install file)
[00625218] 010000 ERR: RSP_INST = NG *73 RSP Software Installation Result
[00625218] 010000 ERR: RSP_PORT = COM5: *74 RSP Software Port

[00625218] 040000 INF: ----- Installation Diagnostics Result End -----

*****Debug Write End 2004/07/25 19:33:50*****

BH3 installation log file

C:\Documents and Settings\All Users\Application Data\Brother\BrLog\BrtlNSTL.log

*****Debug Write Start 2004/07/25 19:49:04*****

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***** SYSTEM INFORMATION *****

Function Name: INSTL
CPU Vender: GenuineIntel
Cpu Name: Intel Pentium III
FPU: Supprted
TSC: Supprted
MSR: Supprted
CMOV: Supprted
MMX: Supprted
3DNow!: Not Supprted
SSE_INT: Supprted
SSE_FP: Supprted
3DNow! Ext: Not Supprted
FCMOV: Supprted
OS Informations:
Windows 2000 Professional Service Pack 2 OS version 5.0.2195
Memory Informations:
Current memory load 34% Total physical memory = 255MB
Available physical memory = 167MB
Total pagefile = 618MB
Available pagefile = 538MB
Total virtual memory = 2047MB
Available virtual memory = 2022MB

1

*1 Header Information
Each start-up creates a new set of information

2

*2 PC System Information

***** SYSTEM INFORMATION *****

[00318407] 040000 INF: InstallationIniFilePath = C:\Program Files\Brother\Brmf104b\Brmfinfo.ini
[00318407] 040000 INF: Function Data -----
[00318407] 040000 INF: INIDATA PRT = 1
[00318407] 040000 INF: INIDATA SCN = 1
[00318407] 040000 INF: INIDATA FAXTX = 1
[00318407] 040000 INF: INIDATA FAXRX = 0
[00318407] 040000 INF: INIDATA RSP = 0
[00318407] 040000 INF: INIDATA MEDIA = 0
[00318407] 040000 INF: INIDATA COM = 0
[00318407] 040000 INF: INIDATA USBID =
[00318407] 040000 INF: INIDATA LPTID =
[00318407] 040000 INF: INIDATA PRTNAME = Brother MFC-5840CN Printer
[00318407] 040000 INF: INIDATA SCNNNAME = Brother MFC-5840CN LAN
[00318407] 040000 INF: INIDATA FAXNAME = Brother PC-FAX #4
[00318407] 040000 INF: INIDATA INSTPATH = C:\Program Files\Brother\B 04b
[00318407] 040000 INF: INIDATA PORTNAME = BRN_600300
[00318407] 040000 INF: INIDATA MODELNAME = MFC-5840CN
[00318407] 040000 INF: INIDATA INTERFACE = L
[00318407] 040000 INF: -----

6

*3 OS Start-up Time
*4 Error Level
*5 INF: Information / ERR: Error

*6 Information to be checked
(Functions set up by integrated installer)
PRT: Printer driver
SCN: Scanner driver
FAXTX: FAX sending driver
FAXRX: FAX receiving software
RSP: Remote Setup software
MEDIA: Media Drive driver

*7 All models indicate "0" because BH3 doesn't check Media Drive

11

12

13

14

15

16

17

18

*11 USB connection also requires LPTID
*12 Printer Driver Name
*13 Scanner Driver Name
*14 PC-FAX Sending Driver Name
*15 Folder Name to be installed (04a: BHmini2 / 04b: BHL3)
*16 USB Port Number
*17 Model Name
*18 Connection Mode (USB / LPT / LAN)

```

[00318407] 040000 INF: Win2K
[00318417] 040000 INF: ----- Printer Driver Check Start -----
[00318417] 040000 INF: PARAM MODEL NAME      MFC-5840CN
[00318417] 040000 INF: PARAM CMP PRINTER NAME  Brother MFC-5840CN Printer
[00318417] 040000 INF: PARAM INTERFACE      LAN
[00318417] 040000 INF: PARAM PRINTER ID
[00318417] 040000 INF: PARAM MODE      0
[00318427] 040000 INF: EXIST DRIVER NAME = Brother MFC-5840CN Pri
[00318427] 040000 INF: LAN PRINTER PORT NAME = BRN_600300
[00318427] 040000 INF: PARAM MODEL NAME      MFC-5840CN
[00318427] 040000 INF: PARAM CMP PRINTER NAME  Brother MFC-5840CN Printer
[00318427] 040000 INF: PARAM INTERFACE      LAN
[00318427] 040000 INF: PARAM PRINTER ID
[00318427] 040000 INF: PARAM MODE      1
[00318437] 040000 INF: ----- Network Port Check Start -----
[00318437] 040000 INF: NETWORK PORT CHECK = BRN_600300
[00318437] 040000 INF: INTERFACE = LAN
[00318437] 040000 INF: ----- Network Connect Check Start -----
[00320480] 010000 ERR: BrNetCloseDevice(): WSAAwaitForMultipleEvents() timeout Error (code = 0)
[00322482] 010000 ERR: BrNetCloseDevice(): WSAAwaitForMultipleEvents() timeout Error (code = 0)
[00322482] 040000 INF: Connect Device Name = Brother MFC-5840CN
[00322482] 040000 INF: ----- Network Connect Check End -----
[00322482] 040000 INF: PORT CHECK = OK
[00322482] 040000 INF: ----- Network Port Check End -----
[00322482] 040000 INF: ----- Printer Driver Check End -----

[00322482] 040000 INF: ----- Scanner Driver Check Start -----
[00322833] 040000 INF: Initialize() Result = 0
[00322843] 040000 INF: Scanner Install = OK
[00323183] 040000 INF: Initialize() Result = 0
[00324045] 040000 INF: ChkStiDevice() Result = 0
[00324045] 040000 INF: ChkWiaDevice() Result = 3
[00326909] 040000 INF: ChkTwainDs() Result = 0
[00326909] 040000 INF: Get ScannerName = Brother MFC-5840CN LAN
[00328501] 040000 INF: GetDefaultTwds() Result = 0
[00328501] 040000 INF: Get DefaultDS = TWAIN_32 Brother MFL Pro Scanner
[00329332] 040000 INF: GetPortName() Result = 0
[00329332] 040000 INF: Get PortName = AUTO
[00332827] 040000 INF: ChkDevCommunication() Result = 0
[00332827] 040000 INF: Scanner Connect = OK
[00332827] 040000 INF: ----- Scanner Driver Check End -----

```

19

*19 Installation Check Detail
*20 Printer Driver Installation Check

20

21

*21 If there is EXIST DRIVER NAME, printer driver is properly installed.

75

*75 Network Port Communication Check

76

*76 Port Name created by installer

77

*77 No meaning (Ignore)

78

*78 If OK, communication to network port is available.

22

*22 Scanner Driver Installation Check

23

*23 Scanner Error Code

24

*24 If Scanner Install =OK, scanner driver is properly installed.


```
[00332827] 040000 INF: ----- FAXTX Driver Check Start -----
[00332827] 040000 INF: PARAM MODEL NAME      PC-FAX
[00332827] 040000 INF: PARAM CMP PRINTER NAME Brother PC-FAX #4
[00332827] 040000 INF: PARAM INTERFACE      LAN
[00332827] 040000 INF: PARAM PRINTER ID
[00332827] 040000 INF: PARAM MODE          0
[00332827] 040000 INF: EXIST DRIVER NAME    = Brother PC-F #4
[00332827] 040000 INF: PC-FAX PORT NAME    = BRN_600300
[00332827] 040000 INF: PARAM MODEL NAME    PC-FAX
[00332827] 040000 INF: PARAM CMP PRINTER NAME Brother PC-FAX #4
[00332827] 040000 INF: PARAM INTERFACE    LAN
[00332827] 040000 INF: PARAM PRINTER ID
[00332827] 040000 INF: PARAM MODE          1
[00332827] 040000 INF: ----- Fax Port Check Start -----
[00332827] 040000 INF: FAX PORT CHECK      = BRN_600300
[00332827] 040000 INF: INTERFACE        = LAN
[00332827] 040000 INF: ----- Network Connect Check Start -----
[00334850] 010000 ERR: BrNetCloseDevice(): WSAWaitForMultipleEvents() timeout Error (code = 0)
[00336853] 010000 ERR: BrNetCloseDevice(): WSAWaitForMultipleEvents() timeout Error (code = 0)
[00336853] 040000 INF: Connect Device Name = Brother MFC-5840CN
[00336853] 040000 INF: ----- Network Connect Check End -----
[00336853] 040000 INF: PORT CHECK          = OK
[00336853] 040000 INF: ----- Fax Port Check End -----
[00336853] 040000 INF: ----- FAXTX Driver Check End -----
```

25

*25 FAX(Tx) Driver Installation Check

26

*26 If there is EXIST DRIVER NAME, PC-FAX sending driver is properly installed.

```
[00336853] 040000 INF: ----- FAXRX Check Start -----
[00336853] 040000 INF: FAXRX FILE CHECK = 28
[00336853] 040000 INF: ----- FAXRX Check End -----
```

27

*27 FAX(Rx) File Check

*28 If installation was done by network connection, it indicates NG.
In this example, installation is done by local connection in advance.

```
[00336853] 040000 INF: ----- RSP Check Start -----
[00336853] 040000 INF: RSP FILE CHECK = 30
[00336853] 040000 INF: ----- RSP Check End -----
```

29

*29 Remote Setup File Check

*30 If installation was done by network connection, it indicates NG
In this example, installation is done by local connection in advance.

```
[00336853] 040000 INF: ----- Serial Port Check Start -----
[00336853] 040000 INF: ----- Serial Port Check End -----
```

32

31

*31 Serial Port (COM Port Driver Check)

*32 Network connection doesn't support RSP, PC-FAXRx(COM Port Driver) and doesn't indicate.

[00336853] 040000 INF: ----- Enumerate Host Controllers Check Start -----
[00336983] 040000 INF: USB Host Controller: \\.\HCD0 = Intel 82371AB/EB PCI to USB Universal Host Controller

[00337604] 040000 INF: ----- Connect Device Information Start -----
[00337604] 040000 INF: Port1: Dev1 = USB Composite Device
[00337604] 040000 INF: ----- Connect Device Information End -----

[00338095] 040000 INF: ----- Connect Device Information Start -----
[00338095] 040000 INF: ----- Connect Device Information End -----

[00338586] 040000 INF: ----- Connect Device Information Start -----
[00338586] 040000 INF: ----- Connect Device Information End -----

[00338586] 040000 INF: ----- Connect Device Information Start -----
[00338586] 040000 INF: Port1: Dev1 = USB Printing Support
[00338586] 040000 INF: Port1: Dev2 = USB Mass Storage Device
[00338586] 040000 INF: ----- Connect Device Information End -----

[00338586] 040000 INF: USB Hub Information: [Port1] DeviceConnected = USB Composite Device

[00338586] 040000 INF: USB Hub Information: [Port2] NoDeviceConnected = NoDeviceConnected

[00338586] 040000 INF: ----- Enumerate Host Controllers Check End -----

[00339036] 040000 INF: ----- USB Chip information Check Start -----
[00339036] 040000 INF: USB Chip0(Device25) = Intel 82371AB/EB PCI to ISA bridge (ISA mode)
[00339036] 040000 INF: USB Chip1(Device26) = Intel(r) 82371AB/EB PCI Bus Master IDE Controller
[00339036] 040000 INF: USB Chip2(Device27) = Intel 82371AB/EB PCI to USB Universal Host Controller
[00339036] 040000 INF: USB Chip3(Device28) = Intel 82443BX Pentium(r) II Processor to PCI Bridge
[00339036] 040000 INF: USB Chip4(Device29) = Intel 82443BX Pentium(r) II Processor to AGP Controller
[00339036] 040000 INF: ----- USB Chip information Check End -----

[00339036] 040000 INF: ----- ADD/REMOVE APPLICATION Check Start -----
[00339036] 040000 INF: AddRemove Display Name: DisplayName1 = Brother HL-5070
[00339036] 040000 INF: AddRemove Display Name: DisplayName2 = NVIDIA Windows 2000 Display Drivers
[00339036] 040000 INF: AddRemove Display Name: DisplayName3 = Microsoft Visual Studio 6.0 Enterprise Edition
[00339036] 040000 INF: AddRemove Display Name: DisplayName4 = Microsoft Web Publishing Wizard 1.53
[00339036] 040000 INF: AddRemove Display Name: DisplayName5 = Microsoft Office 2000 Professional
[00339036] 040000 INF: AddRemove Display Name: DisplayName6 = Brother MFL-Pro Suite
[00339036] 040000 INF: AddRemove Display Name: DisplayName7 = Brother Drivers
[00339036] 040000 INF: AddRemove Display Name: DisplayName8 = WebFldrs
[00339036] 040000 INF: AddRemove Display Name: DisplayName9 = Brother Drivers
[00339036] 040000 INF: ----- ADD/REMOVE APPLICATION Check End -----

33

*33 Communication Check
(When connecting network, obtains local network connection)
*34 USB device is connected to USB Port1
If other USB devices are connected to USB Port2, it will be also indicated.
! If no device is recognized, HUB might be connected to the port. In this case, displace it.

34

79

*79 No meaning (Ignore)

51

*51 It indicates connected devices
(A connected device can be indicated including other company's products)

52

*52 If another device is connected to USB Port2, it is also indicated.

53

*53 It indicates that each port is connected to devices or not.

54

*54 USB Chip Information

55

*55 Add/Remove Application Information

```

[00345566] 040000 INF: ----- Process Information Start -----
[00345566] 010000 [57]: Process1=
[00345566] 010000 ERR: Process2=
[00345566] 010000 ERR: Process3=\SystemRoot\System32\smss.exe
[00345566] 010000 ERR: Process4=
[00345566] 010000 ERR: Process5=\??\C:\WINNT\system32\winlogon.exe
[00345566] 010000 ERR: Process6=C:\WINNT\system32\services.exe
[00345566] 010000 ERR: Process7=C:\WINNT\system32\lsass.exe
[00345566] 010000 ERR: Process8=C:\WINNT\system32\svchost.exe
[00345566] 010000 ERR: Process9=C:\WINNT\system32\spoolsv.exe
[00345566] 010000 ERR: Process10=C:\WINNT\System32\svchost.exe
[00345566] 010000 ERR: Process11=C:\WINNT\system32\regsvc.exe
[00345566] 010000 ERR: Process12=C:\WINNT\system32\MSTask.exe
[00345566] 010000 ERR: Process13=C:\WINNT\System32\WBEM\WinMgmt.exe
[00345566] 010000 ERR: Process14=C:\WINNT\Explorer.EXE
[00345566] 010000 ERR: Process15=C:\Program Files\Brownie\brstswnd.exe
[00345566] 010000 ERR: Process16=C:\Program Files\Brownie\Brcdcmn.exe
[00345566] 010000 ERR: Process17=\lapngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Setup.exe
[00345566] 010000 ERR: Process18=\lapngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Setup.exe
[00345566] 010000 ERR: Process19=\lapngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Diagnosis\BR_collect.exe
[00345566] 040000 INF: ----- Process Information End -----

```

[56] *56 Process Information which is running
! If you failed to install and virus checker was running, quit the software.

*57 ERRs are just a bug. Fix with ALL

```

[00345566] 040000 INF: ----- Startup Information Start -----
[00345566] 040000 INF: STARTUP: = Microsoft Office.lnk [58]
[00345566] 040000 INF: STARTUP: = Status Monitor.lnk
[00345566] 040000 INF: ----- Startup Information End -----

```

*58 Startup Registration
! If you failed to install and virus checker was running, quit the software.

```

[00352175] 040000 INF: ----- Installation Diagnostics Result Start -----
[00352175] 040000 NF: PRT = OK [60]
[00352175] 040000 NF: PRT_INST = OK [61]
[00352175] 040000 NF: PRT_PORT = BRN_600300 [62]
[00352175] 040000 NF: SCN = OK [63]
[00352175] 040000 NF: SCN_INST = OK [64]
[00352175] 040000 NF: SCN_PORT = AUTO [65]
[00352175] 040000 NF: FAXTX = OK [66]
[00352175] 040000 NF: FAXTX_INST = OK [67]
[00352175] 040000 NF: FAXTX_PORT = BRN_600300 [68]
[00352175] 040000 INF: ----- Installation Diagnostics Result End -----

```

*59 Installation Diagnostics Result (OK / NG(Installation) / NG(Communication))

*60 Printer Driver Integrated Diagnostic Result

*61 Printer Driver Installation Result

*62 Printer Driver Port

*63 Scanner Driver Integrated Diagnostic Result

*64 Scanner Driver Installation Result

*65 Scanner Driver Port

*66 PC-FAX Sending Driver Integrated Diagnostic Result

*67 PC-FAX Sending Driver Installation Result

*68 PC-FAX Sending Driver Port

*****Debug Write End 2004/07/25 19:49:44*****

BH3 installation log file

C:\Documents and Settings\All Users\Application Data\Brother\BrLog\BrtINSTL.log

*****Debug Write Start 2004/07/25 20:44:21*****

Brother(R) Debug Output DLL Version 1.1
Copyright(c) 2004 Brother Industries, Ltd. All Rights Reserved.

***** SYSTEM INFORMATION *****

Function Name: INSTL
CPU Vendor: GenuineIntel
Cpu Name: Intel Pentium III
FPU: Supprted
TSC: Supprted
MSR: Supprted
CMOV: Supprted
MMX: Supprted
3DNow!: Not Supprted
SSE_INT: Supprted
SSE_FP: Supprted
3DNow! Ext: Not Supprted
FCMOV: Supprted
OS Informations:
Windows 2000 Professional Service Pack 2 OS version 5.0.2195
Memory Informations:
Current memory load 34% Total physical memory = 255MB
Available physical memory = 167MB
Total pagefile = 618MB
Available pagefile = 539MB
Total virtual memory = 2047MB
Available virtual memory = 2022MB

1

*1 Header Information
Each start-up creates a new set of information

2

*2 PC System Information

***** SYSTEM INFORMATION *****

[03635316] 040000 INF: InstallationIniFilePath = C:\Program Files\Brother\Brmf104b\BrmfInfo.ini
[03635316] 040000 INF: Function Data -----
[03635316] 040000 INF: INIDATA PRT = 1
[03635316] 040000 INF: INIDATA SCN = 1
[03635316] 040000 INF: INIDATA FAXTX = 1
[03635316] 040000 INF: INIDATA FAXRX = 0
[03635316] 040000 INF: INIDATA RSP = 0
[03635316] 040000 INF: INIDATA MEDIA = 0
[03635316] 040000 INF: INIDATA COM = 0
[03635316] 040000 INF: INIDATA USBID =
[03635316] 040000 INF: INIDATA LPTID =
[03635316] 040000 INF: INIDATA PRTNAME = Brother MFC-5840CN Printer
[03635316] 040000 INF: INIDATA SCNNNAME = Brother MFC-5840CN LAN
[03635316] 040000 INF: INIDATA FAXNAME = Brother PC-FAX #5
[03635316] 040000 INF: INIDATA INSTPATH = C:\Program Files\Brother\B 04b
[03635316] 040000 INF: INIDATA PORTNAME = BRN_6007C0
[03635316] 040000 INF: INIDATA MODELNAME = MFC-5840CN
[03635316] 040000 INF: INIDATA INTERFACE = L
[03635316] 040000 INF: -----

6

*3 OS Start-up Time
*4 Error Level
*5 INF: Information / ERR: Error
*6 Information to be checked
(Functions set up by integrated installer)
PRT: Printer driver
SCN: Scanner driver
FAXTX: FAX sending driver
FAXRX: FAX receiving software
RSP: Remote Setup software
MEDIA: Media Drive driver

*7 All models indicate "0" because BH3 doesn't check Media Drive.

11

*11 USB connection also requires LPTID

12

*12 Printer Driver Name

13

*13 Scanner Driver Name

14

*14 PC-FAX Sending Driver Name

15

*15 Folder Name to be installed (04a: BHmini2 / 04b: BHL3)

16

*16 USB Port Number

17

*17 Model Name

18

*18 Connection Mode (USB / LPT / LAN)

Net Cable Disconnected

Confidential

```

[03635316] 040000 INF: Win2K
[03635326] 040000 INF: ----- Printer Driver Check Start -----
[03635326] 040000 INF: PARAM MODEL NAME      MFC-5840CN
[03635326] 040000 INF: PARAM CMP PRINTER NAME  Brother MFC-5840CN Printer
[03635326] 040000 INF: PARAM INTERFACE      LAN
[03635326] 040000 INF: PARAM PRINTER ID
[03635326] 040000 INF: PARAM MODE          0
[03635336] 040000 INF: EXIST DRIVER NAME    = Brother MFC-5840CN
[03635336] 040000 INF: LAN PRINTER PORT NAME = BRN_6007C0
[03635336] 040000 INF: PARAM MODEL NAME      MFC-5840CN
[03635336] 040000 INF: PARAM CMP PRINTER NAME  Brother MFC-5840CN Printer
[03635336] 040000 INF: PARAM INTERFACE      LAN
[03635336] 040000 INF: PARAM PRINTER ID
[03635336] 040000 INF: PARAM MODE          1
[03635336] 040000 INF: ----- Network Port Check Start -----
[03635336] 040000 INF: NETWORK PORT CHECK    = BRN_6007C0
[03635336] 040000 INF: INTERFACE      = LAN
[03635336] 040000 INF: ----- Network Connect Check Start -----
[03635376] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03635376] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 0)
[03637389] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03637389] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 1)
[03639402] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03639402] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 2)
[03641415] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03641415] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 3)
[03643428] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03643428] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 4)
[03645440] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03645440] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 5)
[03647453] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03647453] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 6)
[03649466] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03649466] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 7)
[03651479] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03651479] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 8)
[03653492] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03653492] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 9)
[03655505] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03655505] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 10)
[03657518] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03657518] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 11)
[03659531] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03659531] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 12)
[03661544] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03661544] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 13)
[03663556] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03663556] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 14)
[03665559] 040000 INF: PORT CHECK          = 90
[03665559] 040000 INF: ----- Network Port Check End -----
[03670567] 040000 INF: PARAM MODEL NAME      MFC-5840CN

```

19

*19 Installation Check Detail

20

*20 Printer Driver Installation Check

21

*21 Printer Driver is properly installed.

76

*75 Network Port Connection Check

*76 Port Name created by installer

75

*90 There is no response from BRN_6007C0 (or IP address) assigned to the port.

```
[03670567] 040000 INF: PARAM CMP PRINTER NAME Brother MFC-5840CN Printer
[03670567] 040000 INF: PARAM INTERFACE LAN
[03670567] 040000 INF: PARAM PRINTER ID
[03670567] 040000 INF: PARAM MODE 1
[03670567] 040000 INF: ----- Network Port Check Start -----
[03670567] 040000 INF: NETWORK PORT CHECK = BRN_6007C0
[03670567] 040000 INF: INTERFACE = LAN
[03670567] 040000 INF: ----- Network Connect Check Start -----
[03670577] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03670577] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 0)
[03672589] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03672589] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 1)
[03674602] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03674602] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 2)
[03676615] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03676615] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 3)
[03678628] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03678628] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 4)
[03680641] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03680641] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 5)
[03682654] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03682654] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 6)
[03684667] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03684667] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 7)
[03686680] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03686680] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 8)
[03688693] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03688693] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 9)
[03690706] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03690706] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 10)
[03692718] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03692718] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 11)
[03694731] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03694731] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 12)
[03696744] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03696744] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 13)
[03698757] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03698757] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 14)
[03700760] 040000 INF: PORT CHECK = NG
[03700760] 040000 INF: ----- Network Port Check End -----
[03700760] 040000 INF: ----- Printer Driver Check End -----
```

91

*91 There is no response from BRN_6007C0(or IP address) assigned to the port and attempting again.

```

[03700760] 040000 INF: ----- Scanner Driver Check Start -----
[03701110] 040000 INF: Initialize() Result = 0
[03701110] 040000 INF: Scanner Install = OK
[03701461] 040000 INF: Initialize() Result = 0
[03702012] 040000 INF: ChkStiDevice() Result = 0
[03702012] 040000 INF: ChkWiaDevice() Result = 3
[03704906] 040000 INF: ChkTwainDs() Result = 0
[03704906] 040000 INF: Get ScannerName = Brother MFC-5840CN LAN
[03706498] 040000 INF: GetDefaultTwds() Result = 0
[03706498] 040000 INF: Get DefaultDS = TWAIN_32 Brother MFL Pro Scanner
[03707309] 040000 INF: GetPortName() Result = 0
[03707309] 040000 INF: Get PortName = AUTO
[03707860] 040000 INF: ChkDevCommunication() Result = 40
[03707860] 010000 ERR: Scanner Connect = NG
[03713218] 040000 INF: Initialize() Result = 0
[03713759] 040000 INF: ChkStiDevice() Result = 0
[03713759] 040000 INF: ChkWiaDevice() Result = 3
[03716623] 040000 INF: ChkTwainDs() Result = 0
[03716623] 040000 INF: Get ScannerName = Brother MFC-5840CN LAN
[03718235] 040000 INF: GetDefaultTwds() Result = 0
[03718235] 040000 INF: Get DefaultDS = TWAIN_32 Brother MFL Pro Scanner
[03719046] 040000 INF: GetPortName() Result = 0
[03719046] 040000 INF: Get PortName = AUTO
[03719607] 040000 INF: ChkDevCommunication() Result = 40
[03719607] 010000 ERR: Scanner Connect = NG
[03724965] 040000 INF: Initialize() Result = 0
[03725526] 040000 INF: ChkStiDevice() Result = 0
[03725526] 040000 INF: ChkWiaDevice() Result = 3
[03728390] 040000 INF: ChkTwainDs() Result = 0
[03728390] 040000 INF: Get ScannerName = Brother MFC-5840CN LAN
[03729992] 040000 INF: GetDefaultTwds() Result = 0
[03729992] 040000 INF: Get DefaultDS = TWAIN_32 Brother MFL Pro Scanner
[03730813] 040000 INF: GetPortName() Result = 0
[03730813] 040000 INF: Get PortName = AUTO
[03731364] 040000 INF: ChkDevCommunication() Result = 40
[03731364] 010000 ERR: Scanner Connect = NG
[03736722] 040000 INF: Initialize() Result = 0
[03737262] 040000 INF: ChkStiDevice() Result = 0
[03737262] 040000 INF: ChkWiaDevice() Result = 3
[03740147] 040000 INF: ChkTwainDs() Result = 0
[03740147] 040000 INF: Get ScannerName = Brother MFC-5840CN LAN
[03741739] 040000 INF: GetDefaultTwds() Result = 0
[03741739] 040000 INF: Get DefaultDS = TWAIN_32 Brother MFL Pro Scanner
[03742540] 040000 INF: GetPortName() Result = 0
[03742540] 040000 INF: Get PortName = AUTO
[03743101] 040000 INF: ChkDevCommunication() Result = 40
[03743101] 010000 ERR: Scanner Connect = NG
[03748459] 040000 INF: Initialize() Result = 0
[03748999] 040000 INF: ChkStiDevice() Result = 0
[03748999] 040000 INF: ChkWiaDevice() Result = 3
[03751863] 040000 INF: ChkTwainDs() Result = 0

```

22
23
24

*22 Scanner Driver Installation Check
 *23 There is no error in scanner
 *24 Driver is properly installed

93

*92 It cannot make a connection to Scanner Brother MFC-5840CN LAN.
 *93 Attempting again because the first attempt was NG

```
[03751863] 040000 INF: Get ScannerName = Brother MFC-5840CN LAN
[03753476] 040000 INF: GetDefaultTwds() Result = 0
[03753476] 040000 INF: Get DefaultDS = TWAIN_32 Brother MFL Pro Scanner
[03754297] 040000 INF: GetPortName() Result = 0
[03754297] 040000 INF: Get PortName = AUTO
[03754848] 040000 INF: ChkDevCommunication() Result = 40
[03754848] 010000 ERR: Scanner Connect = NG
[03760205] 040000 INF: Initialize() Result = 0
[03760756] 040000 INF: ChkStiDevice() Result = 0
[03760756] 040000 INF: ChkWiaDevice() Result = 3
[03763630] 040000 INF: ChkTwainDs() Result = 0
[03763630] 040000 INF: Get ScannerName = Brother MFC-5840CN LAN
[03765223] 040000 INF: GetDefaultTwds() Result = 0
[03765223] 040000 INF: Get DefaultDS = TWAIN_32 Brother MFL Pro Scanner
[03766034] 040000 INF: GetPortName() Result = 0
[03766034] 040000 INF: Get PortName = AUTO
[03766605] 040000 INF: ChkDevCommunication() Result = 40
[03766605] 010000 ERR: Scanner Connect = NG
[03771612] 040000 INF: ----- Scanner Driver Check End -----
```

```
[03771612] 040000 INF: ----- FAXTX Driver Check Start -----
[03771612] 040000 INF: PARAM MODEL NAME PC-FAX
[03771612] 040000 INF: PARAM CMP PRINTER NAME Brother PC-FAX #5
[03771612] 040000 INF: PARAM INTERFACE LAN
[03771612] 040000 INF: PARAM PRINTER ID
[03771612] 040000 INF: PARAM MODE 0
[03771612] 040000 INF: EXIST DRIVER NAME = Brother PC-FAX #5
[03771612] 040000 INF: PC-FAX PORT NAME = BRN_6007C0
[03771612] 040000 INF: PARAM MODEL NAME PC-FAX
[03771612] 040000 INF: PARAM CMP PRINTER NAME Brother PC-FAX #5
[03771612] 040000 INF: PARAM INTERFACE LAN
[03771612] 040000 INF: PARAM PRINTER ID
[03771612] 040000 INF: PARAM MODE 1
[03771612] 040000 INF: ----- Fax Port Check Start -----
[03771612] 040000 INF: FAX PORT CHECK = BRN_6007C0
[03771612] 040000 INF: INTERFACE = LAN
```

```
[03771612] 040000 INF: ----- Network Connect Check Start -----
[03771632] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03771632] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 0)
[03773645] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03773645] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 1)
[03775658] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03775658] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 2)
[03777671] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03777671] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 3)
[03779683] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03779683] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 4)
[03781696] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03781696] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 5)
[03783709] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03783709] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 6)
```

25

26

*26 PC-FAX sending driver is properly installed.


```
[03785722] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03785722] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 7)
[03787735] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03787735] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 8)
[03789748] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03789748] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 9)
[03791761] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03791761] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 10)
[03793774] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03793774] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 11)
[03795787] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03795787] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 12)
[03797800] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03797800] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 13)
[03799812] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03799812] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 14)
[03801815] 040000 INF: PORT CHECK = NG 94
[03801815] 040000 INF: ----- Fax Port Check End -----
[03806822] 040000 INF: PARAM MODEL NAME PC-FAX
[03806822] 040000 INF: PARAM CMP PRINTER NAME Brother PC-FAX #5
[03806822] 040000 INF: PARAM INTERFACE LAN
[03806822] 040000 INF: PARAM PRINTER ID
[03806822] 040000 INF: PARAM MODE 1
[03806822] 040000 INF: ----- Fax Port Check Start -----
[03806822] 040000 INF: FAX PORT CHECK = BRN_6007C0
[03806822] 040000 INF: INTERFACE = LAN
[03806822] 040000 INF: ----- Network Connect Check Start -----
[03806832] 010000 ERR: Cannot Get IP Address (ErrCode = 11001) 95
[03806832] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 0)
[03808845] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03808845] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 1)
[03810858] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03810858] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 2)
[03812871] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03812871] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 3)
[03814884] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03814884] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 4)
[03816897] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03816897] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 5)
[03818910] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03818910] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 6)
[03820923] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03820923] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 7)
[03822936] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03822936] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 8)
[03824949] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03824949] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 9)
[03826961] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03826961] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 10)
[03828974] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03828974] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 11)
```

*94 There is no response from BRN_6007C0 (or IP address) assigned to the port and attempting again.

*95 Attempting again because the first attempt was NG

```

[03830987] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03830987] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 12)
[03833000] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03833000] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 13)
[03835013] 010000 ERR: Cannot Get IP Address (ErrCode = 11001)
[03835013] 010000 ERR: CheckNetwork() Error: Port Name illegal.(Time = 14)
[03837016] 040000 INF: PORT CHECK = NG
[03837016] 040000 INF: ----- Fax Port Check End -----
[03837016] 040000 INF: ----- FAXTX Driver Check End -----

```

```

[03837016] 040000 INF: ----- FAXRX Check Start -----
[03837016] 040000 INF: FAXRX FILE CHECK = OK [28] [27]
[03837016] 040000 INF: ----- FAXRX Check End -----

```

```

[03837016] 040000 INF: ----- RSP Check Start -----
[03837016] 040000 INF: RSP FILE CHECK = OK [30] [29]
[03837016] 040000 INF: ----- RSP Check End -----

```

```

[03837016] 040000 INF: ----- Serial Port Check Start -----
[03837016] 040000 INF: ----- Serial Port Check End ----- [32] [31]

```

```

[03837016] 040000 INF: ----- Enumerate Host Controllers Check Start -----
[03837146] 040000 INF: USB Host Controller: \\.\HCD0 = Intel 82371AB/EB PCI to USB Universal Host Controller

```

```

[03837777] 040000 INF: ----- Connect Device Information Start -----
[03837777] 040000 INF: Port1: Dev1 = USB Composite Device [34]
[03837777] 040000 INF: ----- Connect Device Information End -----

```

```

[03838278] 040000 INF: ----- Connect Device Information Start -----
[03838278] 040000 INF: ----- Connect Device Information End ----- [79]

```

```

[03838748] 040000 INF: ----- Connect Device Information Start -----
[03838748] 040000 INF: ----- Connect Device Information End -----

```

```

[03838748] 040000 INF: ----- Connect Device Information Start ----- [51]
[03838748] 040000 INF: Port1: Dev1 = USB Printing Support
[03838748] 040000 INF: Port1: Dev2 = USB Mass Storage Device
[03838748] 040000 INF: ----- Connect Device Information End ----- [52]

```

```

[03838748] 040000 INF: USB Hub Information: [Port1] DeviceConnected = USB Composite Device [53]

```

```

[03838748] 040000 INF: USB Hub Information: [Port2] NoDeviceConnected = NoDeviceConnected

```

```

[03838748] 040000 INF: ----- Enumerate Host Controllers Check End -----

```

*27 FAX(Rx) File Check
 *28 If installation was done by network connection, it indicates NG.
 In this example, installation is done by local connection in advance.

*29 Remote Setup File Check
 *30 If installation was done by network connection, it indicates NG.
 In this example, installation is done by local connection in advance.

*31 Serial Port (COM Port Driver Check)
 *32 Network connection doesn't support RSP, PC-FAXRx(COM Port Driver) and doesn't indicate.

[33] *33 Communication Check
 (It obtains the status of connecting to local network, even though it is connecting to network,)
 *34 USB device is connected to USB Port1
 If other USB devices are connected to USB Port2, it will be also indicated.
 ! If no device is recognized, HUB might be connected to the port. In this case, displace it.
 *79 No meaning (Ignore)

*51 It indicates connected devices
 USB Printing Support, USB Mass Storage Device is connected to Port 1.

*52 If another device is connected to USB Port2, it is also indicated.

```

[03839169] 040000 INF: ----- USB Chip information Check Start -----
[03839169] 040000 INF: USB Chip0(Device25) = Intel 82371AB/EB PCI to ISA bridge (ISA mode)
[03839179] 040000 INF: USB Chip1(Device26) = Intel(r) 82371AB/EB PCI Bus Master IDE Controller
[03839179] 040000 INF: USB Chip2(Device27) = Intel 82371AB/EB PCI to USB Universal Host Controller
[03839179] 040000 INF: USB Chip3(Device28) = Intel 82443BX Pentium(r) II Processor to PCI Bridge
[03839179] 040000 INF: USB Chip4(Device29) = Intel 82443BX Pentium(r) II Processor to AGP Controller
[03839179] 040000 INF: ----- USB Chip information Check End -----

```

54 *54 USB Chip Information

```

[03839179] 040000 INF: ----- ADD/REMOVE APPLICATION Check Start -----
[03839179] 040000 INF: AddRemove Display Name: DisplayName1 = Brother HL-5070
[03839179] 040000 INF: AddRemove Display Name: DisplayName2 = NVIDIA Windows 2000 Display Drivers
[03839179] 040000 INF: AddRemove Display Name: DisplayName3 = Microsoft Visual Studio 6.0 Enterprise Edition
[03839179] 040000 INF: AddRemove Display Name: DisplayName4 = Microsoft Web Publishing Wizard
[03839179] 040000 INF: AddRemove Display Name: DisplayName5 = Microsoft Office 2000 Premium
[03839179] 040000 INF: AddRemove Display Name: DisplayName6 = Brother MFL-Pro Suite
[03839179] 040000 INF: AddRemove Display Name: DisplayName7 = Brother Drivers
[03839179] 040000 INF: AddRemove Display Name: DisplayName8 = WebFldrs
[03839179] 040000 INF: AddRemove Display Name: DisplayName9 = Brother Drivers
[03839179] 040000 INF: ----- ADD/REMOVE APPLICATION Check End -----

```

55 *55 Add/Remove Application Information

```

[03845718] 040000 INF: ----- Process Information Start -----
[03845718] 010000 ERR: Process1=
[03845718] 010000 ERR: Process2=
[03845718] 010000 ERR: Process3=\SystemRoot\System32\smss.exe
[03845718] 010000 ERR: Process4=
[03845718] 010000 ERR: Process5=\??\C:\WINNT\system32\winlogon.exe
[03845718] 010000 ERR: Process6=C:\WINNT\system32\services.exe
[03845718] 010000 ERR: Process7=C:\WINNT\system32\lsass.exe
[03845718] 010000 ERR: Process8=C:\WINNT\system32\svchost.exe
[03845718] 010000 ERR: Process9=C:\WINNT\system32\spoolsv.exe
[03845718] 010000 ERR: Process10=C:\WINNT\System32\svchost.exe
[03845718] 010000 ERR: Process11=C:\WINNT\system32\regsvc.exe
[03845718] 010000 ERR: Process12=C:\WINNT\system32\IMSTask.exe
[03845718] 010000 ERR: Process13=C:\WINNT\System32\WBEM\WinMgmt.exe
[03845718] 010000 ERR: Process14=C:\WINNT\Explorer.EXE
[03845718] 010000 ERR: Process15=C:\Program Files\Brownie\brstswnd.exe
[03845718] 010000 ERR: Process16=C:\Program Files\Brownie\Brcdcom.exe
[03845718] 010000 ERR: Process17=\\lapngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Setup.exe
[03845718] 010000 ERR: Process18=\\lapngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Setup.exe
[03845718] 010000 ERR: Process19=\\lapngo-sugi\SOFT1\PC-Appli\PCDisks\Debug2004\bh3\Install\Appli\BH3\Ver1.01\UsaEur\Data\Disk1\Diagnosis\BR_collect.exe
[03845718] 040000 INF: ----- Process Information End -----

```

56 *56 Process Information which is running
! If you failed to install and virus checker was running, quit the software.

*57 ERRs are just a bug. Fix with ALL

```

[03845718] 040000 INF: ----- Startup Information Start -----
[03845718] 040000 INF: STARTUP: = Microsoft Office.Ink
[03845718] 040000 INF: STARTUP: = Status Monitor.Ink
[03845718] 040000 INF: ----- Startup Information End -----

```

58 *58 STARTUP Registration
! If you failed to install and virus checker was running, quit the software.

[03852358] 040000 INF: ----- Installation Diagnostics Result Start -----
[03852358] 010000 ERR: PRT = NG (Communication) 60
[03852358] 010000 ERR: PRT_INST = OK 61
[03852358] 010000 ERR: PRT_PORT = BRN_6007C0 62

[03852358] 010000 ERR: SCN = NG (Communication) 63
[03852358] 010000 ERR: SCN_INST = OK 64
[03852358] 010000 ERR: SCN_PORT = AUTO 65

[03852358] 010000 ERR: FAXTX = NG (Communication) 66 h)
[03852358] 010000 ERR: FAXTX_INST = OK 67
[03852358] 010000 ERR: FAXTX_PORT = BRN_6007C0 68

[03852358] 040000 INF: ----- Installation Diagnostics Result End -----

*****Debug Write End 2004/07/25 20:48:04*****

*59 Installation Diagnostics Result (OK / NG(Installation) / NG(Communication))
*60 Printer Driver Installation Failure (cannot communicate)
*61 Scanner Driver Installation Result
*62 Printer Driver Port

*63 Scanner Driver Installation Failure (cannot communicate)
*64 Scanner Driver Installation Result
*65 Scanner Driver Port

*66 PC-FAX Sending Driver Installation Failure (cannot communicate)
*67 PC-FAX Sending Driver Installation Result
*68 PC-FAX Sending Driver Port

Scanner Error Code

Define name	Error Code	Contents
SCDIAG_OK	0	The processing is completed or confirmation is successful.
SCDIAG_FAIL	1	The system stopped processing due to errors which don't fall into ones above, such as the lack of memory.
SCDIAG_NOT_INITIALIZE	2	The system tried to run functions without the initialization processing.
SCDIAG_NOT_SUPPORT	3	This Scanner driver type doesn't support the function which is tried to run, This confirmation of the function is not necessary.
SCDIAG_NOT_INSTALL	4	The specified device is not installed.
SCDIAG_NOT_CONNECTED	5	The specified device is not connected. (only USB connection)
SCDIAG_NOT_FOUND_DEVICE	6	The specified device is not found, No device may be connected or may fail to install.
SCDIAG_NOT_FOUND_TWDS	10	The specified TWAIN Data Source is not found, No device may be connected or may fail to install.
SCDIAG_NOT_SELECT_TWDS	11	The TWAIN Data Source Manager fails to recognize the default TWAIN Data Source.
SCDIAG_TWAIN_SYSTEM_ERROR	12	The TWAIN Data Source Manager to use the TWAIN protocol is not available. The TWAIN Data Source Manager may not exist.
SCDIAG_STIDEVICE_CREATE_FAIL	20	The system failed to create the STI device. The STI/WIA service or the minidriver may have problems.
SCDIAG_STI_SYSTEM_ERROR	21	The STI Interface (IStillImage) is not available. The STI service may not start or the operation system may have problems.
SCDIAG_WIADEVICE_CREATE_FAIL	30	The system failed to create the WIA device. The WIA service or the minidriver may have problems.
SCDIAG_WIA_SYSTEM_ERROR	31	The WIA Service (IWiaDevMgr Interface and so on) is not available. The WIA service may not start or the operation system may have problems.
SCDIAG_OPEN_ERROR	40	The system failed to open the scanner device. The attempt may be rejected because the object device is running or so.
SCDIAG_WRITE_ERROR	41	The system failed to send the scanner command.
SCDIAG_READ_ERROR	42	The system failed to read the data from the device.
SCDIAG_TIMEOUT	43	The system failed to receive the response after the request has timed out.
SCDIAG_NO_RSM	44	The system failed to recognize the Resource Manager and failed to restart. The Resource Manager may not be installed or running incorrectly.

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