

brother[®]

**FACSIMILE EQUIPMENT
SERVICE MANUAL**

**MODELS:
MFC3820CN/MFC3420C**

Preface

This Service Manual is intended for use by service personnel and details the specifications, construction, theory of operation, and maintenance for the Brother facsimile equipment 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 facsimile equipment 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 eight 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

Summarizes the scanner and printing mechanisms and control electronics. It also provides information about sensors and their actuators. This chapter helps you to understand the operating principles and isolate the source of a problem (troubleshooting).

CHAPTER 4 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 5 ADJUSTMENTS AND UPDATING OF SETTINGS REQUIRED AFTER PARTS REPLACEMENT

Details adjustments and updating of settings, which are required if the print head unit, carriage, PCBs and some other parts have been replaced. Settings are stored in the EEPROM on the driver PCB.

CHAPTER 6 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 7 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 print head 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 8 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 of the facsimile machine from the host PC. No hardware replacement is required for updating.

Control programs of the facsimile machine are stored in the flash ROM on the main PCB. The updating procedure is required also if the main PCB has been replaced since a new PCB supplied has no firmware installed.

Appendix 3 Customizing Codes According to Shipping Destination

Lists 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 driver PCB. If the driver PCB is replaced with a new one, therefore, you will need to set the proper customizing codes with the machine in the maintenance mode.

Appendix 4 Firmware Switches (WSW)

Describes the functions of the firmware switches, which may 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 Diagram

Provides the wiring diagram that helps you understand the connections between PCBs.

Appendix 6 Circuit Diagrams

Provides the circuit diagrams of the MJ PCB (MFC3820CN), NCU PCB (MFC3420C), and power supply PCB.

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

CHAPTER 3 THEORY OF OPERATION

This chapter summarizes the scanner and printing mechanisms and control electronics. It also provides information about sensors and their actuators. This chapter helps you to understand the operating principles and isolate the source of a problem (troubleshooting).

CONTENTS

3.1 OVERVIEW	3-1
3.2 MECHANISMS	3-2
3.2.1 Scanner Mechanism.....	3-3
3.2.2 Ink Jet Printing Mechanism	3-5
3.2.2.1 Paper pulling-in, registration, feeding, and ejecting mechanisms	3-5
3.2.2.2 Ink jet printing and capping mechanisms	3-8
3.2.2.3 Purging mechanism.....	3-11
3.2.2.4 Carriage drive mechanism	3-16
3.2.3 Sensors and Actuators	3-17
3.3 CONTROL ELECTRONICS.....	3-20
3.3.1 Configuration.....	3-20

CHAPTER 4 DISASSEMBLY/REASSEMBLY AND LUBRICATION

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

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CONTENTS

4.1 DISASSEMBLY/REASSEMBLY	4-1
■ Safety Precautions	4-1
Tightening Torque List	4-2
■ Preparation.....	4-4
■ How to Access the Object Component.....	4-4
■ Disassembly Order Flow.....	4-5
4.1.1 Print Head Unit.....	4-6
4.1.2 ADF Document Support and ADF Cover	4-12
4.1.3 ADF Components on the Upper ADF Chute	4-13
4.1.4 ADF Components on the Lower ADF Chute	4-17
4.1.5 Rear Cover	4-23
4.1.6 Document Cover and Document Pressure Rollers 2.....	4-24
4.1.7 Scanner Cover (Scanner Unit).....	4-26
4.1.8 Scanner Open Sensor Actuator and Control Panel ASSY.....	4-29
4.1.9 Main Cover and Front Cover*.....	4-31
4.1.10 Main PCB, SDAA PCB*, and Media Module*.....	4-32
4.1.11 Auto Sheet Feeder (ASF).....	4-39
4.1.12 Driver PCB with Registration Sensor PCB.....	4-42
4.1.13 Rear Support Plate, NCU/PS Shield Box, Power Supply PCB, MJ PCB* and NCU PCB**	4-45
4.1.14 RH Support Plate and Purge Unit.....	4-52
4.1.15 Encoder Strip	4-55
4.1.16 Carriage Rail, Carriage, and Carriage PCB	4-56
4.1.17 Sensor Support (Ink Empty Sensor PCB) and Star Wheel Support.....	4-59

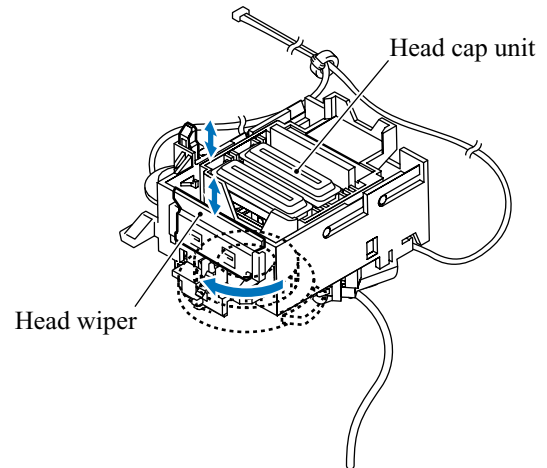
4.1.18 Platen	4-60
4.1.19 Paper Pressure Holder, Sensor Actuators and Carriage Motor.....	4-61
4.1.20 Paper Ejection Roller	4-62
4.1.21 Paper Feed Roller and Purge-Related Parts (Purge Lever, Purge Shaft, and ASF-Purge Switching Gear 23).....	4-63
4.1.22 Main Chassis, Paper Feed Motor, and Speaker.....	4-65
4.1.23 Ink Absorber Box.....	4-67
4.2 HARNESS ROUTING	4-68
4.3 LUBRICATION	4-73
4.4 LONG-PERIOD STORAGE	4-80

4.1 DISASSEMBLY/REASSEMBLY

■ Safety Precautions

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

- (1) If you unpack the package sent from the user, first check that the top edge of the head wiper is flush with that of the head cap unit before turning on the machine. If the head wiper protrudes or is out of place, lightly pull the head wiper up and towards the head cap unit to retract it.



- (2) Unplug the power cord from the power outlet before replacing parts or units. When having access to the power supply, be sure to unplug the power cord from the power outlet.
- (3) Be careful not to lose screws, washers, or other parts removed for parts replacement.
- (4) Do not remove gears from the document feed roller 1 (shown on page 4-14) or document ejection roller (shown on page 4-20) if at all possible. Once removed, they will become unusable and new gears will have to be put back in.
- (5) When using soldering irons and other heat-generating tools, take care not to damage the resin parts such as wires, PCBs, and covers.
- (6) Before handling the PCBs, touch a metal portion of the machine to discharge static electricity; otherwise, the electronic parts may be damaged due to the electricity charged in your body.
- (7) When transporting PCBs, be sure to wrap them in conductive sheets such as aluminum foil.
- (8) Be sure to reinsert self-tapping screws correctly, if removed.
- (9) Tighten screws to the torque values listed on the next page.
- (10) When connecting or disconnecting cable connectors, hold the connector bodies not the cables. If the connector has a lock, always slide the connector lock to unlock it.
- (11) Before reassembly, apply the specified lubricant to the specified points. (Refer to [Section 4.3 in this chapter.](#))
- (12) After repairs, check not only the repaired portion but also that the connectors and other related portions function properly before operation checks.
- (13) Once the print head 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 print head unit unusable and require replacement with a new print head 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.

CHAPTER 8 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.

CONTENTS

8.1	ERROR INDICATION	8-1
8.1.1	Equipment Errors	8-1
	[1] Error messages appearing on the LCD	8-1
	[2] Error codes contained in "MACHINE ERROR X X" messages	8-4
8.1.2	Communications Errors	8-11
8.2	TROUBLESHOOTING	8-18
8.2.1	Introduction	8-18
8.2.2	Precautions	8-18
8.2.3	Checking prior to Troubleshooting	8-18
8.2.4	Troubleshooting based on problem type	8-20
	[1] Control panel problems	8-20
	[2] Telephone problems	8-20
	[3] Communications problems	8-21
	[4] Paper/document feeding problems	8-21
	[5] Print-image problems	8-22
	[6] PC-driven printing problems	8-27
8.2.5	Problems encountered frequently in the past	8-28
	[1] Paper jams	8-28
	[2] "MACHINE ERROR 41" error message	8-29
	[3] Ink-related problems	8-29
	[4] Auto document feeder (ADF) malfunction	8-30
8.2.6	Possible component defects and resulting problems	8-32
	[1] ADF mechanism	8-32
	[2] Scanner mechanism	8-33

[3]	Carriage drive and purge mechanisms	8-34
[4]	Print head mechanism.....	8-36
[5]	ASF mechanism.....	8-36
[6]	Paper feeding mechanism.....	8-37
[7]	Speaker.....	8-37
[8]	Control panel.....	8-37
[9]	PCBs.....	8-38
[10]	Adjustments/data setting into the memories	8-39



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