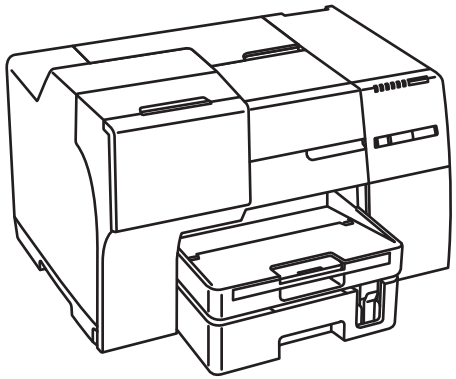
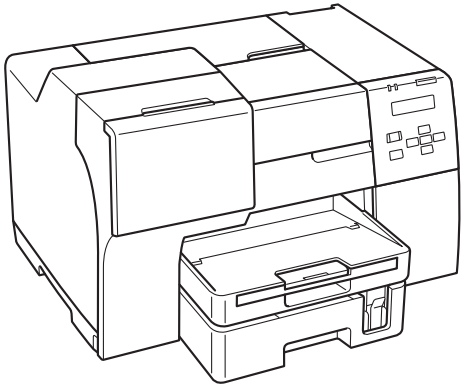
SERVICE MANUAL





Color Inkjet Printer

EPSON B-300/B-308
EPSON B-500DN/B-508DN
EPSON B-310N/B-318N
EPSON B-510DN/B-518DN

EPSON
EXCEED YOUR VISION

Confidential

SEIJ07-013

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PRECAUTIONS

Precautionary notations throughout the text are categorized relative to 1) Personal injury and 2) damage to equipment.

DANGER Signals a precaution which, if ignored, could result in serious or fatal personal injury. Great caution should be exercised in performing procedures preceded by DANGER Headings.

WARNING Signals a precaution which, if ignored, could result in damage to equipment.

The precautionary measures itemized below should always be observed when performing repair/maintenance procedures.

DANGER

1. ALWAYS DISCONNECT THE PRODUCT FROM THE POWER SOURCE AND PERIPHERAL DEVICES PERFORMING ANY MAINTENANCE OR REPAIR PROCEDURES.
2. NO WORK SHOULD BE PERFORMED ON THE UNIT BY PERSONS UNFAMILIAR WITH BASIC SAFETY MEASURES AS DICTATED FOR ALL ELECTRONICS TECHNICIANS IN THEIR LINE OF WORK.
3. WHEN PERFORMING TESTING AS DICTATED WITHIN THIS MANUAL, DO NOT CONNECT THE UNIT TO A POWER SOURCE UNTIL INSTRUCTED TO DO SO. WHEN THE POWER SUPPLY CABLE MUST BE CONNECTED, USE EXTREME CAUTION IN WORKING ON POWER SUPPLY AND OTHER ELECTRONIC COMPONENTS.
4. WHEN DISASSEMBLING OR ASSEMBLING A PRODUCT, MAKE SURE TO WEAR GLOVES TO AVOID INJURIER FROM METAL PARTS WITH SHARP EDGES.

WARNING

1. REPAIRS ON EPSON PRODUCT SHOULD BE PERFORMED ONLY BY AN EPSON CERTIFIED REPAIR TECHNICIAN.
2. MAKE CERTAIN THAT THE SOURCE VOLTAGES IS THE SAME AS THE RATED VOLTAGE, LISTED ON THE SERIAL NUMBER/RATING PLATE. IF THE EPSON PRODUCT HAS A PRIMARY AC RATING DIFFERENT FROM AVAILABLE POWER SOURCE, DO NOT CONNECT IT TO THE POWER SOURCE.
3. ALWAYS VERIFY THAT THE EPSON PRODUCT HAS BEEN DISCONNECTED FROM THE POWER SOURCE BEFORE REMOVING OR REPLACING PRINTED CIRCUIT BOARDS AND/OR INDIVIDUAL CHIPS.
4. IN ORDER TO PROTECT SENSITIVE MICROPROCESSORS AND CIRCUITRY, USE STATIC DISCHARGE EQUIPMENT, SUCH AS ANTI-STATIC WRIST STRAPS, WHEN ACCESSING INTERNAL COMPONENTS.
5. REPLACE MALFUNCTIONING COMPONENTS ONLY WITH THOSE COMPONENTS BY THE MANUFACTURE; INTRODUCTION OF SECOND-SOURCE ICs OR OTHER NON-APPROVED COMPONENTS MAY DAMAGE THE PRODUCT AND VOID ANY APPLICABLE EPSON WARRANTY.
6. WHEN USING COMPRESSED AIR PRODUCTS; SUCH AS AIR DUSTER, FOR CLEANING DURING REPAIR AND MAINTENANCE, THE USE OF SUCH PRODUCTS CONTAINING FLAMMABLE GAS IS PROHIBITED.

About This Manual

This manual describes basic functions, theory of electrical and mechanical operations, maintenance and repair procedures of the printer. The instructions and procedures included herein are intended for the experienced repair technicians, and attention should be given to the precautions on the preceding page.

Manual Configuration

This manual consists of six chapters and Appendix.

CHAPTER 1.PRODUCT DESCRIPTIONS
Provides a general overview and specifications of the product.

CHAPTER 2.OPERATING PRINCIPLES
Describes the theory of electrical and mechanical operations of the product.

CHAPTER 3.TROUBLESHOOTING
Describes the step-by-step procedures for the troubleshooting.

CHAPTER 4.DISASSEMBLY / ASSEMBLY
Describes the step-by-step procedures for disassembling and assembling the product.

CHAPTER 5.ADJUSTMENT
Provides Epson-approved methods for adjustment.

CHAPTER 6.MAINTENANCE
Provides preventive maintenance procedures and the lists of Epson-approved lubricants and adhesives required for servicing the product.

APPENDIX Provides the following additional information for reference:
• Connector Summary

Symbols Used in this Manual

Various symbols are used throughout this manual either to provide additional information on a specific topic or to warn of possible danger present during a procedure or an action. Be aware of all symbols when they are used, and always read NOTE, CAUTION, or WARNING messages.

Indicates an operating or maintenance procedure, practice or condition that is necessary to keep the product's quality.

Indicates an operating or maintenance procedure, practice, or condition that, if not strictly observed, could result in damage to, or destruction of, equipment.

May indicate an operating or maintenance procedure, practice or condition that is necessary to accomplish a task efficiently. It may also provide additional information that is related to a specific subject, or comment on the results achieved through a previous action.

Indicates an operating or maintenance procedure, practice or condition that, if not strictly observed, could result in injury or loss of life.

Indicates that a particular task must be carried out according to a certain standard after disassembly and before re-assembly, otherwise the quality of the components in question may be adversely affected.

Revision Status

Revision	Date of Issue	Description
A	April 1, 2008	First Release
B	May 16, 2008	Revised Contents ☐ Chapter 3 ■ Descriptions have been added in Table 3-26 “Troubleshooting Ink Suction / Waste Ink Problems” (p70). ☐ Chapter 4 ■ Made changes in 4.1.2 Tools (p75). ■ Made changes in 4.3.4 Using Acetate Tape (p80). ■ Made changes in 4.5.6.2 Front Housing Assy (p92). ■ Made changes in 4.5.7.2 Upper Housing (p94). ■ Made changes in 4.5.7.3 Cover Open Sensor (p96). ■ Made changes in 4.6.3 AID Board (p100). ■ Made changes in 4.6.5 Power Supply Unit (p106). ■ Made changes in 4.7.1.1 IC Holder Assy (p108). ■ Made changes in 4.7.1.3 CV Drive Assy (p116). ■ “CAUTION” has been added in 4.7.3.1 Printhead (p121). ■ Made changes in 4.7.3.3 APG Assy / Sub Board (p125). ■ Made changes in 4.7.3.4 ASF Encoder Assy (p128). ■ Made changes in 4.7.3.5 CR Motor (p129). ■ Made changes in 4.7.3.6 Carriage Assy (p131). ■ Made changes in 4.7.4.3 ASF Motor Assy (p136). ■ Made changes in 4.7.4.4 Planet Lock Assy (p138). ■ Made changes in 4.7.4.9 Paper Guide Bank Assy (p149). ■ Made changes in 4.7.5.1 PF Motor (p156). ■ Made changes in 4.7.5.5 Front Paper Guide & EJ Roller Assy (p162). ■ Made changes in 4.7.6.1 Ink System (p165). ■ Made changes in 4.7.6.2 EJ Waste Ink Assy (p168). ■ Made changes in 4.7.6.3 EJC Sensor (p169). ☐ Chapter 5 ■ Made changes in Table 5-1 “Adjustment Items and Overviews” (p171). ■ Descriptions have been added in Table 5-2 “Maintenance Items” (p174). ■ Descriptions have been added in Table 5-3 “Additional Functions” (p175). ■ Made changes in 5.2.6 Head angular adjustment (p181).

Revision	Date of Issue	Description
C	March 31, 2009	Revised Contents ☐ Chapter 1 ■ Descriptions have been added in Table 1-12 “Power Supply Specifications” (p20). ☐ Chapter 3 ■ Descriptions have been added in Table 3-23 “Troubleshooting Print Quality Problems” (p67). ■ Descriptions have been added in Table 3-25 “Troubleshooting Ink Supply Problems” (p69). ☐ Chapter 4 ■ Descriptions have been added in 4.3.1 Releasing Carriage Lock (p79). ■ “REASSEMBLY” has been added in 4.7.1.1 IC Holder Assy (p108). ■ “REASSEMBLY” has been added in 4.7.1.3 CV Drive Assy (p116). ☐ Chapter 5 ■ Made changes in Table 5-1 “Adjustment Items and Overviews” (p171). ■ Made changes in Table 5-4 “Adjustment Items” (p176). ■ Made changes in 5.2.6 Head angular adjustment (p181). ■ Made changes in 5.2.7 AID inspection (p184). ■ Descriptions have been added in 5.2.10 Paper Skew Adjustment (p187). ■ Descriptions have been added in 5.2.11 ACL Failed Counter Initialization (p189). ☐ Chapter 6 ■ Descriptions have been added in Table 6-2 “Specified Lubricant” (p198).

Revision	Date of Issue	Description
D	September 17, 2009	Revised Contents ☐ Chapter 2 ■ Made changes in Figure 2-1 “Printer Mechanism Block Diagram” (p31). ■ Made changes in Table 2-1 “PG Settings / Cam Diagram” (p32). ■ Descriptions have been added in 2.3 Optical Sensor Control (p34). ☐ Chapter 3 ■ Made changes in Table 3-3 “Error Messages and Possible Causes” (p37). ■ Descriptions have been added in 3.3.2 Fatal Error (p48). ☐ Chapter 4 ■ Made changes in 4.7.3.1 Printhead (p121). ■ “ADJUSTMENT REQUIRED” has been changed in 4.7.3.5 CR Motor (p129). ■ “ADJUSTMENT REQUIRED” has been changed in 4.7.5.1 PF Motor (p156). ☐ Chapter 5 ■ Made changes in Table 5-1 “Adjustment Items and Overviews” (p171). ■ Descriptions have been added in Table 5-2 “Maintenance Items” (p174). ■ “CHECKPOINT” has been added and made changes in 5.2.11 ACL Failed Counter Initialization (p189). ■ Made changes in 5.3.2 PF Belt Tension Adjustment (p193). ■ Made changes in 5.3.3 FD Belt Tension Adjustment (p194).

Revision	Date of Issue	Description
E	November 26, 2009	Revised Contents ☐ All chapters Descriptions about B-310N/B-318N/B-510DN/B-518DN are added. ☐ Chapter 1 ■ Made changes in 1.1 Features (p14) ■ Made changes in Table 1-3 “Product No. of Ink Cartridges” (p15) ■ Made changes in Table 1-6 “Print Mode (Color/Monochrome)” (p16) ■ Made changes in Table 1-7 “Supported Paper” (p17) ■ Made changes in Table 1-12 “Power Supply Specifications” (p20) ■ Made changes in Table 1-14 “Operation Buttons, LED, LCD (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN)” (p22) ■ Made changes in Table 1-16 “LEDs and LCD Indications” (p23) ■ 1.6 Various Settings (p24) has been added ■ Made changes in Figure 1-10 “Network Status Sheet Sample (2)” (p29) ☐ Chapter 3 ■ Made changes in Table 3-3 “Error Messages and Possible Causes” (p37) ■ Made changes in Table 3-12 “Check Point for Fatal Error of Each Phenomenon” (p52) ■ Made changes in Table 3-19 “FFC/harness Connection Error (SUB Board)” (p65)

Revision	Date of Issue	Description
E	November 26, 2009	☐ Chapter 4 ■ "CHECKPOINT" has been added and made changes in 4.4.3 Cassette Assy (p85) ■ Made changes in 4.5.6.2 Front Housing Assy (p92) ■ Made changes in 4.6.2 Network Board (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN only) (p99) ■ Made changes in 4.6.3 AID Board (p100) ■ Made changes in 4.7.1.1 IC Holder Assy (p108) ■ Made changes in 4.7.1.3 CV Drive Assy (p116) ■ Made changes in 4.7.2 Lower Housing (p117) ■ "CHECKPOINT" has been added and made changes in 4.7.3.1 Printhead (p121) ■ "CHECKPOINT" has been added and made changes in 4.7.3.3 APG Assy / Sub Board (p125) ■ "CHECKPOINT" has been added in 4.7.3.4 ASF Encoder Assy (p128) ■ "CHECKPOINT" has been added and made changes in 4.7.4.4 Planet Lock Assy (p138) ■ "CHECKPOINT" has been added in 4.7.4.5 ASF Sub Encoder (p142) ■ Made changes in 4.7.4.6 Retard Transfer Assy (p143) ■ Made changes in 4.7.4.7 FASF Retard Assy (p144) ■ "CHECKPOINT" has been added and made changes in 4.7.5.4 Left/Right Upper Paper Guide (p160) ■ Made changes in 4.7.6.1 Ink System (p165) ☐ Chapter 5 ■ Made changes in Table 5-3 "Additional Functions" (p175) ☐ Chapter 6 ■ Made changes in Table 6-2 "Specified Lubricant" (p198) ■ Made changes in 6.1.3 Lubrication (p198) ☐ Chapter 7 ■ Made changes in Figure 7-1 "Block Diagram" (p208)

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CHAPTER

1

PRODUCT DESCRIPTION

1.1 Features

B-300/B-308/B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN is business-oriented A4 inkjet printers, which offers high print quality and high durability with low running costs like laser printers. The main features are:

- ☐ F-Mach Turbo 2 (180 nozzles x 8 columns) Printhead
- ☐ High durability (up to 100,000 sheets can be printed)
- ☐ The default mode enables high-speed printing on plain paper
- ☐ Large capacity ink cartridges
- ☐ Large capacity paper feeders (front: 500 sheets, rear: 150 sheets)
- ☐ Automatic duplex printing using the duplex unit (B-500DN/B-508DN/B-510DN/B-518DN include the unit as standard. For B-300/B-308/B-310N/B-318N, the unit is available as an option.)
- ☐ 2 Line LCD on the control panel offers high level of visibility and operability. (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN only)
- ☐ Wired LAN is supported. (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN only)
- ☐ Dimensions & Weight

Table 1-1. Dimensions & Weight

	B-300/B-308	B-310N/B-318N	B-500DN/B-508DN	B-510DN/B-518DN
Dimensions	480 mm (W) x 420 mm (D) x 312 mm (H)*1		480 mm (W) x 489 mm (D) x 312 mm (H)*2	
Weight	9.85 kg*3	9.95 kg*3	10.69 kg*3	10.70 kg*4/10.79 kg*5

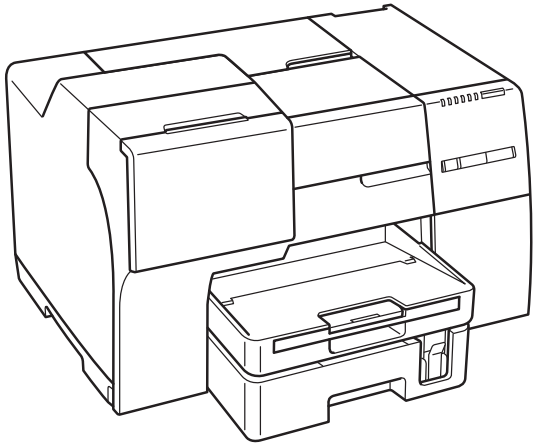
*1 : The optional duplex unit is not included. The stackers are retracted.

*2 : The duplex unit is included. The stackers are retracted.

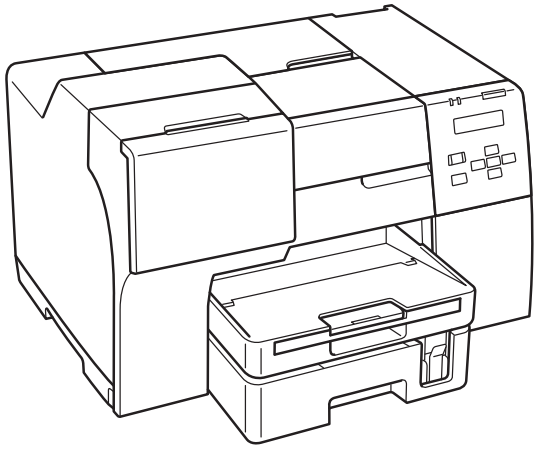
*3 : The ink cartridges, the power cord and the duplex unit are not included.

*4 : The ink cartridges and the power cord are not included.

*5 : For the EAI model, the ink cartridges, the power cord, and the Casstte Assy are not included, but the Cassette Assy for legal size paper is included instead.



B-300/B-308



B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN

Figure 1-1. External View

1.2 Printing Specifications

1.2.1 Basic Specifications

Table 1-2. Printer Specifications

Item	Specifications
Print method	On-demand inkjet
Printhead	Black: 360 nozzles (180 nozzles x 2 columns) Color: 1,080 nozzles (180 nozzles x 2 columns per color)
Colors	Cyan, Yellow, Magenta, Black
Print direction	Bi-directional minimum distance printing (logic seeking), unidirectional printing
Print resolution	Horizontal x Vertical (dpi) • 360 x 360 • 720 x 720 • 1440 x 720 • 5760 x 1440
Control code	ESC/P Raster command
Input buffer size	256 KBytes
Paper feed method	Friction feed
Paper feeders	• Front: 500 sheets (plain paper) • Rear: 150 sheets (plain paper)
Paper path	• Rear feed, front out • Front feed, front out
Feed speed	100 ms (25.4 mm feed)
Line pitch	Programmable in units of 0.01764 mm (1/1440 inch)

1.2.2 Ink Cartridges

The product numbers of the Epson ink cartridges for this printer are shown below.

☐ Product No.

Table 1-3. Product No. of Ink Cartridges

Color	Size	B-300/B-308/ B-310N/B-318N	B-500DN/ B-510DN	B-508DN/ B-518DN
Black	LL	N/A	T6181	T6271
	L	N/A	T6171	T6261
	M	T6161	T6161	T6251
Cyan	L	N/A	T6172	T6262
	M	T6162	T6162	T6252
Magenta	L	N/A	T6173	T6263
	M	T6163	T6163	T6253
Yellow	L	N/A	T6174	T6264
	M	T6164	T6164	T6254

☐ Shelf life

Two years from production date (if unopened), six months after opening package.

☐ Storage Temperature

Table 1-4. Storage Temperature

Situation	Storage Temperature	Limit
Packed in the package	-20 °C to 40 °C (-4°F to 104°F)	1 month max. at 40 °C (104°F)
Installed on the printer	-20 °C to 40 °C (-4°F to 104°F)	

☐ Dimensions

Table 1-5. Dimensions

Ink Cartridge Size	Dimensions
M/L	165.8 mm (W) x 106.6 mm (D) x 25.1 mm (H)
LL	280.8 mm (W) x 106.6 mm (D) x 25.1 mm (H)

CAUTION

- **Do not use expired ink cartridge.**
- **Ink in the cartridges freezes if the cartridges left under a temperature of 10°C or lower. Once ink becomes frozen, it takes about three hours to thaw it under a temperature of 25°C. (when moved from -20°C environment.)**

1.2.3 Maintenance Box

Item	Specifications	
Model number	T6190	
Dimensions	86.2mm (W) x 236.9mm (D) x 56.5mm (H)	
Ambient temp.	Packed in the package	-20°C to 40°C* (-4°F to 104°F) *1 month max. at 40 °C (104°F)
	Installed on the printer	-20°C to 40°C* (-4°F to 104°F) *1 month max. at 40 °C (104°F)
	Transported with packed	-20°C to 60°C* (-4°F to 140°F) *Within five days at 60 °C (140°F)

CAUTION

- **Do not disassemble the maintenance box.**
- **Do not touch the CSIC on the maintenance box.**
- **Do not remove the film attached to the upper surface of the maintenance box.**
- **When disposing of a used maintenance box, do not tilt it before putting it into a plastic bag.**
- **If the maintenance box is removed and left unused for a long time, do not reuse it.**

1.2.4 Print Mode

Table 1-6. Print Mode (Color/Monochrome)

Media	Print Mode	Resolution (H x V) dpi	Dot Size (cps*1)	Bi-d	Micro Weave
• Plain paper • Premium Bright White Paper (EAI) • Bright White Inkjet Paper (Euro, Asia)	Draft	360x360	Eco (450cps)	ON	OFF
	Normal	360x360	VSD-1 (360cps)	ON	OFF
	Fine	360x360	VSD-1 (360cps)	ON	OFF
	Photo	360x720	VSD-1 (360cps)	ON	OFF
	Best Photo*2	720x720	VSD-2 (200cps)	ON	ON
• Premium Presentation Paper Matte (EAI) • Matte Paper Heavy-weight (Euro, Asia)	Best Photo	1440x720	VSD-3 (200cps)	ON	ON
• Presentation Paper Matte (EAI) • Photo Quality Inkjet Paper (Euro, Asia)	Photo	1440x720	VSD-3 (200cps)	ON	ON
• Envelope	Normal	360x360	VSD-1 (360cps)	OFF	OFF
	Photo	720x720	VSD-2 (200cps)	OFF	ON
• Photo Paper	Photo*2	720x720	VSD-2 (200cps)	ON	ON
	Best Photo	1440x1440	VSD-3 (200cps)	ON	ON
• Professional Flyer Paper	Photo	1440x720	VSD-3 (200cps)	ON	ON
	Best Photo	1440x1440	VSD-3 (200cps)	ON	ON

Note *1: cps = character per second
*2: B-310N/B-318N/B-510DN/B-518DN only

1.2.5 Supported Paper

The table below lists the paper type and sizes supported by the printer. The Supported paper type and sizes vary depending on destinations (between EAI, EUR, and Asia).

Table 1-7. Supported Paper

Paper Name	Paper Size		Thickness	Weight		EAI		EUR		Asia		Paper Path	
			mm	g/m²	lb.	P*1	D*2	P*1	D*2	P*1	D*2	F*3	R*4
Plain paper	Legal	215.9 x 355.6 mm (8.5”x14”)	0.08-0.11	64-90	17-24	Y	-	Y	-	Y	-	-	Y
	Letter	215.9 x 279.4 mm (8.5”x11”)				Y	Y	Y	Y	Y	Y	Y	Y
	A4	210 x 297 mm (8.3”x11.7”)				Y	Y	Y	Y	Y	Y	Y	Y
	B5	182 x 257 mm (7.2”x10.1”)				-	-	Y	Y	Y	Y	Y	Y
	A5	148 x 210 mm (5.8”x8.3”)				-	-	Y	-	Y	-	Y	Y
	Half Letter	139.7 x 215.9 mm (5.5"x8.5”)				Y	-	-	-	-	-	Y	Y
	A6	105 x 148 mm (4.1”x5.8”)				Y	-	Y	-	Y	-	Y	Y
	User Defined	50.8 x 127- 216 x 1117.6 mm*5 100 x 148 - 216 x 297 mm*6				Y	-	Y	-	Y	-	Y	Y
Premium Bright White Paper (EAI)	Letter	215.9 x 279.4 mm (8.5”x11”)	0.11	90	24	Y	Y	-	-	-	-	Y	Y
Bright White Inkjet Paper (Euro, Asia)	A4	210 x 297 mm (8.3”x11.7”)	0.13	32.5	25	-	-	Y	Y	Y	Y	Y	Y
Premium Presentation Paper Matte (EAI) Matte Paper Heavy-weight (Euro, Asia)	Letter	215.9 x 279.4 mm (8.5”x11”)	0.23	167	44	Y	-	-	-	-	-	-	Y
	A4	210 x 297 mm (8.3”x11.7”)				-	-	Y	-	Y	-	-	Y
Double-sided Matte Paper (Euro, Asia)	A4	210 x 297 mm (8.3”x11.7”)	0.25	178	47	-	-	Y	-	Y	-	Y	Y
Presentation Paper Matte (EAI) Photo Quality Inkjet Paper (others)	Letter	215.9 x 279.4 mm (8.5”x11”)	0.12	102	27	Y	-	-	-	-	-	-	Y
	A4	210 x 297 mm (8.3”x11.7”)				Y	-	Y	-	Y	-	-	Y
Envelopes	#10	104.8 x 241.3 mm (4.125”x9.5”)	-	75-90	20-24	Y	-	Y	-	Y	-	-	Y
	#DL	110 x 220 mm				-	-	Y	-	Y	-	-	Y
	#C6	114 x 162 mm				-	-	Y	-	Y	-	-	Y
Photo Quality Self Adhesive Sheet	A4	210 x 297 mm (8.3”x11.7”)	0.11	89	24	Y	-	Y	-	Y	-	-	Y
Professional Flyer Paper	A4	210 x 297 mm (8.3”x11.7”)	0.09	90	24	Y	-	Y	-	Y	-	-	Y
Photo Paper	A4	210 x 297 mm (8.3”x11.7”)	0.24	190	51	Y	-	Y	-	Y	-	-	Y

Table 1-7. Supported Paper

Paper Name	Paper Size		Thickness	Weight		EAI		EUR		Asia		Paper Path	
			mm	g/m²	lb.	P*1	D*2	P*1	D*2	P*1	D*2	F*3	R*4
Sheet with holes*7	Legal	215.9 x 355.6 mm (8.5”x14”)	-	-	-	Y	Y	Y	Y	Y	Y	-	Y
	Letter	215.9 x 279.4 mm (8.5”x11”)	-	-	-	Y	Y	Y	Y	Y	Y	-	Y
	A4	210 x 297 mm (8.3”x11.7”)	-	-	-	Y	Y	Y	Y	Y	Y	-	Y
	B5	182 x 257 mm (7.2”x10.1”)	-	-	-	-	-	Y	Y	Y	Y	-	Y
	A5	148 x 210 mm (5.8”x8.3”)	-	-	-	-	-	Y	-	Y	-	-	Y
	A6	105 x 148 mm (4.1”x5.8”)	-	-	-	Y	-	Y	-	Y	-	-	Y
	Half Letter	139.7 x 215.9 mm (5.5"x8.5”)	-	-	-	Y	-	-	-	-	-	-	Y

Note 1: “Y” in the “P” columns indicates that the paper is supported.

2: “Y” in the “D” columns indicates that the paper is available for duplexing.

3: “Y” in the “F” columns indicates that the paper can be fed from the Front ASF.

4: “Y” in the “R” columns indicates that the paper can be fed from the Rear ASF.

5: When using the Rear ASF.

6: When using the Front ASF.

7: B-310N/B-318N/B-510DN/B-518DN only. Make sure to use the paper which does not have a hole in the following area.
One-side printing: 26.6 mm ± 4 mm from 0-digit side of the paper
Duplex printing: 26.6 mm ± 7 mm from 0-digit side of the paper

1.2.6 Printing Area

The printing area of this printer is shown below.

Table 1-8. Printing Area (Margins)

Paper Size	Margin			
	Left (LM)	Right (RM)	Top (TM)	Bottom (BM)
Any size of cut sheet	3 mm	3 mm	3 mm	3 mm*
Envelope	5 mm	5 mm	3 mm	20 mm

Note* : The bottom margin becomes 16mm when duplex printing is performed using plain paper.

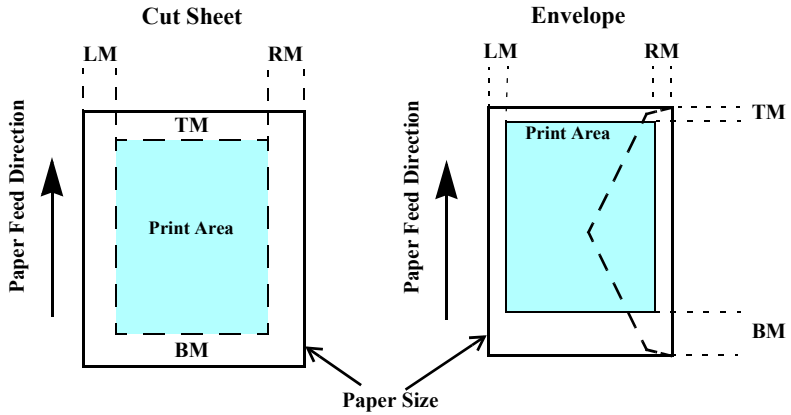


Figure 1-2. Printing Area

1.3 Interface

The printer has a USB and network interfaces of the following specifications.

1.3.1 USB Interface

A USB interface is provided for connecting with a PC. The specifications are as follows.

Table 1-9. USB Interface Specifications

Item	Specifications
Compatible standards	• Universal Serial Bus Specifications Revision 2.0 • Universal Serial Bus Device Class Definition for Printing Devices Version 1.1
Transfer rate	480 Mbps (High Speed)
Data format	NRZIt
Compatible connector	USB Series B
Max. cable length	2 m or less

1.3.2 Network Interface (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN only)

B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN incorporates a print server. This allows the user to use the printer via a wired LAN. The network interface specifications are as follows.

Table 1-10. Wired LAN (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN)

Item	Specifications
Communication mode	100BASE-TX/10BASE-T
Port type	Selectable from Auto, MDI, and MDI-X.

Table 1-11. Wired LAN Settings (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN)

Setting on the printer	Setting on the destination
Auto	10Base-T or 100Base-TX is automatically selected by the hardware.
10Base-T Half Duplex	Fixed to 10Base-T and half-duplex communication mode.
10Base-T Full Duplex	Fixed to 10Base-T and full-duplex communication mode.
100Base-TX Half Duplex	Fixed to 100Base-TX and half-duplex communication mode.
100Base-TX Full Duplex	Fixed to 100Base-TX and full-duplex communication mode.

1.4 General Specifications

1.4.1 Electrical Specifications

Table 1-12. Power Supply Specifications

Item		B-300/B-308		B-500DN/B-508DN		B-310N/B-318N/ B-510DN/B-518DN	
		100-120V	220-240V	100-120V	220-240V	100-120V	220-240V
Rated power supply voltage		100-120 VAC	220-240 VAC	100-120 VAC	220-240 VAC	100-120 VAC	220-240 VAC
Input voltage range		90-132 VAC	198-264 VAC	90-132 VAC	198-264 VAC	90-132 VAC	198-264 VAC
Rated current		0.7 A	0.4 A	0.7 A	0.4 A	0.7 A	0.7 A
Rated frequency		50 - 60 Hz		50 - 60 Hz		50 - 60 Hz	
Input frequency range	50 Hz	49 - 51 Hz		49 - 51 Hz		49 - 51 Hz	
	60 Hz	58.8 - 61.2 Hz		58.8 - 61.2 Hz		58.8 - 61.2 Hz	
Power consumption *The values are approximate.	Printing	30 W		32 W		30 W	
	Ready	6 W		8 W		6.5 W	7.0 W
	Sleep mode	3 W	3.5 W	4.5 W	5 W	3.5 W	
	Power off	0.3 W	0.6 W	0.3 W	0.6 W	0.2 W	0.4 W

Note 1: B-300/B-308/B-310N/B-318N/B-510DN/B-518DN conform to Energy Star.

2: When the printer is not operated for more than three minutes, the printer goes into the power save mode within five minutes.

1.4.2 Safety Approvals (Safety standards/EMI)

- ☐ Taiwan — CNS13438 Class B, CNS14336
- ☐ EU — EN55022 Class B, EN55024, EN61000-3-2, EN61000-3-3
- ☐ EU/ Germany — EN60950-1
- ☐ Russia — GOST-R (IEC60950-1, CISPR 22)
- ☐ Singapore — IEC60950-1
- ☐ Korea — K60950-1, KN22 Class B, K61000-4-2/-3/-4/-5/-6/-11

1.4.3 Environmental Conditions

Table 1-13. Environmental Conditions

Condition	Temperature*1	Humidity*1,2	Shock	Vibration
Operating	10 to 35°C (50 to 95°F)	20 to 80%	1G (1 msec or less)	0.15G (10 to 55Hz)
Unpacked	-20 to 40°C*3 (-4 to 104°F)	5 to 85%	2G (2 msec or less)	0.50G (10 to 55Hz)

Note *1: The combined Temperature and Humidity conditions must be within the blue-shaded range in Figure 1-3.
*2: No condensation
*3: Must be less than 1 month at 40°C.

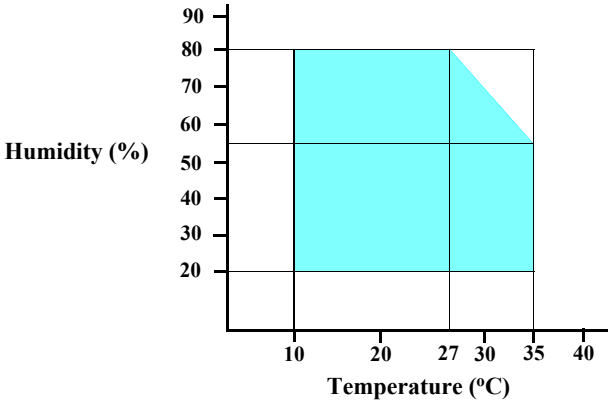


Figure 1-3. Temperature/Humidity Range

CAUTION

- **When not using the printer, make sure the Printhead is covered with the cap and the ink cartridge is installed.**
- **If the Printhead is not covered with the cap when the printer is off, turn on the printer with the ink cartridge installed, make sure the Printhead is covered with the cap, and then turn the printer off.**

1.4.4 Durability

Item	Specifications
Printer mechanism life	Until any one of the following conditions is met. • 100,000 sheets • Five years

1.5 Control Panel

1.5.1 Operation Buttons

The operation buttons, LEDs, and LCD (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN only) are shown below.

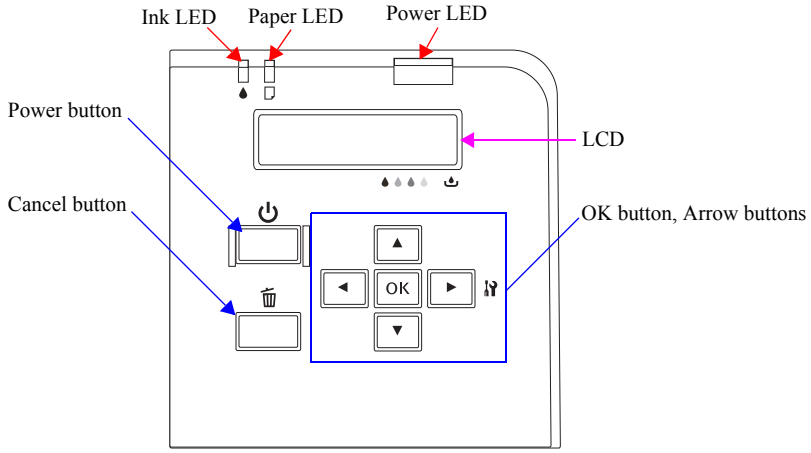


Figure 1-4. Control Panel (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN)

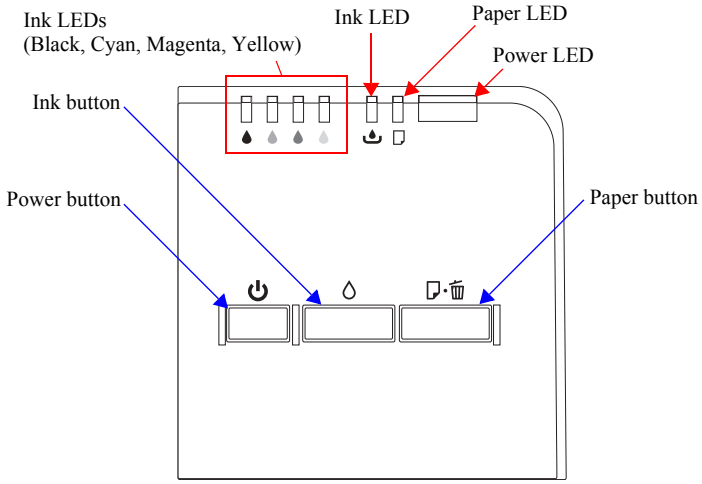


Figure 1-5. Control Panel (B-300/B-308)

Table 1-14. Operation Buttons, LED, LCD (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN)

Buttons/LEDs/LCD		Function
Button	Power	Turns the power ON/OFF.
	OK	Clears an error and accepts a selected menu setting.
	Arrows	• Displays the menu screen. (▶ button) • Goes to the next item in the menu.
	Cancel	Cancels the menu selection, or cancels a job.
LED*1	Power	Indicates the power-on status, or operating status.
	Ink	Indicates an error status regarding to ink and maintenance box.
	Paper	Indicates an error status regarding to paper.
LCD*1		Indicates the printer status, error, and menu screen. Indicates fatal error code*2

Note *1: See Table 1-16 for more details about the LEDs and LCD.
*2: B-310N/B-318N/B-510DN/B-518DN only

Table 1-15. Operation buttons, LED (B-300/B-308)

Operation buttons/LEDs			Function
Button	Power		Turns the power ON/OFF.
	Ink		Runs a cleaning.
	Paper		Feeds / ejects paper
LED*	Power		Indicates the power-on status, or operating status.
	Ink		Indicates an error status regarding to ink and maintenance box.
	Ink	Black	Indicates an error status of black ink.
		Cyan	Indicates an error status of cyan ink.
		Magenta	Indicates an error status of magenta ink.
		Yellow	Indicates an error status of yellow ink.
	Paper		Indicates an error status of paper.

Note *: See Table 1-16 for more details about LEDs.

1.5.2 LEDs and LCD Indications

Table 1-16. LEDs and LCD Indications

Status	LEDs				LCD Message*2		Priority	
	Power LED	Ink LED	Paper LED	Ink LEDs*1			B-300/B-308/ B-500DN/B-510DN	B-310N/B-318N/ B-510DN/B-518DN
Powering ON*3	Flash	---	---	---	PLEASE WAIT		---	---
Printing is available*3	ON	---	---	---	READY		---	22
Powering ON*4	Flash / ON*5	---	---	---	PLEASE WAIT		21	---
Switching monochrome priority mode on/off*3	OFF	Flash at high speed	Flash at high speed 2	---	---		---	21
Maintenance call	---	---	---	Flash 2	NOZZLE MAINT ERROR SEE GUIDE		20	20
Ink level low	---	Flash	---	Flash *6	REPLACE INK CARTRIDGE	ICON	19	19
Maintenance box near full	---	Flash	---	---	REPLACE MAINT	ICON	18	18
Processing data	Flash	---	---	---	---		17	17
Feeding / ejecting paper	Flash	---	---	---	---		16	16
Executing ink sequence	Flash	---	---	---	---		15	15
Printer cover open error	---	Flash 2	Flash 2	---	CLOSE PRINTER COVER		14	14
Paper out error	---	---	ON	---	(Front) SET PAPER IN CASSETTE (Rear) SET PAPER IN AUTO FEEDER	OK OK	13	13
No duplex unit error	---	---	Flash 2	---	SET DUPLEX UNIT		12	12
Multi-feed error	---	---	ON	---	DOUBLE FEED JAM REMOVE PAPER	OK	11	11
Ink cartridge CSIC error	---	ON	---	ON*6	REPLACE INK CARTRIDGE	ICON*7	10	10
No ink cartridge or no ink error	---	ON	---	ON*6	SET INK CARTRIDGE	ICON*7	9	9
Maintenance cartridge CSIC error	---	ON	---	---	SET MAINT BOX	ICON*7	8	8
No maintenance cartridge or no ink error	---	ON	---	---	SET MAINT BOX	ICON*7	7	7
Ink lock lever open error	---	ON	---	---	MOVE INK LEVER DOWN SET INK CARTRIDGE*8	ICON*7 ICON*7	6	6
Maintenance box cover open error	---	ON	---	---	CLOSE MAINT BOX COVER SET MAINT BOX*9	ICON*7 ICON*7	5	5
Paper jam	---	---	Flash	---	(Front) REMOVE JAMMED PAPER (Rear) REMOVE JAMMED PAPER (Duplex) DUPLEX UNIT JAM REMOVE PAPER	OK OK OK	4	4
Fatal error	OFF	Flash at high speed	Flash at high speed	---	PRINTER ERROR RESTART PRINTER XXXX*10		3	3
Service call	OFF	Alternate Flash 2	Alternate Flash 1	---	SERVICE CALL SEE GUIDE		2	2
Power OFF	Flash at high speed	OFF	OFF	OFF	POWER OFF		1	1
Reset request*11	ON*4 / Flash *3	ON*4/ --- *3	ON*4/ --- *3	ON	---		---	---

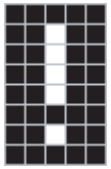
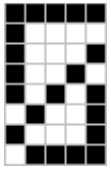
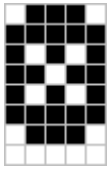
Note *1: B-300/B-308 only
*2: B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN only
*3: B-310N/B-318N/B-510DN/B-518DN only
*4: B-300/B-308/B-500DN/B-508DN only
*5: B-300/B-308 power LED flashes, and that of B-500DN/B-508DN turns ON.
*6: The corresponding LED flashes or lights.
*7: See "Table 1-17. LCD Icon Display (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN only)" on page 24 for the icons shape.
*8: B-500DN/B-508DN only. The LED turns ON when the ink lever is moved to its upper position after an error occurs.
*9: The LED turns ON when the maintenance cover is opened after an error occurs.
*10: The fatal error code is indicated only for B-310N/B-318N/B-510DN/B-518DN. See "3.3.2 Fatal Error" on page 48 for the details.
*11: When a reset request occurs, the LED lights for 0.2 seconds.

Note : ---: No change
Flash: Repeats ON for 1.25 seconds, OFF for 1.25 seconds
Flash 2: Repeats ON for 0.5 second, OFF for 0.5 second, ON for 0.5 second and OFF for 1.0 second.
Flash at high speed: Repeats ON for 0.5 second, OFF for 0.5 second
Flash at high speed 2: Repeats OFF for 0.5 second, ON for 0.5 second
Alternate Flash1: Same as the above Flash.
Alternate Flash1: Repeats OFF for 1.25 seconds, ON for 1.25 seconds

LCD ICON DISPLAY (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN)

The following icons appear on the LCD according to the printer status.

Table 1-17. LCD Icon Display (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN only)

Printer Status	Icon
• Ink level low • Maintenance box near full	
• No ink • Maintenance box full	
• Ink cartridge CSIC error • No ink cartridge	

1.6 Various Settings

1.6.1 Panel Operation

1.6.1.1 Menu Configuration (B-500DN/B-508DN/B-310N/B-318N/ B-510DN/B-518DN only)

The setting screen is displayed by pressing the right arrow button on ready mode (the LCD display is “READY” or “POWER SAVE”). The following explains the menu structure and the outline of the menu functions.

Table 1-18. Menu Configuration

Menu			Description
MENU	PRINTER SETTING	LANGUAGE	Selects the language displayed on the LCD.
		USB	Selects the printer control language for the port.
		Network	
	TEST PRINT	NOZZLE CHECK	Prints a printhead nozzle check pattern.
		STATUS SHEET	Prints a status sheet for current printer status. (See Figure 1-8.)
		NETWORK SHEET	Prints a network status sheet for current settings of the network interface. (See Figure 1-9 and Figure 1-10.)
	PRINTER STATUS	VERSION	Displays the firmware version.
		MAINTENANCE BOX	Displays the rough estimate of the remaining capacity of the Maintenance Box.
	MAINTENANCE	HEAD ALIGNMENT	Adjusts the printhead alignment.
		CLEANING	Runs a printhead cleaning.
		CLEANING SHEET	Runs a cleaning for the rollers inside the printer.
		CONTRAST ADJ.	Adjusts the contrast of the LCD.
		AUTO CLEANING	Changes the setting of the AID detection cleaning. (See “1.6.2.1 AID Detection Cleaning (B-310N/B-318N/B-510DN/B-518DN only)” on page26.)
		LOW SPEED MODE	Changes the setting of the low speed mode (MPBF priority mode). (See “1.6.3 Low Speed Mode (MPBF Priority Mode) (B-310N/B-318N/B-510DN/B-518DN only)” on page28.)
	NETWORK SETTING	NETWORK SETUP	Selects the method to configure the network settings.
	PASSWORD MENU*	PASSWORD SET.	Sets a password. (See “ Password setting” on page26.)
		LOCK SETTING	Changes the setting of the panel operation lock. (See “1.6.1.2 Panel Operation Lock Setting (B-310N/B-318N/B-510DN/B-518DN only)” on page25.)

Note* : B-310N/B-318N/B-510DN/B-518DN only.

1.6.1.2 Panel Operation Lock Setting (B-310N/B-318N/B-510DN/B-518DN only)

For B-310N/B-318N/B-510DN/B-518DN, the panel operation can be locked after setting the password. (See Password setting *(p.26)*.)

Table 1-19. Panel Operation Lock Setting

ON	OFF
☐ On ready mode (the LCD display is "READY" or "POWER SAVE"), the password is required to go to the setting screen. ☐ If the correct password is entered, goes to the setting screen. ☐ "WRONG PASSWORD" is displayed if a wrong password is entered, and the access to the setting screen is denied. After the error is displayed for a while, the printer returns to the ready mode (the LCD display is "READY"). ☐ Error reset and powering off are still available.	Entering the password is not required to go to the setting screen even the password is registered.

Note : The lock/unlock condition is not printed on the printed sheets such as the nozzle check pattern or the status sheets.

☐ Setting Method

1. Perform Password setting *(p.26)* by operating the control panel.
2. Select "LOCK SETTING" from "MENU" (Table 1-18), and select "ON" or "OFF".

Note 1: If the cancel button is pressed during its setting or when "ON" is set, the printer returns to the ready mode (the LCD display is "READY" or "POWER SAVE").

2: After "ON" is set, the panel operation is locked immediately.

3: When "OFF" is set, the display returns to "PASSWORD MENU".

4: Once the password is set, the panel operation can be locked by performing Step 2.

☐ Resetting the Password/Unlocking the Panel Operation Lock

If you need to reset the password or unlock the panel operation because of forgetting the password and such, follow the steps below to reset them.

CAUTION

Do not disclose the following method to the end users.

■ Resetting/Unlocking method

1. Press and hold the right arrow button, left arrow button and OK button and then turn on the printer.
2. Release all the buttons after the printer is turned on.

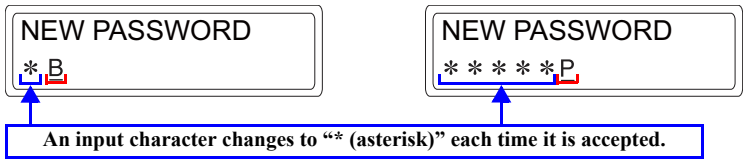
■ Settings after reset

- Password: Not set
- Panel operation lock: OFF

PASSWORD SETTING

Select the “PASSWORD SET.” from the “MENU” (Table 1-18) to set or change the password.

Table 1-20. Password Setting

Item	Description
Digit of the password	Within 1 to 8
Available characters	Space,!”#$%&'()*+,-./, 0 to 9, ;:<=>?@, A to Z, [\]^_`, a to z, {|}~
Method	Select the characters with the up and down arrow buttons, and move to the next digit with the right arrow button. When pressing the right arrow button, the input character is masked with “* (asterisk)”. The characters which are masked with “* (asterisk)” will be saved on the EEPROM as the password after pressing the OK button. To set the password, entries are required three time according to the instruction displayed on the LCD (“CURRENT PASSWORD”, “NEW PASSWORD” and “REENTER NEW PASSWORD”). 

Note 1: The password is not set when shipping from the factory.

2: If there is a wrong entry to “CURRENT PASSWORD” or “REENTER NEW PASSWORD”, “WRONG PASSWORD” is displayed and then returned to the “PASSWORD MENU” screen.

3: After the password is entered in “REENTER NEW PASSWORD”, the change is completed and the display returns to “PASSWORD MENU”.

4: The password is stored on the EEPROM (not NMI area), and kept even the power is off.

1.6.1.3 Forced Power OFF

For B-300/B-308/B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN, the power can be turned off forcibly by the following panel operation. If the power is turned off forcibly, the same process of the normal power-off is executed.

☐ Operation Method

1. Press and hold the power button and the OK button for seven seconds or more.
2. Release the power button after the printer is turned off.

1.6.2 AID Function Setting

1.6.2.1 AID Detection Cleaning (B-310N/B-318N/B-510DN/B-518DN only)

For B-310N/B-318N/B-510DN/B-518DN, the AID detection cleaning can be set on/off.

Table 1-21. AID Detection Cleaning

ON	OFF
Automatically checks the printhead nozzles with AID function and carries out printhead cleaning if they are clogged.	The nozzle check with the AID function and auto cleaning is not carried out. Carries out the printhead cleaning only when selecting “CLEANING” from “MENU” (Table 1-18).

☐ Setting Method

Select “AUTO CLEANING” from “MENU” (Table 1-18), and select “ON” or “OFF”.

CHECK POINT

This setting is not available for B-300/B-308/B-500DN/B-508DN.

1.6.2.2 AID High Quality Mode/Dot Missing Tolerance Mode

For B-310N/B-318N/B-510DN/B-518DN, the AID high quality mode or the dot missing tolerance mode can be selected by the special operation at power-on when the AID detection cleaning is on.

CHECK POINT

For B-300/B-308/B-500DN/B-508DN, this setting is available only when the firmware is the following version or later. However, the setting mode is fixed to "dot missing tolerance mode" for B-300/B-308.

- **B-300/B-308: SH1998**
- **B-500DN/B-508DN: SL1998**

Table 1-22. Mode

AID High Quality Mode	Dot Missing Tolerance Mode
Checks the nozzle clogging and carries out appropriate cleaning.	If two or less nozzles and no neighboring nozzles are clogged, the cleaning is not carried out. For nozzle clogging detection in the other cases, the cleaning is carried out.

☐ Setting Change Method

Follow the procedure below to switch the cleaning mode between the AID high quality mode and dot missing tolerance mode.

1. Press and hold the power button and the OK button simultaneously when the power is off.
2. Release the all buttons when the power is turned on.

☐ How to Check the Current Mode

Select "VERSION" from "MENU" (see Table 1-18), and check the upper right corner of the LCD. If "*(asterisk)" is displayed, the printer is the AID high quality mode. The mode status cannot be confirmed from the printed sheets such as the nozzle check pattern or the status sheets.

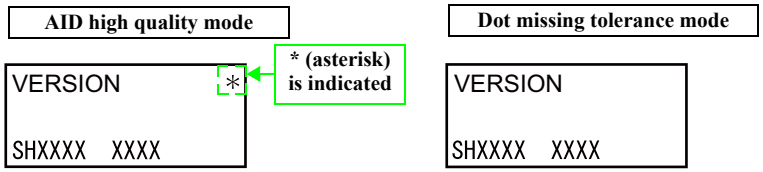


Figure 1-6. How to Check AID High Quality Mode/Dot Missing Tolerance Mode

1.6.2.3 Monochrome Priority Mode

For B-310N/B-318N/B-510DN/B-518DN, "monochrome priority mode" with the AID function is available to check the nozzle clogging only for nozzles of black ink.

CHECK POINT

This setting is available when the firmware is the following version or later for B-300/B-308/B-500DN/B-508DN.

- **B-300/B-308: SH1998**
- **B-500DN/B-508DN: SL1998**

Table 1-23. Monochrome Priority Mode

Valid	Invalid
Checks the nozzle clogging only for nozzles of black ink, and carries out printhead cleaning.	Checks all the nozzles and carries out printhead cleaning.

Note : The monochrome priority mode is invalid as the default.

☐ Setting Method

Follow the procedure below to switch between valid and invalid.

1. Press and hold the power button and the up arrow button simultaneously.
2. After the power LED flashes, release the power button and the up arrow button, and press and hold the down arrow button immediately.
3. When the ink LED and the paper LED starts flashing alternately, release the down arrow button.

☐ How to Check the Current Mode

When the monochrome priority mode is on, "* (asterisk)" is printed on the nozzle check pattern as shown below. The mode status (valid or invalid) cannot be confirmed on the LCD.

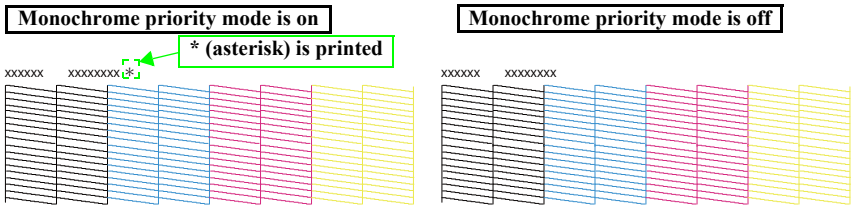


Figure 1-7. How to Check Monochrome Priority Mode

1.6.3 Low Speed Mode (MPBF Priority Mode) (B-310N/B-318N/B-510DN/B-518DN only)

To prevent the troubles (printhead clogging or the like) from occurring due to paper dust caused by the printing-related movement, the low speed mode (MPBF priority mode) is available for B-310N/B-318N/B-510DN/B-518DN.

Table 1-24. Low Speed Mode (MPBF Priority Mode)

ON	OFF
The carriage always moves from end to end (full-digit drive) for printing. It can decrease paper dust caused by the printing-related movement to prevent printing troubles such as printhead clogging. However, the printing speed becomes slower.	Carries out the normal printing.

Note : The low speed mode is off as the default.

☐ Setting Method

■ Set by panel operation

Select “LOW SPEED MODE” from “MENU” (Table 1-18), and select “ON” or “OFF”.

Note : The setting is stored in the non-volatile memory and kept when the power is off.

■ Automatic change

If all the following conditions are met, the low speed mode (MPBF priority mode) is turned on even if the setting from the panel is off.

- Stays in ready mode for five to seven minutes.
- More than 100 sheets are printed after the last AID detection.
- Number of accumulated printed sheets is 10 to 400 after the last manual cleaning.

Note 1: When the setting is on by the automatic change, the setting is turned off when the ink cartridge cover is opened/closed.

2: The setting made by the automatic change is not saved in the non-volatile memory, therefore, the setting is turned off once the power is off.

1.7 Status Sheet

B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN prints the following printer status sheet when the Printer Status menu is selected. For B-300/B-308, turn it on while holding down the Ink button. B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN also can print a network status sheet shown on the following pages.

```
Log Status Sheet

Printer Name          "model name"
Serial No.            xxxxxxxxxxx
Firmware version      SHxxxx(SLxxxx)
First Print Time      yyyy/mm/dd hh:mm
Last Print Time       yyyy/mm/dd hh:mm
Total Pages           000000
Color Pages           000000
B/W Pages             000000

Print of papers
                Total     Mono                Color
                          Simplex   Duplex    Simplex   Duplex
A4/Letter       000000    000000    000000    000000    000000
A5              000000    000000    000000    000000    000000
A6/HAGAKI       000000    000000    000000    000000    000000
Envelope        000000    000000    000000    000000    000000
Others          000000    000000    000000    000000    000000

Print of mode[pages]
                Simplex   Duplex    Total
Mono            000000    000000    000000
Color           000000    000000    000000
Total           000000    000000    000000
```

Figure 1-8. Printer Status Sheet Sample

```
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
HH EPSON Network Status Sheet (1/2) HH
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
<General Information>
Card Type                   EPSON Built-in 10Base-T/100Base-TX Print Server
SerialNumber                XXXXXXXXXXXX
MAC Address                 XX:XX:XX:XX:XX:XX
Hardware                    XX.XX
Software                    XX.XX
Printer Model               XXXXXXXX
Time                        YYYY-MM-DD HH:MM:SS GMT+/-HH:MM

<Ethernet>
Network Status              Auto(10BASE-T/100BASE-TX, Half/Full Duplex)/
                                        10BASE-T/100BASE-TX, Half/Full Duplex
Port Type                   Auto/MDI/MDI-X

<TCP/IP>
Get IP                      Address Auto/Manual
IP Address                  XXX.XXX.XXX.XXX
Subnet Mask                 XXX.XXX.XXX.XXX
Default Gateway             XXX.XXX.XXX.XXX
APIPA                       Enable/Disable
Set using PING              Enable/Disable
Acquisition way of DNS ADDR Enable/Disable
DNS Server Address          XXX.XXX.XXX.XXX
                            XXX.XXX.XXX.XXX
                            XXX.XXX.XXX.XXX
Acquire Host/Domain name    Enable/Disable
Host Name                   XXXXXXXX
Domain Name                 XXXXXXXX
Register the NW I/F to DNS  Enable/Disable
Register directly to DNS    Enable/Disable
Universal Plug and Play     Enable/Disable
Device Name                 XXXXXXXX
Bonjour                     Enable/Disable
Bonjour Name                XXXXXXXX.local.
Bonjour Printer Name        XXXXXXXX
Bonjour Service             XXXXXXXX._printer._tcp.local.
                            XXXXXXXX._http._tcp.local.

<Printing Control>
Printing Control            Enable/Disable
Access Control              Allow/Deny
Access Control List 1       XXX.XXX.XXX.XXX - XXX.XXX.XXX.XXX
Access Control List 2       XXX.XXX.XXX.XXX - XXX.XXX.XXX.XXX
Access Control List 3       XXX.XXX.XXX.XXX - XXX.XXX.XXX.XXX
Access Control List 4       XXX.XXX.XXX.XXX - XXX.XXX.XXX.XXX
Access Control List 5       XXX.XXX.XXX.XXX - XXX.XXX.XXX.XXX
Access Control List 6       XXX.XXX.XXX.XXX - XXX.XXX.XXX.XXX
Access Control List 7       XXX.XXX.XXX.XXX - XXX.XXX.XXX.XXX
Access Control List 8       XXX.XXX.XXX.XXX - XXX.XXX.XXX.XXX
Access Control List 9       XXX.XXX.XXX.XXX - XXX.XXX.XXX.XXX
Access Control List 10      XXX.XXX.XXX.XXX - XXX.XXX.XXX.XXX
Access Control List 11      XXX.XXX.XXX.XXX - XXX.XXX.XXX.XXX
Access Control List 12      XXX.XXX.XXX.XXX - XXX.XXX.XXX.XXX
Access Control List 13      XXX.XXX.XXX.XXX - XXX.XXX.XXX.XXX
Access Control List 14      XXX.XXX.XXX.XXX - XXX.XXX.XXX.XXX
Access Control List 15      XXX.XXX.XXX.XXX - XXX.XXX.XXX.XXX
Access Control List 16      XXX.XXX.XXX.XXX - XXX.XXX.XXX.XXX

HHHHHHHHHHHHHHHHHHHHHHHHHHHHHH Printer Model Name HH
```

Figure 1-9. Network Status Sheet Sample (1)

```
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
HH EPSON Network Status Sheet (2/2) HH
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
<IPP>
IPP URL                     http://xxx.xxx.xxx.xxx
Printer Name                XXXX

<Port Control>
LPR                         Enable/Disable
Port9100                    Enable/Disable
Port2501                    Enable/Disable
FTP                         Enable/Disable
IPP                         Enable/Disable

<SNMP>
Read Community              public
IP Trap 1                   Enable/Disable
IP Trap Address 1           XXX.XXX.XXX.XXX
IP Trap Community 1         XXXXXXXX
IP Trap Port 1              XXXX
IP Trap 2                   Enable/Disable
IP Trap Address 2           XXX.XXX.XXX.XXX
IP Trap Community 2         XXXXXXXX
IP Trap Port 2              XXXX
IP Trap 3                   Enable/Disable
IP Trap Address 3           XXX.XXX.XXX.XXX
IP Trap Community 3         XXXXXXXX
IP Trap Port 3              XXXX
IP Trap 4                   Enable/Disable
IP Trap Address 4           XXX.XXX.XXX.XXX
IP Trap Community 4         XXXXXXXX
IP Trap Port 4              XXXX

<Time>
Time Server                 Enable/Disable
Time Server Address         XXX.XXX.XXX.XXX
Synchronize Interval        XX
Time Difference(GMT+/-HH:MM)  +/-HH:MM
Time Server Status          Success/Failure/Synchronize/Invalid

<Idle Timeout>
LPR                         XXXX sec
Port9100                    XXXX sec
IPP                         xxxx sec

<Software Information>
Network FW                  XX.XX     XXXXX
EPSONNet Config Web         XX.XX     XXXXX

HHHHHHHHHHHHHHHHHHHHHHHHHHHHHH Printer Model Name HH
```

Figure 1-10. Network Status Sheet Sample (2)

CHAPTER

2

OPERATING PRINCIPLES

2.1 Overview

This chapter describes the operating principles of B-300/B-308/B-500DN/B-508DN/ B-310N/B-318N/B-510DN/B-518DN printer mechanism and electric circuits.

2.1.1 Printer Mechanism

The general diagram of the printer mechanism is shown below.

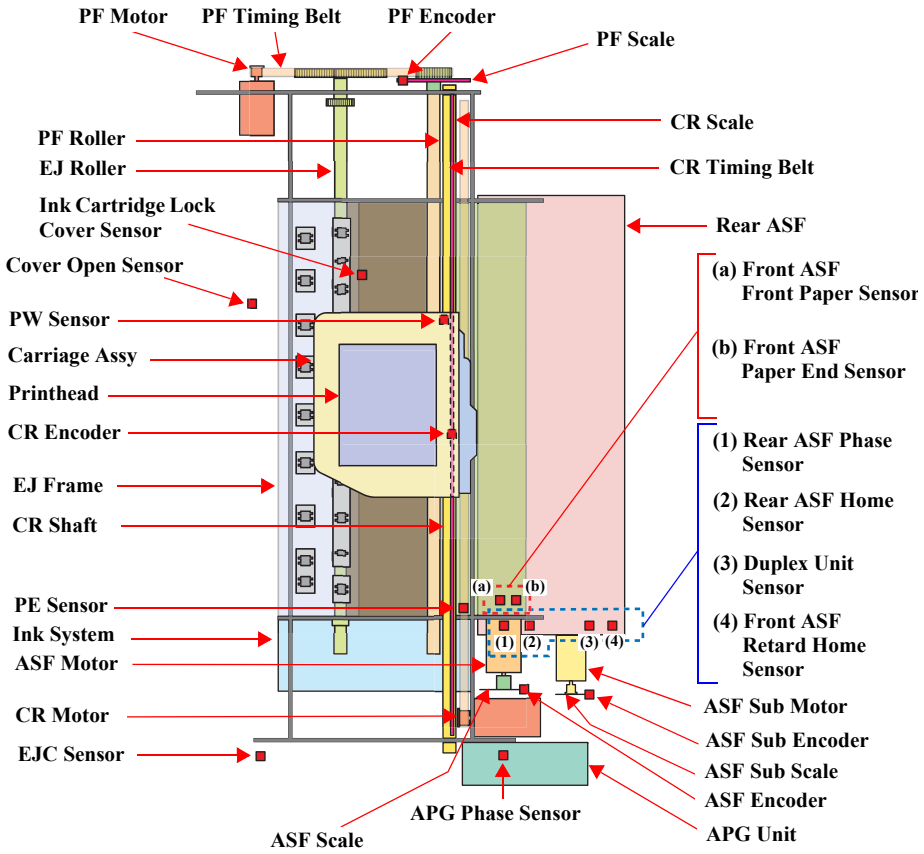


Figure 2-1. Printer Mechanism Block Diagram

2.1.2 Printhead

- ☐ Print method: On-demand inkjet (F8-Mach Turbo 2)
- ☐ Nozzle configuration

Color	Bk, C, M, Y (4 colors)
Number of nozzles	1,440 nozzles (180 nozzles x 2 per color)
Nozzle pitch	0.282mm (1/90 inch), cross-layout

The nozzle layout as seen from behind the Printhead is shown below.

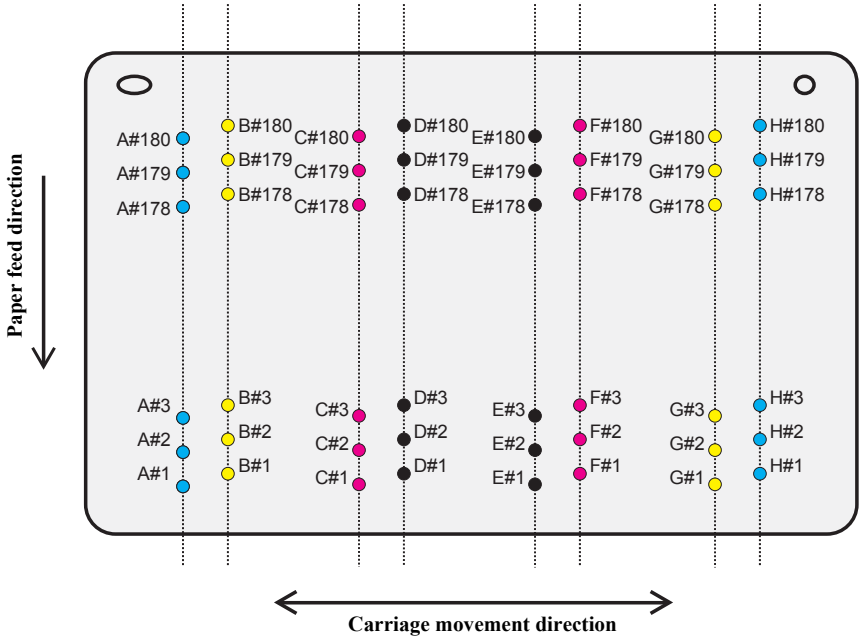


Figure 2-2. Nozzle Layout

2.1.3 PG Setting

The following diagram shows the platen gap (PG) settings of B-300/B-308/B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN.

Table 2-1. PG Settings / Cam Diagram

PG		PG(-)		PG(Typ)		PG(+)		PG(++)		CL		
APG phase sensor		High	Low	High	Low	High	Low	High	Low	High	Low	
Type		Pos.1	→	Pos.2	→	Pos.3	→	Pos.4	→	Pos.5	→ (To Pos.1)	
		PG(-)		PG(Typ)		PG(+)		PG(++)		CL		
PG value (mm)		1.2		1.7		2.35		2.95		1.2		
PG setting name		Home		Normal		Large		Maximum		Cleaning position		
Description	Printing	When using Epson paper		When using plain paper Use this setting when PG(-) is too tight		When using envelopes Use this setting when PG(Typ) is too tight		Use this setting when PG(+) is too tight		---		
	Not printing	• Wiping		• This home setting is made after power-on (after initialization) • Capping		---		---		• Opening/closing of the choke valve		
Rotational direction of the ASF motor		Counterclockwise										

2.2 Motors and Sensors

The following table lists the motors and sensors.

Table 2-2. List of Motors & Sensors

Mechanism	Motor or Sensor	No.
Printhead		---
Carriage mechanism	CR motor	A
	CR encoder	1
	PW sensor	2
	Cover open sensor	3
Ink supply mechanism	Ink cartridge lock lever sensor (ICL sensor)	4
APG mechanism	APG phase sensor (APG sensor)	5
Paper loading/feed mechanism	PF motor	B
	PF encoder	6
	PE sensor	7
	ASF motor	C
	ASF encoder	8
	ASF sub motor	D
	ASF sub encoder	9
	Front ASF retard home sensor (FP sensor)	10
	Rear ASF phase sensor (RP sensor)	11
	Rear ASF home sensor (RH sensor)	12
	Front ASF paper leading edge detector (PEF sensor)	13
	Front ASF paper bottom edge detector (PER sensor)	14
Duplex mechanism	Duplex unit sensor (DP sensor)	15
Ink system	Maintenance box cover sensor (EJC sensor)	16

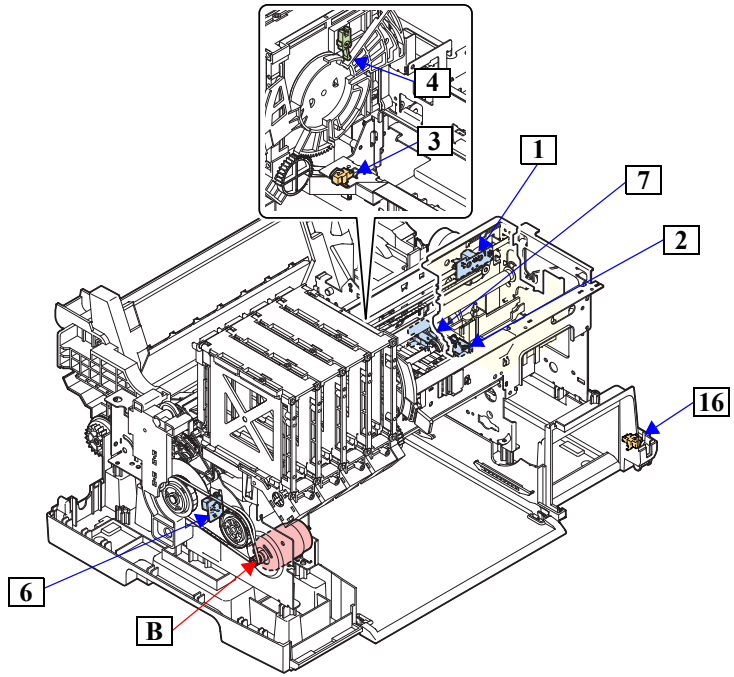


Figure 2-3. Motors & Sensors (front of the printer mechanism)

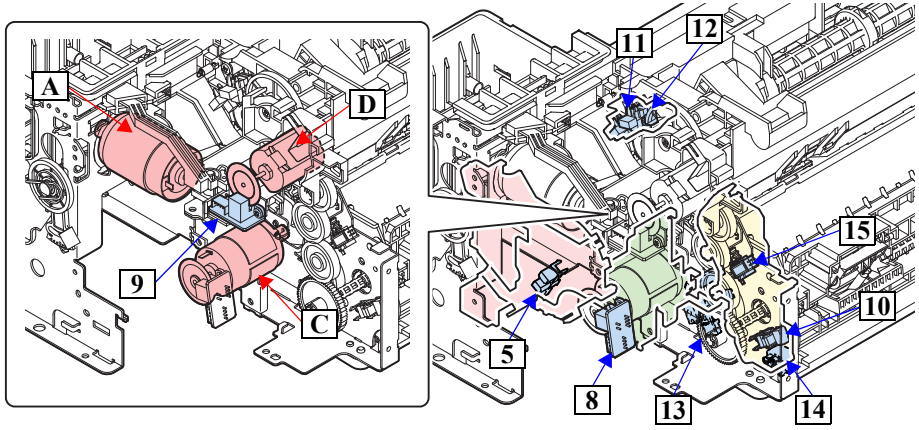


Figure 2-4. Motors & Sensors (rear of the printer mechanism)

2.3 Optical Sensor Control

B-300/B-308/B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN uses the optical sensor to control itself. The following describes the operating principles of optical sensor control.

☐ Control method

To ensure accurate printing, each part must be controlled to make an adequate amount (time) of movement. The optical sensors read the amount (time) of movements as follows to printer to control it for achieving accurate printing.

1. Rotates the motors for control of the printer, and transmits drive force to the each part via the gear or the timing belt.
2. The encoder reads the drive amount of each part from the scale one by one to printer to monitor that the part drives for an adequate amount (time).

☐ Controlled parts

The following table lists where the optical sensor control is used.

Table 2-3. Controlled Parts

Item	Motor	Scale	Encoder	Transmission method
PF	PF motor	PF scale	PF encoder	PF timing belt
CR	CR motor	CR scale	CR encoder	CR timing belt
ASF	ASF motor	ASF scale	ASF encoder	Gear
ASF sub	ASF sub motor	ASF sub scale	ASF sub encoder	Gear

Note : See *Figure 2-1* for the position of each part.

☐ Operating principles

The following describes the PF drive control as an example of the actual operation for the optical sensor.

The PF scale consists of light-passing and light-blocking portions on its surface, and runs through the slit between the encoder's light-emitting and light-receiving devices. While the printer is operating, the encoder always emits light from light-emitting device toward the light-receiving device, and the light-receiving device detects light when the light is transmitted through the light-passing portion of the scale, and does not detect light when the light is blocked by the light-blocking portion of the scale. According to the counts of light-detected and non detected times, the printer controls paper feed drive direction and amount.

When the encoder cannot read light-emitting/blocking counts correctly due to the misalignment, broken or contaminated scale, paper jam, foreign object and increasing a load, the fatal error occurs and the printer stops.

(The phenomenon and error details when the optical sensor is abnormal, see "Table 3-16. Optical Sensor Control Error (PF Control)" on page 62.)

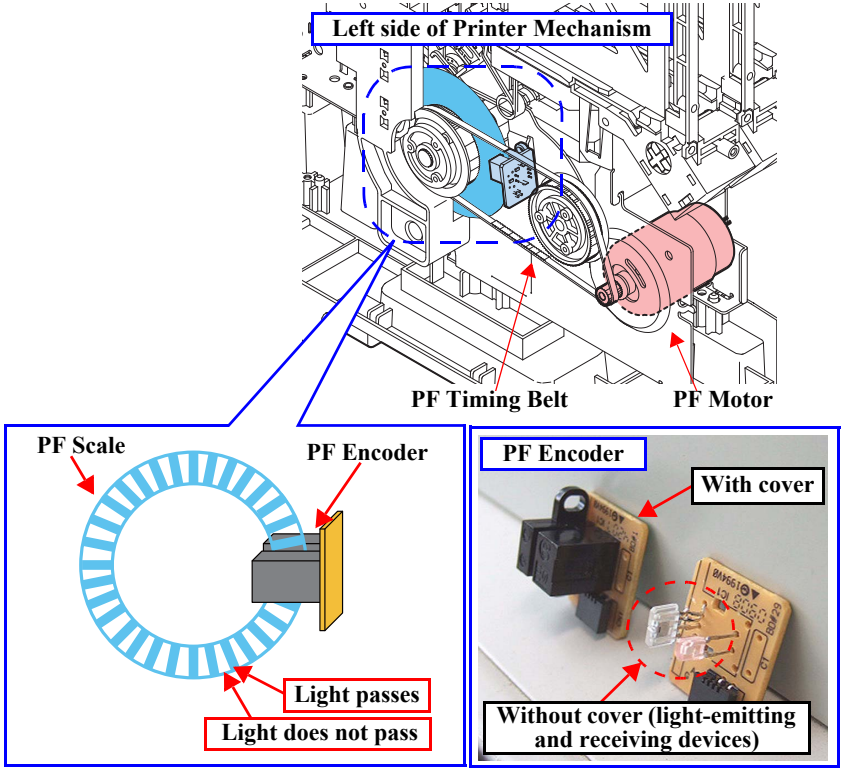


Figure 2-5. PF Drive Control Section

CHAPTER

3

TROUBLESHOOTING

3.1 Overview

This chapter describes how to troubleshoot problems with error indications and by symptoms. See the following sections to identify and troubleshoot problems, and repair or replace the faulty component as necessary referring to Chapter 4. Be sure to carry out required adjustments referring to Chapter 5 after the repair or replacement. Troubleshooting information on the motors and sensors is also provided.

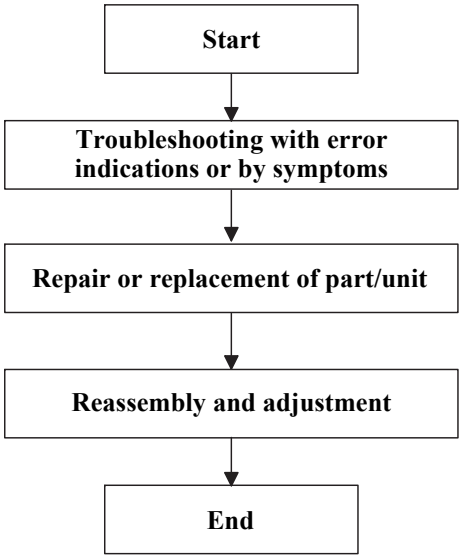


Figure 3-1. Troubleshooting Flowchart

3.1.1 Troubleshooting on Motors and Sensors

When the motor or sensor is suspect of causing the problem, check the motor or sensor for any abnormality referring to Table 3-1 and Table 3-2.

Table 3-1. Motor Resistance & Check Points

Motor Name	Connector	Check Points	Resistance
CR Motor (DC motor)	Sub board: CN904	Pin 1 & 2	19.7 Ω ± 10%
PF Motor (DC motor)	Main board: CN7	Pin 1 & 2	12.2 Ω ± 10%
ASF Motor (DC motor)	Sub board: CN905	Pin 1 & 2	21.9 Ω ± 10%
ASF Sub Motor (DC motor)	Sub board: CN903	Pin 1 & 2	47.1 Ω ± 15%

Table 3-2. Sensors Check Points

Sensor Name	Connector	Signal Level	Sensor Status
PW Sensor	Main board: CN11 Between Pin1 & Pin3	0 V	Detecting paper
		3.3 V	No paper
PE Sensor	Sub board: CN911 Between Pin1 & Pin2	2.4V or more	Detecting paper
		0.4V or less	No paper
APG Phase Sensor (APG Sensor)	Sub board: CN908 Between Pin1 & Pin2	2.4V or more	PG position
		0.4V or less	Out of PG position
Front ASF Retard Home Sensor (FP Sensor)	Sub board: CN909 Between Pin1 & Pin2	2.4V or more	Front Retard is in upper position
		0.4V or less	Front Retard is in home position
Rear ASF Home Sensor (RH Sensor)	Sub board: CN906 Between Pin1 & Pin2	2.4V or more	Rear ASF Hopper is out of home position
		0.4V or less	Rear ASF Hopper is in home position
Rear ASF Phase Sensor (RP Sensor)	Sub board: CN907 Between Pin1 & Pin2	2.4V or more	Rear ASF Hopper is at arbitrary position
		0.4V or lower	Rear ASF Hopper is between the preset positions (moving)
Duplex Sensor (DP Sensor)	Sub board: CN913 Between Pin1 & Pin2	1.65 V*	No duplex unit
		0 V*	Duplex unit is installed
Front ASF Paper Leading Edge Detection Sensor (PEF Sensor)	Sub board: CN914 Between Pin1 & Pin2	2.4V or more	Detecting paper
		0.4V or less	No paper
Front ASF Paper Rear Edge Detection Sensor (PER Sensor)	Sub board: CN915 Between Pin1 & Pin3	0 V*	Detecting paper
		1.65 V*	No paper
Cover Open Sensor (CO Sensor)	Main board: CN9 Between Pin1 & Pin2	2.4V or more	Cover is open
		0.4V or less	Cover is closed
Maintenance Box Cover Detection Sensor (EJC Sensor)	Main board: CN10 Between Pin1 & Pin2	2.4V or more	Cover is open
		0.4V or less	Cover is closed
Ink Cartridge Lock Lever Detection Sensor (ICL Sensor)	Sub board: CN957 Between Pin1 & Pin2	2.4V or more	Lever is at unlock position
		0.7V or less	Lever is at lock position

Note *: Reference value
Note : See 2.2 "Motors and Sensors" (p.33) for the motors and sensors mounting positions.

3.2 Error Messages and Possible Causes

The following tables explain the error indications by the LCD, LEDs and the STM3 screen and the possible causes. The messages are displayed during the printer is performing various operations (powering on, loading/feeding paper, absorbing ink or etc.).

3.2.1 List of Error Indications

The following table lists the error indications by the LCD, LEDs and STM3 with their possible causes and reference page for troubleshooting. If the error or warning indication you face is not found in the table, refer to the Users Guide.

Table 3-3. Error Messages and Possible Causes

Error Name	Description	STM3 Message	B-500DN/B-508DN/ B-310N/B-318N/ B-510DN/B-518DN	B-300/B-308				Reference
			LCD Message	LED				
				Power	Ink	Color	Paper	
Communication error	The printer cannot normally communicate with the computer.	Communication error Check all connections and make sure all devices are on. If the power was turned off during printing, cancel the print job. If the error does not clear, see your printer documentation.	---	---	---	---	---	Table 3-4
Service Call	The ink tube life counter has reached the specified upper limit.	Service required Parts inside your printer are at the end of their service life. See your printer documentation.	SERVICE CALL SEE GUIDE	OFF	Alternate flash 2	---	Alternate flash 1	Chapter 6 "MAINTENANCE"
Maintenance Call	The nozzles do not fire ink droplets properly even after the preset number of AID checks	---	NOZZLE MAINT ERROR SEE GUIDE	---	---	Flash 2*1	---	Table 3-5
Fatal error	A mechanical problem has occurred.	General error Delete all print jobs and turn the printer off. Remove any foreign objects from inside the printer. After a few minutes, turn the printer back on.	PRINTER ERROR RESTART PRINTER xxxx*5	OFF	Flash 3	---	Flash 3	"Fatal Error (p48)"
Paper jam error	A paper jam has occurred.	Paper jam See your manual for instructions on removing jammed paper.	REMOVE JAMMED PAPER DUPLEX UNIT JAM REMOVE PAPER	---	---	---	Flash	Table 3-6
Multiple-sheet feed error	Multiple sheets of paper were fed at one time.	Page not printed or multi-page error A page has not been printed, multiple pages have been fed into the printer at once, or the wrong paper size has been fed into the printer. Remove and reload the paper. Press the XXXX*2 button if necessary.	DOUBLE FEED JAM REMOVE PAPER	---	---	---	ON	
No paper error	The printer failed to feed paper.	Paper does not feed correctly For paper fed from the Rear Tray, reload the paper correctly, and then press the XXXX*2 button on the printer or click the Continue button if it appears on the screen. To cancel all print jobs, click the Cancel button. For paper fed from the Front Tray, reload the paper and set the Front Tray correctly, then make sure the rear printer cover is closed. Press the XXXX*2 button on the printer or click the Continue button if it appears on the screen. To cancel all print jobs, click the Cancel button.	SET PAPER IN CASSETTE SET PAPER IN AUTO FEEDER	---	---	---	ON	Table 3-7

Table 3-3. Error Messages and Possible Causes

Error Name	Description	STM3 Message	B-500DN/B-508DN/ B-310N/B-318N/ B-510DN/B-518DN	B-300/B-308				Reference
			LCD Message	LED				
				Power	Ink	Color	Paper	
No ink error	The cartridge has run out of ink.	Replace Cartridge Black: XXXX*3 Color: XXXX*3 ..... Epson recommends the genuine Epson cartridges listed above. Click the How to button for ink cartridge installation instructions.	REPLACE INK CARTRIDGE	---	ON	ON *4	---	Table 3-8
Ink cartridge detection error	• The printer could not detect the cartridge. • The printer detected non-Epson cartridge. • Writing to/reading from the CSIC could not be made.	Replace Cartridge Black: XXXX*3 Color: XXXX*3 ..... Epson recommends the genuine Epson cartridges listed above. Click the How to button for ink cartridge installation instructions.	SET INK CARTRIDGE	---	ON	ON *4	---	
Ink Cartridge Lever unlock error	The Ink Lock Lever is not locked.	Cartridge lock lever unlock Make sure the ink cartridges are installed, and then move the cartridge lock lever to the lock position.	MOVE INK LEVER DOWN	---	ON	---	---	
Maintenance Box overflow error	Waste ink amount accumulated in the Maintenance Box has reached the specified limit.	Maintenance box full Replace the maintenance box (Product No.: T6190). Click the How to button for maintenance box replacement instructions.	REPLACE MAINT	---	ON	---	---	Table 3-9
Maintenance Box Cover open error	The Maintenance Box Cover is open.	Maintenance box cover open Make sure the maintenance box is installed, and then close the maintenance box cover.	SET MAINT BOX	---	ON	---	---	
No Maintenance Box error	• The printer could not detect the Maintenance Box. • Writing to/reading from the CSIC could not be made.	Auto Duplexer is not set correctly Install the maintenance box (Product No.: T6190). Click the How to button for maintenance box replacement instructions.	SET MAINT BOX	---	ON	---	---	
Printer Cover open error	The Printer Cover is open.	Printer cover open Close the printer cover.	CLOSE PRINTER COVER	---	Flash 2	---	Flash 2	Table 3-10
No Duplex Unit error	The printer could not detect the Duplex Unit.	Auto Duplexer is not set correctly Remove any remaining paper by hand, and then set the Auto Duplexer correctly.	SET DUPLEX UNIT	---	---	---	Flash 2	Table 3-29

Note *1: All Ink LEDs become “Flash 2” status.
*2: B-300: Paper button
B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN: OK button
*3: The corresponding ink cartridge product number is indicated. See 4.4.1 "Ink Cartridge" (p.83).
*4: The corresponding Color LED (s) turns ON.
*5: The fatal error code is indicated only for B-310N/B-318N/B-510DN/B-518DN. See 3.3.2 "Fatal Error" (p.48).

Note : --: No change
Flash: Repeats ON for 1.25 seconds, OFF for 1.25 seconds
Flash 2: On for 0.5 sec., Off for 0.5 sec., On for 0.5 sec. and Off for 1.0 sec.
Flash 3: Turns on and off at intervals of 0.5 seconds.
Alternate flash 1: Same as “Flash”
Alternate flash 2: Repeats OFF for 1.25 seconds, ON for 1.25 seconds

3.3 Troubleshooting

The following tables help you to troubleshoot the problem quickly. First check the LCD/LED indications on the printer or massages on the STM3 screen on a connected computer, then find the corresponding description in the tables to identify the cause of the problem. When any components to be repaired or replaced are found, see Chapter 4 “Disassembly/Reassembly” to correctly reinstall or replace the components.

You can use the Mechanism Operation Check function of the Adjustment Program to check abnormal movements. Use the function if necessary. **Chapter 5 "ADJUSTMENT"**

3.3.1 Troubleshooting by Error Message

Table 3-4. Communication Error Troubleshooting

Occurrence Timing	Symptoms	Failed Part / Part Name	Check Points	Remedies	Reference
At power-on	The printer does not operate at all.	Panel Board / Panel FFC	1. Is the Panel FFC properly connected to the Panel Board and the Main Board?	1. Connect the Panel FFC correctly. ■ Main board: CN3 (B-500DN/B-508DN/ B-310N/B-318N/ B-510DN/B-518DN) CN4 (B-300/B-308)	• 4.5.5 "Panel Unit" (p.90) • 4.6.4 "Disassembling the Panel Unit" (p.103)
			2. Is the Panel FFC damaged?	2. Replace the Panel FFC.	
			3. Is the Panel Board damaged?	3. Replace the Panel Board.	
		Power Supply Unit	1. Is the Power Cable properly connected to the Main Board?	1. Connect the cable correctly. ■ Main board: CN5	• 4.6.5 "Power Supply Unit" (p.106) • 4.6.1 "Main Board" (p.97)
			2. Is the Power Cable or the Power Supply Unit itself damaged?	2. Replace the Power Supply Unit. * If this does not solve the problem, replace the Main Board with a new one.	
		USB Cable	1. Is the USB cable properly connected to the printer and the computer?	1. Correctly connect the USB cable to the printer and the computer.	---
		Printer driver	1. Is the printer driver for B-300/B-500DN/B-508DN/ B-310N/B-318N/B-510DN/B-518DN?	1. Install the correct printer driver.	---
		Main Board	1. Is the model name written to the EEPROM on the Main Board correct?	1. Correct the model name stored on the EEPROM using the Initial Setting menu in the Adjustment Program.	Chapter 5 "ADJUSTMENT"

Table 3-5. Maintenance Call Troubleshooting

Occurrence Timing	Symptoms	Failed Part / Part Name	Check Points	Remedies	Reference
Any time	A Maintenance Call is indicated on the printer.	Printhead	1. Is the error still indicated after running a cleaning and printing a nozzle check pattern alternately several times?	1. If the error still occurs, replace the Printhead with a new one.	4.7.3.1 "Printhead" (p.121)

Table 3-6. Paper Jam Error / Multi-Feed Error Troubleshooting

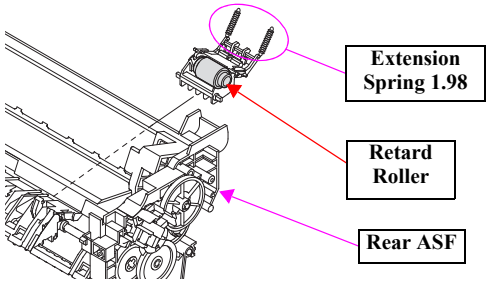
Occurrence Timing	Symptoms	Failed Part / Part Name	Check Points	Remedies	Reference
Any time	Paper feeding operation is performed normally, but the paper is not fed inside the printer.	Rear ASF Assy	1. Is the Rear ASF Assy correctly installed?	1. Install the Rear ASF Assy correctly.	4.7.4.1 "Rear ASF Assy" (p.133)
			2. Does the Paper Back Lever operate normally during the paper feed operation?.	2. Install the Paper Back Lever and the Torsion Spring 6.45 correctly.	
			3. Does the Retard Roller assembly operate normally during the paper feed operation? 	3. Correctly attach the Extension Spring 1.98 on the backside of the Retard Roller.	
			4. Is the surface of the LD Roller and Retard Roller contaminated with micro pearl paper dust or greasy dirt?	4. Clean the surface of the rollers.	Table 3-27. "Troubleshooting USB I/F Problems" (p.71)
		Front ASF Cover Assy	1. Is the Front ASF Cover Assy correctly installed?	1. Install the Front ASF Cover Assy correctly.	4.5.3 "Front ASF Cover Assy" (p.88)
		Paper Guide Bank Assy	1. Is the Paper Guide Bank Assy correctly installed?	1. Install the Paper Guide Bank Assy correctly.	4.7.4.9 "Paper Guide Bank Assy" (p.149)
			2. Is the surface of Front Retard Roller contaminated with micro pearl paper dust or greasy dirt?	2. Clean the surface of the rollers.	Table 3-20. "Troubleshooting Paper Feed Problems" (p.66)

Table 3-6. Paper Jam Error / Multi-Feed Error Troubleshooting

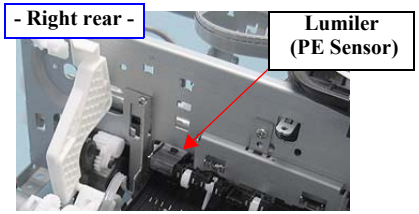
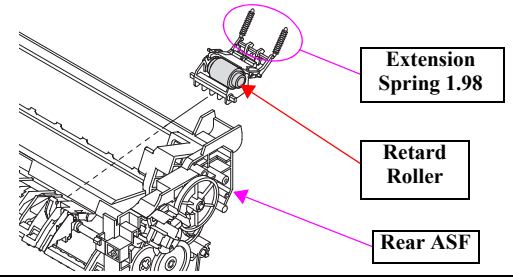
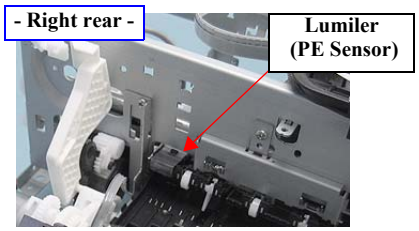
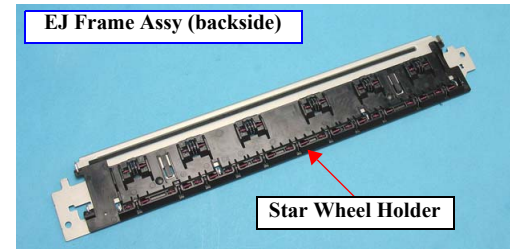
Occurrence Timing	Symptoms	Failed Part / Part Name	Check Points	Remedies	Reference
Any time	Paper feeding operation is performed normally, but the paper is not fed inside the printer.	Idle Roller	1. Is the surface of Idle Roller contaminated with micro pearl paper dust or greasy dirt?	1. Clean the surface of the rollers.	Table 3-20. "Troubleshooting Paper Feed Problems" (p.66)
		PE Sensor	1. Is the PE Sensor cable properly connected to CN911 connector on the Sub Board?	1. Connect the cable correctly.	• 4.6.1 "Main Board" (p.97) • 4.7.3.3 "APG Assy / Sub Board" (p.125)
			2. Is the sensor relay cable (FFC) properly connected to CN902 connector on the Sub Board and CN8 connector on the Main Board?	2. Connect the cable correctly to the boards.	
			3. Is the lumiler protecting the PE Sensor contaminated? 	3. Replace the Rear Paper Guide with a new one.	4.7.4.12 "Rear Paper Guide / PE Sensor" (p.154)
			4. Is the PE Sensor damaged?	4. Replace the Rear Paper Guide with a new one.	
	Multiple sheets of paper are always fed at one time.	Rear ASF Assy	1. Does the Retard Roller assembly operate normally during the paper feed operation? 	1. Correctly attach the Extension Spring 1.98 on the backside of the Retard Roller assembly.	4.7.4.1 "Rear ASF Assy" (p.133)

Table 3-6. Paper Jam Error / Multi-Feed Error Troubleshooting

Occurrence Timing	Symptoms	Failed Part / Part Name	Check Points	Remedies	Reference
Any time	Paper is fed into the printer, but it is ejected immediately.	PE Sensor	1. Is the PE Sensor cable properly connected to CN911 connector on the Sub Board?	1. Connect the cable correctly.	• 4.6.1 "Main Board" (p.97) • 4.7.3.3 "APG Assy / Sub Board" (p.125)
			2. Is the sensor relay cable (FFC) properly connected to CN902 connector on the Sub Board and CN8 connector on the Main Board?	2. Connect the cable correctly to the boards.	
			3. Is the lumiler protecting the PE Sensor contaminated? 	3. Replace the Rear Paper Guide with a new one.	4.7.4.12 "Rear Paper Guide / PE Sensor" (p.154)
			4. Is the PE Sensor damaged?	4. Replace the Rear Paper Guide with a new one.	
	Leading edge of paper does not go through between the EJ Roller and the Star Wheels.	EJ Frame Assy*	1. Is the Star Wheel Roller Holder disengaged? 	1. Install the Star Wheel Holder correctly.	4.7.4.12 "Rear Paper Guide / PE Sensor" (p.154)
			2. Is the EJ Frame Assy correctly installed?	2. Install the EJ Frame Assy correctly.	
			3. Is the EJ Frame Assy deformed protruding downward?	3. Replace the EJ Frame Assy with a new one.	
	Leading edge of paper does not reach the PF Roller.	Left/Right Upper Paper Guide*	1. Is the spring of the Left/Right Upper Paper Guides disengaged?	1. Install the Left/Right Upper Paper Guides correctly.	4.7.5.5 "Front Paper Guide & EJ Roller Assy" (p.162)

Note *: A paper jam may result in damaging the Printhead because the paper can rub against the Printhead surface.

Table 3-7. Paper Out Error Troubleshooting

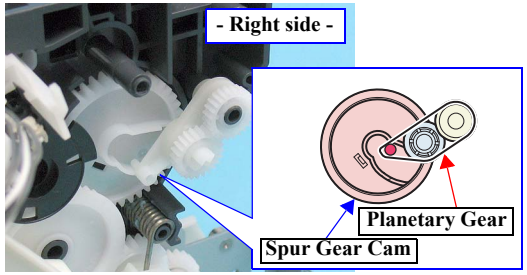
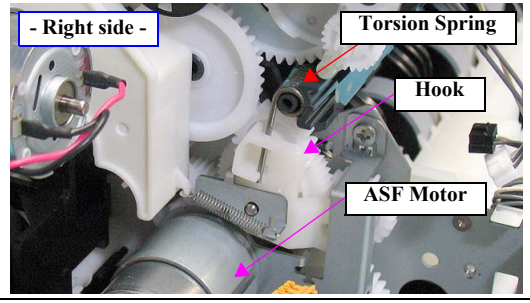
Occurrence Timing	Symptoms	Failed Part / Part Name	Check Points	Remedies	Reference
Any time	The LD Roller shaft rotates to feed paper, but the hopper does not operate.	Rear ASF Assy	1. Does the hopper operate normally during paper feeding operation?	1. Correctly attach the Compression Spring 2.51 to the ASF Frame and the hopper.	4.7.4.1 "Rear ASF Assy" (p.133)
			2. Is the RASF Planetary Gear properly engaged with the cam of Spur Gear 34.4? 	2. Install the RASF Planetary Gear correctly.	
	The LD Roller shaft rotates normally, but paper is not fed.	Rear ASF Assy	1. Is the surface of the LD Roller free of paper dust?	1. Wipe off the paper dust on the LD Roller with a clean cloth moistened with alcohol. * If this does not solve the problem, replace the LD Roller with a new one.	
	The ASF Motor drive force is not transmitted to the LD Roller Shaft.	Rear ASF Assy	1. Is the torsion spring correctly attached? 	1. Attach the torsion spring correctly.	

Table 3-7. Paper Out Error Troubleshooting

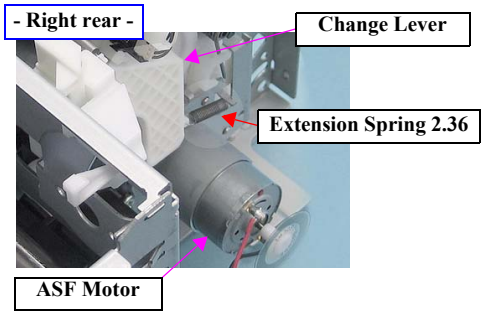
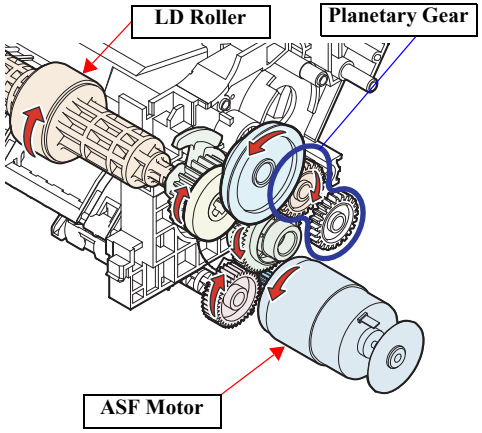
Occurrence Timing	Symptoms	Failed Part / Part Name	Check Points	Remedies	Reference
Any time	The ASF Motor drive force is not transmitted to the LD Roller Shaft.	Rear ASF Assy	2. Is the extension spring 0.76 of the Change Lever disengaged?  	2. Attach the Extension Spring 0.76 properly.	4.7.4.1 "Rear ASF Assy" (p.133)
			3. Are the gears on the Rear ASF correctly engaged with each other?  	3. Reassemble the Rear ASF correctly. If this does not solve the problem, replace the Rear ASF Assy with a new one.	

Table 3-7. Paper Out Error Troubleshooting

Occurrence Timing	Symptoms	Failed Part / Part Name	Check Points	Remedies	Reference
Any time	The Pick-up Roller rotates normally, but the paper is not fed into the printer.	Cassette Assy	1. Is the Cassette Assy correctly installed?	1. Install the Cassette Assy correctly.	4.4.3 "Cassette Assy" (p.85)
			2. Are the Cassette Corks on the Cassette Assy damaged or contaminated?	2. Replace the Cassette Corks with new ones.	
		Front Retard Roller (Paper Guide Bank Assy)	1. Is the surface of the Front Retard Roller free of paper dust?	1. Wipe off the paper dust on the Front Retard Roller with a clean cloth moistened with alcohol. * If this does not solve the problem, replace the Front Retard Roller with a new one.	4.7.4.9 "Paper Guide Bank Assy" (p.149)
			2. Is the Front Retard extension spring disengaged?	2. Attach the Front Retard extension spring correctly.	---
			3. Is the tip of the Retard Reset shaft properly inserted into the groove of the Spur Gear Cam 27?	3. Install the Paper Guide Bank Assy correctly.	4.7.4.9 "Paper Guide Bank Assy" (p.149)
		Idle Roller	1. Is the surface of the Idle Roller free of paper dust?	1. Wipe off the paper dust on the Idle Roller with a clean cloth moistened with alcohol.	---
		Rear ASF Assy	1. Is the RASF Planetary Gear properly engaged with the cam of Spur Gear 34.4?	1. Install the RASF Planetary Gear correctly.	4.7.4.1 "Rear ASF Assy" (p.133)
		Planet Lock Assy	1. Does the Planet Lock Assy properly move in synchronization with the Carriage movement?	1. Install the Planet Lock Assy correctly.	4.7.4.4 "Planet Lock Assy" (p.138)
	The ASF Motor drive force is not transmitted to the Pick-up Roller.	FD Belt	1. Does the FD Belt has a proper tension?	1. Carry out the FD Belt Tension adjustment.	Chapter 5 "ADJUSTMENT"

Table 3-8. Ink Out Error / Ink Cartridge Error / Ink Cartridge Lever Unlock Error Troubleshooting

Occurrence Timing	Symptoms	Failed Part / Part Name	Check Points	Remedies	Reference
At power-on	The error occurs after the printer detects that the Carriage Assy is in the home position.	Ink Cartridges	1. Is (are) the ink cartridge(s) almost empty or empty?	1. Replace the Ink Cartridge with a new one.	4.4.1 "Ink Cartridge" (p.83)
			2. Is the memory chip on the ink cartridge disconnected or damaged?	2. Replace the Ink Cartridge with a new one.	
		Sub-B Board Relay FFC	1. Is the Sub-B Board relay FFC properly connected to CN13 connector on the Main Board and CN951 connector on the Sub Board?	1. Connect the Sub-B Board Relay FFC correctly.	4.7.1.1 "IC Holder Assy" (p.108)
		CSIC FFC	1. Is the CSIC FFC properly connected to the CSIC terminal on the IC Holder, and to CN952, CN953, CN954, and CN955 connectors on the Sub-B Board?	1. Connect the CSIC FFC correctly.	
		IC Holder	1. Is the CSIC terminal damaged?	1. Replace the IC Holder Assy with a new one.	
Any time	The Ink Cartridge Lever is locked, but the unlock error is displayed.	Ink Cartridge Lock Lever Sensor	1. Is the Ink Cartridge Lock Lever Sensor cable properly connected to CN957 connector on the Sub-B Board?	1. Connect the cable correctly.	

Table 3-9. Maintenance Box Overflow Error / No Maintenance Box Error / Maintenance Box Cover Open Error Troubleshooting

Occurrence Timing	Symptoms	Failed Part / Part Name	Check Points	Remedies	Reference
At power-on	The error occurs after the printer detects that the Carriage Assy is in the home position.	Maintenance Box	1. Is the Maintenance Box nearly full or full?	1. Replace the Maintenance Box with a new one.	4.4.2 "Maintenance Box Assy" (p.84)
			2. Is the memory chip on the Maintenance Box disconnected or damaged?	2. Replace the Maintenance Box with a new one.	
		Maintenance Box FFC	1. Is the Maintenance Box FFC properly connected to CN918 connector on the Sub Board?	1. Connect the Maintenance Box FFC correctly.	4.7.6.2 "EJ Waste Ink Assy" (p.168)
			2. Is the Maintenance Box FFC damaged?	2. Replace the Maintenance Box FFC with a new one.	
		EJ Waste Ink Assy	1. Is the EJ Waste Ink Assy correctly installed?	1. Install the EJ Waste Ink Assy correctly.	
			2. Is the CSIC terminal of the Maintenance Box damaged?	2. Replace the EJ Waste Ink Assy with a new one.	

Table 3-9. Maintenance Box Overflow Error / No Maintenance Box Error / Maintenance Box Cover Open Error Troubleshooting

Occurrence Timing	Symptoms	Failed Part / Part Name	Check Points	Remedies	Reference
Any time	The Maintenance Box Cover is closed, but the Maintenance Box Cover Open error is displayed.	EJC Sensor	1. Is the EJC Sensor cable properly connected to CN10 connector on the Main Board?	1. Connect the cable correctly.	4.7.6.3 "EJC Sensor" (p.169)
			2. Is the EJC Sensor cable damaged?	2. Replace the cable with a new one.	
			3. Is the EJC Sensor damaged?	3. Replace the EJC Sensor with a new one.	

Table 3-10. Printer Cover Open Error Troubleshooting

Occurrence Timing	Symptoms	Failed Part / Part Name	Check Points	Remedies	Reference
Any time	The Printer Cover is closed, but the cover open error is displayed.	Cover Open Sensor	1. Is the Cover Open Sensor cable properly connected to CN9 on the Main Board?	1. Connect the cable correctly.	4.5.7.3 "Cover Open Sensor" (p.96)
			2. Is the Cover Open Sensor cable damaged?	2. Replace the Cover Open Sensor cable with a new one.	
			3. Is the Cover Open Sensor damaged?	3. Replace the Cover Open Sensor with a new one.	

3.3.2 Fatal Error

☐ Error code list

If a fatal error occurs, refer to the error code list to find the possible cause and parts, and carry out appropriate troubleshooting. The check points and remedies for each trouble are described in example.
The error type for catching foreign object and disconnecting the connector or etc., refer to "3.3.2.2 Check Result of Fatal Errors when Abnormality Occurs" (p.60).

Table 3-11. Error Code List

Cause	Error code	Error name	Occurrence condition	Possible cause	Example
DC motor error	01H	CR motor drive error	The CR motor does not rotate at a target speed even the high voltage is applied. The mechanism is overloaded.	Cable disconnection, overloaded mechanism*, foreign object or residual paper.	• "The CR Motor does not operate at all at power-on. (p52)" • "The Carriage Assy hits against the right side of the Main Frame at power-on. (p52)" • "The Carriage Assy movement is too slow at power-on. (p52)"
	02H	CR PID speed over error	The CR motor rotates faster than expected.	Gear engagement failure, belt tension, broken board, broken or contaminated scale, broken encoder.	
	03H	CR PID reverse detect error	The CR motor does not rotate to the normal direction.	Broken scale (attachment error), broken encoder, gear engagement failure, belt tension is not enough, foreign object or residual paper.	
	04H	CR motor drive error	The CR motor does not rotate even the high voltage is applied.	Same as 01H.	
	05H	CR PID speed fall error	The CR motor rotates slower than expected.	Residual paper	
	08H	CR load position reverse detect error	Occurs in the same condition as 03H except during printing.	Same as 03H.	
	09H	CR load position speed over error	Occurs in the same condition as 02H except during printing.	Same as 02H.	
	0AH	CR motor drive error	Occurs in the same condition as 01H except during printing.	Same as 01H.	
	11H	ASF motor drive error	The ASF motor does not rotate at a target speed even the high voltage is applied. The mechanism is overloaded.	Same as 01H.	• "The ASF Motor does not operate at all at power-on. (p54)" • "The ASF Motor makes a quick turn and then the error occurs at power-on. (p55)" • "At power-on, the error occurs when the platen gap is automatically reset or changed. (p57)"
	12H	ASF PID speed over error	The ASF motor rotates faster than expected.	Gear engagement failure, too much belt tension, broken board, broken or contaminated scale, broken encoder.	
	13H	ASF PID reverse detect error	The ASF motor does not rotate to the normal direction.	Broken scale, broken encoder, gear engagement failure, too much belt tension, contacting lumiler.	
	14H	ASF motor drive error	The ASF motor does not rotate even the high voltage is applied.	Same as 11H.	
	15H	ASF PID speed fall error	Does not occur to B-300/B-308/B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN.	---	---

Table 3-11. Error Code List

Cause	Error code	Error name	Occurrence condition	Possible cause	Example
DC motor error	18H	ASF load position reverse detect error	Occurs in the same condition as 13H except during printing.	Same as 13H.	• "The ASF Motor does not operate at all at power-on. (p54)" • "The ASF Motor makes a quick turn and then the error occurs at power-on. (p55)" • "At power-on, the error occurs when the platen gap is automatically reset or changed. (p57)"
	19H	ASF load position speed over error	Occurs in the same condition as 12H except during printing.	Same as 12H.	
	1AH	ASF motor drive error	Occurs in the same condition as 11H except during printing.	Same as 11H.	
	F1H	PF motor drive error	The PF motor does not rotate at a target speed even the high voltage is applied. The mechanism is overloaded.	Same as 01H.	• "The PF Roller makes a quick turn and then the error occurs at power-on. (p53)" • "The PF Roller and the EJ Roller do not rotate normally at power-on. (p54)"
	F2H	PF PID speed over error	The PF motor rotates faster than expected.	Same as 12H.	
	F3H	PF PID reverse detect error	The PF motor does not rotate to the normal direction.	Broken scale, broken encoder, gear engagement failure, belt tension is not enough.	
	F4H	PF motor drive error	The PF motor does not rotate even the high voltage is applied.	Same as F1H.	
	F5H	PF PID speed fall error	Does not occur to B-300/B-308/B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN.	---	---
	F8H	PF load position reverse detect error	Occurs in the same condition as F3H except during printing.	Same as F3H.	• "The PF Roller makes a quick turn and then the error occurs at power-on. (p53)" • "The PF Roller and the EJ Roller do not rotate normally at power-on. (p54)"
	F9H	PF load position speed over error	Occurs in the same condition as F2H except during printing.	Same as F2H.	
	FAH	PF motor drive error	Occurs in the same condition as F1H except during printing.	Same as F1H.	
	FCH	PF motor drive error	The PF motor does not stop at a target position.	Overloaded mechanism*, broken motor, broken encoder, broken or contaminated scale.	
	31H	ASUB motor drive error	The ASF SUB motor does not rotate at a target speed even the high voltage is applied. The mechanism is overloaded.	Cable disconnection, foreign object or residual paper, overloaded mechanism*, contacting lumiler.	• "The ASF Sub Motor does not operate at all at power-on. (p55)" • "The ASF Sub Motor makes a quick turn and then the error occurs at power-on. (p55)"
	32H	ASUB PID speed over error	The ASF SUB motor rotates faster than expected.	Gear engagement failure, too much belt tension, broken board, broken or contaminated scale, broken encoder, cable disconnection.	
	33H	ASUB PID reverse detect error	The ASF SUB motor does not rotate to the normal direction.	Broken scale, broken encoder, gear engagement failure, belt tension is not enough, contaminated scale, contacting lumiler.	
	34H	ASUB motor drive error	The ASF SUB motor does not rotate at a target speed even the high voltage is applied. The mechanism is overloaded.	Cable disconnection, residual paper, overloaded mechanism*, contacting lumiler.	
	35H	ASUB PID speed fall error	Does not occur to B-300/B-308/B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN.	---	---

Table 3-11. Error Code List

Cause	Error code	Error name	Occurrence condition	Possible cause	Example
DC motor error	38H	ASUB load position reverse detect error	Occurs in the same condition as 33H except during printing.	Same as 33H.	• "The ASF Sub Motor does not operate at all at power-on. (p55)" • "The ASF Sub Motor makes a quick turn and then the error occurs at power-on. (p55)"
	39H	ASUB Load position speed over error	Occurs in the same condition as 32H except during printing.	Same as 32H.	
	3AH	ASUB motor drive error	Occurs in the same condition as 31H except during printing.	Same as 31H.	
APG motor error	70H	APG motor drive error	Cannot reach to a target position flag.	APG phase sensor error, foreign object or residual paper.	• "At power-on, the error occurs when the platen gap is automatically reset or changed. (p57)" • "At power-on, the error occurs when the platen gap is automatically reset or changed. (p58)"
	71H	APG motor drive error	The home position cannot be found based on the position flag.	APG phase sensor error, foreign object or residual paper (especially residual paper under the carriage), cable disconnection.	
	72H	APG motor drive error	Occurs in the same condition as 70H except during printing.	Same as 70H.	
ASF sub motor error	20H	Target an unreached error	Occurs when the position sensor cannot confirm that the target position cannot be reached after the motor is driven.	Paper jam, paper feed error, residual paper, sensor error as follows or broken sensor, cable disconnection. 1. Front ASF retard home sensor (FP sensor) 2. Rear ASF phase sensor (RP sensor) 3. Rear ASF home sensor (RH sensor)	• "The ASF Sub Motor does not operate at all at power-on. (p55)" • "The ASF Sub Motor makes a quick turn and then the error occurs at power-on. (p55)" • "The Front ASF cannot be reset at power-on. (The Front Retard does not move from the raised position) (p57)" • "At power-on, the error occurs after up-and-down movements of the hopper. (p56)" • "FFC/harness Connection Error (SUB Board) (p65)"
	21H	Targets untrodden error	Passes over the target position flag after the braking operation.	Overloaded mechanism*, broken motor, broken encoder, broken or contaminated scale.	
	22H	Home seek error	Cannot reach to a target position flag during home seeking.	Same as 20H.	
Motor drive time error	D1H	CR PID driving time over error	One drive of the CR motor exceeds the specified period of time.	Does not occur normally. Broken board.	---
	D2H	CR Load position Driving time over error			
	D3H	PF PID Driving time over error	One drive of the PF motor exceeds the specified period of time.		
	D4H	PF BS Driving time over error			
	D5H	ASF PID Driving time over error	One drive of the ASF motor exceeds the specified period of time.		
	D6H	ASF BS Driving time over error			
	D7H	ASF sub Driving time over error	One drive of the ASF SUB motor exceeds the specified period of time.		
Factory command error	30H	EEPROM Verify error	Cannot access the EEPROM.	Broken board.	---
Head system error	40H	Transistor Temperature error	Head thermistor detects abnormal temperature.	Short-circuit of FFC or the inside of head, broken line, slant connection of FFC.	• "Other than those described above (p59)"
	41H	X-Hot detect before print error			
	42H	X-Hot detect after flashing error			
	43H	Head Temperature error			

Table 3-11. Error Code List

Cause	Error code	Error name	Occurrence condition	Possible cause	Example
Sequence error	50H	Cannot seek CR home position error	Cannot detect the carriage touches the specified position during home seeking.	Overloaded mechanism*, foreign object or residual paper, broken motor, broken Ink System Assy, cable disconnection.	• "The CR Motor does not operate at all at power-on. (p52)" • "The Carriage Assy hits against the right side of the Main Frame at power-on. (p52)" • "The Carriage Assy movement is too slow at power-on. (p52)" • "The ASF Motor does not operate at all at power-on. (p54)" • "The ASF Motor makes a quick turn and then the error occurs at power-on. (p55)" • "At power-on, the error occurs when the platen gap is automatically reset or changed. (p58)" • "Other than those described above (p59)"
	55H	Paper out error (Front ASF)	The load to pick up paper is too large.	Overloaded mechanism*, foreign object or residual paper, broken motor.	
	56H	Stopper error occurred when I/C change (Power off)	Does not occur to B-300/B-308/B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN because it is an off-carriage type.	---	---
Sensor error	60H	PW sensor error	PW Sensor's light emission is smaller.	Foreign object on platen, contaminated platen, broken PW Sensor, broken board.	• "Other than those described above (p59)"
	61H	PW sensor error	PW Sensor's light emission is larger.	Foreign object on platen, broken PW Sensor, broken board	
	63H	Paper sensor error	Does not occur to B-300/B-308/B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN.	---	---
	64H	CD-R guide error	Does not occur to B-300/B-308/B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN because the CDR print mechanism is not employed.		
Cleaning error	88H	Tray was inserted when cleaning	Does not occur to B-300/B-308/B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN because the CDR print mechanism is not employed.	---	---
	89H	Stopper error occurred when cleaning			
AID error	90H	Write verify error	Communication error between the Main Board and the AID Board.	Cable disconnection, broken board.	• "Other than those described above (p59)"
	91H	Read verify error			
	92H	AK error	The AID Board does not turn to the status of inspection completed.	Does not occur normally. Broken board.	
	93H	DK error			
	94H	TSNG error	No reply from the Main Board.		
	95H	VOUT error	Detects abnormal voltage when checking the AID voltage.	Foreign object or residual paper near the cap, broken AID Board.	
	96H	SHK error	AID does not work normally.	Broken AID Board.	
Device error	B6H	Ink device error	Communication error to specified element on the Main Board.	Broken Main Board.	• "Other than those described above (p59)"

Note *: The mechanism load can be checked on "Mechanism load check" function in the Adjustment Program.

3.3.2.1 Check Point for Fatal Error of Each Phenomenon

The following table describes check points and remedies for fatal error of each phenomenon.

Table 3-12. Check Point for Fatal Error of Each Phenomenon

Symptoms	Failed Part / Part Name	Check Points	Remedies	Reference
The CR Motor does not operate at all at power-on.	CR Motor	1. Is the CR Motor cable properly connected to CN904 connector on the Sub Board?	1. Connect the cable correctly.	4.7.3.3 "APG Assy / Sub Board" (p.125)
		2. Is the Motor relay cable properly connected to CN901 connector on the Sub Board and CN6 connector on the Main Board?	2. Connect the cable correctly to the boards.	
		3. Does the CR Motor operate normally?	3. Replace the CR Motor with a new one.	4.7.3.5 "CR Motor" (p.129)
The Carriage Assy hits against the right side of the Main Frame at power-on.	CR Encoder	1. Is the CR Encoder damaged?	1. Replace the CR Encoder with a new one.	4.7.3.6 "Carriage Assy" (p.131)
		2. Is the FFC correctly connected to the connector on the CR Encoder?	2. Connect the Head FFC correctly.	
	CR Scale	1. Is the CR Scale properly centered in the CR Encoder?	1. Install the CR Scale correctly.	4.7.3.2 "CR Scale" (p.124)
		2. Is the CR Scale surface clean?	2. Wipe any dirt off the surface of the CR Scale. When the contamination is severe, replace the CR Scale with a new one.	
		3. Is the CR Scale damaged?	3. Replace the CR Scale with a new one.	
The Carriage Assy movement is too slow at power-on.	Main Frame	1. Is the Main Frame free of dirt, and adequately lubricated?	1. Clean the Main Frame and lubricate it as specified.	6.1.3 "Lubrication" (p.198)
	CR Shaft	1. Is the CR Shaft free of dirt, and adequately lubricated?	1. Clean the CR Shaft and lubricate it as specified.	6.1.3 "Lubrication" (p.198)
	Timing Belt	1. Is the Timing Belt correctly installed?	1. Install the Timing Belt correctly.	4.7.3.6 "Carriage Assy" (p.131)

Table 3-12. Check Point for Fatal Error of Each Phenomenon

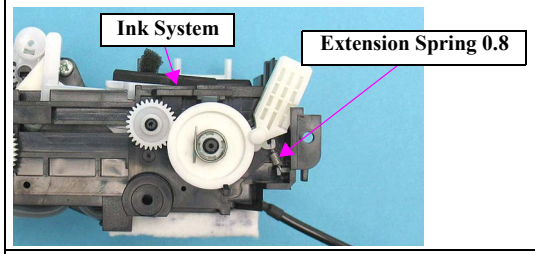
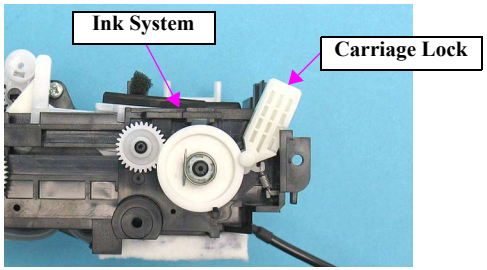
Symptoms	Failed Part / Part Name	Check Points	Remedies	Reference
The PF Roller makes a quick turn and then the error occurs at power-on.	PF Motor	1. Is the PF Motor cable correctly connected to CN7 connector on the Main Board?	1. Connect the cable correctly.	4.6.1 "Main Board" (p.97)
		2. Does the PF Motor operate normally?	2. Replace the PF Motor with a new one.	4.7.5.1 "PF Motor" (p.156)
	PF Encoder	1. Is the PF Encoder FFC correctly connected to CN956 connector on the Sub-B Board and the connector on the PF Encoder?	1. Connect the PF Encoder FFC correctly.	4.6.1 "Main Board" (p.97)
		2. Is the PF Encoder damaged?	2. Replace the PF Encoder with a new one.	4.7.5.2 "PF Encoder" (p.158)
	PF Scale	1. Is the PF Scale surface clean?	1. Wipe any dirt off the surface of the PF Scale. When the contamination is severe, replace the PF Scale with a new one.	4.7.5.6 "PF Roller Assy" (p.163)
		2. Is the PF Scale damaged?	2. Replace the PF Scale with a new one.	
The Carriage Assy hits against the locked Change Lever at power-on.	Ink System	1. Is the extension spring 0.8 of the Ink System disengaged? 	1. Attach the Extension Spring 0.8 properly.	4.7.6.1 "Ink System" (p.165)
		2. Is the Carriage Lock correctly installed? 	2. Install the Carriage Lock correctly.	

Table 3-12. Check Point for Fatal Error of Each Phenomenon

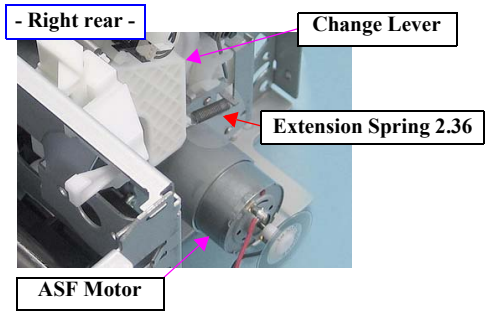
Symptoms	Failed Part / Part Name	Check Points	Remedies	Reference
The Carriage Assy hits against the locked Change Lever at power-on.	Rear ASF Assy	1. Is the extension spring 2.36 of the Change Lever disengaged? 	1. Attach the Extension Spring 2.36 properly.	4.7.4.1 "Rear ASF Assy" (p.133)
The PF Roller and the EJ Roller do not rotate normally at power-on.	PF Motor / PF Timing Belt	1. Is the PF Timing Belt damaged?	1. Replace the PF Timing Belt with a new one.	• 4.7.5.1 "PF Motor" (p.156) • Chapter 5 "ADJUSTMENT"
		2. Is the PF Motor properly installed, and does the PF Timing Belt have a proper tension?	2. Install the PF Motor correctly and adjust the tension of the PF Timing Belt properly.	
The Carriage Assy hits against the Left/Right Upper Paper Guides at power-on.	Left/Right Upper Paper Guide	1. Is the spring of the Left/Right Upper Paper Guides disengaged?	1. Install the Left/Right Upper Paper Guides correctly.	4.7.5.4 "Left/Right Upper Paper Guide" (p.160)
The ASF Motor does not operate at all at power-on.	ASF Motor	1. Is the ASF Motor cable properly connected to CN905 connector on the Sub Board?	1. Connect the cable correctly.	4.7.3.3 "APG Assy / Sub Board" (p.125)
		2. Is the Motor relay cable properly connected to CN901 connector on the Sub Board and CN6 connector on the Main Board?	2. Connect the cable correctly to the boards.	
		3. Is the ASF Scale surface clean?	3. Replace the ASF Motor Assy with a new one.	4.7.4.3 "ASF Motor Assy" (p.136)
		4. Is the ASF Scale damaged?	4. Replace the ASF Motor Assy with a new one.	
		5. Does the ASF Motor operate normally?	5. Replace the ASF Motor Assy with a new one.	

Table 3-12. Check Point for Fatal Error of Each Phenomenon

Symptoms	Failed Part / Part Name	Check Points	Remedies	Reference
The ASF Motor makes a quick turn and then the error occurs at power-on.	ASF Encoder	1. B-300/B-308/B-500DN/B-508DN: Is the ASF Encoder cable properly connected to CN910 connector on the Sub Board? B-310N/B-318N/B-510DN/B-518DN: Is the ASF Encoder cable properly connected to CN1 connector on the ASF Encoder Board?	1. Connect the cable correctly.	• 4.7.3.3 "APG Assy / Sub Board" (p.125) • 4.7.3.4 "ASF Encoder Assy" (p.128)
		2. Is the relay cable (FFC) properly connected to CN902 connector on the Sub Board and CN8 connector on the Main Board?	2. Connect the cable (FFC) correctly to the boards.	
		3. Is the ASF Encoder damaged?	3. Replace the ASF Encoder with a new one.	
The ASF Sub Motor does not operate at all at power-on.	ASF Sub Motor	1. Is the ASF Sub Motor cable properly connected to CN903 connector on the Sub Board?	1. Connect the cable correctly.	4.7.4.1 "Rear ASF Assy" (p.133)
		2. Is the Motor relay cable properly connected to CN901 connector on the Sub Board and CN6 connector on the Main Board?	2. Connect the cable correctly to the boards.	
		3. Does the ASF Sub Motor operate normally?	3. Replace the ASF Sub Motor with a new one.	
The ASF Sub Motor makes a quick turn and then the error occurs at power-on.	ASF Sub Encoder	1. B-300/B-308/B-500DN/B-508DN: Is the ASF Sub Encoder cable properly connected to CN916 connector on the Sub Board? B-310N/B-318N/B-510DN/B-518DN: Is ASF Sub Encoder cable properly connected to CN1 connector on the ASF Sub Encoder Board?	1. Connect the cable correctly.	• 4.7.4.4 "Planet Lock Assy" (p.138) • 4.7.4.5 "ASF Sub Encoder" (p.142)
		2. Is the sensor relay cable (FFC) properly connected to CN902 connector on the Sub Board and CN8 connector on the Main Board?	2. Connect the cable (FFC) correctly to the boards.	
		3. Is the ASF Sub Encoder correctly installed?	3. Install the ASF Sub Encoder correctly.	
		4. Is the ASF Sub Encoder damaged?	4. Replace the ASF Encoder with a new one.	

Table 3-12. Check Point for Fatal Error of Each Phenomenon

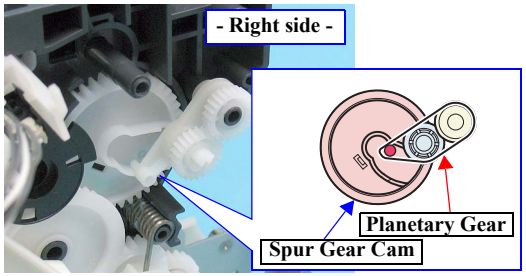
Symptoms	Failed Part / Part Name	Check Points	Remedies	Reference
The Rear ASF cannot be reset at power-on. (The hopper does not operate at all.)	Rear ASF Assy	1. Is the RASF Planetary Gear properly engaged with the cam of Spur Gear 34.4? 	1. Install the RASF Planetary Gear correctly.	4.7.4.1 "Rear ASF Assy" (p.133)
The Rear ASF cannot be reset at power-on. (The hopper does not operate at all.)	Planet Lock Assy	1. Is the Planet Lock Assy properly correctly engaged with the Carriage?	1. Install the Planet Lock Assy correctly.	4.7.4.4 "Planet Lock Assy" (p.138)
At power-on, the error occurs after up-and-down movements of the hopper.	Rear Position Sensor	1. Is the RP (Rear Position) Sensor cable properly connected to CN907 connector on the Sub Board?	1. Connect the cable correctly.	4.7.4.6 "Retard Transfer Assy" (p.143)
		2. Is the sensor relay cable (FFC) properly connected to CN902 connector on the Sub Board and CN8 connector on the Main Board?	2. Connect the cable (FFC) correctly to the boards.	
	Rear Home Sensor	1. Is the RH (Rear Home) Sensor cable properly connected to CN906 connector on the Sub Board?	1. Connect the cable correctly.	
		2. Is the sensor relay cable (FFC) properly connected to CN902 connector on the Sub Board and CN8 connector on the Main Board?	2. Connect the cable (FFC) correctly to the boards.	

Table 3-12. Check Point for Fatal Error of Each Phenomenon

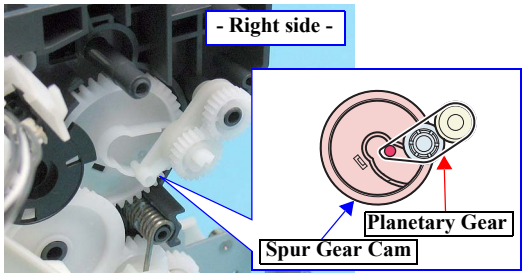
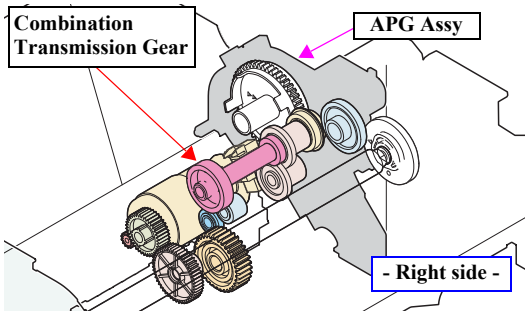
Symptoms	Failed Part / Part Name	Check Points	Remedies	Reference
The Front ASF cannot be reset at power-on. (The Front Retard does not move from the raised position)	Front Position Sensor	1. Is the FP (Front Position) Sensor cable properly connected to CN909 connector on the Sub Board?	1. Connect the cable correctly.	4.7.3.3 "APG Assy / Sub Board" (p.125)
		2. Is the sensor relay cable (FFC) properly connected to CN902 connector on the Sub Board and CN8 connector on the Main Board?	2. Connect the cable (FFC) correctly to the boards.	
	Rear ASF Assy	1. Is the RASF Planetary Gear properly engaged with the cam of Spur Gear 34.4?  	1. Install the RASF Planetary Gear correctly.	4.7.4.1 "Rear ASF Assy" (p.133)
At power-on, the error occurs when the platen gap is automatically reset or changed.	APG Assy	1. Is the APG Assy correctly installed?	1. Install the APG Assy correctly aligning the phase.	4.7.3.3 "APG Assy / Sub Board" (p.125)
		2. Is the Combination Transmission Gear 10,15.2 correctly installed?  	2. Install the Combination Transmission Gear 10,15.2 correctly.	
	APG Phase Sensor	1. Is the APG Phase Sensor damaged?	1. Replace the APG Assy with a new one.	

Table 3-12. Check Point for Fatal Error of Each Phenomenon

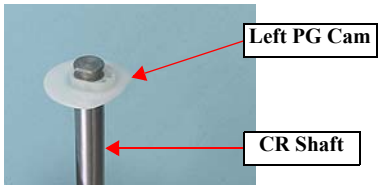
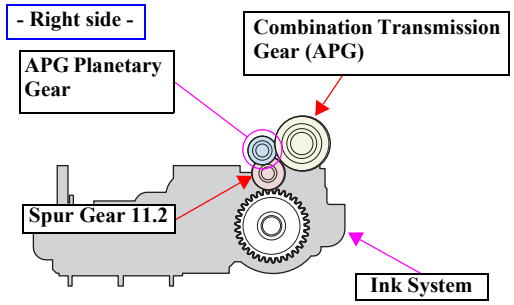
Symptoms	Failed Part / Part Name	Check Points	Remedies	Reference
At power-on, the error occurs when the platen gap is automatically reset or changed.	CR Shaft	1. Is the Left PG Cam damaged?  	1. Replace the Left PG Cam with a new one.	4.7.3.6 "Carriage Assy" (p.131)
	ASF Motor	1. Is the ASF Motor cable properly connected to CN905 connector on the Sub Board?	1. Connect the cable correctly.	4.7.3.3 "APG Assy / Sub Board" (p.125)
		2. Is the Motor relay cable properly connected to CN901 connector on the Sub Board and CN6 connector on the Main Board?	2. Connect the cable correctly to the boards.	
		3. Is the ASF Scale surface clean?	3. Replace the ASF Motor Assy with a new one.	4.7.4.3 "ASF Motor Assy" (p.136)
		4. Is the ASF Scale damaged?	4. Replace the ASF Motor Assy with a new one.	
		5. Does the ASF Motor operate normally?	5. Replace the ASF Motor Assy with a new one.	
At power-on, the error occurs when the platen gap is automatically reset or changed.	APG Planetary Gear	1. Is the APG Planetary Gear properly engaged?  	1. Install the APG Planetary Gear correctly.	4.7.4.3 "ASF Motor Assy" (p.136)
At power-on, the error occurs after paper feeding from the Front ASF failed several times due to paper out error.	Cassette Assy	1. Is the Cassette Assy correctly installed?	1. Install the Cassette Assy correctly.	4.4.3 "Cassette Assy" (p.85)
		2. Are the Cassette Corks on the Cassette Assy damaged or contaminated?	2. Replace the Cassette Corks with new ones.	

Table 3-12. Check Point for Fatal Error of Each Phenomenon

Symptoms	Failed Part / Part Name	Check Points	Remedies	Reference
Other than those described above	Printhead	1. Is the Printhead damaged?	1. Replace the Printhead with a new one.	4.7.3.1 "Printhead" (p.121)
	PW Sensor	1. Is the Head FFC correctly connected to CN801, CN802, CN803, CN804 connectors on the Main Board?	1. Connect the Head FFC correctly.	4.6.1 "Main Board" (p.97)
	AID Board	1. Is the AID Board FFC correctly connected to CN14 connector on the Main Board and CN1 connector on the AID Board?	1. Connect the AID Board FFC correctly.	4.6.3 "AID Board" (p.100)
		2. Is the AID cable correctly connected to CN2 connector on the AID Board?	2. Connect the AID cable correctly.	
		3. Is the AID Board damaged?	3. Replace the AID Board with a new one.	
	Ink System	1. Is the AID cable damaged?	1. Replace the Ink System with a new one.	4.7.6.1 "Ink System" (p.165)
		2. Is the Cap damaged or contaminated with foreign material?	2. Remove any foreign material using a cotton bud, or replace the Ink System with a new one if any damage is observed.	
Other than those described above	Motor Relay Cable	1. Is the Motor relay cable properly connected to CN6 connector on the Main Board and CN901 connector on the Sub Board?	1. Connect the cable correctly.	4.7.4.6 "Retard Transfer Assy" (p.143)
		2. Is the Motor relay cable damaged?	2. Replace the cable with a new one.	
	Sensor Relay FFC	1. Is the sensor relay FFC properly connected to CN8 connector on the Main Board and CN902 connector on the Sub Board?	1. Connect the sensor relay FFC correctly.	4.7.3.3 "APG Assy / Sub Board" (p.125)
		2. Is the sensor relay FFC damaged?	2. Replace the FFC with a new one.	
	Main Board	1. Is the Main Board damaged?	1. Replace the Main Board with a new one.	4.6.1 "Main Board" (p.97)
After inserting the Cassette ASF, the error occurs when paper is fed from the Front ASF.	---	1. Remove the Cassette Assy. Is paper jammed inside the printer?	1. Remove the jammed paper one by one. * When the Cassette Assy cannot be removed, remove the Stacker Assy to remove the jammed paper.	---

3.3.2.2 Check Result of Fatal Errors when Abnormality Occurs

Actual error occurrence is checked and the results of which error occurs to which abnormal situation; such as stacking paper pieces or disconnected cables are described below for reference.

CHECK POINT

- **See "Table 3-11.Error Code List" (p 48) for the details of error codes.**
- **This subsection includes the errors without error codes; not fatal errors though, for reference.**

☐ Paper feed error

The following table describes the error check result when the paper feed error occurs.

Table 3-13. Paper Feed Error

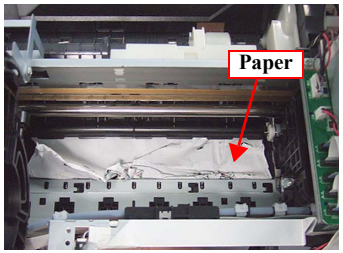
Paper path	Error code	Error name	LCD message*
Front feed	F1H	PF motor drive error	---
	F3H	PF PID reverse detect error	
	55H	Paper out error (Front ASF)	
	20H	Target an unreached error	
Rear feed	---		REMOVE JAMMED PAPER
Duplex feed	---		DUPLEX UNIT JAM REMOVE PAPER

Note *: B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN only.

☐ Paper jam error

The following table describes the error check result when the paper jam occurs on the platen.

Table 3-14. Paper Jam Error

Location	Error code	Error name	Condition
On the platen	03H	CR PID reverse detect error	
	0AH	CR motor drive error	

☐ Errors when paper pieces remain

The following table describes the error check result when turing power on with paper pieces remaining. Notice that errors differ depending on occurrence positions or the size of paper.

Table 3-15. Errors when Paper Pieces Remain

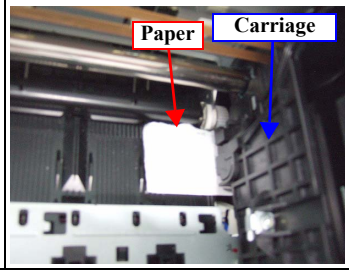
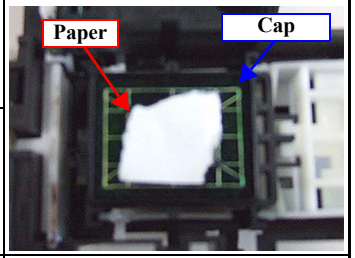
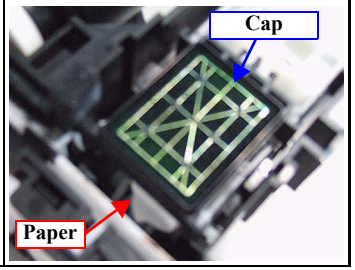
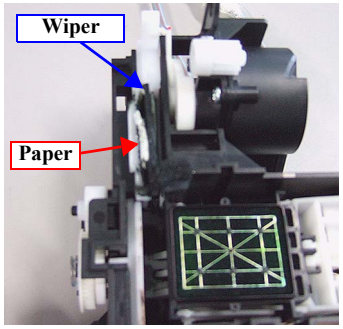
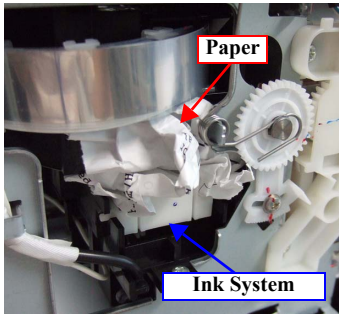
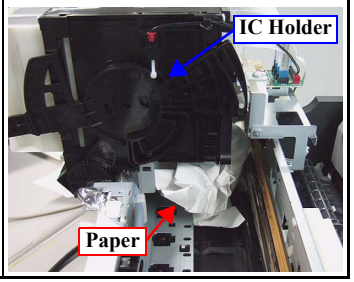
Location	Error code	Error name	Condition
Under the PW Sensor (under the carriage)	60H	PW sensor error	
On the cap	95H	VOUT error	
	---	Frequent cleaning	
Under the cap	95H	VOUT error	

Table 3-15. Errors when Paper Pieces Remain

Location	Error code	Error name	Condition
Side of the wiper	95H	VOUT error	
	---	Frequent cleaning	
Right side	F3H	PF PID reverse detect error	
	71H	APG motor drive error	
	0AH	CR motor drive error	
Left side	03H	CR PID reverse detect error	

☐ Optical sensor control error

The following table describes the error check result when turing power on with an error occurring to the parts related to the PF control.

CHECK POINT

See "2.3 Optical Sensor Control" (p.34) for the operating principles of the optical sensor control.

Table 3-16. Optical Sensor Control Error (PF Control)

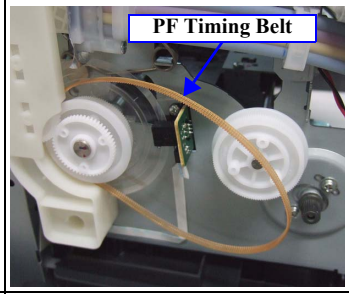
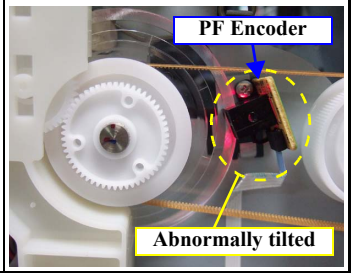
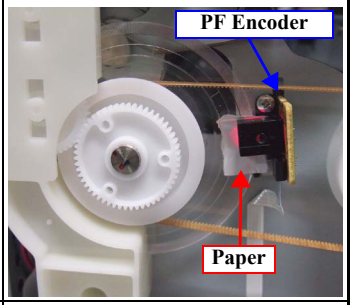
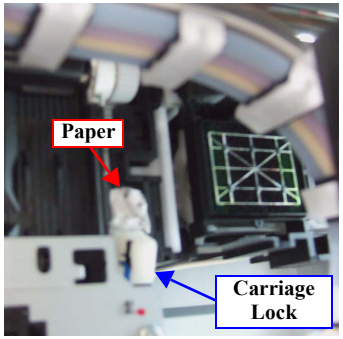
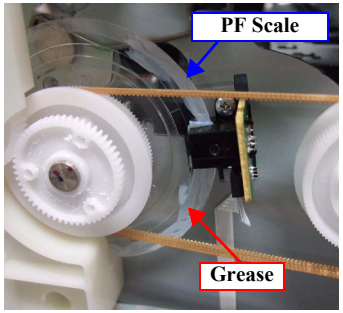
Location	Error code	Error name	Condition
The PF Timing Belt is came off.	F4H	PF motor drive error	
The tension of the PF Timing Belt is not enough.	F3H	PF PID reverse detect error	---
The PF Encoder is attached in the wrong position.	F4H	PF motor drive error	

Table 3-16. Optical Sensor Control Error (PF Control)

Location	Error code	Error name	Condition
The sensor is blocked.	F4H	PF motor drive error	
The carriage lock cannot be released because of stacking paper pieces	F1H	PF motor drive error	
The PF Scale is contaminated with grease.	F3H	Attached considerably: PF PID reverse detect error	
	---	Attached slightly: Errors does not occur, but characters may be doubly printed.	

☐ FFC/harness connection error

The following table describes the error check result if FFCs or harnesses are not connected properly when replacing the parts.

■ Main Board

Table 3-17. FFC/harness Connection Error (Main Board)

CN No.	Color	Connect to	Error code	Symptom/LCD message* (at power-on)	Symptom/LCD message* (during printing)
CN2	FFC	Network Board	---	Nothing happens	---
CN3	FFC	Panel Board (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN)	---	Power cannot be turned on.	---
CN4	FFC	Panel Board (B-300/B-308)	---	Power cannot be turned on.	---
CN5	White	Power Board	---	Power cannot be turned on.	---
CN6	White	SUB Board (for motors)	50H	Cannot seek CR home position error	---
CN7	White	CR Motor	F4H	PF motor drive error	---
CN8	FFC	SUB Board (for sensors)	14H	ASF motor drive error	---
CN9	White	Cover Open Sensor	---	Nothing happens	CLOSE PRINTER COVER
CN10	Black	EJC Sensor	---	SET MAINT BOX	---
CN11	FFC	CR Encoder/PW Sensor	50H	Cannot seek CR home position error	---
CN13	FFC	SUB Board-B	F4H	PF motor drive error	---
CN14	FFC	AID Board	90H	Write verify error	---
CN801	FFC	Printhead	---	Frequent auto cleaning	---
CN802	FFC	Printhead	---	Frequent auto cleaning	---
CN803	FFC	Printhead	43H	Head Temperature error	---
CN804	FFC	Printhead	---	Frequent auto cleaning	---

Note *: B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN only.

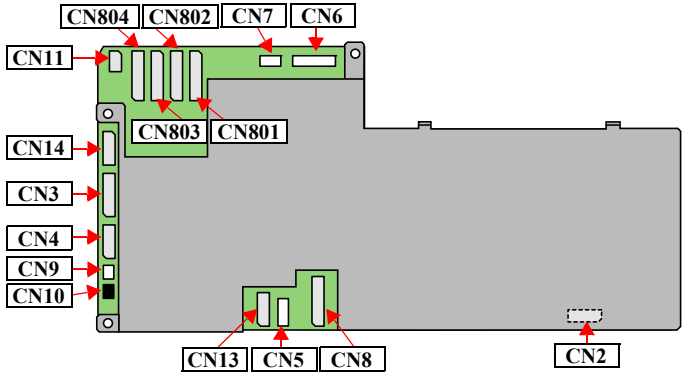


Figure 3-2. Connector Positions on the Main Board

■ SUB Board-B

Table 3-18. FFC/Harness Connection Error (SUB Board-B)

CN No.	Color	Connect to	Error code	Symptom/LCD message* (at power-on)	Symptom/LCD message* (during printing)
CN951	FFC	Main Board	F4H	PF motor drive error	---
CN952	FFC	IC Holder (black)	---	SET INK CARTRIDGE	---
CN953	FFC	IC Holder (cyan)	---	SET INK CARTRIDGE	---
CN954	FFC	IC Holder (magenta)	---	SET INK CARTRIDGE	---
CN955	FFC	IC Holder (yellow)	---	SET INK CARTRIDGE	---
CN956	FFC	PF Encoder	F4H	PF motor drive error	---
CN957	Red	IC Holder	---	MOVE INK LEVER DOWN	---

Note *: B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN only.

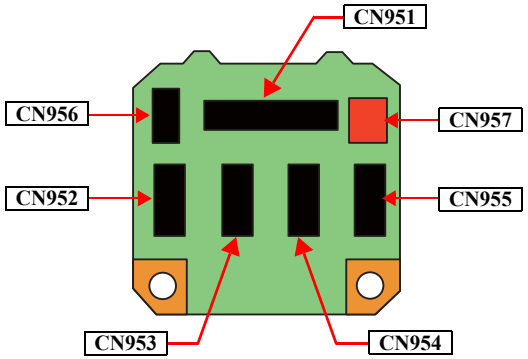


Figure 3-3. Connector Positions on the SUB Board-B

■ SUB Board

Table 3-19. FFC/harness Connection Error (SUB Board)

CN No.	Color	Connect to	Error code	Symptom/LCD message*1 (at power-on)	Symptom/LCD message*1 (during printing)
CN901	White	Relay cable (Main Board)	50H	Cannot seek CR home position error	---
CN902	FFC	Relay FFC (Main Board)	14H	ASF motor drive error	---
CN903	Black	ASF Sub Motor	34H	ASUB motor drive error	---
CN904	White	CR Motor	50H	Cannot seek CR home position error	---
CN905	Red	ASF Motor	14H	ASF motor drive error	---
CN906	White	RH Sensor	22H	Home seek error	---
CN907	Black	RP Sensor	---	Nothing happens	---
			20H	---	Target an unreached error (when rear feeding)
CN908	Yellow	APG Phase Sensor	71H	APG motor drive error	---
CN909	Red	FP Sensor	---	Nothing happens	---
			20H	---	Target an unreached error (when front feeding)
CN910*2	White	ASF Encoder	14H	ASF motor drive error	---
CN911	White	PE Sensor	---	REMOVE JAMMED PAPER	---
CN913	Yellow	Duplex Sensor	---	Nothing happens	SET DUPLEX UNIT (when duplex printing)
CN914	Yellow	PEF Sensor	---	Nothing happens	Nothing happens
CN915	Black	PER Sensor	---	Nothing happens	Nothing happens
CN916*2	Yellow	ASF Sub Encoder	34H	ASUB motor drive error	---
CN918	FFC	CSIC (Maintenance Box)	---	SET MAINT BOX	---

Note *1: B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN only.

*2: For B-310N/B-318N/B-510DN/B-518DN, the cables are soldered to the Sub Board, therefore, the symptoms occur when the cables are not connected to the connector on the Encoder Board. (See 4.7.3.3 "APG Assy / Sub Board" (p.125).)

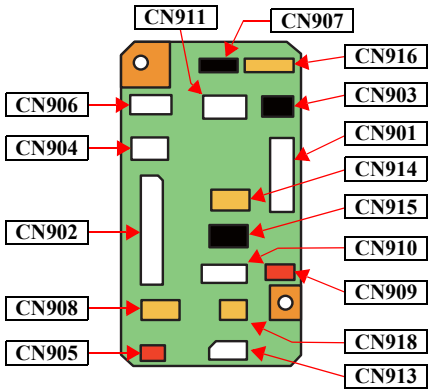


Figure 3-4. Connector Positions on the SUB Board

3.4 Troubleshooting by Symptom (no error indications)

3.4.1 Troubleshooting Printer Mechanism Problems

This section provides information for troubleshooting problems of printing mechanisms.

☐ Paper feed error

Table 3-20. Troubleshooting Paper Feed Problems

Problem	Possible Cause	Check Point	Remedy
Paper is not fed.	Contamination or wear of the Front Retard Roller, Idle Roller, LD Roller, or Retard Roller.	Is the surface of Paper Feed Roller contaminated with micro pearl paper dust or greasy dirt?	Clean the roller using a cleaning sheet. 1. Load a cleaning sheet upside down on the ASF cassette. 2. Start paper feed operation using the button on the control panel. 3. Repeat the above procedure several times.
			To remove severe smear, staple a cloth moistened with alcohol to a post card and clean the roller using it as described below. 1. Load the post card on the ASF so that the alcohol-moistened cloth contacts with the LD Roller surface (or Retard Roller surface). 2. Holding the top edge of the card, press the button on the control panel to start paper feeding. 3. Repeat the paper feed operation several times. The roller surface (LD Roller or Retard Roller) is cleaned. If this does not solve the problem, replace the LD Roller and the Retard Roller with new ones.
	Contamination of the Pickup Roller	Has the frictional force of the Pick-up Roller dropped and is it causing the problem of the front paper feed?	Clean the Pick-up Roller with a cotton moistened with pure water.
	Abnormal operation of the paper feed mechanism	Is there any abnormality found in the paper feed mechanism?	☐ Check the Planet Lock Assy and the planetary gears in the mechanism for proper installation. See 4.7.4.4 "Planet Lock Assy" (p.138)/ 4.7.4.1 "Rear ASF Assy" (p.133)/ 4.7.4.6 "Retard Transfer Assy" (p.143). ☐ If any obstructions or foreign material is found inside the mechanism, remove it.
Plain paper is not fed normally	PER Sensor and PEF Sensor failure	Are the PER / PEF Sensor cables properly connected to CN914 / CN915 on the Sub Board?	Connect the cables correctly. See 4.7.4.10 "PEF Sensor" (p.153) / 4.7.4.11 "PER Sensor" (p.153).
		Are the PER / PEF Sensor cables damaged?	Replace the PER or PEF Sensor cable. See 4.7.4.10 "PEF Sensor" (p.153)/ 4.7.4.11 "PER Sensor" (p.153).
		Are the PER Sensor and PEF Sensor correctly installed?	Replace the PER Sensor or PEF Sensor with a new one. See 4.7.4.10 "PEF Sensor" (p.153)/ 4.7.4.11 "PER Sensor" (p.153).

☐ Paper ejection error

Table 3-21. Troubleshooting Paper Ejecting Problems

Problem	Possible Cause	Check Point	Remedy
Paper get jammed before being ejected	Paper feed operation error	Does the PF Roller rotate normally and is the rotational force transmitted to the EJ Roller correctly?	Install the PF Motor properly and apply proper tension to the PF Timing Belt. See 4.7.5.1 "PF Motor" (p.156).
	EJ Roller operation failure	Does the EJ Roller rotate normally?	

☐ Carriage error

Table 3-22. Troubleshooting Carriage Movement Problems

Problem	Possible Cause	Check Point	Remedy
The movements of Carriage Assy during printing is abnormal	Something is obstructing the Carriage movements.	Is there any obstructions on the Carriage path?	Remove the obstructions.
		Does the Carriage Assy move smoothly when it is manually moved?	Clean the CR shaft and lubricate it as specified. See 6.1.3 "Lubrication" (p.198).
		Does the Head FFC have an adequate slack and not interrupting the Carriage movement? Check the FFC status by manually moving the Carriage Assy from side to side.	Route the Head FFC correctly on the Main Frame.
		Are the Ink Tubes correctly installed?	Install the Ink Tubes correctly. See 4.7.1.1 "IC Holder Assy" (p.108)
		Are the springs that secure the Change Lever and Change Slider disengaged?	Attach the springs correctly. See 4.7.4.1 "Rear ASF Assy" (p.133).

☐ Print quality problems

Table 3-23. Troubleshooting Print Quality Problems

Problem	Possible Cause	Check Point	Remedy
Certain dots are always not printed correctly	Contamination of the Printhead surface (dots are missing)	Run a cleaning and make a test print. Repeat it several times.	Clean the Printhead surface using a cotton-tipped swab.
	The capping absorber contacts with the Printhead surface.	Is the capping absorber deformed or damaged?	Replace the Ink System with a new one.
	Head FFC failure	Is the Head FFC damaged?	Replace the Head FFC with a new one.
	Printhead failure	Run a cleaning and nozzle check. Repeat it several times.	If the cleaning does not solve the problem, replace the Printhead with a new one. See 4.7.3.1 "Printhead" (p.121).
Dots are sometimes missing	Contamination of the Printhead surface (dots are missing)	Run a cleaning and nozzle check. Repeat it several times.	Clean the Printhead surface using a cotton-tipped swab.
	Ink cartridge failure	Replace the ink cartridges with new ones, and run a nozzle check.	Replace the Ink cartridges with new ones.
	Poor connection of the Head FFC	Check the FFC using a tester. Does the result show abnormality?	Replace the Head FFC with a new one.
	Printhead failure	Run a cleaning several times, and then run a nozzle check.	If the cleaning does not solve the problem, replace the Printhead with a new one.
Printout is totally abnormal	Poor connection of the Head FFC	Is the FFC securely connected to the boards and Carriage Assy?	Connect the Head FFC correctly.
	Printhead failure	Is the Head FFC securely connected to the Printhead?	If no problem is found in the connection, replace the Printhead with a new one.
Vertical lines are not straight	Improper Bi-D adjustment	Has the Bi-D adjustment been carried out properly?	Carry out the Bi-D adjustment. See 5.2 "Adjustment by Using Adjustment Program" (p.178).
	Improper Paper Skew adjustment	Has the Paper Skew adjustment been carried out properly?	Carry out the Paper Skew adjustment. See 5.2 "Adjustment by Using Adjustment Program" (p.178).

Table 3-23. Troubleshooting Print Quality Problems

Problem	Possible Cause	Check Point	Remedy
White or black bands appear on printouts	Contamination of the CR shaft	Is the CR shaft free of dirt?	Clean the CR shaft surface with a soft dry cloth.
	PF Roller failure	Is the PF Roller free of dirt?	Carefully clean the PF Roller surface with a soft brush.
		Is the PF Roller damaged?	Replace the PF Roller with a new one.
	Ink cartridge failure	Set new ink cartridges and make a test print. The problem does not occur?	Replace the Ink cartridges with new ones.
	Sliding operation failure of the Carriage	Is the backside of the Main Frame where the Carriage slides against adequately lubricated?	Clean the Main Frame and apply G-71 grease as specified. See 6.1.3 "Lubrication" (p.198).
	Improper platen gap	Is the platen gap setting correct?	Carry out the PG adjustment. See 5.3.1 "PG Adjustment" (p.191).
	Damage of gears	Are the gears of the PF and ASF mechanisms free of damage or deformation?	Replace the faulty part with a new one.
	Due to contamination on the Printhead surface, ink droplets are fired diagonally.	Run a cleaning and make a test print. Repeat it several times.	Clean the Printhead surface using a cotton-tipped swab.
		Is the Cleaner Blade free of dust or dirt?	Clean the Cleaner Blade or replace it with a new one.
	Improper Head Angle adjustment	Has the Head Angle adjustment been carried out properly?	Carry out the Head Angle adjustment. See 5.2.6 "Head angular adjustment" (p.181).
	Printhead failure	Run a cleaning several times, and then make a test print.	Replace the Printhead with a new one. See 4.7.3.1 "Printhead" (p.121).
	CR Shaft failure	Is the CR shaft correctly installed?	Reassemble the CR shaft. See 4.7.3.6 "Carriage Assy" (p.131).
		Is the CR shaft surface damaged?	Replace the CR shaft with a new one. See 4.7.3.6 "Carriage Assy" (p.131).

3.4.2 Troubleshooting Electrical Problems

Check the points described in the table below when the printer does not operate at all (LED does not light) at power-on.

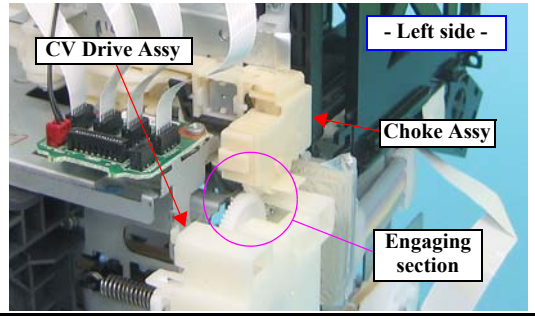
Table 3-24. Troubleshooting Power Supply Problems

Possible Cause	Check Point	Remedy
Power code failure	Replace the power code with another one, and check whether the printer is normally powered or not.	Replace the power code with a new one.
Incorrect AC power supply	Does the AC power source match with the requirement of the printer?	Use the correct power source.
Poor connection of the connectors	Is the Power Cable properly connected to CN5 connector on the Main Board?	Connect the cable correctly.
The fuse is blown	Is the fuse (F1) on the Power Supply Board blown?	Replace the Power Supply Board.
Abnormal output of the Power Supply Board	Is a normal voltage being output from the Power Supply Board?	Replace the Main Board when the output voltage is normal. Replace the Power Supply Unit when the output voltage is abnormal.

3.4.3 Troubleshooting Ink Supply / Waste Ink Problems

☐ Normal print cannot be made

Table 3-25. Troubleshooting Ink Supply Problems

Problem	Possible Cause	Check Point	Remedy
The carriage moves correctly, but the printout is abnormal	Ink cartridge failure	Set new ink cartridges and make a test print. The problem does not occur?	Replace the Ink cartridges with new ones.
	Incorrect connection of the Head FFC	Is the Head FFC properly connected to the Printhead and CN801, CN802, CN803, and CN804 connectors on the Main Board?	Connect the Head FFC correctly.
	Cleaner Blade failure	Is the Cleaner Blade free of dust or dirt?	Clean the Cleaner Blade or replace it with a new one.
	Poor connection of the Head FFC	Check the FFC using a tester. Does the result show abnormality?	Replace the Head FFC with a new one.
	Printhead failure	Run a cleaning and make a test print. Repeat it several times.	If the cleaning does not solve the problem, replace the Printhead with a new one.
	Ink leak or clogging	Is ink leakage observed on the Printhead?	Install the ink cartridges correctly. If this does not solve the problem, replace the ink cartridges or the Printhead with new ones.
	Valve Head Assy mounting failure	Is the Valve Head Assy correctly installed?	Install the Valve Head Assy correctly. See 4.7.1.1 "IC Holder Assy" (p.108).
	Ink Tube failure	Are the Ink Tubes damaged?	If there is possibility of ink leakage (when scratches or bends in the tubes are observed), replace the IC Holder Assy with a new one. See 4.7.1.1 "IC Holder Assy" (p.108).
	Choke Valve failure	Does the PF Roller rotate normally and the Choke Valve operate normally powered via the CV Drive Assy?	Check the CV Drive Assy and Carriage shaft for proper installation. If there is no problem with the installation and the Choke Valve continues abnormal operation, replace the IC Holder Assy with a new one. See 4.7.1.3 "CV Drive Assy" (p.116).
	Choke Valve operation failure	Check the engagement of the gears which transmit the drive from the CV Drive Assy to the Choke Assy. 	Install them so as to make the gears of the CV Drive Assy and the Choke Assy engaged correctly. See "REASSEMBLY" of 4.7.1.1 "IC Holder Assy" (p.108) and 4.7.1.3 "CV Drive Assy" (p.116).

☐ Waste ink error

Table 3-26. Troubleshooting Ink Suction / Waste Ink Problems

Problem	Possible Cause	Check Point	Remedy
Ink is not properly transported from the Printhead to the cap, or from the cap to the Ink Tubes.	The pump tube is partially flat.	Is there any flat portions in the tubes?	Replace the Ink System with a new one.
	Contamination or damage of the cap	Is the Cap damaged or contaminated with foreign material?	Remove any foreign material using a cotton bud, or replace the Ink System with a new one if any damage is observed.
	Disconnection of the Ink Tubes from the cap	Is the tube disconnected from the bottom of the cap?	Connect the tubes correctly.
	Cap movement failure	Is the compression spring of the cap section properly engaged?	Replace the Ink System with a new one.
		Are the AID cable and the Static Ink Collect Unit cable pushing up the ink pad under the cap?	Route the AID cable and the Static Ink Collect Unit cable correctly. See 4.7.6.1 "Ink System" (p.165).
	The tube between the Maintenance Box and Ink System is partially flat.	Is the tube properly routed between the Ink System and the EJ Waste Ink Assy?	Securely connect the Ink System tube to the Waste Ink Joint and the EJ Waste Ink Assy tube, and route the tube correctly.

3.4.4 Troubleshooting I/F-related Problems

This section provides information for troubleshooting problems related to the USB interfaces and the network interface (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN only).

- ☐ USB Interface

Table 3-27. Troubleshooting USB I/F Problems

Possible Cause	Check Point	Remedy
Incorrect printer driver installation	Click My Computer → Property → Device Manager on Windows computer. Is the printer driver is included in the Other Devices by mistake?	Uninstall the driver and reinstall it correctly referring to the Users Guide.
USB cable failure	Replace the cable with another one. Does the problem still occur?	Replace the USB cable.
Poor connection	Is the USB terminal free of foreign materials?	Remove the foreign material, and clean the contact points.
Main board failure	Check the Main Board for any damage.	Replace the Main Board.

- ☐ Network Interface (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN only)

Table 3-28. Troubleshooting Network I/F (B-500DN/B-508DN only) Problems

Possible Cause	Check Point	Remedy
Print cannot be made	1. Are the computer and the printer properly connected to a LAN port such as a hub or router?	Correctly connect the computer and the printer to a LAN port using a LAN cable.
	2. Is the link lamp on the access point or hub connected to the printer lit or flashing?	• Use another port to connect the printer. • Replace the LAN cable. • Configure the network setting correctly.

3.5 Troubleshooting Duplex Unit Problems

This section provides information for troubleshooting the duplex unit problems. Find the problem you face in the following tables, and troubleshoot the problem referring to the descriptions given in the “Possible Cause” and “Remedy”.

☐ Problems and reference table

Table 3-29. Duplex Unit Problems & Reference Table

Error Message	Problem	Reference
Duplex Unit Open error	The printer cannot detect the Duplex Unit when duplex printing is started.	Table 3-30
Duplex Unit Jam error	A paper jam occurs in the duplex unit.	Table 3-31

☐ Duplex Unit Open Error

Table 3-30. Troubleshooting Duplex Unit Open Error

Symptom	Possible Cause	Remedy
The error occurs when duplex printing is started.	1. The printer cannot detect the Duplex Unit when duplex printing is started.	• Install the Duplex Unit correctly.
	2. Duplex Unit sensor failure/poor connection	• Check the sensor for proper connection. In case of wrong connection, connect the sensor correctly. See 4.7.3.3 "APG Assy / Sub Board" (p.125).
		• Check the Duplex Unit sensor for damage. If it is damaged, replace it with a new one. See 4.7.3.3 "APG Assy / Sub Board" (p.125).
The error occurs when duplex printing is started after recovering from a paper jam error.	1. The printer cannot detect the Duplex Unit after recovering from a paper jam error.	• Install the Duplex Unit correctly. (The duplex printing is resumed from the next page)
		• Cancel the duplex print job.

☐ Duplex Unit Jam Error

Table 3-31. Troubleshooting Duplex Unit Jam Error

Symptom	Possible Cause	Remedy
The error occurs during performing duplex printing.	1. A paper jam occurs in the duplex unit. 2. The size of fed paper is smaller than that specified by the print setting. (e.g.; post card size paper is fed when A4 size is specified) 3. The printer fails to detect the duplex unit while reversing the paper for printing on its backside.	• Remove the duplex unit and open the cover (if necessary) to remove the paper. (Do not turn the power off) Then reinstall the duplex unit. (The duplex printing is resumed from the next page)
		• Cancel the duplex print job, and remove the duplex unit and open the cover (if necessary) to remove the paper.
	3. PE sensor failure/poor connection	• Check the PE sensor for proper connection. In case of wrong connection, connect the sensor correctly. See Table 3-2 / 4.7.4.12 "Rear Paper Guide / PE Sensor" (p.154).
		• Check the PE sensor for damage. If it is damaged, replace the Rear Paper Guide with a new one. See Table 3-2 / 4.7.4.12 "Rear Paper Guide / PE Sensor" (p.154).

Note : If the above remedies do not solve the problem, replace the duplex unit with a new one.

CHAPTER 1

4

DISASSEMBLY AND ASSEMBLY

4.1 Overview

This chapter describes procedures for disassembling the main components of B-300/B-308/B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN.

Unless otherwise specified, disassembled units or components can be reassembled by reversing the disassembly procedure.

Procedures which, if not strictly observed, could result in personal injury are described under the heading “WARNING”.

“CAUTION” signals a precaution which, if ignored, could result in damage to equipment.

Important tips for procedures are described under the heading “CHECK POINT”.

If the assembly procedure is different from the reversed disassembly procedure, the correct procedure is described under the heading “REASSEMBLY”.

Any adjustments required after reassembly of components or parts are described under the heading “ADJUSTMENT REQUIRED”.

When you have to remove any parts or components that are not described in this chapter, refer to the exploded diagram in the Appendix.

Read the precautions described in the next section before starting.

4.1.1 Precautions

The precautions in the two lists below (WARNING and CAUTION) must always be followed during disassembly and assembly of B-300/B-308/B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN.

WARNING

- **Disconnect the power cable before disassembling or assembling the printer.**
- **If you need to work on the printer with power applied, strictly follow the instructions in this manual.**
- **The cap on the ink system and the bottom of the Front Paper Guide Assy carry a high voltage while the printer is powered. Exercise added care when you need to work on the printer with power applied.**

WARNING

- **Always wear goggles to protect your eyes from splattering of ink.If ink gets in your eye, flush the eye with fresh water and see a doctor immediately.**
- **Always wear gloves for disassembly and reassembly to avoid injury from sharp metal edges.**
- **Use static discharge equipment such as anti-static wrist straps when accessing internal components to protect sensitive electronic components and circuitry.**
- **Never touch the ink or wasted ink with bare hands.If ink comes into contact with your skin, wash it off with soap and water immediately.If irritation occurs, contact a physician.**
- **When reinstalling the Ink System and the EJ Waste Ink Assy, make sure that the Waste Ink Tube is properly connected to the joint and secured with the clip.Otherwise, ink leak may occur.**

CAUTION

- **When transporting the printer on which the ink cartridges and the maintenance box have been installed, pack the printer without removing the cartridges and the box. See "Protection for Transportation" (p.81).**
- **Use only recommended tools for disassembly, assembly or adjustment of the printer.See Table 4-1.Tools List (p 75).**
- **When tightening screws, be sure to observe the specified tightening torque.**
- **Use only specified grease for lubrication. For more details, see Chapter 6 Maintenance "Specified Lubricant" (p.198).**
- **Make the specified adjustments when you disassemble the printer. For more details, see Chapter 5 ADJUSTMENT .**
- **When using compressed air products; such as air duster, for cleaning during repair and maintenance, the use of such products containing flammable gas is prohibited.**
- **Exercise care not to scratch the surface of exterior parts.**

4.1.2 Tools

Use only specified tools to avoid damaging the printer.

Table 4-1. Tools List

Tool	Availability	Part No.
Phillips Screw Driver (No.1)	O	1080530
Phillips Screw Driver (No.2)	O	---
Flat-blade Screw Driver	O	---
Precision Screw Driver #1 (flat-blade)	O	---
Tweezers	O	---
Long-nose pliers	O	---
Acetate tape (Recommended: 1554K from 3M)*	O	---
Black acetate tape (Recommended: 570F/571F from Teraoka Seisakusho Co.,Ltd.)*	O	---

Note 1: The tools are commercially available.

2: The tool listed with the part no. is available from EPSON.

Note *: Refer to "Using Acetate Tape" (p.80).

4.1.3 Screws

The following table indicates the screws used in the printer.Check the screw type and numbers whenever disassembling/reassembling the printer.

Table 4-2. Screws List

No.	Standard	No.	Standard
1	C.B.S. 2.5x5	10	C.B.P.(P4) 3x8
2	C.B.S. 3x6	11	C.P.S. 3X6
3	C.B.S. 3x8	12	C.B.P.(P2) 2.6x8
4	C.B.P. 3x8	13	C.B.S. 2.6x8
5	C.B.P. 3x10	14	C.B.S.(P4) 3X4
6	C.C. 3x4	15	C.B.S. 3x4
7	C.B.S.(P4) 3x6	16	C.B.S. 2.6x6
8	C.B.S.(P4) 2.6x6	17	C.B.P. 2.6x6
9	C.B.P. 2.5x8		

4.1.4 Work Completion Checklist

Whenever the printer is serviced, use the checklist shown below to confirm all work is complete properly and the printer is ready to be returned to the user.

Make sure to always check the maintenance counter before disassembling the printer. If the counter shows that some part or component has almost reached the end of its service life, replace the part after receiving prior approval from the user.

Table 4-3. Work Completion Check

Classification	Item	Check Point	Status
Main Unit	Self-Test	Is the operation normal?	☐OK / ☐NG
	Print test	Is the printing attempt successful?	☐OK / ☐NG
	Printhead (Nozzle check pattern print)	Is ink discharged normally from all the nozzles?	☐OK / ☐NG
	Carriage Mechanism	Does it move smoothly?	☐OK / ☐NG
		Is there any abnormal noise during its operation?	☐OK / ☐NG
	Paper Feeding Mechanism	Is paper advanced smoothly?	☐OK / ☐NG
		No paper jamming?	☐OK / ☐NG
		No paper skew?	☐OK / ☐NG
		No multiple-sheet feeding?	☐OK / ☐NG
		No abnormal noise?	☐OK / ☐NG
		Is the paper path free of obstructions?	☐OK / ☐NG
Adjustment	Specified Adjustments	Are all the adjustments correctly completed?	☐OK / ☐NG
Lubrication	Specified Lubrication	Has lubrication been applied at the specified points?	☐OK / ☐NG
		Is the amount of lubrication correct?	☐OK / ☐NG
Function	Firmware Version	The latest version: _____	☐OK / ☐NG

Table 4-3. Work Completion Check

Classification	Item	Check Point	Status
Packing	Ink Cartridges	Are the ink cartridges installed correctly?	☐OK / ☐NG
	Maintenance Box	Is the remaining life of the Maintenance Box enough?	☐OK / ☐NG
	Protection for Transportation	Is the Printer Carriage at its capping position?	☐OK / ☐NG
		Have all the specified points properly secured to be protected during transportation? See Protection for Transportation *(p.81)*.	☐OK / ☐NG
Others	Attachments, Accessories	Have all the relevant items been included in/returned to the package?	☐OK / ☐NG

4.1.5 Preparation for Disassembling

The followings must be carried out before disassembling B-300/B-308/B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN.

☐ When the Main Board needs to be replaced, copy data stored in the EEPROM on the board.

☐ Move the Carriage Assy away from its home position.

- Releasing Carriage Lock *(p.79)*

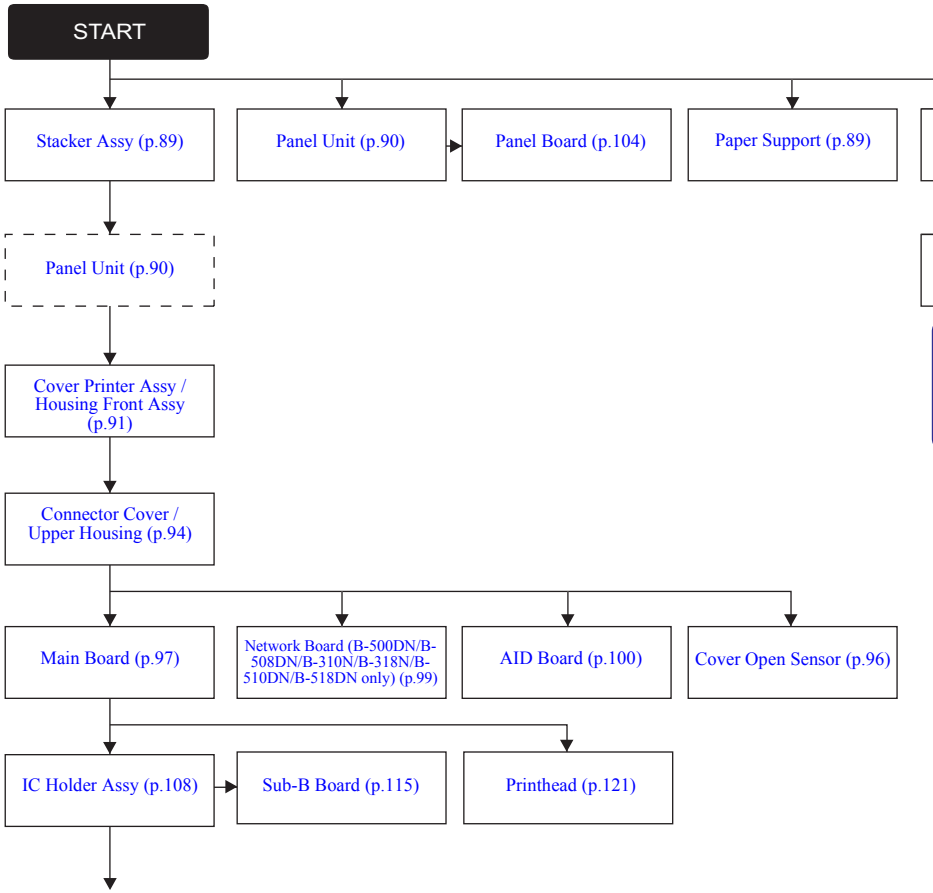
4.1.6 Orientation Definition

The terms used for indicating the orientation/direction throughout this chapter are as follows.

Figure 4-1. Orientation Definition

4.2 Disassembly Flowchart

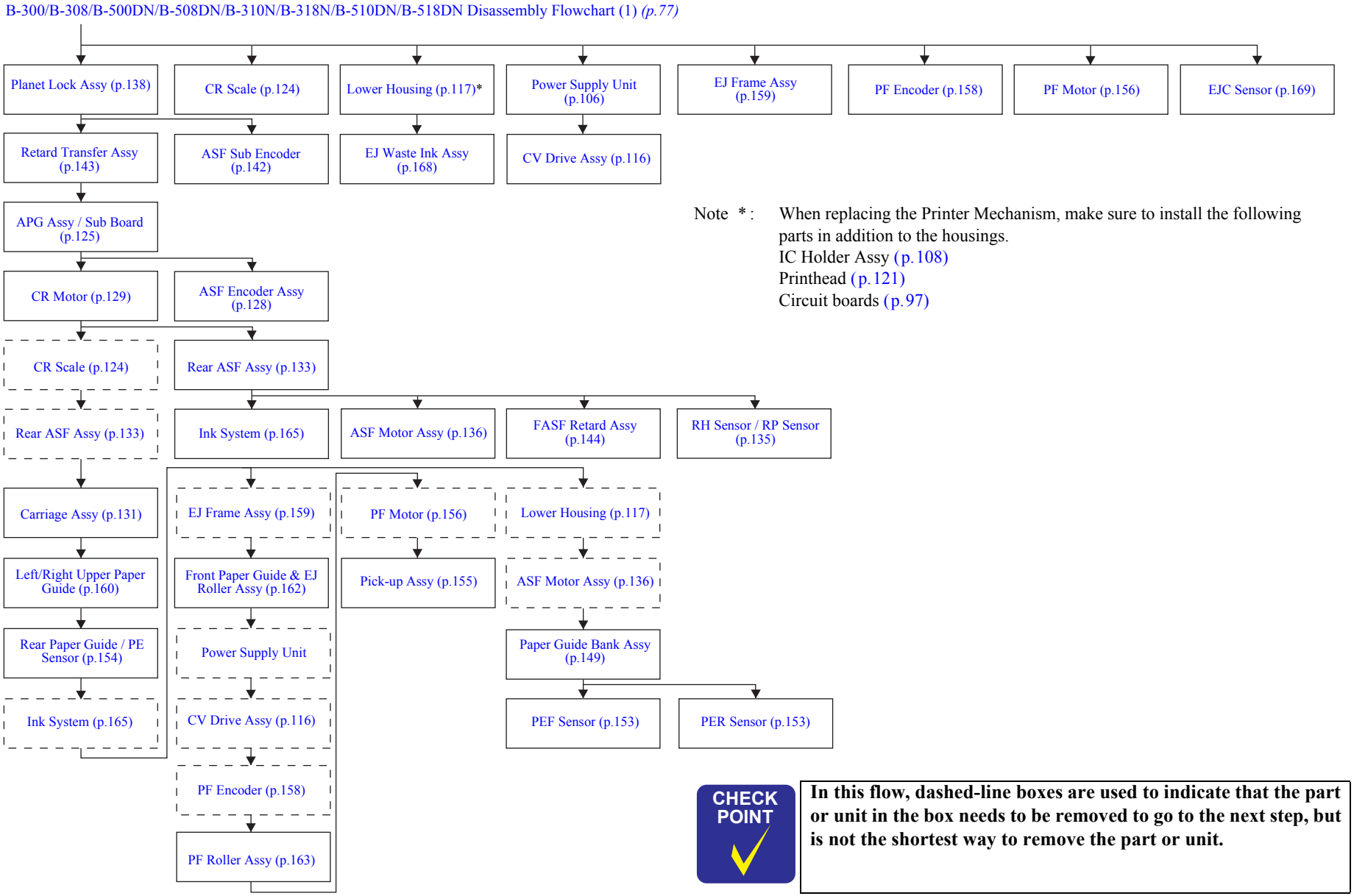
The flowchart below shows step-by-step disassembly procedures. When disassembling each unit, refer to the page number shown in the figure.



- **In this flow, dashed-line boxes are used to indicate that the part or unit in the box needs to be removed to go to the next step, but is not the shortest way to remove the part or unit.**
- **Since a prototype was used to illustrate these disassembly and assembly procedures, the appearance of some parts may differ from those on an actual product. The procedures themselves, however, are accurate for the retail model.**
- **The following accessories must be removed in advance.**
  - **Ink Cartridges (p.83)**
  - **Maintenance Box Assy (p.84)**
  - **Cassette Assy (p.85)**
  - **Rear Cover / Duplex Unit (p.86)**
- **The appearance of the following parts/units differ between B-300/B-308 and B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN.**
  - **Network Board (p.99)**
  - **Connector Cover (p.94)**
  - **Panel Unit, Panel Board, Operation Buttons (p.104)**

  B-500DN/B-508DN is used to illustrate these disassembly and assembly procedures. Information specific to B-300/B-308/B-310N/B-318N/B-510DN/B-518DN is provided in CHECK POINT columns.

Flowchart 4-1. B-300/B-308/B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN Disassembly Flowchart (1)



Flowchart 4-2. B-300/B-308/B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN Disassembly Flowchart (2)

4.3 Basic Operations

4.3.1 Releasing Carriage Lock

☐ When disassembling B-300/B-308/B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN, sometimes you need to release the Carriage Lock to move the Carriage away from the home position. In such case, use any of the following methods to release the lock.

■ Releasing Carriage Lock using adjustment program

1. Connect the computer where the adjustment program is installed and the printer, then start the adjustment program.
2. Select "CR Unlock" from the menu of the adjustment program, and execute the function on the displayed screen.

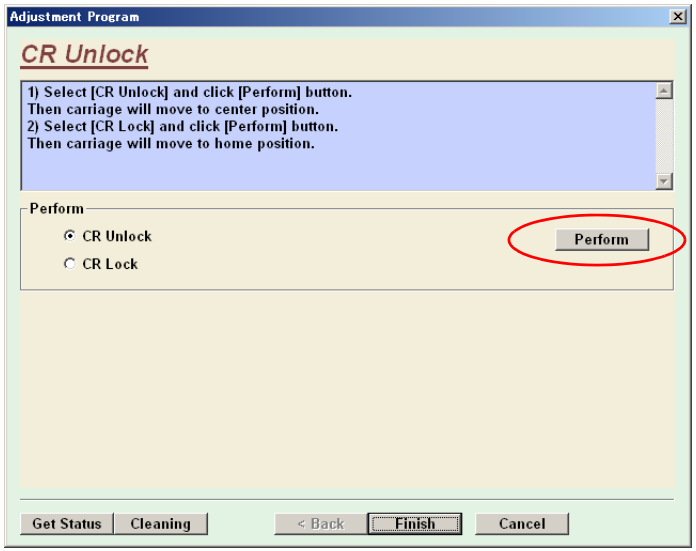


Figure 4-2. Release CR Lock Screen

■ Turn the printer on and wait until the printer automatically releases the Carriage Lock and moves the carriage away from the home position. Then unplug the printer's AC cable to forcefully turn the printer off.

CAUTION

Exercise added care not to damage the EJ Roller Gear. Also exercise care to avoid cutting yourself with the sharp metal edges.

■ Rotate the EJ Roller Gear on the left side of the printer in the direction of the arrow to release the Carriage Lock.(Remove the Upper Housing to use this method.)

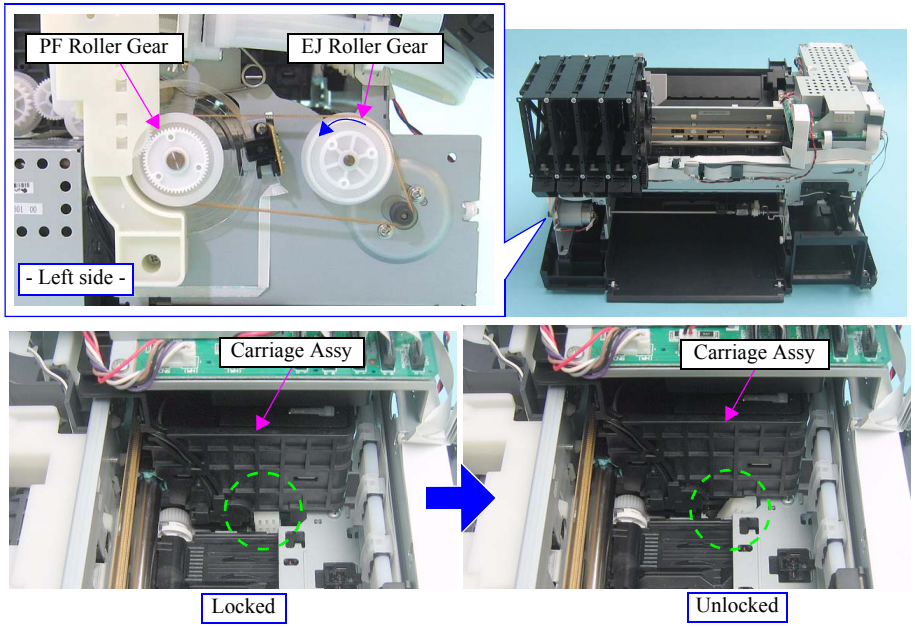


Figure 4-3. Releasing Carriage Lock

4.3.2 Handling Ink Supply Parts

☐ Caution when removing the Printhead and IC Holder Assy

While removing/reinstalling the Printhead and IC Holder Assy, the choke valve must be kept closed. If you perform the work with the valve kept open, ink leak will occur. Make sure to close the choke valve by placing the Ink Lock Lever in its uppermost position before starting the work. See **4.4.1 Ink Cartridge**.

☐ Handling Ink Tube

When removing/reinstalling the IC Holder Assy, be sure to note the following points to avoid ink leak.

- The Ink Tube is very delicate. Exercise care to avoid damaging, weakening, or whitening the tube by forcedly bending it or apply unnecessary force.
- Do not disassemble the IC Holder Assy provided as ASP.

4.3.3 Handling Ink System Parts

Make sure to note the following points when installing the EJ Waste Ink Assy.Otherwise, ink may leak from the Waste Ink Tube.

- Insert the three Waste Ink Tubes into the Waste Ink Joint as far as they will go and secure them with three clips.
- Secure the Waste Ink Joint to the EJ Waste Ink Assy. See *"4.7.2 Lower Housing" Step10 (p119)*.

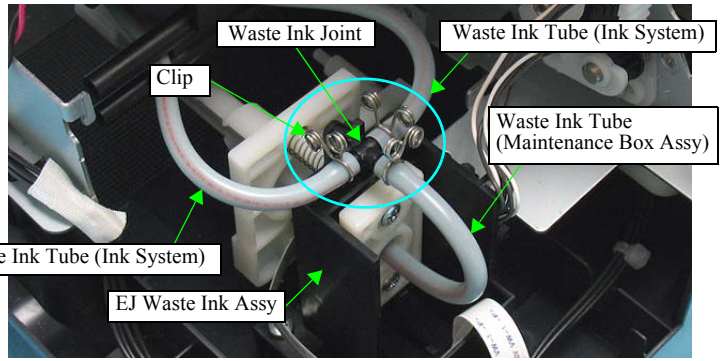


Figure 4-4. Handling Ink System Parts (2)

4.3.4 Using Acetate Tape

When using acetate tape in operation, make sure to confirm the following.

☐ The two kinds of acetate tapes with different adhesion are used for this product. (Table 4-1.Tools List (p 75))
To distinguish the different usages of the tapes, the color of the tape is specified in context. If the black acetate tape is designated, the strong adhesion is needed there.

☐ When securing a cable with acetate tape, attach it along with the cable's periphery so as not to leave space on both sides.

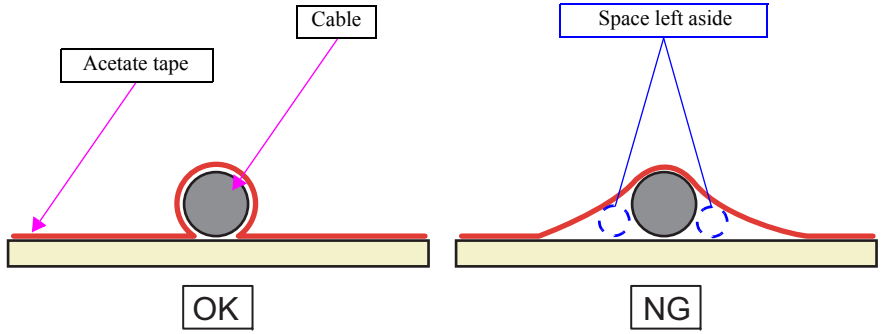


Figure 4-5. How to attach acetate tape

4.3.5 Protection for Transportation

When returning the printer to the user, make sure to secure the specified points with strong tapes (tape width: 20 mm) to avoid damaging or scratching the printer during transport.

☐ Securing the Ink Holder Cover, Waste Ink Box Cover, Paper Support, and Printer Cover Assy.

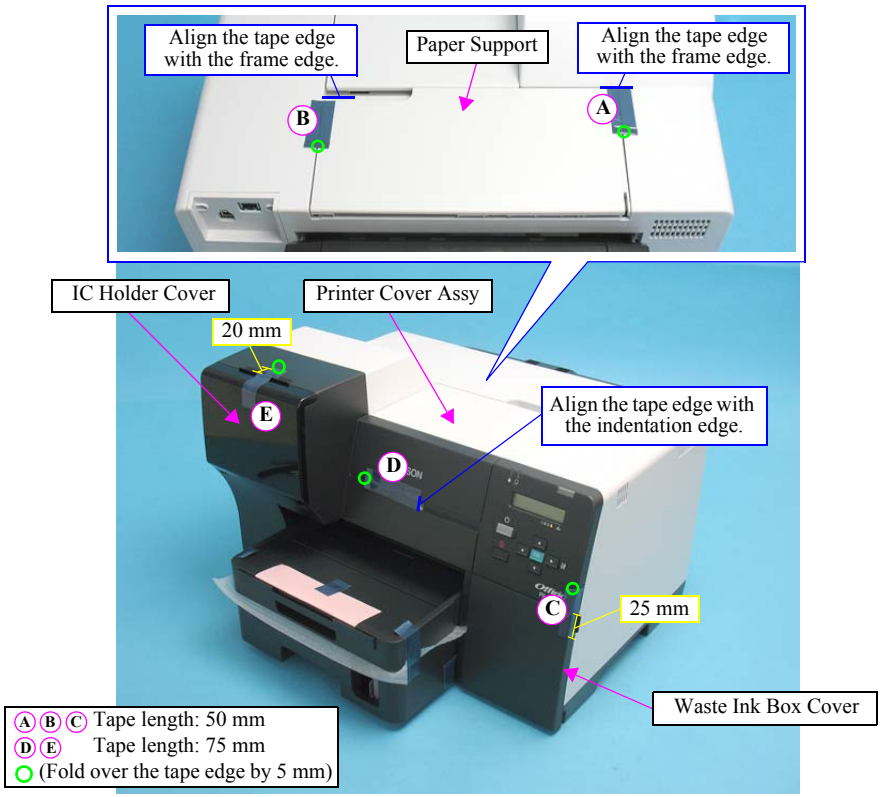


Figure 4-6. Strong Tape Positions (1)

☐ Securing the Stacker Assy and Cassette Assy.

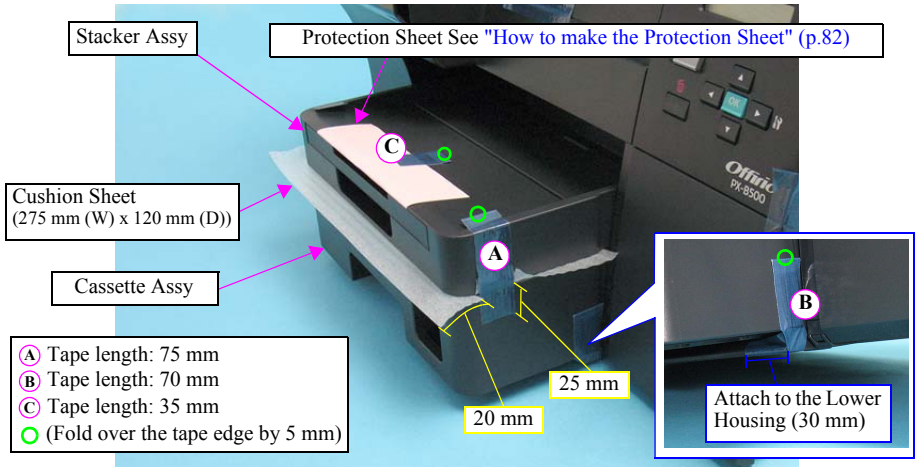


Figure 4-7. Strong Tape Positions (2)

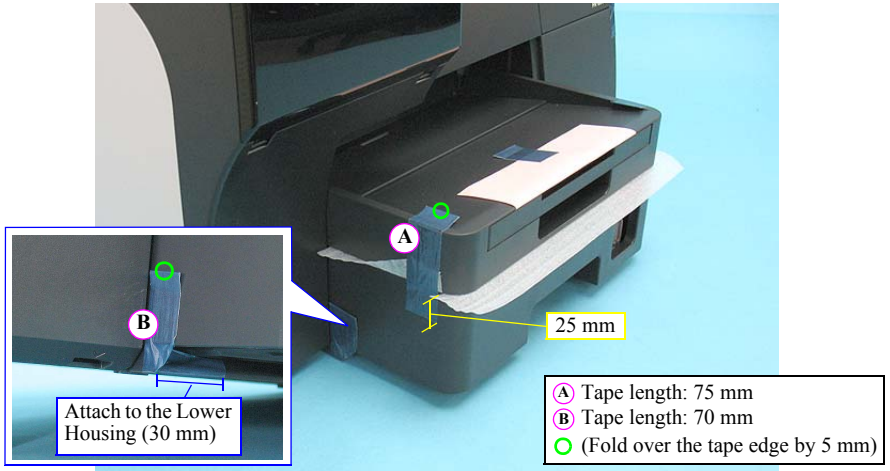


Figure 4-8. Strong Tape Positions (3)

■ How to make the Protection Sheet

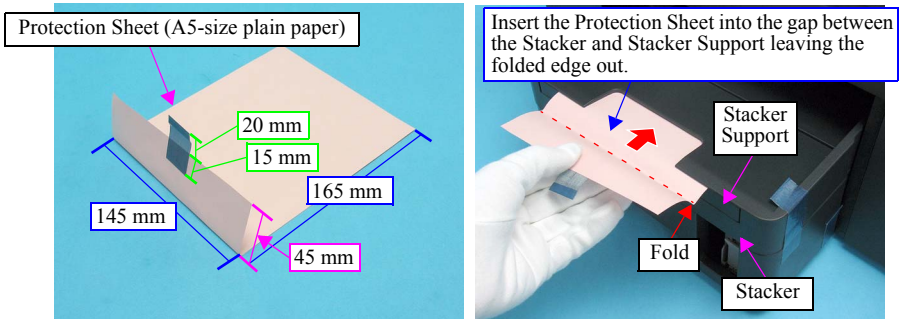


Figure 4-9. Strong Tape Positions (4)

☐ Securing the Duplex Unit

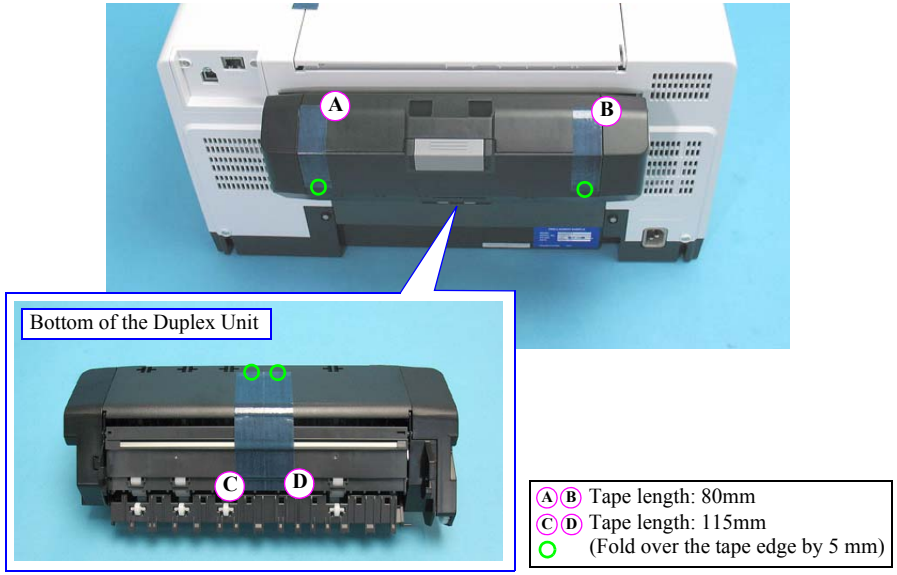


Figure 4-10. Strong Tape Positions (3)

☐ Measures for preventing ink spattering from the Ink Supply Needle

When returning the printer which was sent from the user without ink cartridges or with the LL size black ink cartridge installed (B-500DN/B-508DN/B-510DN/B-518DN only), fill the empty cartridge slots with paper as shown below to avoid ink spattering from the Ink Supply Needles.

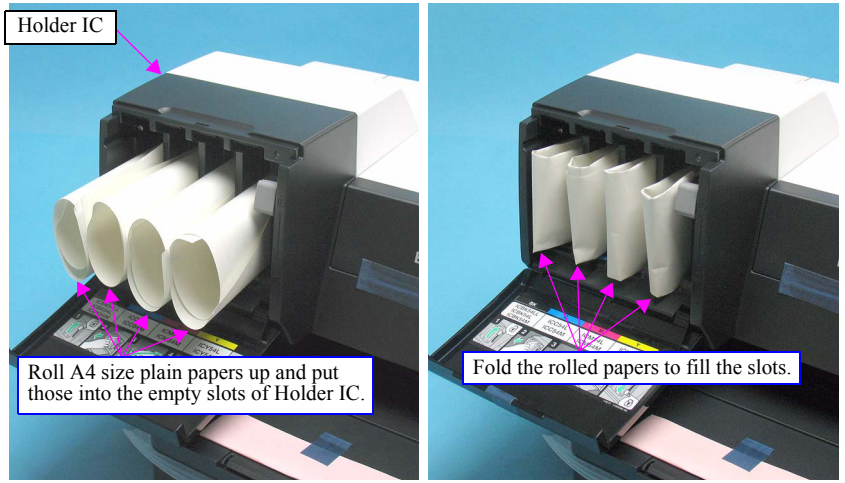


Figure 4-11. Measures for preventing ink spattering from the Ink Supply Needle

4.4 Consumables & Accessories

CHECK POINT

All the consumables and accessories must be removed before starting disassembly and assembly work.

4.4.1 Ink Cartridge

☐ Disassembly Procedure

CAUTION

- **When removing the ink cartridges, be careful not to touch the circuit board (IC chip) on the cartridges. If you contaminate or damage the IC chip, it could result in cartridge detection error or abnormal print.**
- **Never touch the ink supply port of the Ink Cartridges, or ink may leak from there.**

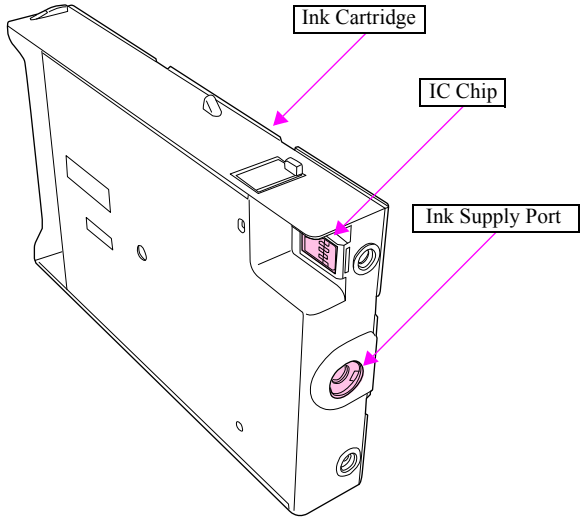


Figure 4-12. Handling the Ink Cartridges

1. Open the IC Holder Cover.
2. Raise the Ink Lock Lever.

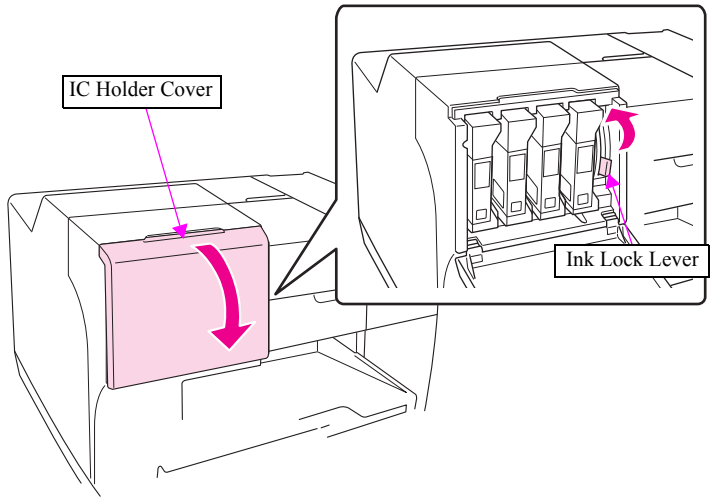


Figure 4-13. Removing the Ink Cartridges (1)

3. Remove the Ink Cartridges.

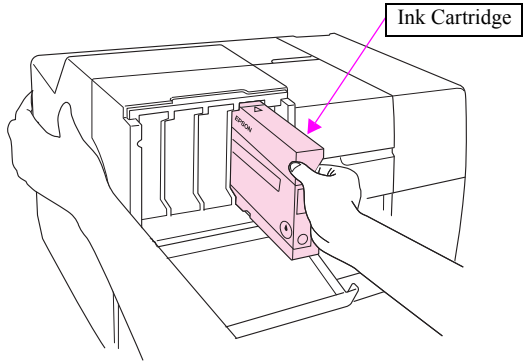


Figure 4-14. Removing the Ink Cartridges (2)

4.4.2 Maintenance Box Assy

☐ Disassembly Procedure

CAUTION

When removing the Maintenance Box Assy, be careful not to touch the circuit board (IC chip) on the box. If you contaminate or damage the IC chip, it could result in Maintenance Box detection error or abnormal print.

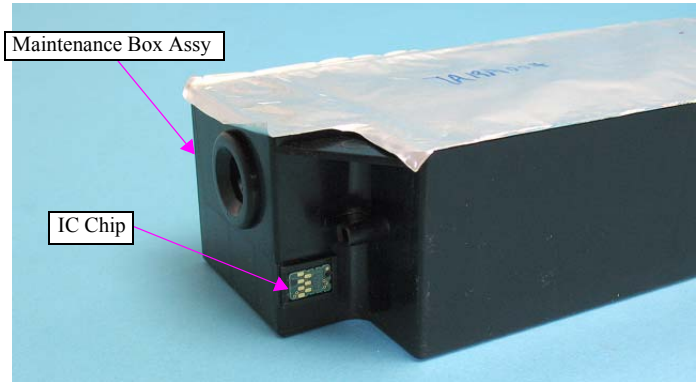


Figure 4-15. Handling the Maintenance Box Assy

1. Open the Waste Ink Box Cover.

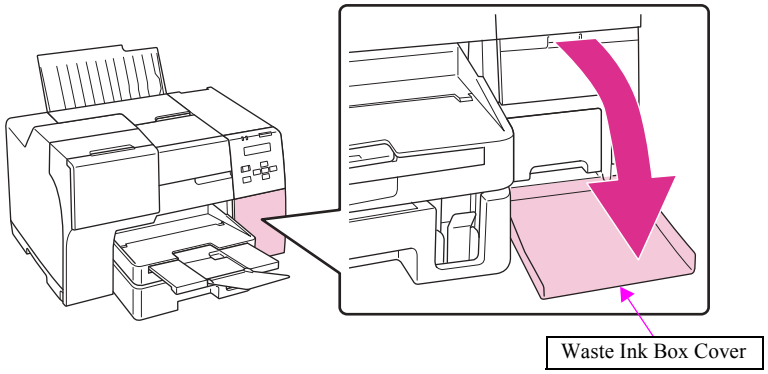


Figure 4-16. Removing the Maintenance Box Assy (1)

2. While slightly pushing the Maintenance Box Assy upward, pull out it from the printer.

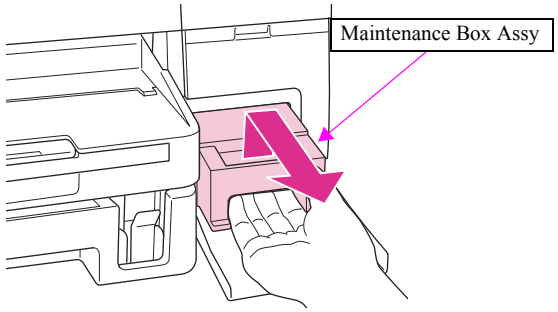


Figure 4-17. Removing the Maintenance Box Assy (2)

4.4.3 Cassette Assy

CHECK POINT

For B-510DN for EAI , the Cassette Assy for legal size paper is installed as a standard, and the size and shape of them differ from other models. However, the disassembly/reassembly procedures are the same.
(The Cassette Assy is available as an option for the models other than B-510DN for EAI.)

☐ Disassembly Procedure

1. Hold the Cassette Assy by its handle and pull the assy toward you to remove it.

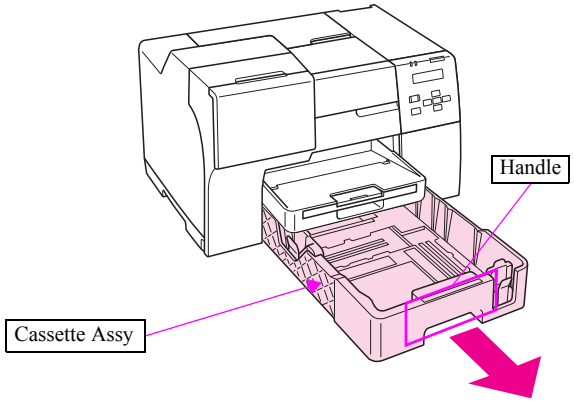


Figure 4-18. Removing the Cassette Assy (1)

2. Slide the Left Edge Guide while lifting its base end with a flat-blade screwdriver or the like as shown below, and remove it in the direction of the arrow.

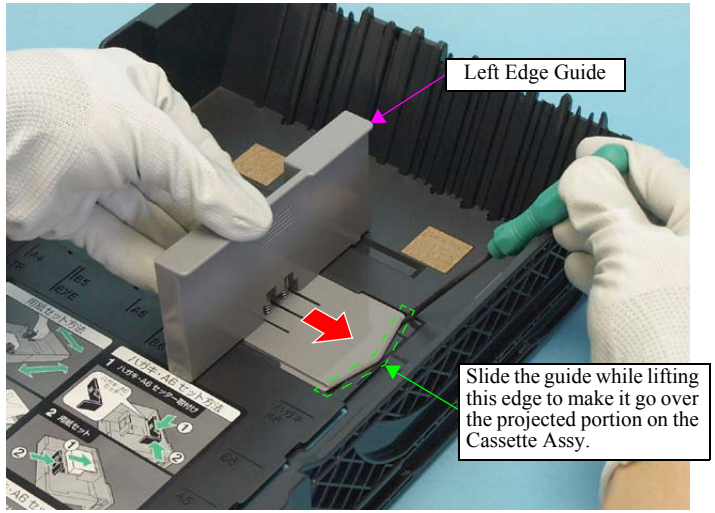


Figure 4-19. Removing the Cassette Assy (2)

3. Slide the Front Edge Guide while lifting its base end with a flat-blade screwdriver or the like as shown below, and remove it in the direction of the arrow.

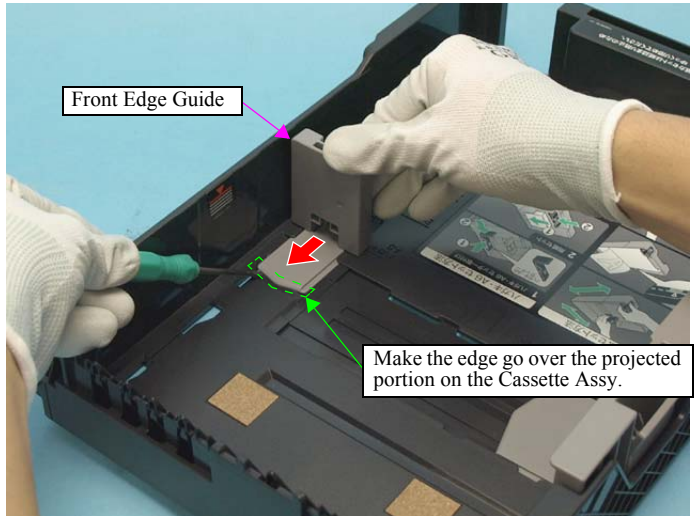


Figure 4-20. Removing the Cassette Assy (3)

4. Remove the two Cassette Corks.

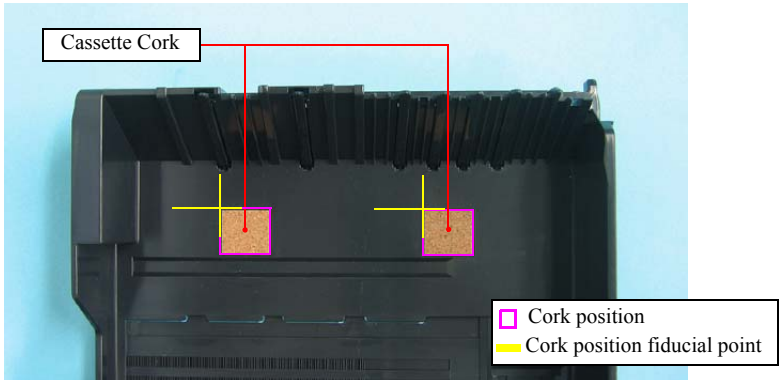


Figure 4-21. Removing the Cassette Assy (4)

REASSEMBLY

- **When attaching the Cassette Corks, first align their one corner with the fiducial point shown in *Figure.4-21*.**
- **When attaching the Paper Set Label (part code:1481785), fit it in the indented surface on the Cassette Assy with the orientation shown below.**

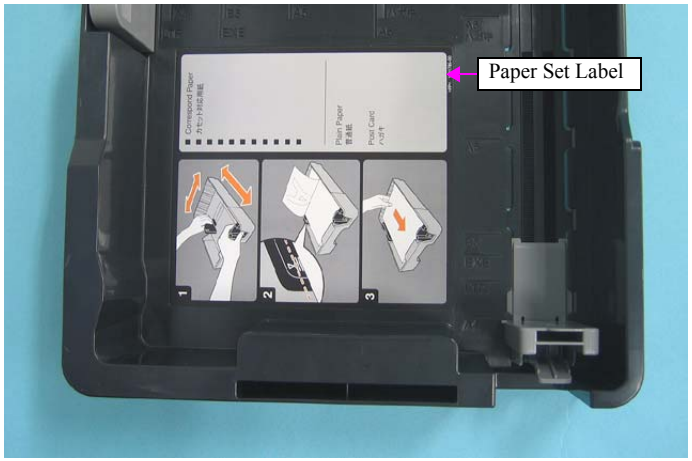


Figure 4-22. Attaching the Paper Set Label

4.4.4 Rear Cover / Duplex Unit

☐ Disassembly Procedure

CHECK POINT

The standard B-300/B-308/B-310N/B-318N comes with the Rear Cover instead of the Duplex Unit (available as an option).

■ Removing the Rear Cover

1. Push in the tab on both sides of the Rear Cover to release the lock, and remove the Rear Cover.See *Figure.4-23*.

■ Removing the Duplex Unit

1. Push in the button on both sides of the Duplex Unit to release the lock, and remove the Duplex Unit.See *Figure.4-23*.

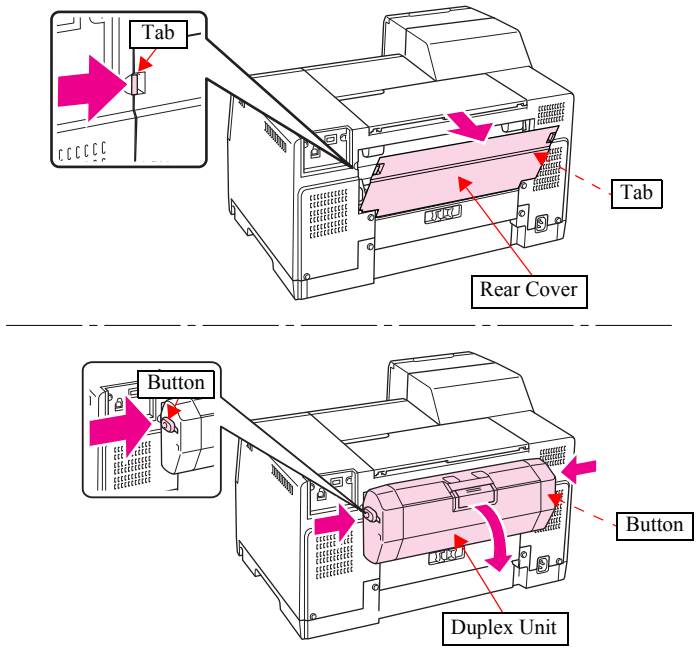


Figure 4-23. Removing the Rear Cover / Duplex Unit

4.5 Removing Exterior Parts

4.5.1 IC Holder Cover

- ☐ Parts/Components must be removed in advance: Nothing
- ☐ Disassembly Procedure

1. Disengage the hinges of the IC Holder Cover, and remove the IC Holder Cover.

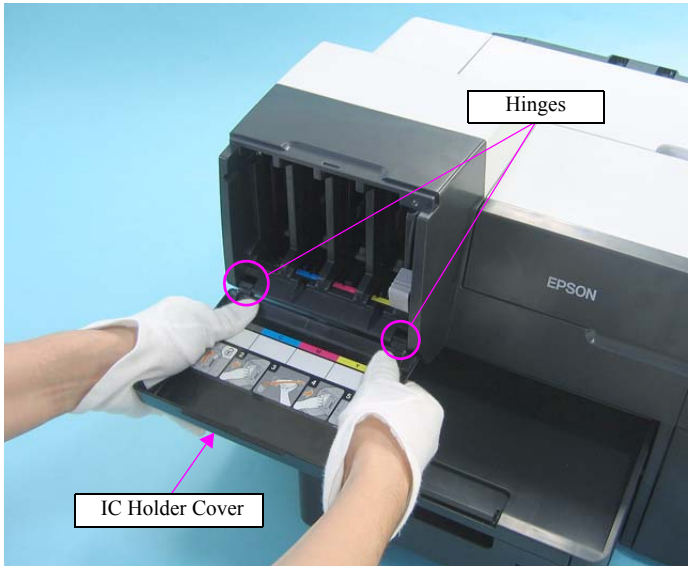


Figure 4-24. Removing the Ink Holder Cover

REASSEMBLY

When attaching the Ink Cartridge Label, align its upper edge with the two ribs on the IC Holder Cover with the orientation shown below.

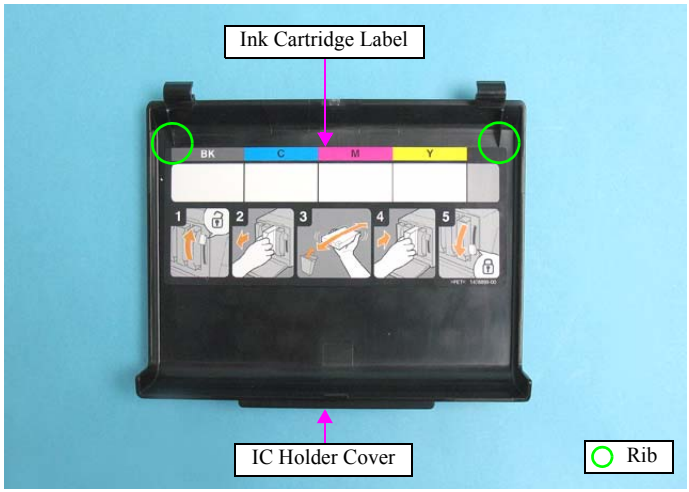


Figure 4-25. Attaching the Ink Cartridge Label

4.5.2 Cover Ink Eject Box

☐ Parts/Components must be removed in advance: Nothing

☐ Disassembly Procedure

1. Disengage the hinge of the Waste Ink Box Cover.
2. Pull out the left shaft of the Waste Ink Box Cover from the hole on the Front Housing Assy, and remove the Waste Ink Box Cover.

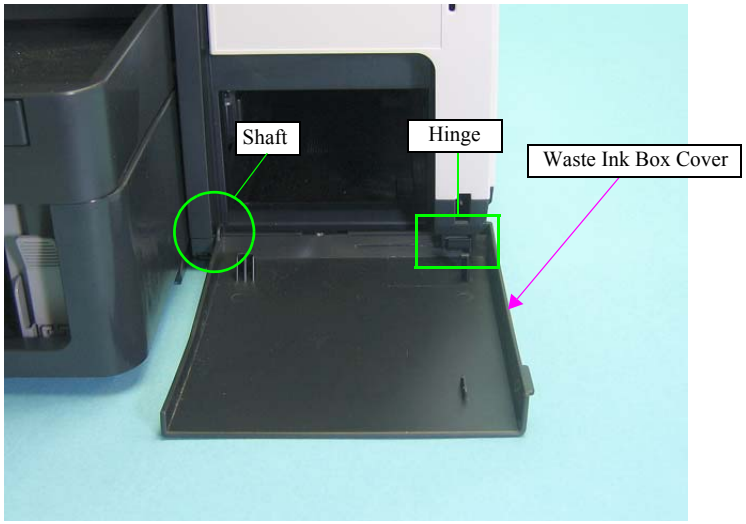


Figure 4-26. Removing the Waste Ink Box Cover

4.5.3 Front ASF Cover Assy

☐ Parts/Components must be removed in advance

Rear Cover / Duplex Unit

☐ Disassembly Procedure

1. Pinch the two tabs on the center to unlock the Front ASF Cover Assy, and open the cover.

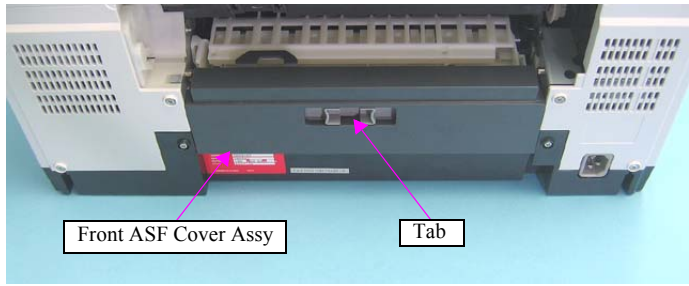


Figure 4-27. Removing the Front ASF Cover Assy (1)

2. Pull out the shafts two each on the both sides of the Front ASF Cover Assy in the order given below, and remove the Front ASF Cover Assy.

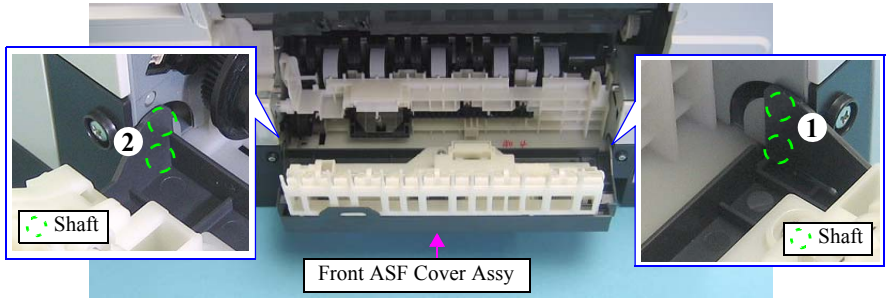


Figure 4-28. Removing the Front ASF Cover Assy (2)

ADJUSTMENT REQUIRED

The following adjustment must be carried out after replacing or reinstalling the Front ASF Cover Assy.

- **Chapter5 "ADJUSTMENT" (p.170)**

4.5.4 Stacker Assy / Paper Support

4.5.4.1 Stacker Assy

- ☐ Parts/Components must be removed in advance: Nothing
- ☐ Disassembly Procedure

1. Pull out the two guide pins of the Stacker Assy from the Front Housing Assy, and pull the Stacker Assy toward you to remove it.

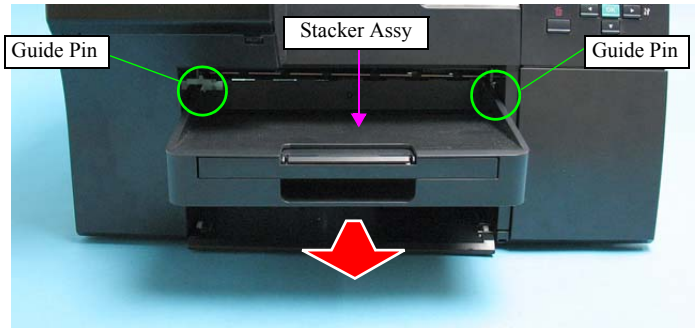


Figure 4-29. Removing the Stacker Assy.

REASSEMBLY

When installing the Stacker Assy, push it until you hear the guide pins click.

4.5.4.2 Paper Support

- ☐ Parts/Components must be removed in advance: Nothing
- ☐ Disassembly Procedure

1. Open the Paper Support.
2. While pressing the portion, disengage the left bearing from the shaft of the Upper Housing, and then pull out the right bearing to remove the Paper Support.

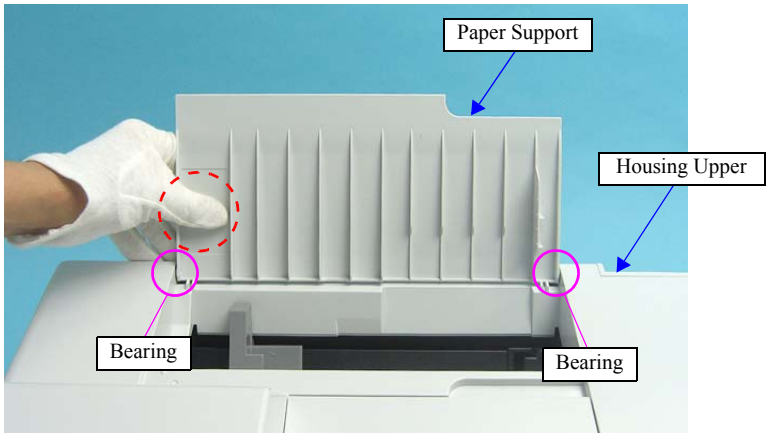


Figure 4-30. Removing the Paper Support

4.5.5 Panel Unit

- ☐ Parts/Components must be removed in advance: Nothing
- ☐ Disassembly Procedure

CAUTION

When removing the Panel Unit, note that the Panel FFC that runs from the rear of the unit is connected to the Main Board.

CHECK POINT

The appearance of the Panel Unit differs between B-300/B-308 and B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN, however, the disassembly and assembly procedure itself is the same.

1. Open the Waste Ink Box Cover.
   See *"4.4.2 Maintenance Box Assy" Step1 (p84)*.
2. Disengage the two hooks on the bottom of the Panel Unit with a flat-blade screwdriver and remove the Panel Unit.

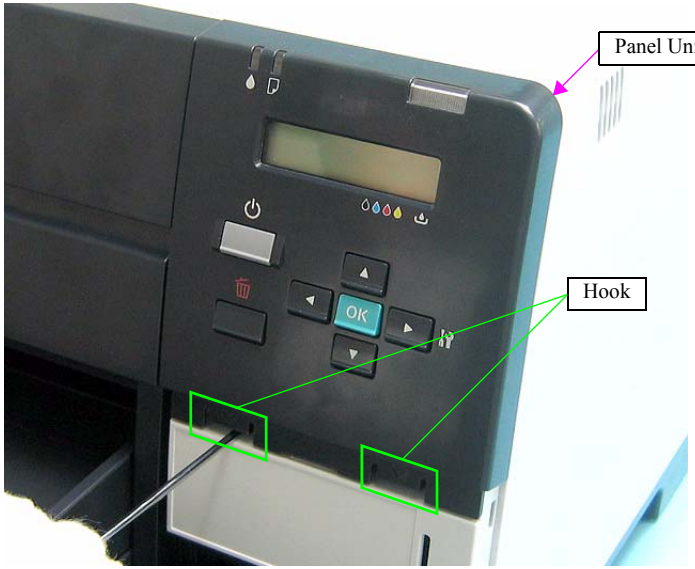


Figure 4-31. Removing the Panel Unit (1)

3. Disconnect the Panel FFC from CN3 (B-500DN/B-508DN/B-310N/B-318N/ B-510DN/B-518DN) or CN4 (B-300/B-308) connector on the Main Board.

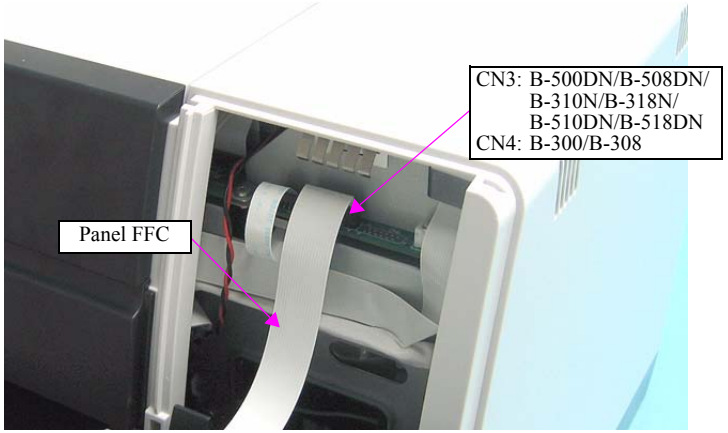


Figure 4-32. Removing the Panel Unit (2)

4.5.6 Cover Printer Assy /Housing Front Assy

4.5.6.1 Cover Printer Assy

- ☐ Parts/Components must be removed in advance: Nothing
- ☐ Disassembly Procedure

1. Disengage the hinges of the Printer Cover Assy, and remove the Printer Cover Assy.

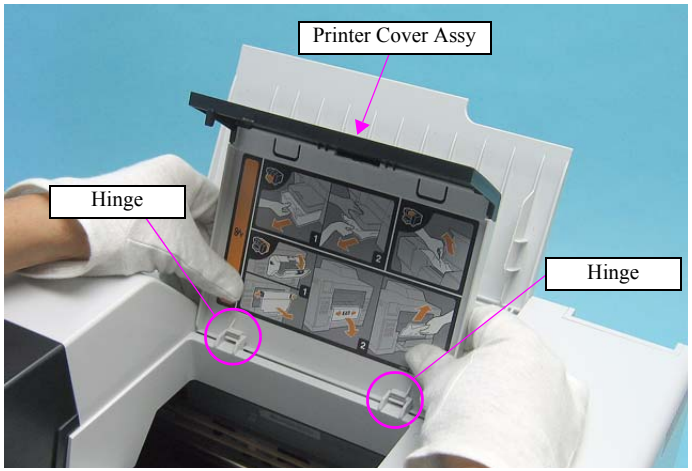


Figure 4-33. Removing the Printer Cover Assy

REASSEMBLY

Attach the Instruction Label (part code: 1481783) as shown below.

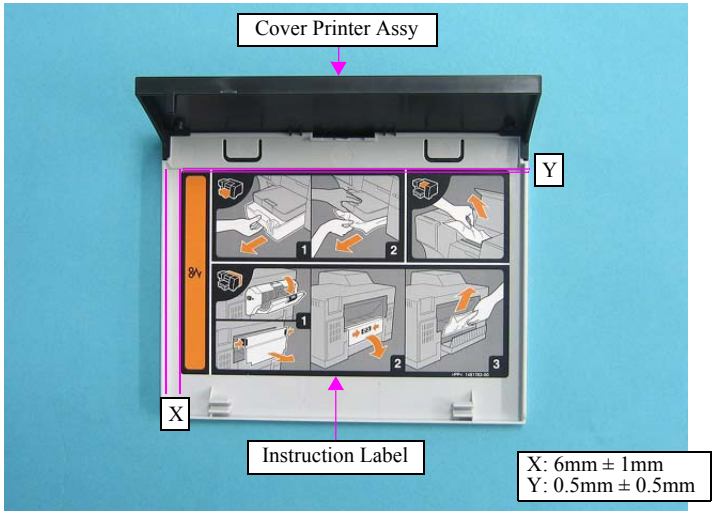


Figure 4-34. Attaching the Instruction Label

4.5.6.2 Front Housing Assy

☐ Parts/Components must be removed in advance

Stacker Assy / Panel Unit

☐ Disassembly Procedure

1. Insert a flat-blade screwdriver or the like into the hole on the Ink Lock Lever to disengage the tab, and remove the Ink Lock Lever.
2. Remove the six screws.
   - Screw ◯ C.B.S 3x6 (Torque: 5-7 kgf.cm): two pieces
   - Screw ◯ C.B.P 3x10 (Torque: 7-9 kgf.cm): four pieces
   (The numbers in ◯◯ shown in *Figure.4-35* indicate the order of tightening the screws.)
3. Disengage the five hooks of the Front Housing Assy in the order given below, and remove the Front Housing Assy.
   1. Disengage (1) and (2) hooks.
   2. Disengage (3) hook using a flat-blade screwdriver or the like.
   3. Disengage (4) and (5) hooks.

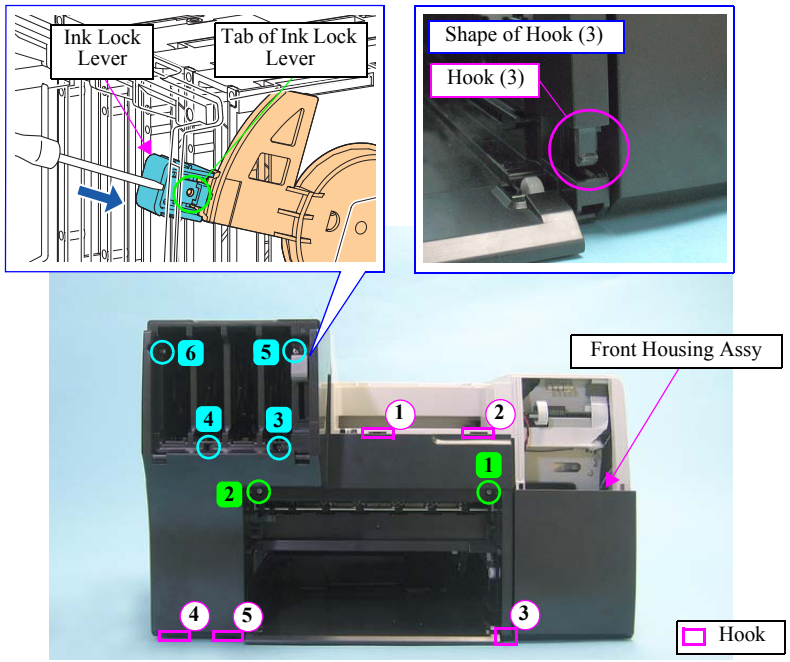


Figure 4-35. Removing the Front Housing Assy (1)

4. On the rear of the Front Housing Assy, pull the Ink Guide toward you to remove it from the Front Housing Assy.

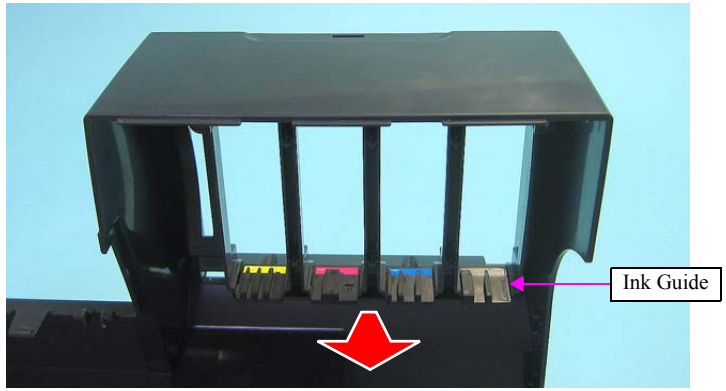


Figure 4-36. Removing the Front Housing Assy (2)

REASSEMBLY

- **When installing the Front Housing Assy, properly engage its hooks shown in *Figure.4-35* (engage three hooks on its bottom with the Lower Housing, and engage the other top two hooks with the Upper Housing.)**
- **As shown below, align the Front Housing Assy edge with the edge of the Upper Housing rib.**

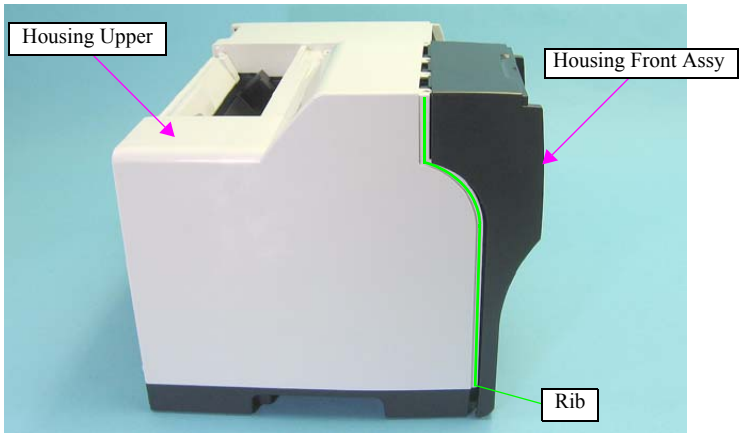


Figure 4-37. Installing the Front Housing Assy (1)

REASSEMBLY

- **Tighten the screws after making sure that there is no gap between the Front Housing Assy and the Main Frame by visually checking the point A as shown in the figure.**

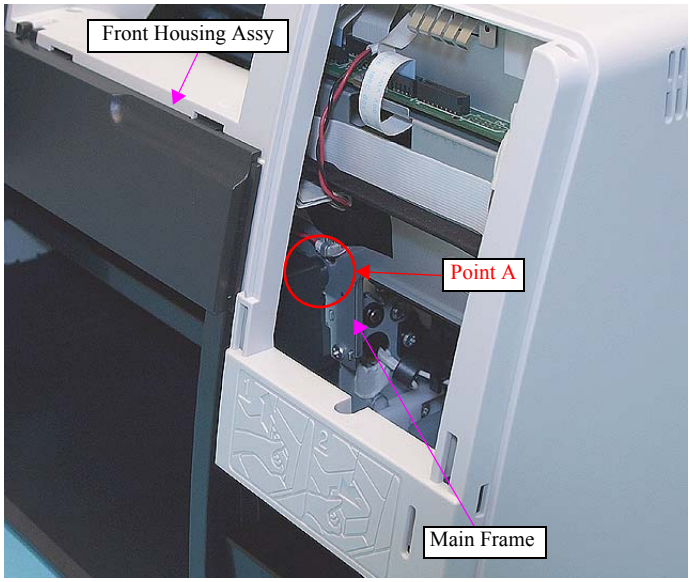


Figure 4-38. Installing the Front Housing Assy (2)

- **When attaching the Ink Position Label (part code: 1481784), match the indented portion of the labels with the guide pin on the Ink Guide as shown below.**

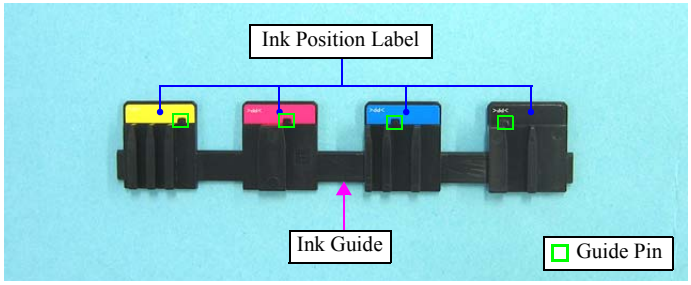
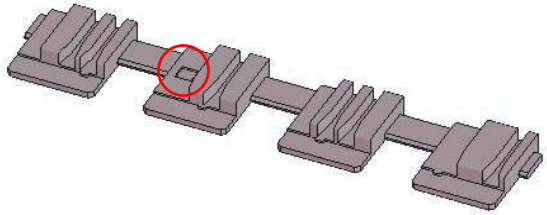


Figure 4-39. Attaching the Ink Position Label

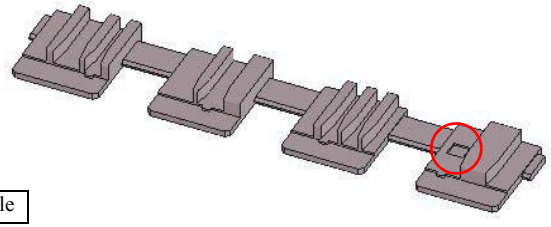
REASSEMBLY

- **The shapes of Ink Guide for B-300/B-308/B-310N/B-318N and for B-500DN/B-508DN/B-510DN/B-518DN are different because the corresponding sizes of Ink Cartridges differ. (See 1.2.2 "Ink Cartridges" *(p.15)*)**
  When replacing the Ink Guide, install the correct Ink Guide referring to the figure below.

B-300/B-308/B-310N/B-318N GUIDE,IC,C (part code: 1476304)



B-500DN/B-508DN/B-510DN/B-518DN: GUIDE,IC,D (part code: 1476305)



Dimple

Figure 4-40. Shapes of Ink Guides

4.5.7 Connector Cover / Upper Housing

4.5.7.1 Connector Cover

☐ Parts/Components must be removed in advance: Nothing

☐ Disassembly Procedure

CHECK POINT

The appearance of the Connector Cover differs between B-300/B-308 and B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN, however, the disassembly and assembly procedure itself is the same.

1. Remove the two screws and remove the Connector Cover.
   • Screw ○ C.B.S 3x6 (Torque: 7-9 kgf.cm): two pieces

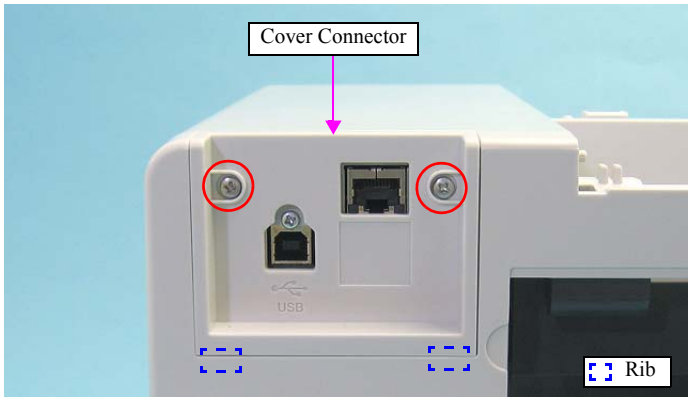


Figure 4-41. Removing the Connector Cover

REASSEMBLY

When installing the Connector Cover, properly engage the two ribs on the bottom of the cover shown in *Figure.4-41* with the slots of the Upper Housing.

4.5.7.2 Upper Housing

☐ Parts/Components must be removed in advance

Stacker Assy / Panel Unit / Printer Cover Assy / Front Housing Assy

☐ Disassembly Procedure

CAUTION

When removing and installing the Upper Housing, be careful not to damage the Cover Open Sensor.

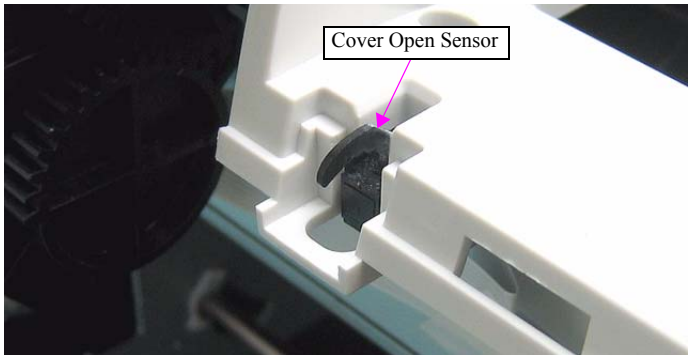


Figure 4-42. Handling the Cover Open Sensor

1. Remove the eight screws and remove the Upper Housing.
   - Screw ○ : C.B.P 3x10 (Torque: 5-7 kgf.cm): five pieces
   - Screw ○ C.B.S 3x6 (Torque: 7-9 kgf.cm): three pieces

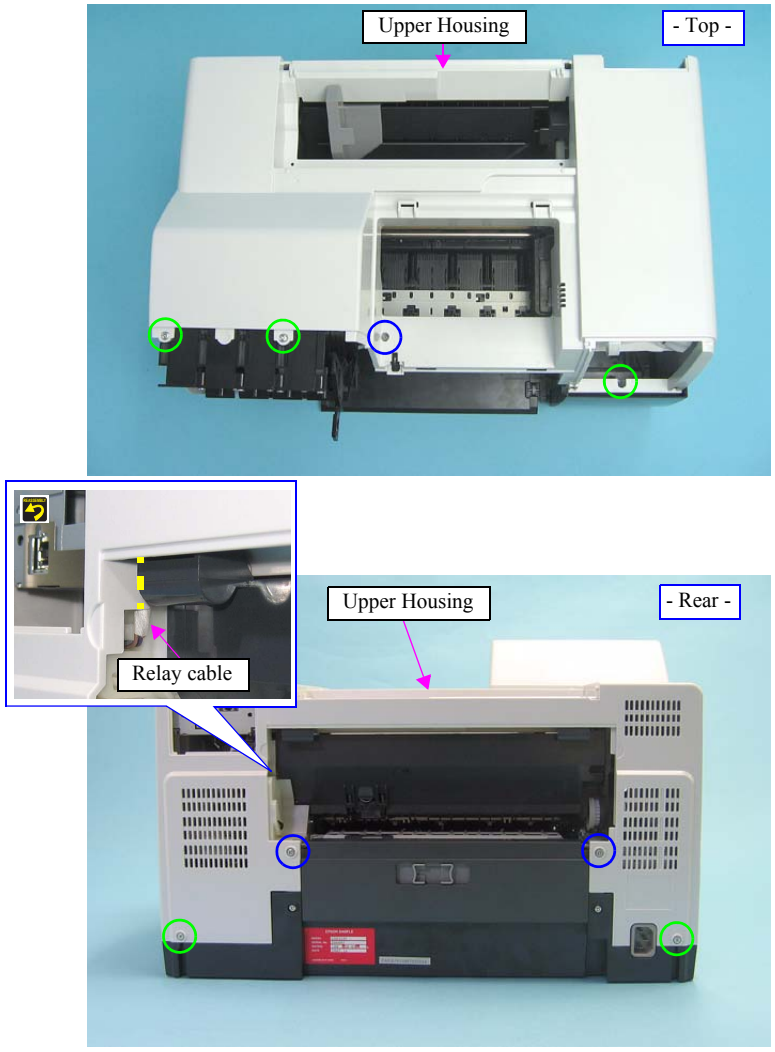


Figure 4-43. Removing the Upper Housing

REASSEMBLY

■ **Match the ribs and grooves of the Upper Housing and Lower Housing shown below.**

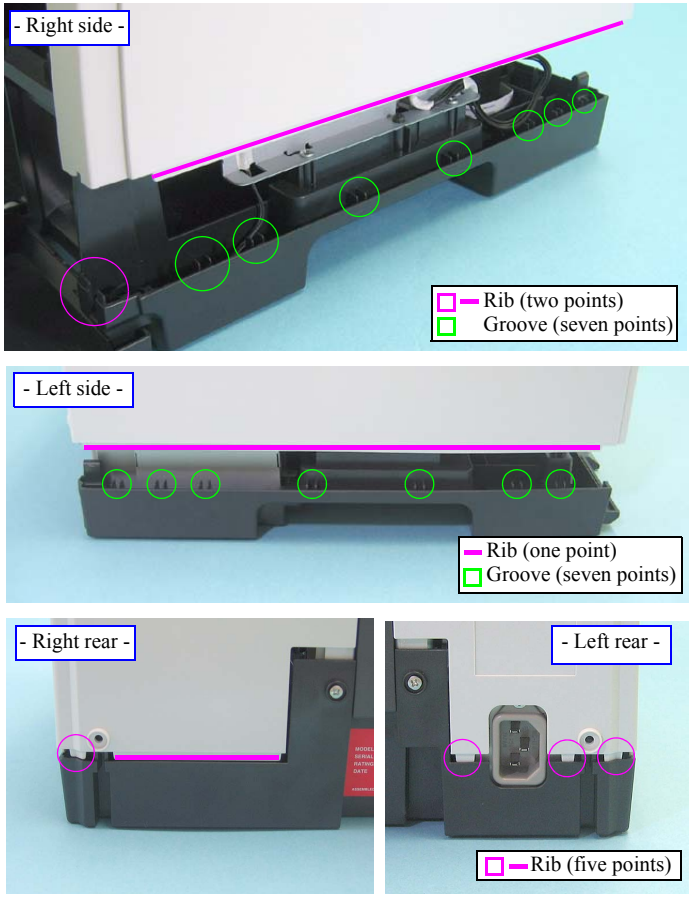


Figure 4-44. Installing the Upper Housing

■ **When installing the Upper Housing, route the relay cable within the yellow dotted line area of the Upper Housing as shown in *Figure.4-43*.**

4.5.7.3 Cover Open Sensor

☐ Parts/Components must be removed in advance

Stacker Assy / Panel Unit / Printer Cover Assy / Front Housing Assy / Connector Cover / Upper Housing

☐ Disassembly Procedure

1. Disconnect the Cover Open Sensor Cable from CN9 connector on the Main Board. See *Figure.4-46*.
2. Disengage the hook on the bottom of the Cover Open Sensor, and turn the Cover Open Sensor in the direction of the arrow to remove it.

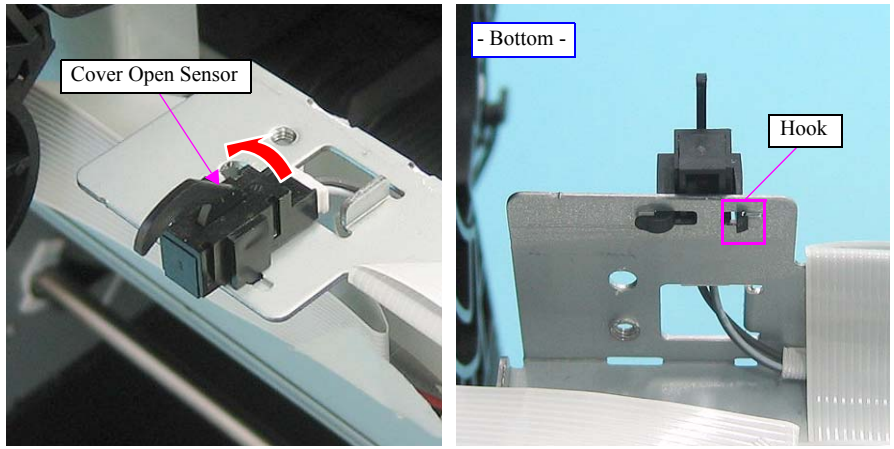


Figure 4-45. Removing the Cover Open Sensor

REASSEMBLY

Route the Cover Open Sensor Cable as shown below. To protect the cable, wrap the portions of the cable secured with the hooks using acetate tape two times around them.

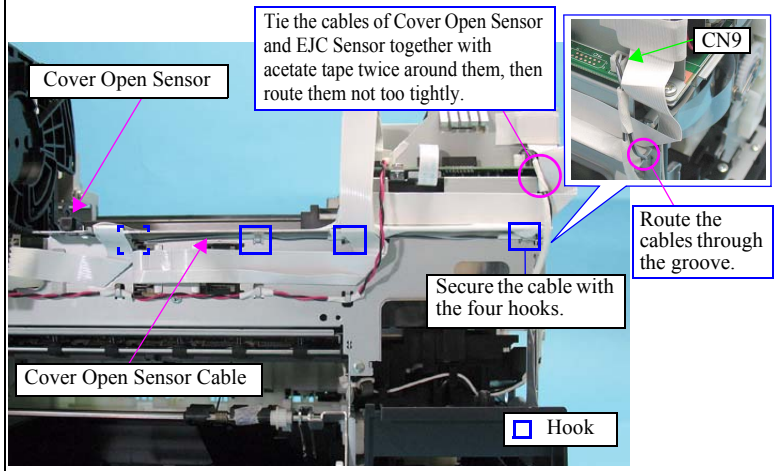


Figure 4-46. Installing the Cover Open Sensor

4.6 Removing the Circuit Boards

4.6.1 Main Board

☐ Parts/Components must be removed in advance

Stacker Assy /Panel Unit / Printer Cover Assy / Front Housing Assy / Connector Cover / Upper Housing

☐ Disassembly Procedure

1. Disconnect all the cables from the Main Board except for the cable connected to CN2 connector, and release the cables from the M/B Shield Plate.

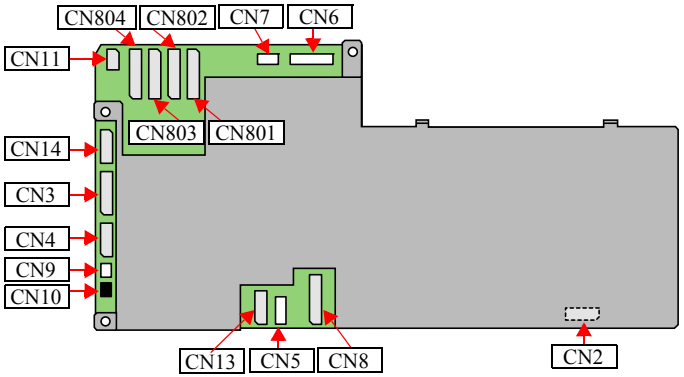


Figure 4-47. Main Board Connector Layout

Table 4-4. Connector Type and Destination

CN No.	Color	Destination	Number of pins
CN2	FFC	Network Board	12
CN3	FFC	Panel Board (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN)	16
CN4	FFC	Panel Board (B-300/B-308)	12
CN5	White	Power Supply Board	5
CN6	White	Sub Board (for motors)	6
CN7	White	CR Motor	2
CN8	FFC	Sub Board (for sensors)	24
CN9	White	Cover Open Sensor	2
CN10	Black	EJC sensor	2
CN11	FFC	CR Encoder / PW Sensor	6
CN13	FFC	Sub Board -B	16
CN14	FFC	AID Board	9
CN801	FFC	Printhead	17

Table 4-4. Connector Type and Destination

CN No.	Color	Destination	Number of pins
CN802	FFC	Printhead	17
CN803	FFC	Printhead	17
CN804	FFC	Printhead	17

CAUTION

When removing the M/B Shield Plate at the next step, note the following. The Network Board exists behind the M/B Shield Plate and the board is connected to the Main Board with the FFC.

2. Remove the eight screws and remove the M/B Shield Plate.
   • Screw ○ C.B.S 3x6 (Torque: 5-7 kgf.cm)
   (The numbers shown on the figure indicate the order of tightening screws)

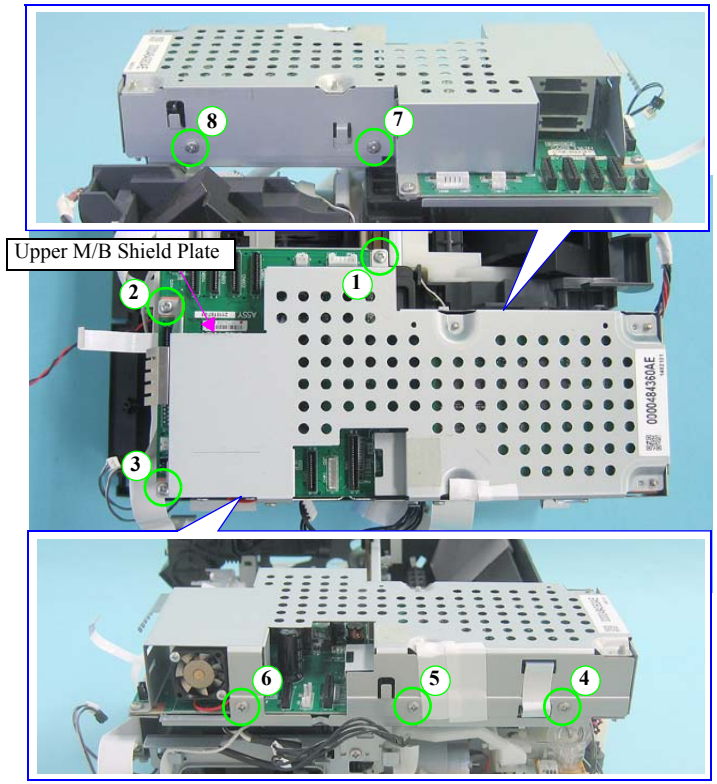


Figure 4-48. Removing the Main Board. (1)

3. Remove the FFC that runs from the Network Board from CN2 connector on the Main Board.

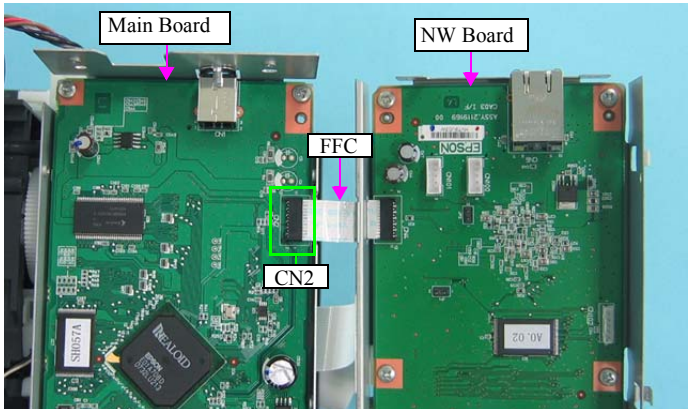


Figure 4-49. Removing the Main Board. (2)

4. Remove the three screws and remove the Main Board from the M/B Shield Plate.
   - Screw ○ C.B.S 3x6 (Torque: 5-7 kgf.cm): two pieces
   - Screw ○ C.P.S 3x6 (Torque: 5-7 kgf.cm): one piece

   (The numbers shown on the figure indicate the order of tightening screws)

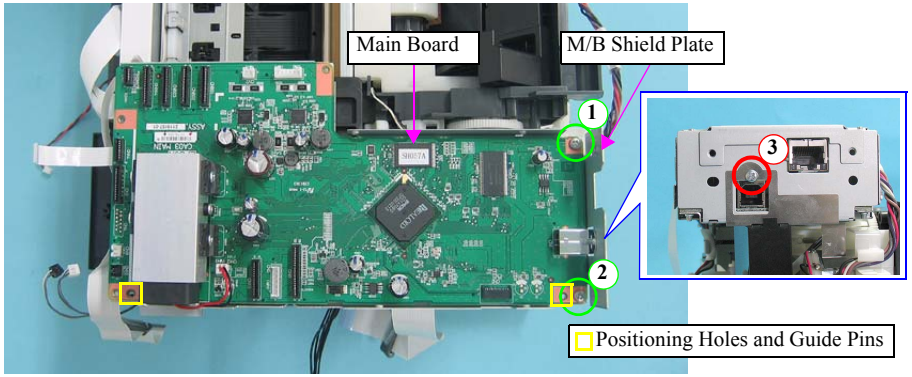


Figure 4-50. Removing the Main Board. (3)

REASSEMBLY

- **When installing the Main Board, insert the two guide pins of the Main Board into the two positioning holes of the M/B Shield Plate.**
- **Tighten the screws in the order indicated in *Figure.4-48* and *Figure.4-50*.**

ADJUSTMENT REQUIRED

The following adjustment must be carried out after replacing or reinstalling the Main Board.

- **Chapter5 "ADJUSTMENT" (p.170)**

4.6.2 Network Board (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN only)

☐ Parts/Components must be removed in advance

Stacker Assy / Panel Unit / Printer Cover Assy / Front Housing Assy / Connector Cover / Upper Housing

☐ Disassembly Procedure

1. Disconnect the all cables from the Main Board.
   See *"4.6.1 Main Board" Step1 (p97)*.
2. Remove the Upper M/B Shield Plate.
   See *"4.6.1 Main Board" Step2 (p97)*.
3. Disconnect the FFC that runs between the Network Board and the Main Board.
   See *"4.6.1 Main Board" Step3 (p98)*.
4. Remove the four screws and remove the Network Board from the Upper M/B Shield Plate.
   - Screw ◯ : C.B.S 3x6 (Torque: 5.5-6.5 kgf.cm)
     (The numbers shown on the figure indicate the order of tightening screws)

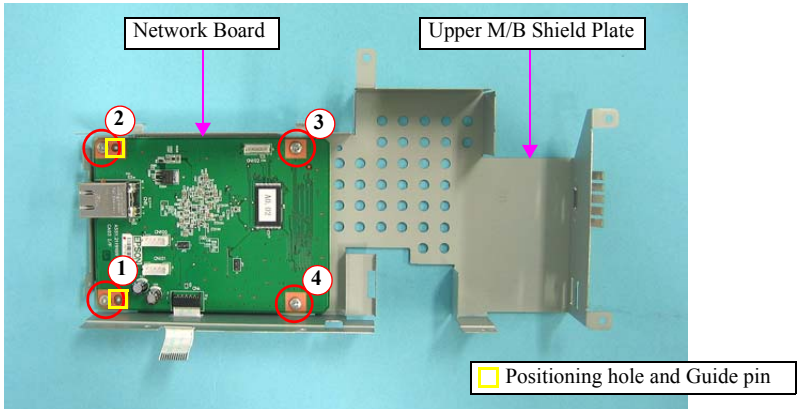


Figure 4-51. Removing the Network Board

REASSEMBLY

■ **As shown in *Figure.4-51*, insert the two guide pins of the Network Board into the holes of the Upper M/B Shield Plate.**

■ **Tighten the screws in the order indicated in *Figure.4-51*.**

REASSEMBLY

■ **For B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN, MAC address setting is required after replacing the Network Board. In the following cases, attach the MAC Address Label to the position shown in *Figure.4-52*, and make the MAC address setting as described in 5.2.9 "MAC Address Setting (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN only)" *(p.185)*.**

- **When EEPROM data cannot be retrieved from the previous Main Board.**
- **When MAC address written on the label cannot be read due to contamination of the label.**

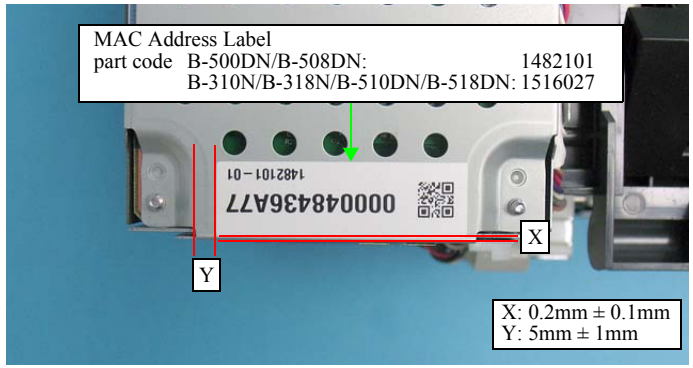


Figure 4-52. MAC Address Label Position

ADJUSTMENT REQUIRED

The following adjustment must be carried out after replacing or reinstalling the Network Board.

- **Chapter5 "ADJUSTMENT" (p.170)**

4.6.3 AID Board

☐ Parts/Components must be removed in advance

Stacker Assy / Panel Unit / Printer Cover Assy / Front Housing Assy / Connector Cover / Upper Housing

☐ Disassembly Procedure

WARNING

Since the AID Board carries a high voltage while the printer is powered, the following precautions should be followed.

- **Do not turn the printer on with the AID Cover removed.**
- **Do not modify the printer so that the AID Board is energized while it is exposed.**

1. Disconnect the all cables from the Main Board.
   See *"4.6.1 Main Board" Step1 (p97)*.
2. Remove the Sensor Cover from the Main Board unit.

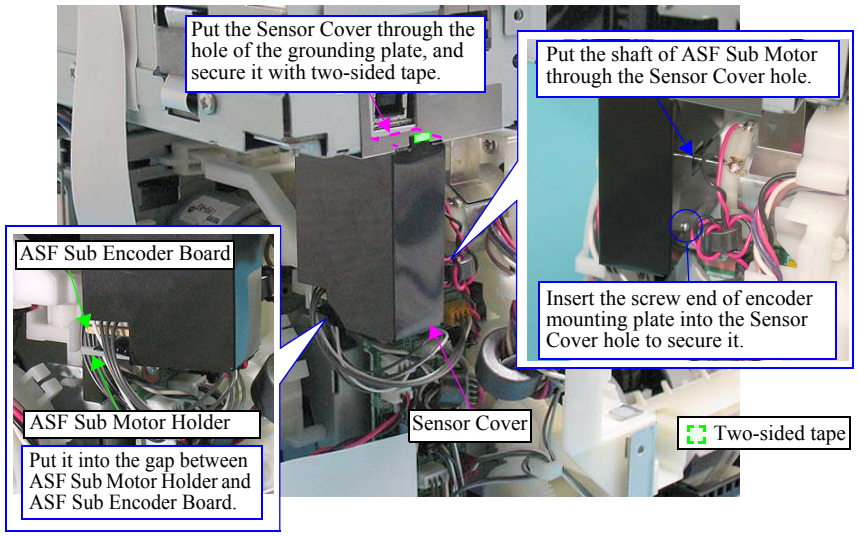


Figure 4-53. Removing the AID Board (1)

3. Remove the Sub-B Board relay FFC from the M/B Shield Plate.
4. Remove the acetate tape that secures the ferrite core of the Sub-B Board Relay FFC.
5. Remove the ferrite core.

CAUTION

Exercise care not to bend the grounding plate when removing the Main Board Unit.

6. Remove the Black acetate tape (120mm) and four screws, and remove the Main Board Unit.
   - Screw ○ : C.B.S 3x6 (Torque: 7-9 kgf.cm)
   - Screw ○ : C.P. 3x6 (Torque: 5-7 kgf.cm)

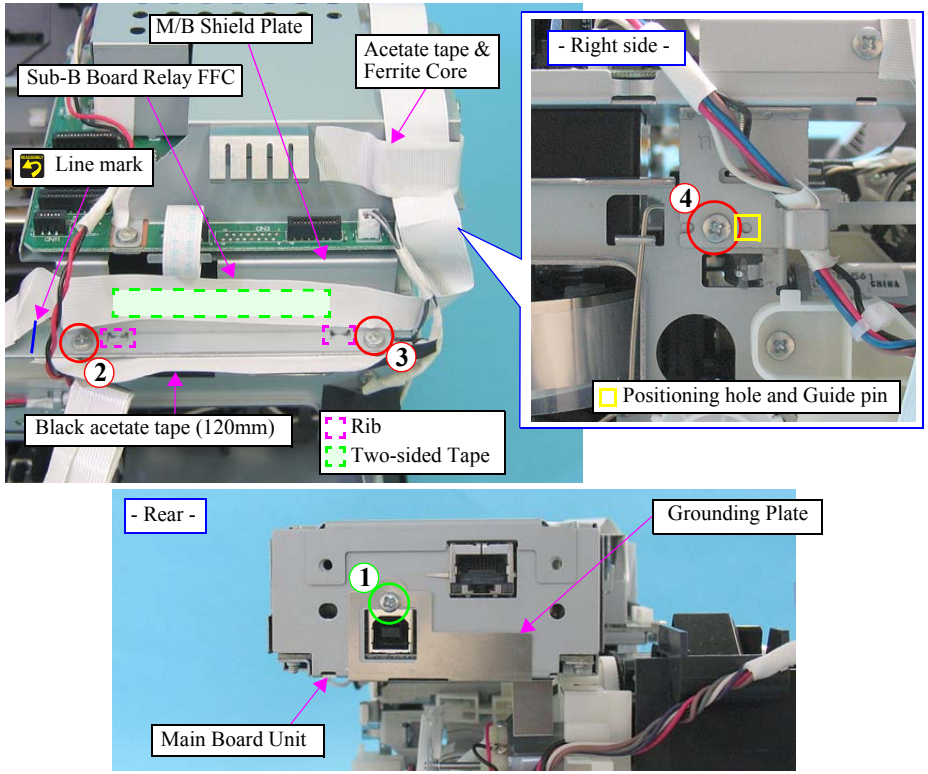


Figure 4-54. Removing the AID Board (2)

7. Remove the two screws on the back of the M/B Shield Plate, and remove the AID Cover.
   • Screw ○ : C.B.S 3x8 (Torque: 7-9 kgf.cm)
   (The numbers shown on the figure indicate the order of tightening screws)

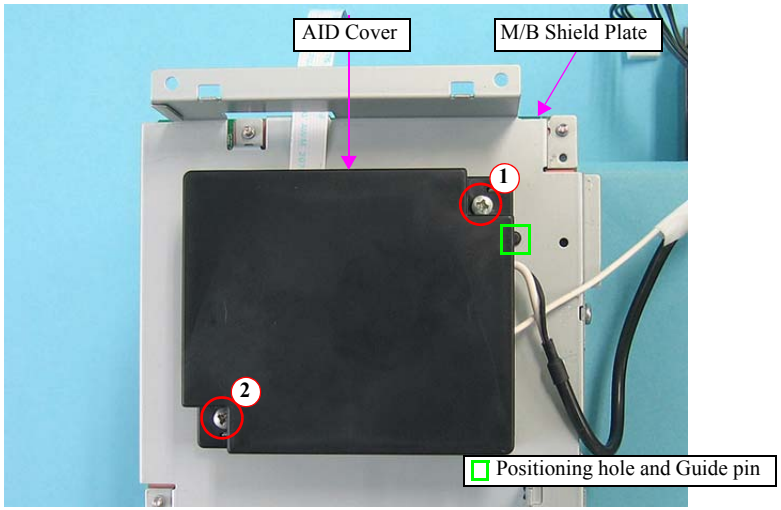


Figure 4-55. Removing the AID Board (3)

8. Disconnect the cables from CN1, CN2, and CN3 connectors on the AID Board, and remove the AID Board.

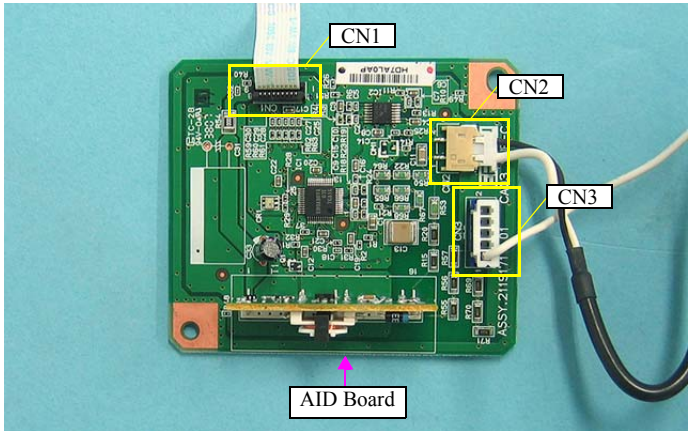


Figure 4-56. Removing the AID Board (4)

REASSEMBLY

- **Tighten the screws in the order indicated in *Figure.4-54* and *Figure.4-55*.**
- **When installing the AID Cover, match the positioning hole and guide pin of the AID Cover and the M/B Shield Plate.**
- **As shown below, pull out the cables of the AID and Static Ink Collect Unit through the hole on the AID Cover.**

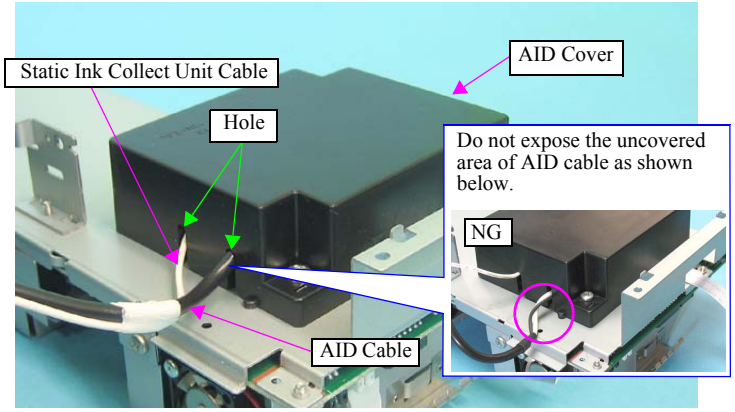


Figure 4-57. Installing the AID Board

REASSEMBLY

■ **When installing the Main Board Unit, route the cables as shown below. To protect the cable, wrap the portions of the cable secured with the hooks (A to D) using acetate tape two times around them.**

- **Relay Cable (CN6)**

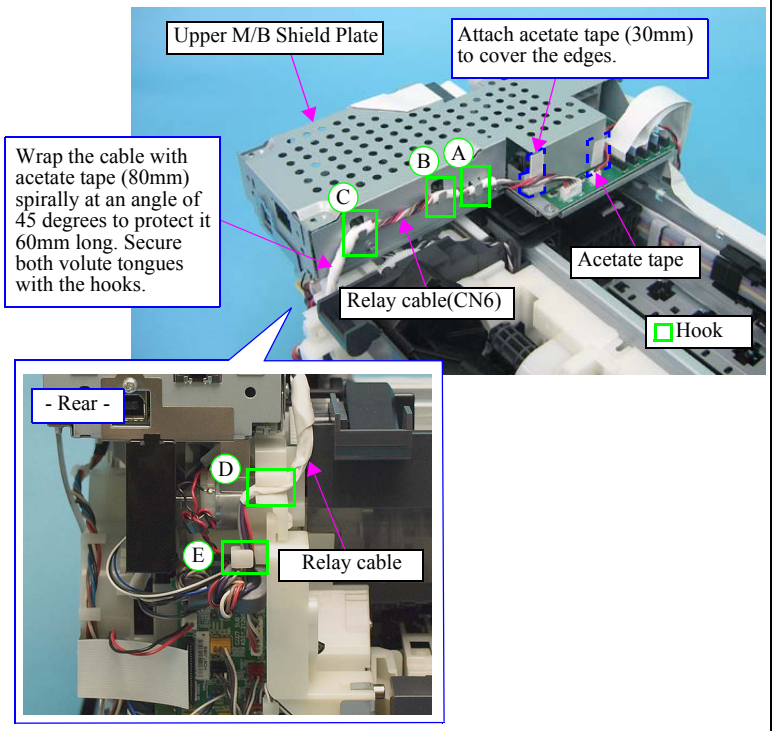


Figure 4-58. Routing Cables around the Main Board Unit (1)

REASSEMBLY

- **Sub-B Board Relay FFC (CN13)**
- **Relay FFC (CN8)**
- **Power Cable (CN5)**

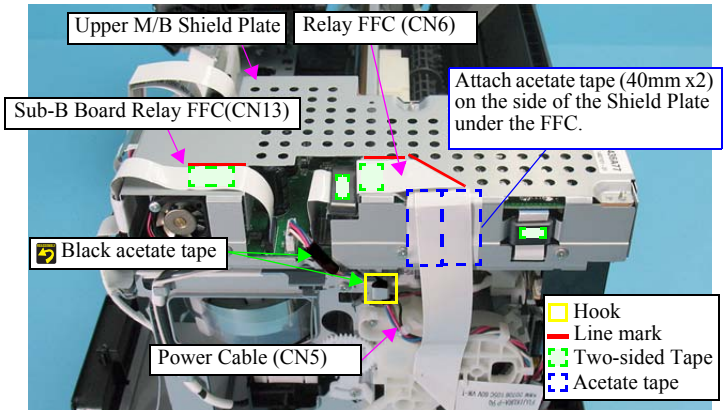


Figure 4-59. Routing Cables around the Main Board. Unit (2)

- **Sub-B Board Relay FFC (CN13)**
- **PF Motor Cable (CN7)**
- **Head FFC (CN801, CN802, CN803, CN804)**
- **CR Encoder / PW Sensor FFC (CN11)**

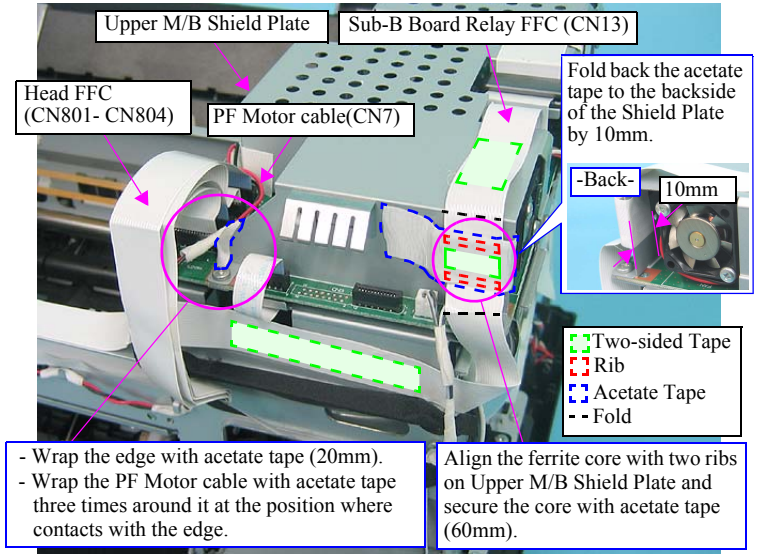


Figure 4-60. Routing Cables around the Main Board. Unit (3)

REASSEMBLY

- **AID cable (AID Board: CN2)**
- **Static Ink Collect Unit cable (AID Board: CN3)**

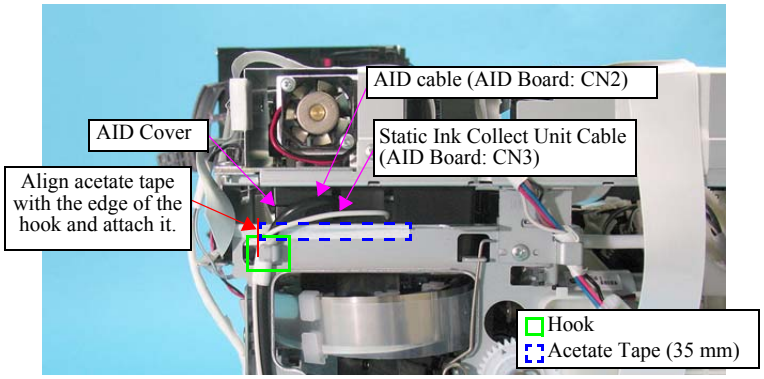


Figure 4-61. Routing Cables around the Main Board. Unit (4)

- **PF Motor Cable (CN7)**

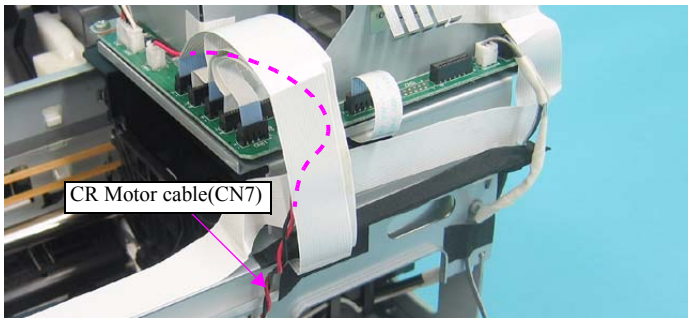


Figure 4-62. Routing Cables around the Main Board. Unit (5)

■ **When attaching the Black acetate tape (120mm) shown in *Figure.4-54*, align the left end with the marking, and cover the heads and shafts of (2)/(3) screws.**

ADJUSTMENT REQUIRED

The following adjustment must be carried out after replacing or reinstalling the AID Board.

- **Chapter5 "ADJUSTMENT" (p.170)**

4.6.4 Disassembling the Panel Unit

CAUTION

Exercise care not to scratch the exterior surface during disassembly work.

CHECK POINT

The appearance and number of parts differ between B-300 and B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN.

- **Parts configuration of the Panel Board**
- **Shape and number of the operation buttons**
- **Shape of the Optical tube**

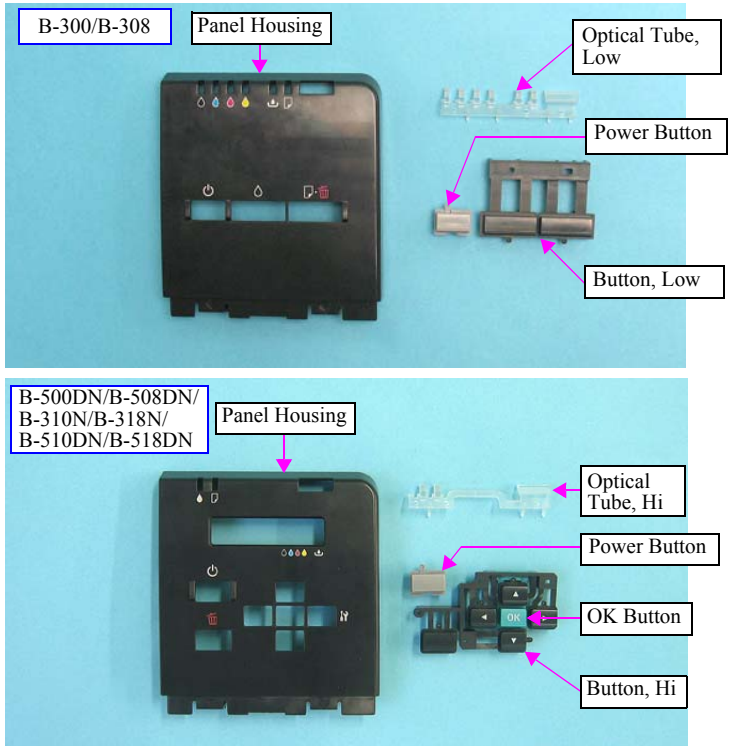


Figure 4-63. Panel Unit

4.6.4.1 Panel Board

☐ Parts/Components must be removed in advance

Panel Unit

☐ Disassembly Procedure

1. Remove the three screws and remove the Panel Shield Plate.
   • Screw ○ : C.B.P 3x10 (Torque: 5.5-6.5 kgf.cm)
   (The numbers shown on the figure indicate the order of tightening screws)

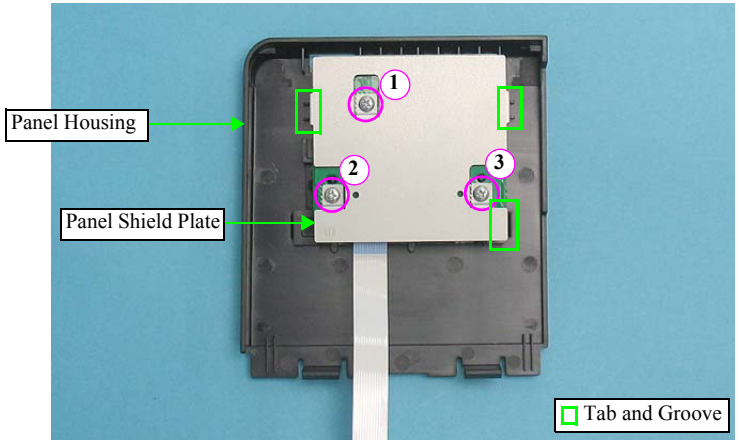


Figure 4-64. Removing the Panel Shield Plate. (B-300/B-308)

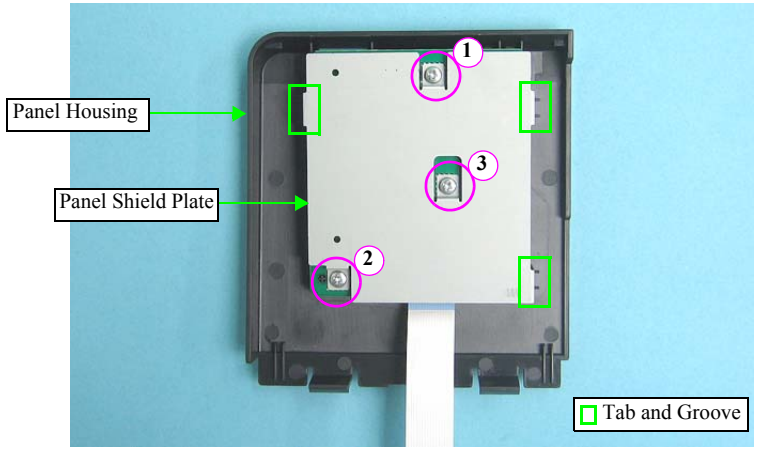


Figure 4-65. Removing the Panel Shield Plate. (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN)

2. Disengage the Panel Board from the hook of the Panel Housing (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN only), and remove the Panel Board.
3. Disconnect the Panel FFC from (B-300/B-308: CN1, B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN: CN2) connector on the Panel Board.

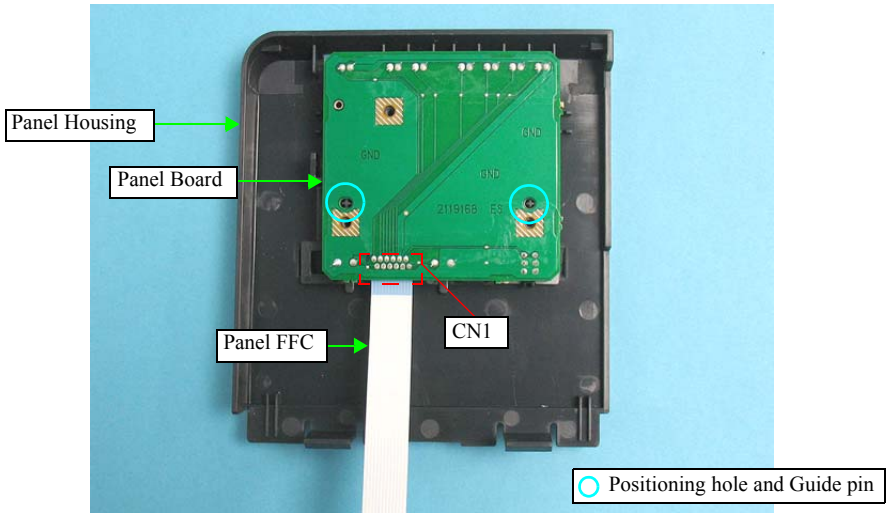


Figure 4-66. Removing the Panel Board. (B-300/B-308)

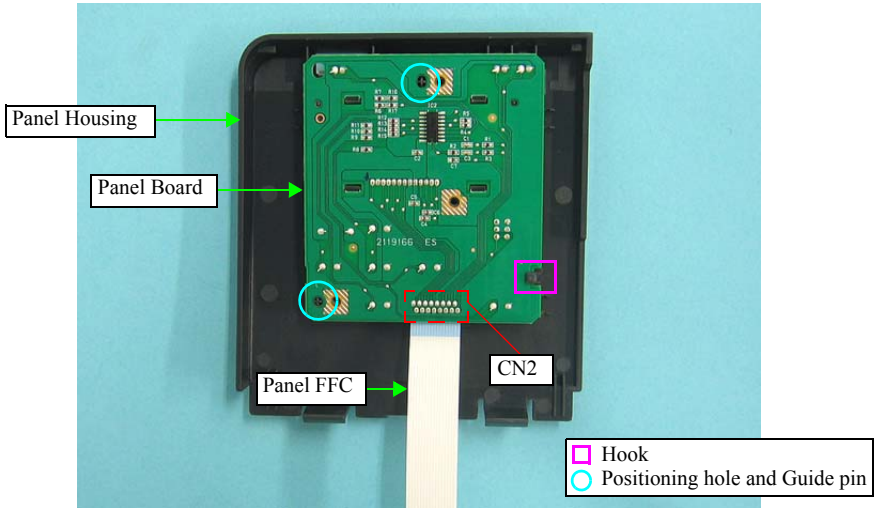


Figure 4-67. Removing the Panel Board. (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN)

REASSEMBLY

- **When attaching the Panel Shield Plate, insert the three tabs of the plate into the grooves on the Panel Housing as shown in *Figure.4-64* & *Figure.4-65*. Then tighten the screws in the order indicated in *Figure.4-64* & *Figure.4-65*.**
- **When installing the Panel Board, be careful to avoid followings.**
  - **B-300/B-308's case**
    Insert the two guide pins on the Panel Housing into the holes of the Panel Board as shown in *Figure.4-66*.
  - **B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN's case**
    Insert the two guide pins on the Panel Housing into the holes of the Panel Board and then secure the board with the hook on the Panel Housing as shown in *Figure.4-67*.

4.6.4.2 Optical Tube, Buttons

1. Remove the Panel Board. (p.103)
2. Remove the buttons and the Light Guide tube from the Panel Housing.

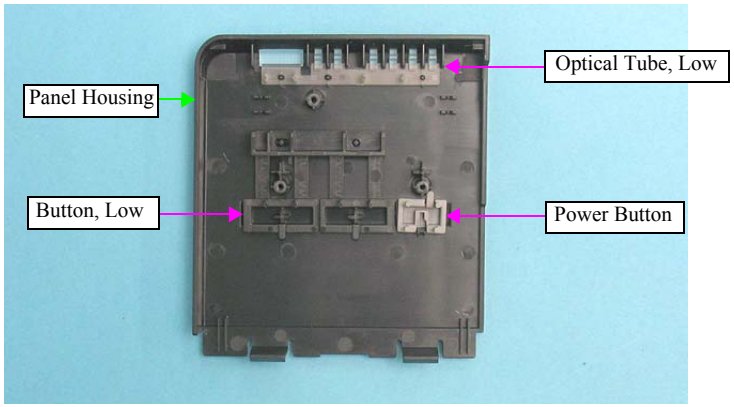


Figure 4-68. Removing the Optical Tube, Buttons (B-300/B-308)

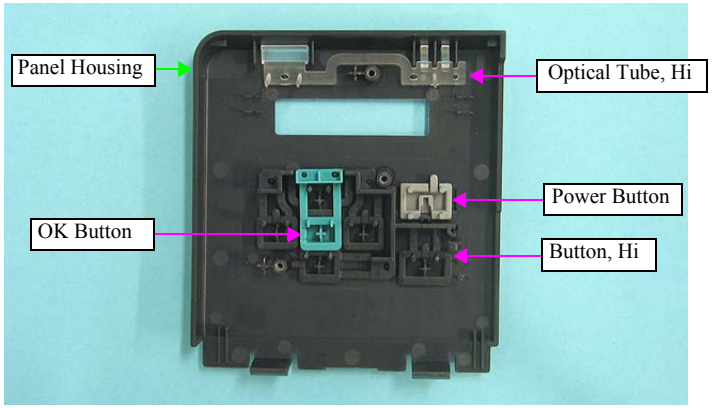


Figure 4-69. Removing the Optical Tube, Buttons (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN)

REASSEMBLY

- **Insert the tip of the power switch into the groove of the Power Button.**
- **When mounting the buttons, make sure to match the positioning holes and guide pins. Check the all buttons if they properly click after installing the Panel Shield Plate.**

4.6.5 Power Supply Unit

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy

☐ Disassembly Procedure

■ Removing the Power Supply Unit

1. Remove the PS Cover.
   See *"4.7.2 Lower Housing" Step1 (p117)*.
2. Remove the three screws, and remove the grounding plate from the Power Supply Unit.
   • Screw ○ : C.B.S 3x6 (Torque: 5-7 kgf.cm)

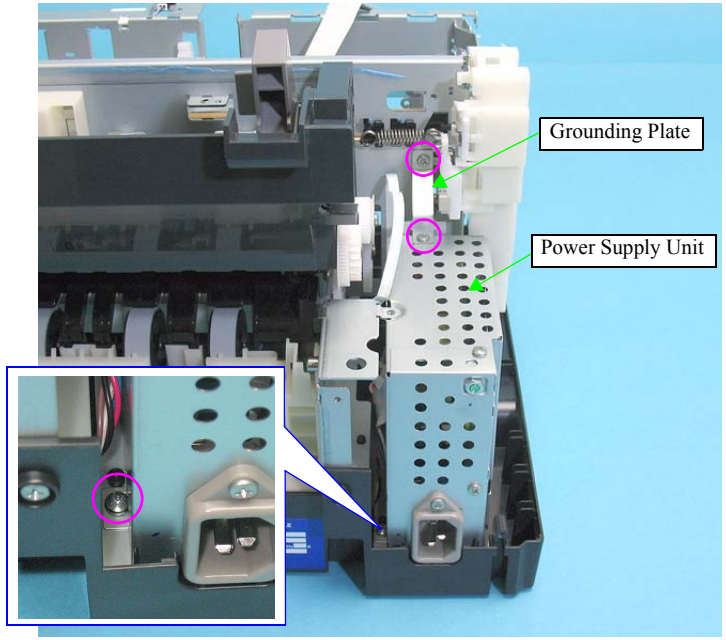


Figure 4-70. Removing the Power Supply Unit (1)

3. Slightly lift the Power Supply Unit, and remove the three pieces of the acetate tape attached to the Power Cable.
4. Release the Power Cable from the connector and the hook of the Power Supply Unit, and remove the Power Supply Unit.

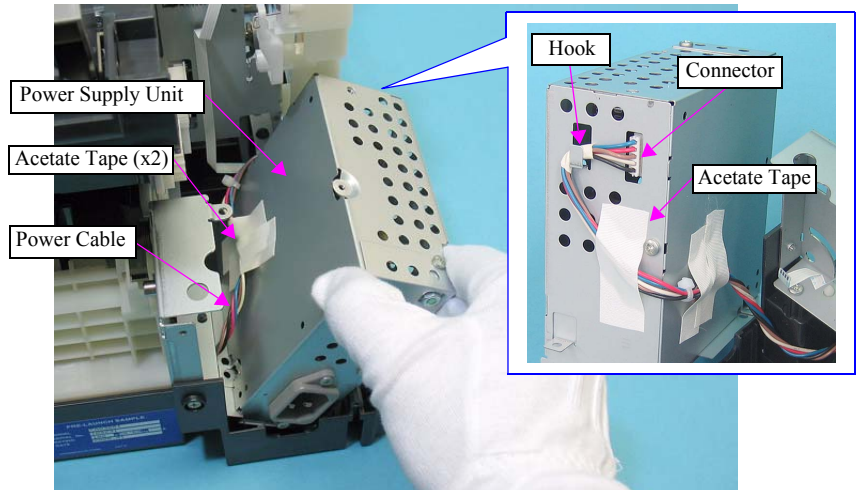


Figure 4-71. Removing the Power Supply Unit (2)

■ Removing the Power Cable

1. Remove the Lower Housing. See **4.7.2 Lower Housing**.
2. Remove the power cable from the Lower Housing.

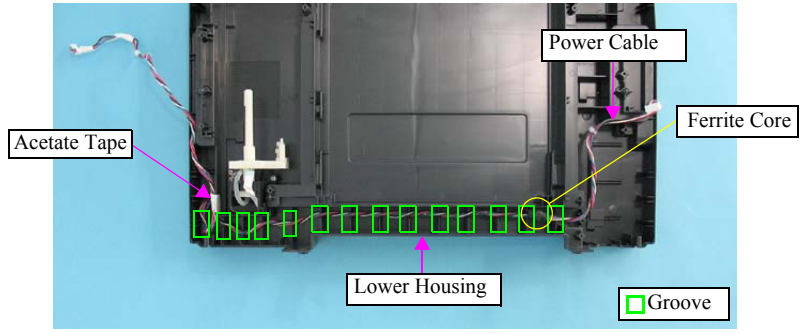


Figure 4-72. Removing the Power Cable

REASSEMBLY

- As shown in *Figure.4-72*, route the power cable through the 14 grooves on the Lower Housing.
- To protect the power cable, wind acetate tape around the following two portions of the cable.
  - Two portions where secured with the hooks on Main Board. See *Figure.4-59*.
- Install the Power Supply Unit and route its cable as shown below.

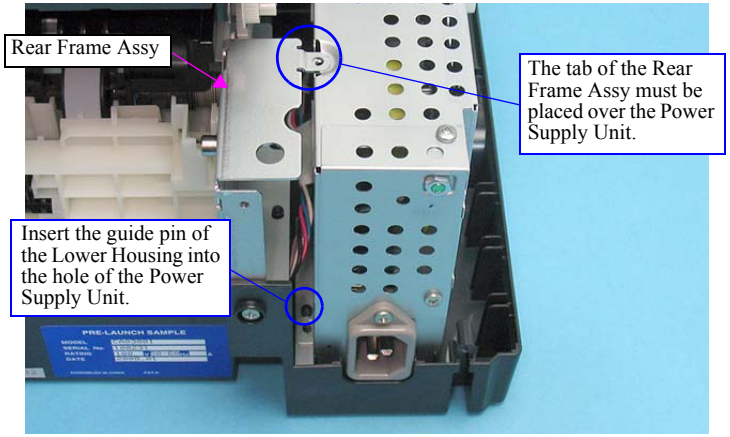


Figure 4-73. Installing the Power Supply Unit (1)

- Route the Power Cable as shown below.

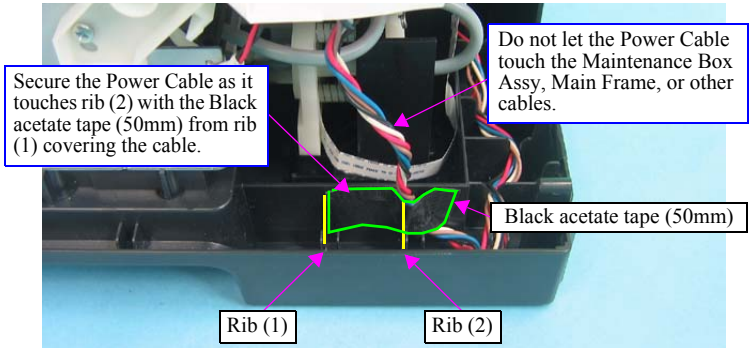


Figure 4-74. Installing the Power Supply Unit (2)

ADJUSTMENT REQUIRED

Carry out the required adjustments referring to the section below after replacing the Power Supply Unit.

- **Chapter5 "ADJUSTMENT" (p.170)**

4.7 Removing the Printer Major Components

4.7.1 Removing the Ink System Components

4.7.1.1 IC Holder Assy

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit

☐ Disassembly Procedure

CAUTION

Before starting the disassembly work, make sure the choke valve is closed. If you work with the choke valve opened, ink may leak from the Valve Head Assy. See "Handling Ink Supply Parts".

CHECK POINT

The IC Holder Assy includes the parts shown in *Figure.4-75*.

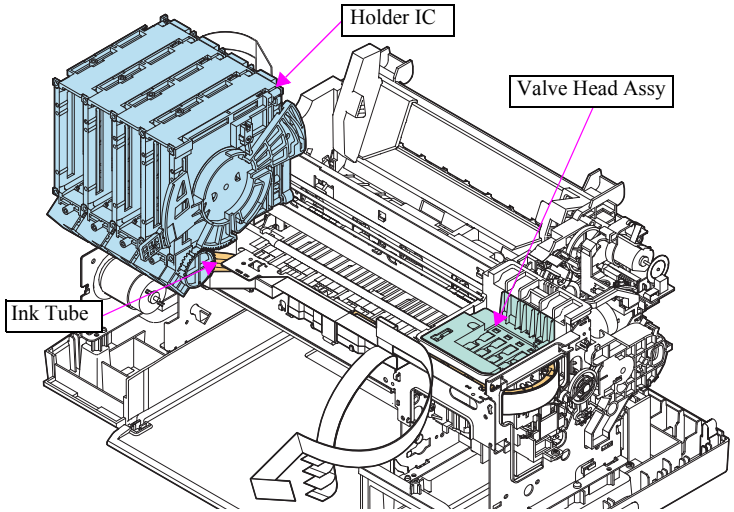
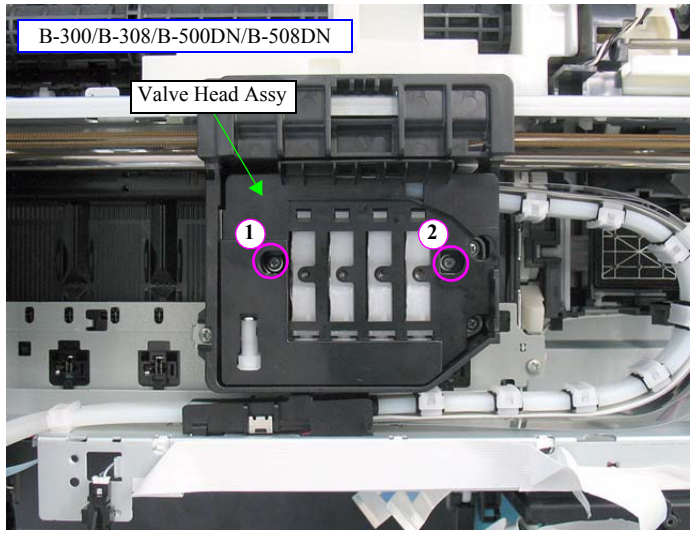


Figure 4-75. IC Holder Assy Overall View

1. Remove the Main Board Unit.
   See *"4.6.3 AID Board" Step1 (p100)* to *Step6 (p100)*.
2. Remove the two screws and lift the Valve Head Assy to remove it from the Carriage Assy.
   - Screw ○ : C.B.P 2.5x8 (Torque: 2-3 kgf.cm)

   (The numbers shown on the figure indicate the order of tightening screws)



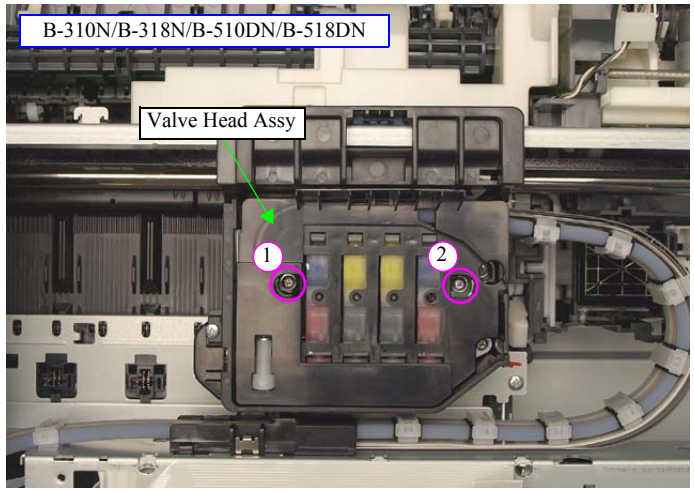


Figure 4-76. Removing the IC Holder Assy (1)

3. Remove the PF Encoder FFC from the shield plate, and disconnect the FFC from CN956 connector on the Sub-B Board.
4. Disconnect the Sub-B Board Relay FFC from CN951 connector on the Sub-B Board, and release it from the IC Holder.

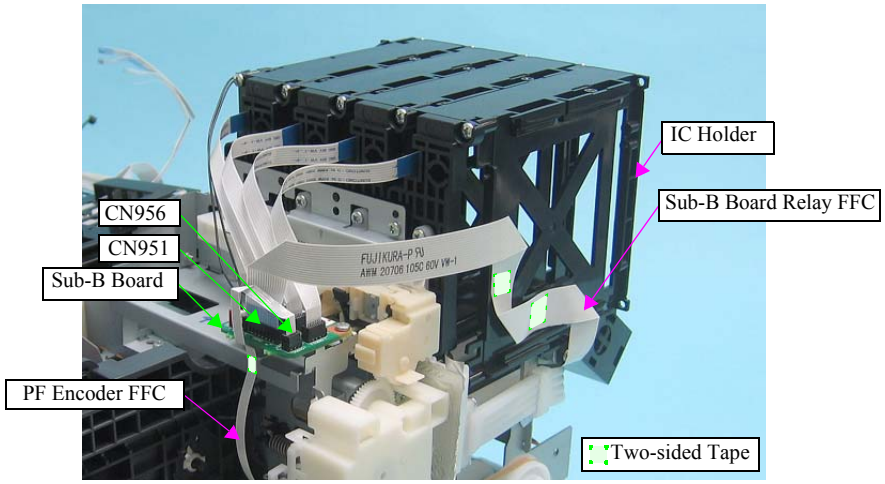


Figure 4-77. Removing the IC Holder Assy (2)

5. Remove the three two-sided tapes that secure the Sub-B Board Relay FFC to the Main Frame.

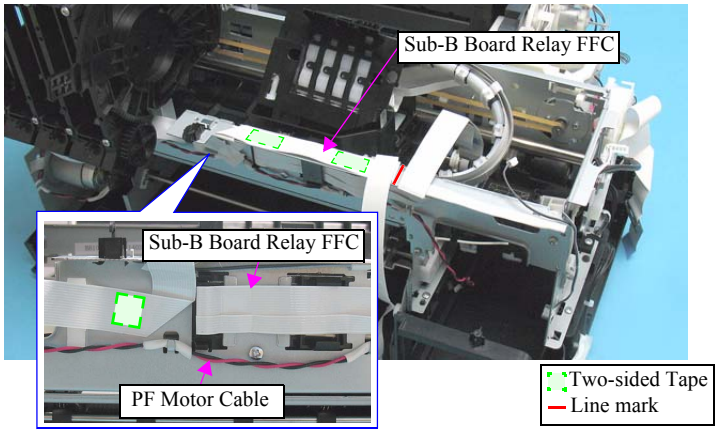


Figure 4-78. Removing the IC Holder Assy (3)

6. Remove the two clamps that secure the Ink Tube to the Main Frame, and release the Ink Tube.

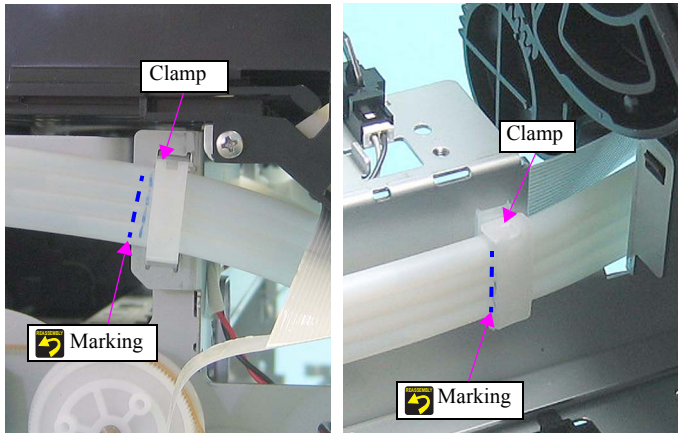


Figure 4-79. Removing the IC Holder Assy (4)

7. Follow the procedure below to remove the IC Assy.
   1. Remove the screw from the Tube Holder.
      •Screw ○ : C.B.P 3x8 (Torque: 5-7 kgf.cm)
   2. Disengage the two hooks of the Tube Holder to remove the Tube Holder.

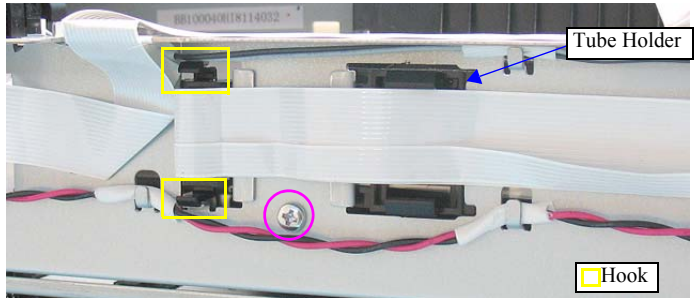


Figure 4-80. Removing the IC Holder Assy (5)

3. Pull out the Head FFC through the hole (1) of the Main Frame.
4. Pull out the FFC Guide (protect sheet & guide plate) from the Tube Holder.
5. Disengage the hook of the Tube Holder grounding plate and remove the grounding plate from the Tube Holder.

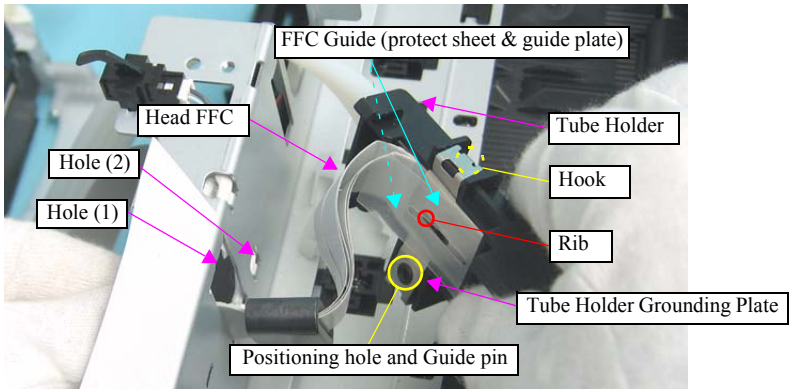


Figure 4-81. Removing the IC Holder Assy (6)

6. Remove the Ink Tube from the Tube Holder.

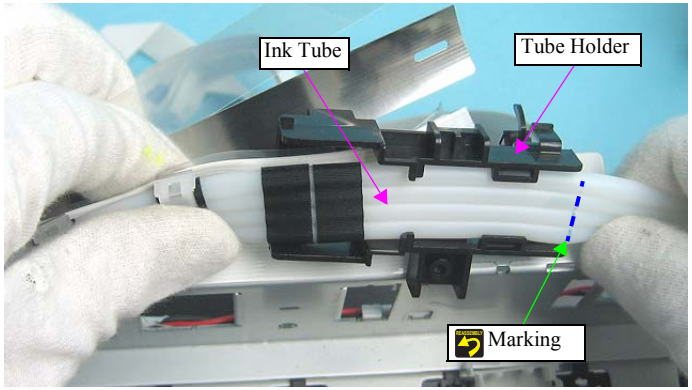


Figure 4-82. Removing the IC Holder Assy (7)

7. Pull out the FFC Guide (film) through the hole of the Tube Holder.

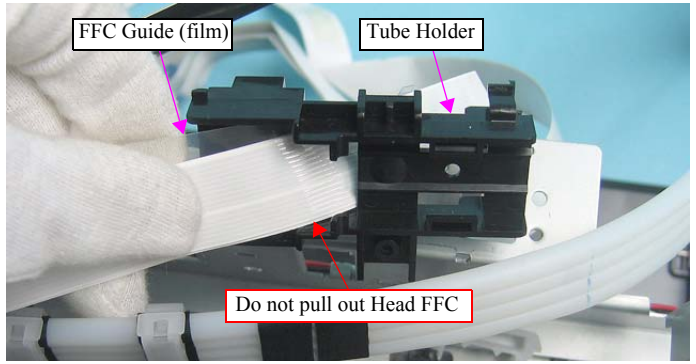


Figure 4-83. Removing the IC Holder Assy (8)

8. Remove the clamp that secures the FFC Guide, Head FFC, and Ink Tube.

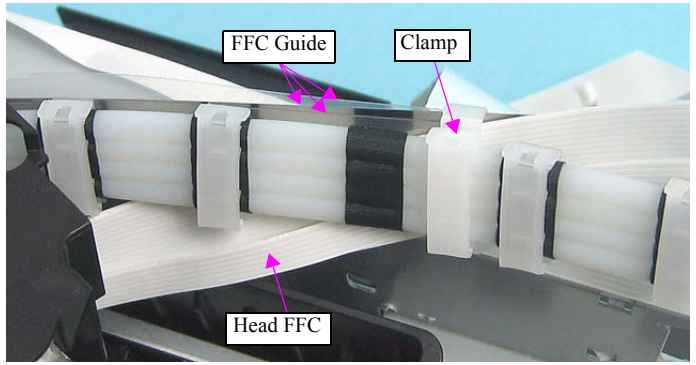


Figure 4-84. Removing the IC Holder Assy (9)

9. Peel off the acetate tape attached on the Screw (3).
10. Remove the three screws and disengage the two hooks to remove the IC Holder.
    - Screw ○ C.B.S 3x6 (Torque: 7-9 kgf.cm)

    (The numbers shown on the figure indicate the order of tightening screws)

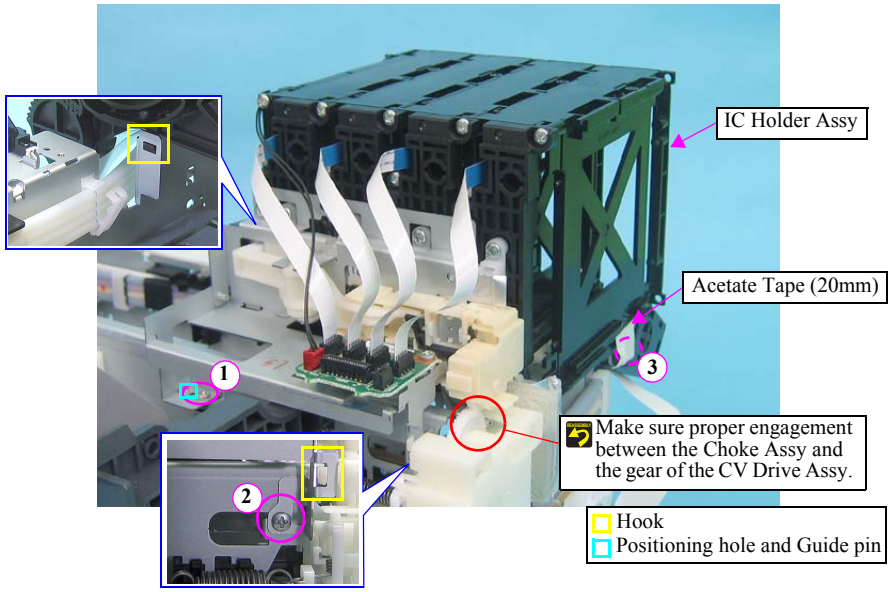


Figure 4-85. Removing the IC Holder Assy (10)

REASSEMBLY

When installing the IC Holder Assy, route the Ink Tube and FFC as described below.

- **Align the clamp that secures the Ink Tube with the marking on the Ink Tube. See *Figure.4-79*.**
- **Align the Tube Holder with the marking on the Ink Tube. See *Figure.4-82*.**

REASSEMBLY

- **When installing the Tube Holder grounding plate to the Tube Holder, match the positioning hole and guide pin, and then secure with the two hooks of the grounding plate. See *Figure.4-81*.**
- **Insert the rib of the Tube Holder Grounding Plate into the hole (2) of the Main Frame. See *Figure.4-81*, *Figure.4-86*.**

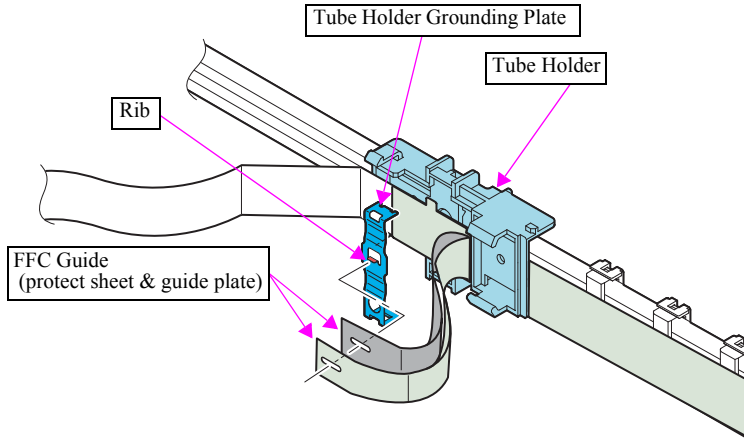


Figure 4-86. Assembling the IC Holder Assy (1)

- **Route the Sub-B Board Relay FFC and Ink Tube at the bottom of the IC Holder Assy as shown below.**

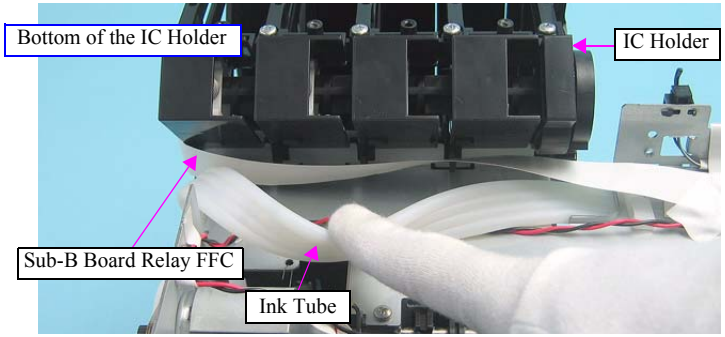


Figure 4-87. Routing the Sub-B Board Relay FFC and Ink Tube

REASSEMBLY

■ **Move the Carriage Assy to the home position, and then make sure that the uplift of the Ink Tube and the clamp from the Main Frame falls within the standard shown below.**

- **Distance from the Main Frame: within 16.5 ± 0.1 mm**

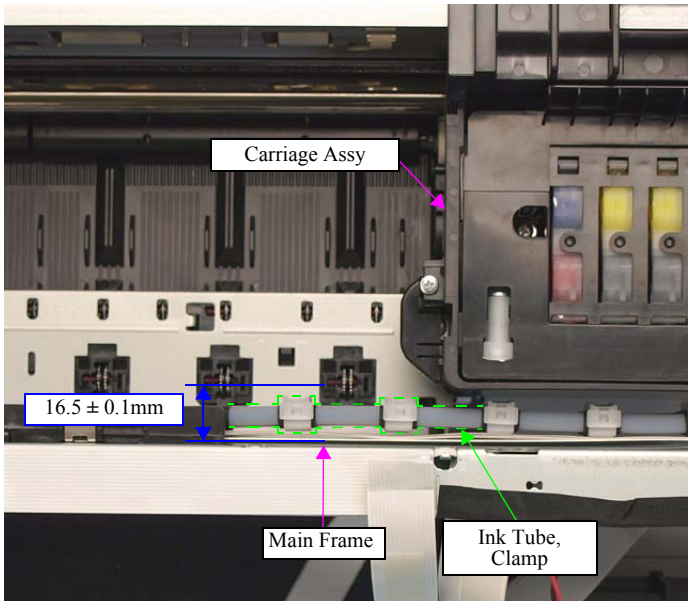


Figure 4-88. Assembling the IC Holder Assy (2)

REASSEMBLY

■ **Route the Head FFCs along the line mark of the Main Frame, and secure it with the black acetate tape.**
Be careful of the difference in routing between B-300/B-308/B-500DN/B-508DN and B-310N/B-318N/B-510DN/B-518DN as shown below.

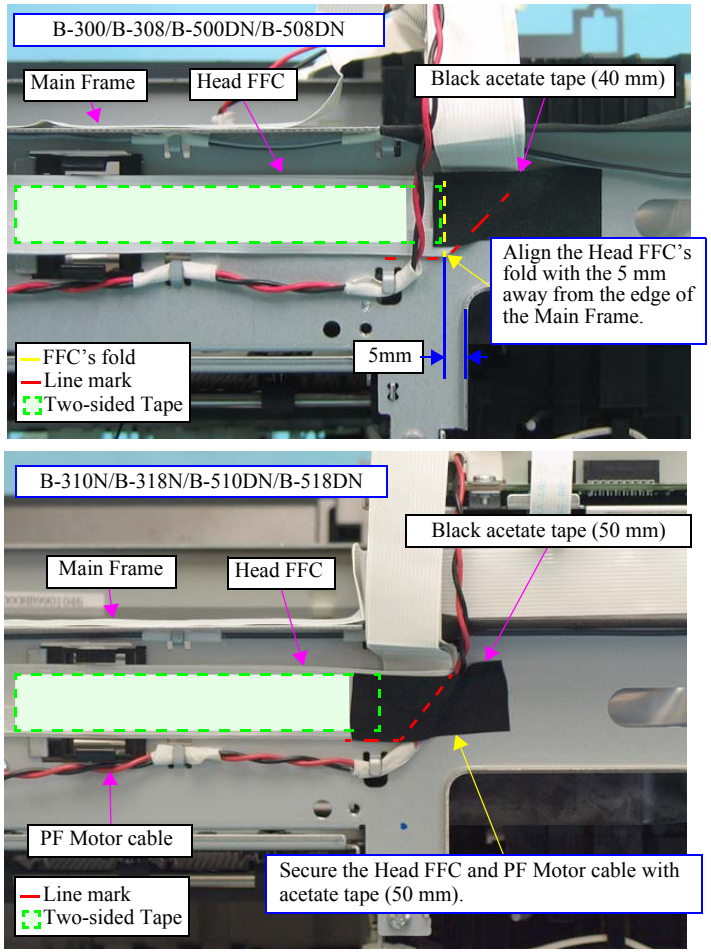


Figure 4-89. Assembling the IC Holder Assy (3)

REASSEMBLY

- Route the Sub-B Board Relay FFC aligning it with the line mark on the Main Frame. See *Figure.4-78*.
- Tighten the screws in the order indicated in *Figure.4-76* and *Figure.4-85*.
- As shown in *Figure.4-90*, secure the Sub-B Board Relay FFC to the IC Holder with two-sided tapes.

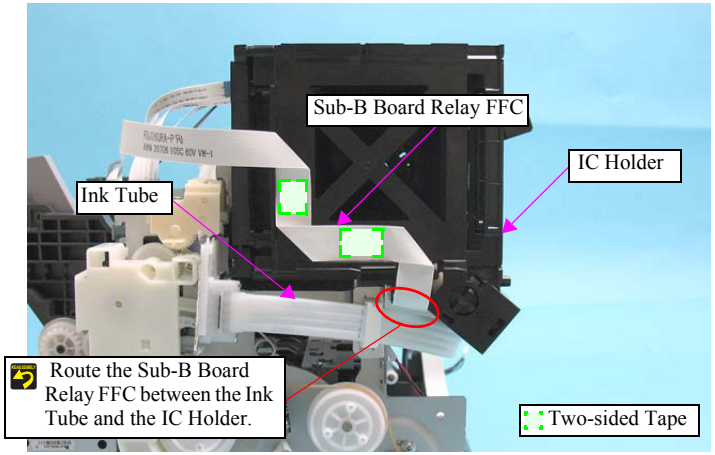


Figure 4-90. Assembling the IC Holder Assy (4)

REASSEMBLY

- When installing the Valve Head Assy, route the Head FFC and CR Encoder FFC as shown below.

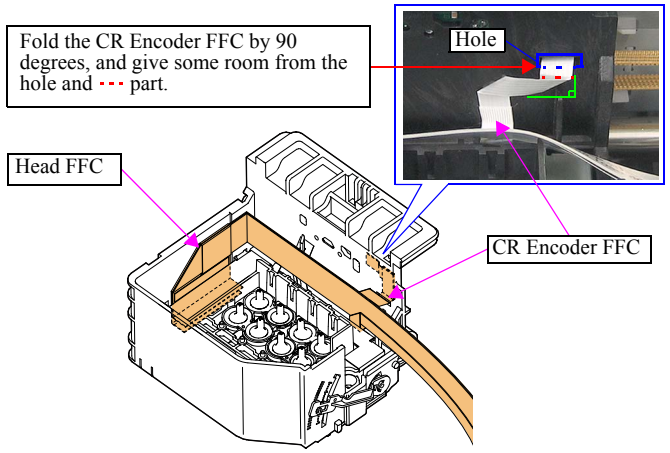


Figure 4-91. Assembling the IC Holder Assy (5)

- When installing the Valve Head Assy to the Carriage Assy, the Head FFC must be routed through a gap between the Ink Tube and the Tube Guide. Inserting the FFCs into the gap becomes much easier by wrapping them in a folded paper and pull out the paper later on.

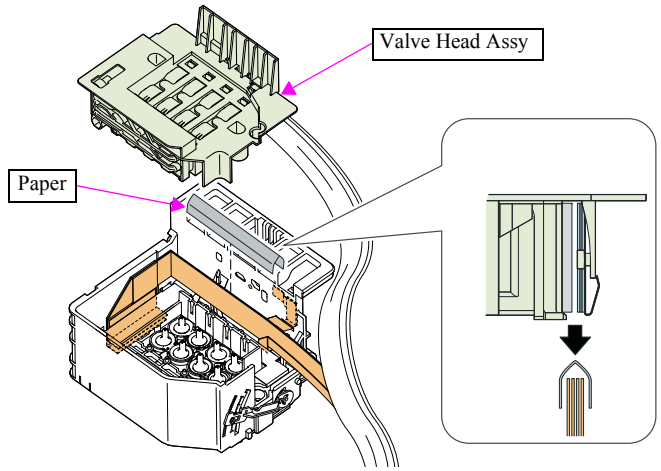


Figure 4-92. Assembling the IC Holder Assy (6)

REASSEMBLY

■ **To avoid damaging the Ink Tube or FFC with the frame's edges, attach acetate tape (x3) on the Main Frame as shown below, then route the Sub-B Board Relay FFC and the Ink tube.**

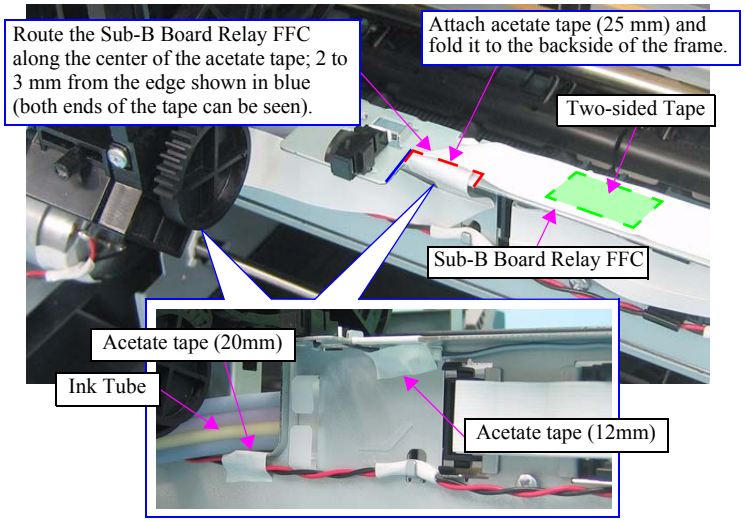


Figure 4-93. Assembling the IC Holder Assy (7)

■ **Route the Head FFC as shown below.**

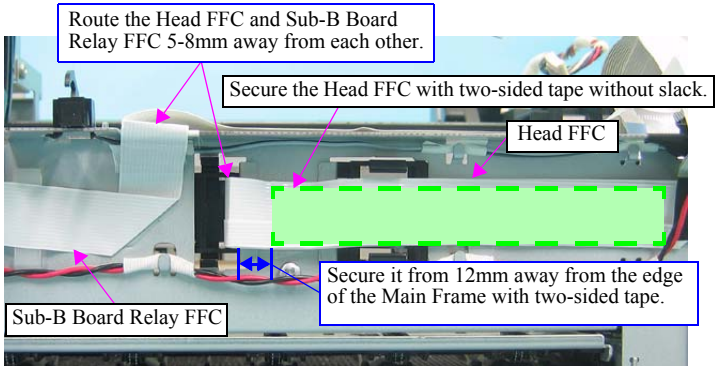


Figure 4-94. Assembling the IC Holder Assy (8)

REASSEMBLY

■ **To prevent an ink supply problem (choke valve operation failure) or abnormal noises, install the IC Holder Assy following the steps below.**

1. **Confirm the installation status of the CV Drive Assy. (See 4.7.1.3 CV Drive Assy.)**
2. **Install the IC Holder Assy. (by reversing the disassembly procedure (p108))**
3. **Check the gear-engaging section of the CV Drive Assy and the Choke Assy at the point indicated in the figure according to the standard below. If OK, end of the assembly. If NG, go to the next step.**

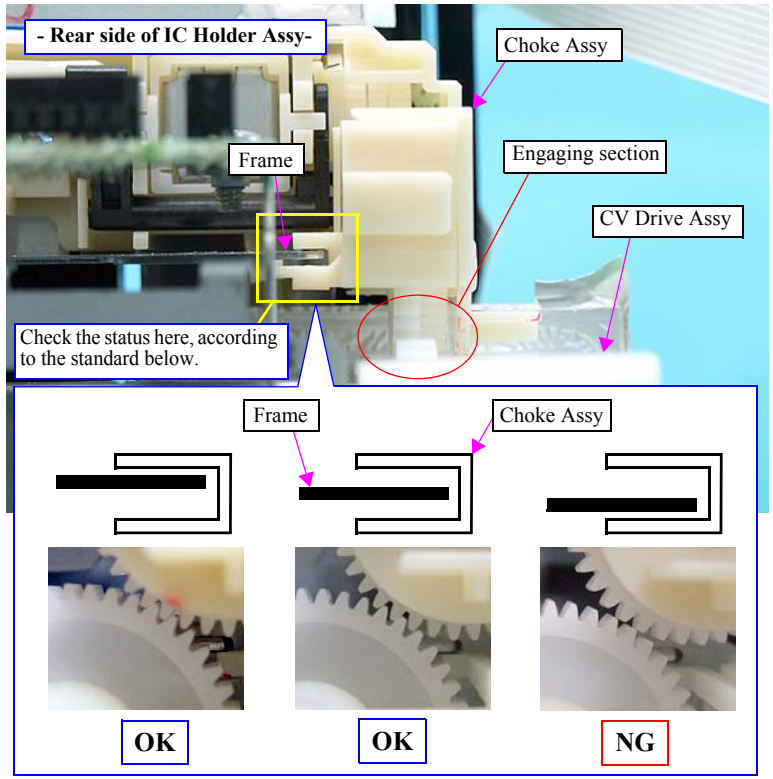


Figure 4-95. Check for Engagement of the CV Drive Assy and the Choke Assy

(Continued to the next page)

REASSEMBLY

4. Loosen the screw ○ that secures the Choke Assy.
5. Pressing the point □ shown below in the direction of the arrow, and tighten the screw.

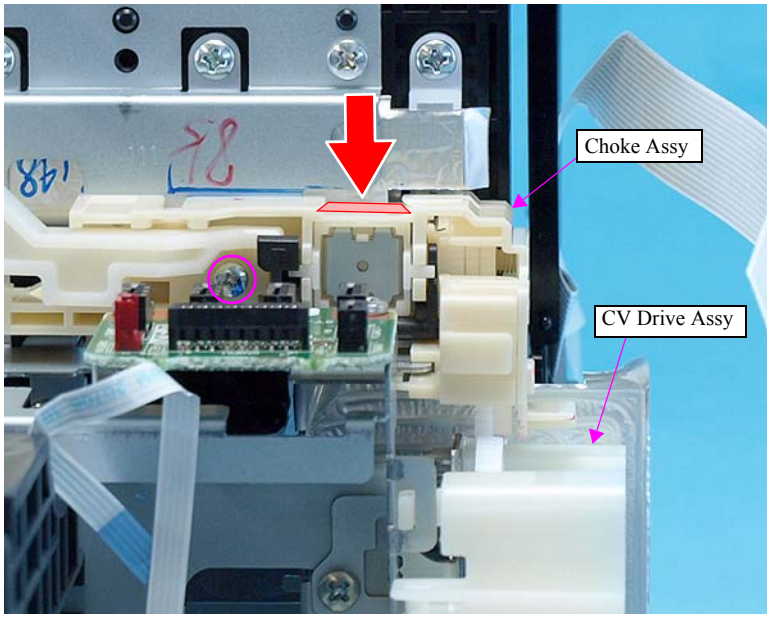


Figure 4-96. Adjusting the Attachment Location of the Choke Assy

6. Return to the step 3, and check the status according to the standard shown in *Figure.4-95*.

NOTE: *If NG according to the standard shown in Figure.4-95, the reasons might be because the acetate tape (Figure.4-98) attached to the CV Drive Assy is folded and prevents the Choke Assy from staying in the right position. In such a case, unfold the tape taking care not to damage the Ink Tube, and secure the Choke Assy once again.*

ADJUSTMENT REQUIRED

The following adjustment must be carried out after replacing or reinstalling the IC Holder Assy.

- Chapter5 "ADJUSTMENT" (p.170)

4.7.1.2 Sub-B Board

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy

☐ Disassembly Procedure

1. Disconnect the all cables and FFCs from the Sub-B Board.
2. Remove the two screws and remove the Sub-B Board.
   - Screw ○ C.B.S 3x6 (Torque: 5.5-6.5 kgf.cm)

   (The numbers shown on the figure indicate the order of tightening screws)

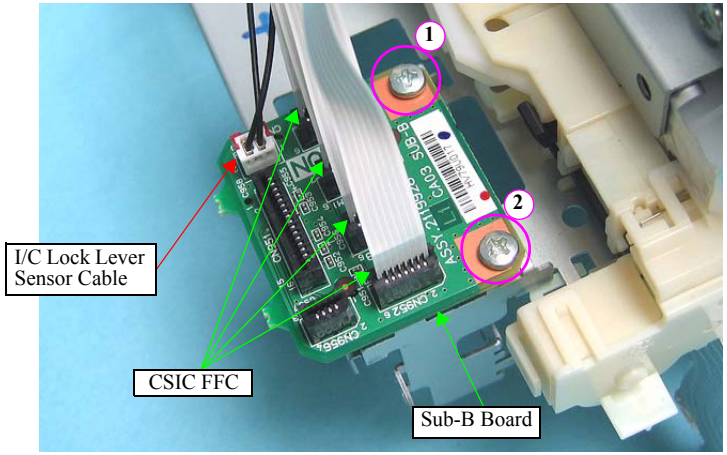


Figure 4-97. Removing the Sub-B Board

REASSEMBLY

Tighten the screws in the order indicated in *Figure.4-97*.

4.7.1.3 CV Drive Assy

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy / Power Supply Unit

☐ Disassembly Procedure

1. Peel off the acetate tape securing the CV Drive Assy to the Main Frame.
2. Remove the two screws that secure the CV Drive Assy to the Main Frame.
   • Screw ○ C.B.S 3x6 (Torque: 7-9 kgf.cm)
3. Pull out the three guide pins of the CV Drive Assy, and remove the CV Drive Assy in the direction of the arrow.

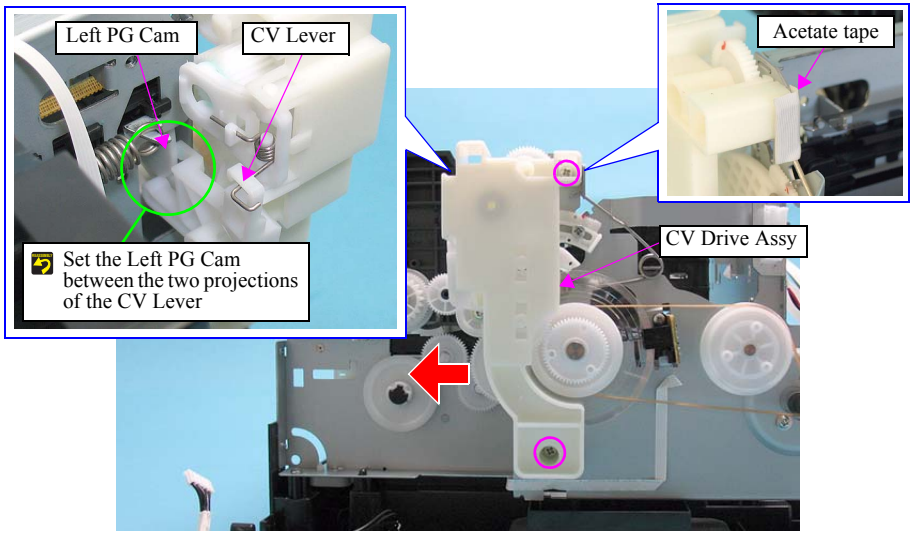


Figure 4-98. Removing the CV Drive Assy

REASSEMBLY

- **Set the CV Lever of the CV Drive Assy as shown in *Figure.4-98*.**
- **To prevent an ink supply problem (choke valve operation failure) or abnormal noises, install the CV Drive Assy following the steps below.**
  1. **Insert the three guide pins of the CV Drive Assy into the holes of the Main Frame, and temporarily tighten the two screws of the CV Drive Assy loosely.**
  2. **Pressing the CV Drive Assy in the direction of the arrow, tighten the screws in the order as shown below.**

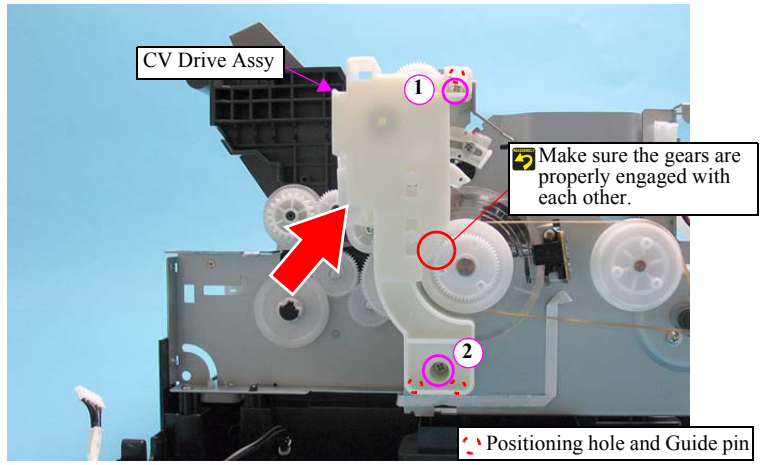


Figure 4-99. Assembling the CV Drive Assy (1)

REASSEMBLY

■ **When installing the CV Drive Assy, attach acetate tape (18 mm x 18 mm) as shown below.**

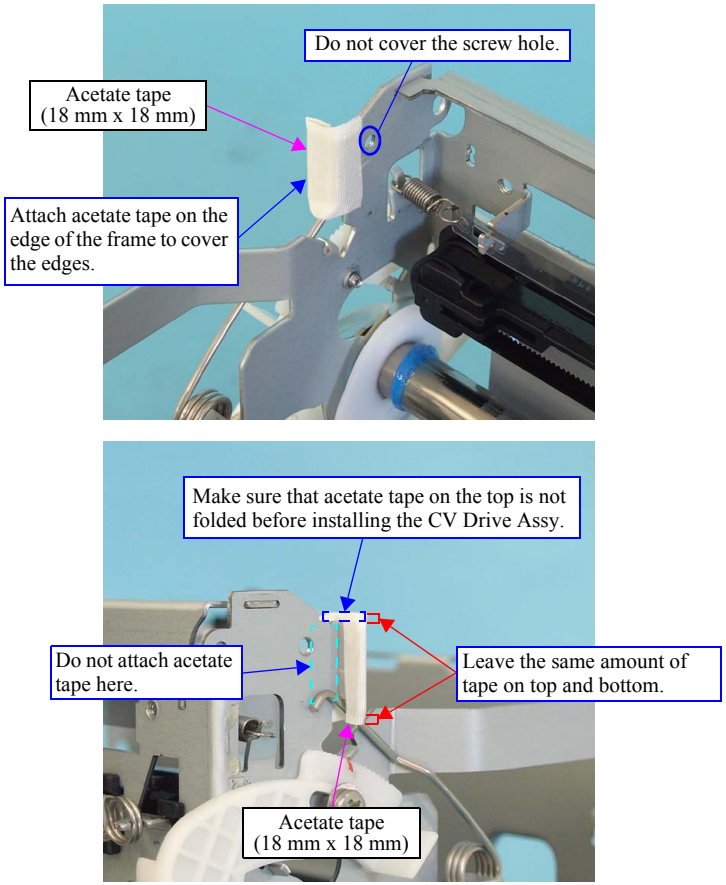


Figure 4-100. Assembling the CV Drive Assy (2)

4.7.2 Lower Housing

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy

☐ Disassembly Procedure

1. Remove the screw, and slide the PS Cover in the direction of the arrow to remove it.
   - Screw ○ C.B.S 3x8 (Torque: 7-9 kgf.cm)

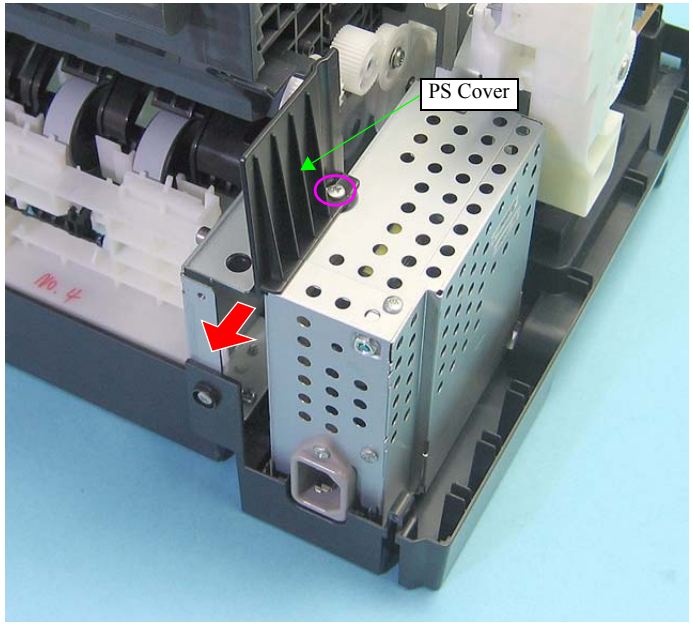


Figure 4-101. Removing the PS Cover

2. Remove the 11 screws.
   - Screw ○ C.B.P 3x10 (Torque: 5-7 kgf.cm): eight pieces
   - Screw ○ C.B.S 3x6 (Torque: 8-11 kgf.cm): three pieces
   - Screw ○ C.B.S 3x6 (Torque: 7-9 kgf.cm): one piece

   (The numbers shown on the figure indicate the order of tightening screws)

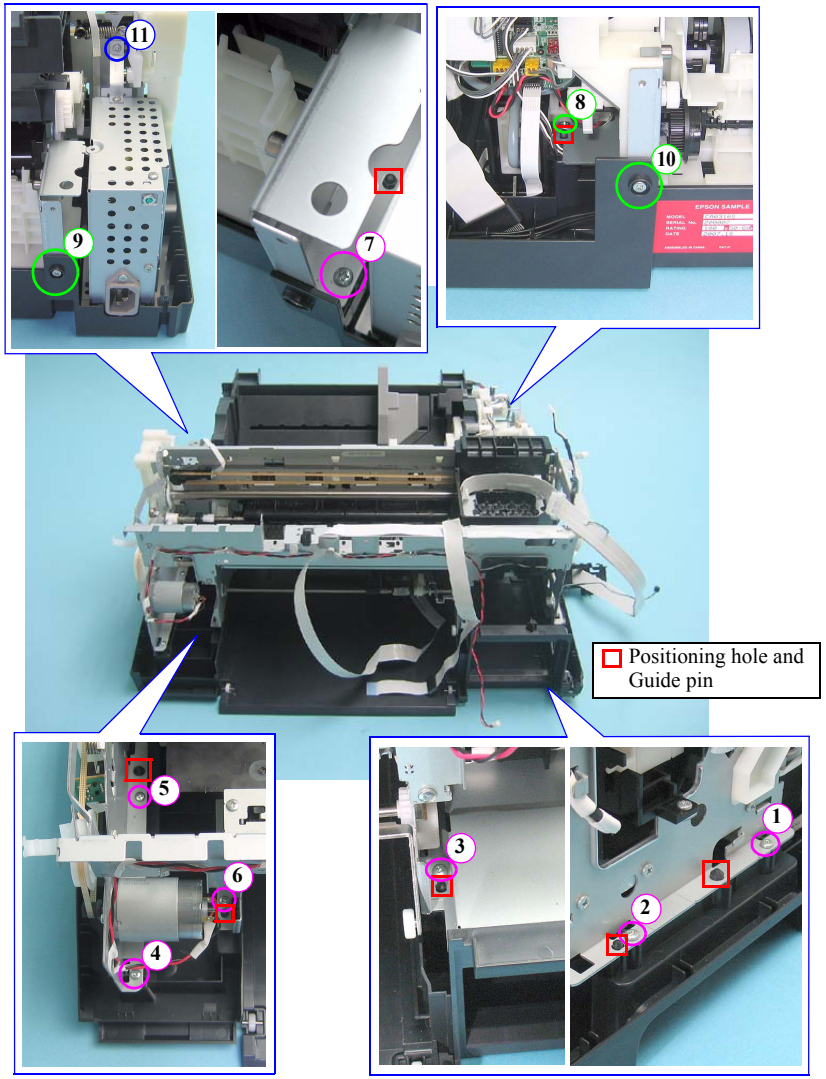


Figure 4-102. Removing the Lower Housing (1)

3. Disconnect the EJC Sensor Cable from the sensor connector.
4. Remove the acetate tape that secures the EJC Sensor Cable to the Main Frame.

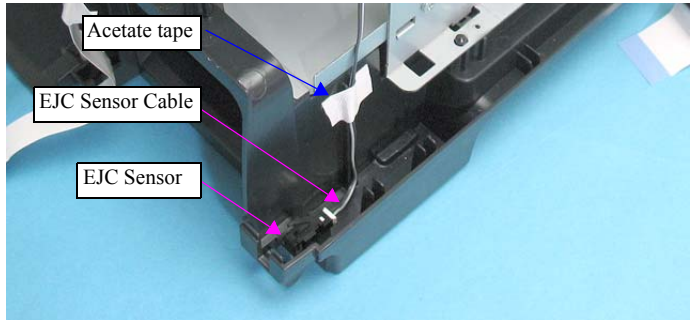


Figure 4-103. Removing the Lower Housing (2)

5. Disconnect the Maintenance Box FFC from CN918 connector on the Sub-B Board.
6. Peel off the acetate tape that secures the following cables.
   - ASF Motor Cable
   - PER Sensor Cable
   - PEF Sensor Cable

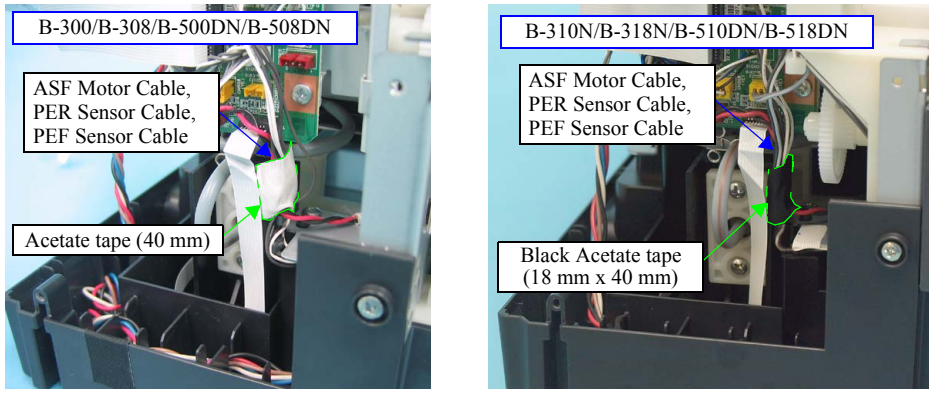


Figure 4-104. Removing the Lower Housing (3)

7. Release the PER and PEF Sensor Cables from the ribs (1)(2) of the EJ Waste Ink Assy.
8. Release the ASF Motor Cable from the rib (3) of the EJ Waste Ink Assy.

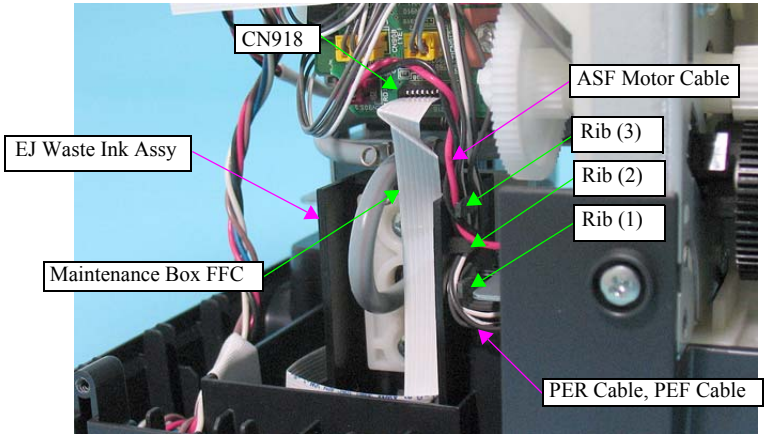


Figure 4-105. Removing the Lower Housing (3)

9. Slide the clip that secures the Waste Ink Tube at the EJ Waste Ink Assy side, and pull out the Waste Ink Tube from the Waste Ink joint.

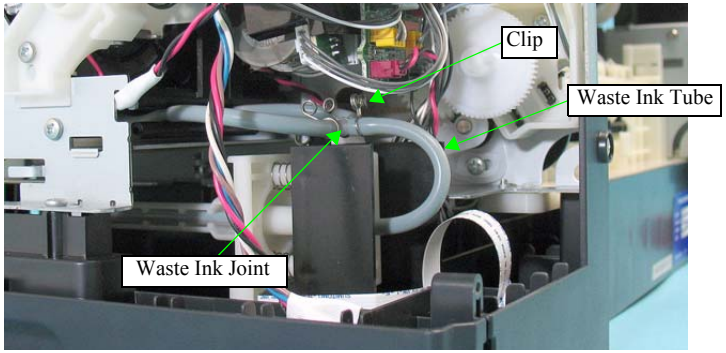


Figure 4-106. Removing the Lower Housing (4)

10. Disengage the two hooks of the EJ Waste Ink Assy, and remove the Waste Ink joint from the EJ Waste Ink Assy.

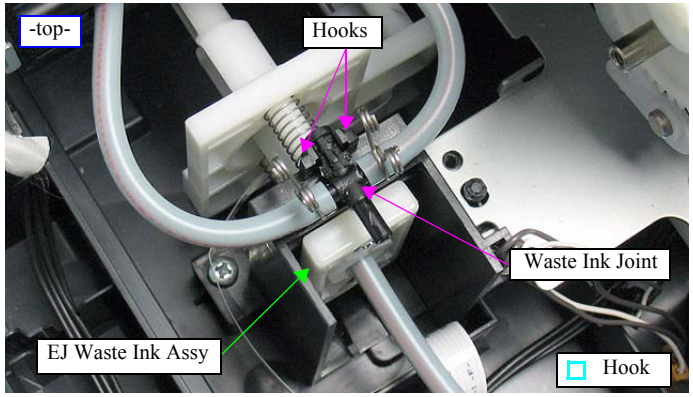


Figure 4-107. Removing the Lower Housing (5)

CAUTION

- **To avoid deforming the frame, hold the Printer Mechanism by the positions shown in *Figure.4-108* to remove it upward.**
- **The Pick-up Lever located at the bottom of the Printer Mechanism projects from the mechanism bottom surface. When disassembling the Printer Mechanism after removing the Lower Housing, be careful to avoid followings.**
  - **Damage or deformation of the Pick-up Lever**
  - **Distortion or deformation of the frames**

11. Lift the Printer Mechanism, and remove the Lower Housing.

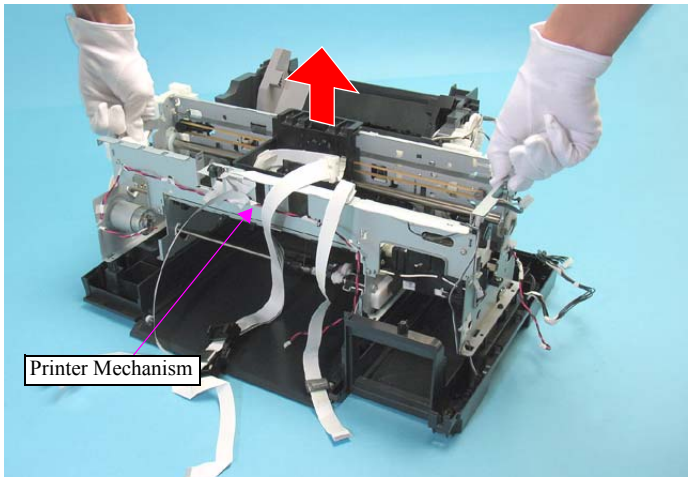


Figure 4-108. Removing the Lower Housing (4)

REASSEMBLY

- **Insert the seven guide pins of the Lower Housing into the holes of the Printer Mechanism shown in *Figure.4-102*.**
- **Tighten the screws in the order indicated in *Figure.4-102*.**
- **Secure the following cables to the Lower Housing with acetate tape.**
  - **ASF Motor Cable**
  - **PER Sensor Cable**
  - **PEF Sensor Cable**

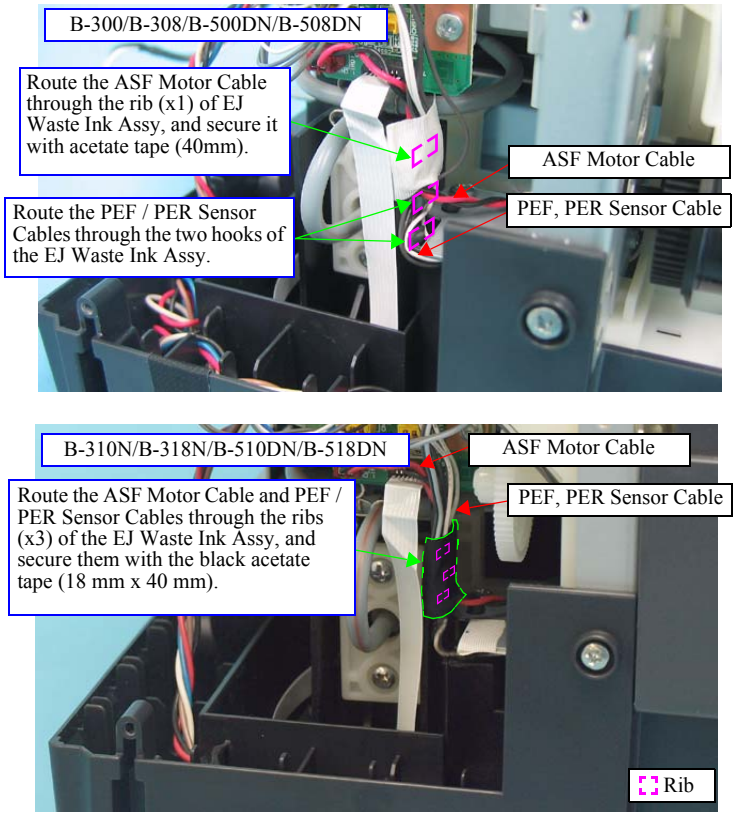


Figure 4-109. Routing the Cables

4.7.3 Disassembling the Carriage Components

4.7.3.1 Printhead

- ☐ Parts/Components must be removed in advance

  Exterior parts
- ☐ Disassembly Procedure

CAUTION

- **Before starting the disassembly work, make sure the choke valve is closed. If you work with the choke valve opened, ink leak may occur. See "Handling Ink Supply Parts".**
- **Be aware of ink leak from the Ink Tube.**
- **When handling the Printhead, exercise care to avoid touching or damaging the nozzle plate surface.**

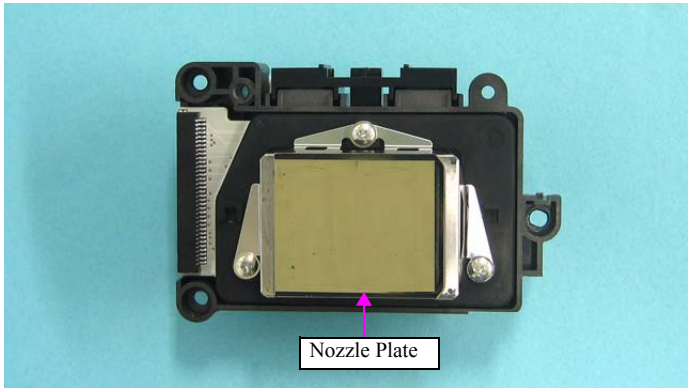


Figure 4-110. Handling the Printhead

1. Remove the Main Board Unit.
   See *"4.6.3 AID Board" Step1 (p100)* to *Step6 (p100)*.
2. Lift the Valve Head Assy.
   See *"4.7.1 IC Holder Assy" Step2 (p108)*.

CHECK POINT

For B-300/B-308/B-500DN/B-508DN, skip *Step3* and *Step4*. These steps are for B-310N/B-318N/B-510DN/B-518DN only, because B-300/B-308/B-500DN/B-508DN does not have the Carriage Cover.

3. Remove the screw that secures the Carriage Cover.
   - Screw ○ : C.B.P 2.5x8 (Torque: 2.6-4.6 kgf.cm): one piece (B-310N/B-318N/B-510DN/B-518DN only)
4. Release the hook that secures the Carriage Cover, and remove the Carriage Cover. (B-310N/B-318N/B-510DN/B-518DN only)

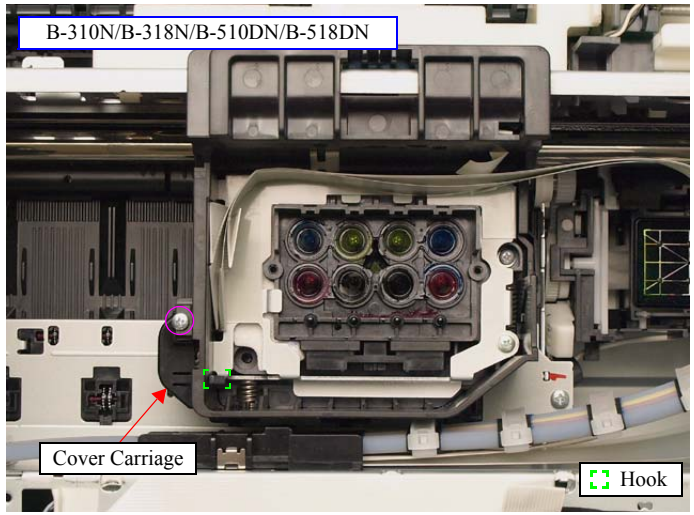


Figure 4-111. Removing the Cover Carriage (B-310N/B-318N/B-510DN/B-518DN only)

5. Remove the Tilt Adjust Spring (short).
6. Remove the two screws and the washer, and remove the Head Pressing Plate.
   - Screw ○ : C.B.P 2.5x8 (Torque: 3-4 kgf.cm)
   - Screw ○ : C.B.S 3x8 (Torque: 5-7 kgf.cm)

CAUTION

When replacing the Printhead, make sure to use a new Head Pressing Plate Mounting Plate and a Spacer because they deform during screwing, so they cannot be reused.

7. Remove the Head Pressing Plate Mounting Plate from the Carriage Assy.
8. Remove the spacer from the Carriage Assy, and remove the Head Pressing Plate.

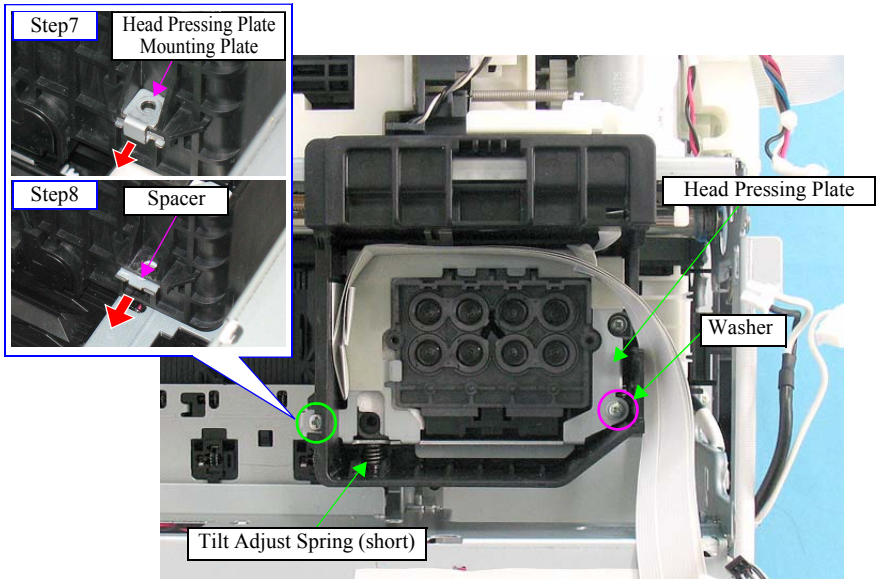


Figure 4-112. Removing the Printhead (1)

9. Remove the Tilt Adjust Spring (long).
10. Remove the screw and the washer, and remove the Printhead.
    - Screw ○ : C.B.P 2.5x8 (Torque: 3-4 kgf.cm)

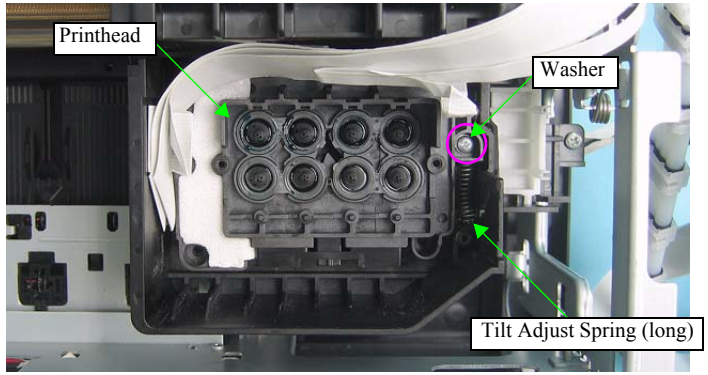


Figure 4-113. Removing the Printhead (2)

11. Disconnect the two Head FFCs from the Printhead, and remove the Printhead.
12. Remove the Ink Pad from the Printhead.

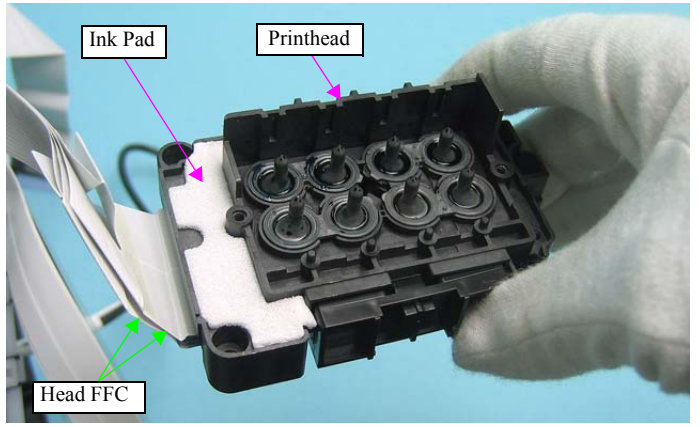


Figure 4-114. Removing the Printhead (3)

REASSEMBLY

- When replacing the Printhead, replace the following parts together with the Printhead.
  - Spacer (part code: 1489627)
  - Head Pressing Plate Mounting Plate (part code: 1488028)
- Follow the procedure below to install the Printhead to the Carriage Assy.

1. Insert the two positioning holes of the Printhead over the guide pins of the Carriage Assy.

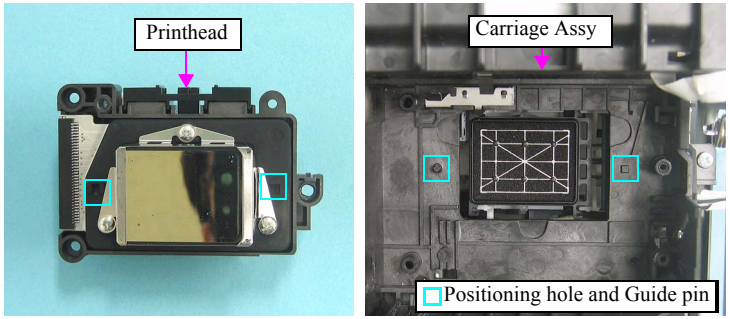


Figure 4-115. Installing the Printhead (1)

2. Insert the Tilt Adjust Spring (long) over the guide pin of the Carriage Assy, and set the other end of spring below the rib of the Printhead. See *Figure.4-116*.

REASSEMBLY

3. Secure the Printhead with the screw (1).
4. Mount the Head Pressing Plate to the Carriage Assy, and secure it with the new Head Pressing Plate Mounting Plate, new Spacer and the screw (2).
5. Insert the Tilt Adjust Spring (short) over the guide pin of the Head Pressing Plate, and set the other end of spring below the rib of the Carriage Assy.
6. Secure the Head Pressing Plate with the screw (3).

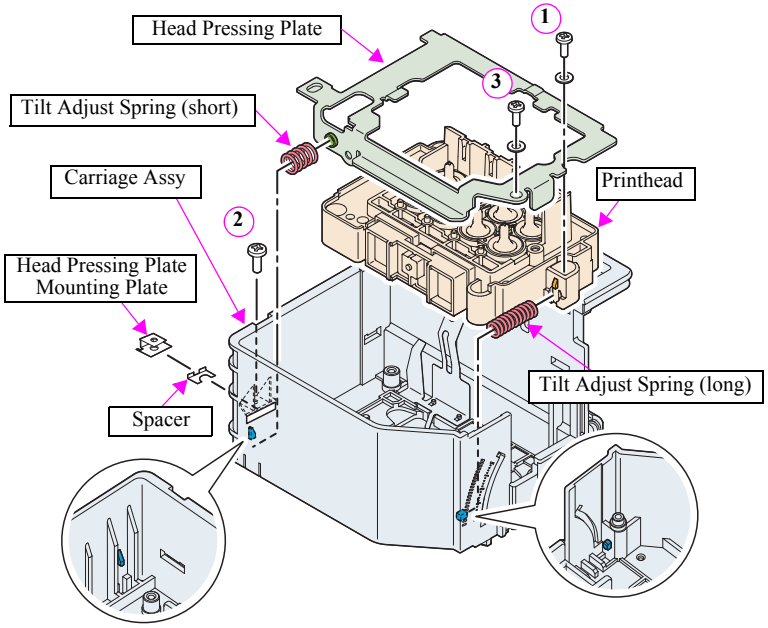


Figure 4-116. Installing the Printhead (2)

ADJUSTMENT REQUIRED

Carry out required adjustments referring to the following sections after replacing or reinstalling the Carriage Assy.

- Chapter5 "ADJUSTMENT" (p.170)

4.7.3.2 CR Scale

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy

☐ Disassembly Procedure

CAUTION

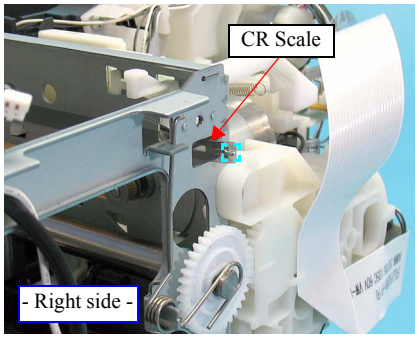
Be extremely careful not to touch with bare hands, contaminate, or damage the CR Scale surface.

CHECK POINT

■ **See below for instruction on how to release the Carriage Lock.**

- **4.3.1 Releasing Carriage Lock**

1. Release the carriage lock, and move the Carriage Unit to the center.
2. Remove the CR Scale from the hook on the right of the Main Frame.
3. Pull out the CR Scale through the slit of the Carriage Assy.



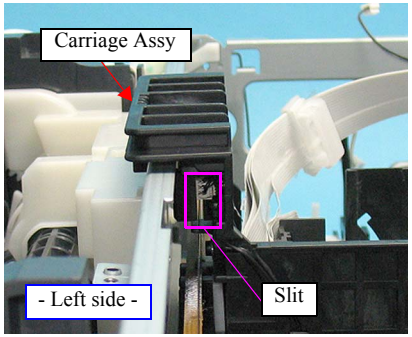


Figure 4-117. Removing the CR Scale (1)

4. Remove the Extension Spring from the hook on the left of the Main Frame.
5. Turn the CR Scale 90 degrees upward to remove it from the hook.

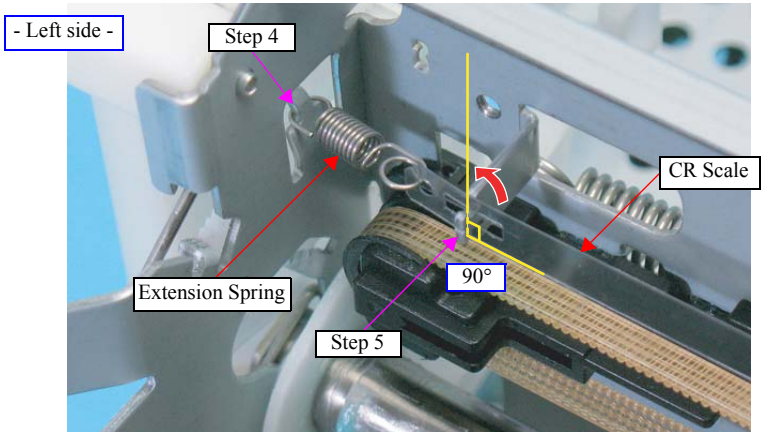


Figure 4-118. Removing the CR Scale (2)

REASSEMBLY

When installing the CR Scale, attach the hooked ends of the Extension Spring to the CR Scale and the frame tab in the orientation shown below.

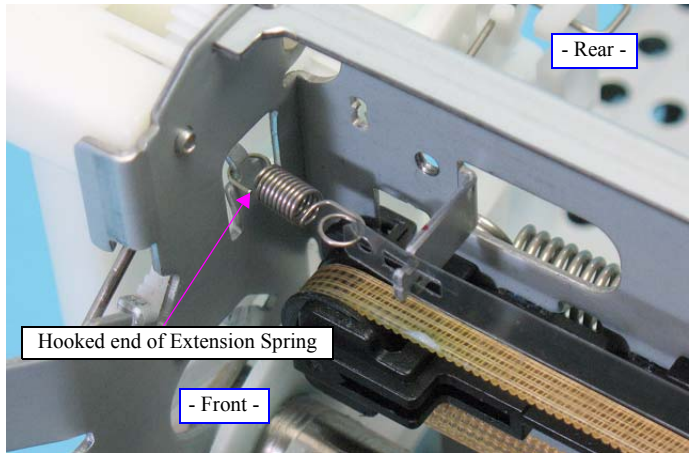


Figure 4-119. Installing the CR Scale

4.7.3.3 APG Assy / Sub Board

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy / Planet Lock Assy / Retard Transfer Assy

☐ Disassembly Procedure

■ Removing the APG Assy.

1. Peel off the acetate tape that secures the following cables. (See *Figure.4-104*.)
- ASF Motor Cable
- PER Sensor Cable
- PEF Sensor Cable

CHECK POINT

For B-300/B-308/B-500DN/B-508DN, skip *Step3*. This step is for B-310N/B-318N/B-510DN/B-518DN only, because the number of connectors on the Sub Board differ from B-300/B-308/B-500DN/B-508DN (see *Figure.4-120*).

2. Disconnect the following cables from the Sub Board.

CN No.	Color	Destination	Number of pins
CN902	FFC	Relay FFC (Main Board)	-
CN904	White	CR Motor	2
CN905	Red	ASF Motor	2
CN910*	White	ASF Encoder	4
CN914	Yellow	PEF Sensor	3
CN915	Black	PER Sensor	3
CN918	FFC	CSIC (Maintenance Box)	-

Note *: For B-300/B-308/B-500DN/B-508DN only. The cable is soldered to the Sub Board for B-310N/B-318N/B-510DN/B-518DN.

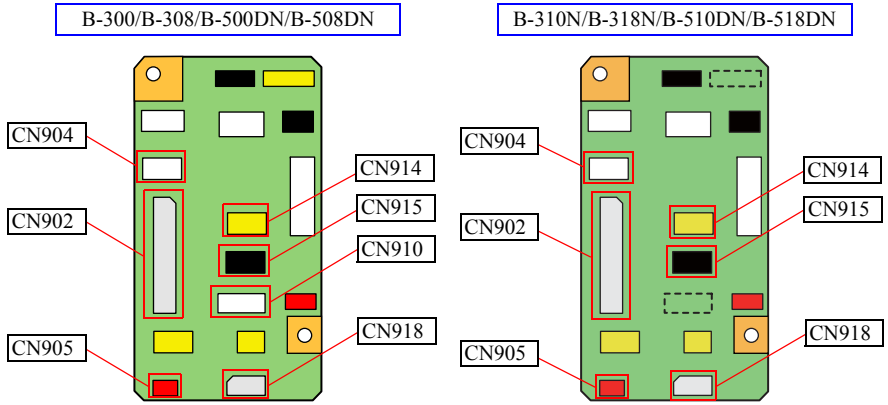


Figure 4-120. Removing the APG Assy (1)

3. Disconnect the ASF Encoder cable from the connector (CN1) on the ASF Encoder Assy. (B-310N/B-318N/B-510DN/B-518DN only)

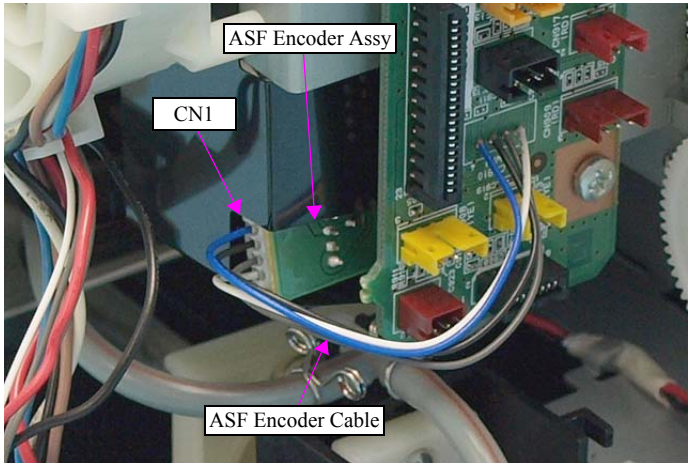


Figure 4-121. Removing the APG Assy (2)

4. Remove the three screws.
   - Screw ○ : C.B.S 3x6 (Torque: 7-9 kgf.cm)
   (The numbers shown on the figure indicate the order of tightening screws)

CAUTION

When removing the APG Assy, be extremely careful not to damage the ASF Scale.

5. Release the Relay FFC from the two ribs of the APG Assy, and remove the FFC from the APG Assy.
6. Release the Power Cable from the four hooks of the APG Assy to remove the cable from the unit.
7. Remove the notch of the APG Assy from the positioning hole of the Rear Frame, and remove the APG Assy with due attention to the ASF Scale.

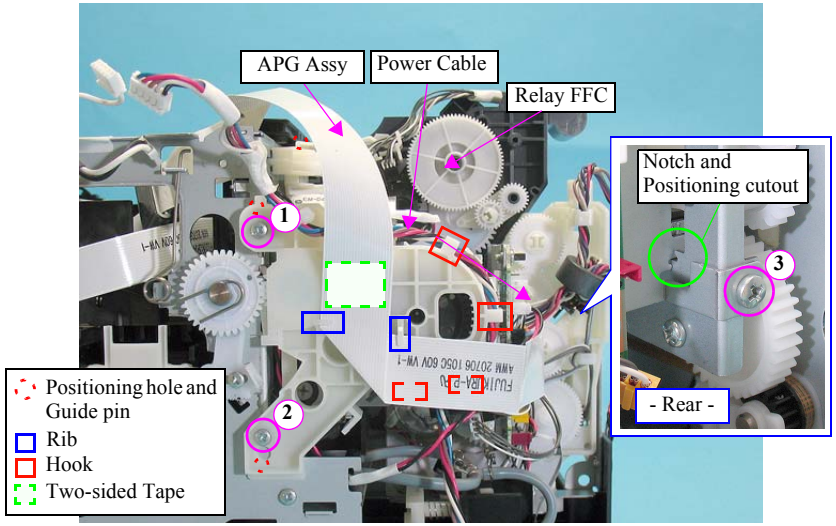


Figure 4-122. Removing the APG Assy (2)

■ Removing the Sub Board

1. Remove the two screws that secure the Sub Board to the APG Frame, and remove the Sub Board.
   • Screw ○ : C.B.S 3x6 (Torque: 7-9 kgf.cm)

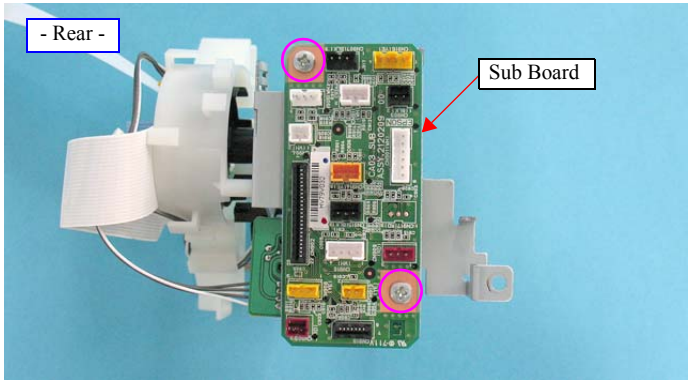


Figure 4-123. Removing the Sub Board

REASSEMBLY

■ **When installing the APG Assy, insert the two guide pins of the APG Assy into the positioning holes of the Main Frame as shown in *Figure.4-122*.**
■ **When installing the APG Assy, attach the notch of the APG Assy to the positioning cutout of the Main Frame as shown in *Figure.4-122*.**
■ **In order to align the phase of the APG Assy with that of the CR Shaft, install the APG Assy matching the triangles facing each other as shown below.**

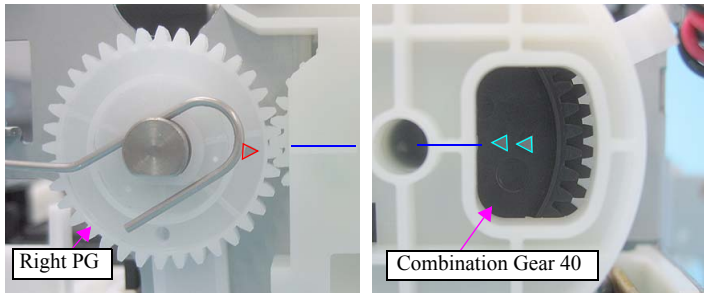


Figure 4-124. Installing the APG Assy (1)

REASSEMBLY

■ **There are some lubrication points. See below for the lubrication instruction.**
  • **"Lubrication of APG Assy" (p.205)**
■ **Tighten the screws in the order indicated in *Figure.4-122*.**
■ **Make sure the following point when installing the APG Assy.**
  • **Insert the shaft of Combination Gear 20.8, 11.2 over the hole of the Ink System.**

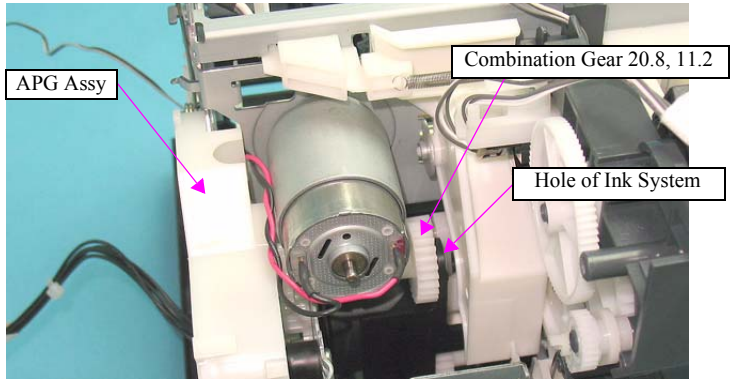


Figure 4-125. Installing the APG Assy (2)

  • **To avoid catching the cable between the Main Frame and the Grounding Plate, route the CR Motor cable between the grounding plate and the APG Assy.**

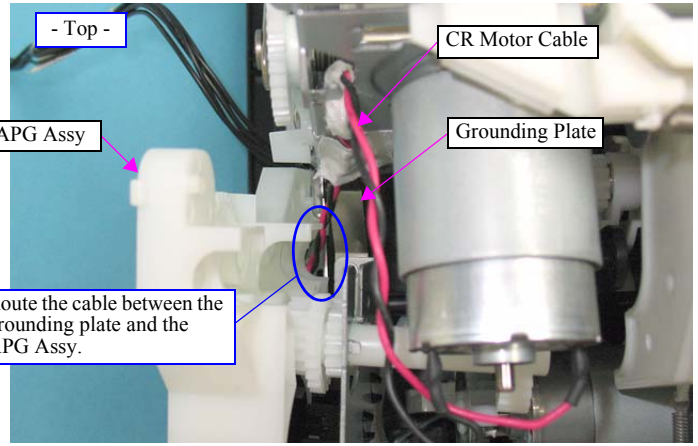


Figure 4-126. Installing the APG Assy (3)

REASSEMBLY

- **Secure the following cables to the Lower Housing with acetate tape. (See *Figure.4-109*.)**
  - **ASF Motor Cable**
  - **PER Sensor Cable**
  - **PEF Sensor Cable**
- **Route the cables as shown below.**

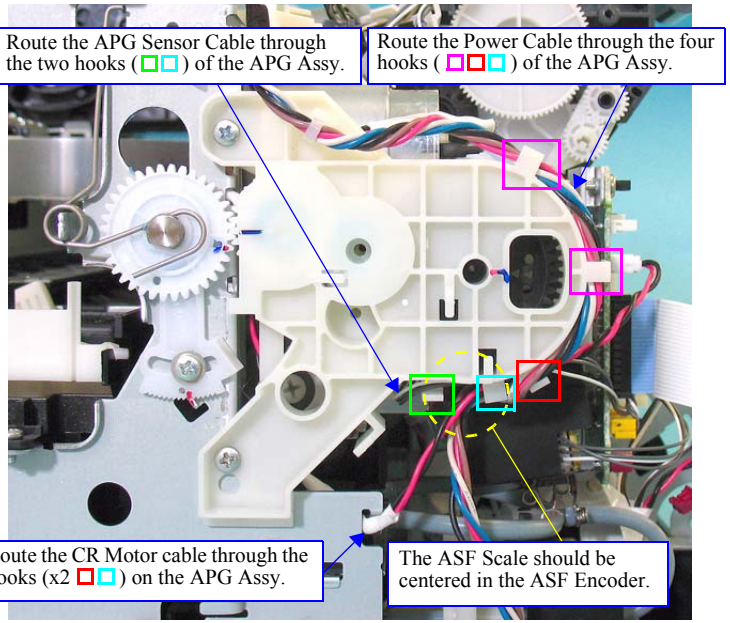


Figure 4-127. Routing the Cable

4.7.3.4 ASF Encoder Assy

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy / Planet Lock Assy / Retard Transfer Assy / APG Assy / Sub Board

☐ Disassembly Procedure

CHECK POINT

For B-310N/B-318N/B-510DN/B-518DN, the cable connected to the ASF Encoder Assy is removed on the prior disassembly procedure.

1. Peel off the ASF Encoder Cover from the APG Frame.

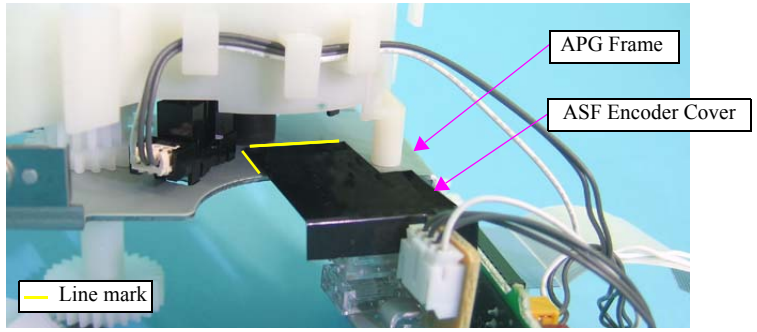


Figure 4-128. Removing the ASF Encoder Assy (1)

2. Remove the screw that secures the ASF Encoder to the APG Frame, and remove the ASF Encoder Assy.

   • Screw ○ : C.B.S 2.6x6 (Torque: 2.5-3.5 kgf.cm)

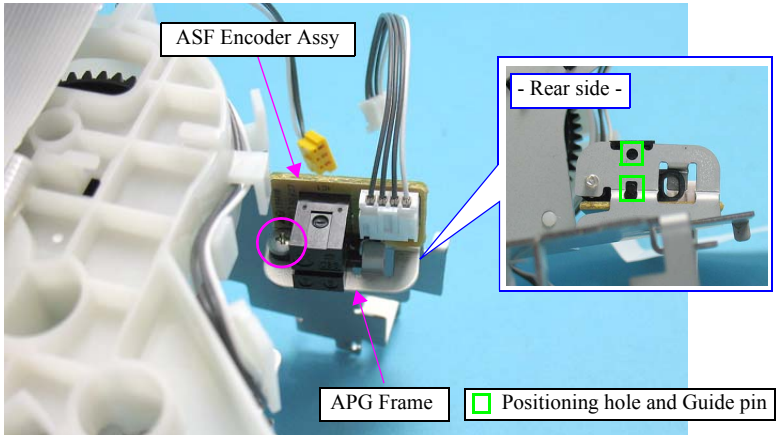


Figure 4-129. Removing the ASF Encoder Assy (2)

REASSEMBLY

- **When installing the ASF Encoder Assy, insert the two guide pins of the ASF Encoder Assy into the holes of the APG Frame as shown in *Figure.4-129*.**
- **Align and attach the ASF Encoder Cover with the marking shown in *Figure.4-129*.**

4.7.3.5 CR Motor

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy / Planet Lock Assy / Retard Transfer Assy / APG Assy / Sub Board

☐ Disassembly Procedure

1. Remove the CR Motor cable from the two hooks on the Main Frame, and remove the Black acetate tape (1).

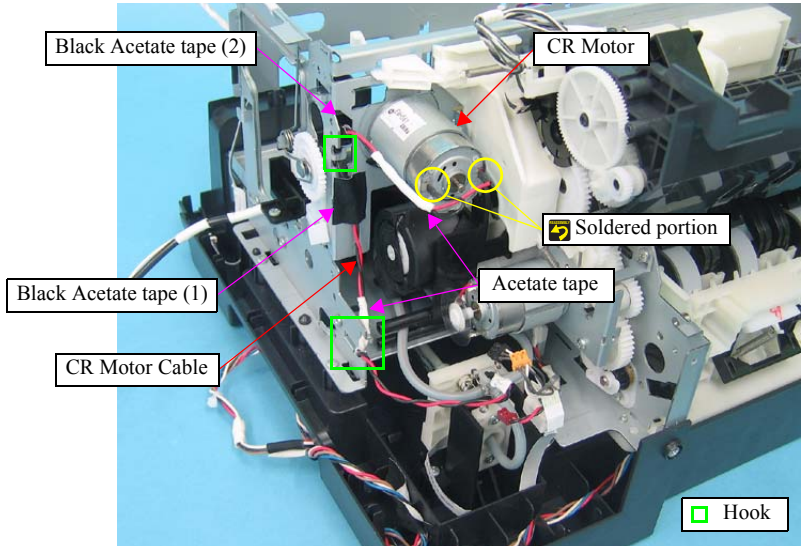


Figure 4-130. Removing the CR Motor (1)

CAUTION

Be extremely careful not to contaminate the Timing Belt with grease, or could result in deterioration of the belt.

2. Press the Driven Pulley Assy in the direction of the arrow to reduce the tension of the Timing Belt, and remove the Timing Belt from the pinion gear of the CR Motor.

Figure 4-131. Removing the CR Motor (2)

3. Remove the two screws and remove the CR Motor.
   - Screw ◯ : C.C. 3x4 (Torque: 3-5 kgf.cm)

   (The numbers shown on the figure indicate the order of tightening screws)

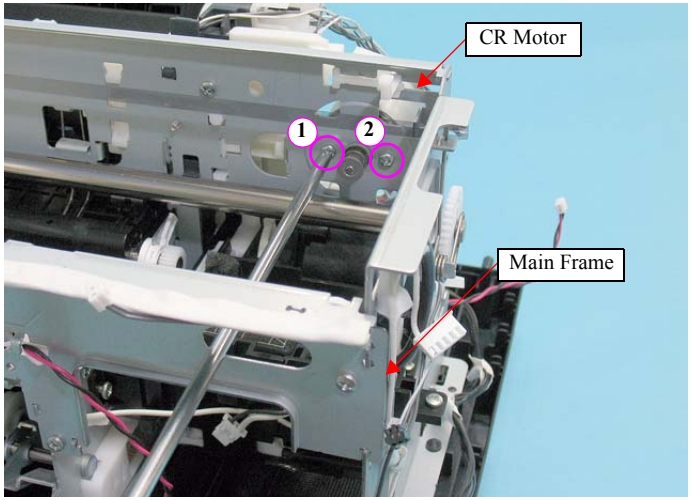


Figure 4-132. Removing the CR Motor (3)

REASSEMBLY

- **There are some lubrication points. See below for the lubrication instruction.**
  - **"Lubrication of Driven Pulley" (p.198)**
- **Install the CR Motor so that the printed characters on it can be seen from the top.**
- **When installing the Timing Belt, make sure that the belt is not twisted and its toothed surface faces inward.**
- **Route the CR Motor cable as shown in *Figure.4-130*. To protect the cable, wrap several portions of the cable where secured with the hooks with acetate tape.**
- **To avoid breaking the soldered portions of the CR Motor cable shown in *Figure.4-130*, route the cable so that the soldered portions are not pulled.**
- **Tighten the screws in the order indicated in *Figure.4-132*.**
- **When the CR Motor is replaced, wrap the CR Motor cable at the specified place shown in *Figure.4-130* with acetate tape (x3) in specified colors twice around the cable.**

ADJUSTMENT REQUIRED

- **When the following label is attached to the CR Motor, use the values mentioned in the label for CR motor heat protection control.**

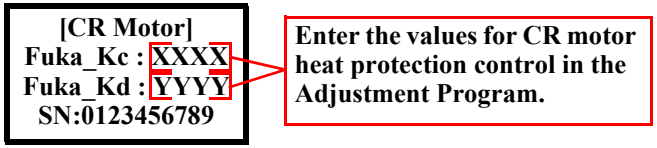


Figure 4-133. Label for CR Motor Heat Protection Control

- **Carry out required adjustments referring to the following section after replacing or reinstalling the CR Motor.**
  - **Chapter5 "ADJUSTMENT" (p.170)**

4.7.3.6 Carriage Assy

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy / Planet Lock Assy / Retard Transfer Assy / APG Assy / Sub Board / CR Motor / CR Scale / Rear ASF Assy

☐ Disassembly Procedure

CAUTION

When removing the Extension Spring, support the Driven Pulley Assy with your hand to prevent the assy from coming off the Main Frame.

1. Remove the Extension Spring of the Driven Pulley Assy from the hook (⬚) of the Main Frame.
2. Remove the Driven Pulley Assy in the direction of the arrow.

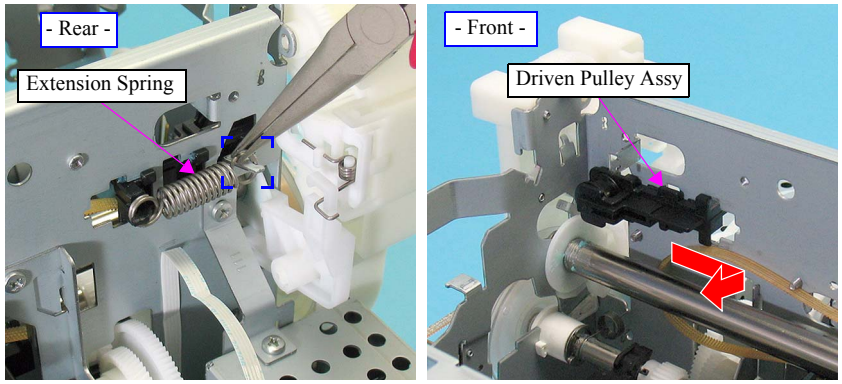


Figure 4-134. Removing the Extension Spring

CAUTION

When turning the Left Parallel Bushing, mark up the current position in advance, and pull the bushing toward you to turn it avoiding the hook.

3. Loosen the screw ◯, and turn the Left Parallel Bushing in the direction of the arrow as far as it goes.
4. Disengage the end of the Left Spring from the hook of the Main Frame, and remove the spring from the Main Frame.

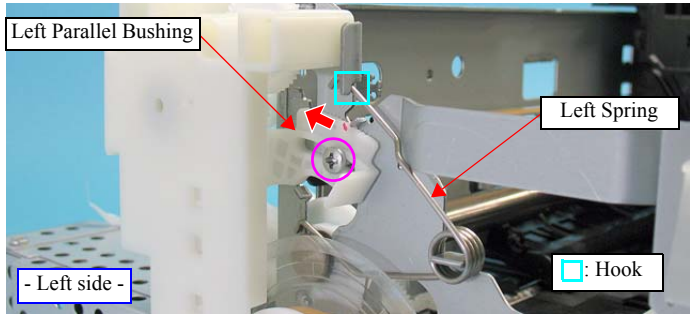


Figure 4-135. Removing the Carriage Assy (1)

5. Disengage the end of the Right Spring from the hook of the Main Frame, and remove the spring.
6. Remove the Right PG Cam from the CR Shaft.
7. Lift the right end of the CR Shaft, and remove the washer and compression spring from the shaft.

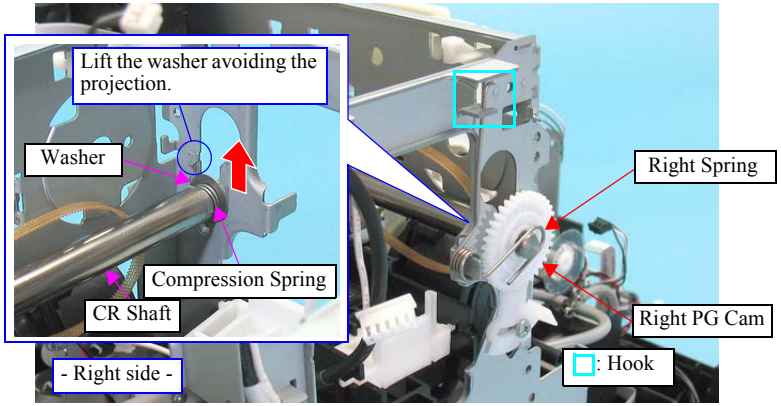


Figure 4-136. Removing the Carriage Assy (2)

8. Move the CR Shaft in the direction of the arrow to pull out its both ends from the left and right bearing holes, and remove the Carriage Assy from the Main Frame with the CR Shaft attached.

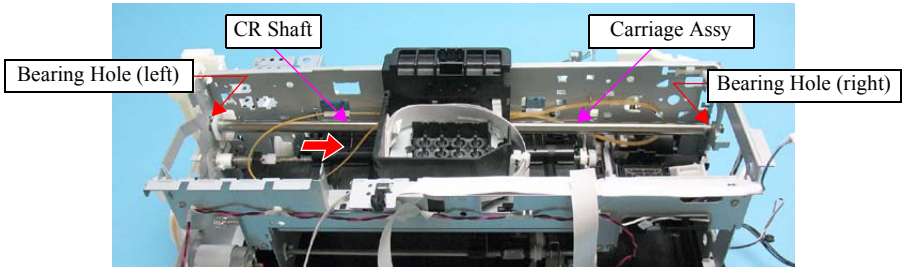


Figure 4-137. Removing the Carriage Assy (3)

9. Remove the Left PG Cam from the CR Shaft.
10. Pull out the CR Shaft from the Carriage Assy.
11. Remove the Timing Belt from the Carriage Assy.

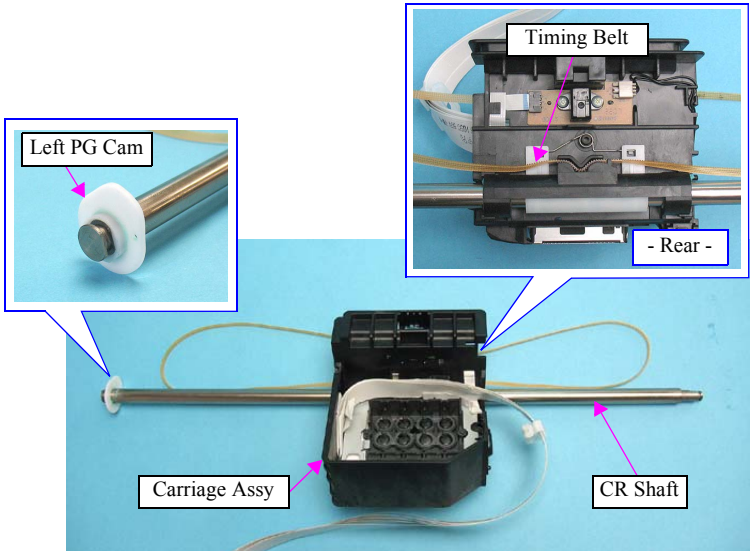


Figure 4-138. Removing the Carriage Assy (4)

REASSEMBLY

- **Check the state of lubricant at the places shown below before installing the Carriage Assy. If the lubricant is not enough, carry out lubrication to avoid a fatal error due to too much friction.**
  - **"Lubrication of Carriage Assy" (p.200)**

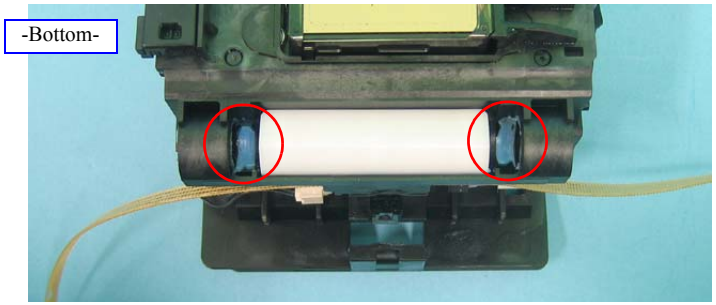


Figure 4-139. Installing the Carriage Assy (1)

- **When installing the Timing Belt, make sure that the belt is not twisted and the portion of the belt where both surfaces are toothed is set in the groove as shown below.**

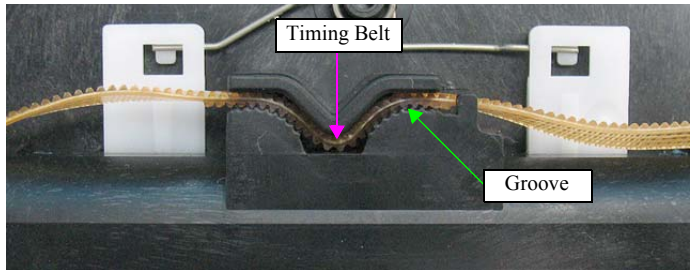


Figure 4-140. Installing the Carriage Assy (2)

- **When installing the Right PG Cam, first attach the compression spring and then attach the washer as shown in *Figure.4-136*.**
- **When installing the Left PG Cam, install it in the orientation shown in *Figure.4-138*.**
- **When installing the Carriage Assy (CR Shaft), set the Left PG Cam between the two projections of the CV Lever of the CV Drive Assy. See *Figure.4-98*.**

REASSEMBLY

■ **Install the Carriage Assy so that its guide tab comes over the Main Frame.**

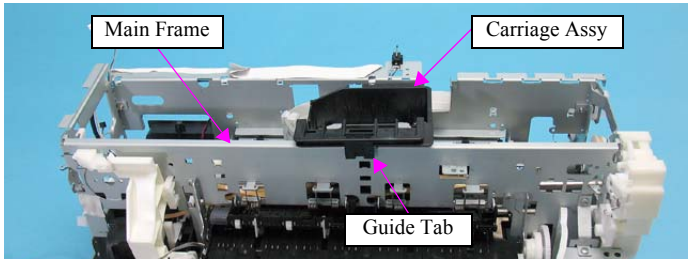


Figure 4-141. Installing the Carriage Assy (2)

ADJUSTMENT REQUIRED

Carry out required adjustments referring to the following sections after replacing or reinstalling the Carriage Assy.

- **Chapter5 "ADJUSTMENT" (p.170)**

4.7.4 Disassembling the Paper Loading Mechanism Components

4.7.4.1 Rear ASF Assy

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy / Planet Lock Assy / Retard Transfer Assy / APG Assy / Sub Board / CR Motor

☐ Disassembly Procedure

1. Press the two tabs that secure the LD Roller Guide, and disengage the four hooks by sliding the LD Roller Guide upward.

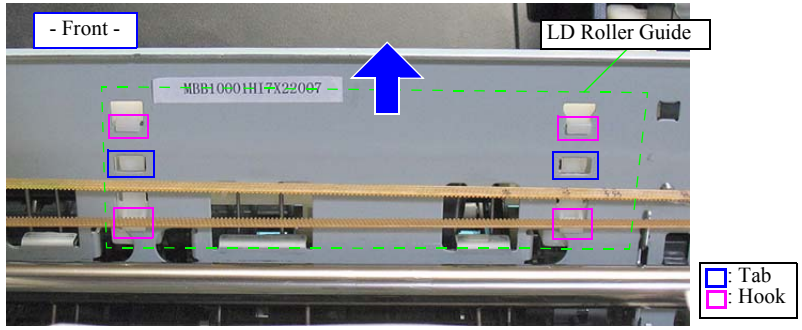


Figure 4-142. Removing the Rear ASF Assy (1)

2. Press down the Hopper, and remove the LD Roller Guide disengaging the rib (○).

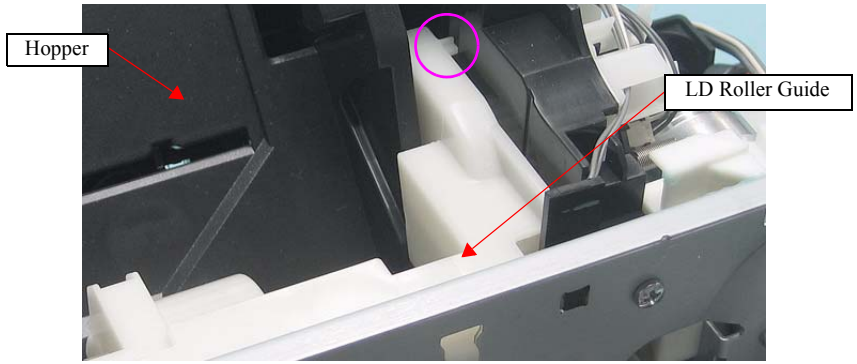


Figure 4-143. Removing the Rear ASF Assy (2)

3. Remove the Extension Spring A (longer one) and B (shorter one) from the hooks.
4. Disengage the leg of the Torsion Spring from the two hooks.
5. Remove the acetate tape and separate the PE Sensor Cable, RP Sensor Cable, and the RH Sensor Cable.

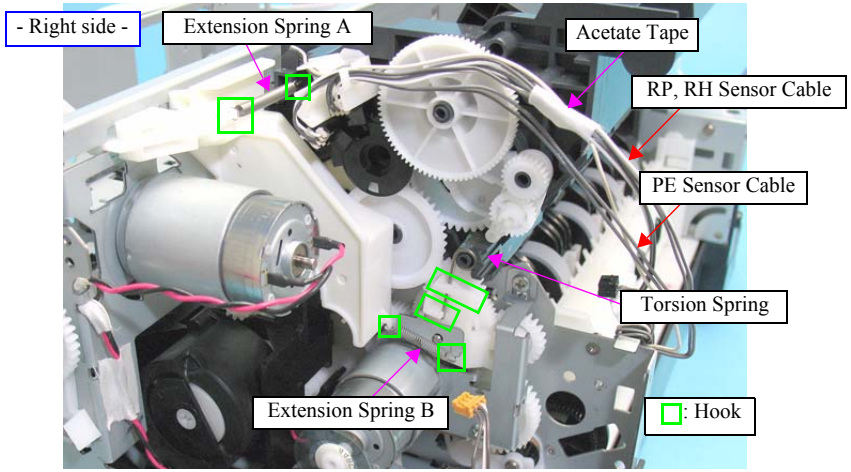


Figure 4-144. Removing the Rear ASF Assy (3)

6. Remove the screw and washer that secure the Rear ASF Assy at its left rear.
   • Screw ○: C.B.S. (P4) 3x4 (Torque: 7-9 kgf.cm)

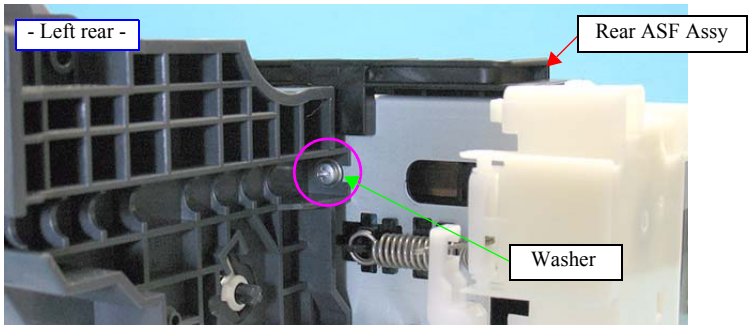


Figure 4-145. Removing the Rear ASF Assy (4)

7. Remove the screw on the front, and disengage the guide pin and two hooks.
   • Screw ○ : C.B.P 3x8 (Torque: 5-7 kgf.cm)

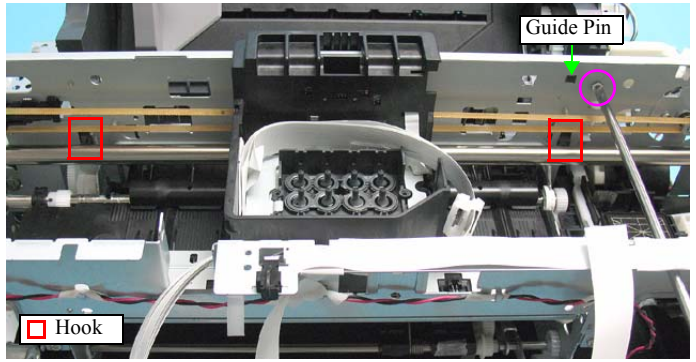


Figure 4-146. Removing the Rear ASF Assy (5)

8. Disengage the hook on the right rear, and remove the Rear ASF Assy from the Main Frame.

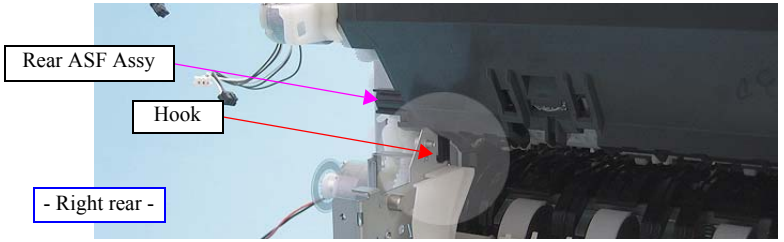


Figure 4-147. Removing the Rear ASF Assy (6)

9. Release the PE Sensor Cable from the four hooks on the Rear ASF Assy.

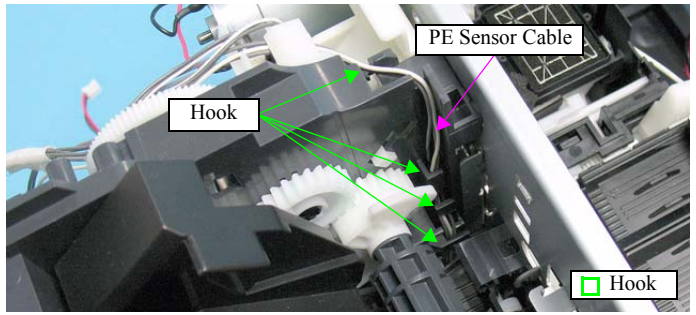


Figure 4-148. Removing the Rear ASF Assy (7)

REASSEMBLY

- **There are some lubrication points. See below for the lubrication instruction.**
  - **"Lubrication of Rear ASF Assy" (p.203)**
- **When installing the Rear ASF Assy, apply force to the assy in the direction of the arrow, and note the following points.**
  - **The Rear ASF Assy must be securely installed to the Main Frame without any rattling.**
  - **Insert the guide pin and three hooks shown in *Figure.4-146* and *Figure.4-147* into the positioning holes on the Main Frame.**

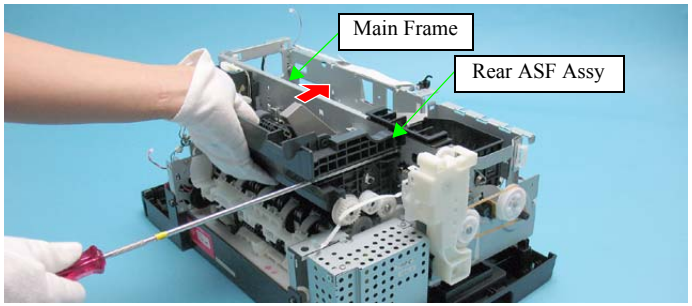


Figure 4-149. Installing the Rear ASF Assy

ADJUSTMENT REQUIRED

Carry out required adjustments referring to the following section after replacing or reinstalling the Rear ASF Assy.

- **Chapter5 "ADJUSTMENT" (p.170)**

4.7.4.2 RH Sensor / RP Sensor

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy / Planet Lock Assy / Retard Transfer Assy / APG Assy / Sub Board / CR Motor / Rear ASF Assy

☐ Disassembly Procedure

1. Remove the screw and disengage the hook, and remove the Rear ASF Sensor Assy.
   - Screw ○ : C.B.P 3x6 (Torque: 5-7 kgf.cm)

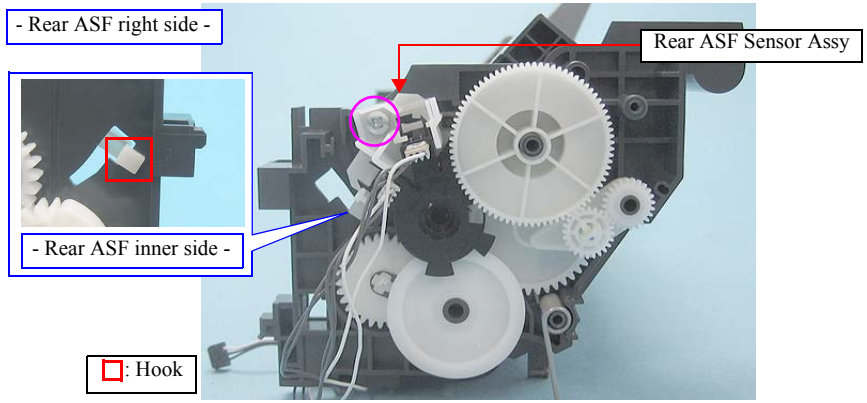


Figure 4-150. Removing the Rear ASF Sensor Assy

2. Disengage the four hooks, and remove the RH Sensor from the Rear ASF Sensor Assy.
3. Disconnect the white cable from the RH Sensor connector.

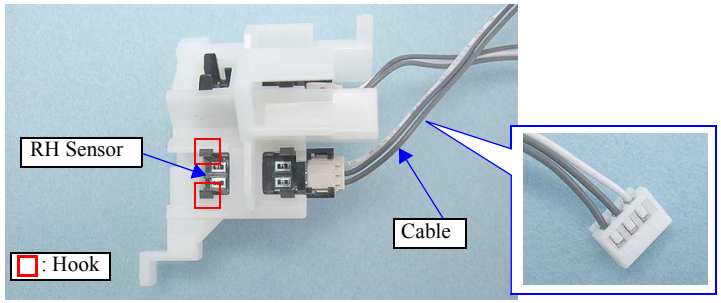


Figure 4-151. Removing the RG Sensor

4. Disengage the two hooks, and remove the RP Sensor from the Rear ASF Sensor Assy.
5. Disconnect the black cable from the RP Sensor connector.

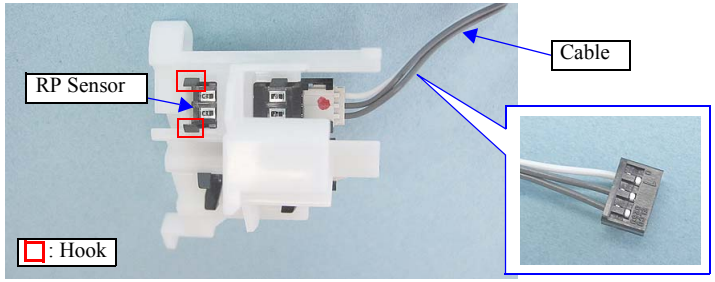


Figure 4-152. Removing the RP Sensor

REASSEMBLY

- **When installing the Rear ASF Sensor Unit, attach its hook to the cutout of the Rear ASF Assy as shown in *Figure.4-150*.**
- **When connecting the RH/RP Sensor Cables, correctly connect them referring to their color as shown in *Figure.4-151* and *Figure.4-152*.**

4.7.4.3 ASF Motor Assy

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy / Planet Lock Assy / Retard Transfer Assy / APG Assy / Sub Board / CR Motor / Rear ASF Assy

☐ Disassembly Procedure

CAUTION

Exercise added care not to damage or contaminate the ASF Encoder. Never touch the encoder with bare hands.

1. Disengage the two hooks that secure the Change Lever to the Main Frame.
2. Disengage the hook that secures the Change Lever Holder to the Change Lever, and remove the holder from the Change Lever.
3. Remove the Change Lever from the Main Frame pulling out the projection of the lever from the hole on the frame.

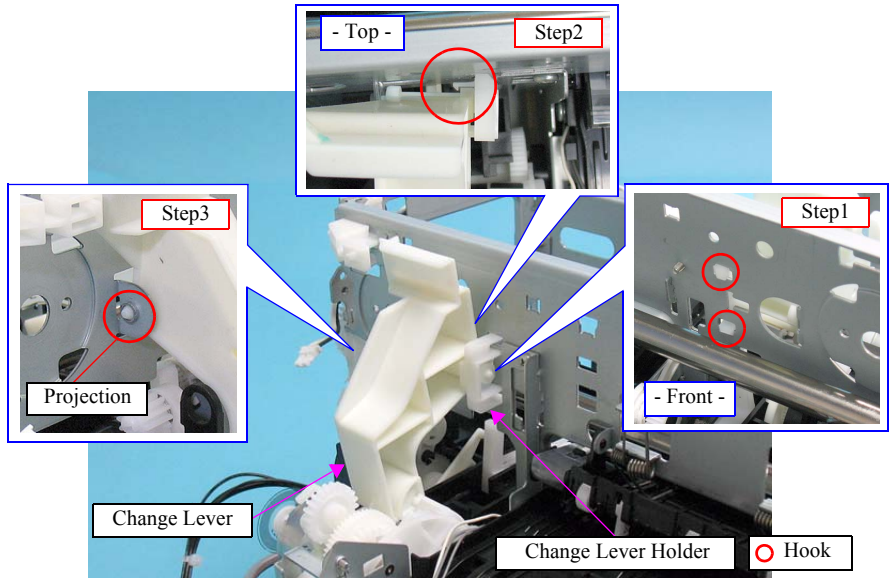


Figure 4-153. Removing the Change Lever

4. Remove the acetate tape that secures the ASF Motor Cable to the frame.
5. Release the ASF Motor Cable from the hook on the Rear Frame Assy.
6. Remove the three screws, and remove the ASF Motor Assy.
   - Screw ○ : C.B.S 3x4 (Torque: 7-9 kgf.cm)
   - Screw ○ : C.B.S 3x6 (Torque: 7-9 kgf.cm)
   - Screw ○ : C.P. 3x6 (Torque: 7-9 kgf.cm)

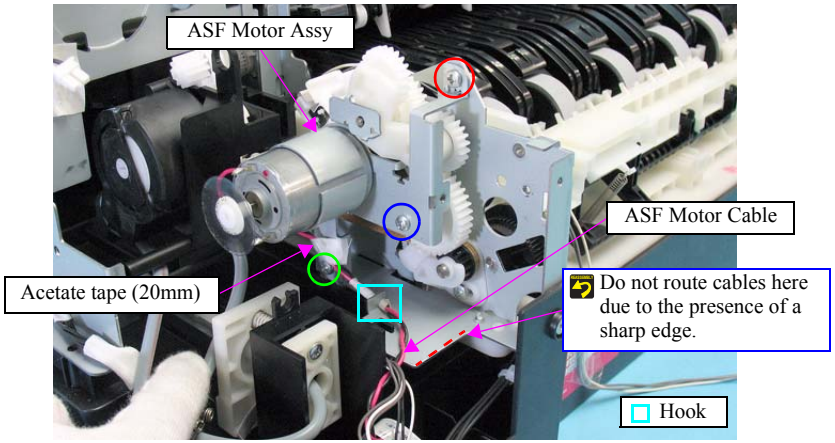


Figure 4-154. Removing the ASF Motor Assy

REASSEMBLY

- **Route the ASF Motor Cable as shown in *Figure.4-154*.**
- **When installing the ASF Motor Assy, insert the rib into the positioning hole as shown below.**

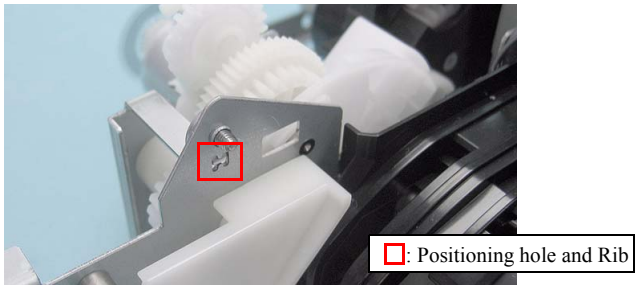


Figure 4-155. Installing the ASF Motor Assy (1)

- **When installing the Change Lever, insert the projection of the lever into the hole of the Planetary Gear Change Holder Assy.**

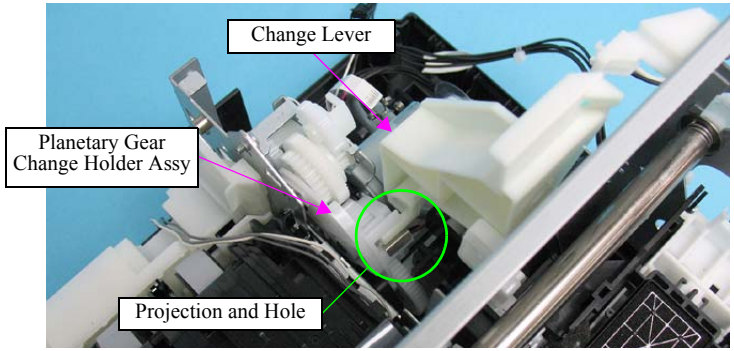


Figure 4-156. Installing the ASF Motor Assy (2)

ADJUSTMENT REQUIRED

Carry out the required adjustments referring to the section below after replacing the ASF Motor Assy.

- **Chapter5 "ADJUSTMENT" (p.170)**

4.7.4.4 Planet Lock Assy

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy

☐ Disassembly Procedure

CHECK POINT

For B-300/B-308/B-500DN/B-508DN, skip *Step2*. This step is for B-310N/B-318N/B-510DN/B-518DN only, because the number of connectors on the Sub Board differ from B-300/B-308/B-500DN/B-508DN (see *Figure.4-157*).

1. Disconnect the following cables from the Sub Board.

CN No.	Color	Destination	Number of pins
CN903	Black	ASF Sub Motor	2
CN906	White	RH Sensor	3
CN907	Black	RP Sensor	3
CN911	White	PE Sensor	3
CN916*	Yellow	ASF Sub Encoder	4

Note *: For B-300/B-308/B-500DN/B-508DN only. The cable is soldered to the Sub Board for B-310N/B-318N/B-510DN/B-518DN.

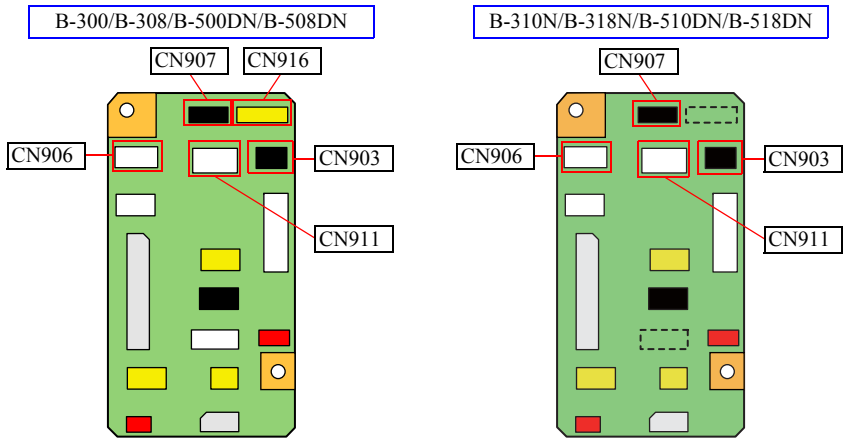


Figure 4-157. Removing the Planet Lock Assy (1)

2. Disconnect the ASF Sub Encoder Cable from the connector (NC1) on the ASF Sub Encoder Assy. (B-310N/B-318N/B-510DN/B-518DN only.)

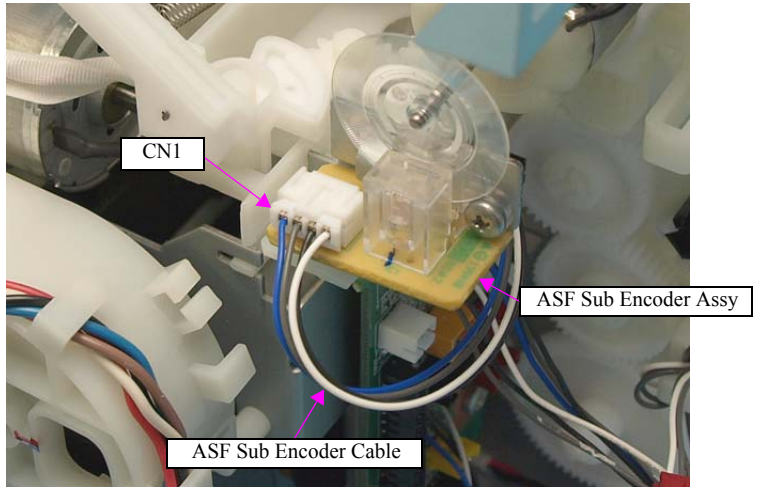


Figure 4-158. Removing the Planet Lock Assy (2)

3. Remove the two screws that secure the Planet Lock Assy.
   • Screw ○ : C.B.P 3x8 (Torque: 7-9 kgf.cm)
   (The numbers shown on the figure indicate the order of tightening screws.)
4. Remove the relay cable from the hook of the Planet Lock Assy.
5. Release the PE Sensor, RP Sensor, and RH Sensor Cables from the two hooks on the upper side of the Planet Lock Assy.

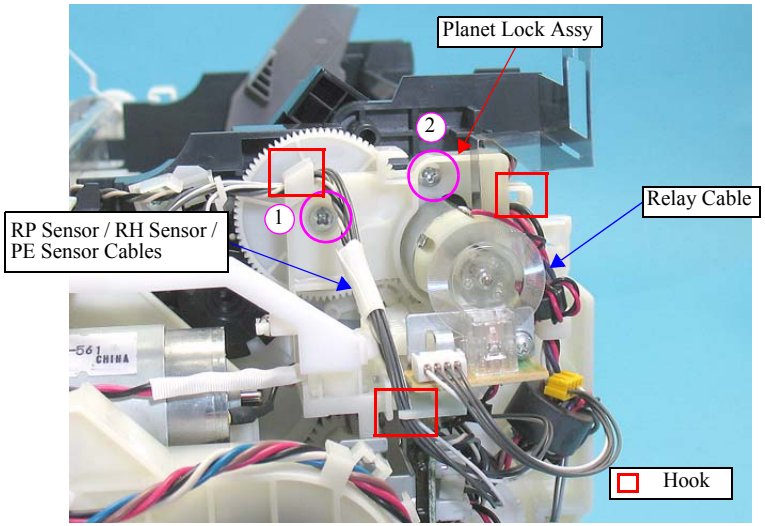


Figure 4-159. Removing the Planet Lock Assy (3)

6. Remove the extension spring.

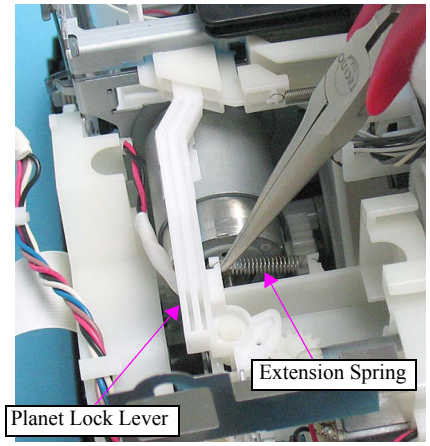


Figure 4-160. Removing the Planet Lock Assy (4)

CHECK POINT

For B-300/B-308/B-500DN/B-508DN, skip *Step7*. This step is for B-310N/B-318N/B-510DN/B-518DN only, because the shape of the Planet Lock Lever differs from that of B-300/B-308/B-500DN/B-508DN (see *Figure.4-162*).

7. Release the two hooks that secure the Planet Lock Lever, and remove the Planet Lock Lever from the shaft of the Planet Lock Assy. (B-310N/B-318N/B-510DN/B-518DN only.)

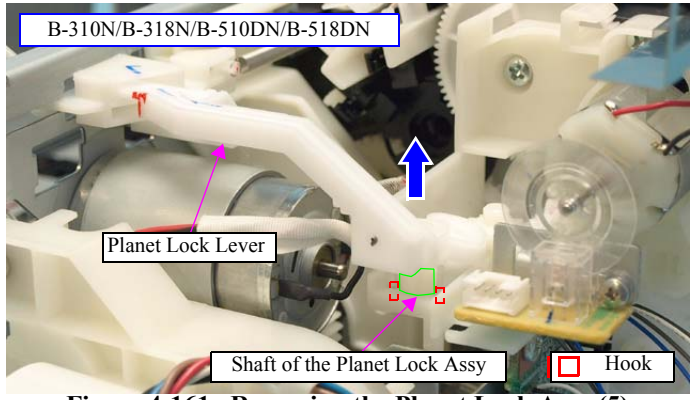


Figure 4-161. Removing the Planet Lock Assy (5)

8. Remove the arm of the Planet Lock Lever from the groove of the Slider Lock.

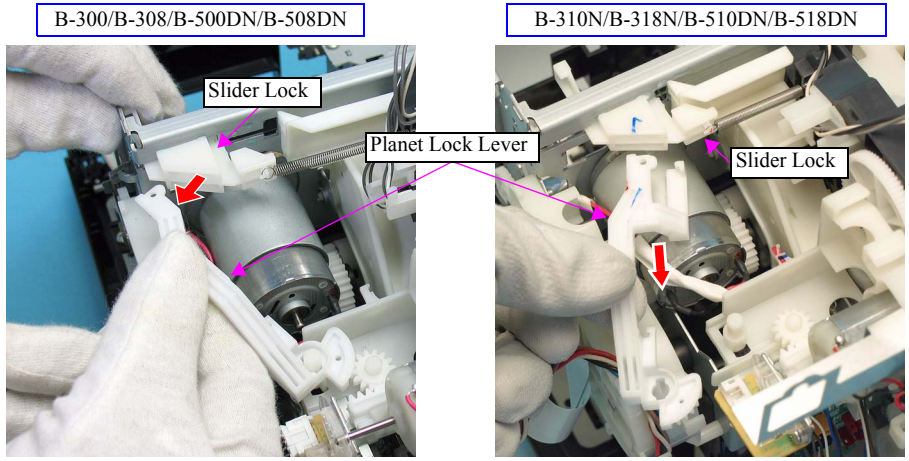


Figure 4-162. Removing the Planet Lock Assy (6)

CAUTION

Be careful not to let the Spur Gear 12 come off while performing the next step.

Figure 4-163. Handling the Spur Gear 12

CHECK POINT

For B-310N/B-318N/B-510DN/B-518DN, the cable connected to the ASF Encoder Assy is removed on the prior disassembly procedure.

9. Disengage the two hooks of the Planet Lock Assy from the frame and the Retard Transfer Assy.
10. Turn the Planet Lock Assy in the direction of the arrow, and remove the Planet Lock Assy.

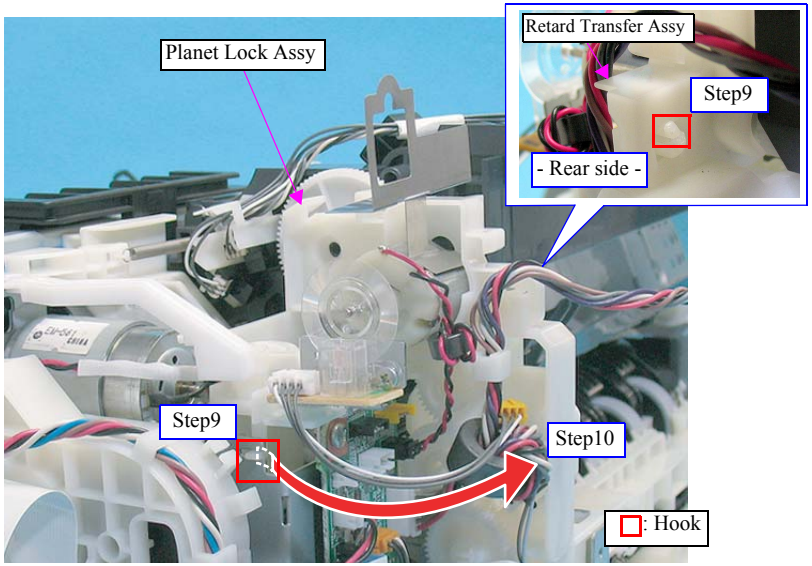


Figure 4-164. Removing the Planet Lock Assy (7)

REASSEMBLY

■ **As shown below, the Planet Lock Lever must be located inward as far as it goes, and the gap between the Lock Planet and the ASF Sub Encoder Assy must be maximum.**

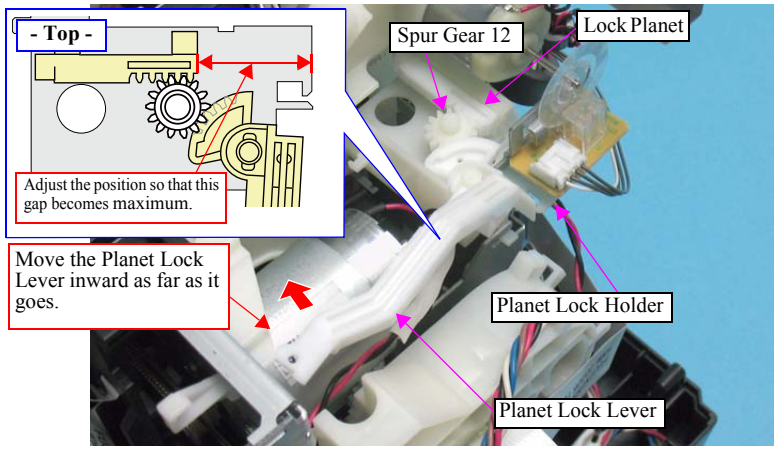


Figure 4-165. Assembling the Planet Lock Assy (1)

REASSEMBLY

■ **When assembling the Planet Lock Assy, make sure to route the following cables as shown below.**

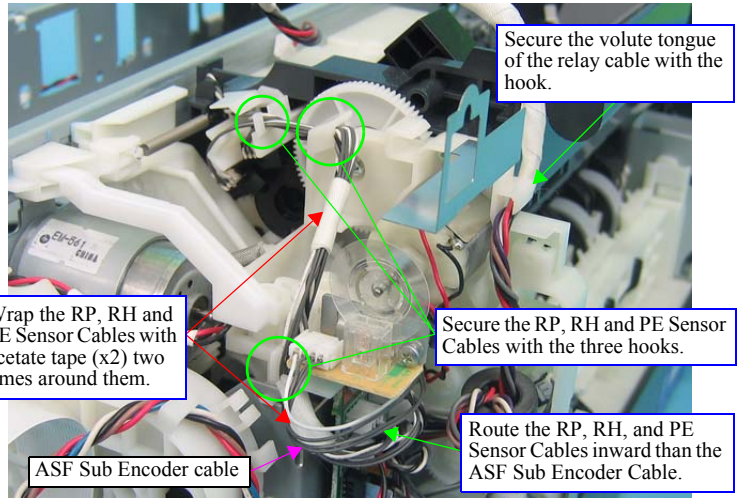


Figure 4-166. Routing the Cables (1)

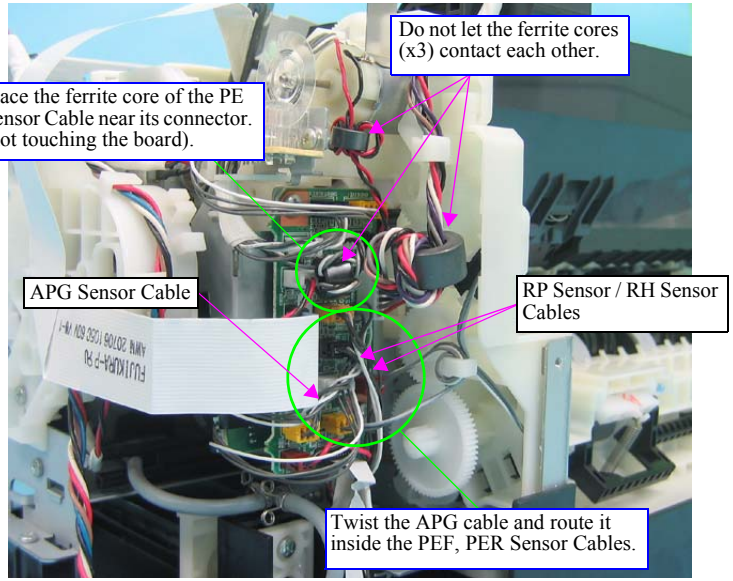


Figure 4-167. Routing the Cables (2)

REASSEMBLY

■ **Make sure the following points before installing the Planet Lock Assy.**

- **The Spur Gear 12 is installed.**
- **The Planetary Gear Sub Holder shaft is properly set in the groove of the Combination Gear 16.8, 32.8 as shown below.**

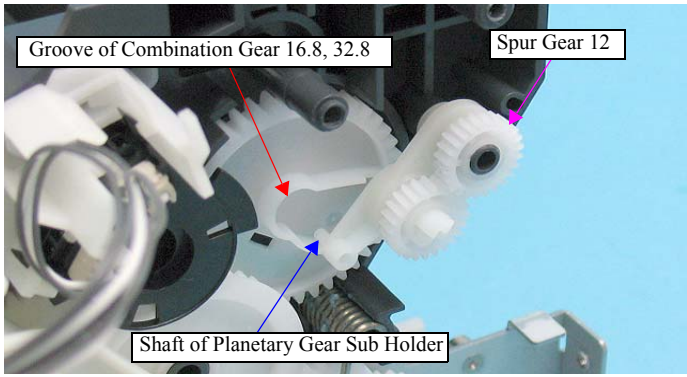


Figure 4-168. Assembling the Planet Lock Assy (2)

ADJUSTMENT REQUIRED

Carry out required adjustments referring to the following section after replacing or reinstalling the Planet Lock Assy.

- **Chapter5 "ADJUSTMENT" (p.170)**

4.7.4.5 ASF Sub Encoder

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy / Planet Lock Assy

☐ Disassembly Procedure

CAUTION

Exercise added care not to damage or contaminate the ASF Sub Scale. Never touch the scale with bare hands.

CHECK POINT

For B-310N/B-318N/B-510DN/B-518DN, the cable connected to the ASF Encoder Assy is removed on the prior disassembly procedure.

1. Disengage the hook of the ASF Sub Motor Holder that secures the Encoder Mounting Plate, and remove the ASF Sub Encoder Assy from the Planet Lock Assy in the direction of the arrow.

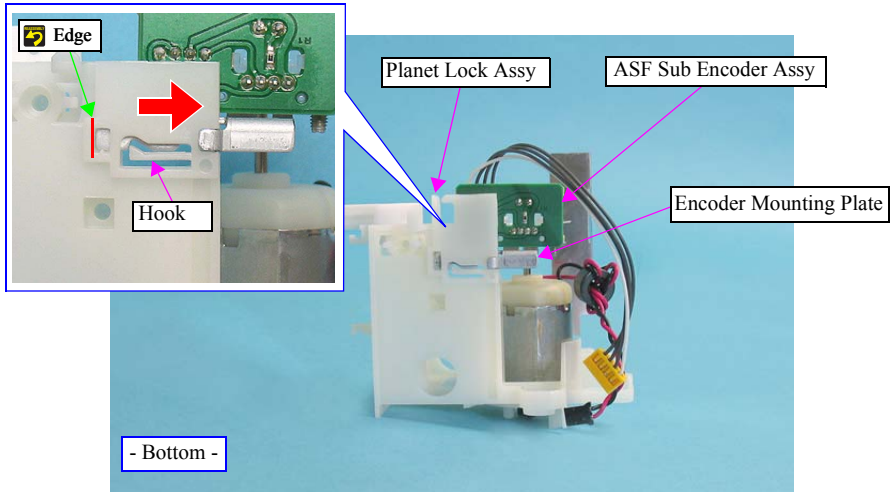


Figure 4-169. Removing the ASF Sub Encoder (1)

2. Remove the screw, and remove the ASF Sub Encoder from the Encoder Mounting Plate pulling out the rib of the mounting plate.
   • Screw ○ : C.B.S. (P4) 2.6x6 (Torque: 3-5 kgf.cm)

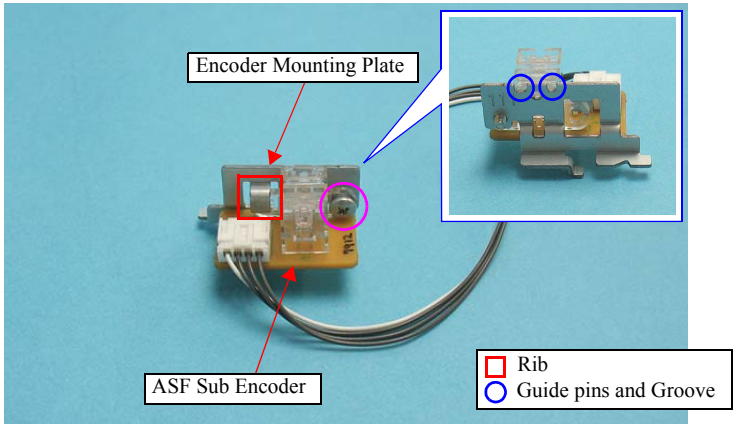


Figure 4-170. Removing the ASF Sub Encoder (2)

REASSEMBLY

- **When installing the ASF Sub Encoder to the Encoder Mounting Plate, insert the two guide pins of the ASF Sub Encoder into the grooves of the mounting plate as shown in *Figure.4-170*.**
- **When installing the ASF Sub Encoder Assy to the Planet Lock Assy, note the following points referring to *Figure.4-169*.**
  - **The ASF Sub Encoder Assy and the Planet Lock Assy must be secured with each other without gap or rattling.**
  - **The tip of the Encoder Mounting Plate must reach the edge of the Planet Lock Assy.**
  - **The hook of the Planet Lock Assy is not bent after installing.**

4.7.4.6 Retard Transfer Assy

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy / Planet Lock Assy

☐ Disassembly Procedure

1. Disconnect the following cables from the Sub Board.

CN No.	Color	Destination	Number of pins
CN901	White	Relay cable (Main Board)	6
CN909	Red	FP Sensor	3
CN913	Yellow	Duplex Sensor	2

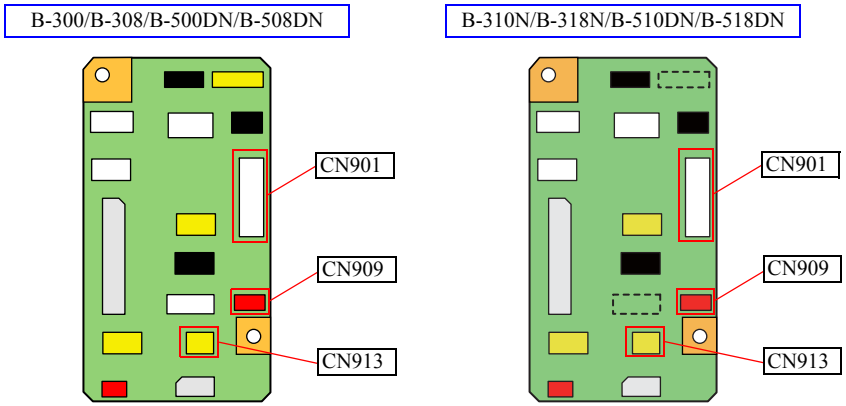


Figure 4-171. Removing the Retard Transfer Assy (1)

2. Release the relay cable from the hook of the Retard Transfer Assy.
3. Disengage the hook of the Combination Gear 32,11, and remove the gear from the Retard Transfer Assy.

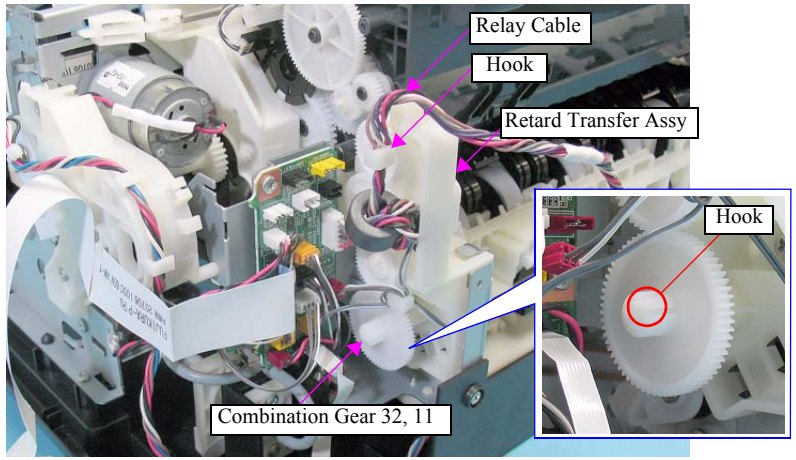


Figure 4-172. Removing the Retard Transfer Assy (2)

CAUTION

Be careful not to let the Spur Gear 12 come off while performing the next step.

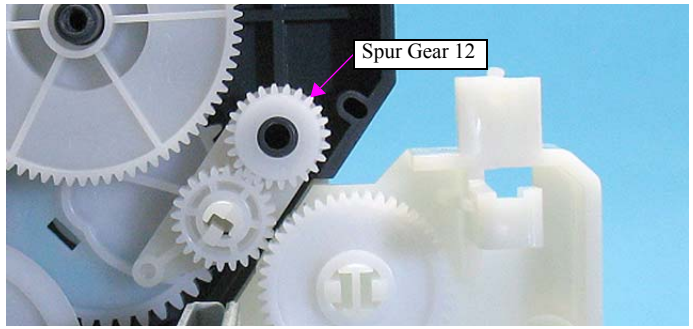


Figure 4-173. Handling the Spur Gear 12

4. Remove the screw, and remove the Retard Transfer Assy.
   • Screw ○ : C.B.S. (P4) 3x6 (Torque: 7-9 kgf.cm)

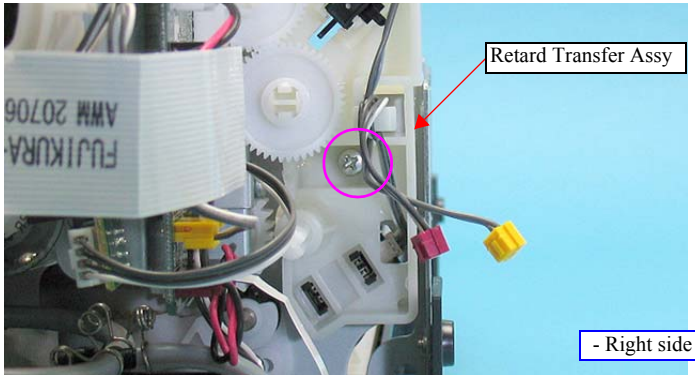


Figure 4-174. Removing the Retard Transfer Assy (3)

REASSEMBLY

- **Insert the two guide pins of the Retard Transfer Assy into the holes of the Rear Frame.**
- **Make sure that the Spur Gear Cam 27 and Spur Gear 11 are properly engaged.**

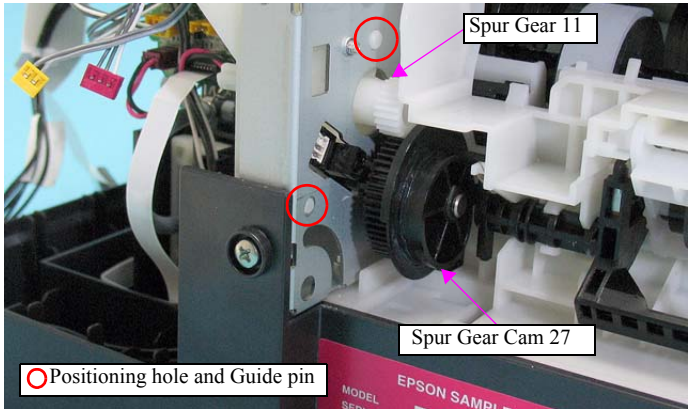


Figure 4-175. Installing the Retard Transfer Assy

4.7.4.7 FASF Retard Assy

CAUTION

Never touch the roller of the FASF Retard Assy with bare hands as doing so can adversely affect print quality.

☐ Parts/Components must be removed in advance

Front ASF Cover Assy

☐ Disassembly Procedure

1. Remove the screw and remove the Retard Reset Shaft Cover.
   • Screw ○ : C.B.P.3x8 (Torque: 5-7 kgf.cm)
2. Remove the Extension Spring from the hooks on the Paper Guide Bank Assy and the Retard Reset Shaft.

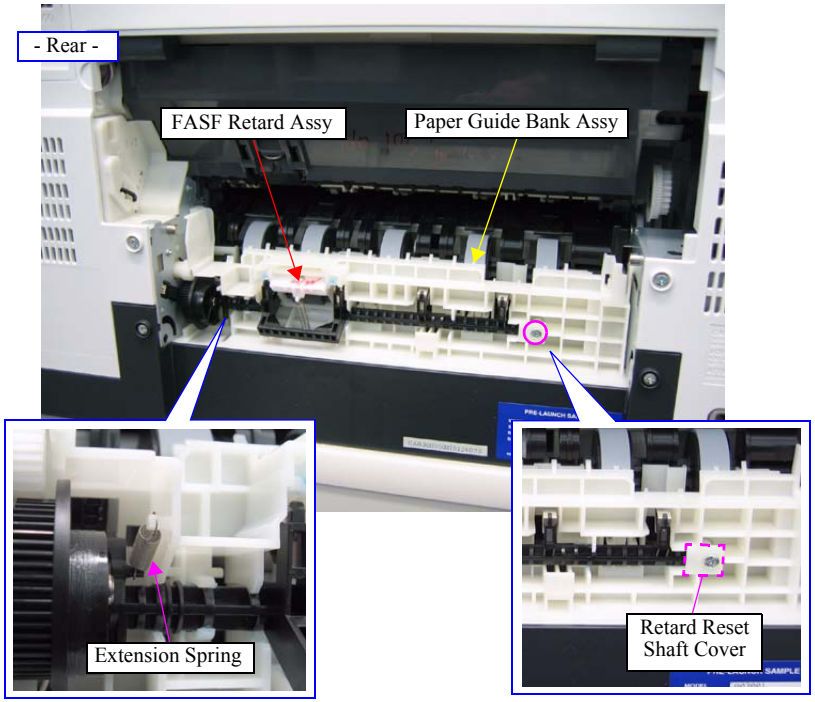


Figure 4-176. Removing the FASF Retard Assy (1)

3. Remove the Retard Reset Shaft from the Paper Guide Bank Assy disengaging the tip of the Retard Reset Shaft lever from the Spur Gear Cam 27.

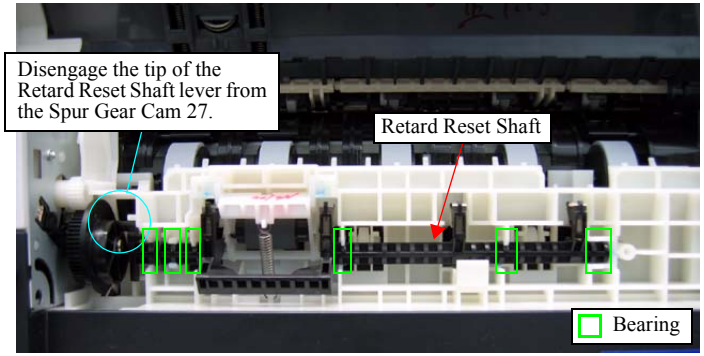


Figure 4-177. Removing the FASF Retard Assy (2)

4. Remove the Extension Spring from the hooks on the Paper Guide Bank Assy and FASF Retard Assy.

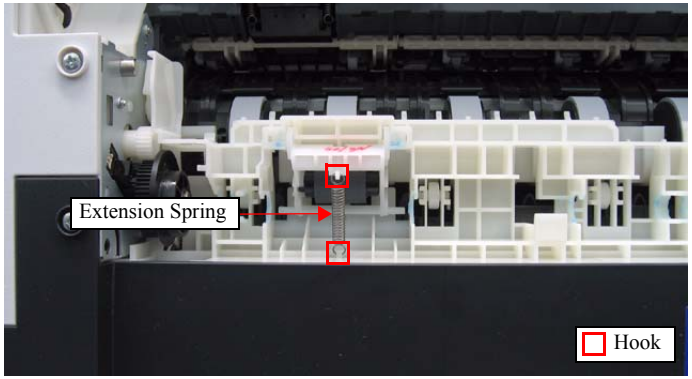


Figure 4-178. Removing the FASF Retard Assy (3)

5. Remove the FASF Retard Assy from the two grooves on the Paper Guide Bank Assy.

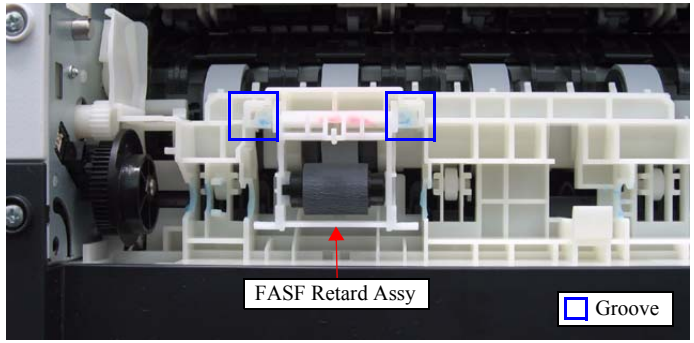


Figure 4-179. Removing the FASF Retard Assy (4)

REASSEMBLY

■ **When installing the FASF Retard Assy, make sure that its projection is located under the Retard Reset Shaft lever.**

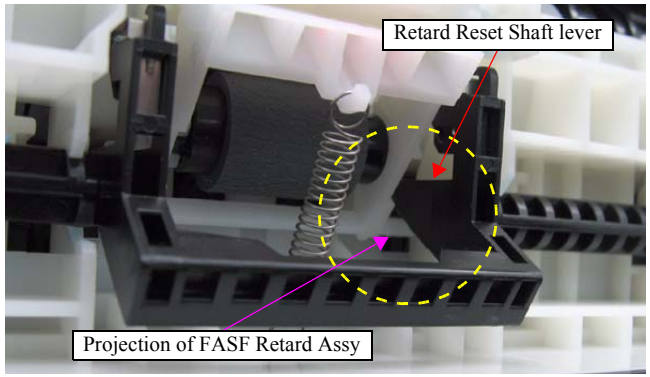


Figure 4-180. Installing the FASF Retard Assy

REASSEMBLY

- **When installing the Retard Reset Shaft, insert the tip of the Retard Reset Shaft lever so that it contacts with the Spur Gear Cam 27 surface as show in *Figure.4-203*.**
- **When installing the Retard Reset Shaft, make sure to secure the shaft with the six bearings of the Paper Guide Bank Assy as shown in *Figure.4-177*.**
- **There are some lubrication points. See below for the lubrication instruction.**
  - **"Paper Guide Bank Assy" (p.202)**

4.7.4.8 LD Roller / Retard Roller

CAUTION

Never touch the surface of the LD Roller and Retard Roller as doing so can adversely affect print quality.

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy / Planet Lock Assy / Retard Transfer Assy / APG Assy / Sub Board / CR Motor / Rear ASF Assy

☐ Disassembly Procedure

CHECK POINT

Refer to the section below for information on orientation indicated in the following procedures.

- **4.1.6 Orientation Definition**

■ Removing the LD Roller

1. Remove the Hopper Gear and the RASF Planetary Gear.
2. Disengage the hook on the inner side of the Rear ASF, and remove the ASF Sensor Flag.
3. Remove the ASF Flag Gear.

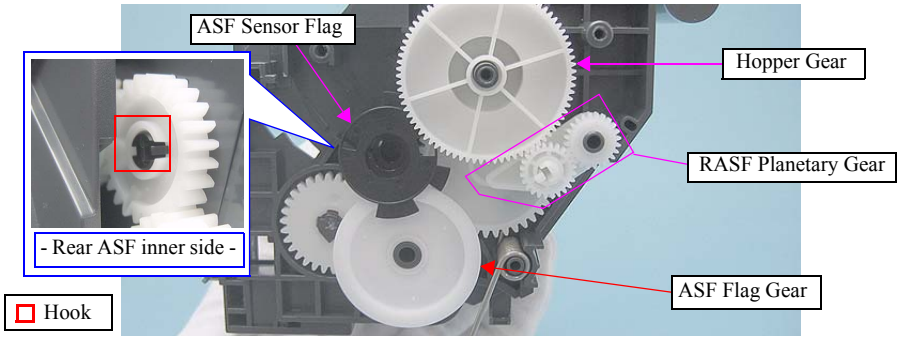


Figure 4-181. Removing the LD Roller (1)

4. Remove the retaining ring of the Spur Gear 24LD, and remove the Spur Gear 24LD.

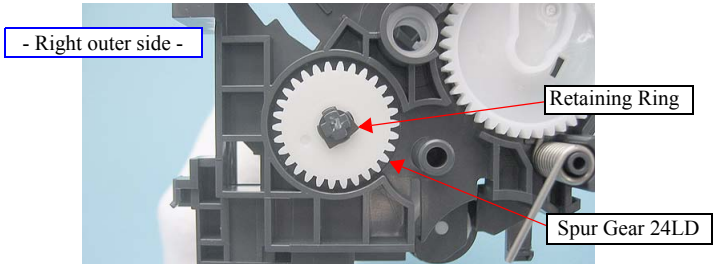


Figure 4-182. Removing the LD Roller (2)

5. Disengage the hook of the LD Roller Bushing that is located at the right outer side of the Rear ASF Assy, and to remove the LD Roller Bushing, move it in the direction of the arrow pushing out its inner two tabs through the holes of the Rear ASF Assy.

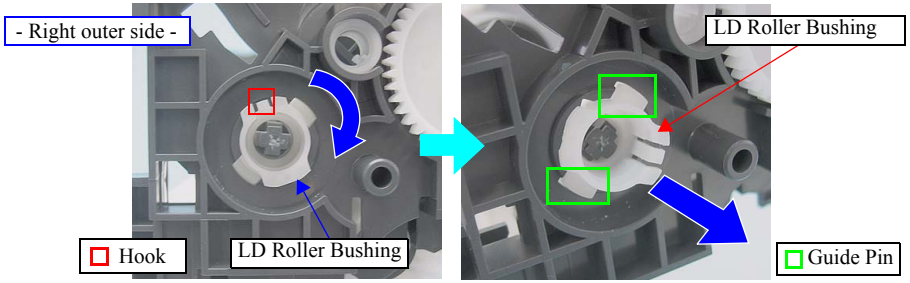


Figure 4-183. Removing the LD Roller (3)

6. Pull out the guide pin of the bushing that secures the LD Roller at the left inner side of the Rear ASF Assy, and turn the bushing in the direction of the arrow to push it out through the hole of the Rear ASF Assy.

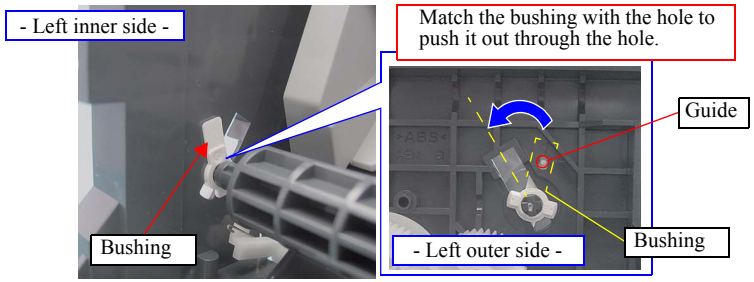


Figure 4-184. Removing the LD Roller (4)

7. Slide the LD Roller in the direction of the arrow, and remove it together with the Spur Gear 24LD.

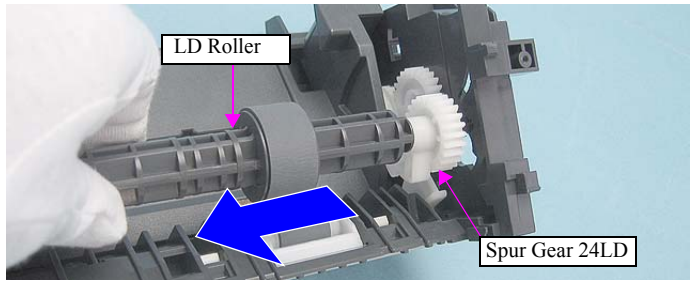


Figure 4-185. Removing the LD Roller (5)

■ Removing the Retard Roller

1. Remove the LD Roller. See Removing the LD Roller *(p.146)*.
2. Remove the spring of the Hopper Assy.

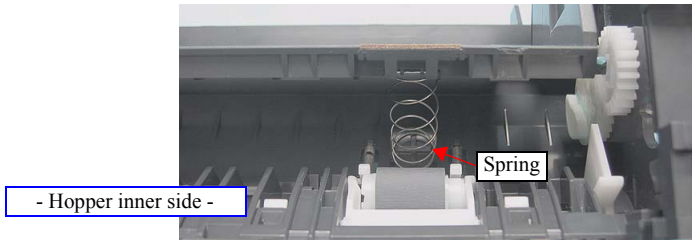


Figure 4-186. Removing the Hopper Assy (1)

3. Pull out the two shafts, and remove the Hopper Assy.

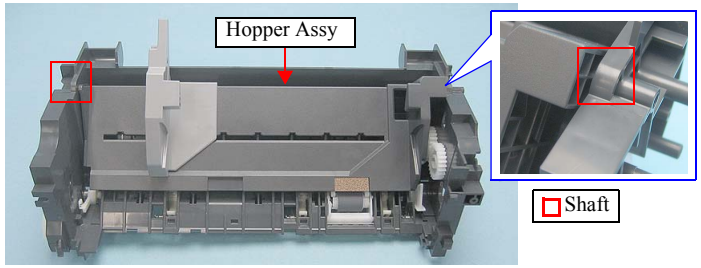


Figure 4-187. Removing the Hopper Assy (2)

4. Remove the two Extension Springs that secure the Retard Roller Holder.

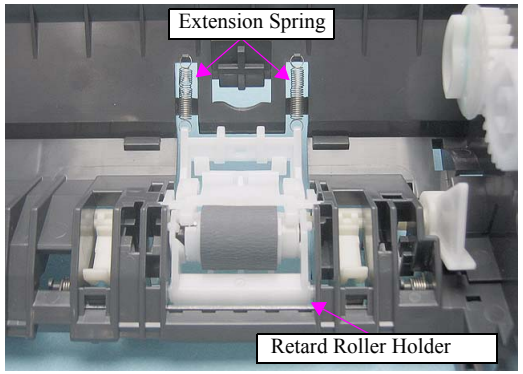


Figure 4-188. Removing the Retard Roller Holder

5. Remove the three Torsion Springs that secure the Paper Back Lever at the bottom of the Rear ASF Assy.

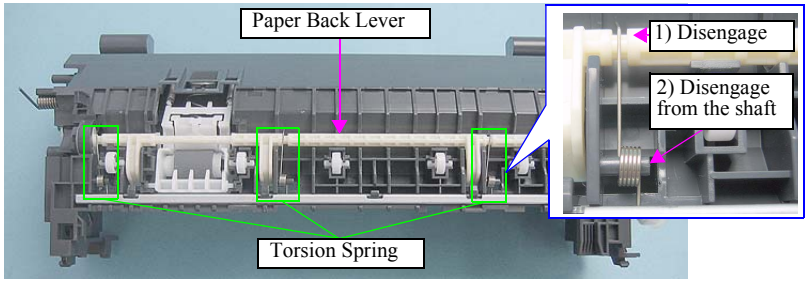


Figure 4-189. Removing the Torsion Spring

6. Pull out the guide pin of the Right Paper Back Bushing while pressing the right side of the Rear ASF Assy outward, and remove the bushing sliding its guide pin along the groove of the inner side of the Rear ASF Assy.
7. Pull out the guide pin of the Left Paper Back Bushing while pressing the Rear ASF Assy outward, and remove the bushing together with the Torsion Spring sliding the guide pin along the groove of the inner side of the Rear ASF Assy.

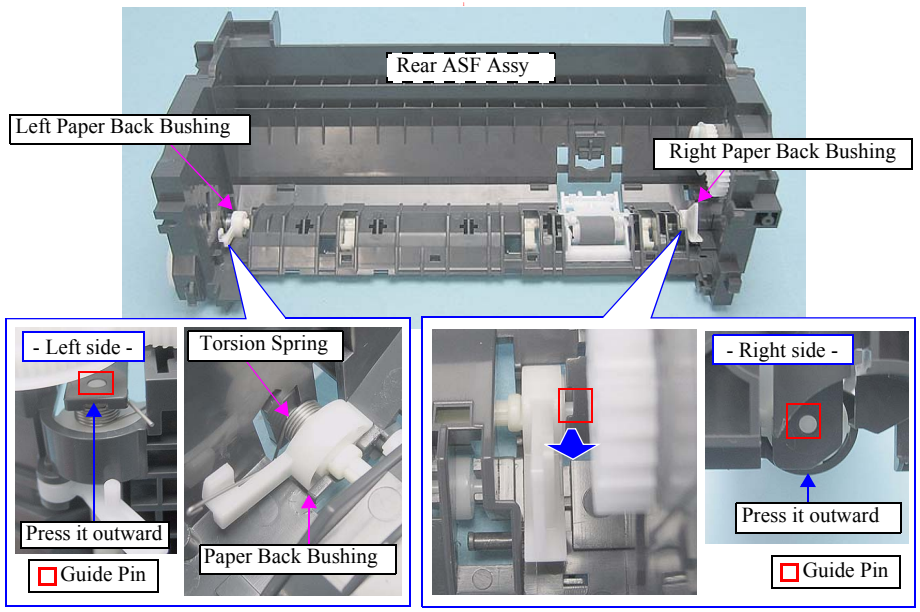


Figure 4-190. Removing the Paper Back Lever (1)

8. Remove the Paper Back Lever from the bottom side.

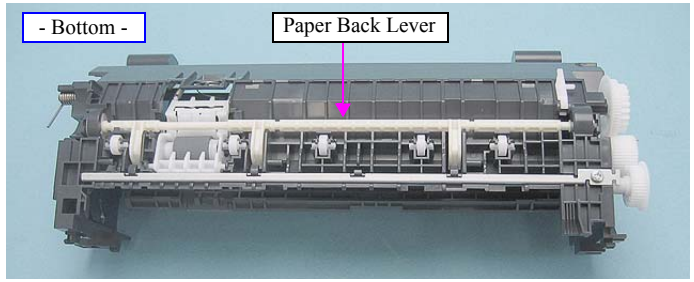


Figure 4-191. Removing the Paper Back Lever (2)

9. Open the Retard Roller Holder at the bottom of the Rear ASF Assy, and pull out the two shafts and remove the Retard Roller Holder toward you.

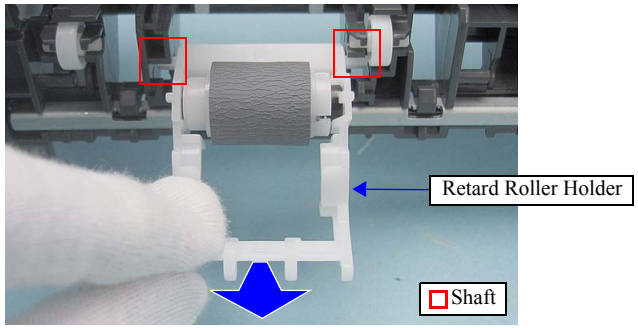


Figure 4-192. Removing the Retard Roller Holder

10. Disengage the tab, and remove the Retard Roller from the Retard Roller Holder.

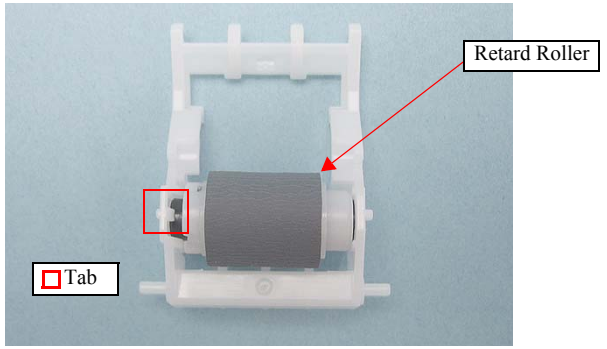


Figure 4-193. Removing the Retard Roller

REASSEMBLY

When installing the Paper Back Lever, make sure to install the three Torsion Springs as shown in *Figure.4-189*.

4.7.4.9 Paper Guide Bank Assy

CAUTION

Never touch the rubber surface of the Front Retard Roller and Idle Roller with bare hands as doing so can adversely affect print quality.

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy / Planet Lock Assy / Retard Transfer Assy / APG Assy / Sub Board / CR Motor / CR Scale / Rear ASF Assy / Carriage Assy / Left/Right Upper Paper Guides / Rear Paper Guide / PE Sensor / Ink System / Lower Housing / ASF Motor Assy

☐ Disassembly Procedure

1. Remove the three screws that secure the Shield Plate to the Main Frame.
   • Screw ◯ : C.B.S. 3x6 (Torque: 5-7 kgf.cm)
2. Disengage the two ribs of the Shield Plate, and remove the Shield Plate.

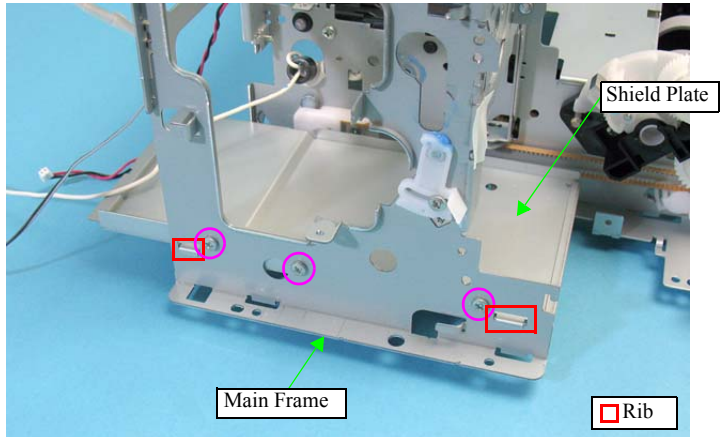


Figure 4-194. Removing the Rear Frame Assy (1)

3. Remove the screw that secures the FD Pulley Holder to the Main Frame.
   • Screw ○ : C.B.S 3x6 (Torque: 5-7 kgf.cm)
4. Pull out the guide pin of the FD Pulley Holder at its rear side.
5. Slide the FD Pulley Holder in the direction of the arrow to remove the pulley, and release the FD Belt.

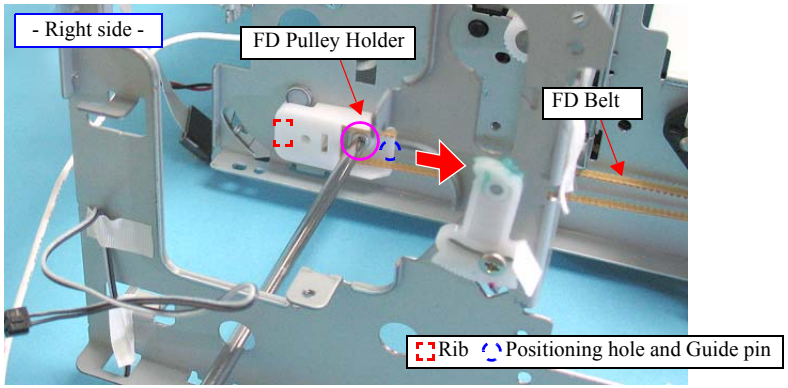


Figure 4-195. Removing the Rear Frame Assy (2)

6. Remove the six screws.
   • Screw ○ : C.B.S 3x6 (Torque: 7-9 kgf.cm)
   • Screw ○ : C.B.S 3x4 (Torque: 7-9 kgf.cm)
   (The numbers shown on the figure indicate the order of tightening screws)

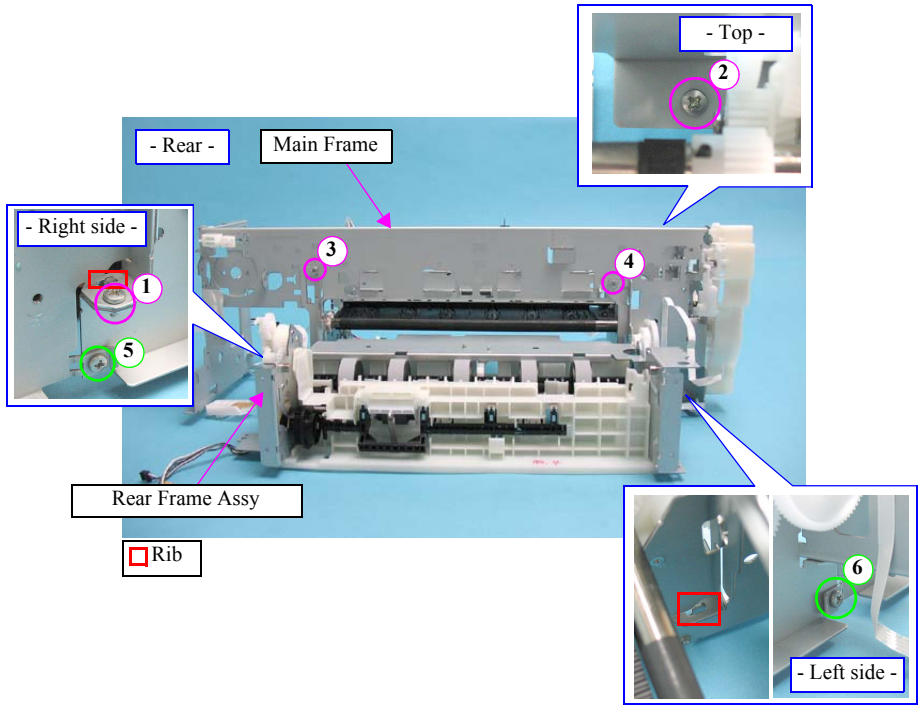


Figure 4-196. Removing the Rear Frame Assy (3)

7. Lift the Main Frame, and separate the Rear Frame Assy from the Main Frame pulling out the two ribs of the Rear Frame Assy.

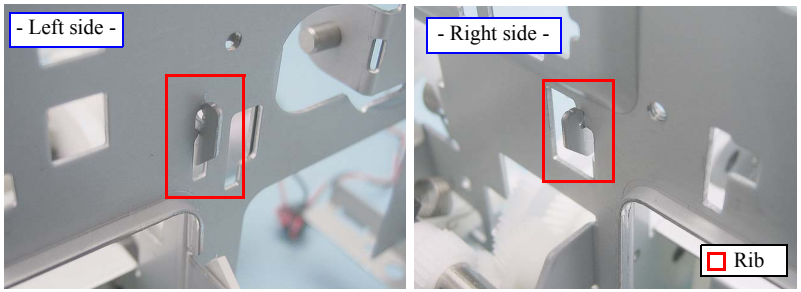


Figure 4-197. Removing the Rear Frame Assy (4)

8. Remove the Black acetate (25mm) tape that secures the sensor cables to the bottom of the Paper Guide Bank Assy.
9. Remove the 2 screws.
   - Screw ○ : C.B.S 3x6 (Torque: 7-9 kgf.cm)
   (The numbers shown on the figure indicate the order of tightening screws)

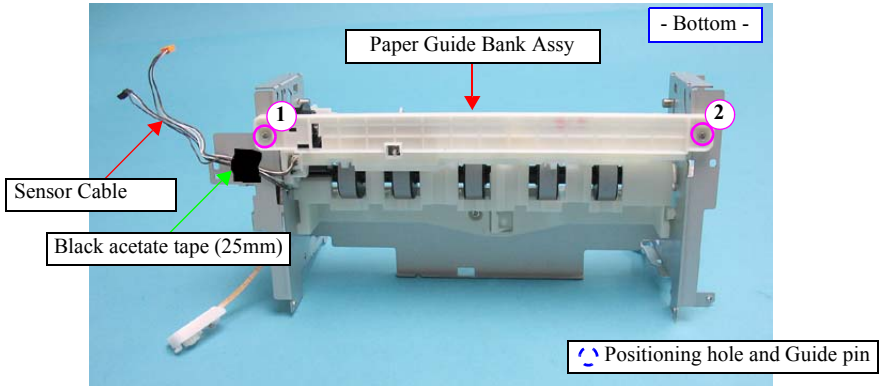


Figure 4-198. Removing the Paper Guide Bank Assy (1)

10. Pull out the three guide pins of the Paper Guide Bank Assy from the Rear Frame Assy, and slide the Paper Guide Bank Assy in the direction of the arrow.

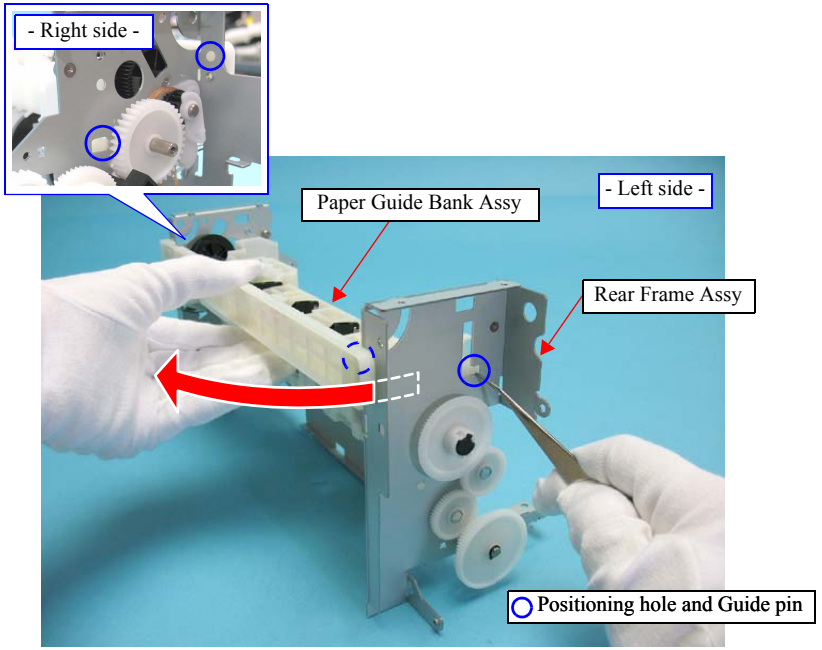


Figure 4-199. Removing the Paper Guide Bank Assy (2)

11. Disengage the Paper Guide Bank Assy from the PER Sensor, and remove the Paper Guide Bank Assy from the Rear Frame Assy.

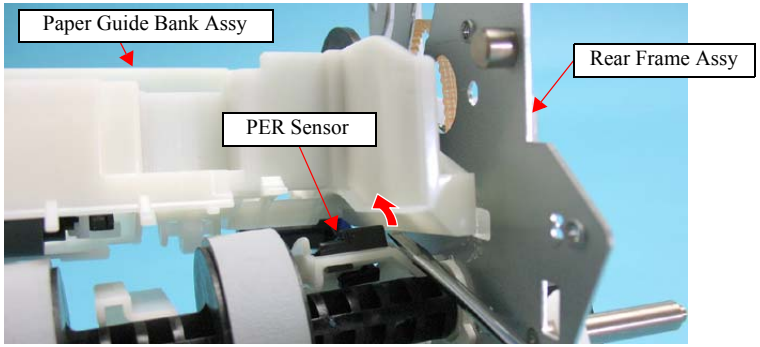


Figure 4-200. Removing the Paper Guide Bank Assy (3)

REASSEMBLY

- When installing the FD Pulley Holder, match the guide pin and rib of the FD Pulley Holder with the positioning hole and edge of the Main Frame as shown in *Figure.4-195*.
- When installing the Rear Frame Assy, make sure to properly engage its four ribs with the positioning holes of the Main Frame as shown in *Figure.4-196* and *Figure.4-197*.
- As shown below, set the tip of the spring of the Pick-up Assy into the groove of the Rear Frame Assy.

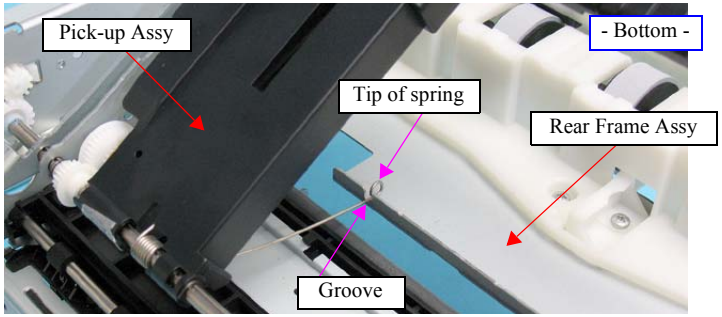


Figure 4-201. Installing the Rear Frame Assy

- When installing the Paper Guide Bank Assy, insert its four guide pins into the holes of the Rear Frame Assy as shown in *Figure.4-199*.
- Secure the two sensor cables with acetate tape at the position shown in *Figure.4-198*.
- Tighten the screws in the order indicated in *Figure.4-196* and *Figure.4-198*.
- There are some lubrication points. See below for the lubrication instruction.
  - "Paper Guide Bank Assy" (p.202)

REASSEMBLY

- Route the PEF and PER Sensor Cables on the frame outside of the line (marking) on the Paper Guide Bank Assy and secure them with Black acetate tape (25mm) as shown below.

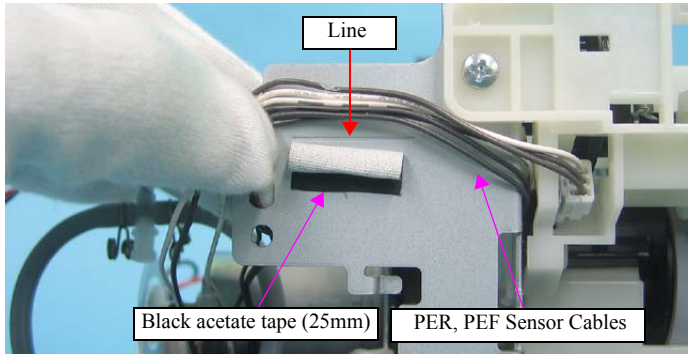


Figure 4-202. Installing the Paper Guide Bank Assy

- When installing the Paper Guide Bank Assy, insert the tip of the Retard Reset shaft lever so that it contacts with the Spur Gear Cam 27 surface as show below. And before tightening the screws, check the Spur Gear Cam 27 if it rotates normally.

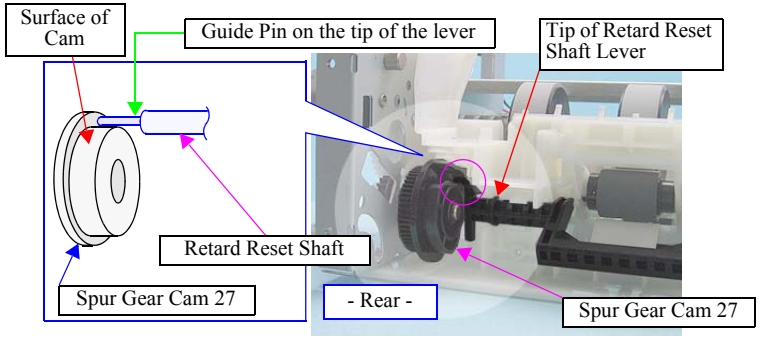


Figure 4-203. Installing the Front Paper Guide Assy

ADJUSTMENT REQUIRED

Carry out required adjustments referring to the following section after replacing or reinstalling the Paper Guide Bank Assy.

- Chapter5 "ADJUSTMENT" (p.170)

4.7.4.10 PEF Sensor

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy / Planet Lock Assy / Retard Transfer Assy / APG Assy / Sub Board / CR Motor / CR Scale / Rear ASF Assy / Carriage Assy / Left/Right Upper Paper Guides / Rear Paper Guide / PE Sensor / Ink System / Lower Housing / ASF Motor Assy / Paper Guide Bank Assy

☐ Disassembly Procedure

1. Remove the screw that secures the PEF Sensor to the Paper Guide Bank Assy.
   • Screw ○ : C.B.P. 2.6x6 (Torque: 3-4 kgf.cm)
2. Remove the PEF Sensor pulling out its rib from the Paper Guide Bank Assy.

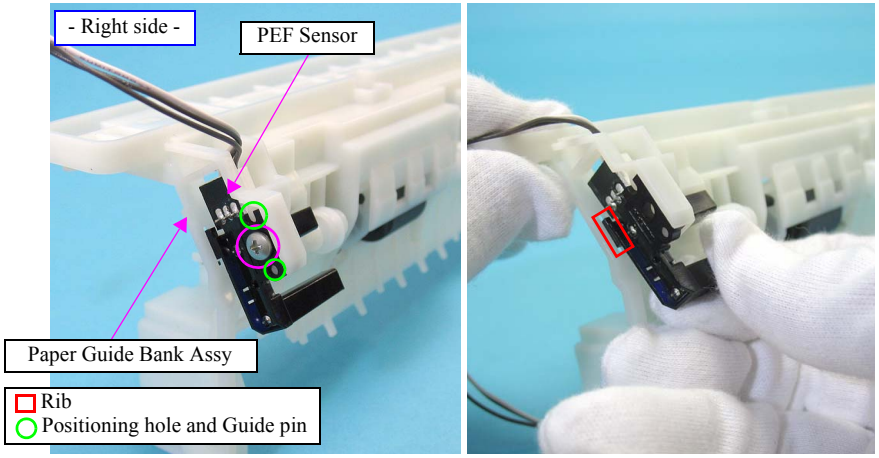


Figure 4-204. Removing the PEF Sensor

REASSEMBLY

When installing the PEF Sensor, insert its two positioning holes over the guide pins of the Paper Guide Bank Assy as shown in *Figure.4-204*.

4.7.4.11 PER Sensor

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy / Planet Lock Assy / Retard Transfer Assy / APG Assy / Sub Board / CR Motor / CR Scale / Rear ASF Assy / Carriage Assy / Left/Right Upper Paper Guide / Rear Paper Guide / PE Sensor / Ink System / Lower Housing / ASF Motor Assy / Paper Guide Bank Assy

☐ Disassembly Procedure

1. Remove the screw that secures the Cover Idle Roller Assy to the Rear Frame Assy.
   • Screw ○ : C.B.S 3x6 (Torque: 7-9 kgf.cm)
2. Pull out the three guide pins of the Cover Idle Roller Assy from the Rear Frame Assy, and remove the Cover Idle Roller Assy from the Rear Frame Assy.

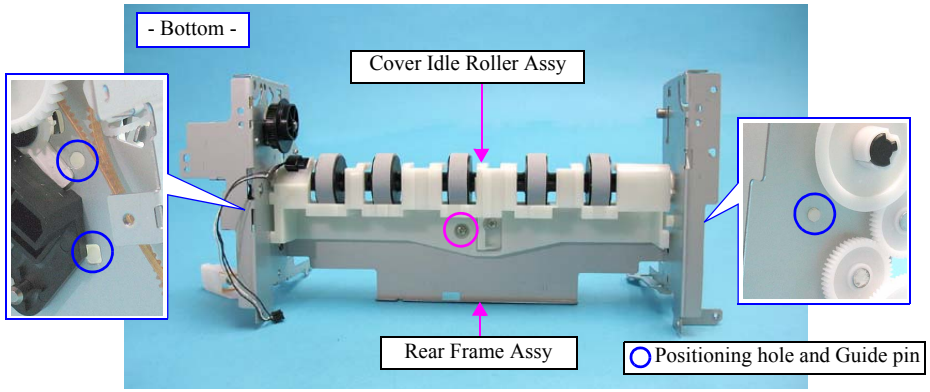


Figure 4-205. Removing the Cover Idle Roller Assy

3. Disengage the hook on the rear of the PER Sensor, and remove the PER Sensor from the Cover Idle Roller Assy.

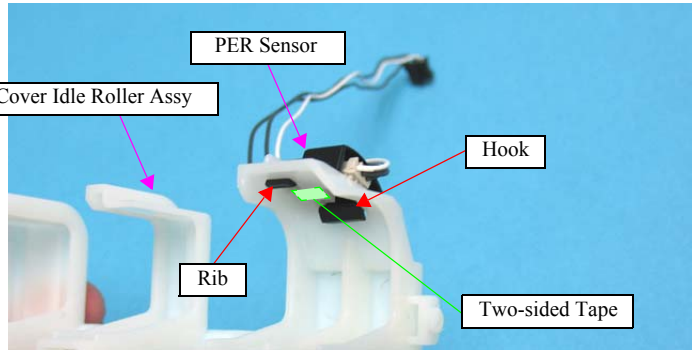


Figure 4-206. Removing the PER Sensor

REASSEMBLY

- **When installing the Cover Idle Roller Assy, insert its three guide pins into the holes of the Rear Frame Assy as shown in *Figure.4-205*.**
- **When installing the PER Sensor, insert its rib into the hole of the Cover Idle Roller Assy, and then insert the sensor's hook into the hole of the assy as shown in *Figure.4-206*.**

4.7.4.12 Rear Paper Guide / PE Sensor

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy / Planet Lock Assy / Retard Transfer Assy / APG Assy / Sub Board / CR Motor / CR Scale / Rear ASF Assy / Carriage Assy / Left/Right Upper Paper Guide

☐ Disassembly Procedure

■ Removing the Rear Paper Guide

1. Disengage the two tabs and two bearings that support the PE Roller shaft, and lift the Rear Paper guide to remove it.

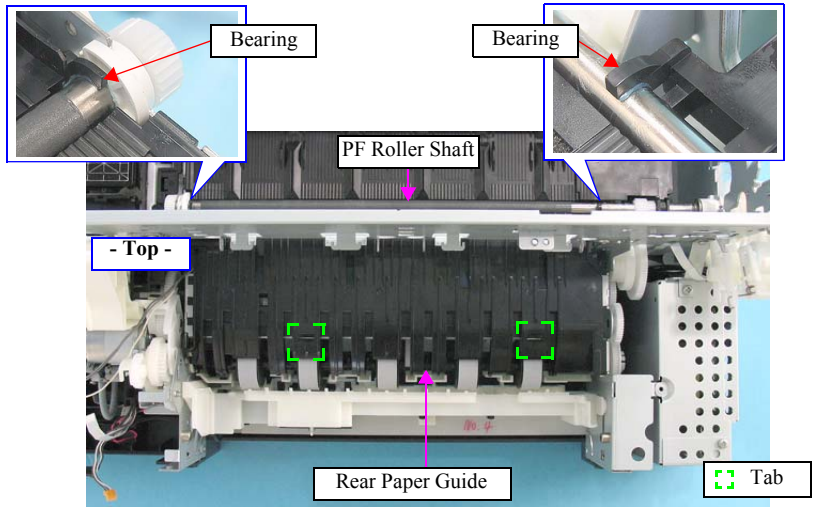


Figure 4-207. Removing the Rear Paper Guide

■ Removing the PE Sensor

1. Remove the screw and remove the PE Sensor.
   • Screw ○ : C.B.P (P4) 3x8 (Torque: 7-9 kgf.cm)

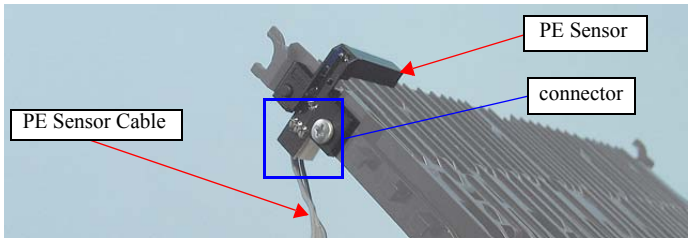


Figure 4-208. Removing the PE Sensor

REASSEMBLY

■ **There are some lubrication points. See below for the lubrication instruction.**
   • **"Lubrication of Rear Paper Guide" (p.203)**

■ **When installing the Rear Paper Guide, securely attach its two bearings to the PF Roller shaft as shown in *Figure.4-207*.**

■ **When installing the Rear Paper Guide, make sure that its four hooks are properly engaged and the three bearings shown below are attached on the Idle Roller shaft.**

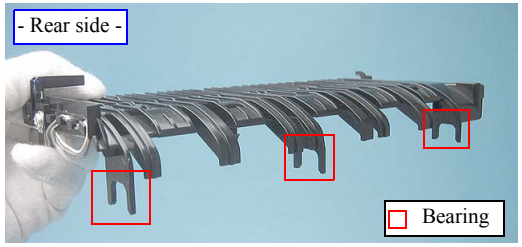


Figure 4-209. Installing the Rear Paper Guide

4.7.4.13 Pick-up Assy

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy / Planet Lock Assy / Retard Transfer Assy / APG Assy / Sub Board / CR Motor / CR Scale / Rear ASF Assy / Carriage Assy / Left/Right Upper Paper Guide / Rear Paper Guide / PE Sensor / Ink System / EJ Frame Assy / Front Paper Guide & EJ Roller Assy / Power Supply Unit / CV Drive Assy / PF Encoder / PF Roller Assy / PF Motor

☐ Disassembly Procedure

1. Remove the E-ring on the Pick-up Roller shaft using long-nose pliers or similar tool.
2. Pull out the guide pin of the bushing from the Main Frame, and turn the bushing in the direction of the arrow to remove it from the Main Frame.
3. Move the Pick-up Roller shaft in the direction of the arrow to remove its end from the bearing, and remove the Pick-up Assy from the Main Frame.

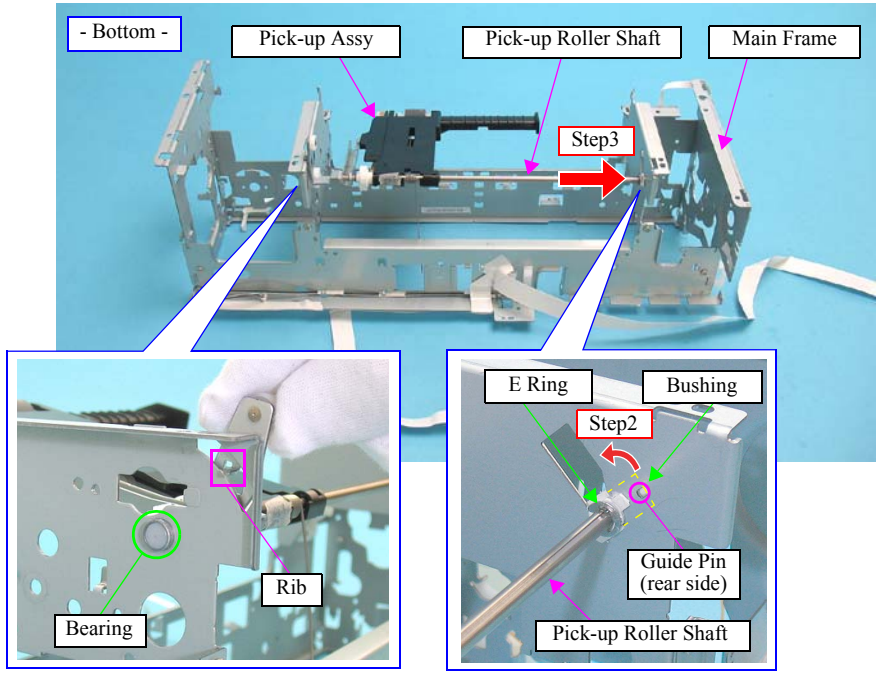


Figure 4-210. Removing the Pick-up Assy

REASSEMBLY

■ **There are some lubrication points. See below for the lubrication instruction.**
- **"Lubrication of Pick-up Assy" (p.205)**

■ **When installing the Pick-up Assy, note the following points.**
- **Insert the rib of the Pick-up Lever shown in *Figure.4-210* into the hole of the Main Frame.**
- **Insert the rib of the Pick-up Lever into the hole of the Pick-up Sub Assy as shown below.**

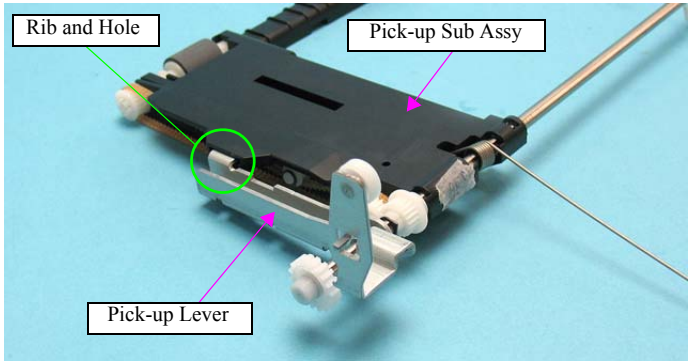


Figure 4-211. Installing the Pick-up Lever

4.7.5 Disassembling the Paper Feed Mechanism Components

4.7.5.1 PF Motor

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy

☐ Disassembly Procedure

1. Remove the acetate tape that secures the PF Motor Cable to the Main Frame.
2. Remove the PF Motor Cable from the six hooks on the Main Frame.

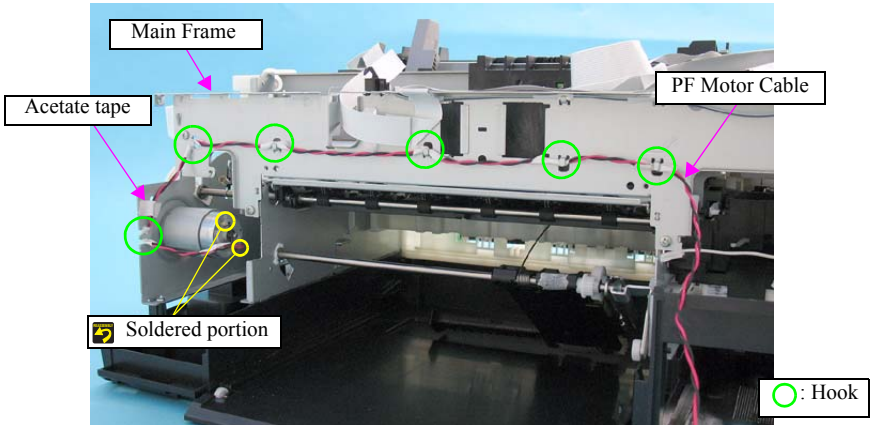


Figure 4-212. Removing the PF Motor (1)

3. Loosen the two screws that secure the PF Motor.
4. Turn the PF Motor in the direction of the arrow as along as it moves within the cutout under the screw to make slack in the PF Timing Belt.

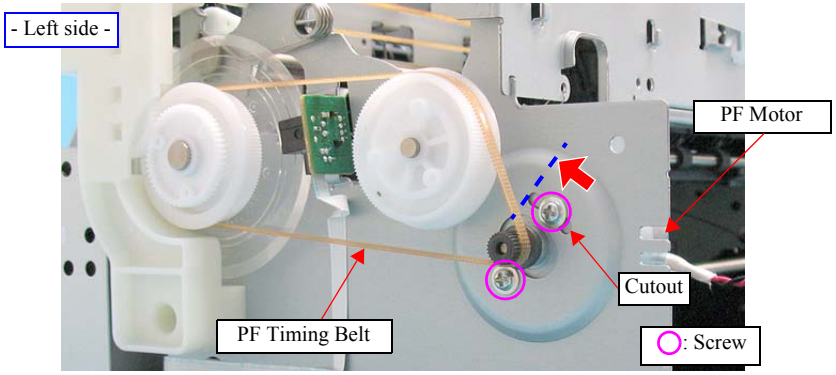


Figure 4-213. Removing the PF Motor (2)

5. Remove the two screws, and pull out the PF Motor through the hole on of the Main Frame exercising care not to hit its pinion gear against the hole, and remove the PF Motor.
   - Screw ◯ : C.C. 3x4 (Torque: 3.5-4.5 kgf.cm)

   (The numbers shown on the figure indicate the order of tightening screws)

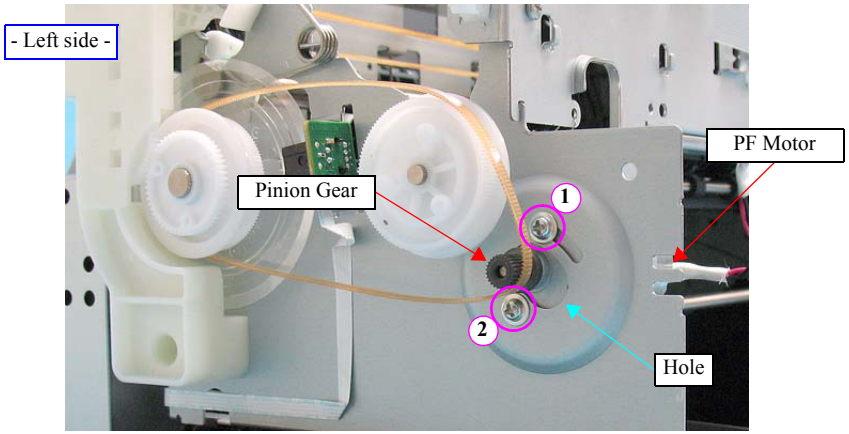


Figure 4-214. Removing the PF Motor (3)

REASSEMBLY

- **Install the PF Timing Best so that its toothed side faces inward.**
- **Install the PF Motor so that the printed characters on it faces downward.**
- **Follow the procedure below to install the PF Motor and the PF Timing Belt.**
  1. **Insert the pinion gear of the PF Motor into the hole.**
  2. **Attach the two screws and lightly tighten them so that the PF Motor can move along the cutout under the screws.**
  3. **Turn the PF Motor along the cutout as far as it goes (to the dotted line shown in *Figure.4-214*), and attach the PF Timing Belt.**
  4. **Adjust the tension of the PF Timing Belt referring to 5.3.2 "PF Belt Tension Adjustment" *(p.193)*, and tighten the screws of the PF Motor in the order indicated in *Figure.4-214*.**
- **Route the PF Motor Cable as shown in *Figure.4-212*. To protect the cable, wrap the portions of the cable secured with the hooks using acetate tape two times around them.**
- **To avoid breaking the soldered portions of the PF Motor Cable shown in *Figure.4-212*, route the cable so that the soldered portions are not pulled.**
- **When replacing the PF Motor, attach acetate tape (20mm) to protect the cable as shown in the figure below.**

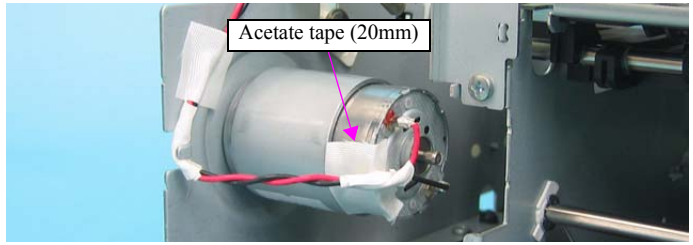


Figure 4-215. Reassembling the PF Motor

ADJUSTMENT REQUIRED

■ **When the following label is attached to the PF Motor, use the values mentioned in the label for PF motor heat protection control.**

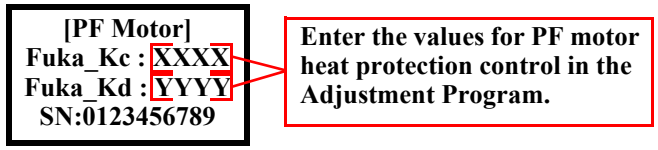


Figure 4-216. Label for PF Motor Heat Protection Control

■ **Carry out required adjustments referring to the following sections after replacing or reinstalling the PF Motor and PF Timing Belt.**

- **Chapter5 "ADJUSTMENT" (p.170)**

4.7.5.2 PF Encoder

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy

☐ Disassembly Procedure

CAUTION

Exercise added care not to damage or contaminate the PF Scale. Never touch the scale with bare hands.

1. Remove the acetate tape, and disconnect the PF Encoder FFC from CN1 connector.
2. Remove the screw and remove the PF Encoder.
   - Screw ○ : C.B.S 2.5x5 (Torque: 3.5-4.5 kgf.cm)

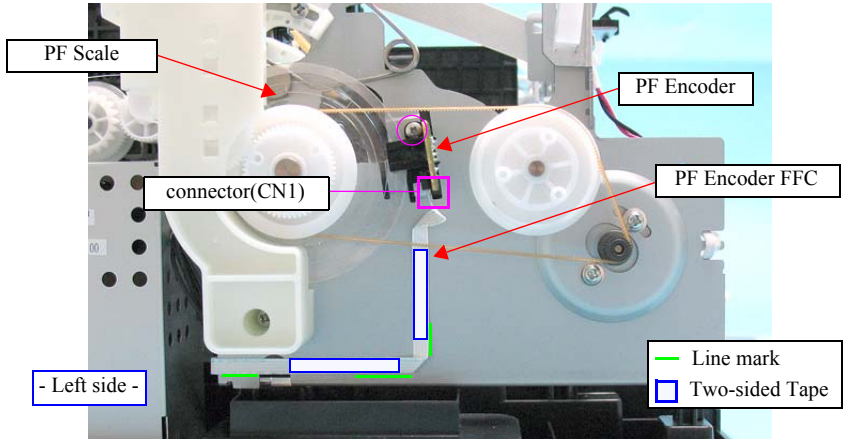


Figure 4-217. Removing the PF Encoder

REASSEMBLY

- **When installing the PF Encoder, exercise added care not to damage or scratch the PF Scale.**
- **When installing the PF Encoder, match the two positioning holes and guide pins shown below.**

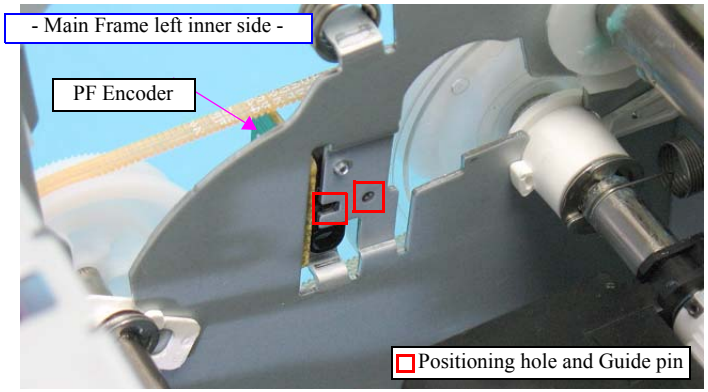


Figure 4-218. Installing the PF Encoder (1)

- **Attach the PF Encoder FFC along the line marks shown in *Figure.4-217* and below.**

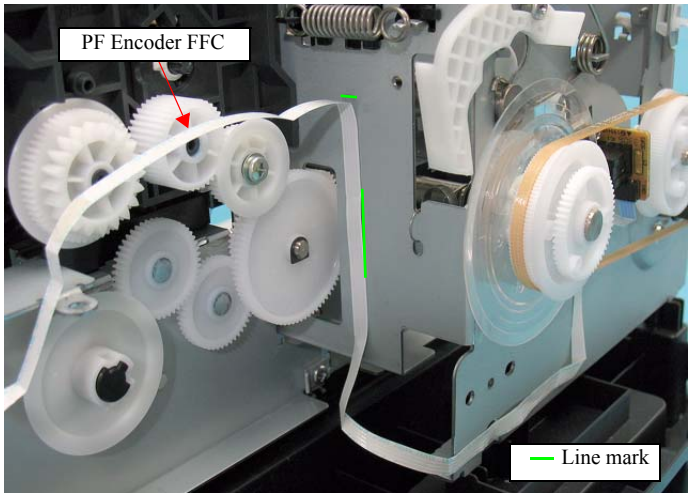


Figure 4-219. Installing the PF Encoder (2)

4.7.5.3 EJ Frame Assy

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy

☐ Disassembly Procedure

1. Remove the two screws that secure the EJ Frame Assy to the Main Frame.
   • Screw ○ : C.B.S 3x6 (Torque: 5-7 kgf.cm)

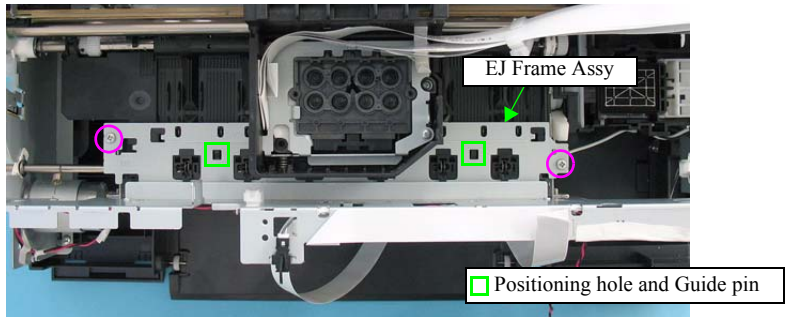


Figure 4-220. Removing the EJ Frame Assy (1)

2. Move the Carriage Assy to the home position, and remove the EJ Frame Assy in the direction of the arrow.

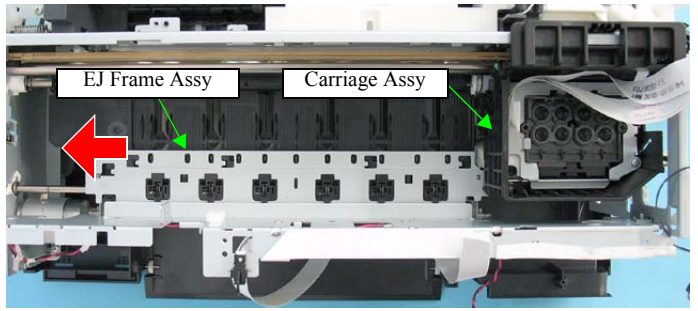


Figure 4-221. Removing the EJ Frame Assy (2)

REASSEMBLY

Insert the two positioning holes of the EJ Frame Assy over the guide pins of the Front Paper Guide as shown in *Figure.4-220*.

4.7.5.4 Left/Right Upper Paper Guide

CAUTION

Never touch the surface of the rollers as doing so can adversely affect print quality.

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy / Planet Lock Assy / Retard Transfer Assy / APG Assy / Sub Board / CR Motor / CR Scale / Rear ASF Assy / Carriage Assy

CHECK POINT

B-310N/B-318N/B-510DN/B-518DN has the antistatic clothes; however, its disassembly/reassembly procedures are the same as those of B-300/B-308/B-500DN/B-508DN.

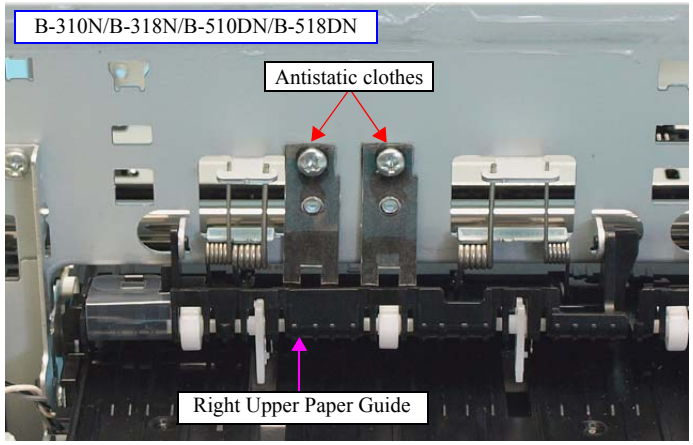


Figure 4-222. Antistatic Cloth (B-310N/B-318N/B-510DN/B-518DN only)

☐ Disassembly Procedure

1. Disengage the four springs of the Left Upper Paper Guide from the hooks on the Main Frame, and remove the springs.
2. Disengage the two hooks that secure the Left Upper Paper Guide to the Main Frame, and remove the Left Upper Paper Guide.

CAUTION

Do not remove the Right Upper Paper Guide toward the rear of the printer. Because the PE Sensor is mounted inside the sensor section, pulling the Right Rear Paper Guide ward can damage the sensor.

3. In the same manner as the Left Upper Paper Guide, remove the Right Upper Paper Guide.

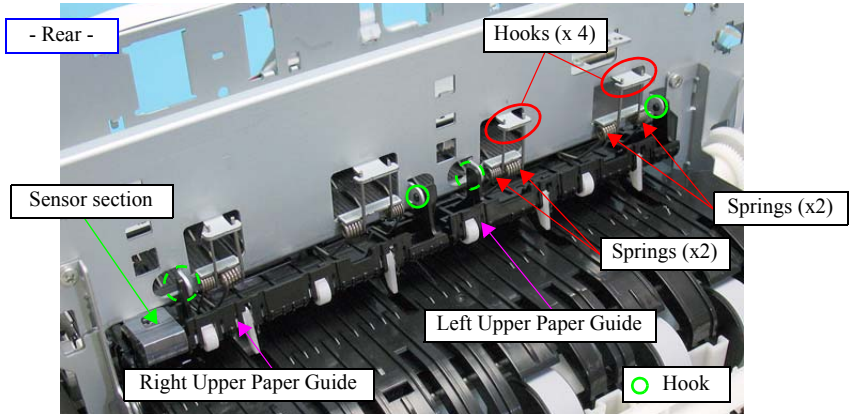


Figure 4-223. Removing the Left/Right Upper Paper Guides

REASSEMBLY

■ When installing the two springs of the Left and Right Upper Paper Guide, note the following points.

- Attach the springs as shown below.

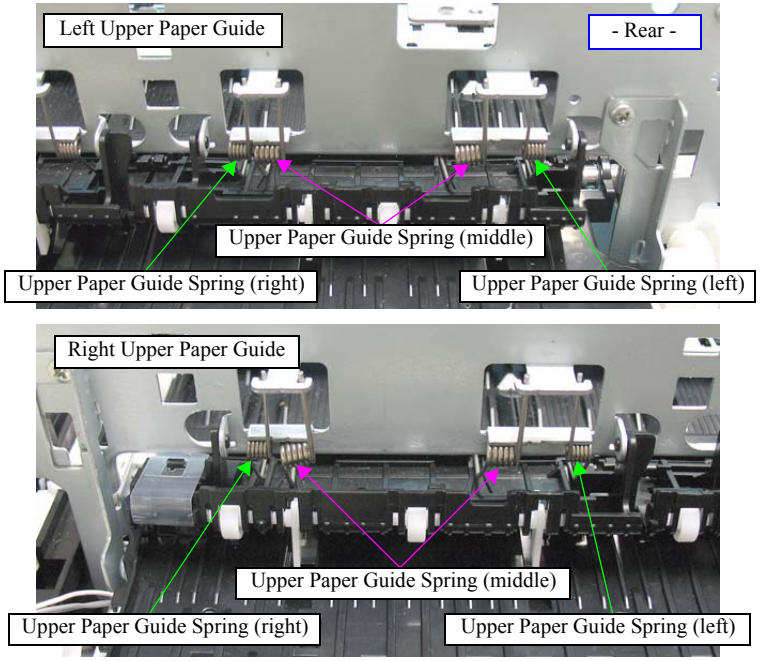


Figure 4-224. Installing the Left and Right Upper Paper Guides (1)

- Attach the spring legs (two larger ones: ○, two smaller ones: □) as shown below at the front side.

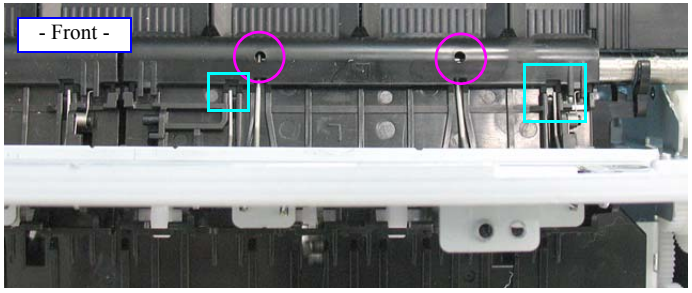


Figure 4-225. Installing the Left and Right Upper Paper Guides (2)

REASSEMBLY

■ When installing the Right Upper Paper Guide for B-310N/B-318N/B-510DN/B-518DN, insert the legs of the antistatic clothes into the four holes of the Right Upper Paper Guide. Make sure that the legs can be seen from under the Right Upper Paper Guide.

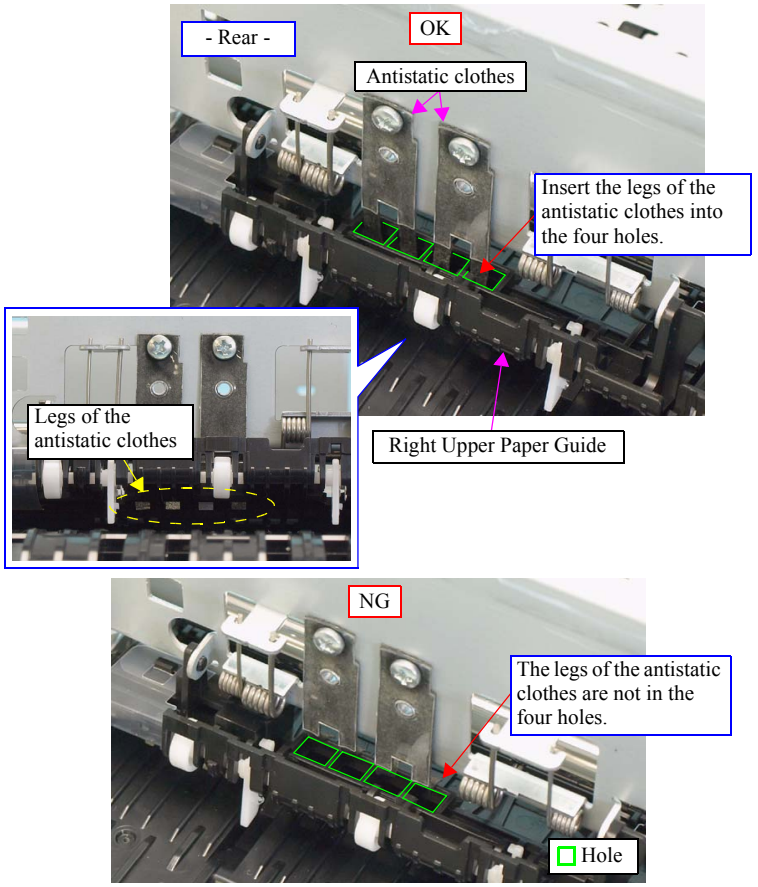


Figure 4-226. Installing the Left and Right Upper Paper Guides (3)

ADJUSTMENT REQUIRED

Carry out required adjustments referring to the following sections after replacing or reinstalling the Left and Right Upper Paper Guide.

- **Chapter5 "ADJUSTMENT" (p.170)**

4.7.5.5 Front Paper Guide & EJ Roller Assy

CAUTION

Never touch the rubber roller of the EJ Roller Assy with bare hands as doing so can adversely affect print quality.

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy / Planet Lock Assy / Retard Transfer Assy / APG Assy / Sub Board / CR Motor / CR Scale / Rear ASF Assy / Carriage Assy / Left/Right Upper Paper Guide / Rear Paper Guide / PE Sensor / Ink System / EJ Frame Assy

☐ Disassembly Procedure

■ Removing the Front Paper Guide & EJ Roller Assy

1. Release the Static Ink Collect Unit cable from the hook of the Main Frame, and pull the cable out through the hole on the Main Frame.

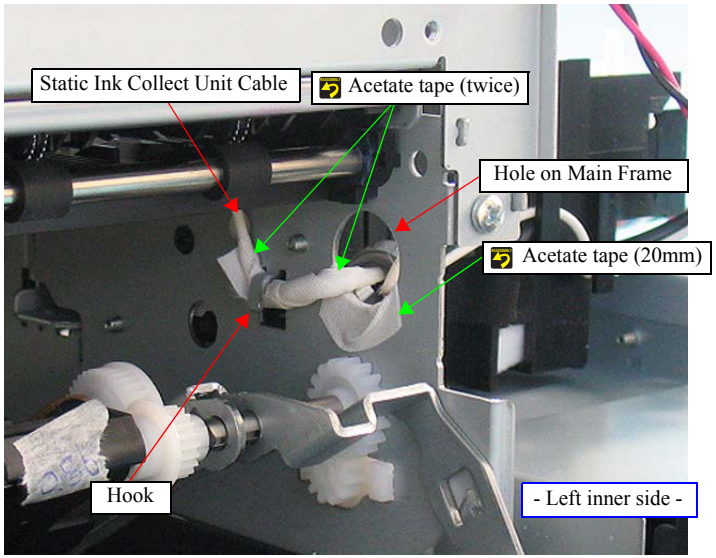


Figure 4-227. Removing the Front Paper Guide & EJ Roller Assy (1)

2. Disengage the leg of the EJ grounding spring from the grooves on the EJ Roller shaft and the Main Frame, and remove the EJ grounding spring.
3. Remove the E-ring on the EJ Roller shaft using long-nose pliers or similar tool.
4. Pull out the guide pin of the bushing from the Main Frame, and turn the bushing in the direction of the arrow to the dotted line (▪▪▪).

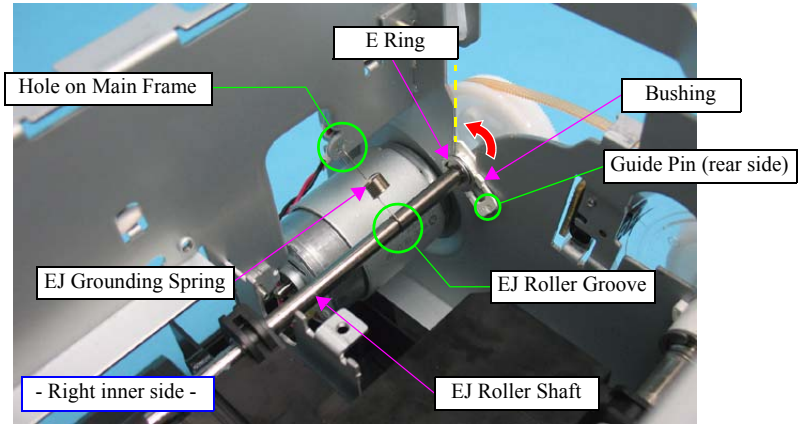


Figure 4-228. Removing the Front Paper Guide & EJ Roller Assy (2)

5. Remove the screw.
   • Screw ○ : C.B.P 3x8 (Torque: 5-7 kgf.cm)

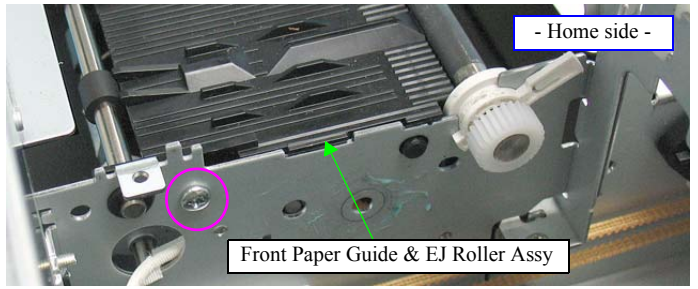


Figure 4-229. Removing the Front Paper Guide & EJ Roller Assy (3)

6. Move the PF Motor to make slack in the PF Timing Belt. See *"4.7.5 PF Motor" Step4 (p157)*.
7. Slide the EJ Roller shaft in the direction of the arrow, and pull out its right end from the right bearing on the Main Frame.
8. Lift the EJ Roller shaft, and disengage the bearing of the PF Roller shaft from the Front Paper Guide Assy.
9. Pull out the Front Paper Guide and EJ Roller Assy through the left cutout while sliding the EJ Roller Pulley rightward.

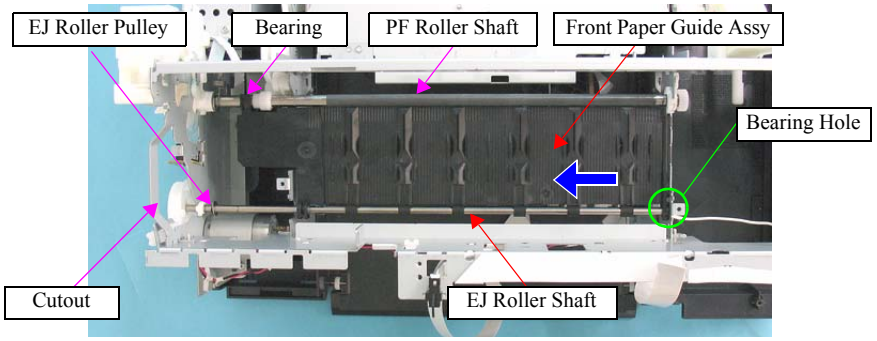


Figure 4-230. Removing the Front Paper Guide & EJ Roller Assy (4)

REASSEMBLY

- **There are some lubrication points. See below for the lubrication instruction.**
  - **"Lubrication of Front Paper Guide & EJ Roller Assy/ PF Roller Assy" (p.199)**
- **Attach acetate tape to the places as shown below.**
  - **Contact point of the hook on the Main Frame and the Static Ink Collect Unit cable. (See *Figure.4-227*.)**
  - **Contact point of the hole on the Main Frame and the Static Ink Collect Unit cable. (See *Figure.4-227*.)**

ADJUSTMENT REQUIRED

Carry out required adjustments referring to the following sections after replacing or reinstalling the Paper Guide & EJ Roller Assy.

- **Chapter5 "ADJUSTMENT" (p.170)**

4.7.5.6 PF Roller Assy

CAUTION

Never touch the coated surface of the PF Roller Assy with bare hands as doing so can adversely affect print quality.

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy / Planet Lock Assy / Retard Transfer Assy / APG Assy / Sub Board / CR Motor / CR Scale / Rear ASF Assy / Carriage Assy / Left/Right Upper Paper Guide / Rear Paper Guide / PE Sensor / Ink System / EJ Frame Assy / Front Paper Guide & EJ Roller Assy / Power Supply Unit / CV Drive Assy / PF Encoder

☐ Disassembly Procedure

1. Remove the screw that secures the Left Parallel Adjust Bushing to the Main Frame and remove it.
   - Screw ○ : C.B.S 3x6 (Torque: 7-9 kgf.cm)

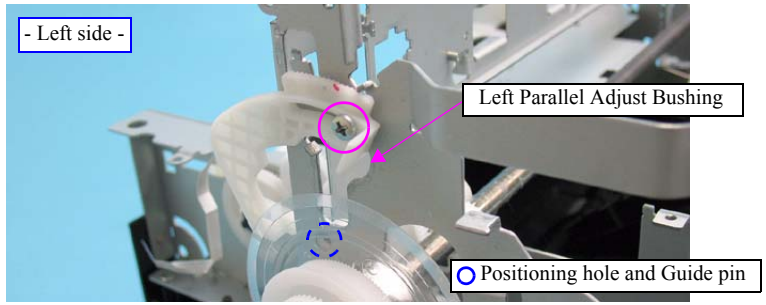


Figure 4-231. Removing the PF Roller Assy (1)

2. Disengage the leg of the PF grounding spring from the groove on the PF Roller shaft and the hole on the Main Frame, and remove the PF grounding spring.
3. Pull out the guide pin of the left bushing from the Main Frame, and turn the bushing in the direction of the arrow to the dotted line (▪▪▪).

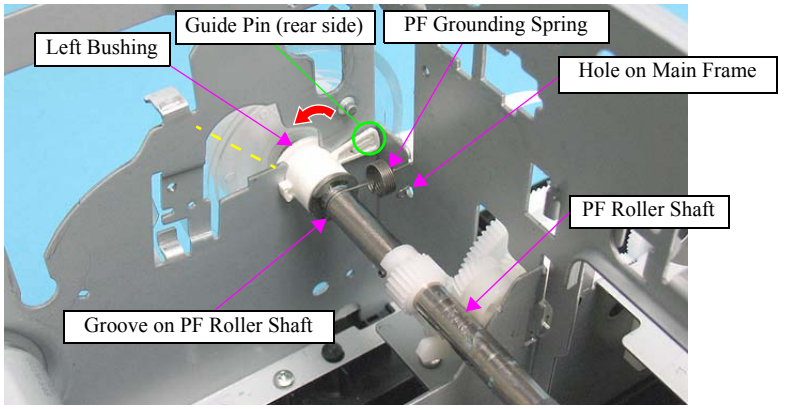


Figure 4-232. Removing the PF Roller Assy (2)

4. Pull out the guide pin of the right bushing from the Main Frame, and turn the bushing in the direction of the arrow to the dotted line (▪▪▪).

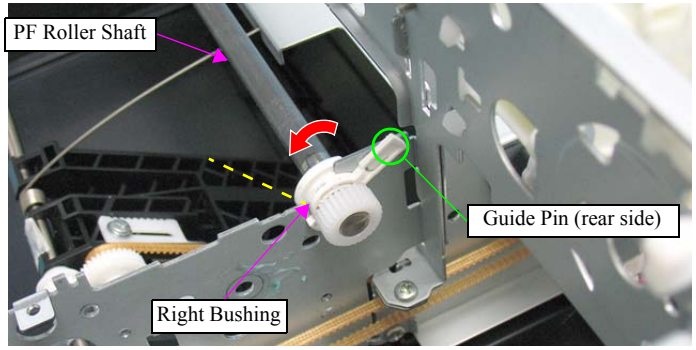


Figure 4-233. Removing the PF Roller Assy (3)

CAUTION

When pulling out the PF Roller Assy through the cutout on the Main Frame, be extremely careful not to scratch the coated roller surface.

5. Slightly slide the PF Roller Assy leftward, and remove the right bushing from the frame.
6. Move the right end of the shaft (○) along the cutout of the frame to remove the right end toward you, and pull out the shaft leftward through the cutout of the Main Frame to remove the PF Roller Assy.

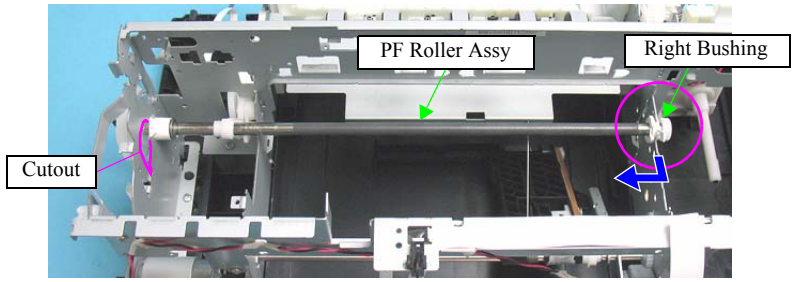


Figure 4-234. Removing the PF Roller Assy (4)

REASSEMBLY

- **There are some lubrication points. See below for the lubrication instruction.**
  - **"Lubrication of Front Paper Guide & EJ Roller Assy/ PF Roller Assy" (p.199)**
- **Make sure that the PF grounding spring leg on the frame side is properly attached to the hole on the Main Frame as shown in *Figure.4-232*.**
- **Make sure that the spring pin on the shaft fit in the cutouts of the PF Gear 12 as shown below.**

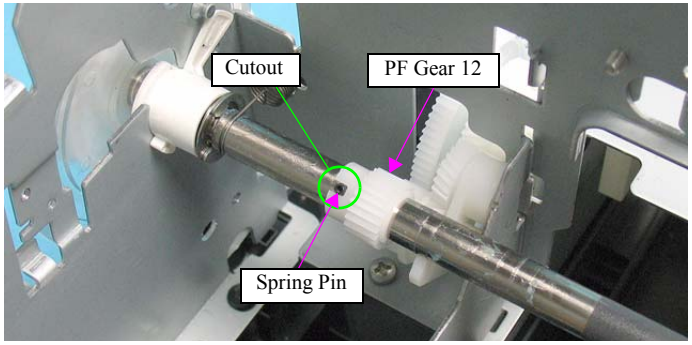


Figure 4-235. Installing the PF Roller Assy

- **When installing the Left Parallel Adjust Bushing, insert its positioning hole over the guide pin on the Main Frame as shown in *Figure.4-231*.**

ADJUSTMENT REQUIRED

Carry out required adjustments referring to the following sections after replacing or reinstalling the PF Roller Assy.

- **Chapter5 "ADJUSTMENT" (p.170)**

4.7.6 Disassembling the Ink System Components

4.7.6.1 Ink System

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy / Planet Lock Assy / Retard Transfer Assy / APG Assy / Sub Board / CR Motor / CR Scale / Rear ASF Assy

CAUTION

- **Exercise care not to contaminate surroundings with ink.**
- **Be careful not to cut yourself with the sharp metal edges of the Main Frame.**
- **Be aware that the following parts tend to come off during disassembly and reassembly.**

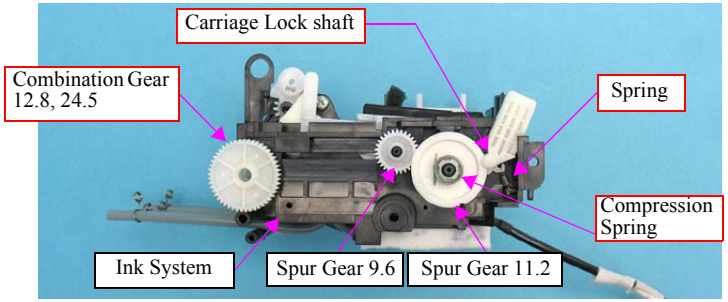


Figure 4-236. Cautions on Removing the Ink System

☐ Disassembly Procedure

1. Release the Static Ink Collect Unit cable from the three hooks on the Ink System.

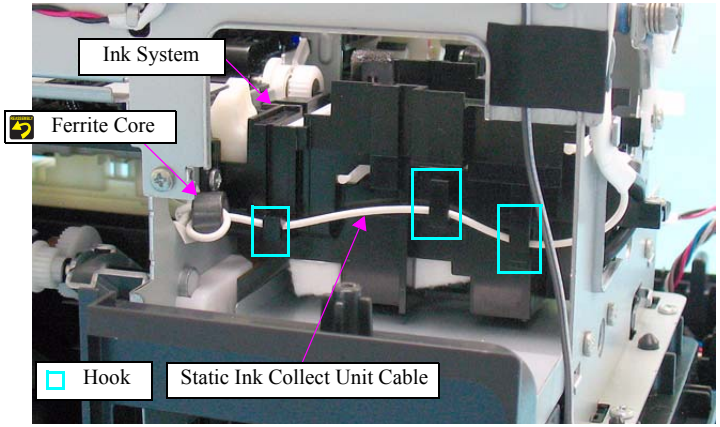


Figure 4-237. Removing the Ink System (1)

2. Release the Static Ink Collect Unit cable and the AID cable from the two hooks on the Main Frame, and remove the three acetate tapes from the cables.

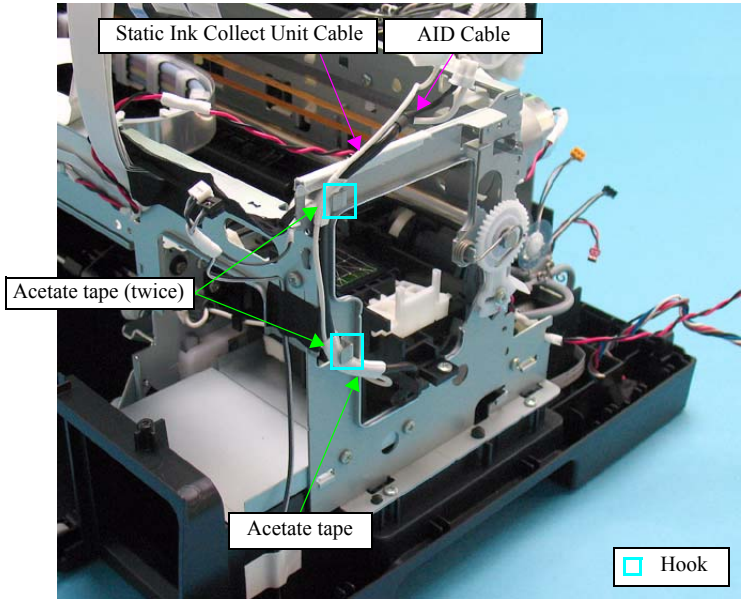


Figure 4-238. Removing the Ink System (2)

3. Release the AID cable from the hook on the Ink System.
4. Remove the three screws that secure the Ink System to the Main Frame.
   - Screw ○ : C.B.S 3x6 (Torque: 7-9 kgf.cm): two pieces
   - Screw ○ : C.B.S 3x8 (Torque: 7-9 kgf.cm): one piece

   (The numbers shown on the figure indicate the order of tightening screws)

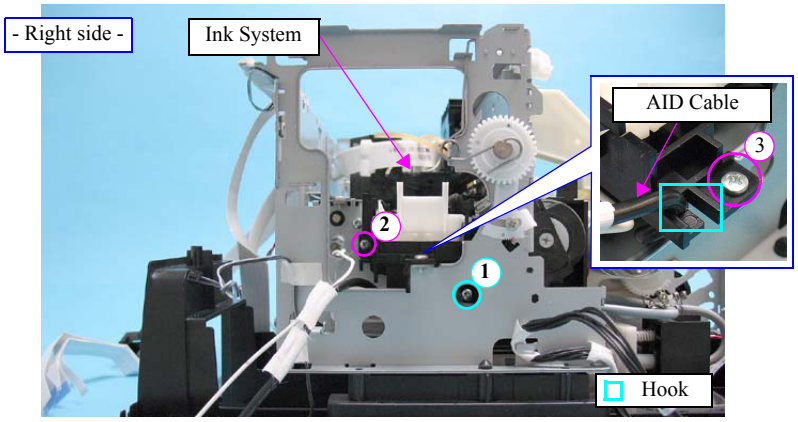


Figure 4-239. Removing the Ink System (2)

5. Slide the clips that secure the two Waste Ink Tubes to the Waste Ink Joint, and pull out the tubes from the Waste Ink joint.

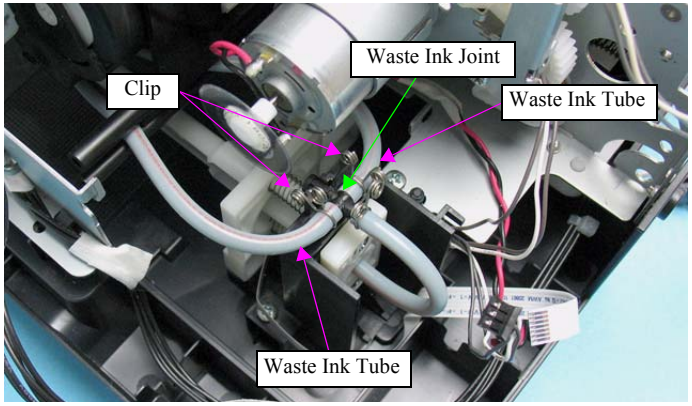


Figure 4-240. Removing the Ink System (3)

6. Move the Ink System in the direction of the arrows in the order of (1) and (2) to disengage the Ink System from the Main Frame, and remove it upward.

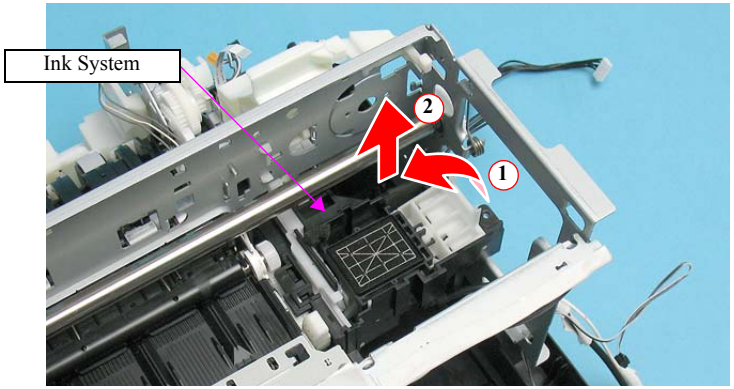


Figure 4-241. Removing the Ink System (4)

REASSEMBLY

- **There are some lubrication points. See below for the lubrication instruction.**
  - **"Lubrication of Ink System" (p.202)**
- **The shafts of the Ink System shown in *Figure.4-236* must be properly inserted into the four bearings of the Main Frame (○).**

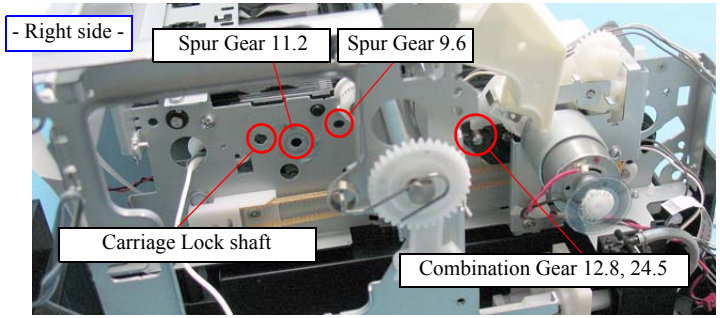


Figure 4-242. Installing the Ink System (1)

- **Tighten the screws in the order indicated in *Figure.4-239*.**
- **Place the ferrite core of the Static Ink Collect Unit cable to the place as shown in *Figure.4-237*.**

REASSEMBLY

- **Route the AID cable through the hook on the Ink System as shown in *Figure.4-239*.**
- **Wrap three pieces of acetate tape around the Static Ink Collect Unit cable and the AID cable. (See *Figure.4-243*.)**
  - **Contacting points of the two hooks of the Main Frame**
- **Attach acetate tape (35 mm) on the edge of the Main Frame. (See *Figure.4-243*.)**
  - **Contacting points of the Static Ink Collect Unit cable and the AID Cable to the Main Frame**
- **When routing the Static Ink Collect Unit cable and the AID cable, make sure that the AID cable comes inside as shown in the figure.**

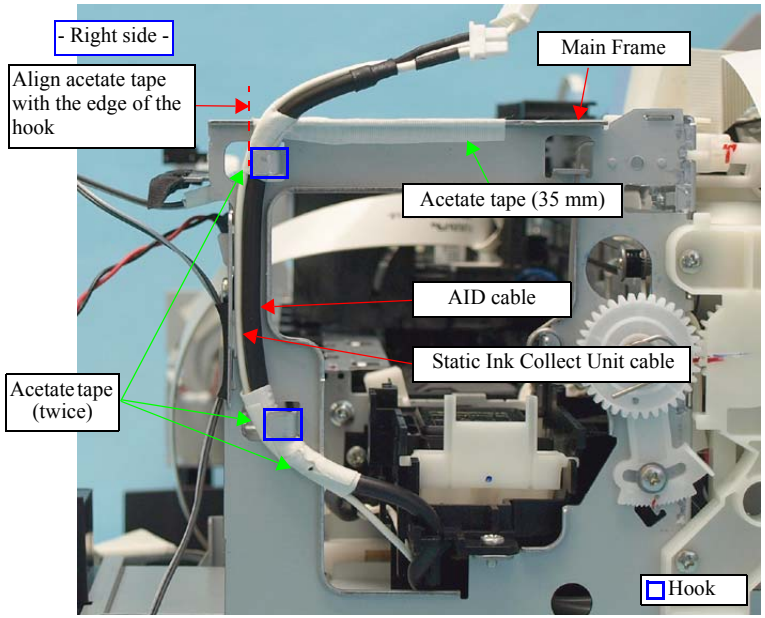


Figure 4-243. Installing the Ink System (2)

ADJUSTMENT REQUIRED

Carry out required adjustments referring to the following section after replacing or reinstalling the Ink System.

- **Chapter5 "ADJUSTMENT" (p.170)**

4.7.6.2 EJ Waste Ink Assy

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy / Lower Housing

☐ Disassembly Procedure

1. Remove the Maintenance Box FFC from the Lower Housing.
2. Remove the two screws and remove the EJ Waste Ink Assy.
   • Screw ○ : C.B.P 3x8 (Torque: 5.5-6.5 kgf.cm)

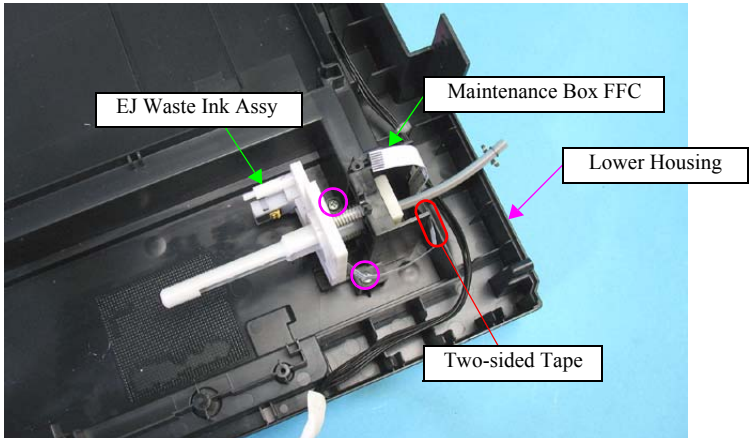


Figure 4-244. Removing the EJ Waste Ink Assy

REASSEMBLY

■ **Insert the two guide pins of the EJ Waste Ink Assy into the holes of the Main Frame as shown below.**

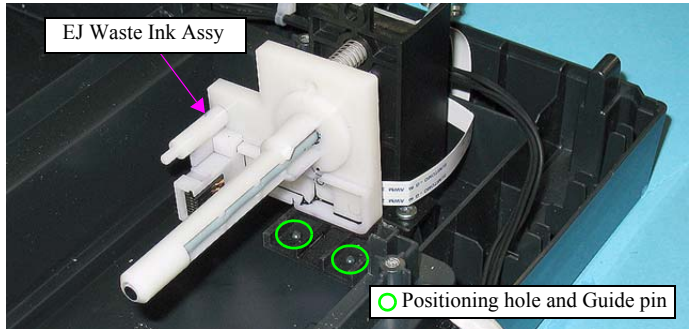


Figure 4-245. Installing the EJ Waste Ink Assy (1)

■ **Route the Maintenance Box FFC as shown below.**

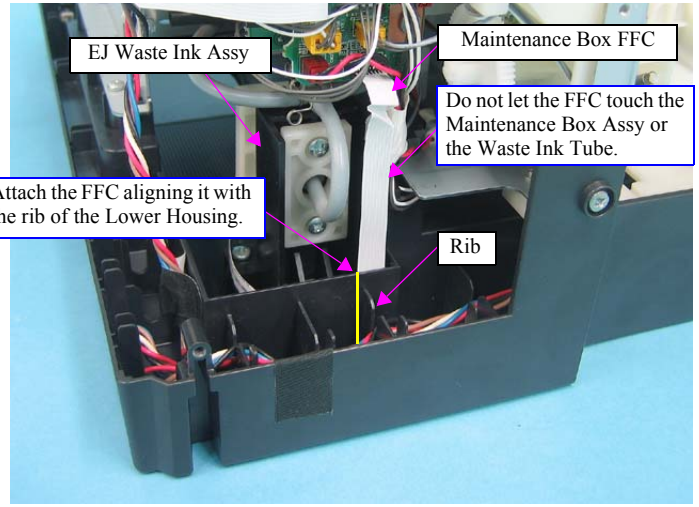


Figure 4-246. Installing the EJ Waste Ink Assy (2)

4.7.6.3 EJC Sensor

☐ Parts/Components must be removed in advance

Exterior parts / Main Board Unit / IC Holder Assy

☐ Disassembly Procedure

1. Remove the one piece (1) and two pieces (2) of acetate tape that secure the EJC Sensor Cable to the Main Frame.
2. Remove the acetate tape (3), and separate the EJC Sensor Cable from the Cover Open Sensor Cable.

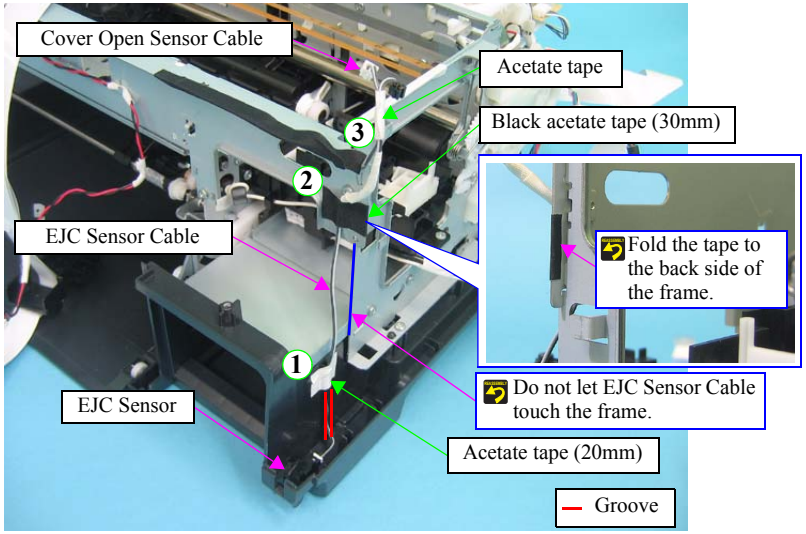


Figure 4-247. Removing the EJC Sensor (1)

3. Disengage the hook of the EJC Sensor from the Lower Housing, and turn the EJC Sensor in the direction of the arrow to remove it.

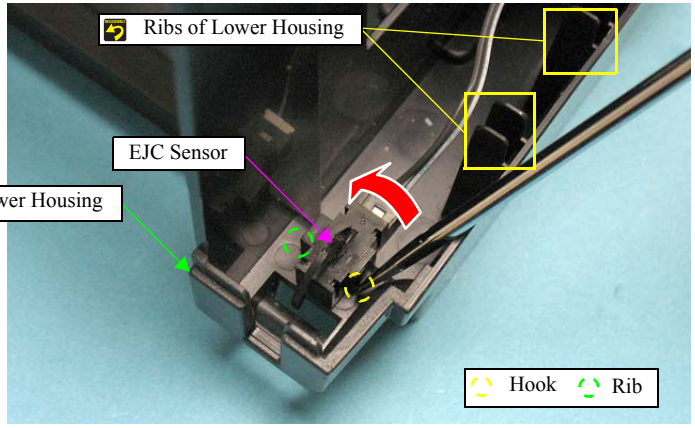


Figure 4-248. Removing the EJC Sensor (2)

REASSEMBLY

■ **Route the EJC Sensor Cable as shown below.**
- **Route it inside the ribs of the Lower Housing. (See *Figure.4-248*.)**
- **Route it through the groove on the Lower Housing, and secure it with acetate tape (1). (See *Figure.4-247*.)**
- **Secure it to the Main Frame with acetate tape (2). (See *Figure.4-247*.)**
- **Tie the EJC Sensor Cable and the Cover Open Sensor Cable with acetate tape (3). (See *Figure.4-46*.)**

■ **When installing the EJC Sensor, first insert its rib shown in *Figure.4-248* into the hole of the Lower Housing, and then secure the sensor with the hook.**

CHAPTER

5

ADJUSTMENT

5.1 Adjustment Items and Overview

This chapter describes adjustments necessary after the disassembly/reassembly of the printer.

5.1.1 Servicing Adjustment Item List

The adjustment items of this product are as follows.

Table 5-1. Adjustment Items and Overviews

	Adjustment Item	Purpose	Method Outline	Tool
Adjustment Item	PG Adjustment	Install the Head Nozzle surface parallel to the printing surface and set the gap between the paper and the Head Nozzle surface to the specified value.	Mechanical adjustment using the thickness gauges. Make a proper adjustment according to the result whether the manually-moved carriage (Printhead) runs over or hits against the gauges placed on the platen.	• Thickness Gauge 1.1mm, 1.3mm
	FD belt tension adjustment	This adjustment is made to avoid the idling of the ASF motor (fatal error) or breaking of the motor coil due to an abnormal heat.	For adjustment method, see "5.3.3 FD Belt Tension Adjustment".	• Tension gauge • Tweezers • (+) Phillips screwdriver
	PF belt tension adjustment	This adjustment is made to avoid the idling of the PF motor (fatal error), breaking of the motor coil due to an abnormal heat, or lost of paper feed accuracy that causes banding on the printout.	For adjustment method, see "5.3.2 PF Belt Tension Adjustment".	• Tension gauge • Tweezers • (+) Phillips screwdriver
	EEPROM data copy	When the main board needs to be replaced, use this to copy adjustment values stored on the old main board to the new board. If this copy is completed successfully, all the other adjustments required after replacing the main board are no longer be necessary.	Readout the EEPROM data from the main board before removing it. Then replace the board with a new one, and load the EEPROM data to the new board.	• Adjustment Program
	Initial setting	This must be carried out after replacing the main board to apply settings for the target market.	Write the initial setting information onto the Main Board.	• Adjustment Program
	USB ID Input	Sets a USB ID of the printer. A computer identifies the printer by the ID when multiple same models are connected via a USB hub.	Enter the product serial number of the printer. The ID is automatically generated and written to the main board.	• Adjustment Program
	Serial No. write / read	When information on the circuit boards of the printer has been cleared, the serial number unique to each printer should be reentered into the Main Board using this menu.	Enter the serial number written on the SN label attached to the Upper Housing.	• Adjustment Program
	MAC address read/write (B-500DN/B-508DN/ B-310N/B-318N/B-510DN/B-518DN only)	When the network board needs to be replaced use this menu to write necessary information onto the new board.	See "5.2.9 MAC Address Setting (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN only)" for the detailed procedure.	• Adjustment Program • LAN Cable

Table 5-1. Adjustment Items and Overviews

Adjustment Item			Purpose	Method Outline	Tool
Adjustment Item	PF deterioration offset	Initialize	The PF deterioration offset counter is reset.	Reset the PF deterioration offset counter.	• Adjustment Program
		Disenable (Max. value writing)	The maximum PF deterioration offset counter is entered.	Enter the maximum PF deterioration offset counter (80,000).	• Adjustment Program
	Head ID Input		This must be carried out after replacing the Printhead in order to enter the new Printhead ID (Head ID) that reduces variation between Printheads.	Enter the 29-digit head ID written on the QR code label on the Printhead. (Read the QR code label from the top left to the bottom right.) The Characters that can be entered as head ID are as follows. ABCDEFGHJKLMNPQRSTUVWXYZ0123456789%*+-$:	• Adjustment Program
	Head angular adjustment		This must be carried out after replacing the Printhead in order to correct tilt of the Printhead.	For adjustment method, see"5.2.6 Head angular adjustment".	• Adjustment Program • Tweezers • Photo Quality Inkjet Paper (A4)
	AID inspection		Checks if the AID function operates normally.	See "5.2.7 AID inspection" for information on how to check.	• Adjustment Program
	PW adjustment		This adjustment is made to correct the mounting position of the PW Sensor on a software basis to adjust the detection position and Nozzle position dispersion.	A PW adjustment pattern is printed. Examine the printout and enter a value for a line exactly 5mm away from the paper edge for each on the four sides.	• Adjustment Program • Ruler • Photo Quality Inkjet Paper (A4)
	First dot position adjustment	Front feed	This corrects left margin of printout. The print start position in the carriage moving direction is corrected by software.	A first dot adjustment pattern is printed. Examine the lines printed near the left edge of the printout and enter the value for the line that is exactly 5 mm away from the left edge.	• Adjustment Program • Ruler • Photo Quality Inkjet Paper (A4)
		Rear feed			
	Bi-D adjustment		Corrects print start timing in bi-directional printing to improve the print quality.	A bi-d adjustment pattern is printed. Examine the printout and enter a value for one of the patterns with the least black or white line.	• Adjustment Program • Plain Paper (A4) • Photo Quality Inkjet Paper (A4)
	Paper Skew adjustment		This corrects misalignment of lines in Band printing due to skewed feeding.	See "5.2.10 Paper Skew Adjustment".	• Adjustment Program • Bright White Inkjet Paper (A4)

Table 5-1. Adjustment Items and Overviews

Adjustment Item			Purpose	Method Outline	Tool
Adjustment Item	PF adjustment	Rear feed Front feed Bottom edge of paper	This corrects errors in paper feed caused by variation of mechanisms and media characteristics.	A PF adjustment pattern is printed. Examine the printout patterns and select the value for the best pattern. The correction value is registered.	• Adjustment Program • Photo Quality Inkjet Paper (A4)
	TOP Margin Adjustment	Rear feed Front feed	This corrects timing of printing in the paper feeding direction.	A top margin adjustment pattern is printed. Examine the printout and carry out the adjustment so that the distance between the paper edges and the printed line falls within 3 +/- 1mm.	• Adjustment Program • Ruler • Plain Paper (A4)
	CR motor heat protection control		This is used to correct variations of motors characteristics.	Select the part(s) you replaced on the Adjustment Program. The program will automatically enter a proper correction value onto the printer. When the label with correction value mentioned is attached to the CR motor, enter the correction values to the Adjustment Program. (See "4.7.3.5 CR Motor" for the label details.)	• Adjustment Program
	PF motor heat protection control		This is used to correct variations of motors characteristics.	Select the part(s) you replaced on the Adjustment Program. The program will automatically enter a proper correction value onto the printer. When the label with correction value mentioned is attached to the PF motor, enter the correction values to the Adjustment Program. (See "4.7.5.1 PF Motor" for the label details.)	• Adjustment Program
	ASF motor heat protection control		This is used to correct variations of motors characteristics.	Select the part(s) you replaced on the Adjustment Program. The program will automatically enter a proper correction value onto the printer.	• Adjustment Program

Table 5-2. Maintenance Items

	Adjustment Item	Purpose	Method Outline	Tool
Maintenance Items	Head Cleaning	Run this cleaning when dots missing is observed on an adjustment pattern printed by the Adjustment Program.	Head cleaning is performed by the Adjustment Program. After the cleaning, a nozzle check pattern is printed to see the result of the cleaning.	• Adjustment Program
	Ink charge	This must be carried out after replacing the Printhead in order to fill ink inside the all nozzles of the new ASP Printhead.	After the ink charge, a nozzle check pattern is printed to see if all nozzles fire ink properly.	• Adjustment Program
	Tube maintenance counter read out/ reset	The CR movements counter for controlling the tube life can be read out and reset.	Read out the counter value and replace the tube, then reset the counter to 0.	• Adjustment Program
	Printer mechanism operation check	When any component of the printer mechanism is replaced, use this to check the mechanism operation.	Select the part(s) you want to check on the Adjustment Program and execute the check. The check result is displayed on the screen. See "5.2.8 Printer Mechanism Operation Check".	• Adjustment Program
	Unlock the Carriage	Unlock the Carriage Lock.	Lock/Unlock the Carriage using the Adjustment Program.	• Adjustment Program
	Total print pages reset	Reset the total print pages stored in the EEPROM.	When replacing the printer mechanism, reset the total print pages stored in the EEPROM using the Adjustment Program.	• Adjustment Program
	AID mode setting	Change the setting of AID Operation mode.	Change the setting of AID Operation mode using the Adjustment Program.	• Adjustment Program
	ACL failed counter initialization	Initialize the ACL failed counter.	Initialize the ACL failed counter using the Adjustment Program.	• Adjustment Program
	Compulsion Uni-D Print Setting*	In bi-directional printing (Bi-D), ink firing timing is corrected when the environmental temperature is in the range of 10°C to 40°C (50°F to 104°F) to improve the print quality. Select compulsory uni-directional printing on or off when the temperature is not in the range.	Set compulsion Uni-d printing on/off using the Adjustment Program. See "5.2.12 Compulsion Uni-d Print Setting".	• Adjustment Program

Note "*": Available firmware are the following version or later.
- B-500DN/B-508DN: SH1998
- B-300/B-308: SL1998

Table 5-3. Additional Functions

Adjustment Item			Purpose	Method Outline	Tool
Additional Functions	Final check pattern print	A4 size	Use this to check if the all adjustments have been properly made.	Select the target menu from the Adjustment Program and execute it.	• Adjustment Program • Photo Quality Inkjet Paper (A4) • Matte Paper Heavy-weight (A4)
		US Letter size			
	EEPROM dump		Use this to readout the EEPROM data for analysis.	Read out all the data stored on the EEPROM and store it as a file.	• Adjustment Program
	Printer information check	Manual CL counter	Use this to readout information on the printer operations.	Select the desired menu in the Adjustment Program and execute it.	• Adjustment Program
		ACL counter			
		AID detections counter			
		The last AID error code			
		ACL fail counter			
		The latest Cartridge error code			
		The latest Maintenance Box error code			
		Maintenance Box replacements counter			
		Print paths counter			
		Printed sheets counter (Front, Rear, auto duplex)			
		Date and time of the first print			
		The latest Fatal error code*1			
		Accumulated paper jam counter*2			
	Paper path test		Check if the paper feeding mechanism is OK or not by carrying out this test.	Set any value between 1 and 100 times in the Adjustment Program, and carry out the test.	• Adjustment Program • Plain Paper (A4)

Note "*1": For B-310N/B-318N/B-510DN/B-518DN, the latest two fatal error codes are stored.

"*2": B-310N/B-318N/B-510DN/B-518DN only.

5.1.2 Required Adjustments

The table below lists the required adjustments depending upon the parts being repaired or replaced. Find the part(s) you removed or replaced, and check which adjustment(s) must be carried out.

CHECK POINT

The symbols used in Table 5-4 indicate the following meanings.
"O" : The adjustment is required only when the part is replaced.
"●" : The adjustment is required when the part is removed/ reinstalled or replaced.
"---" : No adjustment is required.

Table 5-4. Adjustment Items

Priority	Part Name / Adjustment Item	Front ASF Cover Assy	Printhead	Main Board*1	Network Board	AID Board	PS Unit	APG Assy	IC Holder Assy	Carriage Assy	Rear ASF Assy	Printer Mechanism	Paper Guide Bank Assy	L/R Upper Paper Guide	CR Motor	ASF motor Assy	Ink System	PF Roller Assy	PF Motor	Planet Lock Assy	Duplex Unit	Front Paper Guide & EJ Roller Assy	Pick Up Assy	Unit Replacement
1	PG adjustment	---	●	---	---	---	---	---	---	●	---	O	---	---	---	---	---	---	---	---	---	---	---	---
2	PF belt tension adjustment	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	●	●	---	---	---	---	---
3	FD belt tension adjustment	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	●	---
4	Tube maintenance Counter Reset	---	---	O*2	---	---	---	---	O	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
5	EEPROM data copy	---	---	O	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
6	Initial setting / USB ID input	---	---	O	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
7	ASF sub change operation check	---	---	---	---	---	---	---	---	---	---	O	---	---	---	---	---	---	---	●	---	---	---	---
8	APG check	---	---	---	---	---	---	●	---	---	---	O	---	---	---	●	---	---	---	---	---	---	---	---
9	Duplex unit sensor check	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	O	---	---	---
10	ASF check rear	---	---	---	---	---	---	---	---	---	●	O	---	---	---	---	---	---	---	---	---	---	---	---
11	ASF check front	●	---	---	---	---	---	---	---	---	---	O	---	---	---	---	---	---	---	---	---	---	●	●
12	ASF encoder check	---	---	---	---	---	---	---	---	---	---	O	---	---	---	O	---	---	---	---	---	---	---	---
13	ASF sub encoder check	---	---	---	---	---	---	---	---	---	---	O	---	---	---	---	---	---	---	O	---	---	---	---
14	CR motor heat protection control	---	---	O	---	---	O	---	---	---	---	O	---	---	O	---	---	---	---	---	---	---	---	---
15	PF motor heat protection control	---	---	O	---	---	O	---	---	---	---	O	---	---	---	---	---	---	O	---	---	---	---	---
16	ASF motor heat protection control	---	---	O	---	---	---	---	---	---	---	O	---	---	---	O	---	---	---	---	---	---	---	---
17	MAC address setting*3	---	---	---	O	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
18	PF deterioration counter max. value writing	---	---	O	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Continued to next page

Table 5-4. Adjustment Items

Priority	Part Name / Adjustment Item	Front ASF Cover Assy	Printhead	Main Board*1	Network Board	AID Board	PS Unit	APG Assy	IC Holder Assy	Carriage Assy	Rear ASF Assy	Printer Mechanism	Paper Guide Bank Assy	L/R Upper Paper Guide	CR Motor	ASF motor Assy	Ink System	PF Roller Assy	PF Motor	Planet Lock Assy	Duplex Unit	Front Paper Guide & EJ Roller Assy	Pick Up Assy	Unit Replacement
19	PF deterioration counter reset	---	---	---	---	---	---	---	---	---	---	O	---	---	---	---	---	O	---	---	---	---	---	---
20	Ink charge	---	●	---	---	---	---	---	●	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
21	Head ID input	---	O	O	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
22	Head angular adjustment	---	●	---	---	---	---	---	---	●	---	O	---	---	---	---	---	---	---	---	---	---	---	---
23	AID inspection	---	---	O	---	O	---	---	---	---	---	---	---	---	---	---	O	---	---	---	---	---	---	---
24	PW adjustment	---	●	O	---	---	---	---	---	●	●	O	●	●	---	---	---	---	---	---	---	---	---	---
25	First dot position adjustment	●	●	O	---	---	---	---	---	●	●	O	●	---	---	---	---	---	---	---	---	---	---	---
26	Bi-D adjustment	---	●	O	---	---	---	---	---	●	---	O	---	---	●	---	---	---	---	---	---	---	---	---
27	Paper Skew adjustment	---	●	O	---	---	---	---	---	●	---	O	---	---	●	---	---	---	---	---	---	---	---	---
28	PF adjustment	---	---	O	---	---	---	---	---	---	---	O	---	●	---	---	---	●	●	---	---	●	---	---
29	Top margin adjustment	●	●	O	---	---	---	---	---	●	●	O	●	●	---	●	---	●	●	●	---	●	---	---
30	Serial No. writing	---	---	O	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	O
31	Total print pages reset	---	---	---	---	---	---	---	---	---	---	O	---	---	---	---	---	---	---	---	---	---	---	---
32	ACL failed counter initialization	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	O
33	Final check pattern print	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	O

Note "*1": When the EEPROM data copy is available, no adjustment, except for printing final check pattern, is required.

"*2": Replace it together with the IC Holder Assy.

"*3": Carry out only for B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN.

5.2 Adjustment by Using Adjustment Program

This section explains how to judge print samples by using the adjustment program. Follow the instructions of the adjustment program for details of the adjustment methods.

5.2.1 Top Margin Adjustment (Rear/Front)

Patterns are printed as shown below.

How to Judge

Measure the distance from the paper edge to the printed line. Enter the value for the line that is exactly 5 mm away from the edge.

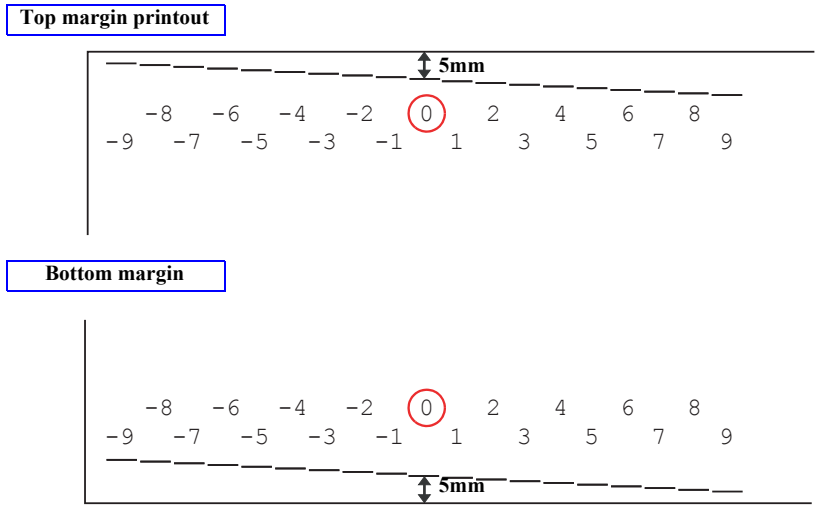


Figure 5-1. Top Margin Adjustment Pattern

5.2.2 Bi-D Adjustment

The pattern shown below is printed for each of the PG settings and four print modes.

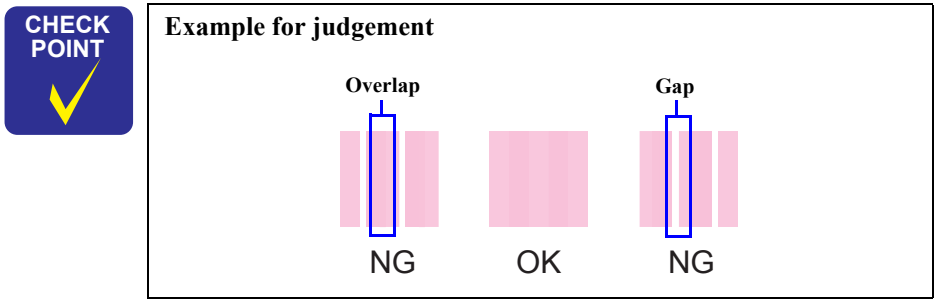
Figure 5-2. Bi-D Adjustment Pattern

How to Judge

Find the pattern with no gaps or overleaps of the left and right pattern, and enter the value of that pattern.

Additional information

If an appropriate pattern is not printed, enter the nearest value and then print the patterns again.



5.2.3 First Dot Position Adjustment (Front/Rear)

Patterns are printed as shown below.

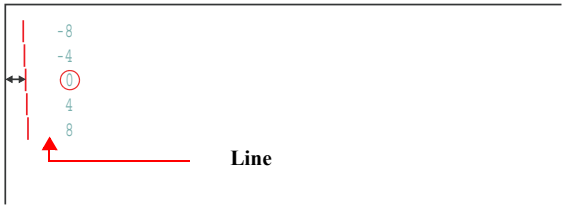


Figure 5-3. First Dot Position Adjustment Pattern

How to Judge

Measure the distance from the left edge of the paper to the printed line. Enter the value for the line that is exactly 5 mm away from the edge.

Example: In the above figure, enter “-3”.

5.2.4 PW Adjustment

Patterns are printed as shown below.

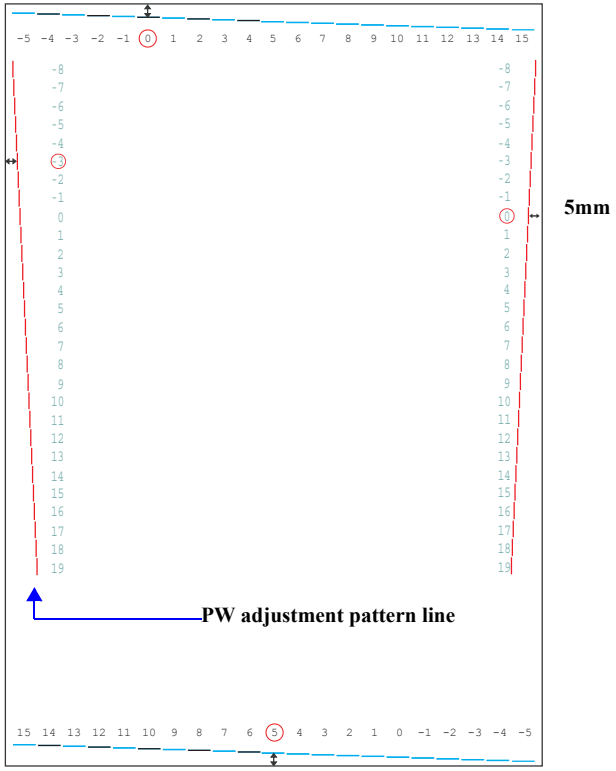


Figure 5-4. PW Adjustment Pattern

How to Judge

Enter the value of the line located 5mm away from each edge.

Example: In the above figure, enter “0” (top), “5” (bottom), “-3” (left) and “0” (right).

5.2.5 PF Adjustment (Rear/Front)

☐ PF-Standard Area

Patterns are printed as shown below.

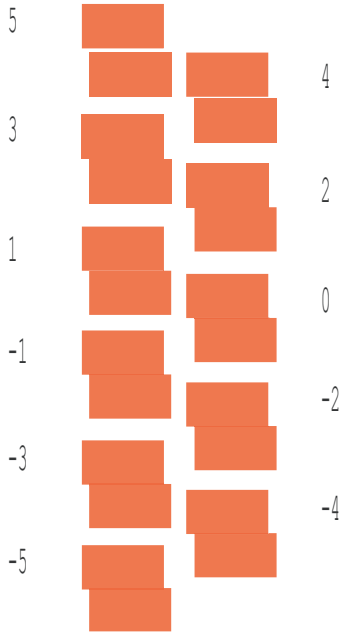


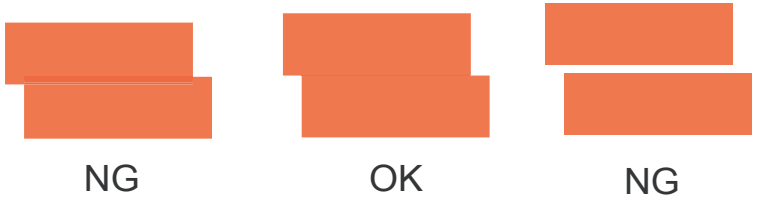
Figure 5-5. PF Adjustment (Standard Area) Pattern

How to Judge

Enter the value for the group that has no gap or overlap between the upper and the lower patterns.

CHECK POINT

Example for judgement



☐ PF-Bottom Edge Area

Patterns are printed as shown below.

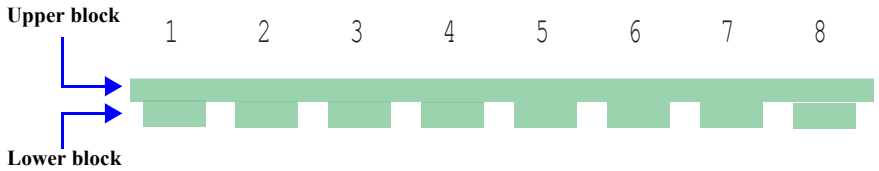


Figure 5-6. PF Adjustment (Bottom Edge Area) Pattern

How to Judge

Input the value shown above the patterns which has no gap between the upper pattern and the lower pattern, and also the both upper and lower patterns do not overlap each other.

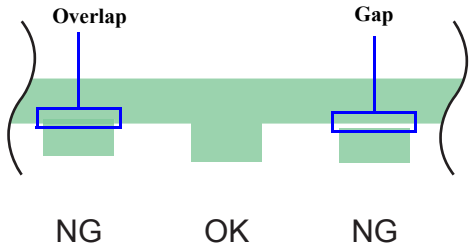
Example: In the above figure, patterns below “4” has no gap and overlap, so input “4”.

Additional information

In case that all patterns have gap or overlap, select the value for the pattern which has the least gap or overlap, and print the pattern again.

CHECK POINT

Example for judgement



5.2.6 Head angular adjustment

☐ Overview

This adjustment is carried out using the Adjustment Lever located at the zero digit side of the Carriage Assy. This allows you to adjust the Printhead angle by operating the Adjustment Lever as shown below.

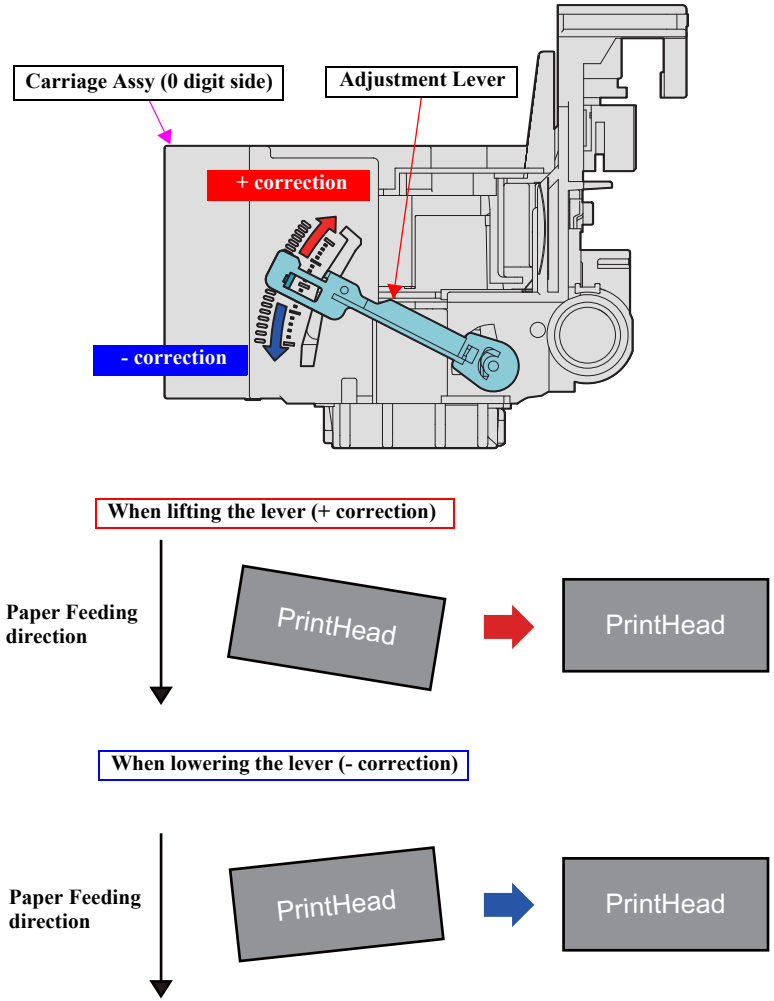


Figure 5-7. Outline of the Head Angular Adjustment

☐ Head angular adjustment flowchart

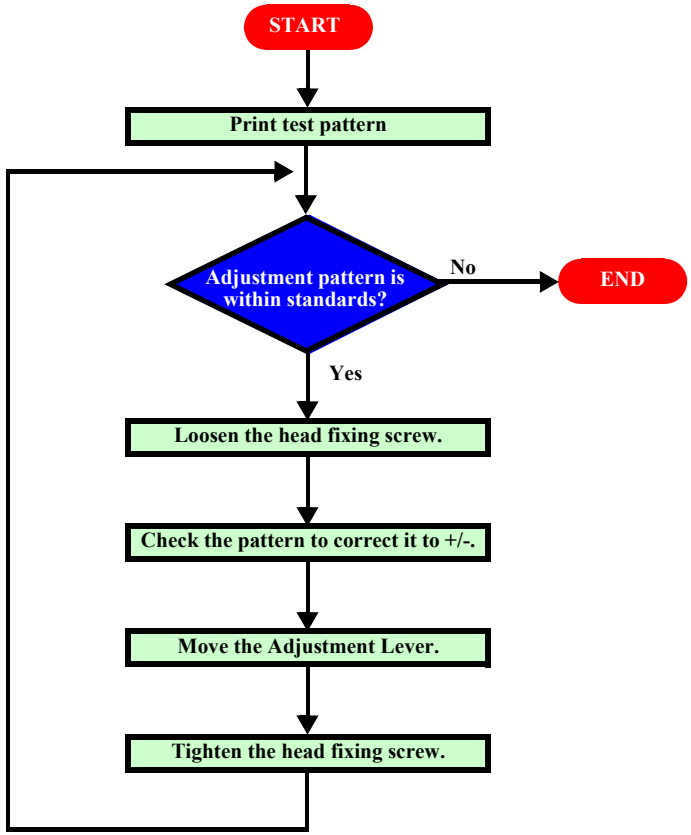


Figure 5-8. Adjustment flow

CHECK POINT

Adjustment resolution of the lever is 0.01mm.
(Max. 10 steps: up to 0.1mm adjustable)

☐ Adjustment procedure

1. Select “Head Angular Adjustment” from the Adjustment Program, and click the [PRINT] button to print the adjustment pattern.

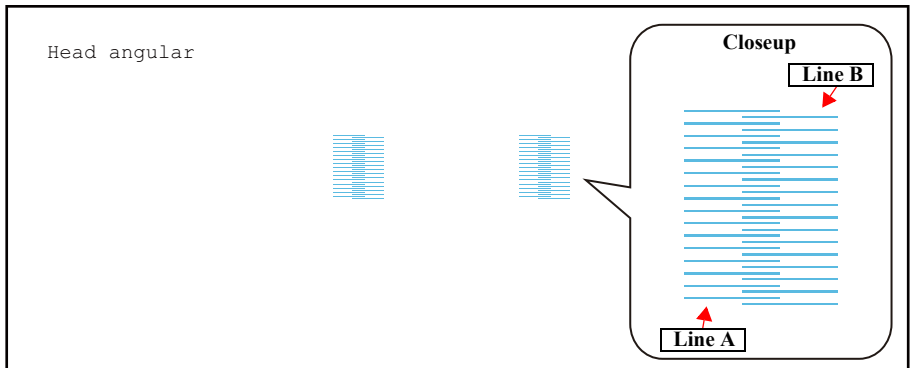


Figure 5-9. Adjustment pattern sample

CAUTION

- **Be careful not to press down the Carriage Assy while performing the following step.**
- **Do not loosen screws more than one turn when loosening them.**
- **Do not loosen the screws without any directions below.**

2. Press the [Move to screwing point] button in the Adjustment Program. (The Carriage Assy moves to the location to loosen the screw.)
3. Loosen the screws (x3: ○) in the order given in Fig. 5-10.

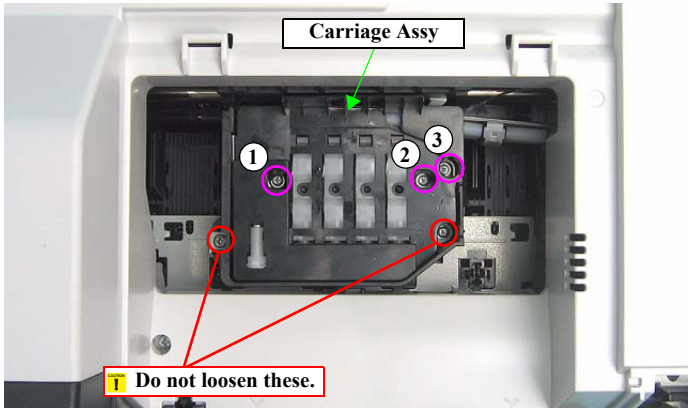


Figure 5-10. Head angular adjustment (1)

4. Check the adjustment pattern with the feeding direction downward using a magnifying glass, and adjust the head with the adjustment lever so that the line B is printed in the middle between the two line As.

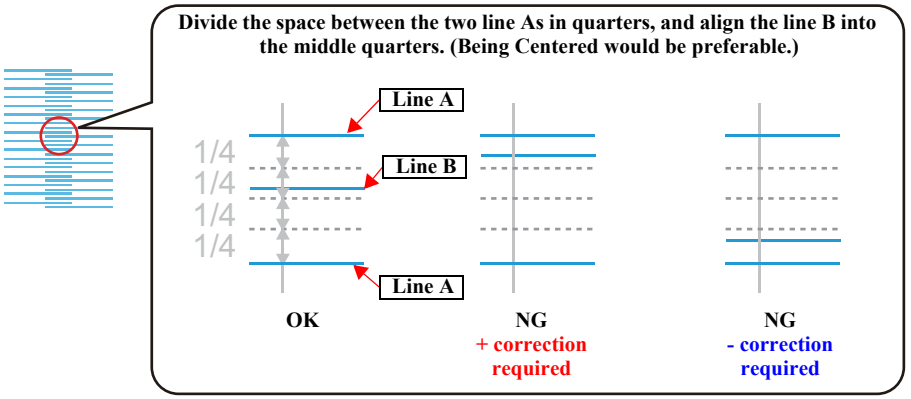


Figure 5-11. Determining which to move the adjustment lever

5. Press the [Move to lever operation point] button in the Adjustment Program. (The Carriage Assy moves to the location shown below.)

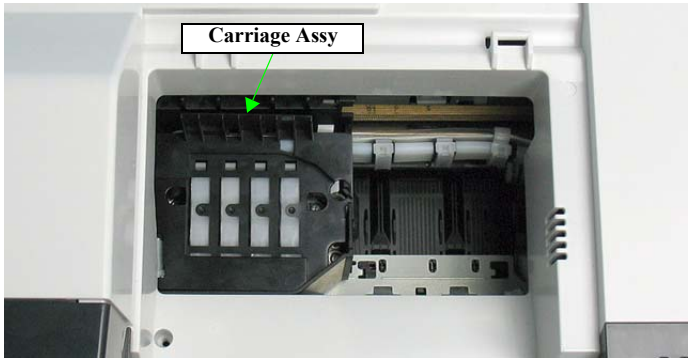


Figure 5-12. Head angular adjustment (2)

(To be continued to the next page.)

6. Move the Adjustment Lever to the direction confirmed in Step 4 using tweezers or a similar tool by inserting them into the hole on the lever shown in Fig. 5-13.

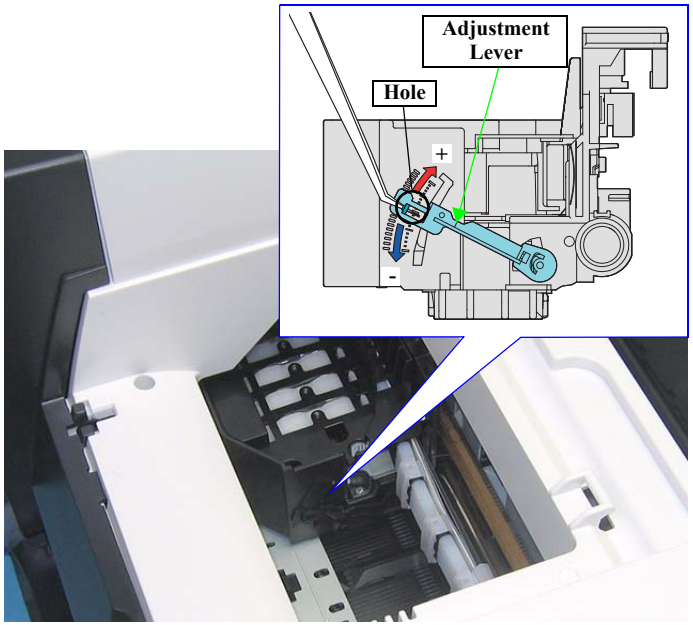


Figure 5-13. Head angular adjustment (3)

7. Press the [Move to screwing point] button in the Adjustment Program. (The Carriage Assy moves to the location shown in Fig. 5-10.)

CAUTION

Do not use a electric screwdriver when tightening the screw in the next step. Make sure to use a torque screwdriver to keep the torque shown in Fig. 5-14.

8. Tighten the screws (x3: ○) in the order given in Fig. 5-14 to secure the Printhead.

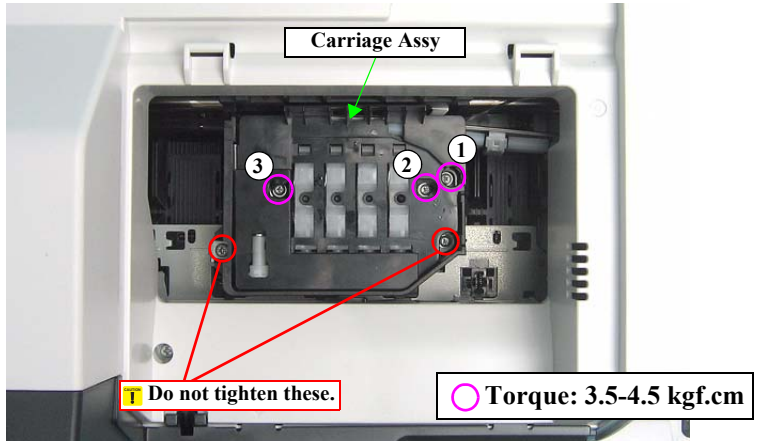


Figure 5-14. Head angular adjustment (4)

9. Press the [Print] button in the Adjustment Program. (The adjustment pattern will be printed again.)

10. Check the adjustment pattern again.
If there is no vertical line, finish the adjustment.
If readjustment is needed, go back to Step 1, and carry out the adjustment again.

5.2.7 AID inspection

☐ Overview

The printer has an AID mechanism which automatically carries out nozzle check and runs cleaning according to the number of detected clogged nozzles (AID detection cleaning). This AID inspection check is performed using the all nozzles and inspects the AID function if it works properly or not.

☐ Preparation

Before starting the AID inspection check, make sure to carry out the following adjustments and check.

- Head angular adjustment
- PG adjustment
- Visual check of nozzle check pattern to see if dots are missing

CHECK POINT

When you find missing dots any broken lines or missing segments on the nozzle check pattern by the visual check, run a manual cleaning repeatedly until the check pattern is printed without any such symptom.

☐ Procedure

1. Start the Adjustment Program and select the “AID inspection” from the menu.
2. Click the Perform button to run the AID inspection.
3. Check the inspection result displayed on the Adjustment Program screen.
4. When the result shows NG, check the following cables to see if they are wrongly connected or broken.
   - AID cable
   - FFC that runs between the Main Board and the AID Board
5. Run the “AID inspection” again. If the result still shows NG, replace the AID Board or the Ink System.

5.2.8 Printer Mechanism Operation Check

☐ Overview

The Adjustment Program offers functional check menus for major components of the printer mechanism. If the result shows NG, remedy the problem referring to the table below.

Table 5-5. Operation Check and Remedies

Check function	Target components	Remedies	
ASF Sub change operation	• Planet Lock Assy • Rear ASF Unit • Front ASF Unit	Check the installation status. See 4.7.4.4 Planet Lock Assy (p138).	
APG check	APG Unit	Check the installation status. See 4.7.3.3 APG Assy / Sub Board (p125).	
Duplex unit sensor check	Duplex Unit	Check the installation of the Duplex unit sensor status. See 4.4.4 Rear Cover / Duplex Unit (p86).	
ASF check rear	Rear ASF Unit	Check the installation status. See 4.7.4.1 Rear ASF Assy (p133).	
ASF check front	Front ASF Unit	Check the installation status. See 4.7.4.13 Pick-up Assy (p155).	
ASF encoder check	ASF Encoder	1. Clean the ASF Scale if it is contaminated. 2. Check the installation status. See 4.7.4.3 ASF Motor Assy (p136), 4.7.3.3 APG Assy / Sub Board (p125). 3. Run the operation check again. If the result still shows NG, replace the ASF Motor Assy or the APG Assy with a new one.	
ASF sub encoder check	ASF Sub Encoder	1. Clean the ASF Scale if it is contaminated. 2. Check the installation status. See 4.7.4.5 ASF Sub Encoder (p142), 4.7.4.4 Planet Lock Assy (p138). 3. Run the operation check again. If the result still shows NG, replace the ASF Sub Encoder with a new one.	
Mechanism load check	Printer mechanism	Check the motor(s) diagnosed as an overload status in the following manner.	
		CR Motor	1. Check the Carriage components for lubrication. See Chapter 6 "MAINTENANCE"*(p195)*. 2. Run the operation check again. If the result still shows NG, replace the Printer mechanism with a new one. See Chapter 4 "Disassembly and Assembly"*(p73)*.
		PF Motor/ ASF Motor	1. Replace the Printer mechanism with a new one. See Chapter 4 "Disassembly and Assembly"*(p73)*.

5.2.9 MAC Address Setting (B-500DN/B-508DN/B-310N/ B-318N/B-510DN/B-518DN only)

☐ Overview

B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN has a network function and stores there MAC address (Media Access Control Address) in the EEPROM on the Network Board. The Network Board supplied as an ASP does not come with the MAC address written on it, therefore, you are required to set the MAC address to the new Network Board after replacement. The following explains the procedure.

CAUTION

- **To avoid a conflict of MAC address on a network, make sure to correctly follow the MAC address setting flowchart given on the right.**
- **The MAC Address is written correctly, The IP Address will be initialized also.**
- **The user should be notified of the change of MAC address because of the following reasons.**
  - **If the user has set the printer's MAC address on a router, the repaired printer with a new MAC address cannot be connected to the network.**
  - **The default printer name on a network consists of "EPSON" and the last six digits of the MAC address. Therefore, the printer name becomes different from the previous one.**

☐ Preparation

When replacing the Network Board, make sure to note down the MAC address written on a label on the Upper M/B Shield Plate. If the address is not readable due to contamination or any other cause, attach a new MAC address label (part code: 1482101) and note down the new address. See " 4.6.2 Network Board (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN only) (p99)" for description about the label position.

CHECK POINT

You are required to enter the last six digits of the MAC address (xx:yy:zz) on the Adjustment Program.
MAC address example: **00:00:48:xx:yy:zz**
("xx, yy, zz" represents a value unique to each printer)

☐ Setting flowchart

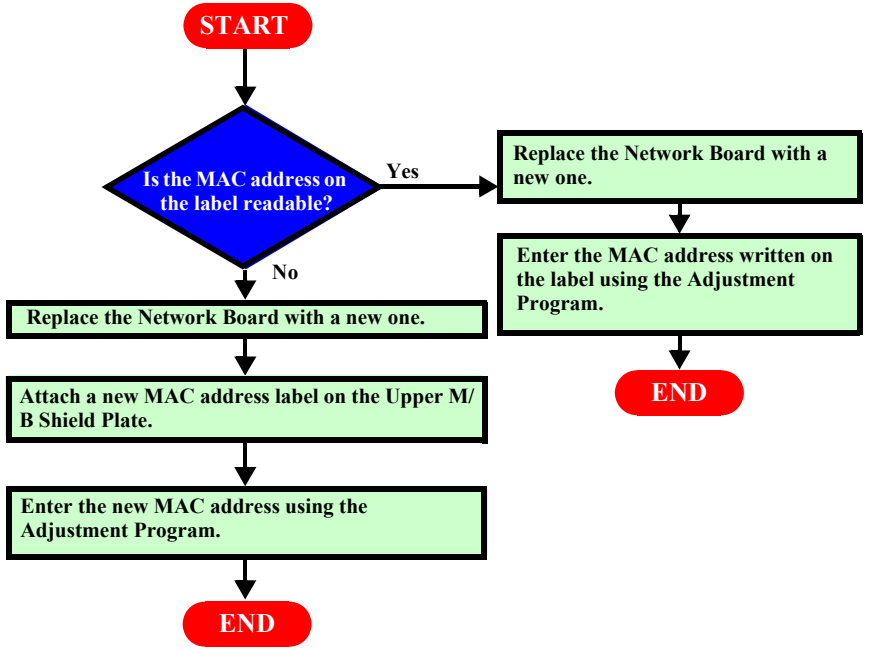


Figure 5-15. MAC Address Setting Flowchart

☐ Setting procedure

CAUTION

The MAC address required on the Adjustment Program is written on the MAC address label on the Upper M/B Shield Plate. Make sure to correctly enter the address.

Figure 5-16. MAC Address Label

1. Connect the printer and a computer using a LAN cable (crossover cable).
2. Start the Adjustment Program.
3. Select the “Initial Setting” from the menu. The initial setting screen appears.
4. Enter the last six digits of MAC address into the MAC address entry field, and click the MAC Address input button.
   (Enter the address again into the second entry field to confirm it.)
5. Select the network status sheet print menu on the printer’s control panel, and print the sheet. Check the MAC address printed on the sheet to see if it is correct. (“1.7 Status Sheet *(p.28)*)

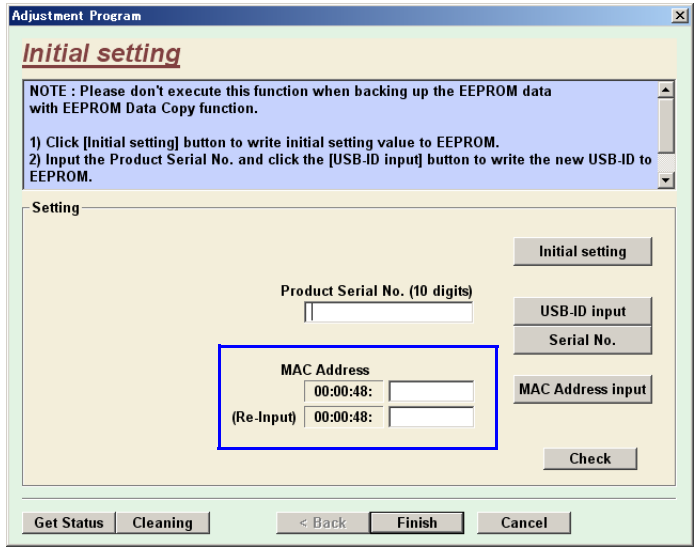


Figure 5-17. MAC Address Setting Screen

5.2.10 Paper Skew Adjustment

☐ Overview

Due to variation in the dimensions of parts or assembly, the CR shaft and the PF Roller are not exactly parallel in a precise sense. Therefore, as seen from the carriage, when fed by 1 pass, paper is fed in a skew way (skew feeding). This skew feeding becomes conspicuous as a line misalignment when printing vertical lines in Band printing*.

To correct this line misalignment or the like due to skew feeding within the range of quality standard, the Paper Skew adjustment sets a correction value to average the amount of print shifts by 1 pass in Band printing.

***NOTE** *: This is a mode to print with the resolution in the paper feeding direction and the nozzle density of the Printhead matched. Printing is done while feeding paper by about the length of the height of the head by 1 pass.*

CHECK POINT

- **Make sure to perform the Paper Skew adjustment after finishing the following adjustments.**
  - **Head angular adjustment (p181)**
  - **Bi-D Adjustment (p178)**
  - **First Dot Position Adjustment (Front/Rear) (p179)**
- **Before performing this adjustment, make sure to update the firmware according to the instructions of the adjustment program.**
- **The correction of this adjustment is applied only in Band printing.**

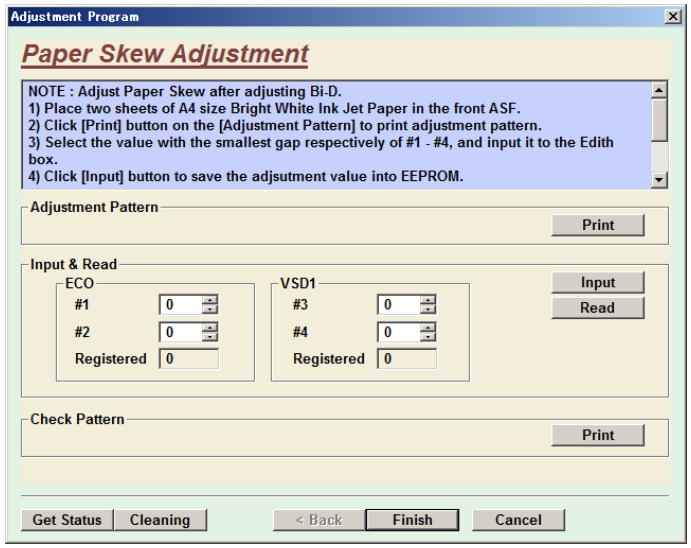


Figure 5-18. Paper Skew Adjustment Screen

☐ Adjustment procedure

1. Select "Paper Skew Adjustment" from the menu of the Adjustment Program, and press the [Print] button to print the adjustment patterns (two patterns: ESC and VSD1).

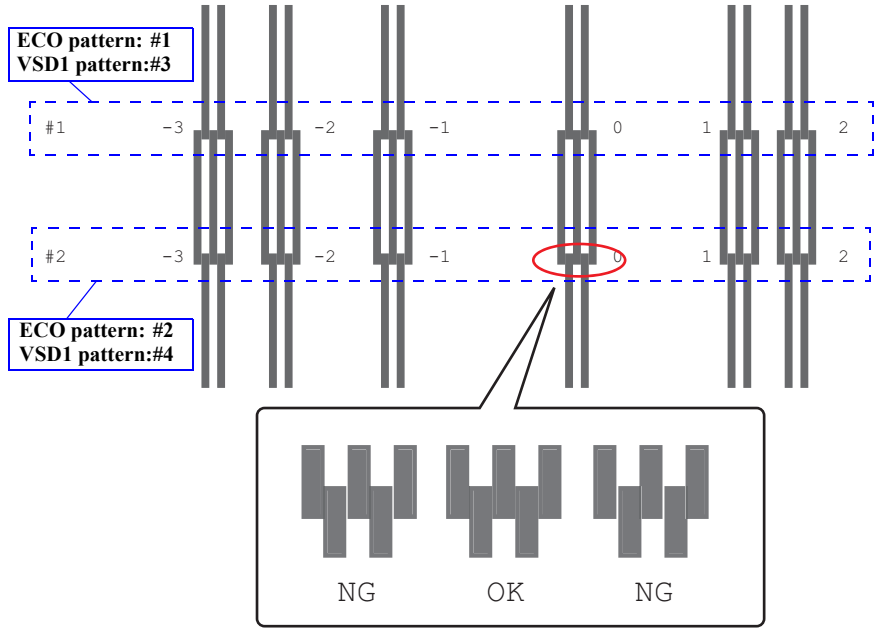


Figure 5-19. Paper Skew adjustment pattern sample (ECO)

2. Check each of the printed ECO and VSD1 patterns and choose the pattern with the least white line and overlapping in each area of the #1, #2, #3, and #4 respectively, and enter the values to the adjustment program.

CHECK POINT

- **If there are two good patterns, enter the value with a larger number.**
- **If the difference between the values selected from #1 and #2 of ECO patterns, or #3 and #4 of VSD1 patterns is more than five, the mechanism should be regarded as a fault and make sure to replace it with a new one.**
- **If the best pattern locates at the end, the paper posture in feeding may have been unstable. Print the patterns again and select from the four patterns excluding the ones on both ends.**

3. Print the two sheets of check patterns (Uni-d/Bi-D), and check each pattern of ECO and VSD1.

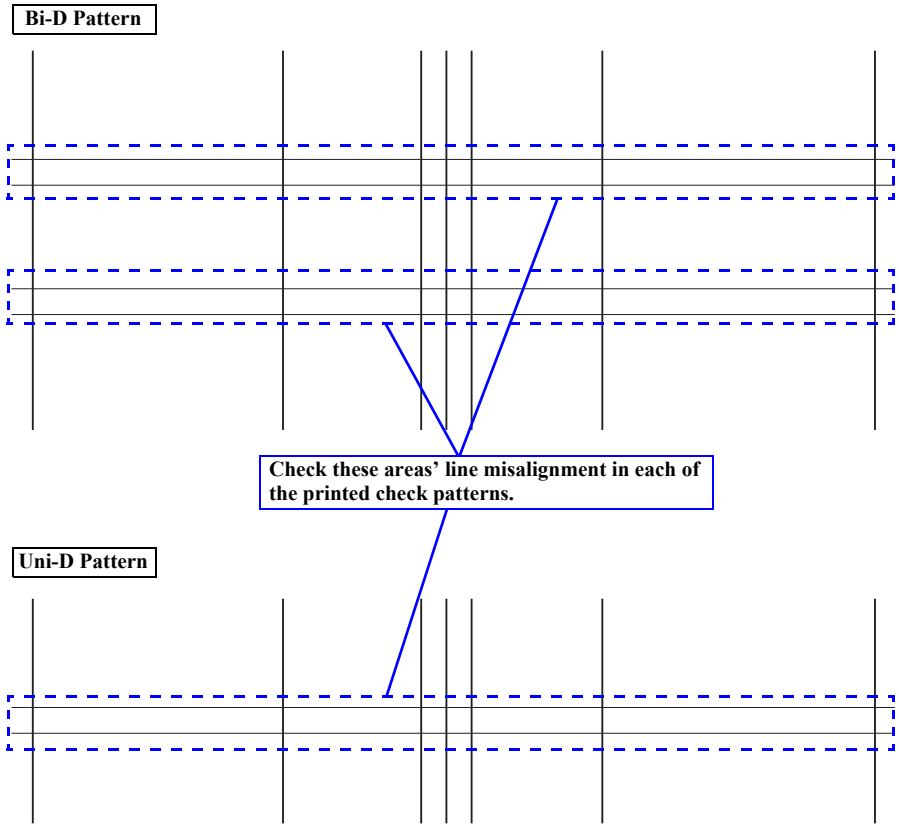


Figure 5-20. Check pattern for line misalignment

CHECK POINT

If the desired check result cannot be obtained, return to the step 1 and carry out the adjustment again.

5.2.11 ACL Failed Counter Initialization

☐ Overview

When AID/auto cleaning (ACL) is set to enabled, ACL is executed if clogged nozzles are detected after the AID inspection.
If clogged nozzles cannot be improved after carrying out ACL three times in a row, the ACL failed counter is increased by one even printing is still available.
When the counter reaches to the specified value, the error indication is displayed on the panel and such. Even when the clogged nozzles of the printhead are corrected by the repair, only the error indication remains until the counter is reset; which may become the cause of returning the repaired product again. To avoid this unnecessary error indication, reset the ACL failed counter at the end after all the servicing (repair) is finished.

CHECK POINT

When the firmware is the following version or later, the user can clear the error by operating the panel.

- **B-500DN/B-508DN: SH1998**
- **B-300/B-308: SL1998**

☐ Resetting procedure

1. Select the "ACL Failed Counter Reset" from the menu of the Adjustment Program, and press the [Reset] button in the displayed screen.

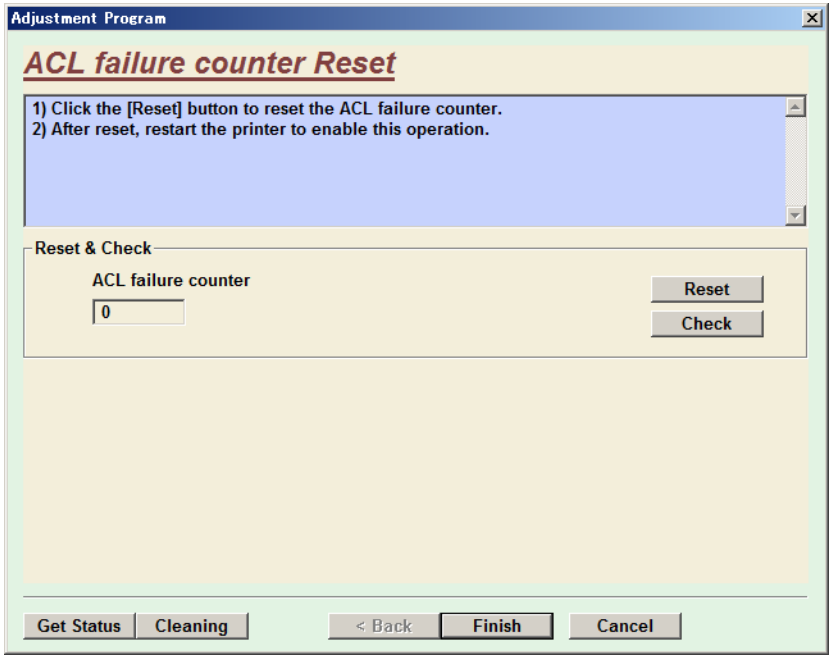


Figure 5-21. ACL Failed Counter Reset Screen

2. Press the [Get Status] button, and confirm the ACL Failed Counter is "0".

5.2.12 Compulsion Uni-d Print Setting

CHECK POINT

The compulsion Uni-D print setting is available for the following firmware version or later.

- **B-500DN/B-508DN: SH1998**
- **B-300/B-308: SL1998**

☐ Overview

In bi-directional printing (Bi-D), ink firing timing is corrected according to the environmental temperature to improve the print quality. However, the timing is not corrected for the temperatures below 10°C and over 40°C (below 50°F and over 104°F) since the correction table is not set. In such case, the printing misalignment may occur. The compulsion Uni-d print setting is to perform uni-directional printing forcibly when the temperature is not in the above range in order to prevent the misalignment from occurring.
The "compulsion Uni-d print setting" is available for firmware version "SH1998/ SL1998" or later. The setting after updating the firmware is on as the default value, therefore, make sure to change it to off by following the steps below, unless the user requests to give the print quality priority over the print speed.

☐ Setting procedure

1. Connect the printer to the PC via a USB connection cable.
2. Start the Adjustment Program.
3. Select the "Compulsion Uni-d Print" from the menu. The setting screen appears.
4. Select the "OFF".
5. Click the Set button. The setting becomes effective at next power on.

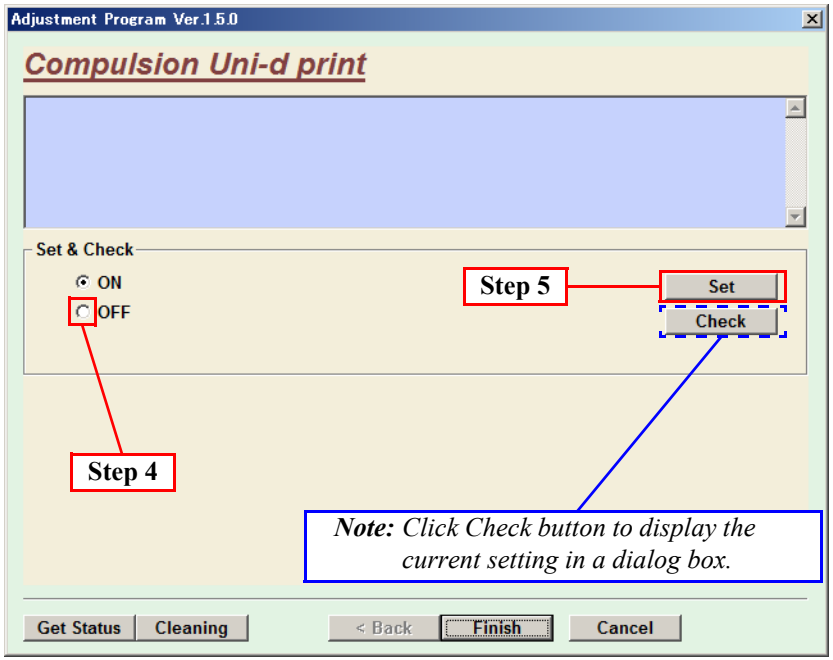


Figure 5-22. Compulsion Uni-d Print Setting Screen

5.3 Adjustment without Using Adjustment Program

This section explains the adjustment procedure without using the adjustment program.

5.3.1 PG Adjustment

Described below is the platen gap (PG) adjustment.

☐ Purpose:
Adjust the distance between the head surface and the Paper Guide Front Assy (platen) properly and adjust the parallelism on the 0th column side and on the 80th columns side to ensure reliable print quality.
Once the Carriage Assy and/or Adjustment Bushes have been removed or whenever necessary for any other reason, make this adjustment to correct the deviation of the platen gap.

Table 5-6. PG Positions

Position	PG Size (mm)	Application for Printing (selected from PG flag list for normal/head rubbing))	Sequence Application
PG- <APG Home>	1.2	EPSON special paper	Applied while capping, wiping operations, during standby after power-on, and while adjusting PG
PG typ. <Mechanical default>	1.7	Plain paper Select when PG- is too narrow	---
PG+	2.35	Envelopes Select when PG typ. is too narrow	---
PG++	2.95	Select when PG+ is too narrow	Applied while replacing ink and performing AID adjustment
PG CL	1.2	Select when opening/closing the choke valve	---

☐ Things to be used

- Thickness gauge: 1.1 mm (x2)
  1.3 mm (x2)
- Phillips screwdriver

CAUTION

- **The thickness gauge to be used must be free from dust and dirt and from deformation. Be sure to clean it before use.**
- **Take care that the Printhead is not soiled or scratched.**
- **Move the carriage right and left by pulling the belt without holding the carriage.**

CHECK POINT

- **Carry out this adjustment before installing the IC Holder Assy after installing the Printhead and the head pressing plate. (Install the CR Scale after this adjustment)**
- **B-300/B-308/B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN has five PG presettings using the APG mechanism. Use the minimum PG setting (PG–: 1.2mm) to carry out this adjustment.**
  See below and *"4.7.3.3 APG Assy / Sub Board (p.125)"***.**

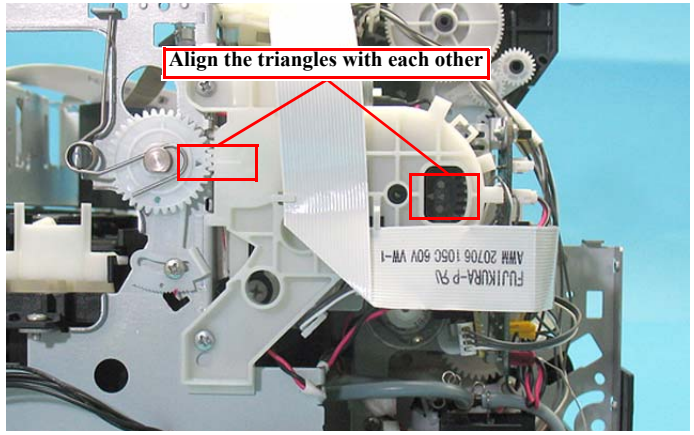


Figure 5-23. PG Position at PG Adjustment

☐ Adjustment procedure

■ Specified PG value: 1.2 ± 0.1 mm

1. Check that the APG Assy and the carriage are in the PG-position.*(Fig. 5-23)*
2. Move the carriage to the center of the platen, and place 1.1 mm thickness gauge on the left aligning its left edge with the second rib of the Front Paper Guide. And place another 1.1 mm thickness gauge on the right aligning its right edge with the rightmost rib of the Front Paper Guide.*(Fig. 5-24)*

WARNING

- **The thickness gauge must not be set over the leftmost rib on the Front Paper Guide.**
- **The thickness gauge must not be set over the rightmost rib on the Front Paper Guide.**

3. Pull the Timing Belt to move the carriage to the left end.
4. If the carriage comes in contact with the gauge, adjust the Left Parallelism Bush to raise the carriage to a position where the Printhead does not come in contact with gauge.
5. Pull the Timing Belt to move the carriage to the right end.
6. If the carriage comes in contact with the gauge, adjust the Right Parallelism Bush to raise the carriage to a position where the Printhead does not come in contact with gauge.
7. Move the carriage to the middle area of the platen, and place 1.3 mm thickness gauges at the left and right ends of the platen.
8. Pull the Timing Belt to move the carriage to the left end.
9. If the carriage does not come in contact with the gauge, make the adjustment again.
10. Pull the Timing Belt to move the carriage to the right end.
11. If the carriage does not come in contact with the gauge, make the adjustment again.
12. Mark the indicated graduation position of the right and left Parallelism Bush, and tighten the screws. (Screw tightening torque: 8 ± 1 kgf.cm)

CAUTION

The Printhead must come in contact with the 1.3 mm thickness gauges but must not come in contact with the 1.1 mm thickness gauges.

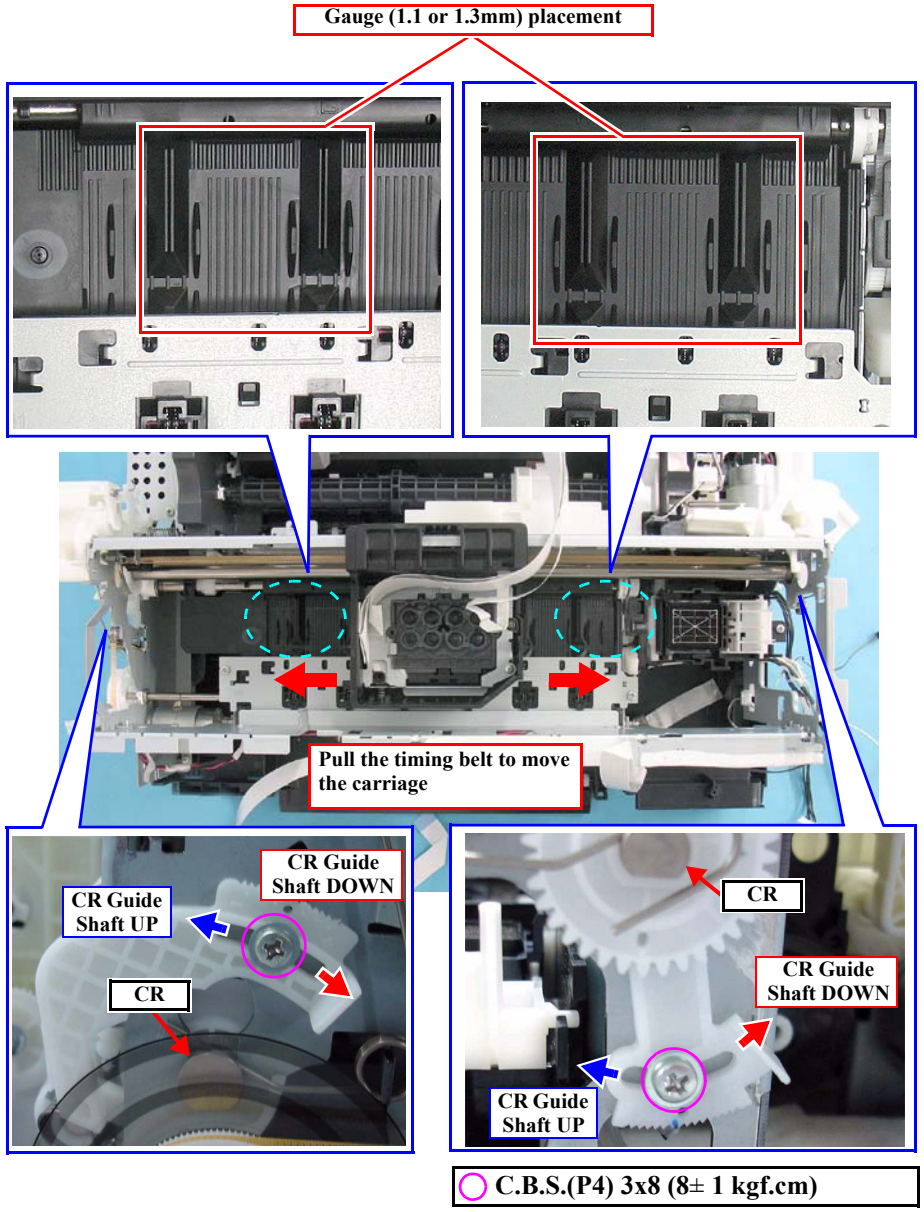


Figure 5-24. PG Adjustment

5.3.2 PF Belt Tension Adjustment

☐ Purpose:

This adjustment is made to avoid the idling of the PF motor (fatal error), breaking of the motor coil caused by an abnormal heat, or lost of paper feed accuracy that causes banding on the printout.

☐ Things to be used

- Tension gauge
- Tweezers
- (+) Phillips screwdriver

☐ Adjustment procedure

Table 5-7. PF Belt Tension Adjustment

Step	Procedure Content
1	Secure the PF Motor to the mechanism, then put the Timing Belt on the PF Roller Unit and the PF Motor Pinion.
2	Press the "POWER" button of the tension gauge. (A channel number (i.e. No. 0 or No.1) appears on the LCD of the tension gauge.)
3	Press the "SELECT" button to select a channel of which settings you want to save from No.0 to No. 9. (The default value is also available.)
4	Press the "WEIGHT" button. The default value appears. Using the numeric keypad, enter the numbers so that "1.0 g/m" is displayed on the LCD.
5	Press the "WIDTH" button. The default value appears. Using the numeric keypad, enter the numbers so that "3.0 mm" is displayed on the LCD.
6	Press the "SPAN" button. The default value appears. Using the numeric keypad, enter the numbers so that "99 mm" is displayed on the LCD.
7	Bring the microphone to the center of the belt tension as closely as possible. Note : Keep the microphone away from a position where the belt may hit the microphone in the following procedure.
8	Press the "MEASURE" button. ("---" appears on the LCD of the tension gauge.)
9	Put the ends of the Tweezers on the PF Timing Belt, then flip the belt downward. The "---" displayed on the LCD of the tension gauge changes to "N" in wave movement notifying the measurement result with beep sound. Regardless to the flipping strength, the jig is capable of measuring sound with a high degree of accuracy.
10	Repeating the steps 8 and 9, adjust the tension by slightly moving the installation part of the PF motor so that the tension falls within the acceptable standard values.

CHECK POINT

- **The display on the LCD of the tension gauge may not change at all even if the belt is flipped. In this case, flip the belt again after a few seconds.**
- **Carry out this adjustment in a quiet place to avoid inaccurate measurement results due to the surrounding noise.**
- **Some measurement results may differ greatly because of inaccurate measurement. In such case, flip the belt again to obtain the two results whose values are most close to each other. The errors are within the range between 1/100 and 5/100, which ensures high reliability of measurement results.**
- **Standard value: 9.5 ± 1.5N**
- **Screw tightening torque of PF Motor: 4 ± 0.5 kgf.cm**

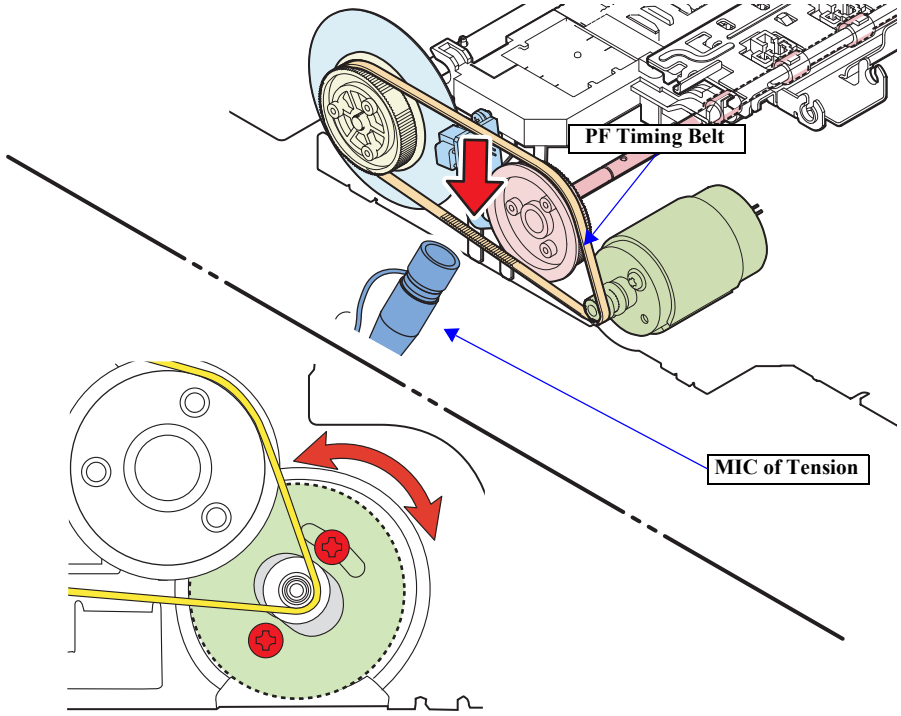


Figure 5-25. PF Belt Tension Adjustment

5.3.3 FD Belt Tension Adjustment

☐ Purpose:

This adjustment is made to avoid the idling of the ASF motor (fatal error) or breaking of the motor coil caused by an abnormal heat.

☐ Things to be used

- Tension gauge
- Plastic Tweezers
- (+) Phillips screwdriver

☐ Printer status: Rear Frame is removed. see P.149.

☐ Adjustment procedure

Table 5-8. FD Belt Tension Adjustment

Step	Procedure
1	Check the FD Timing Belt for its proper installation.
2	Press the "POWER" button of the tension gauge. (A channel number (i.e. No. 0 or No.1) appears on the LCD of the tension gauge.)
3	Press the "SELECT" button to select a channel of which settings you want to save from No.0 to No. 9. (The default value is also available.)
4	Sets the following parameters: **WEIGHT: 1.3 g/m** **WIDTH: 3.0 mm** **SPAN: 127 mm**
5	Bring the microphone to the center of the belt tension as closely as possible. Note : Keep the microphone away from a position where the belt may hit the microphone in the following procedure.
6	Press the "MEASURE" button. ("---" appears on the LCD of the tension gauge.)
7	Put the ends of the Tweezers on the FD Timing Belt, then flip the belt downward. The "---" displayed on the LCD of the tension gauge changes to "N" in wave movement notifying the measurement result with beep sound. Regardless to the flipping strength, the jig is capable of measuring sound with a high degree of accuracy.
8	Repeating the steps 8 and 9, adjust the tension by slightly moving the installation part of the Tensioner so that the tension falls within the acceptable standard values.

CHECK POINT

- **The display on the LCD of the tension gauge may not change at all even if the belt is flipped. In this case, flip the belt again after a few seconds.**
- **Carry out this adjustment in a quiet place to avoid inaccurate measurement results due to the surrounding noise.**
- **Some measurement results may differ greatly because of inaccurate measurement. In such case, flip the belt again to obtain the two results whose values are most close to each other. The errors are within the range between 1/100 and 5/100, which ensures high reliability of measurement results.**
- **Standard value: 1.0 ± 0.2 N**
- **Screw tightening torque of Tensioner: 6 ± 1 kgf.cm**

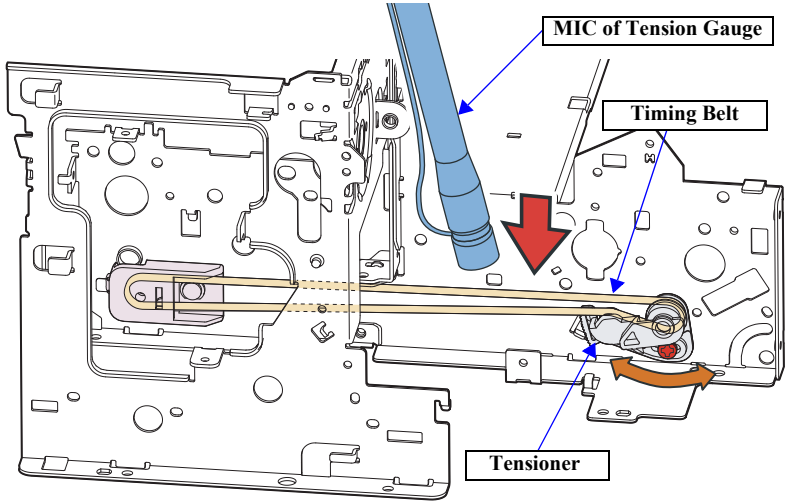


Figure 5-26. FD Belt Tension Adjustment

CHAPTER

6

MAINTENANCE

6.1 Overview

This section provides information to maintain the printer in its optimum condition.

6.1.1 Cleaning

This printer has no mechanical components which require regular cleaning except the Printhead. Therefore, when returning the printer to the user, check the following parts and perform appropriate cleaning if stain is noticeable.

CAUTION

- **Never use chemical solvents, such as thinner, benzine, and acetone to clean the exterior parts of the printer like the Housing. These chemicals may deform or deteriorate the components of the printer.**
- **Be careful not to damage any components when you clean inside the printer.**
- **Do not scratch the coated surface of the PF Roller Unit. Use soft brush to wipe off any dusts. Use a soft cloth moistened with alcohol to remove the ink stain.**
- **Use a soft cloth moistened with alcohol to remove the ink stain.**
- **When using compressed air products; such as air duster, for cleaning during repair and maintenance, the use of such products containing flammable gas is prohibited.**

- Exterior parts
  Use a clean soft cloth moistened with water, and wipe off any dirt. If the exterior parts have ink stain, use a cloth moistened with neutral detergent to wipe it off.
- Inside the printer
  Use a vacuum cleaner to remove any paper dust.
- LD Roller/Retard Roller/Idle Roller/Front Retard Roller
  When paper loading function does not operate because of a drop in friction force of the LD Roller and the other rollers above due to paper dust, use a soft cloth moistened with alcohol to remove the paper dust.
- Pick-up Roller
  When the frictional force of the Pick-up Roller has dropped causing an error of front paper feed, clean the roller surface with a cotton moistened with a pure water.

6.1.2 Service Maintenance

This printer has the AID function that automatically detects dot missing and runs a head cleaning. And the printer indicates a Service Call error using the printer driver, LEDs and LCD (B-500DN/B-508DN/B-310N/B-318N/B-510DN/B-518DN only) when some maintenance is required.

6.1.2.1 Printhead cleaning

The AID function automatically carries out a nozzle check and head cleaning in the following timings. (AID detection cleaning)

- At power-on
- Initial ink charge, after cleaning
- When the Ink Lever is set / When the Maintenance Box Cover is closed
- After a lapse of preset time period from the previous AID detection cleaning. (performed before printing)

There are four cleaning modes. One of the modes is automatically selected depending on the number of nozzles detected as clogged. The amount of ink consumed for the cleaning differs by mode.

If dot missing is still detected even after a preset number of AID cleanings, the printer indicates a Maintenance Call error. Press the [OK] button to clear the error. After you cleared the error, make sure to run a head cleaning using the Adjustment Program, printer driver or the control panel on the printer.

6.1.2.2 Service Call

This printer is off-carriage type. Therefore, ink is supplied from the cartridges to the Printhead through the ink tube.
As the ink tube is moved together with the carriage, deterioration of the tube will occur, and could result in ink leakage.
To prevent this, the printer counts the number of carriage movements (Tube Maintenance Counter) to cause a Service Call error when the counter reaches a preset upper limit.
Replace the IC Holder Assy (ink tube) with a new one when the Service Call error occurs. And then reset the Tube Maintenance Counter to 0 (zero) using the Adjustment Program.

Table 6-1. Tube Maintenance Counter Thresholds for Service Call

Counter Name	Near limit	Upper limit
Tube Maintenance Counter (Accumulated number of carriage movements)	9,500,000 cycles	10,000,000 cycles

Whenever servicing the printer, always check the Tube Maintenance Counter. If the counter is approaching the above thresholds, replace the IC Holder Assy (ink tube) to prevent the printer from causing a Service Call error after it is returned to the user.

CHECK POINT

For information on the Service Call indication, see below.

- **Chapter3 "Troubleshooting" (p.35)**

6.1.3 Lubrication

The type and amount of the grease used to lubricate the printer parts are determined based on the results of the internal evaluations. Be sure to apply the specified type and amount of the grease to the specified parts during servicing mentioned below.

- ☐ When a part that need lubrication is replaced
- ☐ As the need arises during disassembly/reassembly of the printer

CAUTION

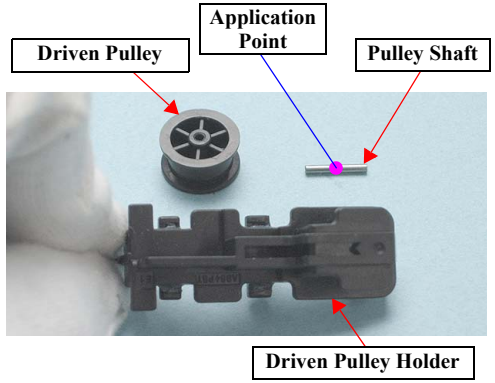
- **Never use oil or grease other than those specified in this manual. Use of different types of oil or grease may damage the component and adversely affect the printer operation.**
- **Observe the specified amount. Never apply excess.**

Table 6-2. Specified Lubricant

Type	Name	EPSON CODE	Supplier
Grease	G-65	1246432	EPSON
Grease	G-71	1480655	EPSON
Grease	G-74	1409257	EPSON
Grease*	G-84	1516265	EPSON

Note *: B-310N/B-318N/B-510DN/B-518DN only

Lubrication of Driven Pulley



<Lubrication Points>
One point at the center of the Pulley Shaft

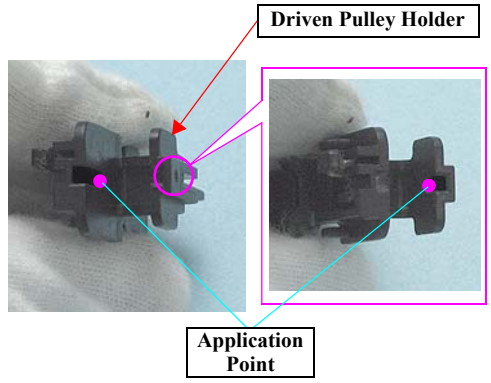
<Type>
G-71

<Application Amount>
ϕ 1 x 1 circle

<Application Timing>
Before installing the Driven Pulley

<Remarks> Apply with Injector

Figure 6-1. Lubrication of the Driven Pulley (1)



<Lubrication Points>
Two points on bushings for the Pulley Shaft (Inside)

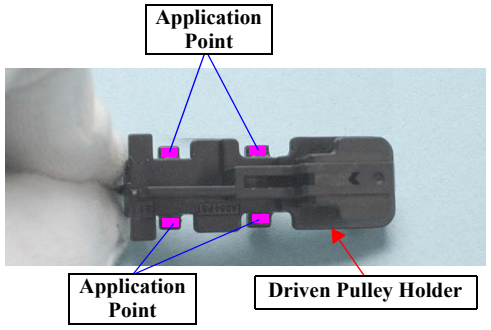
<Type>
G-71

<Application Amount>
ϕ 1 x 5 mm x 2 points

<Application Timing>
Before installing the Driven Pulley

<Remarks> Apply with Injector

Figure 6-2. Lubrication of the Driven Pulley (2)



<Lubrication Points>
Four points where contact with the Main Frame

<Type>
G-71

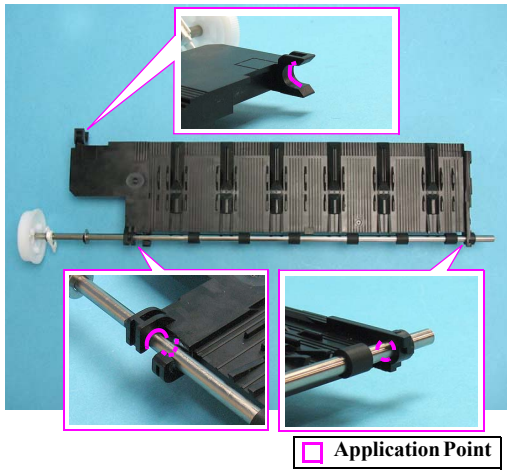
<Application Amount>
ϕ 1 x 2 mm x 4 points

<Application Timing>
Before installing the Driven Pulley

<Remarks> Apply with Injector

Figure 6-3. Lubrication of the Driven Pulley (3)

Lubrication of Front Paper Guide & EJ Roller Assy/ PF Roller Assy



<Lubrication Points>
Four contact points between the bushing of the Front Paper Guide and EJ Roller Shaft/PF Roller Shaft.

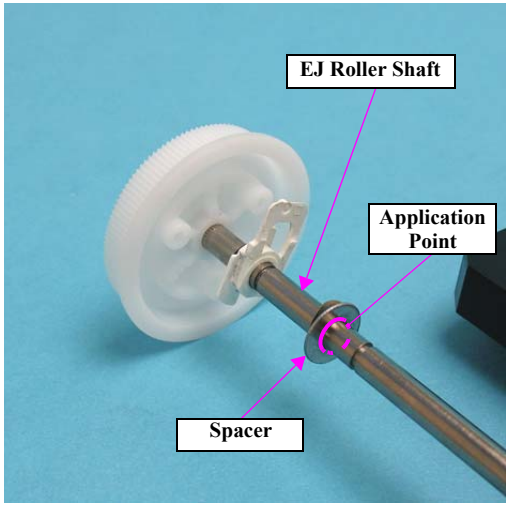
<Type>
G-71

<Application Amount>
Apply with Brush on the contact points

<Application Timing>
Before installing the EJ Roller Shaft

<Remarks> Apply with Brush
Be careful not to contaminate the rubber rollers on the EJ Roller with grease.

Figure 6-4. Lubrication of the Front Paper Guide



<Lubrication Points>
Contact point between the spacer and the EJ Roller shaft

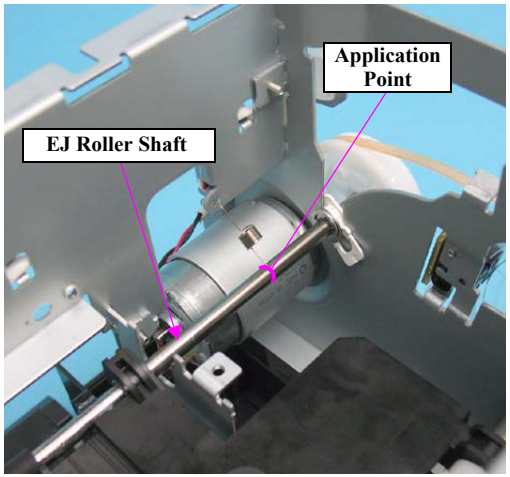
<Type>
G-71

<Application Amount>
ϕ 1 x 1 circle

<Application Timing>
Before installing the EJ Roller Shaft

<Remarks> Apply with Brush
- Be careful not to contaminate the rubber rollers on the EJ Roller with grease.

Figure 6-5. Lubrication of the EJ Roller Shaft (1)



<Lubrication Points>
Contact point between the EJ Roller Shaft and the EJ Ground Spring

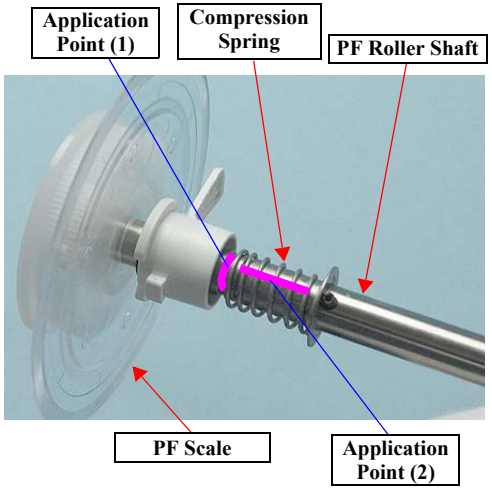
<Type>
G-71

<Application Amount>
ϕ 1 x 1 circle

<Application Timing>
<Application Timing>
After installing the Front Paper Guide and EJ Roller Assy

<Remarks> Apply with Injector
- Apply inside the positioning groove for the spring.
- Be careful not to contaminate the rubber rollers on the EJ Roller with grease.

Figure 6-6. Lubrication of the EJ Roller Shaft (2)



<Lubrication Points>
On the groove for the E-ring (1), and on the Compression Spring (2) of the PF Roller Assy.

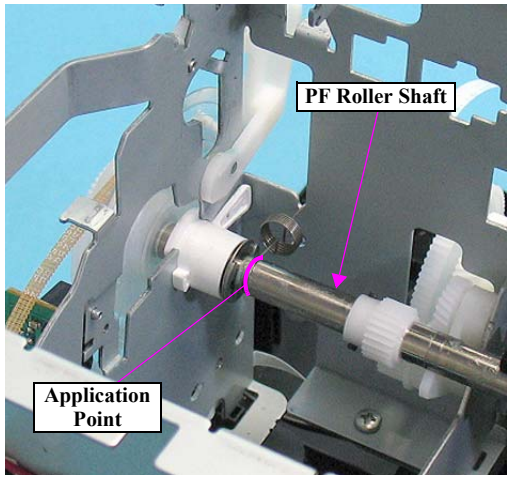
<Type>
G-71

<Application Amount>
(1) ϕ 1 x 5mm (Groove for E-ring)
(2) ϕ 1 x 10mm (Compression Spring)

<Application Timing>
Apply before installing the PF Roller Assy

<Remarks> Apply with Injector
- ☐ Make sure to apply inside the groove for E-ring.
- ☐ Be careful not to contaminate the coated part of the PF Roller Shaft and PF scale with grease.

Figure 6-7. Lubrication of the PF Roller Assy (1)



<Lubrication Points>
Contact point between the PF Roller Assy (Left side) and the PF grounding spring

<Type>
G-71

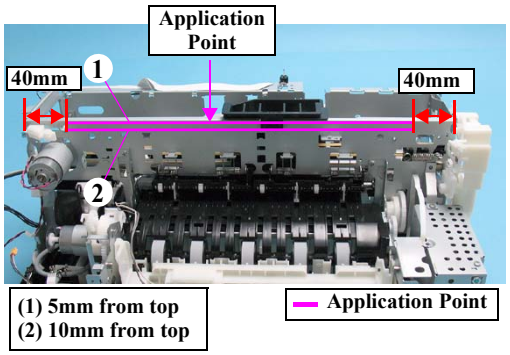
<Application Amount>
ϕ 1 x 5mm

<Application Timing>
After installing the PF Roller Assy

<Remarks> Apply with Injector
- ☐ Make sure to apply inside the spring groove.
- ☐ Be careful not to contaminate the coated part of the PF Roller Shaft with grease.

Figure 6-8. Lubrication of the PF Roller Assy (2)

Lubrication of Carriage Assy



<Lubrication Points>
Two contact points between the Carriage Assy and the rear center of the Main Frame

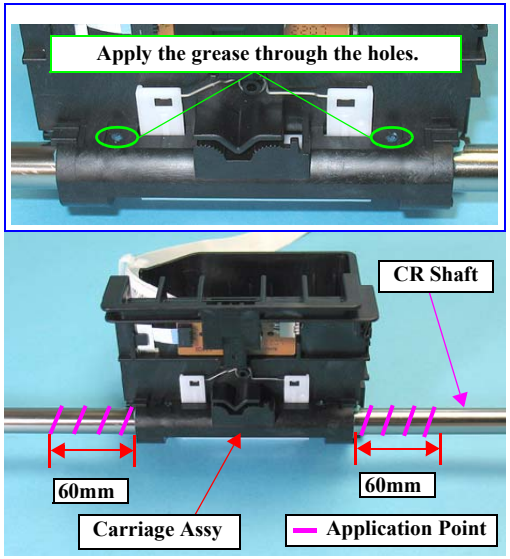
<Type>
G-71

<Application Amount>
160 ± 20mg x 2 points

<Application Timing>
After installing the Carriage Assy and the CR Shaft

<Remarks> Apply with Injector
- ☐ Do not apply 40mm each of both sides.
- ☐ Move the Carriage Assy from side to side to spread the grease evenly.

Figure 6-9. Lubrication of the Main Frame



<Lubrication Points>
Two contact points between the Carriage Assy and the CR shaft.

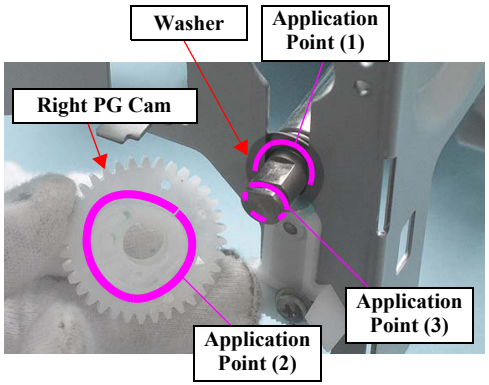
<Type>
B-300/B-308/B-500DN/B-508DN: G-71
B-310N/B-318N/B-510DN/B-518DN: G-84

<Application Amount>
250 ± 10mg x 2 points

<Application Timing>
Before installing the Carriage Assy and the CR Shaft

<Remarks> Apply with Injector
- ☐ After lubrication, move the CR Shaft from side to side by 60mm while rotating it, to spread the grease evenly.
- ☐ Be careful not to contaminate the Timing Belt with grease.

Figure 6-10. Lubrication of the CR Shaft (1)



<Lubrication Points>
(1) Contact point between washer and Main Frame
(2) Right PG Cam surface
(3) Contact point between CR shaft and and spring R.

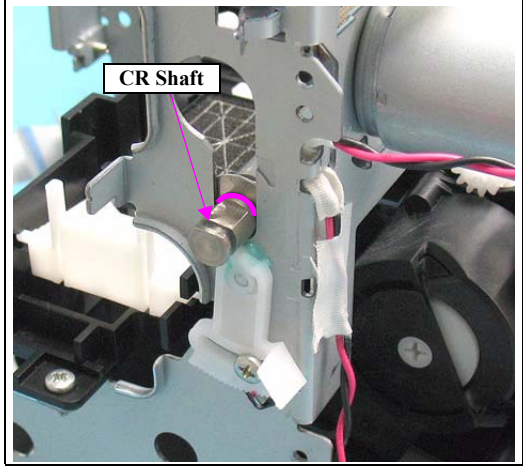
<Type>
G-71

<Application Amount>
(1) ϕ 1 x half circle (Washer)
(2) ϕ 1 x 1 circle (Right PG Cam surface)
(3) ϕ 1 x 5 mm

<Application Timing>
When installing the CR Shaft

<Remarks> Apply with Injector
Apply grease on the Washer evenly by rotating the CR Shaft.

Figure 6-11. Lubrication of the CR Shaft (2)



<Lubrication Points>
Contact point between the CR shaft and right bushing of the Main Frame

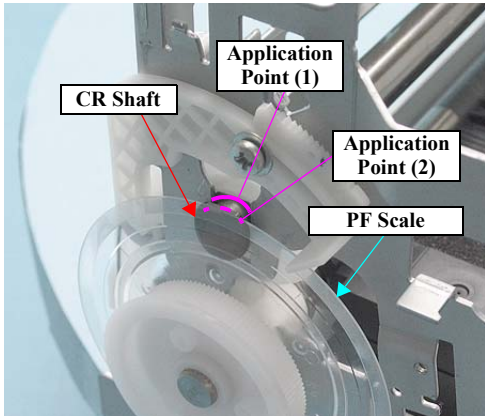
<Type>
G-71

<Application Amount>
ϕ 1 x 5 mm x 2 points

<Application Timing>
When installing the CR Shaft

<Remarks> Apply with Injector

Figure 6-12. Lubrication of the CR Shaft (3)



<Lubrication Points>
(1) Contact points between CR shaft and and left bushing of Main Frame
(2) Contact points between CR shaft and spring L.

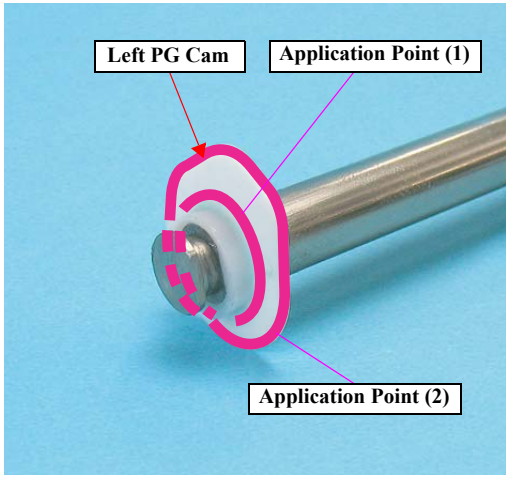
<Type>
G-71

<Application Amount>
(1) ϕ 1 x 5 mm x 2 points
(2) ϕ 1 x 5 mm

<Application Timing>
When installing the CR Shaft

<Remarks> Apply with Injector
☐ Be careful not to contaminate the PF Scale with grease.

Figure 6-13. Lubrication of the CR Shaft (4)



<Lubrication Points>
(1) Left PG Cam surface
(2) Contact points between Left PG Cam and CV lever.

<Type>
G-71

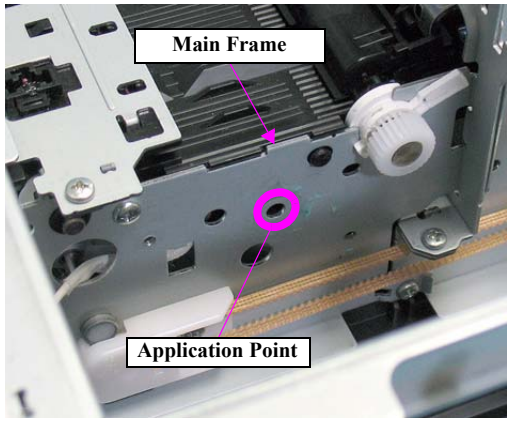
<Application Amount>
(1) ϕ 1 x 1 circle (Left PG Cam surface)
(2) ϕ 1 x 1 circle

<Application Timing>
When installing the CR Shaft

<Remarks> Apply with Injector
☐ Apply while rotating CR shaft to spread the grease evenly.

Figure 6-14. Lubrication of the Left PG Cam

Lubrication of Ink System



<Lubrication Points>
Points where Ink System clutch gear and spring contact with Main Frame

<Type>
G-71

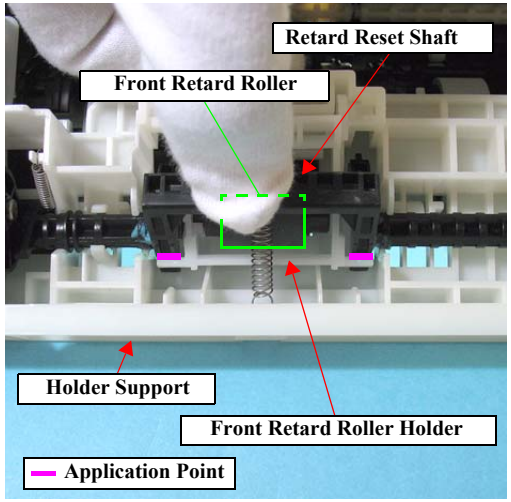
<Application Amount>
ϕ 1 x 1 circle

<Application Timing>
Before installing the Ink system

<Remarks> Apply with Injector

Figure 6-15. Lubrication of the Ink system

Paper Guide Bank Assy



<Lubrication Points>
Two contact points between Front Retard Roller Holder and Retard Reset Shaft

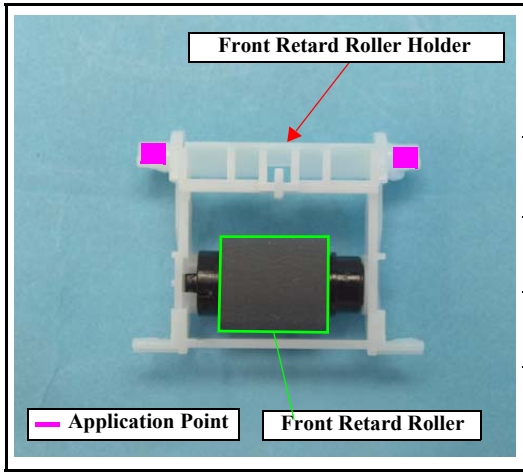
<Type>
G-65

<Application Amount>
ϕ 1 x 5 mm x 2 points

<Application Timing>
Before installing the Front Retard Roller

<Remarks> Apply with Injector
☐ Be careful not to contaminate the Front Retard Roller with grease.

Figure 6-16. Lubrication of the Paper Guide Bank Assy (1)



<Lubrication Points>
Two contact points between Front Retard Roller Holder and Holder Support

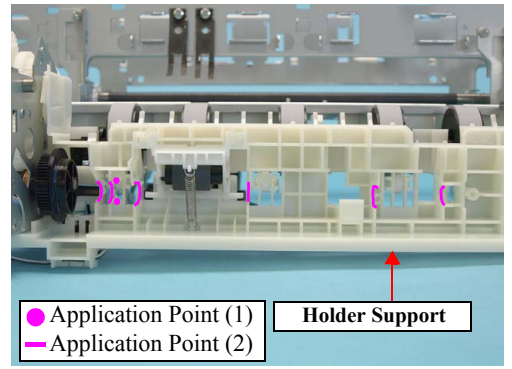
<Type>
G-71

<Application Amount>
ϕ 1 x 5 mm x 2 points

<Application Timing>
Before installing the Front Retard Roller

<Remarks> Apply with Injector
☐ Be careful not to contaminate the Front Retard Roller with grease.

Figure 6-17. Lubrication of the Paper Guide Bank Assy (2)



<Lubrication Points>
Contact point between Retard Reset shaft and Holder Support

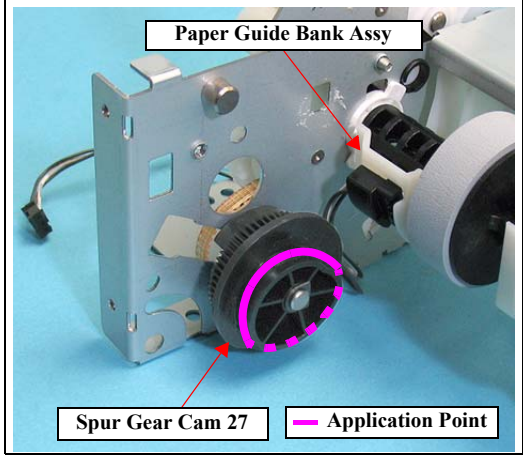
<Type>
G-71

<Application Amount>
(1) ϕ 1 x 3 mm x 2 points
(2) ϕ 1 x 15 mm x 6 points

<Application Timing>
Before installing the Retard Reset Shaft

<Remarks> Apply with Injector

Figure 6-18. Lubrication of the Paper Guide Bank Assy (3)



<Lubrication Points>
On surface of Spur Gear Cam 27

<Type>
G-71

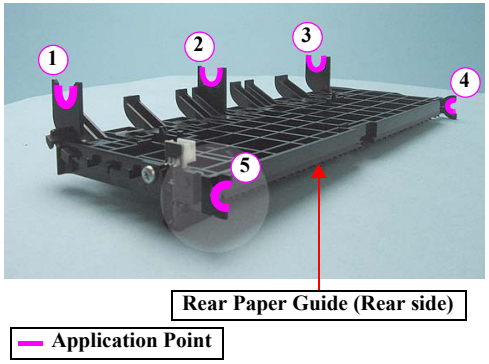
<Application Amount>
ϕ 1 x 1 circle

<Application Timing>
Before installing the Retard Reset Shaft

<Remarks> Apply with Injector

Figure 6-19. Lubrication of the Paper Guide Bank Assy (3)

Lubrication of Rear Paper Guide



<Lubrication Points>
Five points on Rear Paper Guide where contact with shafts.

<Type>
G-71

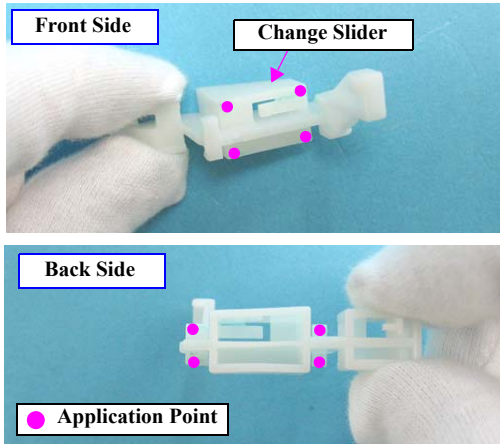
<Application Amount>
ϕ 1 x 5 mm x 5 points

<Application Timing>
- (1), (2), (3), (4) Before installing the Rear Paper Guide
- (5) After installing the Rear Paper Guide

<Remarks> Apply with Injector

Figure 6-20. Lubrication of the Rear Paper Guide

Lubrication of Rear ASF Assy



<Lubrication Points>
Eight points on Change Slider where contact with Main Frame

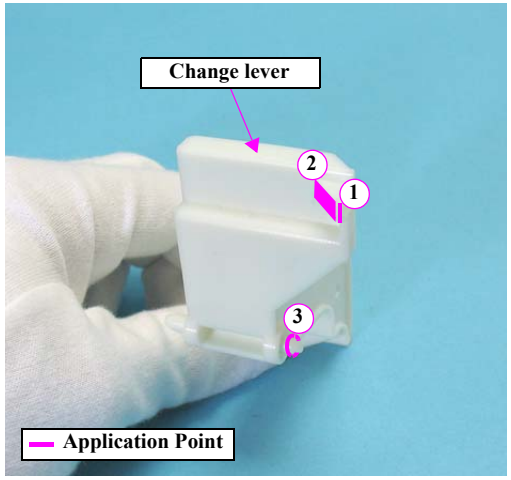
<Type>
G-71

<Application Amount>
ϕ 1 x 5 mm x 1 mm x 8 points

<Application Timing>
Before installing the Change Slider

<Remarks> Apply with Injector
- ☐ After reassembling, move the Change Slider side to side to see if it moves smoothly.

Figure 6-21. Lubrication of the Rear Paper Guide (1)



<Lubrication Points>
Three points on Change Lever where contact with Main Frame and Carriage Assy.

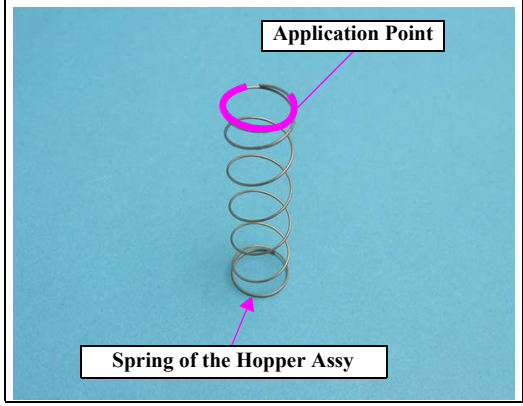
<Type>
G-71

<Application Amount>
(1) ϕ 1 x 3 mm
(2) ϕ 1 x 6 mm
(3) ϕ 1 x 1 circle

<Application Timing>
After installing the Change lever

<Remarks> Apply with Injector

Figure 6-22. Lubrication of the Rear Paper Guide (2)



<Lubrication Points>
On spring of Hopper Assy where contacts with Hopper

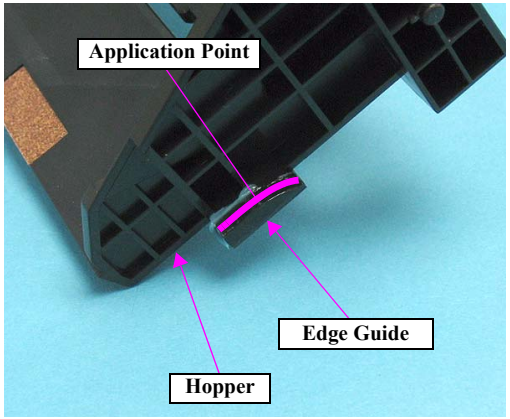
<Type>
G-71

<Application Amount>
On the top circle of spring where contacts with Hopper

<Application Timing>
Before installing the Hopper

<Remarks> Apply with Injector

Figure 6-23. Lubrication of the Rear Paper Guide (3)



<Lubrication Points>
On Edge Guide of Hopper where contacts with Hopper Release Cam

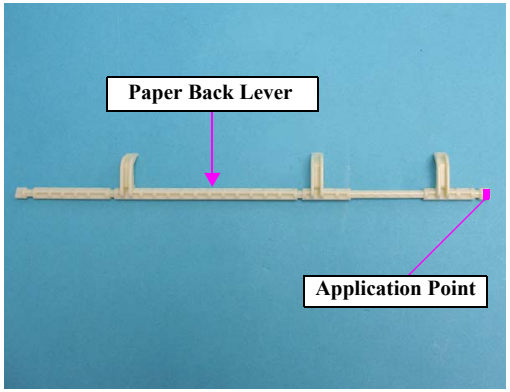
<Type>
G-71

<Application Amount>
ϕ 1 x 20 mm

<Application Timing>
Before installing the Hopper

<Remarks> Apply with Injector

Figure 6-24. Lubrication of the Rear Paper Guide (4)



<Lubrication Points>
On spring of Paper Back Lever where contacts with right Paper Back bushing

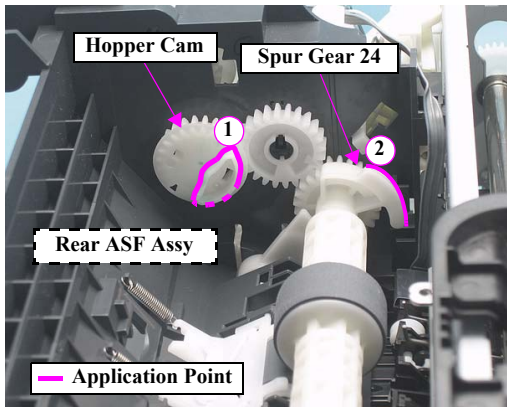
<Type>
G-74

<Application Amount>
ϕ 1 x 5 mm

<Application Timing>
Before installing the Paper Back Lever

<Remarks> Apply with Injector

Figure 6-25. Lubrication of the Rear Paper Guide (5)



<Lubrication Points>
On Hopper cam (1) and on Spur Gear 24 where contacts with right Paper Back bushing (2)

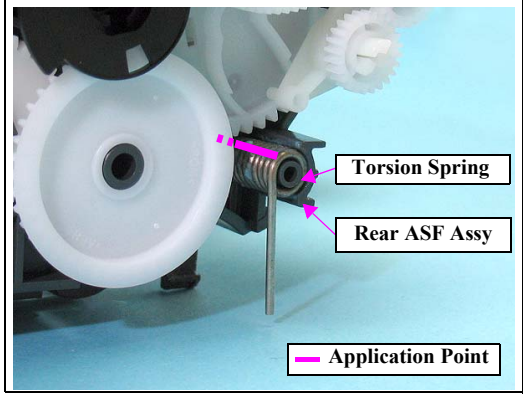
<Type>
(1) G-71 (2) G-74

<Application Amount>
(1) ϕ 1 x 1 circle (Cam surface of the Hopper Cam)
(2) ϕ 1 x 22 mm

<Application Timing>
- (1) Before installing the Hopper
- (2) After installing the Rear ASF Assy

<Remarks> Apply with Injector

Figure 6-26. Lubrication of the Rear Paper Guide (6)



<Lubrication Points>
On torsion spring where contacts with Rear ASF Assy

<Type>
G-65

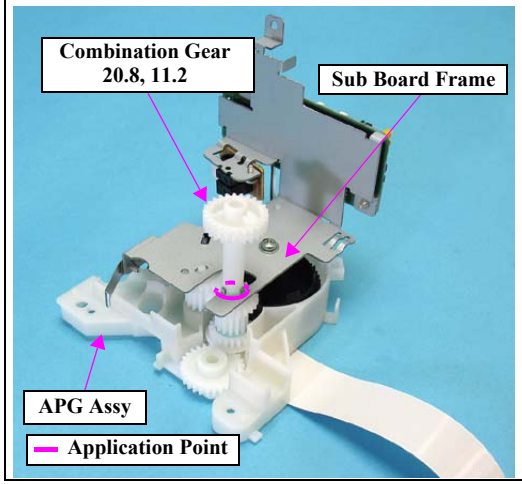
<Application Amount>
On the coiled portion of spring

<Application Timing>
Before installing the Rear ASF Assy

<Remarks> Apply with Brush

Figure 6-27. Lubrication of the Rear Paper Guide (7)

Lubrication of APG Assy



<Lubrication Points>
On Combination Gear 20.8, 11.2 where contacts with Sub Board Frame

<Type>
G-71

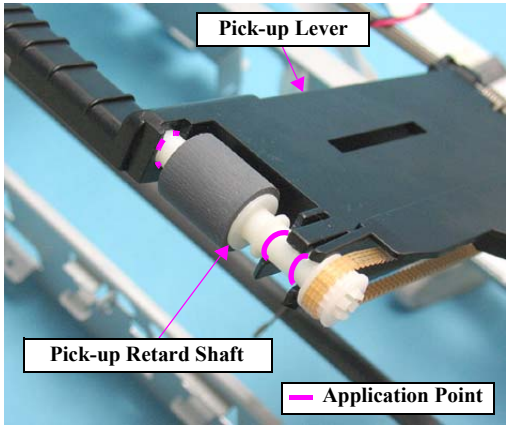
<Application Amount>
ϕ1 x 1 circle

<Application Timing>
Before installing the APG Assy

<Remarks> Apply with Injector

Figure 6-28. Lubrication of the APG Assy

Lubrication of Pick-up Assy



<Lubrication Points>
Three points on Pick-up Retard shaft where contact with Pick-up Lever

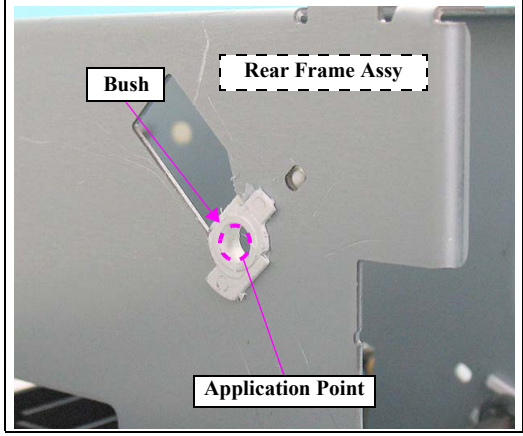
<Type>
G-71

<Application Amount>
ϕ1 x 1 circle x 3 points

<Application Timing>
After installing the Pick-up Assy

<Remarks> Apply with Injector

Figure 6-29. Lubrication of the Pick-up Assy (1)



<Lubrication Points> Contact point between bushing and Rear Frame Assy
<Type> G-71
<Application Amount> ϕ1 x 1 circle (Inside of the hole)
<Application Timing> Before installing the Pick-up Assy
<Remarks> Apply with Brush

Figure 6-30. Lubrication of the Pick-up Assy (2)

CHAPTER

7

APPENDIX

7.1 Connector Summary

This section shows the connections between the main components of the printer.

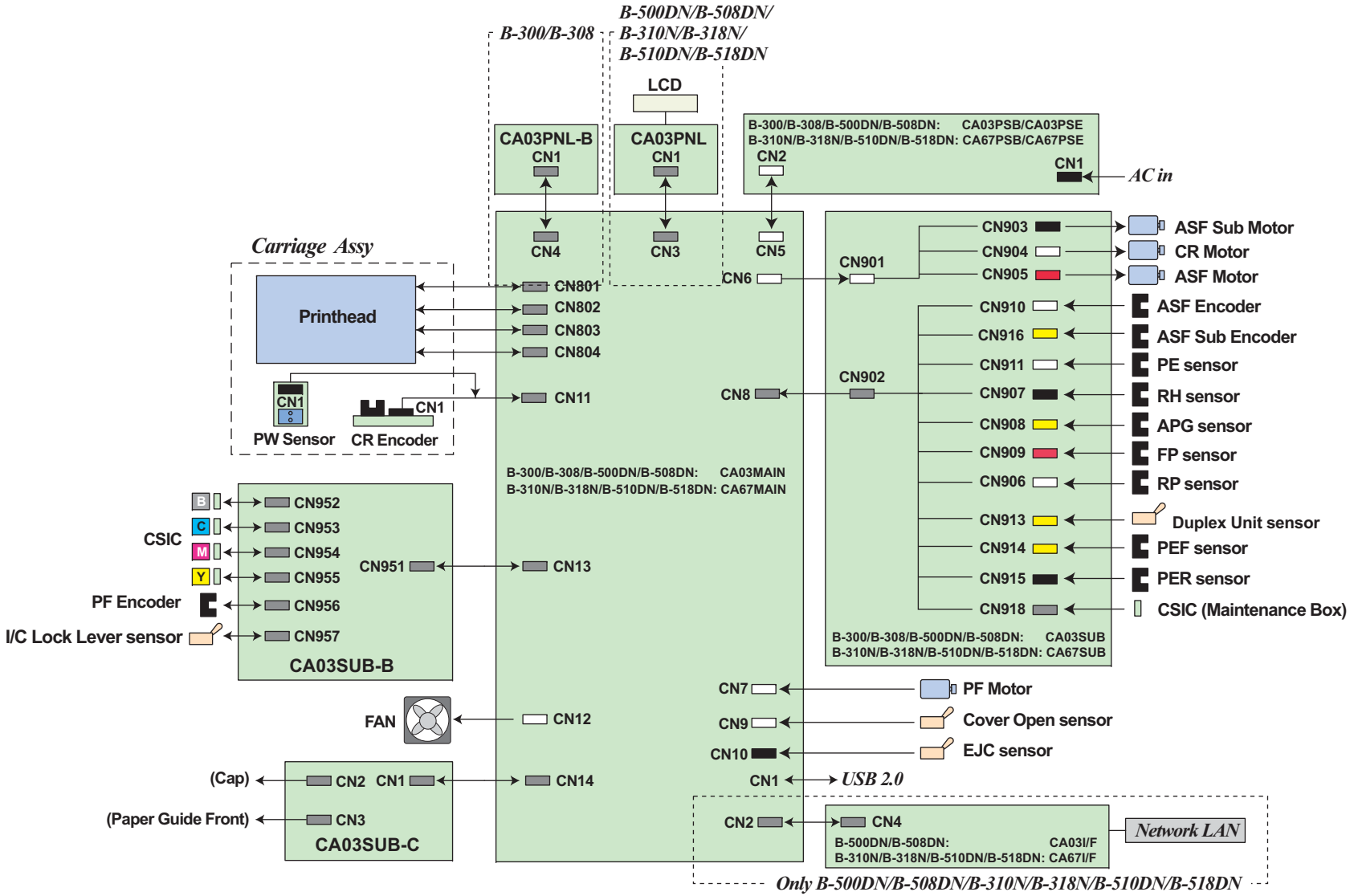


Figure 7-1. Block Diagram