SERVICE MANUAL

Color Inkjet Printer

EPSON Stylus Photo RX585/RX595/RX610

EPSON

EXCEED YOUR VISION

Notice:

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:
• Electrical circuit boards schematics

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.

ADJUSTMENT REQUIRED	Indicates an operating or maintenance procedure, practice or condition that is necessary to keep the product's quality.
CAUTION !	Indicates an operating or maintenance procedure, practice, or condition that, if not strictly observed, could result in damage to, or destruction of, equipment.
CHECK POINT ✓	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.
WARNING ⚡	Indicates an operating or maintenance procedure, practice or condition that, if not strictly observed, could result in injury or loss of life.
REASSEMBLY ↰	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	August 8, 2007	First Release
B	September 28, 2007	[Chapter 5] • "Overview" (Page 107): error correction.

CONTENTS

Chapter 5   Adjustment

Chapter 6   Maintenance

Chapter 7   Appendix

PRODUCT DESCRIPTION

1.1 Features

EPSON Stylus Photo RX585/RX595/RX610 are color inkjet printers equipped with scanner function. The main features are described below.

☐ **Available Functions**

■ Printer

- Printing from a PC
- Direct print on CD or DVD (label print)

■ Scanner

- Scanning from a PC
- Scan to Memory function
  (directly stores a scan data to a memory card inserted)

■ Stand-alone copy

- Stand-alone copy using the printer and scanner functions.

■ Memory card slot

- Direct print from a memory card
- Accessible from a PC as a USB memory card slot

■ USB host interface

- Direct print from an external USB storage device
- Direct backup of memory card data to an external USB storage device
- Direct print from a digital camera (PictBridge/USB Direct Print)

■ 2.5-inch TFD color LCD

☐ **High speed & high quality**

■ Maximum resolution: SMGA 5760 (H) x 1440 (V) dpi

■ High speed print with a newly developed F3 Mach Turbo2 head
   (Black: 90 nozzles x 1 column, Color: 90 nozzles x 5 columns/color)

■ High quality with 6 colors dye ink (6 independent cartridges)

■ Borderless print on EPSON designated paper

☐ **Dimensions**

■ Dimensions: 450 mm (W) x 413 mm (D) x 205 mm (H)
   (when the ASF and the stacker are closed. includes the rubber feet)

■ Weight: 8.3 kg (excludes the ink cartridges and the power supply cable)
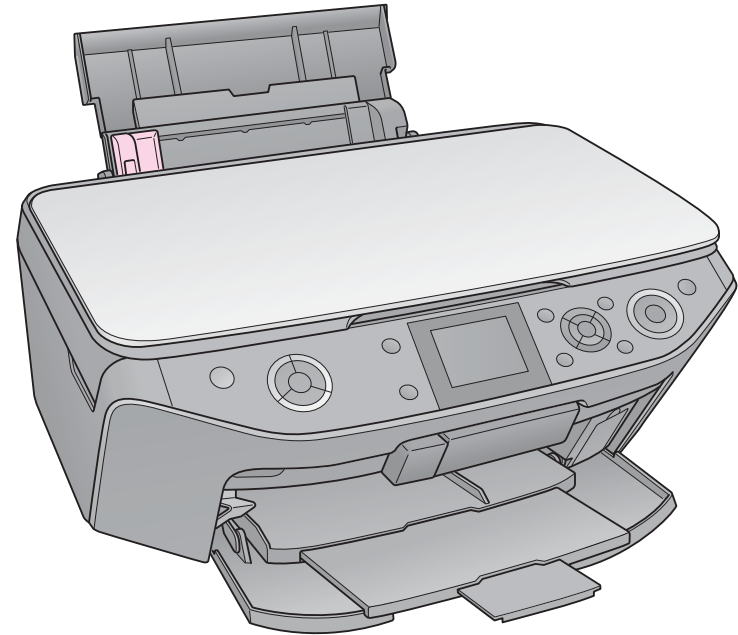
Figure 1-1. External View

1.2 Printing Specifications

1.2.1 Basic Specifications

Table 1-1. Printer Specifications

Item	Specifications
Print method	On-demand inkjet
Nozzle configuration	Black: 90 nozzles x 1 Color: 90 nozzles x 5 (cyan, magenta, yellow, light cyan, light magenta)
Print direction	Bi-directional minimum distance printing, unidirectional printing
Print resolution	Horizontal x Vertical (dpi) • 360 x 180 • 720 x 540 • 360 x 360 • 720 x 720 • 720 x 360 • MGA 5760 x 1440 (1440 x 1440)
Control code	• ESC/P Raster command • ESC/P-R (RGB) command • EPSON Remote command

Internal font	Character code: Alphanumeric with expanding graphics (PC437)
	                     ASCII 20H to 7FH only
	Font: EPSON original font
	                     Alphanumeric: Courier

Input buffer size	64 Kbytes
Paper feed method	Friction feed using an ASF (Auto Sheet Feeder)
Paper path	Top feed, front out
Paper feed rate	110 ms (at 25.4mm feed)
PF interval	Programmable in 0.01764 mm (1/1440 inch) steps

1.2.2 Ink Cartridge

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

Table 1-2. Product No. of Ink Cartridges

Color	US	West Europe	Latin, CISMEA, Asia
Black	T0771 (S) T0781 (SS)	T0801	T0811 (S) T0821 (SS)
Cyan	T0772 (S) T0782 (SS)	T0802	T0812 (S) T0822 (SS)
Magenta	T0773 (S) T0783 (SS)	T0803	T0813 (S) T0823 (SS)
Yellow	T0774 (S) T0784 (SS)	T0804	T0814 (S) T0824 (SS)
Light Cyan	T0775 (S) T0785 (SS)	T0805	T0815 (S) T0825 (SS)
Light Magenta	T0776 (S) T0786 (SS)	T0806	T0816 (S) T0826 (SS)

☐ **Shelf life**

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

☐ **Storage Temperature**

Table 1-3. Storage Temperature

Status	Storage Temperature	Limit
When stored in individual boxes	-20 ºC to 40 ºC (-4ºF to 104ºF)	1 month max. at 40 ºC (104ºF)
When installed in main unit	-20 ºC to 40 ºC (-4ºF to 104ºF)	

☐ **Dimension**

12.7 mm (W) x 68 mm (D) x 47 mm (H)

> **CAUTION !**
>
> ■ **Do not use expired ink cartridges.**
> ■ **The ink in the cartridges freezes at -16 °C (3.2°F). It takes about three hours under 25°C (77°F) until the ink thaws and becomes usable.**

1.2.3 Print Mode

Table 1-4. Print Mode (Color)

Media	Print Mode	Resolution (H x V) dpi	Dot Size (cps*1)	Bi-d	Micro Weave	Border -less
• Plain paper • Premium Bright White Paper (EAI) • Bright White Inkjet Paper (others)	Draft 1 (Fast economy)	360x180	Eco (400cps)	ON	OFF	NA
	Draft 2 (Economy)	360x180	Eco (400cps)	ON	OFF	NA
	Normal	360x360	MC2-1 (360cps)	ON	OFF	NA
	Photo Fine	720x720	MC1-1 (240cps)	ON	ON	NA
• Ultra Premium Glossy Photo Paper (EAI) • Ultra Glossy Photo Paper (others)	Photo*2	720x720 (1.5 pass)	MC1-2 (240cps)	ON	ON	OK
	Photo*2	720x720 (2.0 pass)	MC2-2 (280cps)	ON	ON	OK
	Super Photo	1440x1440	MC1-5 (200cps)	ON	ON	OK
• Photo Paper Glossy (EAI) • Glossy Photo Paper (others) • Premium Photo Paper Glossy (EAI) • Premium Glossy Photo Paper (others) • Premium Photo Paper Semi-Gloss (EAI) • Premium Semigloss Photo Paper (other)	Fine	720x360	MC1-1 (240cps)	ON	ON	OK
	Photo*2	720x720 (1.5 pass)	MC1-2 (240cps)	ON	ON	OK
	Photo*2	720x720 (2.0 pass)	MC2-2 (280cps)	ON	ON	OK
	Super Photo	1440x1440	MC1-5 (200cps)	ON	ON	OK
• Premium Presentation Paper Matte (EAI) • Matte Paper Heavy-weight (others)	Photo*2	720x720 (2.0 pass)	MC2-2 (280cps)	ON	ON	OK
	Super Photo	1440x1440	MC1-5 (200cps)	ON	ON	OK

Table 1-4. Print Mode (Color)

Media	Print Mode	Resolution (H x V) dpi	Dot Size (cps*1)	Bi-d	Micro Weave	Border -less
• Presentation Paper Matte (EAI) • Photo Quality Inkjet Paper (others)	Photo*2	720x720 (2.0 pass)	MC2-2 (280cps)	ON	ON	NA
Envelope	Normal	360x360	MC2-1 (360cps)	OFF	OFF	NA
	Photo Fine	720x720	MC1-1 (240cps)	OFF	ON	NA
Photo stickers	Photo*2	720x720 (2.0 pass)	MC2-2 (280cps)	ON	ON	NA
• Iron-On Transfer Paper (EAI) • Iron-On Cool Peal Transfer Paper (others)	Photo Fine	720x720	MC1-1 (240cps)	OFF	ON	NA
CD/DVD label	Super Photo	1440x1440	MC1-5 (200cps)	ON	ON	NA
High-quality CD/DVD label	Super Photo	1440x1440	MC1-5 (200cps)	ON	ON	NA

Note *1: cps = character per second

      *2: Photo mode uses 1.5 pass or 2.0 pass depending on the paper size.

           1.5 pass supported size: 4"x6"

           2.0 pass supported size: 16:9 wide, 5"x7", 8"x10", Letter, A4

Table 1-5. Print Mode (Monochrome)

Media	Print Mode	Resolution (H x V) dpi	Dot Size (cps*[1])	Bi-d	Micro Weave	Border-less
• Plain paper • Premium Bright White Paper (EAI) • Bright White Inkjet Paper (others)	Draft 1 (Fast economy)	360x180	Eco (400cps)	ON	OFF	NA
	Draft 2 (Economy)	360x180	Eco (400cps)	ON	OFF	NA
	Normal	360x360	MC2-1 (360cps)	ON	OFF	NA
	Photo Fine	720x720	MC1-1 (240cps)	ON	ON	NA
• Ultra Premium Glossy Photo Paper (EAI) • Ultra Glossy Photo Paper (others)	Photo*[2]	720x720 (1.5 pass)	MC1-2 (240cps)	ON	ON	OK
	Photo*[2]	720x720 (2.0 pass)	MC2-2 (280cps)	ON	ON	OK
	Super Photo	1440x1440	MC1-5 (200cps)	ON	ON	OK
• Photo Paper Glossy (EAI) • Glossy Photo Paper (others) • Premium Photo Paper Glossy (EAI) • Premium Glossy Photo Paper (others) • Premium Photo Paper Semi-Gloss (EAI) • Premium Semigloss Photo Paper (other)	Fine	720x360	MC1-1 (240cps)	ON	ON	OK
	Photo*[2]	720x720 (1.5 pass)	MC1-2 (240cps)	ON	ON	OK
	Photo*[2]	720x720 (2.0 pass)	MC2-2 (280cps)	ON	ON	OK
	Super Photo	1440x1440	MC1-5 (200cps)	ON	ON	OK
• Premium Presentation Paper Matte (EAI) • Matte Paper Heavy-weight (others)	Photo*[2]	720x720 (2.0 pass)	MC2-2 (280cps)	ON	ON	OK
	Super Photo	1440x1440	MC1-5 (200cps)	ON	ON	OK
• Presentation Paper Matte (EAI) • Photo Quality Inkjet Paper (others)	Photo*[2]	720x720 (2.0 pass)	MC2-2 (280cps)	ON	ON	NA

Media	Print Mode	Resolution (H x V) dpi	Dot Size (cps*[1])	Bi-d	Micro Weave	Border-less
Envelope	Normal	360x360	MC2-1 (360cps)	OFF	OFF	NA
	Photo Fine	720x720	MC1-1 (240cps)	OFF	ON	NA
Photo stickers	Photo*[2]	720x720 (2.0 pass)	MC2-2 (280cps)	ON	ON	NA
• Iron-On Transfer Paper (EAI) • Iron-On Cool Peal Transfer Paper (others)	Photo Fine	720x720	MC1-1 (240cps)	OFF	ON	NA
CD/DVD label	Super Photo	1440x1440	MC1-5 (200cps)	ON	ON	NA
High-quality CD/DVD label	Super Photo	1440x1440	MC1-5 (200cps)	ON	ON	NA

Note *1: cps = character per second
     *2: Photo mode uses 1.5 pass or 2.0 pass depending on the paper size.
          1.5 pass supported size: 4"x6"
          2.0 pass supported size: 16:9 wide, 5"x7", 8"x10", Letter, A4

1.2.4 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 1-6. Supported Paper

Paper Name	Paper Size		Thickness	Weight		EAI		EUR		Asia	
			mm	g/m²	lb.	P*1	B*2	P*1	B*2	P*1	B*2
Plain paper	Legal	215.9 x 355.6 mm (8.5"x14")	0.08-0.11	64-90	17-24	Y	-	Y	-	Y	-
	Letter	215.9 x 279.4 mm (8.5"x11")				Y	-	Y	-	Y	-
	A4	210 x 297 mm (8.3"x11.7")				Y	-	Y	-	Y	-
	B5	182 x 257 mm (7.2"x10.1")				-	-	Y	-	Y	-
	A5	148 x 210 mm (5.8"x8.3")				-	-	Y	-	Y	-
	Half Letter	139.7 x 215.9 mm (5.5"x8.5")				Y	-	-	-	-	-
	A6	105 x 148 mm (4.1"x5.8")				Y	-	Y	-	Y	-
	User Defined	89 x 127- 329 x 1117.6 mm (3.56"x 5.08" - 13.16"x44.7")				Y	-	Y	-	Y	-
Premium Inkjet Plain Paper	A4	210 x 297 mm (8.3"x11.7")	0.11	80	21	-	-	Y	-	Y	-
Premium Bright White Paper (EAI)	Letter	215.9 x 279.4 mm (8.5"x11")	0.11	90	24	Y	-	-	-	-	-
Bright White Inkjet Paper (others)	A4	210 x 297 mm (8.3"x11.7")	0.13	92.5	25	-	-	Y	-	Y	-
Ultra Premium Photo Paper Glossy (EAI) Ultra Glossy Photo Paper (others)	Letter	215.9 x 279.4 mm (8.5"x11")	0.30	290	77	Y	Y	-	-	-	-
	A4	210 x 297 mm (8.3"x11.7")				-	-	Y	Y	Y	Y
	8" x 10"	203.2 x 254 mm				Y	Y	-	-	-	-
	5" x 7"	127 x 178 mm				Y	Y	Y	Y	-	-
	4" x 6"	101.6 x 152.4 mm				Y	Y	Y	Y	Y	Y
Premium Photo Paper Glossy (EAI) Premium Glossy Photo Paper (others)	Letter	215.9 x 279.4 mm (8.5"x11")	0.27	255	68	Y	Y	-	-	-	-
	A4	210 x 297 mm (8.3"x11.7")				Y	Y	Y	Y	Y	Y
	8" x 10"	203.2 x 254 mm				Y	Y	-	-	-	-
	5" x 7"	127 x 178 mm				Y	Y	Y	Y	Y	Y
	4" x 6"	101.6 x 152.4 mm				Y	Y	Y	Y	Y	Y
	16:9 wide	102 x 181 mm (4"x7.11")				-	-	Y	-	-	-

Note *1: "Y" in the "P" column stands for "the paper type/size is Supported". "Y" in the "B" column stands for "Borderless printing is available".

Table 1-6. Supported Paper

Paper Name	Paper Size		Thickness	Weight		EAI		EUR		Asia	
			mm	g/m²	lb.	P*1	B*2	P*1	B*2	P*1	B*2
Photo Paper Glossy (EAI) Glossy Photo Paper (others)	Letter	215.9 x 279.4 mm (8.5"x11")	0.25	258	68	Y	Y	-	-	-	-
	A4	210 x 297 mm (8.3"x11.7")				Y	Y	Y	Y	Y	Y
	5" x 7"	127 x 178 mm				-	-	Y	Y	-	-
	4" x 6"	101.6 x 152.4 mm				Y	Y	Y	Y	Y	Y
Premium Photo Paper Semi-gloss (EAI) Premium Semigloss Photo Paper (others)	Letter	215.9 x 279.4 mm (8.5"x11")	0.27	250	66	Y	Y	-	-	-	-
	A4	210 x 297 mm (8.3"x11.7")				-	-	Y	Y	Y	Y
	4" x 6"	101.6 x 152.4 mm				Y	Y	Y	Y	Y	Y
Ultra Premium Photo Paper Luster	Letter	215.9 x 279.4 mm (8.5"x11")	0.27	250	66	Y	Y	-	-	-	-
Premium Presentation Paper Matte (EAI) Matte Paper Heavy-weight (others)	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	Y
	8" x 10"	203.2 x 254 mm				Y	Y	-	-	-	-
Double-sided Matte Paper	Letter	215.9 x 279.4 mm (8.5"x11")	0.22	185	49	Y	-	-	-	-	-
	A4	210 x 297 mm (8.3"x11.7")				-	-	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	-	-	-	-	-
	A4	210 x 297 mm (8.3"x11.7")				Y	-	Y	-	Y	-
Envelopes	#10	104.8 x 241.3 mm (4.125"x9.5")	-	75-90	20-24	Y	-	Y	-	Y	-
	#DL	110 x 220 mm				-	-	Y	-	Y	-
	#C6	114 x 162 mm				-	-	Y	-	Y	-
Iron-On Transfer Paper (EAI) Iron-On Cool Peal Transfer Paper (others)	Letter	215.9 x 279.4 mm (8.5"x11")	0.14	130	35	Y	-	-	-	-	-
	A4	210 x 297 mm (8.3"x11.7")				-	-	Y	-	Y	-
Photo Stickers 16	A6	105 x 148 mm (4.1"x5.8")	0.19		-	-	-	-	-	Y	-
Photo Stickers 4	A6	105 x 148 mm (4.1"x5.8")	0.19		-	-	-	-	-	Y	-
CD/DVD CD/DVD Premium Surface	ø12cm	ø12cm	-		-	Y	-	Y	-	Y	-
	ø8cm	ø8cm	-		-	Y	-	Y	-	Y	-

Note *1: "Y" in the "P" column stands for "the paper type/size is Supported". "Y" in the "B" column stands for "Borderless printing is available".

CAUTION	■ **Make sure the paper is not wrinkled, fluffed, torn, or folded.**
!	■ **The curve of paper must be 5 mm or below.**
	■ **When printing on an envelope, be sure the flap is folded neatly.**
	■ **Do not use the adhesive envelopes.**
	■ **Do not use double envelopes and cellophane window envelopes.**

1.2.5 Printing Area

The printing area for this printer is shown below.

Table 1-7. Printing Area (Margins)

Print Mode	Paper Size	Margin			
		Left	**Right**	**Top**	**Bottom**
Standard print	Any size	3 mm	3 mm	3 mm	3 mm
	Envelope	5 mm	5 mm	3 mm	20 mm
Borderless print	A4/Letter to 5" x 7"	2.54 mm*	2.54 mm*	2.96 mm*	4.02 mm*
	4" x 6"			1.34 mm*	2.54 mm*

Note *:   The margins for Borderless print are margins that bleed off the edges of paper.
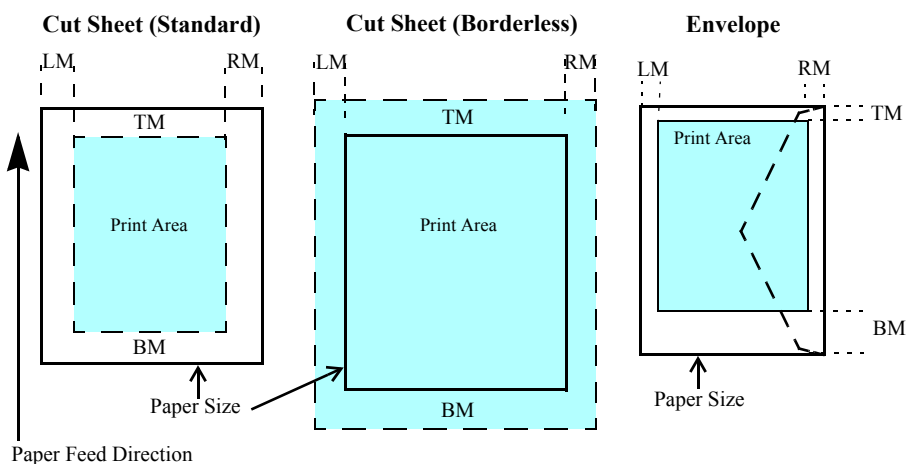
Figure 1-2. Printing Area

1.3 Scanner Specifications

Table 1-8. Basic Specifications

Item	Specification
Scanner type	Flatbed, color
Scanning method	Moving carriage, stationary document
Home position	Far left corner
Photoelectric device	CIS
Light source	LED
Maximum document size	US letter, or A4 size
Scanning range	8.5 x 11.7 inches (216 x 297 mm)
Maximum resolution	Main scan: 1200 dpi / Sub scan: 2400 dpi
Maximum effective pixels	10,200 x 14,040 pixels (1200dpi)
Pixel depth	16 bit per pixel (input), 1 or 8 bit per pixel (output)

SCANNING RANGE

Table 1-9. Scanning Range

RL (read length)	RW (read width)	OLM (left margin)	OTM (top margin)
216 mm	297 mm	1.5 mm	1.5 mm

Figure 1-3. Scanning Range

1.4 General Specifications

1.4.1 Electrical Specifications

☐ **Primary power input**

Table 1-10. Primary Power Specifications

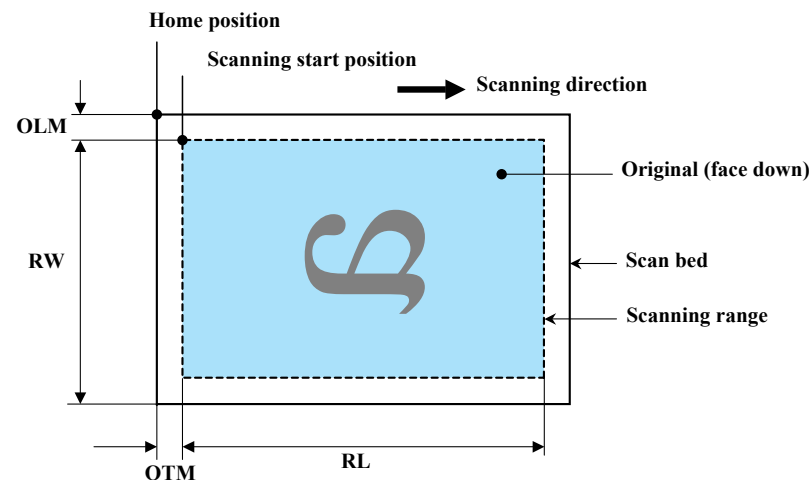| Item		100-120V model	220-240V model
Rated power supply voltage		100 to 120 VAC	220 to 240 VAC
Input voltage range		90 to 132 VAC	198 to 264 VAC
Rated current		0.6 A (max. 1.2 A)	0.3 A (max. 0.6 A)
Rated frequency		50 to 60 Hz	
Input frequency range		49.5 to 60.5 Hz	
Insulation resistance		TBD V (for one minute)	
Energy conservation		International Energy Star Program compliant	
Power consumption	Stand alone copy (ISO/IEC10561 Letter Pattern, Plain paper)	Approx. 15 W	Approx. 15 W
	Low power mode	Approx. 4.0 W	Approx. 4.5 W
	Sleep mode	Approx. 1.3 W	Approx. 1.5 W
	Power off mode	Approx. 0.2 W	Approx. 0.3 W

Note 1: When no printing is made for more than three minutes, the printer goes into the standby mode reducing the electric voltage applied to the motor in order to save power.

2: When no operation is made with the control panel for more than 13 minutes, the panel goes to the low power mode within two minutes.

1.4.2 Environmental Conditions

Table 1-11. 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
Storage[3] (unpacked)	-20 to 40°C[4] (-4°F 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 Fig.1-4.

*2: No condensation

*3: Non-operating with unpacked.

*4: Must be less than 1 month under 40°C.

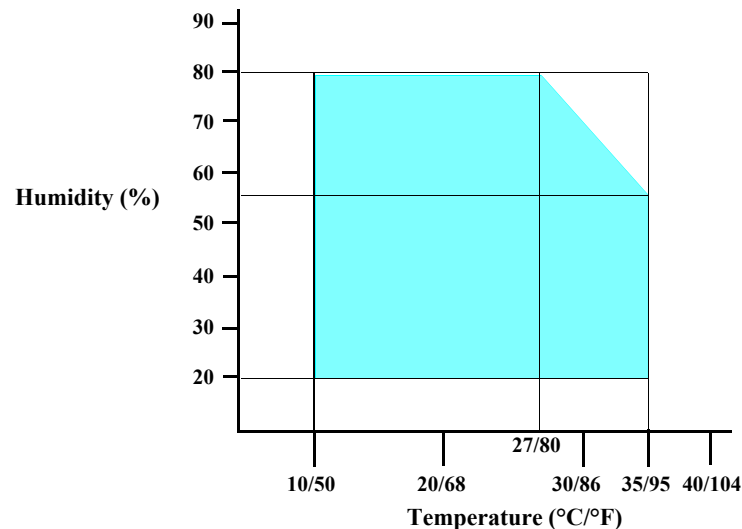**Figure 1-4. Temperature/Humidity Range**

CAUTION !	■ When returning the repaired printer to the customer, 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.

1.4.3 Durability

☐ **Total print life:**   Black 16,000 pages (A4, 3.5% duty),
                            Color 10,000 pages (A4, 5% duty),
                            or five years which ever comes first

☐ **Printhead:**   Six billions shots (per nozzle) or five years which ever comes
                            first

☐ **Scanner carriage:**   30,000 cycles of carriage movement

1.4.4 Acoustic Noise

37 dB (when printing from PC, on Premium Glossy Photo Paper, in the highest quality)

27 dB (when scanning, 24 bit color, 300dpi)

1.4.5 Safety Approvals (Safety standards/EMI)

USA	UL60950-1
	FCC Part15 Subpart B Class B
Canada	CAN/CSA-C22.2 No.60950-1
	CAN/CSA-CEI/IEC CISPR 22 Class B
Mexico	NOM-019-SCFI-1998
EU	EN60950-1
	EN55022 Class B
	EN61000-3-2, EN61000-3-3
	EN55024
Germany	EN60950-1
Russia	GOST-R (IEC60950-1, CISPR 22)
Singapore	IEC60950-1
Korea	K60950-1
	KN22 Class B
	KN61000-4-2/-3/-4/-5/-6/-11
Argentina	IEC60950-1
Australia	AS/NZS CISPR22 Class B
Hong Kong	IEC60950-1

1.5 Interfaces

The printer has USB interfaces and memory card slots of the following specifications.

1.5.1 USB Interfaces

The printer has two USB ports; USB Device port for connecting with a host device such as a computer, and USB Host port for connecting with an external device such as DSC (Digital Still Camera).

Table 1-12. USB Interface Specification

Item	USB Device Port	USB Host Port*
Standard	• Universal Serial Bus Specifications Revision 2.0 • Universal Serial Bus Device Class Definition for Printing Devices Version 1.1 • Universal Serial Bus Mass Storage Class Bulk-Only Transport Revision 1.0	• Universal Serial Bus Specifications Revision 2.0 • Universal Serial Bus Mass Storage Class Bulk-Only Transport Revision 1.0
Transfer rate	480 Mbps (High Speed)	
Data format	NRZI	
Compatible connector	USB Series B	USB Series A
Maximum cable length	2 m or less	

Note* : The following devices can be connected to the USB Host port.

> • DSC compliant with USB Direct Print Protocol Specification Rev1.0.
> • DSC compliant with CIPA DC-001-2003 Rev.2.0 (PictBridge) Specification.
> • Devices compliant with Universal Serial Bus Mass Storage Class Bulk-Only Transport Revision 1.0, and the Subclass code is one of the followings.
>   0x06 (SCSI transparent command set)
>   0x05 (SFF-8070i command set)
>   0x02 (SFF-8020i command set)

1.5.2 Memory Card Slots

Table 1-13. List of Supported Memory Card

Priority	Slot	Compatible memory card	Standard	Max. capacity	Remarks
1	Memory Stick/ Memory Stick PRO	Memory Stick	"MemoryStick Standard" Format Specification Ver.1.42-00 compatible	128MB	Includes versions with memory select function
		MagicGate Memory Stick		128MB	Copy protection function is not supported
		MagicGate Memory Stick Duo			An adapter should be used
		Memory Stick PRO	Memory Stick PRO Format Specifications-without security Ver.1.02-00 compatible	4GB	Copy protection function is not supported
		Memory Stick Duo	MemoryStick Duo Format Specification Ver.1.11-00 compatible		The Memory Stick Duo adapter should be used
		Memory Stick Pro Duo	MemoryStick PRO Duo Format Specification Ver.1.02-00 compatible		The Memory Stick Duo adapter should be used.
		Memory Stick micro	Memory Stick Micro Format Specification Ver.1.02-00 compatible		The Memory Stick adapter for standard size should be used.
	SD/MMC	SD (Security Digital)	SD Memory Card Specifications / PART1. Physical Layer Specification Ver. 2.0 compatible	2GB	
		miniSD/microSD			The SD adapter should be used
		SDHC		8GB	Speed Class is not supported
		miniSDHC/microSDHC			The SD adapter should be used Speed Class is not supported
		MultiMediaCard MultiMediaCard Plus	MultiMediaCard Standard Ver. 4.1 compatible	64MB/ 4GB	Only MultiMediaCard Plus supports 4GB
	xD-Picture card	xD-Picture card	xD-Picture Card Specification Ver.1.20 compatible	2GB	Type M/H supported
2	CF Type II	Compact Flash	CF+ and CompactFlash Specification Revision 3.0 compatible	4GB	True-IDE compatible memory card only
		Microdrive			

Note:
- Memory Stick/PRO, SD/MMC and xD-Picture Card shares the same slot.
- When cards are inserted in the two slots at once, the slot which will be accessed first is determined according to the priority shown in the table.
- To select a card that has been inserted in a non-active slot, first remove the card in the active slot.
- In memory card direct printing mode, the image files in the active slot are valid and have assigned frame numbers. The number of images will not change if a card is inserted in another nonselected slot.
- When the card inserted in the slot is accessed from the PC, only one drive is displayed at a time as a removable disk* and only the card that is in the active slot can be accessed via the removable disk. A card that has been inserted into a non-selected slot cannot be accessed.
  (This is for Windows. For Macintosh, the card in the active slot will be mounted on the desktop.)
- Does not support 5V type of memory cards.
- When a memory card is being accessed, do not touch the memory card.
- For detailed information on the supported file system and formatting the memory card, refer to "1.7.2 Memory Card Direct Print Function *(p.22)* ".

1.6 Control Panel

1.6.1 Operation Buttons & LED

The following tables explain the functions of the buttons and LEDs on the control panel.

Table 1-14. Operation Buttons & LEDs

Button/LED		Function
Button	Power	Turns the power ON/OFF.
	Start	Starts printing.
	Copy	Goes to the stand alone copy mode.
	Memory Card	Goes to the memory card direct print mode.
	Specialty Print	Goes to the special mode that provides Print Photo Greeting Card, Reprint/Restore Photos, and Print on CD/DVD functions.
	Stop/Clear	• Stops operation and displays the menu screen. • Stops printing and ejects paper. • Returns the print settings of the current mode to their default and displays the Top screen. (Returns to the previous screen during printing maintaining the current settings)
	Setup	Goes to the Setup mode that provides maintenance menu (head cleaning, head alignment, etc.) and various option setting menu.
	Display/Crop	• Goes to the zoom setting screen for the selected image. • Changes the image preview layout (1-up, 9-up, etc.) on the LCD.
	Menu	Goes to the print setting menu screen.
	OK	Accepts the changed settings.
	Back	Cancels the previous operation.
	Cross Key (up/down/left/right)	Selects a menu item of setting value.
	+	Sets the number of copies.
	-	
LED*	Power	Indicates the power On/Off status.
	Mode	Lights during the corresponding mode is selected.

Note *: See Table 1-15 on page 19 for more information on the LEDs.

Table 1-15. LED Functions

Printer Status	Power LED	Mode LED
Power-on sequence	Flashing	OFF
Power-off sequence	Flashing	The current mode LED lights
Fatal error	Flashing	All the mode LEDs flash
Standby/The panel being operated	ON	The current mode LED lights*
Printing/Scanning	Flashing	The current mode LED lights*
Printing from an external device (PC/camera)	Flashing	The current mode LED lights*
Running a head cleaning		
Running a nozzle check		
Printing head alignment pattern		
Canceling a print job		
Backup of memory card, or Scan to Memory function is in process		
Running a slide show	ON	The memory card mode LED lights
Displaying the screen-saver	ON	The memory card mode LED lights
Power save mode	ON	The current mode LED lights*

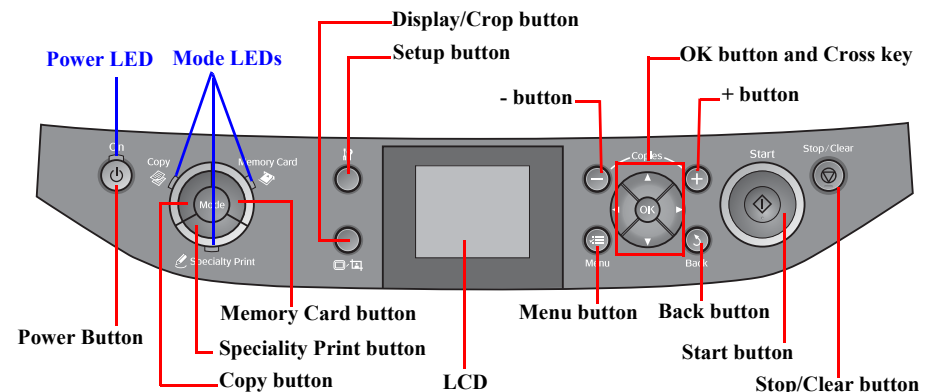Note* : In the Setup mode, the mode LED corresponds to the previous mode lights.

Figure 1-5. Control Panel

1.7 Specifications of Each Function

1.7.1 Stand-alone Copy Function

1.7.1.1 Copy print mode and available paper type/size and print layout

Table 1-16. Copy Print Mode & Available Paper Size by Layout

Paper Type	Quality	Resolution	Dot Size	Bi-D	Micro Weave	Available Paper Size by Print Layout						
						With Border	Borderless	Repeat Auto	Repeat 4	2-up	Wallet Copy[1]	CD
Plain Paper	Draft	360x180	Eco	ON	OFF	Letter[1], A4, A5[2]	-	-	-	-	-	CD/DVD
	Standard	360x360	MC2-1	ON	OFF			Letter[1], A4				
	Best	720x720	MC1-1	ON	ON							
Matte	Standard	1440x1440	MC2-2	ON	ON	Letter[1], A4						-
	Best	1440x1440	MC1-5	ON	ON							
Photo Paper	Standard	720x720	MC1-2	ON	ON	10x15cm (4x6in)					-	-
			MC2-2	ON	ON	Letter[1], A4, 13x18cm (5x7in)[2]					Letter[1], A4	
	Best	1440x1440	MC1-5	ON	ON	Letter[1], A4, 13x18cm (5x7in)[2], 10x15cm (4x6in)					Letter[1], A4	
Prem. Glossy	Standard	720x720	MC1-2	ON	ON	10x15cm (4x6in)					-	-
			MC2-2	ON	ON	Letter[1], A4, 8x10in[1], 13x18cm (5x7in)[2]					Letter[1], A4	
	Best	1440x1440	MC1-5	ON	ON	Letter[1], A4, 8x10in[1], 13x18cm (5x7in)[2], 10x15cm (4x6in)					Letter[1], A4	
Ultra Glossy	Standard	720x720	MC1-2	ON	ON	10x15cm (4x6in)					-	---
			MC2-2	ON	ON	Letter[1], A4, 8x10in[1], 13x18cm (5x7in)[2]					Letter[1], A4	
	Best	1440x1440	MC1-5	ON	ON	Letter[1], A4, 8x10in[1], 13x18cm (5x7in)[2], 10x15cm (4x6in)					Letter[1], A4	
CD/DVD	Best	1440x1440	MC1-5	ON	ON	-					-	CD/DVD

Note *1： Supported only by EAI model.

*2： Supported only by Euro and Asia models.

1.7.1.2 Stand-alone Copy Menu

Table 1-17. Copy Menu

Menu Item		Function
Number of copies		Sets number of copies within the range of 1 to 99.
Copy type		Selects either color or monochrome.
Document		Selects the document type from "Text", "Graphics", and "Photo".
Layout		Selects print layout from the options listed in Table 1-18.
Print Settings	Paper type	Selects paper type from the options listed in Table 1-16.
	Paper size	Selects paper size from the options listed in Table 1-16.
	Quality	Selects print quality from the options listed in Table 1-16.
	Zoom	Selects scaling factor from the preset factors listed in Table 1-19 or specifies a desired scaling factor*.
	Density	Selects from the nine density levels of -4 to +/-0 to +4.
	Expansion	Selects the margins level (margins bleed off the edges of paper) from the Standard (100%), Mid. (50%) or Min. (0%).
	CD Inner-Outer	Specifies the printing range on a CD/DVD by entering outer and inner diameter of a CD/DVD. Outer: specifies within the range of 114 to 120mm Inner: specifies within the range of 18 to 46mm

Note* : A desired scaling factor can be specified within the range of 25 to 400%.

1.7.1.3 Copy Layout & Preset Scaling Factors

Available print layout and scaling factors in the stand-alone copy mode are as follows.

Table 1-18. Copy Layout

Layout	Description
With Border	Makes a copy with 3mm of left/right/top/bottom white margins.
Borderless	Makes a copy with no white margins.
CD/DVD Copy	Makes a copy of a CD/DVD label directly on a CD/DVD.
Repeat Copy	Makes a specified number of copies of one document on a sheet of selected sized paper.
Repeat Copy-4	Makes four copies of one document on a sheet of selected sized paper.
2-up Copy	Makes a copy of two A4 or letter sized documents on a sheet of A4 or letter sized paper.
Wallet Copy (EAI model only)	Makes six copies of one document on a sheet of selected sized paper.

Table 1-19. Preset Scaling Factors for EAI Model

Zoom Menu Items	Scaling Factor*[1]	
	With Border	Borderless
Letter → 4x6in (EAI)	45%	58%
4x6in → Letter (EAI)	183%	221%
Letter → 5x7in	57%	67%
5x7in → Letter	157%	176%
4x6in → 8x10in	166%	208%
8x10in → 5x7in	61%	74%
A4 → 5x7in	59%	64%
5x7in → A4	165%	173%
A4 → 4/6in	47%	55%
4x6in → A4	195%	215%

Table 1-20. Preset Scaling Factors for Euro/Asia Models

Zoom Menu Items	Scaling Factor*[1]	
	With Border	Borderless
10x15cm → A4	195%	215%
A4 → 10x15cm	47%	55%
13x18cm → 10x15cm	77%	91%
10x15cm → 13x18cm	115%	132%
A4 → A5	69%	74%
A5 → A4	141%	147%

Note * : A scaling factor corresponds to the selected copy layout and zoom setting is displayed on the LCD.

1.7.1.4 Copy Speed

Table 1-21. Copy Speed

Copy Conditions (e-memo3, Letter, Plain Paper)		Copy Speed
Draft 360 x 180	Monochrome copy	38.3 cpm
	Color copy	38.4 cpm
Default 720 x 360	Monochrome copy	T.B.D. cpm
	Color copy	T.B.D. cpm

1.7.2 Memory Card Direct Print Function

1.7.2.1 Memory card direct print mode and available paper type/size and print layout

Table 1-22. Memory Card Direct Print Mode & Available Paper Size by Layout

Paper Type	Quality	Resolution	Dot size	Bi-D	Micro Weave	With Border	Border-less	P.I.F. (Single/Multi)*2	Upper 1/2	2-up	4-up	8-up	20-up	16-up*2	30-up	80-up	Photo ID	Wallet*1
Plain Paper	Standard	360x360	MC2-1	ON	OFF	Letter*1, A4	-	A4	-	Letter*1, A4				-	-	Letter*1, A4	-	Letter*1, A4
	Best	720x720	MC1-1	ON	ON	Letter*1, A4	-	A4	-	Letter*1, A4				-	-	Letter*1, A4	-	Letter*1, A4
Matte	Standard	1440x1440	MC2-2	ON	ON	Letter*1, A4								-	-	Letter*1, A4	-	Letter*1, A4
	Best	1440x1440	MC1-5	ON	ON	Letter*1, A4								-	-	Letter*1, A4	-	Letter*1, A4
Photo Paper	Draft	720x360	MC1-1	ON	ON	Letter*1, A4, 13x18cm (5x7in)*2, 10x15cm (4x6in)								-	13x18cm (5x7in)*2	Letter*1, A4	-	Letter*1, A4
	Standard	720x720	MC1-2	ON	ON	10x15cm (4x6in)								-	-	-	10x15cm (4x6in)	-
	Standard	720x720	MC2-2	ON	ON	Letter*1, A4, 13x18cm (5x7in)*2								-	13x18cm (5x7in)*2	Letter*1, A4	-	Letter*1, A4
	Best	1440x1440	MC1-5	ON	ON	Letter*1, A4, 13x18cm (5x7in)*2, 10x15cm (4x6in)								-			10x15cm (4x6in)	
Prem. Glossy	Draft	720x360	MC1-1	ON	ON	Letter*1, A4, 8x10*1, 13x18cm (5x7in)*2, 10x15cm (4x6in), 16:9wide			Letter*1, A4, 13x18cm (5x7in), 10x15cm (4x6in)					-	13x18cm (5x7in)*2	Letter*1, A4, 8x10*1	-	Letter*1, A4
	Standard	720x720	MC1-2	ON	ON	10x15cm (4x6in)								-	-	-	10x15cm (4x6in)	-
	Standard	720x720	MC2-2	ON	ON	Letter*1, A4, 8x10*1, 13x18cm (5x7in)*2, 10x15cm (4x6in), 16:9wide			Letter*1, A4, 13x18cm (5x7in), 8x10in*1					-	13x18cm (5x7in)*2	Letter*1, A4, 8x10*1	10x15cm (4x6in)	Letter*1, A4
	Best	1440x1440	MC1-5	ON	ON									-				
Ultra Glossy	Standard	720x720	MC1-2	ON	ON	10x15cm (4x6in)								-	-	-	10x15cm (4x6in)	-
	Standard	720x720	MC2-2	ON	ON	Letter*1, A4, 13x18cm (5x7in)*2			Letter*1, A4, 13x18cm (5x7in)					-	13x18cm (5x7in)*2	Letter*1, A4	-	Letter*1, A4
	Best	1440x1440	MC1-5	ON	ON	Letter*1, A4, 13x18cm (5x7in)*2, 10x15cm (4x6in)			Letter*1, A4, 13x18cm (5x7in), 10x15cm (4x6in)					-			10x15cm (4x6in)	
Photo Sticker 16*2	Standard	720x720	MC2-2	ON	ON	-								A6	-			
Photo Stickers*2	Standard	720x720	MC2-2	ON	ON	100x148mm	-		100x148mm				-	100x148mm	-			

Note *1： Supported only by EAI model.

*2： Supported only by Euro/Asia models.

1.7.2.2 Supported File Type and Media Type

The following describes the file system, media format, and file type supported by the memory card direct function.

Table 1-23. Supported File System, Types and Media Format

Item		Specification
File System		DCF Version 1.0 or 2.0 [*1] compliant. Other than those does not ensure proper operation. File systems available with the card reader are restricted by the host's specification.
Media format	Memory card	• DCF Version 1.0 or 2.0 compliant • DOS FAT format (FAT12/FAT16/FAT32 [*2]) with single partition (basic partitioned)
	CD-R	ISO9660 Level1 (Joliet) format
	DVD	ISO9660 Level1 (Joliet), or ISO9660 Level1 (Joliet) & UDF Bridge format[*3]
File type	JPEG (*.JPG)	Image files conform to Exif Version 2.21. (Exif version 1.0/2.0/2.1/2.2/2.21 are supported)
	Camera definition file (*.MRK)	Camera definition files used for DPOF mode. "\MISC\AUTOPRINT.MRK" file is valid.
	P.I.F definition file (*.USD)	Print layout definition files compliant with PRINT Image Framer Rev.2.1 specifications. Files in"/EPUDL/" directory are valid.
	P.I.F definition file (*.FD2)	Print layout definition files compliant with PRINT Image Framer Rev.3.1 [*4] specifications. Files in a memory card are valid.

Note *1: For more information on the DCF specifications, see "Camera File System Standard DCF Version 2.0, JEIDA-CP-3461".
  *2: Available only when the memory card supports FAT32.
  *3: UDF-formatted DVDs are not supported.
  *4: The memory card direct print functions supports level 1 of the P.I.F.Rev.3.1.

CHECK POINT ✔
The printer does not detect any files stored under the following directories or their sub-directories.
  • Directories containing system properties or hidden properties.
  • "RECYCLED" (Windows directory for deleted files)
  • "PREVIEW" (directories of CASIO DSC for thumbnail images)
  • "SCENE" (directories of CASIO DSC for its Best Shot function)
  • "MSSONY" (directories of SONY DSC for e-mail images, voice memos, movies, or non-compressed images)
  • "DCIM\ALBUM\IMAGE" (directories of CASIO DSC for its album function)

1.7.2.3 Specifications for Handling Image Data

Table 1-24. Specifications for Handling Image Data

Item	Specification	Remarks
Image size (pixel)	• Horizontal: $80 \leq X \leq 9200$ • Vertical: $80 \leq Y \leq 9200$	---
Maximum number of images	Up to 999 images	When a memory card stores 1,000 or more images, the first 999 images are detected and become valid in the printer. The detecting order varies depending on the folder configuration in the card, so which images are included in the first 999 cannot be defined. However, images specified by camera definition files can be selected to be printed even when the total number of images has exceeded 999. Up to 999 camera defined image files can be specified.
Maximum number of copies	99 copies for each image. Up to 999 sheets in total.	---
Valid date and time	01/01/1980 00:00:00 to 12/31/2099 23:59:59	---
Thumbnail image data	Supports DCF Ver.1.0 or 2.0-compatible data (Exif format, 160x120 pixels)	Thumbnail images are used for the Print Index Sheet function.
File sorting	The printer sorts image files in ascending ASCII order based on their full-pathnames such as "\DCIM\100EPSON\EPSN0000.JPG", and assigns a number to each of them.	• The image number assigned by the printer may be different from that assigned by the camera. • If two or more files have the same full pathname, the sorting function may not operate properly. (existence of the same full-pathname is not allowed under DOS)

Table 1-24. Specifications for Handling Image Data

Item	Specification	Remarks
Acquisition of date and time information	The printer acquires date and time information included in image files in the order of precedence shown below. 1. Shooting date and time information in digital camera standard format (Exif) 2. Digitized date and time information in digital camera standard format (Exif) 3. Date and time information in digital camera standard format (Exif) 4. Date and time information applied on DOS-compliant file system. 5. Fixed date and time information (01/01/1980, 00:00:00)	Date and time information included in an image file is not always the shooting date and time. It changes each time the image is edited and restored. The printer acquires the latest date and time information.
Camera shooting information	The following shooting information conforms to Exif standard can be printed with the images. • Exposure time/ Shutter speed (e.g.; 1/30s) • F-measure (e.g.; F2.8) • ISO film speed (e.g.; ISO100)	When both an exposure time and shutter speed information exist, the exposure time is printed. No information is printed if the Exif-compliant photo data has no information.

> **CHECK POINT** ✔
>
> **Embedded rotation tag of an image associated with a P.I.F. script**
> The image's rotational direction specified by a tag embedded in the image file associated with a P.IF. script is always applied when the image is printed using the stand-alone function. Therefore, if a P.I.F. file (layout file) that has not been associated with any images is specified to print an image, the printout result (the image rotational direction) may differ whether the image has been associated with another P.I.F.3 script or not.

1.7.2.4 Memory Card Direct Print Menu

Table 1-25. Memory Card Mode Menu

Menu Item	Function
View and Print Photos[1,2]	Prints the selected images.
Print All Photos[1,2]	Prints all images in a memory card. Specified number of copies is applied to the all images (the default is 1 copy). Specifying it for each of the images independently also can be made in the preview screen.
Print by Date[1]	The date of the images are listed in the descending order with the number of images by date. Selecting date from the list selects the images that has the selected date information. Specified number of copies is applied to the selected images (the default is 1 copy). Specifying it for each of the images independently also can be made in the preview screen.
Print Index Sheet	**Print Index Sheet** Prints an index sheet that prints images in a memory card in thumbnailed form. The number of images to be included in the sheet can be selected from the following four options. "All image" (default), "Latest 30", "Latest 60", "Latest 90"[3] **Make Prints from Index Sheet** Scans the index sheet, and prints images according to markings written on the sheet.
Slide Show[3]	Starts a slide show on the LCD. Images in a memory card is displayed one by one in the order sorted by the printer. Printing one of the images can be made from the paused screen.
Scan to Memory Card	Stores an image scanned by the scanner directly into a memory card. The format in which to save the file can be selected from JPEG and PDF.

Note   [1] :   0 to 99 copies can be specified for each of the images. Up to 999 copies in total.
       [2] :   The images are listed in ASCII descending order.
       [3] :   While performing the slide show, displaying number of copies, printing from an external device or from a computer cannot be made.

> **CHECK POINT** ✔
>
> **Automatic Detection of Images in Media**
> • When a memory card is inserted;
>   The printer automatically searches for all images stored in the memory card and displays them on the LCD.
> • When an external storage device is connected;
>   If the media in the connected device includes a backup folder, a folder selection screen appears. The printer automatically searches for all images in the selected folder and displays them on the LCD. When the backup file does not exist, all images in the media are searched for and displayed.

1.7.3 Backup Function

The Backup Memory Card function provided in the Setup mode allows the user to make a backup copy of a memory card on a media in an external device. Printing the backed up images directly from the external device also can be made.

1.7.3.1 Backup Function Specifications

Table 1-26. Basic Specifications

Item	Specification
Source media	A memory card conforms to the specifications described in Table 1-23, and that is inserted into the active slot.
Destination media	Supports the following media in an external device connected via the USB Host port. (See Table 1-12 "USB Interface Specification" on page 17 for information on the available external devices) • MO: 128MB/230MB/640MB/1.3GB • CD-R: 650MB/700MB *[1,2] • DVD-R: 4.7GB*[2] • USB flash memory*[3]
Target files	All image files in the source media except the following files. • Files that have hidden attribute or system attribute. • Files of which the size is 0 (zero) byte.
Operations disabled during the backup	In order to prevent the possible corruption of data, the following operations are disabled during the backup. • Access from a computer or via a network • Automatic ejection of the destination media • ON/OFF of the printer power

Note *1: A backup on 700MB or larger size CD-R is not ensured.

   *2: The CD-R/DVD-R must be formatted as described in Table 1-23.

   *3: The printer cannot recognize USB flash memory that incorporates a hub.

CHECK POINT ✓
- **Due to the file system restriction, a backup of a memory card that has eight or more levels deep in folder hierarchy cannot be made on an ISO9660 Level 1-formatted CD-R.**
- **Due to the logical format of the CD/DVD, the pathname length is restricted as described below;**
  • Destination media: ISO9660: up to 255byte
    Joliet: up to 240byte
  • Source media: Memory card (FAT12/16/32): up to 260byte

Table 1-27. Specifications on Writing Backup Data

Item	Specification
Folder hierarchy	A backup folder is automatically created on the destination media to save the backup data keeping the original folder hierarchy*[1] under the folder. A number (001 to 999) is assigned as the folder name.
Format	The printer automatically formats the destination media in a supported format if the media is rewritable and detected as unformatted or formatted in unsupported format.
File name	Because ISO9660 Level1 format is used to write backup data to a CD/DVD, double-byte characters are not allowed to be used for the folder or directory names. Any file or directory names that include double-byte characters are automatically changed in accordance with the rule described below. • A file name is changed to "EPSONxxx"*[2] • A directory name is changed to "EPDIRxxx"*[2] • Replaces an unsupported character in the extension with "_" (underbar)

Note *1: As a backup to CD/DVD media requires time, a folder hierarchy definition file (EPBKINF.DAT) is first created under the backup folder.

   *2: xxx stands for a 3-digit number. The number is automatically assigned from 001 in each folder of directory.

CHECK POINT ✓
The maximum number of writing times
- FAT12/16-formatted media: up to 512 times (001 to 512)
  If any files other than backup folders exist in the route directly, the max. number of writings becomes less than 512 due to the MS-DOS restriction. When more than 512 times of writing history of an inserted MO is detected, the printer handles it as a backup error (file name, to folder hierarchy error).
- CD-R: 640MB: up to 47 times
              700MB: up to 50 times
  This is because each session information must be saved.
- DVD-R: 4.7GB: up to 274 times
  This is because each session information must be saved.

☐ **Other restrictions on the backup function**

- The printer does not have the function to write a backup data on an external media back to a memory card in order to prevent the possible corruption of data.

- Since the printer does not have calendar function, created date and time of backup files is the date and time initially assigned or updated by a device other than the printer.

1.7.3.2 Backup Errors

If a backup operation is cancelled voluntarily or due to an error, a "Backup canceled" message appears with a hexadecimal 8-digit error code on the LCD. The following table lists the leftmost two-digit error codes that are controlled by the printer firmware. For explanations on other backup errors, see "3.2.1 Error List *(p.41)* ".

Table 1-28. Backup Error FW Control Code List

Code	Meaning	Code	Meaning
0x00	No error	0xC0	No files to be backed up
0x10	Album function error	0xE7	Parameter error
0x20	Backup function error	0xE8	File open error
0xA0	Other ATAPI/SCSI command error	0xE9	Internal buffer overflow
0xA1	ModeSense command error	0xEA	CD/DVD format error
0xA2	ModeSelect command error	0xEB	Not used
0xA3	Get Disc Information command error	0xEC	Insufficient memory
0xA4	Get Track Information command error	0xED	Some data exist in the destination directory
0xA5	Synchronize Cache command error	0xEE	Not used
0xA6	CloseSession command error	0xEF	Write-protect error
0xA7	Read command error	0xF0	Read/write error
0xA8	Write command error	0xF1	Invalid file open mode
0xA9	Set Speed command error	0xF2	Seek error
0xAA	Eject command error	0xF3	Overflow of root directory
0xAB	Drive lock command error	0xF4	Overflow of file descriptor
0xAC	GetConfigration command error	0xF5	Invalid path name
0xAD	Verify command error	0xF6	No file exist
0xAE	Device error	0xF7	Medium was exchanged
0xB8	Short file name convert error	0xF8	Unformatted medium
0xB9	Unsupported device	0xF9	Device is not ready
0xBA	No medium	0xFA	Invalid device handle
0xBB	Not writable medium	0xFB	Invalid file descriptor
0xBC	Unsupported medium	0xFC	Not used
0xBD	Hierarchical directory error	0xFD	Backup initialization failed
0xBE	Path length is too long	0xFE	Acquiring memory pool failed
0xBF	File name is too long	0xFF	System error

1.7.4 Camera Direct Print Function (USB Direct Print/PictBridge)

Printing operations (selecting images to be printed, making print settings, starting/canceling printing, and monitoring print process) can be carried out from a directly connected DSC (Digital Still Camera) that conforms to the standard described below.

1.7.4.1 Available DSC

Table 1-29. Available DSC

USB Direct Print	PictBridge
DSCs conform to USB Direct Print Protocol Revision 1.0.	DSCs conform to CIPA DC-001-2003 Digital Photo Solutions for Imaging Devices (DPS version 1.0) or the Rev. 2.0.

1.7.4.2 Print Settings Available from DSC

The following print settings can be made from the DSC. However, depending on the DSC, some of the settings may not be available.

Table 1-30. Print Settings Available from DSC

Item	USB Direct Print	PictBridge
How to specify images	Single Sheet / DPOF specified	Single Sheet / Multiple Sheet / DPOF specified / XHTML-Print
Paper type	Plain Paper/ Glossy Photo / Prem. Glossy / Matte	Plain Paper/ Prem. Glossy
Paper size	4x6, 5x7, 8x10*, Letter*, A4	4x6, 5x7, 8x10*, Letter*, A4, HiVision, CD label
Layout	Borderless, With Borders (2-up, 4-up, 8-up are available when specified by DPOF)	Borderless, With Borderless, 2-up, 4-up, 8-up, 20-up, Index
Date	On / Off	
Quality	Draft / Normal / Photo	
Auto Correct	On / Off	
Fit to Frame	Available only for a single sheet	Available
Print Image Framer	Yes / No	Not available
Control of printer	The following operations are available; Getting the printer status, starting a print job or canceling it immediately or after printing the current page is finished. (In the case of the USB Direct Print, resetting the printer is also available.)	

Note * :   Supported for EAI model only.

1.7.4.3 General Operation Procedure

CHECK POINT ✓	**Before connecting the DSC, check that the printer is in the following status.** • No print job from a computer is processed or performed. • Direct print from a memory card is not processed or performed. • Stand alone copy using the scanner function is not operating. • No paper out error or ink out error is occurring.

The DSC direct print procedure differs depending on the DSC specifications.The following explains common procedure.

1. Setting on the printer
    Before connecting a DSC with a USB cable, make the print settings such as paper type/size, layout setting on the printer. This may not be required for some DSCs.

2. Setting on the DSC
    Make the following settings on the DSC before connecting it to the printer. Some DSCs may require to first connect to the printer for making the settings.

    • When printing multiple images, specify images and number of copies using the DPOF and Multiple Sheet* menus. The menus may not be available on some DSCs.

    Note*: The Multiple Sheet setting is available when using PictBridge.

    • When printing a single image
      <USB Direct Print>
      Use the Single Sheet menu to specify an image and the number of copies. The menu may not be available on some DSCs.
      <PictBridge>
      Specify an image and the number of copies. Specifying the number of copies may not be available on some DSCs.
    • Select the paper type/size, layout, and make the Fit to Frame setting if necessary. These settings may not be available on some DSCs.

3. Starting to print
    When the print settings on both the printer and the DSC is completed, follow the procedure below to start printing.

    1. Connect the printer and the DSC with a USB cable. Using a USB cable included in the DSC package is recommended.
    2. Operate the DSC to start printing.
    3. Printing is carried out according to the settings made on the DSC. When some print settings have not been made on the DSC, the corresponding settings made on the printer are applied.

1.7.4.4 Operating Specifications during Connecting DSC

Table 1-31. Operations during Connecting DSC

Operation	Specifications
Connecting DSC (print start)	When a DSC is connected as described in "1.7.4.3 General Operation Procedure *(p. 27)* " Step 3-(1), USB Direct Print or PictBridge logo is displayed on the LCD.
Canceling printing	A print job can be canceled from the DSC. The [Stop/Clear setting] button on the control panel also cancels the print job.
After printing is completed	When performing memory card direct print after printing from a DSC, the USB cable connecting the DSC must be disconnected from the printer in advance.

Exclusion control	Print settings made on both the DSC and the printer can become impossible settings for the printer due to unsupported combination of paper type, paper size and layout. In such case, the print settings are automatically changed as follows.
	
	☐ USB Direct Print
	  The selected paper type is maintained, and the paper size and layout settings are changed to the default for the selected paper type.
	
	☐ PictBridge
	  The settings made on the DSC are maintained. Any print setting items that are not specified by the DSC are changed in accordance with the DSC settings. When the paper type is changed, changed to Prem. Glossy, when the paper size is changed, changed to 4x6 size. And when the layout is changed, changed to Borderless layout.

1.7.4.5 EXT.I/F (USB Host) Specifications for Connecting DSC

Table 1-32. Operations when USB Cable is Connected/Disconnected

Printer status	Connecting	Disconnecting
Standby	When the printer detects a DSC connected, it goes into the camera direct mode. If the printer failed to recognize the DSC normally, the printer displays a camera direct error.	When the DSC is disconnected after it is normally recognized by the printer, the printer returns to the standby mode.
An error is occurring	The printer does not go into the camera direct mode except when the error is memory card-related error, Index Sheet error, or Ink low error.	When a camera direct error has occurred, the printer recovers from the error and returns to the previous state (the state before the camera is connected). If the error occurs for the camera connected before the printer is turned on, the printer returns to the initial state after the power-on.
Panel power save mode	Same as when the printer is in standby mode.	The printer does not recover from the power save mode. When any button except the Power button is pressed, the printer returns to the camera direct mode. If the printer detect no camera at this time, it returns to the previous state (the state before the camera is connected)

Table 1-33. Handling Print Job Requirement from PC when Connecting DSC

Requirement from PC	EXT.IF (USB Host) DSC Connecting Status	
	Normally Connected	**Camera Direct Error is Occurring**
Print job	Returns "Busy" to the PC.	Cancels the error state and performs the job.
Scan job	Returns "Busy" to the PC.	Cancels the error state and performs the job.
Read memory card	Allows the access.	Allows the access.
Write memory card	Not allows the access. Notifies the PC that the operation is not available.	Allows the access.
Maintenance	Returns "Busy" to the PC.	Cancels the error and carries out the required task.

1.7.5 Specialty Print Functions

1.7.5.1 Specialty print functions and available paper type/size and print layout

| Paper Type | Quality | Resolution | Dot size | Bi-D | Micro Weave | Reprint/Restore Photos | | CD/DVD Print | | | | | | Print Photo Greeting Card*1 |
| | | | | | | Borderless | With Border | CD Print | | | | CD Jacket | | |
								1-up	4-up	8-up	12-up	Jewel Upper	Jewel Index	
Plain Paper	Standard	360x360	MC2-1	ON	OFF	-		-				Letter*1, A4		-
	Best	720x720	MC1-1	ON	ON			CD/DVD						
Matte	Standard	1440x1440	MC2-2	ON	ON	Letter*1, A4		-				Letter*1, A4		Letter
	Best	1440x1440	MC1-5	ON	ON	-								-
Photo Paper	Draft	720x360	MC1-1	ON	ON	-		-				Letter*1, A4		-
	Standard	720x720	MC1-2	ON	ON	10x15cm (4x6in)						-		-
	Standard	720x720	MC2-2	ON	ON	Letter*1, A4, 13x18cm (5x7in)*2						Letter*1, A4		Letter
	Best	1440x1440	MC1-5	ON	ON	-								-
Prem. Glossy	Draft	720x360	MC1-1	ON	ON	-		-				Letter*1, A4		-
	Standard	720x720	MC1-2	ON	ON	10x15cm (4x6in)						-		-
	Standard	720x720	MC2-2	ON	ON	Letter*1, A4, 8x10in*1, 13x18cm (5x7in)*2						Letter*1, A4		Letter
	Best	1440x1440	MC1-5	ON	ON	-								-
Ultra Glossy	Standard	720x720	MC1-2	ON	ON	10x15cm (4x6in)		-				-		-
	Standard	720x720	MC2-2	ON	ON	Letter*1, A4, 8x10in*1, 13x18cm (5x7in)*2						Letter*1, A4		Letter
	Best	1440x1440	MC1-5	ON	ON	-								-
CD/DVD	Best	1440x1440	MC1-5	ON	ON	-		CD/DVD				-		-

Note *1: Supported only by EAI model.

　　　*2: Supported only by Euro/Asia models.

1.7.5.2 Specialty Print Mode

The following explains each of the functions provided in the Specialty Print mode.

1.7.5.2.1 Print on CD/DVD Function

This function allows the user to print an image in a memory card directly on a CD/DVD. Printing a CD jacket on A4 or letter size paper is also provided.

1.7.5.2.2 Print Photo Greeting Card function (for EAI model only)

This function is available with EAI models only. The user can create a greeting card combining an image in a memory card and a template selected from the preset options.

1.7.5.2.3 Reprint/Restore Photos Function

This function allows the user to copy their silver halide film-based pictures. The printer scans the pictures automatically detecting them as silver halide film-based picture, and makes a copy of them. The following explains the specifications of the function.

■ Available picture size: 30x40mm to 127x178mm (5"x7")

■ Lay the pictures on the glass face down. The number of pictures available at one time is as follows:
- 4x6 or smaller: up to 2 pictures
- 5x7:   up to 1 picture

■ The spaces required between the pictures:
- 5 mm or more space from the right and front edges of the document glass.
- 5 mm or more space between pictures.

■ The pictures must not be tilted.
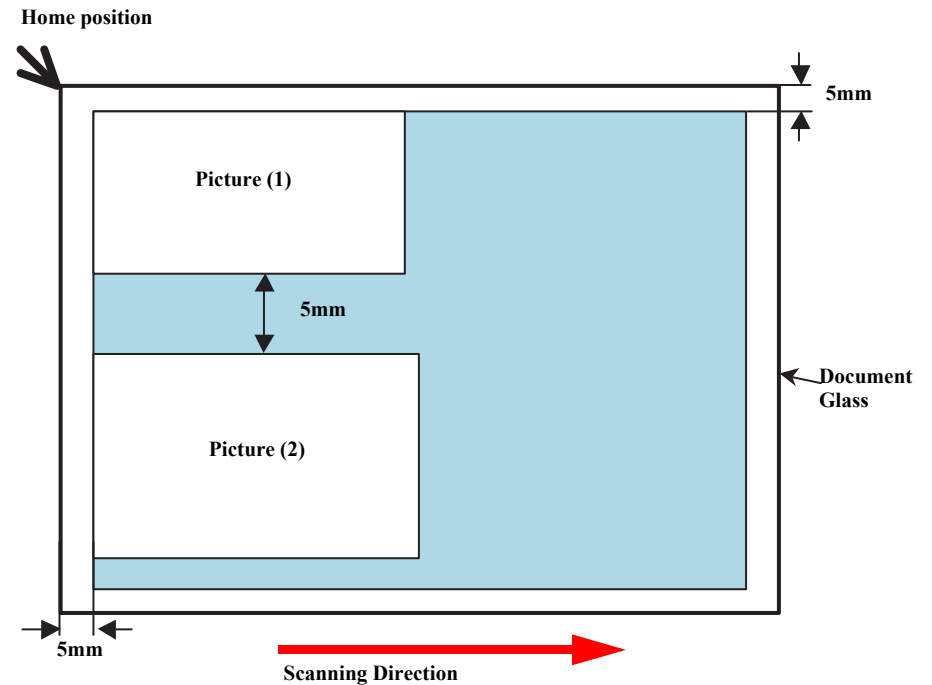
Figure 1-6. Laying Silver Halide Pictures

1.7.6 Setup Mode

The Setup mode provides maintenance menus and various configuration setting menus. The following explains about the menu functions.

1.7.6.1 Maintenance Menu

Table 1-34. Maintenance Menu Functions

Item	Function
Nozzle Check	A nozzle check pattern to check the Printhead nozzles status is printed. A head cleaning can be run if necessary. Figure 1-7 shows the nozzle check pattern printed by the printer.
Head Cleaning	Runs a printhead cleaning. The cleaning cannot be made when low ink level is detected. In such case, an ink low error is displayed instead of running the cleaning.
LCD Brightness	This allows the user to adjust the brightness of the LCD. The settable range is -10 (minimum) to +10 (maximum).
Head Alignment	An adjustment to ensure the bi-directional print quality. Follow the instructions displayed on the LCD to carry out the adjustment. The default value for each of the four modes is "5", and can be changed within the range of 1 to 9.
Change Ink Cartridge	Runs an ink cartridge replacement sequence. The sequence also can be run from the Ink Levels menu or by following the instructions on the LCD when an ink-related error occurs.
Thick Paper	Setting to "On" widens the platen gap to reduce friction between the printhead and thick paper. The setting is applied until the printer power is turned off, and returns to the default (Off) at the next power-on. • Off: normal platen gap is applied. • On: the wider platen gap is applied.
Screen Saver Settings*	By setting to the "Memory Card Data", the printer automatically runs a slide show using images in a memory card as a screen saver when no control panel operation has been made for 180 seconds in standby mode. If no memory card is inserted, or when this is set to "Off", the LCD display does not change.

Note*: This menu is not provided on EAI models.
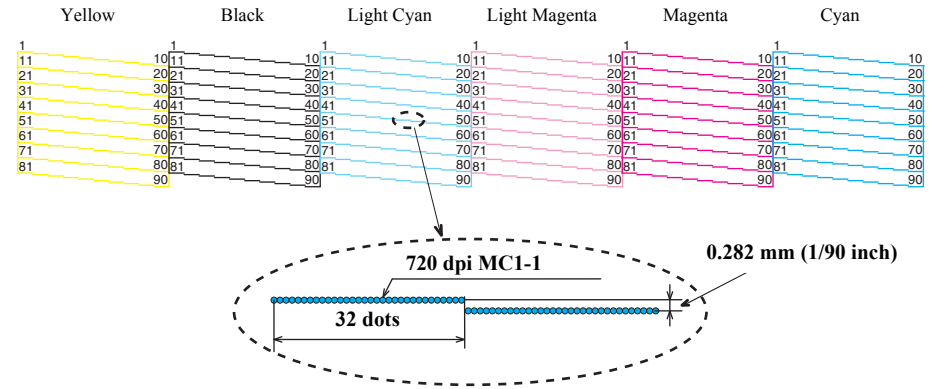
Note : The numbers shown in the figure are nozzle numbers. The numbers and the color names are not printed on an actual nozzle check pattern.

Figure 1-7. Nozzle Check Pattern

CAUTION	■ If the printer power is turned Off during printing the adjustment pattern or entering the adjustment value, the pattern print is canceled, and the values return to the default. ■ While the adjustment is carried out, the printer does not goes into the panel power save mode.

CHECK POINT	■ If a paper out error occurs, load a paper and press the Start button to cancel the error state. ■ If a paper jam error occurs, press the Start button to eject the paper. If the paper is ejected normally, the printer recovers from the error and prints the adjustment pattern.

1.7.6.2 Ink Levels

The current ink levels of each of the cartridges are displayed in bar chart by the rules described below. After displaying the ink levels, the next operation can be selected from the following two options; "End the ink levels display" or "Change Ink Cartridge".

- The bar chart is displayed in the order of yellow, black, light cyan, light magenta, magenta, and cyan from the left.
- When initial ink charge is completed, or after replacing the cartridge, the ink level becomes 100% (full).
- The ink level is indicated in increment of 1%. Lower than 1% is rounded down.
- When the ink level becomes lower than 10%, "!" icon appears to notify the user of the ink low status.

1.7.6.3 PictBridge Setup

The print settings to be used for the camera direct print (USB Direct Print/PictBridge) can be specified. When print settings (paper type, paper size, layout, quality, auto correct) are specified from the DSC, the DSC settings are applied and the settings made here are ignored. For more details, see "1.7.4 Camera Direct Print Function (USB Direct Print/PictBridge) (p. 27)".

1.7.6.4 CD Print Position (EAI)
CD/Sticker Print Position (Euro, Asia)

The printing range when printing on a CD/DVD or a sticker can be adjusted.

1.7.6.5 Backup Memory Card

This menu allows the user to make a backup copy of a memory card on media in an external device. The "Folder Select" displays a folder selection screen to select the target folder in an external media to be printed.
The "Folder Select" menu item is disabled (grayout) in the following cases.

- ■ When any external device is not connected

- ■ When no image files is detected in the inserted memory card.

See "1.7.3 Backup Function (p. 25)" for more information on the backup function.

1.7.6.6 Bluetooth Settings

Bluetooth communication settings can be configured. This menu is enabled only when the optional Bluetooth unit is connected.

Table 1-35. Bluetooth Settings Sub Menus

Item	Explanation
BT PIN Code Set	Sets the passkey to request to an external device when accepting the communication request from the device. The setting range is 0000 to 9999.
BT Printer ID Set	Sets the printer ID to be identified in the Bluetooth communication when multiple same models exist. Enter a one-digit number (1 to 9, 0) to be appended as a suffix to the printer name. The change does not take effect until the printer is rebooted.

BT Mode	Selects the BT communication mode from the following three options.
	• Discoverable
	  Allows an external device to search for the printer and the connection can be established.
	  No authentication or passkey request is made by the printer.
	• Not Discoverable
	  Does not allow an external device to search for the printer but the connection can be established.
	  No authentication or passkey request is made by the printer.
	• Pairing
	  Allows an external device to search for the printer and the connection can be established.
	  The printer requests a passkey to the device. Once the connection is established, the printer remembers the device (only one device can be remembered), and does not request a passkey for the second or later access of the device.

BT Encryption	When this is set to "On", the Bluetooth communication data is encrypted and the printer requests device authentication.
BT Device Address	The physical address (unique value) of the Bluetooth module is displayed. The address is displayed in hexadecimal 12-digit numbers (xx-xx-xx-xx-xx-xx).

OPERATING PRINCIPLES

2.1 Overview

This Chapter describes the operating principles of the mechanism and electric circuits of Stylus PHOTO RX585/595/610.

2.1.1 Mechanical Components

The printer mechanism of Stylus PHOTO RX585/595/610 consist of the following major mechanisms:

Table 2-1. Mechanical Components 1

Mechanism	Function/Description
CR Assy	Moves on the CR Guide Shaft right and left and performs printing on paper. The Carriage Assy incorporates the Printhead, PW Sensor, and CR Encoder. The drive source is the CR Motor.
APG Assy	Controls the platen gap in four stages. Detects the current height of the carriage with the APG Sensor, and moves the carriage up and down, driven by the PF Motor.
PF Assy	Driven by the PF Motor to turn the PF Roller Shaft for feeding paper.
ASF Assy	Driven by the PF Motor to load paper into the Printer Mechanism.
Eject Assy	Driven by the PF Motor to eject the paper (CD-R Tray). As the Stacker is moved up and down (by manual operation), the paper eject frame moves up and down so that its height can be adjusted to the media.
I/S Assy	Located in the right end of the mechanism, performs capping the Printhead, while it is not used, and sucking waste ink. The waste ink is sent to the Waste Ink Tray via the Waste Ink Tube.

The units and circuit boards constituting Stylus PHOTO RX585/595/610 are as follows:

Table 2-2. Mechanical Components 2

Unit / Circuit Board	Function/Description
Main Board	Located on the Middle Housing, incorporating the USB I/F (x2), card reader.
Power Supply Board	Located on the Lower Housing. The power cable can be plugged in and unplugged.
Panel Board	Consists of two pieces located on the Middle Housing.
Scanner Unit	CIS consisting of 1200 dpi CCD for reflection (light source: LED)
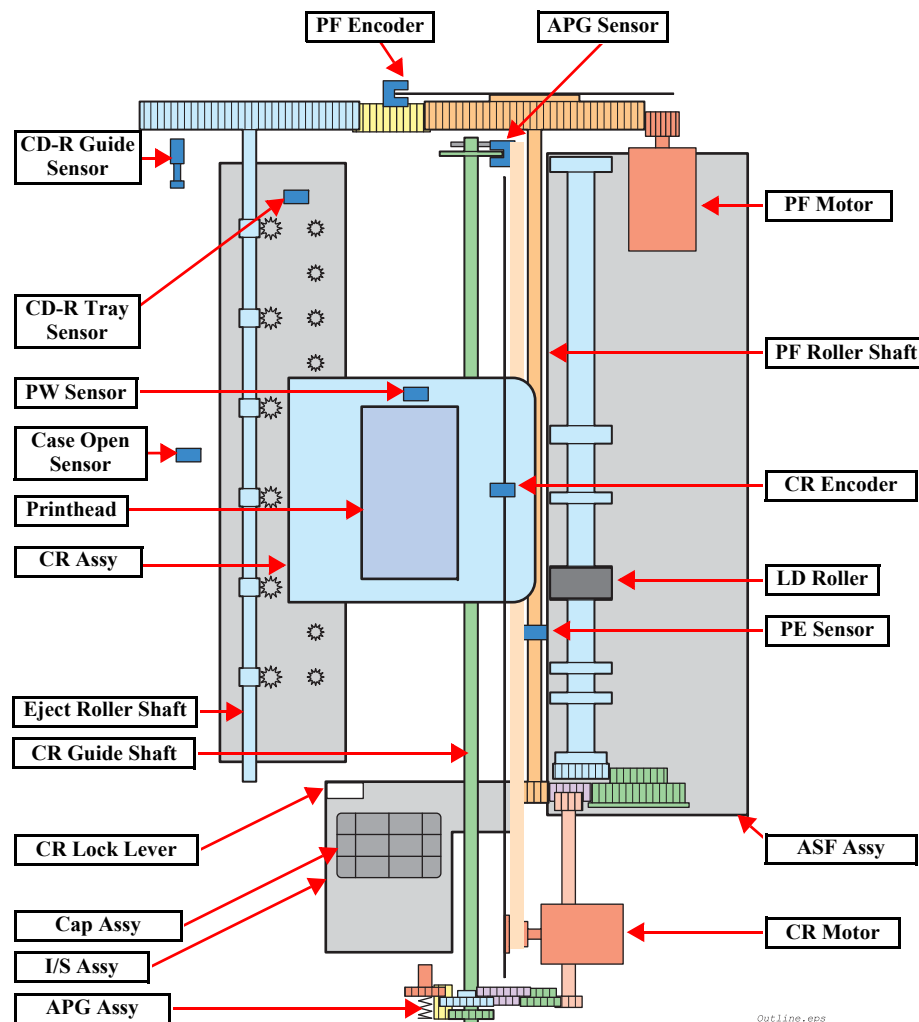
Figure 2-1. Schematic Printer Mechanism

2.1.2 Motors and Sensors

Table 2-3. Motors and Sensors (Printer Mechanism)

No.	Name	Function
1	Printhead	F3-MACH Turbo 2 head (6 colors x 90 nozzles)
2	CR Motor	Type: DC motor Voltage: 42V DC ± 5% (voltage applied to the driver) Characteristics: Armature resistance : 22.7 Ω ± 10% Inductance : 17.5 mH ± 25% Drive system: PWM constant-current chopping system
3	PF Motor	Type: DC motor Voltage: 42V DC ± 5% (voltage applied to the driver) Characteristics: Armature resistance : 21.2 Ω ± 10% Inductance : 17.2 mH (1kHz) Drive system: PWM system
4	PE Sensor	Function: Detection of the paper tail end, Paper leading edge positioning control Detection method:Transmissive-type photo-interrupter
5	CR Contact Module	Ink cartridge detection (CSIC)
6	CR Encoder	Type: Transmissive-type photo-interrupter Resolution: 180 pulse/inch
7	PF Encoder	Type: Transmissive-type photo-interrupter Resolution: 180 pulse/inch
8	PW Sensor	Function • Paper left and right edge (before and during printing) • Paper top edge (before printing) • Paper bottom edge (during printing) • CD-R top, bottom, right and left edges (before printing) Detection method:Reflective photosensor
9	APG Sensor	Function: APG position detection Detection method:Transmissive-type photo-interrupter
10	CD-R Guide Sensor	Function: CD-R Guide up/down detection Detection method:Mechanical contact detector
11	CD-R Tray Sensor	Function: CD-R Tray presence detection Detection method:Mechanical contact detector
12	Case Open Sensor	Function: Scanner Unit open/close detection Detection method:Mechanical contact detector
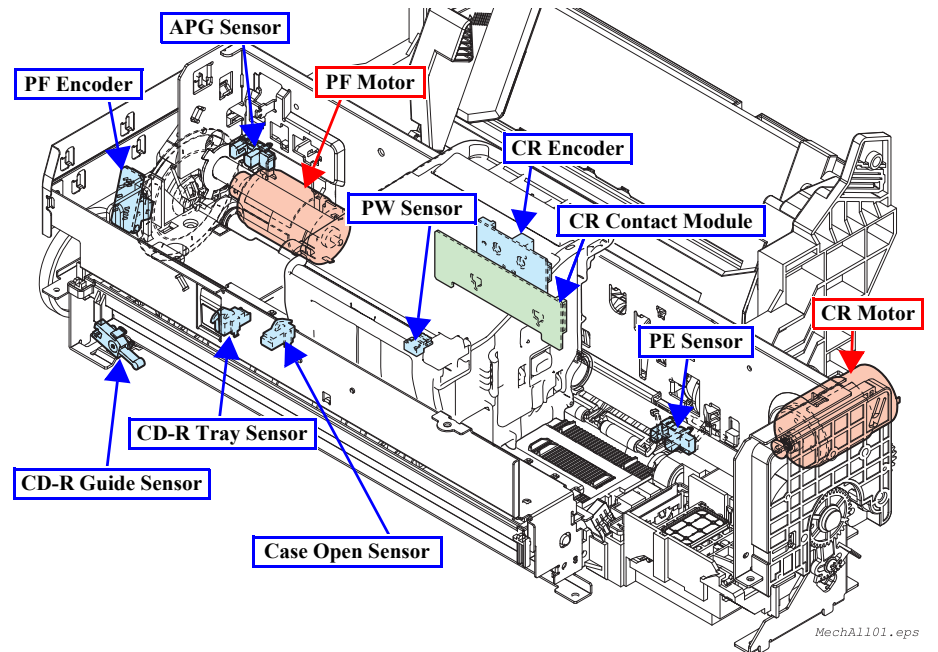
Figure 2-2. Motors and Sensors (Front Side of Mechanism)

(1) = 0.846mm (24/720inch)
(2) = 6.209mm (176/720inch)

Color Assignment

A: Black
B: Yellow
C: Light magenta
D: Light cyan
E: Cyan
F: Magenta
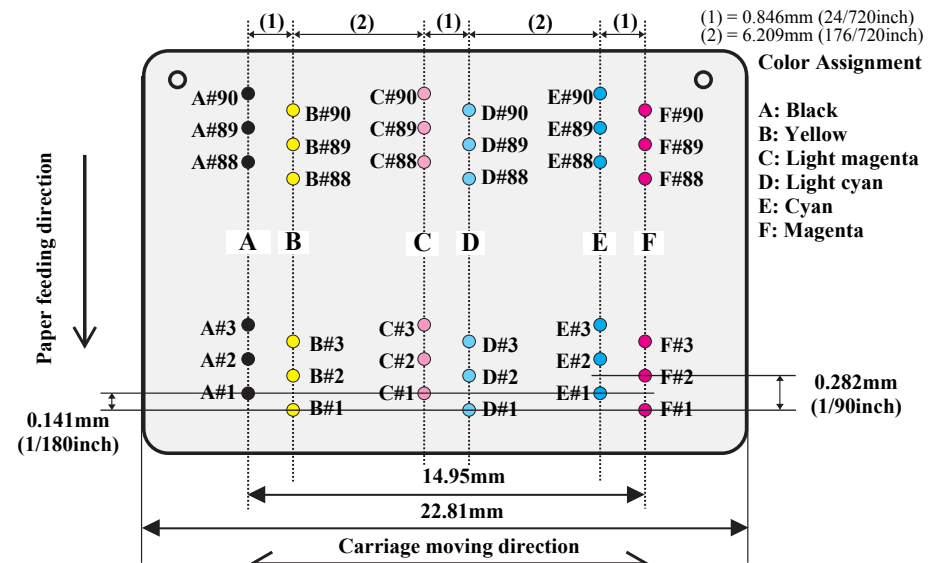
Figure 2-3. Nozzle Configuration

Table 2-4. Motors and Sensors (Scanner Unit)

No.	Name	Function	
1	CR Motor	Type: Voltage: Drive system:	DC motor 42V DC ± 5% (voltage applied to the driver) VrefPWM input constant-current chopping
2	Encoder sensor	Type: Resolution	Linear encoder 180 pulse/inch
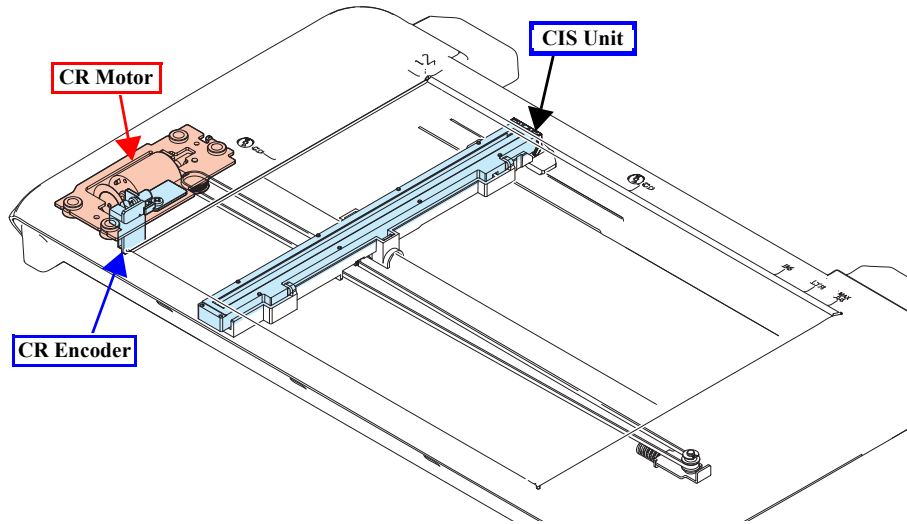
Figure 2-4. Motors and Sensors (Scanner Unit)

2.2 Operating Principles of Electric Circuitry

2.2.1 Overview

The major circuit boards of Stylus PHOTO RX585/595/610 are as follows:

- Main Board: C693MAIN
- Power Supply Board: C693PSB/PSE
- Panel Board: C693PNL + C685PNL-B

2.2.2 Features

☐ Based on the circuit mounted on the previous model Stylus PHOTO RX585/595/ 610, this printer is equipped with an EEPROM and a reset circuit individually to reduce the cost. This is achieved by removing a complex RTC circuit that is mounted on the previous model.

☐ With the increase in printing speed, the Case Open Sensor is newly added.

☐ Equipped with a color LCD (2.5-inch TFD) as a standard feature

☐ Power consumption reduced by executing the following actions at transition to the power save mode

System control:	Stopping part of clock inside the ASIC
	Motor drivers entering sleep mode
	Head DAC IC entering standby mode
	Turning off power to the LCD
Printer control:	Releasing the printer motor short brake
	Cutting off the photo-electric current of the photo sensor
Scanner control:	Stopping scanner motor chopping
	Cutting off CIS & CIS LED current
Others:	SDRAM entering self-refresh mode (automatic entering by ASIC setting)

2.2.3 Circuit Board Constitution

Table 2-5. Circuit Board Constitution

Circuit Board		Description

Main Board	System section	☐ Oscillation circuit (48MHz ± 100 ppm)
		☐ SSCG setting circuit
		☐ ASIC incorporating CPU core (E01A73B*)
		  • Package: 352-pin PBGA
		  • Power voltage: Internal 1.0 V ± 0.1V External 3.3V ± 0.3V
		  • CPU core: V850E2
		  • Operation frequency: Inside of CPU core: 288MHz (SSCG)
		                            SD-RAM controller: 96MHz (SSCG)
		                            PT/ scanner section: 48MHz (SSCG)
		         Hardware JPEG decompression, AFP: 96MHz (SSCG)
		                                    Printer section: 48MHz (No SSCG)
		                 Printer drive timer base clock: 48MHz (No SSCG)
		  • Built-in command RAM: 40 kByte (iLB-RAM)
		  • Built-in data RAM: 16 kByte (dLB-RAM)
		☐ Memory (FLASH ROM (64 Mbits), local SDRAM (256 Mbits), SERIAL FLASH ROM (512 Kbits)
		☐ EEPROM (4Kbit)
		☐ Reset circuit
		☐ USB interface (both the HOST and DEVICE support High-Speed)
		☐ Panel interface
		☐ Color LCD interface

	Power Supply section	☐ Power supply control circuit (PSC/ESAVE) ☐ DC-DC converter circuit ☐ Overvoltage protection circuit ☐ Power-saving controller
	Printer section	☐ Head drive circuit ☐ CSIC interface ☐ CR Motor control/driving circuit ☐ PF Motor control/driving circuit ☐ Sensor circuit
	Card I/F section	☐ Memory card control ASIC (USX2007-NW-**) ☐ Memory card connector (CF connector, 4 in 1 connector) ☐ Power supply control circuit for CF
	Scanner section	☐ Scanner motor control/driving circuit ☐ Scanner interface circuit ☐ Sensor circuits
Panel Board		☐ LED lighting circuit ☐ Switch reading circuit ☐ Case open sensor circuit
Power Supply section		☐ 42 V generation circuit (flyback converter)
LCD Board		☐ Module made by SEID (2.5-inch alpha TFD)

2.3 Banding Reduction System (BRS)/ Paper Feed Profile Correction (PFP)

☐ Overview

To ensure high-speed printing and high print quality, this printer is provided with the Banding Reduction System (BRS) and Paper Feed Profile Correction (PFP) function, which are outlined below:

Table 2-6. Outline of Banding Reduction System and Paper Feed Profile Correction Function

Outline		Supported Printing Mode				Remarks
		Paper Type		Paper Size	Printing Resolution (dpi)	
		EAI	Other than EAI			
BRS	Conventional models perform overlapping printing (two-pass or four-pass printing) to reduce banding for ensuring high print quality. However, the printer provided with the Banding Reduction System corrects the dot generation rate (amount of settled ink) for each raster, and performs one-pass printing. This function ensures both high print quality (reduction of banding) and high-speed printing.	Ultra Premium Photo Paper Glossy Premium Photo Paper Glossy Photo Paper Glossy Premium Photo Paper Semi-Gloss	Ultra Glossy Photo Paper Premium Glossy Photo Paper Glossy Photo Paper Premium Semigloss Photo Paper	4x6	720x720	–
PFP	The conventional paper feed adjustment method is such that the correction value calculated from the data based on a specific part of the sheet is reflected to almost all over the sheet. Therefore, the conventional method cannot cope with the fluctuating error in the paper feed rate during paper feeding. However, the Paper Feed Profile Correction function measures the error in the paper feed rate at each of minutely distributed measuring points on the sheet and provides a correction value for each point. Thus with this function, the printer realizes high print quality and high-speed printing on a supported paper type and in a supported printing resolution.	Ultra Premium Photo Paper Glossy Premium Photo Paper Glossy Photo Paper Glossy Premium Photo Paper Semi-Gloss	Ultra Glossy Photo Paper Premium Glossy Photo Paper Glossy Photo Paper Premium Semigloss Photo Paper	4x6	720x720	With BRS
					720x360	Without BRS

☐ How to prepare correction data

For each of BRS and PFP, print the relevant pattern for correction data preparation and read the printed pattern through the scanner. Then calculate the correction data and store the data in the serial flash ROM on the Main Board. The correction data are applied to printing in the supported printing mode.

> **CHECK POINT**
>
> **Refer to Chapter 5 "Adjustment" for details of correction data preparation for BRS and PFP.**

TROUBLESHOOTING

3.1 Overview

With Stylus Photo RX585/595/610, almost all troubles can be coped with by following the instructions given on "EPSON Status Monitor 3" (when connected to the PC) or on the LCD.

Once an error occurs, the "EPSON Status Monitor 3" will appear as a pop-up window on the screen of the host PC. It will show details of how to cope with the trouble. In almost all cases, the user can recover the unit from the error, provided that the user follows the instructions indicated on the pop-up window.

In addition, the User's Manual for EPSON Stylus Photo RX585/595/610 describes detailed steps to be taken for recovery from typical errors.

3.1.1 Specified Tools

Stylus Photo RX585/595/610 does not require any specified tools for troubleshooting.

3.1.2 Preliminary Checks

Before starting troubleshooting, be sure to verify that the following conditions are all met:

- The power supply voltage must be within the specification limits. (Measure the voltage at the wall outlet.)
- The POWER CORD must be free from damage, short circuit or breakage, or miswiring in the POWER CORD.
- The Unit must be grounded properly.
- The Unit should not be located in a place where it can be exposed to too high or low temperature, too high or low humidity, or abrupt temperature change.
- The Unit should not be located near waterworks, near humidifiers, near heaters or near flames, in a dusty atmosphere or in a place where the Unit can be exposed to blast from an air conditioner.
- The Unit should not be located in a place where volatile or inflammable gases are produced.
- The Unit should not be located in a place where it can be exposed to direct rays of the sun.
- The Unit must be placed on a strong and steady level table (without an inclination larger than 5 degrees).

- There must be no vibration generating source placed in contact with this Unit.
- The paper used must conform to the specification.
- There must be no error in handling of the Unit.
- Check the inside of the Unit, and remove foreign matters, if any, such as paper clips, staples, bits of paper, paper dust or toner.
- Clean the inside of the Unit and the rubber rolls.

3.1.3 Procedure for Troubleshooting

Perform troubleshooting according to the flowchart shown below.
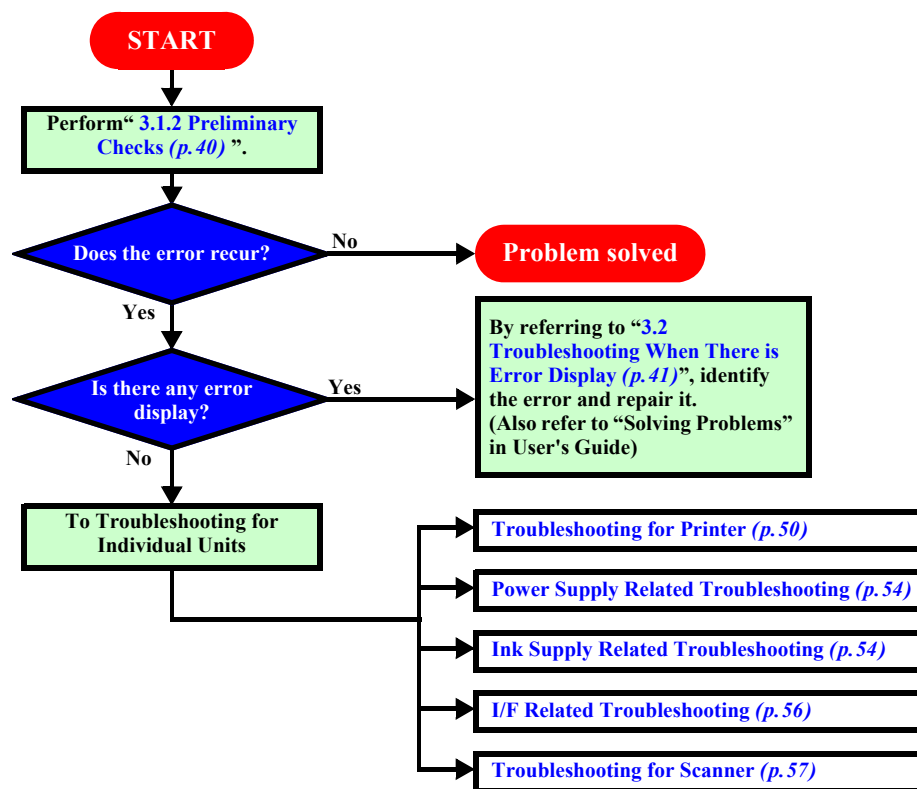
Flowchart 3-1. Procedure for Troubleshooting

3.2 Troubleshooting When There is Error Display

CHECK POINT ✔	The messages displayed on the LCD that are listed in the "Error List" above and "Warning List *(p.42)*" on the next page and subsequent pages are given only for information. In other words, they are not exactly the same as the messages actually displayed.

3.2.1 Error List

Table 3-1. Error List

Error Name	Displayed Message	Occurrence Condition	Recovery Procedure
Maintenance Error	Waste ink pad in the printer is saturated. Contact your dealer to replace it.	The printer requires maintenance due to waste liquid overflow or elastomer tube replacement time, etc.	Replace the waste ink pads. See "6.1.1 Maintenance Error" *(p.116)*
Printer FATAL Error	A printer error has occurred. Please see your manual.	An irrecoverable error has occurred.	Turn off the power See "3.2.3 FATAL Error" *(p.46)*
Paper jam	It is likely that a paper jam has occurred in the printer. Turn off the printer, then open the scanner unit and remove the paper. See your documentation.	A paper jam in a printer and a printer mechanism cannot operate normally.	The power is turned off and a paper is removed from a printer mechanism part.
Scanner Error	A scanner error has occurred. Please see your manual.	The error that was not able to be recovered with the scanner occurred.	Turn off the power See "6.1.1 Maintenance Error" *(p.116)*
Message related to Ink (1)	Cannot recognize ink cartridges. Make sure the ink cartridges are installed correctly.	The ink cartridges have not been inserted or defective ink cartridges have been inserted.	Install the normal ink cartridges correctly and press the OK button.
Message related to Ink (2)	Ink cartridge cover is open. Open the scanner unit and close the ink cartridge cover.	Ink cartridges were replaced with new ones with the ink cartridge fixation cover open.	Close the ink cartridge fixation cover and press the OK button
Paper Detect Error	Paper jam. Load paper and press Start. If the error does not clear, repeat the procedure.	A sheet was loaded in a wrong orientation and caused a jam.	Follow the displayed message until the sheet loaded in a wrong orientation is ejected.
Paper Jam Error	Paper or CD/DVD jam or feed error. Press Start. If the error does not clear, remove the media by hand.	The paper jam has occurred.	Turn power off, and remove the paper.
Message related to Ink (3)	Cannot recognize ink cartridges.	The ink cartridge had not been inserted at an initial filling or the ink cartridge error occurred	Install the normal ink cartridges filled with ink correctly and press the OK button.
Message related to Ink (4)	Press the OK button to replace ink cartridges.	Ink end	Install the normal ink cartridges filled with ink correctly and press the OK button.

Table 3-1. Error List (continued)

Error Name	Displayed Message	Occurrence Condition	Recovery Procedure
Paper Empty Error	Paper out. Load paper and press the Start button.	There is no paper in the sheet feeder.	Press the start button to feed paper correctly.
Multi-page Feed Error	Multi-page feed error. Remove and reload the paper, then press the Start button.	Multi-page feed error has occurred.	Re-set paper and press the start button to feed paper correctly.
Scanner Open Error	Close the scanner unit.	The scanner unit is opened during stand-alone printing, copying, or printing from an external device.	Close the scanner unit.

3.2.2 Warning List

Table 3-2. Warning List

Warning Name	Displayed Message	Occurrence Condition	Recovery Procedure
Waste fluid is near end	Waste ink pad in the printer is saturated. Contact your dealer to replace it.	The waste ink pads have already absorbed waste ink nearly to its full capacity.	Replace the waste ink pads. See "6.1.1 Maintenance Error" (p.116)
Set the CD-R/DVD tray (Set correctly)	The CD/DVD tray is set incorrectly. Set the CD/DVD tray correctly, then press the Start button.	At start of printing, the printer has not recognized the CD-R/DVD tray correctly.	Set the CD-R/DVD tray correctly, and press the Start button.
CD/DVD guide warning (Open error)	The front tray is in the CD/DVD position. Raise the tray lever to set the front tray to the paper position.	When printing data is not for printing on CD/DVD, the tray is in the CD/DVD printing position. Or the tray is in the CD/DVD printing position when the printer is started.	Raise the lever to change the printing position to the lower position.
CD/DVD guide warning (Close error)	The front tray is in the wrong position. Push down the tray lever to set the front tray to the CD/DVD position.	When printing data is for printing on a CD/DVD, the CD-R/DVD tray is not recognized correctly. .	Lower the lever to change the print position to the upper position.
BT File size error	The document is too large to print with Bluetooth.	Data size is too big.	Change or check the transmitted data.
BT Designation error	The document is too complex to print with Bluetooth.	Data quantity exceeded the range where it can be processed.	Change or check the transmitted data.
BT structure error	Data error. The document cannot be printed.	There is an error in the contents of data.	Change or check the transmitted data.
A part of the reference object is broken (BT-MIME)	Data error. The document may not be printed correctly.	While XHTML-Print data could be decoded, a part or all of the reference object had a MIME encode error and could not be obtained. The following two problems are considered depending on the type of the un-obtained reference object. • For an image, an area where that image is to be printed becomes blank. • For a CSS (style sheet) file, the background color, basic character size or the like cannot be the same as specified by the send side.	Change or check the transmitted data.
BT communications error	Bluetooth print adapter not recognized. Please remove and reinstall the adapter.	An error has occurred in communication with the BT adapter.	Remove the BT adapter. Press the OK button to clear the message.

Table 3-2. Warning List (continued)

Warning Name	Displayed Message	Occurrence Condition	Recovery Procedure
External device installment	Cannot recognize the device.	An unsupported device has been installed.	Remove the device.
Card insertion	Cannot recognize the memory card or disk.	Memory card recognition failed.	Remove the memory card
Screen translation and print executions connecting DSC	A camera is connected. Disconnect the camera and try again.	Entering a menu screen for use of memory cards or starting to print was attempted with a DSC connected.	Disconnect the camera
Index sheet scan error (no index sheet)	There is no index sheet or it is not positioned correctly. Check it and try again.	An index sheet was not set.	Set the index sheet and press the OK button.
Index sheet scan error (incorrect image selection marking)	Photos are not selected or the ovals are marked incorrectly. Please correct and try again.	The image selection marking on the index sheet is not correct.	Correct image selection. And press the OK button.
Index sheet scan error (incorrect paper selection marking)	The paper type is not selected or ovals are marked incorrectly. Please correct and try again.	The paper selection marking on the index sheet is not correct.	Correct paper selection. And press the OK button.
Index sheet scan error (Discrepancy between index sheet and card)	The contents of the memory card have changed. Print a new index sheet and try again.	After index sheet printing, a different memory card was inserted or images were added or deleted.	Restore the same memory card condition as was when the index sheet was printed or print a new index sheet.
Combo print error 1 (Euro) Photo Greeting card error 1 (EAI)	Error reading the template. Make sure the template is placed correctly on the glass and try again.	No recognition mark could be found on the template sheet.	Set sheet and press the OK button
Combo print error 2 (Euro)	Selection of the text style is not correct. Select only one text style and try again.	No mark is given for Paper Type or Text Style selection area, or more than one mark is given.	Select a text style on the template and press the OK button.
Combo print error 3 (Euro) Photo Greeting card error 3 (EAI)	Error reading the template. Make sure the glass is clean and no pen marks are outside the writing area.	Combo Area cannot be recognized.	Print the sheet again and make entry again.
Combo print error 4 (Euro) Photo Greeting card error 4 (EAI)	The layout is not selected or ovals are not marked correctly. Only one layout may be selected.	No mark is given for compose layout, or more than one mark is given.	Put a mark for compose layout or in the case where there are two or more marks, print the sheet again and put a mark only for one layout.
Combo print error 5 (Euro) Photo Greeting card error 5 (EAI)	The contents of the memory card have changed. Print a new template and try again.	After template printing, a different memory card was inserted or images were added or deleted.	Restore the same memory card condition as was when the template was printed or print a new template.
Combo print error 6 (Euro) Photo Greeting card error 6 (EAI)	The paper type is not selected or ovals are marked incorrectly. Please correct and try again.	The paper selection marking on the template is not correct.	Select a paper on the template and press the OK button.
Select photos in CD label print.	The selectable number of photos was exceeded.	More than the specified number of photos have been selected.	Select not more than the specified number of photos.

Table 3-2. Warning List (continued)

Warning Name	Displayed Message	Occurrence Condition	Recovery Procedure
Select the number of copy.	Only 1 copy can be selected.	More than one copy has been selected.	Select only one copy.
Photo recognize Error	No photos could be recognized. Make sure the photos are positioned correctly. For details, see your manual.	The photo could not be recognized.	Set the photo and try again
Scan to memory error (no card)	No memory card or disk inserted. Save canceled.	Execution of scanning to a memory card function was attempted with no memory card inserted.	Insert a memory card.
Scan to memory error (insufficient card capacity)	The capacity of the memory card or disk is insufficient. Operation canceled.	The memory card capacity is insufficient.	Insert a memory card that has a sufficient capacity.
Scan to memory error (card write-protect)	The memory card or disk is write-protected. Operation canceled.	As the memory card is write-protected, it is not possible to save data.	Insert a memory card with Write-Protect canceled.
Scan to memory error (folder not created)	Cannot create a folder on the memory card or disk. Operation canceled.	A folder could not be created on the memory card.	Check the data on the memory card.
Scan to memory error (card removed)	The memory card or disk was removed. Operation canceled.	Data saving was not executed, since the memory card had been removed.	Insert a memory card.
Scan to memory error (save error)	An error occurred while saving. Save canceled.	Data saving was not achieved for some reason.	Check the source data or media.
Format check (scan)	Cannot recognize the memory card or disk. Do you want to format it?	The memory card cannot be recognized.	Execute or cancel formatting.
Format Warning (Format error) (scan)	An error occurred during formatting. Formatting will be discontinued.	An error has occurred in formatting the card. Or you pulled out the media while formatting it.	Press the OK button and check the media.
Format Warning (card write-protect) (scan)	The memory card or disk is write-protected. Operation canceled.	As the memory card was write-protected, formatting failed.	Insert a memory card with Write-Protect canceled and try again.
Format Warning (card removed) (scan)	The memory card or disk was removed. Format canceled.	The media is removed when formatting is to be started.	Insert media and try again.
No Image File	Insert a memory card that contains photos.	No image is contained in the memory card or no memory card has been inserted.	Insert a memory card containing image files.
Head Cleaning	Replace ink cartridge before cleaning print head.	Head cleaning was attempted in the Ink Low state.	Cancel the head cleaning, or replace the ink cartridges.
Backup error (no external connection)	External device is not connected or media is not inserted. Backup canceled.	The external device was not connected when backup was started.	Connect the external device.
Backup error (insufficient external media capacity)	Insufficient space on the backup device. Cannot back up files.	The capacity of the media on which the backup data is to be saved is insufficient.	Insert media that has sufficient free space.
Backup error (no card)	No memory card in slot. Backup canceled.	No backup source exists.	Insert the memory card

Table 3-2. Warning List (continued)

Warning Name	Displayed Message	Occurrence Condition	Recovery Procedure
Backup error (connecting to PC)	Disconnect from PC before backing up files.	Backup was attempted with the PC left connected.	Disconnect the PC
Backup error (File name and Folder levels Error)	Backup canceled. File name is too long or there are too many folder levels	The file name is too long, or the source has eight or more levels in folder hierarchy.	Check the file name and the folder hierarchy.
Backup error (File name is too long)	Backup canceled. File name is too long or there are too many folder levels	The file name is too long, or the source has eight or more levels in folder hierarchy.	Check the file name and the folder hierarchy.
File clearness (error has occurred)	An error occurred while deleting files. Operation canceled.	An error occurred during file deletion.	–
File clearness (memory card has removed)	The memory card or disk was removed. Operation canceled.	The memory card was removed during file deletion.	–
File clearness (write-protected)	The memory card or disk is write-protected. Operation canceled.	Because the memory card is write-protected, it is not possible to delete the file.	Cancel Write-Protect.
File clearness (no memory card)	No memory card in slot. Operation canceled.	Because the memory card was not inserted, it was not possible to delete the file.	Insert the memory card.
In adjustment of borderless expansion value	You can change the amount of image expansion, but a white border may appear around your photo.	This message is always displayed during adjustment of the Borderless Expansion Value.	Accept it.
Zoom	If you change the paper size, the crop area may change. Do you want to continue?	Warning for changing the paper size.	Continue or cancel
Position of CD/DVD guide (Re-set)	The CD/DVD guide is in the CD/DVD position. Close the CD/DVD guide.	The CD-R Guide is in the extended position.	Return the CD-R Guide into the withdrawn position.
CD/DVD guide close error	The CD/DVD guide is closed. Open the CD/DVD guide, then press the Start button.	CD/DVD tray is not set correctly.	Set CD/DVD tray correctly.

3.2.3 FATAL Error

CHECK POINT ✓	**The EEPROM stores the error code of the latest fatal error. The latest fatal error can be identified using the adjustment program.**

Table 3-3. Fatal Errors

Category	Error Code	Error	Cause	Remedy
DC error (CR motor)	01H	CR PID speed over error	An error occurred in the CR motor operating sequence	☐ Checking the operation of the Carriage Assy; Move the Carriage Assy by hand, and check to see if it moves smoothly. ☐ Making the following adjustments ♦Bi-D ♦Paper feed length with PF Assy ♦Paper feed length with Eject Assy ♦PW adjustment ☐ Checking the following parts and replacing the defective one ♦Checking the head FFC (CN10/11/12) for disconnection or breakage ♦Checking the lead wires of the CR Motor (CN14) for disconnection or breakage ♦Checking the CR Encoder FFC (CN1) for disconnection or breakage ♦Checking the printer frame for adhesion of dirt or insufficient lubrication *(p. 119)* ♦Checking the CR Guide Shaft for adhesion of dirt or insufficient lubrication *(p. 119)* ♦Checking the Linear Scale for adhesion of dirt or damage *(p. 75)* ♦Checking the CR Encoder for adhesion of dirt or damage *(p. 90)* ♦Checking the PW Sensor for adhesion of dirt or damage *(p. 90)* ♦Checking the CR Belt for damage or improper tension *(p. 88)* ♦Checking the CR Motor and replacing it if necessary *(p. 88)* ♦Main Board *(p. 66)* ♦Power Supply Board *(p. 80)*
	02H	CR load positioning lock error		
	08H	CR PID reverse rotation detection error		
	0AH	CR load positioning accumulation moving distance error		
	0BH	CR load positioning speed over error		
	0CH	CR PID lock error		
	0DH	CR PID aveTi max error		

Table 3-3. Fatal Errors (continued)

Category	Error Code	Error	Cause	Remedy

DC error (PF motor)	FBH	PF acceleration lock error	An error occurred in the PF motor operating sequence	☐ Checking the PF mechanism by visual inspection:
				  Check the PF mechanism for paper jam or adhesion of foreign matters by visual inspection.
				☐ Checking the operation of the PF mechanism:
				  Operate the PF mechanism by hand, and check to see if it operates smoothly.
				☐ Making the following adjustments:
				  ♦Bi-D
				  ♦Paper feed length with PF Assy
				  ♦Paper feed length with Eject Assy
				  ♦PW adjustment
				☐ Checking the following parts and replace the defective one:
				  ♦Checking the PF Encoder FFC (CN8) for disconnection or breakage
				  ♦Checking the lead wires of the PF Motor (CN13) for disconnection or breakage
				  ♦Checking the PF scale for adhesion of dirt or damage *(p. 83)*
				  ♦Checking the PF encoder for adhesion of dirt or damage *(p. 83)*
				  ♦Checking the Upper Paper Guides for improper installation *(p. 92)*
				  ♦Checking the PF Motor and replacing it if necessary *(p. 83)*
				  ♦Main Board *(p. 66)*
				  ♦Power Supply Board *(p. 80)*

	FEH	PF speed over error		
	FCH			
	FAH	Measurement value error in PF Duty limiting control		
	EFH	Position error in PF BS control		
	F0H	DTY_max error in PF BS control		

APG motor	70H	APG error (normal drive error)	An error occurred in the APG operating sequence	☐ Checking the installation of the APG Sensor:
				  position of the sensor and connection of the connector (CN7)
				☐ Checking the drive of the APG Assy
				  ♦Installation of the composite gear of the ASF Assy ~APG Assy
				  ♦Standalone operation of the APG Assy
				  ♦Reinstallation of the APG Assy (phase)
				☐ Checking the following parts and replace the defective one:
				  ♦APG Assy *(p. 87)*
				  ♦ASF Assy *(p. 85)*
				  ♦APG Sensor
				  ♦PG Left Cam *(p. 90)*
				  ♦Main Board *(p. 66)*
				  ♦Power Supply Board *(p. 80)*

	71H	APG home seek error		
	72H	Error in APG drive by factory command		

Motor drive time error	D1H	CR (PID) drive time-out	The motor kept operating for more than the specified time.	☐ Checking the mechanism and operation:
				  Check the mechanism and operation of the motor in question.
				☐ Checking the connection of the connectors and routing of the lead wires
				☐ Checking the motor in question and the following parts and replacing the defective part:
				  ♦Main Board *(p. 66)*
				  ♦Power Supply Board *(p. 80)*

	D2H	CR (load positioning) drive time-out		
	D3H	PF (PID) drive time-out		
	D4H	PF (BS) drive time-out		

Table 3-3. Fatal Errors (continued)

Category	Error Code	Error	Cause	Remedy
Factory command error	30H	Error by EEPROM verify command		☐ Checking the following parts and replace the defective one: ♦ Main Board *(p. 66)* ♦ Power Supply Board *(p. 80)*
Head system error	40H	Transistor ambient temperature abnormal	The thermistor on the printhead detected abnormal temperature.	☐ Checking the following parts and replace the defective one: ♦ Printhead *(p. 73)* ♦ Main Board *(p. 66)* ♦ Power Supply Board *(p. 80)* ♦ Replace the Head FFC
	41H	Error in X-Hot detection before printing		
	42H	Error in X-Hot detection after flushing		
	43H	Head ambient temperature abnormal		
Sequence error	50H	Home seek error	An error occurred in the carriage operating sequence.	See Remedy for DC error (CR motor)
	51H	CR unlocking error		
	52H	CR locking error		
	53H	Paper detect error before initial charge completion		
	56H	Overhit error at ink replacement		
Sensor error	60H	PW detection error (Hi check error)	PW detector trouble	☐ Checking the PW Sensor *(p. 90)* ♦ Checking the PW Sensor for adhesion of dirt and dust ♦ Checking the connection of the FFC ☐ Making the following adjustments: ♦ PW adjustment ☐ Checking the following parts and replace the defective one: ♦ Head FFC ♦ Carriage Assy *(p. 89)* ♦ Main Board *(p. 66)* ♦ Power Supply Board *(p. 80)*
	61H	PW detection error (Low check error)		
	62H	Tray detection (CDR detector 2) error	Sensor trouble	☐ Checking the operation of the actuator and the connection of the connector. ☐ Checking the following parts and replace the defective one: ♦ Sensor ♦ Main Board *(p. 66)* ♦ Power Supply Board *(p. 80)*
	63H	Paper detection error		

Table 3-3. Fatal Errors (continued)

Category	Error Code	Error	Cause	Remedy
Maintenance error	A0H	Waste ink overflow	Life expiration of maintenance parts	☐ Replace all the maintenance parts, and clear the maintenance counter. ♦ Refer to "6.1.1 Maintenance Error" *(p.116)*
Abnormal operation	88H	Inserted tray error during cleaning	An error occurred during cleaning	☐ Pulling out the CDR Tray ☐ Checking the CDR Tray Sensor *(p.90)* ♦ Checking the CDR Tray Sensor for adhesion of dirt or dust ♦ Checking the connection of the connector of the CDR Tray Sensor ☐ Checking the connection of the FFC ☐ Checking the following parts and replace the defective one: ♦ CDR Tray Sensor *(p.93)* ♦ CDR Tray
	89H	Overhit detection error during cleaning		☐ Checking the operation of the Carriage Assy; Move the Carriage Assy by hand, and check to see if it moves smoothly. ☐ Checking the following parts and replacing the defective one: ♦ Checking the lead wires of the CR Motor (CN14) for disconnection or breakage ♦ Checking the CR Encoder FFC (CN1) for disconnection or breakage ♦ Checking the printer frame for adhesion of dirt or insufficient lubrication *(p.119)* ♦ Checking the CR Guide Shaft for adhesion of dirt or insufficient lubrication *(p.119)* ♦ Checking the Linear Scale for adhesion of dirt or damage *(p.75)* ♦ Checking the CR Encoder for adhesion of dirt or damage *(p.90)* ♦ Checking the CR Belt for damage or improper tension *(p.88)* ♦ Checking the CR Motor and replacing it if necessary *(p.88)* ♦ Main Board *(p.66)*

3.3 Troubleshooting When There is No Error Display

3.3.1 Troubleshooting for Printer

This section describes repair/service of the Printer Mechanism. Listed below are various problems which may occur, observations of such problems, check point and remedies.

☐ Faulty paper loading

Table 3-4. Diagnostics when feeder is abnormal

Condition	Cause	Check Point	Remedy
Paper is not loaded.	LD Roller and Retard Roller dirty or worn	Check to see if no Micro Pearl or oily substance is adhering to the paper loading roller.	**Clean the rollers using a cleaning sheet.** 1. Set a cleaning sheet upside down in the ASF Assy. 2. Start paper feed with the panel button. 3. Repeat steps above several times. **To remove oils from rollers, staple a cloth dampened with alcohol to a postcard and follow the steps below.** 1. Set the postcard in the tray with the alcohol dampened cloth side facing the LD Roller (or Retard Roller). 2. Start paper feed while firmly holding the upper edge of the card. 3. Repeat the paper feed operation several times to clean the surface of the LD Roller (or Retard Roller). If these steps do not correct the problem, replace both the LD Roller and Retard Roller.
	Pick Up Roller and Idle Roller dirty or worn	Check to see if no Micro Pearl or oily substance is adhering to the rollers.	Wipe the rollers with a cloth dampened with alcohol.
	Operation of paper loading mechanism is abnormal	Check to see if there is no abnormality in the paper loading mechanism.	☐ Adjust the phase of the paper loading mechanism. ☐ Remove the dust and dirt, if any.
	PE Sensor/PE Lever not operating properly	Check to see if the PE Sensor connector has not been disconnected from the sensor or Main Board.	Connect the PE Sensor connectors to the sensor and Main Board CN6 properly.
		Check to see if the Torsion Spring has been set on the PE Lever properly.	Install the Torsion Spring on the PE Lever properly.
		Check for damaged PE Sensor.	Replace the PE Sensor.
Several sheets of paper are fed at the same time	Retard Roller operation is abnormal	Check to see if the tension spring on the Retard Roller is disengaged.	Install the tension spring properly.
		Check to see if the Retard Roller is out of position.	Install the Retard Roller properly.

❑ Faulty paper ejection

Table 3-5. Diagnostics when paper ejection is abnormal

Condition	Cause	Check Point	Remedy
Paper is jammed on the way of paper ejection.	Faulty PF-related operation	Turn the PF Roller, and check to see if the paper is transferred to the Paper Eject Rollers properly.	Engage the PF-related gears properly.
	PF degradation compensation counter	Check the PF degradation compensation counter and the number of printed sheets using the adjustment program.	Initialize the PF degradation compensation counter and write the maximum value.
	Faulty operation of Paper Eject Roller	Check to see if Paper Eject Roller rotates correctly.	Properly engage the gears driving the Paper Eject Roller.

❑ Faulty carriage operation

Table 3-6. Diagnostics when carriage action is abnormal

Condition	Cause	Check Point	Remedy
Abnormal carriage operation during printing	Carriage does not move smoothly.	Check to see if there is an obstacle in carriage route.	Remove the obstacle.
		Operate the carriage by hand and check to see if carriage moves smoothly.	Clean the CR guide shaft and lubricate.
		Check tension of timing belt.	Replace the Compression Spring of the Driven Pulley Holder.
		Move the carriage to the right end and left end fully and check to see if the length of the Head FFC is proper and the carriage moves smoothly.	Remove the Head FFC once and reinstall it properly.

☐ Printer stops during initialization

Table 3-7. Diagnostics when printer stops during format

Condition	Cause	Check Point	Remedy
Printer error is indicated.	Paper Eject Frame not installed properly	Check to see if the hook securing the Paper Eject Frame has been engaged.	Install the Paper Eject Frame properly.
	CR Motor not operating properly	Check for disconnected CR Motor connector.	Check the connector (CN14) of the CR Motor.
		Check to see if CR Motor coil resistance is as specified.	Replace the CR Motor.
	PF Motor not operating properly	Check for disconnected PF Motor connector.	Check the connector (CN13) of the PF Motor.
		Check to see if PF Motor coil resistance is as specified.	Replace the PF Motor.
	Linear Scale not operating properly	Check to see if the Linear Scale is traveling through the CR Encoder.	Enable the Linear Scale to pass through the CR Encoder.
		Check for dirt on Linear Scale.	Completely clean the Linear Scale.
		Check for damaged Linear Scale.	Replace the Linear Scale.
	CR Encoder not operating properly	Check to see if Encoder FFC is connected to CR Encoder Board.	Connect the Encoder FFC to the CR Encoder Board.
		Check for paper bits and dust adhering to CR Encoder.	Remove paper bits and dust adhering to the CR Encoder.
		Check for damaged Encoder FFC.	Replace the Encoder FFC (Carriage Assy).
		Check for damaged CR Encoder.	Replace the Carriage Assy.
	Rotary Scale not operating properly	Check to see if the Rotary Scale is not traveling through the PF Encoder.	Enable the Rotary Scale to pass through the PF Encoder.
		Check for dirt on Rotary Scale.	Completely clean the Rotary Scale.
		Check for damaged Rotary Scale.	Replace the Rotary Scale.
	PF Encoder not operating properly	Check to see if Encoder FFC is connected to PF Encoder Board.	Connect the Encoder FFC to the PF Encoder Board.
		Check for paper bits and dust adhering to PF Encoder.	Remove paper bits and dust adhering to the PF Encoder.
		Check for damaged Encoder FFC.	Replace the Encoder FFC.
		Check for damaged PF Encoder.	Replace the PF Encoder.
	Head FFC not operating properly	Check for disconnected Head FFC.	Firmly connect the Head FFC to the Main Board CN10 ~12 and to the Printhead.
		Check for damaged Head FFC.	Replace the Head FFC.
	Head Hot Error generated	Check to see if ink is emitted from all nozzles.	If condition does not improve after cleaning, replace the Printhead.

❑ Faulty print

Table 3-8. Diagnostics when printing is abnormal

Condition	Cause	Check Point	Remedy
Improper printing occurs only with specific dots	Printhead surface is dirty (Dot missing)	Alternate cleaning and test printing several times.	Clean the Printhead surface with a cotton swab.
	Capping absorbent material is in contact with Printhead surface	Check for deformed or damaged capping absorbent material.	Replace the Ink System Assy.
	Head FFC not operating properly	Check for damaged Head FFC.	Replace the Head FFC.
	Printhead not operating properly	Alternate cleaning and nozzle check several times.	If condition does not improve after cleaning, replace the Printhead.
Dot missing sometimes occurs	Printhead surface is dirty (Dot missing)	Alternate cleaning and nozzle check several times.	Clean the Printhead surface with a cotton swab.
	Ink Cartridge not operating properly	Install a new ink cartridge and perform nozzle check.	Replace the ink cartridge.
	Faulty connection inside the Head FFC	Use a circuit tester to check the FFC.	Replace the Head FFC.
	Printhead not operating properly	Repeat cleaning several times, and then perform nozzle check.	If condition does not improve after cleaning, replace the Printhead.
Print is not as intended	Head FFC is not connected	Check to see if FFC is firmly connected to each board and Carriage Assy.	Connect the FFC firmly.
	Printhead not operating properly	Check connection of Head FFC to Printhead.	If there is no problem with the Head FFC to Printhead connection, replace the Printhead.
Vertical lines are not in alignment	Bi-D adjustment is not made	Check to see if Bi-D adjustment has been done properly.	Perform Bi-D adjustment.
White lines appear in output data	Dirt is adhering to CR Guide Shaft	Check for dirt adhering to surface of CR Guide Shaft.	Clean the surface of the CR Guide Shaft with a soft dry cloth.
	PF Roller not operating properly	Check for dirt on PF Roller.	Carefully clean the surface of the PF Roller with a soft brush.
		Check for damaged PF Roller.	Replace the PF Roller.
	Ink Cartridge not operating properly	Install a new ink cartridge and test printing.	Replace the ink cartridge.
	Carriage Slide not moving properly	Check to see if sufficient grease is remaining on carriage slide parts at back of main frame.	Clean the main frame carriage slide parts and lubricate with a specified quantify of G-71.*(p.119)*
	Platen Gap not set properly	Check to see if platen gap adjustment has been done properly.	Adjust platen gap. *(p.105)*
	Gear is damaged	Check for abnormality in gears between PF mechanism and ASF mechanism.	Replace the damaged parts.
	Dot jet direction is angled due to dirt on Printhead surface	Alternate cleaning and test printing several times.	Clean with a cotton swab.
		Check for dust and dirt on Cleaner Blade.	Clean or replace the Cleaner Blade.
	Printhead not operating properly	Repeat cleaning several times, and then perform test print.	Replace the Printhead.
	CR Guide Shaft not operating properly	Check to see if CR Guide Shaft is firmly installed in specified position.	Reassemble the CR Guide Shaft.
		Check for damage to surface of CR Guide Shaft.	Replace the CR Guide Shaft.

3.3.2 Power Supply Related Troubleshooting

If the printer does not operate at all (LED does not light up) even with the power turned ON, refer to the following table and perform troubleshooting.

Table 3-9. Power Supply Related Troubleshooting

Cause	Check Point	Remedy
Defective power cord	Connect the normal power cord.	Replace the power cord.
Abnormal AC power voltage	Check the AC power voltage.	Supply the normal power.
Faulty connection of the connector	Check the connection between the Power Supply Board ~ Main Board (CN3).	Correct the connection.
Fuse blown	Check the fuse (F1) on the Power Supply Board.	Replace the Power Supply Board with a new one.
Abnormal output voltage of Power Supply Board	Check the output voltage of the Power Supply Board.	When the output voltage is normal: Replace the Main Board with a new one. When the output voltage is abnormal: Replace the Power Supply Board with a new one.

3.3.3 Ink Supply Related Troubleshooting

☐   Printer stops during initialization or printing.

Table 3-10. Troubleshooting for Printer Stop During Initialization or Printing

Condition	Cause	Check Point	Remedy
Ink End error is displayed.	Ink is out.	Check to see if ink is remaining in all the ink cartridges.	Replace the ink cartridge.
No Ink Cartridge error is displayed.	Not all the ink cartridges have been installed.	Check to see if all the ink cartridges have been installed in the I/C holders.	Install all the ink cartridges.
		Check to see if no ink cartridge is in a raised position.	Install the ink cartridge properly.
		The front or back hook of an ink cartridge is broken.	Replace the ink cartridge.
Ink Cartridge Trouble error is displayed.	Ink cartridge is damaged.	Check to see if the CSIC Board is not dislocated.	Replace the ink cartridge.
		Check to see if no chip on the CSIC Board is chipping.	Replace the ink cartridge.

☐ Printing is not carried out correctly

Table 3-11. Diagnostics when printing is erratic

Condition	Cause	Check Point	Remedy
Carriage moves correctly but printing is not normal.	Ink Cartridge not operating properly	Install a new ink cartridge and test printing.	Replace the ink cartridge.
	FFC not connected properly	Check the FFC connection between each CSIC Board ~ Main Board.	Connect the FFC firmly.
	Cleaner Blade not operating properly	Check for debris adhering to Cleaner Blade.	Clean or replace the Cleaner Blade.
	FFC internal disconnection	Check each FFC with a circuit tester.	Replace the FFC.
	Faulty Printhead	Alternate cleaning and test printing several times.	When the condition is not improved even after cleaning, replace the Printhead with a new one.
	Ink leakage or clogging with ink	Check to see if there is ink leakage from the Printhead.	Install the ink cartridges properly. If this does not improve the condition, replace ink cartridges and the Printhead.

☐ Waste ink is not discharged properly

Table 3-12. Troubleshooting for Faulty Ink Supply or Faulty Waste Ink Discharge

Condition	Cause	Check Point	Remedy
Ink is not flowing from Printhead to Cap or from Cap to Ink Tube	Pump tube collapsed	Visually check tube.	Replace the Ink System Assy
	Cap is dirty or damaged.	Check for foreign object adhering to Cap or damaged Cap.	Remove foreign object from the Cap with cotton swab. If Cap is damaged, replace the Ink System Assy.
	Tube is disconnected from Cap bottom	Visually check for disconnection of tube from Cap bottom.	Connect the tube properly.
	Cap does not slide up properly	Check for installation of compression spring on tube assembly.	Replace the Ink System Assy with a new one.
	Tube between the Waste Ink Tray Assy ~I/S Assy collapsed	Check the tube connection on the bottom of the Waste Ink Tray Assy and the tube route under the tray.	Connect the tube of the Waste Ink Tray Assy properly, and route the tube properly.

3.3.4 I/F Related Troubleshooting

This section describes the troubleshooting for the USB I/F and Memory Card Slot.

☐ USB I/F error

Table 3-13. USB I/F Error

Cause	Check Point	Remedy
Host PC does not support Windows 98 essentially.	On Windows, open "My computer" →"Property" →"Device manager". "Universal serial bus controller" is effective?	Remove the USB driver, and install it again.
Printer driver is not installed correctly.	On Windows, open "My computer" →"Property" →"Device manager". Printer driver is installed in "Other devices" by mistake?	Delete the driver and install it again according to operation manual.
Defective USB cable	Operation is normal if USB cable is replaced?	Replace the USB cable.
Poor contact	Check to see if there is no adhesion of foreign matters in the USB interface connector.	Remove the foreign matters, and clean the contact.
Defective main board	Check to see if main board is not damaged.	Replace the main board.

☐ Troubleshooting for Memory Card Slot

Table 3-14. Troubleshooting for Memory Card

Cause	Check Point	Remedy
Driver has not been installed correctly.	Check to see if a memory card is recognized in the single Assy mode.	Temporarily remove the driver, and then install it again.
Data has been destroyed.	Data on card may be destroyed owing to static electricity.	Check to see if card data is read by a PC. If not, format the card.
A memory card other than those specified is used.	Check the card to see if it is one of the specified cards.	Use a memory card specified.
Memory Card is faulty.	Check to see if another Memory Card can be recognized.	Use a new Memory Card.
Poor contact.	Check to see if foreign matters are not adhering to Memory Card or slot.	Remove the foreign matters, and clean the contact.
Firmware has abnormality.	–	Upload firmware.
Electric noise, etc. has been generated.	Check to see if FFC is connected correctly and Ferrite Core is positioned in place inside the printer.	After the confirmation, if they have no abnormality, replace the main board.
Defective main board	Check to see if main board is not damaged.	Replace the main board.

3.3.5 Troubleshooting for Scanner

This section describes repair/service for the Scanner mechanism. In troubleshooting, first identify the trouble at the Assy level based on the observation.
According to the observation as described in Table 3-16, perform the necessary checking by referring to the appropriate table.

☐ Scanner Errors at User Level

Table 3-15. Scanner Errors at User Level

Error	Cause	Remedy
Scanner error	• Defective CIS unit • Defective scanner motor • The scanner carriage is interfering with any other part.	• Replace the scanner carriage Assy. • Remove the obstacle.
Command error	Undefined command is detected.	When correct command is received, error status is cancelled. Turn the power off once and then turn it on again.
Scanner open	Scanner cover is open.	Close the cover.

☐ Observation of Trouble and Reference for Remedy

Table 3-16. Observation of Trouble and Reference for Remedy

Observation	Description of Trouble	Reference for Remedy
Even with power turned on, the machine does not operate.	The machine does not operate for initialization.	Table 3-17
"Fatal error" occurred. Indication error occurs and it is not cleared even after power is turned off once and then turned on again.	CR unit does not operate.	Table 3-18
	CR unit operates but error is indicated.	Table 3-19
	The LED does not light up.	Table 3-20
Picture is not read clearly.	Picture is not read clearly.	Table 3-21
"Communication error". Indication error occurs and when communication with the host is tried again, "Communication error" recurs.	USB interface error	Table 3-13

☐ Scanner does not operate for initialization

Table 3-17. Scanner does not operate for initialization

Cause	Check Point	Yes/No	Remedy
Connector is disconnected.	Check each connector for disconnection. Is there any connector disconnected?	Yes	Connect the disconnected connector.
		No	Replace the main board.

☐ Carriage unit does not operate

Table 3-18. Carriage unit does not operate

Cause	Check Point	Yes/No	Remedy
Connector on the Main Board is disconnected	☐ Is any of the connectors (CN17, 19 and 20) on the Main Board disconnected?	Yes	Connect the connector.
Faulty carriage moving mechanism	☐ Grease is applied properly?	No	Apply grease at designated point
	1. Does CR motor operate when power is turned ON with upper case of Scanner removed? 2. Does CR unit move with CR motor removed?	No	Check the carriage moving mechanism, replace the relevant parts or remove and reinstall them.
Faulty CR motor	☐ Disconnect the connector (CN17) of the CR Motor from the Main Board, and check continuity between pin 1 and pin 2 on the motor side, using a circuit tester.	No	Replace the CR motor.
Defective main board	---	---	Replace the main board.

❑   Carriage operates but error indicated

Table 3-19. Carriage operates but error indicated

Cause	Check Point	Yes/No	Remedy
Upper case of scanner is removed.	Upper case of scanner is removed.?	Yes	Install the upper case.
Defective main board	---	---	Replace the main board

❑   LED does not light up

Table 3-20. LED does not light up

Cause	Check Point	Yes/No	Remedy
Connector on the Main Board is disconnected	Connector CN19 on main board is disconnected?	Yes	Connect the connector CN19 on the main board.
Defective CIS Unit	Does the lamp light up when the CIS Unit is replaced?	Yes	Replace the CIS Unit.
Defective main board	---	---	Replace the main board

❑   Picture cannot be read clearly

Table 3-21. Picture cannot be read clearly

Cause	Check Point	Yes/No	Remedy
Soiled document table	Is the document table (glass) free from dirt and wiping mark?	No	Clean the document table.
Defective CIS Unit	---	---	Replace the CIS Unit.
Defective main board	---	---	Replace the main board

3.3.6 Troubleshooting for Motors and Sensors

❑   Motor

Table 3-22. Motor Resistance and Check Points

Motor Name	Location	Check Point	Resistance
CR motor	CN14 (White)	Pin 1 & 2	22.7 Ω ± 10%
PF motor	CN13 (Black)	Pin 1 & 2	21.2 Ω ± 10%
CR motor (Scanner Unit)	CN17 (White)	Pin 1 & 2	

❑   Sensor

Table 3-23. Sensor Check

Sensor Name	Location	Signal Level	Sensor Status
PE sensor (3.3V DC ±5%)	CN6 Pin 1&3	2.4V or over	Paper absent
		Less than 0.4V	Paper present
APG sensor (3.3V DC ±5%)	CN7 Pin 1&3	2.4V or over	PG position
		Less than 0.4V	Out of PG position
CD-R Guide sensor (3.3V DC ±5%)	CN4 Pin 1&2	Open: 2.4V or over	CD-R Guide down
		Close: Less than 0.4V	CD-R Guide up
CD-R Tray sensor (3.3V DC ±5%)	CN4 Pin 3&4	Open: 2.4V or over	CD-R Tray present
		Close: Less than 0.4V	CD-R Tray absent
Case Open Sensor (3.3V DC ±5%)	CN3 (Panel Board) Pin 3&4	Open: 2.4V or over	Scanner Unit open
		Close: Less than 0.4V	Scanner Unit closed

Note ： Refer to "2.1.2 Motors and Sensors" *(p. 35)* for the locations of the motors and sensors.

DISASSEMBLY AND ASSEMBLY

4.1 Overview

This section describes procedures for disassembling the main components of the product.

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

4.1.1 Precautions

See the precautions given under the heading "WARNING" and "CAUTION" in the following column when disassembling or assembling the product.

Things, if not strictly observed, that could result in injury or loss of life are described under the heading "Warning".

Precautions for any disassembly or assembly procedures are described under the heading "CAUTION".

Chips for disassembling procedures are described under the heading "CHECK POINT".

If the assembling procedure is different from the reversed procedure of the disassembling, the procedure is described under the heading "REASSEMBLY".

Any adjustments required after disassembling the units are described under the heading "ADJUSTMENT REQUIRED".

When you have to remove any units or parts that are not described in this chapter, refer to the exploded diagrams in the appendix.

Read precautions described in the next section before starting.

WARNING	■ **Remove the batteries and unplug the AC adapter before disassembling the Stylus Photo RX585/595/610.** ■ **Always wear gloves for disassembly and reassembly to avoid injury from sharp metal edges.** ■ **To protect sensitive microprocessors and circuitry, use static discharge equipment, such as anti-static wrist straps, when accessing internal components.**

CAUTION	■ **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.** ■ **Use only recommended tools for disassembling, assembling or adjusting the Stylus Photo RX585/595/610.** ■ **Observe the specified torque when tightening screws.** ■ **Make the specified adjustments when you disassemble the Stylus Photo RX585/595/610.** ■ **Use the special package for transportation.** ■ **Prior to disassembly and reassembly, remove the accessories, such as memory cards.** ■ **When removing or installing exterior parts, take great care that no coated surface is scratched and no coating is peeled off.**

4.1.2 Tools

Use only specified tools to avoid damaging the Stylus Photo RX585/595/610.

Table 4-1. Tools

Name	Tool Code
Phillips precision screwdriver	1080530
Phillips precision screwdriver	1080532
Tweezers	1080561

Note : All of the tools listed above are commercially available. EPSON provides the tools listed with EPSON tool code.

4.1.3 Preparation before Disassembly

Make the following preparations before disassembling the Stylus Photo RX585/595/610:

☐ When the Main Board is to be replaced, make a copy of the EEPROM data.

☐ When the Carriage Assy is to be moved out of its home position, locate it at a position other than the home position before starting disassembly by turning the power ON and turning it OFF timely. (See)

☐ As soon as the repaired product has been returned to the user, there may be a case a maintenance call occurs because of the expiration of the life of a service part. Avoid such a case, if possible, as follows: Check the maintenance counter for regularly replaced parts before disassembly. If the life of any part is found almost expired, communicate with the user to that effect. If the user's consent is obtained, replace also the relevant service parts with new ones.

4.1.4 Making a Special Tool for CSIC Board

The CSIC board (refer to p. 73) can be easily removed by using a special tool. The method for making the tool is described below.

1. Prepare a handle part of a clip, or a similar metal wire piece.
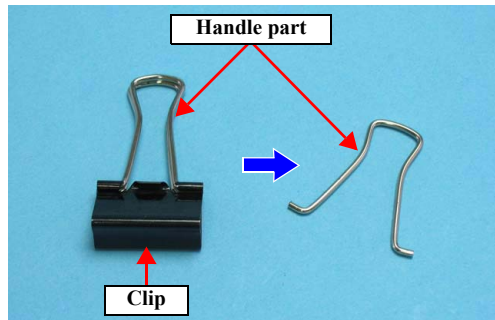
Figure 4-1. Making Special Tool for CSIC Board (1)

2. Bend the metal wire as shown below.
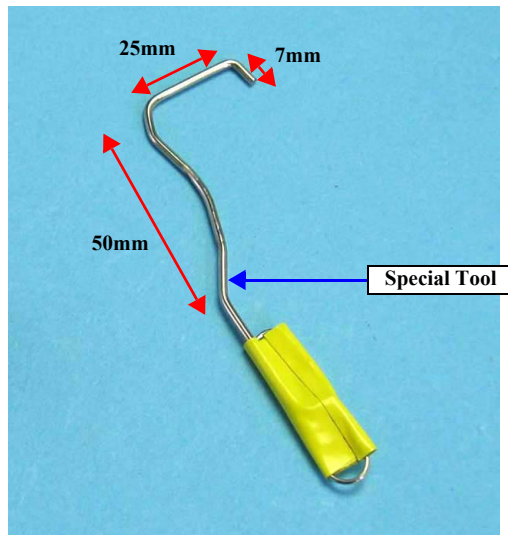
Figure 4-2. Making Special Tool for CSIC Board (2)

4.1.5 How to Unlock the Carriage

□ Some of the disassembling operations require unlocking the carriage. In those cases, carry out any of the following operations to unlock the carriage and move the carriage to other than its home position.

CAUTION !	Be extremely careful not to damage the EJ Roller gear. Extra care must be taken to avoid injury from sharp metal edges.

■ Turn the power off forcibly by disconnecting the power cable when the CR Unit becomes unlocked and moves away from the home position.

■ Until the carriage is unlocked, turn the EJ Roller gear on the left side of the printer in the direction of the arrow as shown in Figure 4-9.
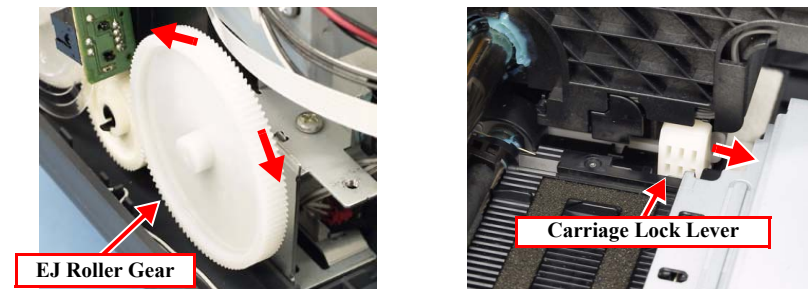
Figure 4-3. How to Unlock the Carriage

4.1.6 Disassembly and Reassembly Procedure

The flowchart below shows step-by-step disassembly procedure for Stylus Photo RX585/595/610. When disassembling each component, refer to the page indicated for the relevant component.

CHECK POINT

The color and shape of the printer illustrated in this manual may differ from the final product.

*1 For replacement of the Printer Mechanism Assy, install not only the housings but also the following parts when installing the new Printer Mechanism Assy.
- Intermediate Gear (26.5) *(p.83)*
- PF Encoder Scale *(p.83)*
- PF Motor *(p.83)*
- ASF Assy *(p.85)*
- Printhead *(p.73)*
- Head FFC Assy *(p.91)*

*2 By using the special tool, the Printhead can be replaced without removing the Middle Housing. (See p.73)

START

Panel Assy *(p.63)*

Scanner Unit *(p.65)*

Waste Ink Tray Assy *(p.69)*

Main Board Assy / Case Open Sensor *(p.66)*

Scanner Housing *(p.77)*

Middle Housing Assy *(p.70)*

CIS Unit *(p.78)*

CR Motor Unit *(p.79)*

Printhead*2 *(p.73)*

Linear Scale *(p.75)*

Printer Mechanism *1 *(p.76)*

Waste Ink Pads *(p.80)*

Power Supply Board *(p.80)*

Stacker Assy *(p.81)*

Eject Frame Assy *(p.91)*

I/S Assy *(p.84)*

APG Assy *(p.87)*

PF Scale and PF Encoder *(p.83)*

CR Motor *(p.88)*

ASF Assy *(p.85)*

PF Motor *(p.83)*

Upper Paper Guides *(p.92)*

Carriage Assy *(p.89)*

Paper Guide Front Assy *(p.93)*

Flowchart 4-1. Disassembly Procedure

4.2 Removal of Exterior Parts

4.2.1 Panel Assy

> **CAUTION** ⚠
> After removing the decorative panel, take care that the LCD surface is kept free from scratches or dust and dirt.

1. Open the Scanner Unit, and remove the screws (x3) securing the Middle Cover Assy. *(Fig. 4-4)*

2. Release the hooks (marked with △ : x4) on the side of the Printer Mechanism to let the Middle Cover rise, insert a bamboo spatulas whose tip is soft into the cut portion at the front center to release the hook, and remove the Middle Cover Assy.

3. Release the hooks at the right and left ends from the direction of the back of the panel to let the decorative panel rise, release all the hooks carefully and remove the decorative panel.

4. Remove the screws (x2) securing the Panel Assy. *(Fig. 4-5)*

5. Disconnect the Cover Open Sensor connector from the Panel Board. *(Fig. 4-6)*

6. Lift the Panel Assy, and disconnect the connectors (CN23 and CN22) from the Main Board.

7. Peel the FFC (CN23) of the Panel Board from the Main Board Assy, and remove the Panel Assy. *(Fig. 4-6)*

> **REASSEMBLY** ↩
> When installing the decorative panel, observe the following instructions:
> ■ Make certain that the back of the panel window and the LCD face are free from dust and dirt.
> ■ Secure the decorative panel with Double-stick tape.
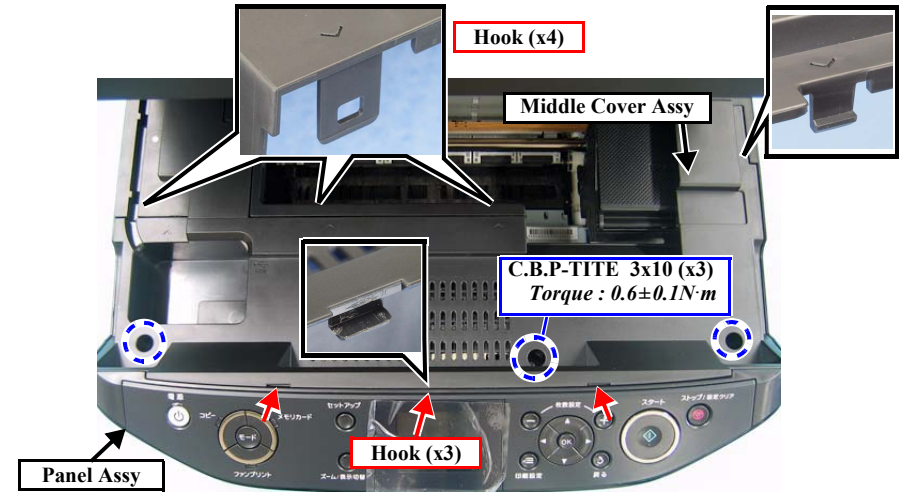
Figure 4-4. Removing the Middle Cover Assy
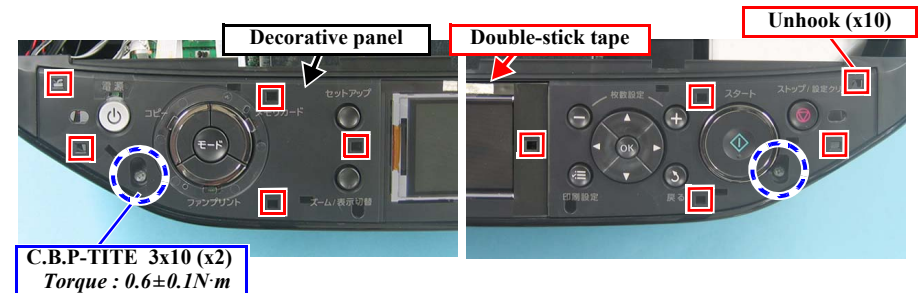
Figure 4-5. Removing the Decorative Panel and Panel Assy
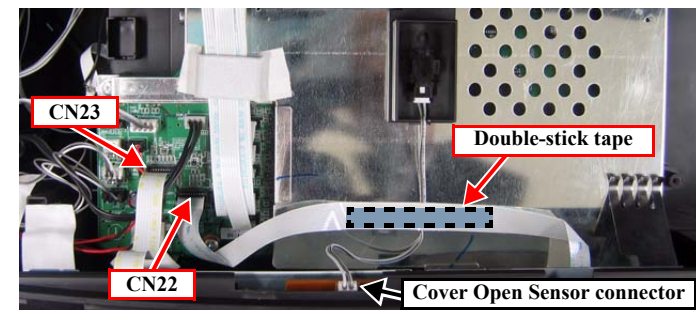
Figure 4-6. Removing the Panel Assy

◻ Disassembly of Panel Assy

| CAUTION ! | Take great care that the LCD surface is kept free from scratches or dust and dirt.
In installation, make sure that there is no dust or dirt between the LCD Module and Panel Assy. |

1. *Remove the Panel Assy (p.63)*

2. Remove the screws (x6) securing the Shield Plate, Panel Board and Ground Plate, and remove the Shield Plate upward. *(Fig. 4-7)*

3. Release the hooks (x6), and remove the Panel Board. *(Fig. 4-8)*

4. Remove the screws (x2), and remove the LCD Module. *(Fig. 4-9)*

| REASSEMBLY | ■ Tighten the screws for the LCD Module in the order specified. *(Fig. 4-9)*
■ When installing the Panel Board, match the positioning holes with the guide pins (x4). *(Fig. 4-8)*
■ Install the Shield Plate under the board-to-board cable.
■ When installing the Shield Plate, match the positioning holes with the guide pins (x2). *(Fig. 4-7)*
■ When installing the Shield Plate, tighten the screws in the order specified. *(Fig. 4-7)*
■ After installing the Shield Plate, press each of the buttons and check that a click is felt. |
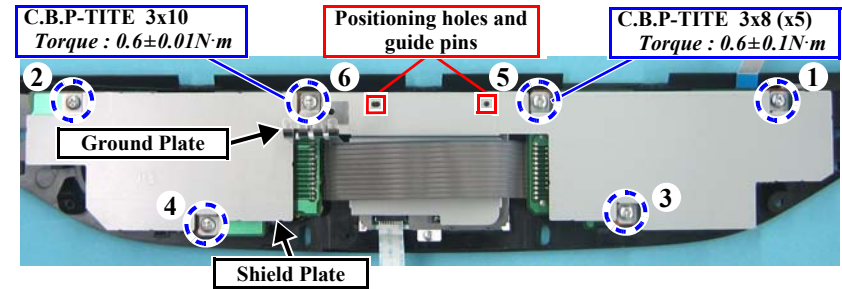
Figure 4-7. Removing the Screws (Shield Plate)
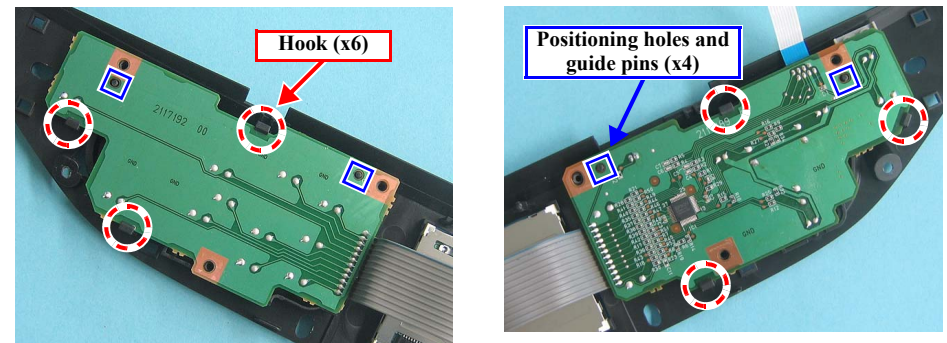
Figure 4-8. Removing the Panel Board
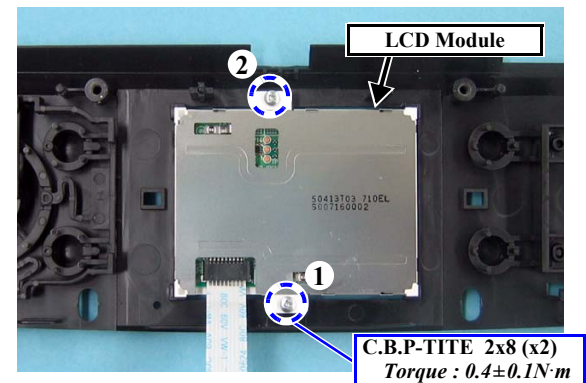
Figure 4-9. Removing the LCD Module

4.2.2 Scanner Unit

1. *Remove the Panel Assy (p.63)*

2. Remove the Paper Support.

3. Open the Scanner Unit, slide the Scanner Cable Cover toward the front and remove it from the Middle Housing. *(Fig. 4-10)*

4. Release the following FFCs and cables from the Middle Board, and disconnect them from the Main Board. *(Fig. 4-11)*

CN No.	Color	Connected to	Remarks
CN17	White	CR Motor	2-pin (With a ferrite core)
CN19	(FFC)	CIS Unit	14-pin (With a ferrite core)
CN20	White	CR Encoder	4-pin

5. Remove the screw securing the grand wire of the scanner.

6. Close the Scanner Unit, and remove the screws (x2) in the rear. *(Fig. 4-12)*

7. Remove the Scanner Unit, kept in the open position, from the printer body.

■ **The harness for the Scanner CR Motor (CN17) and that for the CR Motor (CN14) are provided with the same 2-pin white connector. Take care not to confuse them when connecting the connectors to the Main Board.**

■ **Route the FFCs and cables of the scanner as shown in the figure.** *(Fig. 4-13)*

■ **When installing the scanner cable, take care that no part of the cable is positioned outside the cover.** *(Fig. 4-10)*

No part of cable outside

Scanner Cable Cover

Slide it toward the front for removal
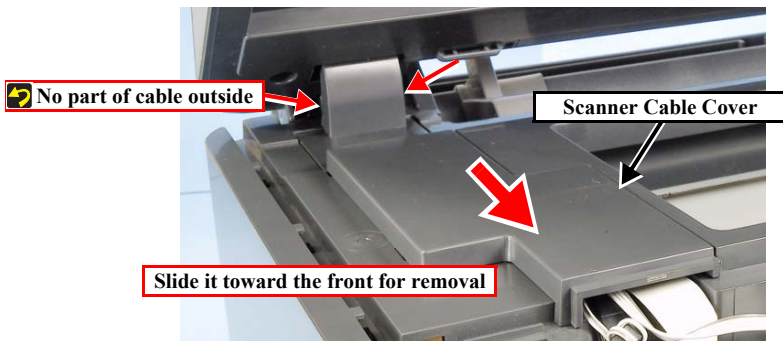
Figure 4-10. Removing the Scanner Cable Cover

After routing the cables, secure them with acetate tape.

Route the cables of CN17 and CN20 behind Head FFC.

Ferrite Core

Position the soldered joint up and after tightening the screw, bend the joint downward.

CN19

CN17 (White)

CN20 (White)

C.B.P-TITE 3x10
Torque : 0.6±0.1N·m

Head FFC
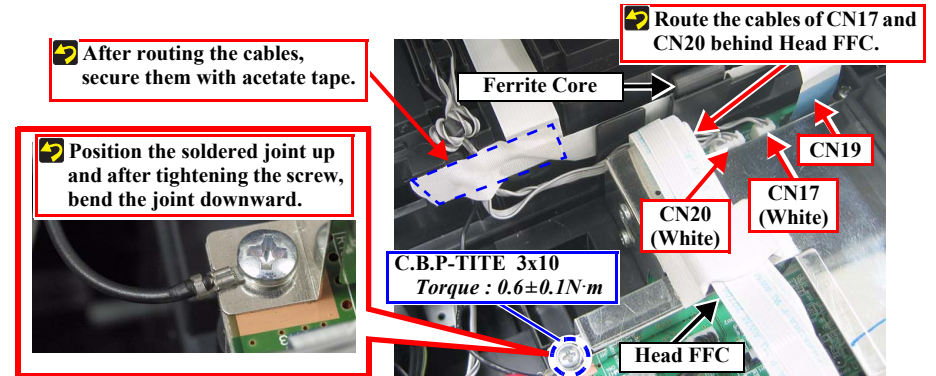
Figure 4-11. Disconnecting the cables and FFC (Scanner Unit)

C.B.P-TITE 3x10 (x2)
Torque : 0.6±0.1N·m

Figure 4-12. Removing the Scanner Unit

Route the cables on the front side as viewed from here, ensure the adequacy of the cable length by pushing the cables into the space at the bottom corner, and route them through the grooves in the Middle Housing.

Double-stick tape x3

Scanner Unit

CN17 (Left end, 2-pin)

Grounding wire under CN19

Push them in

Place the ferrite cores here

Middle Housing

CN19
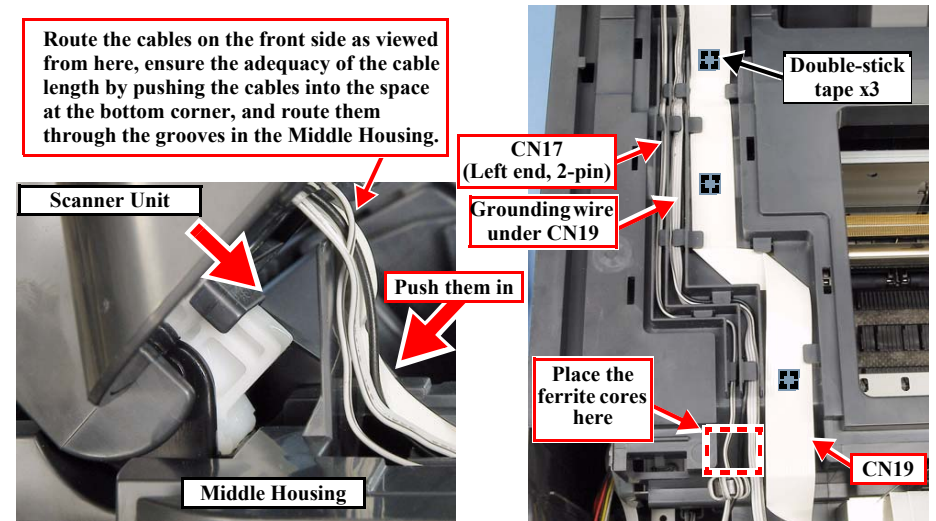
Figure 4-13. Installing the Scanner Unit

4.2.3 Main Board Assy / Case Open Sensor

ADJUSTMENT REQUIRED	When the Main Board is to be replaced, back up the data in EEPROM before starting disassembly, if possible. After assembly, make the following adjustment. ■ 5.2 Adjustment by Using Adjustment Program *(p.101)*

CAUTION !	Since the Shield Plate may be burred, be sure to wear gloves to avoid injury.

❑ Removing the Case Open Sensor

1. *Remove the Panel Assy (p.63)*

2. *Remove the Scanner Unit (p.65)*

3. Remove the screw and remove the Case Open Sensor Assy. *(Fig. 4-14)*

4. Release the hook of the Case Open Sensor from the back side of the Case Open Sensor Assy, and remove the Case Open sensor in the direction of the arrow. *(Fig. 4-15)*

❑ Removing the Main Board Assy.

1. Remove the Case Open Sensor Assy. *(Fig. 4-14)*

2. Disconnect all the FFCs and connectors from the Main Board. *(Fig. 4-16)*

3. Peel off the acetate tape (1).

4. Peel off the acetate tape (2) and remove the ferrite core on the Printhead FFC.

5. Remove the screws (x5), and remove the Main Board Assy by lifting its rear side.

(Continued to next page)
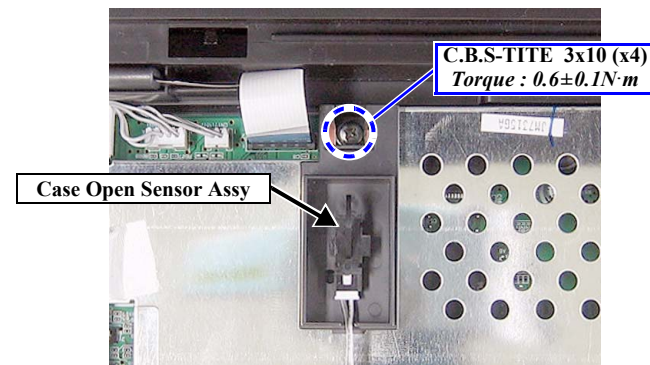
Figure 4-14. Removing the Case Open Sensor Assy
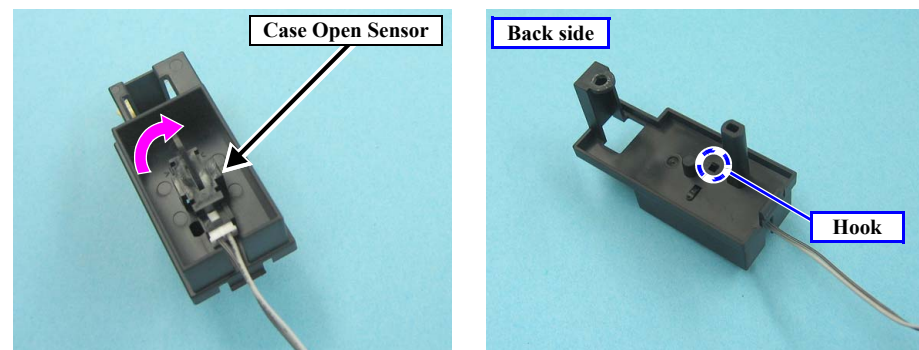
Figure 4-15. Removing the Case Open Sensor
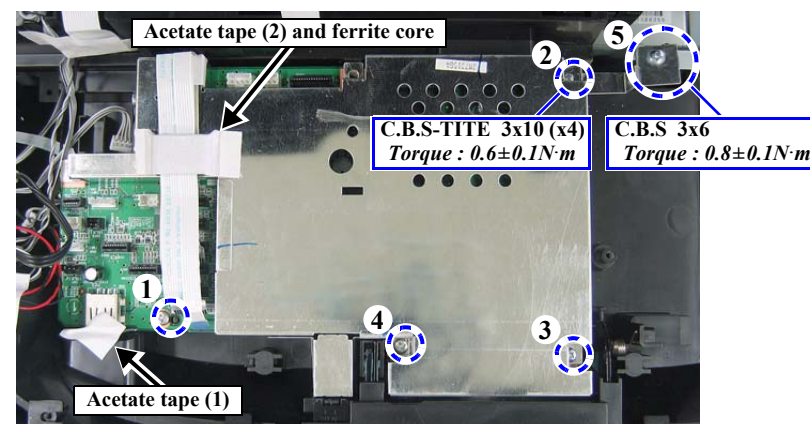
Figure 4-16. Removing the Main Board Assy

INSTALLATION PROCEDURE FOR THE MAIN BOARD ASSY

> **Tighten the screws in the order specified to secure the Main Board and Main Board Assy. (** *Fig. 4-16* **)**

1. Check the Middle Housing for the following conditions. *(Fig. 4-17)*
   - The Card Slot Cover can be opened and closed properly.
   - The IRDA sheet has been installed properly.
2. Install the Main Board Assy on the Middle Housing. *(See p.66)*
3. Separate the cables and FFCs into three groups, A, B and C. *(Fig. 4-18)*

Group	CN No.	Color	Connected to	Remarks
A	CN14	White	CR Motor	2-pin
	CN13	Black	PF Motor	2-pin
	CN6	White	PE Sensor	3-pin
	CN7	Black	APG Sensor	3-pin
B	CN8	(FFC)	PF Encoder	5-pin
	CN4	White	CD-R Sensor (Guide & Tray)	4-pin
	CN3	White	Power Supply Board	3-pin
C	CN10	(FFC)	Printhead	13-pin
	CN11			13-pin
	CN12			9-pin
	CN15	(FFC)	CSIC Board	13-pin
	CN16		PW Sensor	6-pin
S	CN17	White	CR Motor (Scanner Unit)	2-pin (With ferrite core)
	CN19	(FFC)	CIS Unit	14-pin (With ferrite core)
	CN20	White	Scanner Encoder	4-pin
–	CN22	(FFC)	Panel Board	8-pin
–	CN23	(FFC)	LCD Module	11-pin

> **See the figure at right** *(Fig. 4-19)* **for the connector layout of the Main Board. For the connector assignment of the Scanner Unit, see** "4.2.2 Scanner Unit" *(p.65)***.**

(Continued to next page)

Figure 4-17. Checking the Middle Housing
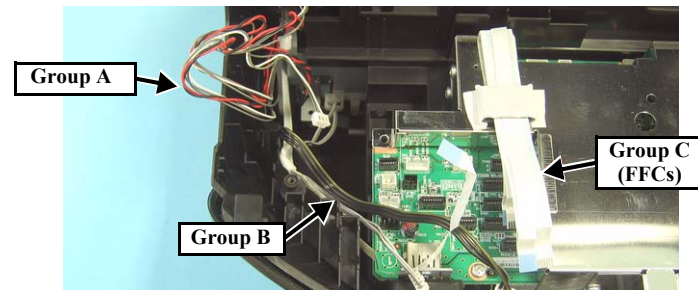
Figure 4-18. Separating the cables and FFCs
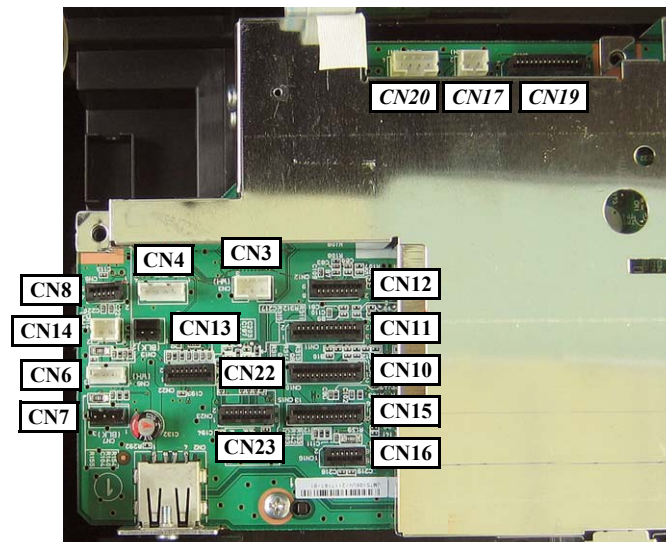
Figure 4-19. Connectors on the Main Board

CAUTION ⚠	The harness for the Scanner CR Motor (CN17) and that for the CR Motor (CN14) are provided with the same 2-pin white connector. Take care not to confuse them when connecting the connectors to the Main Board.

4. Place the Cables of group A as shown, and connect the connectors to the Main Board. *(Fig. 4-20)*
5. Fasten the cables of group A with tape. *(Fig. 4-21)*
6. Route the harnesses of group B in the order of the power supply harness (CN3) → PF Encoder (CN8) → CD-R Sensor (CN4), and connect them to the circuit board. *(Fig. 4-21)*
7. Connect the FFCs of group C to the connectors, and secure the ferrite core with acetate tape. *(Fig. 4-22)*
8. Stick acetate tape on the USB terminal (in the front). *(Fig. 4-22)*
9. Install the Case Open Sensor Assy. *(Fig. 4-14)*

REASSEMBLY ↺	Stick the acetate tape on the USB terminal (in the front) to cover both the USB connector and Middle Housing.

Routing the cables of group A

Figure 4-20. Routing the Cables of Group A

Routing the cables and FFCs of group B

Figure 4-21. Routing the Cables and FFCs of Group B

Routing the cables and FFCs of group C
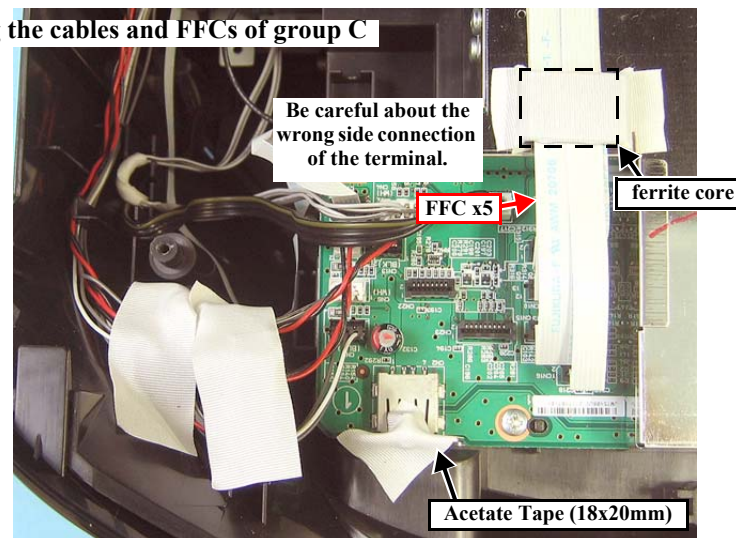
Figure 4-22. Routing the cables and FFCs of group C

4.2.4 Waste Ink Tray Assy

CAUTION ⚠

When removing the Waste Ink Tray Assy, take due care not to stain any surrounding objects with waste ink.

1. *Remove the Panel Assy (p.63)*

2. *Remove the Scanner Unit (p.65)*

3. Unlock the Carriage and move the Carriage Unit to the center of the printer. (See 4.1.5 How to Unlock the Carriage *(p.61)*)

4. Remove the screw and remove the EMI Frame. *(Fig. 4-23)*

5. Remove the screws (x2) that secure the Waste Ink Assy. *(Fig. 4-23)*

6. Disconnect the Waste Ink Tube from the Waste Ink Tray Assy, and remove the Waste Ink Tray Assy. *(Fig. 4-23)*

REASSEMBLY ↩

When connecting the Waste Ink Tube, be careful of the following:
- ■ **Do not press the Waste Ink Tube when installing the Waste Ink Tray Assy. Otherwise, the ink may leak.**
- ■ **Route the tube with the red line facing up.** *(Fig. 4-24)*
- ■ **Install the Waste Ink Tube with the tube passed through the hook as shown in the figure.** *(Fig. 4-24)*
- ■ **Wipe the ink, if any, off the joint area of the tube. With ink left adhering to the joint area, the tube cannot be connected firmly and may come off easily.**

ADJUSTMENT REQUIRED 🔧

On the occasion of replacing a part with a new one, replace all the specified parts with new ones and clear the counter value after assembly.
- ■ 5.2 Adjustment by Using Adjustment Program *(p.101)*

When installing the Waste Ink Tray Assy, make sure the EJ Frame spring is installed properly. *(See p.91)*

Install the EMI Frame under the Main Board Shield Plate. (See *Fig. 4-16*)

C.B.P-TITE 3x6
Torque : 0.8±0.1N·m

Bottom side

EMI Frame

C.B.P-TITE 3x8 (x2)
Torque : 0.6±0.1N·m

Waste Ink Assy
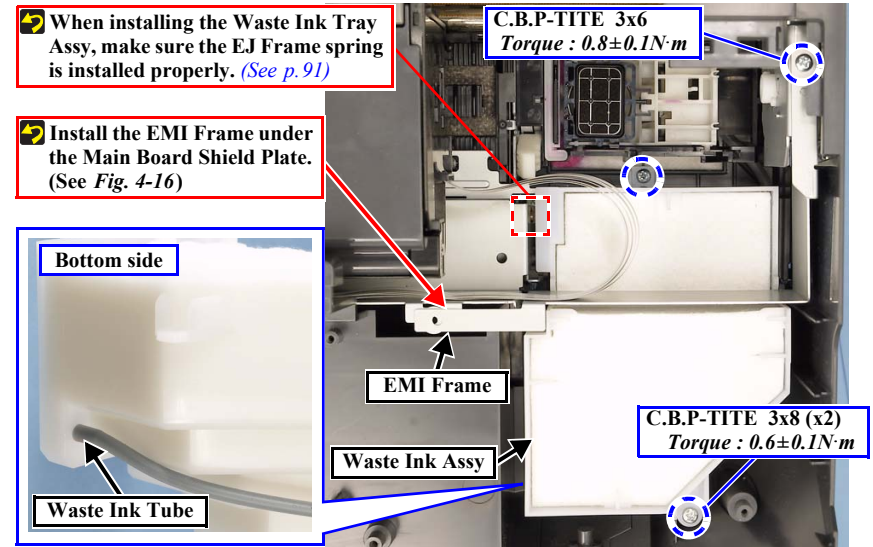
Waste Ink Tube

Figure 4-23. Removing the Waste Ink Tray Assy

Lay the tube with red line facing up

Route here

NG

Rib

Do not lay the tube over the rib

Lay the tube through this hook
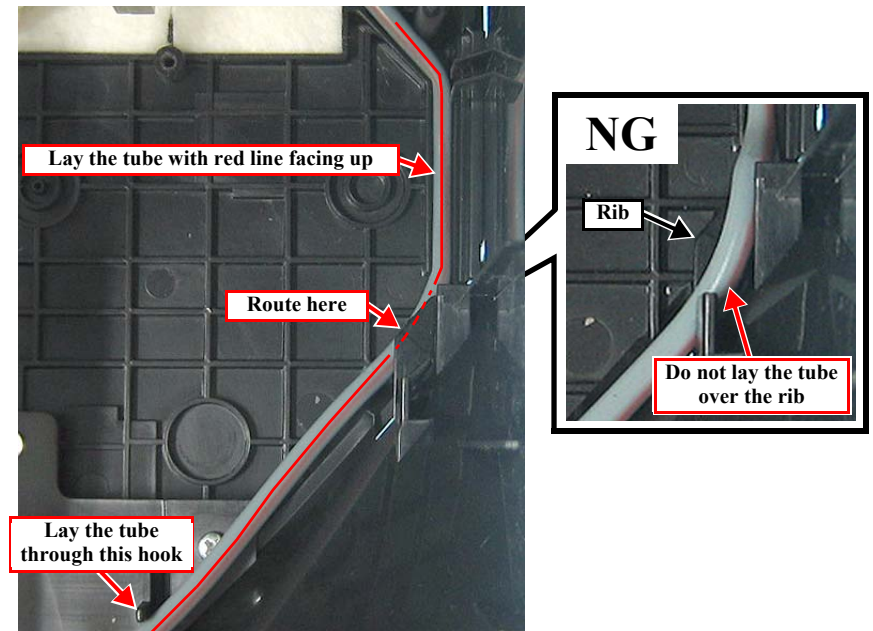
Figure 4-24. Notes on Installation of the Waste Ink Tray Assy

4.2.5 Middle Housing Assy

> **CAUTION**
>
> **After removing the Waste Ink Assy, take due care not to stain any surrounding objects with waste ink.**

1. *Remove the Panel Assy (p.63)*

2. *Remove the Scanner Unit (p.65)*

3. *Remove the Main Board Assy / Case Open Sensor (p.66)*

4. *Remove the Waste Ink Tray Assy (p.69)*

5. Remove the screw and remove the Hinge Assy (left and right).

6. Remove the screws (3 in the front and 2 in the rear) securing the Middle Housing Assy.

7. Remove the Middle Housing Assy with care not to get any cable caught.

(Continued to next page)
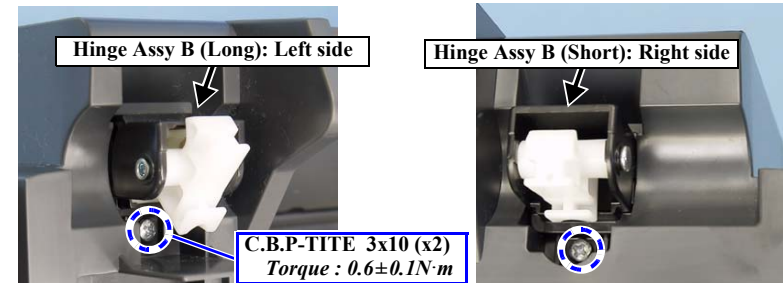
Figure 4-25. Removing the Hinge Assy
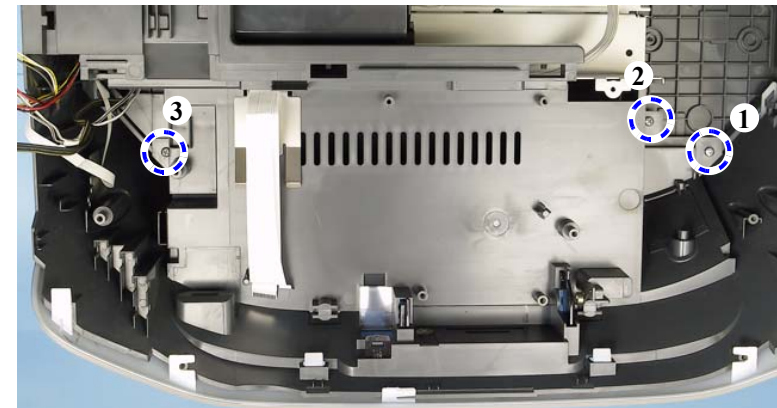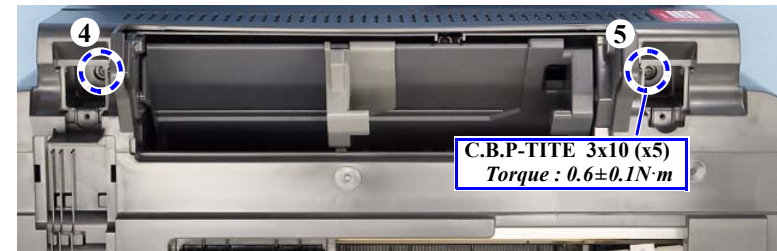
Figure 4-26. Removing the Middle Housing Assy

INSTALLATION PROCEDURE FOR THE MIDDLE HOUSING ASSY

1. Check the following before installing the Middle Housing Assy:

    ■   Stacker operates properly. *(See p.81)*

    ■   The cables and FFCs are routed properly. *(Fig. 4-27)*, *(Fig. 4-28)*

2. Slide the Front Frame Ground Plate rearward and remove it from the Middle Housing Assy.

3. Lead all the connector cables and FFCs through the space and install the Middle Housing on the printer. *(Fig. 4-29)*

Figure 4-28. Routing the Cables and FFCs

Figure 4-27. Routing the Cables
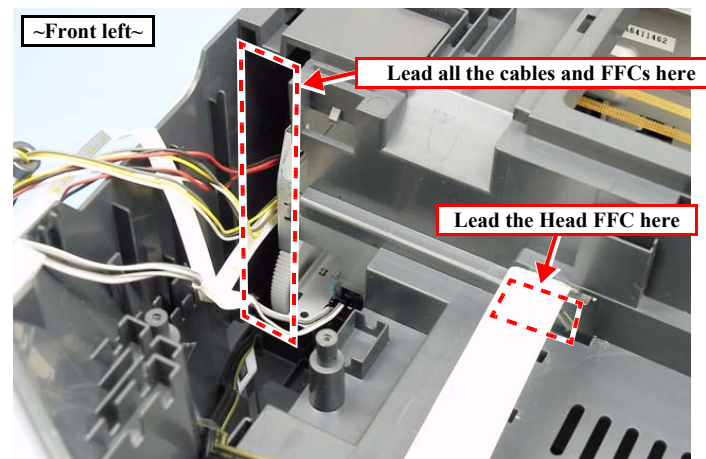
Figure 4-29. Leading Connector cables and FFCs

(Continued to next page)

4. After checking the following conditions, tighten the screws in the order specified. *(See Figure 4-26)*

  ■ The right and left openings at the front bottom of the Middle Housing are properly engaged with the protrusions of the Bottom Housing. *(Fig. 4-30)*

  ■ The power supply harnesses (black and yellow) are fastened properly. *(Fig. 4-30)*
     (Held down with the Middle Housing and free from floating or dislocation)

5. Install the Front Frame Ground Plate on the Middle Housing. *(Fig. 4-31)*

6. *(See p. 70 for the subsequent steps.)*

> **REASSEMBLY**
>
> **In Stylus Photo RX585/595/610, there is a difference between the Hinge Assy to be installed on the right side and that to be installed on the left side. Be sure to install the Hinge ASSY B (long) on the left side.** *(Fig. 4-25)*
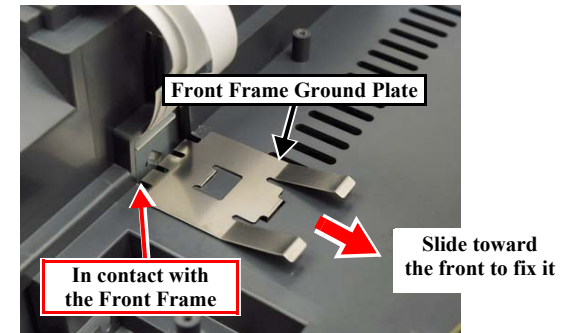
Figure 4-31. Installing the Front Frame Ground Plate
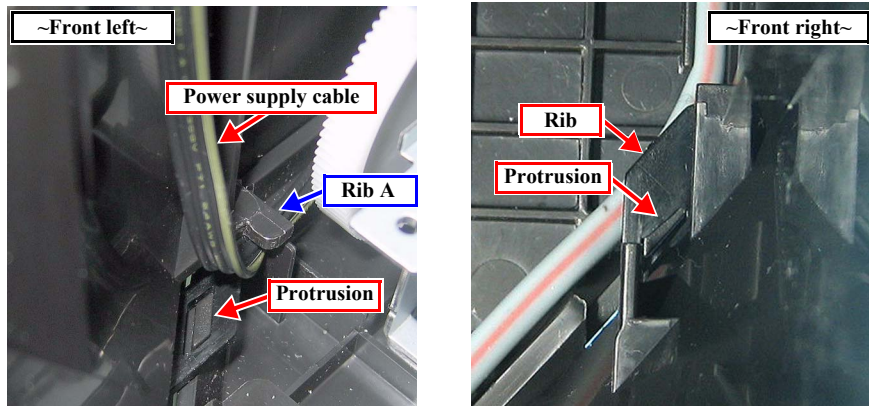
Figure 4-30. Checking the installation of the Middle Housing

4.2.6 Printhead

> ⚠ **CAUTION**
>
> - Take due care not to stain any surrounding objects with ink. In addition, be careful not to clog the nozzles by, say, touching the nozzle side with your bare hand.
> - When removing the Head FFC Cover, do not use any pointed tool; otherwise, the FFC may be damaged.
> - Handle the CSIC board carefully; especially take care not to touch it with your bare hand or not to bend it.
> - When releasing the hook of the CSIC Connector Holder Assy, take care not to damage the FFC or cables.

> ✓ **CHECK POINT**
>
> By using the special tool, the Printhead can be replaced without removing the Middle Housing.

1. Open the cartridge cover, and remove all the ink cartridges.

2. Unlock the Carriage and move the Carriage Unit to the center. (See 4.1.5 How to Unlock the Carriage *(p.61)*)

3. *Remove the Panel Assy (p.63)*

4. *Remove the Scanner Unit (p.65)*

5. *Remove the Main Board Assy / Case Open Sensor (p.66)*

6. *Remove the Waste Ink Tray Assy (p.69)*

7. *Remove the Middle Housing Assy (p.70)*

8. At the right side of the Carriage Assy, release the hook of the Head Cable Cover, and remove the Head Cable Cover by sliding it downward. *(Fig. 4-32)*

9. Insert a slotted screwdriver under the hook of the Head FFC Cover, and move it upward and remove the Head FFC Cover. *(Fig. 4-32)*

10. Disconnect the FFC from the CSIC Connector Holder Assy. *(Fig. 4-32)*

11. Using the special tool (See Page 61), release the hooks (x2) of the CSIC Connector Holder Assy from the right and left rear of the Carriage Unit, and remove the CSIC Connector Holder Assy upward. *(Fig. 4-33)*

(Continued to next page)
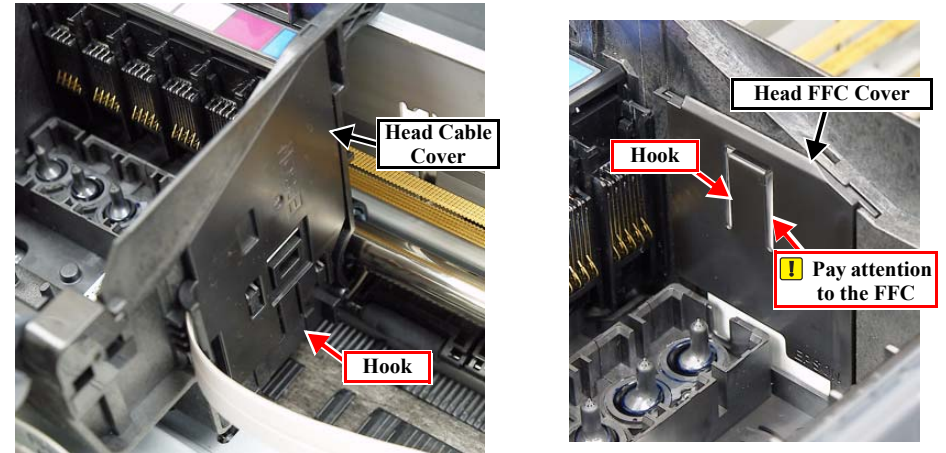
Figure 4-32. Removing the FFC Cover
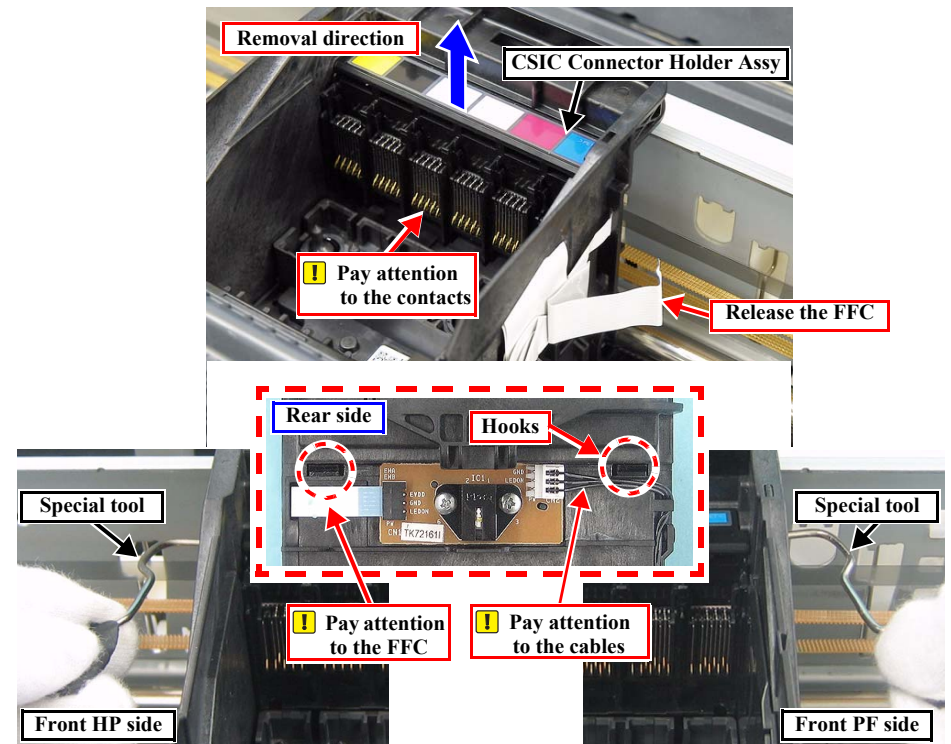
Figure 4-33. Removing the CSIC Connector Holder Assy

12. Remove the screws (x3) securing the Printhead. *(Fig. 4-33)*

13. Lift the Printhead, and disconnect the FFCs (x2). *(Fig. 4-34)*

REASSEMBLY

- See Page 90 for how to remove the cartridge cover.
- Connect the FFC with attention paid to the terminal surface.
- When installing the Printhead, tighten the screws in the specified order. *(Fig. 4-34)*
- Install the Head FFC Cover and Head Cable Cover as shown below.
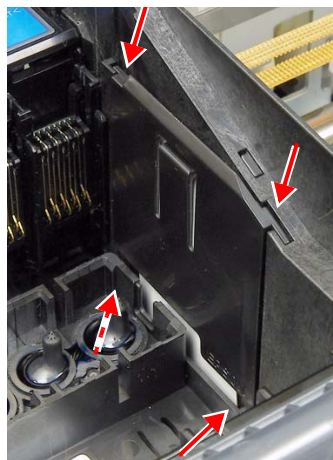
Head FFC Cover
The bottom protrusions (x2) and the top sliding parts (x2) must be in alignment.
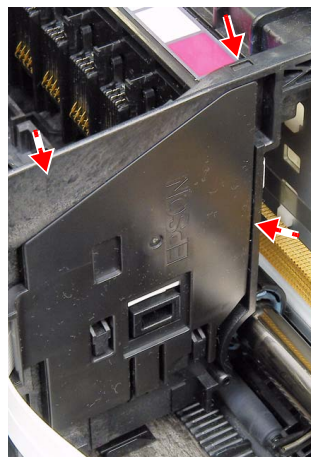
Head Cable Cover
Engage the protrusion in the rear with the carriage first and then fit the cover onto the top protrusions (x2).

ADJUSTMENT REQUIRED

For replacing the Printhead, note down the head ID before installing the Printhead. After reassembly, refer to the following section and perform the necessary adjustments:

- 5.2 Adjustment by Using Adjustment Program *(p. 101)*

C.B.P-TITE 2.6x8
Torque : 0.4±0.1N·m
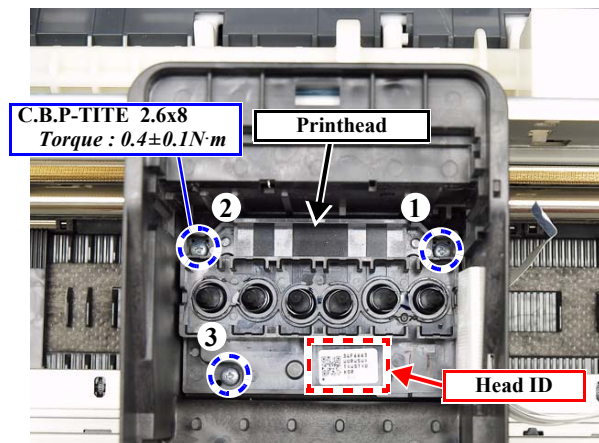
Printhead

Head ID

Figure 4-34. Removing the Printhead

⚠ **Do not touch nozzle surface**
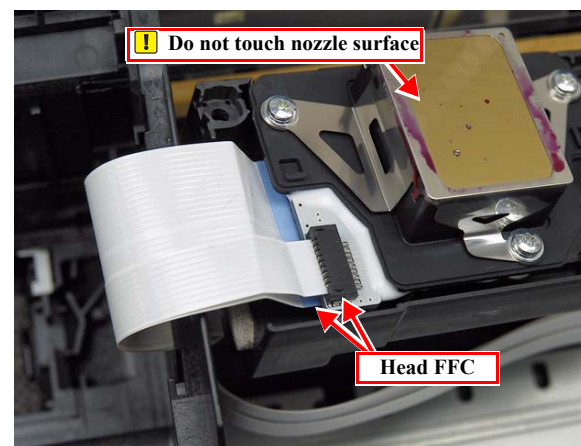
Head FFC

Figure 4-35. Releasing the Head FFCs

4.2.7 Linear Scale

CAUTION

!

- When you hold the Linear Scale, hold its ends or two points of the top and bottom surfaces with your hands; do not touch the reading surface.
- Take care that the reading surface is not soiled or scratched. Especially when passing the Linear Scale through the CR Encoder during reassembly work, take great care that grease of the CR Guide Shafts does not adhere to the reading surface.

About 25mm   Hold here   Hold here   About 45mm

Hold here   Hold here

CHECK POINT

✔
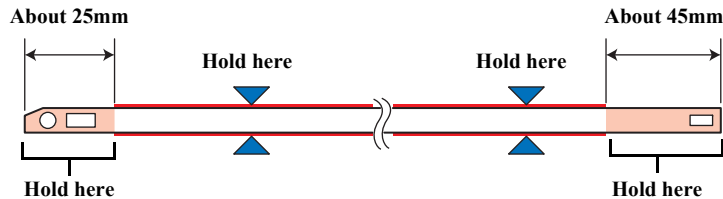
If you need to move the Carriage Unit, unlock the Carriage in advance.
(See 4.1.5 How to Unlock the Carriage *(p.61)*)

1. *Remove the Panel Assy (p.63)*

2. *Remove the Scanner Unit (p.65)*

3. *Remove the Main Board Assy / Case Open Sensor (p.66)*

4. *Remove the Waste Ink Tray Assy (p.69)*

5. *Remove the Middle Housing Assy (p.70)*

6. Remove the spring from the left frame of the printer. *(Fig. 4-36)*

7. Release the Linear Scale from the hook at the right frame of the printer.

8. Pull out the Linear Scale from the CR Encoder of the Carriage Assy.

9. Turn the Linear Scale upward by 90 degrees and release it from the left hook.

6. Remove the spring

7. Release it from the hook

9. Turn it by 90 degrees and release it

Carriage Assy

8. Pull it through the CR Encoder
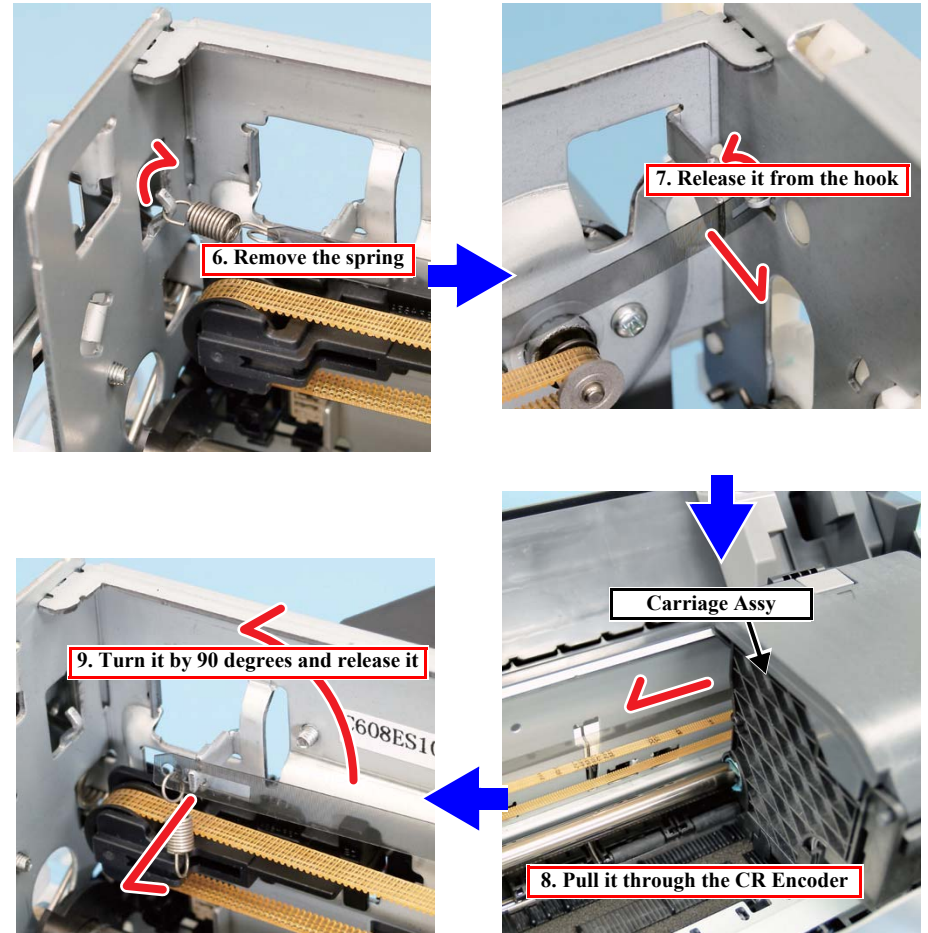
Figure 4-36. Removing the Linear Scale

REASSEMBLY

Install the Linear Scale with the cut portion upward.

Cut portion

4.2.8 Printer Mechanism

CAUTION
!
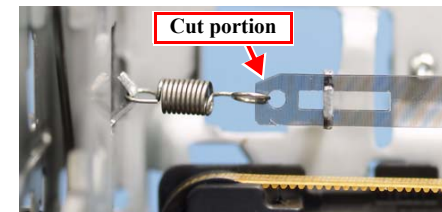
- Do not remove or install the Printer Mechanism Assy with the CD-R Guide in the lower position; otherwise, CD-R Guide Sensor may be damaged. *(Fig. 4-38)*
  Before starting work, be sure to raise the CD-R Guide.
- The PF Scale comes in contact with the floor if the Printer Mechanism Assy is turned counterclockwise by about 15 degrees. In such a case, the PF Scale may be damaged. Take great care not to damage the PF Scale when handling the removed Printer Mechanism Assy. (Alternatively, *remove the PF Scale and PF Encoder. (p.83)*

Printer Mechanism
↕ About 15°
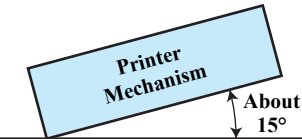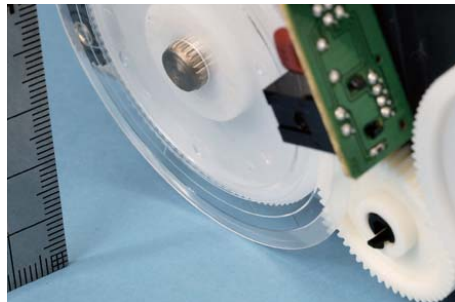
! Do not incline it by 15 degrees or more and do not drag it in an inclined position.

- Since the back of the CR Frame is lubricated, take care not to stain your hand with grease when holding the Printer Mechanism Assy.
  (Do not touch any parts with a greasy hand.)

1. *Remove the Panel Assy (p.63)*

2. *Remove the Scanner Unit (p.65)*

3. *Remove the Main Board Assy / Case Open Sensor (p.66)*

4. *Remove the Waste Ink Tray Assy (p.69)*

5. *Remove the Middle Housing Assy (p.70)*

6. At the rear of the printer, peel off the tape, and remove the ferrite core for the CR Motor from the Housing Lower Assy.

7. Remove the screws (x6) securing the Printer Mechanism Assy. *(Fig. 4-37)*

8. Push the CD-R Guide Lever to raise the CD-R Guide.

9. Remove the Printer Mechanism Assy from the Housing Lower Assy carefully.

REASSEMBLY

- Lubrication is necessary. Refer to the following section and lubricate the specified points:
  LUBRICATION OF PRINTER MECHANISM ASSY *(p.120)*
- Tighten the screws in the specified order. *(Fig. 4-37)*

ADJUSTMENT REQUIRED

Once the Printer Mechanism Assy has been replaced with a new one, refer to the following section and perform the necessary adjustments.
- 5.2 Adjustment by Using Adjustment Program *(p.101)*

C.B.P-TITE(P2) 3x8 (x6)
Torque : 0.6±0.1N·m
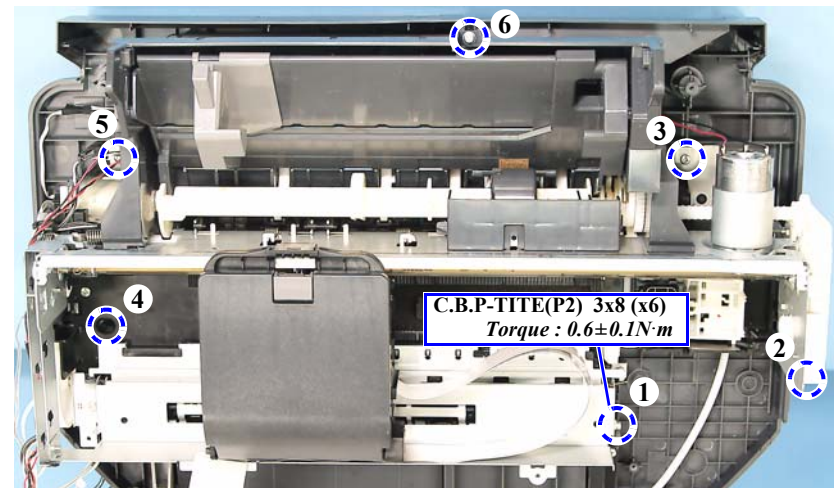
Figure 4-37. Removing the screws (Printer Mechanism Assy)

OK (Guide lever in up position)   **NG** (Guide lever in down position)

CD-R Guide Lever

CD-R Guide Sensor

! The sensor may be damaged if Printer Mechanism is lifted under these conditions
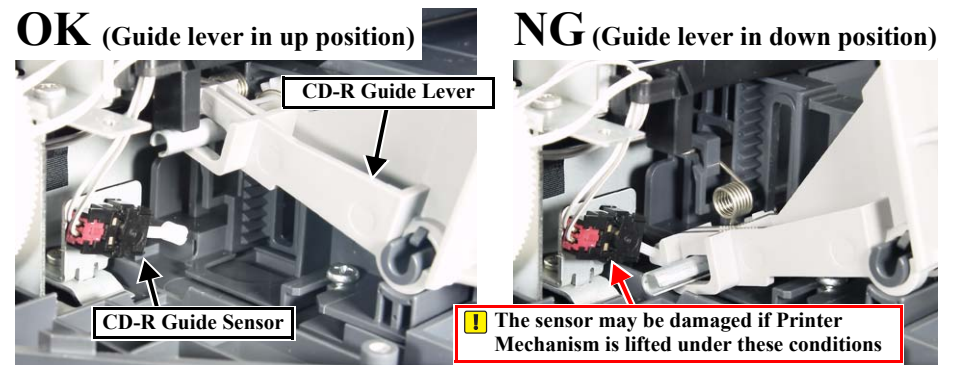
Figure 4-38. CD-R Guide Lever and CD-R Guide Sensor

4.3 Disassembly of Scanner Unit

4.3.1 Scanner Housing

CAUTION ⚠	■ **Once the Scanner Housing is removed, there is a possibility that dust and dirt may enter the inside of the scanner body. Perform disassembly and assembly of the Scanner Unit in an environment that minimizes intrusion of dust and dirt. Disassembly and assembly on a clean bench is ideal.** ■ **Perform disassembly and assembly with care not to damage the document table (glass). In addition, never forget that a very troublesome cleaning is required if dirt sticks to the inside of the document table.** ■ **Take care in handling the Housing Lower, remembering that grease is applied to the CR guide area of the Housing Lower. Do not touch any parts with a greasy hand or part. (Fig. 4-40)** ■ **Take care not to soil or scratch the Encoder Scale or the lens of the ICS Unit.**

1. *Remove the Scanner Unit (p.65)*

2. Remove the screws (x6) on the bottom of the Scanner Unit. *(Fig. 4-39)*

3. Remove the Scanner Housing, the hinge area in the rear of the Scanner Unit first.

REASSEMBLY ↰	■ **When installing the Scanner Housing, engage the hooks (x3) in the front properly first and then engage the hinge area in the rear.** ■ **Tighten the screws in the specified order. (Fig. 4-39)**

ADJUSTMENT REQUIRED 🔧	When, in subsequent work, the Carriage Assy is removed, or for some other reason, the scanner origin can be shifted from the correct position. After reinstallation, therefore, adjust the origin location. Refer to "5.4 Scanner Original Adjustment" *(p.112)*
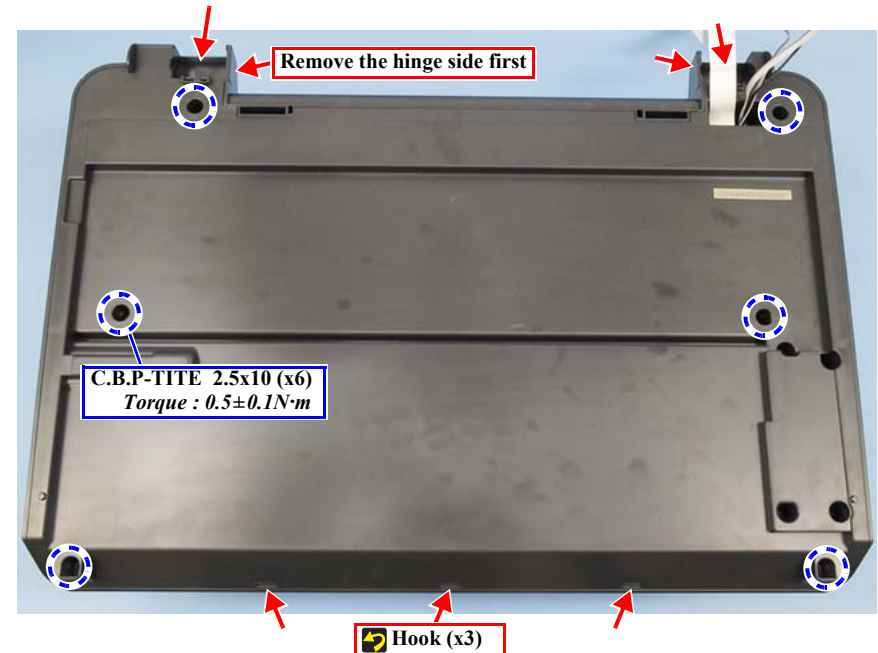
Figure 4-39. Removing the Scanner Housing
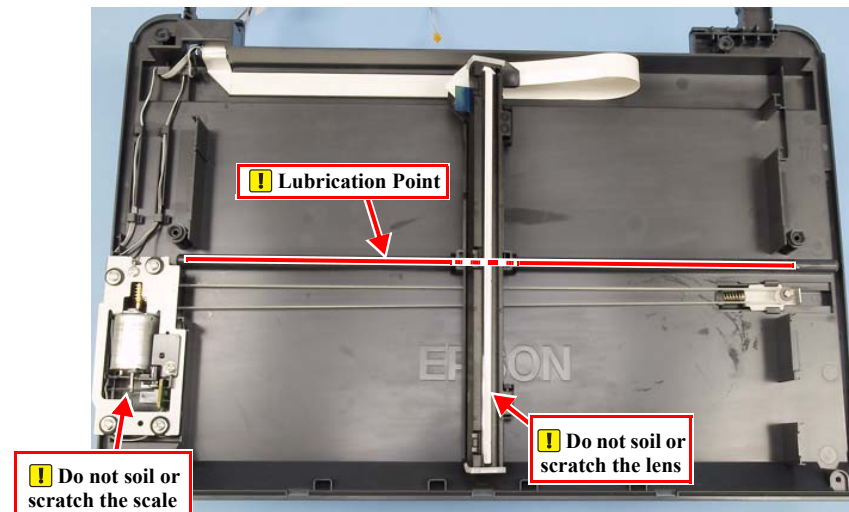
Figure 4-40. Lubrication Point on CR Guide

4.3.2 CIS Unit

| CAUTION ⚠ | Take care in handling the Housing Lower, remembering that grease is applied to the CR guide area of the Housing Lower. Do not touch any parts with a greasy hand or part. |

1. *Remove the Scanner Unit (p.65)*

2. *Remove the Scanner Housing (p.77)*

3. Pull out the FFC from the connector of the CIS unit. *(Fig. 4-41)*

4. Turn the CIS Unit by 90 degrees upward, and remove the CIS Unit from the right and left shaft holes of the carriage.

| REASSEMBLY ↩ | ■ Lubrication is necessary. Refer to the following section and lubricate the specified points: LUBRICATION OF STACKER GUIDE *(p.122)*
■ When replacing the CIS Unit, check the sticker on the Bottom Board, and use the Spacers (x2) of the same specification (A ~ C) as the marking on the sticker, placing them at the right and left positions. *(Fig. 4-42)*
■ Install the Timing Belt on the carriage with care not to confuse the toothed areas of the inside and outside of the belt. |

| CHECK POINT ✔ | Install the CIS Spring as follows: Engage the end of the spring with the cut portion in the spring catch area of the CIS Carriage first. Then turn the spring to install it. |

CIS Spring
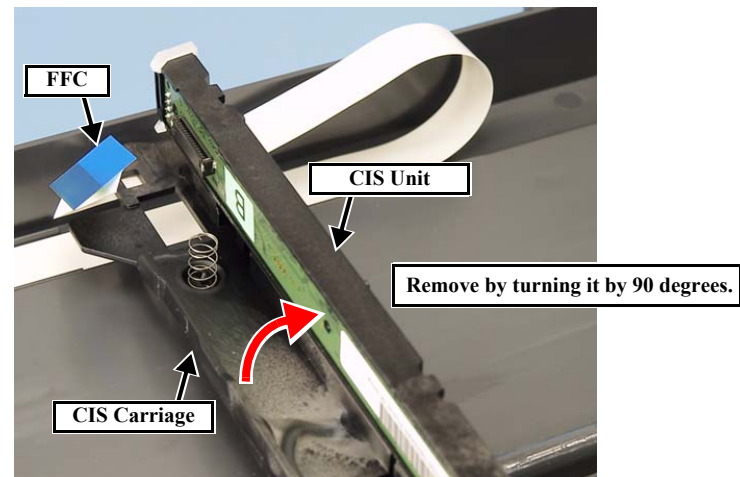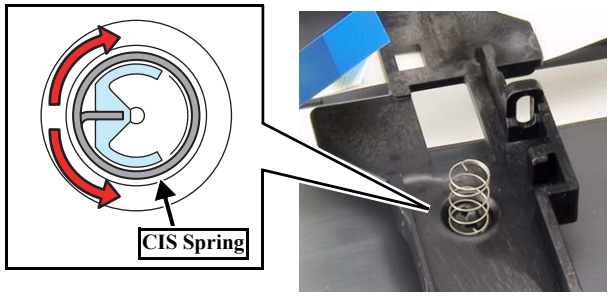
Figure 4-41. Removing the CIS Unit

FFC

CIS Unit

Remove by turning it by 90 degrees.

CIS Carriage

Bottom of CIS

Sticker (x2)

Install the Spacers (x2) of the same specification (A ~ C) as the marking on the sticker, placing them at the right and left positions.
  A: Spacer, CIS, A17 (black)
  B: Spacer, CIS, B19 (white)
  C: Spacer, CIS, C21 (gray)

Spacer, CIS, B
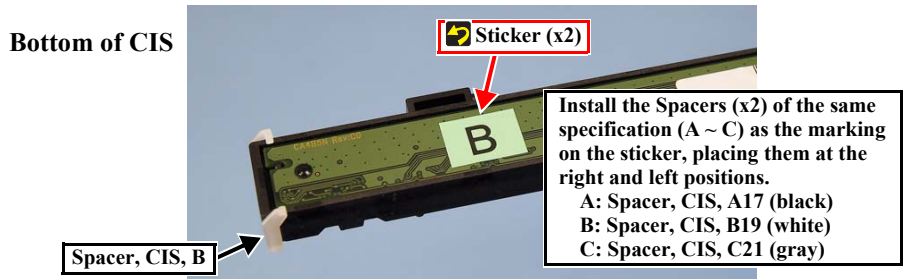
Figure 4-42. Installing Spacers CIS

Bottom of CIS

No tooth (outside)

Toothed (inside)

Timing Belt

Both inside and outside toothed
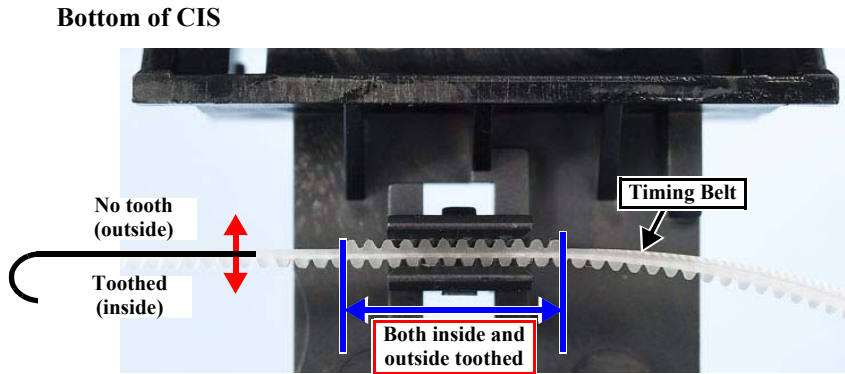
Figure 4-43.

4.3.3 CR Motor Unit

CAUTION

- Take care in handling the Housing Lower, remembering that grease is applied to the CR guide area of the Housing Lower. Do not touch any parts with a greasy hand or part. (Especially take great care in handling the Encoder Scale.)

- Do not remove or loosen the screw marked with X for the CR Motor Unit shown at right. Remember that the CR Motor Unit must be replaced with a new one if the encoder is shifted from the correct position. *(Fig. 4-45)*

1. *Remove the Scanner Unit (p.65)*

2. *Remove the Scanner Housing (p.77)*

3. Remove the screw fastening the grounding wire. *(Fig. 4-44)*

4. Disconnect the CR Encoder cable, the CR Motor cable and the grounding wire from the Housing Lower. *(Fig. 4-44)*

5. Remove the screw and washers (x4) securing the CR Motor Unit. *(Fig. 4-45)*

REASSEMBLY

- When installing the CR Motor Unit on the Housing Lower, push it adequately so that the insulators are compressed to such thickness as shown below.

Push the unit until the thickness of the insulator A becomes smaller than that of the insulator B, and tighten the screw.

A<B

A

B
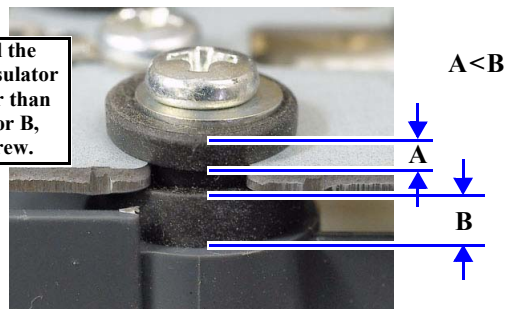
- Route the cables as shown. (*Fig. 4-44*, *Fig. 4-45*)

Secure the cables by wrapping them once around the hooks.

Grounding wire

C.B.(P2) 3x6 F/Zn-3C
Torque : 0.5±0.1N·m

Figure 4-44. CR Motor Unit 1

Do not remove or loosen

CR Motor Unit

Here is grease

C.B.P-TITE 3x8 (x4)
Torque : 0.5±0.1N·m
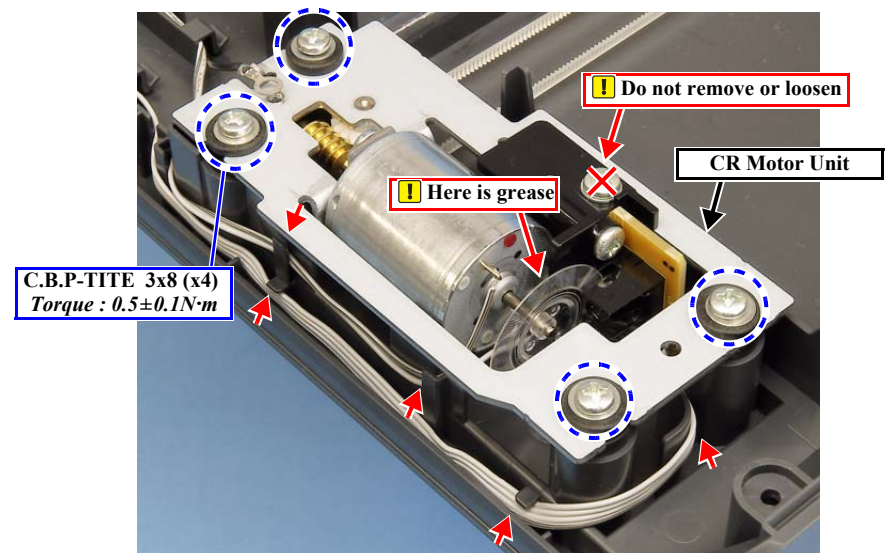
Figure 4-45. CR Motor Unit 2

4.4 Disassembly of Housing Lower Assy

4.4.1 Waste Ink Pads

CAUTION ⚠️	■ When removing the Waste Ink Pads, take due care not to stain any surrounding objects with waste ink. ■ Place the Waste Ink Pads (x2) by pushing them along the cut portions until they are all the way seated and make sure that they are free from floating.

1. *Remove the Printer Mechanism (p.76)*

2. Remove Waste Ink Pads (x2) from the Housing Lower. *(Fig. 4-46)*

ADJUSTMENT REQUIRED	On the occasion of replacing a part with a new one, replace all the specified parts with new ones and clear the counter value after assembly. ■ 5.2 Adjustment by Using Adjustment Program *(p.101)*

4.4.2 Power Supply Board

1. *Remove the Printer Mechanism (p.76)*

1. Remove the screw securing the P/S Assy, and remove it from the Housing Lower. *(Fig. 4-47)*

2. Remove the screw, and remove the P/S Cover. *(Fig. 4-48)*

3. Disconnect the connector, and remove the Power Supply Board.

REASSEMBLY	■ Before installing the P/S Cover, route the connector cable so that it is led through the position shown in the figure. ■ Install the P/S Assy in the Housing Lower by installing the AC connector side first and set the ferrite core.

| ADJUSTMENT REQUIRED	When the Power Supply Board has been replaced with a new one, refer to the following section and perform the necessary adjustments. ■ 5.2 Adjustment by Using Adjustment Program *(p.101)*
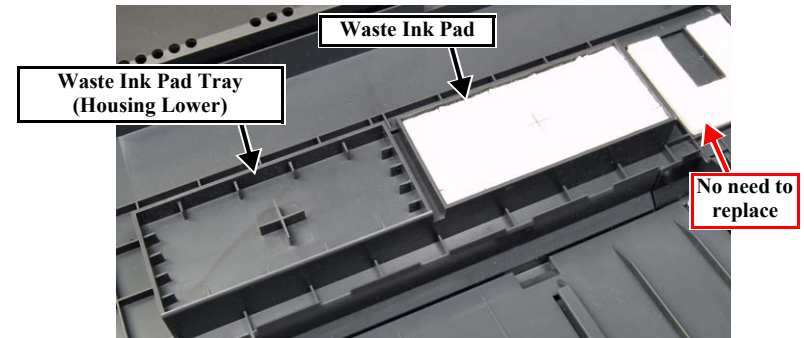
Figure 4-46. Removing the Waste Ink Pads
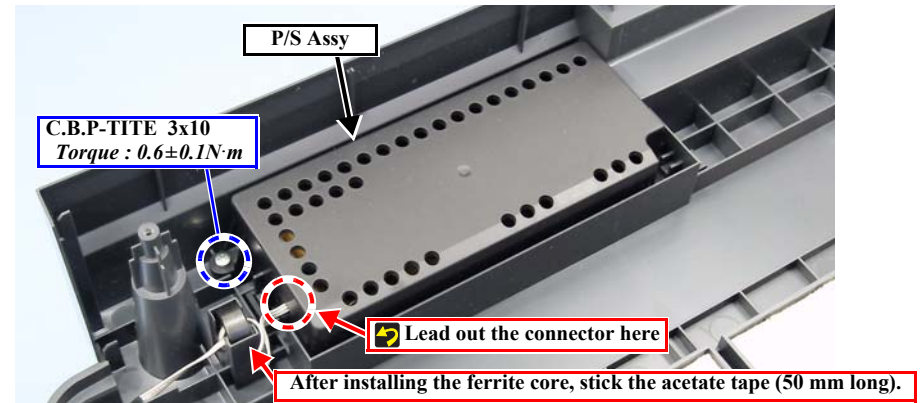
Figure 4-47. Removing the P/S Assy
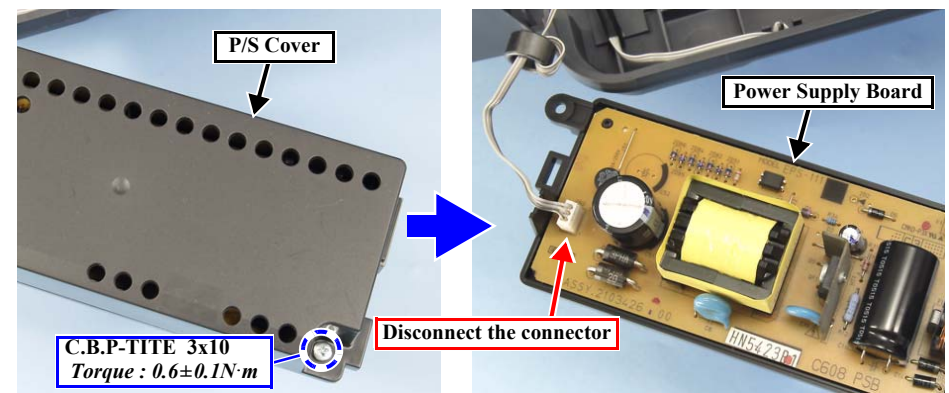
Figure 4-48. Removing the Power Supply Board

4.4.3 Stacker Assy

1. *Remove the Printer Mechanism (p.76)*

2. Push the CD-R Guide Lever to raise the CD-R Guide.

3. Release the hook, and remove the CD-R Guide Lever. *(Fig. 4-49)*

4. Lower the CD-R Guide, slide the shaft side of the CD-R Guide Lever Spring, release its hook side end, and remove the spring. *(Fig. 4-50)*

5. Remove the screws (x4) securing the Stacker Assy. *(Fig. 4-51)*

6. Holding the right and left Stacker Guide areas, remove the Stacker Assy from the Housing Lower.

7. Release the hook, and remove the gear from the CD-R Shaft. (Both right and left)

8. Remove the CD-R Shaft from the Stacker.

(Continued to next page)
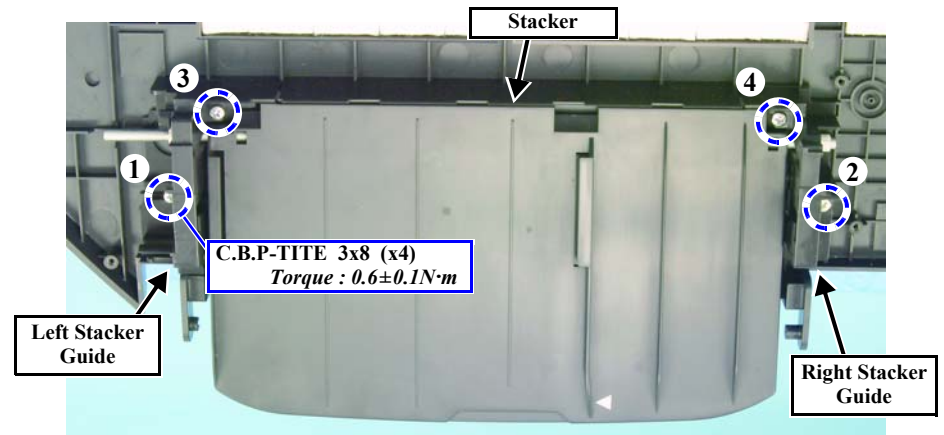
Figure 4-51. Removing the Stacker Assy

C.B.P-TITE 3x8 (x4)
Torque : 0.6±0.1N·m
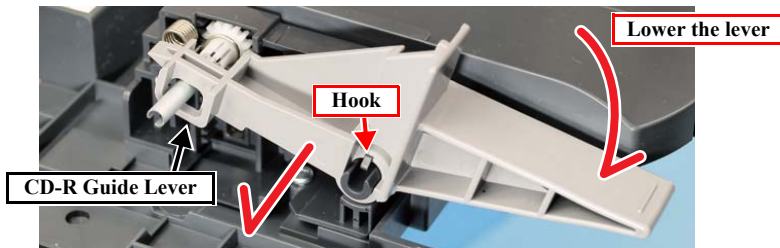
Figure 4-49. Removing the CD-R Guide Lever

Figure 4-50. Removing the CD-R Guide Lever Spring

Figure 4-52. Removing the Gear and the CD-R Shaft

REASSEMBLY

- When installing the CD-R Shaft, orient it so that the side where the distance from the shaft end to the hole for the hook of the gear is larger is positioned left (on the spring side), and pass it through the Stacker. *(Fig. 4-53)*
- Before tightening the screws, confirm the following conditions:
  - ♦ Right and Left Stacker Guides have been installed properly. (Check the 2 locating holes and 1 protrusion)
  - ♦ Stacker has been installed properly. (Check the following positions with the Stacker in the down position.) *(Fig. 4-54)*
    - Protrusions (x2) in the rear (under the Stacker Guides)
    - Protrusions at right and left sides (inserted in guide groove)
- Tighten the screws in the specified order. *(Fig. 4-51)*
- See *Fig. 4-55* for installation of the CD-R Guide Lever Spring.

CHECK POINT ✓

If the Stacker is not horizontal in the right and left direction, remove the right gear, and install the gear again with the Stacker in the highest position.

Install the gear with the shaft in the highest position

Longer side positioned left

CD-R Shaft

Hook hole

Hook hole
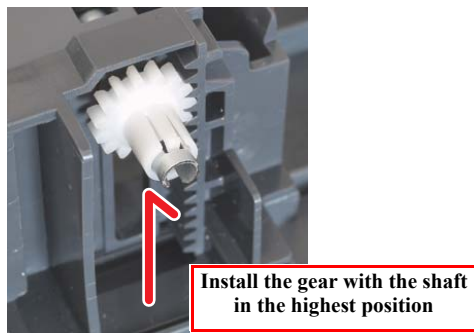
Figure 4-53. Installing the CD-R Shaft

Insert the protrusion under the guide

Insert the protrusion into the guide groove

Stacker is in the down position
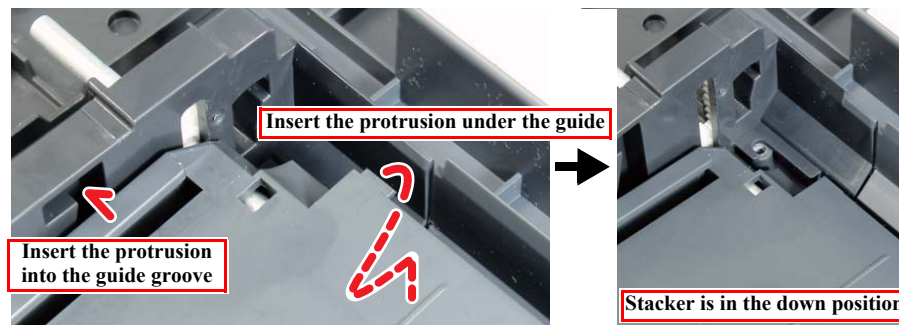
Figure 4-54. Installing the Stacker

2.Insert the hook end into the guide

3.Push the ring onto the gear

1.Put the ring on the shaft
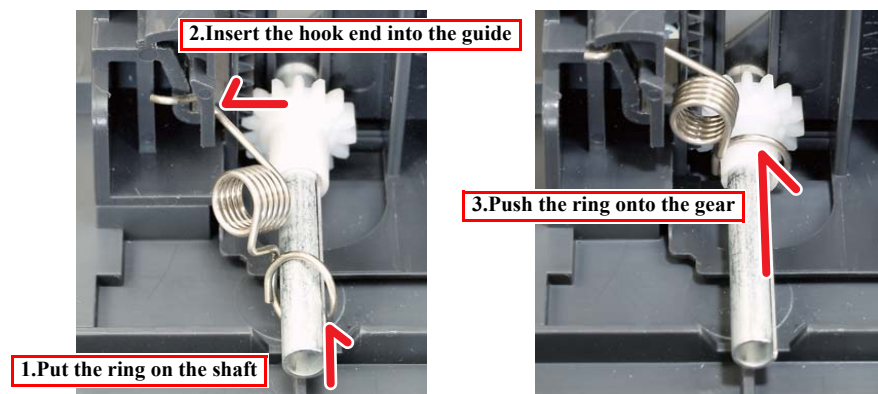
After installing the spring, move Stacker up and down and check the installation of the spring.

~Down~

~Up~
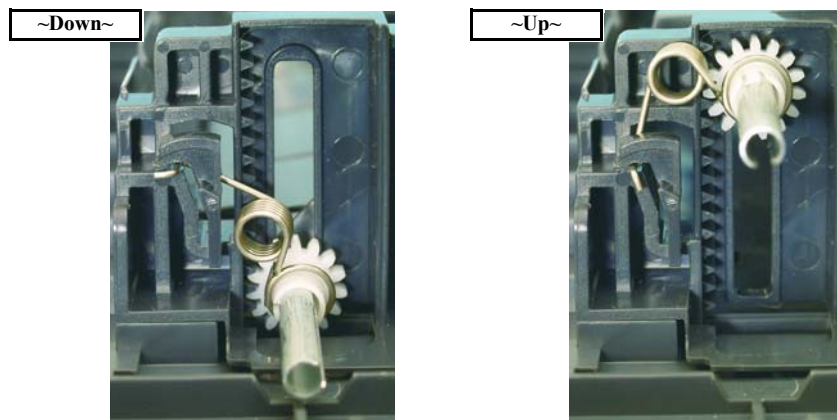
Figure 4-55. Installing the CD-R Guide Lever Spring

4.5 Disassembly and Assembly of Major Parts of Printer

4.5.1 PF Motor, PF Encoder and PF Scale

CAUTION !	Handle the PF Scale with care not to scratch or stain it. Do not touch it with your bare hand.

1. *Remove the Printer Mechanism (p.76)*

2. Disconnect the FFC of the PF Encoder, remove the screw, and remove the PF Encoder. *(Fig. 4-56)*

3. Remove the PF Scale. (Tape is stuck in the center circle area)

4. Release the lead wires of the PF Motor. *(Fig. 4-62)*

5. Remove the Harness Holder. *(Fig. 4-57)*

6. Remove the screws (x2) securing the PF Motor, and remove the PF Motor in the lateral direction. *(Fig. 4-58)*

REASSEMBLY	■ Install the PF Motor with its labeled area facing outward. *(Fig. 4-58)* ■ When installing the PF Encoder, confirm that the reading area does not come in contact with the PF Scale.

ADJUSTMENT REQUIRED	Once the PF Motor has been reinstalled, refer to the following section and perform the necessary adjustments. ■ 5.2 Adjustment by Using Adjustment Program *(p.101)*
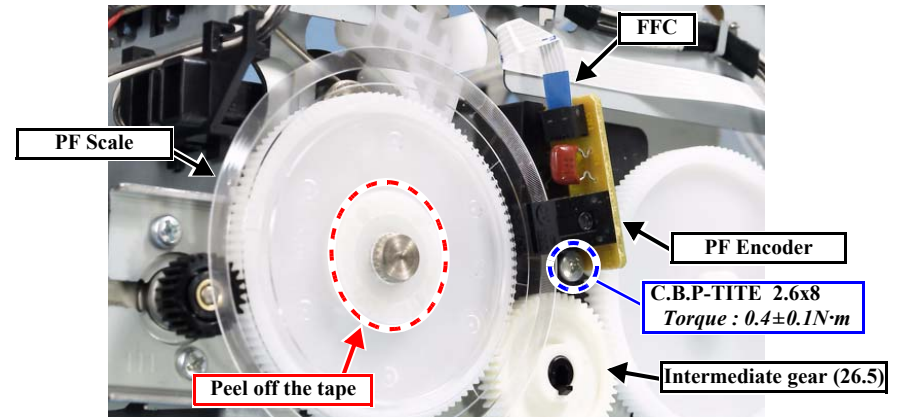
Figure 4-56. Removing the PF Encoder / PF Scale
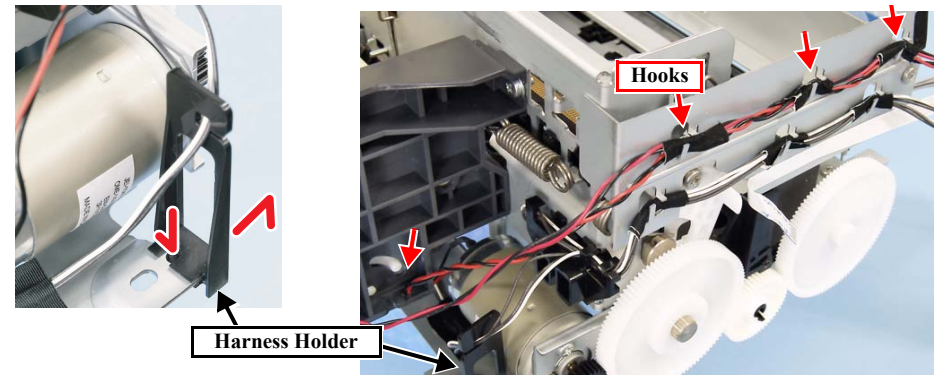
Figure 4-57. Removing the Harness Holder
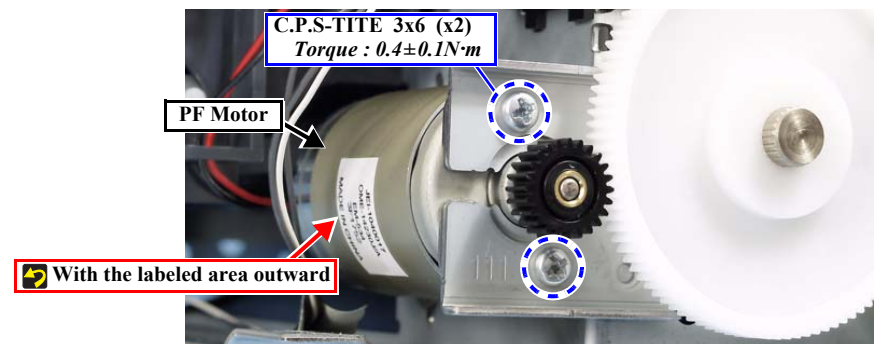
Figure 4-58. Removing the PF Motor

4.5.2 I/S Assy

CAUTION	■ **Take due care not to stain any surrounding objects with ink. In addition, when removing the Waste Ink Tube, take care not to splash ink.** ■ **Do not touch the head cleaner (wiper) with your bare hand, and make sure that it is free from grease. Touching with your bare hand or adhering grease can cause nozzle clogging.**

1. *Remove the Printer Mechanism (p.76)*
2. Remove the tube from the Waste Ink Assy (as required).
3. Remove the screws (x2), and remove the I/S Assy. *(Fig. 4-59)*

REASSEMBLY	■ **Lubrication is necessary. Refer to the following section and lubricate the specified points:** LUBRICATION AT INSTALLATION OF I/S ASSY *(p.120)* ■ **After installing the I/S Assy to the printer frame, make sure that its position is adjusted as shown in *Fig. 4-60*.** ■ **Tighten the screws in the specified order. *(Fig. 4-59)*** ■ **Catch the Waste Ink Tube in the groove shown in the figure on the bottom of the I/S Assy. *(Fig. 4-61)*** ■ **When connecting the Waste Ink Tube, wipe the ink, if any, off the joint area of the tube. With ink left adhering to the joint area, the tube cannot be connected firmly and thus may easily come off.**

I/S Assy

Do not remove

Remove the lower one

C.B.S-TITE 3x6 (x2)
Torque : 0.8±0.1N·m
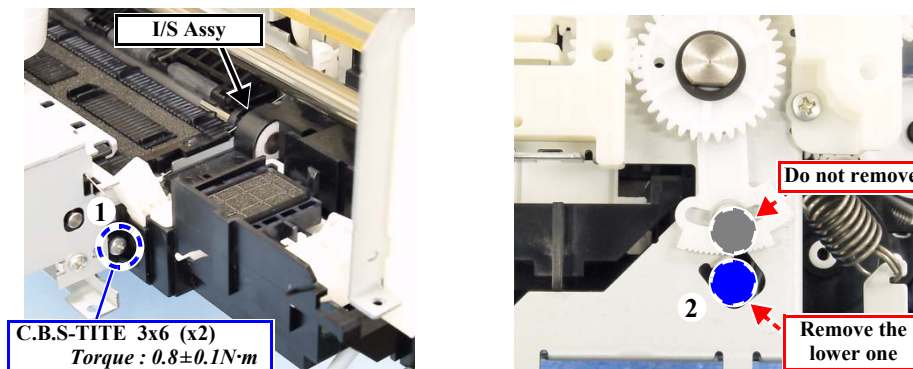
Figure 4-59. Removing the I/S Assy
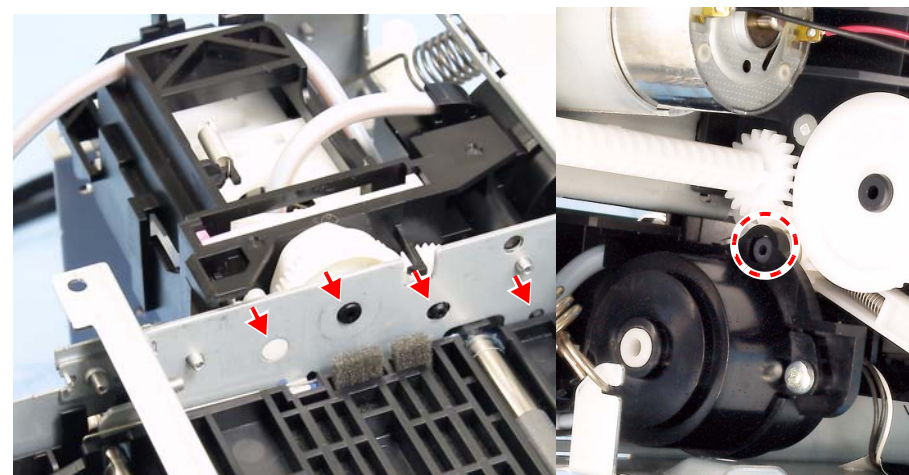
Figure 4-60. Installing the I/S Assy

~Bottom~

Catch it in here
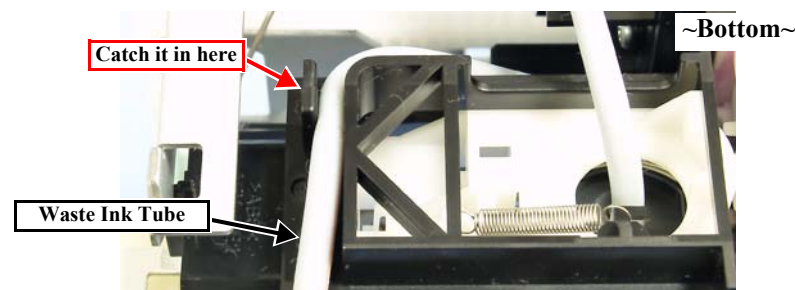
Waste Ink Tube

Figure 4-61. Installing the Waste Ink Tube (I/S Assy)

4.5.3 ASF Assy

1. *Remove the Printer Mechanism (p.76)*

2. *Remove the I/S Assy (p.84)*

3. At the left side of the ASF Assy, peel off tape, and disconnect the lead wires of the PF Motor from the ASF Assy. *(Fig. 4-62)*

4. Remove the screw securing the LD Roller Guide. *(Fig. 4-63)*

5. With care not to damage the Linear Scale, push the right and left protrusions, lift the LD Roller Guide and release the hooks (x5), and remove the LD Roller.

6. Remove the right and left screws (x2) securing the ASF Assy. *(Fig. 4-64)*

7. On the front side, release the right and left hooks (x2) fastening the ASF Assy and the tip of the Change Lever from the printer frame.

8. Remove the composite gear (10, 15.2), and remove the ASF Assy.
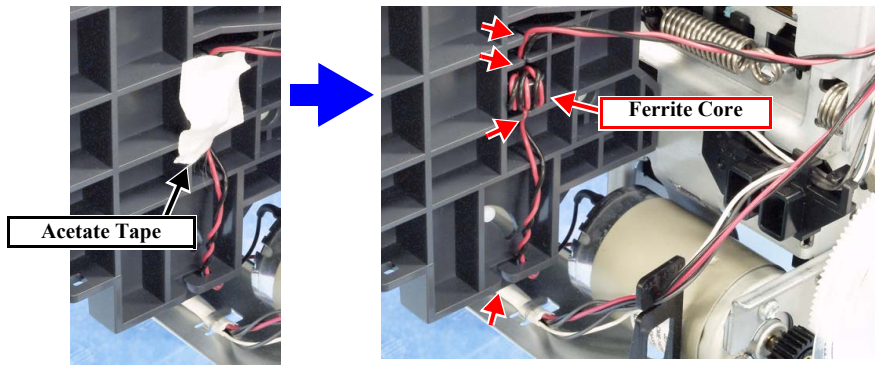
Figure 4-62. Lead Wires on the ASF Assy
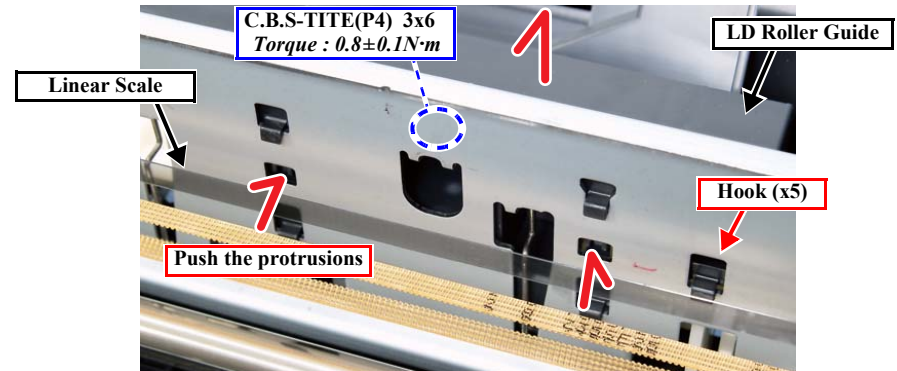
Figure 4-63. LD Roller Guide
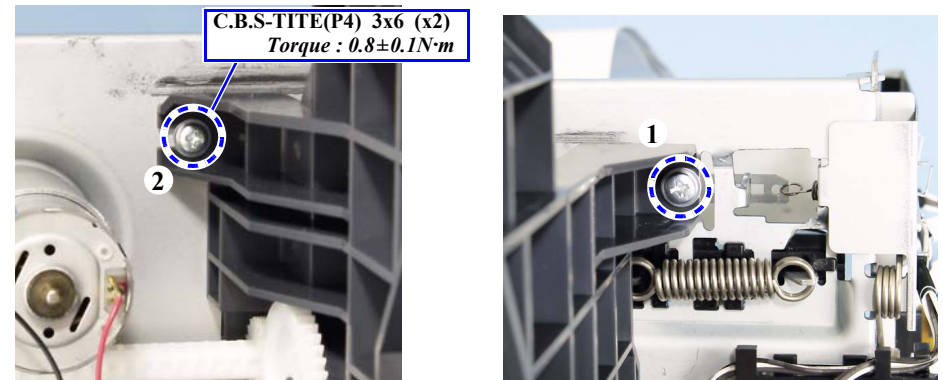
Figure 4-64. Removing the screw (ASF Assy)
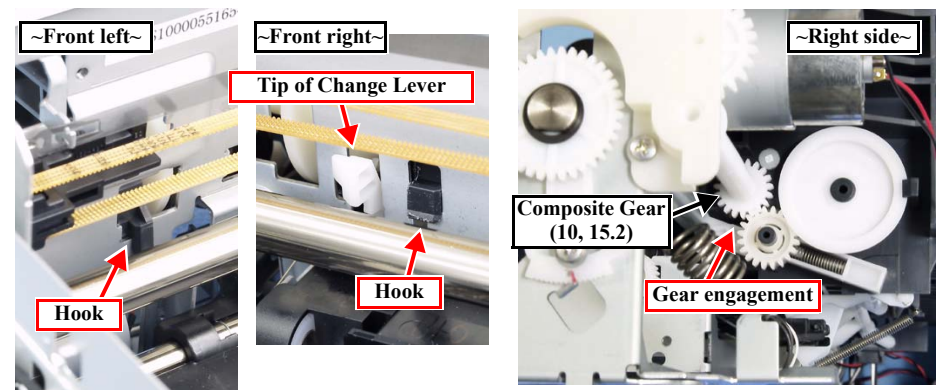
Figure 4-65. Removing the ASF Assy

■ **Lubrication is necessary. Refer to the following section and lubricate the specified points:**
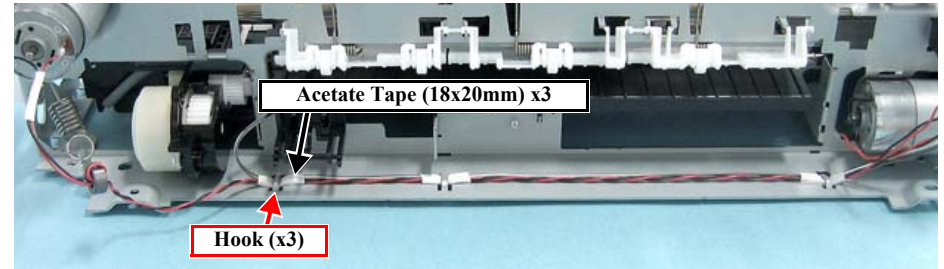LUBRICATION OF ASF ASSY *(p.121)*
LUBRICATION OF LD ROLLER SHAFT *(p.120)*

■ **When installing the ASF Assy, make sure that the composite gear, the chip of Change Lever and the hooks (x2) are engaged properly.**

■ **Tighten the screws in the specified order.** *(Fig. 4-64)*

■ **Install the LD Roller aligning the arrow on the LD Roller with the arrow on the blade of the shaft. Make sure the LD Roller is securely attached without any gap or misalignment.**
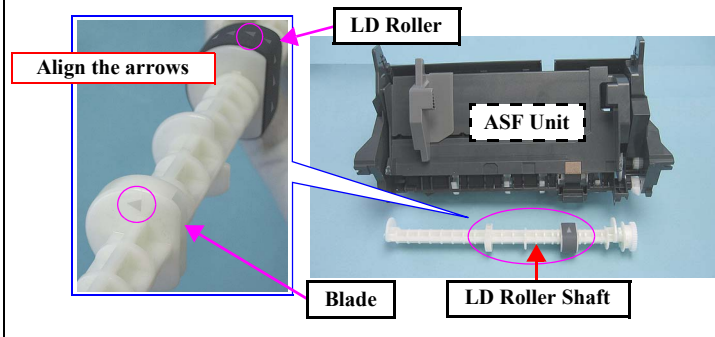
4.5.4 APG Assy

1. *Remove the Printer Mechanism (p.76)*

2. At the right side of the printer, remove the screws (x2) securing the APG Assy. *(Fig. 4-66)*

3. Release the hook at the top, and remove the APG Assy while taking care not to lose gears or springs.

4. Remove the composite gear (10, 15.2).

CHECK POINT ✔

The gears of the APG Assy are arranged as shown below:

Locating hole

Spur gear 28.8

REASSEMBLY ↩
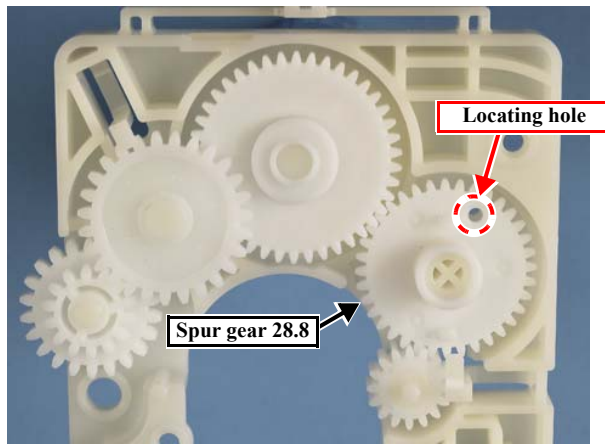
Install the APG Assy by the following procedure: *(Fig. 4-67)*

1. **Install the composite gear (10, 15.5).**

2. **Pass a pin (o2mm) or the like through the locating hole in the Right PG Cam on the CR Guide Shaft and that in the printer frame.**

3. **Pass a pin or the like through the locating hole in the spur gear 28.8 and that in the APG Assy. With the pins left inserted in the holes, install the APG Assy on the printer frame.**

4. **Make sure that all the hooks are engaged properly and the protrusions fit in the printer frame, and tighten the screws in the order shown in *Fig. 4-65*.**

■ **Lubrication is necessary. Refer to the following section and lubricate the specified points:**
   LUBRICATION OF APG UNIT *(p.119)*

C.B.S-TITE 3x6 (x2)
Torque : 0.8±0.1N·m   Hook

1   APG Assy   Composite gear (10, 15.2)

2   ASF Gear Train
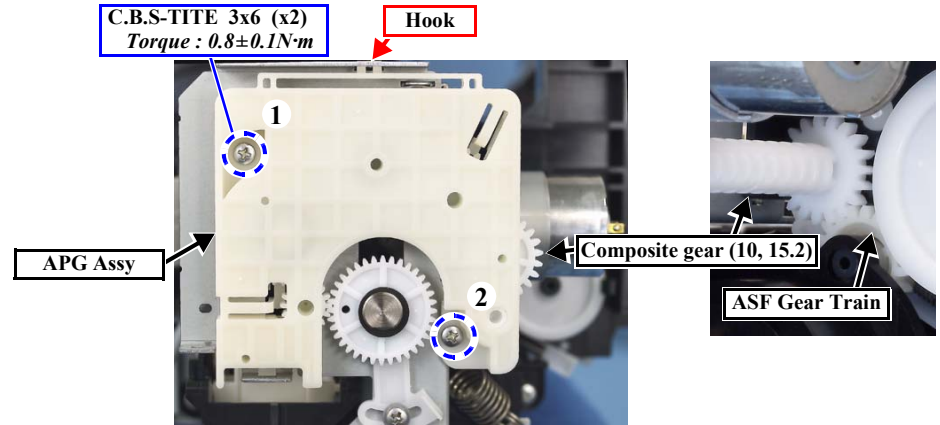
Figure 4-66. Removing the APG Assy

1. Install the composite gear   3. Pass a pin or the like

With the pin left in the hole

2. Pass a pin or the like   Right PG Cam

4. Check engagement of the hooks

Pin

Pin

4. Install the composite gear
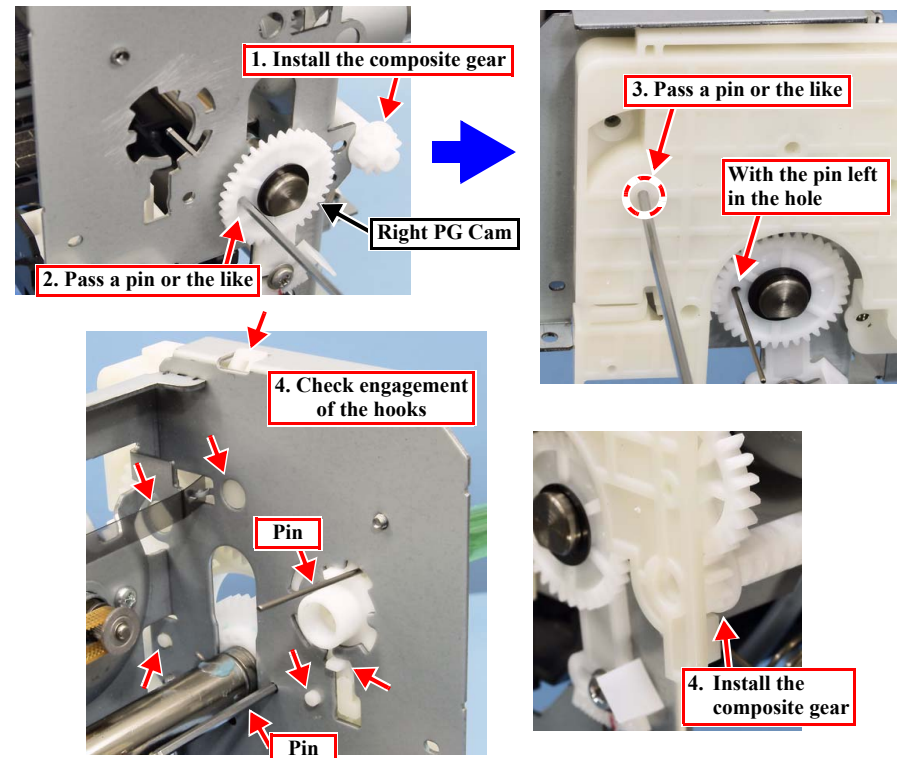
Figure 4-67. Installing the APG Assy

4.5.5 CR Motor

1. *Remove the Printer Mechanism (p.76)*

2. At the rear of the printer, detach the cable of the CR Motor from the frame.

3. At the rear of the printer, remove the tension spring of the Driven Pulley Assy. *(Fig. 4-69)*

4. Remove the screws (x2), and remove the CR Motor. *(Fig. 4-70)*

REASSEMBLY

- ■ **Lubrication is necessary. Refer to the following section and lubricate the specified points:**
  LUBRICATION OF DRIVEN PULLEY *(p.118)*
- ■ **Install the CR Motor with its printed area facing upward.**

- ■ **Install the Timing Belt with the tooth side facing inside and without torsion.**
- ■ **When the CR Motor has been replaced with a new one, wind acetate tape (18x20 mm) x3 around the harness as shown. *(Fig. 4-68)***

ADJUSTMENT REQUIRED

Once the CR Motor has been reinstalled, refer to the following section and perform the necessary adjustments.
- ■ 5.2 Adjustment by Using Adjustment Program *(p.101)*

Acetate Tape (18x20mm) x3

Hook (x3)

Figure 4-68. Removing the CR Motor Cable

Driven Pulley Assy
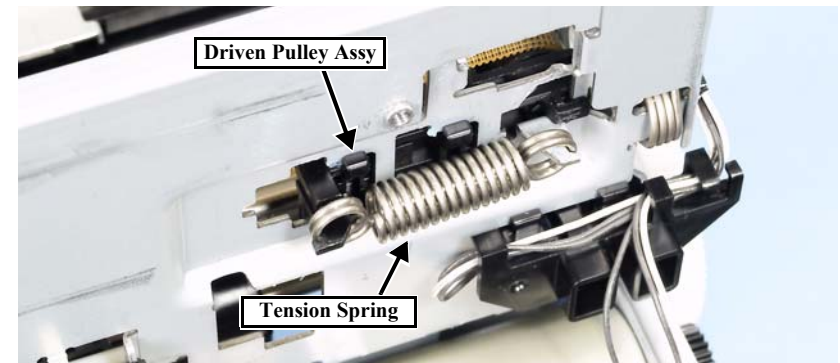
Tension Spring

Figure 4-69. Removing the Tension Spring

C.P 3x4 (x2)
Torque : 0.4±0.1N·m
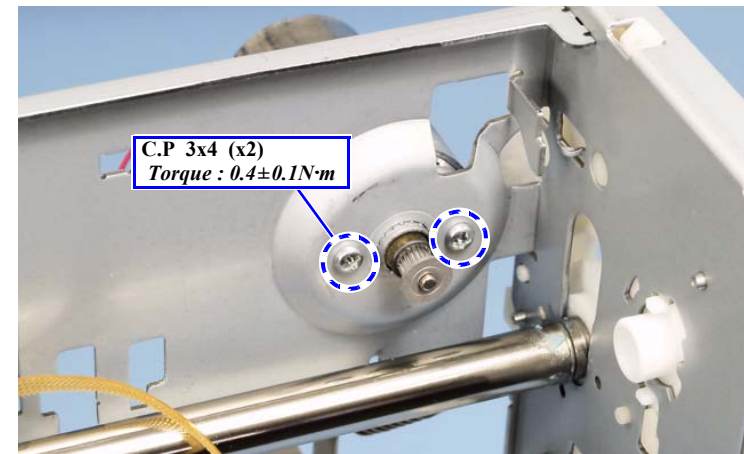
Figure 4-70. Removing the CR Motor

4.5.6 Carriage Assy

1. *Remove the Printer Mechanism (p.76)*

2. *Remove the Linear Scale (p.75)*

3. *Remove the PF Scale and PF Encoder (p.83)*

4. *Remove the APG Assy (p.87)*

5. *Remove the Driven Pulley Assy (p.88)*

6. Release the Head FFC from the front frame. *(Fig. 4-76)*

7. Remove the screw, and remove the Cable Holder Frame. *(Fig. 4-71)*

8. At the left side of the printer, remove the spring, and mark the indicated graduation position of the Parallelism Bush. Then loosen the screw, and turn the Parallelism Bush toward the front. *(Fig. 4-72)*

9. At the right side of the printer, remove the spring, remove the washer, and the Right PG Cam. *(Fig. 4-73)*

10. Remove the Carriage Assy together with the CR Guide Shaft from the left side of the printer frame.

(Continued to next page)

Figure 4-72. Removing the Carriage Assy (at left side)
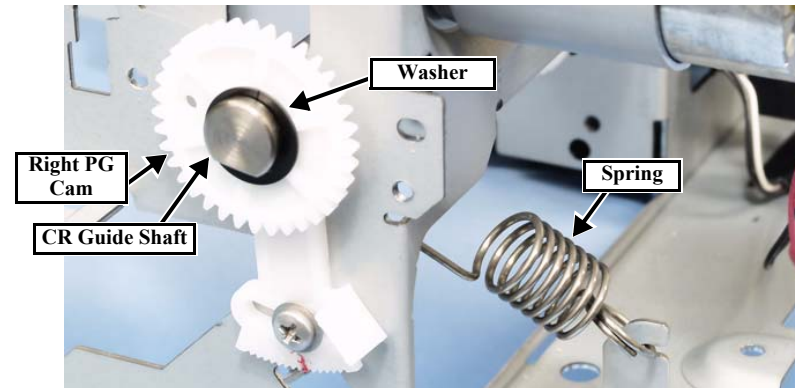
Figure 4-73. Removing the Carriage Assy (at right side)

Figure 4-71. Removing the Cable Holder Frame
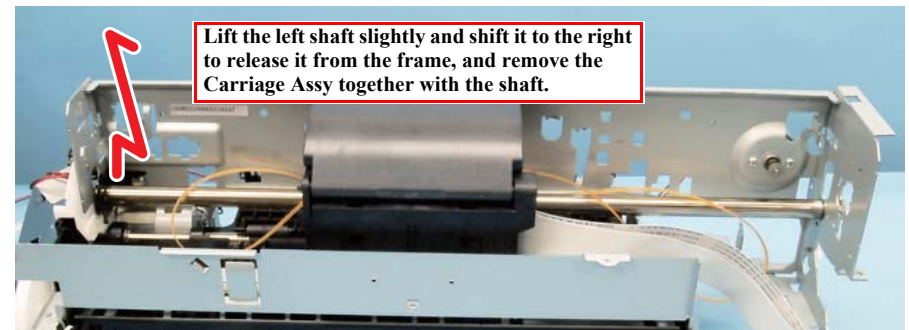
Figure 4-74. Removing the Carriage Assy

REASSEMBLY

■ **Lubrication is necessary. Refer to the following section and lubricate the specified points:**
 LUBRICATION OF CARRIAGE ASSY AND CR GUIDE SHAFT *(p.119)*
 LUBRICATION AT INSTALLATION OF CARRIAGE ASSY *(p.119)*

■ **Install the Timing Belt on the carriage with care not to confuse the toothed areas of the inside and outside of the belt.**

↑ Up

Toothed (inside)

No tooth (outside)

Both inside and outside toothed
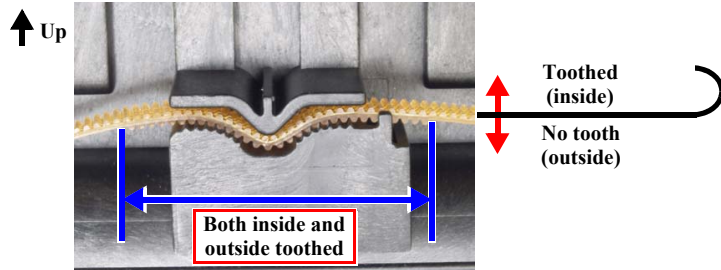
■ **Install the PG Left Cam by mating the D cut surfaces and with the cam positioned outside so that it does not come in contact with sensing area of the APG Sensor**

Must not touch the sensing area

APG Sensor

With the cam positioned outside

PG Left Cam
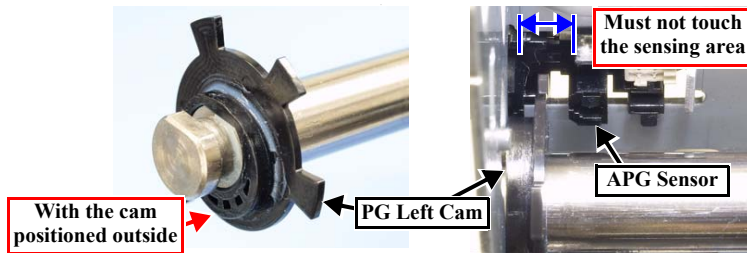
■ **Install the Carriage Assy so that the guide is engaged with the frame.**

~Rear~

Carriage guide
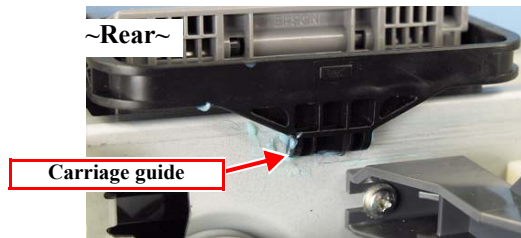
■ **When installing the Cable Holder Frame, ensure that it is positioned correctly in the front and back direction.** *(Fig. 4-71)*

ADJUSTMENT REQUIRED

When installing the Carriage Assy, refer to the following sections and perform the necessary adjustments:
■ 5.2.6 PG Adjustment *(p.105)*
■ 5.2 Adjustment by Using Adjustment Program *(p.101)*

PW Sensor

Timing Belt

CR Encoder
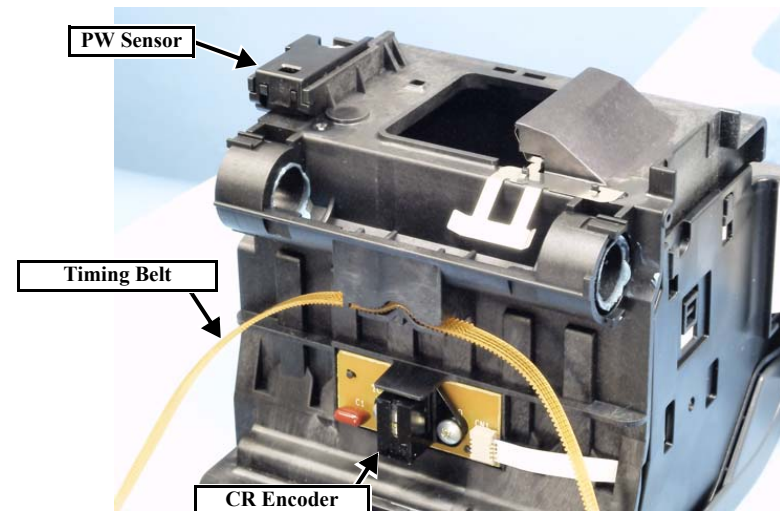
Figure 4-75. Carriage Assy (rear)

CHECK POINT

To remove the Cartridge Cover, it is necessary to remove the Cartridge Cover Hinge. However, there is no special means of releasing the hook. Therefore, insert a slotted screwdriver as shown below and break the hook. (In installation, replace it with a new one)

Cartridge Cover

Insert here

Hook

Cartridge Cover Hinge
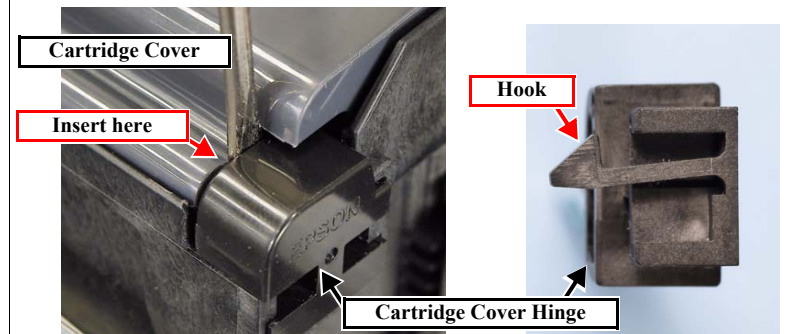
4.5.7 Eject Frame Assy

1. *Remove the Printer Mechanism (p.76)*

2. Remove the Head FFC from the Front Frame. *(Fig. 4-76)*

3. Release the cable of the CD-R sensor from the hook of the Eject Frame.
   (Fig. 4-77)

4. Remove the screw securing the Cable Holder Frame.

5. Remove the right and left screws (x2) securing the Front Frame, and remove the
   Front Frame from the printer body.

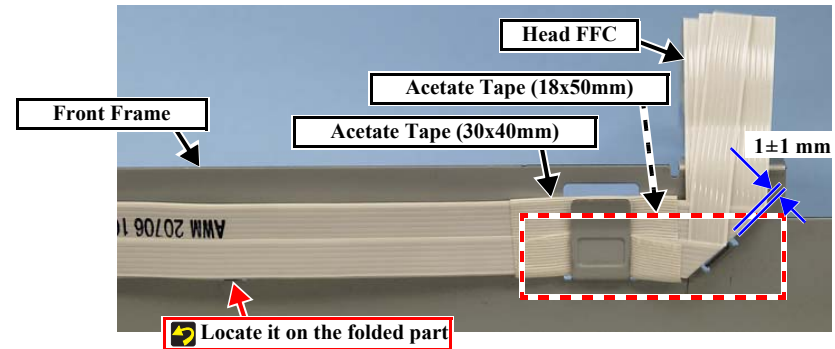6. Remove the Eject Frame Assy from the printer body. *(Fig. 4-78)*

■ **Before installing the Eject Frame, install the Left EJ Frame
   Spring (longer), and the Right EJ Frame Spring (shorter)
   temporarily, in the respective positions shown below on the
   Eject Frame. After installing the Front Frame, move the Right
   EJ Frame Spring to the spring support.**

~Left side~   ~Right side~

Right EJ Frame Spring

Left EJ Frame Spring   ~Temporarily~
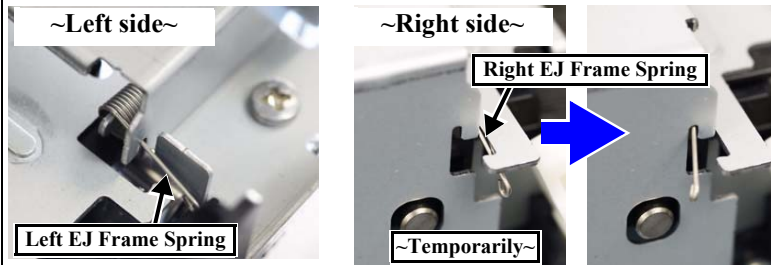
■ **Fit the shaft holders (left and right) on the underside of the Eject
   Frame onto the Paper Eject Roller Shaft.** *(Fig. 4-78)*
■ **After installing the Front Frame, confirm the engagement of the
   protrusions (x2), and then tighten the screws in the specified order.**
   (Fig. 4-77)
■ **Lubrication is necessary. Refer to the following section and
   lubricate the specified points:**
   LUBRICATION OF APG UNIT *(p.119)*
■ **After installing the Cable Holder Frame, confirm the engagement
   of the protrusion, and then tighten the screw.** *(Fig. 4-77)*
■ **After installing the Head FFC as shown, move the carriage several
   times and confirm that the FFC is free from undue tension or
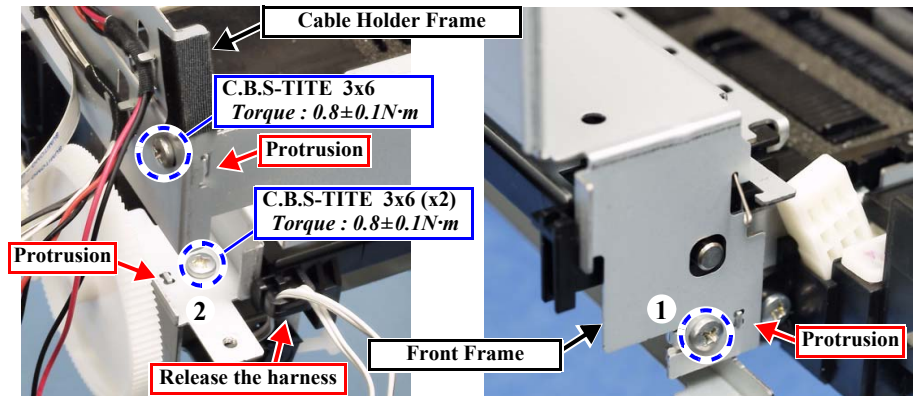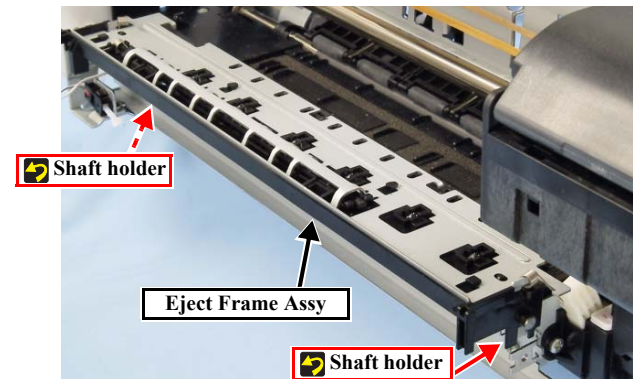   excessive allowance.** *(Fig. 4-76)*

Head FFC

Acetate Tape (18x50mm)

Front Frame

Acetate Tape (30x40mm)

1±1 mm

Locate it on the folded part

Figure 4-76. Removing the Head FFC

Cable Holder Frame

C.B.S-TITE 3x6
Torque : 0.8±0.1N·m

Protrusion

C.B.S-TITE 3x6 (x2)
Torque : 0.8±0.1N·m

Protrusion

2

1

Front Frame

Protrusion

Release the harness

Figure 4-77. Removing the Front Frame

Shaft holder

Eject Frame Assy

Shaft holder

Figure 4-78. Removing the Eject Frame Assy

4.5.8 Upper Paper Guides

CAUTION
!

- When removing the Upper Paper Guides, bring down the actuator of the PE Sensor toward the front to avoid damaging it.
- Do not touch any of the rollers; otherwise, the print quality may drop.

1. *Remove the Printer Mechanism (p.76)*

2. *Remove the I/S Assy (p.84)*

3. *Remove the ASF Assy (p.85)*

4. Remove torsion springs (x3) at the rear of the printer. *(Fig. 4-80)*

5. Release the hooks (x3), release the Upper Paper Guides from the shaft holders of the printer frame, lower the actuator of the PE Sensor, and remove the Upper Paper Guides. *(Fig. 4-81)*

CHECK POINT ✔

The Upper Paper Guides are connected as a single unit with thin fragile bridges as shown with arrows below. However, these parts are not to be placed on the shaft holders of the printer frame. Therefore, it is not necessary to replace the Upper Paper Guides even if the bridges are broken.

Thin   **Thin**

! **Do not touch**

REASSEMBLY
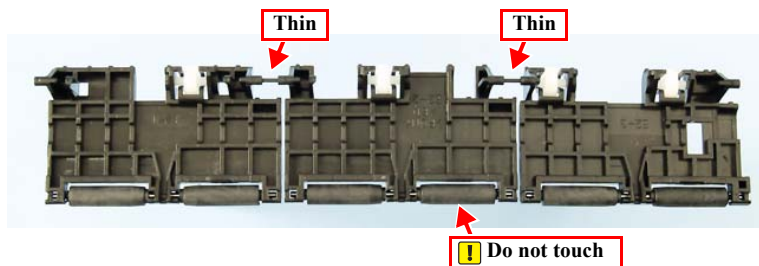
Install the springs properly, while paying attention to the tip position of each spring. *(Fig. 4-80)*

~Rear~
Hooks
Spring (x3)
Upper Paper Guides
PE Sensor
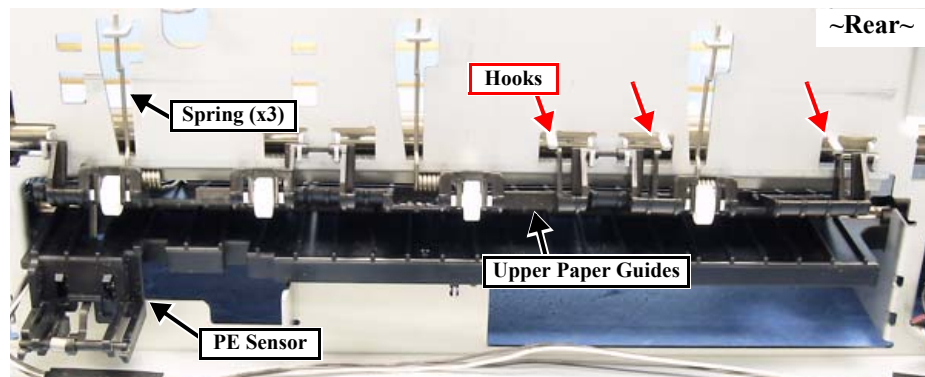
Figure 4-79. Upper Paper Guides Layout (rear of the printer)

~Rear~   ~Front~
Spring (x3)
Tip of spring
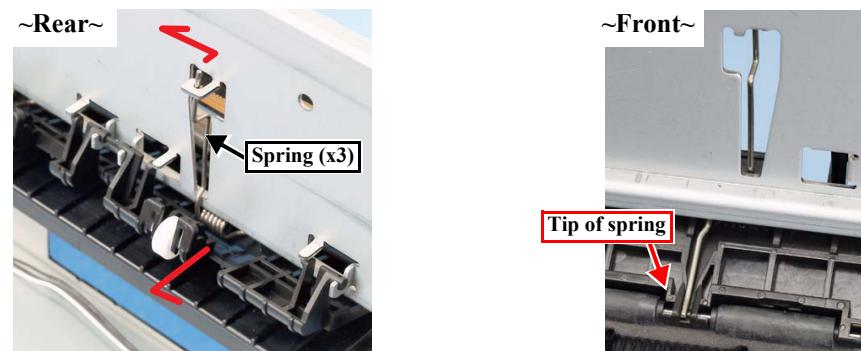
Figure 4-80. Removing the Springs

! **Bring down the actuator**
Release the hooks and lift the Upper Paper Guides
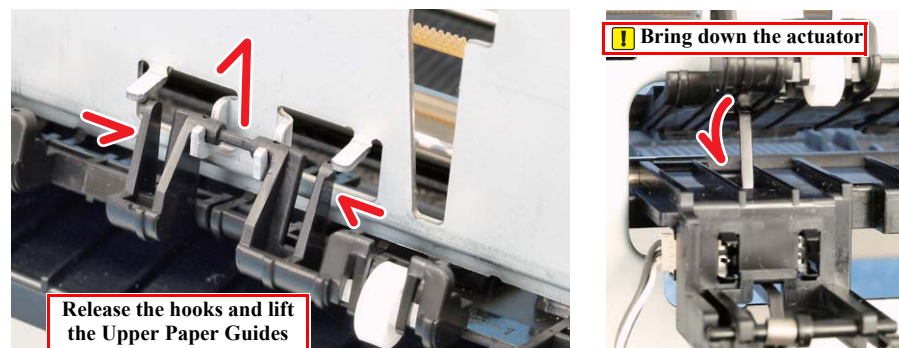
Figure 4-81. Removing the Upper Paper Guides

4.5.9 Paper Guide Front Assy

CAUTION

!

Do not touch any of the rubber rollers of the Paper Eject Roller Assy or coated surface of the PF Roller Assy; otherwise, the print quality may drop.

1. *Remove the Printer Mechanism (p.76)*

2. *Remove the PF Scale and PF Encoder (p.83)*

3. *Remove the Linear Scale (p.75)*

4. *Remove the APG Assy (p.87)*

5. *Remove the I/S Assy (p.84)*

6. *Remove the ASF Assy (p.85)*

7. *Remove the Driven Pulley Assy (p.88)*

8. *Remove the Eject Frame Assy (p.91)*

9. *Remove the Carriage Assy (p.89)*

10. *Remove the Upper Paper Guides (p.92)*

11. Remove the Right Parallelism Bush from the Left Frame.

12. In the left area of the printer, remove the screw securing the Paper Guide Front Assy.

13. Disconnect the connector of the PE Sensor at the rear of the printer.

14. Pull out the PF EJ Ground Spring frontward.

15. Lift the left side of the Paper Guide Front Assy slightly, undo the engagement with the printer frame, pull the Paper Guide Front Assy frontward, and then undo the engagement at the right side and remove it.

(Continued to next page)
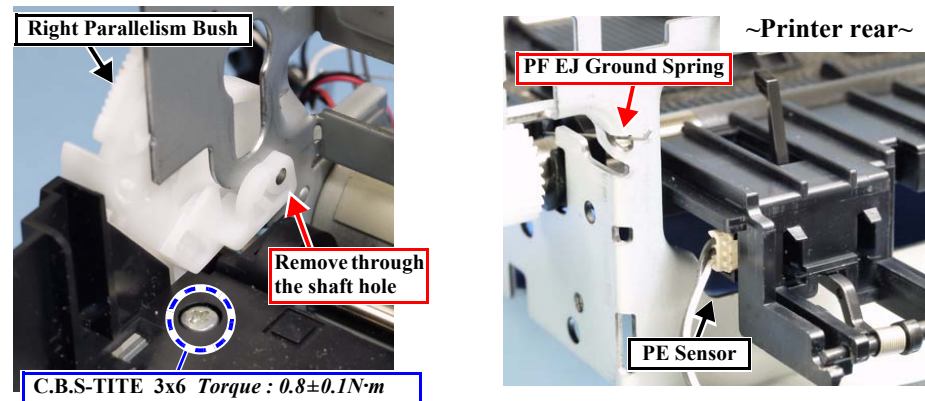
Figure 4-82. Removing the Paper Guide Front Assy 1
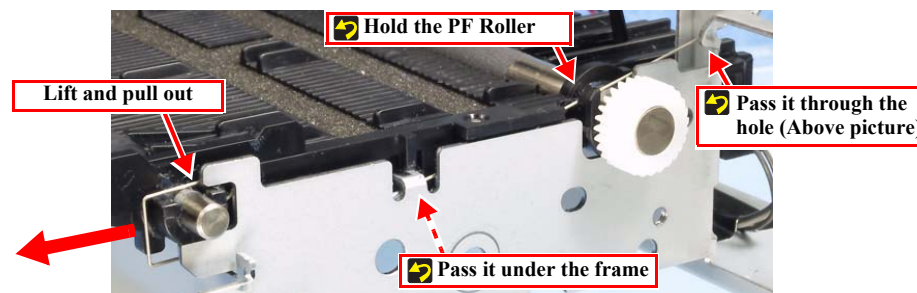
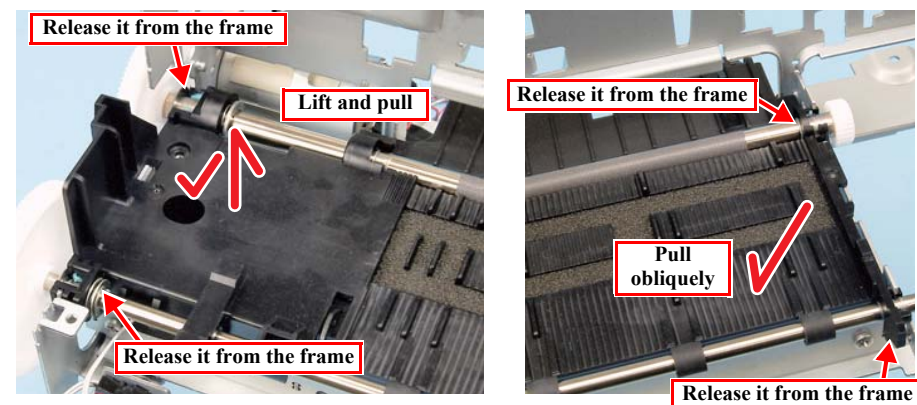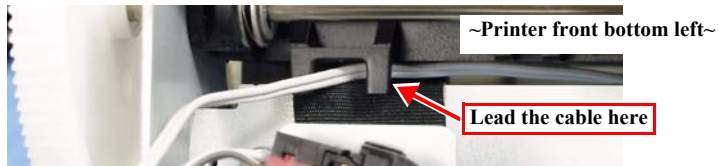**Figure 4-83. Removing the PF EJ Ground Spring**

**Figure 4-84. Removing the Paper Guide Front Assy 2**

REASSEMBLY

- ■ **Lubrication is necessary. Refer to the following section and lubricate the specified points:**
  LUBRICATION OF PAPER GUIDE FRONT ASSY *(p.117)*
- ■ **Lead the cable of the CD-R Sensor as shown below.**

~Printer front bottom left~

Lead the cable here

- ■ **See** *Fig. 4-83* **and install the Ground Spring.**
- ■ **Make sure the four tips of the Front Paper Guide Pad are placed on the Waste Ink Pad.**

[Bottom Side]

Waste Ink Pad Position

□ Tip of Front Paper Guide Pad

Tip

Tip
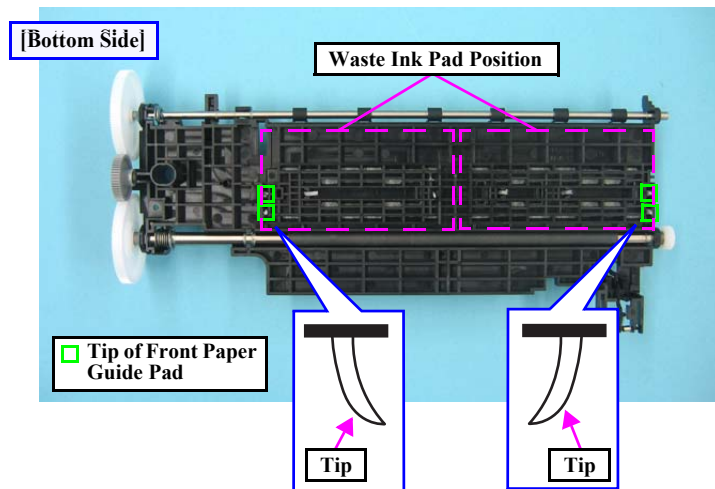
ADJUSTMENT

5.1 Adjustment Items and Overview

This chapter describes adjustments necessary after the disassembly/reassembly of the printer.

CHECK POINT ✓	**For information on how to carry out the adjustments and media required for the adjustments, see the instructions displayed by the Adjustment Program.**

5.1.1 Servicing Adjustment Item List

The adjustment items of this product are as follows.

Table 5-1. Adjustment Items

Adjustment Item	Purpose	Method Outline	Tool
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 1.15mm, 1.3mm
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.	Select the target market. The selected market settings are automatically written to the main board.	• 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 ID printed on the Head QR code label attached on the printhead. The correction values are automatically written to 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
Initialize PF Deterioration Offset	Resets the counter to maintain paper feed accuracy which decreases due to paper dust.	Reset the counter to its default.	• Adjustment Program
Disenable PF Deterioration Offset	When reading the counter value from the old main board is impossible in the case of replacing the board, use this to set the counter to its maximum value.	Set the counter to its maximum value (3000).	• Adjustment Program
TOP Margin Adjustment	This corrects top margin of printout.	A top margin adjustment pattern is printed. Examine the lines printed near the top edge of the printout, and enter the value for the line that is exactly 3 mm away from the top edge.	• Adjustment Program • Ruler
Head angular adjustment	This must be carried out after replacing the printhead in order to correct tilt of the printhead by software.	A head angular adjustment pattern is printed. Examine the printed lines and enter the value for the most straight lines	• Adjustment Program

Table 5-1. Adjustment Items

Adjustment Item	Purpose	Method Outline	Tool
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 patterns and enter the value for the pattern with no gap and overlap for each mode.	• Adjustment Program
First dot position adjustment	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
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 patterns and enter the value for the line that is exactly 5mm away from the paper edge for each of the left, right, top and bottom.	
PF adjustment	Corrects variations in paper feed accuracy when using the Microweave to achieve higher print quality.	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
BRS/PFP adjustment	This adjustment is made to ensure high print quality at high print speed. For more details, see "2.3 Banding Reduction System (BRS)/ Paper Feed Profile Correction (PFP) *(p.38)*	Print the adjustment pattern to be scanned by a specified scanner. According to the scanned result, a correction value is automatically calculated and stored into the serial flash ROM on the main board. The correction value is applied when printing in the corresponding mode.	• Specified Scanner • PFP base scale
CR motor heat protection control	This must be carried out for efficient heat control of the CR motor. Electrical variation of the motor and the power supply board are measured to acquire correction values for them.	Select the parts that you replaced. The correction values are automatically written to the main board.	• Adjustment Program

Table 5-2. Maintenance Items

Maintenance Item	Purpose	Method Outline	Tool
Head Cleaning	This function is used to execute Cleaning efficiently when ink is not delivered from the Head properly, e.g. dot missing.	The head cleaning is performed automatically. After the cleaning, print a nozzle check pattern to check if all nozzles are firing ink properly.	• Adjustment Program
Waste ink pad counter	The printer causes a maintenance error when the waste ink pad counter reaches its maximum. Use this to reset the counter after replacing the Waste Ink Pad. If you find the counter is close to the maximum during servicing, carry out the pad replacement and the counter reset to avoid the printer returned from the user due to the maintenance error.	After replacing the Waste Ink Pad, reset the counter to its default.	• Adjustment Program
Ink charge	This must be carried out after replacing the printhead in order to fill ink inside the new printhead. The printhead becomes ready for print.	Filling ink inside the printhead is automatically performed. Print a nozzle check pattern to check if all nozzles are firing ink properly.	• Adjustment Program

Table 5-3. Additional Functions

Additional Functions		Purpose	Method Outline	Tool
Final check pattern print	A4 size	Use this to check if the all adjustments have been properly made.	The all adjustment patterns are printed automatically.	• Adjustment Program
	US Letter size			
EEPROM dump		Use this to readout the EEPROM data for analysis.	The all EEPROM data is automatically readout and stored as a file.	• Adjustment Program
Printer information check	Manual CL counter	Use this to readout information on the printer operations.	The printer information is automatically readout.	• Adjustment Program
	I/C exchange CL counter			
	Timer CL counter			
	Print pass counter			

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.

Note :   <Meaning of the marks in the table>
"O" indicates that the adjustment must be carried out. "O*" indicates that the adjustment is recommended. "---" indicates that the adjustment is not required.
If you have removed or replaced multiple parts, make sure to check the required adjustments for the all parts. And when multiple adjustments must be carried out, be sure to carry out them in the order given in the "Priority" row.

Table 5-4. Adjustment Items

Part Name	Adjustment Item	1 PG adjustment	2 EEPROM data copy	3 Initial setting	4 USB ID input	5 Head ID input	6 Waste ink pad counter	7 Ink charge	8 Initialize PF deterioration offset	9 Disenable PF deterioration offset	10 Top margin adjustment	11 Head angular adjustment	12 Bi-D adjustment	13 First dot position adjustment	14 PW adjustment	15 PF adjustment	16 BRS/PFP adjustment	17 CR motor heat protection control
ASF Unit	Remove	--	--	--	--	--	--	--	--	--	O	--	--	O	--	O	O	--
ASF Unit	Replace	--	--	--	--	--	--	--	--	--	O	--	--	O	--	O	O	--
CR Motor	Remove	--	--	--	--	--	--	--	--	--	--	--	O*	O*	--	--	--	--
CR Motor	Replace	--	--	--	--	--	--	--	--	--	--	--	O*	O	--	--	--	O
Upper Paper Guide	Remove	--	--	--	--	--	--	--	--	--	O	--	--	--	--	O	O	--
Upper Paper Guide	Replace	--	--	--	--	--	--	--	--	--	O	--	--	--	--	O	O	--
Printhead	Remove	O	--	--	--	--	--	--	--	--	O	O	O	O	O	O	O	--
Printhead	Replace	O	--	--	--	O	--	O	--	--	O	O	O	O	O	O	O	--
Main Board	Remove	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Main Board	Replace (Read OK)	--	O	--	--	--	--	--	--	--	--	--	--	--	--	--	--	O
Main Board	Replace (Read NG)	--	--	O	O	O	O (Ink Pads must be replaced)	--	--	O	O	O	O	O	O	O	O	O
PS Board	Remove	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PS Board	Replace	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	O

Table 5-4. Adjustment Items

Priority		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Adjustment Item / Part Name		PG adjustment	EEPROM data copy	Initial setting	USB ID input	Head ID input	Waste ink pad counter	Ink charge	Initialize PF deterioration offset	Disenable PF deterioration offset	Top margin adjustment	Head angular adjustment	Bi-D adjustment	First dot position adjustment	PW adjustment	PF adjustment	BRS/PFP adjustment	CR motor heat protection control
Front Paper Guide Assy (including PF Shaft)	Remove	O	--	--	--	--	--	--	--	--	O	O	O	O	O	O	O	--
	Replace	O	--	--	--	--	--	--	--	O	O	O	O	O	O	O	O	--
PF Motor	Remove	--	--	--	--	--	--	--	--	--	--	--	--	--	--	O*	O*	--
	Replace	--	--	--	--	--	--	--	--	O	--	--	--	--	--	O	O	--
Waste Ink Tray	Remove	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Replace	--	--	--	--	--	O (Waste Ink Tray)	--	--	--	--	--	--	--	--	--	--	--
Waste Ink Pad	Remove	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Replace	--	--	--	--	--	O (Waste Ink pad)	--	--	--	--	--	--	--	--	--	--	--
CR Unit	Remove	O	--	--	--	--	--	--	--	--	O	O	O	O	O	O	O	--
	Replace	O	--	--	--	--	--	--	--	--	O	O	O	O	O	O	O	--
Paper Eject Frame Assy	Remove	--	--	--	--	--	--	--	--	--	--	--	--	--	--	O	O	--
	Replace	--	--	--	--	--	--	--	--	--	--	--	--	--	--	O	O	--
Printer Mechanism	Remove	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Replace	O	--	--	--	--	--	--	O	--	O	O	O	O	O	O	O	O

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

Patterns are printed as shown below.

[Judging Standard]

The distance from a paper top edge to a line is:
- 4 mm or more: Choose the "-" from a combobox.
- 2 mm or less: Choose the "+" from a combobox.
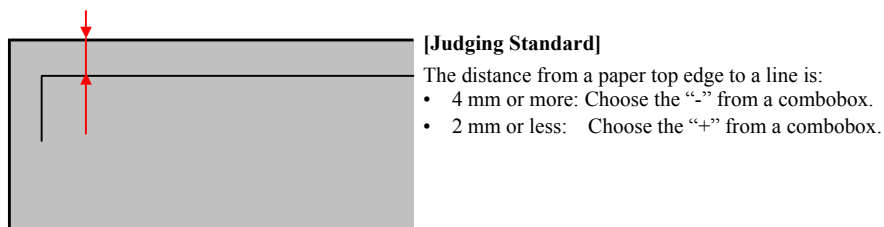
Figure 5-1. Top Margin Adjustment Pattern

How to Judge

Measure the distance from the top edge of the paper to the printed line, and enter any one of the "-", "0", "+" according to the judging standard.

5.2.2 Head angular adjustment

Two patterns are printed as shown below.

☐   Band pattern

The following pattern is printed. The lines below "0 >> 80" are printed while the carriage moves from the home to the other side, and lines below "80 >> 0" are printed while the carriage returns to the home.
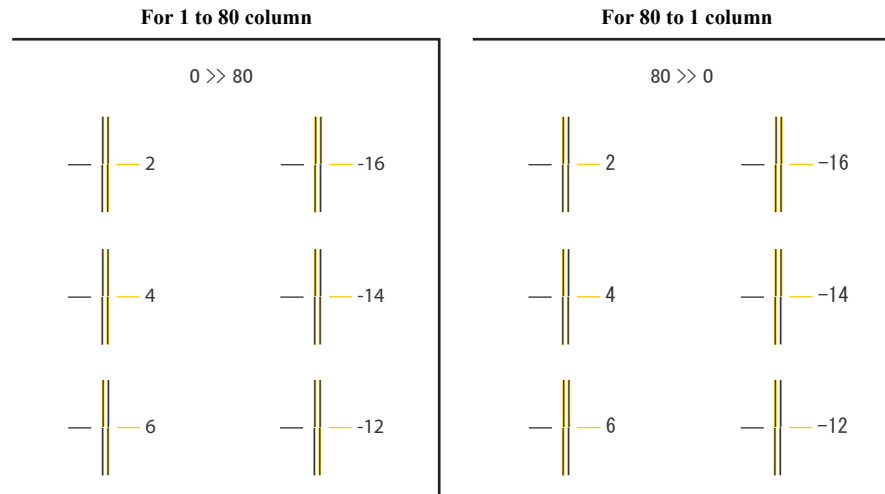
Figure 5-2. Head Angular Adjustment (Band) Pattern

How to Judge

Examine the printout patterns and enter the value (-16 to 16) for the most straight lines.

Additional information

When "16" or "-16" is the most straight lines, it indicates that the printhead is not installed correctly. Reassemble the printhead and carry out this adjustment again.

Example for judgement
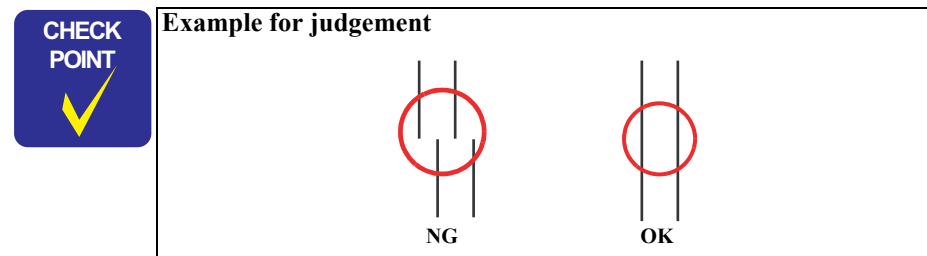
☐ Microweave Pattern
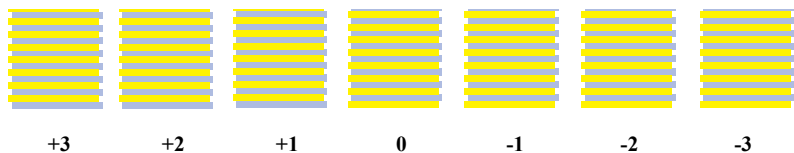
Figure 5-3. Head Angular Adjustment (Microweave) Pattern

How to Judge

Examine the printout +3 to -3 patterns and select the value for the group of which the gaps between the 2 color bars are the smallest.

Additional information

If no appropriate pattern is found, reassemble/replace the Print Head.
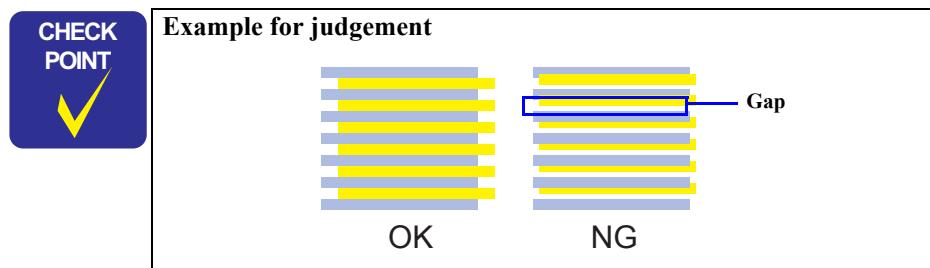
5.2.3 Bi-D Adjustment

The pattern shown below is printed for each of the 7 print modes.
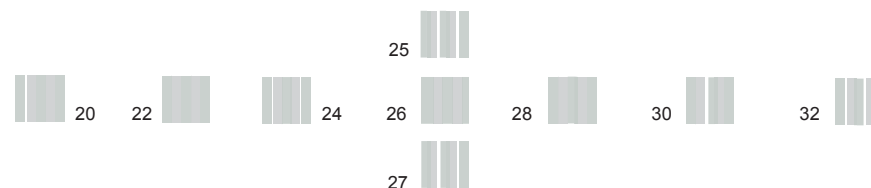
Figure 5-4. Bi-D Adjustment Pattern

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.
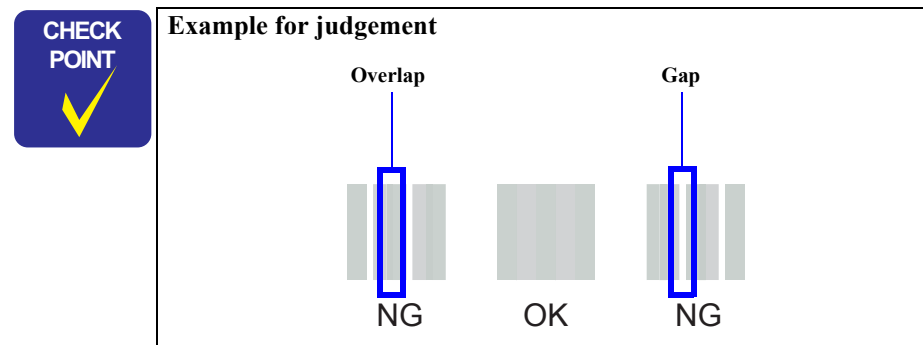
5.2.4 PW Adjustment/First Dot Position Adjustment

Patterns are printed as shown below.
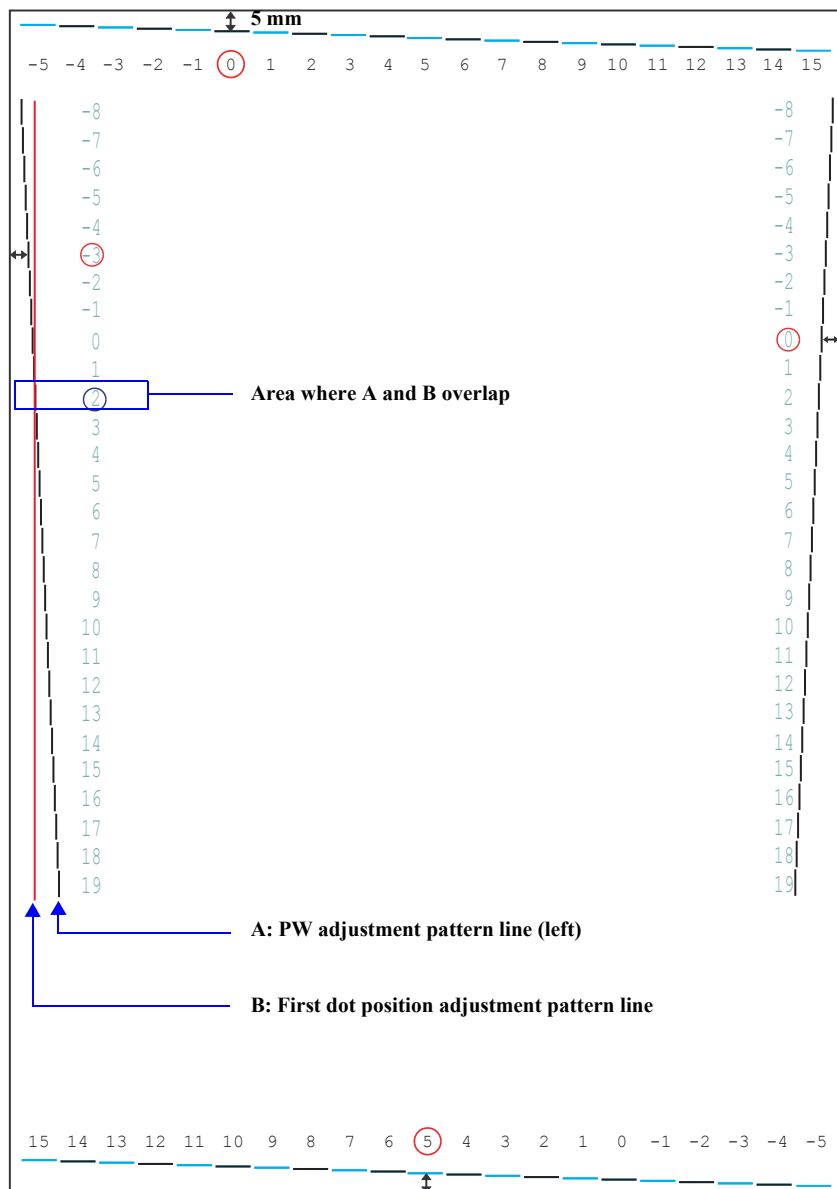
Figure 5-5. PW/First Dot Position Adjustment Pattern

□ PW adjustment

How to Judge

Enter the value for the line that is exactly 5mm away from the paper edge for each of the left, right, top and bottom.

Example: In the left figure, enter "0" (top), "0" (right), "5" (bottom) and "-3" (left).

□ First dot position adjustment

How to Judge

Enter the value for the point where the PW adjustment pattern line and the First dot position adjustment pattern line overlap on the left of the paper.

Example: In the left figure, enter "2" since the lines overlap at "2" position.

5.2.5 PF Adjustment

☐   PF-Standard Area

Patterns are printed as shown below.
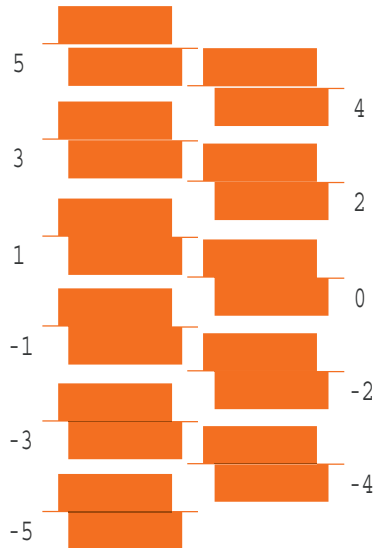
Figure 5-6. PF Adjustment (Standard Area) Pattern

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

NG   OK   NG
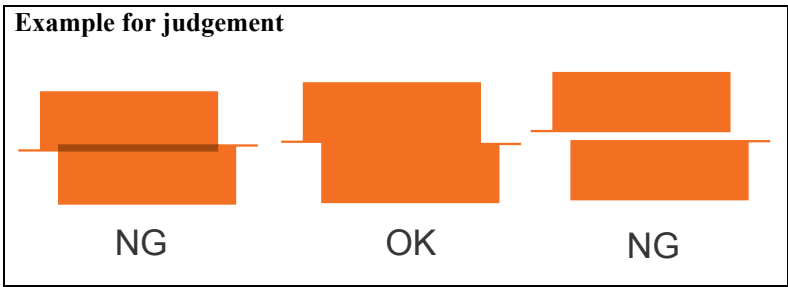
☐   PF-Bottom Edge Area

Patterns are printed as shown below.
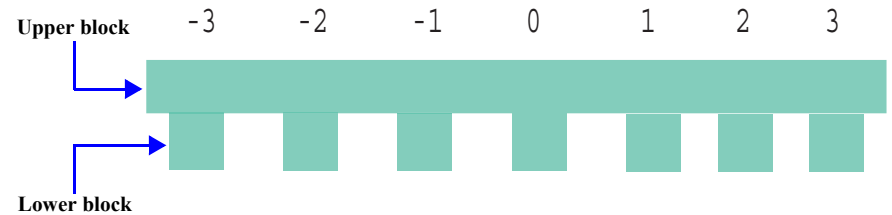
Figure 5-7. PF Adjustment (Bottom Edge) Pattern

How to Judge

Enter the value for the one that has no gap or overlap between the upper block and the lower block.

Example: In the above figure, "0" should be selected.

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

NG   OK   NG
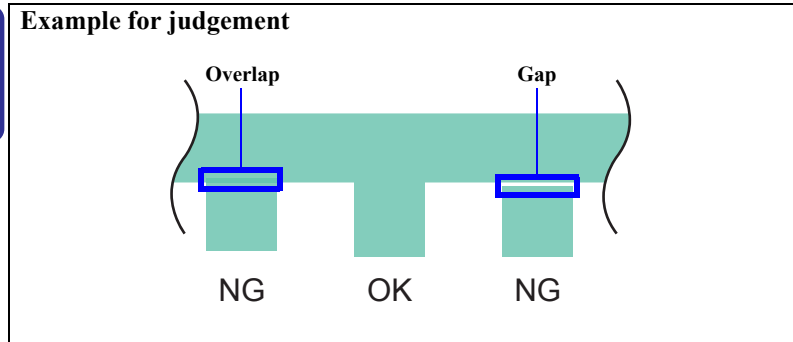
5.2.6 PG Adjustment

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 5-5. 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 thick paper PGPP, Postcards, Matte, etc.	Cleaning CR measurement, VH detection CR home position seek
PG typ. <Mechanical default>	1.7	Plain paper EPSON special thin paper, SF, etc. Rubbing with PG1.2 is avoided	
PG+	2.35	Envelopes Rubbing with PG1.2 and 1.7 is avoided	
PG++	4.2	CD-R printing	At ink replacement

☐ Things to be used

■ Thickness gauge: 1.15 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 Print Head is not soiled or scratched.
■ To ensure high accuracy of adjustment, install new ink cartridges in the carriage, and move the carriage right and left by pulling the belt without holding the carriage.

CHECK POINT

■ Make this adjustment after installing the mechanism unit in the Housing Lower. (Install the Linear Scale after adjustment.) Refer to "4.2.8 Printer Mechanism" (p. 76)
■ With EPSON Stylus Photo RX585/RX595/RX610, four stages of PG setting are available by means of the APG Mechanism. However, make this adjustment with the mechanism in the minimum PG position (PG-: 1.2 mm). (Refer to "4.5.4 APG Assy" (p. 87) and below.)
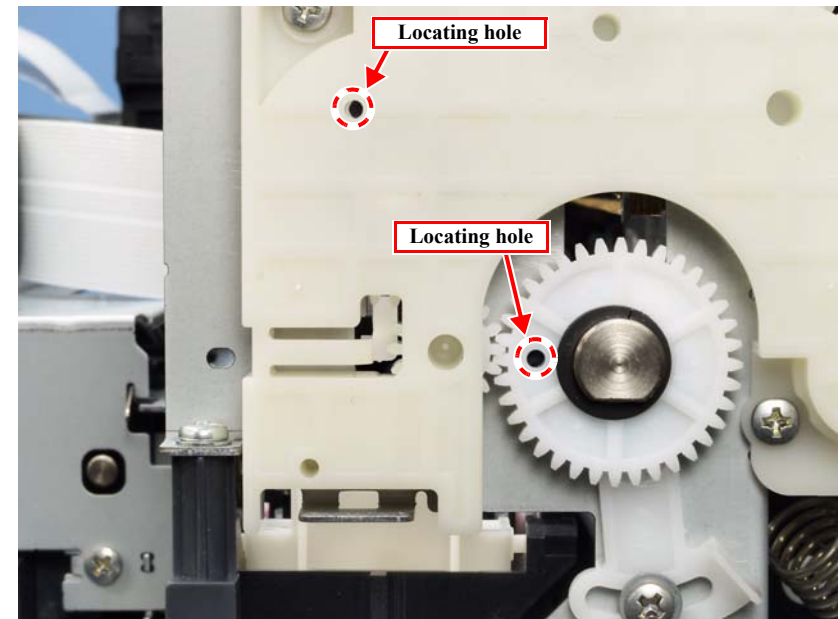

Figure 5-8. PG Position at PG Adjustment

☐   Adjustment procedure

   ■   Specified PG value: 1.2 ± 0.1 mm

1.   Install new ink cartridges in the carriage.

2.   Remove the Cable Holder Frame. *(Fig. 4-71)*

3.   Check that the APG Assy and the carriage are in the PG-position. *(Fig. 5-8)*

4.   Move the carriage to the center of the platen, and place 1.15 mm thickness gauge on the left aligning its left edge with the second rib of the Front Paper Guide. And place another 1.15 mm thickness gauge on the right aligning its right edge with the rightmost rib of the Front Paper Guide. *(Fig. 5-9)*

NOTE: *The thickness gauge must not be set over the leftmost rib on the Front Paper Guide.*

5.   Pull the Timing Belt to move the carriage to the left end.

6.   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.

7.   Pull the Timing Belt to move the carriage to the right end.

8.   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.

9.   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.

10.   Pull the Timing Belt to move the carriage to the left end.

11.   If the carriage does not come in contact with the gauge, make the adjustment again.

12.   Pull the Timing Belt to move the carriage to the right end.

13.   If the carriage does not come in contact with the gauge, make the adjustment again.

14.   Mark the indicated graduation position of the right and left Parallelism Bush, and tighten the screws.
(Screw tightening torque: 0.8±0.1 N•m)

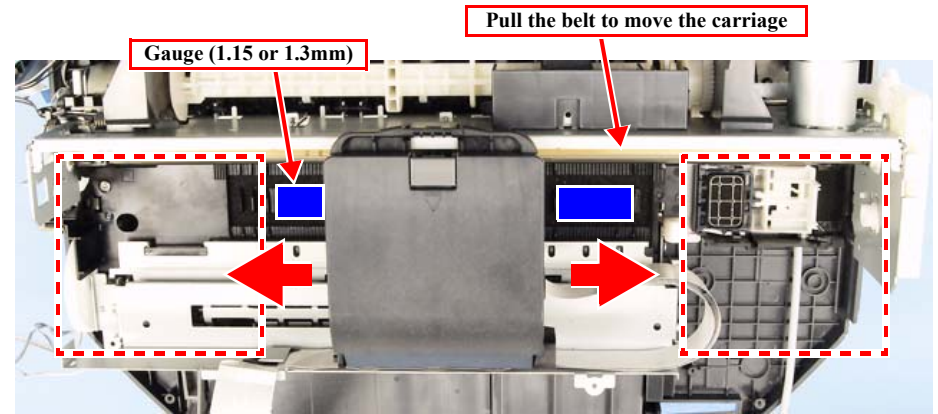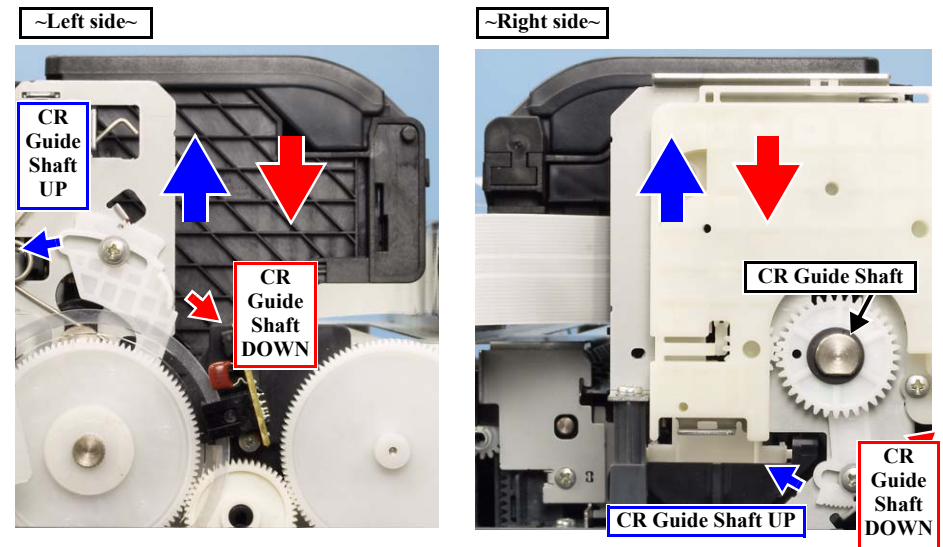| **CAUTION**	**The Printhead must come in contact with the 1.3 mm thickness gauges but must not come in contact with the 1.15 mm thickness gauges.**

Figure 5-9. PG Adjustment 1

Figure 5-10. PG Adjustment 2

5.3 Banding Reduction System (BRS) Adjustment/ Paper Feed Amount Profile (PFP) Correction

5.3.1 Overview

This section explains how to carry out BRS/PFP adjustments.

CHECK POINT ✓	■ **For overview of BRS/PFP Adjustment, refer to Chapter 2** "2.3 Banding Reduction System (BRS)/ Paper Feed Profile Correction (PFP) *(p. 38)* ■ **Be sure to have a specified scanner ready beforehand as it is necessary to carry out the adjustment. Before scanning, confirm that the document table is free from any dirt or stain.**

☐ Tools and paper required to perform the adjustment

Table 5-6. Tools and Paper for BRS/PFP Adjustment

	Tools/Paper	Product Code
Common	PFP Base scale	1453980
BRS	Matte Paper-Heavyweight (A4)	---
PFP	Premium Glossy Photo Paper (4 x 6)	---

☐ Specified Scanner to perform the adjustment

CAUTION ❗	■ **Install the driver of the scanner to the PC in advance.** ■ **As the profile required for the adjustment is not prepared for scanners other than the ones specified below, BRS/PFP Adjustment can not be carried out by the other scanners.**

The following are the scanners that can be used for scanning the pattern in BRS/PFP adjustment. When starting up the adjustment program, select the scanner to use.

Table 5-7. Specified Scanner for BRS/PFP Adjustment

Model Name	Sensor type	Remarks
Perfection 4990 Photo	CCD	
Perfection V700 Photo	CCD	
Stylus Photo RX560/RX580/RX590	CIS	Use the internal scanner.
Stylus Photo RX585/RX595/RX610	CIS	Use the internal scanner.
Stylus Photo RX680/RX685/RX690	CIS	Use the internal scanner.

| CHECK POINT ✓	**Depending on the sensor type of the scanner to use for the adjustment, drying time required after the BRS adjustment pattern has been printed differs. For PFP adjustment pattern/PFP check pattern, drying time is not required.**
	 ■ **For "CCD" sensor:**
	    Printed pattern can be scanned straight away. (Drying time of about 2 minutes is recommended.)
	 ■ **For "CIS" sensor:**
	    Printed pattern needs to be dried more than 5 minutes.
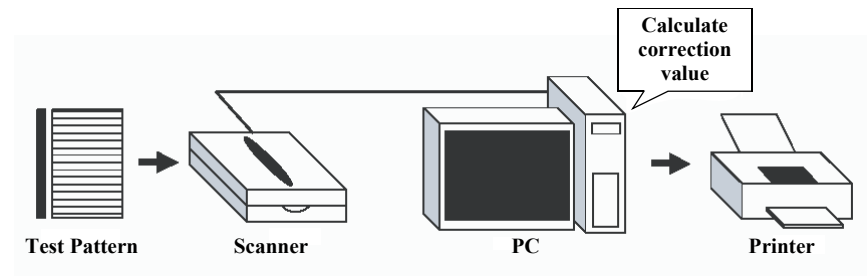
Figure 5-11. System Configuration

☐   Adjustment Flow
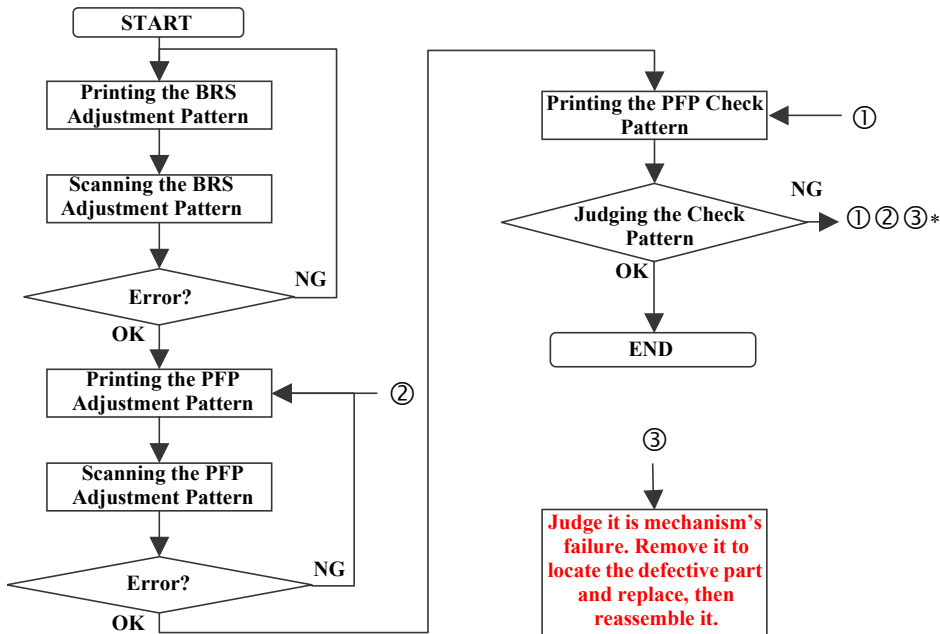
Carry out the adjustment following the adjustment flow below.

START

↓

| Printing the BRS Adjustment Pattern |

↓

| Scanning the BRS Adjustment Pattern |

↓

Error? ——NG→

↓ OK

| Printing the PFP Adjustment Pattern | ←②

↓

| Scanning the PFP Adjustment Pattern |

↓

Error? ——NG→

↓ OK

| Printing the PFP Check Pattern | ←①

↓

Judging the Check Pattern ——NG→ ①②③*

↓ OK

END

③
↓

Judge it is mechanism's failure. Remove it to locate the defective part and replace, then reassemble it.

Figure 5-12. BRS/PFP Adjustment Flow

Note*:   When a PFP pattern is judged as NG, repeat the steps as described below.
          First time NG: retry from ① step
          Second time NG:retry from ② step
          Third time NG: perform ③ step

CHECK POINT ✔

When an error is displayed in the Adjustment program, check the points below, then carry out the adjustment again. If an error occurs even after checking the points below, change the scanner with a different one and carry out the adjustment again.
1. Check that the printer that printed the pattern and the printer to register the adjustment value is the same.
2. Check that the printed pattern is placed on the document table of the scanner correctly.
3. Check that there is no gap between the PFP Base Scale and the pattern printed sheet.
4. Check that the scanner glass surface and the PFP Base Scale is free from any dirt or dust.

5.3.2 Adjustment Procedure

5.3.2.1 BRS (Banding Reduction System) Adjustment

□ Printing the BRS Adjustment Pattern

1. Load A4 size Matte Paper-Heavyweight on the paper support.

2. Select [BRS Adjustment] in the adjustment program.

3. Click the [Print] button on the "1. Print Test Pattern" column to print the adjustment pattern.

4. Let the printed pattern dry for more than 5 minutes if using CIS sensor type scanner.
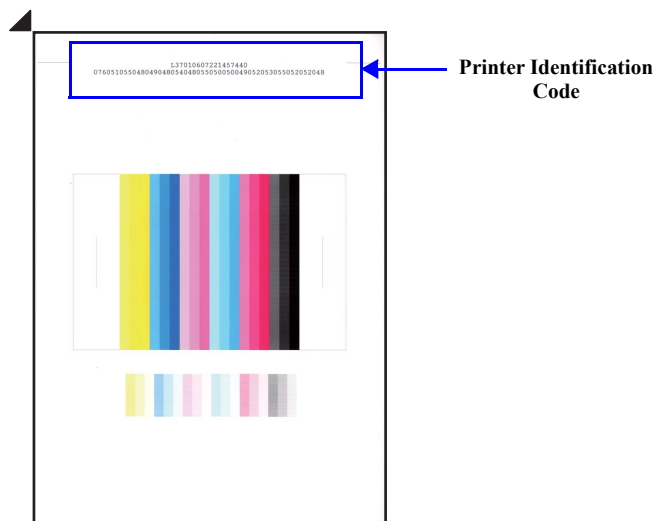
Figure 5-13. BRS Test Pattern

> **CHECK POINT** ✔
> - **In the Adjustment program, the identification code is used to distinguish whether the printer that printed the pattern and the printer to register the adjustment value is the same.**
> - **Make sure to let the printed pattern dry for more than 5 minutes if using CIS sensor type scanner. When using CCD sensor type scanner, the printed pattern does not need to be dried before scanning. Refer to "Table 5-7. Specified Scanner for BRS/PFP Adjustment" (p.107)**

□ Scanning the BRS Adjustment Pattern

5. Set the printed pattern and the PFP Base Scale on the document table and click the [Scan] button on the "3. Scan Test Pattern" column.

6. According to the scanned result, BRS calibration values are automatically calculated and are written to the serial flash ROM. If an error occurs, check that the document table glass and the scale is clean, and the scale/adjustment pattern is not tilted, then repeat from step 5.

> **CAUTION !**
> **Be careful of the following when setting the PFP Base Scale, and the adjustment pattern on the scanner.**
> - **Place the scale on the document glass aligning the scale corner with the scanner origin position.**
> - **Place the pattern-printed sheet along the scale as shown in the figure below. Make sure to place it parallel to the scale, with no gaps.**
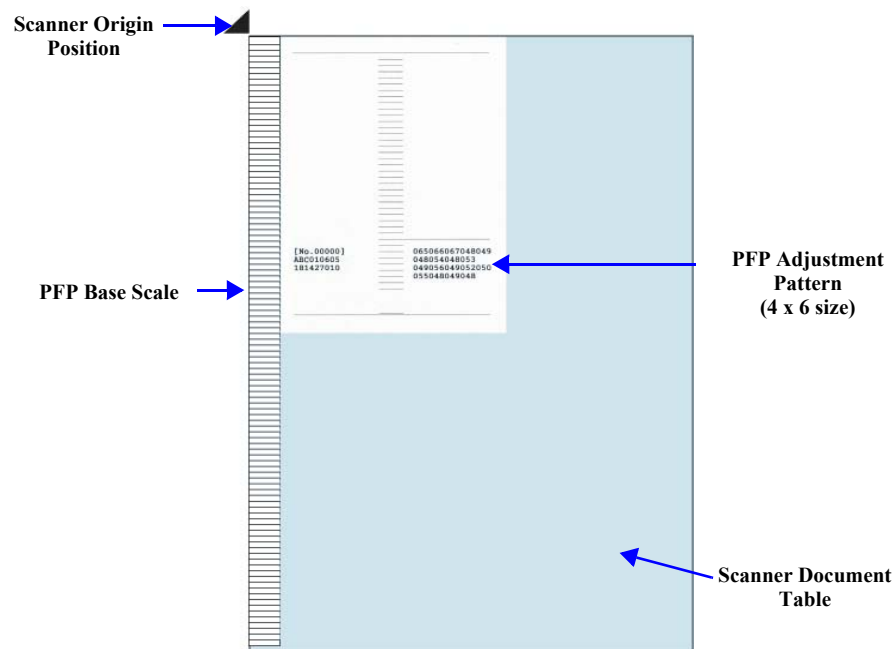

Figure 5-14. PFP Base Scale and BRS Adjustment Pattern Position (Viewed from the document glass of the scanner)

5.3.2.2 PFP Adjustment

☐   Printing the PFP Adjustment Pattern

1.   Load 4 x 6 Premium Glossy Photo Paper on the paper support.

2.   Select [PFP Adjustment] in the adjustment program.

3.   Click the [Print] button on the "1. Print Test Pattern" column to print the adjustment pattern.
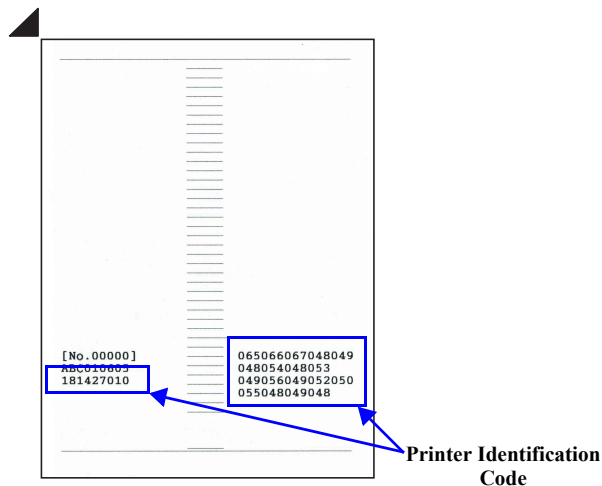
Figure 5-15. PFP Test Pattern

CHECK POINT ✔	In the Adjustment program, the identification code is used to distinguish whether the printer that printed the pattern and the printer to register the adjustment value is the same.

☐   Scanning the PFP Adjustment Pattern

4.   Set the PFP Base Scale and the PFP test pattern on the document table and click the [Scan] button on the "3. Scan Test Pattern" column.

5.   According to the scanned result, PFP calibration values are automatically calculated and are written to the serial flash ROM. If an error occurs, check that the document table glass and the scale is clean, and the scale/adjustment pattern is not tilted, then repeat from step 4.

CAUTION !	Be careful of the following when setting the PFP Base Scale and the adjustment pattern on the scanner. ■ Place the scale on the document glass aligning the scale corner with the scanner origin position. ■ Place the pattern-printed sheet along the scale as shown in the figure below. Make sure to place it parallel to the scale, with no gaps.

Figure 5-16. PFP Base Scale and PFP Adjustment Pattern Position (When viewed from the document glass of the scanner)

□   Printing the PFP Check Pattern

6.   Set 4 x 6 Premium Glossy Photo Paper on the paper support and click the [Print] Button on the "4. Print Check Pattern" column.
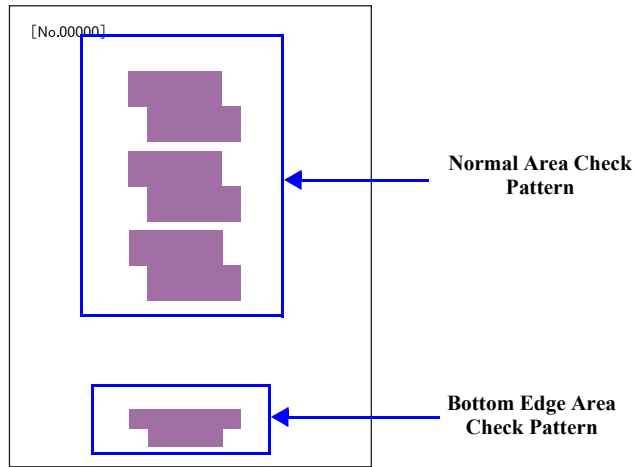

Normal Area Check Pattern

Bottom Edge Area Check Pattern

Figure 5-17. PFP Check Pattern

□   Judging the Check Pattern

7.   Referring to *Fig. 5-18* check that there is no white or overlapped bands in all the check patterns. If any bands are found, carry out the steps below.

   1.   Re-print the check pattern to see if the bands appear again.
   2.   When bands appear in Step 1, try the PFP adjustment again from the beginning.
   3.   When bands appear even after the re- adjustment in step 2, determine that it is the mechanism failure and carry out check/reassemble of the parts that was removed/replaced.

| Normal Area Check Pattern | | Bottom Edge Area Check Pattern |

OK
no bands

NG
white band

NG
overlapped band
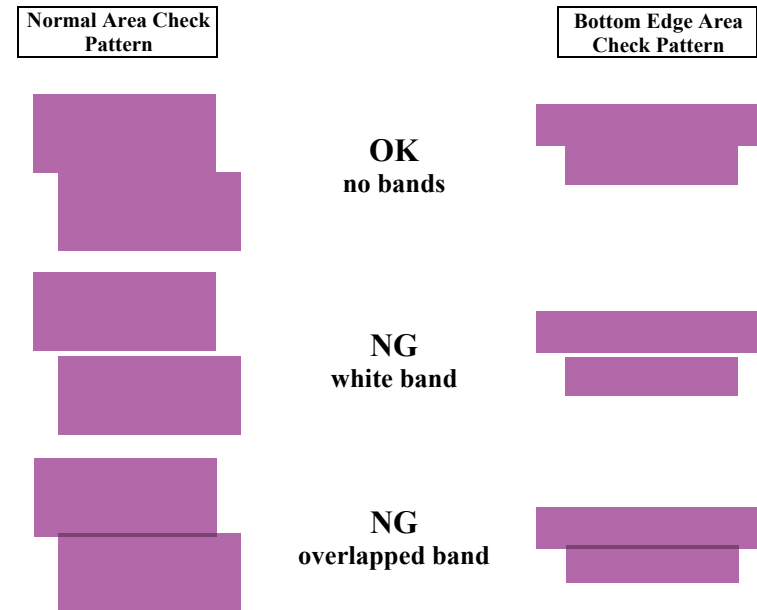
Figure 5-18. PFP Check Pattern Judging Standard

5.4 Scanner Original Adjustment

☐ Parts to be removed and replaced

- ■ Replacement of Scanner Housing, Upper
- ■ Replacement of Scanner Unit

⚠ CAUTION	■ **This adjustment requires the FT (Function Test) program and the exclusive adjustment jig.** ■ **If the setting of the printer differs from the one mentioned in the following procedure, this adjustment can not be completed correctly. In that case, the edge of the Scanner Housing, Upper may be read in during scanning or copying.**

CHECK POINT ✔	■ **Download and install the Original Adjustment program from TechExchange.** ■ **Before the adjustment is performed, connect the printer to the computer with the adjustment program installed with the USB cable.**

☐ Adjustment procedure

1. Turn the printer ON.

2. Run "FT.exe".

Figure 5-19. Original Adjustment (1)

3. Open the document cover, and place the original adjustment jig as shown in the figure below.
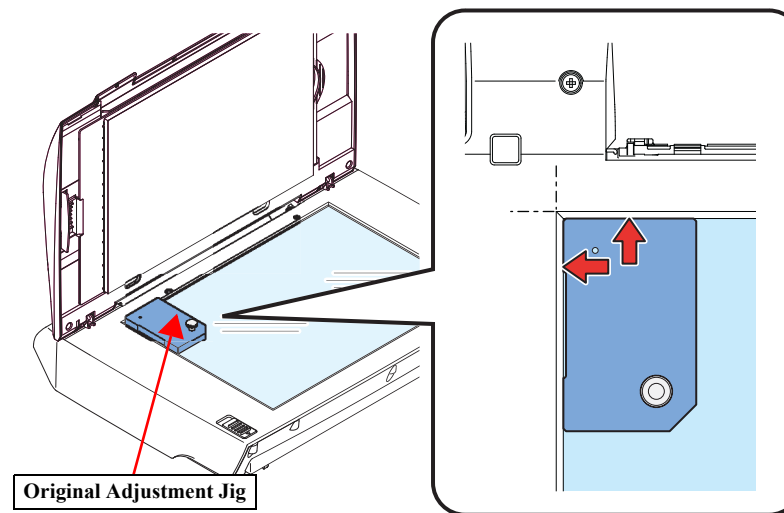
Figure 5-20. Original Adjustment Jig Setting Position

4. Select "C693" in the "Select Parameter Set" window, and click [OK].
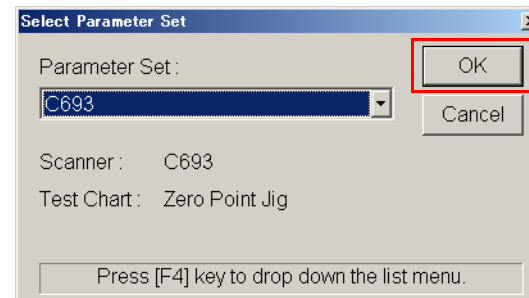
Figure 5-21. Original Adjustment (2)

5. Click the "SGL" icon in the "EPSON Scanner Function Test - WriteZero for serviceQ" window.

SGL Icon
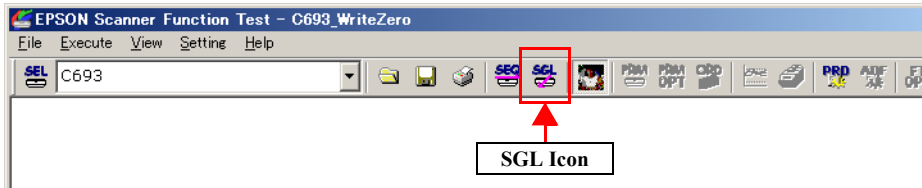
Figure 5-22. Original Adjustment (3)

6. Enter the product number in the "Single Test" window, select "Write Zero Correction Value", and press the [Execute] button.
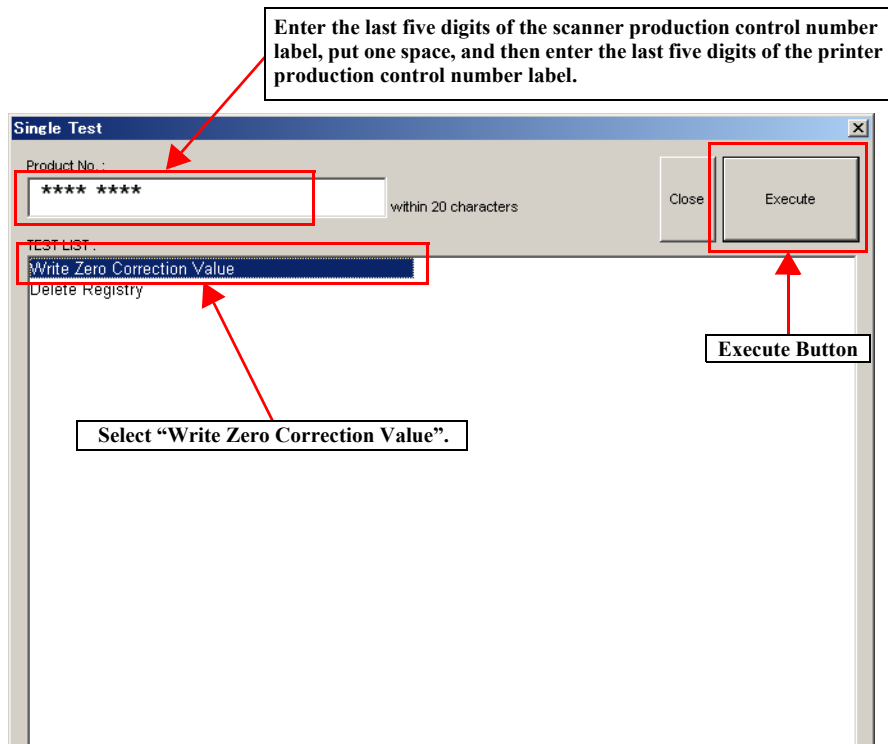
Enter the last five digits of the scanner production control number label, put one space, and then enter the last five digits of the printer production control number label.

Execute Button

Select "Write Zero Correction Value".

Figure 5-23. Original Adjustment (4)

7. A progress bar will be displayed followed by the window shown below.

<Window displayed when the adjustment is completed successfully>
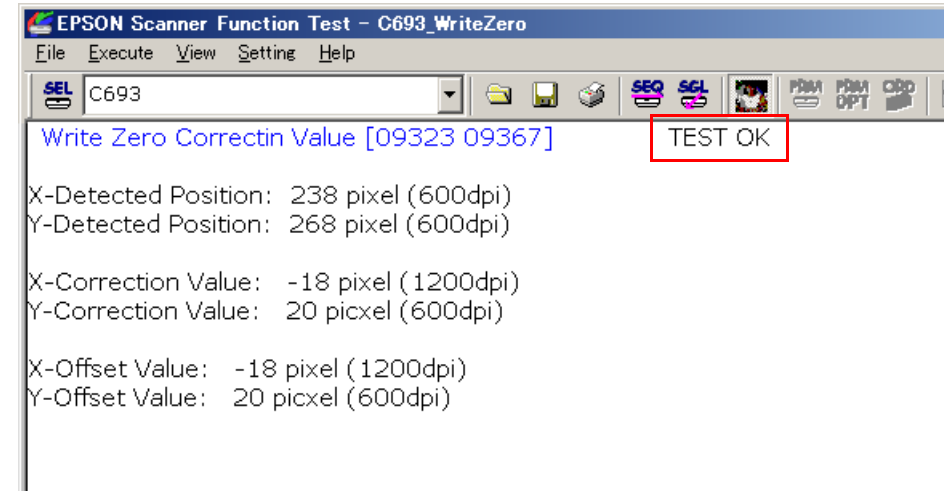
Figure 5-24. Window displayed when the adjustment is completed successfully (1)
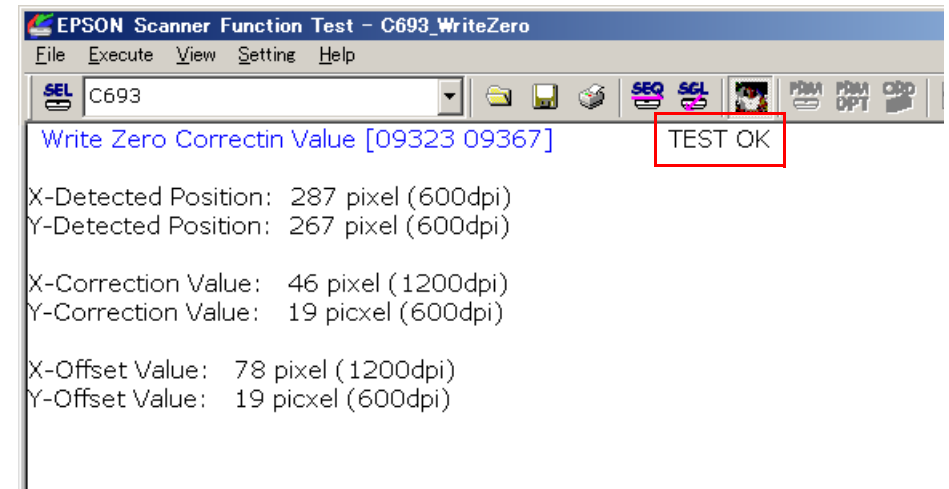
Figure 5-25. Window displayed when the adjustment is completed successfully (2)

<Window displayed when the adjustment has failed>
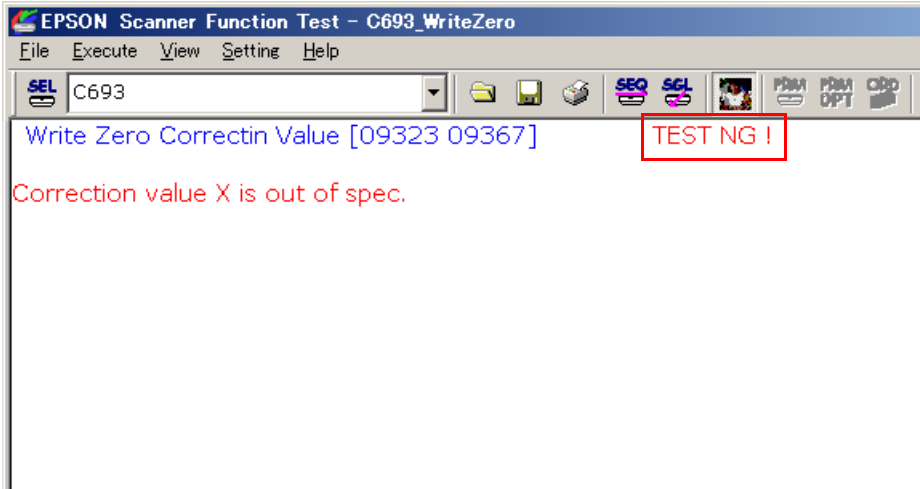
Figure 5-26. Window displayed when the adjustment has failed

If the adjustment cannot be completed successfully, check whether the parts are correctly installed or not. If there is a problem, perform the part replacement once again.

CHAPTER

6

MAINTENANCE

6.1 Overview

This section describes maintenance work to maintain the functions and performance of Stylus PHOTO RX585/595/610.

CAUTION !	**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.**

6.1.1 Maintenance Error

Once a maintenance error has occurred, replace all the maintenance parts listed below, and clear the counter.

Table 6-1. Parts to be Replaced at Maintenance Error

Part Name	Location	Refer to for Disassembly/ Assembly
Waste Ink Tray Assy	In front of carriage home position	p.72
Waste Ink Pads (x2)	Under the platen (on the Lower Case Assy)	p.80

CHECK POINT ✔	■ **In maintenance work, check the value of the overflow counter. If the value of the counter is close to its upper limit, notify the user and recommend that the waste ink pads are to be replaced. (If the waste ink pads are not replaced at that time, there is a possibility that "Maintenance Error" can occur just after the printer is returned to the customer.)** ■ **After replacement, reset the overflow counter (protection counter) by the adjustment program.**

6.1.2 Cleaning

CAUTION !	**For cleaning, do not use such a solvent as thinner.**

Table 6-2. Cleaning

Part to be Cleaned	Cleaning Method
Exterior parts	Wipe with a cloth soaked into water once and squeezed strongly.
Rubber rollers	Wipe the rollers with a cloth that is soaked with alcohol diluted with pure water.
LCD surface	Blow off the dust with a blower.
Scanner document table (Glass side)	Wipe with a clean dry cloth. If heavily contaminated, wipe off with a cloth dipped in a small amount of mild detergent. If any contamination remains, wipe off again with a dry cloth.

6.1.3 Lubrication

The types and amount of grease to be applied have been determined based on the evaluation at factory. Accordingly, definitely use a suitable volume of designated grease to the designated points for repair and maintenance of the product. Designated types of grease and application points are as shown below.

CAUTION ⚠	■ **Never use any grease other than those specified, since such grease can affect adversely the mechanical life and functions of this product or result in damage to this equipment.** ■ **As the suitable volume is also designated based on evaluation result, avoid applying any undesignated volume.** ■ **Do not lubricate any part other than those specified. Take care that no grease adheres to any paper transport parts, such as rollers, or the Printhead; otherwise, the print quality may drop.**

☐ Specified lubricant, etc.

Table 6-3. Specified Lubricant, etc.
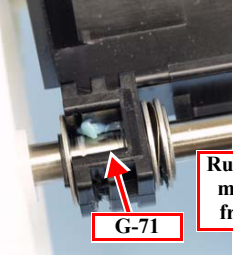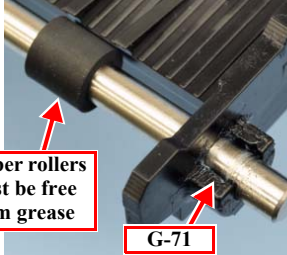
Type	Name	Parts Code	Available
Grease	G-71	1304682	EPSON
	G-74	1409257	
	G-77	1455324	
	G-45	1033657	

LUBRICATION OF FRONT FRAME
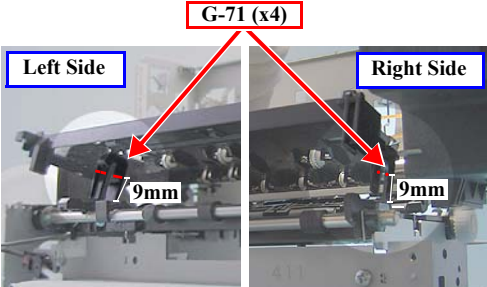
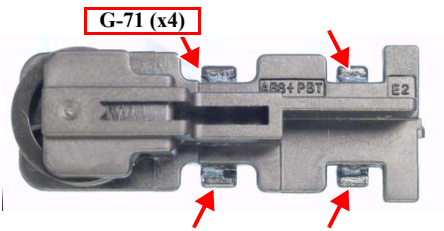| Lubrication Points	Sliding surface and spring catch area on the front frame (2 points each: right and left)
Type	G-71
Amount of Application	ø 1x3 mm x2 ø 1x7 mm x2
Applying Tool	Injector
Precautions	Make sure that the Eject Frame Assy moves up and down smoothly.

LUBRICATION OF PAPER GUIDE FRONT ASSY

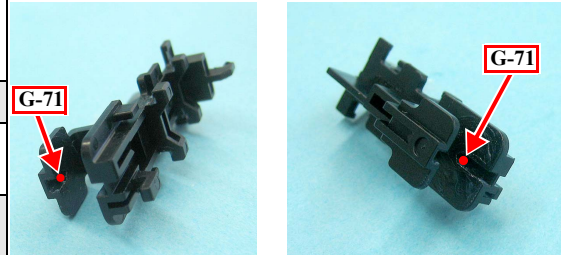| Lubrication Points	PF Roller Shaft and the shaft holders (2 points: right and left)
Type	G-71
Amount of Application	ø 1x3 mm
Applying Tool	Injector
Precautions	Make sure that the coated surface of the PF Roller Shaft is free from grease.

Lubrication Points	Paper Eject Roller Shaft and shaft holders (2 points: right and left)
Type	G-71
Amount of Application	ø 1x3 mm
Applying Tool	Injector
Precautions	Make sure that the rubber rollers on the Paper Eject Roller Shaft are free from grease.

Left side of Paper Eject Roller Shaft   **Right side of Paper Eject Roller Shaft**

G-71

Rubber rollers must be free from grease

G-71

LUBRICATION OF EJECT FRAME ASSY

Lubrication Points	Right and left Eject Frame Assy shaft holders (On the back side of the Eject Frame Assy: 9mm from the end point)
Type	G-71
Amount of Application	ø 2x2 mm x2 (Inside of the right shaft holder) ø 2x2 mm x2 (Inside of the left shaft holder)
Applying Tool	Injector
Precautions	

G-71 (x4)

Left Side   **Right Side**

9mm   **9mm**

LUBRICATION OF DRIVEN PULLEY

Lubrication Points	Surfaces which come in contact with the printer frame (4 points)
Type	G-71
Amount of Application	ø 1x 2 mm
Applying Tool	Injector
Precautions	

G-71 (x4)

Lubrication Points	Surfaces which come in contact with the Driven Pulley shaft (2 points)
Type	G-71
Amount of Application	ø 1x 1 mm
Applying Tool	Injector
Precautions	

G-71   **G-71**

LUBRICATION OF CARRIAGE ASSY AND CR GUIDE SHAFT

Lubrication Points	CR Guide Shaft and Carriage Assy	
Type	G-71	
Amount of Application	Area A: 210±20 mg (x2) Area B: 210±20 mg (x2)	
Applying Tool	Injector	
Precautions	Make sure that the belt and any parts other than those specified are free from grease.	

LUBRICATION AT INSTALLATION OF CARRIAGE ASSY

		Left side of printer frame	Right side of printer frame
Lubrication Points	Right and Left PG Cams (Cam Contour)		
Type	G-71		
Amount of Application	ø 1x One round		
Applying Tool	Injector		
Precautions			

LUBRICATION OF APG UNIT

		Left side of printer frame	Right side of printer frame
Lubrication Points	CR Guide Shaft (Grooves for pressure springs)		
Type	G-71		
Amount of Application	(1) ø 1x 5 mm (x2) (2) ø 1x 10 mm (x1) (3) ø 1x 15 mm (x1)		
Applying Tool	Injector		
Precautions			

LUBRICATION OF APG UNIT

Lubrication Points	Upper part of the shaft holders (5 points)	
Type	G-71	
Amount of Application	ø 3x One round (x5)	
Applying Tool	Injector	
Precautions	Disassemble the APG Unit and apply grease before installing the APG Unit.	

Lubrication Points	Around the Spur gear 28.8	
Type	G-71	
Amount of Application	ø 3x One round	
Applying Tool	Injector	
Precautions	Apply grease before installing the APG Unit.	

LUBRICATION OF PRINTER MECHANISM ASSY

Lubrication Points	Surfaces which come in contact with the carriage (rear of printer frame)
Type	G-71
Amount of Application	ø 5 mm: Top ø 10 mm: Bottom
Applying Tool	Injector
Precautions	Move the Carriage Assy to the center and apply grease to the top and bottom surfaces of the right and left areas.

LUBRICATION OF LD ROLLER SHAFT

Lubrication Points	V-shaped grooves of the LD Roller Shaft (2 points: right and left)
Type	G-71
Amount of Application	ø 1x 1 mm (x4)
Applying Tool	Injector
Precautions	

LUBRICATION AT INSTALLATION OF I/S ASSY

Lubrication Points	Printer frame: Surface which comes in contact with the Clutch Gear
Type	G-71
Amount of Application	One round
Applying Tool	Injector
Precautions	

LUBRICATION OF ASF ASSY

Described below are the lubrication points of the ASF Assy for the case where the LD Roller Shaft is locked and those for the case where the Hopper has been released.

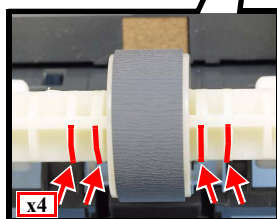☐   When LD Roller Shaft is locked

Lubrication Points	LD Roller Assy
Type	G-71
Amount of Application	Left side of the LD Roller Shaft: ø1 x 5 mm Vicinity of the LD Roller: On the rib (x4) Right side of the LD Roller Shaft: ø1 x 5 (x2) ø1 x 10
Applying Tool	Injector
Precautions	When LD Roller Shaft is locked

☐   When Hopper has been released

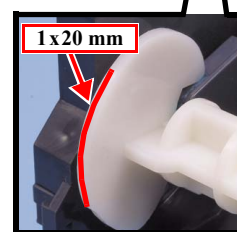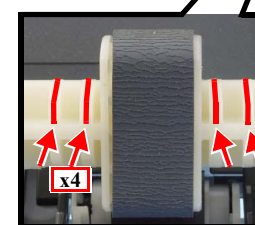| Lubrication Points	LD Roller Assy
Type	G-71
Amount of Application	Left side of the LD Roller Shaft: ø1 x 20 mm Vicinity of the LD Roller: On the rib (x4) Right side of the LD Roller Shaft: ø1 x 10 (x2)
Applying Tool	Injector
Precautions	When Hopper has been released

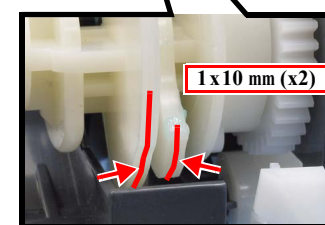**Left side of LD Roller Shaft**   **Vicinity of LD Roller**   **Right side of LD Roller Shaft**

1 x 5 mm   x4   1 x 10 mm   1 x 5 mm (x2)

Left side of LD Roller Shaft   **Vicinity of LD Roller**   **Right side of LD Roller Shaft**

1 x 20 mm   x4   1 x 10 mm (x2)

LUBRICATION OF STACKER GUIDE

Lubrication Points	Right and left Stacker Guides (Grooves for the shaft holder)
Type	G-77
Amount of Application	Suitable volume
Applying Tool	Flux dispenser
Precautions	Apply grease to the inside of the grooves shown in the figure.

Left Stacker Guide

G-77

Right Stacker Guide

G-77

LUBRICATION OF SCANNER UNIT

Lubrication Points	CR CIS
Type	G-74
Amount of Application	
Applying Tool	
Precautions	Apply grease at three points shown.

G-74

G-74

G-74

Lubrication Points	CR shaft of Housing Lower
Type	G-45
Amount of Application	
Applying Tool	Injector and brush
Precautions	After applying grease at a point shown, spread it with a brush evenly over the whole shaft.

G-45 (x2)

After applying grease, spread it evenly with a brush

# APPENDIX

7.1 Exploded Diagram / Parts List

This manual does not provide exploded diagrams or parts list.

For the information, see SPI (Service Parts Information).

7.2 Electrical Circuits

The electric circuit diagrams below are shown at the following pages:
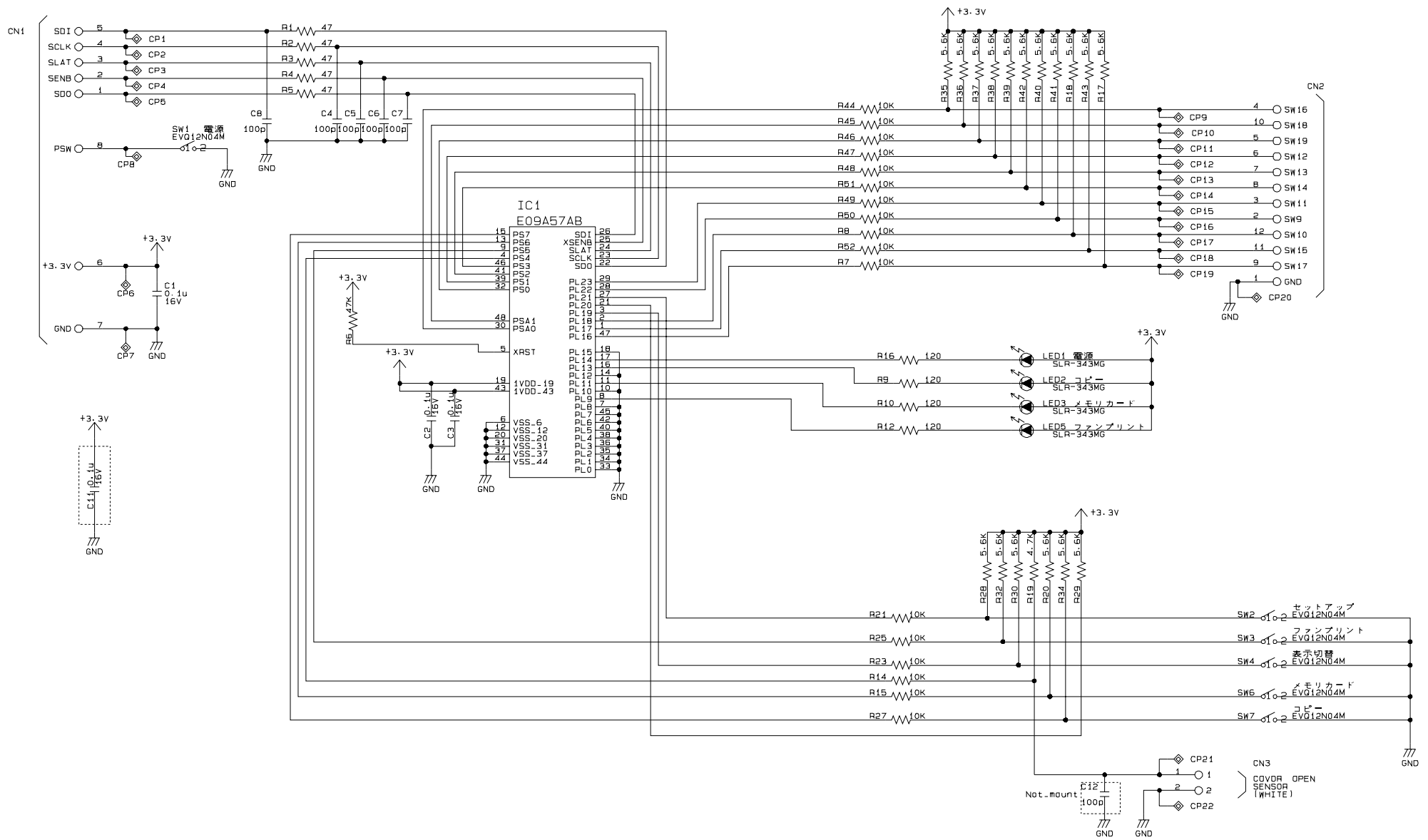
- Main Board (1) (C693 MAIN)
- Main Board (2) (C693 MAIN)
- Main Board (3) (C693 MAIN)
- Panel Board (C693 PNL)
- Panel B Board (C685 PNL-B)
- Power Board (C693 PSB)
- Power Board (C693 PSE)
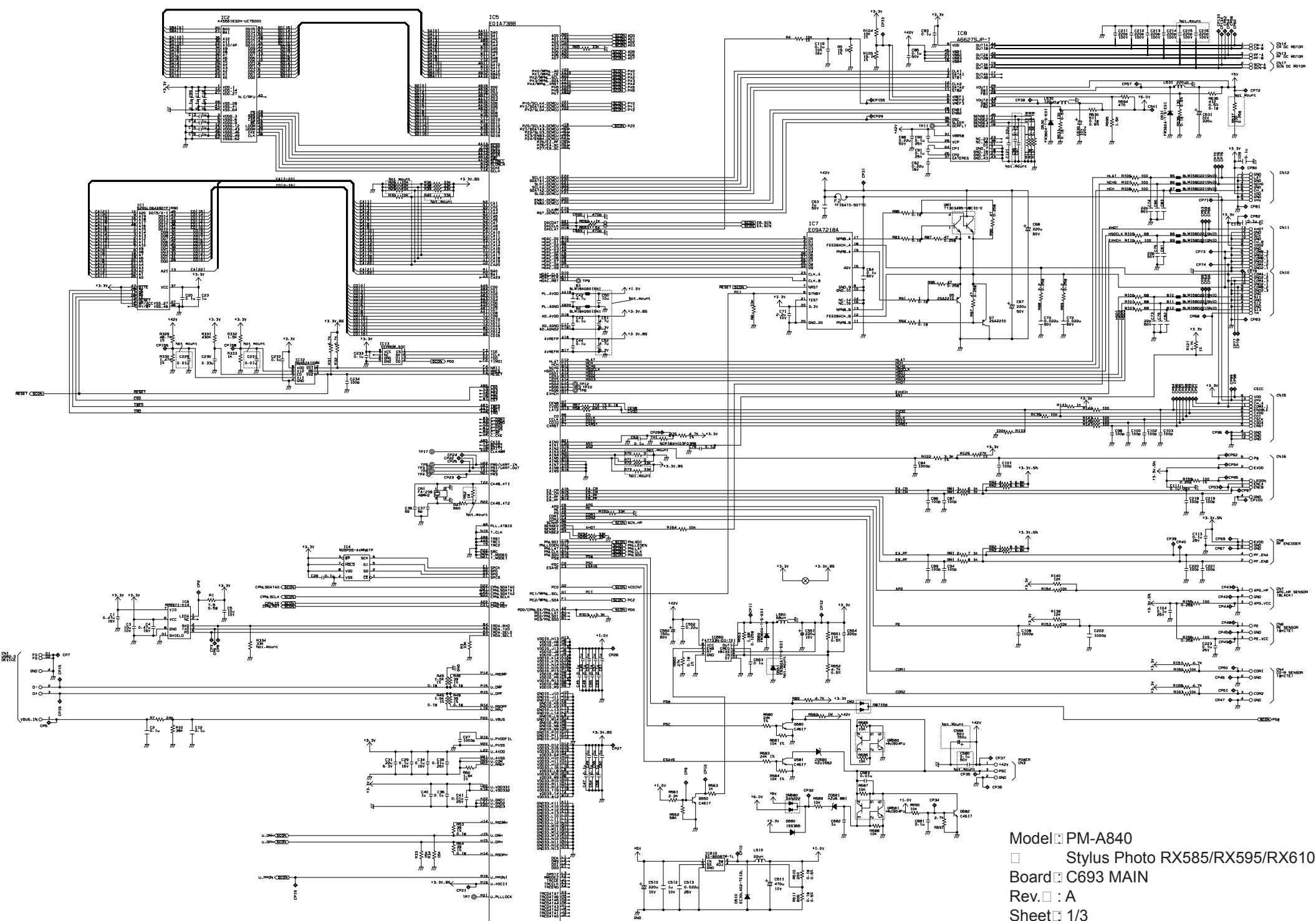
Model : PM-A840
Stylus Photo RX585/RX595/RX610
Board : C693 MAIN
Rev. : A
Sheet : 1/3

Model : PM-A840
　　　　　Stylus Photo RX585/RX595/RX610
Board : C693 MAIN
Rev.　 : A
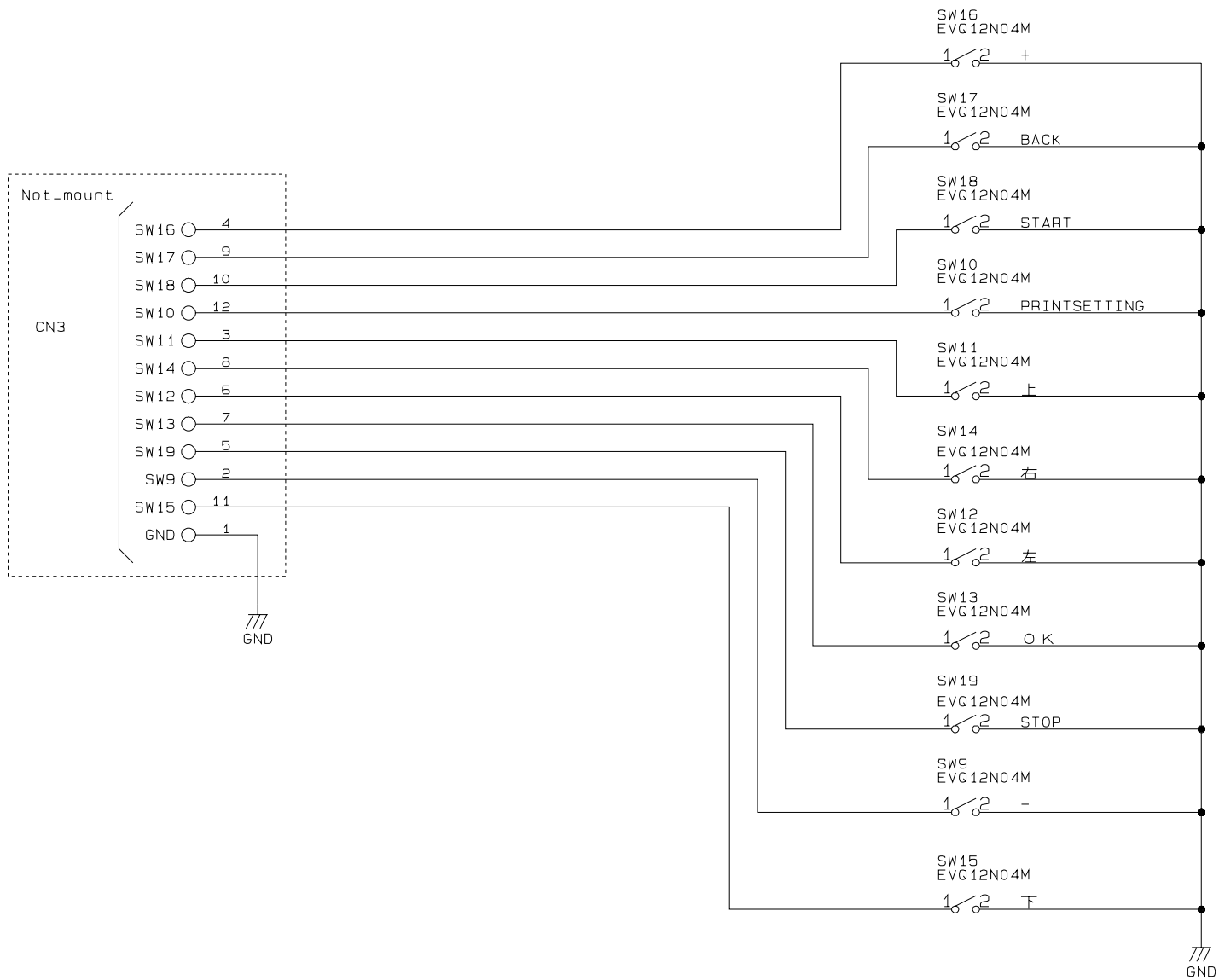Sheet : 2/3
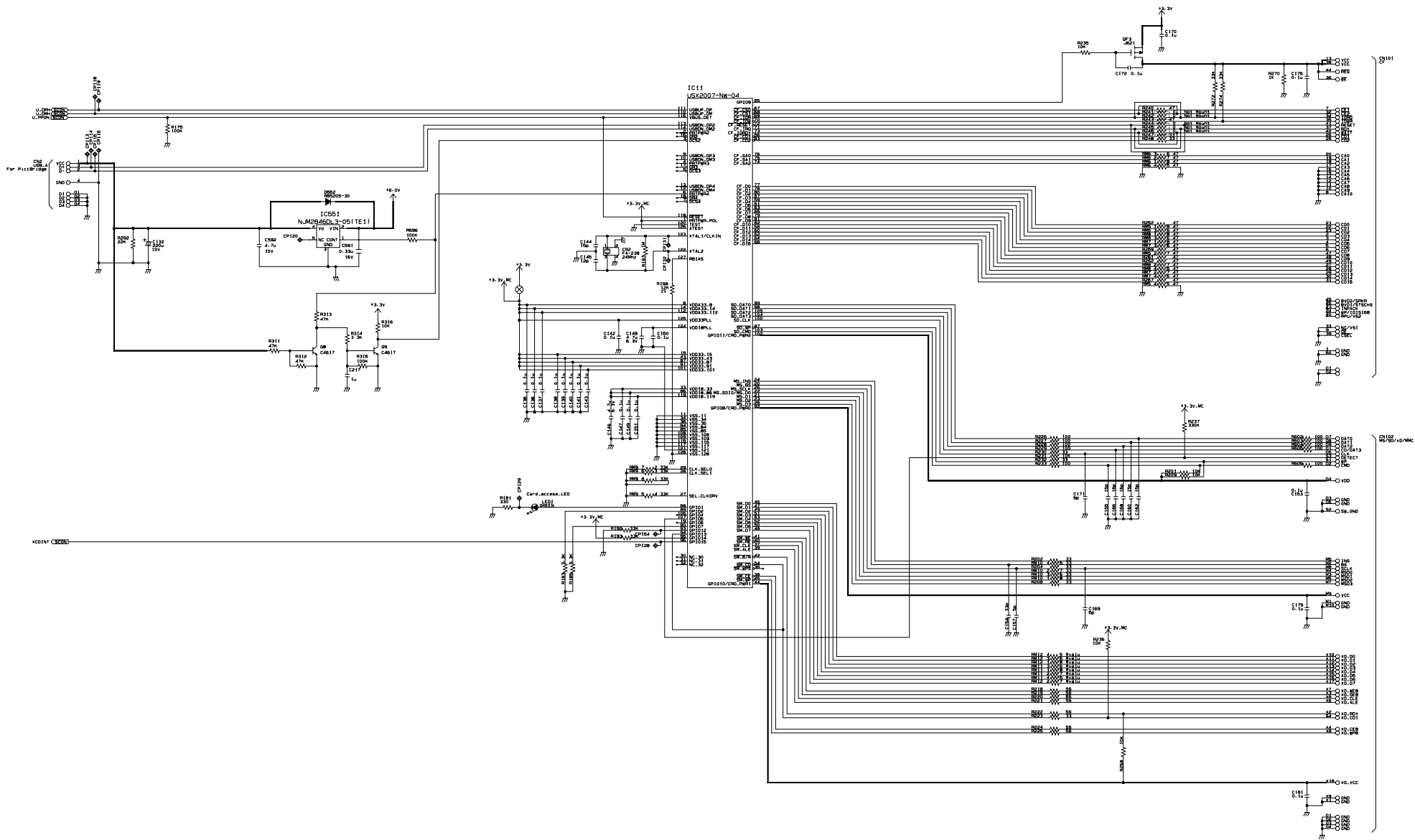
Model : PM-A840
    Stylus Photo RX585/RX595/RX610
Board : C693 MAIN
Rev.   : A
Sheet : 3/3

Model : PM-A840
Stylus Photo RX585/RX595/RX610
Board : C693 PNL
Rev.　: A
Sheet : 1/1

SW16
EVQ12N04M
1 2 +

SW17
EVQ12N04M
1 2 BACK

SW18
EVQ12N04M
1 2 START

SW10
EVQ12N04M
1 2 PRINTSETTING

SW11
EVQ12N04M
1 2 上

SW14
EVQ12N04M
1 2 右

SW12
EVQ12N04M
1 2 左

SW13
EVQ12N04M
1 2 OK

SW19
EVQ12N04M
1 2 STOP

SW9
EVQ12N04M
1 2 −

SW15
EVQ12N04M
1 2 下

GND

Not_mount

CN3

SW16 ○ 4
SW17 ○ 9
SW18 ○ 10
SW10 ○ 12
SW11 ○ 3
SW14 ○ 8
SW12 ○ 6
SW13 ○ 7
SW19 ○ 5
SW9 ○ 2
SW15 ○ 11
GND ○ 1

GND

Model : PM-A840
        Stylus Photo RX585/RX595/RX610
Board : C685 PNL-B
Rev.   : A
Sheet : 1/1

Model : PM-A840
        Stylus Photo RX585/RX595/RX610
Board : C693 PSB
Rev. : A
Sheet : 1/1

Model : PM-A840
Stylus Photo RX585/RX595/RX610
Board : C693 PSE
Rev.   : A
Sheet : 1/1