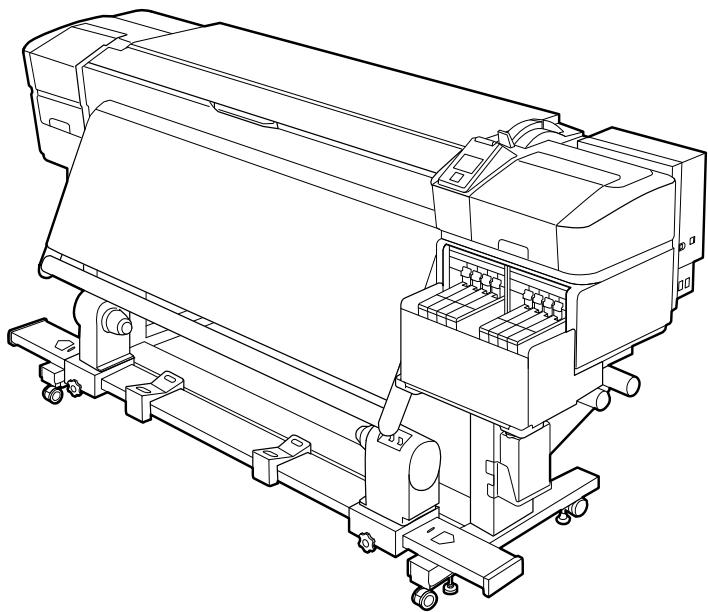


SERVICE MANUAL



Large Format Color Inkjet Printer

**SC-F9300 Series
SC-F9400 Series
SC-F9400H Series**

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PRECAUTIONS

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

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

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

DANGER

1. ALWAYS DISCONNECT THE PRODUCT FROM THE POWER SOURCE AND PERIPHERAL DEVICES PERFORMING ANY MAINTENANCE OR REPAIR PROCEDURES.
2. NO WORK SHOULD BE PERFORMED ON THE UNIT BY PERSONS UNFAMILIAR WITH BASIC SAFETY MEASURES AS DICTATED FOR ALL ELECTRONICS TECHNICIANS IN THEIR LINE OF WORK.
3. WHEN PERFORMING TESTING AS DICTATED WITHIN THIS MANUAL, DO NOT CONNECT THE UNIT TO A POWER SOURCE UNTIL INSTRUCTED TO DO SO. WHEN THE POWER SUPPLY CABLE MUST BE CONNECTED, USE EXTREME CAUTION IN WORKING ON POWER SUPPLY AND OTHER ELECTRONIC COMPONENTS.
4. WHEN DISASSEMBLING OR ASSEMBLING A PRODUCT, MAKE SURE TO WEAR GLOVES TO AVOID INJURY 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 AIR DUSTER IS USED ON THE REPAIR AND THE MAINTENANCE WORK, THE USE OF THE AIR DUSTER PRODUCTS CONTAINING THE INFLAMMABLE GAS IS PROHIBITED.
7. MAKE SURE AN ANTIVIRUS SOFTWARE IS INSTALLED ON THE COMPUTER USED FOR SERVICE SUPPORT. BE SURE TO HAVE THE LATEST VIRUS DEFINITION FILE FOR THE SOFTWARE.

About This Manual

About This Manual: This manual is made for the sole purpose of providing necessary information in order that a serviceperson qualified by Epson performs his / her appropriate repair / maintenance for the applicable Epson's products. You shall not use this manual out of this purpose.

This manual is Epson's confidential information. When you use this manual, you shall hold it in strict confidence and shall not disclose to any third party without prior consent of Epson.

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.TROUBLESHOOTING

Describes the step-by-step procedures for the troubleshooting.

CHAPTER 3.DISASSEMBLY / ASSEMBLY

Describes the step-by-step procedures for disassembling and assembling the product.

CHAPTER 4.ADJUSTMENT

Provides Epson-approved methods for adjustment.

CHAPTER 5.MAINTENANCE

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

CHAPTER 6.APPENDIX

Provides the following additional information for reference:

- Wiring Diagram
- Panel Menu Maps

Symbols Used in this Manual

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



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



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



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



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



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



Indicates that lubrication is needed for the parts after disassembly, when doing a maintenance or replacing a part with a new one.

Revision Status

Revision	Date of Issue	Description
A	August 17, 2017	First release
B	November 15, 2019	<p>Revised All chapter</p> <ul style="list-style-type: none"> • Added descriptions of SC-F9400 Series/SC-F9400H Series. <p>Chapter 1</p> <ul style="list-style-type: none"> • 1.1 Product Description (p. 10): added descriptions of SC-F9400H Series. • 1.2.1 Basic Specifications (p. 11): added descriptions about fluorescent ink. • 1.2.2 Ink Specifications (p. 12): added descriptions about fluorescent ink. <p>Chapter 3</p> <ul style="list-style-type: none"> • 3.4.2.3 Lower ink holder (p. 96): procedure of SC-F9400 Series/SC-F9400H Series was added. • 3.4.4.24 Ink tank (p. 181): procedure of SC-F9400 Series/SC-F9400H Series was added. <p>Chapter 4</p> <ul style="list-style-type: none"> • 4.1.6 Service Program Basic Operations (p. 229): “CHECK POINT” were added, adjustment program screen of SC-F9400 Series/SC-F9400H Series was added. • 4.6 Updating Firmware (p. 241): changed head title name from “Installing Firmware” to “Updating Firmware”, firmware updating procedure of SC-F9400 Series/SC-F9400H Series was added. • 4.12.3 Nozzle Check (p. 264): adjustment program screen and adjustment pattern were changed. • 4.12.5 Auto Head Slant Check & Adjustment (PF direction) (p. 270): adjustment program screen was changed, adjustment pattern of SC-F9400H Series was added. • 4.12.6 Auto Uni-D Adjustment (p. 272): adjustment program screen was changed, adjustment pattern of SC-F9400H Series was added. • 4.12.8 Manual Uni-D Adjustment (p. 274): adjustment program screen and adjustment pattern were changed. • 4.12.11 Auto Data Shift Adjustment (p. 279): adjustment program screen was changed, adjustment pattern of SC-F9400H Series was added. • 4.12.12 Manual Data Shift Adjustment (p. 280): adjustment program screen and adjustment pattern were changed. • 4.15.5 Check result of transferring data from CSIC chip to Main Board (p. 303): “Explanation (SC-F9400 Series/SC-F9400H Series)” was added. <p>Chapter 5</p> <ul style="list-style-type: none"> • 5.5 Cleaning (p. 329): “Around the Caps” was added.

Contents

Chapter 1 PRODUCT DESCRIPTION

1.1 Product Description	10
1.2 Basic Specifications	11
1.2.1 Basic Specifications	11
1.2.2 Ink Specifications	12
1.3 Available Media	13
1.4 Exterior Specifications	14
1.4.1 Dimensions and Weight	14
1.4.2 Installation Room Requirement	14
1.4.3 Part Names	15
1.5 Special Operations	17
1.5.1 Serviceman Mode	17
1.5.2 Repair Mode	18
1.5.3 SSCL & Cloth Wiping Mode	19

Chapter 2 TROUBLE SHOOTING

2.1 Overview	21
2.1.1 Preliminary Check	21
2.1.2 Troubleshooting Procedure	22
2.1.3 Procedure after troubleshooting	22
2.2 Remedies for Maintenance Requests	23
2.2.1 Remedy when 00002000 has occurred	24
2.3 Remedies for Service Call Error	25
2.4 Remedies for Print Quality Troubles	45
2.5 Trouble on Paper Feeding	54
2.6 Other Troubles	56
2.6.1 Ink End Error	60
2.7 Trouble on Service Program	61
2.8 Trouble on NVRAM Viewer	62
2.9 Resistance values	63
2.10 Fuse Positions	64

Chapter 3 DISASSEMBLY & ASSEMBLY

3.1 Overview	72
3.1.1 Precautions	72
3.1.2 Cautions After Assembling	74
3.1.3 Orientation Definition	74
3.1.4 Recommended Tools	75
3.2 Parts Diagram	76
3.3 Disassembly Flowchart	85
3.4 Disassembly and Assembly Procedure	90
3.4.1 Preparation for Servicing	90
3.4.2 Housing	92
3.4.3 Electric Circuit Components	118
3.4.4 Carriage Mechanism/Ink System Mechanism	135
3.4.5 Paper Feed Mechanism	187
3.4.6 Heater Mechanism	202
3.4.7 Reel Mechanism	206
3.4.8 Roll Mechanism	208

Chapter 4 ADJUSTMENT

4.1 Overview	211
4.1.1 Precautions	211
4.1.2 Firmware Version	212
4.1.3 Adjustment Items and the Order by Repaired Part	213
4.1.4 Adjustment Items	220
4.1.5 Tools/Consumables for Adjustments	227
4.1.6 Service Program Basic Operations	229
4.2 Parameter Backup/Restore	230
4.3 NVRAM Viewer	231
4.4 ADJUSTMENTS (Individual)	239
4.5 ADJUSTMENTS (Sequence)	240
4.6 Updating Firmware	241
4.7 Image & Test Print	245

4.8 Counter Clear	246
4.9 References	247
4.10 Initial Ink Charge Flag ON/OFF	248
4.11 CR Related Adjustments	249
4.11.1 CR Timing Belt Tension Adjustment	249
4.11.2 APG Check	253
4.11.3 IMS Function Check & Auto Adjustment	255
4.11.4 CR Encoder & Scale Check	256
4.11.5 CR Motor Measurement	257
4.11.6 PG Check & Adjustment	258
4.12 Head Related Checks and Adjustments	261
4.12.1 Head ID Check & Input	261
4.12.2 Cleaning	263
4.12.3 Nozzle Check	264
4.12.4 Head Inclination Check & Adjustment (CR direction)	266
4.12.5 Auto Head Slant Check & Adjustment (PF direction)	270
4.12.6 Auto Uni-D Adjustment	272
4.12.7 Auto Bi-D Adjustment	273
4.12.8 Manual Uni-D Adjustment	274
4.12.9 Manual Bi-D Adjustment & Head Gap Uni-D Adjustment	276
4.12.10 Auto Head Gap Uni-D Adjustment	278
4.12.11 Auto Data Shift Adjustment	279
4.12.12 Manual Data Shift Adjustment	280
4.13 Ink Supply Related Checks and Adjustments	281
4.13.1 Tube Inner Pressure Reduction	281
4.13.2 Ink Discharge	282
4.13.3 Manual Ink Eject (IH cam open)	283
4.13.4 Activation of Cleaning cartridge	286
4.13.5 Force Charge	287
4.13.6 Tube Washing	288
4.13.7 Ink Charge	289
4.13.8 Pump Cap Measurement	290
4.14 Media Feed Related Checks and Adjustments	291
4.14.1 PF Timing Belt Tension Check	291
4.14.2 PF Scale Check	293
4.14.3 Auto PF Band Feed Adjustment	294
4.14.4 Manual PF Band Feed Adjustment	295
4.14.5 PF Motor Measurement	296
4.14.6 Rear AD Adjustment	297

4.15 Boards Related Checks and Adjustments	299
4.15.1 Main Board Initialize	299
4.15.2 RTC Check & Input	300
4.15.3 MAC Address Input	301
4.15.4 Serial Number Input	302
4.15.5 Check result of transferring data from CSIC chip to Main Board	303
4.16 Parallelism Adjusting	306
4.17 Operation Check	316
4.17.1 Network Test	316
4.17.2 Suction Fan Adjustment	317
4.17.3 Heater Check	318
4.17.4 Panel LCD Operation Check	319
4.17.5 Panel Buttons Operation Check	319

Chapter 5 MAINTENANCE

5.1 Overview	321
5.2 Carrying-In/Installation	322
5.2.1 Lifting the Printer	322
5.2.2 Disassembly when carrying in/installing the printer	323
5.3 Consumables	327
5.4 When left unused/transportation	328
5.4.1 When left unused	328
5.4.2 Transportation	328
5.5 Cleaning	329
5.6 Lubrication	334

Chapter 6 APPENDIX

6.1 Block Wiring Diagram	338
6.2 Connection Diagram	339
6.3 Panel Menu Map	355
6.4 Part names used in this manual	358
6.5 Power-On Sequence	360
6.6 Ink System Correlation Diagram	362
6.7 Drive Path	363
6.8 Installation Assessment	370
6.9 Exploded Diagram/Parts List	372

CHAPTER

1

PRODUCT DESCRIPTION

1.1 Product Description

SC-F9300 Series/SC-F9400 Series/SC-F9400H Series is watercolor ink printer that supports up to 64 inch width paper.

The main features are;

Available paper type

- Available media width: 300 mm (12 inch) to 1625 mm (64 inch)
- Printable width: Up to 1615 mm
- Paper thickness: Up to 1 mm

Media handling

Supports commercially available media (no genuine media).

Supported roll sizes are;

- Weight: up to 45 kg
- Roll Outer Diameter: up to 250 mm
- Paper Core Diameter: 2 or 3 inches

High Print Quality

- Using High Density Black ink
- The first ever Epson sublimation transfer printer that supports fluorescent ink (SC-F9400H Series)

Supports RIP made by 3rd parties

EPSON driver is not provided for Windows nor Mac.

Realizes high degree of usability

- Maintenance
 - Head cleaning set
- Media cut with the printer cover closed
- Stable operation
 - provides users with the following functions through the integrated utility software.
 - Various statuses
 - Media adjustment/settings/backup

- Maintenance alert
- NVRAM backup
- Accounting tool
- Troubleshooting
- Maintenance

- Equipped with an inner light
- Heaters' preheating start function
- One head mode

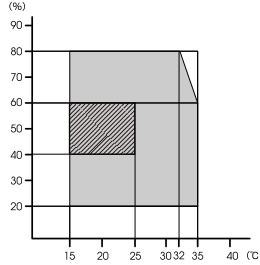
1.2 Basic Specifications

1.2.1 Basic Specifications

Table 1-1. Basic Specifications

Item	Specification
Print method	On-demand inkjet
Nozzle configuration	<input type="checkbox"/> SC-F9300 Series/SC-F9400 Series 360 nozzles x 2 x 2 rows x 4 colors (High Density Black, Cyan, Magenta, Yellow) <input type="checkbox"/> SC-F9400H Series 360 nozzles x 2 x 2 rows x 4 colors (High Density Black, Cyan, Magenta, Yellow) 360 nozzles x 2 rows x 2 colors (Fluorescent Yellow, Fluorescent Pink)
Resolution (maximum)	720 x 1440 dpi
Control code	ESC/P raster (undisclosed command)
Media feed method	Friction feed
Built-in memory	For Main: 512 MB For Network: 128 MB
Interface	<input type="checkbox"/> Hi-Speed USB-Compatible with the USB 2.0 Specification <input type="checkbox"/> 100Base-TX/1000Base-T* ¹
Rated voltage (#1, #2)	AC 100 to 120V AC 200 to 240V
Rated frequency (#1, #2)	50/60 Hz
Rated current (#1, #2)	10A (100 to 120V AC) 5A (200 to 240V AC)
Power consumption	<input type="checkbox"/> SC-F9300 Series/SC-F9400 Series Printing: Approx. 570 W Ready mode: Approx. 340 W Sleep mode: Approx. 14 W Power off: Approx. 1.0 W

Table 1-1. Basic Specifications

Item	Specification
Power consumption	<input type="checkbox"/> SC-F9400H Series Printing: Approx. 600 W Ready mode: Approx. 380 W Sleep mode: Approx. 14 W Power off: Approx. 0.9 W
Temperature	Operating: 15 to 25 °C Media setting, maintenance and so on: 15 to 35 °C Storage (packed): -20 to 60 °C (Within a 120 hour at 60 °C, within a month at 40 °C) Storage (before initial ink charge): -20 to 40 °C (within a month at 40 °C)
Humidity	Operating: 40 to 60% Media setting, maintenance and so on: 20 to 80% Storage (packed): 5 to 85% Storage (before initial ink charge): 5 to 85%
Operation temperature and humidity range	
Gray: Media setting, maintenance and so on Shaded area: Operating	
	
Dimension	<input type="checkbox"/> Storage dimensions 2620 (W) x 934 (D) x 1332 (H) mm <input type="checkbox"/> Maximum dimensions 2620 (W) x 1109 (D) x 1670 (H) mm
Weight* ²	Approx. 290 kg

Note *1: Use a shielded twisted pair cable (category 5 or better).

*2: Excluding ink tanks

1.2.2 Ink Specifications

Table 1-2. Ink Specifications

Item	Specification
Type	Dedicated ink pack (standing pouch)
Dye ink	Black, Cyan, Magenta, Yellow, Fluorescent Yellow*, Fluorescent Pink*
Use by date	See the date printed on the package (at normal temperature)
Print quality guarantee expiry	25 days (from the day that the ink tank was refilled from the ink pack)
Storage temperature	5 to 35 °C
Capacity	<ul style="list-style-type: none"><input type="checkbox"/> Initial fill: 1000 ml (all colors)<input type="checkbox"/> Refilling:<ul style="list-style-type: none">1100 ml (High Density Black, Cyan, Magenta, Yellow)1000 ml (Fluorescent Yellow, Fluorescent Pink)*

Note "/*": SC-F9400H Series only

1.3 Available Media

APPLICATION/TYPE

- Thinnest
- Thin
- Thick
- Thickest
- Adhesive

AVAILABLE MEDIA FORM

- Roll media

Table 1-3. Roll media

Item	Description
Roll core size	2 or 3 inches
Roll outer diameter	Media feeding unit: up to 250 mm Auto take-up reel unit: up to 200 mm
Media width	300 to 1,626 mm (64 inches)
Media thickness	Up to 1 mm
Roll weight	Up to 45 kg

- Cut media

Table 1-4. Cut media

Item	Description
Media width	300 to 1,626 mm (64 inches)
Media length	500 mm or more
Media thickness	Up to 1 mm

ROLL END DETECTION

- Detects the roll end status in which the media comes off from the core.
- Detects the state in which the media does not come off from the core and it cannot be fed.

1.4 Exterior Specifications

This section provides the printer dimensions and shows the main components.

1.4.1 Dimensions and Weight

DIMENSIONS

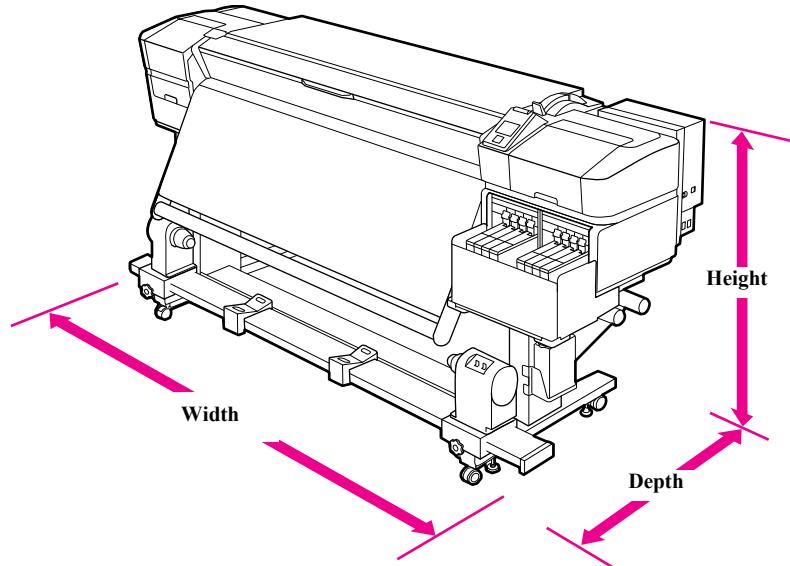


Figure 1-1. Dimensions

Table 1-5. Dimensions

Description	Width	Depth	Height
Storage	2,620 mm	934 mm	1,332 mm
Maximum	2,620 mm	1,109 mm	1,670 mm

1.4.2 Installation Room Requirement

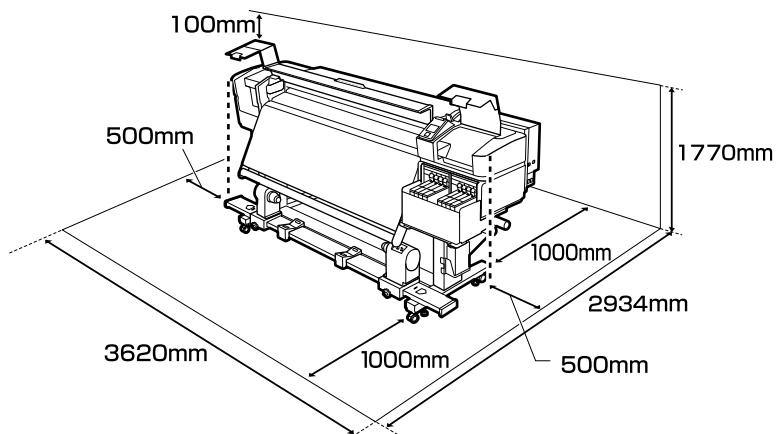


Figure 1-2. Installation Room Requirement

1.4.3 Part Names

FRONT SECTION

Table 1-6. Front

No.	Name	No.	Name
1	Maintenance cover (left)	11	Slider
2	After heater	12	Lock levers
3	Media guide bar	13	Chip unit check lamps
4	Handle	14	Stirring rod
5	Roll core holder	15	Maintenance cover (right)
6	Roll support	16	Media loading lever
7	Auto switch	17	Alert lamp
8	Manual switch	18	Control panel
9	Heat shield	19	Front cover
10	Ink tank		

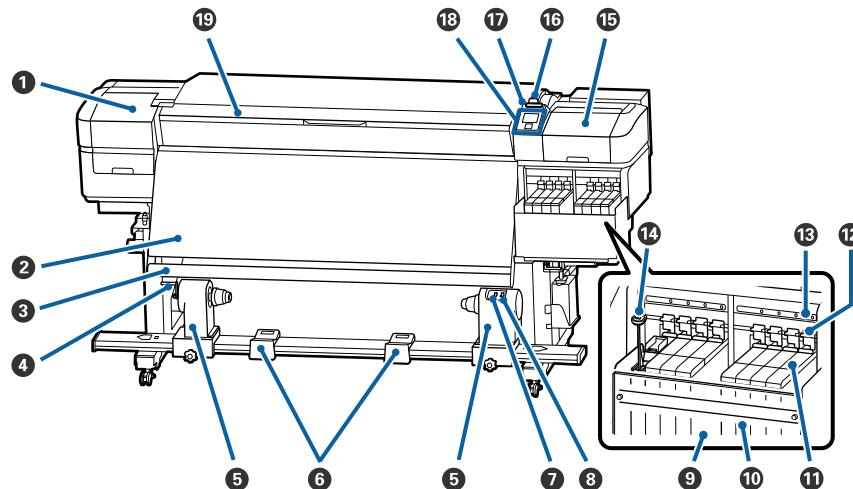


Figure 1-3. Front Side

RIGHT

Table 1-7. Right

No.	Name	No.	Name
1	Vent holes	7	AC inlets #1/#2
2	Waste ink tube	8	LAN port
3	Stopper	9	Data lamp
4	Waste ink bottle	10	Status lamp
5	Caster	11	USB port
6	Adjuster		

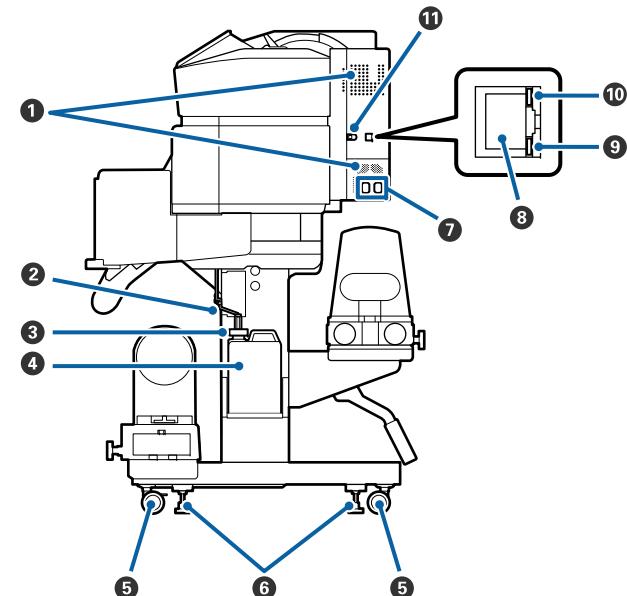
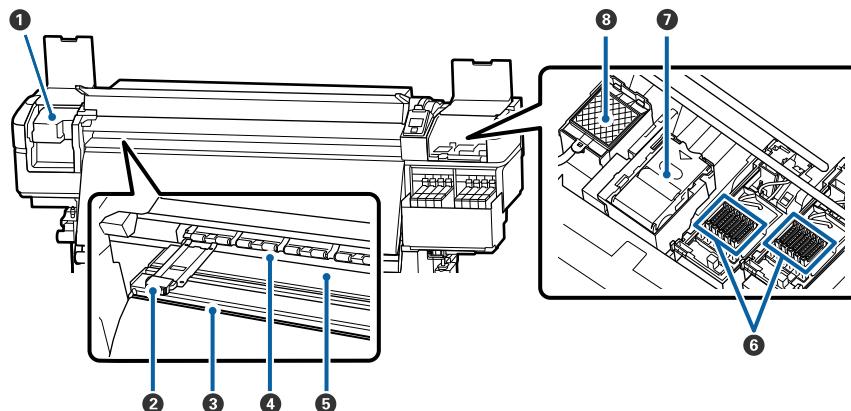


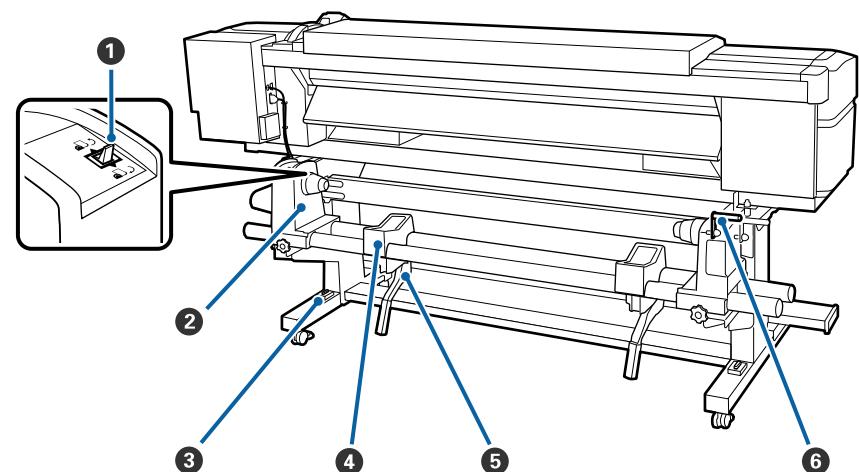
Figure 1-4. Right

INSIDE**Table 1-8. Inside**

No.	Name	No.	Name
1	Print head	5	Platen
2	Media edge plate	6	Cap
3	Cutter groove	7	Wiper unit
4	Pressure rollers	8	Flushing pad

**Figure 1-5. Inside****REAR****Table 1-9. Rear**

No.	Name	No.	Name
1	Drive switch	4	Roll support
2	Roll holder	5	Lift lever
3	Level	6	Handle

**Figure 1-6. Rear**

1.5 Special Operations

1.5.1 Serviceman Mode

This mode is intended to be used for servicing the printer.

HOW TO START & QUIT

1. Turn the printer on while pressing the [Menu], [Back], and [OK] buttons together.
2. Turn the printer off to quit this mode.

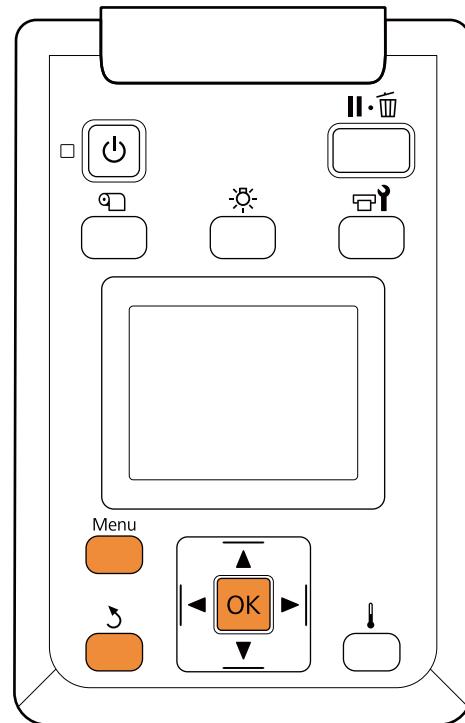


Figure 1-7. How to start

MENU LIST

Table 1-10. Serviceman Mode

	Menu			Explanation	
Class	1	2	3		
Mecha Adjustm ent	Rear AD			Adjusts the AD value of the PE sensor. Required Tool: Standard sheet (JETRAS JP-D300S)	
	CR Un Cap			Unlocks or re-locks the carriage and uncaps/re-caps the print head.	
	LCD RGB Check	Red		Checks the operation of the LCD.	
		Green			
		Blue			
	Panel Check			Checks the operation of the buttons and the LEDs.	
	Sensor Check	PE		Checks the operation of sensors.	
		ILS			
Life	CR	PG	PGtyp	Used only in manufacturing processes. Not used in service operations.	
			PG+		
			PG++		
		H to F Speed	330 CPS		
			500 CPS		
	F to H Speed	330 CPS	330 CPS		
			500 CPS		
		Page Size			
		Fan			
		Life Count			

Table 1-10. Serviceman Mode

Menu				Explanation	
Class	1	2	3		
Life	PF	Feed Amount 1		Used only in manufacturing processes. Not used in service operations.	
		Feed Speed 1	PS1		
			PS2		
			PS3		
			PS4		
		Feed Amount 2			
		Feed Speed 2	PS1		
			PS2		
			PS3		
			PS4		
		Wait			
		Fan			
		Life Count			
		APG	PG	Used only in manufacturing processes. Not used in service operations.	
			PGtyp		
			PG+		
			PG++		
			Wait		
		Life Count			
		Display Count			

1.5.2 Repair Mode

This mode is for the maintenance of the printer.

When starting up the printer in the repair mode, the printer starts up quickly because the initializing operations and timer cleaning are skipped during boot-up.



CAUTION

- Be careful of the following during in the repair mode.
- Since the timer cleaning is delayed, band may be visible. If band exists after the repair using the repair mode, carry out cleaning.
- Since the PW detection is not made, printing may be done even out of paper depending on the loaded paper position. If printing is required, align the edge of paper with the zero position of the guide scale when loading it.
- Set “Media End Check” to ON. Otherwise, “Media Out” will occur.

HOW TO START & QUIT

1. Turn the printer on while pressing the [Media Setup], [Maintenance], and [OK] buttons together.

CHECK
POINT

When the printer is started in Repair Mode, “Repair Mode” appears on the panel.

2. Turn the printer off to quit this mode.

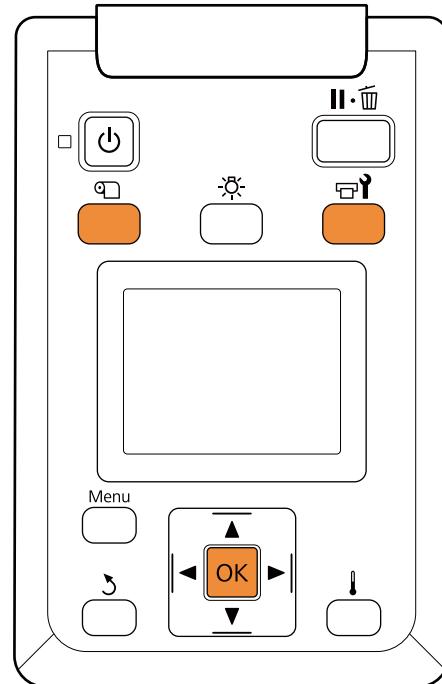


Figure 1-8. How to start in the repair mode

1.5.3 SSCL & Cloth Wiping Mode

In this mode, both SSCL & cloth wiping are carried out during boot-up. Carry this out if nozzle clogging cannot be recovered after cleaning. This mode may be disclosed to selected users.

HOW TO START & QUIT

1. Turn the printer on while pressing the [Maintenance] button.

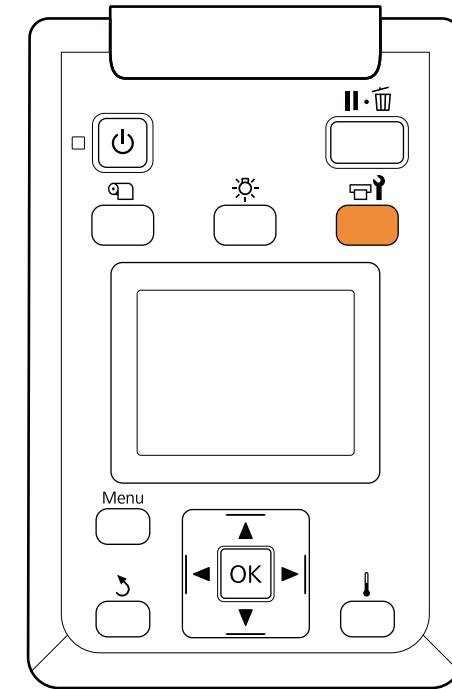


Figure 1-9. How to start in the SSCL & cloth wiping mode

CHAPTER

2

TROUBLE SHOOTING

2.1 Overview

This section explains the basic procedure for troubleshooting problems on the printer quickly and efficiently.

When carrying out the troubleshooting procedures, take a flexible measure following your sales company's policy and considering the troubling situation.

2.1.1 Preliminary Check

Make sure to verify or perform the following basic items whenever servicing the printer.

2.1.1.1 Check for the usage environment

Check the user's usage environment.

- Temperature/humidity of the installation site
(For the guaranteed environment, see "1.2.1 Basic Specifications" (See P 11).)
- What type of media is used?
- Genuine ink or 3rd party's ink?
- F/W version (the latest?)
- Check also the following if necessary.

Phenomenon	Check Item
Bad print quality	The installation site inclined?
	Any vibrating equipment near the site?
	The user's panel settings
	Is the interior dirty?
	Clean it if dirty.
Missing dots/bad print quality	Near a conditioner's ventilation duct?

2.1.1.2 Recurrence check of the trouble

Check if the trouble the user claims recurs with the returned printer.

- If the F/W was not the latest, with the user's agreement, update the F/W to the latest one and check if the trouble recurs.

2.1.1.3 Check for the counter values/history

Download NVRAM and check the following with NVRAM Viewer. (For the check method, see [p230](#).)

- Counter history of the periodic replacement parts. (if any part's life is near.)
- Printer's operating history (if any cause for the trouble exists)
- Error history (the frequency/history of errors related with the trouble)

2.1.2 Troubleshooting Procedure

Refer to the following items according to the observed symptom, carry out the corresponding troubleshooting following the procedures described in the next sections.

1. Trouble with a Maintenance Request or Service Call Error. ([See P.23, P. 25](#))
2. Trouble on print quality ([See P.45](#))
3. Trouble on paper feeding ([See P.54](#))
4. Other troubles ([See P.56](#))
5. Trouble on Service Program ([See P.61](#))
6. Trouble on NVRAM Viewer ([See P.62](#))

2.1.3 Procedure after troubleshooting

2.1.3.1 If the trouble has been successfully solved

- Check if the movement of the covers is normal (without any damage, noises). If any abnormality is found, lubricate or replace the faulty parts.
- Carry out the cleaning after repair.
- Prepare a report on the repair. (follow your company/local office's policy.)

2.1.3.2 If necessary to escalate the trouble case

Make a report with the following data.

- Backed-up NVRAM data
- Firmware version.
- Service program version.
- For bad print quality: a print sample with the marked symptom and a printed test pattern.
- For faulty parts: the faulty parts themselves and a photos of the troubling section.
- Information on the user/the repair listed below

This is a format of the escalation report. At least check out the items on the list and register the case in the escalation system.

- Model name
- Serial number
- With or without options
- Content of the claim from the user
- Date of occurrence
- Trouble occurrence conditions/recurrence method
- What the service person actually observed
(Check items before check, the content of troubleshooting and repair.)
- Date of escalation
- Purpose of escalation
(Measures what the user/service person want done)
- Degree of urgency (S/A/B/C)
S: High (those which may cause a death, ignition, etc.)
A: Problems, bugs
B: Strong request
C: Inquiry
- Deadline for the response
- Repair history
- Part-replacement history

2.2 Remedies for Maintenance Requests

This section describes the remedies for maintenance requests. Maintenance requests do not effect the printer's operation; therefore, you can continue the current printing. When a maintenance request error occurs, the printer displays on the LCD a hexadecimal code of "NNNN" which correspond to the bit numbers assigned to error statuses as shown in the table below.

Table 2-1. List of the Maintenance Requests

Bit assignment (Binary)																										Hexadecimal	Part/Component causing the error	Status		
25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	00000001	CR encoder	Near the end of life		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	00000002	Duct CR (Ink path)	Near the end of life	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	00000004	Reserved		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	00000008	Reserved	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	00000010	Reserved	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	00000020	Pump cap unit (Full)	Near the end of life
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	00000040	Pump cap unit (Home)	Near the end of life
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	00000080	Ink holder (Home)	Near the end of life
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	00000100	Ink holder (Full)	Near the end of life
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	00000200	Ink tube	Near the end of life
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	00000400	Reserved	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	00000800	RTC battery	Out of battery
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	00001000	RTC	Date/time not set
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	00002000	CR scale	Refer to Page 24 .
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	00004000	Reserved	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	00008000	CR motor cooling fan lock	CR motor cooling fan failure
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	00010000	Reserved	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	00020000	Duct CR (Ink path)	End of life
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	00040000	Reserved	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	00080000	Reserved	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	00100000	Reserved	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	00200000	Pump cap unit (Full)	End of life
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	00400000	Pump cap unit (Home)	End of life
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	00800000	Ink holder (Home)	End of life
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	01000000	Ink holder (Full)	End of life
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	02000000	Ink tube	End of life

Note : Ex): When "Maintenance Request 00001800" is displayed.

As "00001800" in hexadecimal means "00000000000011000000000000" in binary, you can find out the code is assigned to Bit-11 and Bit-12 referring to the above table. In this case, two errors are occurring simultaneously. (Bit-11: out of battery/ Bit-12: the date/time not set.)

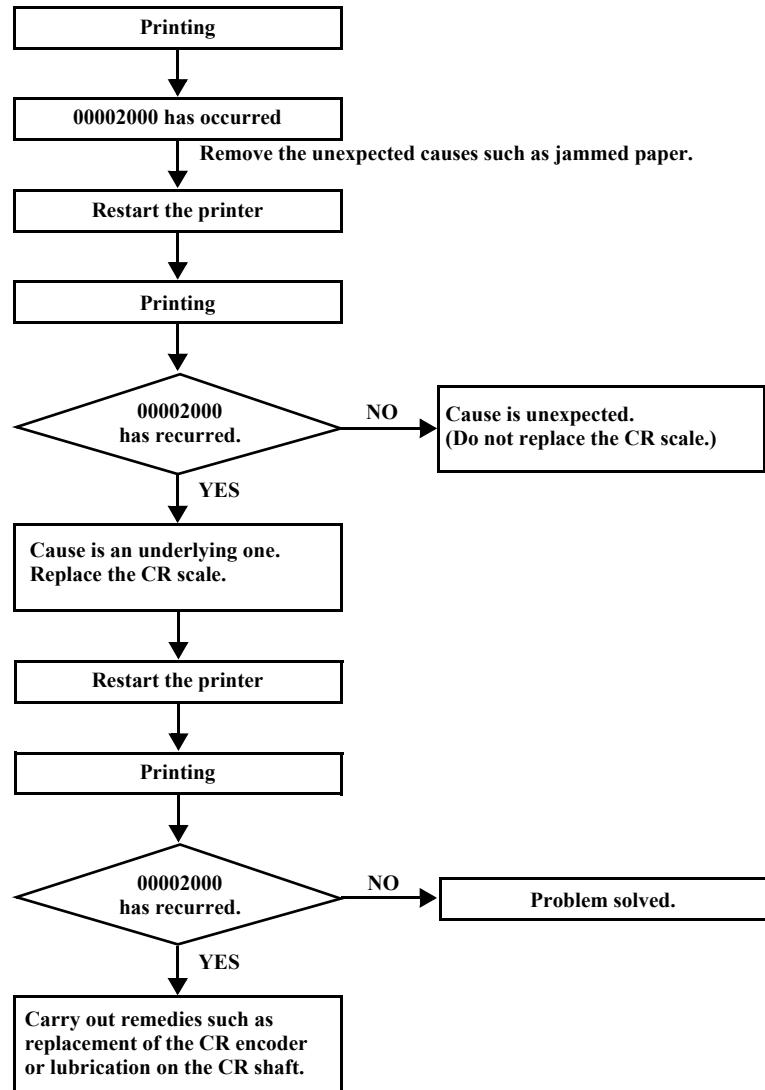
2.2.1 Remedy when 00002000 has occurred

CAUSE OF THE ERROR

The reading of steps on the CR scale has been skipped during printing. Skipped reading occurred 100 times during a job. The cause of the skipped reading is as follows.

- Unexpected causes:
Paper jam, vibration, etc.
- Underlying causes:
Attachment of mist on the scale, fold on the scale, foreign object on the scale, etc.

REMEDY



2.3 Remedies for Service Call Error

The following tables explains the Service Call error messages and remedies.

Table 2-2. Troubleshooting for Service Call Error

Code	Error Name	Cause	Check Item	Remedy
1101	Ink tubes life error	The ink tubes have reached the end of their service life. (CR scan pass counter has reached a predetermined limit.)	---	Replace the ink tubes (Page 167) and reset the counter (Page 246).
1105	CR scale life error	The CR scale has reached the end of its service life.	---	Replace the CR scale (Page 147) and reset the counter (Page 246).
1125	CR HP detection error	The CR unit does not respond to the CR HP sensor, or the sensor failed to detect the home position. <input type="checkbox"/> CR HP sensor failure <input type="checkbox"/> False detection of the home due to paper jam or any other obstacle <input type="checkbox"/> Misreading of the CR scale <input type="checkbox"/> CR lock is damaged.	1. Is the CR HP sensor out of order? Does the shading plate react to the sensor? 2. Is there any paper jammed inside the printer? 3. Does the CR scale have any scratches or dirt? 4. Does the CR encoder work properly? Check it using the Service Program. 5. Does the CR lock function normally?	1. Replace the CR encoder. (Page 155) 2. Re-install the CR encoder. If it is faulty, replace it. (Page 155) 3. Clean the CR scale using ethanol. 4. Replace the CR scale. (Page 147) 5. Replace the CR lock (pump cap unit). (Page 159)
1137	CR motor broken cable error	<input type="checkbox"/> Connection failure of the interlock switches. <input type="checkbox"/> Connection failure of the CR motor.	<input type="checkbox"/> Check the connection of the interlock switches. <input type="checkbox"/> Check the connection of the CR motor.	1. Correct abnormality of the connection if any. 2. Replace the CR motor.
1138	CR motor overcurrent error	<input type="checkbox"/> Connection failure of the motor or the encoder. <input type="checkbox"/> Number of over current is reached limit of the motor ■ Irregular load ■ Encoder failure ■ Motor failure <input type="checkbox"/> Communication failure due to broken interlock switch cable.	1. Does the CR unit move smoothly? Check whether it is stuck and such somewhere. 2. Is there any problem such as damaged cable in the connections below? ■ CR HP sensor ■ CR encoder to SUB board (CN102) ■ CR motor to SUB-M board (CN1) 3. Does the CR encoder work properly? Check it using the Service Program. 4. Is the cable of the interlock switch broken?	1. If there is an abnormal load on the CR unit, correct it. 2. Replace the CR HP sensor. (Page 154) 3. Replace the CR encoder. (Page 155) 4. Replace the CR motor. (Page 151) 5. Replace the following interlock switch. ■ Front cover L sensor (Page 116) ■ Front cover R sensor (Page 113) ■ L maintenance cover sensor (Page 106) ■ R maintenance cover sensor (Page 111)
1139	CR motor oscillation error	Short-circuit of control terminals of the CR motor driver	1. Does the main board work properly? 2. Is there any foreign material on the main board?	1. Remove the foreign material. 2. If not improved, replace the main board. (Page 118)

Table 2-2. Troubleshooting for Service Call Error

Code	Error Name	Cause	Check Item	Remedy
113A	CR motor overload error	Overcurrent to the motor was detected. <input type="checkbox"/> Encoder cable is damaged. <input type="checkbox"/> Motor cable is damaged. <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor failure <input type="checkbox"/> Communication failure due to broken interlock switch cable.	1. Is the CR unit being attached correctly? 2. Is there any foreign materials on the CR unit drive path? 3. Is there any problem such as damaged cable in the connections below? ■ CR encoder to SUB board (CN102) ■ CR motor to SUB-M board (CN1) 4. Does the CR encoder work properly? Check it using the Service Program. 5. Is the cable of the interlock switch broken?	1. Re-install the CR unit. (Page 171) 2. Replace the CR encoder. (Page 155) 3. Replace the CR motor. (Page 151) 4. Replace the following interlock switch. ■ Front cover L sensor (Page 116) ■ Front cover R sensor (Page 113) ■ L maintenance cover sensor (Page 106) ■ R maintenance cover sensor (Page 111)
113B	CR motor over speed error	The motor was driven at a speed faster than a predetermined one during deceleration. <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> SUB board is damaged. <input type="checkbox"/> Motor driver failure	Does the CR encoder work properly? Check it using the Service Program.	1. Replace the CR encoder. (Page 155) 2. Replace the SUB board. (Page 127) 3. Replace the main board. (Page 118)
113C	CR motor reversing error	The number of occurrences of reversing the motor has reached a predetermined limit. <input type="checkbox"/> The polarity of the encoder cable is opposite. <input type="checkbox"/> The polarity of the motor cable is opposite. <input type="checkbox"/> Slipping of the teeth of the timing belt <input type="checkbox"/> Encoder failure	1. Is there any problem such as damaged cable in the connections below? ■ CR encoder to SUB board (CN102) ■ CR motor to SUB-M board (CN1) 2. Is the tension of the CR timing belt proper? 3. Does the CR encoder work properly? Check it using the Service Program.	1. Adjust the tension of the CR timing belt. (Page 149) 2. Replace the CR encoder. (Page 155)
113D	CR motor driving time-out error	Abnormally-long driving duration of the motor was detected. <input type="checkbox"/> Irregular load <input type="checkbox"/> Firmware becomes out of control.	---	Replace the main board. (Page 118)
113E	CR motor velocity deviation error	The motor was driven at a speed abnormally faster than a predetermined one during acceleration or deceleration. <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor failure <input type="checkbox"/> SUB board is damaged. <input type="checkbox"/> Motor driver failure	Does the CR encoder work properly? Check it using the Service Program.	1. Replace the CR encoder. (Page 155) 2. Replace the CR motor. (Page 151) 3. Replace the SUB board. (Page 127) 4. Replace the main board. (Page 118)

Table 2-2. Troubleshooting for Service Call Error

Code	Error Name	Cause	Check Item	Remedy
113F	CR motor lock error	The motor was driven at a speed abnormally slower than a predetermined one during operation. <input type="checkbox"/> Encoder cable is damaged. <input type="checkbox"/> Motor cable is damaged. <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor failure <input type="checkbox"/> Communication failure due to broken interlock switch cable.	1. Is there any problem such as damaged cable in the connections below? ■ CR encoder to SUB board (CN102) ■ CR motor to SUB-M board (CN1) 2. Does the CR encoder work properly? Check it using the Service Program. 3. Is the cable of the interlock switch broken?	1. Replace the CR encoder. (Page 155) 2. Replace the CR motor. (Page 151) 3. Replace the following interlock switch. ■ Front cover L sensor (Page 116) ■ Front cover R sensor (Page 113) ■ L maintenance cover sensor (Page 106) ■ R maintenance cover sensor (Page 111)
1219	PF motor oscillation error	The control terminal (Vre terminal) of the motor driver has shorted out.	1. Is the PF motor driver on the main board damaged? 2. Is there any foreign materials around the PF motor driver?	1. Remove the foreign material. 2. If the error still occurs, replace the main board. (Page 118)
122A	PF motor overload error	Overcurrent to the motor was detected. <input type="checkbox"/> Encoder cable is damaged. <input type="checkbox"/> Motor cable is damaged. <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor failure	Does the PF encoder work properly? Check it using the Service Program.	1. Replace the PF encoder. (Page 192) 2. Replace the main board. (Page 118)
122B	PF motor over speed error	The motor was driven at a speed faster than a predetermined one during deceleration. <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor driver failure	Does the PF encoder work properly? Check it using the Service Program.	1. Replace the PF encoder. (Page 192) 2. Replace the main board. (Page 118)
122C	PF motor reversing error	The number of occurrences of reversing the motor has reached a predetermined limit. <input type="checkbox"/> The polarity of the encoder cable is opposite. <input type="checkbox"/> The polarity of the motor cable is opposite. <input type="checkbox"/> Slipping of the teeth of the timing belt <input type="checkbox"/> Encoder failure	1. Is there any problem such as damaged cable in the connections below? ■ PF encoder to main board (CN17) ■ PF motor to main board (CN202) 2. Is the tension of the PF timing belt proper? 3. Does the PF encoder work properly? Check it using the Service Program.	1. Carry out the PF Belt Tension Check. 2. Replace the PF encoder.
122D	PF motor driving time-out error	Abnormally-long driving duration of the motor was detected. <input type="checkbox"/> Irregular load <input type="checkbox"/> Firmware becomes out of control.	---	Replace the main board. (Page 118)

Table 2-2. Troubleshooting for Service Call Error

Code	Error Name	Cause	Check Item	Remedy
122E	PF motor velocity deviation error	The motor was driven at a speed abnormally faster than a predetermined one during acceleration or deceleration. <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor failure <input type="checkbox"/> Motor driver failure	Does the PF encoder work properly? Check it using the Service Program.	1. Replace the PF encoder. (Page 192) 2. Replace the PF motor. (Page 190) 3. Replace the main board. (Page 118)
122F	PF motor lock error	The motor was driven at a speed abnormally slower than a predetermined one during operation. <input type="checkbox"/> Encoder cable disconnection <input type="checkbox"/> Motor cable disconnection <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor failure	1. Is there any problem such as damaged cable in the connections below? ■ PF encoder to SUB board (CN102) ■ PF motor to SUB-M board (CN1) 2. Does the PF encoder work properly? Check it using the Service Program.	1. Replace the PF encoder. (Page 192) 2. Replace the PF motor. (Page 190)
131B	Head driver 1 (transmission gate) overheat error	The temperature of the Head driver rises, and has reached a predetermined limit.	1. Turn the power off and then back on. Does the printer recover from the error? 2. Is the FFC connected to the connector properly without being tilted?	1. Replace the head FFC. (Page 141) 2. Replace the print head. (Page 138)
131C	Head driver 2 (transmission gate) overheat error	The temperature of the Head driver rises, and has reached a predetermined limit.	1. Turn the power off and then back on. Does the printer recover from the error? 2. Is the FFC connected to the connector properly without being tilted?	1. Replace the head FFC. (Page 141) 2. Replace the print head. (Page 138)
1410	Pump cap unit (Full) undetectable error	Pump cap unit (Full) failure	Is the sensor cable properly connected?	Replace the pump cap unit (Full). (Page 159)
1411	Pump cap unit (Home) undetectable error	<input type="checkbox"/> Pump cap unit (Home) failure <input type="checkbox"/> Communication failure due to broken interlock switch cable.	1. Is the sensor cable properly connected? 2. Is the cable of the interlock switch broken?	1. Replace the pump cap unit (Home). (Page 159) 2. Replace the following interlock switch. ■ Front cover L sensor (Page 116) ■ Front cover R sensor (Page 113) ■ L maintenance cover sensor (Page 106) ■ R maintenance cover sensor (Page 111)
1412	Cloth wiper carriage position undetectable error	Home position of the cloth wiper assy's carriage cannot be detected.	1. Is the cloth wiper cassette loaded? If not, load it. 2. Is the sensor cable connected correctly? 3. Check if the cloth of the cloth wiper assy in the CR unit.	1. Remove the cloth wiper assy, and wind the slacked cloth. (Page 179) 2. Replace the cloth wiper assy. (Page 179)

Table 2-2. Troubleshooting for Service Call Error

Code	Error Name	Cause	Check Item	Remedy
1418	Pump motor 2 overcurrent error	<input type="checkbox"/> Connection failure of the motor or the encoder. <input type="checkbox"/> The number of occurrences of overcurrent to the motor has reached a predetermined limit. <ul style="list-style-type: none"> ■ Irregular load ■ Encoder failure ■ Motor failure <input type="checkbox"/> Communication failure due to broken interlock switch cable.	1. Is there any problem such as damaged cable in the connections below? <ul style="list-style-type: none"> ■ Pump motor (pump motor encoder) to main board (CN203/CN210) 2. Does the pump motor encoder work properly? Check it using the Service Program. 3. Is the cable of the interlock switch broken?	1. Replace the pump cap unit (Home). (Page 159) 2. Replace the following interlock switch. <ul style="list-style-type: none"> ■ Front cover L sensor (Page 116) ■ Front cover R sensor (Page 113) ■ L maintenance cover sensor (Page 106) ■ R maintenance cover sensor (Page 111)
1419	Pump motor 2 oscillation error	The control terminal (Vre terminal) of the motor driver has shorted out.	1. Is the pump motor driver on the main board damaged? 2. Is there any foreign materials around the pump motor driver?	1. Remove the foreign material. 2. If the error still occurs, replace the main board. (Page 118)
141A	Pump motor 2 overload error	Overcurrent to the motor was detected. <ul style="list-style-type: none"> <input type="checkbox"/> Encoder cable disconnection <input type="checkbox"/> Motor cable disconnection <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor failure 	1. Is there any problem such as damaged cable in the connections below? <ul style="list-style-type: none"> ■ Pump motor (pump motor encoder) to main board (CN203/CN210) 2. Does the pump motor encoder work properly? Check it using the Service Program.	Replace the pump cap unit (Home). (Page 159)
141B	Pump motor 2 over speed error	The motor was driven at a speed faster than a predetermined one during deceleration. <ul style="list-style-type: none"> <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor driver failure 	Does the pump motor encoder work properly? Check it using the Service Program.	1. Replace the pump cap unit (Home). (Page 159) 2. Replace the main board. (Page 118)
141C	Pump motor 2 reversing error	The number of occurrences of reversing the pump motor has reached a predetermined limit. <ul style="list-style-type: none"> <input type="checkbox"/> The polarity of pump motor encoder cable is opposite. <input type="checkbox"/> The polarity of pump motor cable is opposite. 	1. Is there any problem such as damaged cable in the connections below? <ul style="list-style-type: none"> ■ Pump motor (pump motor encoder) to main board (CN203/CN210) 2. Does the pump motor encoder work properly? Check it using the Service Program.	Replace the pump cap unit (Home). (Page 159)
141D	Pump motor 2 driving time-out error	Abnormally-long driving duration of the pump motor was detected. <ul style="list-style-type: none"> <input type="checkbox"/> Irregular load <input type="checkbox"/> Firmware becomes out of control. 	---	Replace the main board. (Page 118)

Table 2-2. Troubleshooting for Service Call Error

Code	Error Name	Cause	Check Item	Remedy
141E	Pump motor 2 velocity deviation error	The motor was driven at a speed abnormally faster than a predetermined one during acceleration or deceleration. <input type="checkbox"/> Irregular load <input type="checkbox"/> Motor encoder failure <input type="checkbox"/> Motor failure <input type="checkbox"/> Motor driver failure	Does the pump motor encoder work properly? Check it using the Service Program.	1. Replace the pump cap unit (Home). (Page 159) 2. Replace the main board. (Page 118)
141F	Pump motor 2 lock error	The motor was driven at a speed abnormally slower than a predetermined one during operation. <input type="checkbox"/> Irregular load <input type="checkbox"/> Motor encoder failure <input type="checkbox"/> Motor failure	1. Is there any problem such as damaged cable in the connections below? ■ Pump motor (pump motor encoder) to main board (CN203/CN210) 2. Does the pump motor encoder work properly? Check it using the Service Program.	Replace the pump cap unit (Home). (Page 159)
1430	Pump cap unit (Full) Suction pump life error	The pump cap unit (Full) has reached the end of its service life. (The total number of revolutions of the pump motor has reached a predetermined limit)	---	Replace the pump cap unit (Full) (Page 159) and reset the counter (Page 246).
1431	Pump cap unit (Home) Suction pump life error	The pump cap unit (Home) has reached the end of its service life. (The total number of revolutions of the pump motor has reached a predetermined limit)	---	Replace the pump cap unit (Home) (Page 159) and reset the counter (Page 246).
1432	Ink holder (Home) life error	The ink holder (Home) has reached the end of its service life. (The total number of times that the holder was removed from the printer has reached a predetermined limit)	---	Replace the ink holder (Home) (Page 162) and reset the counter (Page 246).
1433	Ink holder (Full) life error	The ink holder (Full) has reached the end of its service life. (The total number of times the ink tank is removed from the printer has reached a predetermined limit)	---	Replace the ink holder (Full) (Page 162) and reset the counter (Page 246).
1434	Self-sealing valve life error	The self-sealing valve has reached the end of its service life.	---	Replace the self-sealing valve (Page 136) and reset the counter (Page 246).
1435	Duct CR life error	The duct CR has reached the end of its service life.	---	Replace the duct CR (Page 136) and reset the counter (Page 246).
1459	Cloth wiper motor oscillation error	The control terminal (Vre terminal) of the motor driver has shorted out.	1. Is the cloth wiper motor driver on the main board damaged? 2. Is there any foreign materials around the cloth wiper motor driver?	1. Remove the foreign material. 2. If the error still occurs, replace the main board. (Page 118)

Table 2-2. Troubleshooting for Service Call Error

Code	Error Name	Cause	Check Item	Remedy
145A	Cloth wiper motor overload error	Overcurrent to the motor was detected. <input type="checkbox"/> Encoder cable is damaged. <input type="checkbox"/> Motor cable is damaged. <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor failure	1. Is there any problem such as damaged cable in the connections below? ■ Cloth wiper motor to main board (CN203/CN220) 2. Does the cloth wiper motor encoder work properly? Check it using the Service Program.	Replace the cloth wiper assy. (Page 159)
145B	Cloth wiper motor over speed error	The motor was driven at a speed faster than a predetermined one during deceleration. <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor driver failure	Does the cloth wiper motor encoder work properly? Check it using the Service Program.	1. Replace the cloth wiper assy. (Page 159) 2. Replace the main board. (Page 118)
145C	Cloth wiper motor reversing error	The number of occurrences of reversing the motor has reached a predetermined limit. <input type="checkbox"/> The polarity of the encoder cable is opposite. <input type="checkbox"/> The polarity of the motor cable is opposite.	1. Is there any problem such as damaged cable in the connections below? ■ Cloth wiper motor to main board (CN203/CN220) 2. Does the cloth wiper motor encoder work properly? Check it using the Service Program.	Replace the cloth wiper assy. (Page 159)
145D	Cloth wiper motor driving time-out error	Abnormally-long driving duration of the motor was detected. <input type="checkbox"/> Irregular load <input type="checkbox"/> Firmware becomes out of control.	---	Replace the main board. (Page 118)
145E	Cloth wiper motor velocity deviation error	The motor was driven at a speed abnormally faster than a predetermined one during acceleration or deceleration. <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor failure <input type="checkbox"/> Motor driver failure	Does the cloth wiper motor encoder work properly? Check it using the Service Program.	1. Replace the cloth wiper assy. (Page 159) 2. Replace the main board. (Page 118)
145F	Cloth wiper motor lock error	The motor was driven at a speed abnormally slower than a predetermined one during operation. <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor failure	1. Is there any problem such as damaged cable in the connections below? ■ Cloth wiper motor to main board (CN203/CN220) 2. Does the cloth wiper motor encoder work properly? Check it using the Service Program.	Replace the cloth wiper assy. (Page 159)

Table 2-2. Troubleshooting for Service Call Error

Code	Error Name	Cause	Check Item	Remedy
14A8	Pump motor 1 overcurrent error	<input type="checkbox"/> Connection failure of the motor or the encoder. <input type="checkbox"/> The number of occurrences of overcurrent to the motor has reached a predetermined limit. <ul style="list-style-type: none"> ■ Irregular load ■ Encoder failure ■ Motor failure 	1. Is there any problem such as damaged cable in the connections below? <ul style="list-style-type: none"> ■ Pump motor (pump motor encoder) to main board (CN203/CN210) 2. Does the pump motor encoder work properly? Check it using the Service Program.	Replace the pump cap unit (Full). (Page 159)
14A9	Pump motor 1 oscillation error	The control terminal (Vre terminal) of the motor driver has shorted out.	1. Is the pump motor driver on the main board damaged? 2. Is there any foreign materials around the pump motor driver?	1. Remove the foreign material. 2. If the error still occurs, replace the main board. (Page 118)
14AA	Pump motor 1 overload error	Overcurrent to the motor was detected. <input type="checkbox"/> Encoder cable is damaged. <input type="checkbox"/> Motor cable is damaged. <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor failure	1. Is there any problem such as damaged cable in the connections below? <ul style="list-style-type: none"> ■ Pump motor (pump motor encoder) to main board (CN203/CN210) 2. Does the pump motor encoder work properly? Check it using the Service Program.	Replace the pump cap unit (Full). (Page 159)
14AB	Pump motor 1 over speed error	The motor was driven at a speed faster than a predetermined one during deceleration. <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor driver failure	Does the pump motor encoder work properly? Check it using the Service Program.	1. Replace the pump cap unit (Full). (Page 159) 2. Replace the main board. (Page 118)
14AC	Pump motor 1 reversing error	The number of occurrences of reversing the motor has reached a predetermined limit. <input type="checkbox"/> The polarity of the encoder cable is opposite. <input type="checkbox"/> The polarity of the motor cable is opposite.	1. Is there any problem such as damaged cable in the connections below? <ul style="list-style-type: none"> ■ Pump motor (pump motor encoder) to main board (CN203/CN210) 2. Does the pump motor encoder work properly? Check it using the Service Program.	Replace the pump cap unit (Full). (Page 159)
14AD	Pump motor 1 driving time-out error	Abnormally-long driving duration of the motor was detected. <input type="checkbox"/> Irregular load <input type="checkbox"/> Firmware becomes out of control.	---	Replace the main board. (Page 118)

Table 2-2. Troubleshooting for Service Call Error

Code	Error Name	Cause	Check Item	Remedy
14AE	Pump motor 1 velocity deviation error	The motor was driven at a speed abnormally faster than a predetermined one during acceleration or deceleration. <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor failure <input type="checkbox"/> Motor driver failure	Does the pump motor encoder work properly? Check it using the Service Program.	1. Replace the pump cap unit (Full). (Page 159) 2. Replace the main board. (Page 118)
14AF	Pump motor 1 lock error	The motor was driven at a speed abnormally slower than a predetermined one during operation. <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor failure	1. Is there any problem such as damaged cable in the connections below? ■ Pump motor (pump motor encoder) to main board (CN203/CN210) 2. Does the pump motor encoder work properly? Check it using the Service Program.	Replace the pump cap unit (Full). (Page 159)
14D9	Nip adjust motor oscillation error	The control terminal (Vre terminal) for the nip adjust motor driver is short-circuited.	1. Is the nip adjust motor driver on the main board damaged? 2. Is there any foreign object around the nip adjust motor driver?	1. Remove the foreign object. 2. Replace the main board. (Page 118)
14DA	Nip adjust motor overload error	Overcurrent to the nip adjust motor was detected. <input type="checkbox"/> Disconnection of the nip adjust motor cable. <input type="checkbox"/> Overload <input type="checkbox"/> Failure of the nip adjust motor encoder <input type="checkbox"/> Failure of the nip adjust motor	1. Is there any problem such as damaged cable in the connections below? ■ Nip adjust motor to main board (CN203/CN210) 2. Does the nip adjust motor encoder scan normally? (Check it using the Service Program)	Replace the nip adjust motor. (Page 200)
14DB	Nip adjust motor overspeed error	When the nip adjust motor should slow down, it was driving faster than a predetermined speed. <input type="checkbox"/> Overload <input type="checkbox"/> Failure of the nip adjust motor encoder <input type="checkbox"/> Failure of the nip adjust motor driver	Does the nip adjust motor encoder scan normally? (Check it using the Service Program)	1. Replace the nip adjust motor. (Page 200) 2. Replace the main board. (Page 118)
14DC	Nip adjust motor reversing error	The number of detections of reverse driving of the nip adjust motor has reached a predetermined limit. <input type="checkbox"/> Incorrect connection of the nip adjust motor cable <input type="checkbox"/> Failure of the nip adjust motor	1. Is there any problem such as damaged cable in the connections below? ■ Nip adjust motor to main board (CN203/CN210) 2. Does the nip adjust motor encoder scan normally? (Check it using the Service Program)	Replace the nip adjust motor. (Page 200)

Table 2-2. Troubleshooting for Service Call Error

Code	Error Name	Cause	Check Item	Remedy
14DD	Nip adjust motor driving time-out error	The nip adjust motor was driving for an abnormally long time. <input type="checkbox"/> Overload <input type="checkbox"/> Firmware runaway	---	Replace the main board. (Page 118)
14DE	Nip adjust motor velocity deviation error	When the nip adjust motor should speed up or slow down, it was driving at an abnormally high speed exceeding a predetermined velocity. <input type="checkbox"/> Overload <input type="checkbox"/> Failure of the nip adjust motor encoder <input type="checkbox"/> Failure of the nip adjust motor <input type="checkbox"/> Failure of the nip adjust motor driver	Does the nip adjust motor encoder scan normally? (Check it using the Service Program)	1. Replace the nip adjust motor. (Page 200) 2. Replace the main board. (Page 118)
14DF	Nip adjust motor lock error	<input type="checkbox"/> There is something wrong with connection of the nip adjust motor. <input type="checkbox"/> The nip adjust motor was driving at an abnormally slow speed. <ul style="list-style-type: none">• Overload• Failure of the nip adjust motor encoder• Failure of the nip adjust motor	1. Is there any problem such as damaged cable in the connections below? <ul style="list-style-type: none">■ Nip adjust motor to main board (CN203/CN210) 2. Does the nip adjust motor encoder scan normally? (Check it using the Service Program)	Replace the nip adjust motor. (Page 200)
150C	PG position undetectable error	Occurs during starting up. When changing the PG, the PG sensor could not detect the PG position.	1. Is the PG sensor out of order? Does the Shading Plate react to the sensor? 2. Do the planetary gearing work normally? Do the planet gears and outer gears properly engage with each other? 3. Is the CR unit out of its home position?	1. Replace the PG sensor. (Page 158) 2. Replace the APG assy. (Page 156) 3. Remove any obstacles around the CR unit home position. The printer changes the PG with the CR unit being at its home position.
		Occurs when using the IM sensor. Contamination of the sensor cover	Failed to read due to Contamination of the cover.	Clean the cover.
		Communication failure due to broken interlock switch cable.	Is the cable of the interlock switch broken?	Replace the following interlock switch. <ul style="list-style-type: none">■ Front cover L sensor (Page 116)■ Front cover R sensor (Page 113)■ L maintenance cover sensor (Page 106)■ R maintenance cover sensor (Page 111)
1519	APG motor oscillation error	The control terminal (Vre terminal) of the motor driver has shorted out.	1. Is the APG motor driver on the main board damaged? 2. Is there any foreign materials around the APG motor driver?	1. Remove the foreign material. 2. If the error still occurs, replace the main board. (Page 118)

Table 2-2. Troubleshooting for Service Call Error

Code	Error Name	Cause	Check Item	Remedy
151A	APG motor overload error	<input type="checkbox"/> Connection failure of the motor. <input type="checkbox"/> Overcurrent to the motor was detected. <ul style="list-style-type: none"> ■ Motor cable is damaged. ■ Irregular load ■ Encoder failure ■ Motor failure 	Is there any problem such as damaged cable in the connections below? <input type="checkbox"/> APG motor (APG encoder) to main board (CR203/CN210)	Replace the APG motor. (Page 156)
151B	APG motor over speed error	The motor was driven at a speed faster than a predetermined one during deceleration. <ul style="list-style-type: none"> <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor driver failure 	---	1. Replace the APG motor. (Page 156) 2. Replace the main board. (Page 118)
151C	APG motor reversing error	The number of occurrences of reversing the motor has reached a predetermined limit. <ul style="list-style-type: none"> <input type="checkbox"/> The polarity of motor cable is opposite. <input type="checkbox"/> Motor failure 	Is there any problem such as damaged cable in the connections below? <input type="checkbox"/> APG motor (APG encoder) to main board (CR203/CN210)	Replace the APG motor. (Page 156)
151D	APG motor driving time-out error	Abnormally-long driving duration of the motor was detected. <ul style="list-style-type: none"> <input type="checkbox"/> Irregular load <input type="checkbox"/> Firmware becomes out of control. 	---	Replace the main board. (Page 118)
151E	APG motor velocity deviation error	The motor was driven at a speed abnormally faster than a predetermined one during acceleration or deceleration. <ul style="list-style-type: none"> <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor failure <input type="checkbox"/> Motor driver failure 	---	1. Replace the APG motor. (Page 156) 2. Replace the main board. (Page 118)
151F	APG motor lock error	<input type="checkbox"/> Connection failure of the motor. <input type="checkbox"/> The motor was driven at a speed abnormally slower than a predetermined one during operation. <ul style="list-style-type: none"> ■ Irregular load ■ Encoder failure ■ Motor failure 	Is there any problem such as damaged cable in the connections below? <input type="checkbox"/> APG motor (APG encoder) to main board (CR203/CN210)	Replace the APG motor. (Page 156)
1599	ATC motor oscillation error	The control terminal (Vre terminal) of the motor driver has shorted out.	1. Is the ATC motor driver on the main board damaged? 2. Is there any foreign materials around the ATC motor driver?	1. Remove the foreign material. 2. If the error still occurs, replace the main board. (Page 118)

Table 2-2. Troubleshooting for Service Call Error

Code	Error Name	Cause	Check Item	Remedy
159A	ATC motor overload error	Overcurrent to the motor was detected. <input type="checkbox"/> Motor cable disconnection. <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor failure	Does the ATC motor encoder work properly? Check it using the Service Program.	Replace the roll flange unit (full/home). (Page 208)
159B	ATC motor over speed error	The motor was driven at a speed faster than a predetermined one during deceleration. <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Sub-F (roll) board failure <input type="checkbox"/> Motor driver failure	Does the ATC motor encoder work properly? Check it using the Service Program.	1. Replace the roll flange unit (full/home). (Page 208) 2. Replace the main board. (Page 118)
159C	ATC motor reversing error	The number of occurrences of reversing the motor has reached a predetermined limit. <input type="checkbox"/> The polarity of motor cable is opposite. <input type="checkbox"/> Motor failure	Does the ATC motor encoder work properly? Check it using the Service Program.	Replace the roll flange unit (full/home). (Page 208)
159D	ATC motor driving time-out error	Abnormally-long driving duration of the motor was detected. <input type="checkbox"/> Irregular load <input type="checkbox"/> Firmware becomes out of control.	---	Replace the main board. (Page 118)
159E	ATC motor velocity deviation error	The motor was driven at a speed abnormally faster than a predetermined one during acceleration or deceleration. <input type="checkbox"/> Irregular load <input type="checkbox"/> Motor encoder failure <input type="checkbox"/> Motor failure <input type="checkbox"/> Sub-F (roll) board disconnection <input type="checkbox"/> Motor driver failure	Does the ATC motor encoder work properly? Check it using the Service Program.	1. Replace the roll flange unit (full/home). (Page 208) 2. Replace the main board. (Page 118)
159F	ATC motor lock error	<input type="checkbox"/> Connection failure of the motor. <input type="checkbox"/> The motor was driven at a speed abnormally slower than a predetermined one during operation. ■ Irregular load ■ Encoder failure ■ Motor failure	Does the ATC motor encoder work properly? Check it using the Service Program.	Replace the roll flange unit (full/home). (Page 208)

Table 2-2. Troubleshooting for Service Call Error

Code	Error Name	Cause	Check Item	Remedy
15A9	Reel motor oscillation error	The control terminal (Vre terminal) of the motor driver has shorted out.	1. Is the reel motor driver on the main board damaged? 2. Is there any foreign materials around the reel motor driver?	1. Remove the foreign material. 2. If the error still occurs, replace the main board. (Page 118)
15AA	Reel motor overload error	Overcurrent to the motor was detected. <input type="checkbox"/> Motor cable disconnection. <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor failure	Does the reel motor encoder work properly? Check it using the Service Program.	Replace the right roll core holder. (Page 207)
15AB	Reel motor over speed error	The motor was driven at a speed faster than a predetermined one during deceleration. <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Sub-F (reel) board failure <input type="checkbox"/> Motor driver failure	Does the reel motor encoder work properly? Check it using the Service Program.	1. Replace the right roll core holder. (Page 207) 2. Replace the main board. (Page 118)
15AC	Reel motor reversing error	The number of occurrences of reversing the motor has reached a predetermined limit. <input type="checkbox"/> The polarity of motor cable is opposite. <input type="checkbox"/> Motor failure	Does the reel motor encoder work properly? Check it using the Service Program.	Replace the right roll core holder. (Page 207)
15AD	Reel motor driving time-out error	Abnormally-long driving duration of the motor was detected. <input type="checkbox"/> Irregular load <input type="checkbox"/> Firmware becomes out of control.	---	Replace the main board. (Page 118)
15AE	Reel motor velocity deviation error	The motor was driven at a speed abnormally faster than a predetermined one during acceleration or deceleration. <input type="checkbox"/> Irregular load <input type="checkbox"/> Encoder failure <input type="checkbox"/> Motor failure <input type="checkbox"/> Sub-F (reel) board failure <input type="checkbox"/> Motor driver failure	Does the reel motor encoder work properly? Check it using the Service Program.	1. Replace the right roll core holder. (Page 207) 2. Replace the main board. (Page 118)

Table 2-2. Troubleshooting for Service Call Error

Code	Error Name	Cause	Check Item	Remedy
15AF	Reel motor lock error	<ul style="list-style-type: none"> <input type="checkbox"/> Connection failure of the motor. <input type="checkbox"/> The motor was driven at a speed abnormally slower than a predetermined one during operation. <ul style="list-style-type: none"> ■ Irregular load ■ Encoder failure ■ Motor failure 	Does the reel motor encoder work properly? Check it using the Service Program.	Replace the right roll core holder. (Page 207)
1610	Roll/Reel Units mismatch error	The combination of the roll unit and reel unit may be wrong; one of the units may be an optional unit.	Is the combination of the roll unit and reel unit either both of them are standard units or both of them are optional units?	Correct the combination of the roll unit and reel unit to either both are standard or both are optional.
1611	Roll Unit undetectable error	The roll unit could not be detected during mechanism initialization process.	Is the connector of the roll unit disconnected?	Connect the connector of the roll unit.
1612	Roll Unit undetectable error at the start of operation	When the ATC motor started to operate, it was detected that the roll unit status is different from that detected during mechanism initialization process.	<ol style="list-style-type: none"> 1. Is the connector of the roll unit disconnected? 2. Has the roll unit been replaced since the power on and while the ATC motor was stopping? 	<ol style="list-style-type: none"> 1. Connect the connector of the roll unit. 2. Turn the printer off and back on.
1613	Roll Unit undetectable error during operation	The connector of the roll unit was disconnected during the ATC motor was operating.	Is the connector of the roll unit disconnected?	Connect the connector of the roll unit.
1614	Reel Unit undetectable error at the start of operation	When the reel motor started to operate, it was detected that the reel unit status is different from that detected during mechanism initialization process.	<ol style="list-style-type: none"> 1. Is the connector of the reel unit disconnected? 2. Has the reel unit been replaced since the power on and while the reel motor was stopping? 	<ol style="list-style-type: none"> 1. Connect the connector of the reel unit. 2. Turn the printer off and back on.
1615	Reel Unit undetectable error during operation	The connector of the reel unit was disconnected during the reel motor was operating.	Is the connector of the reel unit disconnected?	Connect the connector of the reel unit.
1616	Roll unit board failure	There is a problem with a specific bit on the board, which detects what device is connected to the board.	---	Replace the roll flange unit (full/home). (Page 208)
1617	Reel unit board failure	There is a problem with a specific bit on the board, which detects what device is connected to the board.	---	Replace the right roll core holder. (Page 207)
1618	Roll/reel unit board failure	There is a problem with a specific bit on the board, which detects what device is connected to the board.	---	Replace the roll flange unit (full/home) and reel unit.
1620	Pressurizing initialization error	The initialization process did not complete within a predetermined time period.	<ol style="list-style-type: none"> 1. Is there any abnormal load applied to the pressure unit? 2. Is there any disconnected connectors or damaged cables? 	<ol style="list-style-type: none"> 1. Replace the pressure unit (Ink holder). (Page 162) 2. Replace the main board. (Page 118)
1621	Pressurizing/Suction switching error	The pressurizing and suction processes did not complete within a predetermined time period.	<ol style="list-style-type: none"> 1. Is there any abnormal load applied to the pressure unit? 2. Is there any disconnected connectors or damaged cables? 	<ol style="list-style-type: none"> 1. Replace the pressure unit (Ink holder). (Page 162) 2. Replace the main board. (Page 118)

Table 2-2. Troubleshooting for Service Call Error

Code	Error Name	Cause	Check Item	Remedy
1622	Operating time-out error	The switching operation did not complete within a predetermined time period.	1. Is there any abnormal load applied to the pressure unit? 2. Is there any disconnected connectors or damaged cables?	1. Replace the pressure unit (Ink holder). (Page 162) 2. Replace the main board. (Page 118)
1623	Continuous revolution error	The control terminal (Vre terminal) of the motor driver has shorted out.	1. Is the pressure motor driver on the main board damaged? 2. Is there any foreign materials around the pressure motor driver?	1. Remove the foreign material. 2. Replace the ink holder (home). (Page 162) 3. If the error still occurs, replace the main board. (Page 118)
1630	Pressurizing initialization error (Full)	The initialization process did not complete within a predetermined time period.	1. Is there any abnormal load applied to the Pressure Unit? 2. Is there any disconnected connectors or damaged cables?	1. Replace the Pressure Unit (Ink holder (Full)). (Page 162) 2. Replace the main board. (Page 118)
1631	Pressurizing/Suction switching error (Full)	The pressurizing and suction processes did not complete within a predetermined time period.	1. Is there any abnormal load applied to the Pressure Unit? 2. Is there any disconnected connectors or damaged cables?	1. Replace the Pressure Unit (Ink holder (Full)). (Page 162) 2. Replace the main board. (Page 118)
1632	Operating time-out error (Full)	The switching operation did not complete within a predetermined time period.	1. Is there any abnormal load applied to the Pressure Unit? 2. Is there any disconnected connectors or damaged cables?	1. Replace the Pressure Unit (Ink holder (Full)). (Page 162) 2. Replace the main board. (Page 118)
1633	Continuous revolution error (Full)	The control terminal (Vre terminal) of the Pressure Motor driver has shorted out.	1. Is the Pressure Motor driver on the main board damaged? 2. Is there any foreign materials around the Pressure Motor driver?	1. Remove the foreign material. 2. If the error still occurs, replace the main board. (Page 118)
1931	HTC common elements communication error	<input type="checkbox"/> Connection failure between the main board and sub-E board such as cable disconnection <input type="checkbox"/> There is something wrong with the elements on the sub-E board. <input type="checkbox"/> There is something wrong with the communication elements on the main board.	1. Is the cable connected properly? 2. Is the sub-E board out of order? 3. Is the main board out of order? (unlikely cause of this error)	1. Reconnect the cable. 2. Replace the cable. 3. Replace the sub-E board. (Page 128) 4. Replace the main board. (Page 118)
1935	HTC common power supply abnormal error	Abnormal temperature (the heater is not heated).	1. Is the cable connected properly? (CN500, No.6 Pin) 2. Is the Cooling Fan out of order? 3. Is the sub-E board out of order?	1. Reconnect the cable. 2. Replace the cable. 3. Replace the Cooling Fan. (Page 205) 4. Replace the sub-E board. (Page 128)

Table 2-2. Troubleshooting for Service Call Error

Code	Error Name	Cause	Check Item	Remedy
1950	After heater AD abnormal error	A thermistor temperature out of a predetermined range was detected the predetermined number of times in a row.	1. Is the thermistor out of order? 2. Is there any disconnected connectors or damaged cables?	1. Replace the thermistor (after heater). (Page 202) 2. Replace the main board. (Page 118)
1952	After heater overheat error	A heater temperature out of a predetermined range was detected the predetermined number of times in a row.	1. Is the thermistor out of order? 2. Is there any disconnected connectors or damaged cables?	1. Replace the thermistor (after heater). (Page 202) 2. Replace the after heater. (Page 202) 3. Replace the main board. (Page 118)
1953	After heater heat deviation error	The difference between the current temperature and target temperature exceeded a predetermined limit.	1. Is the thermistor out of order? 2. Is there any disconnected connectors or damaged cables?	1. Replace the thermistor (after heater). (Page 202) 2. Replace the after heater. (Page 202) 3. Replace the main board. (Page 118)
1954	After heater power supply abnormal error 1	<input type="checkbox"/> Cable disconnection, breaking, blowout of a fuse, or heater failure. <input type="checkbox"/> AC cable (for the after heater) disconnection	1. Is the cable connected properly? 2. Is the sub-E board out of order? 3. Is the after heater out of order?	1. Reconnect the cable. 2. Replace the cable. 3. Replace the sub-E board. (Page 128) 4. Replace the after heater. (Page 202)
196A	Inner temperature overheating error	The temperature of the Printhead has become high.	1. Check the room temperature. 2. Check the RIP settings.	Cool down the room temperature and turn off (and then turn on) the printer. (The printer stops if the temperature of the Printhead reaches 49 °C. A warning is displayed when the temperature reaches 44 °C.)
1A23	RTC data invalid error	The various absolute time settings stored on the NVRAM are abnormal.	Reset the date and time settings of the RTC using the Service Program.	If the error still occurs after resetting the date and time, perform the followings. 1. Replace the RTC backup battery. 2. Replace the main board. (Page 118)
1A26	RTC Access T/O error	The RTC circuit on the main board malfunctions.	---	1. Turn the power off and remove the RTC backup battery. 2. After several seconds, re-attach the battery and turn the power back on. 3. Reset the date and time settings of the RTC using the Service Program.
1A37	Thermistor error	<input type="checkbox"/> The head FFC is not connected correctly. <input type="checkbox"/> A temperature out of a predetermined range was detected by the Head thermistor. <input type="checkbox"/> Head thermistor failure	Is the head FFC connected properly without being connected at an angle and any abnormalities such as ripped terminal cover?	1. Replace the head FFC. (Page 141) 2. Replace the print head. (Page 138)
1A38	Transistor environmental temperature error	<input type="checkbox"/> Transistor failure <input type="checkbox"/> A temperature out of a predetermined range was detected by the Head thermistor.	---	Replace the print head. (Page 138)

Table 2-2. Troubleshooting for Service Call Error

Code	Error Name	Cause	Check Item	Remedy
1A39	Head error	<input type="checkbox"/> Connection failure of the head FFC. <input type="checkbox"/> Electric parts or components are damaged due to improper head FFC connection such as connecting it at an angle. ■ The drive circuit in the print head is damaged. ■ The fuse of the main board has blown.	Is the head FFC connected properly without being connected at an angle and any abnormalities such as ripped terminal cover?	1. Replace the head FFC. (Page 141) 2. Replace the print head. (Page 138) (Since identification of the error cause between the print head (Full) and print head (Home) cannot be made, replace the print head one by one.) 3. Replace the main board. (Page 118)
1A3A	CR motor cooling fan lock	The CR motor cooling fan does not work.	Check if some foreign object prevents the fan from turning.	1. Remove the foreign object. 2. Replace the CR motor cooling fan. (Page 153)
1A3C	CR Motor Cooling Fan lock error	<input type="checkbox"/> Cable is damaged <input type="checkbox"/> Fan failure	---	1. Reconnect the cable. 2. Replace the CR Motor Cooling Fan. (Page 153)
1A3E	PS cooling fan lock error	The PS board cooling fan does not work.	Check if some foreign object prevents the fan from turning.	1. Remove the foreign object. 2. Replace the PS board cooling fan. (Page 133)
1A41	Head rank ID input error	An invalid head rank ID was written to the NVRAM.	Check the head rank ID using the Service Program.	Rewrite the head rank ID with a correct one. (Page 261)
1A50	I2C communication error between elements on ASIC and MAIN	An I2C communication error has occurred in the main board.	---	Replace the main board. (Page 118)
1A51	I2C communication error between elements on ASIC and SUB	I2C communication error between elements on ASIC and SUB	Are the main board and sub board properly connected to each other without any cable disconnection, FFCs being connected at an angle, and any abnormalities such as ripped terminal cover?	1. Replace the FFC that connects the main board and sub board. 2. Replace the sub board. (Page 127) 3. Replace the main board. (Page 118)
1A53	I2C communication error between elements on ASIC and SUB-C	I2C communication error between elements on ASIC and SUB-C	Are the main board and sub-C board properly connected to each other without any cable disconnection, FFCs being connected at an angle, and any abnormalities such as ripped terminal cover?	1. Replace the cable that connects the main board and sub-C board. 2. Replace the sub-C board. 3. Replace the main board. (Page 118)
1A60	IC2 communication error during IMS operation	Communication error.	---	1. Check the connection between the sub board Assy and the main board if the FFC is connected correctly (no slant connection exists). 2. Replace the CR FFC. (Page 145) 3. Replace the sub board. (Page 127) 4. Replace the main board. (Page 118)
1F80	VHV fuse blowout error	VHV voltage drop (blown out of the fuse)	---	Replace the main board. (Page 118)
1F81	F/W error	Firmware is abnormal. (ROM abnormality)	---	1. Update the firmware. (Page 241) 2. Replace the main board. (Page 118)

Table 2-2. Troubleshooting for Service Call Error

Code	Error Name	Cause	Check Item	Remedy
1F82	CSIC destination error 1	Destination of the CSIC is wrong.	---	1. Turn the power off. 2. Remove the all sliders. 3. Execute the Main Board Initialize again. (Page 299)
1F83	CSIC error	CSIC control error	---	1. Replace the ink holder. (Page 162) 2. Replace the main board. (Page 118)
1F84	CSIC written data error 1	Information in the printer and that of CSIC are inconsistent.	---	1. Update the firmware. (Page 241) 2. Replace the main board. (Page 118)
1F85	CSIC written data error 2	Writing from the printer onto CSIC is abnormal.	---	1. Update the firmware. (Page 241) 2. Replace the main board. (Page 118)
1F86	Data read error	Receiving data of the ink holder on the left is abnormal.	Is there any problem such as damaged cable in the connections below? <input type="checkbox"/> Left ink holder to main board (CN216)	1. Correct the wrong connection if any. 2. Replace the left ink holder. (Page 162)
1F87	No ACK error	Response of the ink holder on the left after transmitting data is abnormal.	Is there any problem such as damaged cable in the connections below? <input type="checkbox"/> Left ink holder to main board (CN216)	1. Correct the wrong connection if any. 2. Replace the left ink holder. (Page 162)
1F88	CSIC error	Receiving data of the ink holder on the right is abnormal.	Is there any problem such as damaged cable in the connections below? <input type="checkbox"/> Right ink holder to main board (CN215)	1. Correct the wrong connection if any. 2. Replace the right ink holder. (Page 162)
1F89	CSIC error	Response of the ink holder on the right after transmitting data is abnormal.	Is there any problem such as damaged cable in the connections below? <input type="checkbox"/> Right ink holder to main board (CN215)	1. Correct the wrong connection if any. 2. Replace the right ink holder. (Page 162)
1FB8	CSIC error	CSIC control error	---	1. Replace the ink holder. (Page 162) 2. Replace the main board. (Page 118)
1FB9	CSIC destination error 2	Destination of the CSIC is wrong.	---	1. Set the destination using the service program again. 2. Replace the main board. (Page 118)
1F8C	CSIC error	CSIC error	---	1. Replace the ink holder. (Page 162) 2. Replace the main board. (Page 118)
1F8D	CSIC error	CSIC error	---	1. Replace the ink holder. (Page 162) 2. Replace the main board. (Page 118)
1FBE	CSIC error	CSIC error	---	1. Replace the ink holder. (Page 162) 2. Replace the main board. (Page 118)
1FBF	CSIC error	CSIC control error	---	1. Replace the ink holder. (Page 162) 2. Replace the main board. (Page 118)

Table 2-2. Troubleshooting for Service Call Error

Code	Error Name	Cause	Check Item	Remedy
1FC0	CSIC error	CSIC control error	---	1. Replace the ink holder. (Page 162) 2. Replace the main board. (Page 118)
1FC1	CSIC error	CSIC control error	---	1. Replace the ink holder. (Page 162) 2. Replace the main board. (Page 118)
2000	NVRAM error	NVRAM erase or write error has occurred.	---	Replace the main board. (Page 118)
2002	SDRAM error	Writing to the SDRAM was attempted, but nothing could be written to it.	---	Replace the main board. (Page 118)
2003	FLASH BOOT checksum error	<input type="checkbox"/> Installing the firmware has failed. <input type="checkbox"/> The flash ROM is out of order.	---	1. Re-install the firmware. (Page 241) 2. Replace the main board. (Page 118)
2008	Wrong FLASH device error	Main board is damaged.	---	Replace the main board. (Page 118)
200A	F/W load error	Reading/decompressing the firmware has failed.	---	1. Re-install the firmware. (Page 241) 2. Replace the main board. (Page 118)
200D	System interrupt watchdog time-out error	A system failure such as CPU failure, or defective cash has occurred.	---	Replace the main board. (Page 118)
2011	Flushing position error	The print head does not detect the flushing position.	1. Is the FFC connected properly? 2. Is the CR scale out of order? 3. Is the CR encoder out of order? 4. Is the head FFC out of order?	1. Reconnect the FFC. 2. Replace the CR scale. (Page 147) 3. Replace the CR encoder. (Page 155) 4. Replace the head FFC. (Page 141)
2012	Application error	RIP and Epson Control Dashboard are interfering with each other during USB communication.	1. Restart the printer. 2. Check the version of Epson Control Dashboard.	Update the Epson Control Dashboard if the version is 1.0 or earlier.
		This error occurs if two or more RIPs are used at the same time. (Do not start more than one RIPs.)	---	Quit the RIPs and restart the printer and the PC.
		This error occurs if the data of ECD are updated when ECD and RIP that does not support ECD are communicating via USB respectively.	---	Do not press the update button of ECD when RIP which communicates via USB individually is running.
3000	AC shut-off	The AC power has been shut off due to a power failure, unplugged, power supply board failure, or main board failure or the like.	Is the Power cable properly connected?	1. Replace the power supply board. (Page 121) 2. Replace the main board. (Page 118)
4000	End of Life	A life part has reached the end of its service life.	Check which part has reached the end of life using NVRAM Viewer.	Replace the life part.
DxxY	Service call for FW debugging	This error is intended to be used in the product development stage. It is supposed to not occur with marketed product, but may occur due to an unexpected cause such as external noises.	Turn the power off and back on. Does the printer recover from the error? (No repair work is needed unless the error occurs again.)	1. Re-install the firmware. (Page 241) 2. Replace the main board. (Page 118)

Table 2-2. Troubleshooting for Service Call Error

Code	Error Name	Cause	Check Item	Remedy
Exxy	Service call for FW debugging	This error is intended to be used in the product development stage. It is supposed to not occur with marketed product, but may occur due to an unexpected cause such as external noises.	Turn the power off and back on. Does the printer recover from the error? (No repair work is needed unless the error occurs again.)	1. Re-install the firmware. (Page 241) 2. Replace the main board. (Page 118)
Fxxx	CPU related service call	<input type="checkbox"/> There is something wrong with the firmware. <input type="checkbox"/> The main board is out of order.	Is the firmware installed correct one for the printer?	1. Re-install the firmware. (Page 241) 2. Replace the main board. (Page 118)
****	Interlock switch communication error	Communication failure due to broken cables.	1. Various Service Call Errors are displayed in turn inconsistently. (e.g.: 1138 => 1411 => 1418 => 150C, etc.) 2. Is the cable of the interlock switch broken?	Replace the following interlock switch. <input type="checkbox"/> Front cover L sensor (Page 116) <input type="checkbox"/> Front cover R sensor (Page 113) <input type="checkbox"/> L maintenance cover sensor (Page 106) <input type="checkbox"/> R maintenance cover sensor (Page 111)
****	Debug Error D24A	The print head does not detect the flushing position.	1. Is the FFC connected properly? 2. Is the CR scale out of order? 3. Is the CR encoder out of order? 4. Is the head FFC out of order?	1. Reconnect the FFC. 2. Replace the CR scale. (Page 147) 3. Replace the CR encoder. (Page 155) 4. Replace the head FFC. (Page 141)

2.4 Remedies for Print Quality Troubles

This section provides troubleshooting of print quality troubles classifying them by observed symptom. Before performing troubleshooting, refer to "Nozzle Check" (p264) and print nozzle check pattern. Examine the printed pattern, and if any missing segment is found, perform the print head cleaning.

Table 2-3. Print Quality Troubles

Symptom	Cause	Check Item	Remedy
Nozzles are clogged (Approx. one to five nozzles)	Dirt, fuzz, or foreign material on the CR operation area touches the nozzle surface.	Check if there is any dirt, fuzz, or foreign material on the CR operation area.	<ol style="list-style-type: none"> 1. Clean the inside of the printer (Media edge plates, Platen, Pump cap unit, Flushing box). 2. Run CL1->CL2->CL3->Auto head maintenance in that order. (See P.263)
	Dirt, fuzz, or foreign material is attached on the nozzle surface.	<ol style="list-style-type: none"> 1. Check if there is any dirt, fuzz, or foreign material on the CR operation area. 2. Check if there is any dirt, fuzz, or foreign material attached on the nozzle surface. 	<ol style="list-style-type: none"> 1. Clean the inside of the printer (Media edge plates, Platen, Pump cap unit, Flushing box). 2. Run CL1->CL2->CL3->Auto head maintenance in that order. (See P.263) 3. Rung cleaning (SSCL). (See P.263) 4. Clean the print head. 5. Replace the print head. (Page 138)
	Dirt, fuzz, or foreign material has penetrated into nozzles.	<ol style="list-style-type: none"> 1. Check if there is any dirt, fuzz, or foreign material on the CR operation area. 2. Check if there is any dirt, fuzz, or foreign material attached on the nozzle surface. 	<ol style="list-style-type: none"> 1. Clean the inside of the printer (Media edge plates, Platen, Pump cap unit, Flushing box). 2. Run CL1->CL2->CL3->Auto head maintenance in that order. (See P.263) 3. Rung cleaning (SSCL). (See P.263) 4. Clean the print head. 5. Replace the print head. (Page 138)

Table 2-3. Print Quality Troubles

Symptom	Cause	Check Item	Remedy													
			Media	Standard PG for each media (panel display)												
	Mist generated due to a PG setting higher than the standard PG has been attached on the nozzle surface.	Check if the PG setting for each media is higher than the standard PG.	Adjust the PG for each media to their standard PG.	<table border="1"> <tr> <td>Thinnest</td> <td>2.0</td> </tr> <tr> <td>Thin</td> <td>2.0</td> </tr> <tr> <td>Thick</td> <td>2.0</td> </tr> <tr> <td>Thickest</td> <td>2.0</td> </tr> <tr> <td>Adhesive</td> <td>2.0</td> </tr> </table>	Thinnest	2.0	Thin	2.0	Thick	2.0	Thickest	2.0	Adhesive	2.0		
Thinnest	2.0															
Thin	2.0															
Thick	2.0															
Thickest	2.0															
Adhesive	2.0															
Nozzle clogging recurs after a while if improved (Approx. one to five nozzles)	Due to insufficient execution frequency of periodic cleanings, the mist attached on the nozzle surface is not removed.	Check if the frequency of periodic cleanings is longer than the default value.	1. Set the frequency of periodic cleanings to the default value.	<table border="1"> <tr> <td>Media</td> <td>Default periodic cleaning frequency</td> </tr> <tr> <td>Thinnest</td> <td>OFF</td> </tr> <tr> <td>Thin</td> <td>OFF</td> </tr> <tr> <td>Thick</td> <td>OFF</td> </tr> <tr> <td>Thickest</td> <td>OFF</td> </tr> <tr> <td>Adhesive</td> <td>OFF</td> </tr> </table>	Media	Default periodic cleaning frequency	Thinnest	OFF	Thin	OFF	Thick	OFF	Thickest	OFF	Adhesive	OFF
Media	Default periodic cleaning frequency															
Thinnest	OFF															
Thin	OFF															
Thick	OFF															
Thickest	OFF															
Adhesive	OFF															
	Too much electrification of media and ink due to low humidity has caused mist to be attached on the nozzle surface. (Can be seen more frequently when using a film media such as a transparent or backlit film.)	Check if the ambient humidity is 60% or more.	2. Increase the frequency of periodic cleanings.	Add humidity until it becomes 60% or more using a humidifier.												
	High PG due to a mechanical factor increases the amount of mist and some of the mist is attached on the nozzle surface.	Check the PG using thickness gauges.	Adjust the PG again if it is too high.													
	S,Mdot increases the amount of mist and some of the mist is attached on the nozzle surface.	---	Adjust (lower) S,Mdot, and then create and provide a profile configured by Ldot main. (may not be possible depending on RIP.)													

Table 2-3. Print Quality Troubles

Symptom	Cause	Check Item	Remedy	
			Media	Standard PG for each media (panel display)
	Mist generated due to a PG setting higher than the standard PG has been attracted on the electrified media.	Check if the PG setting for each media is higher than the standard PG.	Adjust the PG for each media to their standard PG.	Thinnest 2.0 Thin 2.0 Thick 2.0 Thickest 2.0 Adhesive 2.0
Foggy smudge on the media surface	Too much electrification of media and ink due to low humidity has caused mist to be attracted on the electrified media surface. (Can be seen more frequently when using a film media such as a transparent or backlit film.)	Check if the ambient humidity is 60% or more.	Add humidity until it becomes 60% or more using a humidifier.	
	High PG due to a mechanical factor increases the amount of mist and some of the mist is attracted on the electrified media surface.	Check the PG using thickness gauges.	Adjust the PG again if it is too high.	
	S,Mdot increases the amount of mist and some of the mist is attracted on the electrified nozzle surface.	---	Adjust (lower) S,Mdot, and then create and provide a profile configured by Ldot main. (may not be possible depending on RIP.)	

Table 2-3. Print Quality Troubles

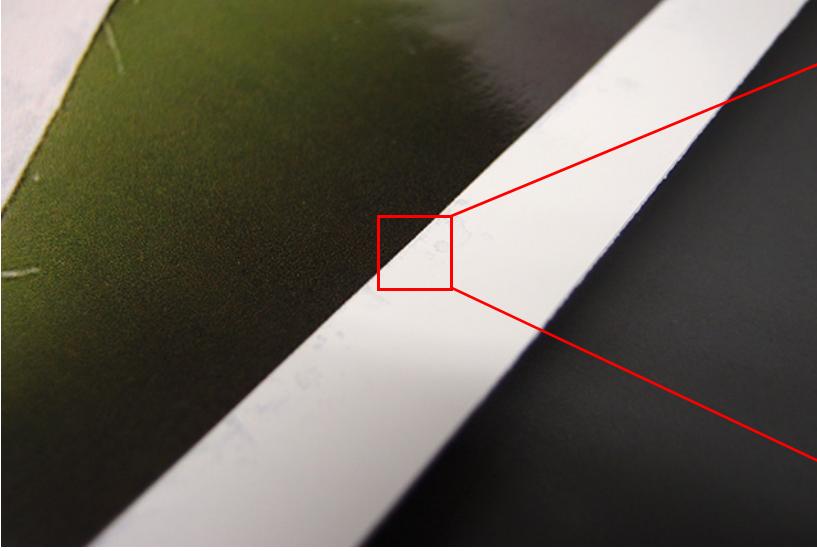
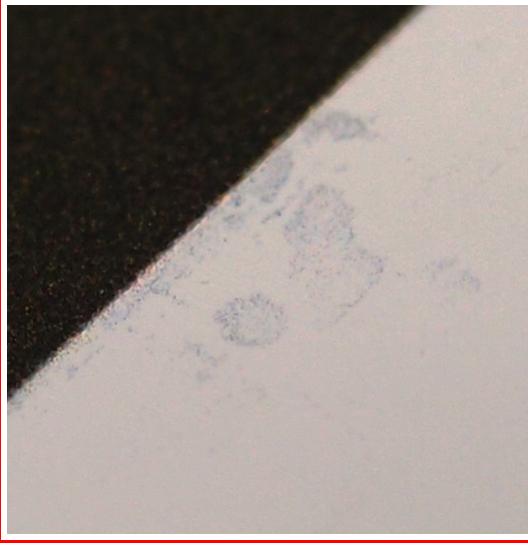
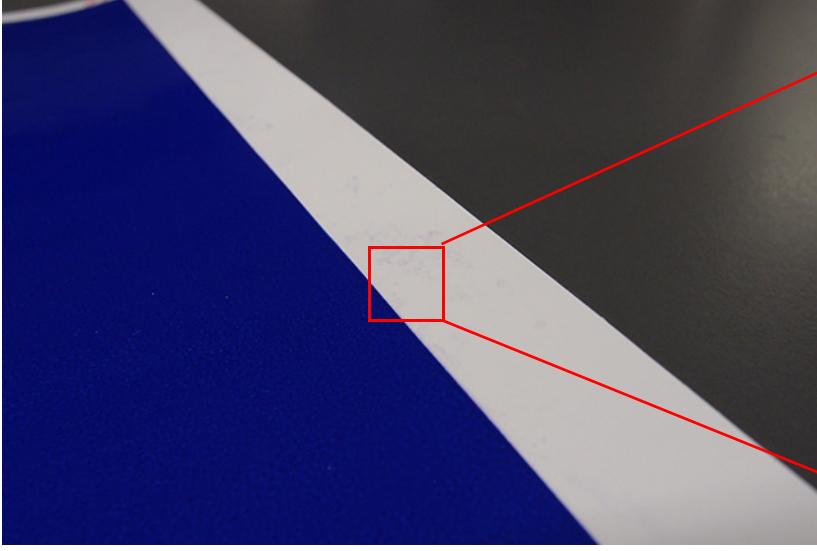
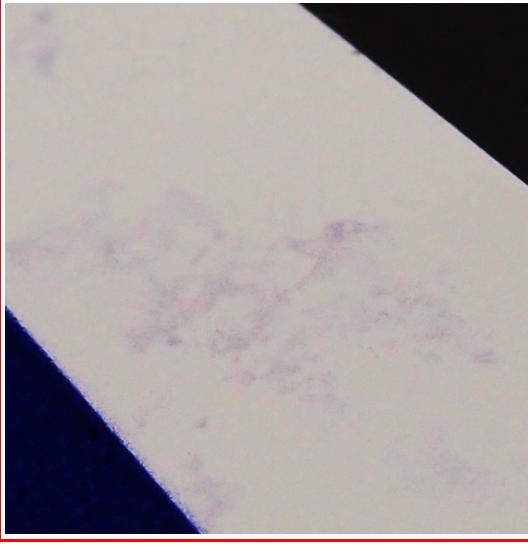
Symptom	Cause	Check Item	Remedy
Image samples			
			
			

Table 2-3. Print Quality Troubles

Symptom	Cause	Check Item	Remedy
The nozzles are still clogging after cleaning.	The Wiper is contaminated and wiping the print head cannot be performed properly.	1. Is the Wiper contaminated? 2. Is the Wiper damaged?	Check if there is something wrong with the wiper, and replace it if any abnormality is found.
	The head cap is contaminated.	Is the cap contaminated?	1. Clean the cap. 2. Replace the cap (pump cap unit). (Page 159)
	There is some foreign material on the print head.	Is there any foreign materials on the print head?	Clean the print head.
	There is something wrong in the pump tube and the cleaning (suctioning of ink) cannot be performed properly.	Is the pump tube being bent or getting caught between surrounding parts or components?	Route the pump tube correctly.
	The ink is leaking.	Is there any ink leakage observed on the ink flow paths?	If any leakage is found correct it.
	There is air inside the ink path.	Is there any air bubbles observed in the ink flow paths?	Run a head cleaning. (Page 263)
	The head FFC is not connected correctly.	1. Check if no ink comes out, or an entire row of nozzles are clogged. 2. Is the head FFC connected properly without being connected at an angle and any abnormalities such as ripped terminal cover?	1. Reconnect the head FFC. 2. If the trouble still occurs, the cause may be breaking of the head FFC. Replace the head FFC. (Page 141)
	If any of the remedies above does not help, replace the following parts one by one. <input type="checkbox"/> Print head (Page 138) <input type="checkbox"/> Main board (The fuse may have blown) (Page 118)		
Horizontal or vertical lines look misaligned.	Adjustment failure of the IM sensor	---	Carry out the following adjustments. <input type="checkbox"/> Manual Bi-D Adjustment (Page 276) <input type="checkbox"/> IM sensor Check & Adjustment (Page 255)
	IM sensor is out of order.	Does the IM sensor function normally? Check it using the Service Program.	Replace the IM sensor. (Page 178)
	The print head has not been adjusted properly.	Have the following adjustments been made properly? <input type="checkbox"/> CR Direction Head Slant Adjustment (Page 266) <input type="checkbox"/> PF Direction Head Slant Adjustment (Page 270)	Carry out the adjustments correctly. <input type="checkbox"/> CR Direction Head Slant Adjustment (Page 266) <input type="checkbox"/> PF Direction Head Slant Adjustment (Page 270)
	Improper PG adjustment	1. Is the paper thickness setting correct? 2. Has the PG adjustment been made properly?	1. Correct the paper thickness setting. 2. Perform the PG adjustment. (Page 258)

Table 2-3. Print Quality Troubles

Symptom	Cause	Check Item	Remedy
Bandings in the paper feeding direction.	The print head has not been adjusted properly.	---	Carry out the following adjustments. <input type="checkbox"/> CR Direction Head Slant Adjustment (Page 266) <input type="checkbox"/> PF Direction Head Slant Adjustment (Page 270)
	The paper was not fed properly.	---	1. Adjust the custom settings of the feed amount through the panel. 2. Check the following settings. <input type="checkbox"/> Feed Adjustment <input type="checkbox"/> Media Tension
	PF scale or PF encoder failure	1. Is the PF scale damaged or contaminated? 2. Is the PF scale attached properly? 3. Is the PF encoder installed correctly?	1. Clean the PF scale. 2. Reinstall the PF scale and PF encoder. 3. Replace the PF scale (Page 193) and PF encoder (Page 192).
	The tension of the PF timing belt is not proper.	---	Correct the tension of the PF timing belt. (Page 291)
	PF motor failure	---	Replace the PF motor. (Page 190)

Table 2-3. Print Quality Troubles

Symptom	Cause	Check Item	Remedy
Bandings in the carriage movement direction.	Adjustment failure of the IM sensor	---	Carry out the following adjustments. <input type="checkbox"/> Manual Bi-D Adjustment (Page 276) <input type="checkbox"/> IM Sensor Check & Adjustment (Page 255)
	The print head has not been adjusted properly.	Have the following adjustments been made properly? <input type="checkbox"/> CR Direction Head Slant Adjustment <input type="checkbox"/> PF Direction Head Slant Adjustment	Carry out the adjustments correctly. <input type="checkbox"/> CR Direction Head Slant Adjustment (Page 266) <input type="checkbox"/> PF Direction Head Slant Adjustment (Page 270)
	Improper PG adjustment	1. Is the paper thickness setting correct? 2. Has the PG adjustment been made properly?	1. Correct the paper thickness setting. 2. Perform the PG adjustment. (Page 258)
	CR scale or CR encoder failure	1. Is the CR scale damaged or contaminated? 2. Is the CR scale attached properly? 3. Is the CR encoder installed correctly?	1. Clean the CR scale. 2. Reinstall the CR scale and CR encoder. 3. Replace the CR scale (Page 147) and CR encoder (Page 155).
	The tension of the CR timing belt is not proper.	---	Correct the tension of the CR timing belt. (Page 249)
	<input type="checkbox"/> Suction setting failure <input type="checkbox"/> Suction fan failure	1. Is there any slack in the loaded paper? 2. Does the suction fan work normally? Check it using the Service Program.	1. Make the suction setting properly. 2. Replace the suction fan. (Page 197)
	Lubrication on the CR moving parts is insufficient.	Has the oil pad of the CR unit dried out?	If the pad is dry, lubricate it. (Page 334)

Table 2-3. Print Quality Troubles

Symptom	Cause	Check Item	Remedy
Printed side is smudged or smeared with ink.	There is a problem with the paper used.	1. Is the paper wrinkled, bent, rippled, or warped? 2. Is the paper too thick and contacting with the head? 3. Is the paper too thin and loosening when being fed?	1. Replace the paper with a proper new one. 2. Adjust the PG setting according to the paper thickness.
	Drying failure	1. Is paper advanced before ink on it dries? 2. Is the paper used a kind of paper that absorbs ink easily and takes longer time to being dried? 3. Is the heater temperature setting appropriate?	1. Change the drying time setting to a longer one. 2. Change the paper with another one. 3. Set the heater temperature higher.
	Improper PG adjustment	Has the PG adjustment been made properly?	Perform the PG adjustment. (Page 258)
	The paper feed roller is contaminated	Is the PF roller smudged or smeared with ink or anything?	1. Clean the roller with a soft cloth damped and wrung out of water. 2. If not improved, replace the pressure roller. (Page 196)
	There is something wrong with the media edge plates.	1. Is media edge plates being raised improperly? 2. Is the plates pressing paper too much and bringing the paper too close to the print head side?	1. Perform the followings ■ Replace the media edge plates if any bend is observed. ■ Install the plate so that it properly presses paper. 2. Align the holes on the plate with the edges of paper.
The backside of paper is smudged or smeared with ink.	The bottom of the CR unit is contaminated.	1. Check the contamination and fluff on the bottom of the CR unit. 2. Check the contamination and fluff on the flushing box.	Clean the following points. ■ Bottom of the CR unit ■ Flushing box ■ Inside of the printer
	The platen is contaminated.	1. Is the platen contaminated with ink? 2. Is the Media Size Check function enabled?	1. Clean the platen. 2. Enable (select “ON”) the Media Size Check function.
	Suction fan is making the ink mists drift to the back of the printing paper.	Is the suction level of the fan proper?	Change the suction level appropriately.

Table 2-3. Print Quality Troubles

Symptom	Cause	Check Item	Remedy
Color or print density unevenness within a page or across pages.	Some of the nozzles are clogging.	Check the nozzle check pattern and alignment check pattern.	Carry out the cleaning.
	The ink in the ink tank is not agitated enough.	---	Shake the ink so that ink droplets spread evenly inside the tank.
	Deterioration of ink quality	Have the installed ink tanks expired?	Replace the expired ink with new ones.
	Improper PG adjustment	Has the PG adjustment been made properly?	Perform the PG adjustment. (Page 258)
	Ink settles in the tube.	Ask the user about how frequently the printer is used.	Agitate the ink tank and carry out CL3 three times or run the initial ink charge.
Text or images are dimmed	Too much ink discharge.	Has the Head rank ID been written correctly?	Rewrite the Head rank ID with a correct one. (Page 261)
	The ink droplet sizes are not proper.	Are the RIP settings proper?	Change the RIP settings accordingly.
	PG is too high.	Check the current PG settings.	Improve the PG settings.
	Bi-D adjustment is not appropriate.	Check if it recurs in the Uni-D printing.	If it does not recur in the Uni-D printing, carry out the gap adjustment through the panel because the Bi-D adjustment is not appropriate.
	Resolution of images is insufficient.	Check if the resolution of the original images are sufficient.	Replace them with the images with sufficient resolution.
Paper dust is attached or the traces of the rollers appear.	Traces of pressure roller are caused because the paper had been kept set in the printer for a long time.	---	Remove the paper if the printer is left for a long time.
	The paper dust attached on the PF rollers transferred to the paper.	Is there any paper dust attached to the PF rollers?	Clean the rollers. Print some blank pages to clean them.
Ink mist is attached.	---	Is the air filter replaced?	Replace the air filter.
		Is the PG too wide?	Carry out the PG Adjustment. (See P.258)
		Is the print duty too high?	Lower the print duty.
		Is the ambient environment the one with low temperature and low humidity?	Improve the environmental conditions by humidifying the air.

2.5 Trouble on Paper Feeding

This section describes the possible troubles on paper feeding and their causes and remedies.

Table 2-4. Trouble on Paper Feeding

Symptom	Cause	Check Item	Remedy
Paper is not fed into the printer properly.	Improper PE Sensor adjustment	---	Perform the Rear AD Adjustment. (Page 297)
	PE Sensor failure	Does the PE Sensor work normally? Check it using the Service Program.	Replace the PE Sensor. (Page 199)
	PW Sensor failure	Check if the paper is fed normally with the PW sensor off.	If the paper is fed normally with the PW sensor off, the PW sensor may be abnormal, so replace the PW sensor. (Page 176)
Paper feeding or paper ejecting is abnormal.	An abnormal value is set in the custom media settings.	Check the custom media settings.	Set the standard values in the settings for each media.
	PF scale or PF encoder failure	1. Is the PF scale damaged or contaminated? 2. Is the PF scale attached properly? 3. Is the PF encoder installed correctly?	1. Clean the PF scale. 2. Reinstall the PF scale and PF encoder. 3. Replace the PF scale (Page 193) and PF encoder (Page 192).
	The tension of the PF timing belt is not proper.	---	Correct the tension of the PF timing belt. (Page 291)
	<input type="checkbox"/> Suction setting failure <input type="checkbox"/> Suction fan failure	1. Is the suction setting proper? 2. Does the suction fan work normally? Check it using the Service Program.	1. Make the suction setting properly. 2. Replace the suction fan.
	PF rollers failure	Are the PF rollers contaminated or damaged?	Clean the rollers or replace them.
	The roll unit or reel unit is not parallel.	---	Perform the parallelism adjustment of the roll unit or reel unit referring to the Set Up Guide.
Paper is skewing.	The Paper Size Check function has been disabled.	---	Enable (select “ON”) the Media Size Check function.
	The PW sensor is not working.	Does the PW sensor work normally? Check it using the Service Program.	Replace the PW sensor. (Page 176)
	Roll paper edge is attached to the take-up reel at an angle.	---	Attach the paper to the take-up reel correctly.
	The paper hold-down plate is pressing paper too strong.	---	Align the holes on the plate with the edges of paper.
	The printer is not installed horizontally.	Check the level on the foot.	Set the printer horizontally by adjusting the adjusters on the bottom of the printer.

Table 2-4. Trouble on Paper Feeding

Symptom	Cause	Check Item	Remedy
Actual margins differ from the specified margins.	Paper feed amount is not configured correctly.	---	Perform the Feed Adjustment. (Page 294)
	The Media Size Check function has been disabled.	---	Enable (select “ON”) the Media Size Check function. (The printer is not capable of precisely correcting less than 2 mm differences.)
	The Media End Check function has been disabled.	---	Enable (select “ON”) the Media End Check function.
	The Tension Check function has been set to OFF.	---	Set the Tension Check function to other than OFF.
The end of roll paper is not detected and paper falls.	Roll paper whose end edge is secured to the core was used with the Tension Check function set to OFF.	---	Make either one or both of the following settings. <input type="checkbox"/> Set the Tension Check function to other than OFF. <input type="checkbox"/> Enable (select “ON”) the Media End Check function.
	The Tension Check function has been set to OFF with the Media End Check function disabled.	---	Make either one or both of the following settings. <input type="checkbox"/> Set the Tension Check function to other than OFF. <input type="checkbox"/> Enable (select “ON”) the Media End Check function.
Roll paper is reeled off at a slant, or the reeled-off paper gets wrinkled.	The tensioner has become distorted for some reason. (It can be distorted if excessive force is applied.)	---	Replace the reel unit.
“Media Out” occurs.	PE sensor is contaminated.	Is the PE sensor contaminated?	Clean the PE sensor.
	PE sensor is not working.	Perform the Rear AD Adjustment. (Page 297)	Replace the PE sensor if it is abnormal. (Page 199)
“Media Sensor Error” occurs.	IM sensor is contaminated.	Run the IMS Function Check & Auto Adjustment (Page 255) in the service program to check if the IM sensor is contaminated or not.	Clean the IM sensor.

2.6 Other Troubles

Table 2-5. Other Troubles

Symptom	Cause	Check Item	Remedy
The printer is not powered.	The power cable is unplugged	Is the power plug connected properly?	Connect it properly.
	The power voltage is unstable.	Is the electrical outlet overloaded sharing with any other electric equipment?	Use one electrical outlet for the printer only if possible.
	Connection failure of the power supply board	Is there any problem in the connection between the power supply board (CN51) and the main board (CN700)?	Correct the problem.
	Connection failure of the control panel board	Is there any problem in the connection between the control panel board (CN1) and the main board (CN13)?	Correct the problem.
	If any of the remedies above does not help, replace the following parts one by one. <input type="checkbox"/> AC inlet <input type="checkbox"/> Power supply board (Page 121)		
Cannot access to a network.	A wrong type of network cable is used.	Is a crossing cable used as the network cable?	Replace the cable with a straight cable.
	Network cable failure	Is there any abnormalities observed on the cable? <input type="checkbox"/> Are the connectors firmly inserted? <input type="checkbox"/> Is the cable breaking? <input type="checkbox"/> Is the cable being bent or is there anything placed on the cable?	Correct the problem.
	LAN connector failure	Is the connector deformed or damaged?	Replace the main-B board. (Page 120)
	The MAC address is invalid.	---	Rewrite the address with a correct one. (Page 301)
	Connection failure of the main-B board	Is there any problem in the connection between the main-B board (CN700/CN701) and the main board (CN15/CN5)?	Correct the problem.
	If any of the remedies above does not help, replace the main-B board. (Page 120)		
The printer makes a strange noise when the CR is moving.	The tension of the CR timing belt is not proper.	---	Correct the tension of the CR timing belt. (Page 249)
	Lubrication of the CR unit and CR shaft is insufficient.	Does the CR unit move smoothly? Check it by pulling the CR timing belt.	If the unit does not move smoothly, lubricate it.
	CR scale or CR encoder failure	1. Is the CR scale damaged or contaminated? 2. Is the CR scale attached properly? 3. Is the CR encoder installed correctly?	1. Clean the CR scale. 2. Reinstall the CR scale and CR encoder. 3. Replace the CR scale (Page 147) and CR encoder (Page 155).
	Unexpected tension was applied to the tubes.	Is the resin film on the CR FFC attached properly?	Attach the resin film properly.
	If any of the remedies above does not help, replace the CR motor. (Page 151)		

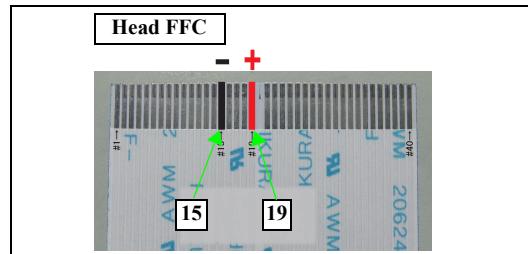
Table 2-5. Other Troubles

Symptom	Cause	Check Item	Remedy
After heater power failure occurs	The power cable of the after heater is not connected.	---	Connect the power cable of the after heater.
It takes a longer time to warm up the heater.	It takes 10 minutes or longer until the heater temperature reaches the preset level.	1. Is the heater setting appropriate in the ambient temperature? 2. Is the thermistor detached from the plate? See the panel display to identify which heater has not been warmed up.	1. Make the following settings. ■ Raise the ambient temperature. ■ Turn the heater temperature setting down. 2. Screw the thermistor on the plate.
The drying fan does not work when printing.	The power cable of the drying fan unit is not connected.	Does the drying fan icon appear on the panel display?	Connect the power cable of the drying fan unit.
	The drying fan unit is not connected to the printer.	Does the drying fan icon appear on the panel display?	Connect the drying fan unit to the printer.
	The drying fan function has been disabled with the panel setting.	Does the drying fan icon (ON) appear on the panel display?	Enable (select “ON”) the drying fan function.

Table 2-5. Other Troubles

Symptom	Cause	Check Item	Remedy									
Even though the AC cable #2 is connected, “Plug in #2 power cable. Turn power off and on again.” is displayed.	<ul style="list-style-type: none"> □ CSIC control error □ The drive circuit damage in the Print Head was caused by the blown 42V fuse on the main board. 	<p>CHECK POINT</p> <p>Head (Full) Head (Home)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Fuse check position on the Main Board</td> <td style="padding: 2px; text-align: center;">F9</td> <td style="padding: 2px; text-align: center;">F12</td> </tr> <tr> <td style="padding: 2px;">Head FFC check position on the Main Board</td> <td style="padding: 2px; text-align: center;">CN402</td> <td style="padding: 2px; text-align: center;">CN400</td> </tr> <tr> <td style="padding: 2px;">Head FFC terminal check position</td> <td style="padding: 2px; text-align: center;">15-19</td> <td style="padding: 2px; text-align: center;">15-19</td> </tr> </table> <p><In the case of head (Home)></p> <p>Check the resistance between the terminals of “F12” on the main board.</p>	Fuse check position on the Main Board	F9	F12	Head FFC check position on the Main Board	CN402	CN400	Head FFC terminal check position	15-19	15-19	See the next page.
Fuse check position on the Main Board	F9	F12										
Head FFC check position on the Main Board	CN402	CN400										
Head FFC terminal check position	15-19	15-19										

Table 2-5. Other Troubles

Symptom	Cause	Check Item	Remedy
Even though the AC cable #2 is connected, "Plug in #2 power cable. Turn power off and on again." is displayed.	<ul style="list-style-type: none"> <input type="checkbox"/> CSIC control error <input type="checkbox"/> The drive circuit damage in the Print Head was caused by the blown 42V fuse on the main board. 	<p><input type="checkbox"/> If the resistance of "F12" on the main board has more than "1Ω": The fuse on the main board has blown. Check whether the drive circuit in the print head is damaged. [How to check] Pull out the print head FFC from "CN400" on the main board (do not disconnect the other end on the print head at this point) and check the resistance between pin 15 and pin 19 on the terminal of FFC.</p> <ul style="list-style-type: none"> • 1M ohm or higher: Carry out the remedy 1. • Less than 1M ohm: Carry out the remedy 1 and 2. <div style="border: 1px solid black; padding: 10px; margin-top: 10px;">  CAUTION <ul style="list-style-type: none"> ! Be careful when handling FFC. ! Be careful of which pins are to be measured. <p><input type="checkbox"/> If the resistance is 1 ohm or less: Not abnormal. Carry out the remedy 3.</p> </div>	<ol style="list-style-type: none"> 1. Replace the main board. (Page 118) 2. Replace the print head. (Page 138) 3. Replace the ink holder. (Page 162)

2.6.1 Ink End Error

Ink End Error (“Refill Ink Tank.”) occurs even sufficient ink remains in the ink tank (Remaining ink level is 70 mm or more from the bottom of the Ink Tank).

Table 2-6. Ink End Error

Cause	Remedy
Foreign material came in from the spout of the ink tank, and it caused filter clogging inside the ink tank and blocked ink flow, then Ink End Error occurred.	Replace the ink tank with a new one. Discard the old tank and the ink inside the tank.
Installation of the ink tank is not appropriate, so ILS cannot be detected correctly.	Check the detection condition of ILS from Sensor Check in the Serviceman Mode. OFF: ILS is detected. ON: ILS is not detected correctly. If ON is displayed, re-install the corresponding ink tank.

2.7 Trouble on Service Program

This section describes possible troubles on Service Program and their causes and remedies.

Table 2-7. Troubles on Service Program

Symptom	Cause	Check Item	Remedy
Service Program does not start	The operating system is not supported.	Are you running the program on the following operating systems? <input type="checkbox"/> Supported OS: Windows XP SP3, Windows 7	Run the program on the supported operating systems.
	The printer is not connected to the computer properly.	Is there any problem with the connection between the printer and computer?	Connect them properly.
	There is something wrong with the program file.	Try with another computer. Does the program start normally?	If the program still does not start, the program files may be broken. Download the set of program files again.
	Registration information of the program is wrong.	Did you get the program through the official channel? Check it with the license agreement displayed at the start-up screen.	Download the program file including security files through the official channel.
	More than one printers are connected to the computer.	Is there any printer connected to the USB port on the computer other than the one for adjustment?	Disconnect the printer which is not necessary for the adjustment.
The printer does not react to the program command.	<input type="checkbox"/> The printer is turned off. <input type="checkbox"/> The printer is in a status that cannot accept the program command.	1. Is the printer powered on? 2. Is there any error occurring on the printer?	1. Turn the printer on. 2. Correct the printer errors.
	After the USB ID is changed, the printer has not been reselected.	1. Is the printer powered on? 2. Is there any error occurring on the printer?	Select the printer (USB port) correctly.
MAC address cannot be set.	The printer is connected with a USB cable.	---	Connect the printer with a network cable.
“Media is feeding” error	The selected adjustment does not require printing, but paper is loaded on the printer.	---	Remove the paper from the printer.

2.8 Trouble on NVRAM Viewer

This section describes possible troubles on NVRAM Viewer and their causes and remedies.

Table 2-8. Trouble on NVRAM Viewer

Symptom	Cause	Check Item	Remedy
A button to open the NVRAM Viewer is not displayed.	NVRAM Viewer is not installed.	---	Install the NVRAM Viewer.
The contents and the items displayed in the NVRAM Viewer do not match with each other.	The Service Program you are running is different one.	Are you running the Service Program for this product?	Use the proper Service Program for this product.
History of the error and the counter reset are not displayed on the NVRAM Viewer.	History of the error and the counter reset are shown only as a CSV file. It will not be shown in the Viewer, because they have too many items.	---	Click the “Send as CSV” button on the lower right NVRAM Viewer screen to output the CSV file. These histories are recorded in this file.

2.9 Resistance values

Heaters

Table 2-9. Resistance of heaters

Location	Resistance value (Ω)	Tolerance
After heater	29.5	± 1.48

Motors

Table 2-10. Resistance of motors

Motor	Resistance value (Ω)
CR	$4.9 \pm 10\%$
PF	$5.98 \pm 10\%$
APG	$21.9 \pm 10\%$
NIP	$21.2 \pm 10\%$
I/H	$12.2 \pm 10\%$
Pump cap	$21.2 \pm 10\%$
Cloth wiper	$21.2 \pm 10\%$
Roll	$17.9 \pm 10\%$
Reel	$17.9 \pm 10\%$

2.10 Fuse Positions

CE46 MAIN Board

Table 2-11. CE46 MAIN Board

Fuse	Points to be measured when blown	Assuming a failed point	Reference
F14	F14 chip fuse	F14 chip fuse	<ul style="list-style-type: none"> • CR motor cooling fan failure • CN12 short-circuited • CN12 caught cable
F732	F732 chip fuse	F732 chip fuse	<ul style="list-style-type: none"> • Suction fan failure • CN31 short-circuited • CN31 caught cable
F733	F733 chip fuse	F733 chip fuse	<ul style="list-style-type: none"> • Suction fan failure • CN32 short-circuited • CN32 caught cable
F734	F734 chip fuse	F734 chip fuse	<ul style="list-style-type: none"> • PS cooling fan failure • CN40 short-circuited • CN40 caught cable
F10	F10 chip fuse	F10 chip fuse	<ul style="list-style-type: none"> • CN270 short-circuited • CN270 caught cable • SUB-M board CN3 short-circuited

Table 2-11. CE46 MAIN Board

Fuse	Points to be measured when blown	Assuming a failed point	Reference
F1	F734 chip fuse	CN700-12	<ul style="list-style-type: none"> • Board failure • CR motor cooling fan failure • CN12 short-circuited • CN12 caught cable • Suction fan (CN31) failure • CN31 short-circuited • CN31 caught cable • Suction fan (CN32) failure • CN32 short-circuited • CN32 caught cable • PS cooling fan failure • CN40 short-circuited • CN40 caught cable • CN270 short-circuited • CN270 caught cable • SUB-M board CN3 short-circuited
F731	F731 chip fuse	F731 chip fuse	<ul style="list-style-type: none"> • Board failure • CN13 short-circuited • CN13 caught cable • PNL board CN1, D1 short-circuited • PNL board BZ1 failure
F27	F27 chip fuse	F27 chip fuse	<ul style="list-style-type: none"> • Board failure • SUB-C board C20, C2, C4 short-circuited • SUB-C board IC5 failure
F2	ZD5	C281	Board failure
F3	ZD5	C284	Board failure
F4	ZD5	C291	Board failure
F5	ZD5	C294	Board failure
F6	ZD5	C342	Board failure
F7	ZD5	C345	Board failure

Table 2-11. CE46 MAIN Board

Fuse	Points to be measured when blown	Assuming a failed point	Reference
F8	CN701-1	F9 chip fuse	<ul style="list-style-type: none"> • Head 2 failure • Board failure • CN402,CN403 short-circuited (FFC slant connection) • SUB-D board CN402, CN403 short-circuited (FFC slant connection) • SUB-D board CN406, CN407 short-circuited (FFC slant connection) • Connector of the head 2 (FFC slant connection)
F9	F9 chip fuse	F9 chip fuse	<ul style="list-style-type: none"> • Head 2 failure • Board failure • CN402 (FFC slant connection) • SUB-D board CN402 short-circuited (FFC slant connection) • SUB-D board CN406 short-circuited (FFC slant connection) • Connector of the head 2 (FFC slant connection)
F11	CN701-1	F12 chip fuse	<ul style="list-style-type: none"> • Head 1 failure • Board failure • CN400, CN401 short-circuited (FFC slant connection) • SUB-D board CN400, CN401 short-circuited (FFC slant connection) • SUB-D board CN404, CN405 short-circuited (FFC slant connection) • Connector of the head1 (FFC slant connection)

Table 2-11. CE46 MAIN Board

Fuse	Points to be measured when blown	Assuming a failed point	Reference
F12	F12 chip fuse	F12 chip fuse	<ul style="list-style-type: none"> • Head 1 failure • Board failure • CN400 short-circuited (FFC slant connection) • SUB-D board CN400 short-circuited (FFC slant connection) • SUB-D board CN404 short-circuited (FFC slant connection) • Connector of the head1 (FFC slant connection)
F21	CN701-1	QM2-2 Metal plate on one of the sides should be removed for applying the probes.	<ul style="list-style-type: none"> • Head 2 failure • CN402,CN403 short-circuited (FFC slant connection) • SUB-D board CN402, CN403 short-circuited (FFC slant connection) • SUB-D board CN406, CN407 short-circuited (FFC slant connection) • Connector of the head 2 (FFC slant connection)
F19	CN701-1	QM6-2 Metal plate on one of the sides should be removed for applying the probes.	<ul style="list-style-type: none"> • Head 1 failure • Board failure • CN400, CN401 short-circuited (FFC slant connection) • SUB-D board CN400, CN401 short-circuited (FFC slant connection) • SUB-D board CN404, CN405 short-circuited (FFC slant connection) • Connector of the head 1 (FFC slant connection)
F730	F730 chip fuse	F730 chip fuse	Board failure

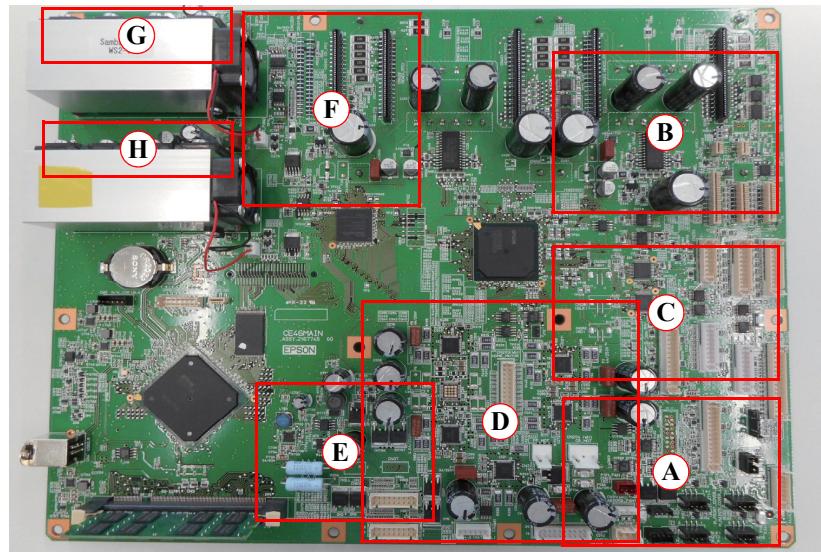


Figure 2-1. CE46 MAIN Board Overall View

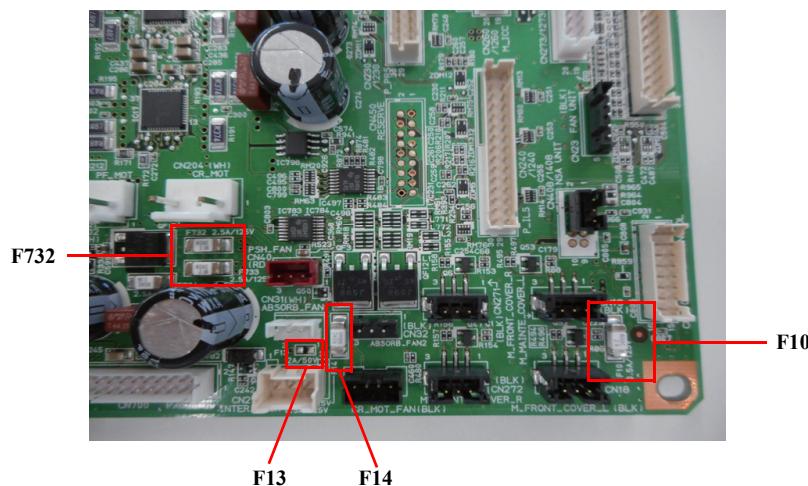


Figure 2-2. CE46 MAIN Board (A)

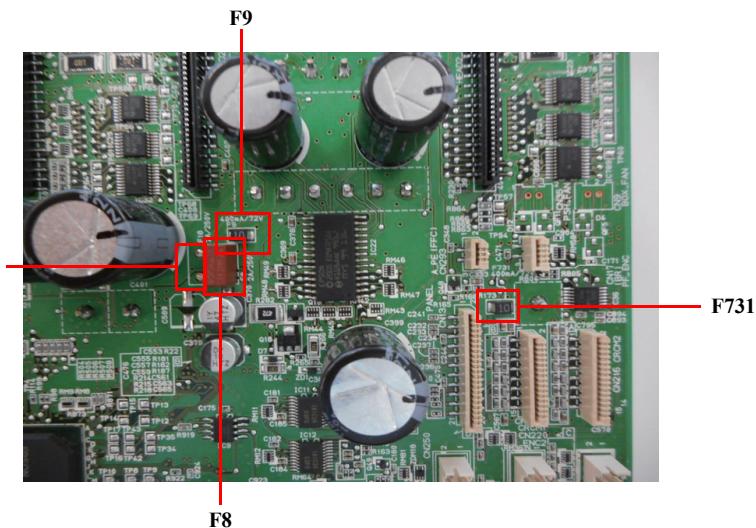


Figure 2-3. CE46 MAIN Board (B)

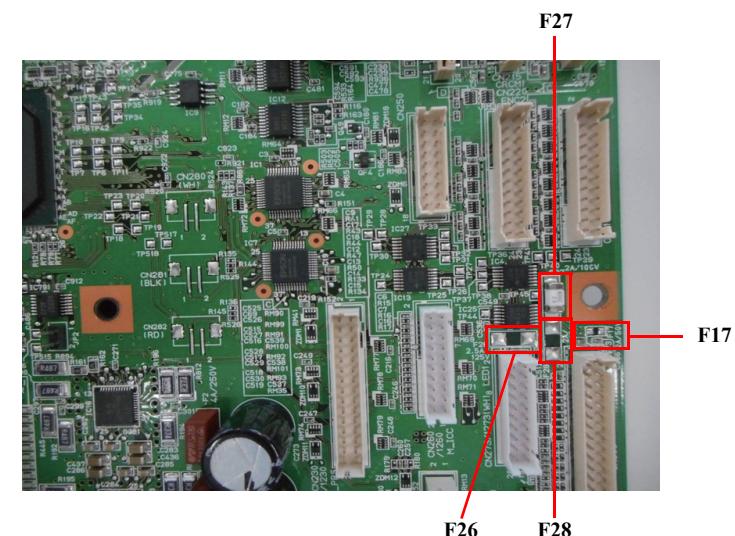


Figure 2-4. CE46 MAIN Board (C)

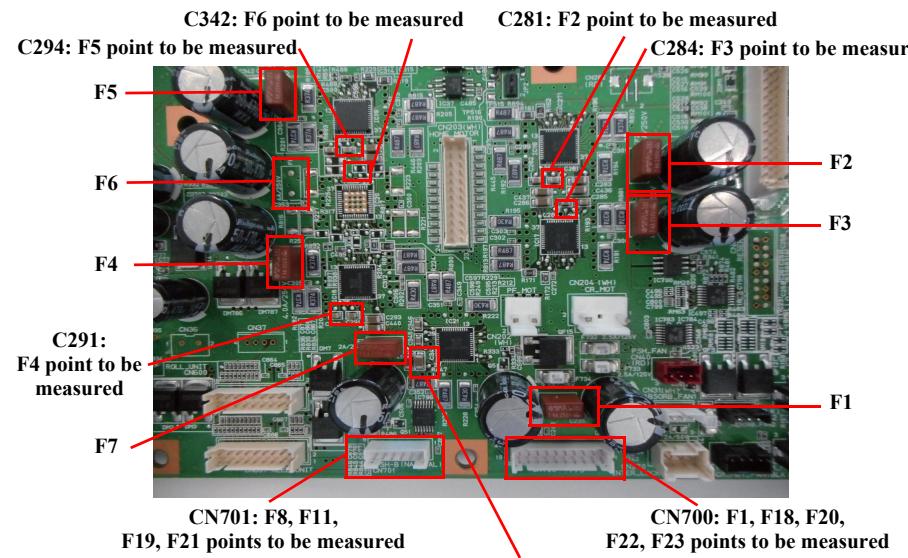


Figure 2-5. CE46 MAIN Board (D)

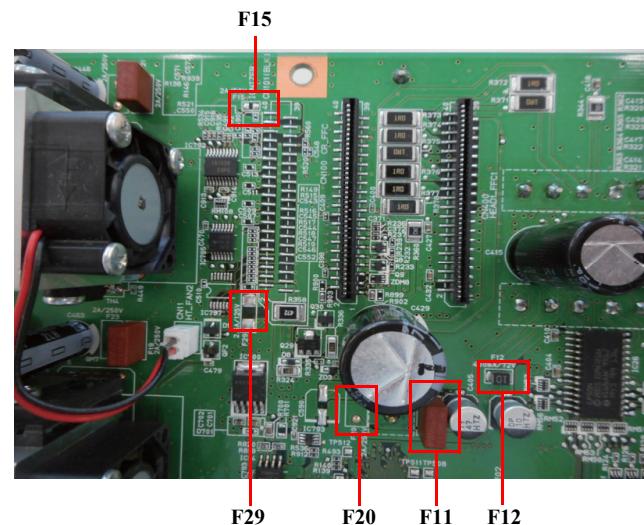


Figure 2-7. CE46 MAIN Board (F)

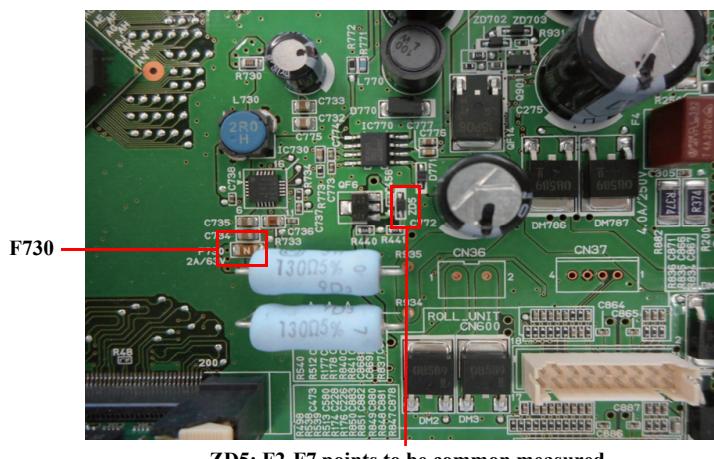


Figure 2-6. CE46 MAIN Board (E)

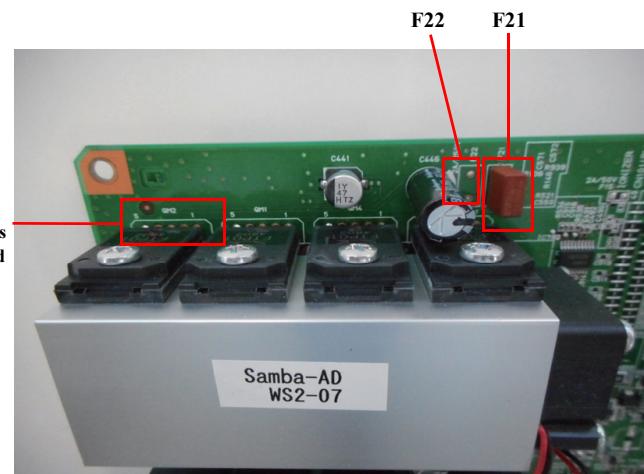


Figure 2-8. CE46 MAIN Board (G)

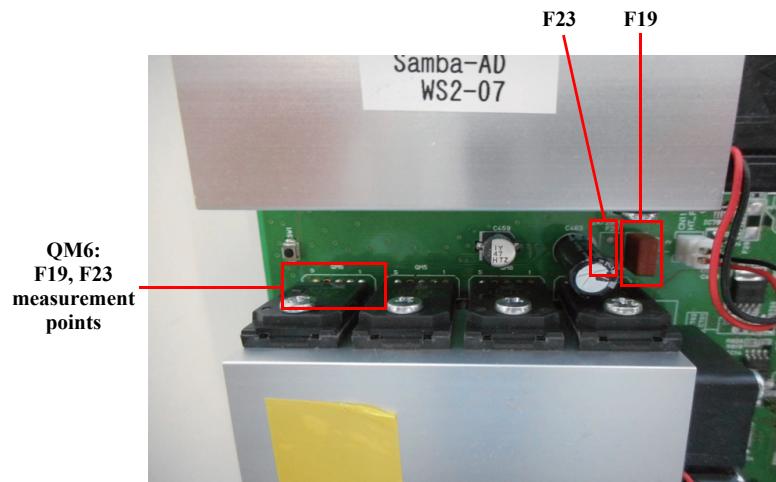


Figure 2-9. CE46 MAIN Board (H)

□ CE46 SUB-C Board

Table 2-12. CE46 SUB-C Board

Fuse	Points to be measured when blown		Assuming a failed point	Reference
F1	F1 both ends		<ul style="list-style-type: none"> • LED short-circuited • Caught cable 	Figure 2-10
F2	F2 both ends		<ul style="list-style-type: none"> • LED short-circuited • Caught cable 	Figure 2-10
F3	F3 both ends		<ul style="list-style-type: none"> • LED short-circuited • Caught cable 	Figure 2-10
F5	CN1-1	C20	Board failure	Figure 2-10
F7	CN1-2	ZD1	Board failure	Figure 2-10

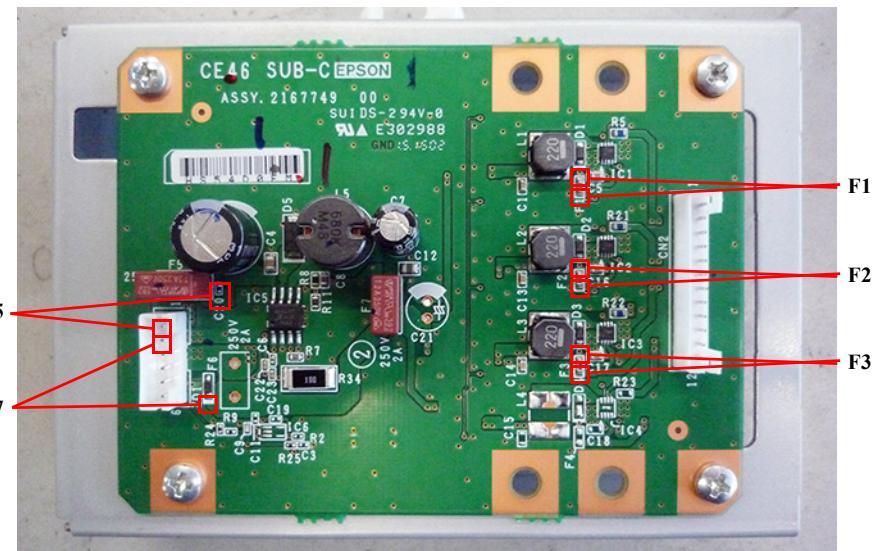
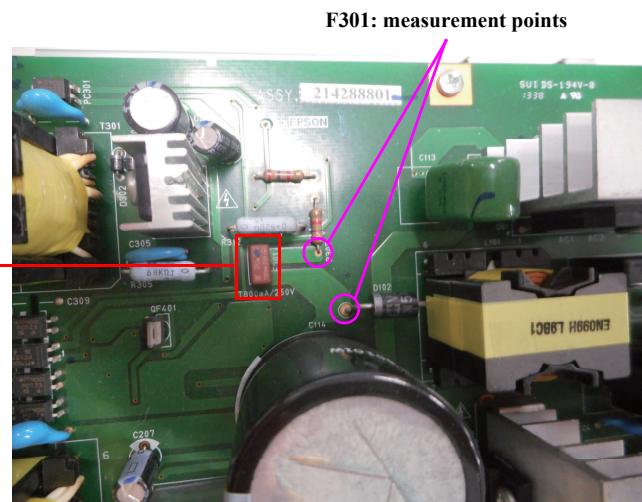
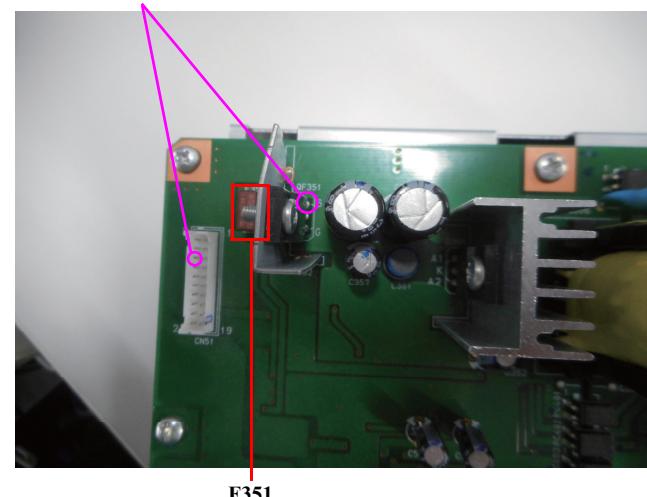


Figure 2-10. CE46 SUB-C Board

CB78 PSH Board

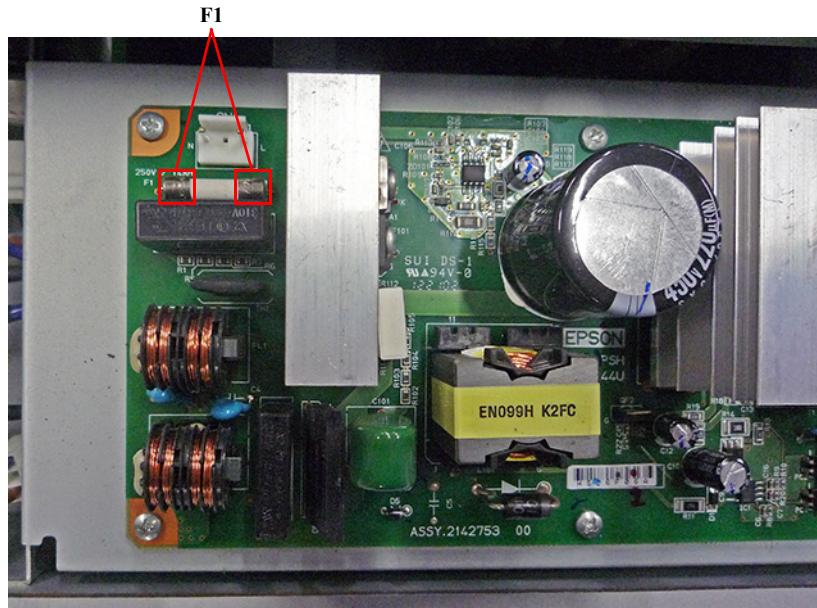
Table 2-13. CB78 PSH Board

Fuse	Measurement point	Assuming the causes for fusing	Reference
F1	F1 both ends	Board failure	---
F301	R307, D102 (cathode)	Board failure	Figure 2-11
F351	CN51-6or7or8, QF351-S	<ul style="list-style-type: none"> • Board failure • Short-circuit on the load side (damaged sheath, short-circuiting at the grounding on the frame, short-circuiting between MAIN+5V and GND) 	Figure 2-12

**Figure 2-11. CB78 PSH Board (F301)****F351: measurement points****Figure 2-12. CB78 PSH Board (F351)**

CC15 PSH Board**Table 2-14. CC15 PSH Board**

Fuse	Measurement point	Assuming the causes for fusing	Reference
F1	F1 both ends	Board failure	Figure 2-13

**Figure 2-13. CC15 PSH Board**

CHAPTER

3

DISASSEMBLY & ASSEMBLY

3.1 Overview

This chapter describes procedures for disassembling the main components of SC-F9300 Series/SC-F9400 Series/SC-F9400H Series.

Be sure to follow the procedure described in this chapter when disassembling the unit. Unless otherwise specified, disassembled units or components can be reassembled by reversing the disassembly procedure.

WARNING

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

CAUTION

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

CHECK POINT

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

REASSEMBLY

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

ADJUSTMENT

Any adjustments required after reassembly of components or parts are described under the heading "ADJUSTMENT". Be sure to perform the specified adjustments with reference to Chapter 4 "ADJUSTMENT".

LUBRICATION

"LUBRICATION" signals that the part needs to be lubricated when replacing or maintaining it after disassembling.

3.1.1 Precautions

Before starting the disassembly or reassembly of the product, read the following precautions given under the headings "WARNING" and "CAUTION".



- When the front cover is opened, the CR motor and the PF motor are stopped by the safety-interlock mechanism. When you need to work with the safety-interlock disabled, be extremely careful to ensure your safety, and make sure to turn the safety-interlock back on when finished.



■ This printer is equipped with a lithium battery. Observe the following cautions in the handling of the battery.

- When replacing the battery, replace it only with a specified type of battery. Using a different type of battery may cause excess heat or explosion. Recommended battery: CR2032 (Sony)
- Dispose of used batteries according to manufacturer's instructions and local regulations. Contact your local government agency for information about battery disposal and recycling.
- When disposing of the battery, be sure to securely cover its (+) end with tape to prevent combustion or explosion.
- Do not recharge the battery.
- Do not use the battery if it is discolored or damaged, or if any leakage of electrolyte is observed.
- Do not dismantle, solder or heat the battery. Doing so could result in leakage of electrolyte, heat generation, or explosion.
- Do not heat the battery or dispose of it in fire.
- If the electrolyte leaked from the battery contacts with your skin or gets into your eyes, wash it off with clean water and see a physician immediately.

警告

如果更換不正確之電池型式會有爆炸的風險

請依製造商說明書處理用過之電池

Vorsicht

Explosionsgefahr, wenn die Batterie durch einen falschen Typ ersetzt wird. Entsorgen Sie gebrauchte Batterien gemäß den Anweisungen.



- The power switch for this printer is installed on the secondary side of the power circuit; therefore, the power is always supplied unless the power cable is unplugged. To prevent electric shock and circuit damage during servicing, make sure to follow the instructions below.
 - Before removing a circuit board, make sure to unplug the power cable from the AC outlet. Then press the power button on the operating panel to confirm that the LEDs go on and off. This operation discharges the residual charge in the printer.
 - Make sure not to place the removed circuit boards on the metal and such directly.
- Always wear gloves for disassembly and reassembly to avoid injury from sharp metal edges.
- If ink gets in your eye, flush the eye with fresh water and see a doctor immediately.
- Never touch the ink or wasted ink with bare hands. If ink comes into contact with your skin, wash it off with soap and water immediately. If irritation occurs, contact a physician.
- When replacing the main board, power supply board, or power harnesses and such, make sure to visually check if any harness is caught in between or any wrong connection exists.



- Locate the printer on a stable and flat surface.
- Use only recommended tools for disassembly, assembly or adjustment of the printer.
- Apply lubricants and adhesives as specified.
- Be careful not to soil the printer or the floor with the leaked ink when removing the ink-path-related components or parts. Spread a sheet of paper or cloth on the floor in advance.
- Do not touch electrical circuit boards with bare hands as the elements on the board are so sensitive that they can be easily damaged by static electricity. If you have to handle the boards with bare hands, use static electricity discharge equipment such as anti-static wrist straps.
- When the printer has to be operated with the covers removed, take extra care not to get your fingers or clothes caught in moving parts.
- When you have to remove any parts or components that are provided as after-service-parts but are not described in this chapter, carefully observe how they are installed and make sure to remember it before removing them.
- Disassembling the frame and the PF shaft of the printer is prohibited because they are assembled with precise measurements in 1/100 mm unit at the factory.
- Do not disassemble the platen or carelessly touch it. Otherwise, the platen gap may be misaligned and the print quality may be degraded.

3.1.2 Cautions After Assembling



- The ink-path-related components or parts should be firmly and securely reinstalled on the printer to prevent the ink from leakage.
- When reassembling the printer, make sure to connect the connectors of the electric components or parts correctly and securely. Use extreme care when connecting FFCs (flexible flat cables). Improper connection of the FFCs, such as inserting them diagonally into the connectors, could cause short-circuiting and lead to breakdown of the electric elements on the boards.
- When reassembling the printer, make sure to route the FFCs and other cables as specified in this chapter. Failure to do so may cause an unexpected contact of the cables with sharp metal edges, or lead to lower the noise immunity.
- When you removed any parts (especially cables) that are secured with acetate tape or two-sided tape, be sure to reinstall and secure them with the tape as exactly the same as they were.

3.1.3 Orientation Definition

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

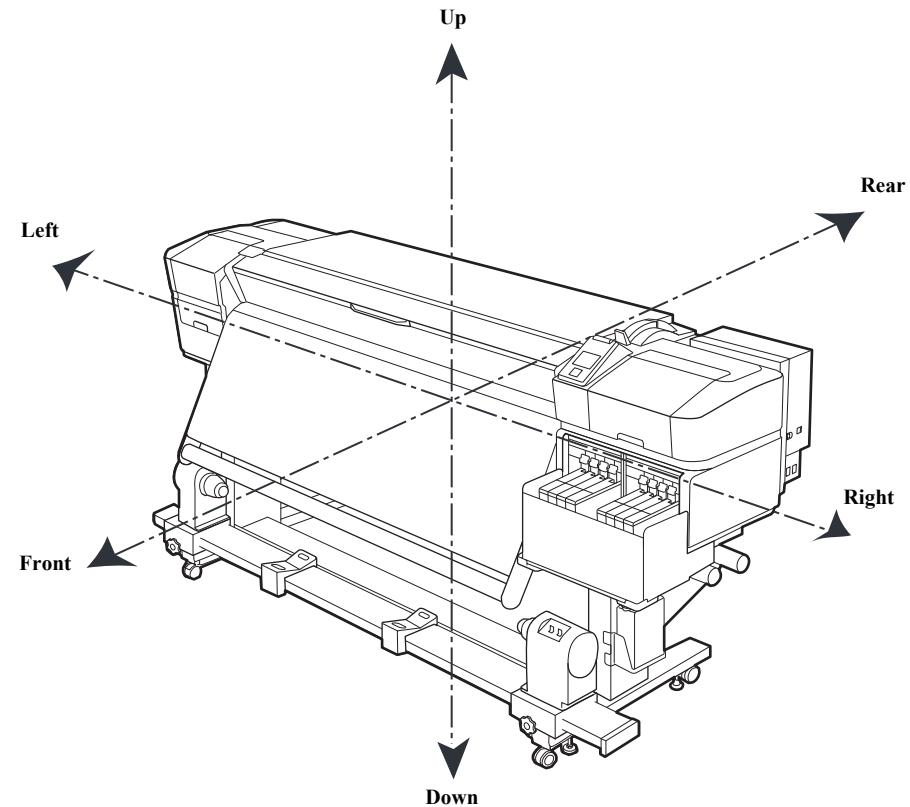


Figure 3-1. Orientation Definition

3.1.4 Recommended Tools

To protect this product from damage, use the tools indicated in the following table. For the tools required to perform the adjustment, refer to “Tools/Consumables for Adjustments” in Chapter 4.

Table 3-1. Tools

Name	Description	Target Part
Phillips screwdriver, No. 1	40 mm or longer shaft length (The one with a magnet is recommended)	<input type="checkbox"/> Print head <input type="checkbox"/> Some encoders/sensors
Phillips screwdriver, No. 2	200 mm or longer shaft length (The one with a magnet is recommended)	Parts in general
	Stubby driver with 40 mm or shorter shaft length (The one with a magnet is recommended)	APG unit
Torque screw driver, No.2	Use when tightening torque is specified.	Tube joint
Tweezers	Nothing in particular	Parts in general
Acetate tape	To secure the cable/harness, or for the protection against the sharp edge	Parts in general (Use this tape when it is removed or when replacing the part)
Waste cloth	To prevent staining the printer with ink during operation	<input type="checkbox"/> Ink tube <input type="checkbox"/> Ink holder <input type="checkbox"/> Flushing box <input type="checkbox"/> Duct CR <input type="checkbox"/> Print head <input type="checkbox"/> Pump cap unit

3.2 Parts Diagram

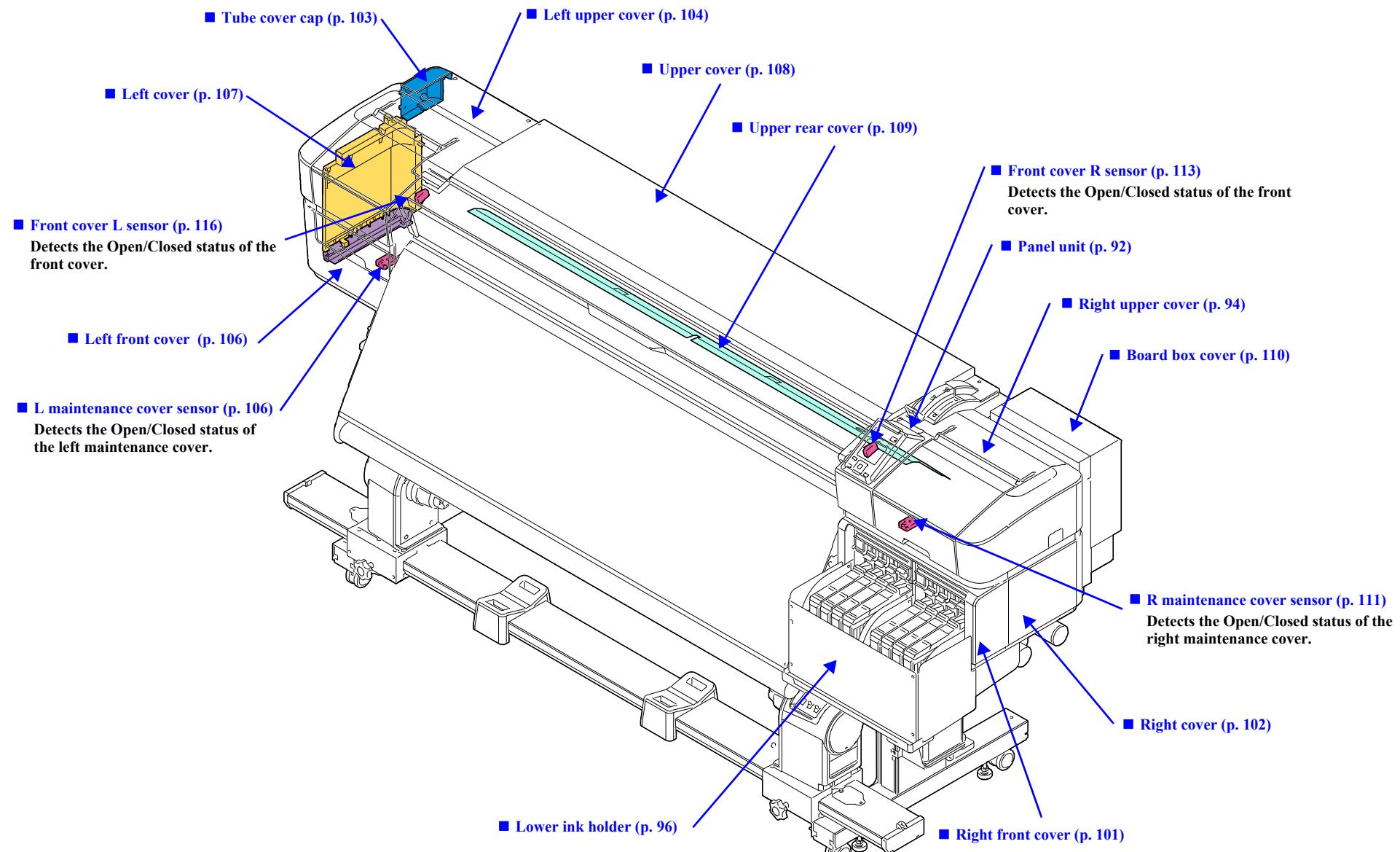


Figure 3-2. Housing

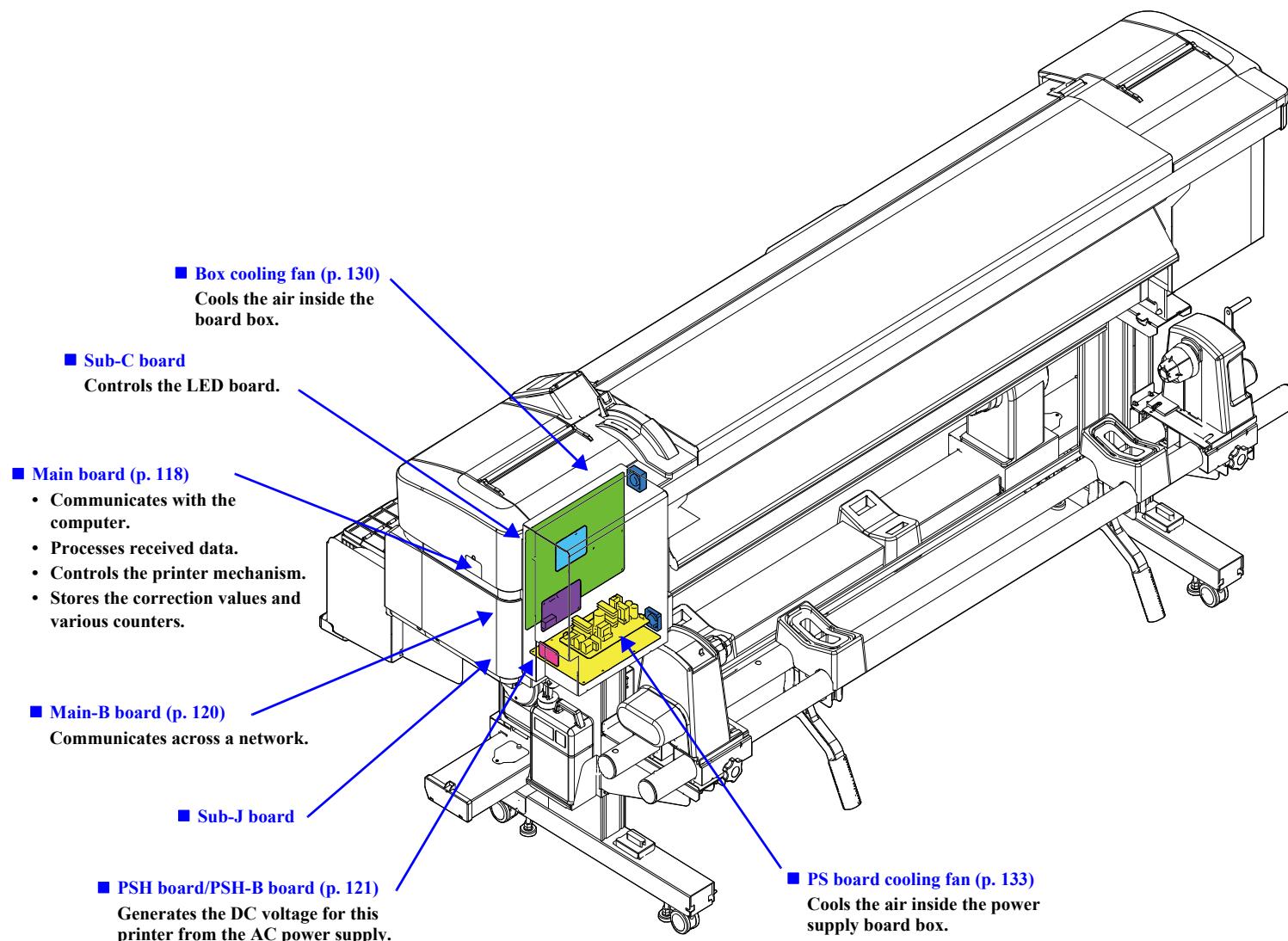


Figure 3-3. Electric Circuit Components

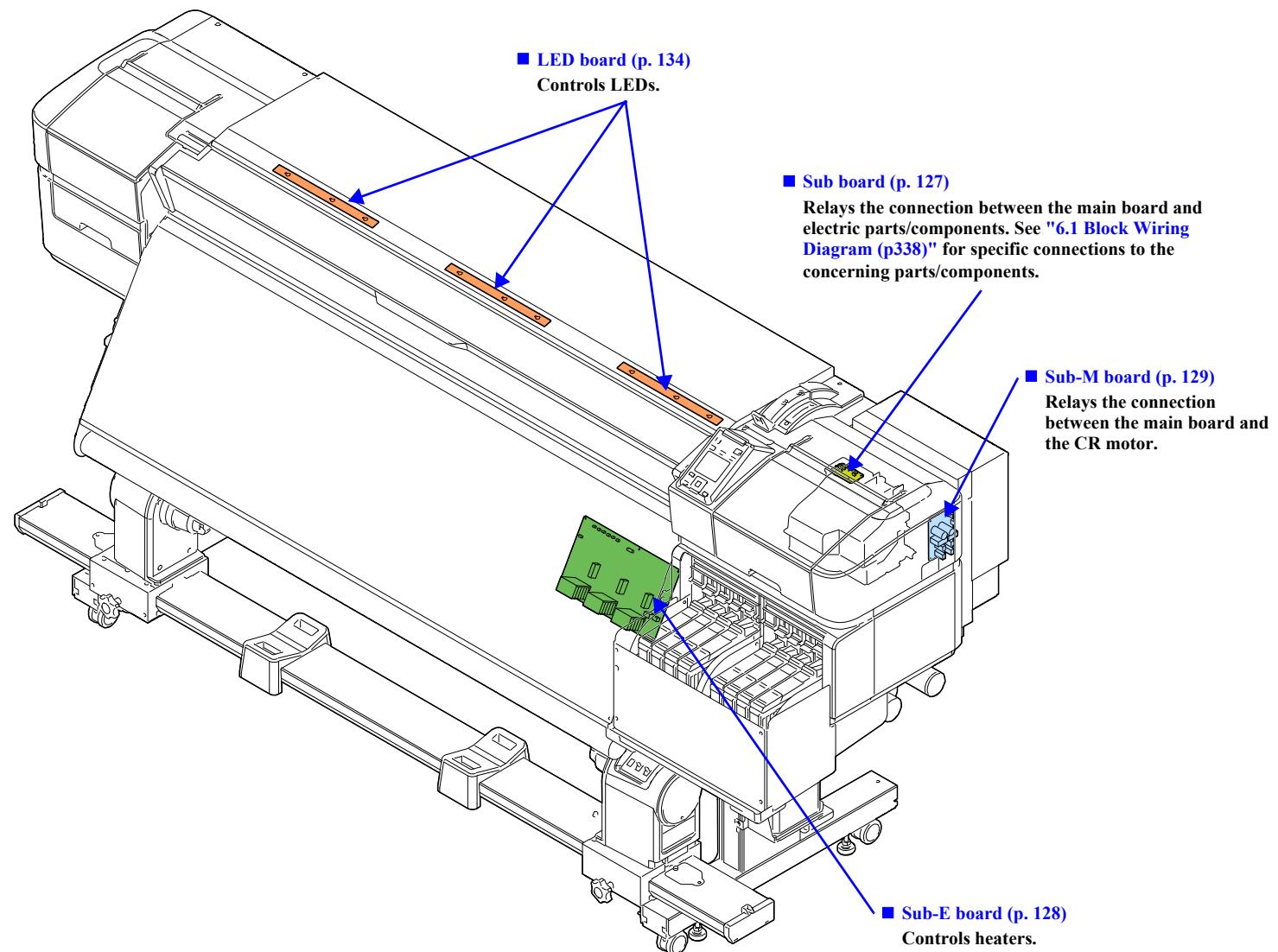


Figure 3-4. Electric Circuit Components

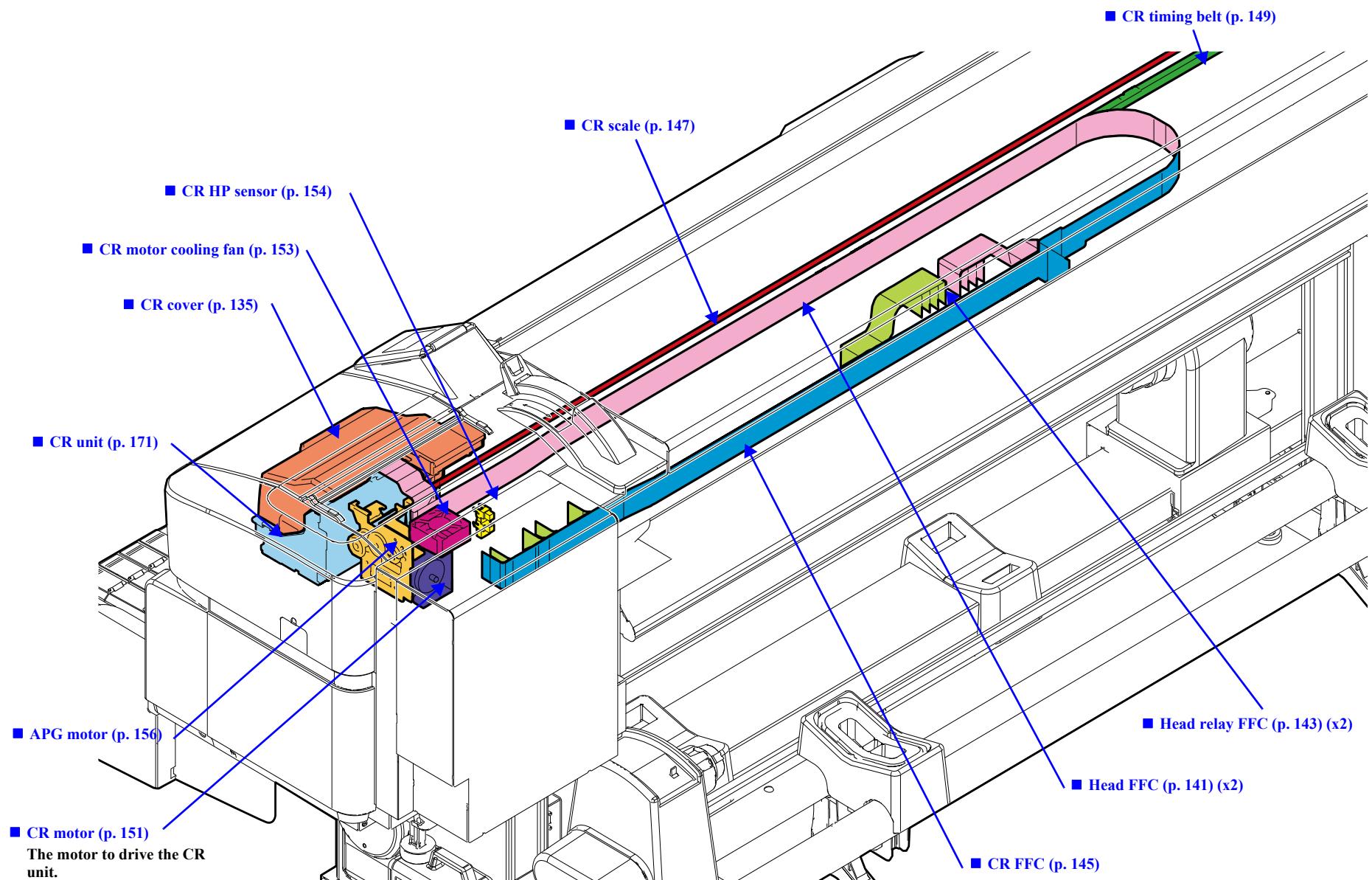


Figure 3-5. Carriage Mechanism/Ink System Mechanism

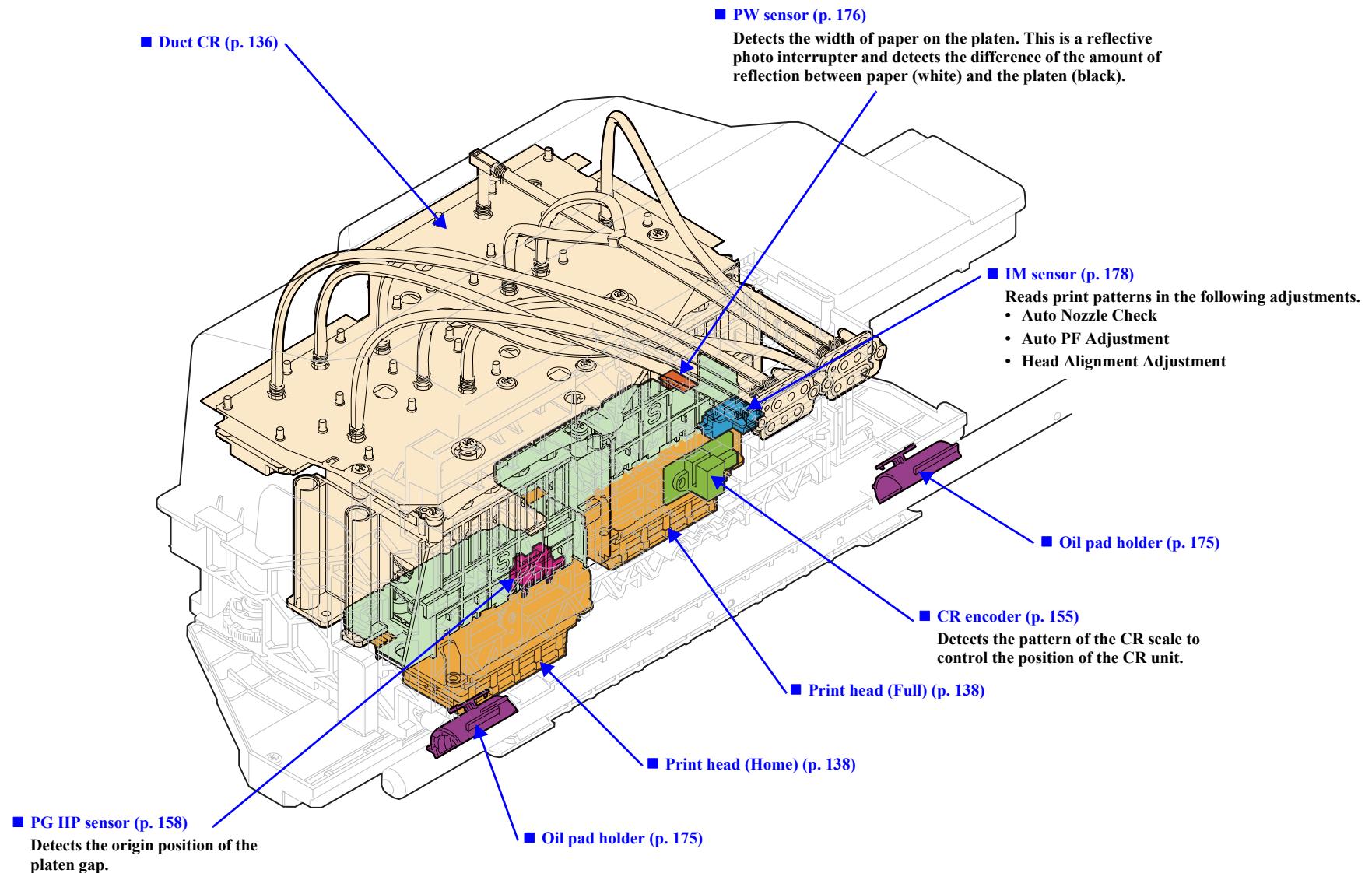


Figure 3-6. Carriage Mechanism/Ink System Mechanism

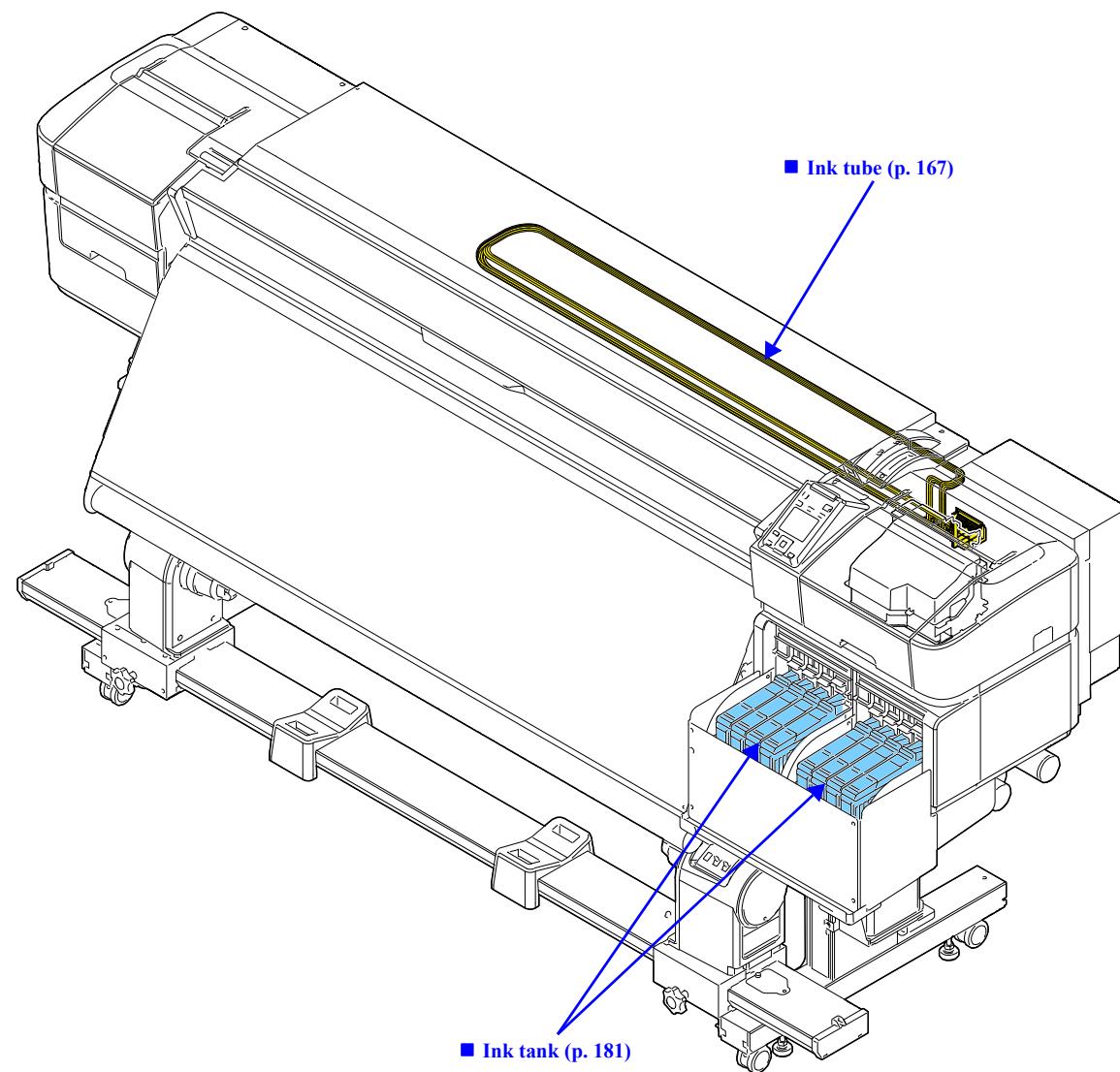


Figure 3-7. Carriage Mechanism/Ink System Mechanism

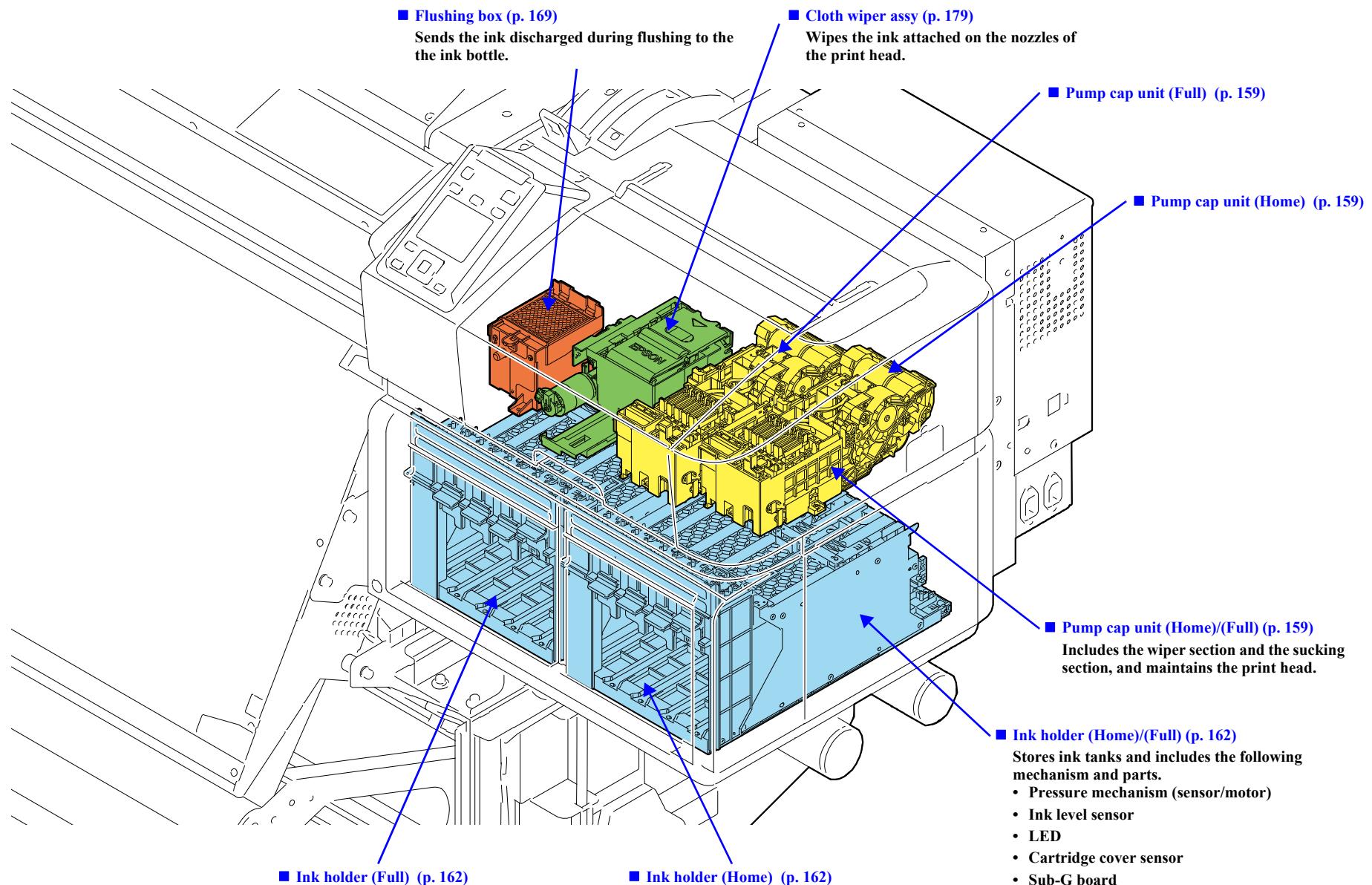


Figure 3-8. Carriage Mechanism/Ink System Mechanism

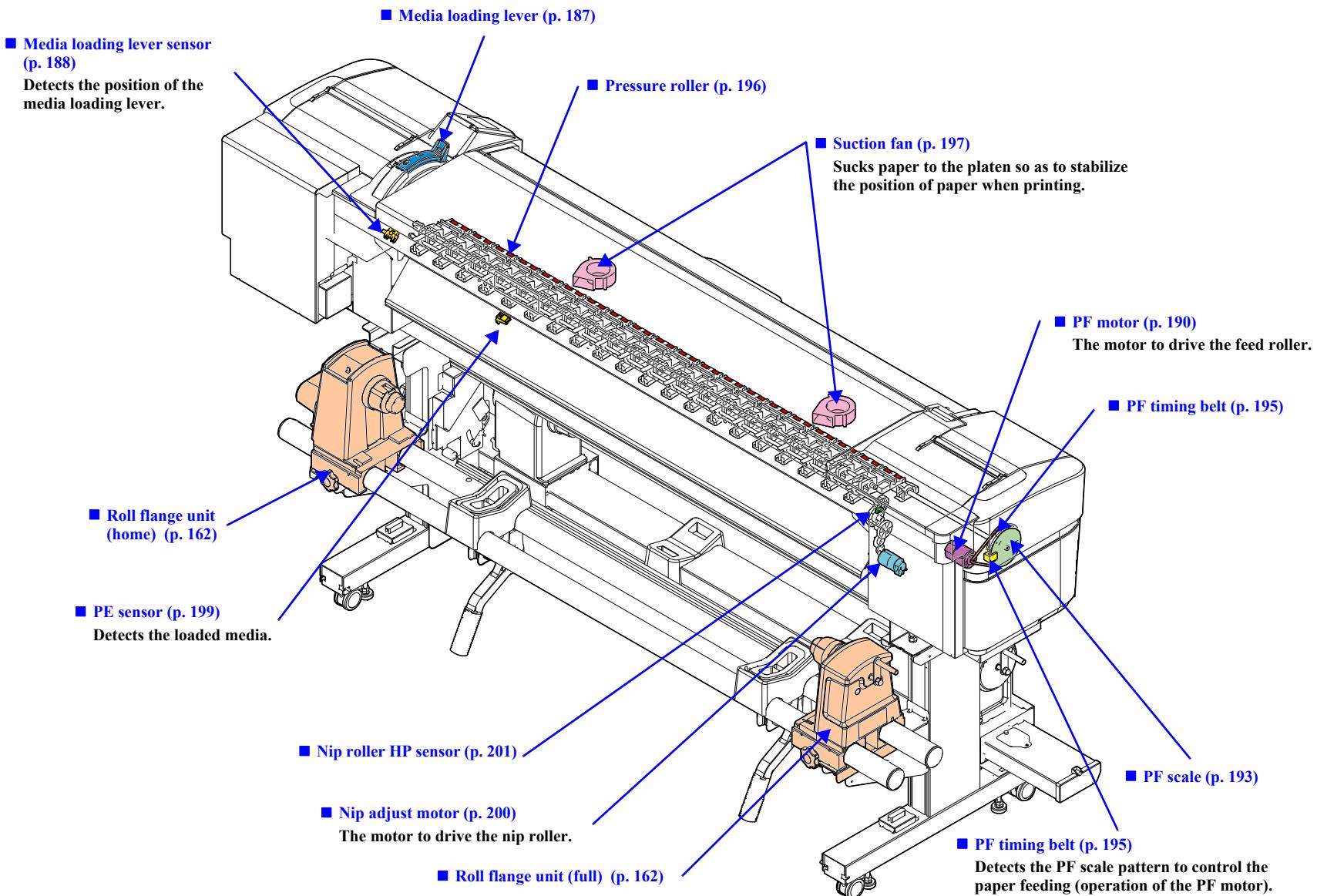


Figure 3-9. Paper Feed Mechanism/Roll Mechanism

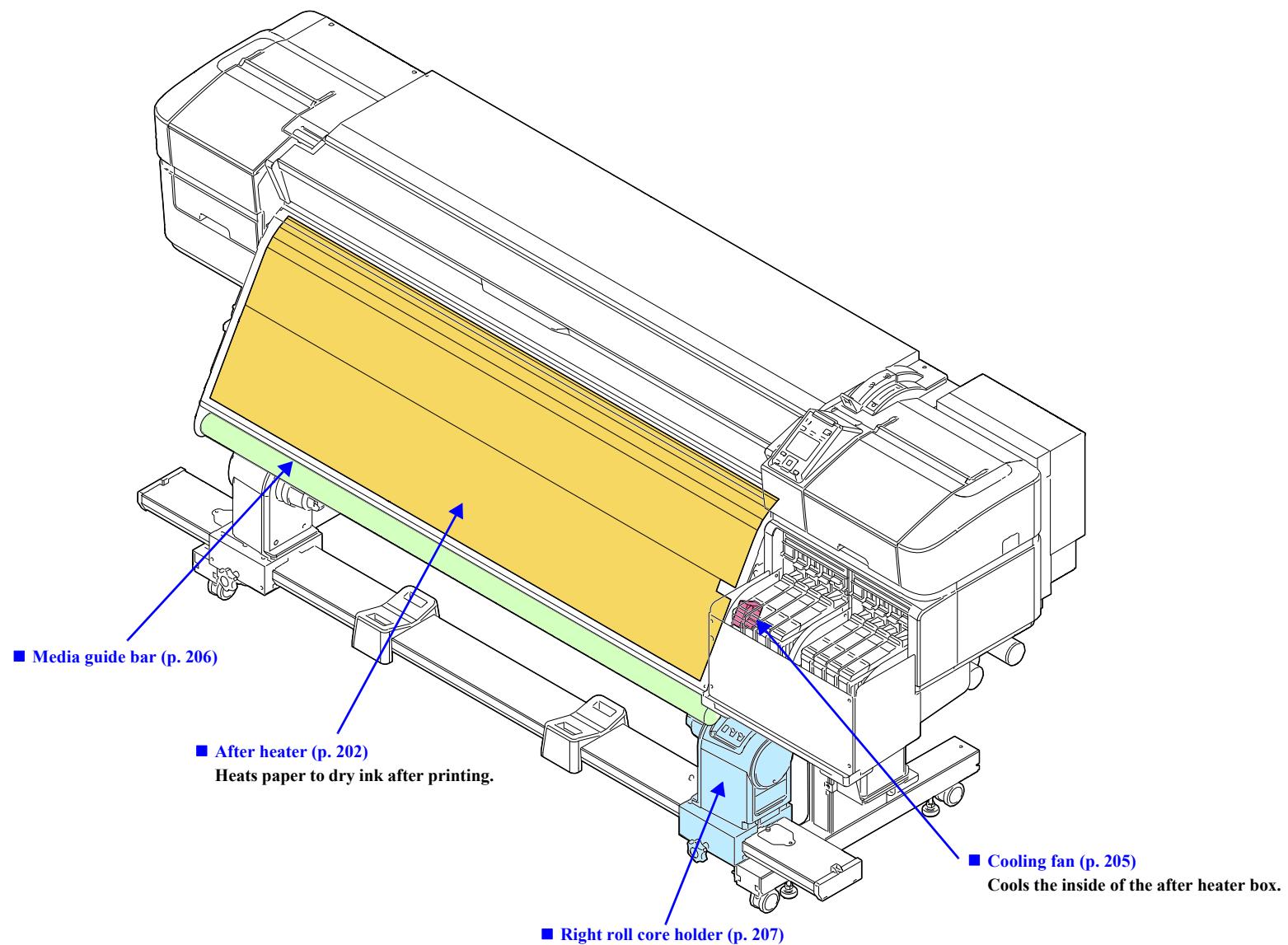
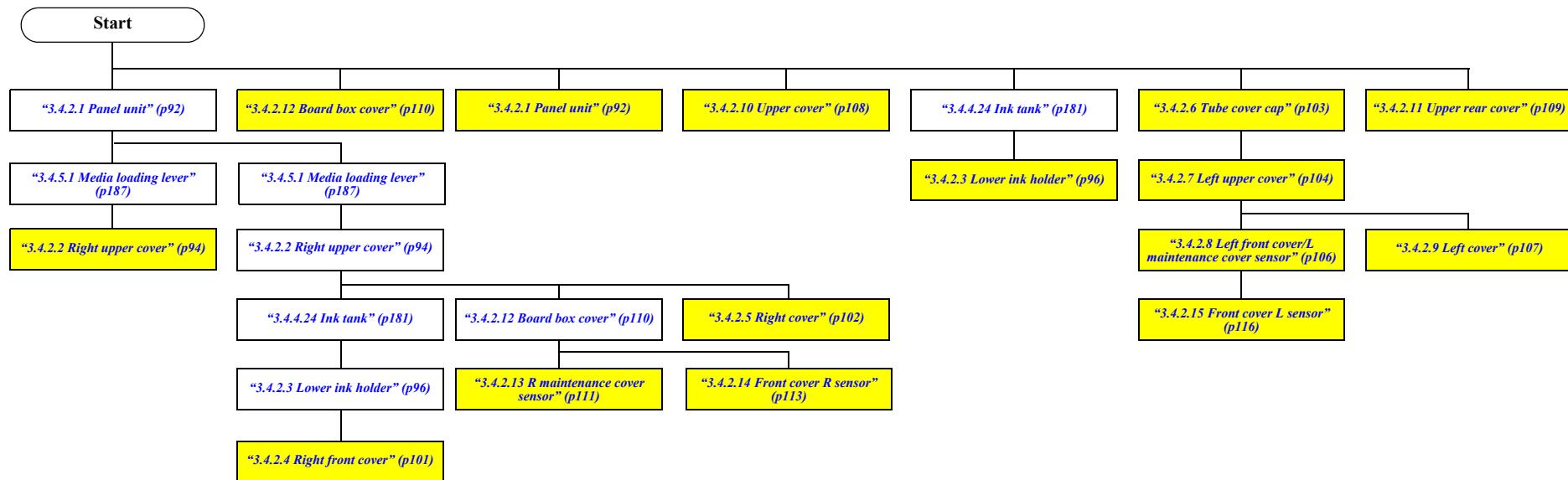


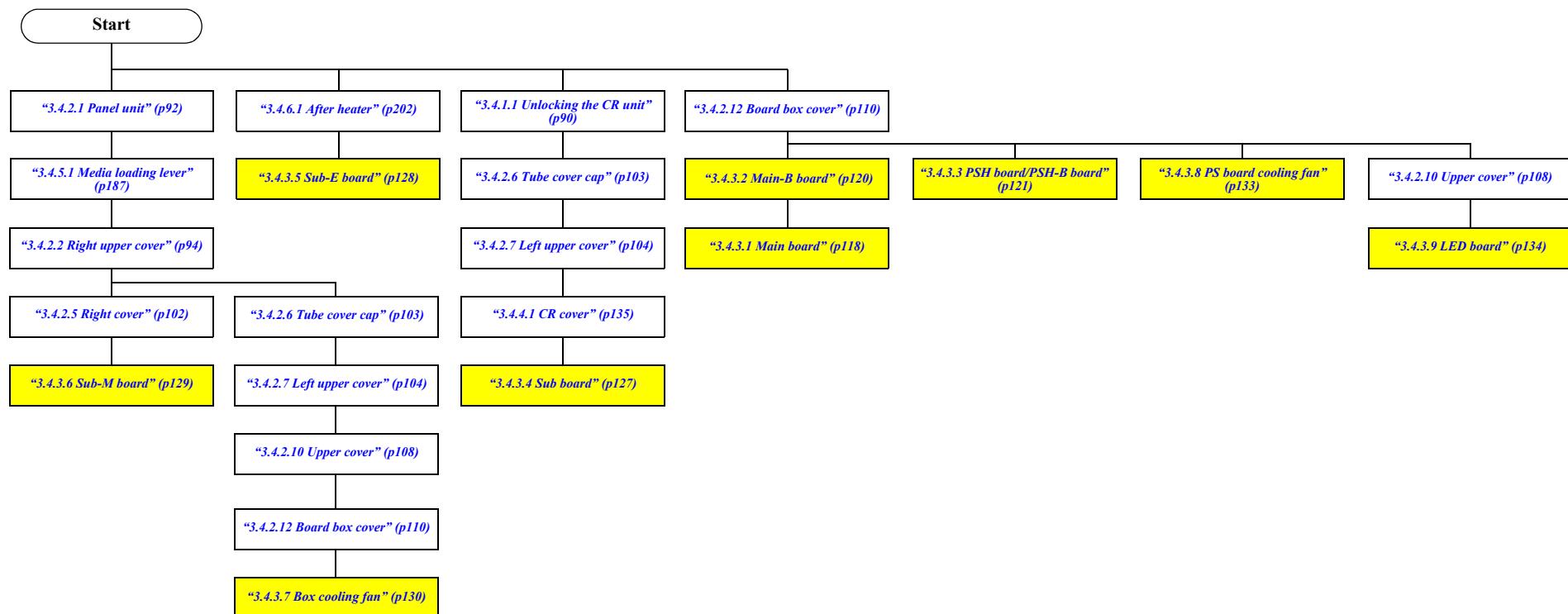
Figure 3-10. Heater Mechanism/Reel Mechanism

3.3 Disassembly Flowchart

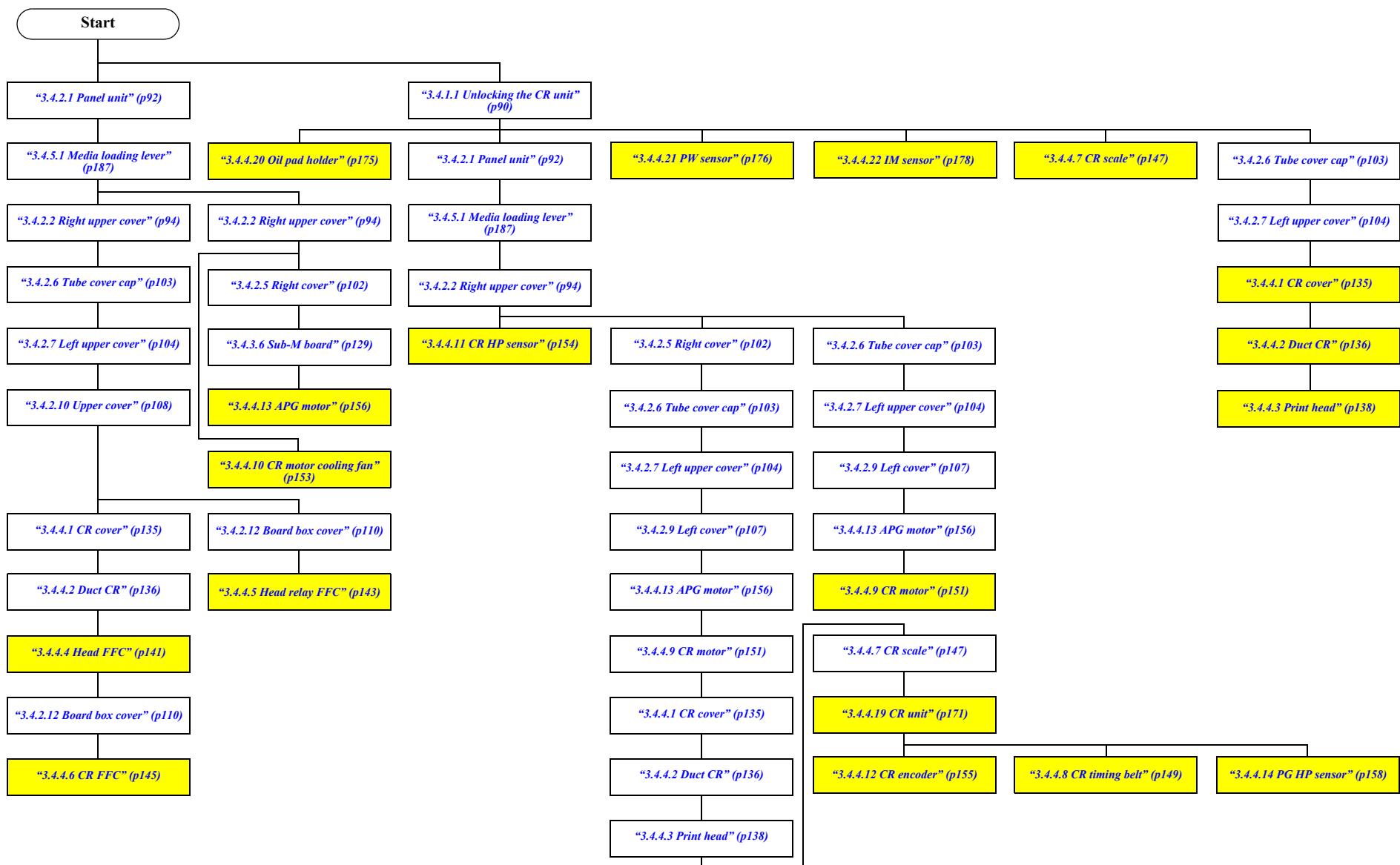
HOUSING



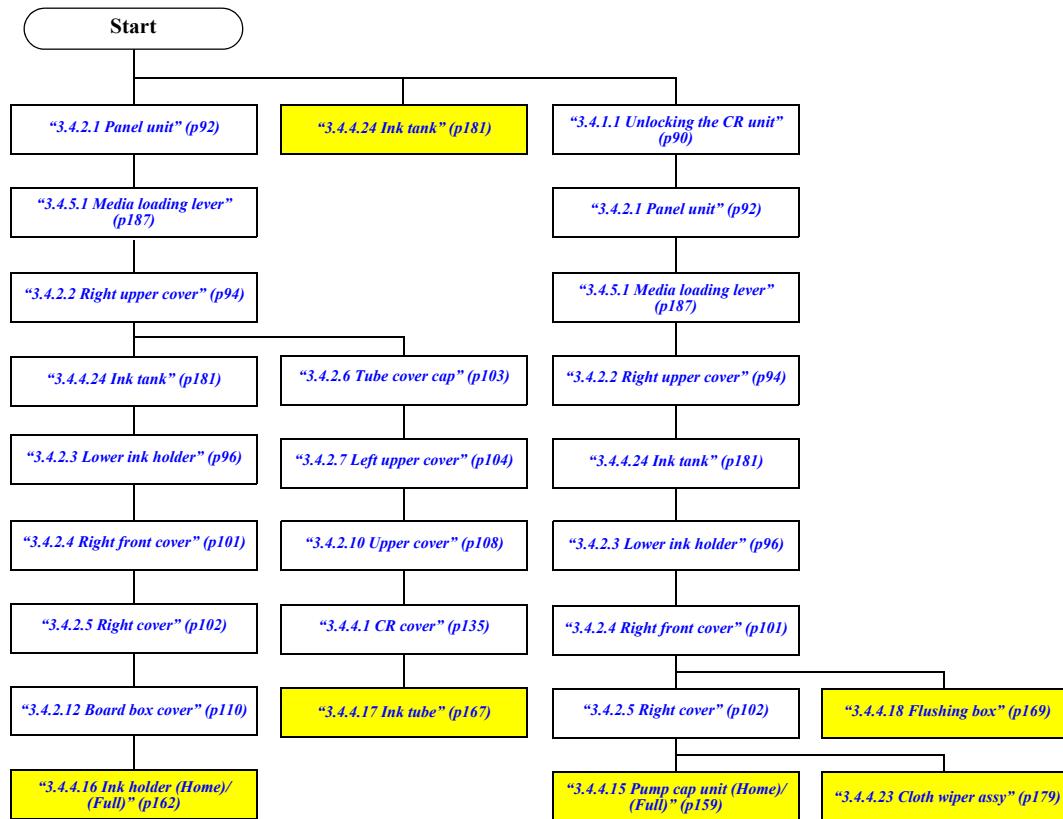
ELECTRIC CIRCUIT COMPONENTS

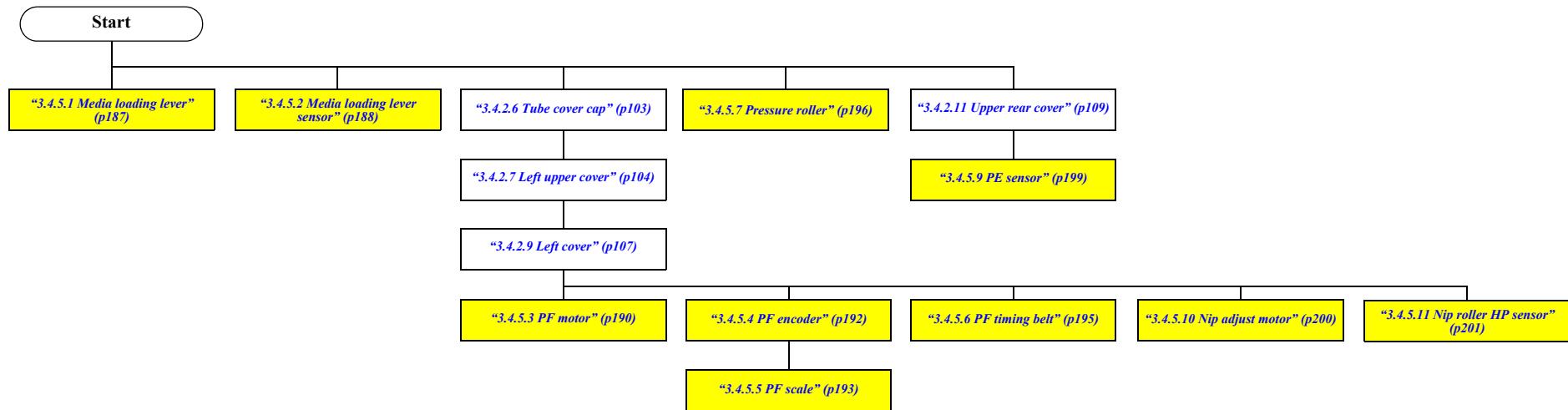
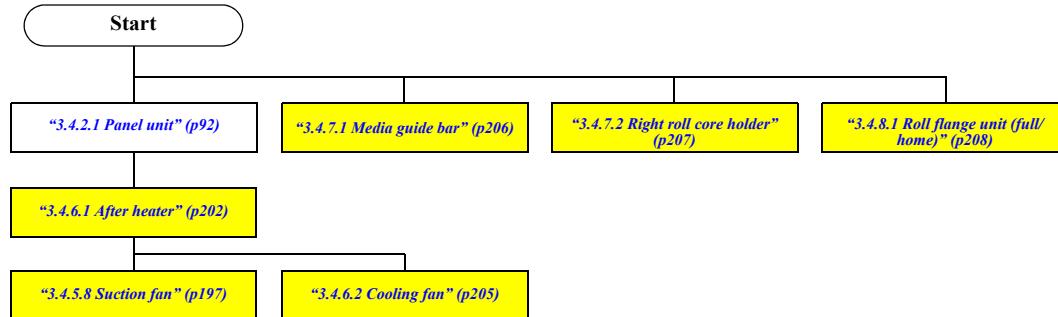


CARRIAGE MECHANISM/INK SYSTEM MECHANISM



CARRIAGE MECHANISM/INK SYSTEM MECHANISM



PAPER FEED MECHANISM**HEATER MECHANISM/REEL MECHANISM/ROLL MECHANISM**

3.4 Disassembly and Assembly Procedure

This section describes procedures for disassembling the components allowed to be disassembled. Unless otherwise specified, disassembled units or components can be reassembled by reversing the disassembly procedure.

3.4.1 Preparation for Servicing

3.4.1.1 Unlocking the CR unit



When you have unlocked the CR unit and finished your reassembly work, move the CR unit (print head) over the platen and turn the printer on to let it perform the initialization sequence. (By this sequence, the CR unit is locked and print head is capped.) If the initialization is performed on or over the cap, the print head may be damaged.

Auto

1. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing **[Media setup] + [Maintenance] + [OK]**.
2. Start the Service Program and select **Auto CR Unlock & Move to Maintenance Position**.
3. Click **Run**.
The CR unit is unlocked and moved to the maintenance position. Then the printer is automatically turned off.

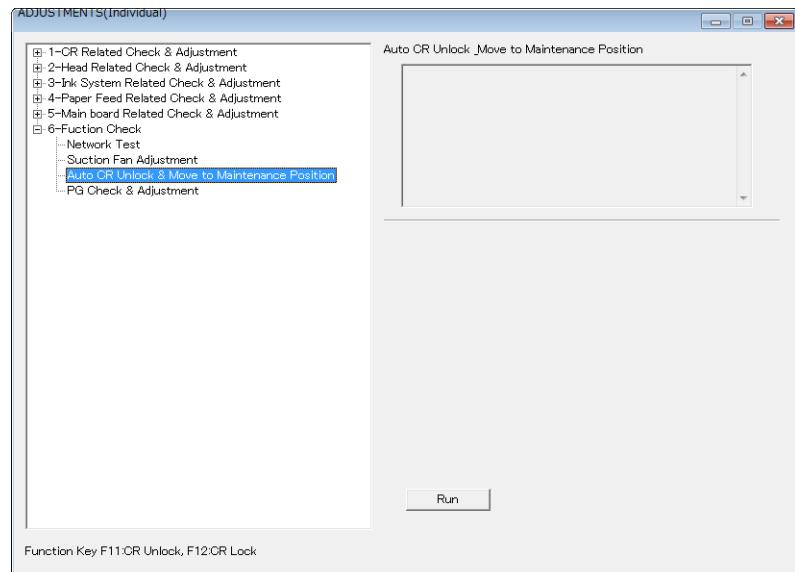


Figure 3-11. [CR Timing Belt Tension Adjustment] Screen

Manual

1. Remove the right maintenance cover.
2. Remove the screw, and remove the cover.
A) Silver M3x8 P-tite screw with washer: 1 pcs
3. Insert a screwdriver into the hole shown as “insert driver (A)” in the figure.
4. While viewing the CR lock lever status from the front of the printer, turn the screwdriver counterclockwise until the CR lock lever moves to the CR unlocked position.



Do not turn the white shaft clockwise with the driver.



- When the CR is unlocked, it clicks.
- Use a screwdriver with a 200 mm or longer shaft.

5. Insert a screwdriver into the hole shown as “Insert driver (B)” in the figure.
6. Move the CR lock lever to the CR unlocked position in the same way as [Step 4](#).



Make sure to first unlock the carriage from the “insert driver (A)” hole. If you insert a screwdriver into the (B) hole first, it may result in damaging the tubes inside the printer. Accessing from (A) unlocks pump cap 2, and accessing from (B) unlocks pump cap 1.

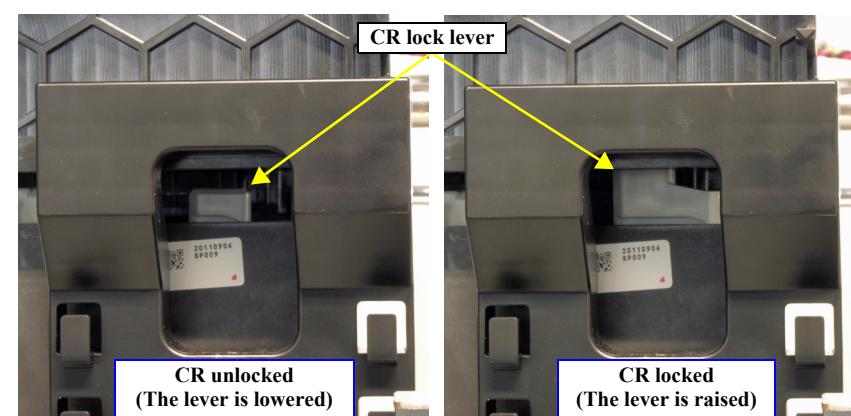
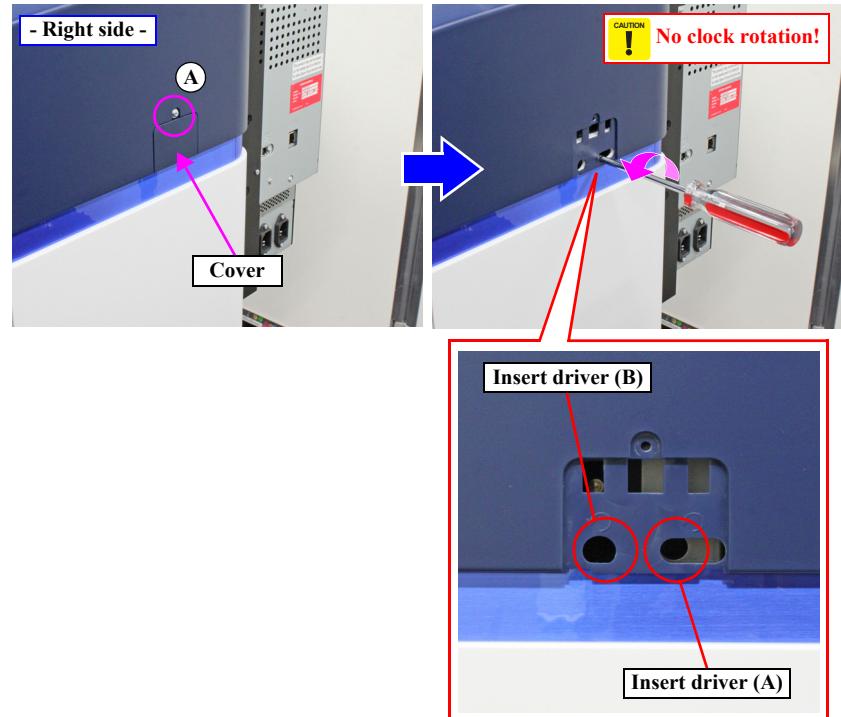


Figure 3-12. Unlocking the CR unit

3.4.2 Housing

3.4.2.1 Panel unit

1. Open the right maintenance cover.
2. Open the front cover.
3. Remove the four screws that secure the panel unit.
 - A) Silver M4x10 P-tite screw with washer and spring washer: 2 pcs
 - B) Silver M4x12 P-tite screw with washer: 2 pcs
4. Pull the left lower portion of the panel unit assy toward you and remove it.
5. Disconnect the FFC from the connector of the panel board.



- Insert the two tabs of the panel unit into the two holes on the right upper cover.
- Insert the positioning hole of the panel unit over the dowel on the main body.

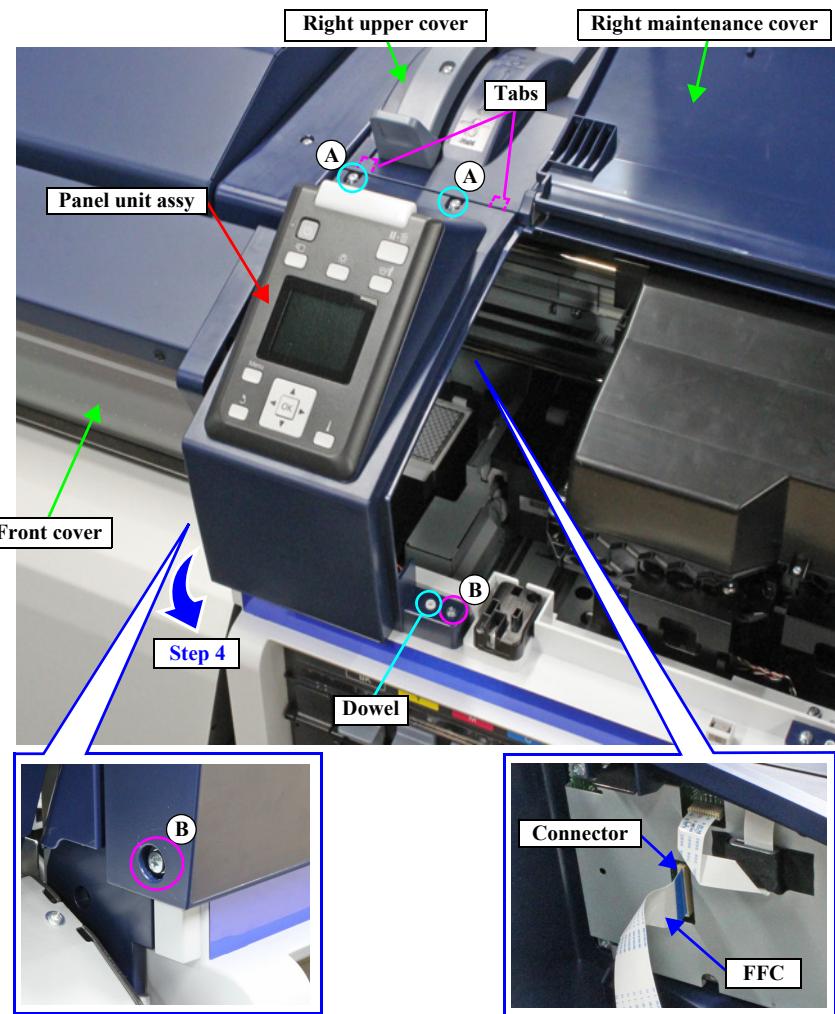


Figure 3-13. Removing the panel unit assy

6. Disconnect the FFC from the connector of the panel board.
7. Disengage the two hooks and separate the panel unit from the panel unit assy.

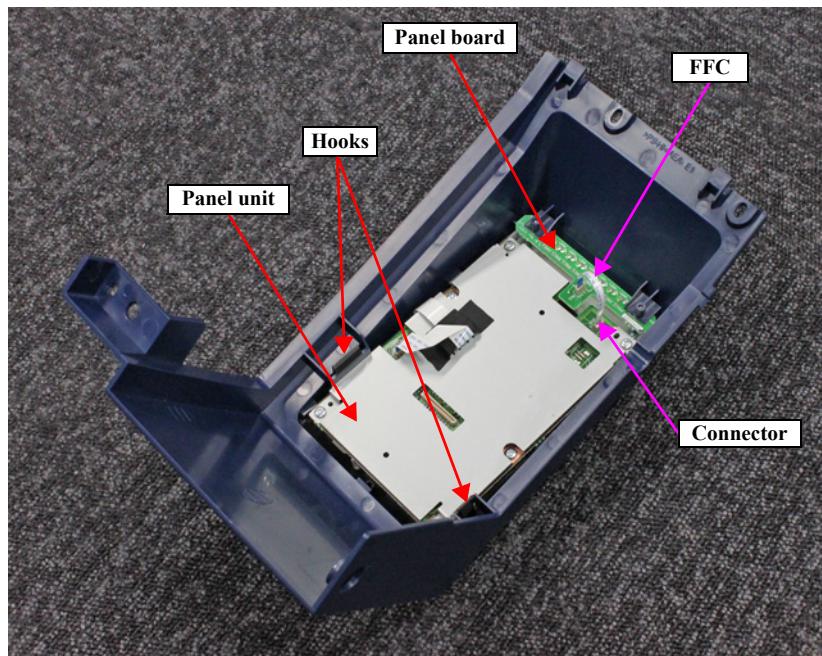


Figure 3-14. Removing the panel unit

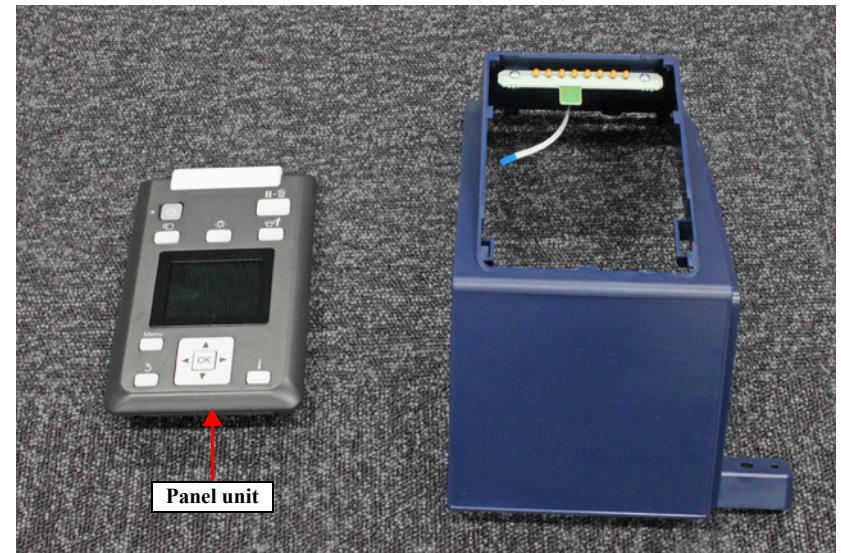


Figure 3-15. Disassembled panel unit

3.4.2.2 Right upper cover

1. Remove the panel unit. ([p92](#))
2. Remove the media loading lever. ([p187](#))
3. Push the media loading lever frame toward the rear of the printer to move the lever to its release position.

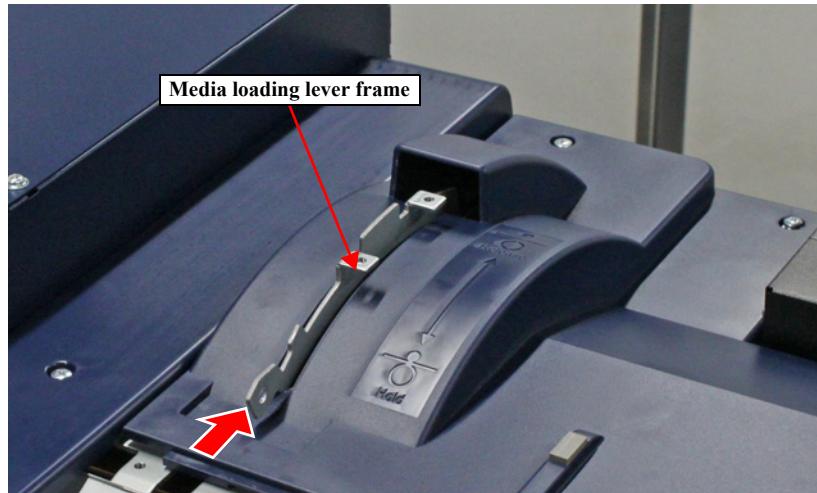


Figure 3-16. Moving the media loading lever frame

4. Remove the five screws, and remove the M/B cover.

A) Silver M3x6 S-tite screw: 5 pcs

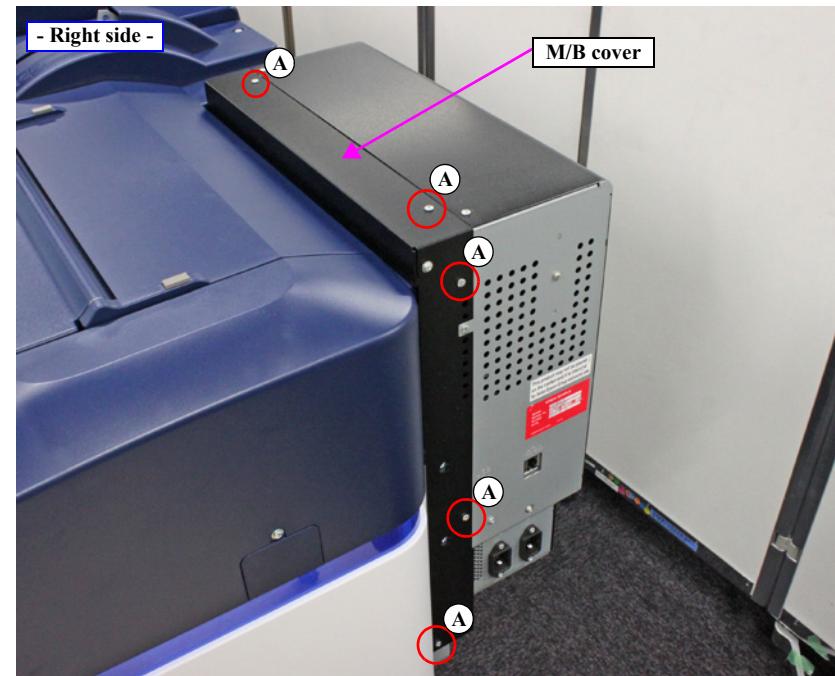


Figure 3-17. Removing the M/B cover

5. Remove the five screws that secure the right upper cover.
 - B) Silver M4x12 P-tite screw with washer: 1 pcs
 - C) Silver M3x10 P-tite screw with washer: 1 pcs
 - D) Silver M3x8 S-tite screw with built-in washer: 1 pcs
 - E) Silver M4x10 S-tite screw with washer and spring washer: 2 pcs



Figure 3-18. Removing the right upper cover

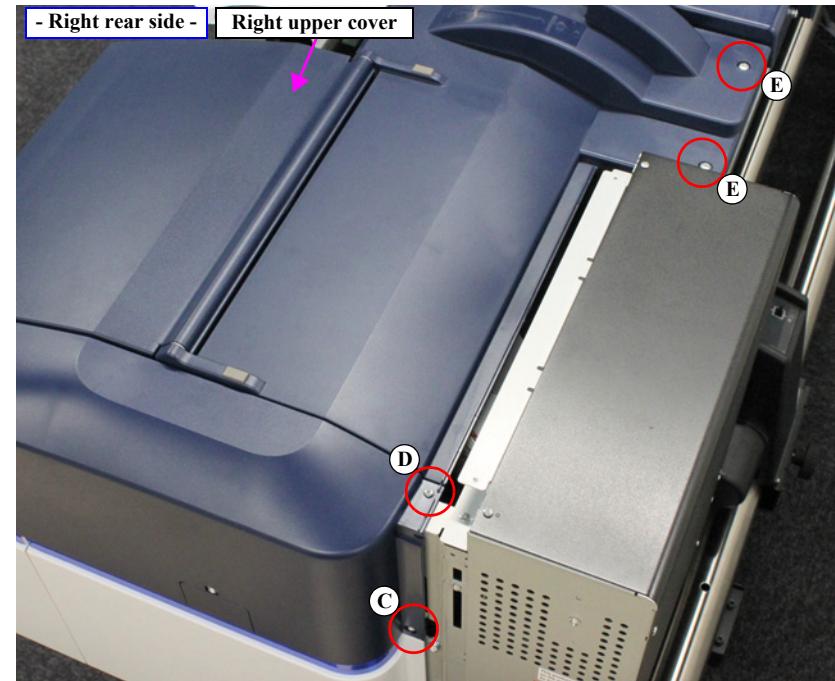


Figure 3-19. Removing the right upper cover

3.4.2.3 Lower ink holder

CHECK POINT



The lower ink holder disassembly procedures of SC-F9400 Series/SC-F9400H Series differ from SC-F9300 Series.

- SC-F9300 Series: [P. 96](#)
- SC-F9400 Series/SC-F9400H Series: [P. 98](#)

SC-F9300 Series

1. Remove the ink tank. ([p181](#))
2. Remove the two each screws, and remove the four CISS bottom frame.
A)Black M3x8 Cup S-tite screw: each 2 pcs



Attach the two hooks of the CISS bottom frame to the two positioning holes of the CISS side frame.

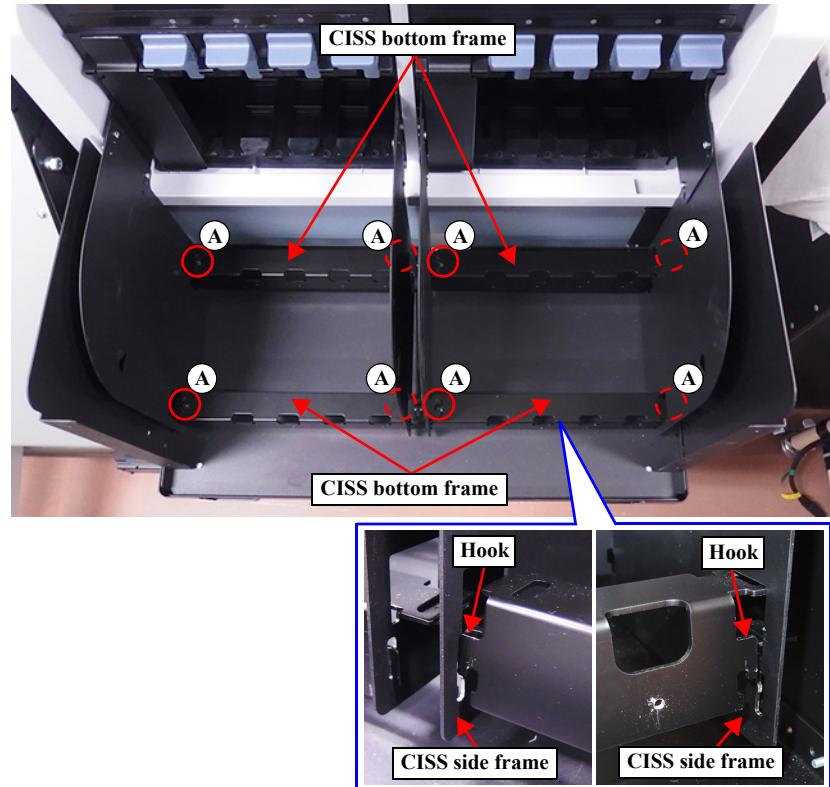


Figure 3-20. Removing the CISS bottom frame

3. Remove the two each screws, and remove the four CISS side frame.

B)Silver M3x4 Bind machine screw: each 2 pcs



- When installing the CISS side frame (left), align tip of triangle with height of bar ring.
- When installing the CISS side frame (right), align tip of triangle with edge of metal plate with screws.

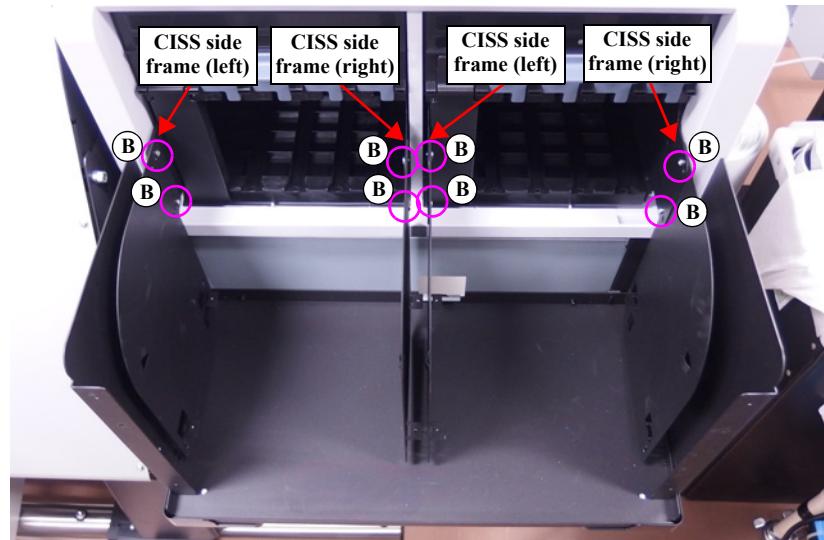
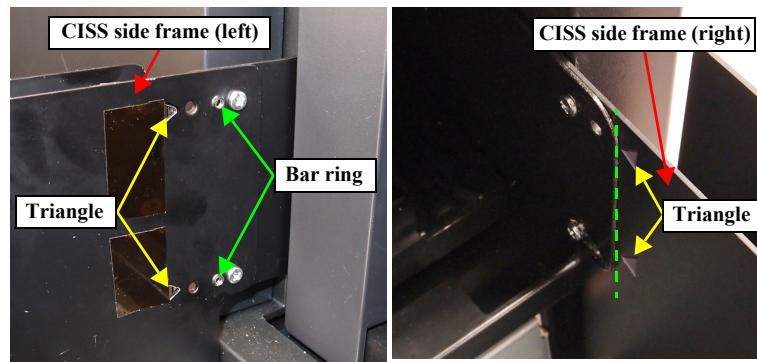


Figure 3-21. Removing the CISS side frame

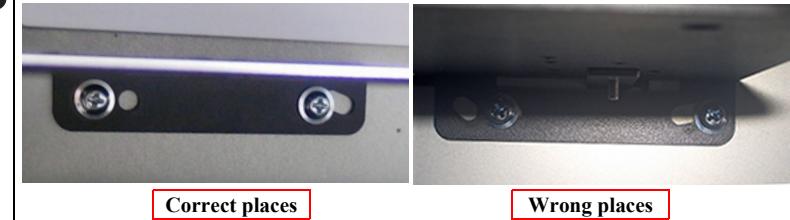
4. Remove the four screws, and remove the lower ink holder while releasing the hook from the hole.

C)Silver M4x8 Cup S-tite screw: 2 pcs

D)Silver M4x8 Cup S-tite screw: 2 pcs



Confirm the screw D are correctly secured. If they are secured on the wrong places, the hooks are not fully set in place. In such a case, reattach the tray unit.



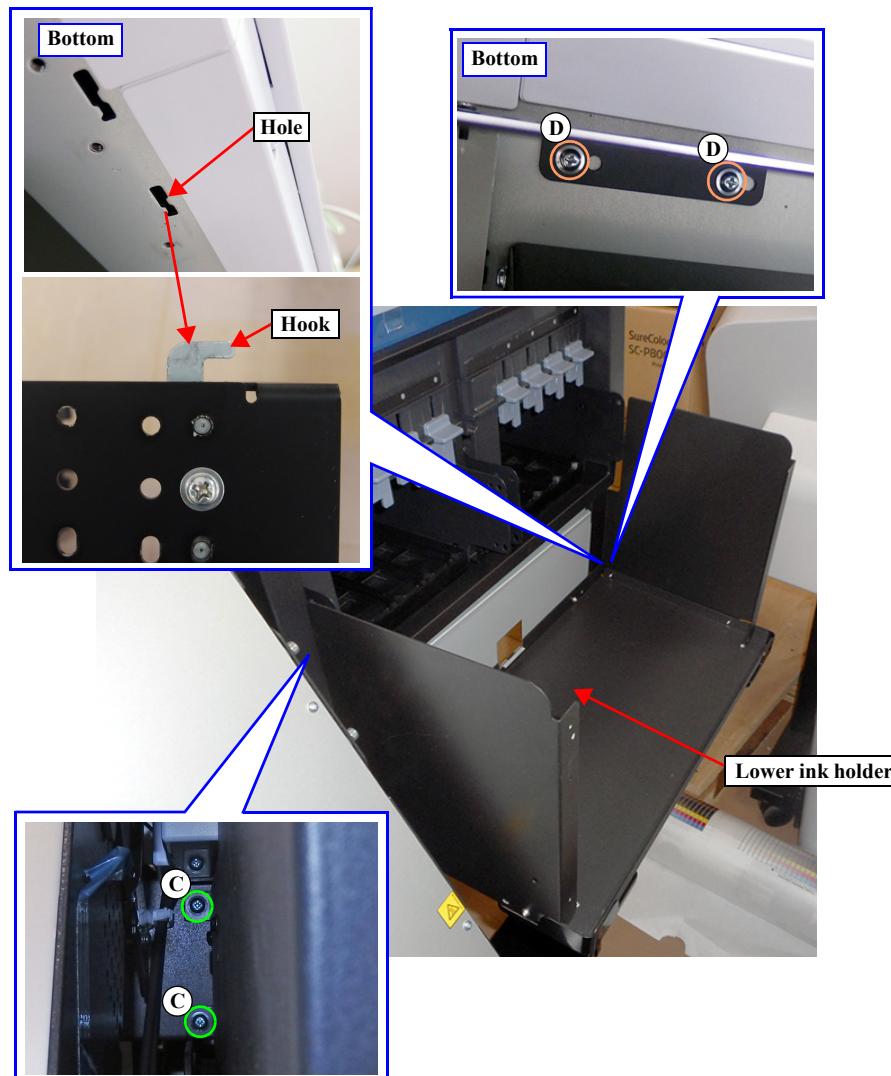


Figure 3-22. Removing the lower ink holder

SC-F9400 Series/SC-F9400H Series

1. Remove the ink tank. ([p181](#))
 2. Remove the two each screws, and remove the two CISS bottom frame.
- A)Black M3x8 Cup machine screw: each 2 pcs



- Attach four tabs of the CISS bottom frame to the holes of frame. ([Figure 3-23](#))
- Make sure to install in the correct orientation of CISS bottom frame. If the attachment direction of CISS bottom frame is reversed, the tabs of CISS bottom frame does not attach to holes of frame completely.

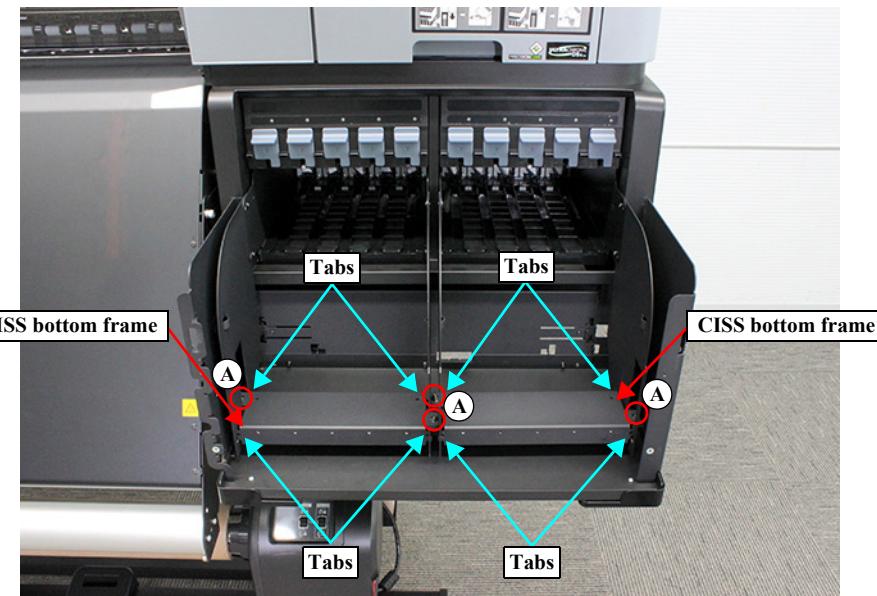


Figure 3-23. Removing the CISS bottom frame

3. Remove the two each screws, and remove the two CISS side frame (left).

B)Black M3x4 Bind machine screw: each 2 pcs



Pay attention to the positioning points. ([Figure 3-24](#))

4. Remove the two each screws, and remove the two CISS side frame (right).

C)Black M3x4 Bind machine screw: each 2 pcs



Pay attention to the positioning points. ([Figure 3-24](#))

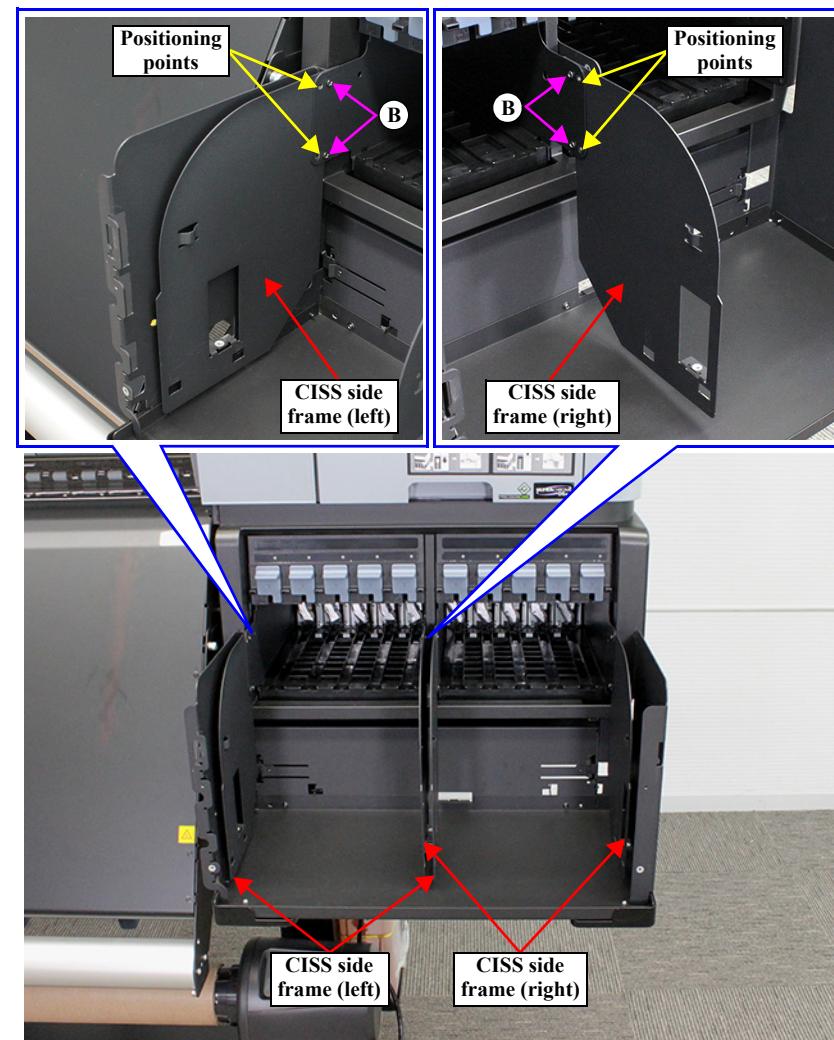


Figure 3-24. Removing the CISS side frame (left)/ CISS side frame (right)

5. Remove the four screws that secure the lower ink holder.
D)Silver M4x8 Cup machine screw: 2 pcs
E)Silver M4x8 Cup machine screw: 2 pcs
6. Disengage hook, and remove the lower ink holder.



Make sure that the slip-out prevention washers were attached to the screw D.

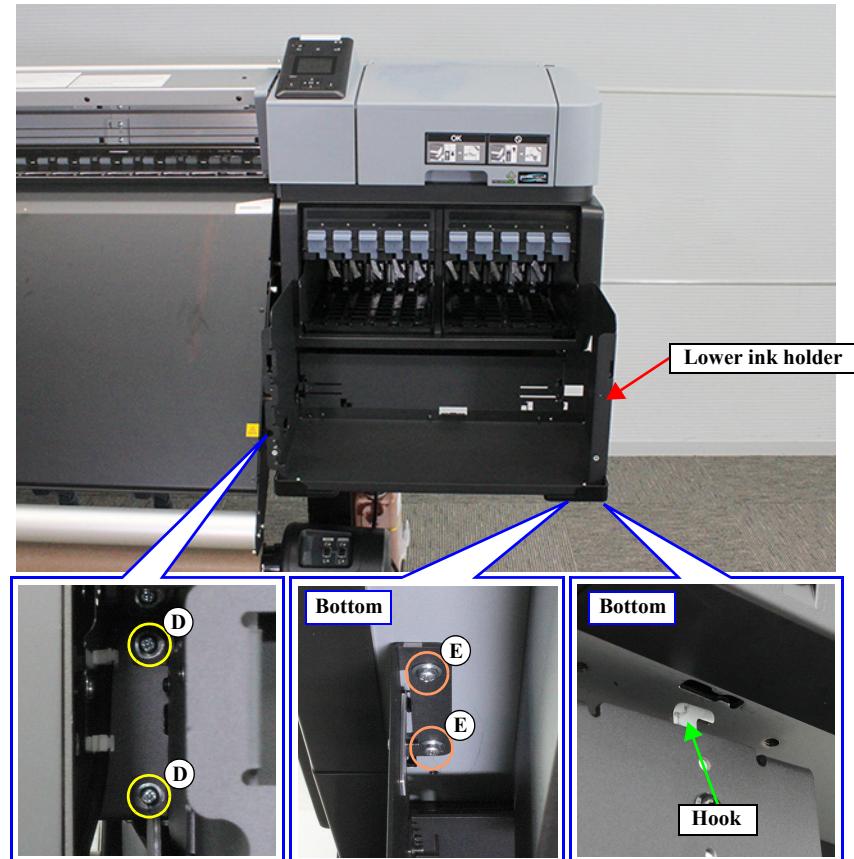
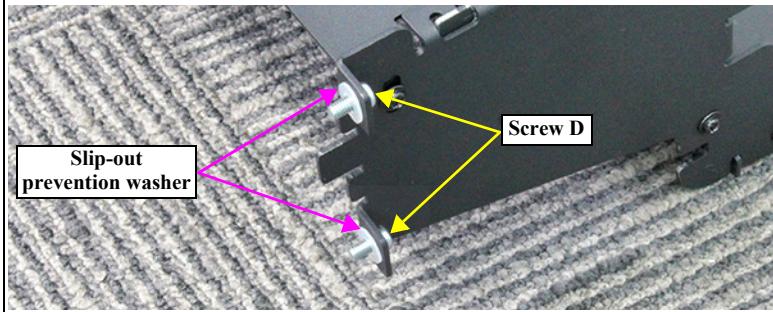


Figure 3-25. Removing the lower ink holder

3.4.2.4 Right front cover

1. Remove the panel unit. (p92)
2. Remove the media loading lever. (p187)
3. Remove the right upper cover. (p94)
4. Remove the ink tank. (p181)
5. Remove the lower ink holder. (p96)
6. Remove the screw, and remove the R maintenance cover sensor.
A) Silver M3x10 P-tite screw with washer: 1 pcs
7. Remove the six screws that secure the right front cover.
B) Silver M4x10 S-tite screw with washer and spring washer: 5 pcs
C) Silver M4x12 S-tite screw with washer and spring washer: 1 pcs
8. Disengage the upper portion of the right front cover from the dowels on the main body frame, and remove the right front cover.



- Insert the two tabs of the right front cover into the two positioning holes on the right cover.
- Align the two dowels of the frame with the two positioning holes on the right front cover.

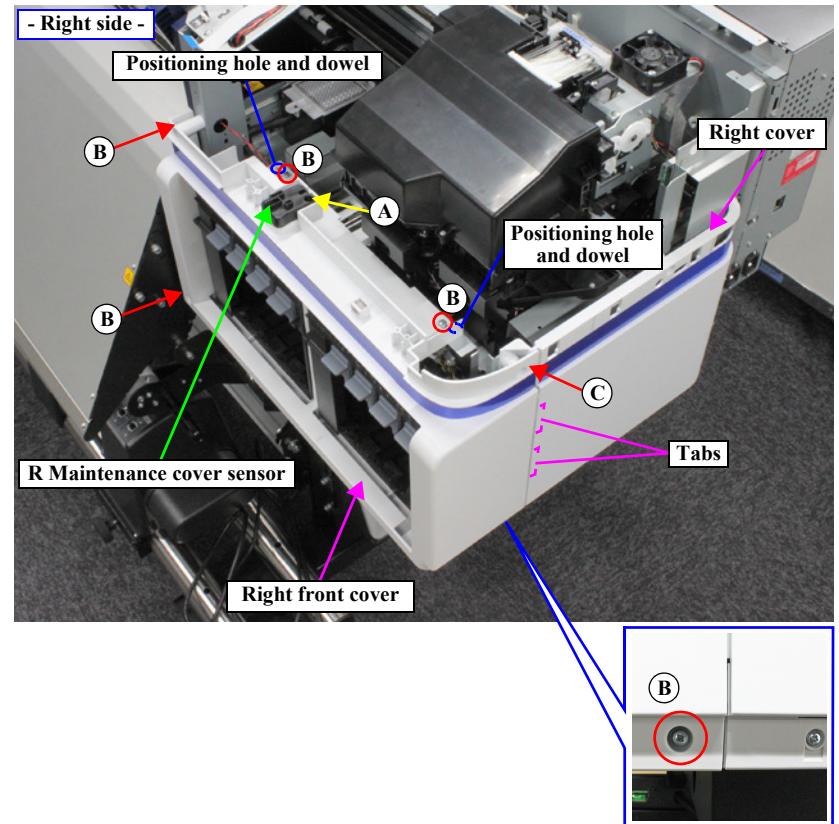


Figure 3-26. Removing the right front cover

3.4.2.5 Right cover

1. Remove the panel unit. ([p92](#))
2. Remove the media loading lever. ([p187](#))
3. Remove the right upper cover. ([p94](#))
4. Remove the three screws, and remove the right cover in the direction of the arrow.
 - A) Silver M3x8 P-tite screw with washer: 1 pcs
 - B) Silver M4x10 S-tite screw with washer: 1 pcs
 - C) Silver M4x12 S-tite screw with washer: 1 pcs



REASSEMBLY
Insert the two tabs of the right front cover into the two positioning holes on the right cover.

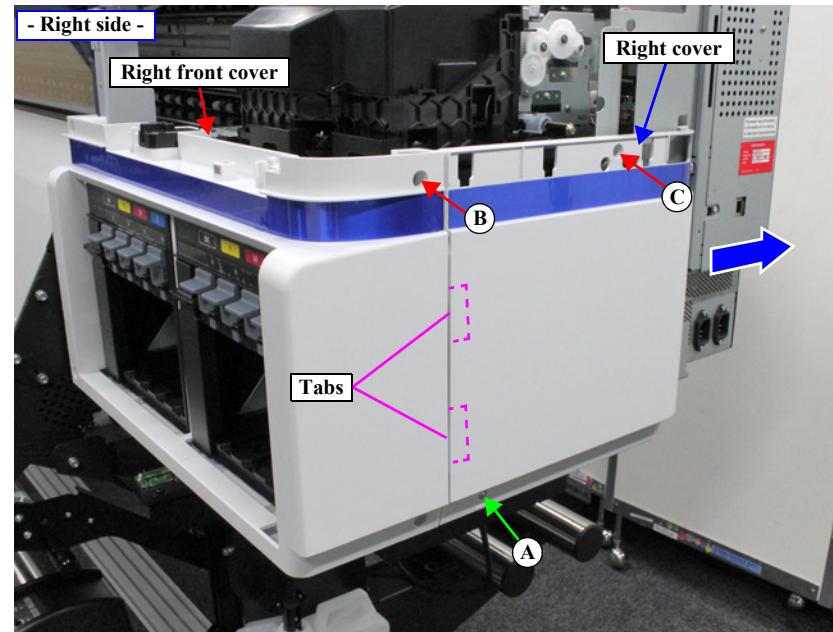


Figure 3-27. Removing the right cover

3.4.2.6 Tube cover cap

1. Remove the screw, and remove the tube cover cap in the direction of the arrow.

A) Silver M4x10 S-tite screw with washer and spring washer: 1 pcs



Insert the four tabs of the tube cover cap into the four positioning holes on the left upper cover.

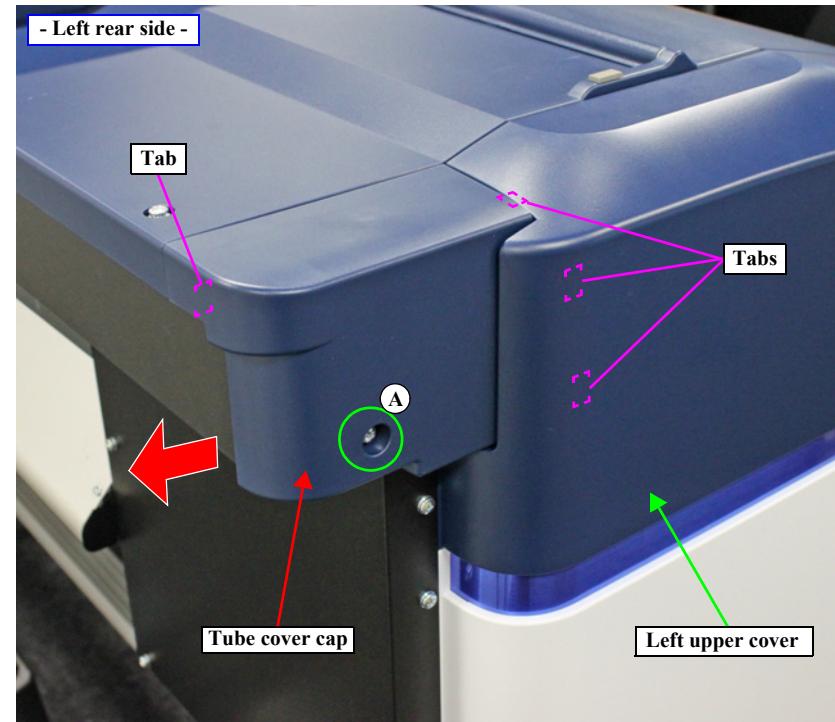


Figure 3-28. Removing the tube cover cap

3.4.2.7 Left upper cover

1. Remove the tube cover cap. (p103)
2. Remove the five screws that secure the sub left rear cover.
 A) Silver M4x12 P-tite screw with washer: 3 pcs
 B) Silver M4x10 S-tite screw with washer and spring washer: 2 pcs

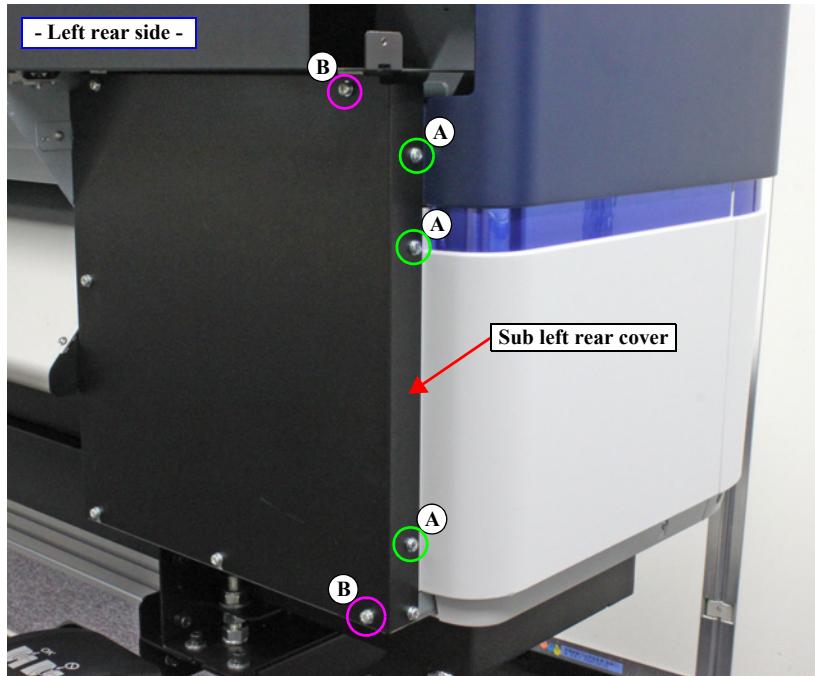


Figure 3-29. Removing the sub left rear cover

3. Open the front cover.
4. Open the left maintenance cover.
5. Remove the four screws that secure the left upper cover.
 C) Silver M4x10 S-tite screw with washer and spring washer: 2 pcs
 D) Silver M4x12 P-tite screw with washer: 1 pcs
 E) Silver M4x10 S-tite screw with washer and spring washer: 1 pcs

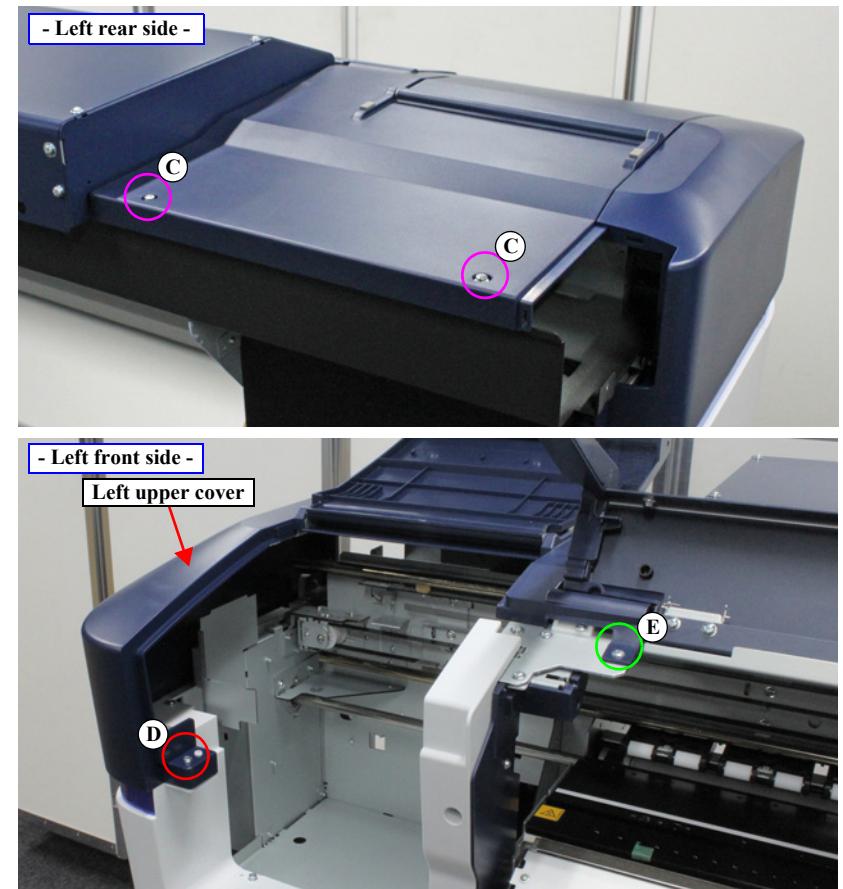
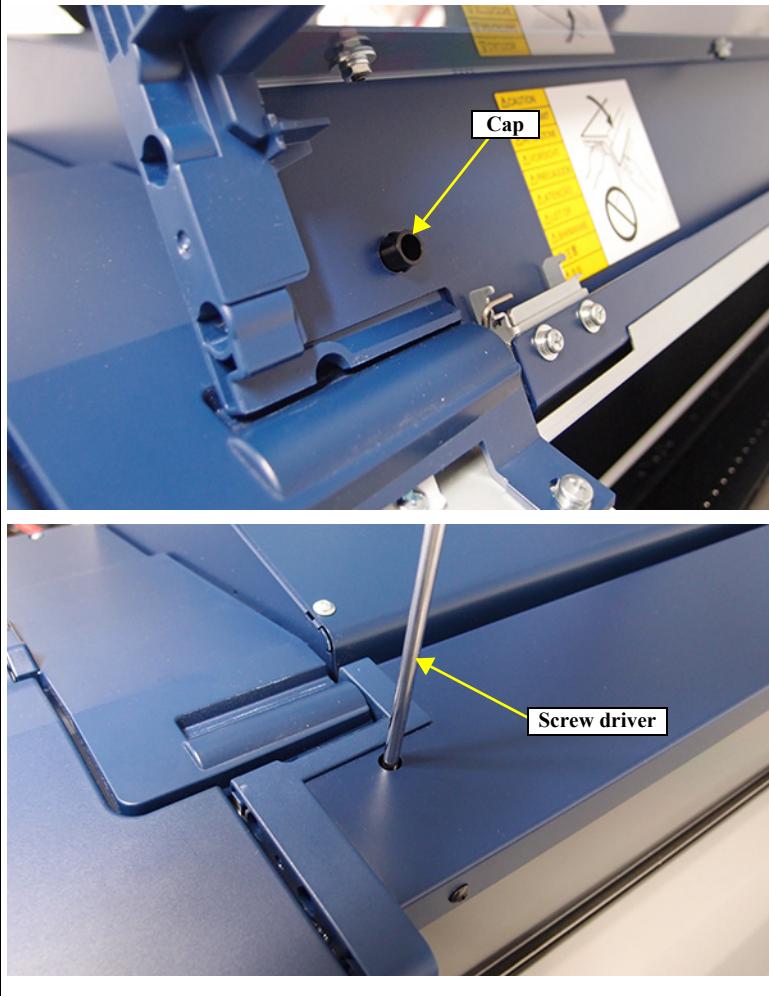


Figure 3-30. left upper cover fixing screws



If the screw driver comes into contact with the front cover when removing the screw E, remove the cap from the front cover and insert the screw driver from the hole.



3.4.2.8 Left front cover/L maintenance cover sensor

1. Remove the tube cover cap. ([p103](#))
2. Remove the left upper cover. ([p104](#))
3. Remove the screw, and remove the L maintenance cover sensor.
- A) Silver M3x10 P-tite screw with washer: 1 pcs
4. Remove the six screws that secure the left front cover.
- B) Silver M4x10 S-tite screw with washer and spring washer: 5 pcs
- C) Silver M4x12 P-tite screw with washer: 1 pcs

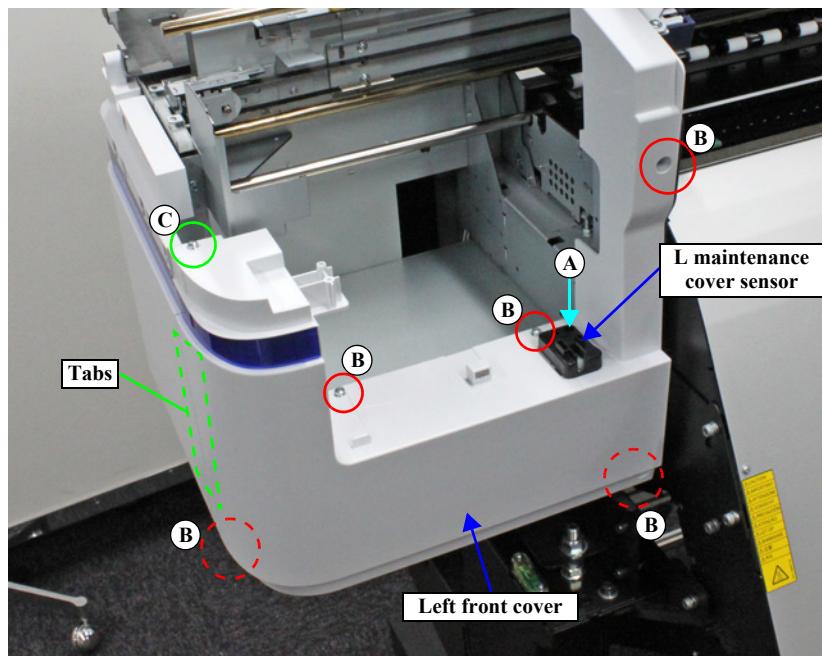


Figure 3-31. Left front cover/L maintenance cover sensor fixing screws



At the next step, be careful not to pull the left front cover too much as the cable of the L maintenance cover sensor is connected to the relay connector.

5. Slide the left front cover toward the front of the printer.
6. Disconnect the cable of the L maintenance cover sensor from the relay connector.



- Insert the two tabs of the left front cover into the two positioning holes on the left cover.
- Insert the two dowels of the frame into the two positioning holes on the left front cover.

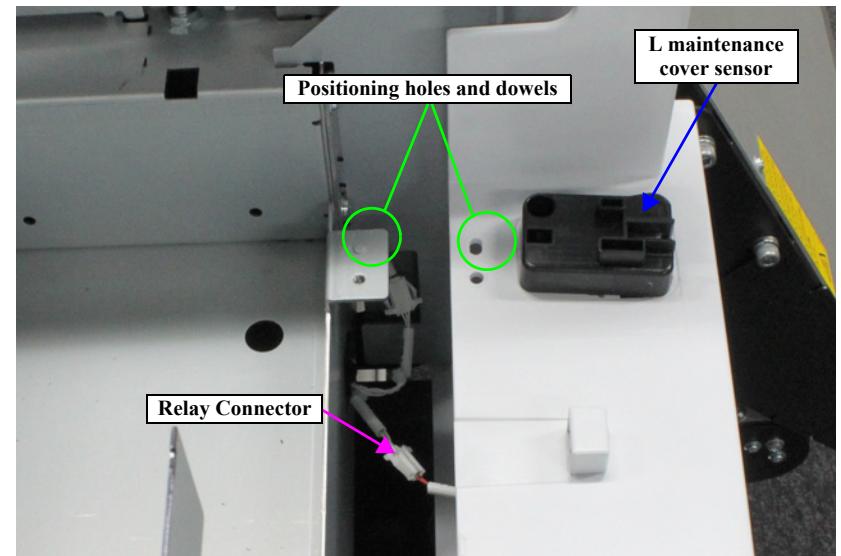


Figure 3-32. Removing the left front cover

3.4.2.9 Left cover

1. Remove the tube cover cap. ([p103](#))
2. Remove the left upper cover. ([p104](#))
3. Remove the three screws and slide the left cover toward the rear to remove it.
A) Silver M4x12 P-tite screw with washer: 1 pcs
B) Silver M3x8 P-tite screw with washer: 1 pcs
C) Silver M4x10 S-tite screw with washer and spring washer: 1 pcs



Insert the two tabs of the left front cover into the two positioning holes on the left cover.

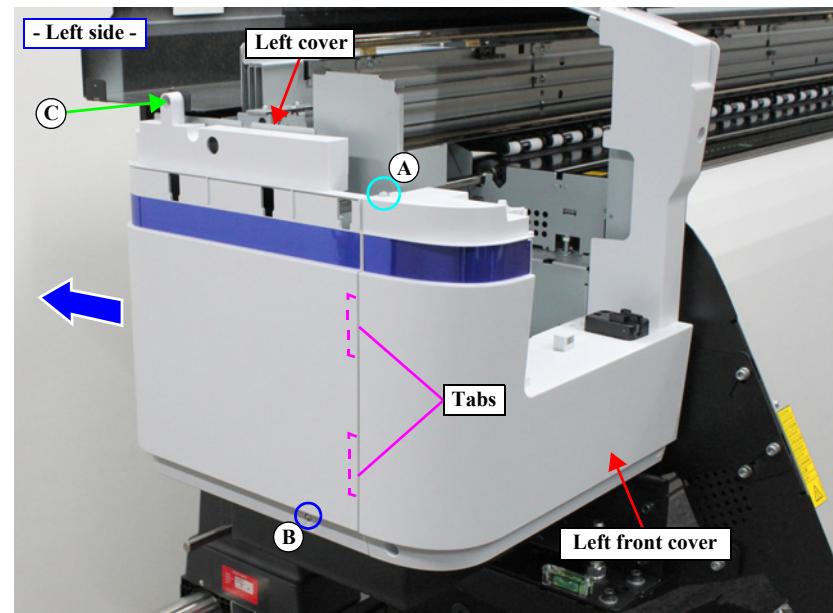


Figure 3-33. Removing the left cover

3.4.2.10 Upper cover

1. Remove the 11 screws, and remove the upper cover.
 - A) Silver M4x8 S-tite screw with built-in washer: 6 pcs
 - B) Silver M4x10 S-tite screw with washer and spring washer: 5 pcs

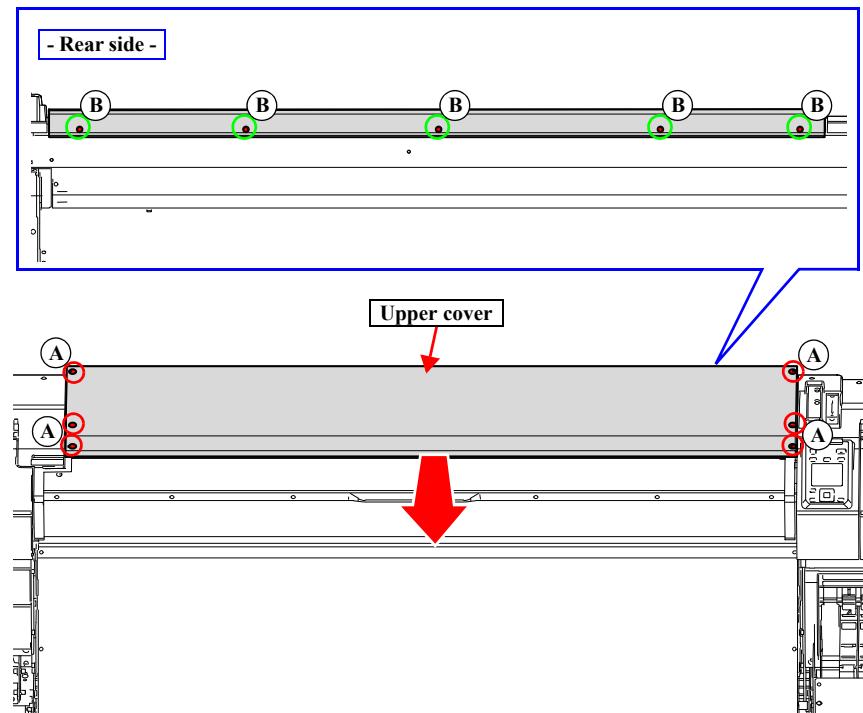


Figure 3-34. Removing the upper cover

3.4.2.11 Upper rear cover

- Move the media loading lever down to nip the pressure roller.



In the next step, remove the screws while holding the upper rear cover with your hand to prevent it from falling.

- Remove the four screws that secure the upper rear cover.

A) Silver M3x8 S-tite screw with built-in washer: 4 pcs

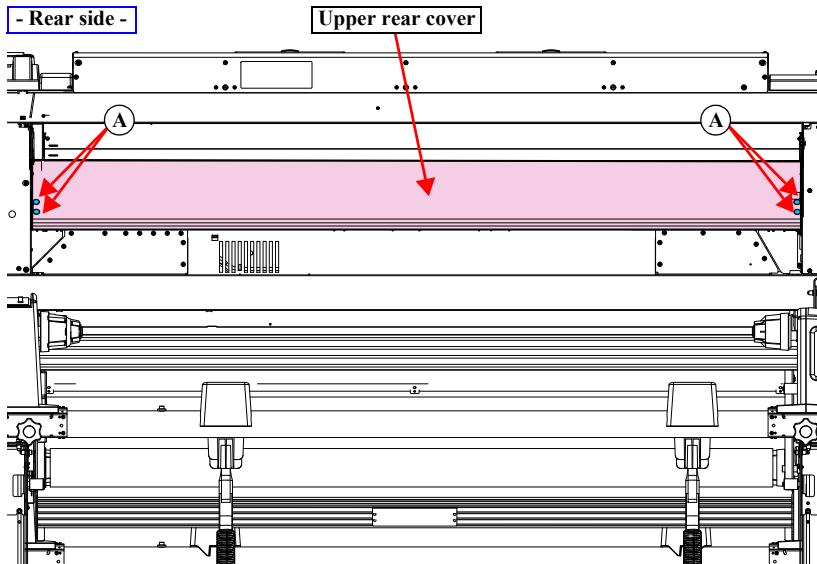


Figure 3-35. Upper rear cover fixing screws

- Remove the upper rear cover.

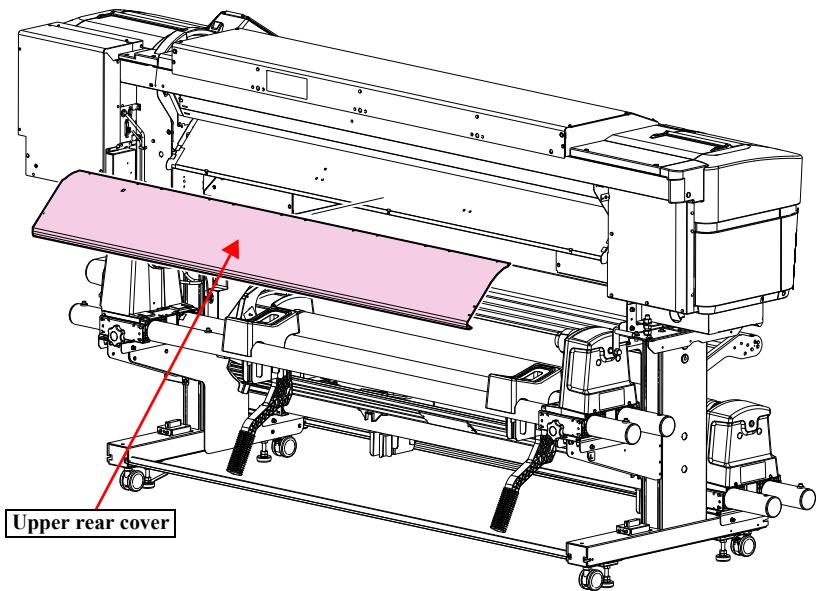


Figure 3-36. Removing the upper rear cover

3.4.2.12 Board box cover

1. Remove the seven screws, and remove the board box cover.

A) Silver M3x6 screw: 7 pcs

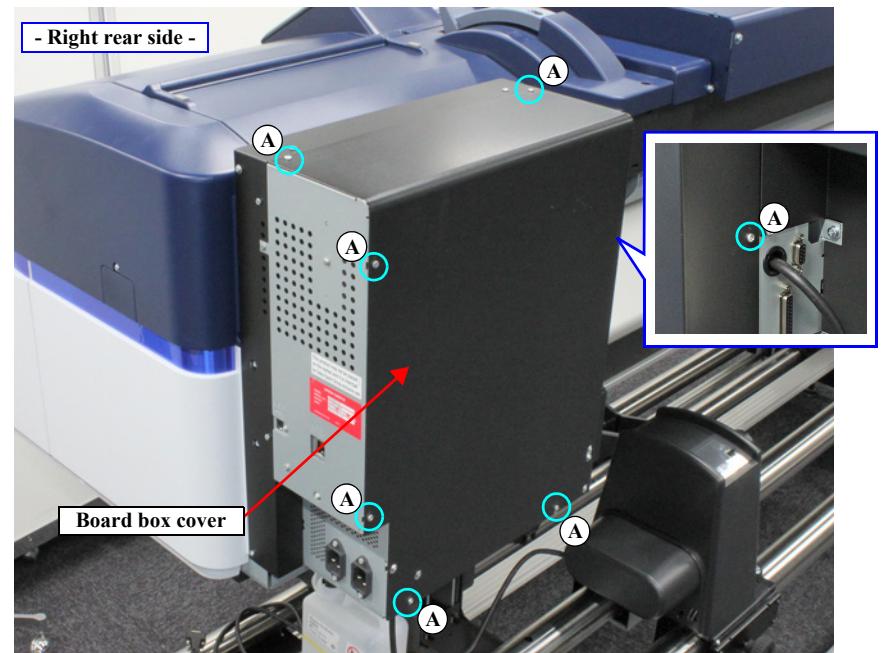


Figure 3-37. Removing the board box cover

3.4.2.13 R maintenance cover sensor

1. Remove the panel unit. ([p92](#))
2. Remove the media loading lever. ([p187](#))
3. Remove the right upper cover. ([p94](#))
4. Remove the board box cover. ([p110](#))
5. Disconnect the head FFC and CR FFC on the main board.
6. Disconnect the cable from the connector (CN272) on the main board.
7. Release the cable from the four clamps.

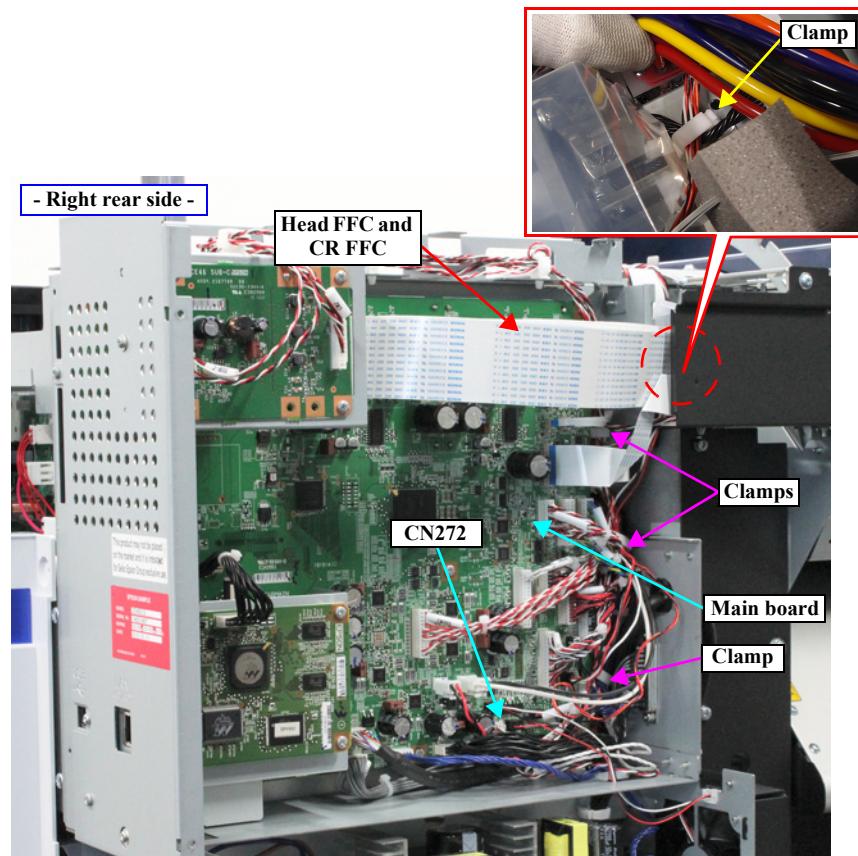


Figure 3-38. Releasing the cable (rear side)

8. Release the cable from the three FFC clamps.

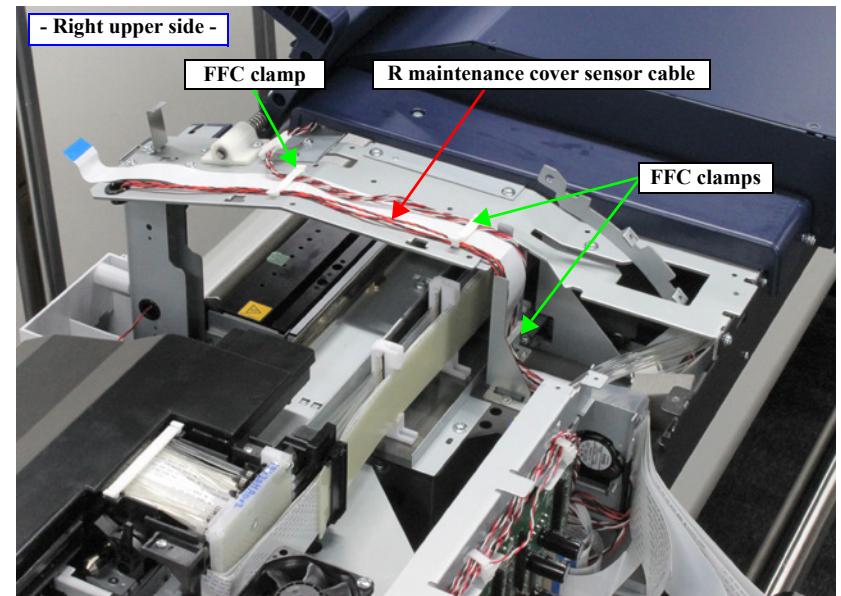


Figure 3-39. Releasing the cable (upper side)

9. Remove the screw that secures the R maintenance cover sensor.

A) Silver M3x8 P-tite screw with washer: 1 pcs

10. Pull out the cable through the three holes on the frame.

11. Remove the R maintenance cover sensor.



When installing the R maintenance cover sensor, properly engage its two dowels and one hook with the three positioning holes on the right front cover.

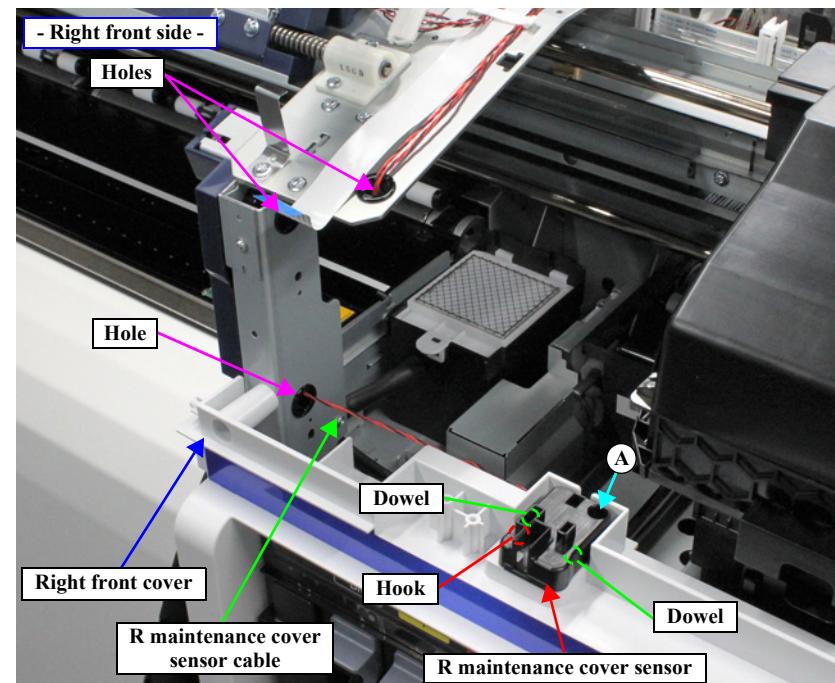


Figure 3-40. Removing the R maintenance cover sensor

3.4.2.14 Front cover R sensor

1. Remove the panel unit. ([p92](#))
2. Remove the media loading lever. ([p187](#))
3. Remove the right upper cover. ([p94](#))
4. Remove the board box cover. ([p110](#))
5. Disconnect the head FFC and CR FFC on the main board.
6. Disconnect the cable from the connector (CN271) on the main board.
7. Release the cable from the four clamps.

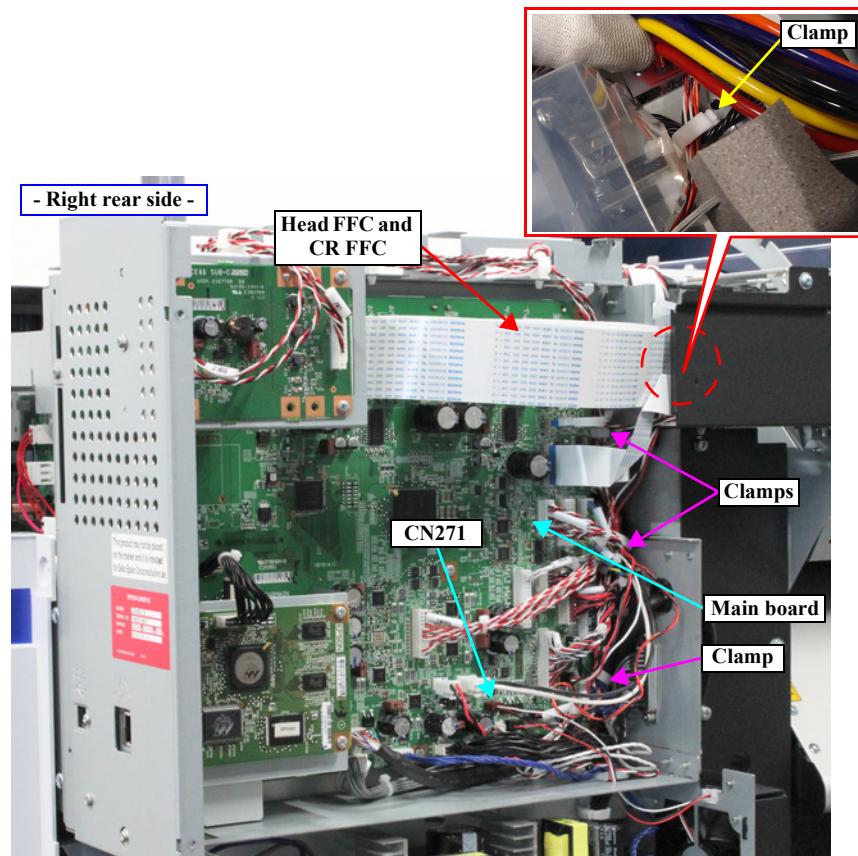


Figure 3-41. Releasing the cable (rear side)

8. Release the cable from the three FFC clamps.

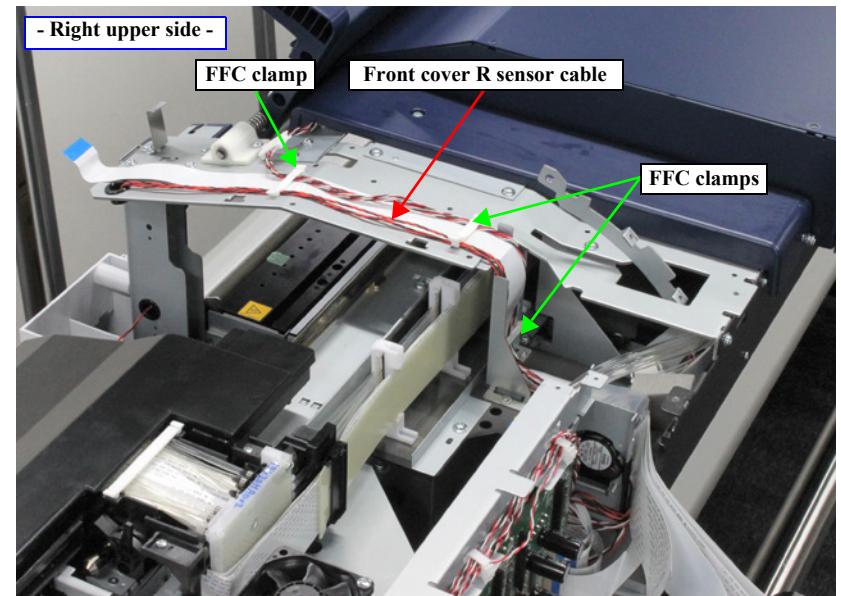


Figure 3-42. Releasing the Cable (upper side)

9. Remove the two screws, and remove the right sub cover.

A) Silver M3x6 S-tite screw with built-in washer: 1 pcs

B) Silver M3x8 S-tite screw with washer: 1 pcs

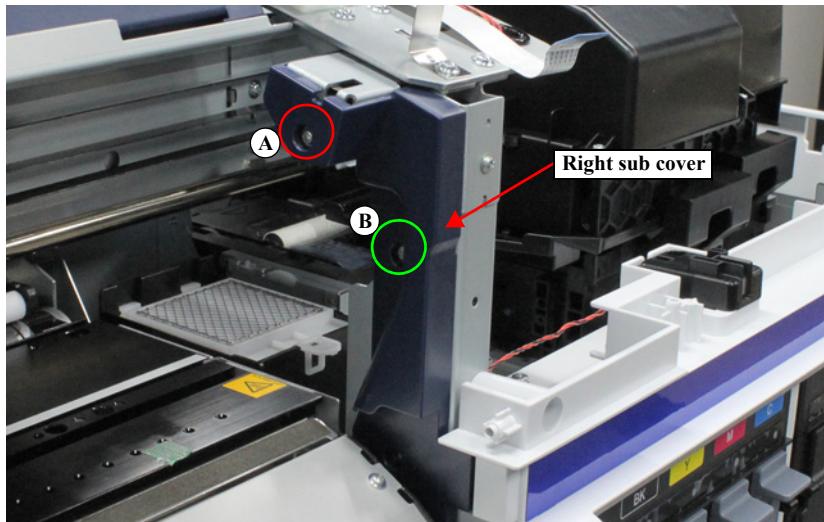


Figure 3-43. Removing the right sub cover

10. Remove the screw that secures the mounting plate.

C) Silver M3x8 S-tite screw with built-in washer: 1 pcs

11. Remove the front cover R sensor together with the mounting plate.



When installing the mounting plate, insert its positioning hole over the dowel on the main body frame.

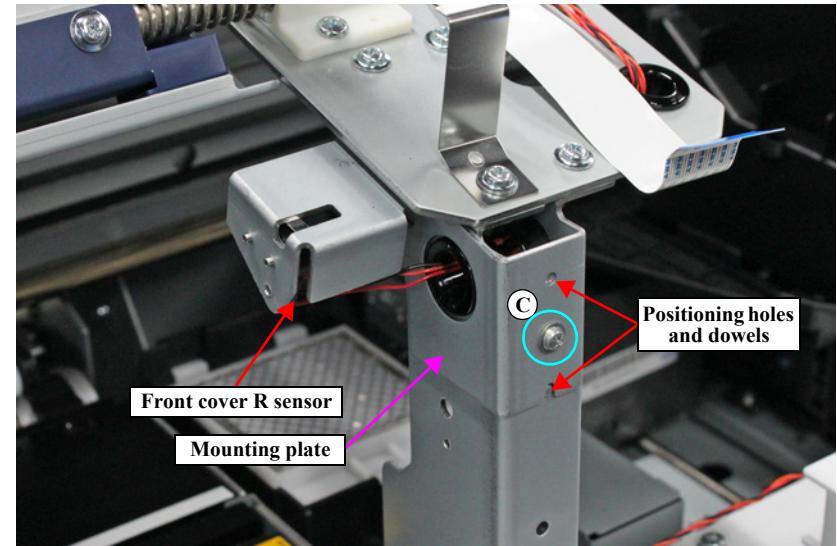


Figure 3-44. Removing the mounting plate

12. Remove the two screws, and remove the front cover R sensor from the mounting plate.
D) Silver M2.3x10 S-tite screw: 2 pcs
13. Pull out the cable through the two holes on the frame, and remove the front cover R sensor.

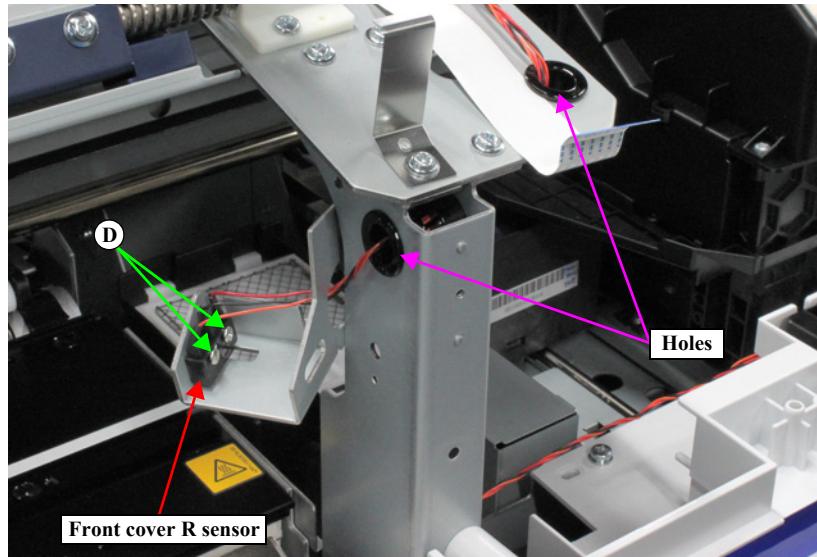


Figure 3-45. Removing the front cover R sensor

3.4.2.15 Front cover L sensor

1. Remove the tube cover cap. ([p103](#))
2. Remove the left upper cover. ([p104](#))
3. Remove the left front cover. ([p106](#))
4. Disconnect the cable from the relay connector.
5. Release the cable from the clamp.

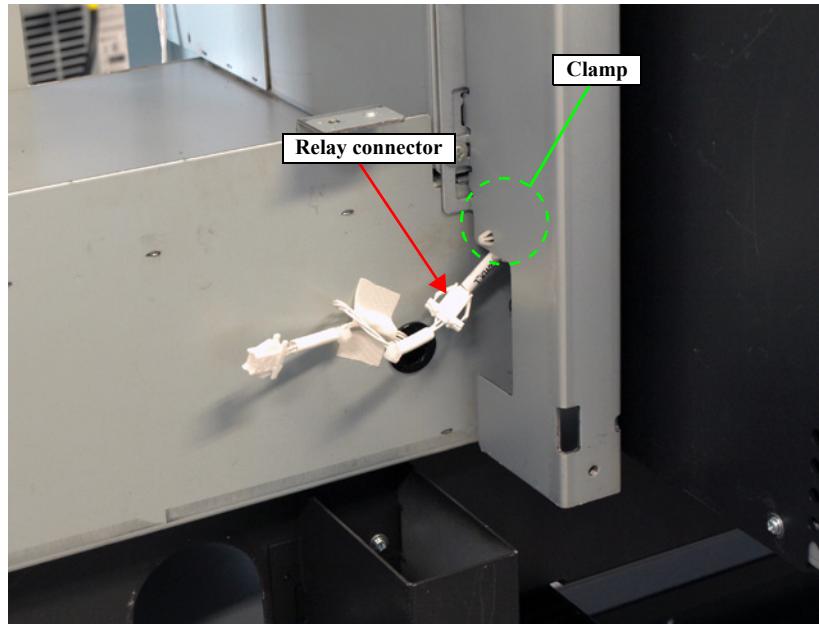


Figure 3-46. Releasing the cable

6. Remove the two screws, and remove the left sub cover.

- A) Silver M3x6 S-tite screw with built-in washer: 1 pcs
- B) Silver M3x8 S-tite screw with washer: 1 pcs

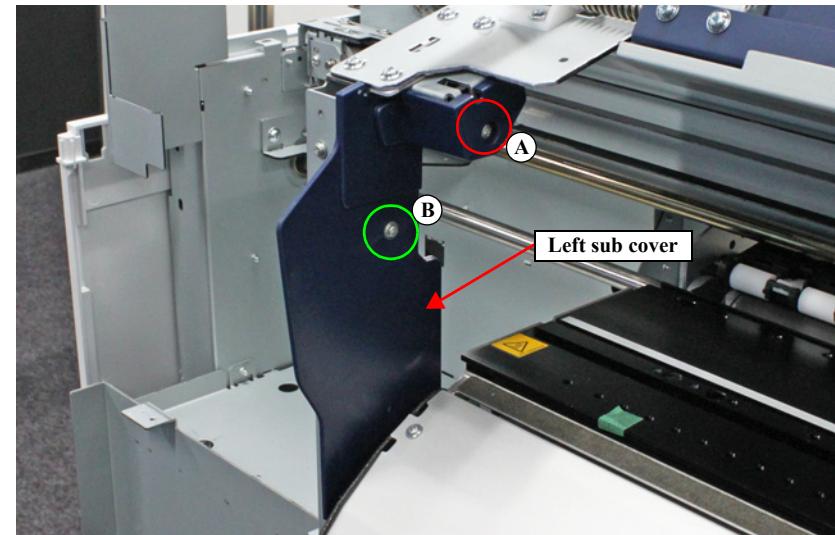


Figure 3-47. Removing the Left sub cover

7. Remove the screw that secures the mounting plate.
C) Silver M3x8 S-tite screw with built-in washer: 1 pcs
8. Remove the front cover L sensor together with the mounting plate.

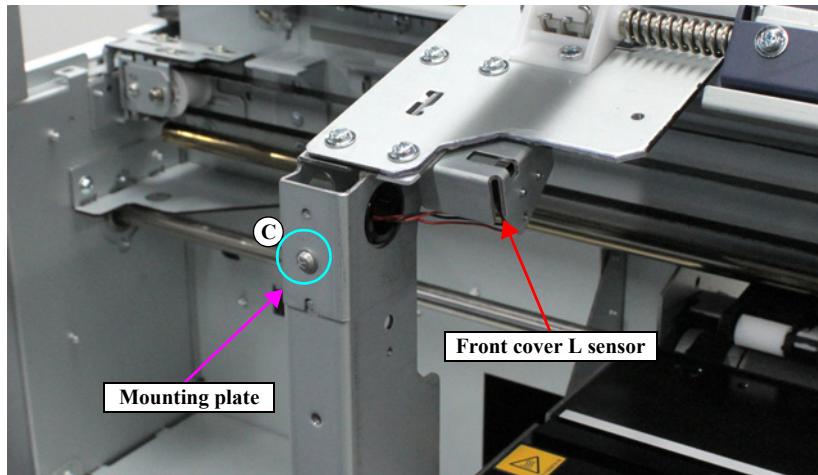


Figure 3-48. Removing the mounting plate

9. Remove the two screws that secure the front cover L sensor.
D) Silver M2.3x10 S-tite screw: 2 pcs
10. Pull out the cable through the hole on the frame, and remove the front cover L sensor.

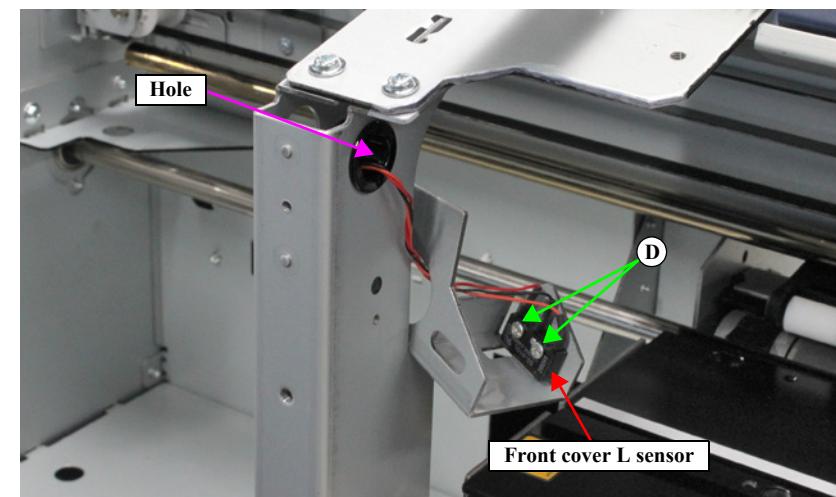


Figure 3-49. Removing the front cover L sensor

3.4.3 Electric Circuit Components

3.4.3.1 Main board



When replacing/removing this part, refer to “[4.1.3 Adjustment Items and the Order by Repaired Part](#)” (p213) and make sure to perform the specified operations including required adjustment.

1. Remove the board box cover. ([p110](#))
 2. Disconnect the cables from the connectors (CN1, CN2) on the sub-C board.
 3. Release the cables from the clamp.
 4. Remove the screw, and remove the sub-C board together with the mounting plate.
- A) Silver M3x8 P-tite screw with built-in washer: 1 pcs

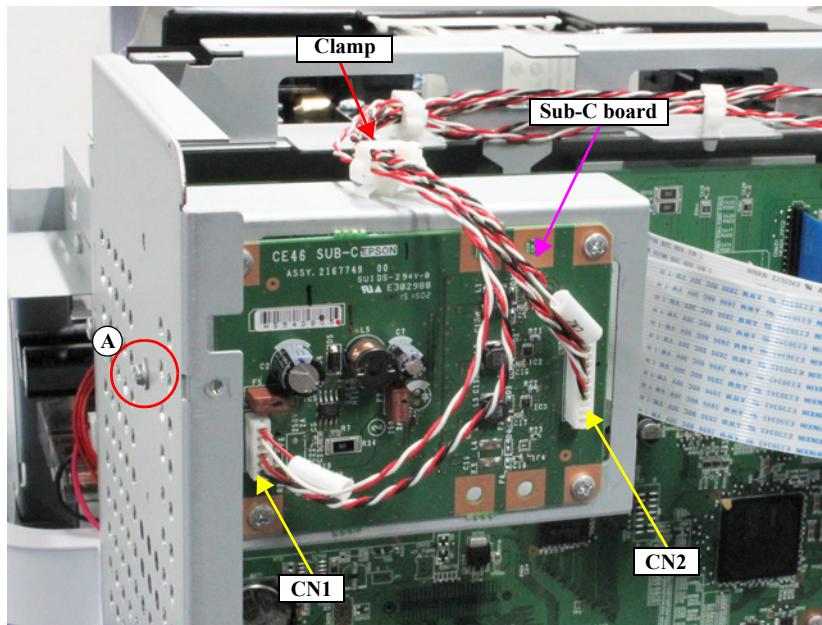


Figure 3-50. Removing the sub-C board

5. Release the cable from the clamp on the Main-B board.
 6. Disconnect the cables from the connectors (CN700, CN701) on the main board.
 7. Remove the four screws, and remove the main-B board together with the mounting plate.
- B) Silver M3x6 screw: 4 pcs

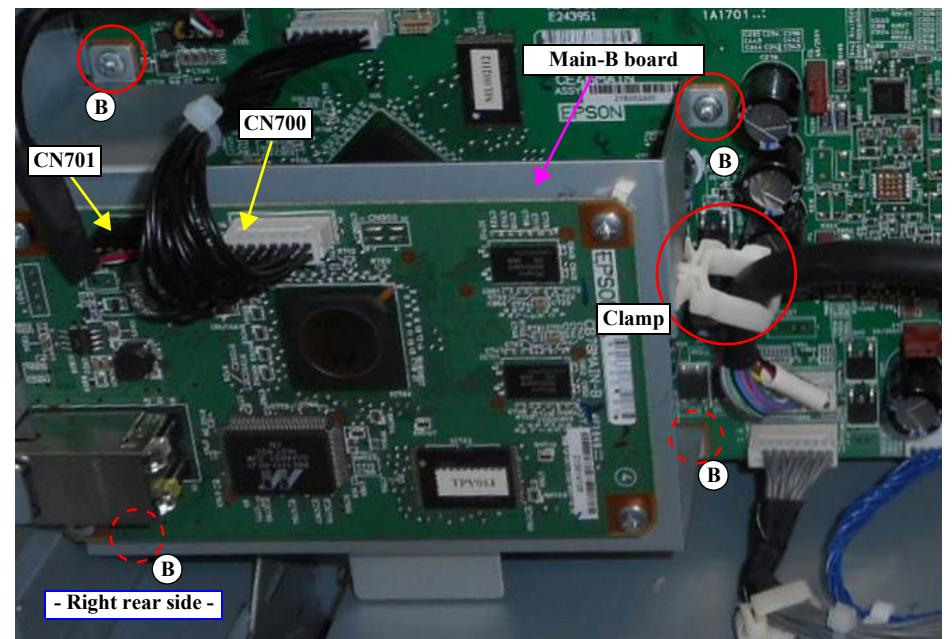


Figure 3-51. Removing the main-B board

8. Disconnect all cables and FFCs from the main board.
9. Remove the eight screws, and remove the main board.
C) Silver M3x6 screw: 7 pcs
D) Silver M3x6 screw (USB fixing screw): 1 pcs

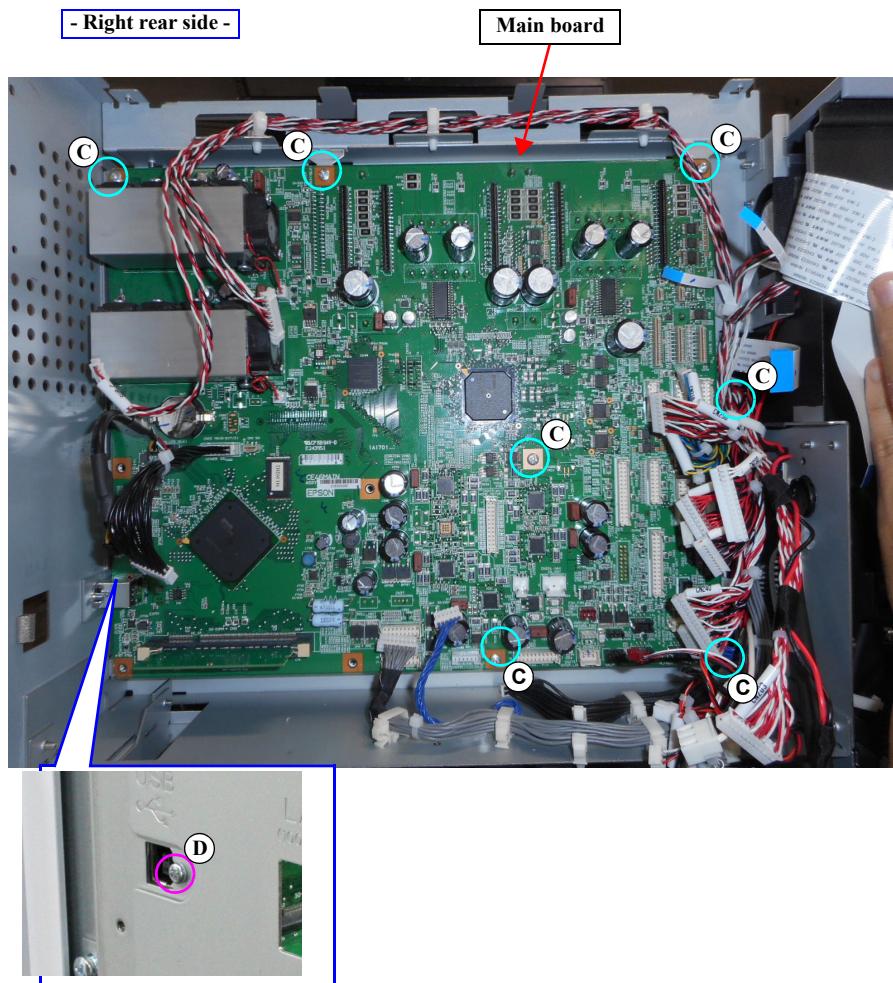


Figure 3-52. Removing the main board

3.4.3.2 Main-B board



When replacing/removing this part, refer to “[4.1.3 Adjustment Items and the Order by Repaired Part](#)” (p213) and make sure to perform the specified operations including required adjustment.

1. Remove the board box cover. ([p110](#))
2. Release the cable from the clamp on the main-B.
3. Disconnect the cables from the connectors (CN700, CN701) on the main-B board.
4. Remove the four screws, and remove the main-B board.
A) Silver M3x6 screw: 4 pcs

- Right rear side -

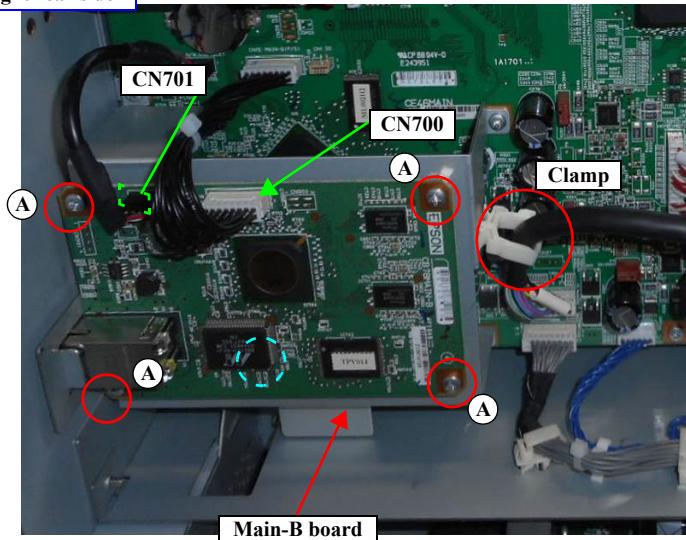


Figure 3-53. Removing the main-B board

3.4.3.3 PSH board/PSH-B board



When replacing/removing this part, refer to “[4.1.3 Adjustment Items and the Order by Repaired Part](#)” (p213) and make sure to perform the specified operations including required adjustment.



Always replace the two power supply boards (PSH board and PSH-B board) at the same time.

1. Remove the board box cover. ([p110](#))
2. Remove the sub-C board. (See [Step 2](#) to [Step 4](#) in “3.4.3.1 Main board” (P. 118))
3. Remove the M/B cover. (See [Step 4](#) in “3.4.2.2 Right upper cover” (P. 94))
4. Remove the two screws, and remove the shield plate.

A) Silver M3x6 screw: 2 pcs

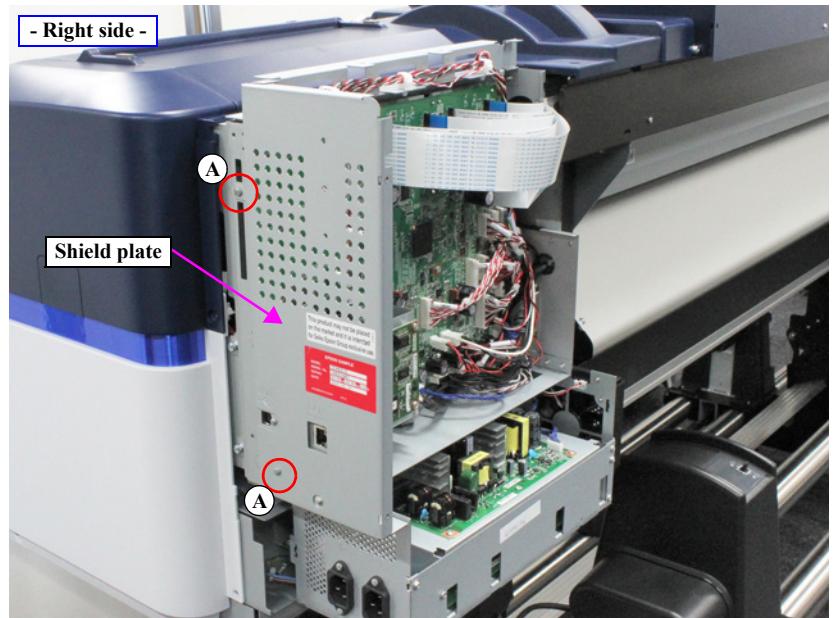


Figure 3-54. Removing the shield plate

5. Disconnect the cable from the connectors (CN408, CN700 and CN51) on the main board.
6. Release the cable of CN700 from the clamp, and pull them out on the box.

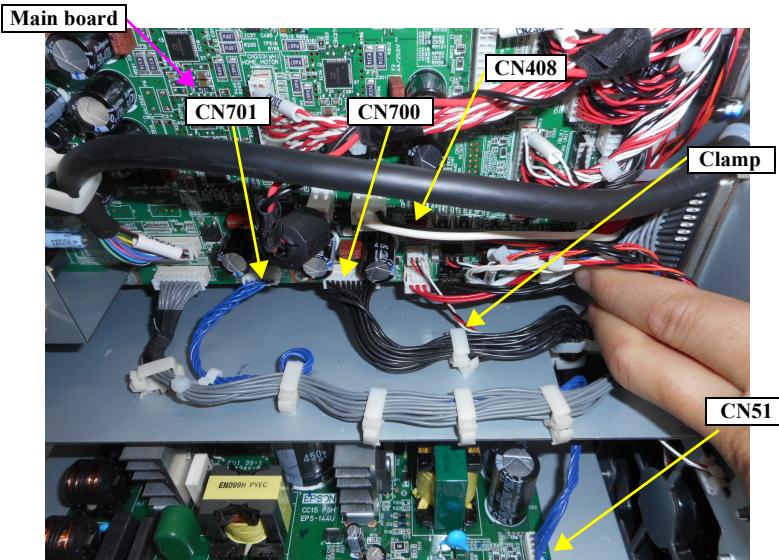


Figure 3-55. Releasing the cables

7. Release the cables from the two clamps.
 8. Remove the five screws, and remove the right rear cover.
- B) Silver M4x10 S-tite screw with washer and spring washer: 4 pcs
C) Silver M3x6 machine screw: 1 pcs

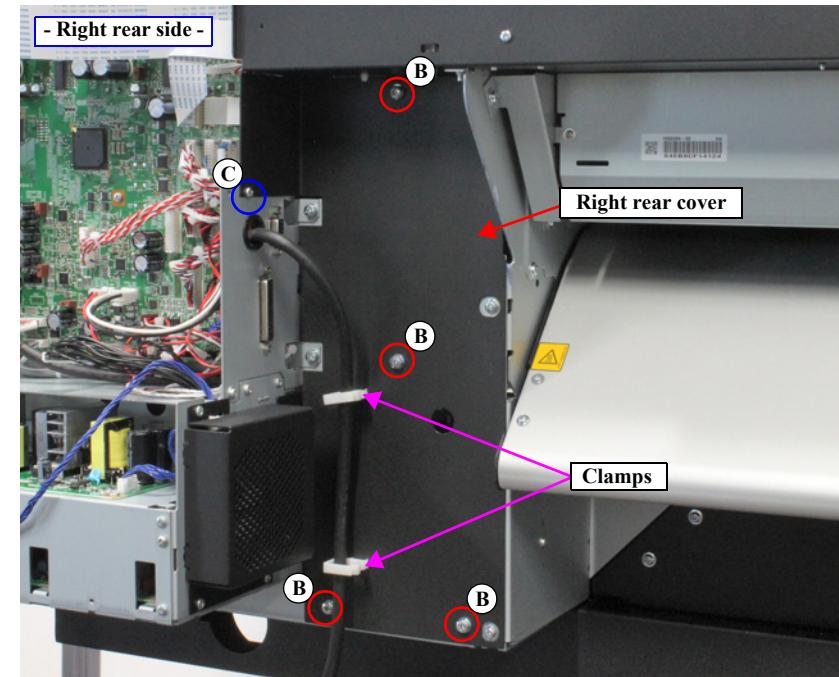


Figure 3-56. Removing the right rear cover

9. Disconnect the cable from the connector (CN1) on the sub-J board.
10. Release the cable from the clamp.

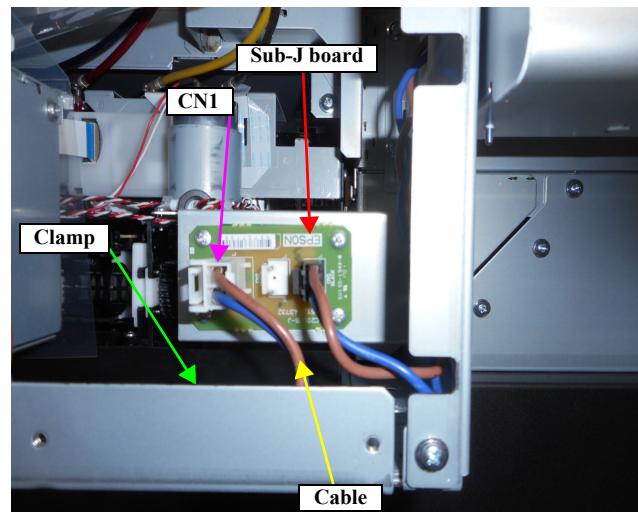


Figure 3-57. Releasing the cable

11. Remove the five screws that secure the power supply board box.
D) Silver M4x10 S-tite screw with washer and spring washer: 2 pcs
E) Silver M3x6 machine screw: 3 pcs
12. Slide the power supply board box in the direction of the arrow, and remove it toward the rear of the printer.

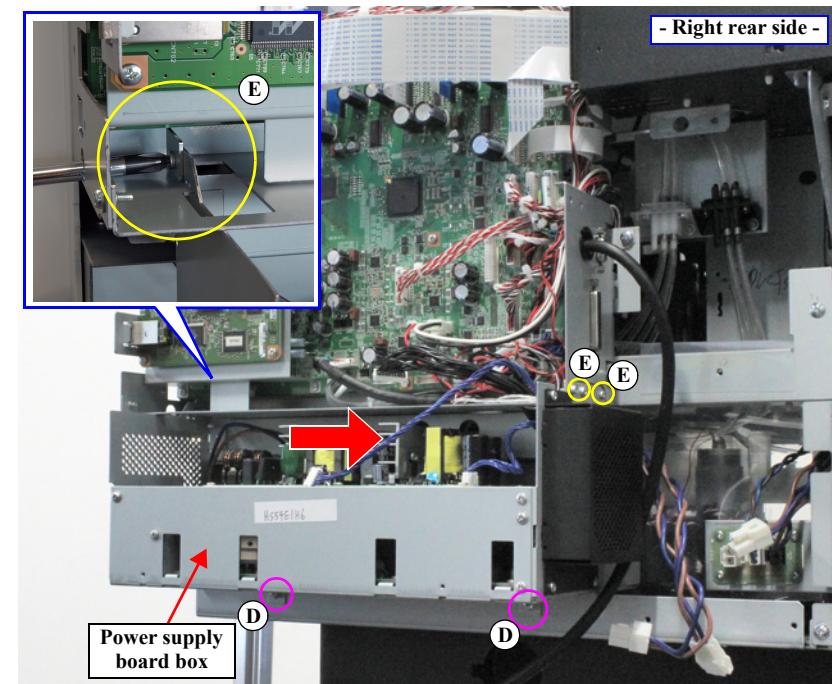


Figure 3-58. Removing the power supply board box

13. Release the cable from the clamp.

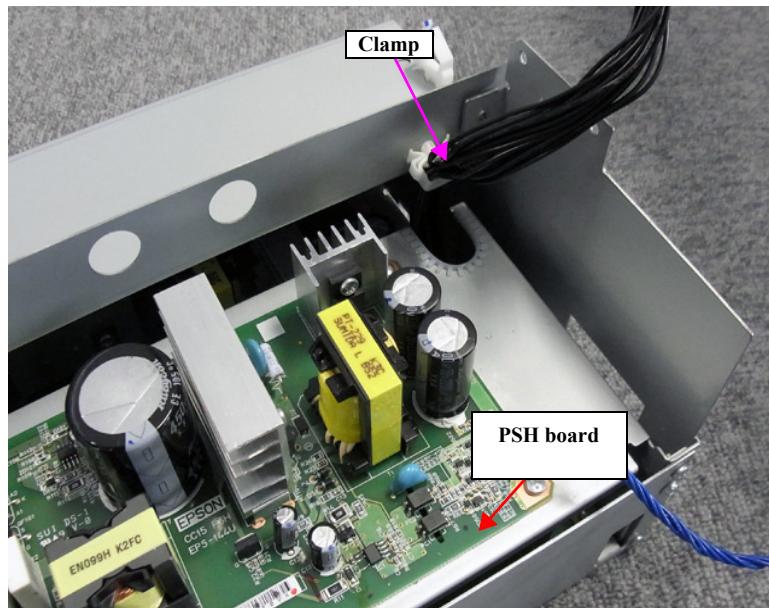


Figure 3-59. Removing the power supply board box cover

14. Release the cables from the three clamps of the power supply board box cover.

15. Remove the five screws, and remove the power supply board box cover.

F) Silver M3x6 screw: 5 pcs

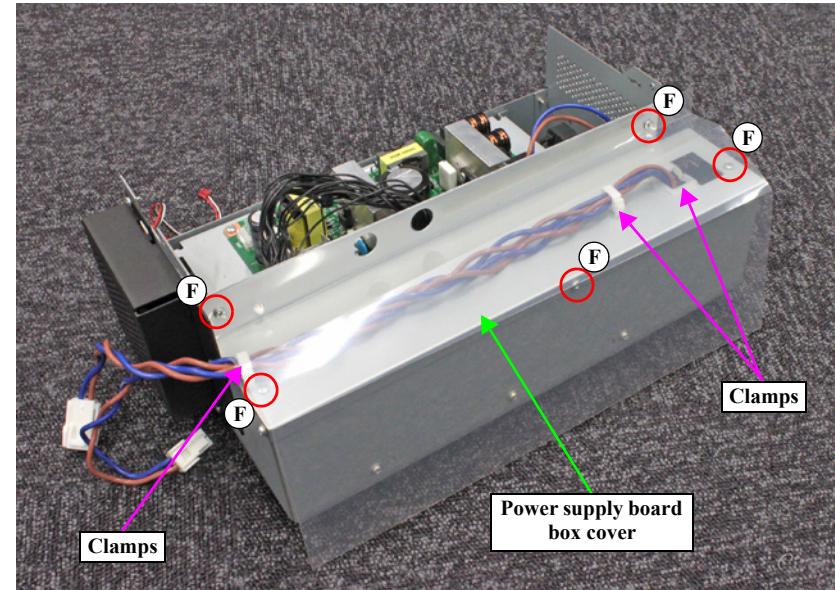


Figure 3-60. Removing the power supply board box cover

16. Disconnect the cable from the connector (CN1) on the PSH board.
 17. Remove the six screws, and remove the PSH board.
- G) Silver M3x6 screw: 6 pcs

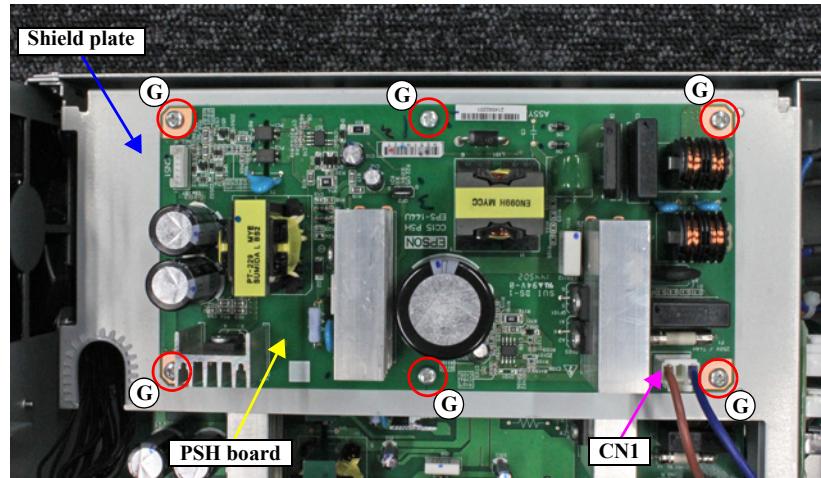


Figure 3-61. Removing the PSH board

18. Remove the four screws, and remove the shield plate (See [Figure 3-61](#)).
- H) Silver M3x6 screw: 4 pcs

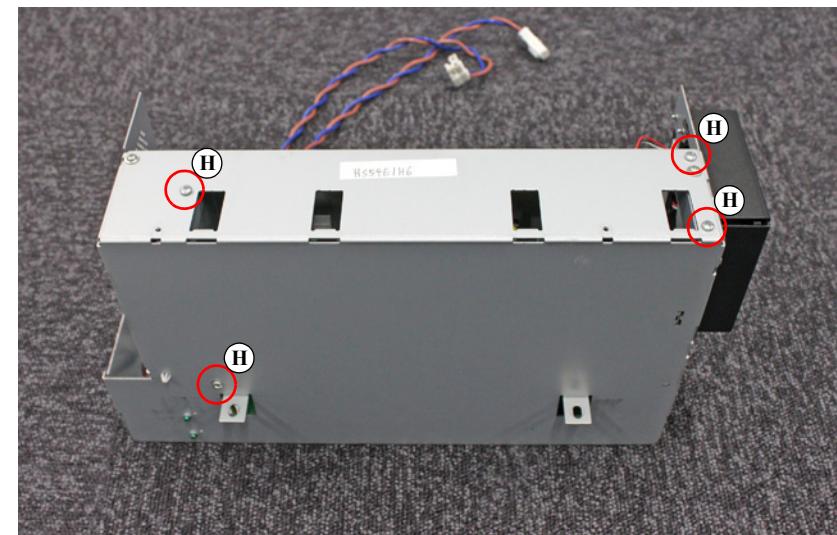


Figure 3-62. Shield plate fixing screws

19. Disconnect the cables from the connectors (CN1, CN2) on the sub-J board.

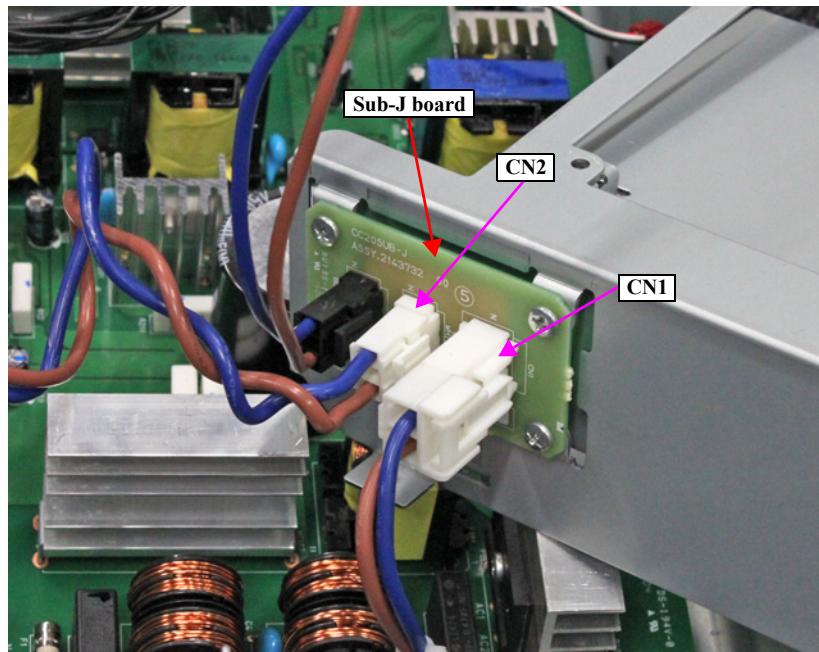


Figure 3-63. Disconnecting the cables (sub-J board)

20. Disconnect the cables from the connectors (CN1, CN2, and CN51) on the PSH-B board.

21. Remove the nine screws, and remove the PSH-B board.

I) Silver M3x6 screw: 9 pcs

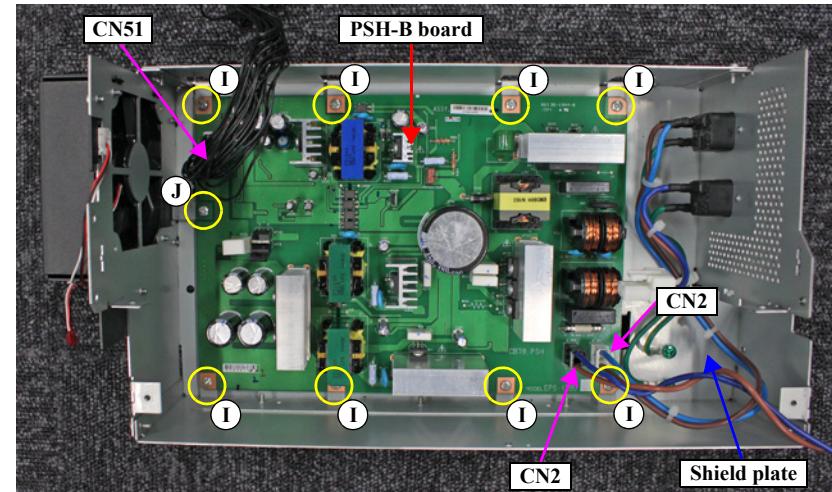


Figure 3-64. Removing the PSH-B board

3.4.3.4 Sub board

1. Unlock the CR unit. [\(p90\)](#)
2. Remove the tube cover cap. [\(p103\)](#)
3. Remove the left upper cover. [\(p104\)](#)
4. Remove the CR cover. [\(p135\)](#)
5. Disconnect all cables and FFCs from the sub board.
6. Remove the four screws, and remove the sub board.

A) Silver M3x8 P-tite screw: 4 pcs

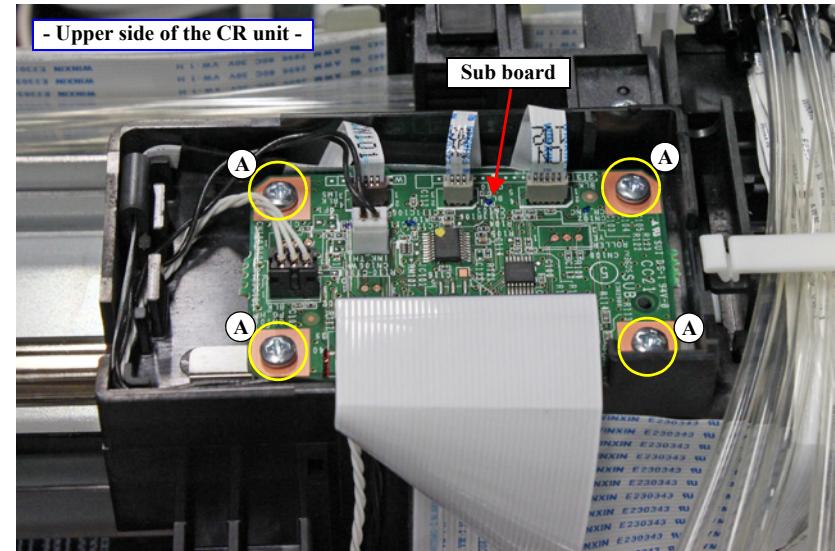


Figure 3-65. Removing the sub board

3.4.3.5 Sub-E board

1. Remove the after heater. ([p202](#))
 2. Release the cables from the clamp.
 3. Remove the five screws, and remove the sub-E board cover.
- A) Silver M3x8 Screw with built-in washer (round point): 5 pcs



When installing the sub-E board cover, be careful not to let the cables get caught between the sub-E board cover and the main body.

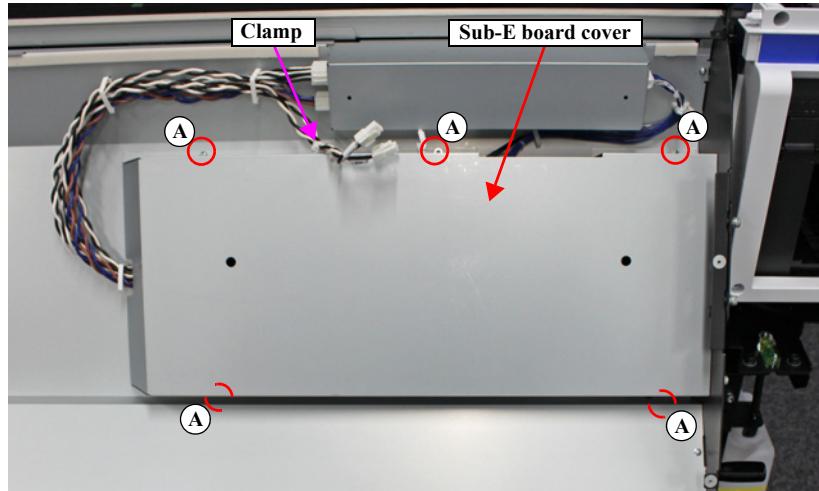


Figure 3-66. Removing the sub-E board cover

4. Disconnect all cables from the sub-E board.
 5. Remove the seven screws, and remove the sub-E board.
- B) Silver M3x6 S-tite screw: 7 pcs

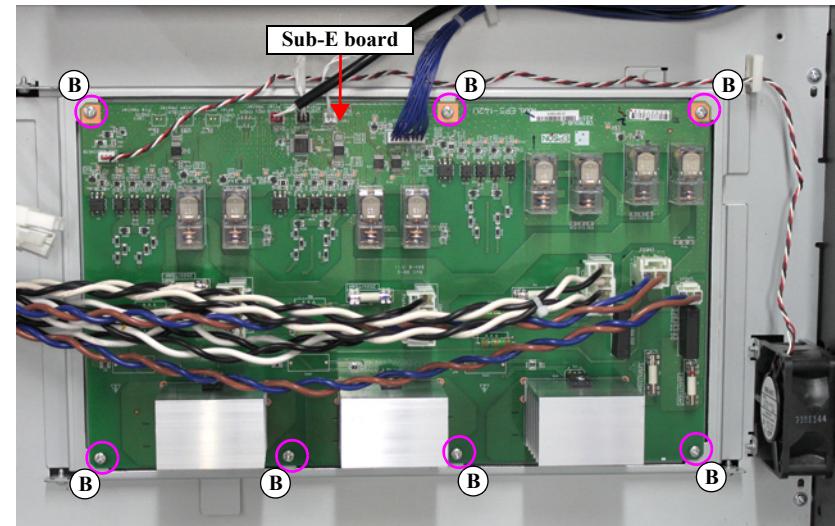


Figure 3-67. Removing the sub-E board

3.4.3.6 Sub-M board

1. Remove the panel unit. ([p92](#))
 2. Remove the media loading lever. ([p187](#))
 3. Remove the right upper cover. ([p94](#))
 4. Remove the right cover. ([p102](#))
 5. Remove the two screws, and remove the sub-M board cover.
- A) Silver M3x6 screw: 2 pcs



When installing the sub-M board cover, insert the two dowels of the frame into the two positioning holes on the sub-M board cover.s

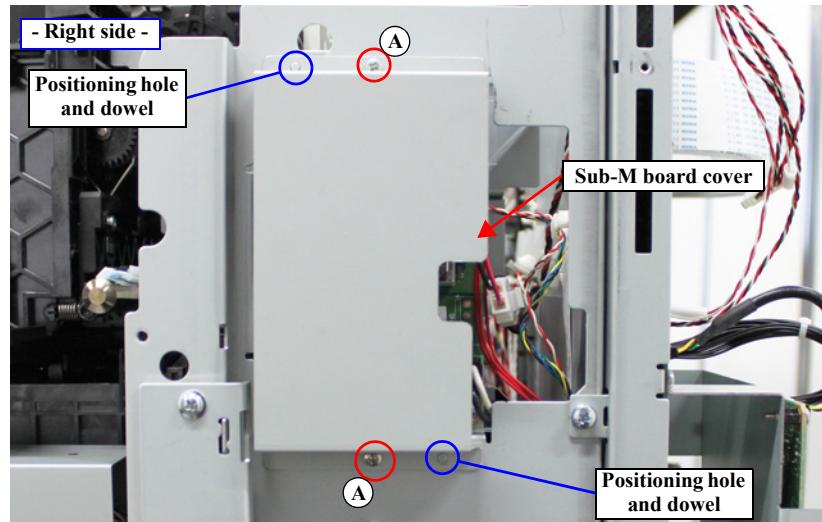


Figure 3-68. Removing the sub-M board cover

6. Disconnect all cables connected to the sub-M board.
 7. Remove the four screws, and remove the sub-M board.
- B) Silver M3x6 screw: 4 pcs

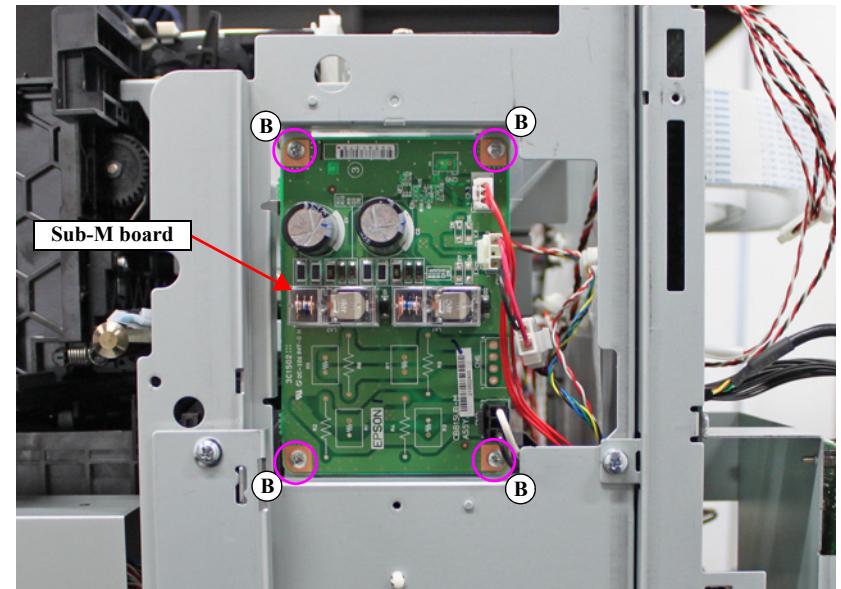


Figure 3-69. Removing the sub-M board

3.4.3.7 Box cooling fan

CHECK POINT

When replacing the box cooling fan, make sure to also replace the duct.

1. Remove the panel unit. ([p92](#))
2. Remove the media loading lever. ([p187](#))
3. Remove the right upper cover. ([p94](#))
4. Remove the tube cover cap. ([p103](#))
5. Remove the left upper cover. ([p104](#))
6. Remove the upper cover. ([p108](#))
7. Remove the board box cover. ([p110](#))
8. Disconnect the cable from the connector (CN40) on the main board.
9. Release the cable from the clamp.

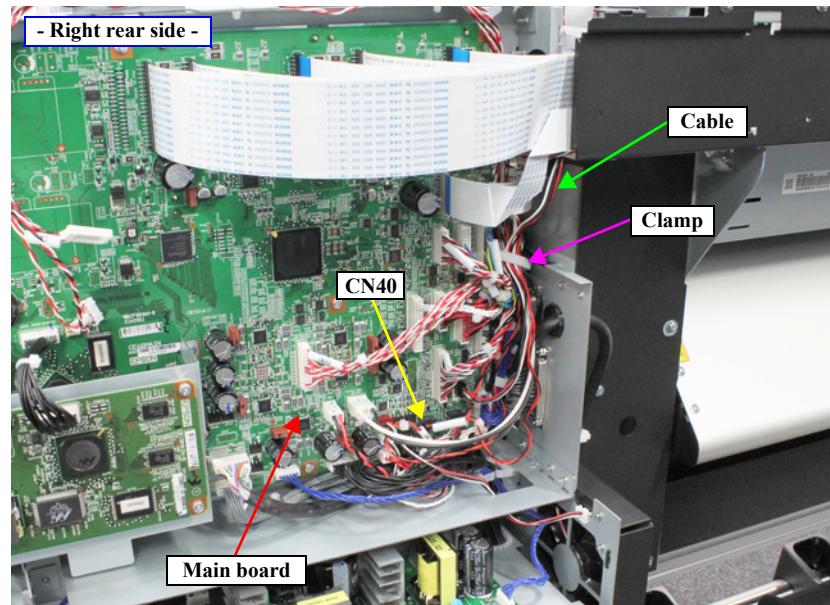
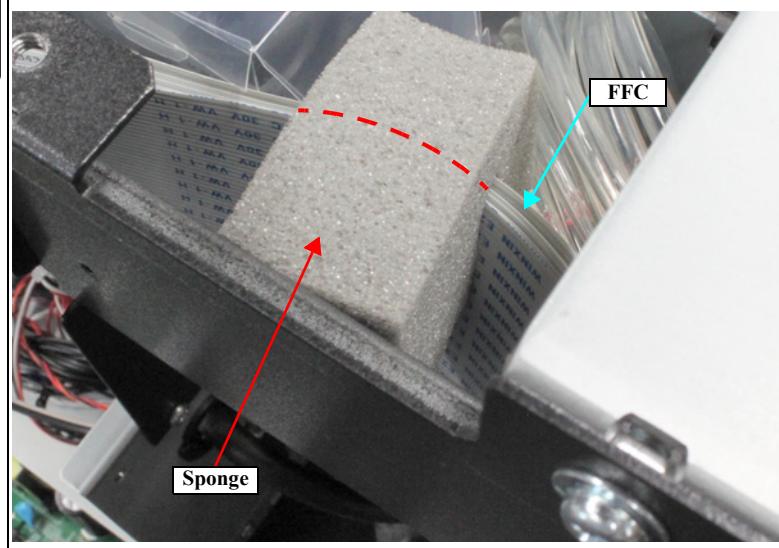


Figure 3-70. Releasing the cable

10. Remove the sponge that secures the FFC.

REASSEMBLY

Insert the FFC into the cut on the sponge.



11. Insert a screwdriver into the duct to remove the two screws, and remove the box cooling fan.

A) Silver M3x12 screw: 2 pcs



When installing the box cooling fan, be careful not to let the cable get caught between the fan and the frame.

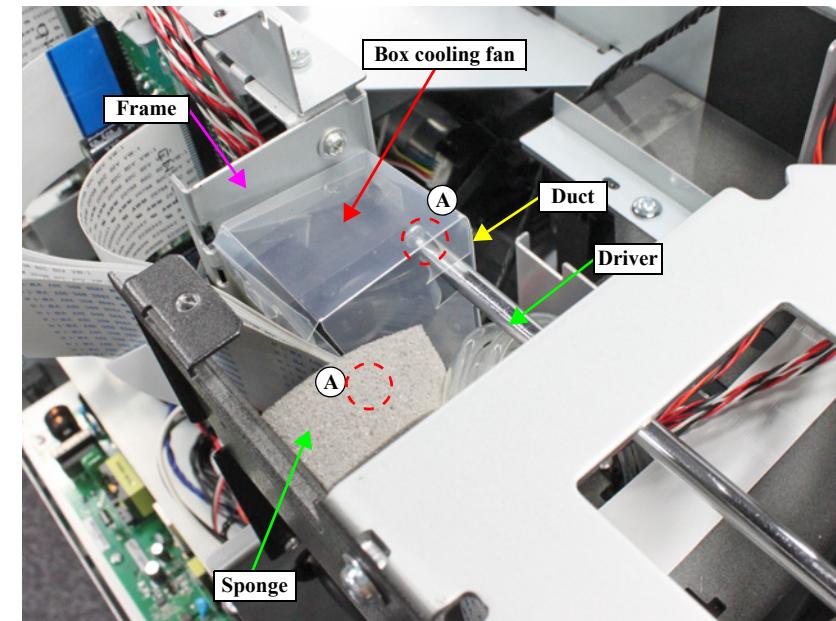


Figure 3-71. Removing the box cooling fan



- The duct provided as an ASP needs to be built as shown before installing it to the printer.

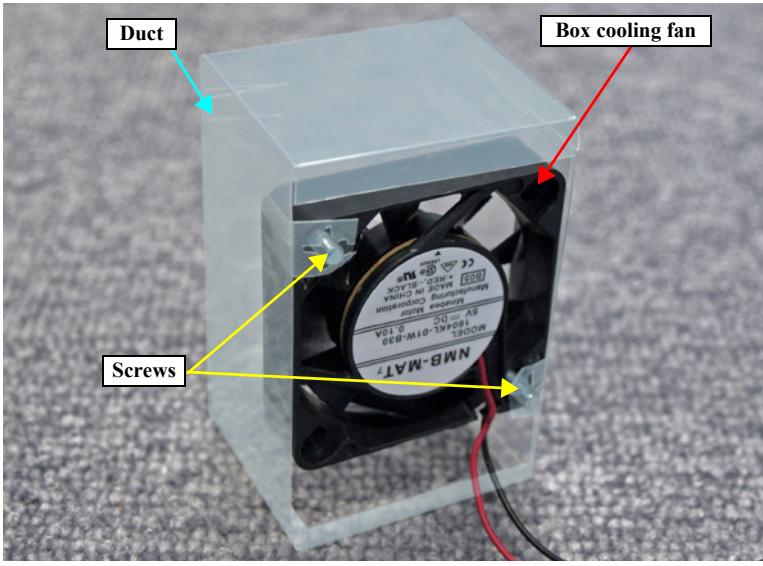


Provided like this



Build it like this

- When installing the box cooling fan, attach it and the screws to the duct in advance.



3.4.3.8 PS board cooling fan

1. Remove the board box cover. ([p110](#))
2. Disconnect the cable from the connector (CN408) on the main board.
3. Release the cable from the two clamps.

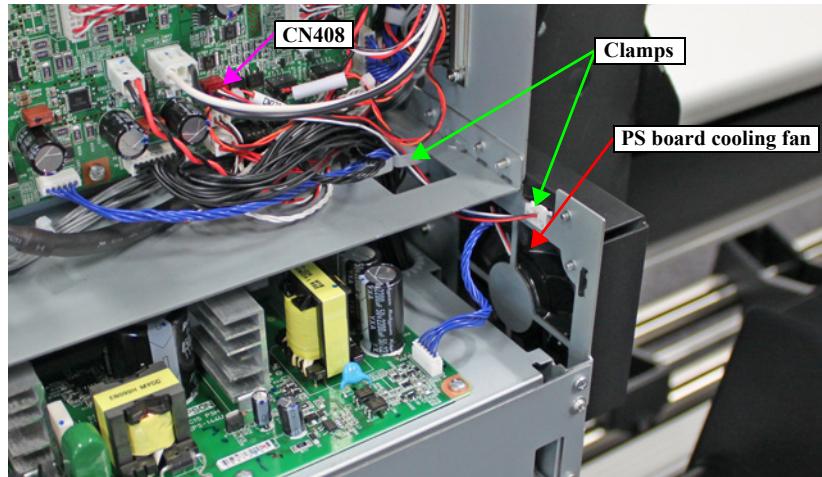


Figure 3-72. Releasing the cable

4. Remove the four screws, and remove the PS fan cover.

A) Silver M3x6 screw: 4 pcs

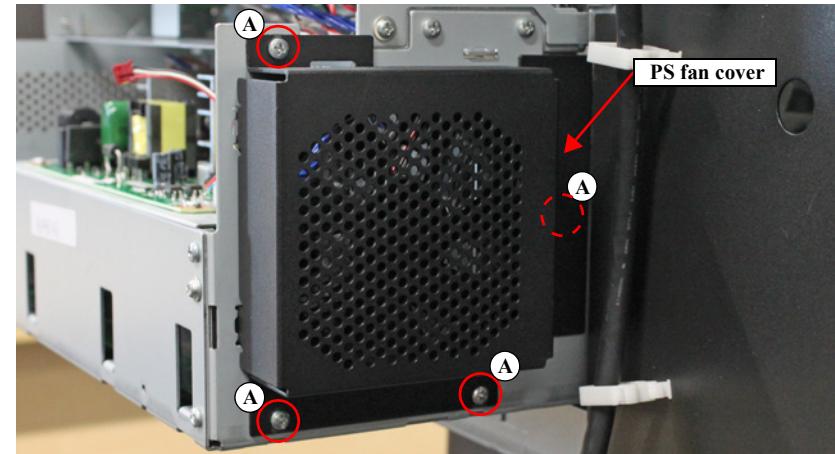


Figure 3-73. Removing the PS fan cover

5. Remove the two screws, and remove the PS board cooling fan.

B) Silver M3x30 screw: 2 pcs

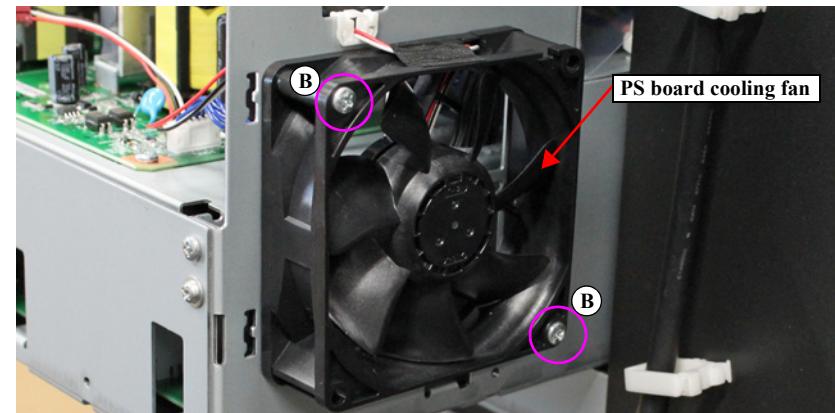


Figure 3-74. Removing the PS board cooling fan



Be careful of the orientation of the PS board cooling fan during installation. Make sure to attach it with the side without the label outward.

3.4.3.9 LED board

1. Remove the upper cover. ([p108](#))
2. Disconnect the cable from connector.
3. Remove the four screws, and remove the LED board together with the mounting plate.

A) Silver M3x6 Screw with built-in washer (round point): 4 pcs

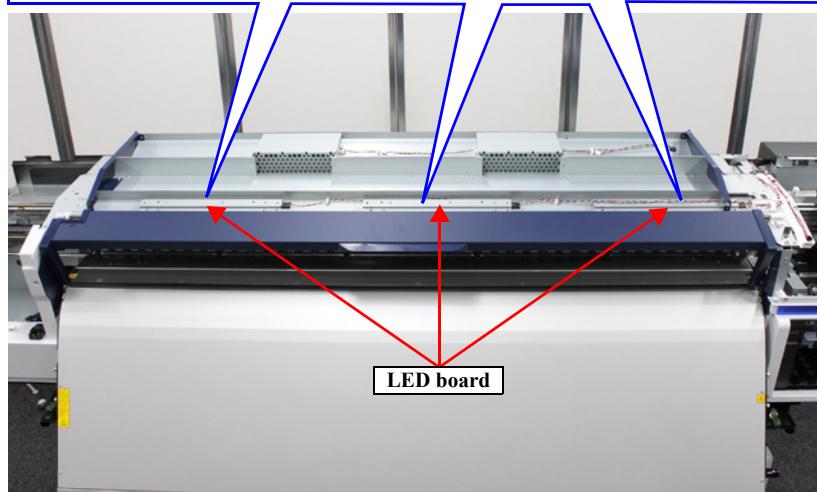
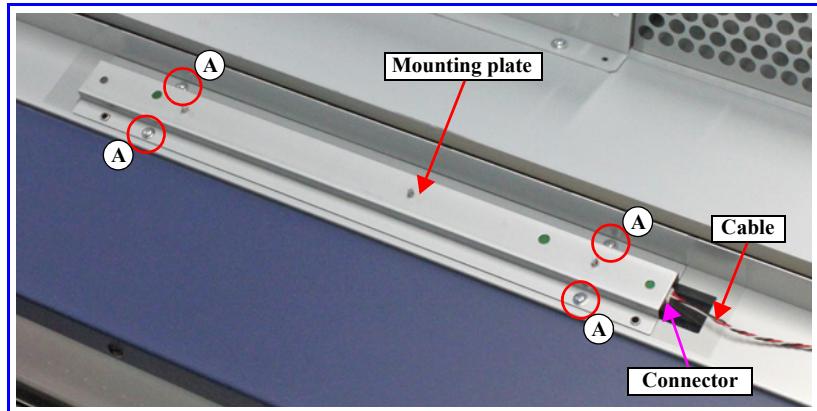


Figure 3-75. Removing the mounting plate

4. Loosen the three screws.
5. Remove the LED board while sliding it.

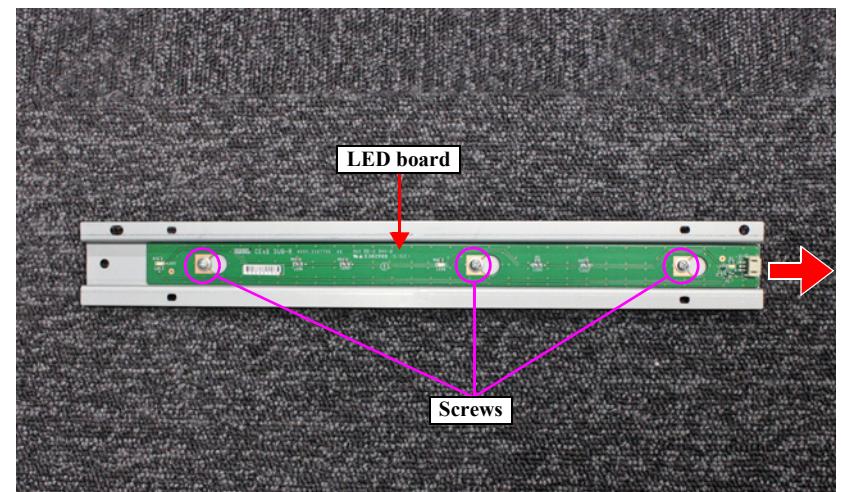


Figure 3-76. Removing the LED board

3.4.4 Carriage Mechanism/Ink System Mechanism

3.4.4.1 CR cover

1. Unlock the CR unit. ([p90](#))
2. Remove the tube cover cap. ([p103](#))
3. Remove the left upper cover. ([p104](#))
4. Move the CR unit to the left end.
5. Remove the three screws, and remove the CR cover.
A) Silver M3x8 P-tite screw: 3 pcs

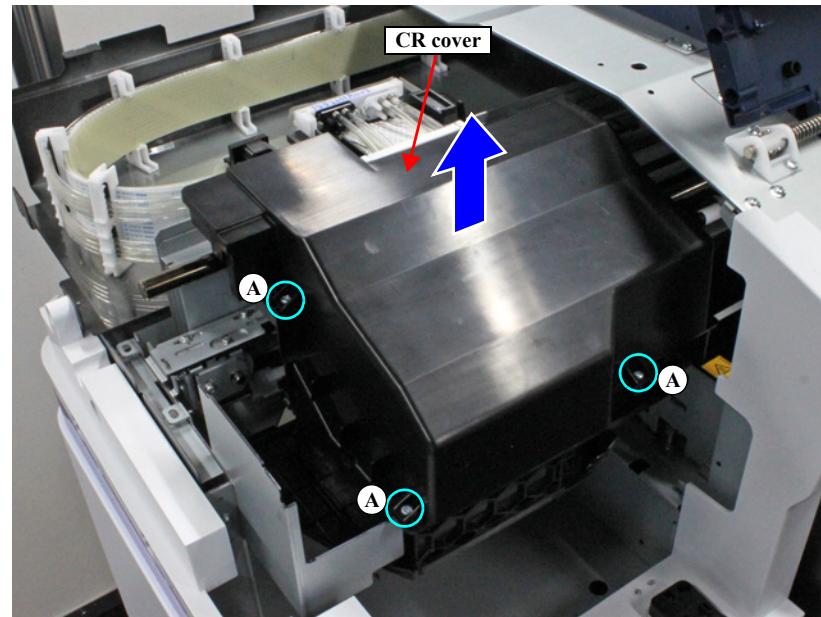


Figure 3-77. Removing the CR cover

3.4.4.2 Duct CR



When replacing/removing this part, refer to “4.1.3 Adjustment Items and the Order by Repaired Part” (p213) and make sure to perform the specified operations including required adjustment.

1. Unlock the CR unit. (p90)
2. Remove the tube cover cap. (p103)
3. Remove the left upper cover. (p104)
4. Remove the CR cover. (p135)
5. Remove the FFC clamp.
6. Remove the two screws that secure the ink path holder assy.

A) Silver M3x10 Machine screw: 2 pcs

7. Disengage the FFC from the hooks and hold up the ink path holder assy.

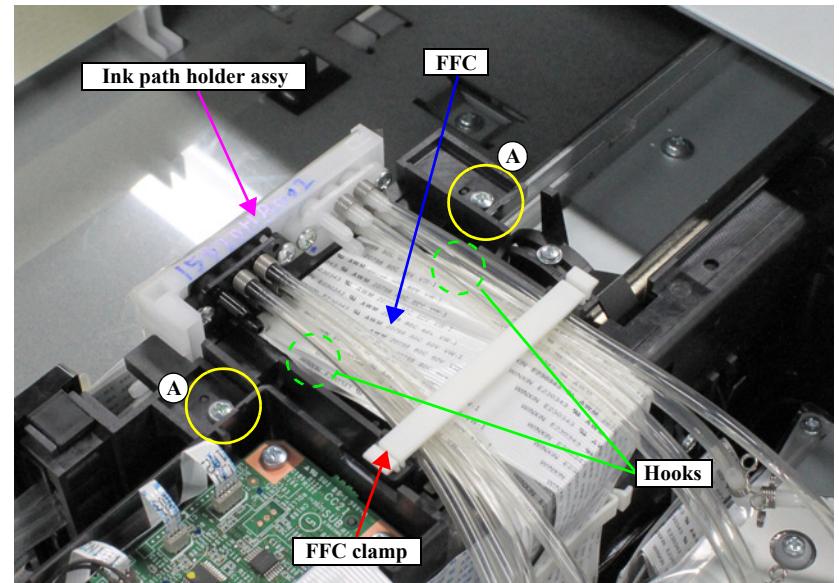


Figure 3-78. Holding up the ink path holder assy



When the ink path joint is removed at the following step, ink may drip off from the tube. Prepare a waste cloth or the like in advance and be careful not to contaminate the surroundings.

8. Remove the two each screws that secure the ink path joint, and remove the ink path joint.
B) Silver M3x10 Machine screw: each 2 pcs
9. Remove the two each joint rubbers from the ink path joint.



When reassembling, be sure to observe the following precautions. Otherwise, ink may leak.

- Moisten the joint rubbers with cleaning liquid, then insert them over the ink path joints as far as they will go.
- Secure the screws that secure the ink supply tube with tightening torque about 0.29 ± 0.05 Nm. Make sure to use an accurately-calibrated torque screwdriver.
- Confirm there are no foreign objects attached on the joint rubbers.
- If the joint rubbers are deformed, restore it to its original shape manually.

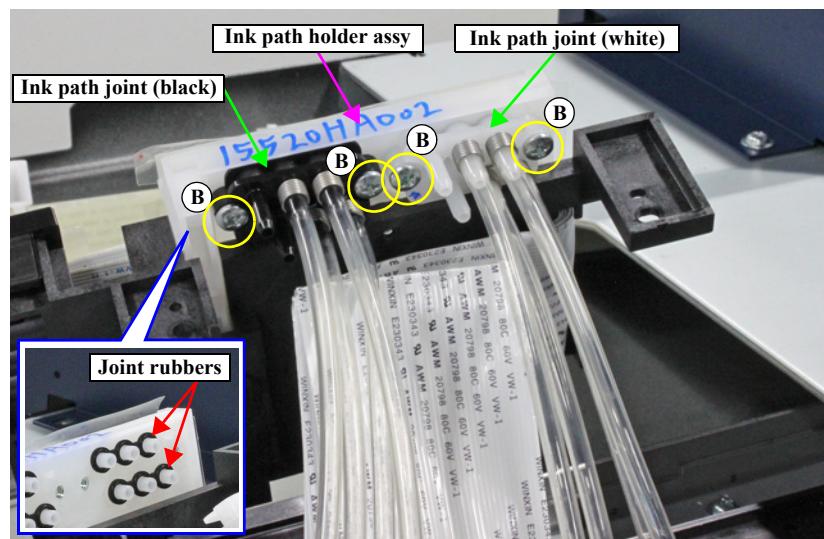


Figure 3-79. Removing the ink path joint

10. Remove the screws that secure the duct CR.
C) Silver M3x10 Machine screw: 6 pcs
11. Lift the duct CR and remove it from the CR unit.

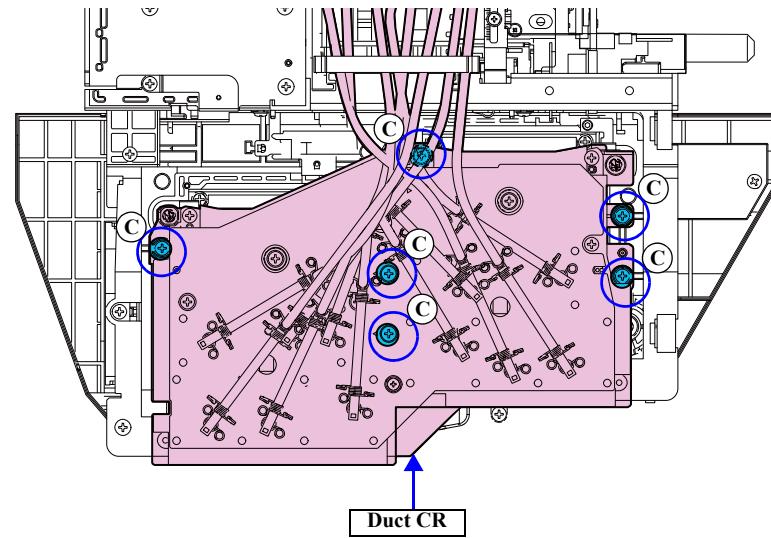


Figure 3-80. Duct CR

3.4.4.3 Print head



When replacing/removing this part, refer to “[4.1.3 Adjustment Items and the Order by Repaired Part](#)” (p213) and make sure to perform the specified operations including required adjustment.



Be careful not to touch the nozzle surface of the print head.

1. Unlock the CR unit. ([p90](#))
2. Remove the tube cover cap. ([p103](#))
3. Remove the left upper cover. ([p104](#))
4. Remove the CR cover. ([p135](#))
5. Remove the FFC clamp.
6. Remove the two screws that secure the ink path holder assy.
A) Silver M3x10 Machine screw: 2 pcs
7. Disengage the FFC from the hooks and hold up the ink path holder assy.

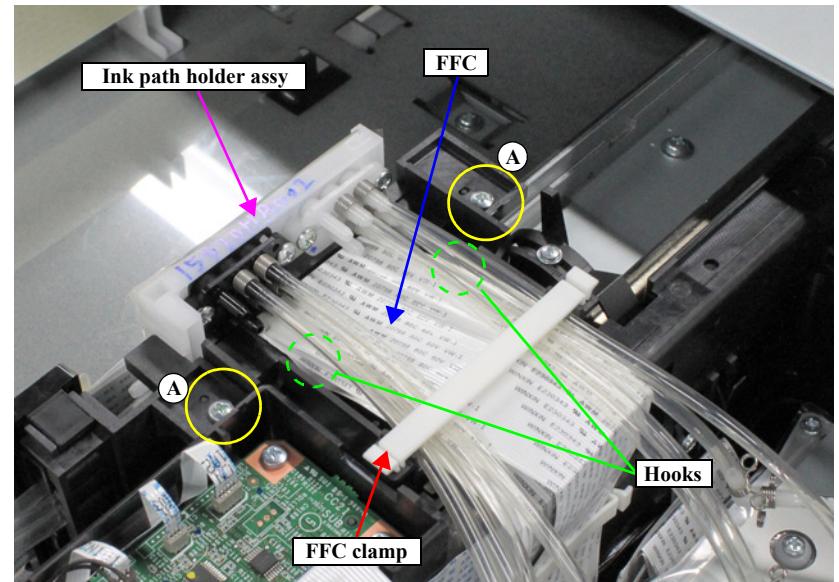


Figure 3-81. Holding up the ink path holder assy



When the duct CR is removed at the following step, ink may drip off from the duct CR. Prepare a waste cloth or the like in advance and be careful not to contaminate the surroundings.

8. Remove the screws that secure the duct CR.
B) Silver M3x10 Machine screw: 6 pcs
9. Lift the duct CR to remove it from the CR unit.

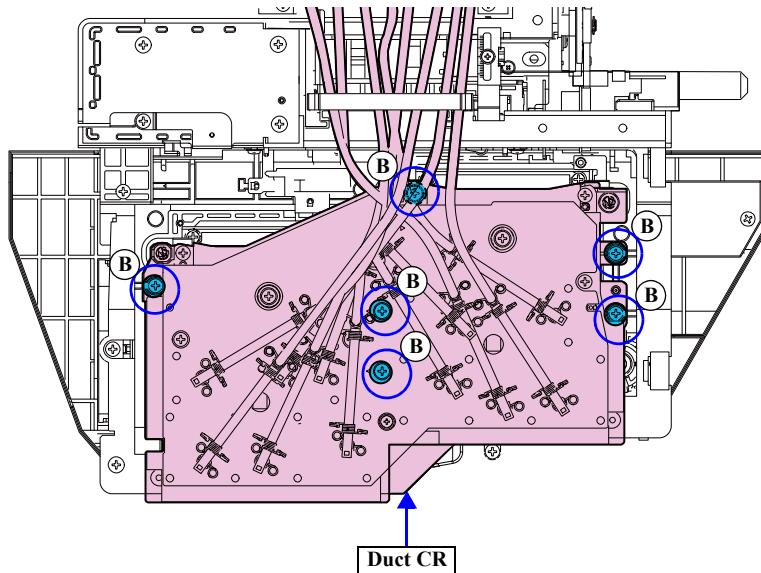


Figure 3-82. Duct CR

10. Attach the hooks of the duct CR to the frame as shown.

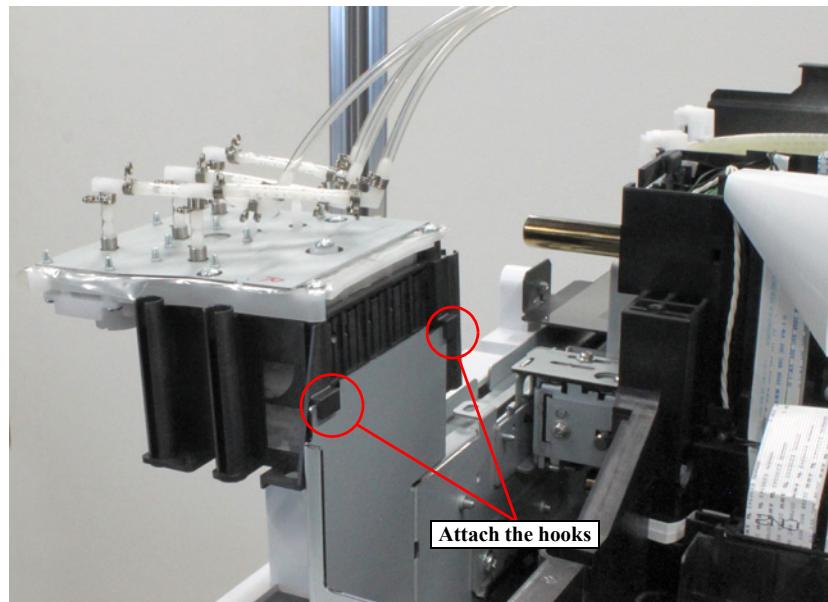


Figure 3-83. Temporarily placing the duct CR

11. Release the FFC from the clamp.
12. Disconnect the head FFCs from the print head.
13. Remove the three each screws, and remove the print head.
C) Silver M2.6x8 (Bit No.1) machine screw: each 3 pcs



Make sure to connect the head FFCs straight and all the way seated in the connector.

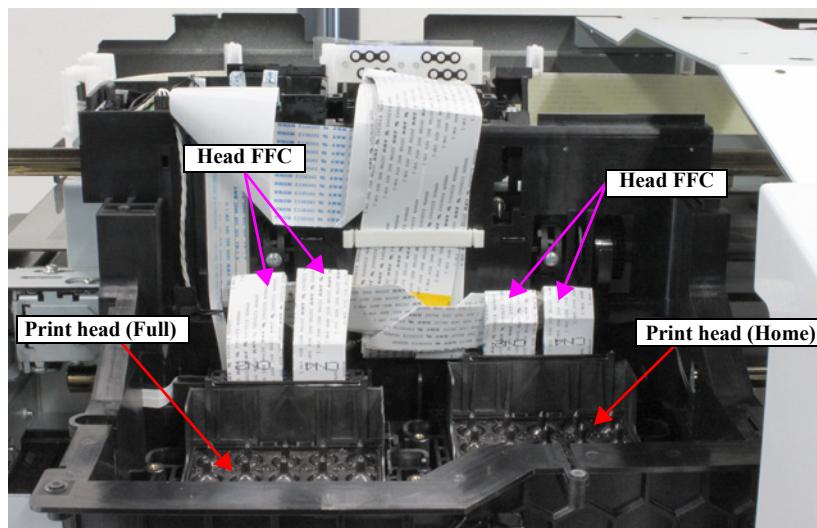


Figure 3-84. Removing the head FFC

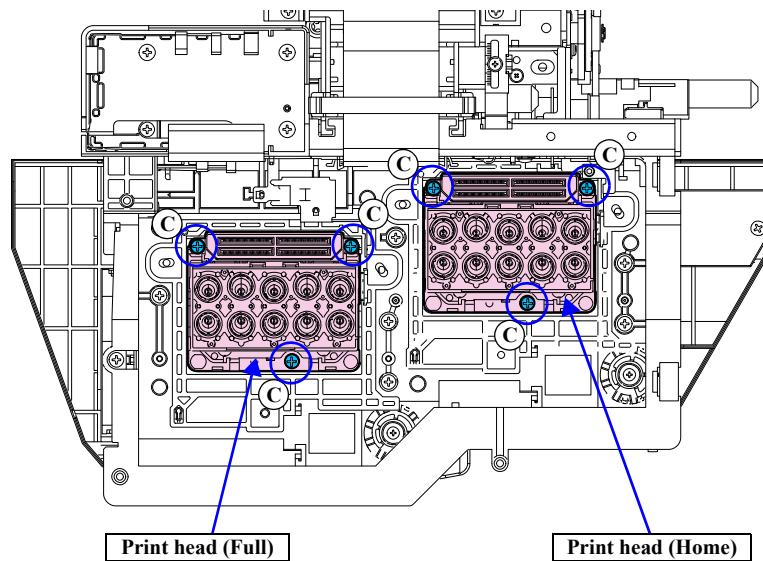


Figure 3-85. Print head

3.4.4.4 Head FFC

1. Remove the panel unit. ([p92](#))
2. Remove the media loading lever. ([p187](#))
3. Remove the right upper cover. ([p94](#))
4. Remove the tube cover cap. ([p103](#))
5. Remove the left upper cover. ([p104](#))
6. Remove the upper cover. ([p108](#))
7. Remove the CR cover. ([p135](#))
8. Remove the duct CR. ([p136](#))
9. Release the FFCs from the clamp.
10. Disconnect the head FFCs from the print head.



Make sure to connect the head FFCs straight and all the way seated in the connector.

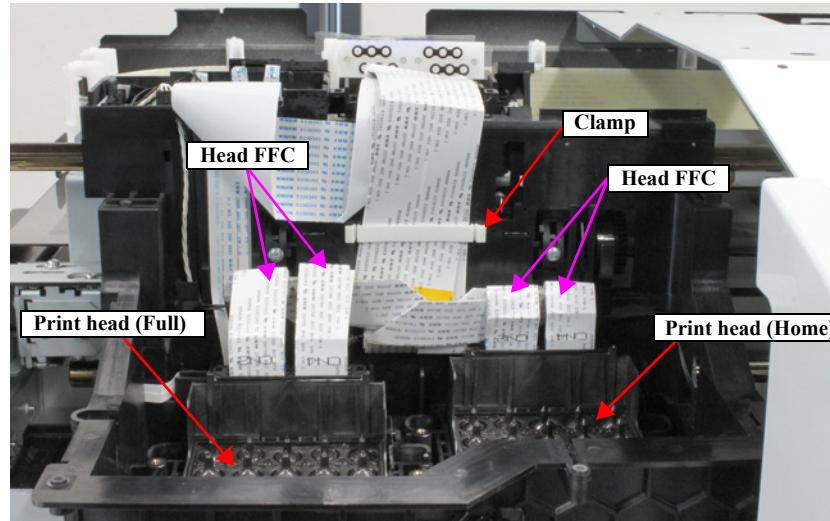


Figure 3-86. Removing the head FFC

11. Disengage the two hooks, and remove the FFC holder.

12. Release the head FFC from the ink path holder assy.

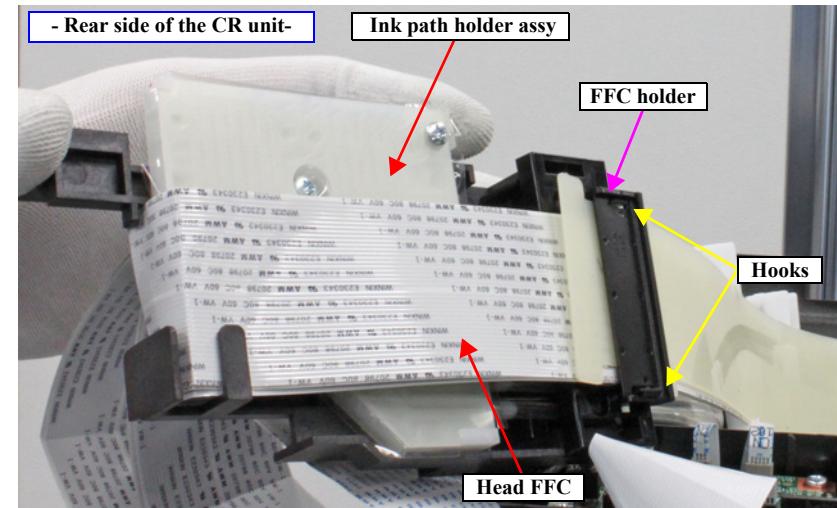


Figure 3-87. Removing the FFC holder

13. Remove the two guide plate from the 16 FFC holders.

14. Release head FFC from the 16 FFC holders.

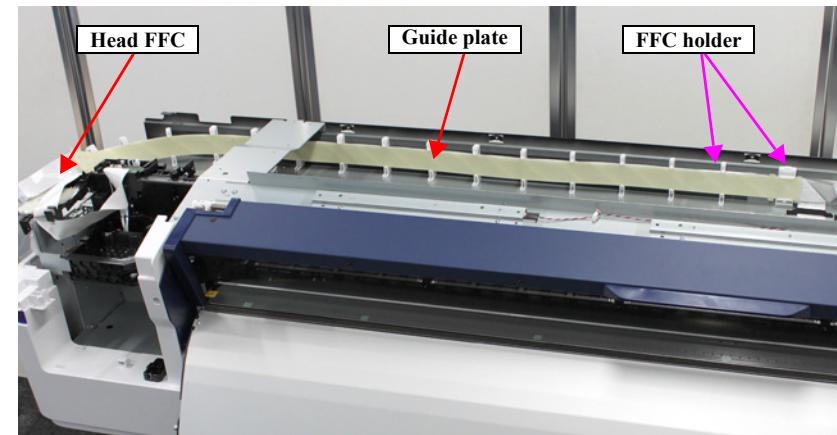


Figure 3-88. Releasing the head FFC

15. Peel off the five pieces of acetate tape.
16. Remove the cover from the two hooks of the frame.
17. Disconnect the head FFC from the connectors (CN404, CN405, CN406, CN407) on the sub-D board.



When routing the head FFC through the ink path holder assy, make sure to let the FFC run under the hooks as shown below.

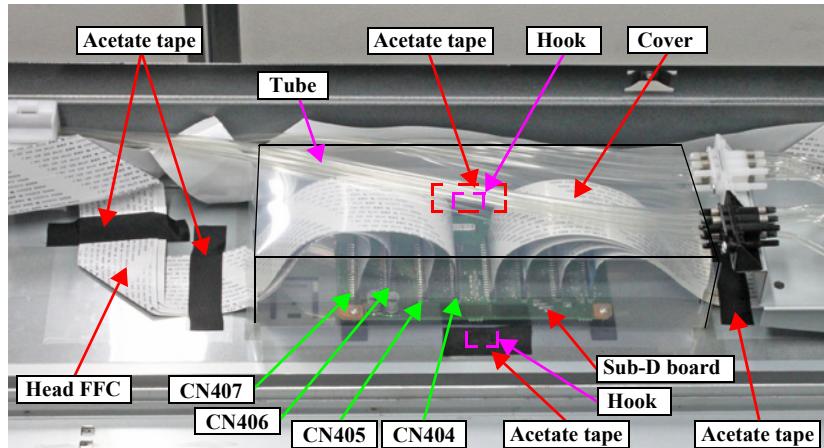
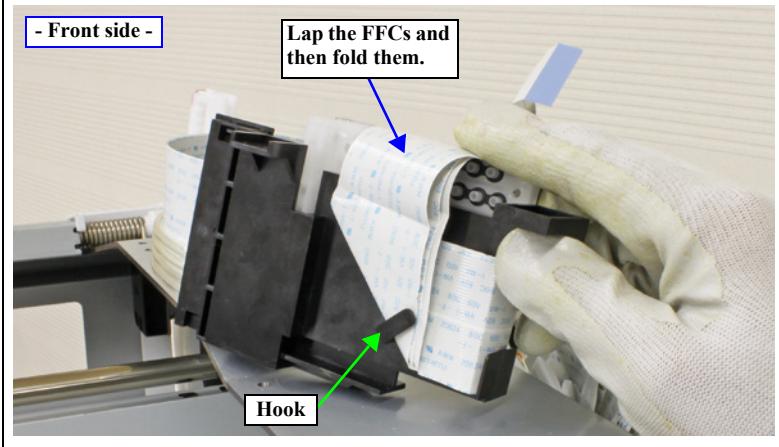
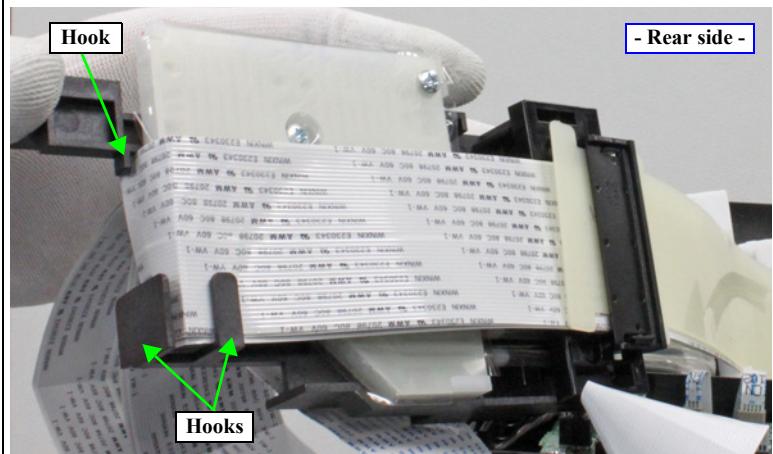
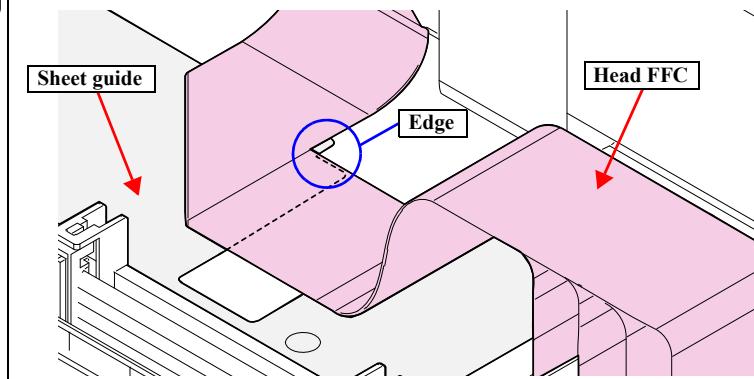


Figure 3-89. Removing the head FFC



- Route the head FFC under the tube. ([Figure 3-88](#))
- Fold the head FFC as shown below using the edge on the sheet guide as a guide.



3.4.4.5 Head relay FFC

1. Remove the panel unit. (p92)
2. Remove the media loading lever. (p187)
3. Remove the right upper cover. (p94)
4. Remove the tube cover cap. (p103)
5. Remove the left upper cover. (p104)
6. Remove the upper cover. (p108)
7. Remove the board box cover. (p110)
8. Remove the cover. (See Step 16 in “3.4.4.4 Head FFC” (P. 141))
9. Disconnect the head relay FFCs from the connectors (CN400, CN401, CN402, CN403) on the sub-D board.
10. Peel off the acetate tape.

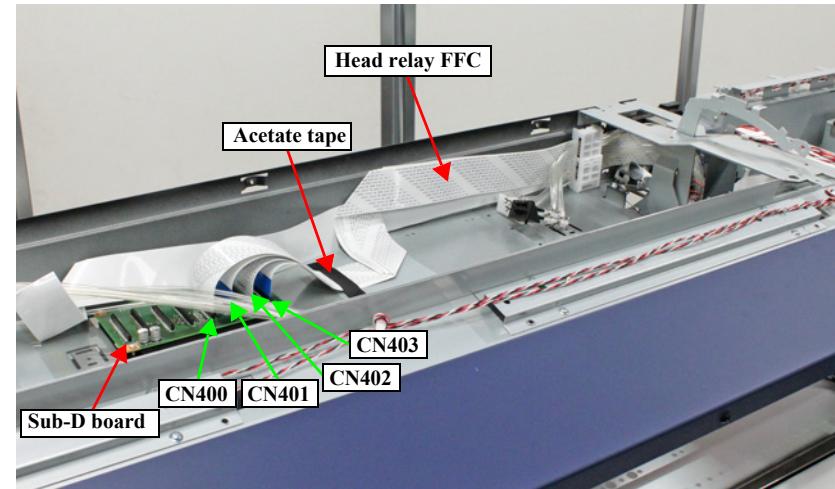


Figure 3-90. Releasing the head relay FFC

11. Remove the screw, and remove the FFC holder.
A) Silver M3x8 P-tite screw: 1 pcs
12. Remove the head relay FFC from the FFC holder.

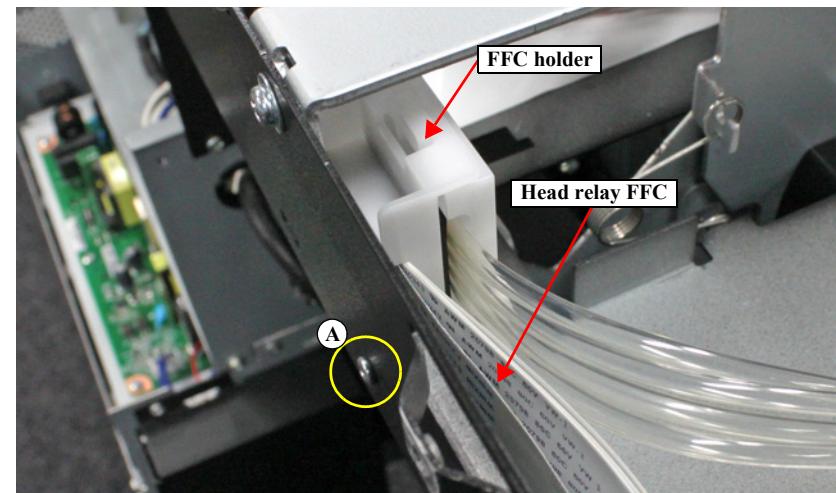


Figure 3-91. Removing the FFC holder

13. Remove the head relay FFC from the sponge.
14. Disconnect the head relay FFCs from the connectors (CN400, CN401, CN402, CN403) on the main board.
15. Pull out the head relay FFCs from the main body.

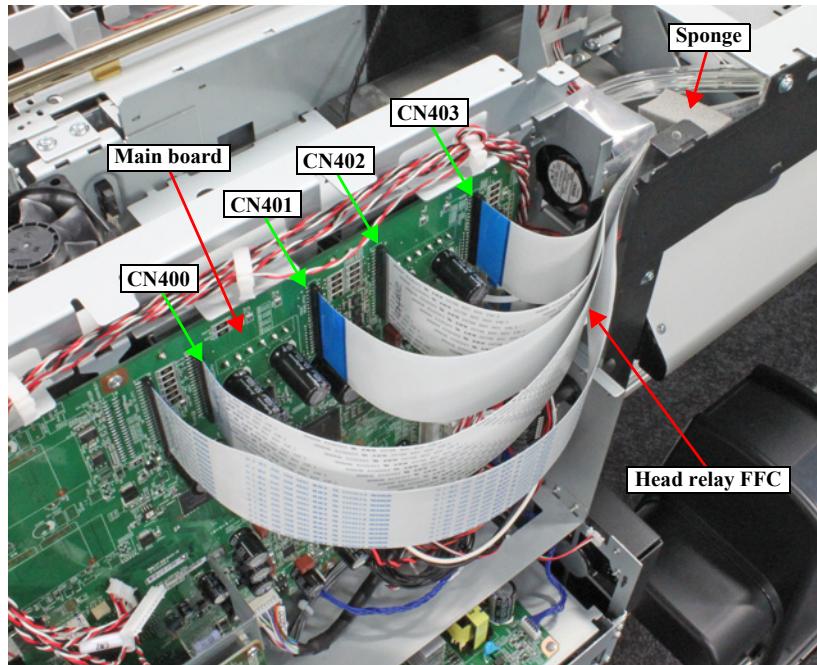


Figure 3-92. Removing the head relay FFC

3.4.4.6 CR FFC

1. Remove the panel unit. ([p92](#))
2. Remove the media loading lever. ([p187](#))
3. Remove the right upper cover. ([p94](#))
4. Remove the tube cover cap. ([p103](#))
5. Remove the left upper cover. ([p104](#))
6. Remove the upper cover. ([p108](#))
7. Remove the CR cover. ([p135](#))
8. Remove the duct CR. ([p136](#))
9. Remove the head FFC. ([p141](#))
10. Remove the board box cover. ([p110](#))
11. Disconnect the CR FFC from the connector on the sub board.
12. Disconnect the CR FFC from the ink path holder assy.

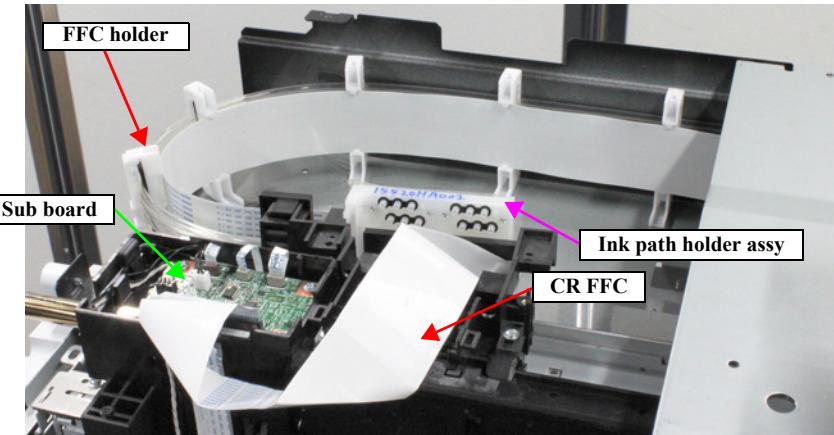


Figure 3-93. Releasing the CR FFC

13. Remove the screw, and remove the FFC holder.

A) Silver M3x8 P-tite screw: 1 pcs

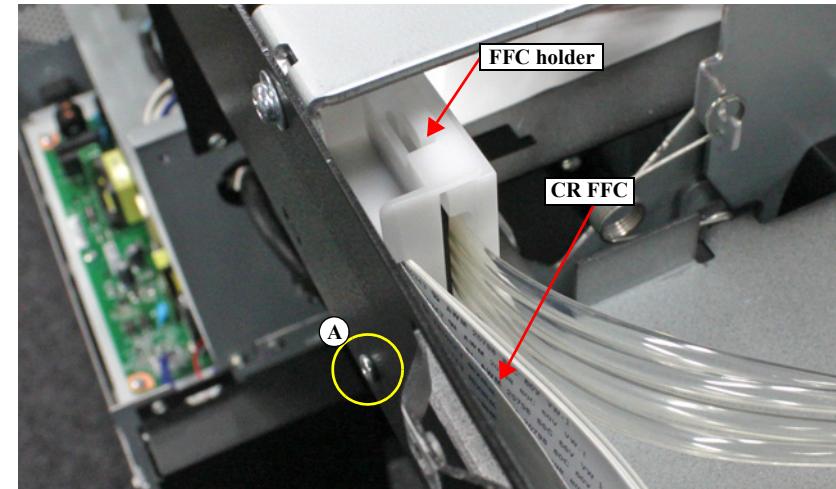


Figure 3-94. Removing the FFC holder

14. Remove the CR FFC from the 17 FFC holder.

15. Remove the CR FFC from the sponge.
16. Disconnect the CR FFC from the connector (CN100) on the main board.
17. Pull out the CR FFC from the main body.



Route the CR FFC and head relay FFC into the space between the frame and the FFC holder (home side).

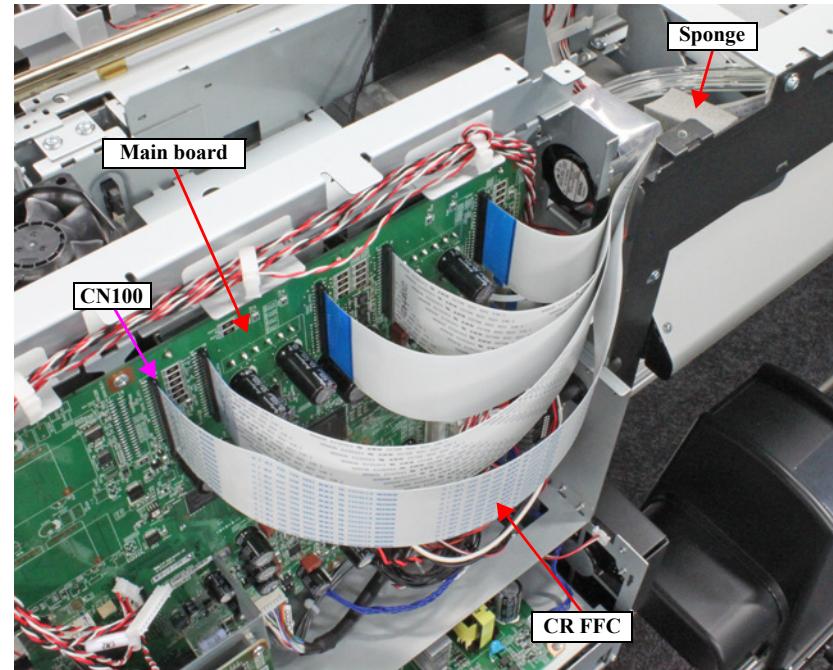
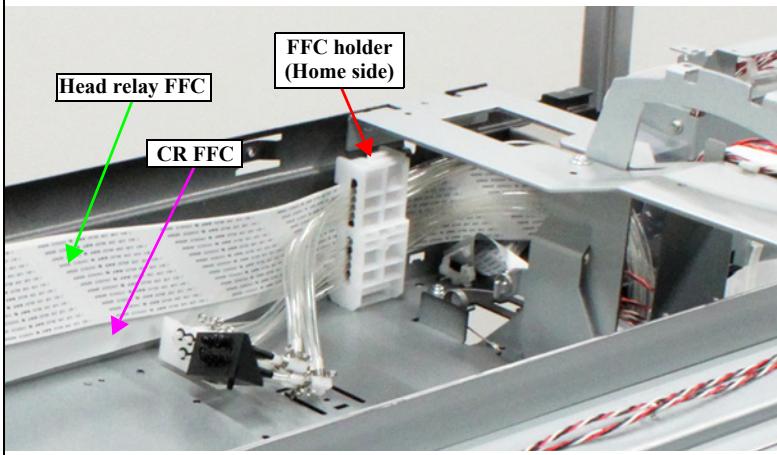


Figure 3-95. Removing the CR FFC

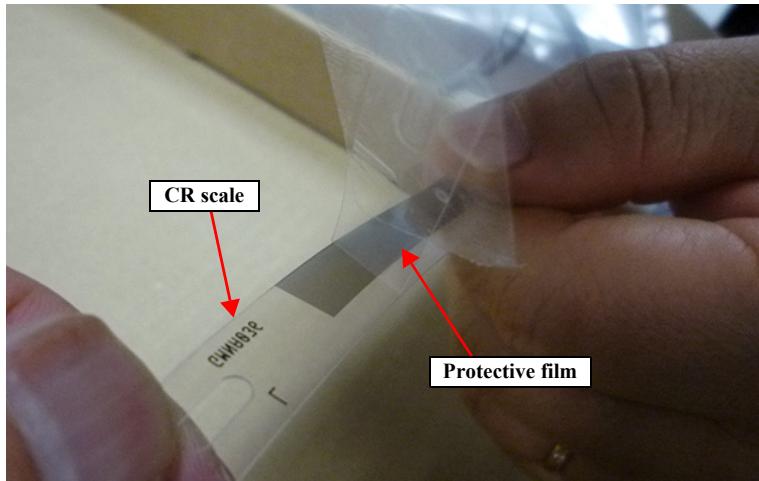
3.4.4.7 CR scale



When replacing/removing this part, refer to “[4.1.3 Adjustment Items and the Order by Repaired Part](#)” (p213) and make sure to perform the specified operations including required adjustment.



- The surface of the new CR scale is protected by a film. Make sure to peel off the film before attaching it on the printer. When peeling it off, use adhesive tape. If the film is left applied, an error may occur.



- Do not contaminate the surface of the CR scale with ink or grease, fingerprints, skin oil, or any other dirt. And be extremely careful not to scratch or damage the surface by letting it come in contact with the main unit frames or any other things. Doing so may result in malfunction of the CR unit.

- Unlock the CR unit. ([p90](#))
- Open the right maintenance cover.
- Open the left maintenance cover.
- Open the front cover.

- On the left side of the printer, remove the tension spring.

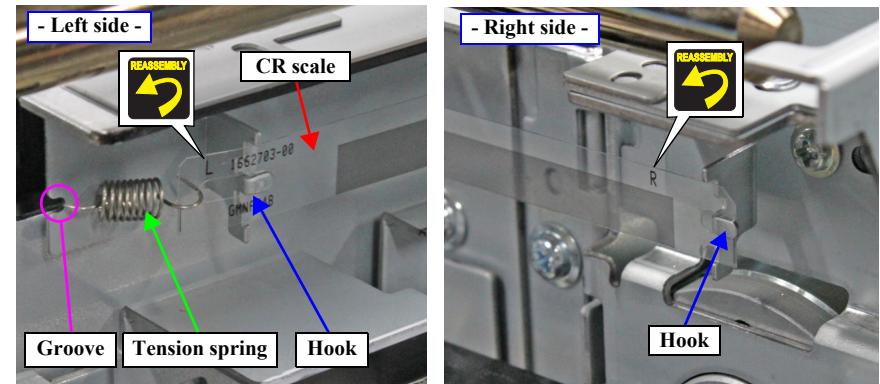


Figure 3-96. Removing the CR scale

- Release the CR scale from each hook of the four CR scale holders.

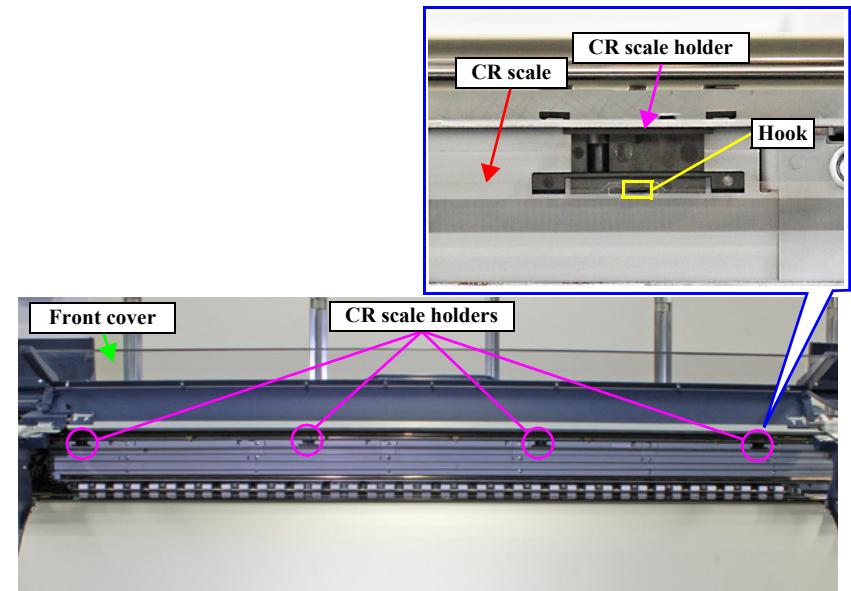


Figure 3-97. Removing the CR scale

7. On the right side of the printer, disengage the CR scale from the hook on the frame.



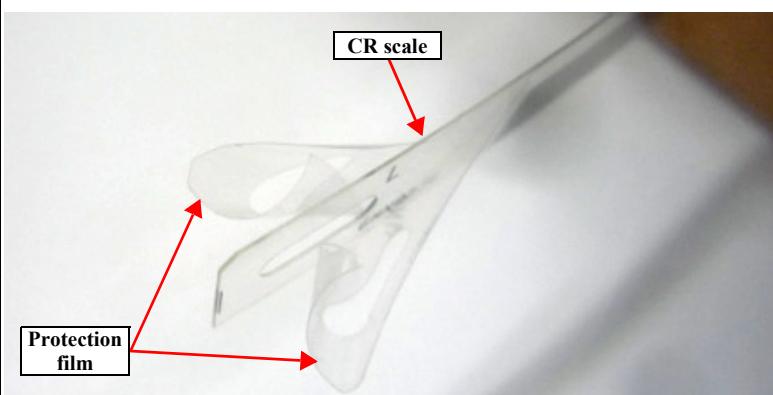
When installing the CR scale, confirm the following.

- Attach one side with "L" print to the left side of the printer.
- Attach one side with "R" print to the right side of the printer.

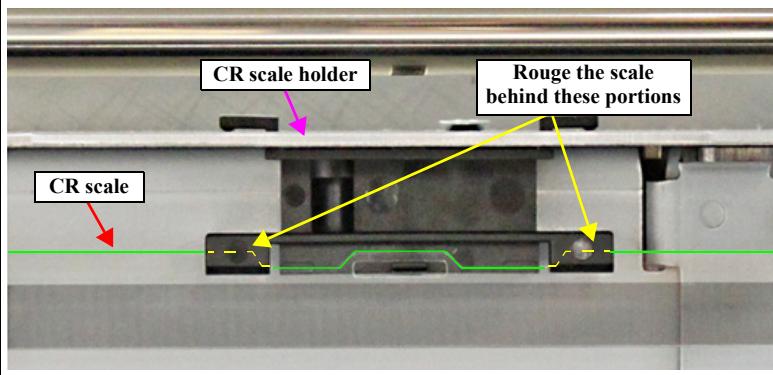
8. Pull out the CR scale from the CR unit.



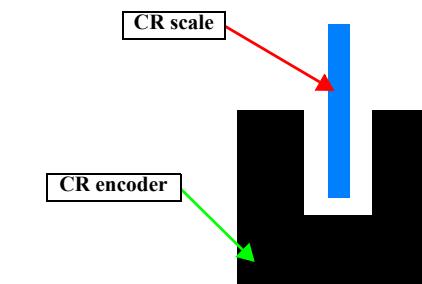
- If protection films are applied on both sides of the new CR scale, peel them off before installation.



- Make sure to attach the CR scale to the CR scale holder as shown.



- Make sure the CR scale can run through the slit of the CR encoder.



3.4.4.8 CR timing belt



When replacing/removing this part, refer to “4.1.3 Adjustment Items and the Order by Repaired Part” (p213) and make sure to perform the specified operations including required adjustment.



To care not to contaminate the belt with the grease on the CR shaft.

1. Unlock the CR unit. (p90)
2. Remove the panel unit. (p92)
3. Remove the media loading lever. (p187)
4. Remove the right upper cover. (p94)
5. Remove the right cover. (p102)
6. Remove the tube cover cap. (p103)
7. Remove the left upper cover. (p104)
8. Remove the left cover. (p107)
9. Remove the APG unit. (p156)
10. Remove the CR motor. (p151)
11. Remove the CR cover. (p135)
12. Remove the duct CR. (p136)
13. Remove the print head. (p138)
14. Remove the CR scale. (p147)
15. Remove the CR unit. (p171)

16. Remove the two screws, and remove the pulley cover.

- A) Silver M3x6 S-tite screw with built-in washer: 1 pcs
- B) Silver M3x12 screw with washer: 1 pcs



In the next step, the two plastic washers at the both ends of the pulley shaft will come off. Be careful not to lose them.

17. Remove the pulley, shaft, and belt together from the pulley holder.

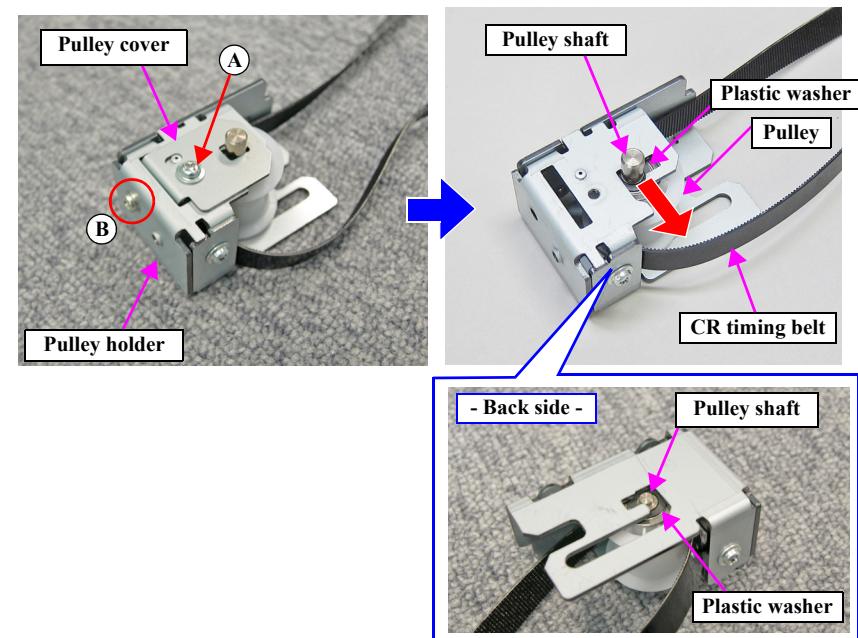


Figure 3-98. Disassembling the pulley holder

18. Remove the CR timing belt from the belt holder on the back side of the CR unit.

REASSEMBLY

Attach the CR timing belt to the CR unit so that the joint clips on the belt locate within the range shown below.

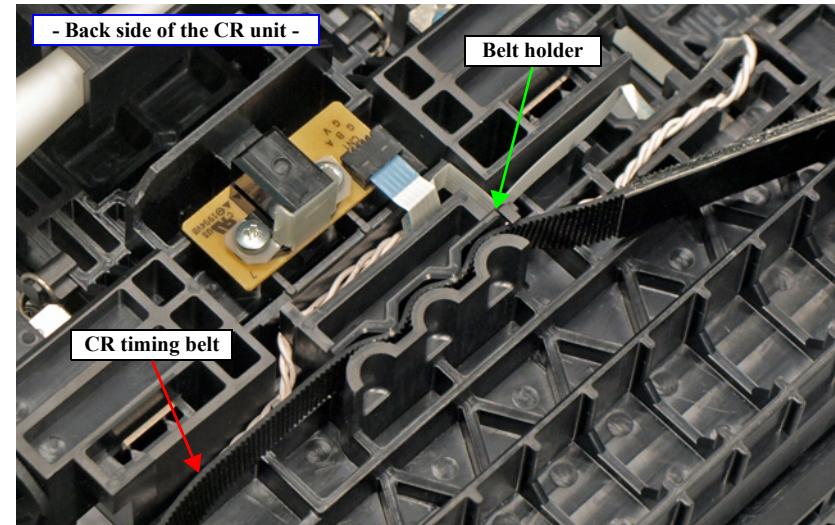
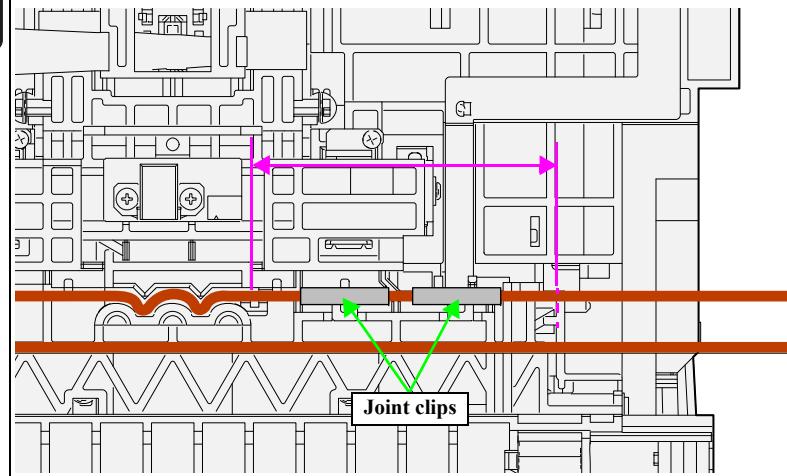


Figure 3-99. Removing the CR timing belt

3.4.4.9 CR motor



When replacing/removing this part, refer to “[4.1.3 Adjustment Items and the Order by Repaired Part](#)” (p213) and make sure to perform the specified operations including required adjustment.

1. Unlock the CR unit. ([p90](#))
2. Remove the panel unit. ([p92](#))
3. Remove the media loading lever. ([p187](#))
4. Remove the right upper cover. ([p94](#))
5. Remove the tube cover cap. ([p103](#))
6. Remove the left upper cover. ([p104](#))
7. Remove the left cover. ([p107](#))
8. Remove the APG unit. ([p156](#))
9. Loosen the two screws (A) that secure the pulley holder.



Before loosening the tension at the next step, mark the position of the pulley holder to make the required adjustment easier.

10. Loosen the screw (B) to loosen the tension of the CR timing belt.

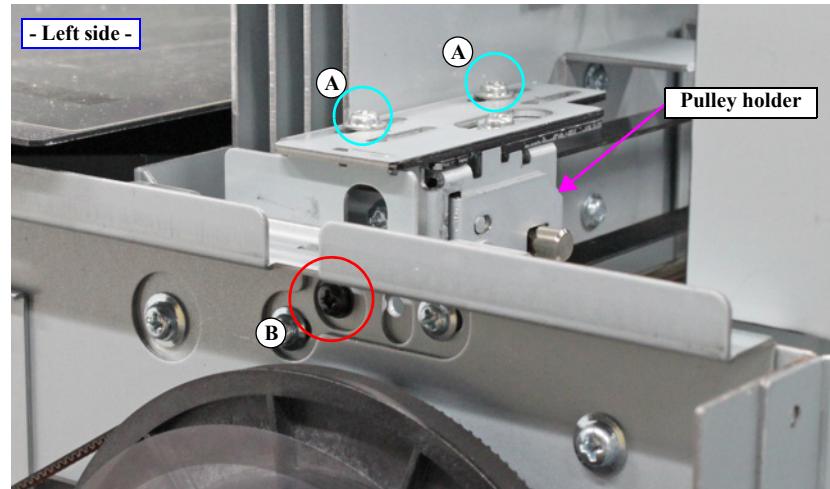


Figure 3-100. Loosening the CR timing belt tension

11. Move the CR unit until to a position over the platen.
12. Remove the CR timing belt from the pinion gear of the CR motor.
13. Disconnect the cable from the relay connector.
14. Loosen the screw and remove the plate.
15. Remove the two screws and remove the CR motor.

C) Silver M4x10 Machine screw: 2 pcs



REASSEMBLY
When installing the CR motor, make sure to install it in the correct orientation as shown in [Figure3-101](#).

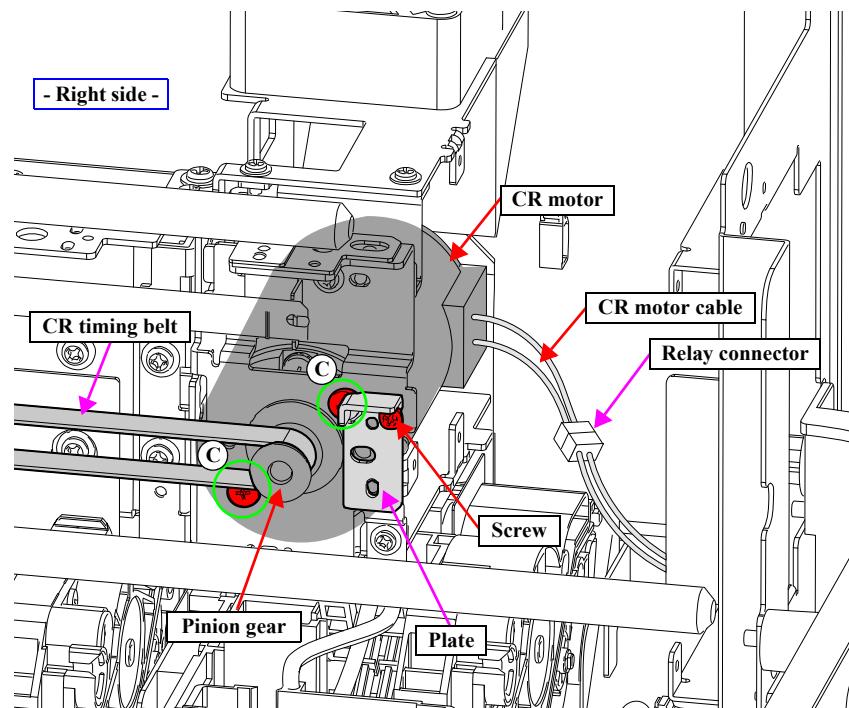


Figure 3-101. Removing the CR motor

3.4.4.10 CR motor cooling fan

1. Remove the panel unit. ([p92](#))
2. Remove the media loading lever. ([p187](#))
3. Remove the right upper cover. ([p94](#))
4. Disconnect the cable from the relay connector.
5. Release the cable from the clamp.

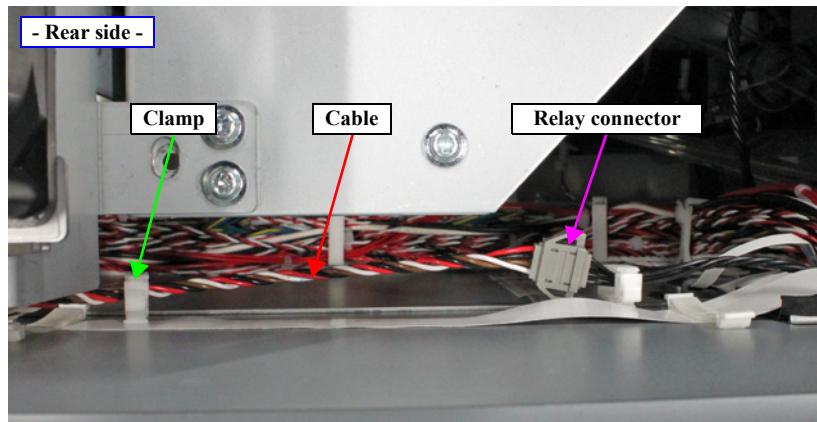


Figure 3-102. Releasing the cable

6. Remove the two screws, and remove the CR motor cooling fan.

A) Silver M4x30 S-tite screw: 2 pcs



- When installing the CR motor cooling fan, screw it together with the duct.
- Be careful of the orientation of the CR motor cooling fan during installation. Make sure to attach it with the side without the label upward.

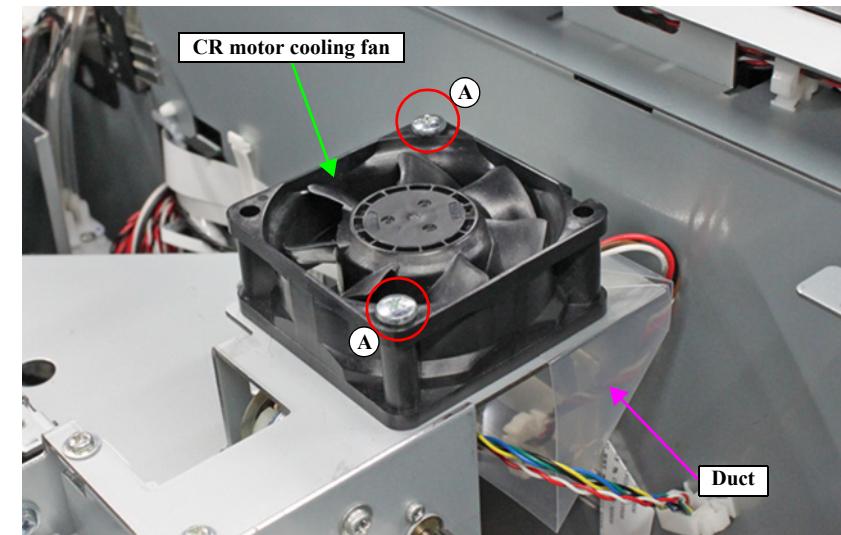


Figure 3-103. Removing the CR motor cooling fan

3.4.4.11 CR HP sensor

1. Unlock the CR unit. ([p90](#))
2. Remove the panel unit. ([p92](#))
3. Remove the media loading lever. ([p187](#))
4. Remove the right upper cover. ([p94](#))
5. Move the CR unit until to a position over the platen.



At the next step, be careful not to damage the hooks of the CR HP sensor as they are very thin.

6. Disengage the hooks, and remove the CR HP sensor.
7. Disconnect the cable from the CR HP sensor.

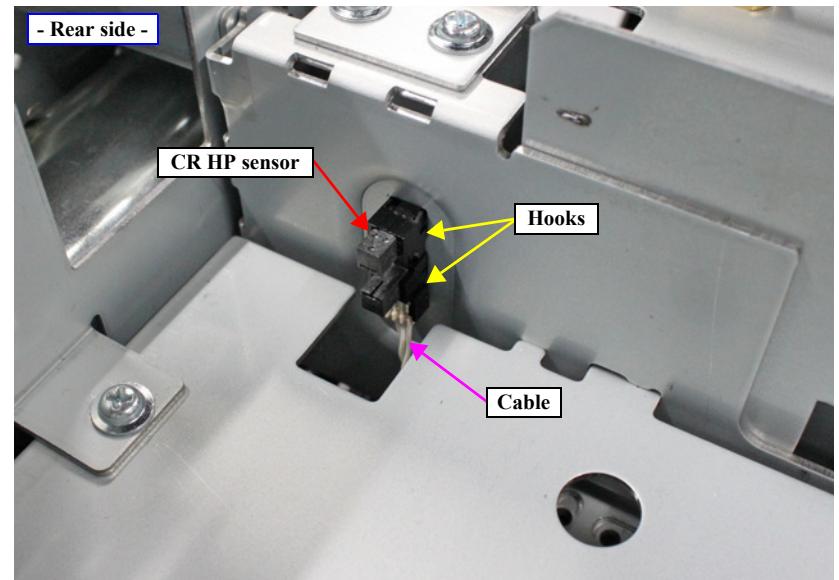


Figure 3-104. Removing the CR HP sensor

3.4.4.12 CR encoder

**ADJUSTMENT
REQUIRED**

When replacing/removing this part, refer to “[4.1.3 Adjustment Items and the Order by Repaired Part](#)” ([p213](#)) and make sure to perform the specified operations including required adjustment.

1. Unlock the CR unit. ([p90](#))
2. Remove the panel unit. ([p92](#))
3. Remove the media loading lever. ([p187](#))
4. Remove the right upper cover. ([p94](#))
5. Remove the tube cover cap. ([p103](#))
6. Remove the left upper cover. ([p104](#))
7. Remove the left cover. ([p107](#))
8. Remove the right cover. ([p102](#))
9. Remove the APG unit. ([p156](#))
10. Remove the CR motor. ([p151](#))
11. Remove the CR cover. ([p135](#))
12. Remove the duct CR. ([p136](#))
13. Remove the print head. ([p138](#))
14. Remove the CR scale. ([p147](#))
15. Remove the CR unit. ([p171](#))
16. Remove the two screws, and remove the CR encoder and encoder cover.
A) Silver M2.5x8 P-tite screw: 2 pcs
17. Disconnect the FFC from the CR encoder.



When installing the CR encoder, screw it together with the encoder cover.

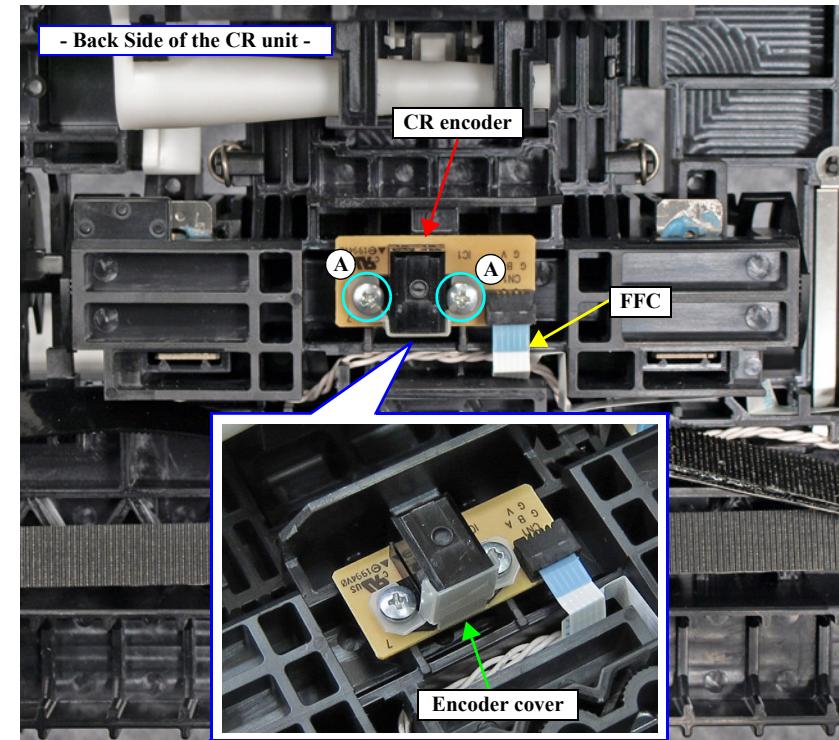


Figure 3-105. Removing the CR encoder

3.4.4.13 APG motor

ADJUSTMENT REQUIRED



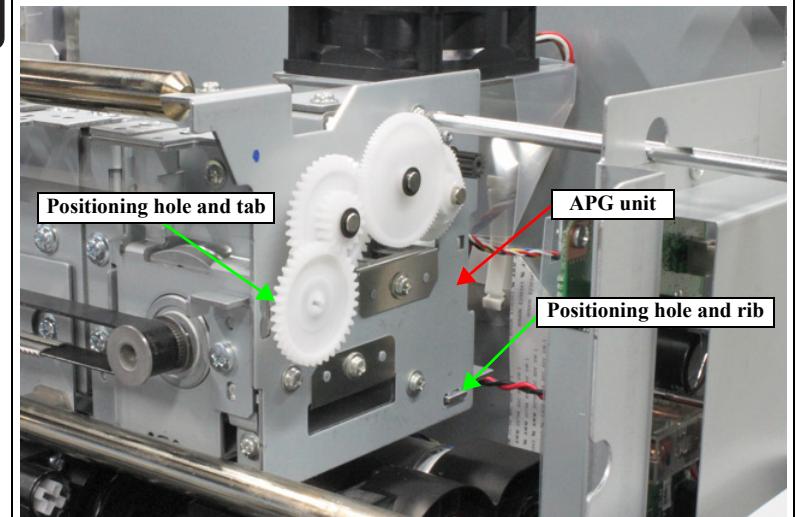
When replacing/removing this part, refer to “[4.1.3 Adjustment Items and the Order by Repaired Part](#)” (p213) and make sure to perform the specified operations including required adjustment.

1. Remove the panel unit. ([p92](#))
2. Remove the media loading lever. ([p187](#))
3. Remove the right upper cover. ([p94](#))
4. Remove the right cover. ([p102](#))
5. Remove the sub-M board. ([p129](#))
6. Remove the three screws that secure the APG unit.

A) Silver M3x6 S-tite screw with built-in washer: 3 pcs



Insert the positioning hole of the APG unit over the tab of the frame.



CHECK POINT



For the screw marked with a red circle in [Figure3-106](#), use a stubby driver to remove it.

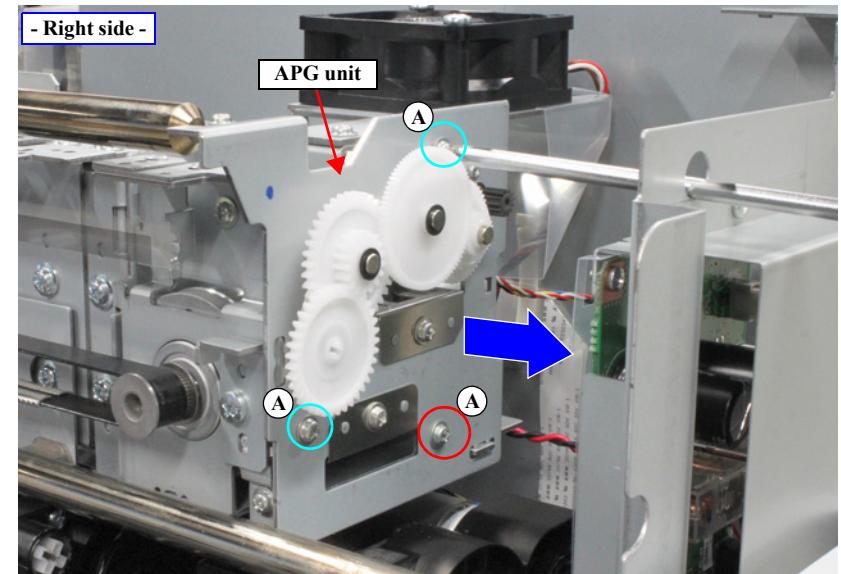


Figure 3-106. APG unit fixing screws

7. Disconnect the cable from the connector of the APG motor, and remove the APG unit.



Be careful not to damage the encoder and scale of the APG motor.

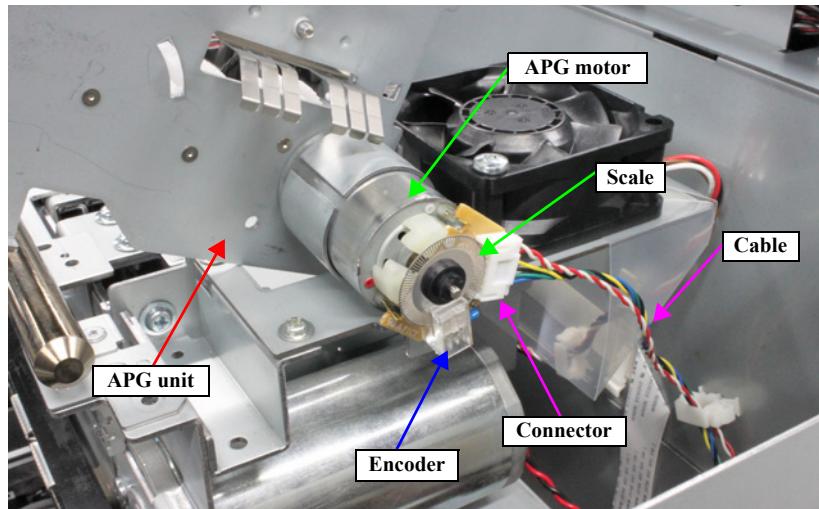


Figure 3-107. Removing the APG unit

8. Remove the two screws, and remove the APG motor.

B) Silver M2x4 (Bit No.1): 2 pcs



Make sure to install the APG motor in the correct orientation checking the connector position.

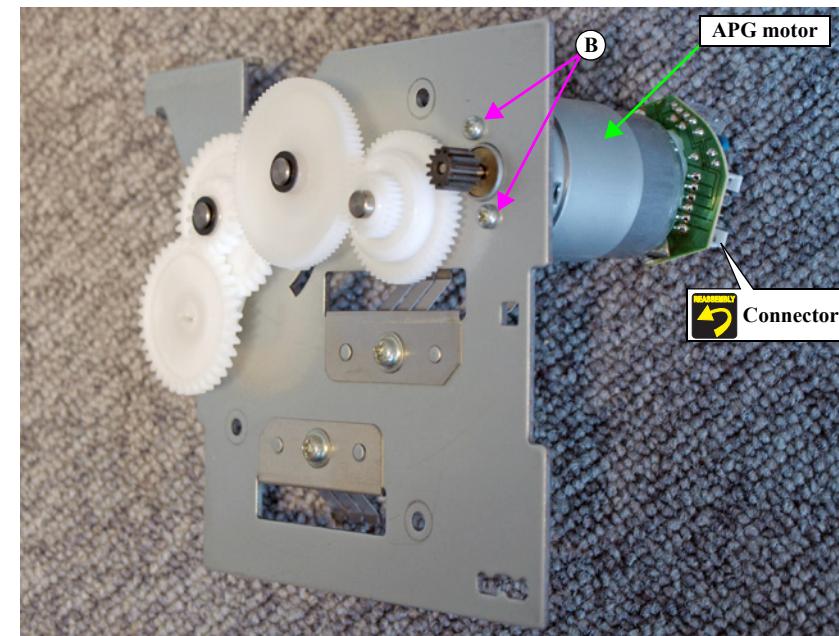


Figure 3-108. Removing the APG motor

3.4.4.14 PG HP sensor

1. Unlock the CR unit. ([p90](#))
2. Remove the panel unit. ([p92](#))
3. Remove the media loading lever. ([p187](#))
4. Remove the right upper cover. ([p94](#))
5. Remove the right cover. ([p102](#))
6. Remove the tube cover cap. ([p103](#))
7. Remove the left upper cover. ([p104](#))
8. Remove the left cover. ([p107](#))
9. Remove the APG unit. ([p156](#))
10. Remove the CR motor. ([p151](#))
11. Remove the CR cover. ([p135](#))
12. Remove the duct CR. ([p136](#))
13. Remove the print head. ([p138](#))
14. Remove the CR scale. ([p147](#))
15. Remove the CR unit. ([p171](#))
16. Turn the PG gear until the slit of the incline plate faces the sensing portion of the PG HP sensor.
17. Disengage the hooks, and remove the PG HP sensor.
18. Disconnect the cable from the PG HP sensor.

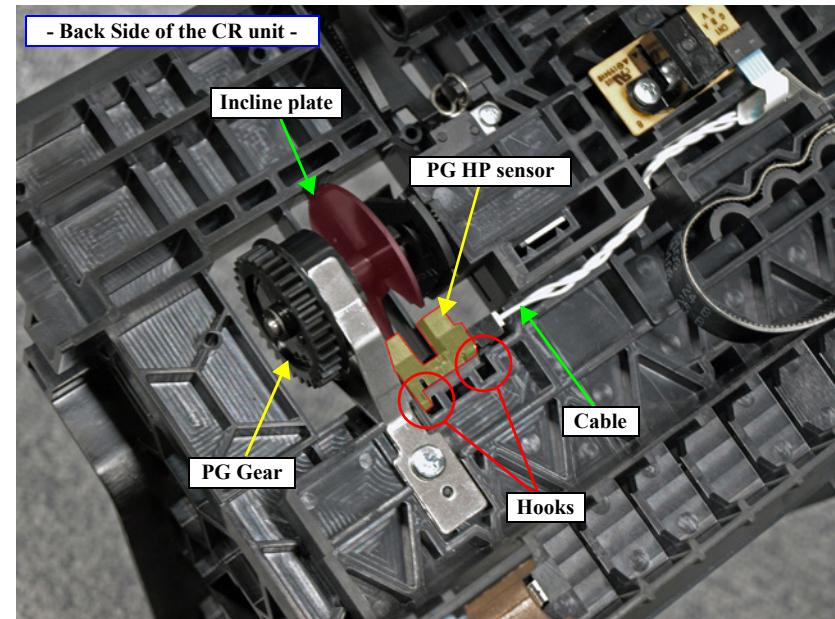


Figure 3-109. Removing the PG HP sensor

3.4.4.15 Pump cap unit (Home)/(Full)

**ADJUSTMENT
REQUIRED**

When replacing/removing this part, refer to “[4.1.3 Adjustment Items and the Order by Repaired Part](#)” ([p213](#)) and make sure to perform the specified operations including required adjustment.

1. Unlock the CR unit. ([p90](#))
2. Remove the panel unit. ([p92](#))
3. Remove the media loading lever. ([p187](#))
4. Remove the right upper cover. ([p94](#))
5. Remove the ink tank. ([p181](#))
6. Remove the lower ink holder. ([p96](#))
7. Remove the right front cover. ([p101](#))
8. Remove the right cover. ([p102](#))
9. Move the CR unit to a position over the platen.

10. Remove the screw that secures the cable cover. (Required only when removing the pump cap unit (Home).)
 - A) Silver M3x6 S-tite screw with built-in washer: 1 pcs
11. Disengage the rib, and remove the cable cover. (Required only when removing the pump cap unit (Home).)



When installing the cable cover, be careful not to let the cable get caught between the cover and frame.

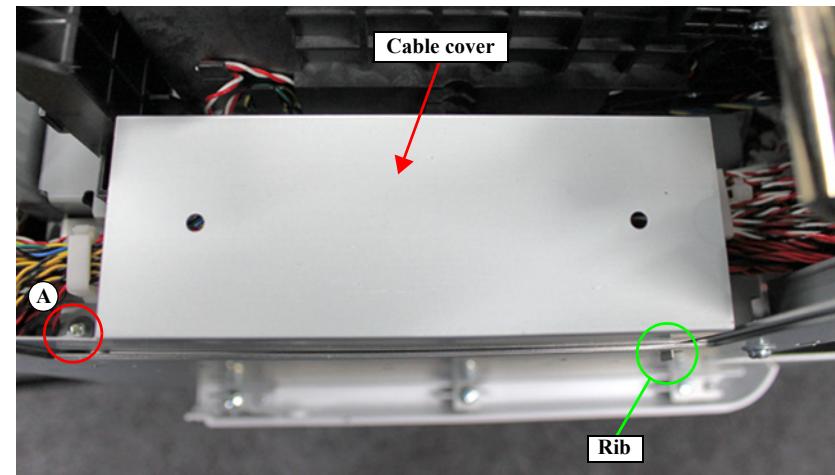


Figure 3-110. Removing the cable cover

12. Disconnect the cables from the three relay connectors (No.36, No.37, and No.79).

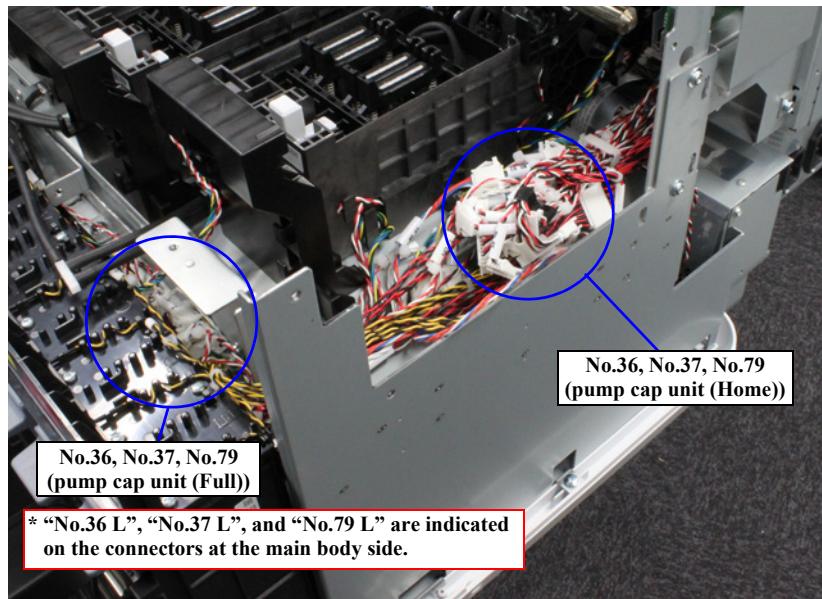
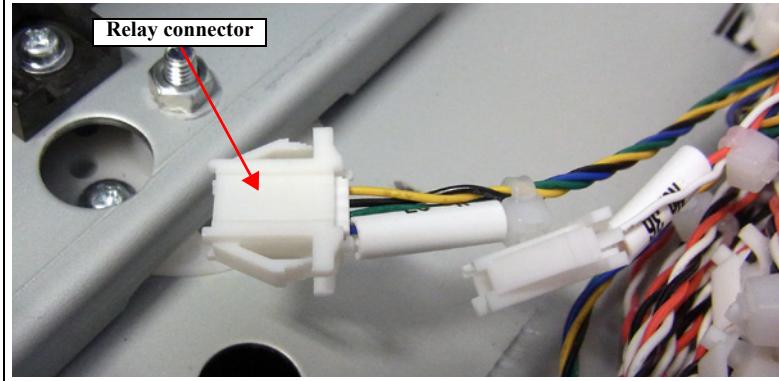


Figure 3-111. Disconnecting from the relay connectors



Leave the relay connectors at the main body side to reuse them.



13. Remove the two waste ink tube from the joint.



Make sure to insert the waste ink tubes fully without any gap to the joints.

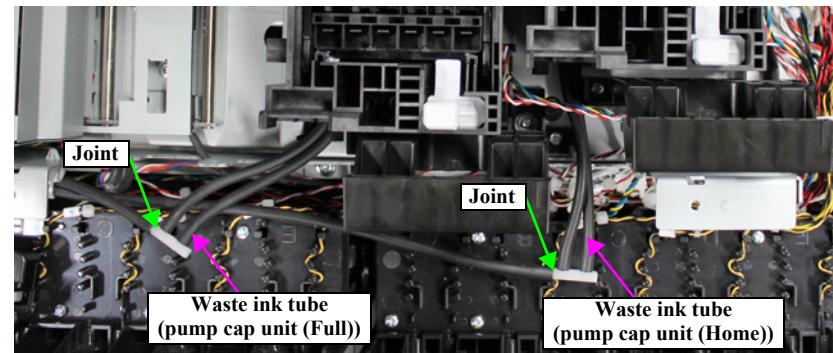


Figure 3-112. Removing the waste ink tube

14. Remove the three each screws, and remove the two CR stopper.
B) Silver M3x8 screw: each 3 pcs
15. Remove the three each screws that secure the pump cap unit.
C) Silver M3x8 S-tite screw with built-in washer: each 3 pcs
16. Pull the pump cap unit forward to disengage the hook, and remove the pump cap unit avoiding contact with the CR shaft or any other parts.



- Be careful not to mistake the pump cap unit (Full) for pump cap unit (Home), and vice versa.
- Make sure the driver guide is not attached on the pump cap unit (Full). (If it is attached on the pump cap unit (Full), the CR unit will be damaged.)

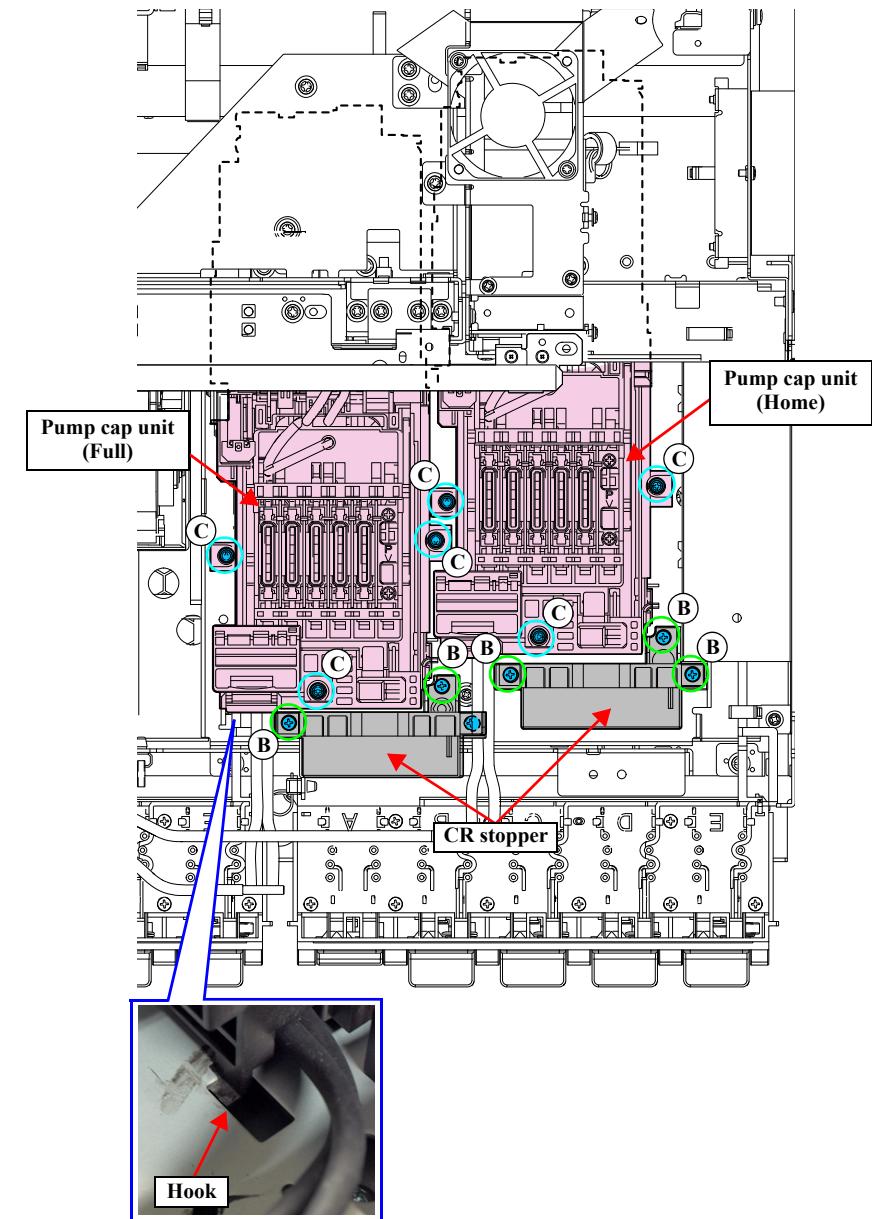
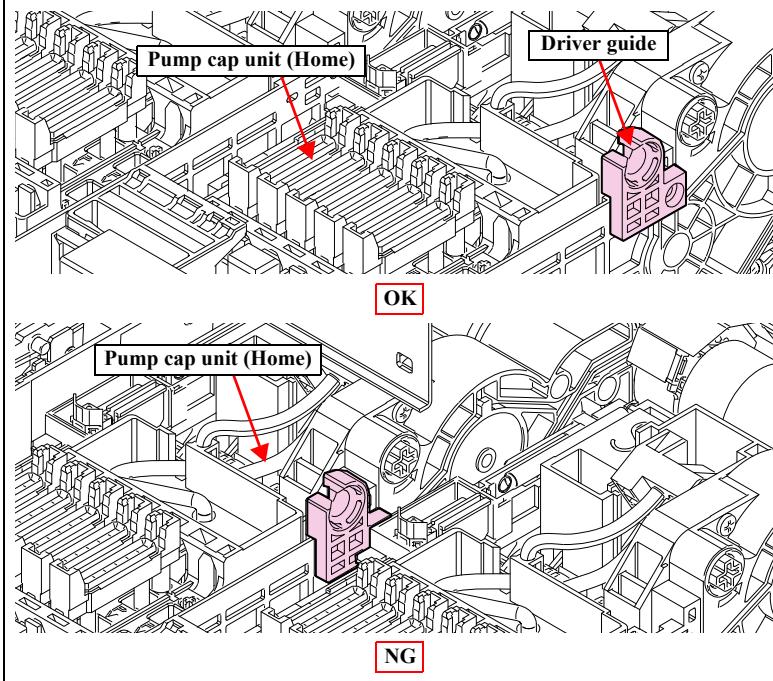


Figure 3-113. Removing the pump cap unit

3.4.4.16 Ink holder (Home)/(Full)

**ADJUSTMENT
REQUIRED**

When replacing/removing this part, refer to “[4.1.3 Adjustment Items and the Order by Repaired Part](#)” ([p213](#)) and make sure to perform the specified operations including required adjustment.

1. Run the ink discharging sequence.
2. Remove the panel unit. ([p92](#))
3. Remove the media loading lever. ([p187](#))
4. Remove the right upper cover. ([p94](#))
5. Remove the ink tank. ([p181](#))
6. Remove the lower ink holder. ([p96](#))
7. Remove the right front cover. ([p101](#))
8. Remove the right cover. ([p102](#))
9. Remove the board box cover. ([p110](#))
10. Remove the power supply board box. (See [Step 2 to Step 12](#) in “[3.4.3.3 PSH board/PSH-B board](#)” ([P. 121](#)))
11. Remove the cable cover. (See [Step 10 to Step 11](#) in “[3.4.4.15 Pump cap unit \(Home\)/\(Full\)](#)” ([P. 159](#)))
12. Open the three clamps.
13. On the front side, release the cable from the two relay connectors.

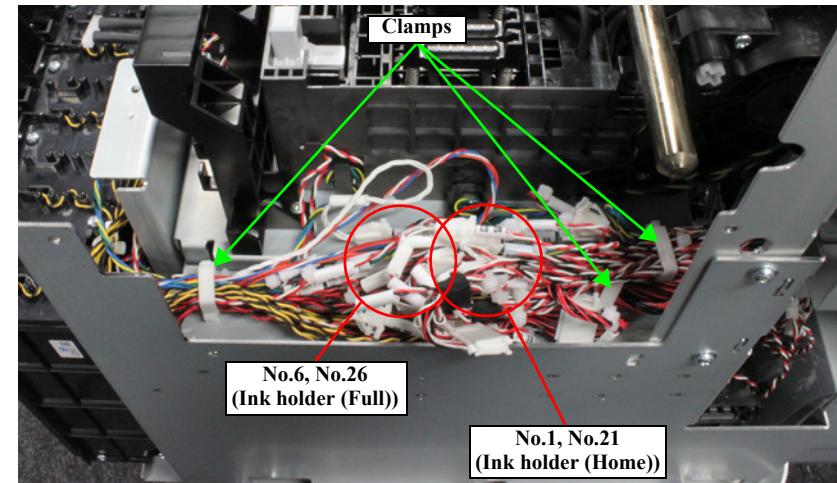
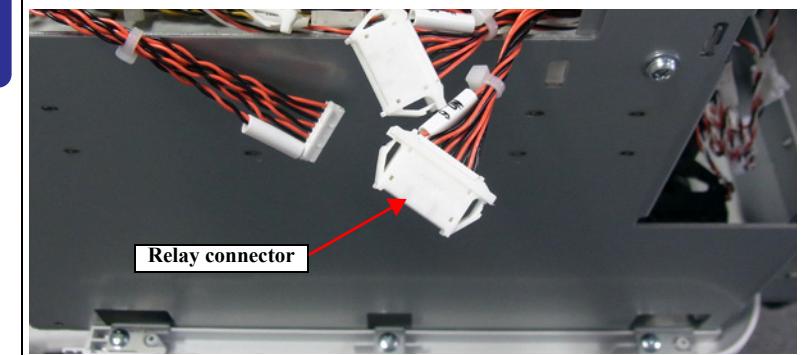


Figure 3-114. Releasing the cables (front side)



Leave the relay connectors at the main body side to reuse them.



14. On the rear side, release the cable from the three relay connectors. (The cables are bundled with a piece of black tape.)

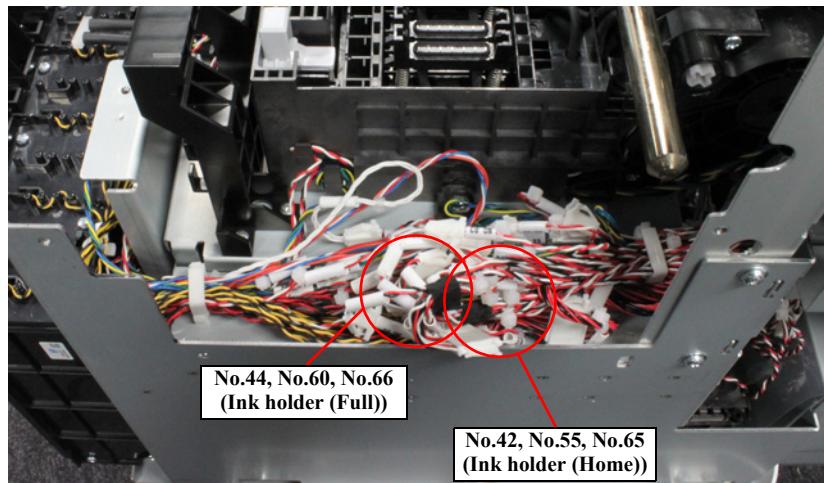


Figure 3-115. Releasing the cables (rear side)

15. Release the cables from the two clamps. (Required only when removing the ink holder (Full).)

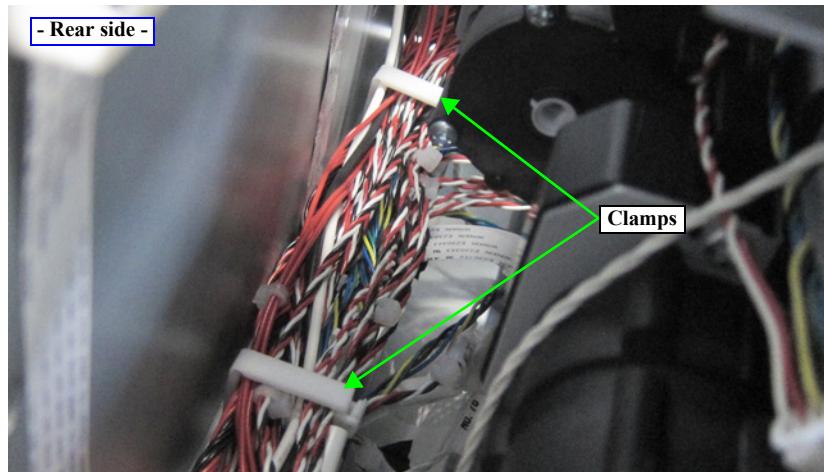


Figure 3-116. Releasing the cables

16. Disconnect the FFC from the rear of the ink holder.

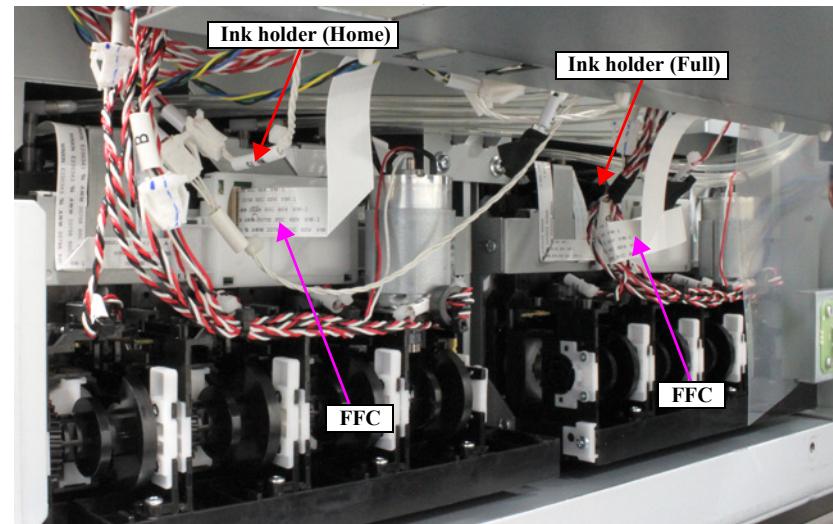


Figure 3-117. Disconnecting the FFC

17. Remove the double-sided tape and remove the sheet. (Required only when removing the ink holder (Full).)

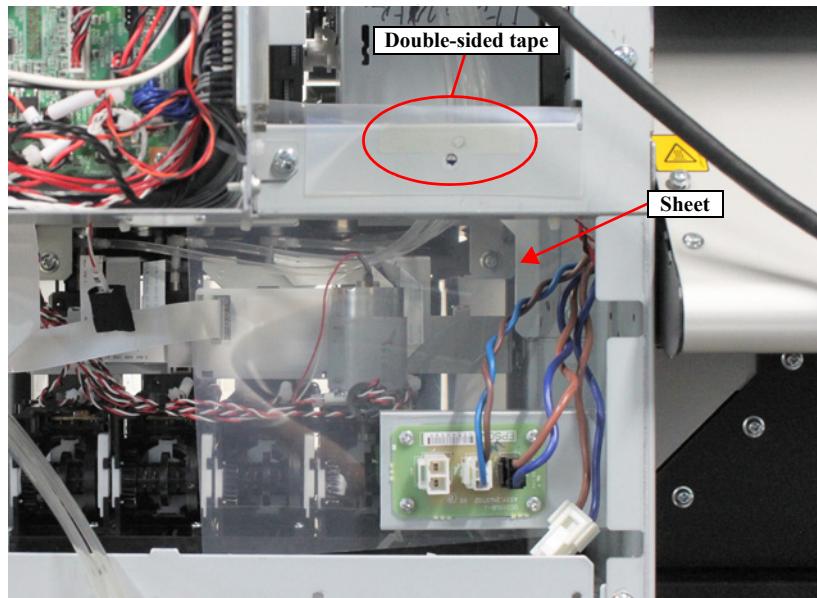


Figure 3-118. Removing the sheet

18. Remove the three each screws, and remove the lower joint(s).

A) Silver M3x10 S-tite screw: each 2 pcs

B) Silver M3x8 screw with built-in washer: each 1 pcs

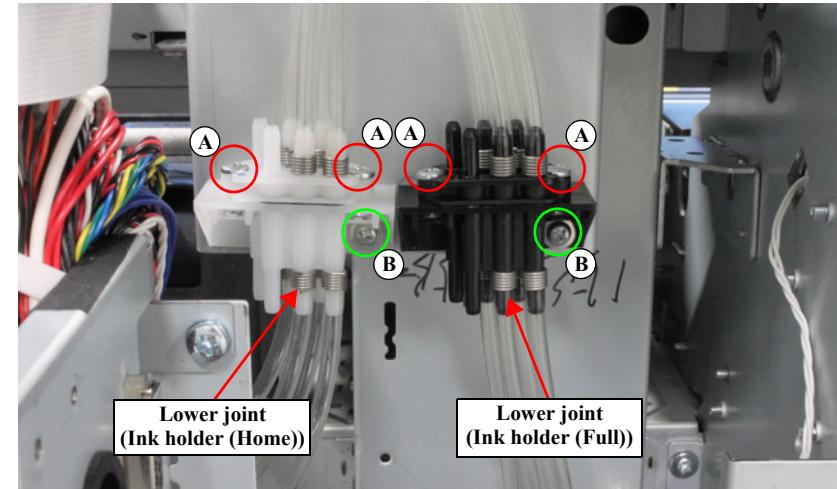


Figure 3-119. Removing the joint

19. Remove the four each screws that secure the ink holder.

C) Silver M4x10 S-tite screw with built-in washer: each 4 pcs



At the next step, be sure to remove the ink holder slowly and carefully not to damage the ink tubes and cables with the sharp metal edges of frames.

20. Remove the ink holder pulling out the ink tubes and cables.



When reassembling, be sure to observe the following precautions.

Otherwise, ink may leak.

- Do not fold the ink tubes.
- Be careful not to let the ink tubes and the cable get caught between the ink holder and the frame of main body.
- Secure the screws that secure the ink supply tube with tightening torque about 0.29 ± 0.05 Nm. Make sure to use an accurately-calibrated torque screwdriver.
- Confirm there are no foreign objects attached on the Joint Rubbers.
- If the Joint Rubbers are deformed, restore it to its original shape manually.

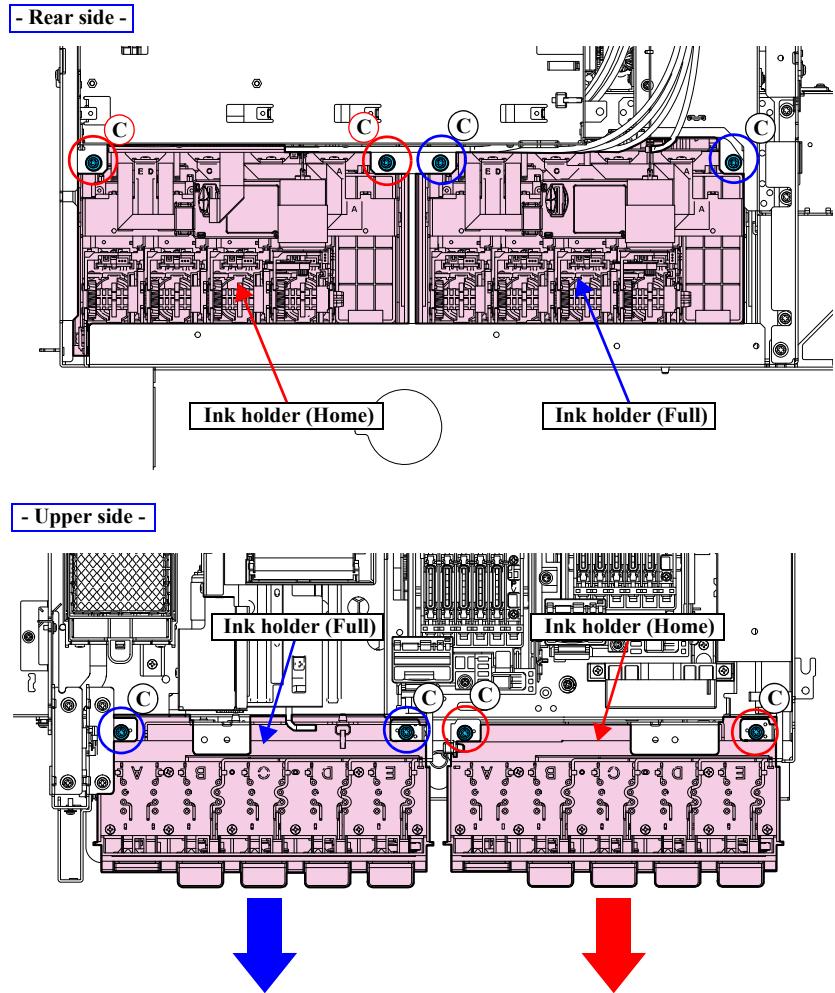


Figure 3-120. Removing the ink holder

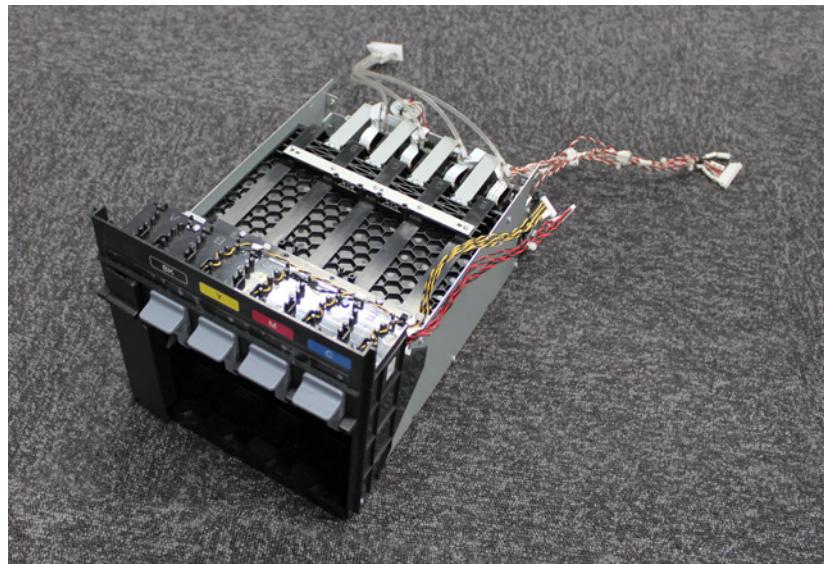


Figure 3-121. Ink holder

3.4.4.17 Ink tube



When replacing/removing this part, refer to “[4.1.3 Adjustment Items and the Order by Repaired Part](#)” (p213) and make sure to perform the specified operations including required adjustment.

1. Remove the panel unit. ([p92](#))
2. Remove the media loading lever. ([p187](#))
3. Remove the right upper cover. ([p94](#))
4. Remove the tube cover cap. ([p103](#))
5. Remove the left upper cover. ([p104](#))
6. Remove the upper cover. ([p108](#))
7. Remove the CR cover. ([p135](#))
8. Remove the screws that secure the ink path holder assy. (See [Step 6](#) in “[3.4.4.2 Duct CR](#)” ([P. 136](#)))
9. Remove the ink path joint from the ink tubes path. (See [Step 8](#) in “[3.4.4.2 Duct CR](#)” ([P. 136](#)))
10. Remove the screw one each on the two ink tube holder, and remove the holders.
A) Silver M3x8 P-tite screw: 2 pcs

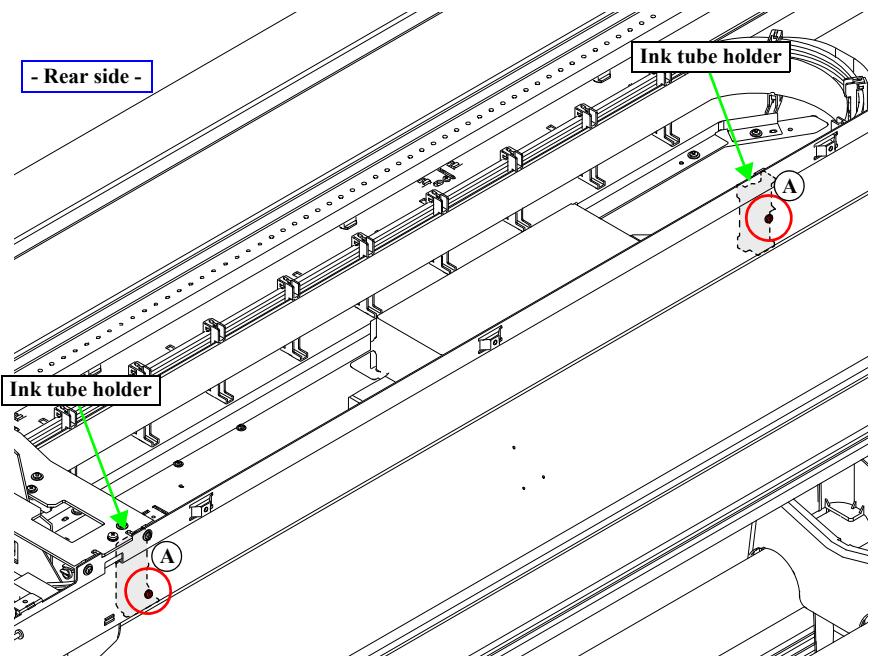


Figure 3-122. Removing the ink tube holder

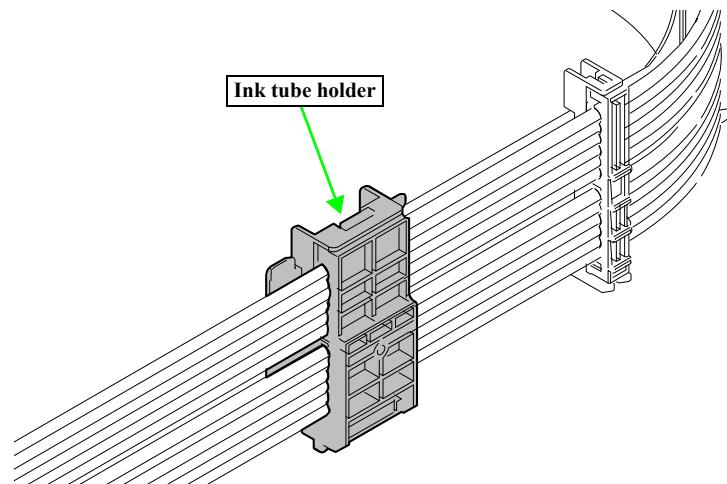


Figure 3-123. Ink tube holder



When the joint is removed in the next step, ink may drip off from the tube. Prepare a waste cloth or the like in advance and be careful not to contaminate the surroundings.



When reassembling, be sure to observe the following precautions. Otherwise, ink may leak.

- When installing the joint, insert the dowel into the positioning hole.
- Secure the screws that secure the ink supply tube with tightening torque about 0.29 ± 0.05 Nm. Make sure to use an accurately-calibrated torque screwdriver. Confirm there are no foreign objects attached on the joint rubbers.
- If the joint rubbers are deformed, restore it to its original shape manually.

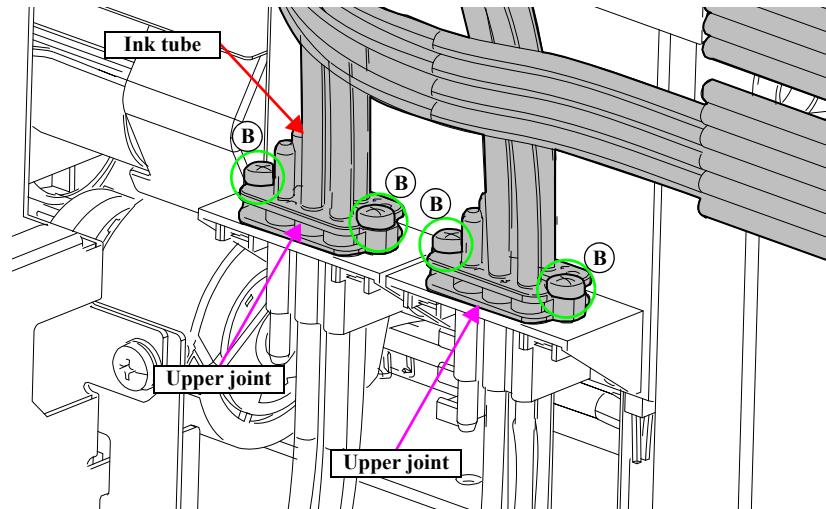
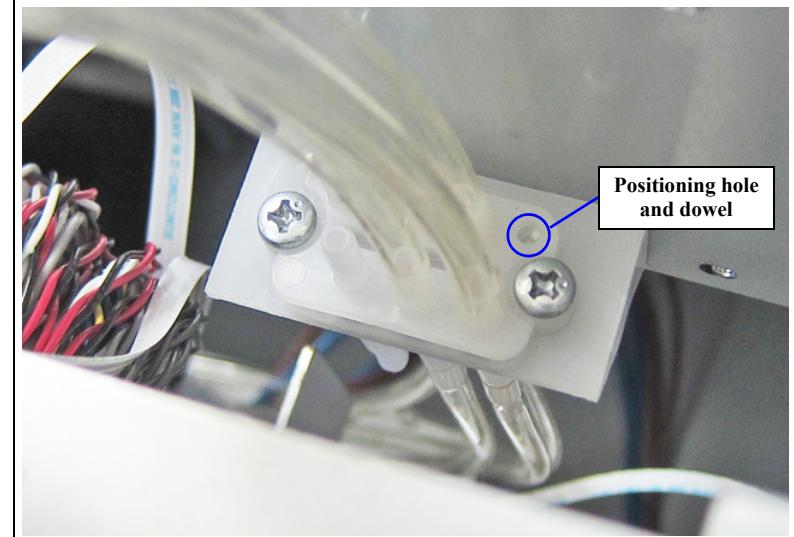
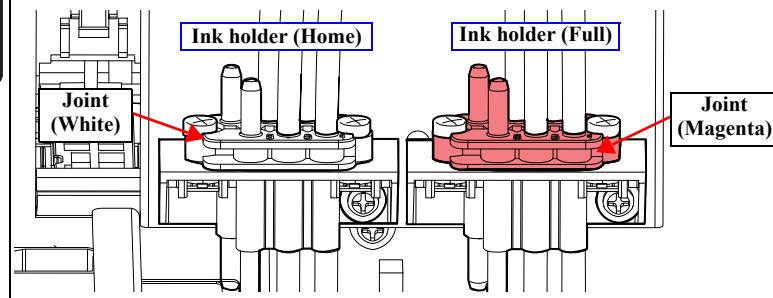


Figure 3-124. Removing the ink tubes



- Attach the joint as shown in the figure below.



3.4.4.18 Flushing box

1. Unlock the CR unit. ([p90](#))
2. Remove the panel unit. ([p92](#))
3. Remove the media loading lever. ([p187](#))
4. Remove the right upper cover. ([p94](#))
5. Remove the ink tank. ([p181](#))
6. Remove the lower ink holder. ([p96](#))
7. Remove the right front cover. ([p101](#))
8. Move the CR unit to a position over the platen.
9. Release the waste ink tube from the frame of the main body.

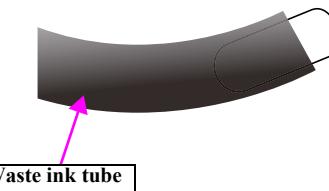


Figure 3-125. Releasing the waste ink tube



CAUTION

After pulling out the waste ink tube, put waste cloth or the like into the tip of the tube to prevent ink from dripping from the tube.



10. Remove the screw that secures the joint.
- A) Silver M3x8 P-tite screw: 1 pcs
11. Remove the screw that secures the flushing box.
- B) Silver M3x6 S-tite screw: 1 pcs

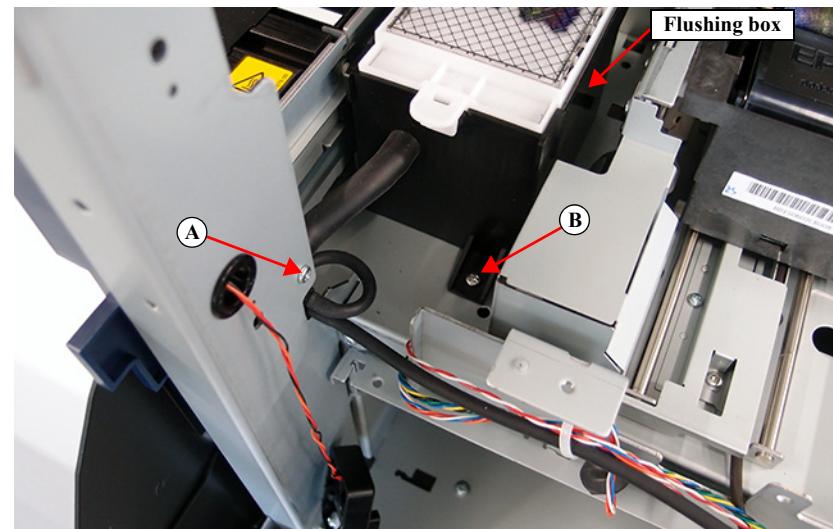


Figure 3-126. Fixing screws of the joint

12. While pulling out the joint out of the frame, and remove the flushing box.

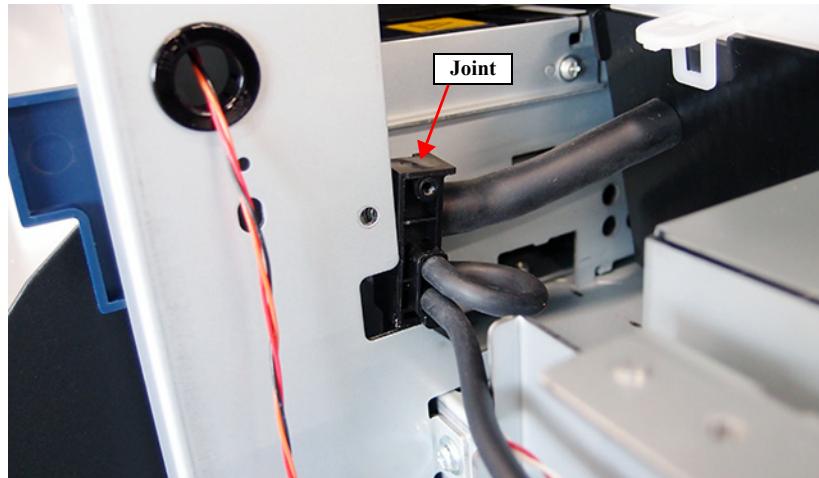


Figure 3-127. Removing the flushing box

3.4.4.19 CR unit



When replacing/removing this part, refer to “[4.1.3 Adjustment Items and the Order by Repaired Part](#)” (p213) and make sure to perform the specified operations including required adjustment.

1. Unlock the CR unit. ([p90](#))
2. Remove the panel unit. ([p92](#))
3. Remove the media loading lever. ([p187](#))
4. Remove the right upper cover. ([p94](#))
5. Remove the right cover. ([p102](#))
6. Remove the tube cover cap. ([p103](#))
7. Remove the left upper cover. ([p104](#))
8. Remove the left cover. ([p107](#))
9. Remove the APG unit. ([p156](#))
10. Remove the CR motor. ([p151](#))
11. Remove the CR cover. ([p135](#))
12. Remove the duct CR. ([p136](#))
13. Remove the print head. ([p138](#))
14. Remove the CR scale. ([p147](#))
15. Remove the three screws, and remove the pulley holder.

A) Black M3x22 screw with washer: 1 pcs

B) Silver M3x6 S-tite screw with built-in washer: 2 pcs

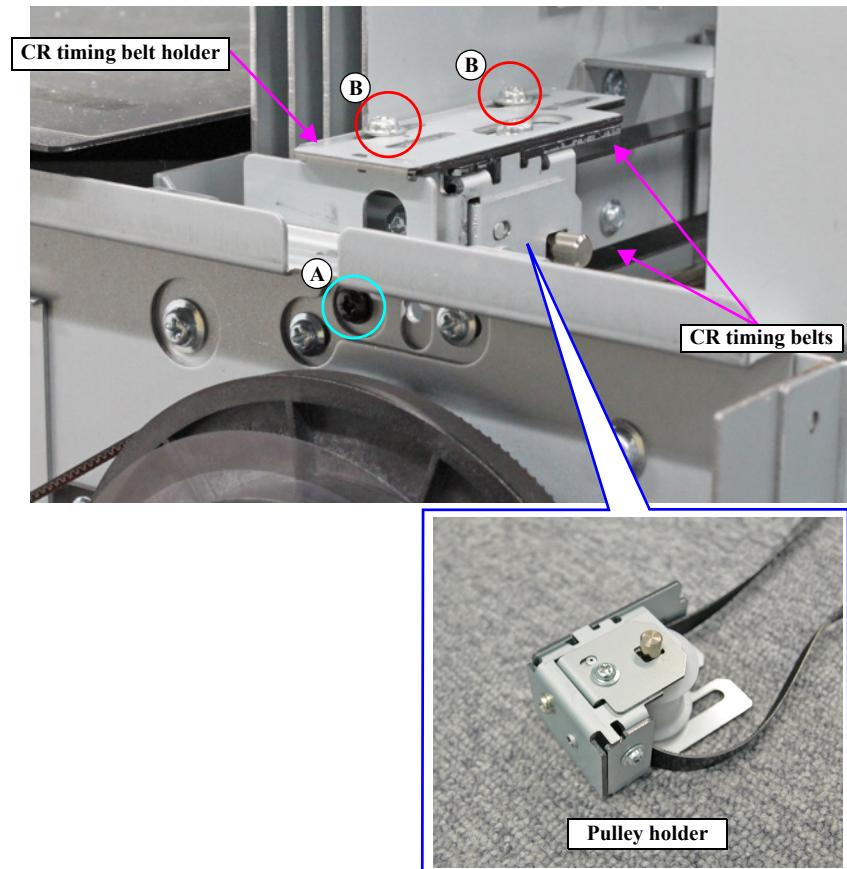


Figure 3-128. Removing the pulley holder

16. Disconnect the CR FFC from the connector (CN100) on the sub board.

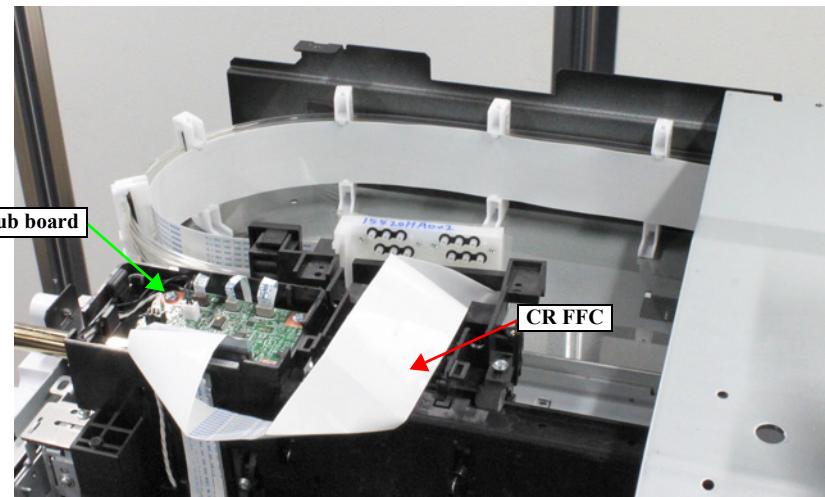


Figure 3-129. Removing the ink path holder assy

17. Remove the three each screws, and remove the two CR stopper.

C) Silver M3x8 S-tite screw: each 3 pcs

18. Remove the screw, and remove the CR scale mounting plate.

D) Silver M3x4 flat-head screw: 1 pcs

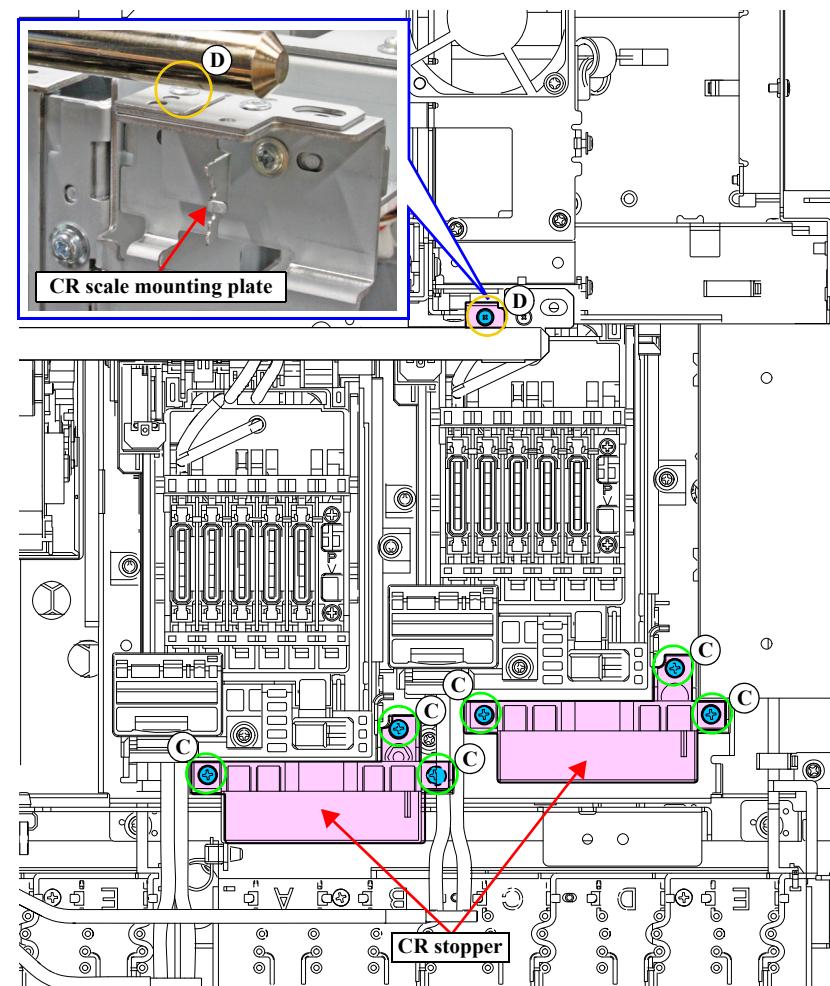


Figure 3-130. Removing the CR stopper



Before performing the next step, check that the wiper is at its standby position.



When removing the head cover, follow the procedure below.

1. Remove the three screws.
A) Silver M3x8 P-tite screw: 3 pcs
2. Remove the head cover while sliding it toward you.

19. While pressing down the CR lock lever, remove the CR unit by sliding it in the direction of the arrow.

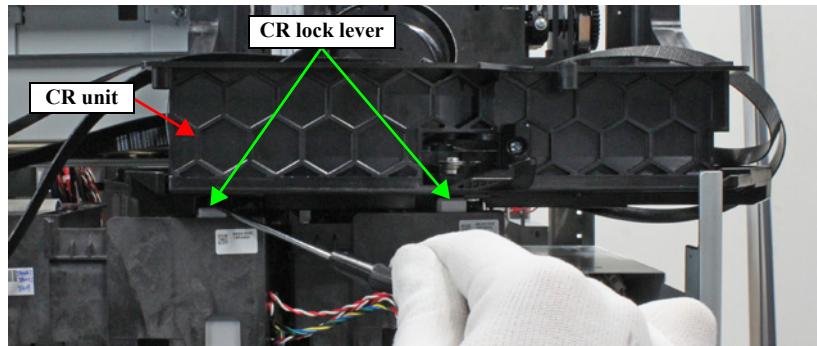
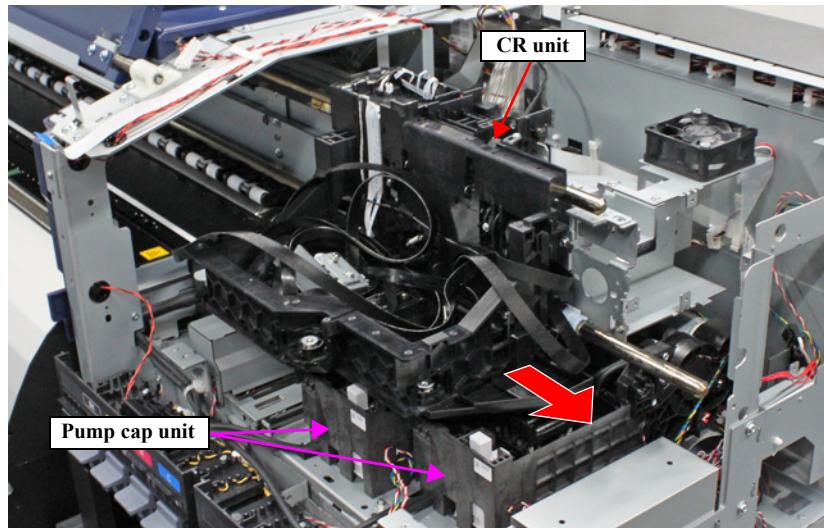
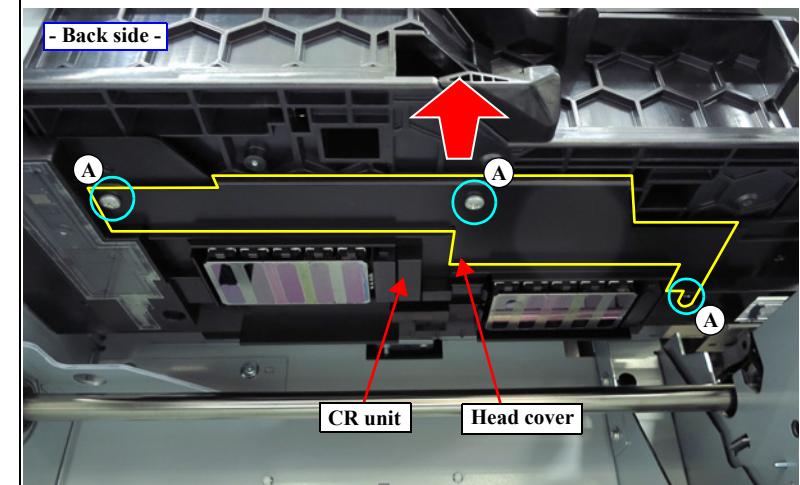


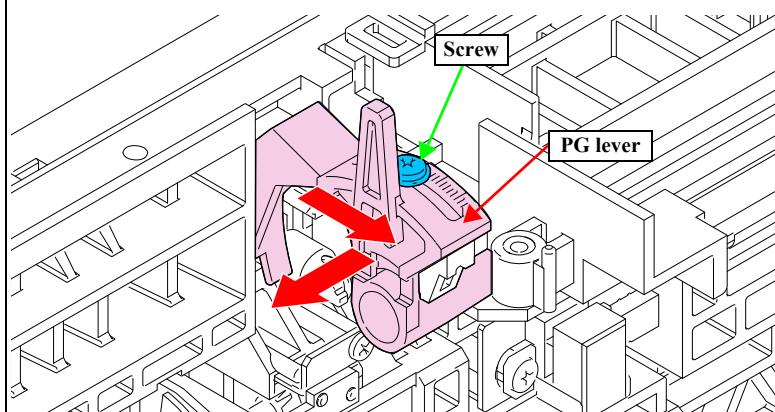
Figure 3-131. Removing the CR unit



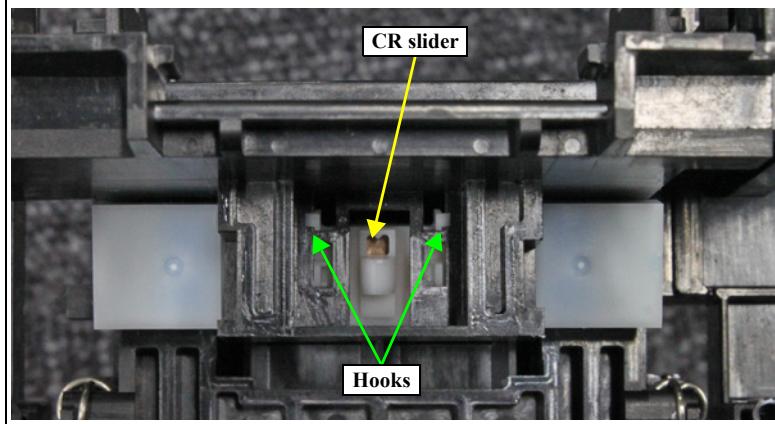


- New CR units are supplied without the CR slider. Before installing the CR unit, lubricate the CR slider, and then install it to the new CR unit. ("[5.6 Lubrication](#)" (p334))
- When replacing the CR unit, remove the CR slider following the procedure below and lubricate it. For instructions on the lubrication, see "[5.6 Lubrication](#)" (p334).

1. Remove the Silver M2.5x8 P-tite screw that secures the PG lever.
2. Move the PG lever in the direction of the arrow as far as it will go, pull out the lever.



3. Disengage the hook and remove the CR slider.



3.4.4.20 Oil pad holder

CHECK POINT

The procedure below is for disassembling the oil pad holder at the right. Use the same procedure for disassembling the left one.

1. Unlock the CR unit. ([p90](#))
2. Open the front cover.
3. Move the CR unit to a position over the platen.
4. Disengage the hook, and remove the oil pad holder.

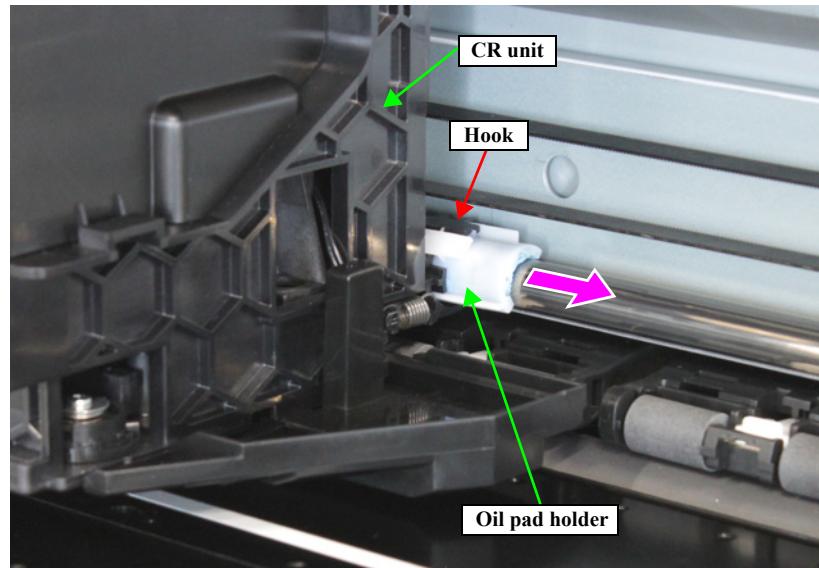


Figure 3-132. Removing the oil pad holder



When replaced with a new part, make sure to lubricate the new one referring to "[“5.6 Lubrication” \(p334\)](#)".

3.4.4.21 PW sensor



When replacing/removing this part, refer to “4.1.3 Adjustment Items and the Order by Repaired Part” (p213) and make sure to perform the specified operations including required adjustment.



When replacing the PW sensor, make sure to replace the IM sensor, too.

1. Unlock the CR unit. (p90)
2. Move the CR unit to the left end.
3. Remove the four screws, and remove the head cover.
A) Silver M3x10 P-tite screw: 4 pcs

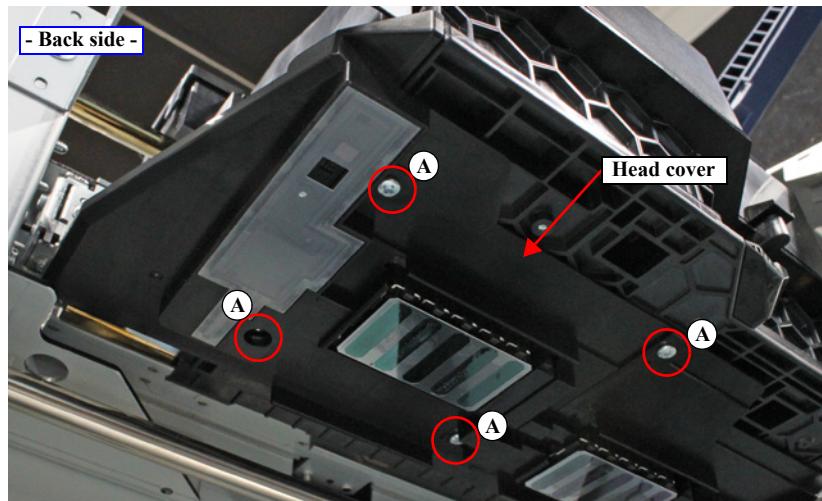


Figure 3-133. Removing the head cover

4. Remove the screw that secures the sensor cover.
B) Silver M3x8 P-tite screw with built-in washer: 1 pcs
5. Disengage the two hooks, and remove the sensor cover.

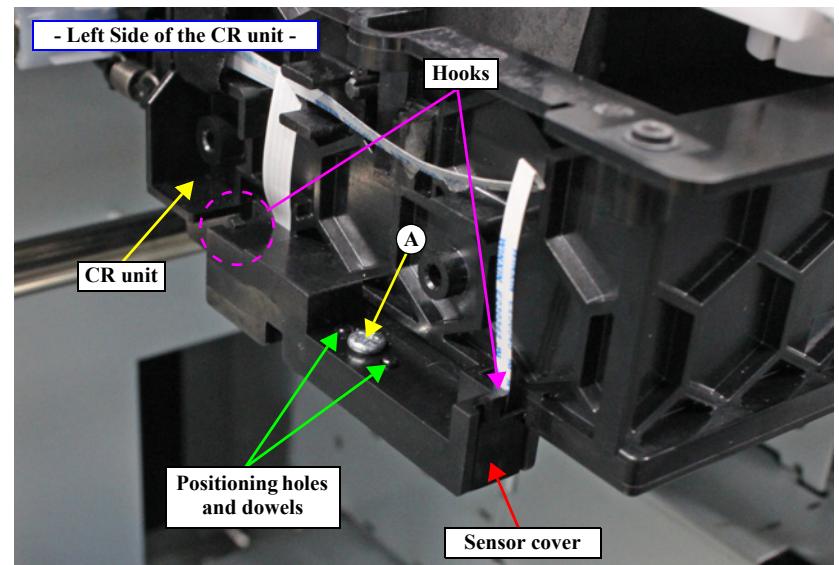


Figure 3-134. Removing the sensor cover

- Disconnect the FFC from the PW sensor, and remove the PW sensor.

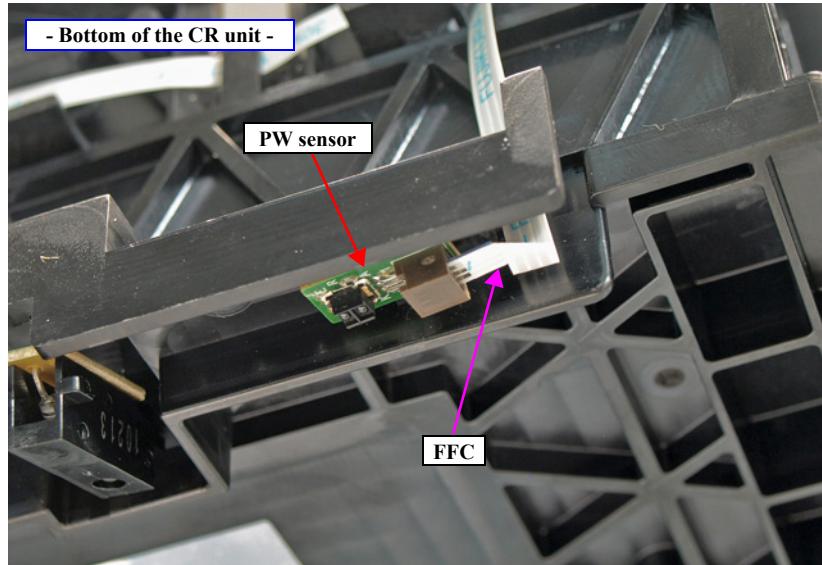
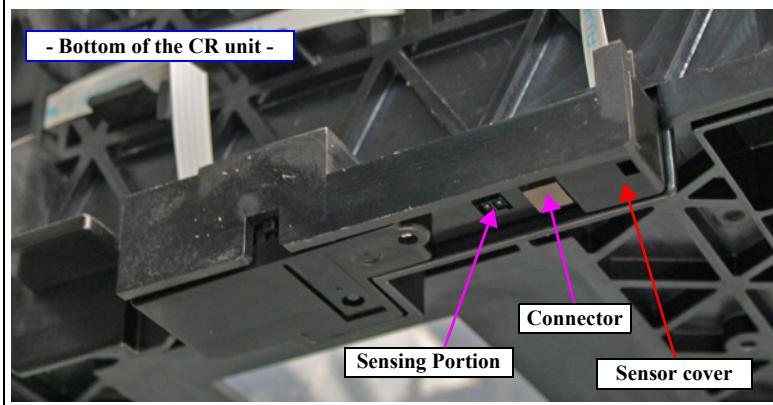


Figure 3-135. Removing the PW sensor



Position the PW sensor so that its sensing portion and connector are located as shown.



3.4.4.22 IM sensor



When replacing/removing this part, refer to “4.1.3 Adjustment Items and the Order by Repaired Part” (p213) and make sure to perform the specified operations including required adjustment.



When replacing the IM sensor, make sure to replace the PW sensor, too.

1. Unlock the CR unit. (p90)
2. Move the CR unit to the left end.
3. Remove the head cover. (See Step 3 in “3.4.4.21 PW sensor” (P. 176))
4. Remove the sensor cover. (See Step 4 to Step 5 in “3.4.4.21 PW sensor” (P. 176))
5. Disconnect the FFC from the connector of the IM sensor, and remove the IM sensor.

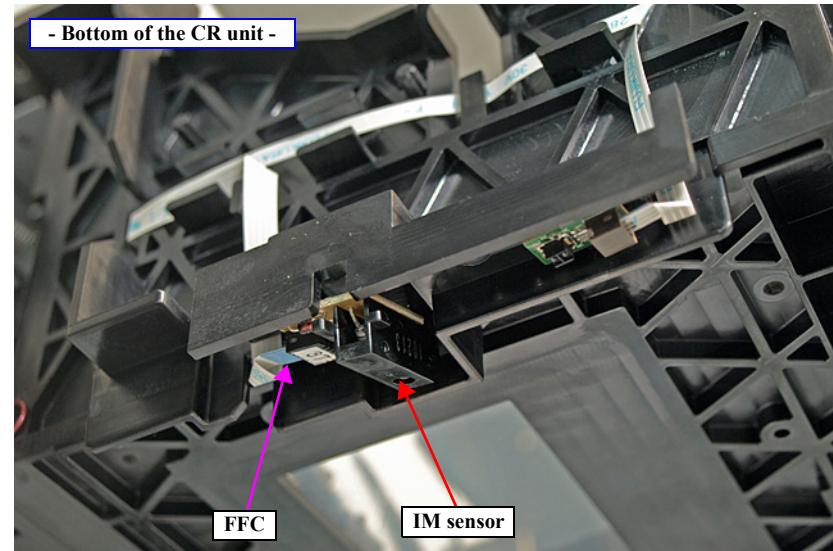
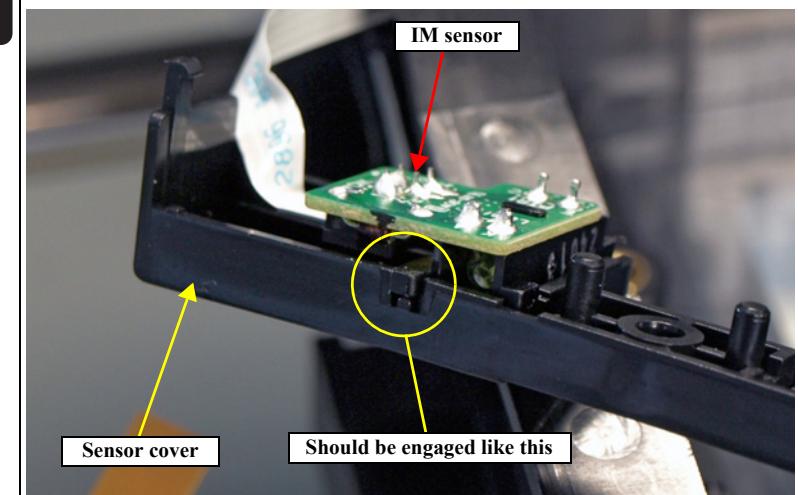


Figure 3-136. Removing the IM sensor



Before installing the IM sensor to the CR unit, insert its protruded portion into the groove of the sensor cover.



3.4.4.23 Cloth wiper assy

1. Unlock the CR unit. ([p90](#))
2. Remove the panel unit. ([p92](#))
3. Remove the media loading lever. ([p187](#))
4. Remove the right upper cover. ([p94](#))
5. Remove the ink tank. ([p181](#))
6. Remove the lower ink holder. ([p96](#))
7. Remove the right front cover. ([p101](#))
8. Remove the right cover. ([p102](#))
9. Move the CR unit until to a position over the platen.
10. Remove the cable cover. (See [Step 10](#) to [Step 11](#) in “3.4.4.15 Pump cap unit (Home)/(Full)” ([P. 159](#)))
11. Disconnect the cables from the relay connectors (No.81, No.82, No.83, No.84).
12. Release the cables.

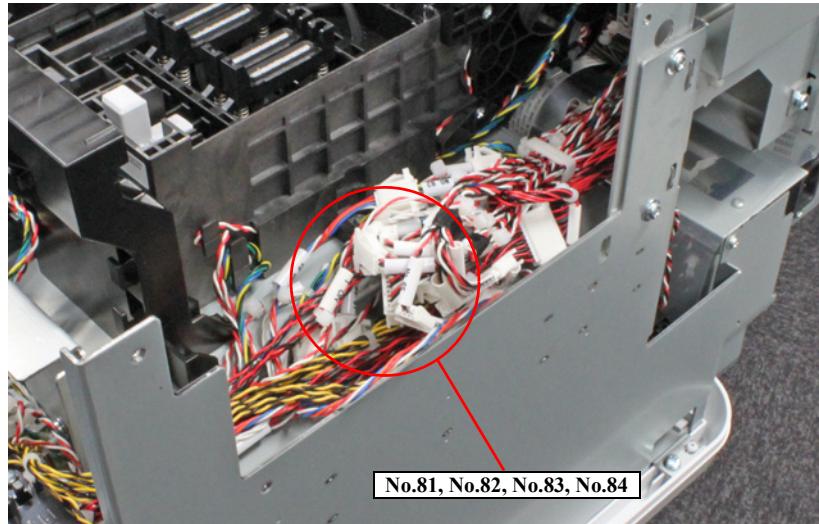


Figure 3-137. Releasing the cables

13. Rotate the gear, and move the cloth wiper assy toward you.

14. Remove the cloth wiper.

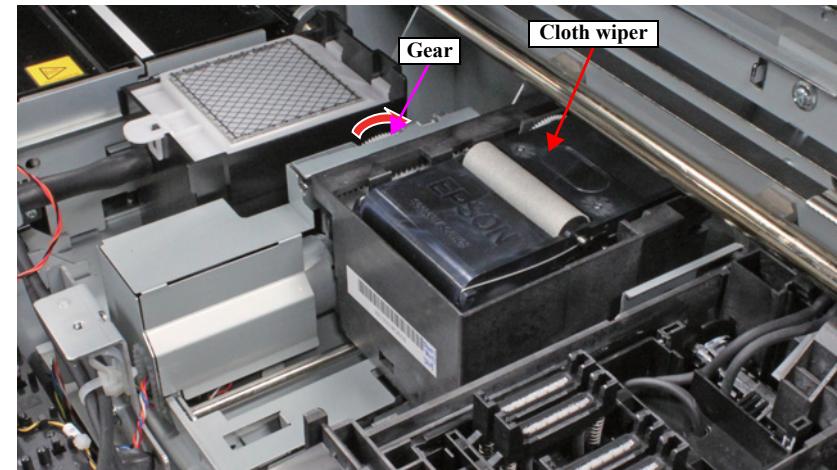


Figure 3-138. Removing the cloth wiper

15. Move the cloth wiper assy until you can see the screws shown below.

16. Remove the two screws, and remove the cloth wiper assy.

A) Silver M3x6 S-tite screw: 2 pcs

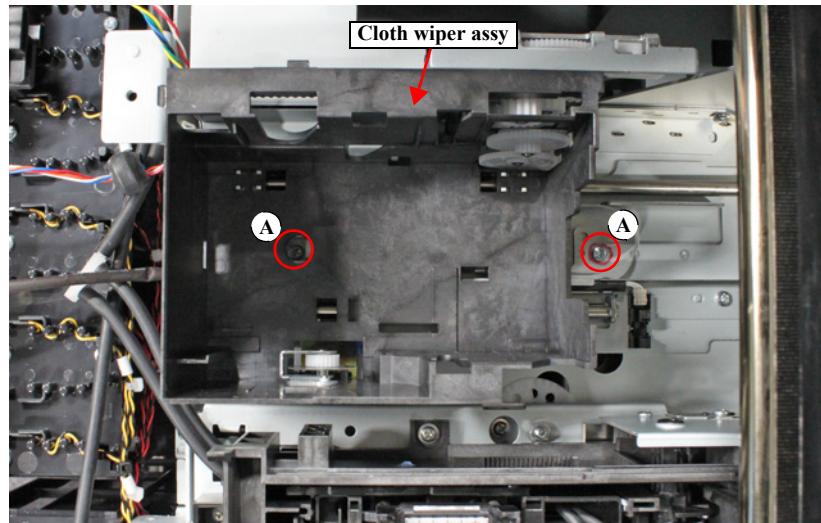


Figure 3-139. Removing the cloth wiper assy

3.4.4.24 Ink tank

This section describes the removing procedure for the ink tank and the installation procedure for cartridges. There are two types of cartridges; cleaning cartridges and ink cartridges for service.



When using the ink tanks, cleaning cartridges, and ink cartridges for service, they should be validated by using software (Service Program). (See [P. 286](#).)

REMOVING THE INK TANKS



The ink tank disassembly procedures of SC-F9400 Series/SC-F9400H Series differ from SC-F9300 Series.

- SC-F9300 Series: [P. 181](#)
- SC-F9400 Series/SC-F9400H Series: [P. 184](#)

SC-F9300 Series

1. Remove the four screws, and remove the CISS cover.
A)Black M3x8 machine screw: 4 pcs
2. Remove the two screws, and remove the CISS support bar.
B)Black M3x8 machine screw: 2 pcs

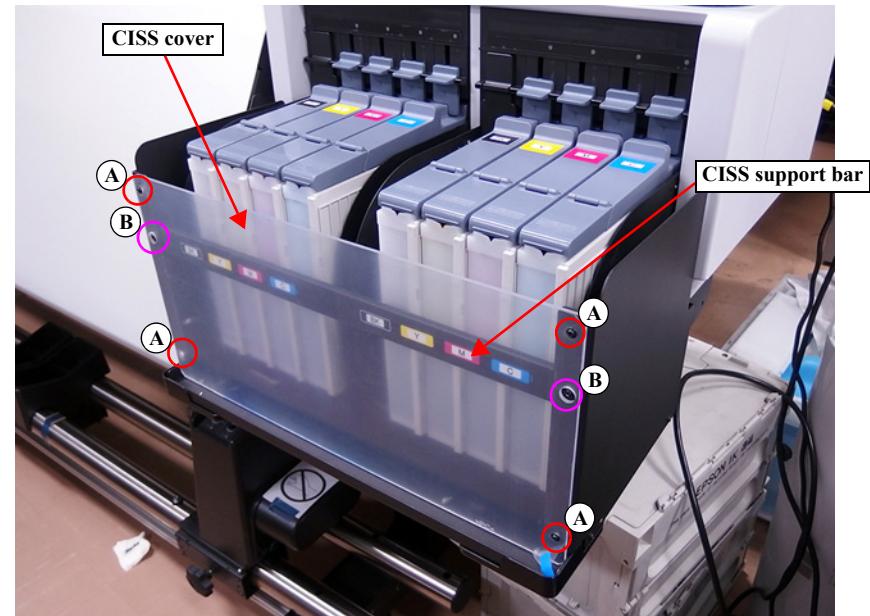


Figure 3-140. Removing the CISS cover and CISS support bar

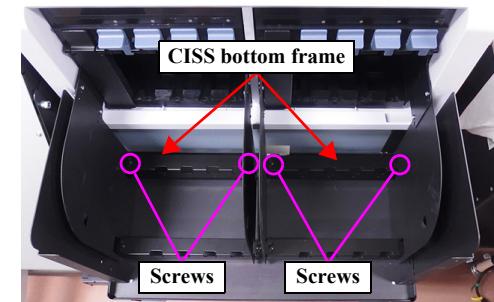
3. Remove the eight screws (one each) that secure the Ink tank.
C)Silver M3x8 S-tite screw with built-in washer: 8pcs
4. Lift the lock levers.
5. Remove the ink tanks.



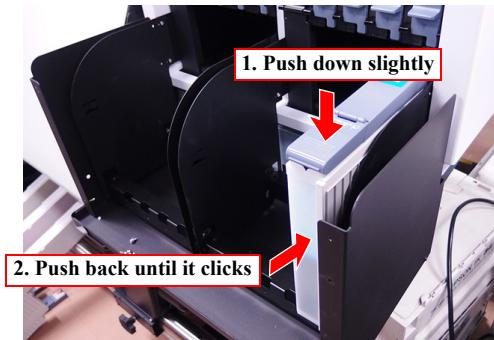
Figure 3-141. Ink tank fixing screw

Install the ink tank following procedure.

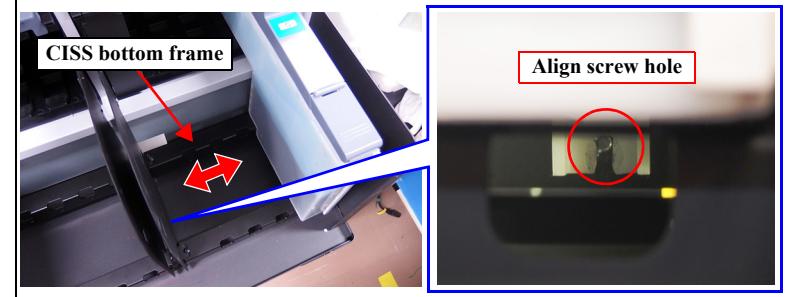
1. Loosen the two each screws of CISS bottom frame.



2. Attach the rightmost ink tank. Push it to the back while pushing it down.

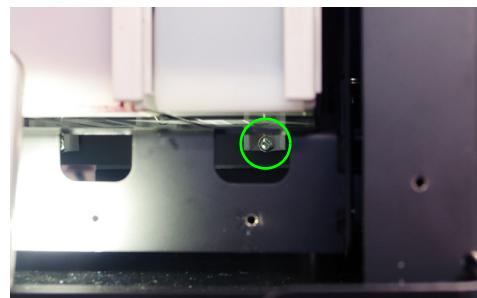


3. Slide CISS bottom frame to the right and left to align the screw hole with the screw slit at the bottom of the tank.





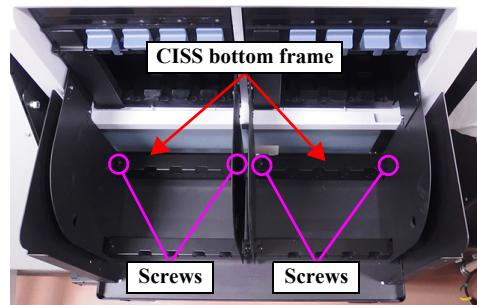
4. Secure the ink tank with a screw.



5. Attach other tanks in the order shown below.



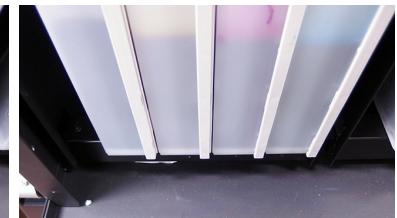
6. Tighten the two screws of CISS bottom frame which were loosened temporarily.



7. Check vertical alignment of the ink tanks. (If the ink tanks are not aligned, reattach the ink tanks.)



NG



OK

8. Check horizontal alignment of the ink tanks. (If the ink tanks are not aligned, reattach the tanks.)



NG



OK

9. Attach the CISS support bar and the CISS cover. ([Figure 3-140](#))

SC-F9400 Series/SC-F9400H Series

1. Remove the four screws, and remove the CISS cover.

A)Black M3x8 Cup machine screw: 4 pcs

REASSEMBLY

Attach two hooks of the CISS cover to frame. (Figure 3-142)

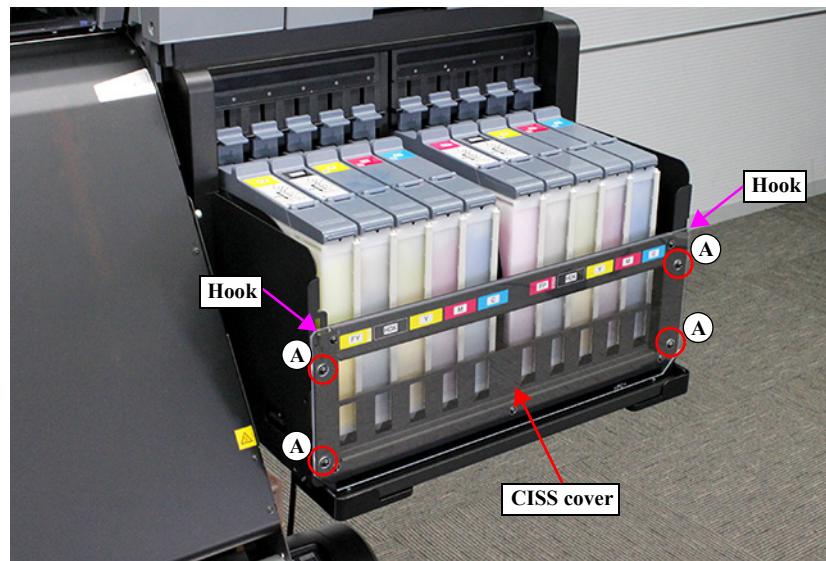


Figure 3-142. Removing the CISS cover

2. Lift the lock lever, and remove the slider.

3. Remove the screw, and remove the ink tank.

B)Black M3x8 Cup machine screw: 1 pc

4. Perform the [Step 2](#) to [Step 3](#) to remove the remaining ink tank and slider.

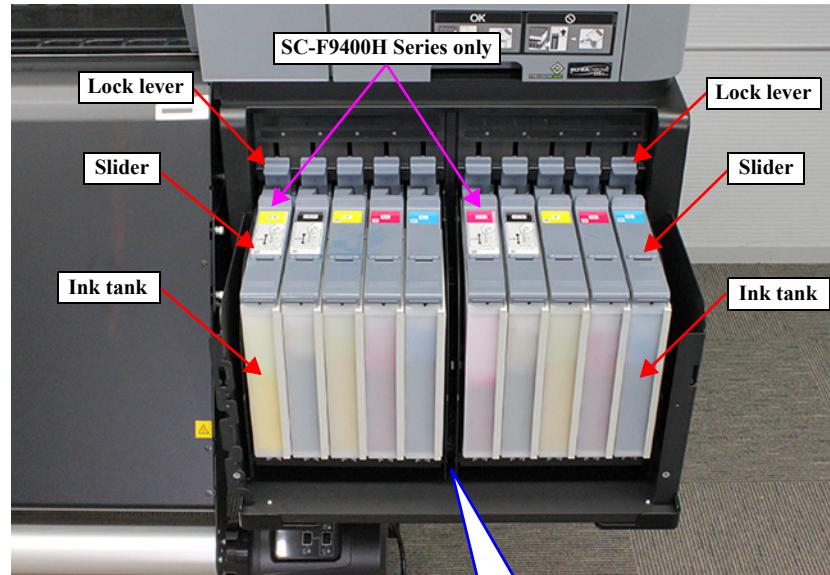
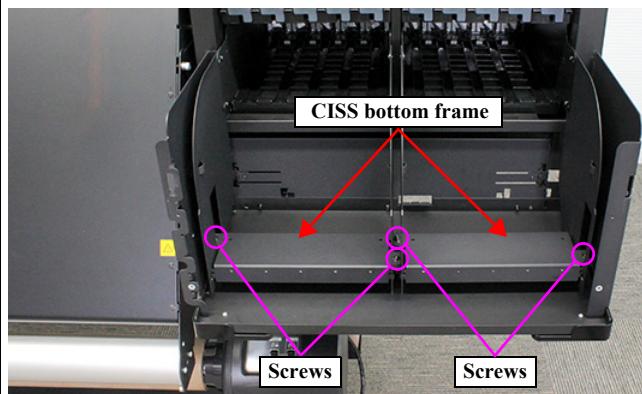


Figure 3-143. Removing the slider and ink tank

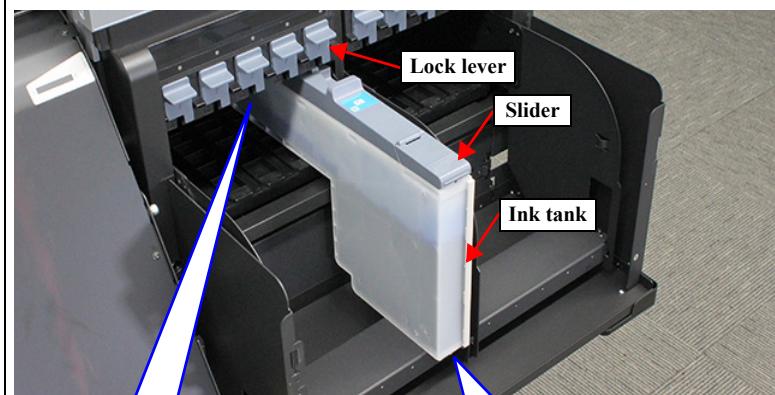


Install the ink tank following procedure.

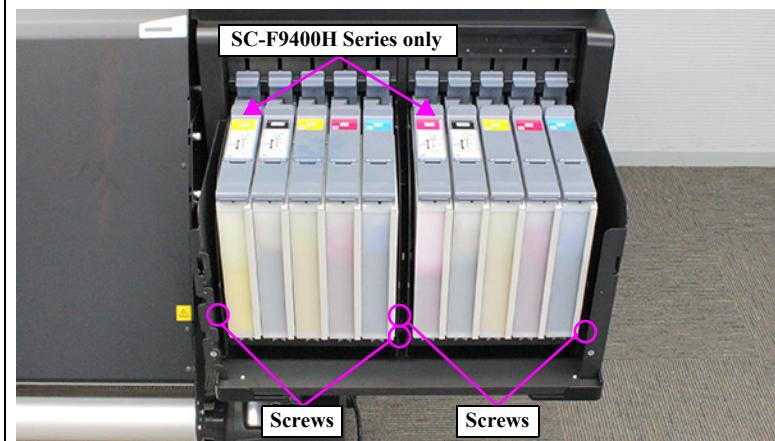
1. Loosen the four screws of CISS bottom frame.



2. Attach the ink tank to printer.
3. Attach the chip on the slider.
4. Attach the slider to printer.
5. Push down the lock lever to fix the slider.
6. Fix the ink tank with screw.



7. Perform [Step 2 to Step 6](#) to attach the remaining ink tanks and sliders.
8. Tighten the four screws which were loosen in [Step 1](#).



9. Attach the CISS cover. ([Figure 3-142](#))

INSTALLING THE CARTRIDGES

1. Loosen the four screws inside the ink holder.
A)Silver M3x20 S-tite screw with built-in washer: 8 pcs



Just loosen the screws, but do not remove them.

2. Confirm the hooks (plates) shown below are evenly lowered.



When attaching the ink tank, make sure to push up the eight hooks (plates) for fixing the ink tank.

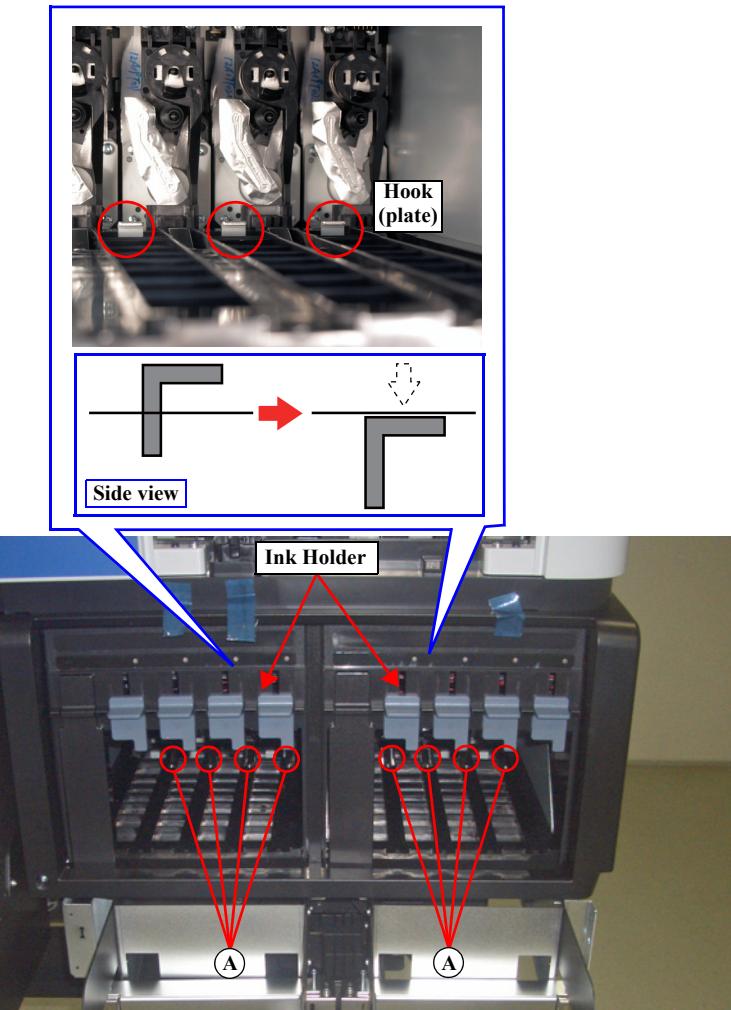


Figure 3-144. Plates

3. Install the cartridges.
4. Lower the lock levers.

3.4.5 Paper Feed Mechanism

3.4.5.1 Media loading lever

1. Move the media loading lever to the front side, and set it to the “Hold” position.
2. Remove the two screws, and remove the media loading lever.
A) Silver M4x8 S-tite screw: 2 pcs

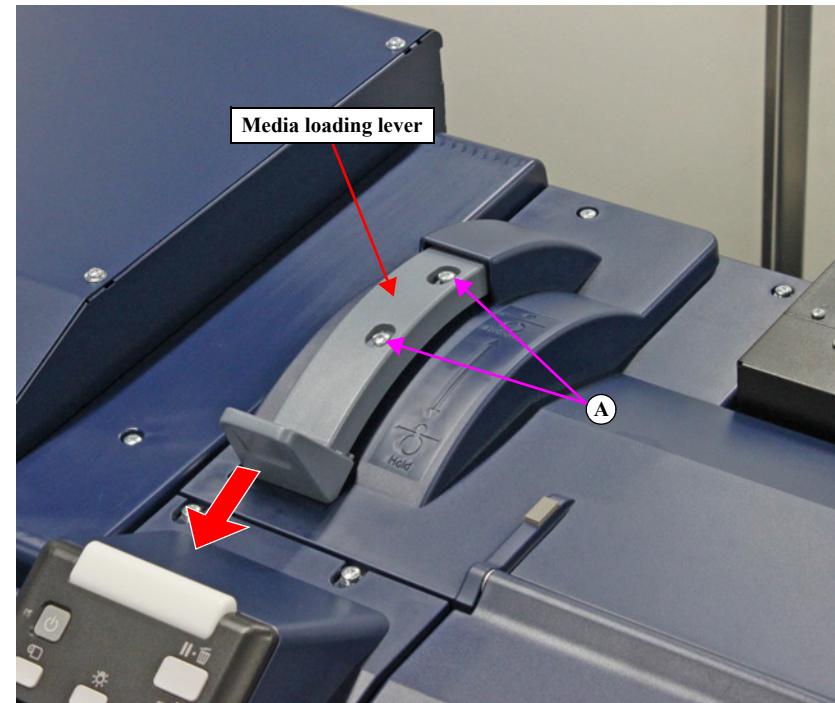


Figure 3-145. Removing the media loading lever

3.4.5.2 Media loading lever sensor

1. Lower the media loading lever to the front side.
 2. Release the cables from the two clamps.
 3. Remove the five screws, and remove the right rear cover.
- A) Silver M4x10 S-tite screw with washer and spring washer: 4 pcs
 B) Silver M3x6 machine screw: 1 pcs

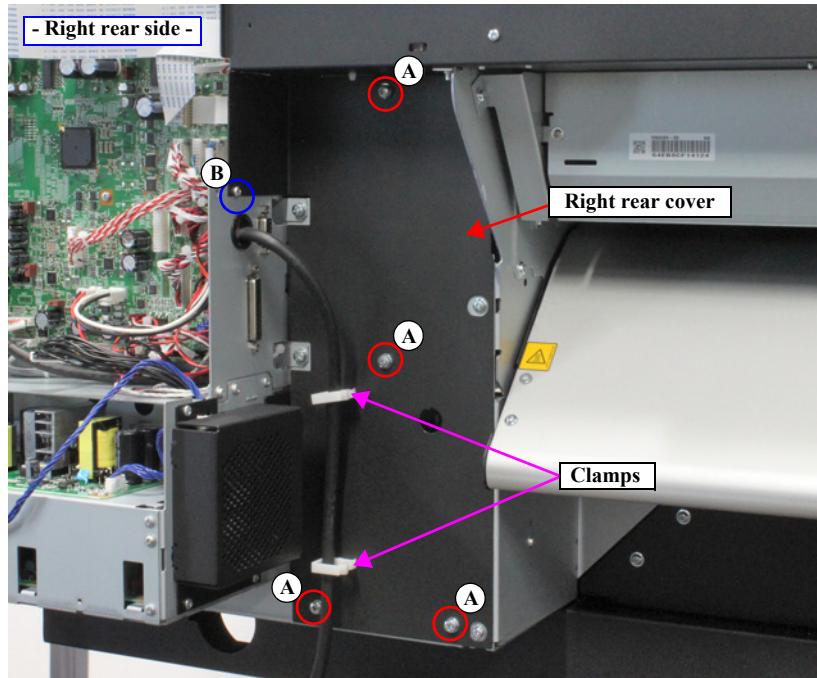


Figure 3-146. Removing the right rear cover



Be careful in the next step, because the rear cover will fall if the screws are removed.

4. Remove the two screws that secure the rear cover.

C) Silver M3x8 S-tite screw with built-in washer: 2 pcs

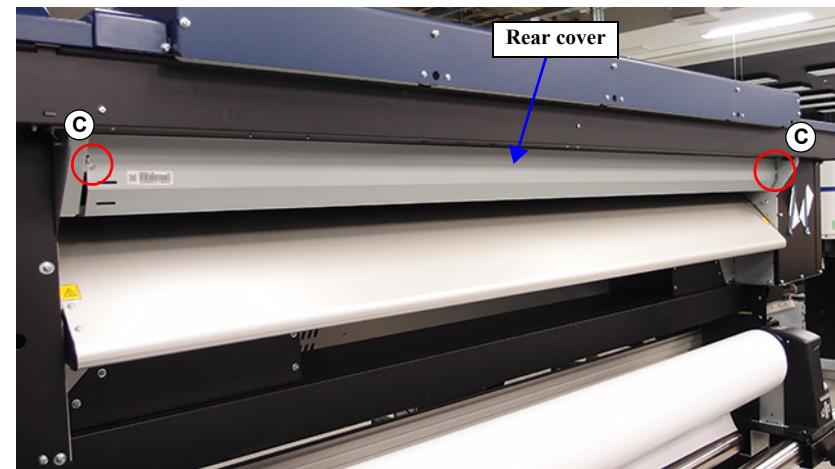


Figure 3-147. Removing the Rear cover

5. Disconnect the connector from the media loading lever sensor.



Figure 3-148. Connector of the media loading lever sensor

6. Remove the screws, and remove the mounting plate with the media loading lever sensor.

D) Silver M3x8 S-tite screw with built-in washer: 1 pcs

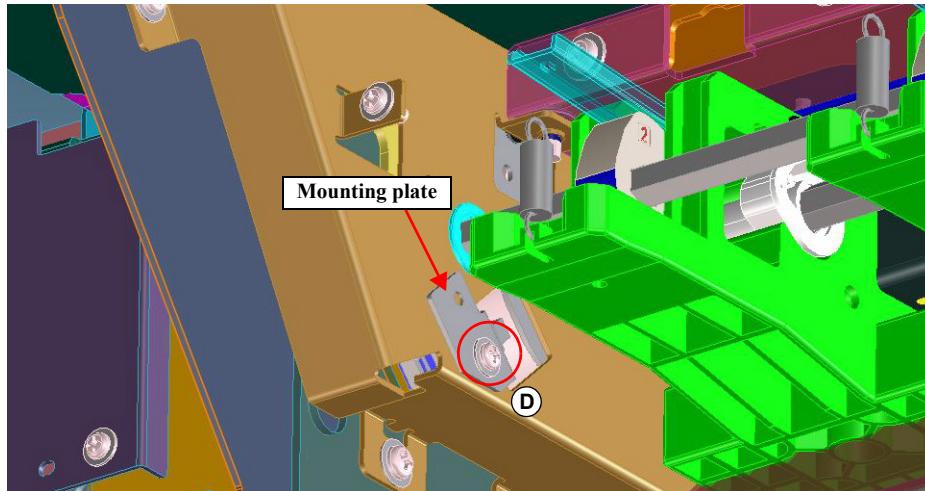


Figure 3-149. Removing the cover

7. Disengage the hook, and remove the media loading lever sensor.

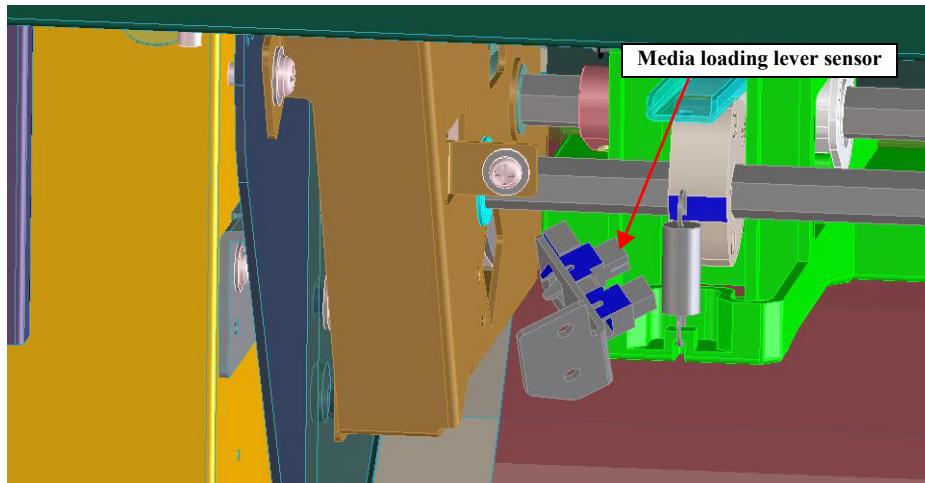


Figure 3-150. Removing the media loading lever sensor

3.4.5.3 PF motor

ADJUSTMENT
REQUIRED

When replacing/removing this part, refer to “[4.1.3 Adjustment Items and the Order by Repaired Part](#)” (p213) and make sure to perform the specified operations including required adjustment.

1. Remove the tube cover cap. ([p103](#))
2. Remove the left upper cover. ([p104](#))
3. Remove the left cover. ([p107](#))
4. Loosen the two screws.
A) Silver M4x10 S-tite screw with washer and spring washer: 2 pcs
5. Remove the two screws, and remove the left rear cover.
B) Silver M4x10 S-tite screw with washer and spring washer: 2 pcs

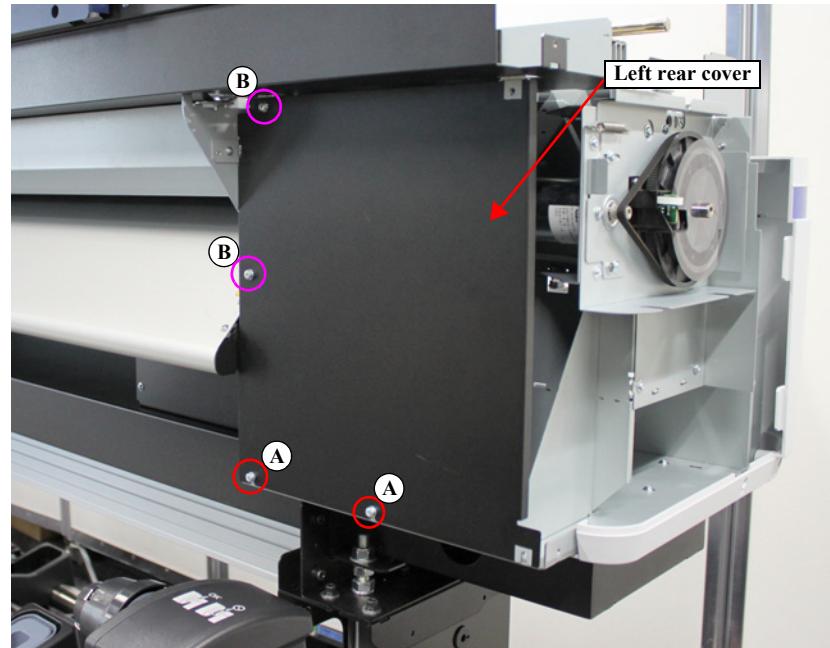


Figure 3-151. Removing the left rear cover

6. Disconnect the cable from the relay connector.
7. Release the PF motor cable from the two clamps.

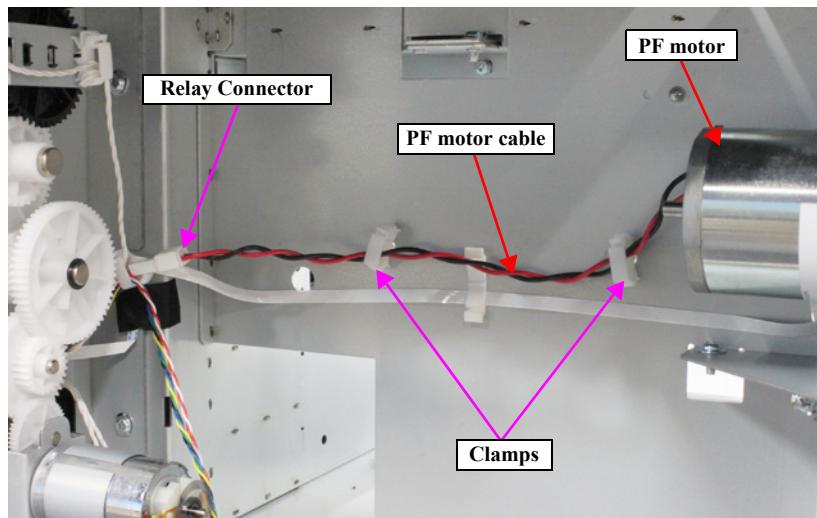


Figure 3-152. Releasing the Cable

8. Loosen the two screws that secure the PF motor mounting plate.

C) Silver M4x8 screw with built-in washer: 2 pcs



Before tightening the screw, move the PF motor mounting plate forward and rearward several times, and make sure that the plate moves smoothly and tension of the tension spring is applied properly.

9. While pressing the mounting plate in the direction of the arrow, loosen the tension of the PF timing belt, and remove the belt from the pinion gear of the PF motor.
10. Remove the two screws, and remove the PF motor.

D) Silver M3x6 Machine screw: 2 pcs

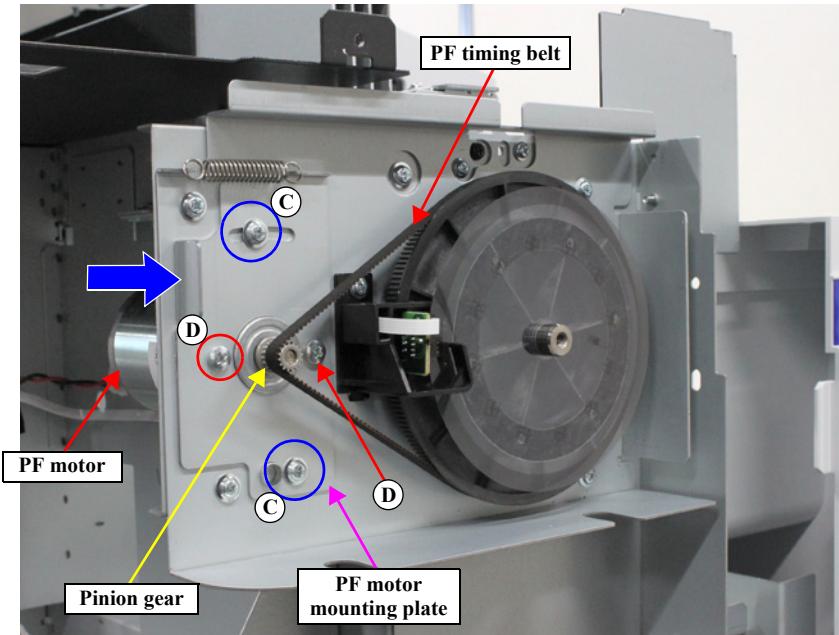


Figure 3-153. Removing the PF motor

3.4.5.4 PF encoder

1. Remove the tube cover cap. ([p103](#))
2. Remove the left upper cover. ([p104](#))
3. Remove the left cover. ([p107](#))
4. Disconnect the FFC from the connector of the PF encoder.
5. Remove the screw, and remove the PF encoder.

A) Silver M2.5x6 (Bit No.1) P-tite screw: 1 pcs



When installing the PF encoder, be sure the PF encoder and the PF scale are not in contact with each other.

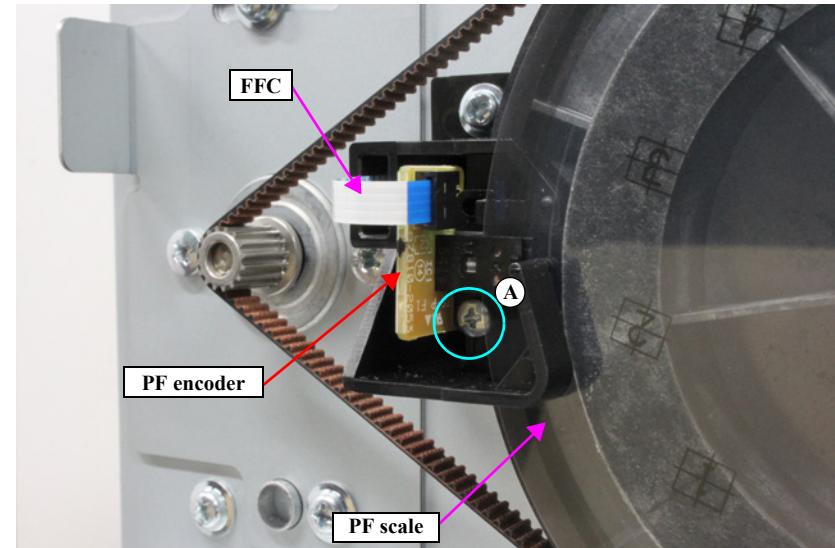


Figure 3-154. Removing the PF encoder

3.4.5.5 PF scale



When replacing/removing this part, refer to “[4.1.3 Adjustment Items and the Order by Repaired Part](#)” (p213) and make sure to perform the specified operations including required adjustment.



Make sure to hold the PF scale by the center section and confirm there are no scratches, contamination or foreign objects on the scale. (Never hold it by the scale section.)

1. Remove the tube cover cap. ([p103](#))
2. Remove the left upper cover. ([p104](#))
3. Remove the left cover. ([p107](#))
4. Remove the PF Encoder. ([p195](#))
5. Remove the PF scale.



ASP PF scale is not provided with double-sided tape (The tape is provided separately). Make sure to first attach the tape to the wheel of the main body, and then attach the PF scale.

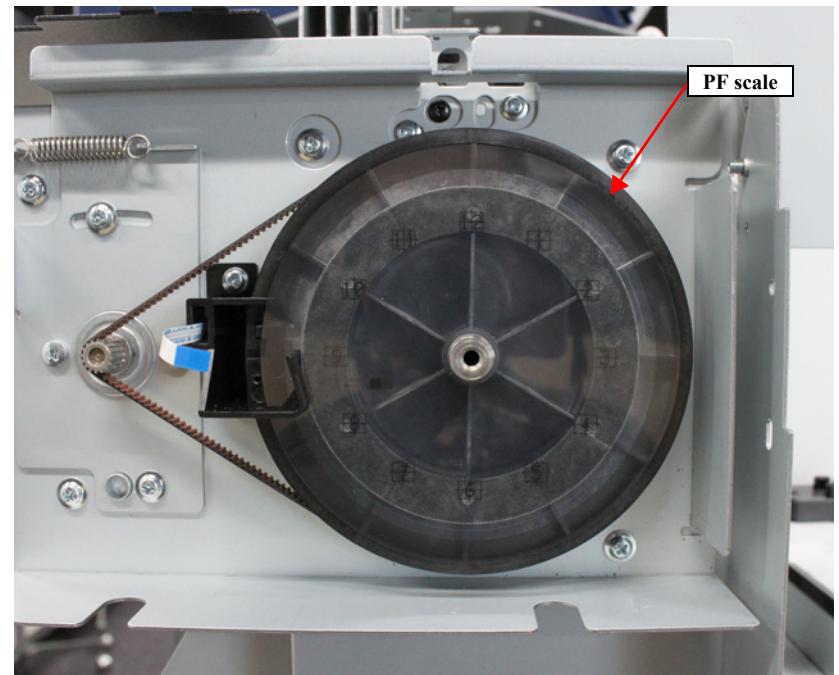
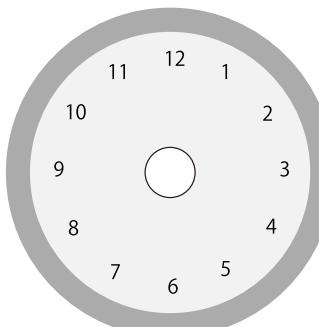


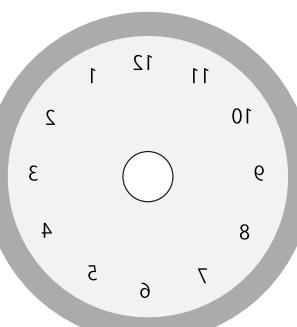
Figure 3-155. Removing the PF scale



- Orient the scale with the front face facing outward.

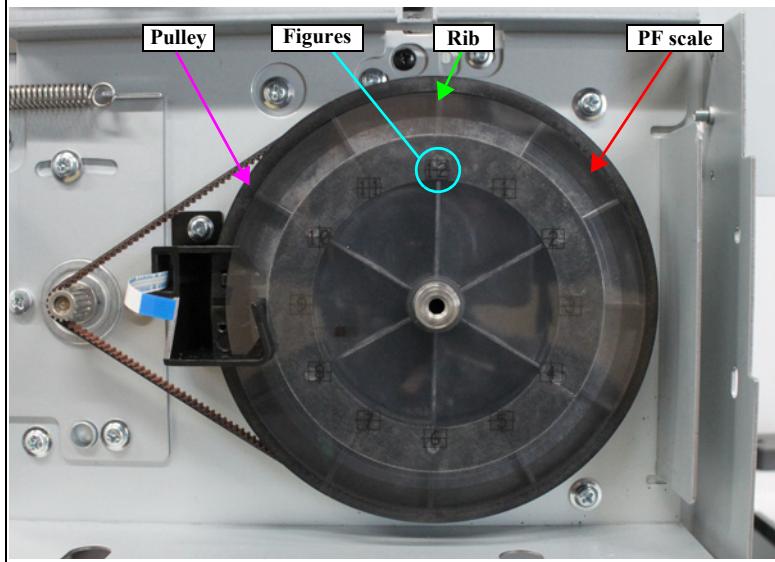


OK (outer)



NG (inner)

- When attaching the scale, align the figures on it with the ribs on the pulley.



3.4.5.6 PF timing belt



When replacing/removing this part, refer to “[4.1.3 Adjustment Items and the Order by Repaired Part](#)” (p213) and make sure to perform the specified operations including required adjustment.

1. Remove the tube cover cap. ([p103](#))
2. Remove the left upper cover. ([p104](#))
3. Remove the left cover. ([p107](#))
4. Loosen the two screws (A) that secure the PF motor mounting plate.



Before tightening the screw A, move the PF motor mounting plate frontward and rearward several times, and make sure that the plate moves smoothly and tension of the tension spring is applied properly.

5. While pressing the mounting plate in the direction of the arrow, loosen the tension of the PF timing belt, and remove the belt from the pinion gear of the PF motor.
6. Remove the PF timing belt.



After attaching the PF timing belt, rotate the pulley clockwise twice so as to engage the belt tightly with the pulley.

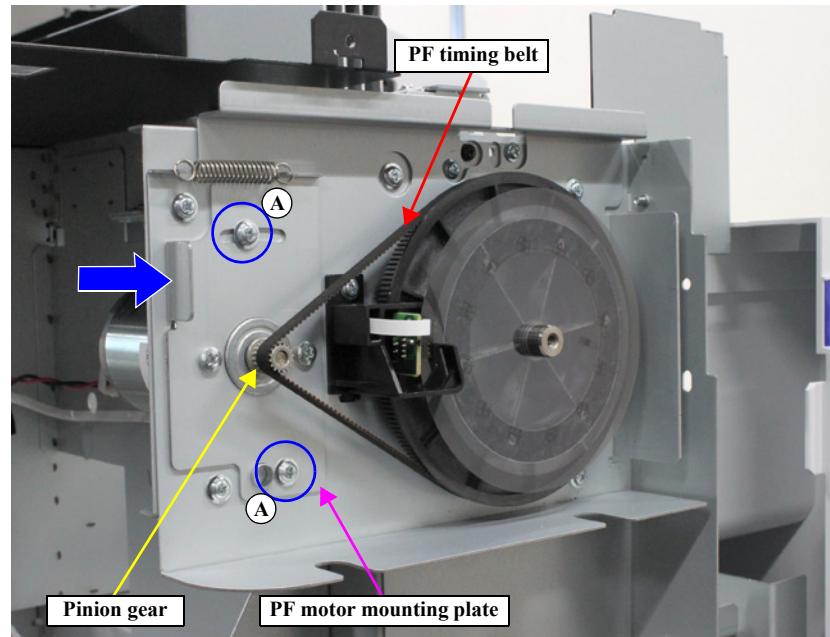


Figure 3-156. Removing the PF timing belt

3.4.5.7 Pressure roller

1. Move the media loading lever to the rear side, and set it to the release position.
2. Open the front cover.
3. Slide the lock to the rear.
4. Remove the pressure roller.

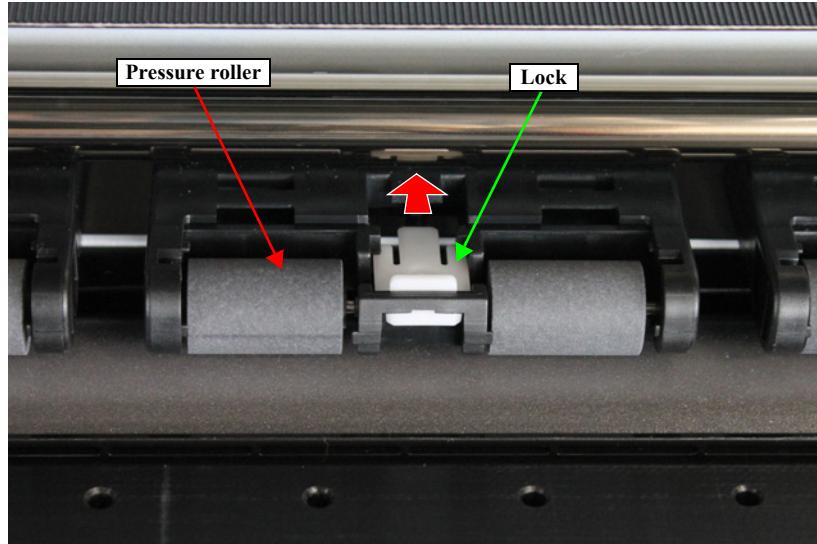


Figure 3-157. Removing the pressure roller

3.4.5.8 Suction fan

ADJUSTMENT REQUIRED

When replacing/removing this part, refer to “[4.1.3 Adjustment Items and the Order by Repaired Part](#)” (p213) and make sure to perform the specified operations including required adjustment.

1. Remove the panel unit. ([p92](#))
2. Remove the after heater referring to [5.2.2.2 Removing the after heater \(p325\)](#).
- When removing the fan on the right
 1. Release the heater cable from the clamp.
 2. Remove the clamp.
 3. Release the cable from the clamp.

REASSEMBLY

Wrap the cable once around the clamp.

4. Remove the screw, and pull out the suction fan together with the fixing plate.
- A) Silver M3x8 S-tite screw with built-in washer: 1 pcs

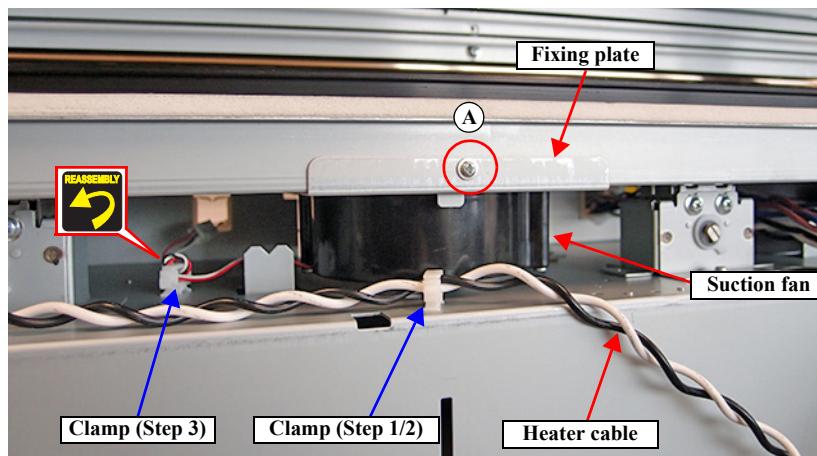


Figure 3-158. Removing the suction fan (right)

- When removing the fan on the left

1. Release the cable from the two clamps.



Wrap the cable once around the clamp.

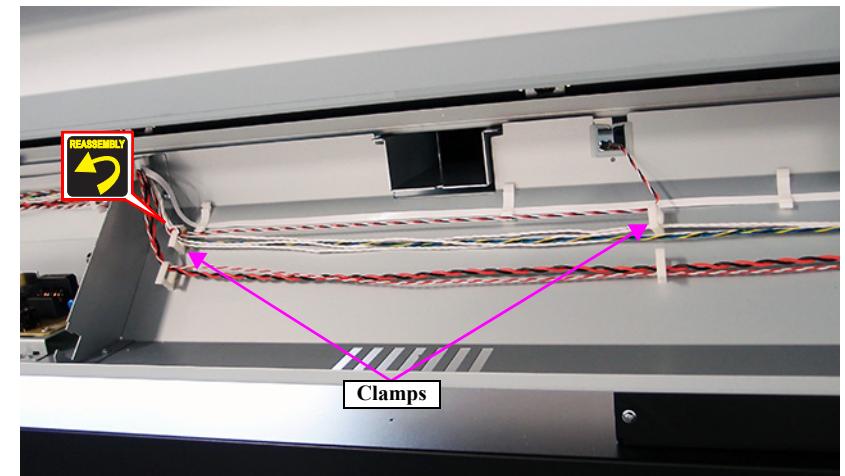


Figure 3-159. Releasing the cable

2. Release the cable from the clamp.
3. Remove the screw, and pull out the suction fan together with the fixing plate.
A) Silver M3x8 S-tite screw with built-in washer: 1 pcs
4. Disconnect the relay connector.

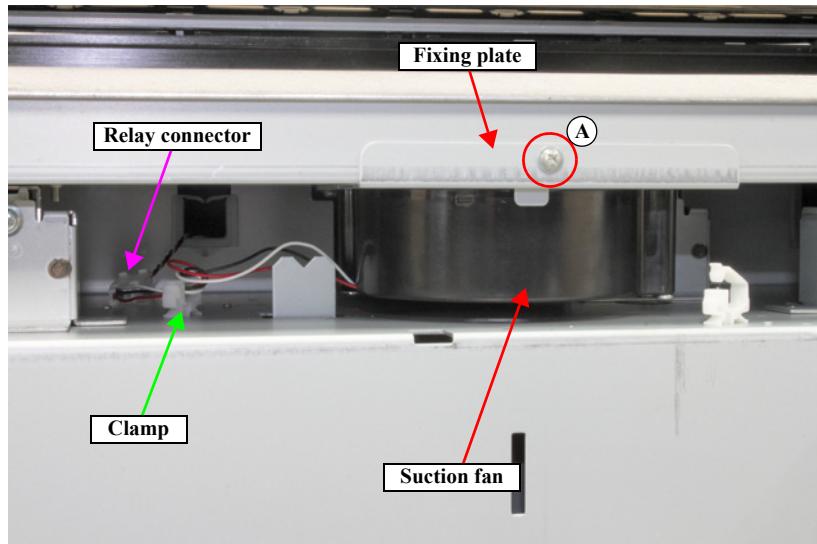


Figure 3-160. Removing the suction fan (left)

3.4.5.9 PE sensor



When replacing/removing this part, refer to “4.1.3 Adjustment Items and the Order by Repaired Part” (p213) and make sure to perform the specified operations including required adjustment.

1. Remove the upper rear cover. (p109)
2. Remove the screw, and remove the sensor mounting plate.

A) Silver M3x8 S-tite screw with built-in washer: 1 pcs



When removing/attaching the screw, be careful not to scratch the FFC.

3. Remove the screw that secures the sensor holder.
- B) Silver M3x8 S-tite screw: 1 pcs
4. Disengage the hooks, and remove the sensor holder.

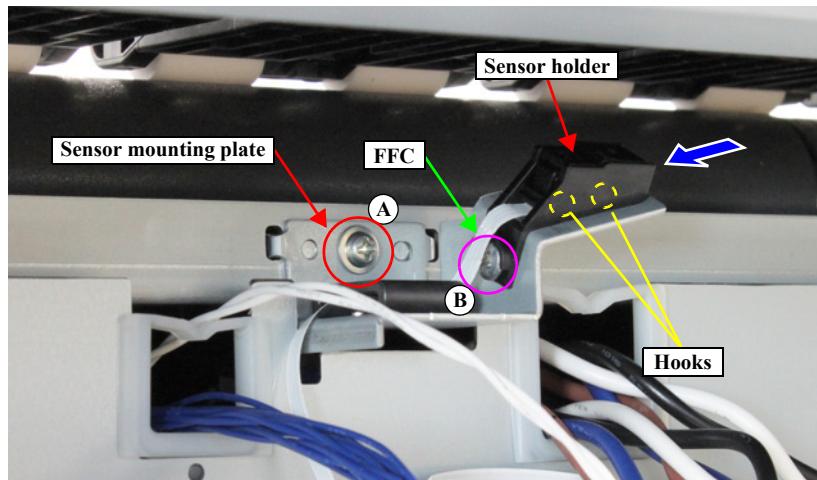


Figure 3-161. Removing the sensor holder

5. Disengage the hook, and remove the sensor cover.

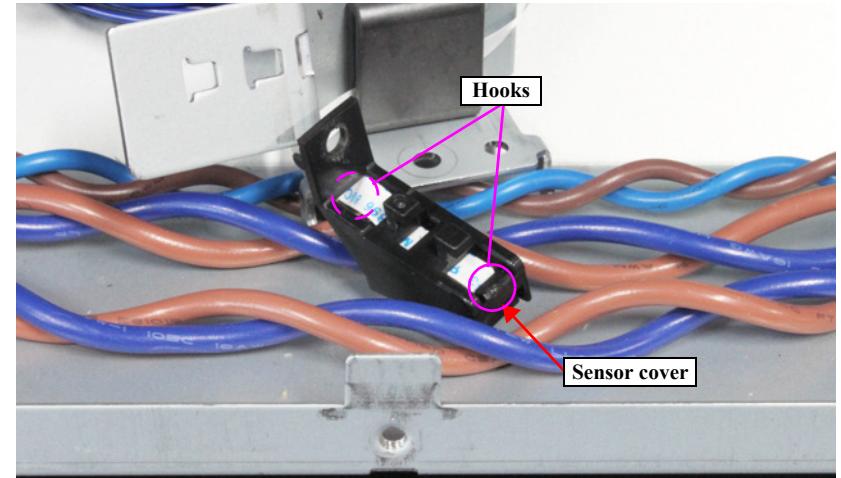


Figure 3-162. Removing the sensor cover

6. Disconnect the FFC, and remove the PE sensor.

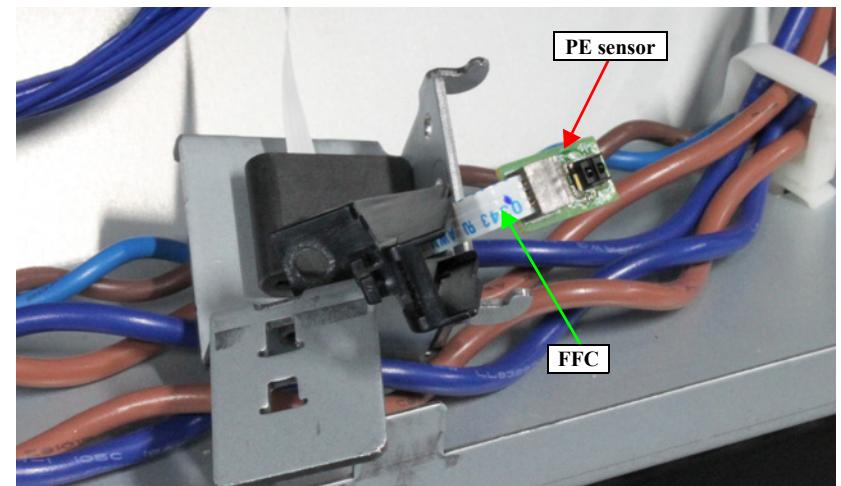


Figure 3-163. Removing the PE sensor

3.4.5.10 Nip adjust motor

1. Remove the tube cover cap. (p103)
2. Remove the left upper cover. (p104)
3. Remove the left cover. (p107)
4. Release the cable from the clamp.
5. Disconnect the cable from the connector.
6. Remove the two screws, and remove the mounting plate.

A) Silver M4x6 S-tite screw: 2 pcs

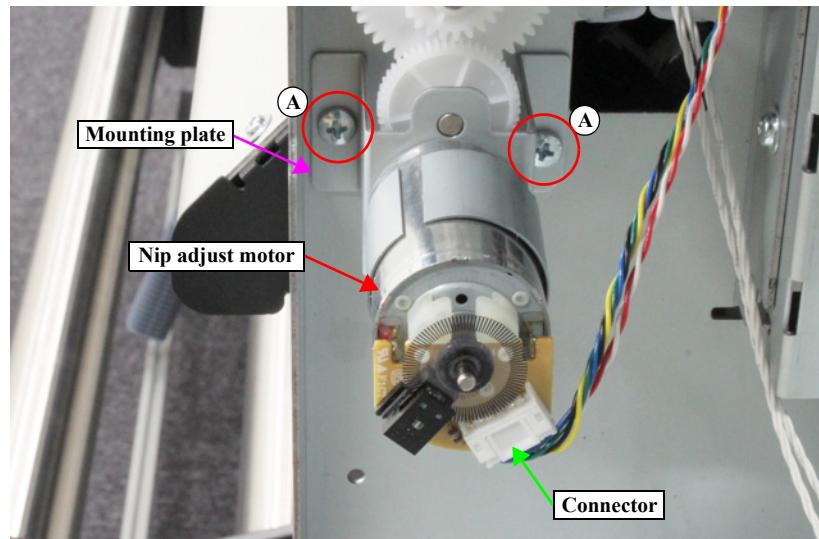


Figure 3-164. Removing the mounting plate

7. Remove the two screws, and remove the nip adjust motor.

B) Silver M3x6 Machine screw: 2 pcs

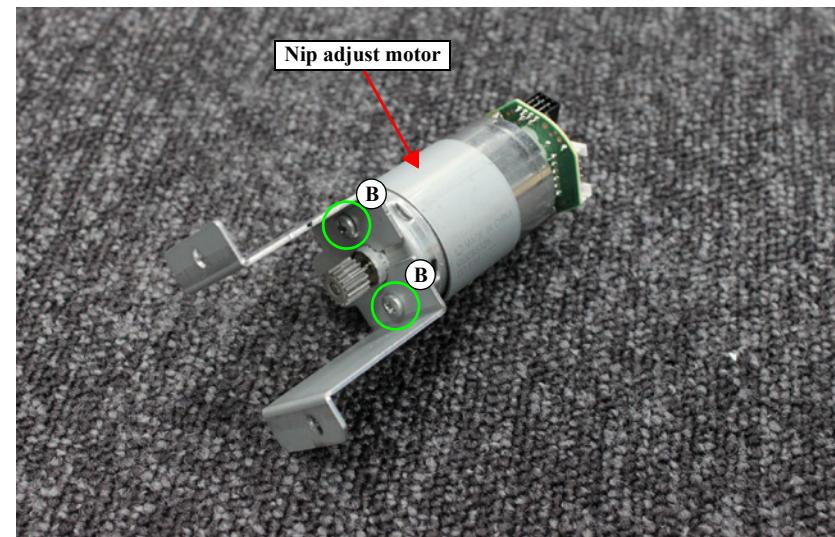


Figure 3-165. Removing the nip adjust motor

3.4.5.11 Nip roller HP sensor

1. Remove the tube cover cap. ([p103](#))
2. Remove the left upper cover. ([p104](#))
3. Remove the left cover. ([p107](#))
4. Disconnect the cable from the connector.
5. Disengage the hooks, and remove the nip roller HP sensor.

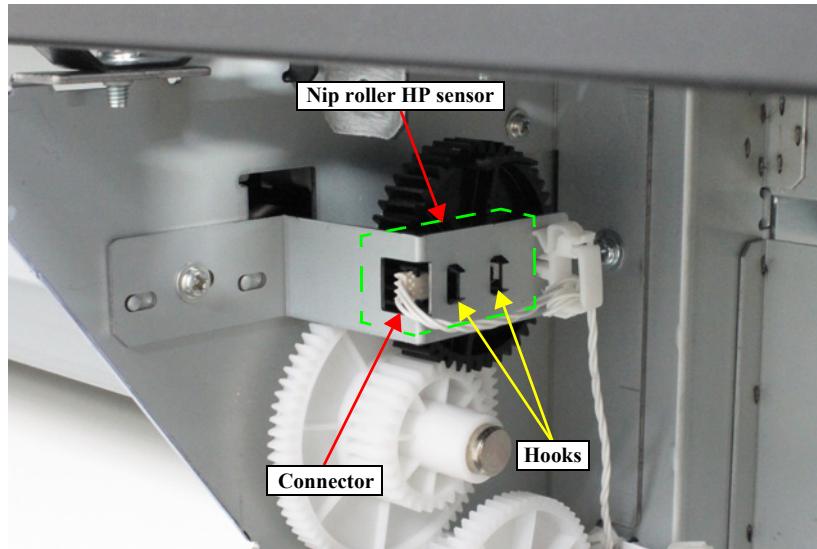


Figure 3-166. Removing the nip roller HP sensor

3.4.6 Heater Mechanism

3.4.6.1 After heater



When replacing/removing this part, refer to "[4.1.3 Adjustment Items and the Order by Repaired Part](#)" (p213) and make sure to perform the specified operations including required adjustment.

1. Remove the panel unit. ([p92](#))
2. Open the front cover.
3. Remove the screws that secure the after heater.
A) Silver M3x6 S-tite screw with built-in washer: 8 pcs
4. Insert your fingers into the space on the top and tilt the upper part of the after heater toward you.

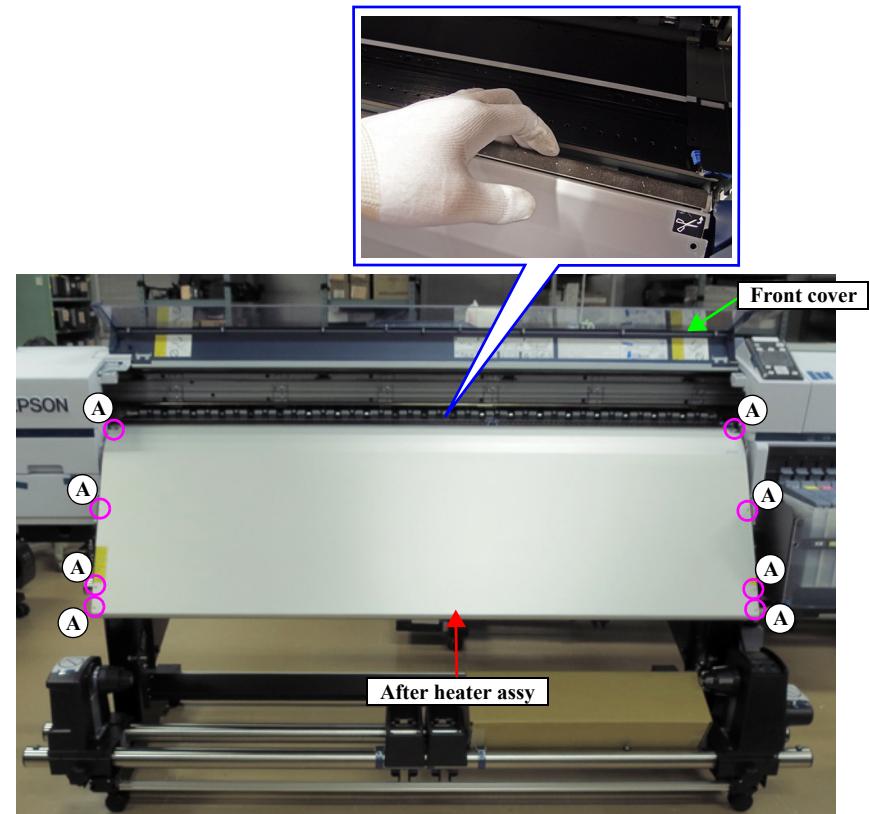


Figure 3-167. After heater fixing screws

5. Release the cables from the clamp.
6. Disconnect the cables from the three relay connectors.

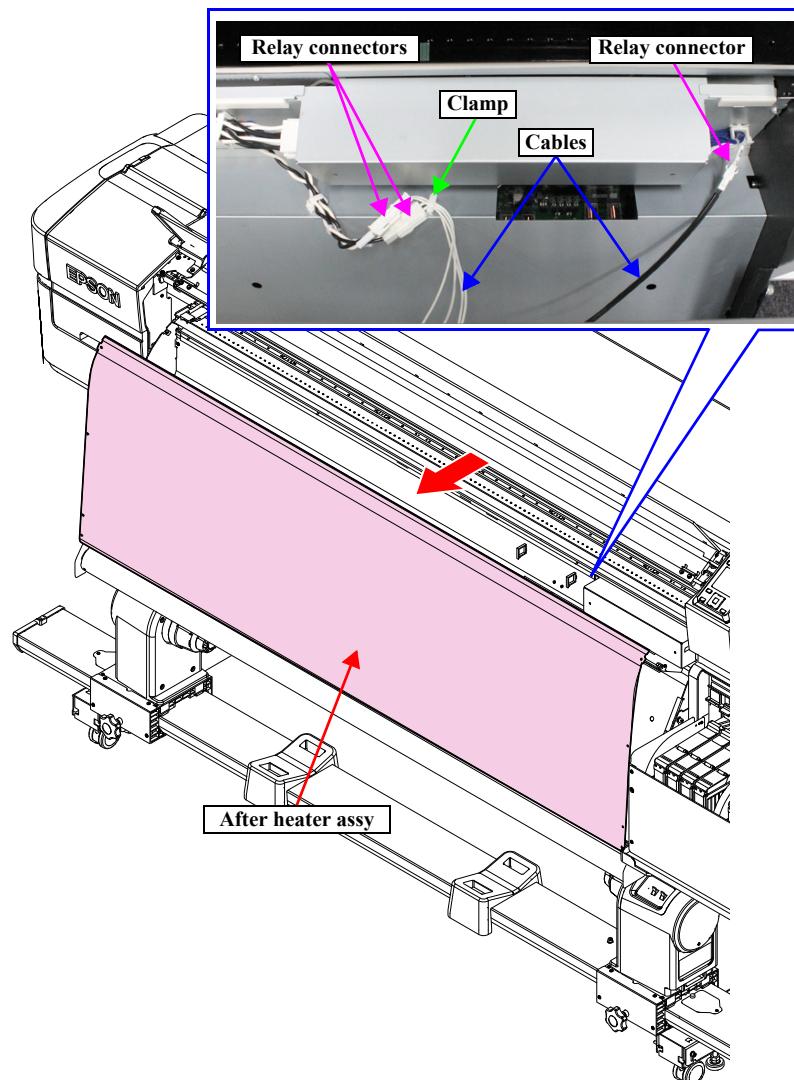


Figure 3-168. Releasing the cables

7. Remove the after heater in the direction of the arrow.



Hook after heater assy onto the four pins.

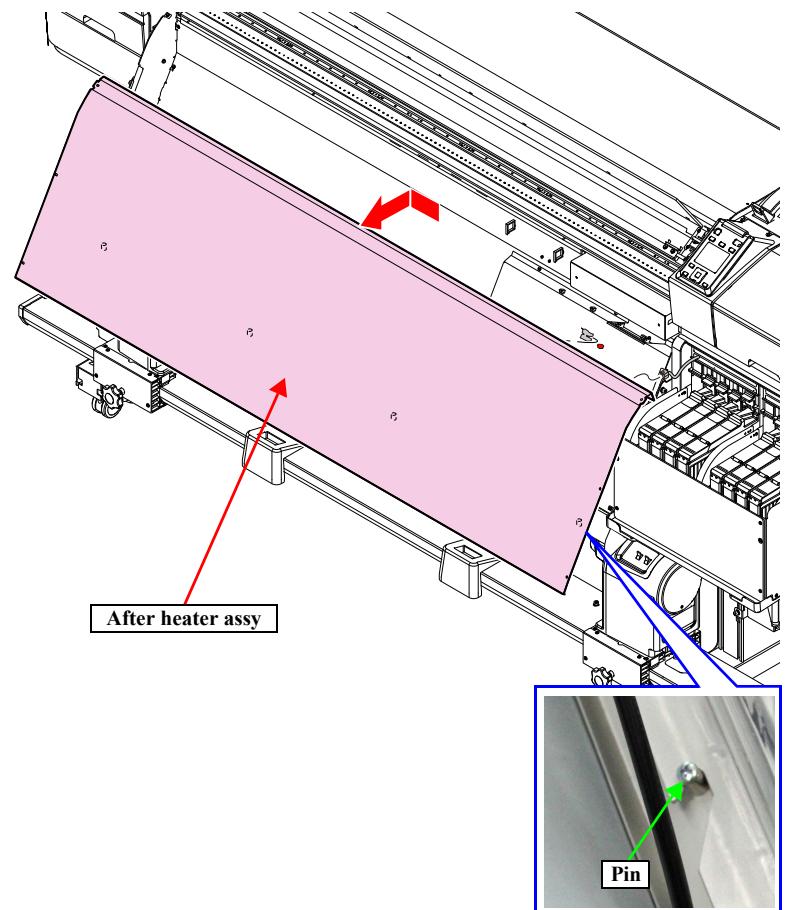


Figure 3-169. Removing the after heater assy

8. Remove the two after heater from the back side of the after heater assy.



After removing the after heater, remove the residual adhesive paste and aluminum as much as possible.



Attach the after heater according to the standard below.

- Home side -

$17.5 \pm 2 \text{ mm}$

After heater

$17.5 \pm 2 \text{ mm}$

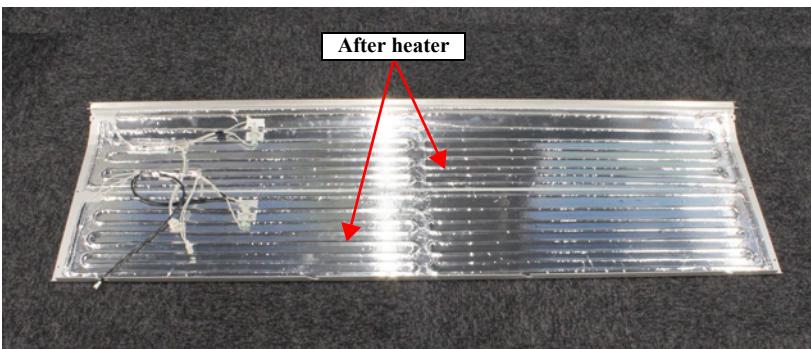


Figure 3-170. Removing the after heater

3.4.6.2 Cooling fan

1. Remove the panel unit. ([p92](#))
2. Remove the after heater. ([p202](#))
3. Remove the sub-E board cover. (See [Step 3](#) in “3.4.3.5 Sub-E board” ([P. 128](#)))
4. Disconnect the cable of the cooling fan from the connector (CN518) on the sub-E board.
5. Release the cable of the cooling fan from the two clamps.
6. Insert the screwdriver through the holes on the frame at the cooling fan side to remove the two screws that secure the cooling fan, and remove the cooling fan.
A) Silver M3x30 S-tite screw: 2 pcs



**Be careful of the orientation of the cooling fan during installation.
Make sure to attach it with the side with the label facing inside.**

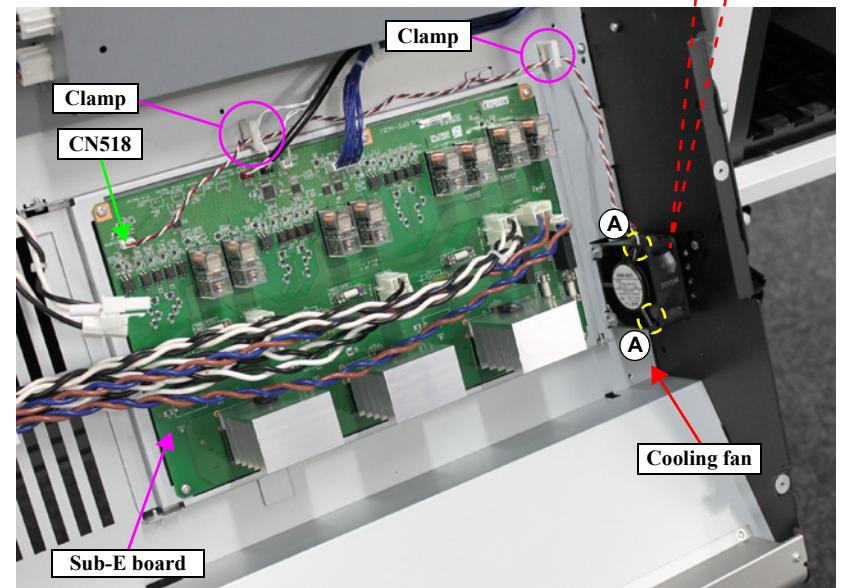
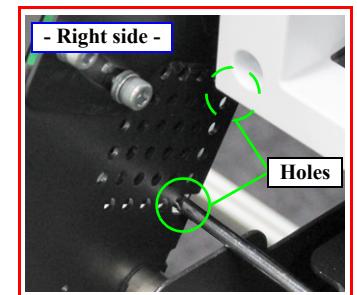


Figure 3-171. Removing the cooling fan

3.4.7 Reel Mechanism

3.4.7.1 Media guide bar

1. Remove the four screws, and remove the media guide bar.

A)Silver M4x6 machine screw: 4 pcs



When replacing the media guide bar, perform the
4.16 Parallelism Adjusting (p306).

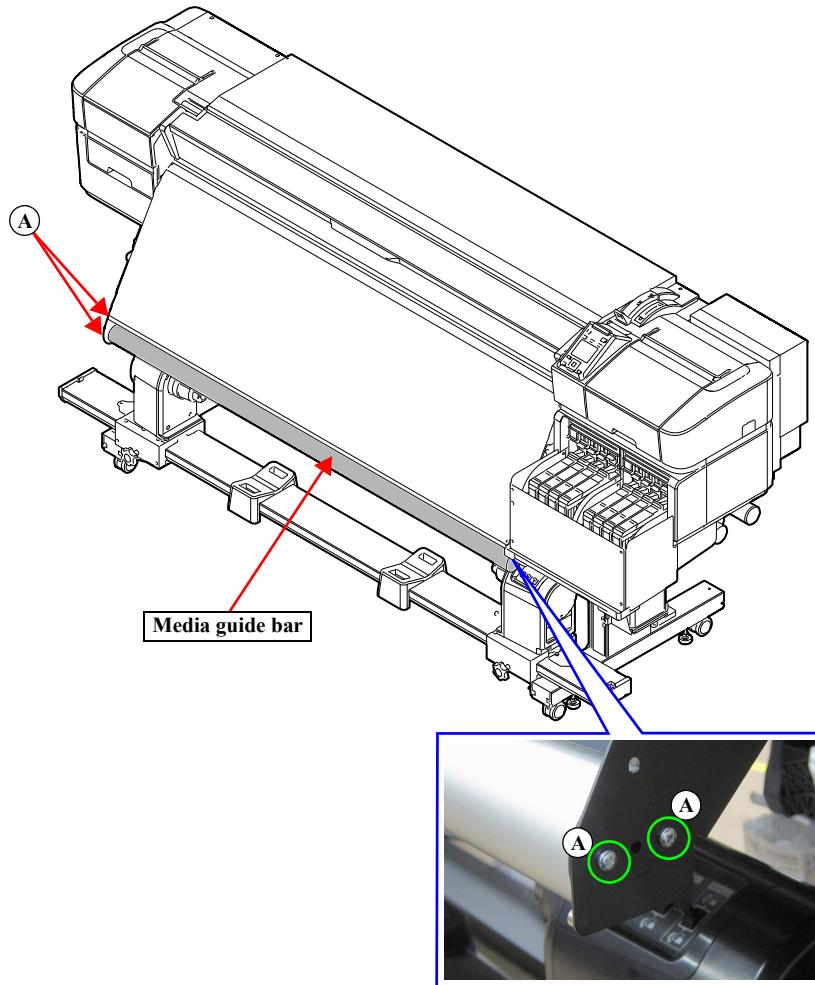


Figure 3-172. Removing the media guide bar

3.4.7.2 Right roll core holder

1. Disconnect the cable of the right roll core holder.
2. Release the cable of the right roll core holder from the four clamps.

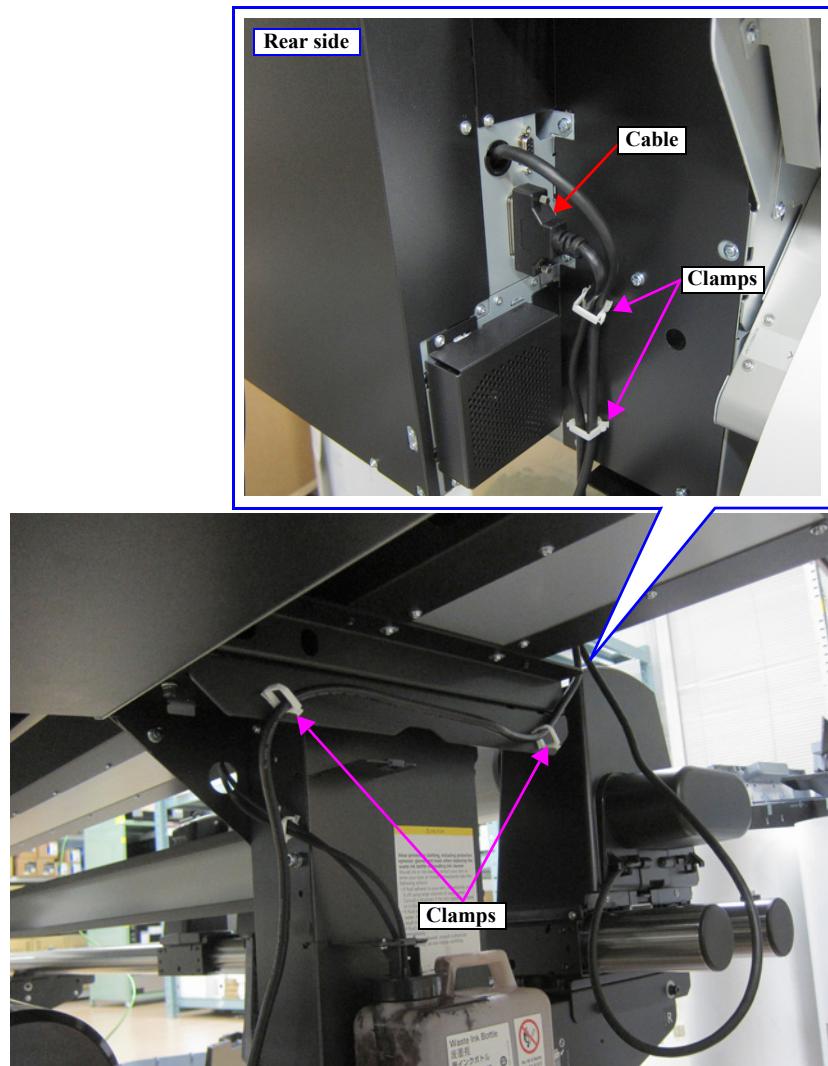


Figure 3-173. Releasing the cable

3. Remove the screw, and remove the stopper.
A)Silver M3x8 Cup S-tite screw: 1 pcs
4. Remove the right roll core holder in the direction of the arrow.

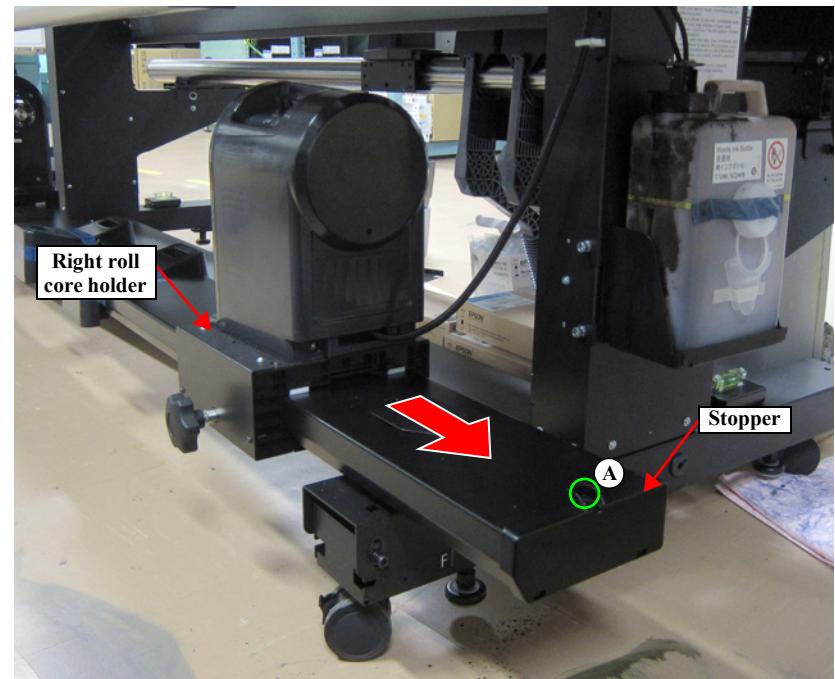


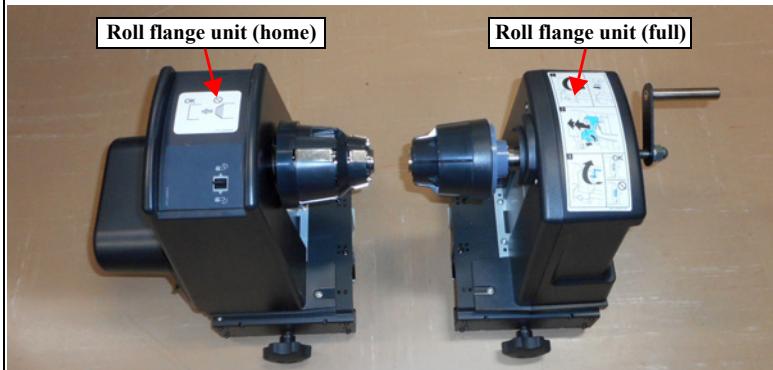
Figure 3-174. Removing the right roll core holder

3.4.8 Roll Mechanism

3.4.8.1 Roll flange unit (full/home)



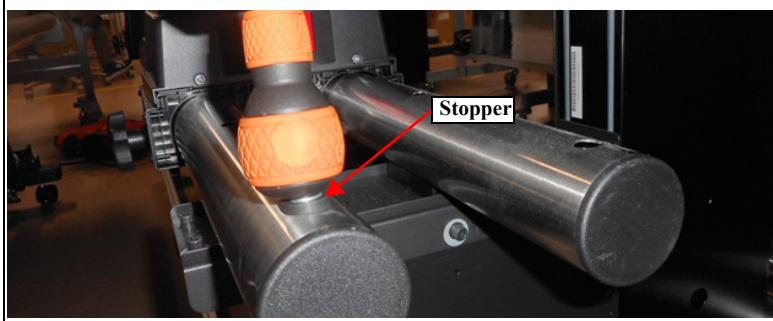
- For SC-F9300 Series/SC-F9400 Series/SC-F9400H Series, the replacement frequency of the roll unit may increase depending on the way the user uses the printer. Therefore, instead of replacing the entire unit, replace the Roll flange unit (full/home) shown below only.
- Replace both the roll flange unit (home) and roll flange unit (full).



1. Remove the hexagon bolt.
2. Pull the stopper out upward.



The rubber on the stopper may be hard and difficult to attach. In such a case, push it in using the grip of the screwdriver or the like as shown below.



3. Remove the connector cover, and disconnect the cable.
4. Slide the Roll flange unit (home) to home side to remove it.

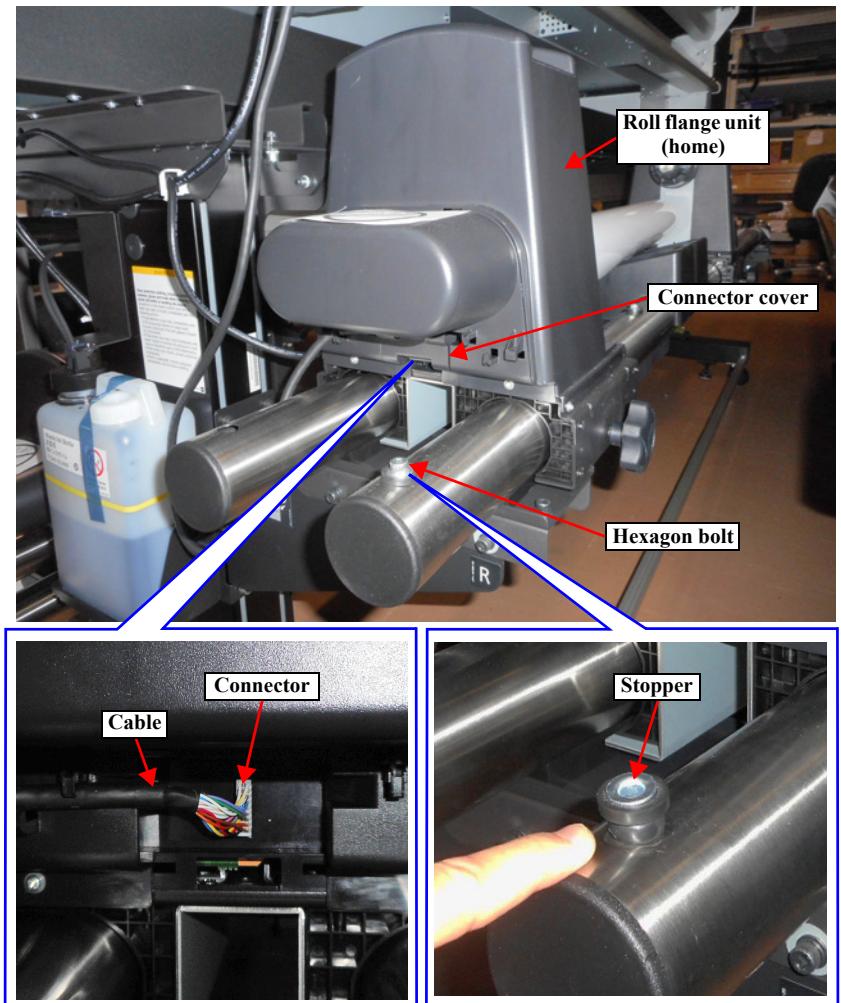
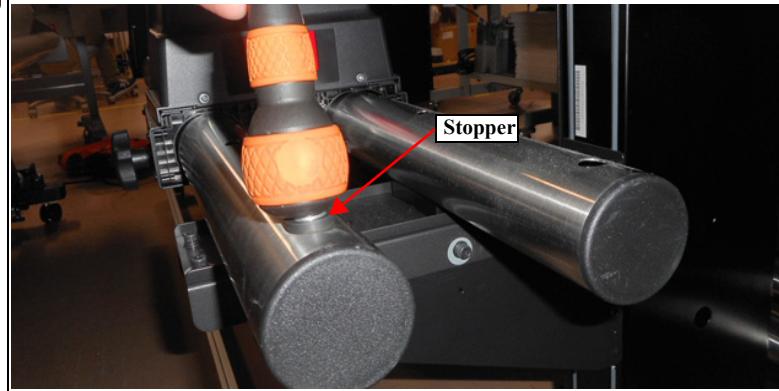


Figure 3-175. Removing the Roll flange unit (home)

5. Remove the hexagon bolt.
6. Pull the stopper out upward.



The rubber on the stopper may be hard and difficult to attach. In such a case, push it in using the grip of the screwdriver or the like as shown below.



7. Slide the Roll flange unit (full) to full side to remove it.

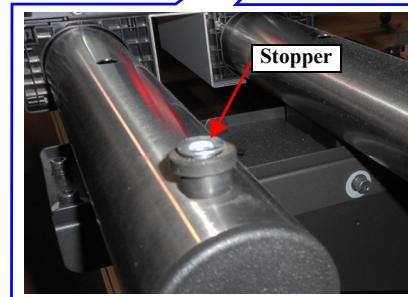
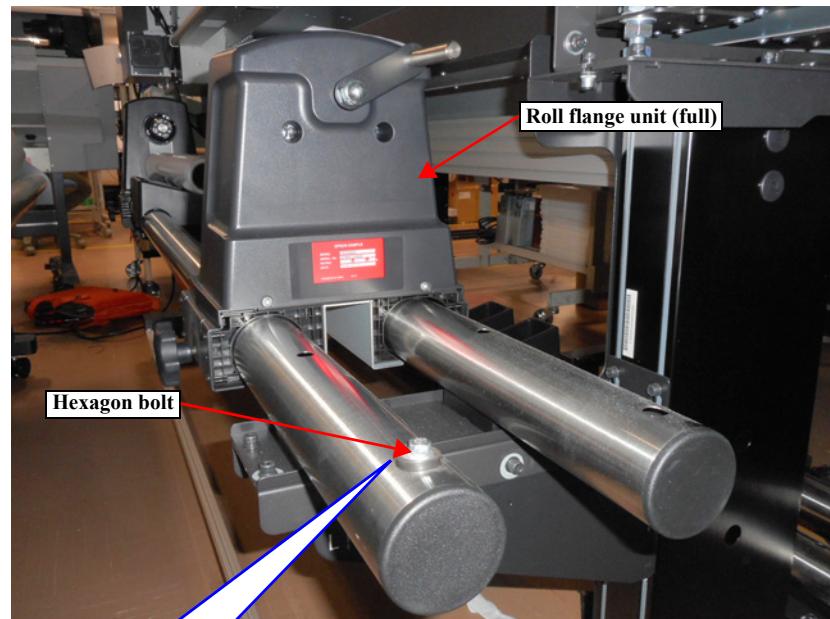


Figure 3-176. Removing the Roll flange unit (full)

CHAPTER

4

ADJUSTMENT

4.1 Overview

This chapter describes adjustment item and method on repairing or replacing certain parts.

4.1.1 Precautions

Always observe the following cautions whenever making an adjustment on the printer.



- Always refer to [*4.1.3 Adjustment Items and the Order by Repaired Part \(p213\)*](#) and make sure to perform all the adjustments listed in the table in the given order.
- Always read and follow the precautions given in each section that explains each adjustment. Ignoring the precautions can result in malfunction of the printer.

4.1.2 Firmware Version

It is possible to check the firmware version from control panel. And can be check status of waveform from Firmware version.

PROCEDURE

1. Turn the printer ON in the Normal Mode.
2. Select “Firmware version” on the control panel.
3. Can be check the printer status by Red-character part of Firmware version.

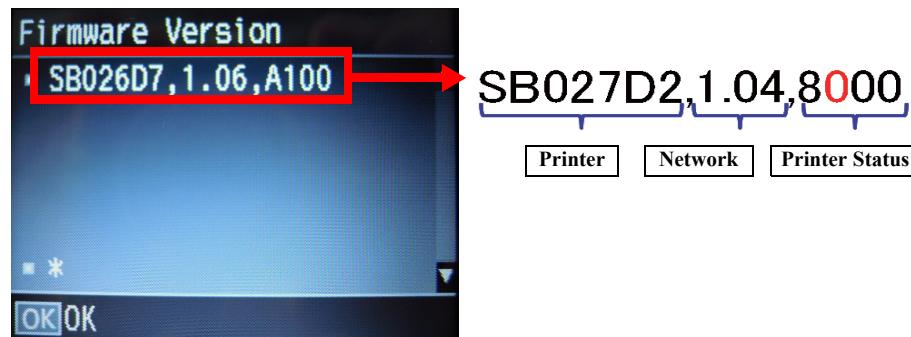


Figure 4-1. Check the Firmware Version

4.1.3 Adjustment Items and the Order by Repaired Part

The following table shows the required adjustments by repaired or replaced part and the order in which the adjustments must be performed.

- NOTE 1: The adjustments required for the main board differs depending on whether the NVRAM on the old board can be backed up or not.
 2: When the firmware update is required, first check the version of firmware currently installed on the printer, then update the firmware if necessary.
 3: PGPP250: Premium Glossy Photo Paper (250)
 4: If both automatic adjustment and manual adjustment are available, carry out just either of them.

Table 4-1. Adjustment items and the order by repaired part

Replaced or Repaired (Reattached) Part/Unit	Required Operations		Service Program	Jig/Madia	Replaced	Reattached	Page
CR motor	Replacement	Replace the CR motor.					P. 151
	After replacement	Turn the power on in repair mode.			√	---	P. 18
		CR Motor Counter Reset	√		√	---	P. 246
		Restart the printer in repair mode.			√	---	P. 18
		CR Timing Belt Tension Adjustment	√	Tensimeter U-507	√	√	P. 249
		CR Motor Measurement	√		√	---	P. 257
		Install the exterior covers.					
CR scale	Replacement	Replace the CR scale.					P. 147
	After replacement	Turn the power on in repair mode.			√	---	P. 18
		CR Encoder Scale Counter Reset	√		√	---	P. 246
		Restart the printer in repair mode.			√	---	P. 18
		CR Encoder & Scale Check	√		√	√	P. 256
		Install the exterior parts.					
CR timing belt	Replacement	Replace the CR timing belt.					P. 149
	After replacement	Turn the power on in repair mode.			√	---	P. 18
		CR Timing Belt Tension Adjustment	√	Tensimeter U-507	√	√	P. 249
		APG Check	√		√	√	P. 253
		CR Encoder & Scale Check	√		√	√	P. 256
		Install the exterior parts.					

Table 4-1. Adjustment items and the order by repaired part

Replaced or Repaired (Reattached) Part/Unit	Required Operations		Service Program	Jig/Madia	Replaced	Reattached	Page
CR unit	Replacement	Replace the CR unit.					P. 171
	After replacement	CR Timing Belt Tension Adjustment	√	Tensimeter U-507	√	√	P. 249
		APG Check	√		√	√	P. 253
		CR Encoder & Scale Check	√		√	√	P. 256
		CR Motor Measurement	√		√	---	P. 257
		IMS Function Check & Auto Adjustment	√	PGPP250	√	---	P. 255
		Auto Head Inclination Check & Adjustment (CR direction)	√	PGPP250	√	√	P. 266
		Manual Head Inclination Check & Adjustment (CR direction)	√	PGPP250	√	√	P. 267
		Auto Head Slant Check & Adjustment (PF direction)	√	PGPP250	√	√	P. 270
		PG Check & Adjustment	√	PGPP250	√	√	P. 258
		Auto Data Shift Adjustment	√	PGPP250	√	√	P. 279
		Manual Data Shift Adjustment	√	PGPP250	√	√	P. 280
		Auto Head Gap Uni-D Adjustment	√	PGPP250	√	√	P. 278
		Auto Uni-D Adjustment	√	PGPP250	√	√	P. 272
		Manual Uni-D Adjustment	√	PGPP250	√	√	P. 274
		Auto Bi-D Adjustment	√	PGPP250	√	√	P. 273
		Manual Bi-D Adjustment & Head Gap Uni-D Adjustment	√	PGPP250	√	√	P. 276
	Install the exterior parts.						
APG motor	Replacement	Replace the APG Motor.					P. 156
	After replacement	Turn the power on in repair mode.			√	---	P. 18
		APG Check	√		√	√	P. 253
		Install the exterior parts.					
IM sensor	Replacement	Replace the IM sensor.					P. 178
	After replacement	Turn the power on in repair mode.			√	---	P. 18
		IMS Function Check & Auto Adjustment	√	PGPP250	√	---	P. 255
		Install the exterior parts.					
CR encoder	Replacement	Replace the CR encoder.					P. 155
	After replacement	Turn the power on in repair mode.			√	---	P. 18
		CR Timing Belt Tension Adjustment	√	Tensimeter U-507	√	√	P. 249
		CR Encoder & Scale Check	√		√	√	P. 256
		Install the exterior parts.					

Table 4-1. Adjustment items and the order by repaired part

Replaced or Repaired (Reattached) Part/Unit	Required Operations		Service Program	Jig/Madia	Replaced	Reattached	Page
Print head	Before replacement	Turn the power on in repair mode.			✓	---	P. 18
		Tube Inner pressure reduction	✓		✓	✓	P. 281
		Auto CR Unlock & Move to Maintenance Position	✓		✓	✓	P. 90
	Replacement	Replace the Print head.					P. 138
	After replacement	Turn the power on in repair mode.			✓	---	P. 18
		Print Head Counter Reset	✓		✓	---	P. 246
		Head ID Check & Input	✓		✓	---	P. 261
		Turn the power on in repair mode.			✓	---	P. 18
		Ink Charge	✓		✓	---	P. 289
		Nozzle check	✓	PGPP250	✓	✓	P. 264
		Cleaning	✓		✓	✓	P. 263
		Auto Head Inclination Check & Adjustment (CR direction)	✓	PGPP250	✓	✓	P. 266
		Manual Head Inclination Check & Adjustment (CR direction)	✓	PGPP250	✓	✓	P. 267
		Auto Head Slant Check & Adjustment (PF direction)	✓	PGPP250	✓	✓	P. 270
		PG Check & Adjustment	✓	PGPP250	✓	✓	P. 258
		IMS Function Check & Auto Adjustment	✓	PGPP250	✓	---	P. 255
		Auto Data Shift Adjustment	✓	PGPP250	✓	✓	P. 279
		Manual Data Shift Adjustment	✓	PGPP250	✓	✓	P. 280
		Auto Head Gap Uni-D Adjustment	✓	PGPP250	✓	✓	P. 278
		Auto Uni-D Adjustment	✓	PGPP250	✓	✓	P. 272
		Manual Uni-D Adjustment	✓	PGPP250	✓	✓	P. 274
		Auto Bi-D Adjustment	✓	PGPP250	✓	✓	P. 273
		Manual Bi-D Adjustment & Head Gap Uni-D Adjustment	✓	PGPP250	✓	✓	P. 276
		Turn the power off.					
		Install the exterior parts.					
Ink tank	Before replacement	Turn the power on in repair mode.			✓	---	P. 18
	Replacement	Replace the Ink tank.					P. 181
	After replacement	Set new chip belong to new ink pouch.			✓	---	
		Force Charge	✓		✓	---	P. 287
		Ink Charge	✓		✓	---	P. 289
		Nozzle check	✓	PGPP250	✓	✓	P. 264
		Cleaning	✓		✓	✓	P. 263

Table 4-1. Adjustment items and the order by repaired part

Replaced or Repaired (Reattached) Part/Unit	Required Operations		Service Program	Jig/Madia	Replaced	Reattached	Page
Pump cap unit	Replacement	Replace the Pump cap unit.					P. 159
	After replacement	Turn the power on in repair mode.			✓	---	P. 18
		Pump Cap Counter Reset	✓		✓	---	P. 246
		Restart the printer in repair mode.			✓	---	P. 18
		Pump Cap Measurement	✓		✓	---	P. 290
		Install the exterior parts.					
Ink holder	Before replacement	Turn the power on in repair mode.			✓	---	P. 18
		Ink Holder counter Reset	✓		✓	---	P. 246
		Restart the printer in repair mode.			✓	---	P. 18
		Ink Discharge	✓		✓	✓	P. 282
		Turn the power off.					
	Replacement	Replace the Ink holder.					P. 162
	After replacement	Install ink tanks.			✓	✓	P. 181
		Turn the power on in repair mode.			✓	---	P. 18
		Ink Charge	✓		✓	✓	P. 289
		Nozzle check	✓	PGPP250	✓	✓	P. 264
		Cleaning	✓		✓	✓	P. 263
		Turn the power off.					
Ink tube	Before replacement	Turn the power on in repair mode.			✓	---	P. 18
		Ink Tube Counter Reset	✓		✓	---	P. 246
		Restart the printer in repair mode.			✓	---	P. 18
		Ink Discharge	✓		✓	✓	P. 282
		Auto CR Unlock & Move to Maintenance Position	✓		✓	✓	P. 90
	Replacement	Replace the Ink tube.					P. 167
	After replacement	Restart the printer in repair mode.			✓	---	P. 18
		Ink Charge	✓		✓	✓	P. 289
		Nozzle check	✓	PGPP250	✓	✓	P. 264
		Cleaning	✓		✓	✓	P. 263
		Turn the power off.					

Table 4-1. Adjustment items and the order by repaired part

Replaced or Repaired (Reattached) Part/Unit		Required Operations	Service Program	Jig/Madia	Replaced	Reattached	Page
Duct CR	Before replacement	Turn the power on in repair mode.			✓	---	P. 18
		Duct CR Counter Reset	✓		✓	---	P. 246
		Restart the printer in repair mode.			✓	---	P. 18
		Tube Inner pressure reduction	✓		✓	✓	P. 281
		Auto CR Unlock & Move to Maintenance Position	✓		✓	✓	P. 90
	Replacement	Replace the Duct CR.					P. 136
	After replacement	Turn the power on in repair mode.			✓	---	P. 18
		Ink Charge	✓		✓	✓	P. 289
		Nozzle check	✓	PGPP250	✓	✓	P. 264
		Turn the power off.					
PF motor	Replacement	Replace the PF motor.					P. 190
	After replacement	Turn the power on in repair mode.			✓	---	P. 18
		PF Timing Belt Tension Check	✓	Tensimeter U-507	✓	✓	P. 291
		PF Motor Measurement	✓		✓	---	P. 296
		Install the exterior parts.					
PF scale	Replacement	Replace the PF scale.					P. 193
	After replacement	PF Scale Check	✓		✓	✓	P. 293
		Install the exterior parts.					
PF Timing Belt	Replacement	Replace the PF timing belt					P. 195
	After replacement	PF Timing Belt Tension Check	✓	Tensimeter U-507	✓	✓	P. 291
Suction fan	Replacement	Replace the Suction fan.					P. 197
	After replacement	Turn the power on in normal mode.			✓	---	
		Suction Fan Adjustment	✓	PGPP250	✓	✓	P. 317
After heater	Replacement	Replace the After heater.					P. 202
	After replacement	Turn the power on in normal mode.			✓	---	
		Heater Check	✓		✓	✓	P. 318

Table 4-1. Adjustment items and the order by repaired part

Replaced or Repaired (Reattached) Part/Unit	Required Operations		Service Program	Jig/Madia	Replaced	Reattached	Page
Main board (NVRAM backup NG)	Before replacement	Remove Slider and chip unit			√	---	
	Replacement	Replace the Main board.					P. 118
		Turn the power on in firmware update mode.			√	---	P. 241
		Update the firmware.	√		√	---	P. 241
		Turn the power on in Serviceman mode.			√	√	P. 17
		Main Board Initialize (automatically power off)	√		√	---	P. 299
		Install Slider and chip unit (For Restore).			√	---	
		Lower the slider's levers.			√	---	
		Turn the power on in Serviceman mode.			√	√	P. 17
		Check result of transferring data from CSIC Chip to Main Board.			√	---	P. 303
		Rear AD Adjustment			√	---	P. 297
		RTC & USB ID Check & Input	√		√	---	P. 300
		Serial Number Input	√		√	---	P. 302
		Head ID Check & Input	√		√	---	P. 261
		Turn the power on in normal mode.			√	---	
		PF Motor Measurement	√		√	---	P. 296
		Pump Cap Measurement	√		√	---	P. 290
		CR Motor Measurement	√		√	---	P. 257
		Nozzle check	√	PGPP250	√	√	P. 264
		Cleaning	√		√	√	P. 263
		IMS Function Check & Auto Adjustment	√	PGPP250	√	---	P. 255
		Auto PF Band Feed Adjustment	√	PGPP250	√	√	P. 294
		Manual PF Band Feed Adjustment	√	PGPP250	√	√	P. 295
		Auto Data Shift Adjustment	√	PGPP250	√	√	P. 279
		Manual Data Shift Adjustment	√	PGPP250	√	√	P. 280
		Auto Head Gap Uni-D Adjustment	√	PGPP250	√	√	P. 278
		Auto Uni-D Adjustment	√	PGPP250	√	√	P. 272
		Manual Uni-D Adjustment	√	PGPP250	√	√	P. 274
		Auto Bi-D Adjustment	√	PGPP250	√	√	P. 273
		Manual Bi-D Adjustment & Head Gap Uni-D Adjustment	√	PGPP250	√	√	P. 276

Table 4-1. Adjustment items and the order by repaired part

Replaced or Repaired (Reattached) Part/Unit	Required Operations		Service Program	Jig/Madia	Replaced	Reattached	Page
Power supply board (PSH board)	Replacement	Replace the Power Supply board.					P. 121
	After replacement	CR Motor Measurement	√		√	---	P. 257
		PF Motor Measurement	√		√	---	P. 296
		Pump Cap Measurement	√		√	---	P. 290
Main board (NVRAM backup OK)	Before replacement	Turn the power on in Serviceman mode.			√	√	P. 17
		NVRAM Backup	√		√	---	P. 230
		Turn the power off.					
		Remove Slider & chip unit.			√	---	
	Replacement	Replace the Main board.					P. 118
	After replacement	Turn the power on in firmware update mode.			√	---	P. 241
		Update the firmware.	√		√	---	P. 241
		Turn the power on in Serviceman mode.			√	√	P. 17
		NVRAM Restore	√		√	---	P. 230
		Turn the power off.			√	---	
		Install Slider and chip unit.			√	---	
		Turn the power on in normal mode.			√	---	
Network board (Main-B board)	Replacement	RTC Check & Input	√		√	---	P. 300
	After replacement	Replace the Main board.					P. 120
		Turn the power on in Serviceman mode.			√	---	P. 241
		Update the firmware.	√		√	---	P. 241
		Turn the power on in Serviceman mode.			√	√	P. 17
		MAC Address Input	√		√	---	P. 301

4.1.4 Adjustment Items

The following table describes the general outline of the adjustments.

Note : Explanation for each execution mode is given below.

Normal Mode: Ink tanks are installed and printing is available.

Serviceman Mode: Used for canceling an error or operating the NVRAM.

Repair Mode: Shortens the boot-up time.

Firmware Update Mode: Used for firmware Update.

Table 4-2. Adjustment Items

Class	Adjustment Items	Overview	Symptoms that the Adjustment is Needed	Printer Mode*	Service Program	Jig	Media	Page
CR related	CR Timing Belt Tension Adjustment	Apply a specified tension to the CR timing belt. Measure the tension of the belt using the sonic tensimeter to check if it is within standards. If not, adjust the tension.	When the belt tension is out of standards, the following symptoms may occur. <input type="checkbox"/> Belt tension is high: The life of the belt will be shortened. High load applied to the carriage causes frequent wait control over the carriage movements to prevent overheating. If the tension is too high, the shaft of the motor leans and the brush in the motor becomes worn, and will result in CR overload error (113A). <input type="checkbox"/> Belt tension is low: Color unevenness occurs because the carriage is shaken due to the tooth skip.	Repair mode	√	Tensimeter U-507		p.249
	APG Check	Rotate the APG motor to change the PG, and see if the PG is correctly set to its home position (TYP).	When the PG is not switched properly responding to the print setting, low image quality or CL operation abnormality may occur.	Repair mode	√			p.253
	IMS Function Check & Auto Adjustment	<input type="checkbox"/> Check if the Ink Mark Sensor has any trouble/connection failure. <input type="checkbox"/> Execute IMS Position Auto Correction (pattern detecting position correction). Correct the detecting position of the print pattern in the sub scan direction and the main scan direction. <input type="checkbox"/> Run the nozzle check and to confirm whether the Ink Mark Sensor detects the nozzle clogging properly.	If the IMS does not work properly, automatic adjustments such as Auto Bi-D Adjustment cannot be executed normally.	Repair mode	√	PGPP250	p.255	
	CR Encoder & Scale Check	Check the CR Scale for any abnormality such as damage or dirt and check if the scale can be properly read by the encoder.	When the CR Scale is not read properly, the carriage will not operate normally.	Repair mode	√			p.256

Table 4-2. Adjustment Items

Class	Adjustment Items	Overview	Symptoms that the Adjustment is Needed	Printer Mode*	Service Program	Jig	Media	Page
CR related	CR Motor Measurement	The CR Motor is designed to stop when the amount of heat generation (motor temperature) during motor operation reaches a predetermined limit. The amount of heat generation is estimated based on the electrical characteristics of the motor, which vary by motor and power supply of the printer. Therefore, to get the motor control to work properly, the electrical characteristics values of the motor need to be measured and stored in the memory on the main board.	If this adjustment is not made, the estimation of the motor temperature cannot be made properly and may cause the following symptoms. <input type="checkbox"/> Even though there is no problem with the motor temperature, the printer pauses during printing because it judges that the motor is in high-temperature state. <input type="checkbox"/> Despite the motor is in a high-temperature state, a lower motor temperature is estimated and the printer does not stop. This may cause the printer to malfunction.	Repair mode	√			p.257
	PG Check & Adjustment	Adjust the platen gap of the CR Unit using the thickness gauge.	When the PG is out of standards, the following symptoms may occur. <input type="checkbox"/> Gap is too wide: Unstable ink droplet paths or misaligned dots occur, and it causes low printing quality such as banding, printing misalignment, or grainy image. <input type="checkbox"/> Gap is too narrow: The head rubs paper.	Repair mode	---	Thickness gauge		p.258
Head related	Head ID Check & Input	Register the head rank ID to the printer using the Service Program or check the currently registered head rank ID. Head rank ID is information needed to drive the Print Head with proper voltages so that proper amount of ink droplets are fired. The ID is assigned to each head and listed on the label on the head.	If the new ID is not registered after replacing the head, the head ID of the older head is used and the proper drive voltage cannot be set. The following symptoms may occur. <input type="checkbox"/> Since the amount of ink droplets is not proper, the color and density abnormalities are found on prints. <input type="checkbox"/> Since the amount of ink droplets turns to be unstable, dot missing or misaligned dots occur while printing or flushing.	Repair mode	√			p.261

Table 4-2. Adjustment Items

Class	Adjustment Items	Overview	Symptoms that the Adjustment is Needed	Printer Mode*	Service Program	Jig	Media	Page
Head related	Cleaning	Specify the power and the color from the Service Program and execute the head cleaning.	When the cleaning is not executed, the following symptoms may occur. <input type="checkbox"/> Nozzle clogging is not solved and the printing cannot be executed properly. <input type="checkbox"/> Ink droplets are not fired and nothing is printed after the Print Head is replaced to a new one. (Executing Initial ink charge may solve this problem but it takes time and consumes lots of ink.)	Repair mode	√			p.263
	Nozzle Check	Print the pattern on which the nozzle discharging condition can be checked from the Service Program.	When the Nozzle Check is not executed and the nozzle is clogging, the following symptoms may occur. <input type="checkbox"/> The adjustment pattern is not printed properly and it causes a trouble for the automatic and visual check/adjustment. <input type="checkbox"/> The automatic adjustments may fail or end with an error.	Repair mode	√		PGPP250	p.264
	Auto Head Inclination Check & Adjustment (CR direction)	Correct inclination of the Print Head in the CR direction. An adjustment pattern is printed and the IM Sensor scans the pattern. Based on the scanned result, a number of steps to move the cam for the adjustment is displayed. Turn the cam the number of steps to correct the head inclination.	If this adjustment is not made, print quality problems such as misaligned lines, grainy image, banding, or color unevenness may occur in the scale of Print Head surface area.	Repair mode	√		PGPP250	p.266
	Manual Head Inclination Check & Adjustment (CR direction)	Correct inclination of the Print Head in the CR direction. Print an adjustment pattern, and visually check the pattern to see if the adjustment is needed. To correct the head inclination, turn the cam.	If this adjustment is not made, print quality problems such as misaligned lines, grainy image, banding, or color unevenness may occur in the scale of Print Head surface area.	Repair mode	√		PGPP250	p.267
	Auto Head Slant Check & Adjustment (PF direction)	Correct slant of the Print Head in the PF direction. An adjustment pattern is printed and the IM Sensor scans the pattern. Based on the scanned result, a number of steps to move the lever for the adjustment is displayed. Move the lever the number of steps to correct the head slant.	If this adjustment is not made, the gap between the Print Head surface and paper is kept uneven (e.g.: the gap at the front side is wider than that at the rear side), and causes irregularity in size and position of printed dots. This may be observed as print quality problems such as grainy image, banding, or color unevenness.	Repair mode	√		PGPP250	p.270

Table 4-2. Adjustment Items

Class	Adjustment Items	Overview	Symptoms that the Adjustment is Needed	Printer Mode*	Service Program	Jig	Media	Page
Head related	Auto Uni-D Adjustment	Reduce misalignment of ink droplets fired to paper during unidirectional printing.	If this adjustment is not made, print quality problems such as misaligned lines, grainy image, banding may occur.	Repair mode	√		PGPP250	p.272
	Manual Uni-D adjustment							p.274
	Auto Bi-D Adjustment	Reduce misalignment of ink droplets fired to paper during bidirectional printing.	If this adjustment is not made, print quality problems such as misaligned lines, grainy image, banding may occur.	Repair mode	√		PGPP250	p.273
	Manual Bi-D Adjustment & Head Gap Uni-D Adjustment							p.276
	Auto Data Shift Adjustment	Select the unused nozzles of the head (Home) and register them.	Banding may occur.	Repair mode	√		PGPP250	p.279
	Manual Data Shift Adjustment							p.280
Ink Supply related	Auto Head Gap Uni-D Adjustment	Correct the variation of the landing positions in the CR scanning direction between the head (Home) and the head (Full).	If not corrected, the landing positions will be misaligned, which results in print quality problems such as misaligned lines, grainy image, or banding.	Repair mode	√		PGPP250	p.278
	Tube inner pressure reduction	Reduce the pressure in the ink flow paths. Doing this prevents ink leakage that can occur when removing the Print Head or other ink related parts/units.	---	Repair mode	√			p.281
	Ink Discharge	Discharge ink from the printer.	If ink is not discharged when instructed to do so before removing parts or units, ink may leak from the printer and contaminate surroundings.	Repair mode	√			p.282
	Ink Charge	Charge ink in the ink flow paths. Execute from the Service Program.	If this is not executed after discharging ink, air bubbles will remain in the ink tubes and may cause dot missing.	Repair mode	√			p.289
Pump Cap Measurement		The pump cap Motor is designed to stop when the amount of heat generation (motor temperature) during motor operation reaches a predetermined limit. The amount of heat generation is estimated based on the electrical characteristics of the motor, which vary by motor and power supply of the printer. Therefore, to get the motor control to work properly, the electrical characteristics values of the motor need to be measured and stored in the memory on the main board.	If this adjustment is not made, the estimation of the motor temperature cannot be made properly and may cause the following symptoms. <input type="checkbox"/> Even though there is no problem with the motor temperature, the printer pauses during printing because it judges that the motor is in high-temperature state. <input type="checkbox"/> Despite the motor is in a high-temperature state, a lower motor temperature is estimated and the printer does not stop. This may cause the printer to malfunction.	Repair mode	√			p.290

Table 4-2. Adjustment Items

Class	Adjustment Items	Overview	Symptoms that the Adjustment is Needed	Printer Mode*	Service Program	Jig	Media	Page
Ink Supply related	Tube Washing	Clean the ink flow paths to resolve the solidified ink in the paths and clogging of nozzles of the Print Head. Or, when leaving the printer unused for a long period, doing this in advance can prevent ink from getting solidified. Use the Cleaning Cartridge for service and the Service Program.	If the printer is left unused for a long period without doing this after discharging ink, the ink left in the ink flow paths may get solidified. Once the ink becomes solidified, charging new ink may become impossible or dot missing may occur.	Repair mode	√	<input type="checkbox"/> Waste ink bottle <input type="checkbox"/> Cleaning cartridge		p.288
	Manual Ink Eject (IH cam open)	When ink cannot be ejected automatically, it can be ejected manually by following this procedure.	---	Repair mode	√	<input type="checkbox"/> Waste clothe <input type="checkbox"/> Syringe <input type="checkbox"/> Cleaning cartridge		p.283
	Activation of Cleaning cartridges	Activates the cleaning cartridges.	When the cleaning cartridges are not recognized.	Normal mode	√	Cleaning cartridge		p.286
	Force Charge	Ink charge forcibly.	If firmware has Charge & Reservation, and if reserved chip unit is installed on the slider, you can be Force charge by service program. (Only if the Reservation chip is New, you can perform this.)	Normal mode	√			p.287
Media Feed related	PF Timing Belt Tension Check	Apply a specified tension to the PF timing belt. Measure the tension of the belt using the sonic tension meter to check if it is within standards. If not, adjust the tension.	When the belt tension is out of standards, the following symptoms may occur. <input type="checkbox"/> Belt tension is high: The life of the belt will be shortened. High load applied to the PF motor causes frequent wait controls during paper feeding to prevent overheating. If the tension is too high, the shaft of the motor leans and the brush in the motor becomes worn, and will result in PF motor overload error (112A). <input type="checkbox"/> Belt tension is low: The belt teeth slip and paper cannot be fed properly.	Repair mode	√	Tensimeter U-507		p.291

Table 4-2. Adjustment Items

Class	Adjustment Items	Overview	Symptoms that the Adjustment is Needed	Printer Mode*	Service Program	Jig	Media	Page
Media Feed related	PF Scale Check	Check the PF Scale for any abnormality such as damage or dirt and check if the scale can be properly read by the encoder.	When the PF Scale is not read properly, paper feeding may become impossible and an error may occur.	Repair mode	√			p.293
	Auto PF Band Feed Adjustment	Adjust the paper feeding amount which varies by printer.	If paper feeding accuracy lowers, print quality problems such as banding may occur.	Normal mode	√	PGPP250	p.294	
	Manual PF Band Feed Adjustment							p.295
	PF Motor Measurement	The PF Motor is designed to stop when the amount of heat generation (motor temperature) during motor operation reaches a predetermined limit. The amount of heat generation is estimated based on the electrical characteristics of the motor, which vary by motor and power supply of the printer. Therefore, to get the motor control to work properly, the electrical characteristics values of the motor need to be measured and stored in the memory on the main board.	If this adjustment is not made, the estimation of the motor temperature cannot be made properly and may cause the following symptoms. <input type="checkbox"/> Even though there is no problem with the motor temperature, the printer pauses during printing because it judges that the motor is in high-temperature state. <input type="checkbox"/> Despite the motor is in a high-temperature state, a lower motor temperature is estimated and the printer does not stop. This may cause the printer to malfunction.	Repair mode	√			p.296
	Rear AD Adjustment	Adjust the detection sensitivity of the PE Sensor so that it can recognize the paper inserted in the printer correctly. Let the sensor detect the Standard Sheet (translucent media) which is hard to recognize to check the result on the Control Panel. (By using the media which is hard to recognize, paper can be recognized regardless of the environmental condition or the media)	If the adjustment is not executed, paper recognition failures may occur (e.g. paper empty error occurs even with paper inserted, some media are not recognized).	Serviceman mode	√	Standard Sheet		p.297
	Main Board Initialize	Set initial values in the main board.	Ink is not recognized.	Serviceman mode	√			p.299
Boards Related	RTC Check & Input	Check the current setting of the RTC. Write the correct information as needed.	If the adjustment is not executed, a maintenance error (RTC setting error) occurs.	Serviceman mode	√			p.300
	MAC Address Input	Read and check the MAC address of the printer. Write a new MAC address as needed.	If the address is not input or a wrong address is set, a network connection trouble occurs.	Serviceman mode	√			p.301
	Serial Number Input	Check the serial number currently set to the printer. Write the correct information as needed.	If the serial number is not input or a wrong number is set, it makes service management (such as the print/NVRAM) harder.	Serviceman mode	√			p.302

Table 4-2. Adjustment Items

Class	Adjustment Items	Overview	Symptoms that the Adjustment is Needed	Printer Mode*	Service Program	Jig	Media	Page
Operation check	Network Test	Check the network connection of the printer.	---	Repair mode	√			p.316
	Suction Fan Adjustment	Run a operation check of the Suction Fan.	---	Repair mode	√			p.317
	Heater Check	Run a operation check of the heaters.	---	Normal mode	√			p.318
	LCD operation check	Check if the LCD on the Control Panel functions normally.	---	Serviceman mode	---			p.319
	Buttons operation check	Check if the buttons on the Control Panel function normally.	---	Serviceman mode	---			p.319

4.1.5 Tools/Consumables for Adjustments

The tables below show the tools required for adjusting this printer.

Hardware Tools

Table 4-3. Hardware tools

Tool Name	Part Number	Target Adjustment
Sonic tension meter U-507	1294120	<input type="checkbox"/> CR Belt Tension Adjustment <input type="checkbox"/> PF Belt Tension Adjustment
Standard Sheet (JETRAS JP-D300S)	1476228	Operation check of the PE sensor.
Thickness Gauge	Commercially available	PG Adjustment
Calibrated Loupe	Commercially available	<input type="checkbox"/> Head inclination manual adjustment (CR direction) <input type="checkbox"/> Head slant manual adjustment (PF direction)
Ruler	Recommend the below for insure accuracy <input type="checkbox"/> SHINWA Round End Stainless Rule: 1m Item code: 13048(21108)	Paper feed adjustment

Software Tools

Table 4-4. Software tools

Software Name	Explanation
Service Program	Used for almost all of the required adjustments.
Communication Driver	To connect with the printer.
Latest version of firmware	---

Consumables**Table 4-5. Consumables**

Consumable Name	Explanation
Media for adjustment (Premium Glossy Photo Paper (250) 24inches or more)	Used for adjustments that require paper. (For more details, see 4.1.3 Adjustment Items and the Order by Repaired Part)
Ink cartridge for service	---
Cleaning Cartridge	Tubes Cleaning
Waste Ink Bottle	---



Bring back the following brought and used items, then dispose of them based on the local regulations in your country, please.

- Ink cartridges
- Cleaning cartridges
- Draining cartridges

Especially in case of ink cartridges in Europe, please refer to the following web site to confirm the regulation in detail.

ECO Info: <http://www.epson.eu/weee> (available from July 2015)

4.1.6 Service Program Basic Operations

This section describes the basic operations of the Service Program.



Save the Service Program on the desktop or directly under the C drive. If the storage location is deep in the hierarchy, some program tools may not work correctly.



In SC-F9400 Series/SC-F9400H Series, the firmware update tool is not implemented in service program. When updating firmware in SC-F9400 Series/SC-F9400H Series, use the firmware updater. ("4.6 Updating Firmware" (p241))

□ System Requirements

- OS: Windows XP, Vista, 7
- Interface: USB, Network



The network can be used only for the following two adjustments.

- MAC Address Input
- USB Port and Network Communication Check

□ Startup

1. Install the Communication Driver.
2. Double-click the "servprog.exe". A screen that asks if you want to carry out the NVRAM Backup appears.
3. Select Yes to start the NVRAM Backup tool, or select No to display the Service Program Menu screen.
4. Select the printer you want to adjust from **Model Selection**, and start the adjustment.

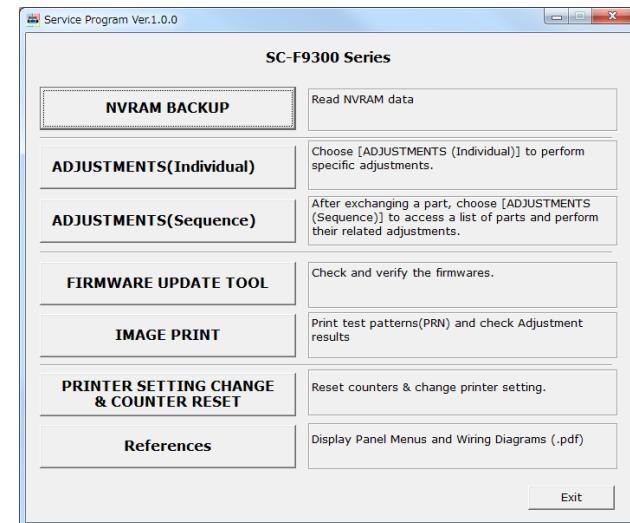


Figure 4-2. Service Program (SC-F9300 Series)

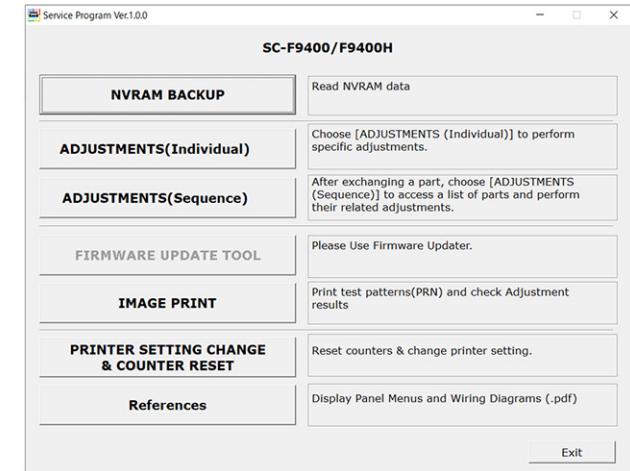


Figure 4-3. Service Program (SC-F9400 Series/SC-F9400H Series)

4.2 Parameter Backup/Restore

Parameters stored in the NVRAM on the main board are read/stored and written onto the other NVRAM on the main board using this menu.

When saving read parameters under a new name

1. Turn the printer ON in the Serviceman Mode.
Turn the power ON while pressing [Menu] + [Back] + [OK].

2. Start the Service Program and click **NVRAM BACKUP** from the main menu.

3. Click **Read** to start reading the parameters.

4. When reading parameters is complete, save it under a new name.

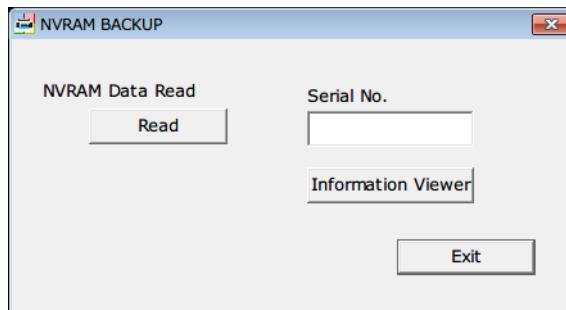


Figure 4-4. [NVRAM BACKUP] Screen

- When executing backup (reading) and restoring sequentially

1. Turn the printer ON in the Serviceman Mode.

Turn the power ON while pressing [Menu] + [Back] + [OK].

2. Start the Service Program and select **NVRAM Backup & Restore**.

3. Click **Read** to start reading the parameters.

4. When reading parameters is complete, click **Write** to restore the all read parameters. If you specify some parameters to restore, check the “**Write File**” check box before clicking **Write**.

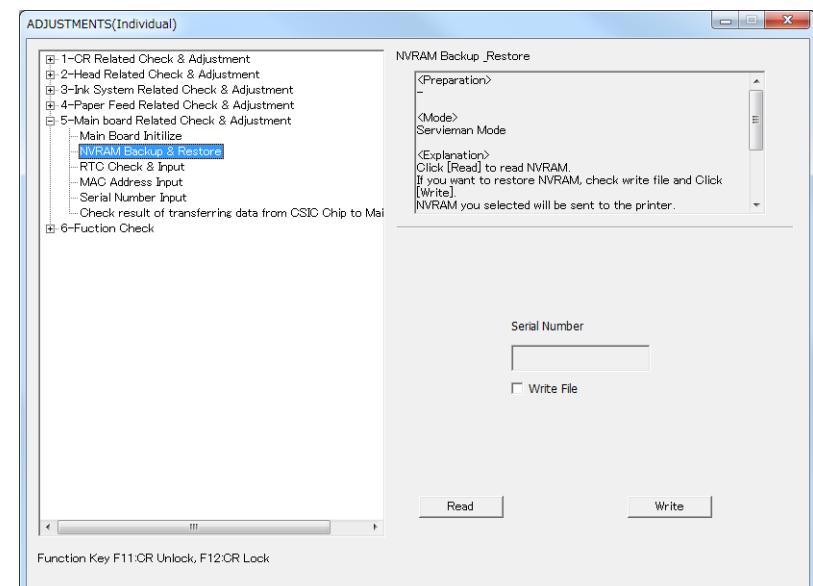


Figure 4-5. [NVRAM Backup & Restore] Screen

4.3 NVRAM Viewer

The following functions are provided.

- Displays the Life Parts Operation History
- Displays how many times ink is changed.
- Displays the history how the printer has been used (Utilization History)
- Displays the Error History saved in the NVRAM
- Displays the Basic Information of the printer (such as the serial No. or the setting values)
- Displays the contents of the NVRAM backup data.
- Saves NVRAM data in the xlsx format.

PROCEDURE

1. Click [Display Information] on the NVRAM Read field of the NV-RAM BACKUP screen. (P. 230) Another screen of the NVRAM Viewer will be displayed.
2. Select the tab which contains the desired information.
3. To close the window, click the Close button.

DESCRIPTION

File

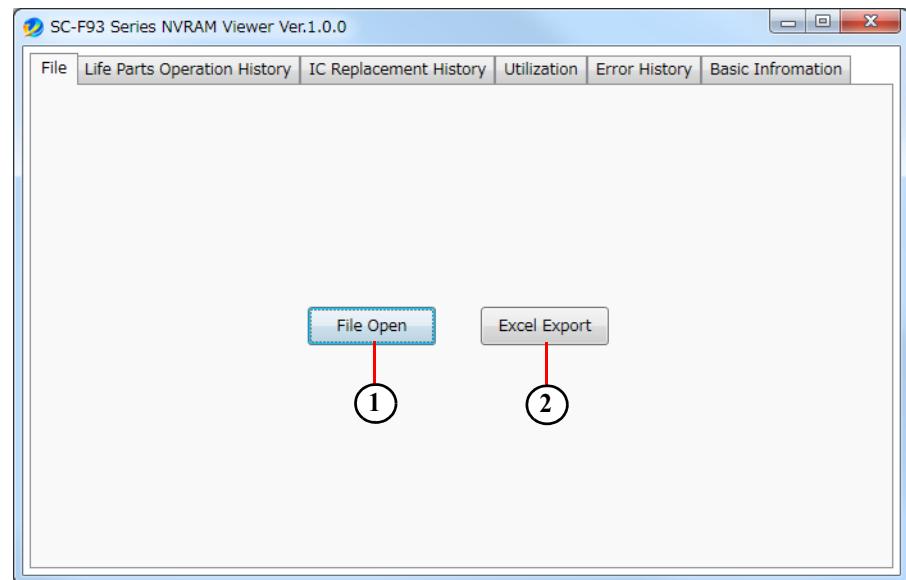


Figure 4-6. [File] screen

1	[File Open] button	Displays the file selection dialog. NVRAM backup files (bin file) displayed in the NVRAM Viewer can be selected.
2	[Excel Export] button	All information that can be displayed in the NVRAM Viewer is saved in an xlsx file.

Life Parts Operation History

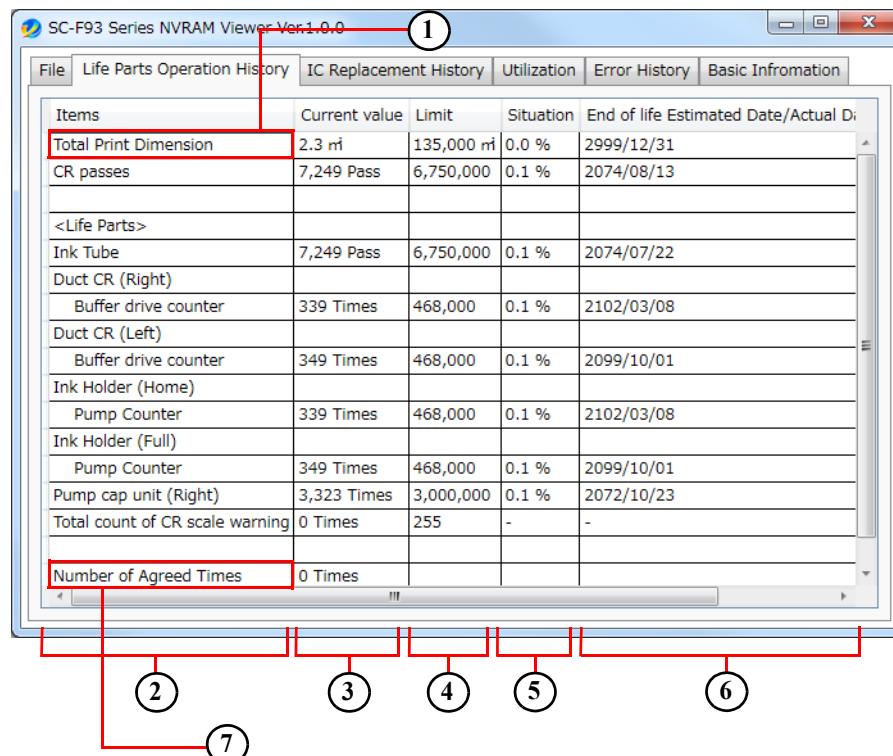


Figure 4-7. [Life Parts Operation History] screen

1	Total Print Dimension	Total printed area. The unit is m ² .
2	Items	---
3	Current Value	Displays current values for each part or unit.
4	Limit	Displays the life limit of the part if it has.
5	Situation	Displays the percentage of Current Value (3) considering the Limit (4) as 100%.
6	End of life Estimated Date/Actual Date (YYYY/MM/DD)	<input type="checkbox"/> Year/month/day in the future It is the date when the end of life will be reached. <input type="checkbox"/> Year/month/day in the past It is the date when the end of life was reached. <input type="checkbox"/> Other than year/month/day If the consumption is 0% or the day when the initial ink charge is performed and the day when you acquire this date is the same, “-” is displayed.
7	Number of Agreed Times*	<input type="checkbox"/> If a number is displayed It is the total number of times the customer extends the end of life through the panel when one or more life parts have reached the end of their lives. <input type="checkbox"/> If “-” is displayed No firmware for life extension is installed.

Note **: A dialog for life extension appears once in a week after the end of life of a life part is reached.

IC Replacement History

Slot	History	Replacement Date & Time	Production Year Month Date	Line No.
Black(Full)	1	2017/03/21	2014/08/22	1
Yellow(Full)	1	2017/03/21	2015/05/25	13
Magenta(Full)	1	2017/03/21	2017/03/06	1
Cyan(Full)	1	2017/03/21	2014/02/06	13
Black(Home)	1	2017/03/21	2014/08/22	1
Yellow(Home)	1	2017/03/21	2014/12/08	13
Magenta(Home)	1	2017/03/21	2017/03/06	1
Cyan(Home)	1	2017/03/21	2013/11/25	13

Figure 4-8. [IC Replacement History] screen

1	Slot	Name of slot
2	History	Number of replacement history
3	Replacement Date & Time	Date of replacement
4	Production Year Month Date	Date of production
5	Line No.	Production line number

Utilization

Items	Current value
<Head / Cap Maintenance Executions>	
Execution times (total)	0
Excution date & time History1	-
Excution date & time History2	-
Excution date & time History3	-
Excution date & time History4	-
Excution date & time History5	-
Excution date & time History6	-
Excution date & time History7	-
Excution date & time History8	-
Excution date & time History9	-
Excution date & time History10	-
<Lubrication warning Date Hostory>	
Times(Total)	0
Date & TimesHistory1	-
Date & TimesHistory2	-
<Wiper Unit>	

Figure 4-9. [Utilization] screen

1	Items	---
2	Current Value	Displays current values for each part or unit.

Error History

Type	Error Content	Time Stamp
<Normal Errors History>		
0021	No rollup reset (while data receive)	2017/04/12
002B	Media End	2017/04/12
001F	Media Feed Error	2017/03/31
002B	Media End	2017/03/31
001F	Media Feed Error	2017/03/31
001F	Media Feed Error	2017/03/31
<Service Calls Errors History>		
	Non	

Figure 4-10. [Error History] screen

1	Normal Errors History	History of occurrence of normal errors
2	Service Calls Errors History	History of occurrence of service calls errors
3	Type	Type of the latest six errors recorded on NVRAM
4	Error Content	Information of the error.
5	Time Stamp	Displays the time stamps of the currently displayed errors.

Basic Information

Items	Current value
NVRAM acquired date	2017/04/12 10:54
<Printer Basic Information>	
Model	SC-F9300 Series
Printer Serial No.	4411E10006
Printer Firmware Version	ML009H3
Initial Ink Charge Date & Time	2017/03/21
Setting Data	
Side Margin (Right) (3 - 25mm) (mm)	5
Side Margin (Left) (3 - 25mm) (mm)	5
Print Start Position (0 - 800mm) (mm)	144
Media Size Check (ON/OFF) (mm)	ON
Media End Check (ON/OFF)	ON
Media Skew Check (ON/OFF)	ON
Media End Option (Continue/Stop Printing)	Stop Printing
Nozzle Check Setting(ON/OFF/Auto)	OFF
Cleaning Cycle (OFF/Every 1 - 10 pages)	OFF
Media End Option (Continue/Stop Printing)	Auto
Head Mode (2Head/Head1/Head2)	2 Head mode
Sleep Mode (15 - 240min.)	15

Figure 4-11. [Basic Information] screen

1	Items	---
2	Current Value	Displays current values for each part or unit.

INFORMATION SAVED TO EXCEL FILES

- [Life Parts Operation History] sheet

Table 4-6. [Life Parts Operation History] sheet

Item	Description
Total Print Dimension	Operation history (the following information is displayed for each of the items.)
CR passes	<input type="checkbox"/> Current value <input type="checkbox"/> Limit <input type="checkbox"/> Situation <input type="checkbox"/> End of life Estimated Date/Actual Date (YYYY/MM/DD)
Ink Tube	
Duct CR (Right)	Buffer drive counter
Duct CR (Left)	
Ink Holder (Home)	Ink tank setting count
Ink Holder (Full)	
Pump cap unit (Right)	
Pump cap unit (Left)	
Total count of CR scale warning	
Number of Agreed Times	<input type="checkbox"/> If a number is displayed It is the total number of times the customer extends the end of life through the panel when one or more life parts have reached the end of their lives. <input type="checkbox"/> If “-” is displayed No firmware for life extension is installed.

- [Utilization] sheet

Table 4-7. [Utilization] sheet

Item	Description
Head / Cap Maintenance Executions	Number of times of execution and the dates and times of the last 10 executions.
Lubrication warning Date History	Number of times of lubrication warning and the dates and times of the last two warnings
Wiper Unit	Wiper Cartridge Reel Count
Maintenance Parts Kit Replacement	Number of replacements of the maintenance part kit and the dates and times of the last five replacements

Table 4-7. [Utilization] sheet

Item	Description
Temperature	Print Head temperature when Power ON Print Head (Full) temperature per pages Print Head (Home) temperature per pages Print Head Temperature when Power ON (Max.) Print Head Temperature when Power ON (Min.)
Cleanings (Counter to be reset)	Print Head (Full) CL1s (Times) Print Head (Full) CL2s (Times) Print Head (Full) CL3s (Times) Print Head (Full) SSCLs (Times) Print Head (Home) CL1s (Times) Print Head (Home) CL2s (Times) Print Head (Home) CL3s (Times) Print Head (Home) SSCLs (Times)
Cumulative CL Times (non rewritable)	Print Head (Full) CL1s (Times) Print Head (Full) CL2s (Times) Print Head (Full) CL3s (Times)

Table 4-7. [Utilization] sheet

Item	Description
Cumulative CL Times (non rewritable)	Print Head (Full) SSCLs (Times) ---
	Print Head (Home) CL1s (Times) ---
	Print Head (Home) CL2s (Times) ---
	Print Head (Home) CL3s (Times) ---
	Print Head (Home) SSCLs (Times) ---
Ink mixing error	History 1 ---
	History 2 ---
	History 3 ---
Ink tank (Consumed Ink Amount <Epson Genuine>)	Black (Full) (1000ml) ---
	Yellow (Full) (1000ml) ---
	Magenta (Full) (1000ml) ---
	Cyan (Full) (1000ml) ---
	Black (Home) (1000ml) ---
	Yellow (Home) (1000ml) ---
	Magenta (Home) (1000ml) ---
	Cyan (Home) (1000ml) ---

Table 4-7. [Utilization] sheet

Item	Description
(Consumed Ink Amount <Non Genuine>)	Black (Full) (1000ml) ---
	Yellow (Full) (1000ml) ---
	Magenta (Full) (1000ml) ---
	Cyan (Full) (1000ml) ---
	Black (Home) (1000ml) ---
	Yellow (Home) (1000ml) ---
	Magenta (Home) (1000ml) ---
	Cyan (Home) (1000ml) ---
Power ON Time Print Ratio	Total Power ON Time (min) ---
	Total Print Time (min) ---
	Continuous Power ON Time (Max.) (Hours) ---
	Print Time (Max.) (min) ---

Table 4-7. [Utilization] sheet

Item	Description
Part Replacement History	CR Motor Number of replacements and replaced dates and times
	CR Encoder Number of replacements and the last five replaced dates and times
	Ink Tube Number of replacements and replaced dates and times, the value of the counter at the time of replacement
	Print Head (Home) Number of replacements and the last five replaced dates and times
	Print Head (Full)
	Duct CR (Home) Number of replacements and the last four replaced dates and times
	Duct CR (Full)
	Ink Holder (Home) Number of replacements and replaced dates and times
	Ink Holder (Full) Number of replacements and replaced dates and times
	Pump cap unit (Left) Number of replacements and replaced dates and times
Number of times about Heat Limits of each motor	Pump cap unit (Right) Number of replacements and replaced dates and times
	CR Motor ---
	PF Motor ---
	APG Motor ---
	Pump Motor (Pump Cap Unit) (Right) ---
	Pump Motor (Pump Cap Unit1) (Left) ---
	Pump Motor (Ink Holder) (Right) ---
	Pump Motor (Ink Holder) (Left) ---
	ATC (Roll) Motor ---
	Reel Motor ---

 [Error History] sheet**Table 4-8. [Error History] sheet**

Item	Description
Normal Errors History	The details of the last six errors and their time stamps
Service Calls Errors History	The details of the last six service calls and their time stamps
Error number of occurrences	Number of times of occurrence of normal errors and service calls errors

 [Basic Information] sheet**Table 4-9. [Basic Information] sheet**

Item	Description
NVRAM acquired date	Date and time when the information saved in the xlsx file was acquired
Printer Basic Information	Model Name of the product
	Printer Serial No. Serial number of the printer
	Printer Firmware Version The version of the firmware
	Initial Ink Charge Date & Time Date and time when the initial ink charge was carried out
	Setting Data Displays the values of each setting of the menu on the control panel
Charge Setting (ON/OFF)	Display the status of Charge Setting
Cleaning During Standby	Display the periodic cleaning timing and level during standby.
Head Maintenance Interval (m)	Display the interval of Auto Head Maintenance
Language Unit Setting	Language Language displayed on the panel
	Unit: Length The units used for the values displayed on the panel
	Unit: Temperature
	Alert Sound Setting Details of the alert sound setting
	Alert Lamp Setting Details of the alert lamp setting
	Paper select index (1 to 30) Displays the currently selected media setting registered in the printer (up to 30 settings)

Table 4-9. [Basic Information] sheet

Item	Description
Media Setting	<p>Displays the media settings registered in the printer (up to 30 settings)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Media Number <input type="checkbox"/> Media Name <input type="checkbox"/> Platen Gap (1.6/2.0/2.5) <input type="checkbox"/> After Heater Temperature (OFF/30 - 50 Deg. C) <input type="checkbox"/> Drying Time Per Pass (0.0 - 10.0 sec) <input type="checkbox"/> Blank Area Feed (Quick/Standard/Slow/ Slowest) <input type="checkbox"/> Drying Paper Feed after Print (OFF/Short, Rewind/Short, No Rewind/Long, Rewind/ Long, No Rewind) <input type="checkbox"/> Blower Setting (ON/OFF) <input type="checkbox"/> Absorption Level (Level1 - 10) <input type="checkbox"/> Head Movement (Data Width/Printer Full Width/Media Width) <input type="checkbox"/> Multi Strike Printing (OFF/2 - 8 times) <input type="checkbox"/> Feed Speed Limiter (ON/OFF) <input type="checkbox"/> Pressure Roller Load Level (Light/Medium/ Heavy) <input type="checkbox"/> Remove Skew (ON/OFF) <input type="checkbox"/> Periodic CL Cycle (Auto/Manual) <input type="checkbox"/> Periodic CL Cycle (Printing Time/Media Usage/Off) <input type="checkbox"/> Periodic CL Cycle When To Clean (Between Pages/Middle Of Page) <input type="checkbox"/> Periodic CL Cycle Level (Light/Medium/ Heavy) <input type="checkbox"/> Periodic CL Cycle (20 - 999 m) <input type="checkbox"/> Prevent Sticking (ON/OFF) <input type="checkbox"/> Change setting counter (times) <input type="checkbox"/> Paper Feed Offset Amount While printing <input type="checkbox"/> Paper Feed Offset Amount (0.5 - 2.0 times) <input type="checkbox"/> Roll Type

[IC Replacement History] sheet

The settings displayed in the NVRAM Viewer are saved.

4.4 ADJUSTMENTS (Individual)

This mode executes the adjustment required for the repair individually.

PROCEDURE

1. Click **ADJUSTMENTS (Individual)** from the main menu.
2. Select the adjustment item that you want to execute and click **OK**.
3. Follow the instructions on the screen to execute the adjustment.

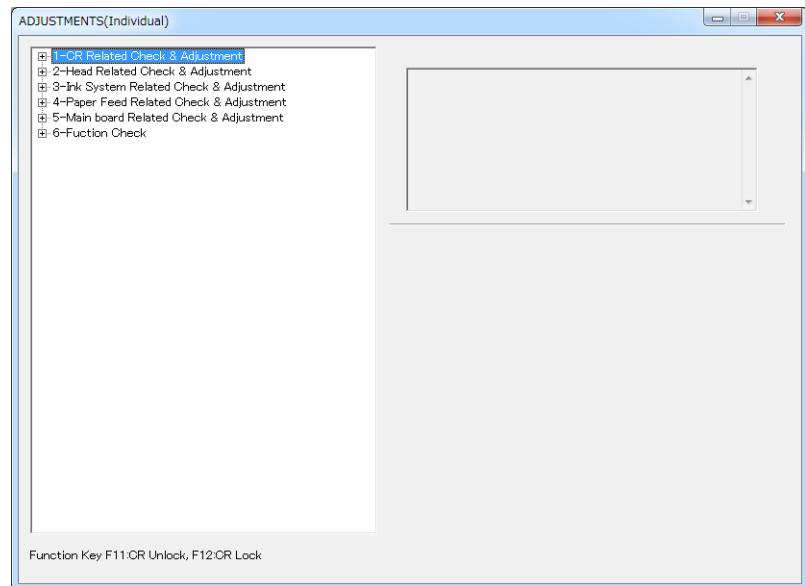


Figure 4-12. ADJUSTMENTS (Individual)

4.5 ADJUSTMENTS (Sequence)

This mode displays the required adjustments per replaced part and executes the adjustments in order.

PROCEDURE

1. Click **ADJUSTMENTS (Sequence)** from the main menu.
2. Select the name of the replaced part.
3. Select the adjustment item that you want to execute and click **OK**.
4. Follow the instructions on the screen to execute the adjustment.
5. Click **Finish** to return to the adjustment item list per part after the adjustment.

CHECK POINT

**The text of the executed adjustment is colored to be distinguished.
The colored text gets back to normal by returning to the main menu once.**

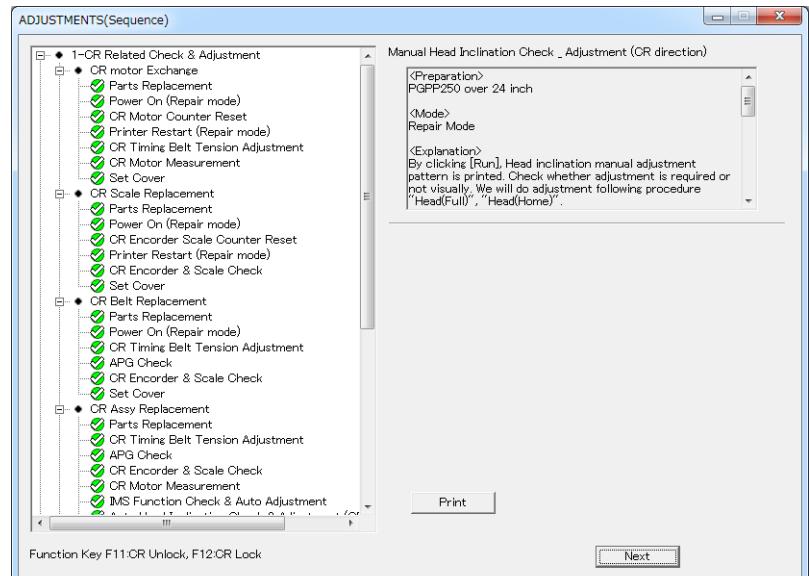


Figure 4-13. ADJUSTMENTS (Sequence)

4.6 Updating Firmware

This section explains how to update the firmware. The firmware of this printer is written in the Flash ROM on the main board. If the main board is replaced or the firmware needs to be updated, follow the procedure below to write the firmware to the Flash ROM.

Following two kinds of firmware are provided.

- Main firmware
- Network firmware

CAUTION


When Initial ink charge is not needed when replacing the main board with a new one, make sure remove the ink tank before updating the firmware.
(Since the parameter does not exist on the new main board, the initial ink charge starts automatically.)

PROCEDURE


The firmware updating procedures of SC-F9400 Series/SC-F9400H Series differ from SC-F9300 Series.

- SC-F9300 Series: [P. 241](#)
- SC-F9400 Series/SC-F9400H Series: [P. 242](#)

SC-F9300 Series

1. Turn both the printer and computer OFF and connect them with a USB cable.



All firmwares can be installed to the printer via USB cable connection.

2. Open the Front Cover.
3. Pull out all the ink tanks.

4. Turn the printer ON in the F/W update mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [Light].
5. Start the Service Program and click **FIRMWARE UPDATE TOOL** from the main menu.

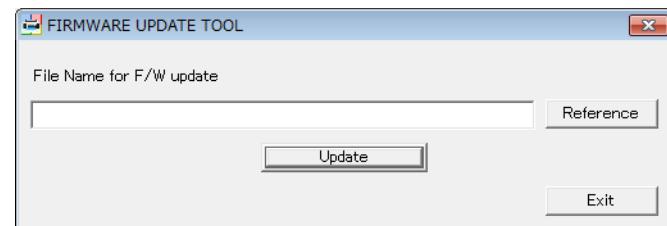


Figure 4-14. FIRMWARE UPDATE TOOL

6. Click **Reference** of the F/W Update list to select the firmware data to be installed.
7. Click **Update**, and then click **OK** to transfer the firmware data.

CAUTION


When updating starts, a progress bar is displayed on the Control Panel of the printer. Make sure not to turn off the printer until updating is complete. Otherwise, the printer may not operate normally.

8. When writing the firmware is completed, the printer will be rebooted automatically.

- SC-F9400 Series/SC-F9400H Series
 - Normal firmware update (Not replacing the Main Board)
1. Connect the Printer and PC with a USB cable.
 2. Turn the printer ON in Normal mode.
 3. Start the Firmware updater (EPFWUPD.exe).
 4. When the Firmware updater started, click [Next].

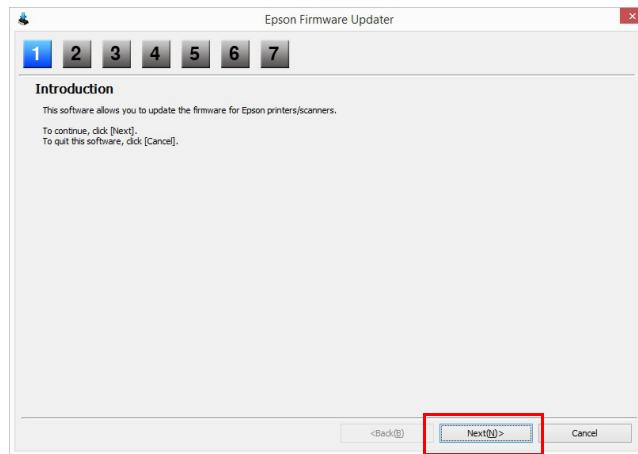


Figure 4-15. Firmware update (1)

5. Read license agreement, select **I agree**, and click [Next].

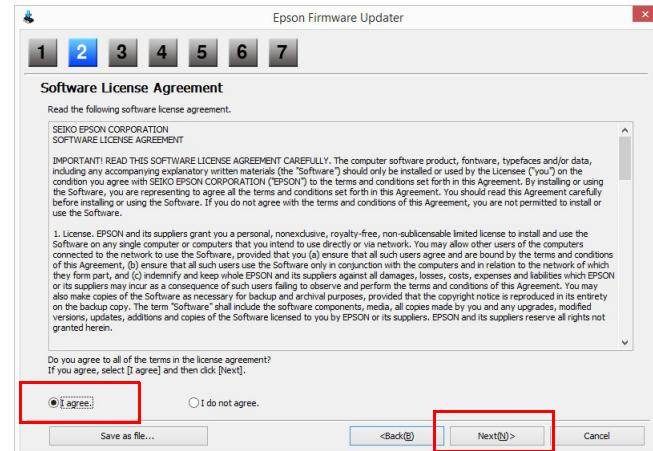


Figure 4-16. Firmware update (2)

6. Click [Browse], select the firmware data which you install.

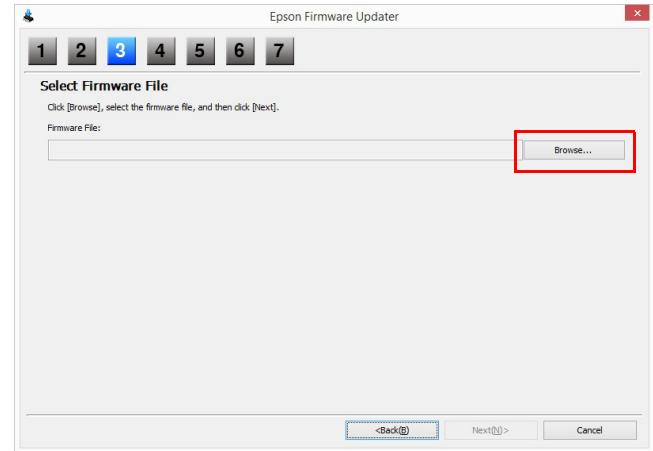


Figure 4-17. Firmware update (3)

7. Since precaution is displayed by clicking [Next], click [Next] again.

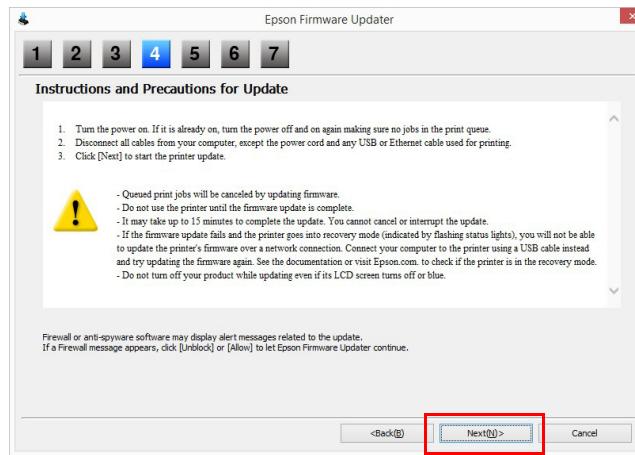


Figure 4-18. Firmware update (4)

8. The information of firmware updating and the printer connected currently is displayed. Check the check box, and click [Start] to start Firmware update.

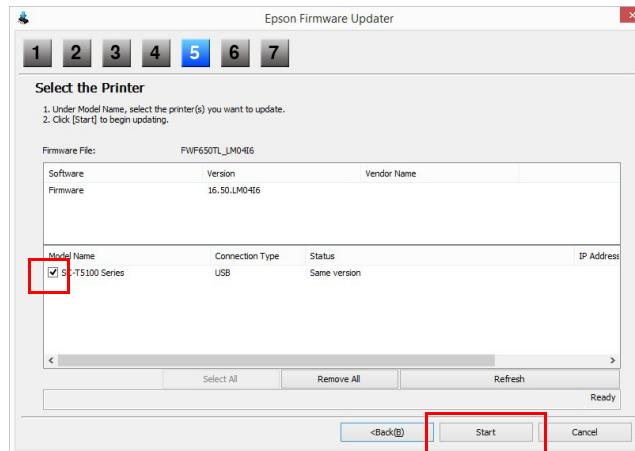


Figure 4-19. Firmware update (5)

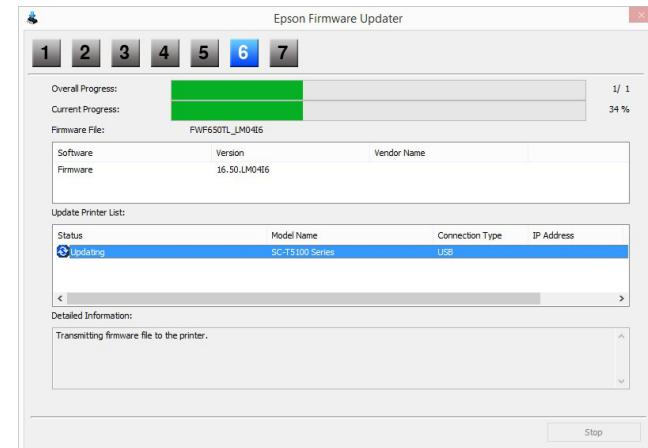


Figure 4-20. Firmware update (6)



Make sure not to turn off the printer until updating is complete. Otherwise, the printer may not operate normally.

9. The printer automatically turns off and back on again when the update is finished.
10. Click [Finish] of the firmware updater to finish.



Downgrading firmware is not recommended, but it can be performed in firmware update mode.

- Firmware update after replacing the Main Board



When Initial ink charge is not needed when replacing the main board with a new one, make sure remove the ink tank before updating the firmware.
(Since the parameter does not exist on the new main board, the initial ink charge starts automatically.)

1. Remove the ink tank.
2. Connect the Printer and PC with a USB cable.
3. Turn the printer ON in the F/W update mode.
Turn the power ON while pressing **[Media setup] + [Maintenance] + [Light]**.
4. Start the firmware updater (EPFWUPD.exe).
5. Perform [Step 4](#) to [Step 8](#) of Normal firmware update (Not replacing the Main Board).



Printer information is not displayed in the Firmware update mode.



- Make sure not to turn off the printer until updating is complete. Otherwise, the printer may not operate normally.
- Printer update is not finished when “Finish” is displayed on the screen of firmware updater. When printer update is finished, “FINISHED” is displayed on the panel and the LED flashes regularly.

6. When update is finished, turn the printer off, and click **[Finish]** on the updater.

4.7 Image & Test Print

The following functions are provided.

- Prints an image file (.PRN file)
- Transfers the .PRN file

PROCEDURE

1. Click **IMAGE PRINT** from the main menu.
2. Click **Reference** to specify a file to print.
3. Click **Print**.

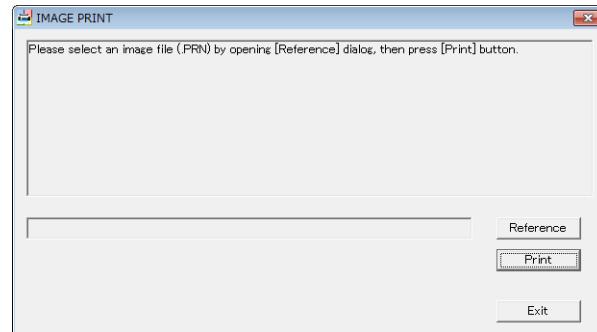


Figure 4-21. [IMAGE PRINT] Screen



- Make the file name of an image file or PRN. file in half size less than 80 characters. Or use 50 2-byte-characters or less.
- Make sure to use lower case letters for extensions of the file names.

4.8 Counter Clear

Whenever the parts/units which have life counter are replaced, the corresponding life counter must be reset. This is important to replace those parts/units at the correct timing.

EXECUTION MODE

Serviceman Mode

PROCEDURE

1. Turn the printer ON in the Serviceman Mode.
Turn the power ON while pressing [Menu] + [Back] + [OK].
2. Start the Service Program and click **PRINTER SETTING CHANGE & COUNTER RESET** from the main menu.
3. Choose one of the counter reset menus to be reset.
4. Click **Run** to reset the counter.
5. Turn the printer OFF.

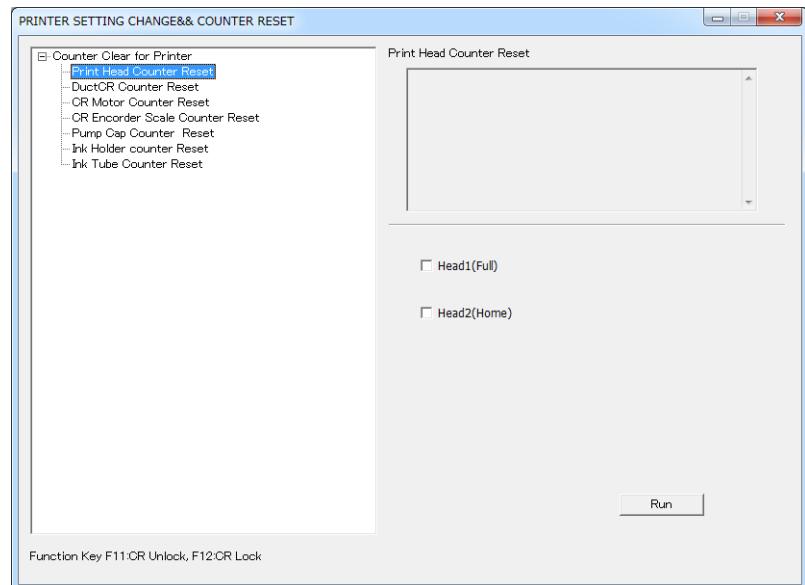


Figure 4-22. [FLAG CHANGE & COUNTER RESET] Screen

Table 4-10. Clear Counter Menu List

Class	Counter
Motor	CR motor
Ink system	Print head
	Duct CR
	Pump cap unit
	Ink holder
	Ink tube
Printer mechanism	CR encoder/scale

4.9 References

This function allows you to view the following information (PDF files).

- Control panel menus in the Normal Mode
- Control panel menus in the Serviceman Mode
- Wiring diagrams

PROCEDURE

1. Click **References** from the main menu.
2. Select **Panel Menu Map** or **Wiring Diagrams** and click **Open**.

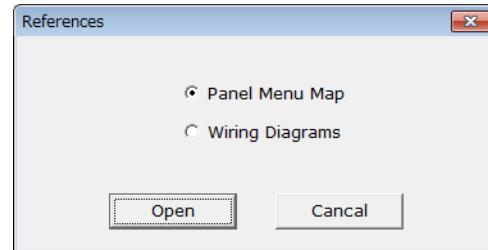


Figure 4-23. References

4.10 Initial Ink Charge Flag ON/OFF

PROCEDURE

1. Turn the printer ON in the Serviceman Mode.
Turn the power ON while pressing [Menu] + [Back] + [OK].
2. Start the Service Program and select **Initial ink charge Flag ON/OFF**.
3. Select **ON** or **OFF** and click **[Run]**.
4. Turn the printer OFF.

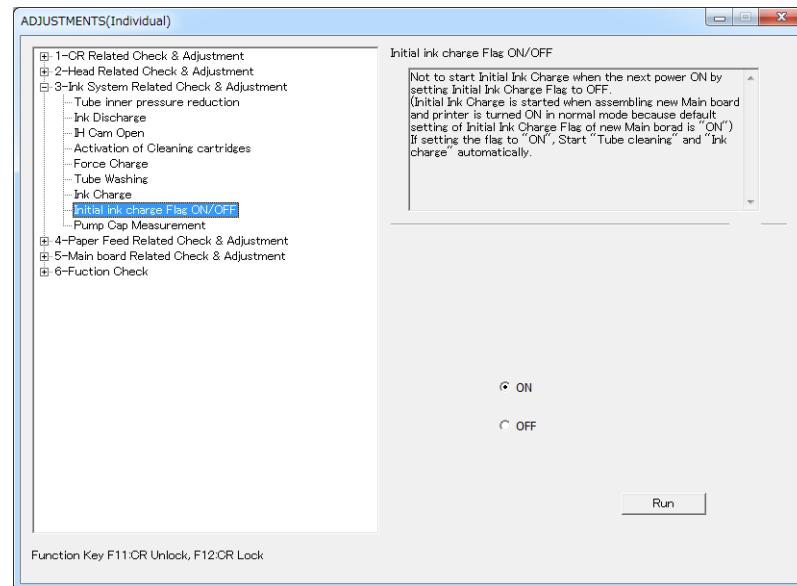


Figure 4-24. [Initial ink charge Flag ON/OFF] Screen

4.11 CR Related Adjustments

4.11.1 CR Timing Belt Tension Adjustment

REQUIRED TOOLS

- Sonic tensimeter U-507
- Any tools to flip the belt

STANDARD VALUE

- 53 ± 2 N

EXECUTION MODE

Repair Mode

PROCEDURE

1. Remove the following parts in advance.
 - Left Cover ([P. 107](#))
2. When any paper is loaded, remove it.
3. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [**Media setup**] + [**Maintenance**] + [**OK**].
4. Start the Service Program and select **CR Timing Belt Tension Adjustment**.
5. Click **Run**.
The CR Unit moves left and right three times.

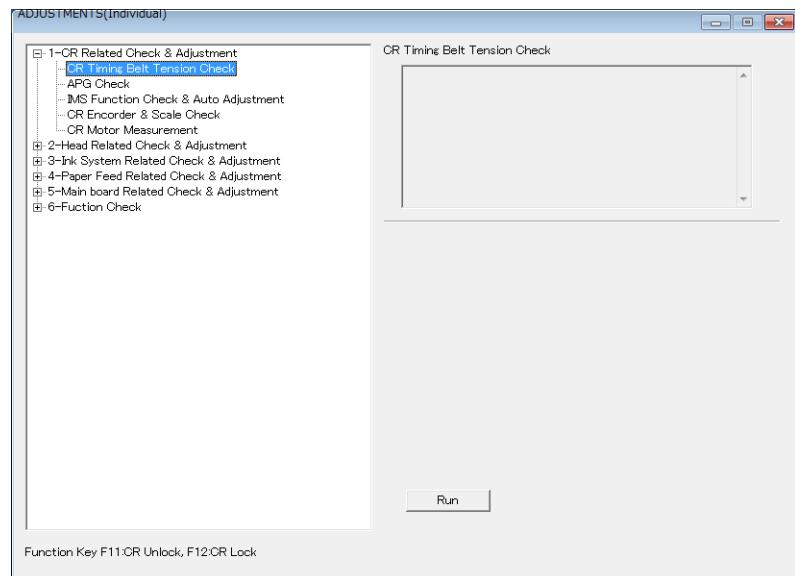


Figure 4-25. [CR Timing Belt Tension Adjustment] Screen

6. Check the CR TIMING BELT while the CR UNIT is running.

- The belt runs in the middle of the driven pulley:
Finish. Perform the <belt tension measurement> ([Step 9](#)).
- When the belt moves back and forth between both sides or runs on either side:
Go to [Step 7](#).

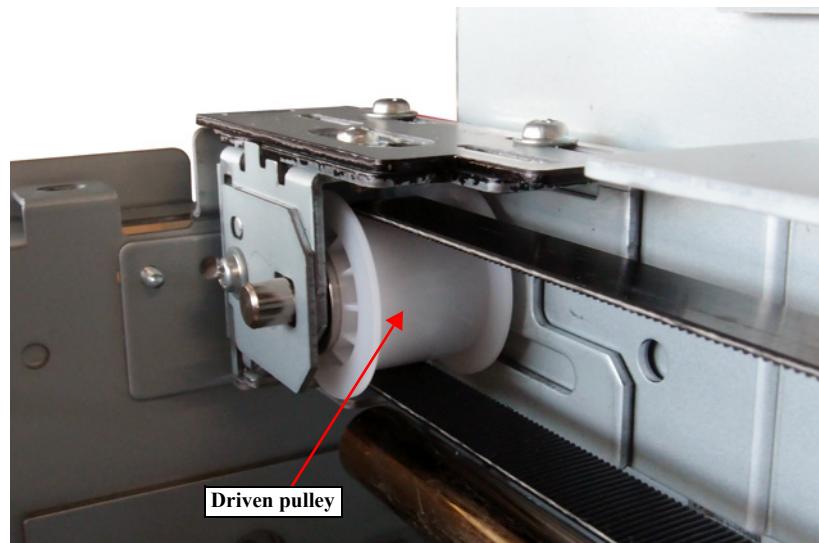


Figure 4-26. Slant adjustment of driven pulley

7. Loosen the screw A of the driven pulley holder.

8. Adjust the driven pulley slant with the slant adjusting screw. After adjusting the slant, attach the screw A and return to [Step 4](#).

- The belt leans to the rear side of the driven pulley:
Rotate the screw in a counterclockwise.
- The belt leans to the front side of the driven pulley:
Rotate the screw in a clockwise.

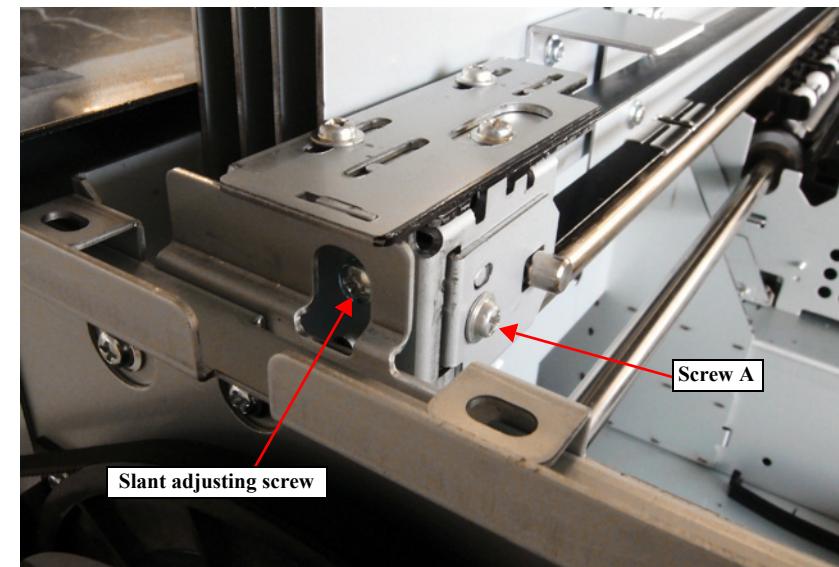


Figure 4-27. Screw A and slant adjusting screw

9. Input the following values to the tensimeter.

- MASS: 1.0 g/m
- WIDTH: 10.0 mm/R
- SPAN: 1170 mm

10. Bring the microphone of the tensimeter closer to the position shown in Figure 4-28.



Bring the microphone within 5 mm from the belt but do not let it touch the belt.

11. Press [MEASURE] on the tensimeter and flip the belt with tweezers or a similar tool.



- Be sure to measure the tension of the belt on the upper side. If you measure the tension of the belt on the lower side, the measuring value may be inaccurate.
- Flip the belt as weak as the tension meter can measure it.
- Be careful not to let the microphone touch the belt when flipping the belt.

12. Measure the belt tension for three times, and check if the average is within the standards.

- Within the standards: Finish
- Out of the standards: Go to Step 13

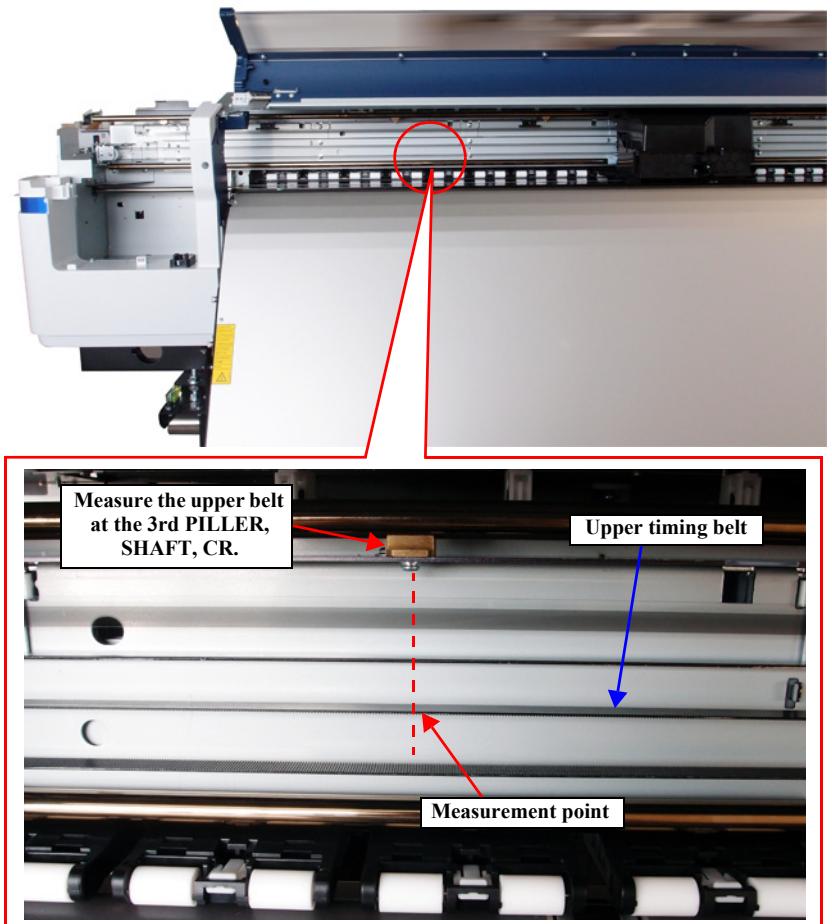


Figure 4-28. Measuring the belt tension

13. Loosen the two screws that secure the driven pulley holder.
 14. Turn the adjustment screw to adjust the belt tension.
 - If larger than standard value: Turn the screw counterclockwise.
 - If smaller than standard value: Turn the screw clockwise.
- After adjusting the tension, tighten the screws loosened in [Step 13](#), and then back to [Step 10](#).



The tension is changed about 1.5 N by turning the adjusting screw for a quarter turn.

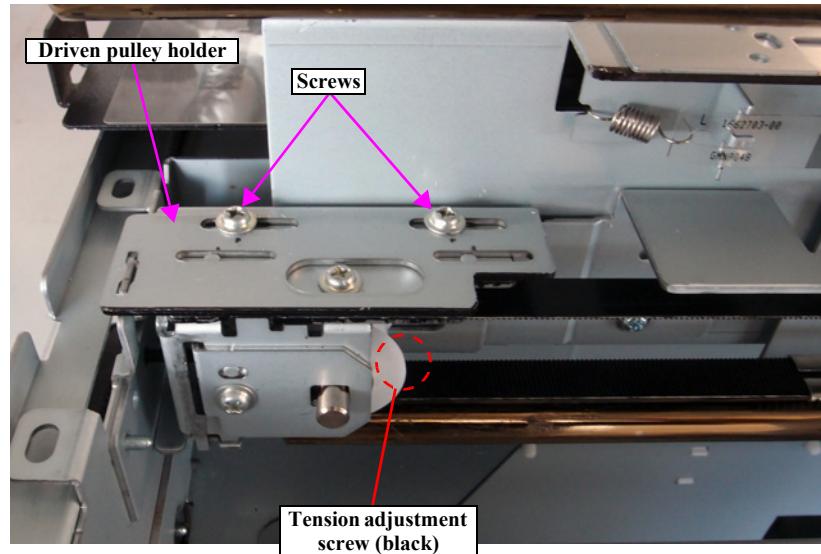


Figure 4-29. Driven pulley holder

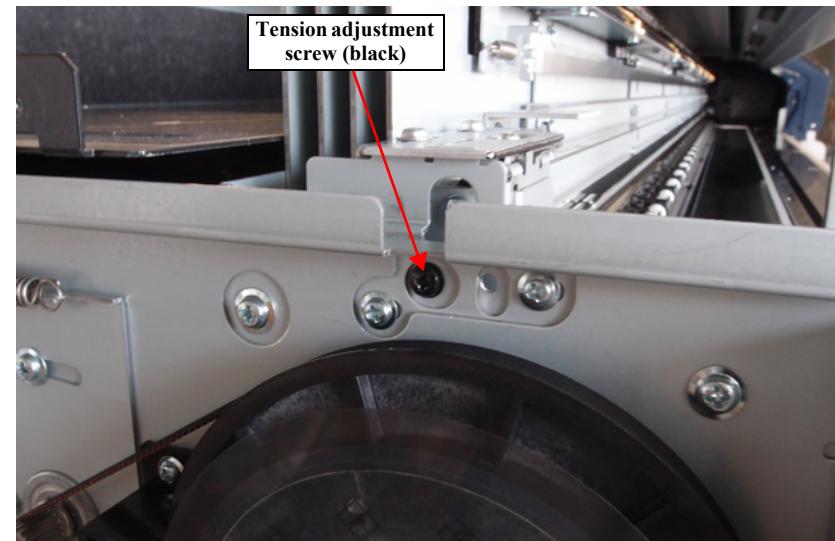


Figure 4-30. Tension adjustment screw

4.11.2 APG Check

EXECUTION MODE

Repair Mode

PROCEDURE

1. Remove the following parts in advance.
 - Right upper cover ([P. 94](#))
2. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [**Media setup**] + [**Maintenance**] + [**OK**].
3. Start the Service Program and select **APG Check**.
4. Click **Run**.
The APG mechanism moves.

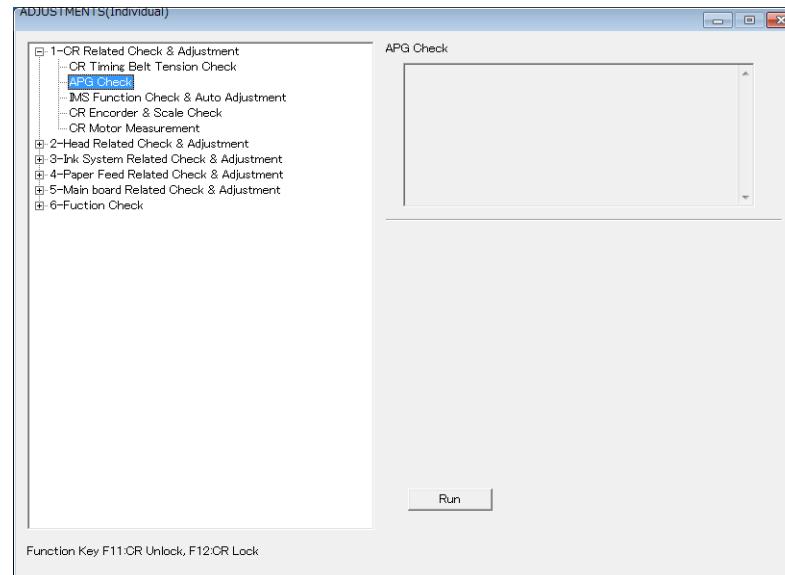


Figure 4-31. [APG Check] Screen

5. Check that the mark on the top of the APG cam is “TYP”.
6. Click **OK** and check. Click **OK** again and check.

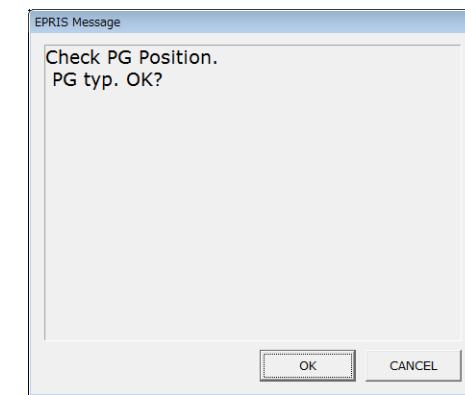


Figure 4-32. [APG Check] Screen

- “TYP” is on the top: Finish
- “TYP” is not on the top: Go to Step 7

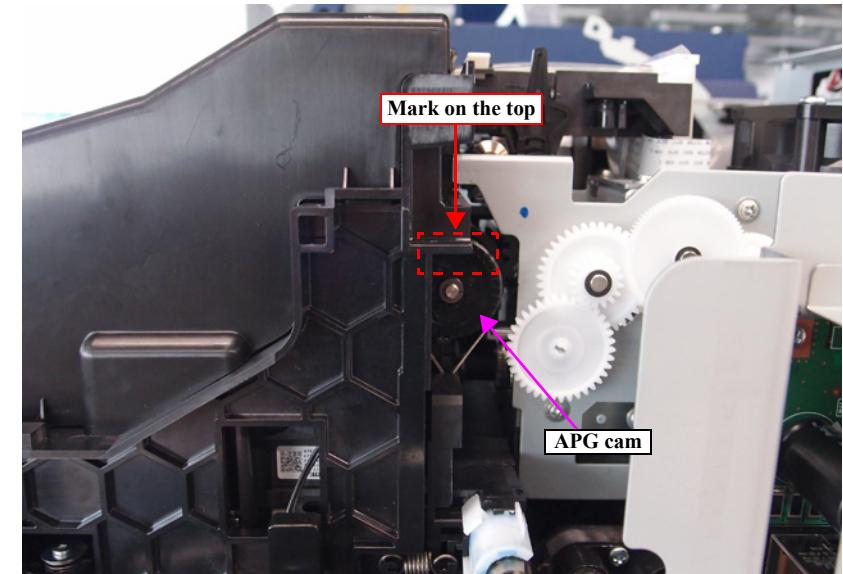


Figure 4-33. Checking the APG cam

7. Since the APG is not switched correctly, execute the following remedy responding to the symptom.

Symptom	Remedy
The CR Unit does not move to the APG switch position (home position).	Since the CR Unit may not move smoothly, lubricate the CR Unit. (P. 334)
The CR Unit moves to the APG switch position but the APG mechanism does not operate.	Since the APG Motor may not operate, check the wiring of the APG Motor. If there is no trouble for the wiring, replace the APG Motor. (P. 156)
The APG mechanism operates but the APG is not switched correctly.	Since the APG mechanism on the CR Unit may not have been installed correctly, replace the CR Unit. (P. 171)

8. After taking the above measure, return to [Step 4](#) to check again.

4.11.3 IMS Function Check & Auto Adjustment

PAPER USED

- Size: 24 inch length or longer
- Type: Premium Glossy Photo Paper (250)

EXECUTION MODE

Repair Mode

PROCEDURE

1. Load the paper in the printer.
2. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
3. On the control panel, select the **Media Setup** menu and change the **Select Media** setting to **RIP Settings “0”**.
4. Start the Service Program and select **IMS Function Check & Auto Adjustment**.
5. Click **Run**.
The adjustment pattern will be printed.
6. The printed pattern is scanned by the Ink Mark Sensor and the adjustment is made automatically.
If the adjustment failed, clean the Ink Mark Sensor or replace it.

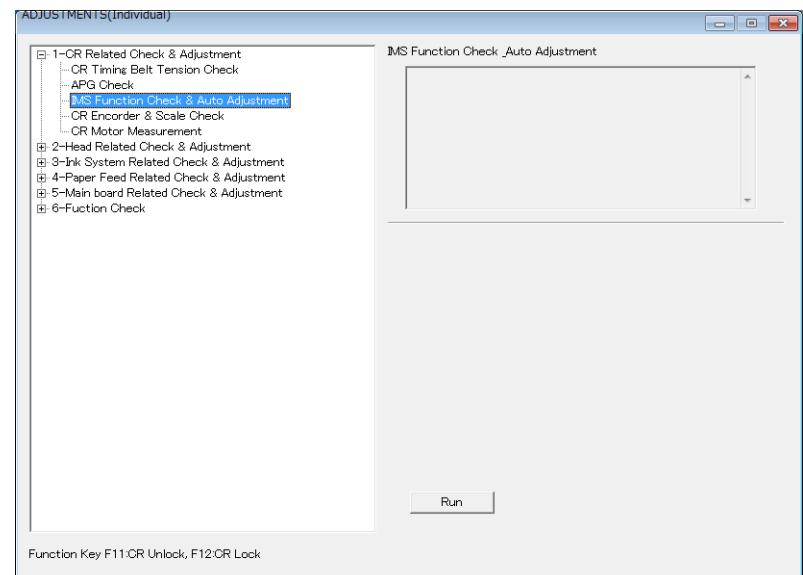
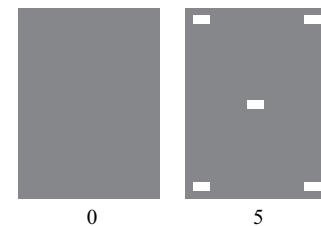


Figure 4-34. [IMS Function Check & Auto Adjustment] Screen



DS:<-1> Dm:<2> Dm' :<-8> A/D:<203> D/A:<71>



Check1 = OK, Check2 = OK

Figure 4-35. Adjustment Pattern

4.11.4 CR Encoder & Scale Check

EXECUTION MODE

Repair Mode

PROCEDURE

1. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
2. Start the Service Program and select **CR Encoder & Scale Check**.
3. Click **Run**.
The CR Unit moves left and right five times, and then the CR Encoder starts to read the scale.
 - The result is OK: Go to Step 4
 - The result is NG: Go to Step 4

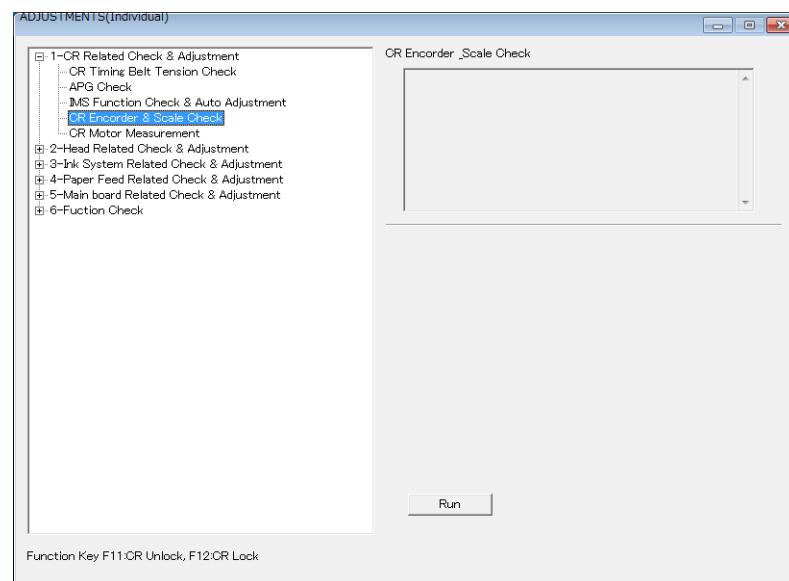


Figure 4-36. [CR Encoder & Scale Check] Screen

4. Since the CR Scale is not scanned correctly, clean the scale using ethanol. If the scale still cannot be read properly, replace the CR Encoder (P. 155) or the CR Scale (P. 147). After replacing the part, return to Step 3 to check again.

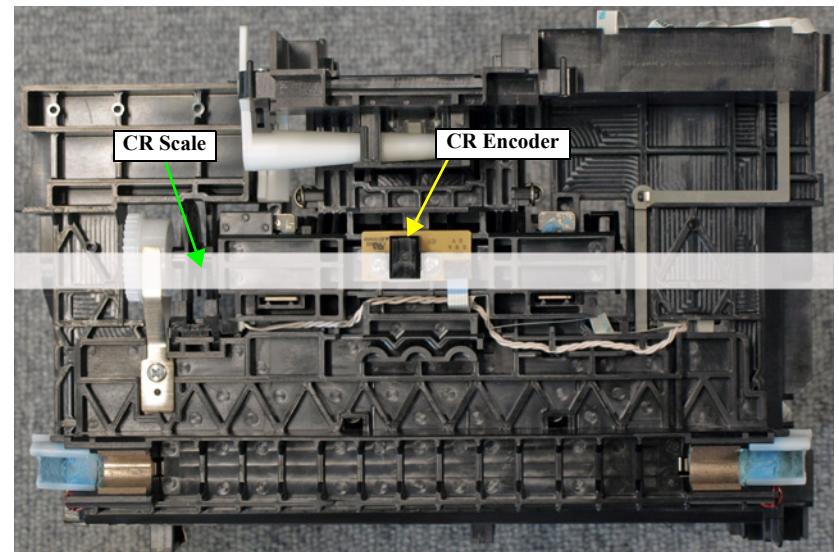


Figure 4-37. CR Encoder and Scale Check

4.11.5 CR Motor Measurement

EXECUTION MODE

Repair Mode

PROCEDURE

1. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
2. Start the Service Program and select **CR Motor Measurement** of the target motor.
3. Click **Run**.
Measurement and adjustment are performed automatically.
4. When finished, click **OK**.



If the adjustment is not finished, replace the motor.

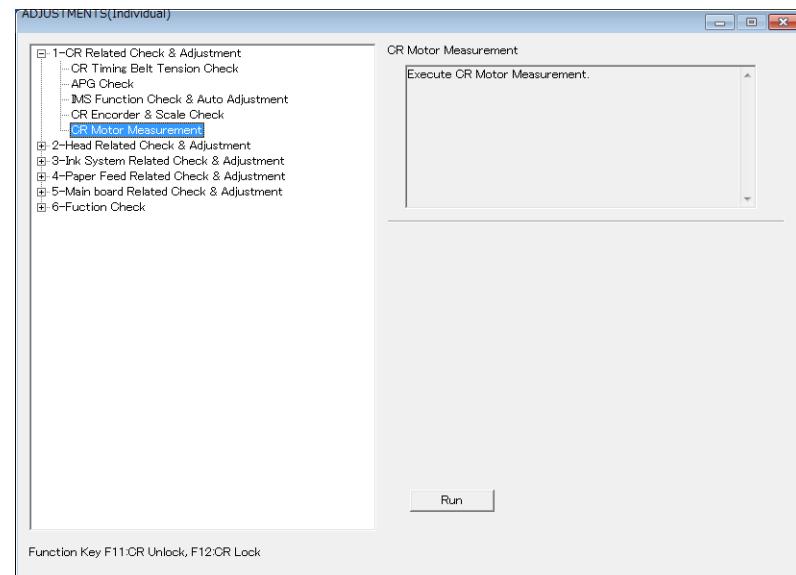


Figure 4-38. [CR Motor Measurement] Screen

4.11.6 PG Check & Adjustment



This adjustment adjusts the gap between the print head and the platen. Because the platen expands with heat of the heaters, the accurate gap cannot be measured immediately after turning off the printer. Wait until the platen cools down before starting the adjustment.

REQUIRED TOOL

Thickness gauge

STANDARD VALUE

- 2.45 pass
- 2.55 stop

EXECUTION MODE

Repair Mode

CHECK

PG can be checked manually or automatically.

- When checking automatically
 1. When any paper is loaded, remove it.
 2. Lower the media loading lever.
 3. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
 4. Start the Service Program and select **PG check & adjustment**.
 5. Click **Run**.
The CR unit is unlocked.
 6. Move the CR unit to the center.
 7. Set the thickness gauge referring to [Figure 4-39](#) and [Figure 4-40](#).

8. Move the CR unit and check if it passes over the gauge or not.

- For the head on the home side, check the gap on the right only.
- For the head on the full side, check the gap on the left only.

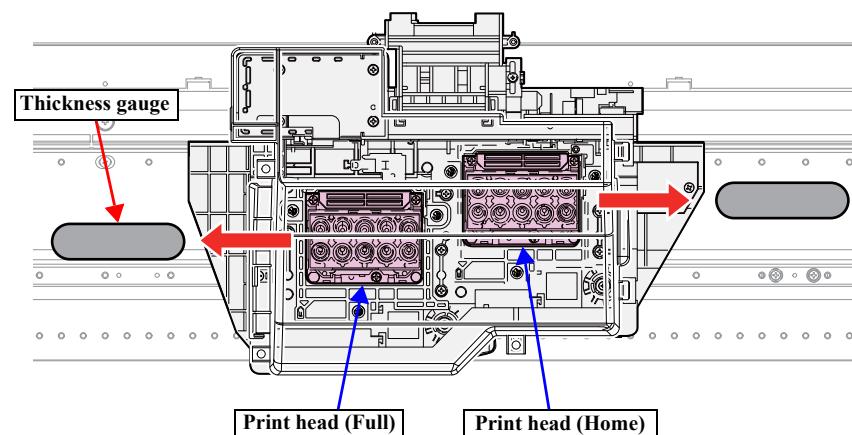


Figure 4-39. Check position

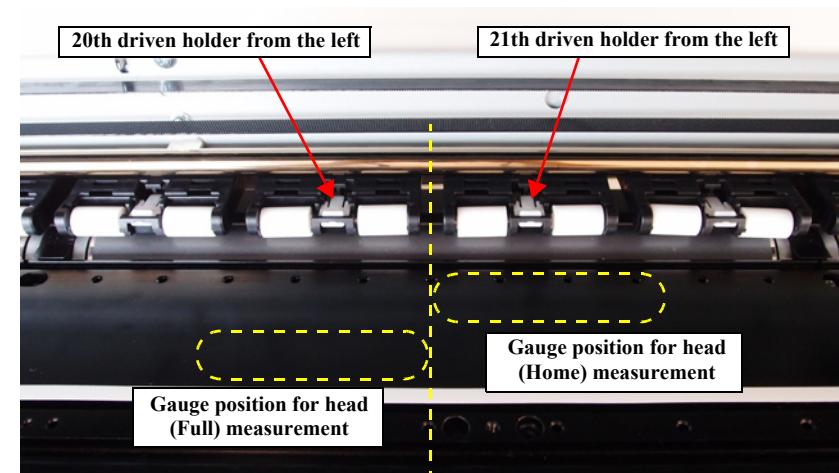


Figure 4-40. Gauge positions for measurement

9. After the check, lock the CR unit using the Service Program.

When checking manually

1. When any paper is loaded, remove it.

2. Lower the media loading lever.

3. Rotate the gear A shown below manually until the hole on the gear B is at 12 o'clock.

8. After the check, reassemble the printer and cap the head by turning on the power.

CAUTION

Make sure to turn on the power to cap the head.

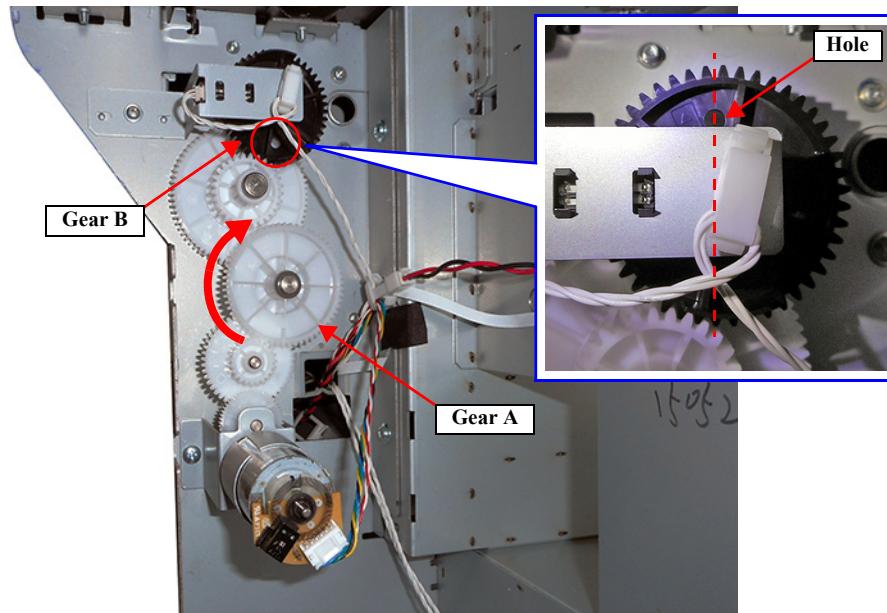


Figure 4-41. Rotating the gears

4. Unlock the CR unit manually. (P. 90)

5. Move the CR unit to the center.

6. Set the thickness gauge referring to [Figure 4-39](#) and [Figure 4-40](#).

7. Move the CR unit and check if it passes over the gauge or not.

- For the head on the home side, check the gap on the right only.
- For the head on the full side, check the gap on the left only.

PROCEDURE

1. Move the CR Unit to the left end, and remove the CR Cover. (P. 135)
2. Loosen the screws that secure the left and right PG adjustment levers.
3. Move the PG adjustment levers up and down to change the gap (PG).
 1. Adjust the PG adjustment levers on both right and left sides by the same steps until the PG of head (Home) falls within the standard range.
 2. Measure the PG of head (Full). If the result is out of the standard range, adjust the PG adjustment lever on the left until the PG falls within the standard range.
 3. Measure the PG of head (Home). If the result is out of the standard range, adjust the PG adjustment lever on the right until the PG falls within the standard range.
4. Repeat Step 2 and 3 until the PGs of both heads fall within the standard range.
4. Secure the PG adjustment levers by tightening the fixing screws and measure the PGs again. Repeat the measurement and adjustment until the result falls within the standard range.

PG Adjustment Levers

Raise the lever to move the CR up
Lower the lever to move the CR down

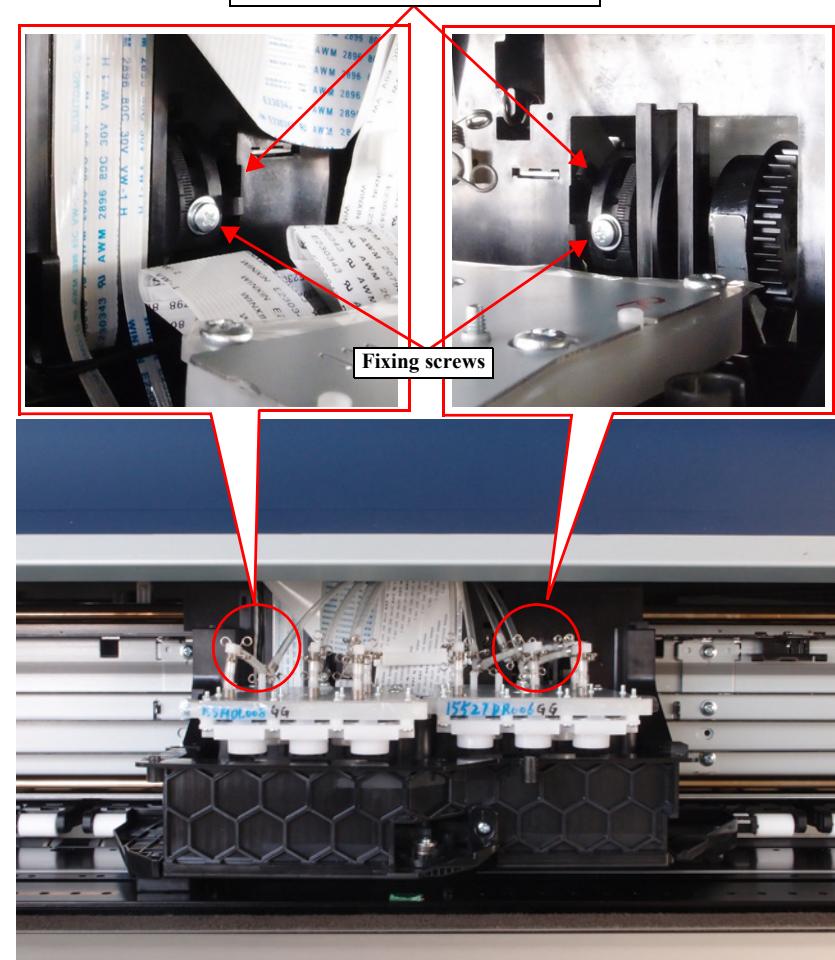


Figure 4-42. PG Adjustment Levers

4.12 Head Related Checks and Adjustments

4.12.1 Head ID Check & Input

EXECUTION MODE

Repair Mode

PROCEDURE

1. Write down the Head Rank ID (49 digits) that is printed on the ID label on a new Print Head.

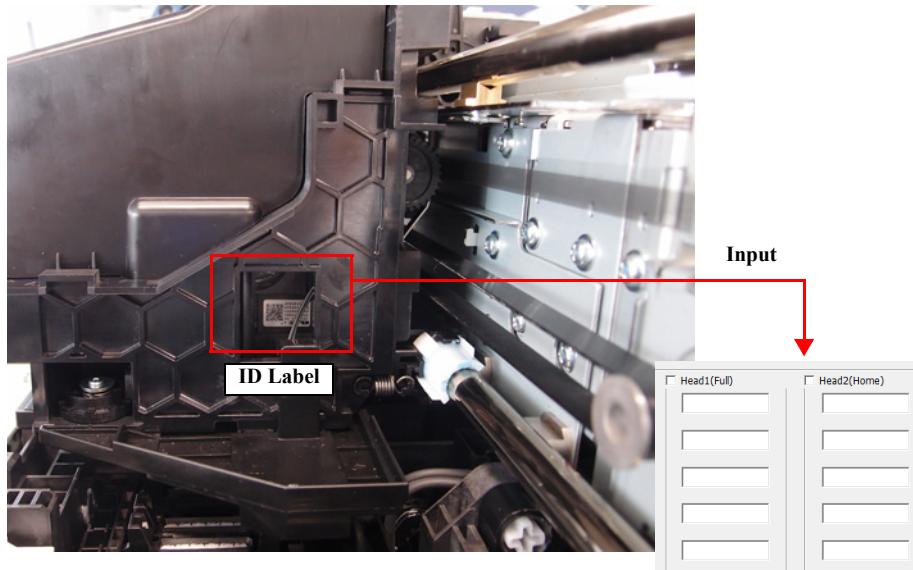
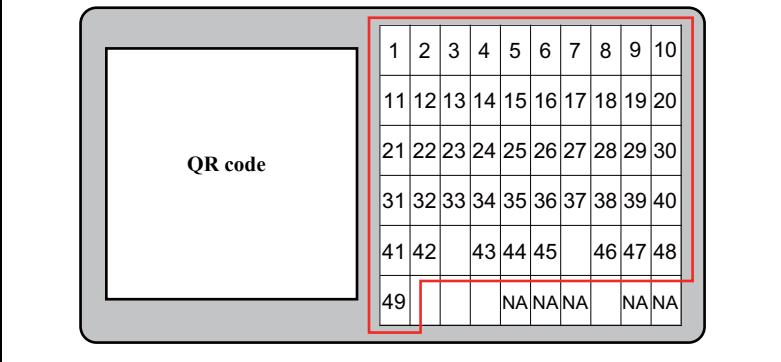


Figure 4-43. ID label



- For ID, alphabets, numbers, and symbols (*, +, -, %, \$, :) are used.
- The characters inside the red box shown below are the Head Rank ID. The spaces are not included.



2. Assemble the printer.
3. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
4. Start the Service Program and select **Head ID Check & Input**.
5. Enter the 49-digit ID into the edit boxes in the same way as indicated on the label.
(Enter the digits continuously without pressing the Space, Enter, or Tab key.)

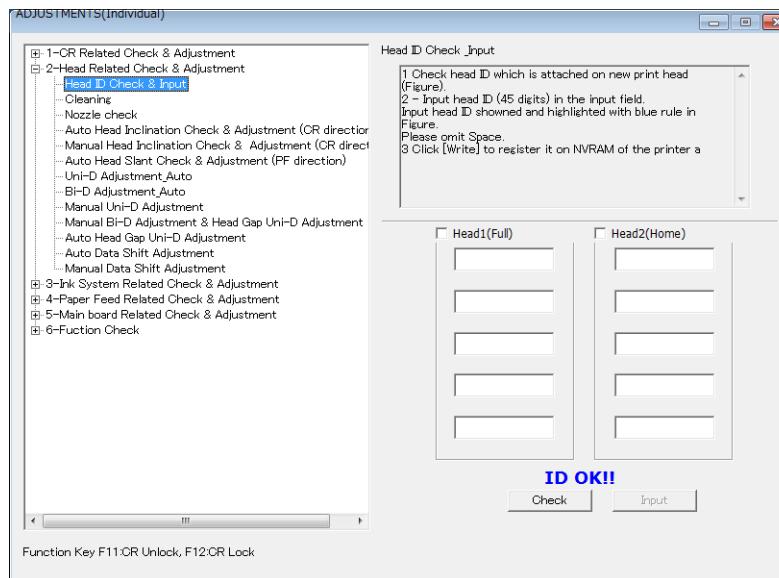


Figure 4-44. [Head ID Check & Input] Screen

6. Click **Input**.
7. Click **Finish**. The printer is turned off automatically.

4.12.2 Cleaning

EXECUTION MODE

Repair Mode

PROCEDURE

1. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
2. Start the Service Program and select **Cleaning**.
3. Select one of the cleaning levels and target nozzles, and click **Run**.
Cleaning is executed.

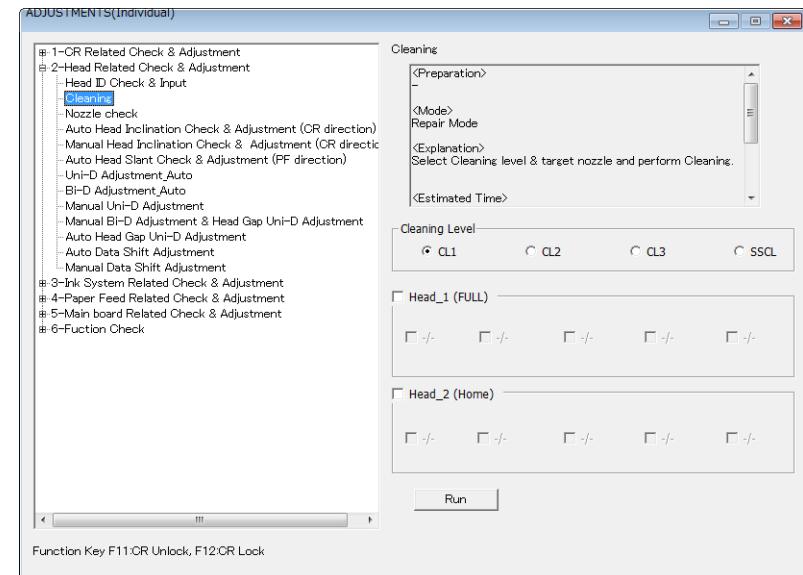


Figure 4-45. [Cleaning] Screen

4.12.3 Nozzle Check

PAPER USED

- Size: 24 inch length or longer
- Type: Premium Glossy Photo Paper (250)

EXECUTION MODE

Repair Mode

PROCEDURE

1. Load the paper into the printer.
2. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
3. On the control panel, select the **Media Setup** menu and change the **Select Media** setting to **RIP Settings “0”**.
4. Start the Service Program and select **Nozzle Check**.
5. Select **Nozzle Check Pattern Print** or **Alignment Check Pattern Print**, and click **Run**.
The selected check pattern is printed.
6. Examine the patterns for any missing segments, broken lines, or misaligned lines.
7. If any of the above symptoms is observed, run the cleaning and print the pattern again to see if the problem is solved.

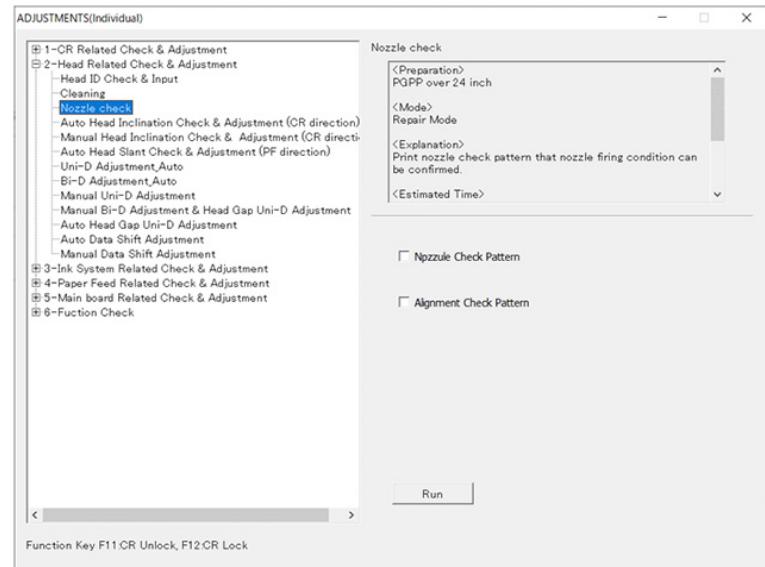


Figure 4-46. [Nozzle Check] Screen

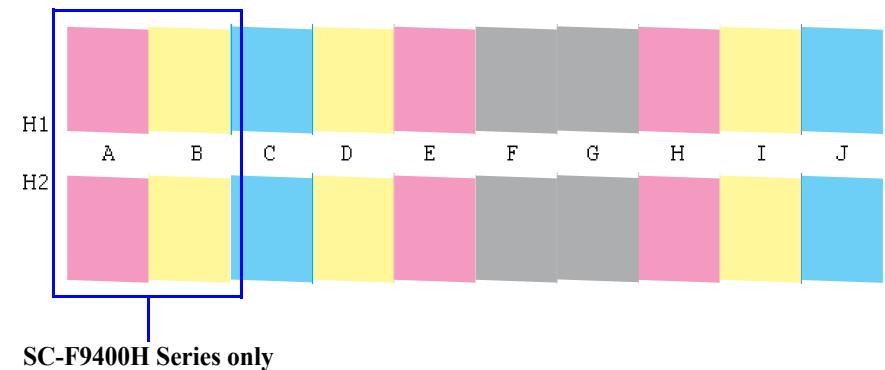


Figure 4-47. Nozzle check pattern

SC-F9400H Series only**Figure 4-48. Alignment check pattern**

4.12.4 Head Inclination Check & Adjustment (CR direction)

The following two methods are provided. Basically use the Automatic adjustment and if fine-tuning is needed, perform the Manual adjustment.

- Automatic adjustment:
An adjustment pattern is printed and scanned by the Ink Mark Sensor, and required adjustment level is displayed.
- Manual adjustment:
Visually check the printed adjustment pattern, and determine the required adjustment level.

The way to actually correct the head inclination according to the result obtained by any of the above methods is the same.

PAPER USED

- Size: 24 inch length or longer
- Type: Premium Glossy Photo Paper (250)

EXECUTION MODE

Repair Mode

4.12.4.1 Auto Head Inclination Check & Adjustment (CR direction)

TOLERABLE VARIATION RANGE

±3 Steps

PROCEDURE

1. Load the paper into the printer.
2. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
3. Start the Service Program and select **Auto Head Inclination Check & Adjustment (CR direction)**.
4. Select the head to be adjusted.
5. Click **Run**. The adjustment pattern is printed.
6. The printed pattern is scanned by the Ink Mark Sensor and the required adjustment level (how much the Adjustment Knob should be turned) is displayed.

7. Click **OK** to perform the adjustment. The CR unit moves to the adjustment position.
8. Make the adjustment referring to "["4.12.4.3 Correcting Head Inclination \(CR direction\)" \(p268\)](#)".

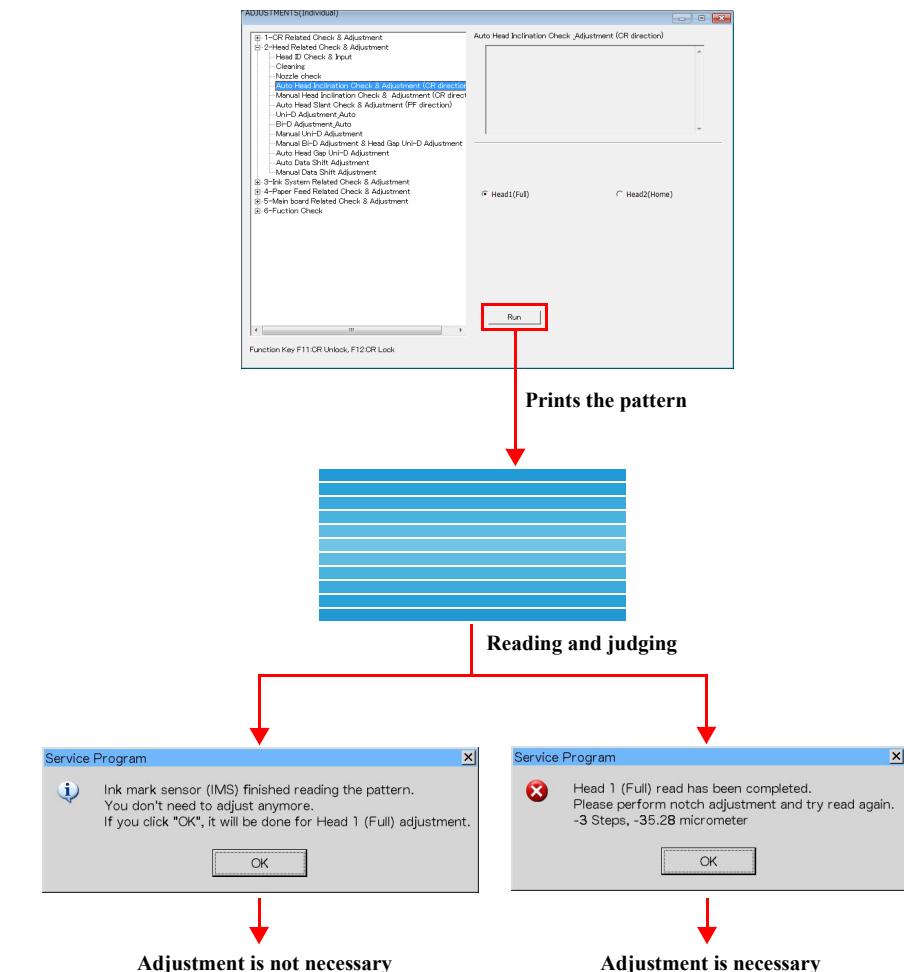


Figure 4-49. [Auto Head Inclination Check & Adjustment (CR direction)] Screen

4.12.4.2 Manual Head Inclination Check & Adjustment (CR direction)

1. Load the paper into the printer.
2. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
3. Start the Service Program and select **Manual Head Inclination Check & Adjustment (CR direction)**.
4. Click **Run**. The adjustment pattern is printed.

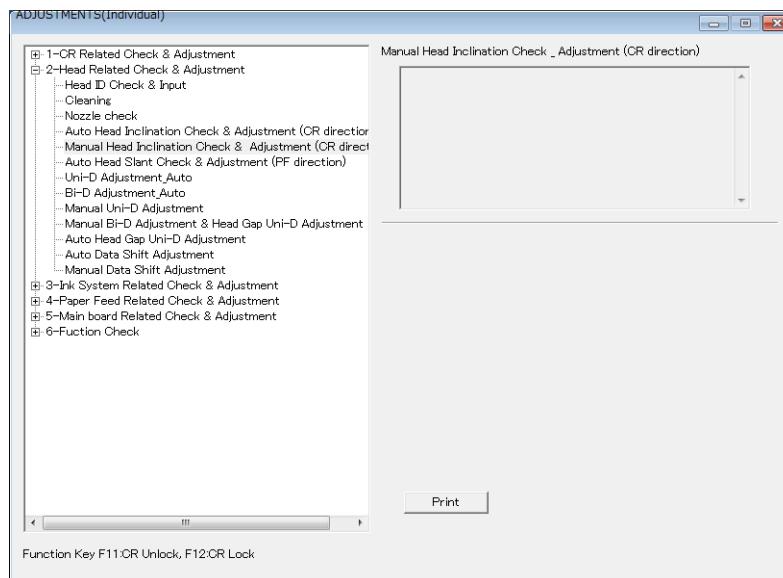


Figure 4-50. [Manual Head Inclination Check & Adjustment (CR direction)] Screen

5. Examine the printed pattern.
6. Make the adjustment referring to "4.12.4.3 Correcting Head Inclination (CR direction)" (p268).

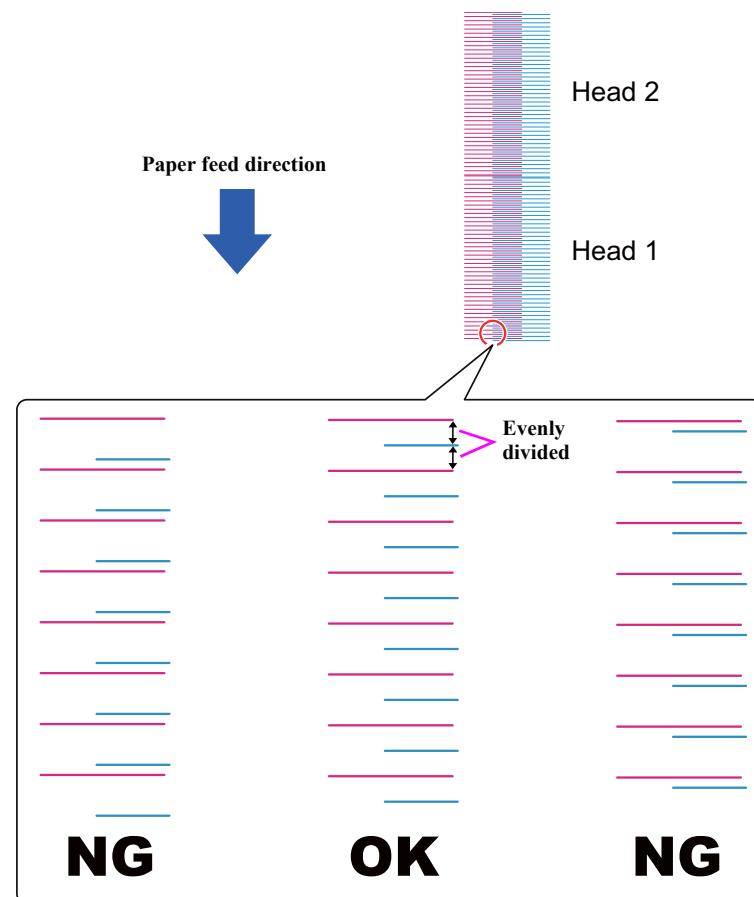


Figure 4-51. Judgment

4.12.4.3 Correcting Head Inclination (CR direction)

NOTE: Step 1 and 2 are not required for Automatic adjustment.

1. Press the F11 key of the keyboard to unlock the CR unit.
2. Move the CR unit to the left end of the printer.
3. Remove the CR Cover. (P. 135)
4. Loosen the six screws (A, B, C, D, E, F) that secure the duct CR.
5. Loosen the six screws that secure the head holders (three screws each).
 - Head (Full): G, H, I
 - Head (Home): J, K, L
6. Loosen the two screws (Bit No.1) that secures the head inclination adjustment cams (one screw each)
 - Head (Full): M
 - Head (Home): N



Be careful not to completely remove the screw that secures the adjustment knob.

7. Turn the adjustment knob to correct the head inclination.
See [Figure 4-52](#) for which direction to turn the knob.

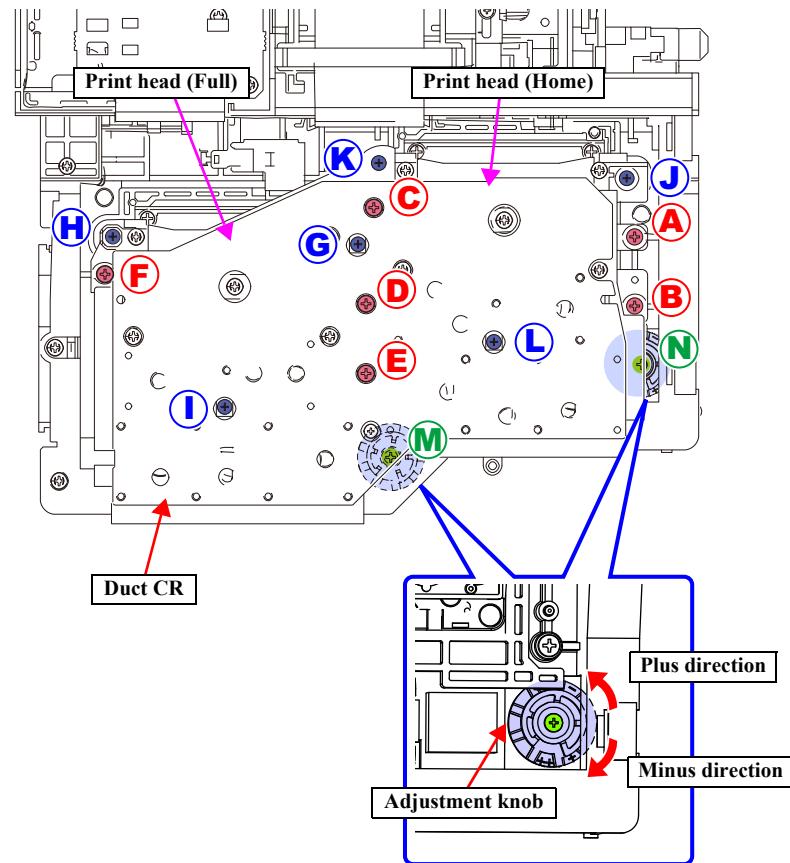


Figure 4-52. Correcting the Head Inclination

8. Tighten the six screws to secure the Head Holders (three screws each). Tighten the screws in the order shown below.
 - Head (Full): G --> H --> I
 - Head (Home): J --> K --> L
9. Tighten the screw to secure the adjustment knob.
10. Tighten the six screws to secure the duct CR. (there is no particular order to tighten them.)
11. Attach the CR cover.
12. Print the pattern and see if the inclination is corrected. If not, repeat the procedure until normal pattern is printed.



CHECK POINT

■ Rotate the dial according to the location of the M line between the two C lines.

Paper feed direction

If the M line is located in the upper half area from the center turn clockwise

If the M line is located in the lower half area from the center turn counterclockwise

■ The lines move about one-dot's width when the knob is moved by five or six notches.

■ In the automatic adjustment, the print head is capped after adjustment. When printing the adjustment pattern again, select the head to be adjusted on the program once again.

4.12.5 Auto Head Slant Check & Adjustment (PF direction)

PAPER USED

- Size: 24 inch length or longer
- Type: Premium Glossy Photo Paper (250)

EXECUTION MODE

Repair Mode

TOLERABLE VARIATION RANGE

±5 Steps

PROCEDURE

1. Load the paper into the printer.
2. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
3. Start the Service Program and select **Auto Head Slant Check & Adjustment (PF direction)**.
4. Click **Run**. The adjustment pattern is printed.
5. The printed pattern is scanned by the Ink Mark Sensor and the required adjustment level (how much the Adjustment Knob should be moved) is displayed.
6. When the adjustment is necessary, click **OK**. The CR Unit moves to the adjustment position.
7. Make the adjustment referring to " **Correcting Head Slant (PF direction)" (p271).**

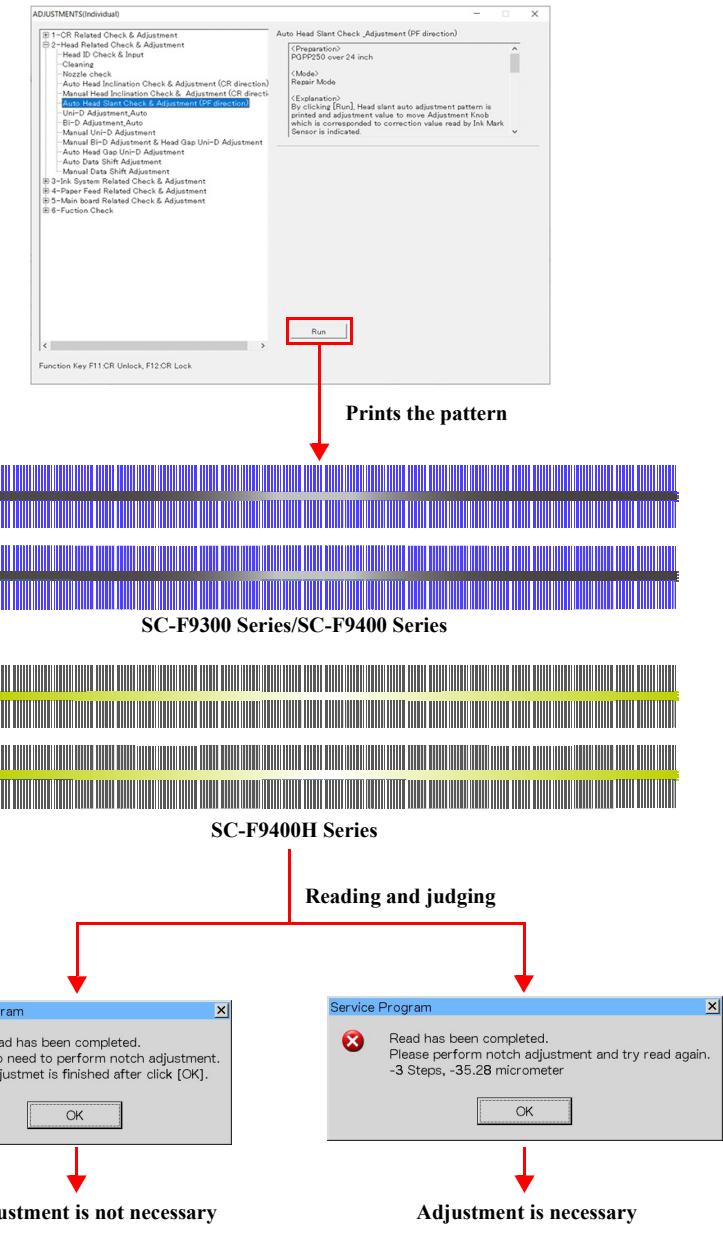


Figure 4-53. [Auto Head Slant Check & Adjustment (PF direction)] Screen

CORRECTING HEAD SLANT (PF DIRECTION)

1. Remove the CR Cover. ([P. 135](#))
2. Loosen the screw that secures the Adjustment Knob.



Be careful not to completely remove the screw that secures the Adjustment Knob.

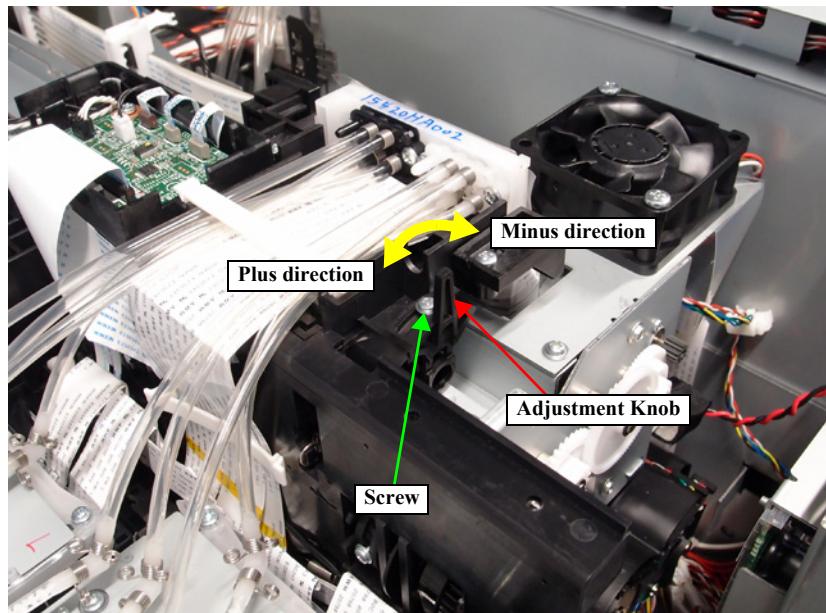


Figure 4-54. Correcting the Head Slant

4. Tighten the screw to secure the Adjustment Knob.
5. Print the pattern and see if the slant is corrected. If not, repeat the procedure until normal pattern is printed.



When the result does not fall within the adjustable range if you try it a few times, perform the PG Adjustment ([P. 258](#)) first and try again.

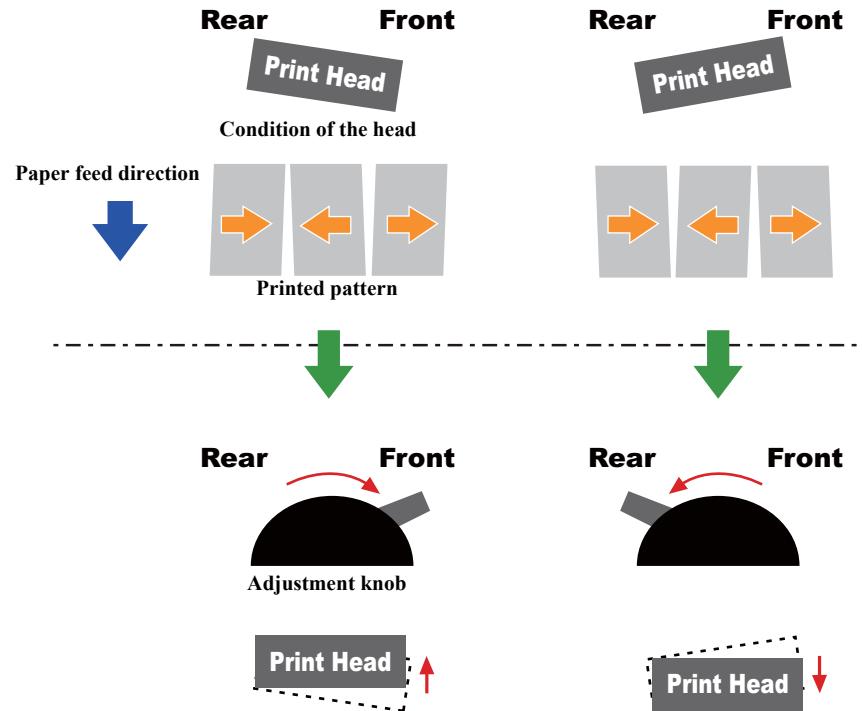


Figure 4-55. Adjustment

4.12.6 Auto Uni-D Adjustment

PAPER USED

- Size: 24 inch length or longer
- Type: Premium Glossy Photo Paper (250)

EXECUTION MODE

Repair Mode

PROCEDURE

1. Load the paper into the printer.
2. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
3. Start the Service Program and select **Uni-D Adjustment_Auto**
4. Click **Run**.
The adjustment pattern is printed.
5. After the pattern is printed, the printer will automatically scan the pattern and carry out the adjustment (no manual adjustment is needed).

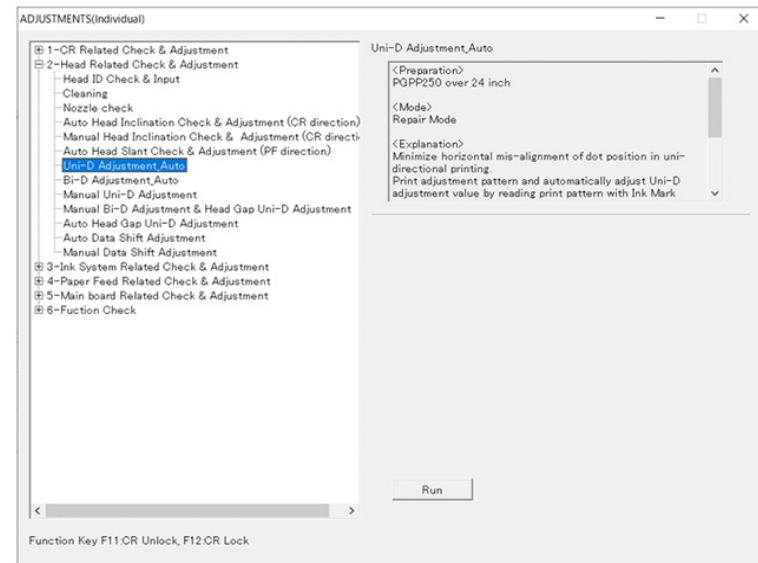
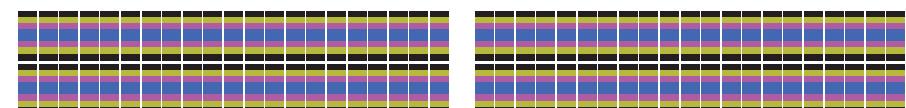


Figure 4-56. [Uni-D Adjustment_Auto] Screen



SC-F9300 Series/SC-F9400 Series



SC-F9400H Series

Figure 4-57. Adjustment Pattern

4.12.7 Auto Bi-D Adjustment

PAPER USED

- Size: 24 inch length or longer
- Type: Premium Glossy Photo Paper (250)

EXECUTION MODE

Repair Mode

PROCEDURE

1. Load the paper into the printer.
2. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
3. Start the Service Program and select **Bi-D Adjustment_Auto**.
4. Click **Run**.
The adjustment pattern is printed.
5. After the pattern is printed, the printer will automatically scan the pattern and carry out the adjustment (no manual adjustment is needed).

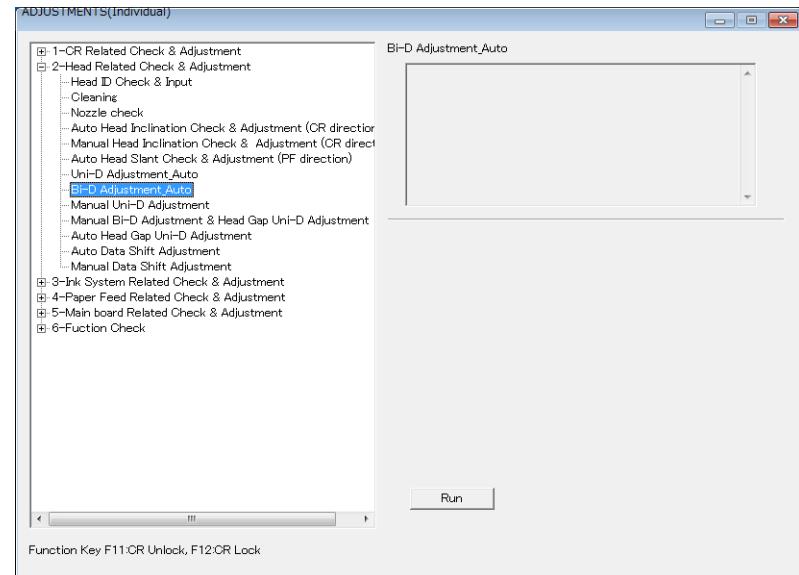


Figure 4-58. [Bi-D Adjustment_Auto] Screen

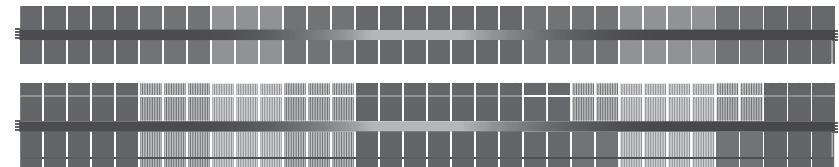


Figure 4-59. Adjustment Pattern

4.12.8 Manual Uni-D Adjustment

PAPER USED

- Size: 24 inch length or longer
- Type: Premium Glossy Photo Paper (250)

EXECUTION MODE

Repair Mode

PROCEDURE

1. Load the paper into the printer.
2. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
3. Start the Service Program and select **Manual Uni-D Adjustment**.
4. Click **Print**.
The adjustment pattern is printed.
5. Enter the value of the pattern which has the least gap among the printed patterns.
6. Click **Input**. If the pattern which has the least gap is either 1 or 7, go back to Step 5 in the Adjustment Procedure and try printing the patterns and entering the values once again.

CHECKING PROCEDURE

1. Click **Print**.
The adjustment pattern is printed.
2. Make sure the pattern which has the least gap is 4. Otherwise, go back to Step 5 in the Adjustment Procedure and try printing the patterns and entering the values once again.

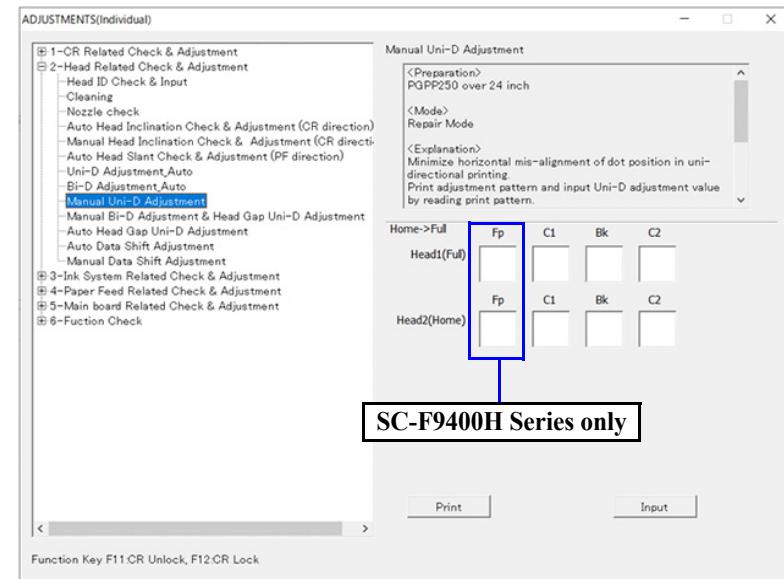


Figure 4-60. [Manual Uni-D Adjustment] Screen

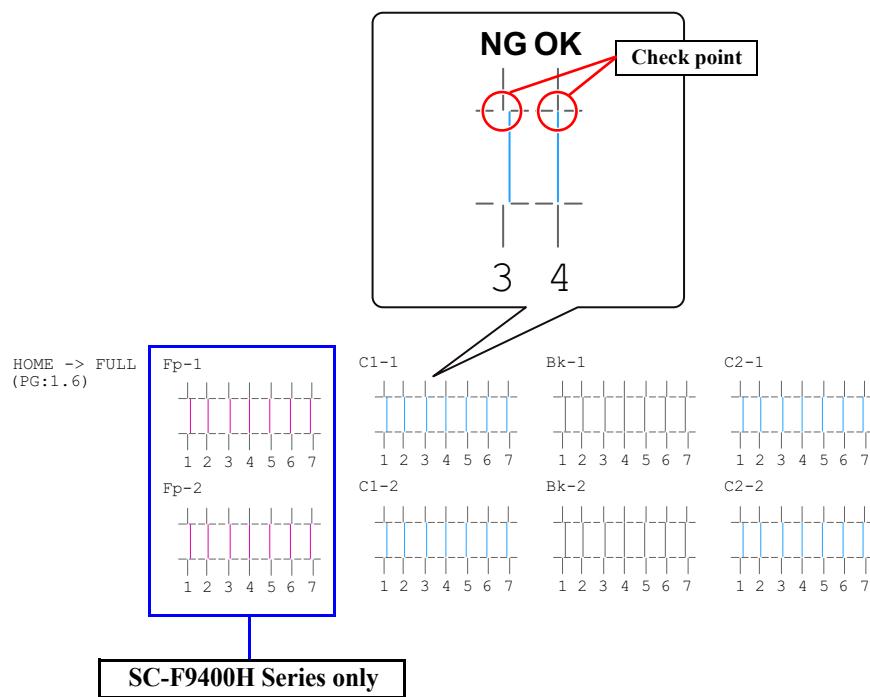


Figure 4-61. Adjustment Pattern

4.12.9 Manual Bi-D Adjustment & Head Gap Uni-D Adjustment

PAPER USED

- Size: 24 inch length or longer
- Type: Premium Glossy Photo Paper (250)

EXECUTION MODE

Repair Mode

PROCEDURE

1. Load the paper into the printer.
2. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
3. Start the Service Program and select **Manual Bi-D Adjustment & Head Gap Uni-D Adjustment**.
4. Click **Print**.
The adjustment pattern is printed.
5. Enter the value of the pattern which has the least gap among the printed patterns (Uni-D).
6. Enter the value of the pattern which has the least gap among the printed patterns (Bi-D).
7. Click **Input**.

CHECKING PROCEDURE

1. Click **Print**.
The adjustment pattern is printed.
2. Make sure the printed pattern (Uni-D) which has the least gap is between 3 to 5. Otherwise, go back to Step 5 in the Adjustment Procedure and try printing the patterns and entering the values once again.

3. Make sure the printed pattern (Bi-D) which has the least gap is between -2 to +2 (Dual B is between -4 to +4). Otherwise, go back to Step 5 in the Adjustment Procedure and try printing the patterns and entering the values once again.

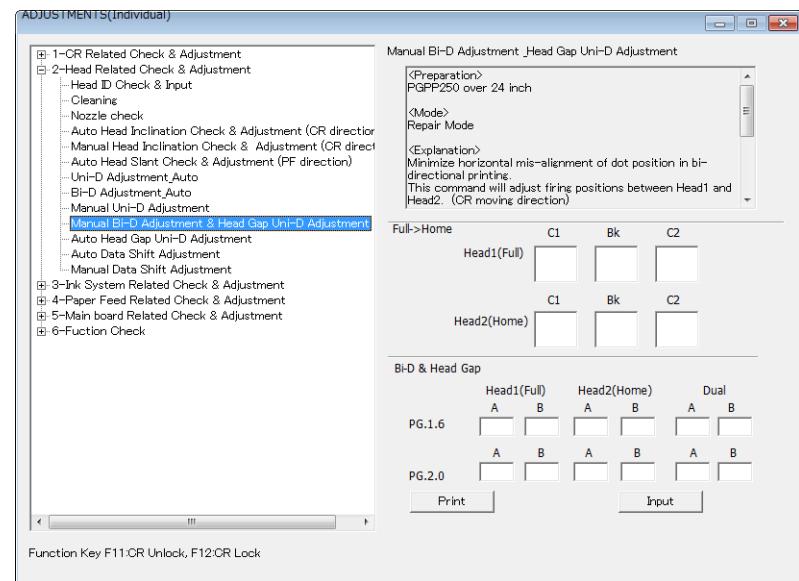


Figure 4-62. [Manual Bi-D Adjustment & Head Gap Uni-D Adjustment] Screen

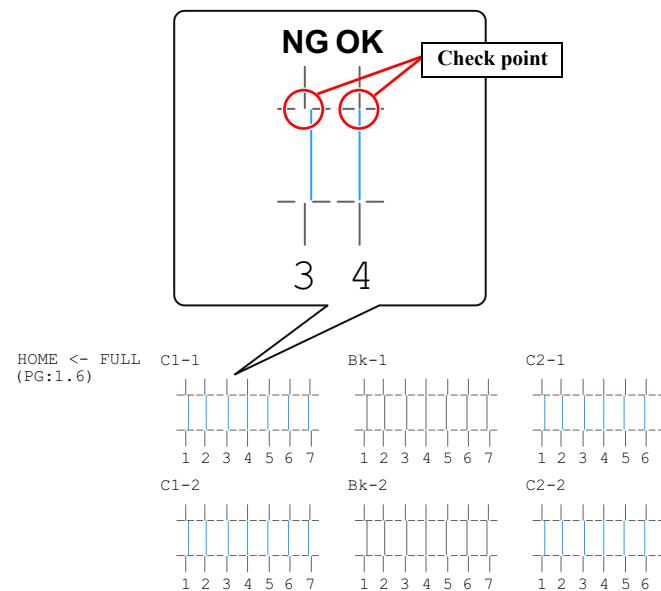


Figure 4-63. Adjustment Pattern (Uni-D)

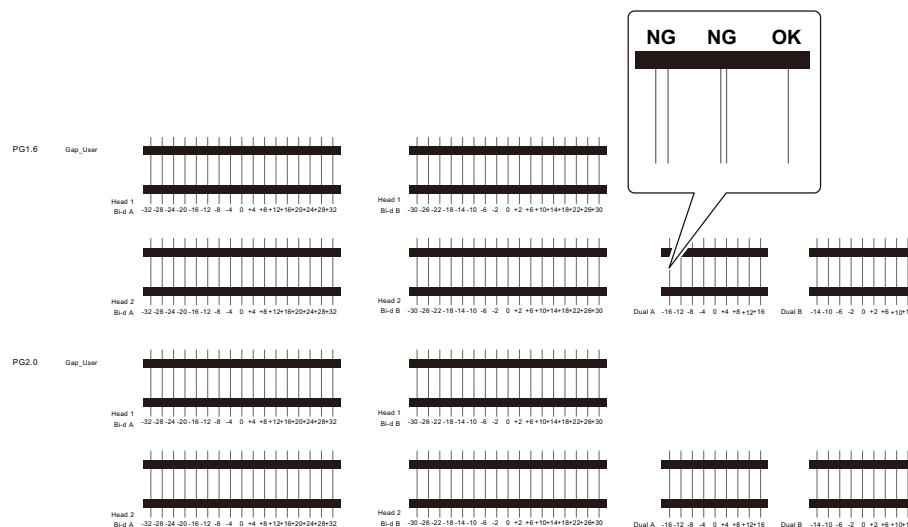


Figure 4-64. Adjustment Pattern (Bi-D)

4.12.10 Auto Head Gap Uni-D Adjustment

PAPER USED

- Size: 24 inch length or longer
- Type: Premium Glossy Photo Paper (250)

EXECUTION MODE

Repair Mode

PROCEDURE

1. Load the paper into the printer.
2. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
3. Start the Service Program and select **Auto Head Gap Uni-D Adjustment**.
4. Click **Run**.
The adjustment pattern is printed.
5. After the pattern is printed, the printer will automatically scan the pattern and carry out the adjustment (no manual adjustment is needed).

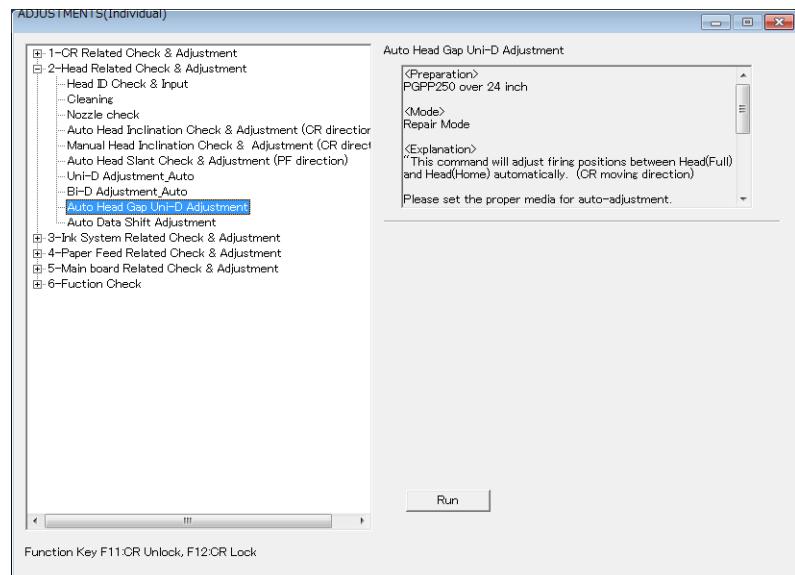


Figure 4-65. [Auto Head Gap Uni-D Adjustment] Screen

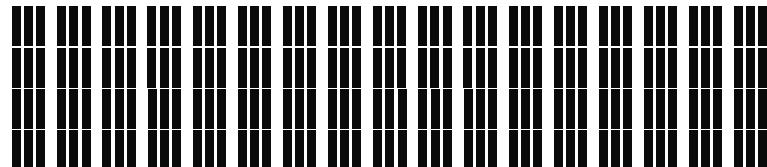


Figure 4-66. Adjustment Pattern

4.12.11 Auto Data Shift Adjustment

PAPER USED

- Size: 24 inch length or longer
- Type: Premium Glossy Photo Paper (250)

EXECUTION MODE

Repair Mode

PROCEDURE

1. Load the paper into the printer.
2. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
3. Start the Service Program and select **Auto Data Shift Adjustment**.
4. Click **Run**.
The adjustment pattern is printed.
5. After the pattern is printed, the printer will automatically scan the pattern and carry out the adjustment (no manual adjustment is needed).

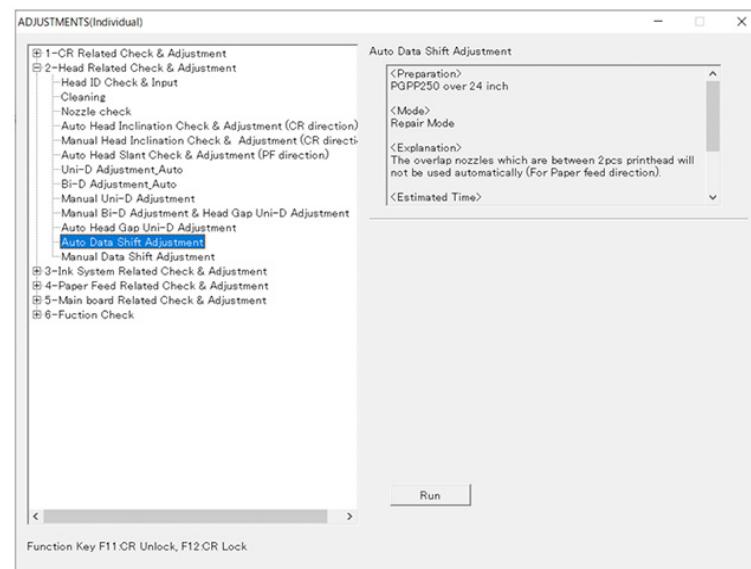
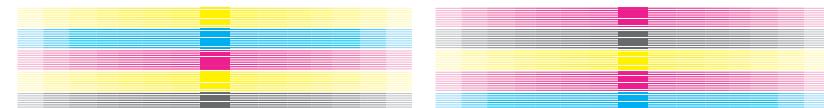


Figure 4-67. [Auto Data Shift Adjustment] Screen



SC-F9300 Series/SC-F9400 Series



SC-F9400H Series

Figure 4-68. Adjustment Pattern

4.12.12 Manual Data Shift Adjustment

PAPER USED

- Size: 24 inch length or longer
- Type: Premium Glossy Photo Paper (250)

EXECUTION MODE

Repair Mode

PROCEDURE

1. Load the paper into the printer.
2. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
3. Start the Service Program and select **Manual Data Shift Adjustment**.
4. Click **Print**.
The adjustment pattern is printed.
5. For each of printed patterns A to J, enter the value of the pattern which has the least gap.
6. Click **Input**.

CHECK POINT

If there are no appropriate parameter, draw two heads and secure the screw. Then adjust from **4.12.4 Head Inclination Check & Adjustment (CR direction) (p266)**.

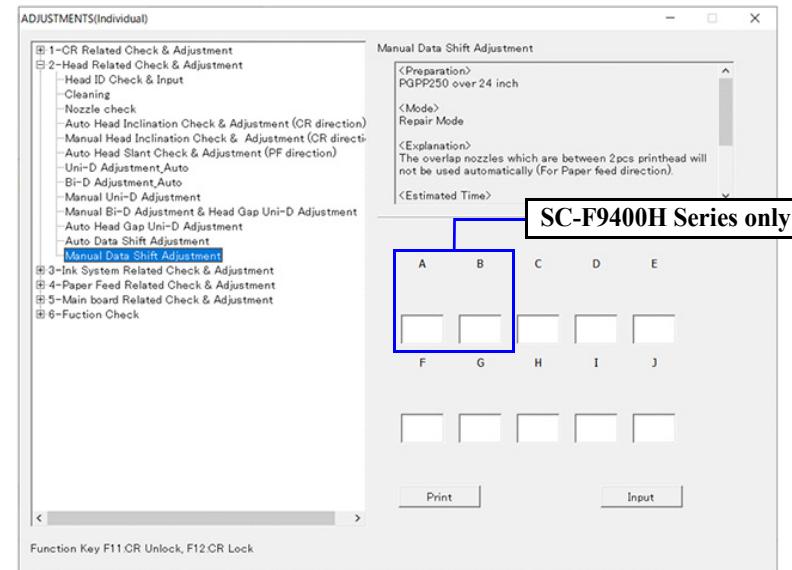


Figure 4-69. [Manual Data Shift Adjustment] Screen

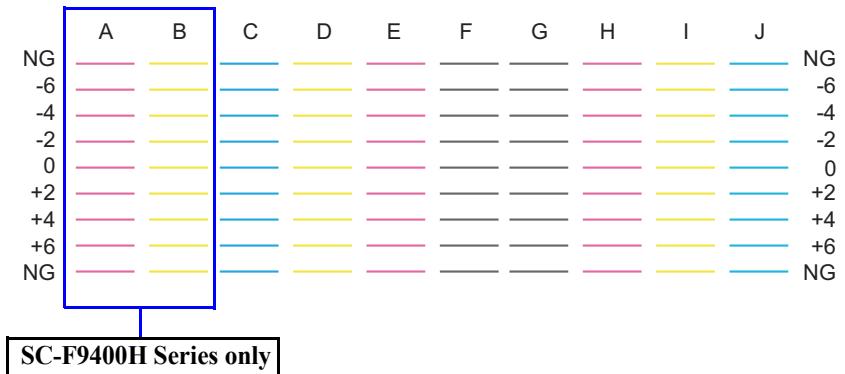


Figure 4-70. Adjustment Pattern

4.13 Ink Supply Related Checks and Adjustments

4.13.1 Tube Inner Pressure Reduction

EXECUTION MODE

Repair Mode

PROCEDURE

1. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
2. Start the Service Program and select **Tube inner pressure reduction**.
3. Click **Run**.
The pressure inside the ink flow paths will be reduced.

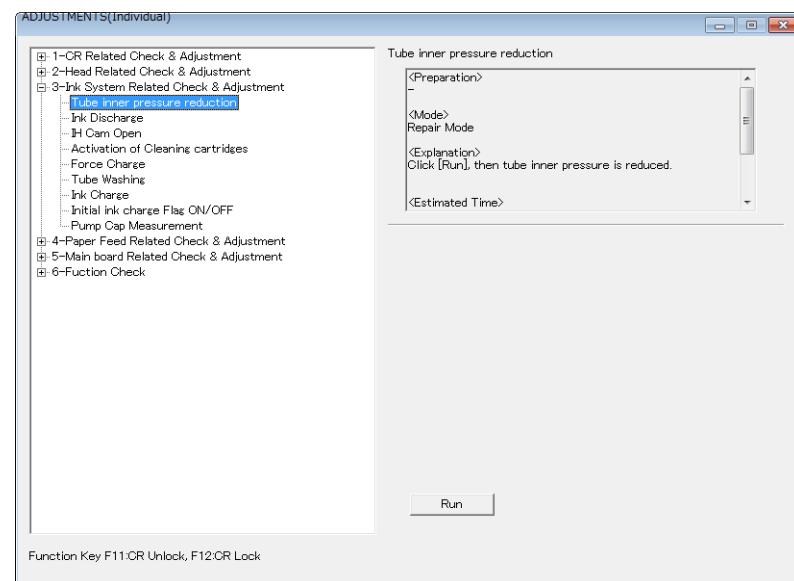


Figure 4-71. [Tube inner pressure reduction] Screen

4.13.2 Ink Discharge

EXECUTION MODE

Repair Mode

PROCEDURE



Time required for ejecting ink: about 3 minutes

1. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
2. Start the Service Program and select **Ink Discharge**.
3. Click **Run**.



If ink cannot be ejected in this procedure, eject ink manually. (P. 283)

4. Carry out ink eject following the instructions displayed on the program.



Running the Ink Discharge function one time is not enough to prevent ink from leaking when removing the ink tubes. Prepare paper or cloth to wipe off leaked ink in advance or run the Ink Discharge function twice in a row.

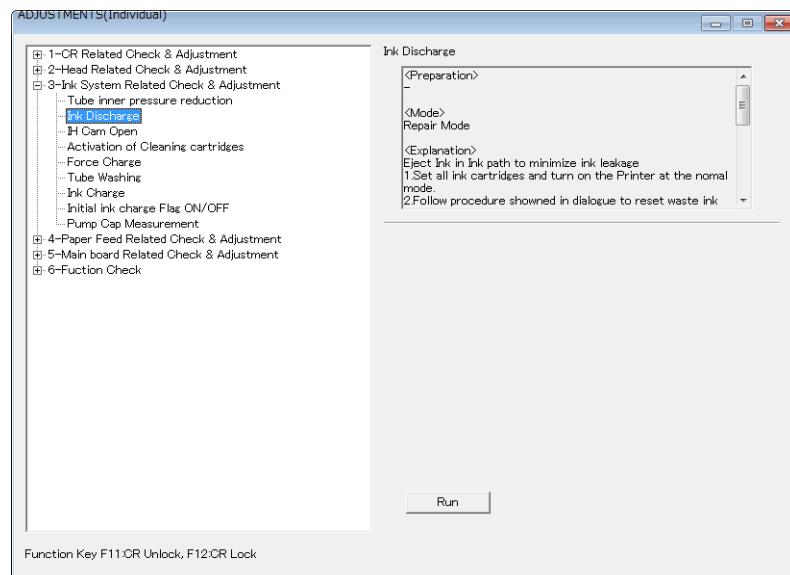


Figure 4-72. [Ink Discharge] Screen

4.13.3 Manual Ink Eject (IH cam open)

If Ink Eject cannot be made using the Service Program due to a cause such as nozzle clogging of the head, eject ink as follows.

THINGS TO PREPARE

- Waste cloths
- Syringe: compatible with ISO594-1 standard luer connector (tip metal diameter: approx. 4 mm) (syringes specified above of any capacity can be used)
- Command file for valve open

EXECUTION MODE

Repair Mode

PROCEDURE

1. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing **[Media setup]** + **[Maintenance]** + **[OK]**.
2. Open the maintenance cover on the right to turn on the cover sensor.
3. Load the ink tanks of all colors into the printer.
4. Start the Service Program and select **IH Cam Open**.
5. Click **Run**.

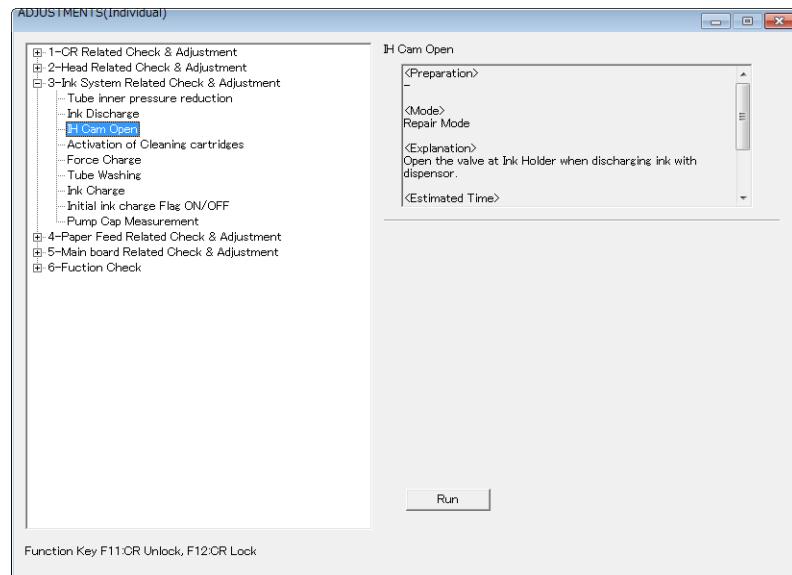


Figure 4-73. [IH Cam Open] Screen

6. Turn off the printer.
7. Remove the ink tanks.
8. Put the waste cloth over the cover above the ink holder.
9. Remove the duct CR corresponding to the tube of which ink is to be ejected. (See P.136)

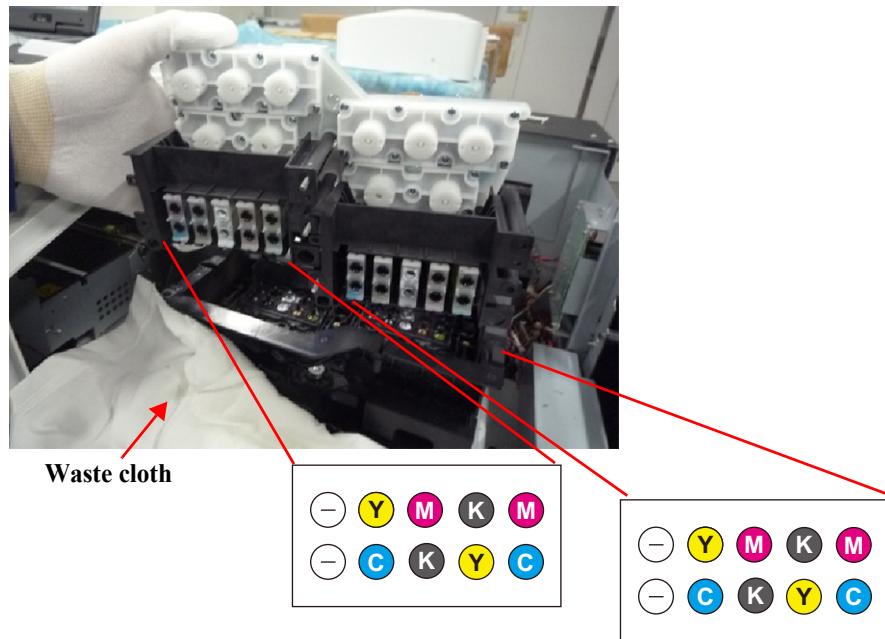


Figure 4-74. Duct CR

10. Insert the tip of the syringe perpendicularly into the hole corresponding to the ink to be ejected.

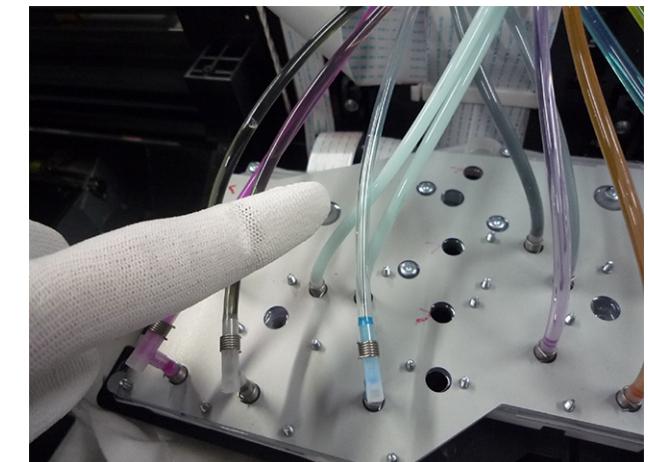


Figure 4-75. Sucking ink

11. Repeat sucking ink until the tube is empty.
12. Confirm no sealing rubber pieces are detached, and then attach the duct CR.



Make sure to fix the sealing rubbers by engaging the hooks (four each) securely.

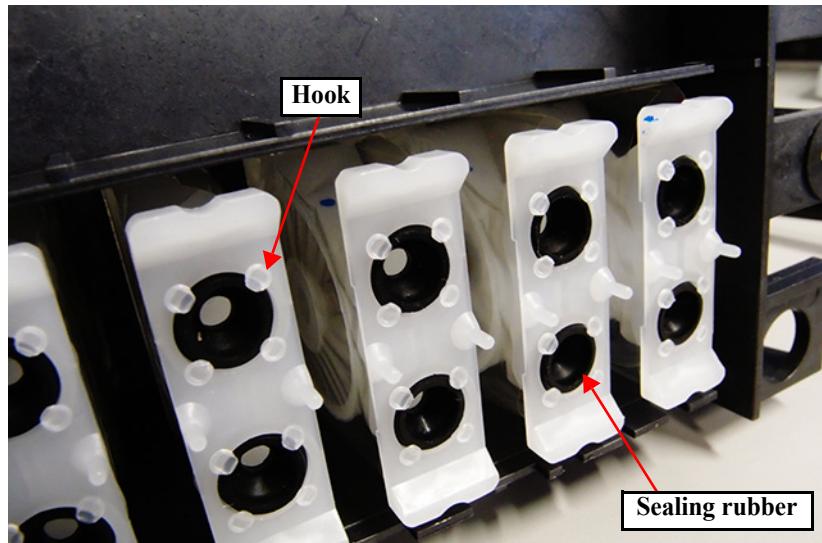


Figure 4-76. Sealing rubber of the duct CR

4.13.4 Activation of Cleaning cartridge

EXECUTION MODE

Normal Mode

PROCEDURE

1. Turn the printer ON.
2. Take a picture of control panel. If you don't have camera, see the charge status and reservation status on the control panel and write them down.(Refer to [Figure 4-77](#).)



If firmware has Charge & Reservation, and if you use the Cleaning Cartridges, after performing Step 3, Charge & Reservation will be unavailable temporarily.

When returning to Ink tank, and when you select the Ink tanks after performing Step 3, Charge & Reservation will be available again. Also, Charge status & Reservation status will return to the original status. (before-cartridge-installation status.)

Take a picture of control panel or take a memo so that you can check whether the charge status and reservation status are returned originally.



Figure 4-77. How to check the Reservation status
(Left: There is No-Reservation Right: There is Reservation)

3. Start the Service Program and select [Activation of Cleaning cartridges](#).
4. Click [Run].



When switching to Ink Tanks from Ink Cartridges, Make sure Charge status and Reservation status are returned to the original status by comparing the picture or note which you wrote on [Step 2](#).

5. Turn off the printer.



To make the settings effective, make sure to turn off the printer.

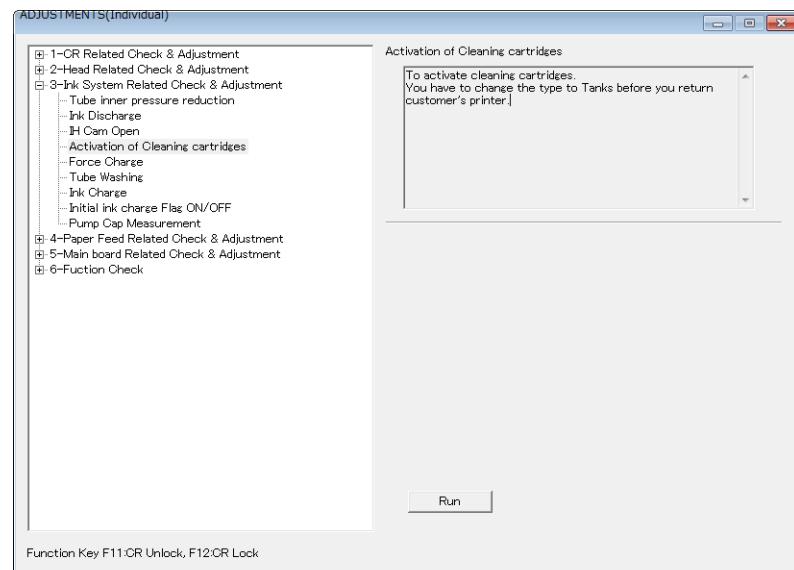


Figure 4-78. [Activation of Cleaning cartridges] Screen

4.13.5 Force Charge

EXECUTION MODE

Normal Mode

PROCEDURE



If firmware has Charge & Reservation, and if reserved chip unit is installed on the slider, you can be Force charge by service program. (Only if the Reservation chip is New, you can perform this.)

1. Turn the printer ON.
2. Start the Service Program and select **Force Charge**.
3. Select the channel which you want to Force Charge
4. Click **[Run]**.
5. Turn off the printer.

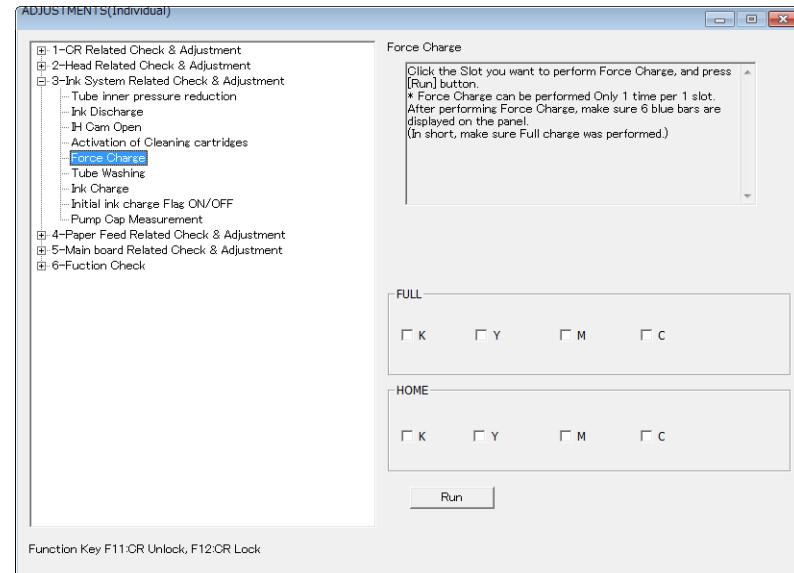


Figure 4-79. [Force Charge] Screen

4.13.6 Tube Washing

THINGS TO PREPARE

Cleaning Cartridge

EXECUTION MODE

Repair Mode

PROCEDURE

1. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
2. Start the Service Program and select **Tube Washing**.
3. Click **Run**.
4. Carry out ink discharge following the instructions displayed on the program.

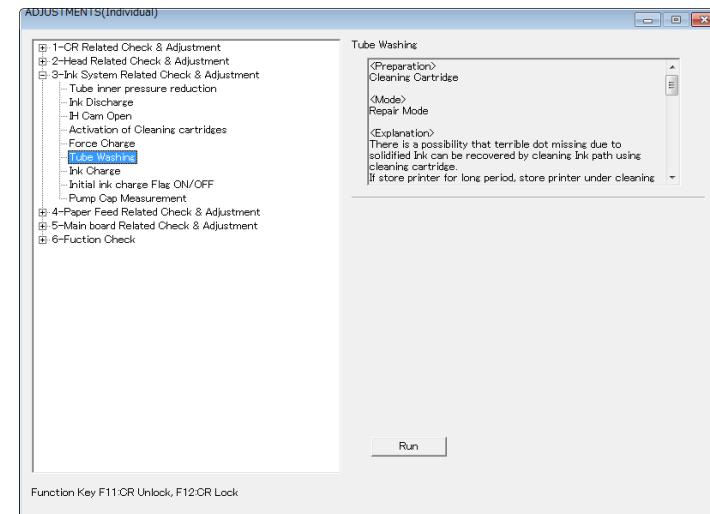


Figure 4-80. [Tube Washing] Screen

4.13.7 Ink Charge

EXECUTION MODE

Repair Mode

PROCEDURE



Required time for the initial ink charge is about 5 minutes.

1. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
2. Install the ink tanks into all the ink holders.
3. Start the Service Program and select **Ink charge**.
4. Click **Run**. The remaining amount notification dialog appears and displays how many times the Initial Ink Charge can be made for each color.



If the remaining cleaning times are 0, fill the ink judged as 0 remaining times. Then go back to **Step 4** and try again.

5. Click the **OK** button on the remaining amount notification dialog to start the ink charge.

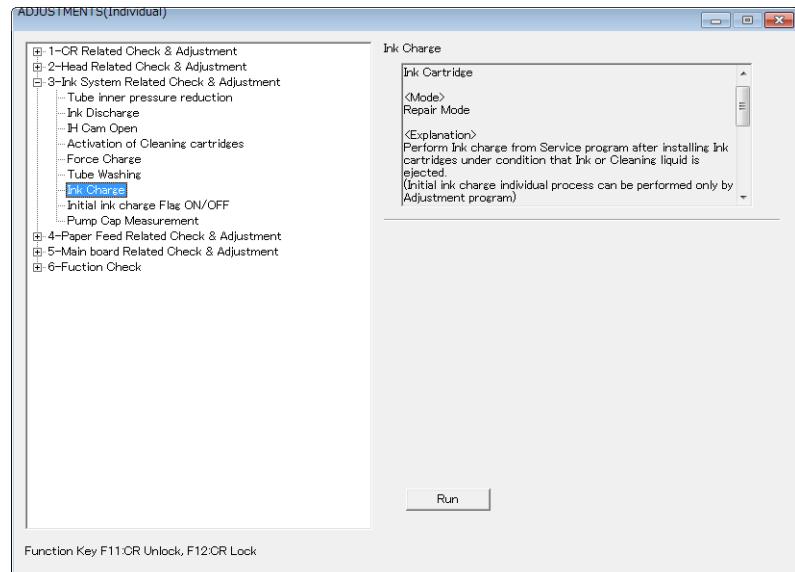


Figure 4-81. [Ink charge] Screen

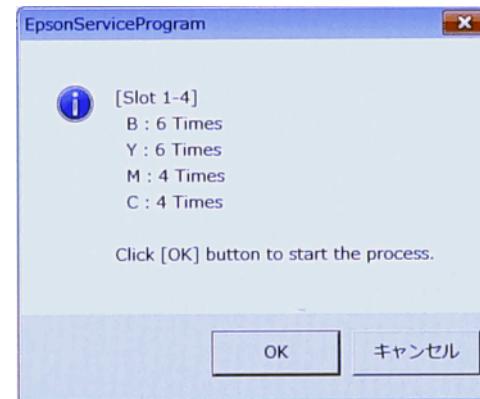


Figure 4-82. Remaining amount notification dialog

4.13.8 Pump Cap Measurement

EXECUTION MODE

Repair Mode

PROCEDURE

1. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
2. Start the Service Program and select **Pump Cap Measurement** of the target motor.
3. Click **Run**.
Measurement and adjustment are performed automatically.
4. When finished, click **OK**.



If the adjustment is not finished, replace the motor.

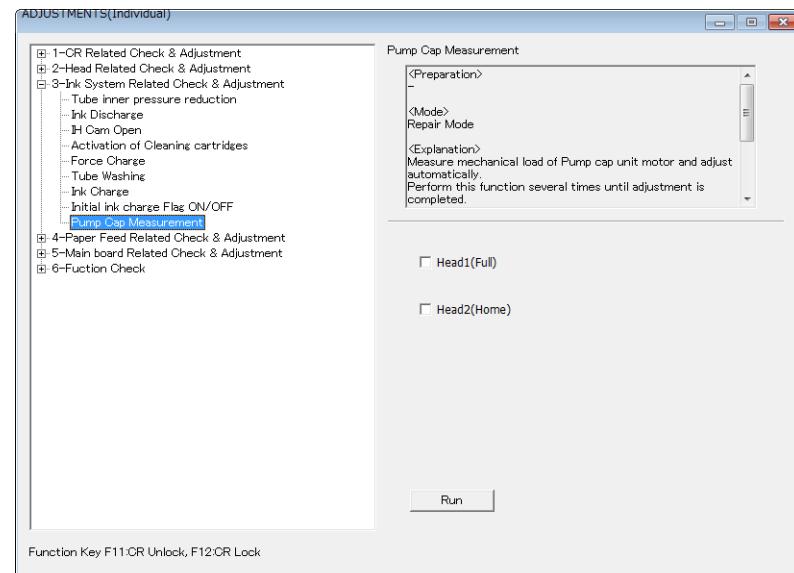


Figure 4-83. [Pump Cap Measurement] Screen

4.14 Media Feed Related Checks and Adjustments

4.14.1 PF Timing Belt Tension Check

REQUIRED TOOLS

- Sonic tensimeter U-507
- Any tools to flip the timing belt

STANDARD VALUE

- $30 \pm 6 \text{ N}$

EXECUTION MODE

Repair Mode

PROCEDURE

1. Remove the following part in advance.
 - Left Cover (P. 107)
2. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
3. Start the Service Program and select **PF Timing Belt Tension check**.
4. Loosen the two screws that secure the PF motor mounting plate.
5. Move the PF motor mounting plate back and forth three times to extend and compress the spring.
6. Tighten the two loosened screws in the order of B and A.

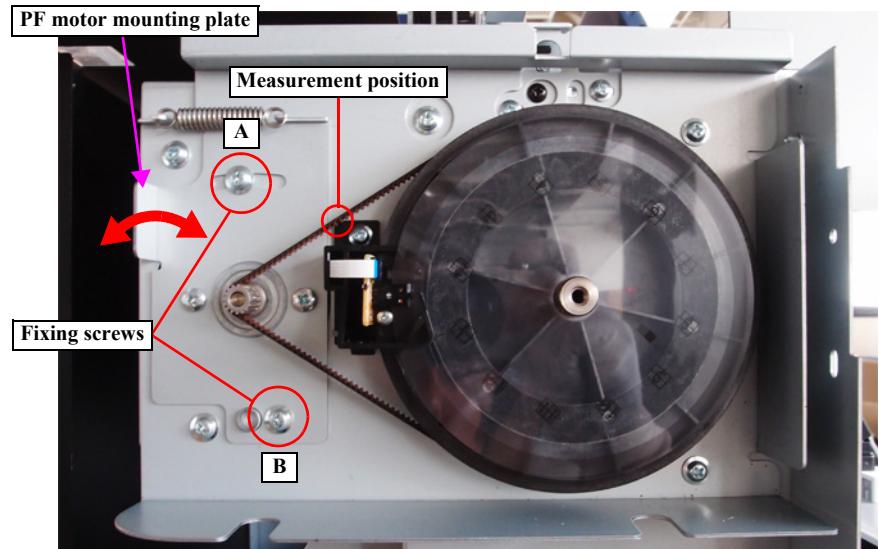


Figure 4-84. PF Belt Tension Check

7. Click **Run**.

The PF roller rotates 30 revolutions.

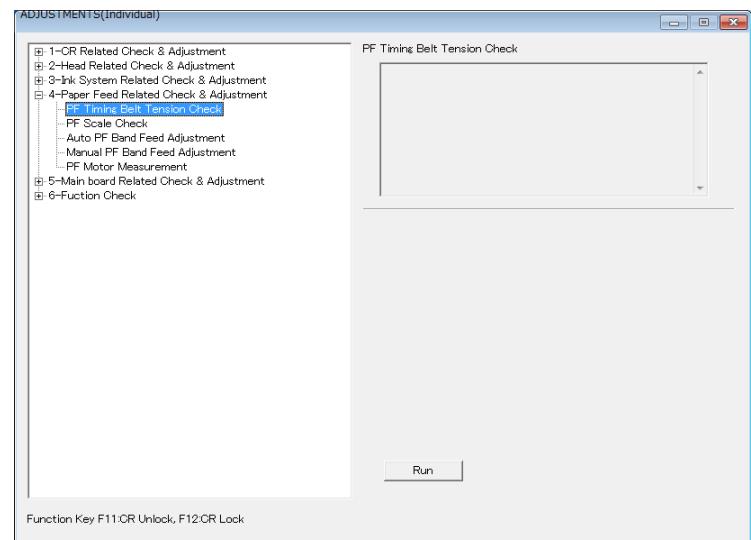


Figure 4-85. [PF Timing Belt Tension check] Screen

8. Input the following information on the belt into the tensimeter.

- MASS: 1.3 g/m
- WIDTH: 6.0 mm/R
- SPAN: 89 mm

9. Bring the microphone of the tensimeter close to the belt as shown in [Figure 4-86](#).

CHECK POINT

The distance between the microphone and the belt surface should be 5 mm or less, but do not let it touch the belt.

10. Press the [MEASURE] button on the tensimeter, and flip the timing belt with tweezers or a similar tool.

Measure the tension twice and record the average.

- Within the standards: Finish
- Out of the standards: Go to ADJUSTMENT PROCEDURE



- Flip the timing belt as weak as the tensimeter can measure it.
- Be careful not to let the microphone touch the timing belt when flipping the belt.

ADJUSTMENT PROCEDURE

1. Loosen the two screws that secure the PF motor mounting plate.
2. Move the PF motor mounting plate back and forth three times to extend and compress the spring.
3. Tighten the two loosened screws in the order of B and A.

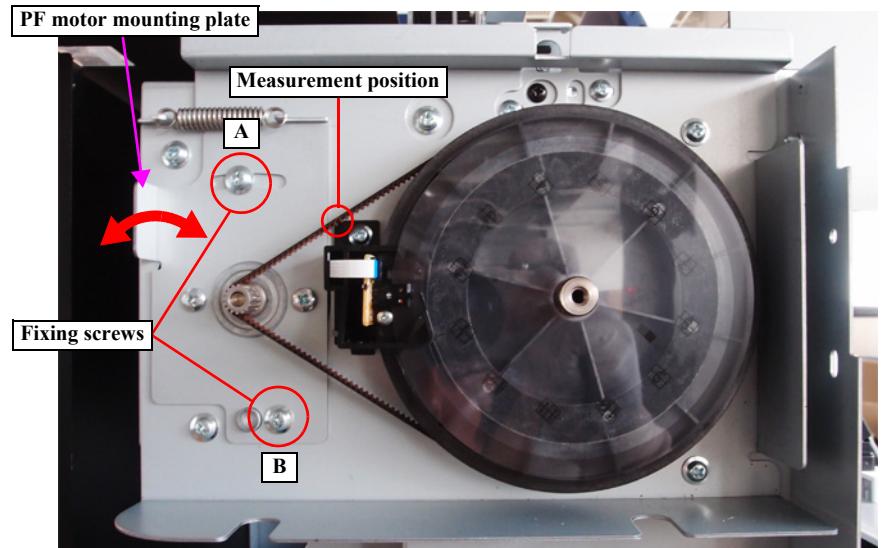


Figure 4-86. PF Belt Tension Check

4.14.2 PF Scale Check

EXECUTION MODE

Repair Mode

PROCEDURE

1. Remove the following part in advance.
 - Left Cover ([P. 107](#))
2. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [**Media setup**] + [**Maintenance**] + [**OK**].
3. Start the Service Program and select **PF Scale Check**.
4. Click **Run** to rotate the PF Scale.
Look at the PF Encoder and the PF Scale from straight above, and visually check that the scale does not touch the encoder. (Touching the legs of the white holder is OK.)

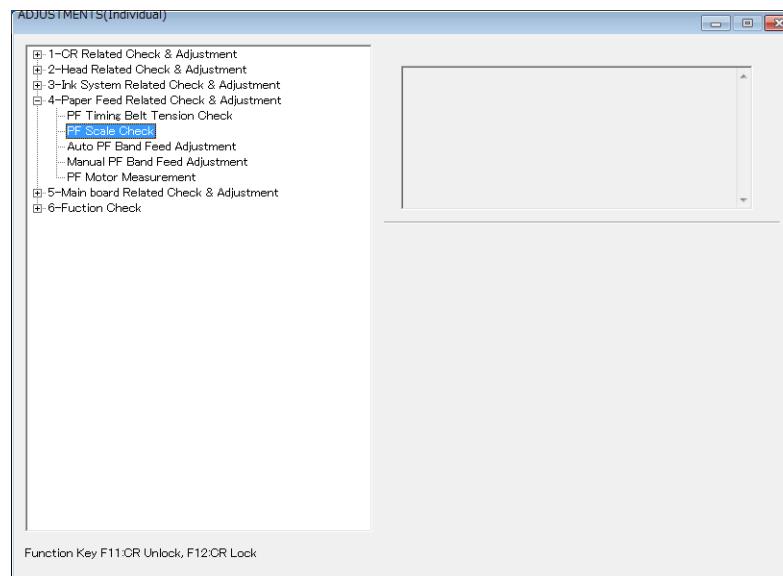


Figure 4-87. [PF Scale Check] Screen

5. When the PF Scale has rotated 30 revolutions, the check result is displayed.
 - The result is OK: Finish
 - The result is NG: Go to [Step 6](#)
6. Since the PF Scale may be dirty, clean it with ethanol. After cleaning the PF Scale, perform [Step 4](#) to run the check again.
If the result is still NG, replace the PF Encoder ([P. 192](#)) or the PF Scale ([P. 193](#)) and check again.

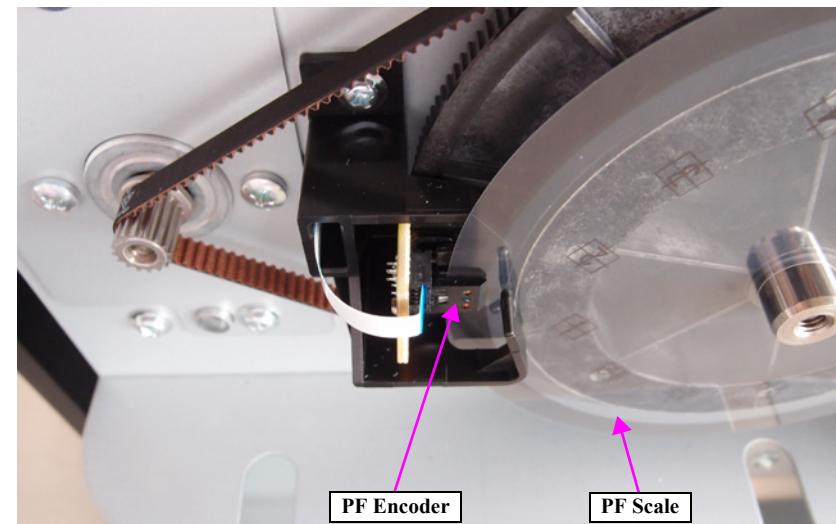


Figure 4-88. PF Scale Check

4.14.3 Auto PF Band Feed Adjustment

PAPER USED

- Size: 24 inch length or longer
- Type: Premium Glossy Photo Paper (250)

EXECUTION MODE

Normal Mode

PROCEDURE

1. Load the paper into the printer.
2. Turn the printer ON in the Normal Mode.
3. Start the Service Program and select **Auto PF Band Feed Adjustment**.
4. Click **Run**.
The adjustment pattern is printed.
5. After the pattern is printed, the printer will automatically scan the pattern and carry out the adjustment (no manual adjustment is needed).

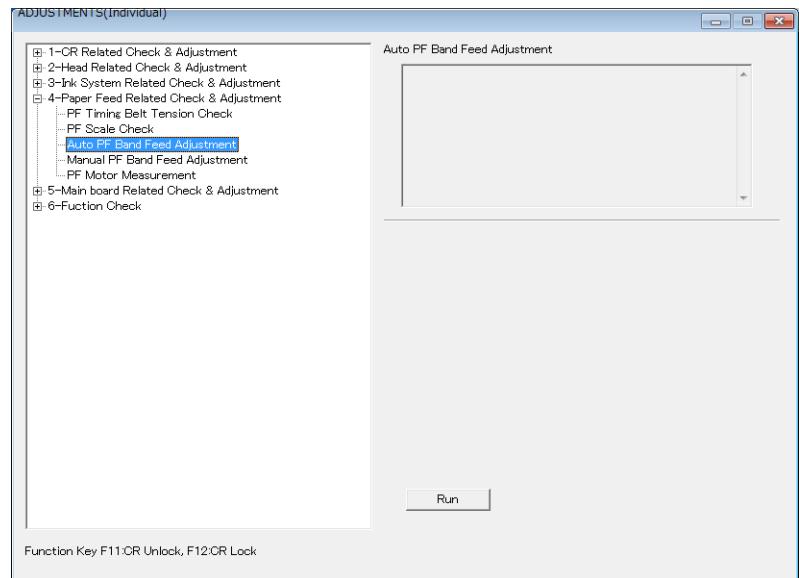


Figure 4-89. [Auto PF Band Feed Adjustment] Screen

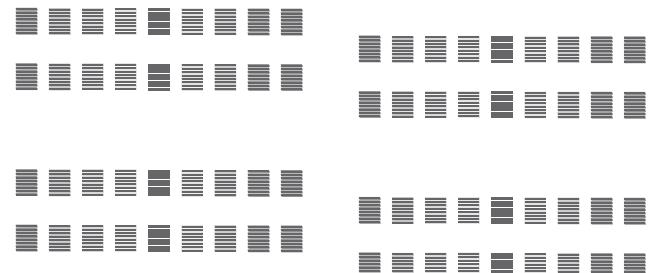


Figure 4-90. Adjustment Pattern

4.14.4 Manual PF Band Feed Adjustment

PAPER USED

- Size: 24 inch length or longer
- Type: Premium Glossy Photo Paper (250)

EXECUTION MODE

Normal Mode

PROCEDURE

1. Load the paper into the printer.
2. Turn the printer ON in the Normal Mode.
3. Start the Service Program and select **Manual PF Band Feed Adjustment**.
4. Click **Print**.
The adjustment pattern is printed.
5. Measure the distance between the patterns and enter the result (mm), and then click **Input**.

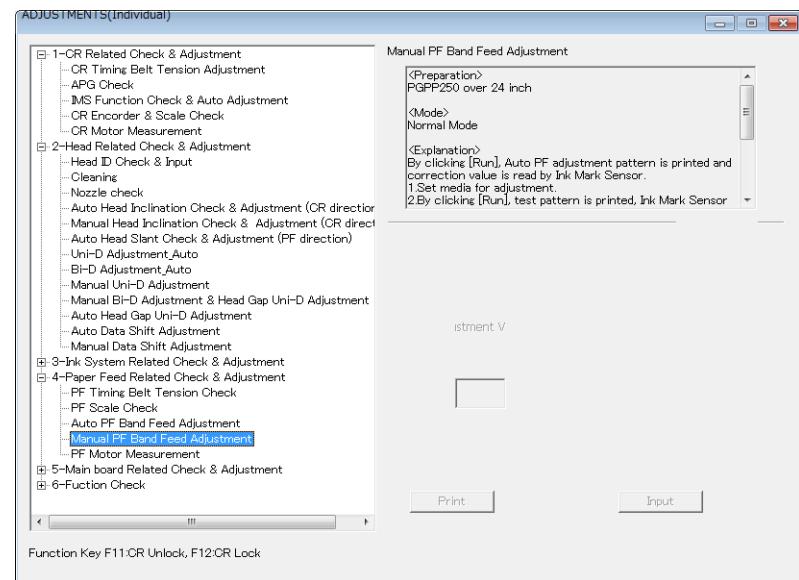


Figure 4-91. [Auto PF Band Feed Adjustment] Screen

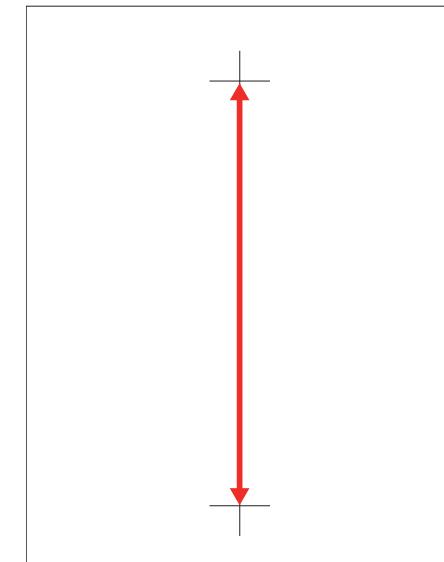


Figure 4-92. Adjustment Pattern

4.14.5 PF Motor Measurement

EXECUTION MODE

Repair Mode

PROCEDURE

1. Turn the printer ON in the Repair Mode.
Turn the power ON while pressing [Media setup] + [Maintenance] + [OK].
2. Start the Service Program and select **PF Motor Measurement** of the target motor.
3. Click **Run**.
Measurement and adjustment are performed automatically.
4. When finished, click **OK**.



If the adjustment is not finished, replace the motor.

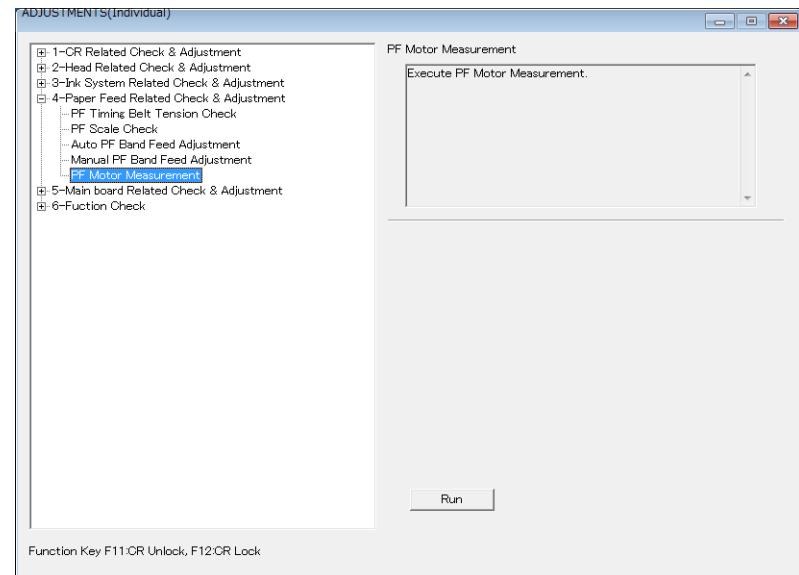


Figure 4-93. [PF Motor Measurement] Screen

4.14.6 Rear AD Adjustment

REQUIRED TOOL

- Standard Sheet (JETRAS JP-D300S)

EXECUTION MODE

Serviceman Mode

PROCEDURE

1. When any paper is loaded, remove it.
2. Lower the media loading lever.
3. Turn the printer ON in the Serviceman Mode.
Turn the power ON while pressing [Menu] + [Back] + [OK].
4. Select **Mecha Adjustment → Rear AD. ([Right])**
5. Press [OK] while [Enter] Start is displayed.
Check if “Retry AD Adjust” is displayed on the Control Panel.
6. Press [Left].
7. Open the front cover.
8. Move the media loading lever to the rear side, and set it to the release position.
9. Insert the Standard Sheet to the position shown in [Figure 4-94](#) and lower the Media Loading Lever to press the sheet. Make sure to secure the followings. (Set the standard sheet on the place specified in [Figure 4-94](#) following the instructions below, and then lower the media loading lever.
 - Load the sheet with its matte side upper A
 - Set the sheet at center of suction hole of fifth position from the right
 - Set the sheet at the top of white tape



When executing the following step, do not remove the external covers to acquire proper AD value.

10. Close the front cover.

11. Select **RearAD**.

12. Press [OK].

Check that a number is displayed on the Control Panel and record it. If **Retry AD Adjust** is displayed, check if there is a defect (tears/rips, contamination, wrinkles) on the Standard Sheet, and retry this step.



If **Retry AD Adjust** is displayed again, the PE sensor is defective.
Replace the PE sensor with a new one and carry out the adjustment again.

13. Turn over the sheet, (Load the sheet with its matte side under) B

Again, press [OK].

Check that a number is displayed on the Control Panel and record it. If **Retry AD Adjust** is displayed, check if there is a defect (tears/rips, contamination, wrinkles) on the Standard Sheet, and retry this step.

14. Check if values satisfy the standard below.

value “B”: within 75 to 127

value “A”: smaller than value “B”



If out of standard, check the matte side of standard sheet, and retry this step.

If out of standard again, replace the PE sensor with a new one.

15. Remove the Standard Sheet, and turn the printer OFF.

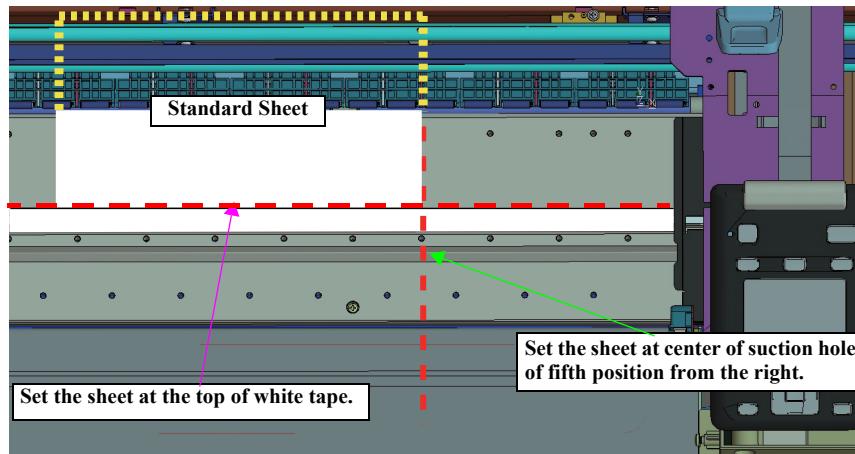


Figure 4-94. Position of the Standard Sheet

4.15 Boards Related Checks and Adjustments

4.15.1 Main Board Initialize

EXECUTION MODE

Serviceman Mode

PROCEDURE

1. Turn the printer ON in the Serviceman Mode.
Turn the power ON while pressing [Menu] + [Back] + [OK].
2. Start the Service Program and select **Main Board Initialize**.
3. Click **Run**.
4. The main board will be initialized.
5. Click **OK**.
6. Printer will automatically shut down.

CAUTION

If the initialization fails, run this function again.
If it still fails, replace main board to a brand-new main board.

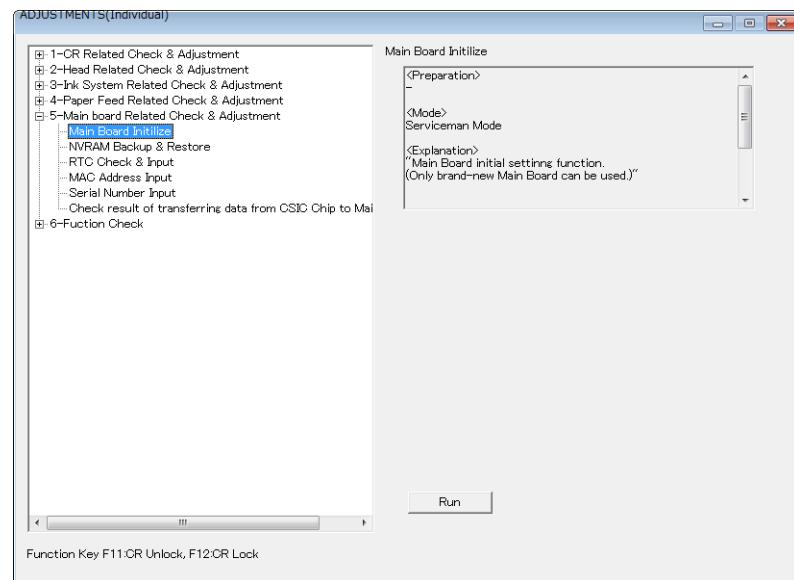


Figure 4-95. [Main Board Initialize] Screen

4.15.2 RTC Check & Input

EXECUTION MODE

Serviceman Mode

PROCEDURE

1. Turn the printer ON in the Serviceman Mode.
Turn the power ON while pressing [Menu] + [Back] + [OK].
2. Start the Service Program and select **RTC Check & Input**.
3. Check the **DATE** and **TIME** displayed, and correct them if necessary.
4. Click **Input** to set the RTC.

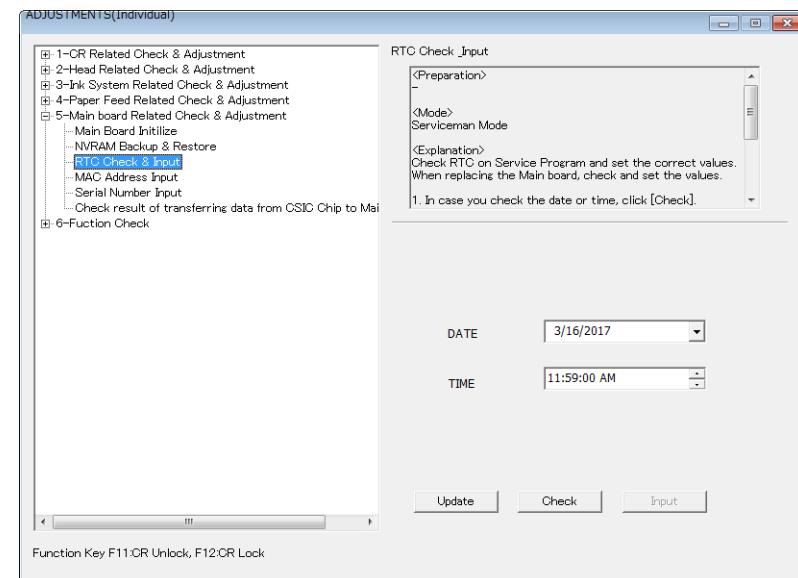


Figure 4-96. [RTC Check & Input] Screen

4.15.3 MAC Address Input

EXECUTION MODE

Serviceman Mode

PROCEDURE

1. Configure the PC as follows.
 - Wireless setting: Off
 - Network setting: Auto
 - Firewall: Off
2. Connect the printer to the computer both with a USB cable and a network cable.
3. Turn the printer on.
4. Clear the IP address from the control panel.
5. Turn the printer off.
6. Turn the printer ON in the Serviceman Mode.
Turn the power ON while pressing [Menu] + [Back] + [OK].



Wait more than three minutes for the network firmware to start up.

7. Start the Service Program and select **MAC Address Input**.
8. Input the second six digits of the MAC address written on the MAC address label applied on the rear of the printer.
9. Click the **Input** button to input the MAC address.

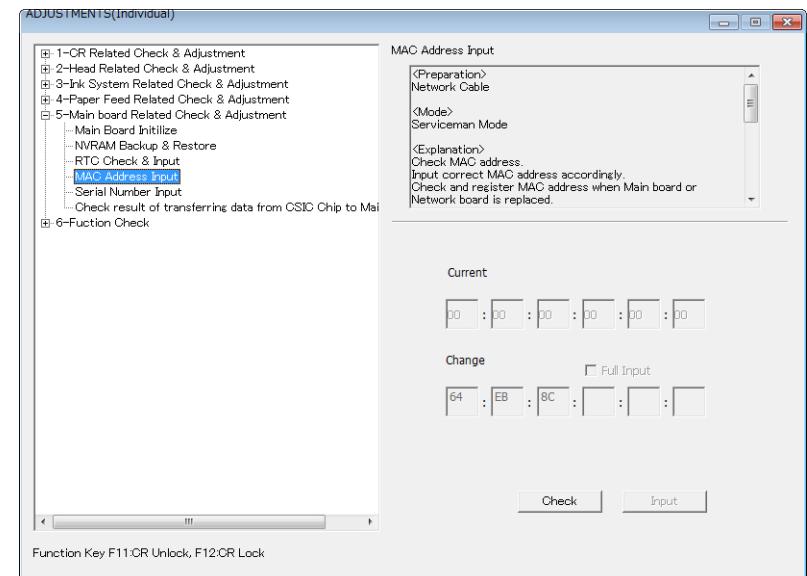


Figure 4-97. [MAC Address Input] Screen

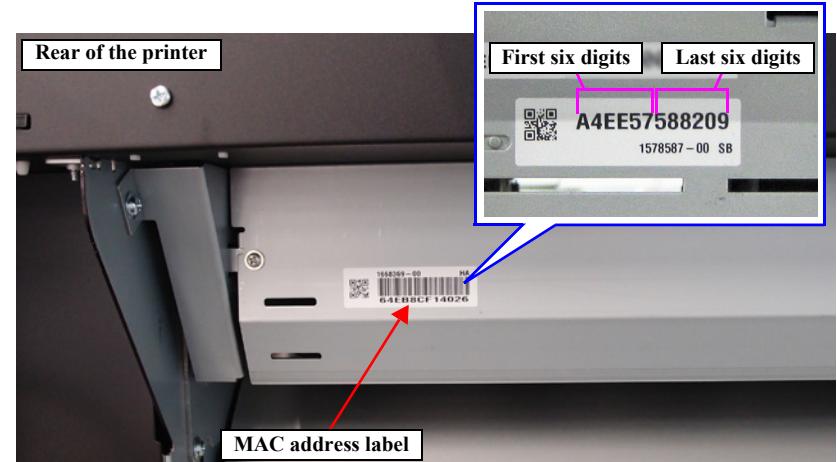


Figure 4-98. MAC address label

4.15.4 Serial Number Input

EXECUTION MODE

Serviceman Mode

PROCEDURE

1. Turn the printer ON in the Serviceman Mode.
Turn the power ON while pressing [Menu] + [Back] + [OK].
2. Start the Service Program and select **Serial Number Input**.
3. Enter a 10-digit serial number of the printer, and click **Input**.
The serial number is written to the NVRAM on the main board.
4. When you click **Check**, the serial number written on the NVRAM is automatically read and displayed on the screen.

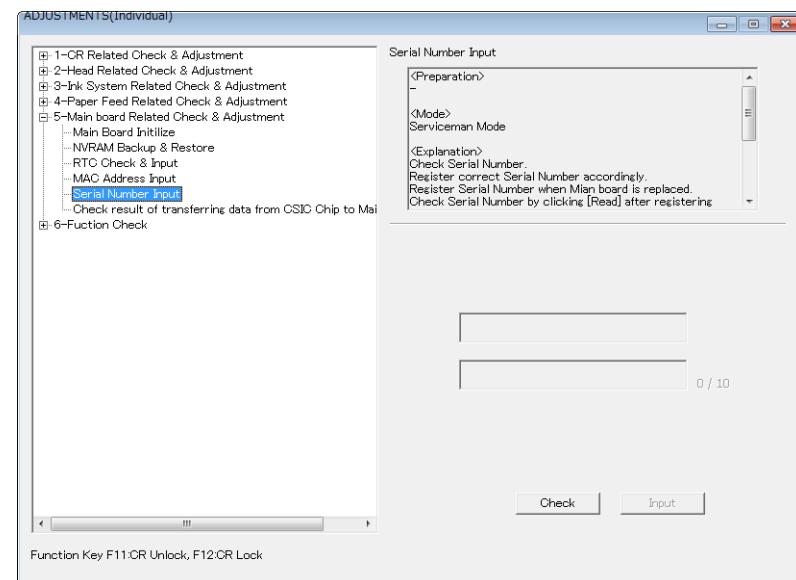


Figure 4-99. [Serial Number Input] Screen

4.15.5 Check result of transferring data from CSIC chip to Main Board

REQUIRED TOOLS

- New ink pack and chip unit that is attached new ink pack
- New ink tank

EXECUTION MODE

Serviceman Mode

PROCEDURE



If firmware has Charge & Reservation function, depending on the situation of Reservation, there are 2 cases where you can restore the panel status and where you cannot restore the panel status.

- When the panel status can be restored.
All colors were Reserved before replacing main board.
- When the panel status can be restored partially.
Some of the colors were Reserved before replacing main board
- When the panel status can Not be restored.
All of the colors were Not Reserved before replacing main board.



The condition of running the restore process is to perform the following procedures in order. (Check also main board Replacement in [Table 4-1](#).)

1. Remove old chip unit and slider before replacing main board.
2. Main Board initial setting (automatically power off)
3. Install slider and chip unit which you removed before replacing main board
4. Lower the slider's levers.
5. Turn the power On in normal mode.

If you perform the procedure correctly, restore process will be failed. And restore process runs only 1 time.

(If you want to run restore process again, install the new main board again and perform the procedure correctly. If you don't have new main board, you need to perform the procedure from [Step 5](#).)

1. Turn the printer ON in the Serviceman Mode.
Turn the power ON while pressing [Menu] + [Back] + [OK].
2. Start the Service Program and select [Check result of transferring data from CSIC chip to Main Board](#).
3. Click [[Run](#)].

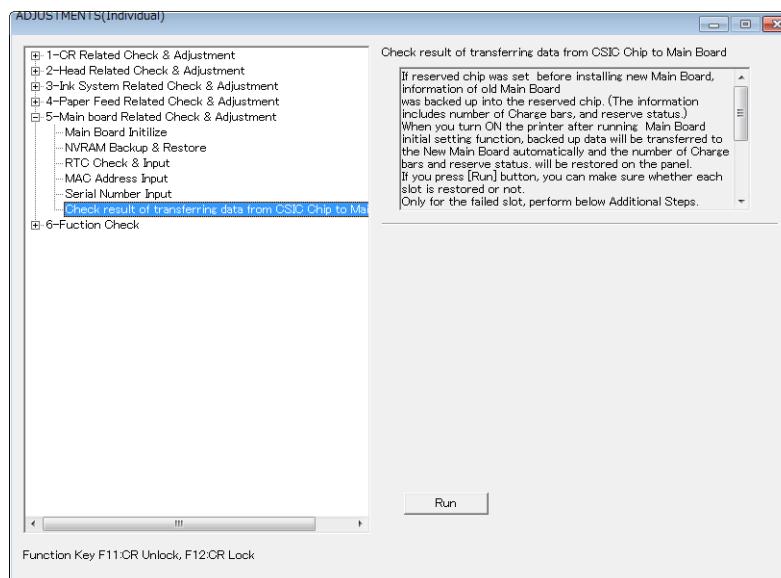


Figure 4-100. [Check result of transferring data from CSIC chip to Main Board] Screen

4. Pop-up message will be displayed and check whether the restore was successful or not for each color.

(For each color, when restore was successful, “OK” will be displayed and when restore was not successful, “NG” will be displayed.)



Figure 4-101. Pop-up message

- Color which is displayed “OK”: Complete the procedure. If all colors are “OK”, turn the printer OFF to finish the adjustment
 - Color which is displayed “NG”: perform the following steps.
5. Refill Ink from a new ink pack until becoming full capacity of the Ink Tank.
 6. Install the chip unit which is attached the new ink pack.
 7. Inform customer to keep use ink without Reservation until the amount of ink in Ink Tank is less than 70mm (SC-F9300 Series)/50mm (SC-F9400 Series/SC-F9400H Series) from the base of the ink tank.
(Once the amount of ink in Ink Tank is less than 70mm (SC-F9300 Series)/50mm (SC-F9400 Series/SC-F9400H Series), Reservation works as usual.)
 8. To inform customer which color couldn't be restored, put circle mark at step 2. on next page.
 9. Turn the printer OFF to finish the adjustment.

EXPLANATION (SC-F9300 SERIES)

Due to replacement of main board, data was not restored.
Please take below temporary procedure.

Sorry for inconvenience.

- Regarding color which couldn't be restored, please do not reserve while ink remains more than 70mm. Keep use ink less than 70 mm without reserve.



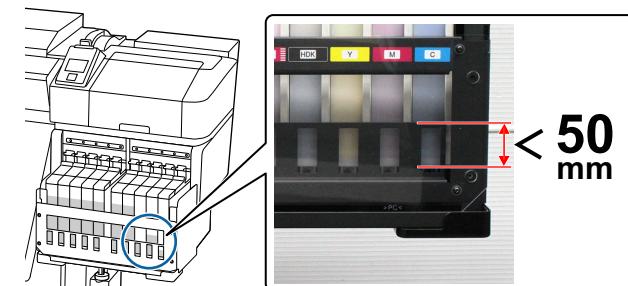
- To inform customer that which color couldn't be restored, put circle mark on below. If it is not one, please put mark all. And please provide this sheet to customer with explanation.
 - Left tank: Black Yellow Magenta Cyan
 - Right tank: Black Yellow Magenta Cyan
- Regarding color which couldn't be restored, after ink level becomes less than 70mm, replace chip unit to new one. Then, refill ink and erase "Circle Mark" or put some other mark like "X" mark. After this procedure, Charge and Reservation works as usual for this color.
- After all colors which couldn't be restored are treated above **Step 3**, temporary procedure is completed. Please discard this sheet.

EXPLANATION (SC-F9400 SERIES/SC-F9400H SERIES)

Due to replacement of Main Board, data was not restored.
Please take below temporary procedure.

Sorry for inconvenience.

- Regarding color which couldn't be restored, please do not reserve while ink remains more than 50 mm. Keep use ink less than 50 mm without reserve.



- To inform customer that which color couldn't be restored, put circle mark on below. If it is not one, please put mark all. And please provide this sheet to customer with explanation.
 - Left Tank: Fluorescent Yellow Black Yellow Magenta Cyan
 - Right Tank: Fluorescent Pink Black Yellow Magenta Cyan
- Regarding color which couldn't be restored, after ink level becomes less than 50 mm, replace chip unit to new one. Then, refill ink and erase "Circle Mark" or put some other mark like "X" mark. After this procedure, Charge and Reservation works as usual for this color.
- After all colors which couldn't be restored are treated above step 3., temporary procedure is completed. Please discard this sheet.

4.16 Parallelism Adjusting

THINGS TO PREPARE

1. Counterweight
2. Hexagonal wrench
3. Film a
4. Film b (x 2)
5. Roll core (short)
6. Adjustment screws (silver) (x 2)



6. Use the adjustment screws attached when installing the printer.

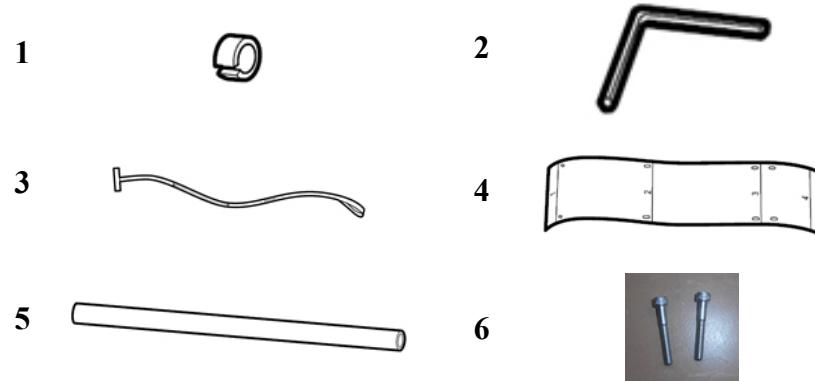


Figure 4-102. Things to Prepare

PARALLELISM CHECK

1. Loosen the fixing screws of the roll core holders on both home and full sides, and move the roll core holders inward.

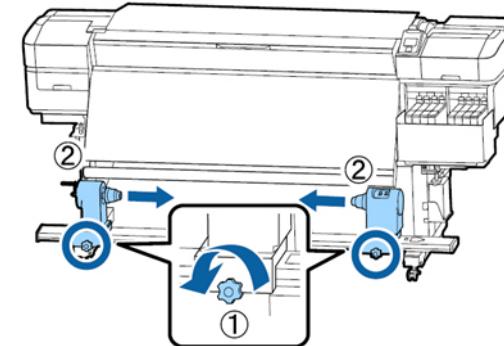


Figure 4-103. Parallelism Check

2. Remove the screws shown below and turn open the covers.

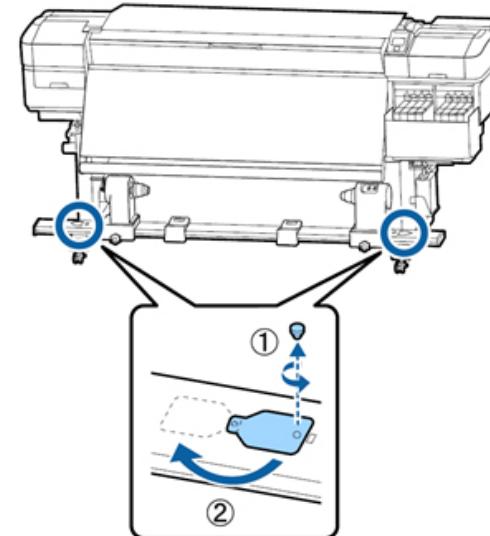


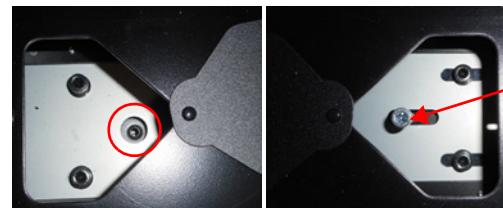
Figure 4-104. Parallelism Check

3. Temporarily attach the adjustment screws on both home and full sides.

CHECK POINT

Remove the adjustment screws attached when installing the printer once, and then temporarily attach them again.

Home side



Full side



Figure 4-105. Parallelism Check

4. Open the front cover and pull up the media loading lever.

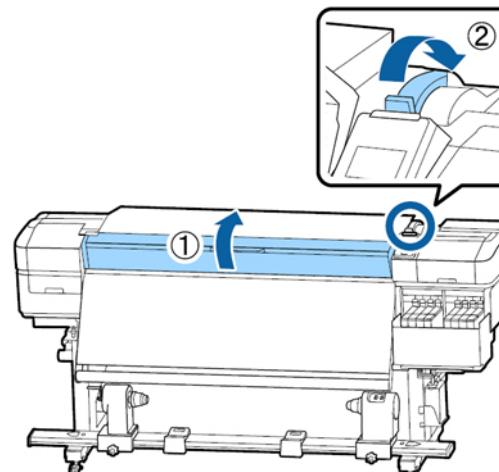


Figure 4-106. Parallelism Check

5. Peel off the protection film pieces from the film b.

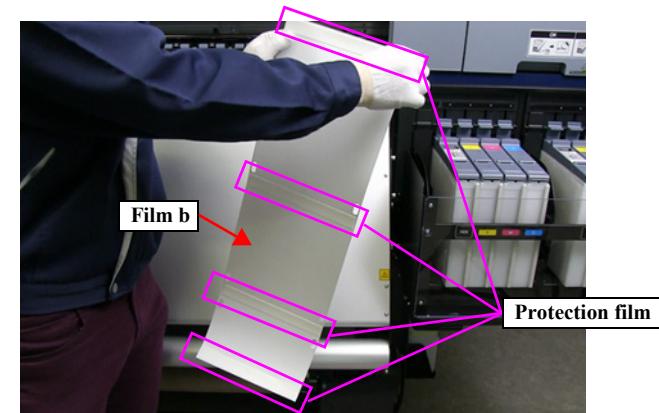


Figure 4-107. Parallelism Check

6. Align the holes on the sheet with the screws, and then paste the film b.

CHECK POINT

After pasting the sheet, confirm that the bottom edge of the film b is on the media guide bar.

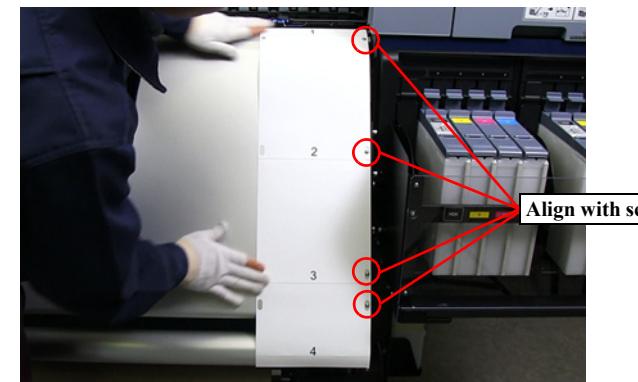


Figure 4-108. Parallelism Check

7. Paste the film b on the other side. (Film b should be pasted on both home and full sides.)



Figure 4-109. Parallelism Check

8. Move the roll core holder on the full side outward.

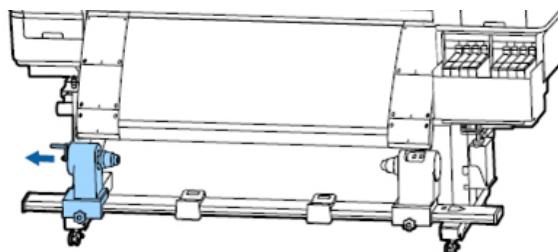
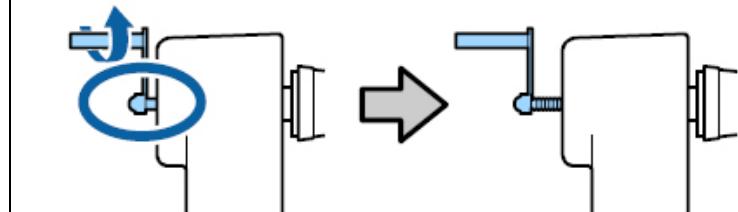


Figure 4-110. Parallelism Check



If the handle shaft of the roll core holder on the full side is not visible, rotate the handle until it stops as shown below. If the shaft is not visible, you cannot attach the roll core correctly.



9. Move the roll core holder on the home side to the adjustment position.

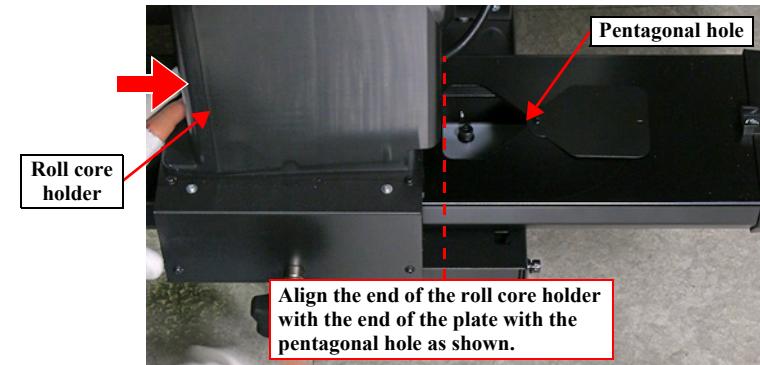


Figure 4-111. Parallelism Check

10. Secure the roll core holder with the fixing screw.

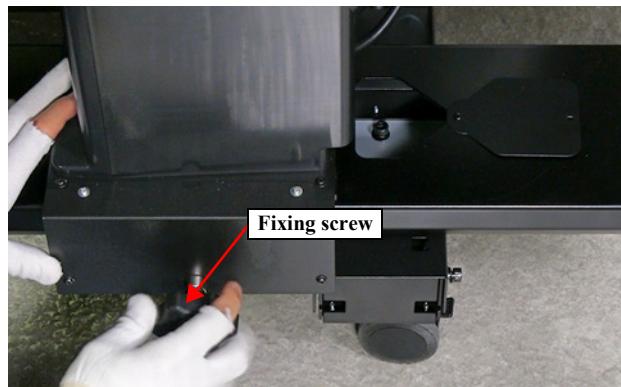
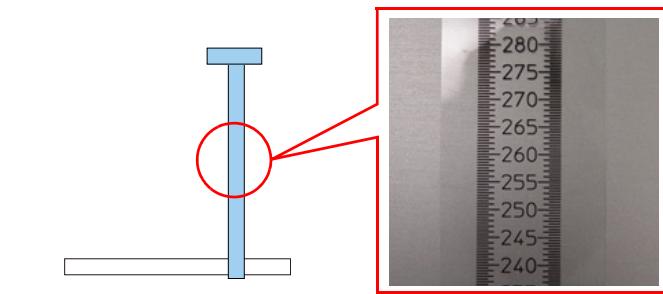


Figure 4-112. Parallelism Check



Attach the film a in the orientation where you can read the number on the scale correctly as shown below.



11. Put the loop of the film a on the roll core.

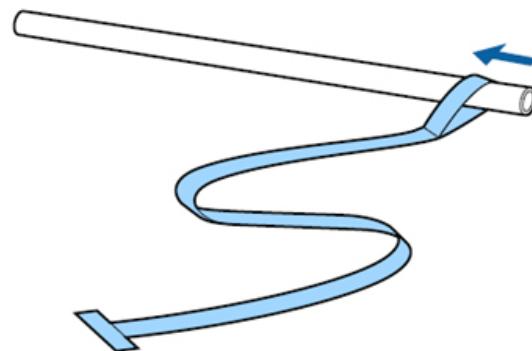


Figure 4-113. Parallelism Check



12. Insert one end of the roll core to the roll core holder on the home side.

Use the shorter core.

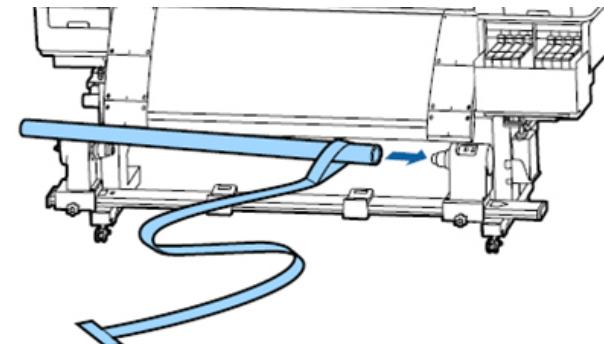


Figure 4-114. Parallelism Check

13. Push in the roll core holder on the full side to the other end and tighten the fixing screw on the roll core holder.

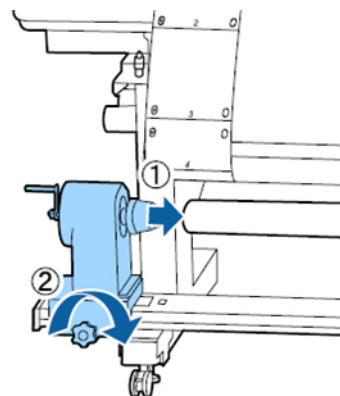


Figure 4-115. Parallelism Check

14. Rotate the handle until part A shown in the figure below is fully inserted.

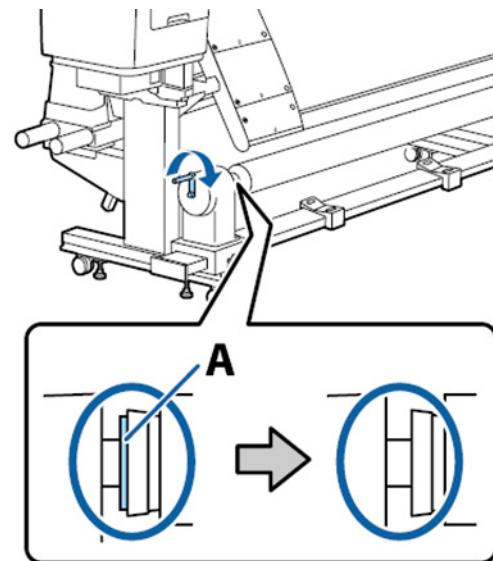


Figure 4-116. Parallelism Check

15. Move the media edge plates toward the center.

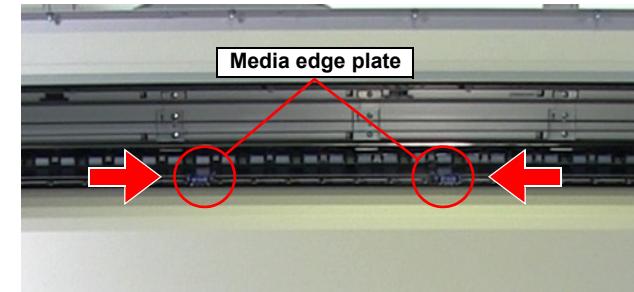


Figure 4-117. Parallelism Check

16. Insert the film a through the printer to the rear side.

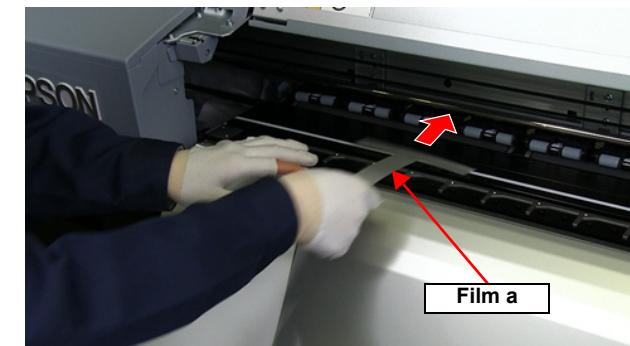


Figure 4-118. Parallelism Check

17. Align the film a exactly along the film b on the full side.

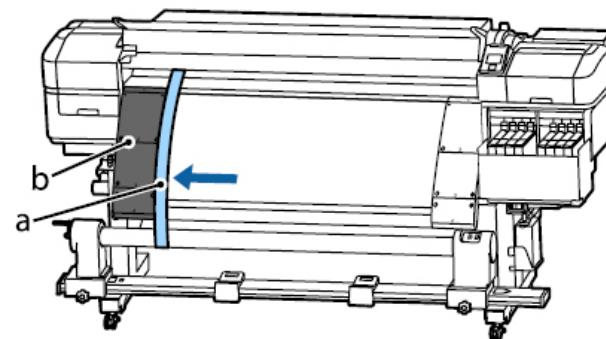


Figure 4-119. Parallelism Check

18. Put the counterweight to the film a on the rear of the printer and hang it on to the point shown below.

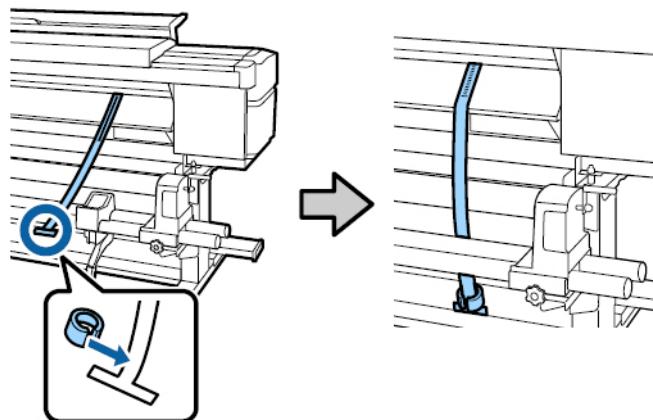


Figure 4-120. Parallelism Check

19. When the film a stops swinging, record the value on the scale at the point where the bottom edge of the white line on the platen and the scale of the film a overlap.

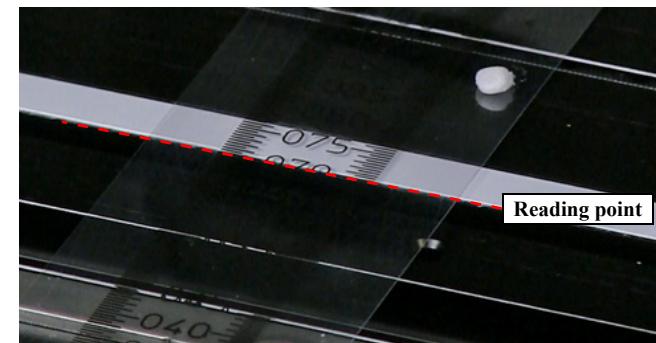
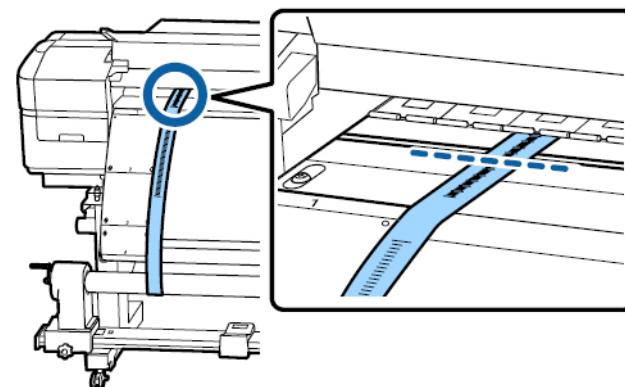


Figure 4-121. Parallelism Check

20. Lift the film a on both front and rear of the printer simultaneously and slide the film to the home side until it is aligned exactly along the film b on the home side.

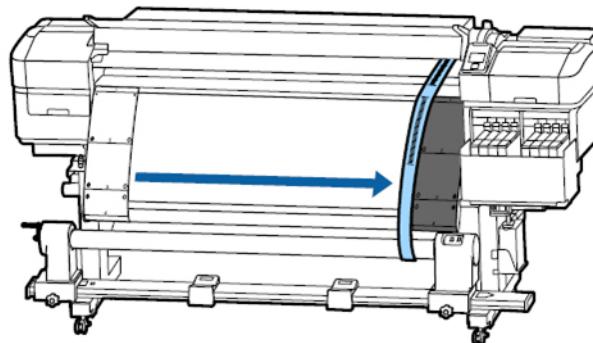


Figure 4-122. Parallelism Check

21. When the film a stops swinging, record the value on the scale at the point where the bottom edge of the white line on the platen and the scale of the film a overlap.

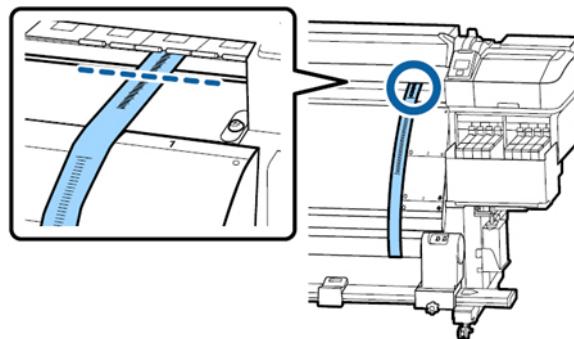


Figure 4-123. Parallelism Check

22. If the value differs more than 5mm from the value of the full side, go to "Adjustment" (p.312). Otherwise, go to "Finishing Adjustment" (p.314).

ADJUSTMENT

1. Loosen all the fixing screws on the plates.

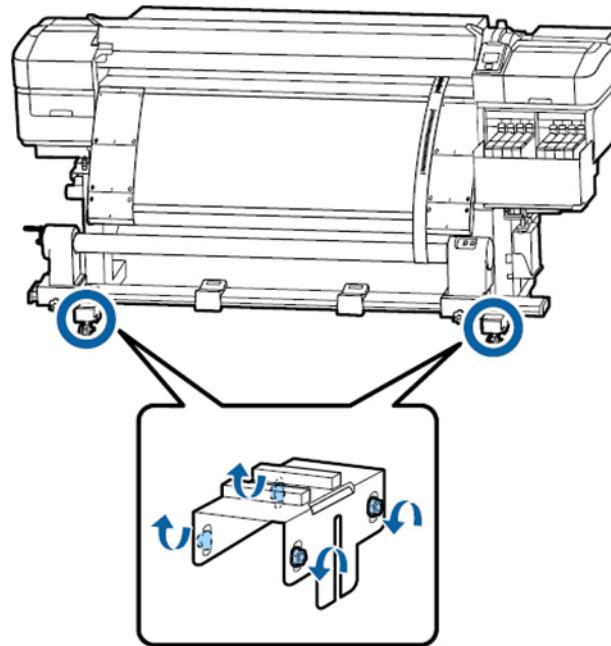


Figure 4-124. Adjustment

2. While checking the values of the scale on the film a, turn the adjustment screw of the side with the larger value to the right until the difference between the home and full sides falls below 0.5mm.

CHECK
POINT

- The scale moves from the point where you feel the resistance of the screw. It moves about 0.6mm by rotating the screw once.
- Do not touch the adjustment screw on the side with the smaller value.

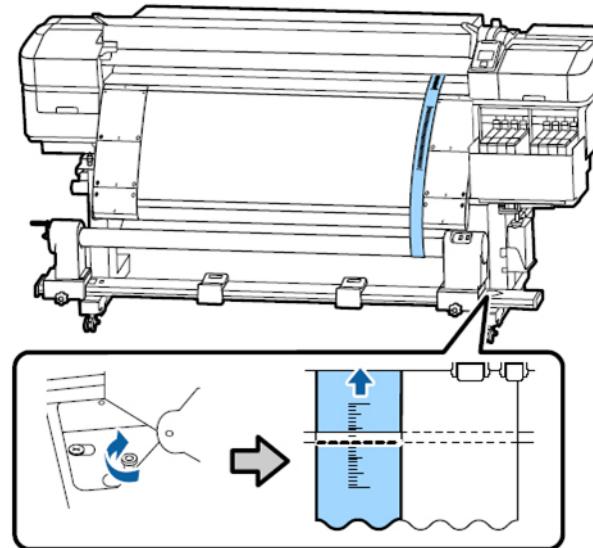


Figure 4-125. Adjustment

3. Tighten all the screws shown below, and go to "Finishing Adjustment" (p.314).

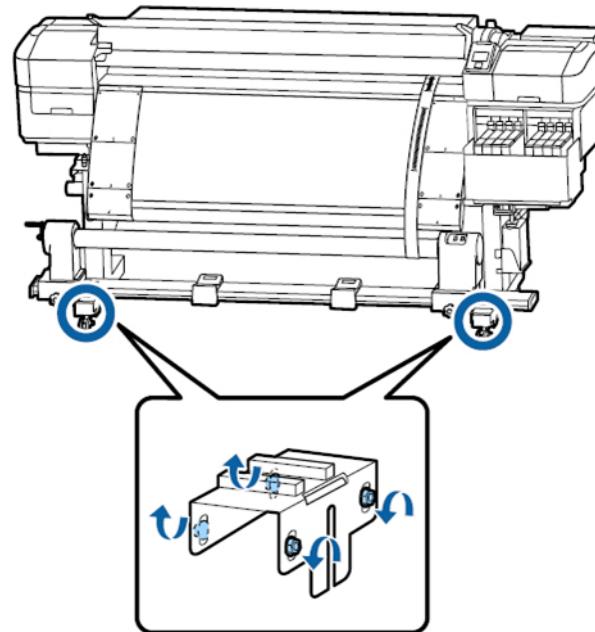


Figure 4-126. Adjustment

FINISHING ADJUSTMENT

1. Remove the counterweight from the film a on the rear.

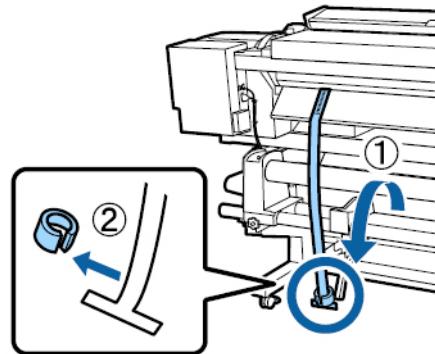


Figure 4-127. Finishing Adjustment

2. Pull out the film a from the printer.

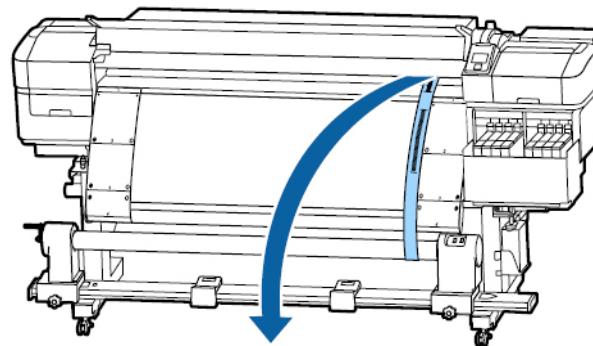


Figure 4-128. Finishing Adjustment

3. Loosen the fixing screw on the roll core holder on the home side and remove the roll core holder.

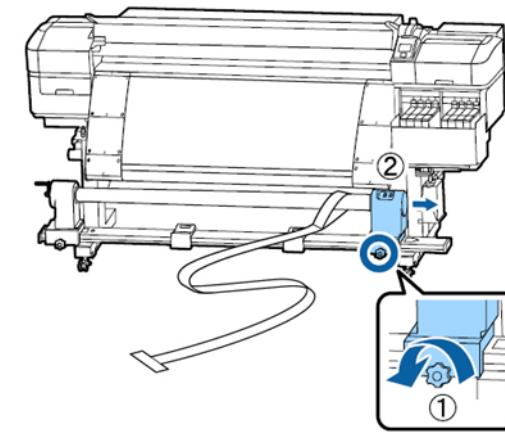


Figure 4-129. Finishing Adjustment

4. Remove the roll core.

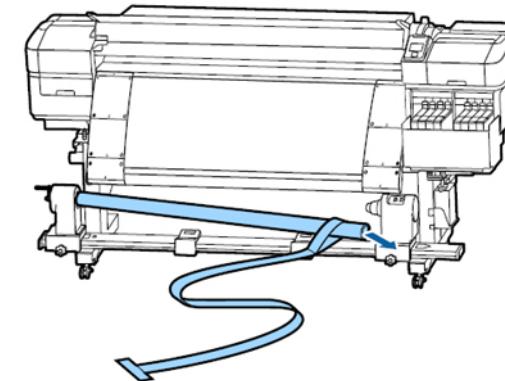


Figure 4-130. Finishing Adjustment

5. Remove the film a from the roll core.

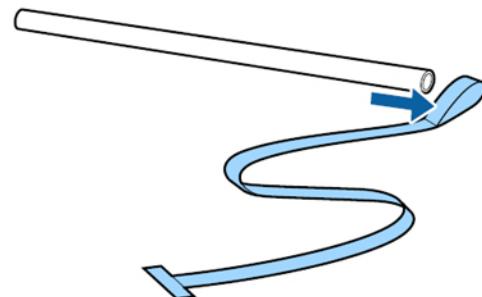


Figure 4-131. Finishing Adjustment

6. Remove the film b from the printer.

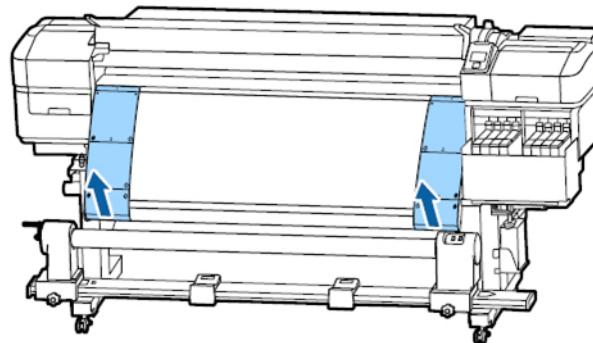


Figure 4-132. Finishing Adjustment

CHECK
POINT

Have users store the film a/b with the counterweight while taking care not to fold the films. Also, notify them to clean off dust and such from them and to stretch it fully before using them again.

7. Loosen the fixing screws on the roll core holders and move them both inward.

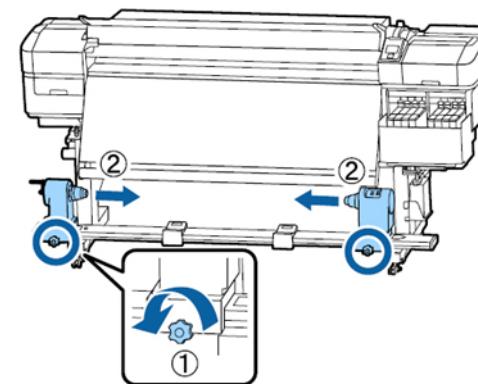


Figure 4-133. Finishing Adjustment

8. Close the covers and secure them with the screws.

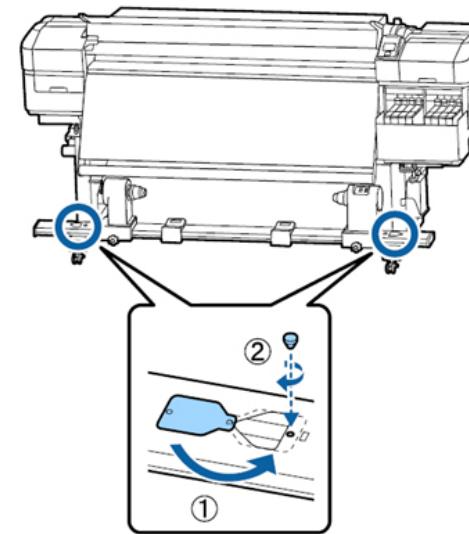


Figure 4-134. Finishing Adjustment

4.17 Operation Check

4.17.1 Network Test

EXECUTION MODE

Repair Mode

PROCEDURE TO CHECK THE NETWORK CONNECTION STATUS

1. Connect the printer to the computer both with a USB cable and a network cable.
2. Turn the printer ON in the Serviceman Mode.
Turn the power ON while pressing [Menu] + [Back] + [OK].
3. Start the Service Program and select **Network Test**.
4. Enter the IP address of the printer, and click **Run**.
When the network communication is available, the LCD flashes five times.

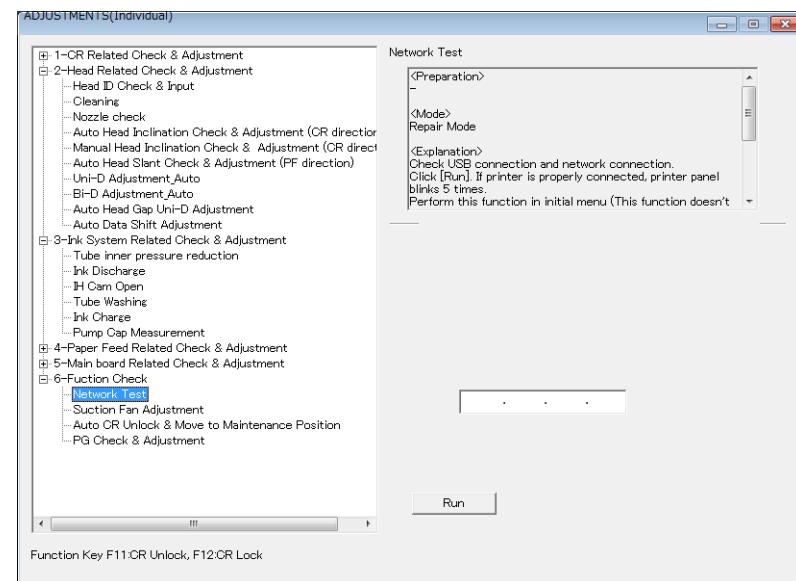


Figure 4-135. [Network Test] Screen

4.17.2 Suction Fan Adjustment

EXECUTION MODE

Normal Mode

PROCEDURE

1. Turn the printer ON in the Normal Mode.
2. Start the Service Program and select **Suction Fan Adjustment**.
3. Click **Run** to move the Suction Fan.
4. Check to see if the fan is operating normally by listening for its operating noise and visually checking the paper status (see if the paper is attracted properly). If no attraction force is applied to the paper, or the force is weak, check if the fan is installed properly. If there is something wrong with the fan, replace it.
5. Click **OK** to stop the fan.

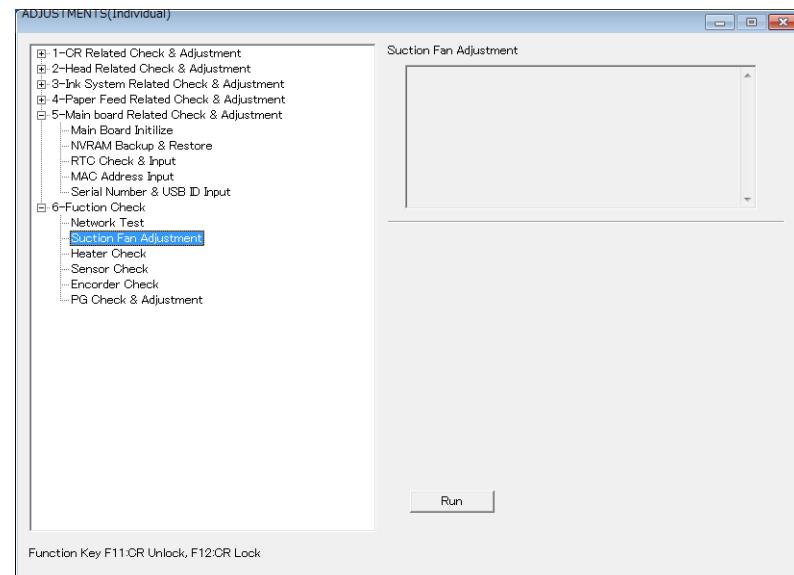


Figure 4-136. [Suction Fan Adjustment] Screen

4.17.3 Heater Check

EXECUTION MODE

Normal Mode

PROCEDURE

1. Turn the printer ON in the Normal Mode.
2. Start the Service Program and select **Heater Check**.
3. Click **Run** to turn on the heater.
4. Touch the heater(s) and check that it is warm. If the heater(s) temperature does not reach the predetermined level within 10 minutes, an error is displayed.



In a cool environment, it may take a longer time to heat up the heaters. (If the ambient temperature is 10 degrees C, it may take 20 minutes or longer.)

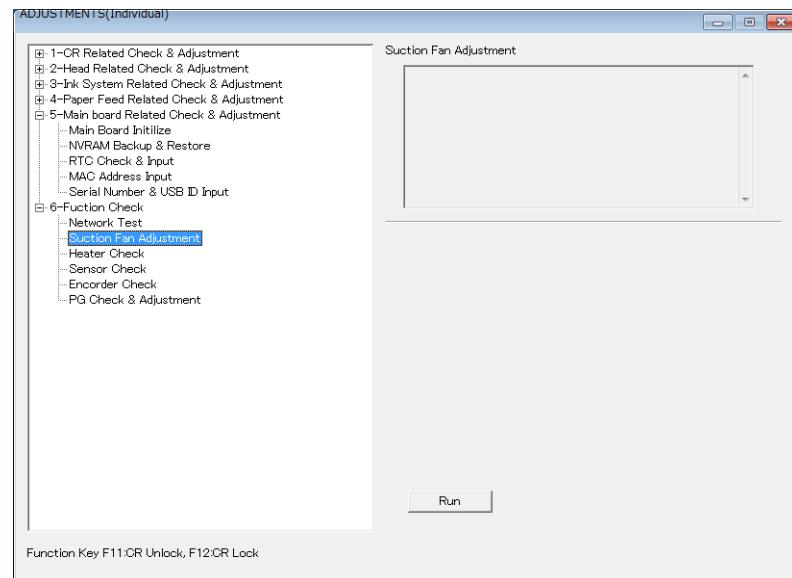


Figure 4-137. [Heater Check] Screen

4.17.4 Panel LCD Operation Check

EXECUTION MODE

Serviceman Mode

PROCEDURE

1. Turn the printer ON in the Serviceman Mode.
Turn the power ON while pressing [Menu] + [Back] + [OK].
2. Select **SELF TESTING → Mecha Adjustment → LCD RGB Check**.
3. Select one of the three colors at a time and press [Right].
The LCD is filled with solid red, green or blue color. Check if there is no missing dots. Check the colors in the order of red, green, and then blue.
4. To select the next color, press [Pause/Cancel] or [Left].

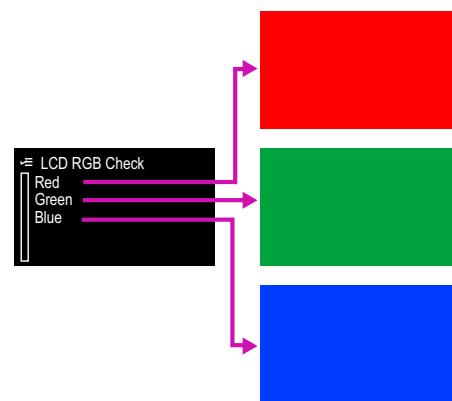


Figure 4-138. Color LCD display check

4.17.5 Panel Buttons Operation Check

EXECUTION MODE

Serviceman Mode

PROCEDURE

1. Turn the printer ON in the Serviceman Mode.
Turn the power ON while pressing [Menu] + [Back] + [OK].
2. Select **SELF TESTING → Mecha Adjustment → Panel Check**.
3. Press the button you want to check the function, and check if the button name you pressed matches the name displayed on the panel.

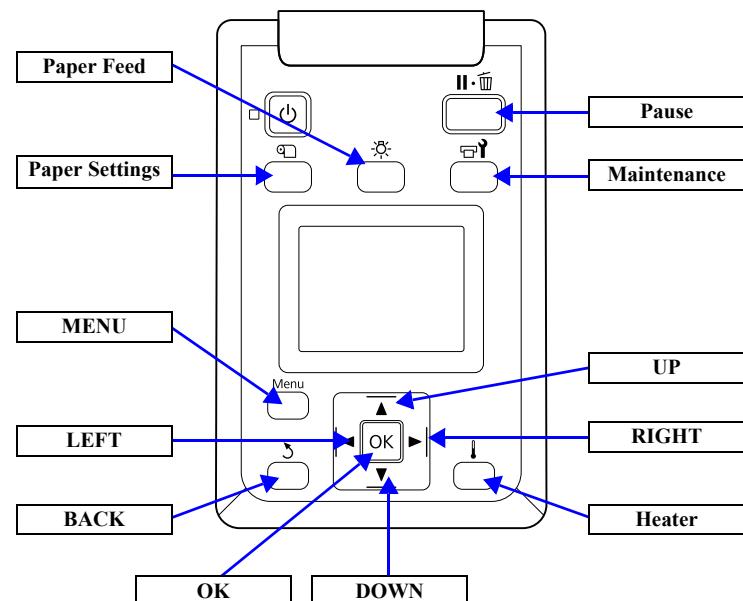


Figure 4-139. Buttons and Their Names displayed on the Panel

CHAPTER

5

MAINTENANCE

5.1 Overview

This chapter provides information on how to maintain the printer in its optimum operating condition.

Basically, servicing on the printer should be performed on-site. Be sure to strictly observe the following precautions when servicing to avoid an accident or injury causing the user trouble.

WARNING

- The power switch is installed on the secondary side of the power circuit, so power is always supplied to the power supply circuit even when the switch is OFF unless the power cord is unplugged from the wall power outlet. Unless otherwise stated (for printing or operation checks), be sure to unplug the power cord from the wall outlet before disassembling or assembling the printer to prevent electric shock and damage to the circuit.
- The Front Sensor provided for detecting open/close status of the Printer Cover also acts as a safety interlock switch. Never disable the switch function to prevent possible injury.
- A lithium battery is mounted on the Main Board (control circuit) for memory backup. Be sure to observe the following precautions when handling the Main Board.
 - Be careful not to short the electrode of the battery.
 - When replacing the battery, make sure to insert it in correct orientation.
 - Never heat the battery or plunge it into the flames.
 - Do not put the Main Board directly on conductive materials.
- Be extremely careful not to get the ink into your eye or let it come into contact with your skin. If it happens, wash out your eye or skin with water immediately. If any abnormality is found, contact a physician.

CAUTION

- Ensure sufficient work space for servicing.
- Locate the printer on a stable and flat surface.
- 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.
- Be sure to spread a sheet of paper or cloth on the work space before removing any ink-path-related parts or components to keep the space from being soiled with leaked ink.
- Do not touch electrical circuit boards with bare hands as the elements on the board are so sensitive that they can be easily damaged by static electricity. If you have to handle the boards with bare hands, use static electricity discharge equipment such as anti-static wrist straps.
- When the printer has to be operated with the covers removed, take extra care not to get your fingers or clothes caught in moving parts such as the fan unit.
- When the printer needs to be repacked for transportation after being used, make sure to follow the steps below after turning the power OFF.
 - Check that the Printhead is capped properly.
 - Leave the ink tanks installed in the printer.
 - Repack the printer using the packaging box, cushioning materials and protective equipment indicated in the unpacking guide.

5.2 Carrying-In/Installation

5.2.1 Lifting the Printer

When lifting the shipping box, route the belts through the supporting points shown below.

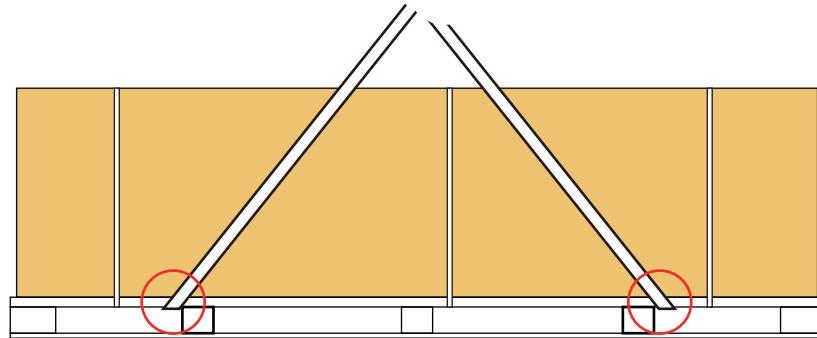


Figure 5-1. Supporting points

5.2.2 Disassembly when carrying in/installing the printer

When carrying in or out the printer through a narrow entrance, the size of the printer can be reduced by retracting/removing the after heater. First try carrying in/out the printer with the after heater retracted, and if only it does not work, remove the after heater.



Make sure to remove the power cable before starting work.

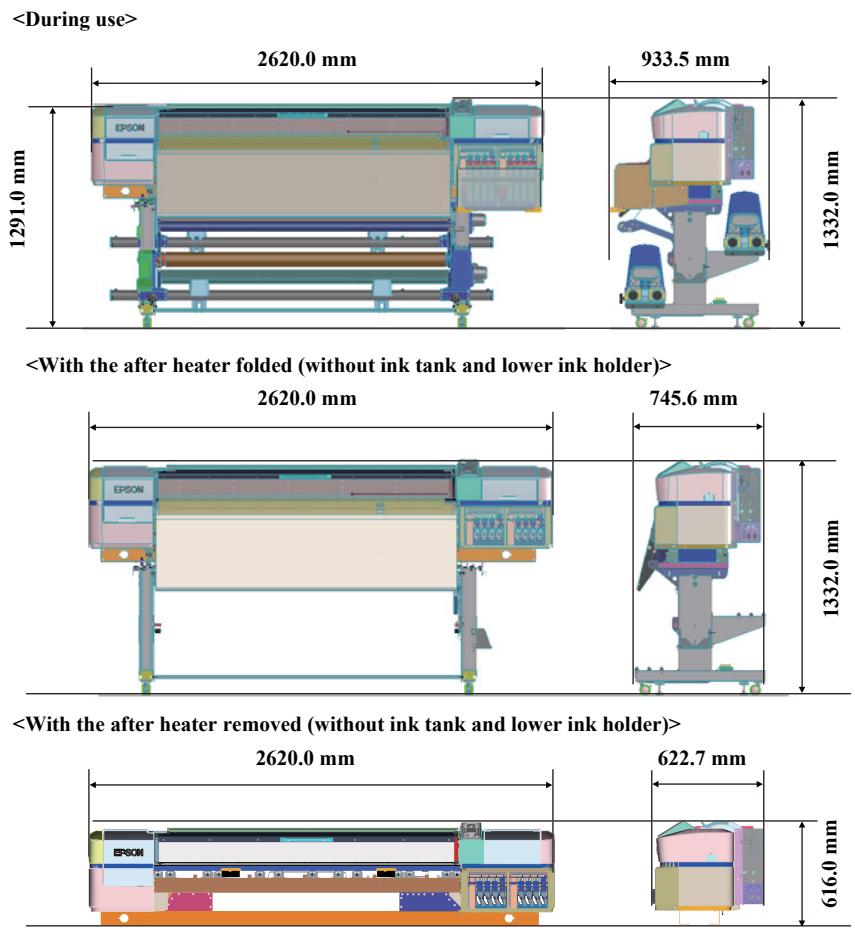


Figure 5-2. Size comparison

5.2.2.1 Retracting the after heater

1. Remove the following components.

1. Ink tank
 2. Lower ink holder
 3. Media feeding unit (roll unit)
 4. Auto take-up reel unit (reel unit)
 5. Media tension bar

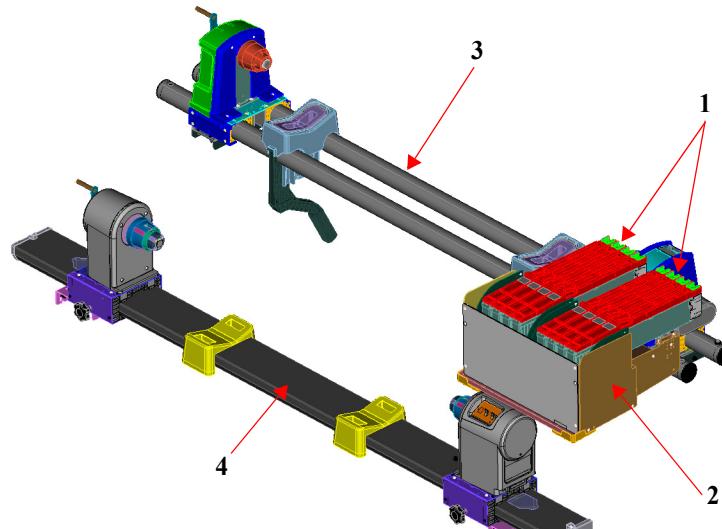


Figure 5-3. Components to be removed

2. Loosen or remove the screws on both sides of the after heater.

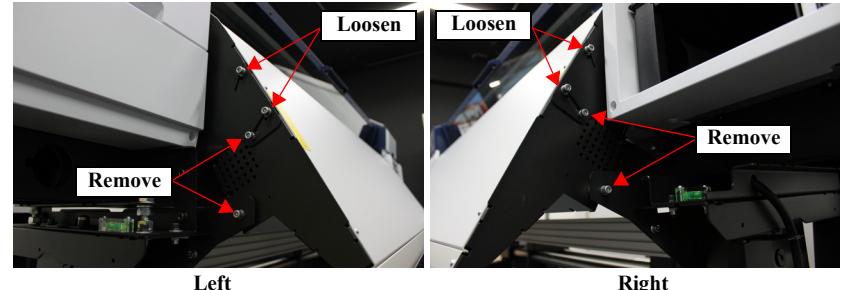


Figure 5-4. After heater fixing screws

3. Pull and hold the lever, and push down the After Heater.



When pulling the lever, the after heater may close suddenly, so pulling the lever while supporting the after heater by hand.

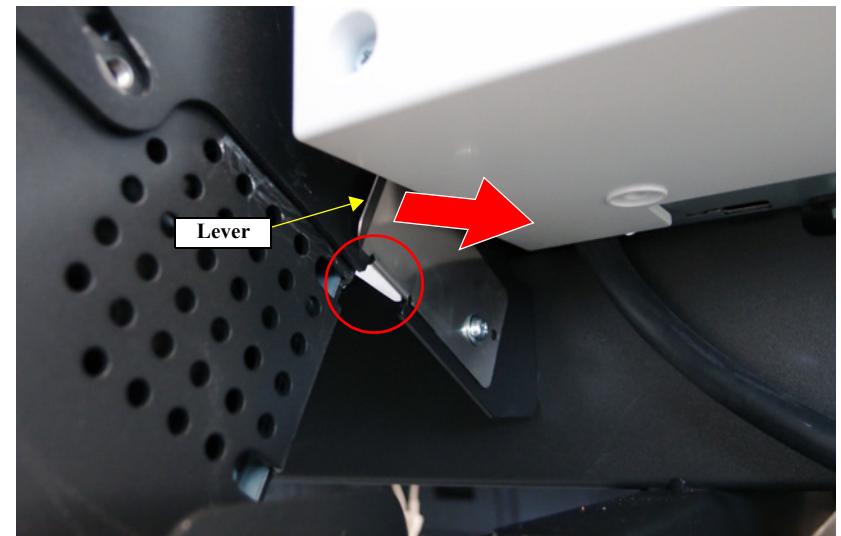


Figure 5-5. Lever



Figure 5-6. Retracting the after heater

5.2.2.2 Removing the after heater

1. Retract the after heater. ([p324](#))
2. Remove the four screws on both sides of the after heater.

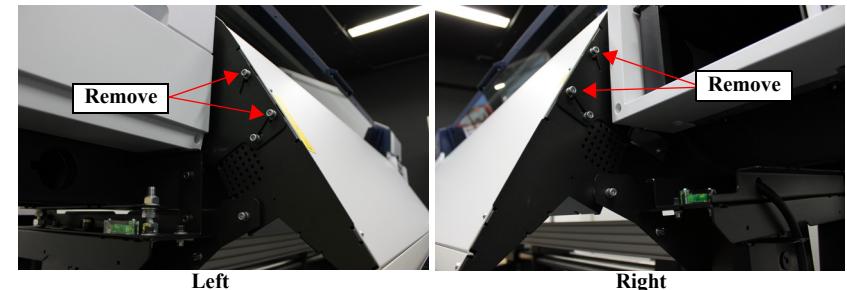


Figure 5-7. Fixing screws on the after heater

3. Hold the positions shown below and slide the after heater toward you.

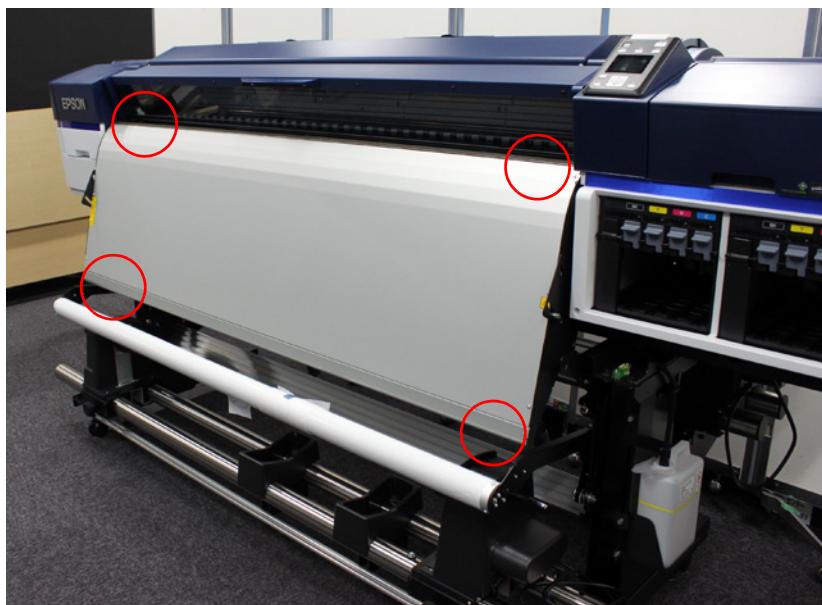


Figure 5-8. Moving the after heater

4. Disconnect the three connectors connected to the after heater.



Figure 5-9. Disconnecting the connector

5. Hold the center of the after heater and remove it.
6. Remove the six screws and remove the guide plate.

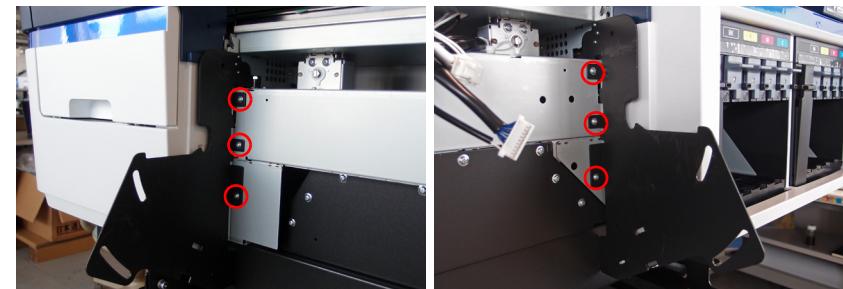


Figure 5-10. Heater fixtures

7. Remove the main body from the stand.



CAUTION
The pop nuts on the bottom of the main body may be damaged if the main body is directly placed on the floor. So make sure to use a buffer material or the like to keep the pop nuts away from the floor when placing the main body on the floor.

5.3 Consumables

Table 5-1. Exchange Parts

Parts		Life Detection Counter	Exchange message
Ink		<input type="checkbox"/> Dot counter <input type="checkbox"/> Ink end sensor	Refill ink and replace chip unit.
Maintenance kit	Wiper unit	<input type="checkbox"/> Near end: Take-up counter <input type="checkbox"/> End: Load of the motor	Replace with new maintenance parts. Press OK to start replacement.
	Flushing pad	No dedicated counter. Synchronized with the Wiper Unit life.	
Waste ink bottle		Waste ink counter	Replace waste ink bottle and press OK.

5.4 When left unused/transportation

5.4.1 When left unused

5.4.1.1 Preparation before leaving printer unused

PROCEDURE

1. Turn the power on in repair mode. ([p18](#))
2. Execute the Ink Discharge. ([p282](#))
3. Execute the Tube Washing. ([p288](#))
4. Turn the power off.

5.4.1.2 Preparation after leaving printer unused

PROCEDURE

1. Install a new ink tanks. ([p181](#))
2. Attach the chip unit supplied with the new ink pack to the slider.
3. Turn the power on in repair mode. ([p18](#))
4. Execute the Ink Discharge. ([p282](#))
5. Execute the Force Charge. ([p287](#))
6. Execute the Ink Charge. ([p289](#))
7. Execute the Nozzle Check. ([p264](#))
8. Execute the Cleaning. ([p263](#))
9. Turn the power off.

5.4.2 Transportation

5.4.2.1 Preparation before transportation

PROCEDURE

1. Turn the power on in repair mode. ([p18](#))
2. Execute the Ink Discharge. ([p282](#))
3. Execute the Tube Washing. ([p288](#))
4. Execute the Ink Discharge. ([p282](#))
5. Turn the power off.

5.4.2.2 Preparation after transportation

PROCEDURE

1. Install a new ink tanks. ([p181](#))
2. Attach the chip unit supplied with the new ink pack to the slider.
3. Turn the power on in repair mode. ([p18](#))
4. Execute the Force Charge. ([p287](#))
5. Execute the Ink Charge. ([p289](#))
6. Execute the Nozzle Check. ([p264](#))
7. Execute the Cleaning. ([p263](#))
8. Turn the power off.

5.5 Cleaning

Table 5-2. Parts to be Cleaned

No.	Parts to be Cleaned	When to Clean the Parts	Reference
1	LED unit	When the part gets contaminated with ink mist or the like	p.329
2	Pressure rollers	When the parts get contaminated with paper dust or the like	p.330
3	CR scale	When the part gets contaminated with ink mist or the like	p.330
4	Drive roller	<input type="checkbox"/> When the part gets contaminated with glue oozing from the ends of the media <input type="checkbox"/> When the tape applied on the roll end of media has been attached	p.331
5	Around the Caps	After performing the initial ink charge	p.331

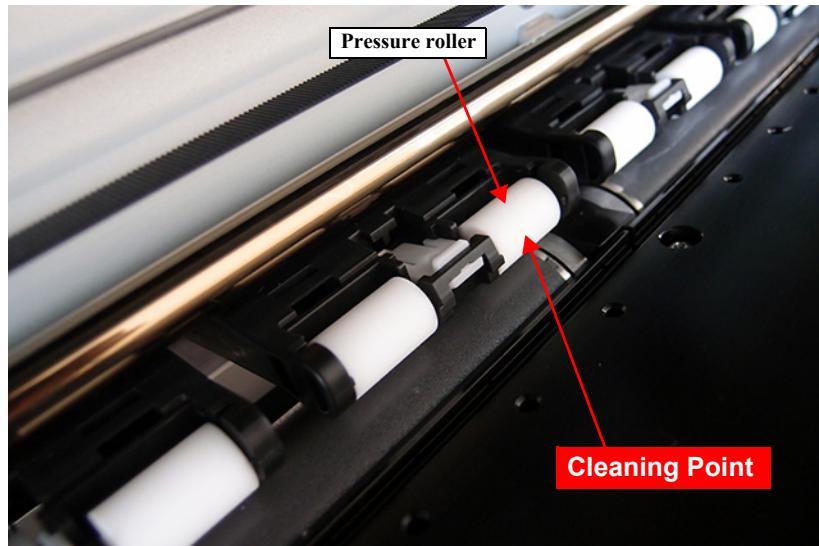
[Cleaning 1]

Part Name	LED unit
Tool	Dry cloth or waste cloth
Cleaning method	Wipe off the dirt on the lens of the LED light with such as a dry cloth or waste cloth.
Note	Do not touch the MAIN SHAFT CR ASSY.



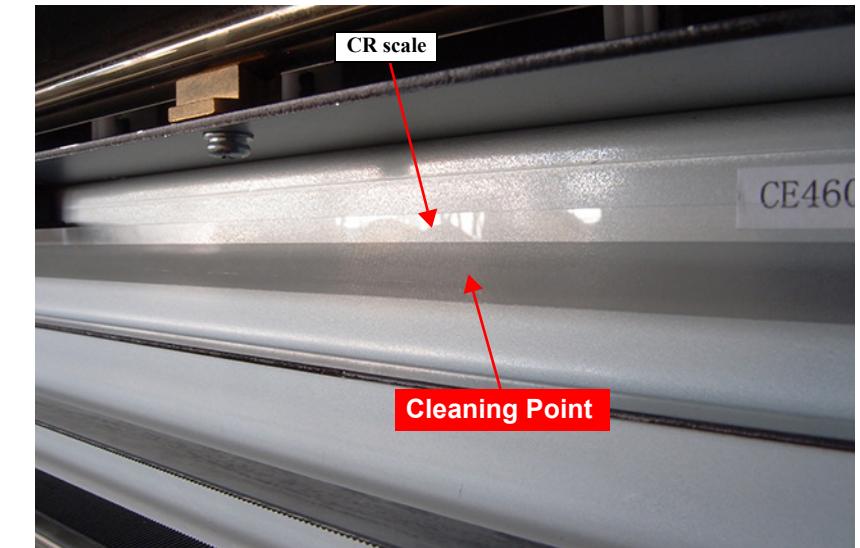
[Cleaning 2]

Part Name	Pressure rollers
Tool	Dry cloth or waste cloth
Cleaning method	Wipe off the dirt attached on the rollers using a soft cloth well wrung out of water.
Note	Do not touch the MAIN SHAFT CR ASSY.



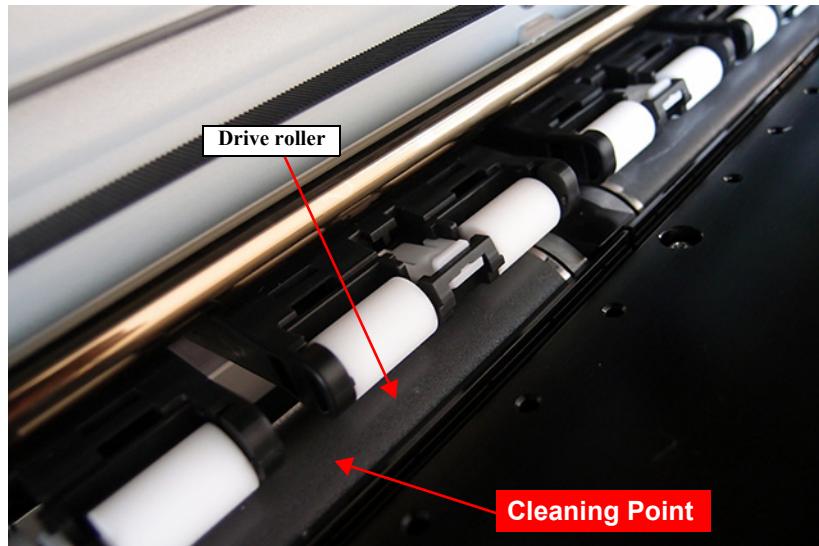
[Cleaning 3]

Part Name	CR scale
Tool	Dry cloth or waste cloth
Cleaning method	Wipe off the dirt attached on the CR scale using a soft cloth well wrung out of water.
Note	<ul style="list-style-type: none"> <input type="checkbox"/> Be careful not to scratch the pattern for detection on the CR scale. <input type="checkbox"/> Do not touch the MAIN SHAFT CR ASSY.



[Cleaning 4]

Part Name	Drive roller
Tool	Dry cloth or waste cloth
Cleaning method	Wipe off the glue attached on the drive rollers using a soft cloth well wrung out of water.
Note	Do not touch the MAIN SHAFT CR ASSY.

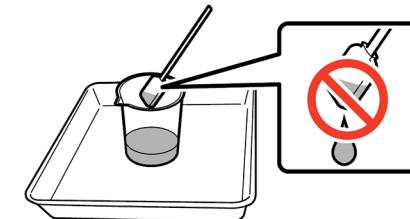


[Cleaning 5]

- Put the cup supplied with the ink cleaner on the metal tray, and pour approximately 10 ml of ink cleaner into the cup.



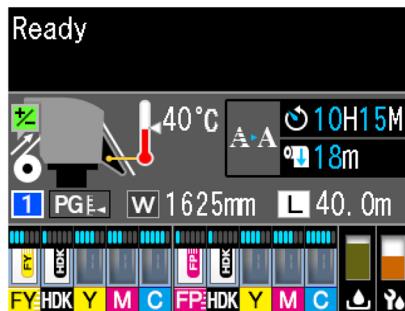
- Dampen the cleaning stick with ink cleaner.
Do not allow ink cleaner to drip from the cleaning stick.



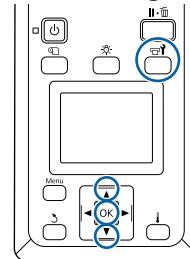
CAUTION
Only use ink cleaner to clean the parts indicated in the manual.
Using ink cleaner on other parts of the printer could damage the product.

3. Confirm that the status screen shown below is displayed, and then press the [] button.

The Maintenance menu will be displayed.



Buttons that are used in this settings

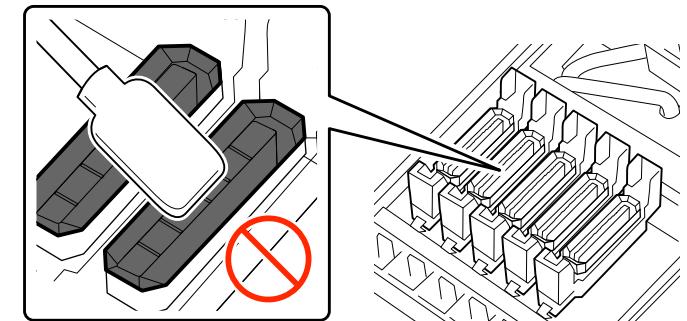


7. Hold the cleaning stick flat and wipe the edges of all the caps.

Caps have 2 blocks. Clean all of the caps.



When using a cleaning stick or tweezers, do not touch the inside of the cap and do not push strongly against the edges or the surrounding area of the cap. The part maybe deformed, and it may no longer be possible to perform capping correctly.



4. Use the [▲]/[▼] buttons to select **Head Maintenance** and press the [OK] button.

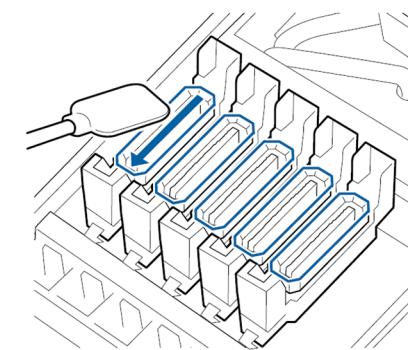
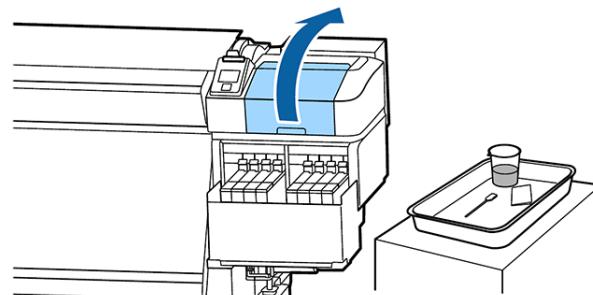
5. Press the [▲]/[▼] buttons to select **Regular Cleaning**, and then press the [OK] button two times.

The print head moves to the cleaning position.

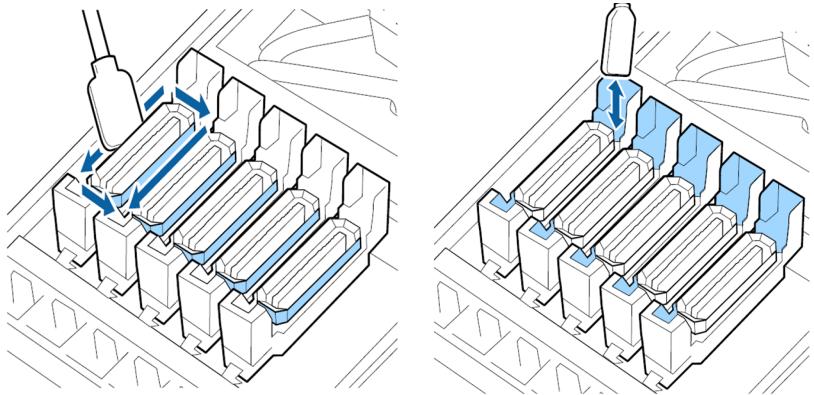


The buzzer sounds 10 minutes after the print head is moved (default setting). Press the [OK] button to continue the cleaning process. After 10 more minutes have passed, the buzzer sounds again.

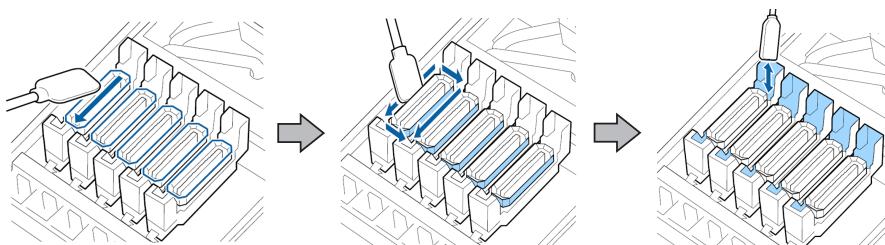
6. Open the right-side maintenance cover.



8. Hold the cleaning stick perpendicularly and wipe the outer areas of all the caps and the inside of all the guides.



9. Replace the cleaning stick with a dry new one, wipe all stain and ink cleaner on the edges of the caps, outer areas of the caps, and inside of the guides.



Points to note when cleaning caps

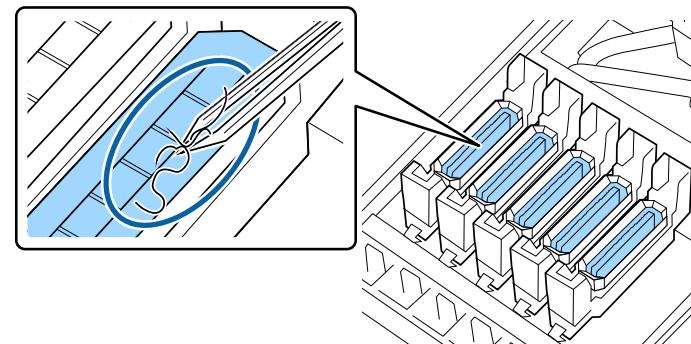
- Is there any lint attached to the inside of the cap?

If they are not dirty: Cleaning is complete. Proceed to [step 10](#).

If they require cleaning: See the following sections and perform the necessary cleaning.

When there is lint or dust in the cap

Remove using the tip of the cleaning stick or tweezers.



If no other parts need to be cleaned, proceed to [step 10](#).

10. Close the right-side maintenance cover and press the [OK] button.

11. The menus will close when the print head returns to its normal position. To continuously make prints, perform Nozzle Check.

5.6 Lubrication

This section describes necessary lubrication to maintain the functions and performance of this printer. Make sure to properly lubricate the parts/units specified in this section as necessary when replacing or maintaining them.



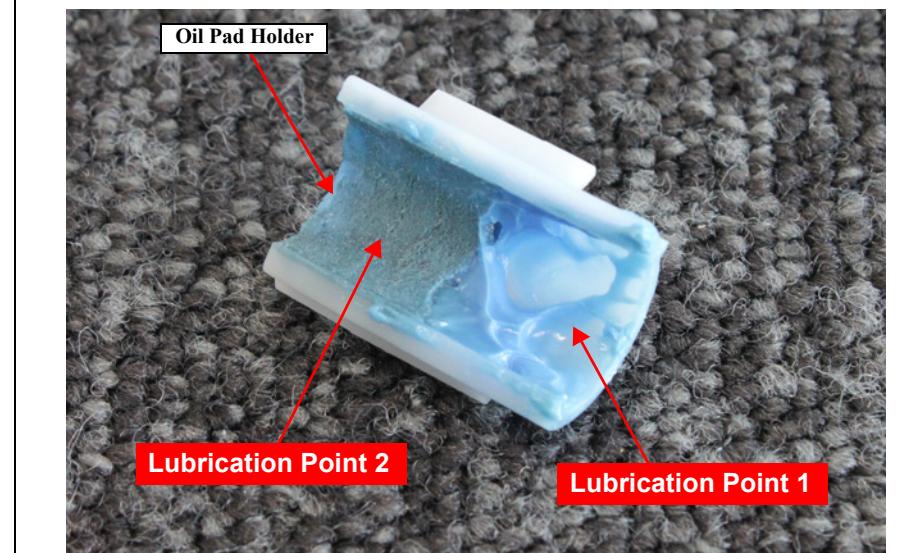
- Make sure to perform the lubrication following the specified lubrication points, lubricants, and amount. Otherwise, the printer may not operate normally.
- When lubricating the originally installed parts, first wipe off the old lubricant completely.

Table 5-3. Lubrication Points List

Lubrication No.	Corresponding Part	Name of Lubricant	Lubrication Tool	Reference
1	OIL PAD HOLDER (RIGHT/LEFT)	Part name: G-84 Part code: 1516265	φ 2 mm injector	p.334
		Part name: O-17 Part code: 1521154		
2	SUB SHAFT, OIL HOLDER	Part name: G-84 Part code: 1516265	φ 2 mm injector	p.335
3	ROLL CORE HOLDER (RIGHT/LEFT)	Part name: G-81 Part code: 1574337	Flux dispenser	p.335
4	MAIN SHAFT CR ASSY	Part name: G-84 Part code: 1516265	---	p.336
5	SUB SHAFT CR ASSY	Part name: G-84 Part code: 1516265	---	p.336

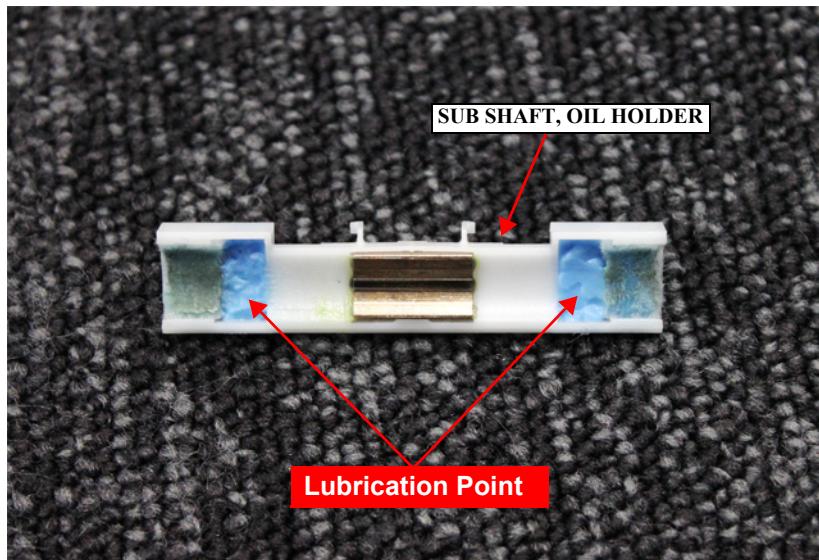
[Lubrication 1]

Part Name	Oil pad holder (Right/Left)
Lubricant (Part Code)	1. G-84 (1516265) 2. O-17 (1521154)
Amount	1. 0.6 cc 2. Oil only: 0.09 - 0.11g, Pad included: 0.11 - 0.13g
Lubrication Tool	φ 2 mm injector
Lubrication Manner	Take out the Oil pad holder. (p.175) 1. Apply the lubrication with an injector. 2. Soak the oil pad with oil.
Note	Be careful not to apply lubricant beyond the specified point.



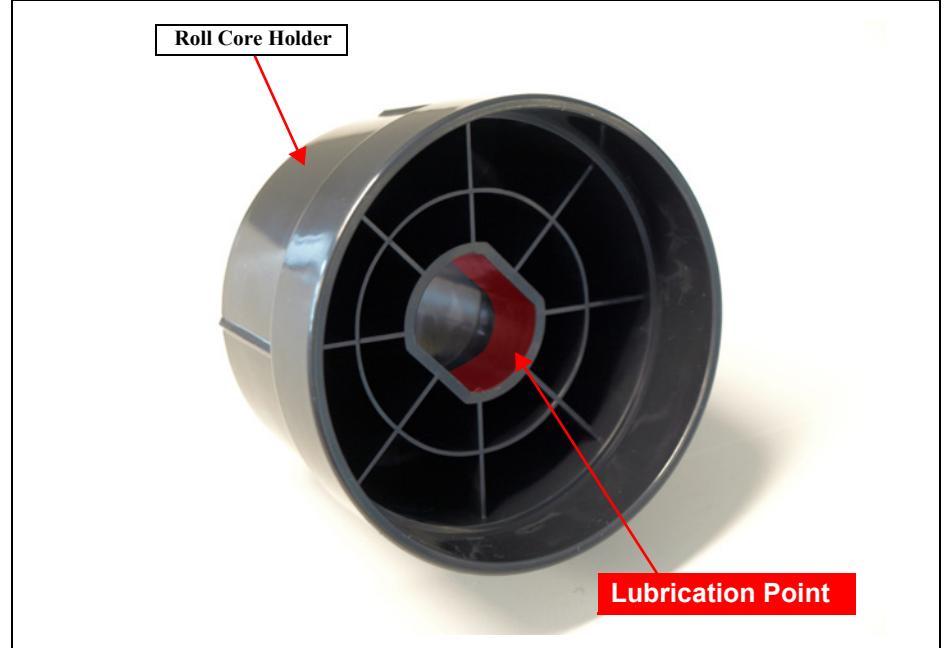
[Lubrication 2]

Part Name	SUB SHAFT, OIL HOLDER
Lubricant (Part Code)	G-84 (1516265)
Amount	ϕ 2 mm x 0.13g x 2 points
Lubrication Tool	Injector
Lubrication Manner	Apply the lubrication to the portion of the CR slider where it contacts with the secondary axis. Using an injector, apply lubricant so as to fill in the grooves.
Note	Be careful not to apply lubricant on the areas other than the specified points.



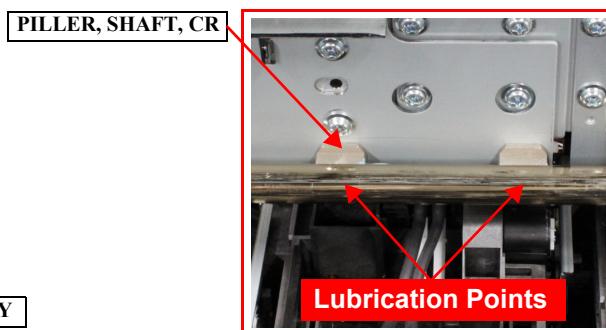
[Lubrication 3]

Part Name	ROLL CORE HOLDER (RIGHT/LEFT)
Lubricant (Part Code)	G-81 (1574337)
Amount	ϕ 3 mm x whole circumference
Lubrication Tool	Brush
Lubrication Manner	After lubrication, spread the lubricant over the entire area with a brush.
Note	---



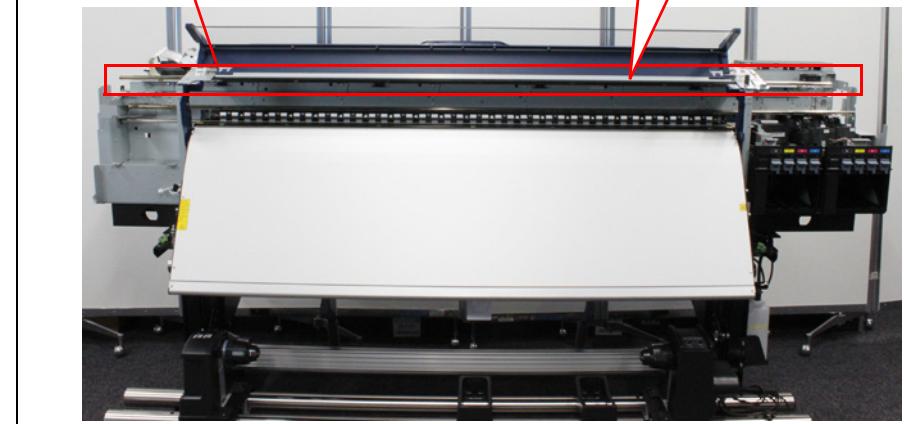
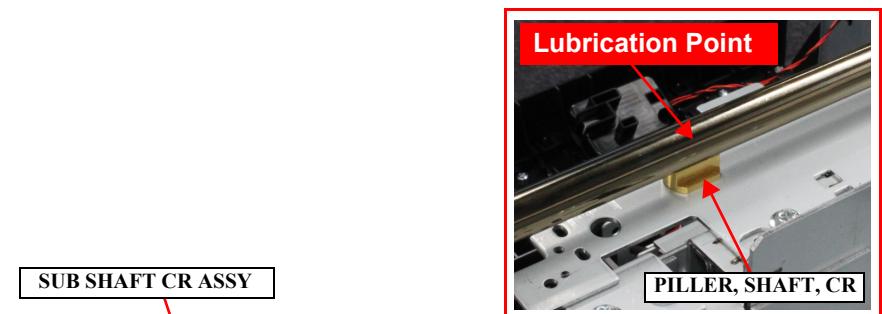
[Lubrication 4]

Part Name	MAIN SHAFT CR ASSY
Lubricant (Part Code)	G-84 (1516265)
Amount	φ 4 mm x 8 mm x 9 points
Lubrication Tool	---
Lubrication Manner	<ol style="list-style-type: none"> 1. Lubricate using the PILLER, SHAFT, CR as a guide. 2. After lubrication, spread the lubricant over the entire shaft evenly.
Note	---



[Lubrication 5]

Part Name	SUB SHAFT CR ASSY
Lubricant (Part Code)	G-84 (1516265)
Amount	φ 4 mm x 8 mm x 7 points
Lubrication Tool	---
Lubrication Manner	<ol style="list-style-type: none"> 1. Lubricate using the PILLER, SHAFT, CR as a guide. 2. After lubrication, spread the lubricant over the entire shaft evenly.
Note	---

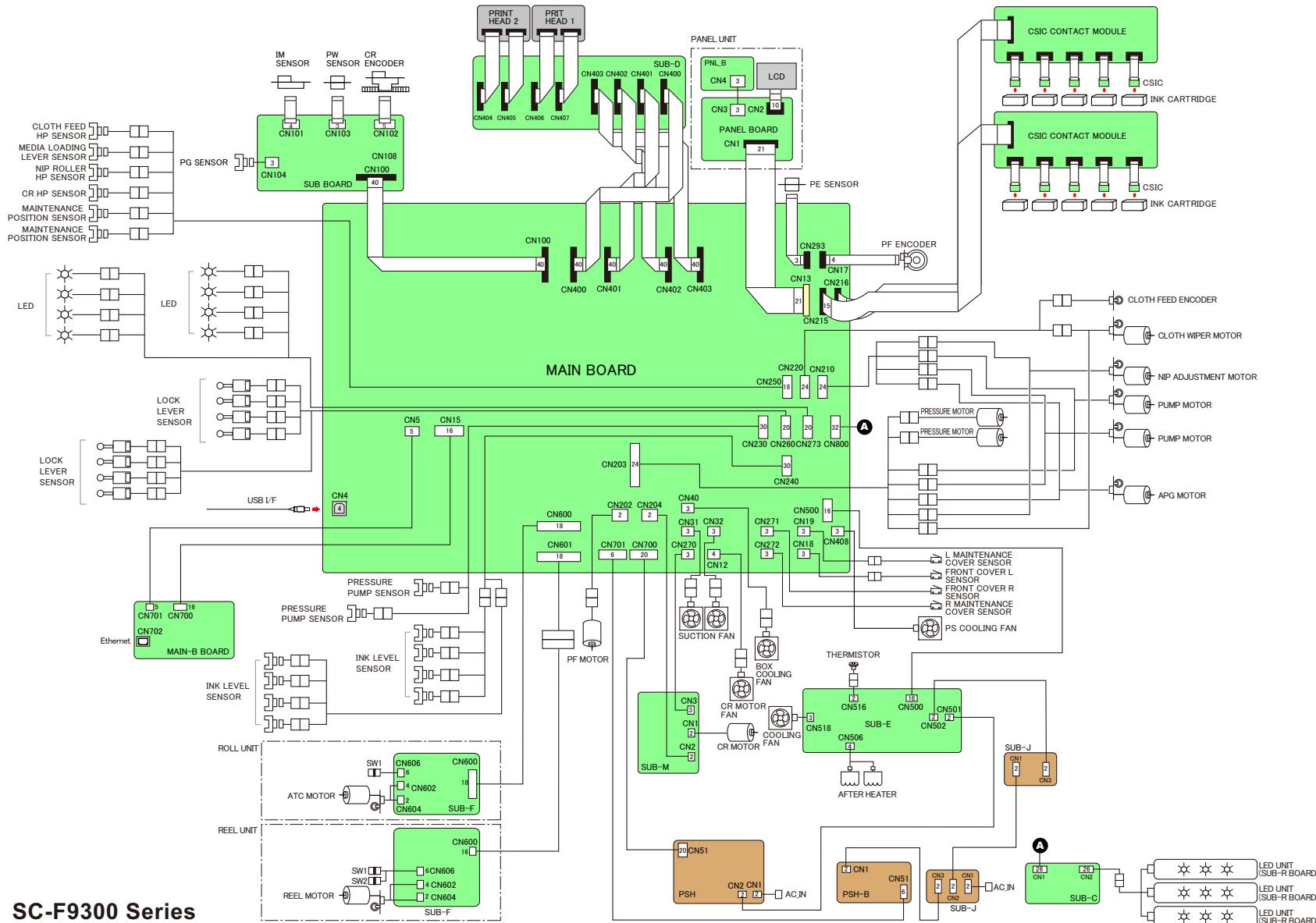


CHAPTER

6

APPENDIX

6.1 Block Wiring Diagram



6.2 Connection Diagram

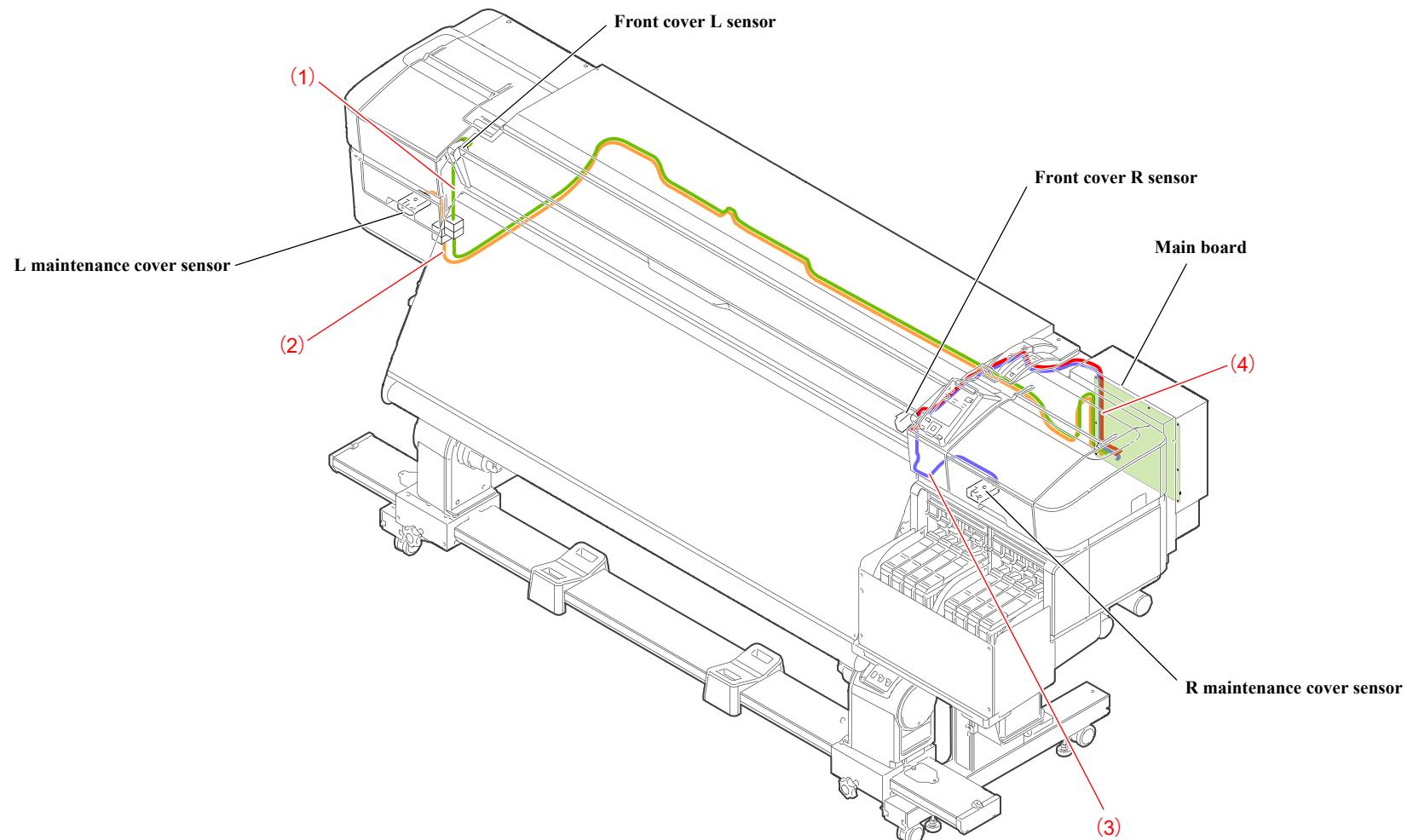
Table 6-1. Connection Diagram List

Parts		Ref. (Ch3 sec.No.)	
Housing	Panel unit (panel board)	P. 341	3.4.2.1
	L maintenance cover sensor	P. 340	3.4.2.8
	R maintenance cover sensor	P. 340	3.4.2.13
	Front cover R sensor	P. 340	3.4.2.14
	Front cover L sensor	P. 340	3.4.2.15
Electric circuit components	Box cooling fan	P. 352	3.4.3.7
	PS board cooling fan	P. 352	3.4.3.8
	LED board	P. 341	3.4.3.9
Carriage mechanism/Ink system mechanism	Head FFC	P. 347	3.4.4.4
	Head relay FFC	P. 347	3.4.4.5
	CR FFC	P. 347	3.4.4.6
	CR motor	P. 349	3.4.4.9
	CR motor cooling fan	P. 352	3.4.4.10
	CR HP sensor	P. 349	3.4.4.11
	CR encoder	P. 348	3.4.4.12
	APG motor	P. 349	3.4.4.13
	PG HP sensor	P. 348	3.4.4.14
	Pump cap unit (Full)	P. 344	3.4.4.15
	Pump cap unit (Home)	P. 345	3.4.4.15
	Ink holder (Home)	P. 342	3.4.4.16
	Ink holder (Full)	P. 343	3.4.4.16
	PW sensor	P. 348	3.4.4.21
	IM sensor	P. 348	3.4.4.22
	Cloth wiper assy	P. 346	3.4.4.23

Table 6-1. Connection Diagram List

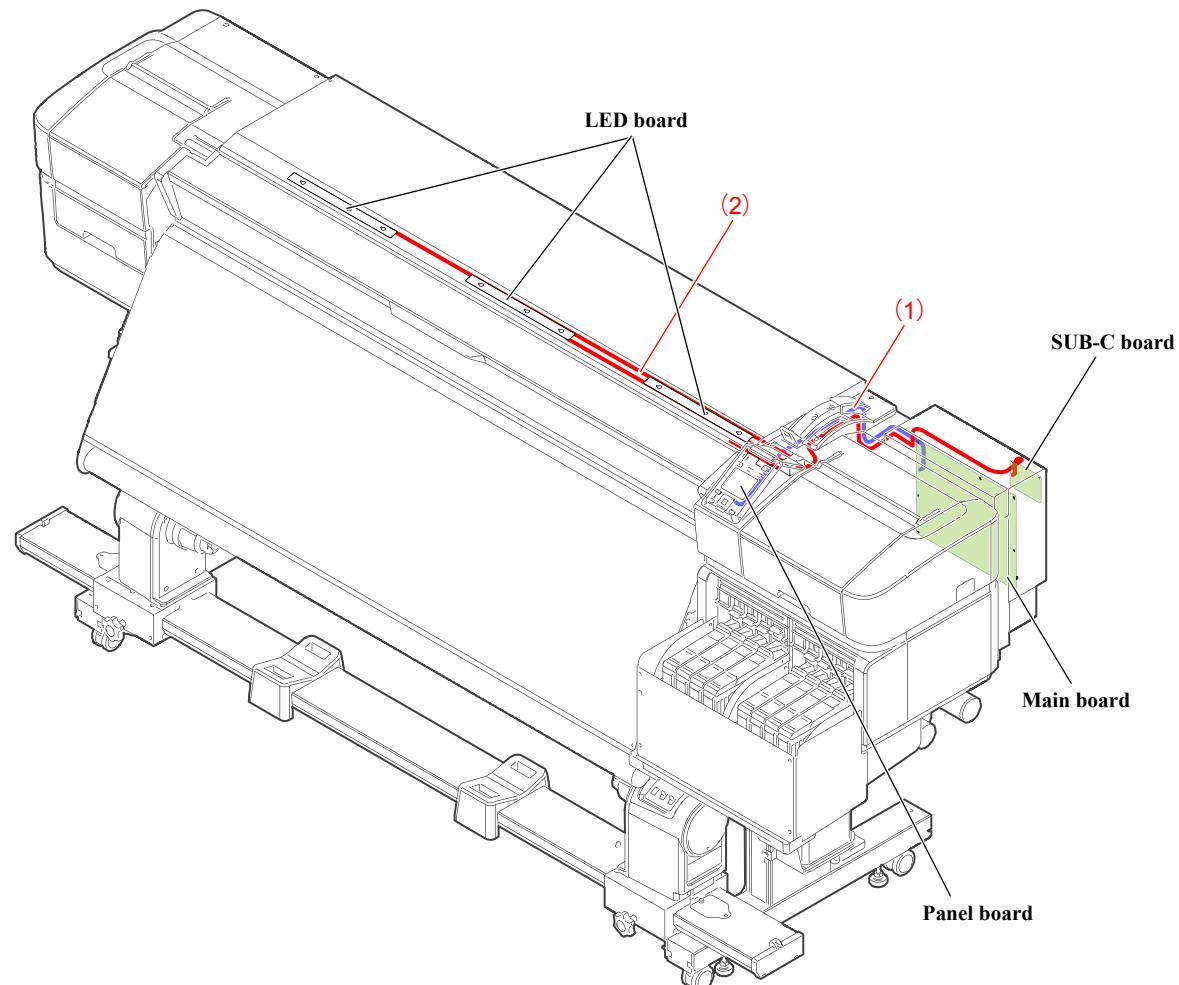
Parts	Ref. (Ch3 sec.No.)
Paper feed mechanism	Media loading lever sensor
	PF motor
	PF encoder
	Suction fan
	PE sensor
	Nip adjust motor
	Nip roller HP sensor
Heater mechanism	After heater
	Cooling fan

Sensors



Cable No.	Connection		Cable No.	Connection	
1	Front cover L sensor	Relay cable (Main board (CN18))	2	L maintenance cover sensor	Relay cable (Main board (CN19))
3	R maintenance cover sensor	Main board (CN272)	4	Front cover R sensor	Main board (CN271)

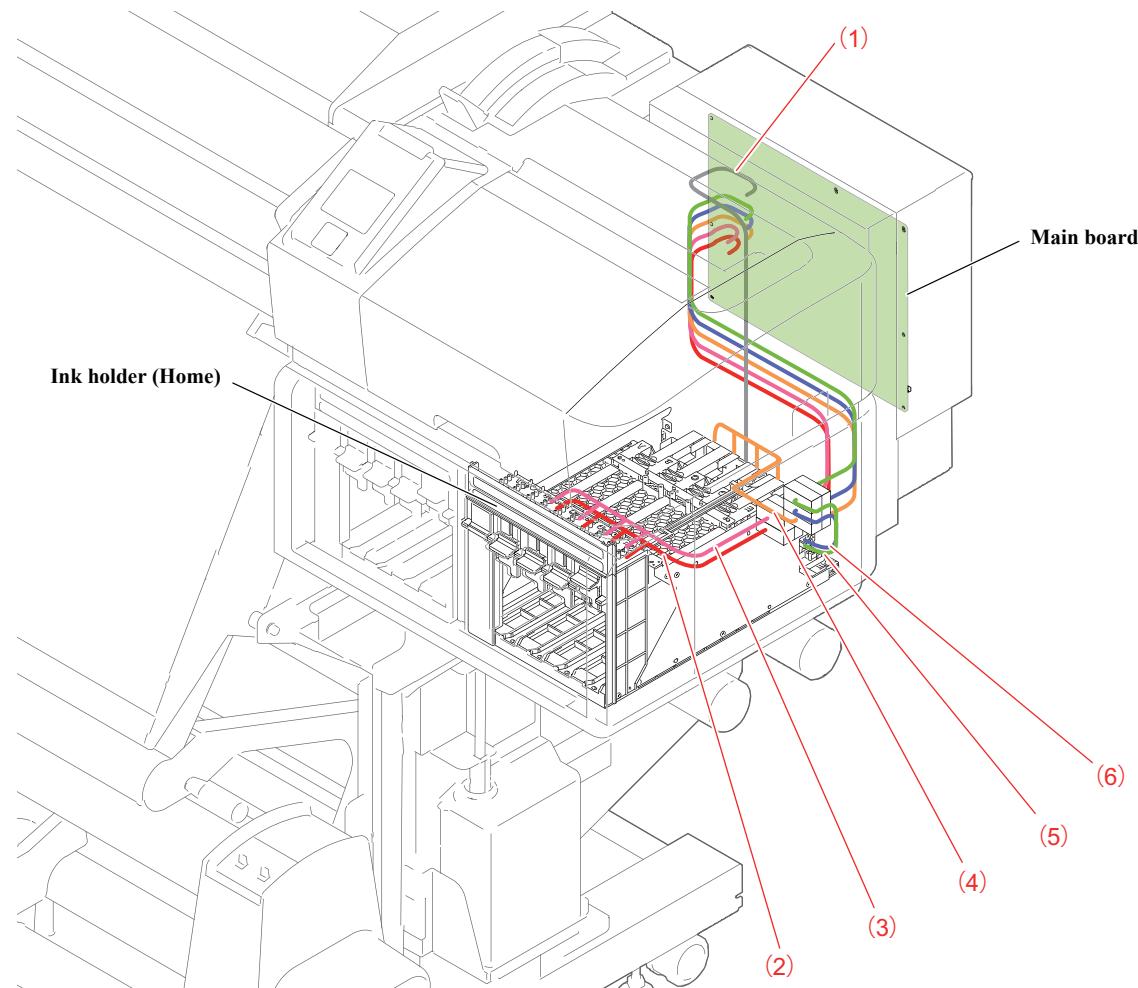
Panel board/LED board



Cable No.*	Connection		Cable No.*	Connection	
1	Panel board	Main board (CN13)	2	LED board	Relay cable (SUB-C board (CN2))

Note "/*": Underline: FFC

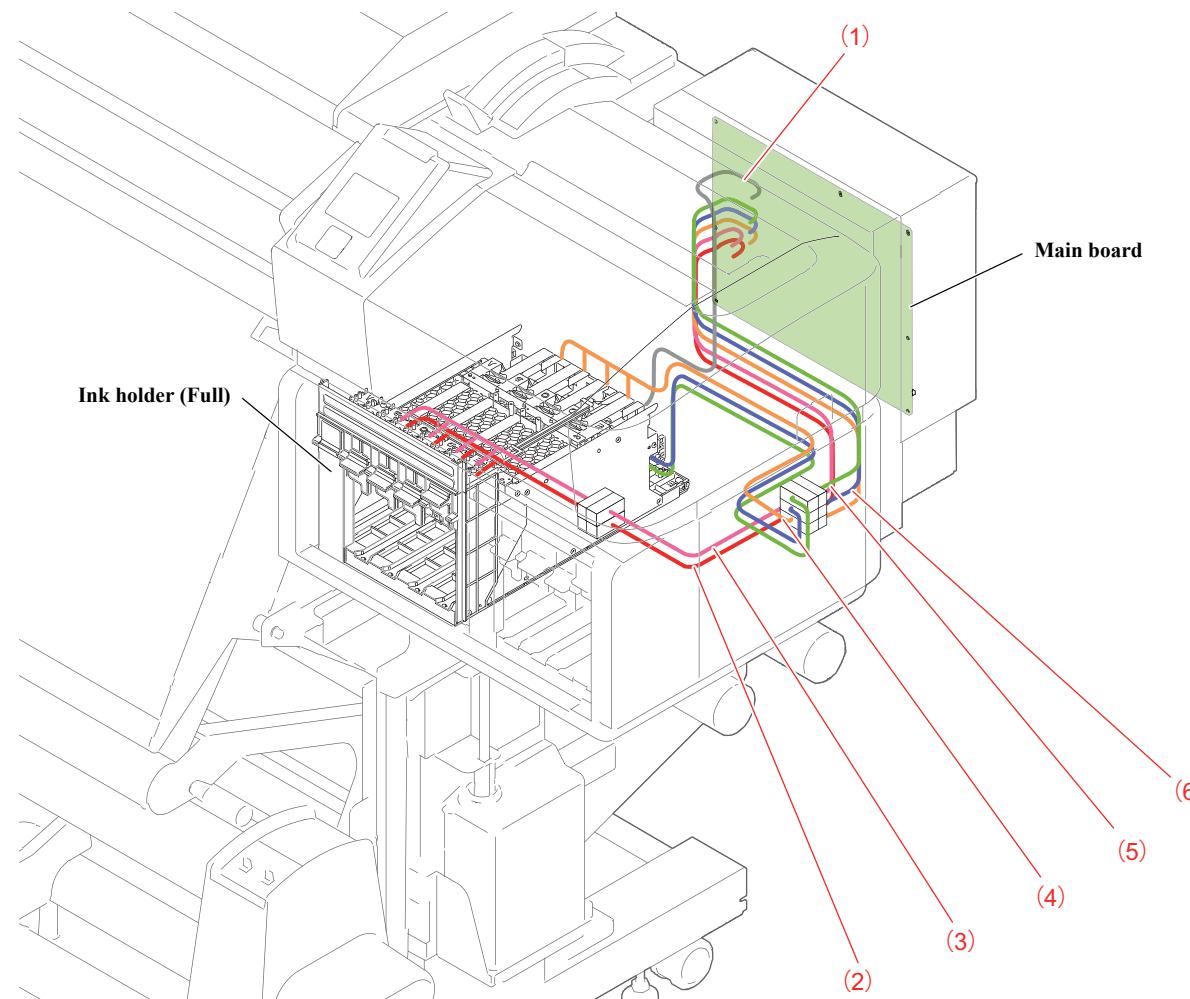
Ink holder (Home)



Cable No.*	Connection		Cable No.*	Connection	
1	CRCM board	Main board (CN215)	2	Cartridge cover sensor	Relay cable (Main board (CN260))
3	LED	Relay cable (Main board (CN273))	4	Ink level sensor	Relay cable (Main board (CN240))
5	Pressure motor	Relay cable (Main board (CN203, CN220))	6	Pressure pump sensor	Relay cable (Main board (CN230))

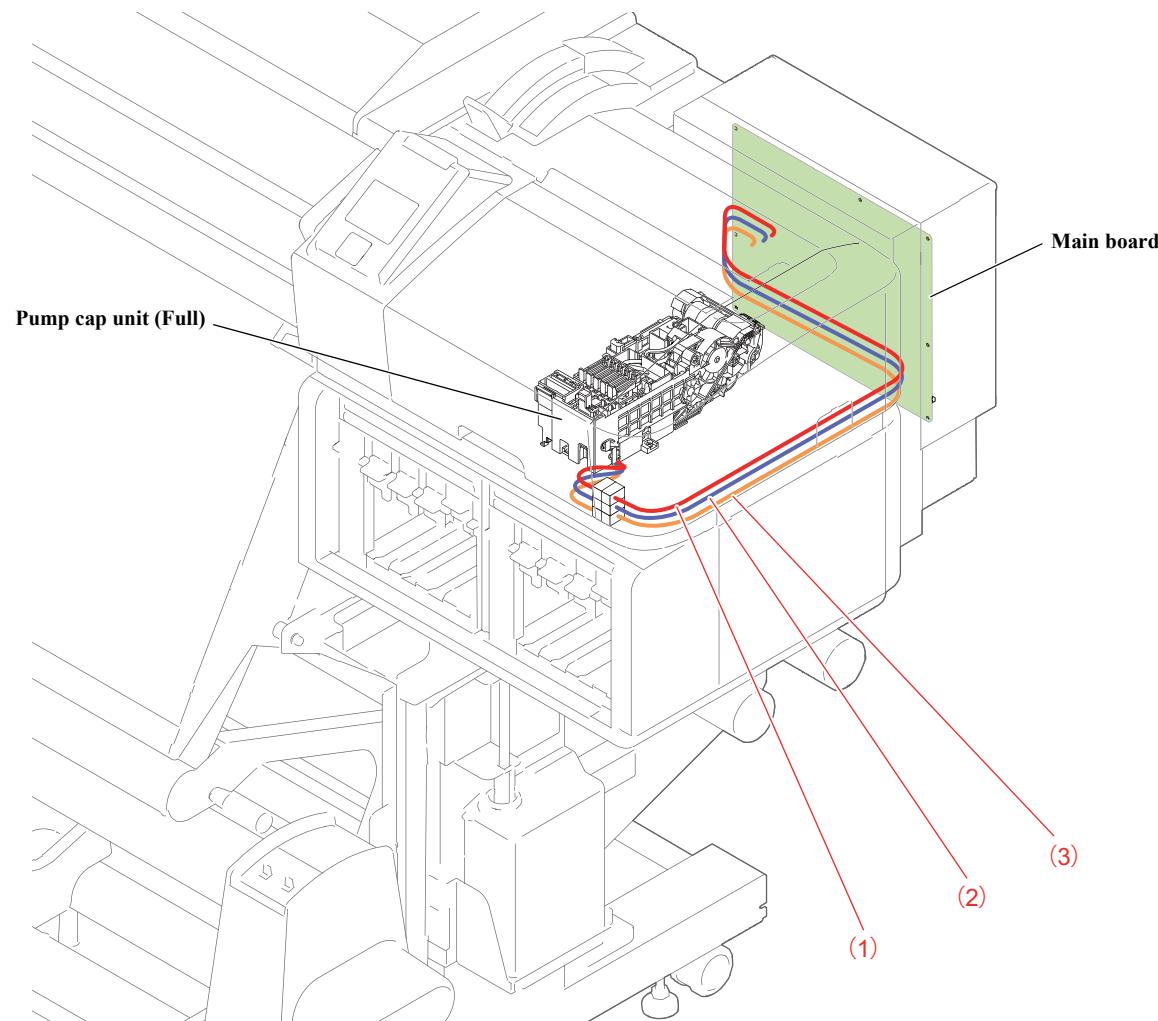
Note "/*": Underline: FFC

Ink holder (Full)



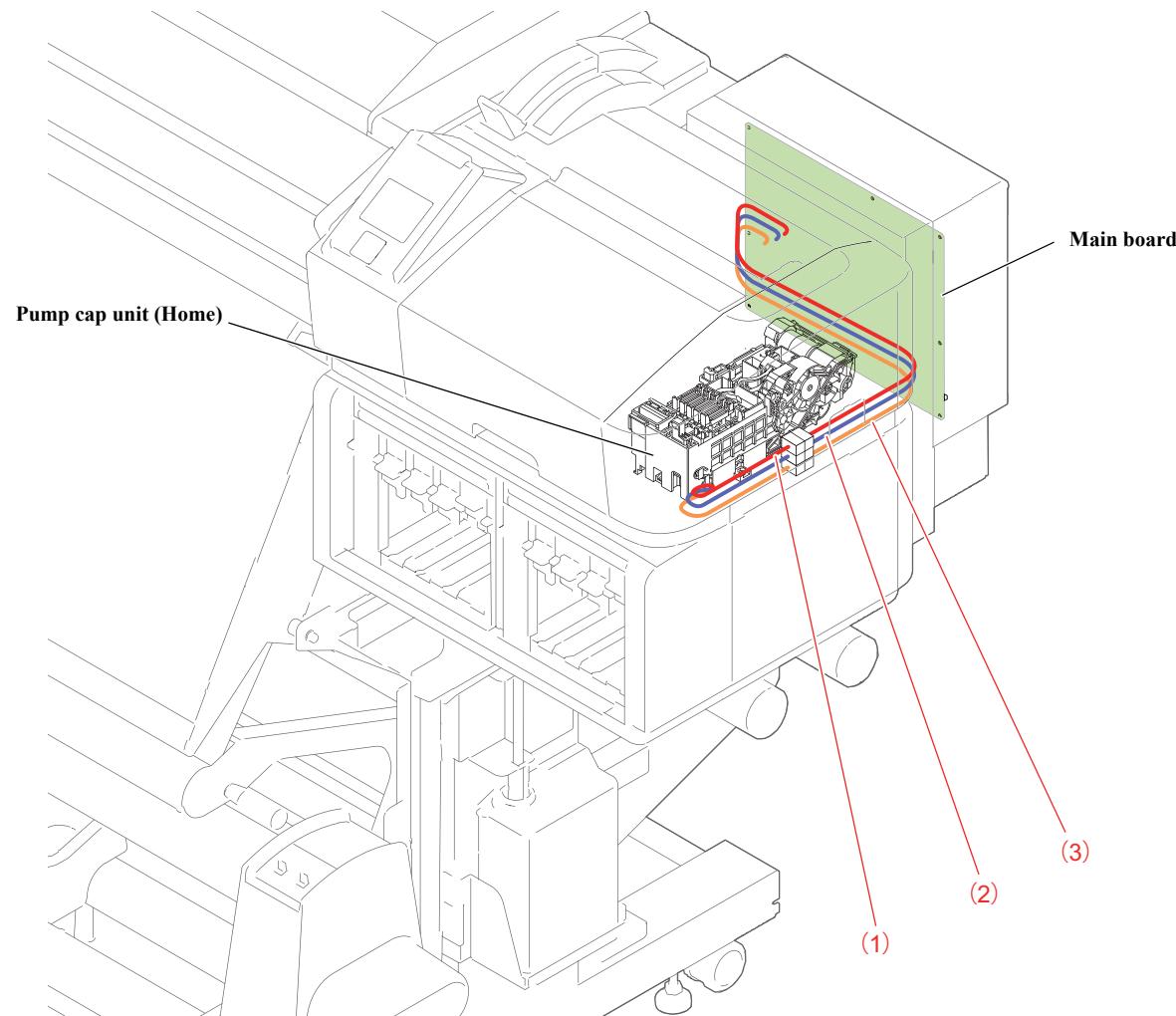
Cable No.*	Connection		Cable No.*	Connection	
1	CRCM board	Main board (CN216)	2	Cartridge cover sensor	Relay cable (Main board (CN260))
3	LED	Relay cable (Main board (CN273))	4	Ink level sensor	Relay cable (Main board (CN240))
5	Pressure motor	Relay cable (Main board (CN203, CN220))	6	Pressure pump sensor	Relay cable (Main board (CN230))

Note "/*": Underline: FFC

Pump cap unit (Full)

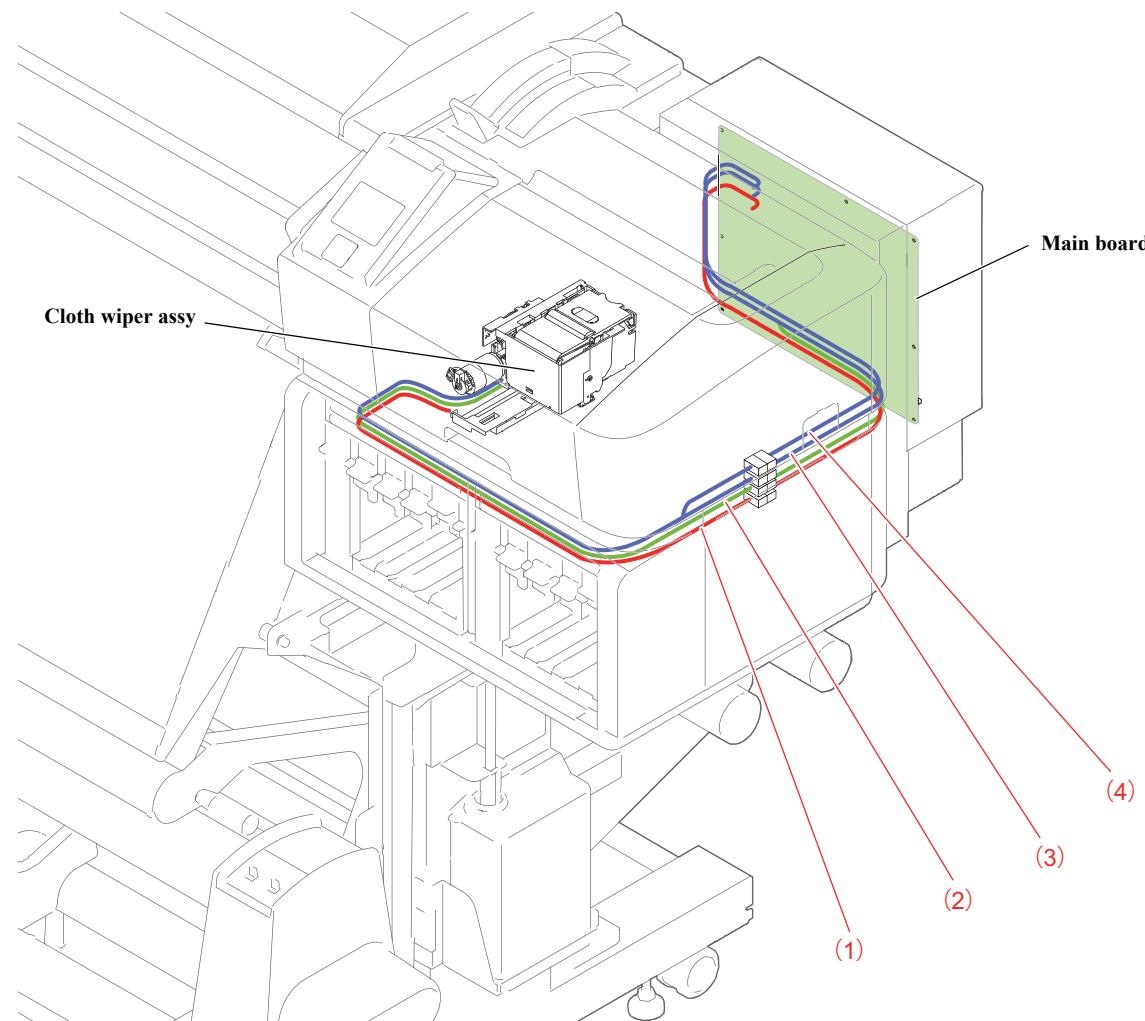
Cable No.	Connection		Cable No.	Connection	
1	Pump motor	Relay cable (Main board (CN203))	2	Pump motor	Relay cable (Main board (CN210))
3	Maintenance position sensor	Relay cable (Main board (CN250))			

Pump cap unit (Home)



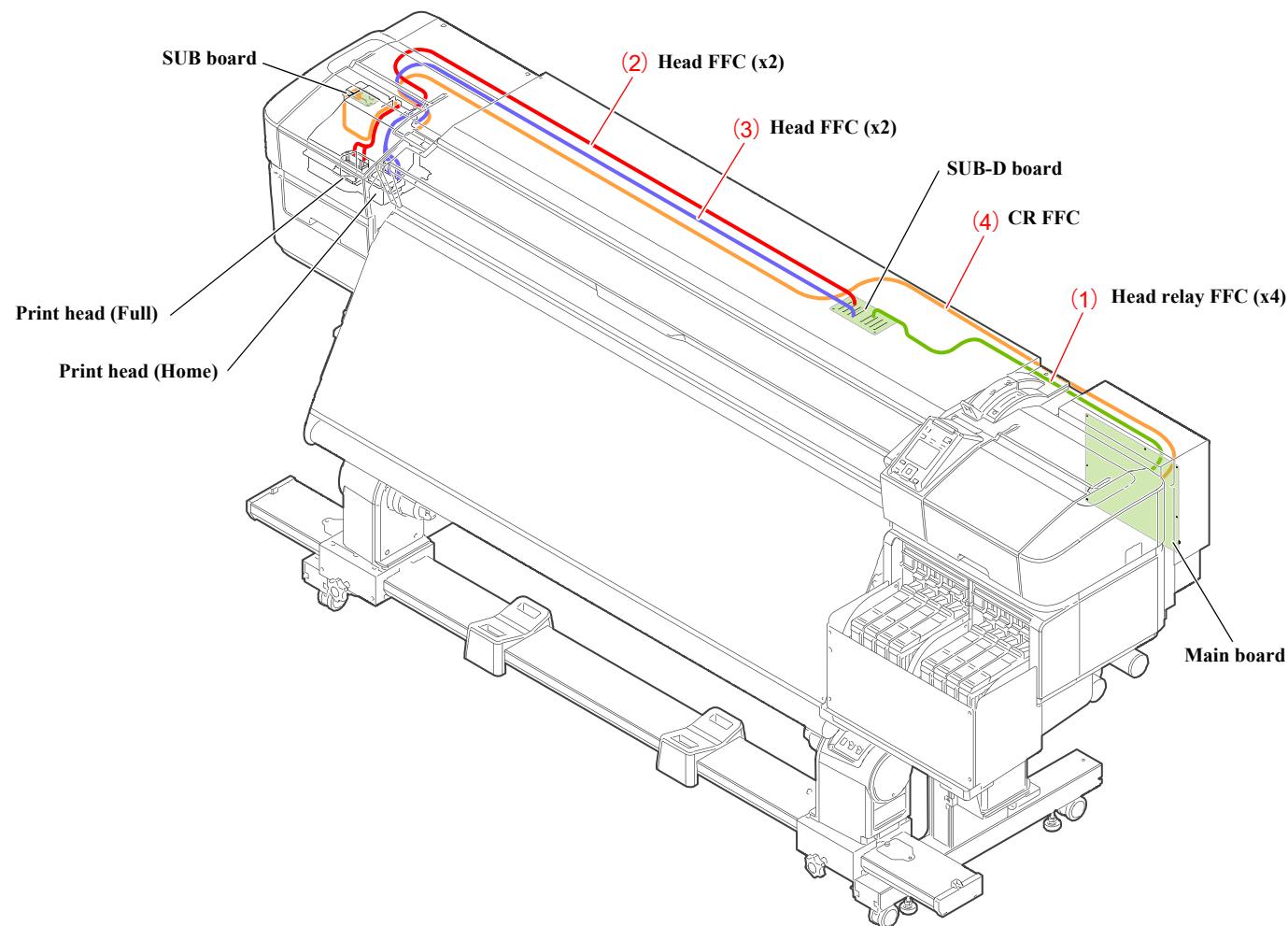
Cable No.	Connection		Cable No.	Connection	
1	Pump motor	Relay cable (Main board (CN203))	2	Pump motor	Relay cable (Main board (CN210))
3	Maintenance position sensor	Relay cable (Main board (CN250))			

Cloth wiper assy



Cable No.	Connection		Cable No.	Connection	
1	Cloth feed HP sensor	Relay cable (Main board (CN250))	2, 3, 4	Cloth feed encoder/Cloth feed motor	Relay cable (Main board (CN23, CN220))

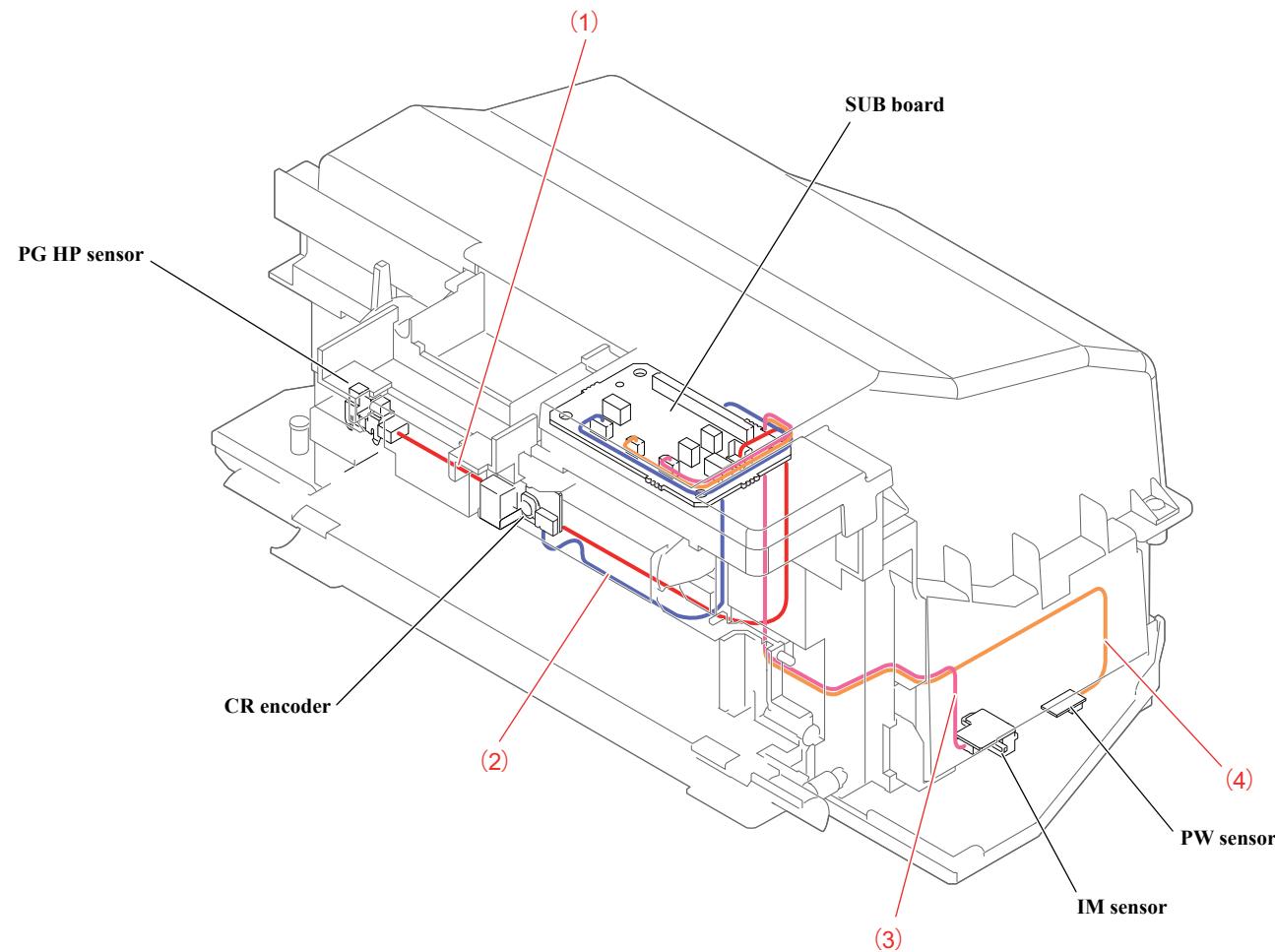
Print head



Cable No.*	Connection		Cable No.*	Connection	
<u>1</u>	SUB-D board (CN400, CN401, CN402, CN403)	Main board (CN400, CN401, CN402, CN403)	<u>2</u>	Print head (Full)	SUB-D board (CN406, CN407)
<u>3</u>	Print head (Home)	SUB-D board (CN404, CN405)	<u>4</u>	SUB board (CN100)	Main board (CN100)

Note "/*": Underline: FFC

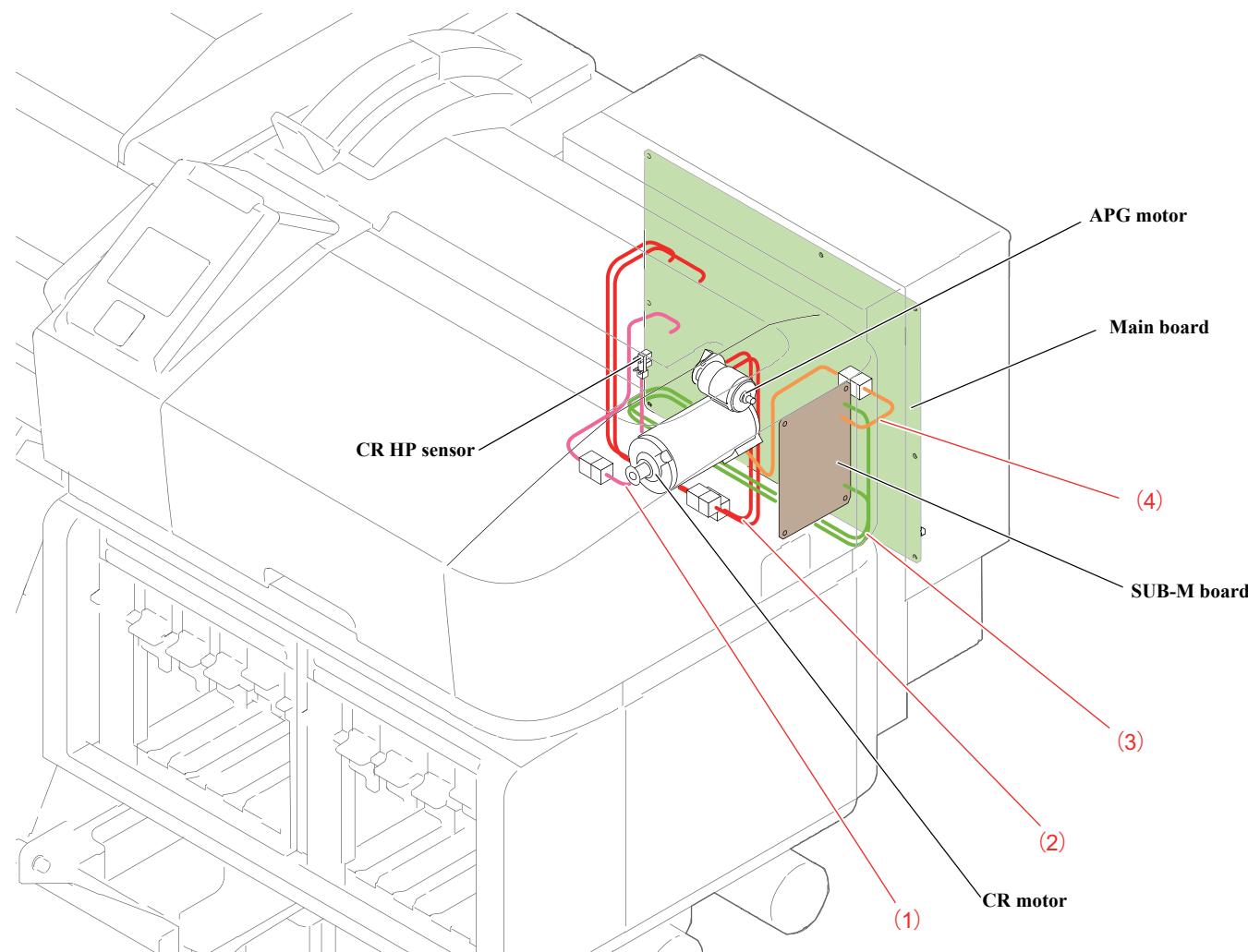
Carriage unit



Cable No.*	Connection		Cable No.*	Connection	
1	PG HP sensor	SUB board (CN104)	2	CR encoder	SUB board (CN102)
3	IM sensor	SUB board (CN101)	4	PW sensor	SUB board (CN103)

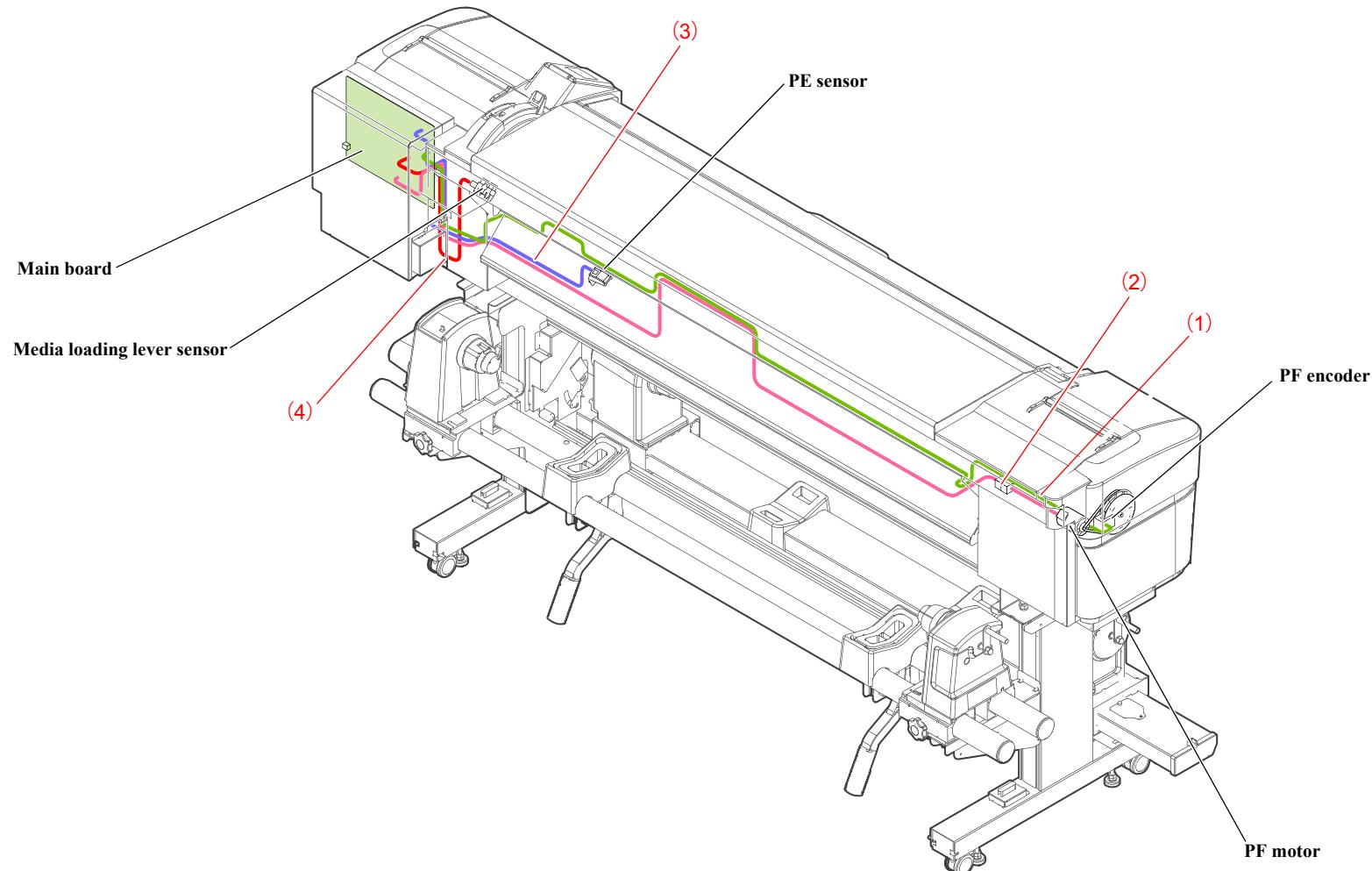
Note "*": Underline: FFC

Carriage movement mechanism



Cable No.	Connection		Cable No.	Connection	
1	CR HP sensor	Relay cable (Main board (CN250))	2	APG motor	Relay cable (Main board (CN203, CN210))
3	SUB-M board (CN2, CN3)	Relay cable (Main board (CN204, CN270))	4	CR motor	Relay cable (SUB-M board (CN1))

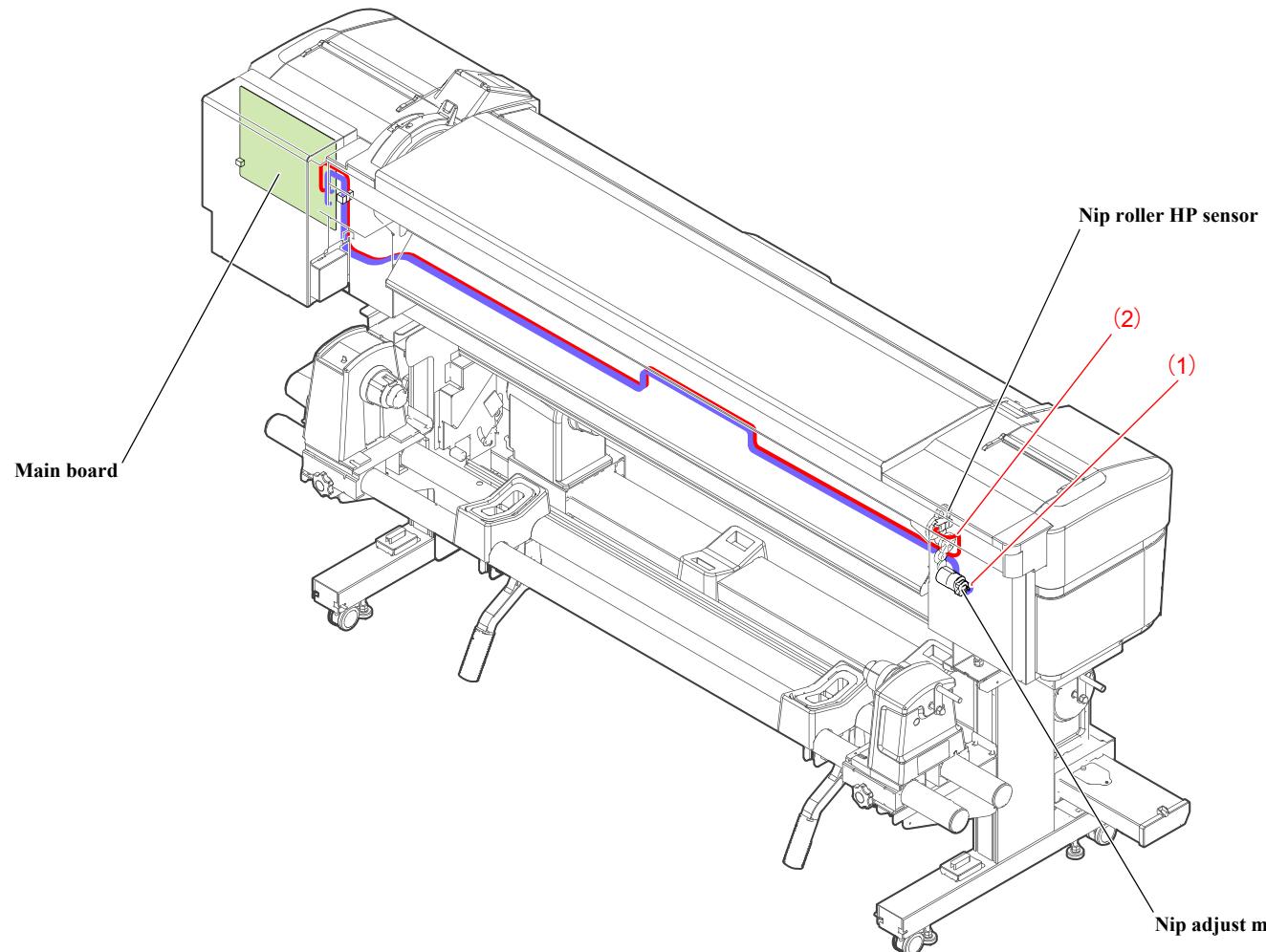
Paper feed mechanism



Cable No.*	Connection		Cable No.*	Connection	
<u>1</u>	PF encoder	Main board (CN17)	2	PF motor	Relay cable (Main board (CN202))
<u>3</u>	PE sensor	Main board (CN293)	4	Media loading lever sensor	Relay cable (Main board (CN250))

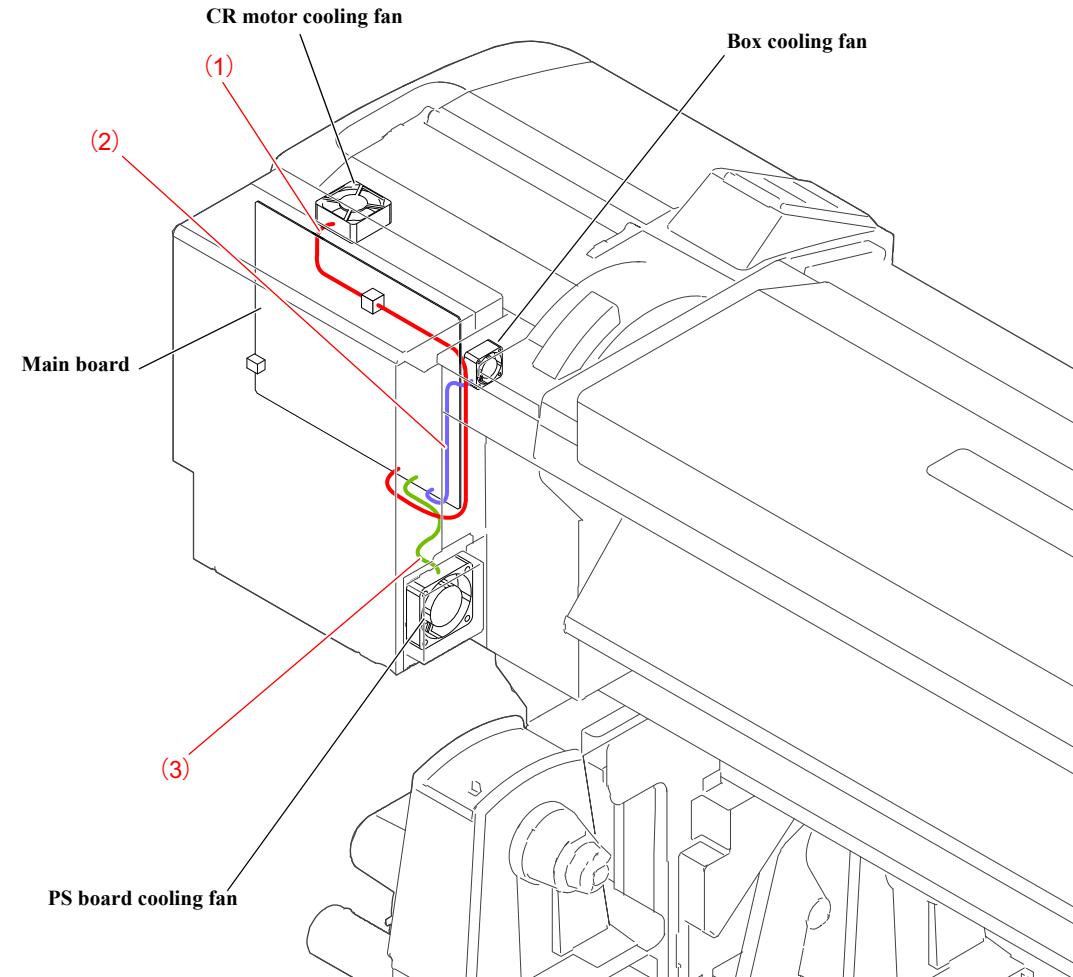
Note "/*": Underline: FFC

□ Nip rollers

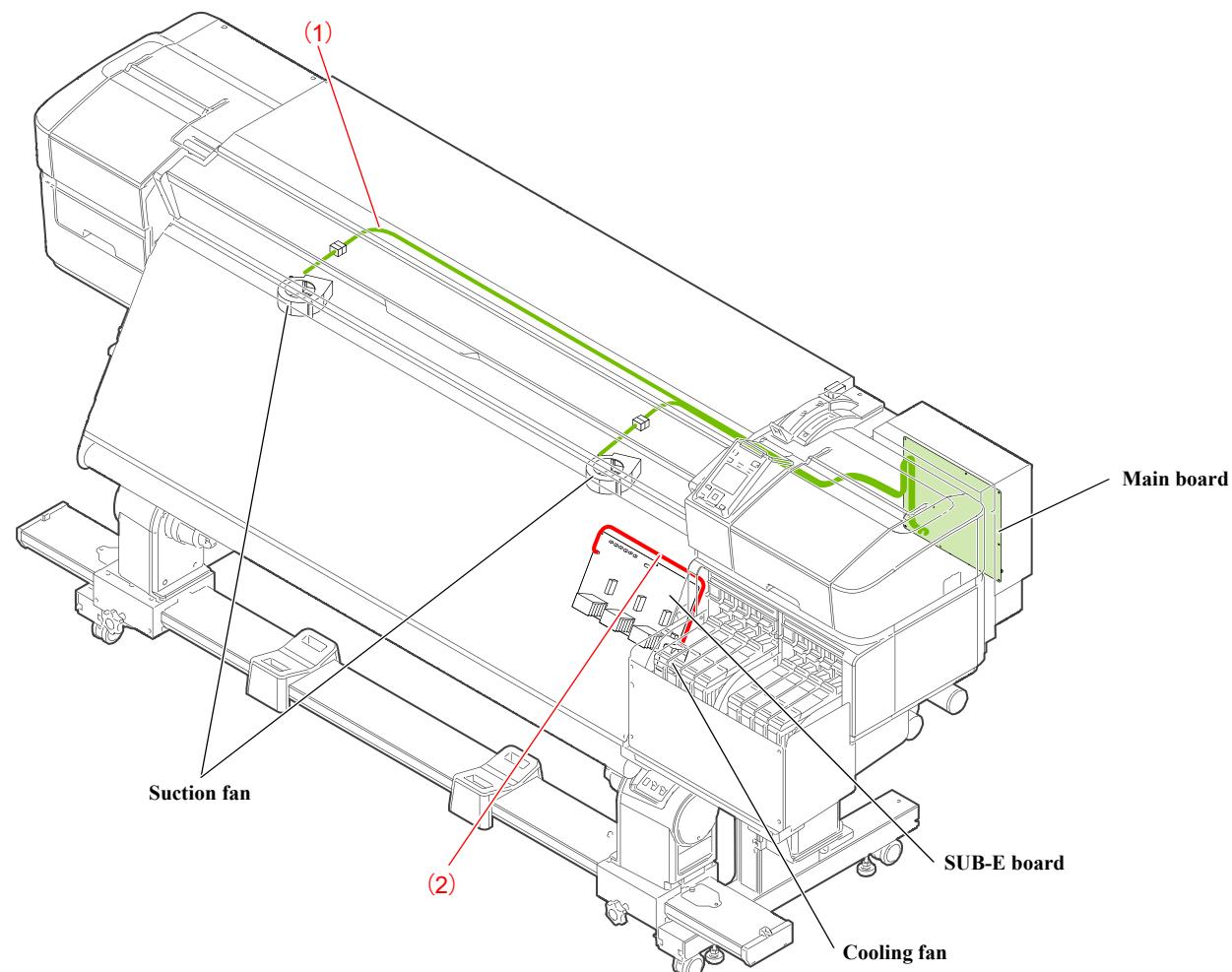


Cable No.	Connection		Cable No.	Connection	
1	Nip adjust motor	Relay cable (Main board (CN203, CN210))	2	Nip roller HP sensor	Relay cable (Main board (CN250))

Fans (1)

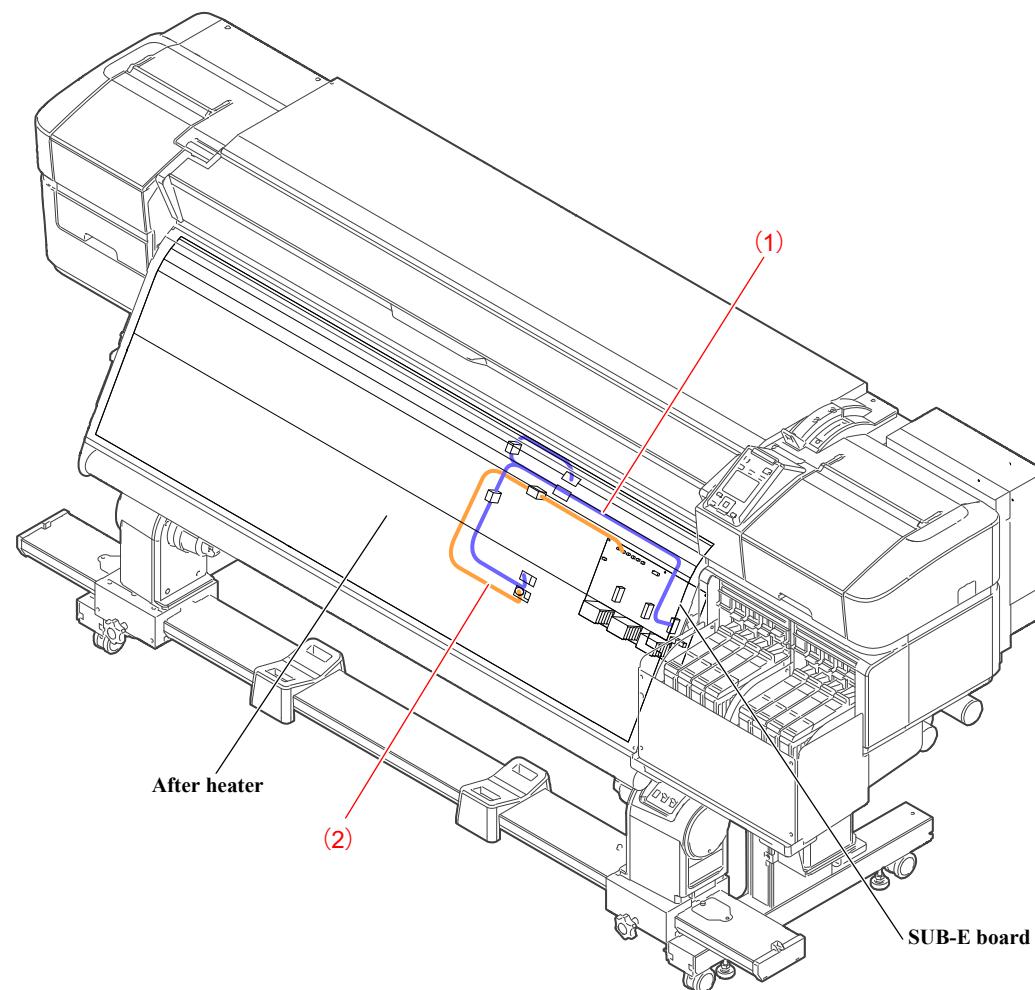


Cable No.	Connection		Cable No.	Connection	
1	CR motor cooling fan	Relay cable (Main board (CN12))	2	Box cooling fan	Main board (CN408)
3	PS board cooling fan	Main board (CN40)			

Fans (2)

Cable No.	Connection		Cable No.	Connection	
1	Suction fan	Relay cable (Main board (CN31, CN32))	2	Cooling fan	SUB-E board (CN518)

After heater

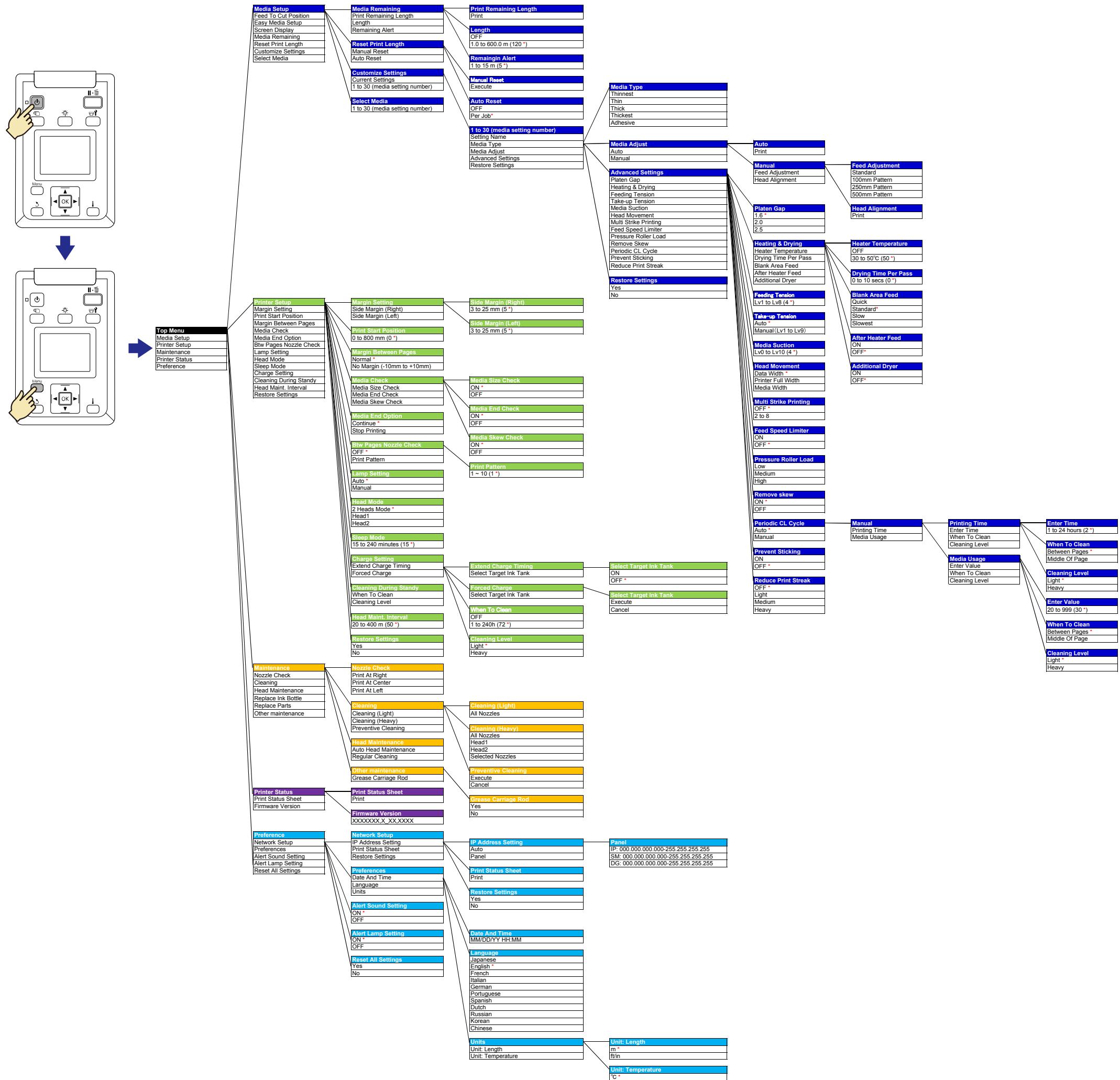


Cable No.	Connection	Cable No.	Connection		
1	After heater	Relay cable (SUB-E board (CN506))	2	Thermistor	Relay cable (SUB-E board (CN516))

6.3 Panel Menu Map

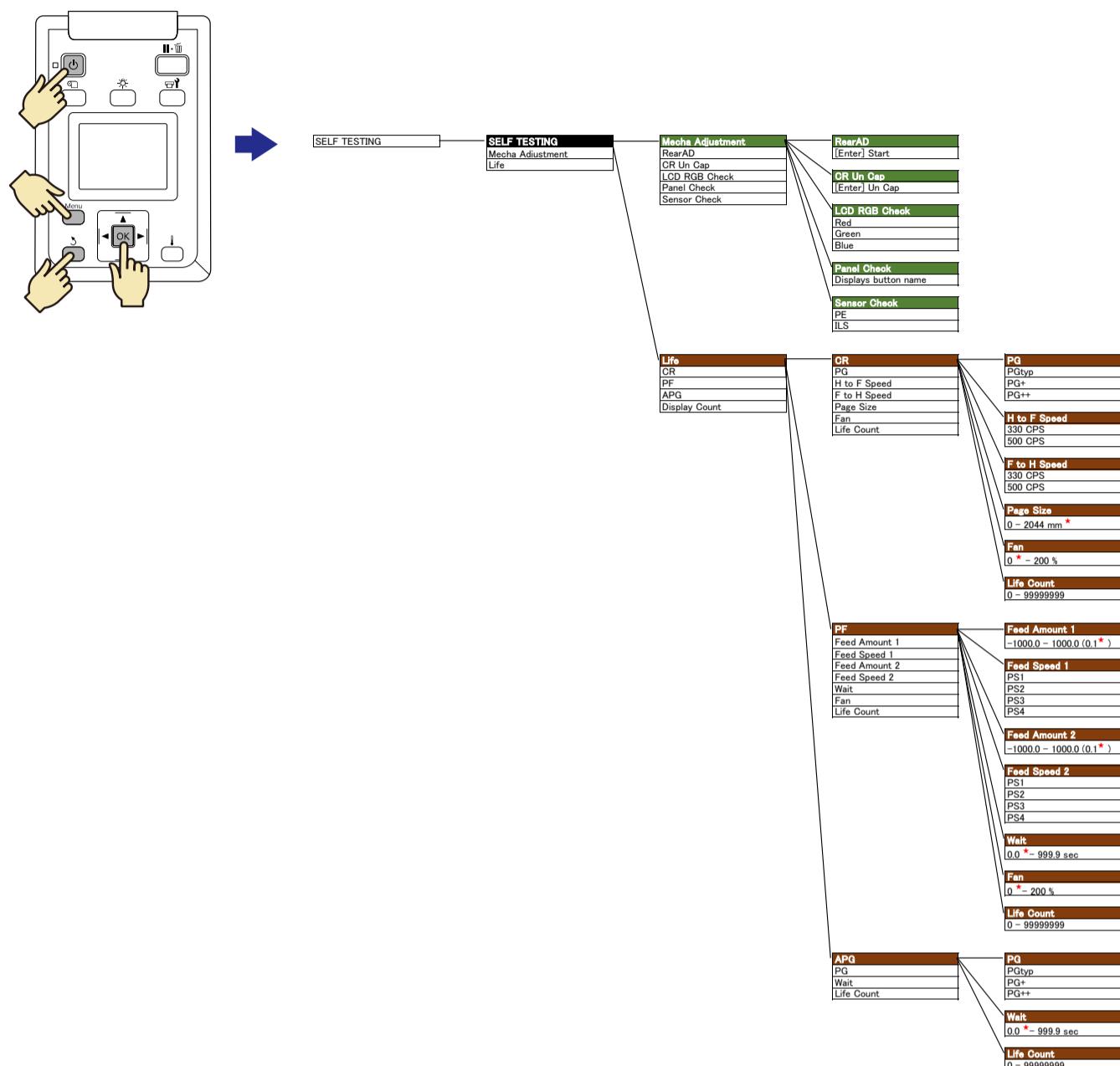
User menu

*: Default value



■サービスマンモード メニューマップ

★:初期値



6.4 Part names used in this manual

To make it easier to locate the target part from its part name, this manual uses the part names different from the ASP part names. The table below shows the conversion of the part names used in this manual and the corresponding ASP part names.

Table 6-2. Conversion Table

Part name used in this manual	ASP part name	Ref. (Ch3 sec.No.)
Housing	Panel unit	<input type="checkbox"/> COVER, TOP, PANEL; B <input type="checkbox"/> PANEL ASSY ESL; ASP
	Right upper cover	<input type="checkbox"/> COVER, SIDE, RIGHT, UPPE R; B <input type="checkbox"/> COVER TOP RIGHT ASSY ESL; ASP <input type="checkbox"/> COVER, MAINTENANCE, R IGHT, ASSY; ASP <input type="checkbox"/> COVER, MAINTENANCE; B
	Lower ink holder	N/A
	Right front cover	<input type="checkbox"/> COVER, FRONT, RIGHT, 64, ASSY; ST ASP <input type="checkbox"/> COVER, IH
	Right cover	COVER, SIDE, RIGHT, LOWE R ASSY ESL; ASP
	Tube cover cap	CAP, COVER, TUBE; B
	Left upper cover	<input type="checkbox"/> COVER TOP LEFT ASSY ESL; ASP <input type="checkbox"/> COVER, MAINTENANCE, L EFT, ASSY., ASP <input type="checkbox"/> COVER, SIDE, LEFT, UPPER; B <input type="checkbox"/> COVER, MAINTENANCE, HEAD; B
	Left front cover	COVER, FRONT, LEFT, 64 ASSY ESL; ASP
	L maintenance cover sensor	FULL, MAINTENANCE OPEN ASSY.CF06; ESL; ASP
	Left cover	COVER, SIDE, LEFT, LOWER ASSY ESL; ASP

Table 6-2. Conversion Table

Part name used in this manual	ASP part name	Ref. (Ch3 sec.No.)
Housing	Upper cover	NA
	Board box cover	NA
	R maintenance cover sensor	INK LOCK,MAINTENANCE,ASS Y.CF06;ESL;ASP
	Front cover R sensor	CABLE,FRONT,COVER,RIGHT
	Front cover L sensor	CABLE,FRONT,COVER,LEFT
Electric Circuit Components	Main board	BOARD ASSY.,MAIN
	Main-B board	BOARD ASSY.,SUB
	PSH board	BOARD ASSY.,POWER SUPPLY
	PSH-B board	BOARD ASSY.,POWER SUPPLY
	Sub board	BOARD ASSY.,SUB
	Sub-E board	BOARD ASSY.,SUB
	Sub-M board	BOARD ASSY.,SUB
	Box cooling fan	FAN SET.DC;ASSY ASP
	Cooling fan	FAN SET. DC (PROPELLER TYPE)
	LED board	BOARD ASSY.,SUB
Carriage Mechanism/ Ink System Mechanism	CR cover	COVER,CR
	Duct CR	<input type="checkbox"/> DUCT,CR ASSY.,R ESL;ASP <input type="checkbox"/> DUCT,CR ASSY.,L ESL;ASP
	Print head	PRINT HEAD,IA522V-9;ASP

Table 6-2. Conversion Table

Part name used in this manual	ASP part name	Ref. (Ch3 sec.No.)	
Carriage Mechanism/ Ink System Mechanism	Head FFC	<input type="checkbox"/> HARNESS,HEAD ASSY,C;ASP <input type="checkbox"/> HARNESS,HEAD;ASSY.,S- C ESL ASP	3.4.4.4
	Head relay FFC	<input type="checkbox"/> HARNESS,HEAD ASSY;ASP <input type="checkbox"/> HARNESS,HEAD;ASSY.,S ESL ASP	
CR FFC	HARNESS,CR	3.4.4.6	
CR scale	SCALE,CR	3.4.4.7	
CR timing belt	BELT,CR	3.4.4.8	
CR motor	MOTOR,ASSY.,CR	3.4.4.9	
CR motor cooling fan	FAN ASSY.,CR	3.4.4.10	
CR HP sensor	NA	3.4.4.11	
CR encoder	BOARD ASSY.,ENCODER	3.4.4.12	
APG motor	MOTOR ASSY.,ASF,SUB	3.4.4.13	
PG HP sensor	NA	3.4.4.14	
Pump cap unit (Home)/(Full)	PUMP,CAP,Assy.,ESL.,ASP	3.4.4.15	
Ink holder (Home) / (Full)	<input type="checkbox"/> IH ASSY.,R ESL;ASP <input type="checkbox"/> IH ASSY.,L ESL;ASP	3.4.4.16	
Ink tube	TUBE INK SUPPLY ASSY.;CE30 ESL;ASP	3.4.4.17	
Flushing box	FLASHING BOX.,Assy;CE44 ESL;ASP	3.4.4.18	
CR unit	CARRIAGE ASSY ESL;CE44 ASP	3.4.4.19	
Oil pad holder	OIL PAD ASSY ESL.,ASP	3.4.4.20	
PW sensor	BOARD ASSY.,DETECTOR,PW;B	3.4.4.21	
IM sensor	BOARD ASSY.,INK MARK;B	3.4.4.22	
Cloth wiper assy	CLOTH WIPER CARRIAGE,Assy ESL;ASP	3.4.4.23	
Ink tank	N/A	3.4.4.24	

Table 6-2. Conversion Table

Part name used in this manual	ASP part name	Ref. (Ch3 sec.No.)	
Paper Feed Mechanism	Media loading lever	KNOB,LEVER	3.4.5.1
	Media loading lever sensor	NA	3.4.5.2
	PF motor	MOTOR ASSY.,PF	3.4.5.3
	PF encoder	BOARD ASSY.,ENCODER,PF	3.4.5.4
	PF scale	SCALE,PF ASSY ESL;ASP	3.4.5.5
	PF timing belt	TIMING BELT,PF	3.4.5.6
	Pressure roller	ROLLER,DRIVEN;B	3.4.5.7
	Suction fan	FAN ASSY ESL;ASP	3.4.5.8
	PE sensor	NA	3.4.5.9
	Nip adjust motor	MOTOR ASSY.,WIPER	3.4.5.10
Heater Mechanism	Nip roller HP sensor	NA	3.4.5.11
	After heater	AFTER HEATER ASSY ESL;ASP	3.4.6.1
	Cooling fan	FAN SET. DC (PROPELLER TYPE)	3.4.6.2
Reel Mechanism	Media guide bar	NA	3.4.7.1
	Right roll core holder	NA	3.4.7.2
Roll Mechanism	Roll flange unit (full/home)	NA	3.4.8.1

6.5 Power-On Sequence

Preconditions

- Started in the normal mode
- Initial ink charge is finished.
- “Printable side out” paper is loaded.
- Driven rollers are nipped.
- Media Setup Roll Type: Printable Side Out; Feed Speed Limiter: OFF; Remove Skew: ON
- Ink is charged.
- All the covers are closed.

Table 6-3. Power-on Sequence

Item (order of execution)	Operation	Purpose	Time
Initialization			
Life diagnosis	-	To diagnose the life of each part and generate a warning or error as necessary.	
Powering on sensors, motors and heaters	Encoder sensors for the motors light red. Clicking noises can be heard from around the power supply board box.	To power on the sensors, motors and heaters.	
Turning on PS board cooling fan	PS board cooling fan rotates.	To operate the PS board cooling fan.	
Turning on suction fans	Suction fans rotate.	To rotate the suction fans for CR unit operations if paper is loaded	
Releasing APG	APG gear moves to the release position. (A faint sound can be heard.)	To release the APG planetary gear for CR unit operations	
Detecting the home position of cloth wiper assy	Cloth wiper assy moves to the front and to the rear once.	To detect the home position of cloth wiper assy	
CR home position seek * When not capped	CR unit moves to the full side slightly, and if it does not touch the end, it enters CR home position seek and then evacuates to the CR evacuation position.	To move CR unit to the home position. But the operation below is skipped.	
Unlocking CR lock and opening the cap	CR lock is unlocked.	To unlock the CR lock and open the cap for CR unit operations	
CR home position seek	CR unit moves to the full side slightly, and then moves to the home side until it touches the end.	To detect the home position of CR unit.	
Switching PG	APG gear rotates and the CR unit moves up and down slightly.	To initialize the PG into the specified position	
CR shaft lubrication * Under specified conditions only	CR unit moves back and forth to the end of full side and then to the end of home side twice.	To move the CR unit within its movable range so as to remove the old hardened grease on the CR shaft and to make the shaft properly lubricated. Specified conditions: when head temperature is 5 degrees C or lower, or when left unpowered for 160 h or longer, or when in power saving mode for 160 h or longer	
CR lock and capping	CR is locked.	To lock the CR lock and cap the CR unit since a series of CR unit operation is complete.	
Turning off PS board cooling fan	PS board cooling fan stops.	To stop PS board cooling fan operation	
Initializing pressure motor position	Pressure motor of the Ink holder operates.	To initialize the pressure motor position (to the pressurizing position)	
Sucking and supplying (ink system)	Pressure motor of the Ink holder operates. (once for suction and once for supply)	To supply ink	
Timer cleaning	When the specified time has passed, cleaning is executed. The panel indicates cleaning is being carried out.	To maintain the print quality	---

Table 6-3. Power-on Sequence

Item (order of execution)	Operation	Purpose	Time
Turning on suction fans	Suction fans rotate.	To rotate the suction fans for CR unit operations if paper is loaded	
Detecting the home position of nipping points	Changes the driven weight positions. (it takes a while.)	To initialize the driven weight positions to the specified positions	
Roll measurement	Roll paper rotates in the unwinding direction (low speed), in the rewinding direction (low speed), in the unwinding direction (high speed), in the rewinding direction (high speed) in that order. Then, paper is fed in the PF section until the roll paper rotates (1 ips).	Operates in two different speeds to obtain the rotational load of roll paper for torque control of ATC. Also, removes the slack between the PF section and roll paper for the following external diameter estimation.	
Estimating roll paper's external diameter	Feeds paper by 3 inches (1 ips).	To estimate the external diameter of roll paper with the amount of fed paper and the amount of rotation of the roll during 3-inch paper feeding.	
Feeding paper up to cut position	Feeds paper by approximately 3.9 inches (2 ips).	To feed paper until the portion without printed images comes up for the following paper width detection	
Nip skew removal * When skew correction is on	Feeds paper approximately 12 inches (2 ips) and switches nipping weight (Lv0), and then feeds the paper back (2 ips) until the amount of paper fed earlier is re-wound.	To remove skew of paper when loading it. Not performed depending on the media settings.	Approx. 54 sec.
Unlocking CR lock and opening the cap	CR lock is unlocked.	To unlock the CR lock and open the cap for CR unit operations	
Paper width detection	CR unit moves to the end of paper on the home side and to the end of paper on the full side, and then to the end of paper on the home side again, and then back to the home position.	To detect the ends of paper using the PW sensor mounted on the CR unit.	
Feeding paper backward	Feed paper back roughly to the set position (2 ips).	To feed paper backward in a way similar to nip skew removal (for wrinkle prevention)	
Switching nipping weight	Changes the driven weight positions.	To move the driven weight back to the specified position since the weight is currently set to Lv0 for Nip skew removal	
Feeding paper to the standby position	Feeds paper (1 ips) until roll paper moves. Feeds paper backward (2 ips) to the set position.	To remove slack between the PF section and roll paper and to feed paper backward to the set position subsequently	
CR lock and capping	CR is locked.	To lock the CR lock and cap the CR unit since a series of CR unit operation is complete.	
Turning off suction fans	Suction fans stop.	To stop suction fan operation	

6.6 Ink System Correlation Diagram

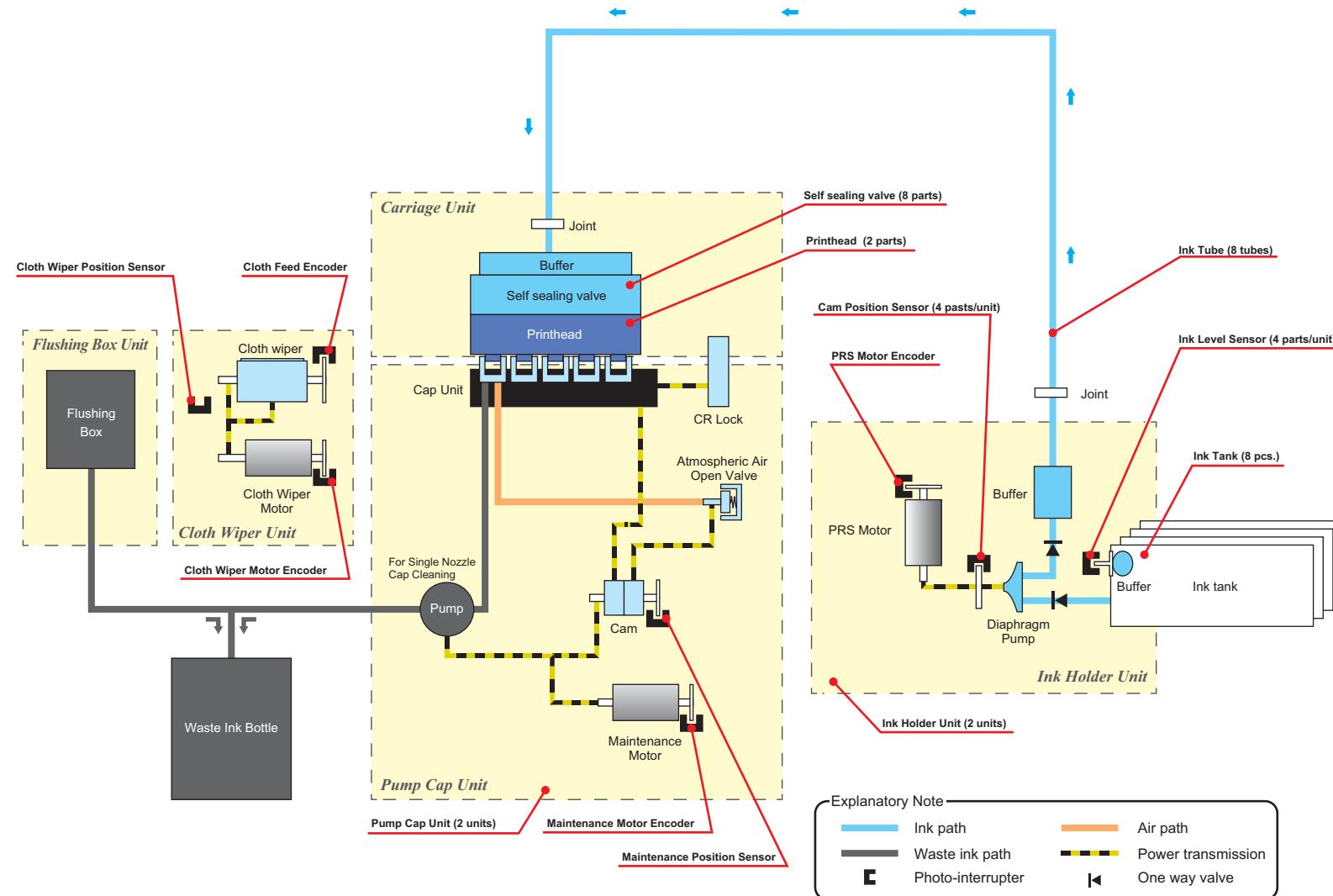


Figure 6-1. Ink System Correlation Diagram

6.7 Drive Path

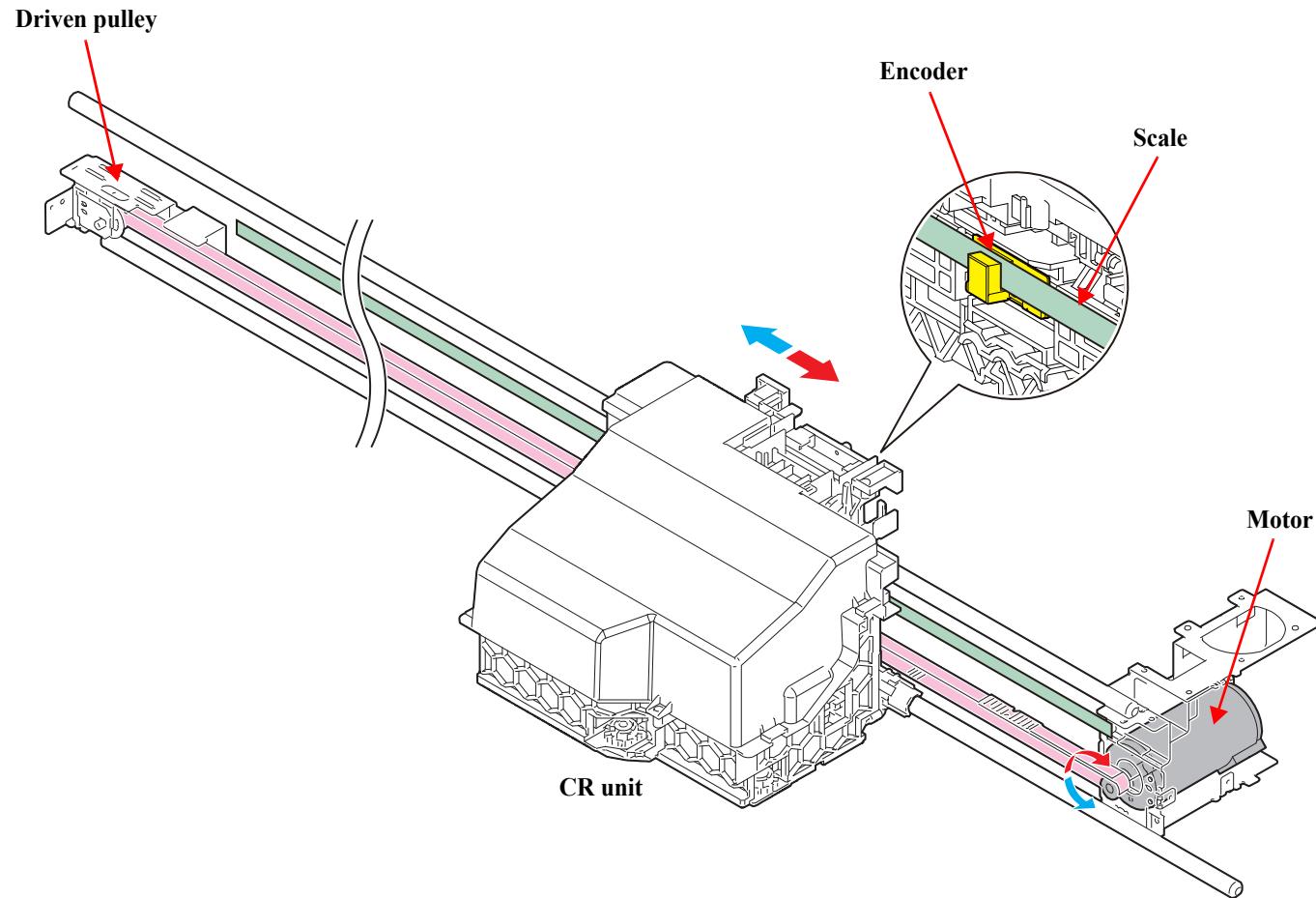


Figure 6-2. CR Mechanism (CR unit)

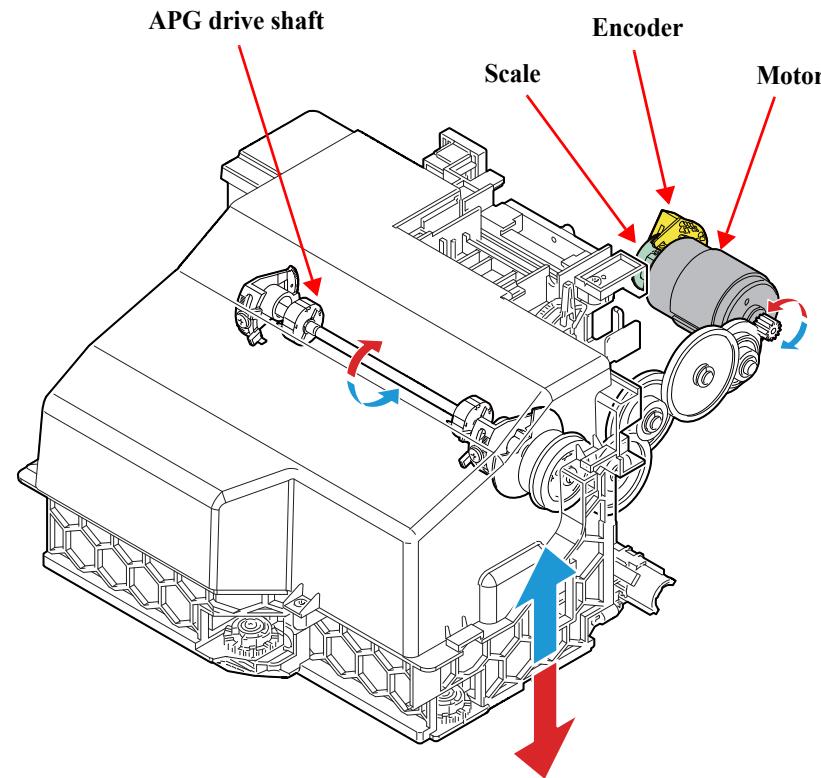


Figure 6-3. APG Mechanism

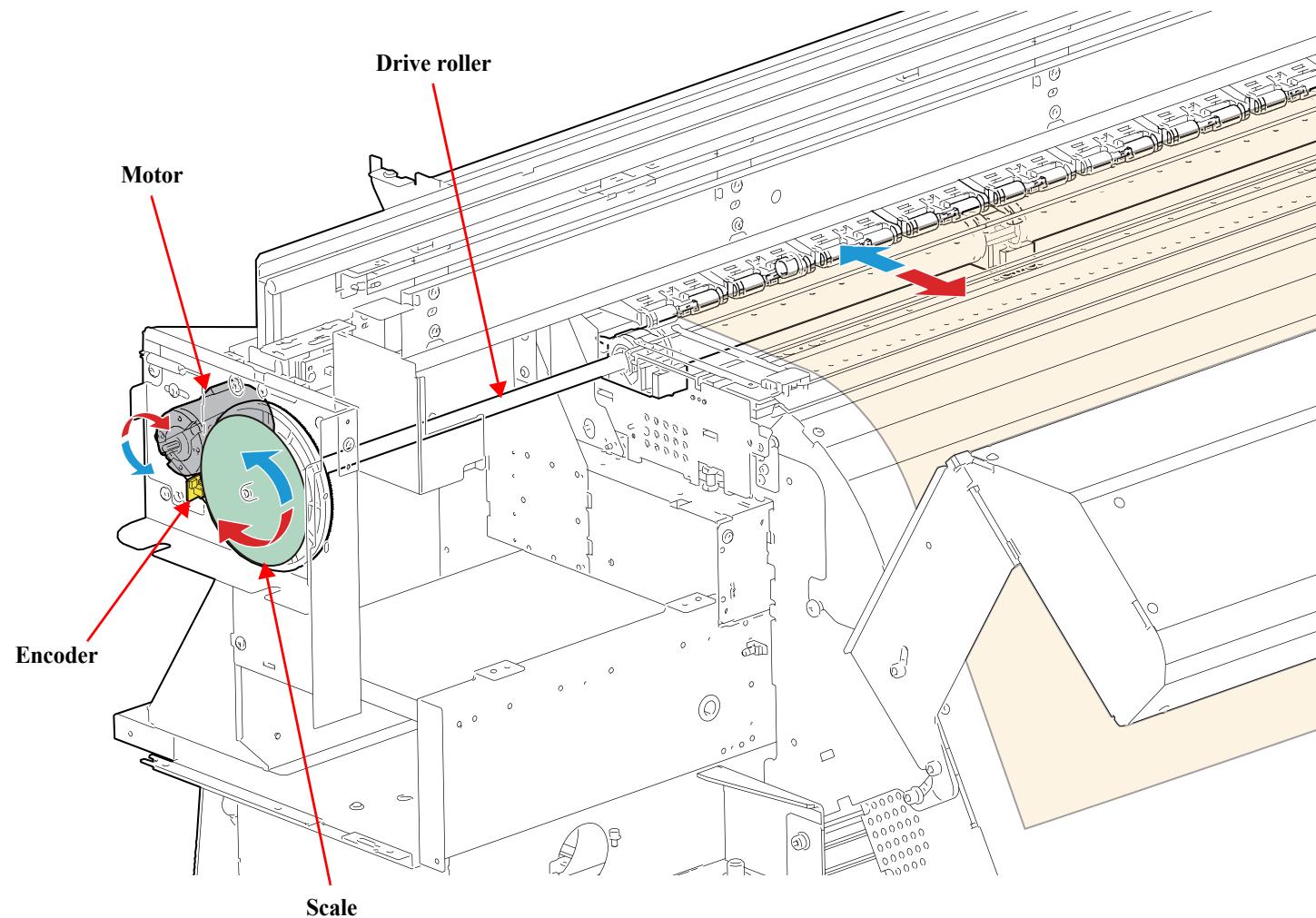


Figure 6-4. Media Feed Mechanism (PF Roller)

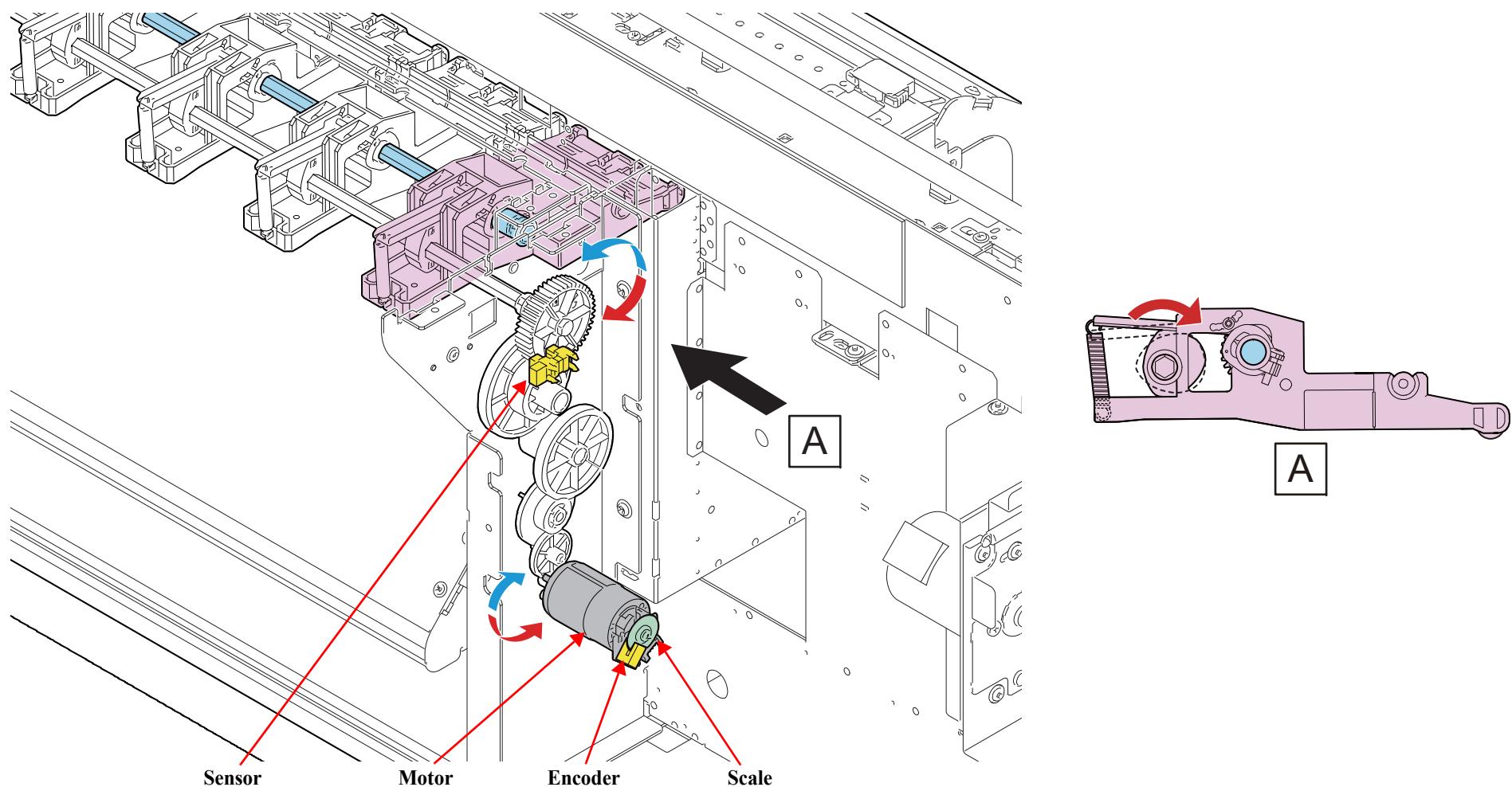


Figure 6-5. Media Feed Mechanism (Pressure roller)

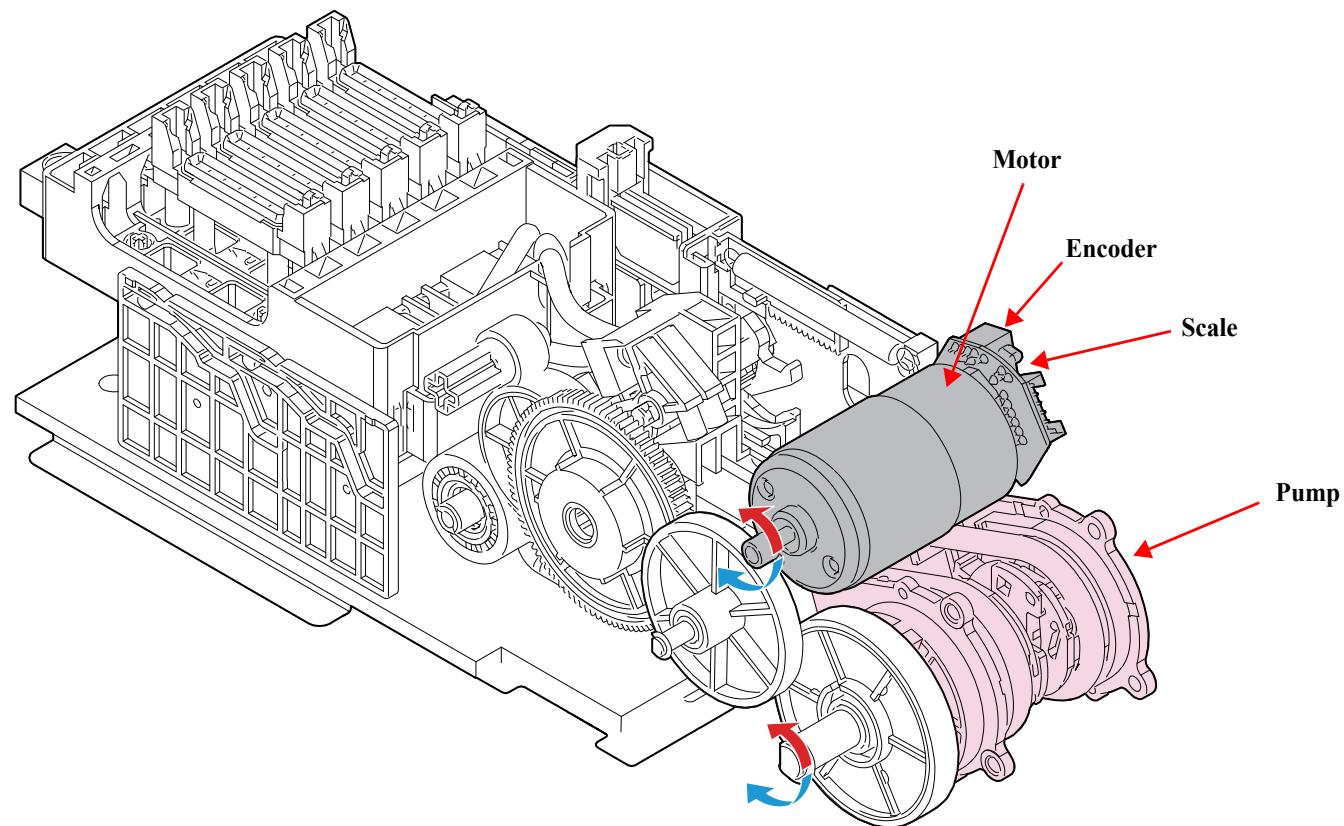


Figure 6-6. Ink System Mechanism (Pump cap unit) (1)

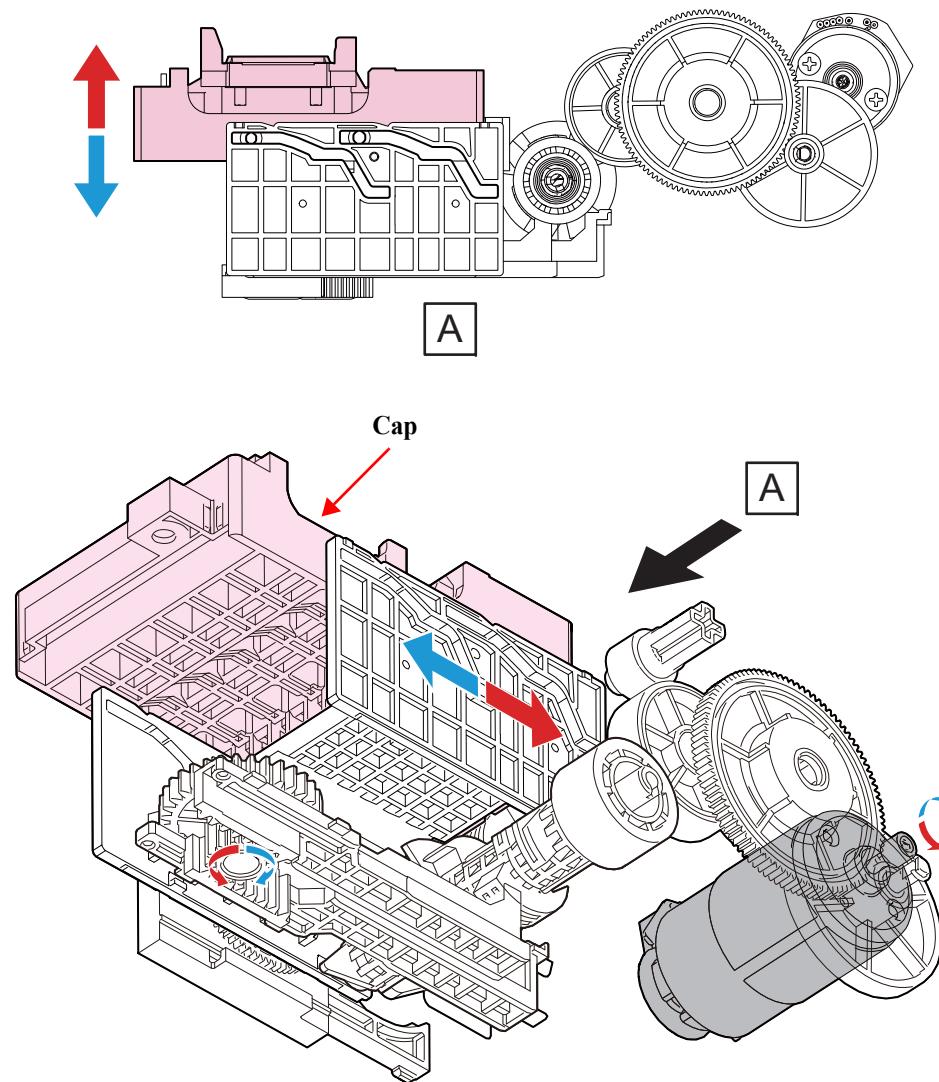


Figure 6-7. Ink System Mechanism (Pump cap unit) (2)

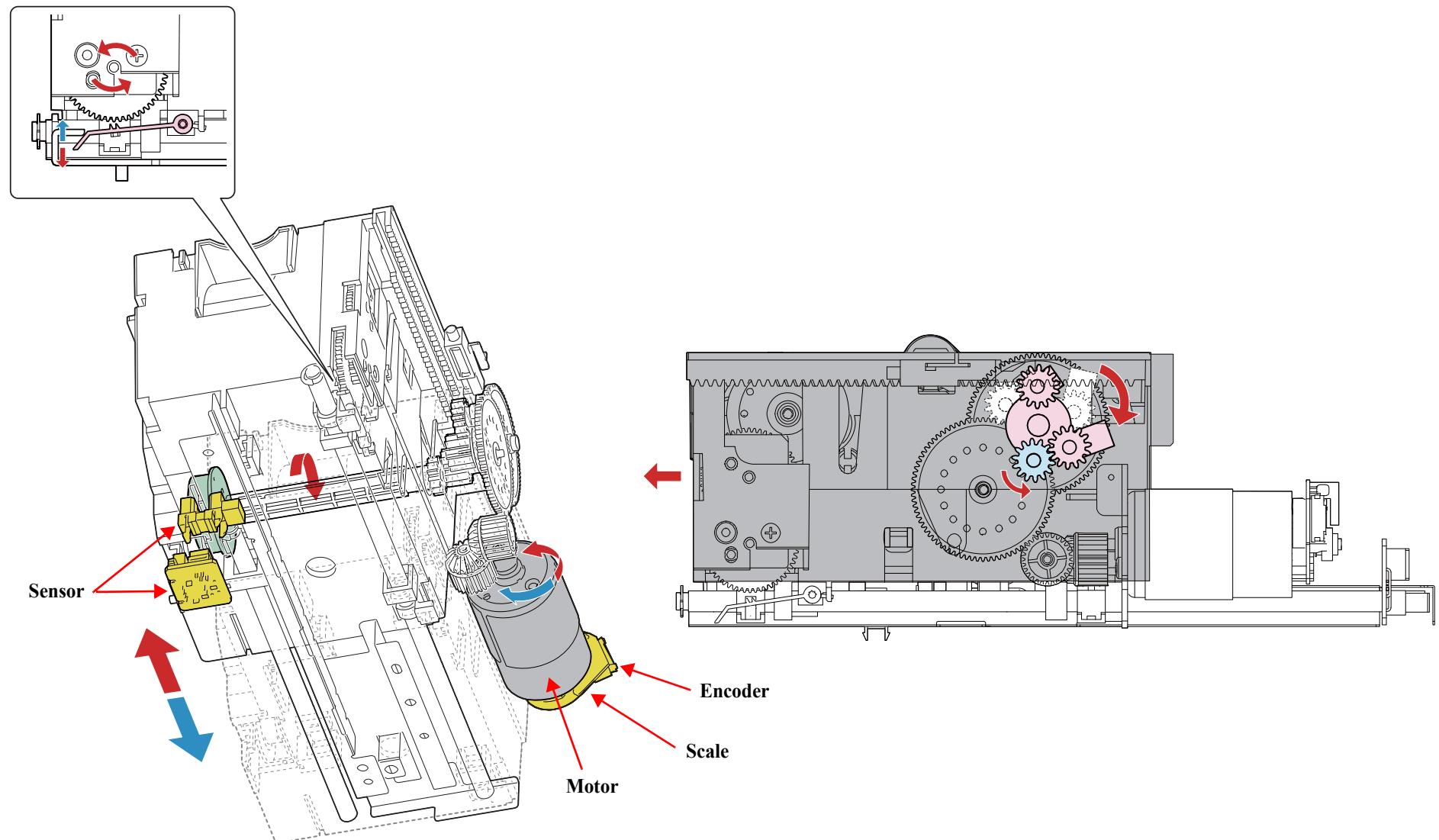


Figure 6-8. Ink System Mechanism (Cloth wiper assy)

6.8 Installation Assessment

Table 6-4. Installation Assessment

Item	Check	Description
Carrying-in, installation	<input type="checkbox"/>	Is there a sufficient parking space during unloading the printer from the carrier truck? Must be able to load the printer packed in a box. (See Figure 6-9 for the package size.)
	<input type="checkbox"/>	Is there a sufficient space for the printer when unloaded from the truck? Is there a sufficient space for the printer while reassembled?
	<input type="checkbox"/>	Are there any special requirements during carrying-in? (such as a crane is needed, etc.)
	<input type="checkbox"/>	Is the path to the installation site appropriate? (Width/height of the path, width/height of door openings, spaces for turning at L- or T- shaped corners) (See Figure 6-10 for sufficient width of passages.)
	<input type="checkbox"/>	If you use an elevator and such, does it meet the requirements such as the size and weight of the printer? (See Figure 6-12 for the size during carrying-in.) <input type="checkbox"/> Weight after reassembled: approx. 280 kg
Installation site	<input type="checkbox"/>	Is there a sufficient installation space? (See Figure 6-11 for the installation space.)
	<input type="checkbox"/>	Is the site a level stable place which can support the weight of the printer? (See above for the weight.)
Environment	<input type="checkbox"/>	Temperature: 15-35 degrees C, humidity: 20-80%
	<input type="checkbox"/>	Not under direct sunlight
	<input type="checkbox"/>	No direct wind from an air conditioner or the like
	<input type="checkbox"/>	No heat sources nearby
Power supply	<input type="checkbox"/>	Current and power supply capacity sufficient? Are there enough power outlet sockets on the walls? (No power strips or multi plugs) <input type="checkbox"/> Number of power cords: 2 and total current consumption 15A
	<input type="checkbox"/>	Is grounding appropriate? The grounding cables of the power cords must be grounded surely.

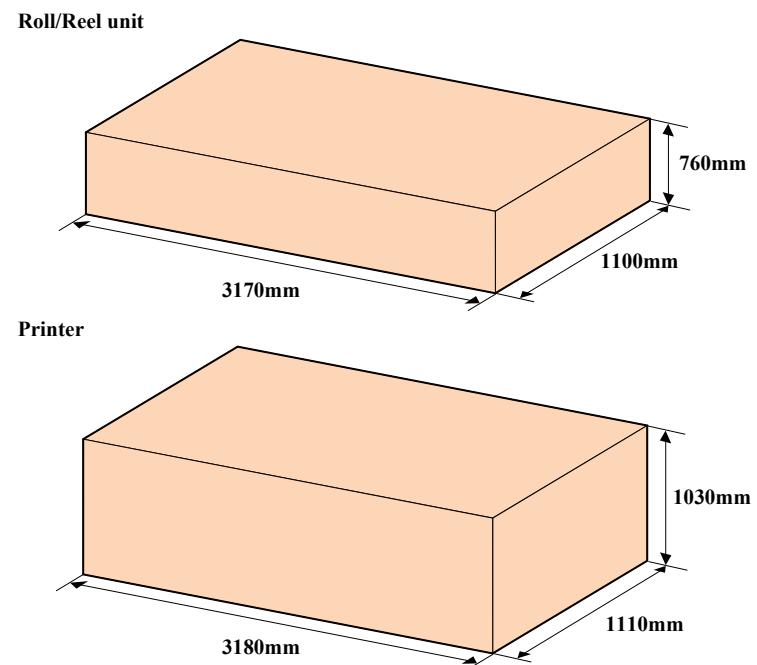
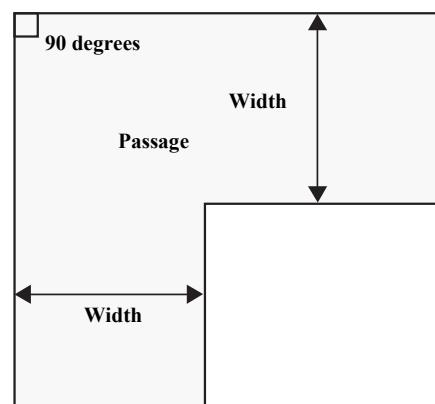


Figure 6-9. Printer packed in a box



State of the printer	Size of printer		Sufficient width of passages
	Width	Depth	
Packed	3180mm	1110mm	1910mm
When used	2620mm	880mm	1550mm
With after heater folded (without ink tank and tank guard)	2620mm	740mm	1450mm
With after heater removed	2620mm	610mm	1360mm

Figure 6-10. Sufficient width of passages

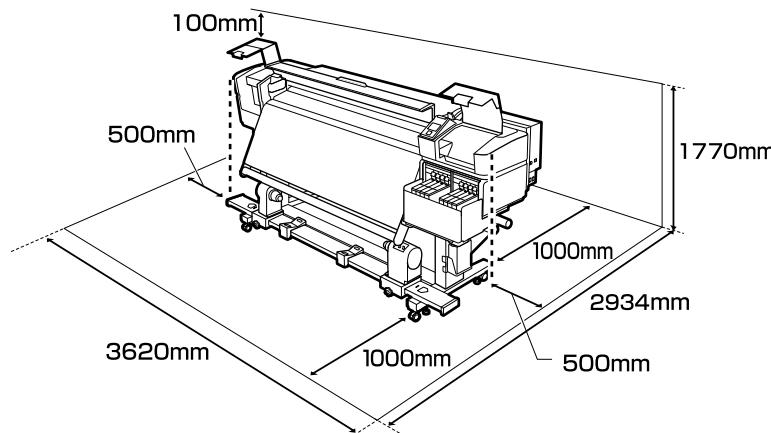
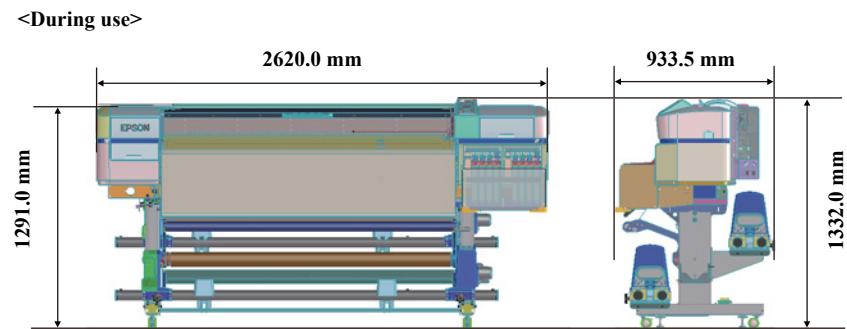
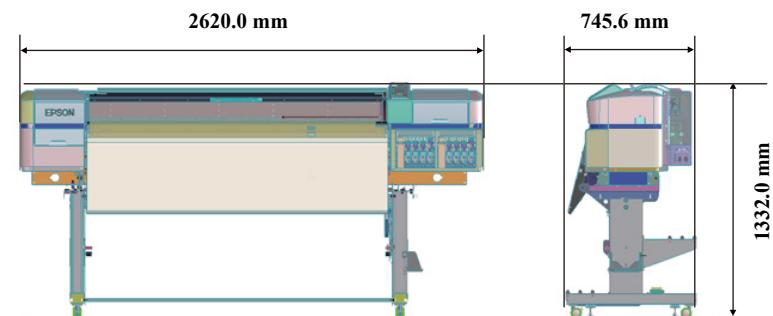


Figure 6-11. Installation Room Requirement



<During use>



<With the after heater folded (without ink tank and lower ink holder)>

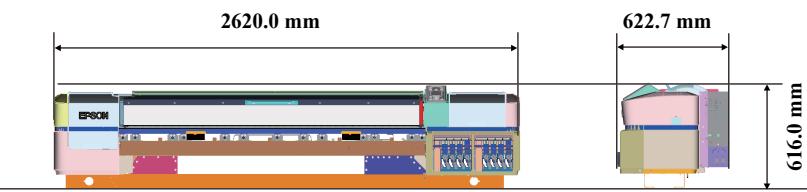


Figure 6-12. Size comparison

6.9 Exploded Diagram/Parts List

For the exploded diagrams and parts list, refer to Service Parts Information.