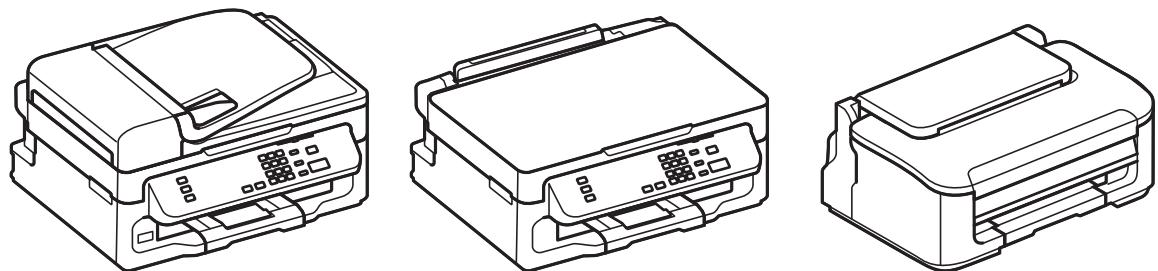


SERVICE MANUAL



Color Inkjet Printer

**EPSON WF-2540/WF-2548/WF-2541
EPSON WF-2530/WF-2532/WF-2538/WF-2531
EPSON WF-2520/WF-2528/WF-2521
EPSON WF-2510/WF-2511/WF-2512
EPSON WF-2010**

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CONFIDENTIAL

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Safety Precautions

All safety procedures described here shall be strictly adhered to by all parties servicing and maintaining this product.

DANGER

Strictly observe the following cautions. Failure to comply could result in serious bodily injury or loss of life.

1. Always disconnect the product from the power source and peripheral devices when servicing the product or performing maintenance.
2. When performing works described in this manual, do not connect to a power source until instructed to do so. Connecting to a power source causes high voltage in the power supply unit and some electronic components even if the product power switch is off. If you need to perform the work with the power cable connected to a power source, use extreme caution to avoid electrical shock.

WARNING

Strictly observe the following cautions. Failure to comply may lead to personal injury or loss of life.

1. Always wear protective goggles for disassembly and reassembly to protect your eyes from ink in working. If any ink gets in your eyes, wash your eyes with clean water and consult a doctor immediately.
2. 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.

PRECAUTIONS

Strictly observe the following cautions. Failure to comply may lead to personal injury or damage of the product.

1. Repairs on Epson product should be performed only by an Epson certified repair technician.
2. No work should be performed on this product by persons unfamiliar with basic safety knowledge required for electrician.
3. The power rating of this product is indicated on the serial number/rating plate. Never connect this product to the power source whose voltages is different from the rated voltage.
4. Replace malfunctioning components only with those components provided or approved by Epson; introduction of second-source ICs or other non-approved components may damage the product and void any applicable Epson warranty.
5. The capacitors on the Main Board may be electrically charged right after the power turns off or after driving motors which generates counter electromotive force such as when rotating the PF Roller or when moving the CR Unit. There is a risk to damage the Main Board if the Head FFC is short-circuited with the capacitors on the Main Board electrically charged, therefore, after the power turns off or after motors are driven, leave the printer untouched for approximately 30 seconds to discharge the capacitors before starting disassembly/reassembly.
6. To prevent the circuit boards from short-circuiting, be careful about the following when handling FFC or cables.
 - When handling FFC, take care not to let the terminal section of FFC touch metal parts.
 - When connecting cables/FFC to the connectors on circuit boards, connect them straight to the connectors to avoid slant insertion.

7. In order to protect sensitive microprocessors and circuitry, use static discharge equipment, such as anti-static wrist straps, when accessing internal components.
8. Do not tilt this product immediately after initial ink charge, especially after performing the ink charge several times. Doing so may cause ink to leak from the product because it may take some time for the waste ink pads to completely absorb ink wasted due to the ink charge.
9. 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 you have a skin irritation, consult a doctor immediately.
10. When disassembling or assembling this product, make sure to wear gloves to avoid injuries from metal parts with sharp edges.
11. Use only recommended tools for disassembling, assembling or adjusting the printer.
12. Observe the specified torque when tightening screws.
13. Be extremely careful not to scratch or contaminate the following parts.
 - Nozzle plate of the Printhead
 - CR Scale
 - PF Scale
 - Coated surface of the PF Roller
 - Gears
 - Rollers
 - LCD
 - Scanner Sensor
 - Exterior parts
14. Never use oil or grease other than those specified in this manual. Use of different types of oil or grease may damage the component or give bad influence on the printer function.
15. Apply the specified amount of grease described in this manual.
16. Make the specified adjustments when you disassemble the printer.
17. When cleaning this product, follow the procedure described in this manual.
18. When transporting this product after filling the ink in the printhead, pack the printer without removing the ink cartridges in order to prevent the printhead from drying out.
19. Make sure to install antivirus software in the computers used for the service support activities.
20. Keep the virus pattern file of antivirus software up-to-date.
21. When disassembling/reassembling this product, if you find adhesive power of the double-sided tape which secure the parts or FFC is not enough, replace the tape with new one and attach it correctly to the specified points where the parts or FFC should be secured.
22. Unless otherwise specified in this manual, the labels attached on the returned product should be transferred to the corresponding attachment positions on the new one referring to the labels on the returned product.

About This Manual

This manual, consists of the following chapters, is intended for repair service personnel and includes information necessary for properly performing maintenance and servicing the product.

CHAPTER 1. TROUBLESHOOTING

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

CHAPTER 2. DISASSEMBLY / REASSEMBLY

Describes the disassembly/reassembly procedures for main parts/units of the product, and provides the standard operation time for servicing the product.

CHAPTER 3. ADJUSTMENT

Describes the required adjustments for servicing the product.

CHAPTER 4. MAINTENANCE

Describes maintenance items and procedures for servicing the product.

CHAPTER 5. REFURBISHMENT

Describes refurbishing work of the product and its purpose.

CHAPTER 6. APPENDIX

Provides the following additional information for reference:

- Connector Diagram
- Protection for Transportation

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. Pay attention to all symbols when they are used, and always read explanation thoroughly and follow the instructions.



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



Indicates an operating or maintenance procedure, practice, or condition that, if not strictly observed, could result in bodily injury, damage or malfunction 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.

For Chapter 2 “Disassembly/Reassembly”, symbols other than indicated above are used to show additional information for disassembly/reassembly. For the details on those symbols, see "[2.2 Disassembly/Reassembly Procedures \(p27\)](#)".

Revision Status

Revision	Date of Issue	Description
A	June 29, 2012	First Release
B	August 28, 2012	Revised Contents <input type="checkbox"/> Chapter 2 ■ Made change in "2-1 Standard Operation Time (p24)" <input type="checkbox"/> Chapter 3 ■ Made change in "3-2 Required Adjustment List (p56)" ■ Made change in "3.2.2.3 PIS Board Check (p62)"

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CHAPTER 1

TROUBLESHOOTING

1.1 Troubleshooting

This section describes the troubleshooting workflow and fatal error information.

1.1.1 Troubleshooting Workflow

The following page describes the troubleshooting workflow. Follow the flow when troubleshooting problems.



- In this chapter, the product names are called as follows:
 - WF-2540 Series: WF-2540/WF-2548/WF-2541
 - WF-2530 Series: WF-2530/WF-2532/WF-2538/WF-2531
 - WF-2520 Series: WF-2520/WF-2528/WF-2521
 - WF-2510 Series: WF-2510/WF-2511/WF-2512
 - WF-2010 Series: WF-2010
- This flowchart is compiled based on the following contents.
 - Our experience regarding the quality problem.
 - ESK's repair data.
 - Printer Mechanism specification for the product.
- WF-2510 series are not equipped with the ADF unit, therefore, the troubleshooting related to the ADF unit is not applied.
- WF-2010 series are not equipped with the ADF/Scanner unit, therefore, the troubleshooting related to the ADF/Scanner unit is not applied.
- If the reason for the return is evident, first check the phenomenon user claims recurs, then proceed to the troubleshooting.

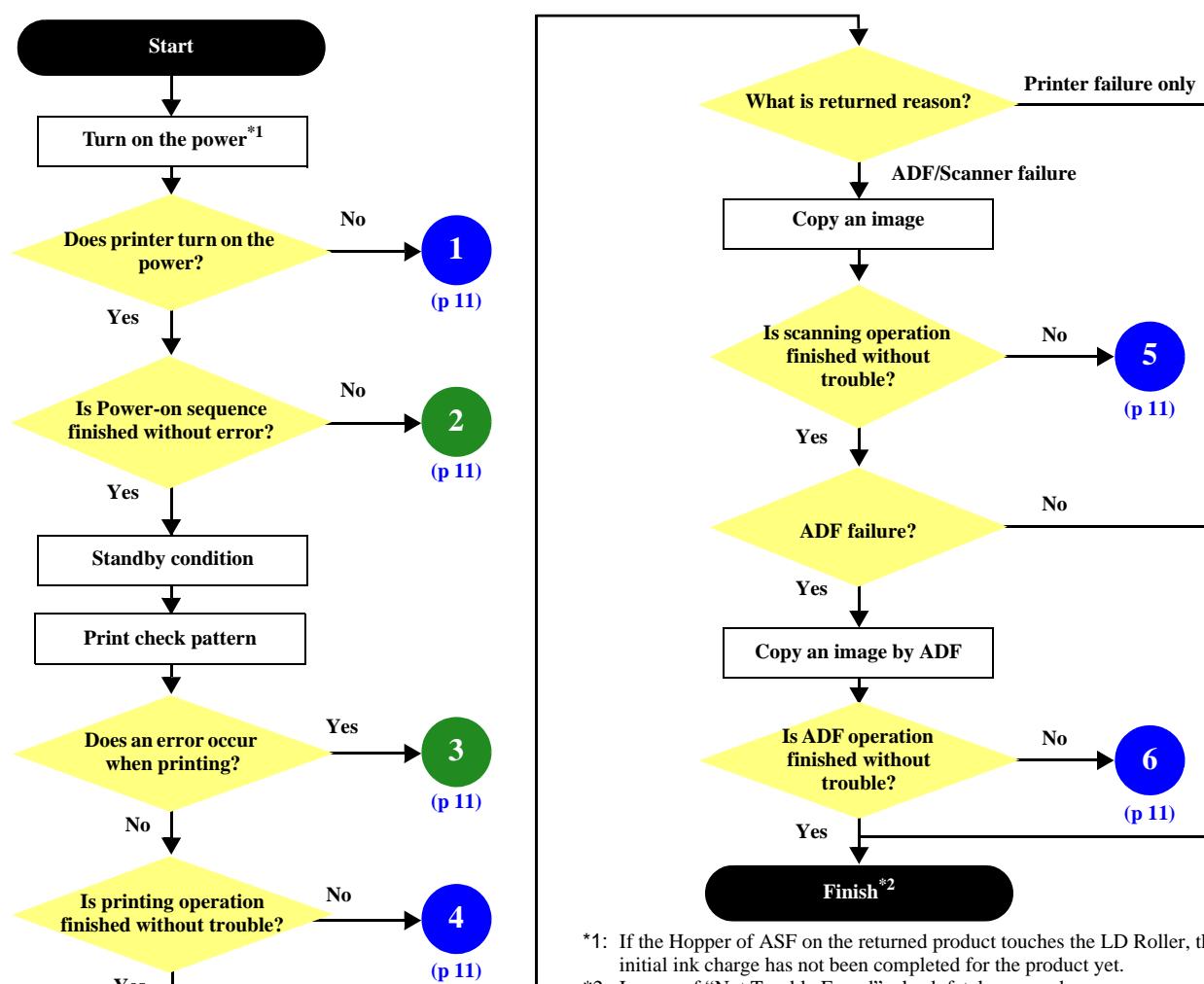


Figure 1-1. Troubleshooting Workflow (1)

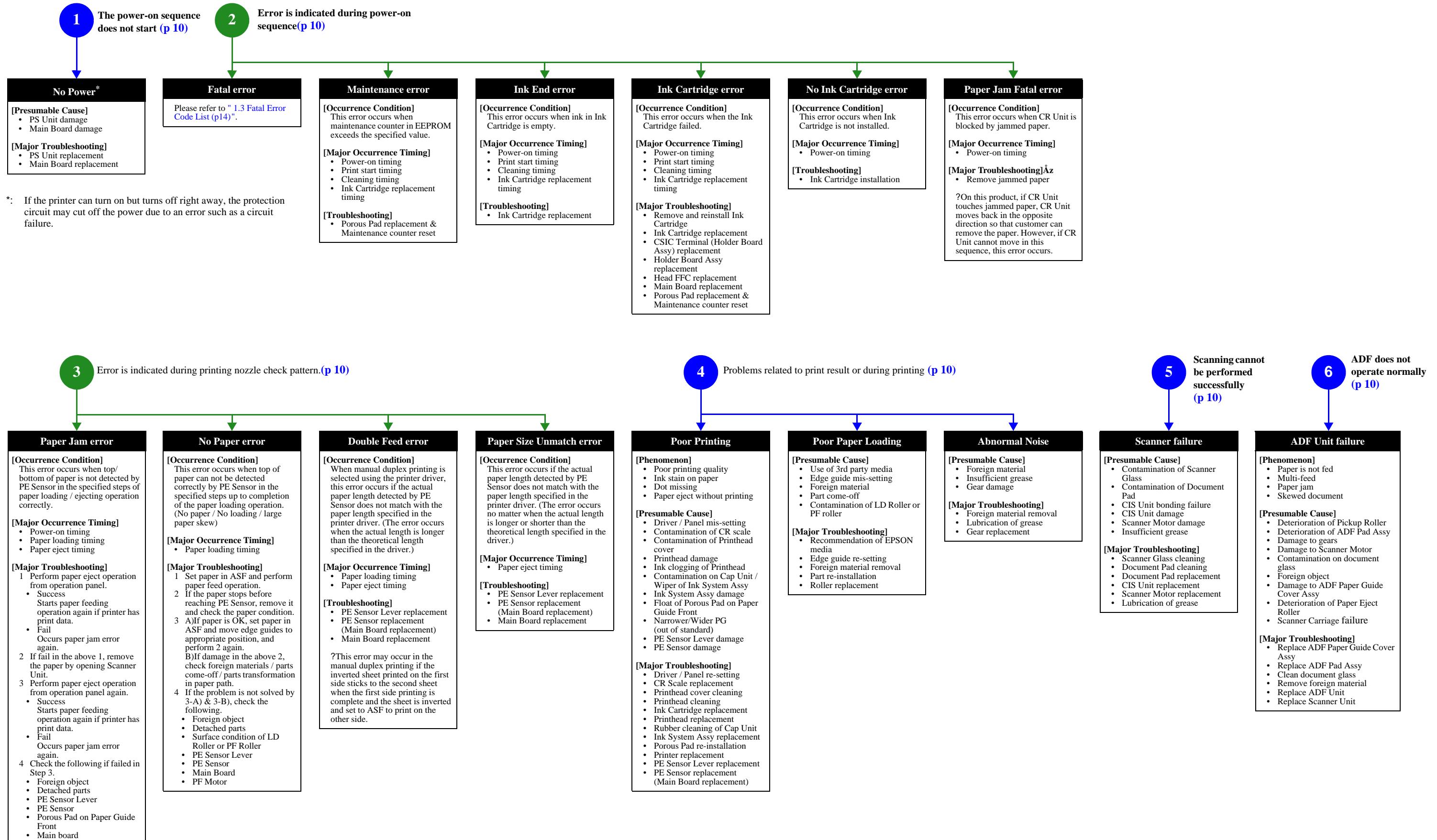


Figure 0-1. Troubleshooting Workflow (2)

1.2 Power-On Sequence

This section describes the power-on sequences in two conditions. The preconditions are as follows.

Condition 1: Normal power-on sequence (See [Table 1-1](#).)

- Turning on the printer after turning it off without an error.
- Initial ink charge has finished and every cartridge has sufficient ink.
- No paper on the paper path.
- The Printhead is capped with the Cap Assy.
- The CR Unit is normally fixed by the Change Lever.
- Maintenance error recovery has never been performed.

Table 1-1. Condition 1: Normal Power-on Sequence

Operation ^{*1}	CR Unit/PF Roller movement and position ^{*2}
1. Printhead initialization and fuse inspection 1-1.Initializes the Printhead, and checks for the fuse on the circuit boards in the printer. ^{*3}	80 HP CR lock CR Unit 0
2. Checking for waste ink overflow 2-1.Checks the waste ink counter if the waste ink overflow is occurring.	80 HP 0
3. Seeking the home position 3-1.The CR Unit moves to the 80-digit side slowly and confirms it touches the Change Lever (CR lock). 3-2.The CR Unit moves to the 0-digit side slowly. 3-3.After the PE Sensor checks if paper exists, the PF Motor rotates clockwise for one second and releases the CR lock.	80 HP 0 80 HP 0 80 HP 0
3-4.While checking if the CR Unit does not touch the Change Lever (CR lock) or the foreign material, the CR Unit moves to the 80-digit side slowly until it touches the Left Frame. 3-5.The distance from the position where the CR Unit touched to the Left Frame is regarded as the standard distance from the origin position, and the home position is fixed. From then on, the CR Unit position is monitored according to the signals from the CR Encoder. 3-6.The CR Unit moves to near its home position quickly.	80 HP 0 80 HP 0 80 HP 0
4. Detecting ink cartridge and initializing ink system^{*4} 4-1.To check the operation of the PIS Sensor and to detect ink, the CR Unit moves back and forth over the PIS Sensor two times. 4-2.The CR Unit returns to its home position.	80 HP 0 80 HP 0
5. Low temperature operation sequence^{*5} 5-1.The CR Unit quickly moves back and forth between near the Change Lever and near the Left Frame for two times.	80 HP 0

Note 1: The rotation directions of the PF Motor are as follows.

Clockwise: Paper is fed normally

Counterclockwise: Paper is fed backward

*2: The conditions of the CR lock are as follows.

Red CR lock is set

White CR lock is released

*3: The fatal error occurs if there is a problem such as the fuse blew.

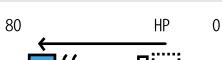
*4: The empty suction operation may occur depending on the situation.

*5: Executed when the detected temperature is under 5 °C (41°F) by the thermistor on the Printhead.

- Condition 2: Power-on sequence after recovering from a paper jam error (See [Table 1-2.](#))

- Turning on the printer after turning it off with a paper jam fatal error.
- There still remains paper on the paper path out of the detecting area of the PE Sensor.
- Maintenance error recovery has never been performed.

Table 1-2. Condition 2: Power-on Sequence after Recovering from a Paper Jam Error

Operation	CR Unit/PF Roller movement and position
Executes No.1 to No.3 on the normal power-on sequence (Table 1-1).	
4. Detecting remaining paper	
4-1.5.The CR Unit returns to its home position.	
4-2.The CR Unit moves to the 80-digit side and confirms there is no paper.*1	
4-3.The CR Unit quickly returns to its home position, and displays on the LCD or with flashing LEDs that the paper jam error occurs.	
When the user removes the paper and releases the paper jam error by panel operation, the normal power-on sequence from No.1 (Table 1-1) is executed again.*2	

Note *1: "Paper exists" is detected when the CR Unit touches the paper. When "paper does not exist" is detected, the power-on sequence of condition 1 ([Table 1-1](#)) is executed from No.4.

*2: If the paper jam error cannot be solved after repeating the power-on sequence on condition 2 ([Table 1-2](#)) twice, the printer turns into the paper jam fatal error for the third time.



- To recover from the maintenance error, the dedicated software that can be downloaded from the web site which can be accessed from STM3 is required.
- The printer operation related to the maintenance error recovery is as follows.
 - When the waste ink counter reaches the threshold value (1) for the first time and the maintenance error occurs, the counter threshold of the maintenance error is changed to threshold value 2 after performing recovery from the maintenance error.
 - After the threshold value (2) is enabled, the warning; to notify the possibility of ink leakage out of the printer, is displayed every time the waste ink counter increases by 1%.
 - If the waste ink counter reaches the threshold value (2), the maintenance error occurs. Then, the waste ink counter is changed back to the threshold value (1) after recovering from the maintenance error, and the warning is displayed repeatedly according to the increment of the waste ink counter until the maintenance error occurs when the threshold value (2) is reached.
 - (Recovery from the maintenance error can be performed up to the specified number of times.)

1.3 Fatal Error Code List

This section describes how to check the fatal error code, description, and the possible causes.

1.3.1 Displaying the Fatal Error Code

The fatal error code is stored in the EEPROM on the Main Board and can be read out using the Adjustment Program. The code can be displayed on the LCD of the control panel by a special panel operation.



- Only the printer fatal error code can be displayed by this panel operation.
- For the fatal error codes, descriptions, and their possible causes, see "[1.3.2 Printer Fatal Error Code \(p15\)](#)".

The following describes the panel operation for the product to display the fatal error code.

Method of displaying the fatal error code

1. Press the following buttons simultaneously while the fatal error is occurring.

- Menu button
- Stop button
- OK button

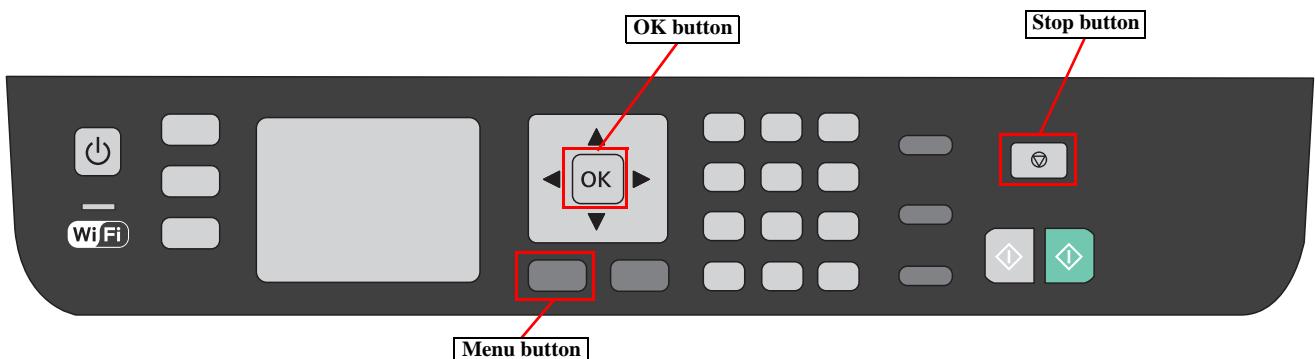


Figure 1-2. Displaying the Fatal Error Code (1)

2. Check the displayed fatal error code.

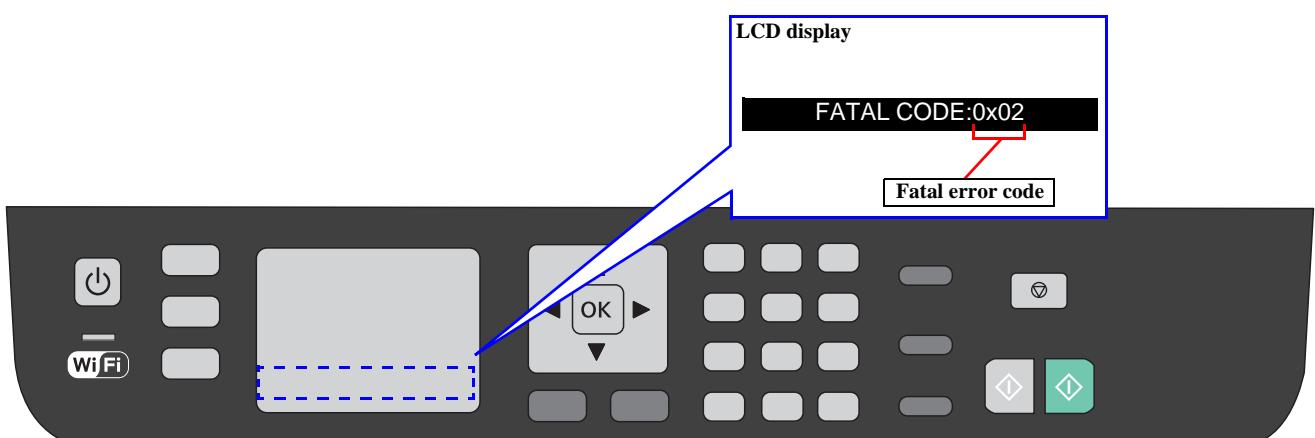


Figure 1-3. Displaying the Fatal Error Code (2)

1.3.2 Printer Fatal Error Code

This section describes the printer fatal error code and the possible cause for this product.

Table 1-3. Fatal Error List (Printer)

Error type	Error code	Error name	Possible cause
DC motor error	01H	CR PID excess load error	<ul style="list-style-type: none"> • CR Motor failure • CR Unit drive mechanism overload (paper jam, foreign object, insufficient grease, deformation of the Main Frame) • Some part may be detached. (Paper Guide Upper Assy, Cap Assy) • Tooth skip of the CR Timing Belt • Improper tension of the CR Timing Belt • Cable disconnection • Main Board failure (Motor driver failure)
	02H	CR PID excess speed error	<ul style="list-style-type: none"> • CR Encoder failure (contaminated/detached scale, Encoder Sensor failure) • Main Board failure (Motor driver failure)
	03H	CR PID reverse error	<ul style="list-style-type: none"> • CR Encoder failure (contaminated/detached scale, Encoder Sensor failure) • Some external force is applied to the printer such as stopping the CR Unit during printer operation, vibration or the like. • Tooth skip of the CR Timing Belt • Paper jam • Main Board failure (Motor driver failure)
	04H	CR PID lock error	<ul style="list-style-type: none"> • CR Encoder failure (contaminated/detached scale, Encoder Sensor failure) • CR Motor failure • CR Unit drive mechanism overload (paper jam, foreign object, insufficient grease, deformation of the Main Frame) • Some part may be detached. (Paper Guide Upper Assy, Cap Assy) • Cable disconnection • Main Board failure (Motor driver failure)
	08H	CR load position reverse error	<ul style="list-style-type: none"> • CR Encoder failure (contaminated/detached scale, Encoder Sensor failure) • Main Board failure (Motor driver failure)
	09H	CR load position excess speed error	<ul style="list-style-type: none"> • CR Encoder failure (contaminated/detached scale, Encoder Sensor failure) • Tooth skip of the CR Timing Belt • Improper tension of the CR Timing Belt • Paper jam • Main Board failure (Motor driver failure)
	0AH	CR load position excess load error	<ul style="list-style-type: none"> • CR Motor failure • CR Unit drive mechanism overload (paper jam, foreign object, Change Lever failure) • Cable disconnection • Main Board failure (Motor driver failure)
	F1H	PF PID excess load error	<ul style="list-style-type: none"> • PF Motor failure • PF drive mechanism overload (paper jam, foreign object, insufficient grease, deformation of the Main Frame) • Tooth skip of the PF Timing Belt • Improper tension of the PF Timing Belt • Cable disconnection • Main Board failure (Motor driver failure)
	F2H	PF PID excess speed error	<ul style="list-style-type: none"> • PF Encoder failure (contaminated/detached scale, Encoder Sensor failure) • Tooth skip of the PF Timing Belt • Improper tension of the PF Timing Belt • Main Board failure (Motor driver failure)

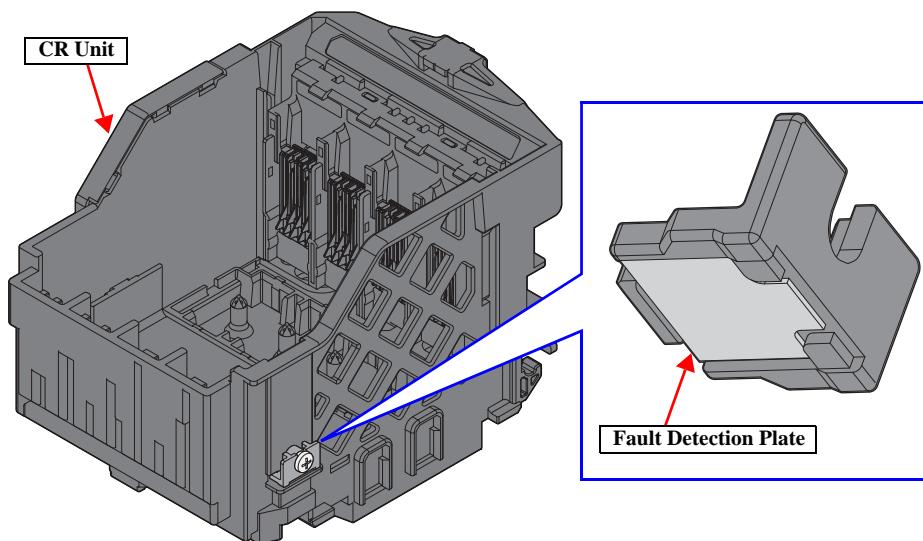
Table 1-3. Fatal Error List (Printer)

Error type	Error code	Error name	Possible cause
DC motor error	F3H	PF PID reverse error	<ul style="list-style-type: none"> PF Encoder failure (contaminated/detached scale, Encoder Sensor failure) Tooth skip of the PF Timing Belt Improper tension of the PF Timing Belt Paper jam Paper is pulled out from the ASF side when paper is fed Main Board failure (Motor driver failure)
	F4H	PF PID lock error	<ul style="list-style-type: none"> PF Encoder failure (contaminated/detached scale, Encoder Sensor failure) PF Motor failure PF drive mechanism overload (paper jam, foreign object, insufficient grease, deformation of the Main Frame) Cable disconnection Main Board failure (Motor driver failure)
	F8H	PF load position reverse error	<ul style="list-style-type: none"> PF Encoder failure (contaminated/detached scale, Encoder Sensor failure) Tooth skip of the PF Timing Belt Improper tension of the PF Timing Belt
	F9H	PF load position excess speed error	<ul style="list-style-type: none"> PF Encoder failure (contaminated/detached scale, Encoder Sensor failure) Tooth skip of the PF Timing Belt Improper tension of the PF Timing Belt Main Board failure (Motor driver failure)
	FAH	PF load position excess load error	<ul style="list-style-type: none"> PF Motor failure PF drive mechanism overload (paper jam, foreign object) Tooth skip of the PF Timing Belt Improper tension of the PF Timing Belt Cable disconnection
Motor drive time error	D1H	CR (PID) driving time error	<ul style="list-style-type: none"> Main Board failure (Firmware failure)
	D2H	CR (load position) driving time error	<ul style="list-style-type: none"> Change Lever failure CR Motor failure Main Board failure (Motor driver failure)
	D3H	PF (PID) driving time error	<ul style="list-style-type: none"> Main Board failure (Firmware failure)
	D4H	PF (BS) driving time error	<ul style="list-style-type: none"> Change Lever failure CR Motor failure Main Board failure (Motor driver failure)
Printhead system error	40H	Transistor temperature error	<ul style="list-style-type: none"> Main Board failure
	41H	X-Hot detect error (pre printing)	<ul style="list-style-type: none"> Printhead failure Main Board failure
	42H	X-Hot detect error (after flushing)	<ul style="list-style-type: none"> Printhead failure Main Board failure
	43H	Head temperature error	<ul style="list-style-type: none"> Printhead failure Main Board failure
Sequence error	50H	Home position error	<ul style="list-style-type: none"> Foreign object Deformation of the Main Frame Change Lever failure Paper jam
	56H	Contact error at ink replacement timing (Power-off)	<ul style="list-style-type: none"> Foreign object Ink Cartridges are not installed correctly Paper jam
Sequence error	5BH	Insoluble paper jam error	<ul style="list-style-type: none"> Foreign object Deformation of the Main Frame Change Lever failure Paper jam
Ink device error	B0H - CFH	Ink device error	<ul style="list-style-type: none"> Ink Cartridge failure Holder Board Assy failure (CSIC Terminal failure/CR Contact Module failure) Main Board failure
Circuit error	80H	Circuit error (include blowout of a fuse)	<ul style="list-style-type: none"> Main Board failure

Table 1-3. Fatal Error List (Printer)

Error type	Error code	Error name	Possible cause
PIS Board device error	83H	Reflector no reflection error	<ul style="list-style-type: none"> Defective Fault Detection Plate * (detachment, peeled reflector) Sensor failure (contaminated Sensor, damaged FFC, PIS Board installation failure)
	88H	Excessive Light error	<ul style="list-style-type: none"> Abnormal sensor output (Sensor failure, PIS Board failure) Unexpected excessive amount of light such as too much diffused light from outside is shed on the sensor because the housings are removed. (When used outdoors or near the window where direct sunlight comes in)
	89H	Insufficient Light error	<ul style="list-style-type: none"> Sensor failure (PIS Board installation failure, contaminated Sensor) Abnormal sensor output (Break of FFC during printer operation, PIS Board failure) Unable to accurately detect where the fault detection plate is because too much diffused light from outside is shed on the sensor. (When used outdoors or near the window where direct sunlight comes in) Ink Cartridge failure (contaminated/damaged prism)

Note *: Fault Detection Plate is a reflector attached on the CR Unit. (See Fig. 1-4)

**Figure 1-4. Fault Detection Plate**

1.3.3 Scanner Fatal Error Code

This section describes the scanner fatal error code and the possible cause for this product.

Table 1-4. Fatal Error List (Scanner)

Error code	Error name	Possible cause
10H	Home position detection error	<ul style="list-style-type: none"> CIS Module failure Scanner Housing Upper failure (home seek pattern^{*1} is dirty) Scanner Housing Lower failure (the rack section^{*2} is damaged) Scanner Motor failure Insufficient grease Foreign object FFC disconnection/failure Main Board failure
14H	Measurement error	<ul style="list-style-type: none"> Scanner Motor failure Insufficient grease Foreign object Gear failure Deformation of the shaft
20H	LED lightning error	<ul style="list-style-type: none"> CIS Module failure Foreign object Scanner Housing Upper failure (white standard pattern^{*1} is dirty) Main Board failure
36H	Paper jam error	<ul style="list-style-type: none"> Paper jam Loading/ejecting papers out of the standard range or curled papers Using long papers (Legal or longer)

Note *1: The home seek pattern and the white standard pattern are attached on the back of the Scanner Housing Upper near the home position.

*2: The rack section is the linearly-arranged toothed area on the Scanner Housing Lower. (See Fig. 1-5.)

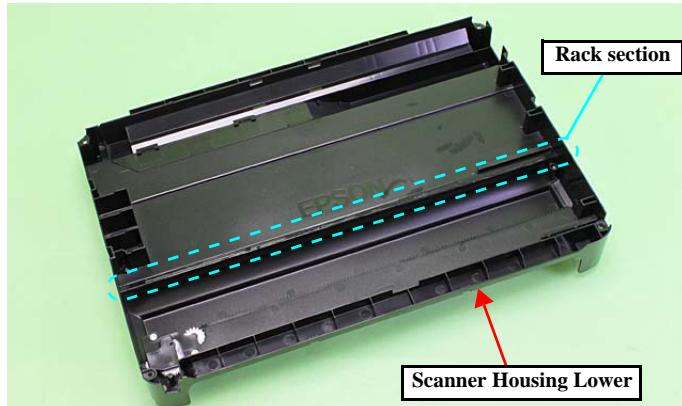


Figure 1-5. Rack section

CHAPTER 2

DISASSEMBLY/REASSEMBLY

2.1 Overview



In this chapter, the product names are called as follows:

- WF-2540 Series: WF-2540/WF-2548/WF-2541
- WF-2530 Series: WF-2530/WF-2532/WF-2538/WF-2531
- WF-2520 Series: WF-2520/WF-2528/WF-2521
- WF-2510 Series: WF-2510/WF-2511/WF-2512
- WF-2010 Series: WF-2010

This chapter describes procedures for disassembling the main parts/units of this product. Unless otherwise specified, disassembled parts/units can be reassembled by reversing the disassembly procedure. See the cautions or tips for disassembly/reassembly described in "[2.3 Detailed Disassembly/Reassembly Procedure for each Part/Unit \(p40\)](#)".

Read the "[Safety Precautions\(p3\)](#)" before disassembling and reassembling.

When you have to remove units or parts that are not described in this chapter, see the exploded diagrams of SPI (Service Parts Information).

2.1.1 Tools

Use only specified tools to avoid damaging the printer.

Name	Availability	EPSON Part Code
(+) Phillips screwdriver #1	O	1080530
(+) Phillips screwdriver #2	O	---
Flathead screwdriver	O	---
Flathead Precision screwdriver #1	O	---
Tweezers	O	---
Longnose pliers	O	---
Acetate tape	---	1003963

Note 1: Some of the tools listed above are commercially available.

2: EPSON provides the tools listed with EPSON part code.

2.1.2 Jigs

Name	Quantity	EPSON Part Code
Spring hook jig*	1	Can be made with a commercial item See " Making the Spring Hook Jig (p20)" .
Thickness gauge (1.5 mm)	2	Commercially available
Thickness gauge (2.0 mm)	2	Commercially available
Sonic tension meter	1	1294120

Note *: If performing the disassembling/reassembling procedure is difficult using tweezers such as when reassembling "[Cap Lever / Cap Assy \(p47\)](#)", the spring hook jig helps you to remove/attach the spring easier.

2.1.2.1 Making the Spring Hook Jig

Fold a clip (commercial item) as shown in [Fig. 2-1](#).

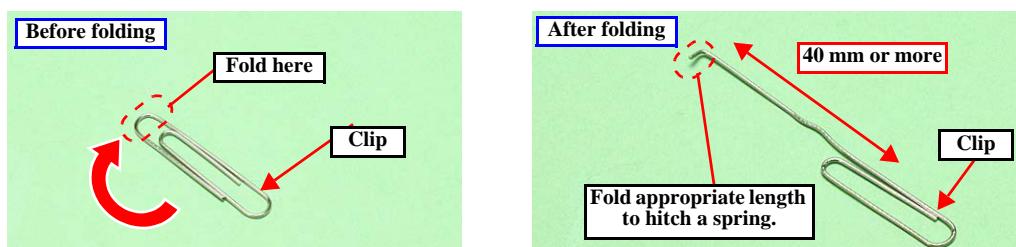


Figure 2-1. Making the Spring Hook Jig

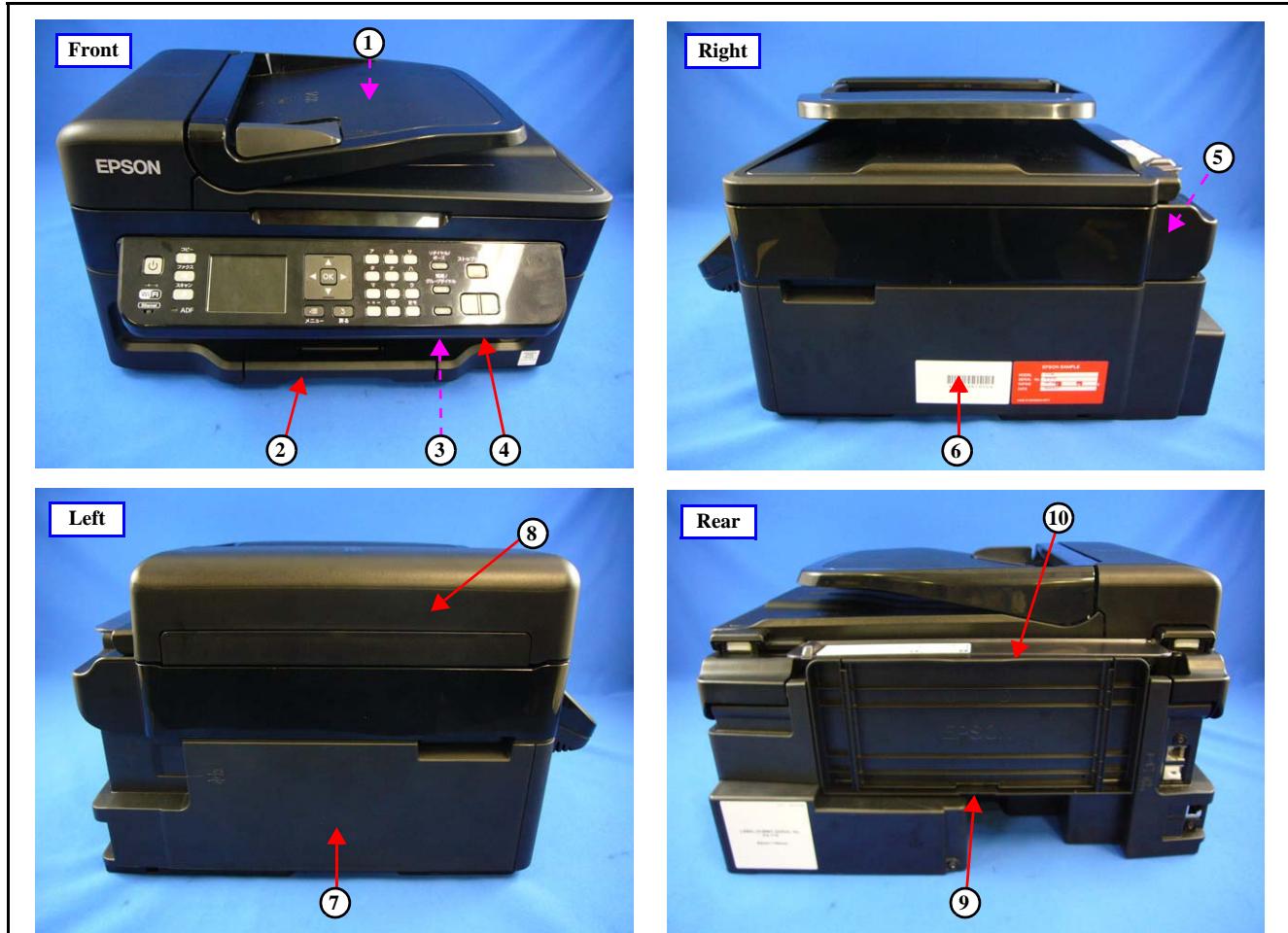
2.1.3 Locations of the Parts/Units

This section shows the locations of the main parts/units of this product.



The parts/units which can not be seen in the following pictures are indicated in dotted lines (→).

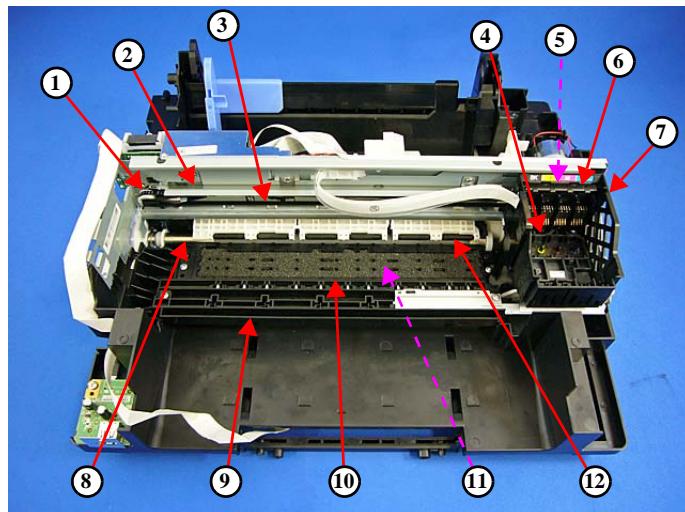
Exterior parts



No.	Name	No.	Name
1	Housing Rear (p30)		ADF/Scanner Unit (p30)
2	Tray Front Assy (p30)		• ADF Unit (p36) (ADF function compatible model) ADF Paper Guide Cover Assy (p31) / Paper Support Cover (p31) / Bevel Gear Shaft (p36) / Combination Gear 24.9.6 (p36) / ADF Document Support (p36) / ADF Pad Assy (p36)
3	Frame Base Assy (p35)		• Scanner Unit (p36) (Scanner function compatible model) Scanner Housing Upper (p36) / Scanner Carriage Unit (p36) / Scanner Housing Lower (p36) / CIS Module Unit (p36) / Scanner Motor (p36)
4	Panel Unit (p32) Panel Board (p37) / Panel Button (p37) / LCD Unit (p37) / Panel Housing Upper Assy (p37)	8	Paper Support (p30)
5	Hinge (p30) (Scanner function compatible model)	9	Paper Support Sub (p30)
6	Housing Right (p30)	10	
7	Housing Left Assy (p30) • Housing Left (p37) • Ethernet Cover (p37) (Ethernet function non-compatible model)		

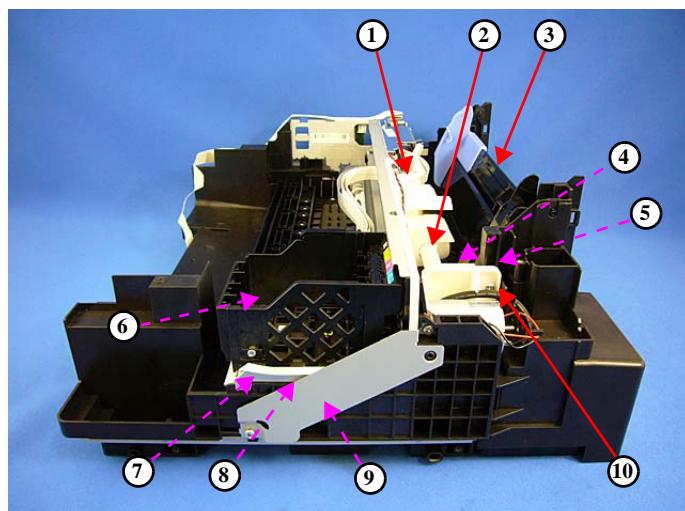
Figure 2-2. Exterior Parts

Printer mechanism



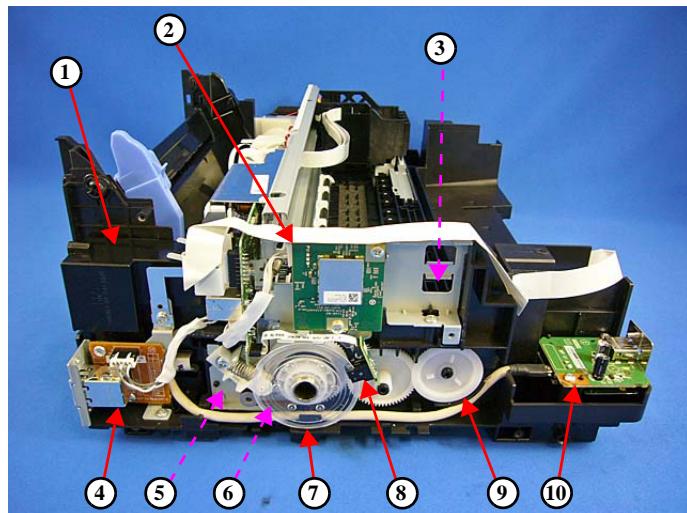
No.	Name	No.	Name
1	CR Driven Pulley Assy (p35)	7	CR Unit (p38)
2	CR Scale (p35)	8	PF Roller Unit (p38)
3	CR Timing Belt (p38)	9	Star Wheel Holder Assy (p31)
4	Printhead (p30)	10	Paper Guide Front Unit (p30)
5	CR Encoder Sensor (p38)	11	Paper Guide Lower Porous Pad (p30)
6	Holder Board Assy (p30)	12	Paper Guide Upper Assy (p38)

Figure 2-3. Printer Mechanism: Front



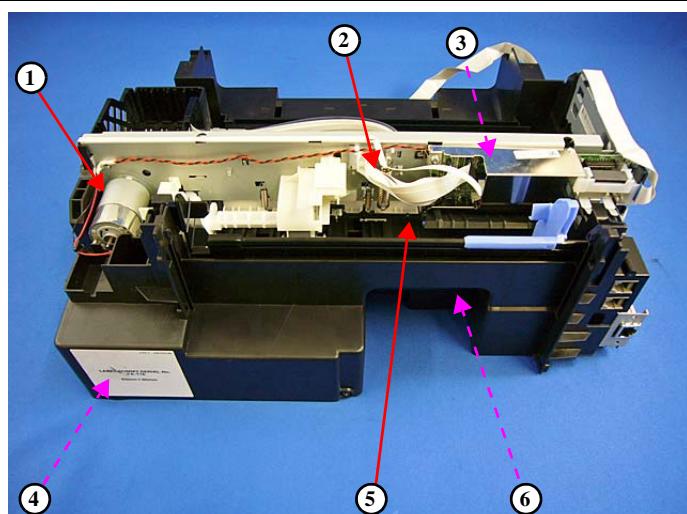
No.	Name	No.	Name
1	LD Roller Cover (p35)	6	PIS Board Assy (p30)
2	LD Roller Assy (p34)	7	Cap Lever (p31)
3	Hopper (p39)	8	Cap Assy (p31)
4	Retard Roller Assy (p30)	9	Porous Pad for Cap Assy (p33)
5	Paper Back Lever (p30)	10	Pump Unit (p38)

Figure 2-4. Printer Mechanism: Right



No.	Name	No.	Name
1	FAX Assy (p31) (FAX function compatible model)	5	PF Motor Assy (p38)
2	Wireless LAN Module (p34) (Wireless LAN function compatible model)	6	PF Timingbelt (p34)
3	EJ Roller (p31)	7	PF Scale (p34)
4	Ethernet Board Assy (p31) (Ethernet function compatible function)	8	PF Encoder Sensor (p34)
		9	EJ Roller Gear (p34)
		10	USB Board (p31) (USB function compatible model)

Figure 2-5. Printer Mechanism: Left



No.	Name	No.	Name
1	CR Motor (p34)	4	Waste Ink Pad Assy (p30)
2	Head FFC (p38)	5	PE Sensor Lever (p34)
3	Main Board (p34)	6	PS Unit (p34)

Figure 2-6. Printer Mechanism: Rear

2.1.4 Standard Operation Time for Servicing the Product

The following are the standard operation time for servicing the product. This standard operation time was determined with the MTTR result measured using the prototype of WF-2540 series which have the most functions. For other models described in this manual, perform the repair work referring to this standard operation time though the time varies due to the structural difference between models.

The underlined parts/units are supplied as After Service Parts.

Table 2-1. Standard Operation Time

Parts/Unit	Time (mm:ss)		
	Replacement	Adjustment/ inspection	
<u>Housing Rear</u>	0:36	1:31	2:07
<u>Paper Support</u>	0:09		
<u>Paper Support Sub</u>	0:23		
<u>Tray Front Assy</u>	0:15		
Tray Front	0:15		
Tray Front Support	0:22		
<u>Paper Guide Front Unit</u>	0:49	7:44	8:33
<u>Paper Guide Lower Porous Pad</u>	0:54	0:45	1:39
PIS Shield Plate A	0:33		
<u>PIS Board Assy</u>	1:11		
<u>Waste Ink Pad Assy</u>	0:42	0:45	1:27
<u>Paper Back Lever</u>	1:52		
<u>Retard Roller Assy</u>	2:00	0:47	2:47
FFC Cover Outer	0:26		
<u>Holder Board Assy</u>	0:56		
CR Contact Module	1:35		
CSIC Connector	1:46		
Holder Board	1:46		
<u>Printhead</u>	2:20	17:39	19:59
Reflector PIS Assy	0:37		
<u>ADF Paper Guide Cover Assy</u>	0:25		
ADF Cable Cover	0:27		
<u>Paper Support Cover</u>	0:06		
Document Mat	0:13		
ADF/Scanner Unit	2:46	2:52	5:38
<u>ADF Unit</u>	3:32	2:52	6:24
ADF Hinge Left	5:28		
ADF Document Support	7:06		
ADF Hinge Right	3:53		
Cover Gear Assy	4:29		
Bevel Gear Shaft	4:34		
<u>Combination Gear 24.9.6</u>	4:33		
ADF Frame Assy	5:04		
ADF Front Frame	6:00		
Spur Gear 20.4 / 25.8	6:04		

Table 2-1. Standard Operation Time

Parts/Unit	Time (mm:ss)		
	Replacement	Adjustment/ inspection	
ADF Driven Gears	6:42		
ADF Upper Frame Assy	6:44		
<u>ADF Pad Assy</u>	7:23		
ADF Base Assy	6:15		
<u>Scanner Unit</u>	3:30	2:52	6:22
Scanner Housing Upper	5:05		
CIS Module Unit	5:28		
Spacer	5:44		
CIS Module	5:44		
Scanner Motor Gear Cover	5:58		
Combination Gear 18.4.9.66	6:05		
Scanner Carriage Unit	6:09		
Scanner Motor	8:25		
CIS Holder Unit	8:25		
Scanner Housing Lower	6:09		
<u>Housing Left</u>	4:19		
<u>Panel FFC Cover</u>	3:04		
<u>Hinge</u>	3:02		
<u>Housing Right</u>	3:38		
Strengthen Plate Upper	4:09		
Strengthen Plate Lower	4:10		
<u>Cap Assy</u>	5:06		
Cap Lever	5:15		
<u>Porous Pad for Cap Assy</u>	5:21		
<u>PIS FFC</u>	7:27		
PIS Shield Plate B	8:05		
<u>Star Wheel Holder Assy</u>	8:38	3:18	11:56
<u>EJ Roller</u>	10:34	3:18	13:52
<u>Panel Unit</u>	5:27		
Panel Housing Upper Assy	6:01		
Panel Board	7:33		
LCD Unit	7:56		
Panel Button	9:04		
<u>Panel Housing Upper</u>	9:04		
<u>Housing Front</u>	7:00		
<u>USB Board</u>	7:41		
Main Board FFC Holder	4:45		
<u>Ethernet Board Assy</u>	5:05		
<u>FAX Assy</u>	5:23		
Wireless LAN Module	4:53		
<u>EJ Roller Gear</u>	4:33		
<u>PF Motor Cover</u>	4:28		

Table 2-1. Standard Operation Time

Parts/Unit	Time (mm:ss)		
	Replacement	Adjustment/ inspection	
<u>PS Unit</u>	4:41	1:28	6:09
<u>PF Scale Sheet</u>	4:29		
<u>PF Encoder Sensor</u>	4:43		
<u>PF Scale</u>	4:55		
PF Grounding Spring	5:02		
PF Driven Pulley Assy	5:39	1:10	6:49
PF Timing Belt	6:26	1:10	7:36
<u>Hopper</u>	5:00	3:03	8:03
LD Roller Assy	7:30	0:47	8:17
<u>Spur Gear 37.2</u>	7:34		
<u>Extension Spring 0.137</u>	7:46		
<u>Clutch</u>	7:50		
<u>LD Roller Shaft Assy</u>	7:50		
Shield Plate	8:01		
<u>Main Board</u>	EEPROM Data Copy OK EEPROM Data Copy NG	1:10	10:07
		27:58	36:55
<u>CR Motor</u>	9:26	1:00	10:26
<u>PE Sensor Lever</u>	10:23	0:47	11:10
<u>CR Scale</u>	7:22		
CR Driven Pulley Assy	7:54	3:07	11:01
CR Scale Cover Frame	8:35		
LD Roller Cover	8:59		
FFC Holder	9:06		
Main Frame Assy	18:26	11:16	29:42
Antistatic Cloth	18:54		
<u>Paper Guide Upper Assy</u>	23:08	7:21	30:29
<u>CR Unit</u>	21:56	9:52	31:48
<u>CR Timing Belt</u>	22:10	0:40	22:50
<u>CR Encoder Sensor</u>	22:22		
<u>Head FFC</u>	21:56		
Frame Base Assy	18:26		
<u>Pomp Unit</u>	21:27		
Spur Gear 16.5	21:36		
<u>PF Roller Unit</u>	24:35	5:51	30:26
<u>PF Motor Assy</u>	25:26	1:08	26:34
Frame Base	26:07	6:53	33:00

2.2 Disassembly/Reassembly Procedures

This section describes procedures for disassembling the parts/units in a flowchart format. For some parts/units, detailed procedures or precautions are provided (accordingly indicated by icons and cell's color). Refer to the explanations in the example chart below and perform an appropriate disassembling and assembling procedure. (See "[2.3 Detailed Disassembly/Reassembly Procedure for each Part/Unit \(p40\)](#)".) For routing cables, see "[2.4 Routing FFCs/cables \(p48\)](#)".

2.2.1 Configuration

This section describes the configuration of the disassembly flowchart.

The disassembly flowchart is divided into the “Multifunction Printer specific parts”, “Singlefunction Printer specific parts”, “Common Printer Mechanism”, and the “Unit/Assy”. Each section describes the following contents.

No.	Item	Description	Compatible Model
2.2.2.1	Multifunction Printer specific parts	Describes the disassembly flowchart for the Multifunction Printer-specific parts	WF-2540 Series WF-2530 Series WF-2520 Series WF-2510 Series
2.2.2.2	Singlefunction Printer specific parts	Describes the disassembly flowchart for the Singlefunction Printer-specific parts	WF-2010 Series
2.2.2.3	Common Printer Mechanism	Describes the disassembly flowchart for the Printer Mechanism common in the Multifunction Printer and Singlefunction Printer	Common to all models
2.2.2.4	Unit/Assy	Describes the disassembly flowchart for the Unit/Assy components	Common to all models

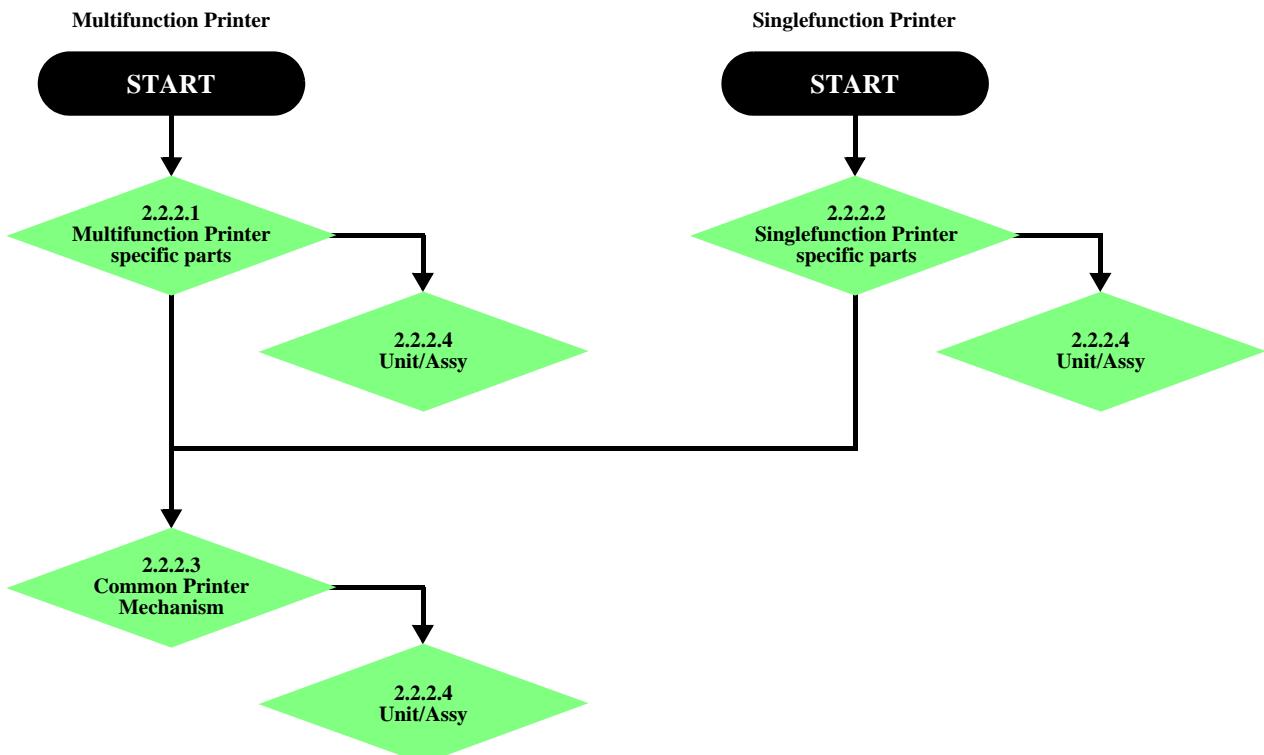


Figure 2-7. Configuration

2.2.2 Disassembly Flowchart

WF-2540 / WF-2530 / WF-2520 / WF-2510 / WF-2010 series described in this manual have differences in their structure because the same printer mechanism is used for some of them and the composition of housings or functions differs.

The functions and differences according to the models are as follows.

Table 2-2. Function List According to Models

Item		Multifunction Printer				Singlefunction Printer
		WF-2540 Series	WF-2530 Series	WF-2520 Series	WF-2510 Series	WF-2010
Scanner	Compatible	O	O	O	O	---
	Non-compatible	---	---	---	---	O
ADF	Compatible	O	O	O	---	---
	Non-compatible	---	---	---	O	O
Panel	2.5 inch LCD type	O	---	---	---	---
	2Line Bitmap type	---	O	O	O	---
	LED & Button type	---	---	---	---	O
FAX		O	O	O	O	---
Wireless LAN		O	O	---	O	O
Ethernet		O	---	O	---	O
USB		O	---	---	---	---
Disassembly Flowchart Start Position		p 30	p 30	p 30	p 30	p 32

Table 2-3. Components According to Functions

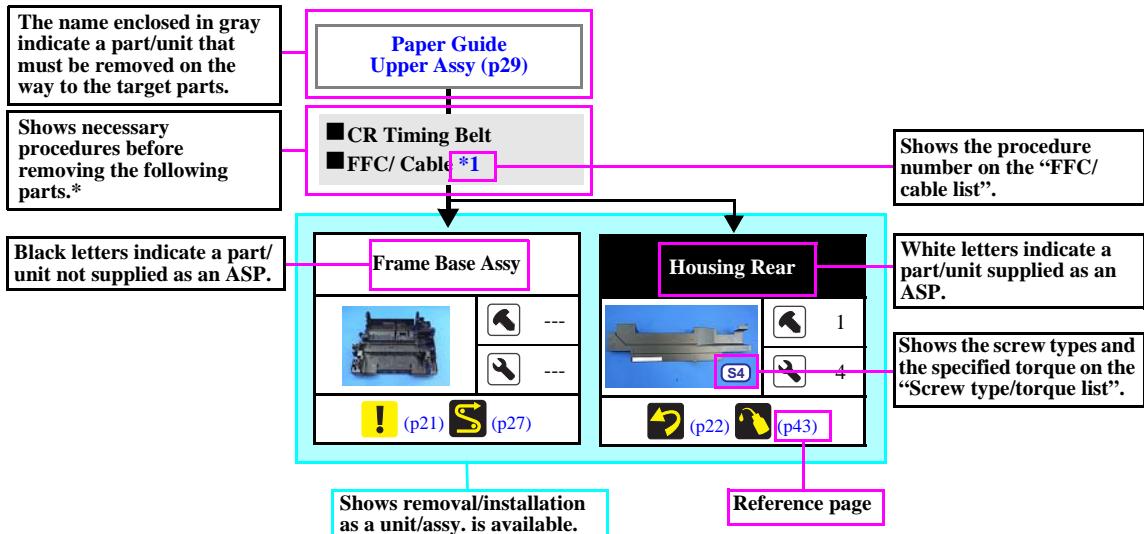
Item	Specification
Scanner	The following part is not mounted on the models without the Scanner. <ul style="list-style-type: none"> Scanner Unit Main Board FFC Holder
ADF	<ul style="list-style-type: none"> The ADF Unit is not mounted on the models without the ADF. The Document Cover Assy is mounted on the models without the ADF instead of the ADF Unit.
Panel	The shape and unit of components below differ due to the difference of specifications of Panel. <ul style="list-style-type: none"> Panel Unit Main Board Shield Plate
FAX	The FAX Assy is not mounted on the model without the FAX.
Wireless LAN	The Wireless LAN Module is not mounted on the models without the Wireless LAN.
Ethernet	<ul style="list-style-type: none"> The Ethernet Board Assy is not mounted on the models without the Ethernet. The shape and unit of components of the Housing Left Assy differ due to the support/unsupport of the Ethernet.
USB	The USB Board is not mounted on the models without the USB.

Therefore, parts and units are colored and classified into 2 types in the flowchart given in this section.

- Common parts/unit: Black
- Model-specific parts/unit: Red



The example below shows how to see the charts on the following pages.



1

: Indicates the connection to the disassembly flowchart for the Unit/Assy

A

: Indicates the connection between the disassembly flowchart

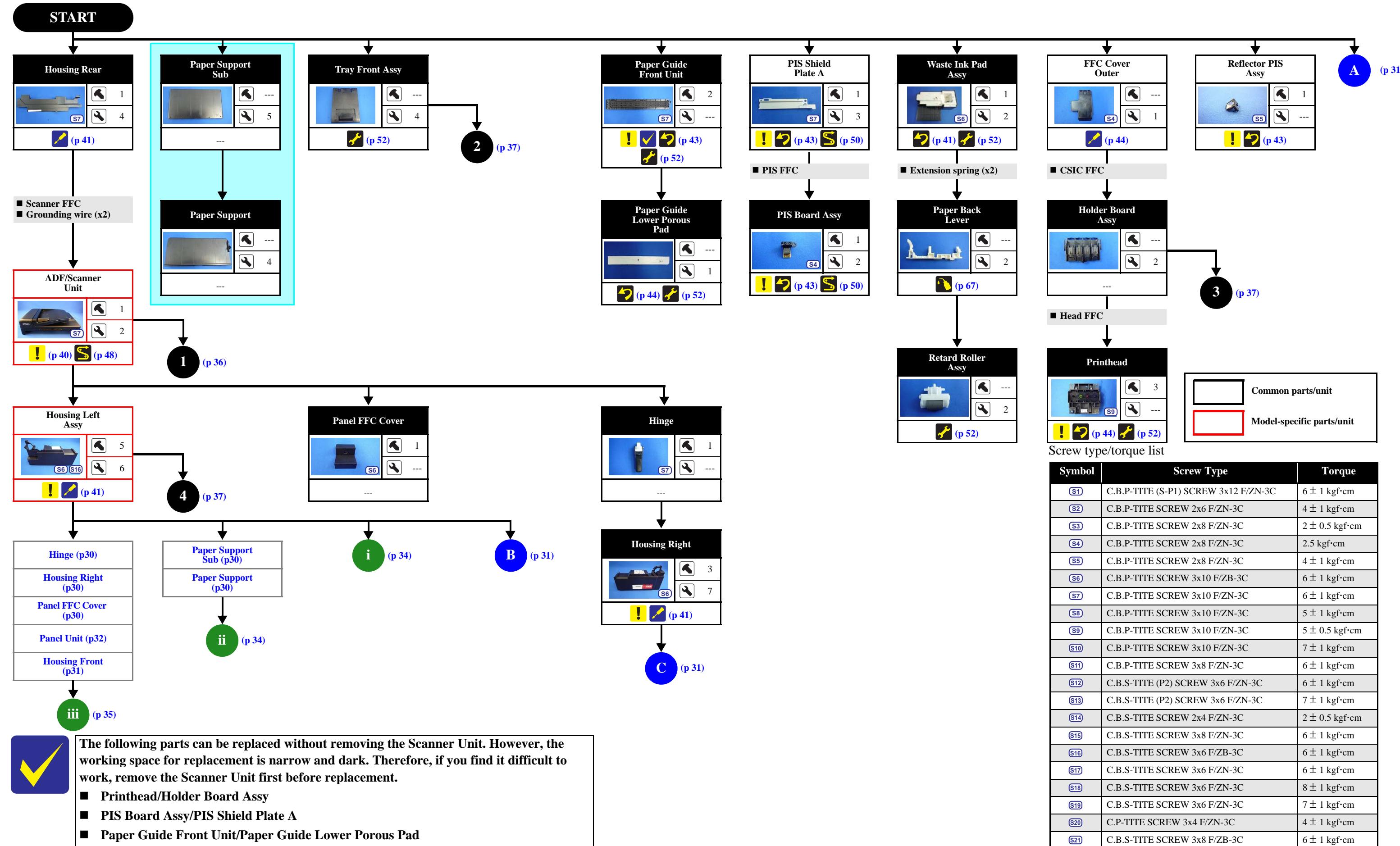
i

: Indicates the connection to the Common Printer Mechanism

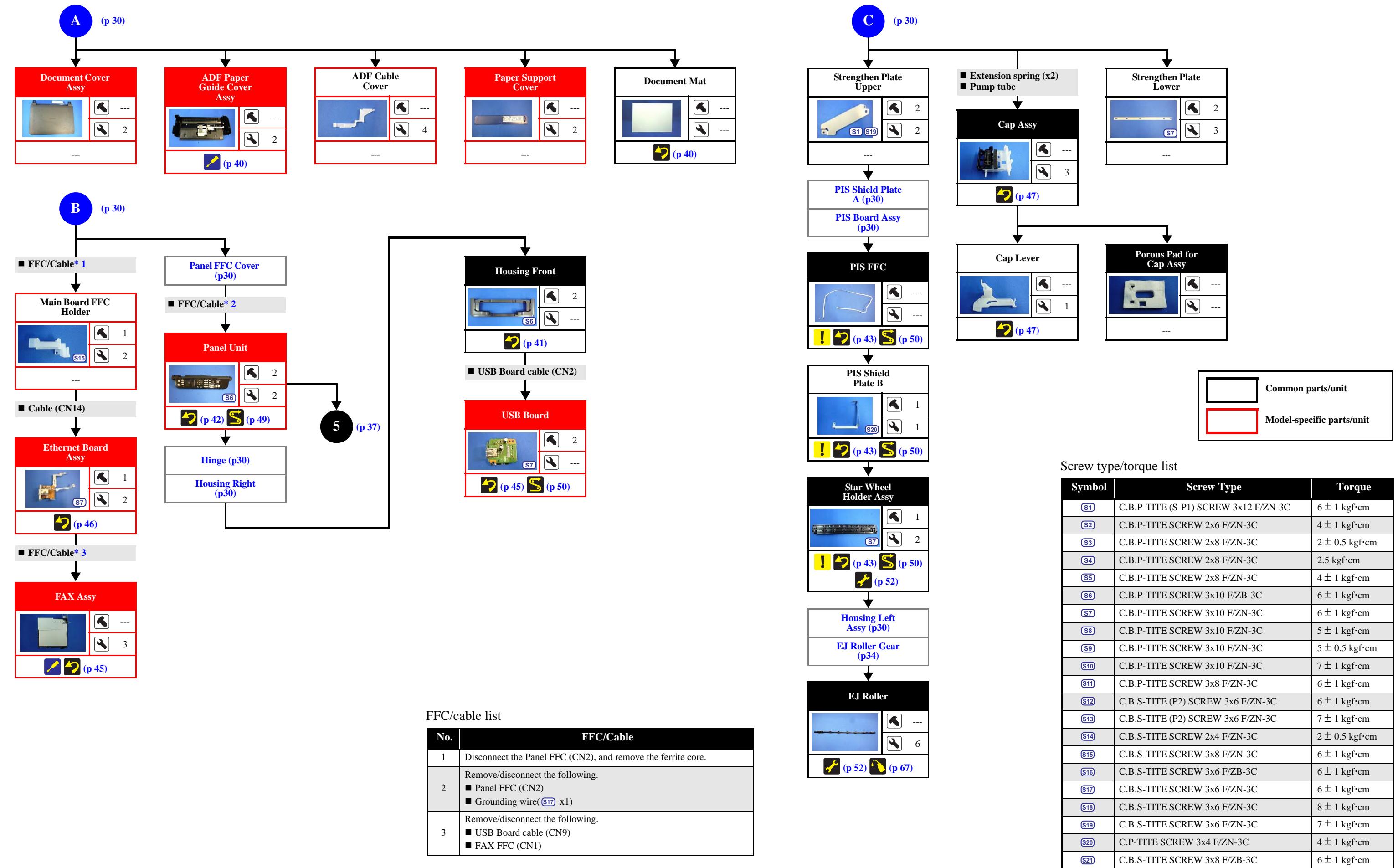
Note ***: The box with only part names means the removal of the parts. If the name of FFC or a cable is shown, disconnect the FFC or cable from the connector.

	Item	Description	Reference
Parts/unit name	White-letter	Part/unit supplied as an ASP	---
	Black-letter	Part/unit not supplied as an ASP	---
Icon		Indicates a practice or condition that could result in injury or loss of life if not strictly observed.	Indicates the reference page in blue-letter
		Indicates a practice or condition that could result in damage to, or destruction of equipment if not strictly observed.	Indicates the reference page in blue-letter
		Indicates the parts that are inevitably broken in the disassembling procedure, and should be replaced with a new one for reassembly.	Indicates the reference page in blue-letter
		Indicates necessary check items in the disassembling/assembling procedure.	Indicates the reference page in blue-letter
		Indicates supplementary explanation for disassembly is given.	Indicates the reference page in blue-letter
		Indicates particular tasks to keep quality of the units are required.	Indicates the reference page in blue-letter
		Indicates particular routing of cables is required.	Indicates the reference page in blue-letter
		Indicates particular adjustment(s) is/are required.	Chapter 3 "Adjustment (p52)"
		Indicates lubrication is required.	Chapter 4 "Maintenance (p67)"
		Indicates the number of screws securing the parts/units.	---
		Indicates the points secured with other than a screw such as a hook, rib, dowel or the like.	---

2.2.2.1 Multifunction Printer specific parts

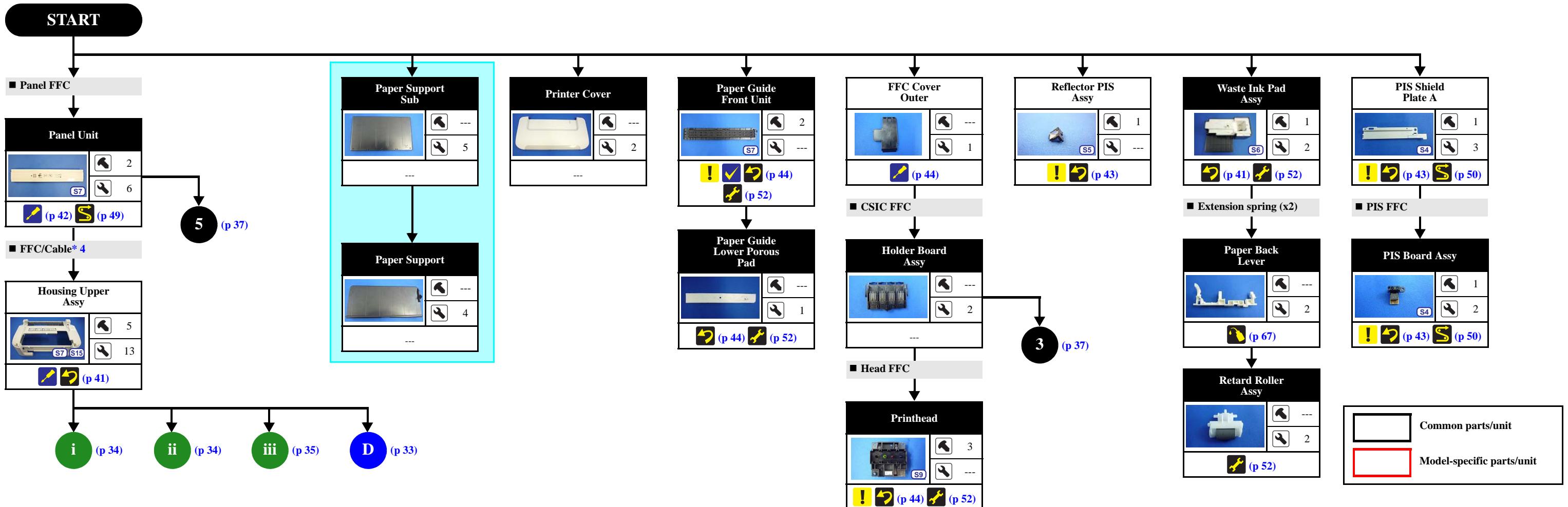


Flowchart 2-1. Multifunction Printer specific parts (1)



Flowchart 2-2. Multifunction Printer specific parts (2)

2.2.2.2 Singlefunction Printer specific parts



Screw type/torque list

Symbol	Screw Type	Torque
(S1)	C.B.P-TITE (S-P1) SCREW 3x12 F/ZN-3C	6 ± 1 kgf·cm
(S2)	C.B.P-TITE SCREW 2x6 F/ZN-3C	4 ± 1 kgf·cm
(S3)	C.B.P-TITE SCREW 2x8 F/ZN-3C	2 ± 0.5 kgf·cm
(S4)	C.B.P-TITE SCREW 2x8 F/ZN-3C	2.5 kgf·cm
(S5)	C.B.P-TITE SCREW 2x8 F/ZN-3C	4 ± 1 kgf·cm
(S6)	C.B.P-TITE SCREW 3x10 F/ZB-3C	6 ± 1 kgf·cm
(S7)	C.B.P-TITE SCREW 3x10 F/ZN-3C	6 ± 1 kgf·cm
(S8)	C.B.P-TITE SCREW 3x10 F/ZN-3C	5 ± 1 kgf·cm
(S9)	C.B.P-TITE SCREW 3x10 F/ZN-3C	5 ± 0.5 kgf·cm
(S10)	C.B.P-TITE SCREW 3x10 F/ZN-3C	7 ± 1 kgf·cm
(S11)	C.B.P-TITE SCREW 3x8 F/ZN-3C	6 ± 1 kgf·cm
(S12)	C.B.S-TITE (P2) SCREW 3x6 F/ZN-3C	6 ± 1 kgf·cm
(S13)	C.B.S-TITE (P2) SCREW 3x6 F/ZN-3C	7 ± 1 kgf·cm
(S14)	C.B.S-TITE SCREW 2x4 F/ZN-3C	2 ± 0.5 kgf·cm
(S15)	C.B.S-TITE SCREW 3x8 F/ZN-3C	6 ± 1 kgf·cm
(S16)	C.B.S-TITE SCREW 3x6 F/ZB-3C	6 ± 1 kgf·cm
(S17)	C.B.S-TITE SCREW 3x6 F/ZN-3C	6 ± 1 kgf·cm
(S18)	C.B.S-TITE SCREW 3x6 F/ZN-3C	8 ± 1 kgf·cm
(S19)	C.B.S-TITE SCREW 3x6 F/ZN-3C	7 ± 1 kgf·cm
(S20)	C.P-TITE SCREW 3x4 F/ZN-3C	4 ± 1 kgf·cm
(S21)	C.B.S-TITE SCREW 3x8 F/ZB-3C	6 ± 1 kgf·cm



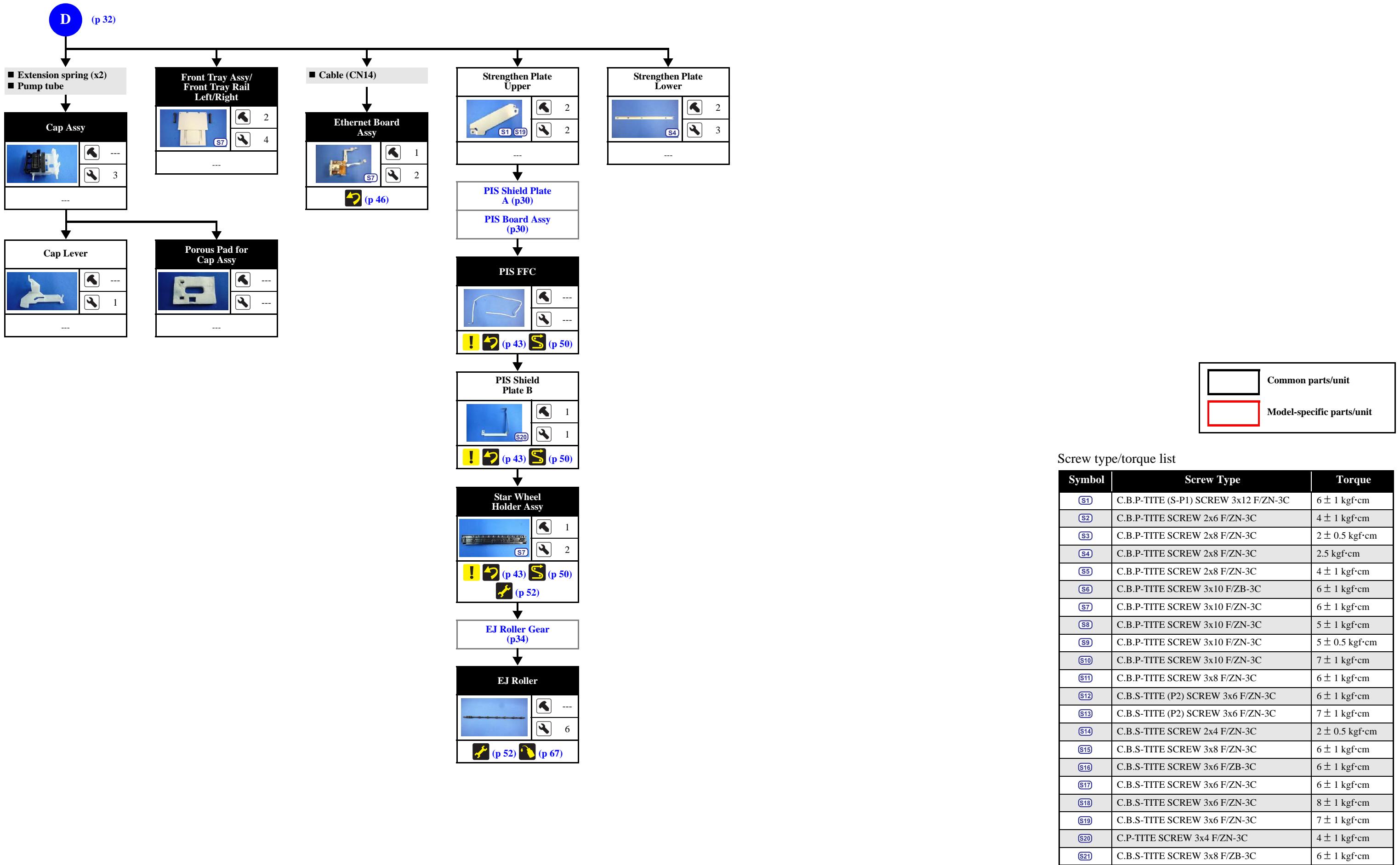
The following parts can be replaced without removing the Housing Upper Assy. However, the working space for replacement is narrow and dark. Therefore, if you find it difficult to work, remove the Housing Upper Assy first before replacement.

- Printhead/Holder Board Assy
- PIS Board Assy/PIS Shield Plate A
- Paper Guide Front Unit/Paper Guide Lower Porous Pad

FFC/cable list

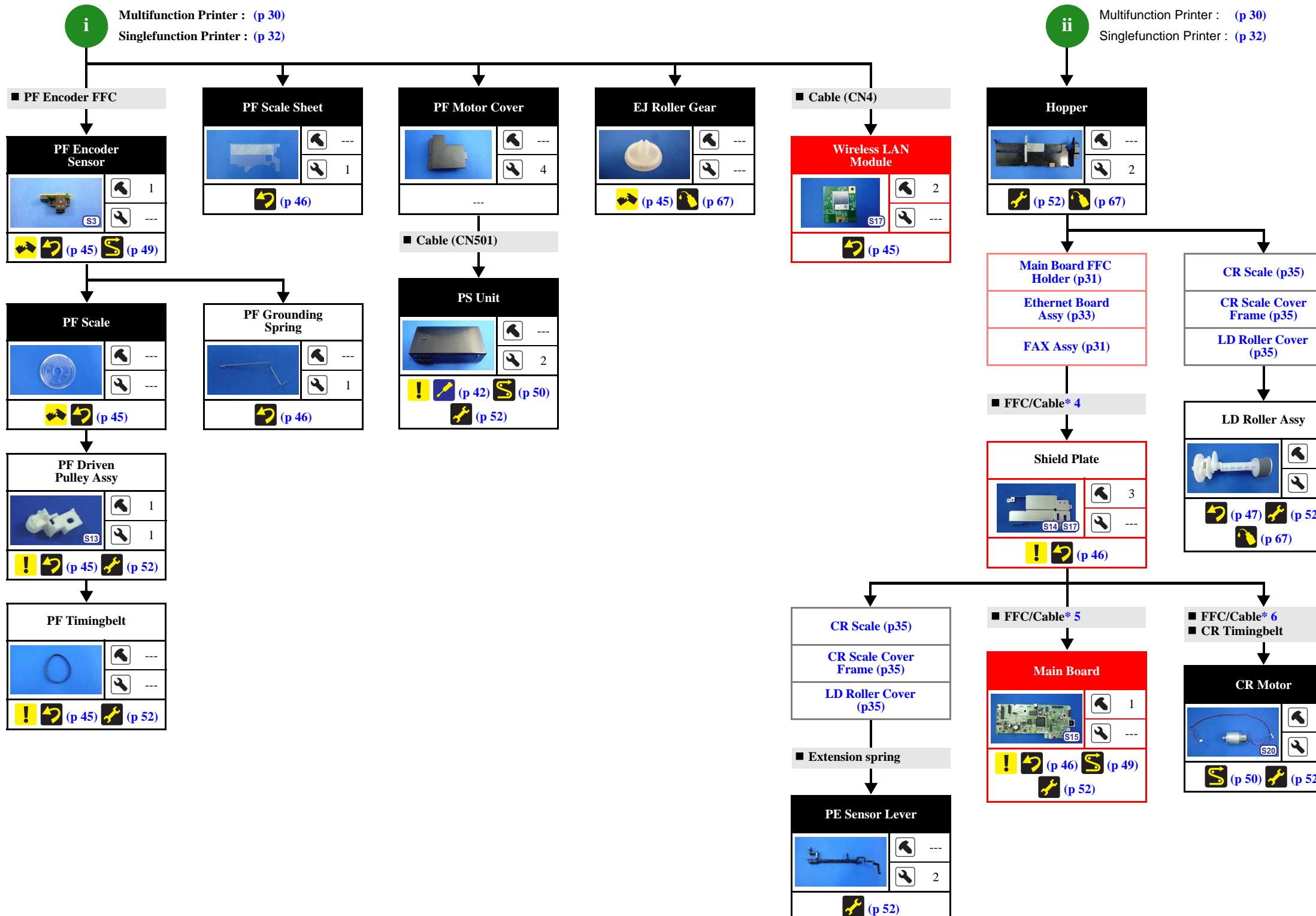
No.	FFC/Cable
4	Remove the double-sided tape of the Panel FFC (CN2) and remove the FFC/Cable from the Housing Upper Assy hole.

Flowchart 2-1. Singlefunction Printer specific parts (1)



Flowchart 2-2. Singlefunction Printer specific parts (2)

2.2.2.3 Common Printer Mechanism

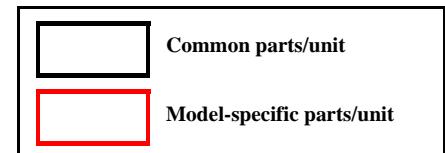


When the CR Unit or the Head FFC is removed from the Main Frame Assy, remove the following parts before removing the Main Frame Assy.

- FFC Cover Outer
- Holder Board Assy
- Printhead

FFC/cable list

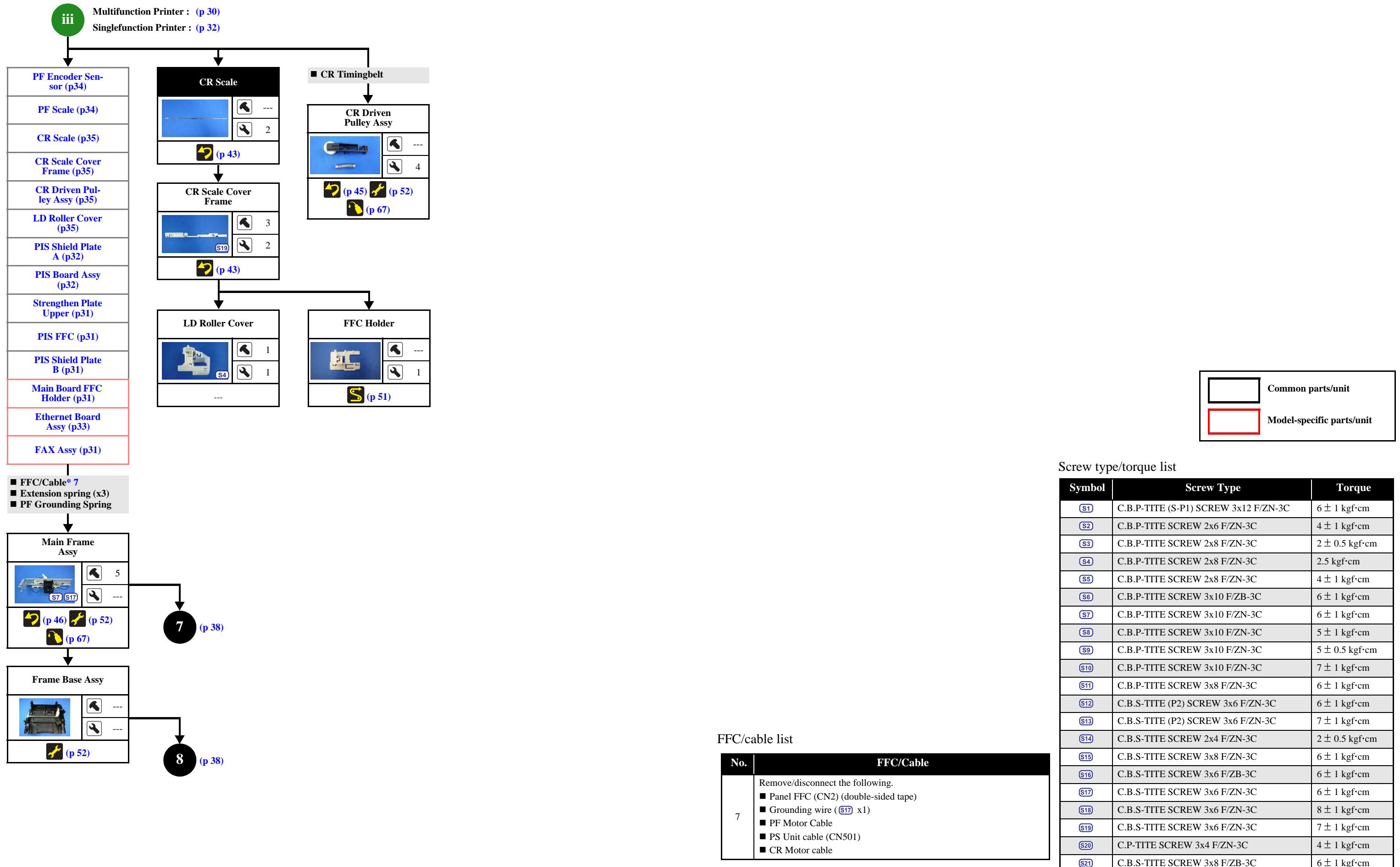
No.	FFC/Cable
4	Remove/disconnect the following. <ul style="list-style-type: none"> ■ Head FFC (CN102) ■ CSIC FFC (CN6) ■ PF Motor cable (CN13) ■ PS Unit cable (CN501)
5	Remove/disconnect all FFCs/cables.
6	Release the CR Motor cable from the hooks of the Main Frame and Frame Base.



Screw type/torque list

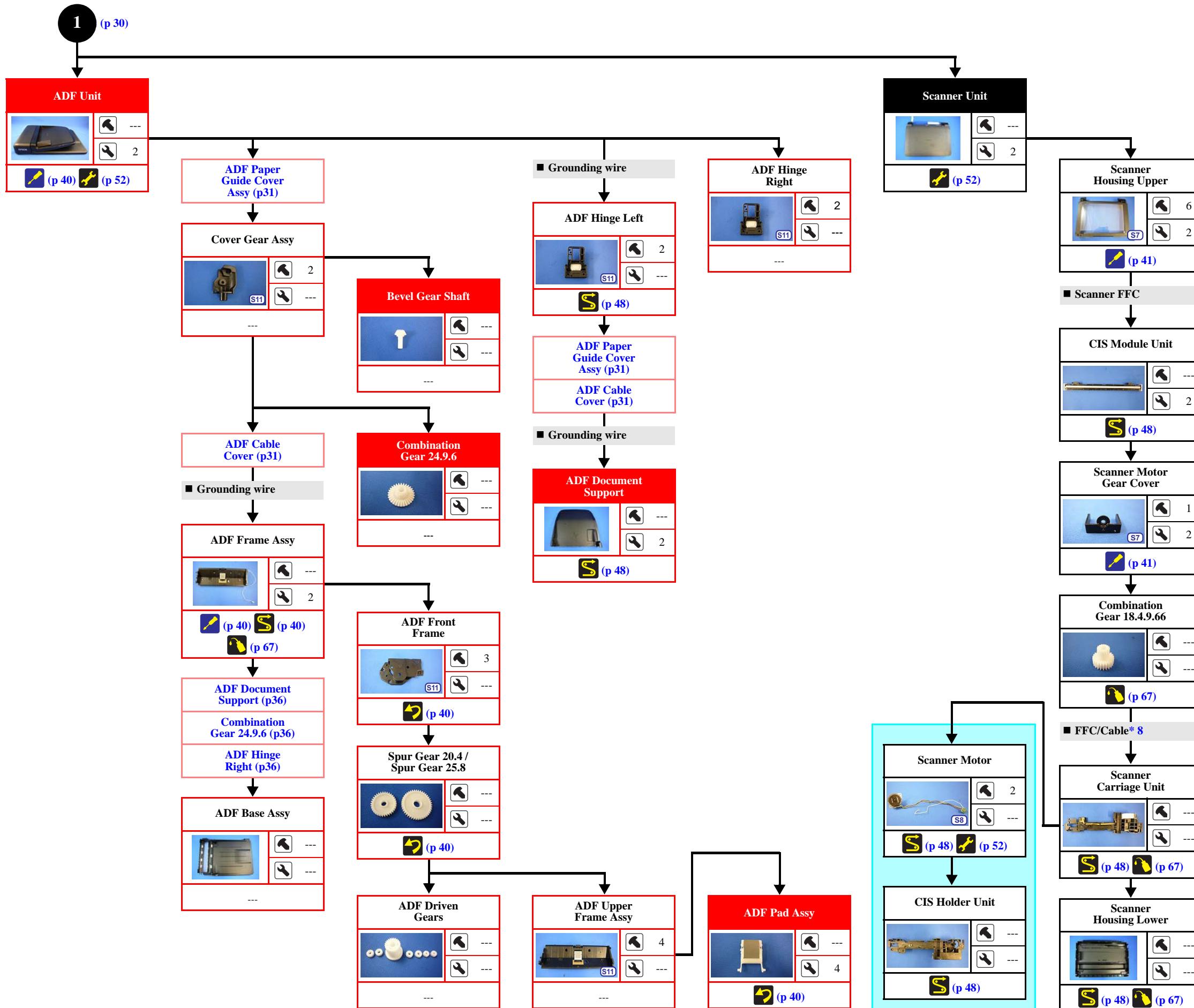
Symbol	Screw Type	Torque
(S1)	C.B.P-TITE (S-P1) SCREW 3x12 F/ZN-3C	6 ± 1 kgf·cm
(S2)	C.B.P-TITE SCREW 2x6 F/ZN-3C	4 ± 1 kgf·cm
(S3)	C.B.P-TITE SCREW 2x8 F/ZN-3C	2 ± 0.5 kgf·cm
(S4)	C.B.P-TITE SCREW 2x8 F/ZN-3C	2.5 kgf·cm
(S5)	C.B.P-TITE SCREW 2x8 F/ZN-3C	4 ± 1 kgf·cm
(S6)	C.B.P-TITE SCREW 3x10 F/ZB-3C	6 ± 1 kgf·cm
(S7)	C.B.P-TITE SCREW 3x10 F/ZN-3C	6 ± 1 kgf·cm
(S8)	C.B.P-TITE SCREW 3x10 F/ZN-3C	5 ± 1 kgf·cm
(S9)	C.B.P-TITE SCREW 3x10 F/ZN-3C	5 ± 0.5 kgf·cm
(S10)	C.B.P-TITE SCREW 3x10 F/ZN-3C	7 ± 1 kgf·cm
(S11)	C.B.P-TITE SCREW 3x8 F/ZN-3C	6 ± 1 kgf·cm
(S12)	C.B.S-TITE (P2) SCREW 3x6 F/ZN-3C	6 ± 1 kgf·cm
(S13)	C.B.S-TITE (P2) SCREW 3x6 F/ZN-3C	7 ± 1 kgf·cm
(S14)	C.B.S-TITE SCREW 2x4 F/ZN-3C	2 ± 0.5 kgf·cm
(S15)	C.B.S-TITE SCREW 3x6 F/ZN-3C	6 ± 1 kgf·cm
(S16)	C.B.S-TITE SCREW 3x6 F/ZN-3C	6 ± 1 kgf·cm
(S17)	C.B.S-TITE SCREW 3x6 F/ZN-3C	6 ± 1 kgf·cm
(S18)	C.B.S-TITE SCREW 3x6 F/ZN-3C	8 ± 1 kgf·cm
(S19)	C.B.S-TITE SCREW 3x6 F/ZN-3C	7 ± 1 kgf·cm
(S20)	C.P-TITE SCREW 3x4 F/ZN-3C	4 ± 1 kgf·cm
(S21)	C.B.S-TITE SCREW 3x8 F/ZB-3C	6 ± 1 kgf·cm

Flowchart 2-1. Common Printer Mechanism (1)

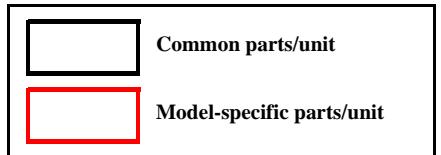


Flowchart 2-2. Common Printer Mechanism (2)

2.2.2.4 Unit/Assy

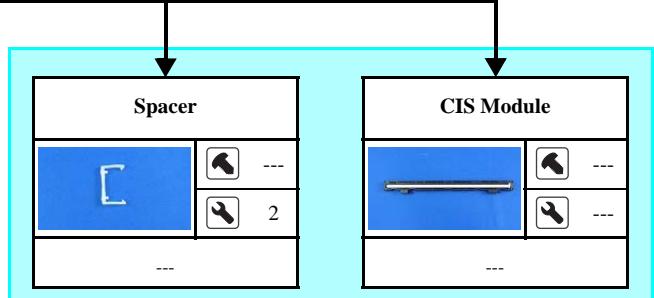


Flowchart 2-1. Unit/Assy (1)



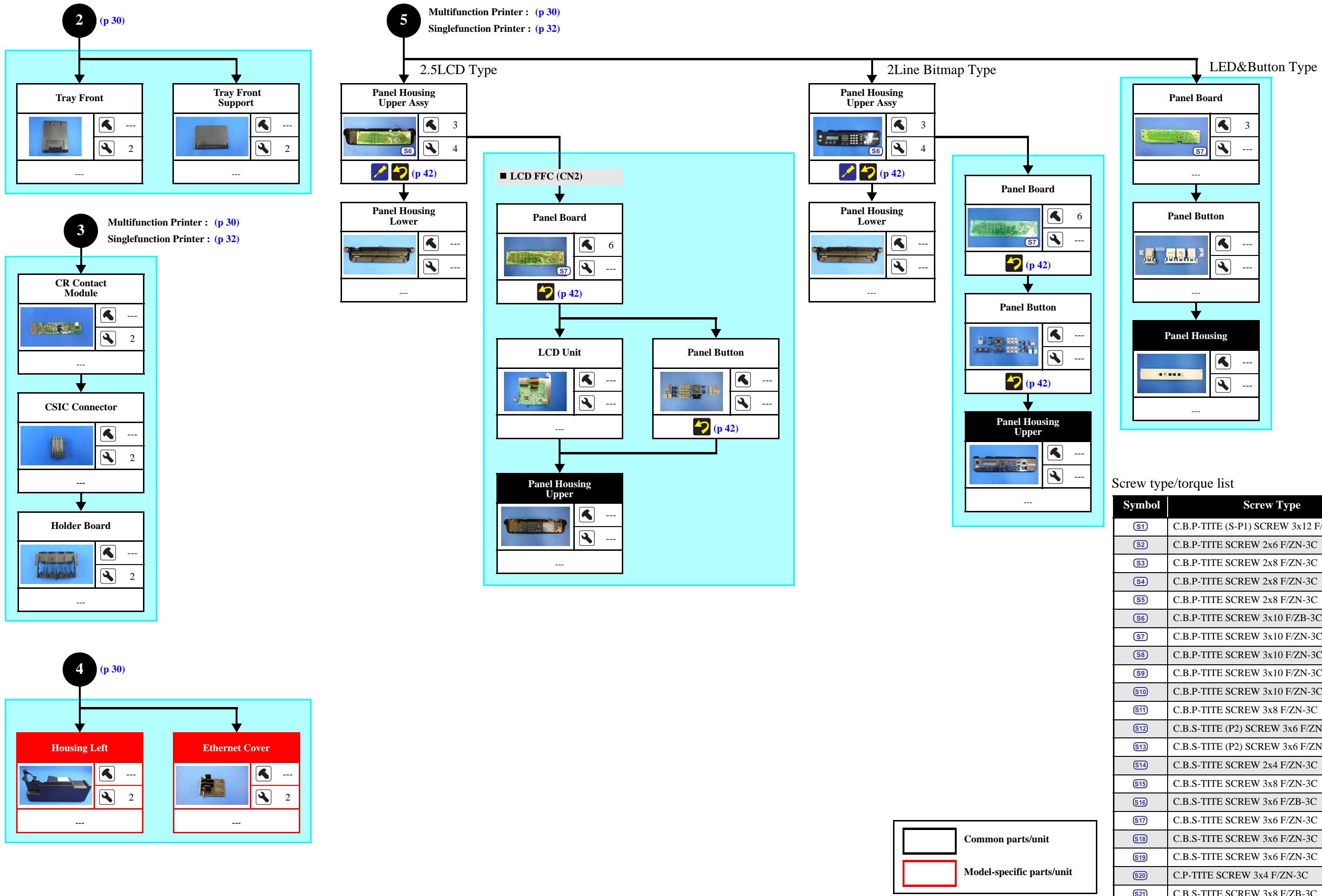
FFC/cable list

No.	FFC/Cable
8	Remove the double-sided tape (x1) and release the Scanner FFC.

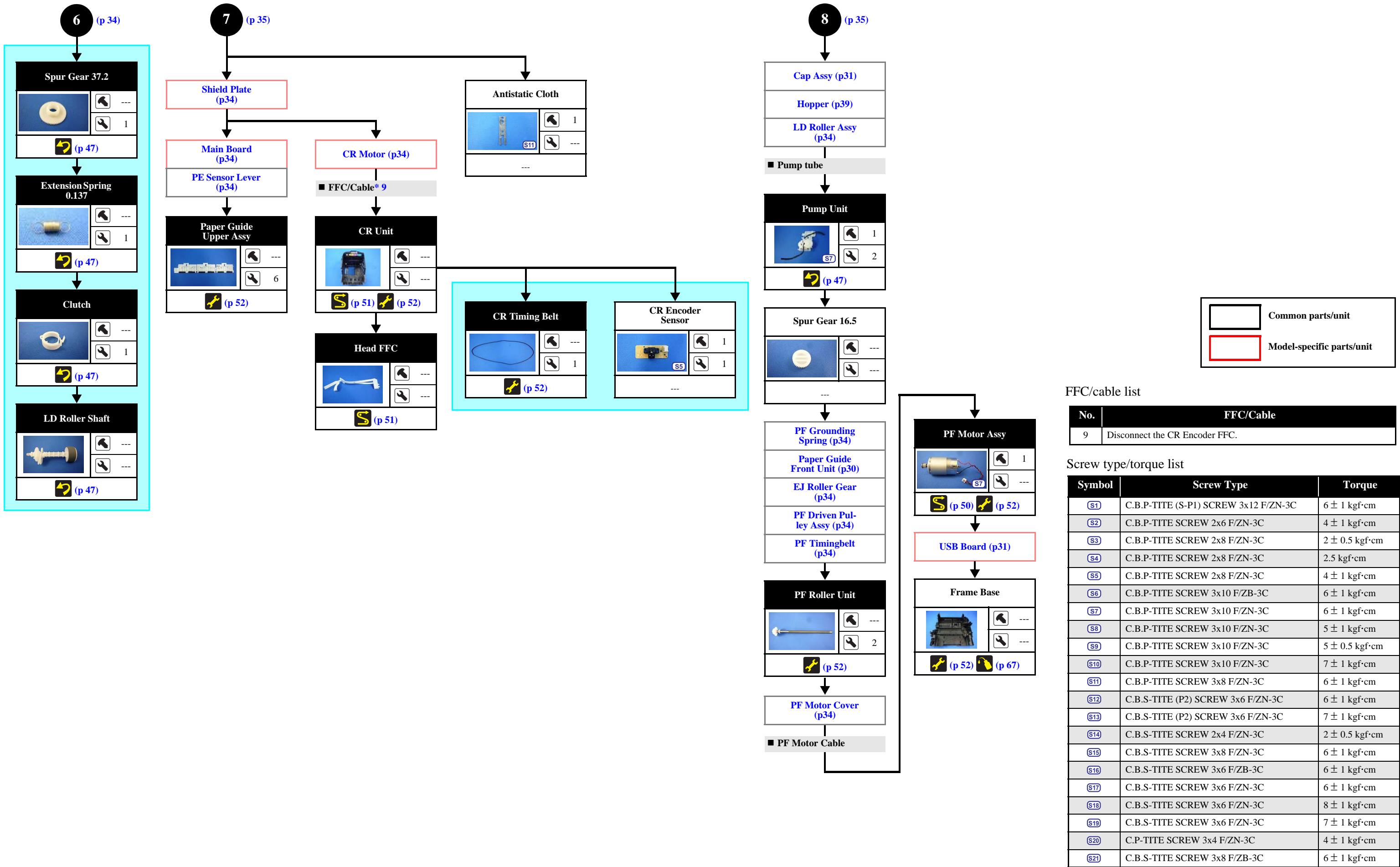


Screw type/torque list

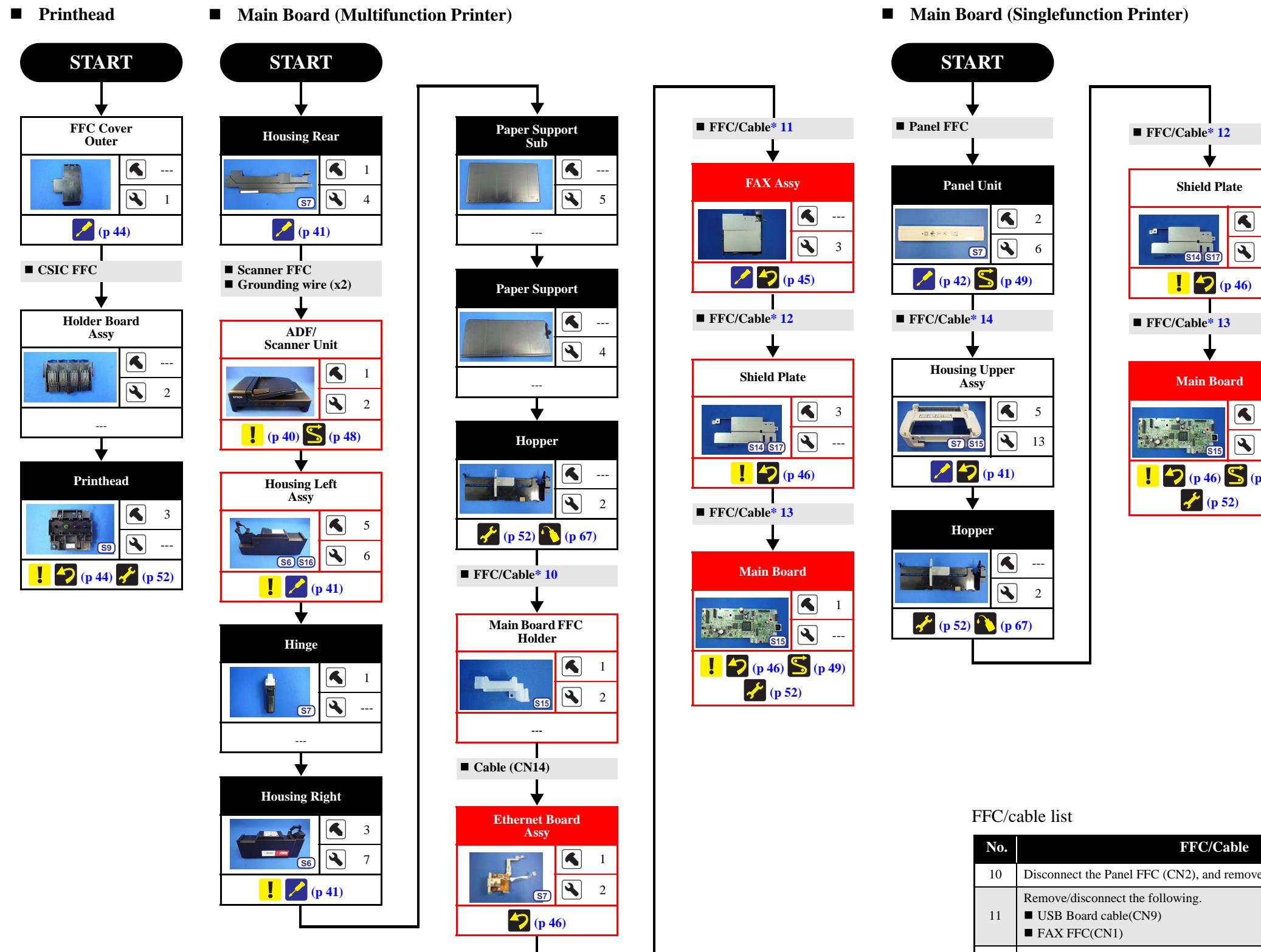
Symbol	Screw Type	Torque
S1	C.B.P-TITE (S-P1) SCREW 3x12 F/ZN-3C	6 ± 1 kgf·cm
S2	C.B.P-TITE SCREW 2x6 F/ZN-3C	4 ± 1 kgf·cm
S3	C.B.P-TITE SCREW 2x8 F/ZN-3C	2 ± 0.5 kgf·cm
S4	C.B.P-TITE SCREW 2x8 F/ZN-3C	2.5 kgf·cm
S5	C.B.P-TITE SCREW 2x8 F/ZN-3C	4 ± 1 kgf·cm
S6	C.B.P-TITE SCREW 3x10 F/ZB-3C	6 ± 1 kgf·cm
S7	C.B.P-TITE SCREW 3x10 F/ZN-3C	6 ± 1 kgf·cm
S8	C.B.P-TITE SCREW 3x10 F/ZN-3C	5 ± 1 kgf·cm
S9	C.B.P-TITE SCREW 3x10 F/ZN-3C	5 ± 0.5 kgf·cm
S10	C.B.P-TITE SCREW 3x10 F/ZN-3C	7 ± 1 kgf·cm
S11	C.B.P-TITE SCREW 3x8 F/ZN-3C	6 ± 1 kgf·cm
S12	C.B.S-TITE (P2) SCREW 3x6 F/ZN-3C	6 ± 1 kgf·cm
S13	C.B.S-TITE (P2) SCREW 3x6 F/ZN-3C	7 ± 1 kgf·cm
S14	C.B.S-TITE SCREW 2x4 F/ZN-3C	2 ± 0.5 kgf·cm
S15	C.B.S-TITE SCREW 3x8 F/ZN-3C	6 ± 1 kgf·cm
S16	C.B.S-TITE SCREW 3x6 F/ZB-3C	6 ± 1 kgf·cm
S17	C.B.S-TITE SCREW 3x6 F/ZN-3C	6 ± 1 kgf·cm
S18	C.B.S-TITE SCREW 3x6 F/ZN-3C	8 ± 1 kgf·cm
S19	C.B.S-TITE SCREW 3x6 F/ZN-3C	7 ± 1 kgf·cm
S20	C.P-TITE SCREW 3x4 F/ZN-3C	4 ± 1 kgf·cm
S21	C.B.S-TITE SCREW 3x8 F/ZB-3C	6 ± 1 kgf·cm



Flowchart 2-2. Unit/Assy (2)

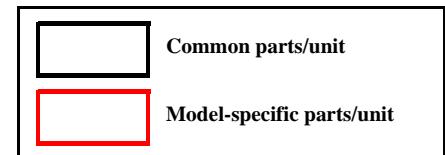
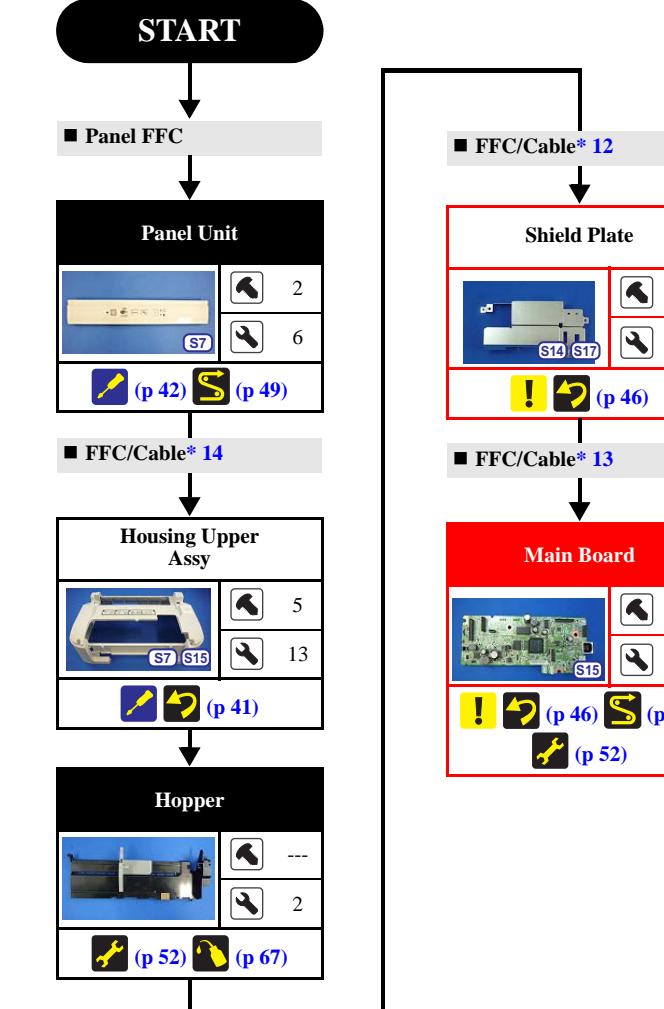


2.2.3 Disassembly Flowchart (Printhead/Main Board)



The Printhead can be replaced without removing the ADF/Scanner Unit. However, the working space for replacement is narrow and dark. Therefore, if you find it difficult to work, remove the ADF/Scanner Unit first before replacement.

Main Board (Singlefunction Printer)



Screw type/torque list

Symbol	Screw Type	Torque
S1	C.B.P-TITE (S-P1) SCREW 3x12 F/ZN-3C	6 ± 1 kgf·cm
S2	C.B.P-TITE SCREW 2x6 F/ZN-3C	4 ± 1 kgf·cm
S3	C.B.P-TITE SCREW 2x8 F/ZN-3C	2 ± 0.5 kgf·cm
S4	C.B.P-TITE SCREW 2x8 F/ZN-3C	2.5 kgf·cm
S5	C.B.P-TITE SCREW 2x8 F/ZN-3C	4 ± 1 kgf·cm
S6	C.B.P-TITE SCREW 3x10 F/ZB-3C	6 ± 1 kgf·cm
S7	C.B.P-TITE SCREW 3x10 F/ZN-3C	6 ± 1 kgf·cm
S8	C.B.P-TITE SCREW 3x10 F/ZN-3C	5 ± 1 kgf·cm
S9	C.B.P-TITE SCREW 3x10 F/ZN-3C	5 ± 0.5 kgf·cm
S10	C.B.P-TITE SCREW 3x10 F/ZN-3C	7 ± 1 kgf·cm
S11	C.B.P-TITE SCREW 3x8 F/ZN-3C	6 ± 1 kgf·cm
S12	C.B.S-TITE (P2) SCREW 3x6 F/ZN-3C	6 ± 1 kgf·cm
S13	C.B.S-TITE (P2) SCREW 3x6 F/ZN-3C	7 ± 1 kgf·cm
S14	C.B.S-TITE SCREW 2x4 F/ZN-3C	2 ± 0.5 kgf·cm
S15	C.B.S-TITE SCREW 3x8 F/ZN-3C	6 ± 1 kgf·cm
S16	C.B.S-TITE SCREW 3x6 F/ZB-3C	6 ± 1 kgf·cm
S17	C.B.S-TITE SCREW 3x6 F/ZN-3C	6 ± 1 kgf·cm
S18	C.B.S-TITE SCREW 3x6 F/ZN-3C	8 ± 1 kgf·cm
S19	C.B.S-TITE SCREW 3x6 F/ZN-3C	7 ± 1 kgf·cm
S20	C.P-TITE SCREW 3x4 F/ZN-3C	4 ± 1 kgf·cm
S21	C.B.S-TITE SCREW 3x8 F/ZB-3C	6 ± 1 kgf·cm

FFC/cable list

No.	FFC/Cable
10	Disconnect the Panel FFC (CN2), and remove the ferrite core.
11	Remove/disconnect the following. ■ USB Board cable(CN9) ■ FAX FFC(CN1)
12	Remove/disconnect the following. ■ HeadFFC (CN102) ■ CSIC FFC (CN6) ■ PF Motor cable (CN13) ■ PS Unit cable(CN501)
13	Remove/disconnect all FFCs/ cables.
14	Remove the double-sided tape of the Panel FFC (CN2) and remove the FFC/Cable from the Housing Upper Assy hole.

Flowchart 2-4. Disassembly Flowchart (Printhead/Main Board)

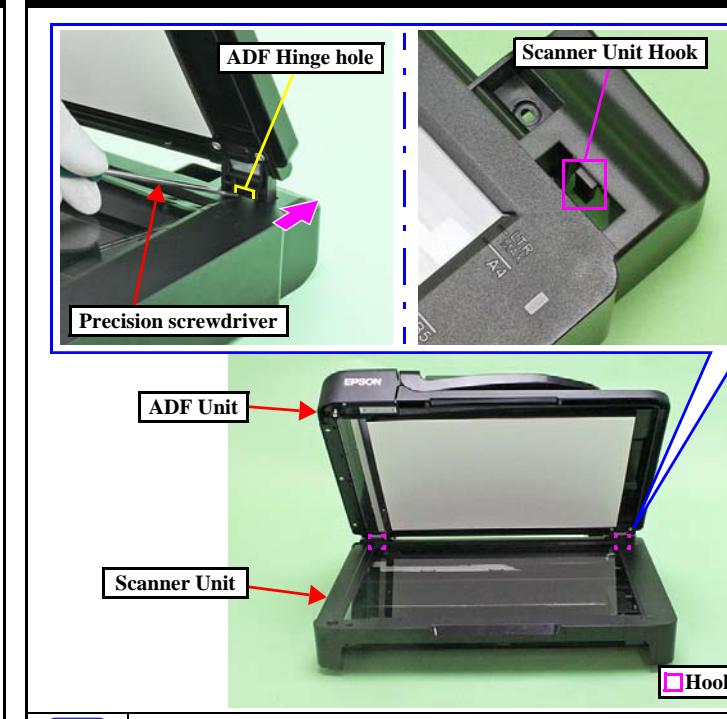
2.3 Detailed Disassembly/Reassembly Procedure for each Part/Unit

ADF/Scanner Unit (ADF compatible model)



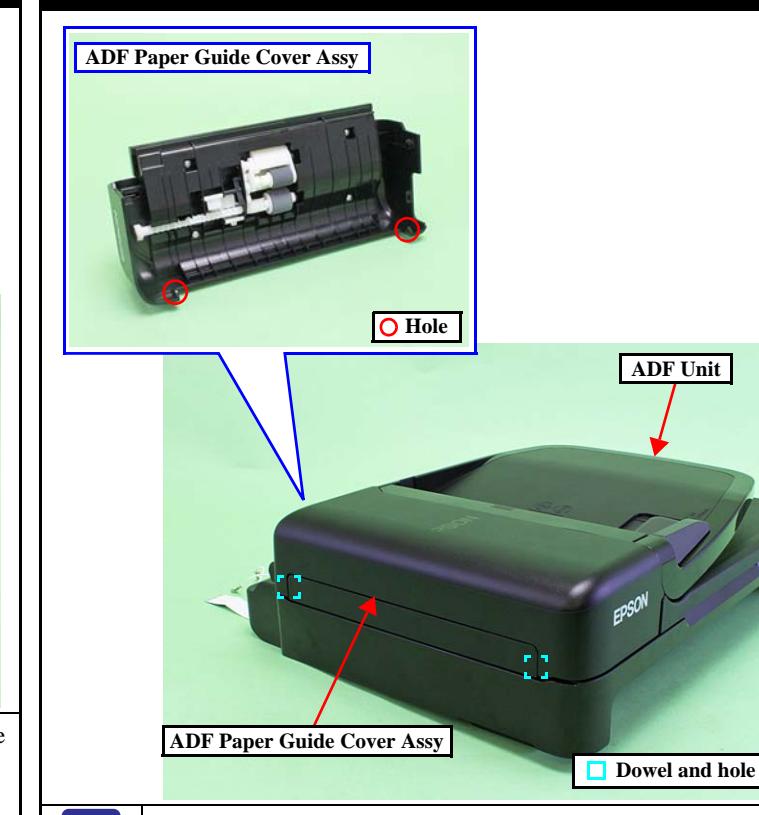
! Tighten the screw of the ADF/Scanner Unit by supporting the ADF/Scanner Unit.
Without the support, the ADF/Scanner Unit may drop out from the Hinge by its weight and it may damage the ADF/Scanner Unit.

ADF Unit (ADF compatible model)



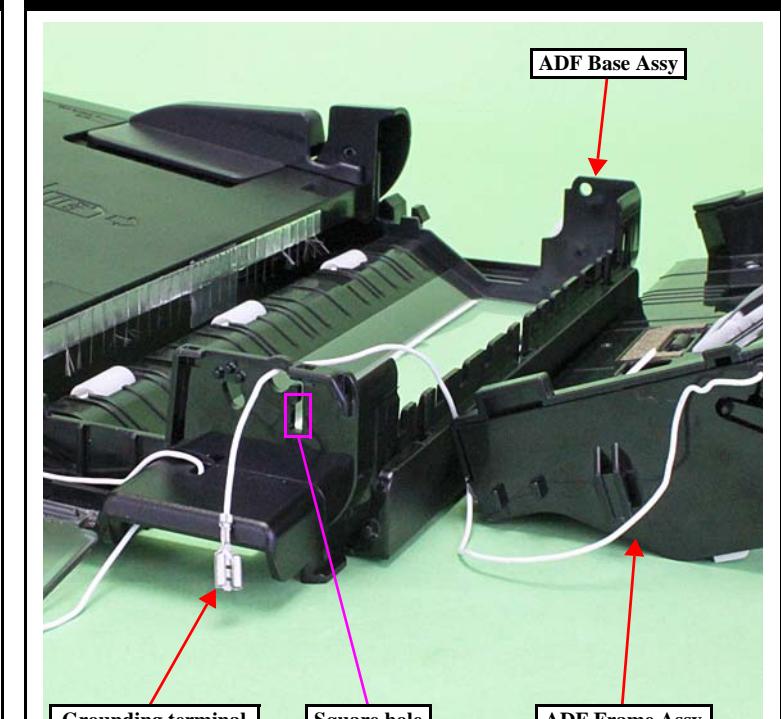
- When removing the ADF Unit from the Scanner Unit, remove the Hinge Left/Right from the Hook on the Scanner Unit.
- Release the hooks (x2) on the Scanner Unit by inserting the precision screwdriver to the hole of the ADF Unit Left/Right to push the Hook to the rear.

ADF Paper Guide Cover Assy (ADF compatible model)



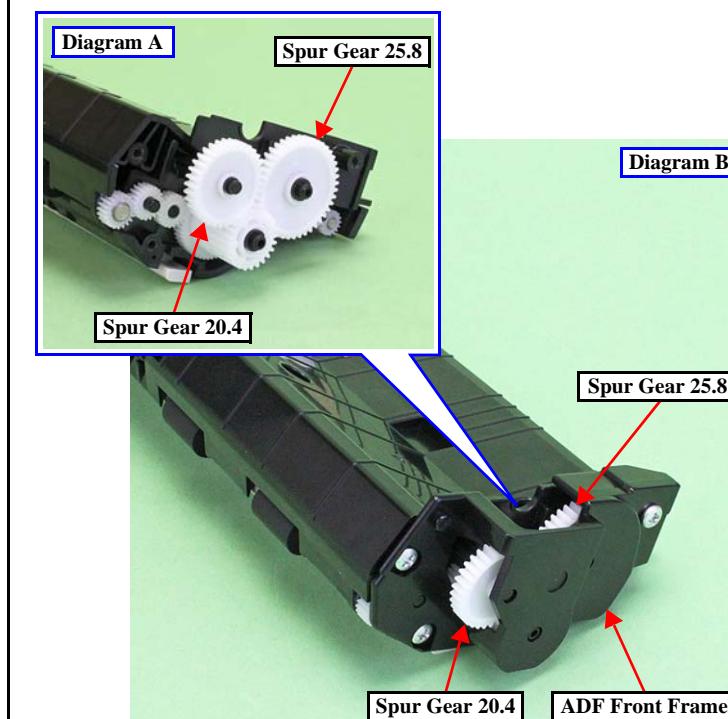
- Remove the ADF Paper Guide Cover Assy by removing the holes (x2) of the dowels (x2) of the ADF Unit.

ADF Frame Assy (ADF compatible model)

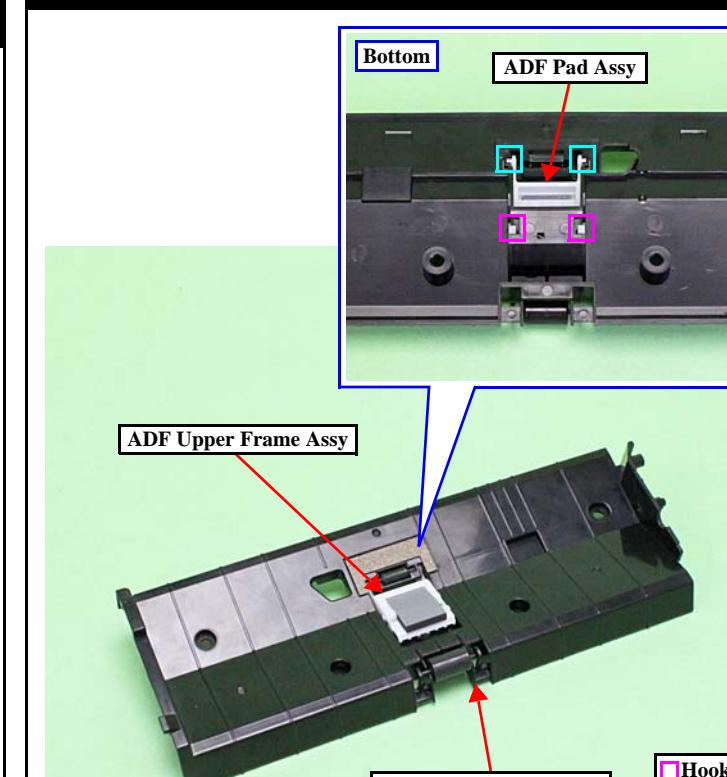


- When removing the ADF Frame Assy, remove the grounding terminal of the ADF Frame Assy through the square hole of the ADF Base Assy.

ADF Front Frame / Spur Gear 25.8/20.4 (ADF compatible model)



ADF Pad Assy (ADF compatible model)



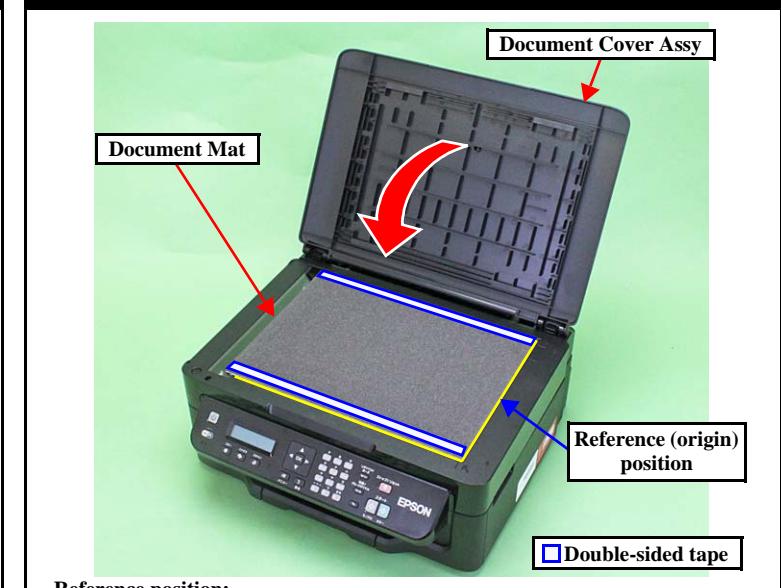
- Remove the ADF Pad Assy by removing the hooks (x2) and dowels (x2) of the ADF Pad Assy from the ADF Upper Frame Assy.

Document Mat (ADF compatible model)



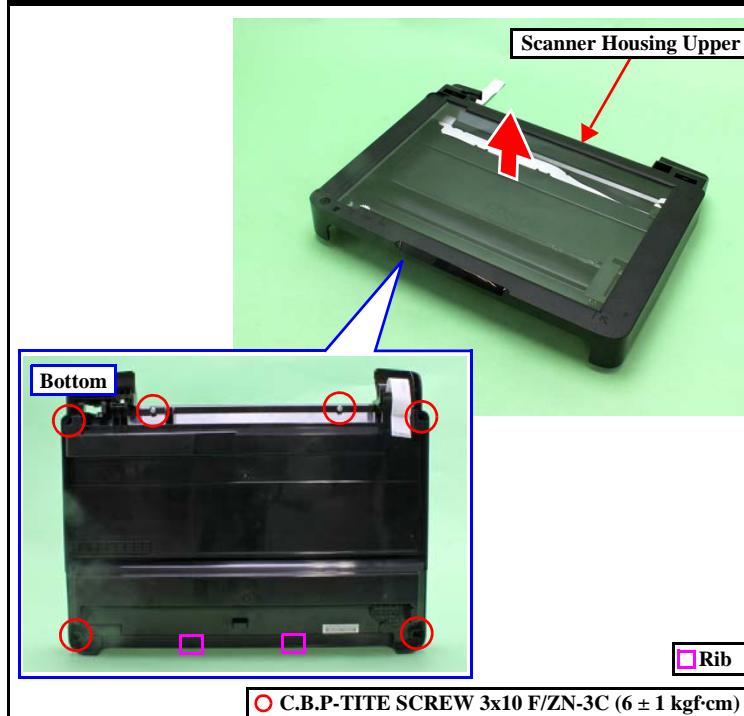
- When attaching the Document Mat to the ADF Unit, follow the procedure below.
 1. Attach double-sided tape on the two long sides of the Document Mat.
 2. Place the mat on the document glass with double-sided tape attachment side upward while aligning it with the standard line of the document glass shown above.
 3. Close the Document Cover and stick the Document Mat to the Document Cover.
 4. Open the Document Cover and press the double-sided tape attachment side to secure the Document Mat to the ADF Unit securely.

Document Mat (ADF non-compatible model)

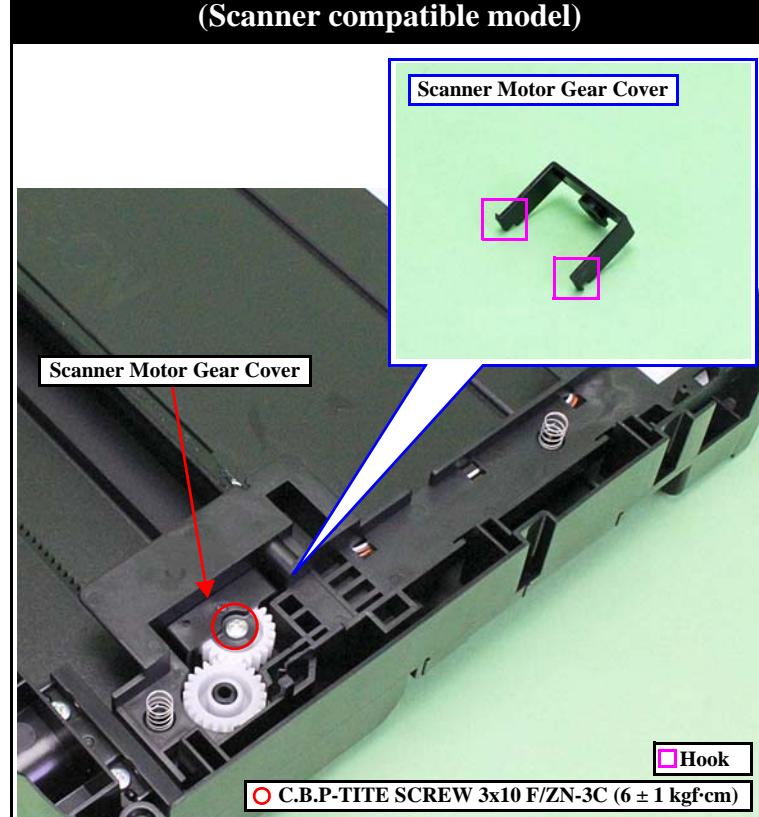


Reference position:
Align the Document Mat with the front right corner of the document glass.
Make sure the gap in yellow above must be less than 1 mm.

- When attaching the Document Mat to the Document Cover, follow the procedure below.
 1. Attach double-sided tape on the two long sides of the Document Mat.
 2. Place the mat on the document glass with double-sided tape attachment side upward while aligning it with the reference position of the document glass shown above.
 3. Close the Document Cover and press the cover to stick the Document Mat to the Document Cover.

Scanner Housing Upper (Scanner compatible model)

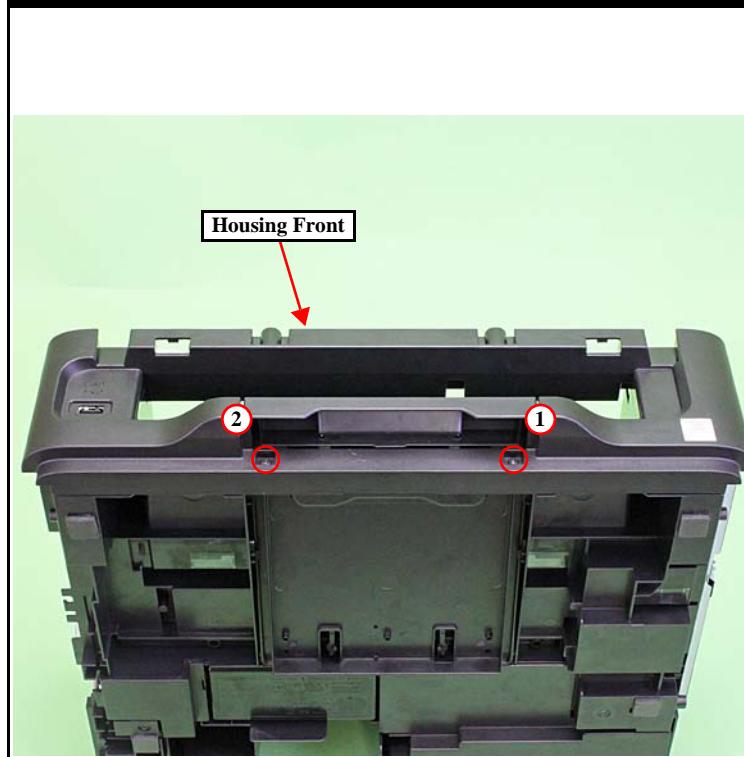
- When removing the Scanner Housing Upper from the Scanner Housing Lower Assy, follow the procedure below.
1. Remove the screws (x6) on the bottom of the Scanner Unit.
 2. Release the ribs (x2) of the Scanner Housing Upper, and remove the Scanner Housing Upper in the direction of the arrow with the document glass upward.

Scanner Motor Gear Cover (Scanner compatible model)

- Remove the Scanner Motor Gear Cover by removing the screw securing the Scanner Motor Gear Cover to release the hooks (x2) of the Scanner Motor Gear Cover.

Housing Rear (Multifunction Printer)

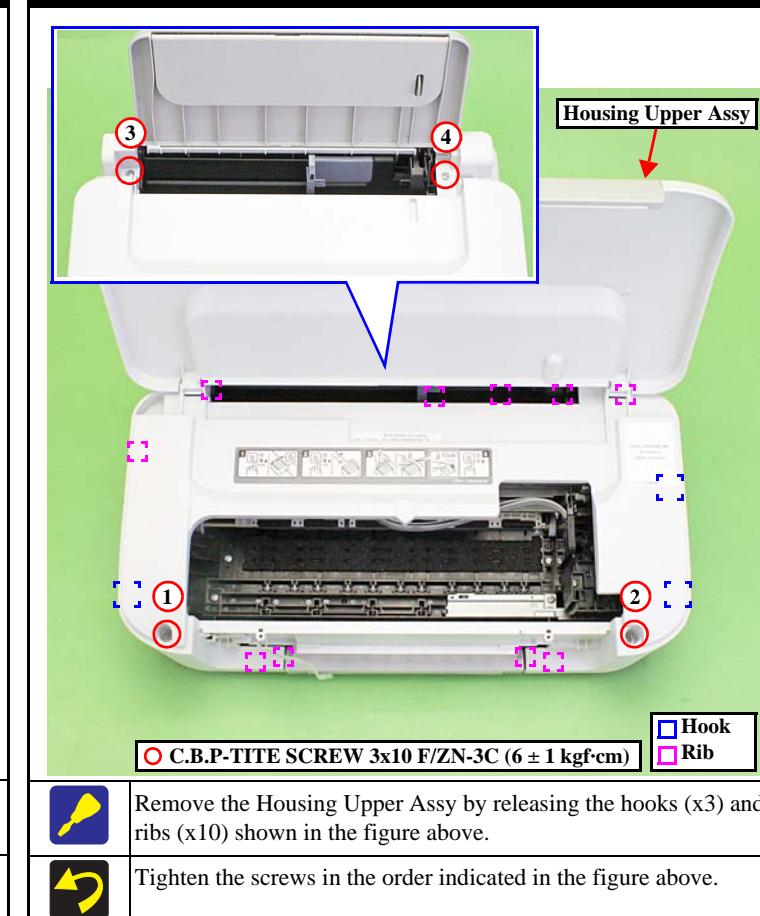
- When removing the Housing Rear, follow the procedure below.
1. Remove the screw (x1) of the Housing Rear.
 2. Press the section A on the Housing Left and release the dowels (x2) of the Housing Left from the Housing Rear, and lift the rear side of the Housing Rear slightly to release the section B from the Housing Left.
 3. Pull and turn the section C of the Housing Rear slightly to the front to release it from the gap between the Housing Right and Frame Base.
 4. Slide the Housing Rear in the direction of the arrow to release the section D, and remove the Housing Rear while avoiding the Hopper and Scanner Unit.

Housing Front (Multifunction Printer)

Tighten the screws in the order indicated in the figure above.

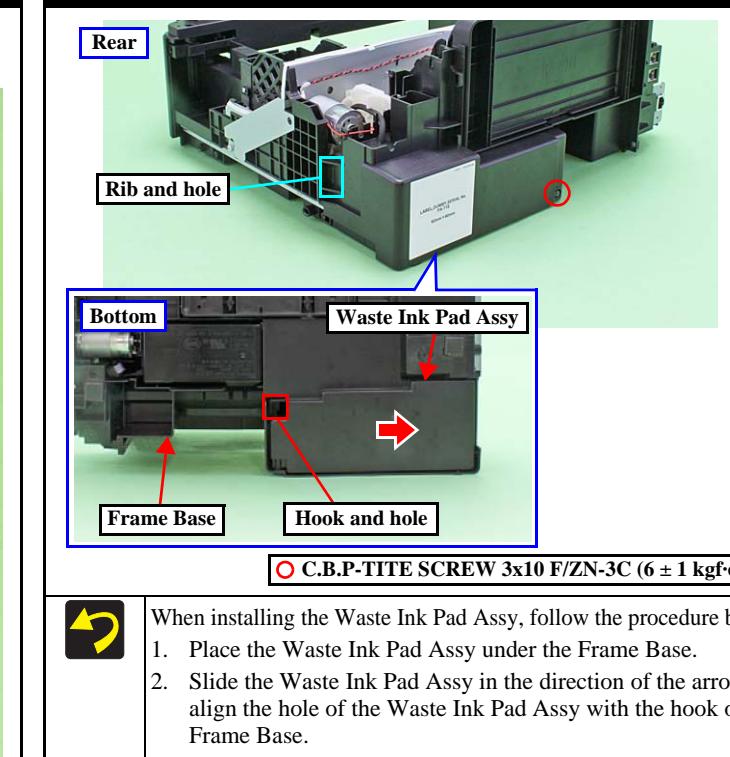
Housing Left / Housing Right

- When releasing the hooks (x14) of the Housing Left/Housing Right, be careful not to damage the hooks (x14).
- Release the hooks shown above when removing the Housing Left/Housing Right.

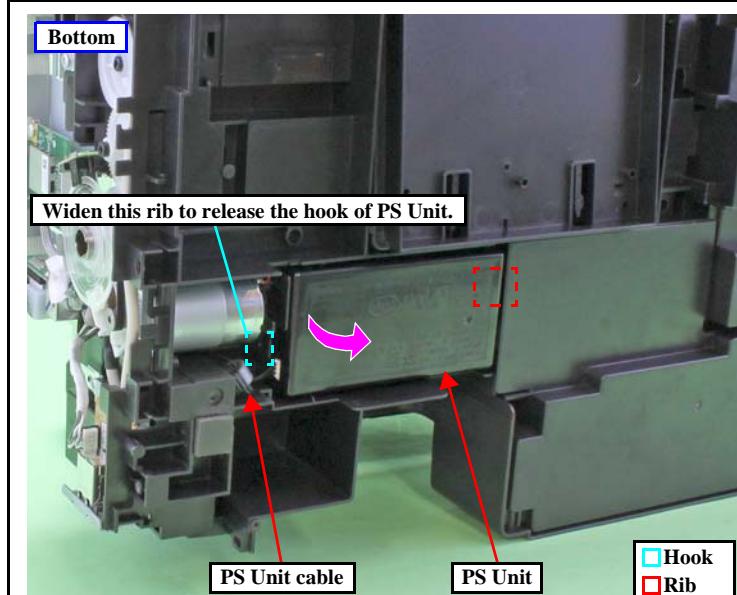
Housing Upper Assy (Singlefunction Printer)

- Remove the Housing Upper Assy by releasing the hooks (x3) and ribs (x10) shown in the figure above.

Tighten the screws in the order indicated in the figure above.

Waste Ink Pad Assy

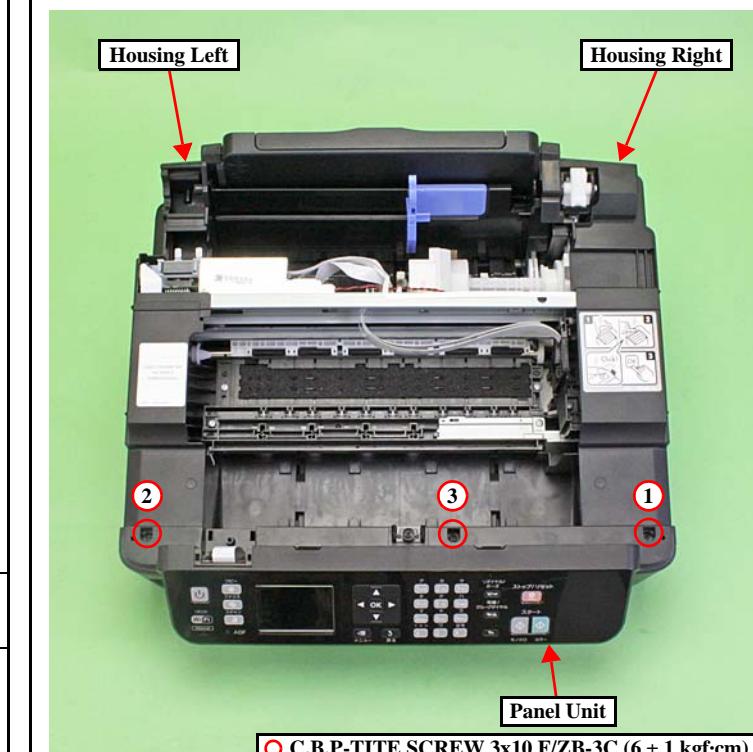
- When installing the Waste Ink Pad Assy, follow the procedure below.
1. Place the Waste Ink Pad Assy under the Frame Base.
 2. Slide the Waste Ink Pad Assy in the direction of the arrow to align the hole of the Waste Ink Pad Assy with the hook of the Frame Base.
 3. Confirm the following first, and then tighten the screw to secure the Waste Ink Pad Assy.
 - The rib of the Waste Ink Pad Assy is correctly inserted into the hole of the Frame Base.
 - The Waste Ink Pad Assy is secured firmly with the hook of the Frame Base.

PS Unit

! Be careful not to damage the rib of the Frame Base when widen the rib to release the hook of the PS Unit.

💡 When removing the PS Unit, follow the procedure below.

1. Using a precision screwdriver or the like, widen the rib of the Frame Base to release the hook of the PS Unit.
2. Remove the PS Unit from the Frame Base in the direction of the arrow while releasing the rib of the PS Unit.
3. Disconnect the PS Unit cable from the connector on the PS Unit and remove the PS Unit.

**Panel Unit
(2.5 inch LCD / 2Line Bitmap)**

- 💡**
- Tighten the screws (x3) securing the Panel Unit after installing the Housing Left/Housing Right.
 - Tighten the screws in the order indicated in the figure above.

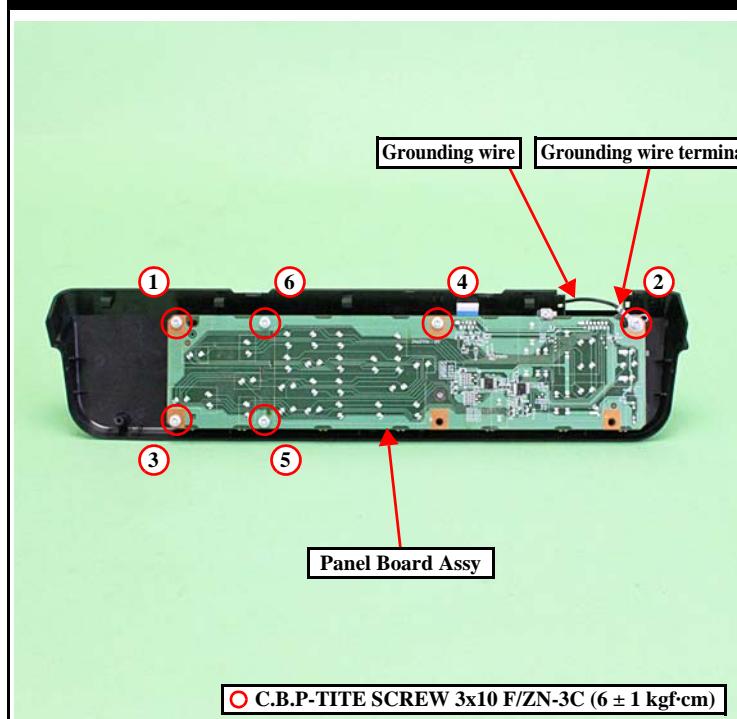
Panel Housing Upper Assy (2.5 inch LCD / 2Line Bitmap)

○ C.B.P-TITE SCREW 3x10 F/ZB-3C (6 ± 1 kgf·cm)

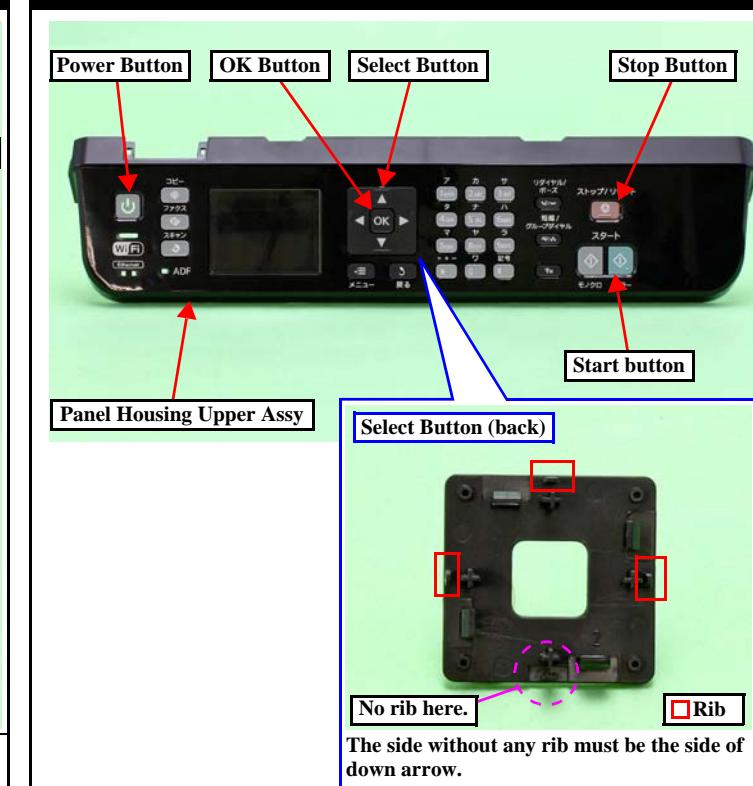
💡 When removing the Panel Housing Upper Assy, follow the procedure below.

1. Remove the screw (x3) of the Panel Unit.
2. Rotate and lift the front side of the Panel Housing Upper Assy and remove the hook (x4) and rib (x5) from the Panel Housing Upper Assy.
3. Pull out the grounding wire of the Panel Housing Upper Assy from the hole of the Panel Housing Lower Assy and remove the Panel Housing Upper Assy from the Panel Housing Lower Assy.

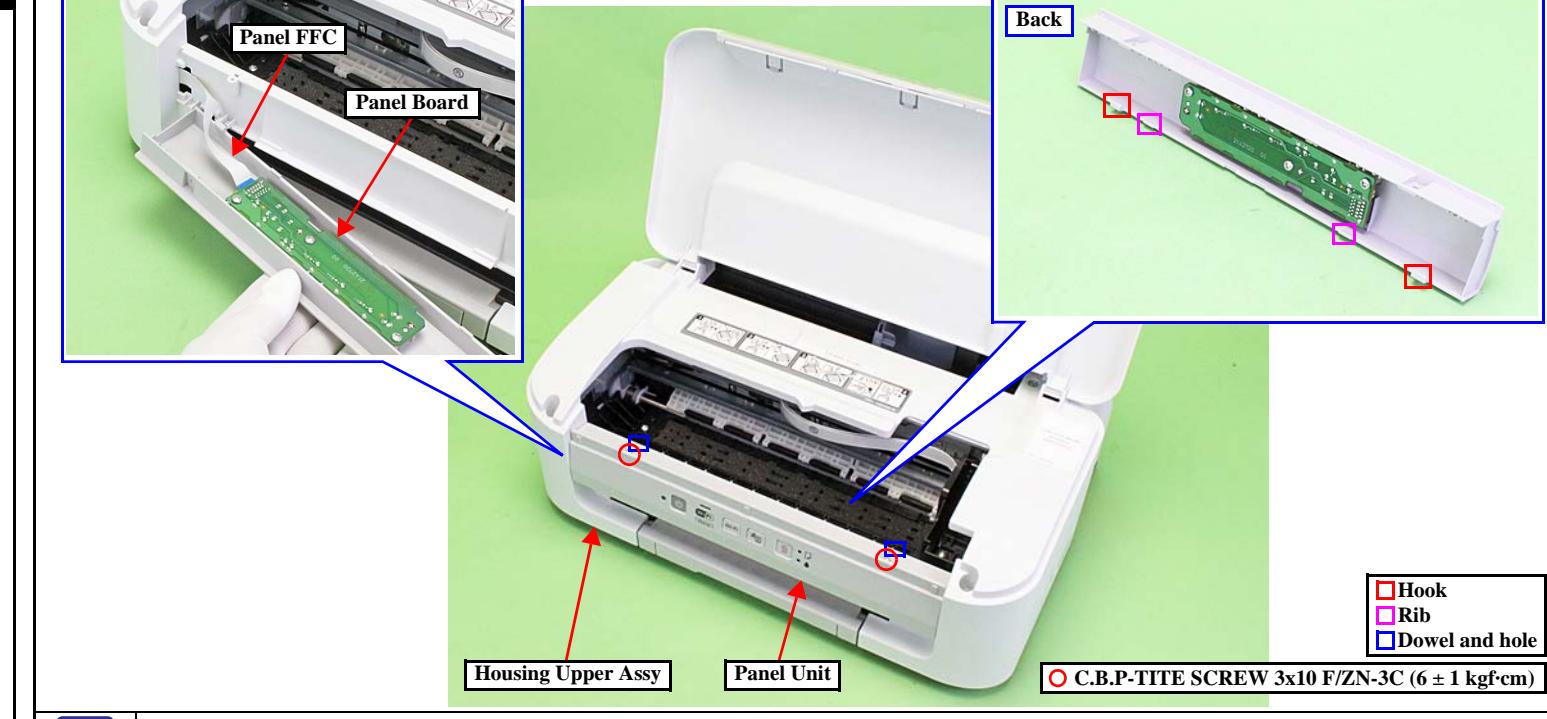
💡 Tighten the screws in the order indicated in the figure above.

**Panel Board Assy
(2.5 inch LCD / 2Line Bitmap)**

- 💡**
- Tighten the screws in the order indicated in the figure above.
 - Tighten the grounding wire together on the position indicated in the figure above.
 - Tighten the grounding wire with screws on the direction indicated in the figure above.

**Panel Buttons
(2.5 inch LCD / 2Line Bitmap)**

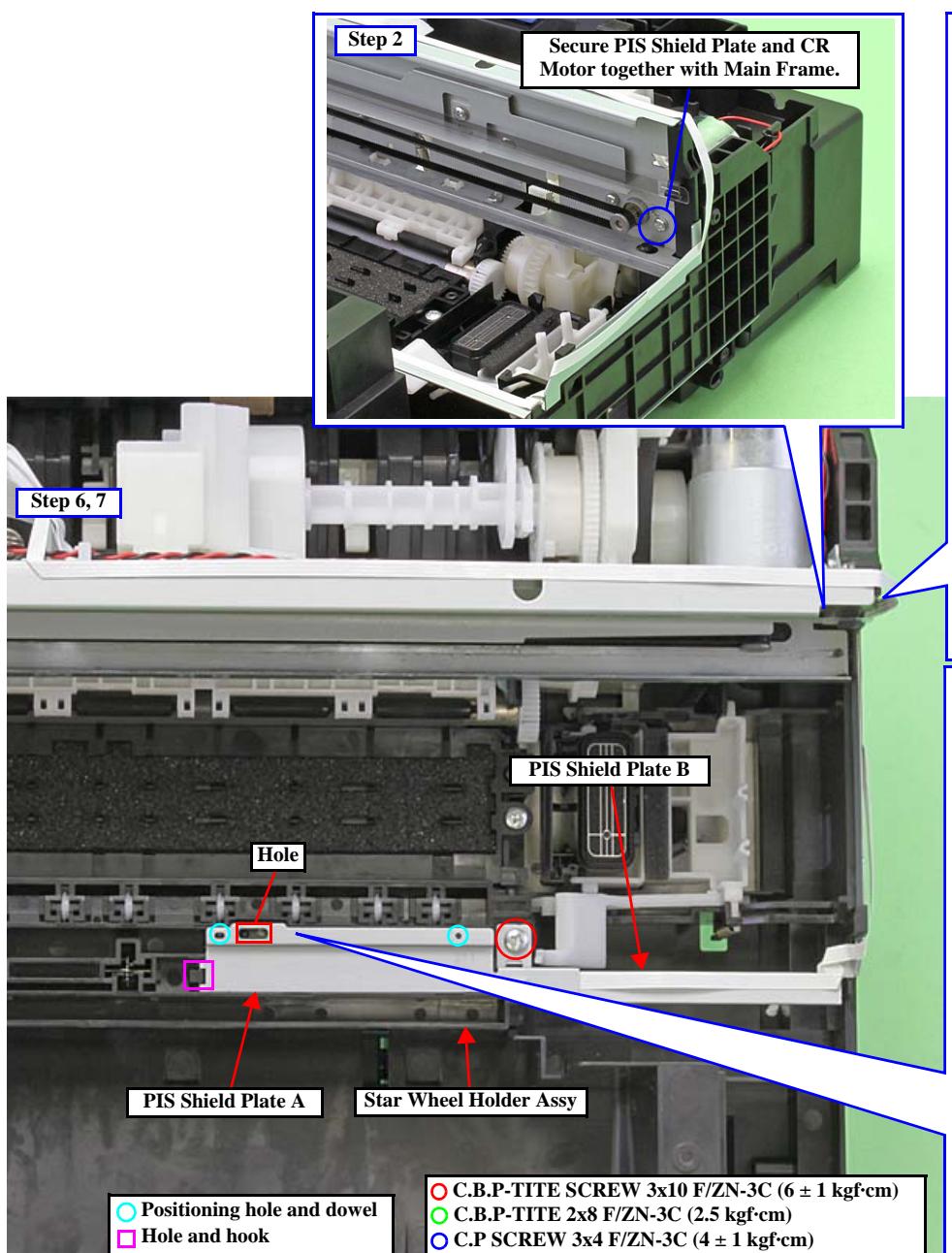
- 💡**
- When attaching the Select Button to the Panel Housing Upper Assy, attach the Select Button with its side without any rib downward.

Panel Unit (LED and Button)

💡 When removing the Panel Unit, follow the procedure below.

1. Remove the screw (x2) securing the Panel Unit.
2. Remove the hole (x2) from the dowel(x2) of the Housing Upper Assy.
3. Remove the hook (x2) and rib(x2) on the back of the Panel Board from the Housing Upper Assy.
4. Remove the Panel FFC from the connector (CN1) of the Panel Board and remove the Panel Unit.

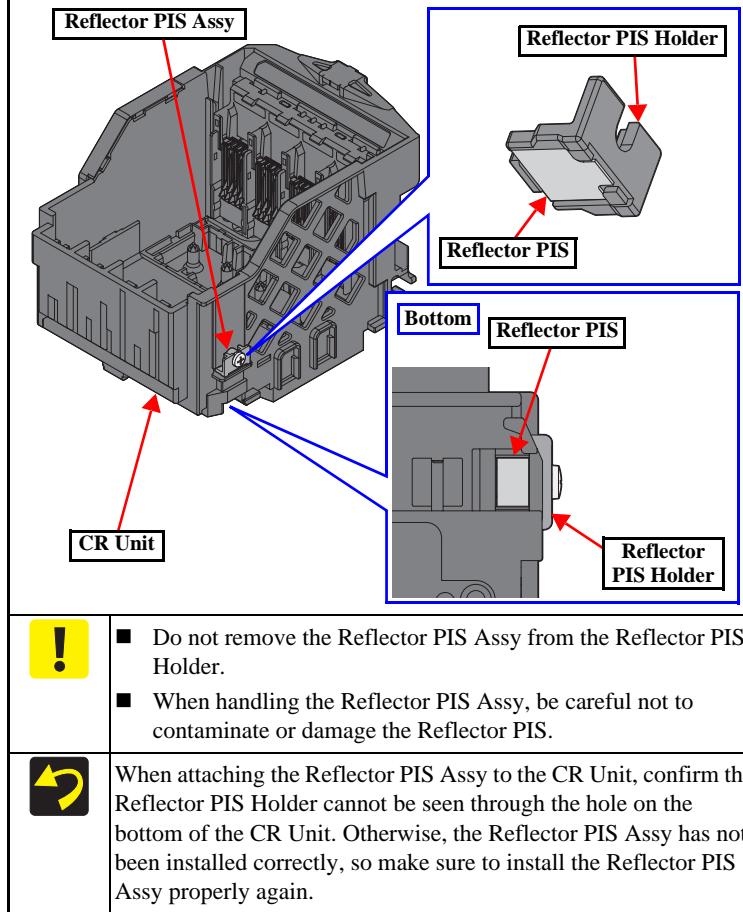
PIS Board Assy / Star Wheel Holder Assy



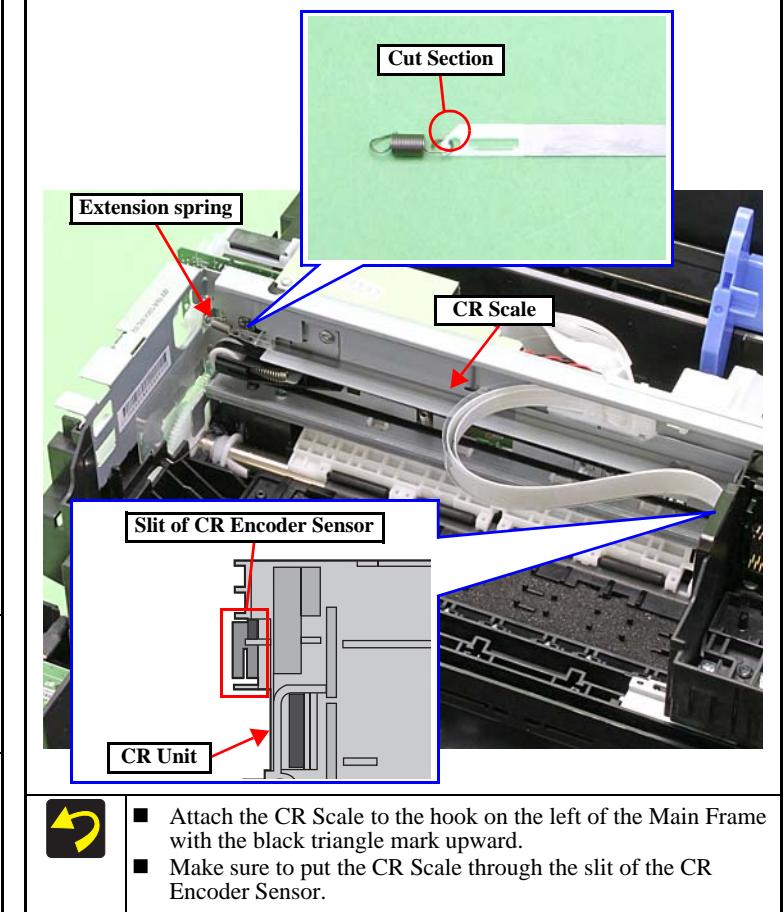
- !**
- PIS Shield Plate B and CR Motor are secured to the Main Frame together.
 - If the internal thread of the screw hole on the Star Wheel Holder Assy has been damaged, a fatal error may occur because the PIS Board Assy is detached due to vibrations during transportation or the like. When securing the PIS Board Assy with the screw, first turn the screw CCW and align the thread of the screw and the internal thread of the screw hole on the Star Wheel Holder Assy, then tighten the screw securely.
 - Do not touch the sensor of the PIS Board Assy.
 - Do not use air-blowing when cleaning the PIS Board Assy. If the board is dirty with ink or similar, wipe it off using a waste cloth.

- !**
- When installing the PIS Board Assy / Star Wheel Holder Assy, follow the procedure below.
- Insert the section A of the PIS Shield Plate B into the hole of the Frame Base.
 - Secure the PIS Shield Plate B using the screw together with the CR Motor and Main Frame.
 - Connect the PIS FFC to the connector on the PIS Board Assy, and then align the dowels (x2) of the PIS Board Assy with the positioning hole and cutout of the Star Wheel Holder Assy.
 - Secure the PIS Board Assy with the screw while pressing it to the rear of the printer and supporting the Star Wheel Holder Assy with your hand so as to prevent it from warping.
 - Route the PIS FFC and connect it to the Main Board. (p 50)
 - Align the positioning holes (x2) on the PIS Shield Plate A with the dowels (x2) on the Star Wheel Holder Assy, and engage the hole on the PIS Shield Plate A to the hook on the Star Wheel Holder Assy, then attach the PIS Shield Plate A to the Star Wheel Holder Assy.
 - After confirming the sensor of the PIS Board Assy is set out from the hole on the PIS Shield Plate A, secure the PIS Shield Plate A/B and Star Wheel Holder Assy together with the screw.

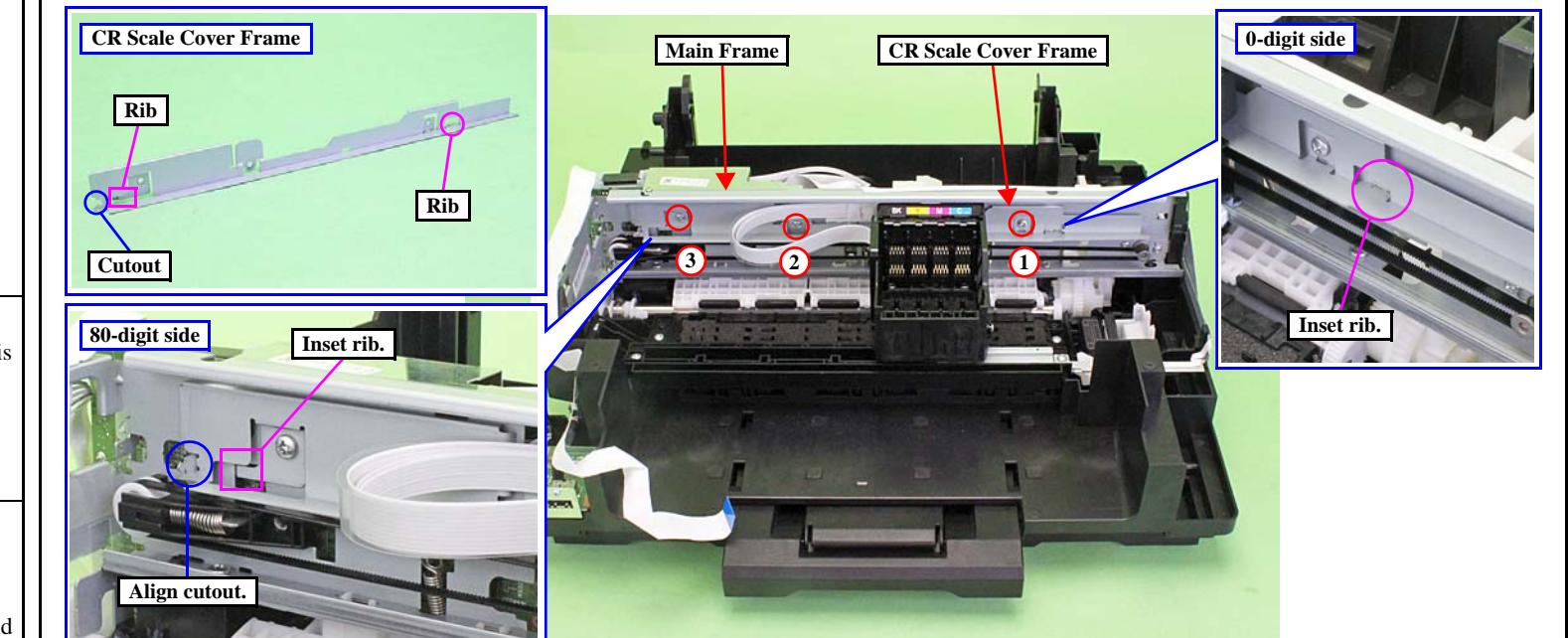
Reflector PIS Assy



CR Scale

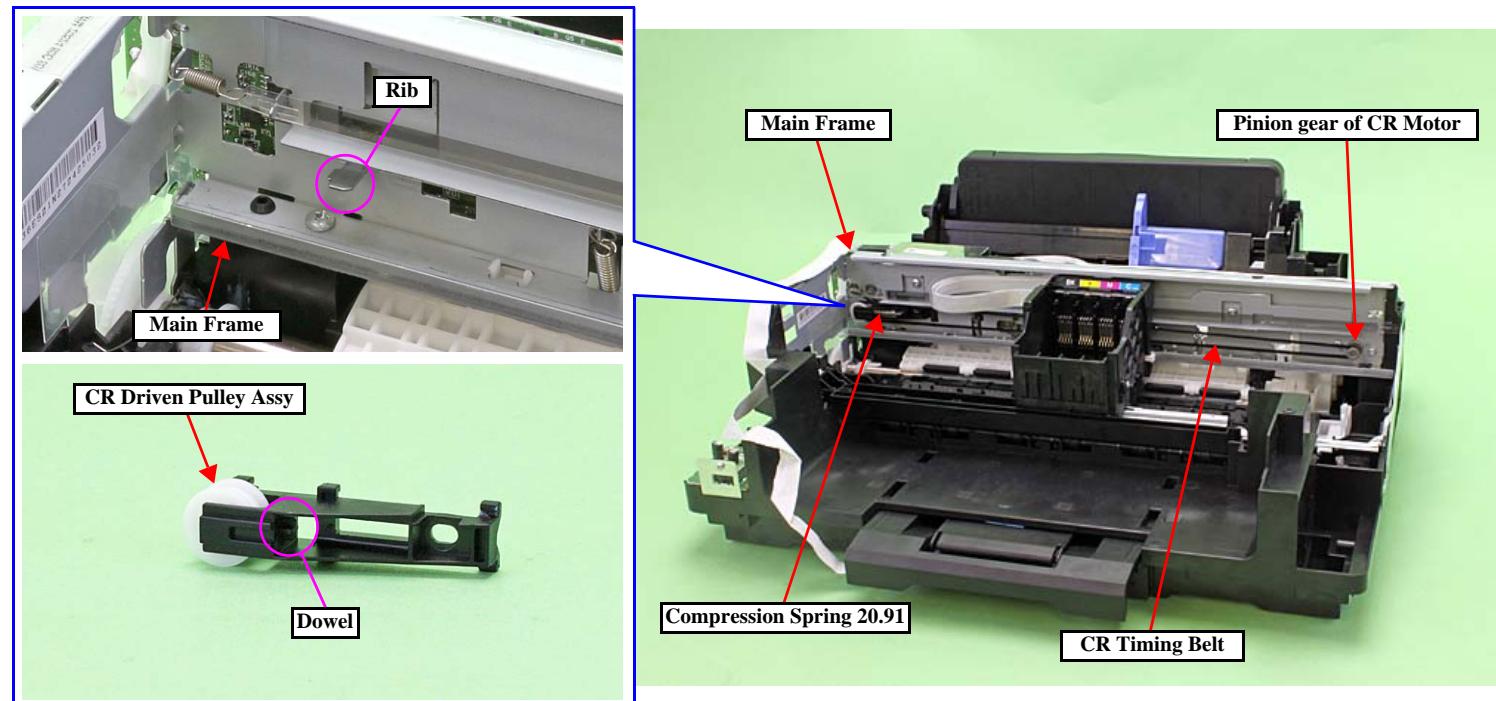


CR Scale Cover Frame

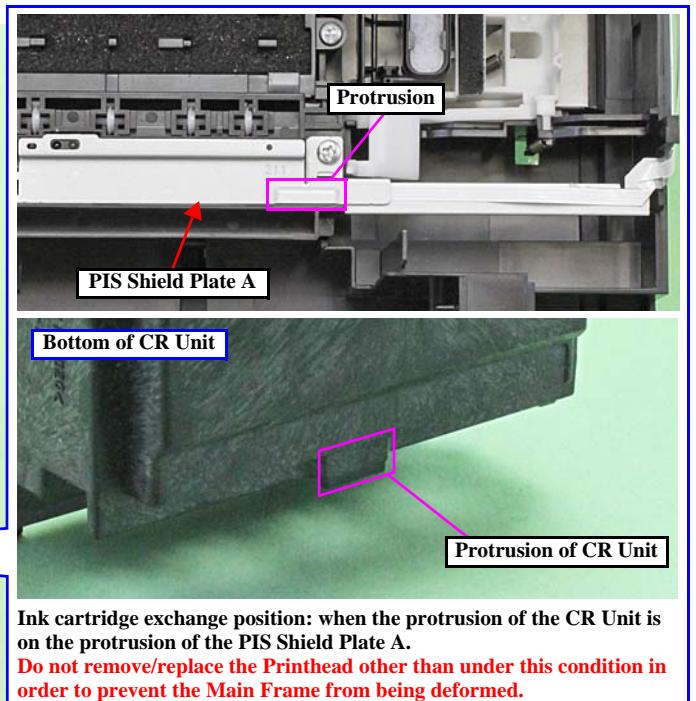
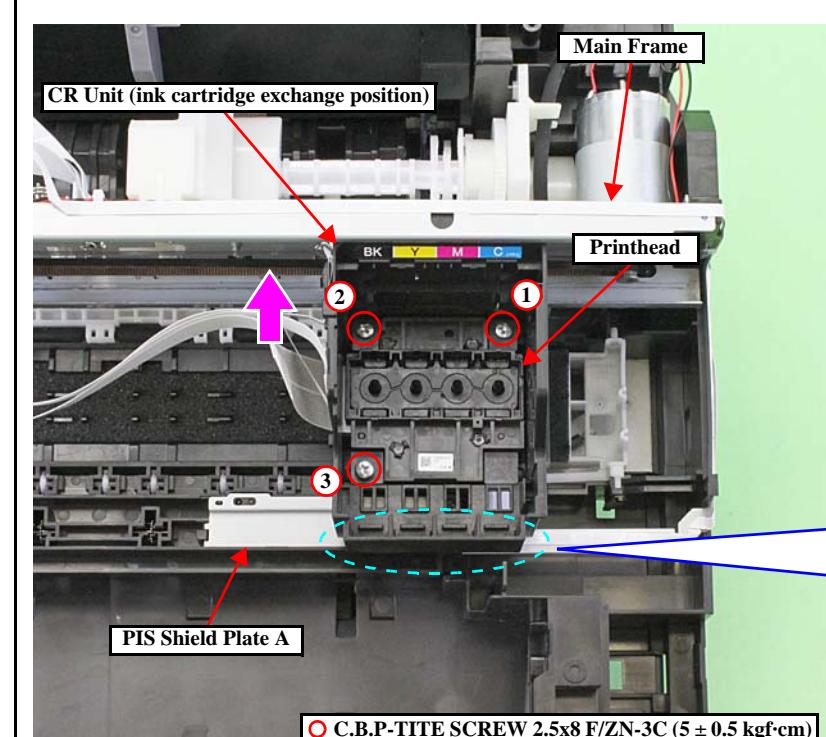


- !**
- When installing the CR Scale Cover Frame, install the CR Scale Cover Frame to the Main Frame following the standard below and tighten the screw in the procedure below.
- 80-digit side
 - Align the protrusions of the Main Frame with the cutout of the CR Scale Cover Frame.
 - Insert the rib of the CR Scale Cover Frame to the hole of the Main Frame.
 - 0-digit side
 - Insert the rib of the CR Scale Cover Frame to the hole of the Main Frame.

CR Driven Pulley Assy / CR Timing Belt



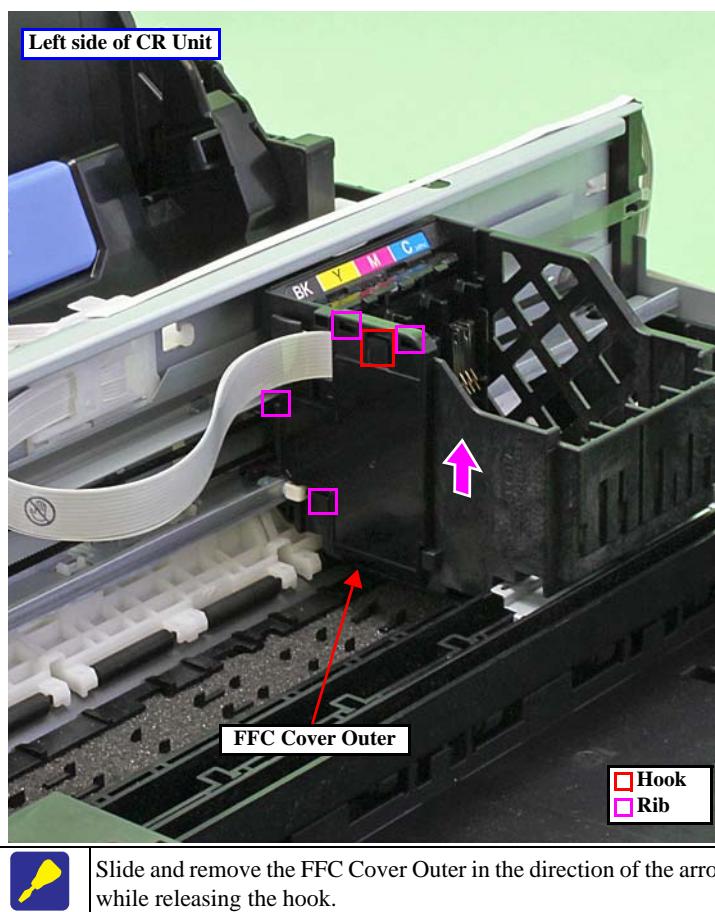
Printhead



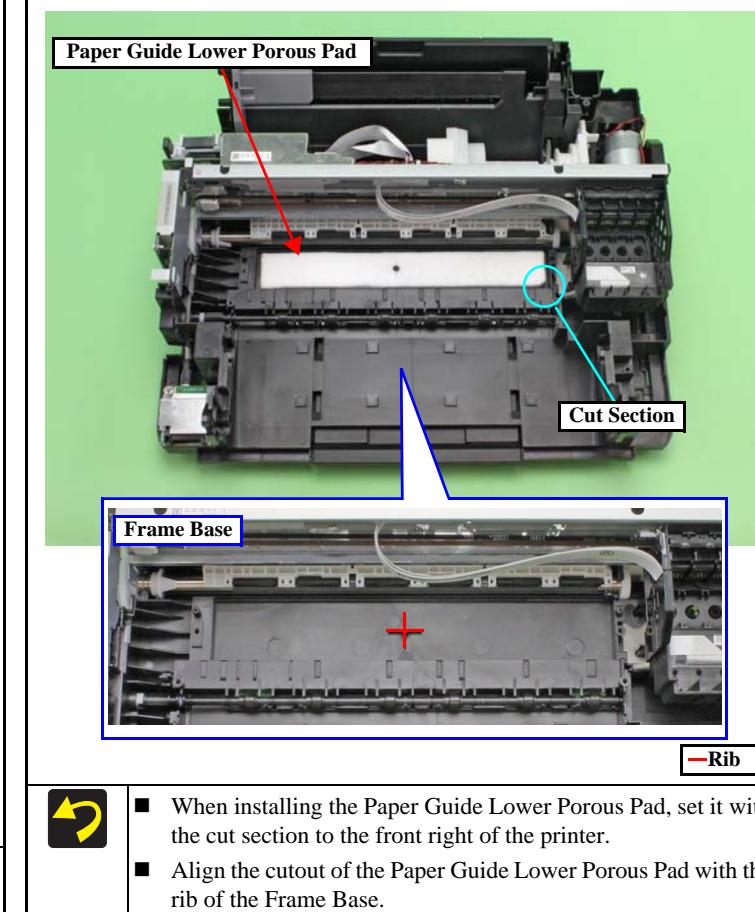
	When installing the CR Driven Pulley Assy and CR Timing Belt, follow the procedure below.
1.	Install the CR Driven Pulley Assy to the Main Frame.
2.	Attach the Compression Spring 20.91 in the order from the dowel on the CR Driven Pulley Assy to the rib on the Main Frame.
3.	Attach the CR Timing Belt to the CR Driven Pulley Assy.
4.	Attach the CR Timing Belt on the pinion gear of the CR Motor while pushing the CR Driven Pulley Assy to the 0-digit side.

	When removing/replacing the Printhead, be sure the CR Unit is at the "ink cartridge exchange position" shown above. Otherwise, the Main Frame may be deformed by applying force perpendicularly when tightening the screws and it may affect print quality.
	Tighten the screws of the Printhead in the order indicated in the figure above while pressing the Printhead in the direction of the arrow.

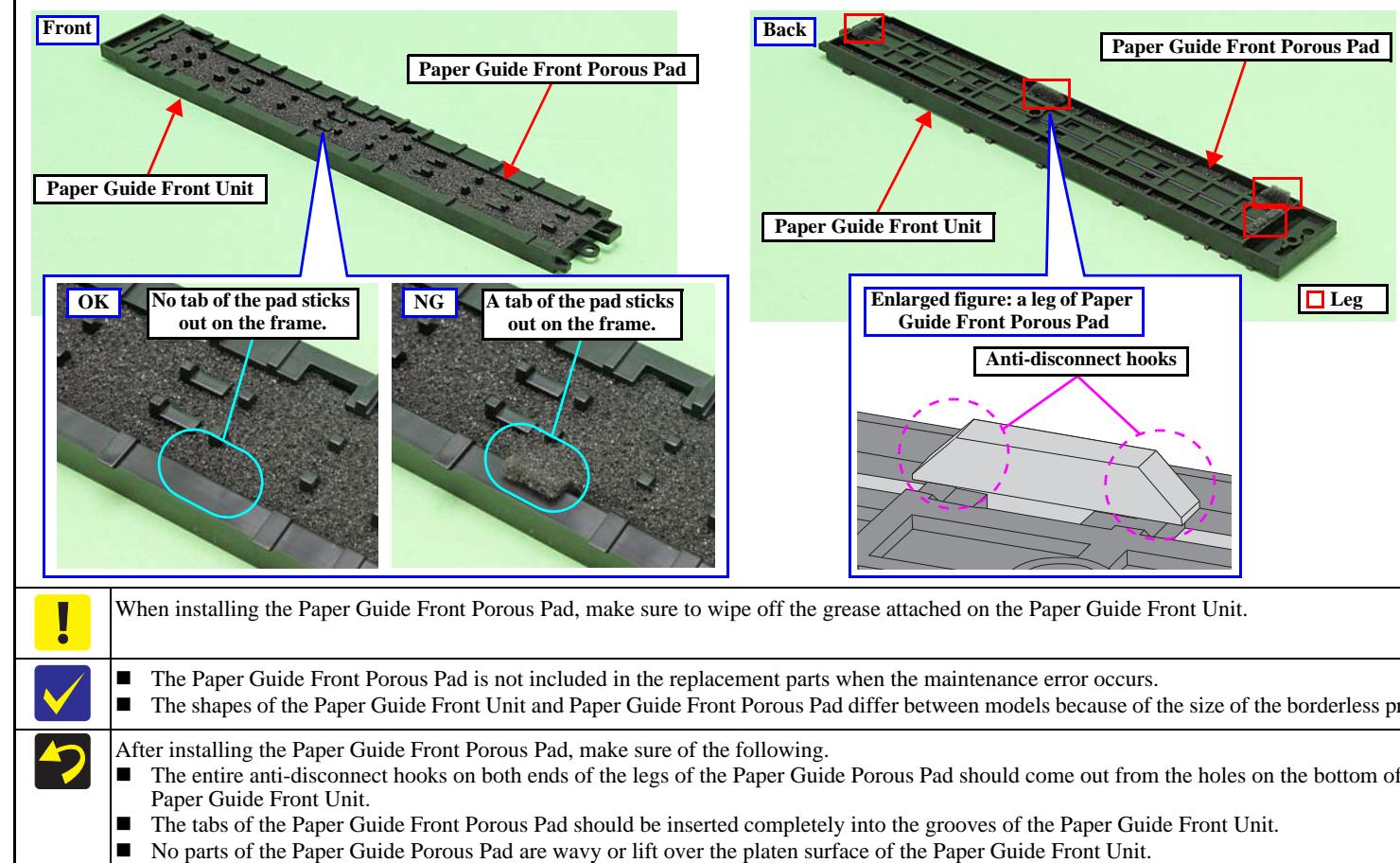
FFC Cover Outer

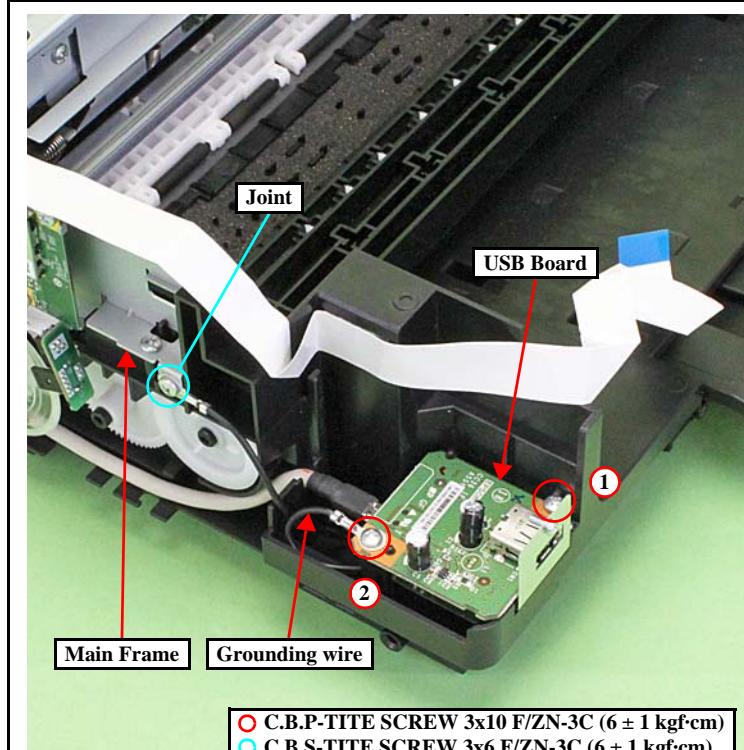


Paper Guide Lower Porous Pad

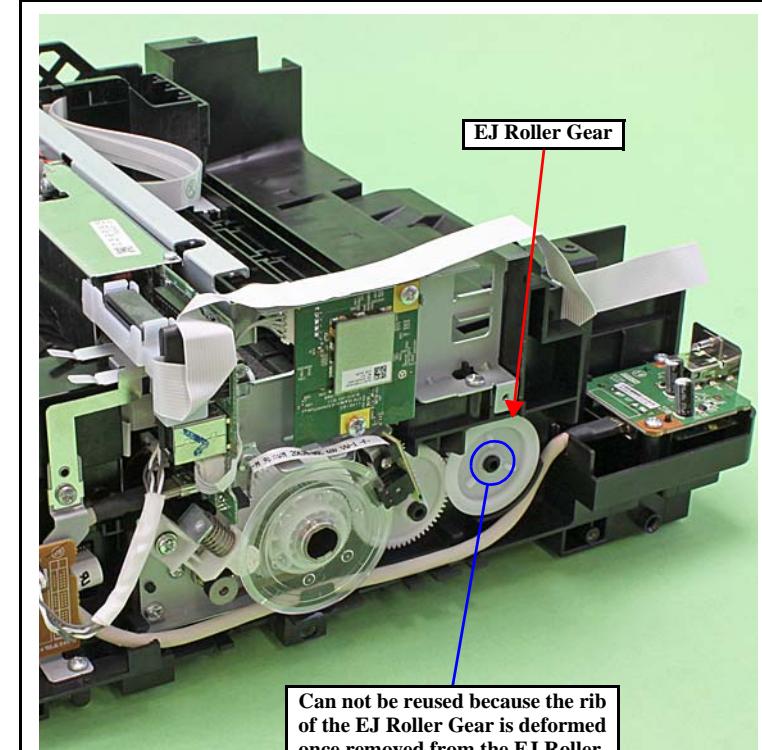


Paper Guide Front Porous Pad

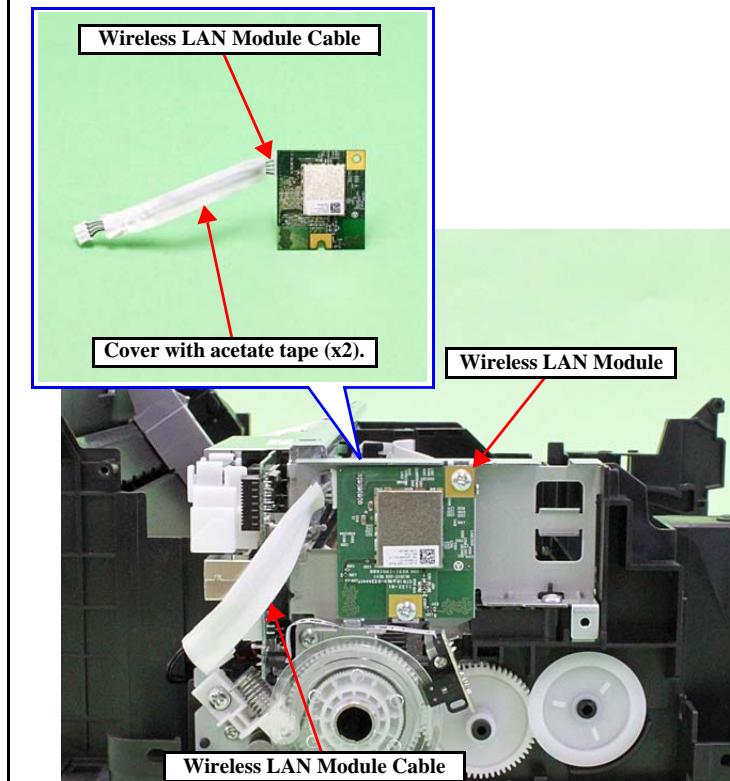


USB Board (USB compatible model)

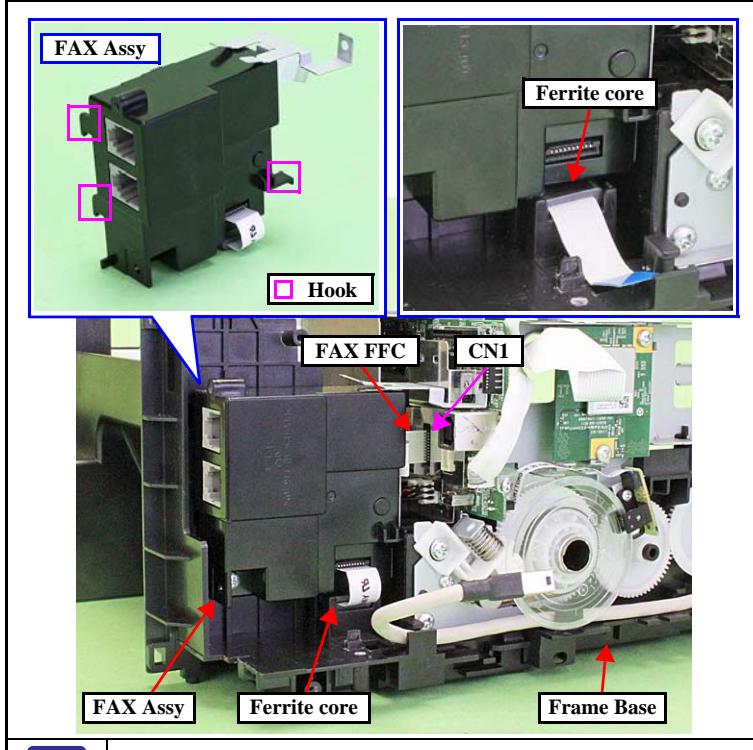
- ➡ Tighten grounding wire together on the position indicated in the figure above.
- ➡ Install the grounding wire terminal on the Main Frame side on the direction indicated in the figure above.
- ➡ Tighten the screws in the order indicated in the figure above.

EJ Roller Gear

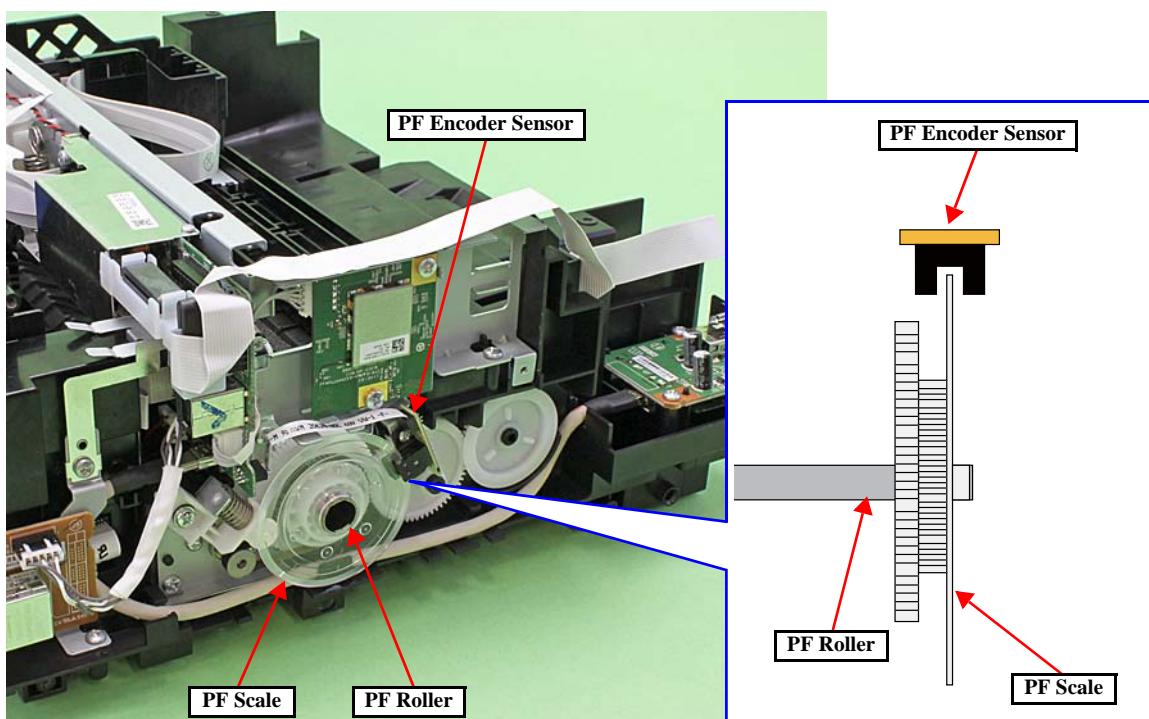
- ⚠ The rib on the contact point of the EJ Roller Gear with the EJ Roller is deformed when removing the EJ Roller Gear. Therefore, make sure to replace it with a new one when removing it in order to maintain the paper feed accuracy.

**Wireless LAN Module
(Model with wireless LAN)**

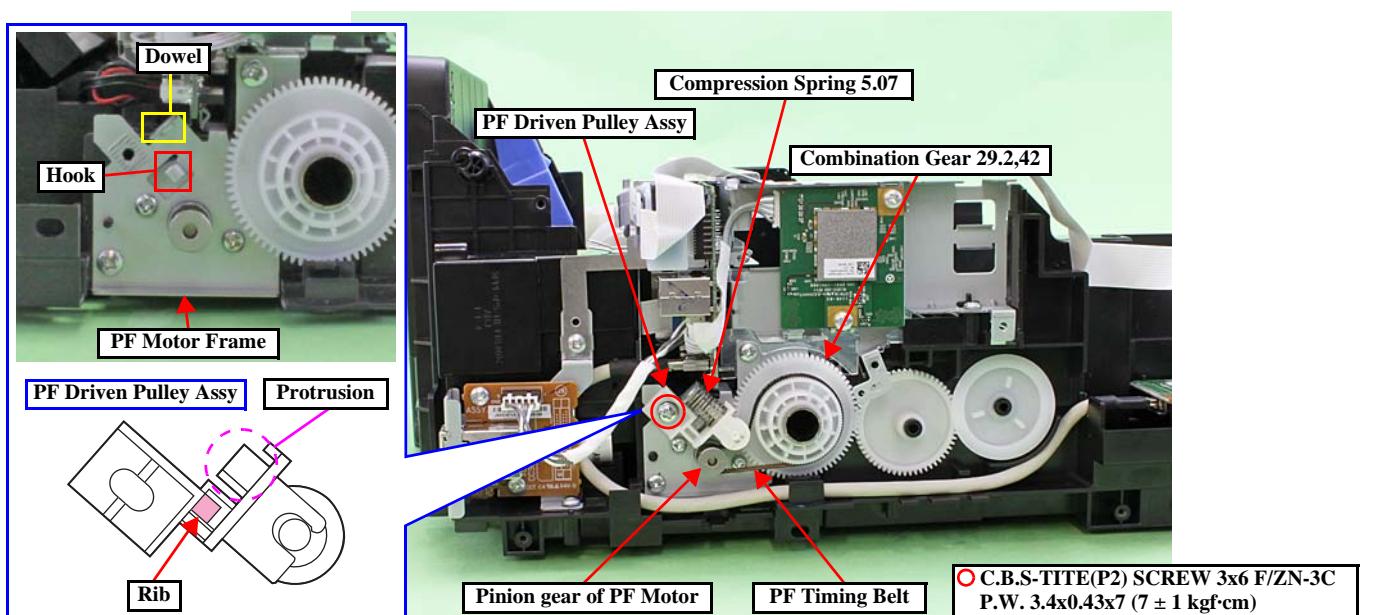
- ➡ Attach two pieces of acetate tape on the Wireless LAN Module cable to cover the cable to protect it as shown above.

FAX Assy (Models with FAX)

- ✓ Connect the FAX FFC to the connector (CN1) of the Main Board before installing the FAX Assy.
- ➡ Install the hook (x3) of the FAX Assy on the Frame Base.
- ➡ Put the ferrite core on the position indicated in the figure above.

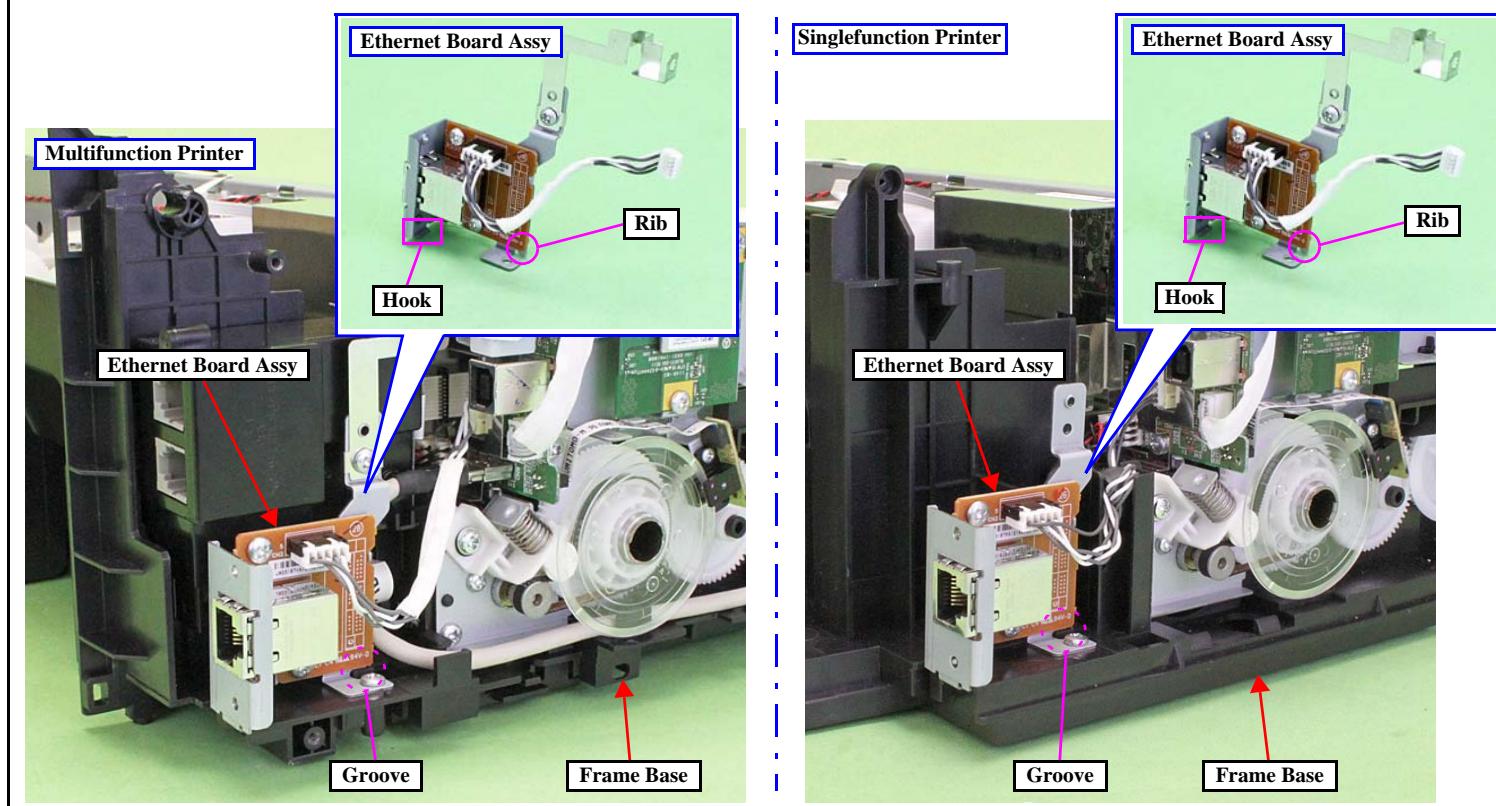
PF Encoder Sensor / PF Scale

- ⚠ Do not reuse the removed PF Scale and make sure to replace it with a new one when removing it. When installing the PF Scale, it is pressed into the PF Roller, therefore, the removed one is deformed. If it is re-installed to the printer, it does not rotate properly and the paper feed accuracy may be reduced.
- ➡ When installing the PF Scale to the PF Roller, press the PF Scale into the PF Roller vertically.
- ➡ After installing the PF Encoder Sensor, confirm the PF Scale does not touch the PF Encoder Sensor.

PF Driven Pulley Assy / PF Timing Belt

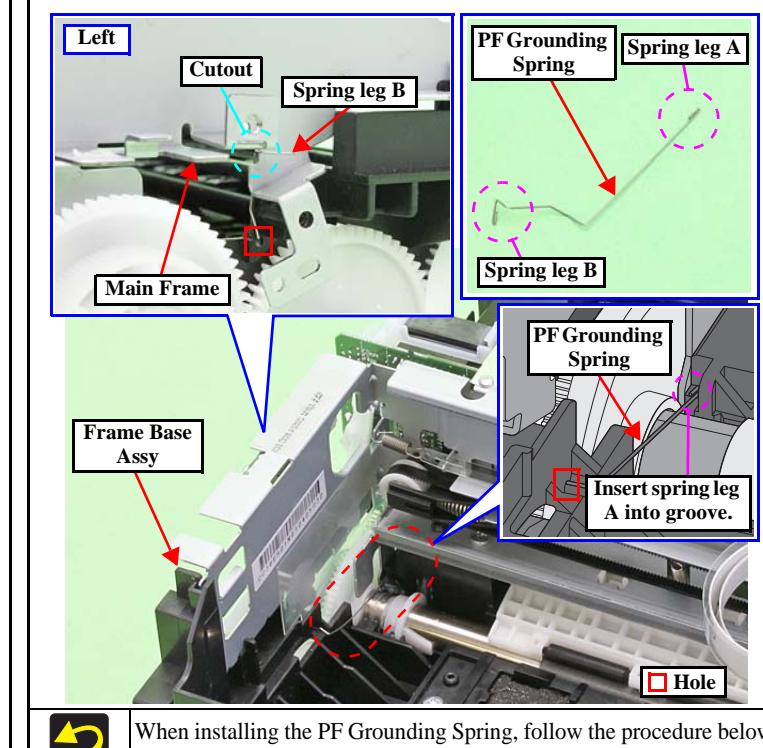
- ⚠ Do not hold the PF Driven Pulley Assy when securing it with the screw in order to prevent applying improper tension to the PF Timing Belt.
- ➡ When installing the PF Driven Pulley Assy, follow the procedure below.
 1. Align the rib of the PF Driven Pulley Assy with the hook of the PF Motor Frame, and install the PF Driven Pulley Assy.
 2. Attach the Compression Spring 5.07 to the protrusion of the PF Driven Pulley Assy and the dowel of the PF Motor Frame.
 3. Attach the PF Timing Belt in the order of the pinion gear of the PF Motor, PF Driven Pulley and Combination Gear 29.2,42.
 4. Rotate the Combination Gear 29.2,42 clockwise three times to confirm the PF Timing Belt is correctly attached, and then secure the PF Driven Pulley Assy with the screw and washer to the PF Motor Frame.

Ethernet Board Assy (Models with Ethernet)



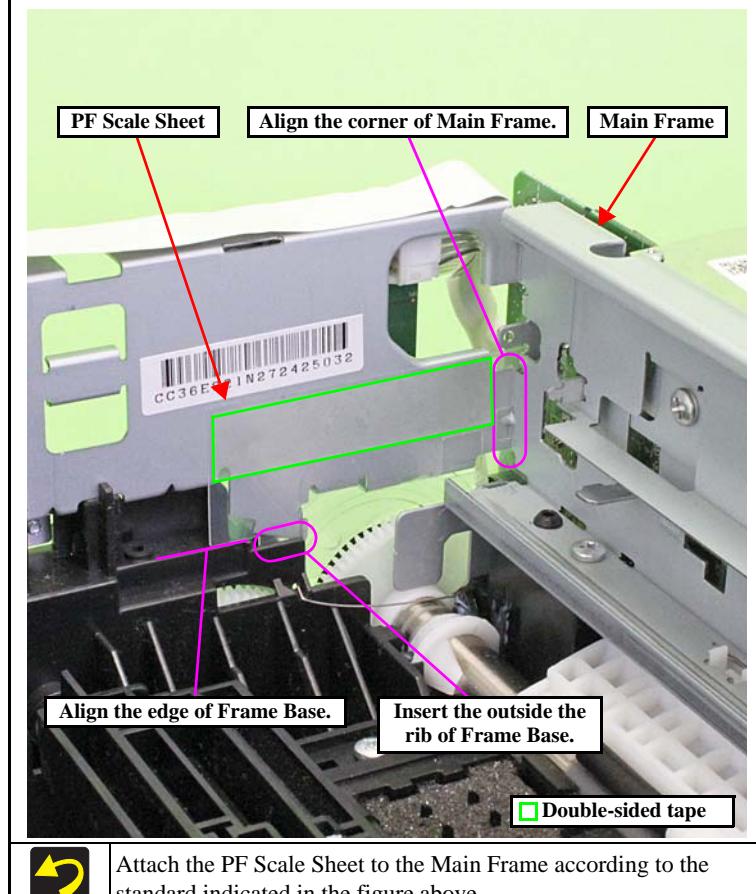
- When installing the Ethernet Board Assy, hang the hook of the Ethernet Board Assy on the Frame Base and align the rib of the Ethernet Board Assy to the groove of the Frame Base.
Put the ferrite core on the position indicated in the figure above (only Singlefunction Printer).

PF Grounding Spring



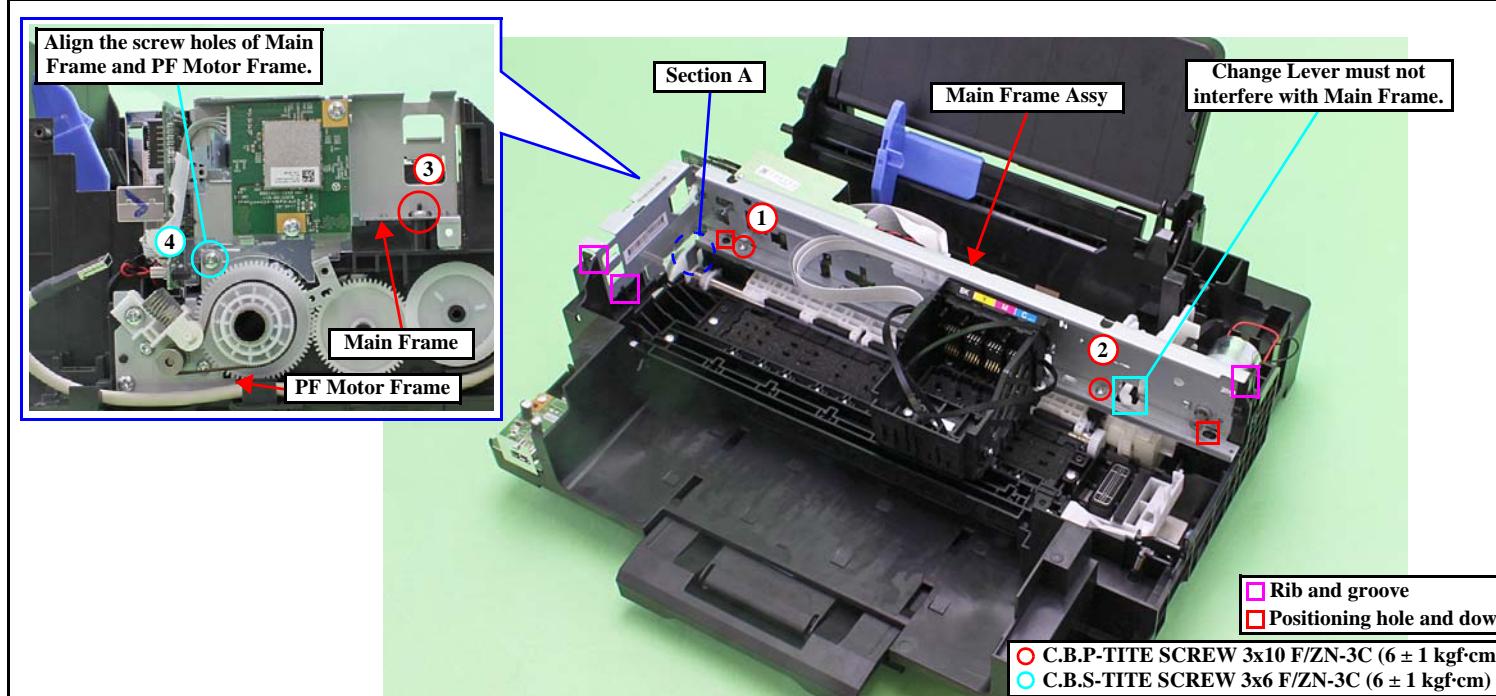
- When installing the PF Grounding Spring, follow the procedure below.
- From the left side of the printer, insert the spring leg A of the PF Grounding Spring into the hole of the Frame Base.
 - Insert the spring leg B of the PF Grounding Spring into the groove of the Frame Base.
 - Attach the spring leg B of the PF Grounding Spring to the cutout of the Main Frame to install the PF Grounding Spring.

PF Scale Sheet



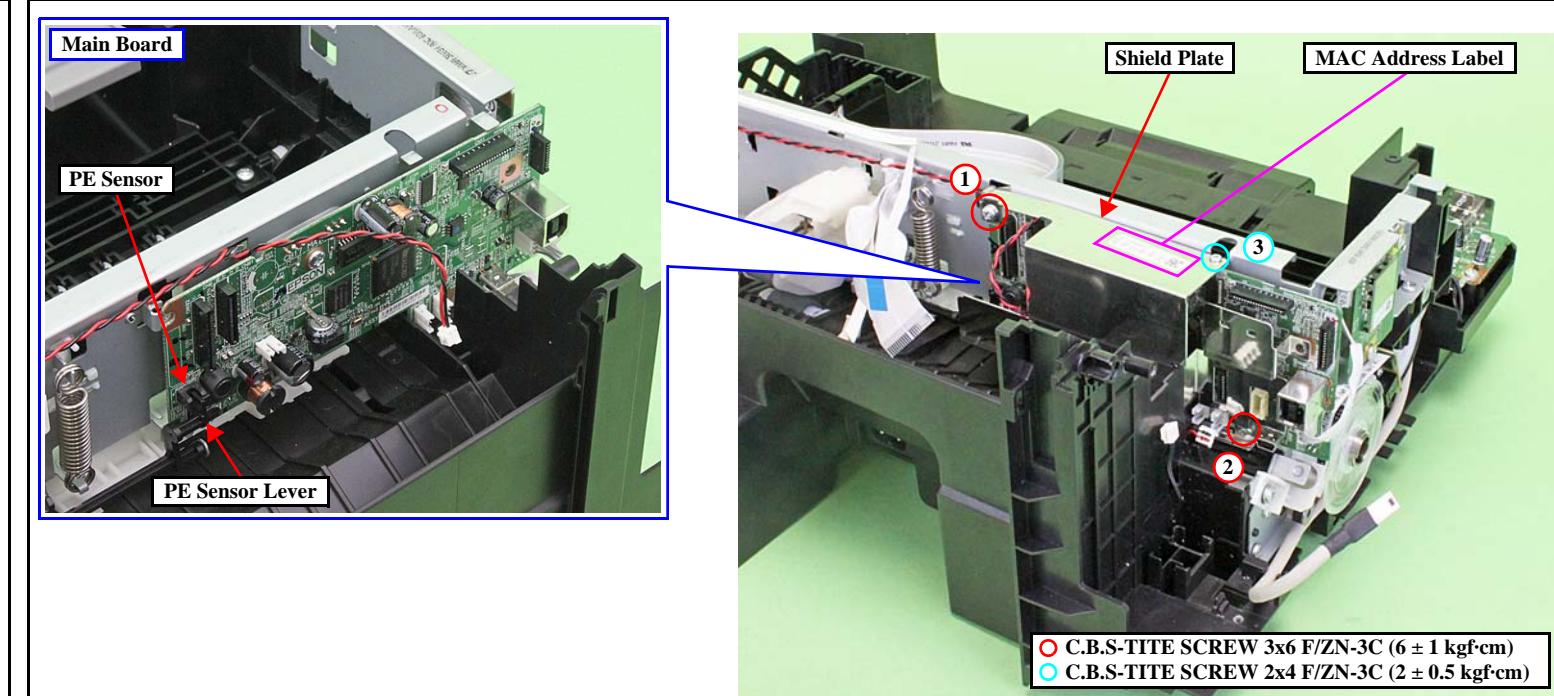
- Attach the PF Scale Sheet to the Main Frame according to the standard indicated in the figure above.

Main Frame Assy

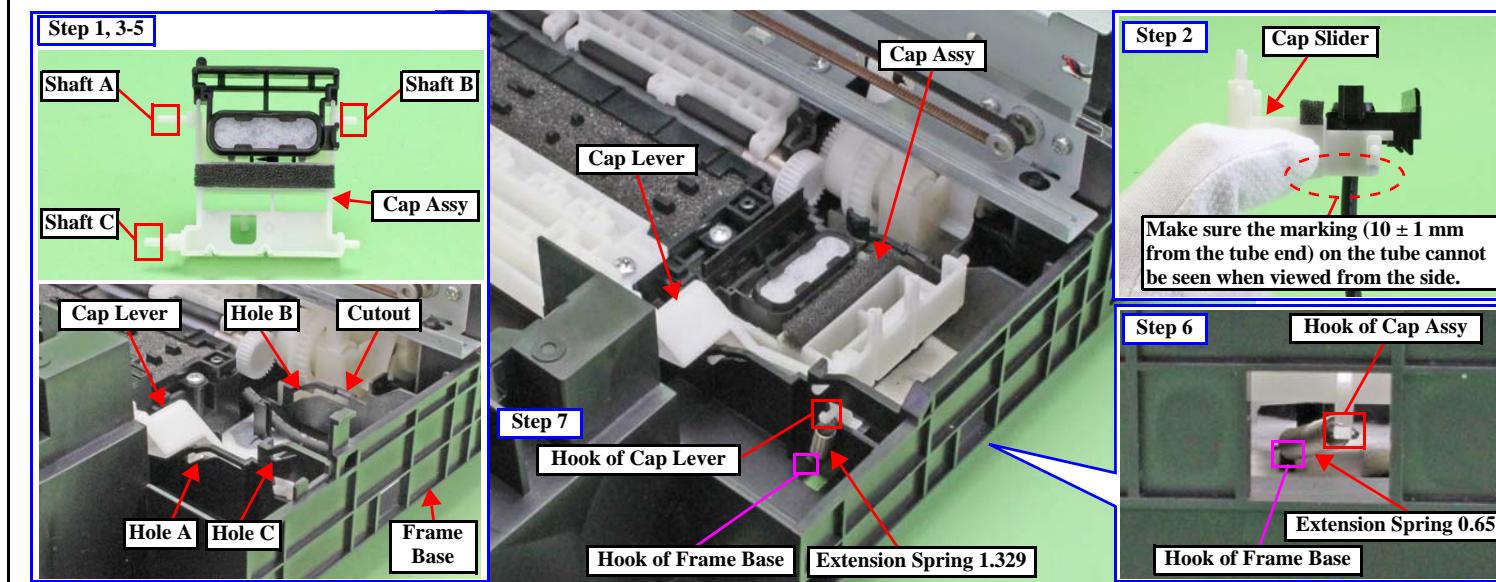


- Before installing the Main Frame Assy, shift the Change Lever back to the rear.
When installing the Main Frame Assy, make sure of the following.
 - The Change Lever must not interfere with the Main Frame.
 - The above shown ribs and grooves, positioning holes and dowels are correctly aligned.
 - The section A of the Main Frame Assy is not deformed.
 - Tighten the screws in the order indicated in the figure above.

Main Board/Shield Plate

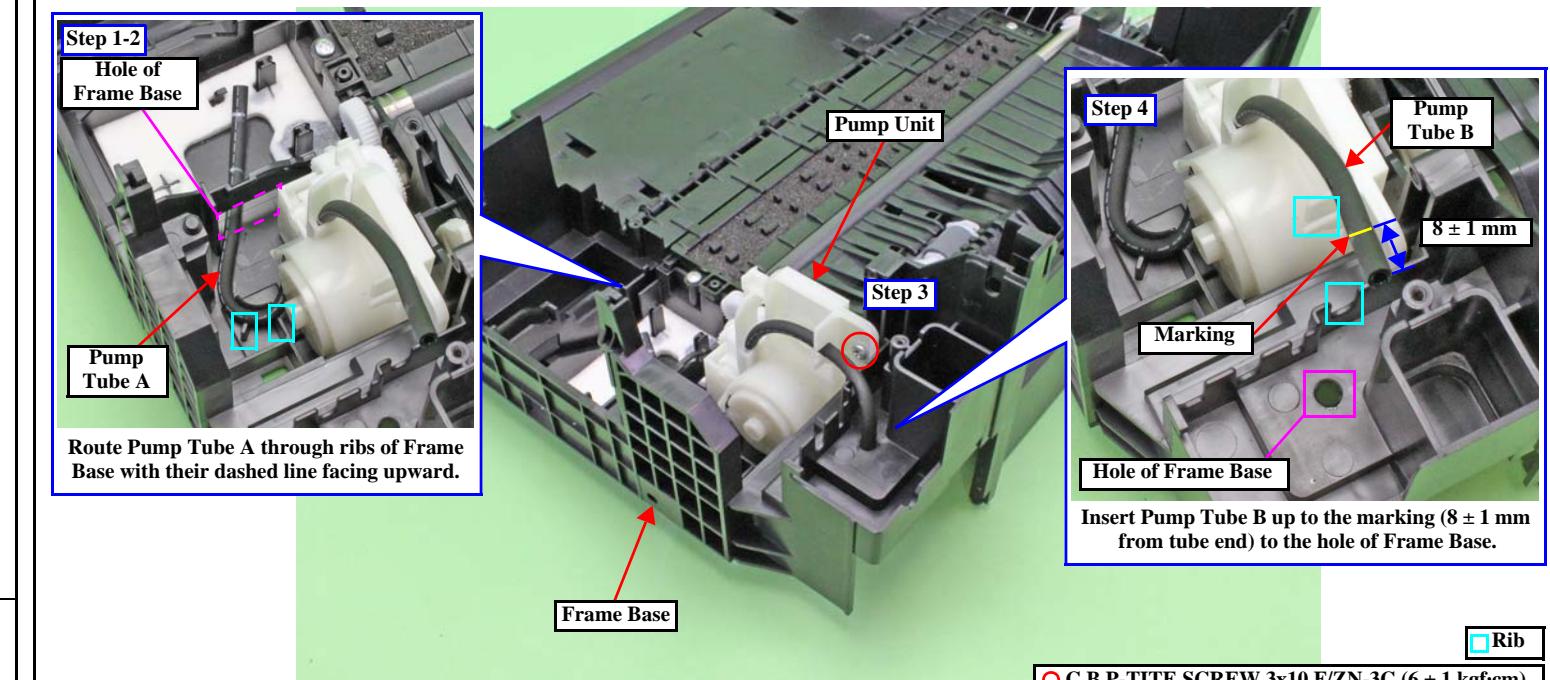


- Do not damage or contaminate the MAC Address Label.
- Install the Main Board with the PE Sensor Lever to the rear. After installing the Main Board, make sure the lever part of the PE Sensor Lever is aligned with the slit of the PE Sensor.
Attach the MAC Address Label to the Shield Plate on the position indicated in the figure above.
Tighten the screws of the Shielded Plate in the order indicated in the figure above.

Cap Lever / Cap Assy

When installing the Cap Lever/Cap Assy, follow the procedure below.

1. Attach the Cap Lever to the Frame Base, and attach one end of the Extension Spring 0.65 to the hook of the Frame Base.
2. Connect the tube of the Pump Unit to the joint on the bottom of the Cap Assy. Then, viewing from the side, confirm the marking (10 ± 1 mm from the tube end) on the tube is covered by the Cap Slider.
3. Insert the shaft A of the Cap Assy through the hole of the Cap Lever to the hole A of the Frame Base.
4. Insert the shaft B of the Cap Assy through the cutout of the Frame Base and to the hole B of the Frame Base.
5. Insert the shaft C of the Cap Assy to the hole C of the Frame Base.
6. Using a "spring hook jig" (p 20), attach the other end of the Extension Spring 0.65 to the hook of the Cap Assy.
7. Attach the Extension Spring 1.329 to the hooks of the Cap Lever and Frame Base.

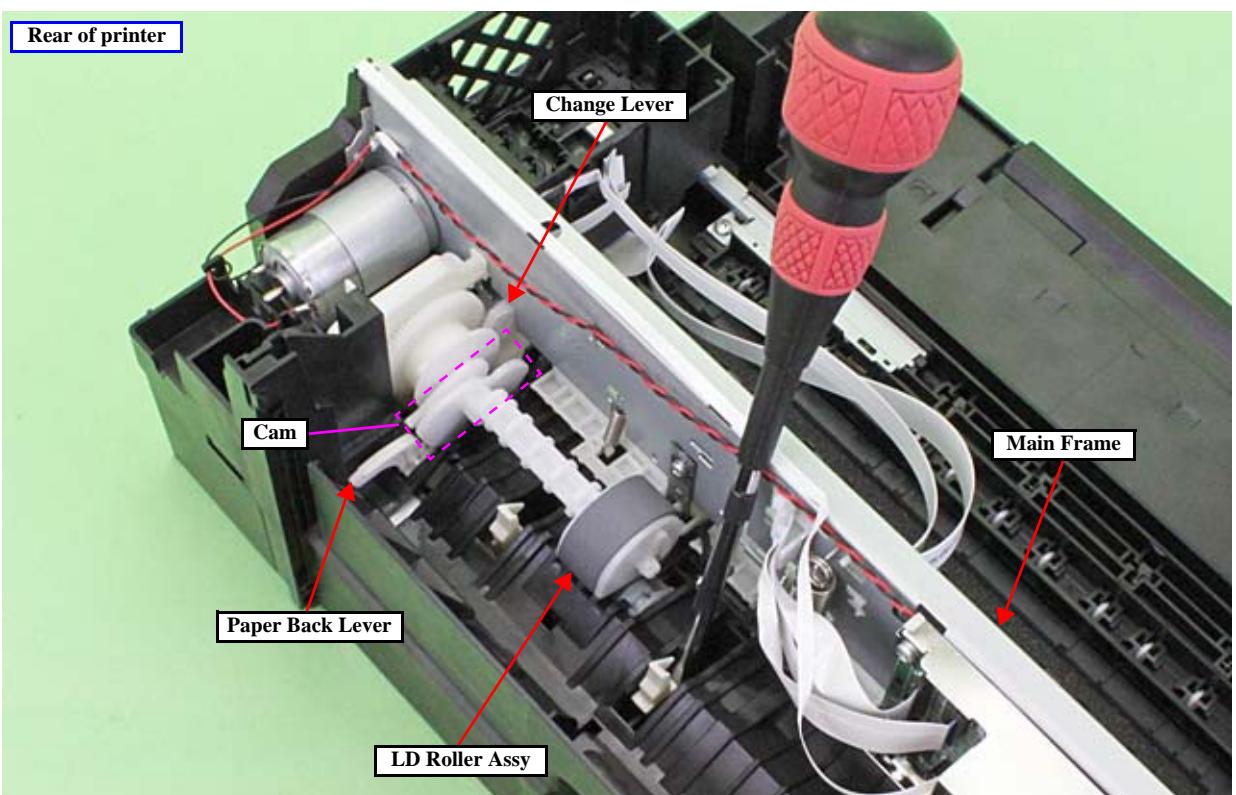
Pump Unit

When installing the Pump Unit, follow the procedure below in order to prevent ink suction failure.

1. Route the Pump Tube A through the hole of the Frame Base.
2. Install the Pump Unit to the Frame Base, and route the Pump Tube A through the ribs of the Frame Base with their dashed line facing upward.
3. Secure the Pump Unit to the Frame Base with the screw (x1).
4. Route the Pump Tube B through the ribs of the Pump Unit and Frame Base, and insert it to the hole of the Frame Base up to the marking (8 ± 1 mm from tube end).

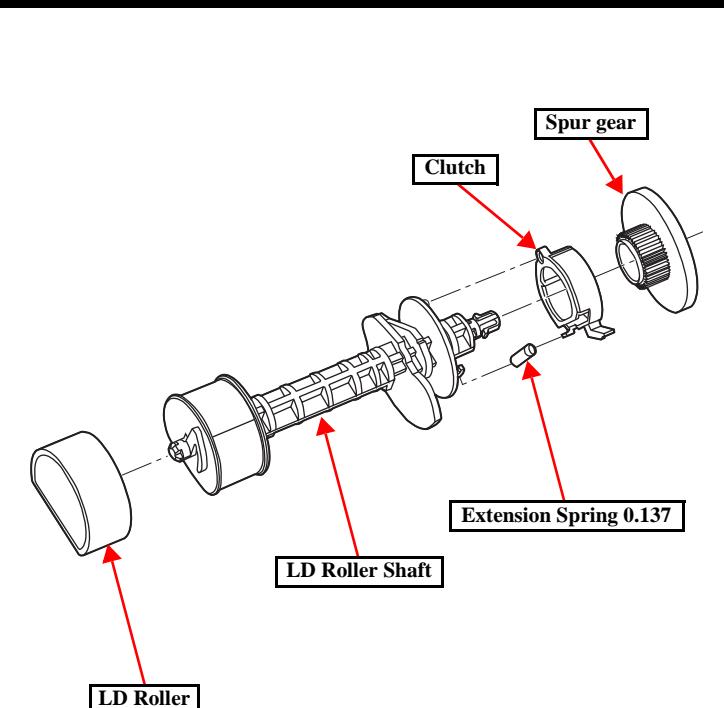
Rib

C.B.P-TITE SCREW 3x10 F/ZN-3C (6 ± 1 kgf·cm)

LD Roller Assy (1)

Install the LD Roller Assy with the following condition in order to avoid the Change Lever and Paper Back Lever.

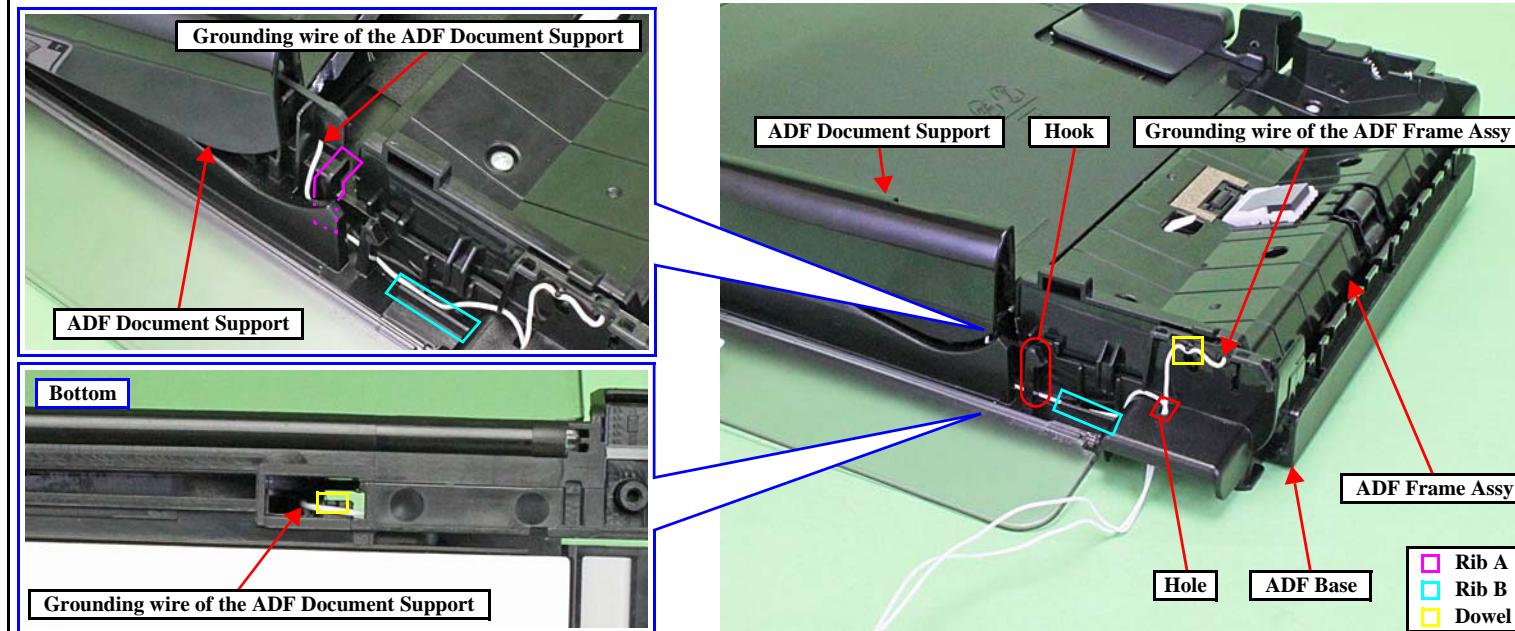
- Using a screw driver or the like, hold the Paper Back Lever to the rear as shown above not to let it touch the LD Roller Assy.
- Push the Change Lever to the front to keep it in the hole of the Main Frame.

Spur gear / Extension Spring 0.137 / Clutch / LD Roller shaft

Install Spur gear/Extension Spring 0.137/Clutch/LD Roller shaft as shown in the figure above.

2.4 Routing FFCs/cables

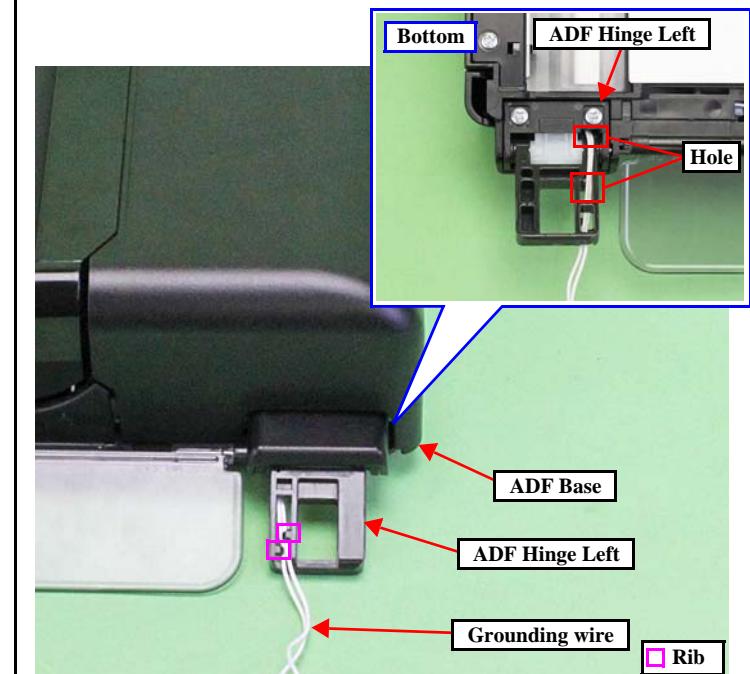
ADF Frame Assy / ADF Document Support (ADF compatible model)



Rotate the grounding wire of the ADF Frame Assy and ADF Document Support(x2) as follows.

- Grounding wire of the ADF Frame Assy
Hang the grounding wire the dowel (x3) and route through the hole of the ADF Base.
- Grounding wire of the ADF Document Support
 1. Route along the rib A of the ADF Base and hang the dowel on the bottom of the ADF Base.
 2. Route along the inside of the hook and rib B of the ADF Base and route through the hole of the ADF Base.

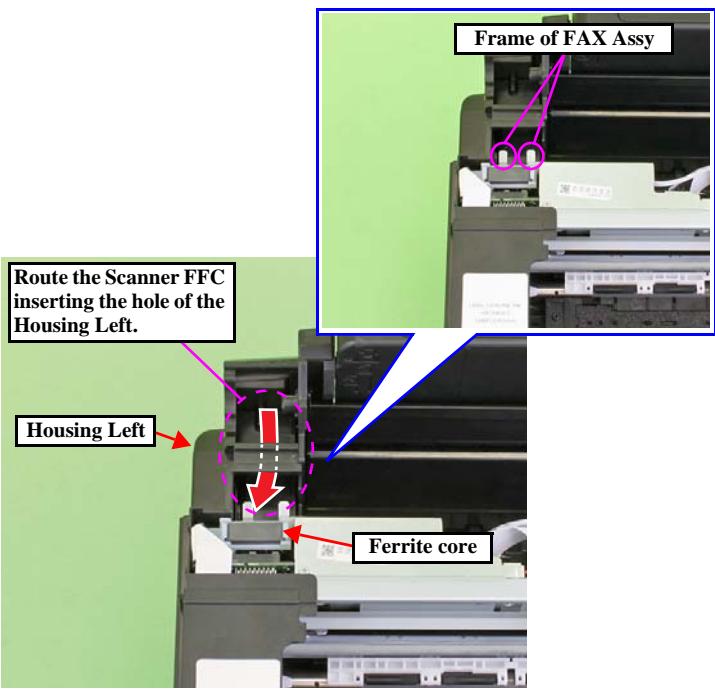
ADF Hinge Left (ADF compatible model)



Route the grounding wire (x2) of the ADF Frame Assy/ADF Document Support through the ADF Hinge Left as follows.

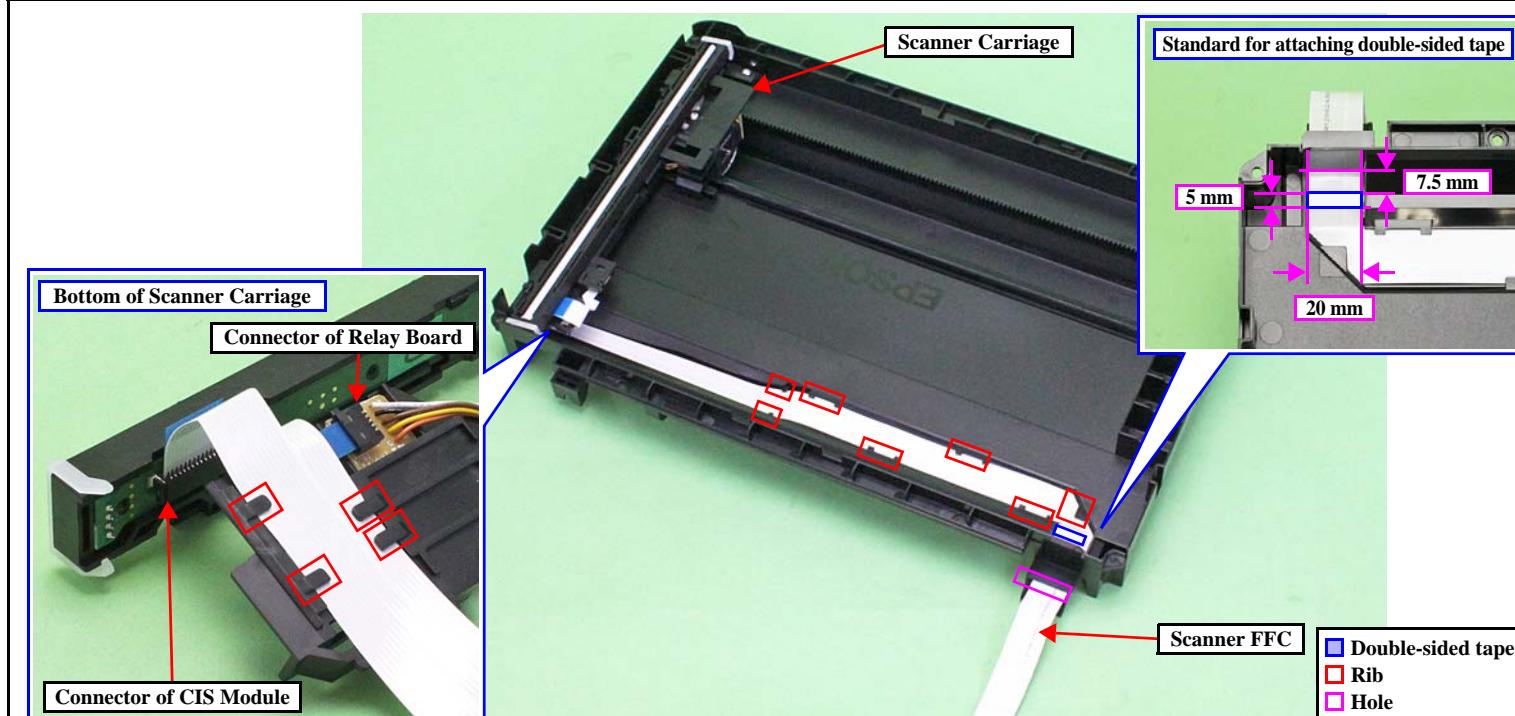
1. Route the grounding wire (x2) through the hole (x2) of the ADF Hinge Left.
2. Install the ADF Hinge Left to the ADF Base. Hang the grounding wire (x2) on the rib (x2) of the ADF Hinge Left and route.

ADF/Scanner Unit (Multifunction Printer)



- Scanner FFC
Insert the hole of the Housing Left and connect the connector (CN11) of the Main Board through the ferrite core.
- Grounding wire (only ADF compatible model)
Insert the hole of the Housing Left and connect the frame of the FAX Assy.

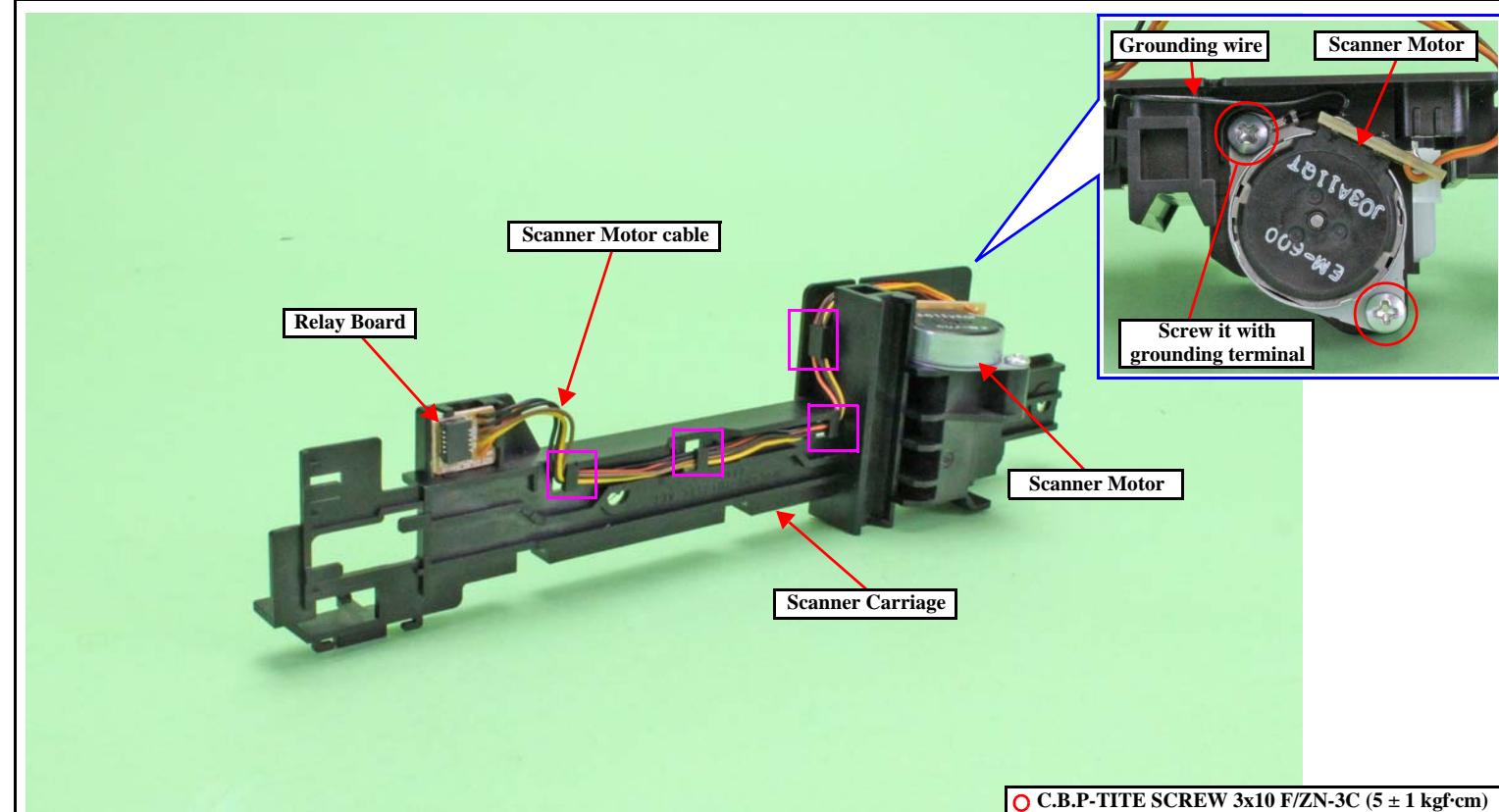
Scanner FFC (Multifunction Printer)



Route the Scanner FFC as follows.

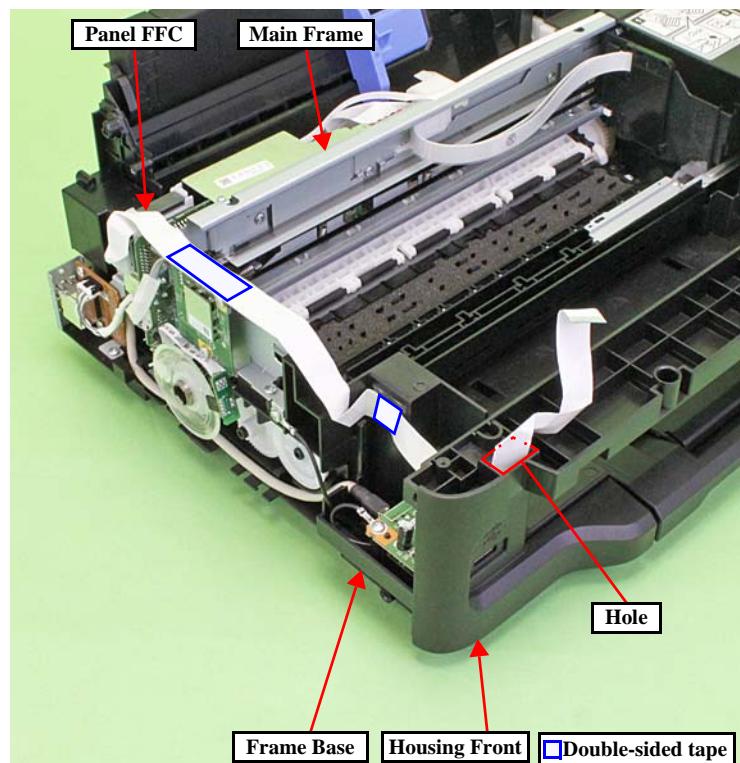
1. Insert the Scanner FFC through the hole of the Scanner Housing Lower in the direction shown above, and then secure the FFC with double-sided tape on position with the standard shown in the figure above.
2. Route the FFC through the ribs (x7) of the Scanner Housing Lower taking care not to damage the FFC.
3. Route the FFC through the ribs (x5) on the bottom of the Scanner Carriage taking care not to damage the FFC.
4. Connect the Scanner FFC to the Relay Board and CIS Module as shown above.

Scanner Motor (Multifunction Printer)



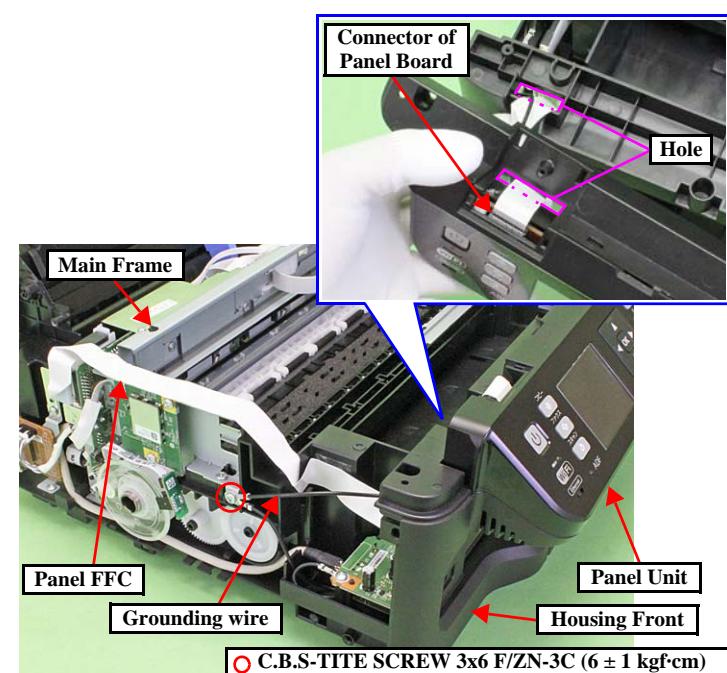
- Route the Scanner Motor cable through the hooks (x4) of the Scanner Motor as shown above.
- Secure the grounding wire of the Relay Board and the Scanner Motor together with the screw as shown above.

Panel FFC (Multifunction Printer)



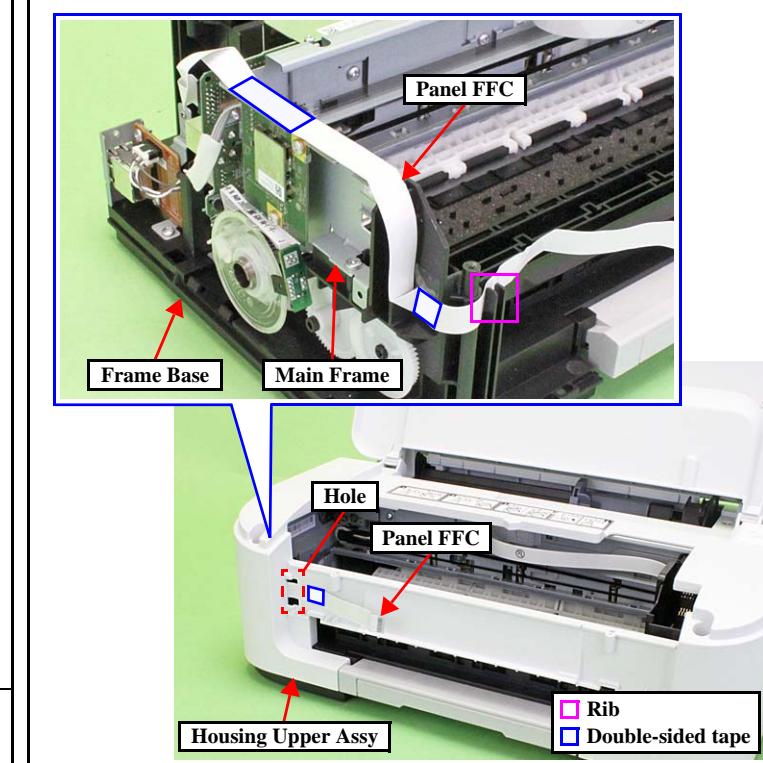
- Route the Frame Base and Main Frame along the folded line and secure with the double-sided tape on the position shown in the above.
- After installing the Housing Front, route the Panel FFC through the hole of the Housing Front.

Panel Unit (Multifunction Printer)



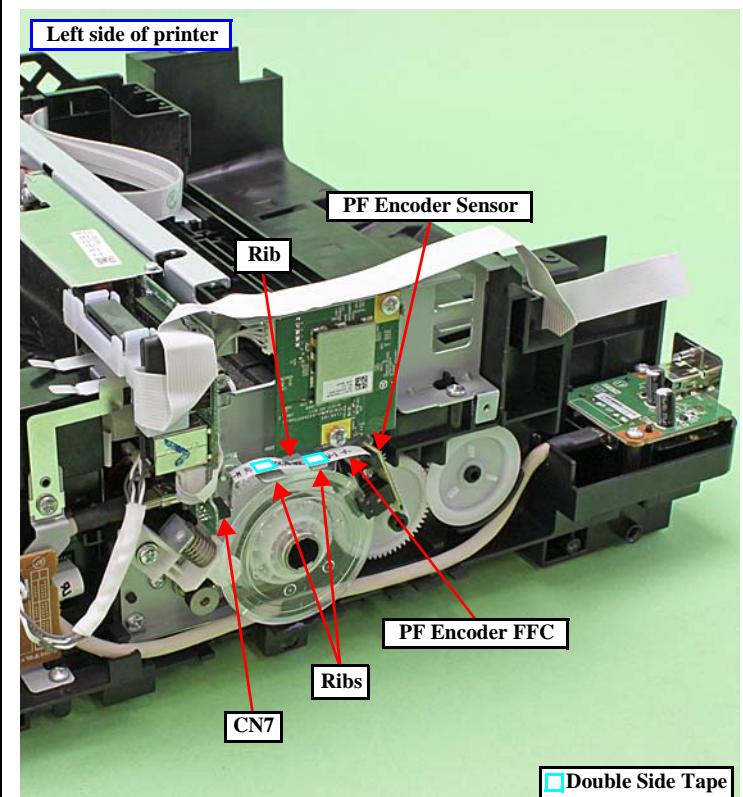
- Route the Panel FFC and grounding wire as follows before installing the Panel Unit.
 - Route the Panel FFC through the hole of the Panel Unit and connect the connector of the Panel Board.
 - Route the grounding wire through the hole of the Housing Front.
- After installing the Panel Unit, secure the grounding wire to the Main Frame on the position indicated in the figure above with screw (x1).

Panel FFC (Singlefunction Printer)



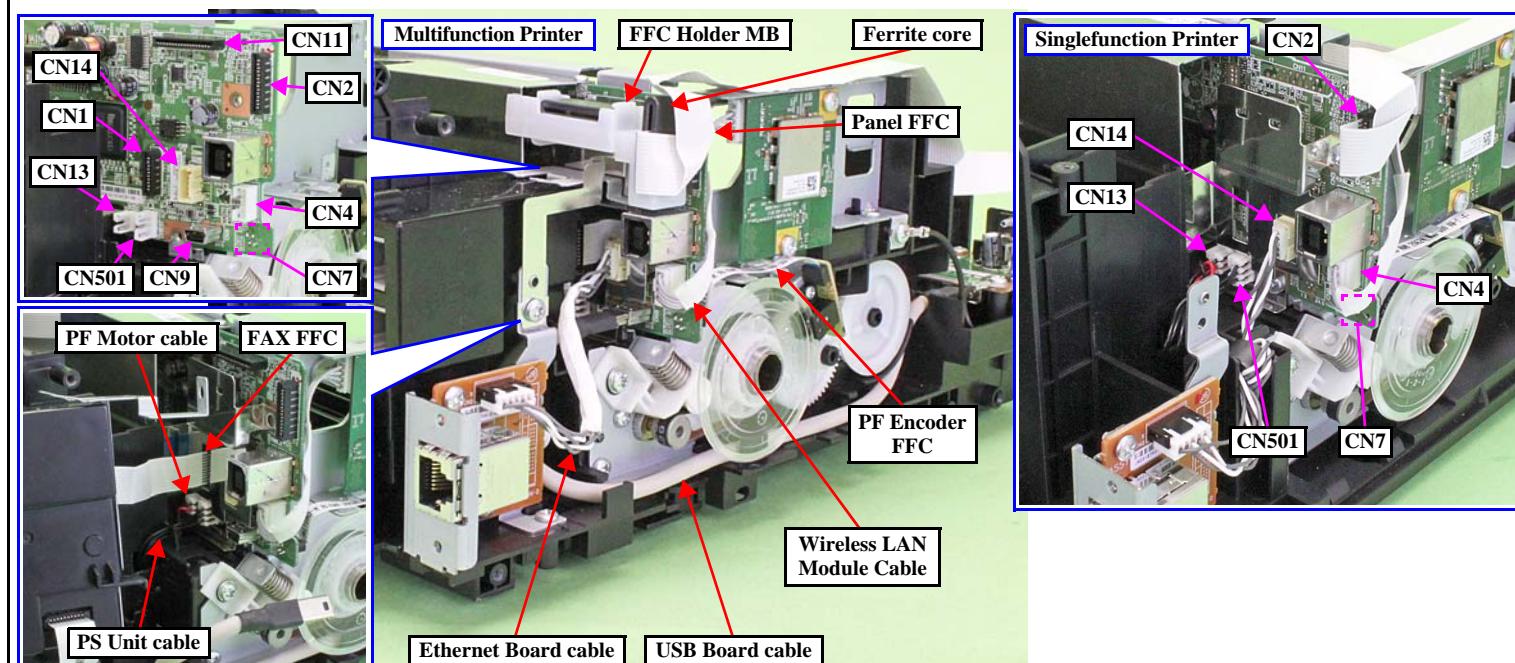
- Route the Panel FFC through the rib of the Frame Base and Main Frame along the folded line and secure with the double-sided tape on the position shown above.
- Route through the hole of the Housing Upper Assy and secure with the double-sided tape on the position indicated in the figure above.

PF Encoder Sensor



Route the PF Encoder through ribs of the Main Frame and connect the connector (CN7) of the Main Board. Then secure with the double-sided tape (x2) on the position shown in above.

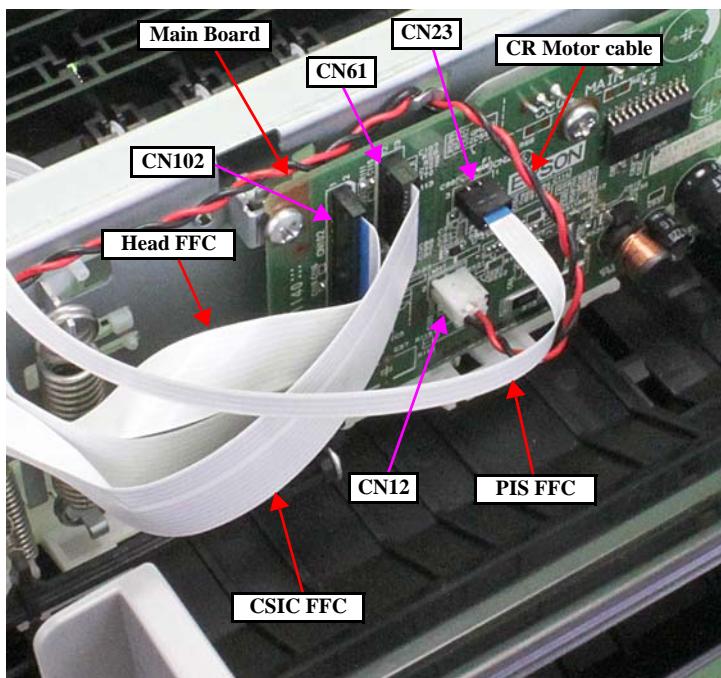
Left side of Main Board



Connect the following cables/FFCs to the Main Board as shown above.

- PF Motor cable (CN13)
- Wireless LAN Module Cable (CN4: only for Wireless LAN compatible model)
- USB Board cable (CN9: only for USB compatible model)
- Ethernet Board cable (CN14: only for Ethernet compatible model)
- Panel FFC (CN2) : Secure the ferrite core of the FFC Holder MB and connect to the Main Board through the ferrite core. (Singlefunction Printer has no FFC Holder MB and ferrite core.)
- PS Unit cable (CN501)
- PF Encoder FFC (CN7)
- FAX FFC (CN1: only for FAX compatible model)

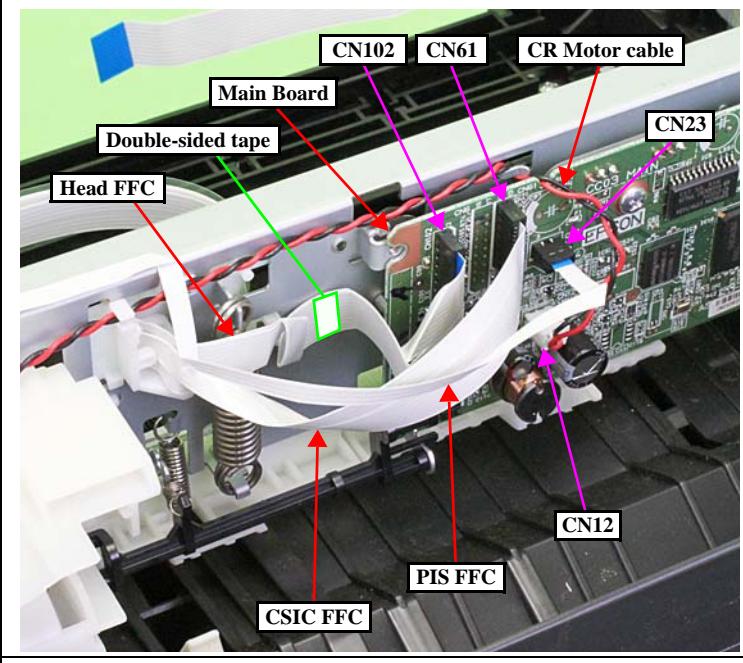
Right side of Main Board (Multifunction Printer)



Connect the following cables/FFCs to the Main Board as shown in the figure above.

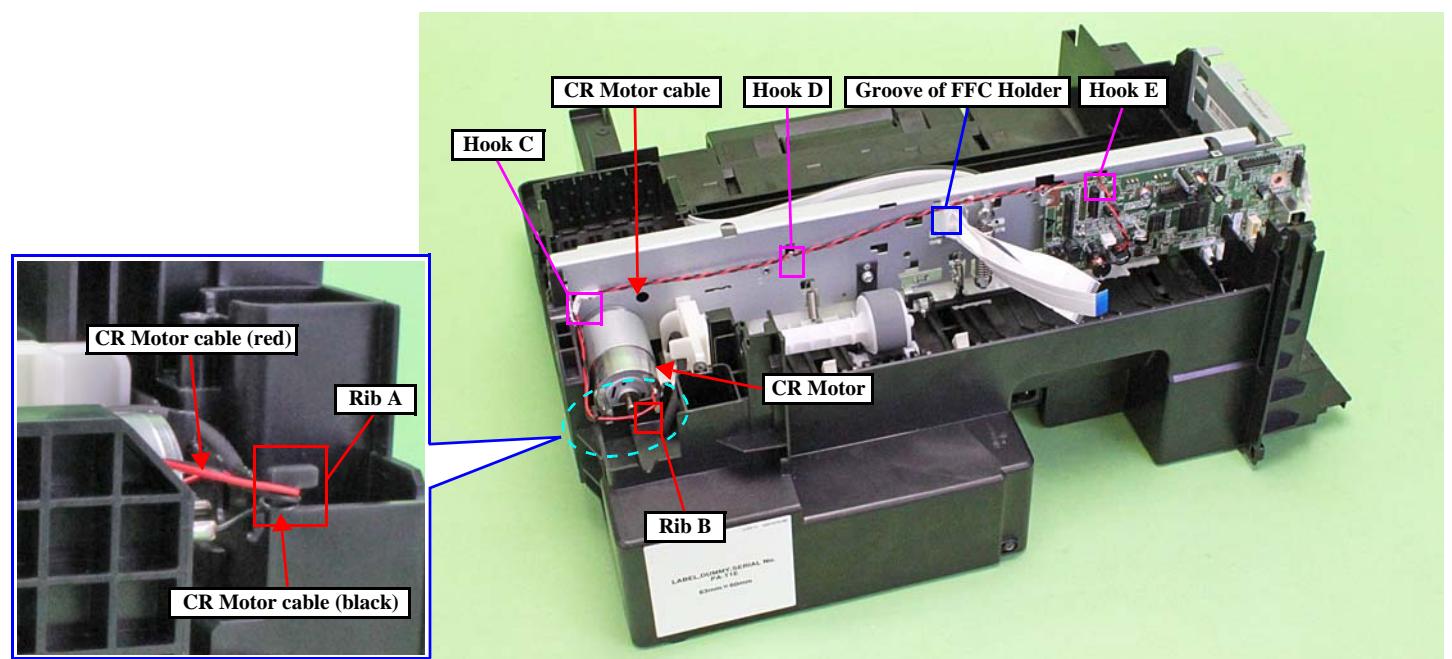
- CR Motor cable (CN12)
 - CSIC FFC (CN6)
 - Head FFC (CN102)
 - PIS FFC (CN23)
- Route the PIS FFC over the Head FFC and CSIC FFC.

Right side of Main Board (Singlefunction Printer)



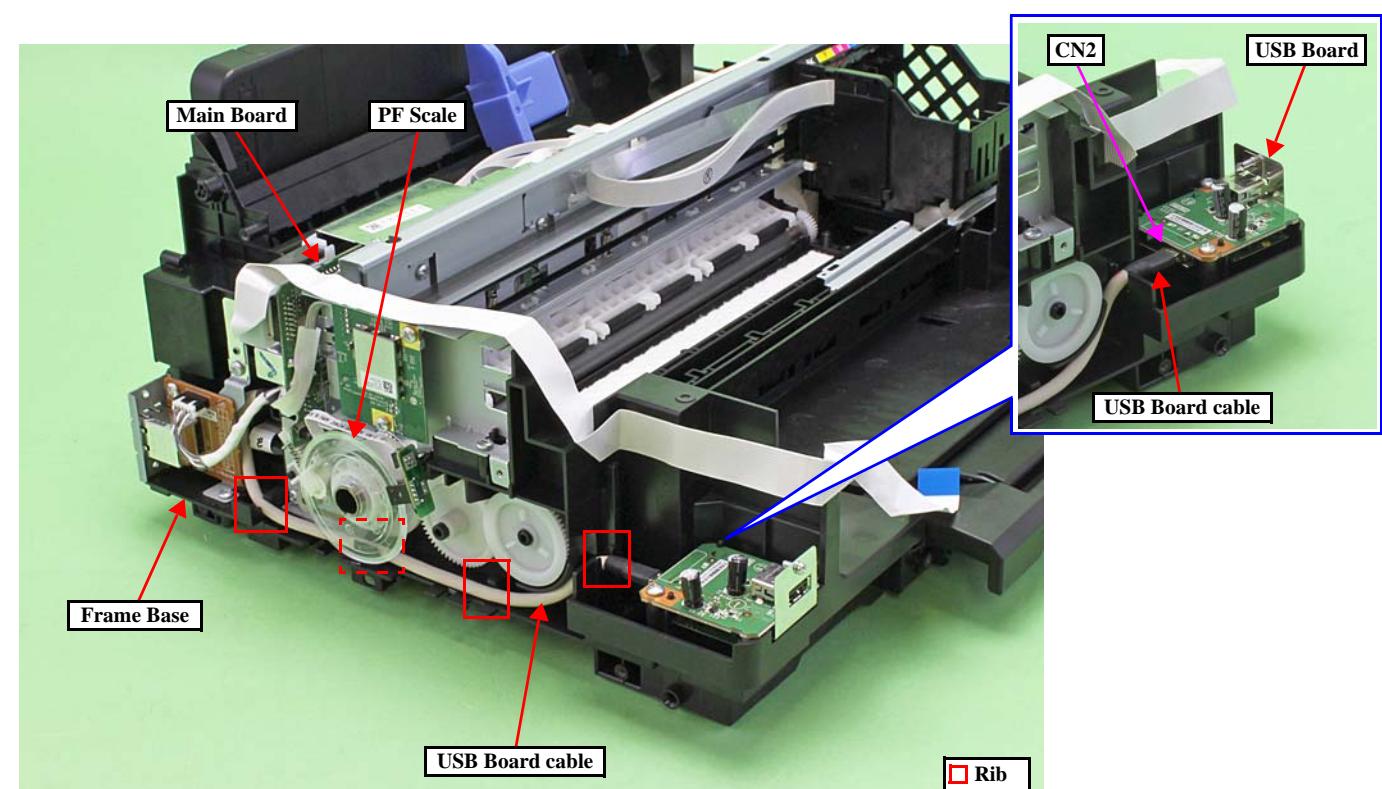
Connect the following cables/FFCs to the Main Board as shown in the figure above.

- CR Motor cable (CN12)
- CSIC FFC (CN6)
- Head FFC (CN102)
- Secure with the double-sided tape on the position shown above.
- PIS FFC (CN23)
- Route the upper side of the Head FFC and CSIC FFC.

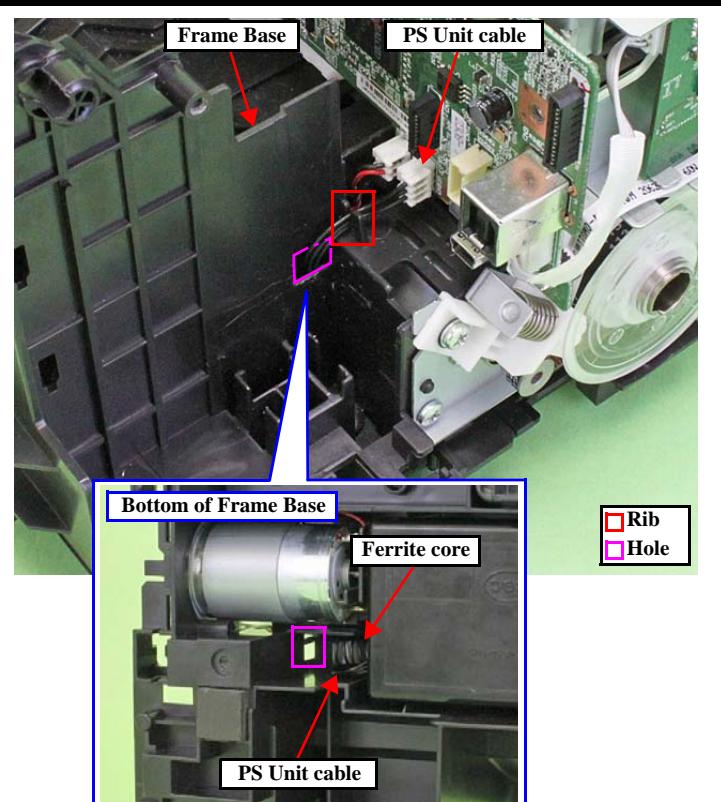
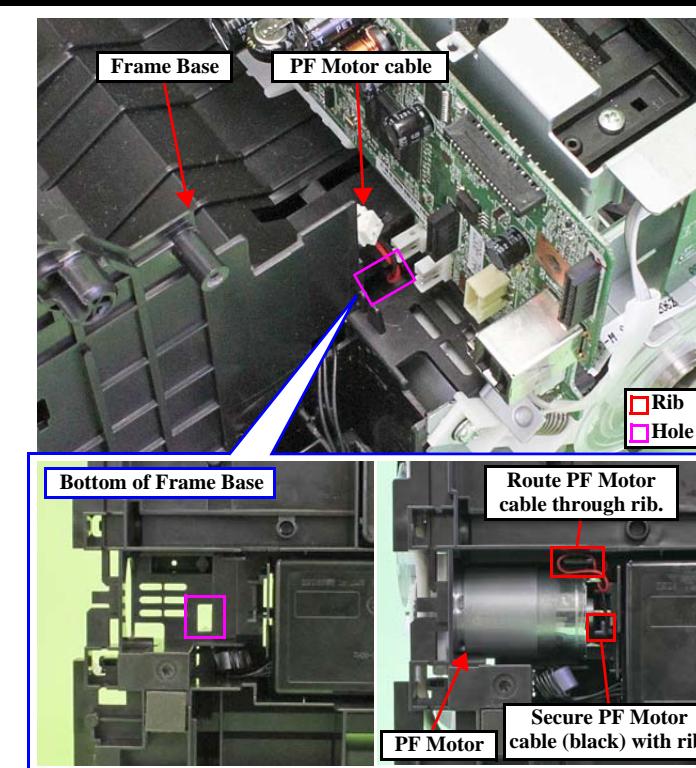
CR Motor

Route the CR Motor cable as follows before installing the Shield Plate.

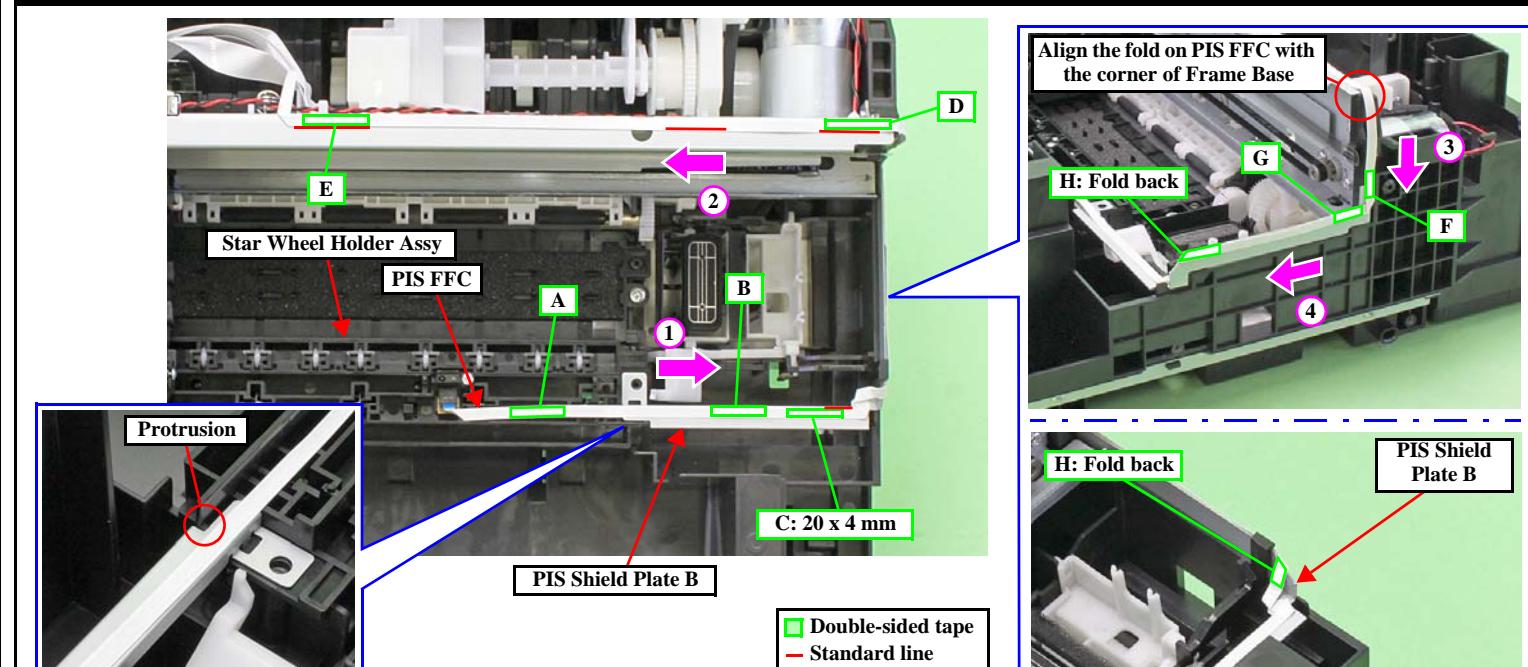
1. Route the CR Motor cable (black) around the rib A of the Frame Base (two turns).
2. Route the CR Motor cable (red) through the rib B of the Frame Base, and then route it through the rib A taking care not to let the CR Motor cable (red) come over the CR Motor cable (black).
3. Twist the CR Motor cable (black) and CR Motor cable (red) twice, and then route them through the hook C of the Main Frame.
4. Route the CR Motor cable (black) and CR Motor cable (red) in the order of hook D of the Main Frame, groove of the FFC Holder, and hook E of the Main Frame.

USB Board (USB compatible model)

- When routing the USB Board cable, be careful not to damage the PF Scale.
- Route the USB Board cable through the ribs (x4) of the Frame Base.
- Connect the connectors on both ends of the USB Board cable to the Card Slot Board (CN3) and Main Board (CN9) firmly. (p 49)

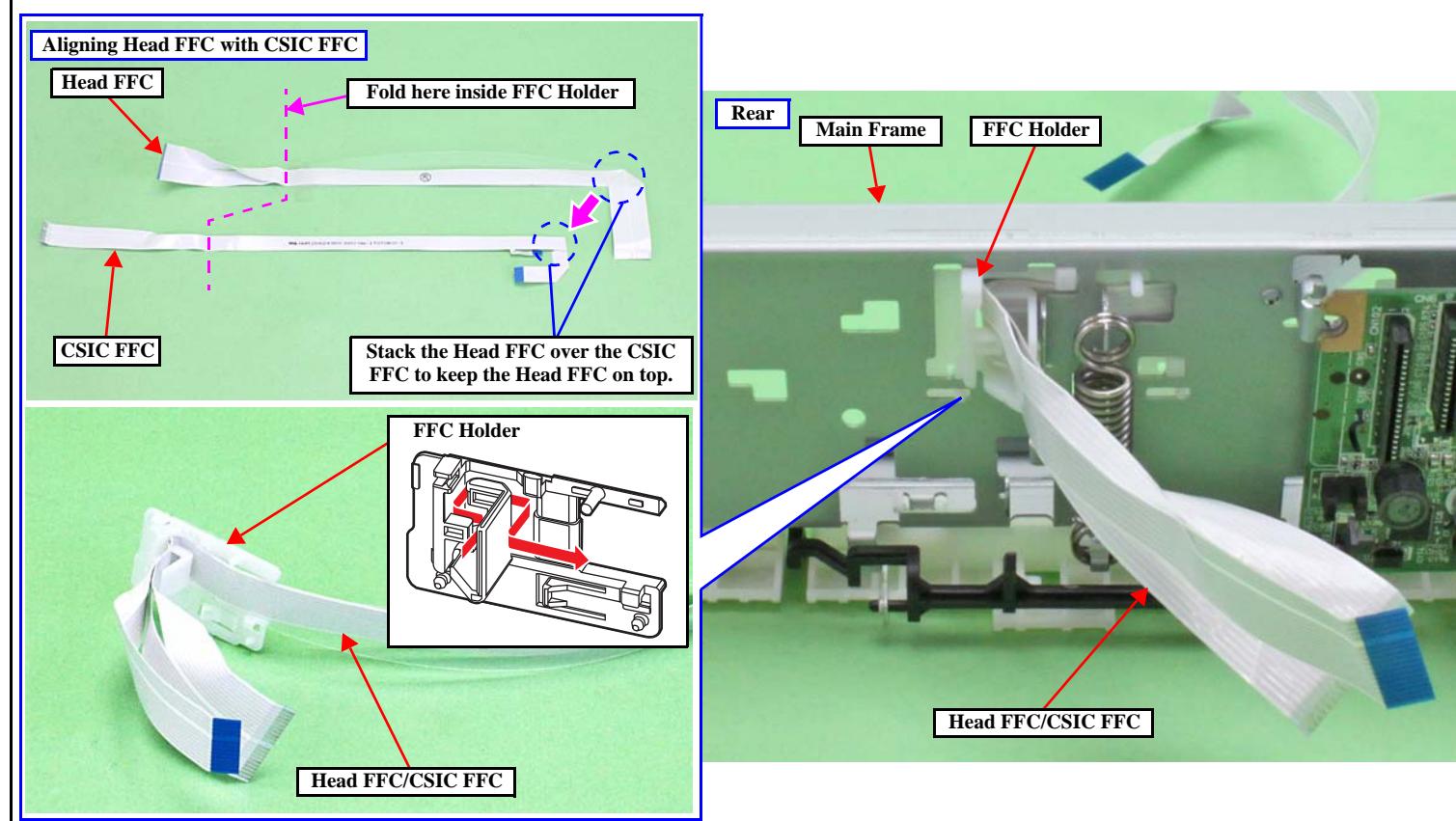
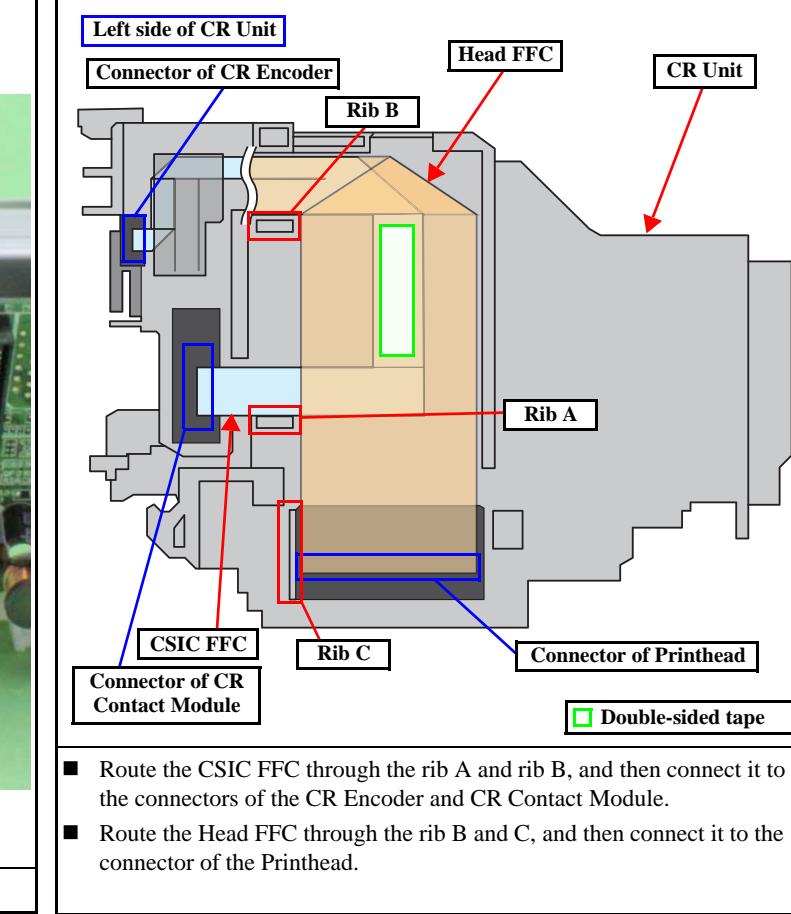
PS Unit**PF Motor**

- Pull out the PS Unit cable from the hole of the Frame Base first, and then route it through the rib of the Frame Base.
- Put the ferrite core into the position shown in the figure above.

PIS FFC

Route the PIS FFC/cable as follows

1. Align the PIS FFC to the standard line on the PIS Shield Plate B, and route it in the direction of arrow (1) taking care not to let it cover the protrusion of the Star Wheel Holder Assy, then secure the FFC with double sided tape in the order from A to C shown above.
2. Align the fold on the PIS FFC with the corner of the Frame Base, and route the FFC along the standard line on the Main Frame in the direction of arrow (2), then secure the FFC with double sided tape in the order of D and E shown above.
3. From the fold on the PIS FFC aligned in Step 2, route the FFC in the direction of arrow (3), and secure it with double sided tape at F shown above.
4. Route the PIS FFC in the direction of arrow (4), and secure it with double sided tape in the order of G and H shown above.

Head FFC (Routing on the Main Frame)**Head FFC (Routing on the CR Unit)**

Align the Head FFC and CSIC FFC, and then route them through the FFC Holder as shown in the figure above.

CHAPTER 3

ADJUSTMENT

3.1 Required Adjustments

The table from the following page lists the required adjustments depending upon the parts being repaired or replaced. Find the part(s) you removed or replaced, and check which adjustment(s) must be carried out.



- If the EEPROM data cannot be read out from the old Main Board using the Adjustment Program when replacing the Main Board is required, the Waste Ink Pad Assy must be replaced with the Main Board at the same time.
- After all required adjustments are completed, use the “Final check pattern print” function to print all adjustment patterns for final check. If you find a problem with the printout patterns, carry out the adjustment again.
- When replacing the Main Board, the adjustment should be made after performing the initial setting.



- In this chapter, the product names are called as follows:
 - WF-2540 Series: WF-2540/WF-2548/WF-2541
 - WF-2530 Series: WF-2530/WF-2532/WF-2538/WF-2531
 - WF-2520 Series: WF-2520/WF-2528/WF-2521
 - WF-2510 Series: WF-2510/WF-2511/WF-2512
 - WF-2010 Series: WF-2010
- The table items and marks used in the “Required Adjustment List” provided on the following pages have the following meanings.
 - “O” indicates that the adjustment must be carried out.
 - “---” indicates that the adjustment is not required.
 - The “Mechanism Adjustment” should be performed just after reinstalling or reassembling the part or unit.
 - The “Adjustments using the Adjustment Program” need to be performed after reassembling the printer completely.
- If you have removed or replaced multiple parts, make sure to check the required adjustments for the all parts. And when multiple adjustments must be carried out, be sure to carry out them in the order given in the “Priority” row.

Table 3-1. Required Adjustment List

Adjustment Type		Mechanism adjustment		
Priority		1	2	3
Adjustment Item		Checking the Platen Gap	CR Belt tension check	PF Belt tension check
Purpose		Check if the PG is within the standard.	Check the tension of the CR Timing Belt	Check the tension of the PF Timing Belt
Part Name	Tray Front Assy	Remove Replace	---	---
	Star Wheel Holder Assy	Remove Replace	---	---
	Paper Guide Front Unit	Remove Replace	---	---
	Paper Guide Lower Porous Pad	Remove Replace	---	---
	Printhead	Remove Replace	---*1 O	---
	Waste Ink Pad Assy	Remove Replace	---	---
	Retard Roller Assy	Remove Replace	---	---
	Scanner Unit	Remove Replace	---	---
	Scanner Motor	Remove Replace	---	---
	ADF Unit	Remove Replace	---	---
	PS Unit	Remove Replace	---	---
	PF Driven Pulley Assy	Remove Replace	---	O
	PF Timing Belt	Remove Replace	---	O
	EJ Roller	Remove Replace	---	---
	Hopper	Remove Replace	---	---
	Printout pattern	---	---	---
How to judge		See "3.3.1 Checking the Platen Gap (p63)" for the details.	See "3.3.2 CR/PF Belt Tension Check (p65)" for the details.	See "3.3.2 CR/PF Belt Tension Check (p65)" for the details.
Adjustment program		---	---	---
Tool		See p63	See p65	See p65

Note 1: Necessary when the part is replaced at a point in the disassembly procedures other than specified in this manual.

2: Replacement of the Paper Guide Lower Porous Pad and Waste Ink Pad Assy is necessary.

Table 3-1. Required Adjustment List

Adjustment Type		Mechanism adjustment		
Priority		1	2	3
Adjustment Item		Checking the Platen Gap	CR Belt tension check	PF Belt tension check
Purpose		Check if the PG is within the standard.	Check the tension of the CR Timing Belt	Check the tension of the PF Timing Belt
Part Name	LD Roller Assy	Remove	---	---
	Replace	---	---	---
CR Motor	Remove	---	---	---
	Replace	---	---	---
PE Sensor Lever	Remove	---	---	---
	Replace	---	---	---
Main Board	Remove	---	---	---
	Replace (Read OK)	---	---	---
	Replace (Read NG)	---	---	---
CR Driven Pulley	Remove	---	---	---
	Replace	---	O	---
Main Frame Assy	Remove	---	---	---
	Replace	O	O	---
Paper Guide Upper Assy	Remove	---	---	---
	Replace	---	---	---
CR Unit	Remove	---	---	---
	Replace	O	---	---
CR Timing Belt	Remove	---	---	---
	Replace	---	O	---
Frame Base Assy	Replace	---	---	O
PF Roller Unit	Remove	---	---	O
	Replace	---	---	O
PF Motor Assy	Remove	---	---	O
	Replace	---	---	O
Frame Base	Replace	---	---	O
PIS Board	Remove	---	---	---
	Replace	---	---	---
Printout pattern		---	---	---
How to judge		See "3.3.1 Checking the Platen Gap (p63)" for the details.	See "3.3.2 CR/PF Belt Tension Check (p65)" for the details.	See "3.3.2 CR/PF Belt Tension Check (p65)" for the details.
Adjustment program		---	---	---
Tool		See p63	See p65	See p65

Note 1: Necessary when the part is replaced at a point in the disassembly procedures other than specified in this manual.

2: Replacement of the Paper Guide Lower Porous Pad and Waste Ink Pad Assy is necessary.

Table 3-2. Required Adjustment List

Adjustment Type		Adjustment using the Adjustment Program																
Priority		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Adjustment Item		EEPROM data copy	Initialize Setting	Head ID input	Ink charge	Maintenance counter	First dot position adjustment	TOP margin adjustment	Head angular adjustment	Bi-D adjustment	PF/EJ adjustment	PF band adjustment	PF deterioration offset	CR motor heat protection control	PF motor heat protection control	Scanner motor heat protection control	PIS board Check	
Purpose		To copy adjustment values or the like stored on the old Main Board to the new board when the Main Board needs to be replaced.	To write sale-destination-specific settings and the serial number into the new Printhead by entering its Printhead ID (Head ID). And also to set the MAC address as necessary.	To correct characteristic variation of the replaced Printhead by entering its Printhead ID (Head ID).	To fill ink inside the new Printhead to make it ready for print after replacing the Printhead.	To reset the waste ink counter after replacing the Waste Ink Pad Assy.	To correct the print start position in the CR Unit moving direction through software control.	This corrects top margin of printout.	To correct tilt of the Printhead caused at the installation through software control.	To correct print start timing in bidirectional printing through software control.	To correct variations in paper feed accuracy to achieve higher print quality.	To correct variations in paper feed accuracy to achieve higher print quality in band printing.	To reset the counter according to the replaced parts.	To measure and correct the electrical variation of the motor and the power supply board.	To measure and correct the electrical variation of the motor.	To measure and correct the electrical variation of the motor.	Determine whether the PIS Board is needed to be replaced when the Printhead and the Main Board are replaced.	
Part Name	Tray Front Assy	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
		Replace	---	---	---	---	---	---	---	---	O	---	---	---	---	---	---	
	Star Wheel Holder Assy	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
		Replace	---	---	---	---	---	---	---	---	O	O	---	---	---	---	---	
	Paper Guide Front Unit	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
		Replace	---	---	---	---	---	---	---	O	O	O	---	---	---	---	---	
	Paper Guide Lower Porous Pad	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
		Replace	---	---	---	O	---	---	---	---	---	---	---	---	---	---	---	
Printout pattern	Printhead	Remove	---	---	---	---	---	---	O	O	---	---	---	---	---	---	---	
		Replace	---	---	O	O	---	O	O	O	---	O	---	---	---	---	O	
	Waste Ink Pad Assy	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
		Replace	---	---	---	---	O	---	---	---	---	---	---	---	---	---	---	
	Retard Roller Assy	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
		Replace	---	---	---	---	---	O	---	---	---	---	---	---	---	---	---	
How to judge		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Adjustment program		O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
Tool		---	---	---	---	---	Ruler	Ruler	---	---	---	---	---	---	---	---	---	

Note "1": Perform before the final check pattern since the degraded status of the PIS Board by ink mist or other status are checked other than when the Printhead/Main Board are replaced. (The fault of the PIS Board may not be detected without the PIS Board check.)

"2": Replacement of the Paper Guide Lower Porous Pad and Waste Ink Pad Assy is necessary.

Table 3-2. Required Adjustment List

Adjustment Type			Adjustment using the Adjustment Program															
Priority		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Adjustment Item		EEPROM data copy	Initialize Setting	Head ID input	Ink charge	Maintenance counter	First dot position adjustment	TOP margin adjustment	Head angular adjustment	Bi-D adjustment	PF/EJ adjustment	PF band adjustment	PF deterioration offset	CR motor heat protection control	PF motor heat protection control	Scanner motor heat protection control	PIS board Check	
Purpose	To copy adjustment values or the like stored on the old Main Board to the new board when the Main Board needs to be replaced.	To write sale-destination-specific settings and the serial number into the Main Board after replacing it. And also to set the MAC address as necessary.	To correct characteristic variation of the replaced Printhead by entering its Printhead ID (Head ID).	To fill ink inside the new Printhead to make it ready for print after replacing the Printhead.	To reset the waste ink counter after replacing the Waste Ink Pad Assy.	To correct the print start position in the CR Unit moving direction through software control.	This corrects top margin of printout.	To correct tilt of the Printhead caused at the installation through software control.	To correct print start timing in bidirectional printing through software control.	To correct variations in paper feed accuracy to achieve higher print quality.	To correct variations in paper feed accuracy to achieve higher print quality in band printing.	To reset the counter according to the replaced parts.	To measure and correct the electrical variation of the motor and the power supply board.	To measure and correct the electrical variation of the motor and the power supply board.	To measure and correct the electrical variation of the motor.	Determine whether the PIS Board is needed to be replaced when the Printhead and the Main Board are replaced.		
Part Name	Scanner Unit	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
		Replace	---	---	---	---	---	---	---	---	---	---	---	---	O	---	---	
	Scanner Motor	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		Replace	---	---	---	---	---	---	---	---	---	---	---	---	O	---	---	---
	ADF Unit	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		Replace	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	PS Unit	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		Replace	---	---	---	---	---	---	---	---	---	---	---	O	O	---	---	---
	PF Driven Pulley Assy	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		Replace	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	PF Timing Belt	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		Replace	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	EJ Roller	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		Replace	---	---	---	---	---	---	---	---	---	O	O	---	---	---	---	---
	Hopper	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		Replace	---	---	---	---	---	O	O	---	O	---	---	---	---	---	---	---
Printout pattern	---	---	---	---	---	---			OK NG					---	---	---	---	---
How to judge	---	---	---	---	---	---	Examine the misaligned lines printed on the left side of the paper, and enter the number beside the line that is exactly 5 mm away from the paper edge.	Examine the misaligned lines printed on top of the paper, and enter the number beside the line that is exactly 5 mm away from the paper edge.	Enter the values of the most straight lines.	Examine the printout patterns for each of the four modes, and enter the value for the pattern with no gap and overlap for each mode.	Normal area pattern Examine the printout patterns and enter the value for the pattern with no overlap and gap between the two rectangles.	Examine the printout patterns and enter the value for the pattern with no overlap and gap between the two rectangles.	Bottom area pattern Examine the printout patterns and enter the value for the pattern with no overlap and gap between the two rectangles.	See "3.2.2.1 CR Motor Heat Protection Control / PF Motor Heat Protection Control (p60)" for the details.	See "3.2.2.1 CR Motor Heat Protection Control / PF Motor Heat Protection Control (p60)" for the details.	See "3.2.2.2 Scanner Motor Heat Protection Control / PF Motor Heat Protection Control (p61)" for the details.	See "3.2.2.3 PIS Board Check (p62)" for the details.	
Adjustment program	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
Tool	---	---	---	---	---	Ruler	Ruler	---	---	---	---	---	---	---	---	---	---	

Note "1": Perform before the final check pattern since the degraded status of the PIS Board by ink mist or other status are checked other than when the Printhead/Main Board are replaced. (The fault of the PIS Board may not be detected without the PIS Board check.)

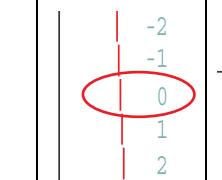
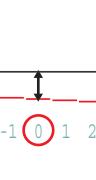
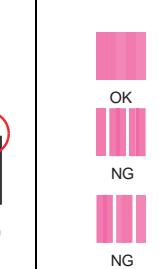
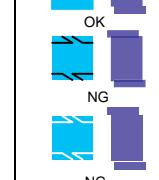
Table 3-2. Required Adjustment List

Adjustment Type			Adjustment using the Adjustment Program																
Priority		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Adjustment Item		EEPROM data copy	Initialize Setting	Head ID input	Ink charge	Maintenance counter	First dot position adjustment	TOP margin adjustment	Head angular adjustment	Bi-D adjustment	PF/EJ adjustment	PF band adjustment	PF deterioration offset	CR motor heat protection control	PF motor heat protection control	Scanner motor heat protection control	PIS board Check		
Purpose	To copy adjustment values or the like stored on the old Main Board to the new board when the Main Board needs to be replaced.	To write sale-destination-specific settings and the serial number into the Main Board after replacing it. And also to set the MAC address as necessary.	To correct characteristic variation of the replaced Printhead by entering its Printhead ID (Head ID).	To correct ink inside the new Printhead to make it ready for print after replacing the Printhead.	To fill ink inside the new Printhead to make it ready for print after replacing the Waste Ink Pad Assy.	To reset the waste ink counter after replacing the Waste Ink Pad Assy.	To correct the print start position in the CR Unit moving direction through software control.	This corrects top margin of printout.	To correct tilt of the Printhead caused at the installation through software control.	To correct print start timing in bidirectional printing through software control.	To correct variations in paper feed accuracy to achieve higher print quality.	To correct variations in paper feed accuracy to achieve higher print quality in band printing.	To reset the counter according to the replaced parts.	To measure and correct the electrical variation of the motor and the power supply board.	To measure and correct the electrical variation of the motor and the power supply board.	To measure and correct the electrical variation of the motor.	Determine whether the PIS Board is needed to be replaced when the Printhead and the Main Board are replaced.		
Part Name	LD Roller Assy	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
		Replace	---	---	---	---	---	O	---	---	---	---	---	---	---	---	---		
CR Motor	CR Motor	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
		Replace	---	---	---	---	---	---	---	---	---	---	---	O	---	---	---		
PE Sensor Lever	PE Sensor Lever	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
		Replace	---	---	---	---	---	O	---	---	---	---	---	---	---	---	---		
Main Board	Main Board	Remove	---	---	---	---	---	O	---	---	---	---	---	---	---	---	---		
		Replace (Read OK)	O	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
		Replace (Read NG)	---	O	O	---	O ^{*2}	O	O	O	O	O	O	O	O	O	O		
CR Driven Pulley	CR Driven Pulley	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
		Replace	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
Main Frame Assy	Main Frame Assy	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
		Replace	---	---	---	---	---	O	---	O	O	O	O	---	---	---	---		
Printout pattern																			
How to judge								Examine the misaligned lines printed on the left side of the paper, and enter the number beside the line that is exactly 5 mm away from the paper edge.	Examine the misaligned lines printed on top of the paper, and enter the number beside the line that is exactly 5 mm away from the paper edge.	Enter the values of the most straight lines.	Examine the printout patterns for each of the four modes, and enter the value for the pattern with no gap and overlap for each mode.	Normal area pattern Examine the printout patterns and enter the value for the pattern with no overlap and gap between the two rectangles. Bottom area pattern Examine the printout patterns and enter the value for the pattern with no overlap and gap between the two rectangles.	Examine the printout patterns and enter the value for the pattern with no overlap and gap between the two rectangles.		See "3.2.2.1 CR Motor Heat Protection Control / PF Motor Heat Protection Control (p60)" for the details.	See "3.2.2.1 CR Motor Heat Protection Control / PF Motor Heat Protection Control (p60)" for the details.	See "3.2.2.2 Scanner Motor Heat Protection Control (p61)" for the details.	See "3.2.2.3 PIS Board Check (p62)" for the details.	
Adjustment program	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O		
Tool	---	---	---	---	---	Ruler	Ruler	---	---	---	---	---	---	---	---	---	---		

Note "*(1)": Perform before the final check pattern since the degraded status of the PIS Board by ink mist or other status are checked other than when the Printhead/Main Board are replaced. (The fault of the PIS Board may not be detected without the PIS Board check.)

"*(2)": Replacement of the Paper Guide Lower Porous Pad and Waste Ink Pad Assy is necessary.

Table 3-2. Required Adjustment List

Adjustment Type			Adjustment using the Adjustment Program															
Priority		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Adjustment Item		EEPROM data copy	Initialize Setting	Head ID input	Ink charge	Maintenance counter	First dot position adjustment	TOP margin adjustment	Head angular adjustment	Bi-D adjustment	PF/EJ adjustment	PF band adjustment	PF deterioration offset	CR motor heat protection control	PF motor heat protection control	Scanner motor heat protection control	PIS board Check	
Purpose	To copy adjustment values or the like stored on the old Main Board to the new board when the Main Board needs to be replaced.	To write sale-destination-specific settings and the serial number into the Main Board after replacing it. And also to set the MAC address as necessary.	To correct characteristic variation of the replaced Printhead by entering its Printhead ID (Head ID).	To correct ink inside the new Printhead to make it ready for print after replacing the Printhead.	To fill ink inside the new Printhead to make it ready for print after replacing the Waste Ink Pad Assy.	To reset the waste ink counter after replacing the Waste Ink Pad Assy.	To correct the print start position in the CR Unit moving direction through software control.	This corrects top margin of printout.	To correct tilt of the Printhead caused at the installation through software control.	To correct print start timing in bidirectional printing through software control.	To correct feed accuracy to achieve higher print quality.	To correct variations in paper feed accuracy to achieve higher print quality in band printing.	To reset the counter according to the replaced parts.	To measure and correct the electrical variation of the motor and the power supply board.	To measure and correct the electrical variation of the motor and the power supply board.	To measure and correct the electrical variation of the motor.	Determine whether the PIS Board is needed to be replaced when the Printhead and the Main Board are replaced.	
Part Name	Paper Guide Upper Assy	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
	Paper Guide Upper Assy	Replace	---	---	---	---	---	O	---	O	O	O	---	---	---	---	---	
	CR Unit	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
	CR Unit	Replace	---	---	---	---	---	O	O	O	O	O	---	---	---	---	---	
	CR Timing Belt	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
	CR Timing Belt	Replace	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
	Frame Base Assy	Replace	---	---	---	---	---	O	O	---	O	O	O	---	---	---	---	
	PF Roller Unit	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
	PF Roller Unit	Replace	---	---	---	---	---	O	---	---	O	O	---	---	---	---	---	
	PF Motor Assy	Remove	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
	PF Motor Assy	Replace	---	---	---	---	---	---	---	---	O	---	---	---	O	---	---	
Frame Base	Frame Base	Replace	---	---	---	---	---	O	O	---	O	---	---	---	---	---	---	
	PIS Board	Remove	---	---	---	---	---	O	O	---	O	---	---	---	---	---	---	
	PIS Board	Replace	---	---	---	---	---	O	O	---	O	---	---	---	---	---	O	
Printout pattern																		
How to judge								Examine the misaligned lines printed on the left side of the paper, and enter the number beside the line that is exactly 5 mm away from the paper edge.	Examine the misaligned lines printed on top of the paper, and enter the number beside the line that is exactly 5 mm away from the paper edge.	Enter the values of the most straight lines.	Examine the printout patterns for each of the four modes, and enter the value for the pattern with no gap and overlap for each mode.	Normal area pattern Examine the printout patterns and enter the value for the pattern with no overlap and gap between the two rectangles. Bottom area pattern Examine the printout patterns and enter the value for the pattern with no overlap and gap between the two rectangles.	Examine the printout patterns and enter the value for the pattern with no overlap and gap between the two rectangles.		See "3.2.2.1 CR Motor Heat Protection Control / PF Motor Heat Protection Control (p60)" for the details.	See "3.2.2.1 CR Motor Heat Protection Control / PF Motor Heat Protection Control (p60)" for the details.	See "3.2.2.2 Scanner Motor Heat Protection Control (p61)" for the details.	See "3.2.2.3 PIS Board Check (p62)" for the details.
Adjustment program	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
Tool	---	---	---	---	---	Ruler	Ruler	---	---	---	---	---	---	---	---	---	---	

Note "1": Perform before the final check pattern since the degraded status of the PIS Board by ink mist or other status are checked other than when the Printhead/Main Board are replaced. (The fault of the PIS Board may not be detected without the PIS Board check.)

"2": Replacement of the Paper Guide Lower Porous Pad and Waste Ink Pad Assy is necessary.

3.2 Adjustment Program

This section provides the operating environment, functions related to safety and privacy policy, and the adjustment item newly added of the Adjustment Program. See "[3.1 Required Adjustments \(p53\)](#)" for the adjustments not explained here.

3.2.1 Operating Environment

The operating environment for the Adjustment Program is as follows.

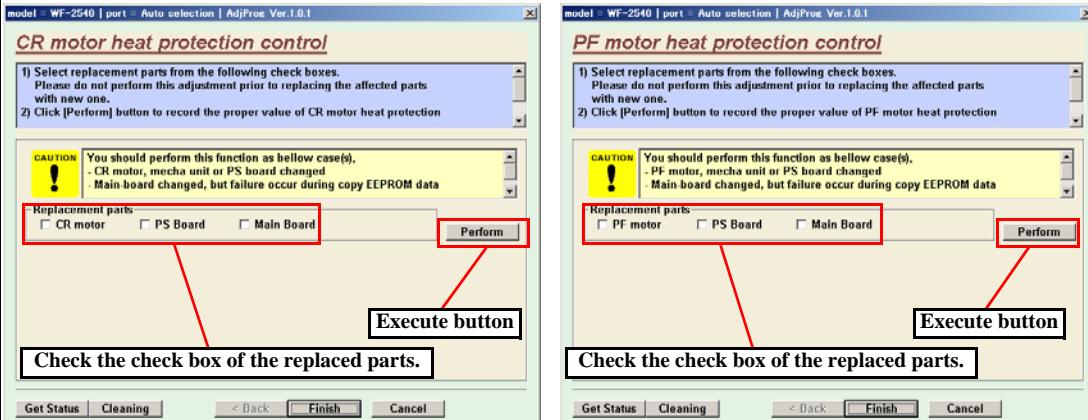
- OS: Windows XP, Vista
- Interface: USB

3.2.2 Details of the Adjustment Program

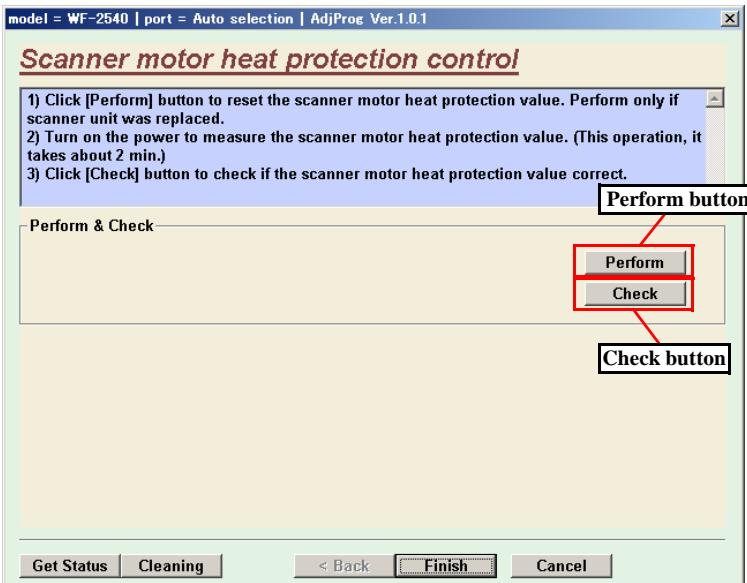


Refer to the guide in the Adjustment Program for the details of the procedure.

3.2.2.1 CR Motor Heat Protection Control / PF Motor Heat Protection Control

Purpose	To measure the manufacturing variations of the DC motors (CR Motor/PF Motor), Main Board and Power Supply Board to determine the correction value used for estimating the current values of the motors.
Risks if the adjustment is not correctly made	The printer cannot measure the current value of motor correctly, then the heat generation caused by motor drive cannot be estimated accurately either, and which may results in trouble such as incorrect control of motors when allotting a cool down period according to each heat generation. In the worst case, excessive heat generation may cause smoke or ignition.
Procedure	<ol style="list-style-type: none"> Select from the menu of the Adjustment Program. Check the check box of the replaced parts and press the "Execute" button to measure the correction value. The correction value is automatically measured and the measurement value is written to the EEPROM on the Main Board.
Adjustment Program screen	
Remarks	---

3.2.2.2 Scanner Motor Heat Protection Control

Purpose	To measure the manufacturing variation of the DC motor (Scanner) to determine the correction value used for estimating the current value of the motor.
Risks if the adjustment is not correctly made	Because the printer cannot measure the current value of the motor accurately, even if just a mechanical load with which the Scanner Carriage can operate without any problem is applied, the printer cannot control the drive of the motors correctly, which may result in occurrence or generation of scanner fatal error, vibration, or noises.
Procedure	<ol style="list-style-type: none"> 1. Select from the menu of the Adjustment Program and press the “Perform” button to measure the correction value. 2. Turn off the printer and turn it back on. After the Scanner Carriage is operated, the correction value is automatically measured and the measurement value is written to the EEPROM on the Main Board. 3. Press the “Check” button to confirm the written value in the EEPROM is within the standard range.
Adjustment Program screen	
Remarks	---

3.2.2.3 PIS Board Check

Purpose	Photo Ink Sensor degradation and failure check.
Risks if the adjustment is not correctly made	If number of printing sheets increases, ink mist adheres to a sensor and the quantity of light of a sensor falls off by becoming dirty, so that it is necessary to exchange PIS Board Assy (BOARD ASSY.,SUB). By checking with a adjustment program, it is judged whether it is necessary to exchange PIS Board Assy (BOARD ASSY.,SUB) simultaneously at the time of head exchange.
Procedure	<ol style="list-style-type: none"> 1. Set the ink cartridges.(The cartridges which is not ink end condition is used.) 2. Close the scanner & Printer Cover. 3. Carry out a Photo Ink Sensor inspection with a Adjustment program. 4. If the message to which exchange of a PIS board Assy (BOARD ASSY., SUB) is urged is displayed, it is judged that Photo Ink Sensor is in a degradation state.
Adjustment Program screen	
Remarks	If "PIS Board Check" is implemented with SCN open condition, you cannot get correct check result because of the effects of the ambient light. Therefore, implement this with SCN close condition surely.

3.3 Mechanism Adjustment / Check

This section provides the procedure for the mechanism adjustment and check.

3.3.1 Checking the Platen Gap

This section describes the procedure for checking the platen gap (PG).



- This printer does not have any PG adjustment mechanism, however, it is designed so that the platen gap can fall within the expected range if you correctly reassemble the unit (including using the Epson-specified jigs) according to this manual. If the PG cannot fall within the standard range after performing the platen gap check described in this section, first check if the unit is correctly reassembled following the instructions in this manual. Even if the unit is correctly reassembled but the PG still cannot fall within the standard range, replace the unit with a new/refurbished one.
- The standard range of the PG is as follows:
 - Standard: 1.8 ± 0.2 mm

- Tools
 - Thickness gauge: 1.6 mm (x2), 2.0 mm (x2)
- Confirmation procedure



When checking the PG, make sure of the following.

- Check the PG with new ink cartridges installed to the CR Unit, and also with all parts related to the PG installed to the printer (p 53).
- Move the CR Unit by pulling the CR Timing Belt.
- Be careful not to damage the nozzles of the Printhead with the thickness gauge.

1. Move the CR Unit to the center of the printer.
2. Place the thickness gauges (1.6 mm) on the position A shown in [Figure 3-1](#).

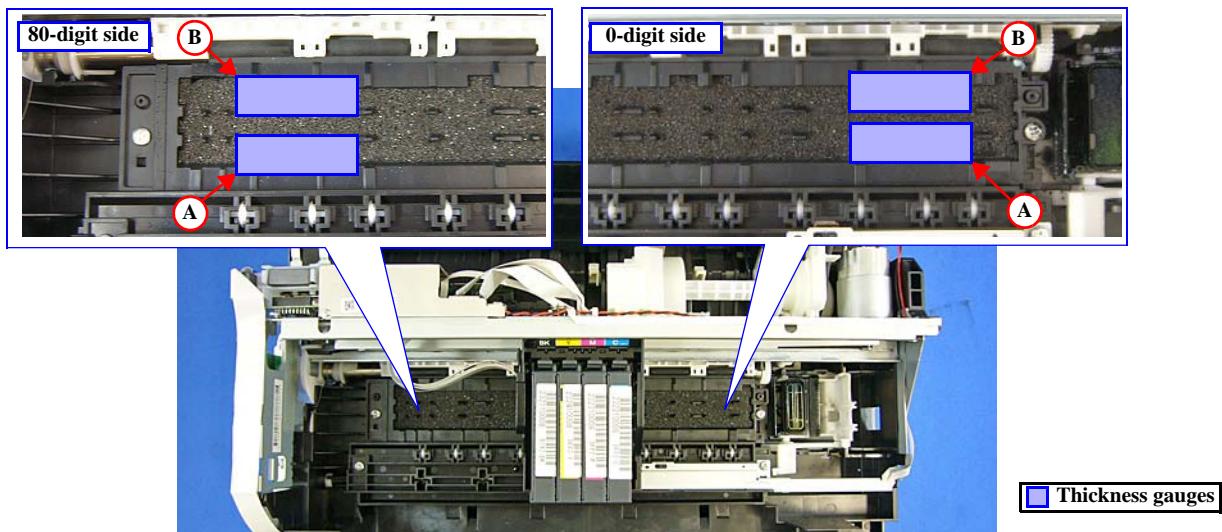


Figure 3-1. Position of the Thickness Gauge

3. Pull the CR Timing Belt to move the CR Unit to both ends and confirm the CR Unit does not touch the thickness gauges. ^{*1}
4. Move the CR Unit to the center, and place the thickness gauges (1.6 mm) on the position B shown in [Figure 3-1](#).
5. Pull the CR Timing Belt to move the CR Unit to both ends and confirm the CR Unit does not touch the thickness gauges. ^{*1}
6. Move the CR Unit to the center, and place the thickness gauges (2.0 mm) on the position A shown in [Figure 3-1](#).
7. Pull the CR Timing Belt to move the CR Unit to both ends and confirm the CR Unit touches the thickness gauges. ^{*2}
8. Move the CR Unit to the center, and place the thickness gauges (2.0 mm) on the position B shown in [Figure 3-1](#).
9. Pull the CR Timing Belt to move the CR Unit to both ends and confirm the CR Unit touches the thickness gauges. ^{*2}

Note ^{*1}: If the CR Unit comes in contact with the thickness gauges, the PG is smaller than the standard value, therefore, check if the unit is correctly reassembled. If not, reassemble the unit and perform PG check again. (If the unit is correctly reassembled, replace the unit with a new/refurbished one.)

^{*2}: If the CR Unit does not come in contact with the thickness gauges, the PG is greater than the standard value, therefore, check if the unit is correctly reassembled. If not, reassemble the unit and perform PG check again. (If the unit is correctly reassembled, replace the unit with a new/refurbished one.)

3.3.2 CR/PF Belt Tension Check

This section describes the CR/PF Belt tension check.



- This printer is designed so that the each tension of the CR Timing Belt and PF Timing Belt fall within the expected range if you correctly reassemble the unit according to this manual. However, deformation of any related part(s) can cause improper tension of the belt. In such case, replace the unit with a new/refurbished one.
- The standard tension range is as follows:
 - CR Timing Belt: 9 ± 1 N
 - PF Timing Belt: 5 ± 2.5 N

Tools

- Sonic tension meter (Parts code: 1294120)
- Plastic tweezers

Confirmation procedure



When performing the CR/PF Belt tension check, make sure of the following.

- Bring the microphone of the sonic tension meter within 5 mm from the timing belt but do not let it touch the belt.
- Flip the timing belt as weak as the sonic tension meter can measure it.
- Be careful not to damage the timing belt when flipping it with the plastic tweezers.

Checking the CR Timing Belt Tension



Perform the CR Belt tension check after performing "[3.3.1 Checking the Platen Gap \(p63\)](#)".

1. Move the CR Unit to 0-digit side.
2. Set the following parameters to the sonic tension meter:
 - Weight: 1.1 g/m
 - Width: 3 mm
 - Span: 326 mm
3. Bring the microphone of the sonic tension meter close to the position shown in [Figure 3-2](#).
4. Press the "MEASURE" button of the sonic tension meter and flip the upper of the CR Timing Belt with plastic tweezers and measure the tension of the belt three times.
5. Check the average of the measured values falls within the standard range.
 - Within the standard range: the CR Timing Belt tension check is complete.
 - Out of the standard range: replace the unit with a new/refurbished one.

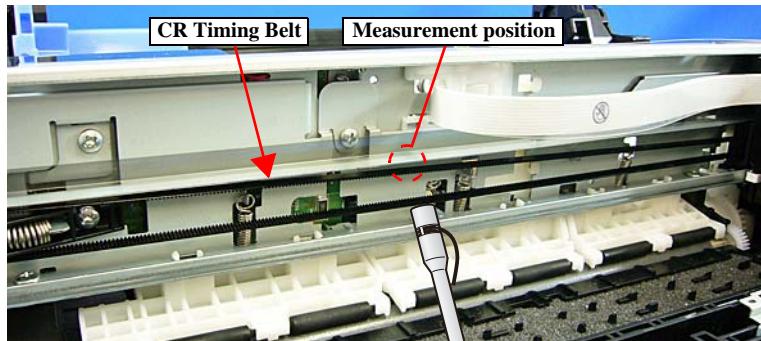


Figure 3-2. Checking the CR Timing Belt Tension

Checking the PF Timing Belt Tension



Perform the PF Belt tension check before installing the PF Scale and the PF Encoder Sensor.

1. Set the following parameters to the sonic tension meter:
 - Weight: 1.2 g/m
 - Width: 3.2 mm
 - Span: 29 mm
2. Bring the microphone of the sonic tension meter close to the position shown in [Figure 3-3](#).
3. Press the “MEASURE” button of the sonic tension meter and flip the lower of the PF Timing Belt with plastic tweezers and measure the tension of the belt three times.
4. Check the average of the measured values falls within the standard range.
 - Within the standard range: the PF Timing Belt tension check is complete.
 - Out of the standard range: reinstall the " [PF Driven Pulley Assy / PF Timing Belt \(p45\)](#) ", and then perform the PF Timing Belt Tension Check again.

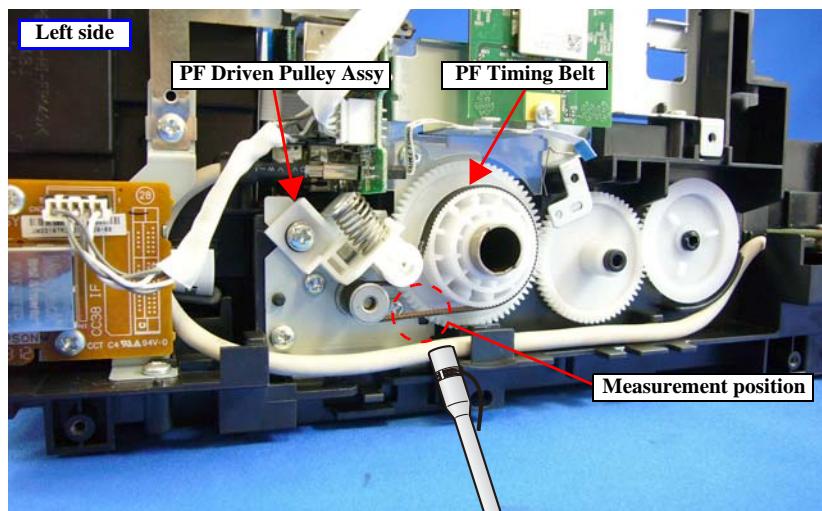


Figure 3-3. Checking the PF Timing Belt Tension



If not within the standard though performing the PF Timing Belt Tension Check twice, replace the unit with a new/refurbished one.

CHAPTER 4

MAINTENANCE

4.1 Overview

This section provides information to maintain the printer in its optimum condition.

4.1.1 Cleaning

Except for the Printhead, there are no other mechanical parts or units that require periodic cleaning. However, if need arises, clean the component observing the following instructions.

Instructions for cleaning

- Exterior parts such as housing
Wipe dirt off with a soft clean cloth moistened with water. For glossy or transparent parts, use of unwoven cloth is recommended to avoid scratching those parts.
- Inside of the printer
Remove paper dust with a vacuum cleaner.
- Rubber or plastic rollers such as an LD roller used to feed paper
If paper dust adhered to the rollers decreases the frictional force of the rollers and the rollers cannot properly feed paper, wipe off the paper dust with a soft cloth moistened with diluted alcohol.

Instructions for cleaning ink stains

Wipe the stains off with a cloth wrung out of diluted alcohol.



- **Do not use alcohol for cleaning the transparent parts. Doing so may cause them to get cloudy.**
- **When wiping paper dust off the LD Roller, be careful not to rub against the surface asperity.**
- **To minimize the effect on the parts, use diluted alcohol such as 70% diluted ether.**
- **After using alcohol for cleaning, make sure to wipe the part off with a soft dry dust-free cloth to remove alcohol traces fully.**

4.1.2 Lubrication

The type and amount of the grease used to lubricate the printer parts are determined based on the results of the internal evaluations. Therefore, refer to "["4.2 Lubrication Points and Instructions \(p69\)"](#)" for the repairing procedures below, and apply the specified type and amount of the grease to the specified part of the printer mechanism.

"["4.2 Lubrication Points and Instructions \(p69\)"](#)" also provides information about whether or not the parts which require lubrication are supplied as ASP and the lubrication status when supplied as ASP. For the parts which are not supplied as ASP, if their movement is not smooth enough, check their lubrication status and lubricate them if necessary.

Grease

Type	Name	EPSON Part Code	Supplier
Grease	G-45	1033657	EPSON
Grease	G-71	1304682	EPSON
Grease	G-74	1409257	EPSON

Tools

Name	Availability	EPSON Part Code
Injector	O *	---
Brush	O *	---
Flux dispenser	O *	1049533

Note *: Use tools whose specifications are specified in "["4.2 Lubrication Points and Instructions \(p69\)"](#)".

4.2 Lubrication Points and Instructions

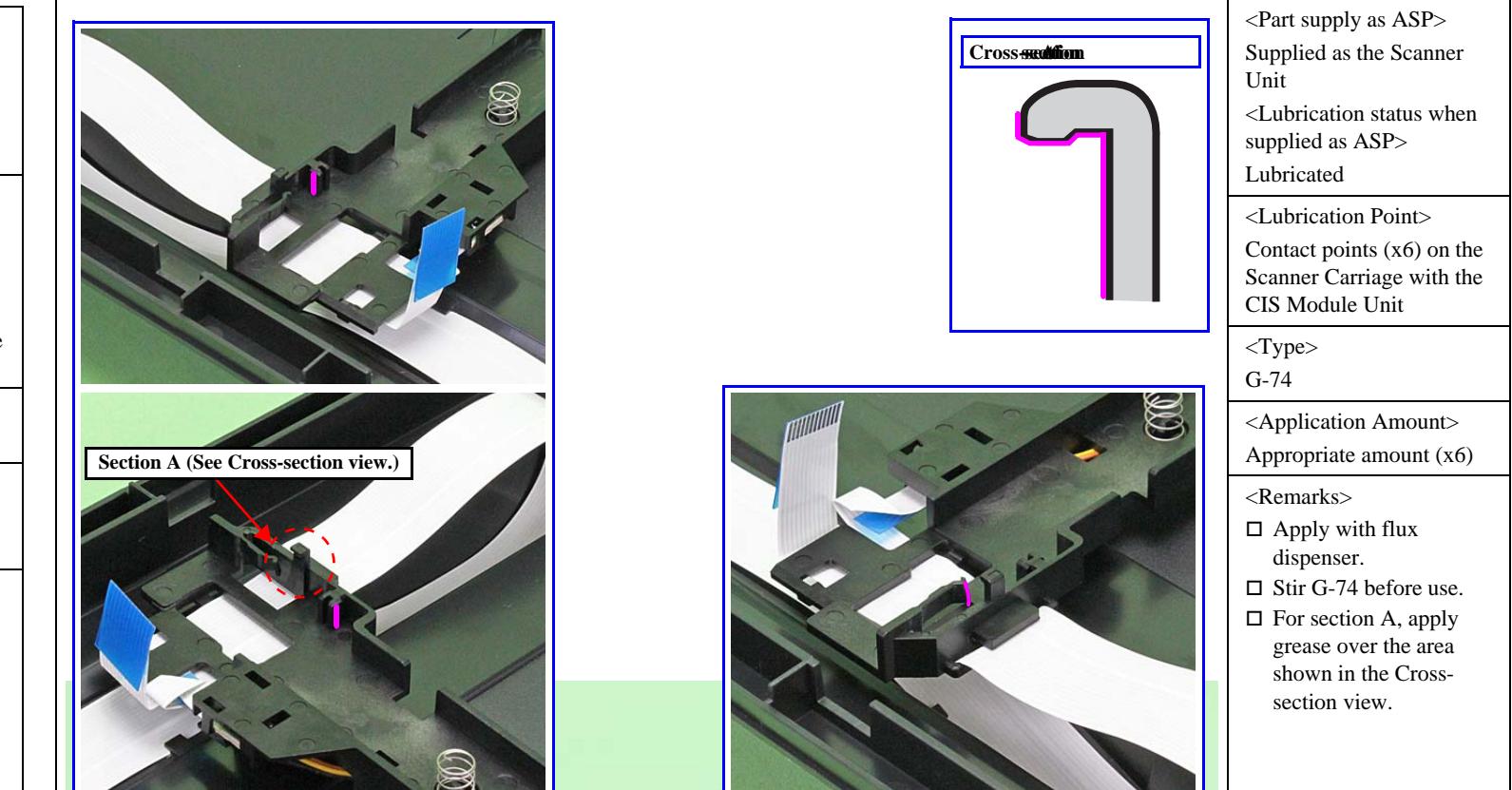
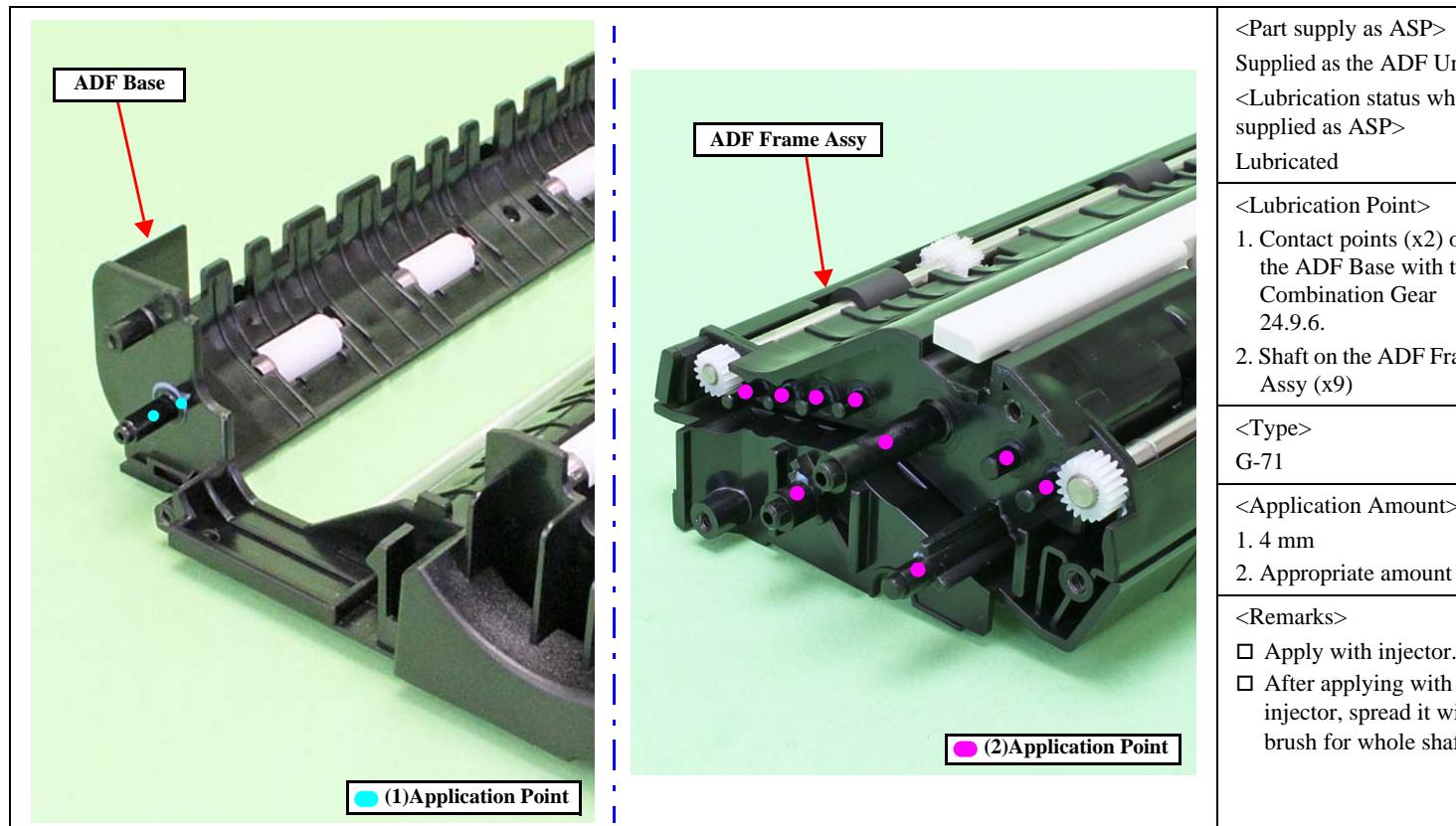


Figure 4-1. Lubrication of the ADF Frame Assy

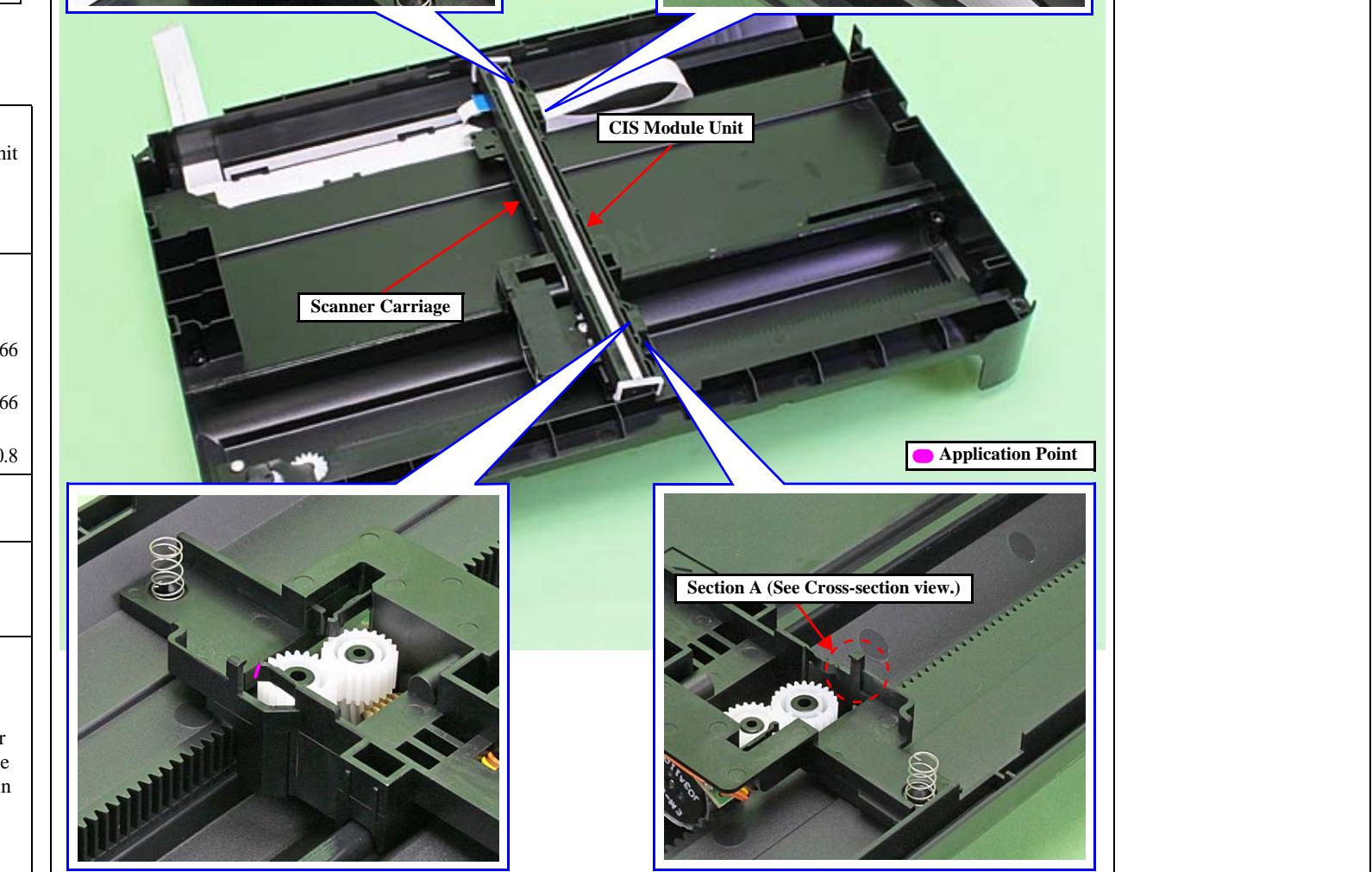
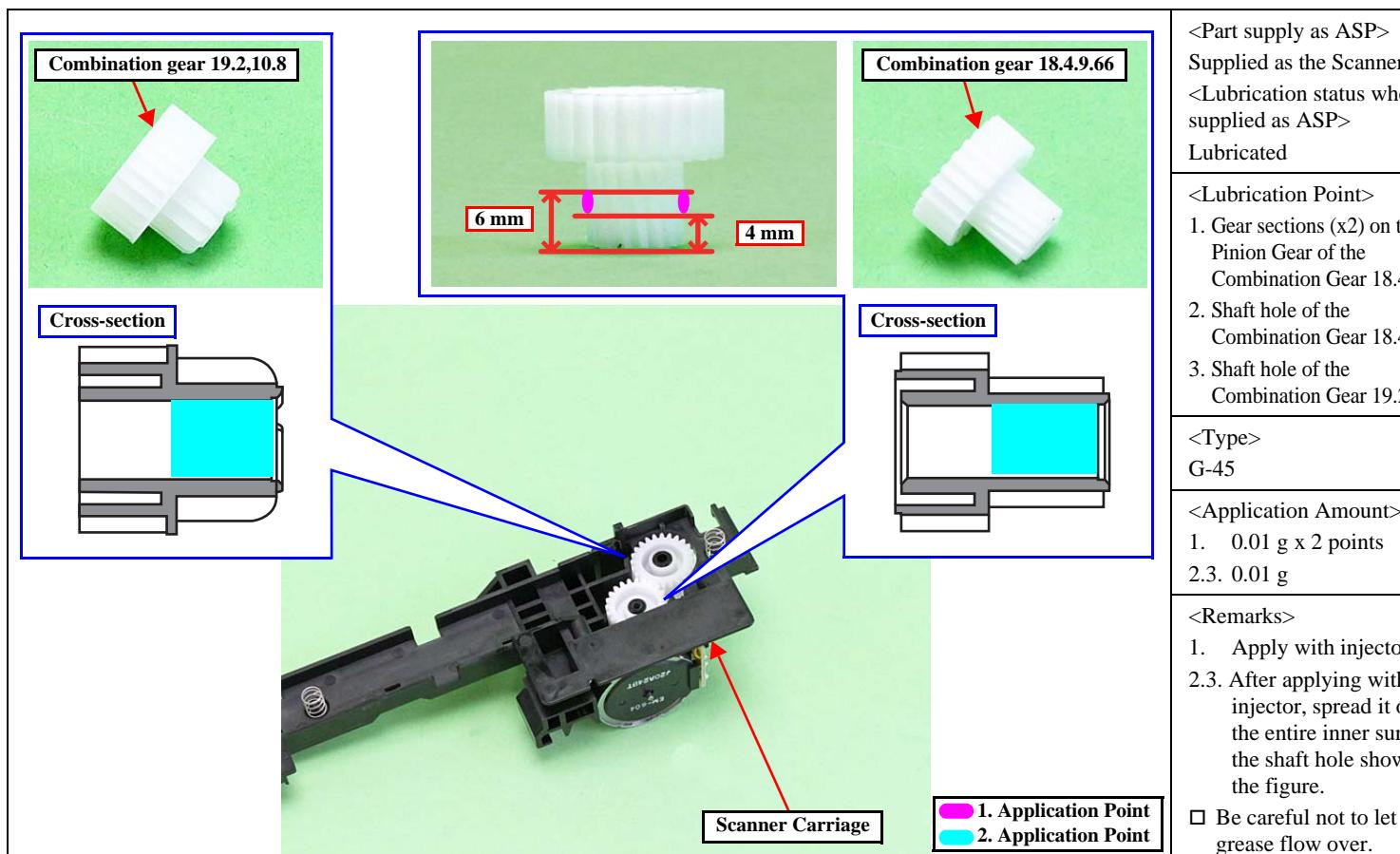


Figure 4-2. Lubrication of Combination Gear 14.4.9.66/Combination Gear 19.2.10.8

Figure 4-3. Lubrication of the Scanner Carriage (1)

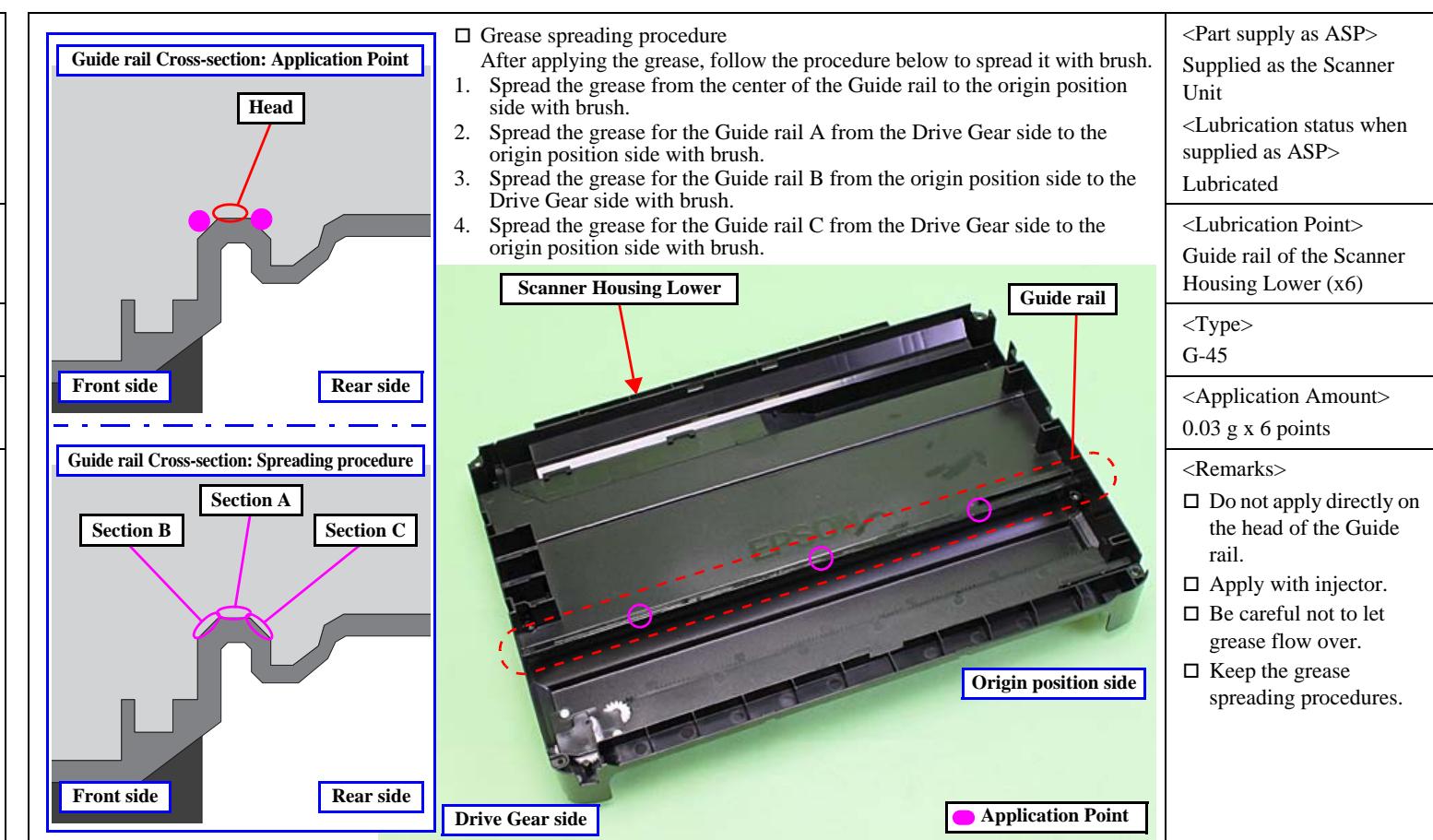
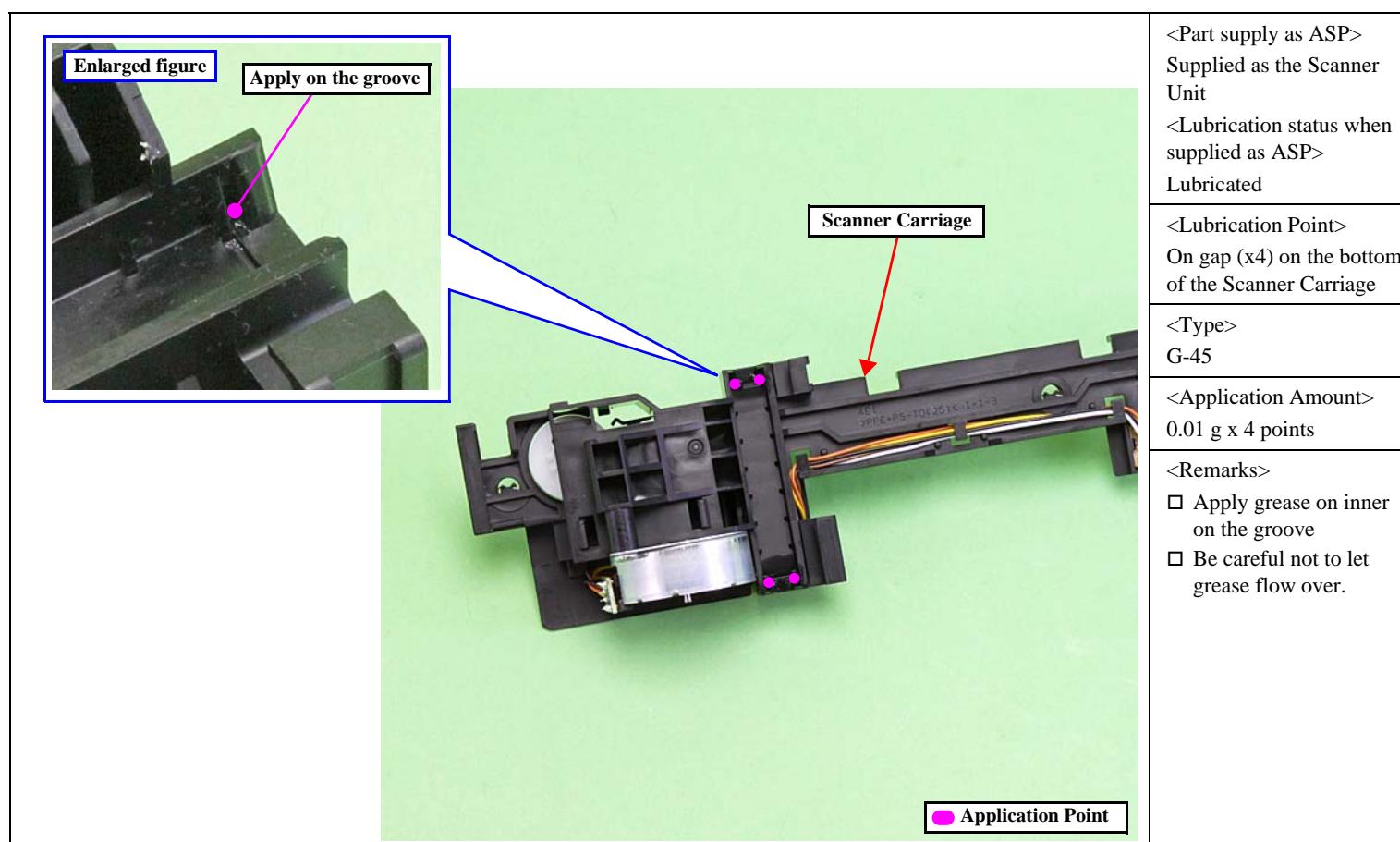


Figure 4-4. Lubrication of the Scanner Carriage (2)

Figure 4-5. Lubrication of the Scanner Housing Lower

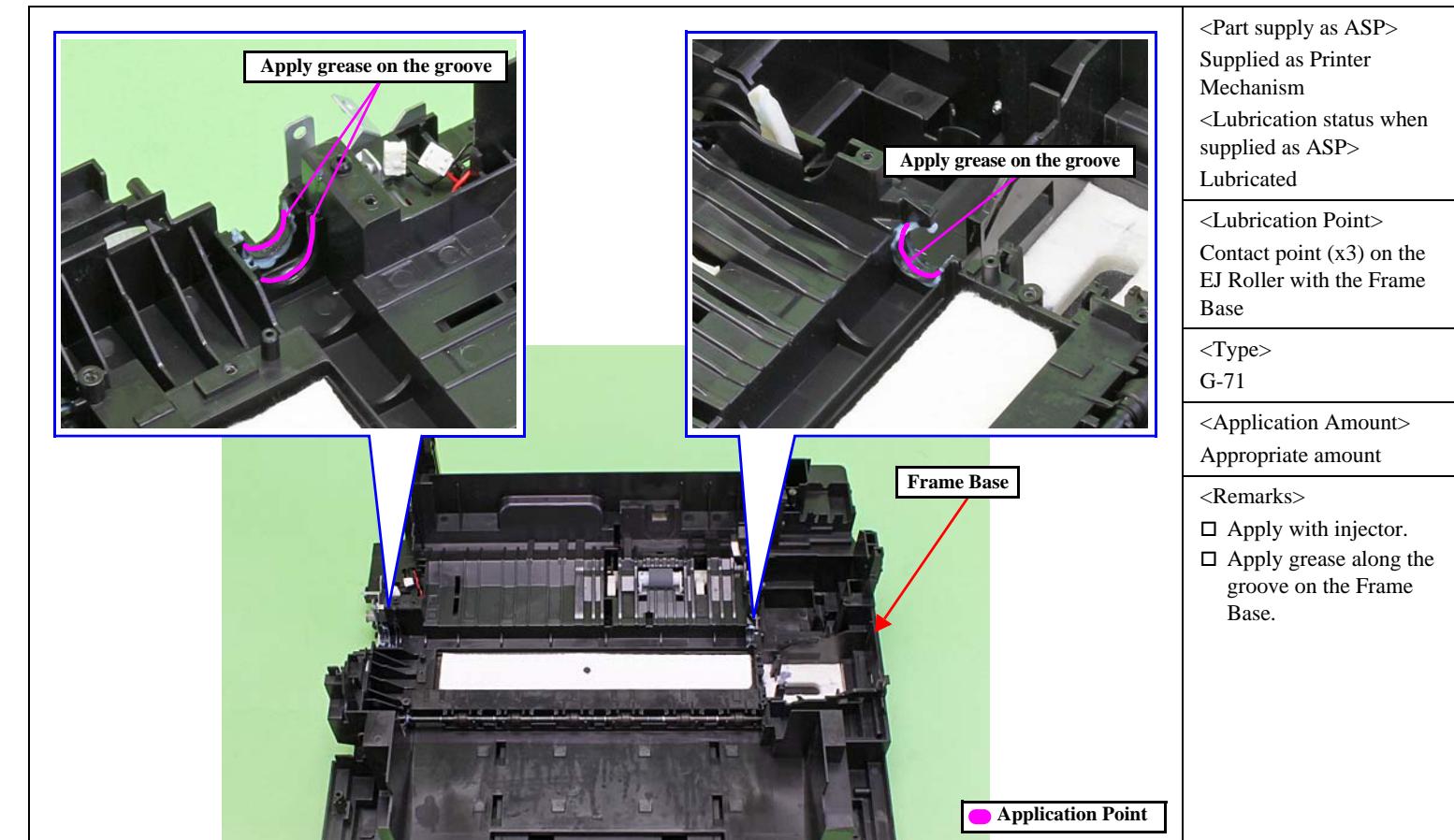
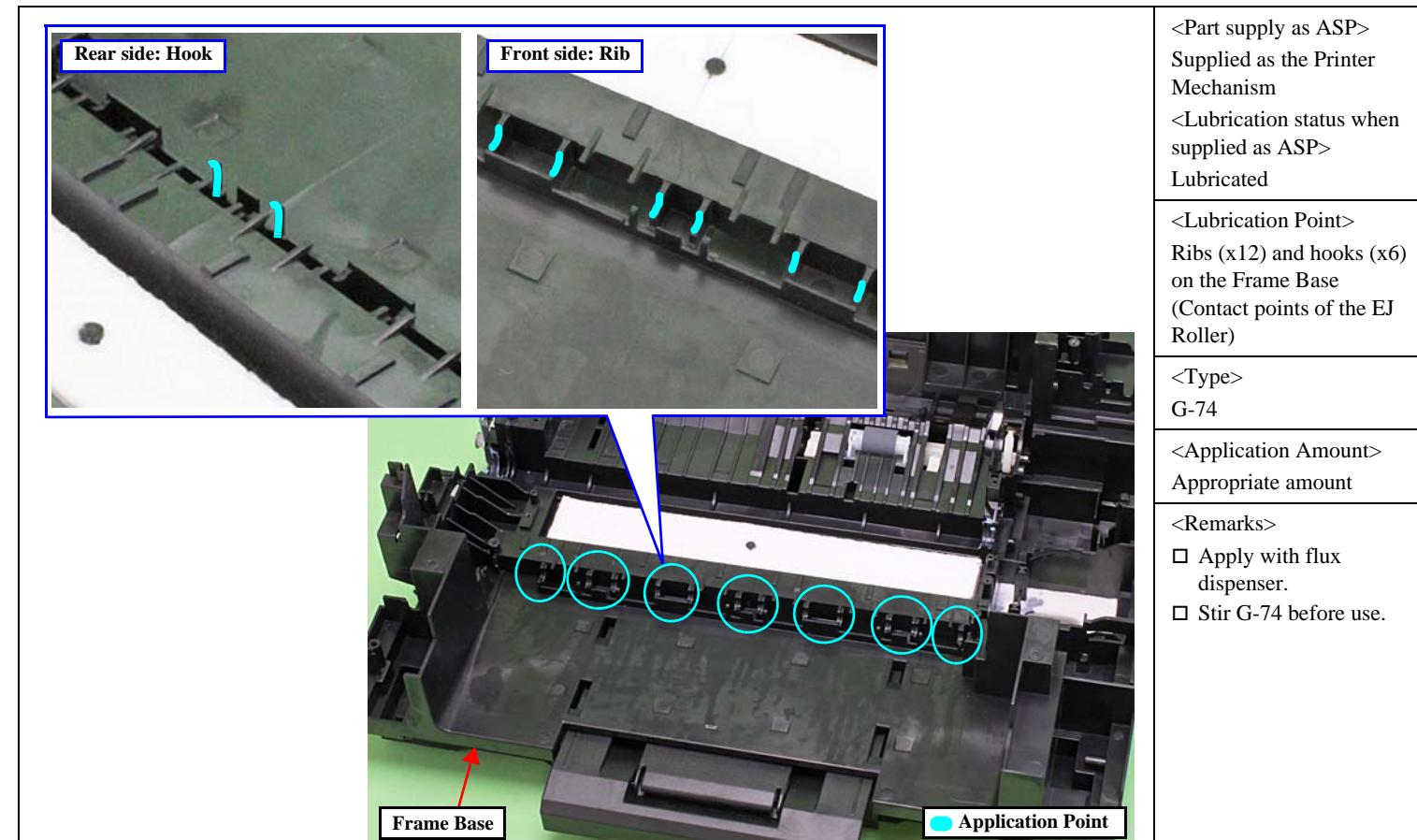


Figure 4-6. Lubrication of the Frame Base (1)

Figure 4-7. Lubrication of the Paper Back Lever

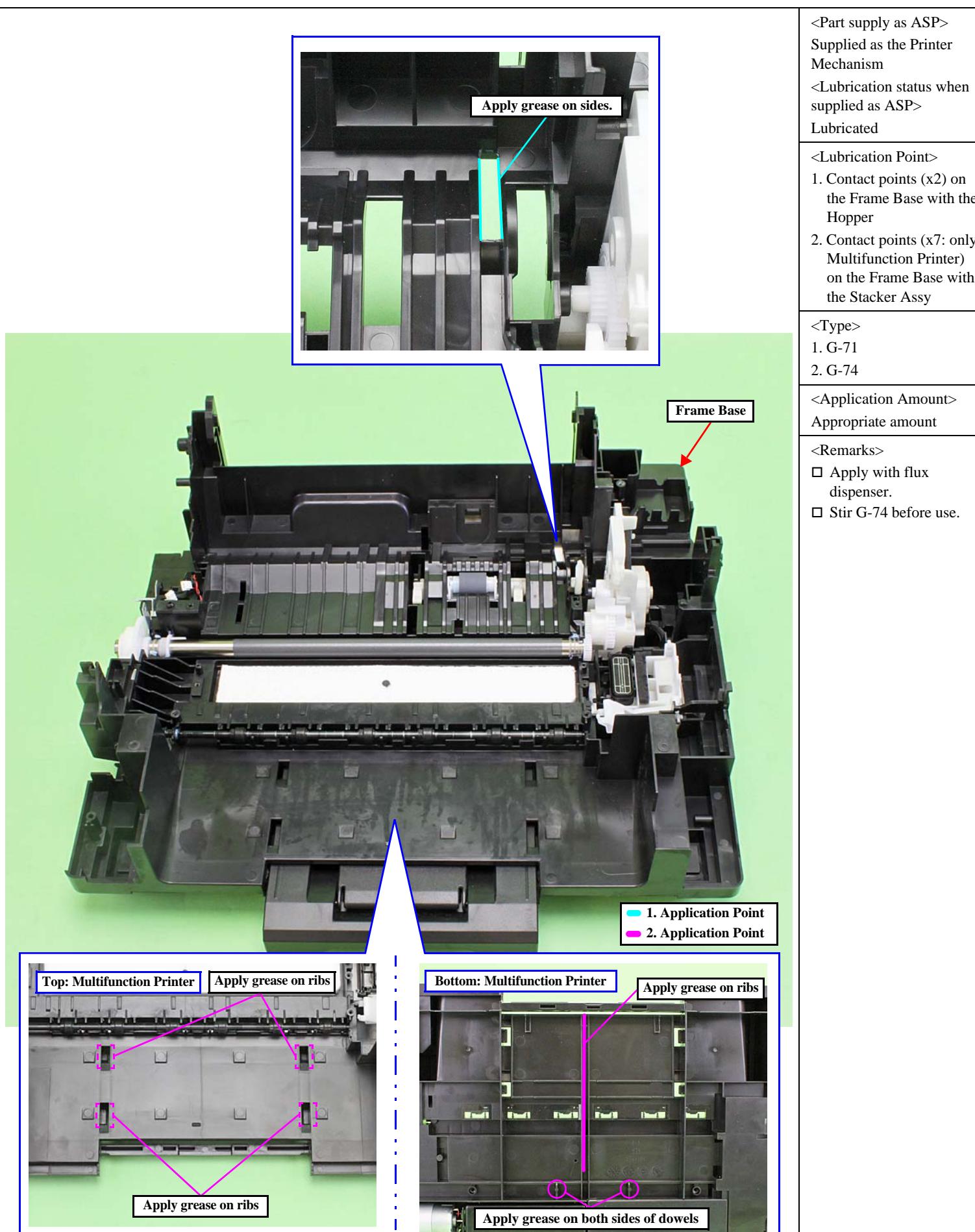


Figure 4-8. Lubrication of the Frame Base (3)

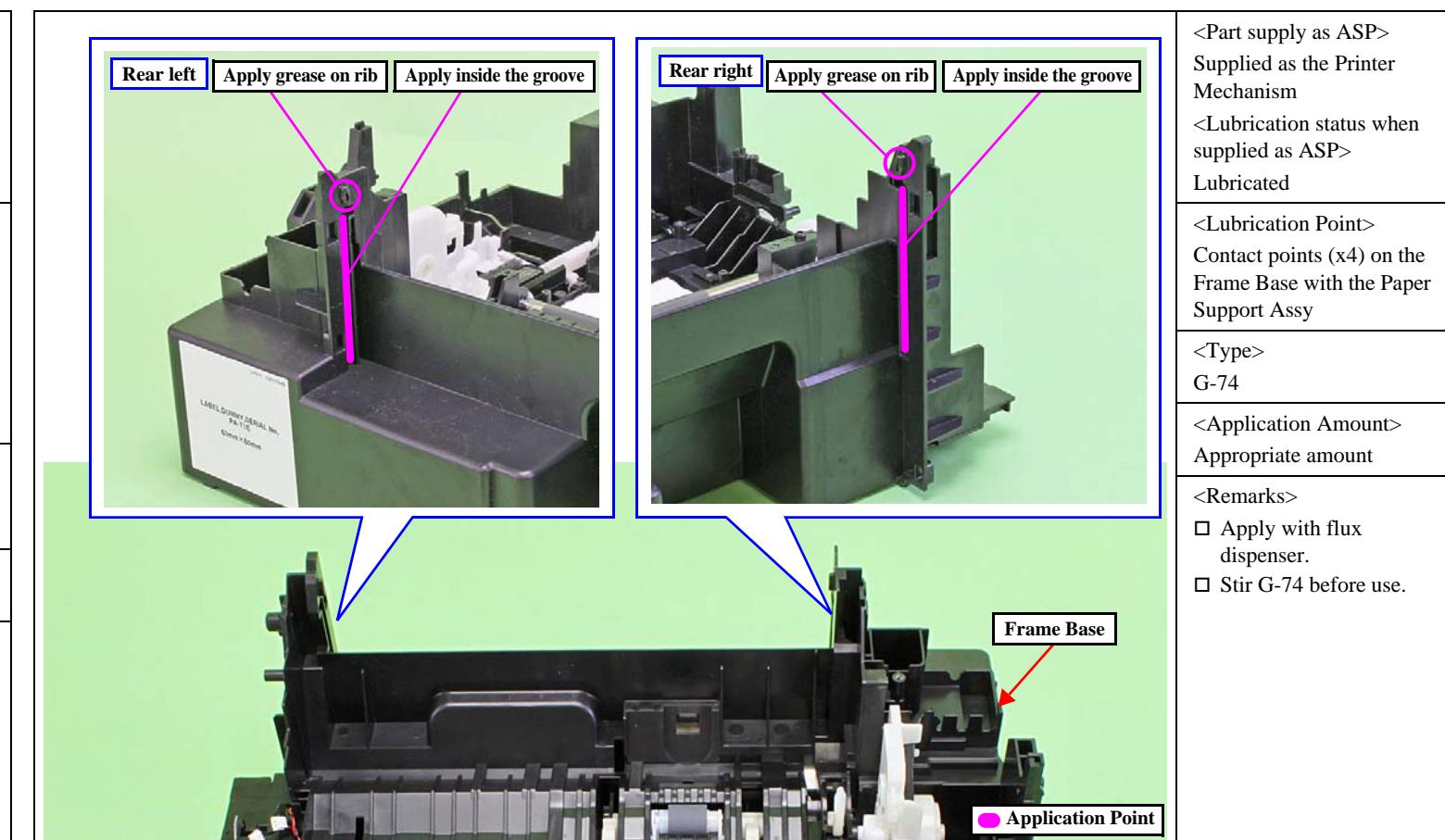


Figure 4-9. Lubrication of the Frame Base (4)

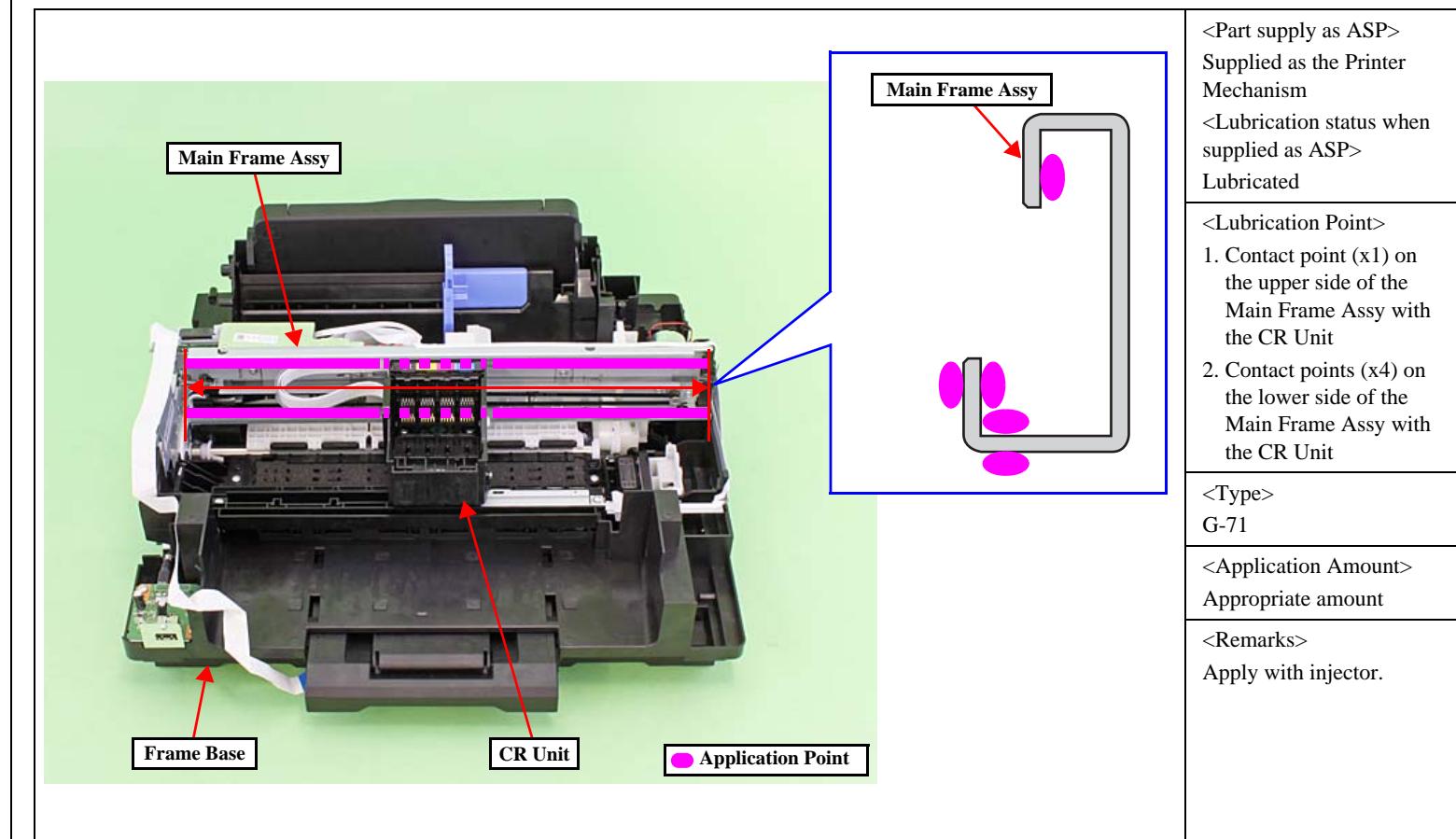
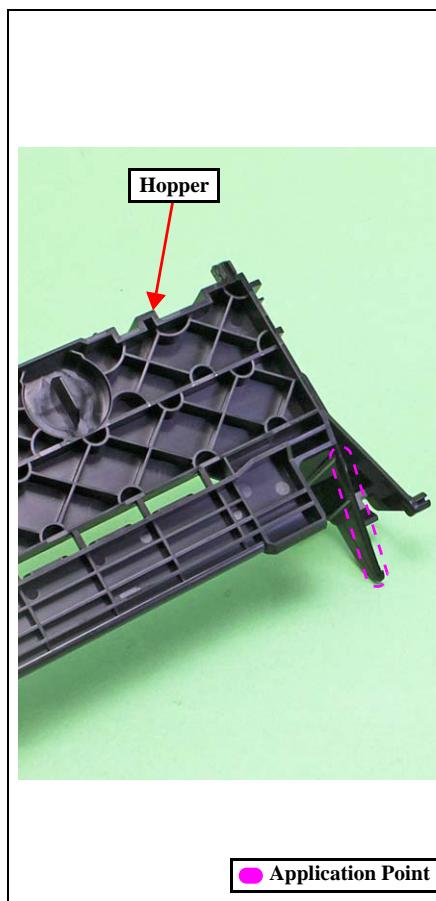
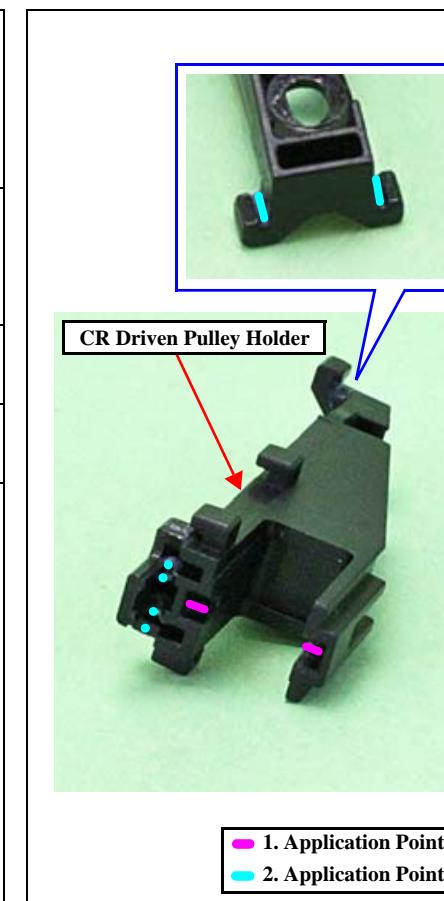


Figure 4-10. Lubrication of the Main Frame Assy



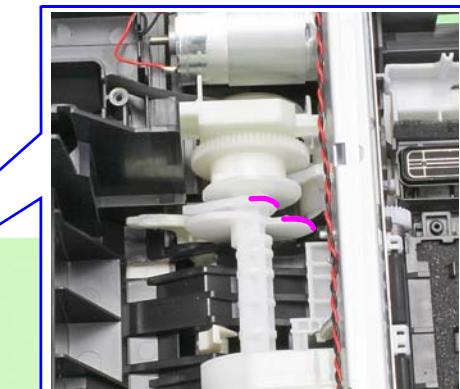
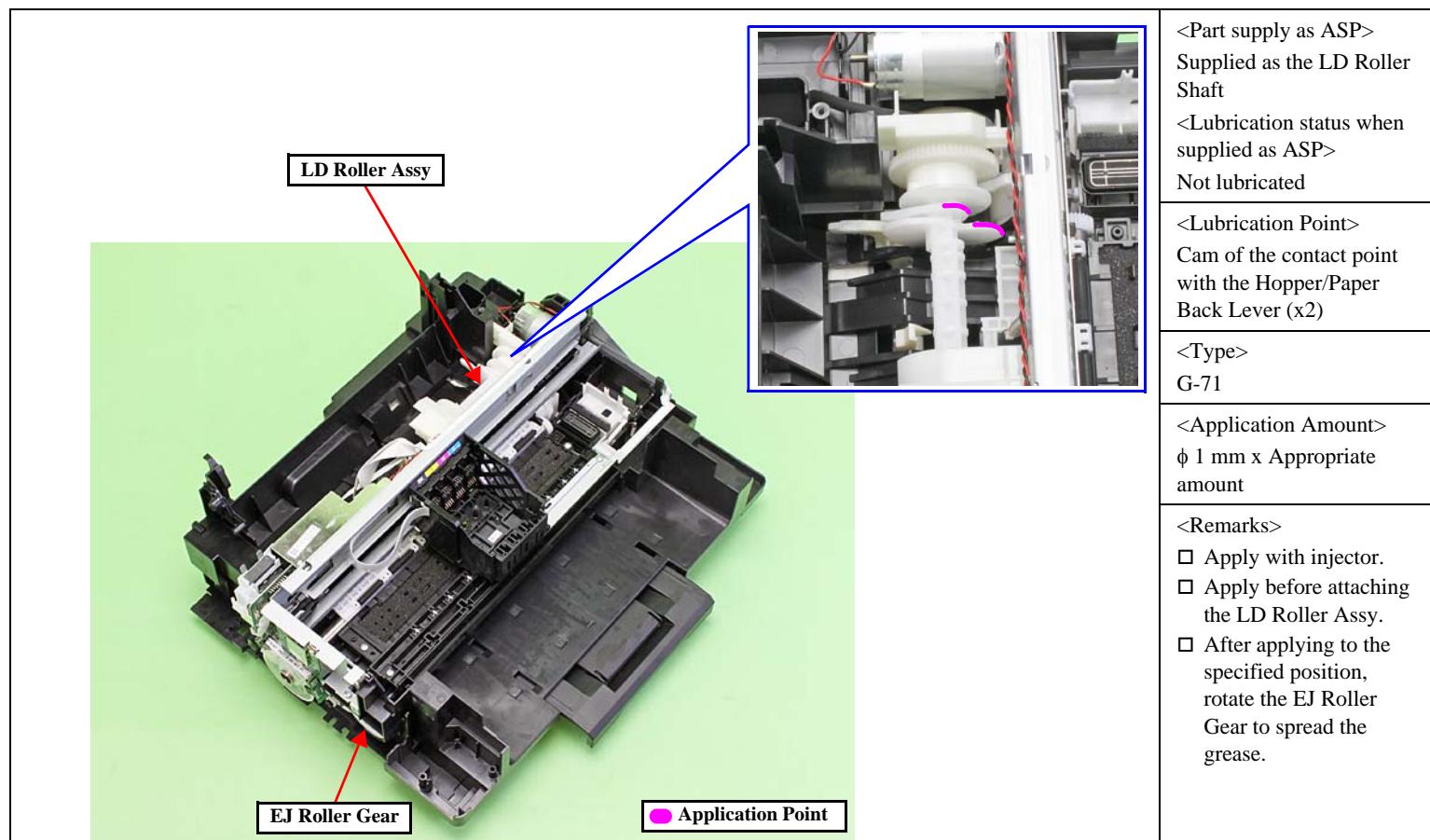
Application Point

<Part supply as ASP> Yes <Lubrication status when supplied as ASP> Not lubricated
<Lubrication Point> Contact point on the Hopper with the Frame Base
<Type> G-74
<Application Amount> Appropriate amount
<Remarks> <input type="checkbox"/> Apply with flux dispenser. <input type="checkbox"/> Stir G-74 before use.



1. Application Point
2. Application Point

<Part supply as ASP> None <Lubrication status when supplied as ASP> ---
<Lubrication Point> 1. On the bearings (x2) of the CR Driven Pulley on the CR Driven Pulley Holder 2. Contact points (x6) on the groove of the CR Driven Pulley Holder with the Main Frame
<Type> G-71
<Application Amount> Appropriate amount
<Remarks> <input type="checkbox"/> Apply with injector. <input type="checkbox"/> Check the lubrication condition and apply grease if necessary.



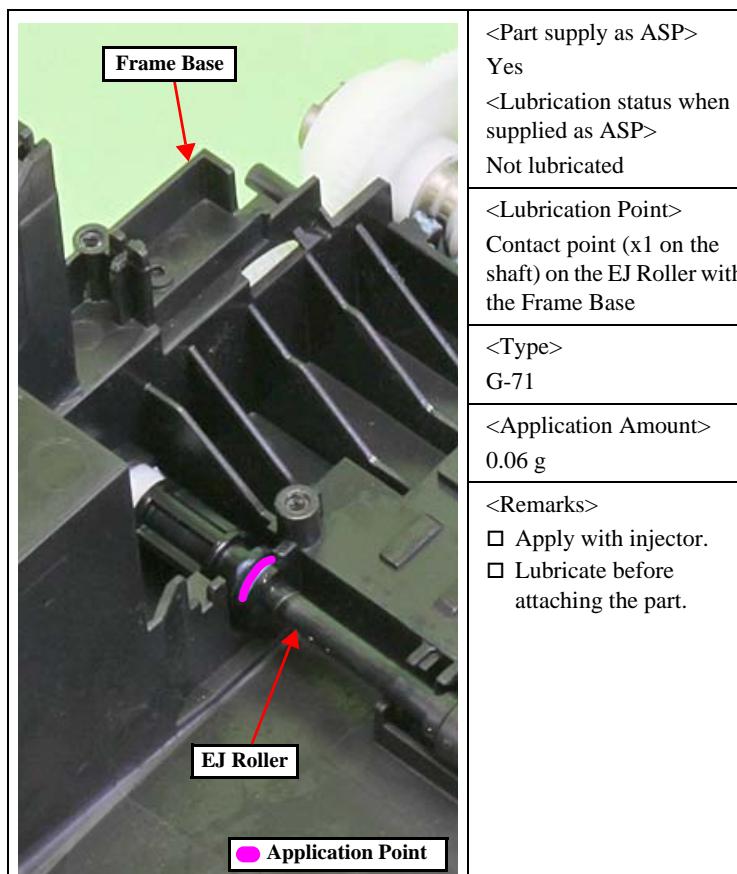
Application Point

<Part supply as ASP> Supplied as the LD Roller Shaft <Lubrication status when supplied as ASP> Not lubricated
<Lubrication Point> Cam of the contact point with the Hopper/Paper Back Lever (x2)
<Type> G-71
<Application Amount> $\phi 1\text{ mm} \times$ Appropriate amount
<Remarks> <input type="checkbox"/> Apply with injector. <input type="checkbox"/> Apply before attaching the LD Roller Assy. <input type="checkbox"/> After applying to the specified position, rotate the EJ Roller Gear to spread the grease.

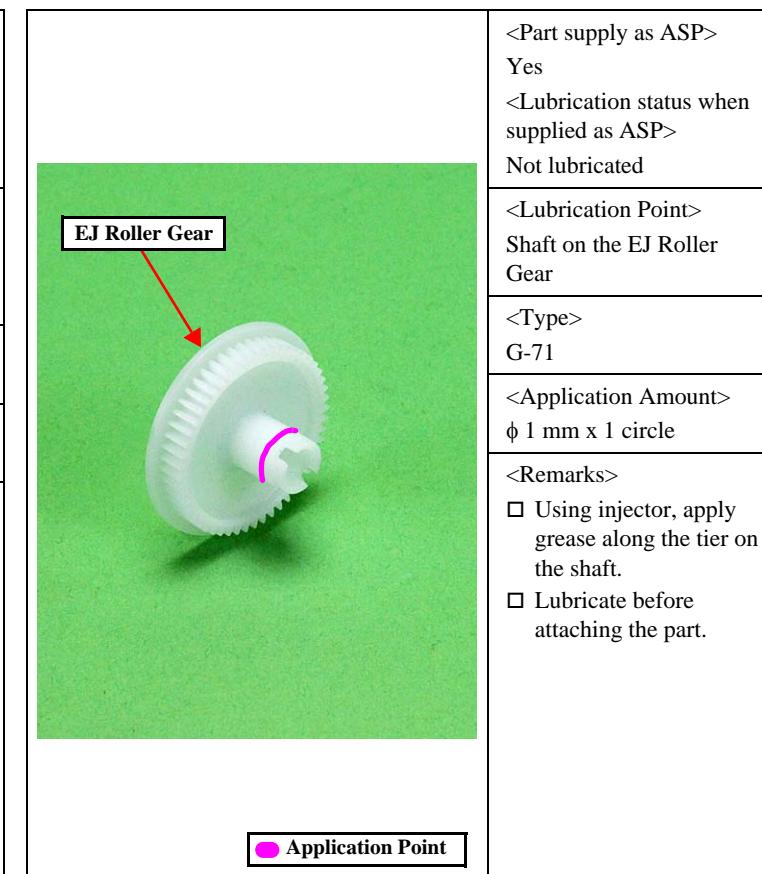
Figure 4-11. Lubrication of the Hopper

Figure 4-12. Lubrication of the CR Driven Pulley Assy

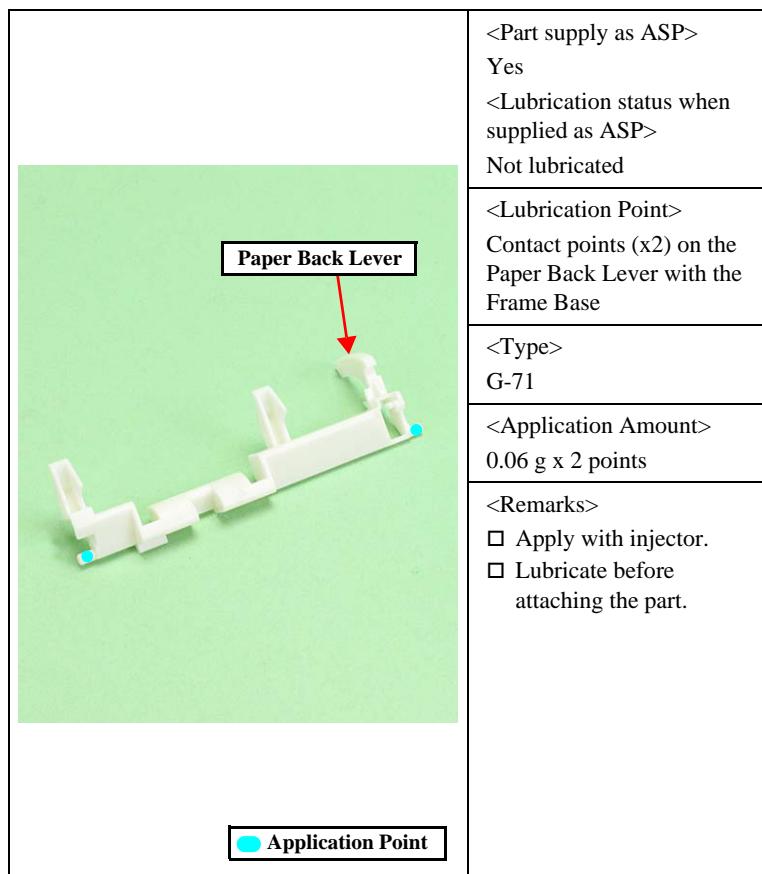
Figure 4-13. Lubrication of the LD Roller Assy



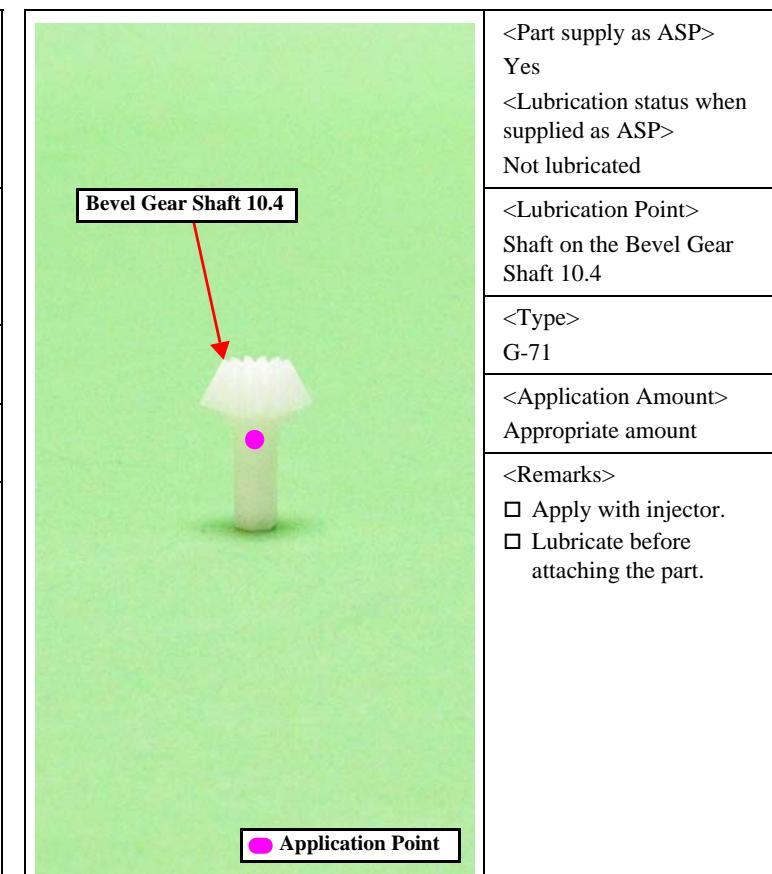
Application Point



Application Point



Application Point



Application Point

Figure 4-14. Lubrication of the EJ Roller

Figure 4-15. Lubrication of the EJ Roller Gear

Figure 4-16. Lubrication of the Paper Back Lever

Figure 4-17. Lubrication of the Bevel Gear Shaft 10.4

CHAPTER 5

REFURBISHMENT

5.1 Overview

This chapter provides the refurbishing work of the printer and its purpose.

5.1.1 Ink Discharge

Purpose

To clean the ink path inside the Printhead to restore its condition identical to the factory default.

Jigs

Required jigs and cleaning liquid for cleaning the ink path is as follows.

Name	Category	EPSON Part Code
Ink Supply Jig	Jig	20MJ11206
CSIC Chip (Bk)	Jig	2011900JP1
CSIC Chip (C)	Jig	2011900JP2
CSIC Chip (M)	Jig	2011900JP3
CSIC Chip (Y)	Jig	2011900JP4
Shipping Liquid (CR06, 18kg)	Cleaning Liquid	6104714
Shipping Liquid (CR06, 1kg)	Cleaning Liquid	6104713
I/P, DPIC009BSP, 110, PRINTING	Ink Pack	1462531

Operation of the Adjustment Program for refurbishment when performing the ink discharge

Ink discharge can be done by selecting and running “Ink Discharge” from the Adjustment Program for refurbishment with the jig set on the printer.

At this point, the factory default values except the adjustment-related setting values are written on the EEPROM on the Main Board of the printer. This is performed in order to erase the personal information including the network settings and the operating information of the printer before refurbishment, etc.

This default value restoration is automatically done when performing the ink discharge by the Adjustment Program for refurbishment automatically.



- For the details of how to set the jigs for refurbishment and how to use the Adjustment Program (for refurbishment), see guide in the Adjustment Program (for refurbishment).
- Approximately four minutes are necessary for completing the Ink Discharge.

CHAPTER 6

APPENDIX

6.1 Connector Diagram

Cable connections of this printer are shown below.

For the function differences of each model, refer to "[Function List According to Models \(p28\)](#)".

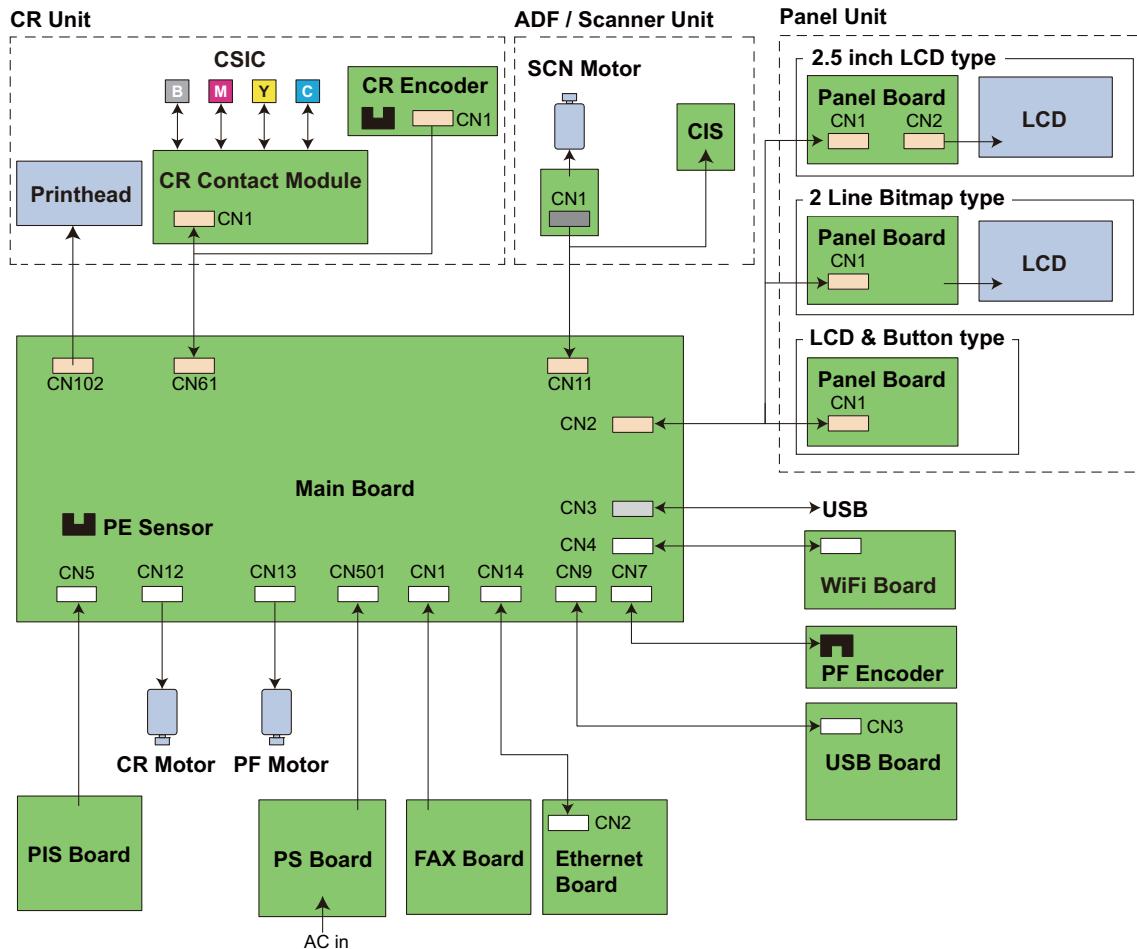


Figure 6-1. Connector Diagram

6.2 Protection for Transportation

This section describes the cautions for packing the printer before returning it to the user.

6.2.1 Securing the CR Unit

Purpose

To prevent damaging the Change Lever by shock during transportation.

Risks if it is not performed

Fatal error caused by the damage of the Change Lever.

Preparation

Prepare a piece of strong tape

- Multifunction Printer

Length: 180 mm, width: 14 mm, fold one end 5 ± 2 mm.

- Singlefunction Printer

Length: 180 mm, width: 22 mm, fold one end 5 ± 2 mm.

Method



- In order to prevent damaging the Change Lever, the CR Unit should be secured at the position indicated in Step 2. Therefore, when securing the CR Unit with strong tape, hold the Timing Belt to keep the position of the CR Unit as is and avoid the CR Unit from moving to the 0-digit side.
- When securing the CR Unit of the multifunction printer, attach the strong tape so that the gap between the strong tape and ink replacement label attached on the Housing Right is 2 ± 1 mm.

1. Turn off the printer to set the CR Unit to its home position.
2. Pull the CR Timing Belt, and move the CR Unit to the 80-digit side slightly so that the CR Unit can touch the side of the tip on the Change Lever.
3. Attach the not-folded end of strong tape on the bottom of the CR Unit.
4. Attach the strong tape on to the Housing Right, and secure the CR Unit.

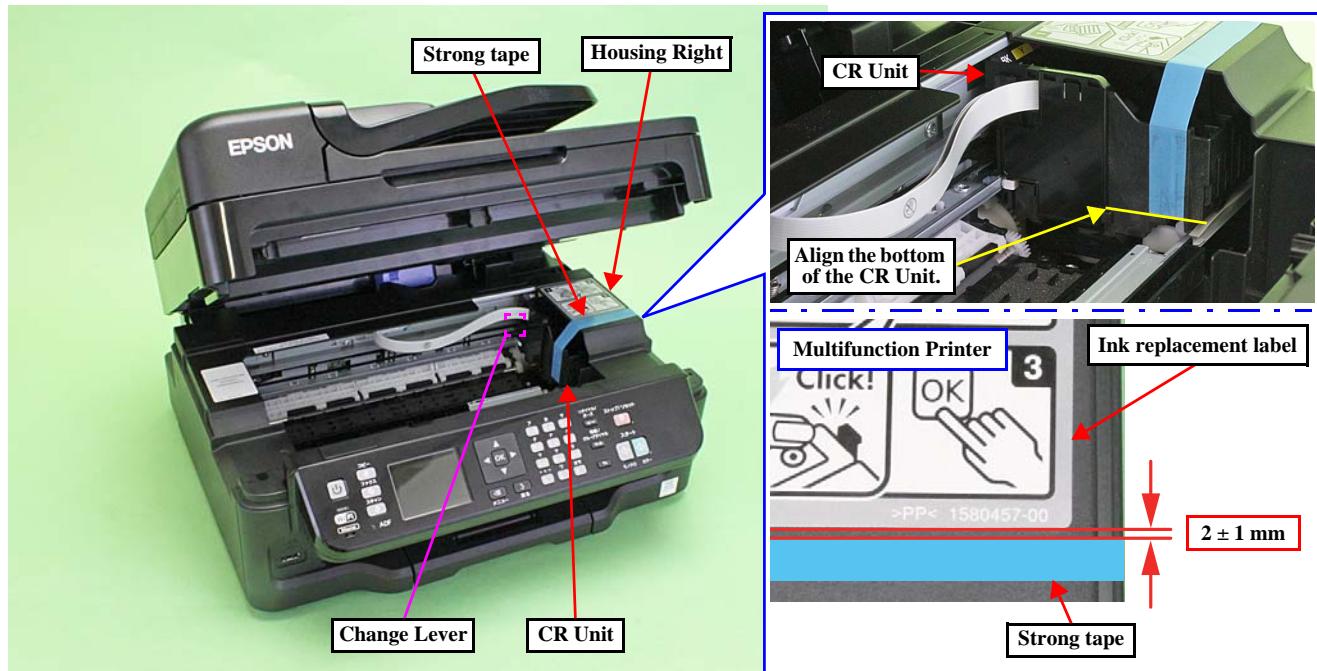


Figure 6-2. Securing the CR Unit

6.2.2 Securing the Paper Support/Paper Support Sub

Purpose

To prevent damaging the Paper Support/Paper Support Sub by the shock during transportation.

Risks if it is not performed

The Paper Support/Paper Support Sub will be scratched and the abrasion powder will be produced due to the shock during transportation.

Preparation

Prepare two pieces of strong tape

■ Multifunction Printer

- 1) Length: 60 mm, width: 22 mm, fold one end 5 ± 2 mm.
- 2) Length: 50 mm, width: 22 mm, fold one end 5 ± 2 mm.

■ Singlefunction Printer (3 tapes)

- Length: 80 mm, width: 16 mm, fold one end 5 ± 2 mm.

Method

■ Multifunction Printer

1. Attach the strong tape 1) to the position on the following diagram A and secure the Paper Support Sub.

2. Attach the strong tape 2) to the position on the following diagram B and secure the Paper Support.

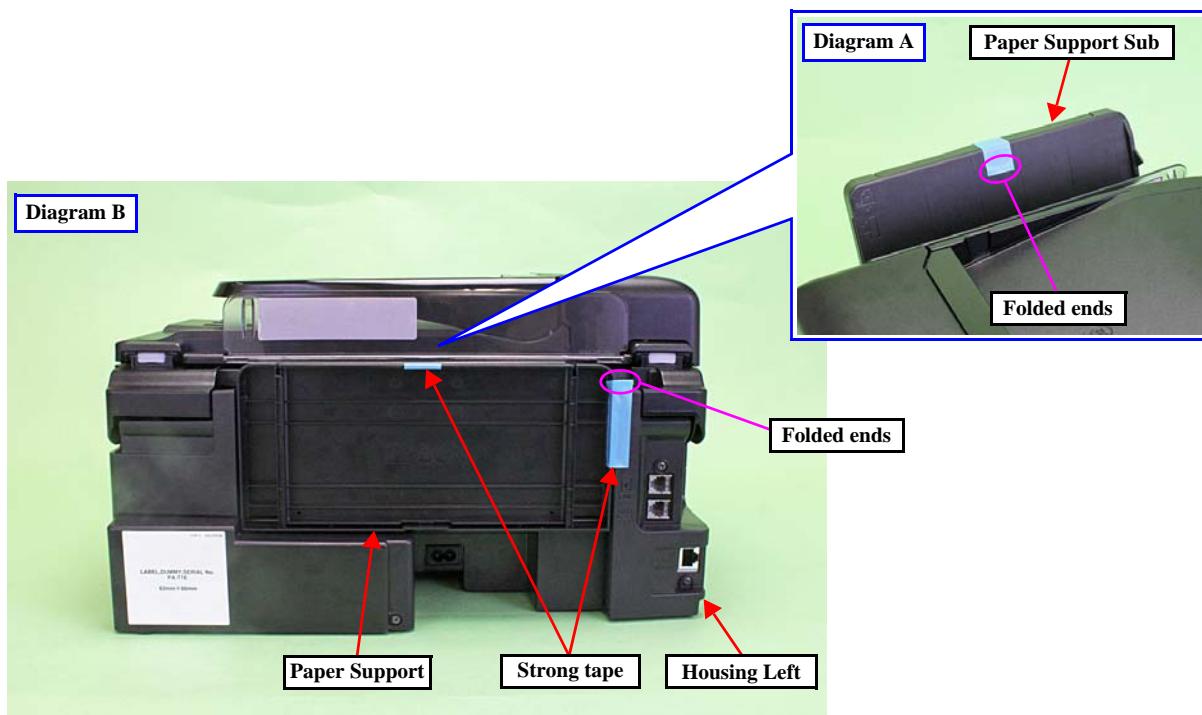


Figure 6-3. Securing the Paper Support/Paper Support Sub (Multifunction Printer)

■ Singlefunction Printer

Attach the strong tape (3 tapes) to the position on the following diagram and secure the Paper Support/Paper Support Sub on the Housing Upper Assy.

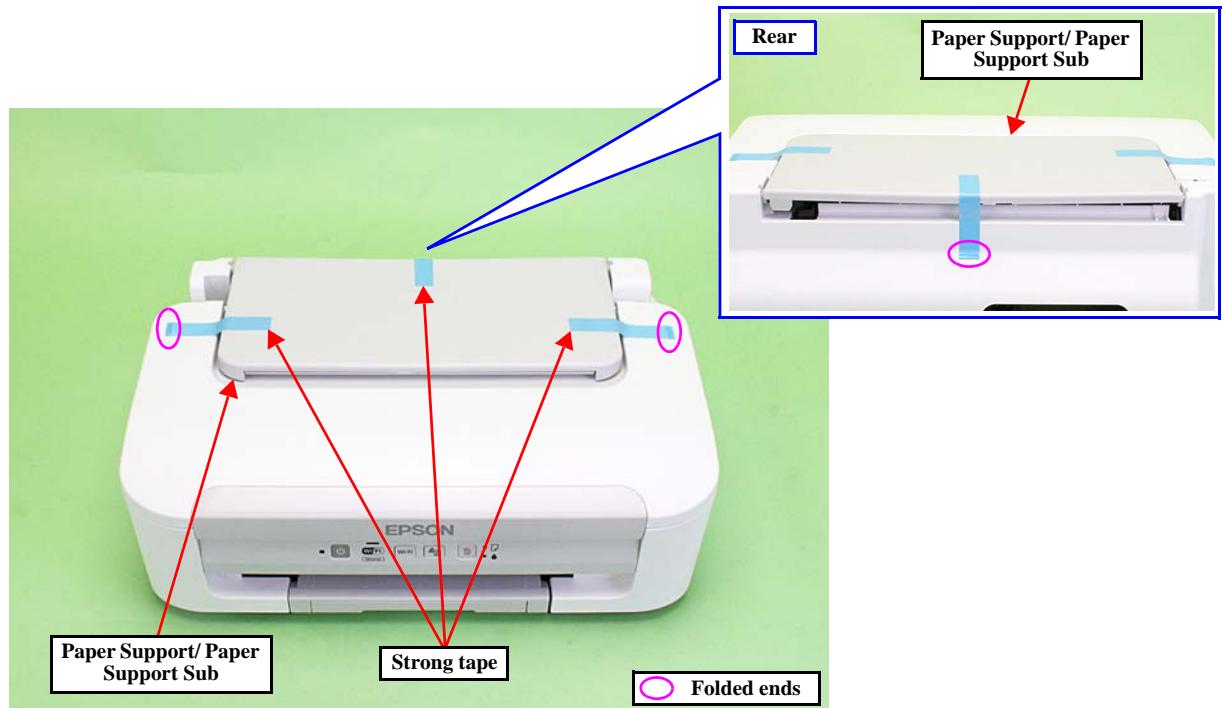


Figure 6-4. Securing the Paper Support/Paper Support Sub (Singlefunction Printer)