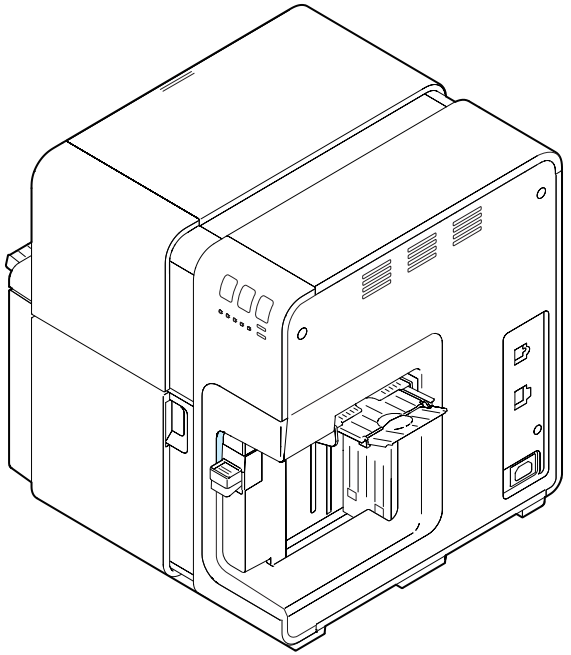
SWIFTCOLOR SCC-4000D

Service Manual Revision 0



Application

This manual has been issued for qualified persons to learn technical theory, installation, maintenance, and repair of products. This manual covers all localities where the products are sold. For this reason, there may be information in this manual that does not apply to your locality.

Corrections

This manual may contain technical inaccuracies or typographical errors due to improvements or changes in products. When changes occur in applicable products or in the contents of this manual, technical information will be released as the need arises.

The following paragraph does not apply to any countries where such provisions are inconsistent with local law.

Trademarks

The product names and company names used in this manual are the registered trademarks or the trademarks of the individual companies.

Caution

Use of this manual should be strictly supervised to avoid disclosure of confidential information.

Explanation of Symbols

The following symbols are used throughout this Service Manual.

Symbols	Explanation
	Check.
	Check visually.
	Check the noise.
	Disconnect the connector.
	Connect the connector.
	Remove the cable/wire from the cable guide or wire saddle.
	Set the cable/wire to the cable guide or wire saddle.
	Remove the screw.
	Tighten the screw.

Symbols	Explanation
	Remove the claw.
	Insert the claw.
	Use the bundled part.
	Push the part.
	Plug the power cable.
	Turn on the power.

The following rules apply throughout this Service Manual:

1. Each chapter contains sections explaining the purpose of specific functions and the relationship between electrical and mechanical systems with reference to the timing of operation.
   In the diagrams, ▮▮▮ represents the path of mechanical drive; where a signal name accompanies the symbol, the arrow ⟶ indicates the direction of the electric signal.
   The expression "turn on the power" means flipping on the power switch, closing the front door, and closing the delivery unit door, which results in supplying the machine with power.

   2. In the digital circuits, '1' is used to indicate that the voltage level of a given signal is "High", while '0' is used to indicate "Low". (The voltage value, however, differs from circuit to circuit.) In addition, the asterisk (*) as in "DRMD*" indicates that the DRMD signal goes on when '0'.
   In practically all cases, the internal mechanisms of a microprocessor cannot be checked in the field. Therefore, the operations of the microprocessors used in the machines are not discussed: they are explained in terms of from sensors to the input of the DC controller PCB and from the output of the DC controller PCB to the loads.

The descriptions in this Service Manual are subject to change without notice for product improvement or other purposes, and major changes will be communicated in the form of Service Information bulletins.
All service persons are expected to have a good understanding of the contents of this Service Manual and all relevant Service Information bulletins and be able to identify and isolate faults in the machine.

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5 Troubleshooting

6 Installation

Appendix

Safety Precautions

- Notes When Handling the Lithium Battery
- Notes Before Servicing
- Note at Cleaning
- Notes on Assembly/Disassembly

Notes When Handling the Lithium Battery

For CA, USA Only
Included battery contains Perchlorate Material ---- special handling may apply.
See
http://www.dtsc.ca.gov/hazardouswaste/perchlorate/
for detail.

⚠ CAUTION:

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

The following warning in the local languages is given to comply with the safety regulations in respective countries and regions.

⚠ VORSICHT:

Wenn mit dem falschen Typ ausgewechselt, besteht Explosionsgefahr.

Gebrauchte Batterien gemäß der Anleitung beseitigen.

⚠

警告

如果更換不正確之電池型式會有爆炸的風險

請依製造商說明書處理用過之電池

Notes Before Servicing

⚠ CAUTION:

At servicing, be sure to turn OFF the power source according to the specified steps and disconnect the power plug.

CAUTION:

- If the power plug is exposed to dust, humidity, or oily smoke, the resulting buildup can prove to be a fire hazard. (The buildup of dust, for instance, can absorb moisture and suffer insulating failure.) Be sure to disconnect the power plug on a periodical basis, and remove any buildup of dust and dirt with a dry cloth.
- Do not incline Printer more than 15° degrees during installation or relocation of Printer.

Note at Cleaning

CAUTION:

When performing cleaning using organic solvent such as alcohol, be sure to check that the component of solvent is vaporized completely before assembling.

Notes on Assembly/Disassembly

Follow the items below to assemble/disassemble the device.

1. Disconnect the power plug to avoid any potential dangers during assembling/disassembling works.
2. If not specially instructed, reverse the order of disassembly to reinstall.
3. Ensure to use the right screw type (length, diameter, etc.) at the right position when assembling.
4. To keep electric conduction, binding screws with washers are used to attach the grounding wire and the varistor. Ensure to use the right screw type when assembling.
5. Unless it is specially needed, do not operate the device with some parts removed.
6. Never remove the paint-locked screws when disassembling.

Product Outline

- Features
- Specifications List
- Component Names

Features

High Speed and Fine Quality Printing

Fine-quality printing at maximum printing speed of 160 mm/sec(100 business cards/min, 45 post cards/min), at 1200 dpi for vertical scanning by 1200 dpi for horizontal scanning.

Compact / Space Saving / Light Weight

Compact, space-saving design makes for printer weight of about 25 kg*.
*When packed : Approx. 31kg

Non-Ink Recycling

Non-ink recycling keeps ink fresh at all times, offering consistent print images with little density change.

Specifications List

Specifications

Item	Specifications
Type	Desktop color label printer
Printing method	Inkjet recording / Fixed carriage system
Feeding method	Exclusive universal type feeder system
Paper reference position	Rear reference
Feeding capacity	Business card/post card : 500 sheets(Media thickness : 0.24mm or less) Envelope : 100 sheets
Stacking capacity	Business card/post card : 500 sheets(Media thickness : 0.24mm or less) Envelope : 100 sheets
Fusing method	Natural drying
Printing speed	Business card : 100 sheets/min. Post card : 45 sheets/min.
Paper transport speed	160mm/sec
Minimum margins	Leading and trailing edges : 1.5mm Left and right : 2.0mm
Printable area	Width : 107.8mm Length : 297mm
Waste ink	Disposal
Display panel	LCD : No SWs : 3 pcs LEDs : 8 pcs
Power ON waits time	Power SW ON Ready: 20 sec
Fast printout time	Business card without photo : 12 sec • Operating Environment [PC] CPU : Intel Core5 650 (3.20 GHz) Memory : 4GByte HDD : 250GB (Free space more than 20GB) [OS] Windows 7 Ultimate (x86) SP1 [I/F] USB2.0Hi-Speed [Environment] 23°C 60%
External dimensions (W×D×H)	W595×D410×H464 (Trays are extended.)
Weight	Approx. 25kg (*5)(*6) (*5) Excluding Printheads and Ink Tanks. (*6) Packed state : Approx. 31kg
Working temperature and humidity ranges	Operation guaranteed environment: 5 to 35°C, 10 to 90 %RH Performance guaranteed environment: 15 to 30°C , 10 to 80 %RH
Operating noise	Sound pressure level (Fast mode)/Bystander position 35 dB or less (On standby) 58 dB or less (printing) Sound power level: 6.93 Bels or less (printing)

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Media

Item	Specifications
Media form	Dedicated cut paper Dedicated envelope
Media type	Dedicated coated paper (matte coated paper)
Media size	Width : 85.0 - 120.0mm, Length : 49.0 - 300.0mm
Media thickness	Cut paper : 210µm - 760µm Envelope : 70µm - 80µm (Maximum thickness:280µm - 320µm)

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Printhead

Item	Specifications
Ink Tanks	Monolithic Printhead 4 Printheads for each color Bk/C/M/Y
Ink Tank capacity	1200dpi
Number of nozzle	Number of nozzles used for printing at same time : 5,097 Number of available nozzles to discharge : 5,184 x 4 Printhead

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Ink Tank

Item	Specifications
Ink Tanks	Independent dedicated Ink Tank for BK, C, M and Y each. Ink type : Water-based dye ink
Ink Tank capacity	105 ml for each color (available ink volume: 100 ml) (*9)
General number of printable sheets	24,000 sheets per Ink Tank (7.5%duty/color, business card size:100 sheets x 3 jobs/day)
Ink Tank size	86mm(W) x 31mm(D) x 111mm(H)

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Maintenance Cartridge

Item	Specifications
Collection method	Waste ink is absorbed by ink absorber
Maintenance Cartridge capacity	Near full: 360 ml (80% of full capacity), Full:450ml
Maintenance Cartridge Dimensions	133 mm (W) x 269 mm (D) x 5 4 mm (H)
Replacement Frequency	About 72,000 sheets (7.5% duty/color, business card size:100 sheets ×3 jobs/day)

T-1-5

Power Supply

Item	Specifications
Rated input voltage	AC 100V-240V 50Hz/60Hz
Maximum power consumption	229W
Average power consumption	Power ON: 22 W or less Sleep mode: 8.5 W or less

T-1-6

Cleaning

Item	Specifications
Cleaning types	Maintenance jet cleaning, wipe cleaning, and tube pump type suction cleaning
Cleaning mode	Automatic cleaning At power ON, before printing, during printing, etc. Manual cleaning Execute from printer driver, service utility and Operation Panel.

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Additional Function

Item	Specifications
Self-diagnosis function	Yes
Ink detection	Yes
Ink Tanks Detection	Yes (Ink Tank ROM PCB mounted)
Maintenance Cartridge Detection	Yes (Maintenance Cartridge ROM PCB mounted)
Door Open Detection	Yes
Paper feed area Paper Detection	Yes
Transport area Paper Detection	Yes
Paper stack area Full Detection	Yes
Jam Detection	Yes
Paper width Detection	Yes
Paper length Detection	Yes
Sleep Mode	Yes
Mechanical counter	No
Back feed	No

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Others

Item	Specifications
Interface	USB2.0 HighSpeed,10Base-T/100Base-TX/1000Base-T
Supported OS	WinXP, Vista, Win7 (32Bit/64bit)
Supported hardware	Computers recommended by the above OSs

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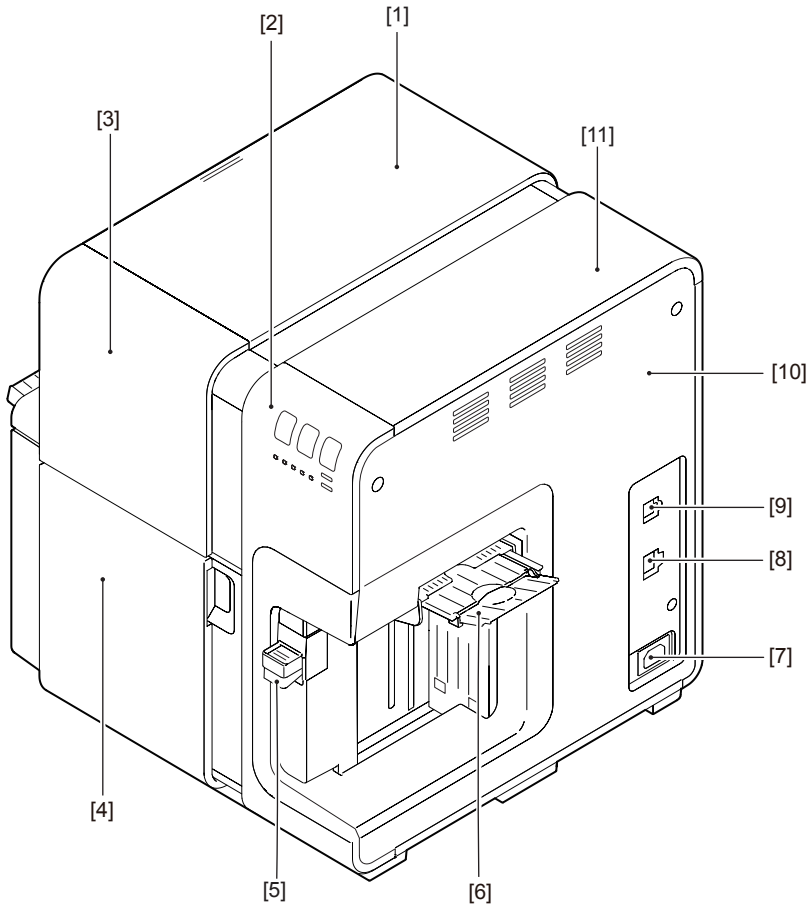
Component Names

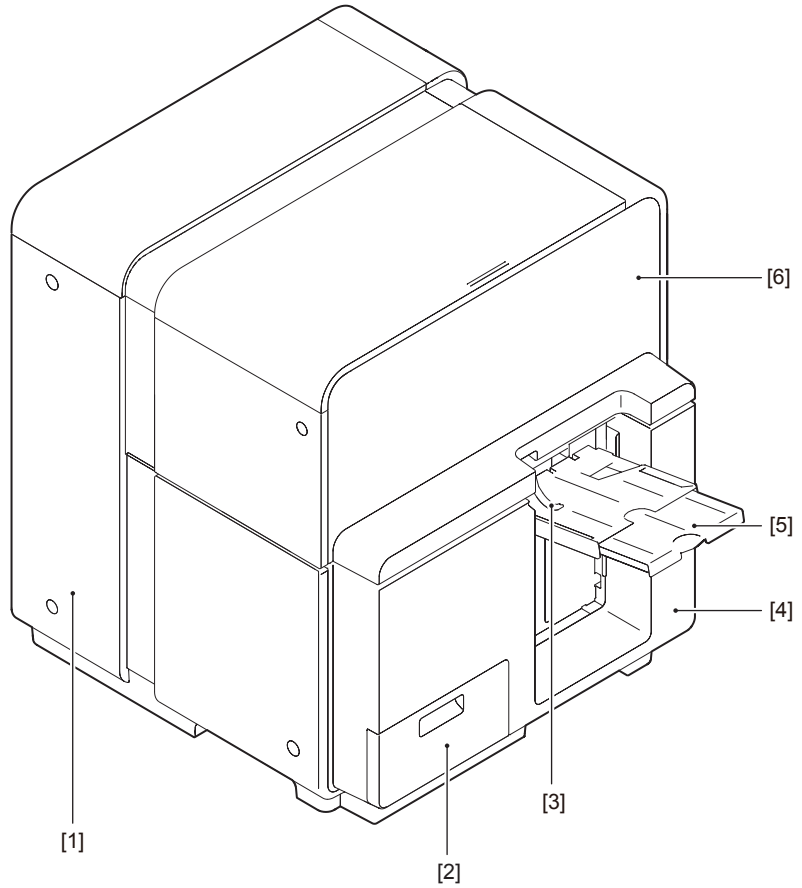
Front View



F-1-1

[1] Upper Cover
[2] Front Cover
[3] Maintenance Cover
[4] Ink Tank Door
[5] Side Guide Lever
[6] Feeder Lift Tray
[7] Power Socket
[8] LAN Connector
[9] USB Connector
[10] Right Cover
[11] Feeder Cover

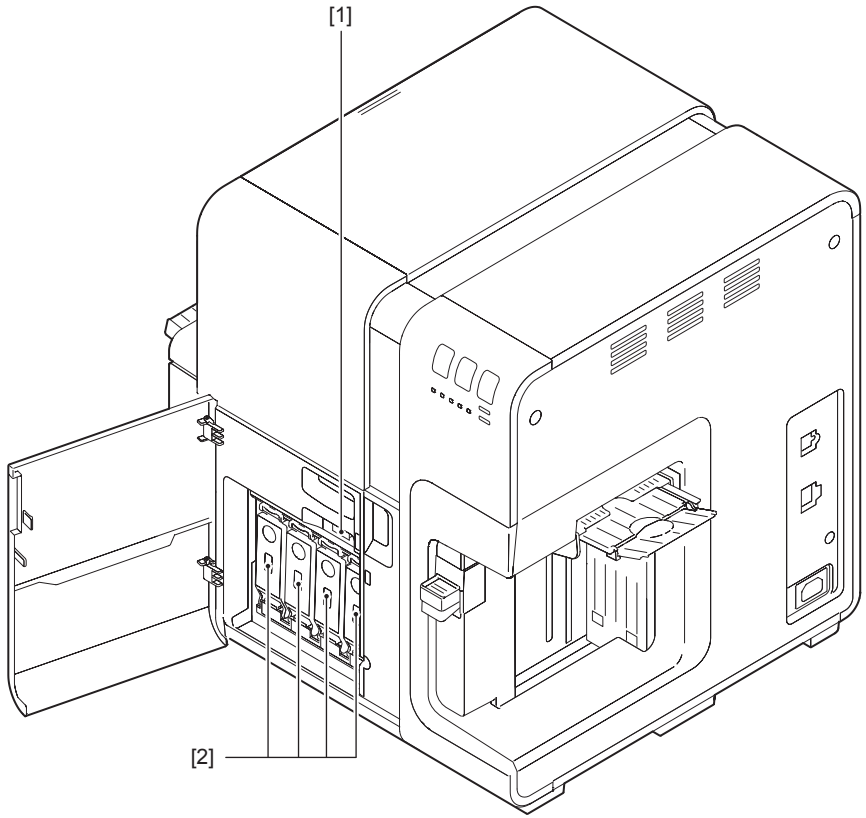
Rear View



F-1-2

[1] Rear Cover
[2] Maintenance Cartridge Door
[3] Stacker Sensor Flag
[4] Left Lower Cover
[5] Stacker Tray
[6] Left Upper Cover

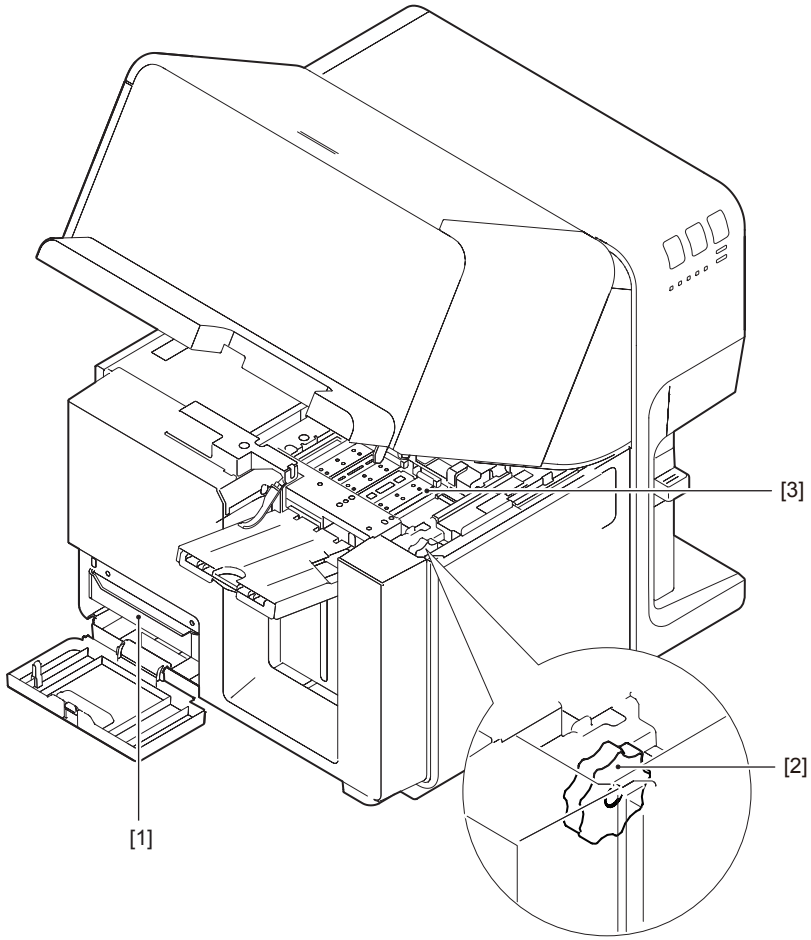
Internal View (Front)



F-1-3

[1] Upper Unit Open Lever
[2] Ink Tank Lever

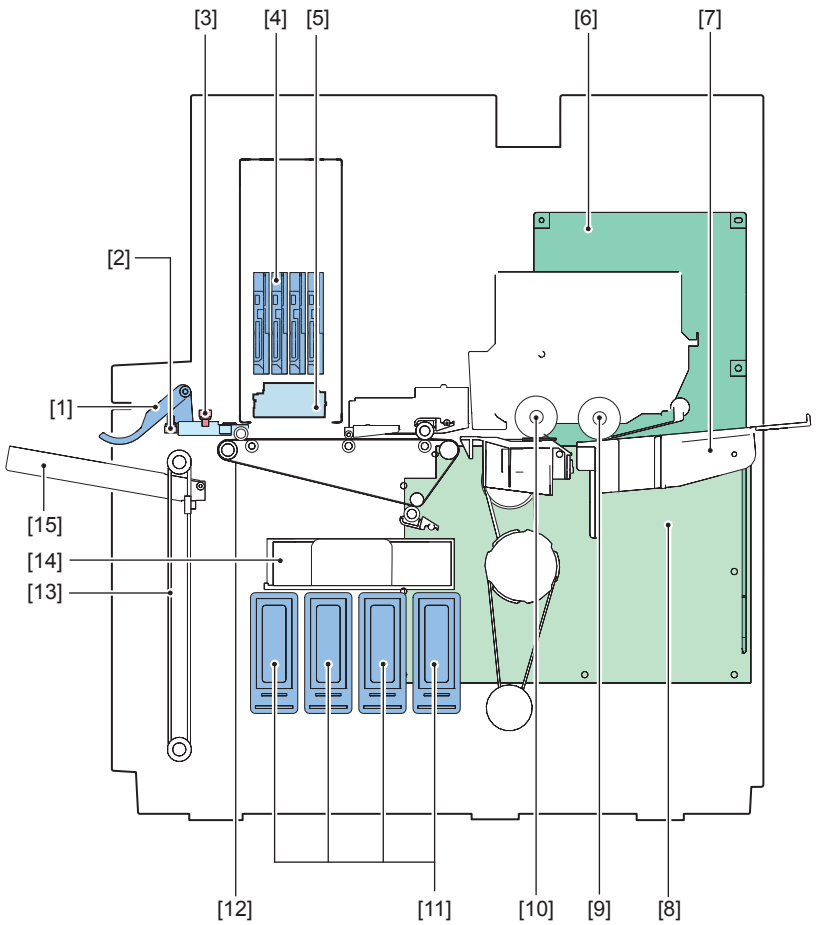
Internal View (Rear)



F-1-4

[1] Maintenance Cartridge
[2] Jam Clear Dial
[3] Transport Area

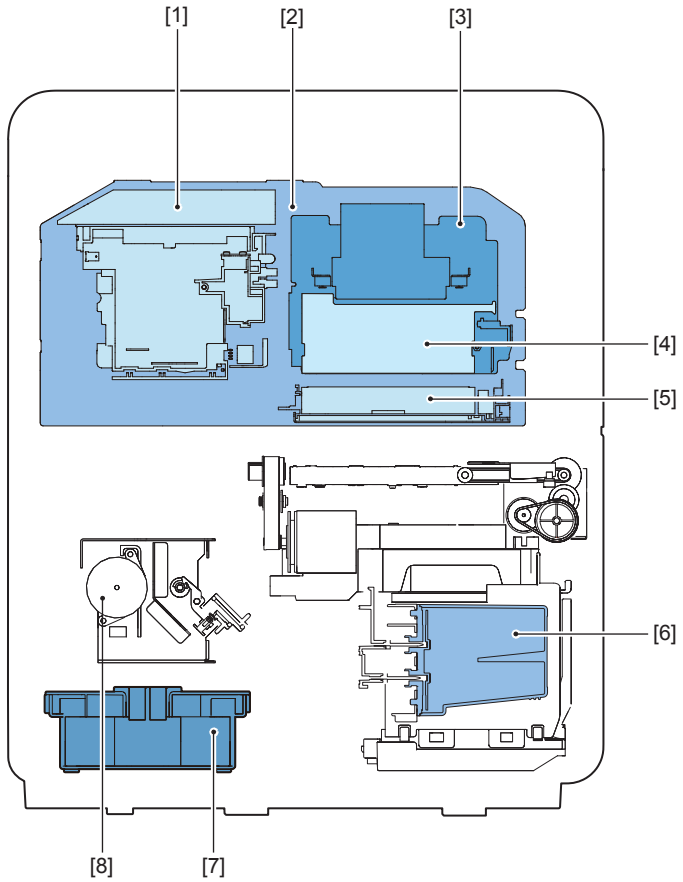
Front Cross-Sectional View



F-1-5

[1] Stacker Sensor Flag
[2] Stacker Paper Surface Sensor
[3] Spur Disengage Sensor
[4] Printhead
[5] Purge Unit
[6] Printer Controller PCB
[7] Paper Feed Unit
[8] Power Supply Unit
[9] Pickup Roller
[10] Feed Roller
[11] Ink Tank
[12] Transport Belt
[13] timing belt
[14] Paper Suction Fan
[15] Stacker Tray

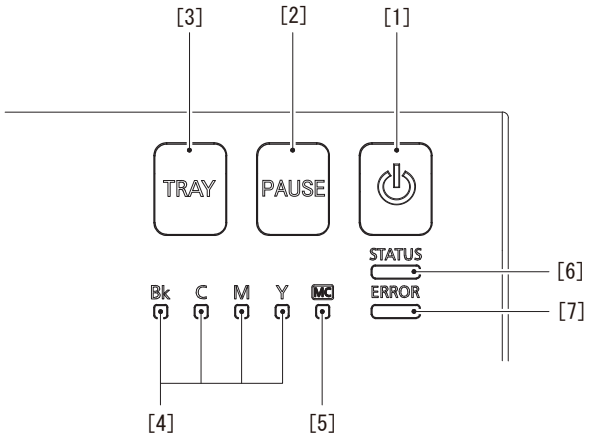
Horizontal Cross-Sectional View



F-1-6

[1] Pump Unit
[2] Print Module
[3] Printhead Lifter Part
[4] Printhead
[5] Purge Unit
[6] Ink Tank
[7] Maintenance Cartridge
[8] Valve Unit

Operating Panel



F-1-7

[1] Power Key
[2] PAUSE Key
[3] TRAY Key
[4] Ink Warning Lamp
[5] Maintenance Cartridge Lamp
[6] STATUS Lamp
[7] ERROR Lamp

2

Technology

- Basic Configuration
- Image Formation System
- Ink Supply System
- Feeder/Transport System
- External Auxiliary System

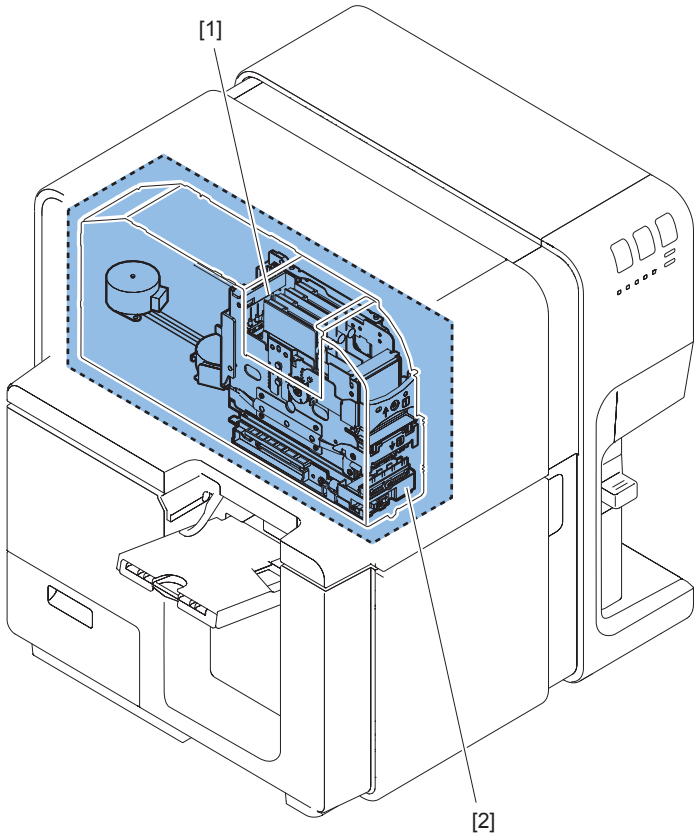
Basic Configuration

Functional Configuration

This Printer mainly consists of 3 systems: Image Formation System, Ink Supply System, and Feeder/Transport System.

Image Formation System

Image Formation System discharges ink from Printheads based on the print data to form a print image on paper. It consists of Printheads, Printhead Lifter Part, and Purge Unit in Print Module.

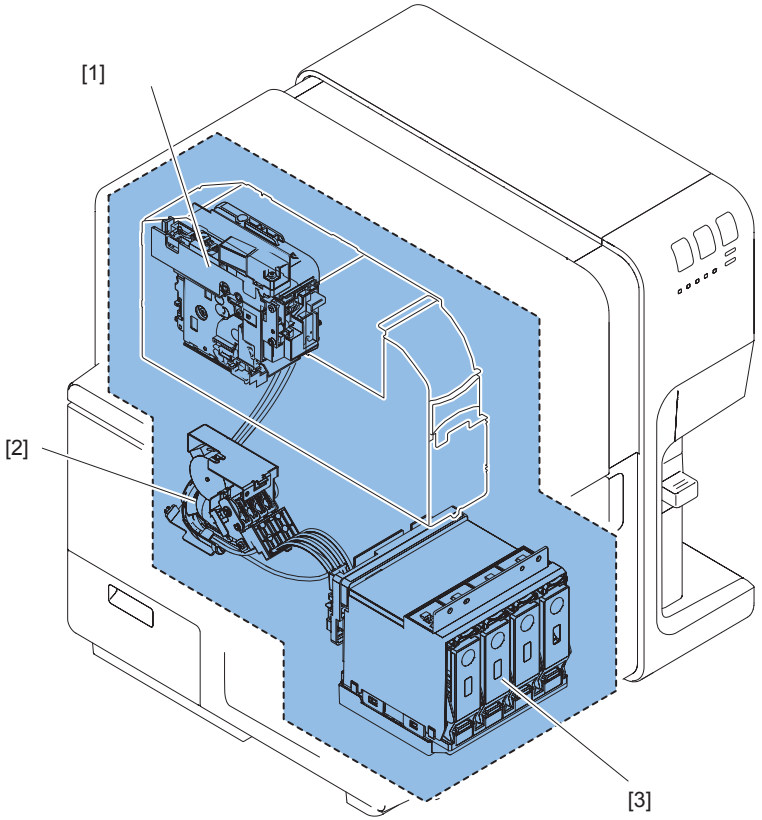


F-2-1

[1] Printhead Lifter Part
[2] Purge Unit

Ink Supply System

Ink Supply System supplies ink from Ink Tank to Printheads, suctions ink from Printheads, and collects waste ink from Purge Unit to Maintenance Cartridge. It consists of Ink Tank Holder Unit, Valve Unit, and Pump Unit in Print Module.

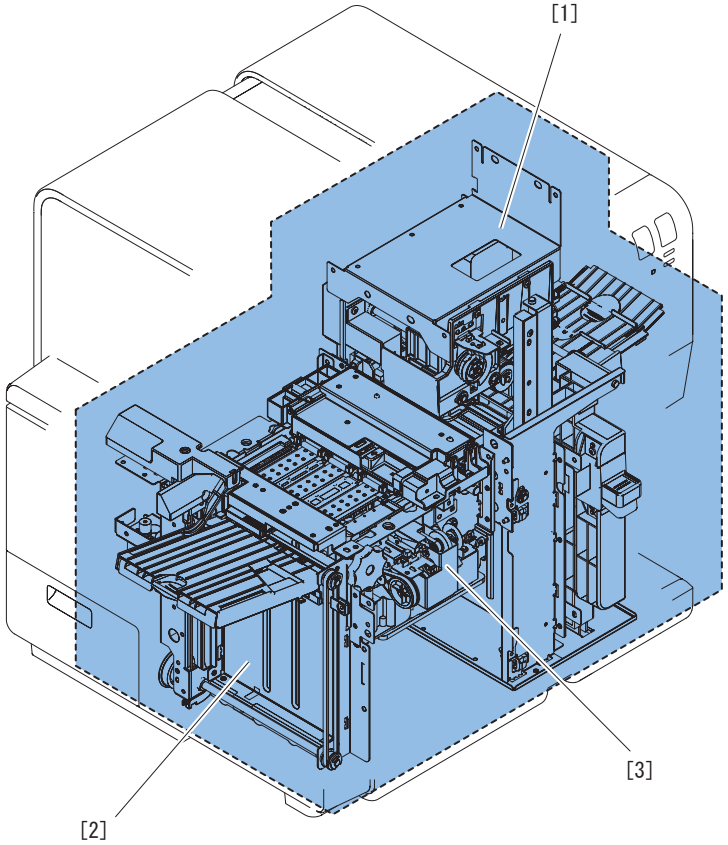


F-2-2

[1] Pump Unit
[2] Valve Unit
[3] Ink Tank Holder Unit

Feeder/Transport System

Feeder/Transport System feeds paper. It consists of Roll Drive Unit, Paper Guide Unit and Transport Unit.



F-2-3

[1] Paper Feed Unit
[2] Stacker Unit
[3] Transport Unit

Outline of Electric Circuits

Main electric circuits of this Printer include Printer Controller PCB and DC Power Supply PCB.
Main control of this Printer is performed by the microcomputer installed on Printer Controller PCB.
Printer Controller PCB performs image processing for the print data spooled from the host computer, and controls Printheads to print an image on a paper according to the processed print data.
Main functions of these PCBs are as follows:

1. Printer Controller PCB

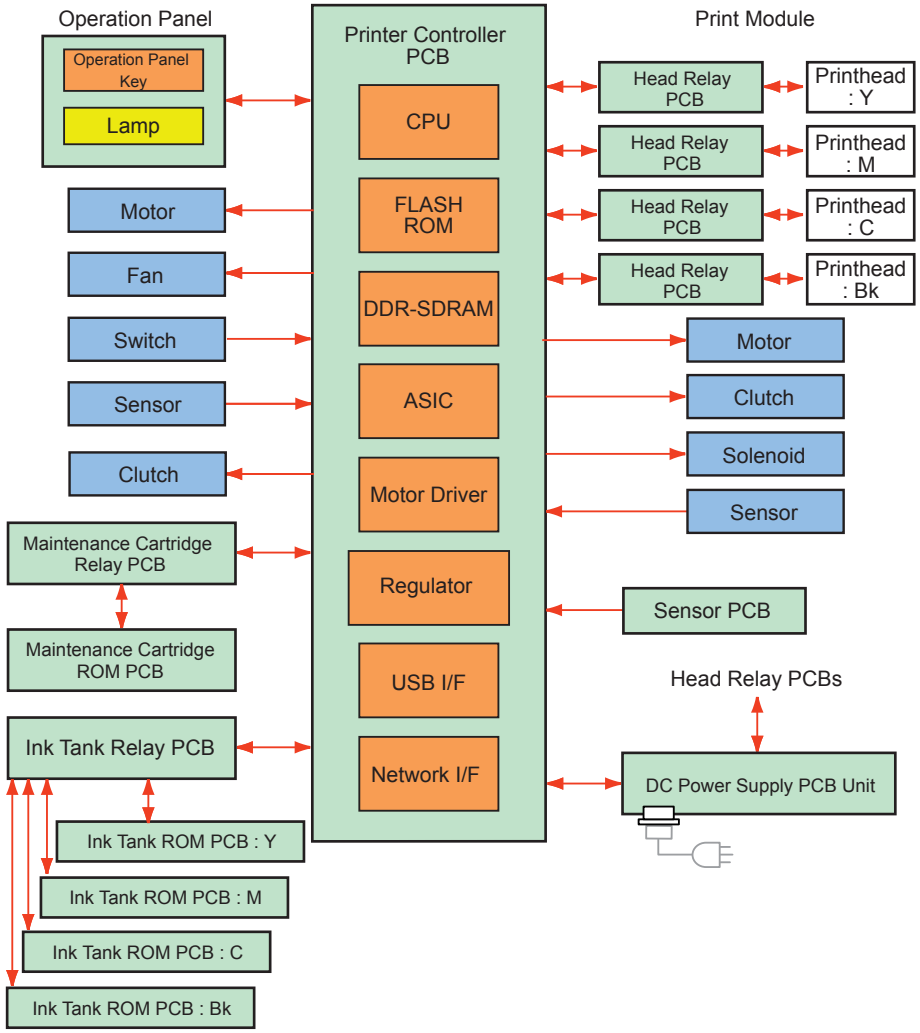
Printer Controller PCB performs communication with the host computer to manage printing.
It controls printing and cleaning operation using a microcomputer and ASIC.
It performs image processing for print data and performs all kinds of control related to Printheads.
It has Flash ROM to allow to rewrite software using a PC.

- Image data management
- Control of motors, solenoids, clutches, sensors, fans, and switches
- Management of temperature and humidity data
- Control of DC Power Supply PCB output
- Command data analysis
- Overlay data retention
- Communication with host computer (3 types of interfaces)
- Print data transfer to image memory
- Control of operation on Operation Panel
- Power supply to Operation Panel
- Control of transfer of image data to Printhead

2.DC Power Supply PCB

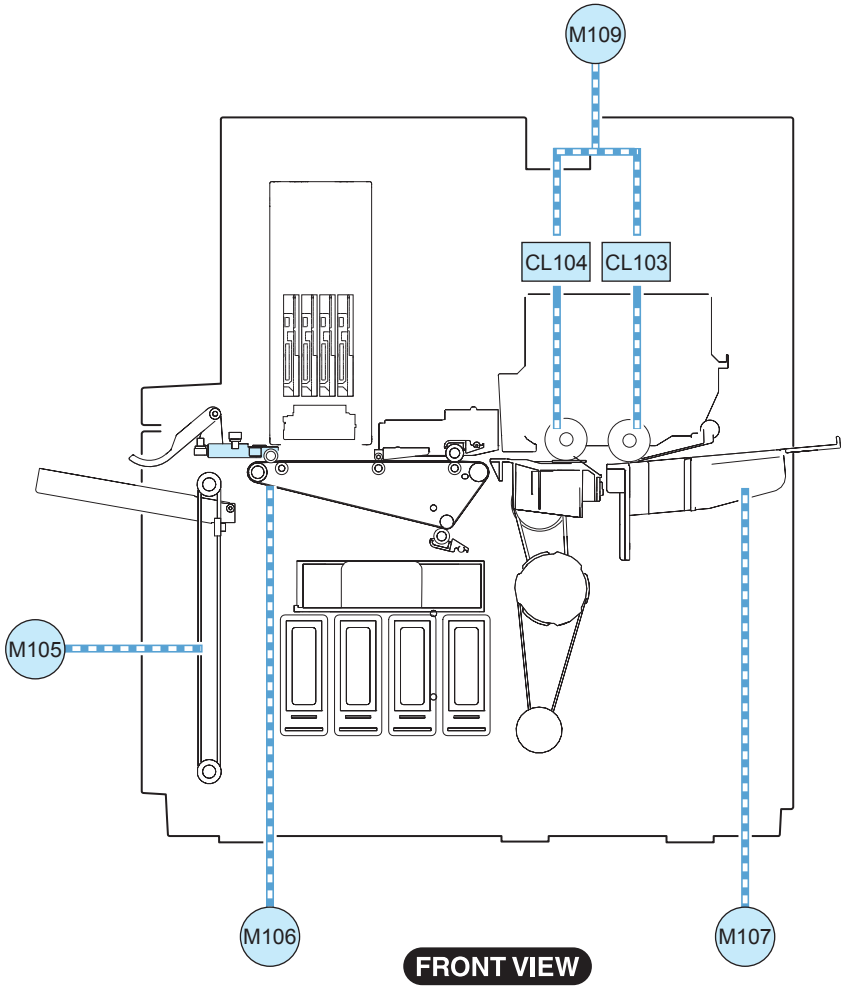
Universal-type DC Power Supply PCB is installed to generate +24 V and +5 V from 100-240 VAC. The generated voltages are applied to Logic System, Motor, and Solenoid via Printer Controller PCB. Note that the power (+ 24 V) is directly supplied from Power Supply Unit to Printhead.

Block diagrams of main circuits of Printer are shown below.



F-2-4

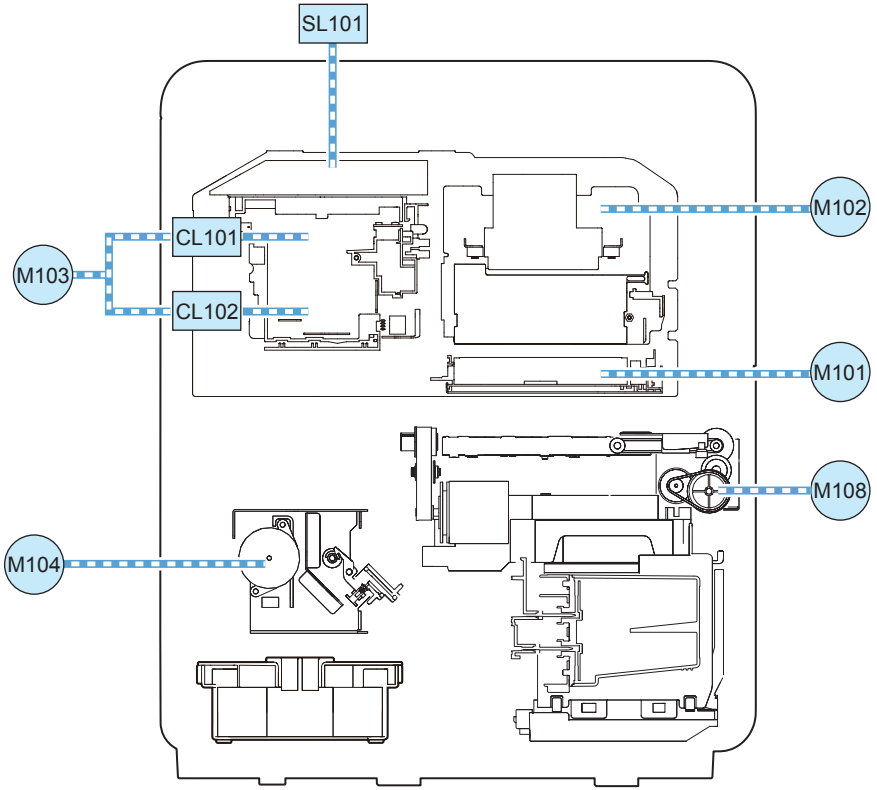
Drive Configuration



FRONT VIEW

F-2-5

M105	Stacker Lift Motor
M106	Transport Motor
M107	Paper Lift Motor
M109	Feed Motor
CL103	Feed Clutch
CL104	Disengage Clutch



LEFT VIEW

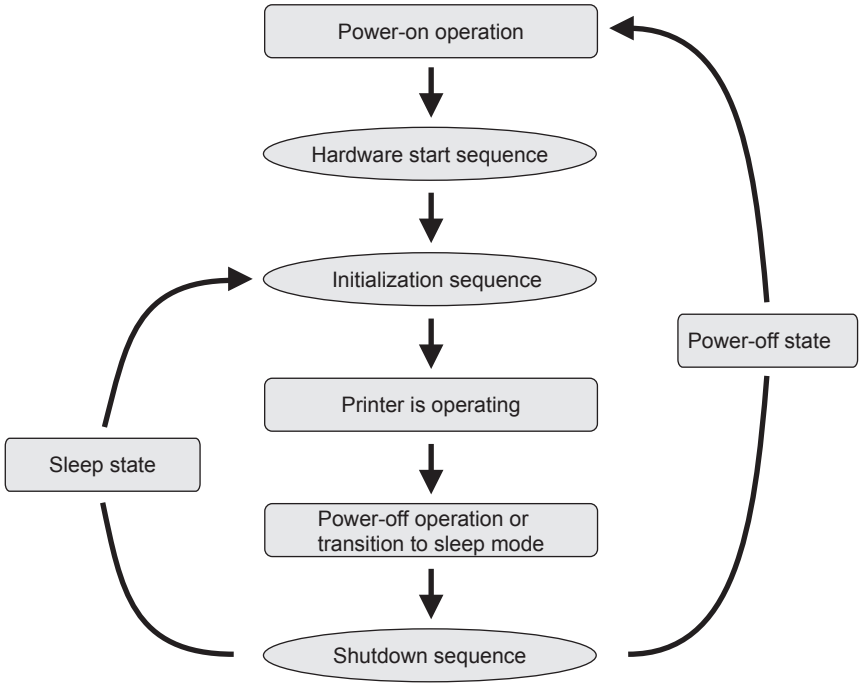
F-2-6

M101	Purge Motor
M102	Printhead Lift Motor
M103	Pump Motor
M104	Valve Motor
M108	Paper Guide Motor
CL101	Valve Clutch
CL102	Pump Clutch
SL101	Buffer Solenoid

Basic Sequence

Outline

Initialization processing that must be performed at power-on to allow Printer to perform printing properly is broadly classified into hardware start and initialization sequences.
On the other hand, shutdown processing is performed at power-off to retain Printer condition normally until Printer is used next time.



F-2-7

Hardware Start Sequence

This is electrical initialization performed when Printer is turned on.

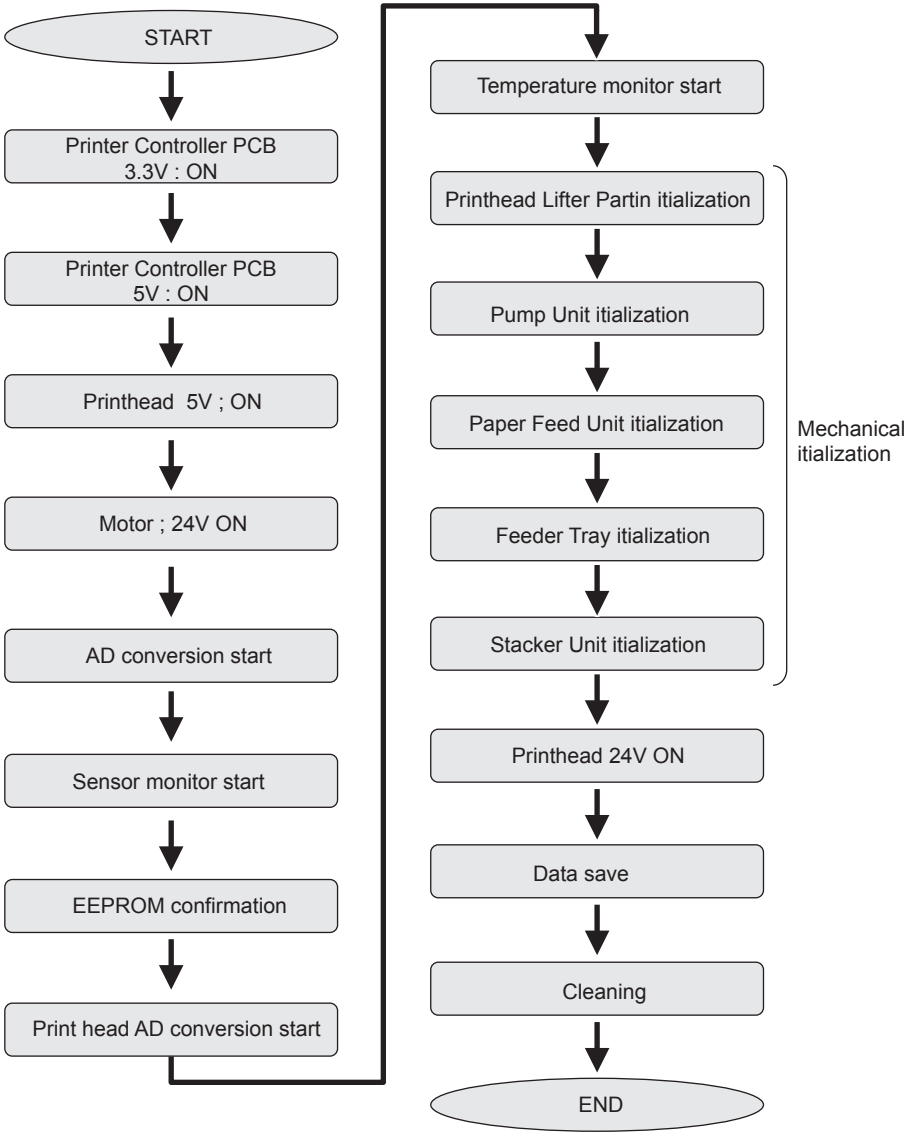
Initialization Sequence

Initialization is performed after completion of the hardware start process following power-on of Printer.
In Update mode, no operation is performed. In Service mode, only cleaning for initialization is not performed.

Operations are described below in detail.

No.	Operations	Details
[1]	Printer Controller PCB 3.3 V ON	Turns on the 3.3 V power supply for driving sensors.
[2]	Printer Controller PCB 5 V ON	Turns on the 5 V power supply for logic circuit, etc.
[3]	Printhead 5 V ON	Turns on the 5 V power supply for driving Printhead PCB.
[4]	Motor-related 24 V ON	Turn on the 24 V power supply for driving various Motors.
[5]	AD conversion start	Starts AD conversion.
[6]	Sensor monitoring start	Starts monitoring of the sensors used to detect open/closed states of various Covers and presence/absence of ink.
[7]	EEPROM check	Checks the data stored in EEPROMs mounted on Printheads and Ink Tank.
[8]	Printhead AD conversion start	Starts AD conversion of Printhead temperature.
[9]	Temperature monitoring start	Starts monitoring of a Printhead temperature error.
[10]	Printhead Lifter Part initialization	Determines Printhead and Purge Unit positions, and checks a sensor error.
[11]	Pump Unit initialization	Determines Pump Unit position and checks a sensor error.
[12]	Paper Feed Unit initialization	Determines Paper Feed Unit position and checks a sensor error.
[13]	Feeder Lift Tray initialization	Determines Feeder Lift Tray position and checks a sensor error.
[14]	Stacker Unit initialization	Determines Stacker Unit position and checks a sensor error.
[15]	Printhead 24V ON	Turns on the 24 V power supply for driving Printhead PCB.
[16]	Data saving	Saves the current Printer condition in the Flash ROM.
[17]	Cleaning	Performs cleaning during initialization. The degree of cleaning varies depending on the time that has elapsed since the previous cleaning, etc. This operation is performed only in user mode.

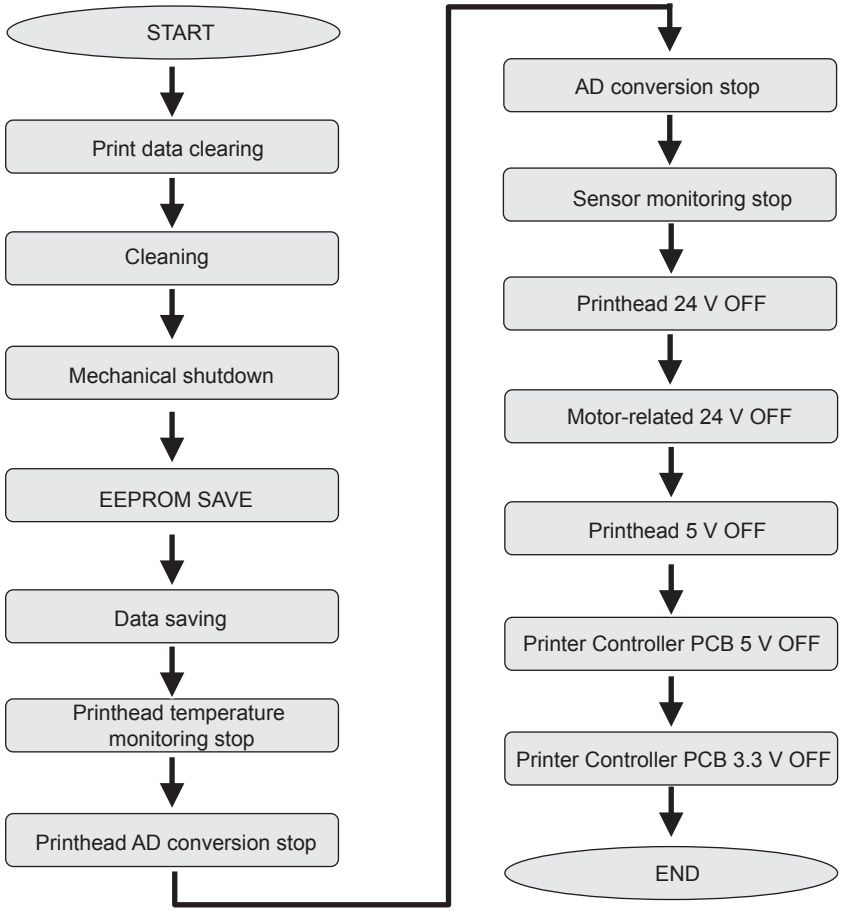
T-2-1



F-2-8

Shutdown Sequence

The shutdown sequence is performed when Printer is turned off, Printer enters the sleep mode after lapse of a set time, or Service Call Error occurs.
When Service Call Error that disables mechanical operation has occurred, "cleaning" and "mechanical shutdown" operations are skipped and only the shutdown sequence is performed.
Operations are described below in detail.



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No.	Operations	Details
[1]	Print data clearing	Clears the data stored in the memory.
[2]	Cleaning	Performs shutdown cleaning to keep Printhead in good conditions.
[3]	Mechanical shutdown	Places mechanical units in the state ideal for sleeping.
[4]	EEPROM SAVE	Saves various data in the EEPROMs mounted on Printhead, Ink Tank, and Maintenance Cartridge.
[5]	NVRAM SAVE	Saves various data in Flash ROM.
[6]	Printhead temperature monitoring stop	Stops controlling detection of a Printhead temperature error.
[7]	Printhead AD conversion stop	Stops AD conversion of Printhead temperature.
[8]	AD conversion stop	Stops obtaining AD conversion values of paper width, internal temperature, humidity, Printhead temperature, and TOF Sensor.
[9]	Sensor monitoring stop	Stops monitoring sensors that detect open/closed states of various covers and the remaining amount of ink.
[10]	Printhead 24V OFF	Turns on the 24 V power supply for driving Printhead PCB.
[11]	Motor-related 24 V OFF	Turns off the 24 V power supply for driving motors.
[12]	Printhead 5 V OFF	Turns off the 5 V power supply for driving Printheads.
[12]	Printer Controller PCB 5V OFF	Turns off the 5 V power for driving TOF Sensor, etc.
[13]	Printer Controller PCB 3.3 V OFF	Turns off the 3.3 V power supply for driving sensors.

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Power Supply

Overview

DC Power Supply Unit of Printer has 2 type of outputs, DC 5V and DC 24V.
Each PCBs are supplied like the illustration below. Printer has sleep mode. DC 5V supply all the time while power is turned on. DC 24V output is controlled by PWRON signal of Printer Controller PCB. PWRON signal is changed "H" and "L" related to the operation of Power Key on Operation Panel and signal from printer driver of PC.

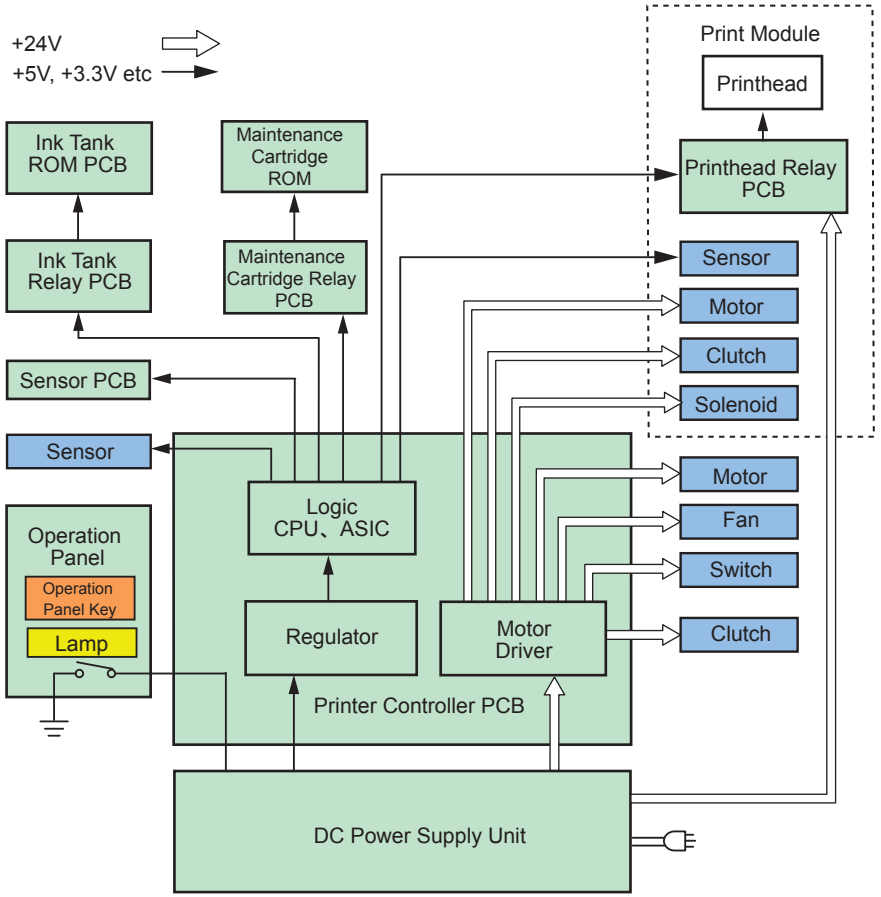

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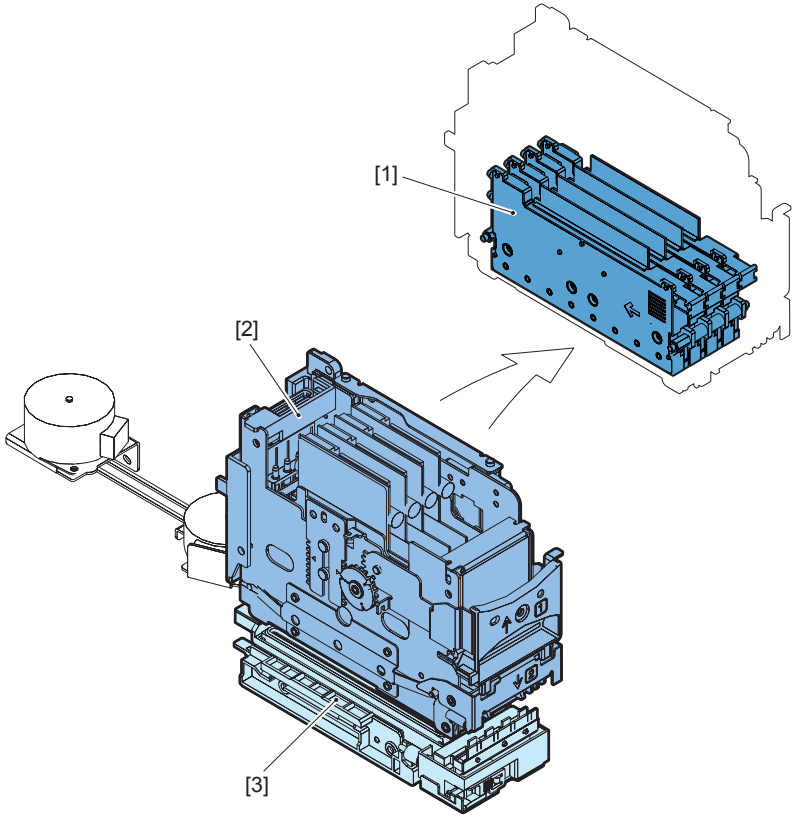
Image Formation System

Image Formation System

Main Parts Configuration

Image Formation System discharges ink from Printhead based on the print data to form a print image on paper. It consists mainly of Printheads, Printhead Lifter Part, and Purge Unit in Print Module.

The basic configuration of Image Formation System is shown below.



F-2-11

[1] Printhead
[2] Printhead Lifter Part
[3] Purge Unit

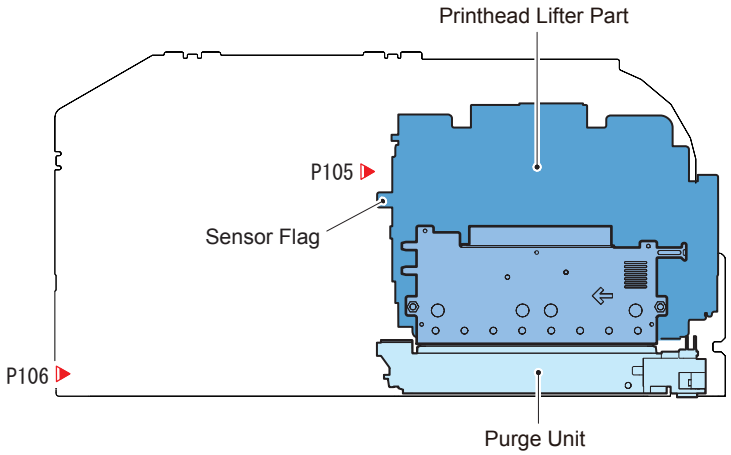
Various Types of Control

Image Formation System Operation Positions

There are 4 basic positional relations between Printheads and Purge Unit of Image Formation System that are determined according to the operation state of Printer.

Capping Position

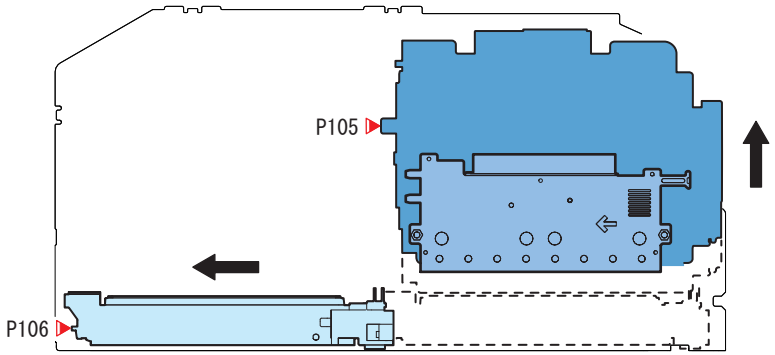
When Printer is not powered or is on standby, Printhead faces are covered with rubber caps of Purge Unit to protect the ink discharge faces of Printheads from drying and dust. Cleaning and ink supply operations are also performed at the capping position along with driving of Pump Unit.



F-2-12

Evacuation Position/Home Position

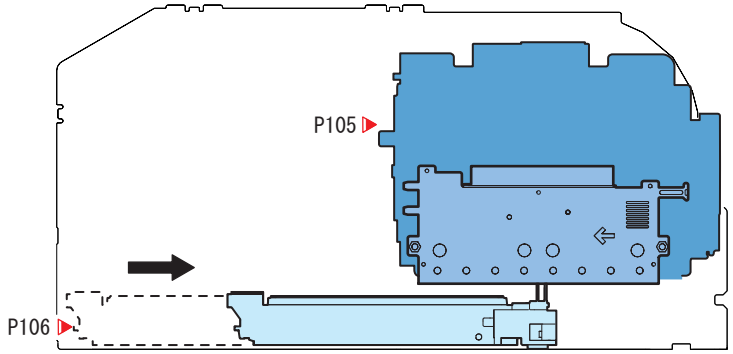
Whenever Printhead Lifter Part moves, it moves up to the evaluation position temporarily. Printhead Lifter Part temporarily moves to the position where it is detected by Printhead HP Sensor (P105), and then moves to the predetermined position according to the predetermined number of drive pulses.



F-2-13

Wiping Position

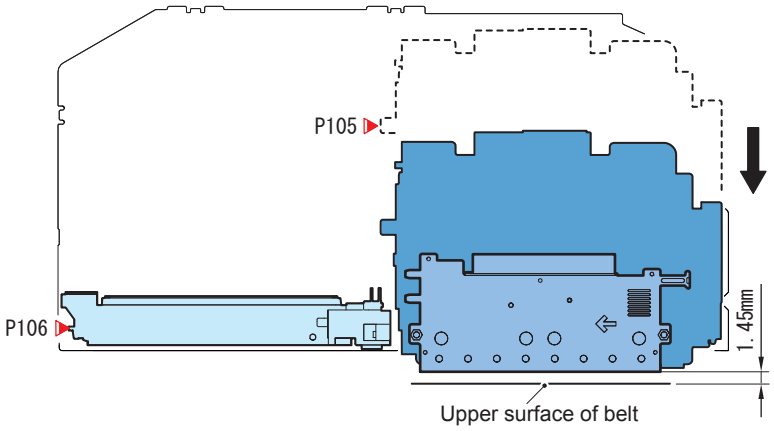
Printheads move to the wiping position, and Purge Unit slides rightward. Blade of Purge Unit removes excessive ink from the ink discharge faces of Printheads. Each position of Purge Unit is detected by Purge Position Sensor (P106).



F-2-14

Printing Position

Purge Unit moves to the evacuation position, and the ink discharge faces of Printheads descend to the position which is 1.45 mm lower than the upper surface of Belt of Transport Unit to start printing.



F-2-15

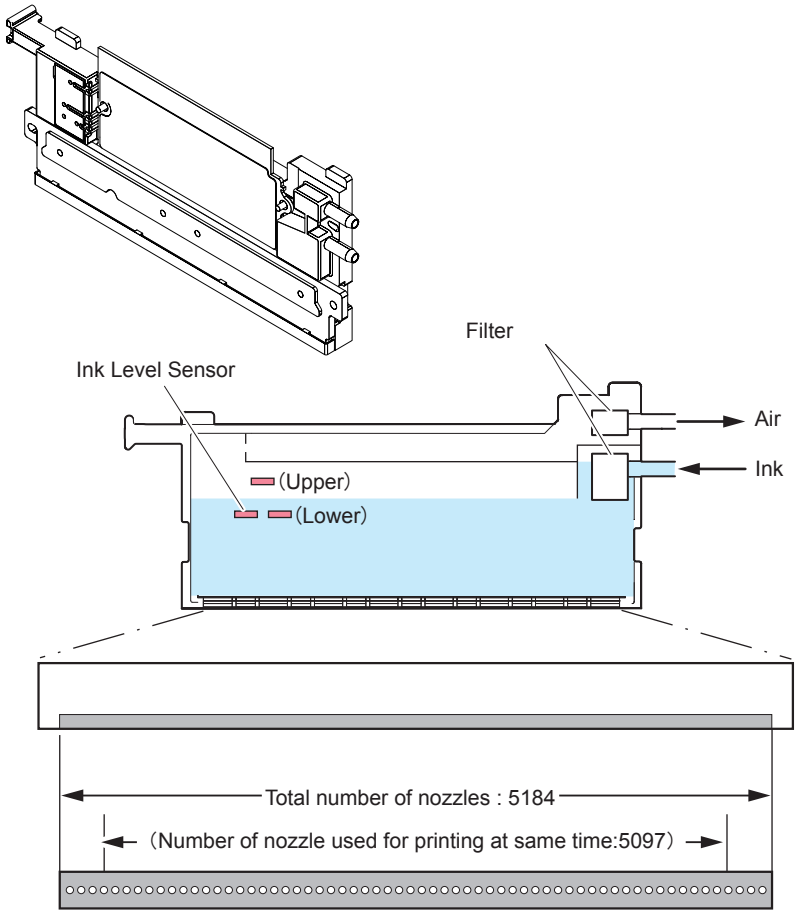
Printheads

Overview

Printheads of Printer have 5,184 Ink Discharge Nozzles which are arranged on very small Heater.

5,097 nozzles are used for actual printing, and the remaining 60 nozzles are used for sideways registration. 27 nozzles are not used.

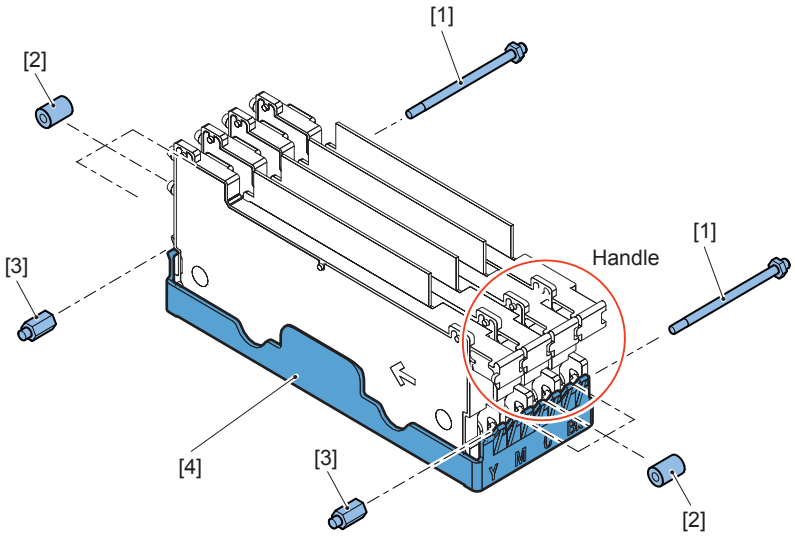
Ink supplied from Ink Tank is filtered with a mesh filter, and then supplied to Nozzles. When Printhead drive current flows to Nozzle Heater, ink drops from Nozzles due to the bubbles generated from boiled ink.



F-2-16

Printhead Unit Structure

Printhead Unit consists of 4 Printheads corresponding to 4 colors: Black, Cyan, Magenta, and Yellow. Printheads are mounted at even intervals by inserting spacers between adjacent Printheads, and assembled using shafts and nuts.
When handling Printhead Unit, hold its handle shown below. When replacing Printhead, take Printhead Replace Tool from inside of Printer, and place Printhead on it. Never replace Printhead with it placed in any place other than the Printhead Replace Tool. Poor printing can result.



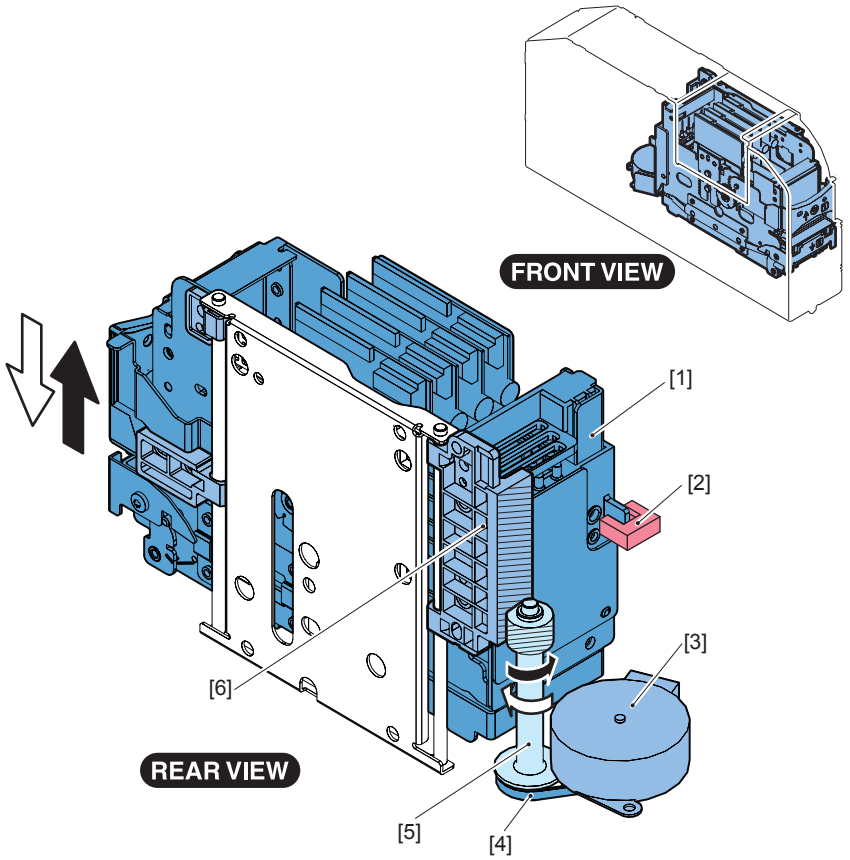
F-2-17

[1] Shaft
[2] Spacer
[3] Nut
[4] Printhead Replace Tool

Printhead Lifter Part

Overview

Printhead Lifter Part holds Printheads. It is moved up/down by Printhead Lift Motor (M104) via Rack Gear and Worm Gear. The home position of Printhead Lifter Part is detected by Printhead HP Sensor(P105).



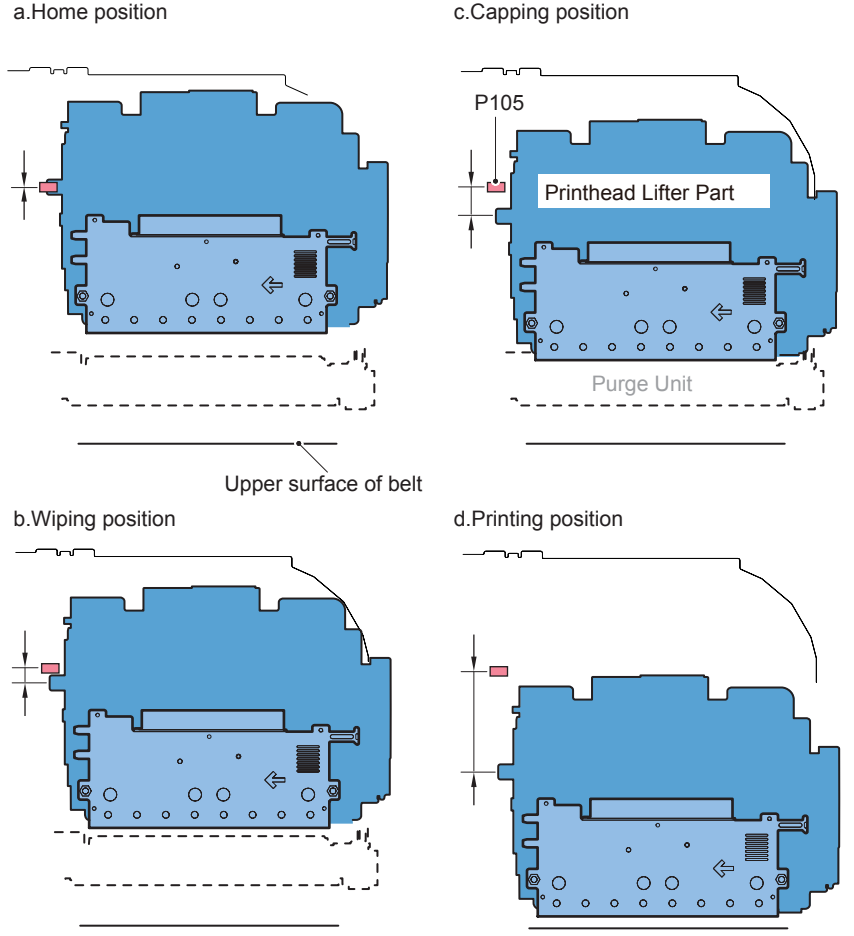
F-2-18

[1] Printhead Lifter Part
[2] Printhead Home Position Sensor(P105)
[3] Printhead Lift Motor(M104)
[4] timing belt
[5] worm gear
[6] rack gear

Outline of Operation

Purge Unit is driven by Purge Motor (M103). The home position of Purge Unit is detected by Purge Position Sensor. Movement from the home position to the predetermined position is controlled according to the number of drive pulses of Purge Motor (M103).

a. Home position (Evacuation position	Reference position to which Printheads are evacuated when Printhead Lifter Part moves to the predetermined position or when Purge Unit moves
b. Wiping position	Position where wiping operation is performed.
c. Capping position	Position where capping is performed.
d. Printing position	Position where printing is performed.

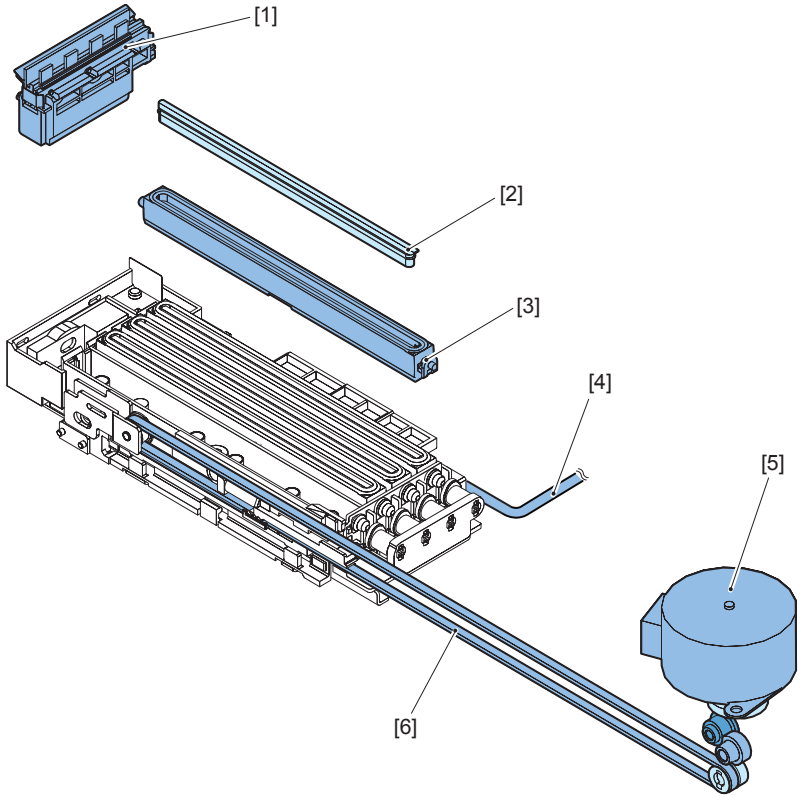


F-2-19

Purge Unit

Overview

Purge Unit performs maintenance for Nozzles of Printheads to maintain print quality. Purge Unit has capping and cleaning functions. Purge Unit protects the Printhead faces from drying and dust, collects maintenance jet ink, drives Pump Unit, and performs cleaning.

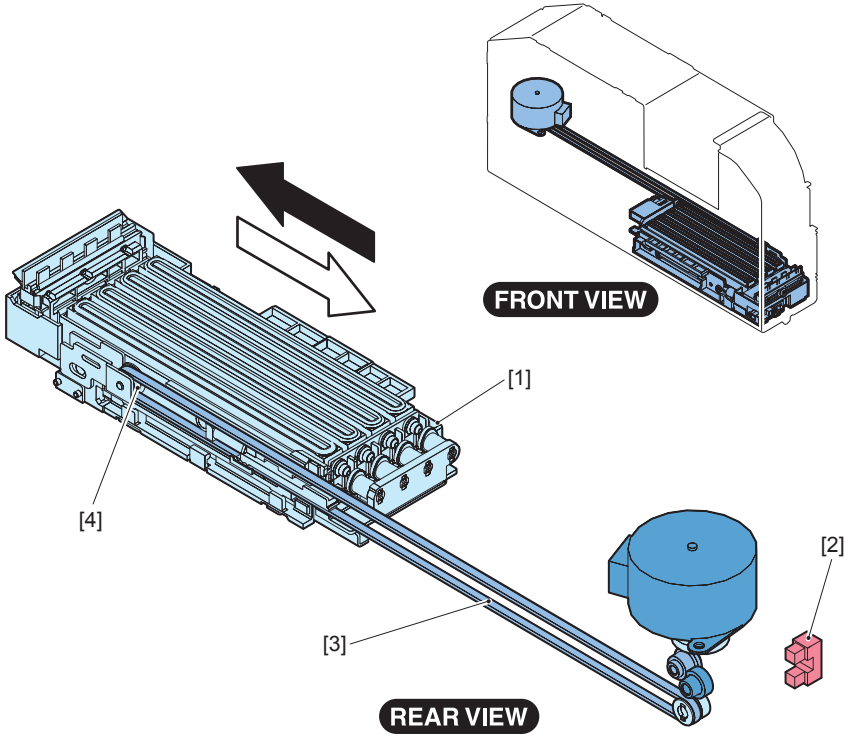


F-2-20

[1] Blade Unit
[2] Cap ink absorber
[3] Cap
[5] Waste Ink Tube
[6] Purge Motor(M103)
[7] Timing Belt

Outline of Operation

Purge Unit performs maintenance for Nozzles of Printheads to maintain print quality. Purge Unit has capping and cleaning functions. Purge Unit protects the Printhead faces from drying and dust, collects maintenance jet ink, drives Pump Unit, and performs cleaning.



F-2-21

[1]Purge Unit	Performs maintenance of Nozzles of Printheads.
[2]Purge Position Sensor (P106)	Detects the home position of Purge Unit.
[3]Timing belt	Transmits the drive force of Purge Motor to Purge Unit.
[4]Pulley	Transmits the drive force of Purge Motor to Purge Unit.

■ Cleaning Operation

● Kinds of Cleaning Operation

Printer cleans Printheads automatically (Auto-Cleaning) as needed to prevent non-discharges caused by condensed ink, bubbles, dust or the like when main power is turned ON, before, while or after printing is carried out and upon recovery from error state.
Further, required cleaning operations can be selectively executed with Printer Driver, Standalone mode(by Operation Panel Key) and Service Utility.
Ink drainage and ink loading can also be executed when Printheads are replaced or Printer is relocated. Cleaning and ink drainage and loading operations fall into 13 kinds as listed below.

No.	Operation	Operation type	Purpose and Details	PD *1	SU *2	SA *3
1	Auto cleaning	Cleaning of initialization	This operation is performed during the initialization sequence performed at power-on.			
2		Cleaning before printing	This operation is performed before printing the received print data.			
3		Cleaning during printing	This operation is performed during printing.			
4		Cleaning after printing	This operation is performed after completion of print processing.			
5		Cleaning at transition to sleep mode	This cleaning is performed during transition to sleep.			
6		Cleaning after error recovery	This cleaning is performed after recovery from the error state.			
7		Printheads over temperature (low/high temperature) cleaning	This cleaning is performed to prevent meniscus from becoming unstable due to Printheads over temperature.			
8	Manual cleaning	Light Cleaning	Cleaning that is carried out first when non-discharges occur.	Yes	Yes	
9		Medium Cleaning	Cleaning somewhat stronger than Light Cleaning when non-discharges persist after Light Cleaning.	Yes	Yes	
10		Strong Cleaning	Cleaning somewhat stronger than Medium Cleaning when non-discharges persist after Medium Cleaning.	Yes	Yes	Yes
11	Ink drainage	Printhead replacement	This operation is ink drainage performed manually when Printheads are replaced.		Yes	Yes
12		Shipping the printer	This operation is ink drainage performed manually when Printer is transported (e.g., to another building).	Yes	Yes	Yes
13		Moving the printer	This operation is ink drainage performed manually when Printer is moved to a near place (e.g., on the same floor).	Yes	Yes	

*1 : printer driver
*2 : service utility
*3 : stand alone

T-2-3

Cleaning Time and Ink Consumption

This table has each cleaning time and ink consumption.(*1)

No.	Category			Time	Consumption (4 colors)
1	Auto cleaning	Cleaning of initialization	Initial ink loading	25 minutes	82.5ml
			Initial ink loading (light)	7.5 minutes	34.5ml
			Timer cleaning	6.5 minutes	12ml
			Long time leaving cleaning	8.5 minutes	4.6ml
			Ink level adjustment	1.5 minutes	-
2		Cleaning before printing		0.1-0.5 minutes	0.02-0.74ml
3		Cleaning during printing		0.5 minutes	0.37ml
4		Cleaning after printing	Wipe maintenance jet	0.5 minutes	0.37ml
			Nozzle Suction	1 minute	2.5ml
5		Cleaning at transition to sleep mode		0.25 minutes	-
6		Cleaning after error recovery	Jam cleaning	0.5 minutes	0.37ml
			Initial ink loading (light)	7.5 minutes	34.5ml
			Ink Tank replacing cleaning (4 colors)	6 minutes	5.2-12ml
			Ink Tank replacing cleaning (1 color) *time/consumption for a color	1.5 minutes	1.3-3ml
7		Printheads over temperature (low/high temperature) cleaning		low temperature /0.5 minutes high temperature /8.5 minutes	low temperature /0.37ml high temperature /4.6ml
8	Manual cleaning	Light Cleaning		0.5 minutes	0.37ml
9		Medium Cleaning		1 minutes	2.5ml
10		Strong Cleaning		8.5 minutes	4.6ml
11	Ink drainage	Printhead replacement		15.5 minutes	26.4ml
12		Shipping the printer		15.5 minutes	26.4ml
13		Moving the printer		2.5 minutes	-
14	Ink loading	Printhead replacement		25 minutes	82.5ml
15		Shipping the printer		25 minutes	82.5ml

T-2-4

(*1)The cleaning time and ink consumption are indicated for reference. They are subject to change due to design change, etc.

Cleaning Operation Conditions

This table has each cleaning operation conditions.(*2)

Printer state		Cleaning name
At standby	• Specified time has elapsed in ready state (Default: 4 minutes).	Cleaning at transition to sleep mode
At power ON	• The serial number of Printhead has been changed or preparation for ink drainage has been executed in advance. • At least 30 days have elapsed since the last timer cleaning (this cleaning is not performed in the RTC warning state). • At least 2 hours have elapsed since the last ink discharge. • The sensor for the lower limit of the ink level in Ink Chamber of Printhead has not detected ink. • At least 90 days have elapsed since the last ink discharge. • Printer is started for the first time since it was reset in the factory. • Nozzle-suction-related operation has been performed, or maintenance jet counter for determining whether cap suction has been executed has reached the specified value after completion of each recovery operation.	Cleaning of initialization
At power OFF	• Printer driver's button for transition to sleep mode is pressed. • When Power key is pressed long in ready state, maintenance jet counter for cap suction execution judgment has reached the specified value.	Cleaning at transition to sleep mode
Before printing	• The uncapped state has been held for a total of 90 seconds or longer since the last ink discharge. • Cleaning is always performed before printing. (The maintenance jet count varies depending on the uncapped time and the time elapsed since the previous cleaning.) • The sensor for detecting the lower limit of the ink level in Ink Chamber of Printhead has not detected ink. • Nozzle-suction-related operation has been performed, or maintenance jet counter for cap suction execution judgment has reached the specified value after completion of each recovery operation.	Cleaning before printing

Printer state		Cleaning name
During printing	• Wet non-discharge prevention cleaning execution judgment counter has reached the specified value (Maintenance Jet count = 1,900). • Ink pre-fire on the paper mode is OFF and the time from start to stop of printing has exceeded 300 seconds. • Nozzle-suction-related operation has been performed, or maintenance jet counter for cap suction execution judgment has reached the specified value after completion of each cleaning operation.	Cleaning during printing
	• Printhead temperature has reached the specified value.	Printheads over temperature (low/high temperature) cleaning
After printing	• Wet non-discharge prevention cleaning execution judgment counter has reached the specified value (Maintenance jet count = 1,900). • Atmosphere slot suction execution judgment counter has reached the specified value, or cap suction has been executed in advance. • The sensor for detecting the lower limit of the ink level in ink chamber of Printhead has not detected ink. • Nozzle-suction-related operation has been performed, or maintenance jet counter for cap suction execution judgment has reached the specified value after completion of each cleaning operation. • After printing process is complete, Bubble Ink Discharge Prevention Cleaning Execution Judgment Counter reached the specified value.	Cleaning after printing
At error occurrence	• A paper jam error has been recovered. • Ink Label Sensor has not detected the ink level even when Printer has been operated for 180 seconds for ink level adjustment, or the state in which the pressure change amount is +/-2 kPa has been held for 90 seconds. (Only this cleaning is executed at occurrence of an error, not after recovery of the error, (occurrence of the error is not reported)).	Cleaning after error recovery
After error recovery	• Atmosphere slot suction execution judgment counter has reached the specified value, or cap suction has been executed in advance. • The sensor for detecting the lower limit of the ink level in ink chamber of Printhead has not detected ink. • Change of Ink Tank serial number has been detected after recover of the error that occurred during cleaning (including pump driving). • Nozzle-suction-related operation has been performed, or maintenance jet counter for cap suction execution judgment has reached the specified value after completion of each cleaning operation.	Cleaning after error recovery

Printer state		Cleaning name
At Ink Tank replacement	• The number of times the target Ink Tank has been replaced is even.	Cleaning after error recovery
At Printhead replacement	• After execution of "Printhead replacement" using a service utility or standalone mode	Printhead replacement
At Printer transportation	• After execution of "Shipping the printer" using a service utility or standalone mode	Shipping the printer
	• After execution of "Moving the printer" using a service utility or standalone mode	Moving the printer
User cleaning	• After execution of "Strong Cleaning " using a service utility.	Strong Cleaning
	• After execution of "Medium Cleaning " using a service utility.	Medium Cleaning
	• After execution of "Light Cleaning " using a service utility or standalone mode	Light Cleaning

T-2-5

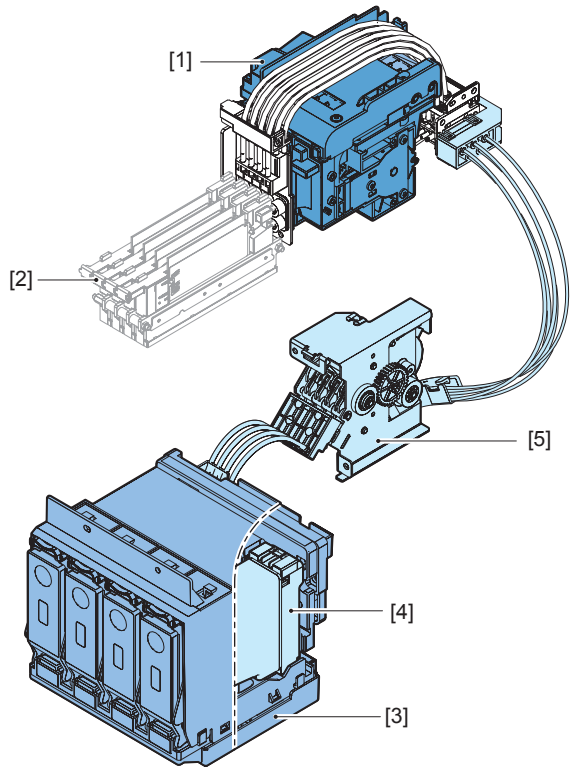
(*2) Operating conditions for each cleaning are subject to change due to design change, etc.

Ink Supply System

Overview

Main Parts Configuration

Ink Supply System supplies ink from Ink Tank to Printheads, suctions ink from Printheads, and collects ink from Purge Unit into Maintenance Cartridge. It consists of Ink Tank Holder Unit, Valve Unit, and Pump Unit in Print Module.
The basic configuration of Ink Supply System is shown below.



F-2-22

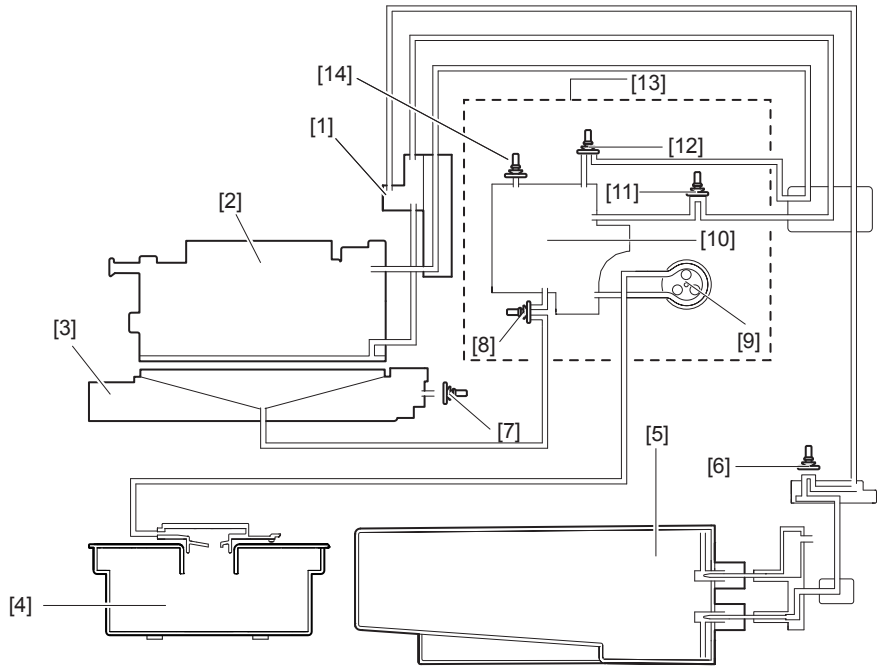
[1] Pump Unit
[2] Printhead
[3] Ink Tank Holder Unit
[4] Ink Tank
[5] Valve Unit

Various Types of Control

Outline of Ink Passages

Ink is supplied and collected through opening/closed of 6 Valves and a Suction Pump.
The schematic diagram of ink passages is shown below.

- Wipe Valve:
  Valve Unit has Wipe Valves as many as the number of colors, and they are opened and closed at the same timing through rotation of cams.
- Ink Supply Valve:
  Ink Supply Valves corresponding to individual colors are provided in Pump Unit, and they are opened and closed through rotation of cams in the order of Bk, C, M, Y.
- Bubble Removing Valve:
  Bubble Removing Valves corresponding to individual colors are provided in Pump Unit, and they are opened and closed through rotation of cams in the order of Bk, C, M, Y.
- Buffer Valve:
  Buffer Valve is provided at the buffer section (chamber) of Pump Unit, and it is opened and closed through driving of solenoid.
- Pressure Release Valve:
  Pressure Release Valves corresponding to individual colors are provided at the base plate to which Purge Unit is mounted, and they are opened and closed at the same timing through driving of Purge Motor.
- Suction Valve:
  Suction Valve is provided in series with Ink Supply Valves (4) inside Pump Unit; it is opened and closed through rotation of cam.



F-2-23

[1]	Sub Tank	[8]	Suction Valve
[2]	Printhead	[9]	Suction Pomp
[3]	Purge Unit	[10]	Buffer
[4]	Maintenance Cartridge	[11]	Bubble Removing Valve
[5]	Ink Tank Door	[12]	Ink Supply Valve
[6]	Wipe Valve	[13]	Pump Unit
[7]	Pressure Release Valve	[14]	Buffer Valve

■ Operation Modes

Operation modes of Ink Supply System are broadly classified into 3 categories according to the states of components of Printer.

- Initial ink loading
  Ink is supplied from Ink Tanks to Sub Tanks, shipping ink is collected, and ink is supplied from Sub Tanks to Printheads.
- Ink supply during printing
  Ink supplied from Ink Tanks to Printheads to replenish ink used for printing.
- Collection of waste ink within caps
  Ink used for cleaning is collected in Maintenance Cartridge.

The following table shows the relationship between operation modes and open/closed states of Valves and Motor driving state.

	Open/Closed state of each Valve						Suction Pump	Between Printheads and Caps
	Bubble removing Valve	Ink Supply Valve	Suction Valve	Pressure Release Valve	Buffer Valve	Wipe Valve		
Initial ink loading								
Ink supply from Ink Tanks to Sub Tanks	Open	Closed	Closed	Open	Closed	Open	Driven	Sealed
Collection of shipping ink (1) Reduction of pressure in Buffer	Closed	Closed	Closed	Open	Closed	Open	Driven	Sealed
Collection of shipping ink (2) Movement of shipping ink to Buffer	Closed	Closed	Open	Closed	Closed	Open	Driven	Sealed
Collection of shipping ink (3) Collection of shipping ink in Maintenance Cartridge	Closed	Closed	Open	Open	Closed	Open	Driven	Sealed
Ink supply from Sub Tanks to Printheads	Closed	Open	Closed	Open	Closed	Open	Driven	Sealed
Ink supply during printing								
Ink supply during printing	Closed	Closed	Closed	Open	Closed	Open	Stopped	Separate
Collection of waste ink within caps								
Reduction of pressure in buffer	Closed	Closed	Closed	Open	Closed	Open	Driven	Sealed
Collection of waste ink in buffer	Closed	Closed	Open	Open	Closed	Open	Driven	Separate
Collection of waste ink in Maintenance Cartridge	Closed	Closed	Open	Open	Closed	Open	Driven	Sealed

T-2-6

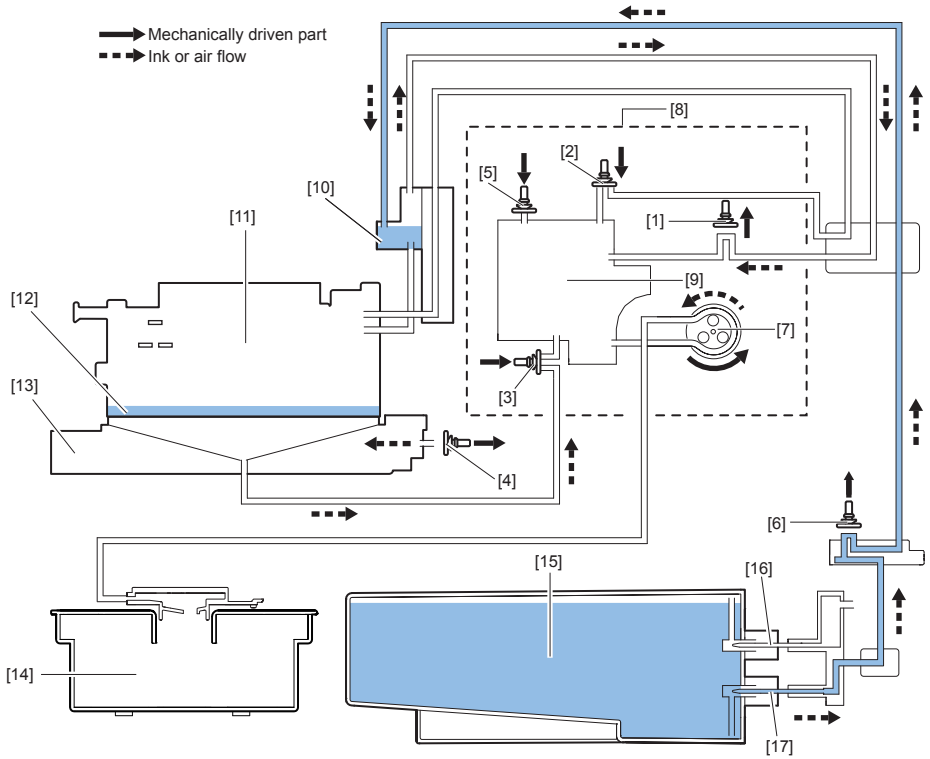
Ink Loading: Ink Supply from Ink Tanks to Sub Tanks

In order to supply ink from Ink Tank to Sub Tank, Bubble Removing Valve is opened first. Suction Pump generates negative pressure in the ink passage between the buffer section and Sub Tank and the ink passage between Sub Tank and Ink Tank. Thus feeding ink to Sub Tank. When the predetermined amount of ink is poured in Sub Tank, Bubble Removing Valve is closed. Air flows into Ink Tank through Hollow Needle (atmosphere side), thus maintaining the pressure in Ink Tank constant. This operation is performed for individual colors in order Bk, C, M, Y.

Open/closed states of valves, the operation state of Suction Pump, and the capping state of Printhead are shown below.

[1]	[2]	[3]	[4]	[5]	[6]	[7]	-
Bubble Removing Valve	Ink Supply Valve	Suction Valve	Air Release Valve	Buffer Valve	Wipe Valve	Suction Pump	Between Printhead and Cap
Open	Closed	Closed	Open	Closed	Open	Driven	Sealed

A schematic diagram of ink passages is shown below. T-2-7



F-2-24

[8]	Pump Unit	[12]	shipping ink	[15]	Ink Tank
[9]	Buffer	[13]	Purge Unit (capping position)	[16]	Hollow needle (Atmosphere side)
[10]	Sub Tank	[14]	Maintenance Cartridge	[17]	Hollow needle(Ink side)
[11]	Printhead				

Ink loading: Collection of shipping ink (1)/Reduction of Pressure in Buffer

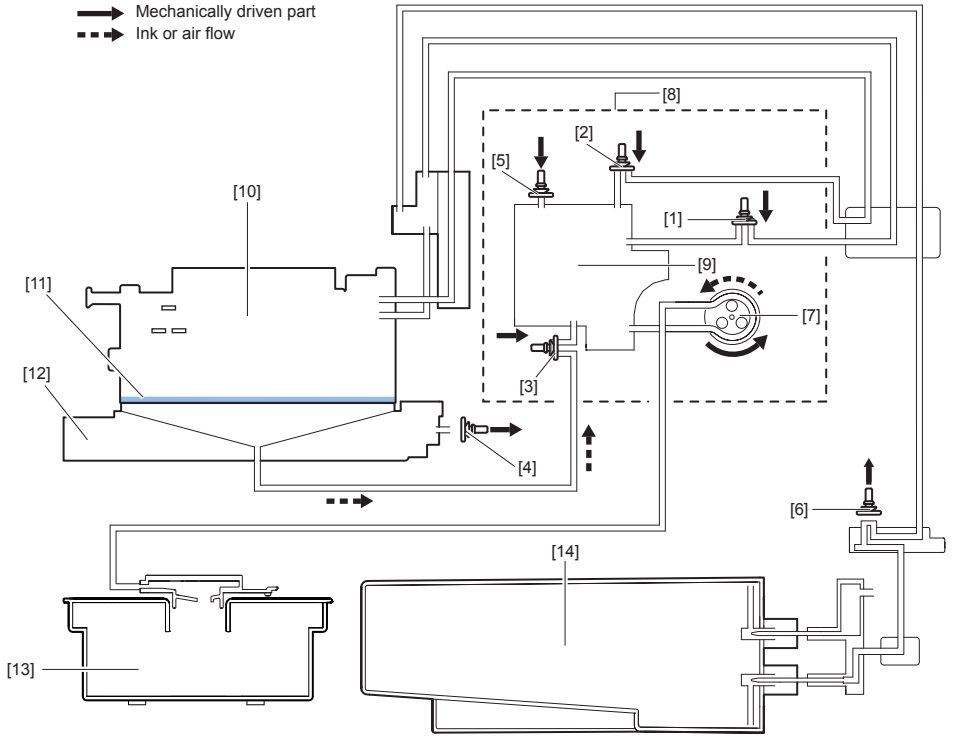
All valves other than Wipe Valve are closed with Printhead capped, and Suction Pump is driven to reduce the pressure in Buffer.

Open/closed states of valves, the operation state of Suction Pump, and the capping state of Printhead are shown below.

[1]	[2]	[3]	[4]	[5]	[6]	[7]	-
Bubble Removing Valve	Ink Supply Valve	Suction Valve	Air Release Valve	Buffer Valve	Wipe Valve	Suction Pump	Between Printhead and Cap
Open	Closed	Closed	Open	Closed	Open	Driven	Sealed

T-2-8

A schematic diagram of ink passages is shown below.



F-2-25

[8]	Pump Unit	[12]	Purge Unit(capping position)
[9]	Buffer	[13]	Maintenance Cartridge
[10]	Printhead	[14]	Ink Tank
[11]	shipping ink		

Ink loading: Collection of shipping ink (2)/Movement of Shipping Ink to Buffer

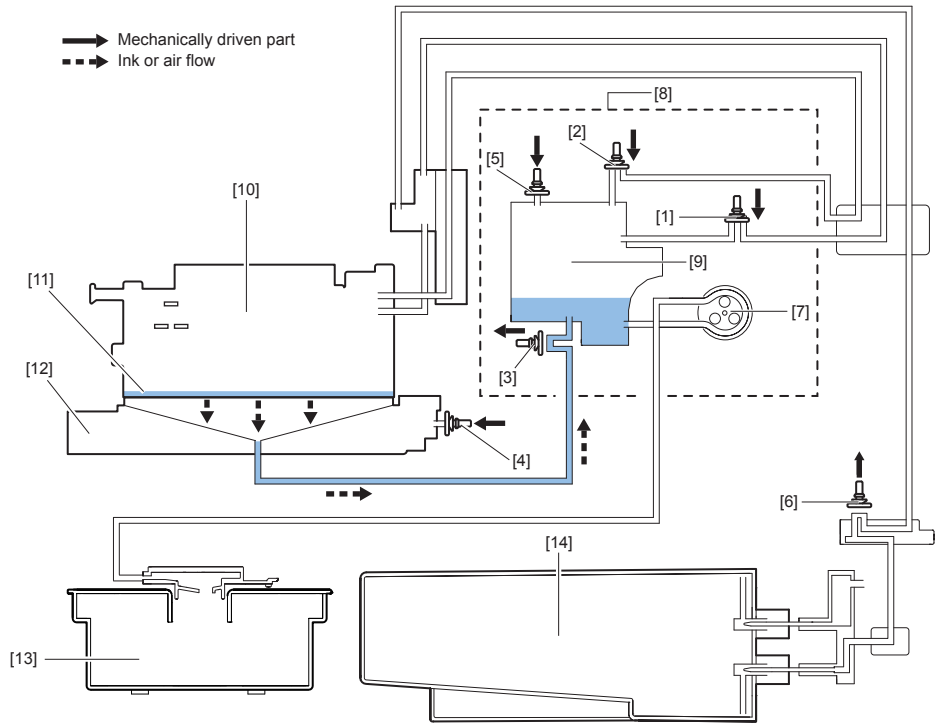
Pressure Release Valve is closed, tight seal is created between Printhead and Cap, Suction Valve is released, and the negative pressure in Buffer is released to allow shipping ink to flow from Printhead Nozzles to Buffer via Cap.

Open/closed states of valves, the operation state of Suction Pump, and the capping state of Printhead are shown below.

[1]	[2]	[3]	[4]	[5]	[6]	[7]	-
Bubble Removing Valve	Ink Supply Valve	Suction Valve	Air Release Valve	Buffer Valve	Wipe Valve	Suction Pump	Between Printhead and Cap
Closed	Closed	Open	Closed	Closed	Open	Stop	Sealed

T-2-9

A schematic diagram of ink passages is shown below.



F-2-26

[8]	Pump Unit	[12]	Purge Unit(capping position)
[9]	Buffer	[13]	Maintenance Cartridge
[10]	Printhead	[14]	Ink Tank
[11]	shipping ink		

Ink loading: Collection of shipping ink (3)/Collection of Shipping Ink in Maintenance Cartridge

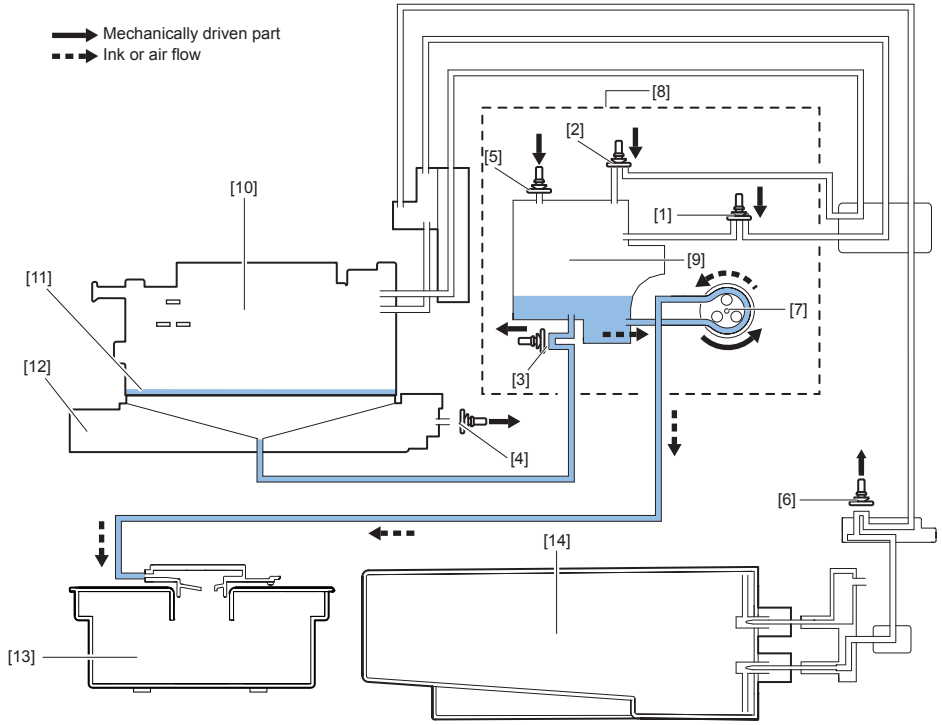
With ink present in Buffer, Suction Pump is driven to collect shipping ink in Maintenance Cartridge.

Open/closed states of valves, the operation state of Suction Pump, and the capping state of Printhead are shown below.

[1]	[2]	[3]	[4]	[5]	[6]	[7]	-
Bubble Removing Valve	Ink Supply Valve	Suction Valve	Air Release Valve	Buffer Valve	Wipe Valve	Suction Pump	Between Printhead and Cap
Closed	Closed	Open	Open	Closed	Open	Driven	Sealed

T-2-10

A schematic diagram of ink passages is shown below.



F-2-27

[8]	Pump Unit	[12]	Purge Unit(capping position)
[9]	Buffer	[13]	Maintenance Cartridge
[10]	Printhead	[14]	Ink Tank
[11]	shipping ink		

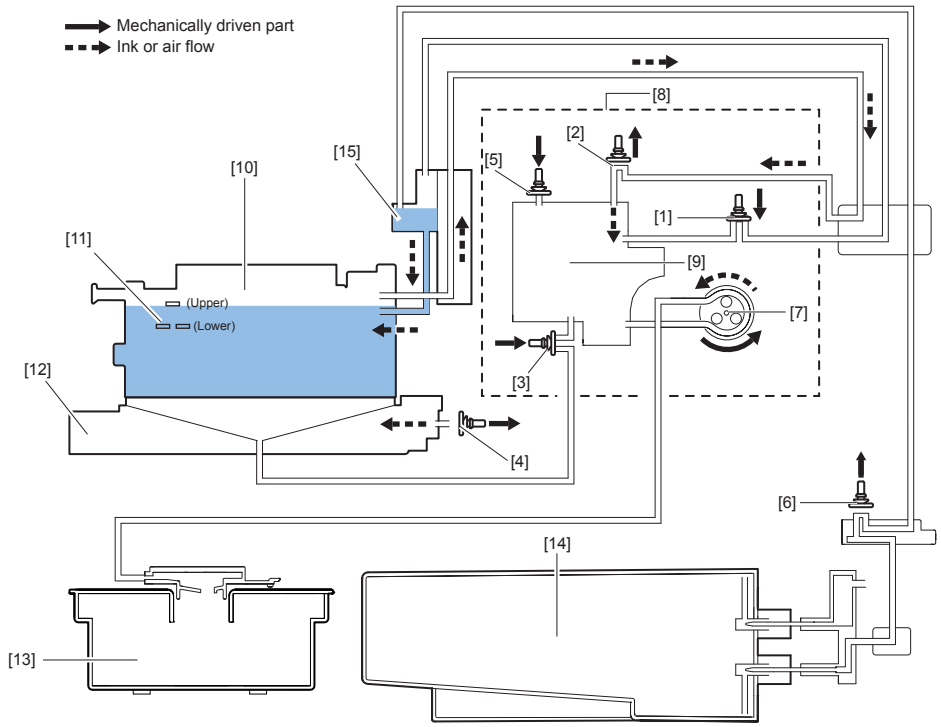
Ink Loading: Ink Supply from Sub Tanks to Printheads

Ink Supply Valve is opened and Suction Pump is driven to supply ink from Ink Tank to Printhead through Sub Tank and lower part of Printhead Joint. When Ink Level Sensor mounted inside Printhead Joint detects ink, Suction Pump stops and Ink Supply Valve closes. This operation is performed for Ink Tanks for respective colors.
Open/closed states of valves, the operation state of Suction Pump, and the capping state of Printhead are shown below.

[1]	[2]	[3]	[4]	[5]	[6]	[7]	-
Bubble Removing Valve	Ink Supply Valve	Suction Valve	Air Release Valve	Buffer Valve	Wipe Valve	Suction Pump	Between Printhead and Cap
Closed	Open	Closed	Open	Closed	Open	Driven	Sealed

T-2-11

A schematic diagram of ink passages is shown below.



F-2-28

[8]	Pump Unit	[12]	Purge Unit(capping position)
[9]	Buffer	[13]	Maintenance Cartridge
[10]	Printhead	[14]	Ink Tank
[11]	Ink Level Sensor	[15]	Sub Tank

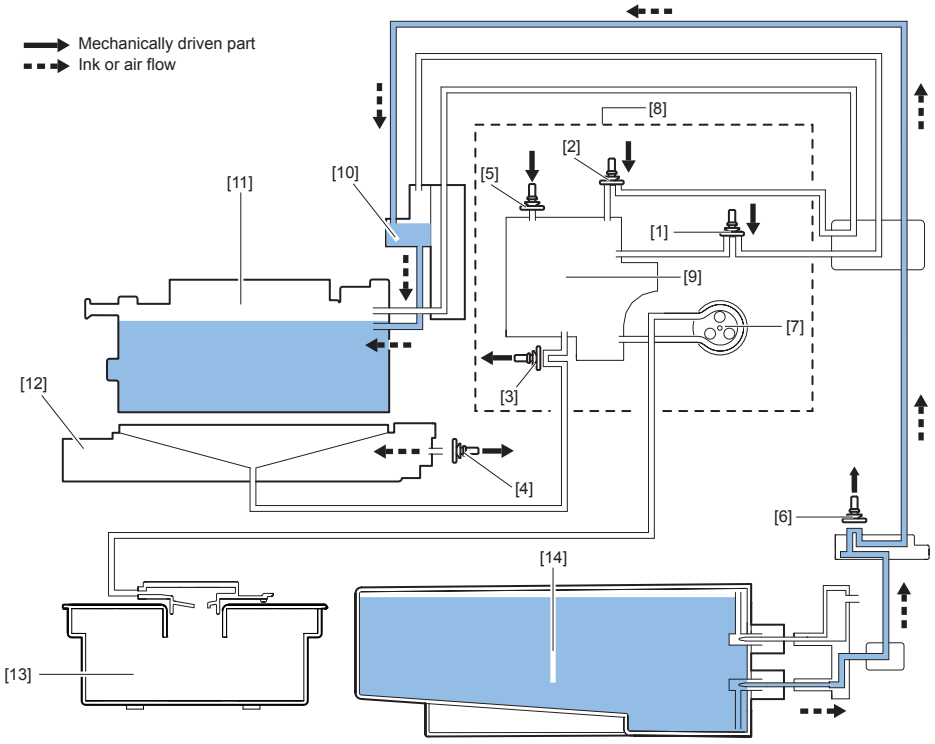
Ink Supply During Printing

During printing, negative pressure is applied to Nozzles due to discharge of ink, thus supplying ink from Ink Tanks to Printheads constantly.
Open/closed states of valves, the operation state of Suction Pump, and the capping state of Printhead are shown below.

[1]	[2]	[3]	[4]	[5]	[6]	[7]	-
Bubble Removing Valve	Ink Supply Valve	Suction Valve	Air Release Valve	Buffer Valve	Wipe Valve	Suction Pump	Between Printhead and Cap
Closed	Closed	Closed	Open	Closed	Open	Stop	Disengage

T-2-12

A schematic diagram of ink passages is shown below.



F-2-29

[8] Pump Unit
[9] Buffer
[10] Sub Tank
[11] Printhead
[12] Purge Unit (Movement to evacuation position)
[13] Maintenance Cartridge
[14] Ink Tank

Collection of Waste Ink within Cap: Reduction of Pressure in Buffer

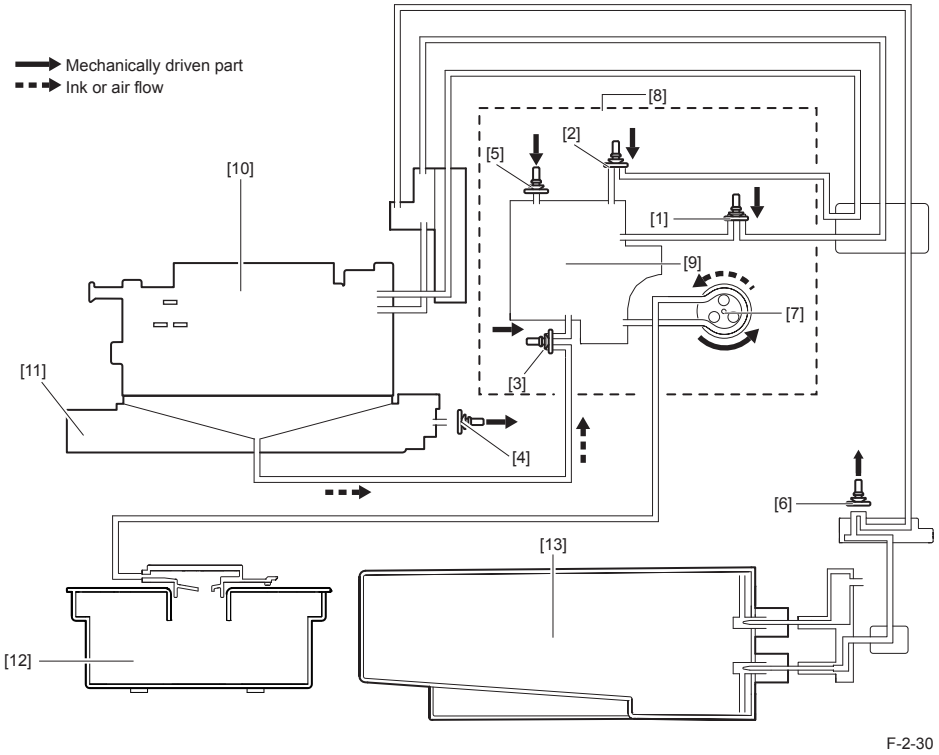
All valves other than Pressure Release Valve and Wipe Valve are closed with Printhead capped, and Suction Pump is driven to reduce pressure in Buffer.

Open/closed states of valves, the operation state of Suction Pump, and the capping state of Printhead are shown below.

[1] Bubble Removing Valve	[2] Ink Supply Valve	[3] Suction Valve	[4] Air Release Valve	[5] Buffer Valve	[6] Wipe Valve	[7] Suction Pump	- Between Printhead and Cap
Closed	Closed	Closed	Open	Closed	Open	Driven	Sealed

T-2-13

A schematic diagram of ink passages is shown below.



F-2-30

[8] Pump Unit
[9] Buffer
[10] Printhead
[11] Purge Unit(capping position)
[12] Maintenance Cartridge
[13] Ink Tank

Collection of Waste Ink within Cap: Movement of Waste Ink to Buffer

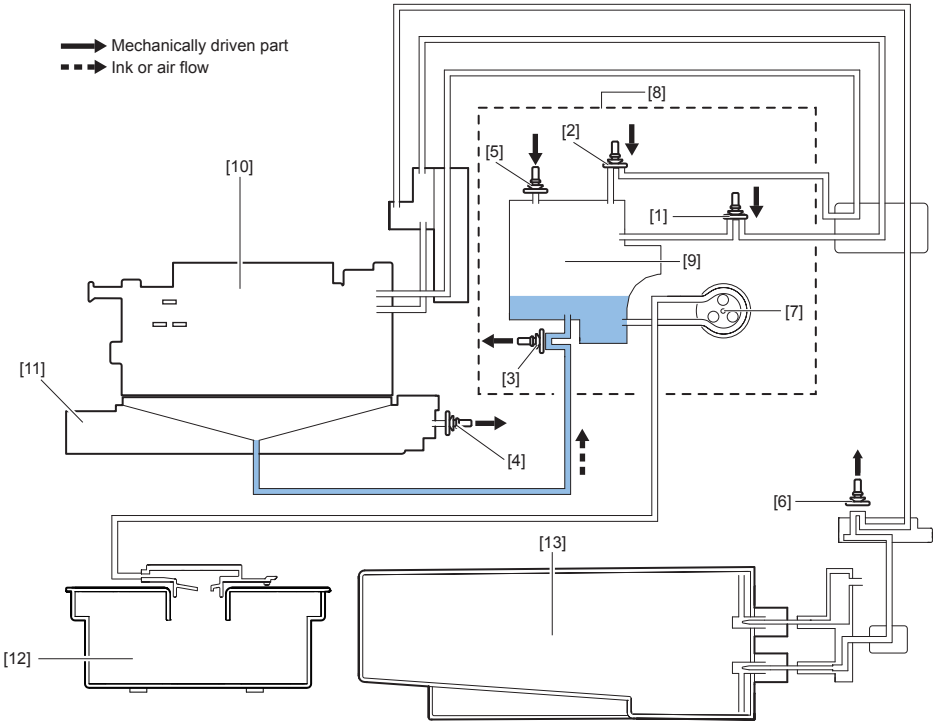
Printheads are lifted to separate it from Caps such that Caps are open to the atmosphere. When the negative pressure in Buffer is released with Pressure Release Valve closed and Suction Valve open, waste ink flows from Caps to Buffer.

Open/closed states of valves, the operation state of Suction Pump, and the capping state of Printhead are shown below.

[1] Bubble Removing Valve	[2] Ink Supply Valve	[3] Suction Valve	[4] Air Release Valve	[5] Buffer Valve	[6] Wipe Valve	[7] Suction Pump	- Between Printhead and Cap
Closed	Closed	Open	Open	Closed	Open	Stop	Disengage

T-2-14

A schematic diagram of ink passages is shown below.



F-2-31

[8] Pump Unit
[9] Buffer
[10] Printhead
[11] Purge Unit(Cap disengage)
[12] Maintenance Cartridge
[13] Ink Tank

Collection of Waste Ink within Cap: Collection of Waste Ink in Maintenance Cartridge

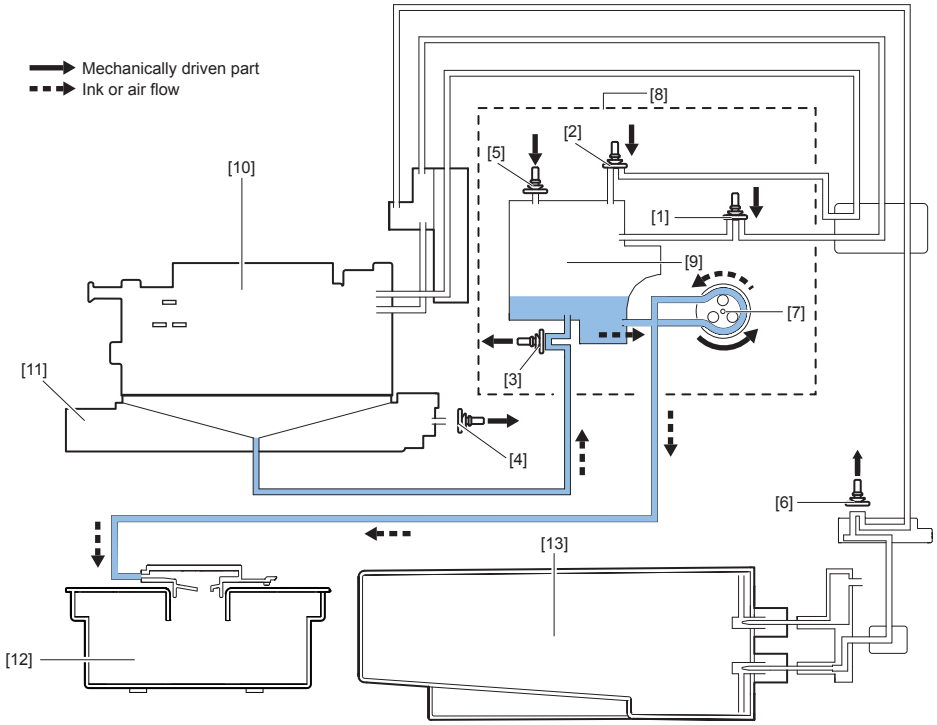
With ink present in Buffer, Suction Pump is driven to collect waste ink in Maintenance Cartridge.

Open/closed states of valves, the operation state of Suction Pump, and the capping state of Printhead are shown below.

[1]	[2]	[3]	[4]	[5]	[6]	[7]	-
Bubble Removing Valve	Ink Supply Valve	Suction Valve	Air Release Valve	Buffer Valve	Valve	Suction Pump	Between Printhead and Cap
Closed	Closed	Open	Open	Closed	Open	Driven	Sealed

T-2-15

A schematic diagram of ink passages is shown below.



F-2-32

[8]	Pump Unit	[11]	Purge Unit(Cap disengage)
[9]	Buffer	[12]	Maintenance Cartridge
[10]	Printhead	[13]	Ink Tank

Ink Tank Holder Unit

Overview

[1] Ink Tank Relay PCB

This PCB is used to relay signals of Ink Tank ROM PCB to Printer Controller PCB.

[2] Hollow Needle (Ink side)

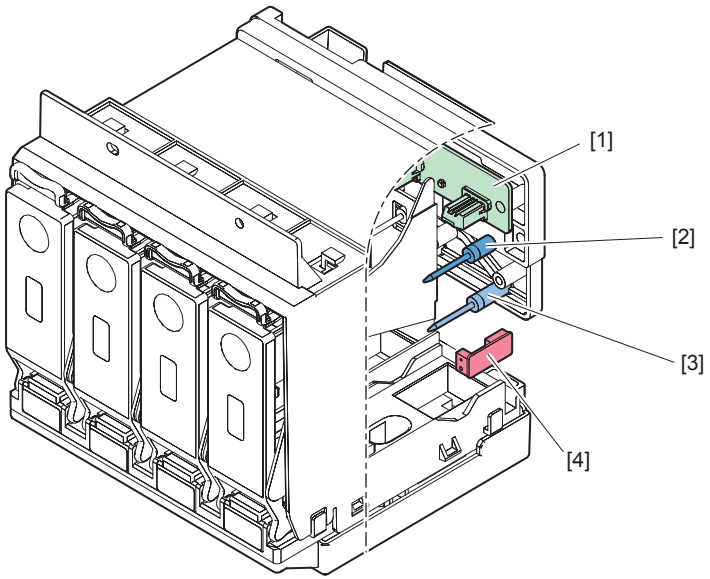
When Ink Tank is loaded in Printer, Hollow Needle (ink side) is inserted in the rubber plug (ink side) of Ink Tank, thus connecting Ink Tank and Ink Tank Holder Unit.

[3] Hollow Needle (Atmosphere side)

When Ink Tank is loaded in Printer, Hollow Needle (atmosphere side) is inserted in the rubber plug (atmosphere side) of Ink Tank and the internal pressure in Ink Tank is released, thus maintaining the pressure in Ink Tank.

[4]Remaining Ink Sensor

Remaining Ink Sensor is a prism sensor used to detect whether ink remains in Ink Tank.

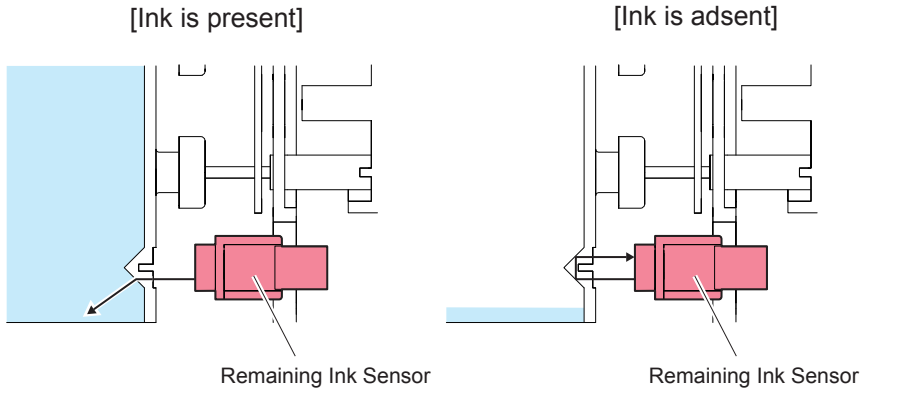


F-2-33

[1] Ink Tank Relay PCB
[2] Hollow Needle (Atmosphere side)
[3] Hollow Needle (Ink side)
[4] Remaining Ink Sensor

Ink Presence/Absence Detection

When ink is present in Ink Tank, incident light is not reflected and consequently Remaining Ink Sensor (receiver side) does not detect reflected light. When ink is absent, incident light is fully reflected and consequently Remaining Ink Sensor (receiver side) detects the reflected light, resulting in judgment that ink is absent.

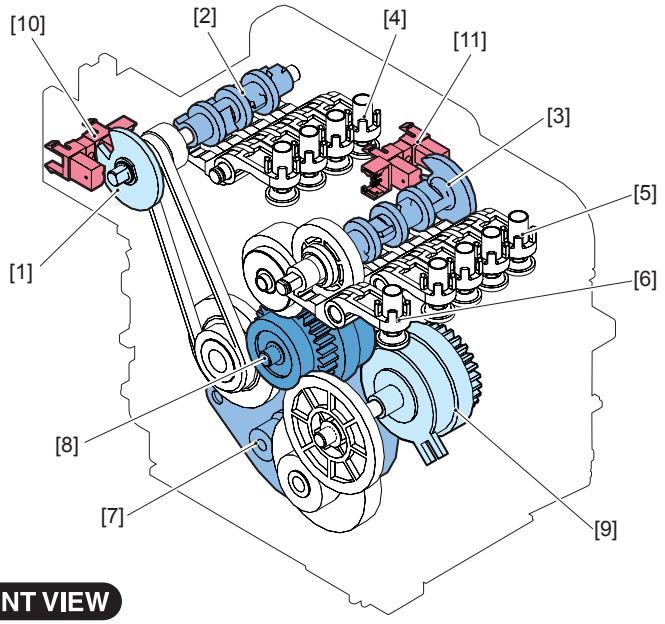


F-2-34

Pump Unit

Overview

Pump Unit is used to perform cleaning and ink supply along with Purge Unit. Pump Unit is driven by Pump Motor(M105).Suction Pump in Pump Unit is driven by Pump Motor. Suction Pump decreases the pressure in sub tank, collects waste ink. Ink Supply Valve, Bubble Removing Valve, and Suction Valve are opened/closed by Pump Cams rotated by Pump Motor driven via Valve Clutches 1 and 2. The phase of Pump Cam is detected by Pump Valve Sensor and is controlled according to the number of Pump Motor drive pulses. These operations are controlled by Printer Controller PCB. On the Supply Valve and Suction Valve side, 5 valves including 4 Supply Valves for 4 colors (Black, Cyan, Magenta, and Yellow) and a Suction Valve are provided. On Bubble Removing Valve side, 4 Bubble Removing Valves for 4 colors (Black, Cyan, Magenta, and Yellow) are provided.
This page is only for reference. Pump Unit can not be replaced.

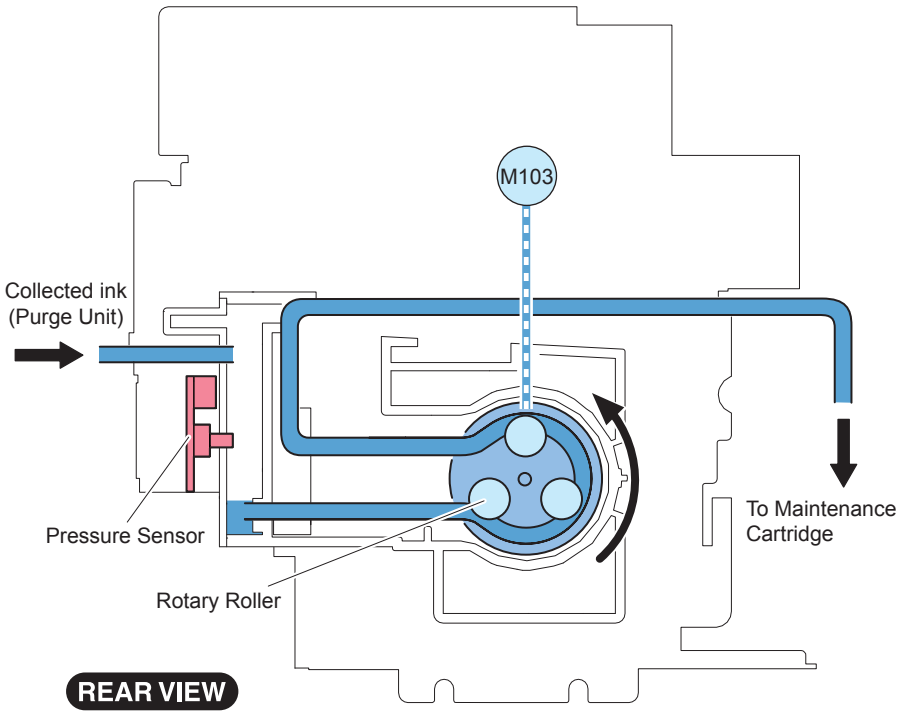


F-2-35

[1] Sensor Flag
[2] pump cam 1
[3] pump cam 2
[4] Bubble Removing Valve
[5] Ink Supply Valve
[6] Suction Valve
[7] Pump Motor
[8] Valve Clutch
[9] Pump Clutch
[10] Pump Valve Sensor 1
[11] Pump Valve Sensor 2

Suction Operation

A tube pump is used to suction ink. This pump generates negative pressure in Ink Tube by pressing Rotary Rollers against Ink Tube, thus suctioning ink. The suction amount of ink can be controlled greatly by pressing 3 rotary rollers against the tube one after another.
Pump Unit incorporates Pressure Sensor for detecting the pressure inside Buffer. If the pressure inside Buffer does not reach the predetermined value, Printer Controller PCB determines that a Suction Pump error has occurred, turns on ERROR Lamp, and displays an error code on the status monitor of the printer driver.
This page is only for reference. Pump Unit can not be replaced.

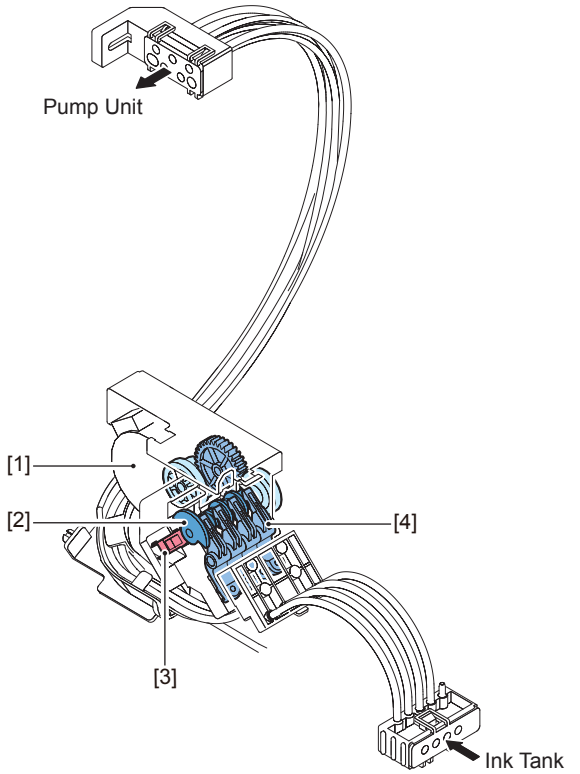


F-2-36

Valve Unit

Overview

Valve Unit blocks ink passages during wiping operation of Print Module, thus preventing dust from entering Printhead Nozzles. Ink passages are unblocked during ink loading, printing, and cleaning (excluding wiping operation).

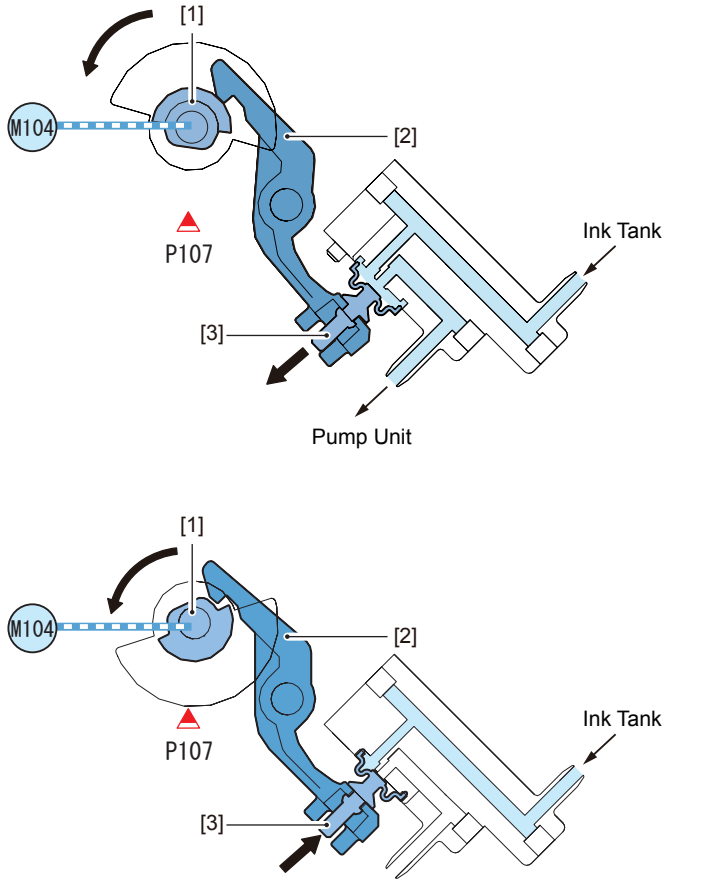


F-2-37

[1] Valve Motor
[2] Valve Cam
[3] Valve Sensor
[4] Cam Lever

Open/Close Operation

Valve Unit is operated by Valve Motor (M104). Valve Motor rotates Valve Cam to open/close Wipe Valve. The phase of Wipe Cam is detected by Valve Sensor (P107) and is controlled according to the number of Valve Motor drive pulses. These operations are controlled by Printer Controller PCB.



F-2-38

[1] Valve Cam
[2] Cam Lever
[3] Wipe Valve

Ink Tank

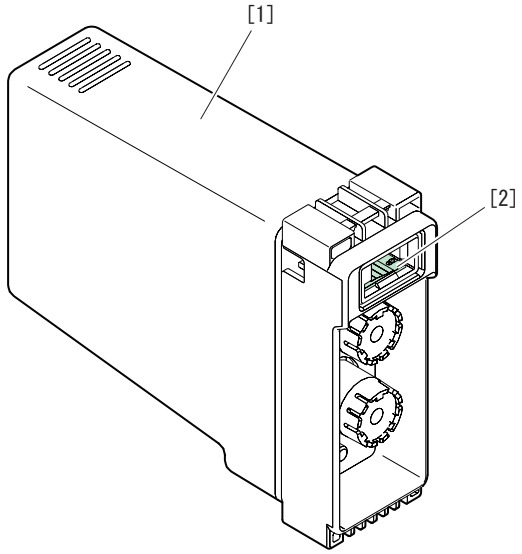
Overview

a) Ink Tank

The quantity of ink is memorized in EEPROM mounted on Ink Tank. The quantity of ink remaining in Ink Tank is detected according to the dot count based on the data stored in EEPROM. When the dot count reaches the predetermined value (equivalent to 184 cc), it is determined that no ink remains in Ink Tank, and LED on Operation Panel starts blinking. When more ink is used and Remaining Ink Sensor mounted on Ink Tank Holder Unit detects no ink, LED on Operation panel stops blinking and stays lit

b) Fool Proof Notch

Ink Tank is provided with a foolproof notch to prevent wrong insertion. If Ink Tank is inserted improperly, it stops at the foolproof notch. Ink will not be supplied until Ink Tank is inserted properly.



F-2-39

[1] Ink Tank
[2] Ink Tank ROM PCB

Maintenance Cartridge

Overview

a)Maintenance Cartridge

Maintenance Cartridge can contain a maximum of 450 ml of waste ink. The quantity of collected waste ink is memorized in EEPROM mounted on Maintenance Cartridge.

b)Detection of waste ink in Maintenance Cartridge

The quantity of waste ink collected in Maintenance Cartridge is measured according to the dot count.

When the quantity of waste ink reaches approximately 360 ml, Maintenance Cartridge Warning Lamp on Operation Panel blinks to indicate that Maintenance Cartridge is nearly full. Even when a warning message is displayed, printing can be continued.

When the quantity of waste ink reaches approximately 450 ml, Maintenance Cartridge Warning Lamp on Operation Panel stops blinking and stays lit to indicate that Maintenance Cartridge has become full.

When a dot count error occurs, Maintenance Cartridge Leakage Sensor detects that waste ink in Maintenance Cartridge is full.

Even when it is determined that Maintenance Cartridge is full according to the dot count, the current print job is executed to the end.

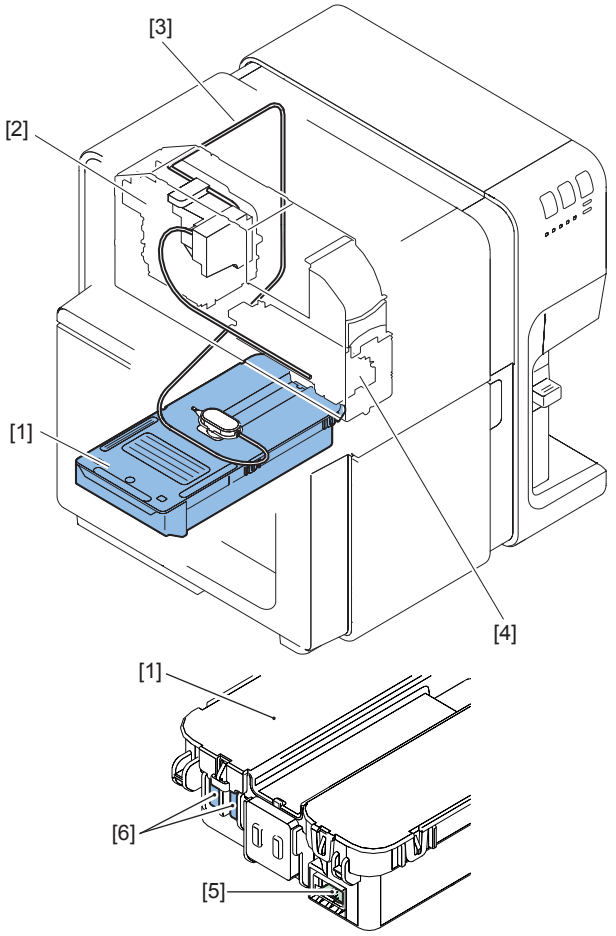
When it is determined that Maintenance Cartridge is full according to the result of detection by Maintenance Cartridge Leakage Sensor, Printer stops operating even if printing is in progress.

Once the full state of Maintenance Cartridge is detected, Printer will not operate until Maintenance Cartridge is replaced.

Item	Description
Detection method	Dot count
Near full capacity:	About 360 ml
Printer operation in near full state	Printing can be continued.
Full capacity	About 450 ml
Printer operation in full state	Operation stops
Others	Maintenance Cartridge Leakage Sensor (Conductive Sensor)

T-2-16

The external view of Maintenance Cartridge is shown below.



F-2-40

[1] Maintenance Cartridge
[2] Pump Unit
[3] Waste Ink Tube
[4] Purge Unit
[5] Maintenance Cartridge ROM PCB
[6] Maintenance Cartridge Leakage Sensor

Ink Leakage Detection

Overview

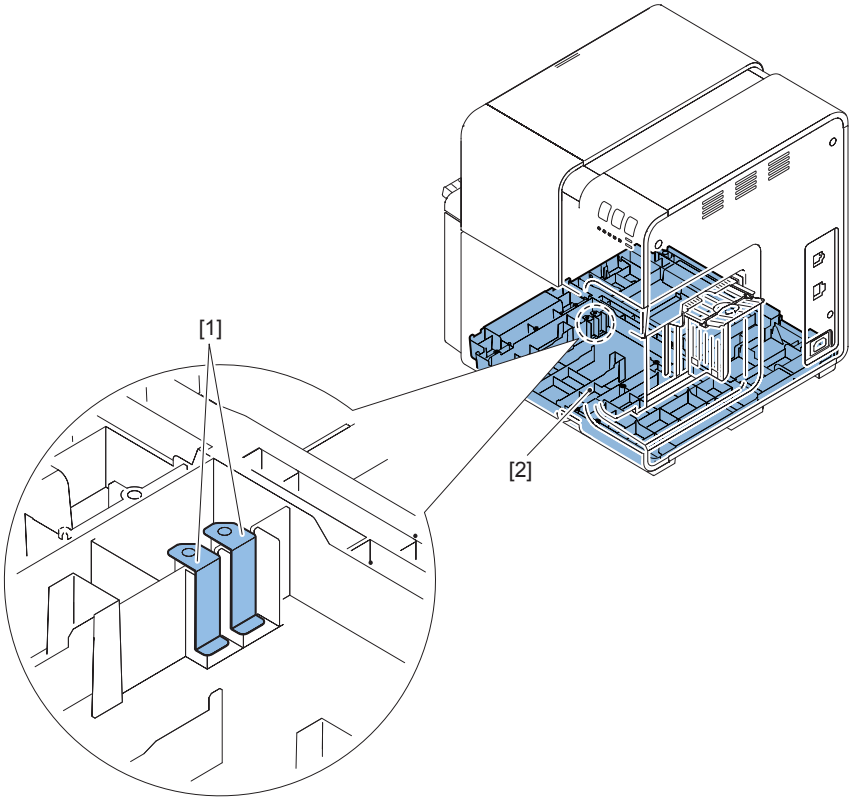
a) Ink Leakage Sensor

Ink Leakage Sensor is mounted on Base Plate of Printer.

If ink leakage occurs inside Printer (in particular, around the back of Ink Tank Unit), it is detected by Ink Leakage Sensor.

When ink leakage is detected, Printer Controller PCB stops printing, turns on ERROR lamp, and displays an error code on the status monitor of the printer driver.

The external view of Ink Leakage Sensor is shown below.



F-2-41

[1] Ink Leakage Sensor
[2]Base Plate

Feeder/Transport System

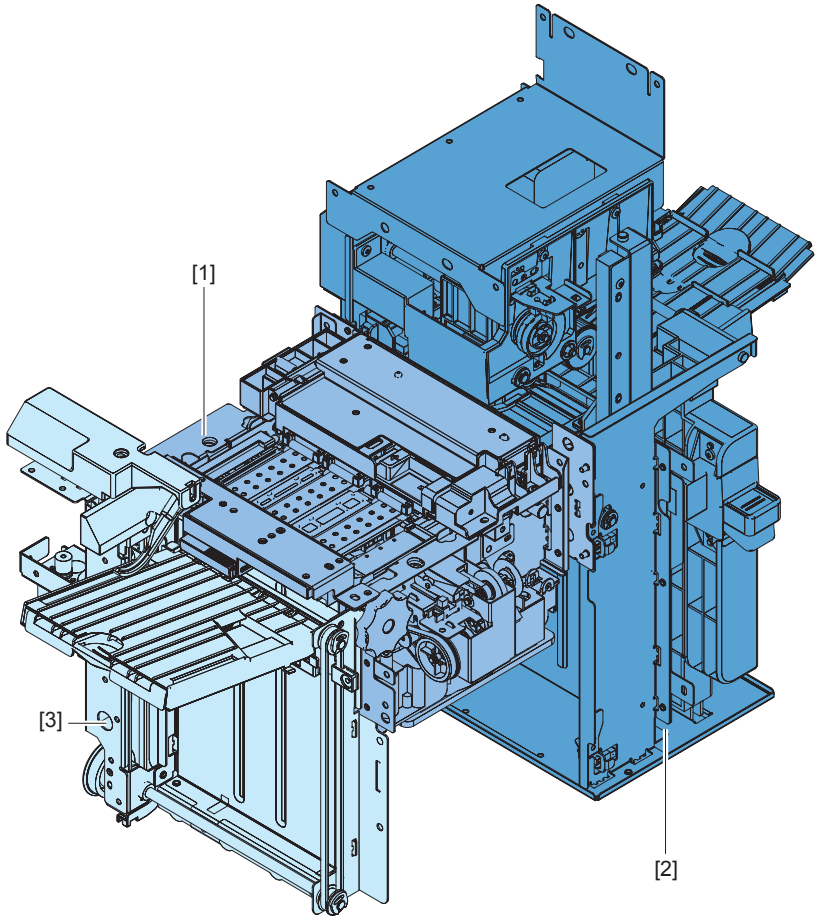
Overview

Main Parts Configuration

Feeder/Transport System feeds and transports paper. It consists of Roll Drive Unit, Paper Guide Unit and Transport Unit.

The basic configuration of Feeder/Transport System is shown below.

- Paper Feed Unit loads paper in Feeder Tray, and supplies paper to the main unit using Feeder Roller and Transport Roller.
- Transport Unit feeds the paper supplied from Paper Feed Unit in sync with the image formation process.
- Stacker Unit loads the paper ejected from the main unit in Stacker Tray.

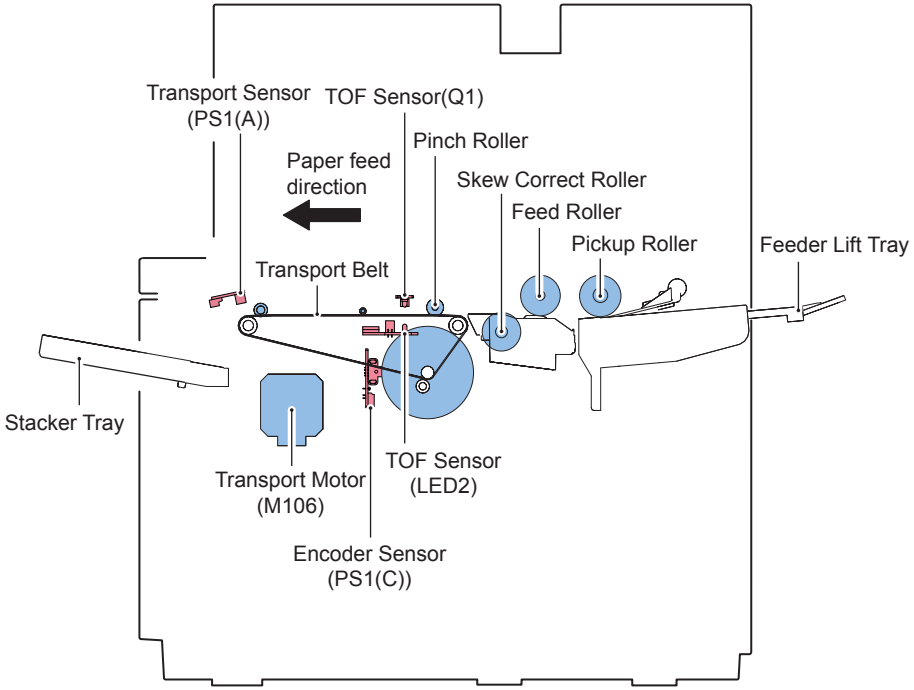


F-2-42

[1] Transport Unit
[2] Paper Feed Unit
[3] Stacker Unit

Paper Feed and Transport Operation

This Printer allows name cards, postcards, and envelops to be fed.
Transport Unit loads paper on Transport Tray to feed it to Feeder Rollers, Transport Rollers, and Skew Correct Rollers. Paper skew is corrected by Skew Correct Rollers, etc.
Fed paper is transported by Transport Belts and Pinch Rollers of Transport Unit. Transport Belts are driven as a result of rotation of Transport Motor (M106) installed in Transport Unit.
Printing start position is detected by TOF Sensor (LED2/Q1), and a paper transport error is detected by TOF Sensor (LED2/Q1), Encoder Sensor (PS1(C)), and Transport Sensor (PS1(A)).
Paper Guide is provided to press against curled paper that can touch Printhead.
Transport Unit transports paper fed from Feeder Unit in sync with the image formation process.



F-2-43

Various Types of Control

Feeder System

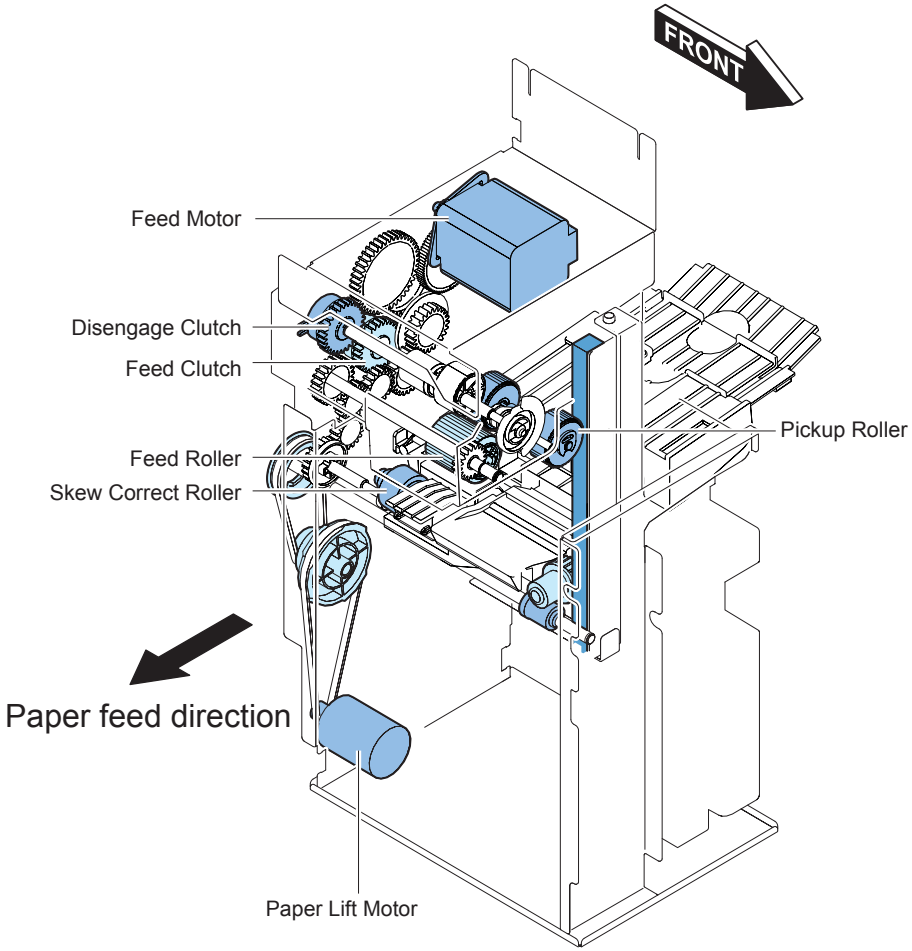
Overview

Paper Feed Unit raises the papers stacked in Feeder Tray up to the paper feed position, separates the top sheet of paper from the remaining sheets of paper, and feeds it to Transport Unit. Individual operations are performed in accordance with the signals from Printer Controller PCB.

Drive System Configuration

Major components and their functions are as follows:

- Feed Motor : A stepping motor that drives Feeder Roller to feed paper.
- Paper Lift Motor : DC motor that moves Feeder Tray up/down.
- Feed Clutch : Switches the driving force of Feed Motor ON/OFF to feed paper from Feeder Tray.
- Disengage Clutch : Switches the driving force of Feed Motor ON/OFF to engage or disengage Transport Roller.

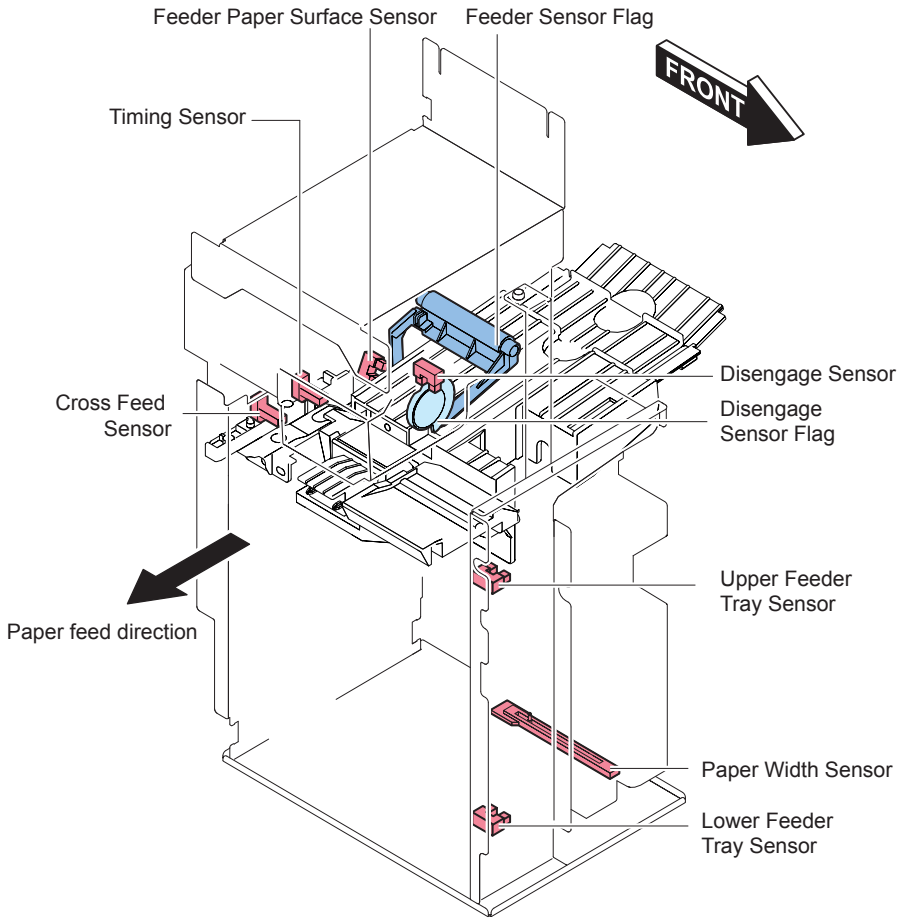


F-2-44

Sensor Layout

Functions of sensors are as follows:

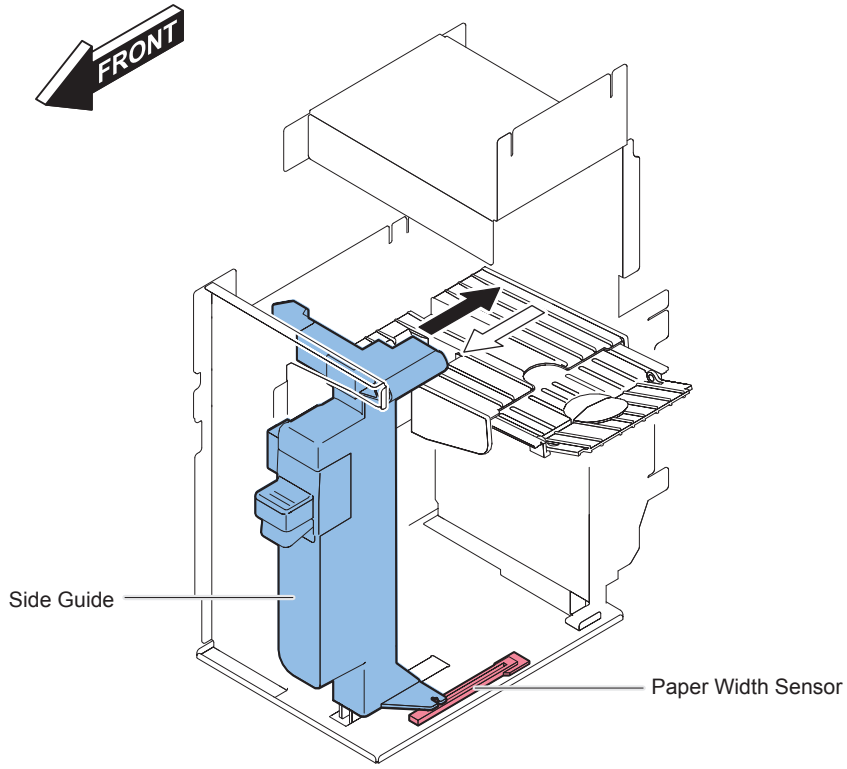
- Feed Paper Surface Sensor : Detects the feed position of tray and the presence of paper.
- Upper Feeder Tray Sensor : Detects the upper limit position of Feeder Tray.
- Lower Feeder Tray Sensor : Detects the lower limit position of Feeder Tray.
- Paper Width Sensor : A slide volume that moves in conjunction with Side Guide to detect the paper width.
- Disengage Sensor : Detects the pressurization position of Transport Roller.
- Cross Feed Sensor : Detects paper presence between Skew Correct Roller and TOF Sensor.
- Timing Sensor : Detects paper presence between Transport Roller and Skew Correct Roller.



F-2-45

Paper Width Detection

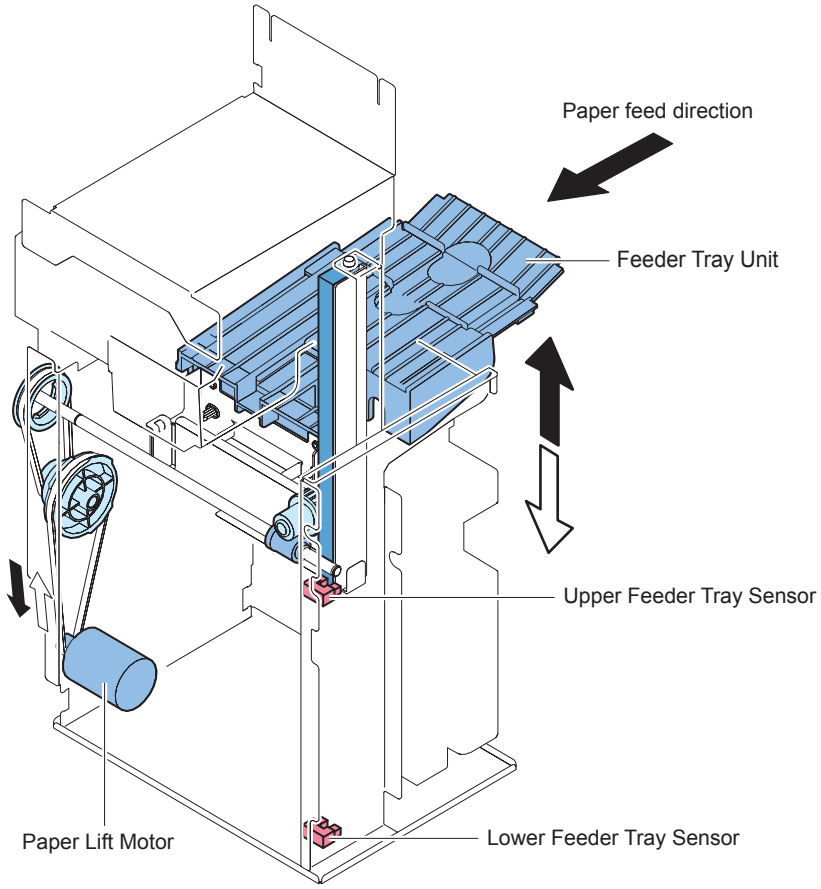
The width of the paper set in Feeder Tray is detected by Paper Width Sensor (VR101). Paper Width Sensor is a slide volume that converts the position of Side Guide to a voltage signal. The signal is sent to Printer Controller PCB to detect the paper width. If the calculated paper width is 5 mm larger or smaller than the paper width indicated by the paper width information received from Printer, Operator Call Error (“Check Paper Lateral Size”) occurs.



F-2-46

Tray Lift Operation

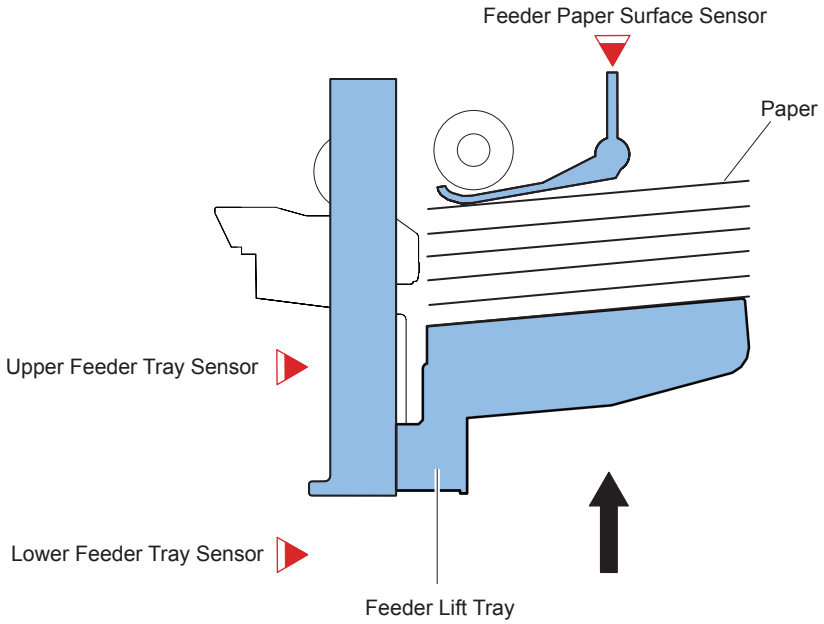
Tray Unit moves up/down driven by Paper Lift Motor. Upper and lower limit positions of Feeder Tray are detected by Upper Feeder Tray Sensor and Lower Feeder Tray Sensor.



F-2-47

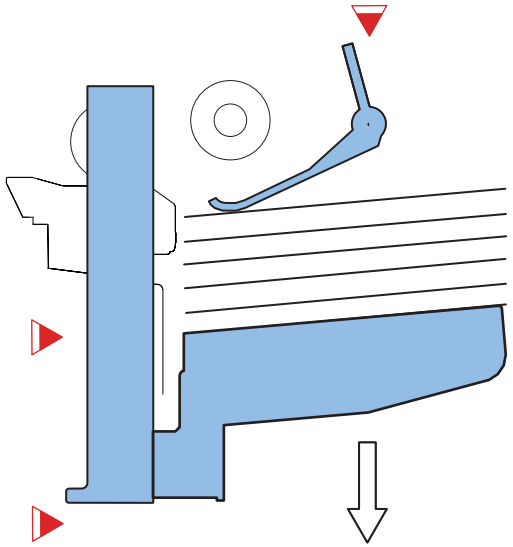
Paper Detection (When Paper is Set)

[1] When [TRAY] Key is pressed, Paper Lift Motor operates to move Tray up to the position where Feed Paper Surface Sensor detests light blocking.



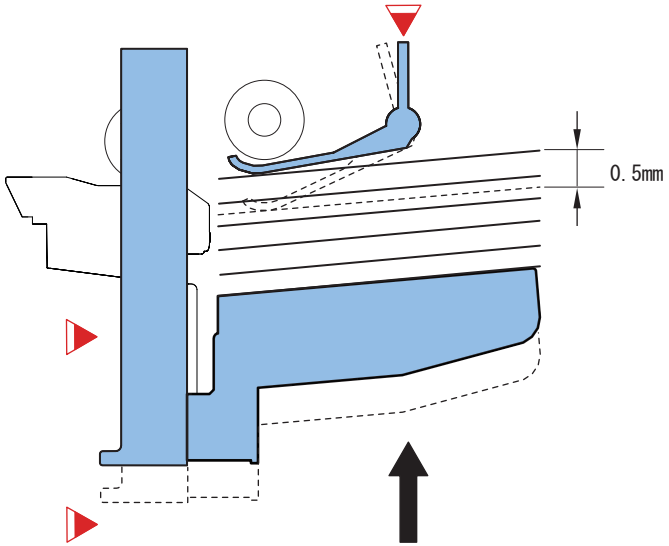
F-2-48

[2] When Feed Paper Surface Sensor detects light blocking, Tray stops temporarily and then moves down until Feed Paper Surface Sensor detects light transmission.



F-2-49

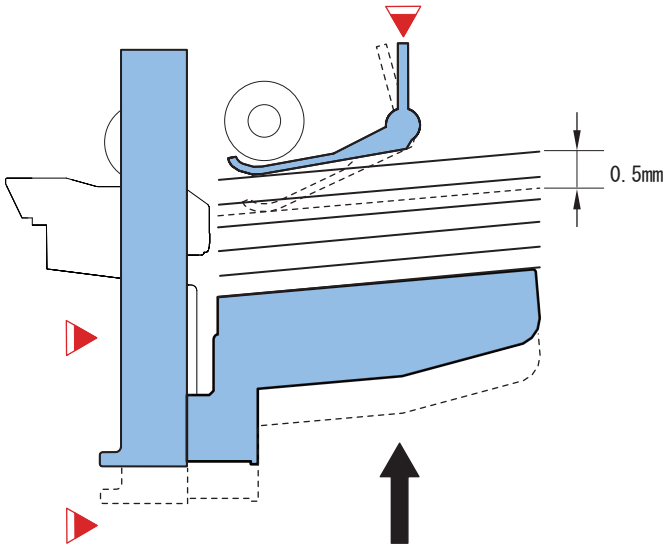
[3] Next, Tray moves up in steps of 0.5 mm, and then stops when Feed Paper Surface Sensor detects light blocking. This position is the paper feed position.



F-2-50

Paper Detection (after Feeding of Several Sheets of Paper)

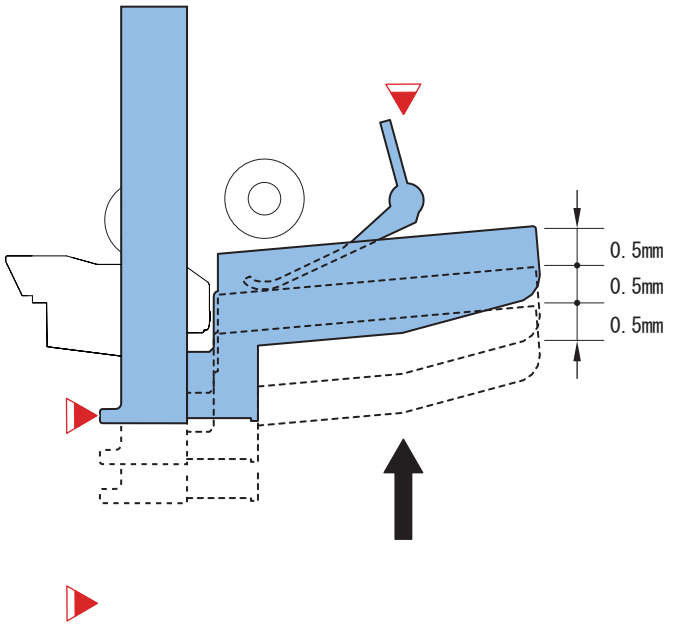
When the paper stack height lowers after feeding of several sheets of paper and Feed Paper Surface Sensor detects light transmission, Tray moves up in steps of 0.5 mm. This operation is repeated until no paper remains in Tray.



F-2-51

Paper Detection (Detection of No Paper)

When Feed Paper Surface Sensor detects light transmission after feeding of all sheets of paper, and because Feeder Sensor Flag is not pressed up by Feeder Tray, Feed Paper Surface Sensor will not be blocked. Accordingly, Feed Paper Surface Sensor detects light transmission. If Upper Feeder Tray Sensor detects light blocking after repetitive upward movement of Tray, Paper Surface Sensor determines that there remains no paper, resulting in Operator Call Error. The lower stop position of Tray is detected by Lower Feeder Tray Sensor.

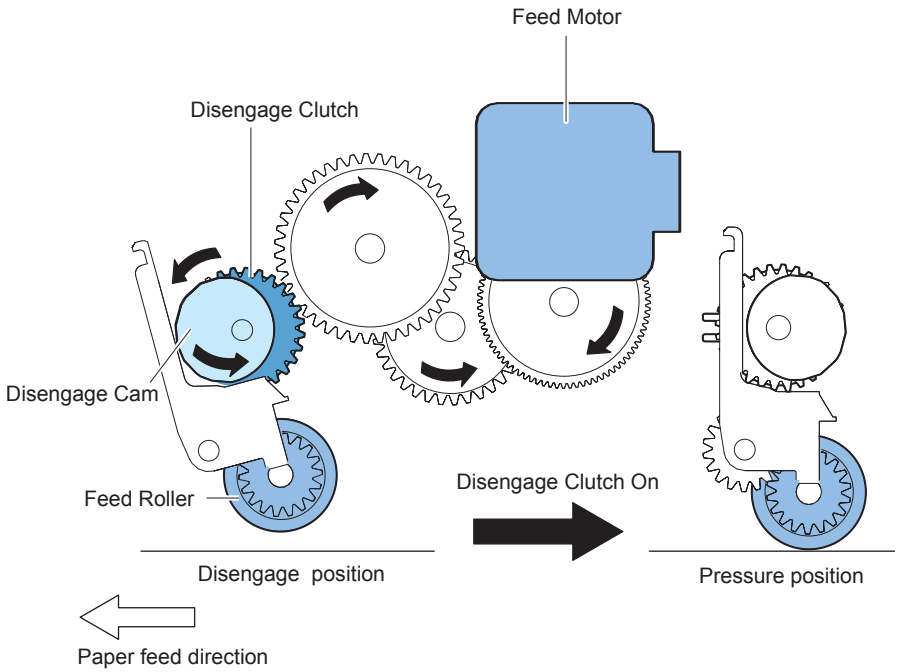


F-2-52

Paper Feed Operation

Movement of Transport Roller to Pressurization Position

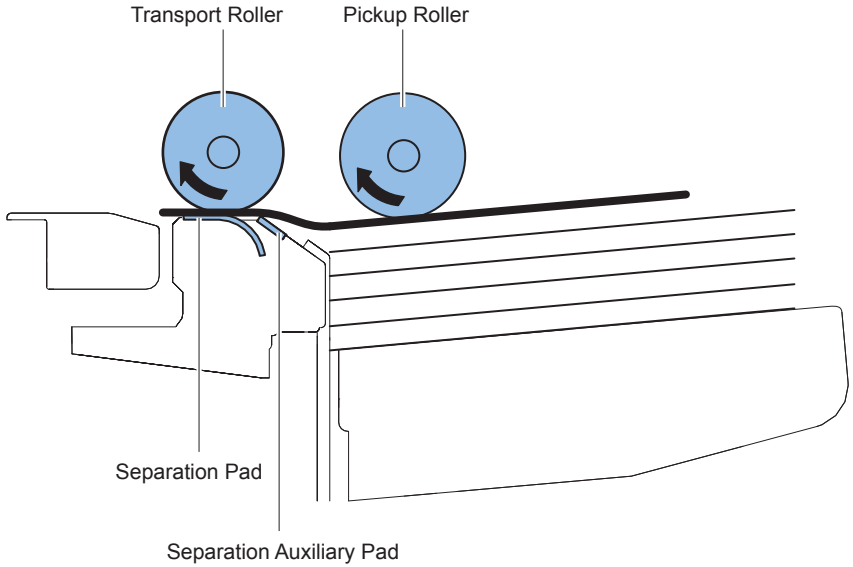
When Feed Motor is operated to turn on Disengage Clutch, Disengage Cam turns to lower Transport Roller down to the pressurization position. Feed Motor continues to operate until printing is completed.



F-2-53

Paper Feed

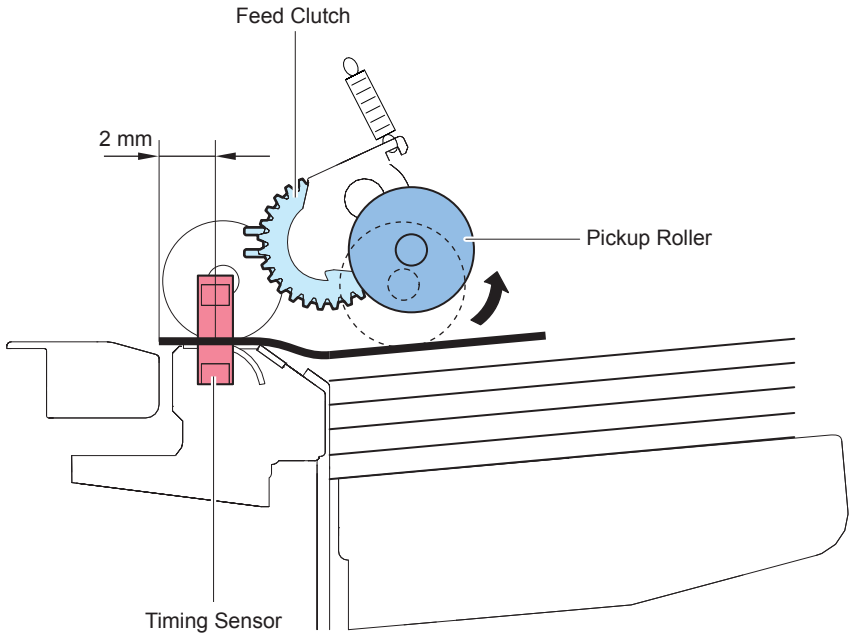
When the paper feed timing is reached, Feed Clutch is turned on to bring Feeder Roller into contact with the paper surface, and the top sheet of paper is fed to Transport Roller. Separation Auxiliary Pad is provided in front of Transport Roller to prevent the second sheet of paper from being fed. Sheets of paper are fed by rollers one after another. Separation Pad is provided such that Transport Roller is pressed against it, preventing the second sheet of paper from being fed when 2 sheets of paper are fed at the same time (prevention of double sheet feeding).



F-2-54

Moving Aside of Feeder Roller

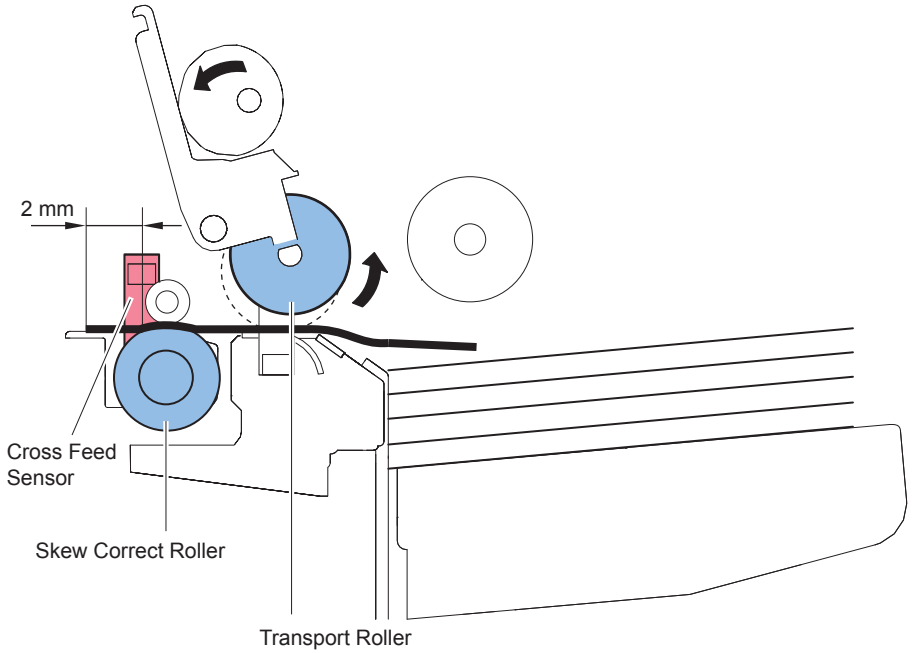
When paper is fed 2mm after its leading edge has been detected by Timing Sensor, Feed Clutch is turned off to move Feeder Roller aside.



F-2-55

Disengagement of Transport Roller

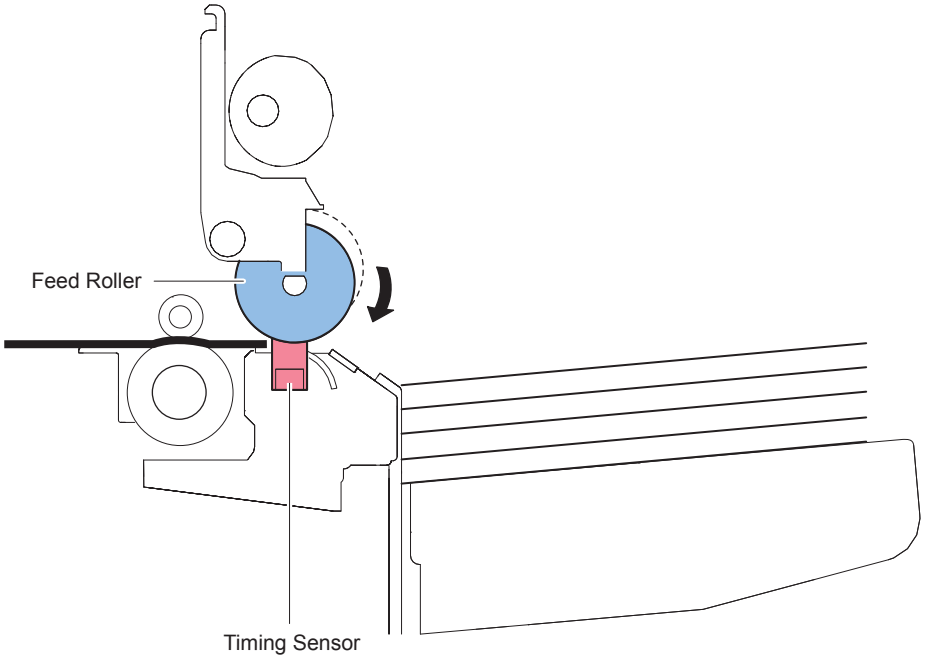
When paper is fed 2mm after its leading edge has been detected by Disengage Sensor, Disengage Clutch is turned on to disengage Transport Roller.



F-2-56

Movement of Transport Roller to Pressurization Position

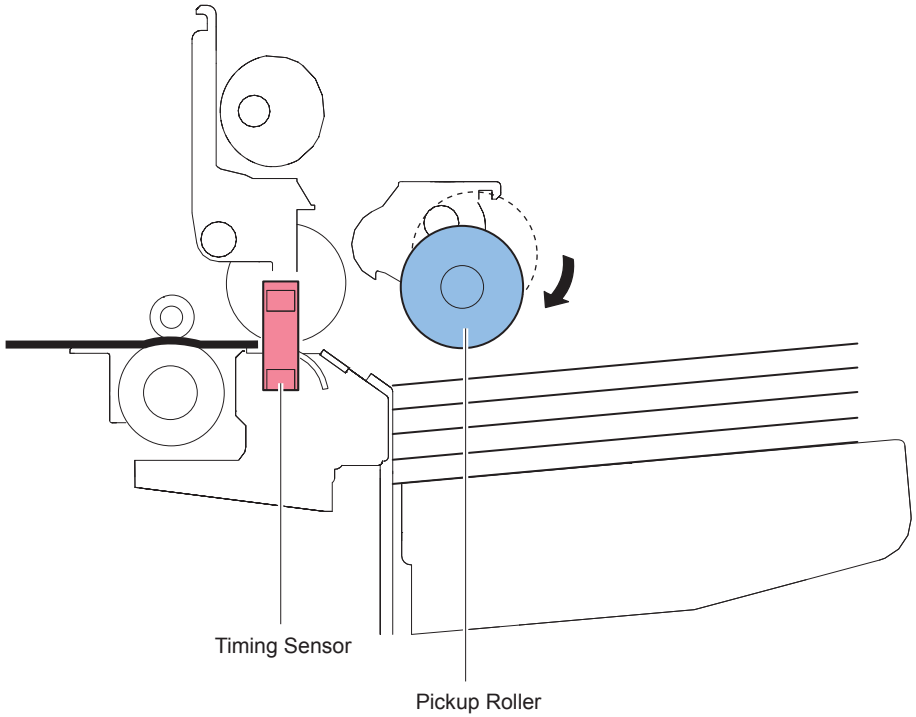
After lapse of the predetermined time after detection of the trailing edge of paper by Timing Sensor, Disengage Clutch is turned on to move Transport Roller to the pressurization position for the next sheet of paper.



F-2-57

Movement of Feeder Roller to Paper Feed Position

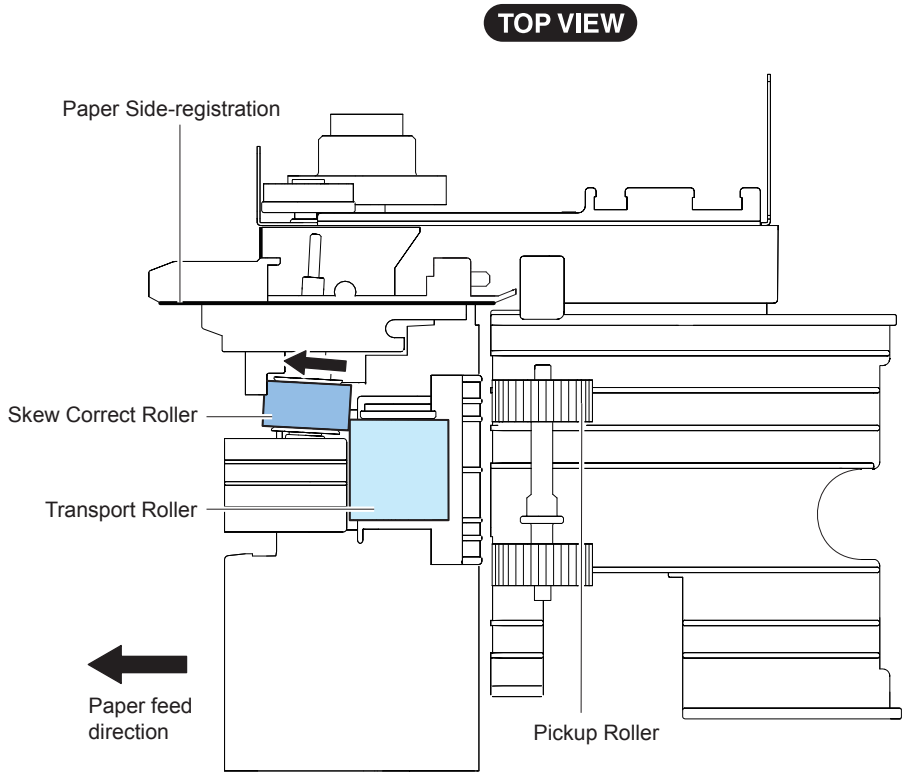
After lapse of the predetermined time after detection of the trailing edge of paper by Timing Sensor, Feed Clutch is turned on to move Feeder Roller to the paper feed position.



F-2-58

Horizontal Registration and Skew Correction

When paper is fed to the main unit, Skew Correct Roller presses it against Paper Side-registration Wall at the back of the transport path in order to perform registration and skew correction.



F-2-59

Transport System

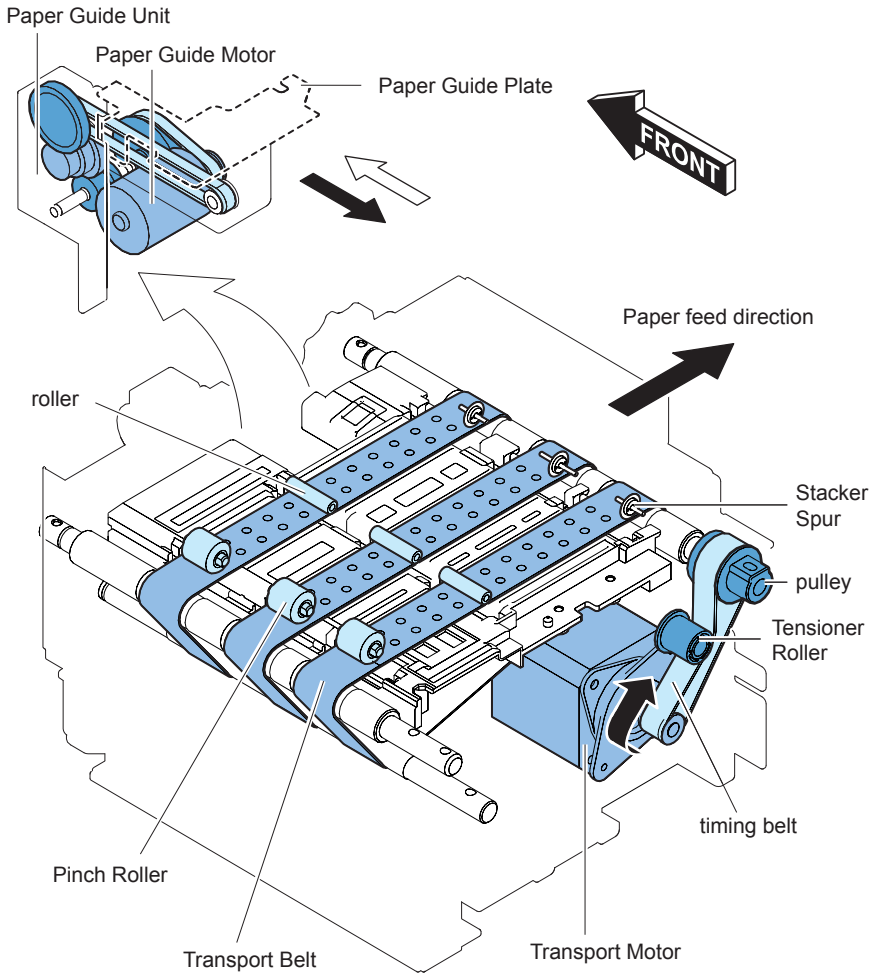
Overview

Transport Unit feeds paper at a constant speed under Printhead using 3 Belts, Pinch Rollers, Wheels, and Stacker Spurs. TOF Sensor (transmission type) is provided at the entrance to Transport Unit to detect paper, determine the printing timing, and detect a jam. In addition, Paper Guide Unit is also provided to prevent paper from warping and floating during printing.

Drive System Configuration

Major components and their functions are as follows:

- Transport Motor : A stepping motor that drives Transport Rollers and turns Transport Belts to feed paper.
- Paper Guide Motor : A DC motor that drives Paper Guide Plate.

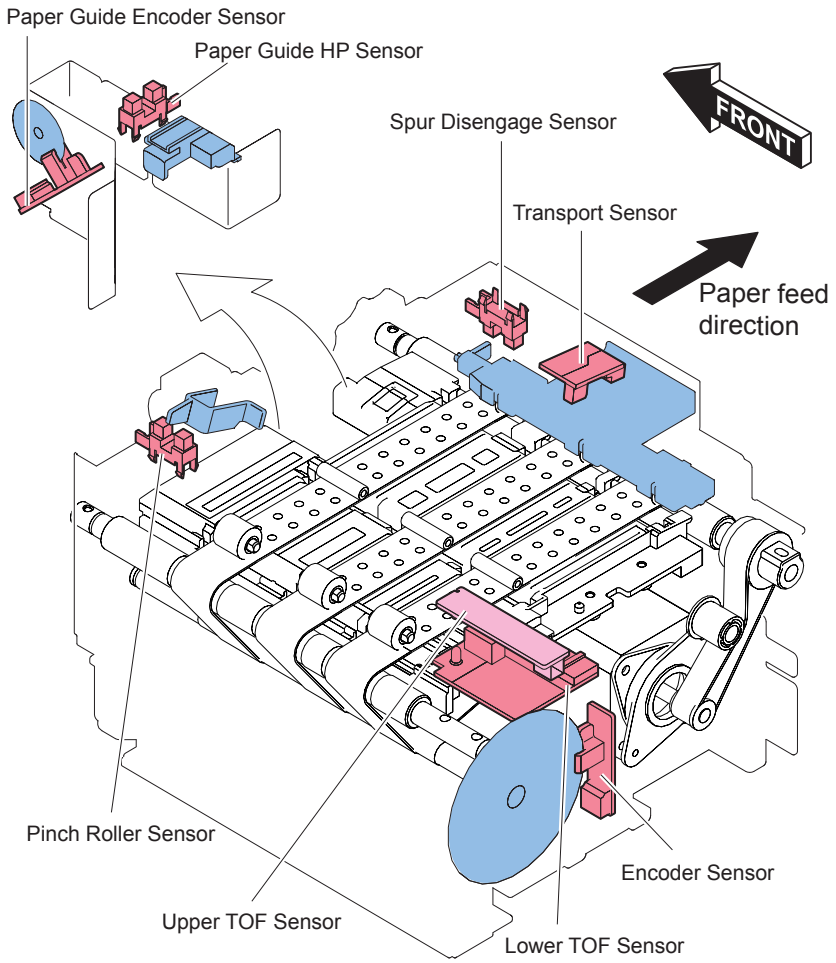


F-2-60

Sensor Layout

Functions of sensors are as follows:

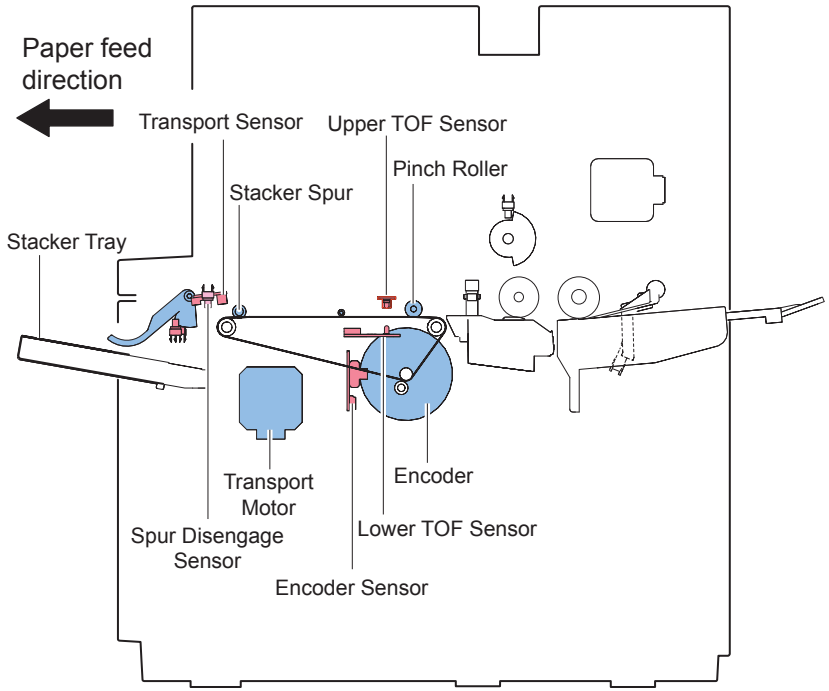
- Lower TOF Sensor : A light emitting LED paired with the light receiving sensor(Upper TOF Sensor).
- Upper TOF Sensor : A light receiving sensor paired with the light emitting LED (Lower TOF Sensor) to form a transmission-type sensor. It is used for paper position detection.
- Encoder Sensor : Detects Encoder pulses.
- Paper Guide Encoder Sensor : Detects Encoder pulses.
- Paper Guide HP Sensor : Detects the position of Paper Guide Plate.
- Pinch Roller Sensor : Detects whether Pinch Roller Unit is open or closed.
- Transport Sensor : Detects whether paper is fed without being jammed.
- Spur Disengage Sensor : Detects the position of Spur Unit when special thick paper is used.



F-2-61

Transport Operation

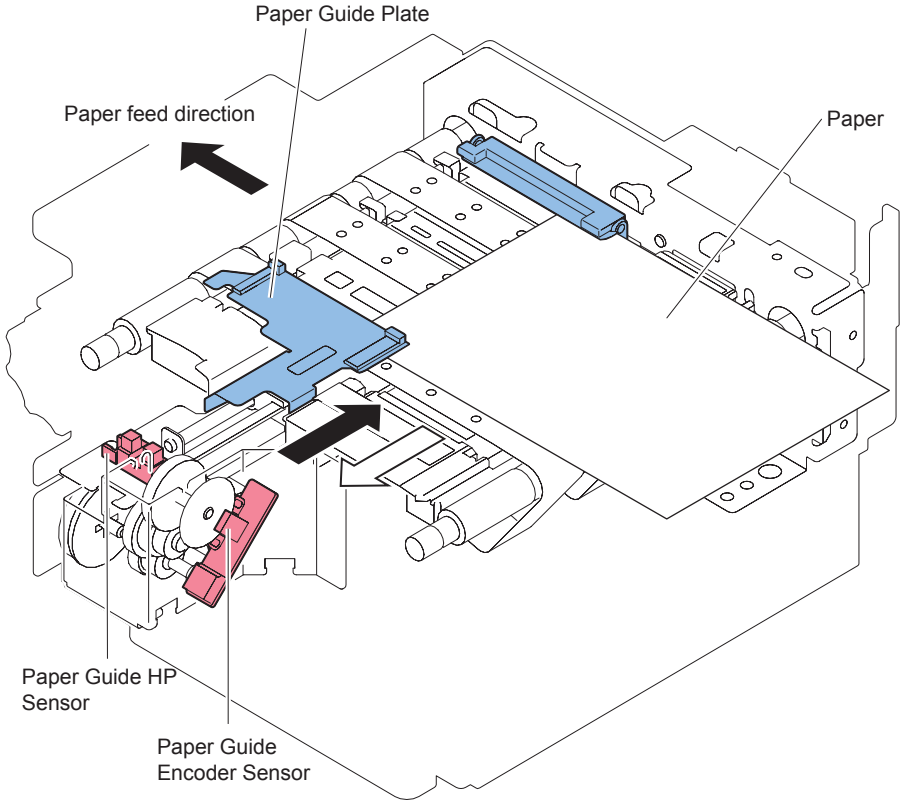
The paper fed from Paper Feed Unit is pinched between Pinch Roller and Transport Belt, and transported to Transport Unit. Driving force of Transport Motor is transmitted to Transport Belts to turn them. The leading edge of paper is detected by TOF Sensor provided at the entrance to Transport Unit to determine the printing start position. After completion of printing, printed paper is loaded on Stacker Tray of Stacker Unit.



F-2-62

Paper Guide Unit

In Paper Guide Unit, Paper Guide Motor operates to move Paper Guide Plate according to the lateral size of paper. Paper is fed under Paper Guide Plate to prevent it from being curled during printing. The home position of Paper Guide Plate is detected by Paper Guide HP Sensor, and the movement distance of Paper Guide Plate is controlled by Paper Guide Encoder Sensor.

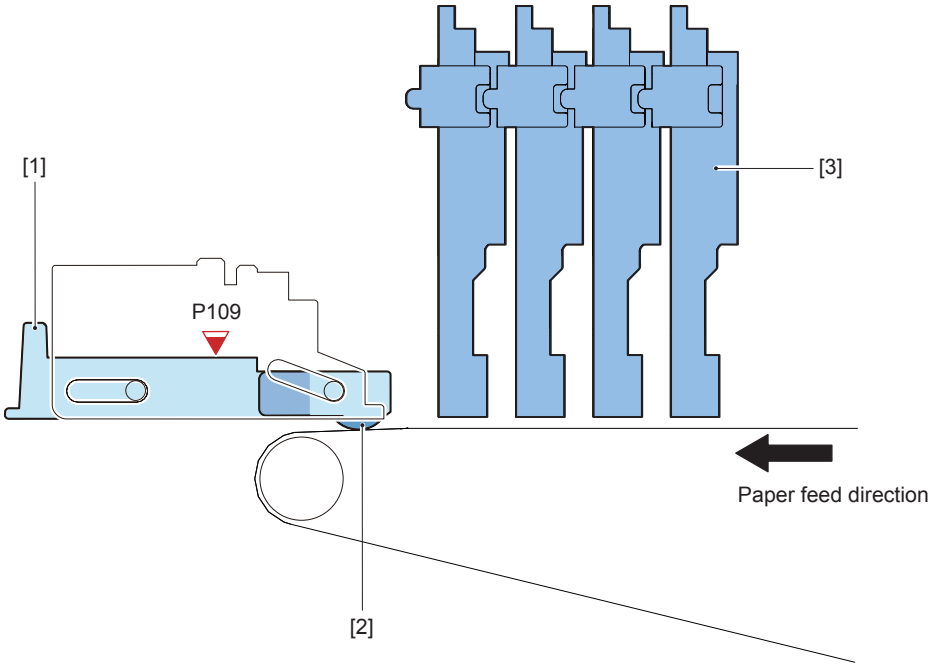


F-2-63

Coping with Special Heavy Paper

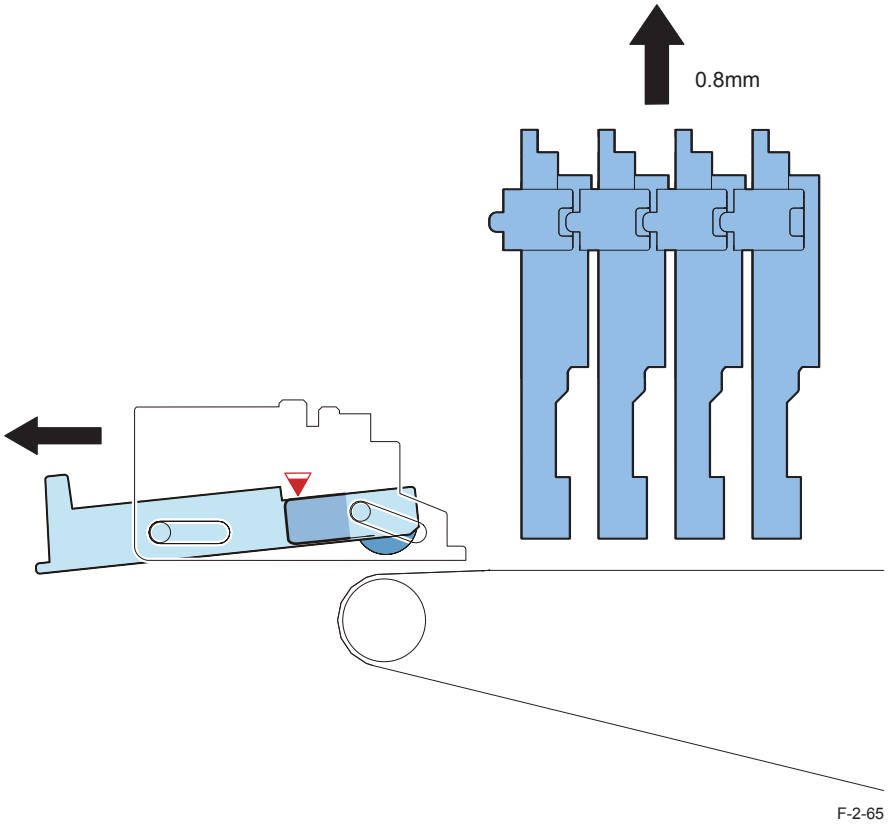
When printing on extra-thick paper (0.75 mm), the user must pull out Spur Holder Until it is detected by Disengage Sensor in order to disengage Stacker Spur.
When special heavy paper is specified using the printer driver, an error occurs if Spur Holder is not detected by Spur Disengage Sensor.
In addition, when special heavy paper is used, change the Printhead position setting (so as Printhead to move a maximum of 0.8 mm upward when printing on an envelope).

When printing on regular paper



F-2-64

When printing on special heavy paper



F-2-65

Transport Modes

Transport modes of this Printer are classified into 4 categories according to the length, thickness, and type of paper. The Printhead position (height of Printhead from Transport Belt) and the Spur position (whether Stacker Spur is pressed against paper) are combined as summarized in the following table.

Mode	Printhead position	Spur position
Card	Normal position	Pressed
Heavy paper	Moves 0.05 mm upward	Pressed
Special heavy paper	Moves 0.2 mm upward	Released
Envelope	Moves 0.8 mm upward	Pressed

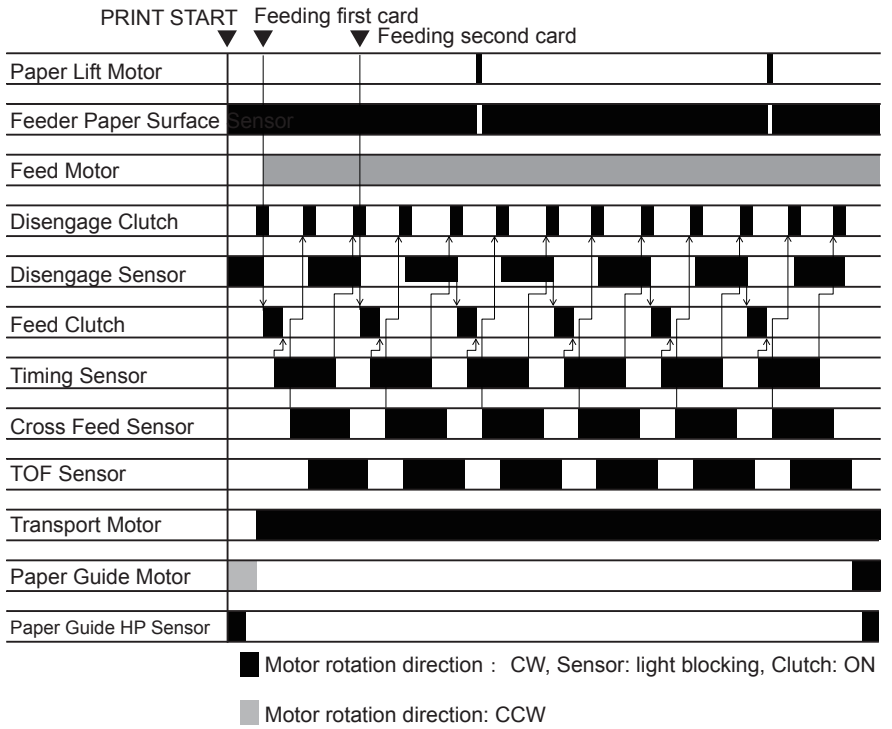
T-2-17

Paper Feed/Transport Sequence

Paper Feed/Transport Sequence

Basic sequences of paper feed and transport are shown below.

6 cards print mode



F-2-66

Stacker Unit

Overview

Paper ejected from Transport Unit is loaded on Stacker Tray. When the number of stacked sheets of paper increases, the height of the surface of the top paper is detected by Stacker Paper Surface Sensor and Stacker Tray is moved downward, allowing about 500 name cards or postcards (about 100 envelopes) to be loaded on Stacker Tray.

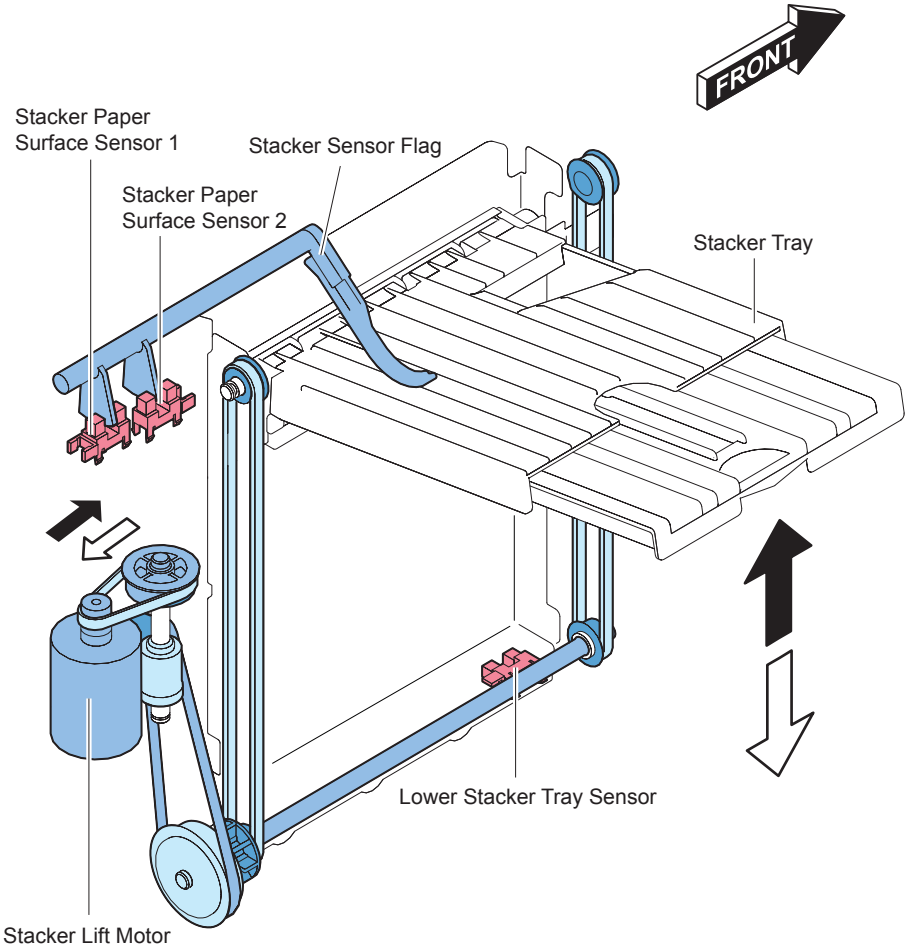
Main components and their functions are as follows:

- Stacker Tray Lift Motor : A DC motor that moves Stacker Tray upward/downward.
- Stacker Paper Surface Sensor1 : Detects Stacker Tray or the paper surface is at the stacker load position.
- Stacker Paper Surface Sensor2 : Stacker Tray or the paper surface has reached the upper limit.
- Stacker Tray Lower Limit Sensor : Detects the lower limit position of Stacker Tray

<Stacker Tray upward/downward movement control>

Stacker Paper Surface Sensor 1	Stacker Paper Surface Sensor 2	Stacker Tray operation	Remarks
Light transmission	Light transmission	Moves upward	-
Light blocking	Light blocking	Stops moving upward → Moves downward	-
Light blocking	Light transmission	Stops moving downward → While printing and loading	Stacker Tray moves down each time paper is loaded to the specified height.
Light blocking	Light blocking	Moves downward	
Light blocking	Light transmission	Stops moving downward	

*When Stacker Tray Lower Limit Sensor detects “Light blocking”, Stacker Tray is “full”. T-2-18

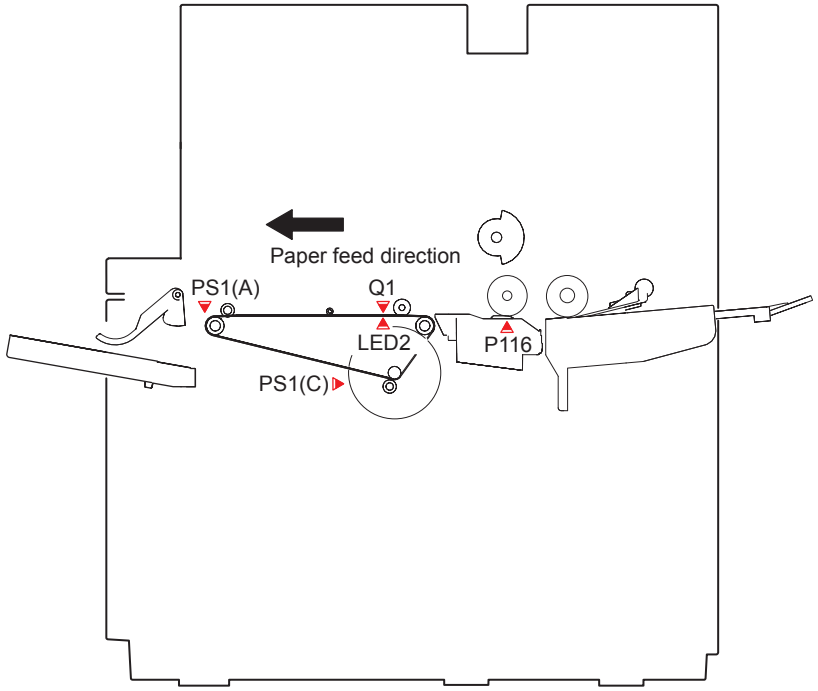


F-2-67

Jam Detection

Overview

The microcomputer reads signals from the sensor at the pre-stored check timings to determine whether paper is fed normally or erroneously. Upon detection of an error, the microcomputer suspends printing and stops Printer. After Printer stops, the microcomputer displays "Operator Call Error" on the display panel and turns on Error Lamp.



F-2-68

P116 : Cross Feed Sensor
PS1(A) : Transport Sensor
PS1(C) : Encoder Sensor
Q1 : Upper TOF Sensor
LED2 : Lower TOF Sensor

Jam Detection Timings

Jam detection timings and jam codes are summarized below.

Jam name	Jam code	Detection Timing
Paper jam error	1301	During printing or when printing is started with TOF Sensor held ON, this sensor detected paper which is at least 20 mm longer than print data.
	1303	During printing, TOF Sensor has detected leading edges of paper which are more than number of print.
	130C	When paper arrives at the printing start position during printing, Printhead is not at print position.
	130D	During printing, paper is not delivered even though paper is transported additional 30mm.
	130E	When paper is fed 44 mm or more than the predetermined distance during printing, Transport Sensor is not turned ON.
	130F	During printing, TOF Sensor is turned ON 10mm earlier than predetermined distance.
	13E1	When Transport Motor is driven for 1 second during printing, Encoder signal input ratio is just 1% or less of the predetermined value. (Drive force is not transmitted to Encoder.)
	13E2	When Transport Motor is driven for longer than 1 second during printing, Encoder signal input ratio is just 90% or less of the predetermined value. (Belt is slipping on shaft.)
	13F2	When paper is fed 100mm or more after retry of separation during printing, Cross Feed Sensor is not turned ON.
	13F3	When paper is fed 250mm or more after retry of separation during printing, TOF Sensor is not turned ON.
	13FA	During printing, Cross Feed Sensor is turned ON more than number of printing.
	13FB	During printing, TOF Sensor is turned ON more than number of printing.

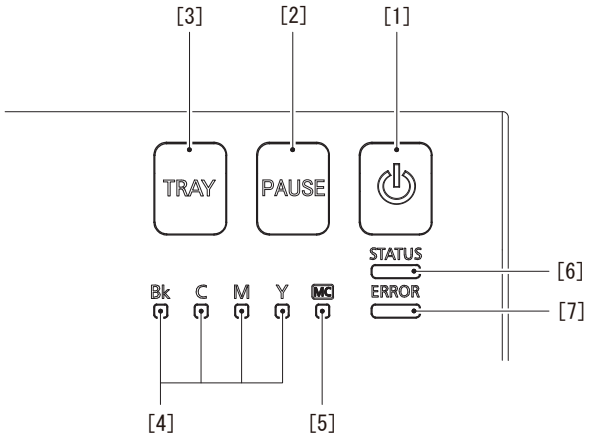
T-2-19

External Auxiliary System

Operating Panel

Overview

Operating Panel is located in upper part of front of Printer. It consists of 3 control keys and 8 LED lamps. Operating key signals are controlled by Printer Controller PCB.



F-2-69

[1] Power Key/Power Lamp
[2] PAUSE Key
[3] TRAY Key
[4] Ink Warning Lamp
[5] Maintenance Cartridge Lamp
[6] STATUS Lamp
[7] ERROR Lamp

Operations

Operating key and LED lamp functions are summarized below.

No.	Operating key and LED lamp name	Function
[1]	Power Key/Power Lamp	• Continuously lit : Power-on state • Flashing : Sleep state • Off : Power-off state
[2]	PAUSE Key	• Printing : Press to suspend printing in progress. Press and hold it for about 1 second to cancel all jobs and end printing. • Paused : Press to resume printing. Press and hold it for about 1 second to cancel all jobs and end printing.
[3]	TRAY Key	Moves Tray Unit upward/downward.
[4]	Ink Warning Lamp	• Continuously lit : Running out of ink, or Ink Tank not installed • Flashing : Low on ink • Off : Ink fully available
[5]	Maintenance Cartridge Lamp	• Continuously lit : Full • Flashing : Nearly full • Off : Enough space in Cartridge
[6]	STATUS Lamp	• Continuously lit : Online state • Flashing : During data reception, printing, cleaning, initialization, shutdown, or update. • Off : Printing disabled state (Operator Call Error/Service Error has occurred, or Printer is in sleep or pause state.)
[7]	ERROR Lamp	• Continuously lit : Operator Call Error (can be resolved in user operation) • Flashing : Service Call Error • Off : Normal

T-2-20

Sleep Mode

Power saver mode is supported to save standby power. If Printer has been left idle or has not received print data for a certain period of time or longer while it is in online or offline state, it enters Sleep (power saver) Mode automatically. Printer exits Sleep Mode when Power key is pressed on Operation Panel or print data is received from Host Computer.

Conditions for Entering Sleep Mode
Printer enters Sleep Mode upon completion of shutdown process under any of following conditions:

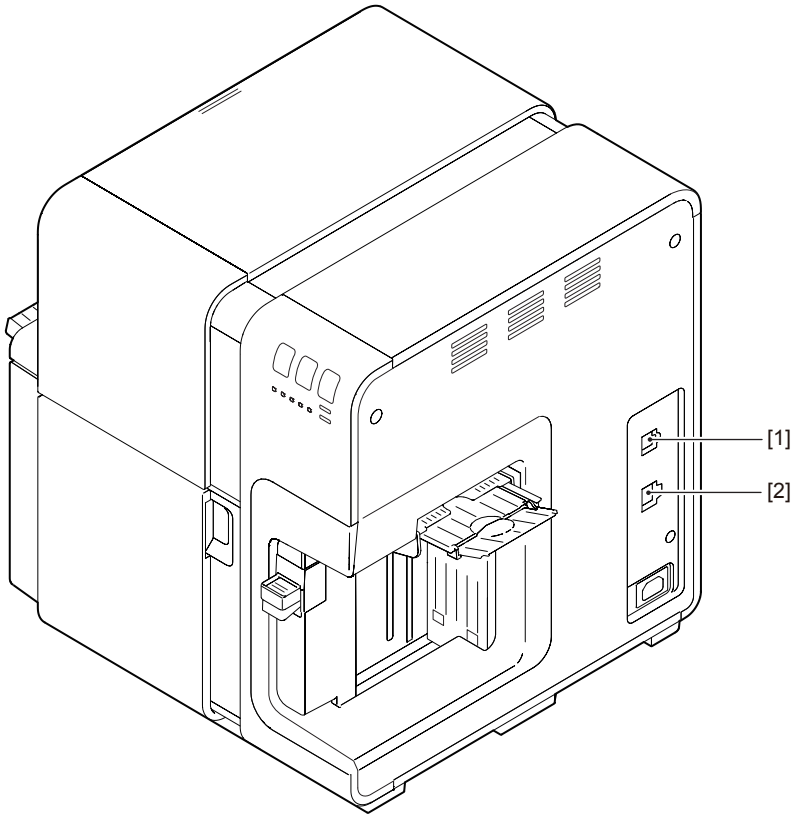
- Sleep mode button is pressed from Printer Driver, except when there is print data yet to be printed.
- Specified interval of time has passed while Printer is in ready state (default: 4 minutes and time to enter Sleep Mode is variable from Printer Driver). It is assumed that Printer is in User Mode and that Operator Call Errors have not occurred or that there is no print data yet to be printed.

*1. Except when Service Call Errors are occurring.
*2. Various error notifications are suppressed while Printer is in Sleep Mode.
*3. Not displayed in Status Monitor.
*4. Because Printer is unable to detect error clearing while it is in Sleep Mode, Operator Call Errors and warnings existing at the time of its migration to Sleep Mode are cleared once.

External Interface

Overview

Printer System and Interfaces are controlled by Printer Controller PCB. Printer Controller PCB supports the following 2 types of external interface, which are each used in a unique manner:



F-2-70

No.	Name	Function
[1]	USB connector	: Connected to Host Computer
[2]	LAN connector	: Connected to Host Computer

T-2-21

3 Maintenance and Service

Periodical Service Operation Item

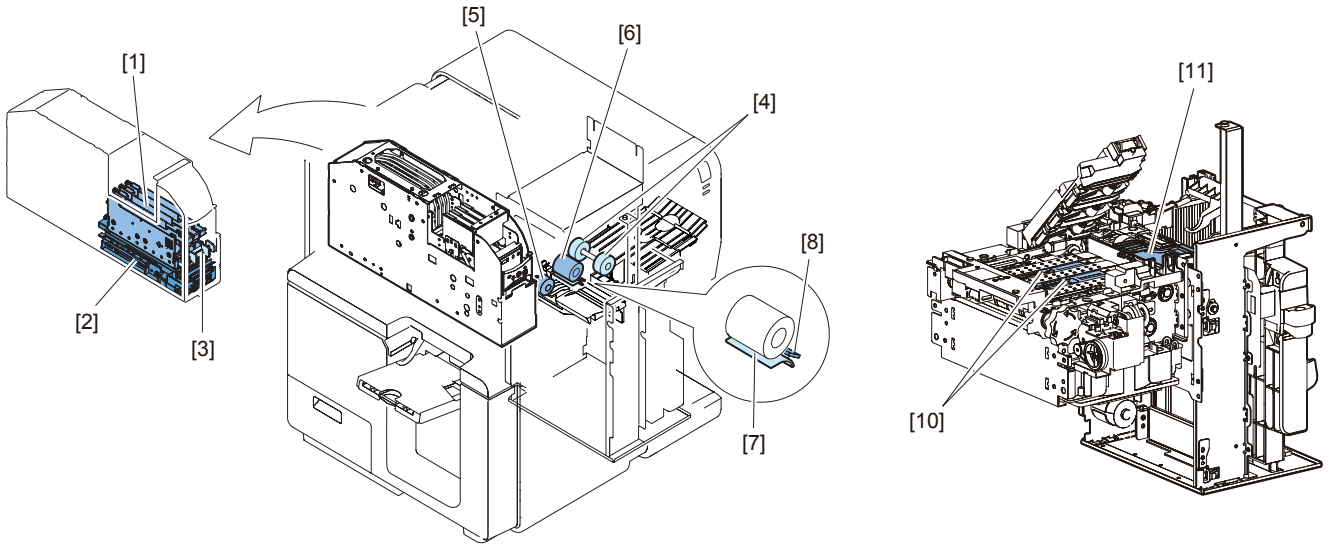
Periodical Service Operation Item

2013/04

No.	Category	Part Name	Part Number	Quantity Used	Work Interval	Action	Remarks
[1]	Imaging System	Printhead	4G8-0035	4	1,200,000 sheets(*1)	Replacement	(*1)business card printing 7.5% duty
[2]		Purge Unit	4Y3-0046	1	360,000 sheets	Replacement	(*2)Number of used sheets When purge Unit comes to its lifetimes, Service Call Error "1701" is displayed and Printer stops operating. Replace Purge Unit.
[3]		Blade Cleaner	4F3-1807	1	360,000 sheets	Replacement	(*2)Number of used sheets When Blade Cleaner comes to its lifetimes, Service Call Error "1801" is displayed and Printer stops operating. Replace Blade Cleaner.
[4]	Paper Feed and Transport System	Pickup Roller	4A3-7103	2	600,000 sheets(*2)	Replacement	(*2)Number of used sheets
[5]		Skew Correct Roller	4A3-7104	1	600,000 sheets(*2)	Replacement	(*2)Number of used sheets
[6]		Feed Roller	4A3-7105	1	120,000 sheets(*2)	Replacement	(*2)Number of used sheets
[7]		Separation Pad	4G3-4184	1	120,000 sheets(*2)	Replacement	(*2)Number of used sheets
[8]		Separation Auxiliary Pad	4G3-4185	1	120,000 sheets(*2)	Replacement	(*2)Number of used sheets
[9]		TOF Sensor	-	-	As needed	Cleaning	Clean with Cleaning Towel soaked with water and wrung tight.
[10]		Paper transport area	-	-	120,000 sheets(*2)	Cleaning	(*2)Number of used sheets Clean with Cleaning Towel soaked with water and wrung tight.
[11]		Paper feed area	-	-	120,000 sheets(*2)	Cleaning	(*2)Number of used sheets Clean with Cleaning Towel soaked with water and wrung tight.

T-3-1

Parts layouts are shown below.



F-3-1

Parts Replacement and Cleaning

- Part Replacement Adjustment List
- List of Parts
- External Covers
- Main Units and Parts
- Replacement Parts and Consumables
- PCB
- Motors
- Fans
- Sensors
- Cleaning Procedure

Part Replacement Adjustment List

This section introduces what actions are needed to fulfill market services when replacing parts.

Target Part	Using Tools(*1) or not	Action Before Parts Replacement	Action After Part Replacement
Printhead	Yes	• Ink draining • Printhead moves to replace position	• Ink loading • Image Position Adjustment
Purge Unit	Yes	• Purge Unit moves to replace position	• Adjustment of mechanical blade position(*4) • Adjustment Value Entry(*3) • Reset durables counter(*5)
Blade Cleaner	Yes	• Blade Cleaner moves to replace position	• Reset durables counter(*5)
Pickup Roller/ Skew Correct Roller/ Feed Roller/ Separation Pad/ Separation Auxiliary Pad	Yes	-	• Reset durables counter
Print Module	Yes	• Ink draining(*2)	• Ink loading • Various Adjustment Value Entry (labeled)(*3) • Reset durables counter of Purge Unit and Blade Cleaner • Image Position Adjustment
Transport Unit	Yes	-	• Enter adjustment values(*3) • Image Position Adjustment
Paper Suction Fan	Yes	-	Enter adjustment values(*9)
Paper Guide Unit (*8)	Yes	-	Adjust Paper Guide position
Valve Unit / Ink Tank Holder Unit / Pump Unit	Yes	• Ink draining(*2)	• Ink loading
Printer Controller PCB	Yes	• Data retrieve from Printer to PC(*6)	• Send data from PC to Printer
DC Power Supply PCB Unit	Yes	-	• Release error(*7) • Discharge power adjustment

T-4-1

(*1) Service utility

(*2) These parts are not durable parts. Replacement of these parts are at the time of trouble mainly. When service call error occurs, these is a case it is impossible to drain ink.

(*3) There is are labels indication on the parts.

(*4) Blade Adjustment Tool comes with service part.

(*5) Replacing parts using service utility, it is cleared automatically.

(*6) In the case, it can not be done to retrieve the data from Printer to PC, enter various data below after replacement of Printer Controller PCB.

- Serial Number
- RTC
- Head Control Position Adjustment (Adjustment values are on the labels)
- Paper Width Sensor Adjustment
- Discharge Power Adjustment
- Vertical Adjustment
- Head Position Adjustment

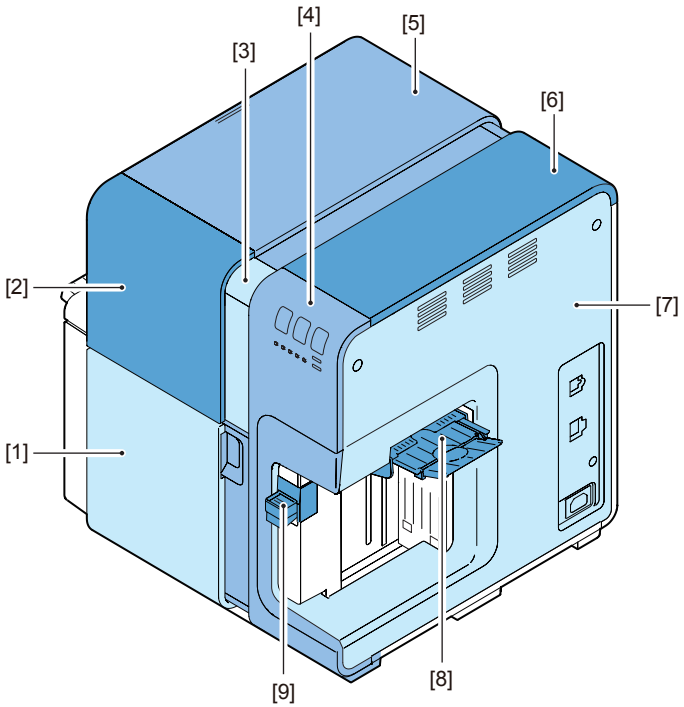
(*7) In the case, power supply error (error code 0211 to 0215) occurs, clear the error using service utility.

(*8) Paper Guide is not registered as a service parts of Paper Guide Unit. Adjustment is required after disassembling Paper Guide Unit or replacing service parts included in Paper Guide Unit.

(*9) Label is supplied with the part.

List of Parts

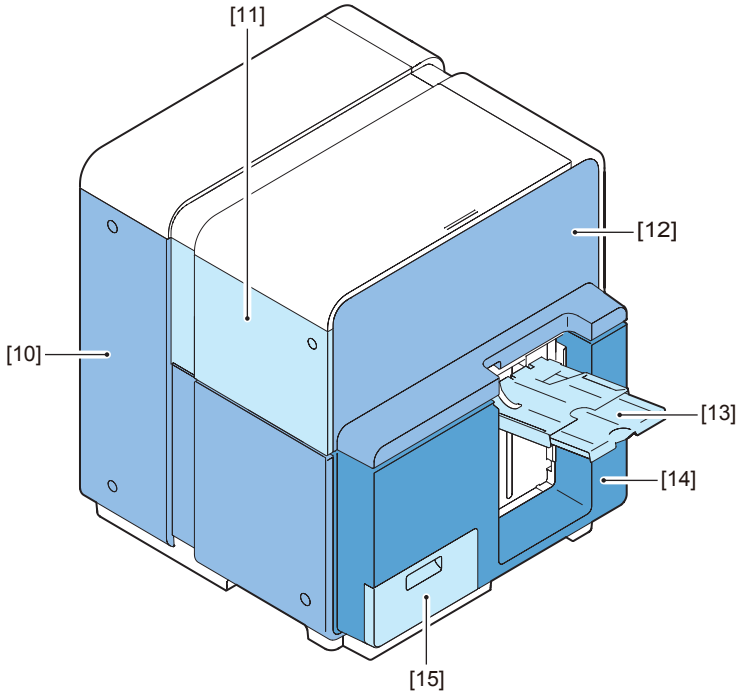
List of External Covers



F-4-1

Symbol	Part Name	Reference
[1]	Ink Tank Door	-
[2]	Maintenance Cover	p. 4-17
[3]	Front Center Cover	p. 4-17
[4]	Front Cover	p. 4-13
[5]	Upper Cover	p. 4-18
[6]	Feeder Cover	p. 4-18
[7]	Right Cover	p. 4-12
[8]	Feeder Lift Tray	-
[9]	Side Guide Lever	-

T-4-2

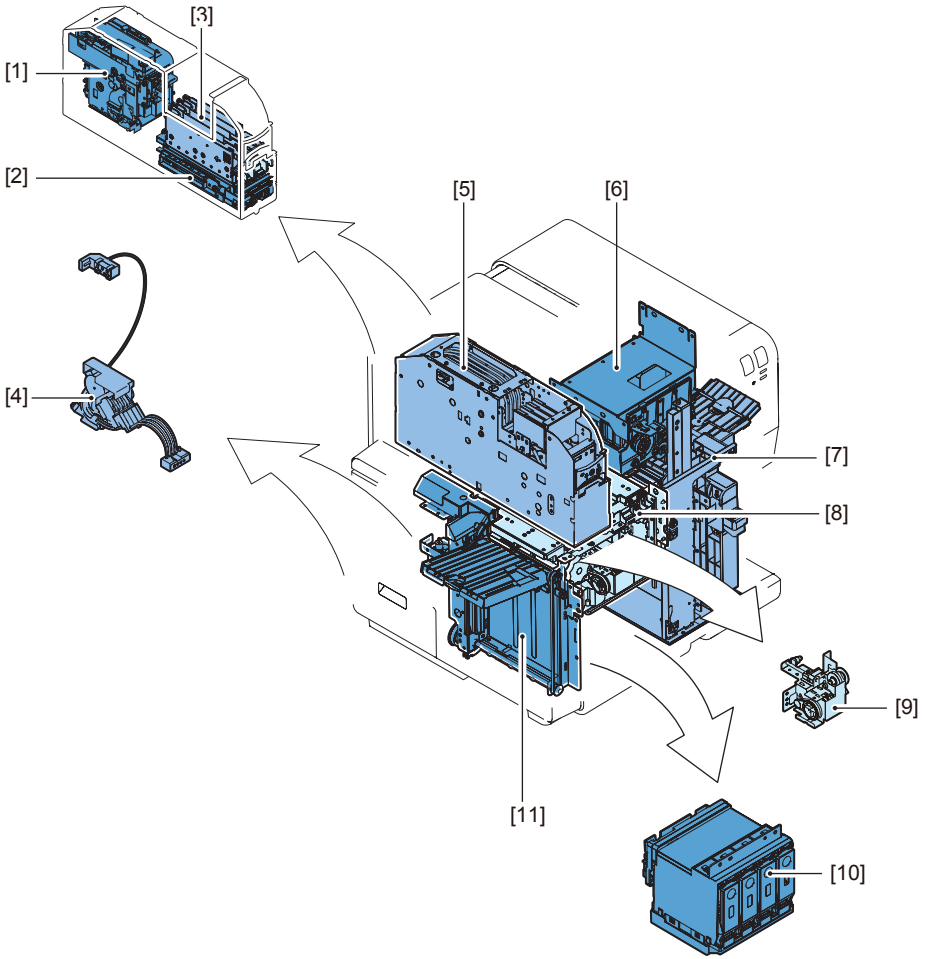


F-4-2

Symbol	Part Name	Reference
[10]	Rear Cover	p. 4-15
[11]	Rear Upper Cover	p. 4-18
[12]	Left Upper Cover	p. 4-19
[13]	Left Lower Cover	p. 4-12
[14]	Stacker Tray	-
[15]	Maintenance Cartridge Door	-

T-4-3

Replacement Parts and Consumables

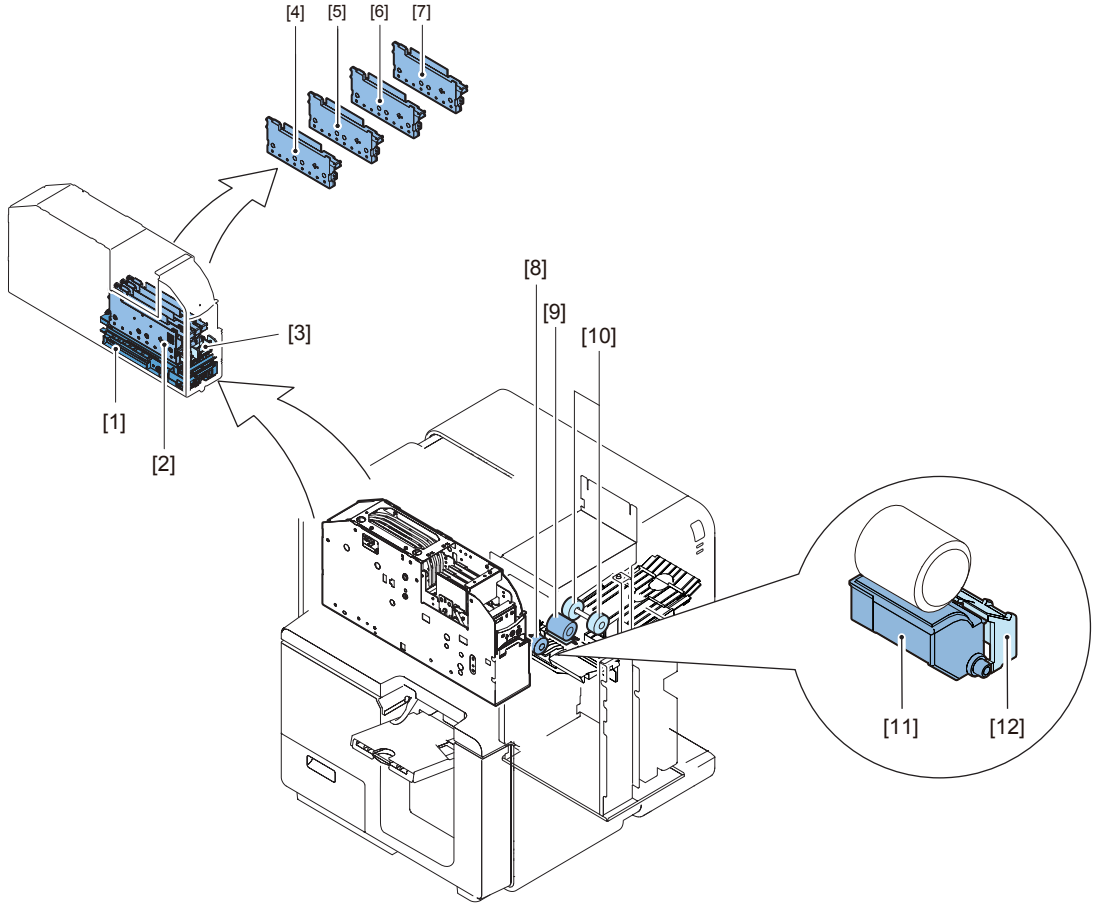


F-4-3

Symbol	Part Name	Reference
[1]	Pump Unit	-
[2]	Purge Unit	p. 4-46
[3]	Printhead Unit	p. 4-39
[4]	Valve Unit	p. 4-27
[5]	Print Module	p. 4-29
[6]	Feeder Upper Unit	p. 4-20
[7]	Feeder Lower Unit	p. 4-21
[8]	Transport Unit	p. 4-22
[9]	Paper Guide Unit	p. 4-24
[10]	Ink Tank Holder Unit	p. 4-26
[11]	Stacker Unit	p. 4-21

T-4-4

Replacement Parts and Consumables

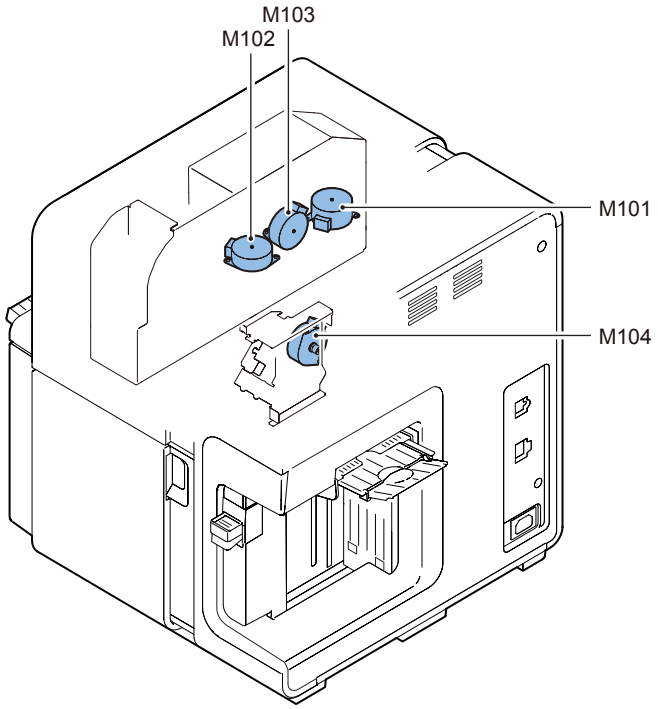


F-4-4

Symbol	Part Name		Reference
[1]	Purge Unit	4Y3-0046	p. 4-46
[2]	Printhead Unit	4G8-0025	p. 4-39
[3]	Blade Cleaner	4F3-1807	p. 4-38
[4][5][6][7]	Printhead	4G8-0035	p. 4-43
[8]	Skew Correct Roller	4A3-7104	p. 4-37
[9]	Feed Roller	4A3-7105	p. 4-35
[10]	Pickup Roller	4A3-7103	p. 4-34
[11]	Separation Pad	4G3-4184	p. 4-36
[12]	Separation Auxiliary Pad	4G3-4185	p. 4-36

T-4-5

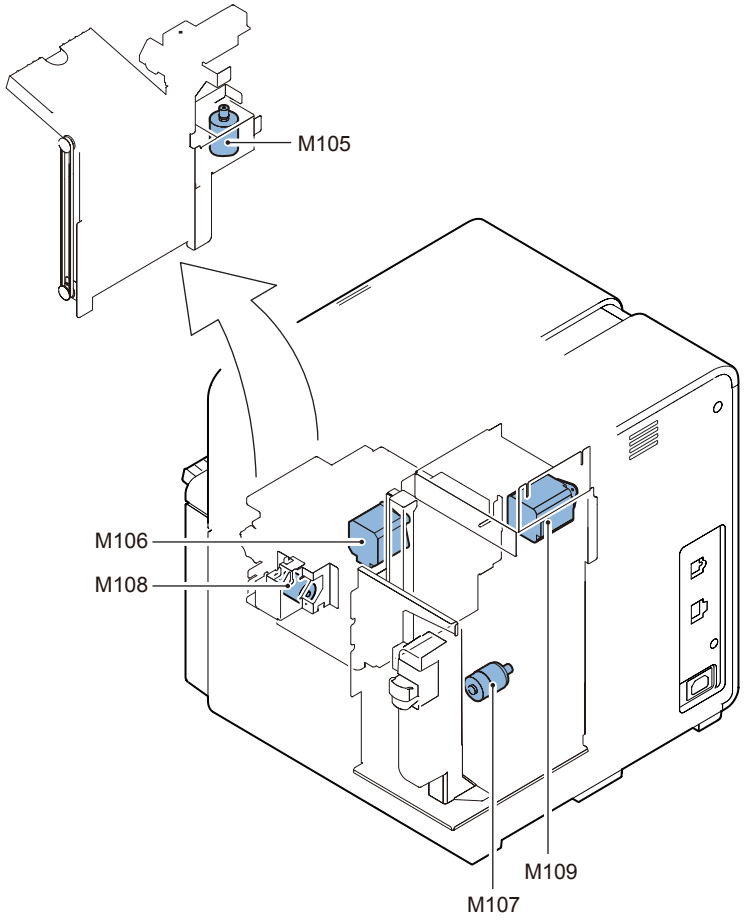
List of Motors



F-4-5

Symbol	Part Name	Main Unit	Reference
M101	Purge Motor	Print Module	-
M102	Printhead Lift Motor	Print Module	-
M103	Pump Motor	Pump Unit	-
M104	Valve Motor	Valve Unit	p. 4-54

T-4-6

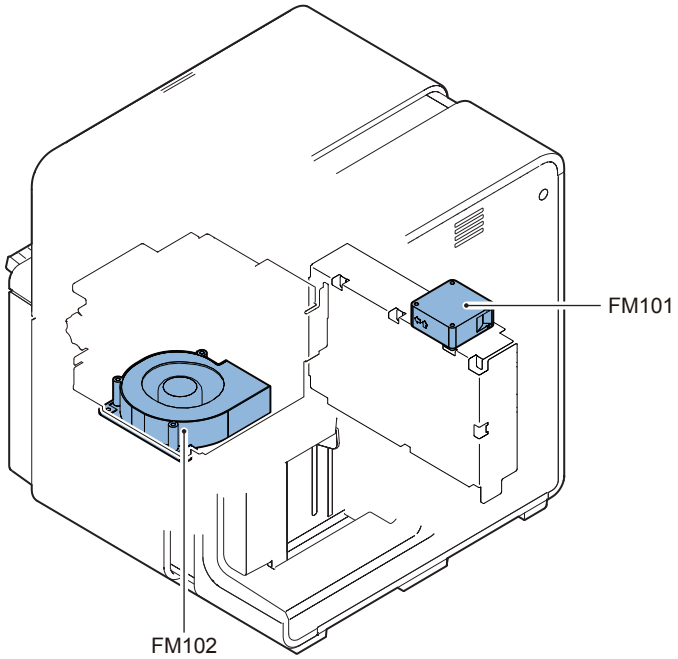


F-4-6

Symbol	Part Name	Main Unit	Reference
M105	Stacker Lift Motor	Stacker Unit	-
M106	Transport Motor	Transport Unit	p. 4-55
M107	Paper Lift Motor	Feeder Lower Unit	-
M108	Paper Guide Motor	Transport Unit	-
M109	Feed Motor	Feeder Upper Unit	-

T-4-7

List of Fans

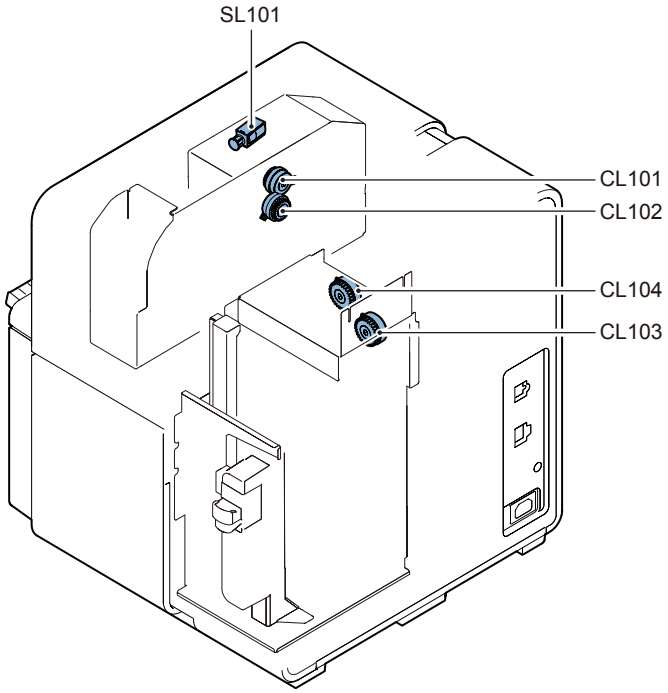


F-4-7

Symbol	Part Name	Main Unit	Reference
FM101	Power Supply Fan	Power Supply Unit	p. 4-56
FM102	Paper Suction Fan	Transport Unit	p. 4-56

T-4-8

List of Solenoids and Clutches

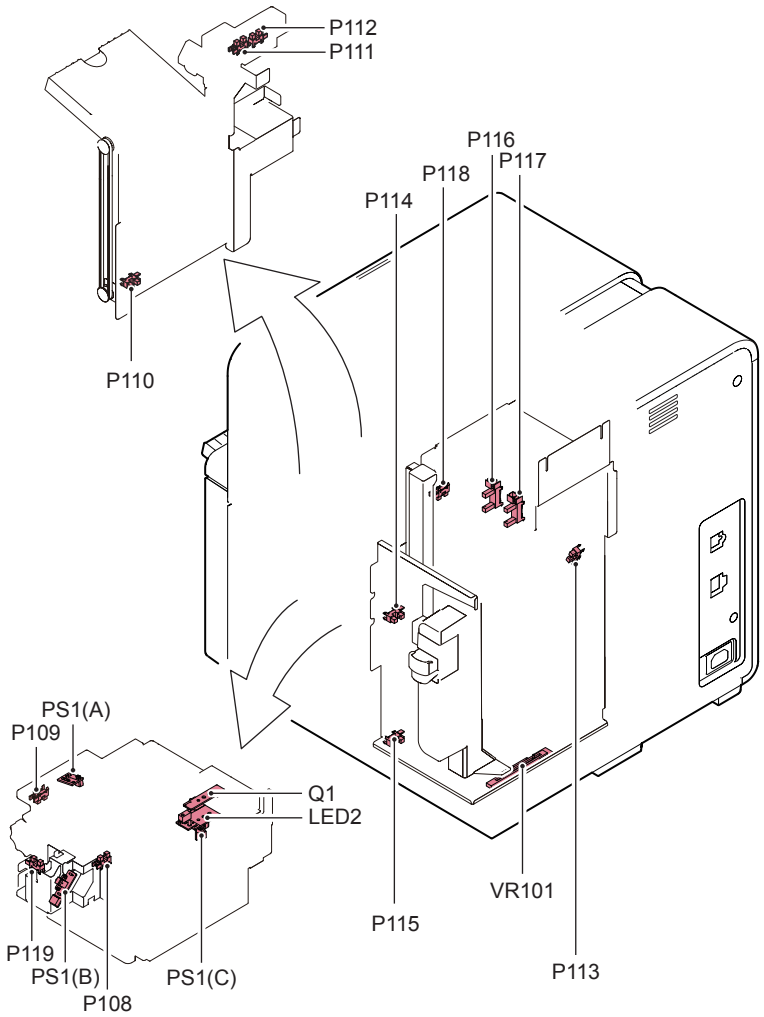


F-4-8

Symbol	Part Name	Main Unit	Reference
SL101	Buffer Solenoid	Pump Unit	-
CL101	Valve Clutch	Pump Unit	-
CL102	Pump Clutch	Pump Unit	-
CL103	Feed Clutch	Feeder Upper Unit	-
CL104	Disengage Clutch	Feeder Lower Unit	-

T-4-9

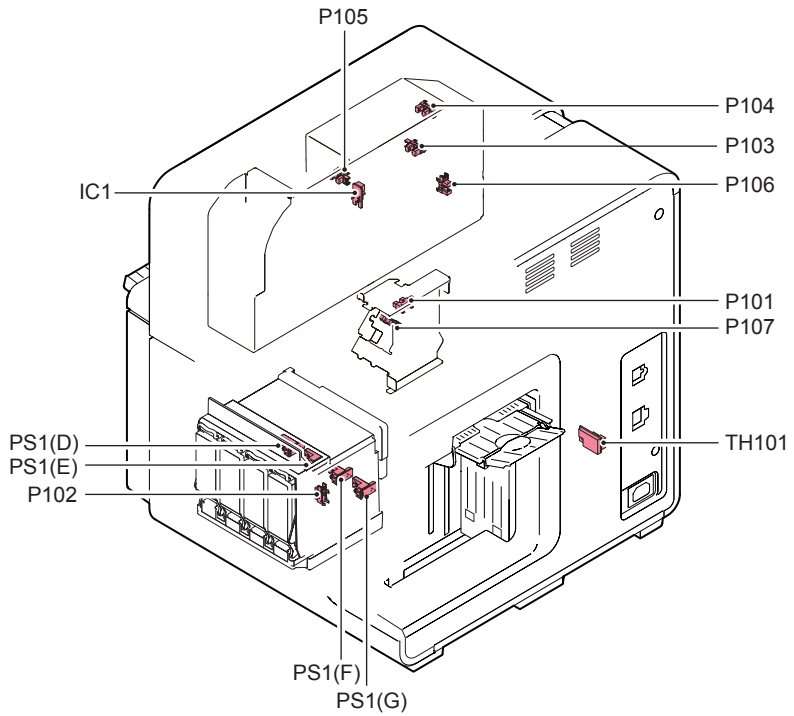
List of Sensors



F-4-9

Symbol	Part Name	Main Unit	Reference
P108	Pinch Roller Sensor	Transport Unit	-
P109	Spur Disengage Sensor	Transport Unit	-
P110	Lower Feeder Tray Sensor	Stacker Unit	-
P111	Stacker Paper Surface Sensor 2	Stacker Unit	-
P112	Stacker Paper Surface Sensor 1	Stacker Unit	-
P113	Feeder Paper Surface Sensor	Feeder Lower Unit	-
P114	Upper Feeder Tray Sensor	Feeder Lower Unit	-
P115	Lower Feeder Tray Sensor	Feeder Lower Unit	-
P116	Cross Feed Sensor	Feeder Upper Unit	p. 4-58
P117	Timing Sensor	Feeder Upper Unit	p. 4-58
P118	Disengage Sensor	Feeder Upper Unit	-
P119	Paper Guide HP Sensor	Transport Unit	-
Q1	Upper TOF Sensor	Transport Unit	p. 4-59
PS1(A)	Transport Sensor	Transport Unit	-
PS1(B)	Paper Guide Encoder Sensor	Transport Unit	-
PS1(C)	Encoder Sensor	Transport Unit	-
LED2	TLower TOF Sensor	Transport Unit	p. 4-59
VR101	Paper Width Sensor	Feeder Lower Unit	-

T-4-10

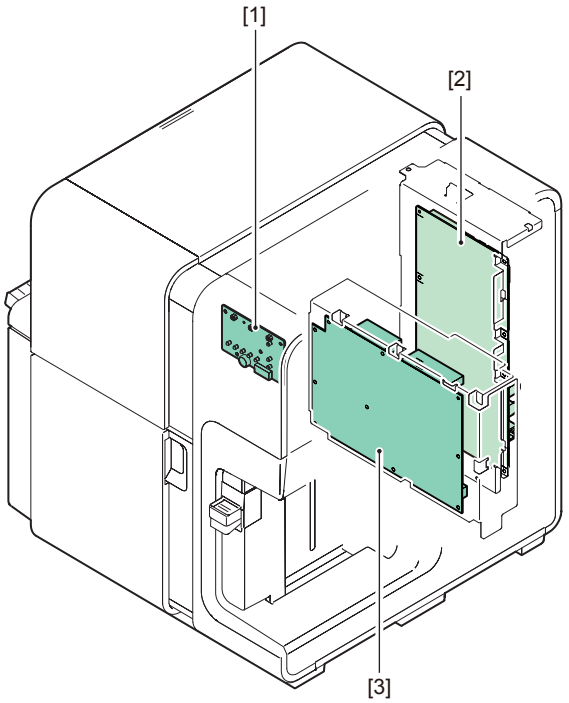


F-4-10

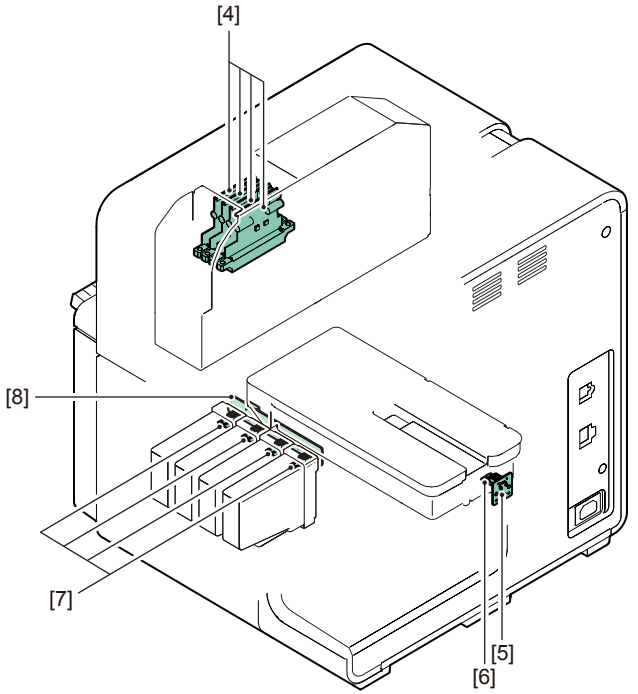
Symbol	Part Name	Main Unit	Reference
P101	Maintenance Cartridge Door Sensor		-
P102	Ink Tank Door Sensor		-
P103	Valve Sensor 2	Pump Unit	-
P104	Valve Sensor 1	Pump Unit	-
P105	Printhead Home Position Sensor	Pump Unit	-
P106	Purge Position Sensor	Print Module	-
P107	Valve Sensor	Valve Unit	-
PS1(D)	Remaining Ink Sensor(Bk)	Ink Tank Holder Unit	p. 4-57
PS1(E)	Remaining Ink Sensor(C)	Ink Tank Holder Unit	p. 4-57
PS1(F)	Remaining Ink Sensor(M)	Ink Tank Holder Unit	p. 4-57
PS1(G)	Remaining Ink Sensor(Y)	Ink Tank Holder Unit	p. 4-57
IC1	Pressure Sensor	Pump Unit	-
TH101	Climate Sensor		-

T-4-11

List of PCBs



F-4-11

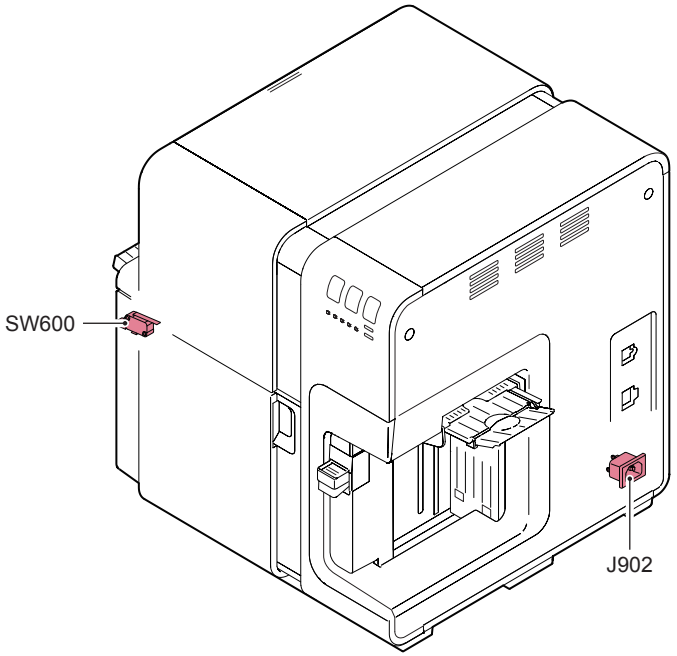


F-4-12

Symbol	Part Name	Main Unit	Reference
[1]	Operation Panel PCB	Front Cover Unit	-
[2]	Printer Controller PCB	Lower Unit	p. 4-49
[3]	DC Power Supply PCB Unit	Power Supply Unit	p. 4-50
[4]	Printhead Relay PCB	Print Module	p. 4-52
[5]	Maintenance Cartridge Relay PCB	Lower Unit	p. 4-51
[6]	Maintenance Cartridge ROM PCB	Maintenance Cartridge	-
[7]	Ink Tank ROM PCB	Ink Tank	-
[8]	Ink Tank Relay PCB	Ink Tank Holder Unit	p. 4-48

T-4-12

List of Switches and Others



F-4-13

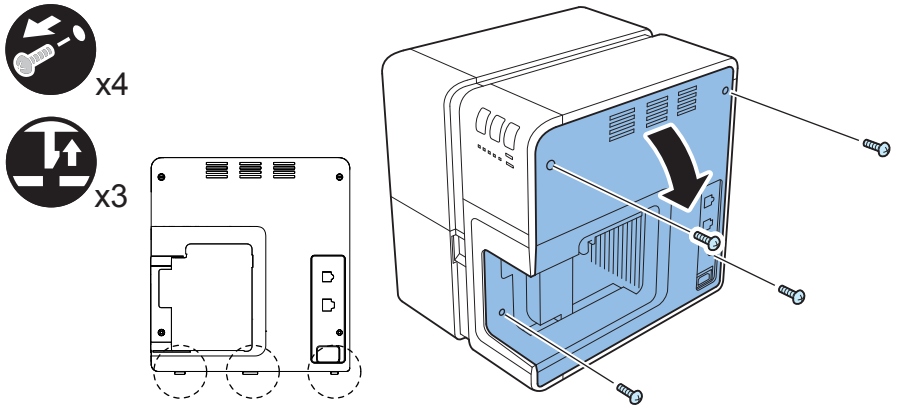
Symbol	Part Name	Main Unit	Reference
SW600	Upper Unit Safety Switch	Lower Unit	-
J902	AC Inlet	Lower Unit	-

T-4-13

External Covers

Removing Right Cover

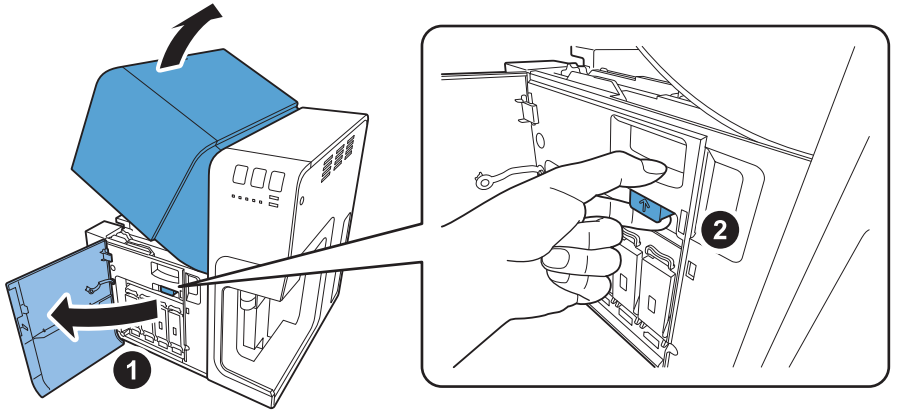
1) Remove Right Cover.
- 4 screws
- 3 hooks



F-4-14

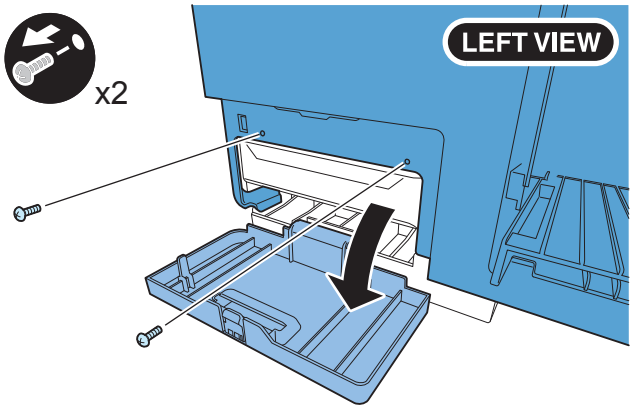
Removing Left Lower Cover

1) Open Upper Unit.



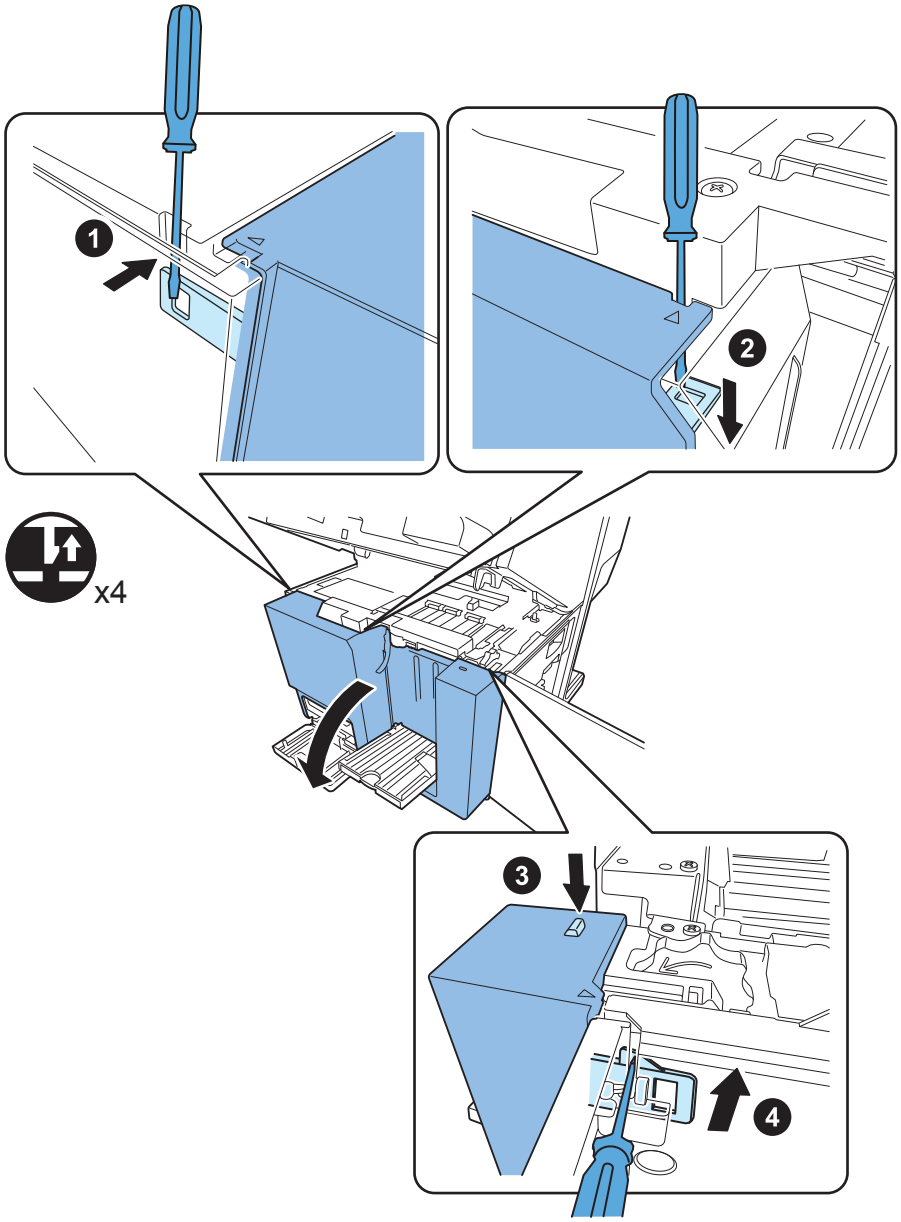
F-4-15

2) Open Maintenance Cartridge Door and remove screws securing Left Lower Cover.
- 2 screws



F-4-16

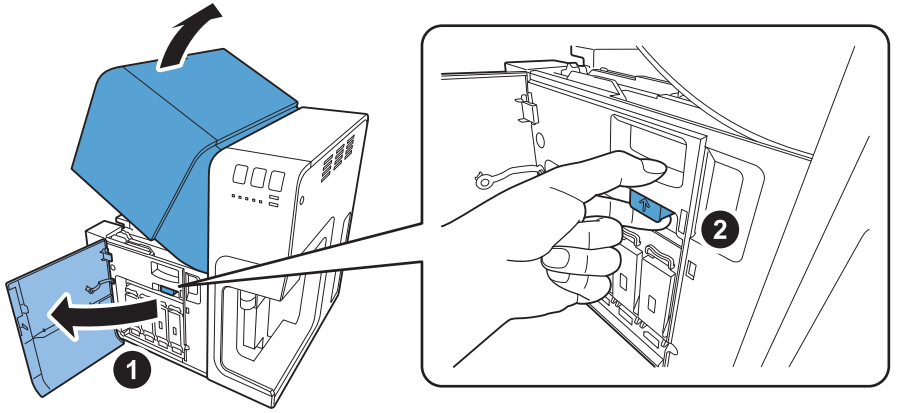
3) Remove Left Lower Cover.
- 4 hooks



F-4-17

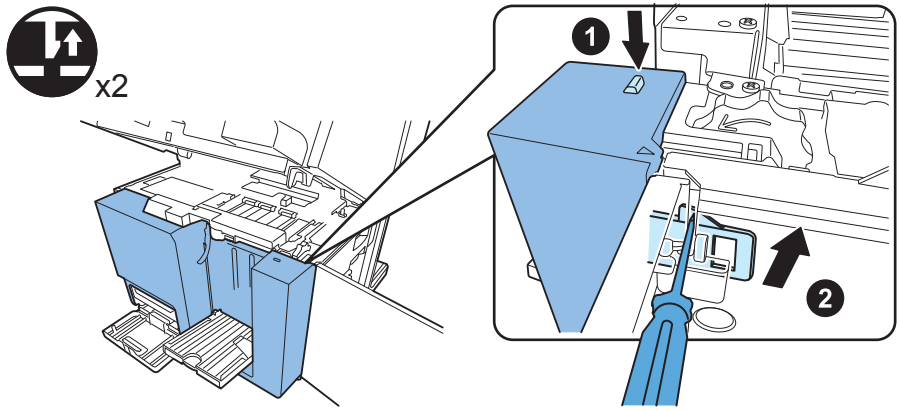
Removing Front Cover Unit

1) Remove Right Cover.("Removing Right Cover"(page 4-12).)
2) Open Upper Unit.



F-4-18

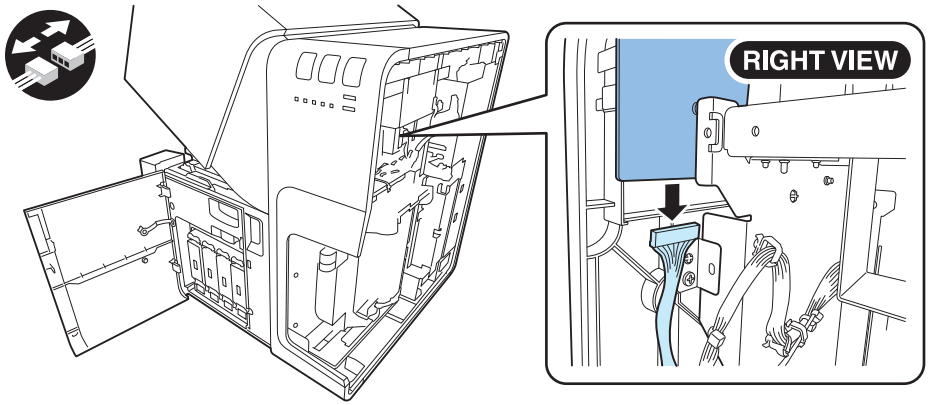
3) Release Left Lower Cover hooks.
- 2 hooks



F-4-19

4) Remove connector.

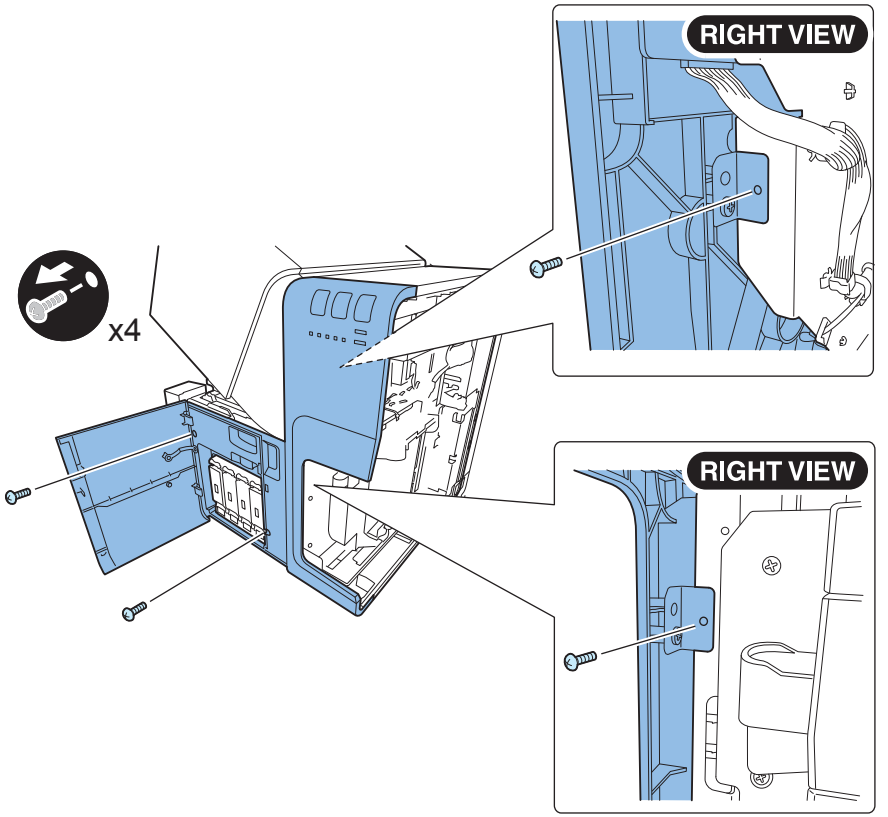
- 1 connector



F-4-20

5) Remove screws securing Front Cover Unit.

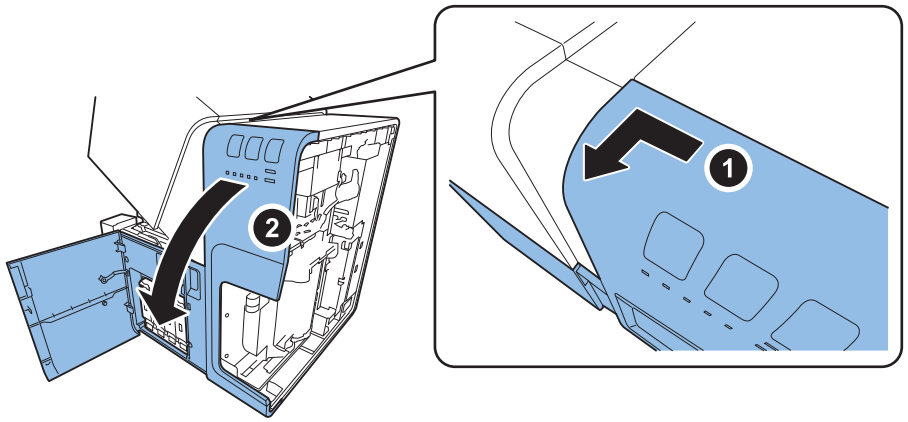
- 4 screws



F-4-21

6) Remove Front Cover Unit.

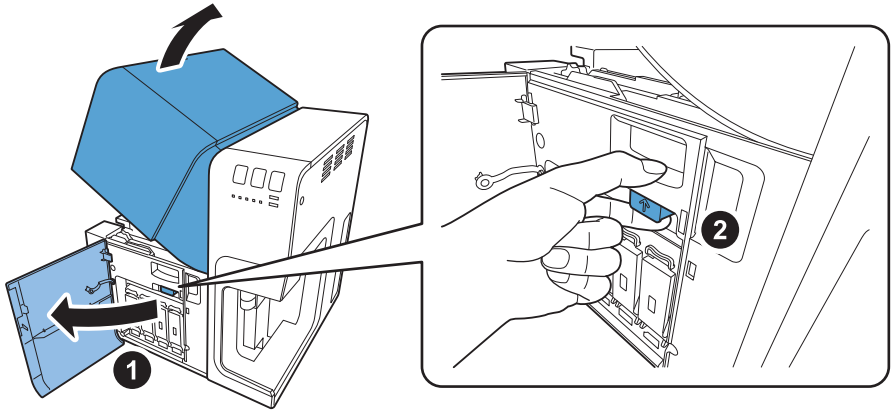
- 2 hooks



F-4-22

Removing Rear Cover

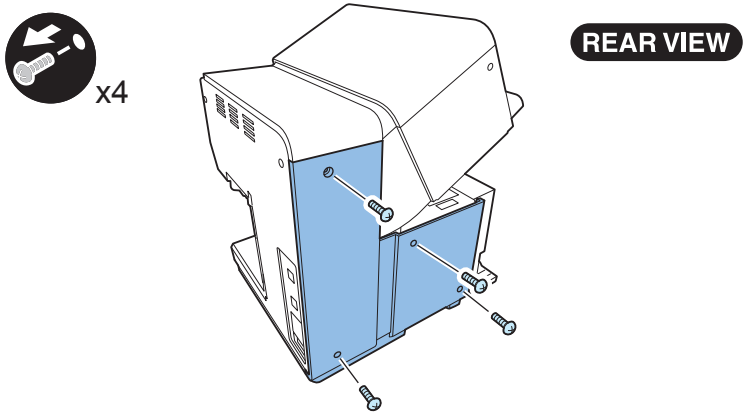
1) Open Upper Unit.



F-4-23

2) Remove screws securing Rear Cover.

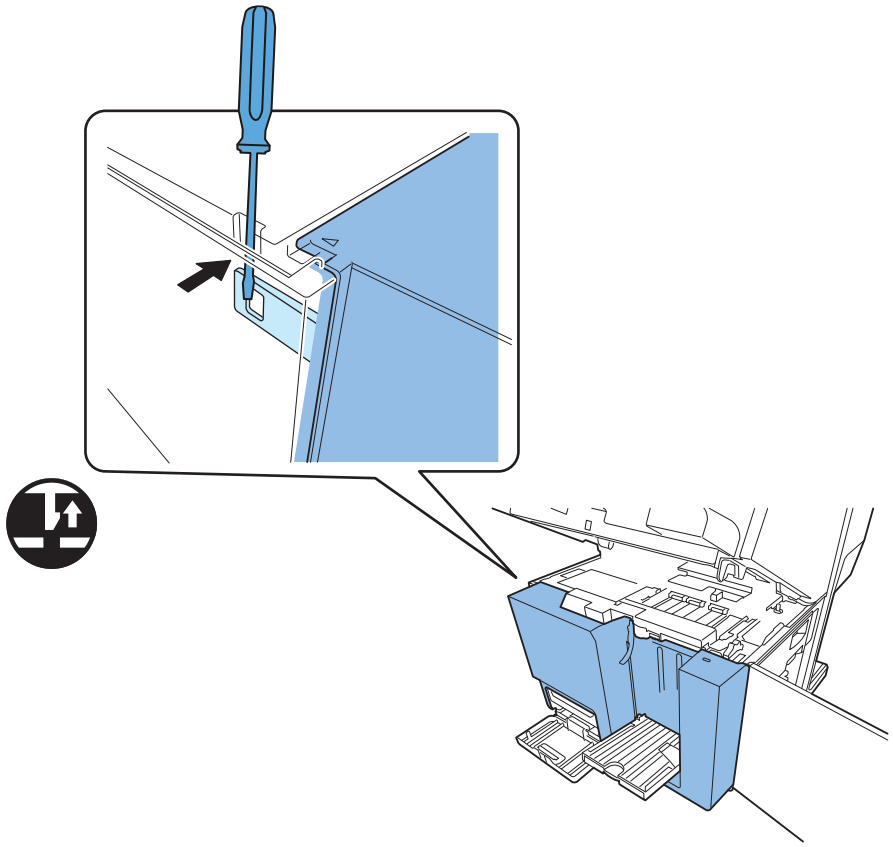
- 4 screws



F-4-24

3) Release Left Lower Cover hook.

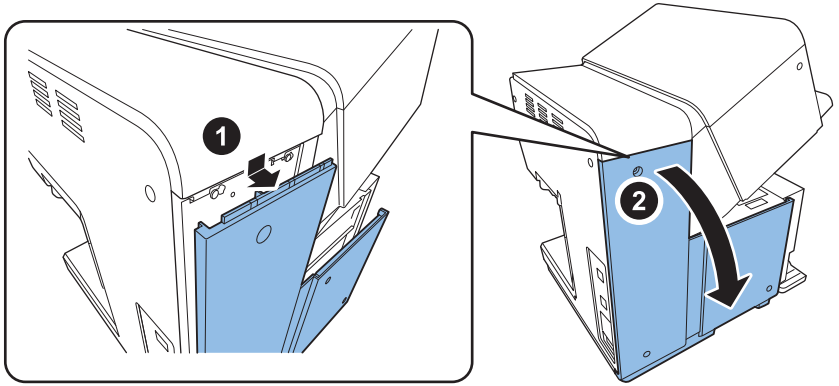
- 1 hook



F-4-25

4) Remove Rear Cover.

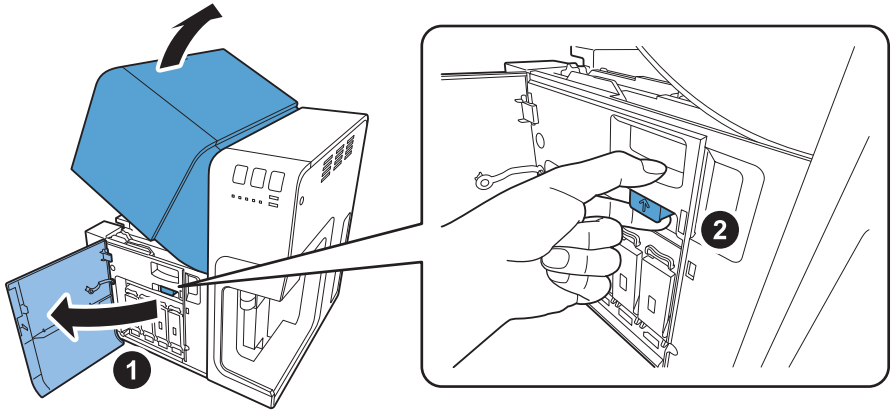
- 2 hooks



F-4-26

Removing Maintenance Cover

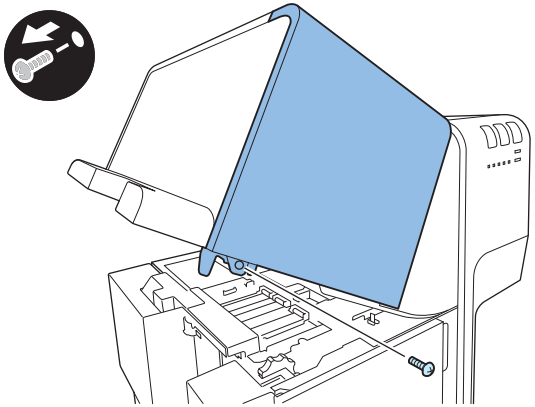
1) Open Upper Unit.



F-4-27

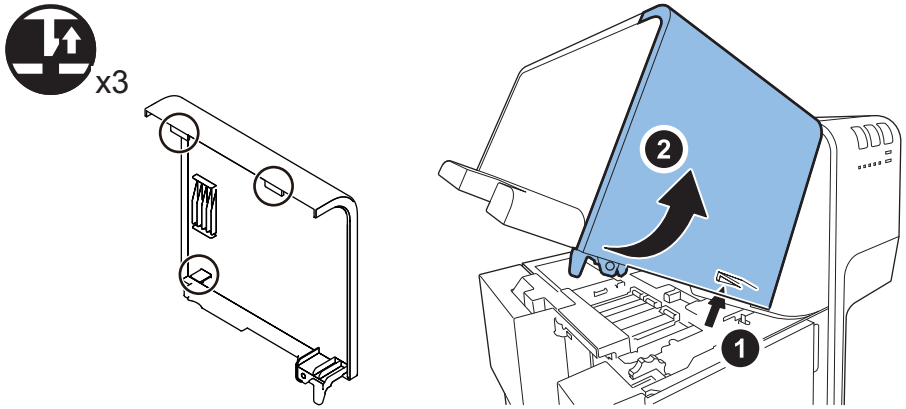
2) Remove screw securing Maintenance Cover.

- 1 screw



F-4-28

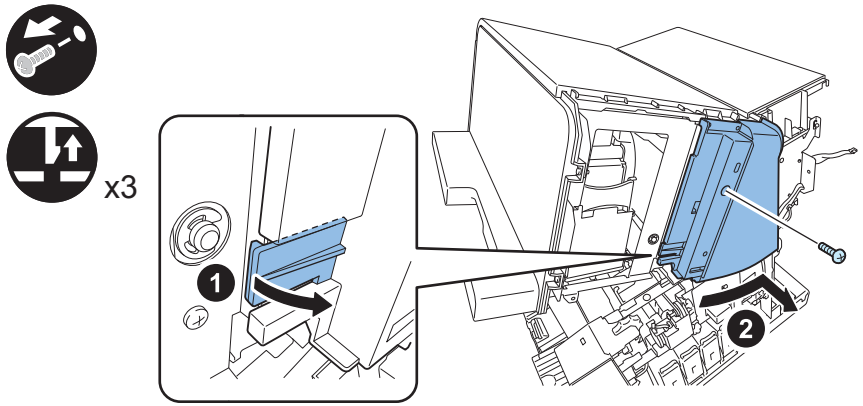
3) Remove Maintenance Cover while pushing hooks in the inside of cover.



F-4-29

Removing Front Center Cover

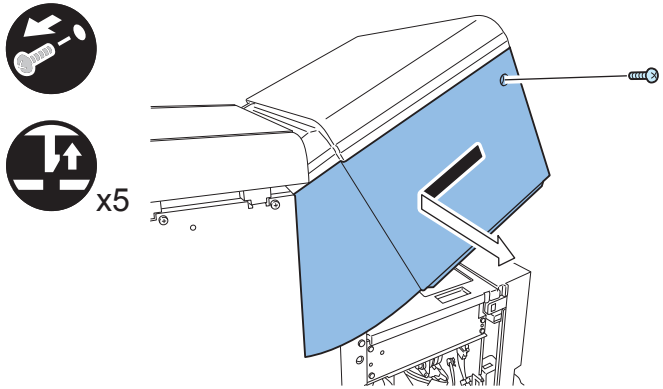
1) Remove Front Cover Unit.("Removing Front Cover Unit"(page 4-13).)
2) Remove Maintenance Cover.("Removing Maintenance Cover"(page 4-17).)
3) Remove Front Center Cover.
   - 1 screw
   - 3 hooks



F-4-30

Removing Rear Upper Cover

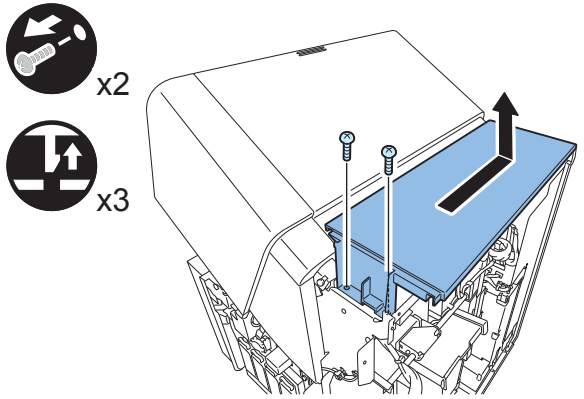
1) Remove Rear Cover.("Removing Rear Cover"(page 4-15).)
2) Remove Rear Upper Cover.
   - 1 screw
   - 5 hooks



F-4-31

Removing Feeder Cover

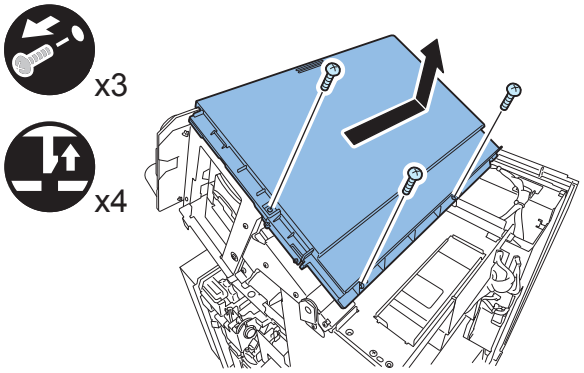
1) Remove Front Cover Unit.("Removing Front Cover Unit"(page 4-13).)
2) Remove Feeder Cover.
   - 2 screws
   - 3 hooks



F-4-32

Removing Upper Cover

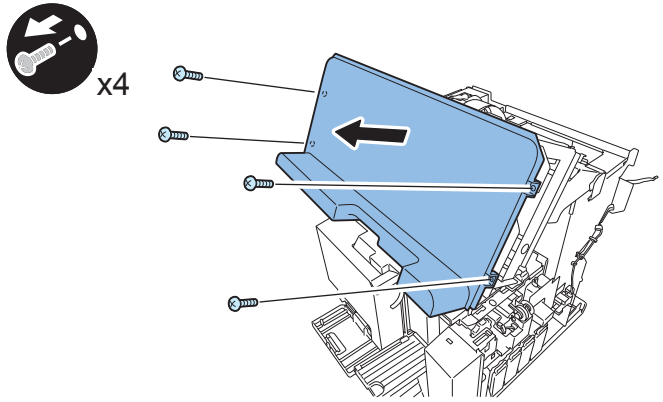
1) Remove Front Center Cover.("Removing Front Center Cover"(page 4-17).)
2) Remove Feeder Cover.("Removing Feeder Cover"(page 4-18).)
3) Remove Upper Cover.
   - 3 screws
   - 4 hooks



F-4-33

Removing Left Upper Cover

1) Remove Upper Cover.("Removing Upper Cover"(page 4-18).)
2) Remove Rear Upper Cover.("Removing Rear Upper Cover"(page 4-18).)
3) Remove Left Upper Cover.
   - 4 screws

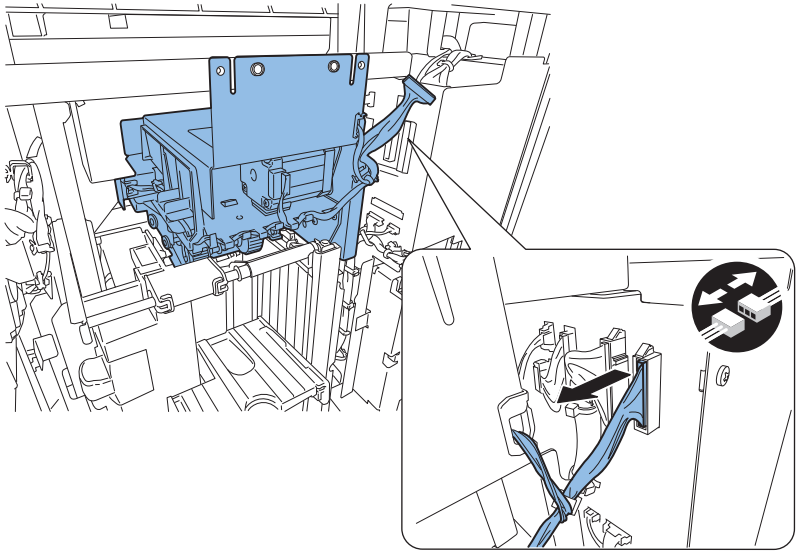


F-4-34

Main Units and Parts

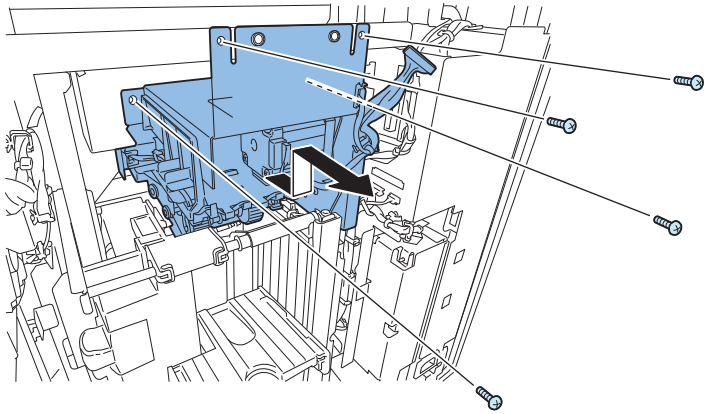
Removing Feeder Upper Unit

1) Remove Right Cover.("Removing Right Cover"(page 4-12).)
2) Disconnect harness.
   - 1 connector



F-4-35

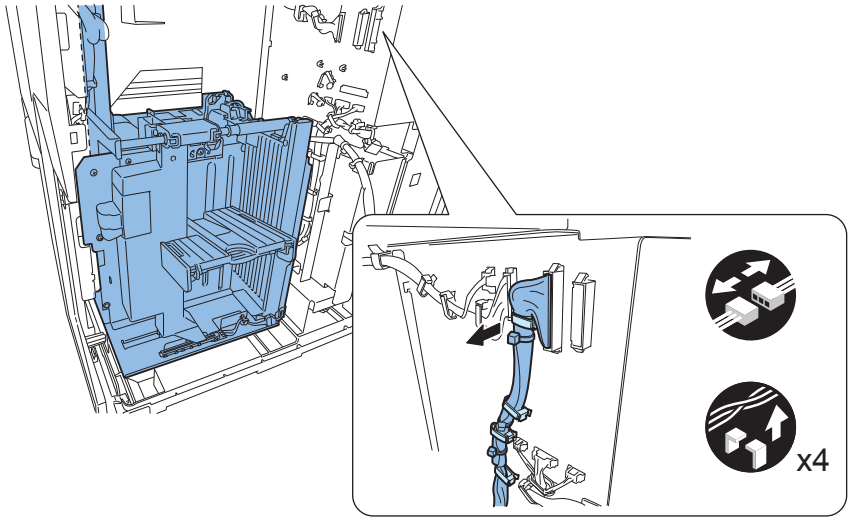
3) Remove Feeder Upper Unit.
   - 4 screws



F-4-36

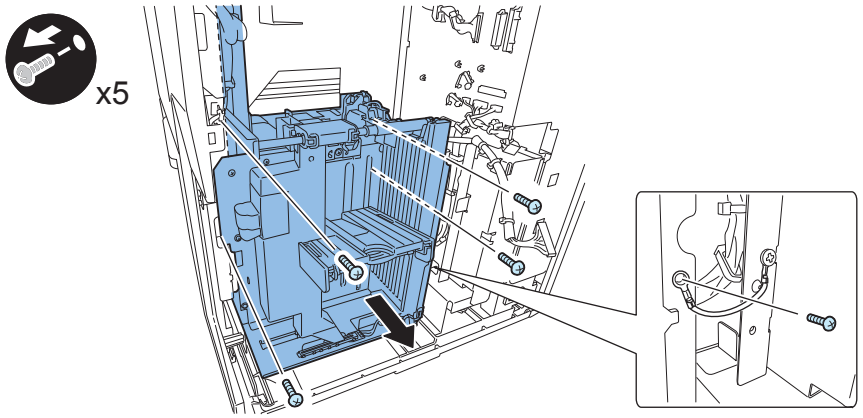
Removing Feeder Lower Unit

1) Remove Feeder Upper Unit.("Removing Feeder Upper Unit"(page 4-20).)
2) Disconnect harness.
   - 1 connector
   - 4 clamps



F-4-37

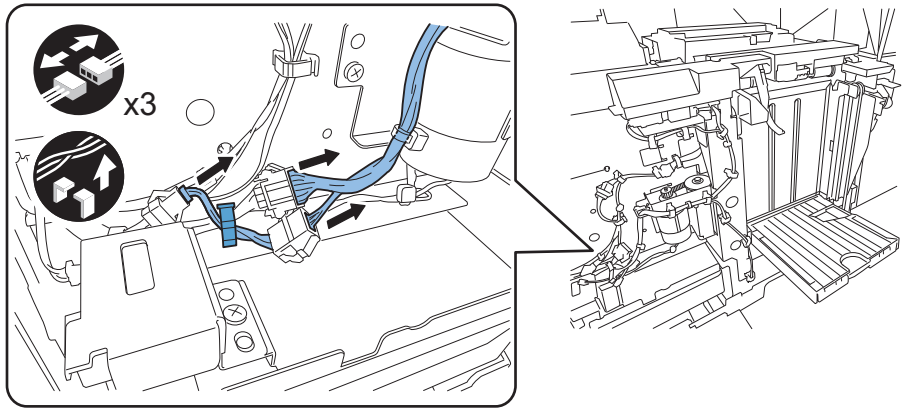
3)Remove Feeder Lower Unit.
   - 5 screws



F-4-38

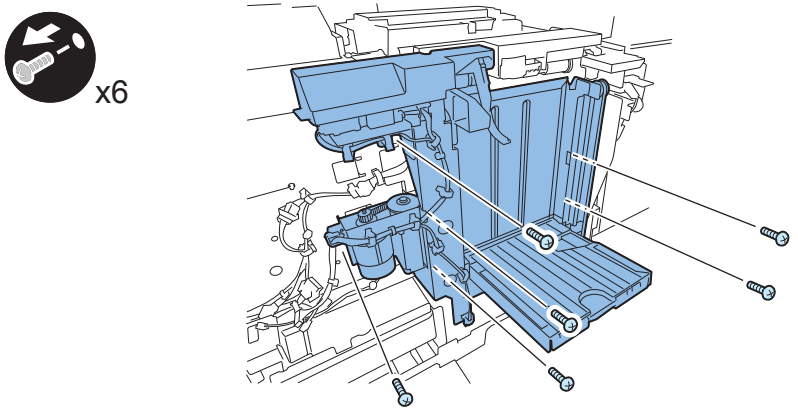
Removing Stacker Unit

1) Remove Left Lower cover.("Removing Left Lower Cover"(page 4-12).)
2) Disconnect harness.
   - 3 connectors
   - 1 clamp



F-4-39

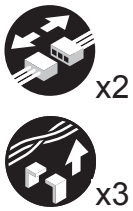
3) Remove Stacker Unit.
   - 6 screws

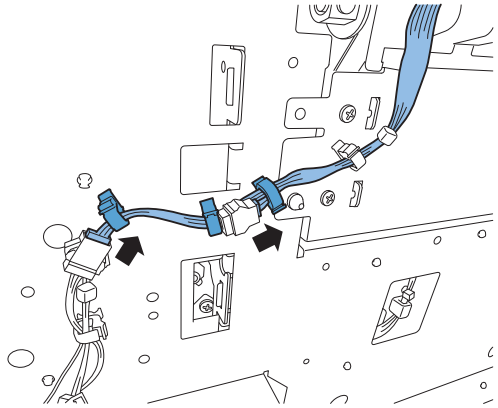


F-4-40

Removing Transport Unit

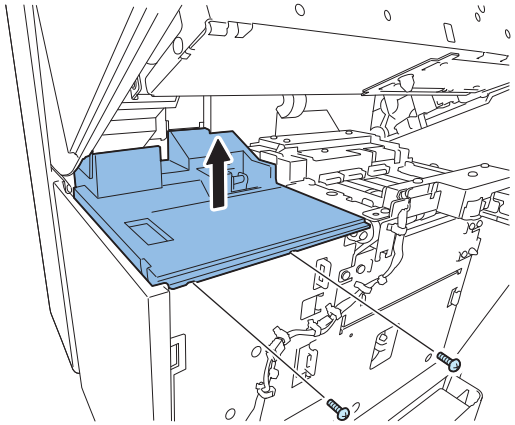
1) Remove Front Cover Unit.("Removing Front Cover Unit"(page 4-13).)
2) Remove Stacker Unit.("Removing Stacker Unit"(page 4-21).)
3) Disconnect harness.
   - 2 connectors
   - 3 clamps





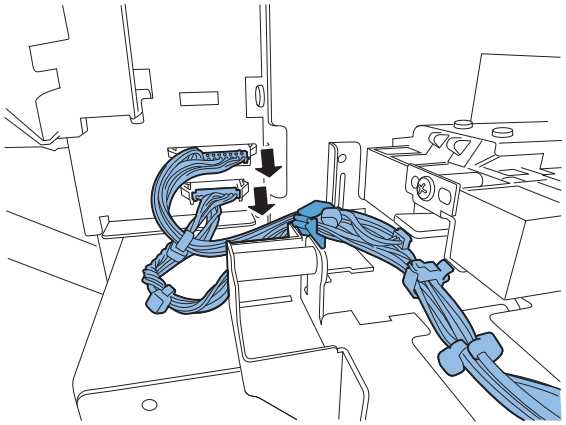
F-4-41

4) Remove connector cover.
   - 2 screws



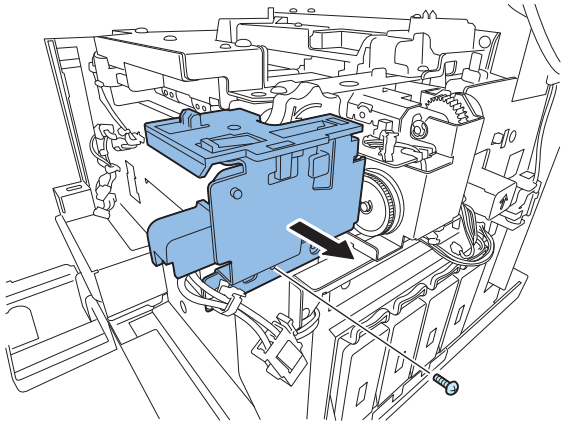
F-4-42

5) Disconnect harness.
   - 2 connectors
   - 1 clamp



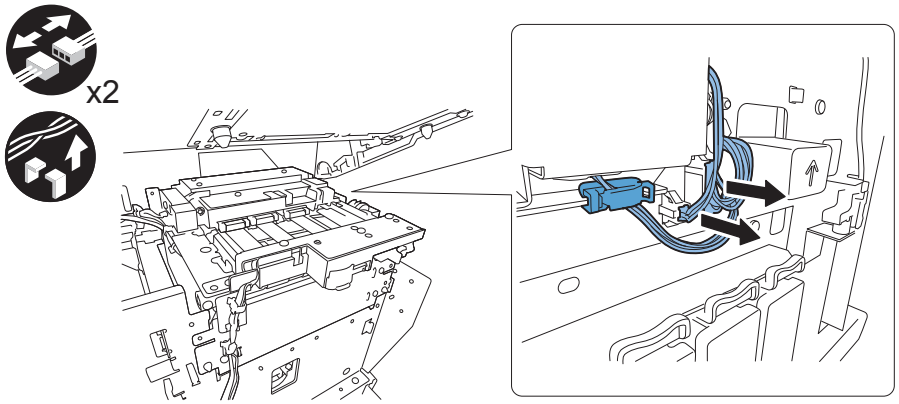
F-4-43

6) Remove Upper Unit Safety Switch.
   - 1 screw



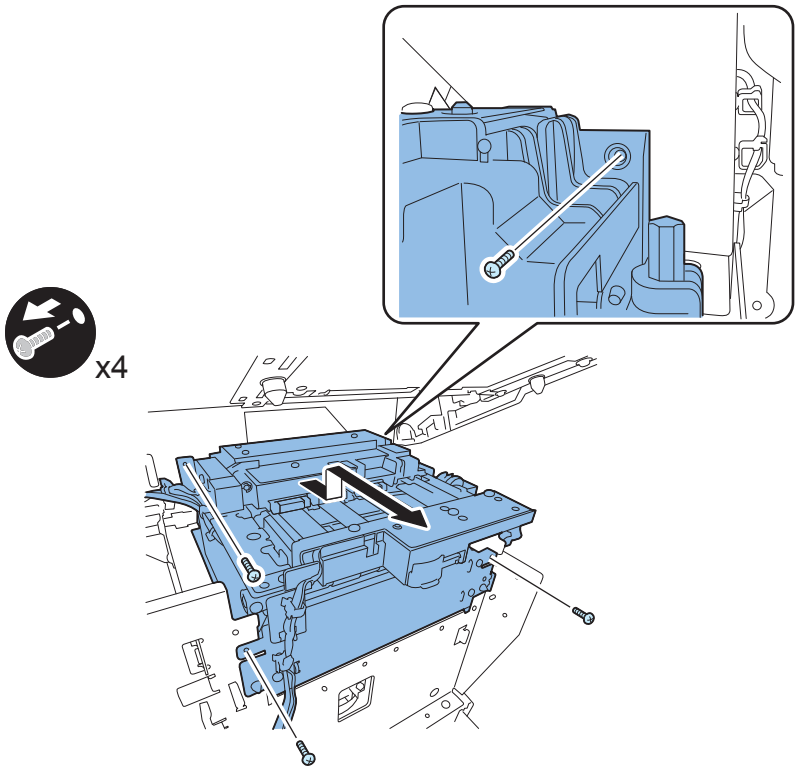
F-4-44

7) Disconnect Paper Guide Unit harness.
- 2 connectors
- 1 clamp



F-4-45

8) Remove screws securing Transport Unit.
- 4 screws



F-4-46

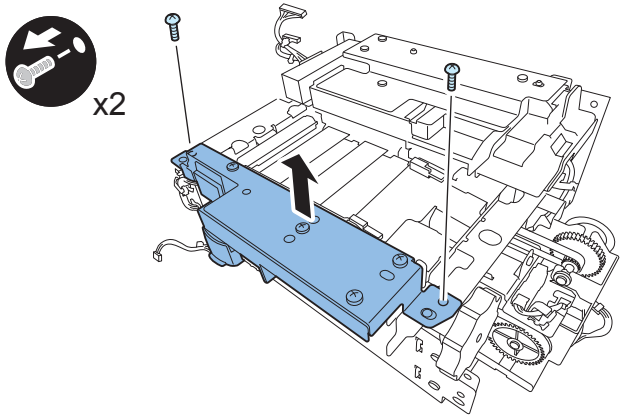
9) Record new adjustment values (Paper Guide position, Fan Duty) in the label on new Transport Unit.

<Outline of Work After Transport Unit Replacement>

Main operations after Transport Unit replacement are shown below.
- Enter adjustment value using Service Utility.
  Service Utility > Parts Replacement > Transport Unit/Paper Suction Fan Replacement
- Perform registration adjustment.

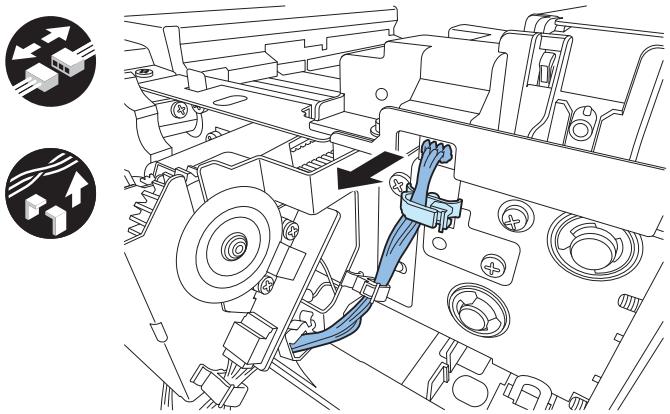
Removing Paper Guide Unit

1) Remove Transport Unit.("Removing Transport Unit"(page 4-22).)
2) Remove Spur Unit.
   - 2 screws



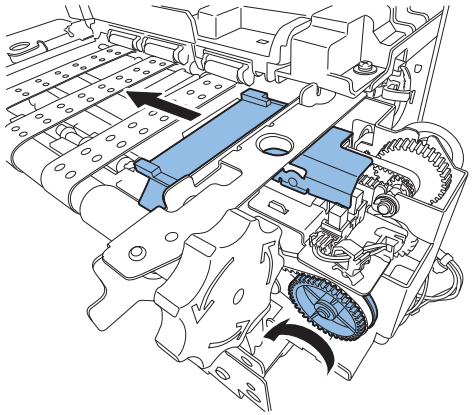
F-4-47

3) Disconnect harness.
   - 1 connector
   - 1 clamp



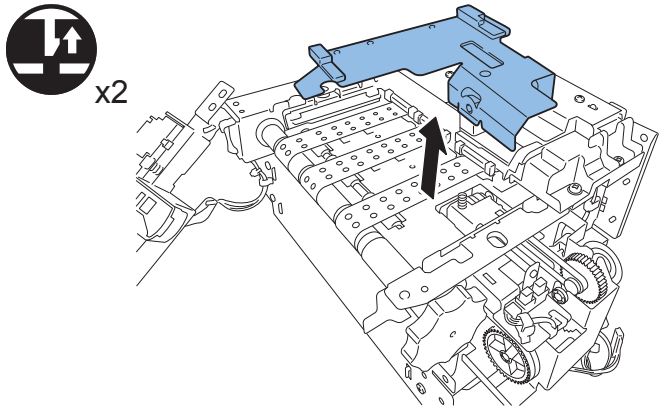
F-4-48

4) Turn Motor Gear counterclockwise to move Paper Guide Plate.



F-4-49

5) Remove Paper Guide Plate.

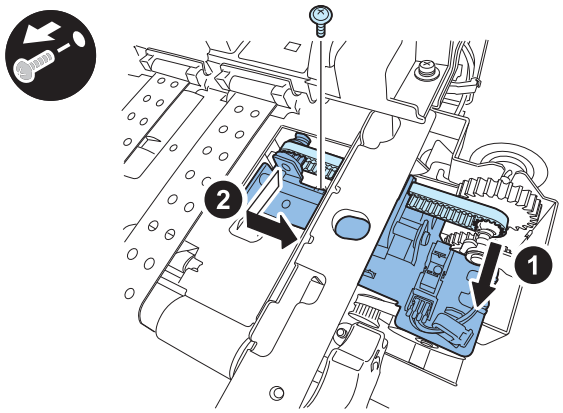


F-4-50

NOTE:
Be careful for dropping or loosing Spring.

6) Shift belt and Upper plate of Paper Guide.

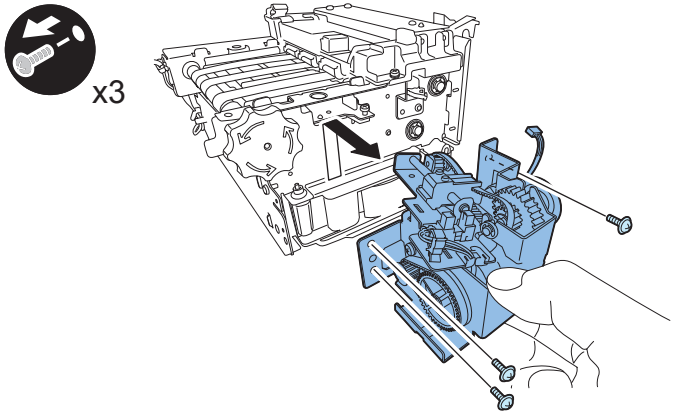
- 1 screws



F-4-51

7) Remove Paper Guide Unit.

- 3 screws



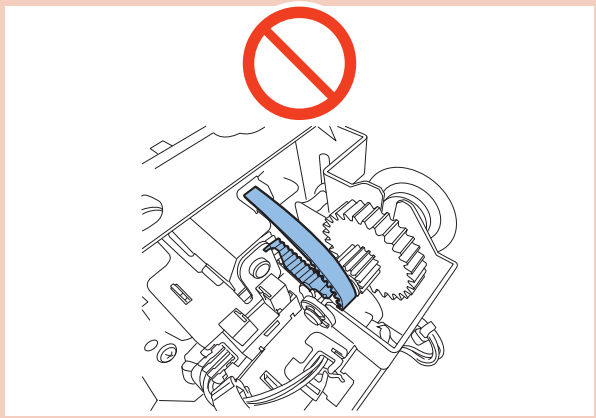
F-4-52

CAUTION:

Do not damage Encoder when removing or installing Paper Guide.

CAUTION:

When installing Paper Guide Unit, set the belt surely.



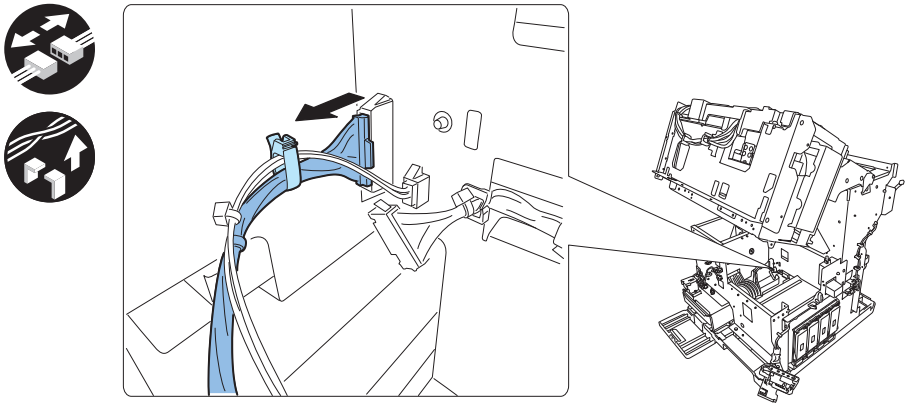
F-4-53

<Outline of Work After Paper Guide Unit Replacement>

- Enter adjustment value using Service Utility.
  Service Utility > Test Print/Adjustment > Paper Guide Adjustment

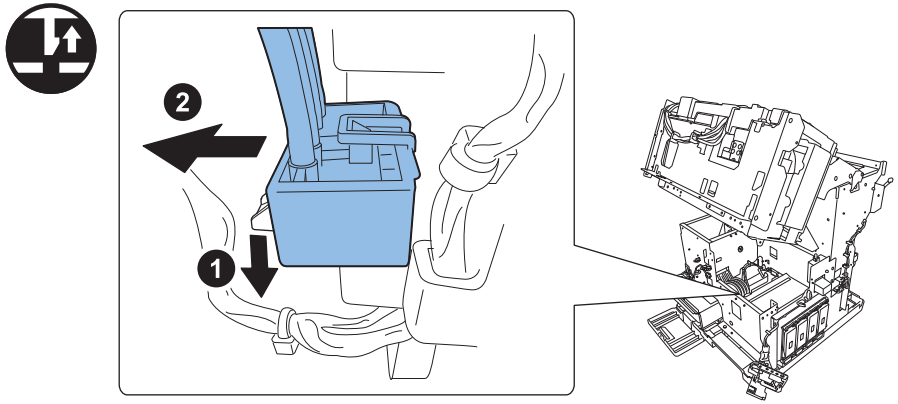
Removing Ink Tank Holder Unit

1) Drain ink in the ink passage from Print Module to Ink Tank Holder Unit. Using [Shipping the printer] of the service utility.
2) Remove Transport Unit.("Removing Transport Unit"(page 4-22).)
3) Disconnect harness.
   - 1 connector
   - 1 clamp



F-4-54

4) Disconnect Ink Tube Joint (Ink Tank side).



F-4-55

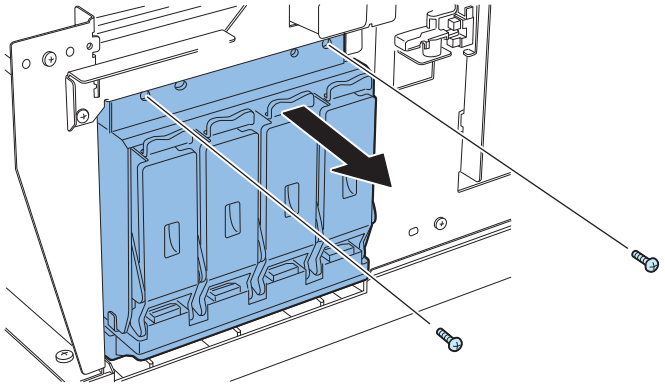
CAUTION:

Do not pull out or damage Ink Tube when disconnecting Ink Tube Joint.

F-4-56

5) Remove Ink Tank Holder Unit.

- 2 screws

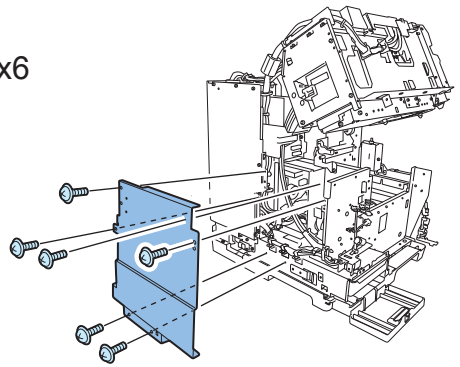


F-4-57

Removing Valve Unit

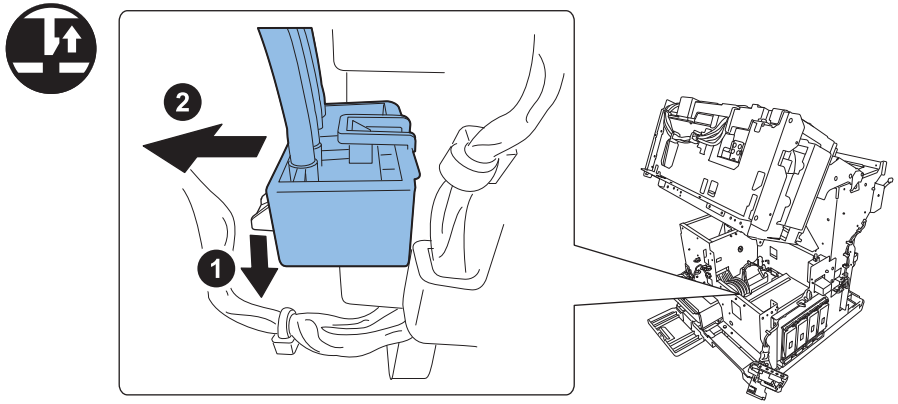
1) Remove Rear Upper Cover.("Removing Rear Upper Cover"(page 4-18).)
2) Remove Transport Unit.("Removing Transport Unit"(page 4-22).)
3) Remove Rear Plate.

- 6 screws



F-4-58

4) Disconnect Ink Tube Joint (Ink Tank side).



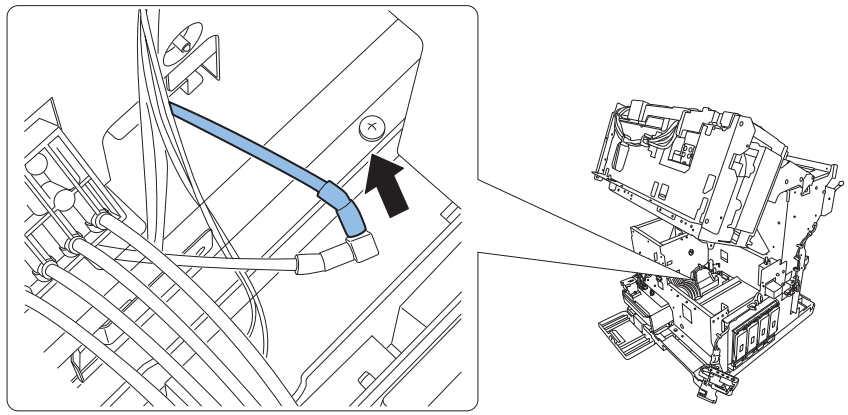
F-4-59

CAUTION:

Do not pull out or damage Ink Tube when disconnecting Ink Tube Joint.

F-4-60

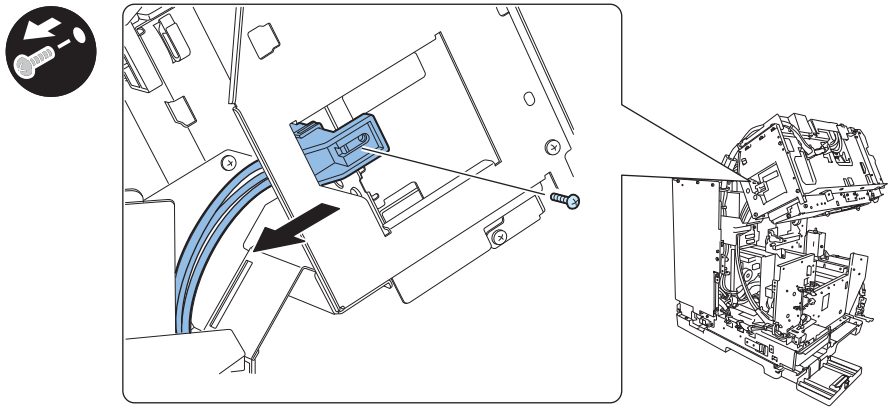
5) Disconnect Waste Ink Tube.



F-4-61

6) Disconnect Ink Tube (Print Module side) and remove from Tube Cover.

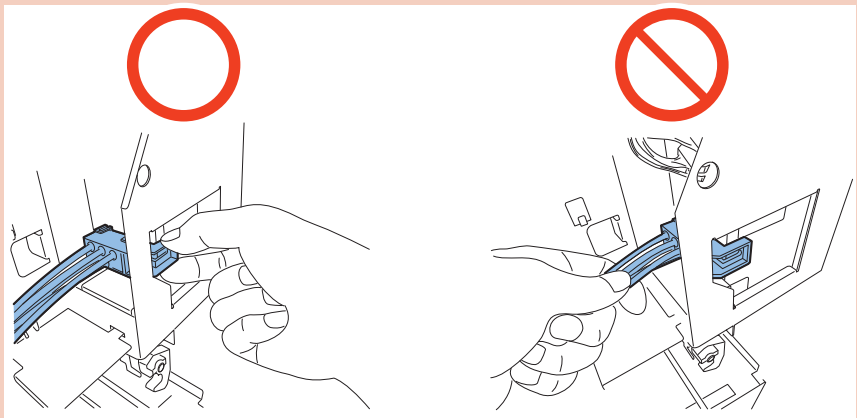
- 1 screw



F-4-62

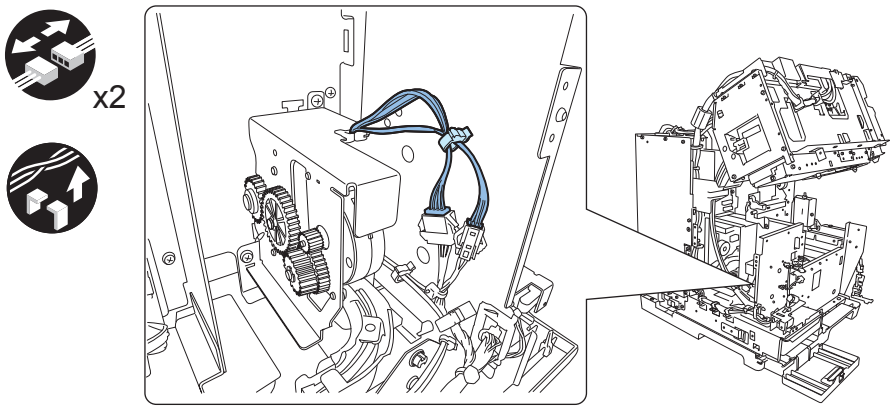
CAUTION:

Do not pull out or damage Ink Tube when disconnecting Ink Tube Joint.



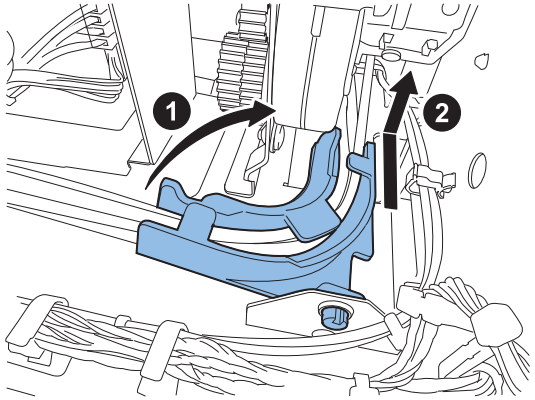
F-4-63

7) Disconnect harness.
- 2 connectors
- 1 clamp



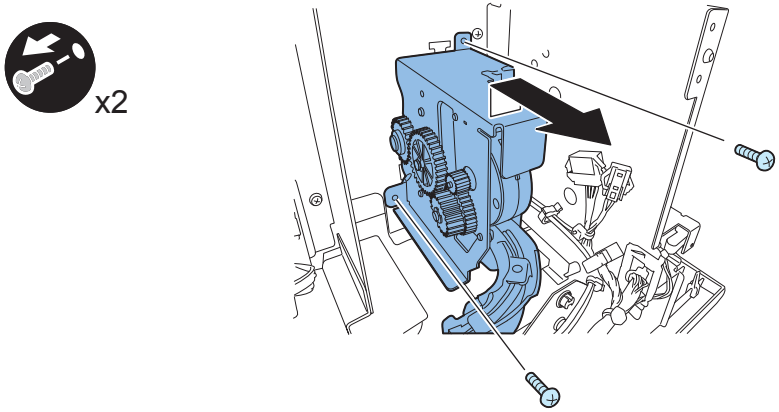
F-4-64

8) Remove Tube Guide.



F-4-65

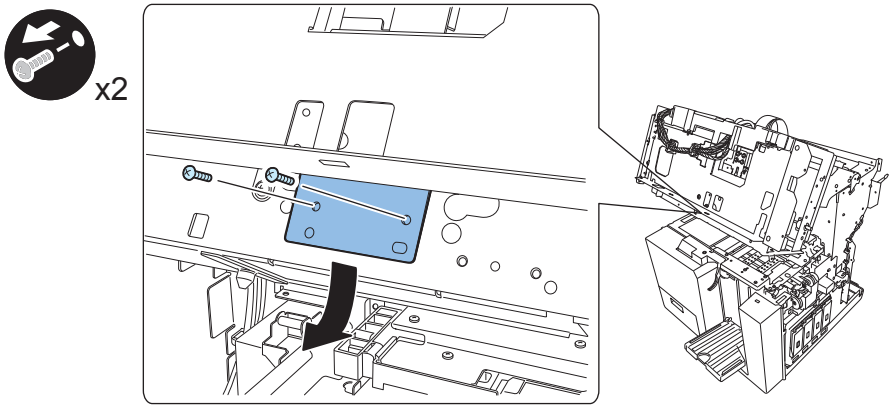
9) Remove Valve Unit.
- 2 screws



F-4-66

Removing Print Module

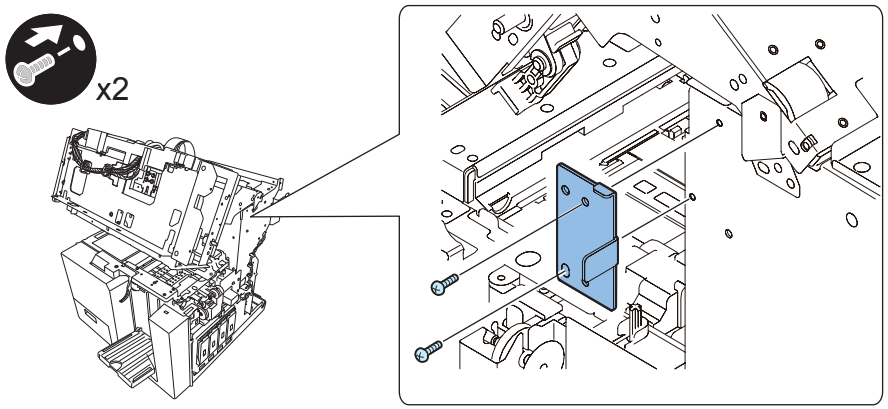
1) Execute [Consumable Parts Replacement > Head] of Service Utility to drain ink from the ink passage between Print Module and Ink Tank Holder Unit.
2) Remove Printhead Unit.(""Removing Printhead Unit"(page 4-39).)
3) Remove Left Upper Cover Unit("Removing Left Upper Cover"(page 4-19).)
4) Remove Stopper.
- 2 screws



F-4-67

5) Install Stopper under Upper Unit.

- 2 screws



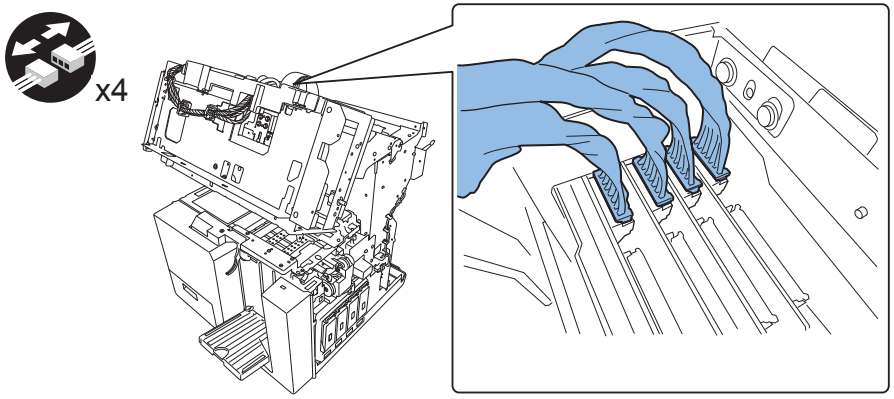
F-4-68

CAUTION:

Install Stopper before removing Print Module or Upper Unit burst open.

6) Disconnect Printhead Connectors.

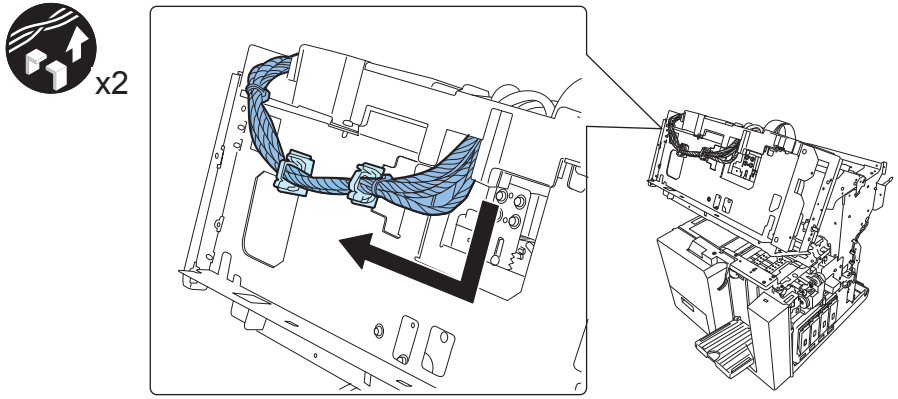
- 4 connectors



F-4-69

7) Disconnect harness.

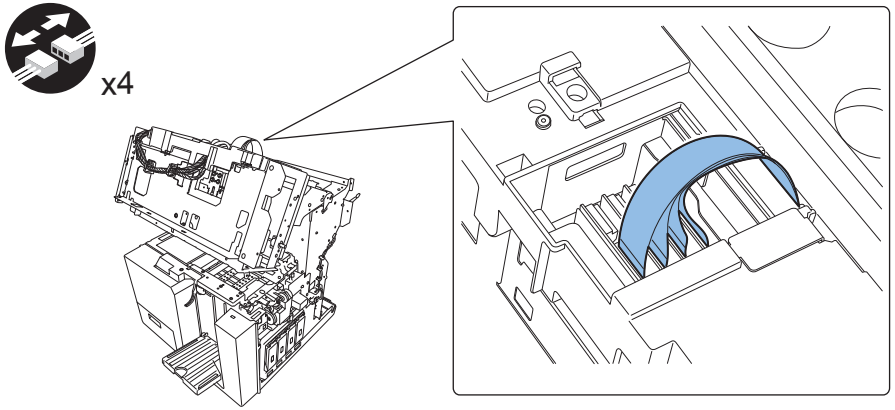
- 2 clamps



F-4-70

8) Release Flexible Cable Connectors.

- 4 connectors



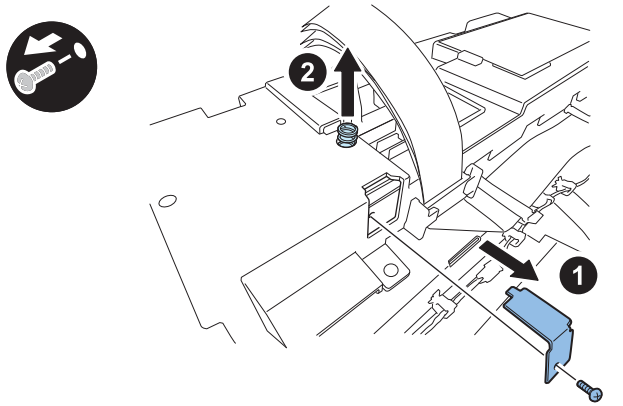
F-4-71

CAUTION:

Do not touch the terminal pins of Flexible Cable. A failure can result.

9) Remove Grounding Plate and pull out Spring.

- 1 screw

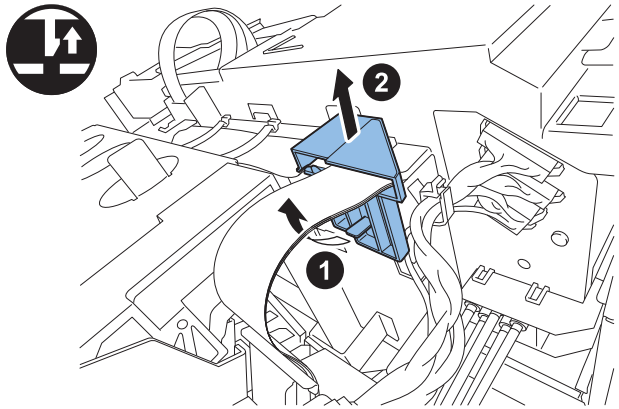


F-4-72

NOTE:
Be careful for dropping or loosing Spring.

10) Remove Harness Guide.

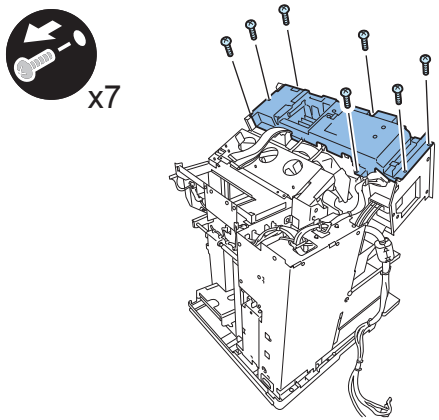
- 1 claw



F-4-73

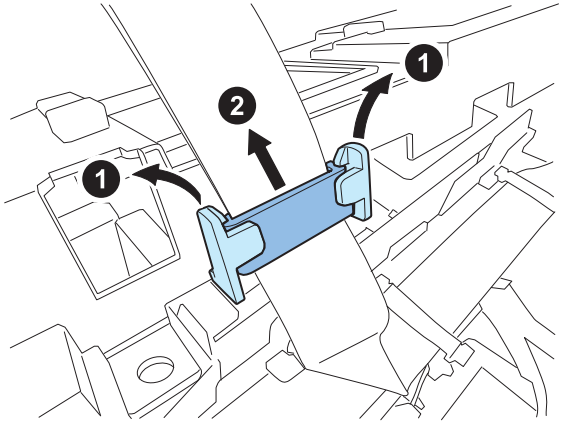
11) Remove screws securing Print Module Cover.

- 7 screws



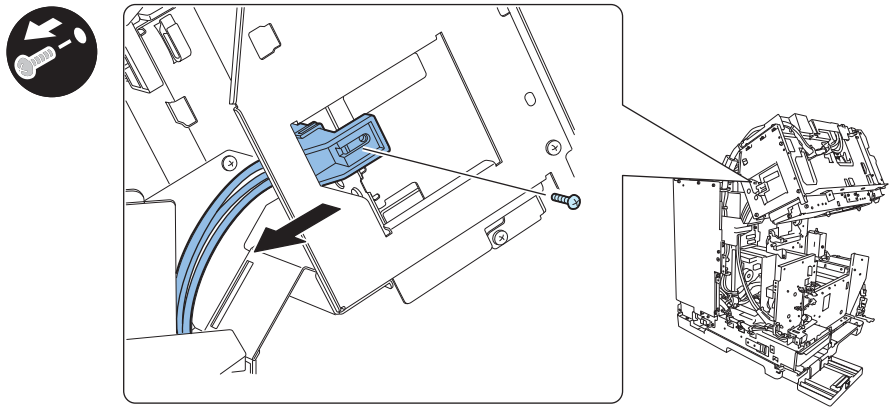
F-4-74

12) Remove Core of Flexible Cable from Print Module Cover.



F-4-75

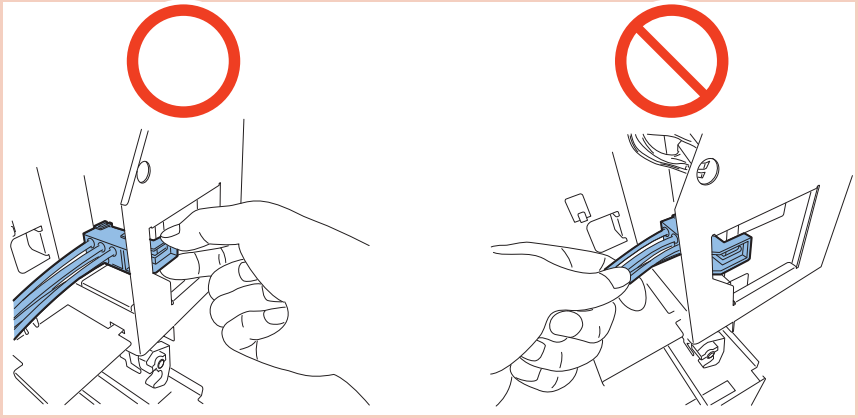
13) Disconnect Ink Tube (Print Module side).



F-4-76

CAUTION:

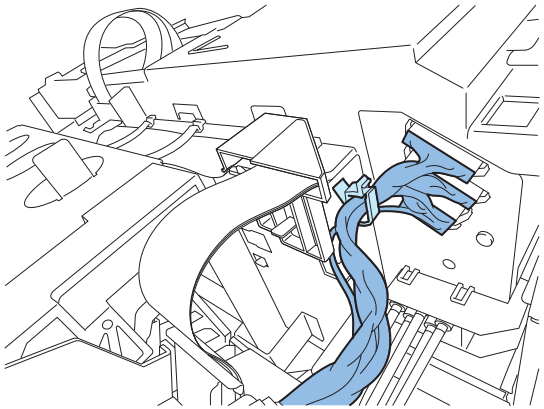
Do not pull out or damage Ink Tube when disconnecting Ink Tube Joint.



F-4-77

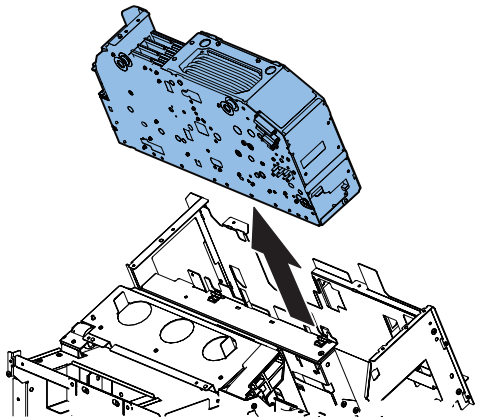
14) Disconnect connectors.

- 4 connectors



F-4-78

15) Remove Print Module.



F-4-79

<Outline of Work After Print Module Replacement>

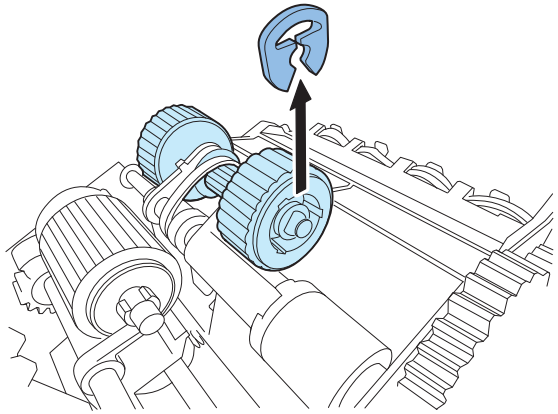
The main works to be carried out after replacement of Print Module are as follows:

- Record new adjustment values.
  Printhead wipe position, Printhead capping position, Printhead printing position indicated on new Print Module
  Purge Unit wipe position indicated on new Purge Unit side surface.
- Install Printhead and external covers and load ink.
- Enter adjustment values.
- Clear parts counters of Purge Unit and Blade Cleaner.
- Carry out registration adjustment.

Replacement Parts and Consumables

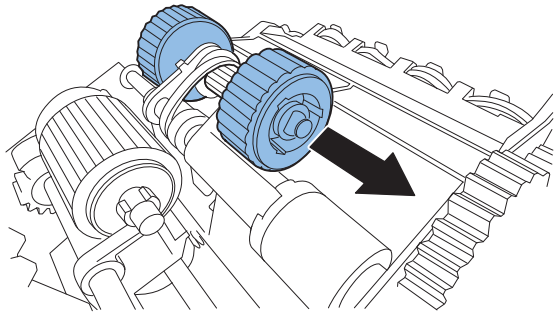
Removing Pickup Roller

1) Remove Feeder Upper Unit.("Removing Feeder Upper Unit"(page 4-20).)
2) Remove Retaining Ring.



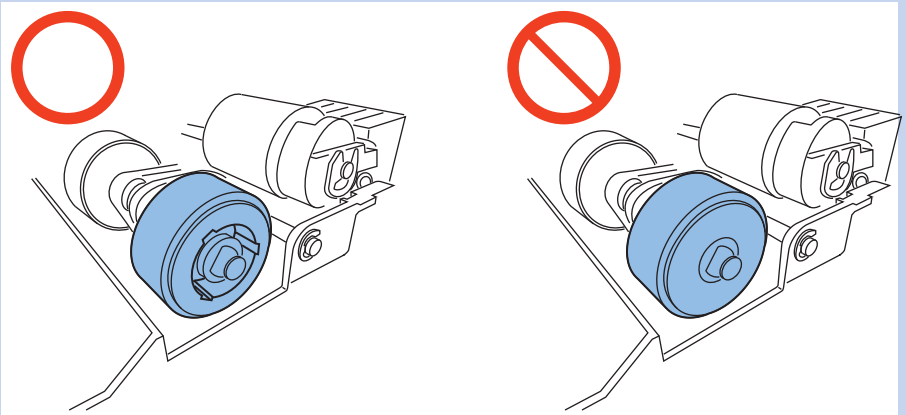
F-4-80

3) Remove Pickup Roller.



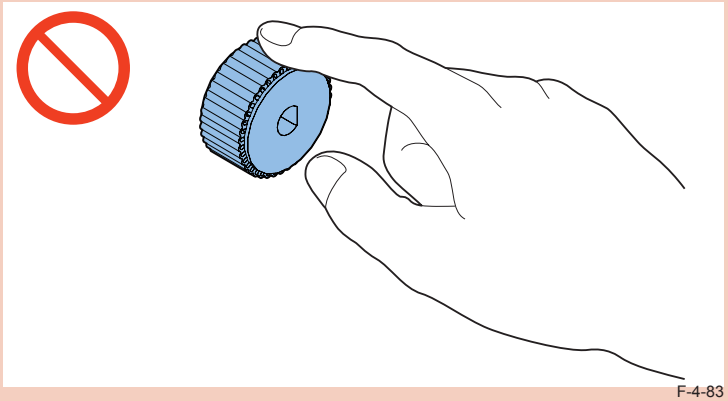
F-4-81

NOTE:
Install Pickup Rollers with its recess facing outward.



F-4-82

CAUTION:
Do not touch the roller surface during work.



F-4-83

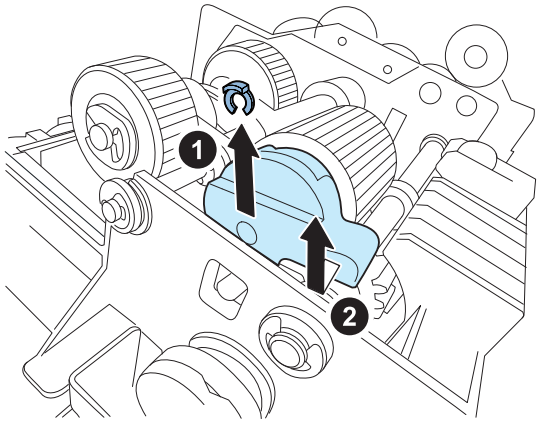
<Outline of Work After Pickup Roller Replacement>

The main work to be carried out after replacement of Pickup Roller is as follows:

- Clear Consumable Counter of Pickup Roller.

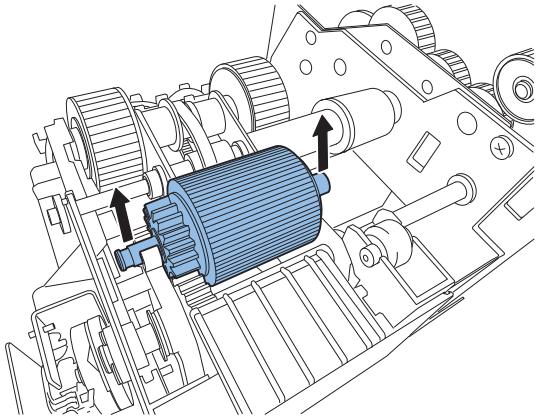
Removing Feed Roller

1) Remove Feeder Upper Unit.("Removing Feeder Upper Unit"(page 4-20).)
2) Remove Retaining Ring and Roller Cover.



F-4-84

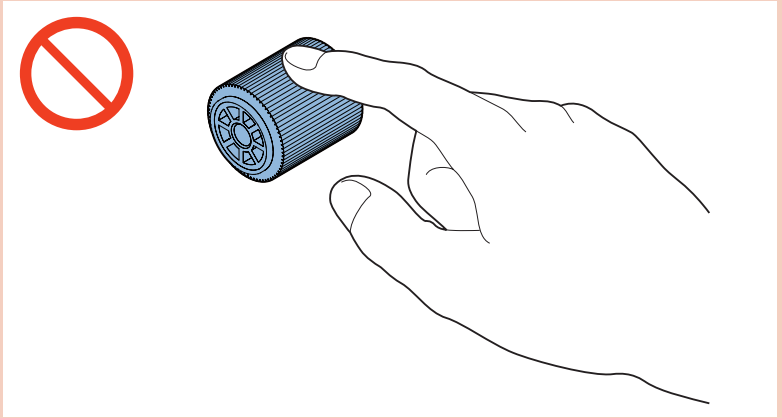
3) Remove Feed Roller.



F-4-85

CAUTION:

Do not touch the roller surface during work.



F-4-86

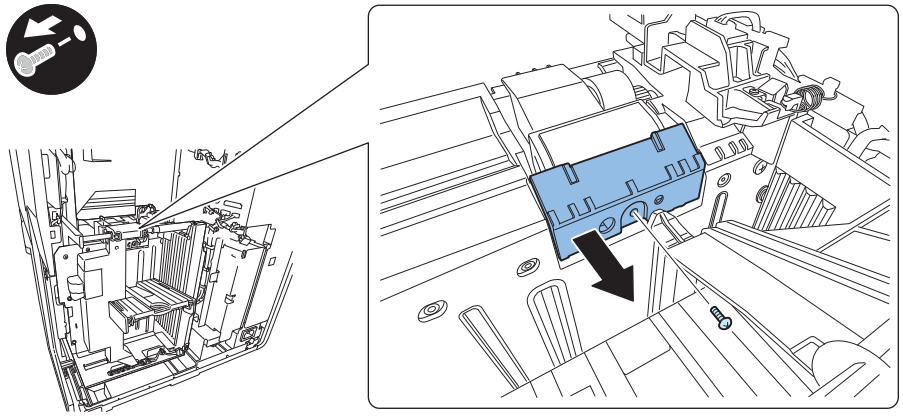
<Outline of Work After Feed Roller Replacement>

The main work to be carried out after replacement of Feed Roller is as follows:

- Clear Consumable Counter of Feed Roller.

Removing Separation Auxiliary Pad

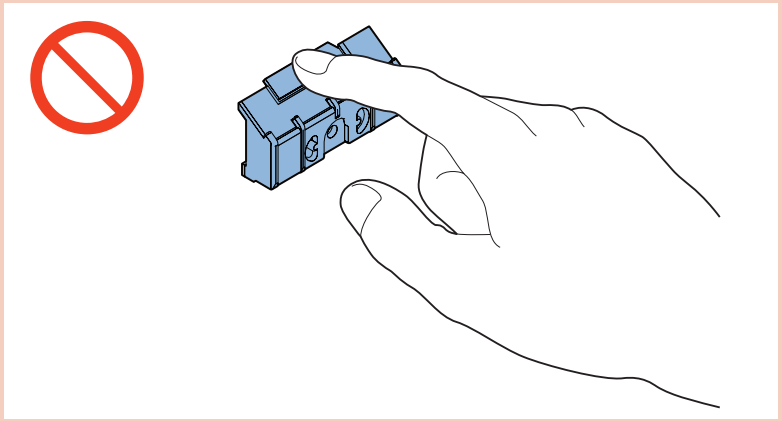
1) Remove Feeder Upper Unit("Removing Feeder Upper Unit"(page 4-20).)
2) Remove Separation Auxiliary Pad.
   - 1 screw



F-4-87

CAUTION:

Do not touch Separation Auxiliary Pad during work.



F-4-88

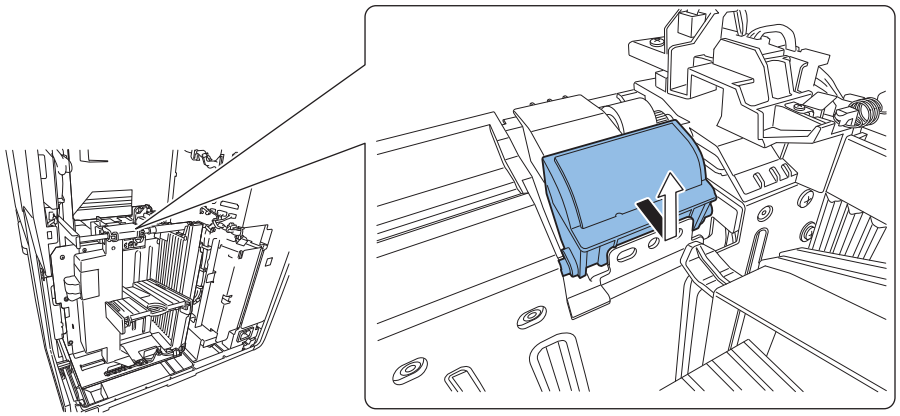
<Outline of Work After Separation Auxiliary Pad Replacement>

The main work to be carried out after replacement of Separation Auxiliary Pad is as follows:

- Clear Consumable Counter of Separation Auxiliary Pad.

Removing Separation Pad

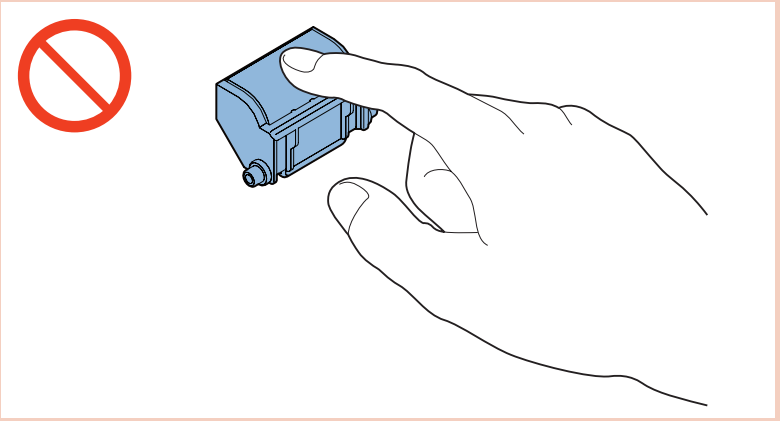
1) Remove Separation Auxiliary Pad("Removing Separation Auxiliary Pad"(page 4-36).)
2) Remove Separation Pad.



F-4-89

CAUTION:

- Be careful for loosing Spring.
- Do not touch Separation Pad during work.



F-4-90

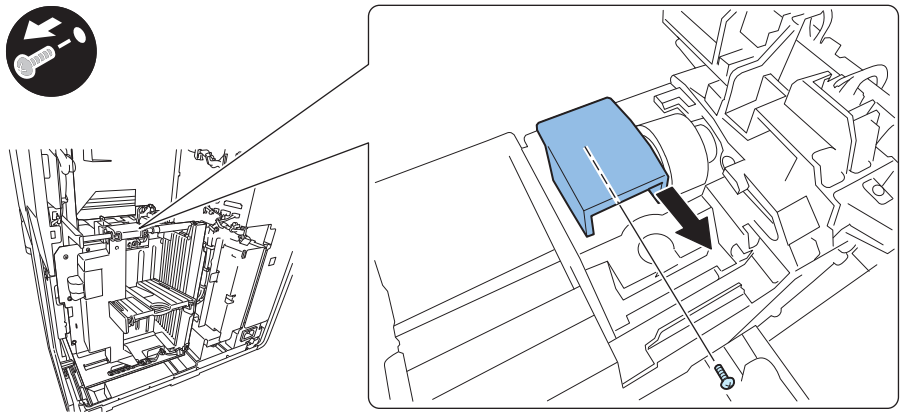
<Outline of Work After Separation Pad Replacement>

The main work to be carried out after replacement of Separation Pad is as follows:

- Clear Consumable Counter of Separation Pad.

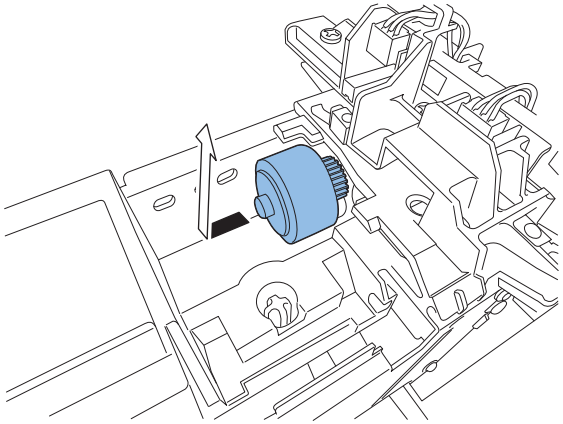
Removing Skew Correct Roller

1) Remove Separation Pad.("Removing Separation Pad"(page 4-36).)
2) Remove guide.
   - 1 screw



F-4-91

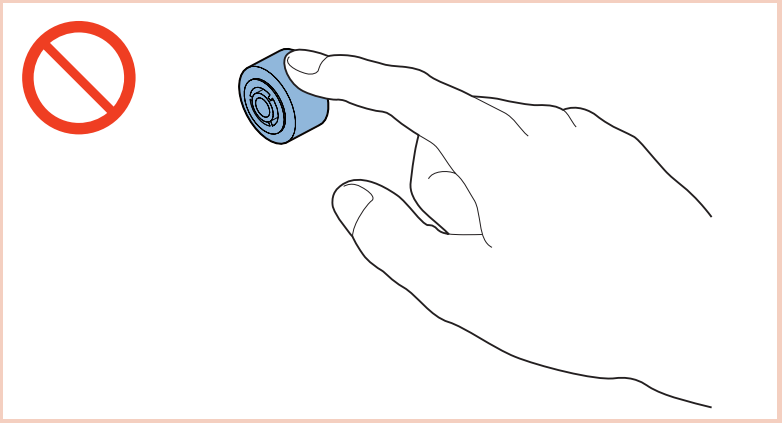
3) Remove Skew Correct Roller.



F-4-92

CAUTION:

Do not touch Skew Correction Roller during work.



F-4-93

<Outline of Work after Skew Correct Roller Replacement>

The main work to be carried out after replacement of Skew Correct Roller is as follows:

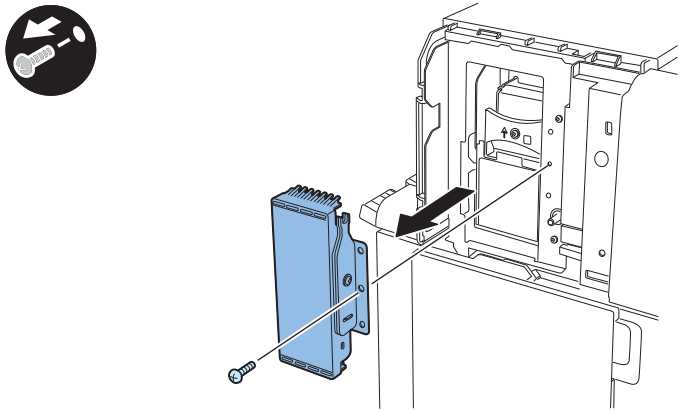
- Clear Consumable Counter of Skew Correct Roller.

Removing Blade Cleaner

1) Select [Parts Replacement] of Service Utility, check the [Blade Cleaner] of Consumable Parts Replacement, click [Start] to move Blade Cleaner to the replacement position.

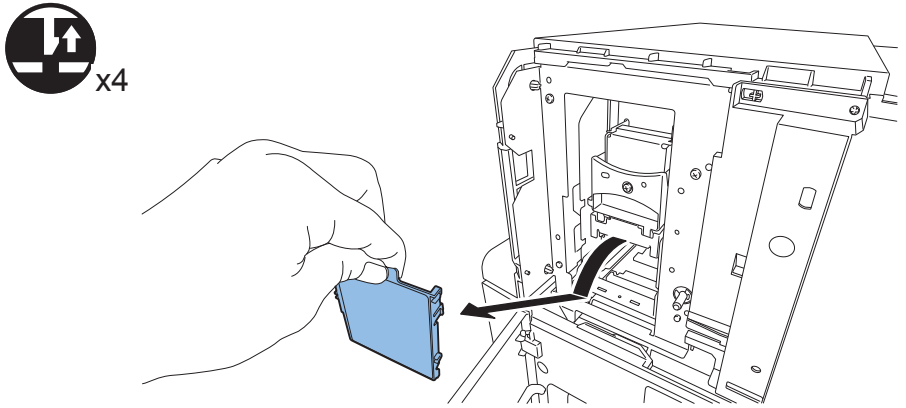
2) Remove Maintenance Cover.("Removing Maintenance Cover"(page 4-17).)

3) Remove Service Tool Unit.

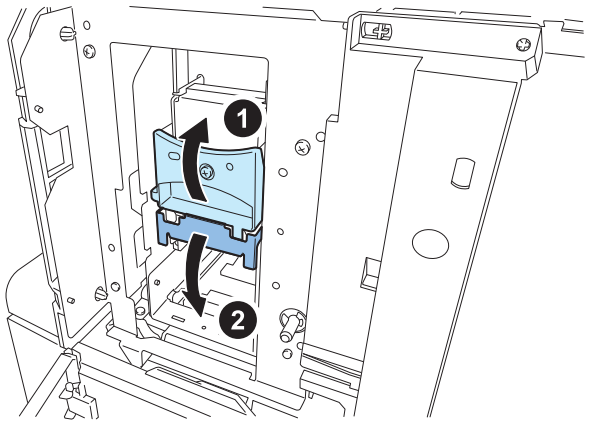


F-4-94

4) Remove Print Module Cover and open Upper Printhead Release Lever and Lower Printhead Release Lever

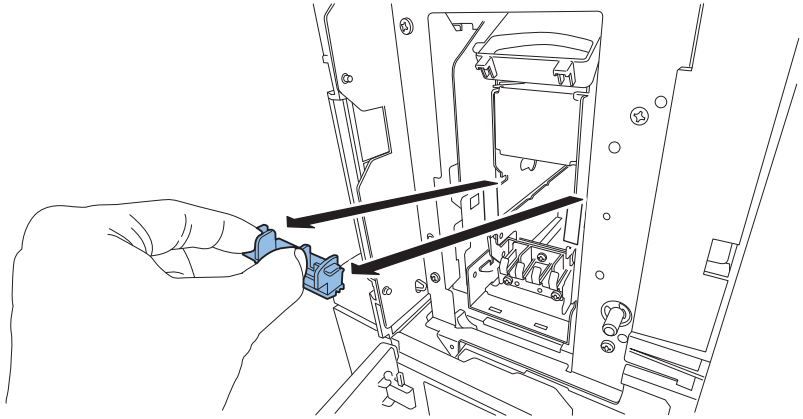


F-4-95



F-4-96

5) Remove Blade Cleaner.



F-4-97

<Outline of Work After Blade Cleaner Replacement>

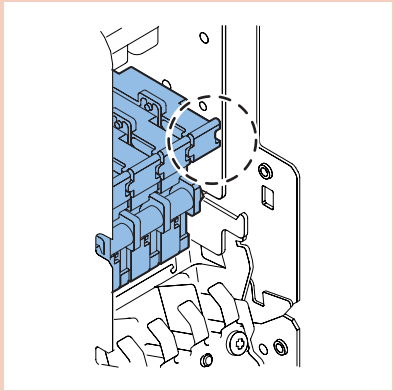
The main work to be carried out after replacement of Blade Cleaner is as follows:

- When replacing Blade Cleaner using Service Utility, consumable counter is cleared automatically.

Removing Printhead Unit

CAUTION:

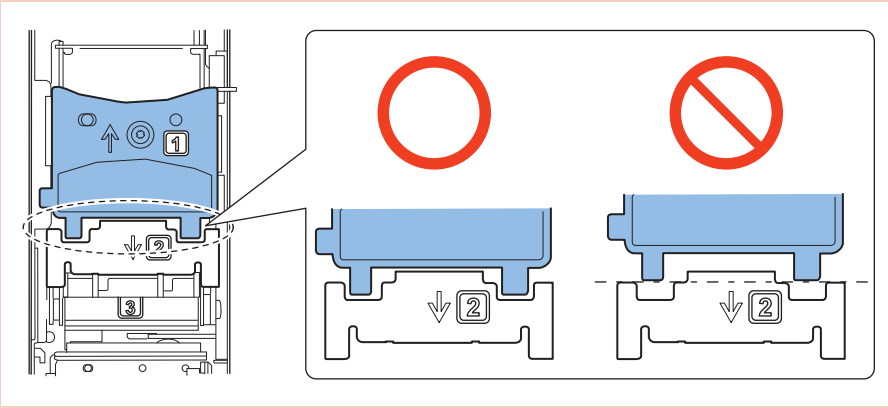
- To confirm Printhead Unit is in the correct position, see if the end of Printhead Unit grip and the edge of the inner metal plate are in the same plane as shown in the figure.
- If Printhead Unit is insufficiently inserted, Lower Printhead Release Lever cannot be closed.



F-4-98

CAUTION:

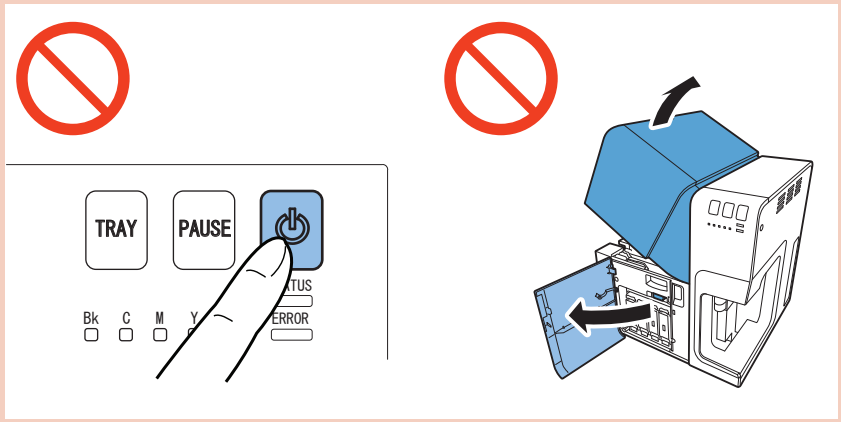
When installing Printhead Unit, confirm that Upper Printhead Release Lever is firmly closed as shown in the figure.Improper closing of Upper Printhead Release Lever may cause Printer failure.



F-4-99

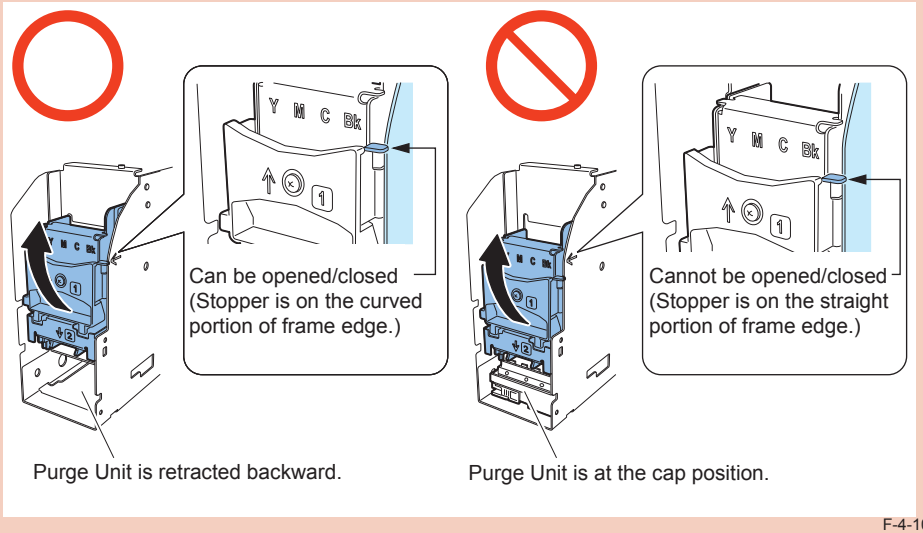
NOTE:
- Initial ink loading takes about 25 minutes.
- Ink loading time might be changed due to the design change.

CAUTION:
- Do not turn the power off or open covers and doors during ink loading.
- Should Power Key be switched OFF or covers be opened during ink loading, its operation will be terminated and has to be started from the beginning. In such a case, turn on the power to start ink loading again.
- Restarting the ink loading results in more ink consumption.



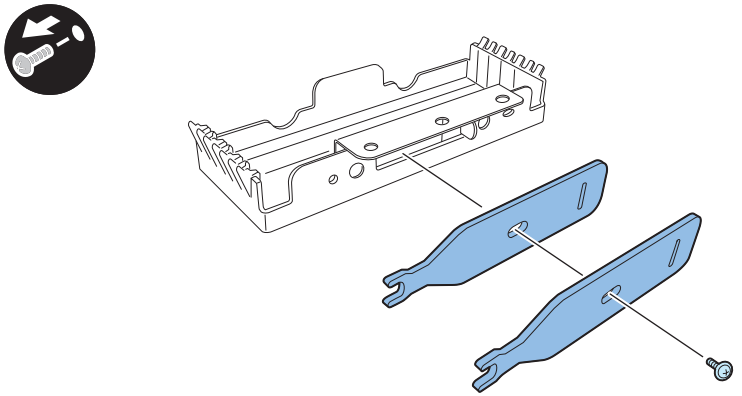
F-4-100

CAUTION:
- Before removing Printhead Unit, move Printhead Unit to the position shown below (Printhead replacement position) using Service Utilityl. Then, open Upper Printhead Release Lever and remove Printhead.
- Do not open Upper Printhead Release Lever forcibly when it is at a position where it cannot be opened/closed. A failure can result.



F-4-101

1) Select [Parts Replacement] in Service Utility, check [Head] check box and click [Starat] to drain ink.
2) Remove Blade Cleaner.("Removing Blade Cleaner"(page 4-38).)
3) Remove 2 wrenches from Service Tool Unit.

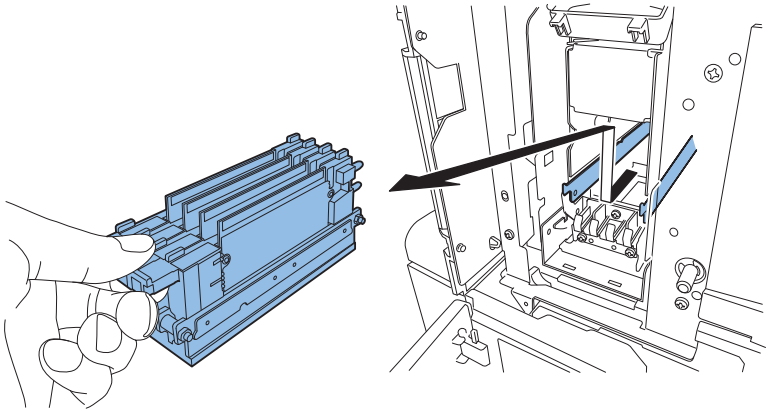


F-4-102

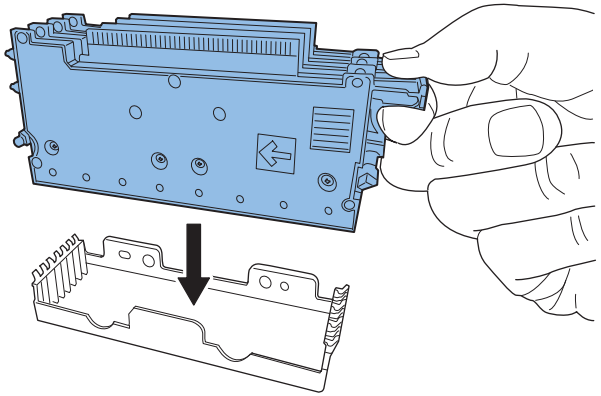
4) Draw out Printhead Unit and place it on Printhead Replace Tool removed at step 3).

CAUTION:

- Removed Printhead Unit must be placed on Printhead Replace Tool.
- Leaving Printhead Unit which is removed from Printer causes of non-discharge because Printhead nozzles dry. So install Printhead to Printer immediately after the work.



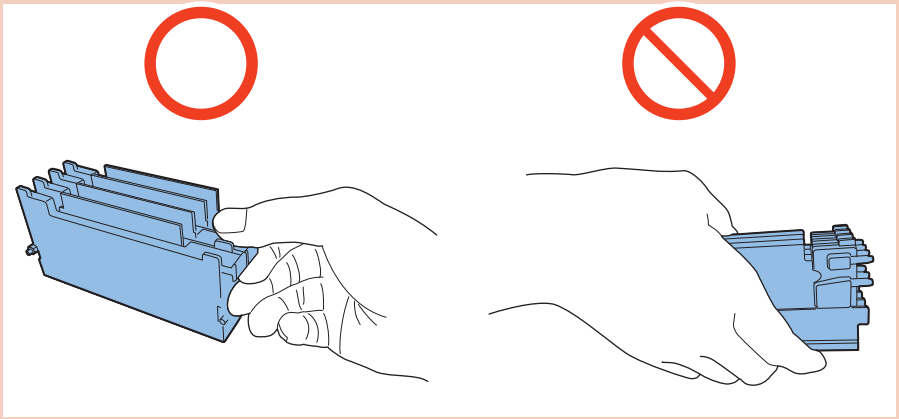
F-4-103



F-4-104

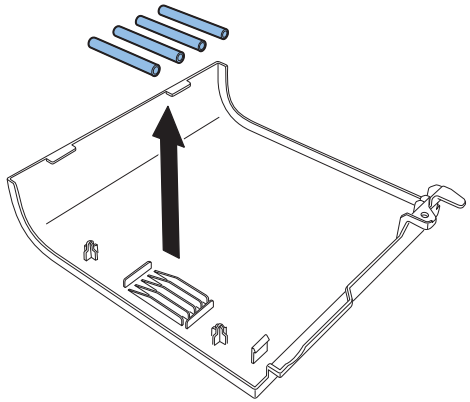
CAUTION:

Do not touch the terminal pins of Printhead PCB and Printhead face. A failure can result.



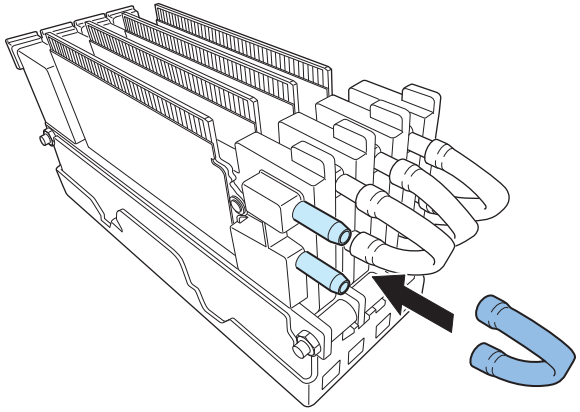
F-4-105

5) Remove Tubes from Maintenance Cover.



F-4-106

6) Bend Tube in U shape and insert it Printhead Unit.



F-4-107

<Outline of Operation After Printhead Unit Replacing>

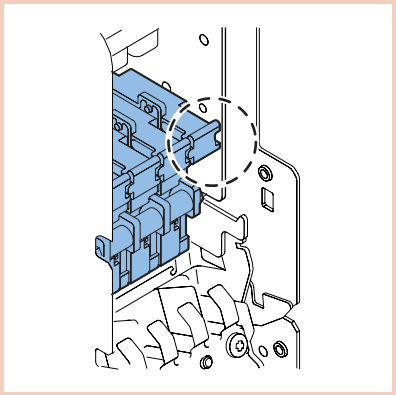
Main operations after Printhead Unit replacement are shown below.

- Install Printhead and external cover, and load the ink.
- Perform registration adjustment.

Removing Printhead

CAUTION:

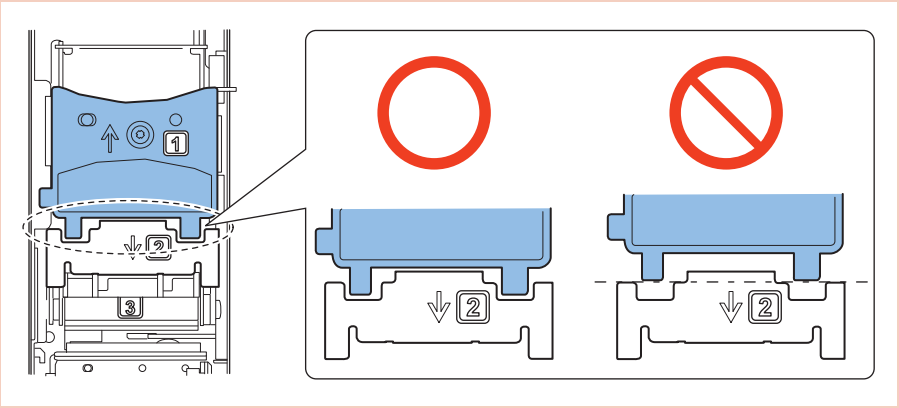
- To confirm Printhead Unit is in the correct position, see if the end of Printhead Unit grip and the edge of the inner metal plate are in the same plane as shown in the figure.
- If Printhead Unit is insufficiently inserted, Lower Printhead Release Lever cannot be closed.



F-4-108

CAUTION:

When installing Printhead Unit, confirm that Upper Printhead Release Lever is firmly closed as shown in the figure.Improper closing of Upper Printhead Release Lever may cause Printer failure.



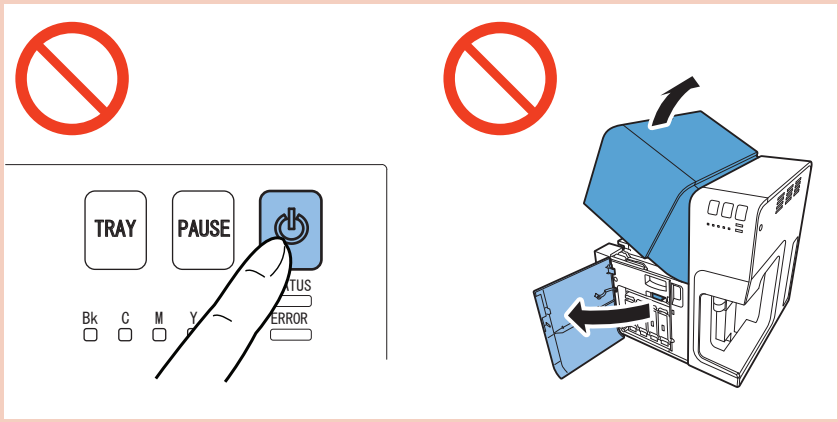
F-4-109

NOTE:

- Initial ink loading takes about 25 minutes.
- Ink loading time might be changed due to the design change.

CAUTION:

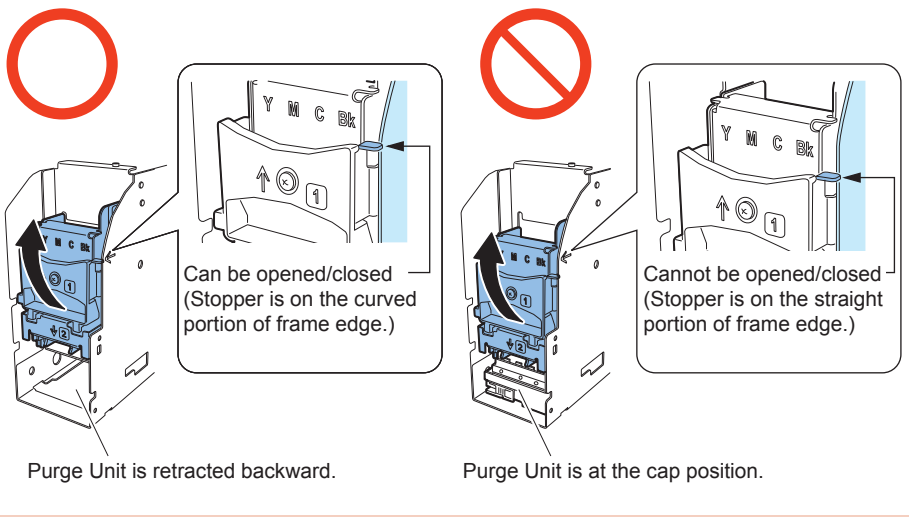
- Do not turn the power off or open covers and doors during ink loading.
- Should Power Key be switched OFF or covers be opened during ink loading, its operation will be terminated and has to be started from the beginning. In such a case, turn on the power to start ink loading again.
- Restarting the ink loading results in more ink consumption.



F-4-110

CAUTION:

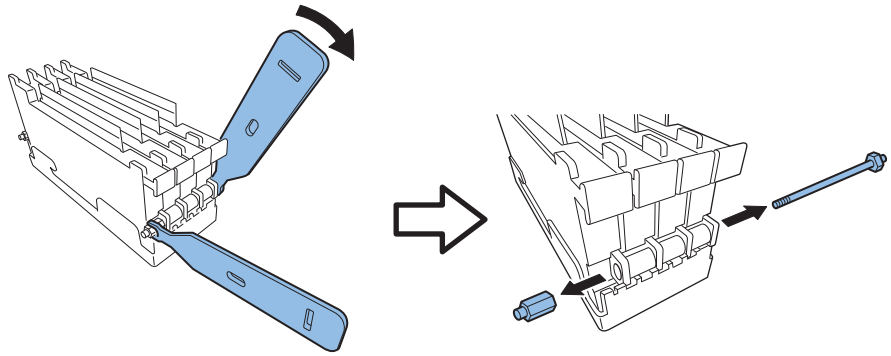
- Before removing Printhead Unit, move Printhead Unit to the position shown below (Printhead replacement position) using Service Utilityl. Then, open Upper Printhead Release Lever and remove Printhead.
- Do not open Upper Printhead Release Lever forcibly when it is at a position where it cannot be opened/closed. A failure can result.



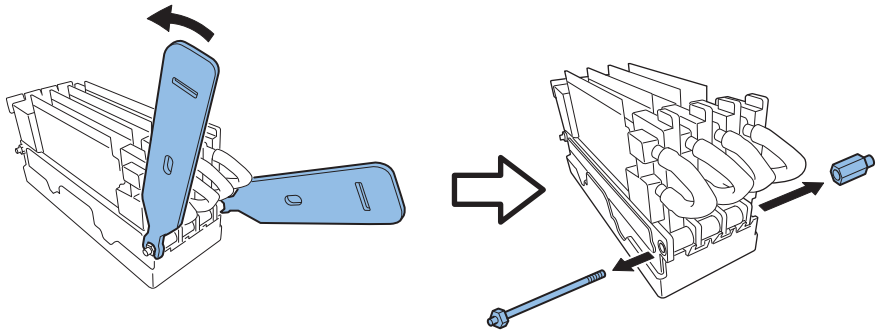
F-4-111

1) Remove Printhead Unit.(""Removing Printhead Unit"(page 4-39).

2) Remove 2 Shafts and 2 Stoppers.



F-4-112



F-4-113

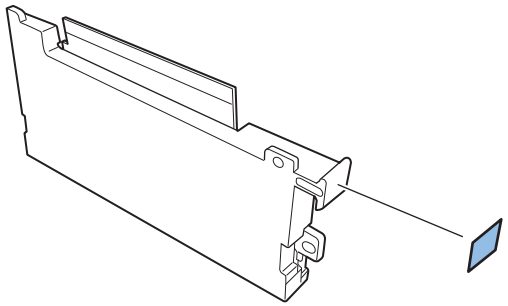
3) Take out Printhead for replacement.

NOTE:

- When replacing Printhead of Cyan, remove Printhead of Black and Spacer as well.
- When replacing Printhead of Magenta, remove Printhead of Yellow and Spacer as well.
- Store the removed Spacer which will be used for Printhead installation.

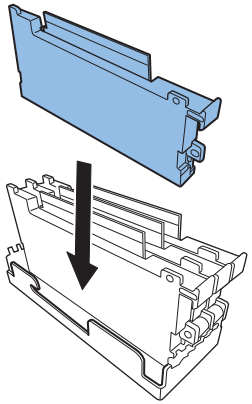
<Printhead Installation Procedure>

1) Affix Color ID Label on Printhead.

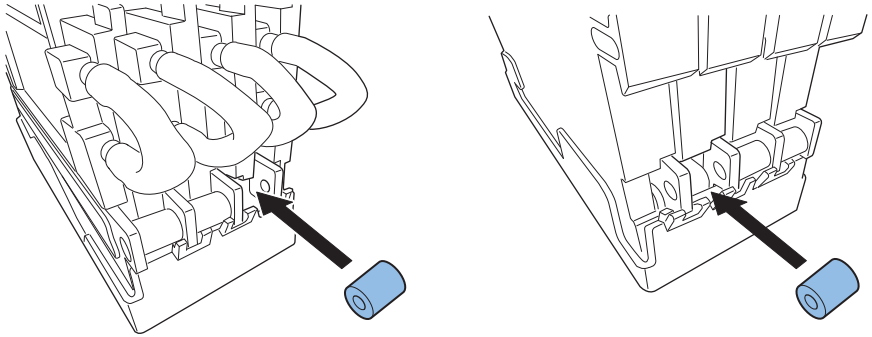


F-4-114

2) Place Spacer and Printhead in position.

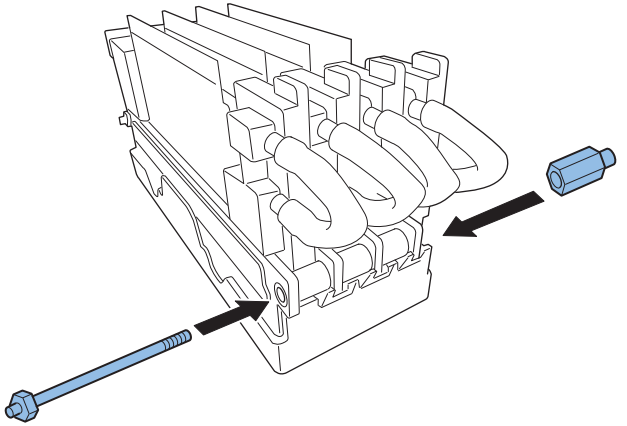


F-4-115

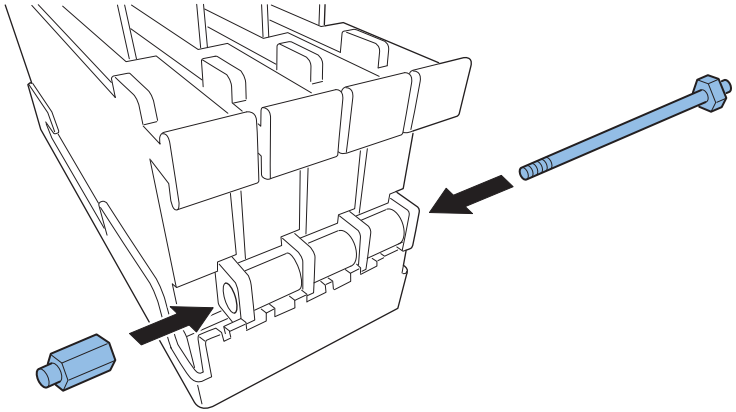


F-4-116

3) Pass Shafts through.



F-4-117



F-4-118

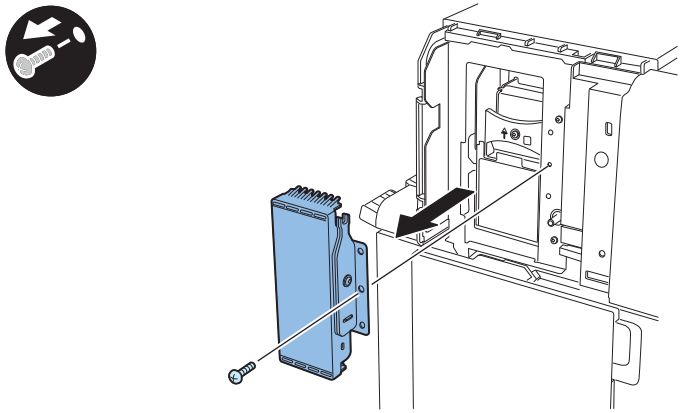
<Outline of Operation After Printhead Replacing>

Main operations after Printhead replacement are shown below.

- Install Printhead and external cover, and load the ink.
- Perform registration adjustment.

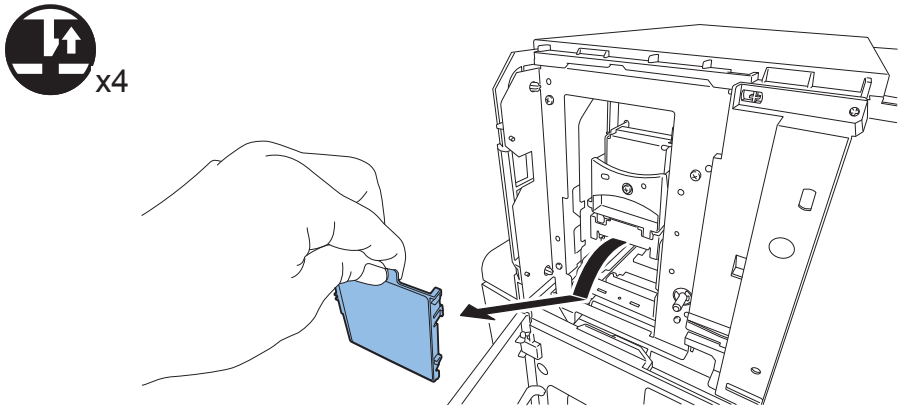
Removing Purge Unit

1) Select [Parts Replacement] of Service Utility, check [Purge Unit] of durable part, click [Start Replacement] to move Purge Unit to replacing position.
2) Remove Maintenance Cover.("Removing Maintenance Cover"(page 4-17).)
3) Remove Service Tool Unit.



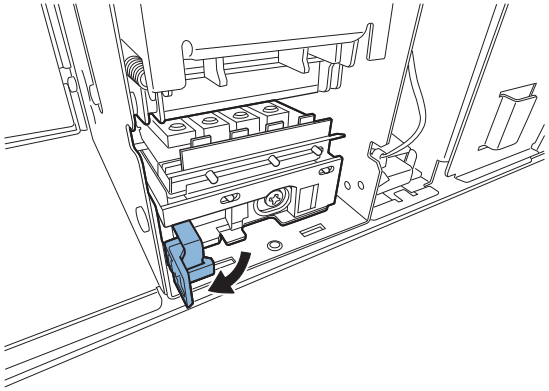
F-4-119

4) Remove Print Module Cover.



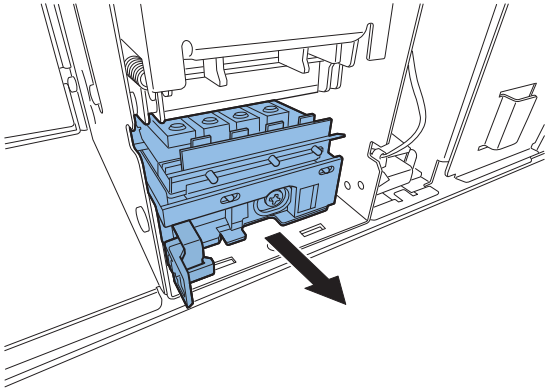
F-4-120

5) Release Lock.



F-4-121

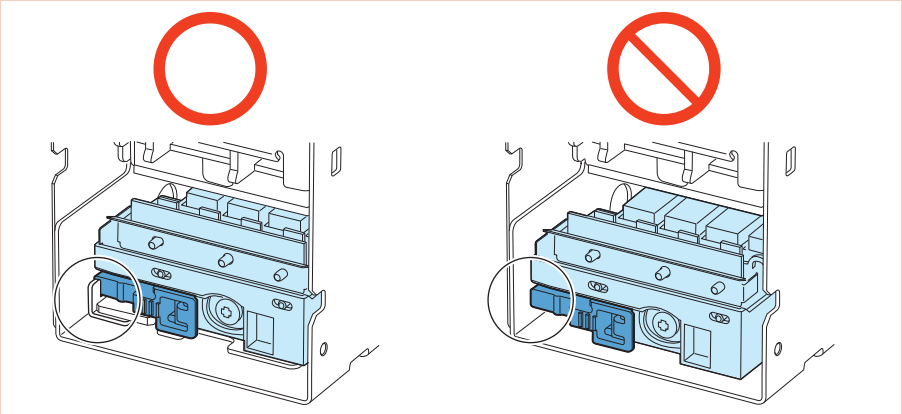
6) Draw out Purge Unit while holding Lock.



F-4-122

CAUTION at installation

Surely close Lock, when installing Purge Unit.



F-4-123

<Outline of Operation After Purge Unit Replacement>

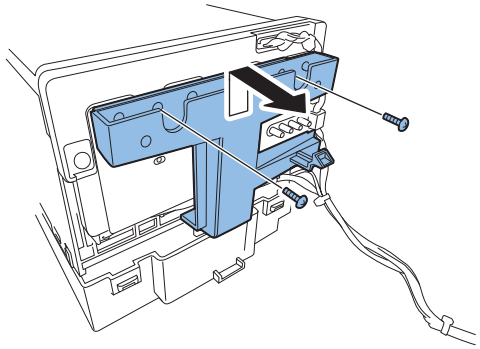
Main Operations After Purge Unit Replacement are shown below.

- Record adjustment value (Purge Unit Wipe position) in the label on new Purge Unit.
- Perform Blade position adjustment.
- Install external cover.
- Enter adjustment value.
- When replacing Purge Unit using Service Utility, Consumables Counters are cleared automatically.
- Perform registration adjustment.

PCB

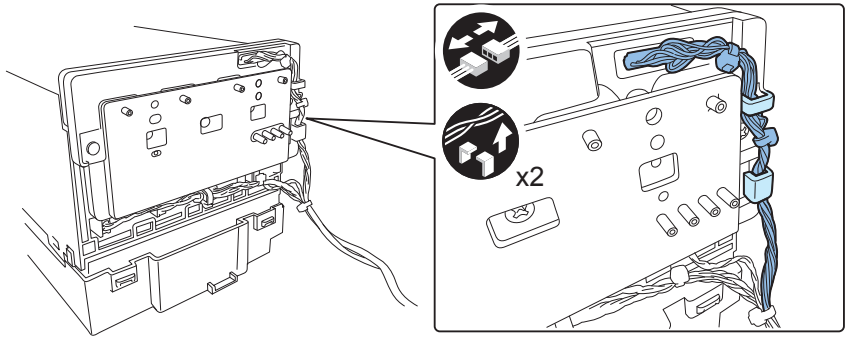
Removing Needle Unit(Ink Tank Relay PCB)

1) Remove Ink Tank Holder Unit.("Removing Ink Tank Holder Unit"(page 4-26).)
2) Remove Duct.
   - 2 screws



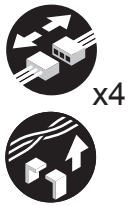
F-4-124

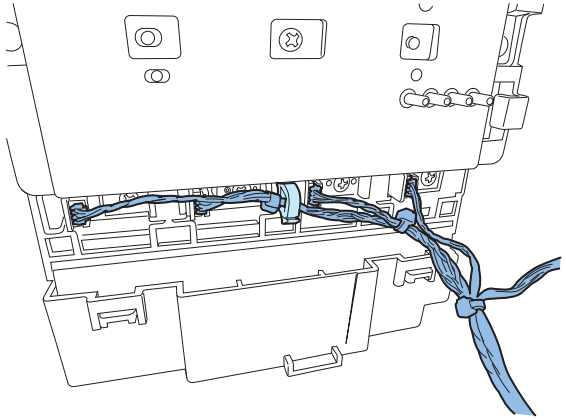
3) Disconnect Harness Connector and release Harness from hooks.
   - 1 connector
   - 2 hooks



F-4-125

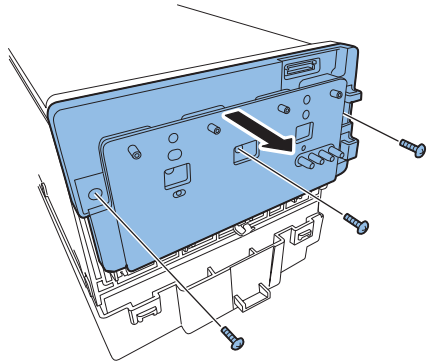
4) Remove Harness.
   - 4 connectors
   - 1 clamp





F-4-126

5) Remove Needle Unit.
   - 3 screws



F-4-127

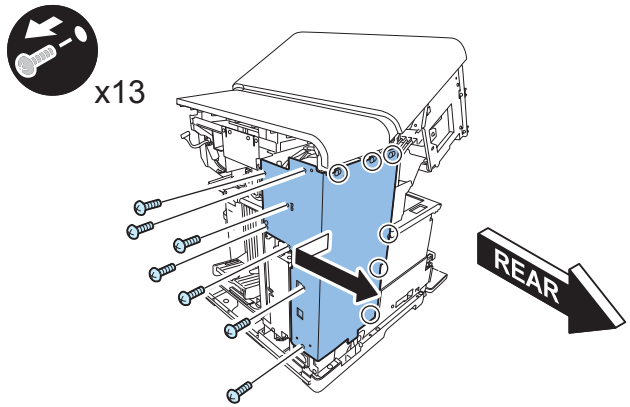
Removing Printer Controller PCB

<Outline of Operation Before Printer Controller PCB Replacing>

- Retrieve data from Printer to PC

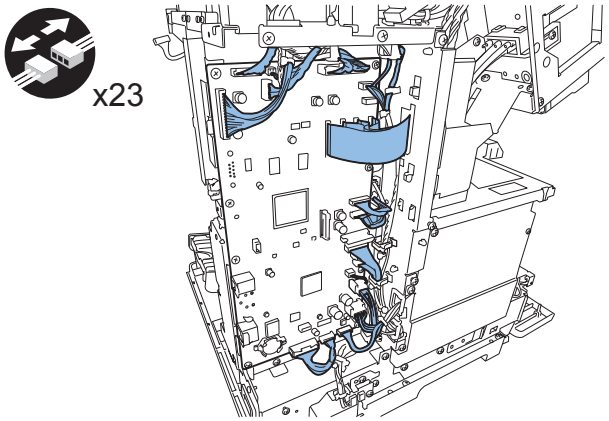
1) Remove Right Cover.("Removing Right Cover"(page 4-12).)
2) Remove Rear Upper Cover.("Removing Rear Upper Cover"(page 4-18).)
3) Remove PCB Cover.
   - 13 screws

NOTE:
PCB Cover can be removed by just loosening the rear 6 screws after removing the front 7 screws.



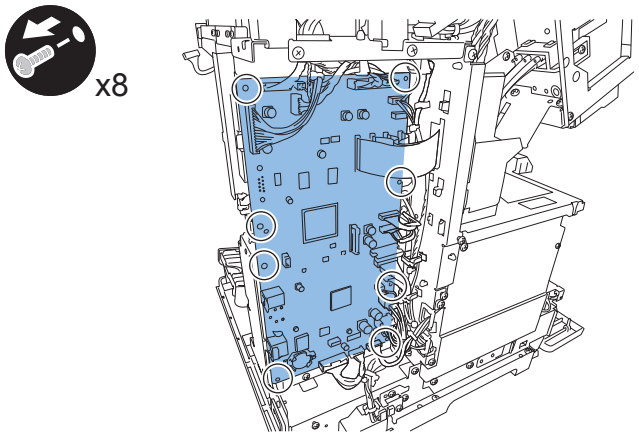
F-4-128

4) Disconnect all connectors on PCB.
   - 23 connectors



F-4-129

5) Remove Printer Controller PCB.
- 8 screws



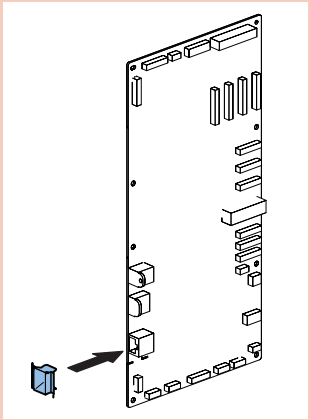
F-4-130

CAUTION:

When replacing PCB, be careful below.

• Keep the grounding plate.

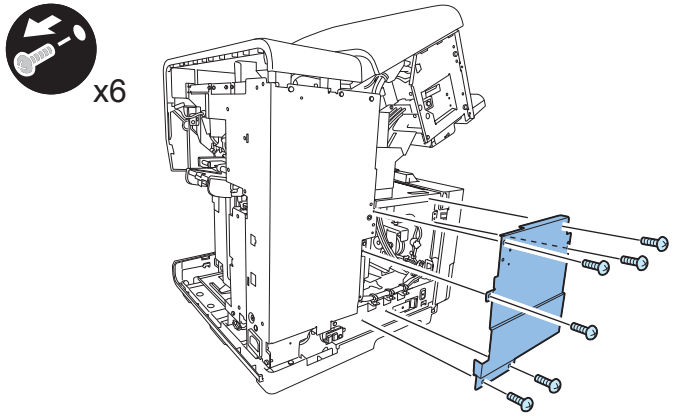
• Install the grounding plate surely.



F-4-131

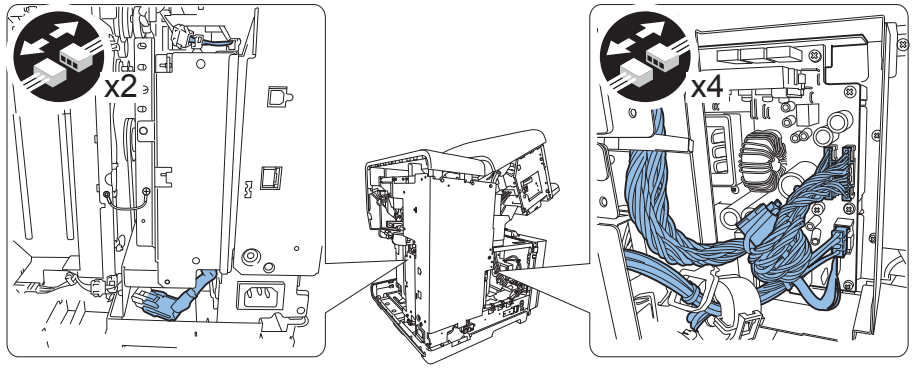
Removing DC Power Supply PCB

1) Remove Right Cover.("Removing Right Cover"(page 4-12).)
2) Remove Rear Upper Cover.("Removing Rear Upper Cover"(page 4-18).)
3) Remove Rear Plate.
- 6 screws



F-4-132

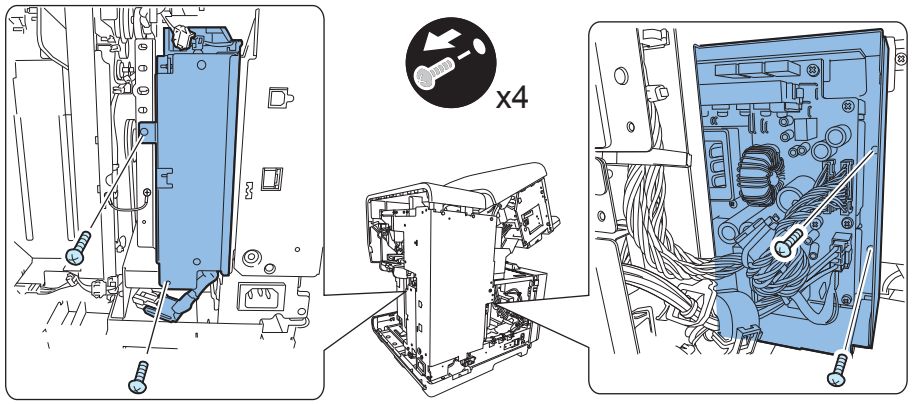
4) Disconnect harness.
- 5 connectors



F-4-133

5) Remove DC Power Supply PCB Unit.

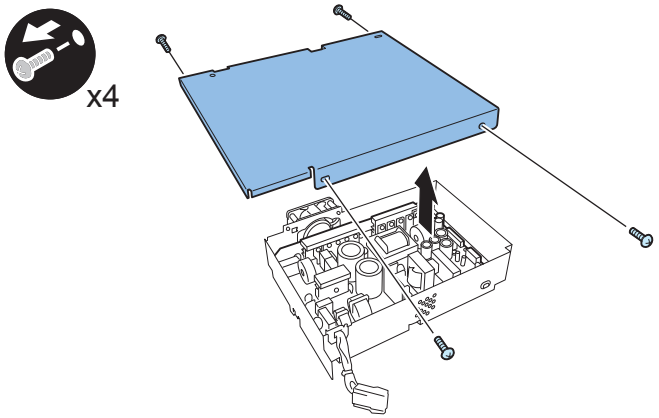
- 4 screws



F-4-134

6) Remove Power Supply Plate.

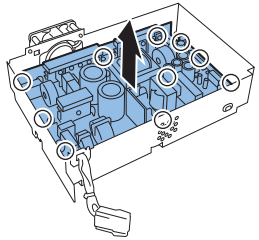
- 4 screws



F-4-135

7) Remove DC Power Supply PCB

- 10 screws



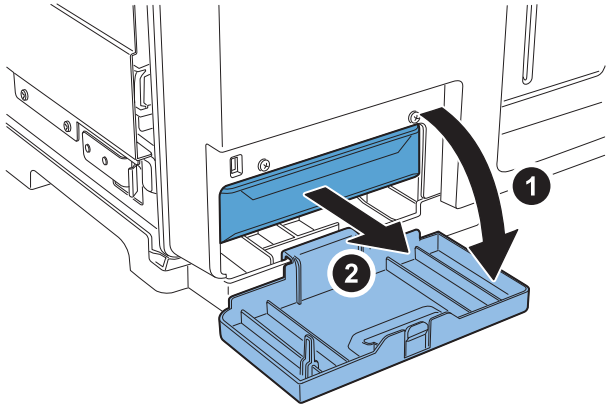
F-4-136

<Outline of Operation After DC Power Supply Unit PCB Replacement>

- In the case error code from 0211 to 0215 occurs, release the error using Service Utility.
- Adjust discharge power.

Removing Maintenance Cartridge Relay PCB

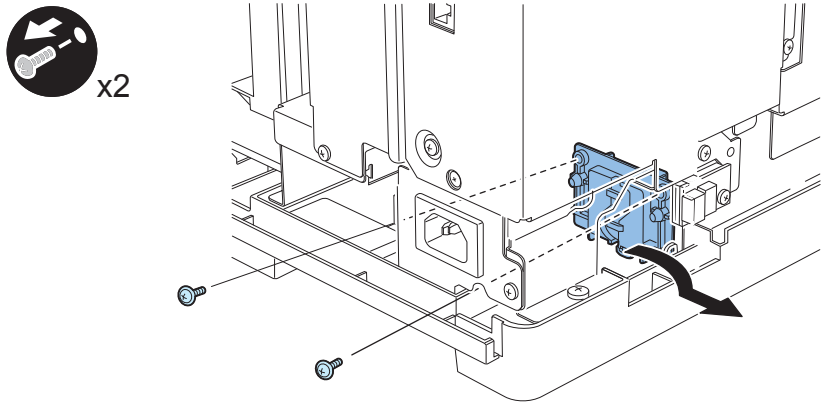
1) Remove Right Cover.("Removing Right Cover"(page 4-12).)
2) Remove Rear Cover.("Removing Rear Cover"(page 4-15).)
3) Open Maintenance Cartridge Door and draw out Maintenance Cartridge.



F-4-137

4) Move out Maintenance Cartridge Relay PCB Unit.

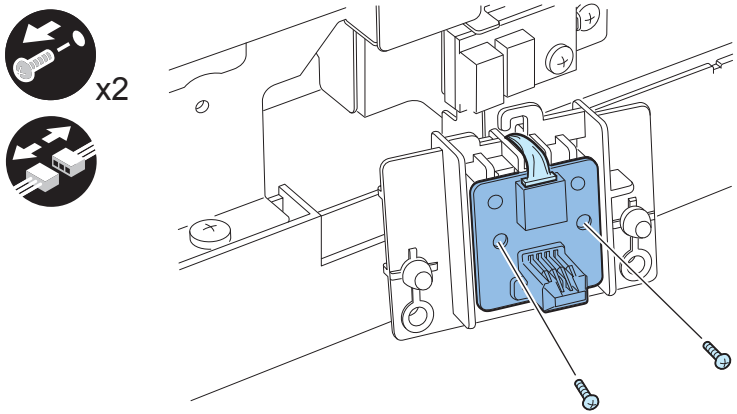
- 2 screws



F-4-138

5) Remove Maintenance Cartridge Relay PCB.

- 2 screws
- 1 connector

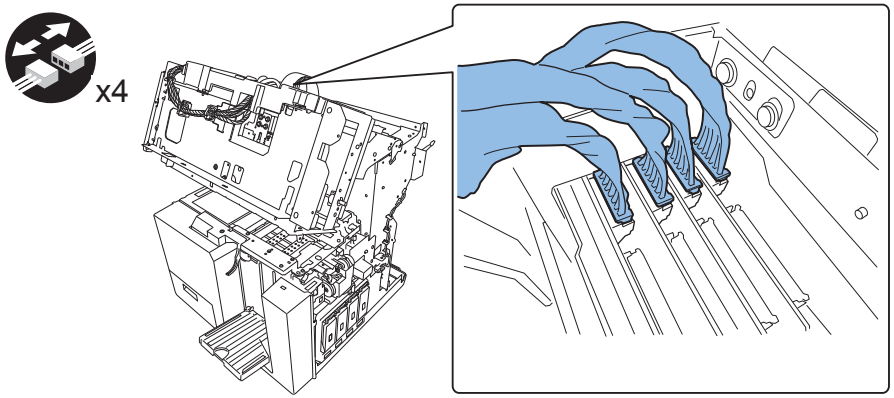


F-4-139

Removing Printhead Relay PCB

1) Remove Printhead Unit.("Removing Printhead Unit"(page 4-39).)
2) Remove Upper Cover.("Removing Upper Cover"(page 4-18).)
3) Disconnect harness.

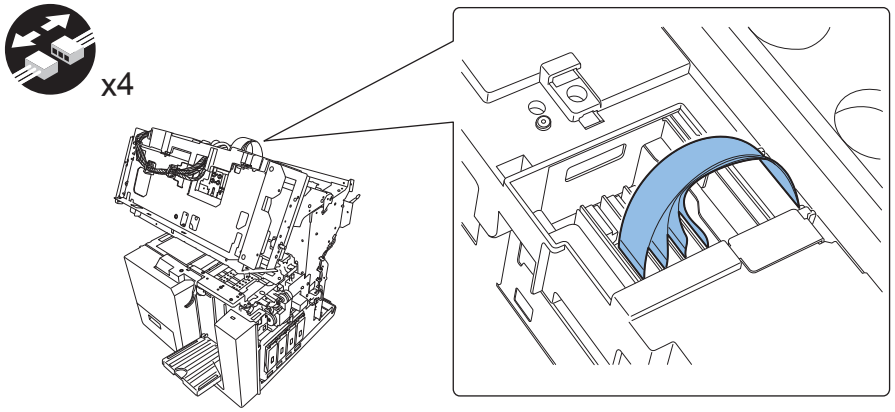
- 4 connectors



F-4-140

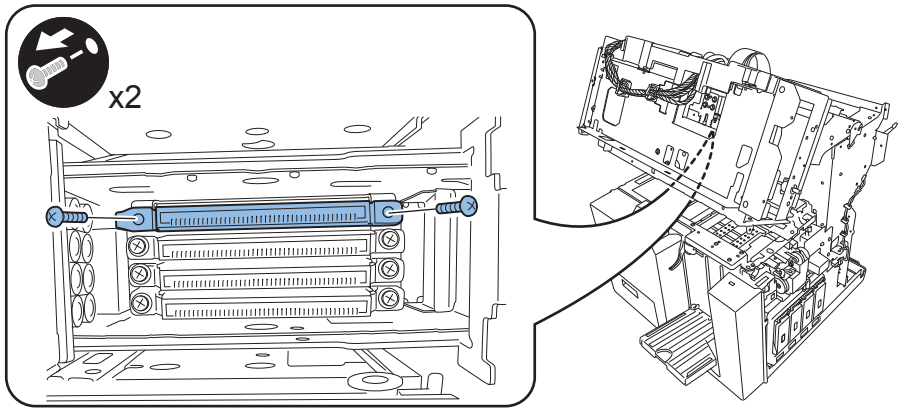
4) Release Flexible Cable connector.

- 4 connectors



F-4-141

5) Remove Printhead Relay PCB.

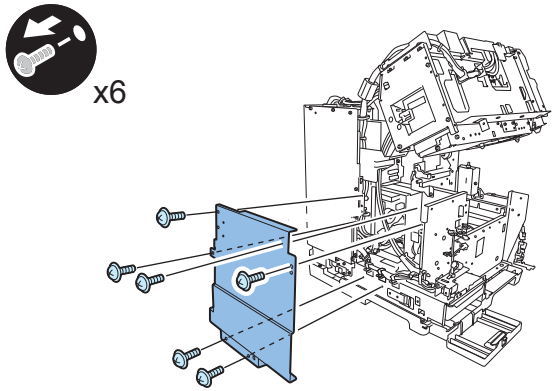


F-4-142

Motors

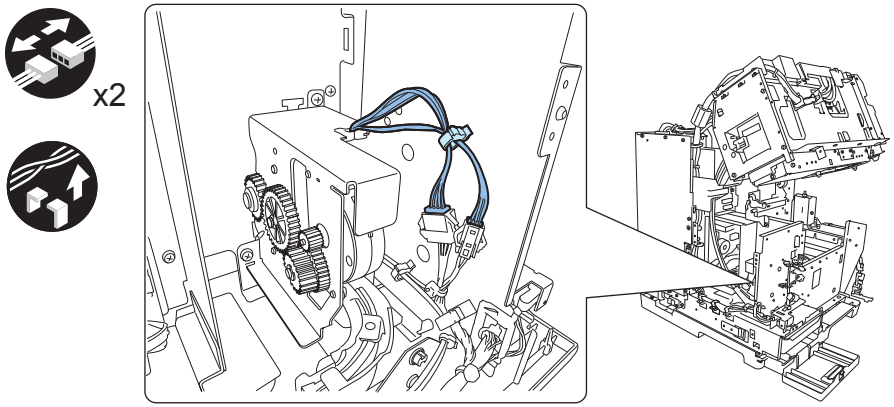
Removing Valve Motor

1) Remove Left Lower Cover.("Removing Left Lower Cover"(page 4-12).)
2) Remove Rear Cover.("Removing Rear Cover"(page 4-15).)
3) Remove Rear Plate.
   - 6 screws



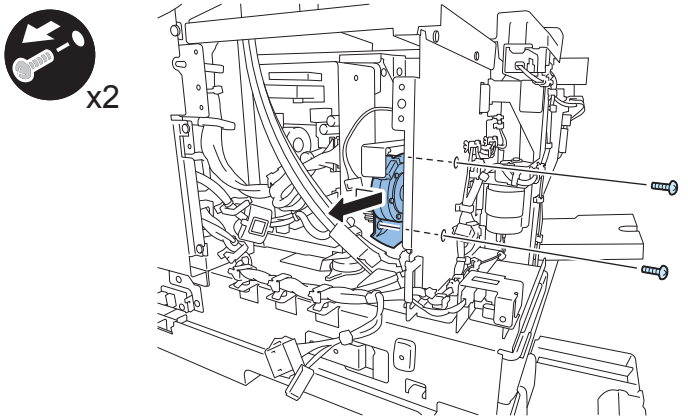
F-4-143

4) Disconnect Harness.
   - 2 connectors
   - 1 clamp



F-4-144

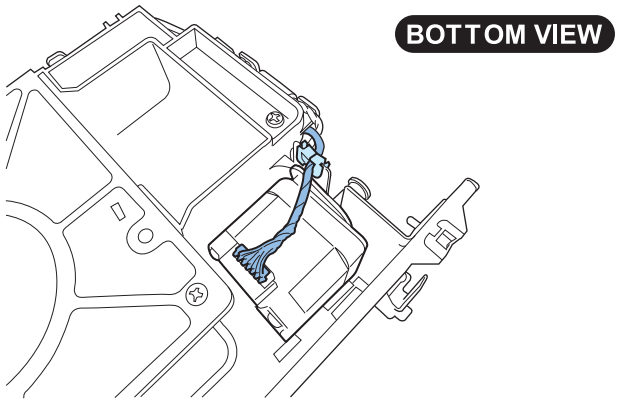
5) Remove Valve Motor.
   - 2 screws



F-4-145

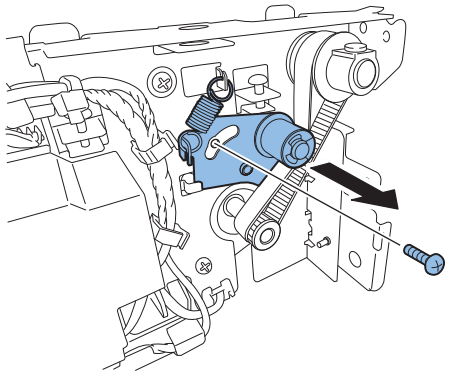
Removing Transport Motor

1) Remove Transport Unit.("Removing Transport Unit"(page 4-22).)
2) Disconnect Connector.
   - 1 connector
   - 1 clamp



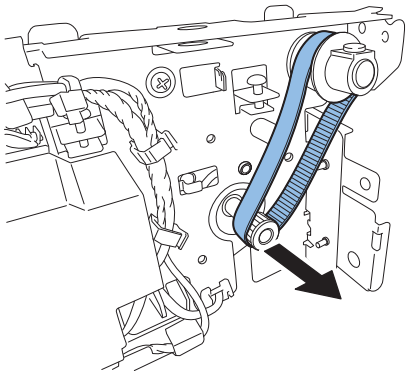
F-4-146

3) Remove Belt Tensioner.
   - 1 connector



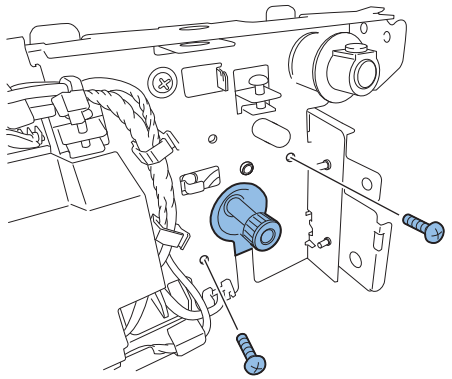
F-4-147

4) Remove Timing Belt.



F-4-148

5) Remove screws securing Transport Motor.
   - 2 screws

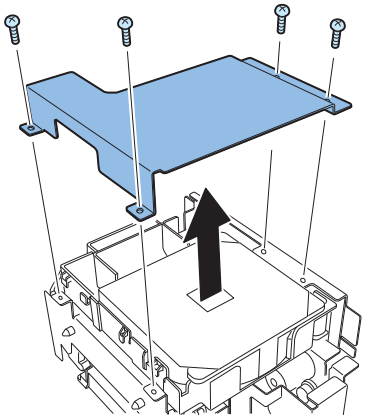


F-4-149

Fans

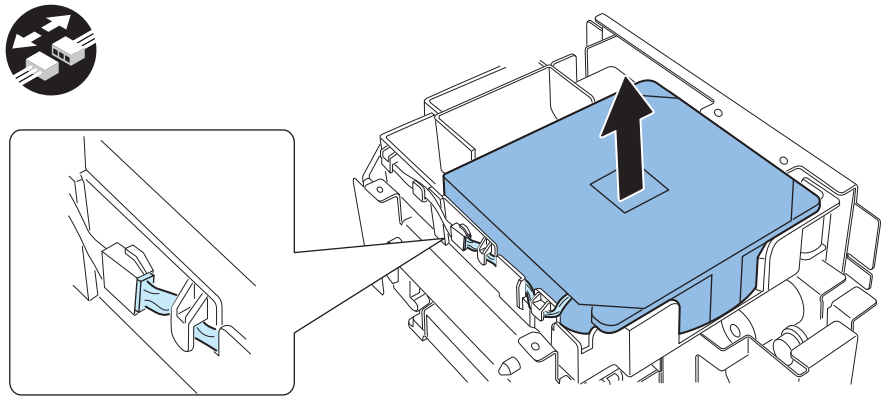
Removing Paper Suction Fan

1) Remove Transport Unit.("Removing Transport Unit"(page 4-22).)
2) Remove Plate.
   - 4 screws



F-4-150

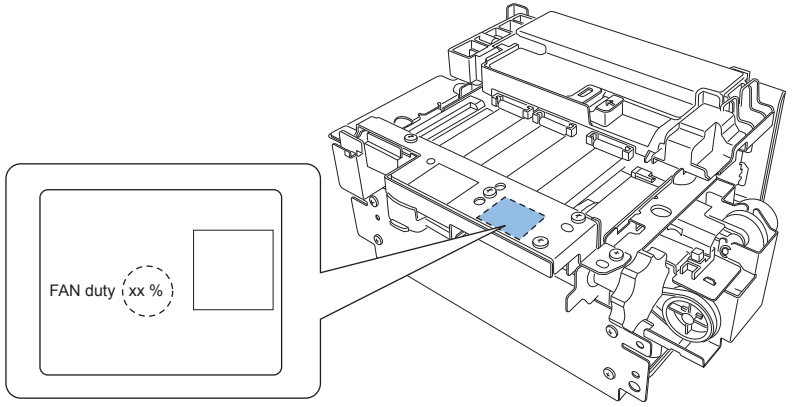
3) Remove Paper Suction Fan.
   - 1 connector



F-4-151

4) Strike through the old fan duty value indicated on Transport Unit.

5) Stick the adjustment label supplied with Paper Suction Fan at the position shown below.



F-4-152

6) Record new adjustment values (Fan Duty) in the label supplied with Paper Suction Fan.

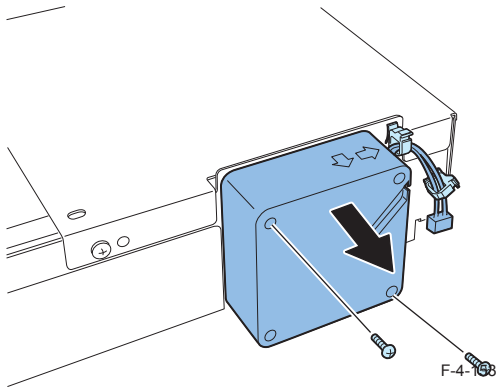
<Outline of Work After Paper Suction Fan Replacement>

Main operations after Paper Suction Fan replacement are shown below.

- Enter the adjustment value using Service Utility.
  Service Utility > Parts Replacement > Transport Unit/Paper Suction Fan Replacement
- Perform registration adjustment.

Removing Power Supply Fan

1) Remove Power Supply Unit from Printer.("Removing DC Power Supply PCB"(page 4-50).)
2) Remove Power Supply Fan.
   - 2 screws
   - 2 clamps



F-4-153

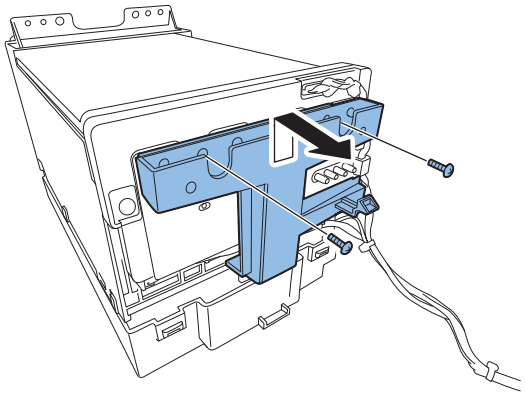
Sensors

Removing Remaining Ink Sensor

1) Remove Ink Tank Holder Unit.("Removing Ink Tank Holder Unit"(page 4-26).)

2) Remove Duct.

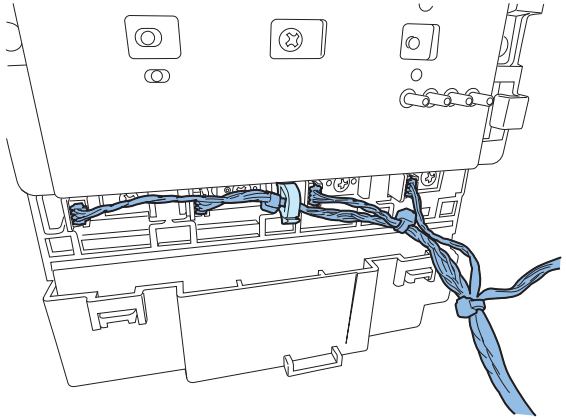
- 2 screws



F-4-154

3) Disconnect Harness Connector and release Harness from Saddle.

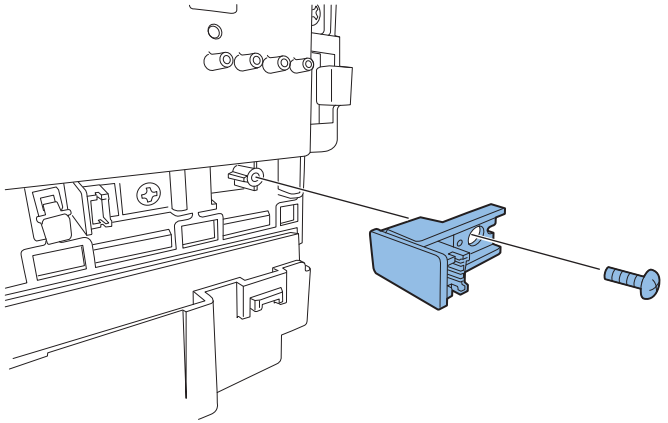
- 4 connectors
- 1 clamp



F-4-155

4) Remove Remaining Ink Sensor.

- 1 screw



F-4-156

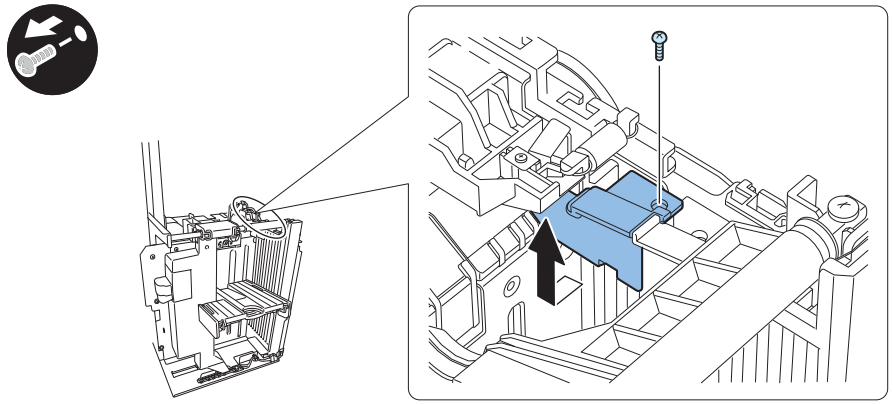
Removing Cross Feed Sensor/Timing Sensor

1) Remove Feeder Lower Unit.("Removing Feeder Lower Unit"(page 4-21).)

2) Remove Skew Correct Roller.("Removing Skew Correct Roller"(page 4-37).)

3) Remove guide.

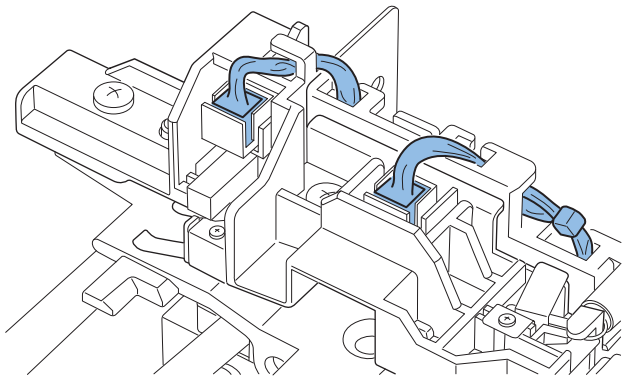
- 1 screw



F-4-157

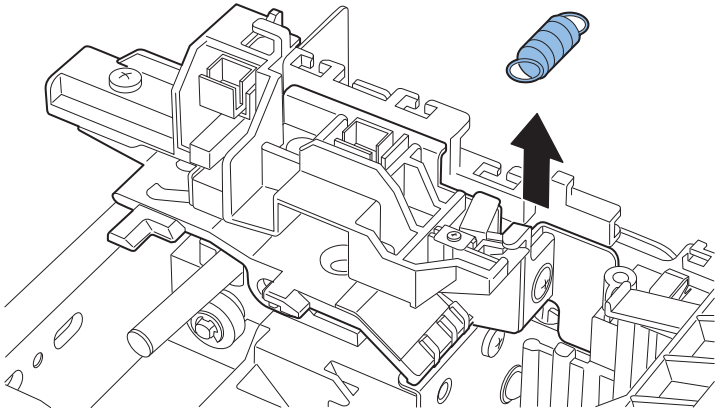
4) Disconnect harness.

- 2 connectors



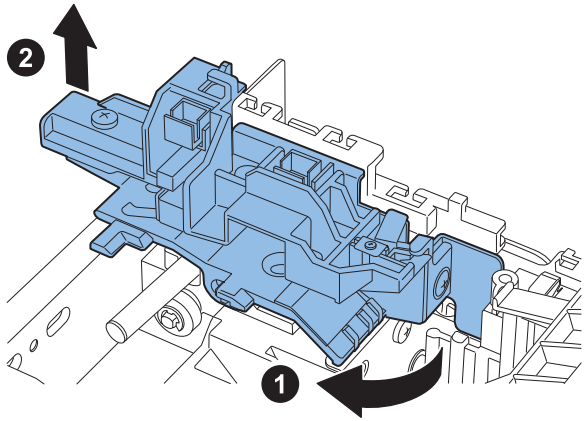
F-4-158

5) Remove Spring.



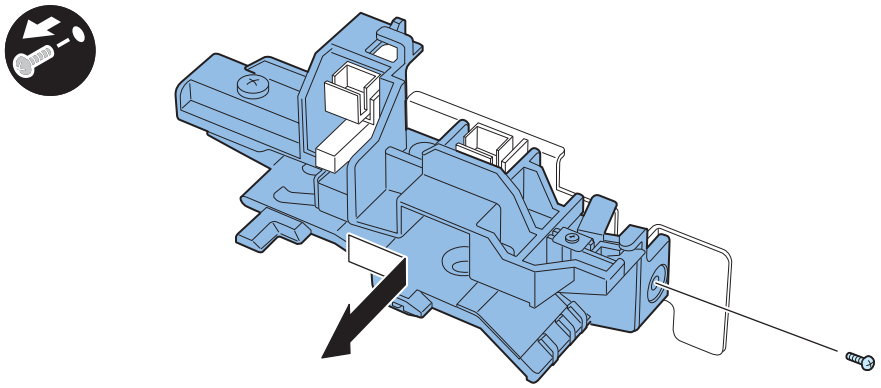
F-4-159

6) Remove Side-registration Unit.



F-4-160

7) Remove Side-registration.
- 1 screw

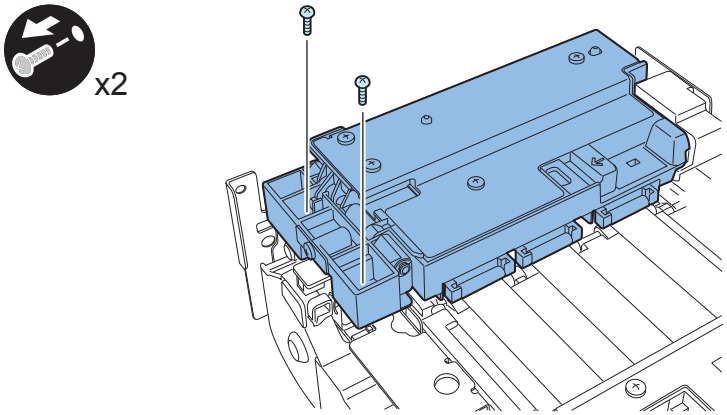


F-4-161

Removing Upper TOF Sensor

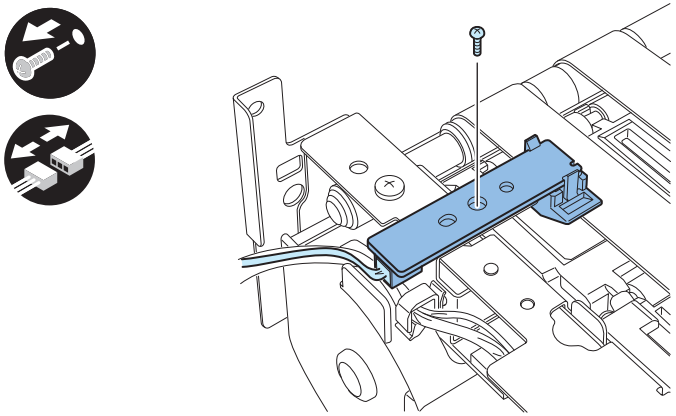
1) Remove Transport Unit.("Removing Transport Unit"(page 4-22).)

2) Remove Pinch Roller Unit.
- 2 screws



F-4-162

3) Remove Upper TOF Sensor.
- 1 screw
- 1 connector

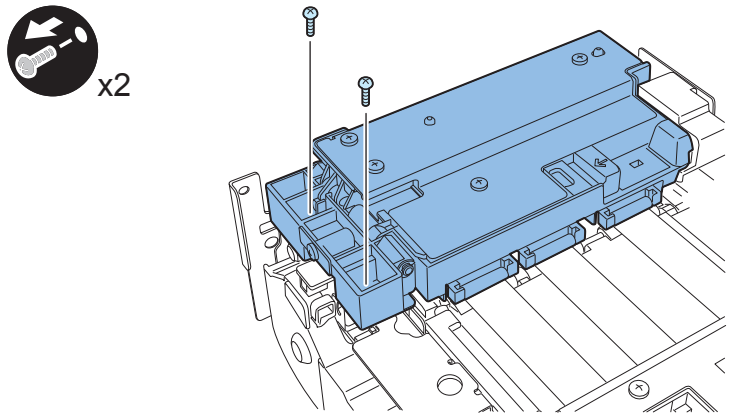


F-4-163

Removing Lower TOF Sensor

1) Remove Transport Unit.("Removing Transport Unit"(page 4-22).)

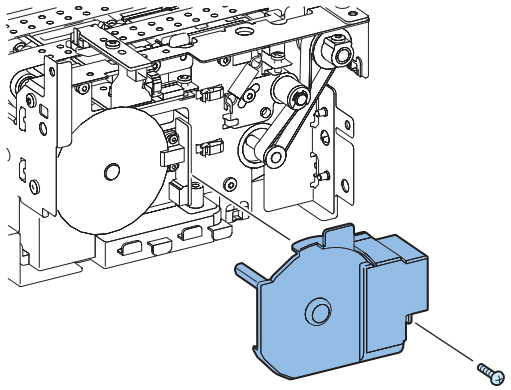
2) Remove Pinch Roller Unit.
- 2 screws



F-4-164

3) Remove Encoder Cover.

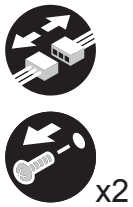
- 1 screw

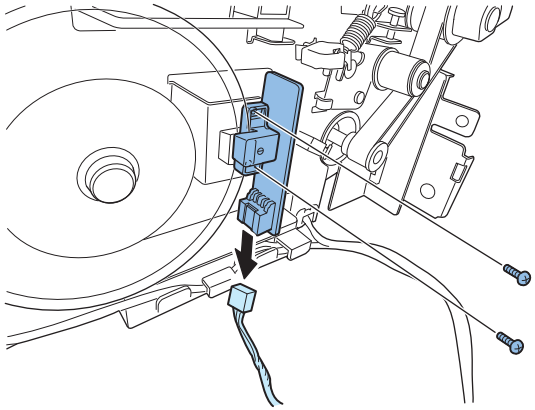


F-4-165

4) Remove Encoder Sensor.

- 2 screws
- 1 connector

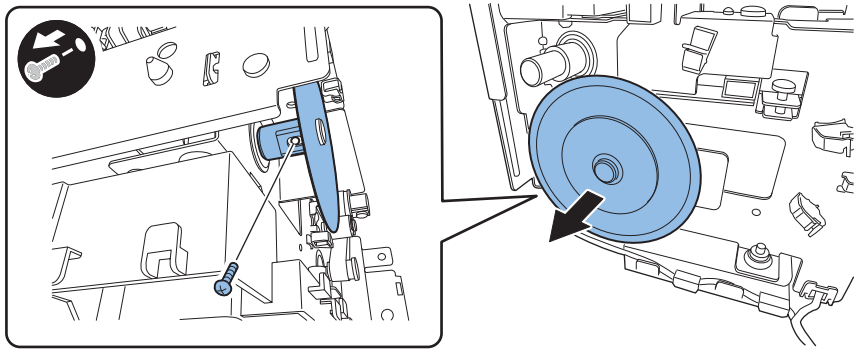




F-4-166

5) Remove Encoder.

- 1 screw



F-4-167

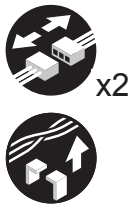
NOTE:
Rotate Transport Belt so that screw is positioned as shown in figure, when removing Encoder.

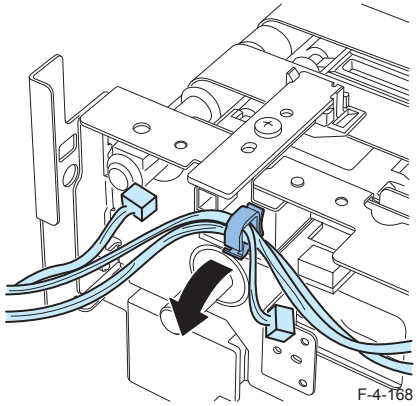
CAUTION:

Do not damage Encoder when removing it.

6) Disconnect Harness.

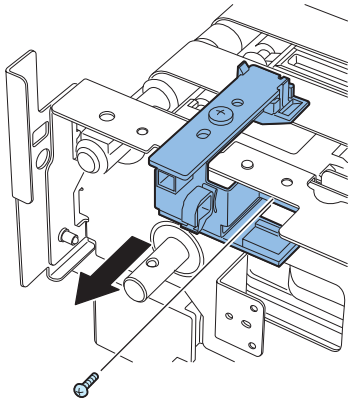
- 2 connectors
- 1 clamp





F-4-168

7) Remove Lower TOF Sensor



F-4-169

Cleaning Procedure

Cleaning Procedure of Printhead Face

Execute this cleaning in the case white streak can not be recovered by Strong Cleaning.

1) Print nozzle check pattern using Service Utility.

Service Utility > Test Print/Adjustment > Nozzle Check pattern

2) Move Printhead to head cleaning position(*1) using Service Utility.

*1 Head cleaning position is same as printing position.

Caution:

Do not keep Printhead at head cleaning position for a long time.

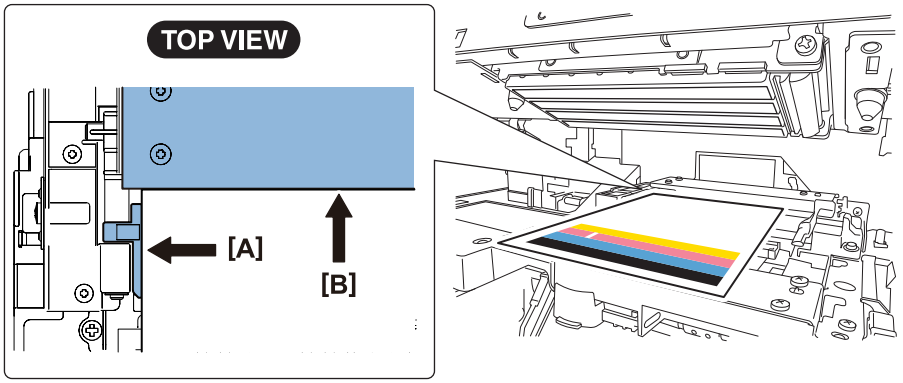
NOTE:

It takes 5 seconds to move Printhead to head cleaning position.

Service Utility > Troubleshooting > Position Change > Head Cleaning Position

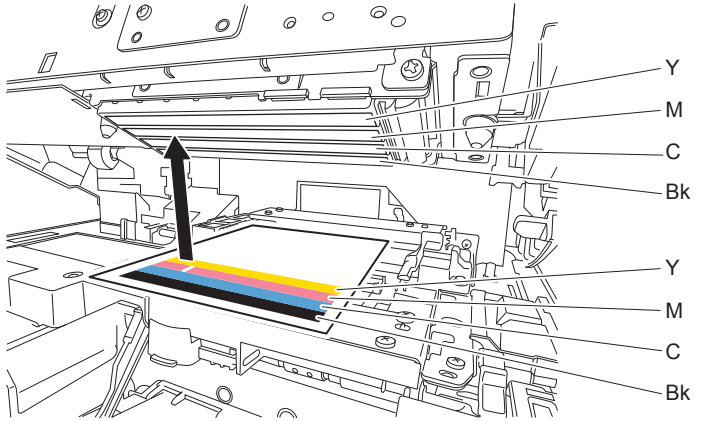
3) Open Upper Unit.

4) Place printed Nozzle Check Pattern so it is aligned with [A] and [B] as shown in the figure.



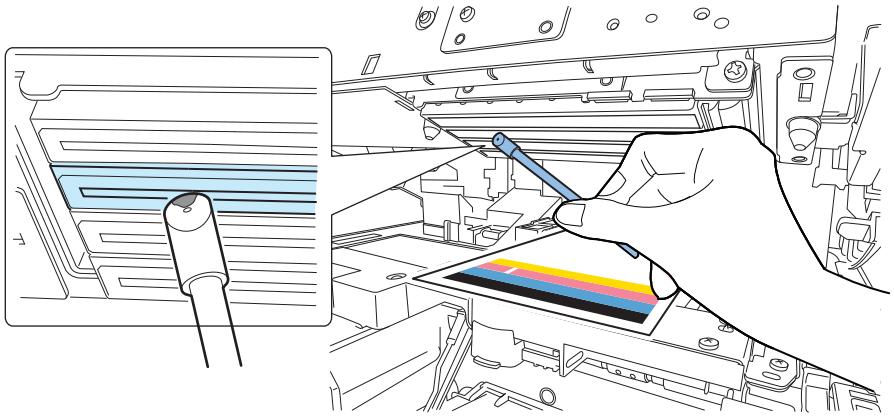
F-4-170

5) Find white streak on printed paper, and then find non-firing nozzle.



F-4-171

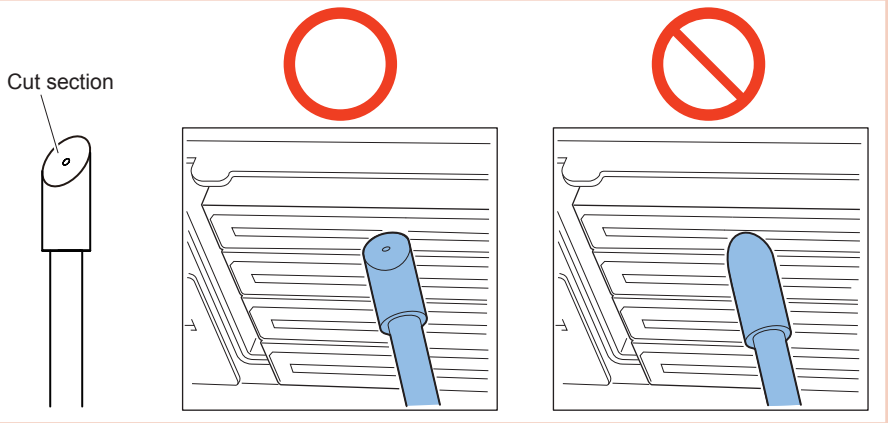
6) Touch the tip of cleaning stick on nozzle that has non-firing, and then keep 5 second to absorb ink.



F-4-172

Caution:

Do not touch cut section of cleaning stick on face of Printhead.

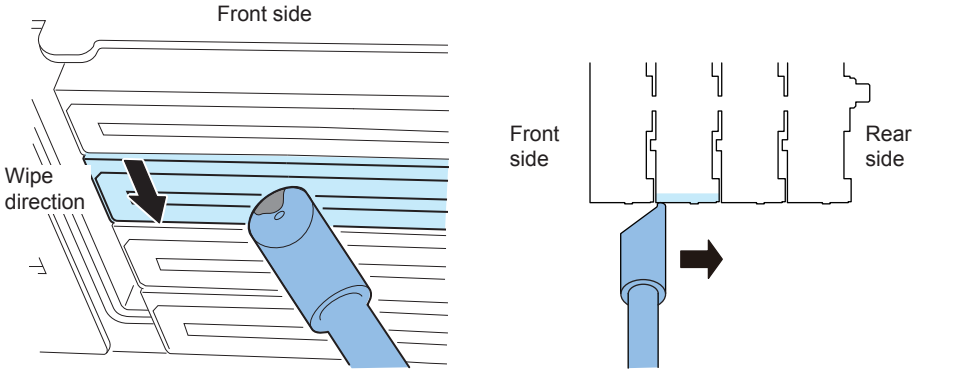


F-4-173

NOTE:

- In the case to clean nozzles of various colors, absorb ink with first color. It is not required to absorb ink with second color.
- It is possible to clean Printheads of all 4 colors with 1 cleaning stick. There is no mixing colors on printing result even after cleaning of printheads of multiple colors.

7) Confirm absorbing ink in tip of cleaning stick, and then wipe Printhead from front side to rear side 2 or 3 times. Wiping direction is opposite direction of paper feeding.



F-4-174

CAUTION:

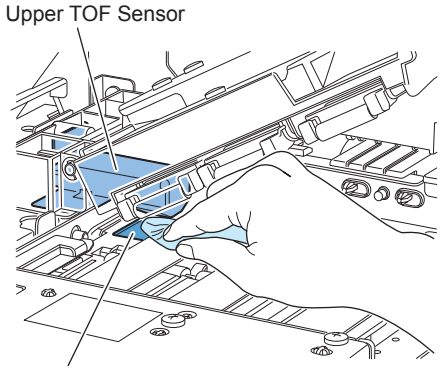
- Do not wipe the face of Printhead hard, wiping hard might be cause of harm to the face of printhead.
- Touching force of cleaning stick to the face of Printhead is that tip of cleaning stick bends lightly.

8) Remove printed paper used for finding non-firing nozzle.

9) Close Upper Unit, and then print to check white streak

Cleaning Procedure of TOF Sensor

1) Open Upper Unit.
2) Pass damp, wrung out Cleaning Towel(4Y1-9003) between Upper TOF Sensor and Lower TOF Sensor to remove paper dust from the top surface of Platen Protection Lens.

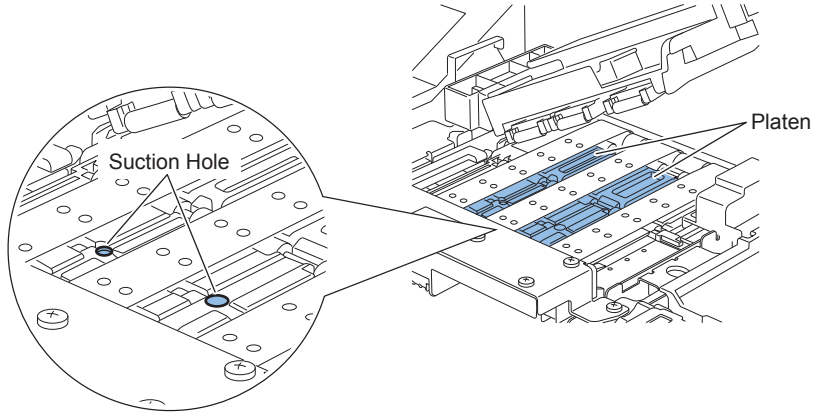


F-4-175

Cleaning Procedure of Transport Area(Platen)

1) Open Upper Unit and Pinch Roller Cover.
2) Clean Platen(excluding Transport Belt) with damp, wrung out Cleaning Towel (4Y1-9003).

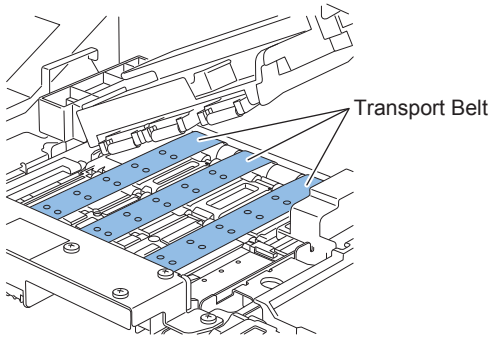
CAUTION:
Dirt generated from ink mist and paper dust is deposited around the suction holes in Platen. When cleaning Platen, be careful not to block the suction holes with the deposition.



F-4-176

3) Dry Transport Belt wiping with Cleaning Towel.

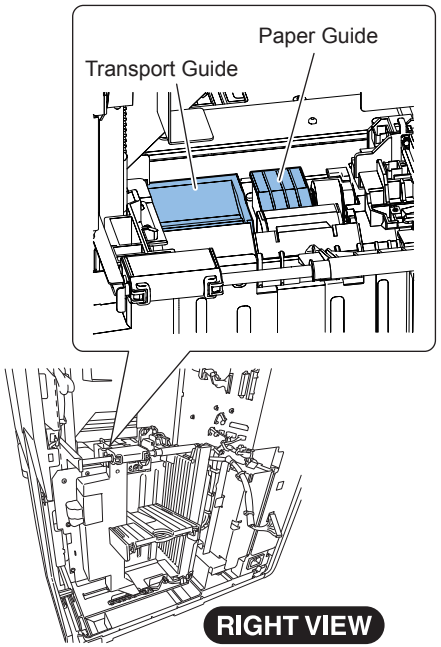
CAUTION:
In the case Transport Belt gets moist, Transport Belt slips. The slip causes of operator call error 13E2 : Paper Jam Error.



F-4-177

Cleaning Procedure of Paper Feed Area(Paper Guide / Transport Guide)

1) Remove Feeder Upper Unit.("Removing Feeder Upper Unit"(page 4-20).)
2) Remove paper dust from Paper Guide and Transport Guide with damp, wrung out Cleaning Towel (4Y1-9003).



F-4-178

Troubleshooting

- Initial Check
- Image Defect Recovery
- Adjustment
- Error Code
- Service Modes
- Service Tool

Initial Check

Initial Check Items

Checking the Installation Environment

Check whether the installation place meets the following requirements:

1) The power supply voltage must be the rated voltage from -15% to +10% and the power supply frequency must be the rated frequency ±2Hz.
2) The printer must be held horizontal.
3) The ambient temperature must be held at 15-30 degrees and the humidity at 10-80%.
4) Avoid the place where both the temperature and humidity are high (near the faucet, boiler, or humidifier), the temperature is extremely low, the temperature changes greatly. Also avoid the palace near fire.
5) Avoid dusty locations.
6) Avoid the place exposed to direct sunlight. If it is inevitable to install the printer in such a place, instruct the customer to hang curtains.
7) The room must be well-ventilated.

Checking the Paper

1) Check whether the dedicated paper is used.
2) Check whether the paper is moist.
   Unpack new paper, load it in the printer, and check for printing.

Checking Settings

Check whether the settings made for the printer are suitable for the paper used and other requirements, specifically, in terms of the following:

1) Paper setting
   Paper size (length and width)
2) Printing condition
   Number of prints

Dew Condensation

If Printer is quickly brought from a cold warehouse to a warm room for installation in winter, dew condensation occurs in every component of Printer, causing various problems.
If dew condensation occurs, wipe moisture off the components, leave Printer standing for a while until Printer temperature rises to the room temperature, and turn on Printer. When the packed Printer has been brought from the extremely cold warehouse to the warm installation place, leave it standing for 1-2 hours before unpacking Printer.

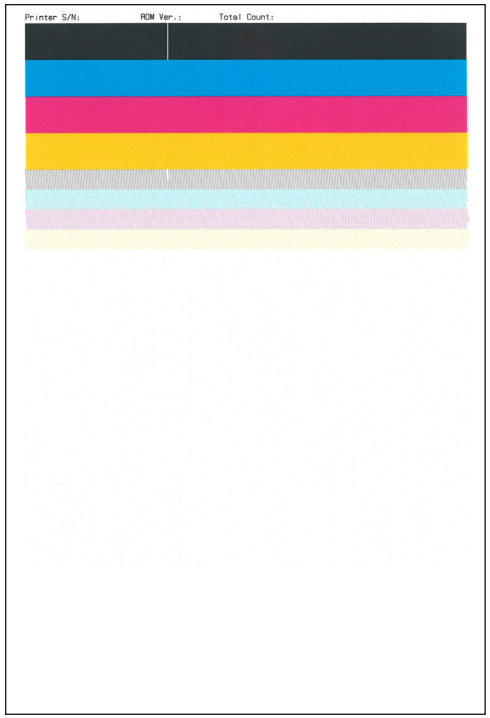
Image Defect Recovery

Image Defect Samples

Samples of image defects that can be detected through test printing are described below. When an image defect is found, carry out test printing to determine the image defect type, and then perform an appropriate procedure with reference to "Troubleshooting > Image Defect Recovery > Defect Recovery Procedures".

Vertical White Streak (Non-Discharge)

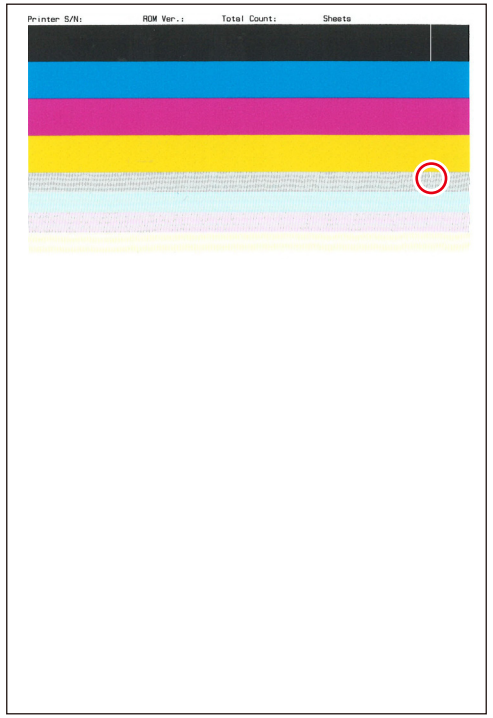
State in which ink drops cannot be discharged from Printhead nozzles due to dust, bubble, thickened ink, wetting, etc. around Printhead nozzle.

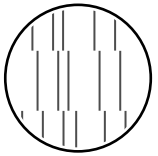


F-5-1

Faint Image (Distortion)

State in which ink drops cannot be discharged from Printhead nozzles due to dust, bubble, thickened ink, wetting, etc. around Printhead nozzle or state in which condensed ink film is formed on the surfaces of Printhead nozzles, and as a result ink drops are not ejected straight.

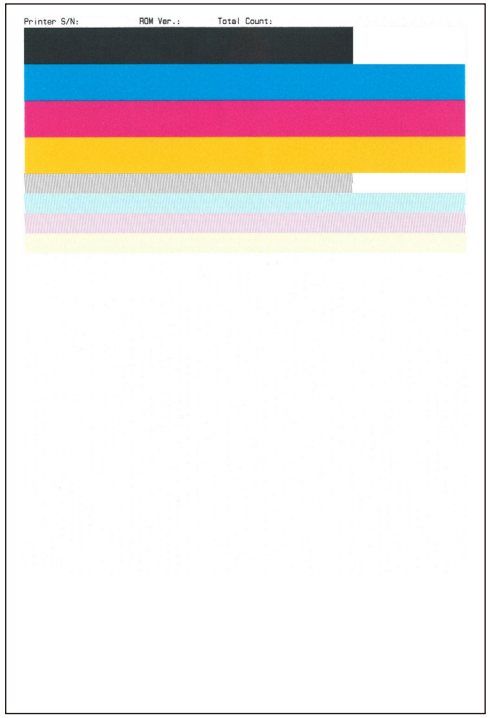




F-5-2

Void

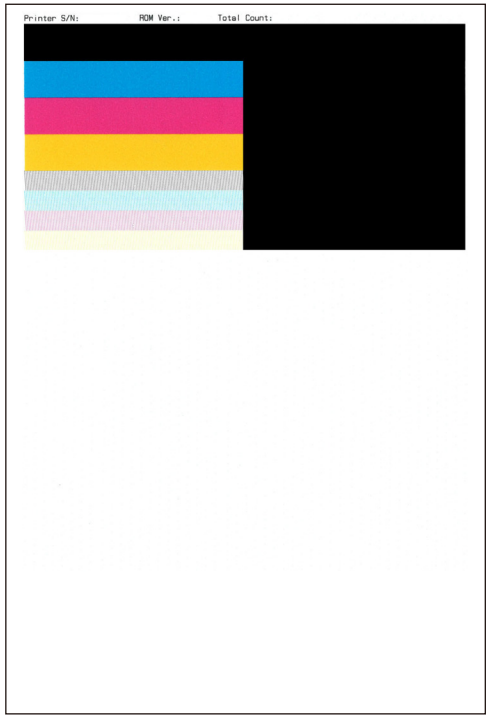
State in which a void is generated due to defective parts of Printhead, Flexible Cable, PCB, etc. or bad connection.



F-5-3

Abnormal Discharge

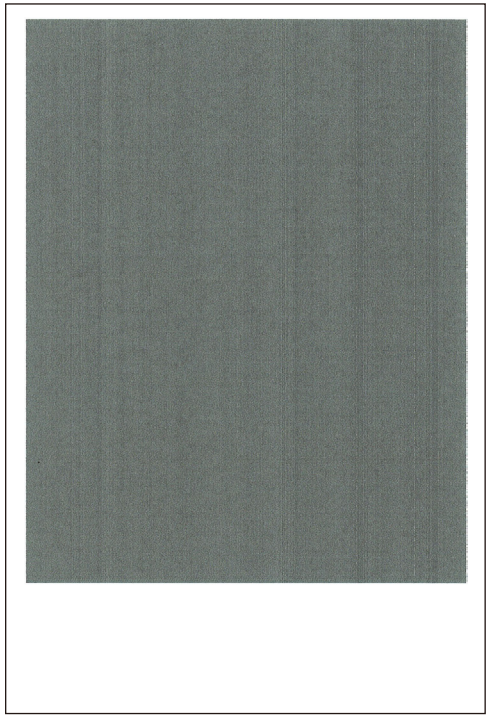
State in which ink is ejected to an area having no image data due to defective parts of Printhead, Flexible Cable, PCB, etc. or bad connection.



F-5-4

Uneven Image (Cross Feeding Direction)

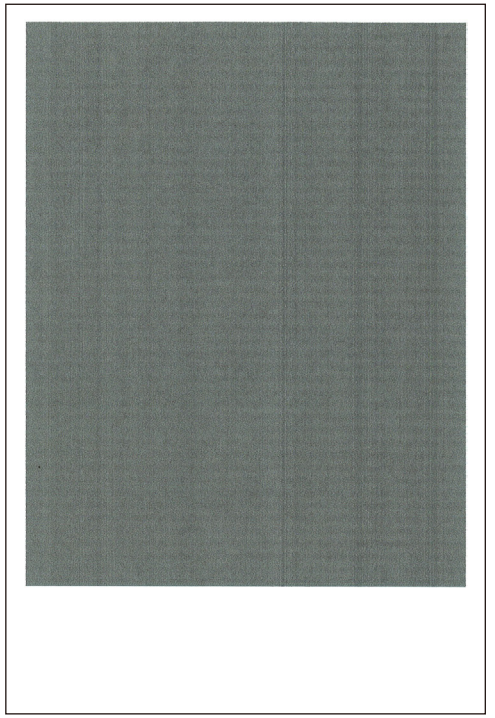
State in which stripes differing in thickness are generated in the longitudinal direction of Printhead.



F-5-5

Uneven Image (Feeding Direction)

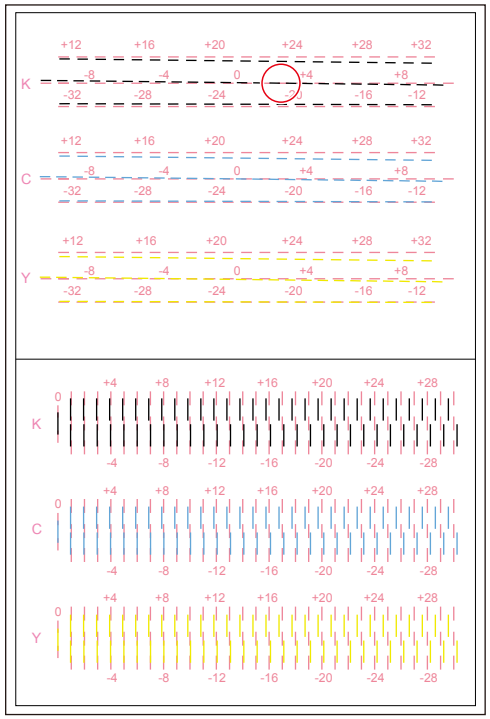
State in which stripes differing in thickness are generated in the transport direction.



F-5-6

Relative Misregistration in Colors in X or Y Direction)

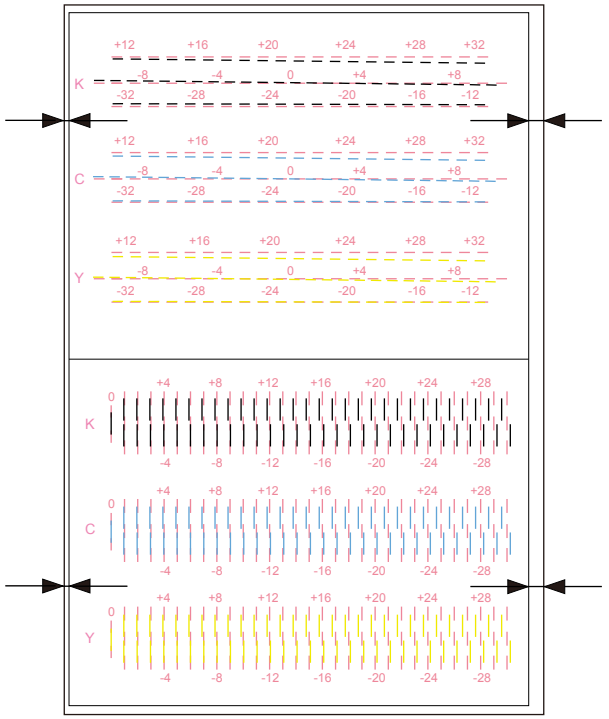
State in which registration positions of individual colors are deviated, and as a result colors look shifted.



F-5-7

Misregistration (Leading Edge and Side Edge)

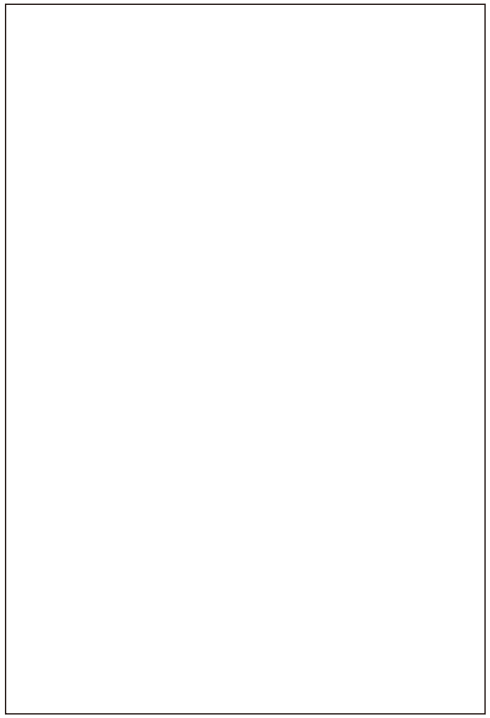
Print image coordinate is not aligned with the paper. The following sample shows the misregistration in side edge.



F-5-8

Blank Image

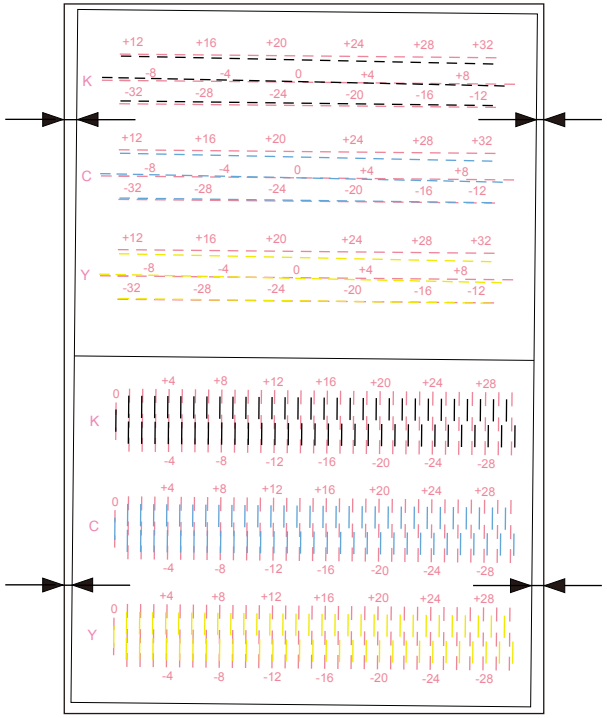
State in which the print sheet is ejected with no image printed on it.



F-5-9

Paper Skew

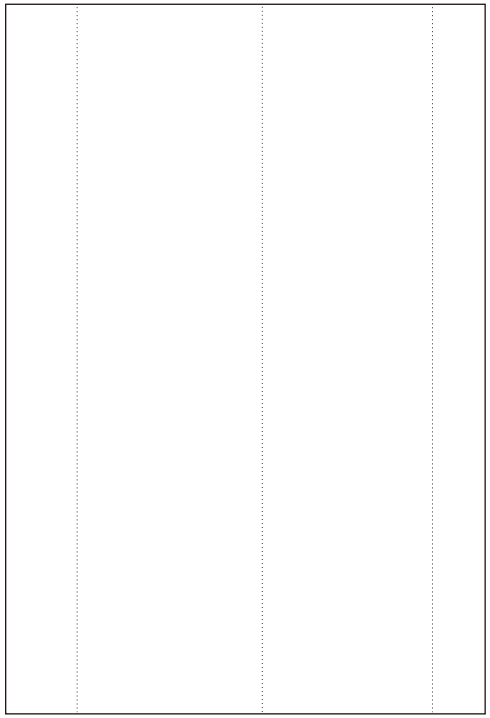
State in which an image is printed on a skew in relation to the left and right edges of the print sheet.



F-5-10

Spur Marks (White Dotted Lines)

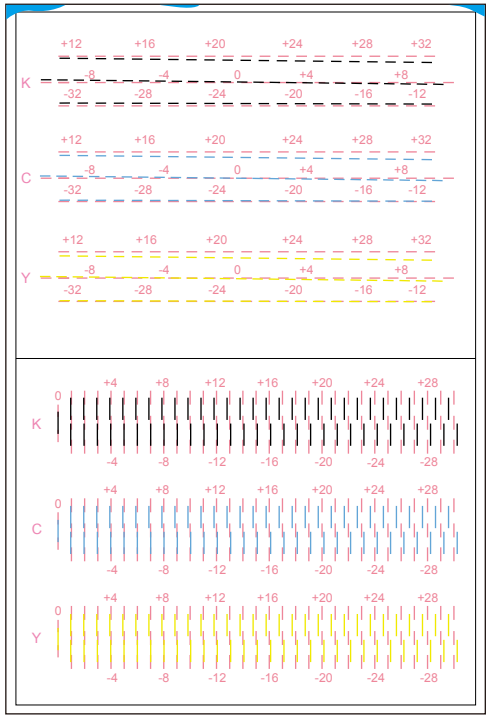
State in which pressed Spur marks are made on the print sheet.



F-5-11

Ink Smearing (Due to Printhead Crash)

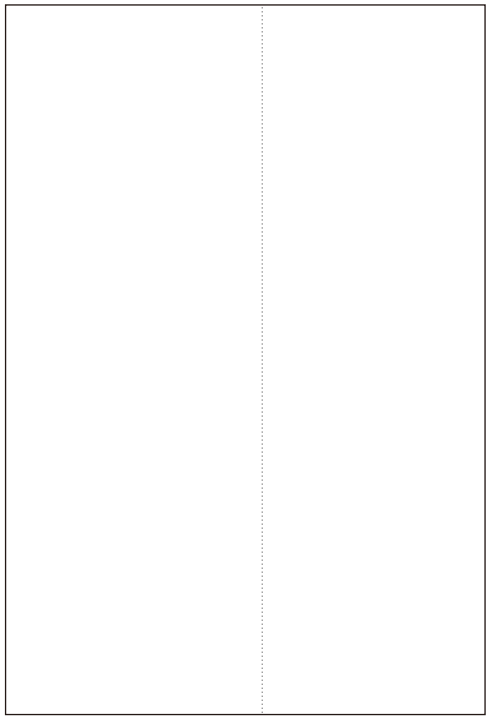
State in which the print sheet touches Printhead and is stained with ink.



F-5-12

Spur Marks (Dotted Lines)

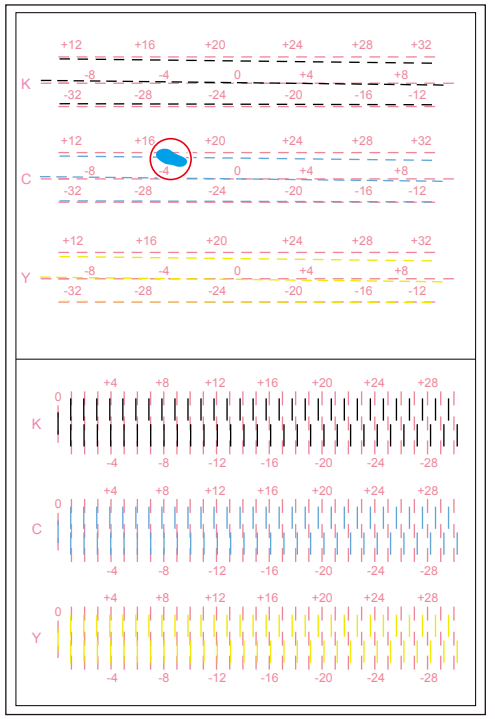
State in which ink is transferred to Spur or Spur cleaner due to ink dripping, fixing error, etc. and as a result Spur ink marks are made on the print sheet.



F-5-13

Ink Adhesion (Ink Dripping)

State in which ink collected in Printhead or Purge Unit drips off to transport area, and as a result ink adheres to the front/back surface of the print sheet.



F-5-14

Defect Recovery Procedures

Vertical White Streak or Faint Image

Cause	Procedure	Check Item	Action
Ink Supply System	1	Carry out Light Cleaning, Medium Cleaning, and Strong Cleaning 2 or 3 times for each cleaning, and then check that the defect has been recovered.	End.
Printhead	2	Clean the face of Printhead. Refer to <Cleaning Procedure of Printhead Face>.	End.
Purge Unit	3	Blade, cap, or cap base is contaminated with dust or foreign matter, or it is scratched or deformed.	Replace Purge Unit.
Printhead	4	Replace Printhead, and then check that the defect has been recovered.	End.
Print Module	5	Replace Print Module, and then check that the defect has been recovered.	End.
Printer Controller PCB	6	Replace Printer Controller PCB, and then check that the defect has been recovered.	End.

T-5-1

Void or Abnormal Discharge (Test Printing Result: NG)

Cause	Procedure	Check Item	Action
Flexible Cable	1	The connector of Flexible Cable is not connected securely.	Connect it properly.
	2	Flexible Cable has a defect such as disconnection, crack, or ink adhesion.	Replace Flexible Cable
Printhead	3	Reinsert Printhead.	End
Printhead Relay PCB	4	Replace Printhead Relay PCB, and then check that the defect has been recovered.	End.
Printhead	5	Replace Printhead, and then check that the defect has been recovered.	End.
Printer Controller PCB	6	Replace Printer Controller PCB, and then check that the defect has been recovered.	End.
Print Module	7	Replace Print Module, and then check that the defect has been recovered.	End.

T-5-2

Void or Abnormal Discharge (Test Printing Result: OK)

Cause	Procedure	Check Item	Action
Interface Cable	1	Interface Cable is not connected securely.	Connect it properly.
	2	The cable has a defect such as disconnection or crack.	Replace the cable.
Printer Driver	3	Any setting or stored print data is erroneous.	Correct the setting or print data.
	4	Reinstall printer driver, and then check that the defect has been recovered.	End.
Printer Controller PCB	5	Replace Printer Controller PCB, and then check that the defect has been recovered.	End.

T-5-3

Uneven Image (Cross Feeding Direction)

Cause	Procedure	Check Item	Action
Ink Supply System	1	Carry out Light Cleaning, Medium Cleaning, and Strong Cleaning 2 or 3 times for each cleaning, and then check that the defect has been recovered.	End.
Printhead	2	Wipe Printhead face with cleaning stick, and then check that the defect has been recovered.	End.
	3	Replace Printhead, and then check that the defect has been recovered.	End.
Printer Controller PCB	4	Replace Printer Controller PCB, and then check that the defect has been recovered.	End.
Print Module	5	Replace Print Module, and then check that the defect has been recovered.	End.

T-5-4

■ Uneven Image (Feeding Direction)

Cause	Procedure	Check Item	Action
Registration Adjustment	1	Carry out registration adjustment, and then check that the defect has been recovered.	End.
Printhead	2	Printhead Unit is not assembled properly.	Reassemble it properly.
	3	Printhead Unit is not installed properly.	Reinstall it properly.
Pinch Roller Unit or Spur Unit	4	The unit is not installed properly.	Reinstall it properly.
	5	Pinch Roller or Spur does not rotate smoothly.	Replace Pinch Roller Unit or Spur Unit.
Transport Unit	6	Transport Belt is not located at the correct position.	Move Transport Belt back to the correct position.
	7	Replace Transport Motor, and then check that the defect has been recovered.	End.
	8	Replace Transport Unit, and then check that the defect has been recovered.	End.
Printhead	9	Replace Printhead, and then check that the defect has been recovered.	End.
Printer Controller PCB	10	Replace Printer Controller PCB, and then check that the defect has been recovered.	End.
Print Module	11	Replace Print Module, and then check that the defect has been recovered.	End.

T-5-5

■ Relative Misregistration in Colors in X or Y Direction

Cause	Procedure	Check Item	Action
Registration Adjustment	1	Carry out registration adjustment, and then check that the defect has been recovered.	End.
Printhead	2	Printhead Unit is not assembled properly.	Reassemble it properly.
	3	Printhead Unit is not installed properly.	Reinstall it properly.
Pinch Roller Unit or Spur Unit	4	The unit is not installed properly.	Reinstall it properly.
	5	Pinch Roller or Spur does not rotate smoothly.	Replace Pinch Roller Unit or Spur Unit.
Transport Unit	6	Transport Belt is not located at the correct position.	Move Transport Belt back to the correct position.
	7	Replace Transport Motor, and then check that the defect has been recovered.	End.
	8	Replace Transport Unit, and then check that the defect has been recovered.	End.
Printhead	9	Replace Printhead, and then check that the defect has been recovered.	End.
Printer Controller PCB	10	Replace Printer Controller PCB, and then check that the defect has been recovered.	End.
Print Module	11	Replace Print Module, and then check that the defect has been recovered.	End.

T-5-6

■ Misregistration (Leading Edge and Side Edge)

Cause	Procedure	Check Item	Action
Paper	1	Dedicated paper is not used.	Replace with dedicated paper.
	2	Paper is not loaded properly.	Load paper properly.
Paper Setup	3	The type and size of paper to be used are not set properly.	Properly set the type and size of paper to be used.
Margin Setup	4	Margins are not set to appropriate values.	Set margins to appropriate values.
Inter-label Gap and TOF Mark Setup	5	The inter-label gap or TOF mark width is not set to a value suitable for paper to be used.	Set the inter-label gap or TOF mark width to a value suitable for paper to be used.
Image Position Adjustment	6	Carry out image position adjustment, and then check that the defect has been recovered.	End.
Paper Guide Position Adjustment	7	Carry out paper position adjustment, and then check that the defect has been recovered.	End.
TOF Sensor	8	TOF Sensor is contaminated with paper, dust, etc.	Clean TOF Sensor.
	9	TOF Sensor is not operating properly.	Replace TOF Sensor.

T-5-7

■ Paper Skew

Cause	Procedure	Check Item	Action
Paper	1	Paper is not loaded properly.	Load paper properly.
Roll Drive Unit	2	Roll Drive Unit is not installed properly.	Reinstall it properly.
Guide Unit	3	Guide Unit is not installed properly.	Reinstall it properly.
Pinch Roller Unit or Spur Unit	4	The unit is not installed properly.	Reinstall it properly.
	5	Pinch Roller or Spur does not rotate smoothly.	Replace Pinch Roller Unit or Spur Unit.
Transport Unit	6	Transport Belt is not located at the correct position	Move Transport Belt back to the correct position.
Roll Drive Unit	7	Replace Roll Drive Unit, and then check that the defect has been recovered.	End.
Guide Unit	8	Replace Guide Unit, and then check that the defect has been recovered.	End.
Transport Unit	9	Replace Transport Unit, and then check that the defect has been recovered.	End.

T-5-8

■ Spur Marks (White Dotted Lines)

Cause	Procedure	Check Item	Action
Paper	1	Dedicated paper is not used.	Replace with dedicated paper.
Spur Unit	2	The unit is not installed properly.	Reinstall it properly.
	3	Spur does not rotate smoothly.	Replace Spur Unit.
Transport Unit	4	Transport Belt is not located at the correct position.	Move Transport Belt back to the correct position.
	5	Replace Transport Unit, and then check that the defect has been recovered.	End.

T-5-9

■ Ink Smearing (Due to Printhead Crash)

Cause	Procedure	Check Item	Action
Paper	1	Paper leading edge is folded or curled.	Correct the fold or curl.
Pinch Roller Unit or Spur Unit	2	The unit is not installed properly.	Reinstall it properly.
	3	Pinch Roller or Spur does not rotate smoothly.	Replace Pinch Roller Unit or Spur Unit.
Setup	4	The Printhead height adjustment value and Paper Suction Fan adjustment value are not set.	Set Printhead height adjustment value and Paper Suction Fan adjustment value.
Ink Supply System	5	Even when Medium Cleaning is carried out, waste ink is not sucked from Purge Unit.	After replacing Pump Unit, Carry out Medium Cleaning.
Purge Unit	6	Blade, Cap, or Cap Base is deformed.	After replacing Purge Unit, carry out Light Cleaning, Medium Cleaning, and Strong Cleaning.
Printhead	7	Wipe Printhead face with cleaning stick, and then check that the defect has been recovered.	End.
	8	Replace Printhead, and then check that the defect has been recovered.	End.
Print Module	9	Print Module is not installed properly.	End.
	10	Replace Print Module, and then check that the defect has been recovered.	End.

T-5-10

■ Spur Marks (Dotted Lines)

Cause	Procedure	Check Item	Action
Paper	1	Dedicated paper is not used.	Replace with dedicated paper.
Spur Unit	2	Clean Spur and Spur Cleaner, and then check that the defect has been recovered.	End.
	3	Spur does not rotate smoothly.	Replace Spur Unit.

T-5-11

■ Ink Adhesion (Ink Dripping).

Cause	Procedure	Check Item	Action
Print Module	1	Print Module is not installed properly.	Reinstall it properly.
Ink Supply System	2	Even when Medium Cleaning is carried out, waste ink is not sucked from Purge Unit.	After replacing Pump Unit, carry out Medium Cleaning.
Purge Unit	3	Blade, cap, or cap base is deformed.	After replacing Purge Unit, carry out Light Cleaning, Medium Cleaning, and Strong Cleaning.
Printhead	4	Wipe Printhead face with cleaning stick, and then check that the defect has been recovered.	End.
	5	Replace Printhead, and then check that the defect has been recovered.	End.
Print Module	6	Replace Print Module, and then check that the defect has been recovered.	End.

T-5-12

Adjustment

Part Replacement Adjustment List

This section introduces what actions are needed to fulfill market services when replacing parts.

Target Part	Adjustment Item	Reference
Print Module	Image Position Adjustment (*1)	p. 5-15
	Various Adjustment values (*2) entry (labeled)	p. 5-19
Printhead	Image Position adjustment (*1)	p. 5-15
Purge Unit	Blade Reference Position adjustment (*3)	p. 5-21
	Purge Unit Position adjustment value entry (labeled)	p. 5-21
Transport Unit	Enter a Paper Guide Plate position adjustment value (indicated on the label). Enter a fan duty adjustment value (indicated on the label) Vertical scale adjustment Image position adjustment (*4)	p. 5-23 p. 5-15
Paper Suction Fan	Fan duty value entry (according to the value indicated on label)	p. 5-23
Paper Guide Unit(*5)	Paper Guide Position adjustment	p. 5-24
Printer Controller PCB	In the case, data in old PCB can be retrieved to PC • Retrieve the data from old PCB to PC • Replace Printer Controller PCB • Send the data from PC to new PCB	-
	In the case, data in old PCB can not be retrieved to PC • Serial number entry • RTC (Real Time Clock) entry • Various adjustment values (*6) entry (labeled) • Discharge power adjustment • Vertical scale adjustment • Image position adjustment(*4)	p. 5-19 p. 5-23
Power PCB	Discharge power adjustment	p. 5-18

T-5-13

(*1) Registration Adjustment

(*2) Head Wipe Position, Head Cap Position, Head Print Position, Purge Unit Wipe Position. These adjustment values are indicated on labels.

(*3) Using Blade Position Adjustment Tool (included with service part)

(*4) Conduct vertical scale adjustment, and registration adjustment in this order.

(*5) No service parts are available for Paper Guide Unit. Adjust Paper Guide Plate position after disassembly of Paper Guide Unit or replacement of parts included in Unit.

(*6) Head Wipe Position, Head Cap Position, Head Print Position, Purge Unit Wipe Position, Head to Platen Distance, Paper Guide Position, Fan Duty.
These adjustment values are indicated on labels.

Adjustment and Setup

Image Position Adjustment

Image position adjustment is required when Print Module, Printheads, and Transport Unit have been replaced.

Image Position Adjustment

Image position adjustment corrects drifts of print reference position of Bk Printhead. Image position adjustment varies interval of time between detection of the leading edge of paper by TOF Sensors and start of printing to correct the leading margin to serve as print reference position and shift nozzles used for printing to correct left margin to serve as print reference position. Image position adjustment must always be carried out before vertical and horizontal registration adjustment.

Paper Size Requirements

- Paper width: 85mm or more, Paper length:49mm or more

Image Position (Registration Position) Adjustment Procedure

Entering adjustment value using the service utility.

Service Utility > Test Print / Adjustment > Head position adjustment

Vertical and Horizontal Registration Adjustment

Vertical and horizontal registration adjustment corrects drifts in print position of each color-specific Printhead. Vertical registration adjustment varies interval of time between detection of the leading edge of paper by TOF Sensors and start of printing to correct drifts in print position from other Printheads. Horizontal registration adjustment shifts nozzles used for printing to correct drifts in print position from other Printheads.

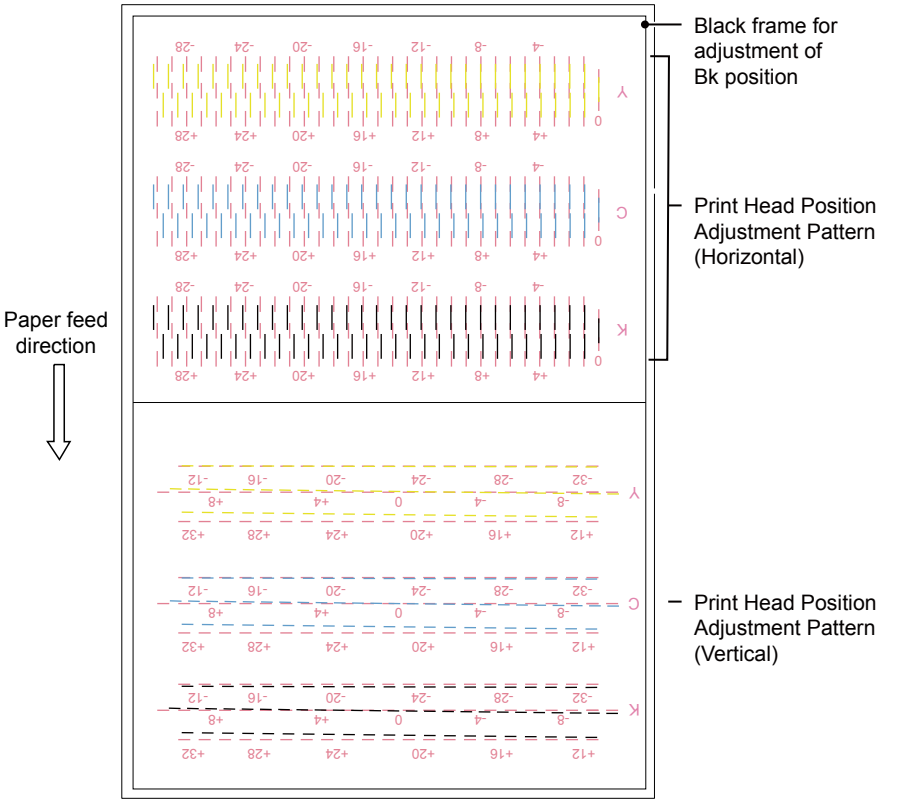
Paper Size Requirements

- Paper width: 85mm or more, Paper length:49mm or more

Vertical and Horizontal Registration Adjustment Procedure

Read numerical values of the vertical and horizontal lines which connected smoothly to magenta ruler line. Entering the numerical values using service utility. If the vertical and horizontal lines connected smoothly to magenta ruler line at "0", adjustment is not required.

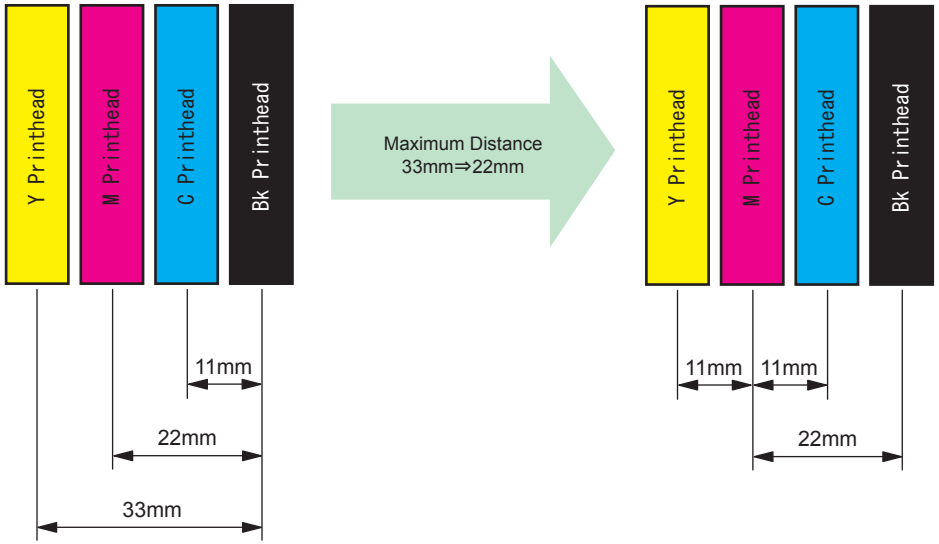
Service Utility > Test Print / Adjustment > Head position adjustment



F-5-15

Registration Color of Registration Adjustment

Last model of Printer carries out image position adjustments in relation to print position in Bk Printhead.
This Printer carries out image position adjustments in relation to print position in M Printhead.
Smaller spacing between color-specific Printheads, less Printer would affected by transport accuracy, resulting in enhanced different-colored dot-matching accuracy.



F-5-16

Vertical Scale Adjustment

This is the function to adjust image shrinkage or enlargement of transport direction by some reason.

Paper Size Requirements

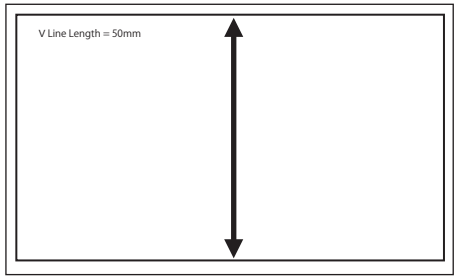
- Paper width: 85mm or more, Paper length:49mm or more
-

Vertical Scale Adjustment Procedure

1) Connect PC to Printer, and then start service utility.
2) Open the [Test Print / Adjustment] tab and click [Vertical scale adjustment] to display the [Vertical scale adjustment] dialog box.
3) Print vertical scale adjustment pattern.
4) Measure the length of the printed frame of test print at transport direction.
5) Enter the length using [Vertical scale adjustment] of service utility.
   If the size of the square frame is the same as the default specified by Service Utility, no adjustment is required.

NOTE:
This adjustment requires to perform for each paper width below.
- 95mm or less (Paper width : S)
- More than 95mm (Paper width : M)

Example: Business card: Paper length (55 mm) – Minimum margin (including upper and lower margins = 3 mm) = 52 mm ≒ 50mm



F-5-17

Non-Firing Nozzle Complement

This is the function to complement of non-firing nozzle using next nozzle of non-firing nozzle, in the case non-firing nozzle is not recover by cleaning. If the non-firing nozzle are next each other, it can not be complemented.

Paper Size Requirements

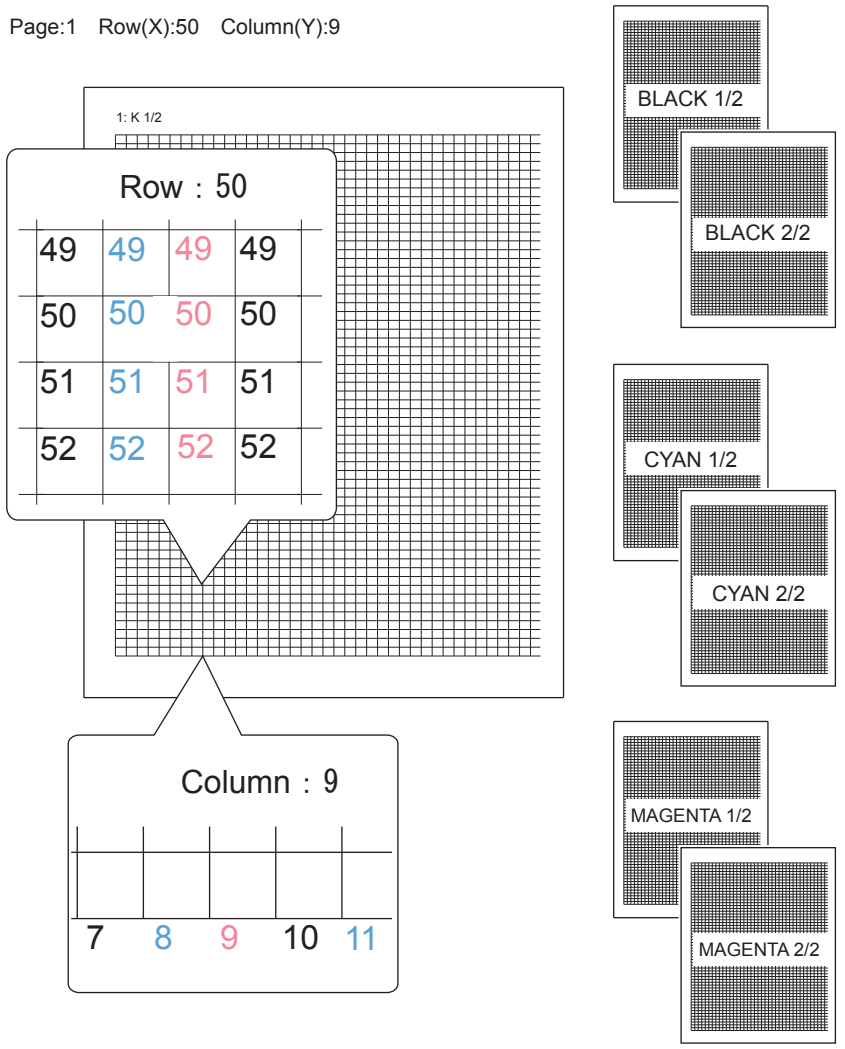
- Paper width: 100mm or more, Paper length:148mm or more

Non-Firing Nozzle Complement Procedure

1) Connect PC to Printer, and then start service utility.
2) Open the [Test Print / Adjustment] tab and click [Complement non-firing nozzle] to display the [Non-firing nozzle complement setting] dialog box.
3) Click [Non-firing Nozzle Pattern] to print non-firing nozzle check pattern.
4) Check non-firing nozzle check pattern, and find non-firing nozzle.
5) Enter the page, row number, column number of identified nozzle, and then click [Send].
6) Click [Non-firing Nozzle Complement Confirmation Pattern] to print the non-firing nozzle complement confirmation pattern and check the non-firing nozzle is complemented.

In this case, non-firing nozzle position is black Printhead, first test print,50th in row, 9th colum.

Page:1 Row(X):50 Column(Y):9

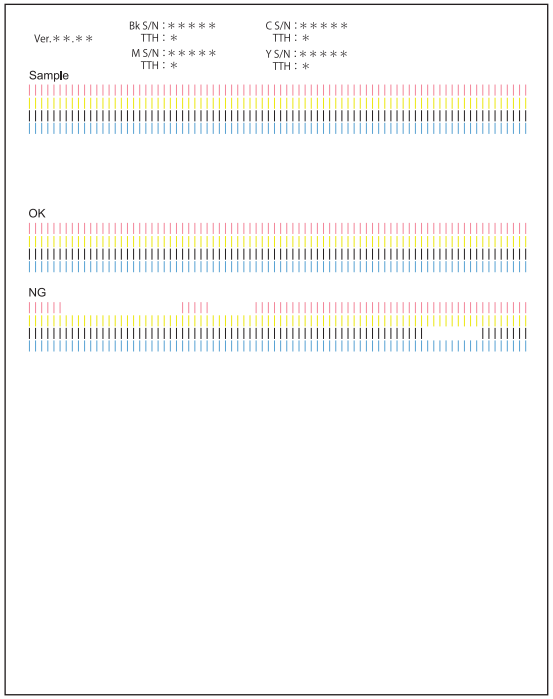


F-5-18

Ink Discharge Power Adjustment

This is the function to adjust ink discharge power prevent excess and deficiency of driving pulse when DC Power Supply PCB Unit is replaced. Perform this adjustment surely when DC Power Supply PCB is replaced.

<Confirmation Pattern>
In the case, adjustment is done correctly, print result of OK/NG areas like illustration below.
OK area : Proper printing without non-discharge.
NG area : Print result has non-discharge.



F-5-19

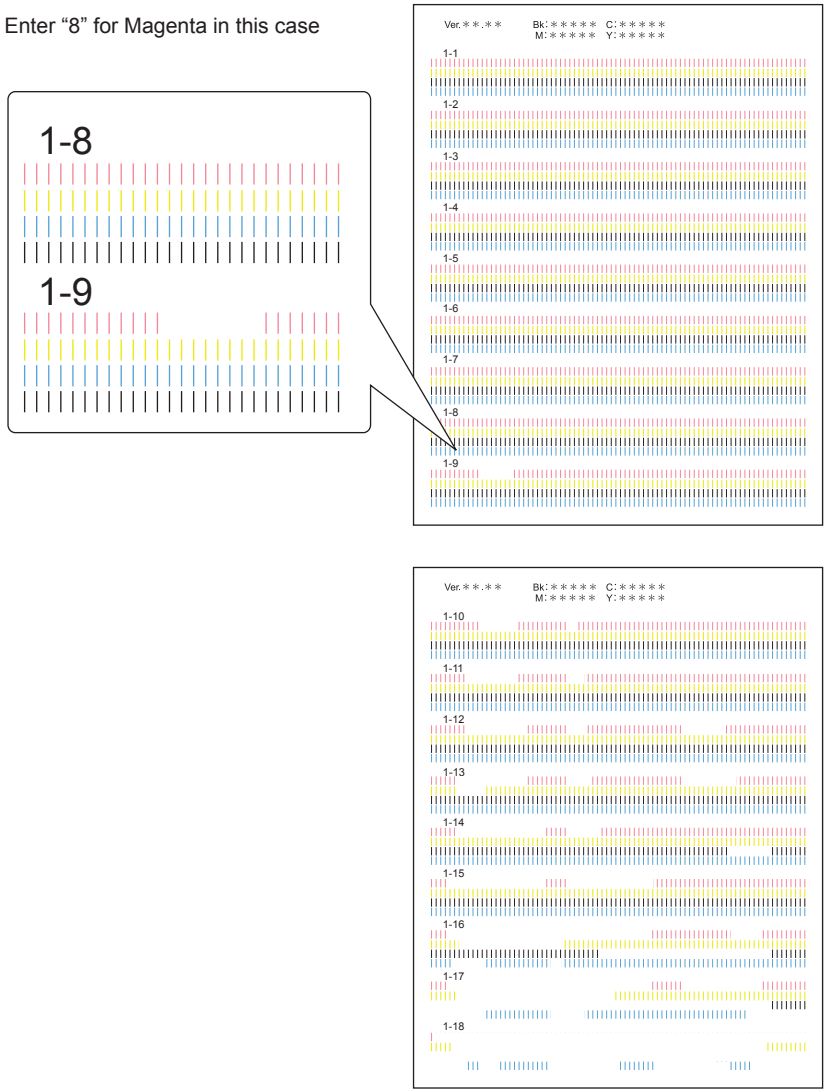
Paper Size Requirements

- Paper width: 100 mm or more, Paper length: 148 mm or more.

Discharge Power Adjustment Procedure

1) Connect PC to Printer and start service utility.
2) Open the [Test Print / Adjustment] tab and set paper size as paper size requirement.
3) Open the [Parts Replacement] tab and click [Ink Eject Power Adjustment] to display the [Ink Eject Power Adjustment] dialog box.
4) Click [Print adjustment pattern] to print the pattern.
5) Check the discharge power adjustment pattern. Find the largest number of each color that printed correctly.
6) Enter the adjustment values and click
7) Click [Print check pattern] to print and check the print result.

Enter “8” for Magenta in this case



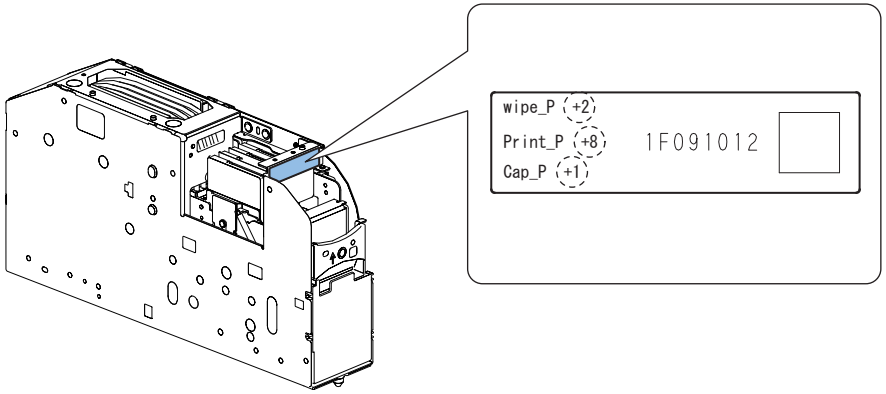
F-5-20

Printhead Control Position Adjustment

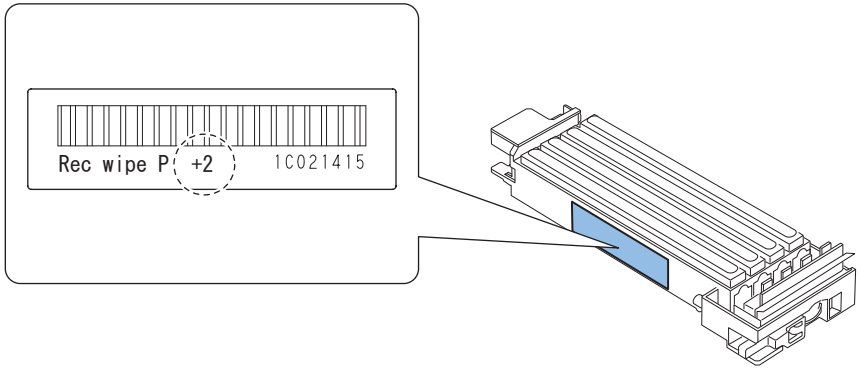
This is adjustment procedures when Print Module is replaced.

<In the case, Printer Controller PCB is replaced without data retrieving from old Printer Controller PCB to PC>

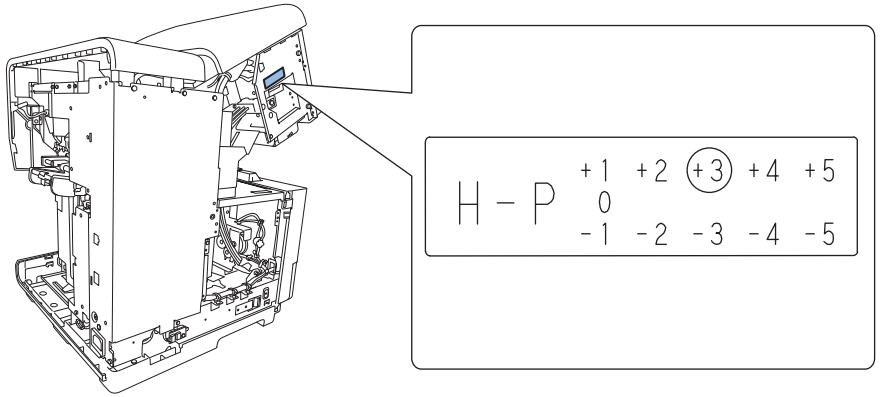
1) Record 5 adjustment values in the labels on new Print Module, new Purge Unit and the side of Upper Unit. See illustrations below.
   - wipe_P
   - Print_P
   - Cap_P
   - Rec wipe P
   - H-P



F-5-21



F-5-22



F-5-23

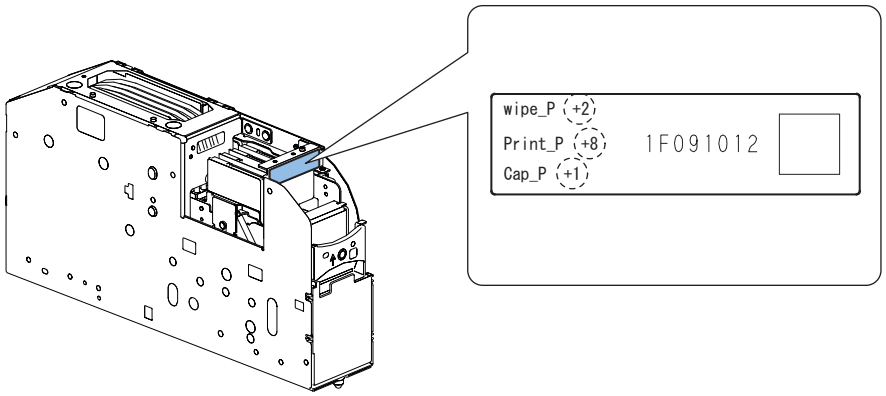
2) Replace Printer Controller PCB and install all the parts.
3) Connect PC to Printer, and then start service utility.
4) Open the [Parts Replacement] tab and click [Head Control Position Adjustment] to display the [Head Control Position Adjustment] dialog box.
5) Enter the 5 adjustment values to rewrite the flash ROM data in Printer Controller PCB to new adjustment values.

NOTE:
- Enter value of "wipe_P " to "Head Wipe Position"
- Enter value of "Print_P " to "Head Print Position"
- Enter value of "Cap_P " to "Head Cap Position"
- Enter value of "Rec wipe P " to "Purge Unit Wipe Position"
- Enter value of "H-P " to "Head to Platen Distance"

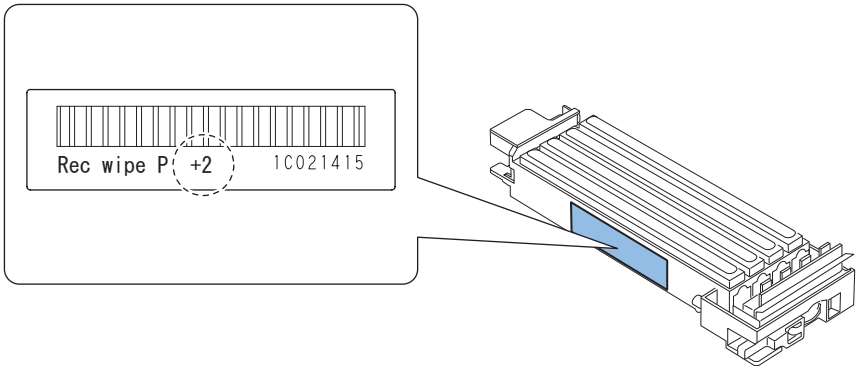
6) Click [Load and save to the printer].

<In the case, Print Module is replaced>

1) Record 4 adjustment values in the labels on new Print Module and new Purge Unit.
See illustration below.
- wipe_P
- Print_P
- Cap_P
- Rec wipe P



F-5-24



F-5-25

2) Replace Print Module and install all the parts.
3) Connect PC to Printer, and then start service utility.
4) Open the [Parts Replacement] tab and click [Head Control Position Adjustment] to display the [Head Control Position Adjustment] dialog box.
5) Enter the 4 adjustment values to rewrite the flash ROM data in Printer controller PCB to new adjustment values using service utility.

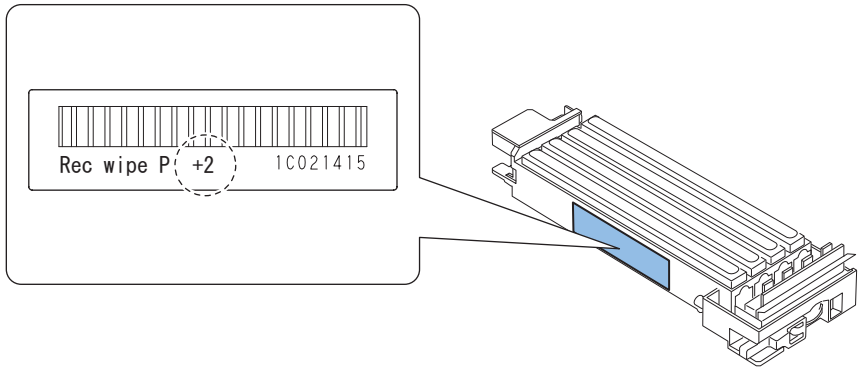
NOTE:
- Enter value of "wipe_P " to "Head Wipe Position"
- Enter value of "Print_P " to "Head Print Position"
- Enter value of "Cap_P " to "Head Cap Position"
- Enter value of "Rec wipe P " to "Purge Unit Wipe Position"

6) Click [Load and save to the printer].

Purge Unit Wipe Position Adjustment

This is an adjustment when Purge Unit is replaced.

1) Record adjustment value in the label on new Purge Unit.
   See illustration below.
   - Rec wipe P



F-5-26

2) Replace Purge Unit and install all the parts.
3) Connect PC to Printer, and then start service utility.
4) Open the [Parts Replacement] tab and click [Head Control Position Adjustment] to display the [Head Control Position Adjustment] dialog box.
5) Enter the adjustment value to rewrite the flash ROM data in Printer controller PCB to new adjustment value using service utility.

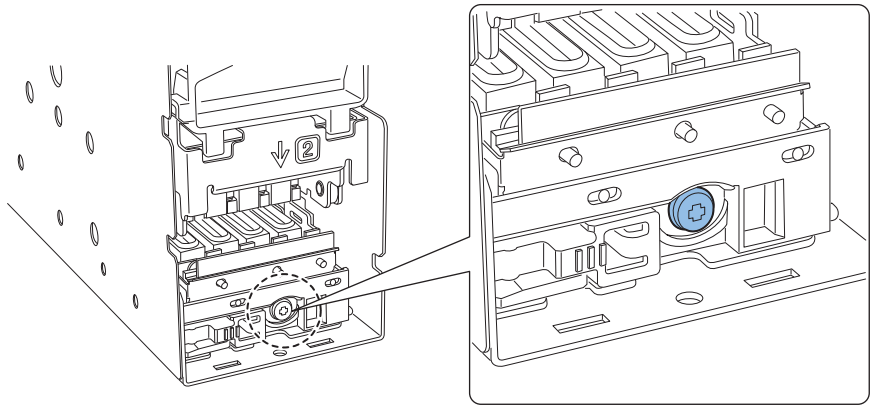
NOTE:
Enter value of "Rec wipe P " to "Purge Unit Wipe Position"

6) Click [Load and save to the printer].

Blade Position Adjustment

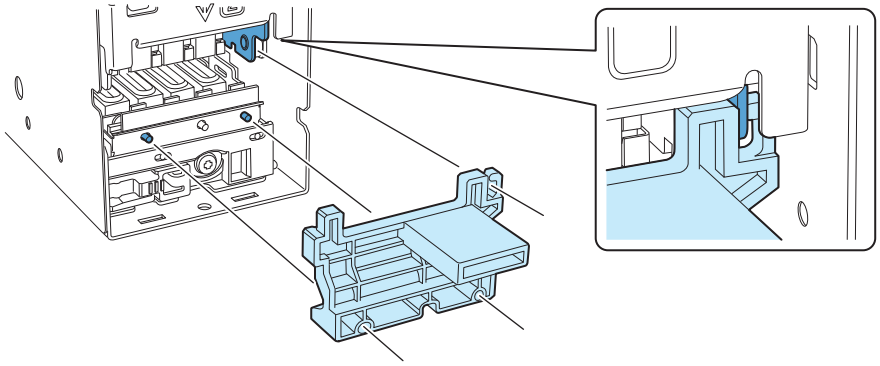
This is an adjustment when Purge Unit is replaced. Adjust blade position using Blade Position Adjustment Tool when Purge Unit is replaced. The adjustment tool comes with new Purge Unit.

1) Loosen the screw.



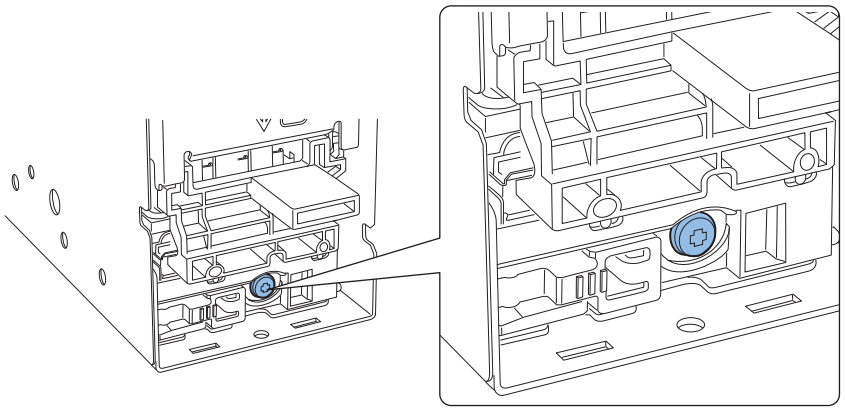
F-5-27

2) Set 2 key pins son holder of Blade with Blade position adjustment tool, set the gap of Blade Position Adjustment Tool to Print Module side plate that is registration position.



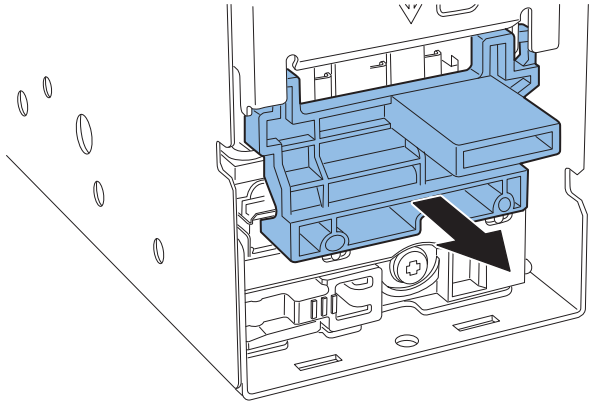
F-5-28

3) Tighten the screw of blade fixing to fix blade.



F-5-29

4) Remove Blade Position Adjustment Tool.

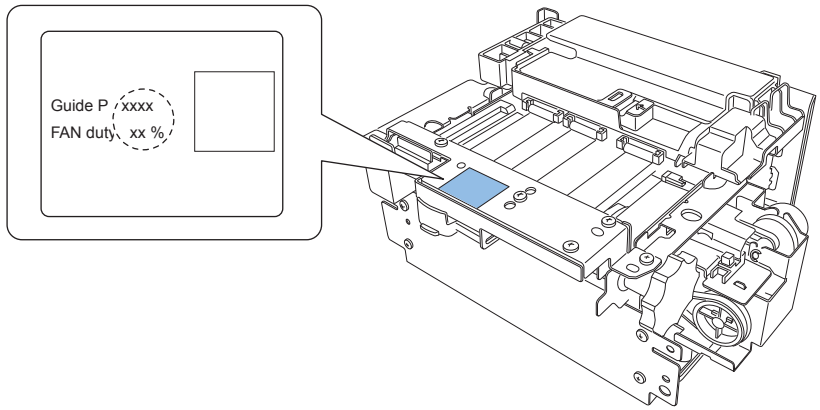


F-5-30

Paper Guide Position / Fan Duty Adjustment (Adjustment Value Input)

This is an adjustment when Transport Unit is replaced.

1) Record 2 adjustment values in the label on new Transport Unit.
   See figure below.
   - Guide P : Paper Guide Position adjustment value
   - FAN duty : Paper Suction Fan duty
2) Replace Transport Unit and install all the parts.
3) Connect PC to Printer and start service utility.
4) Open the [Parts Replacement] tab.
5) Enter 2 adjustment values and click [Send and save to Printer] to rewrite the flash ROM data in Printer controller PCB to new adjustment value.

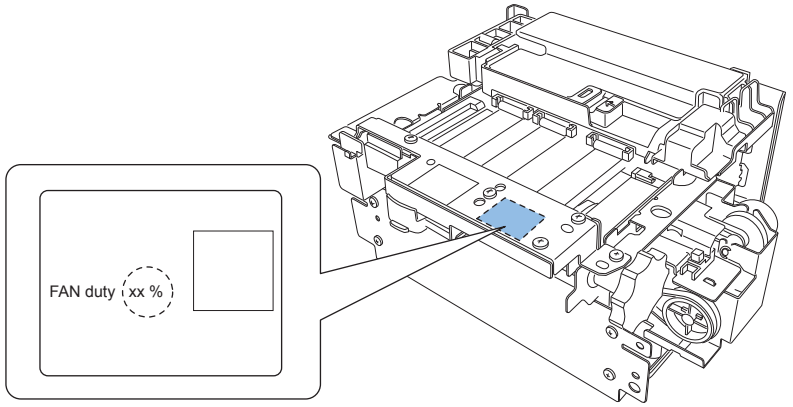


F-5-31

Fan Duty Adjustment (Adjustment Value Input)

This is an adjustment when Paper Suction Fun is replaced.

1) Record the adjustment value in the label that come with Paper Suction Fun.
   See figure below.
   - FAN duty : Paper Suction Fan duty
2) Replace Paper Suction Fun and install all the parts.
3) Connect PC to Printer and start service utility.
4) Open the [Parts Replacement] tab.
5) Enter the adjustment values and click [Send and save to Printer] to rewrite the flash ROM data in Printer controller PCB to new adjustment value.



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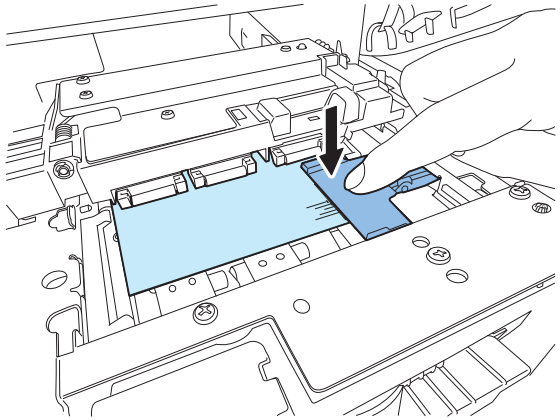
Paper Guide Position Adjustment

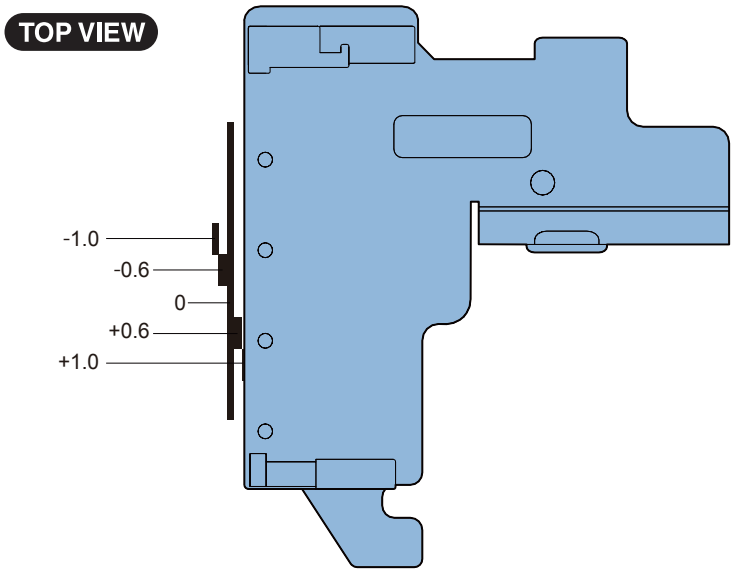
This adjustment is required after replacing service parts (Paper Guide Plate, Paper Guide HP Sensor, etc.) constituting Paper Guide Unit.
Measure the amount of which Paper Guide Plate overlaps paper, and adjust its position.

1) Set paper which is 90-105 mm in width and 100 mm or more in length in Printer.
2) Connect PC to Printer and start service utility.
3) Open the [Test Print/Adjustment] tab and click [Paper Guide position adjustment] to display the [Paper Guide position adjustment] dialog box.
4) Click [Print] to print the paper guide adjustment pattern, paper stops on Transport Unit, and Paper Guide Plate stops at the specified position.
5) Open Upper Unit, and check the overlap amount of Paper Guide Plate.

NOTE:
Opening Upper Unit too early interferes with Paper Guide Plate complete movement. After Paper Guide Plate adjustment pattern has been printed, wait until [STATUS] lamp changes from blinking to lit before opening Upper Unit.

6) Lightly press Paper Guide Plate against the paper. Check that the edge of Paper Guide Plate is at the center of the line indicating “0” of the Paper Guide Plate adjustment pattern. If it is at the center of the “0” line, no adjustment is required.
7) If the edge of Paper Guide Plate is outside the “0” line, observe the amount of adjustment according to the position of the edge of Paper Guide Plate, and enter the adjustment value in the Adjustment Column of Service Utility in steps of 0.1 mm.
8) Remove the paper from Transport Unit, print the Paper Guide Plate adjustment pattern again, and check the overlap amount.
9) Remove the paper from Transport Unit and close Upper Unit.





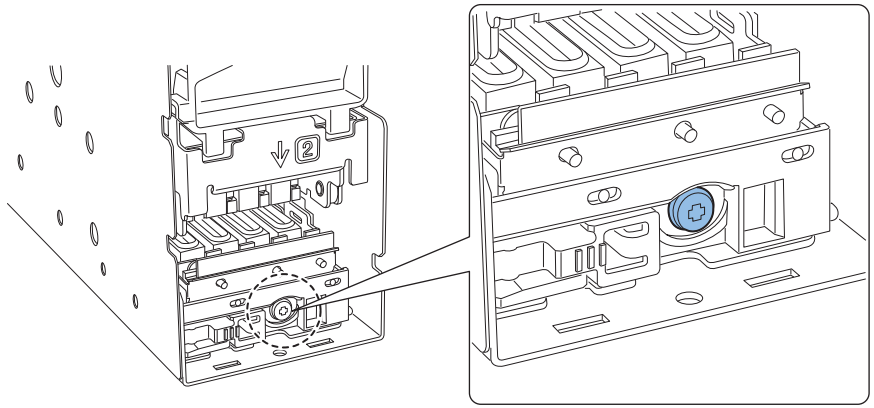
If the edge of Paper Guide Plate is as the position shown above, enter an adjustment value between +0.7 and +1.0.

F-5-33

Blade Position Adjustment

This is an adjustment when Purge Unit is replaced. Adjust blade position using Blade Position Adjustment Tool when Purge Unit is replaced. The adjustment tool comes with new Purge Unit.

1) Loosen the screw.



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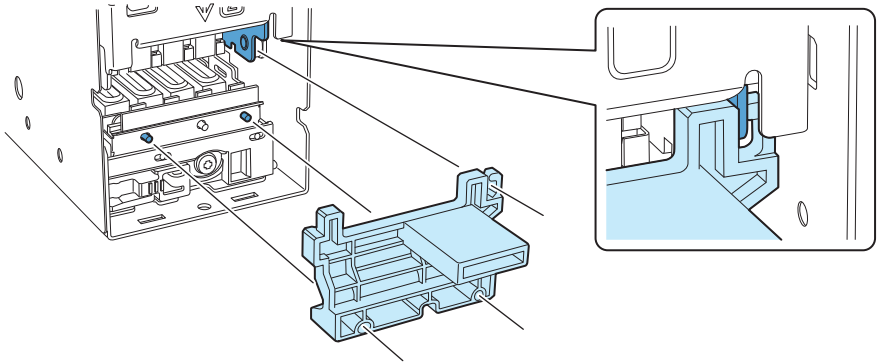
2) Set 2 key pins son holder of Blade with Blade position adjustment tool, set the gap of Blade Position Adjustment Tool to Print Module side plate that is registration position.



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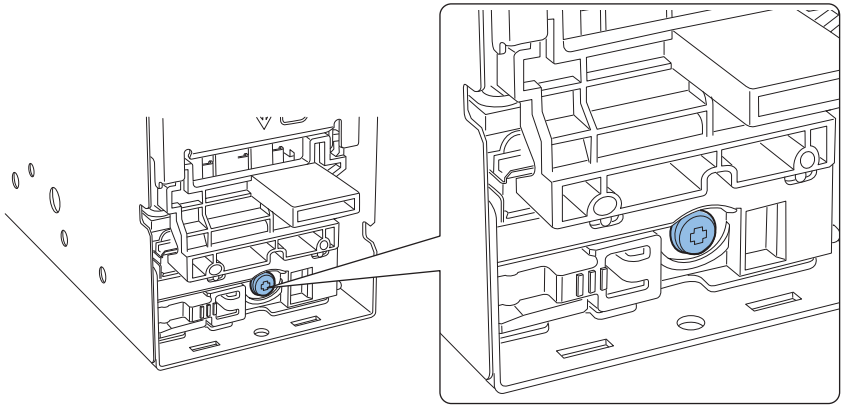
NOTE:
Do not push Blade Position Adjustment Tool against Purge Unit. Purge Unit may slide into the inside of Printer.

3) Tighten the screw of blade fixing to fix blade.



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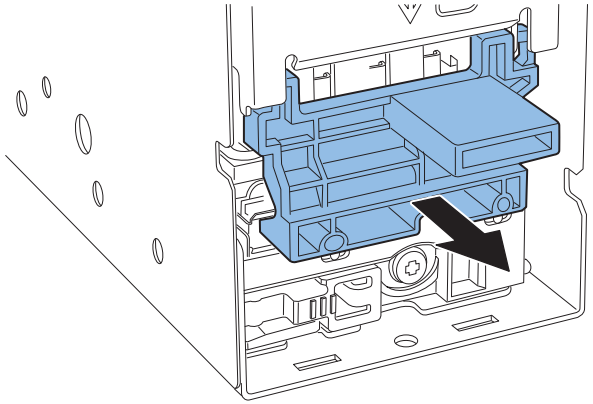
4) Remove Blade Position Adjustment Tool.



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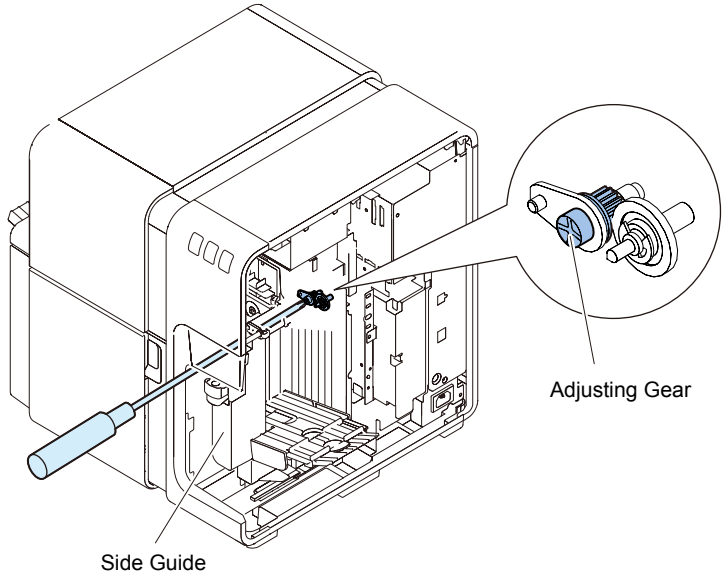
Skew Adjustment

This adjustment is required when skew is highly visible on the prints after replacement of the Upper/Lower Paper Feed Unit or to improve skew correction accuracy.
To adjust skew, change the angle of the registration wall by turning Adjusting Gear of Paper Feed Unit.

1) Connect PC to Printer and start service utility.
2) Open the [Test Print/Adjustment] tab and click [Head Position Adjustment] to display the [Head Position Adjustment] dialog box.
3) Click [Print] to print head position adjustment pattern.
4) Press [TRAY] key on the operation panel to lower Feeder Tray.
5) Remove Right Cover.
6) Move Side Guide backward.
7) Check the printed pattern image and turn the Adjusting Gear to adjust paper registration.

NOTE:
- To access Adjusting Gear, insert the screwdriver from the front side of Printer.
- Turning Adjusting Gear by 1 latch changes the angle about 0.025% in respect to the side edge of paper.



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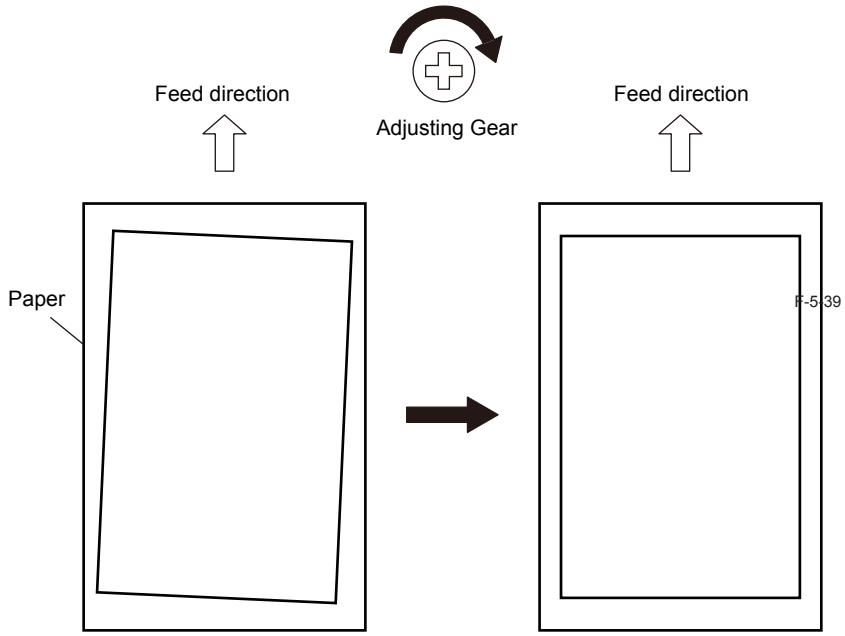
Adjusting Gear Rotation Direction and Skew Correction Direction



Error Code

Overview

This chapter lists codes that appear when problems occur with Product. These codes are classified into 3 groups.

Code Type	Description	See
Service Call Error	If Printer fails, Operation Panel [ERROR] Lamp flashes to signal the error state. Further, an error code consisting of 4 alphanumeric characters appears in Printer Driver Status Monitor or in Service Utility Management Information window.	p. 5-29
Operator Call Error	If an Operator Call Error occurs, Operation Panel [ERROR] Lamp lights and a message displays in Printer Driver Status Monitor. If Service Utility is active, an error code consisting of 4 alphanumeric characters appears in Printer Status window, along with a description of the operator call.	p. 5-43
Warning	If Printer enters a warning state, a message appears in Printer Driver Status Monitor. If Service Utility is active, an error code consisting of 4 alphanumeric characters appears in Printer Status window, along with a description of the warning.	p. 5-48

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Service Call Error

NOTE:
If Service Call Error occurs, turn off and then on Printer.

Code	Detail Code	Item	Description
01: Printer Controller PCB Failure			
01	01	Title	Flash ROM failure
		Description	At start of Printer, a flash ROM checksum error occurs.
		Remedy	1. Rewrite the firmware. 2. Replace Printer Controller PCB.
01	02	Title	SDRAM failure
		Description	At start of Printer, an SDRAM data write/read error occurs.
		Remedy	Replace Printer Controller PCB.
01	03	Title	VRAM failure
		Description	At start of Printer, VRAM data read/write error occurs.
		Remedy	Replace Printer Controller PCB.
01	04	Title	AD failure
		Description	At start of Printer, the reference voltage for A/D conversion is abnormal.
		Remedy	1. Replace Printer Controller PCB. 2. Replace DC Power PCB Unit.
01	05	Title	Sensor 3.3V was not turned OFF correctly.
		Description	At Printer Controller shutdown, 3.3 V is not detected.
		Remedy	1. Check Encoder Sensor connector connection. 2. Check Paper Width Sensor connector connection. 3. Check Operation Panel PCB connector connection. 4. Replace Encoder Sensor. 5. Replace Paper Width Sensor. 6. Replace Operation Panel PCB. 7. Replace Printer Controller PCB. If this error persists after the sensor harness connector is disconnected from the connector on Printer Controller PCB, this PCB is defective. 8. Check DC Power PCB Unit output. 9. Replace DC Power PCB Unit.
01	07	Title	Motor 24V was not turned OFF correctly
		Description	At Printer Controller shutdown, 24 V for motor system is not detected.
		Remedy	1. Replace Printer Controller PCB. 2. Replace DC Power PCB Unit.
01	08	Title	Printhead 5V was not turned OFF correctly.
		Description	At Printer Controller shutdown, 5.0 V for Printhead is not detected.
		Remedy	1. Replace Printer Controller PCB. 2. Replace DC Power PCB Unit.
01	09	Title	Printhead 24V was not turned OFF correctly.
		Description	At maintenance jet, sub-heating, or printing end, 24 V for Printhead is not detected normally.
		Remedy	1. Replace Printer Controller PCB. 2. Replace DC Power PCB Unit.
01	0A	Title	VHTM of the fuse to be blown.
		Description	When 24 V for Printhead is turned ON with 24 V fuse of Print Controller PCB blown, the blown fuse signal is turned ON.
		Remedy	CAUTION: Before replacing parts, check the connections between Printer Controller PCB and Printhead. Without checking the connections, the fuse may blow again. 1. Replace Printer Controller PCB. 2. Replace DC Power PCB Unit.
02: Power Failure			
02	11	Title	Printer Controller PCB 3.3V was not turned ON correctly.
		Description	At Printer Controller initialization, 3.3 V for Printer Controller PCB is not detected.
		Remedy	Replace DC Power PCB Unit.
02	13	Title	Motor 24V was not turned ON correctly.
		Description	At Printer Controller initialization, 24 V for motor system is not detected.
		Remedy	Replace DC Power PCB Unit.
02	14	Title	Printhead 5V was not turned ON correctly.
		Description	At Printer Controller initialization, 5.0 V for Printhead is not detected.
		Remedy	1. Check DC Power PCB Unit output. 2. Replace Printhead. 3. Replace Printhead Relay PCB. 4. Replace Flexible Cable. 5. Replace Printer Controller PCB. 6. Replace DC Power PCB Unit.

Code	Detail Code	Item	Description
02	15	Title	Printhead 24V was not turned ON correctly.
		Description	At maintenance jet, sub-heating, or printing end, 24 V for Printhead is not detected.
		Remedy	1. Check DC Power PCB Unit output. 2. Replace Printhead. 3. Replace Printhead Relay PCB. 4. Replace Flexible Cable. 5. Replace Printer Controller PCB. 6. Replace DC Power PCB Unit.
05: Printhead Position Error			
05	20	Title	Printhead position error
		Description	When initialization of the position of Printhead located at the cap position is started, Printhead HP Sensor has already been turned ON.
		Remedy	1. Check Printhead Lifter part movement. 2. Replace Print Module.
05	21	Title	Printhead position error
		Description	When initialization of the position of Printhead located at the home position is started, Printhead HP Sensor has already been turned OFF.
		Remedy	1. Check Printhead Lifter part movement. 2. Replace Print Module.
05	22-2D	Title	Printhead position error
		Description	When movement of Printhead located at the predetermined position toward the home position is started, Printhead HP Sensor has already been turned ON.
		Remedy	1. Check Printhead Lifter part movement. 2. Replace Print Module.
05	2E	Title	Printhead position error
		Description	When descent of Printhead located at the home position is started for initialization, Printhead HP Sensor has already been turned OFF.
		Remedy	1. Check Printhead Lifter part movement. 2. Replace Print Module.
05	2F-30	Title	Printhead position error
		Description	When movement of Printhead located at the predetermined position toward the home position is started, Printhead HP Sensor has already been turned ON.
		Remedy	1. Check Printhead Lifter part movement. 2. Replace Print Module.
05	3D	Title	Printhead position error
		Description	When movement of Printhead located at a position other than the home position is started, Printhead HP Sensor has already been turned ON.
		Remedy	1. Check Printhead Lifter part movement. 2. Replace Print Module.

Code	Detail Code	Item	Description
05	3E	Title	Printhead position error
		Description	When movement of Printhead located at the home position is started, Printhead HP Sensor has already been turned OFF.
		Remedy	Check Printhead Lifter part movement.
05	40	Title	Printhead position error
		Description	When Printhead located at the cap position is driven by the predetermined number of pulses after initialization of its position, Printhead HP Sensor is not turned ON.
		Remedy	1. Check Printhead Lifter part movement. 2. Replace Print Module. 3. Replace Printer Controller PCB.
05	41	Title	Printhead position error
		Description	When Printhead located at the home position is driven by the predetermined number of pulses after initialization of its position was started, Printhead HP Sensor is not turned OFF.
		Remedy	1. Check Printhead Lifter part movement. 2. Check Printhead Lift Motor connector connection. 3. Replace Print Module. 4. Replace Printer Controller PCB.
05	42	Title	Printhead position error
		Description	When Printhead located at the wipe position is driven toward the home position by the predetermined number of pulses, Printhead HP Sensor is not turned ON.
		Remedy	1. Check Printhead Lifter part movement. 2. Check Printhead Lift Motor connector connection. 3. Replace Print Module. 4. Replace Printer Controller PCB.
05	43	Title	Printhead position error
		Description	When Printhead located at the predetermined position is driven toward the home position by the predetermined number of pulses, Printhead HP Sensor is not turned ON.
		Remedy	1. Check Printhead Lifter part movement. 2. Check Printhead Lift Motor connector connection. 3. Replace Print Module. 4. Replace Printer Controller PCB.
05	45	Title	Printhead position error
		Description	When Printhead located at the printing position is driven toward the home position, Printhead HP Sensor is not turned ON.
		Remedy	1. Reset Upper Printhead Release Lever 2. Reset Print Module Cover 3. Check Printhead Lifter part movement. 4. Check Printhead Lift Motor connector connection. 5. Replace Print Module. 6. Replace Printer Controller PCB.

Code	Detail Code	Item	Description
05	46-4D	Title	Printhead position error
		Description	When Printhead located at the predetermined position is driven toward the home position by the predetermined number of pulses, Printhead HP Sensor is not turned ON.
		Remedy	1. Check Printhead Lifter part movement. 2. Check Printhead Lift Motor connector connection. 3. Replace Print Module. 4. Replace Printer Controller PCB.
05	4E	Title	Printhead position error
		Description	When Printhead located at the home position is driven by the predetermined number of times after descent of it started for initialization, Printhead HP Sensor is not turned OFF.
		Remedy	1. Close Lower Printhead Release Lever. 2. Check Printhead Lifter part movement. 3. Check Printhead Lift Motor connector connection. 4. Replace Print Module. 5. Replace Printer Controller PCB.
05	4F-50	Title	Printhead position error
		Description	When Printhead located at the predetermined position is driven toward the home position by the specified number of pulses, Printhead HP Sensor is not turned ON.
		Remedy	1. Check Printhead Lifter part movement. 2. Check Printhead Lift Motor connector connection. 3. Replace Print Module. 4. Replace Printer Controller PCB.
05	5E	Title	Printhead position error
		Description	When Printhead located at the home position is driven by the predetermined number of pulses after descent of it started, Printhead HP Sensor is not turned OFF.
		Remedy	1. Check Printhead Lifter part movement. 2. Replace Print Module. 3. Replace Printer Controller PCB.
05	62	Title	Printhead position error
		Description	When Printhead located at the wipe position moves to the home position, Printhead HP Sensor is turned ON before Printhead has been driven by the predetermined number of pulses.
		Remedy	1. Check Printhead Lifter part movement. 2. Replace Print Module. 3. Replace Printer Controller PCB.
05	63	Title	Printhead position error
		Description	When Printhead located at the predetermined position moves to the home position, Printhead HP Sensor is turned ON before Printhead has been driven by the predetermined number of pulses.
		Remedy	1. Check Printhead Lifter part movement. 2. Replace Print Module. 3. Replace Printer Controller PCB.
05	65	Title	Printhead position error
		Description	When Printhead located at the printing position moves to the home position, Printhead HP Sensor is turned ON before Printhead has been driven by the predetermined number of pulses.
		Remedy	1. Reset Upper Printhead Release Lever 2. Reset Print Module Cover 3. Check Printhead Lifter part movement. 4. Check Printhead Lift Motor connector connection. 5. Replace Print Module. 6. Replace Printer Controller PCB.
05	66-70	Title	Printhead position error
		Description	When Printhead located at the predetermined position moves to the home position, Printhead HP Sensor is turned ON before Printhead has been driven by the predetermined number of pulses.
		Remedy	1. Check Printhead Lifter part movement. 2. Replace Print Module. 3. Replace Printer Controller PCB.
06: Purge Unit Position Error			
06	20	Title	Purge Unit position error
		Description	When initialization of the position of Purge Unit located at the cap position is started, Purge Position Sensor has already been turned ON.
		Remedy	1. Check Purge Unit movement. 2. Replace Purge Position Sensor.
06	21	Title	Purge Unit position error
		Description	When initialization of the position of Purge Unit located at the home position is started, Printhead HP Sensor has already been turned OFF.
		Remedy	Replace Purge Position Sensor.
06	23	Title	Purge Unit position error
		Description	When initialization of the position of Purge Unit located at the cap position is started, Purge Position Sensor has already been turned ON.
		Remedy	1. Check Purge Unit movement. 2. Replace Purge Position Sensor.

Code	Detail Code	Item	Description
06	24-2A	Title	Purge Unit position error
		Description	When movement of Purge Unit located at the predetermined position toward the home position is started, Purge Position Sensor has already been turned ON.
		Remedy	1. Check Purge Unit movement. 2. Replace Purge Position Sensor.
06	3D	Title	Purge Unit position error
		Description	When movement of Purge Unit located at a position other than the home position is started,Purge Position Sensor has already been turned ON.
		Remedy	Check Purge Unit movement.
06	3E	Title	Purge Unit position error
		Description	When movement of Purge Unit located at the home position to the predetermined position is started, Purge Position Sensor has already been turned OFF.
		Remedy	Check Purge Unit movement.
06	40	Title	Purge Unit was not installed correctly.
		Description	When Purge Unit located at the cap position is driven by the predetermined number of pulses after initialization of its position started, Purge Position Sensor is not turned ON.
		Remedy	1. Check Purge Unit movement. 2. Check Purge Position Sensor connector connection. 3. Check Purge Motor connector connection. 4. Replace Purge Position Sensor. 5. Replace Purge Unit. 6. Replace Printer Controller PCB.
06	41	Title	Purge Unit position error
		Description	When Purge Unit located at the home position is driven by the predetermined number of pulses after initialization of its position started, Purge Position Sensor is not turned OFF.
		Remedy	1. Check Purge Unit movement. 2. Check Purge Position Sensor connection. 3. Check Purge Motor connector connection. 4. Replace Purge Position Sensor. 5. Replace Purge Motor. 6. Replace Purge Unit. 7. Replace Printer Controller PCB.
06	43	Title	Purge Unit position error
		Description	When Purge Unit located at the cap position is driven by the predetermined number of pulses after its movement toward the home position started,Purge Position Sensor is not turned ON.
		Remedy	1. Check Purge Unit movement. 2. Replace Purge Unit. 3. Replace Printer Controller PCB.
06	44-49	Title	Purge Unit position error
		Description	When Purge Unit located at the predetermined position is driven by the predetermined number of pulses after movement toward the home position is started,Purge Position Sensor is not turned ON.
		Remedy	1. Check Purge Unit movement. 2. Replace Purge Unit. 3. Replace Printer Controller PCB.
06	5E	Title	Purge Unit position error
		Description	When Purge Unit located at the home position is driven by the predetermined number of pulses after movement toward the predetermined position is started, Purge Position Sensor is not turned OFF.
		Remedy	1. Check Purge Unit movement. 2. Replace Purge Position Sensor. 3. Replace Purge Unit. 4. Replace Printer Controller PCB.
06	63	Title	Purge Unit position error
		Description	When Purge Unit located at the cap position moves to the home position, Home Position Sensor is turned ON before it has been driven by the predetermined number of pulses.
		Remedy	1. Check Purge Unit movement. 2. Replace Purge Position Sensor. 3. Replace Purge Unit. 4. Replace Printer Controller PCB.
06	64-69	Title	Purge Unit position error
		Description	When Purge Unit located at the predetermined position moves to the home position, Home Position Sensor is turned ON before it has been driven by the predetermined number of pulses.
		Remedy	1. Check Purge Unit movement. 2. Replace Purge Position Sensor. 3. Replace Purge Unit. 4. Replace Printer Controller PCB.
07: Supply Valve Error			
07	20	Title	Supply Valve error
		Description	When Ink Supply Valve is driven by the predetermined number of pulses after initialization of its position started, Pump Valve Sensor 2 is not turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.

Code	Detail Code	Item	Description
07	21	Title	Supply Valve error
		Description	When Ink Supply Valve is driven by the predetermined number of pulses after closing of it is started, Pump Valve Sensor 2 is not turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
07	22	Title	Supply Valve error
		Description	When Ink Supply Valve is driven by the predetermined number of pulses after opening of it is started, Pump Valve Sensor 2 is not turned OFF.
		Remedy	1. Check Pump Unit connect or connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
07	23	Title	Supply Valve error
		Description	When Ink Supply Valve (Bk) is driven by the predetermined number of pulses after opening of it is started, Pump Valve Sensor 2 is not turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
07	24	Title	Supply Valve error
		Description	When Ink Supply Valve (C) is driven by the predetermined number of pulses after opening of it is started, Pump Valve Sensor 2 is not turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
07	25	Title	Supply Valve error
		Description	When Ink Supply Valve (M) is driven by the predetermined number of pulses after opening of it is started, Pump Valve Sensor 2 is not turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
07	26	Title	Supply Valve error
		Description	When Ink Supply Valve (Y) is driven by the predetermined number of pulses after opening of it is started, Pump Valve Sensor 2 is not turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.

Code	Detail Code	Item	Description
07	27	Title	Supply Valve error
		Description	When Ink Supply Valve is driven by the predetermined number of pulses after closing of it is started, Pump Valve Sensor 2 is not turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
07	29	Title	Supply Valve error
		Description	When Ink Supply Valve is driven by the predetermined number of pulses after opening of it is started, Pump Valve Sensor 2 is not turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
07	31	Title	Supply Valve error
		Description	When Ink Supply Valve is closed, Pump Valve Sensor 2 is turned ON before this valve has been driven by the predetermined number of pulses.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
07	32	Title	Supply Valve error
		Description	When Suction Valve is opened, Pump Valve Sensor 2 is turned OFF before this valve has been driven by the predetermined number of pulses.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
07	33	Title	Supply Valve error
		Description	When Ink Supply Valve (Bk) is opened, Pump Valve Sensor 2 is turned ON before this valve has been driven by the predetermined number of pulses
		Action	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
07	34	Title	Supply Valve error
		Description	When Ink Supply Valve (C) is opened, Pump Valve Sensor 2 is turned ON before this valve has been driven by the predetermined number of pulses.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.

Code	Detail Code	Item	Description
07	35	Title	Supply Valve error
		Description	When Ink Supply Valve (M) is opened, Pump Valve Sensor 2 is turned ON before this valve has been driven by the predetermined number of pulses.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
07	36	Title	Supply Valve error
		Description	When Ink Supply Valve (Y) is opened, Pump Valve Sensor 2 is turned ON before this valve has been driven by the predetermined number of pulses.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
07	71	Title	Supply Valve error
		Description	When Ink Supply Valve is closed, Pump Valve Sensor 2 is not turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
07	72	Title	Supply Valve error
		Description	When Suction Valve is opened, Pump Valve Sensor 2 has already been turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
07	73	Title	Supply Valve error
		Description	When Suction Valve (Bk) is opened, Pump Valve Sensor 2 has already been turned OFF.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
07	74	Title	Supply Valve error
		Description	When Suction Valve (C) is opened, Pump Valve Sensor 2 has already been turned OFF.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
07	75	Title	Supply Valve error
		Description	When Suction Valve (M) is opened, Pump Valve Sensor 2 has already been turned OFF.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
07	76	Title	Supply Valve error
		Description	When Suction Valve (Y) is opened, Pump Valve Sensor 2 has already been turned OFF.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
07	77	Title	Supply Valve error
		Description	When Ink Supply Valve is closed, Pump Valve Sensor 2 has already been turned OFF.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
07	79	Title	Supply Valve error
		Description	When Ink Supply Valve is opened, Pump Valve Sensor 2 has already been turned OFF.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
08: Bubble Removing Valve Error			
08	20	Title	Bubble Removing Valve error
		Description	When Bubble Removing Valve is driven by the predetermined number of pulses after initialization of its position is started, Pump Valve Sensor 1 is not turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
08	21	Title	Bubble Removing Valve error
		Description	When Bubble Removing Valve is driven by the predetermined number of pulses after closing of it is started, Pump Valve Sensor 1 is not turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
08	23	Title	Bubble Removing Valve error
		Description	When Bubble Removing Valve (Bk) is driven by the predetermined number of pulses after opening of it is started, Pump Valve Sensor 1 is not turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
08	24	Title	Bubble Removing Valve error
		Description	When Bubble Removing Valve (C) is driven by the predetermined number of pulses after opening of it is started, Pump Valve Sensor 1 is not turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.

Code	Detail Code	Item	Description
08	25	Title	Bubble Removing Valve error
		Description	When Bubble Removing Valve (M) is driven by the predetermined number of pulses after opening of it is started, Pump Valve Sensor 1 is not turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
08	26	Title	Bubble Removing Valve error
		Description	When Bubble Removing Valve (Y) is driven by the predetermined number of pulses after opening of it is started, Pump Valve Sensor 1 is not turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
08	27	Title	Bubble Removing Valve error
		Description	When Bubble Removing Valve is driven by the predetermined number of pulses after opening of it is started, Pump Valve Sensor 1 is not turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
08	28	Title	Bubble Removing Valve error
		Description	When Bubble Removing Valve is driven by the predetermined number of pulses after closing of it is started, Pump Valve Sensor 1 is not turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
08	31	Title	Bubble Removing Valve error
		Description	When Bubble Removing Valve is closed, Pump Valve Sensor 1 is turned ON before this valve has been driven by the predetermined number of pulses.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
08	33	Title	Bubble Removing Valve error
		Description	When Bubble Removing Valve (Bk) is closed, Pump Valve Sensor 1 is turned ON before this valve has been driven by the predetermined number of pulses.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.

Code	Detail Code	Item	Description
08	34	Title	Bubble Removing Valve error
		Description	When Bubble Removing Valve (C) is closed, Pump Valve Sensor 1 is turned ON before this valve has been driven by the predetermined number of pulses.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
08	35	Title	Bubble Removing Valve error
		Description	When Bubble Removing Valve (M) is closed, Pump Valve Sensor 1 is turned ON before this valve has been driven by the predetermined number of pulses.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
08	37	Title	Bubble Removing Valve error
		Description	When Bubble Removing Valve is opened, Pump Valve Sensor 1 is turned ON before this valve has been driven by the predetermined number of pulses.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
08	38	Title	Bubble Removing Valve error
		Description	When Bubble Removing Valve is closed, Pump Valve Sensor 1 is turned ON before this valve has been driven by the predetermined number of pulses.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
08	71	Title	Bubble Removing Valve error
		Description	When Bubble Removing Valve is closed, Pump Valve Sensor 1 has already been turned OFF.
		Action	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
08	73	Title	Bubble Removing Valve error
		Description	When Bubble Removing Valve (Bk) is opened, Pump Valve Sensor 1 has already been turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
08	74	Title	Bubble Removing Valve error
		Description	When Bubble Removing Valve (C) is opened, Pump Valve Sensor 1 has already been turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.

Code	Detail Code	Item	Description
08	75	Title	Bubble Removing Valve error
		Description	When Bubble Removing Valve (M) is opened, Pump Valve Sensor 1 has already been turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
08	76	Title	Bubble Removing Valve error
		Description	When Bubble Removing Valve (Y) is opened, Pump Valve Sensor 1 has already been turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
08	77	Title	Bubble Removing Valve error
		Description	When Bubble Removing Valve is opened, Pump Valve Sensor 1 has already been turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
08	78	Title	Bubble Removing Valve error
		Description	When Bubble Removing Valve is closed, Pump Valve Sensor 1 has already been turned ON.
		Remedy	1. Check Pump Unit connector connection. 2. Replace Print Module. 3. Replace Printer Controller PCB.
09: Suction Pump Error			
09	12-15 *1	Title	Ink Level Sensor does not detect ink.
		Description	When ink height adjustment or ink flow path bubble removal is performed for 180 seconds, Ink Level Sensor is not turned ON.
		Remedy	1. Check ink leakage from ink flow paths. 2. Check Printhead connection. 3. Check Flexible Cable connection. 4. Replace Printhead. 5. Replace Printhead Relay PCB. 6. Replace Flexible Cable. 7. Replace Printer Controller PCB.
09	16-19 *2	Title	Ink Level Sensor does not detect air.
		Description	When Pump is driven for 60 seconds for ink height adjustment, Ink Level Sensor is not turned OFF.
		Remedy	1. Check ink leakage from ink flow paths. 2. Replace Print Module. 3. Replace Printer Controller PCB.

Code	Detail Code	Item	Description
09	1A	Title	Pressure does not become lower.
		Description	When Pump is driven for 60 seconds with all valves closed, Pressure Sensor value does not decrease to the predetermined one.
		Remedy	1. Check ink leakage from ink flow paths. 2. Replace Print Module. 3. Replace Printer Controller PCB.
09	22-25 *1	Title	Pressure does not change.
		Description	When ink height adjustment or ink flow path bubble removal is performed, the state where Pressure Sensor value changes by ± 2kPa is maintained for 90 seconds.
		Remedy	1. Check ink leakage from ink flow paths. 2. Check Printhead connection. 3. Check Flexible Cable connection. 4. Replace Printhead. 5. Replace Printhead Relay PCB. 6. Replace Flexible Cable. 7. Replace Printer Controller PCB.
09	26-29 *2	Title	Pressure does not change.
		Description	When ink height adjustment or ink flow path bubble removal is performed, the state where Pressure Sensor value changes by ± 2kPa is maintained for 60 seconds
		Remedy	1. Check ink leakage from ink flow paths. 2. Check Printhead connection. 3. Check Flexible Cable connection. 4. Replace Printhead. 5. Replace Printhead Relay PCB. 6. Replace Flexible Cable. 7. Replace Printer Controller PCB.
09	2A	Title	Pressure does not become lower.
		Description	When pump suction is performed for the predetermined period of time, Pressure Sensor value does not decrease to less than the predetermined value.
		Remedy	1. Check ink leakage from ink flow paths. 2. Replace Print Module. 3. Replace Printer Controller PCB.
09	2B	Title	Pressure does not become higher.
		Description	When Pump is driven for pressurization for 300 seconds with all valves closed, Pressure Sensor value does not increase to more than the predetermined value.
		Remedy	1. Check ink leakage from ink flow paths. 2. Replace Print Module. 3. Replace Printer Controller PCB.

Code	Detail Code	Item	Description
09	32-35 *1	Title	Pressure becomes lower too fast.
		Description	While Pump is being driven for suction, Pressure Sensor value decreases to less than -40kPa before Ink Level Sensor is turned ON.
		Remedy	1. Check ink leakage from ink flow paths. 2. Replace Print Module. 3. Replace Printer Controller PCB.
09	36-39 *2	Title	Pressure becomes higher too fast.
		Description	While Pump is being driven for pressurization, Pressure Sensor value increases to more than +25kPa before Ink Level Sensor is turned OFF.
		Remedy	1. Check ink leakage from ink flow paths. 2. Replace Print Module. 3. Replace Printer Controller PCB.
09	41-4B *3	Title	Supply Valve status error when driving Pump (dragging)
		Description	When Pump is driven with Pump Valve Sensor 2 turned OFF, this sensor is turned ON.
		Remedy	1. Replace Print Module. 2. Replace Printer Controller PCB.
09	51-5B *3	Title	Supply Valve status error when driving Pump (dragging)
		Description	When Pump is driven with Pump Valve Sensor 2 turned ON, this sensor is turned OFF.
		Remedy	1. Replace Print Module. 2. Replace Printer Controller PCB.
09	61-6B *3	Title	Bubble Removing Valve status error when driving Pump (dragging)
		Description	When Pump is driven with Pump Valve Sensor 1 turned ON, this sensor is turned OFF.
		Remedy	1. Replace Print Module. 2. Replace Printer Controller PCB.
09	71-7B *3	Title	Bubble Removing Valve status error when driving Pump (dragging)
		Description	When Pump is driven with Pump Valve Sensor 1 turned OFF, this sensor is turned ON.
		Remedy	1. Replace Print Module. 2. Replace Printer Controller PCB.

Code	Detail Code	Item	Description
09	Remarks	*1: The low-order 4 bits are 2: BK, 3: C, 4: M, 5:Y. *2: The low-order 4 bits are 6: BK, 7: C, 8: M, 9:Y. *3: The low-order 4 bits represent the Pump drive type. 1: Driven without sensor detection 2: Driven on Ink Level Sensor detection (BK) 3: Driven on Ink Level Sensor detection (C) 4: Driven on Ink Level Sensor detection (M) 5: Driven on Ink Level Sensor detection (Y) 6: Driven on Ink Level Sensor detection (BK) 7: Driven on Ink Level Sensor detection (C) 8: Driven on Ink Level Sensor detection (M) 9: Driven on Ink Level Sensor detection (Y) A: Pressure Sensor under detection B: Pressure Sensor excess detection	
0A: Upper Feeder Tray Sensor Error			
0A	01	Title	Upper Feeder Tray Sensor Error
		Description	Upper Feeder Tray Sensor error Upper Feeder Tray Sensor is not turned ON when Feeder Tray is raised for 8 seconds. Or, Upper Feeder Tray Sensor is not turned OFF when Feeder Tray is lowered for 5 seconds.
		Remedy	1. Check Upper Feeder Tray Sensor connector connection. 2. Check Paper Lift Motor connector connection. 3. Replace Upper Feeder Tray Sensor. 4. Replace Paper Lift Motor.
0A	02	Title	Upper Feeder Tray Sensor Error
		Description	Upper Feeder Tray Sensor has already been turned ON before descent of Feeder Tray ends. Or, Upper Feeder Tray Sensor and Lower Feeder Tray Sensor are already turned ON before Feeder Tray initialization starts.
		Remedy	1. Check Upper Feeder Tray Sensor connector connection. 2. Check Lower Feeder Tray Sensor connector connection. 3. Check Paper Lift Motor connector connection. 4. Replace Upper Feeder Tray Sensor. 5. Replace Lower Feeder Tray Sensor. 6. Replace Paper Lift Motor.
0B: Lower Feeder Tray Sensor Error			
0B	01	Title	Lower Feeder Tray Sensor Error
		Description	Lower Feeder Tray Sensor is not turned ON when Feeder Tray is lowered for 6 seconds. Or, Lower Feeder Tray Sensor is not turned OFF when Feeder Tray is raised for 5 seconds.
		Remedy	1. Check Upper Feeder Tray Sensor connector connection. 2. Check Paper Lift Motor connector connection. 3. Replace Upper Feeder Tray Sensor. 4. Replace Paper Lift Motor.

Code	Detail Code	Item	Description
0B	02	Title	Lower Feeder Tray Sensor Error
		Description	Upper Feeder Tray Sensor and Lower Feeder Tray Sensor have already been tuned ON before ascension of Feeder Tray ends.
		Remedy	1. Check Upper Feeder Tray Sensor connector connection. 2. Check Lower Feeder Tray Sensor connector connection. 3. Check Paper Lift Motor connector connection. 4. Replace Upper Feeder Tray Sensor. 5. Replace Lower Feeder Tray Sensor. 6. Replace Paper Lift Motor.
0C: Disengage Sensor Error			
0C	01	Title	Disengage Sensor Error
		Description	Disengage Sensor is not turned ON when Feed Motor is driven 420 pulses after Disengage Clutch is turned ON for paper feed.
		Remedy	1. Check Disengage Sensor connector connection. 2. Check Disengage Clutch connector connection. 3. Check Paper Feed Motor connector connection. 4. Replace Disengage Sensor. 5. Replace Disengage Clutch . 6. Replace Paper Feed Motor.
0C	02	Title	Disengage Sensor Error
		Description	Disengage Sensor is turned ON when Feed Roller has moved from the disengagement position to the nip position for paper feed.
		Remedy	1. Check Disengage Sensor connector connection. 2. Replace Disengage Sensor.
0D: Stacker Paper Surface Sensor Error			
0D	01	Title	Stacker Paper Surface Sensor Error
		Description	Stacker Paper Surface Sensor 1 is not turned ON when Stacker Tray is raised for 10 seconds
		Remedy	1. Check Stacker Paper Surface Sensor 1 connector connection. 2. Check Stacker Paper Surface Sensor 2 connector connection. 3. Check Stacker Lift Motor connector connection. 4. Replace Stacker Paper Surface Sensor 1. 5. Replace Stacker Paper Surface Sensor 2. 6. Replace Stacker Lift Motor.

Code	Detail Code	Item	Description
0E: Lower Stacker Tray Sensor Error			
0E	01	Title	Lower Stacker Tray Sensor Error
		Description	Lower Stacker Tray Sensor is not turned OFF when Stacker Tray is raised for 5 seconds. Or, Lower Stacker Tray Sensor is not turned ON when Stacker Tray is lowered for 10 seconds.
		Remedy	1. Check Lower Stacker Tray Sensor connector connection. 2. Check Stacker Lift Motor connector connection. 4. Replace Lower Stacker Tray Sensor. 6. Replace Stacker Lift Motor.
0F: Printhead Overheat			
0F	01-FF (Additional value of K:01,C:02, M:04,Y:08)	Title	Printheads are overheated. If used further, Printheads will be damaged.
		Description	After Printhead cool down Printhead Temperature Sensor is 75 degrees Celsius or more.
		Remedy	Replace Printheads.
10: Printhead Ink Level Sensor Error			
10	01-FF (Additional value of K:01,C:02, M:04,Y:08)	Title	Ink Upper Limit Sensor detected while Ink Lower Limit Sensor did not.
		Description	When Ink Lower Limit Sensor is held OFF, Ink Upper Limit Sensor is turned ON.
		Remedy	1. Check Printheads connection. 2. Check Flexible Cable connection. 3. Replace Printhead. 4. Replace Printhead Relay PCB. 5. Replace Flexible Cable. 6. Replace Printer Controller PCB.
11: Printhead Subheater Error			
11	01-FF (Additional value of K:01,C:02, M:04,Y:08)	Title	Specified temperature is not reached even though Subheater is running
		Description	Printhead Temperature Sensor does not increase by 5 degrees Celsius when the subheater is operated for 10 seconds during the subheater temperature adjustment. Or, Printhead Temperature Sensor does not increase to the predetermined value when the subheater is operated for 120 seconds.
		Remedy	1. Check Printheads connection. 2. Check Flexible Cable connection. 3. Replace Printhead. 4. Replace Printhead Relay PCB. 5. Replace Flexible Cable. 6. Replace Printer Controller PCB.

Code	Detail Code	Item	Description
12: Printhead Connection Error			
12	01-FF (Additional value of K:01,C:02, M:04,Y:08)	Title	Printhead connection error
		Description	When Printer is initialized, EEPROM of Printhead is not accessed.
		Remedy	1. Check Printheads connection. 2. Check Flexible Cable connection. 3. Replace Printhead. 4. Replace Printhead Relay PCB. 5. Replace Flexible Cable. 6. Replace Printer Controller PCB. 7. Replace Print Module.
13: Printhead Data Error			
13	01-FF (Additional value of K:01,C:02, M:04,Y:08)	Title	Printhead EEPROM data error
		Description	When Printer is initialized, a checksum error occurred in EEPROM of Printhead.
		Remedy	1. Replace Printheads. 2. Replace Printer Controller PCB.
14: Printhead ID Error 1			
14	01-FF (Additional value of K:01,C:02, M:04,Y:08)	Title	Correct Printhead is not installed.
		Description	When Printer is initialized, Printhead of non-compatible color is found to be installed.
		Remedy	Install correct Printhead.
15: Ink Leakage			
15	01	Title	Ink is leaking.
		Description	Ink Leakage Sensor has been turned ON.
		Remedy	Locate ink leakage and replace unit in question.
17: Purge Unit life			
17	01	Title	Purge Unit life
		Description	When Printer is initialized, shut down, or the job ends, the wipe count of Purge Unit has reached 3501 (end of service life).
		Remedy	Replace Purge Unit.
18: Blade Cleaner Life			
18	01	Title	Blade Cleaner life
		Description	When Printer is initialized, shut down, or the job ends, the wipe count of Purge Unit has reached 3501 (end of service life).
		Remedy	Replace Blade Cleaner.

Code	Detail Code	Item	Description
19: Printhead Temperature Sensor Error			
19	01-FF (Additional value of K:01,C:02, M:04,Y:08)	Title	Printhead Temperature Sensor is damaged.
		Description	Printhead Temperature Sensor is not obtained within 10 seconds after start of Printer initialization or the subheater temperature adjustment. Or, Printhead Temperature Sensor before the subheater temperature adjustment is lower than -10 degrees Celsius or higher than 90 degrees Celsius.
		Remedy	1. Check Printheads connection. 2. Check Flexible Cable connection. 3. Replace Printhead. 4. Replace Printhead Relay PCB. 5. Replace Printhead Flexible Cable. 6. Replace Printer Controller PCB.
1B: Printhead Flexible Cable Connection Error			
1B	01-FF (Additional value of K:01,C:02, M:04,Y:08)	Title	Printhead Flexible Cable is not connected correctly.
		Description	When Printer is initialized, 5.0 V for Printhead is turned ON, or 24 V for Printhead is turned OFF, Printhead Flexible Cable is not connected.
		Remedy	1. Check Printhead connection. 2. Check Flexible Cable connection. 3. Replace Printheads. 4. Replace Printhead Relay PCB. 5. Replace Flexible Cable. 6. Replace Printer Controller PCB.
1E: Printhead ID Error 2			
1E	01-FF (Additional value of K:01,C:02, M:04,Y:08)	Title	Correct Printhead is not installed.
		Description	When Printer is initialized, 5.0 V for Printhead is turned ON, or 24 V for Printhead is turned OFF, Printhead Flexible Cable is not connected.
		Remedy	Install correct Printhead.
24: Climate Sensor not Connected			
24	01	Title	Climate Sensor is not connected.
		Description	When Printer is initialized, Temperature/Humidity Sensor data is erroneous.
		Remedy	1. Check Climate Sensor connection. 2. Replace Climate Sensor. 3. Replace Printer Controller PCB.
25: Paper Suction Fan Error			
25	01	Title	Paper Suction Fan is faulty or not connected.
		Description	When Paper Suction Fan is operated for 8 seconds, a Suction Fan lock signal has been detected 10 times at intervals of 1ms.
		Remedy	1. Check for a clogged fan. 2. Check Suction Fan connector connection. 3. Replace Suction Fan. 4. Replace Printer Controller PCB.

Code	Detail Code	Item	Description
26: Power Supply Fan Error			
26	01	Title	Power Supply Fan is faulty or not connected.
		Description	When Power Supply Fan (12 V) is operated for 3 seconds, Power Supply Fan lock signal has been detected 10 times at intervals of 1 ms.
		Remedy	1. Check for a clogged fan. 2. Check Power Supply Fan connector connection. 3. Replace Power Supply Fan. 4. Replace Printer Controller PCB.
26	02	Title	Power Supply Fan is faulty or not connected.
		Description	When Power Supply Fan (24 V) is operated for 1 seconds, Power Supply Fan lock signal has been detected 10 times at intervals of 1 ms.
		Remedy	1. Check for a clogged fan. 2. Check Power Fan connector connection. 3. Replace Power Fan. 4. Replace Printer Controller PCB.
28: Printhead ID Error 3			
28	01-FF (Additional value of K:01,C:02, M:04,Y:08)	Title	Type (dye/pigment) of ink in Printhead is different.
		Description	When Printer is initialized, Printer ink type is different from Printhead ink type.
		Remedy	Replace Printhead.
29: Wipe Valve Error			
29	20	Title	Wipe Valve position error
		Description	When Wipe Valve is driven by 200 pulses during initialization, Wipe Valve Sensor is not turned OFF.
		Remedy	1. Check Wipe Valve Sensor connector connection. 2. Check Valve Motor connector connection. 3. Replace Wipe Valve Sensor. 4. Replace Valve Motor. 5. Replace Valve Unit.
29	21	Title	Wipe Valve position error
		Description	When Wipe Valve is driven by 100 pulses during its closing, Wipe Valve Sensor is not turned ON.
		Remedy	1. Check Valve Motor connector connection. 2. Replace Valve Motor. 3. Replace Valve Unit.
29	22	Title	Wipe Valve position error
		Description	When Wipe Valve is driven by 100 pulses during its opening, Wipe Valve Sensor is not turned ON.
		Remedy	1. Check Wipe Valve Sensor connector connection. 2. Check Valve Motor connector connection. 3. Replace Wipe Valve Sensor. 4. Replace Valve Motor. 5. Replace Valve Unit.
29	23	Title	Wipe Valve position error
		Description	When Wipe Valve is driven by 100 pulses during its shutdown, Wipe Valve Sensor is not turned ON.
		Remedy	1. Check Wipe Valve Sensor connector connection. 2. Check Valve Motor connector connection. 3. Replace Wipe Valve Sensor. 4. Replace Valve Motor. 5. Replace Valve Unit.
29	7F	Title	Wipe Valve position error
		Description	Immediately after initialization of Wipe Valve, Wipe Valve Sensor is turned ON.
		Remedy	1. Check Wipe Valve Sensor connector connection. 2. Check Valve Motor connector connection. 3. Replace Wipe Valve Sensor. 4. Replace Valve Motor. 5. Replace Valve Unit.
2B: Paper Guide Error			
2B	12	Title	Paper Guide Error
		Description	Paper Guide HP Sensor has already been turned ON before Paper Guide Plate moves from the Platen position to the home position for initialization.
		Remedy	1. Check Paper Guide HP Sensor connector connection. 2. Check Paper Guide Motor connector connection. 3. Replace Paper Guide HP Sensor. 4. Replace Paper Guide Motor.
2B	14	Title	Paper Guide Error
		Description	Paper Guide HP Sensor has already been turned OFF before Paper Guide Plate moves from the home position to the Platen position.
		Remedy	1. Check Paper Guide driving part movement. 2. Check Paper Guide HP Sensor connector connection. 3. Replace Paper Guide HP Sensor.
2B	16	Title	Paper Guide Error
		Description	Paper Guide HP Sensor has already been turned OFF before Paper Guide Plate moves from the home position to the Platen position.
		Remedy	1. Check Paper Guide driving part movement. 2. Check Paper Guide HP Sensor connector connection. 3. Replace Paper Guide HP Sensor.
2B	17	Title	Paper Guide Error
		Description	Paper Guide HP Sensor has already been turned ON before Paper Guide Plate moves from the Platen Position to the home position.
		Remedy	1. Check Paper Guide driving part movement. 2. Check Paper Guide HP Sensor connector connection. 3. Replace Paper Guide HP Sensor.

Code	Detail Code	Item	Description
2B	21	Title	Paper Guide Error
		Description	Paper Guide HP Sensor is not turned OFF when Paper Guide Plate has moved predetermined distance from the home position to the Platen position for initialization.
		Remedy	1. Check Paper Guide HP Sensor connector connection. 2. Check Paper Guide Motor connector connection. 3. Replace Paper Guide HP Sensor. 4. Replace Paper Guide Motor.
2B	22	Title	Paper Guide Error
		Description	Paper Guide HP Sensor is not turned ON when Paper Guide Plate moves from the Platen position to the home position for initialization.
		Remedy	1. Check Paper Guide driving part movement. 2. Check Encoder. 3. Check Paper Guide HP Sensor connector connection. 4. Check Paper Guide Motor connector connection. 5. Replace Paper Guide HP Sensor. 6. Replace Paper Guide Motor.
2B	24	Title	Paper Guide Error
		Description	Paper Guide HP Sensor is not turned OFF when Paper Guide Plate has moved 2 mm from the home position to the Platen position.
		Remedy	1. Check Paper Guide driving part movement. 2. Check Encoder. 3. Check Paper Guide HP Sensor connector connection. 4. Check Paper Guide Motor connector connection. 5. Replace Paper Guide HP Sensor. 6. Replace Paper Guide Motor.
2B	25	Title	Paper Guide Error
		Description	Paper Guide HP Sensor is not turned ON when Paper Guide Plate has moved 2 mm more from the platen position to the home position.
		Remedy	1. Check Paper Guide driving part movement. 2. Check Encoder. 3. Check Paper Guide Motor connector connection. 4. Replace Paper Guide Motor.
2B	26	Title	Paper Guide Error
		Description	Paper Guide HP Sensor is not turned OFF when Paper Guide Plate moves from the home position to the Platen position.
		Remedy	1. Check Paper Guide HP Sensor connector connection. 2. Check Paper Guide Motor connector connection. 3. Replace Paper Guide HP Sensor. 4. Replace Paper Guide Motor.

Code	Detail Code	Item	Description
2B	52	Title	Paper Guide Error
		Description	An Encoder signal is not detected when Paper Guide Plate moves from the Platen position to the home position for initialization.
		Remedy	1. Check Paper Guide driving part movement. 2. Check Encoder. 3. Check Paper Guide Motor connector connection. 4. Replace Paper Guide Motor.
2B	55	Title	Paper Guide Error
		Description	An Encoder signal is not detected when Paper Guide Plate moves from the Platen position to the home position.
		Remedy	1. Check Paper Guide driving part movement. 2. Check Encoder. 3. Check Paper Guide Motor connector connection. 5. Replace Paper Guide Motor.
2B	57	Title	Paper Guide Error
		Description	An Encoder signal is not detected when Paper Guide Plate moves from the Platen position to the home position side.
		Remedy	1. Perform Paper Guide position adjustment. 2. Check Paper Guide driving part movement. 3. Check Encoder. 4. Check Paper Guide Motor connector connection. 5. Replace Paper Guide Motor.
2B	72	Title	Paper Guide Error
		Description	Paper Guide HP Sensor has been turned OFF after Paper Guide moves from the Platen position to the home position for initialization.
		Remedy	Check the operation of Paper Guide Drive Unit.

Code	Detail Code	Item	Description
2C: Printhead of the Fuse to Be Blown			
2C	01-FF (Additional value of K:01,C:02, M:04,Y:08)	Title	Printhead of the fuse to be blown
		Description	When 5 V for Printhead is turned ON with 5 V fuse of Printer Controller PCB blown, blown fuse signal is turned ON.
		Remedy	CAUTION: • Before replacing parts, check the connections between Printer Controller PCB and Printhead. • Without checking the connections, the fuse may blow again. CAUTION: When “void *1” is generated in the printed image: 1. Replace both Printer Controller PCB and Printhead. 2. Replace DC Power Supply PCB Unit. • When the power line in Printhead is shorted, it is highly possible that void is generated and fuse of Printer Controller PCB blows again. • When only Printer Controller PCB is replaced, it is highly possible that fuse blows again. Be sure to replace both Printer Controller PCB and Printhead together. *1 For “void”, refer to the following: Troubleshooting > Image Defect Recovery > Image Defect Samples > Void CAUTION: When the printed image is free of problem: 1. Replace Printer Controller PCB. 2. Replace DC Power Supply PCB Unit.
F0: System Error			
F0	01-14	Title	System Error
		Description	Firmware performed unexpected control.
		Remedy	Turn off and then on Printer.

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Operator Call Error

Code	Detail Code	Item	Description
01: Upper Unit Open			
01	01	Title	Upper Unit is opened.
		Description	Upper Unit Safety Switch is held OFF.
		Remedy	Close Upper Unit.
02: Ink Tank Door Open			
02	01	Title	Ink Tank Door is opened
		Description	Ink Tank Door Sensor is held OFF.
		Remedy	Close Ink Tank Door.
03: Maintenance Cartridge Door Open			
03	01	Title	Maintenance Cartridge Door is opened.
		Description	Maintenance Cartridge Door Sensor is held OFF.
		Remedy	Close Maintenance Cartridge Door.
0A: Pinch Roller Cover Open			
0A	01	Title	Pinch Roller Cover is open.
		Description	Pinch Roller Cover Sensor detects light blocking
		Remedy	Close Pinch Roller Cover.
10: Paper Out Error			
10	01	Title	Paper out
		Description	When Printer is initialized, during printing, or when paper is set, Trailing Edge Sensor is held OFF.
		Remedy	1. Load paper and close Paper Guides (error cleared). 2. Reset the print data and cancel the job.
10	02	Title	Paper not fed
		Description	When paper is fed 20 mm or more than the predetermined distance after printing is started with TOF sensor held OFF, this sensor is not turned ON.
		Remedy	Load paper and close Paper Guides (error cleared).
11: Paper Vertical Size Error			
11	02	Title	Paper of a size smaller than print data is loaded.
		Description	During printing, TOF Sensor detected paper which is at least 3 mm shorter than print data.
		Remedy	1. Load paper of correct size and close Paper Guides (error cleared). 2. Cancel the job. Service Utility > Printer Status > Cancel All Jobs
11	03	Title	Paper of a size smaller than print data is loaded.
		Description	Before printing on the current paper is completed, the next paper has arrived at the printing start position. Or, preprocessing is not completed before start of printing.
		Remedy	1. Load paper of correct size and close Paper Guides (error cleared). 2. Cancel the job. Service Utility > Printer Status > Cancel All Jobs
12: Paper Width Size Error			
12	01	Title	Paper of correct width is not loaded.
		Description	Before printing, Paper Width Sensor has detected paper which is at least 5 mm narrower than print data. Or, during printing of a vertical magnification correction pattern, Paper Width Sensor has detected paper which is at least 5 mm wider or narrower than print data.
		Remedy	1. Load paper of correct size and close Paper Guides (error cleared). 2. Cancel the job. Service Utility > Printer Status > Cancel All Jobs
13: Paper Jam Error			
13	01	Title	TOF Sensor could not detect the trailing edge of paper.
		Description	During printing or when printing is started with TOF Sensor held ON, this sensor detected paper which is at least 20 mm longer than print data.
		Remedy	1. Remove jammed paper around TOF Sensor. 2. Load paper of correct size. 3 Close Paper Guide (error cleared).
13	03	Title	Paper has been fed before all print data are ready to be printed.
		Description	During printing, TOF Sensor has detected leading edges of paper which are more than number of print.
		Remedy	Remove jammed paper from paper path.
13	0C	Title	Paper is transported fast.
		Description	When paper arrives at the printing start position during printing, Printhead is not at print position.
		Remedy	1. Clean Transport Belt. 2. Close Paper Guides (error cleared).
13	0D	Title	Paper detected by TOF Sensor cannot be detected by Transport Sensor.
		Description	During printing, paper is not delivered even though paper is transported additional 30mm.
		Remedy	Remove jammed paper from Transport Unit.
13	0E	Title	Transport Sensor does not detect trailing edge of paper
		Description	When paper is fed 44 mm or more than the predetermined distance during printing, Transport Sensor is not turned ON.
		Remedy	Remove jammed paper from exit.
13	0F	Title	TOF Sensor detected double feed
		Description	During printing, TOF Sensor is turned ON 10mm earlier than predetermined distance.
		Remedy	Remove jammed paper from transport area.

Code	Detail Code	Item	Description
13	E1	Title	Encoder signal is not received correctly.
		Description	When Transport Motor is driven for 1 second during printing, Encoder signal input ratio is just 1% or less of the predetermined value. (Drive force is not transmitted to Encoder.)
		Remedy	1. Removed jammed paper from Transport Unit, set paper and Close Paper Guide (error cleared) 2. Replace Encoder Sensor.
13	E2	Title	Encoder signal is not received correctly.
		Description	When Transport Motor is driven for longer than 1 second during printing, Encoder signal input ratio is just 90% or less of the predetermined value. (Belt is slipping on shaft.)
		Remedy	1. Removed jammed paper from Transport Unit, set paper and Close Paper Guide (error cleared) 2. Replace Encoder Sensor. 3. Replace Transport Unit.
13	F2	Title	Paper is not transported
		Description	When paper is fed 100mm or more after retry of separation during printing, Cross Feed Sensor is not turned ON.
		Remedy	Remove the paper from feed area.
13	F3	Title	Paper is not transported
		Description	When paper is fed 250mm or more after retry of separation during printing, TOF Sensor is not turned ON.
		Remedy	Remove the paper from feed area.
13	FA	Title	Excessive paper fed
		Description	During printing, Cross Feed Sensor is turned ON more than number of printing.
		Remedy	Remove the paper from transport area.
13	FB	Title	Excessive paper fed
		Description	During printing, TOF Sensor is turned ON more than number of printing.
		Remedy	Remove the paper from transport area.
15: Excessive Paper On Feeder Tray			
15	01	Title	Excessive paper on Feeder Tray
		Description	During Feeder Tray movement, Lower Feeder Tray Sensor and Feeder Paper Surface Sensor are turned OFF.
		Remedy	1. Remove paper from Feeder Tray 2. Press [TRAY] Key to move Feeder Tray upward (error recovery).
16: Excessive Paper On Stacker Tray			
16	01	Title	Excessive paper on Stacker Tray
		Description	During printing or before printing, Lower Stacker Tray Sensor and Stacker Paper Surface Sensor 1 are turned OFF.
		Remedy	1. Remove paper from Stacker Tray. 2. Stacker Tray moves up automatically (error recovery).

Code	Detail Code	Item	Description
17: Stacker Tray Check			
17	01	Title	Excessive paper are loaded on Stacker Tray and paper is jammed in Stacker section.
		Description	During initialization, Lower Stacker Tray Sensor and Stacker Paper Surface Sensor 1 are turned OFF.
		Remedy	1. Remove paper from Stacker Tray. 2. Stacker Tray moves up automatically (error recovery).
18: Paper Stationary Error			
18	01	Title	Paper is stationary in the transport path.
		Description	Before printing, Cross Feed Sensor or TOF Sensor is turned ON.
		Remedy	Remove paper from paper path.
1A: Paper Miss Feed			
1A	01	Title	Paper is not fed
		Description	When paper is fed 60mm or more after retry of feeding during printing, Timing Sensor is not turned ON.
		Remedy	1. Press [TRAY] Key to move Feeder Tray downward. 2. Check that paper is set properly. 3. Press [TRAY] Key again to move Feeder Tray upward (error recovery).
1A	02	Title	Paper has been pulled out before completion of printing.
		Description	When Feeder Tray is moved upward as far as 20ms x 25 times during printing, Feeder Paper Surface Sensor or Upper Feeder Tray Sensor is not turned ON.
		Remedy	1. Press [TRAY] Key to move Feeder Tray downward. 2. Check that paper is set properly. 3. Press [TRAY] Key again to move Feeder Tray upward (error recovery).
1E: Spur Disengagement Error			
1E	01	Title	Spur Holder is not pulled out with special heavy paper setting
		Description	Before printing, with special heavy paper setting, Spur Disengage Sensor is turned OFF.
		Remedy	1. Pull out Spur Holder. 2. Reset data to cancel the print job.
1E	02	Title	Spur Holder is pulled out without special heavy paper setting
		Description	Before printing, without special heavy paper setting, Spur Disengage Sensor is turned ON.
		Remedy	1. Push in Spur Holder. 2. Reset data to cancel the print job.
1F: Paper Guide Error			
1F	51	Title	Paper Guide error
		Description	During Paper Guide initialization from home position, Encoder signal is not detected.
		Remedy	1. Remove paper from transport area. 2. Check Paper Guide driving part movement.

Code	Detail Code	Item	Description
1F	54	Title	Paper Guide error
		Description	When Paper Guide Plate is moving from home position to platen position, Encoder signal is not detected.
		Remedy	1. Remove paper from transport area. 2. Check Paper Guide driving part movement.
1F	56	Title	Paper Guide error
		Description	When Paper Guide Plate is moving from home position to platen position, Encoder signal is not detected.
		Remedy	1. Remove paper from transport area. 2. Check Paper Guide driving part movement.
20: Ink Empty			
20	01-0F (Additional value of K:01,C:02, M:04,Y:08)	Title	Ink Tank is empty.
		Description	During Printer initialization, cleaning, printing, or error resetting, Remaining Ink Sensor has been turned OFF.
		Remedy	1. Replace with a new Ink Tank. 2. Close Ink Door (error cleared).
21: Ink Tank Installation Error			
21	01-0F (Additional value of K:01,C:02, M:04,Y:08)	Title	Ink Tank is not installed correctly.
		Description	When Printer is initialized with Ink Tank Door Sensor held ON, EEPROM is not accessed.
		Remedy	1. Install Ink Tank again, or replace with a new Ink Tank. 2. Close all doors (error cleared).
22: Ink Tank Data Error			
22	01-0F (Additional value of K:01,C:02, M:04,Y:08)	Title	Ink Tank data error
		Description	When Printer is initialized with Ink Tank Door closed, Ink Tank EEPROM checksum value is invalid.
		Remedy	1. Install a new Ink Tank. 2. Close all doors (error cleared).
23: Maintenance Cartridge Full			
23	01	Title	Maintenance Cartridge is full.
		Description	Maintenance Cartridge Conduction Sensor has been turned ON.
		Remedy	1. Replace with a new Maintenance Cartridge. 2. Close all doors (error cleared).
24: Maintenance Cartridge Installation Error			
24	01	Title	Maintenance Cartridge is not installed correctly.
		Description	When Printer is initialized with Maintenance Cartridge Door closed, EEPROM of Maintenance Cartridge is not accessed.
		Remedy	1. Install Maintenance Cartridge again or replace with a new Maintenance Cartridge. 2. Close all doors (error cleared).

Code	Detail Code	Item	Description
25: Maintenance Cartridge Data Error			
25	01	Title	Maintenance Cartridge data error
		Description	When Printer is initialized with Maintenance Cartridge Door closed, the EEPOM data checksum value is invalid.
		Remedy	1. Replace with a new Maintenance Cartridge. 2. Close all doors (error cleared).
26: Ink Tank ID Error			
26	01-0F (Additional value of K:01,C:02, M:04,Y:08)	Title	Correct Ink Tank is not installed.
		Description	When Printer is initialized with Ink Tank Door closed, Ink Tank ID does not match Printer.
		Remedy	1. Replace with a correct Ink Tank. 2. Close all doors (error cleared).
27: Ink Tank Type Error			
	01-0F (Additional value of K:01,C:02, M:04,Y:08)	Title	Correct Ink Tank is not installed.
		Description	When Printer is initialized with Ink Tank Door closed, Ink Tank color information does not match Printer.
		Remedy	1. Replace with a correct Ink Tank. 2. Close all doors (error cleared).
2B: Maintenance Cartridge Full (2)			
2B	01	Title	Maintenance Cartridge is full.
		Description	Before/after cleaning is performed or the power is turned ON with Maintenance Cartridge Door closed, waste ink quantity measured through dot counting has reached 450 ml.
		Remedy	1. Replace with a new Maintenance Cartridge. 2. Close all doors (error cleared).
2D: Ink Tank Type Error			
2D	01-0F (Additional value of K:01,C:02, M:04,Y:08)	Title	Correct Ink Tank is not installed.
		Description	When Printer is initialized with Ink Tank Door closed, the installed Ink Tank type (dye/pigment) does not match Printer.
		Remedy	1. Replace with a correct Ink Tank. 2. Close all doors (error cleared).
2E: Ink Tank Destination Error			
2E	01-0F (Additional value of K:01,C:02, M:04,Y:08)	Title	Correct Ink Tank is not installed.
		Description	When Printer is initialized with Ink Tank Door closed, the installed Ink Tank type (shipping destination) does not match Printer.
		Remedy	1. Replace with a correct Ink Tank. 2. Close all doors (error cleared).

Code	Detail Code	Item	Description
2F: Maintenance Cartridge Type Error			
2F	01	Title	Correct Maintenance Cartridge is not installed.
		Description	When Printer is initialized with Maintenance Cartridge Door closed, the installed Maintenance Cartridge type (dye/pigment) does not match Printer.
		Remedy	1. Replace with a correct Maintenance Cartridge. 2. Close all doors (error cleared).
30: Update Error			
30	01	Title	Firmware update failure.
		Description	During firmware update, erasing error, verification error, and checksum error on Flash ROM has occurred.
		Remedy	1. Retry the firmware update. 2. Replace Printer Controller PCB.
30	02	Title	Firmware update failure.
		Description	During firmware update, an update file for different model has been sent.
		Remedy	Send proper update file.
30	03	Title	Updater started upon detecting the firmware error.
		Description	During Printer startup, a firmware checksum error has occurred.
		Remedy	Retry the firmware update.
30	04	Title	Media parameter version not updated to the latest.
		Description	During Printer startup, the firmware version does not match the version of paper parameter.
		Remedy	Update to the latest version of media parameter information.
31: Data Error			
31	01	Title	Invalid data received from host computer.
		Description	During data reception, the data size does not match Printer.
		Remedy	Cancel the job. Service Utility > Printer Status > Cancel All Jobs
31	02	Title	Invalid data received from host computer.
		Description	Received data is as follows: • The data format does not match Printer. • The print area width size does not match the print area width byte size. • The paper type does not match Printer. • The left or right margin is too small. • Print data width is too large. • The output resolution does not match Printer. • Printing cannot be done with this combination of input and output resolutions. • The paper length does not conform to the specifications. • The paper width does not conform to the specifications. • The top or bottom margin is less than 1.5 mm. • The mark length is not within the range from 3mm to 10mm. • The gap length is not within the range from 2.5mm to 9.5mm. • The color identification command is invalid.
		Remedy	Cancel the job. Service Utility > Printer Status > Cancel All Jobs
31	03	Title	Form data that cannot be saved was received.
		Description	The received form data does not match Printer.
		Remedy	Cancel the job. Service Utility > Printer Status > Cancel All Jobs
31	04	Title	Data different from the paper shape that had been set from host computer was received.
		Description	When printing is done with “Continuous(no TOF)” selected, TOF Sensor has been turned OFF. Label/gap paper or tag hole paper was used.
		Remedy	Cancel the job. Service Utility > Printer Status > Cancel All Jobs
31	FF	Title	Paper size error for Paper Guide adjustment
		Description	When printing "paper guide adjustment pattern", paper size setting is not set as below. Paper width : 90mm to 105m Paper length : 100m or more
		Remedy	Cancel the job. Service Utility > Printer Status > Cancel All Jobs
32: Memory Full			
32	01	Title	Form data is not saved.
		Description	The received form data is larger than the remaining form data storage area size.
		Remedy	Cancel the job. Service Utility > Printer Status > Cancel All Jobs

Code	Detail Code	Item	Description
34 Overlay ID Error			
34	01	Title	Invalid form ID is specified.
		Description	The form ID specified for overlay print data reception is not registered.
		Remedy	Cancel the job. Service Utility > Printer Status > Cancel All Jobs
37 Remaining Ink Detection Error			
37	01-0F (Additional value of K:01,C:02, M:04,Y:08)	Title	Proper Ink Tank is not installed.
		Description	When ink is used, the power is turned ON, or Ink Tank is replaced, the dot count has reached 150% of the Ink Tank capacity.
		Remedy	1. Set proper Ink Tank. 2. Close all doors (error cleared).

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Warning

Code	Detail Code	Item	Description
01: Remaining Ink Warning			
01	01-0F (Additional value of K:01,C:02, M:04,Y:08)	Title	Ink running out soon.
		Description	When Printer is initialized, printing is done, or cleaning is done, the used ink quantity has reached 184 ml (80% of capacity).
		Remedy	1. Replace with a new Ink Tank. 2. Close all doors (warning cleared).
04: Maintenance Cartridge Warning			
04	01	Title	Maintenance Cartridge soon full.
		Description	When Printer is initialized, printing is done, or cleaning is done with Maintenance Cartridge closed, waste ink quantity has reached 360 ml (80% of capacity).
		Remedy	1. Replace with a new Maintenance Cartridge. 2. Close all doors (warning cleared).
05: Replace Printhead			
05	01-FF (Additional value of K:01,C:02, M:04,Y:08)	Title	Time has arrived to replace Printhead.
		Description	When Printer is initialized, printing is done, or cleaning is done , Printhead has reached its life.
		Remedy	1. Replace Printheads. 2. Restart Printer after replacing Printhead (warning cleared).
06: Purge Unit Replacement (*Remarks)			
06	01	Title	Time has arrived to replace Purge Unit.
		Description	The wipe count has reached 2801 (80% of lifetime).
		Remedy	1. Replace Purge Unit. 2. Restart Printer after replacing Purge Unit (warning cleared).
Remarks		"Purge Unit Replacement" is issued in advance, if "Purge Unit Replacement" is expected within 1 month when "Blade Cleaner Replacement" is issued.	
07: Blade Cleaner Replacement(*Remarks)			
07	01	Title	Time has arrived to replace Blade Cleaner.
		Description	The wipe count has reached 2801 (80% of lifetime).
		Remedy	1. Replace Blade Cleaner. 2. Restart Printer after replacing Blade Cleaner (warning cleared).
Remarks		"Blade Cleaner Replacement" is issued in advance, if "Blade Cleaner Replacement" is expected within 1 month when "Purge Unit Replacement" is issued.	
09: Remaining Ink Detection Disabled			
09	01-0F (Additional value of K:01,C:02, M:04,Y:08)	Title	Remaining ink detection function disabled.
		Description	When a remaining ink level detection error is cleared or Printer is initialized with Ink Tank Door closed, remaining ink detection function has been deactivated.
		Remedy	1. Replace with a new Ink Tank. 2. Close all doors (warning cleared).
0D: RTC Battery Error			
0D	01	Title	RTC battery is run out.
		Description	The RTC drive voltage has been reduced to 1 V or lower.
		Remedy	Replace Printer Controller PCB.
0E: Cleaning Transport Unit			
0E	01	Title	Transport Belt need to be cleaned
		Description	Dot count reaches to Transport belt cleaning timing.
		Remedy	Clean Transport belt

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Correspondence Table of Error Code

This is the correspondence table of the message on the status monitor of the printer driver and the error code of operator call error.

Message on Status Monitor	Error Code of Operator Call Error
Upper unit open	0101
Ink tank door open	0201
Maintenance cartridge door open	0301
Pinch slip cover open	0A01
Paper empty 1	1001
Paper empty 2	1002
Paper length different 1	1102
Paper length different 2	1103
Paper Width different	1201
Paper jam 1	1301
Paper jam 16	1303
Paper jam 9	13E1
Paper jam 10	13E2
Paper jam 11	13F2
Paper jam 12	13F3
Paper jam 14	13FA
Paper jam 15	13FB
Feeder tray overloaded	1501
Stacker overloaded	1601
Stacker inspection	1701
Paper retention 1	1801
Feed error 1	1A01
Feed error 2	1A02
Thick feed lever position error 1	1E01
Thick feed lever position error 2	1E02
Paper retention 2	1F51
Paper retention 3	1F54
Black ink empty	2001
Cyan ink empty	2002
Magenta ink empty	2004
Yellow ink empty	2008
Black ink tank setting error	2101
Cyan ink tank setting error	2102
Magenta ink tank setting error	2104
Yellow ink tank setting error	2108
Black ink tank abnormality	2201
Cyan ink tank abnormality	2202
Magenta ink tank abnormality	2204
Yellow ink tank abnormality	2208
Maintenance cartridge full	2301
Maintenance cartridge setting error	2401
Maintenance cartridge abnormality	2501
Black ink tank abnormality 2	2601
Cyan ink tank abnormality 2	2602
Magenta ink tank abnormality 2	2604
Yellow ink tank abnormality 2	2608
Black ink tank abnormality 3	2701
Cyan ink tank abnormality 3	2702
Magenta ink tank abnormality 3	2704
Yellow ink tank abnormality 3	2708
Maintenance cartridge full 2	2B01
Black ink tank abnormality 4	2D01
Cyan ink tank abnormality 4	2D02
Magenta ink tank abnormality 4	2D04
Yellow ink tank abnormality 4	2D08
Black ink tank abnormality 5	2E01
Cyan ink tank abnormality 5	2E02
Magenta ink tank abnormality 5	2E04
Yellow ink tank abnormality 5	2E08
Maintenance cartridge abnormality 3	2F01
Update error 1	3001
Update error 2	3002
Update error 3	3003
Update error 4	3004
Data mismatch 1	3101
Data mismatch 2	3102
Data mismatch 3	3103
Data mismatch 4	3104
Memory full	3201
Overlay data error	3401
Maintenance cartridge abnormality 4	3601
Black ink level unknown	3701
Cyan ink level unknown	3702
Magenta ink level unknown	3704
Yellow ink level unknown	3708

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Service Modes

Overview

Service mode comes in 2 variations (which are not open to end users) as described below.

[1]Download Mode

ROM can be upgraded in this mode. To enter service mode, invoke this mode first. Press PAUSE Key once in download mode to enter standalone mode.

[2]Standalone Mode

In standalone mode, strong cleaning, ink initial loading, Shipping the printer, Printhead replacement and test printing (nozzle check pattern printing and settings printing), Printhead moving to print position are functional. Service utility is also accessible from PC in this mode.

Differences between startup in the normal mode and startup in the standalone mode are as follows:

When service call error occurs because a Printhead failure occurs or the replacement timing of Purge Unit / Blade Cleaner / Transport Unit (mist absorber) is reached, Printer can be started in the standalone mode so that these parts can be moved to the replacement positions using service utility.

<Differences of startup in standalone mode from startup in normal mode>

- Initial cleaning is not performed at power ON.
- When a print data error occurs, a Printhead ID error occurs, or Purge Unit / Blade Cleaner / Transport Unit (mist absorber) replacement timing is reached, the resulting service call error is masked.

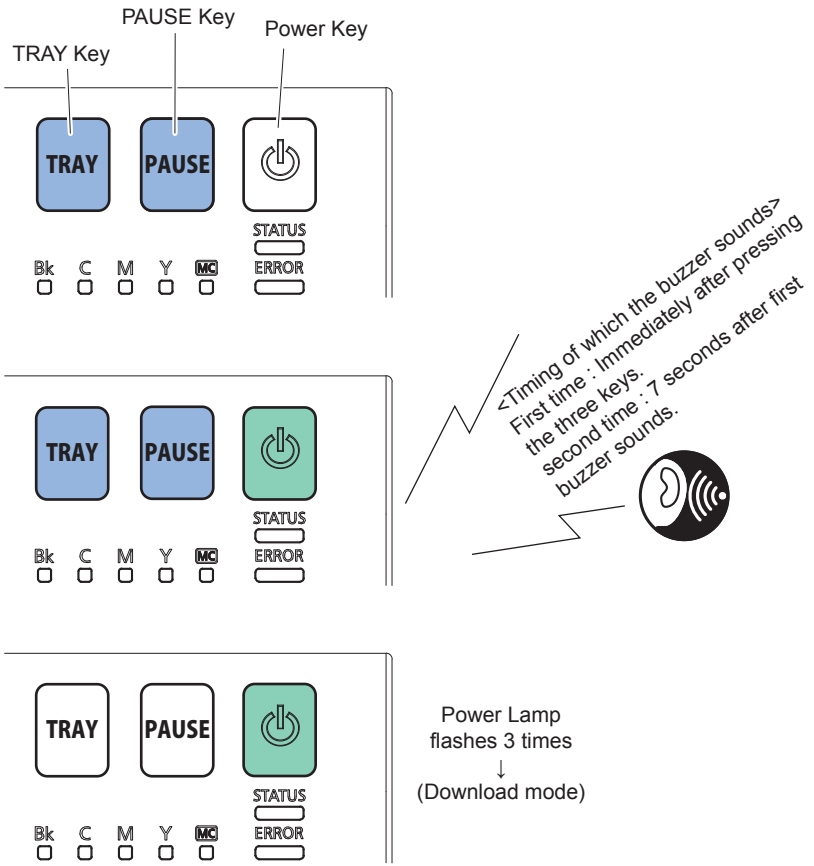
Download Mode

Start Printer in download mode to upgrade ROM

How to Enter Download Mode

1. Press Power Key while holding PAUSE and TRAY Keys ON simultaneously. Release Key when buzzer sounds second time.
2. Power Lamp flashes 3 times to indicate that Printer has entered download mode.
   If Power Lamp is consciously lit, instead of flashing, Printer is in user mode. In this case, press and hold Power Key for 1 second or longer and retry procedures from power off state afterwards.

NOTE:
- Keep pressing 3 keys until the second buzzer sounds.
- The second buzzer tone takes about 7 seconds to sound.
- Power Lamp is repeating 3-time flash. If Lamp is continuously lit (user mode), press and hold Power key for 1 second or longer and retry procedures from power off state afterwards. Even while STATUS Lamp flashes, power off requests are acceptable.



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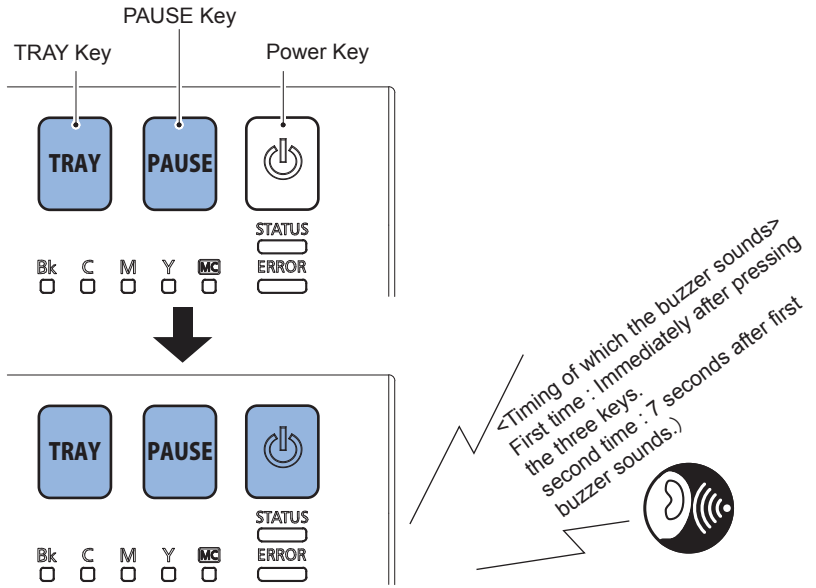
Standalone Mode

Start Printer in standalone mode to execute specific functions without using PC.

How to Enter Standalone Mode

1. Press Power Key while pressing PAUSE and TRAY Keys simultaneously. Release keys when buzzer sounds second time.

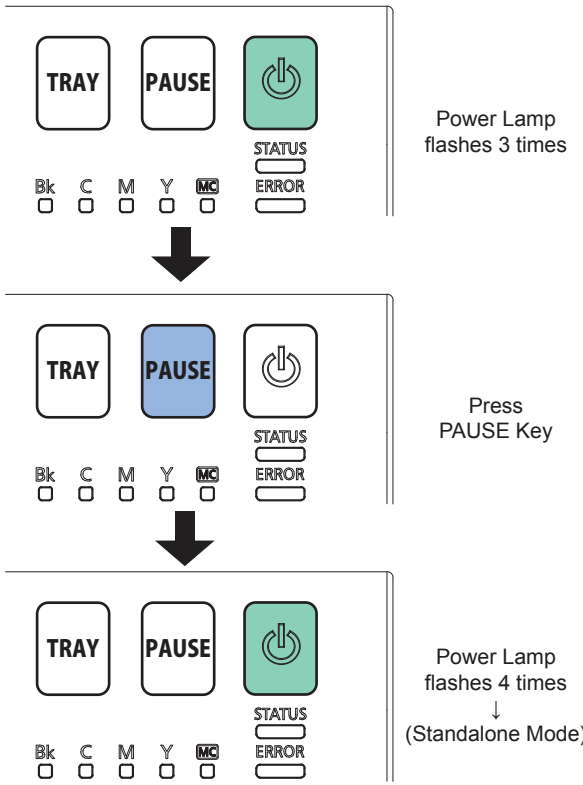
NOTE:
- Continue pressing 3 keys until buzzer sounds second time.
- The second buzzer tone takes about 7 seconds to sound.
  Power Lamp is repeating 3-time flash. If Lamp is continuously lit (user mode), press and hold Power key for 1 second or longer and retry procedures from power off state afterwards. Even while STATUS Lamp flashes, power off requests are acceptable.



F-5-41

2. Press PAUSE Key once after Power Lamp has flashed 3 times. Power Lamp flashes 4 times and Printer enters standalone mode.

NOTE:
When Printer enters standalone mode, Power Lamp is repeating 4-time flash. If Power Lamp is continuously lit (user mode), press and hold Power key for 1 second or longer and retry procedures from power off state afterwards. Even while STATUS Lamp flashes, power off requests are acceptable.



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Function of Standalone Mode

Buzzer beeps 1 second interval when PAUSE Key is holding pressed at stand alone mode. Function to execute is related to the timing of release PAUSE Key. Refer to the table below.

NOTE:
- If taking mistake for operation, press Power Key for 1 second and more to turn off Printer and try again.
- If executing "Shipping the printer","Printhead replacement" by mistake, ink drainage carries out. In that case, turn off the power, and then enter stand alone mode, and then load ink manually.
- Only post card can be used to print a nozzle check pattern or setting values.

PAUSE Key release timing	Function to execute
Buzzer sounds once (1 second later)	Strong cleaning (about 8 minutes)
Buzzer sounds twice (2 seconds later)	Initial ink loading (about 25 minutes)
Buzzer sounds 3 times (3 seconds later)	Shipping the printer (about 15 minutes)
Buzzer sounds 4 times (4 seconds later)	Printhead replacement (about 15 minutes)
Buzzer sounds 5 times (5 seconds later)	Nozzle check pattern printing
Buzzer sounds 6 times (6 seconds later)	Setting value printing
Buzzer sounds 7 times (7 seconds later)	Printhead moving to print position
8 seconds or more later (no buzzer)	Not to execute (no buzzer)

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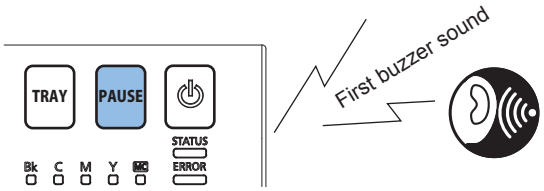
Operation Procedure

Strong Cleaning

1. After starting Printer in Standalone mode, press and hold [PAUSE] Key. Release [PAUSE] Key when the buzzer sounds once.



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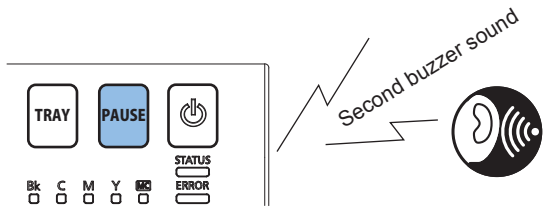
2. Cleaning is performed for the predetermined period of time. When it is completed, the buzzer sounds.

Initial Ink Loading

1. After starting Printer in Standalone mode, press and hold [PAUSE] Key. Release [PAUSE] Key when the buzzer sounds twice.



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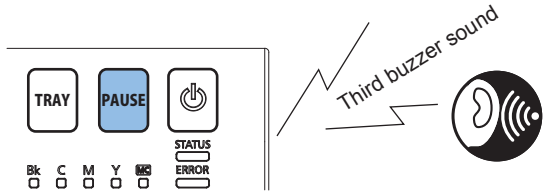
2. Ink loading is performed for the predetermined period of time. When it is completed, the buzzer sounds.

Shipping The Printer

1. After starting Printer in Standalone mode, press and hold [PAUSE] Key. Release [PAUSE] Key when the buzzer sounds three times.



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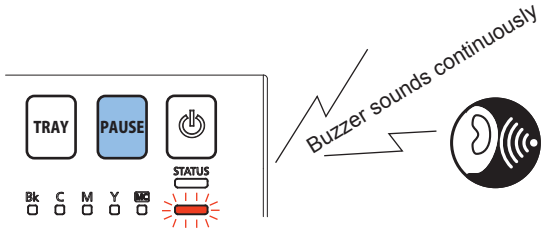
2. Preparation for ink drainage is performed for the predetermined period of time. When it is completed, the buzzer sounds and [ERROR] lamp blinks continuously to prompt the user to proceed to the next step.



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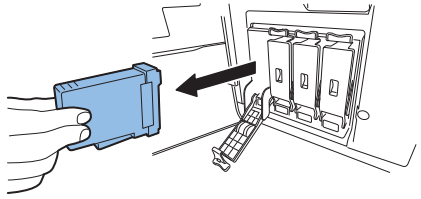
3. Remove Ink Tanks, and then close Ink Tank Door.



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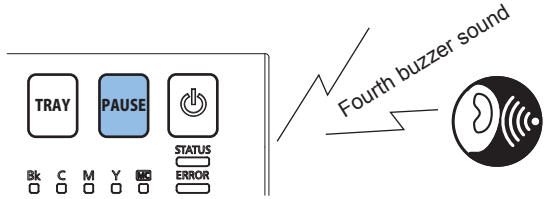
4. When Ink Tank Door is closed, ink is drained for the predetermined period of time, and Printer is turned off automatically.

CAUTION:

- Before transporting Printer, remove Ink Tanks.
- When transporting Printer, protect Transport section using the cushioning material removed when installing Printer.

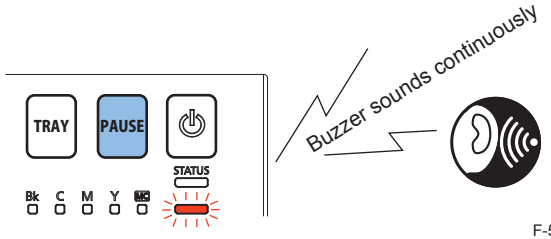
Printheads Replacement

1. After starting Printer in Standalone mode, press and hold [PAUSE] Key. Release [PAUSE] Key when the buzzer sounds four times.



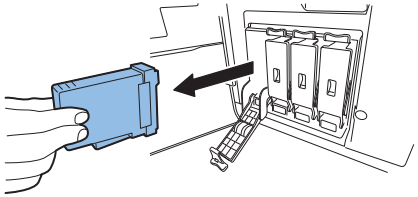
F-5-48

2. Preparation for ink drainage is performed for the predetermined period of time. When it is completed, the buzzer sounds and [ERROR] lamp blinks continuously to prompt the user to proceed to the next step.



F-5-49

3. Remove Ink Tanks, and then close Ink Tank Door.



F-5-50

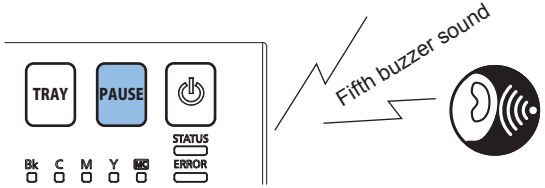
4. When Ink Tank Door is closed, ink is drained for the predetermined period of time, and Printer is turned off automatically.

NOTE:
When ink drainage is completed, Printhead moves to the replacement position, Printer is turned off automatically, and preparation for Printhead replacement is completed. The procedure for replacing Printhead is briefly described below.

1. Replace Printhead by referring to “Parts Replacement and Cleaning > Replacement Parts and Consumables > Removing Printhead”.
2. Turn on Printer, and then load ink.
3. Adjust registration using Service Utility by referring to “Troubleshooting > Service Tool”.

Nozzle check pattern printing

1. After starting Printer in Standalone mode, press and hold [PAUSE] Key. Release [PAUSE] Key when the buzzer sounds five times.

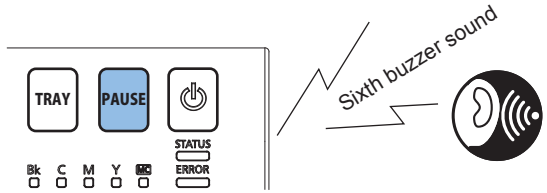


F-5-51

2. A nozzle check pattern is printed.

Setting value printing

1. After starting Printer in Standalone mode, press and hold [PAUSE] Key. Release [PAUSE] Key when the buzzer sounds five times.

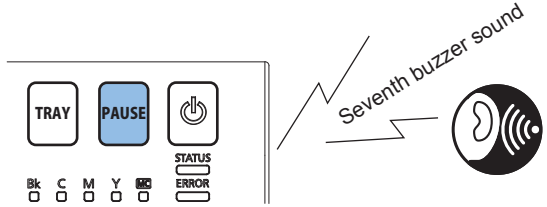


F-5-52

2. Setting value is printed.

Printhead moving to print position

1. After starting Printer in Standalone mode, press and hold [PAUSE] Key. Release [PAUSE] Key when the buzzer sounds seven times.



F-5-53

2. Printhead is moved to the printing position (Printhead face cleaning position).

NOTE:
For how to clean Printhead face, refer to “Parts Replacement and Cleaning > Cleaning Procedure > Cleaning Procedure of Printhead Face”

Service Tool

Overview

Service utility is available as the tool for servicing Printer. Applications of service utility is described below.

Service Utility

Service Utility is software used to service Printer using a PC. It can display various advanced functions and allows the service personnel to perform various advanced operations. During ordinary service, it is recommended that both a PC and Service Utility be used.

Menu Options

Function	Service Utility	Operation Panel (Reference)
Display of model name	Yes	-
Display/rewriting of Printer serial No./Display of ROM Ver.	Yes	-
Display/setting of RTC	Yes	-
Display of cumulative total number of prints	Yes	-
Display of temperature and humidity inside Printer	Yes	-
Display/clearing of Consumables Counter Value (Blade Cleaner)	Yes	-
Display/clearing of Consumables Counter Value (Purge Unit)	Yes	-
Display/clearing of Consumables Counter Value (Pickup Roller)	Yes	-
Display/clearing of Consumables Counter Value (Skew Correct Roller)	Yes	-
Display/clearing of Consumables Counter Value (Feed Roller)	Yes	-
Display/clearing of Consumables Counter Value (Separation Pad)	Yes	-
Display/clearing of Consumables Counter Value (Separation Auxiliary Pad)	Yes	-
Display of Printheads serial No.	Yes	-
Display of life counters of Printheads	Yes	-
Display of details of Printheads	Yes	-
Display of print counts of Printheads	Yes	-
Display of date of Printheads installation	Yes	-
Display of Printheads temperature	Yes	-
Light cleaning	Yes	-
Medium cleaning	Yes	-
Strong cleaning	Yes	Yes
Preparation for transportation	Yes	Yes
Preparation for indoor movement	Yes	-
Cleaning sheet feed	Yes	-
Standard paper size setting	Yes	-
Paper size setting	Yes	-
Setting of number of copies	Yes	-
Margin setting	Yes	-
Transport speed setting	Yes	-
Nozzle check pattern printing	Yes	Yes
Setting value printing	Yes	Yes
Display of vertical size of paper	Yes	-
Registration adjustment	Yes	-
Details of registration adjustment	Yes	-
Reflection of registration adjustment value (L size) in M/S size	Yes	-
Vertical Scale Adjustment	Yes	-
Slant Adjustment	Yes	-
Complement Non-Firing Nozzle	Yes	-
Paper Guide position adjustment	Yes	-
TK GAP adjustment	Yes	-
Firmware update	Yes	-
Display of error log / Saving of error log file	Yes	-
Display of error status	Yes	-
User settings (Ink pre-fire the paper)	Yes	-
Stain Reduction(Mode1/Mode2)	Yes	-
Replacement of consumables (Printhead)	Yes	Yes
Replacement of consumables (Purge Unit)	Yes	-
Replacement of consumables (Blade Cleaner)	Yes	-
Replacement of Printer Controller PCB (Read/sending of saved data)	Yes	-
Adjustment of Printhead wipe position (Adjustment value input operation)	Yes	-
Adjustment of Printhead capping position (Adjustment value input operation)	Yes	-
Adjustment of Printhead printing position (Adjustment value input operation)	Yes	-
Adjustment of Purge Unit capping position (Adjustment value input operation)	Yes	-
Adjustment of Printhead to Platen Distance(Adjustment value input operation)	Yes	-
Adjustment of Paper Guide position(Adjustment value input operation)	Yes	-
Adjustment of Paper Suction Fan Duty (Duty value input operation)	Yes	-
Replacement of Power Supply Unit (Release the error)	Yes	-

Function	Service Utility	Operation Panel (Reference)
Replacement of Power Supply Unit (Ink eject power adjustment)	Yes	-
Reporting to manufacturer (Output of saved data file)	Yes	-
Ink loading (Setup cleaning)	Yes	Yes
Movement of Printhead Cleaning Position	Yes	Yes
Movement of Printhead to reinsertion position	Yes	-
Movement of Purge Unit to reinsertion position	Yes	-

T-5-20

Service Utility

Service Utility is software for servicing Printer through use of a PC. It provides Printer with functions performed in the service mode as well as functions for displaying and performing various additional features.

NOTE:
Service Utility may be updated to enhance and improve its functionality.

Operation

PC Operating Environment

This utility can be used on PC in the following operating environment:

- OS: Windows XP, Windows Vista, and Windows 7 (32-bit,64-bit)
- Interface: Hi-Speed USB 1000BASE-T/100BASE-TX/10BASE-T

Setup Procedure

This utility does not require any particular installation work. Set up PC following the procedure described below.

1) Copy Service Utility to HD of PC to be used.

Start Procedure

1) Connect PC and Printer using USB Cable.

2) Turn on Printer.

3) After starting up PC, start Service Utility by either of the following procedure:

Double-click Service Utility icon.

Click [Start] > click [Devices and Printers] > right click [Swiftcolor SCC-4000D] > click [Printer properties] > click [Utility] > click [Service].

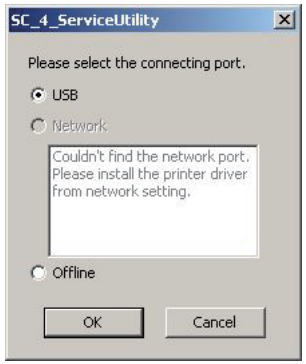
4) Select "Administrator Mode" and click "OK".

F-5-54

5) Enter "swift--color" and click "OK".

F-5-55

6) Select connecting port and click "OK".

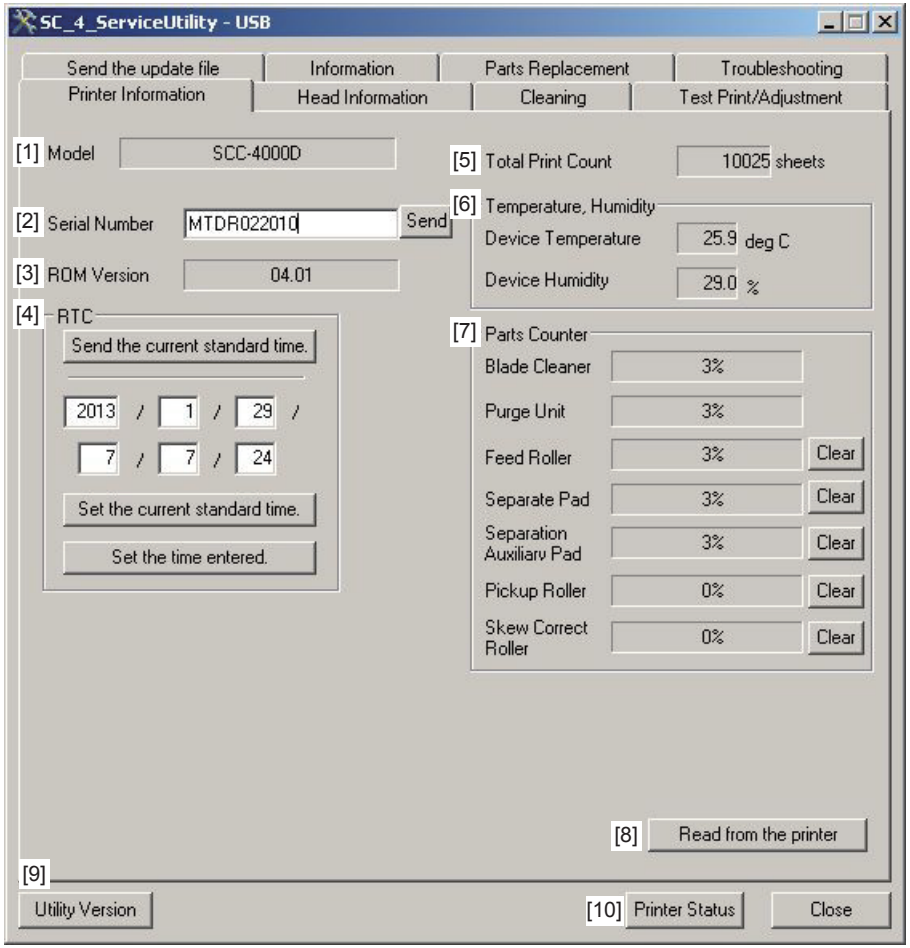


F-5-56

7) Select "SCC-4000D" for offline start up only.

F-5-57

Printer Information

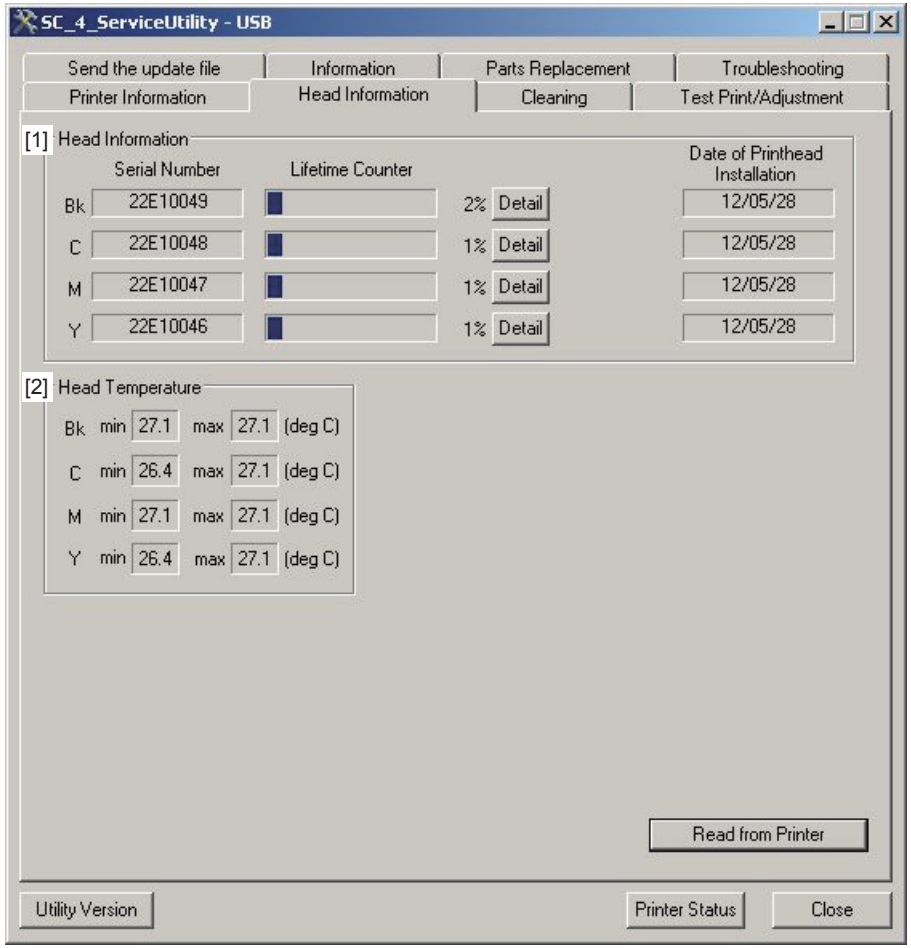


F-5-58

No.	Item		Description
[1]	Model		• The product name of connected Printer is displayed.
[2]	Serial Number (Administration Mode Only)		• The serial number assigned to Printer is displayed. • If the old data cannot be read/sent at the time of Printer Controller PCB replacement, set the serial number of Printer manually.
[3]	ROM Version		• The version of the firmware incorporated in Printer is displayed.
[4]	RTC	Send the current standard time	• Set the time on which Service Utility is running for Printer.
		Set the current standard time	• Set the same time as that of the PC on which Service Utility is running.
		Set the time entered	• Set the input time for Printer.
[5]	Total Print Count		• The number of print by Printer is displayed (3 inch feed = 1 print).
[6]	Temperature, Humidity	Device Temperature	• Temperature is read from Printer and displayed.
		Device Humidity	• Humidity is read from Printer and displayed.
[7]	Parts Counter	Blade Cleaner	• The extent of the parts deterioration is displayed. • When Blade Cleaner and/or Purge Unit are replaced using [Consumable Parts Replacement] menu on the [Parts Replacement] tab, parts counters are cleared automatically. • When Print Count or Dot Count whichever reaches 100%, error message displays on [Status Monitor] of [Printer Driver].
		Purge Unit	
		Feed Roller	
		Separation Pad	
		Separation Auxiliary Pad	
		Pickup Roller	
		Skew Correct Roller	
[8]	Read from the Printer *1. Common to other sheets		• The information displayed is read from Printer.
[9]	Utility Version		• The version of the running Service Utility is displayed.
[10]	Printer Status *1. Common to other sheets		• The status of Printer is displayed.

T-5-21

● Head Information (Administration Mode Only)

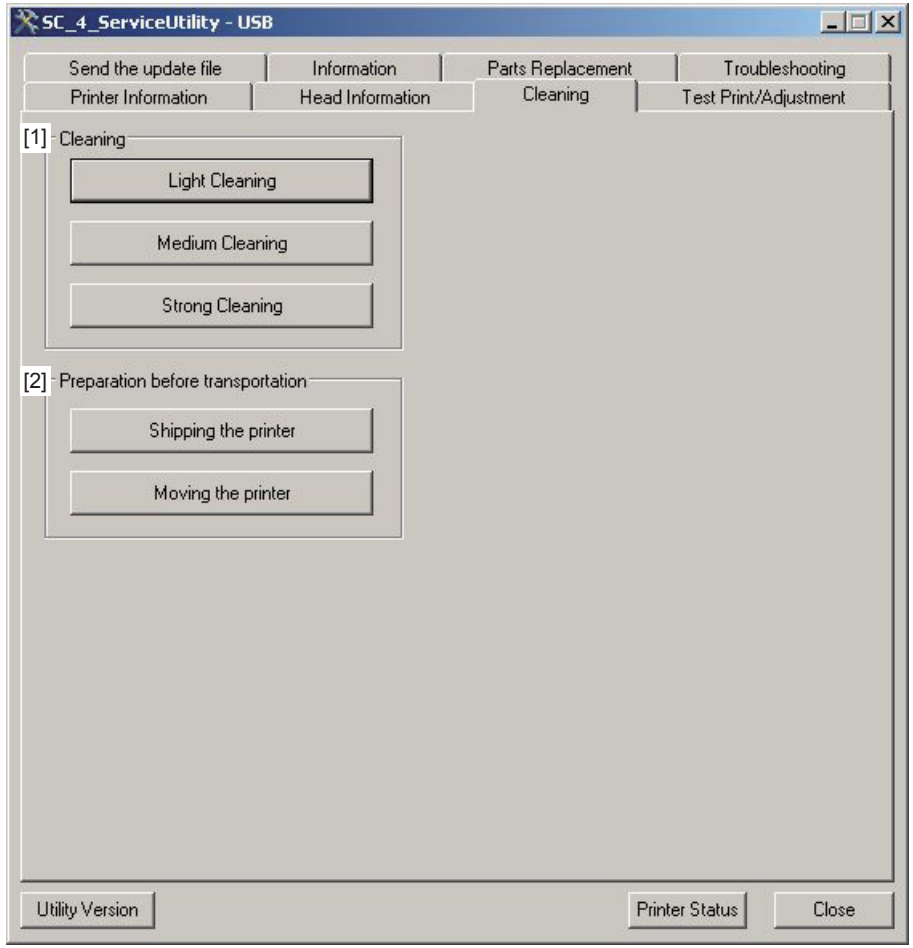


F-5-59

No.	Item		Description
[1]	Head Information	Serial Number	Serial number of each Printhead
		Lifetime Counter	The extent of the parts deterioration is displayed.
		Detail	Displays a graph showing the extent of Printhead deterioration in detail.
		Date of Printhead Installation	Date of installation of each Printhead.
[2]	Head Temperature		Temperature of each Printhead.

T-5-22

Cleaning

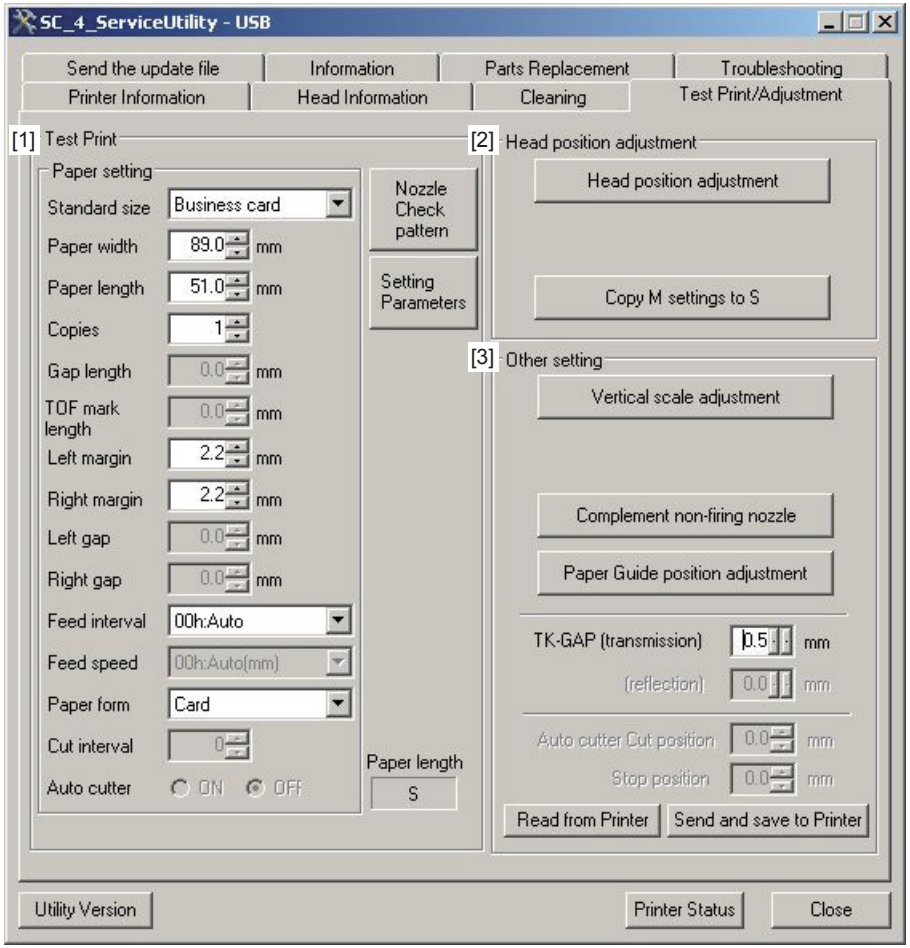


F-5-60

No.	Item		Description
[1]	Cleaning	Light Cleaning	• Carry out this cleaning first when non-discharge occurs.
		Medium Cleaning	• Carry out this cleaning when non-discharge still occurs after Light Cleaning. • This cleaning is slightly stronger than Light Cleaning.
		Strong Cleaning	• Carry out this cleaning when non-discharge still occurs after Medium Cleaning • This cleaning is slightly stronger than Medium Cleaning.
[2]	Preparation before transportation	Shipping the printer	• Before long-distance transportation, drain ink from Printer according to the instructions shown on the screen of Service Utility.
		Moving the printer	• Before moving Printer within the same floor or building, drain ink from Purge Unit according to the instructions shown on the screen of Service Utility.

T-5-23

Test Print / Adjustment

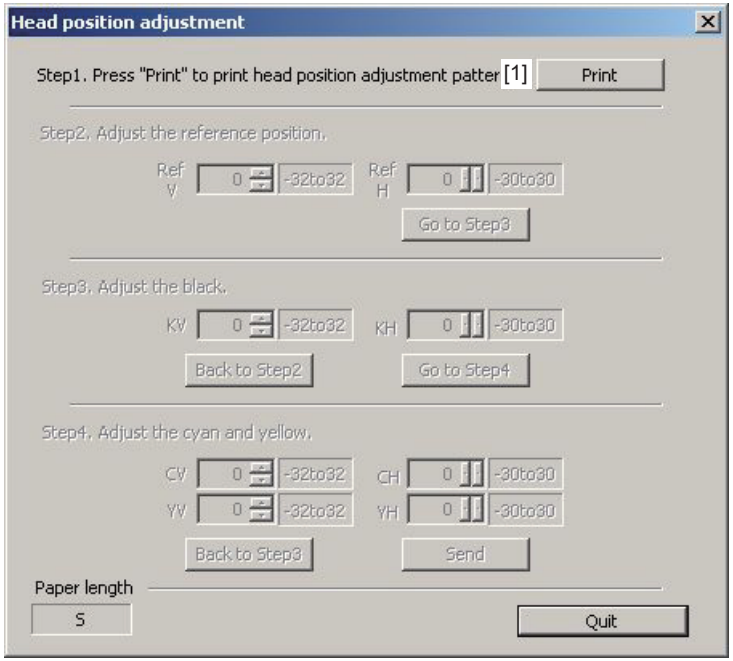


F-5-61

No.	Item		Description
[1]	Test Print	Standard size	• Set the standard size paper used for test printing.
		Paper width	• Set the horizontal size of paper used for test printing.
		Paper length	• Set the vertical size of paper used for test printing.
		Copies	• Set the number of copies to print for test printing.
		Left margin	• Set the left margin of test print image.
		Right margin	• Set the right margin of test print image.
		Feed interval	• Set the feed interval used for test printing.
		Paper form	• Set the type of paper used for test printing.
		Nozzle Check pattern	• Pattern for checking discharge state of nozzles.
		Setting parameters	• Pattern for checking the settings values such as a registration adjustment value.
		Paper length	• Vertical sizes (length) of paper is classified as follows and the currently set vertical size of paper is displayed. S-size: Paper length = 49.0mm to 95.0mm M-size: Paper length = 95.1mm to 300mm
[2]	Head position adjustment	Head position adjustment	• Perform test printing and adjust registration.
		Copy M setting to S	• Reflect the result of registration adjustment made using M-size (horizontal size) paper into S-size. *1. This operation is not required when registration adjustment is performed for S-size.
[3]	Other setting	Vertical scale adjustment	• Perform test printing and adjust vertical scale.
		Complement non-firing nozzle	• Perform test printing and complement non-firing nozzle.
		Paper Guide position adjustment	• Perform test printing and adjust Paper Guide position.
		TK-GAP (Reflective)	• The TK-GAP is displayed. It can be set here.

T-5-24

Test Print / Adjustment > Head Position Adjustment

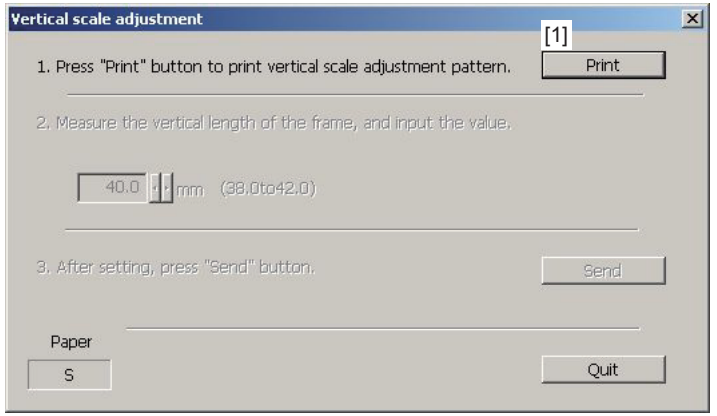


F-5-62

No.	Item	Description
[1]	Print	• Print a registration adjustment pattern. Check the printout and carry out registration adjustment. • For more details, refer to "Adjustment>Registration Adjustment".

T-5-25

Test Print / Adjustment > Vertical Scale Adjustment

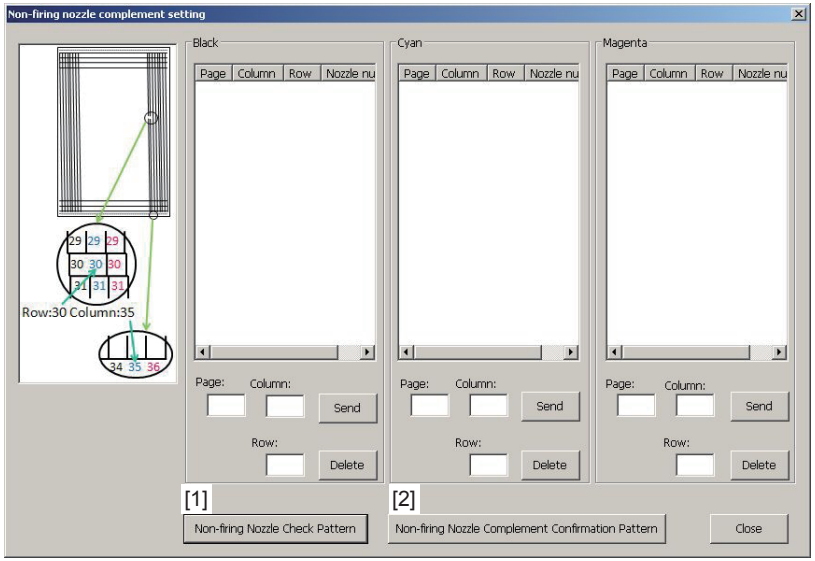


F-5-63

No.	Item	Description
[1]	Print	• Print a vertical scale adjustment pattern. Check the printout and carry out vertical scale adjustment. • For more details, refer to "Adjustment > Vertical Scale Adjustment".

T-5-26

Test Print / Adjustment > Complement Non-Firing Nozzle

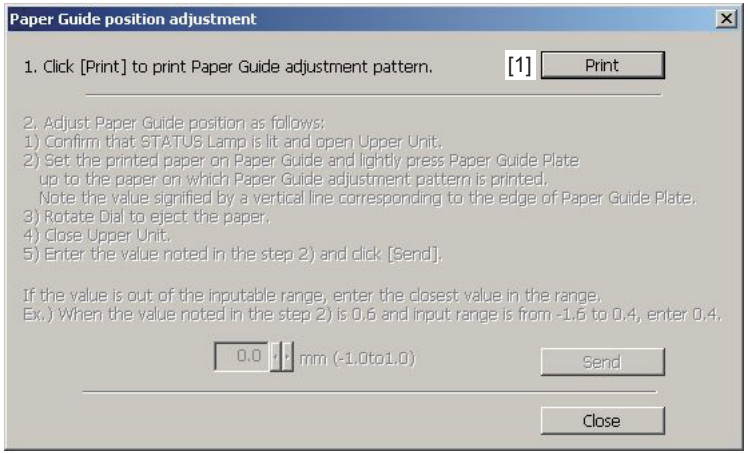


F-5-64

No.	Item	Description
[1]	Non-firing Nozzle Check Pattern	• Print a Non-firing Nozzle Check Pattern. Check the printout and carry out non-firing nozzle complement. • For more details, refer to "Adjustment > Complement Non-Firing Nozzle.
[2]	Non-firing Nozzle Complement Confirmation Pattern	• Print a Non-firing Nozzle Complement Confirmation Pattern. Confirm non-firing nozzle complement. • For more details, refer to "Adjustment > Complement Non-Firing Nozzle.

T-5-27

Test Print / Adjustment > Paper Guide Position Adjustment

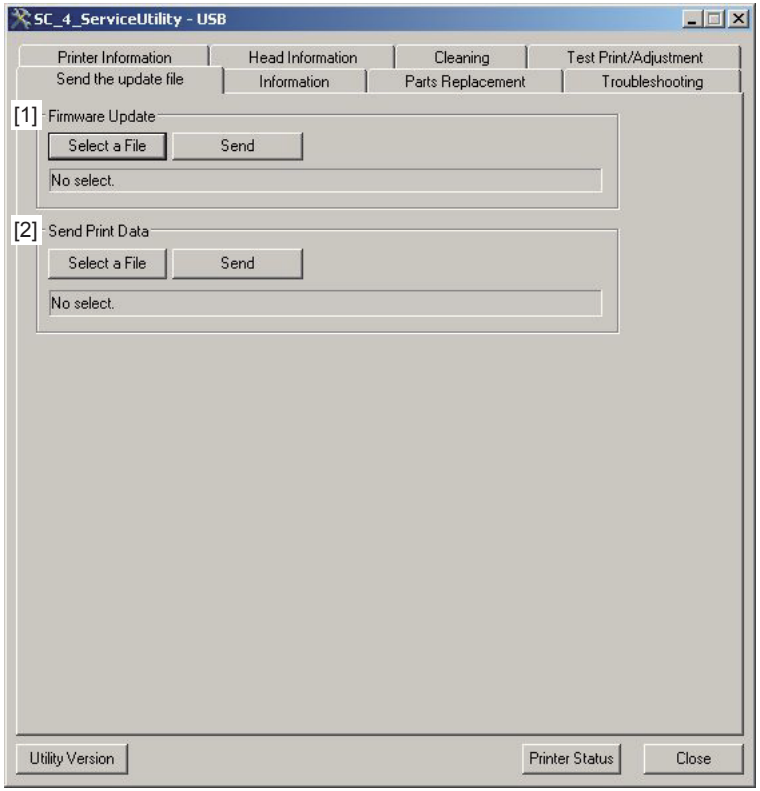


F-5-65

No.	Item	Description
[1]	Print	• Print a Paper Guide position adjustment pattern. Check the printout and carry out the Paper Guide position. • For more details of the procedure, refer to "Adjustment > Paper Guide Position Adjustment.

T-5-28

Send the Update File

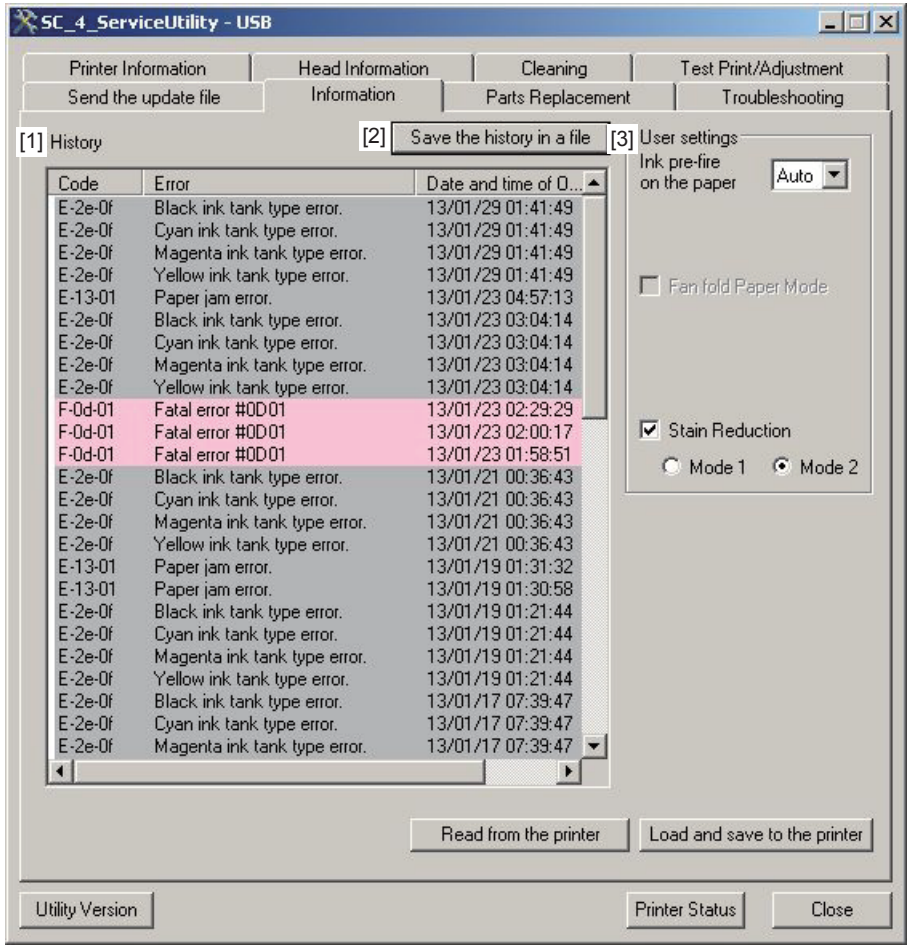


F-5-66

No.	Item		Description
[1]	Firmware Updata	Select a File	Select the firmware file to be loaded into Printer.
		Send	Send the firmware file to be loaded into Printer.
[2]	Send Print Data	Select a File	Select the print file to be loaded into Printer.
		Send	Send the print file to be loaded into Printer.

T-5-29

Information

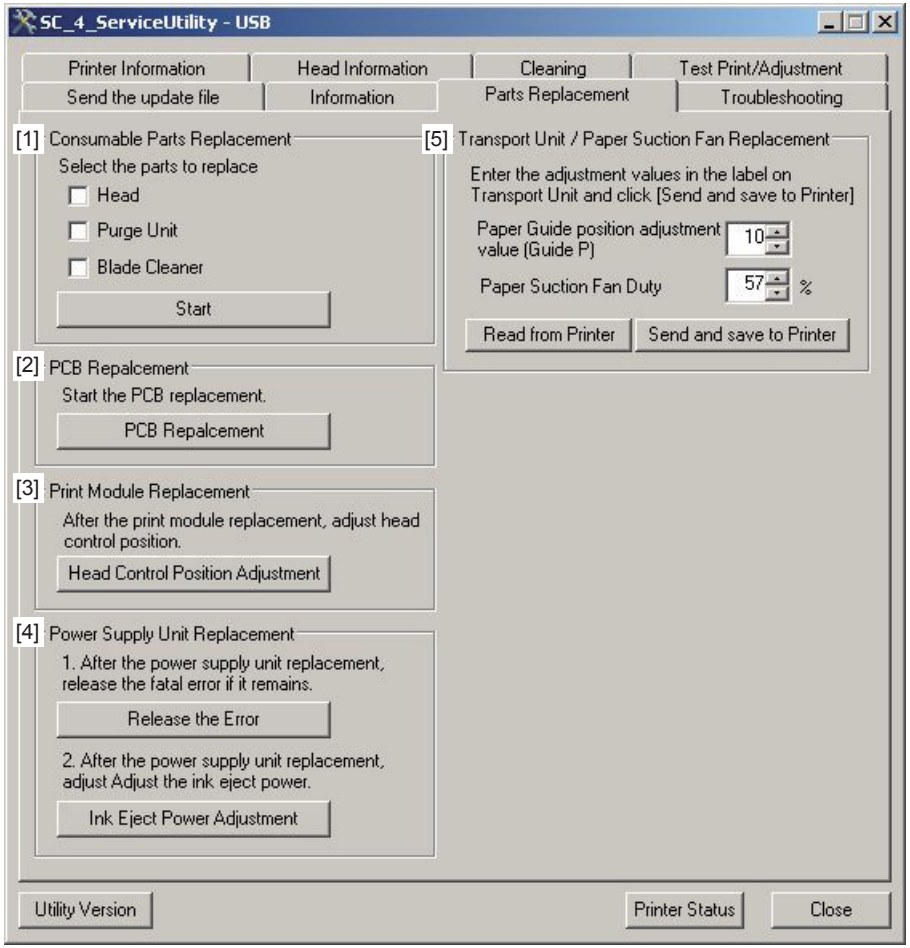


F-5-67

No.	Item	Description
[1]	History	Error codes and description of errors are displayed.
[2]	Save the history in a file	Save the error log recorded in Printer.
[3]	User setting	Set various user mode.

T-5-30

Parts Replacement

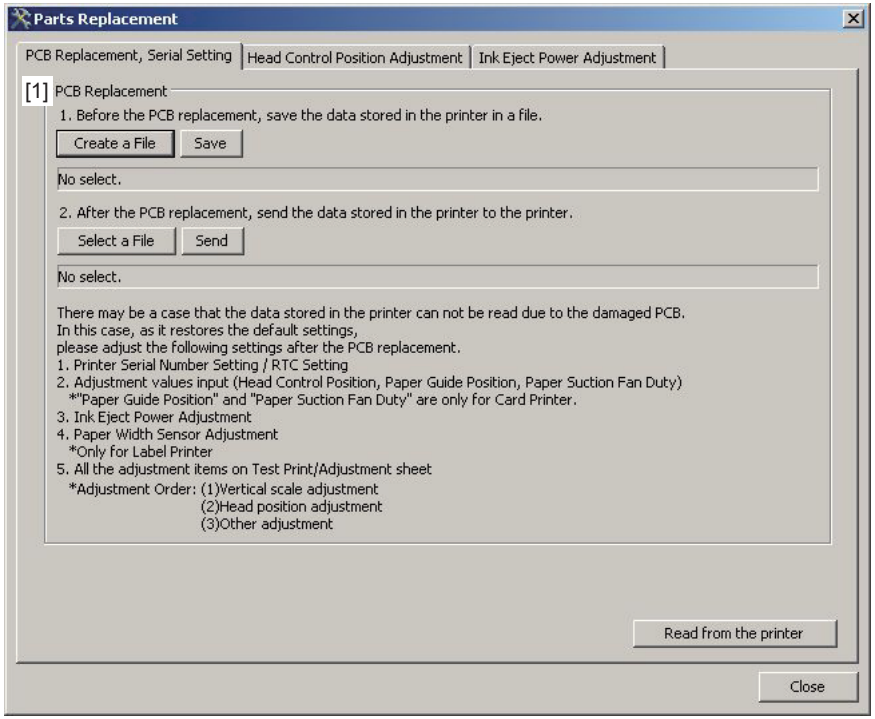


F-5-68

No.	Item		Description
[1]	Consumable Parts Replacement		Replace Printhead, Purge Unit, and Blade Cleaner.
[2]	PCB Replacement (Administration Mode Only)		Replace Printer Controller PCB.
[3]	Print Module Replacement (Administration Mode Only)		After replacement of Print Module, enter the values for adjusting Printhead control positions.
[4]	Power Supply Unit Replacement (Administration Mode Only)	Release the Error	If a power supply error (0211 to 0215) occurs after Power Supply Unit replacement, clear the error.
		Ink Eject Power Adjustment	After Power Supply Unit replacement, adjust the ink discharge power of Printhead.
[5]	Transport Unit/Paper Suction Fan Replacement (Administration Mode Only)	Paper Guide Plate position adjustment value (Guide P)	After replacing Transport Unit, enter the Paper Guide Plate position adjustment value.
		Paper Suction Fan Duty	After replacing Transport Unit or Paper Suction Fan, enter the Paper Suction Fan duty.

T-5-31

Parts Replacement > PCB Replacement,Serial Setting

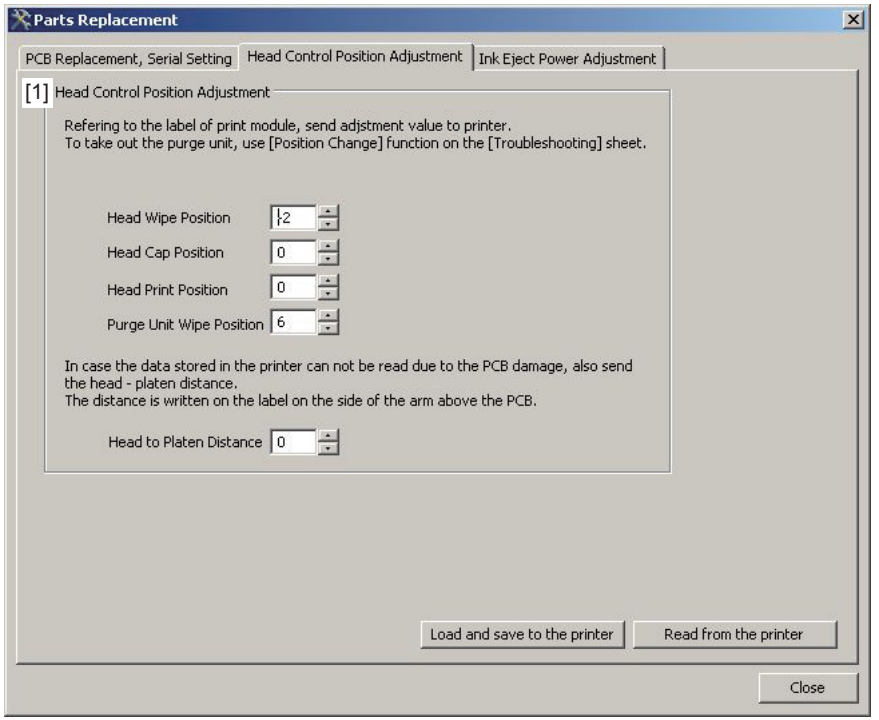


F-5-69

No.	Item		Description
[1]	Printer data saving (before PCB replacement)	Create a File	Specify the file to which the data stored in Printer is to be written.
		Save	Write the data stored in Printer to the selected file.
	Saved Printer data sending (after PCB replacement)	Select a File	Specify the file to send to Printer.
		Send	Send the selected file to Printer.

T-5-32

Parts Replacement > Head Control Position Adjustment

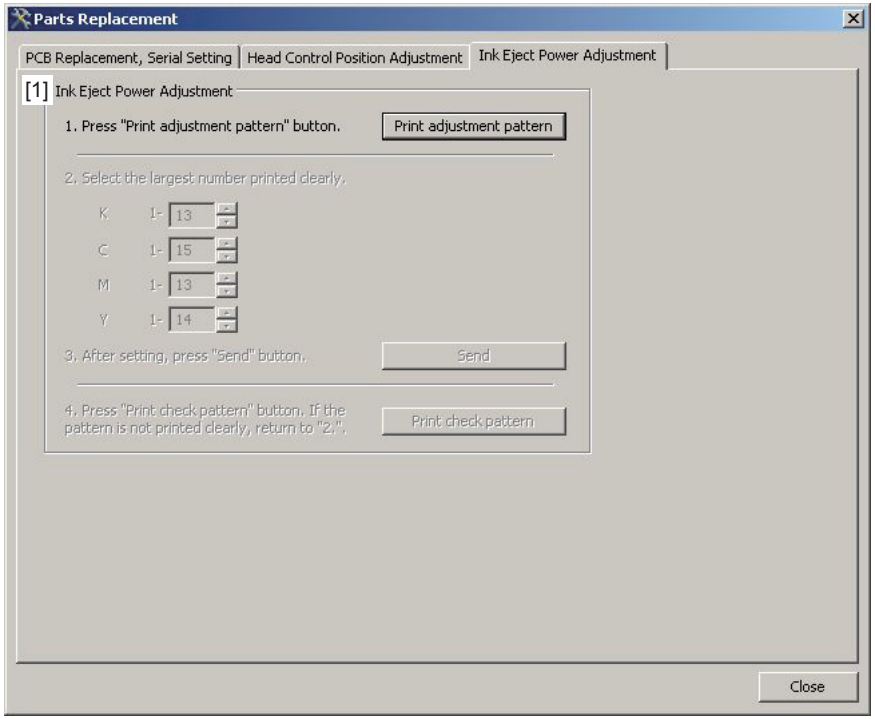


F-5-70

No.	Item		Description
[1]	Head control Adjustment	Head Wipe Position	• Enter the value indicated on the adjustment value label provided at Printhead insertion slot of Print Module. • For more details, refer to "Adjustment>Printhead Control Position Adjustment".
		Head Cap Position	
		Head Print Position	
		Purge Unit Wipe Position	• Enter the value indicated on the adjustment value label provided on the side surface of Purge Unit. • For more details, refer to "Adjustment>Printhead Control Position Adjustment".
		Head to Platen Distance	• Enter the value indicated on the adjustment value label provided on the side of Upper Unit. • For more details, refer to "Adjustment > Printhead Control Position Adjustment".

T-5-33

Parts Replacement > Ink Eject Power Adjustment

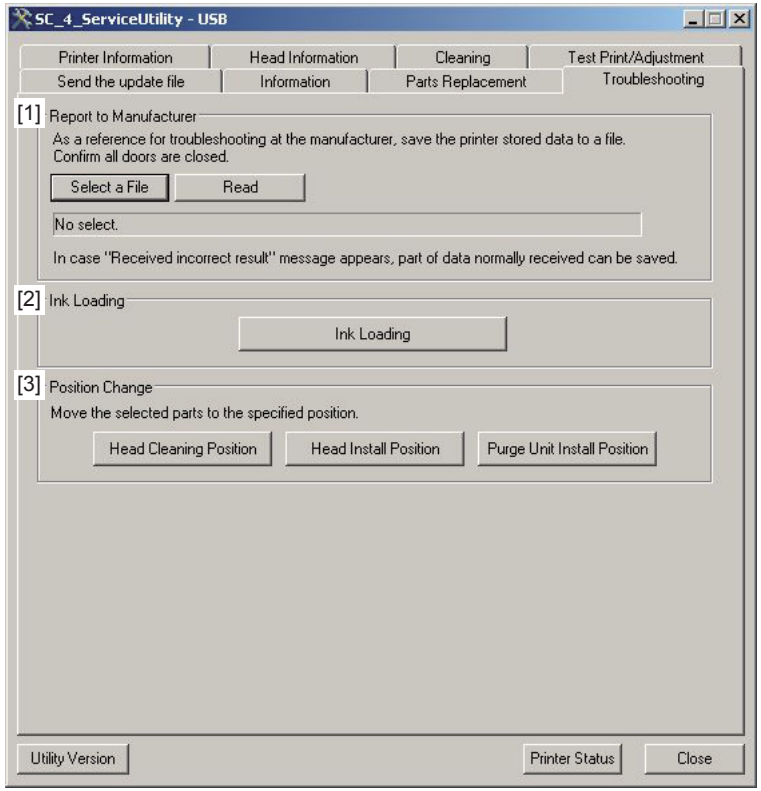


F-5-71

No.	Item	Description
[1]	Print adjustment pattern	• Print a discharge power adjustment pattern. Check the printout and carry out discharge power adjustment. • For more details, refer to "Adjustment>Discharge Power Adjustment".

T-5-34

Troubleshooting



F-5-72

No.	Item		Description
[1]	Report to Manufacturer	Select a File	• Specify the file used to write the data saved in Printer.
		Read	• Write the data stored in Printer to the selected file.
[2]	Ink Loading		• When the ink flow passage is not filled with ink for some reason, carry out ink loading.
[3]	Position Change	Head Cleaning Position	• Move Printhead to Printhead cleaning position. • In the case, Strong Cleaning can not recover white streak, perform this operation.
		Head Install Position	• Move Printhead when reconnecting it. • *1. Since Printhead contains ink, be extremely careful to dripping ink in case Printhead is removed.
		Purge Unit Install Position	• Move Purge Unit in the case forgetting to read Purge Unit wipe position adjustment value at replacement of it.

T-5-35

6 Installation

How to Read This Guide

When Using the Included Parts

When the parts supplied with this product are required to be used in the installation procedure, the following symbol indicating that the parts are supplied with the product is shown in the illustration.

Packaged Item

About the Symbols Used in Illustrations

In this guide, operations performed frequently are represented by the following symbols:

Screw

Tighten

Remove

Connector

Connect

Disconnect

Harness

Secure

Free

Claw

Insert

Remove

Push

Plug in

Turn on

Checking instruction

Check

Visual Check

Sound Check

Check Before Installation

Installation requirements are listed below.

Checking the Power Supply

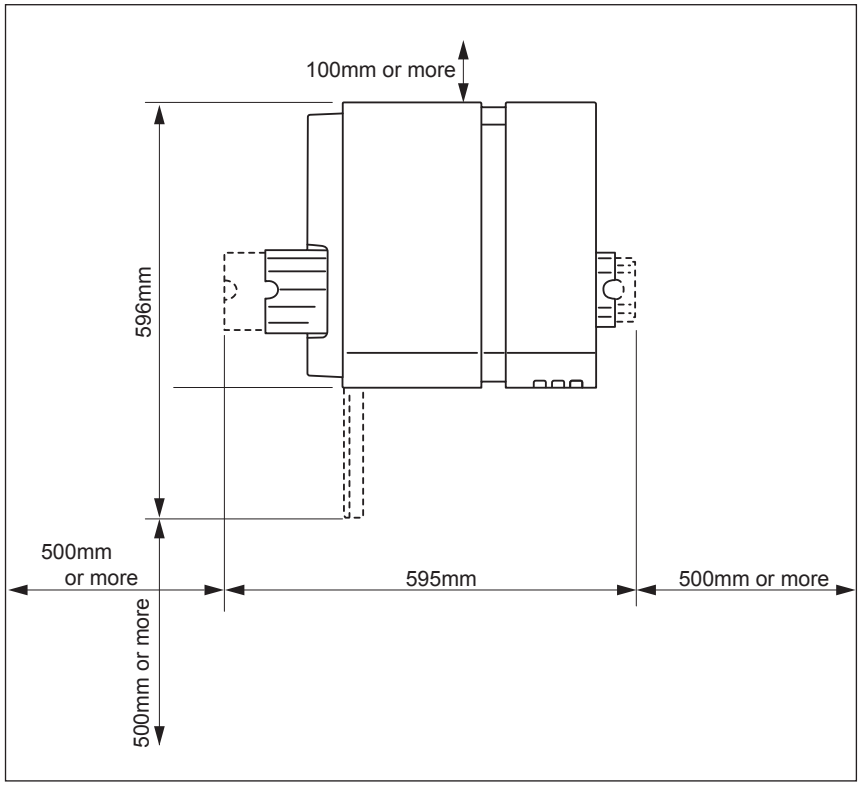
Power Cord of Printer must be connectable to the outlet (100V - 240V AC +10%/-15%) exclusively.

Checking the Installation Environment

1. The installation environment must be as described below. Avoid installing Printer near the faucet, water heater, humidifier, or refrigerator.
   - Operating temperature range: 5 to 35 degrees Celsius
   - Operating humidity range: 10%RH to 90%RH
2. Avoid placing Printer in place exposed to high temperature and humidity, extremely low temperature, severe temperature changes, and direct sunlight. Especially, avoid placing Printer near fire, out of doors, in distribution warehouse, or in refrigerator.
3. Avoid installing Printer in an area subject to dust.
4. The room must be well-ventilated properly.
5. None of Printer feet should float. The machine must be held level constantly.
6. When placing Printer on desk, table or the like, it must be sturdy and stable enough to support weight of Printer.

Checking the Installation Space

1. The minimum space required for installation is shown below.



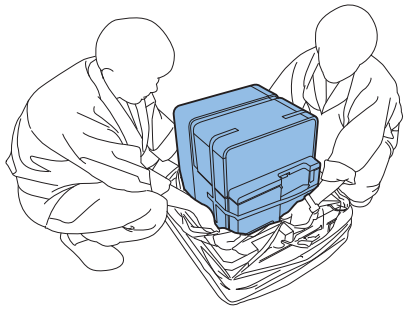
F-6-1

Installation Precautions

When installing Printer, observe the following precautions:

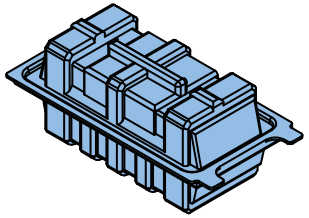
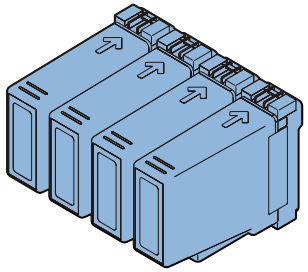
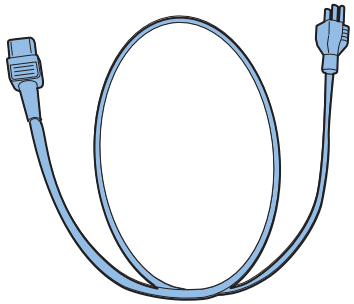
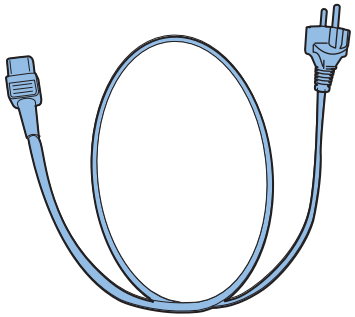
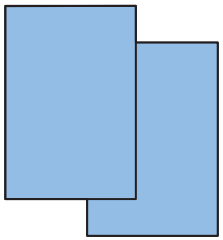
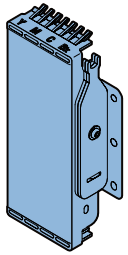
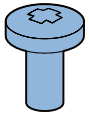
1) Imaging faults can result due to dew condensation that occurs when the machine is moved from a cold place to a warm place. Leave the unpacked machine as it is for at least two hours before installing it.
(Dew condensation: When a metallic object is brought from a low-temperature place to a high-temperature place, water vapor around it is cooled abruptly and consequently water drops stick to the surface of the metallic object.)

2) Printer weighs about 25kg. At least two persons are required to install it. In addition, be sure to keep the machine leveled when lifting it.



F-6-2

Checking the Included Parts

☐ [1] 1 x Printhead Unit 	☐ [2] 4 x Ink Tank (1 Ink Tank for each color) 	☐ [3] 1 x Power Cord(for 120V series) 	☐ [4] 1 x Power Cord(for 230V series) 
☐ [5] Spare Paper 	☐ [6] 1 x Service Tool Unit 	☐ [7] 1 x Screw 	

T-6-1

CAUTION:
Several types of Power Cords come with Printer. Use appropriate Power Cord for the power supply used at the installation site.

NOTE:
Included Spare Paper can be used for a print image checking.

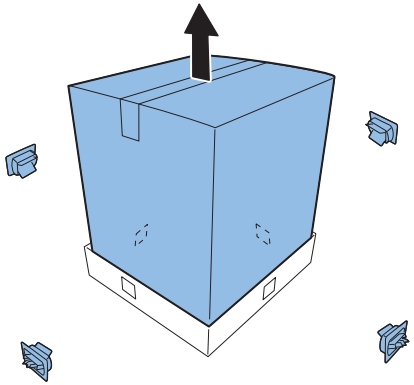
Check that none of the following is missing:

- Start Guide

Unpacking Procedure

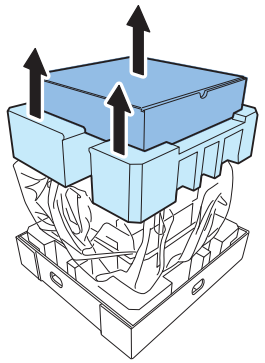
NOTE:
Printer is secured using fixing tape and cushioning materials to protect it against the vibrations and shocks applied during transportation. By following the procedure described below, remove all pieces of fixing tape and cushioning materials before installing Printer. Keep the removed cushioning materials for future transportation for relocation or repair of Printer.

☐
1) Remove 4 grips from the packing carton, and then remove the outer casing.



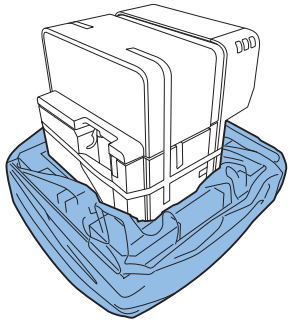
F-6-3

☐
2) Remove Accessory Box , and then remove Upper Pads.



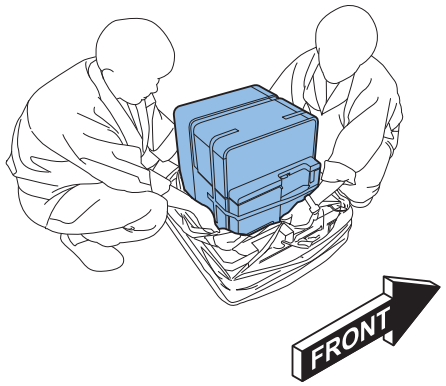
F-6-4

☐
3) Strip the plastic bag from top to bottom.



F-6-5

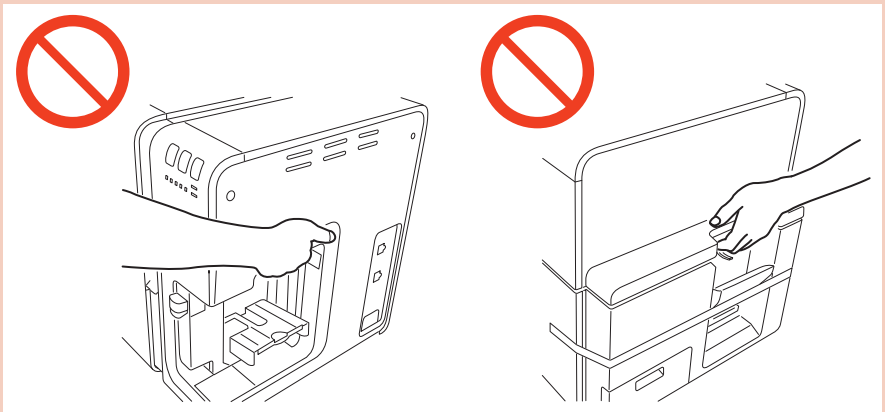
☐ 4) Holding the handles at the bottom of Printer, lift Printer to take it out from the package base.



F-6-6

⚠CAUTION:

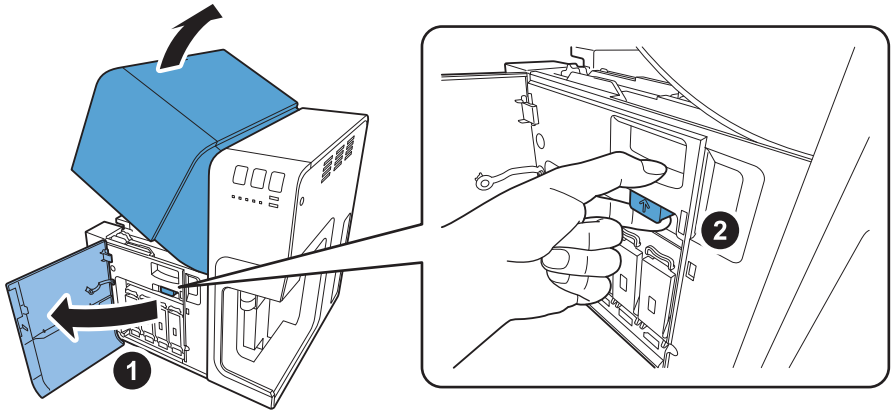
- Printer weights about 25Kg. At least, two persons are required to lift it up.
- Do not lift Printer holding the paper feed section and paper delivery section to prevent Printer from dropping as those sections may break. Dropping of Printer may cause injury.



F-6-7

☐ 5) Place Printer on a horizontal table, and then remove all pieces of fixing tape and cushioning materials visible on the exterior of Printer.

☐ 6) Open Ink Tank Door, and open Upper Unit while holding Upper Unit Open Lever.

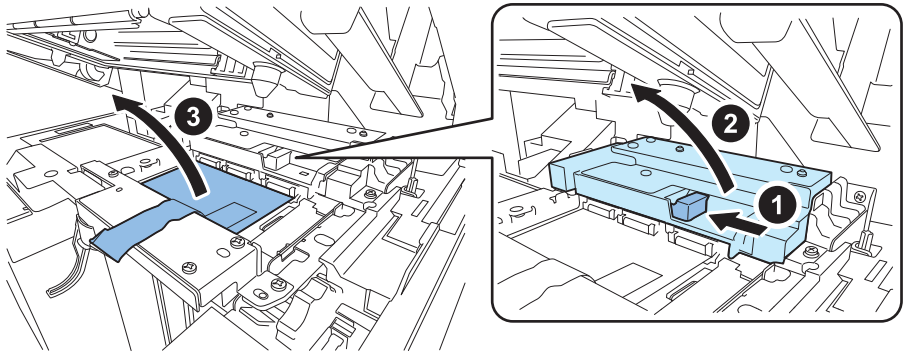


F-6-8

☐ 7) Remove fixing tapes and cushioning materials from inside of Printer.

NOTE:
Keep the removed cushioning materials, because they may be used for future transportation for relocation or repair of Printer.

☐ 8) Open Pinch Roller Unit, and then remove the protection sheet.



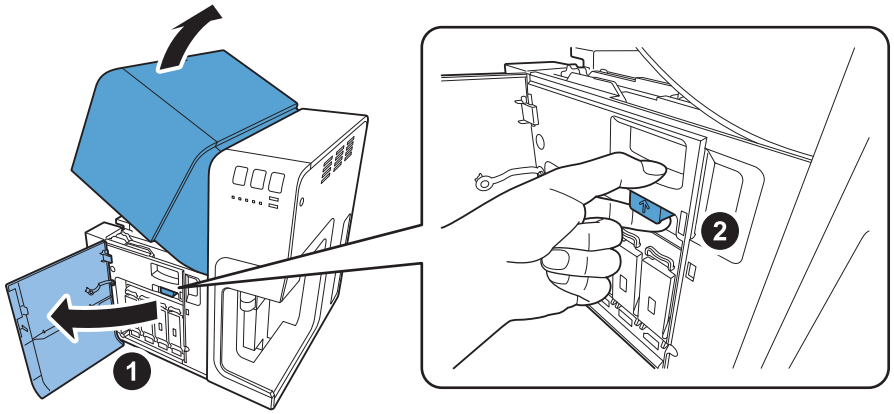
F-6-9

☐ 9) Close Pinch Roller Unit.

Installation Procedure

Mounting Printhead Unit

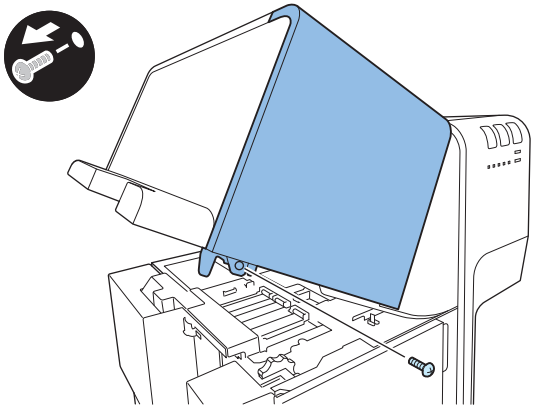
☐
1) Open Ink Tank Door, and open Upper Unit while holding Upper Unit Open Lever.



F-6-10

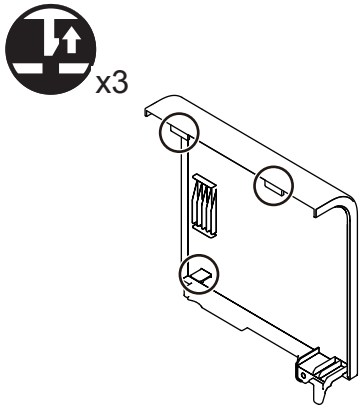
☐
2) Remove screw securing Maintenance Cover.

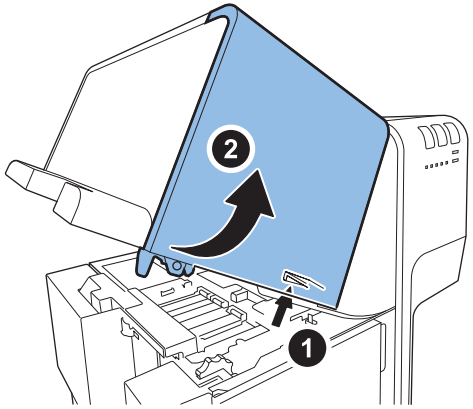
- 1 screw



F-6-11

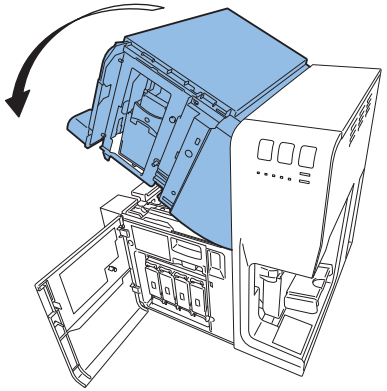
☐
3) Raise the inner hook to detach Maintenance Cover.





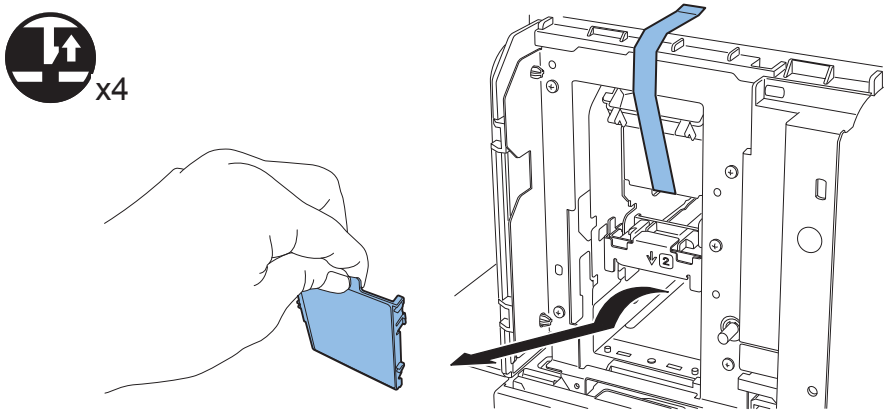
F-6-12

☐
4) Close Upper Unit.

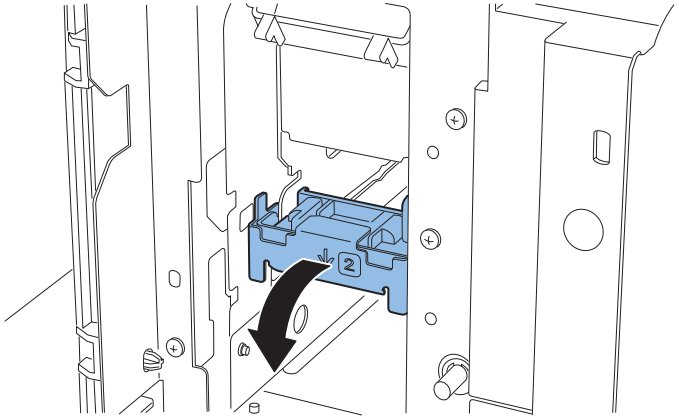


F-6-13

☐
5) Remove the fixing tape, remove Print Module Cover, and then open Lower Printhead Release Lever.

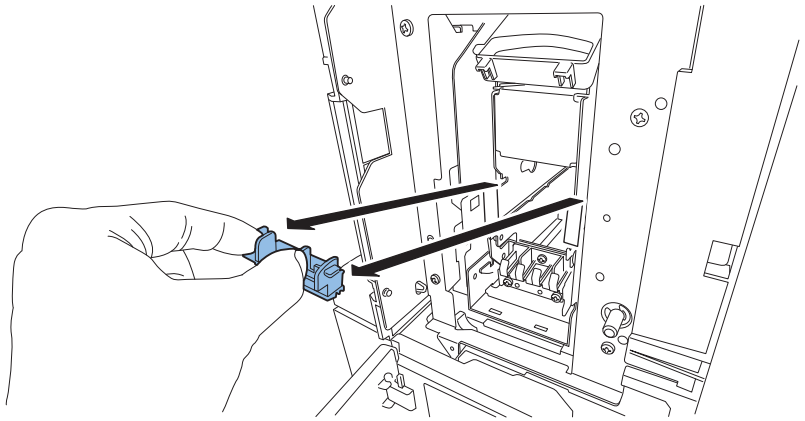


F-6-14



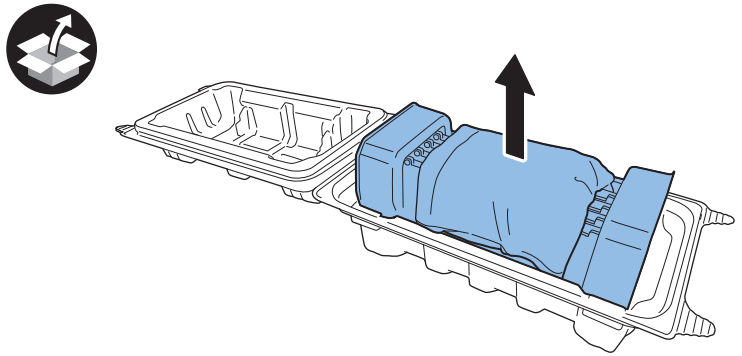
F-6-15

☐
6) Remove Blade Cleaner.



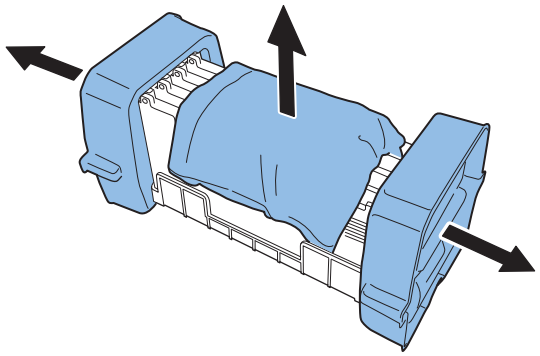
F-6-16

☐
7) Take out included Printhead from the package.



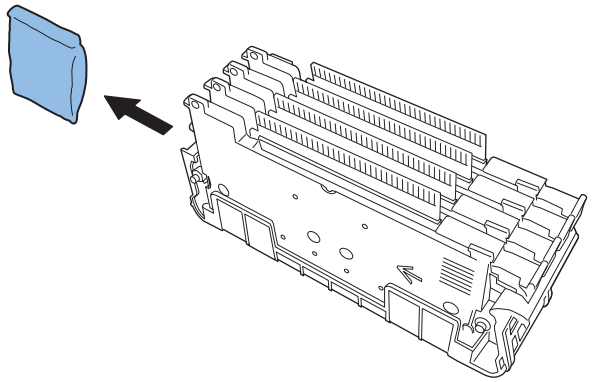
F-6-17

☐
8) Remove the cover and cushioning materials.



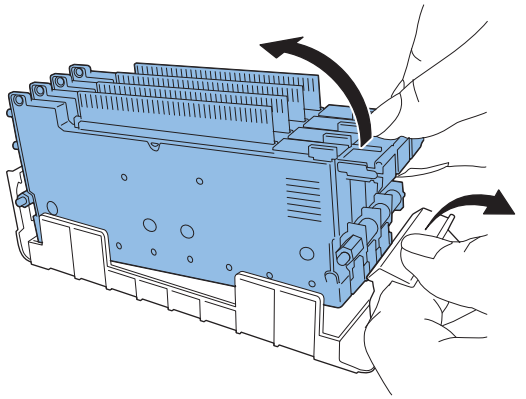
F-6-18

☐
9) Remove the 4 caps.



F-6-19

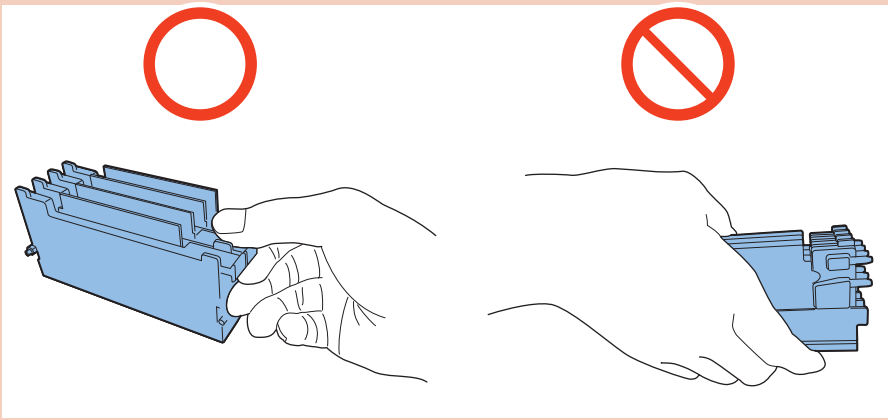
☐
10) Take Printhead Unit out of the case.



F-6-20

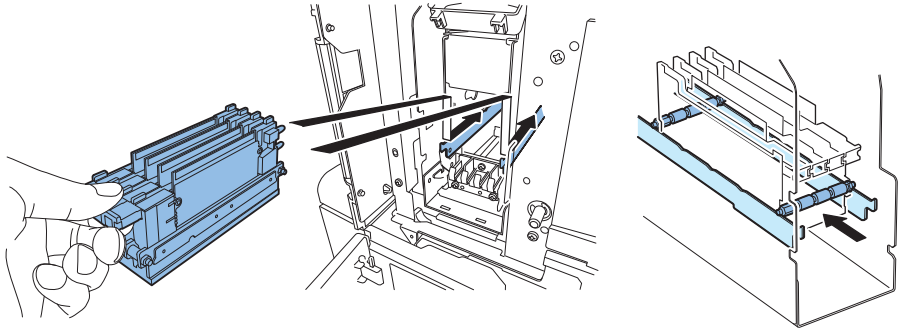
CAUTION:

Do not touch the circuit boards and Printhead face. An ink injection problem can occur.



F-6-21

☐ 11) Put Printhead Unit on the rail guide, and then insert it into Printer until it stops.

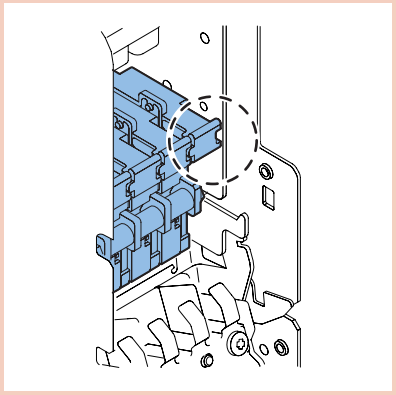


F-6-22

NOTE:
Skewering Shaft must be on Printhead Guide Rails.

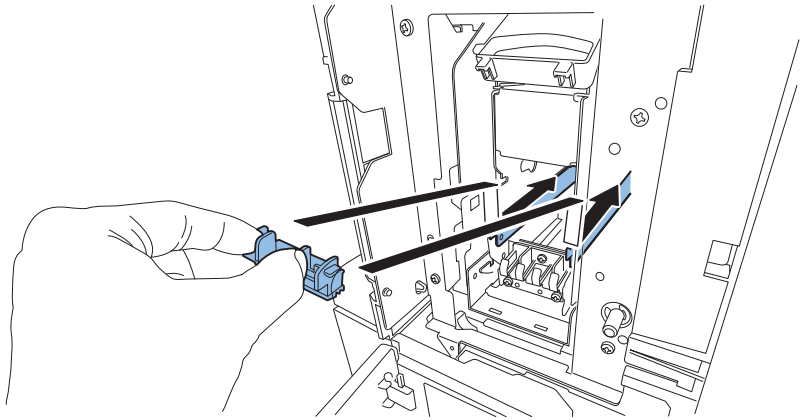
CAUTION:

- To confirm Printhead Unit is in the correct position, see if the end of Printhead Unit grip and the edge of the inner metal plate are in the same plane as shown in the figure.
- If Printhead Unit is insufficiently inserted, Lower Printhead Release Lever cannot be closed.



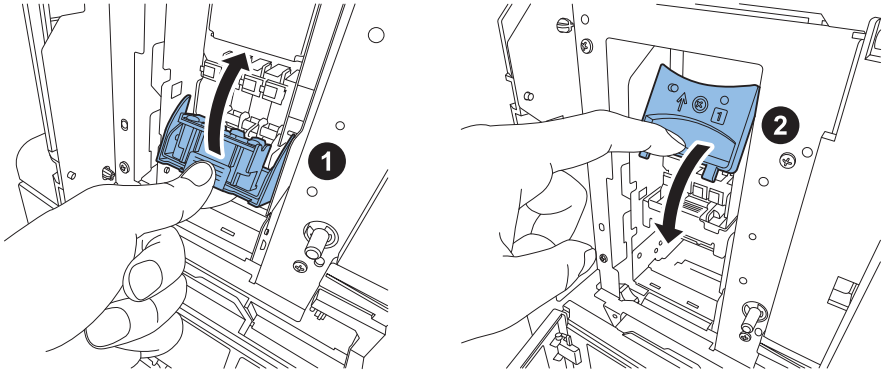
F-6-23

☐ 12) Mount Blade Cleaner.



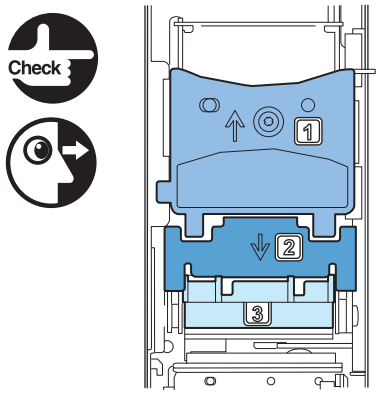
F-6-24

☐ 13) Close Lower Printhead Release Lever and Upper Printhead Release Lever.



F-6-25

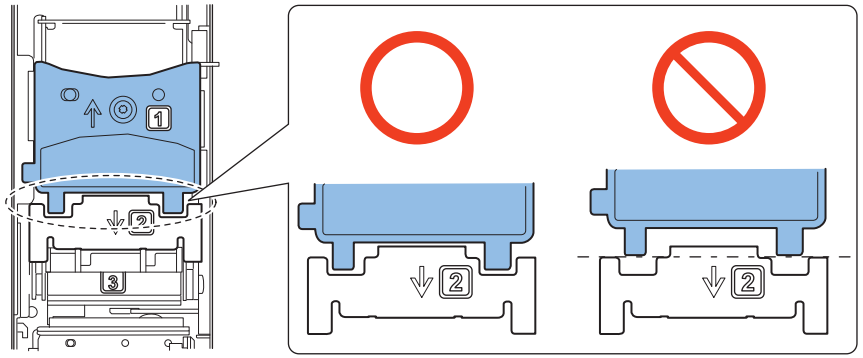
☐
14) Check that numbers [1] , [2], and [3] indicated on Print Module are visible.



F-6-26

NOTE:
If any one of numbers [1] , [2], and [3] is invisible, Printhead Release Lever ([1] ,[2]) has not been closed or Blade Cleaner ([3]) has not been mounted. Follow the steps 12) and 13) again.

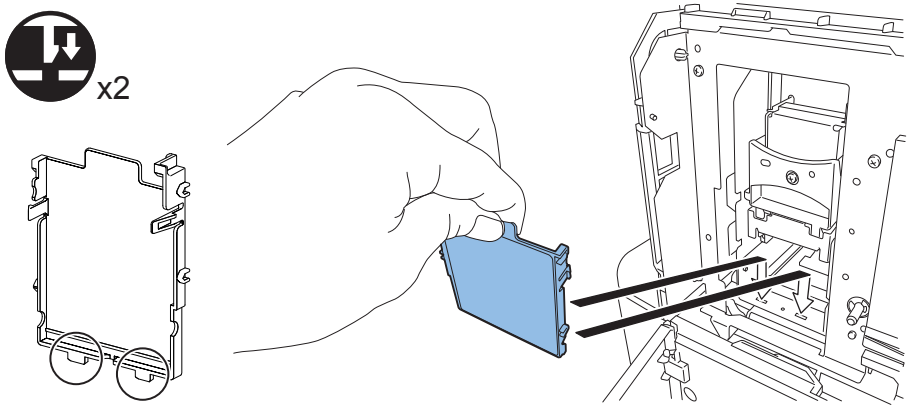
☐
15) Confirm that Upper Printhead Release Lever is firmly closed as shown in the figure.



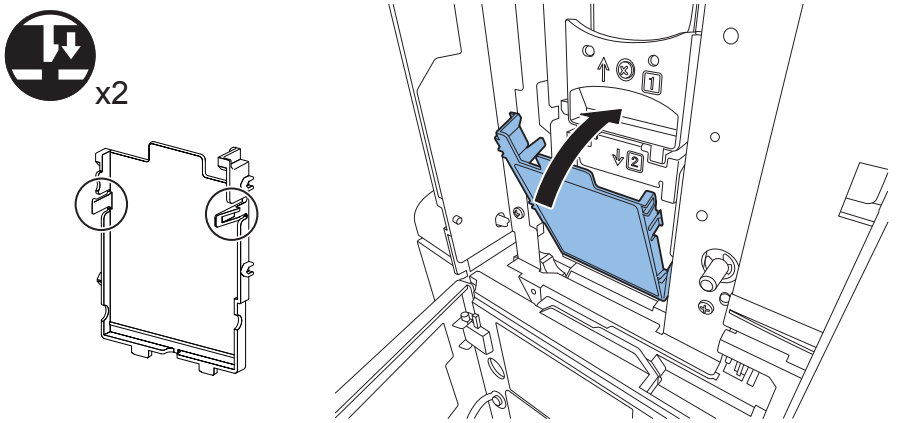
F-6-27

CAUTION:
Improper closing of Upper Printhead Release Lever may cause Printer failure.

☐
16) Attach Print Module Cover to Print Module.



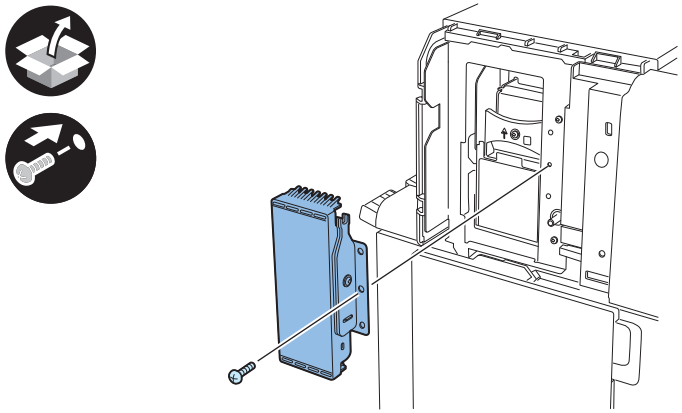
F-6-28



F-6-29

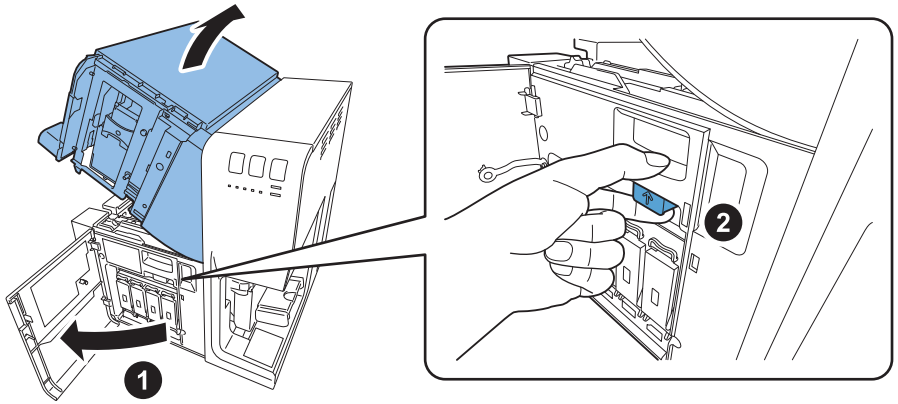
CAUTION:
- Set Print Module Cover surely.
- Confirm that claws are in the rectangular apertures.

☐
17) Install included Service Tool Unit.



F-6-30

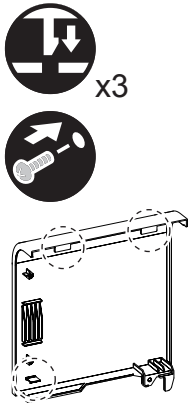
☐
18) Open Upper Unit.

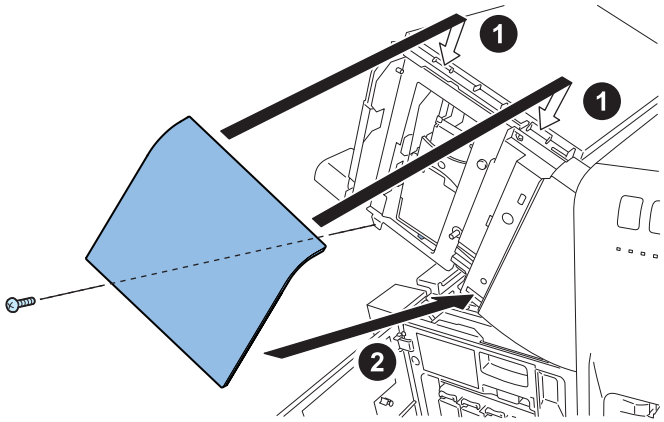


F-6-31

☐
19) Attach Maintenance Cover to Upper Unit.

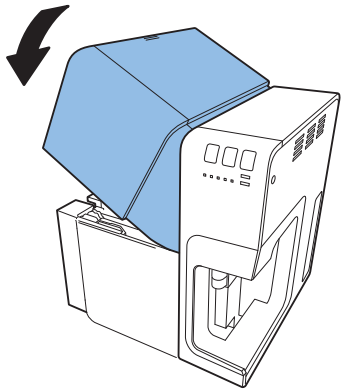
- 1 screw





F-6-32

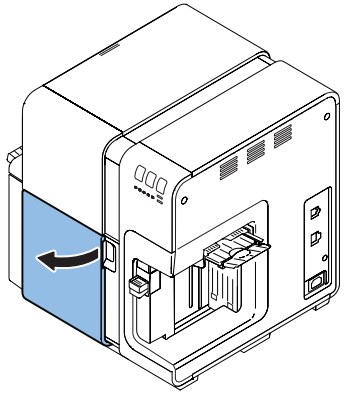
☐
20) Close Upper Unit.



F-6-33

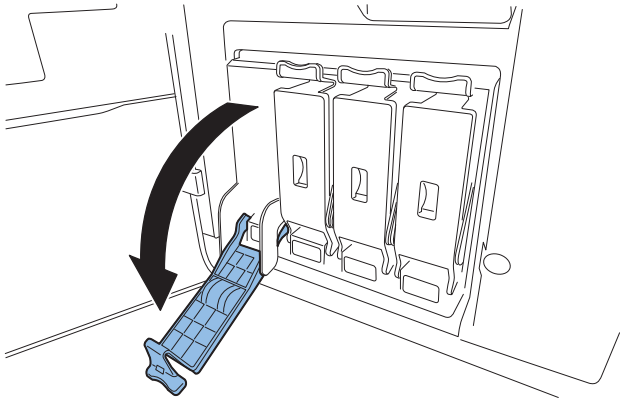
Loading Ink Tanks

☐
1) Open Ink Tank Door.



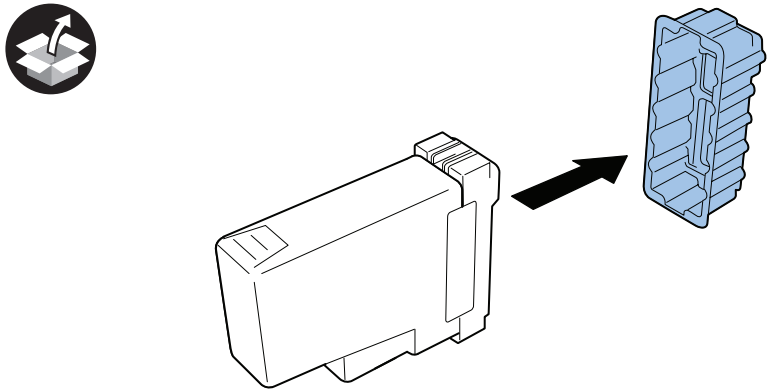
F-6-34

☐
2) Open Ink Tank Lever for each color while pushing it downward.



F-6-35

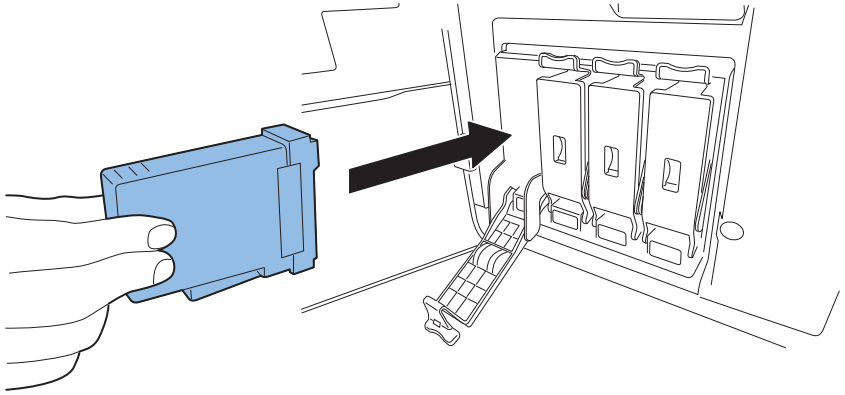
☐
3) Take out included Ink Tanks from the packages, and then remove the cushioning materials.



F-6-36

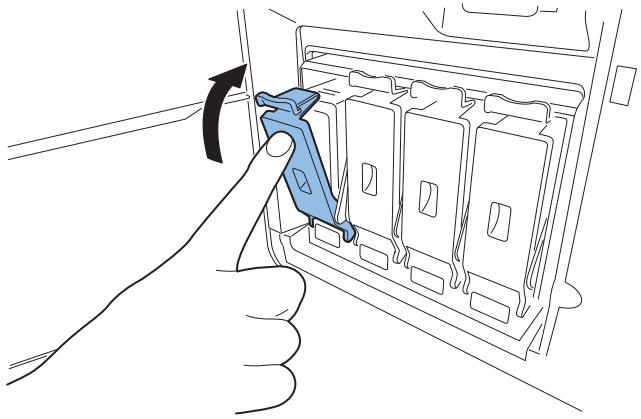
☐
4) Slowly insert Ink Tank as far as it will go.

CAUTION:
Ink Tank cannot be loaded properly if it is inserted in a wrong Ink Tank Slot.



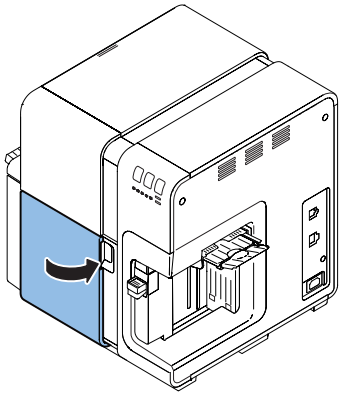
F-6-37

☐
5) Close Ink Tank Lever.



F-6-38

☐
6) Set the rest of Ink Tanks and close Ink Tank Door.

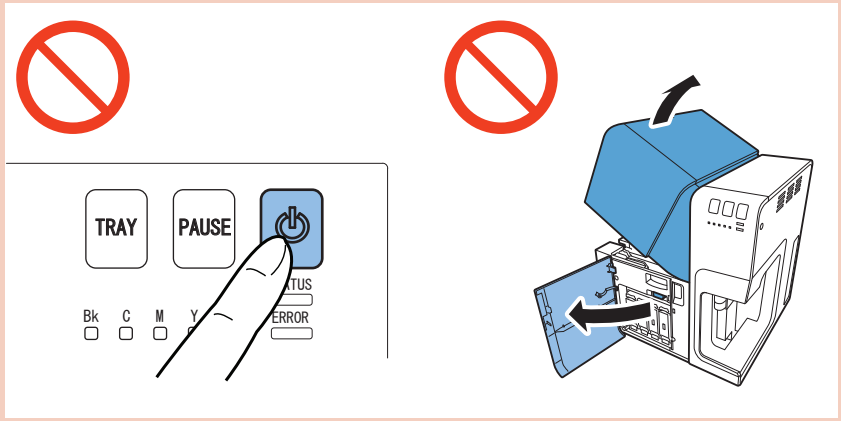


F-6-39

Initial Ink Loading

NOTE:
- Initial ink loading takes about 25 minutes.
- Ink loading time might be changed due to the design change.

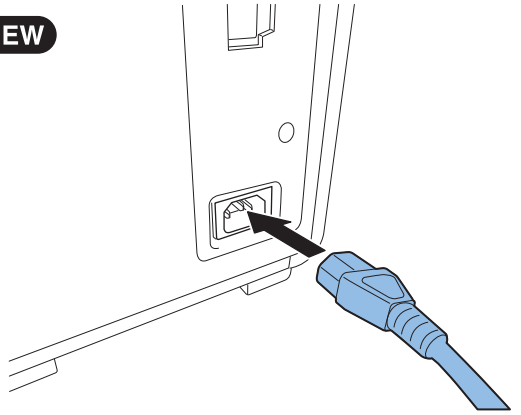
CAUTION:
- Do not turn the power off or open covers and doors during ink loading.
- Should Power Key be switched OFF or covers be opened during ink loading, its operation will be terminated and has to be started from the beginning. In such a case, turn on the power to start ink loading again.
- Restarting the ink loading results in more ink consumption.



F-6-40

☐ 1) Several types of Power Cords come with Printer. Use appropriate Power Cord for the power supply used at the installation site.

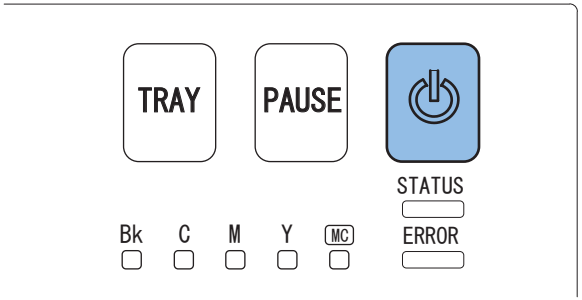
RIGHT VIEW



F-6-41

☐ 2) Connect Power Cord to the outlet.

☐ 3) Turn the power on. STATUS Lamp changes from lit to flashing and initial ink loading starts automatically. When ink loading is complete, STATUS Lamp changes from flashing to lit and a buzzer sounds. Be sure to move to the next step after STATUS Lamp is lit.



F-6-42

Operation Check

After completion of installation, print any image, that is usually used, following the procedure below and check that the printing result is free from faint print and/or color deviation.

1. Install software in Computer and load printing paper that is usually used in Printer.
2. Print any image, that is usually used and check the printing result.

In case the printing result contains faint print and/or color deviation, clean Printhead and/or adjust Printhead position.

Printer Transport Work

Overview

Printer is filled with ink in its Ink Supply System, Imaging System and elsewhere. Implement items suggested below thoroughly and explain to customers fully to prevent ink spills in or outside Printer or to avoid unexpected failures when Printer is transported.

Relocating from One Place to Another on Same Floor or in Same Building

Execute [Indoor Transport Preparation] to clean (suction) remaining ink in Purge Unit to prepare for relocation using printer driver or Service utility.

Set the Indoor Transport Preparation

Printer Driver -> [Printer Properties] -> [Utility]
Service utility > [Cleaning] > [Preparation before transportation] > [Moving the printer]

Long Distance Relocation

Execute [Transport Preparation] from Printer driver or service utility to return ink from Print Module to Ink Tanks for drainage to prepare for relocation. Because Printer needs to be properly packed before it can be relocated long distance, User's Guide recommends that users contact dealer beforehand.

Set the Transport Preparation

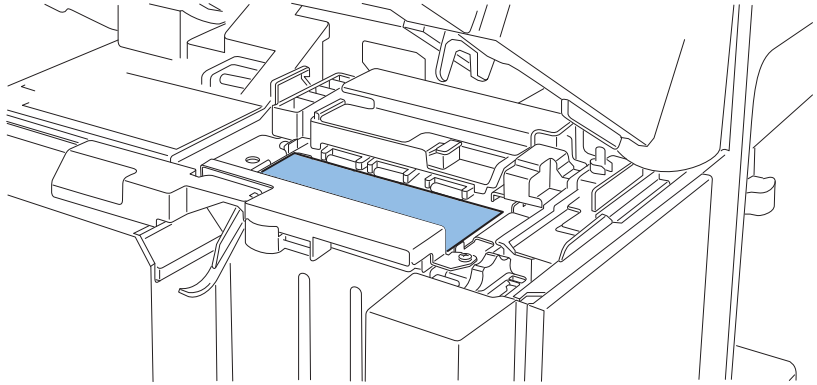
Printer Driver > [Printer Properties] > [Utility]
Service utility > [Cleaning] > [Preparation before transportation] > [Shipping the printer]

CAUTION:

- Remove Ink Tanks and paper before long distance relocation.
- Attach cushioning materials that were kept during installation to transport area when Printer relocates long distance.

Follow the procedure below to pack Printer before long distance relocation.

1) Remove the paper in printer after draining the ink.
2) Set Cleaning Towel on Transport Unit as following figure.



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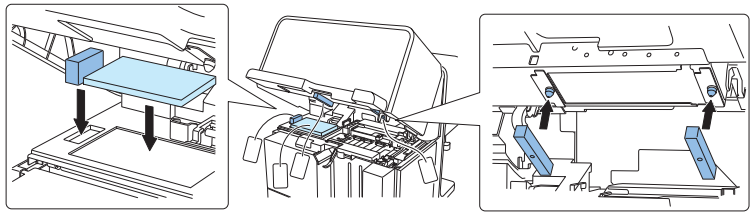
3) Set cushioning materials to Printer as following figure.



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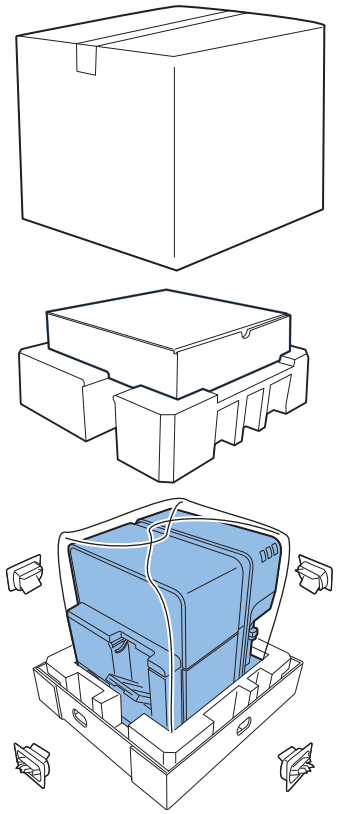
4) Put Ink Tanks and Power Cord in the accessory box. Cover printer with plastic bag and pack Printer as following figure.



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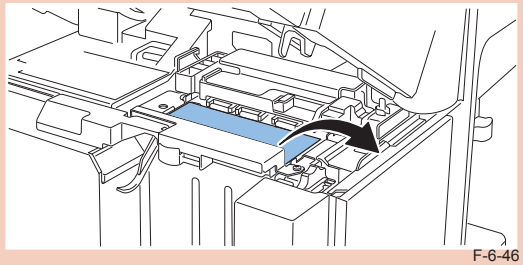
CAUTION:

Reinstalling Print after long distance relocation, remove Cleaning Towel on Transport area and turn on the power.



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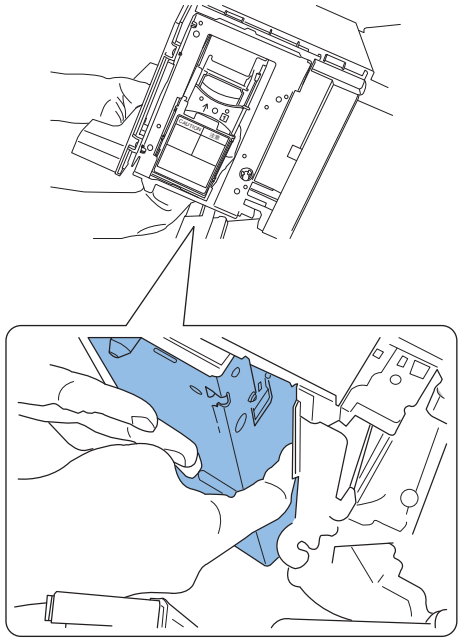
Shipping Preparation When Printer Is in Trouble

Follow the procedure below when Printer in a trouble.

1) Remove Maintenance Cover, open Upper Unit, move Print Module to left side of Printer.



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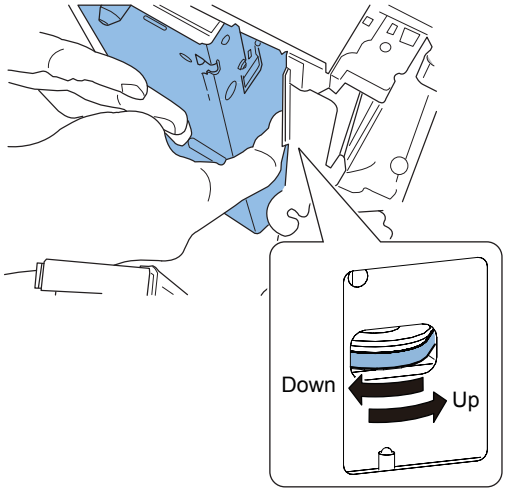
2) Move Printhead upward.



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3) Remove Purge Unit.
4) Pull base plate of Purge Unit forward.
5) Install Purge Unit.
6) Move Printhead to capping position.
7) Remove Ink Tanks and put Cleaning Towel to needles.
8) Remove paper from Printer.
9) Follow the steps 2) to 4) of long distance relocation.

CAUTION:

When covering Printer with a plastic bag, put absorbent towel around Printer to prevent ink from scattering.

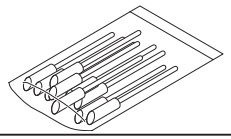
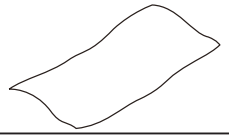
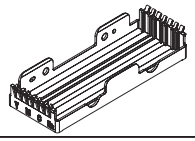
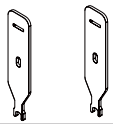
Appendix

- Service Exclusive Tools
- General Circuit Diagram

Service Exclusive Tools

Service Exclusive Tool List

In addition to the standard tools set, the following exclusive tools are required when servicing Printer.

Tool name	Tool No.	Rank (*)	Shape	Uses/Remarks
Cleaning stick (12 pcs/set)	4Y1-9096	A		• Cleaning of face of Printhead (during installation)
Cleaning Towel (100 pcs/set)	4Y1-9003	A		• Cleaning the inside of the printer or wiping up spilled ink.
Printhead Replace Tool	4A3-7892	-		• Standard part of Printer • Printhead replacement
Wrench	4A3-7684	-		• Standard part of Printer • Printhead replacement
Tube	4A3-8036	-		• Standard part of Printer • Printhead replacement

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Meaning of (*)A - C

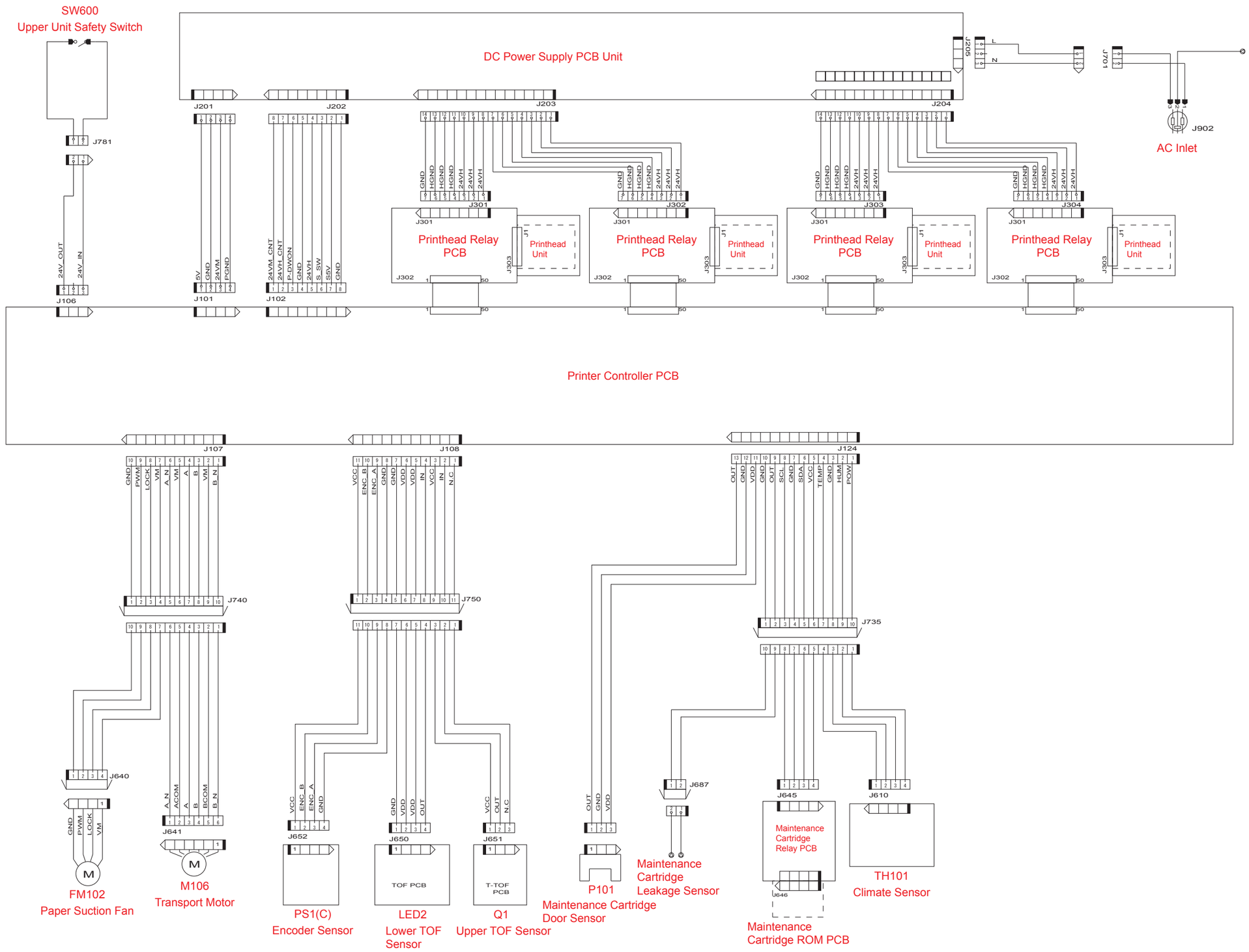
A: Each service engineer is expected to carry one.

B: Each group of 5 service engineers is expected to carry one.

C: Each workshop is expected to carry one.

General Circuit Diagram

General Circuit Diagram (1/4)



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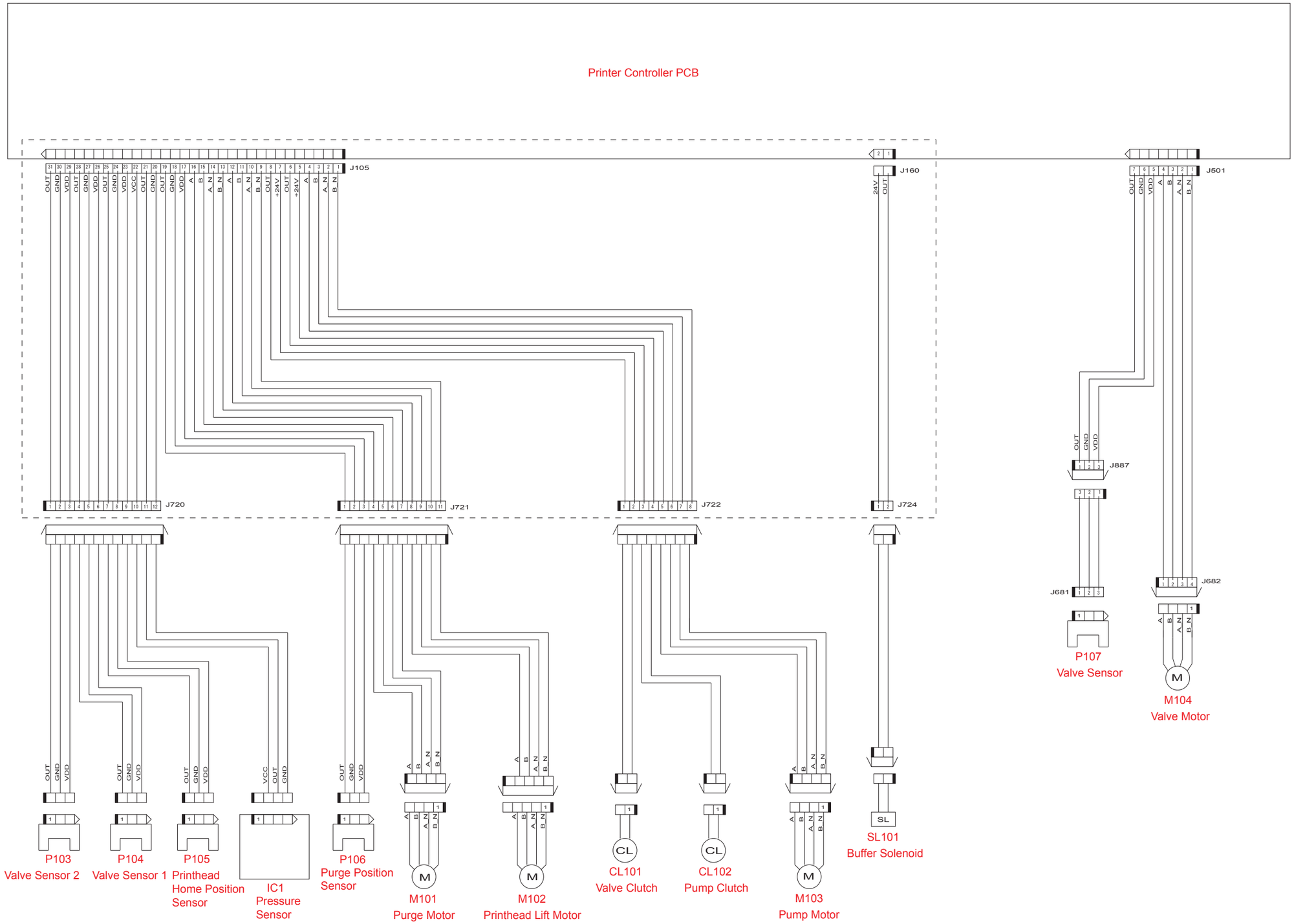
Appendix > General Circuit Diagram > General Circuit Diagram (1/4)

General Circuit Diagram (2/4)

Appendix > General Circuit Diagram > General Circuit Diagram (1/4)



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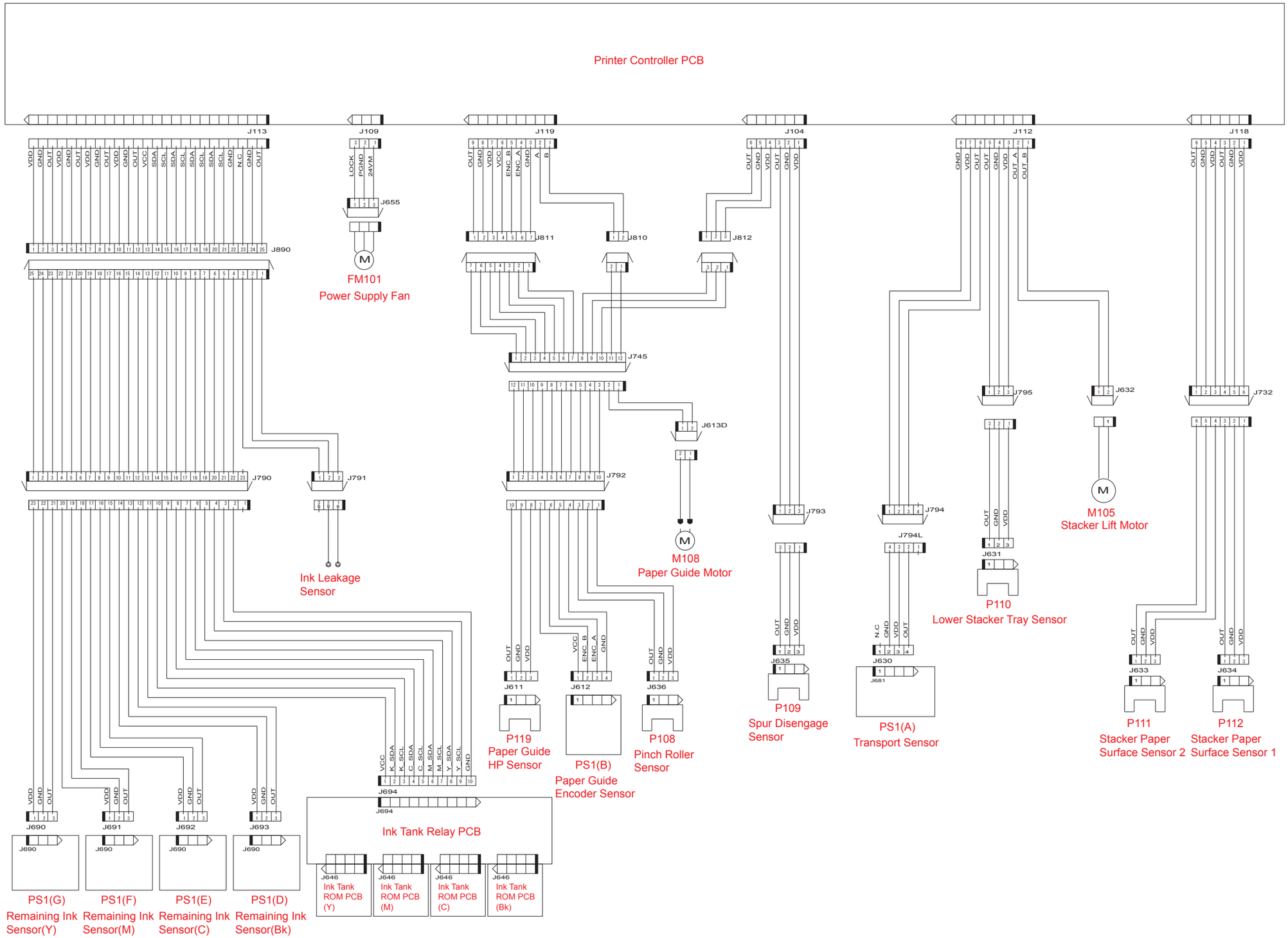
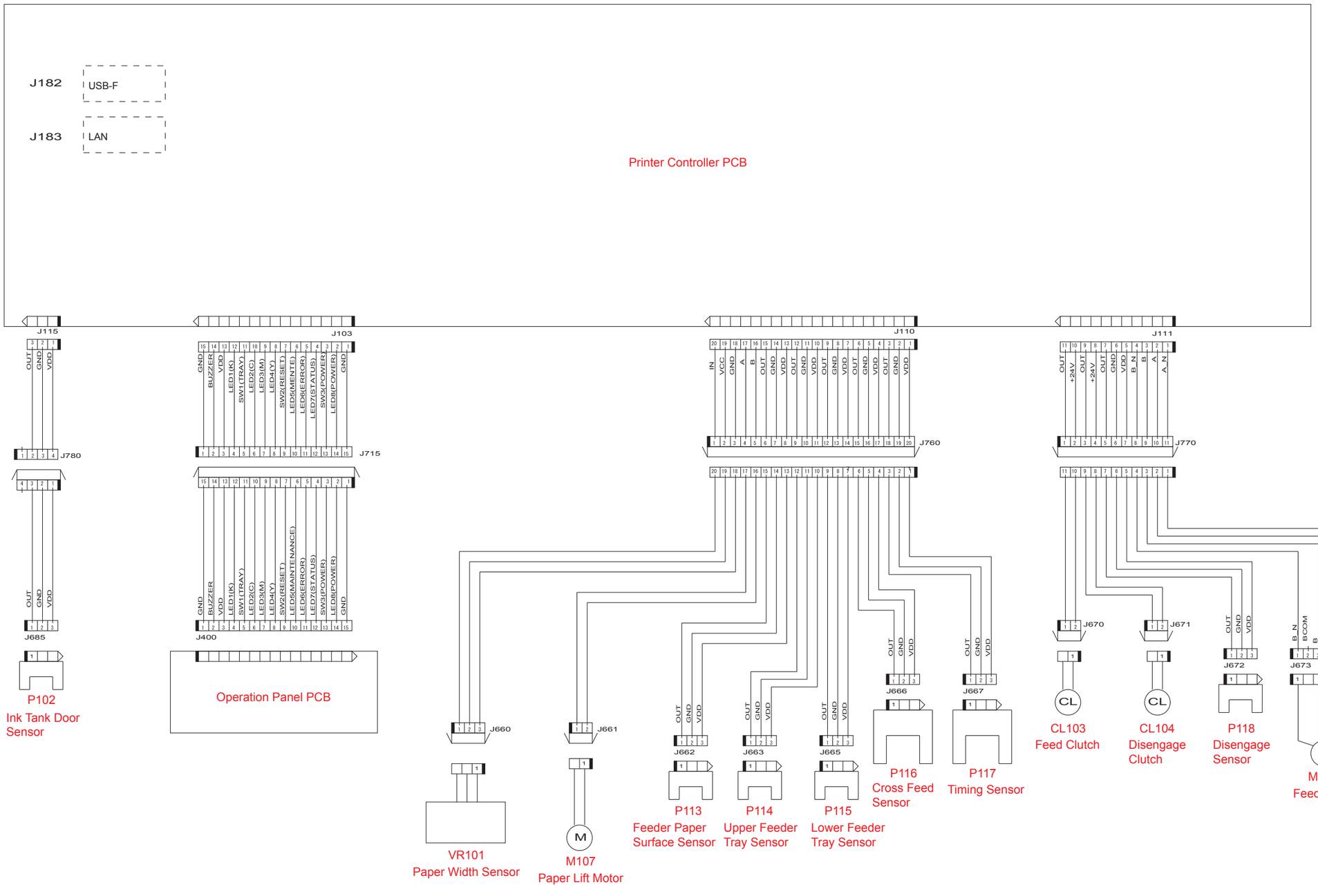
General Circuit Diagram (3/4)



Appendix > General Circuit Diagram > General Circuit Diagram (1/4)

General Circuit Diagram (4/4)



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Appendix > General Circuit Diagram > General Circuit Diagram (1/4)