

**Model MA-P1**  
**Machine Code: M152 /M153**  
**Field Service Manual**

November, 2013



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# Important Safety Notices

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## Caution

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### FCC Statement (USA)

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This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the Operation manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at user's own expense.

In the case where RICOH-recommended cable is not used for connection of this device, limits provided by FCC rules can be exceeded.

To prevent this, use of RICOH-recommended cable is essential for the connection of this printer.

### Interference to televisions and radios

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The product described in this manual generates high frequency when operating.

The product can interfere with radios and televisions if set up or commissioned under improper conditions.

The product is not guaranteed against any damage to specific-purpose radio and televisions.

The product's interference with your radio or television will be checked by turning on/off the power switch of the product.

In the event that the product is the cause of interference, try to eliminate it by taking one of the following corrective measures or taking some of them in combination.

- Change the orientation of the antenna of the television set or radio to find a position without reception difficulty.
- Separate the television set or radio from this product.
- Plug the power cord of this product into an outlet which is isolated from power circuits connected to the television set or radio.

# Safety Precautions

## Symbols

Symbols are used in this Operation Manual for safe operation and for prevention of damage to the machine.

The indicated sign is different depending on the content of caution.

Symbols and their meanings are given below. Please follow these instructions as you read this manual.

## Examples of symbols

Meaning	
 <b>WARNING:</b>	Failure to observe the instructions given with this symbol can result in death or serious injuries to personnel. Be sure to read it carefully and use it properly.
 <b>CAUTION:</b>	Failure to observe the instructions given with this symbol can result in injuries to personnel or damage to property.
 <b>Important</b>	Important notes in use of this machine are given with this symbol. Understand the notes thoroughly to operate the machine properly.
 <b>Note</b>	Useful information is given with this symbol. Refer to the information to operate the machine properly.
	Indicates the reference page for related contents.
	The symbol "△" indicates that the instructions must be observed as strictly as the CAUTION instructions (including DANGER and WARNING instructions). A sign representing a precaution (the sign shown at left warns of hazardous voltage) is shown in the triangle.
	The symbol "⊘" indicates that the action shown is prohibited. A sign representing a prohibited action (the sign shown at left prohibits disassembly) is shown in or around the circle.
	The symbol "●" indicates that the action shown must be taken without fail or the instructions must be observed without fail. A sign representing a particular instruction (the sign shown at left instructs to unplug the cable from the wall outlet) is shown in the circle.

## Warning for Use

⚠ WARNING	
	<ul style="list-style-type: none"> <li>• Do not use the machine in a poorly ventilated room or a closed room.</li> <li>• Be sure to use the optional Rear fan when the machine is used in a poorly ventilated room or a closed room.</li> <li>• Use the attached power cable.</li> <li>• Take care not to damage, break or work upon the power cable. If a heavy material is placed on the power cable, or if it is heated or pulled, the power cable can break, thus resulting in fire or electric shocks.</li> <li>• Avoid locating the machine in a damp environment. Do not splash water onto the machine. Use in such an environment can give rise to fire, electric shocks or breakdown of the machine.</li> <li>• Use of the machine under an abnormal condition where it produces smoke or strange smell can result in fire or electric shocks. If such an abnormality is found, be sure to turn off the power switch immediately and unplug the cable from the wall outlet. Check first that the machine no longer produces smoke, and then contact your distributor or a sales office of RICOH for repair.</li> <li>• Never repair your machine by yourself since it is very dangerous for you to do so.</li> <li>• Never disassemble or remodel the main unit of the machine or the ink cartridge. Disassembly or remodeling can result in an electric shock or breakdown of the machine.</li> <li>• Take care that no dust or dirt sticks to platen heaters. Dust and dirt sticking heaters can cause fire.</li> </ul>
	<p>Hazardous Moving Parts</p> <ul style="list-style-type: none"> <li>• Keep Fingers and Other Body Parts Away</li> </ul>

## Precautions in Use

CAUTION	
<b>Power supply</b>	
	<ul style="list-style-type: none"> <li>• Leave the breaker turned ON.</li> <li>• Do not turn off the main power switch on the right side of this machine.</li> </ul>
<b>Handling of the power cable</b>	

## CAUTION



- Use a power cable attached to this unit.
- Take care not to damage, break or work on the power cable. If a heavy matter is placed on the power cable, heated or drawn, the power cable can break to cause fire or electric shocks.
- Connect to a socket-outlet with determinate polarity.]
- For PLUGGABLE EQUIPMENT, the socket-outlet shall be installed near the equipment and shall be easily accessible.

### Heater



- Do not spill liquid on the platen as this may cause failure of the heater or firing.
- Do not touch platen heaters with bare hand while it is hot; otherwise, you can get burned.



- When the machine is to be moved, wait until the heater temperature drops adequately. As a criterion, wait at least 30 minutes after you turn off the power to the heater. Moving the machine must be limited to on the same floor where there are no steps. When the machine is to be moved to any place other than on the same step-free floor, contact your distributor or a sales office of RICOH.

### Handling of ink



- If you get ink in your eyes, immediately wash your eyes with a lot of clean water for at least 15 minutes. In doing so, also wash eyes to rinse ink away completely. Then, consult a doctor as soon as possible.
- If anyone drinks ink by mistake, keep him or her quiet and see a doctor immediately. Do not allow him or her to swallow the vomit. After that, contact the Poison Control Center.
- If you inhale a lot of vapor and feel bad, immediately move to a location of fresh air and then keep yourself warm and quiet. Then, consult a doctor as soon as possible.

### Note on maintenance



- When cleaning the ink-station or the heads, make sure to wear the attached gloves.

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## CAUTIONS and NOTES

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### Handling of ink cartridges

- Use the genuine ink. Remember that the user shall be filled for a repair to correct any damage resulting from the use of ink other than the exclusive type.
- The machine does not operate with any ink other than the genuine ink.
- Do not use the genuine ink with other printers, as doing so may cause damage to such machines.
- Never refill the ink cartridge with ink. Refilled ink cartridge can cause a trouble. Remember that RICOH assumes no responsibility for any damage caused by the use of the ink cartridge replenished with ink.
- If the ink cartridge is moved from a cold place to a warm place, leave it in the room temperature for three hours or more before using it.
- Open the ink cartridge just before installing it in the machine. If it is opened and left for an extended period of time, normal printing performance of the machine may not be ensured.
- Make sure to store ink cartridges in a cool and dark place.
- Store ink cartridges and waste ink bottle in a place that is out of the reach of children.
- Be sure to thoroughly consume the ink in the ink cartridge, once it is opened, within three months. If an extended period of time has passed away after opening the cartridge tank, printing quality would be poor.
- Neither pounds the ink cartridge nor shakes it violently, as doing so can cause leakage of ink.
- Do not touch or stain the contacts of the ink cartridge, as doing so may cause damage to the print circuit board.
- Waste ink is equivalent to waste oil of industrial waste. Request an industrial waste disposal company for disposal of waste ink.

### Front cover and lever

- Never open the front cover or raise the lever during printing. Opening the cover or raising the lever will abort printing.

### Handling of media

 Warning

- Use media recommended by RICOH to ensure reliable, high-quality printing.
- Set the heater temperature to meet the characteristics of the media. Set the temperature of the Pre-heater, Print heater and Post-heater according to the type and characteristics of the media used. Automatic temperature setting can be made on the operation panel by setting the profile on the dedicated RIP. For setting on the RIP, refer to the instruction manual for your RIP.
- Pay attention to the expansion and contraction of the media. Do not use media immediately after unpacking. The media can be affected by the room temperature and humidity, and thus it may expand and contract. The media have to be left in the atmosphere in which they are to be used for 30 minutes or more after unpacked.
- Do not use curled media. The use of curled media can not only cause a media jam but also affect print quality. Straighten the sheet of media, if significantly curled, before using it for printing. If a regular-sized coated sheet of media is rolled and stored, the coated side has to face outside.
- Do not leave the media with the heater ON for a long time.

**Protection of media from dust**

- Store media in a bag. Wiping off dust accumulated on media will adversely affect the media due to static electricity.
- When leaving the workshop after the working hours, do not leave any media on the roll hanger. If any media is left on the roll hanger, it can get dusty.

 Warning

**Notes on maintenance**

- It is strongly recommended to use the machine in a room that is not dusty.
- Keep the front cover closed even when the machine is not printing. If not, dust can accumulate on the nozzles in the heads.
- Dust in the heads can also cause drops of ink to fall suddenly down on the media during printing. In such a case, be sure to clean up the heads. (See the operation manual.)
- When cleaning the ink-station or the heads, make sure to wear the attached gloves.
- Perform wiping (removal of dust and paper powder) of the capping station and wiper frequently.

**Periodic replacement parts**

- Some parts of this machine must be replaced with a new one periodically by service personnel. Be sure to make a contract with your distributor or dealer for after sale service to ensure a long life of your machine.

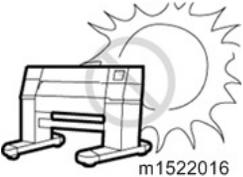
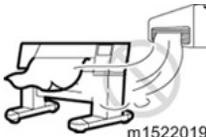
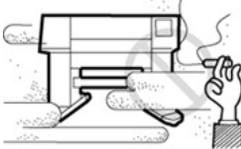
**Disposition of this machine**

**Warning**

- When discarding this machine, request the treatment of it for an industrial waste disposal contractor.
- Treat it properly in compliance with regulation in the local area.

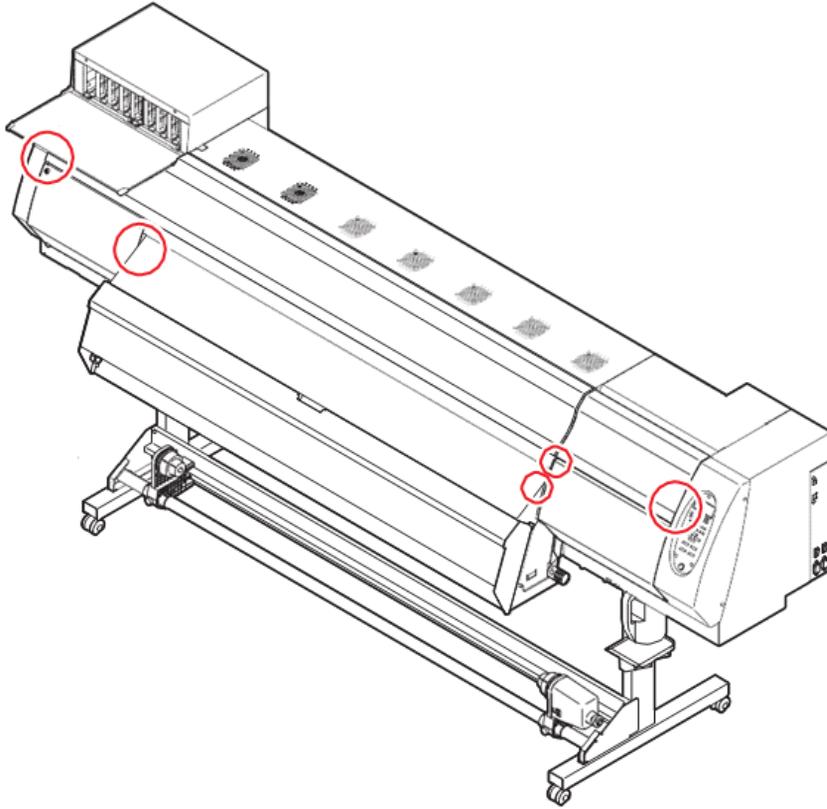
**Cautions on Installation**

**CAUTION**

A place exposed to direct sunlight		On an inclined surface		A place where temperature or humidity varies significantly	
	 m1522016		 m1522017		<ul style="list-style-type: none"> <li>• Use the machine under the following environmental conditions</li> <li>• Operating environment: 20 to 35 °C (68 to 95 °F) 35 to 65 % (Rh)</li> </ul>
A place that vibrates		A place exposed to direct air flow from an air conditioner or the like.		Around a place where fire is used	
	 m1522018		 m1522019		 m1522020

**Safety interlock**

This machine is equipped with interlocks to terminate the operation for your safety when the cover opens during printing etc. (red circle parts in the figure below).



m1522021

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# 1. Product Information

## Basic Specification

### Machine specifications

**Note**

- M: Magenta, C: Cyan, Y: Yellow, K: Black, Or: Orange, G: Green, W: White

Item		M152	M153
Print head	Method	Drop-on-demand piezoelectric print heads	
	Specification	2 head	
Print mode (scan × feed)	4-color	900×900 : Bi/Uni 6/12/24pass * 1 1200×900 : Bi/Uni 6/12/24pass 1200×1200 : Bi/Uni 8/16/32pass	
	6-color 6-color + White	900×900 : Bi/Uni 12/24/48pass * 1 1200×900 : Bi/Uni 12/24/48pass 1200×1200 : Bi/Uni 16/32/64pass	
Ink		M,C,Y, K, Or,G,W	
		4 colors (M,C,Y, K)	
		6 colors (M,C,Or,G,Y,K) 6 colors+W (M,Or,C,G,Y,K,W)	
Ink supply	Supplying from ink cartridges through tubes. Ink cartridge replacement type (8slots)		
Capacity of ink cartridge	4 colors: 1200cc (600cc /×2 cartridges)for each color 6 colors: M,C :1200cc (600cc /×2 cartridges) for each color Or,G,Y,K :600cc (1 cartridge) for each color 6 colors+W: M,C,Or,G,Y,K :600cc (1 cartridge) for each color W :440cc (220cc /×2 cartridges)		

Item		M152	M153
Media type		Thin coat paper/PET/Tarpaulin/Weatherproof PVC/Polyester cloth/Cotton	
Max. printing width		1361mm	1610mm
Roll Media size	Maximum	1371mm	1620mm
	Minimum	210mm	
	Thickness	0.3 mm or less	
	Roll outside diameter	ϕ 180mm or less	
	Roll weight *2	25kg or less	
	Printing surface	Side facing outward	
	Roll end treatment	The roll end is gently fixed to the core with weak-adhesive tape or weak glue for easy removal.	
Leaf media size	Maximum	1371mm	1620mm
	Minimum	210mm	
Print margin	Leaf media	Left end and right end : 15 mm (Default) Front : 150.0 mm Rear : 200 mm	
	Roll media	Left end and right end : 15 mm (Default) Front : 150.0 mm Rear : 0 mm	
Distance accuracy	Absolute accuracy	Whichever the larger one of ± 0.3 mm or ± 0.3 % of the designated	
	Reproducibility	Whichever the larger one of ± 0.2 mm or ± 0.1 % of the designated	
Perpendicularity		± 0.5 mm / 1000 mm	
Media skew		5 mm or less / 10 m variable	
Head height adjustment		L range : 1.8mm M range : 2.3mm H range : 2.8mm	

Item		M152	M153
Cutting of media		Cutting of Y direction by the head cutter, Cutting accuracy (steps): 1.0 mm or less.	
Media delivery		Take-up device supplied as a standard accessory (Switching possible between face in and face out).	
Waste ink bottle		Bottle type ( 2,000 cc)	
Interface		USB 2.0	
Command		MRL- III	
Noise	during standby	Less than 58 dB (FAST-A, Front & Rear & Left & Right 1 m)	
	during continuous printing	Less than 65 dB	
	during discontinuous printing	Less than 75 dB	
Safety Standard		VCCI-Class A, FCC-Class A, UL 60950, CE Marking (EMC, Low Voltage Directive, Machinery Directive), CB Report, RoHS	
Power		AC100 - 120±10%, 15A, 50/60Hz ± 1Hz 2lines AC200 - 240±10%, 10A, 50/60Hz ± 1Hz 2lines	
Power consumption *3		100 – 120V: 1440W ×2 200 – 240V: 1800W ×2	
Recommended Environment	Available temp.	20 °C to 30 °C (68 °F to 86 °F)	
	Humidity	35 to 65% Rh (No condensation)	
	Guaranteed temp.	20 °C to 25 °C (68 °F to 77 °F)	
	Temperature change	± 10 °C (18°F) / h or less	
	Dust	0.15mg/m <sup>3</sup> (Equivalent to normal office level)	
	Highest operation height	2000 m	
Weight		203kg (448lb)	240 kg (530lb)

Item	M152	M153
Outside dimensions	2634 mm(W) × 854 mm(D) × 1435mm(H)	2879 mm(W) × 854mm(D) × 1435mm(H)

- \*1. Depending on the print mode, some pass cannot be selected.
- \*2. Without deflection of the roll when it is retained at both ends.
- \*3. Main unit and heater included.

## Ink specifications

Item	When LX ink is used
Supply	Ink pack (K,C,M,Y,Or,G) Ink cartridge (W)
Color	K,C,M,Y,Or,G,W
Ink capacity	600cc (K,C,M,Y,Or,G) 220cc (W)
Shelf life	1 year from the date of manufacture (at room temperature)
Storage temperature	Storage 0 to 25°C (Average daily temperature) • Be sure to keep a vessel in the airtight condition.
	Transportation -20 to 60°C • Avoid the condition lower than -20 °C and higher than 60 °C.

### ★ Important

1. Do not disassemble ink cartridges and do not refill them with ink.
2. Ink could freeze if kept in a cold place for an extended period.
  - If the ink freezes, thaw it at room temperature (25°C) spending more than three hours before use.
  - When aqueous ink is used, if the ink freezes, the quality is changed and the ink becomes unusable. Store the ink in an environment that will not freeze the ink.

# 2. Installation

## Preparation

### Environment

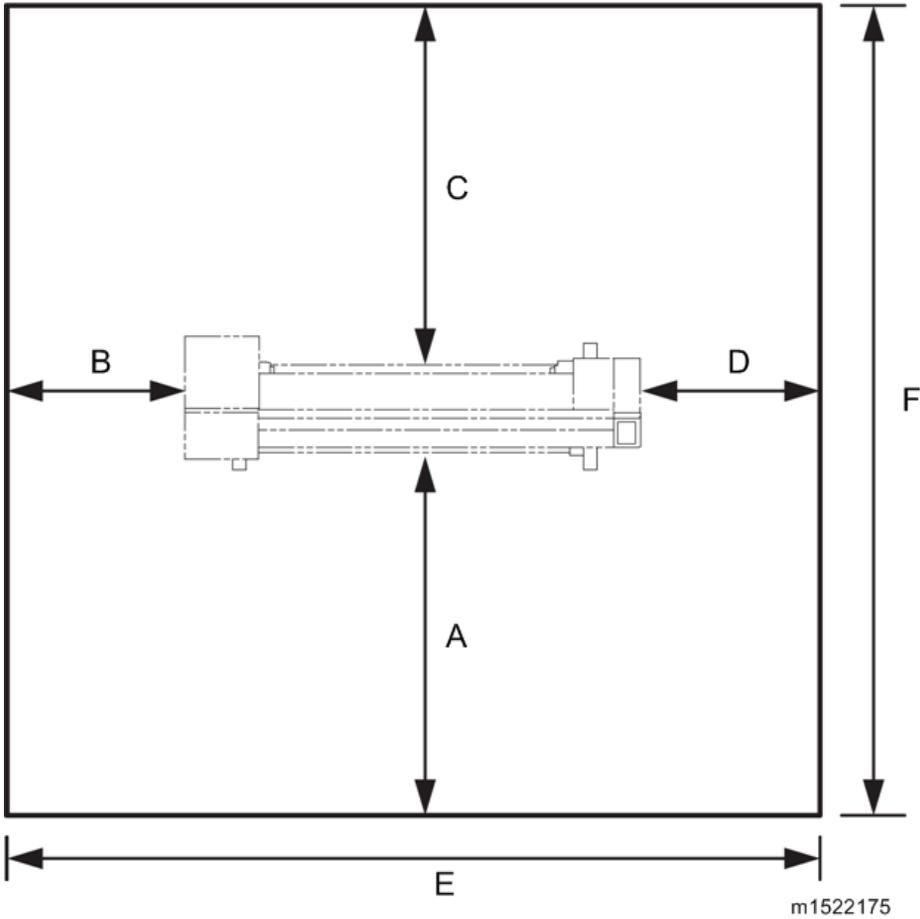
2

Available temp.	20 °C to 30 °C (68 °F to 86 °F)
Humidity	35 to 65% Rh (No condensation)
Guaranteed temp.	20 °C to 25 °C (68 °F to 77 °F)
Temperature change	± 10 °C (18°F) / h or less
Dust	0.15mg/m <sup>3</sup> (Equivalent to normal office level)
Highest operation height	2000 m

### **WARNING**

- Do not use the machine in a poorly ventilated room or a closed room. Provide adequate ventilation during use.
- Depending on the type of media, a smell may occur from an adhesion side of the back of the media in printing.

## Minimum Space Requirements



	space	mm	m	inch	ft	
A	Front	1,000	1.0	39.4	3.3	
B	Left	500	0.5	19.7	1.15	
C	Back	1,000	1.0	39.4	3.3	
D	Right	500	0.5	19.7	1.15	
E	Left - Right + Machine	M152	3,634	3.64	143.3	12.0
		M153	3,879	3.88	152.7	12.8
F	Front - Back + Machine	2,854	2.86	112.6	9.4	

## Machine Level

1. Front to back: Not more than 5 mm from level
2. Right to left: Not more than 5 mm from level

## Power Source

1. Input Voltage Level:
  - North America: 110-120V 15 A or more 60 Hz 2lines
  - Europe, Asia: 220-240V 10A or more 50/60 Hz 2lines
  - Permissible Voltage Fluctuation:  $\pm 10\%$
2. Do not set objects on the power cord.

### ★ Important

- Make sure the plug is firmly inserted in the outlet.
- Do not connect the machine to a power source that is shared with other equipment.
- To prevent damage to the breaker switch, installation of a voltage stabilizer (constant voltage transformer) is recommended for work sites where there is fluctuation in the AC power source.

## Installation Flow

List of work procedure for installation

Step	Work operation	Description	Refer to
1	Unpacking	Unpack the product.	page 44 "Unpacking"
		Check the Accessories	page 26 "Accessories List"

Step	Work operation	Description	Refer to
2	Assemble the machine	Assemble the main unit stand. (Two persons is required)	page 45 "Assembling the Main Unit Stands and the Main Unit"
		Mount the main unit onto the main unit stand. (Required number of people) Four people: To lift and mount the main unit onto the stand. One person (service engineer): To consider alignment of the main unit and the stand.	
		Mount the drying heater assy onto the main unit.	page 59 "Mounting the Drying Heater Assy"
3	Attaching the accessories	Carry out the work to attach the accessories.	page 65 "Mounting the Accessories"
4	Removing the stopper	Remove the stopper.	page 66 "Removing the Stopper"
5	Connecting the power cable	Set the voltage selector and connect the power cable.	page 69 "Power Supply Related"
6	Ink setting	Chang the joints if necessary and assemble the ink cartridge.	page 79 "Ink Set"
7	Setting at start up	Select the language, time and voltage.	page 90 "Setting at Startup"
8	Ink filling	Perform the ink filling.	page 92 "Performing the Initial Ink Fill"
9	Checking the image quality	Check the image quality and machine operation.	page 105 "Image Quality Adjustment"
10	Installing RICOH driver	Install Ricoh driver to RIP PC.	RICOH driver CD
11	Installing RICOH Software RIP	Install Ricoh Software RIP to RIP PC	Ricoh Software RIP CD

Step	Work operation	Description	Refer to
12	Test printing	Print out from RIP.	
13	Instructing daily maintenance	Instruct the daily maintenance to operator.	page 114 "Requests for Daily Care and Maintenance"
14	Instructing RICOH Software RIP	Instruct RICOH Software RIP to operator.	Reference guide

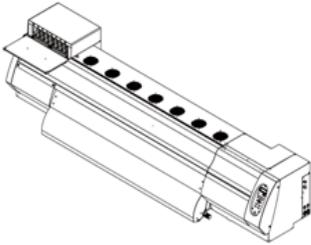
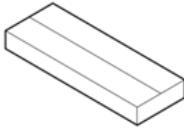
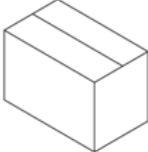
# Accessories List

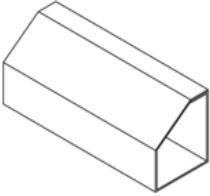
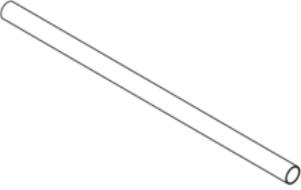
## ⚠ CAUTION

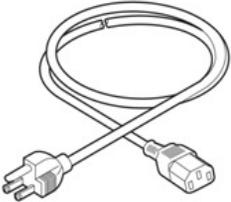
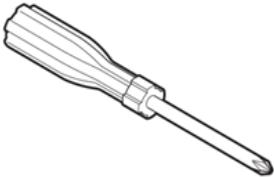
- Plastic bags used in the accessories packaging should be brought back and discarded. Suffocation can result if children wear plastic bags.

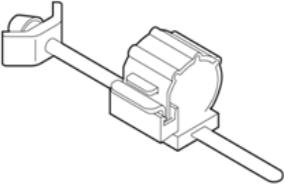
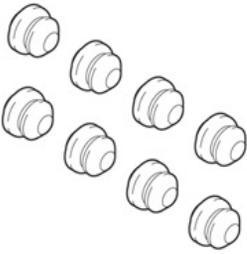
2

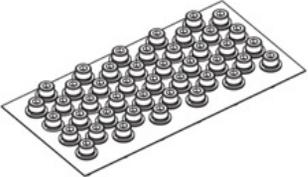
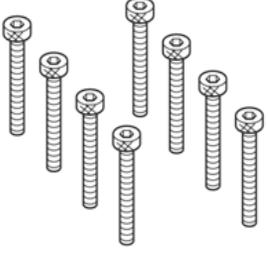
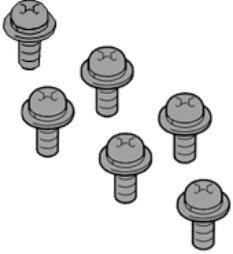
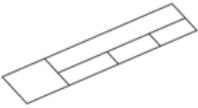
### Main Unit Box

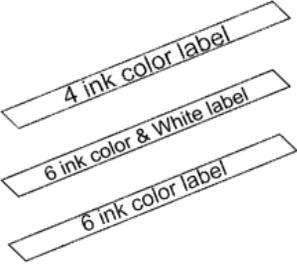
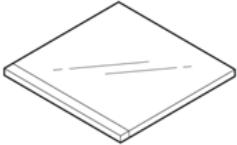
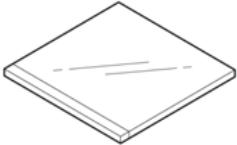
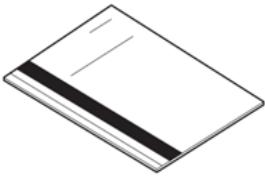
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		Quantity	1
<input type="checkbox"/>	 m1522581	Part Name	Accessories box
		Quantity	1
<input type="checkbox"/>	 m1522582	Part Name	Packing Box A
		Quantity	1

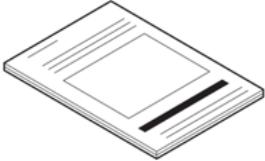
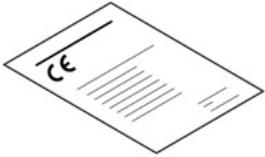
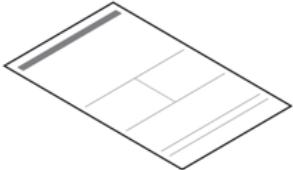
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		Quantity	1
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		Quantity	1

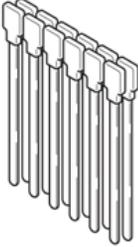
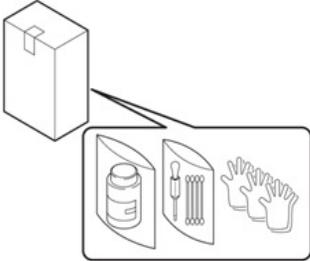
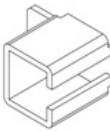
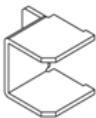
Accessories Box			
<input type="checkbox"/>	 <p>m1522585</p>	Part Name	Power cable
		Quantity	2
<input type="checkbox"/>	 <p>m1522587</p>	Part Name	Phillips screwdriver
		Quantity	1

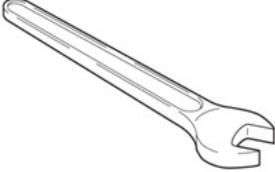
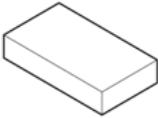
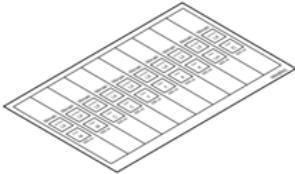
Accessories Box			
<input type="checkbox"/>	 <p>m1522588</p>	Part Name	Hexagonal wrench: s4.0 mm, s5.0 mm
		Quantity	1 each
<input type="checkbox"/>	 <p>m1522589</p>	Part Name	Goggles
		Quantity	1
<input type="checkbox"/>	 <p>m1522590</p>	Part Name	Power cable clamp
		Quantity	2
<input type="checkbox"/>	 <p>m1522591</p>	Part Name	Rubber plugs
		Quantity	8

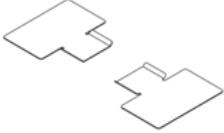
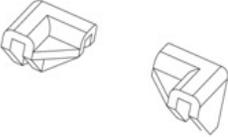
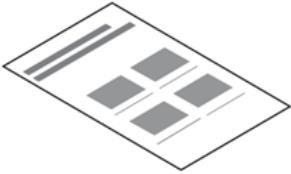
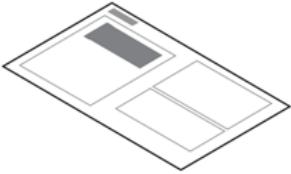
Accessories Box			
<input type="checkbox"/>	 <p>m1522592</p>	Part Name	Screw: CS5×15 SMW *Use the hexagonal wrench: s4.0 mm.
		Quantity	44
<input type="checkbox"/>	 <p>m1522593</p>	Part Name	Stay fixing bolt: CS6×55 *Use the hexagonal wrench:s5.0 mm.
		Quantity	8
<input type="checkbox"/>	 <p>m1522594</p>	Part Name	Screw: P3×8SMW (Black)
		Quantity	6
<input type="checkbox"/>	 <p>m1522597</p>	Part Name	Roll Holder position label
		Quantity	1

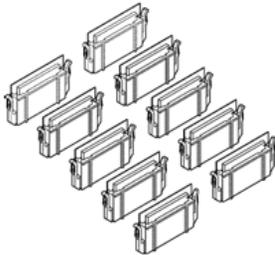
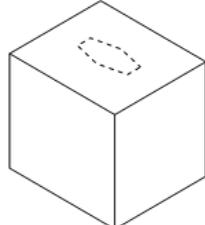
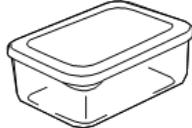
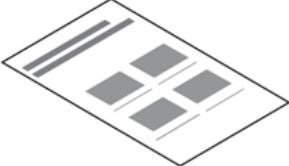
Accessories Box			
<input type="checkbox"/>	 <p>m1522598</p>	Part Name	Color labels
		Quantity	1 each
<input type="checkbox"/>	 <p>m1522599</p>	Part Name	Device Software CD-ROM
		Quantity	1
<input type="checkbox"/>	 <p>m1522600</p>	Part Name	Manual CD
		Quantity	1
<input type="checkbox"/>	 <p>m1522601</p>	Part Name	Safety Precautions
		Quantity	1

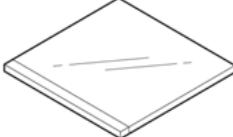
Accessories Box			
<input type="checkbox"/>	 <p>m1522604</p>	Part Name	Request for daily care and maintenance
		Quantity	1
<input type="checkbox"/>	 <p>m1522605</p>	Part Name	CE Marking Traceability Information (M152-27,M153-27 only)
		Quantity	1
<input type="checkbox"/>	 <p>m1522606</p>	Part Name	Note for Media Setting
		Quantity	1
<input type="checkbox"/>	 <p>m1522607</p>	Part Name	Note for Roll Holder Setting
		Quantity	1

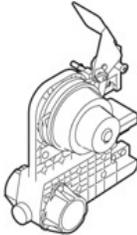
Accessories Box			
<input type="checkbox"/>	 <p>m1522608</p>	Part Name	Pro Cleaning Stick Type A
		Quantity	12
<input type="checkbox"/>	 <p>m1522609</p>	Part Name	Pro Maintenance Kit Type A *Do not use it after expiry date.
		Quantity	1 (Cleaning liquid, pipet, cleaning sticks (small), gloves)
<input type="checkbox"/>	 <p>m1522611</p>	Part Name	Connector guard A
		Quantity	1
<input type="checkbox"/>	 <p>m1522612</p>	Part Name	Connector guard B
		Quantity	1

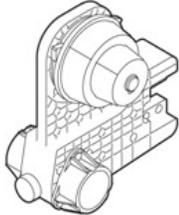
Accessories Box			
<input type="checkbox"/>	 <p>m1522613</p>	Part Name	Spanner
		Quantity	1
<input type="checkbox"/>	 <p>m1522614</p>	Part Name	RICOH Software RIP
		Quantity	1
<input type="checkbox"/>	 <p>m1522615</p>	Part Name	Screw: P4×10SMW (Black)
		Quantity	12
<input type="checkbox"/>	 <p>m1522616</p>	Part Name	Color label for Eco-case
		Quantity	1

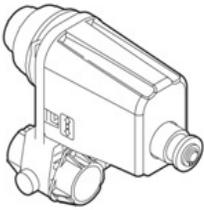
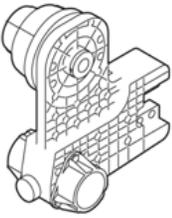
Accessories Box			
<input type="checkbox"/>	 <p>m1522617</p>	Part Name	Media Guide
		Quantity	2
<input type="checkbox"/>	 <p>m1522618</p>	Part Name	Corner Guard
		Quantity	2
<input type="checkbox"/>	 <p>m1522619</p>	Part Name	Caution! Before Starting Power On.
		Quantity	1
<input type="checkbox"/>	 <p>m1522620</p>	Part Name	Printer Setting and Checking Items before Printing
		Quantity	1

Accessories Box			
<input type="checkbox"/>	 <p>m1522595</p>	Part Name	Pro Wiper kit Type A
		Quantity	10
<input type="checkbox"/>	 <p>m1522603</p>	Part Name	KIMWIPE®
		Quantity	1
<input type="checkbox"/>	 <p>m1522610</p>	Part Name	Case
		Quantity	1
<input type="checkbox"/>	 <p>m1522619</p>	Part Name	Change the joints with 6 colors and 6 colors + W ink set
		Quantity	1

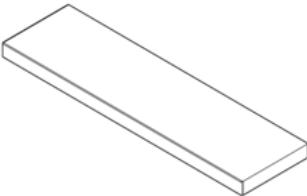
Accessories Box			
<input type="checkbox"/>	 m1522600	Part Name	Maintenance DVD
		Quantity	1

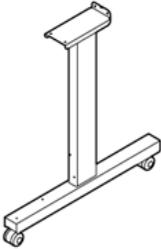
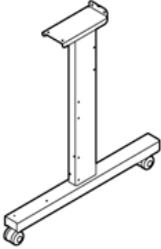
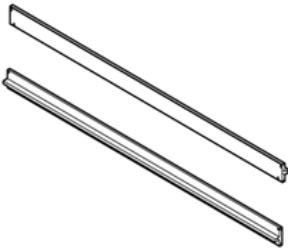
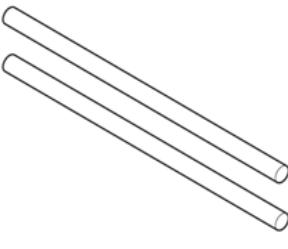
Packing Box A			
<input type="checkbox"/>	 m1522621	Part Name	Right roll holder
		Quantity	1

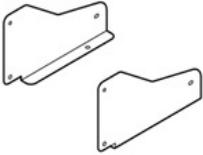
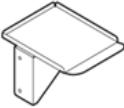
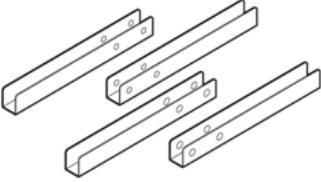
Packing Box B			
<input type="checkbox"/>	 m1522622	Part Name	Left take-up device unit
		Quantity	1

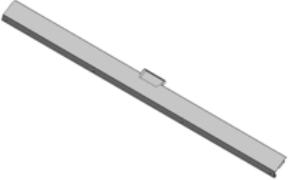
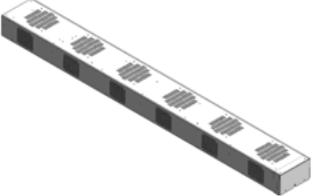
Packing Box B			
<input type="checkbox"/>	 <p>m1522623</p>	Part Name	Right take-up device unit
		Quantity	1
<input type="checkbox"/>	 <p>m1522624</p>	Part Name	Left roll holder
		Quantity	1

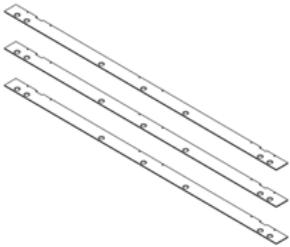
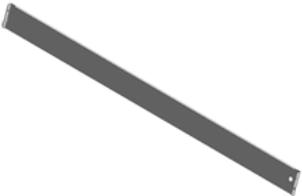
**Stand Packing Box**

<input type="checkbox"/>	 <p>m1522625</p>	Part Name	Stand Packing Box
		Quantity	1

Stand Packing Box			
<input type="checkbox"/>	 <p>m1522626</p>	Part Name	Left stand
		Quantity	1
<input type="checkbox"/>	 <p>m1522627</p>	Part Name	Right stand
		Quantity	1
<input type="checkbox"/>	 <p>m1522628</p>	Part Name	Stand stay
		Quantity	2
<input type="checkbox"/>	 <p>m1522629</p>	Part Name	Roll guide
		Quantity	2

Stand Packing Box			
<input type="checkbox"/>	 <p>m1522630</p>	Part Name	Pro Waste Ink Bottle Type A
		Quantity	1
<input type="checkbox"/>	 <p>m1522631</p>	Part Name	Roll guide BKT 200A and 200B
		Quantity	2 each
<input type="checkbox"/>	 <p>m1522632</p>	Part Name	Waste ink bottle tray
		Quantity	1 each
<input type="checkbox"/>	 <p>m1522633</p>	Part Name	Stay 2
		Quantity	4

Stand Packing Box			
<input type="checkbox"/>	 <p>m1522634</p>	Part Name	Heater cover U
		Quantity	1
<input type="checkbox"/>	 <p>m1522635</p>	Part Name	Drying heater Assy
		Quantity	1
<input type="checkbox"/>	 <p>m1522636</p>	Part Name	Dry fan side plate L
		Quantity	1
<input type="checkbox"/>	 <p>m1522637</p>	Part Name	Dry fan side plate R
		Quantity	1

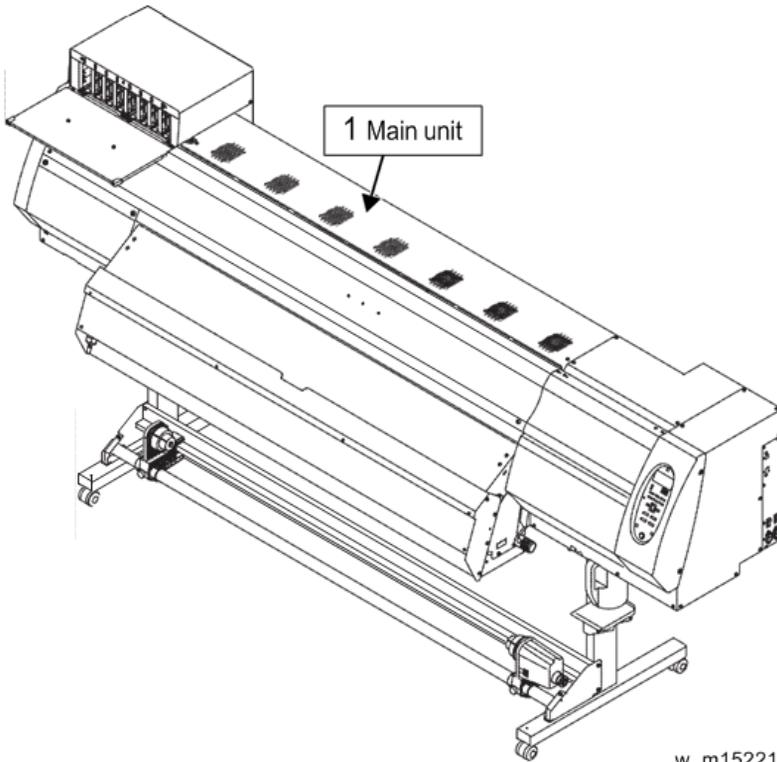
Stand Packing Box			
☐	 <p>m1522638</p>	Part Name	Roll guide shaft holding plate
		Quantity	4
☐	 <p>m1522639</p>	Part Name	Stand reinforcement plate
		Quantity	2
☐	 <p>m1522640</p>	Part Name	Sheet Holder
		Quantity	M152:3, M153:4
☐	 <p>m1522665</p>	Part Name	Heater Skirt
		Quantity	1

# Printer Assembly

## ⚠ CAUTION

- To avoid serious injury or the machine damage, do not plug in the machine until you are instructed to do so in this installation procedure.

2



w\_m1522176

1	Main Unit
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### List of work procedures

Step	Work operation	Description	Refer to
1	Unpacking	Unpack the product.	page 44 "Unpacking"
		Check the Accessories	page 26 "Accessories List"

Step	Work operation	Description	Refer to
2	Assemble the machine	Assemble the main unit stand. (Two persons is required)	page 45 "Assembling the Main Unit Stands and the Main Unit"
		Mount the main unit onto the main unit stand.  (Required number of people)  Four people: To lift and mount the main unit onto the stand.  One person (service engineer): To consider alignment of the main unit and the stand.	
		Mount the drying heater assy onto the main unit.	page 59 "Mounting the Drying Heater Assy"
3	Attaching the accessories	Carry out the work to attach the accessories.	page 65 "Mounting the Accessories"
4	Removing the stopper	Remove the stopper.	page 66 "Removing the Stopper"

### CAUTION

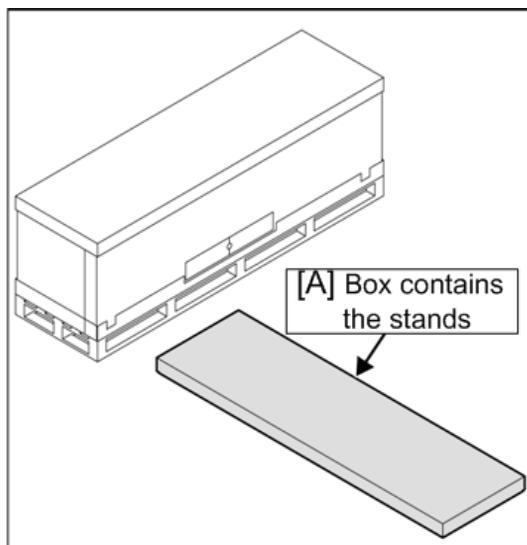
- In order to prevent accidental cuts, always wear gloves when performing disassembly and assembly work.
- When carrying out the work, ensure that there is sufficient surrounding space, and install in a stable location.
- This product is extremely heavy (M152: 203kg (448lb), M153: 240 kg (530lb)). Take great care when handling the product.
- Do not install the machine in the room or area using (photographic) fixing solution or acid solution (acetic acid, hydrochloric acid). An irrecoverable deflection or nozzles missing occur in the machine by chemical effect of above solution.

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## Unpacking

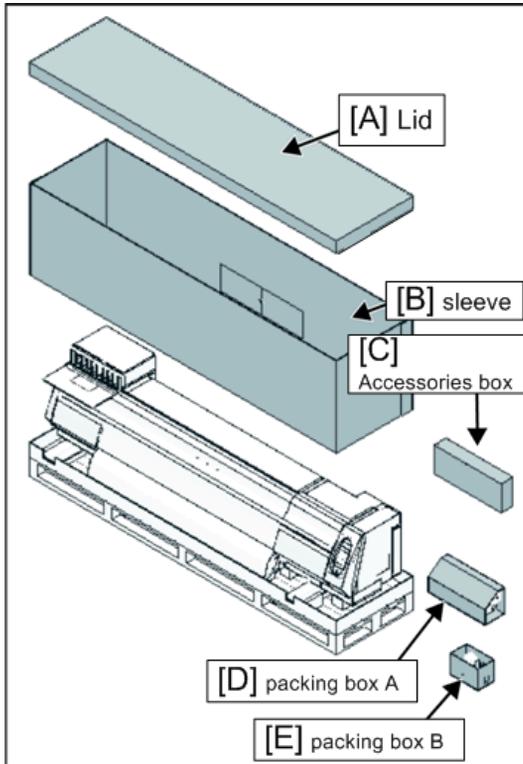
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1. Lift down the carton which contains the stands [A].



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2. Remove the lid [A] and sleeve [B] of the box that packages the main unit, and take out the Accessories box [C], packing box A [D], and packing box B [E].



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**★ Important**

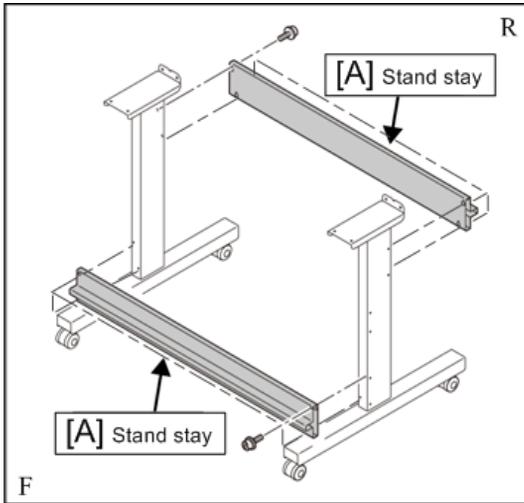
- Because of the small clearance between the main unit and sleeve, lift the sleeve up vertically to avoid touching the main unit.

## Assembling the Main Unit Stands and the Main Unit

1. Fix the Stand stay [A] to the stand.

Screw: CS5 × 15SMW × 8

Loosen the screws by 1/2 turn, after tightening them.



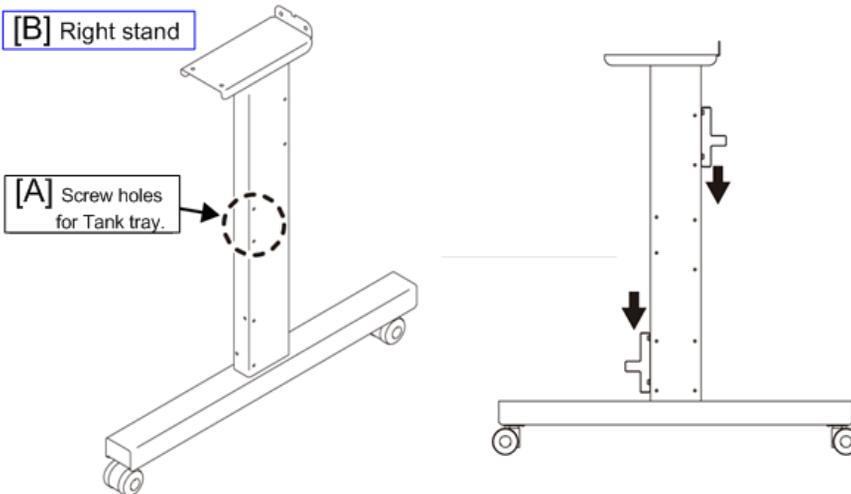
w\_m1522179

R: Rear

F: Front

**Note**

- The stand having the screw holes [A] to fix the bottle tray is the right stand [B].
- Hold down the stand stay and fix it.



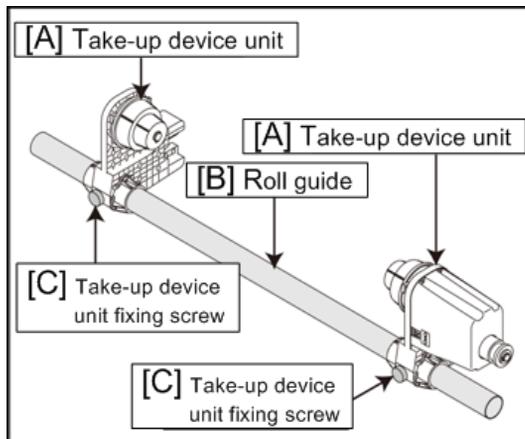
w\_m1522715

**Important**

- Use the hexagonal wrench.
- For the bottle tray, make sure that the bottle tray is assembled after the assembling of accessories is completed. Otherwise, it may cause an injury by catching a foot or so.

## 2. Assembling Take-up device unit.

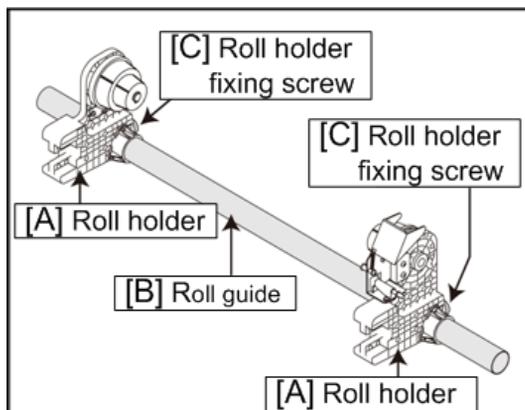
Put the take-up device units [A] on the roll guide [B], and tighten the take-up device unit fixing screws [C].



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## 3. Assembling Roll holder.

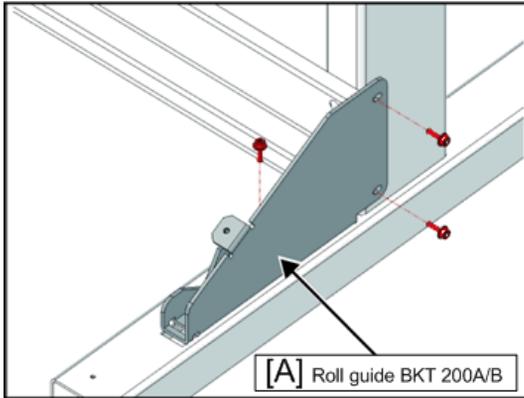
Put the roll holders [A] on the roll guide [B], and tighten the roll holder fixing screws [C].



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## 4. Attach the Roll guide BKT 200A/B [A] on the Stand. (Right and left)

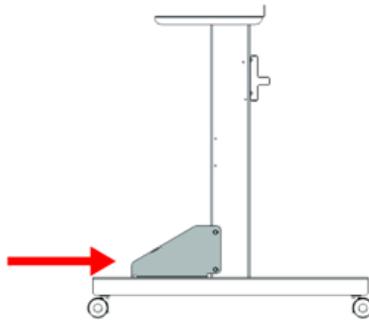
Screw: CS5x1.5SMW ×6



w\_m1522184

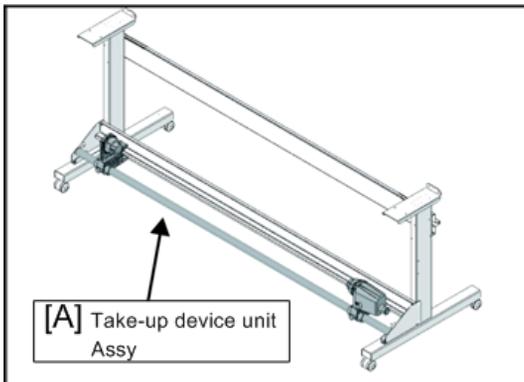
**★ Important**

- When attaching the Roll guide BKT 200A/B, tighten the screw while pushing the Roll guide BKT 200A/B to the direction with an arrow.



w\_m1522185

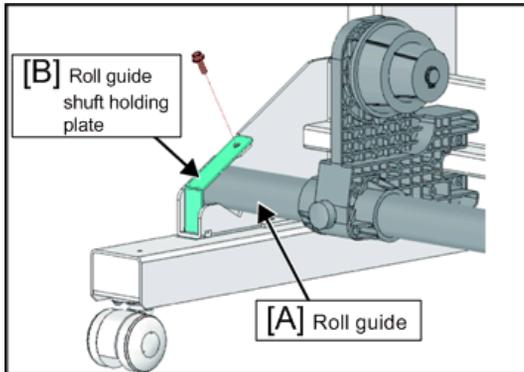
5. Mount the take-up device unit Assy [A] on the Roll guide BKT 200A/B.



w\_m1522186

6. Fix the Roll guide [A] with the Roll guide shaft holding plate [B]. (Right and left)

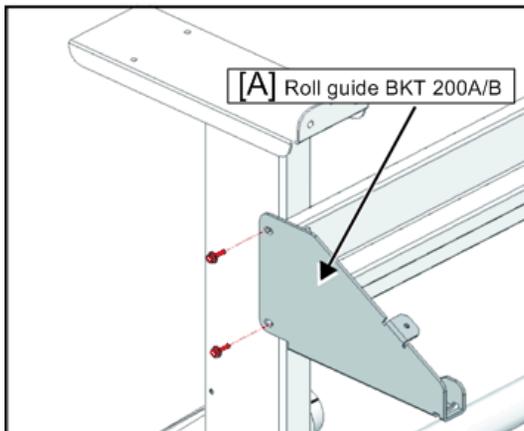
Screw: CS5×15 SMW ×2



w\_m1522187

### 7. Attach the Roll guide BKT 200A/B [A] on the Stand.

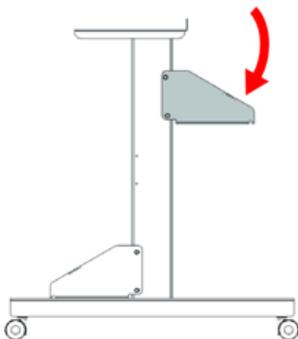
Screw: CS5x15SMW ×4



w\_m1522188

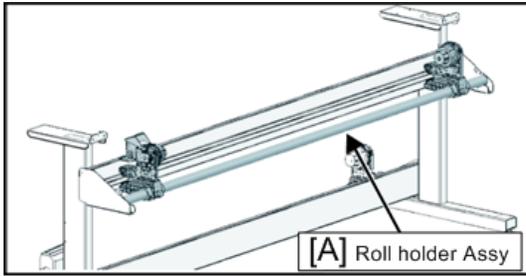
#### ★ Important

- When attaching the Roll guide BKT 200A/B, tighten the screw while pushing the Roll guide BKT 200A/B to the direction with an arrow.



w\_m1522189

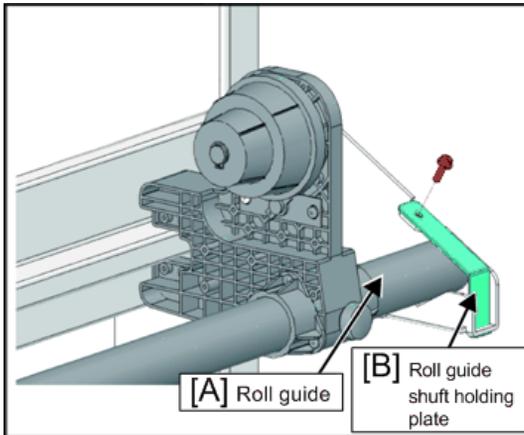
8. Mount the Roll holder Assy [A] on the Roll guide BKT 200A/B.



w\_m1522190

9. Fix the Roll guide [A] with the Roll guide shaft holding plate [B]. (Right and left)

Screw: CS5×15 SMW × 2

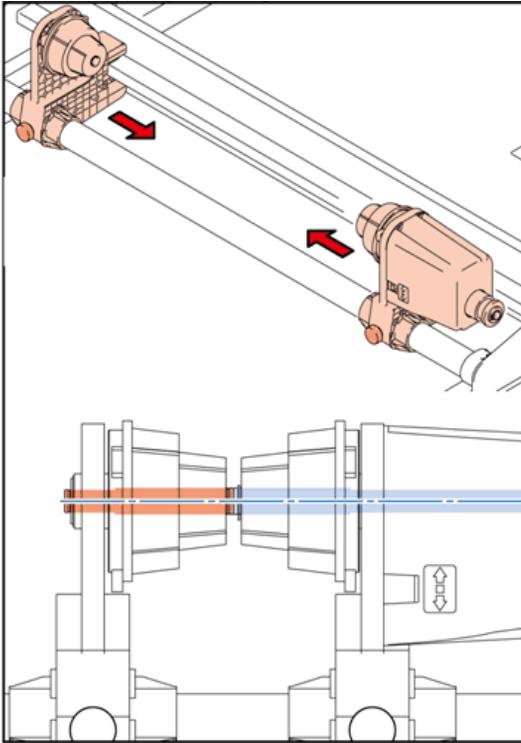


w\_m1522191

10. Move the roll holders to the center of the unit.

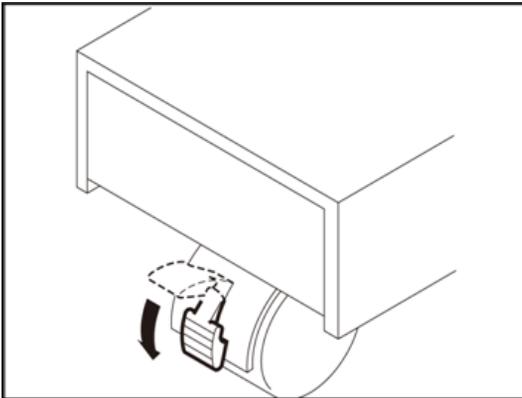
↓ Note

- Keep on having put the roll holder to the center until putting a main unit on the stands.



w\_m1522575

**11. Lock the four stoppers of the stand.**

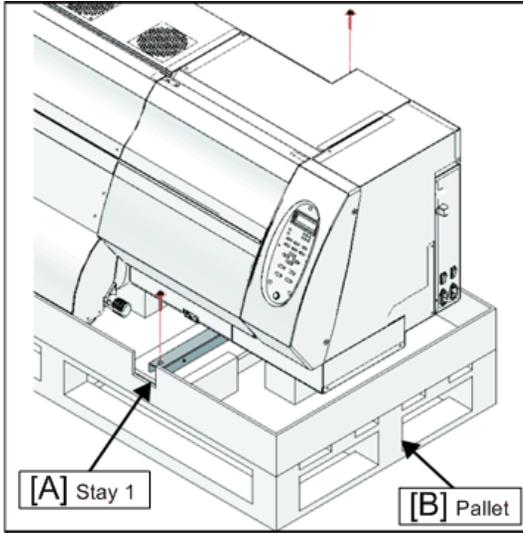


m1522192

**12. Remove bolts of the stay 1 [A] of both sides of the main unit.**

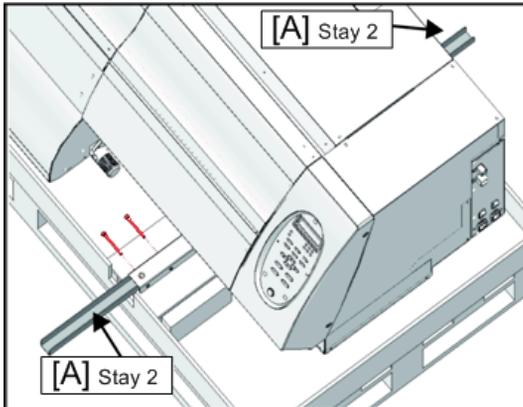
The Main unit is fixed to the pallet [B].

Release the Main unit by removing the bolts.



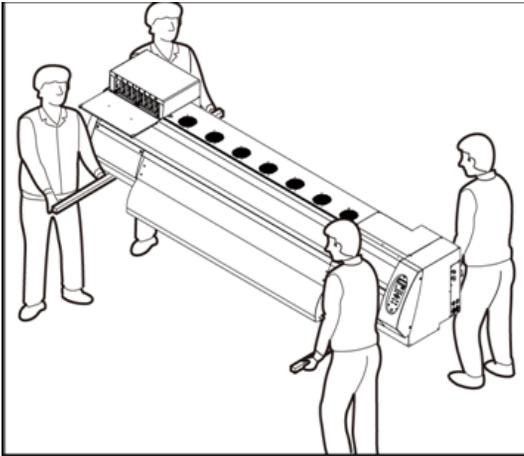
w\_m1522193

13. Using screws (CS6×55, 8pcs), attach the stay2 [A] to the main unit.



w\_m1522194

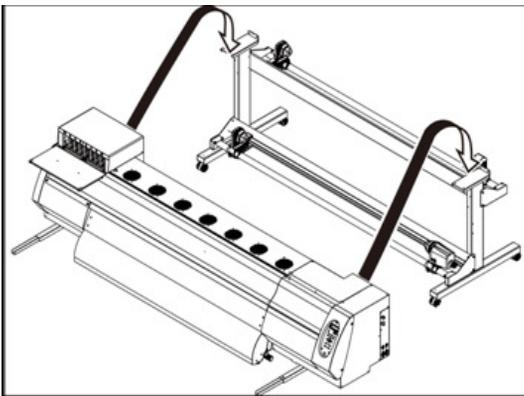
14. Hold the handles of the main unit by four people.



m1522195

15. Put the front face of the stand first.

Align the screw hole of the stand and that of the main unit.

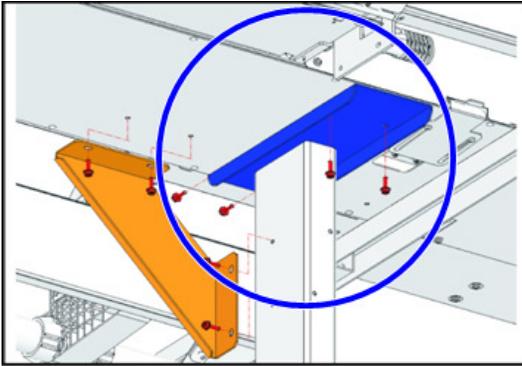


m1522196

16. Fix the legs on the main unit with the screws (CS5 × 15SMW 8pcs).

↓ Note

- Tighten the screws after adjusting the screw holes.



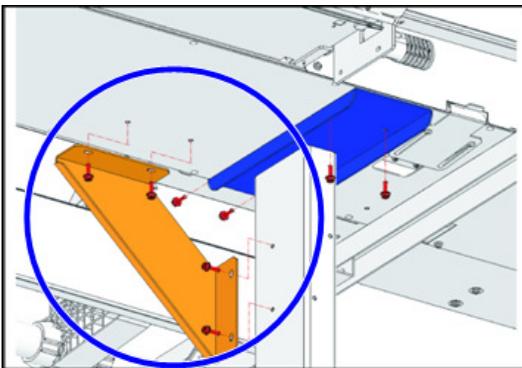
m1522197

**17. Attach the Stand reinforcement plate. (Right and left)**

Screw: CS5×15 SMW, 8pcs

**Note**

- Tighten the screws after adjusting the screw holes.



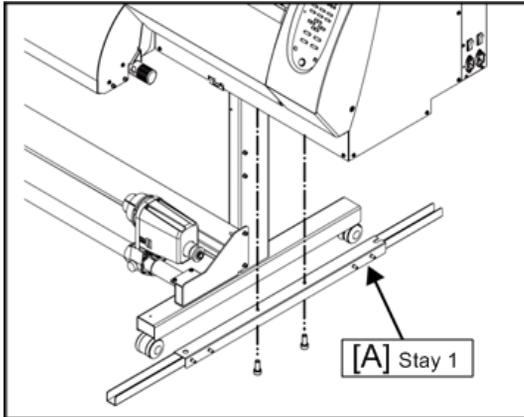
m1522641

**18. Fully tighten the screws used in step 1 and check the other screws are also tightened.**

**19. Remove two screws each from the right and left sides and detach the Stay1 [A].**

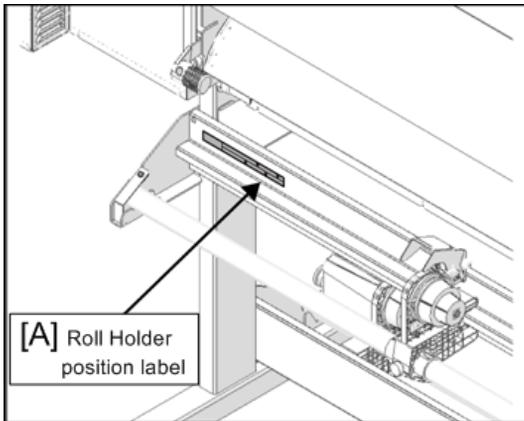
**Note**

- The Stay1 is sometimes required for transporting this printer. Thus, store the Stay1 and the screws on the customer's premises. (Stay1×2, ×4)

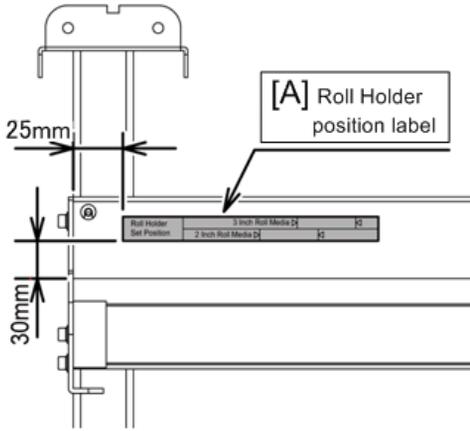


w\_m1522199

20. Paste the Roll Holder position label [A].



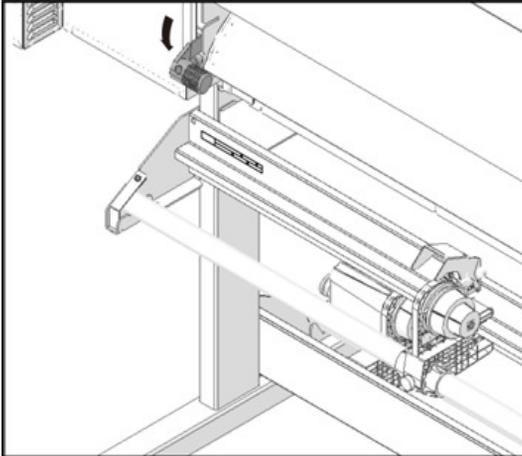
w\_m1522201



w\_m1522202

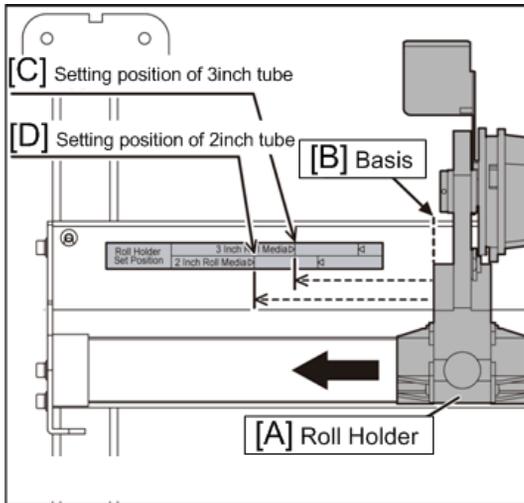
**21. Check Clamp Lever is lowered.**

When Clamp Lever is lifted, push it down.



m1522203

22. Move Roll Holder [A] to the roll setting position.



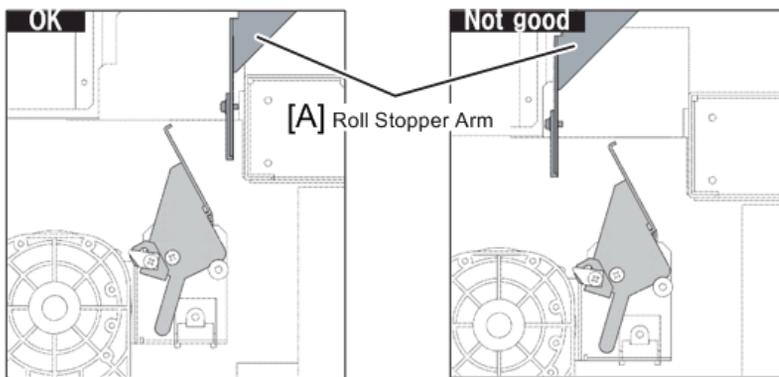
w\_m1522204

[B]: Basis

[C]: Setting position of 3inch tube

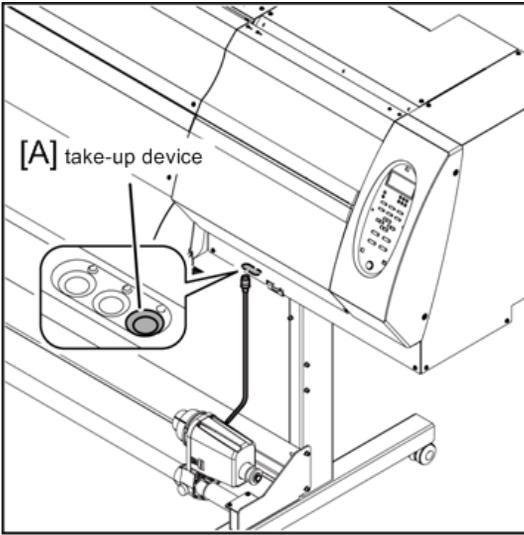
[D]: Setting position of 2inch tube

23. Check the position of Roll Stopper Arm [A].



w\_m1522205

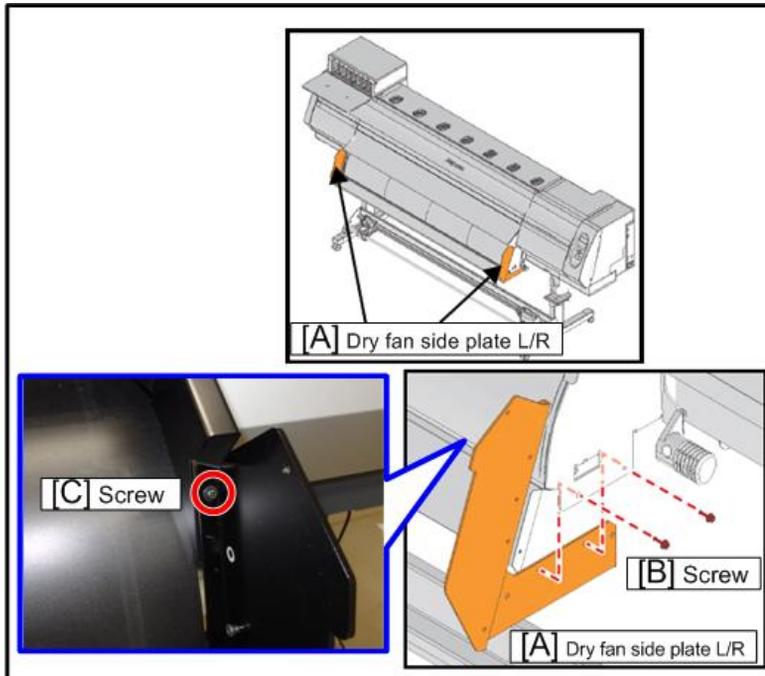
24. Connect the cable of the take-up device [A] to the connector at the bottom of the plotter.



w\_m1522206

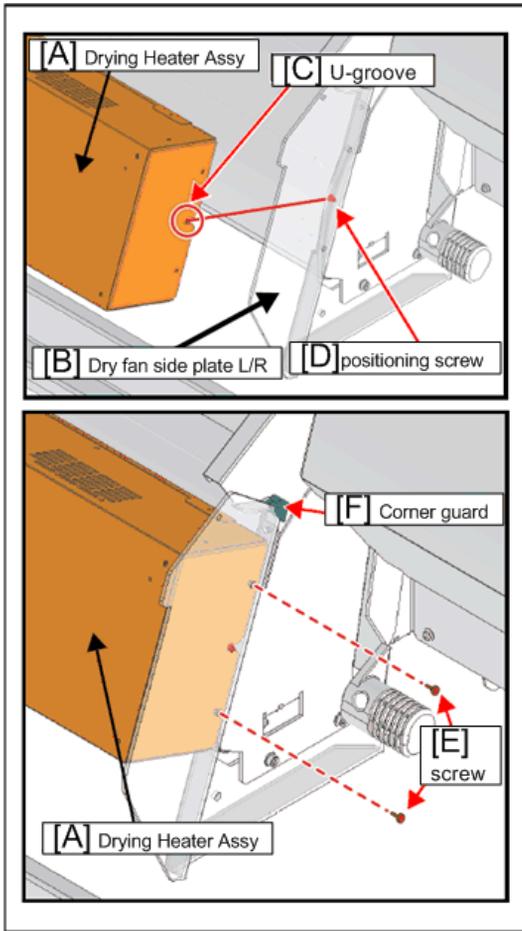
## Mounting the Drying Heater Assy

1. Attach the Dry fan side plate (Right and left) [A].( each 2 screws(CS5×15SMW) [B] ,each a screw (P4×10SMW)[C] )



w\_m1522207

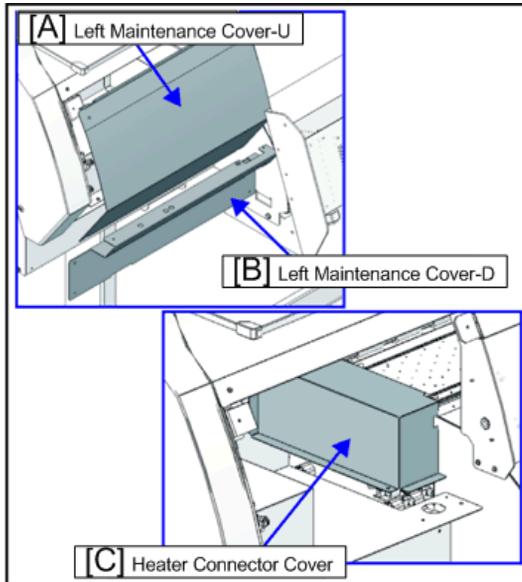
2. Fix the Drying Heater Assy [A] on the Dry fan side plate L/R [B] (Right and left).
  1. Hook the U-groove [C] of the Drying Heater Assy on the positioning screw [D] of the Dry fan side plate L/R and set.
  2. With a screw (P4×10SMW, 4pcs) [E], fix Drying Heater Assy (Right and left).
  3. Attach the Corner guard [F] (Right and left).



w\_m1522208

**3. Remove three covers below.**

1. Left Maintenance Cover-U [A]
2. Left Maintenance Cover-D [B]
3. Heater Connector Cover [C]

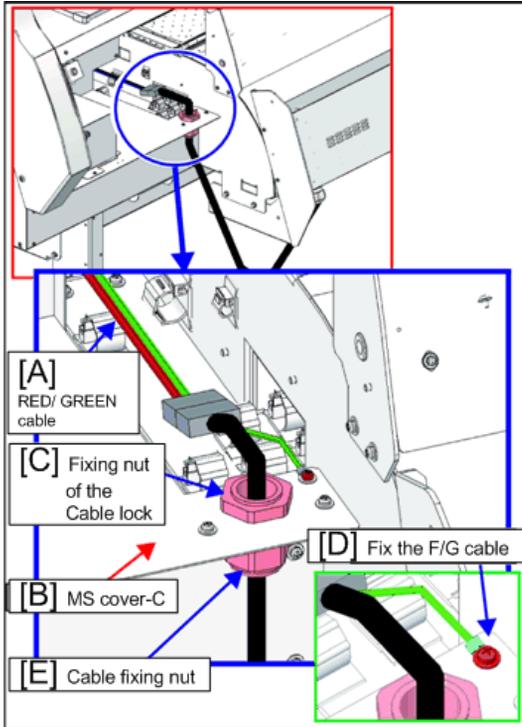


w\_m1522209

#### 4. Connect the Heater Power Cable.

Connect it with the RED/ GREEN cable [A] connected with "CN7" and "CN9" of the Heater PCB.

1. Fix the cable lock on the round hole of MS cover-C [B].  
Tighten the fixing nut [C] of the cable lock firmly.
2. Connect the connector.
3. Fix a F/G cable [D] with a screw.
4. Tighten the Cable fixing nut [E] so that a cable does not fall out.  
Slack off the cable so that the tension may not apply on the connector.



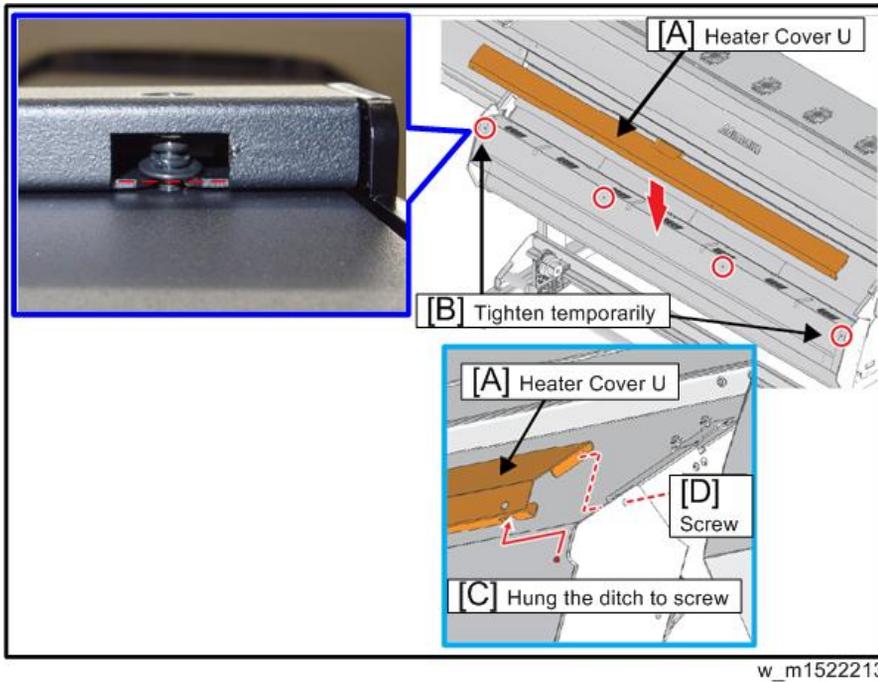
w\_m1522210

**5. Attach the cover removed in the Step 3.**

**6. Fix the Heater Cover U [A].**

Tighten screws (P3x8SMW x4) [B] temporarily of the Drying heater Assy, and hung the ditch [C] of the Heater cover bottom to the screws (under the washer). And then tighten the screws.

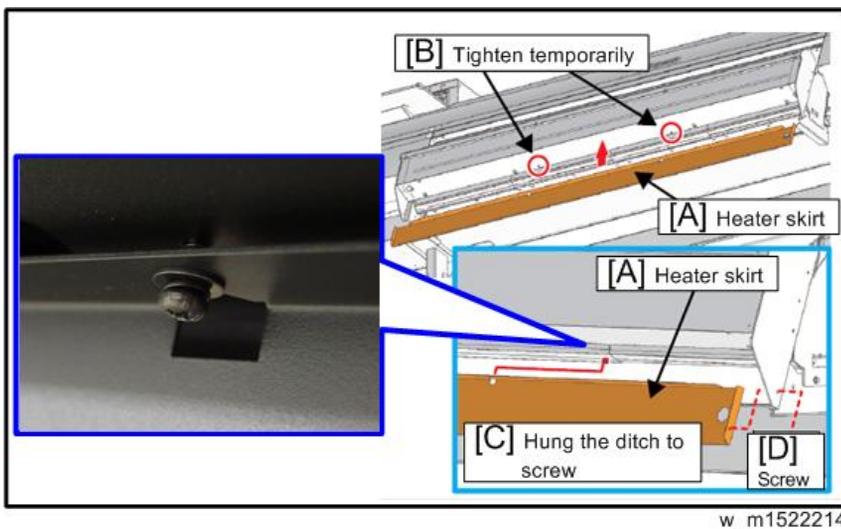
Fix the Heater cover U with Screw (P4x10SMW x2) [D], for the Dry fan side plate L/R. (Right and left)



### 7. Fix the Heater Skirt [A].

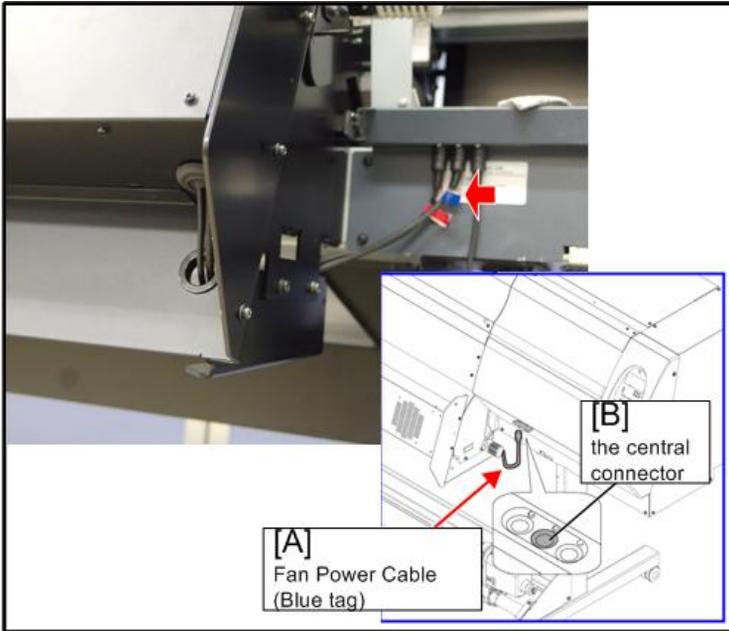
Tighten screws (P4x10SMW x2) [B] temporarily of the Drying heater Assy., and hung the ditch [C] of the Heater skirt to the screws (under the washer). And then tighten the screws.

Fix the Heater skirt with Screw (P4x10SMW x2) [D], for the Drying fan Heater skirt side plate L/R. (Right and left)



### 8. Connect the Fan Power Cable (Blue tag) [A].

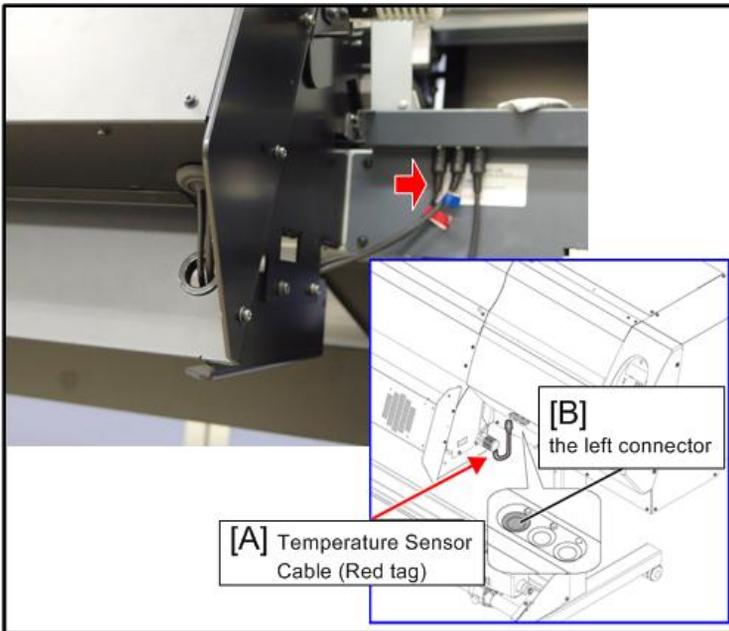
Be connected to the central connector [B].



w\_m1522211

9. Connect the Temperature Sensor Cable (Red tag) [A].

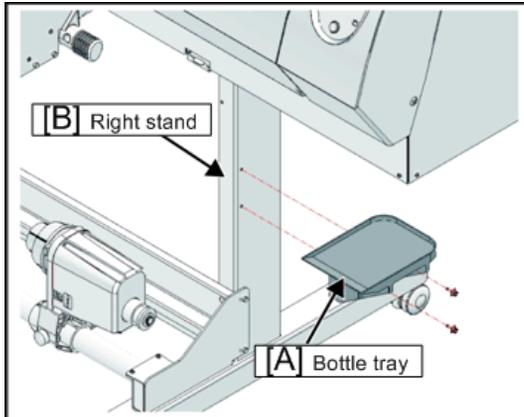
Be connected to the left connector [B]



w\_m1522212

## Mounting the Accessories

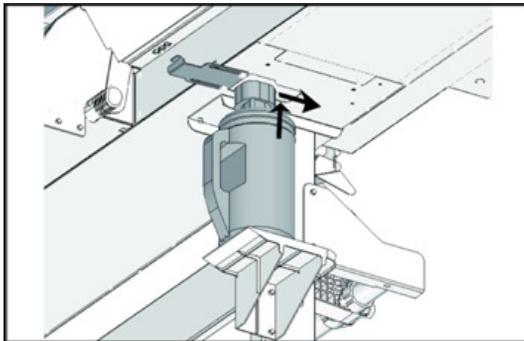
1. Fix the bottle tray [A] to the stands [B] with the screws (CS5x15SMW, 2pcs).



w\_m1522215

2. Attach the waste ink bottle.

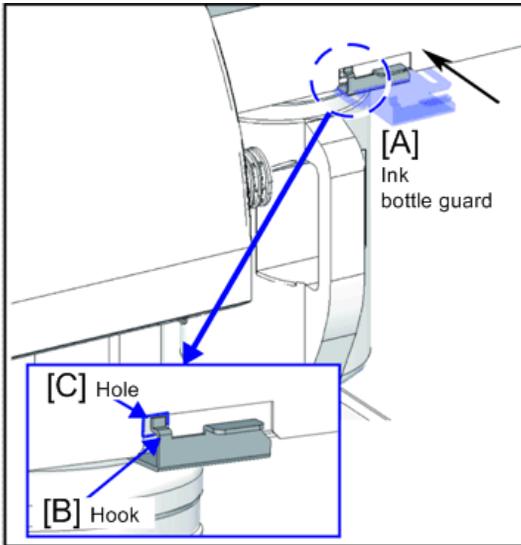
Insert the waste ink bottle.



m1522216

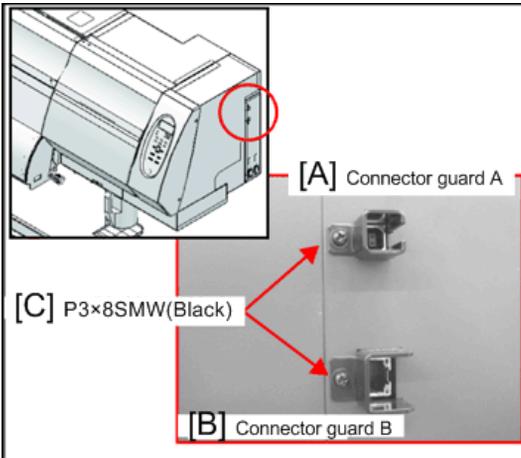
3. Close the waste ink bottle guard [A].

Put a hook [B] of the waste ink bottle guard in a hole [C] of the printer then lock it.



w\_m1522217

4. Attach the "Connector guard A" [A] and "Connector guard B" [B]. ( each 1 screw (P3×8SMW) [C] )



w\_m1522218

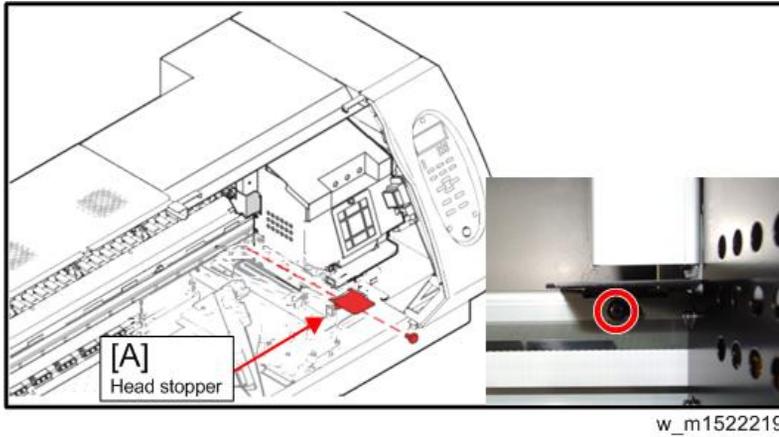
## Removing the Stopper

1. Open Front cover, remove the screws (P4x 10SMW, 1 pcs), and remove the Head stopper [A].

**★ Important**

- As the screw is at the rear side of the encoder scale, be careful not to damage on the encoder scale when removing it.

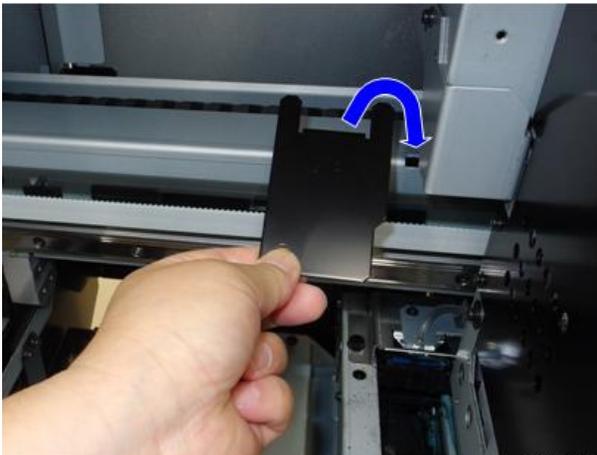
- Be careful not to drop the screw when removing it.
- Do not discard absolutely the Head stopper.



2

↓ Note

- When installing the Head stopper, insert it's projection into the ditch of the installation surface.



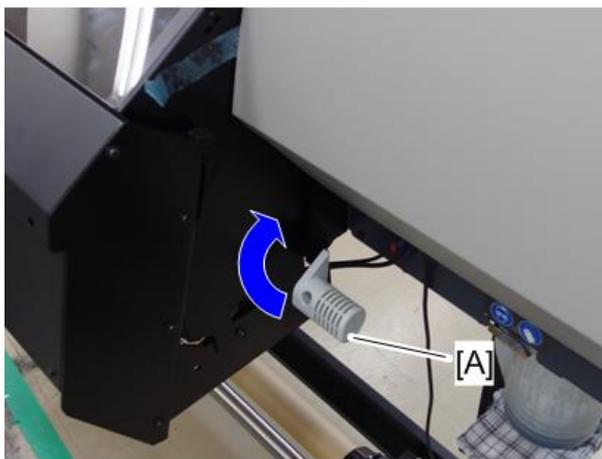
m1522730

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## Removing the Cardboard

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1. Raise the lever [A].



m1522731

2. Remove the cardboard [A].



m1522732

# Power Supply Related

## CAUTION

- To avoid serious injury or the machine damage, do not plug in the machine until you are instructed to do so in this installation procedure.

### List of work procedures

Work operation		Description	Refer to
1	Setting the Voltage Selector	Set the Voltage Selector.	page 69 "Setting the Voltage Selector"
2	Connecting the Power Cable	Connect the power supply cable.	page 74 "Connecting the Power Cable"
3	Turning the Power On	Turn on the power supply.	page 76 "Turning the Power On"
4	Turning the Power Off	Turn off the power supply.	page 77 "Turning the Power Off"

## Setting the Voltage Selector

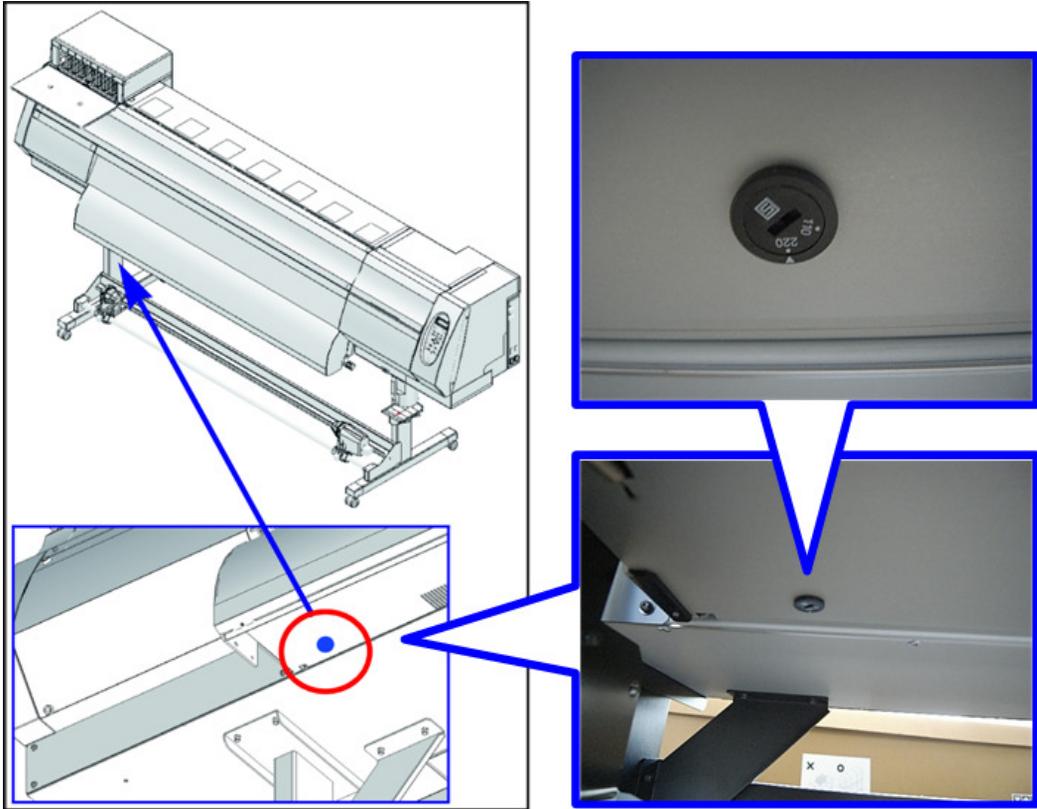
The device voltage should be switched to 100 to 120V or 220 to 240V to match the power supply voltage.

## CAUTION

- Because the device may be damaged by an incorrect setting, do not change the setting after installation.

### 1. Switch the voltage selector switch to the side for the voltage you are using.

Default:220V



m1522230

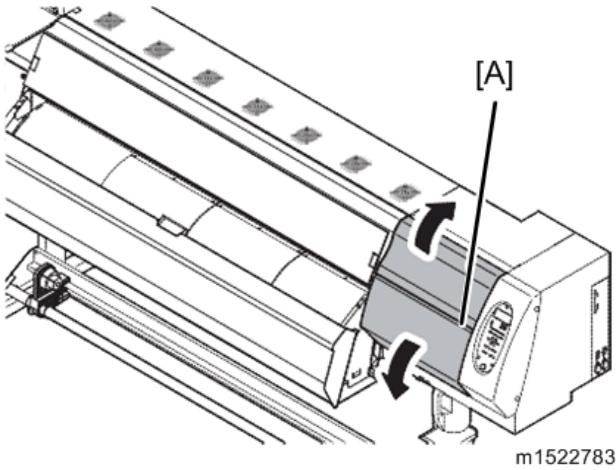
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### Before Starting Power On

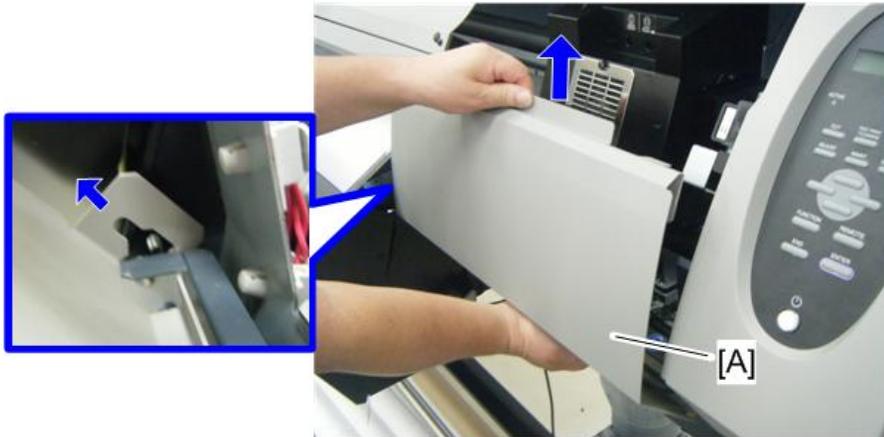
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To Service Person Before starting Power On, carry out the next work.

1. Open the right maintenance cover –C, U [A].



2. Remove the right maintenance cover –C [A].

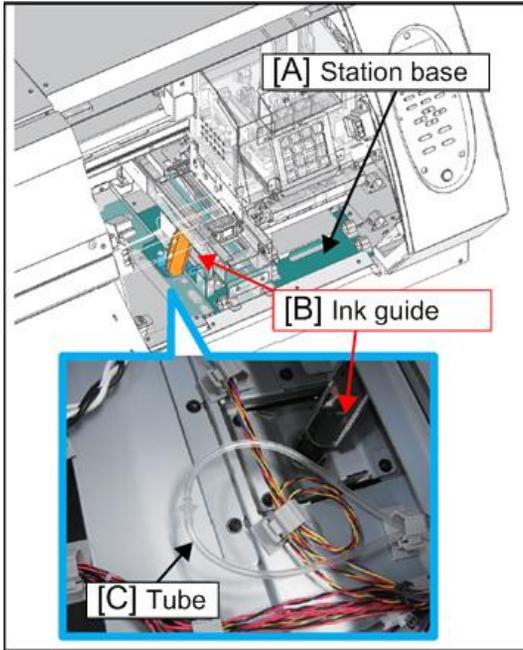


3. Initial style

[A]: Station base

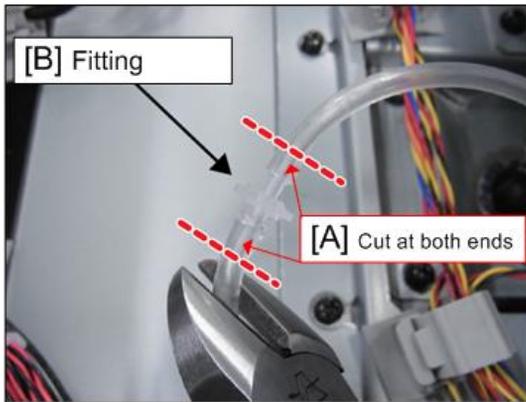
[B]: Ink guide

[C]: Tube



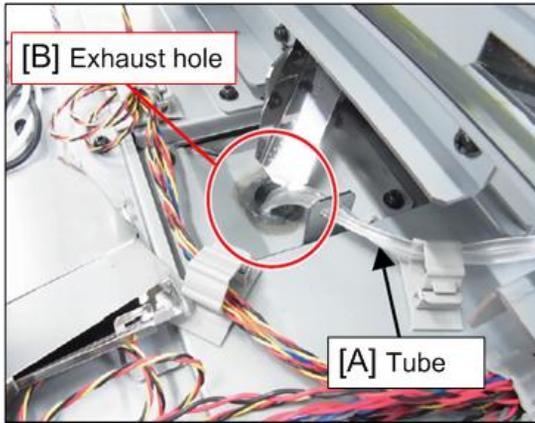
w\_m1522231

4. Cut at both ends [A] of fitting [B], along these illustration cut lines.



w\_m1522232

5. Set the ends of the cut tubes [A] in the exhaust hole [B].

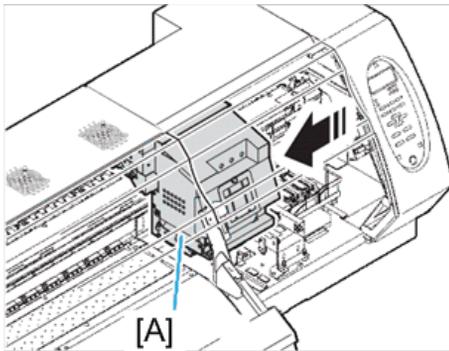


w\_m1522233

6. Make sure that:

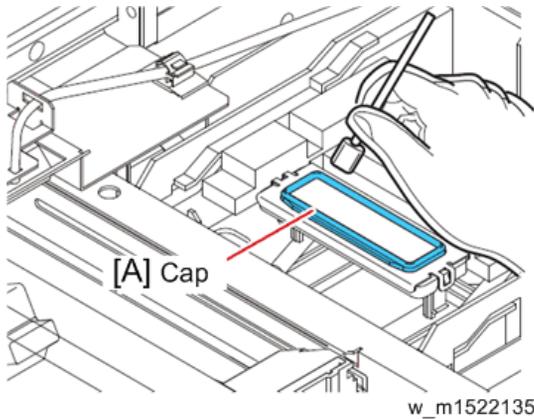
- The head moves smoothly.
- The encoder is not disengaged.

7. Move the carriage [A] to left.



m1522785

### 8. Wet the cap [A] with the maintenance cleaning liquid.

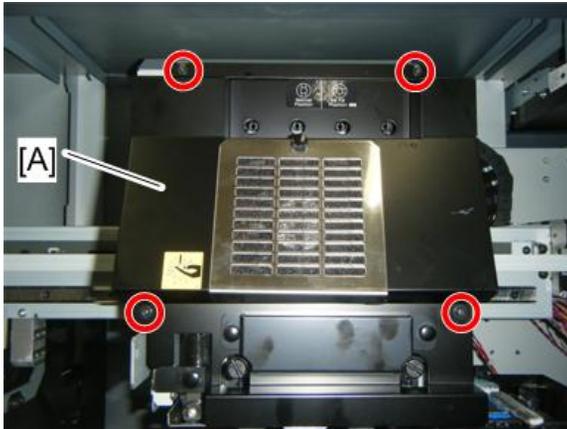


#### ↓ Note

- When the tip of the cap dries, adhesion of the head surface worsens and cannot suck the ink.

### 9. Remove the head cover [A].(4screws)

The purpose is to confirm that the ink cartridges are filled with ink.



m1522786

## Connecting the Power Cable

This device connects to the included two power cables.

If you do not use the included power cables, use cable that match your region.

Connect the power cables into a power outlet with the following specifications.

Voltage	AC100 to 120V, AC220 to 240V
---------	------------------------------

Frequency	50/60Hz $\pm$ 1Hz
Capacity	15A or more (AC100 to 120V $\pm$ 10%) x 2 lines 10A or more (AC220 to 240V $\pm$ 10%) x 2 lines

## CAUTION

- Always connect the cables to a power outlet near the device so that the cables can be easily removed.
- When plugging the cables into the power outlets, connect the cable into outlets on a separate circuit from other devices. Because of the large power consumption, the power supply breaker may be tripped.
- Power supply cables should be connected to an earthed outlet. Otherwise, there is a risk of electrical shock or of damaging the device.
- When connecting the power cables, ensure that the power switch of the main unit is off.
- Always connect the same voltage power supply to the inlet1 and inlet2.
- Confirm that the power plugs are not inserted into plug socket when doing this procedure.

**1. Insert the power cable clamp [A] into the power supply box.**

**2. Insert the power cable into the inlet of this device.**

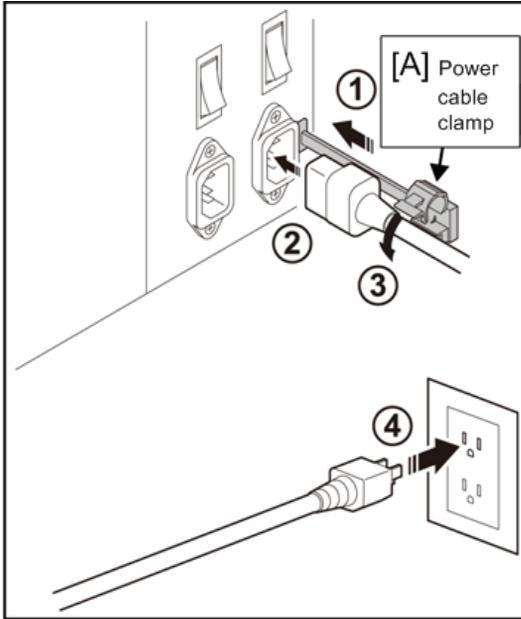
**3. Lock the power cable.**

Run the power cable through the clamp, and lock the clamp until it clicks.

**4. Insert the power plug into a plug socket.**

### Important

- Insert into the socket of separate power line, respectively.

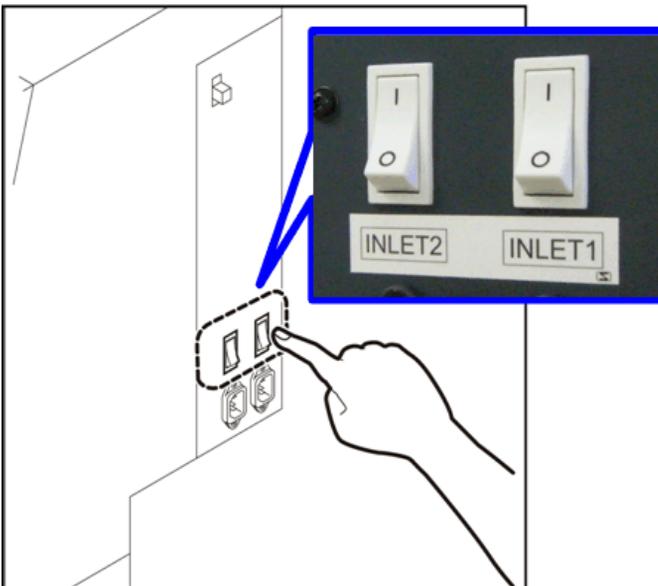


w\_m1522234

## Turning the Power On

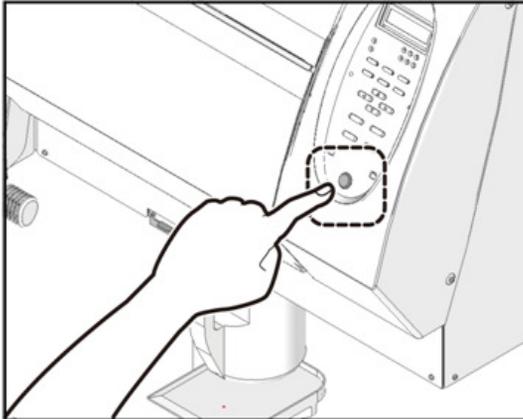
1. Turn on the main power switch. ("O" → "|")

|: ON, O: OFF



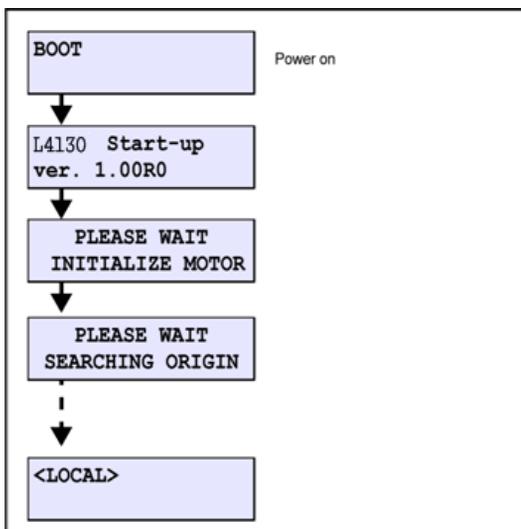
m1522235

- When you press the operation switch at the front of the machine, it will start.



m1522236

When the power is turned on, the firmware version is displayed.



w\_m1522237

## Turning the Power Off

When turning the power off, check that the unit is not receiving data, and there is no remaining un-output data. Furthermore, check that the head is in the capping station.

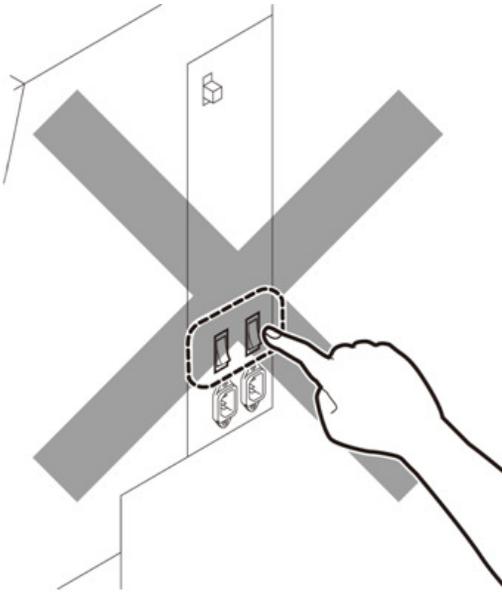
### ★ Important

- If you turned the power off without performing capping, turn the power back on again. Return the head to the capping station to prevent the head from drying out. If the power is turned off during

plotting, the head might not be parked in the capping station. Leaving the head for a long time without capping may cause nozzle blockages.

- Do not turn off the main power switch on the side, as this will stop the function for preventing nozzle blockages from functioning.

2



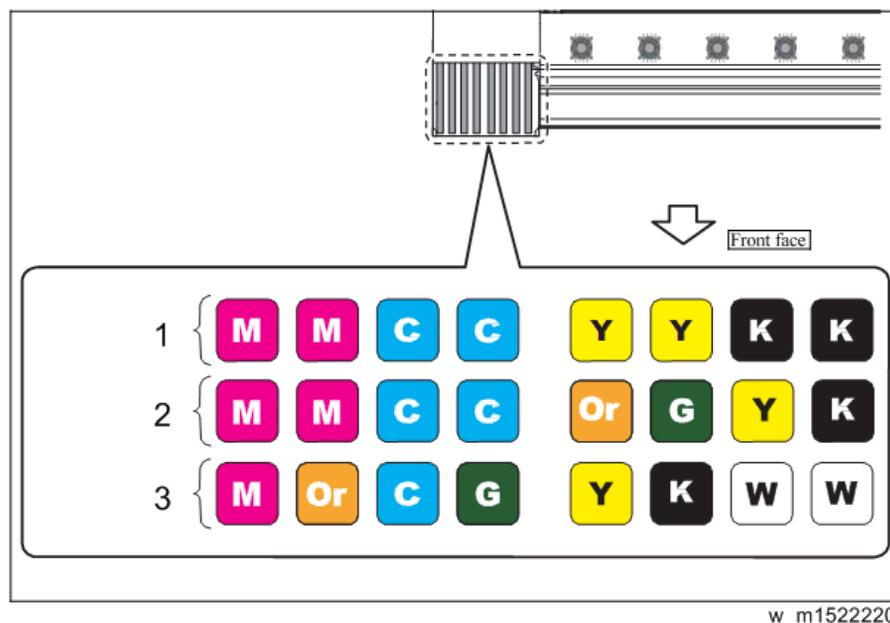
m1522238

1. Press the operation switch on the front of the device once.



m1522239

# Ink Set



1. 4-color ink set
2. 6-color ink set
3. 6-color + White ink set

## Outline

For this machine, 3 ways of ink setting above are available.

This was set to four-color at the factory; however, by opening/ closing the joint, you can change it to another color.

The procedure to change to six-color + White is as below:

## List of work procedures

Work operation		Description	Refer to
1	Head cleaning	Clean the inside of head and ink paths to be changed.	page 98 "Cleaning the Heads"
2	Changing of Joint	Confirm the above ink paths, and change the joint concerned.	page 80 "Changing the Joints"
3	Pasting label on eco case	Paste the label indicating ink color on the eco case.	page 88 "Pasting label on eco case"

## Changing the Joints

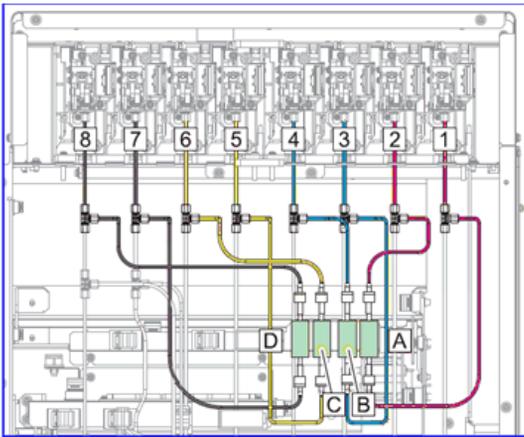
### Outline

Depending on chosen ink set, it must change a relationship between joints and liquid contact valve.

Connect ink tubes of the same colors to each other through liquid contact valve.

- Change as the followings.

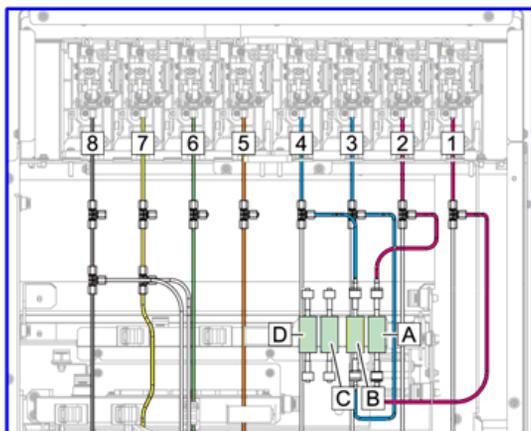
**Ink Set : 4color [M,M,C,C,Y,Y,K,K] (Factory default)**



m1522221

	Joint No.	Liquid contact valve	Joint No.	Ink color
Connection 1	1	A	2	Magenta
Connection 2	3	B	4	Cyan
Connection 3	5	C	6	Yellow
Connection 4	7	D	8	Black

**Ink Set : 6color [M,M,C,C,Or,G,Y,K] 2 types**



m1522789

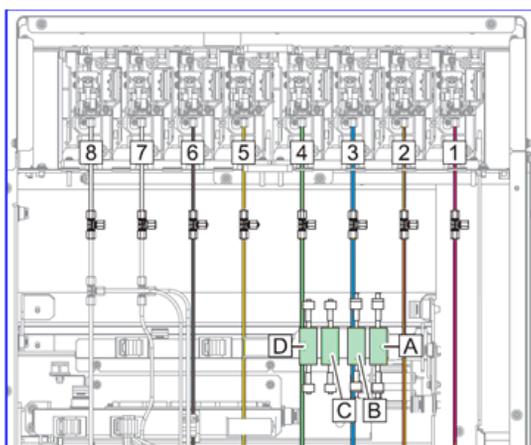
	Joint No.	Liquid contact valve	Joint No.	Ink color
Connection 1	1	A	2	Magenta
Connection 2	3	B	4	Cyan

For joints number from 5 to 8, attach rubber plug to them.

Liquid contact valves C, D are unused.

For removed tubes, be careful that they will not be bent, and they should bundle together.

**Ink Set : 6color + White [M,Or,C,G,Y,K,W,W] 0types**



m15222667

For joints number from 1 to 8, attach rubber plug to them.

Liquid contact valve A, B, C, D are unused.

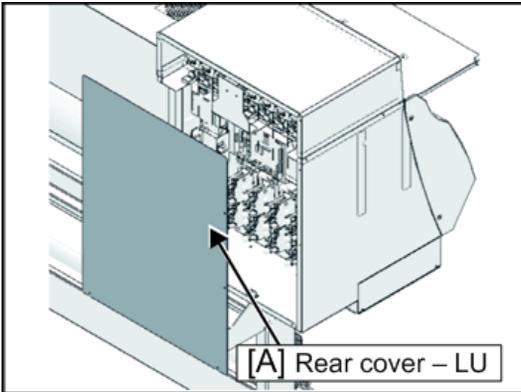
For removed tubes, be careful that they will not be bent, and they should bundle together.

## Work procedures

### ⚠ CAUTION

- Use protective glasses and gloves during work.
- Depending on the working condition, ink may reach your eyes or your skin may be roughed due to ink.

#### 1. Remove Rear cover – LU [A] from the back panel of the main unit.

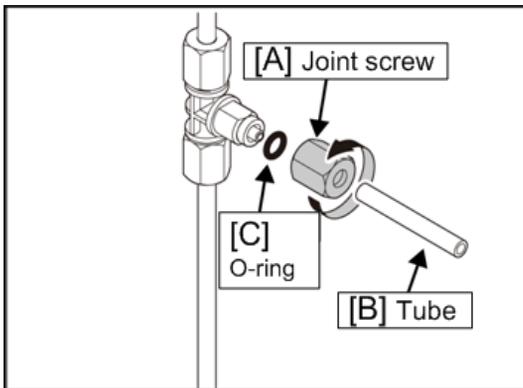


w\_m152224

#### 2. Loosen the joint screws [A] and remove the tube [B] and O-rings [C].

##### ★ Important

- The O-rings are required when returning from the 4-color + White ink set to the 4-color ink set.
- Store these carefully to avoid losing them.

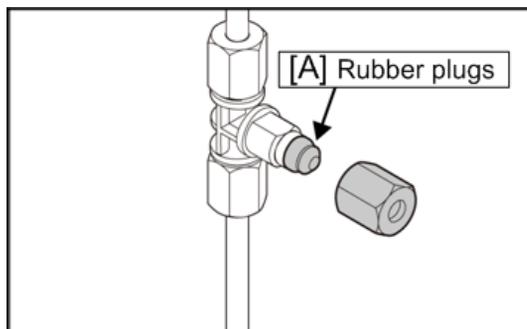


w\_m152225

### 3. Put the rubber plugs [A] on the joint.

#### ★ Important

- Make sure that O-ring is not remaining in the joint screws.



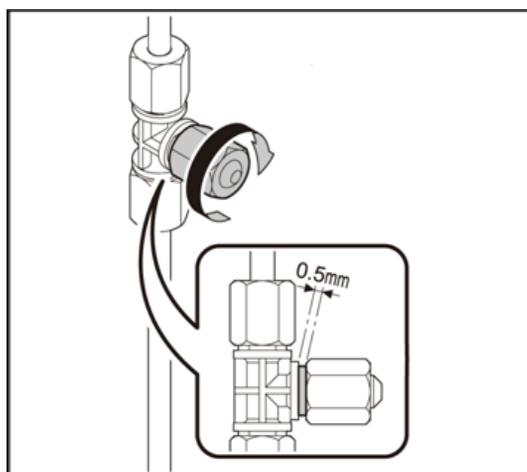
w\_m1522226

### 4. Tighten the joint screws.

Leave a space of around 0.5 mm between the coupler and screw.

#### ★ Important

- When clamping the joint screws, do not clamp them too much.



w\_m1522227

### 5. Return the Rear cover - LU to the original location, and affix using the screws.

## How to assemble ink cartridge

Before setting the ink cartridge, it is required to set the ink pack on the eco cartridge.

By following the next procedures, assemble the ink cartridge.

**1. Open the cover of the eco cartridge.**

1. Press the center part of the cover with your finger.

The claw on the side without attaching part of IC chip comes off.



w\_m1522642

2. Raise the cover as described in the photo.

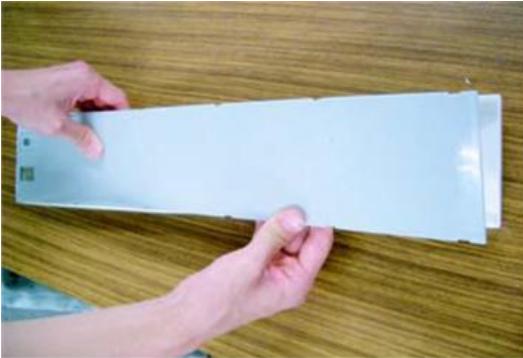
At this time, the claw on the IC chip side does not come off.

Do not raise the cover forcedly so that you may not damage the claw.



w\_m1522643

3. Remove the remaining claw while pressing the cover as indicated in the photo, and remove the cover.



m1522644

## 2. Set the ink pack on the eco case.

1. Turn the side with double coated tape downward and insert the stopper.  
After inserting the stopper, push it firmly with your finger.



m1522645

2. Peel the seal of double coated tape.



m1522646

## 3. Firmly fix the ink pack on the eco case with double coated tape so that it may not move.

Fix the ink pack after pulling it so that the ink pack may not go slack.



m1522647

★ Important

- Fix the ink pack so that it may not be biased in the eco case.

Good example

The corner of the case matches the ink pack corner.



m1522648

Bad example

The ink pack has gone too far downward.



m1522649

The ink pack goes slack in spots.



m1522650

2

#### 4. Attach the cover.

Hang the claw on the IC ship side and then insert the cover into the case.

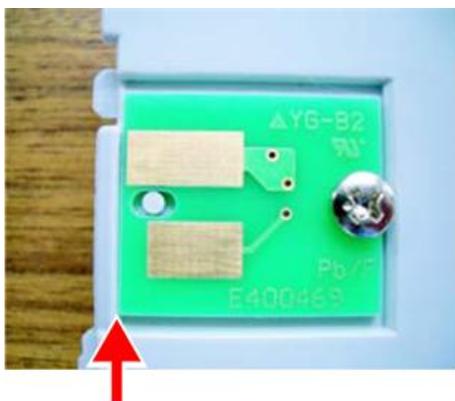


m1522651

#### 5. Attach the IC chip.

Attach the IC chip as indicated in the photo.

Attach it so that there is no gap in the part indicated with an arrow.



w\_m1522652

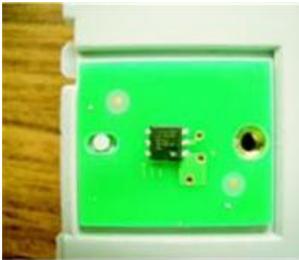
### Bad example of attaching IC chip

There is a gap.



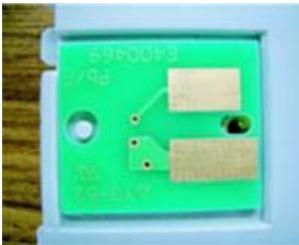
m1522653

The ins and the outs are reverse.



m1522654

The back and the forth is reverse.



m1522655

---

## Pasting label on eco case

---

### Outline

Paste the color label on the rear surface of the eco case depending on ink color to be used.

#### ↓ Note

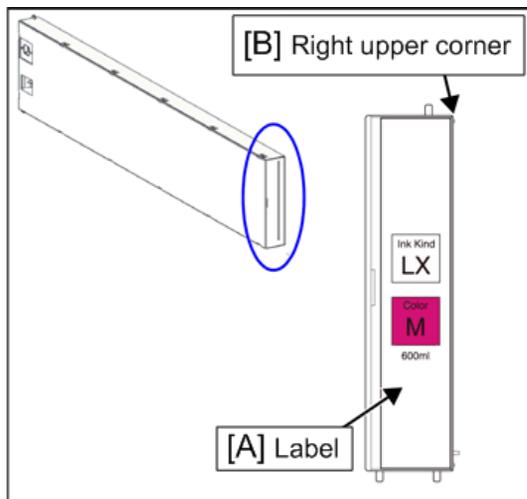
- Eco case of this machine will be transported with a state inserted in cartridge slot of the main unit.
- Perform the operation after you pull out the eco case from the main unit.

**1. Paste the same ink color label [A] as the set ink pack on the rear surface of the eco case.**

Paste it by using the right upper corner [B] of the rear surface of the eco case as reference.

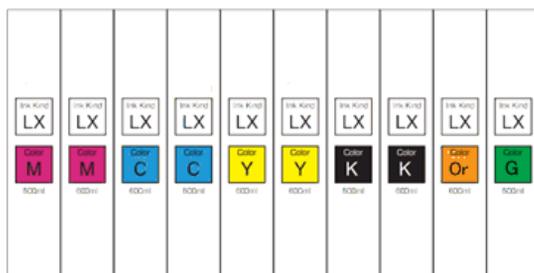
**⚠ CAUTION**

- Do not insert the ink cartridges into the machine until the time of ink initial filling.



w\_m152228

**Label of accessories**



m152229

# Outputting Plots

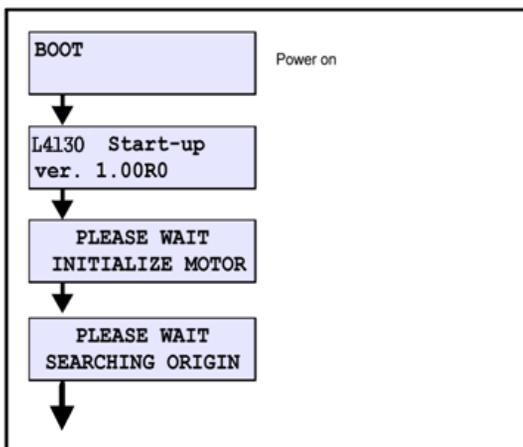
## List of work procedures

	Work operation	Description	Refer to
1	Setting at Startup	Set the language and the power supply voltage.	page 90 "Setting at Startup"
2	Initial Ink Fill	Perform ink initial filling.	page 92 "Performing the Initial Ink Fill"
3	Test Print	Perform test print to check the nozzle status.	page 97 "Performing a Test Print"
4	Cleaning the Heads	Perform cleaning to recover from nozzle missing and deflection.	page 98 "Cleaning the Heads"
5	Image Quality Adjustment	Perform the adjusting function such as FEED COMP. and DROP.POScorrect.	page 105 "Image Quality Adjustment"

## Setting at Startup

Set the language, the power supply voltage and the time difference suitable for the installation place.

1. Turn on the operation switch on the operation panel.

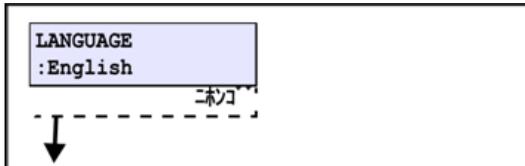


w\_m1522666

## 2. Set the language to use.

[▲] [▼] :Select

[ENTER] :Register



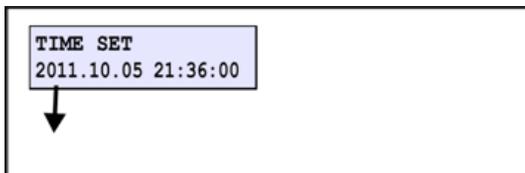
w\_m1522241

## 3. Set the time difference.

[◀] [▶] :Change the selection item

[▲] [▼] :Select

[ENTER] :Register



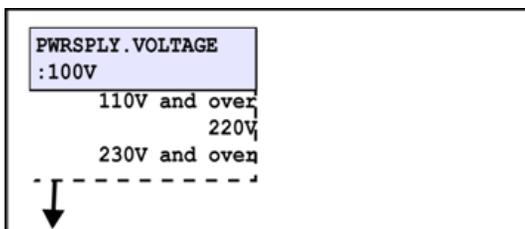
m1522242

## 4. Set the power supply voltage.

Select depending on the connected power supply voltage of the machine.

[▲] [▼] :Select

[ENTER] :Register



m1522243

The setting value is as below:

Area of 100V : " 100V "

Area of 110~120V : " 110V and over "

Area of 220V : " 220V "

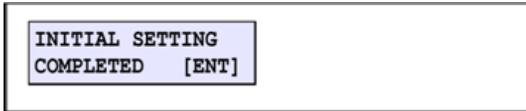
Area of 230~240V : " 230V and over "

### ★ Important

- If you do not set the proper voltage, it may cause damage.

#### 5. Terminate with [ENTER].

(When you press [END], the screen returns to the previous one.)

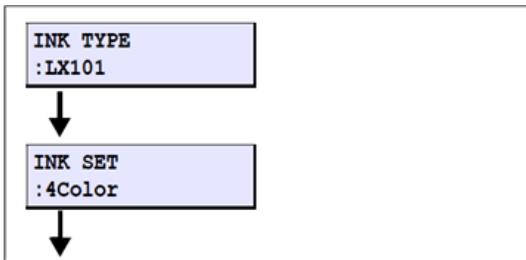


m1522244

## Performing the Initial Ink Fill

RTB 17  
Changes for  
the new AR  
Ink

1. Remove the head cover.
2. Select the ink set type to fill.



m1522259

#### 3. Slowly shake the white ink cartridge more than twenty times right and left.

To prevent ink from leaking when you shake the cartridge, wear gloves and firmly cover the A part [A] of the upper surface of the cartridge and the B part [B] of the bottom surface of the cartridge with paper towels.

Then, shake it more than twenty times right and left so that ink flows inside the cartridge.

### ↓ Note

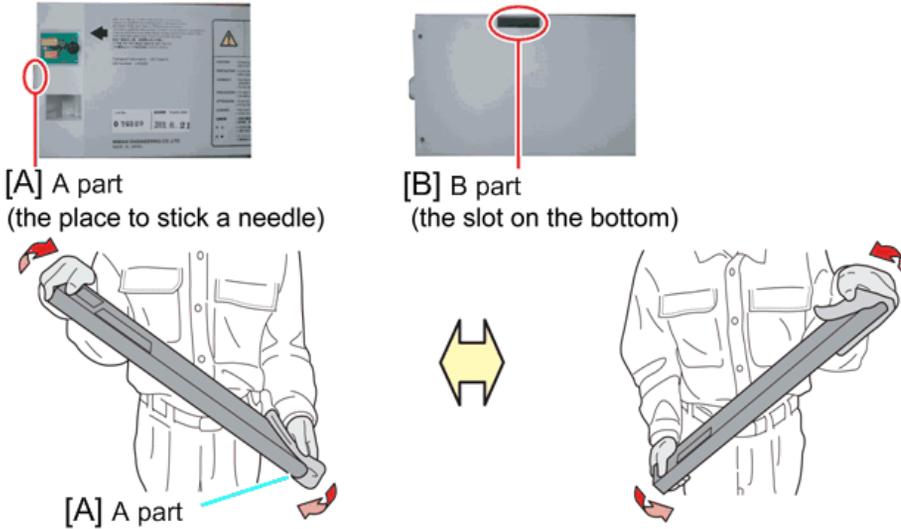
- If you shake it too strong, the pack inside may be damaged and it may cause ink leakage. Therefore, perform this carefully.
- If the remaining amount of ink is less, ink in the cartridge cannot be beaten enough. Tilt the cartridge until it becomes vertical.

### ★ Important

- When you use white ink: When 24 hours have passed with the power supply is ON, or, when the power supply is ON, the message is displayed. As the component of white ink is easy to settle out, it is necessary to shake it periodically.

SHAKE WHITE INK  
CARTRIDGES [ENT]

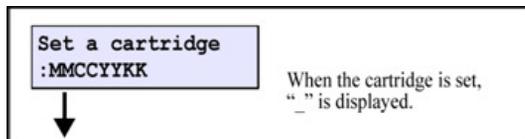
m1522657



w\_m1522658

4. Insert all ink cartridges.

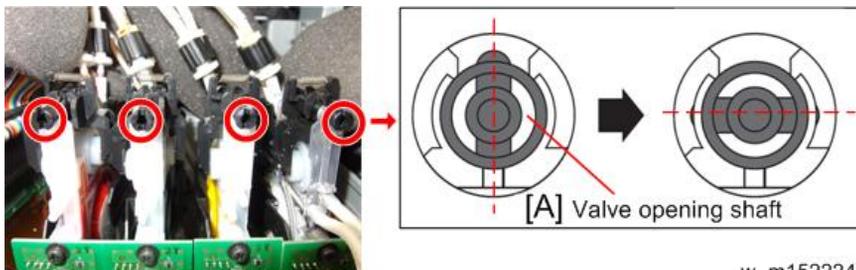
When all ink cartridges are inserted, filling operation starts.



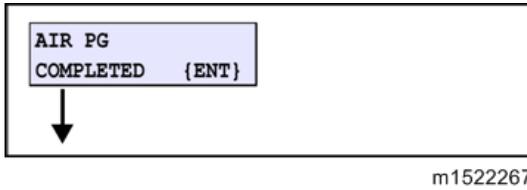
w\_m1522260

5. Rotate the valve opening shaft [A] 90 degrees with a flathead screwdriver.

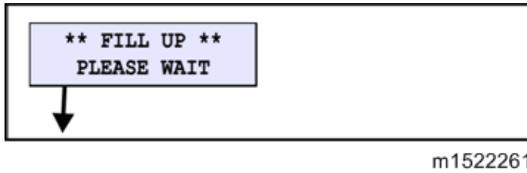
After rotating it, press the [ENTER] key.



w\_m1522245



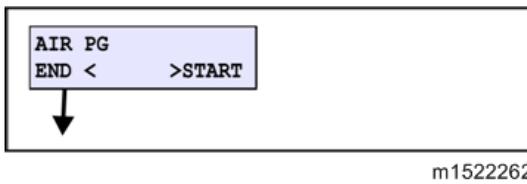
6. Wait until the filling operation has been completed.



7. Remove air.(Filling head air port)

With the [▶] key, move to the air purge sequence.

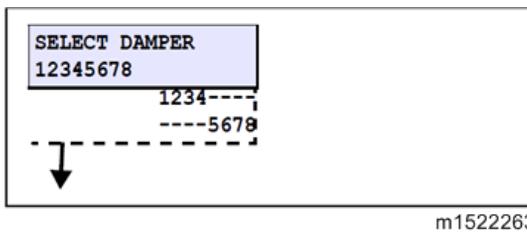
(When you press the [◀] key, air purge work is not performed and the machine moves to the cleaning operation. (to step 16.))



8. Select a damper on which you perform air purge.

[▲] [▼]: Select

[ENTER]: Register

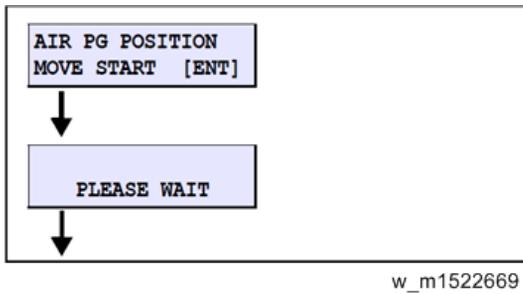


★ Important

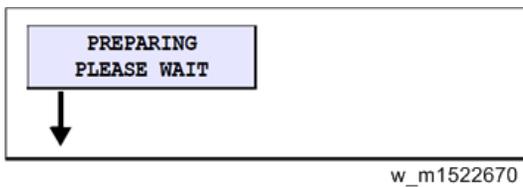
- This does not mean that you can perform air purge on all air purge ports you selected at the same time.

9. Press the ENTER key to move the carriage on the wiper.

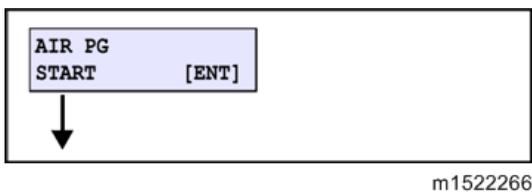
The head corresponding to the damper selected in 7.moves on the wiper.



10. Wait for a while until the machine is ready for opening the port.



11. Prepare the ink filling jig and press the [ENTER] key.



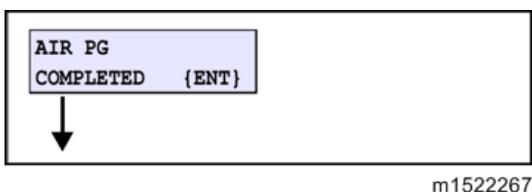
### ★ Important

- Do not remove the cap of the damper's port that is not selected.

12. Inset the ink filling jig into each port in order and flow a certain amount of ink.

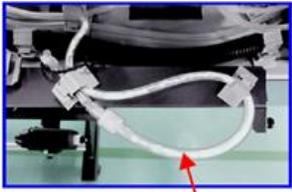
\*For reference: Amount shall be about 10cm-flowing on the jig.

1. After flowing ink from all ports of the damper selected in 7., press the [ENTER] key to stop sending ink.
2. Remove the ink filling jig and close the cap.

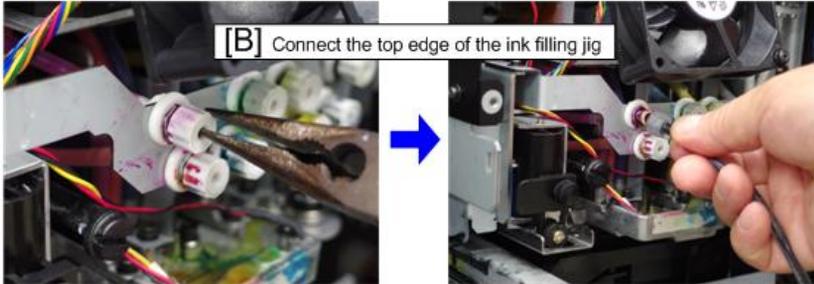


### ★ Important

- Use the ink filling jig [A].
- Connect the top edge of the ink filling jig [B] with the "Fitting" on the carriage front surface.

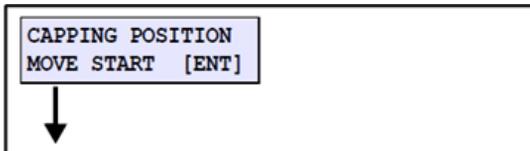


[A] Ink filling jig



w\_m1522265

13. Press the [ENTER] key to return the carriage to the position that close the cap.



w\_m1522676

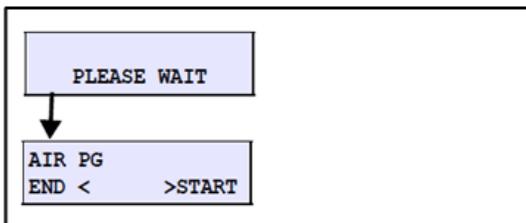
14. Wait for a while until the amount of ink in the damper returns to the normal status.

1. When the operation has been completed, the screen returns to the one in 6. Perform the same work to the remaining damper.

**★ Important**

- When you connect the jig with other color, clean the top edge of the ink filling jig so that colors may not be mixed.

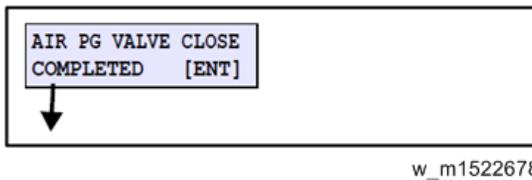
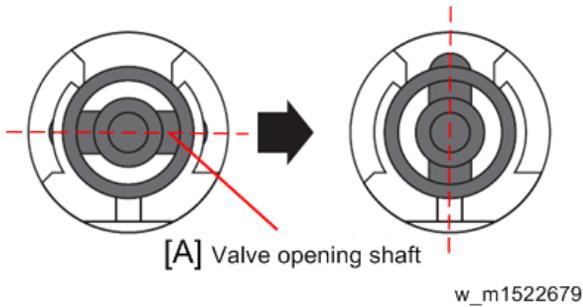
2. After the work for all dampers have been completed, press the [↵] key.



w\_m1522677

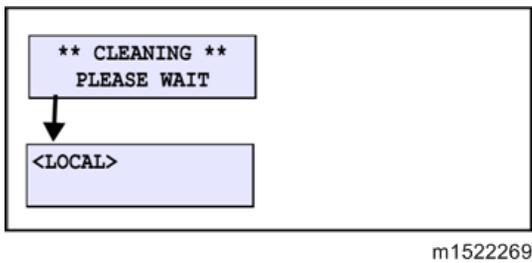
15. Check that no air remains in the damper, and return the valve opening shaft [A] with a flathead screwdriver to the original status.

Press the [↵] key to terminate the operation.



#### 16. When you press [ENTER], the cleaning operation starts.

When the cleaning operation has been completed, the screen returns to LOCAL.



## Performing a Test Print

Perform test print to check the nozzle status.

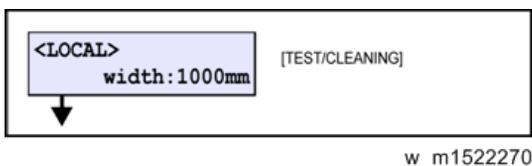
### 1. Set a Media.

Refer to operation manual "chapter 2 Setting a Media"

Slightly hold the media with the roll holders.

### 2. Press [TEST/CLEANING].

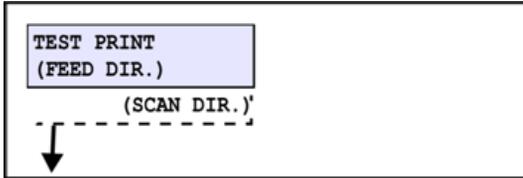
Select the "TEST PRINT".



**3. Select the pattern arranging direction.**

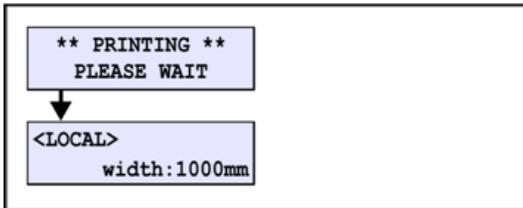
[▲] [▼] :Select

[ENTER] :Print start



m1522271

**4. Perform test print and return to LOCAL.**



m1522272

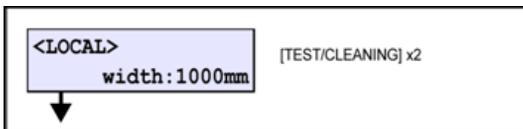
**5. Check the nozzle status, and if nozzle missing etc. occurs, perform cleaning.**

## Cleaning the Heads

Perform cleaning to recover from nozzle missing and deflection.

**1. Press [TEST/CLEANING] twice.**

Select "CLEANING".

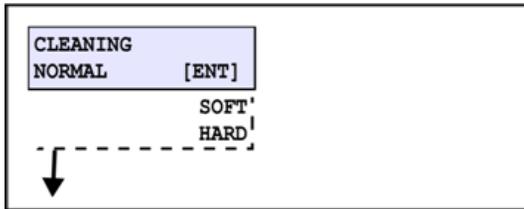


w\_m1522273

**2. Select the cleaning type.**

[▲] [▼] :Select

[ENTER] :Register



m1522274

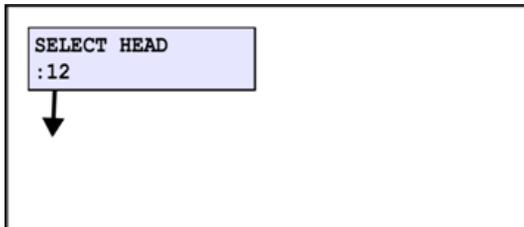
### 3. Select the head to clean.

Start the cleaning operation with [ENTER].

[◀] [▶] :Select the Head.

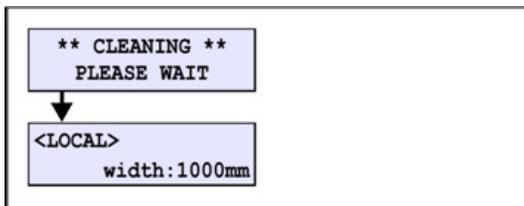
[▲] [▼] : Select perform or not.

[ENTER] :Start cleaning.



m1522275

### 4. Perform cleaning and return to LOCAL.

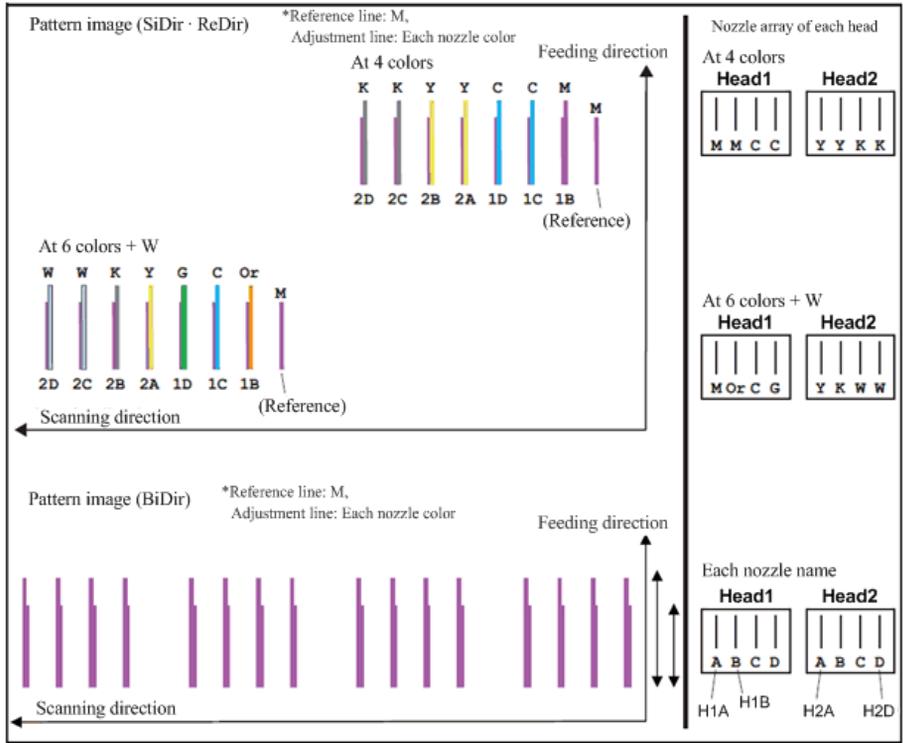


m1522276

## PRINT ADJUST

RTB 17  
Changes for  
the new AR  
Ink

Draw the built-in patterns, and compensate the parameter so that the drop positions of other heads are on the same line as the drop position of reference head (Head 1) in the Y-direction. To each of the discharged waveforms, execute [SiDir], [ReDir] and [BiDir] in each resolution.

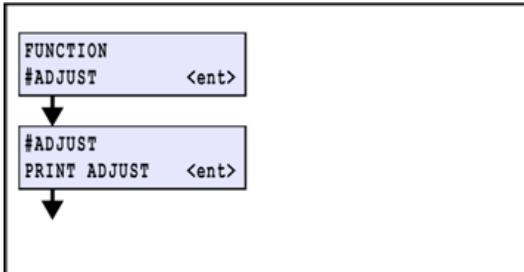


w\_m1522453

1. Set Media at X-origin.

★ Important

- Set the drawing origin as follows;  
(Set in [LOCAL] -> [ORIGIN])  
 $X \geq 0, Y > 0$



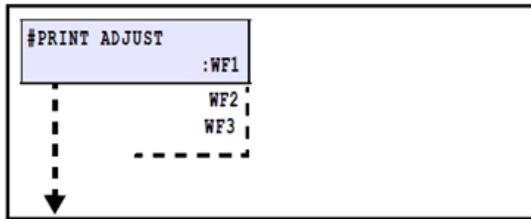
w\_m1522454

2. Display [#ADJUST] -> [PRINT ADJUST].

3. Select the waveform.

[▲] / [▼]: Switches

[ENTER] : Confirms (Next)

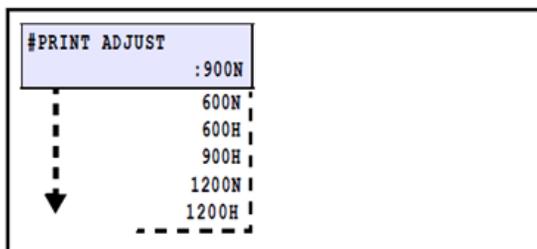


w\_m1522455

#### 4. Select the Y-resolution and scanning speed.

[▲] / [▼] : Y-resolution & Scanning speed change

[ENTER] : Confirms (Next)



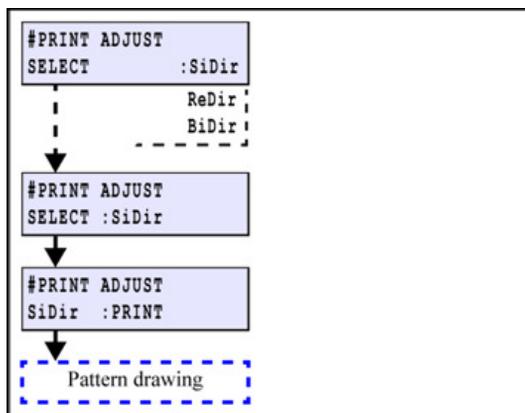
w\_m1522456

## Forward adjustment

#### 1. Select "SiDir" on the [SELECT] display.

[▲] / [▼] : Switches

[ENTER] : Confirms (Next)



w\_m1522457

#### 2. Press the [ENTER] key to draw the pattern.

[ENTER] : To start Pattern drawing

[▶] : To the compensation display  
 (Without drawing)

**3. Check and compensate the patterns.**

Input the adjustment value (the measured value:  $\mu\text{m}$ ) so that the impact dots of other nozzle lines (7 lines) are at the same position in the Y-direction, referring to the reference nozzle H1A line.

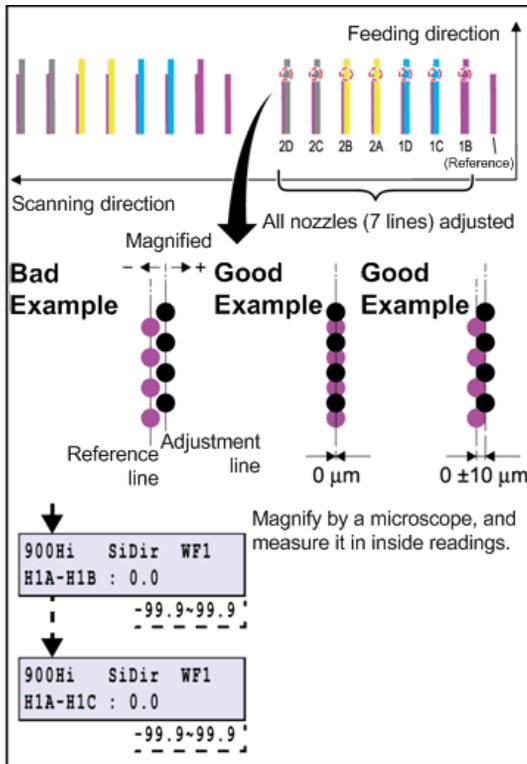
Check and execute the compensation for H1A-H1B ~ H2D.

[▲] / [▼]: Compensating value input (Input unit: 20  $\mu\text{m}$ )

[ENTER] : Confirms (Next)

**★ Important**

- Input the compensating value, referring to the left figure, if the displacement on the drop position of head applied for the compensation occurs either right or left against the reference head.



m1522577

**4. When compensated, draw and check the patterns again.**

**★ Important**

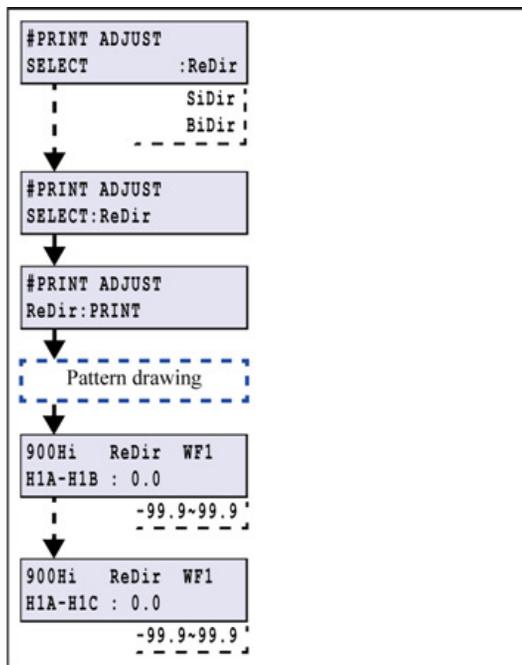
- Repeat "Drawing -> Checking (Compensating)" until any compensation is not required.

## Return adjustment

1. On the [SELECT] display, select "ReDir", and adjust it in the same way as "SiDir".

[▲] / [▼] : Switches

[ENTER] : Confirms (Next)



m1522578

2. Press the [ENTER] key to draw the pattern.
  - [ENTER] : To start Pattern drawing
  - [▶] : To the compensation display  
(Without drawing)
3. When compensated, draw and check the patterns again.

### ★ Important

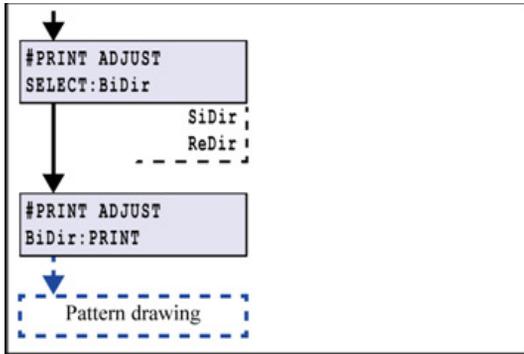
- Repeat "Drawing -> Checking (Compensating)" until any compensation is not required.

## Going and returning adjustment

1. Select "BiDir" on the [SELECT] display.

[▲] / [▼] : Switches

[ENTER] : Confirms (Next)



m1522579

## 2. Press the [ENTER] key to draw the pattern.

[ENTER] : To start Pattern drawing

[▶] : To the compensation display

(Without drawing)

## 3. Check and compensate the patterns.

The reference lines are drawn in going, and then the adjustment lines are drawn at the same Y-coordinate positions in returning. The position where the lines above are overlapped on one vertical line is specified as the correct dot position (H1A: M color fixed)

Confirm that the dots are on the same line.

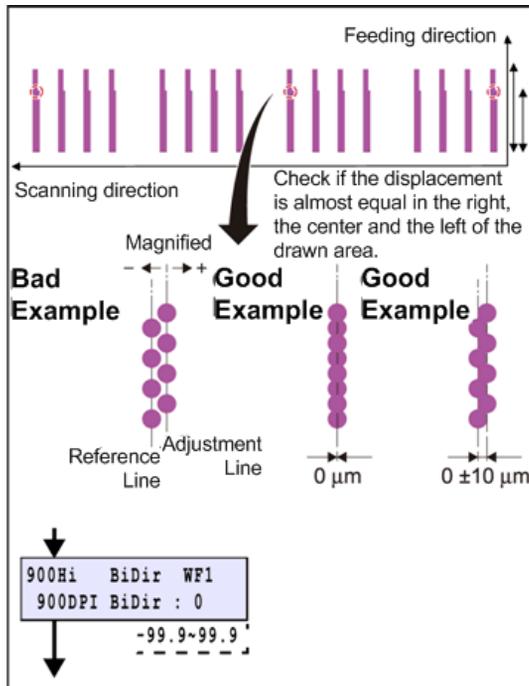
\* The adjusting procedure is the same although the drawing pattern is different depending on mode.

[▲] / [▼]: Compensating value input (Measured value)

[ENTER] : Confirms

### ↓ Note

- If the displacement is significantly different in the right and left, other reasons are considered.



w\_m1522458

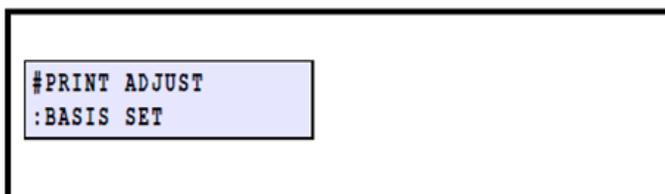
- When compensated, draw and check the patterns again.

★ Important

- Repeat "Drawing -> Checking (Compensating)" until any compensation is not required.

- Select [BASIS SET] and press [ENTER] key. The values adjusted in WF1 1200std are set as the correction value of other modes.

RTB 17  
Changes for the  
new AR ink



w\_m1522703

★ Important

- The value set using [BASIS SET] are values calculated as a guideline for correction values. Thus, the actual ink landing position may be misaligned. Be sure to adjust the landing position for each mode that will be sure.

## Image Quality Adjustment

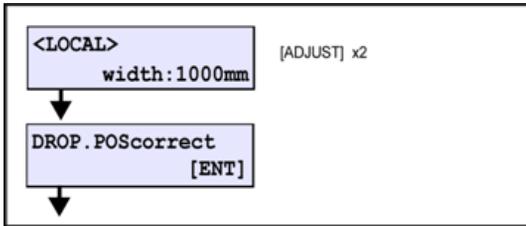
Perform the adjusting function such as FEED COMP. and DROP.POScorrect.

## DROP.POScorrect

Correct the drop position difference for back and forth printing.

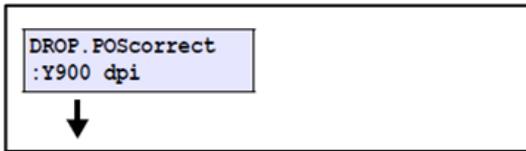
1. Press [ADJUST] twice, and select DROP.POScorrect.

[ENTER] :Register



w\_m1522277

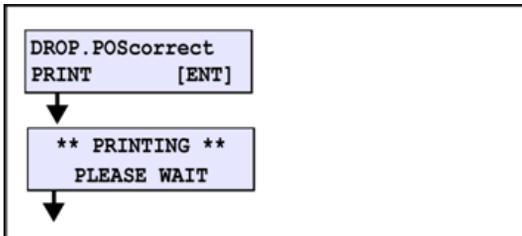
2. Select the resolution for adjustment.



w\_m1522690

3. Start print with [ENTER].

[ENTER] :Start

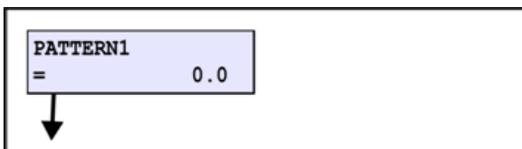


m1522278

4. Input the correction value of the pattern 1st.

[▲] [▼] :Input the correction value

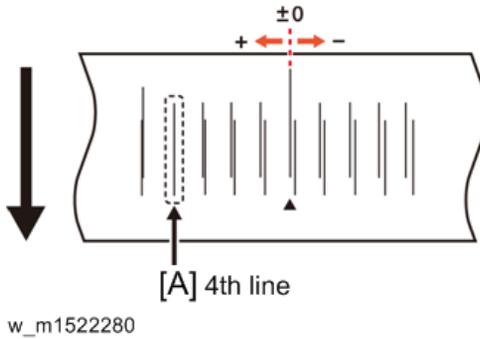
[ENTER] :Proceed to print the next pattern



m1522279

↓ **Note**

- DROP. POScorrect pattern (example)
- The straight line is shown at the 4th line [A] in the plus direction from the 0 position. In this case, the dot position adjustment value is 4.0.



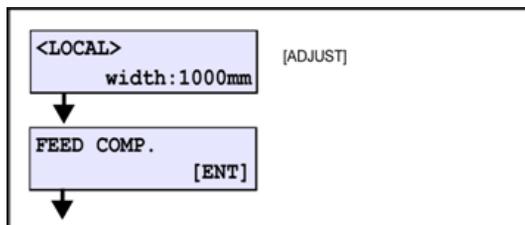
5. When all patterns have been printed and all correction values have been input, it returns to step 3.
6. Repeat adjust for resolution that can be selected in step 2.

## FEED COMP.

Perform correction of media feed amount.

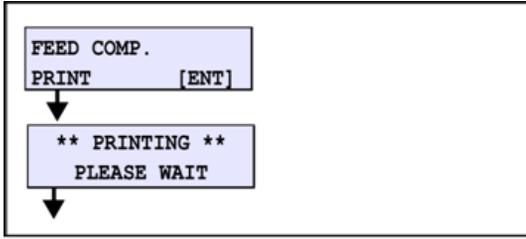
1. Press [ADJUST], and select "FEED COMP."

[ENTER] :Register



2. Start print with [ENTER].

[ENTER] :Start

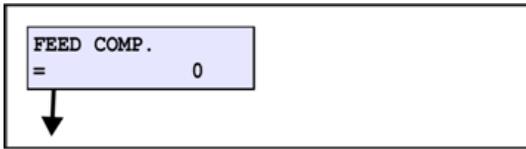


m1522284

3. Input the correction value.

[▲] [▼] :Input the correction value

[ENTER] :Proceed to inputting of correction value of the next pattern

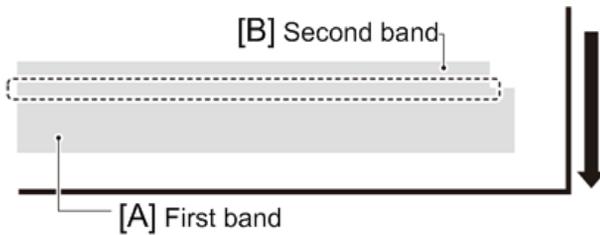


m1522285

**Note**

- Print two bands (First band [A], Second band [B]) as the compensation pattern. Adjust so that an even color density is obtained around the boundary between the two bands. When "+" value is input: The distance of two bands separates. When "-" value is input: The distance of two bands comes closer.

**FEED COMP. pattern**



w\_m1522286

4. It returns to LOCAL.



m1522287

## Backup System Parameters

Backup the system parameters by uploading them to the RIP PC.

They are necessary when replacing the main PCB.

# Printer Setting and Checking Items before Printing

When using this machine, first turn the power supply ON and then perform/ check the items below before printing.

## ↓ Note

- Do not leave the media for a long time (more than ten minutes) with the heater ON.
- Check the media float before detecting the media width.
- If paper jam occurred, immediately perform head cleaning and check by test drawing.
- If dryness is not enough, make the feeding speed slower or set the dryness time.
- Do not leave it with capping OFF and the cover opened.
- Leave the main power turned on to prevent ink clogging.

### 1. Turning the Power ON

### 2. Preparing for the Heaters

Set the heater and wait until it reaches the set temperature. The setting value differs depending on the media.

Refer to Operation Manual "Chapter2 Preparing for the Heaters".

### 3. Setting a Media

Refer to Operation Manual "Chapter2 Setting a Media".

Slightly hold the media with the roll holder.

### 4. Check the media float

Visually check the media float on the platen (especially at the both edges of the media).

#### When the media floats

1. Strengthen the absorption fan. (Operation Manual Chapter3)
2. For the roll media, use the take-up device. (Operation Manual Chapter2)
3. Lower the heater temperature.

To Setting a Media

### 5. Detect the Media

Refer to Operation Manual "Chapter2 Setting a Media".

At the media detection, if the head scratches the media or paper jam occurs, perform head cleaning.

### 6. Test Feeding

Refer to Operation Manual "Chapter2 Test Feeding", Check that the media can be fed normally.

Check that there is no media float between the Platen and the After heater. Also, check that there is no abnormality of feeding due to the media sticking to the platen.

#### **If there an abnormality of the media feeding**

1. Attach the antistatic sheet. (If you attach the antistatic sheet, the drying performance will be lowered.) (Operation Manual Chapter1)

To Setting a Media

### **7. Check of cockling**

Feed the media by 50cm, and check that no media float occurs at the media both edges and between Clamps - Clamp every time you feed the media.

#### **If media cockling occurs**

1. Clamp up once and reset the media. Check that it is not skewed.
2. Set the temperature of the pre-heater higher. (Print heater temperature +5 to 10 degrees)
3. Lower all heater temperatures by 5 degrees each. (It may not have been dehydrated enough. Be careful about it.)
4. Feed the media that was deformed due to heating (by about 60 to 100cm).
  - When you left it for a long time with the heater ON
  - When the media extended to the utmost limit due to heating

To Setting a Media

### **8. Test Print**

Perform test print to check that there is no line that is missing and no line that is bent. (Operation Manual Chapter2)

#### **Result is abnormal**

1. Perform head cleaning.

To Test Print

### **9. Feed Correction**

Refer to Operation Manual "Chapter2 Set the media feeding amount".

### **10. Drop Position correct**

Refer to Operation Manual "Correct the ink drop position for bidirectional printing".

### **11. Print**

Referring to the print guide, send the data to print.

### **12. Checking dryness**

Check that the output image has been dehydrated when it passes the dryness heater.

#### **If it has not been dehydrated**

When you perform the items mentioned at the right, the printing speed lowers. Therefore, check whether you can raise the heater temperature before performing them.

1. Select more number of passes for the same resolution.
2. Set the FEED SPEED lower (lower than 100%). (Operation Manual Chapter3)
3. Set the DRYING TIME for each scan. (Operation Manual Chapter3)

To Test Print

**13. Print can be started**

# If paper jam occurred

If the head scratched the media or paper jam occurred, immediately perform the items below:

## 1. Remove the Media

After clamp up, remove the clogging media.

If the head scratched the media, reset the media.

Move the carriage to the waiting position, and return it to the station with the **ENTER** key.

## 2. Head Cleaning

By referring to Operation Manual "Chapter 2 Head Cleaning" , perform head cleaning.

## 3. Test Print

Perform test print and check that there is no line that is missing and no line that is bent.

### If nozzle missing occurs

1. In case that nozzle missing and no line that is bent are not improved even though you repeat cleaning, by referring to Operation Manual "Chapter 4 When Nozzle Clogging Cannot Be Solved" , perform Washing of Head nozzle.

To Head Cleaning

## 4. Recovery

After the head recovered, check the items below:

- Check that the media is not skewed.
- Check the media cockling.
- Check that the head height (that it is not too low).

## Requests for Daily Care and Maintenance

This machine is a precision machine equipped with extremely fine mechanisms. Especially, the nozzle surface of the heads from which the ink is discharged is affected even by a slightest attachment of dust or paper powder and the proper printing results could not be obtained. With a view to using this machine in a better condition, we would like to recommend performing the following care and maintenance on daily basis.

 <b>CAUTION:</b>	
 	Make sure to wear the attached goggles and gloves.
	The ink, if mixed with water or alcohol, generates condensed substances. Pay attention not to deposit water or alcohol to the nozzle surface, surrounding area of the heads, caps and wipers.
	To secure the stability of the ink discharge, when the printer is not used (output) for an extended period of time, it could become necessary to discharge periodically a small amount of ink (flushing), depending on the kinds of the ink.
	When not using for an extended period of time, execute the [CUSTODY WASH] function of this equipment, ("When the Machine Is Not Used for a Long Time (CUSTODY WASH)" Chapter 4 of Operation Manual) and put off the operation switch on the front, only. Leave the main power switch at the side of the equipment on and keep the cable socket inserted into the plug.
	Never disassemble this machine. It could cause electrical shock, fire and breakage.
	Keep away the moisture from the inside of this machine. If the inside is moistened, it could cause electrical shock, fire and breakage.
	Perform the maintenance and care after switching off the power and taking off the power cable. Otherwise, it could cause unexpected accidents.
	Avoid using benzene, thinner, and chemicals containing abrasive compounds. The surface of the cover could be degenerated or deformed.
	Do not supply lubricant oil etc. to the inside this machine. It could cause the breakdown of this machine.

## Installation environment

- Use this printer as much as possible in a dust-free environment. Fans and air-blowers could cause the dust spewing.
- The using environment of this printer is from 20 to 30oC in temperature and from 35 to 65 % in relative humidity. Avoid the use of this printer at a temperature and humidity higher or lower than the indicated ranges.

## Daily care and maintenance

### Tools required for Maintenance

Item Name
Pro Cleaning Stick Type A
Pro Maintenance kit Type A
Pro Wiper kit Type A

### Surroundings of the heads ("Cleaning the Ink Head and the Area around It" Chapter 4 of the Operation Manual)

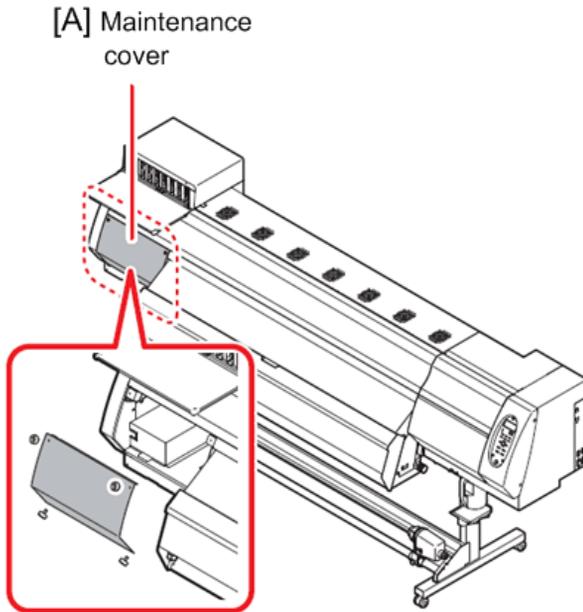
The heads and their surroundings are the parts most liable to be tainted in this machine and if tainted, it could cause adverse effects to the functions of the machine and the results of the printings. Moreover, as the head itself uses very fine mechanisms, sufficient precautions are required for the care and maintenances.

#### 1. Move the carriage to the left.

Move the carriage referring to "Cleaning the Ink Head and the Area around It" Step 1, Chapter 4 of the Operation Manual.

#### 2. Open the maintenance cover [A].

Remove the screws and open the maintenance cover.

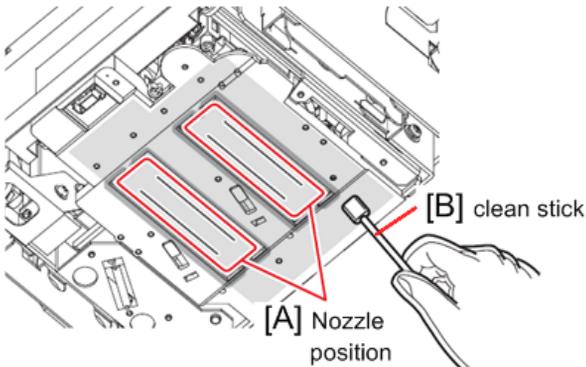


w\_m1522132

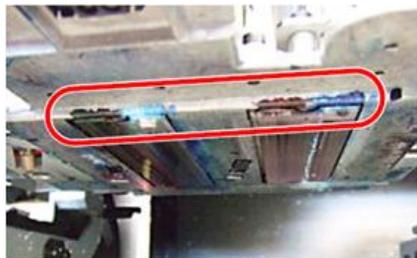
### 3. Clean the head and the surrounding area.

Gelled ink and dust could stick under the slider and the surroundings of the head.

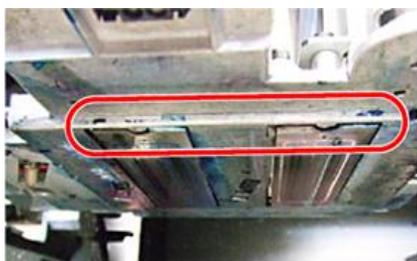
To prevent gelled/ solid ink ground from pooling at the front of the carriage, scrape them off with clean stick [B] etc. In this case, never rub the nozzle portion [A] of the head.



w\_m1522133

**Before cleaning**

m1522759

**After cleaning**

m1522760

**Capping station ("Cleaning the Wiper and Cap" Chapter 4 of the Operation Manual)**

The surrounding area of the cap is also liable to be stained by the dust and ink. It is recommended to clean the head frequently using the cleaning liquid for maintenance suitable for the ink used to avoid the stains on the head.

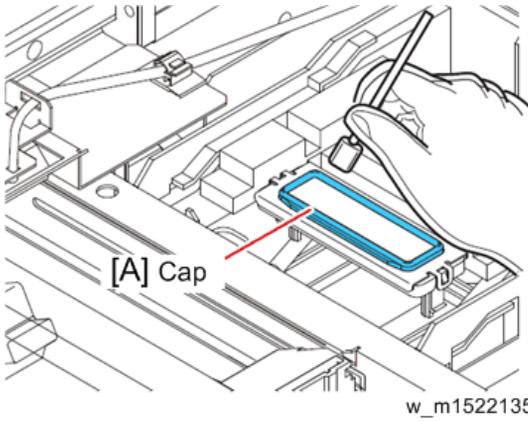
- Pro Maintenance kit Type A

**1. Move the carriage.**

Move the carriage referring to "Cleaning the Wiper and Cap" Step 1, Chapter 4 of the Operation Manual.

**2. Clean the cap [A].**

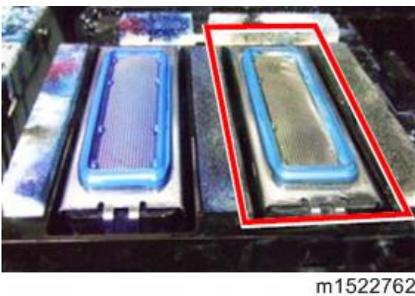
Dip the cleaning stick into the cleaning liquid for maintenance and wipe off so that you can see blue color of the cap rubber. Wipe off so that cleaning solution for maintenance will not remain.



**Before cleaning**



**After cleaning**



**Replacing method of Pro Absorbent Sponge kit Type A ("Replacing method of C absorber kit" Chapter 4 of the Operation Manual)**

If ink adheres to the C absorber [A], it is required to replace the C absorber.

Rough guide for replacement:

Replace when the concavity and convexity of the surface of the absorber are filled with ink as indicated in the below photo.

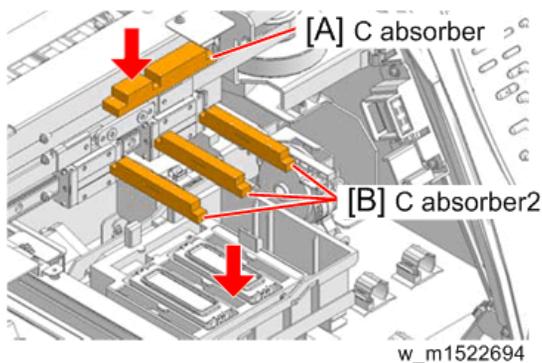
[A] Dirty C absorber



[A] Dirty C absorber

w\_m1522693

1. Move the carriage.
- Move the carriage referring to "Replacing method of C absorber kit" Step 1 to 4, Chapter 4 of the Operation Manual.
2. Open the right maintenance cover.
3. Replace the C absorber [A] and C absorber 2[B].



w\_m1522694

### Wiper ("Cleaning the Wiper and Cap" Chapter 4 of the Operation Manual)

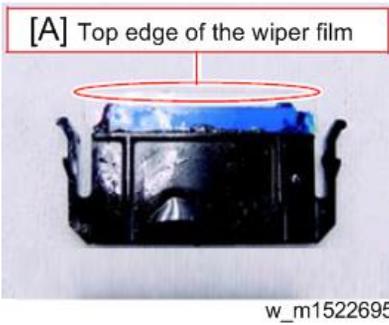
Ink, dust, or paper waste is pooled on the wiper. To keep stable printing quality, wash the wiper at the end of the day.

- Maintenance cleaning Liquid (Pro Maintenance kit Type A)
- Kim Wipe®

#### ★ Important

- Clean the wiper completely until the stained ink on the top edge of the wiper film [A] is washed away after soaking the wiper in the maintenance cleaning liquid for 1-24 hours. It is recommended to prepare two or more wipers and use them alternately.
- If cleaning of the wiper is not enough, it may cause nozzle clogging.

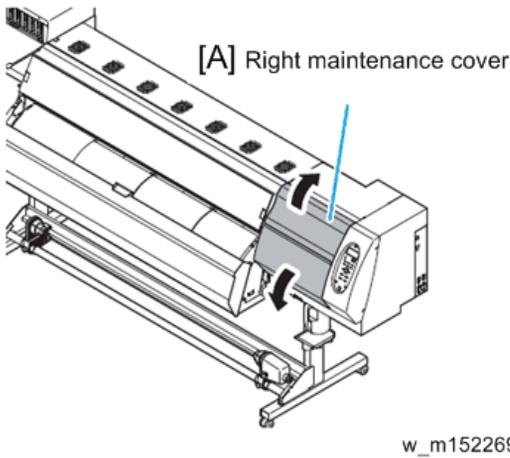
- Do not wash the wiper with other than the Kim Wipe. Otherwise, lint may remain on the wiper.



**1. Move the carriage.**

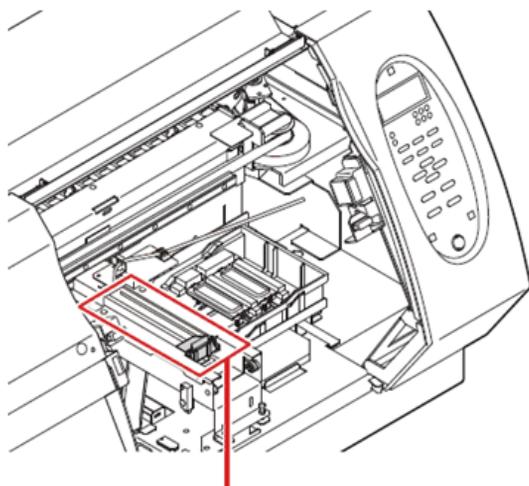
Move the carriage referring to “Cleaning the Wiper and Cap” Step 1, Chapter 4 of the Operation Manual.

**2. Open the right maintenance cover [A].**



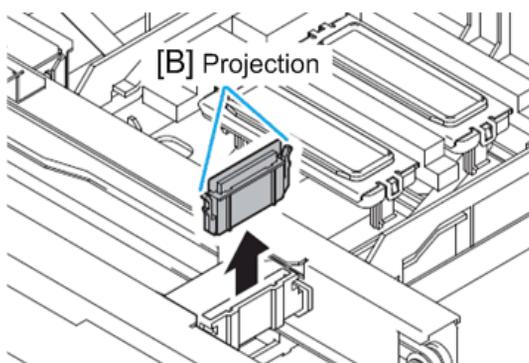
**3. Remove the wiper [A].**

Pull out the wiper by holding the projections [B] at its both ends.



[A] Wiper

w\_m1522136



[B] Projection

w\_m1522137

4. Put the wiper that you used for one day into a provided case or solvent-resistance-covered-container (glass, earthenware, etc.) and pour maintenance cleaning liquid. Time to immerse the wiper shall be for 1 to 24 hours.

#### At the start of immersion



m1522763

**At the end of immersion**



m1522764

**⚠ CAUTION**

- If you leave the wiper immersed in maintenance cleaning liquid too long, the wiper may be deformed.
- Dispose the maintenance cleaning liquid for soaking the wiper if it gets dirty. (As a guide, replace it in a week). Regarding disposal of unused maintenance cleaning liquid, please ask Industrial waste disposer and pursuant to the regulations of your district.
- For case for immersing the wiper, please use provided case or solvent-resistance-covered-container. In case that you want to immerse the wiper by using your resin case, please make sure to test whether there are no problems such as case deformation before you try.

**5. Take out the wiper and remove ink blot etc. with a Kim Wipe®.**

Wipe off well so that any lint etc. does not remain on the top edge of the wiper film.

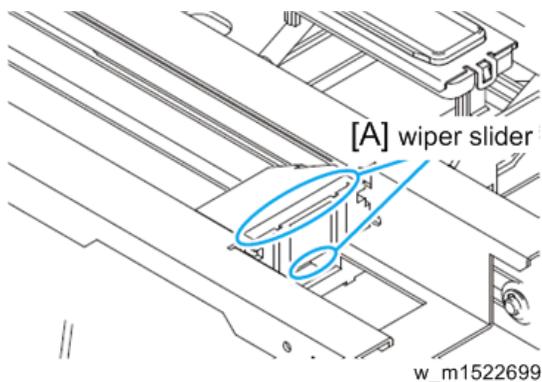


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**6. Clean the wiper slider [A].**

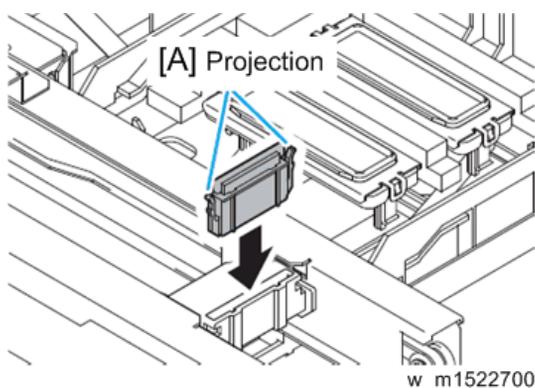
Wipe off the ink sticking to the wiper slider with a clean stick dipped in maintenance solution for maintenance.

Wipe off so that maintenance solution for maintenance will not remain.



### 7. Set the wiper at the original position.

Insert the wiper by holding the projections [A] at its both ends.



Further, in the cases as explained below, replace the wiper with the new one in accordance with "Replacing the wiper" on Chapter 4 of the Operation Manual.

- Even if you clean the wiper enough, nozzle clogging etc. occurs frequently
- When the wiper is deformed
- When the stuck ink can not be wiped off
- When the warning for wiper replacement is indicated

#### ★ Important

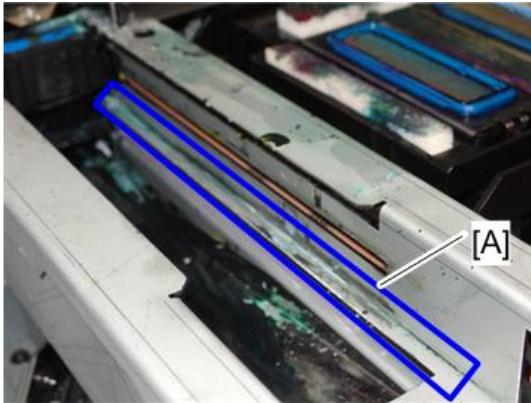
- When the warning message for replacing wiper is shown, confirm whether there is no damage and fuzz at the top edge of the wiper film. If there is no damage on the top edge of the wiper film, it is possible to use the wiper continuously without replacing it.

### 8. Clean the wiper performance area [A].

Wipe off the ink sticking to the wiper performance area with a clean stick dipped in maintenance solution for maintenance.

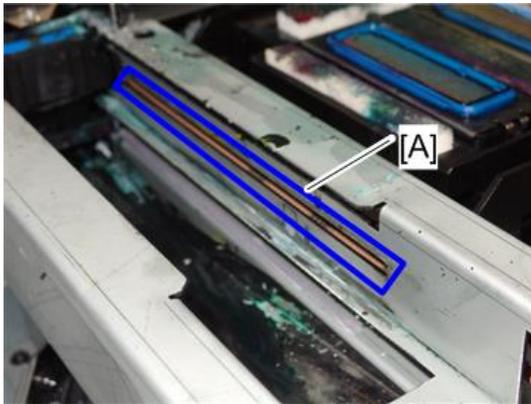
Wipe off so that maintenance solution for maintenance will not remain.

**OK:** Clean only the [A] part of the base.



m1522733

**Wrong:** Do not wipe off the grease of the wiper slider rail [A]. When wiping it off, operation of the wiper unit worsens, and an error may occur.



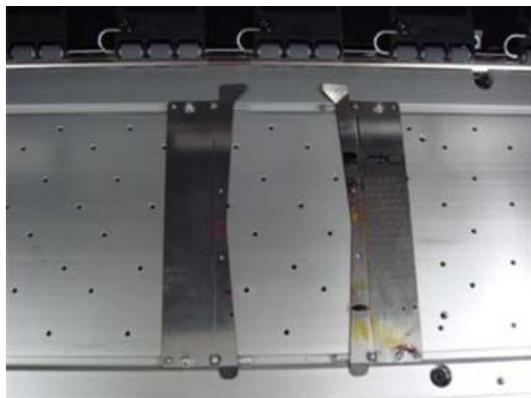
m1522734

## Media press

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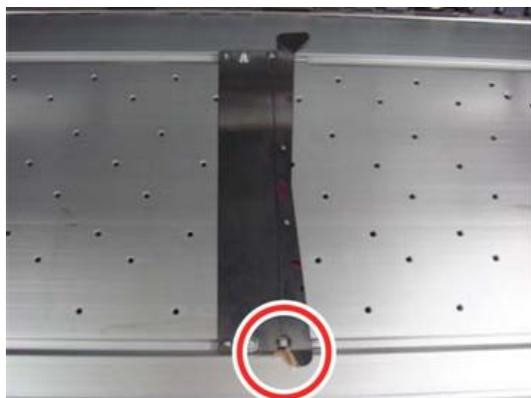
When the cut dust of the media and other dusts accumulate between the media holder and the platen, it could cause the risks that the transfer of the media could not be performed properly or such dusts stick to the nozzles and this could interfere the proper printings. You are recommended to clean it frequently.

### Media press



m1522138

### Media press with dust



m1522139

### Media sensor ("Cleaning the Media Sensor" Chapter 4 of the Operation Manual)

Two media sensors are provided: one above the platen on the rear surface of the equipment and another on the bottom surface of the head. If the dusts and ink accumulate on the sensor, it could cause false detection of the media or the register mark. Wipe off the sensors with soft cloth or clean sticks.

#### **⚠ CAUTION**

- For the cleaning of the media sensors, never use the solvent.
- When the sensor is heavily stained, wipe off with a cloth soaked in the water diluted neutral detergent.

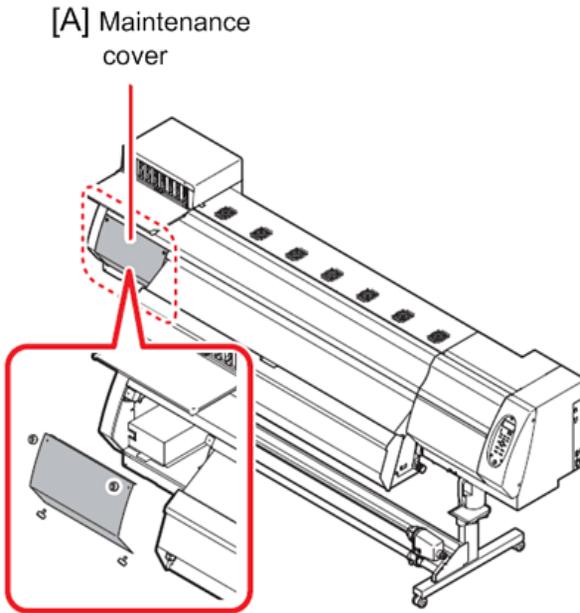
### Cleaning the media sensor at the bottom surface of the heads.

**1. Move the carriage to the left.**

Move it with reference to “Cleaning the Ink Head and the Area around It” Step 1, Chapter 4 of the Operation Manual.

**2. Open the maintenance cover [A].**

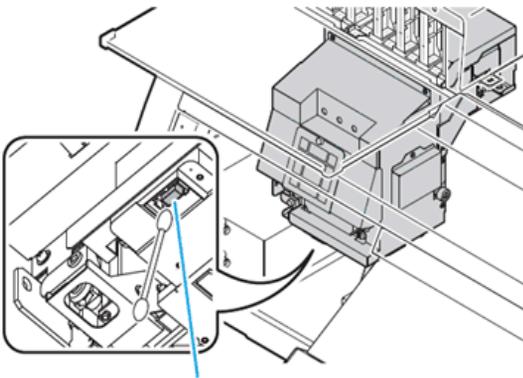
Remove the screws and open the maintenance cover.



w\_m1522132

**3. Clean the media sensor [A].**

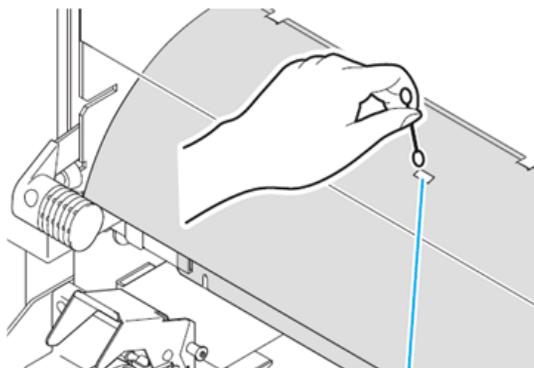
Wipe off the dusts and stuck ink with soft cloth or clean sticks.



w\_m1522141

### Cleaning of the media sensor [A] at the rear surface of the machine

Wipe off the dusts and stuck ink with soft cloth or clean sticks.



[A] Media sensor

w\_m1522142

### Platen (“Cleaning the Platen” Chapter 4 of the Operation Manual)

Platen is a place where dusts, paper powder, and ink are liable to accumulate. It is therefore suggested to clean it frequently. Wipe out the platen surface and the platen cover with a soft brush or cloth. The grooves for media holder and for cutting the paper (cutter line) are the place where the dusts are especially liable to accumulate. Clean them thoroughly.

### Exterior (“Cleaning the Exterior Surfaces” Chapter 4, Operation Manual)

Depending on the using environment, the dusts or sand powder could stick to the exterior of the main unit. To avoid the entry of the dusts into the moving part of the head, wipe them off with soft cloth dipped into water and squeezed tightly.

### Waste ink bottle (“If a Waste Ink Bottle Confirmation Message Appears” Chapter 4 of the Operation Manual)

Check whether the waste ink bottle is full or not. Take care so that the waste ink never overflows the bottle.

### Storing of the media

Store the media in the location where the dusts are not liable to accumulate and away from direct sunlight. Avoid storing the media in a place subjected to high temperature and high humidity, as the media abhors humidity, too.



**Nozzle out**



m1522145

**Ink dropping**



m1522146

**Satellite**



m1522147

## Recovery method of defective nozzle discharge

When this printer has not been used for an extended period of time, or depending on the environmental temperature, the discharge at the nozzles could become unstable. In such a case, the following methods may be taken to recover the status of the nozzles.

### 1. Daily maintenance and care

Perform the cleaning of the parts described in this document.

### 2. Performing Head Cleaning (normal). Refer to Chapter 2 of Operation Manual.

After having performed the care and maintenance stated in step 1, perform the cleaning of the heads in accordance with the procedures stated in Operation Manual.



**Perform test printing and check** (Chapter 2 of Operation Manual)

In the event nozzle missing etc. have not been improved

### 3. Performing Head Cleaning (hard). Refer to Chapter 2 of Operation Manual.

If the nozzle missing does not disappear even after repeating the head cleaning (normal) several times, reset the cleaning mode to "hard" and perform the cleaning again.



**Perform test printing and check** (Chapter 2 of Operation Manual)

In the event nozzle missing etc. have not been improved

### 4. Perform the cleaning of the head nozzles. Refer to Chapter 4 of Operation Manual.

Perform the cleaning of the head nozzles. In this case, leaving time of the cleaning liquid for maintenance shall be made [1 minute].



**Perform test printing and check** (Chapter 2 of Operation Manual)

In the event nozzle missing etc. have not been improved

### 5. Perform the cleaning of the head nozzles again. Refer to Chapter 4 of Operation Manual

Reset the leaving time of the cleaning liquid for maintenance to [10 minutes], and perform the cleaning of the head nozzles again.



**Perform test printing and check** (Chapter 2 of Operation Manual)

#### ↓ Note

- If the nozzle missing has not been improved even with the above operations, please call us or your sales agent from whom you purchased this printer.

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## **When the printer is not used for a long period (Chapter 4, Operation Manual)**

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When the printer is not to be used for a period of one week or above, perform the cleaning of the heads and nozzles and the ink discharging channel before storing this printer.

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### **Supplies**

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- Pro Wiper kit Type A
- Pro Absorbent Sponge kit Type A
- Pro Maintenance kit Type A (Maintenance cleaning Liquid)
- Pro Waste Ink Bottle Type A
- Pro Cutter Blade Type A
- Pro Cleaning Stick Type A
- Pro Filter kit Type A



# 3. Preventive Maintenance

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## Service Outline

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### Safety Precaution

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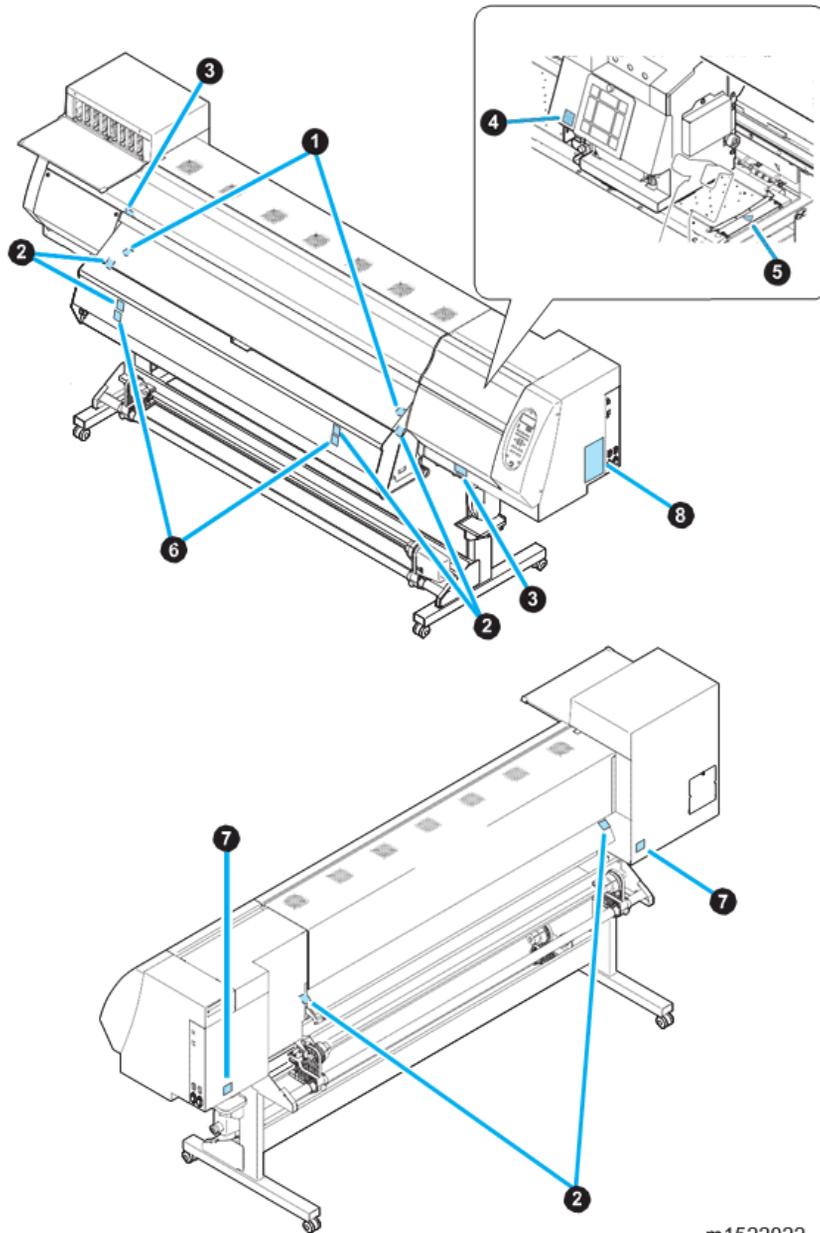
### Warning Label

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- Label Position

The following figure shows the warning labels attached to this machine. Understand the symbols, and be sure to observe the instructions of the warning labels. If the warning labels are soiled and unreadable or peeling off during the preliminary checks, replace with new warning labels after confirming with the customer.

**Label Position**



m1522022

• Label Description

1	Label Name	Label Description
	Head slider Caution Label	As the carriage moves, do not insert your hand.

1	Label Name	Label Description
		

2	Label Name	Label Description
	Caution Label (hot, small)	Attached to the media holder.
		

3

3	Label Name	Label Description
	Work Caution Label	Please wear the goggle and gloves at work.
		

4	Label Name	Label Description
	Cutter Caution Label	Be careful of the cutter blade.
		

5	Label Name	Label Description
	Heat Caution Label	Be careful of the heat.
		

6	Label Name	Label Description
	Heat Danger Label	Be careful of the heat.
		

7	Label Name	Label Description
	Dangerous voltage Label	Dangerous voltage attention
		

8	Label Name	Label Description
	Rated label	Rated label for M152
		
	Rated label	Rated label for M153

8	Label Name	Label Description
		 <p>Equipment to be connected to certified main outlet only. Appareil à brancher sur une prise certifiée. Appareil à brancher sur une prise certifiée.</p> <p>この設備は、プラグイン専用機器です。この設備を 電源回路で使用するには電圧が適合していることが必要です。 この場合には使用者が適切な対策を講ずるよう要求される ことがあります。 VCCI-A</p> <p>This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.</p> <p>This Class A digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.</p> <p>MODEL-SERIAL NO. Modeli-Seriennomer 品名-番番-番号 Modeli-Seriennomer MODELS-DB SERIES CONFORMS TO UL STD 50750-1 Certified to CAN/CSA STD C22.2 No. 60950-1</p> <p>SGPR655-130 ***** 3080219</p> <p>INPUT 100-240V ~ 12A-8A, 50/60Hz INPUT 100-240V ~ 12A/20-240V ~ 8A, 50/60Hz POWER OF MACHINE 220W short circuit rating 8.3kA electrical strength 4000V MITSUBISHI ENGINEERING CO., LTD 三菱重工業株式会社 2187-3 Shikano-cho, Temi, Nagano 389-0512 Japan Year of manufacture 年 MFG MADE IN JAPAN Date of fabrication 日 FABRIQUE AU JAPON Année de fabrication</p>

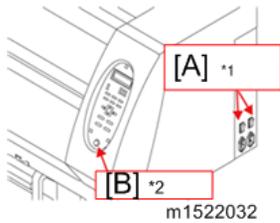
## Maintenance Precaution



- Before starting maintenance work, be sure to turn off the operation switch first and then MAIN power switch, unplug the power cable from the power inlet on the machine, and wait for more than 15 minutes. Without waiting for an adequate period of time, the electricity in the circuits on PCBs will not be discharged completely. Under such conditions, components on PCBs may be damaged if any cable inside the machine is unplugged or plugged in. Also you may get electric shock if you touch a bare electrode.
- To protect your eyes and hands from ink, be sure to wear goggles and gloves when cleaning the print head or replacing the pump assy or when there is a possibility that ink may scatter. Your hands can get rough and dry if they are stained with the ink.
- Explosion can occur if the battery is replaced with a wrong type. Dispose of used batteries according to the manufacturer's instructions.



- When removing or installing dampers, take great care not to permit ink leakage and not to stain any parts with ink. A drop of ink on FFCs or connectors may cause a short circuit or poor electrical contact, thus resulting in faulty ink ejection or damage to the head or PCBs.
- Do not turn off the power during firmware upgrading. Doing so may disable restarting.



\* 1 The switch called the "MAIN Power Switch" [A] in this document is called the "Main Power Switch" in the "Operation Manual".

\* 2 The switch called the "Operation Switch" [B] in this document is called the "Power Switch" in the "Operation Manual".

• Preliminary Checks

Before starting work, make sure that the following conditions are all met:

- 1  Understand thoroughly all the instructions given in "Warning for Use" in the Operation Manual before starting work.
- 2  The following conditions for the power supply system are all met:
  - The power supply voltage must be within the specification limits.
  - The machine must be grounded properly.
  - The power cable must be free from damage, broken wire, etc. Many cables must not be connected to one outlet.
  - The location must be such that the cable can be easily unplugged from the wall outlet in case smoke or flame has been risen from the electrical system.
- 3  Some trouble may be due to misoperation. Judge whether or not the error display and the error condition signify misoperation.

• Precautions in Work

Take the following precautions during maintenance work:

- 1  Provide adequate space for the maintenance work.
- 2  When performing tests with the electrical box cover open, be careful not to receive an electric shock from any live part. Also take care not to drop screws or any other parts into the circuit box.
- 3  Take care to avoid insufficient insertion or skewed insertion of any connector or FFC.
- 4  Do not touch FFCs with your fingers. Doing so may cause contact failure.

- 5  The lever of each FFC connector breaks easily. Move it up or down gently when releasing or locking the connector.
- 6  Pay attention to the movement of the head if you are required to perform maintenance work with the power on. (Keep all parts of your body away from moving parts.)
- 7  Use jog keys to move the media (in the X direction) or the head (in the Y direction).  
The media or head can be moved by hand with the power turned off. In doing so, however, exercise care to move them slowly.
- 8  Do not tilt the machine if ink cartridges are filled with ink. Doing so can cause ink leakage.

Follow the procedure described below before transporting the machine. Use the dedicated packaging materials to transport the machine.

- Remove the ink from the tubes by following the procedure of [MAINTENANCE] -> [HD.MAINTENANCE] -> [DISCHARGE&WASH] or [#ADJUST] -> [HEAD WASH].
- Remove the maintenance solution from the tubes by following the procedure of [MAINTENANCE] -> [HD.MAINTENANCE] -> [MaintWashLiquid].
- Remove the waste ink bottle.
- Install the head stopper to fasten the head.

## Required Tool

The table below shows the tools to be used in maintenance work. In the table, each adjustment item for parts requiring the relevant tool is marked with "O".

Name	Category	Remarks	Cover Assy	Frame Leg Assy	Clamp Assy	X-drive Assy	Y-drive Assy	Bear Assy	Ink Slider PCB	Station Assy
Phillips Screwdriver Type 1	Tool	For M2		O						

Name	Category	Remarks	Cover Assy	Frame Leg Assy	Clamp Assy	X-drive Assy	Y-drive Assy	Bear Assy	Ink Slider PCB	Station Assy
Phillips Screwdriver Type 2	Tool	For M3 to M5 (L=260 or more)	<input type="radio"/>							
		For M3 to M5	<input type="radio"/>							
Slotted Screwdriver	Tool	Long side 2.5mm	<input type="radio"/>		<input type="radio"/>					<input type="radio"/>
Hexagon Wrench	Tool	1.5mm for M3 SSWP				<input type="radio"/>				<input type="radio"/>
		2.0mm for M4 SSWP				<input type="radio"/>	<input type="radio"/>			
		2.5mm for M3 cap bolts		<input type="radio"/>						
		3.0mm for M4 cap bolts		<input type="radio"/>	<input type="radio"/>					
		4.0mm for M5 cap bolts		<input type="radio"/>						
		10.0mm for M12 cap bolts		<input type="radio"/>						

Name	Category	Remarks	Cover Assy	Frame Leg Assy	Clamp Assy	X-drive Assy	Y-drive Assy	Bear Assy	Ink Slider PCB	Station Assy
Spanner	Tool	Width across flats: 7mm M4		○						
		Width across flats: 10mm		○						
Long-nose Pliers	Tool		○		○					○
Nippers	Tool									○
Grease	Expendable	MG-A1-GU		○						
		LONGTE RM-W2-GU		○						
Acetate Fabric Tape	Expendable							○		
Double-stick Tape	Expendable							○		

Name	Category	Remarks	Cap Base Assy	Wiper Assy	Waste Ink Bottle	Print Head Unit	Electrical Device Assy	Platen Assy	Cartridge Assy	X-axis Motor Relay PCB
Phillips Screwdriver Type 1	Tool	For M2						○		
Phillips Screwdriver Type 2	Tool	For M3 to M5 (L=260 or more)	○	○	○	○	○	○	○	○
		For M3 to M5	○	○	○	○	○	○	○	○
Slotted Screwdriver	Tool	Long side 2.5mm				○			○	
Hexagon Wrench	Tool	1.5mm for M3 SSWP		○						
		2.5mm for M3 cap bolts				○				
Loupe	Tool	×50 or ×60				○				
Ink Line Airtight Tester	Jig	OPT-J0094							○	
Head Inside Washing Jig Set	Jig	OPT-J0136				○				

Name	Category	Remarks	Cap Base Assy	Wiper Assy	Waste Ink Bottle	Print Head Unit	Electrical Device Assy	Platen Assy	Cartridge Assy	X-axis Motor Relay PCB
Nippers	Tool		○							
Acetate Fabric Tape	Expendable					○				
Double-stick Tape	Expendable							○		

3

Name	Category	Remarks	Washing Cartridge	Small Take-up Device Assy	Roll Assy	Drying Assy	Installation change location	Adjustment of the print head	Adjustment of the edge	Distance accuracy
Phillips Screw driver Type 1	Tool	For M2				○				
Phillips Screw driver Type 2	Tool	For M3 to M5 (L=260 or more)	○	○	○	○	○	○		
		For M3 to M5	○	○	○	○	○	○		

Name	Category	Remarks	Washing Cartridge	Small Take-up Device Assy	Roll Assy	Drying Assy	Installation location	Adjustment of the print head	Adjustment of the edge	Distance accuracy
Hexagon Wrench	Tool	1.5mm for M3 SSWP		○	○					
		3.0mm for M4 cap bolts				○				
		4.0mm for M5 cap bolts					○			
		5.0mm for M6 cap bolts					○			
		6.0mm for M8 cap bolts					○			
		10.0mm for M12 cap bolts					○			
Spanner	Tool	Width across flats: 7mm M4				○				
		Width across flats: 19mm					○			
Snap Ring Plier	Tool			○	○					
Loupe	Tool	×50 or ×60						○		

Name	Category	Remarks	Washing Cartridge	Small Take-up Device Assy	Roll Assy	Drying Assy	Installation change location	Adjustment of the print head	Adjustment of the edge	Distance accuracy
Scale	Tool	150mm							○	
		500mm								○

# Regular Maintenance

## Periodic Check Item

### Outline

This section shows the periodical maintenance work items recommended to keep the machine in good condition.

3

### Periodic Check Items

Item	Sub Item	Remarks	See
Checking the machine condition	1 Upload of parameters		page 147 "Checking the Machine Condition"
	2 Update of firmware	Old Ver.: New Ver.:	
	3 Checking the result of user's care		
	a Area around the heads		
	b Station		
	c Media holder, platen, etc.		
	4 Head condition	Test drawing: Head adjustment: Inclination Ink drop position	
Regularly replaced parts	1 Tube Pump Assy (for Suction)		page 150 "Regularly Replaced Parts"
	2 Cap rubber		
	3 Damper Adapter		

Item	Sub Item	Remarks	See
Greasing	1 Clamp Lever		page 151 "Greasi ng"
	2 Clamp Cams		
	3 Cap Slider		
	4 Wiper Slider		
Checking	1 Sensor test		page 153 "Checki ng"
	2 Operation test		
	3 Linear encoder test		
	4 Replace counter		
	a Hours of machine use	Value: [h]	
	b Drawing area	Value: [m2]	
	c Drawing length	Value: [m]	
	d Scan count	Value: [times]	
	5 Upload of parameters		
6 Checking online drawing			

## Checking the Machine Condition

### Outline

This section shows the work items for understanding the machine condition at the beginning of work and solving the current problems.

### Work items

#### CAUTION

- For cleaning the sensors and covers, do not use any organic solvent, such as alcohol or Solvent cleaning Liquid. An organic solvent can liquefy resin and paint, thus causing a machine failure or flaw in appearance.

#### 1. Upload the parameters to store the parameters of the machine.

- 2. When the firmware of the machine is not the latest version, update the firmware.
- 3. Check the result of user's maintenance with attention paid to the following points:

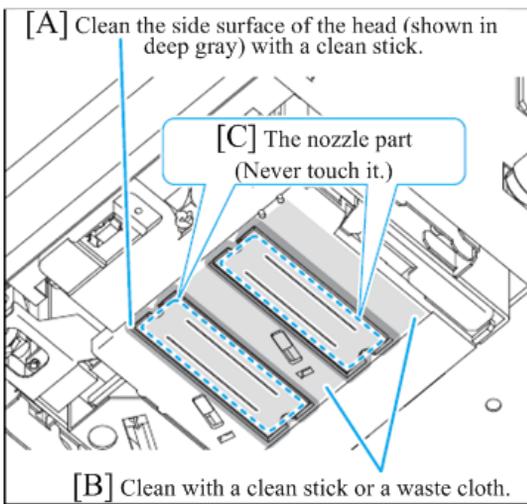
**Area around the heads**

Check for ink sticking or dust accumulation. If necessary, tell the user the cleaning method which uses Maintenance cleaning liquid or Cleaning Stick.

[A] Clean the side surface of the head (shown in deep gray) with a cleaning stick.

[B] Clean with a cleaning stick or a waste cloth.

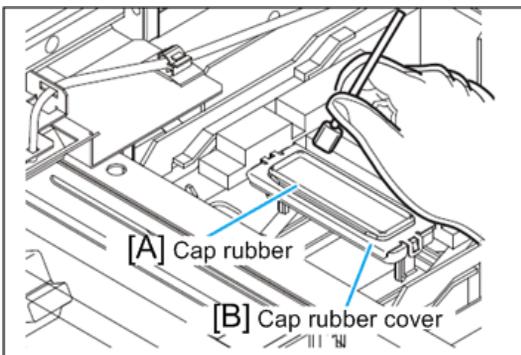
[C] The nozzle part (Never touch it.).



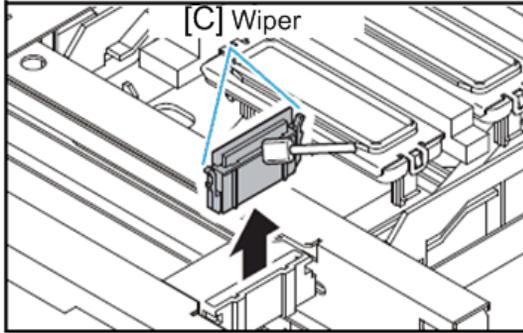
w\_m1522033

**Station**

Check the areas around the cap (Cap rubber [A], Cap rubber cover [B]) and wipers [C] for ink sticking or dust accumulation. If necessary, tell the user the cleaning method which uses Maintenance cleaning liquid or Cleaning Stick.



w\_m1522034

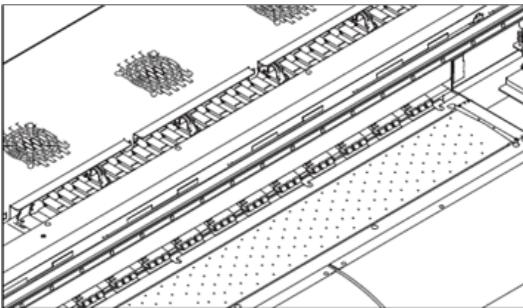


w\_m1522668

### Media holder, platen, etc.

Check the following parts for paper dust accumulation or ink sticking. If necessary, tell the user the cleaning method which uses natural detergent, waste cloth, or Cleaning Stick.

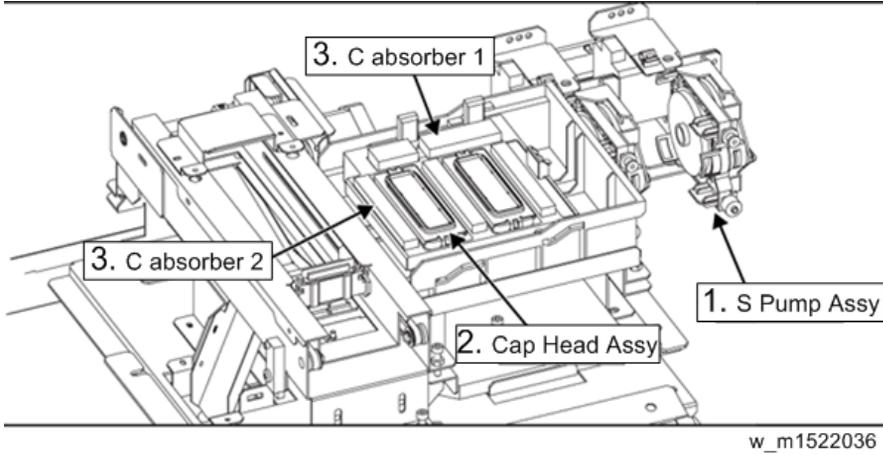
- Media Holder
- Platen
- PF Roller
- Media sensor (Two locations: back right and center)
- Cover
- Waste Ink Bottle (volume of empty space)



m1522035

4. Execute test drawing and check the head condition (for nozzle clogging or jet deviation). Perform slant adjustment and/or drop position adjustment, if necessary.

## Regularly Replaced Parts



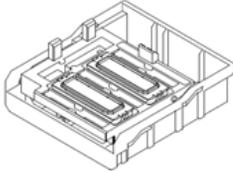
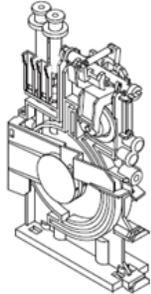
### Outline

Check the Regularly Replaced Parts with attention paid to the following points:

- Is there a possibility that trouble may occur in ink suction or wiper replacement work because user maintenance is inadequate and thus the machine is badly stained?
- Is the rubber of the cap head deformed?
- Can the stain, such as ink sticking, be removed completely?
- Are there any parts worn significantly?

### Regularly replaced parts

No.	Parts name		Q'ty	Interval (year)
1	Tube Pump Assy (page 181 "Tube Pump Assy (for Pressure-Feed)") (page 182 "Tube Pump Assy (for Suction)")		10	1

No.	Parts name		Q'ty	Interval (year)
2	Cap Unit (page 178 "Cap Unit")	 m1522038	1	1
3	Damper: maintenance Assy (page 161 "Damper")	 m1522787	4	1
4	Filter (page 160 "Filter")	 m1522788	8	1
5	Head: maintenance Assy (page 166 "Head Unit")	 m1522801	2	1

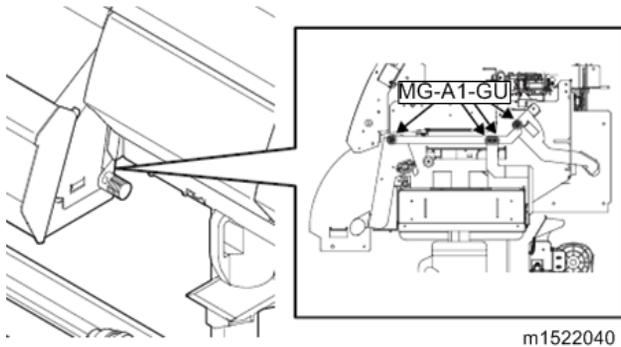
## Greasing

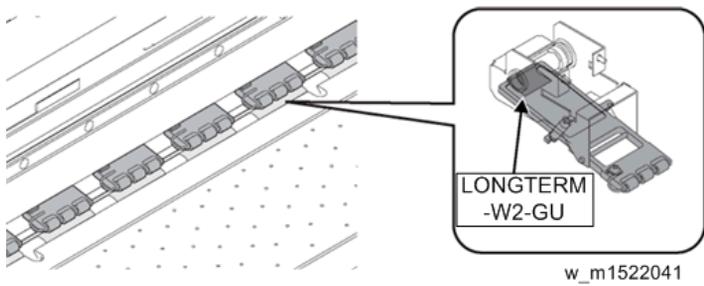
### Outline

This section shows the parts to be greased periodically to suppress abrasion or abnormal sound during machine operation.

### Parts to be greased

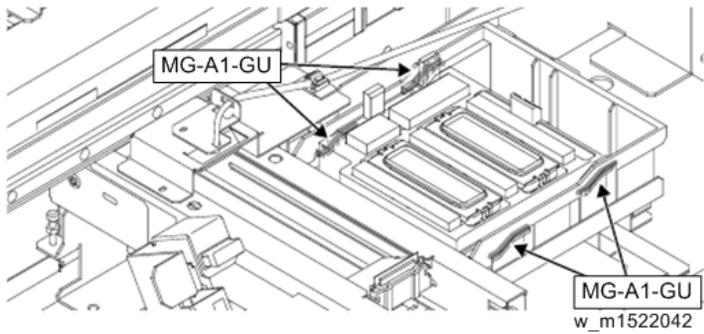
3

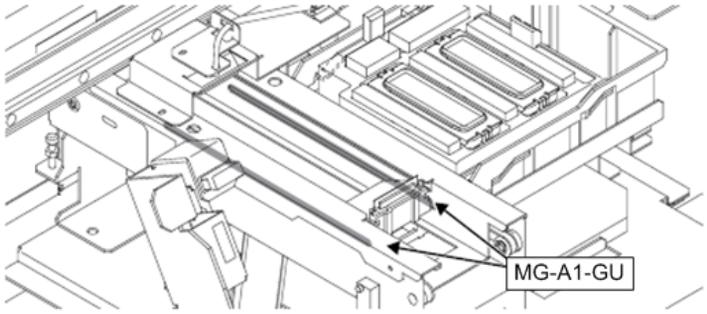
Clamp lever	
Grease: MG-A1-GU	

Clamp cams	
Grease: LONGTERM-W2-GU	

**Note**

- Apply the grease to all the cams.

Clamp lever	
Grease: MG-A1-GU	

Wiper slider	 <p style="text-align: right;">w_m1522043</p>
Grease: MG-A1-GU	

## Checking

### Outline

For the various sensors, fans, motors, etc., this section shows the work items for checking the use to date and inspections.

### Checking items

No.	Item	Description
1	Sensor test	Perform all items defined in Sensor Check and make sure that there is no problem.
2	Operating test	Perform all items defined in Operating Test and make sure that there is no problem.
3	Linear encoder test	Perform linear encoder test and make sure that there is no problem.
4	Checking the REPLACE COUNTER	Check the REPLACE COUNTER and note down the following records. <ol style="list-style-type: none"> <li>a. Hours of machine use</li> <li>b. Drawing area</li> <li>c. Drawing length</li> <li>d. Scan count</li> </ol>
5	Upload of parameters	Once adjusted values or settings are changed, upload the parameters again.

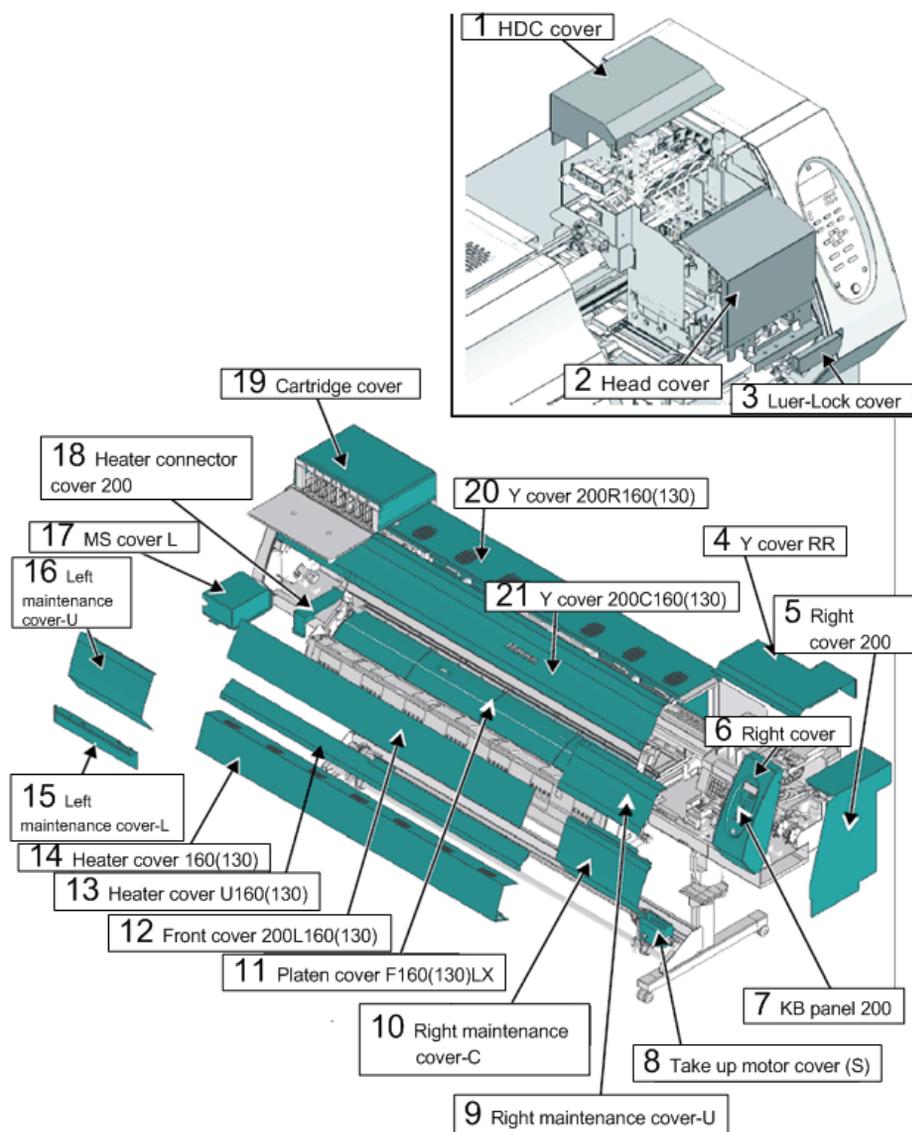
No.	Item	Description
6	Checking online drawing	Finally, perform test drawing and online drawing and make sure that there is no problem.

# 4. Replacement and Adjustment

## Common Procedures

### Cover Layout

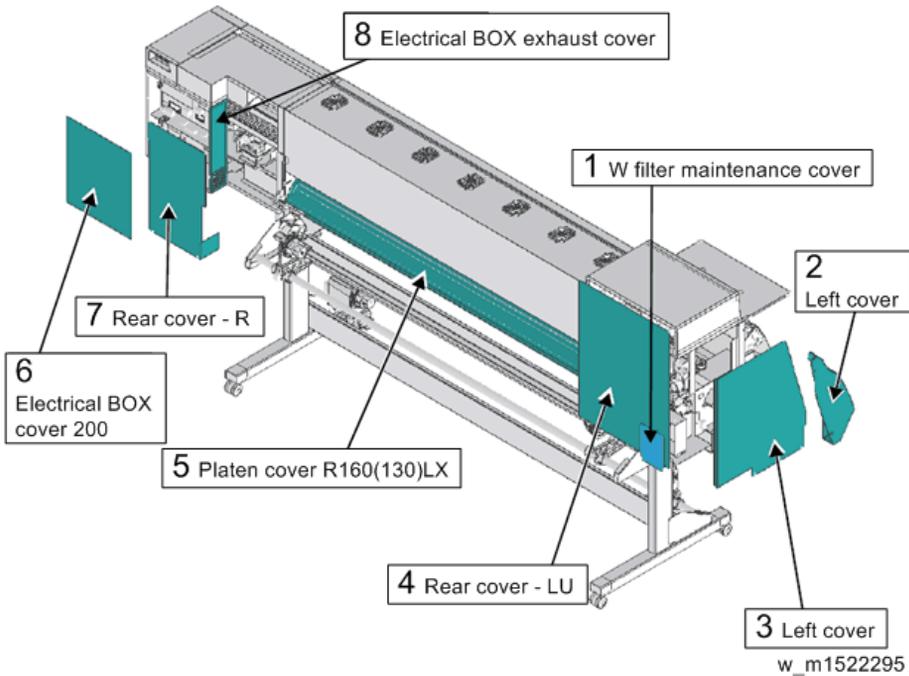
#### Machine Front



w\_m1522294

1	HDC cover	12	Front cover 200L160(130)
2	Head cover	13	Heater cover U160(130)
3	Luer-Lock cover	14	Heater cover 160(130)
4	Y cover RR	15	Left maintenance cover-L
5	Right cover 200	16	Left maintenance cover-U
6	Right cover	17	MS cover L
7	KB panel 200	18	Heater connector cover 200
8	Take up motor cover (S)	19	Cartridge cover
9	Right maintenance cover-U	20	Y cover 200R160(130)
10	Right maintenance cover-C	21	Y cover 200C160(130)
11	Platen cover F160(130)LX		

**Machine Rear**



w\_m1522295

1	W filter maintenance cover	5	Platen cover R160(130)LX
---	----------------------------	---	--------------------------

2	Left cover	6	Electrical BOX cover 200
3	Left cover	7	Rear cover - R
4	Rear cover - LU	8	Electrical BOX exhaust cover

**★ Important**

- When fixing the cover, put it inside of the washer of loosened screw and tighten the screw.

**OK: The washer of the screw is outside of the cover.**



m1522765

**Not good: The washer of the screw is inside of the cover.**

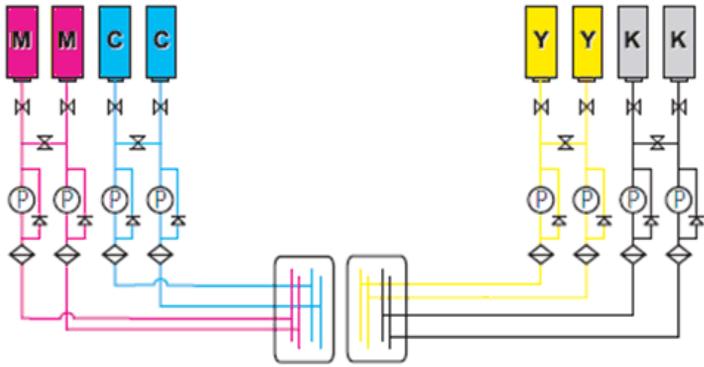


m1522766

# Ink-related Parts

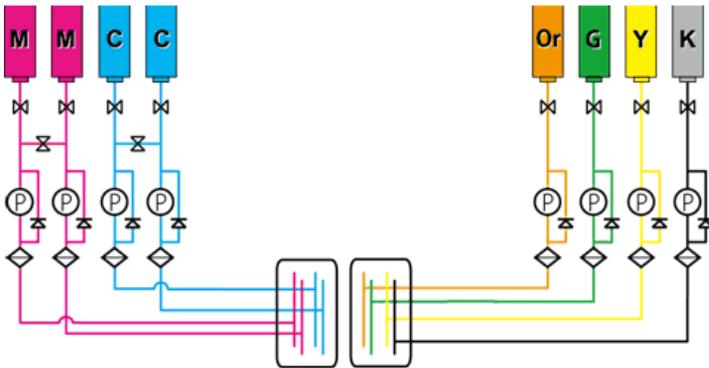
## Changing Joint

Ink supply path (4-color fill: at factory shipment)



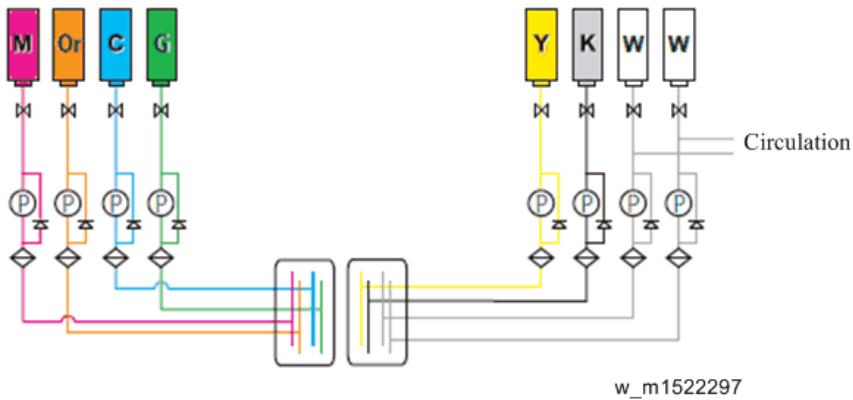
m1522790

Ink supply path (6-color)



m1522791

### Ink supply path (6-color + W fill)



It is possible to set the above three ink supply paths for this machine.

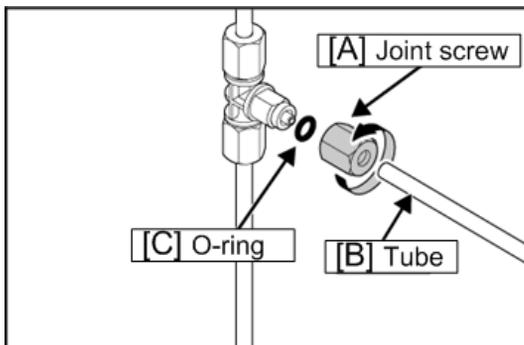
Four colors are set at factory shipment, but it is possible to change to other colors by coupler opening and closing.

This section describes the procedures to change to 4 colors + white.

### ⚠ CAUTION

- Be sure to wear protective glasses and working gloves during the operation.
- Ink may get into your eyes depending on the working condition, or hand skin may get rough if you touch the ink.

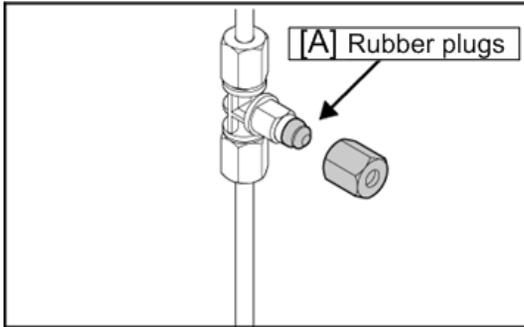
1. Execute [#ADJUST] – [HEAD WASH] to discharge the ink.
2. Remove the rear cover LU.
3. Loosen the joint screws [A] and remove the tube [B] and O-rings [C].



4. Put on the rubber plugs [A] on the coupler.

### ★ Important

- Make sure that O-ring is not remaining in the joint screws.



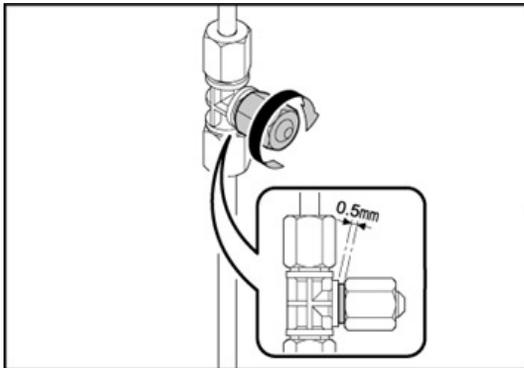
w\_m1522299

**5. Tighten the joint screws.**

Leave a space of around 0.5 mm between the coupler and screw.

**★ Important**

- When clamping the joint screws, do not clamp them too much.



m1522300

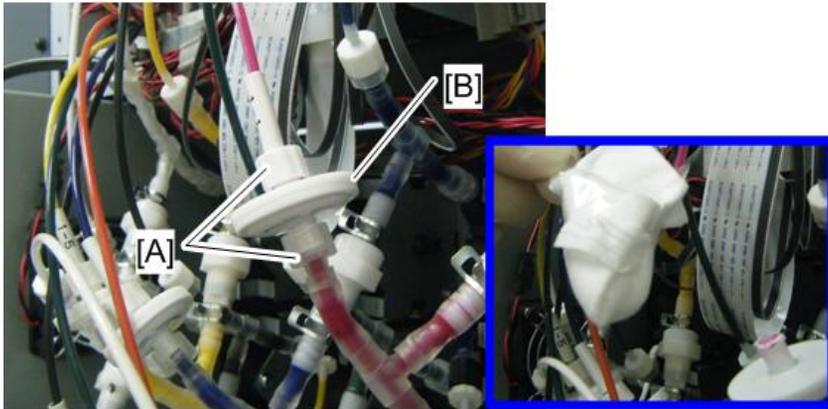
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## Filter

---

1. Remove the rear cover LU.
2. Loosen the joint screws [A] and remove the filters [B].

Wrap the tubes with a paper towel to prevent an ink leak.



m1522792

### ★ Important

- When assembling the filters, set their print sides downward.

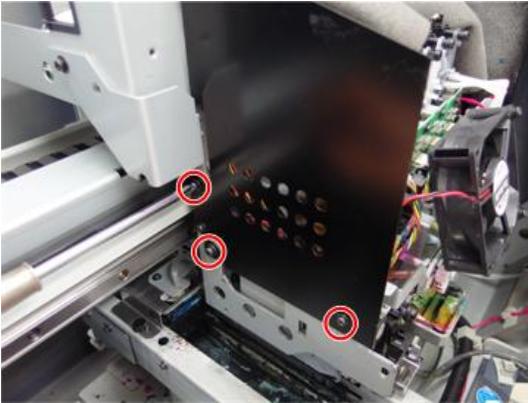


m1522793

## Damper

### 1. Remove the following covers.

- Right maintenance cover C
- Right maintenance cover U
- Y cover RR
- HDC cover
- Lure-lock cover
- Head cover
- Head cover L



m1522735

4

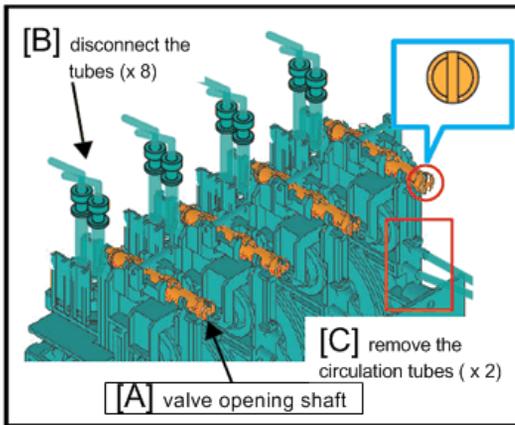
- Head cover R



m1522736

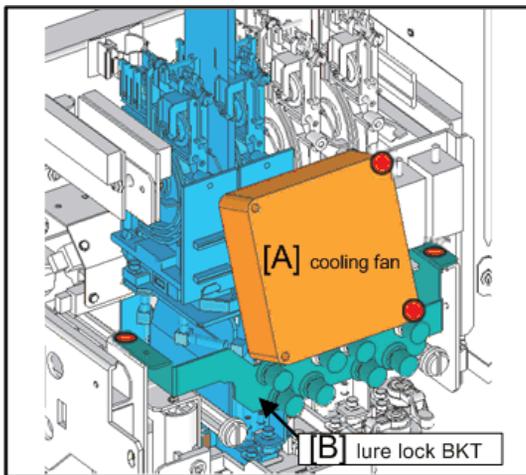
2. Cover the paper towel around the printing head to prevent an ink leak.
3. Check the groove of damper valve opening shaft [A] is vertical position. When it is not vertical, adjust it with flat head driver.
4. Select [DAMPER / DISCHARGE] from the operation menu.  
Refer to page 277 "DAMPER DISCHARGE".
5. Turning the power off, after completed discharge.

6. Disconnect the tubes from fittings (x 8) [B] at top of the dampers. Disconnect the circulation tube of only W ink (x 2 each damper) [C].



w\_m1522672

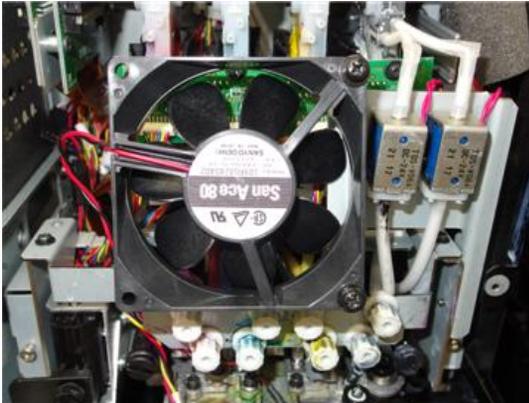
7. Move the Print Head Carriage to make your work easy.
8. Remove the cooling fan [A] (screw x 2).
9. Remove the Lure Lock BKT [B] (screw x 2).



w\_m1522671

#### ⬇ Note

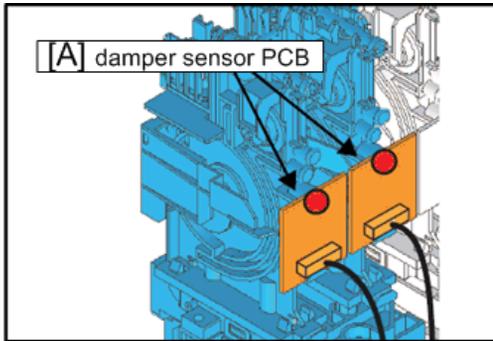
- When assembling the cooling fan, put the cooling fan with its decal facing the outside of the machine.



m1522737

4

10. Remove the damper sensor PCB (x4) [A] from each damper (screw x 1). It is no problem the sensor cable with being connected.

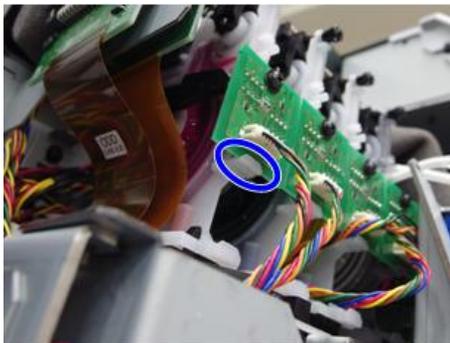


w\_m1522673

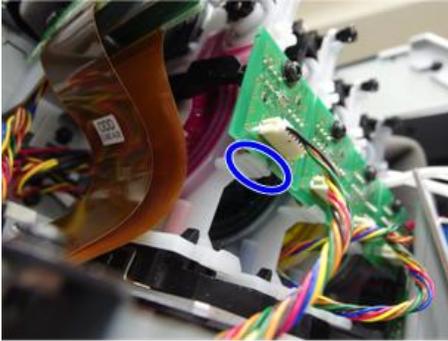
**Note**

- When assembling the damper sensor PCB, put its board into the groove of the ground plate.

OK

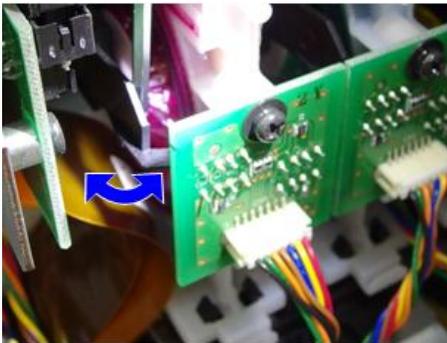


m1522739

**Not good**

m1522740

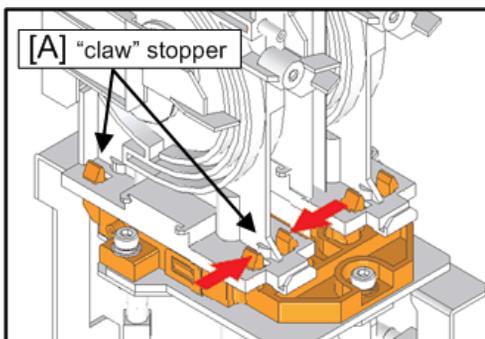
- Check the filler moves smoothly.



m1522741

11. Remove the damper from the damper adapter Assy. by pressing to inside the “claw” stopper [A] at lower the damper.

(Stoppers are front and rear of the damper, remove each stopper.)



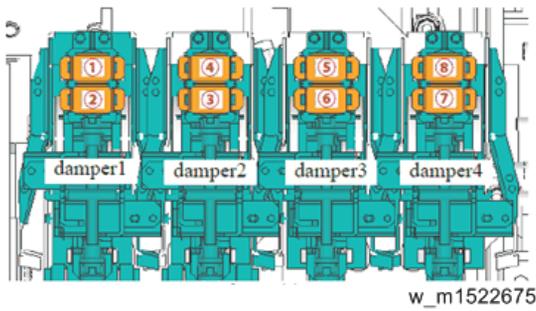
w\_m1522674

12. Perform the assembly by reversing the disassembly procedure.

**★ Important**

- Do not get a wrong turn (position) of attaching ink tube tag.

**View from top side**



**13. Perform [DAMPER / FILLUP] and fill ink in the damper.**

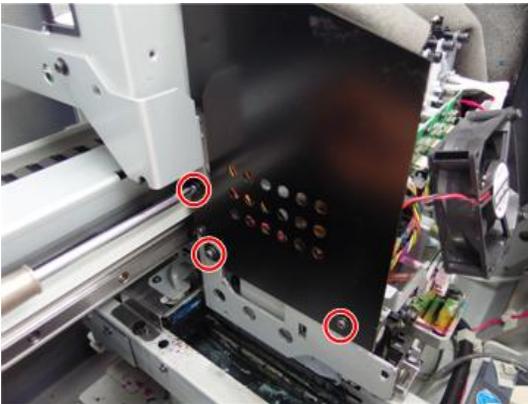
Refer to page 279 "DAMPER FILLUP".

4

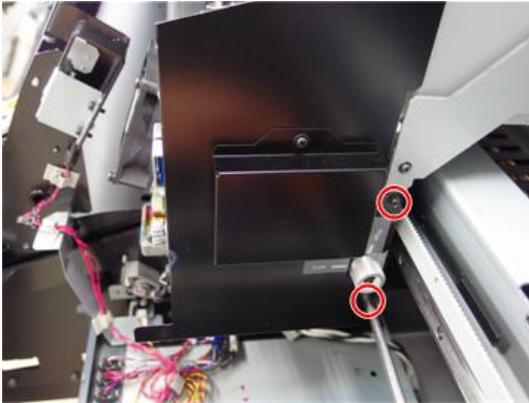
## Head Unit

**1. Remove the following covers.**

- Right maintenance cover C
- Right maintenance cover U
- Y cover RR
- HDC cover
- Lure-lock cover
- Head cover
- Head cover L

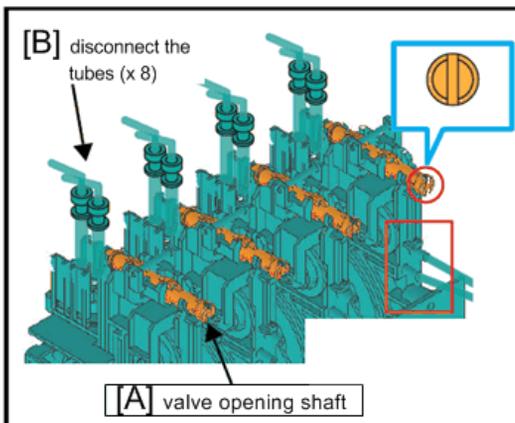


- Head cover R



m1522736

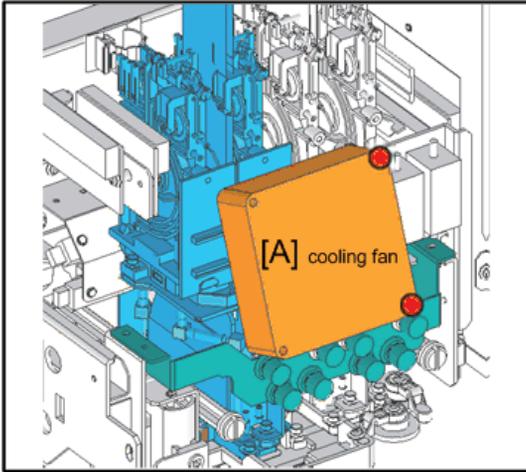
2. Cover the paper towel around the printing head to prevent an ink leak.
3. Check the groove of damper valve opening shaft [A] is vertical position. When it is not vertical, adjust it with flat head driver.
4. Select [DAMPER / DISCHARGE] from the operation menu.  
Refer to page 277 "DAMPER DISCHARGE".
5. Turning the power off, after completed discharge.
6. Disconnect the tubes from fittings (x 8) [B] at top of the dampers.



w\_m1522758

7. Move the Print Head Carriage to make your work easy.

8. Remove the cooling fan [A] (screw x 2).



w\_m1522767

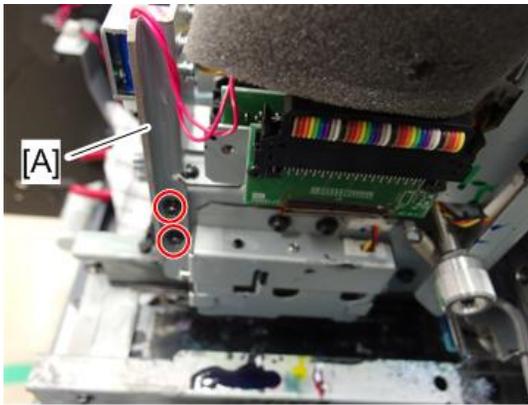
↓ Note

- When assembling the cooling fan, put the cooling fan with its decal facing the outside of the machine.



m1522737

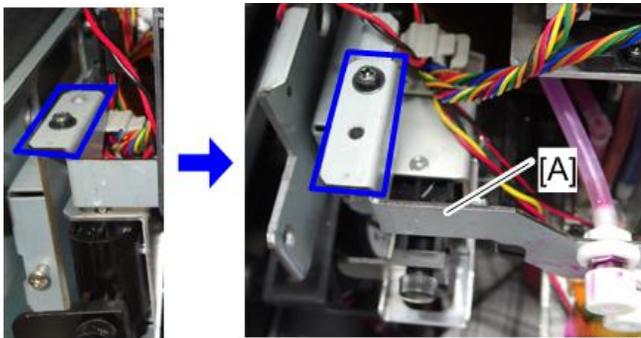
9. Remove the circulation valve bracket [A] (screw x 2).



m1522738

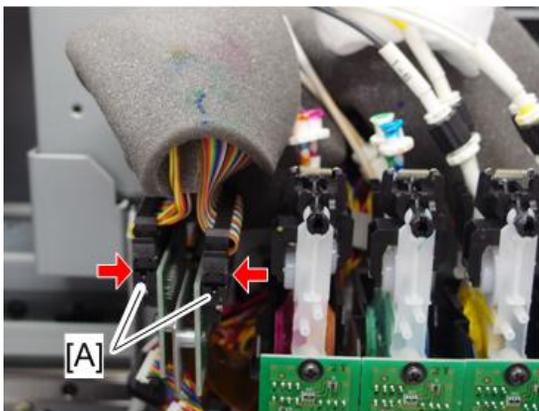
4

10. Move the Lure Lock BKT [A] and attach it temporarily as shown below. (screw x2).



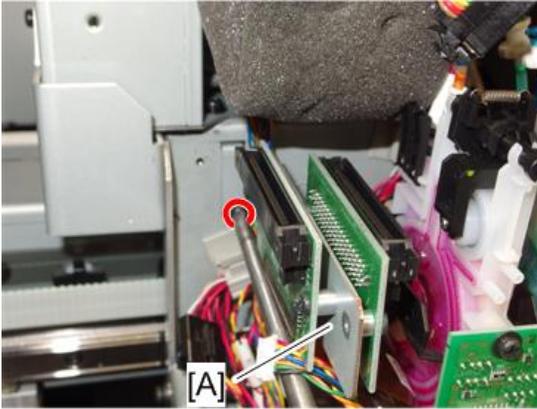
m1522742

11. (Left side) Remove the connectors [A] of the head unit PCB.



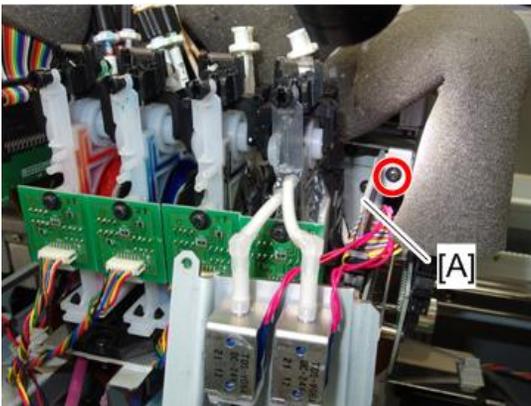
m1522744

12. (Left side) Remove the bracket [A] of the head unit PCB. (screw × 1)



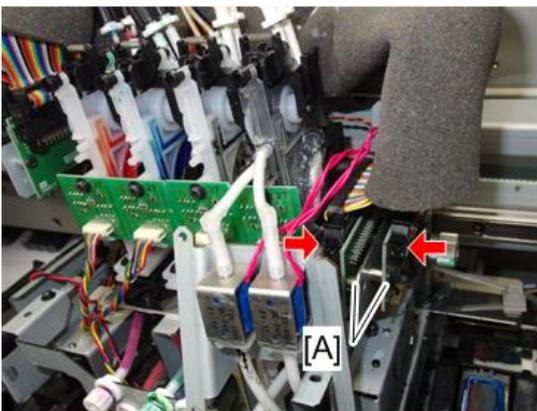
m1522745

13. (Right side) Remove the harness guide [A]. (screw × 1)



m1522753

14. (Right side) Remove the connectors [A] of the head unit PCB.



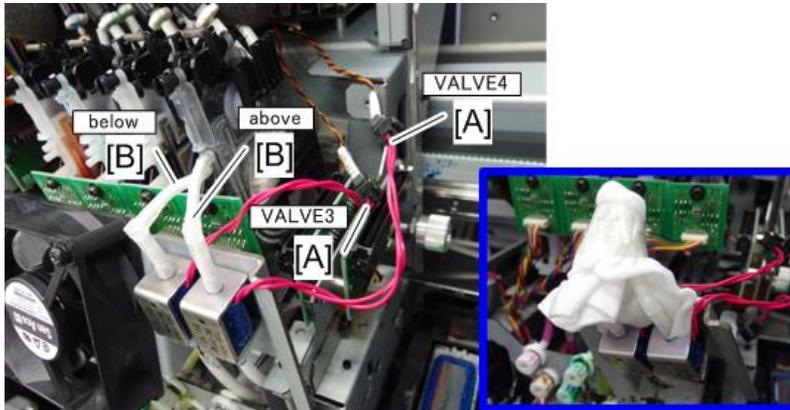
m1522754

15. (Right side) Remove the connectors [A] and the tubes [B] of the circulation valve.

Wrap the tubes of the circulation valve with a paper towel to prevent an ink leak.

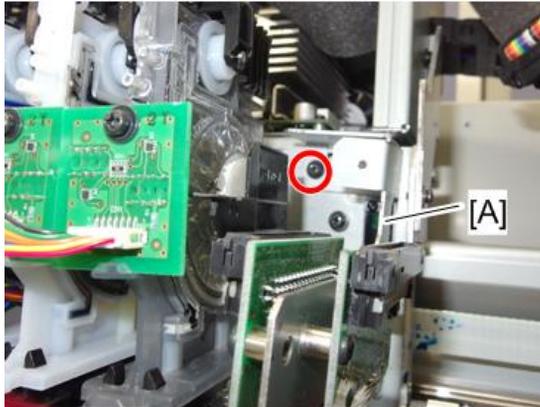
★ Important

- When assembling the connectors and the tubes of the circulation valve, do not get a wrong turn (position) of attaching them.



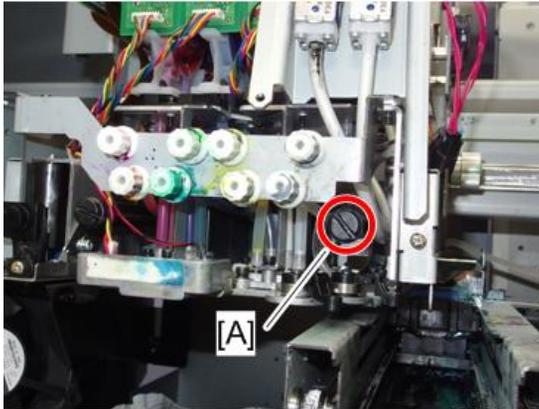
w\_m1522755

16. (Right side) Remove the bracket [A] of the head unit PCB. (screw × 1)



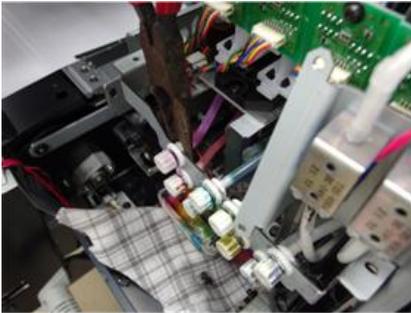
m1522756

17. (Right side) Remove the head lock screw 200 [A] by rotating it.



m1522757

18. Loosen the fixtures as shown below and disconnect the tubes (×8) from the lure lock on the front of Carriage.

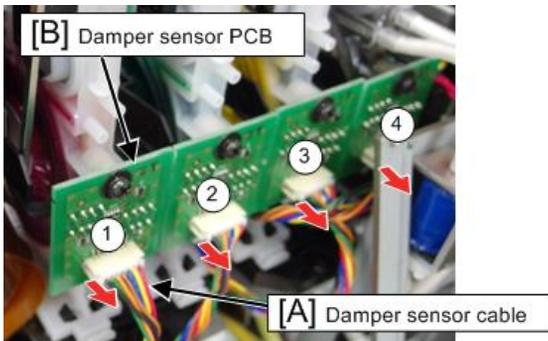


m1522746

19. Disconnect the Damper sensor cable [A] (each damper has 1 cable) from the damper sensor PCB [B].

★ Important

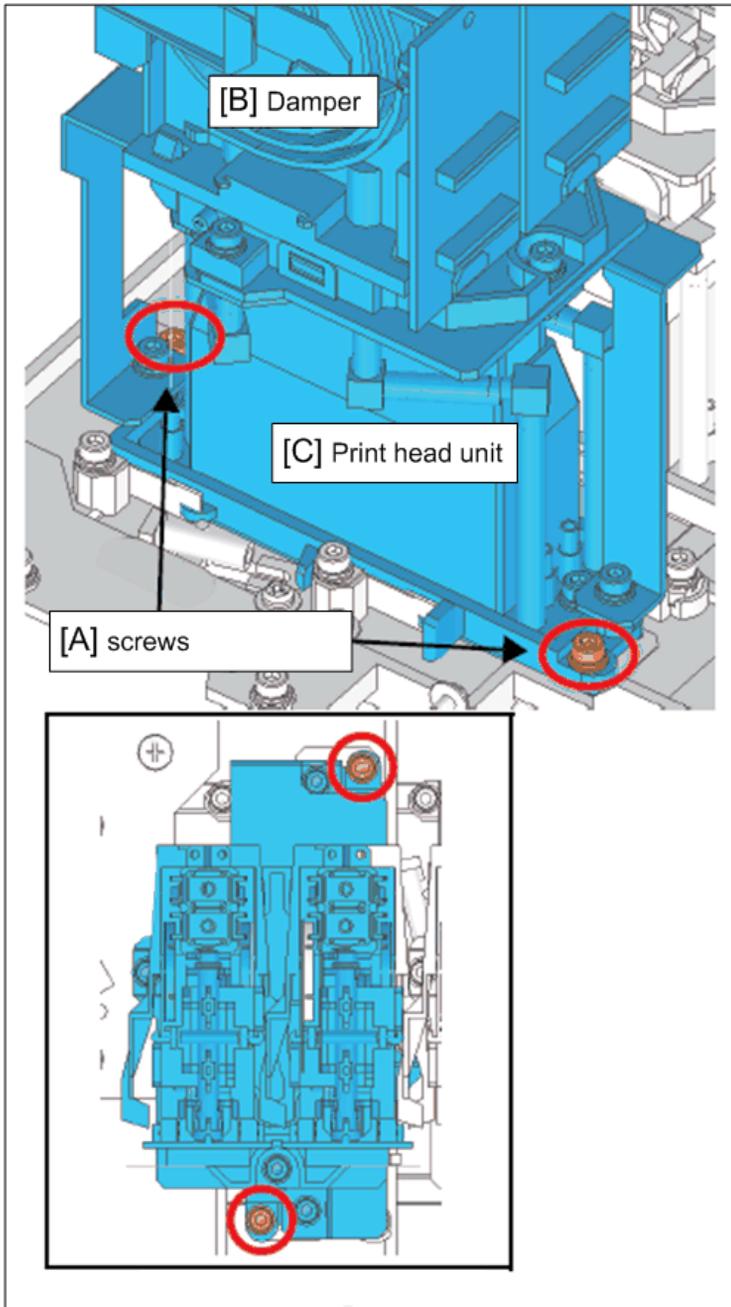
- When assembling the damper sensor cables, do not get a wrong turn (position) of attaching them.



m1522743

20. Remove the screws (CS3x8SMW x2) [A] at front and rear of the each unit. Remove the Damper [B] and head unit [C] from the carriage.

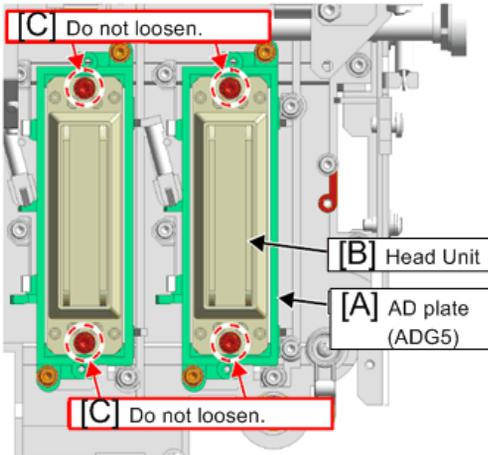
Figure shows Ver.1 type, Ver.2 type is same as working.



w\_m1522683

★ Important

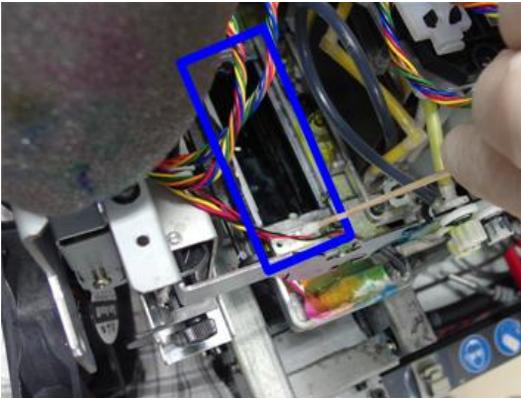
- Make sure not to loosen any other screws than the Head Fixing Screws. The AD plate (ADG5) [A] and the Head Unit [B] have been united in one assembly after matching the precision. Do not loosen the following screws [C] to prevent the displacement of precision. (Re-adjustment unable)



w\_m1522684

↓ Note

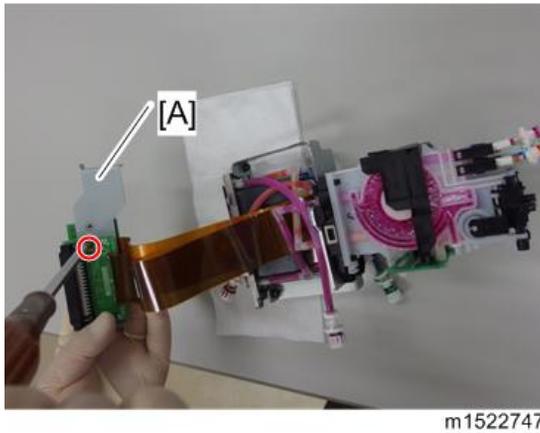
- When assembling the damper and head unit, clean the ground plane with the cleaning liquid 03 before assembling.



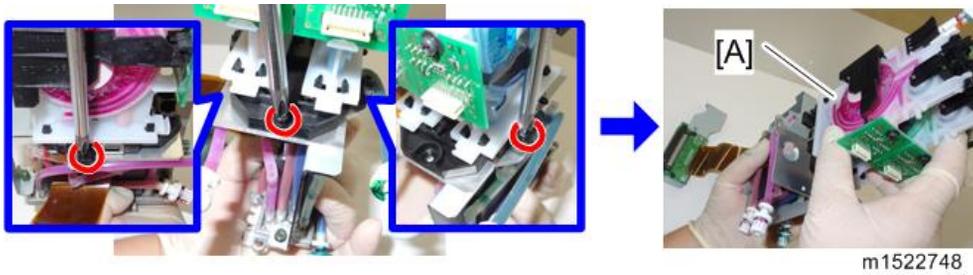
m1522751

- When assembling the damper and head unit, be careful not to confuse the position of the left and right unit. Those shapes are slightly different.

21. Remove the bracket [A] from the head unit PCB. (screw × 1)

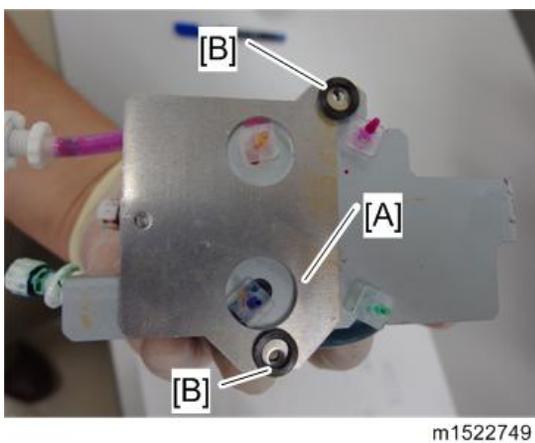


22. Remove the damper unit [A] from the head unit. (screw × 3, plate, washer×2)

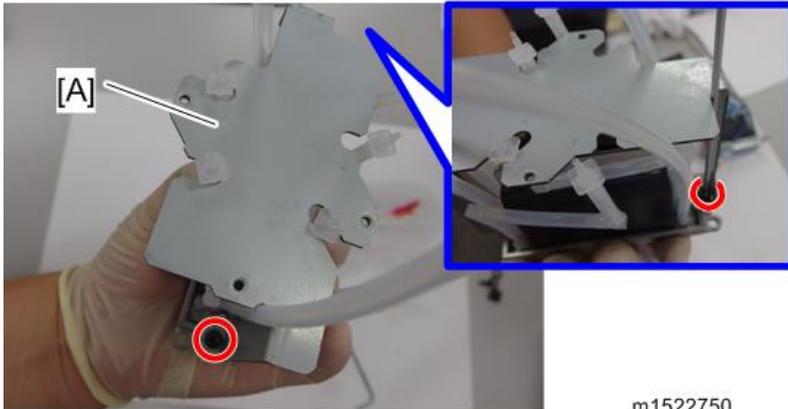


↓ Note

- When assembling the damper unit, place the plate [A] and washer [B] as shown below.



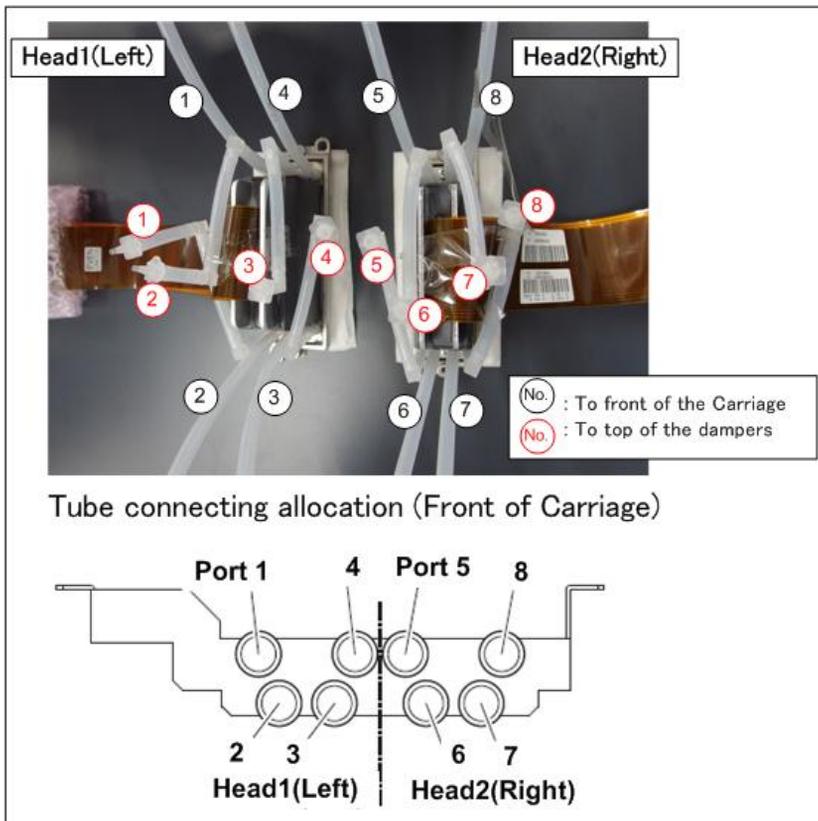
23. Remove the damper bracket [A] from the print head unit. (screw × 2)



m1522750

24. Perform the assembly by reversing the disassembly procedure.

The tube connections of Lure lock on the front of Carriage are shown in the below figure. Connect the tubes as shown in the figure.

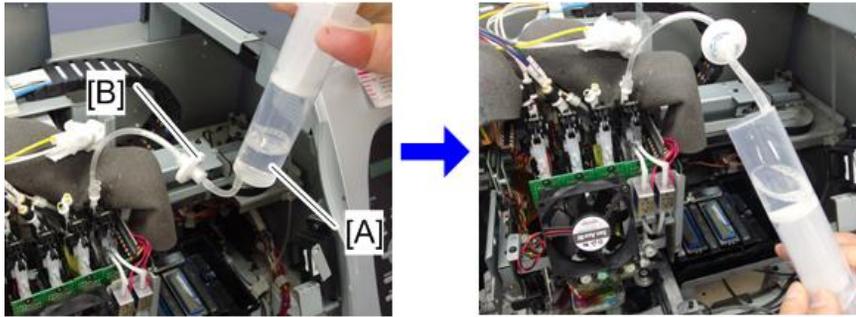


w\_m1522687

### ★ Important

- When the head is replaced with new one, wet the inside of each nozzle with the cleaning liquid 03 (approx. 10cc) after assembling.  
At supplying the liquid, supply the liquid slowly not to apply force, using a syringe [A] and 10  $\mu$ m filter [B].
- After supplying the liquid, supply air into the nozzle until a bubble comes out enough.

### Washings to use: Cleaning liquid 03

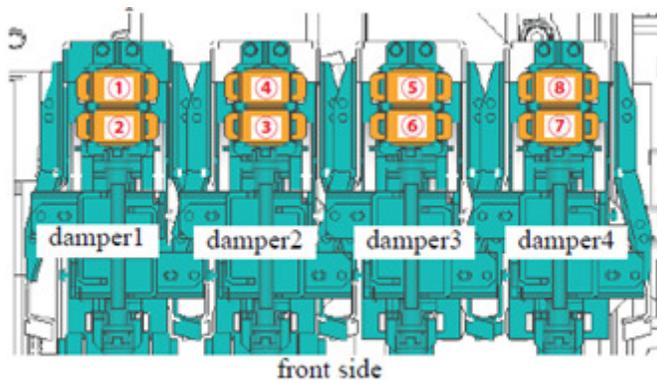


m1522752

### ★ Important

- Do not get a wrong turn (position) of attaching ink tube tag.

### View from top side



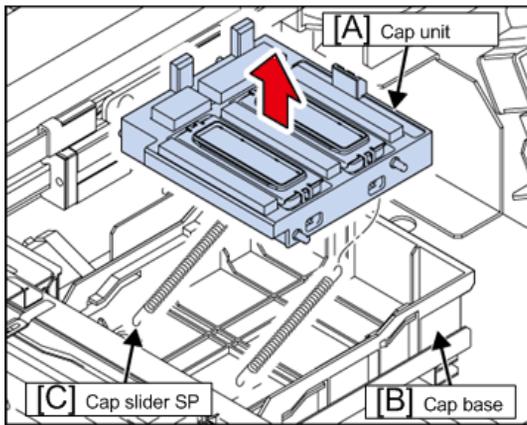
w\_m1522689

25. Perform [DAMPER / FILLUP] and fill ink in the damper.

Refer to page 279 "DAMPER FILLUP".



5. Remove the cap slider SP (×2) [C].

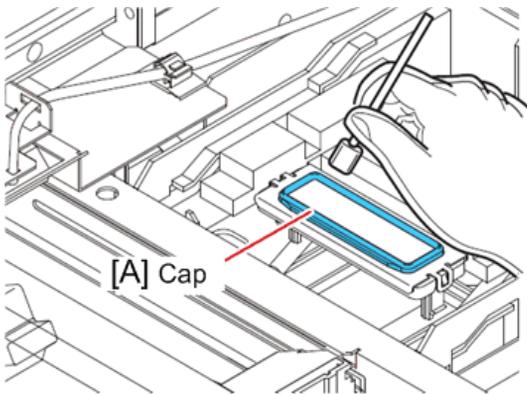


w\_m1522323

6. Reverse the disassembly procedure for reassembly.

## Reassembling the Cap Unit

1. Adjust the location for capping after replacing the cap unit.(page 264 "CAPPING")
2. Wet the cap [A] with the maintenance cleaning liquid.

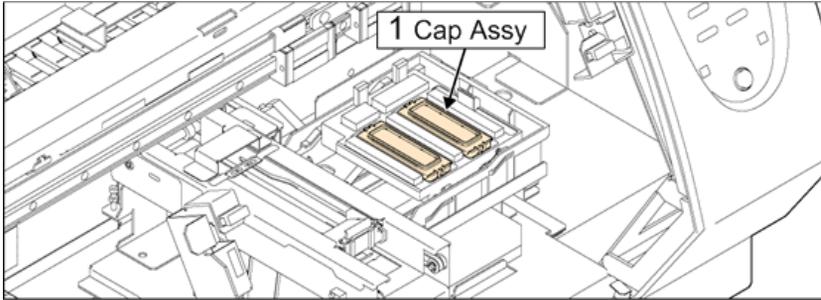


w\_m1522135

**Note**

- When the tip of the cap dries, adhesion of the head surface worsens and cannot suck the ink.

## Cap Assy



w\_m1522319

4

1. Cap Assy

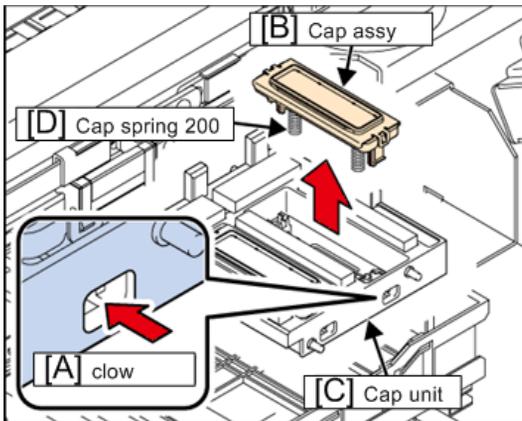
### ⚠ CAUTION

- Turn the main power OFF when turning the power OFF. It is very dangerous if sleep mode functions mistakenly during the operation.

1. Remove the cap unit.
2. Release the claw [A] and pull out the cap assy [B] from the cap unit [C].

#### ★ Important

- Take care not to lose the Cap spring 200 [D].



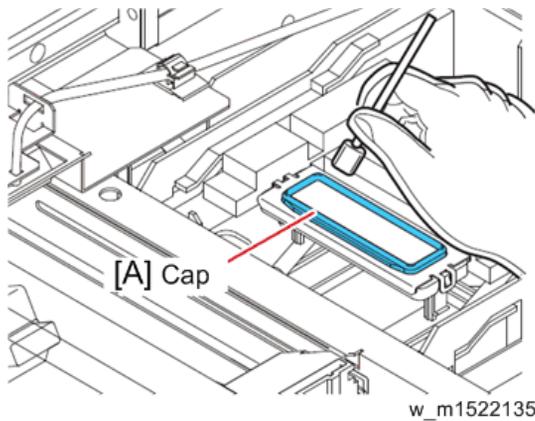
w\_m1522321

3. Reverse the disassembly procedure for reassembly.

## Reassembling the Cap Assy

1. Adjust the location for capping after replacing the cap Assy.(page 264 "CAPPING")

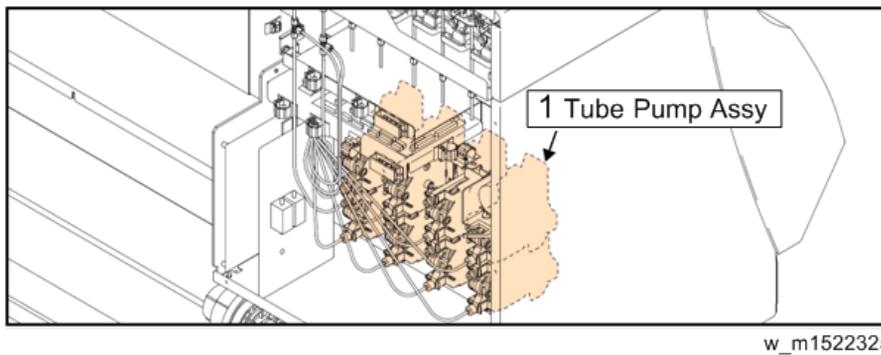
- Wet the cap [A] with the maintenance cleaning liquid.



**Note**

- When the tip of the cap dries, adhesion of the head surface worsens and cannot suck the ink.

## Tube Pump Assy (for Pressure-Feed)



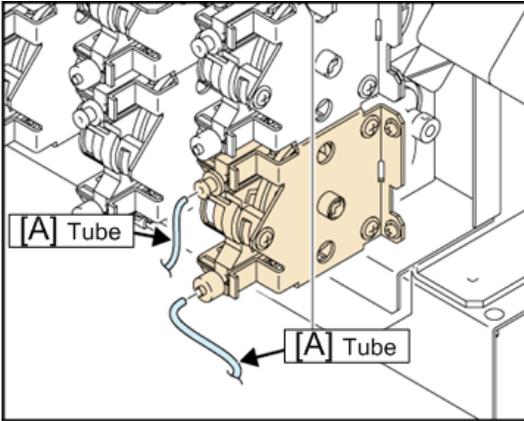
\*Filters and check valves do not draw in this figure.

1. Tube Pump Assy

- Remove the Rear cover LU.
- Remove the pump tube.
- Put a cap (fitting) on the tube [A] (within the bear) of the sub-tank side not to leak.

**Important**

- Take care not to pollute the surroundings with waste ink or cleaning liquid.

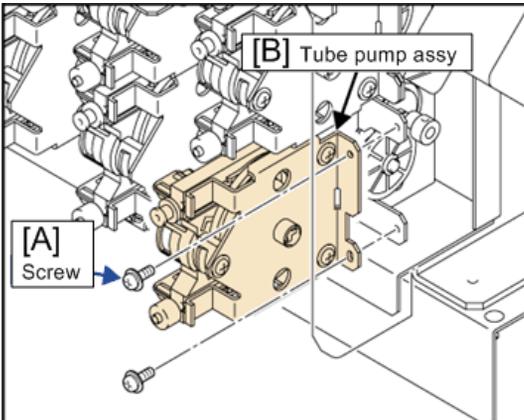


w\_m1522326

4. Remove the screws (×2) [A], and remove the Tube pump assy [B].

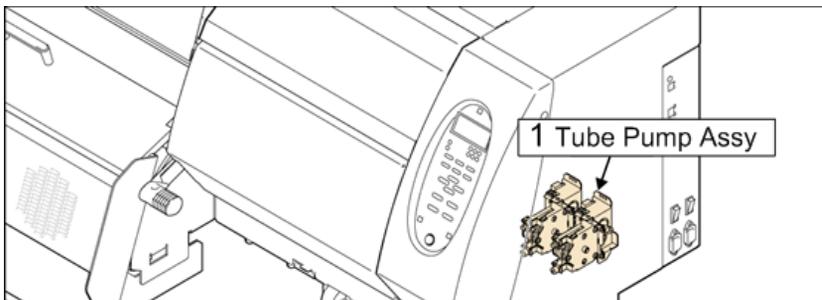
5. Reverse the disassembly procedure for reassembly.

Protrude the pump tube of the discharge side from tube end by 5 to 9 mm.



w\_m1522327

### Tube Pump Assy (for Suction)



w\_m1522328

## 1. Tube Pump Assy

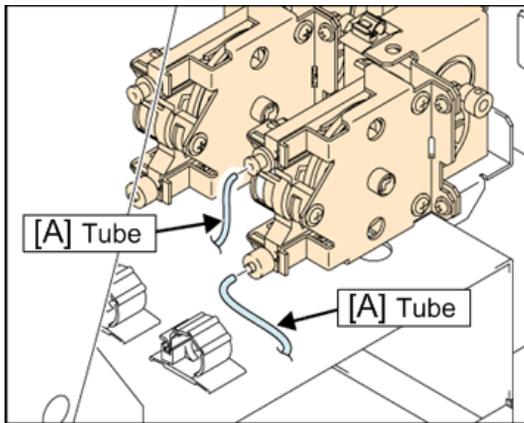
### 1. Remove the following covers.

- Right maintenance cover C
- Right maintenance cover U
- Right cover 200

### 2. Remove the pump tube [A].

#### ★ Important

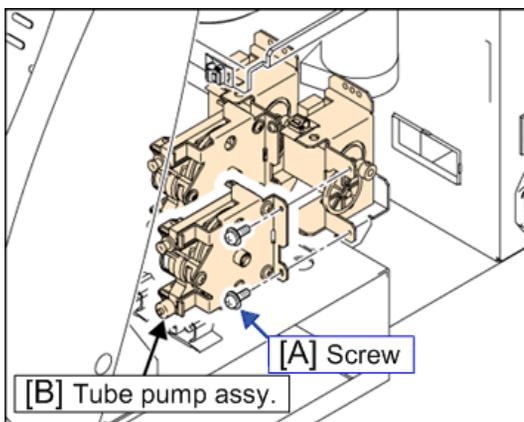
- Take care not to pollute the surroundings with waste ink or cleaning liquid.



w\_m1522329

### 3. Remove the screws (×2) [A], and remove the Tube pump assy [B].

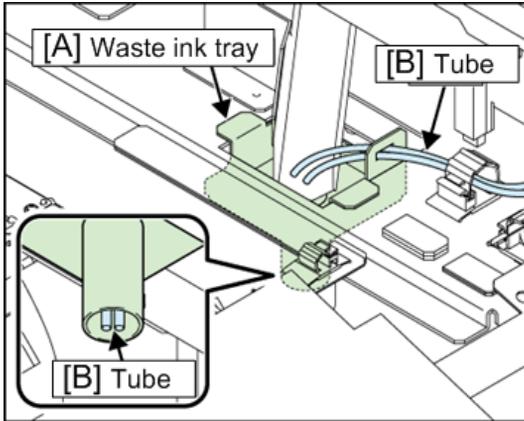
### 4. Reverse the disassembly procedure for reassembly.



w\_m1522330

**★ Important**

- Confirm that the pump tube of the discharging side is stored within the pipe of waste ink tray [A].
- Make sure not to project the tube [B] from the pipe of waste ink tray.



w\_m1522331

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## Solenoid

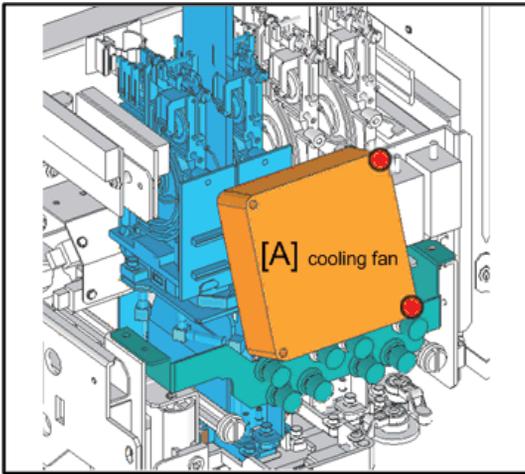
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**1. Remove the following covers.**

- Right maintenance cover C
- Right maintenance cover U
- Lure-lock cover
- Head cover

**2. Cover the paper towel around the printing head to prevent an ink leak.**

### 3. Remove the cooling fan [A] (screw x 2).



w\_m1522767

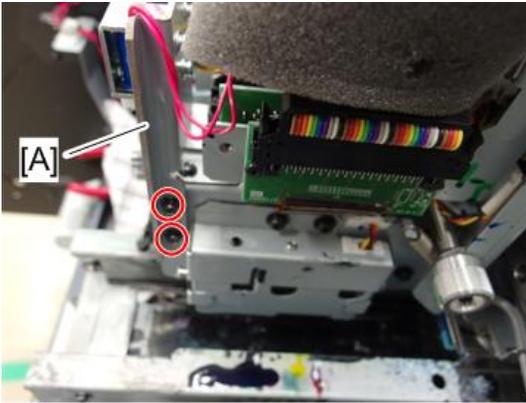
#### ↓ Note

- When assembling the cooling fan, put the cooling fan with its decal facing the outside of the machine.



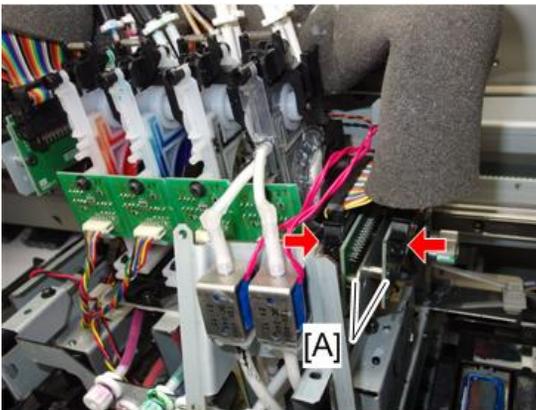
m1522737

4. Remove the circulation valve bracket [A] (screw x 2).



m1522738

5. Remove the connectors [A] of the head unit PCB.



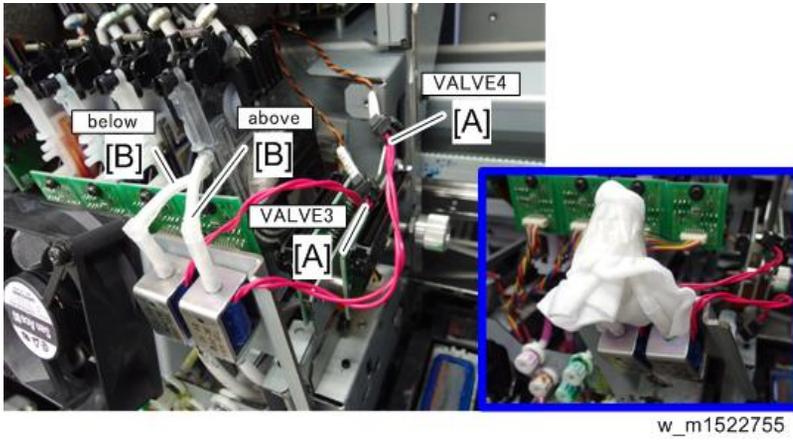
m1522754

6. Remove the connectors [A] and the tubes [B] of the circulation valve.

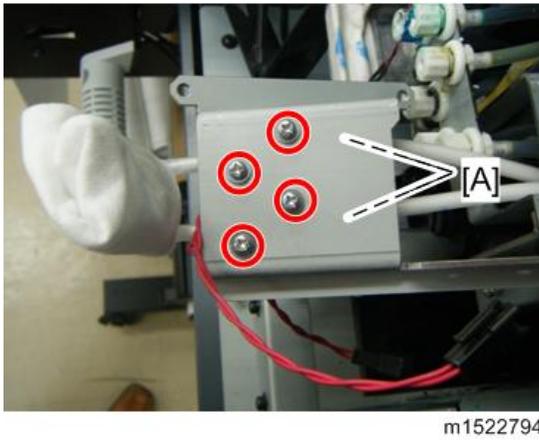
Wrap the tubes of the circulation valve with a paper towel to prevent an ink leak.

★ Important

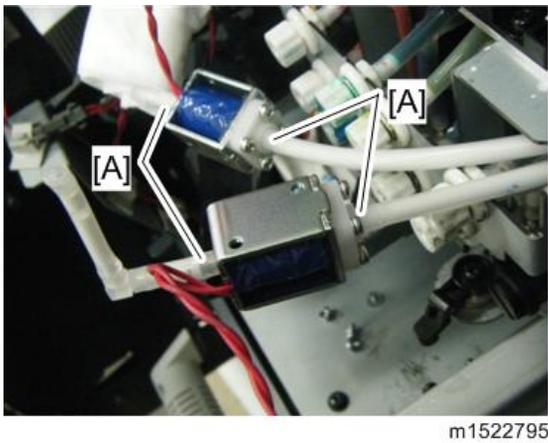
- When assembling the connectors and the tubes of the circulation valve, do not get a wrong turn (position) of attaching them.



7. Remove the solenoids [A]. (screw × 4)



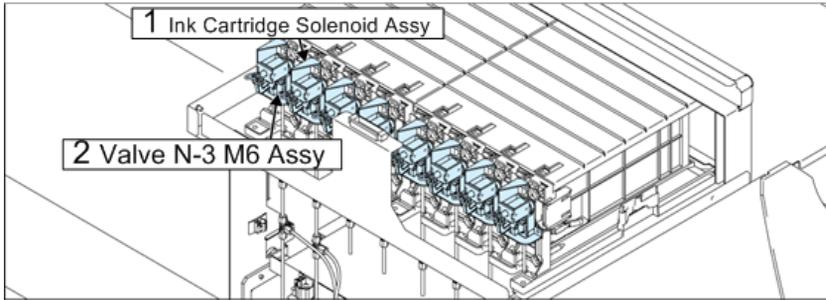
8. Remove the tubes [A] from the solenoids.



**★ Important**

- Mark a tube not to connect to a wrong position.

## Valve Assy



w\_m1522332

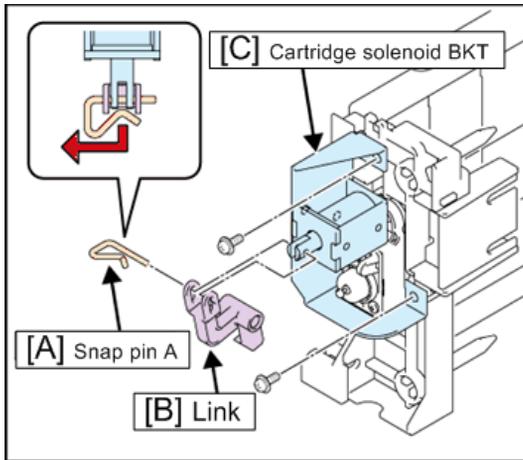
1. Ink Cartridge Solenoid Assy
2. Valve N-3 M6 Assy

### **⚠ CAUTION**

- Be sure to wear protective glasses and working gloves during the operation.
- Ink may get into your eyes depending on the working condition, or hand skin may get rough if you touch the ink.

1. Execute [#ADJUST] - [HEAD WASH] to discharge the ink.
2. Remove the following covers.
  - Cartridge Cover
  - Rear Cover LU
3. Remove snap pin A [A] and then the link [B].

4. Removes screws to take off the cartridge solenoid BKT [C] together with the solenoid.



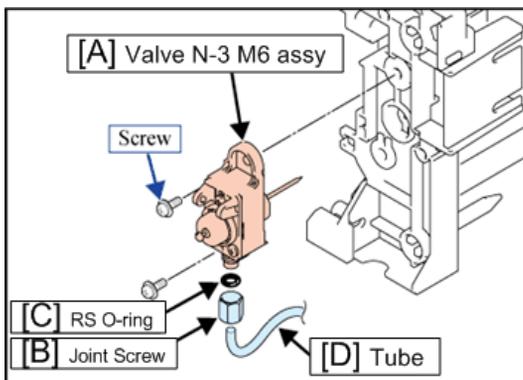
w\_m1522333

5. Remove the valve N-3 M6 assy [A] and loosen the joint screws [B] to remove the tube [C].

★ Important

- Take care not to contaminate the surroundings with ink. Also, take care not to lose the RS O-ring [D].

6. Reverse the disassembly procedure for reassembly.

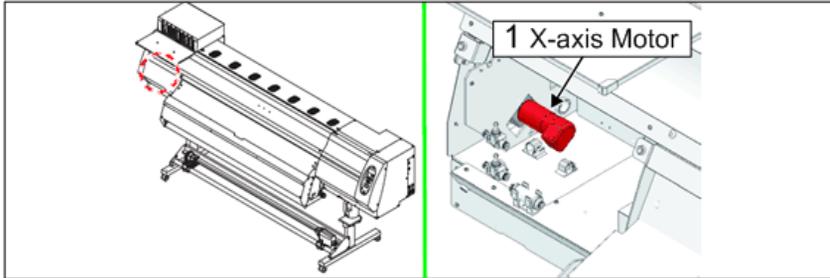


w\_m1522334

# Driving Parts

## X-axis Motor Assy

4



w\_m1522335

1. X-axis Motor

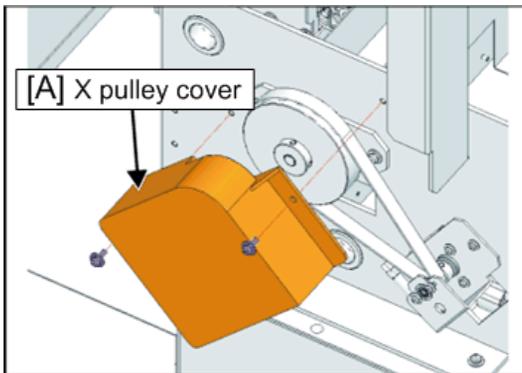
### **⚠ CAUTION**

- Turn the main power OFF when turning the power OFF. It is very dangerous if sleep mode functions mistakenly during the operation.

#### **1. Remove the following covers.**

- Left cover 200
- Left maintenance cover L
- Left maintenance cover U
- MS cover L

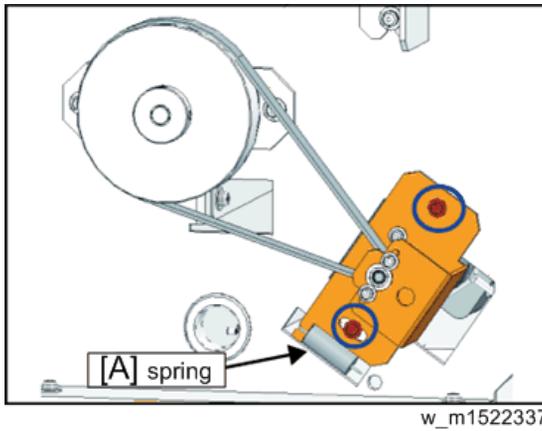
#### **2. Remove the X pulley cover [A].**



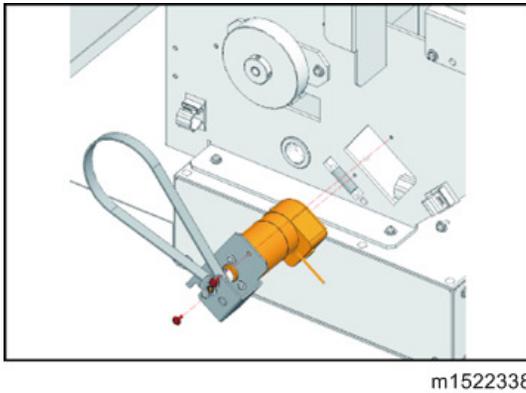
w\_m1522336

#### **3. Remove the connector of the X-axis Motor.**

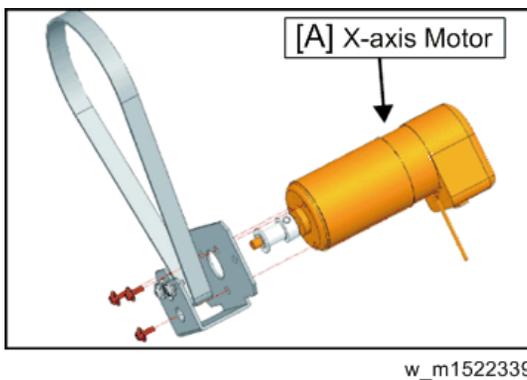
4. Loosen the fixing screw of XMBKT, and remove the spring [A].



5. Remove XMBKT and the X-axis motor from the main body.



6. Remove the screw (×3) of XMBKT and remove the X-axis motor [A] Assy.

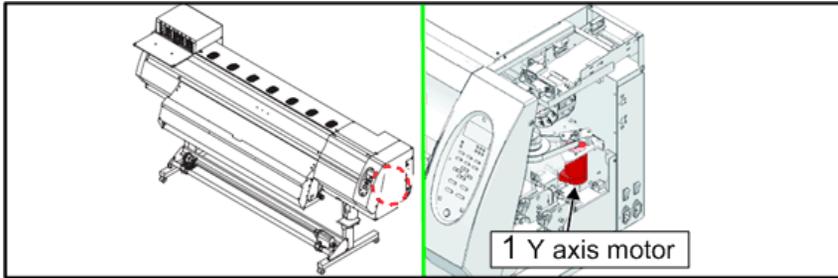


7. Reverse the disassembly procedure for reassembly.

**Note**

- The belt tension does not need to be adjusted.

## Y-axis Motor



w\_m1522340

4

1. Y axis motor

### **⚠ CAUTION**

- Turn the main power OFF when turning the power OFF. It is very dangerous if sleep mode functions mistakenly during the operation.

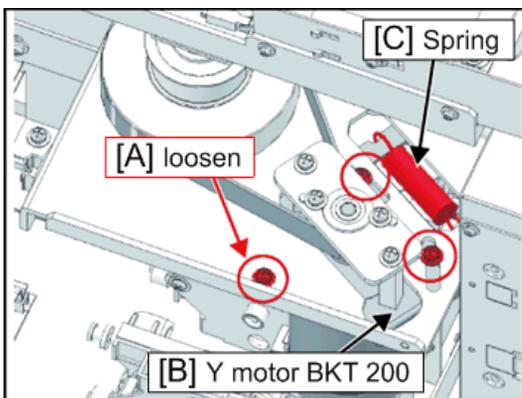
#### **1. Remove the following covers.**

- Right Cover200

#### **2. Move the Print Head Carriage to the left.**

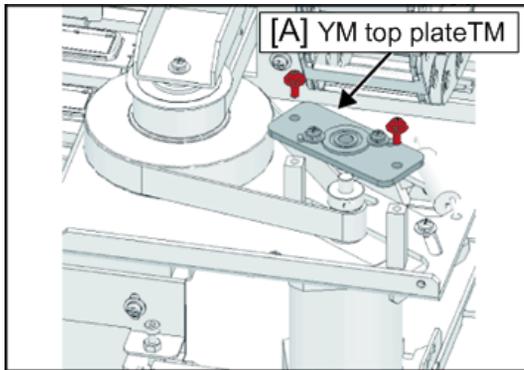
#### **3. Loosen the screws [A] fixing the Y motor BKT 200 [B], and remove the spring [C].**

Loosen the tension of the belt.



w\_m1522341

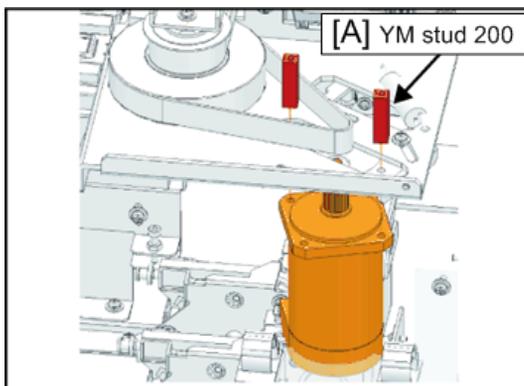
4. Remove the YM top plate TM [A].



w\_m1522342

5. Remove YM stud 200 (×2) [A] and take out the Y-axis motor.

6. Release the clamps and the cable (directly connected to main PCB Assy).



w\_m1522343

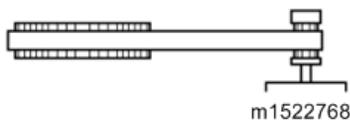
7. Reverse the disassembly procedure for reassembly.

★ Important

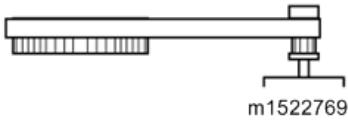
- Mount the Y-axis motor so that the belt is horizontal and centered on the Y drive pulley (upper side is also acceptable).

OK

Horizontal in the middle

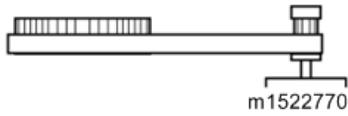


**Horizontal but upper**

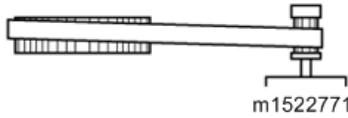


**Not good**

**Shifted lower**

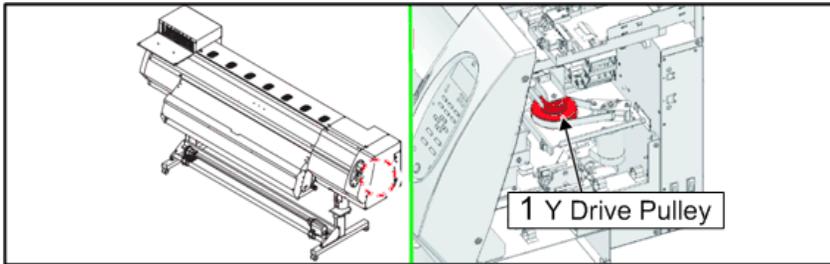


**Slanting**



4

**Y Drive Pulley**



w\_m1522345

1. Y Drive Pulley

**⚠ CAUTION**

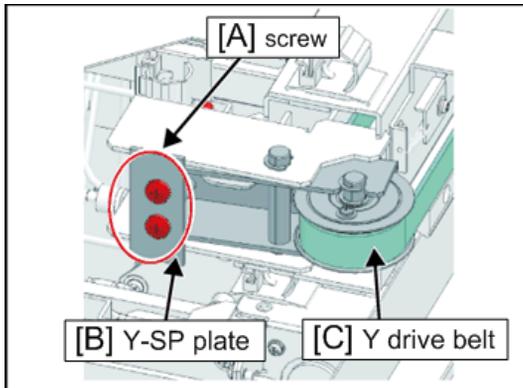
- Turn the main power OFF when turning the power OFF. It is very dangerous if sleep mode functions mistakenly during the operation.

**1. Remove the following covers.**

- Right Cover 200
- Left Cover 200
- Right maintenance cover L

- Right maintenance cover U
- Head cover

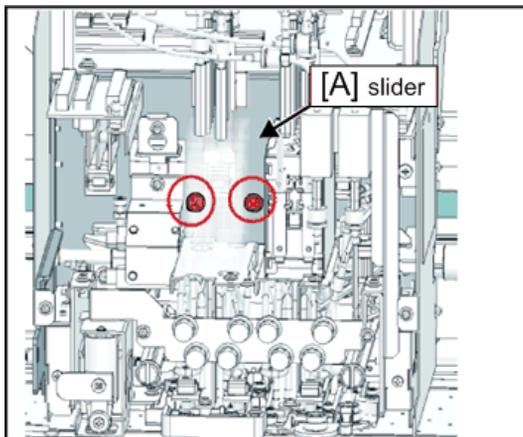
2. Loosen the screws [A] from the Y-SP plate [B] on the left side of the main body, and release the tension of the Y drive belt [C].



w\_m1522346

3. Remove the belt holder from the slider [A].

Remove the screws in the left figure, and move the carriage.

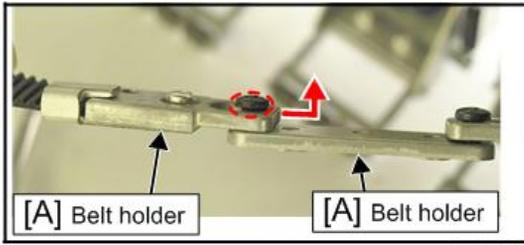


w\_m1522347

4. Slide out the connection point of the Y drive belt, and remove either the left or right belt holder [A] from the belt holder.

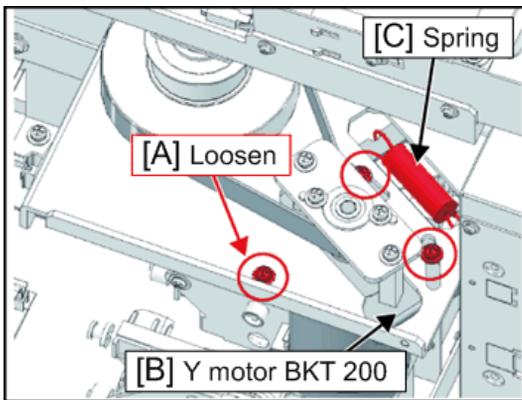
**★ Important**

- Do not remove the Y drive belt from the slider.
- Do not remove the screw.



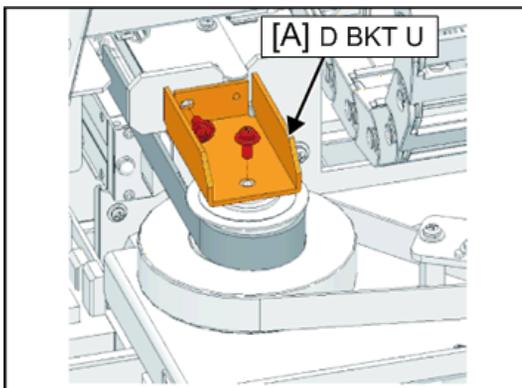
w\_m1522348

5. Loosen [A] the screws fixing the Y motor BKT 200 [B], and remove the spring [C]. Loosen the tension of the belt.



w\_m1522349

6. Remove the screw, and detach the D BKT U [A] from the Y drive pulley.

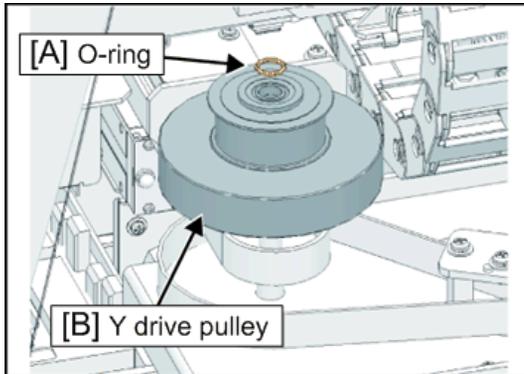


w\_m1522350

7. Remove the O-ring [A] from the top of the Y drive pulley [B], and then remove the two belts to detach the Y drive pulley.

★ Important

- Take care not to lose the O-ring.



w\_m1522352

### 8. Reverse the disassembly procedure for reassembly.

#### ★ Important

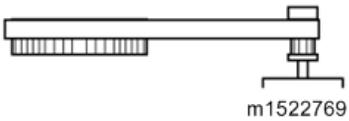
- Mount the Y-axis motor so that the belt is horizontal and centered on the Y drive pulley (upper side is also acceptable).

OK

Horizontal in the middle

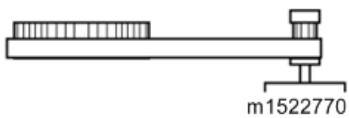


Horizontal but upper

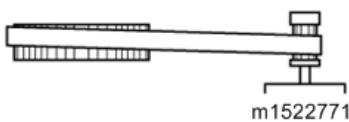


Not good

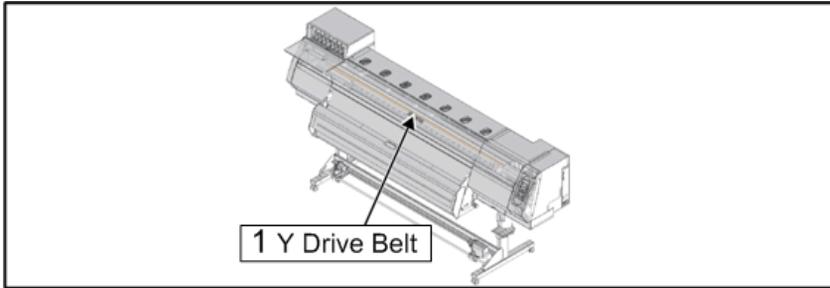
Shifted lower



Slanting



## Y Drive Belt



w\_m1522354

4

### 1. Y Drive Belt

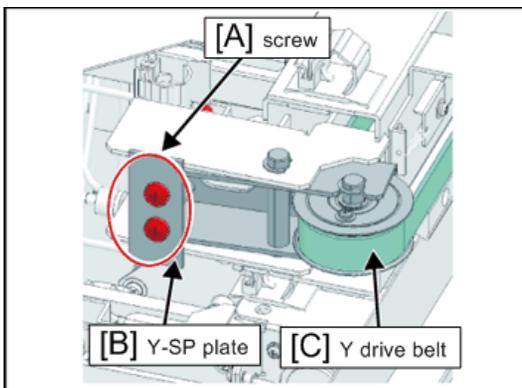
#### **⚠ CAUTION**

- Turn the main power OFF when turning the power OFF. It is very dangerous if sleep mode functions mistakenly during the operation.

#### 1. Remove the following covers.

- Right Cover 200
- Left Cover 200
- Right maintenance cover L
- Right maintenance cover U
- Head cover

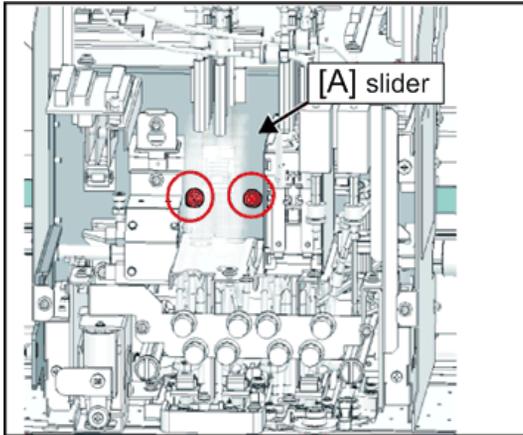
#### 2. Loosen the screws [A] from the Y-SP plate [B] on the left side of the main body, and release the tension of the Y drive belt [C].



w\_m1522355

#### 3. Remove the belt holder from the slider [A].

Remove the screws in the left figure, and move the carriage.

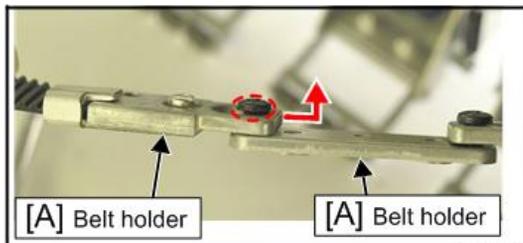


w\_m1522356

- Slide out the connection point of the Y drive belt, and remove either the left or right belt holder [A] from the belt holder.

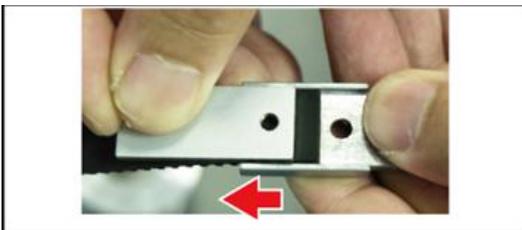
**Note**

- Do not remove the screw.



w\_m1522348

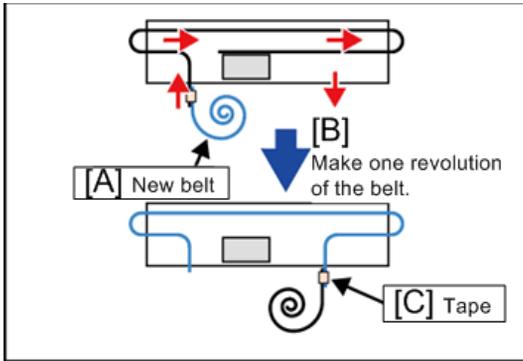
- Remove the belt holder screws.
- Pry open the belt holder with a slotted screwdriver or the like, then slide the belt holder to detach from the belt.



m1522358

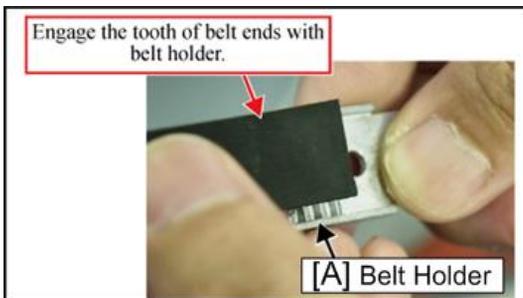
- Stick together the ends of the old belt and the new belt [A] using rubber tape or the like, and make one revolution [B] of the belt.

8. Once the belt has made one revolution, remove the joining tape [C] and pass the belt through the rear side of the slider.



w\_m1522359

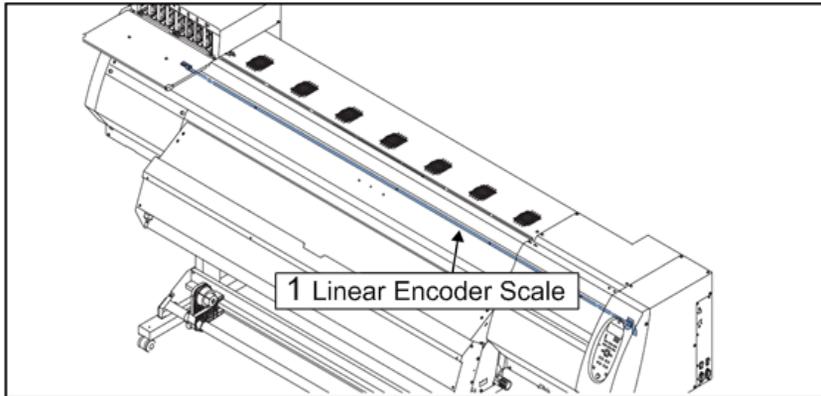
9. Align the belt holder [A] and the teeth on the left and right belt ends, and attach the belt holder while engaging the teeth. Then tighten the screw.



w\_m1522360

10. Connect the left and right belt holders with the belt holder.
11. Attach the belt holder and slider using a screw.
12. Loosen the screws on the Y-SP plate on the left side of the main body, and increase the Y drive belt tension.
13. Reverse the disassembly procedure for the subsequent reassemblies.

## Linear Encoder Scale



w\_m1522361

1. Linear Encoder Scale

### **⚠ CAUTION**

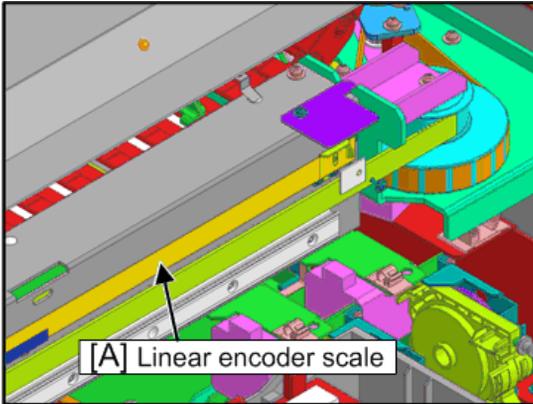
- Turn the main power OFF when turning the power OFF. It is very dangerous if sleep mode functions mistakenly during the operation.
- While at work, be sure not to attach fingerprints or oil to the linear encoder scale. Also, pay attention not to break or scratch it. (If contaminated, clean the scale with a neutral detergent.)

#### **1. Remove the following covers.**

- Front cover 200L
- Right maintenance cover U
- Right maintenance cover C
- Left maintenance cover U

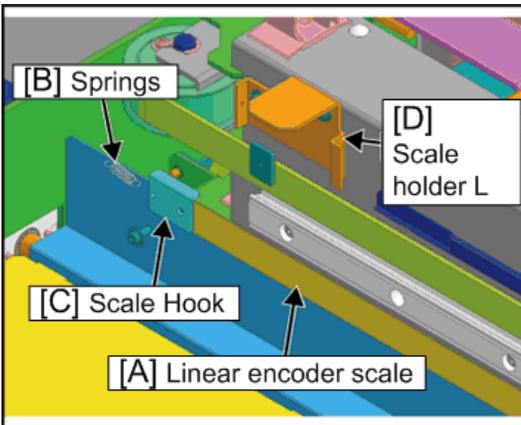
#### **2. Remove the Encoder PCB Assy.**

3. Remove the screws from the right end of the linear encoder scale [A], and detach the linear encoder scale.



w\_m1522362

4. Remove the screw from the left end of the linear encoder scale [A], and detach the linear encoder scale together with the springs [B].
5. Remove the scale hook [C] and scale holder L [D] from the linear encoder scale.



w\_m1522363

6. Peel off the left end of the protection film on the new linear encoder scale.

**★ Important**

- While at work, be sure not to attach fingerprints or oil to the linear encoder scale. Also, pay attention not to break or scratch it. (If contaminated, clean the scale with a neutral detergent.)

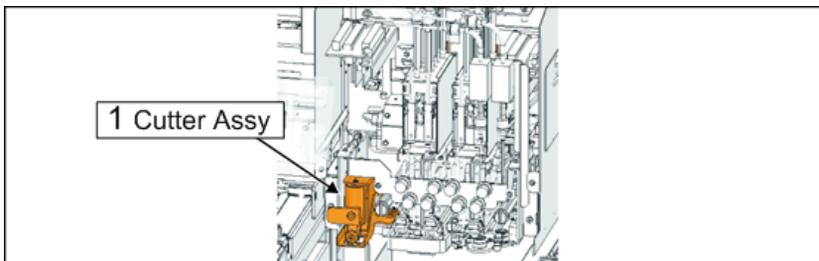


w\_m1522364

7. Mount the scale hook on the linear encoder scale so that the surface where the protection film is stuck faces to the Y bar side.
8. Engage the scale hook with the scale base L through a spring, and mount the linear encoder scale while peeling off the protection film.
9. Reverse the disassembly procedure for the subsequent reassemblies.

4

## Cutter Assy



w\_m1522365

1. Cutter Assy

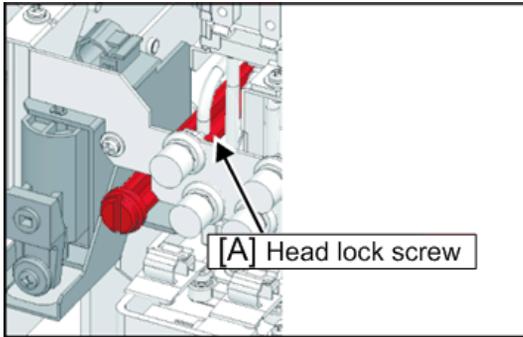
### **⚠ CAUTION**

- Turn the main power OFF when turning the power OFF. It is very dangerous if sleep mode functions mistakenly during the operation.

#### 1. Remove the following covers.

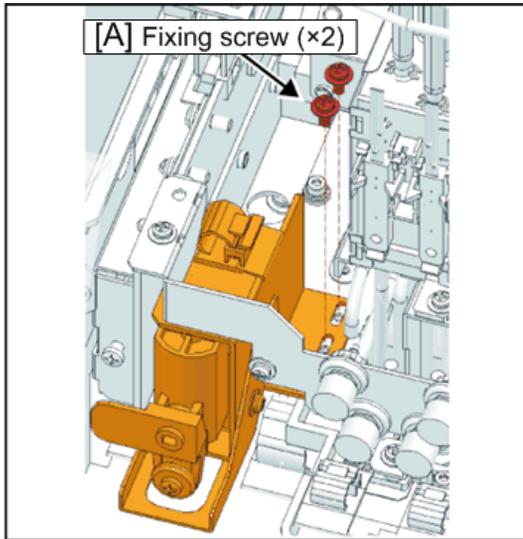
- Right maintenance cover L
- Right maintenance cover U
- Head cover

2. Remove the Head lock screw (left side) [A]



w\_m1522366

4 3. Remove the fixing screw (x2) [A], and take out the cutter Assy.



w\_m1522367

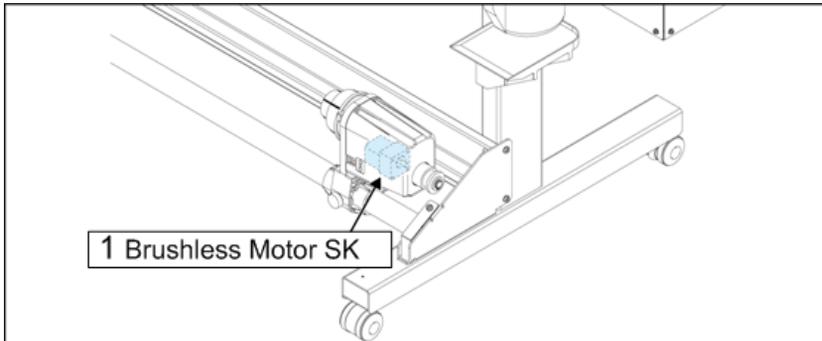
4. Remove the cable connector coming from the solenoid.

5. Reverse the disassembly procedure for reassembly.

★ Important

- Be sure to perform attaching position adjustment.
- Refer to page 290 "Adjustment of the Mounting Location for the Cutter".

## Take-up Motor

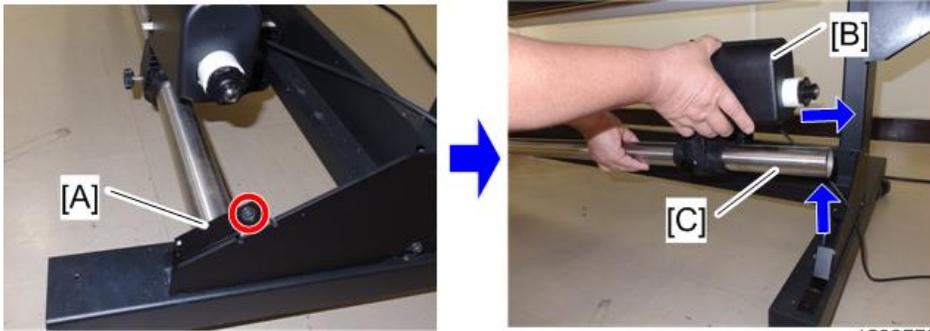


w\_m1522368

1. Brushless Motor SK

### 1. Remove the take-up device unit.

1. Remove the roll guide shaft holding plate [A]. (screw ×1)
2. Remove the take-up device unit [B] by lifting the roll guide [C].



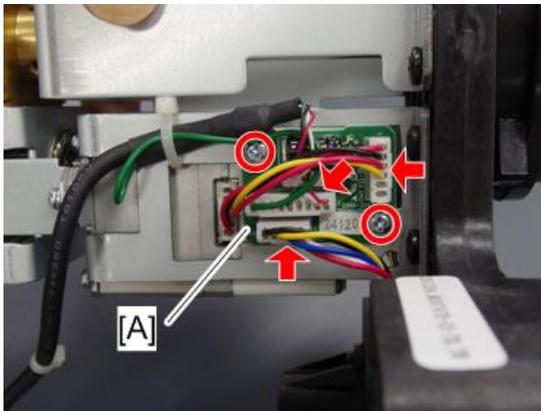
m1522772

2. Remove the motor cover [A]. (screw ×4)



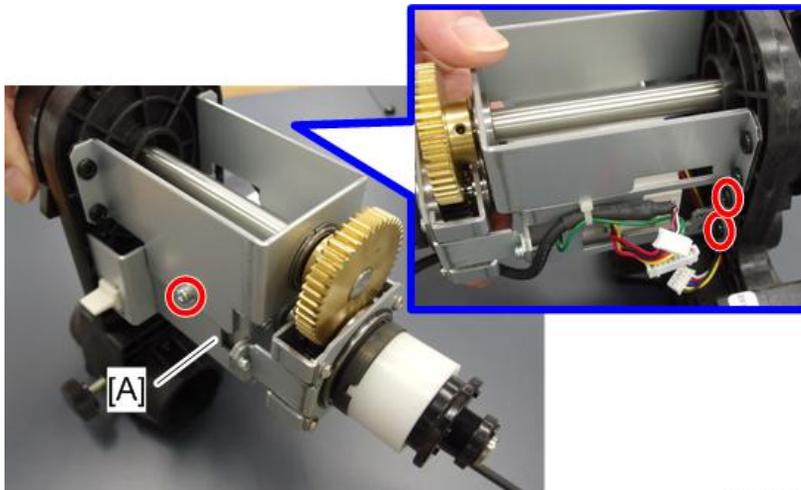
m1522773

3. Remove the take-up motor PCB assy [A]. (screw ×2, connector×3)



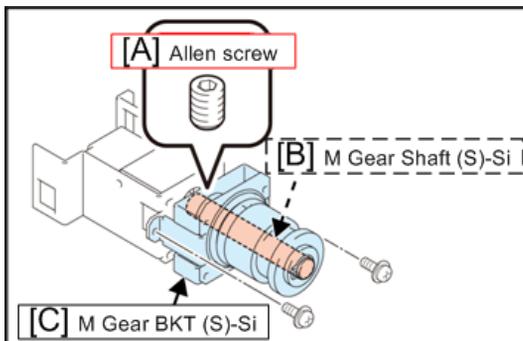
m1522774

4. Remove the M motor BKT (S)-Si [A] from the roll holder.(screw×3)



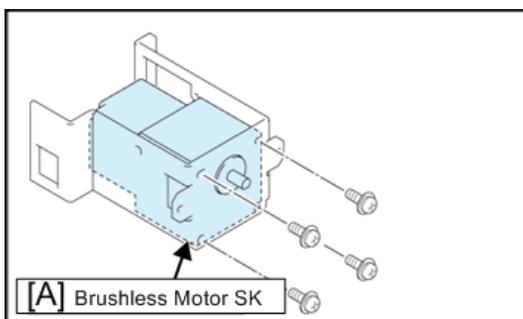
m1522775

5. Loosen the allen screw [A] that connect the motor shaft and M gear shaft (S)-Si [B] and then remove the M gear BKT (S)-Si [C] (screw ×2).



w\_m1522370

6. Remove the 4 screws and then remove the brushless motor SK [A].



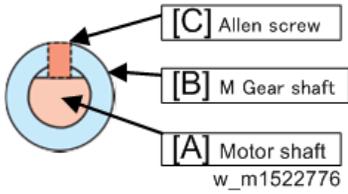
w\_m1522371

7. Reverse the disassembly procedure for reassembly.

★ Important

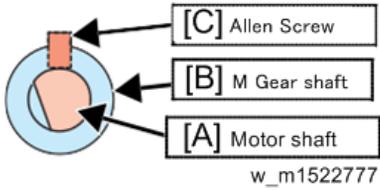
- When fixing the motor shaft [A] and M gear shaft (S)-Si [B] with allen screw [C], be sure to tighten the screws at the plane port of the motor shaft D cut point.

OK



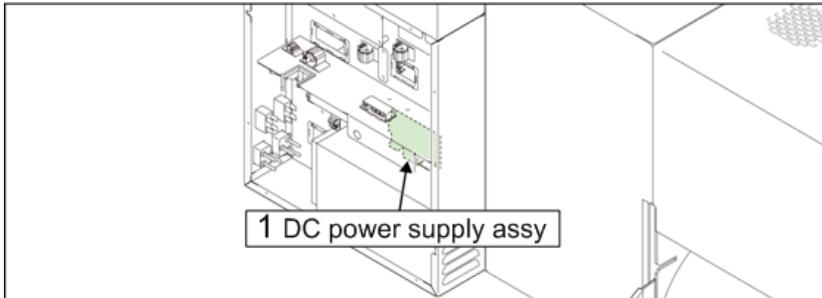
4

Not good



# Electrical Parts

## DC Power Supply Assy (5V)



w\_m1522373

1. DC power supply assy

### **⚠ WARNING**

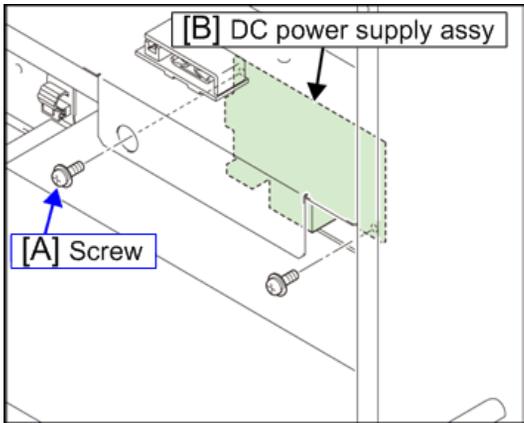
- After turning off the operation and main power switches, unplug the power cord. Make sure to take 15 minutes before restarting the operation. It is very dangerous if sleep mode functions mistakenly during the operation.
- Moreover, the PCB may be damaged in case electric charge still remains inside.
- Also, there is a possibility of electric shock because of high voltage applied to the high-power part of the DC power supply assy. Take care to avoid contact with it.

1. Turn off the main power supply and remove the power plug from the main body.
2. Remove the power unit box cover 200.
3. Disconnect all connectors on PCB.



m1522374

4. Remove the screws [A] and then remove the DC power supply assy [B].



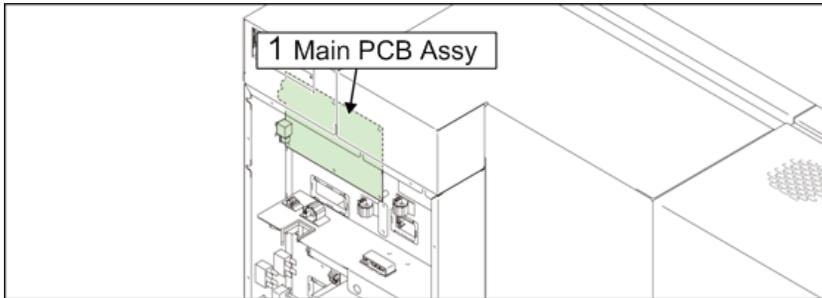
w\_m1522375

5. Reverse the disassembly procedure for reassembly.

★ Important

- Before mounting the power unit box cover 200, adjust the voltage of the DC power supply assy.

## Main PCB Assy



w\_m1522376

1. Main PCB Assy

If main PCB assy has replaced, various parameters must be registered to main PCB assy ROM after the replacement. Considerable time is required to readjust and reconfigure these settings. Therefore, for ease of use and better printing quality, copy (upload) the setting value to a PC before replacement, and write (download) the copied settings onto the main PCB assy from the PC after replacement.

**Note**

- If it is impossible to upload the parameters, conduct Parameter Draw to note the setting values. Then manually register the values after replacing the main PCB assy.

**WARNING**

- After turning off the operation and main power switches, unplug the power cord. It is very dangerous if sleep mode functions mistakenly during the operation.

**CAUTION**

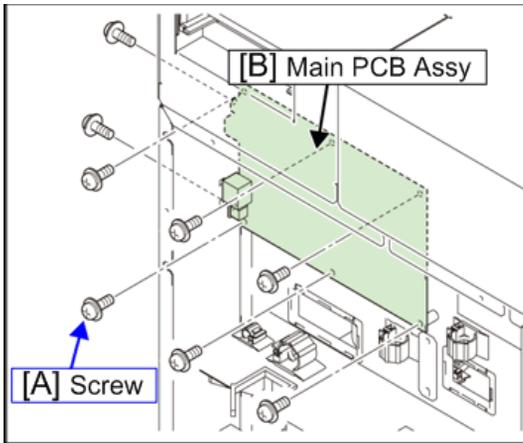
- A button type lithium battery is used for this board. Warn following 1 ~ 4.
  - 1) Danger of explosion if battery is incorrectly replaced.
  - 2) Replace only with the same or equivalent type recommended by the manufacture.  
Recommended type: [CR2032]
  - 3) Dispose of used batteries according to the manufacturer's instructions.
  - 4) When the battery is replaced with a new one, pay attention to the polarity at replacing.

1. Turn off the main power supply and remove the power plug from the main body.
2. Remove the Electric BOX cover 200.
3. Disconnect all connectors on PCB.



m1522377

4. Remove the screws [A] and then remove the main PCB Assy [B].



w\_m1522378

5. Reverse the disassembly procedure for reassembly.

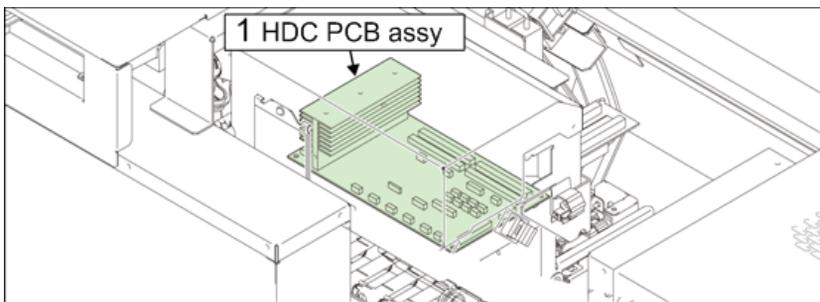
6. Install the latest firmware.

7. Download the system parameters to the new PCB.

**⚠ CAUTION**

- When a used Main PCB is to be discarded, remove the installed battery (CR2032).
- Disposal of the used battery according to manufacturer's instructions

## HDC PCB Assy



w\_m1522379

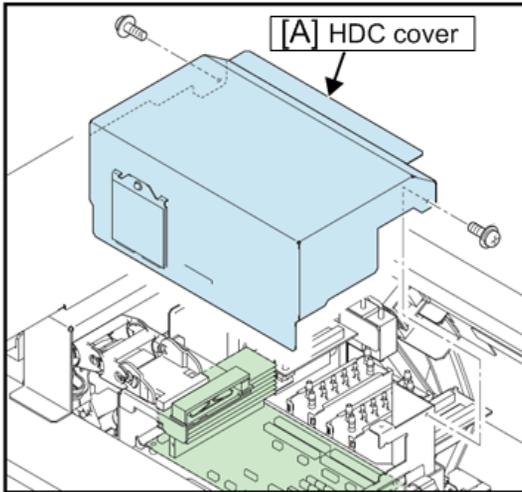
1. HDC PCB Assy

**⚠ WARNING**

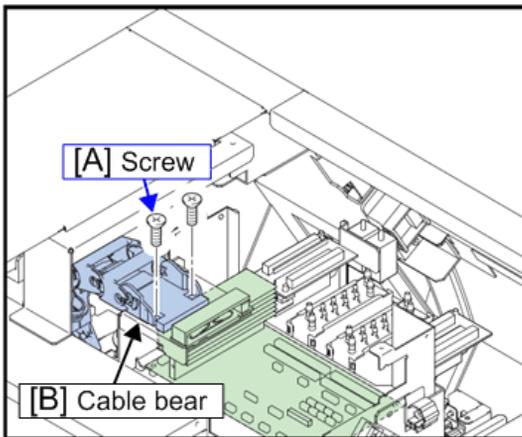
- After turning off the operation and main power switches, unplug the power cord. It is very dangerous if sleep mode functions mistakenly during the operation.

**1. Remove the following covers.**

- Y Cover 200 C 160/(130)
- Y Cover 200 R 160/(130)
- HDC cover [A]

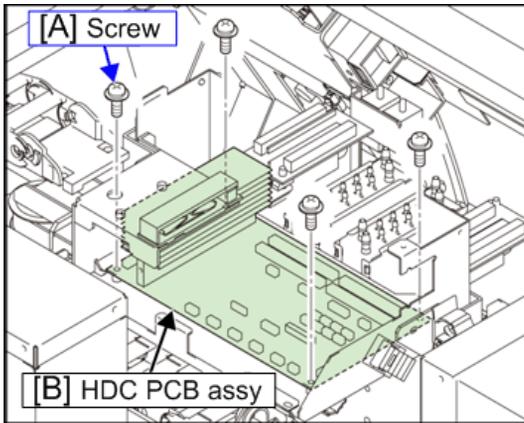


w\_m1522380

**2. Disconnect all cables from PCB.****3. Remove the screws [A] and then remove the cable bear [B].**

w\_m1522381

4. Remove the screws [A] and then remove the HDC PCB assy [B].



w\_m1522382

5. Reverse the disassembly procedure for reassembly.

---

## Replacement fuse of the PCB

---

The PCB below has the fuse that can be replaced in the field.

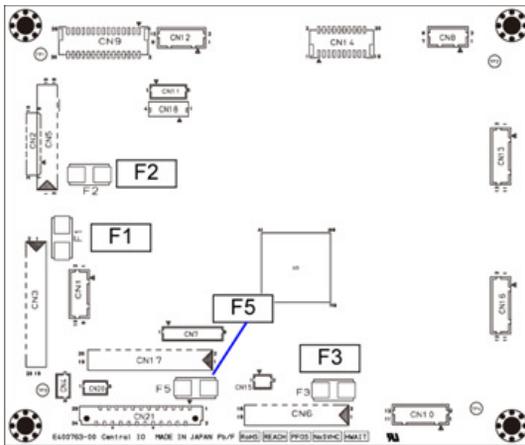
This chapter explains the position/ the role of that fuse, the failure example and the error to be recovered by replacement.

- Central IO PCB
- Ink system PCB
- Heater PCB

### **⚠ WARNING**

- After turning off the operation and main power switches in order, unplug the power code.
- It is very dangerous if sleep mode functions mistakenly during the operation.

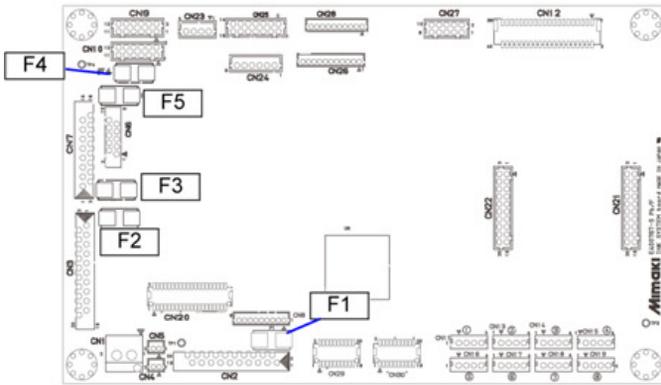
## Central IO PCB



m1522383

Parts No.	Rating	Connect to	Cause of blowout/ error display
F1	7A	CN3 DC36V power supply from Main PCB (Power supply of the whole Central IO PCB)	Failure in circuit within PCB Driving circuit damage due to overload because of troubles of the step motor or the fan motor
F2	3A	CN5(unconnected)	Not-targeted due to being unconnected
F3	3A	CN6(unconnected)	Not-targeted due to being unconnected
F5	3A	CN17 DC36V power supply to Ink System PCB	Failure of FFC between Central IO PCB – Ink System PCB (blowout due to scratches, tilted inserted into the connector, etc.)

## Ink System PCB

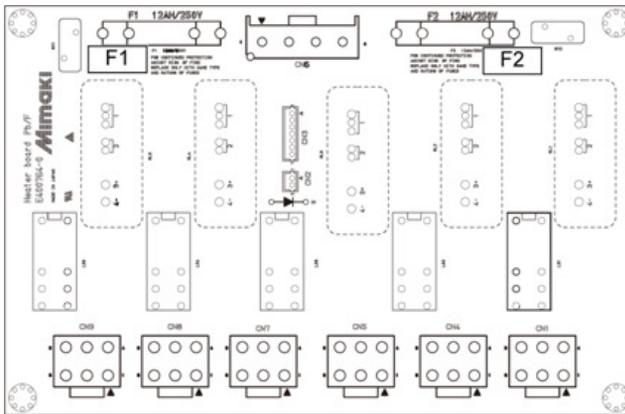


m1522384

4

Parts No.	Rating	Connect to	Cause of blowout/ error display
F1	3A	CN2(unconnected)	Not-targeted due to being unconnected
F2	7A	CN3 DC36V power supply from Central IO PCB (Power supply of the whole Ink System PCB)	Failure in circuit within PCB Driving circuit damage due to overload because of troubles of the step motor or the fan motor
F3	3A	CN7 To Ink LED PCB.	INK LED PCB damage Ink System PCB - INK LED PCB FFC (blowout due to scratches, tilted inserted into the connector, etc.)
F4	3A	CN9 DC Fan of the Drying heater ×7 (M153) ×6 (M152)	Fan motor failure Cable is wedged between sheet metal, locked status, etc.
F5	3A	CN17 Roof FAN ×7 (M153) ×6 (M152)	Fan motor failure Cable is wedged between sheet metal, locked status, etc.

## Heater PCB

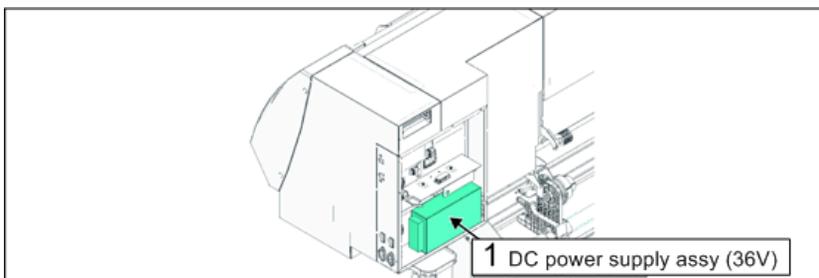


m1522385

4

Parts No.	Rating	Connect to	Cause of blowout/ error display
F1	12A(A C)	Pre-heater Print heater Drying Heater (No.1, No.2)	Incorrect setting of voltage selector. Cable is wedged between sheet metal. Error display: "Heater disconnection"
F2	12A(A C)	After heater Drying Heater (No.2, No.3)	

## DC Power Supply Assy (36V)



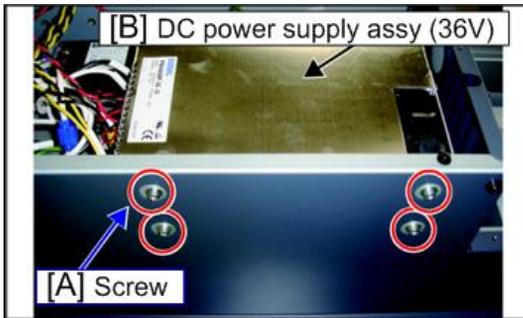
w\_m1522386

1. DC power supply assy (36V)

## **⚠ WARNING**

- After turning off the operation and main power switches, unplug the power cord. Make sure to take 15 minutes before restarting the operation. It is very dangerous if sleep mode functions mistakenly during the operation.
- Moreover, the PCB may be damaged in case electric charge still remains inside.
- Also, there is a possibility of electric shock because of high voltage applied to the high-power part of the DC power supply assy. Take care to avoid contact with it.

1. Turn off the main power supply and remove the power plug from the main body.
2. Remove the power unit box cover 200.
3. Remove the fixing screw (×4) [A] of the DC power supply [B].



w\_m1522387

4. Remove all cables from the terminal blocks and the connectors.

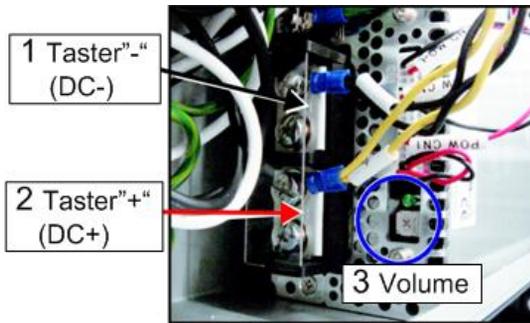


m1522388

5. Reverse the disassembly procedure for reassembly.

### **★ Important**

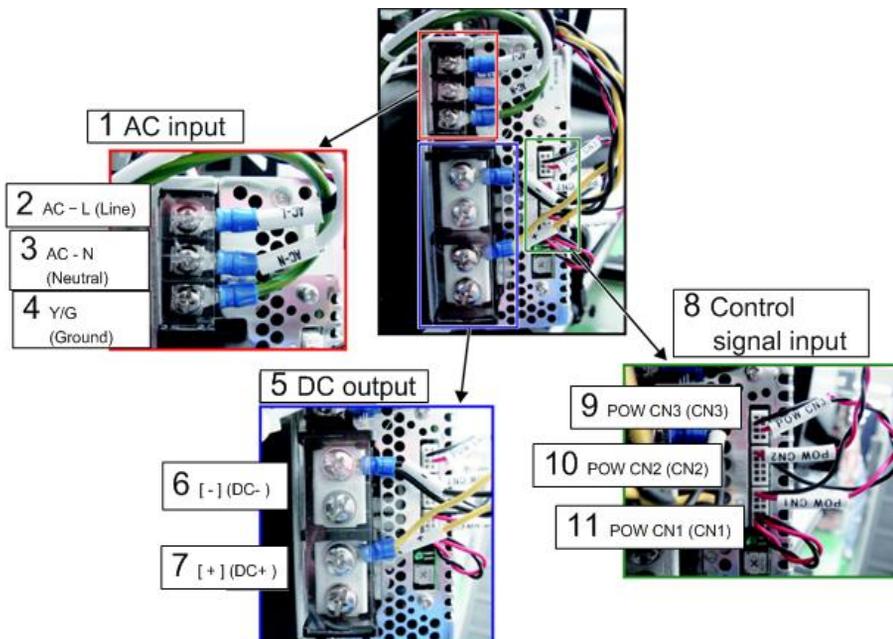
- Before mounting the power unit box cover 200, adjust the voltage of the DC power supply assy to  $+37V \pm 0.5V$ .



w\_m1522389

1. Taster "-" (DC-)
2. Taster "+" (DC+)
3. Volume

**Relationship of terminal block, connector and harness**



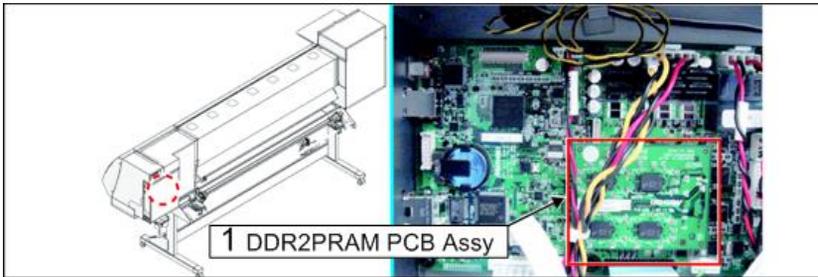
w\_m1522390

1. AC input
2. AC - L (Line)
3. AC - N (Neutral)
4. Y/G (Ground)
5. DC output
6. [-] (DC-)

7. [ + ] (DC+ )
8. Control signal input
9. POW CN3 (CN3)
10. POW CN2 (CN2)
11. POW CN1 (CN1)

## DDR2PRAM (1GB) Assy

4



w\_m1522391

1. DDR2PRAM PCB Assy

### **⚠ WARNING**

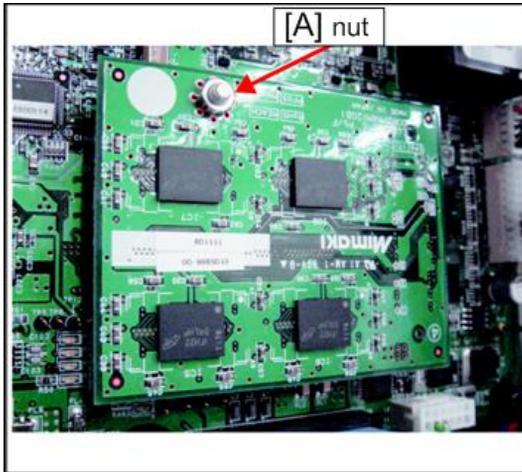
- After turning off the operation and main power switches, unplug the power cord. It is very dangerous if sleep mode functions mistakenly during the operation.

1. Turn off the main power supply and remove the power plug from the main body.
2. Remove the power unit box cover 200.
3. Remove DDR2PRAM PCB assy from the main PCB assy.

(Remove a nut [A].)

#### **↓ Note**

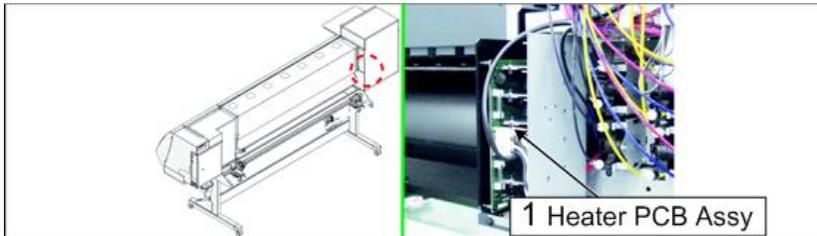
- An inter-PCB connector is used to connect the PRAM PCB assy to the main PCB assy.



w\_m1522392

4. Reverse the disassembly procedure for reassembly.

## HEATER PCB Assy



w\_m1522393

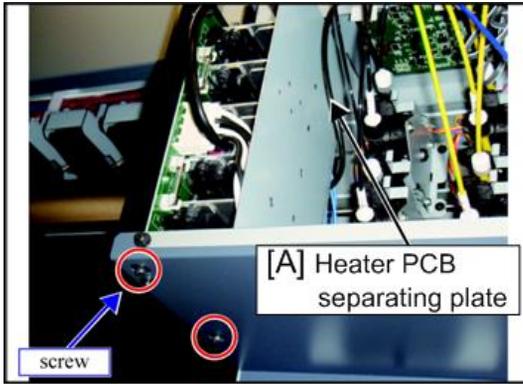
1. Heater PCB Assy

### **⚠ WARNING**

- After turning off the operation and main power switches, unplug the power cord. It is very dangerous if sleep mode functions mistakenly during the operation.

1. Turn off the main power supply and remove the power plug from the main body.
2. Remove the Rear cover LU.

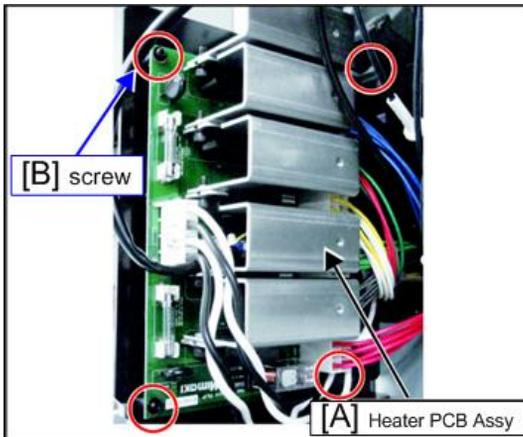
3. Remove the heater PCB separating plate [A].



w\_m1522394

4. Disconnect all connectors on PCB.

5. Remove the Heater PCB assy [A]. (screw×4 [B])



w\_m1522395

**Note**

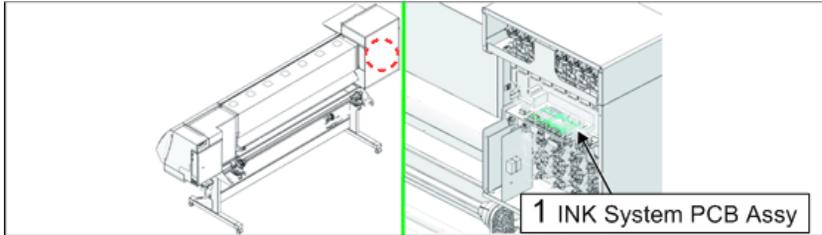
- An inter-PCB connector is used to connect the PRAM PCB assy to the main PCB assy.

6. Reverse the disassembly procedure for reassembly.

**Note**

- When replacing the heater PCB, change the system parameter No.107, "0" to "10".

## INK SYSTEM PCB Assy



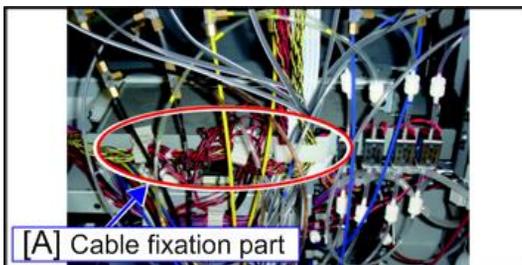
w\_m1522396

1. INK System PCB Assy

4

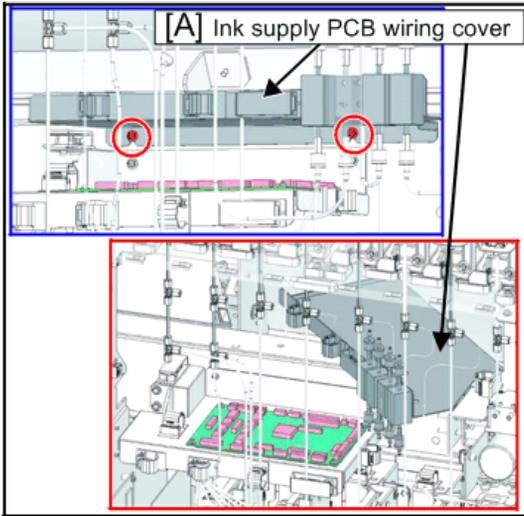
### **⚠ WARNING**

- After turning off the operation and main power switches, unplug the power cord. It is very dangerous if sleep mode functions mistakenly during the operation.
1. Turn off the main power supply and remove the power plug from the main body.
  2. Remove the Rear cover LU.
  3. Release cable fixing [A].



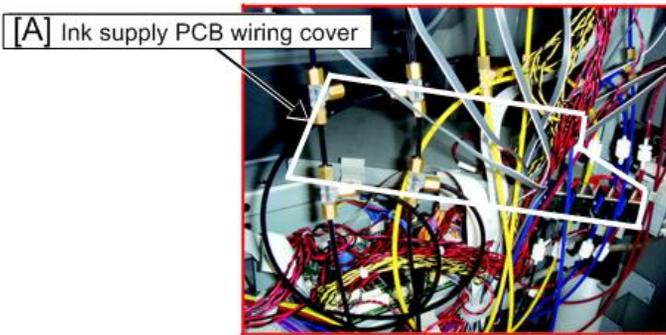
w\_m1522397

4. Move the ink supply PCB wiring cover [A].



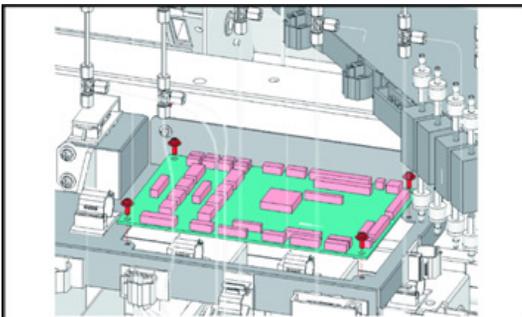
w\_m1522398

1. Loosen screws (×2).
2. Move the ink supply PCB wiring cover [A] above the Y bar.



w\_m1522400

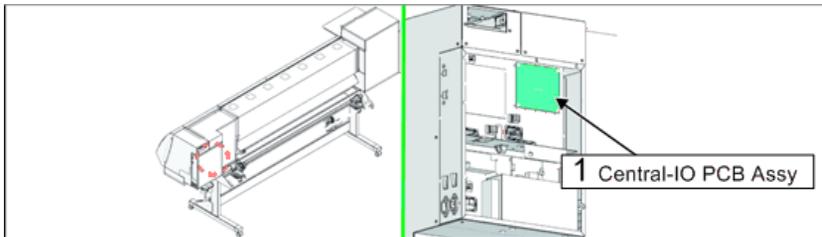
5. Disconnect all connectors on PCB.



m1522399

6. Remove the INK System PCB Assy. (screw×4)
7. Reverse the disassembly procedure for reassembly.

## Central-IO PCB Assy

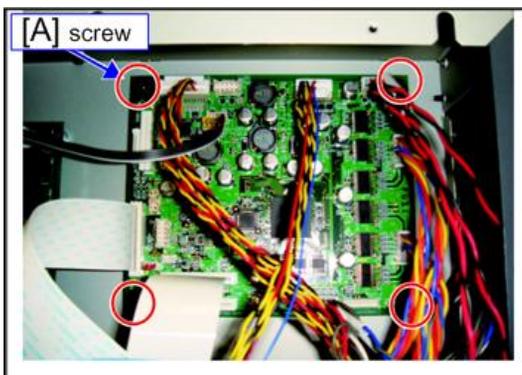


w\_m1522401

1. Central-IO PCB Assy

### **⚠ WARNING**

- After turning off the operation and main power switches, unplug the power cord. It is very dangerous if sleep mode functions mistakenly during the operation.
1. Turn off the main power supply and remove the power plug from the main body.
  2. Remove the power unit box cover 200.
  3. Disconnect all connectors on PCB.
  4. Remove the Central-IO PCB assy. (screw×4 [A])



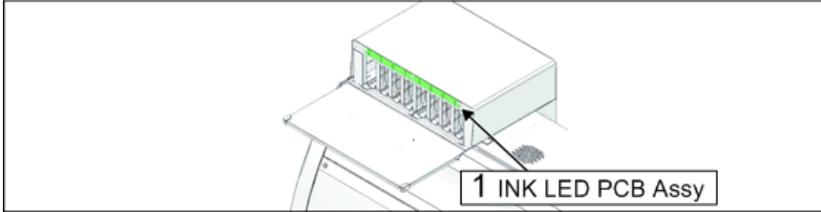
w\_m1522402

5. Reverse the disassembly procedure for reassembly.

### **★ Important**

- When replacing the PCB, overwrite the parameter.
- Change the system parameter No.107 from "0" to "10".

## INK LED PCB Assy



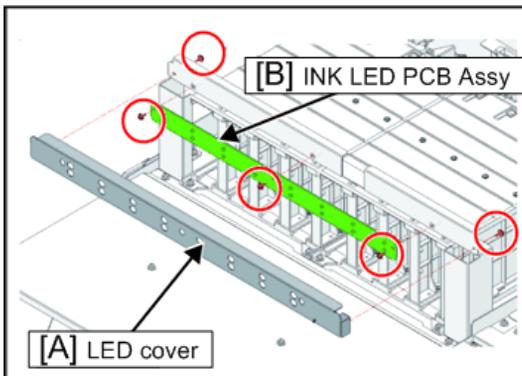
w\_m1522403

1. INK LED PCB Assy

4

### **⚠ WARNING**

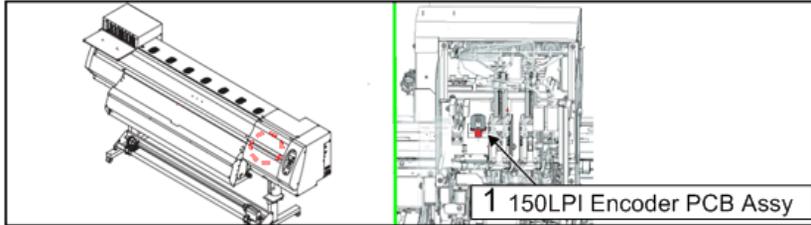
- After turning off the operation and main power switches, unplug the power cord. It is very dangerous if sleep mode functions mistakenly during the operation.
1. Turn off the main power supply and remove the power plug from the main body.
  2. Remove the Cartridge cover.
  3. Remove the LED cover [A].(screw×2)
  4. Remove the Ink LED PCB Assy [B] .(screw×3)



w\_m1522404

5. Reverse the disassembly procedure for reassembly.

## 150LPI Encoder PCB Assy



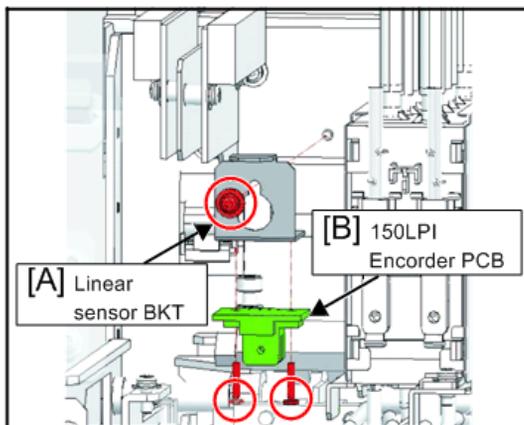
w\_m1522407

### 1. 150LPI Encoder PCB Assy

## **⚠ WARNING**

- After turning off the operation and main power switches, unplug the power cord. It is very dangerous if sleep mode functions mistakenly during the operation.

1. Turn off the main power supply and remove the power plug from the main body.
2. Remove the following covers.
  - Right maintenance cover-C
  - Right maintenance cover-U
  - Head cover
3. Remove the Linear sensor BKT [A] from the carriage. (screw×1)
4. Disconnect a connector on PCB.
5. Remove the 150LPI Encoder PCB Assy [B]. (screw×2)



w\_m1522408

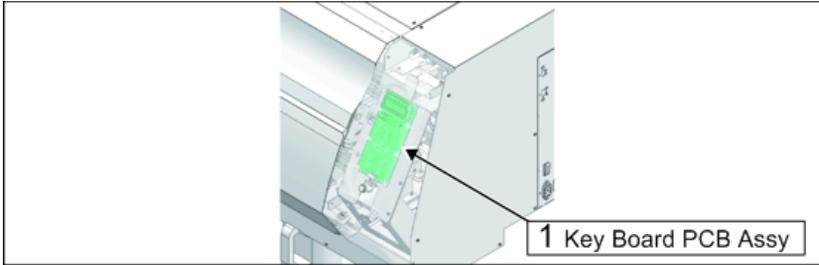
6. Reverse the disassembly procedure for reassembly.

**★ Important**

- After attachment has been completed, perform "Positioning of the Encoder Sensor"

## Key Board PCB Assy

4



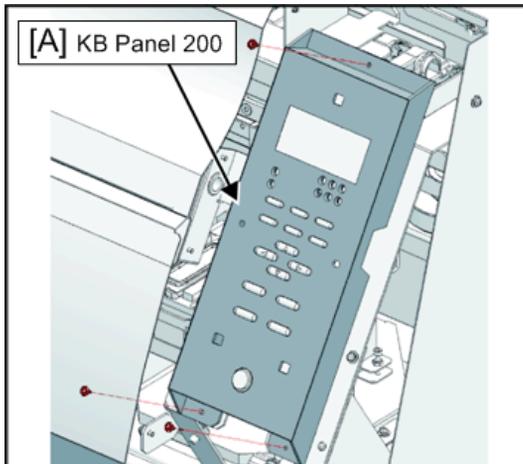
w\_m1522409

1. Key Board PCB Assy

**⚠ WARNING**

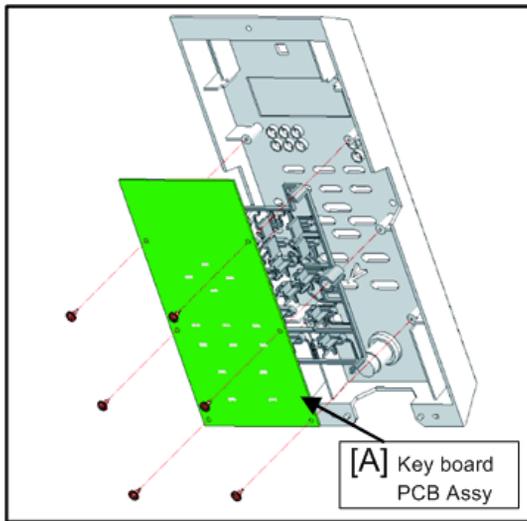
- After turning off the operation and main power switches, unplug the power cord. It is very dangerous if sleep mode functions mistakenly during the operation.

1. Remove the Right cover.
2. Remove cable from the PCB and KB Panel 200 [A].



w\_m1522410

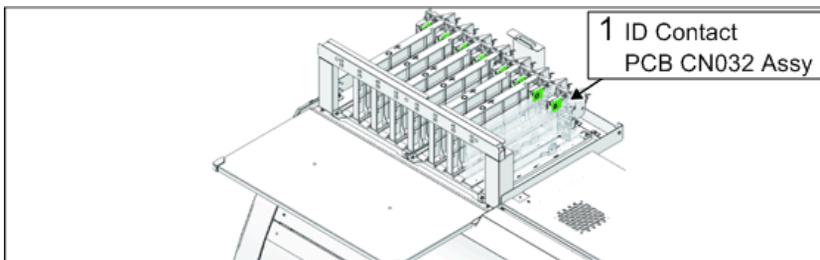
### 3. Remove the Key Board PCB Assy [A].



w\_m1522411

### 4. Reverse the disassembly procedure for reassembly.

## ID Contact PCB CN032 Assy



w\_m1522412

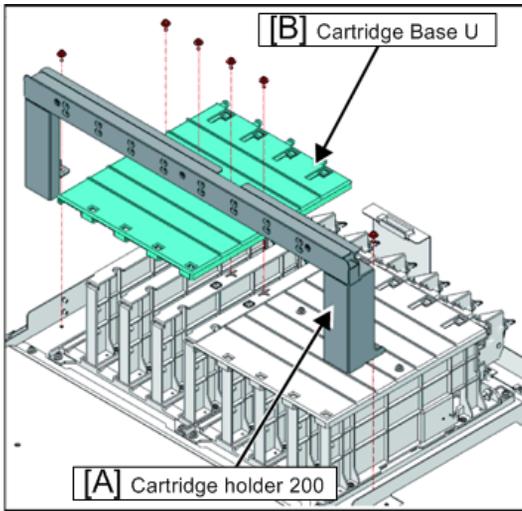
1. ID Contact PCB CN032 Assy

1. Remove the Cartridge cover and Rear cover - LU.
2. Remove the Cartridge holder 200 [A].

#### ★ Important

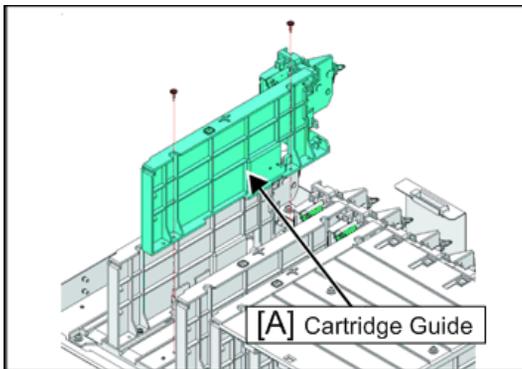
- LED PCB FFC is connected. Pay attention to handling.

3. Remove cartridge base U [B] related to the right or left side.



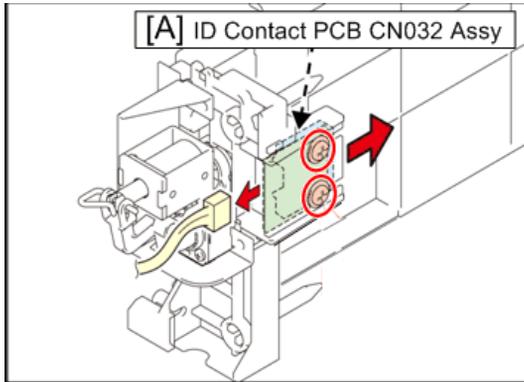
w\_m1522413

4. Remove the relevant cartridge guide [A].



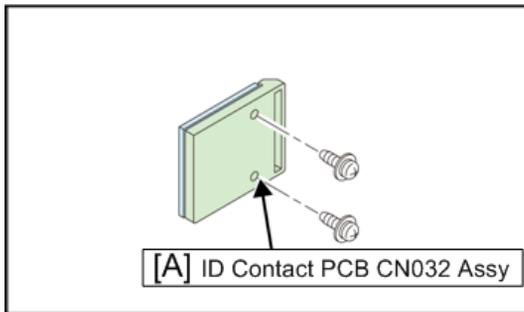
w\_m1522414

- Remove the connector and loosen the screws to take off the ID contact PCB CN032 Assy [A].



w\_m1522415

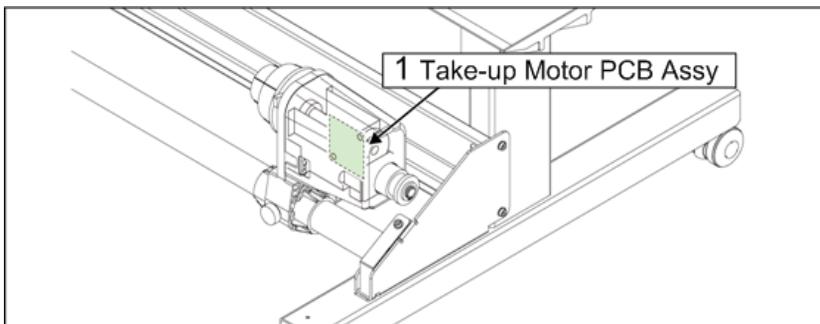
- Remove the screws and then remove the ID contact PCB CN032 Assy [A].



w\_m1522416

- Reverse the disassembly procedure for reassembly.

## Take-up Motor PCB Assy

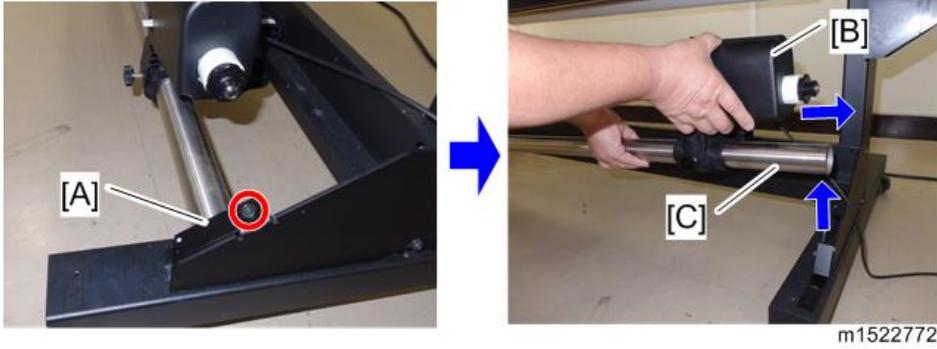


w\_m1522417

- Take-up Motor PCB Assy

**1. Remove the take-up device unit.**

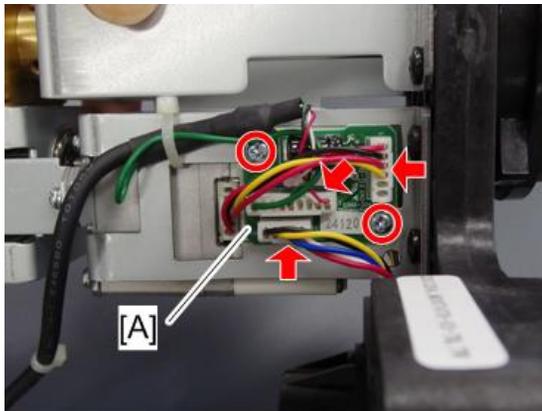
1. Remove the roll guide shaft holding plate [A]. (screw ×1)
2. Remove the take-up device unit [B] by lifting the roll guide [C].



**2. Remove the motor cover [A]. (screw ×4)**



### 3. Remove the take-up motor PCB assy [A]. (screw ×2, connector×3)

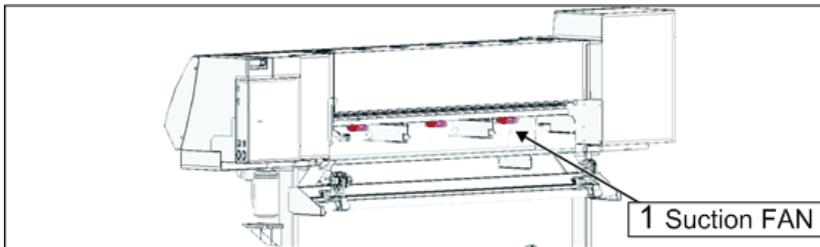


m1522774

### 4. Reverse the disassembly procedure for reassembly.

4

## Suction FAN



w\_m1522419

1. Suction FAN

### **⚠ WARNING**

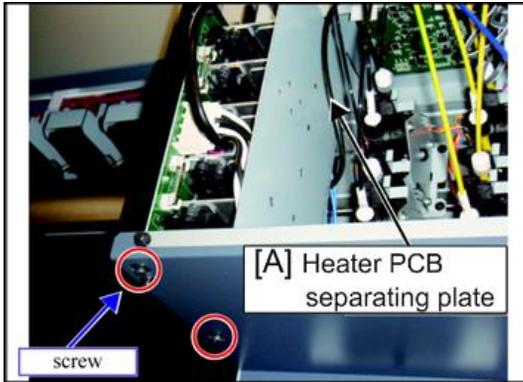
- After turning off the operation and main power switches, unplug the power cord. It is very dangerous if sleep mode functions mistakenly during the operation.

#### 1. Turn off the main power supply and remove the power plug from the main body.

#### 2. Remove the following covers.

- Right maintenance cover-U
- Right maintenance cover-C
- Rear cover - LU
- Front cover 200L160(130)

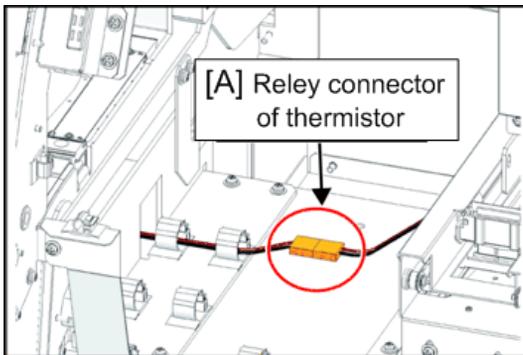
3. Remove the heater PCB separating plate [A].



w\_m1522420

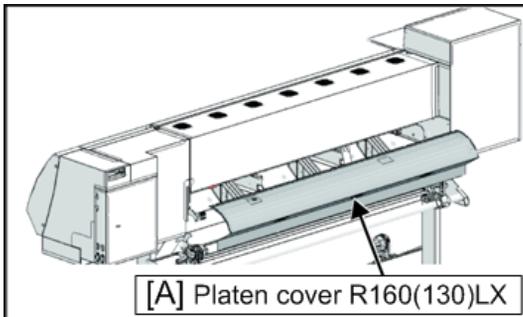
4

4. Disconnect the connector "CN1" on the Heater PCB.
5. Disconnect the relay connector of thermistor [A].  
(Around wiper unit)



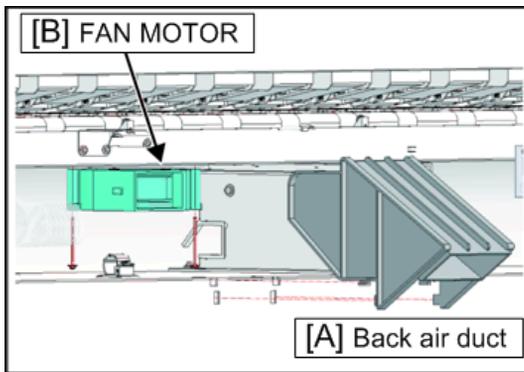
w\_m1522421

6. Remove the Platen cover R160 (130) LX [A].



w\_m1522422

7. Remove the Back air duct [A].
8. Disconnect the relay connector of the FAN MOTOR [B].

**9. Remove the FAN MOTOR.**

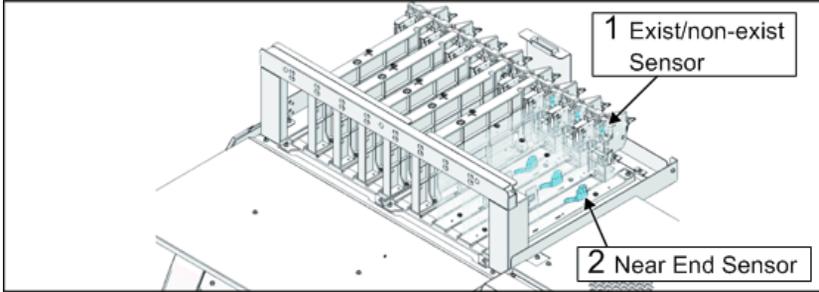
w\_m1522423

**10. Reverse the disassembly procedure for reassembly.**

# Disassembly and Reassembly: Sensors

## Detector Assy, I/C, Y

4



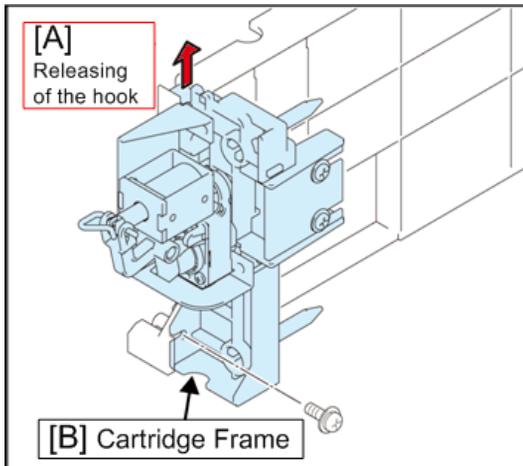
w\_m1522424

1. Exist/non-exist Sensor
2. Near End Sensor

### 1. Remove the relevant cartridge guide.

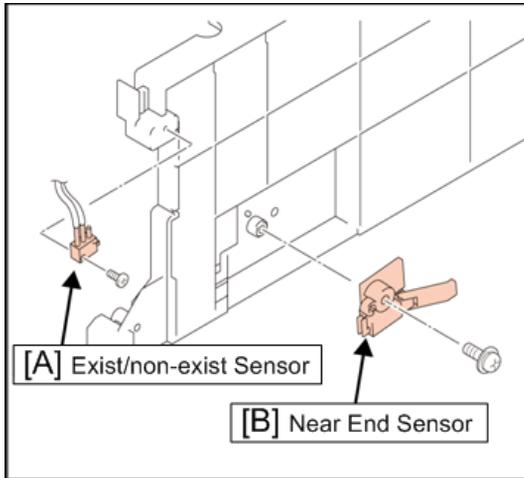
See page 229 "ID Contact PCB CN032 Assy"

### 2. Remove the screw; release the hook [A] and then remove cartridge frame [B].



w\_m1522425

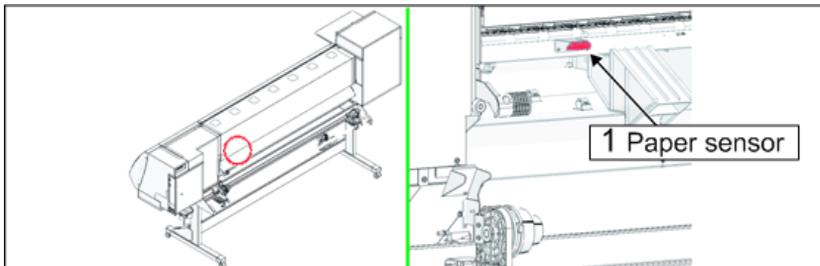
3. Remove the detector assy, I/C, Y (Exist/non-exist Sensor [A], Near End Sensor [B]) from the cartridge guide.



w\_m1522426

4. Reverse the disassembly procedure for reassembly.

## Paper Sensor



w\_m1522427

1. Paper sensor

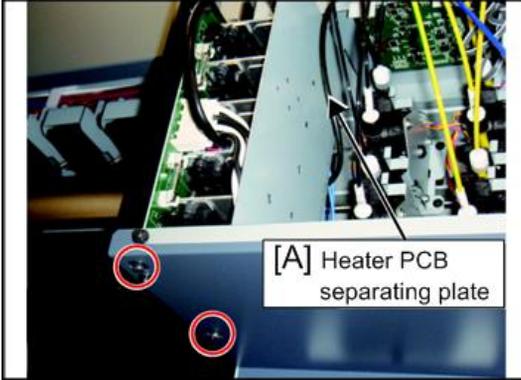
### **⚠ WARNING**

- After turning off the operation and main power switches, unplug the power cord. It is very dangerous if sleep mode functions mistakenly during the operation.

1. Turn off the main power supply and remove the power plug from the main body.
2. Remove the following covers.
  - Right maintenance cover-U
  - Right maintenance cover-C

- Rear cover - LU
- Front cover 200L160(130)

**3. Remove the heater PCB separating plate [A].(screw×2)**

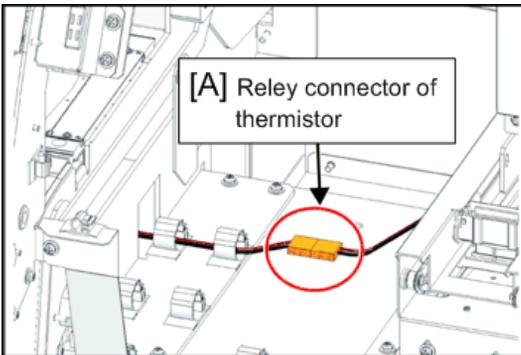


w\_m1522428

**4. Disconnect the connector “CN1” on the Heater PCB.**

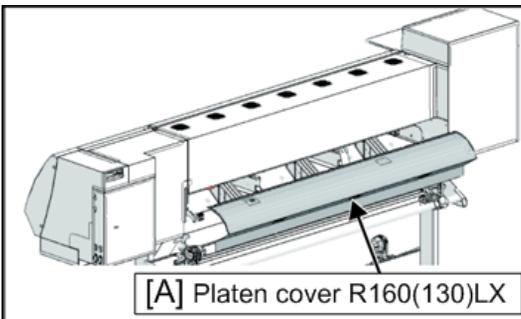
**5. Disconnect the relay connector of thermistor [A].**

(Around wiper unit)



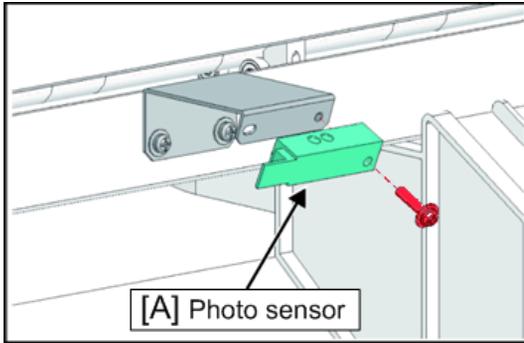
w\_m1522429

**6. Remove the Platen cover R160 (130) LX [A].**



w\_m1522430

7. Remove the Photo sensor [A]. (screw×1)



w\_m1522431

8. Reverse the disassembly procedure for reassembly.

# Adjustment Items

---

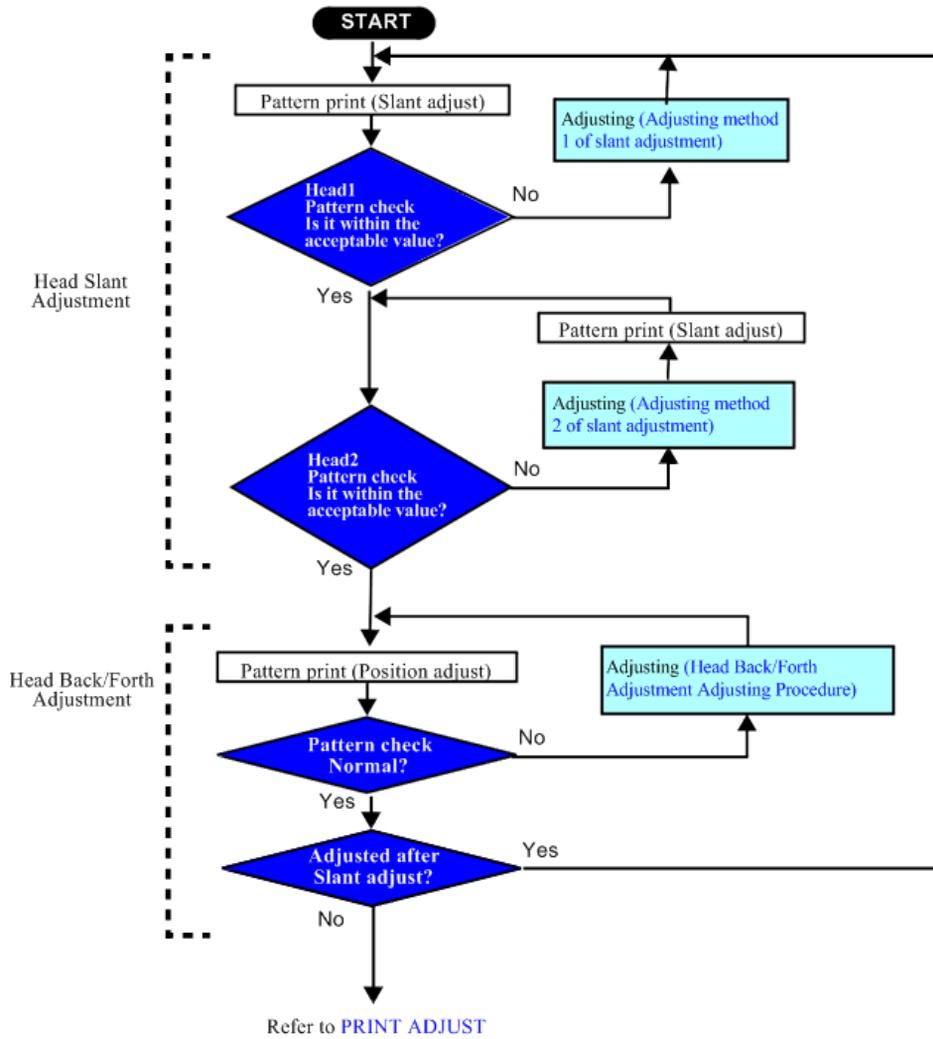
## HEAD ADJUST

---

On the drawing with the built-in patterns, the slant and the back and forth positions of each head are checked and mechanically adjusted.

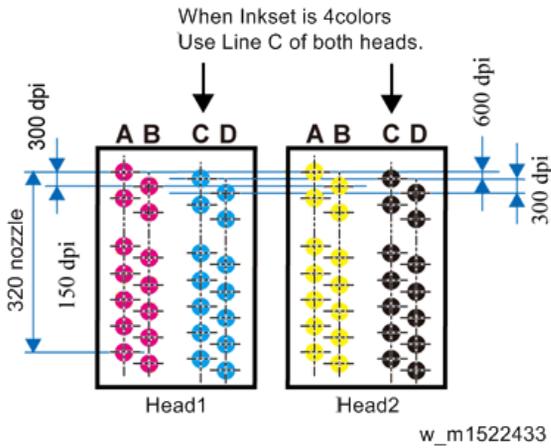
**★ Important**

- [HEAD ADJUST] consists of the slant adjustment and back/forth adjustment. When either one of the above is adjusted, be sure to check the other. If any adjustment is required, repeat both of the adjustments alternately until any adjustment is not required on both.
- When the head adjustment is incorrect, be sure to execute the adjustment since it affects other parameter adjustments.



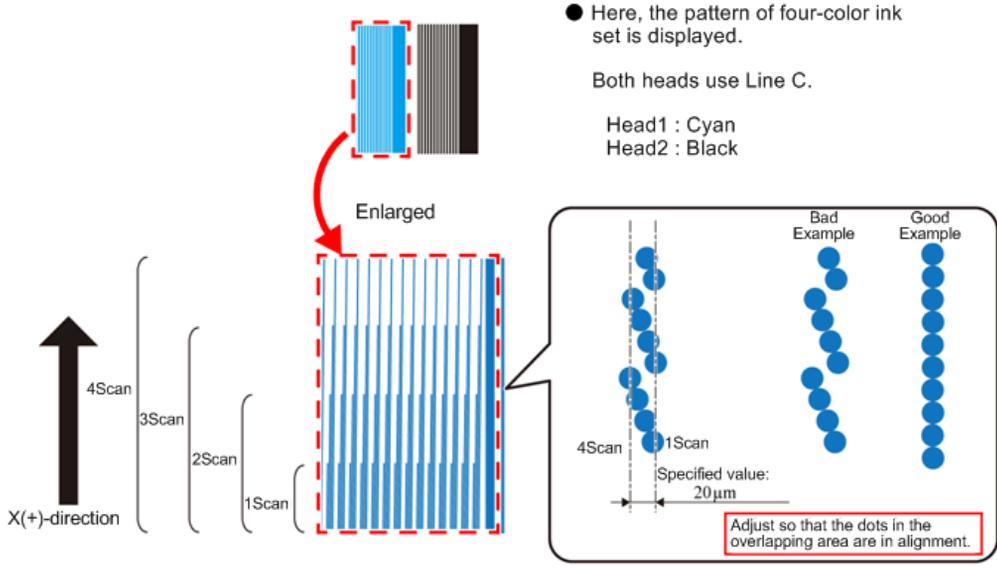
## Outline of Head Slant Adjustment

Using nozzle



4

Pattern of Slant adjust



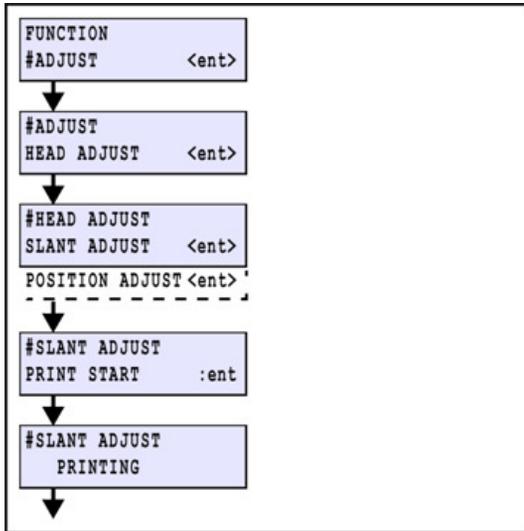
w\_m1522434

Procedures of Head Slant Adjustment

1. Set Media at X-origin.

★ Important

- Set the drawing origin as follows;  
(Set in [LOCAL] -> [ORIGIN])  
 $X \geq 0, Y > 0$



m1522435

2. Display [#ADJUST] -> [HEAD ADJUST] -> [SLANT ADJUST].

3. Press the [ENTER] key to draw the pattern.

[ENTER]: To start Pattern drawing

[◀] [▶] [▲] [▼]: Jog mode starts (drawing origin moving)

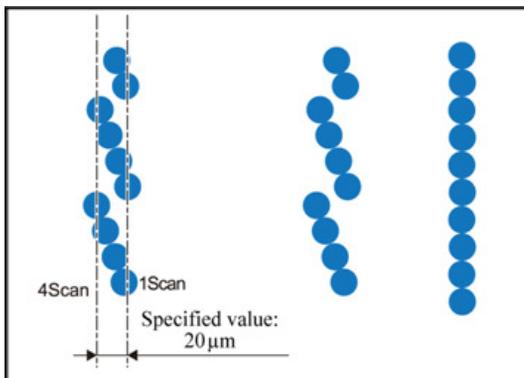
4. Confirm whether quantity of biggest gap by each scan is settled within  $20\mu\text{m}$ .

1. Confirm a pattern of head 1.

If quantity of gap is beyond the tolerance level, perform page 244 "Adjusting method 1 of slant adjustment".

2. If head 1 is the tolerance level, confirm a pattern of head 2.

If quantity of gap is beyond the tolerance level, perform page 247 "Adjusting method 2 of slant adjustment".



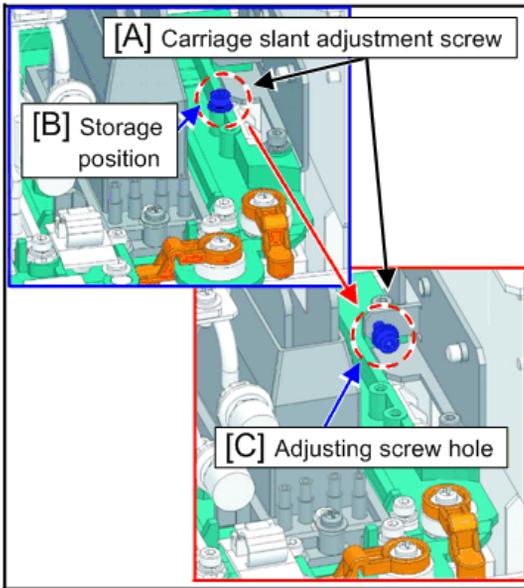
w\_m1522436

## Adjusting method 1 of slant adjustment

1. Move the carriage slant adjustment screw [A] from the storage position [B] to the adjusting screw hole [C].

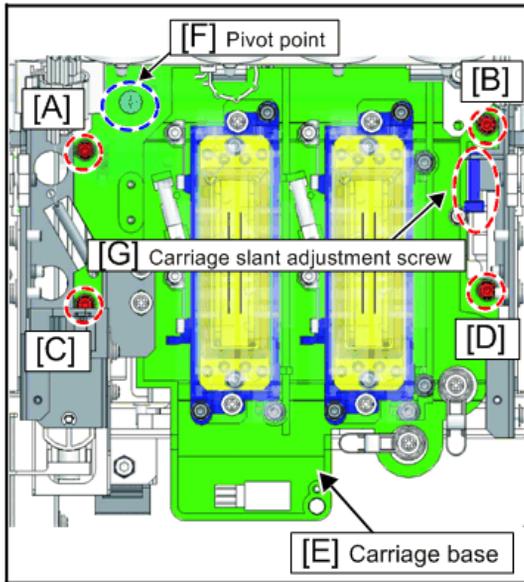
**★ Important**

- Attach the slant adjustment screw on the storage position as indicated in the upper left photo except when performing adjustment.
- Be sure to return it after adjustment has been completed.



w\_m1522437

2. Loosen the fixing screws (×4) [A] [B] [C] [D] of the carriage base [E].



w\_m1522438

[F]: Pivot point

[G]: Carriage slant adjustment screw

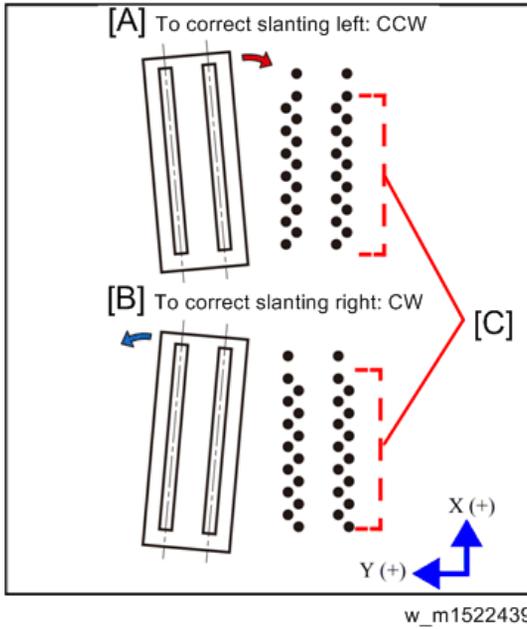
3. Rotate the Carriage slant adjustment screw [A] according to the amount of displacement to adjust the slant.



w\_m1522440

Direction of turning the Micro Adjuster

- To correct slanting left: Turn counterclockwise (CCW) [A].
- To correct slanting right: Turn clockwise (CW) [B].



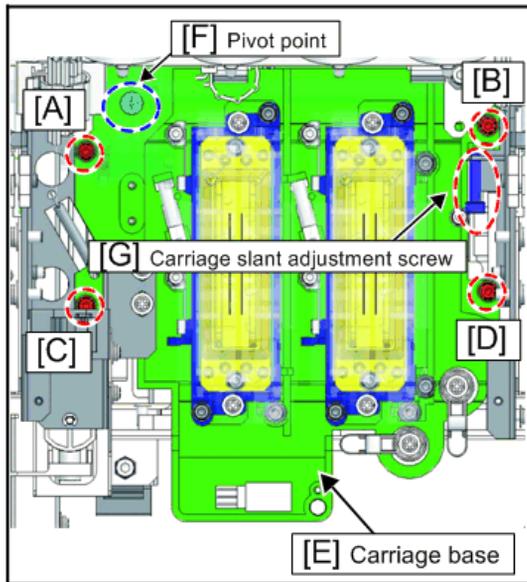
[C]: Overlapped portion

4. Tighten the loosened fixing screws (×4) of the carriage base. Tighten the fixing screws in the following order:

[A] -> [C] -> [B] -> [D]

★ Important

- Tighten the screws with care that the head is not shifted from the correct position.



[F]: Pivot point

[G]: Carriage slant adjustment screw

5. Re-draw the pattern and check that slant is 20 $\mu$ m and less.

**★ Important**

- Repeat "Adjusting" -> "Patterns Drawing" until no more displacement is available.

6. When adjustment has been completed, return the carriage slant adjustment screw to the storage position

## Adjusting method 2 of slant adjustment

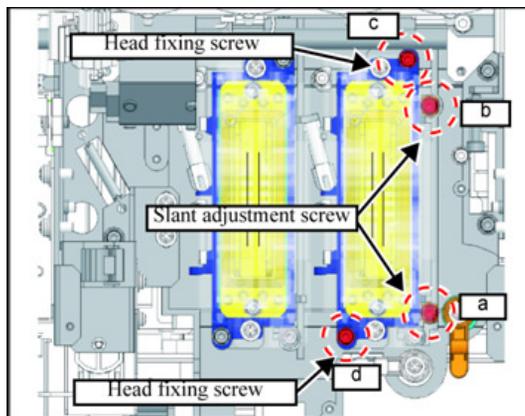
This is the method for adjusting slant of the head 2 only.

For checking slant, refer to page 241 "Outline of Head Slant Adjustment".

**★ Important**

- Before performing slant adjustment for the head 2 only, be sure to check/ adjust the head 1. As slant adjustment of the head 1 is adjustment to move entire carriage, slant of the head 2 changes accordingly.

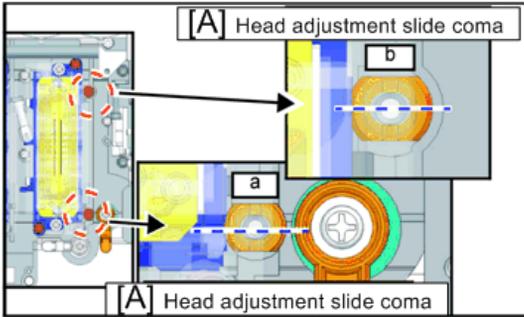
1. Adjust slant of the head 1 with page 241 "Outline of Head Slant Adjustment".
2. Loosen the Head fixing screw "c" and "d".
3. Remove the slant adjustment screw "a" and "b"



w\_m1522441

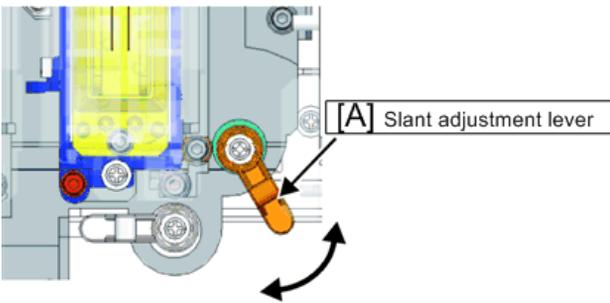
4. Rotate the head adjustment slide coma [A] by 90 degrees and turn it to a side. Use a standard screwdriver.
5. Tighten the slant adjustment screw "b".

6. Temporarily tighten the slant adjustment screw "a" (not so strong that the coma cannot slide).

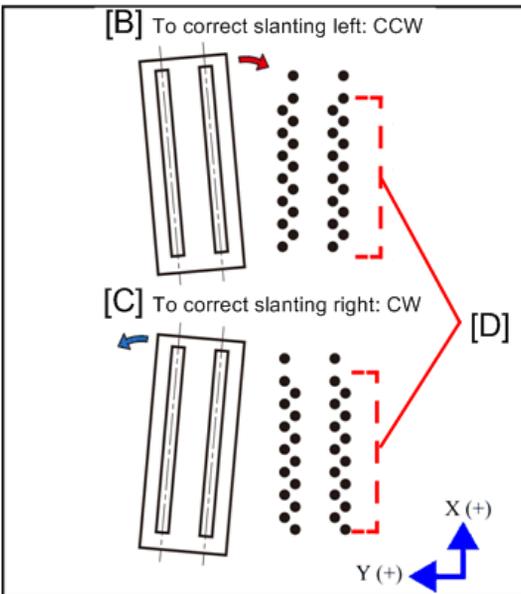


w\_m1522442

7. Rotate the slant adjustment lever [A] depending on the slanting amount, and adjust the amount.



w\_m1522444



w\_m1522443

[B]: To correct slanting left: CCW

[C]: To correct slanting right: CW

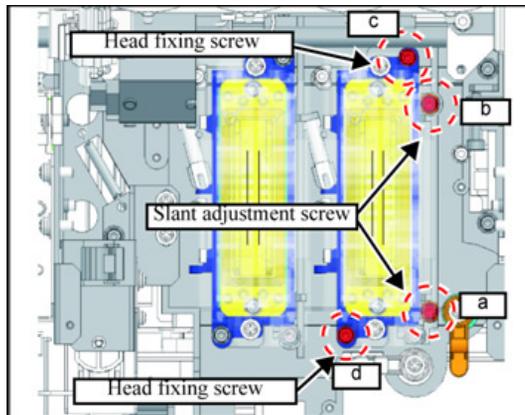
[D]: Overlapped portion

8. Fully tighten the slant adjustment screw "a" temporarily tightened.

9. Tighten the loosened Head fixing screw "c" and "d".

★ Important

- Tighten the screws with care that the head is not shifted from the correct position.



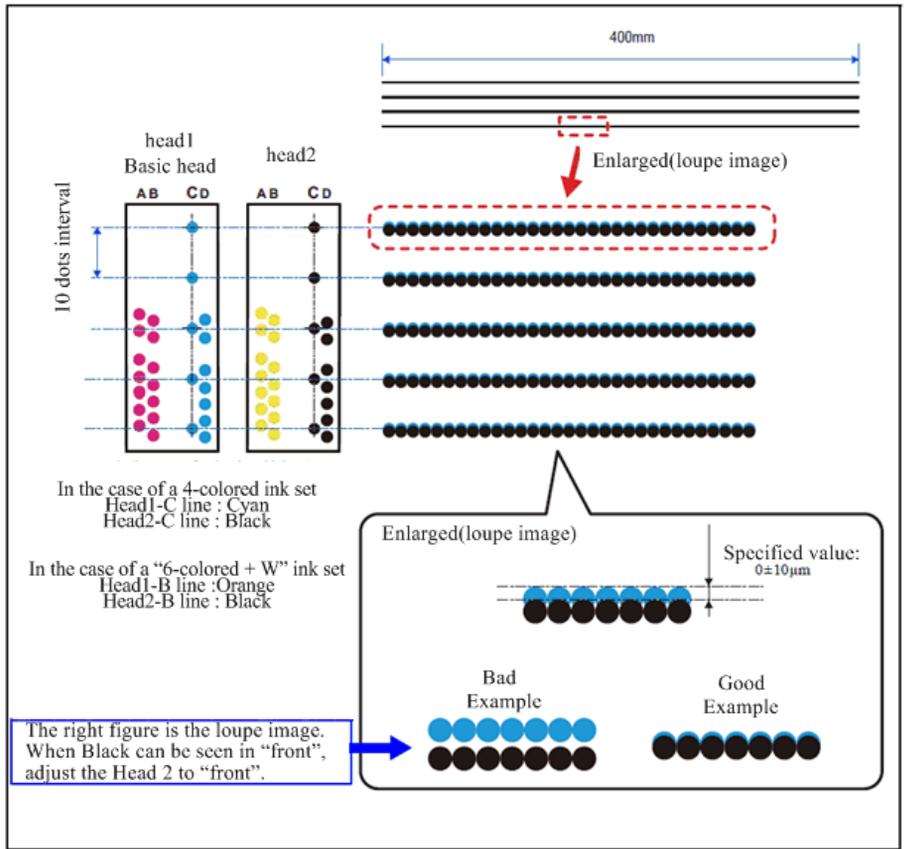
w\_m1522441

10. Re-draw the pattern and check that there is no slant.

★ Important

- Repeat "Adjusting" -> "Patterns Drawing" until no more displacement is available.

## Head Back/Forth Adjustment Adjusting Patterns

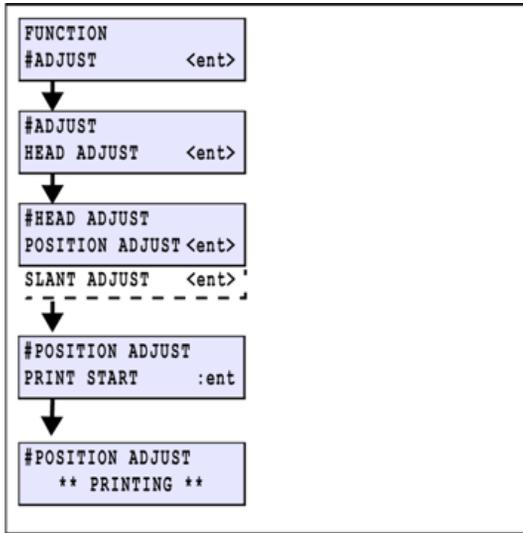


## Procedures of Head Back/Forth Adjustment

### 1. Set Media at X-origin.

★ Important

- Set the drawing origin as follows;  
 (Set in [LOCAL] -> [ORIGIN])  
 $X \geq 0, Y > 0$



w\_m1522446

2. Display [#ADJUST] -> [HEAD ADJUST] -> [POSITION ADJUST].

3. Press the [ENTER] key to draw the pattern.

[ENTER]: To start Pattern drawing

[◀] [▶] [▲] [▼] : Jog mode starts (drawing origin moving)

4. Check if the space of pattern 1 is in compliance with the specification.

#### ↓ Note

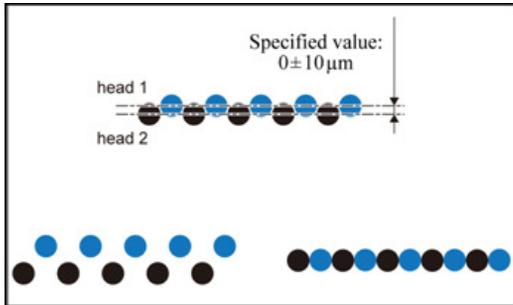
- Be careful that back and forth positions of dots seen with a loupe is opposite from the actual position.

Specified value:  $0 \pm 10 \mu\text{m}$

\* If the pattern is out of the specification, execute page 252 "Head Back/Forth Adjustment Adjusting Procedure".

#### ★ Important

- If the adjustment with [SLANT ADJUST] or [POSITION ADJUST] is executed, check them again from the beginning then repeat this process until any adjustment is not required on both.



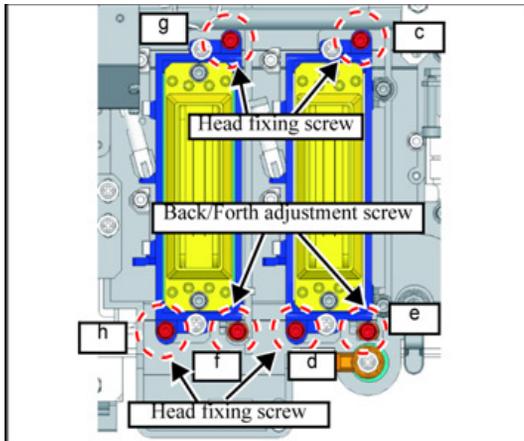
w\_m1522447

4

### Head Back/Forth Adjustment Adjusting Procedure

Based on the head 1, move the head 2 and adjust.

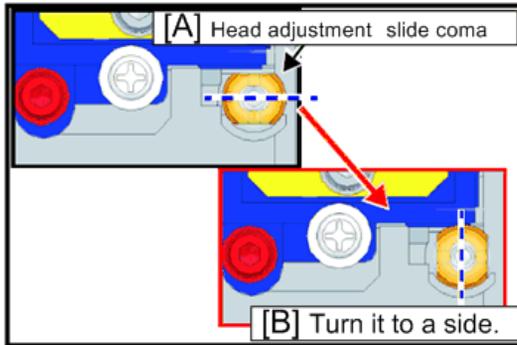
1. Loosen the Head fixing screw "g" and "h".
2. Remove the Back/Forth adjustment screw "f".



w\_m1522450

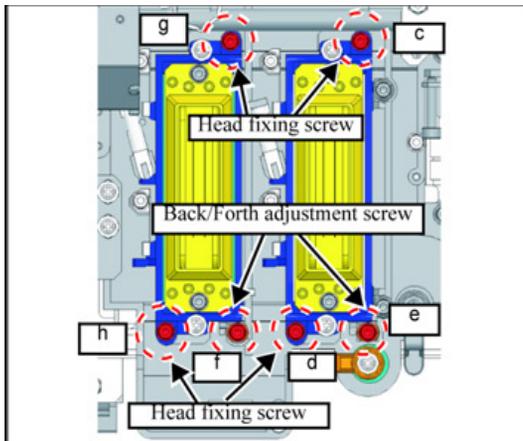
3. Rotate the head adjustment slide coma [A] (below Back/ Forth adjustment screw "f") by 90 degrees and turn it to a side [B].

Use a standard screwdriver.



w\_m1522702

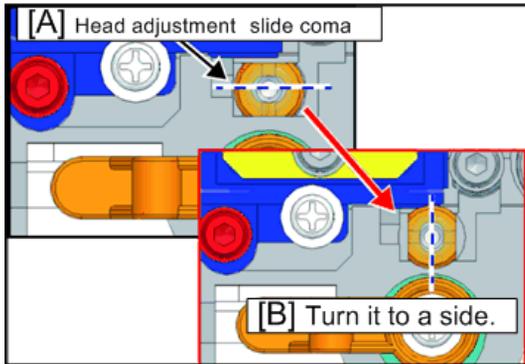
4. Tighten the Back/Forth adjustment screw "f". (Fix the coma.)
5. Tighten the Head fixing screw "g" and "h".
6. Loosen the Head fixing screw "c" and "d".



w\_m1522450

7. Remove the Back/Forth adjustment screw "e".
8. Rotate the head adjustment slide coma [A] (below Back/ Forth adjustment screw "e") by 90 degrees and turn it to a side [B].

Use a standard screwdriver.



w\_m1522451

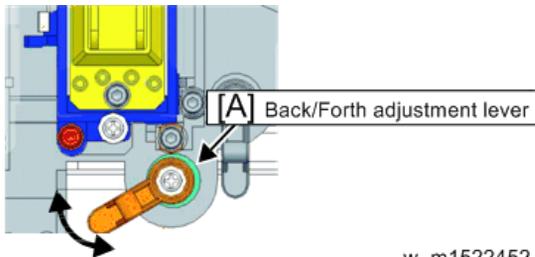
4

9. Temporarily tighten the slant adjustment screw "e" (not so strong that the coma cannot slide).
10. Rotate the Back/Forth adjustment lever [A] depending on the Back/ Forth amount, and adjust the amount.

Direction of turning the Back/Forth adjustment lever.

Dot position down: Turn clockwise (CW).

Dot position up: Turn counterclockwise (CCW).



w\_m1522452

11. Fully tighten the slant adjustment screw "e" temporarily tightened.
12. Tighten the loosened Head fixing screw "c" and "d".

**★ Important**

- Tighten the screws with care that the head is not shifted from the correct position.

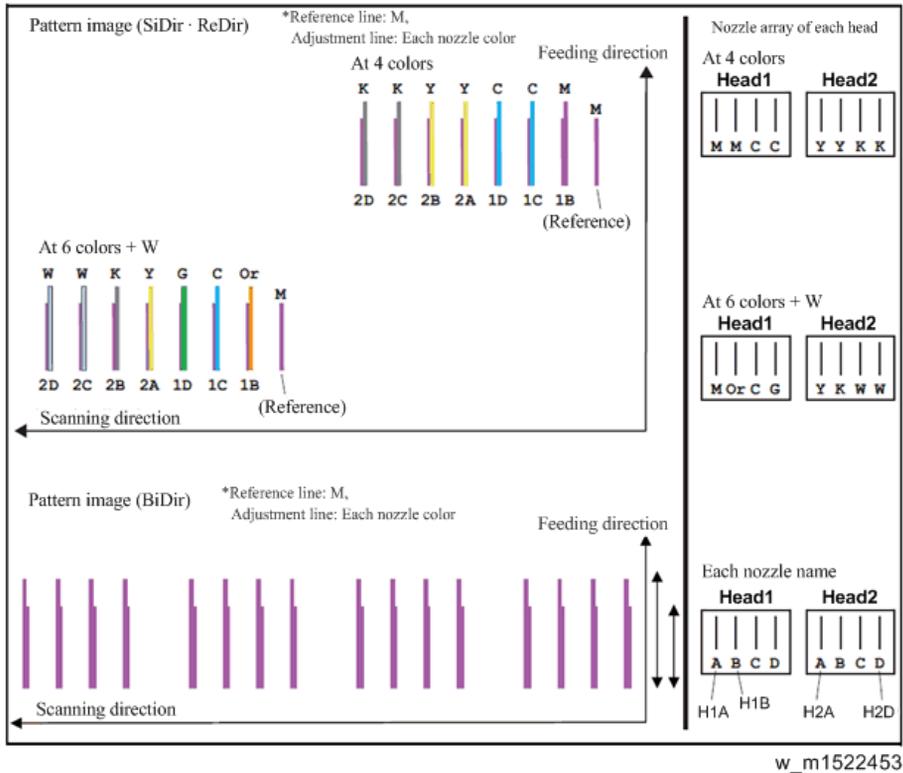
13. Draw the pattern again and check if no displacement occurs.

**★ Important**

- Repeat "Adjusting" -> "Patterns Drawing" until no more displacement is available.

## PRINT ADJUST

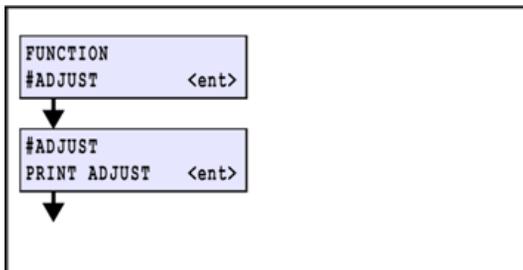
Draw the built-in patterns, and compensate the parameter so that the drop positions of other heads are on the same line as the drop position of reference head (Head 1) in the Y-direction. To each of the discharged waveforms, execute [SiDir], [ReDir] and [BiDir] in each resolution.



### 1. Set Media at X-origin.

#### ★ Important

- Set the drawing origin as follows;  
(Set in [LOCAL] → [ORIGIN])  
 $X \geq 0, Y > 0$



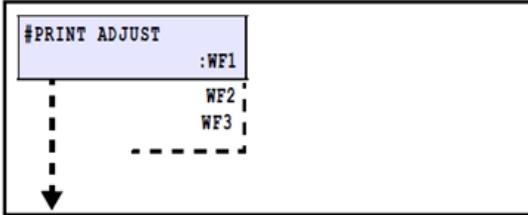
w\_m1522454

2. Display [#ADJUST] -> [PRINT ADJUST].

3. Select the waveform.

[▲] / [▼]: Switches

[ENTER]: Confirms (Next)



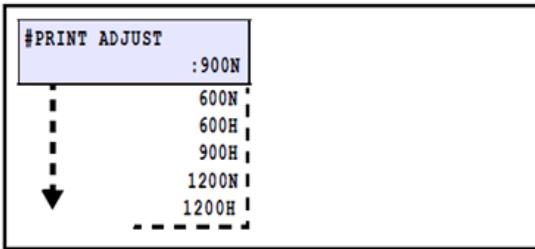
w\_m1522455

4

4. Select the Y-resolution and scanning speed.

[▲] / [▼]: Y-resolution & Scanning speed change

[ENTER]: Confirms (Next)



w\_m1522456

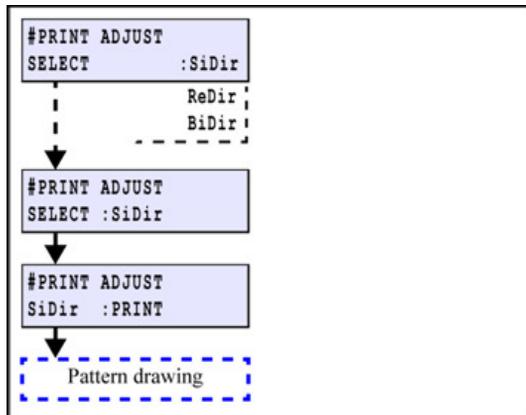
## Forward adjustment

---

1. Select "SiDir" on the [SELECT] display.

[▲] / [▼]: Switches

[ENTER]: Confirms (Next)



w\_m1522457

4

## 2. Press the [ENTER] key to draw the pattern.

[ENTER]: To start Pattern drawing

[▶]: To the compensation display

(Without drawing)

## 3. Check and compensate the patterns.

Input the adjustment value (the measured value:  $\mu\text{m}$ ) so that the impact dots of other nozzle lines (7 lines) are at the same position in the Y-direction, referring to the reference nozzle H1A line.

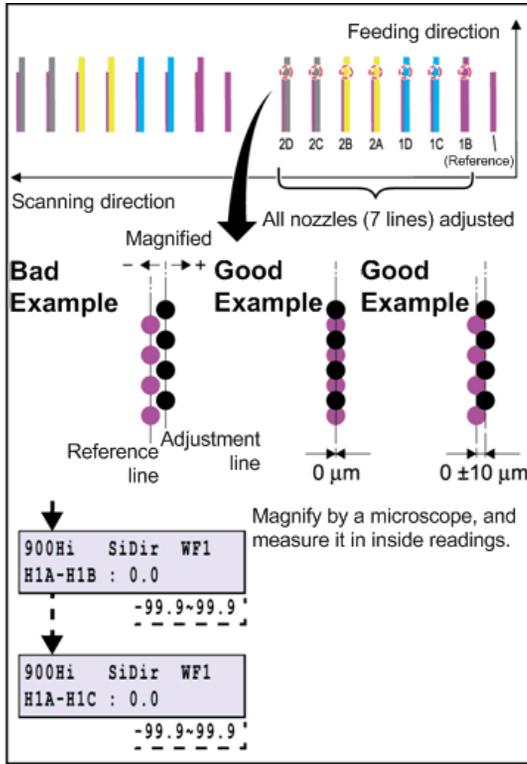
Check and execute the compensation for H1A-H1B ~ H2D.

[▲] / [▼]: Compensating value input (Input unit: 20  $\mu\text{m}$ )

[ENTER]: Confirms (Next)

### ★ Important

- Input the compensating value, referring to the left figure, if the displacement on the drop position of head applied for the compensation occurs either right or left against the reference head.



m1522577

4. When compensated, draw and check the patterns again.

★ Important

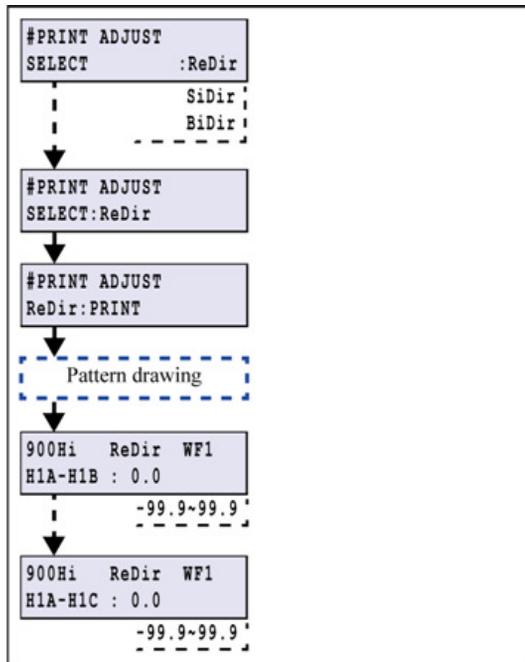
- Repeat "Drawing -> Checking (Compensating)" until any compensation is not required.

Return adjustment

1. On the [SELECT] display, select "ReDir", and adjust it in the same way as "SiDir".

[▲] / [▼]: Switches

[ENTER]: Confirms (Next)



m1522578

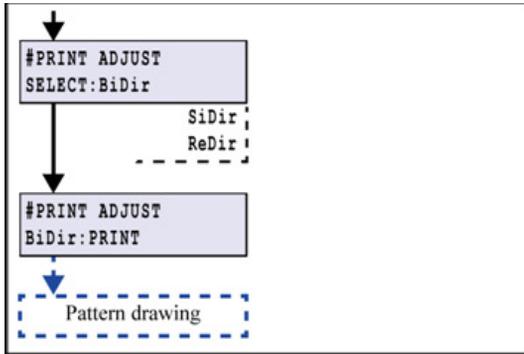
2. Press the [ENTER] key to draw the pattern.  
 [ENTER]: To start Pattern drawing  
 [▶]: To the compensation display  
 (Without drawing)
3. When compensated, draw and check the patterns again.

**★ Important**

- Repeat “Drawing -> Checking (Compensating)” until any compensation is not required.

## Going and returning adjustment

1. Select “BiDir” on the [SELECT] display.  
 [▲] / [▼]: Switches  
 [ENTER]: Confirms (Next)



m1522579

4

**2. Press the [ENTER] key to draw the pattern.**

[ENTER]: To start Pattern drawing

[▶]: To the compensation display

(Without drawing)

**3. Check and compensate the patterns.**

The reference lines are drawn in going, and then the adjustment lines are drawn at the same Y-coordinate positions in returning. The position where the lines above are overlapped on one vertical line is specified as the correct dot position (H1A: M color fixed)

Confirm that the dots are on the same line.

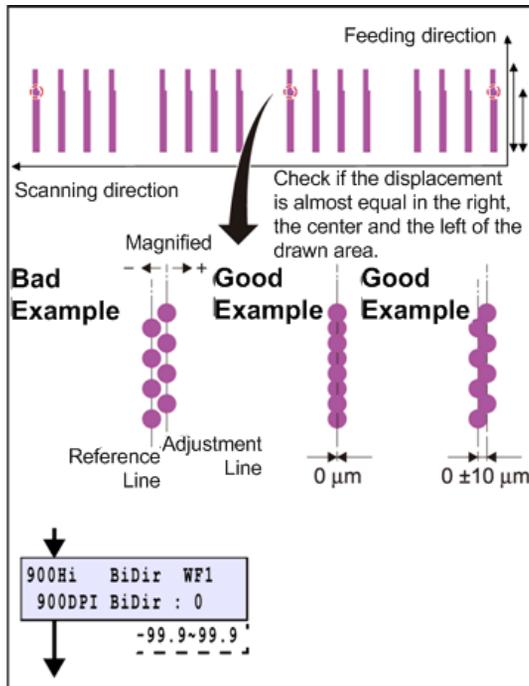
\* The adjusting procedure is the same although the drawing pattern is different depending on mode.

[▲] / [▼]: Compensating value input (Measured value)

[ENTER]: Confirms

**↓ Note**

- If the displacement is significantly different in the right and left, other reasons are considered.



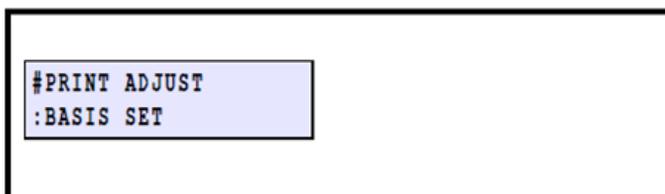
w\_m1522458

- When compensated, draw and check the patterns again.

★ Important

- Repeat "Drawing -> Checking (Compensating)" until any compensation is not required.

- Select [BASIS SET] and press [ENTER] key. The values adjusted in WF1 1200std are set as the correction value of other modes.



w\_m1522703

★ Important

- The value set using [BASIS SET] are values calculated as a guideline for correction values. Thus, the actual ink landing position may be misaligned. Be sure to adjust the landing position for each mode that will be sure.

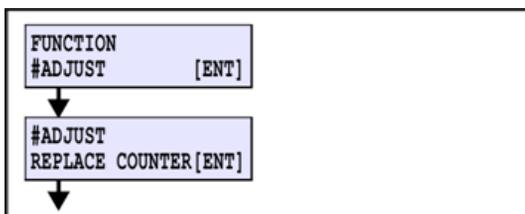
## REPLACE COUNT

Indicate the following items of machine on the LCD.

**REPLACE COUNTER List of Items**

No.	Item	Remarks
1	CARTRIDGE	Number of replacements of Cartridge 1~8
2	SCAN COUNT	Number of scans
3	USE TIME	Time of Power ON Unit: [H]
4	WIPING COUNT	Number of wiping
5	SHOT COUNT	Number of discharging of Head 1~8 Unit: [1,000 times]
6	DRAW LENGTH	Drawing length [m]
7	DRAW AREA	Drawing area [m2]
8	INK PIC	Number of IC chip error detections of Cartridge 1~8
9	PUMP MOTOR	Rotation time of each pump motor Unit: [H]
10	SENDING PUMP	Rotation time of each pump motor Unit: [H]
11	FILTER(W)	Used days of filter in white ink path Unit:[Day]
12	WIPER CLEANING	Elapsed time after wiper cleaning Unit:[H]

1. Select [#ADJUST] -> [REPLACE COUNTER].



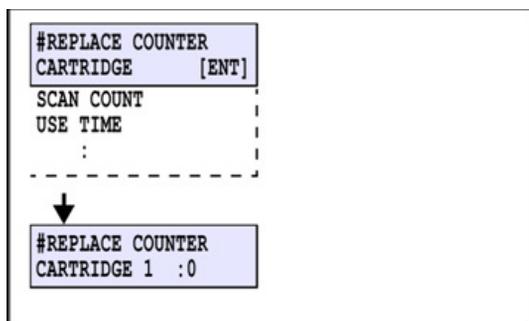
w\_m1522459

2. Select the item to be indicated, and then fix it by [ENTER] to indicate it.

[▲] / [▼]: Switch

[ENTER]: Finalizes (to Information indicating display)

[END]: Return



w\_m1522460

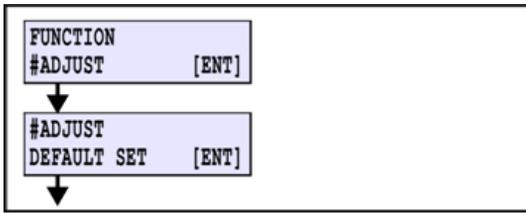
## DEFAULT SET

4

### DEFAULT SET of Items

No.	Item	Remarks
1	SYSTEM PARAMETER	Initialize the parameter in question.
2	MAINTENANCE PARAMETER	Initialize the parameter in question.
3	SERVO PARAMETER	Initialize the parameter in question.
4	FEED PARAMETER	Initialize the parameter in question.
5	HEAD PARAMETER	Initialize the parameter in question.
6	OPERATION PARAMETER	Initialize the parameter in question.
7	INK PARAMETER 1	Initialize the parameter in question.
8	INK PARAMETER 2	Initialize the parameter in question.
9	DEBUG PARAMETER	Initialize the parameter in question.
10	SCAN PARAMETER	Initialize the parameter in question.
11	NOZZLE RECOVERY PARAMETER	Initialize the parameter in question.
12	SHIPPING set	Initializing parameters of others than the adjustments.

1. Select [#ADJUST] -> [DEFAULT SET].



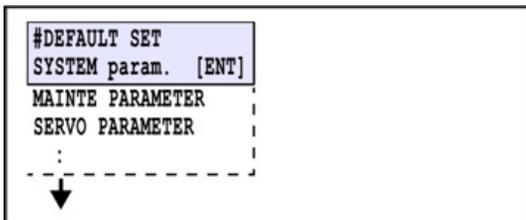
w\_m1522461

2. Select the parameter to be initialized, and then fix it by [ENTER].

[▲] / [▼]: Switch

[ENTER]: Confirms (to Confirmation display)

[END]: Return

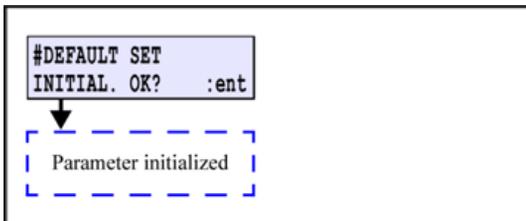


w\_m1522462

3. Initialize by [ENTER].

[ENTER]: Execute

[END]: Return



w\_m1522463

---

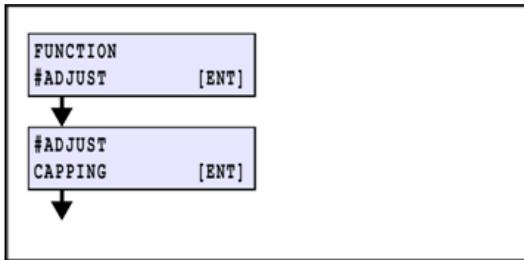
## CAPPING

---

Adjusts the location for capping and wiper. Adjusted value is saved in the system parameter.

Basically, it is not necessary to make adjustment even when cap (and the like) has been replaced.

1. Select [#ADJUST] -> [CAPPING].

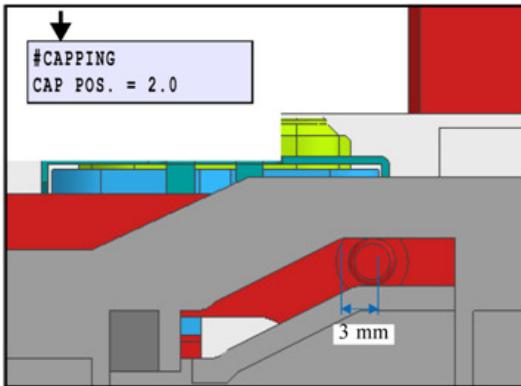


w\_m1522464

2. Make adjustment so that the cap slider is located at 3 mm to the right from the uppermost point it has reached on the cap base.

[◀] / [▶]: Horizontally shifts the cap.

[ENTER]: Finalizes (To Next)



w\_m1522465

3. Make adjustment so that the head is located exactly at the point where the head is in contact with rubber portion (left end) of the cap head.

[▲] / [▼]: Shifts the cap.

[ENTER]: Finalizes (To Next)

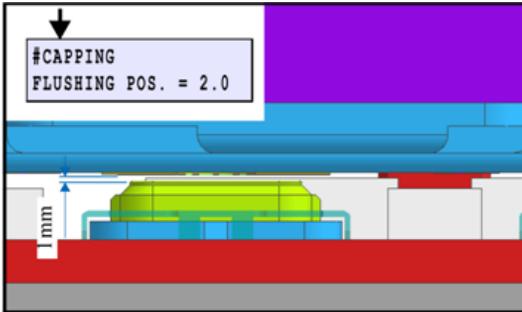


w\_m1522466

4. Make adjustment so that the clearance between the head and left end of the cap is set at 1 mm.

[◀] / [▶]: Shifts the cap.

[ENTER]: Finalizes (To Next)



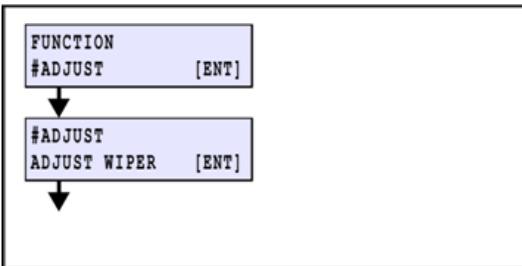
w\_m1522467

## ADJUST WIPER

Adjusts the wiper position.

The adjusted value is stored in the system parameter.

1. Select [#ADJUST] -> [ADJUST WIPER].



w\_m1522468

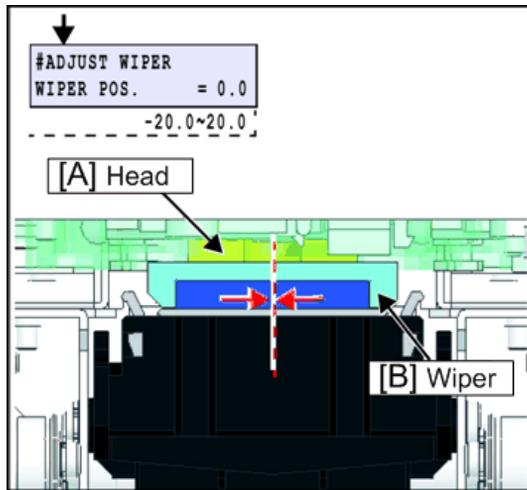
2. Confirm and adjust the center position of the head [A] and the wiper [B] nozzle.

[◀] / [▶]: Horizontally shifts the head.

[ENTER]: Finalizes (To Next)

[END]: End

[FUNCTION]: Wiping



w\_m1522469

### 3. Confirm and adjust the dropping position of Cleaning liquid (F/W Ver.2.20 or later).

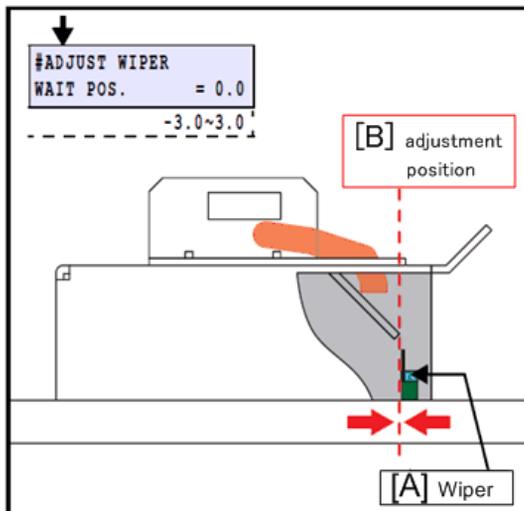
Put the wiper [A] at the adjustment position [B].

[▲] / [▼]: Horizontally shifts in front and rear of the wiper.

[ENTER]: Finalizes

[END]: Return

[FUNCTION]: Drop the Cleaning liquid



w\_m1522704

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## HEAD ID

---

HEAD ID represents each head characteristic written at shipping. The variation between heads is unified by inputting the value to printer.

**★ Important**

- As this machine reads the head ID from the mounted memory (ROM) on the print head at each startup, it is not necessary to set the head ID.

---

## Head Temperature

---

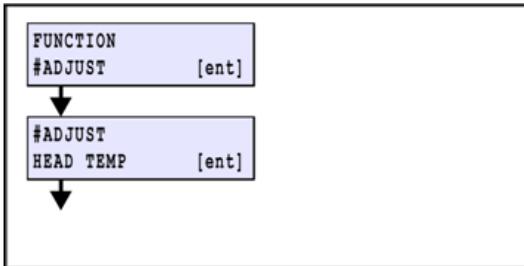
4

Confirms/sets the head temperature.

**★ Important**

- Under normal conditions, do not change this.

1. Select [#ADJUST] -> [HEAD TEMP].



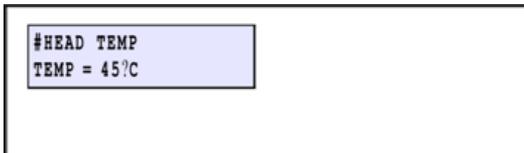
m1522497

2. Enter (confirm) the head temperature.

[▲] / [▼]: Changes values.

[ENTER]: Confirms

[END]: Return



m1522498

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## Serial No.

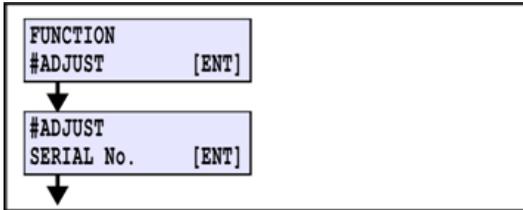
---

Confirming and changing of the serial No. of this machine.

### ★ Important

- Normally, don't change the serial No., which has been registered.

#### 1. Select [#ADJUST] -> [SERIAL No.].



m1522499

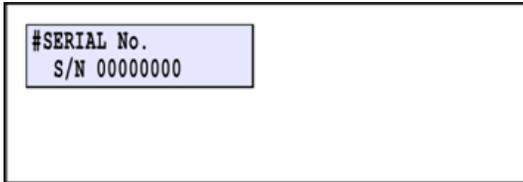
#### 2. Confirm the serial No., or change it.

[◀] / [▶]: To move Cursor

[▲] / [▼]: To change Value

[ENTER]: Confirms

[END]: Return



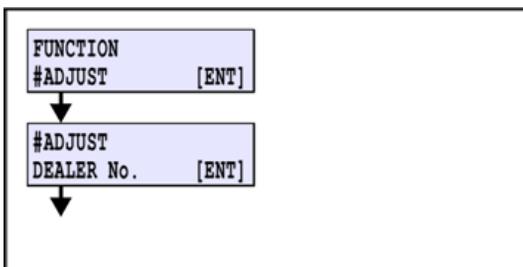
m1522500

## DEALER No. (DFU)

Check and set the dealer No.

For dealer No., 8-digit alphameric characters (0 to 9, A to Z) can be input.

#### 1. Select [#ADJUST] -> [DEALER No.].



m1522501

**2. Input (check) the dealer No.**

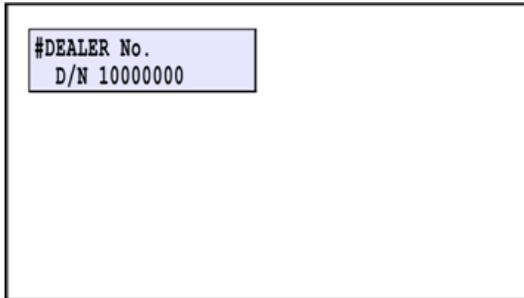
[▲] / [▼]: Changing value

[◀] / [▶]: Moving cursor

(When the cursor is at the right end or the left end, even if the key is pressed, it does not move.)

[ENTER]: Confirmation

[END]: Cancel



m1522502

---

**FEED COMP.2**

---

Compensates basic feeding amount of media. (Provides a baseline value for user compensation value.)

Adjust this when the parameter is initialized or the head is replaced.

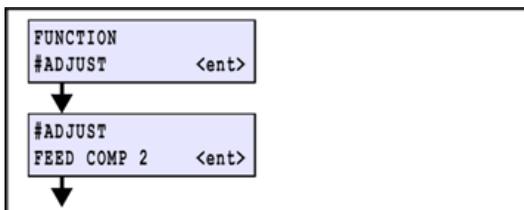


m1522503

**Note**

- By this adjustment, the user compensation value is cleared.

**1. Select [#ADJUST] -> [FEED COMP 2].**



m1522504

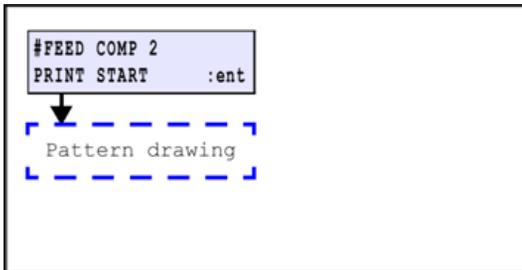
## 2. Draw an adjustment pattern.

[ENTER]: Executes drawing.

[▶]: To the screen for adjustment

(Without drawing)

[END]: Completes drawing and inputs compensation value.



m1522505

4

## 3. Check the adjustment pattern.

**OK: A pattern having width of media is drawn. Resolution is 150 dpi.**



m1522778

**Not good: Compensation value is too large.**



m1522779

**Not good: Compensation value is too small.**



m1522780

## 4. Enter the compensation value.

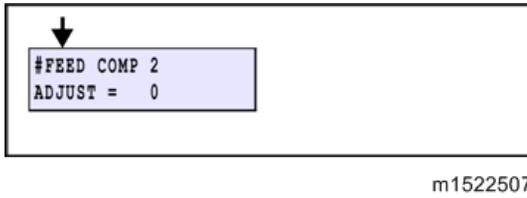
Compensation value: -9999 to 9999

[▲] / [▼]: Changes adjustment values.

[END]: Cancellation of input

### ★ Important

- actual feeding amount compensation, compensation value for each feed set in the SETUP function are added to this compensation value.

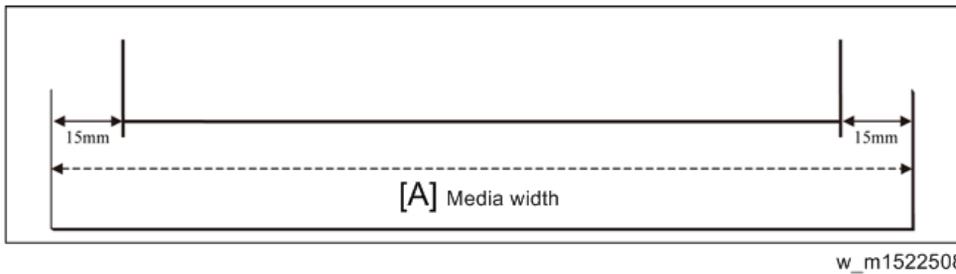


## EDGE ADJUST

Adjust the width of the each dead space of the right and left ends of the media.

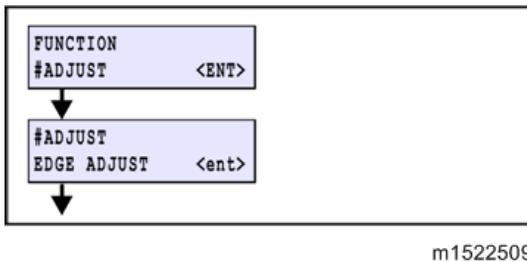
Is used when the system parameter has been initialized or the (plot areas at both ends) are not in the right place.

4



[A]: Media width

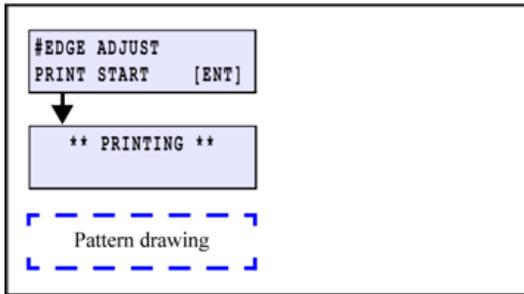
1. Select [EDGE ADJUST] from the operation menu.



2. Draw an adjustment pattern.

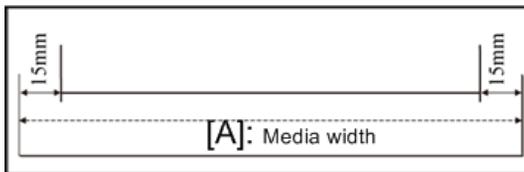
[▶]: To adjusting screen (without drawing)

[ENTER]: Print adjusting pattern.



w\_m1522510

### 3. Check the adjustment pattern.



w\_m1522511

[A]: Media width

### 4. Enter the adjustment value.

For adjustment, input actual values obtained by measuring from the media edge to the pattern.

Adjusting value: 0.0 to 40.0 mm (unit: 0.1 mm)

(Use the inside of pinch roller as a positive (+). The backlash of the pinch roller may produce an error of approx.  $\pm 0.5$  mm.)

[▲] / [▼]: Changes adjustment values.

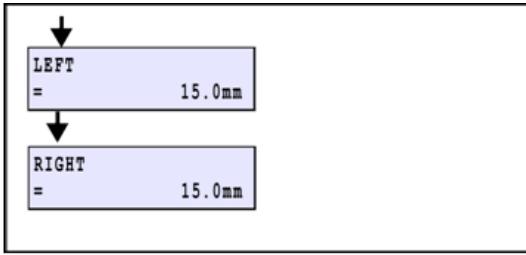
[END]: Cancellation of input

[ENTER]: After decision, media detection movement is carried out.

(A revision level is registered)

#### ★ Important

- The set value is saved in the system parameter No.2 R GRIP and No.3 L GRIP as "current parameter"
- value + (25 mm - input value)"



m1522512

---

## POINTER OFFSET

---

4

Print the adjustment pattern and adjust the location of the LED pointer and print origin (Nozzle A Column).

1. Select [POINTER OFFSET] from the operation menu.



m1522513

2. Make necessary adjustments.

[ENTER]: Starts drawing.

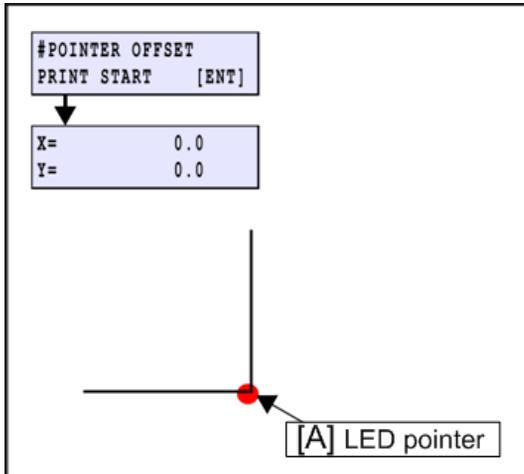
After drawing is completed

[▲], [▼], [◀], [▶]: LED pointer movement

Align the LED pointer [A] to the pattern position shown on the left (intersection of the straight lines).

[ENTER]: Settings

[END]: Cancellation of input



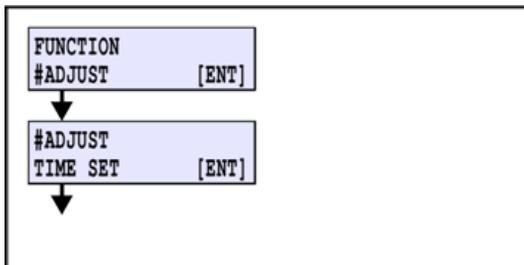
w\_m1522514

4

## Time Set

Set time.

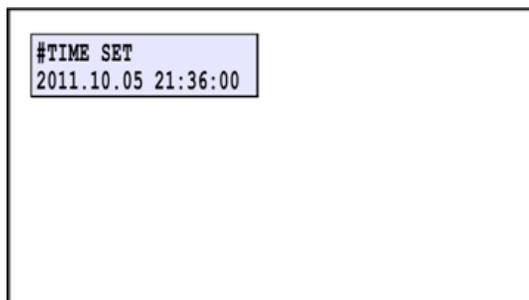
1. Select [#ADJUST] -> [TIME SET].



m1522515

2. Set the time.

[◀] / [▶]: Changing item  
 [▲] / [▼]: Changing value  
 [ENTER]: Confirmation  
 [END]: Cancel



m1522516

## 4

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### INK SET

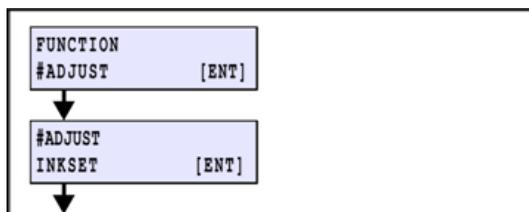
---

Change ink set information set in the machine.

Use this when ink filling has been completed and when you reset ink set because you performed parameter initialization etc.

You can select all ink sets usable in the machine.

1. Select [#ADJUST] -> [INKSET].



m1522528

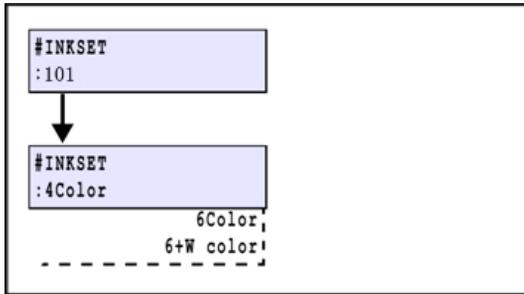
2. Select the kind of the ink.

[101]

[▲] / [▼]: select

[ENTER]: Register

[END]: cancel



w\_m1522529

### 3. Select the INKSET.

[▲] / [▼]: select

[ENTER]: Register

[END]: cancel

4

## DAMPER DISCHARGE

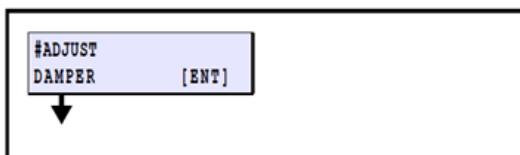
### Outline

Perform this at head replacement and damper replacement. Includes ink discharging of air purge port.

1. Remove the tubes from the damper.
2. Discharge ink in the damper by sucking.

### Procedures

1. Turn Power supply off. Remove the cartridge cover in advance.
2. Select [#ADJUST] -> [DAMPER].

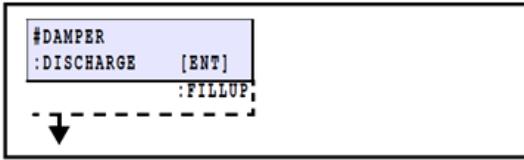


m1522530

### 3. Select [DISCHARGE] and press [ENTER].

[▲] / [▼]: Select

[ENTER]: Execute

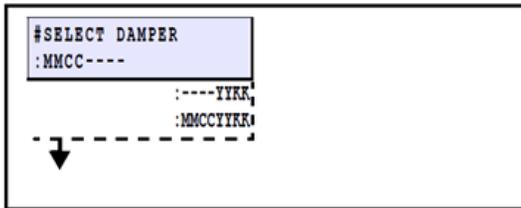


w\_m1522531

4. Select the damper on which you perform discharge with [◀]/ [▶] key.

[◀]/ [▶]: Select

[ENTER]: Register

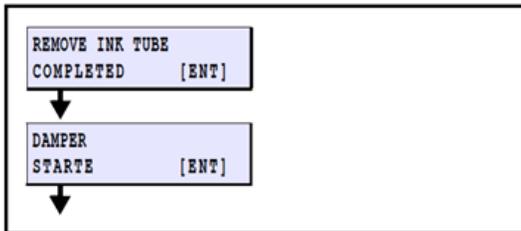


m1522532

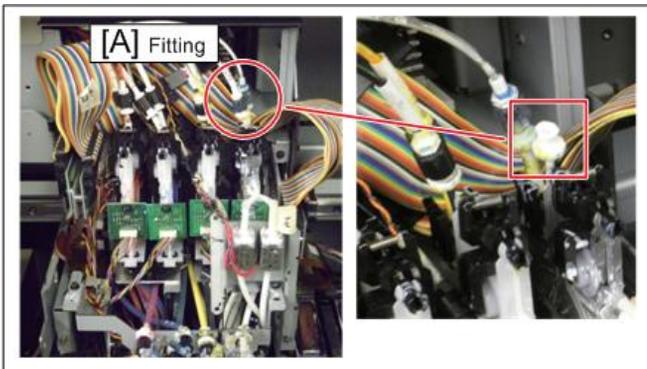
5. Remove the fitting [A] and separate the damper which is selected and its ink supply path.

After separating, press [ENTER] key.

Press [ENTER] key again at next screen.



m1522533



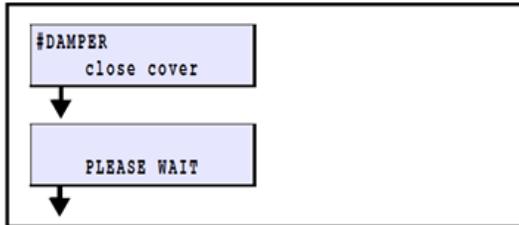
w\_m1522535

★ Important

- Protect the ink leak from tube top by covering it with cleaning paper during working.

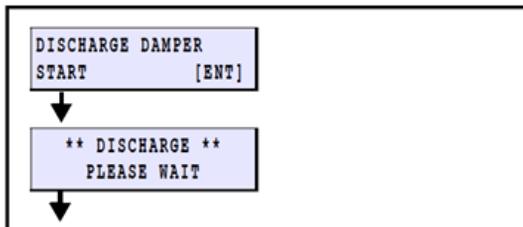
## 6. Close the cover.

After operating for detecting origin point, go to next step.



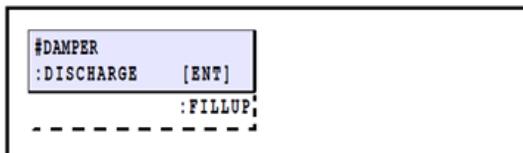
m1522534

## 7. Start to discharge with [ENTER] key.



m1522536

## 8. Select [DISCHARGE] and press [ENTER].

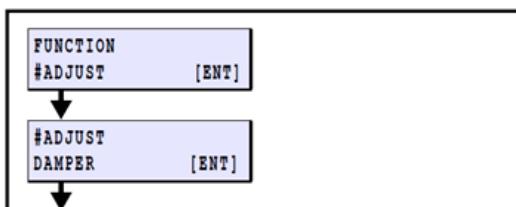


m1522537

## DAMPER FILLUP

Perform ink filling from the damper to the head.

1. Insert the ink cartridge corresponding to the nozzle number for which ink filling is performed.
2. Select [#ADJUST] -> [DAMPER].

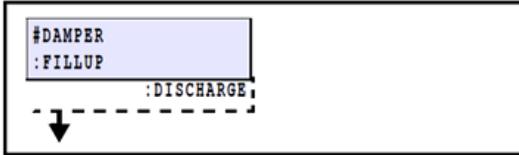


m1522538

**3. Select [FILLUP].**

[▲] / [▼]: Select

[ENTER]: Execute



m1522539

**4. Select the damper.**

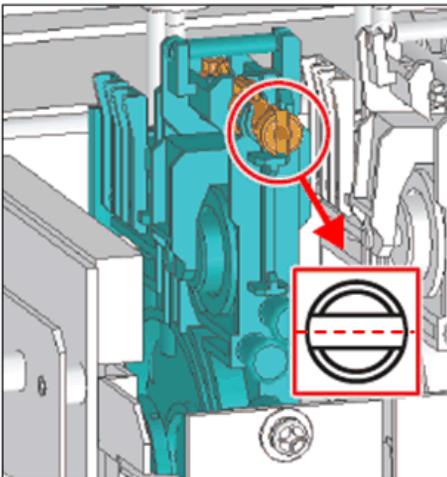
[▲] / [▼]: Select

Select it among two of "MMCC----" or "----YYKK".

[ENTER]: Execute

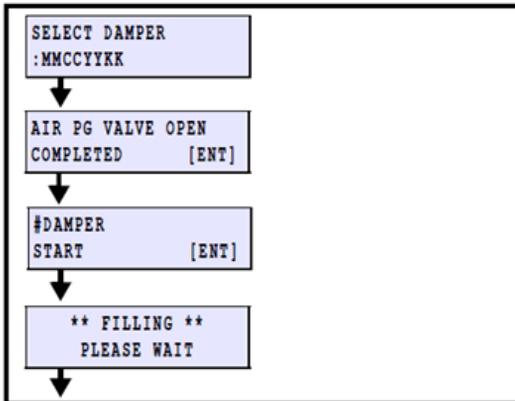
**5. Open the air purge valve and press [ENTER] key.**

Rotate the valve shaft to horizontal position.



m1522541

Press [ENTER] key to start fill up.



m1522540

## 6. Perform air purge.

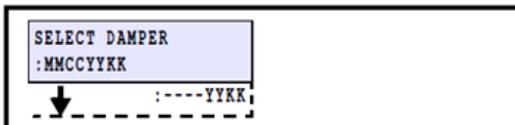
With [▶] key, transfer to the air purge sequence.

(When you press [◀] key, air purge work is not performed and the machine moves to the cleaning operation.)



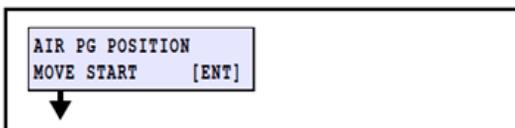
m1522542

## 7. Select damper with [◀] [▶] key, and press [ENTER] to decide.



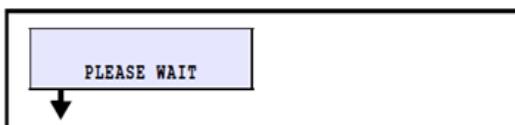
m1522543

## 8. Move the machine on the wiper by pressing [ENTER] key, and it prepare the operation for performing air purge.



w\_m1522544

## 9. Screen is changed after moving of the machine is completed.

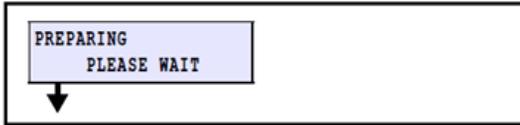


m1522545

10. Screen is changed after preparation is completed.

★ Important

- Do not insert the ink filling jig to the air purge port during the machine is moving or in preparation.



m1522546

11. Remove the air purge port cap, and connect the ink filling jig.

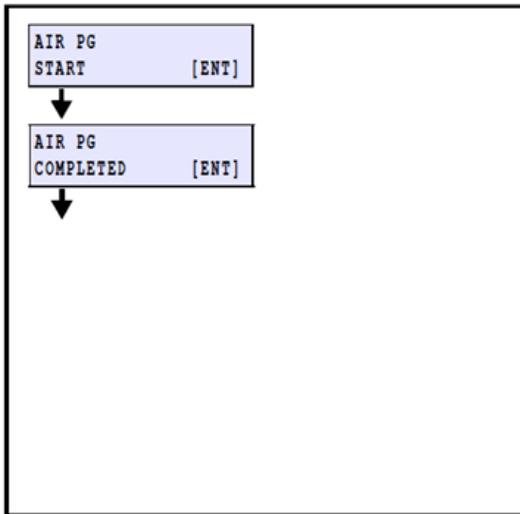
Press [ENTER] to start filling ink.

Remove the ink filling jig from the air purge port after ink flowed into the jig and air purged, and connect the jig to the next port.

★ Important

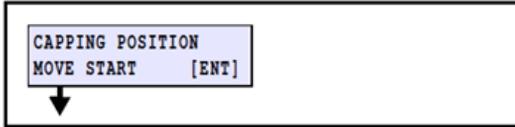
- Protect the ink leak or splash from tube top or port by covering with cleaning paper when jig or cap is removed.
- Do not remove/ loosen caps of port which is not selected. Air is absorbed into the damper.

12. Press [ENTER] key, after completed air purging of all ports that is selected. Then ink filling is stopped.



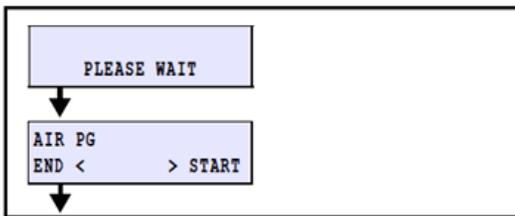
m1522547

13. Press [ENTER] key, then the machine moves on the capping position and caps to the head, and ink amount in the damper is returned to normal state.



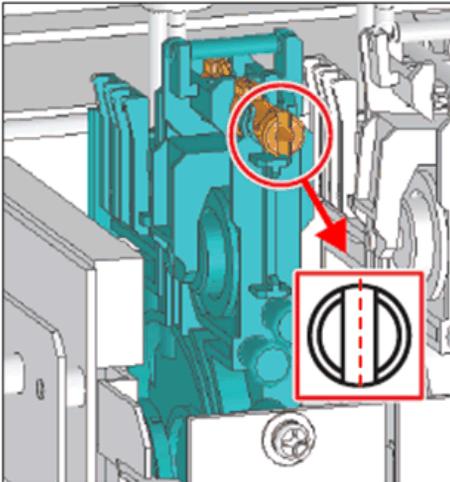
w\_m1522705

14. Procedure return to step5. after ink amount is normal state.  
15. When you finish the operation for air purge, press [↵] key.

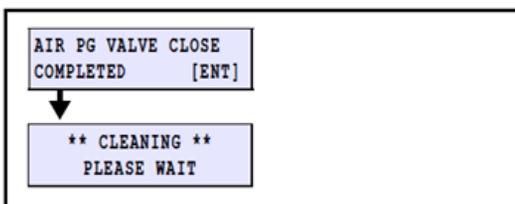


w\_m1522706

16. Close the air purge valve and press [ENTER] key, then cleaning start.  
Rotate the valve shaft to vertical position.



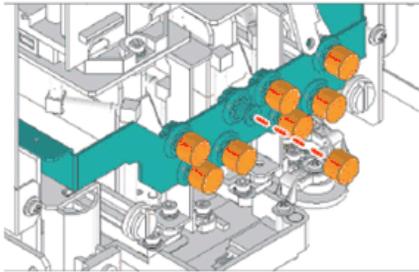
w\_m1522708



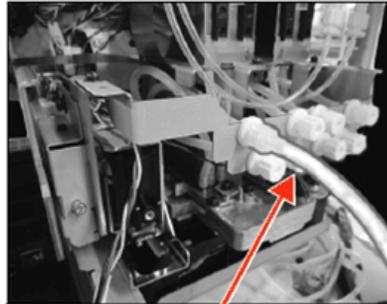
w\_m1522707

**Note**

- Use the ink filling jig.  
Remove the fitting cap [A], connect the top edge of the ink filling jig [B] with the "Fitting" on the carriage front surface.



[A] Fitting cap



[B] Ink filling jig  
(connect the top edge)

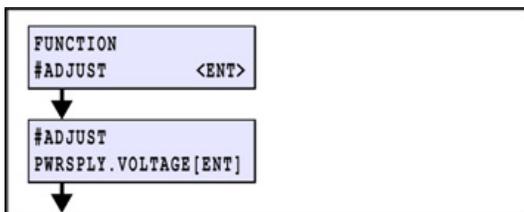
w\_m1522709

## Power Supply Voltage

Select depending on the power supply voltage used for the machine.

Switch heater control depending on the power supply voltage.

- Select [#ADJUST] -> [PWRSPLY.VOLTAGE].



m1522549

- Set (Check) the power supply voltage.

[▲] / [▼]: Select

[ENTER]: Register

The setting value is as below:

Area of 100V: "100V"

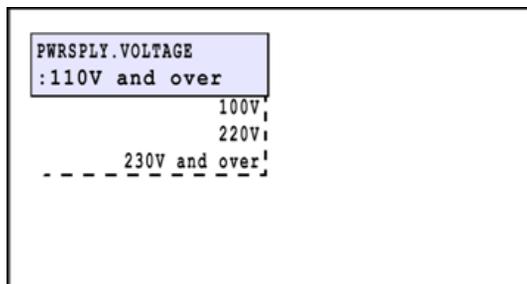
Area of 110 - 120V: "110V and over"

Area of 220V: "220V"

Area of 230~240V: "230V and over"

**★ Important**

- If you do not set the proper voltage, it may cause damage.



m1522550

**⚠ CAUTION**

- When the power supply voltage was changed, adjust the voltage selector at lower of the main body.  
False setting may disturb the machine.

4

**Nozzle Recovery**

Set the nozzle recovery.

This is the same function as "MAINTENANCE / NOZZLE RECOVERY", however, the destination to which the registered nozzle will be saved differs.

You can register 16 per nozzle line.

**ANGLE ADJUST (DFU)**

(DFU)

**LAN CONFIG (DFU)**

(DFU)

**HEAD VOLT ADJ (DFU)**

(DFU)

# Mechanical Adjustment

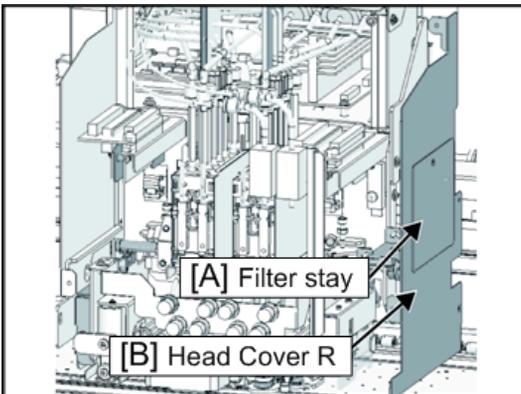
## Carriage slant adjust

Perform carriage vertical-tilt and slant adjustment for right and left directions.

### Preparations

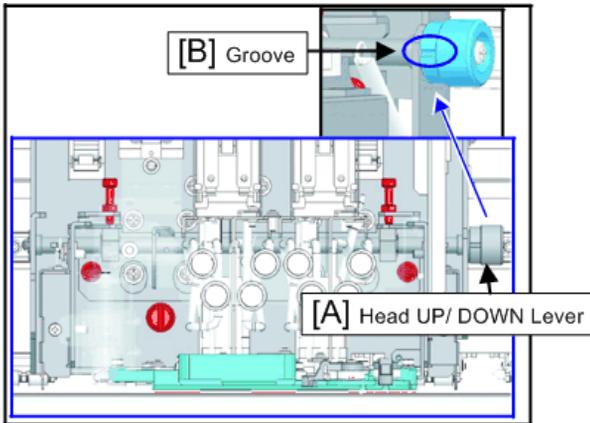
4

1. Remove the following covers.
  - 1) Right maintenance cover U
  - 2) Right maintenance cover C
  - 3) Front cover 200L
  - 4) Head cover
2. Move the carriage on platen.
3. Remove the "Filter stay [A]" and "Head Cover R [B]" .



w\_m1522551

4. Move the Head UP/ DOWN Lever [A] to the lowest position.  
Groove [B] of lever is in front.



w\_m1522552

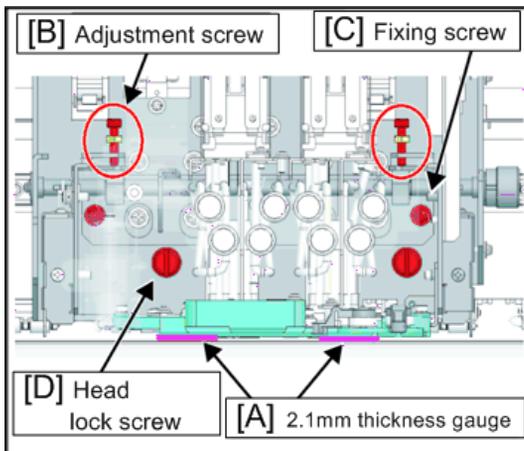
#### 5. Move the clamp lever downward.

##### ★ Important

- Be sure to perform adjustment with the clamp lever down. In addition, the head initialization height shall be L range setting.

### Height for right and left (slant for right and left) adjustment

1. Put thickness gauge of 2.1 mm [A] between the carriage base and the platen.
2. Loosen the lock nut of the adjustment screw [B].
3. Loosen the fixing screw (×2) [C] and the head lock screw (×2) [D] by one revolution.



w\_m1522553

4. Perform "height adjustment for right and left" by rotating the adjustment screws for right and left so that the distance between the carriage base front side bottom surface and the platen shall be 2.1 mm.

**★ Important**

- Adjust this while checking all range height so that there is no difference between the carriage base for right and left.
5. When adjustment has been completed, fully tighten the fixing screw and the head lock screw.

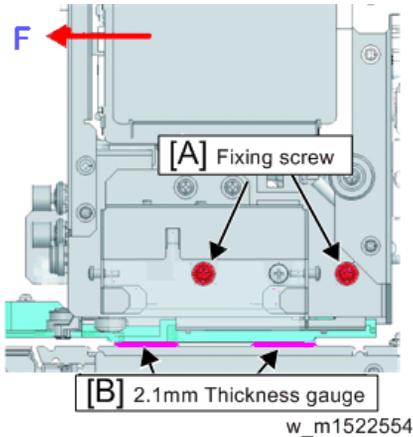
### Back and forth slant (Vertical-tilt) adjustment

---

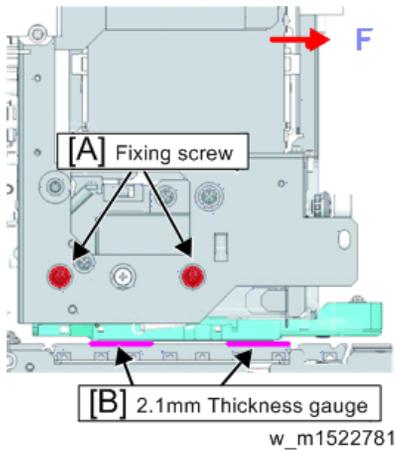
4

1. Loosen the fixing screw (×4) [A] on the carriage both sides by one revolution.
2. Put thickness gauge of 2.1 mm [B] between the front and the rear of the carriage base.
3. Align the front and the rear of the carriage base with 2.1 mm height and fully tighten the fixing screw.

#### Carriage right side



## Carriage left side

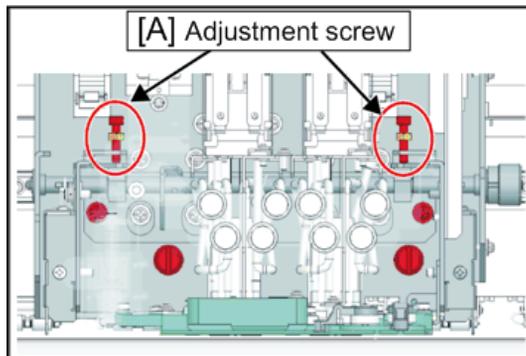


F: Front

**4. Recheck the height for right and left and back/ forth slant.**

- If the height for right and left has changed, perform the procedures in the Step 3 to 5 in "Height for right and left (slant for right and left) adjustment".
- If the back/ forth slant are found, perform the procedures in the Step 1 and 2.

**5. Tighten the lock nut of the Adjustment screw [A].**

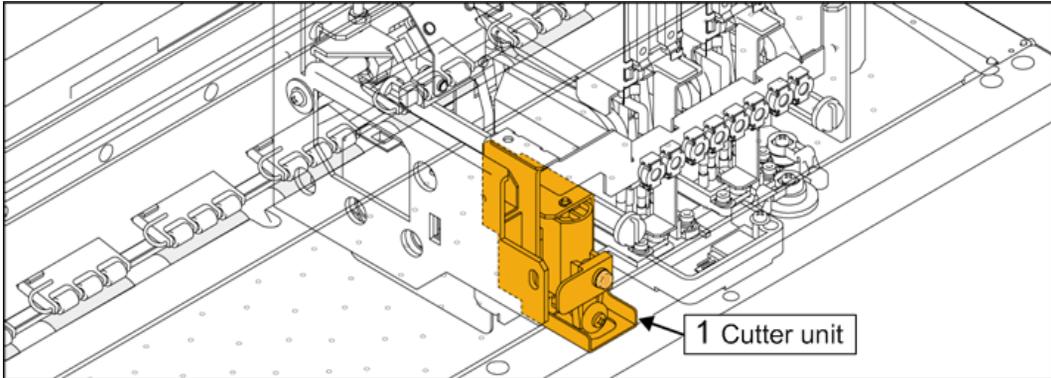


w\_m1522555

**★ Important**

- In adjusting the length between carriage base and platen to 2.1 mm by above procedure, the length between nozzle surface and platen becomes 1.8mm.

## Adjustment of the Mounting Location for the Cutter



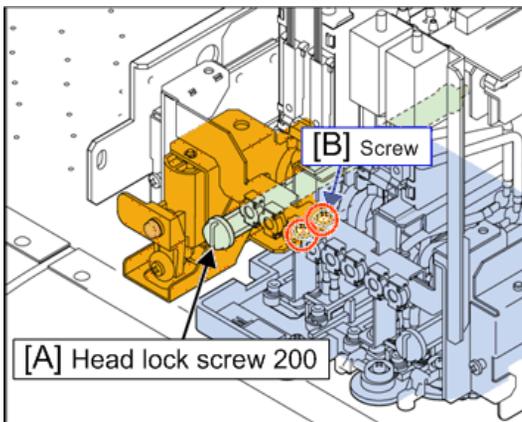
w\_m1522556

1. Cutter unit

Adjust the cutter location in the back-and-forth direction by moving the cutter unit back and forth while visually checking the location.

1. Remove the Head lock screw 200 [A].
2. Use the cutter unit screws (×2) [B] to temporarily fix the unit.

Tighten the screws just enough to support the unit.



w\_m1522557

3. Push down the clamp lever.

**★ Important**

- Be sure to make the adjustment while the clamp lever is lowered. The head initial height should be set in the L range.

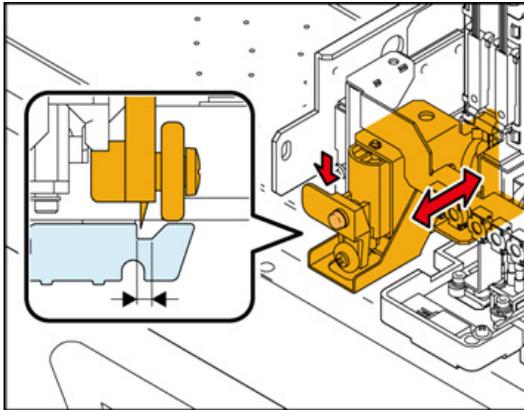
4. Align the front and back of the cutter unit. Lower the cutter blade until it fits into the fitting, and then determine the front and back position of the unit and fix it using the screws.

★ **Important**

- The fitting area is wider than the actual cutter blade. Therefore, alignment should be made within that area.

↓ **Note**

- Press the cutter blade assy down to the platen surface and adjust it until it fits the platen.



m1522559

5. Move the head unit manually and push down the cutter blade assy at each right, center and left end on the platen, to check back-front positioning.

↓ **Note**

- On rare occasions, the blade comes out of the slot because of assembly errors or fluctuation in part accuracies. In such a case, adjust again to the back front optimum position where the blade is always in whole slot on the platen.

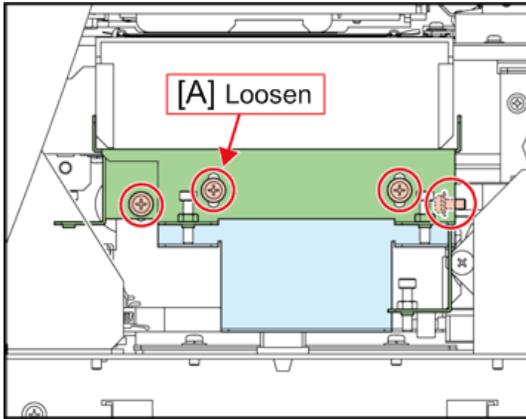
## Adjustment of the Station Height

Adjust the height of the station.

1. Remove the following covers.

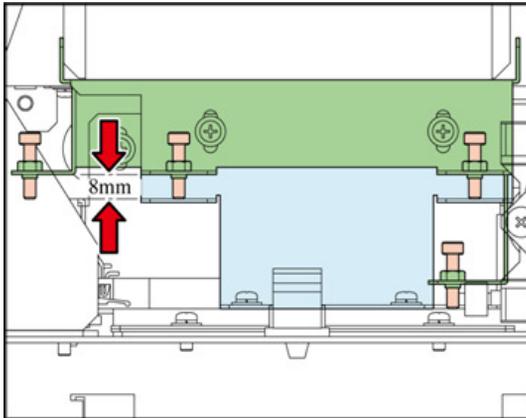
- Right cover 200

2. Loosen [A] the four screws used for station-base adjustment.



w\_m1522560

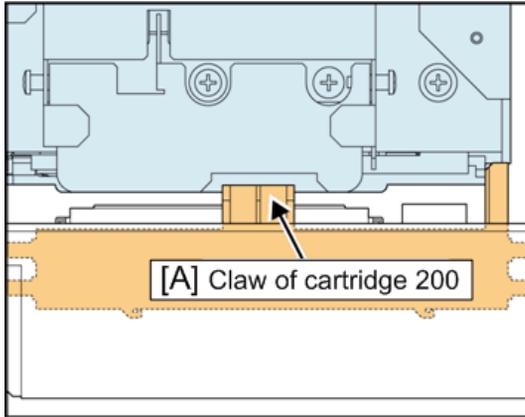
3. Loosen the hexagon socket head screws and make an adjustment to set their thickness gauge at 8 mm, and then tighten the nuts.



w\_m1522561

4. Tighten up four loosened screws used for station-base adjustment and fix them at 8 mm in thickness gauge.

5. Confirm to be caught in the claw of cartridge 200 [A] when the cartridge is positioned at "H" (the highest position). If not, lift the station base to the position caught.

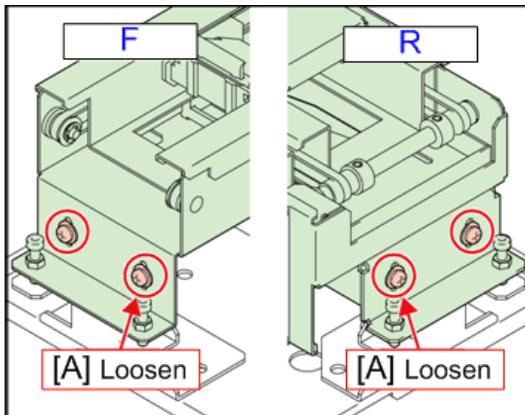


w\_m1522562

## Adjustment of the Wiper Height

Adjust the height of the wiper.

1. Remove the following covers.
  - Right maintenance cover C
  - Rear cover R
2. Loosen [A] the wiper height adjusting screws (×4).

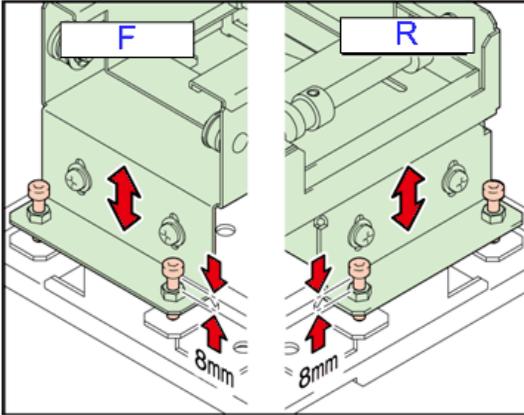


w\_m1522563

F: Front

R: Rear

3. Loosen the hexagon socket set screws, and then adjust temporarily so that the reading of thickness gauge is 8 mm.

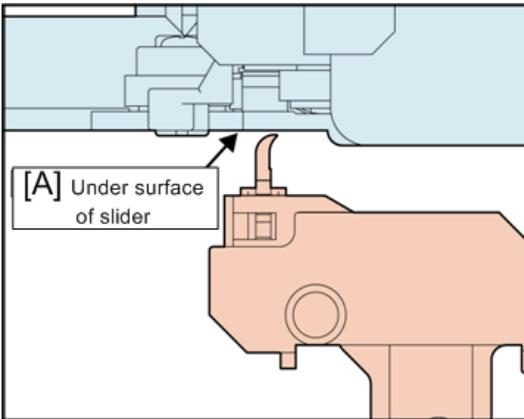


w\_m1522564

F: Front

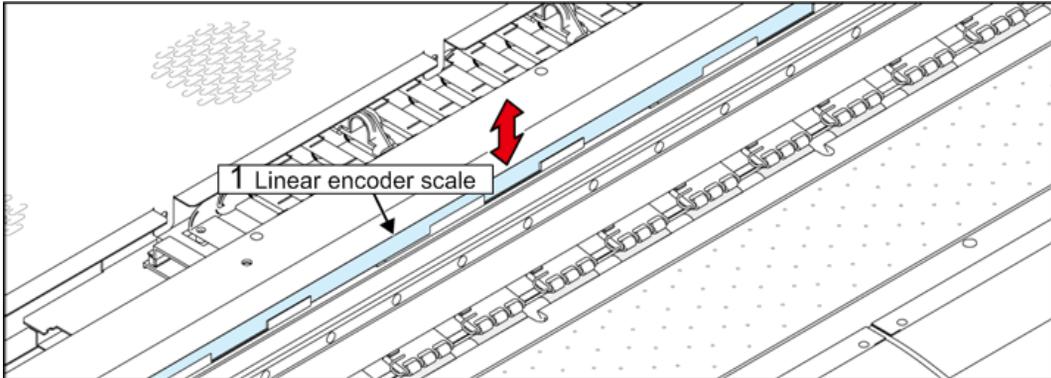
R: Rear

4. Adjust the wiper to the position where the tip of wiper almost contacts to the under surface of slider [A].



w\_m1522565

## Positioning of the Encoder Sensor



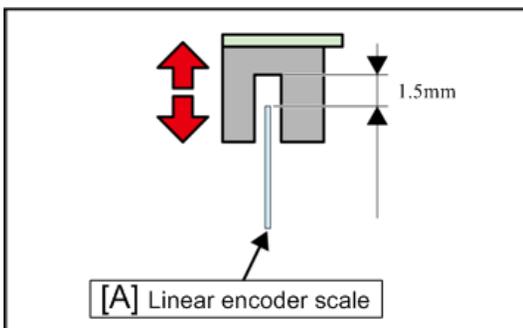
w\_m1522566

4

1. Linear encoder scale

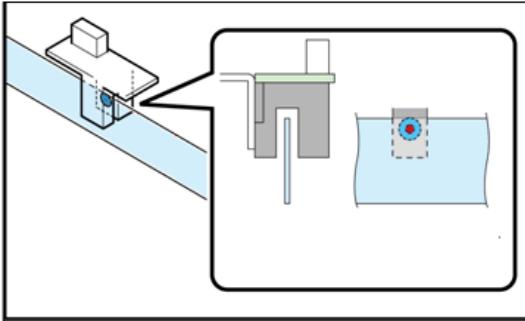
Adjust the position of the encoder sensor.

1. Loosen the screws on the L sensor BKT.
2. Adjust the height of the encoder PCB Assy and fix it with screws.
3. Check the following two items when moving the print head carriage manually from the right end to the left end on the main body.
  - The upper part of the linear encoder scale is not in touch with the L sensor.
  - The exposed lens of the L sensor is not over the height of the linear encoder scale [A].



w\_m1522567

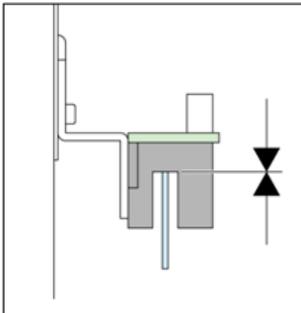
OK



m1522568

4

Not good



m1522796

★ Important

- After fixing the L sensor BKT, check whether no abnormality is found by conducting the following [#TEST], Refer to page 337 "CHECK ENCODER".

## Adjustment of the Jam Sensor Height

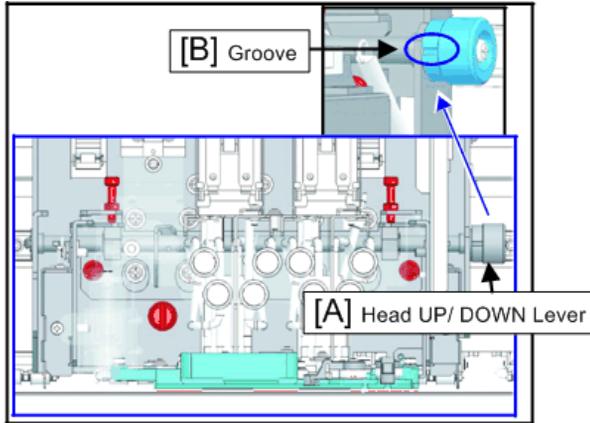
Perform jam sensor height adjustment for right and left.

### Preparations

1. Remove the following covers.
  1. Right maintenance cover U
  2. Right maintenance cover C
  3. Front cover 200L
  4. Head cover
2. Move the carriage onto the platen.

### 3. Move the Head UP/ DOWN Lever [A] to the lowest position.

Groove [B] of lever is in front.



w\_m1522552

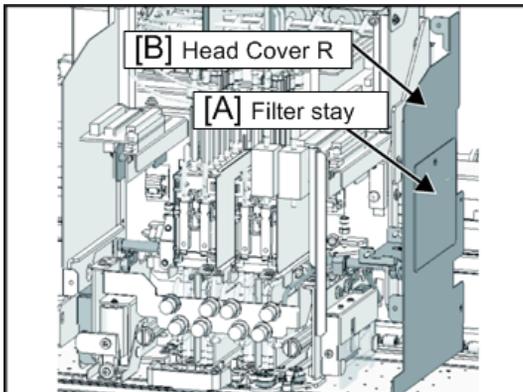
### 4. Move the clamp lever downward.

#### ★ Important

- Be sure to perform adjustment with the clamp lever down. In addition, the head initialization height shall be L range setting.

## Jam sensor Assy (right) height adjustment

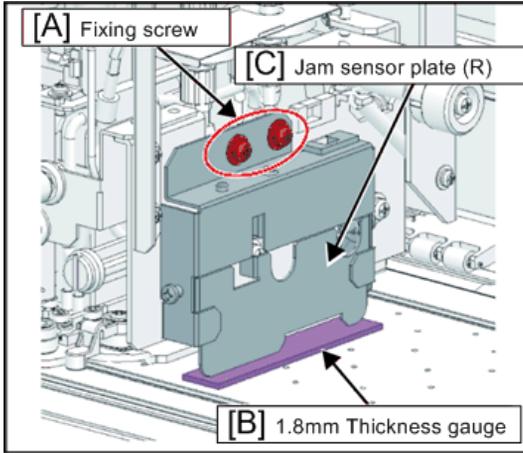
### 1. Remove the "Filter stay [A]" and "Head Cover R [B]" .



w\_m1522570

### 2. Loosen the fixing screw (×2) [A] by one revolution.

- Put thickness gauge of 1.8mm [B] between the jam sensor plate (R) [C] and the platen, and align the height.

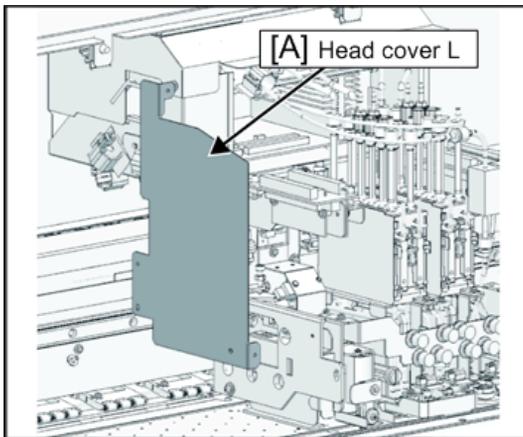


w\_m1522571

- Tighten the Fixing screw.

### Jam sensor Assy (left) height adjustment

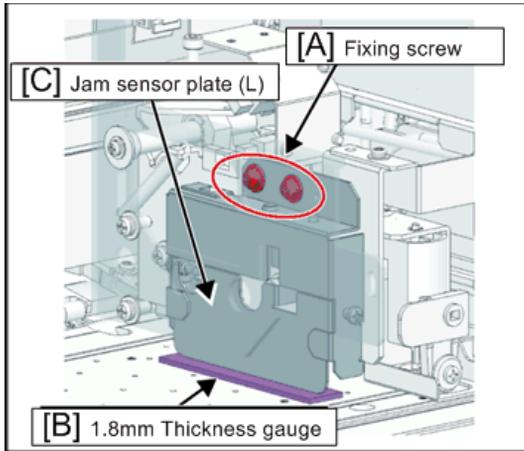
- Remove the Head Cover L [A].



w\_m1522572

- Loosen the fixing screw (×2) [A] by one revolution.

- Put thickness gauge of 1.8mm [B] between the jam sensor plate (L) [C] and the platen, and align the height.



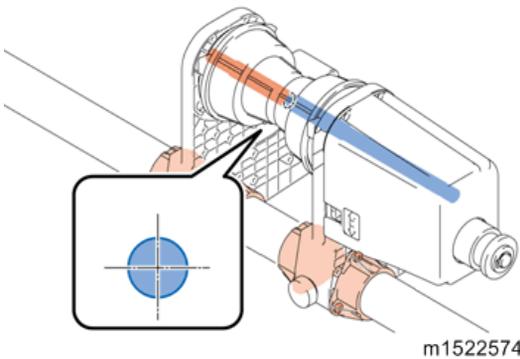
w\_m1522573

- Tighten the Fixing screw.

## Centering of the Roll Holder

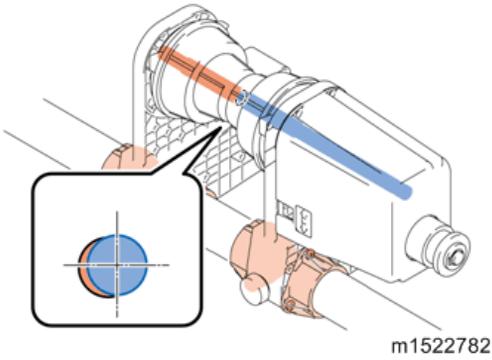
Carry out centering so that the axes of roller holder (axis of both feeding side and take-up side) are aligned, by positioning them face-to-face.

**OK: The axes of the roller holder are in alignment.**



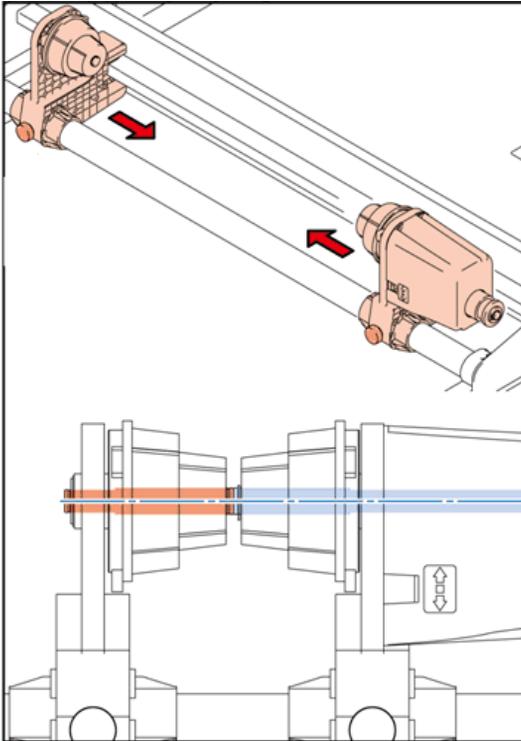
m1522574

**Not good:** The axes of the right or left side of the roller holder are out of alignment.

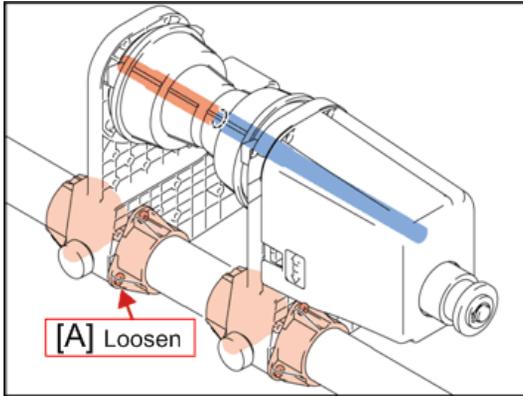


4

1. Carry out centering so that the axes of roll holder are aligned by positioning the feeding side and the take-up side face-to-face.



2. In case their axes are not aligned, make adjustment after loosening [A] the screws of the bushing.



w\_m1522576

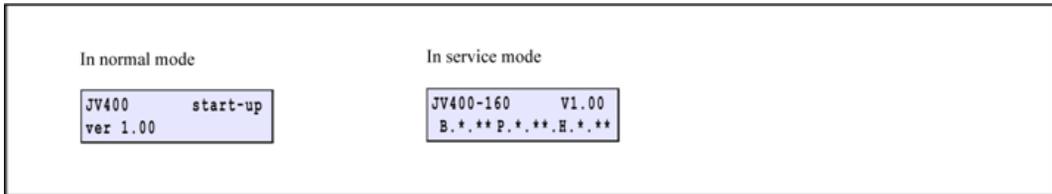
3. After the both axes have been aligned, tighten up screws and check for any misalignment of axis at the right, left and central part of the main body.



# 5. Service Tables

## Service Mode and Specialized Key

### Indication on LCD



w\_m1522111

### Outline

For troubleshooting or maintenance work, the machine needs to be operated in service mode.

The following describes the Specialized Key functions which start this machine in service-related mode.

### Specialized Key Functions

After the start of the machine, press the specific key(s) on the operation panel while the version information is displayed. Then the machine will enter the corresponding one of the following service-related modes.

Service-related mode	How to enter	Remarks
F/W Update	(While version information is displayed) Press [REMOTE]	<ul style="list-style-type: none"><li>• Receives Firmware ROM data from the host PC via USB2.0 I/F, and updates the firmware of the main PCB.</li><li>• Available only when the machine is started by turning on the main power.</li><li>• After firmware update, restart the machine by turning the main power.</li></ul>

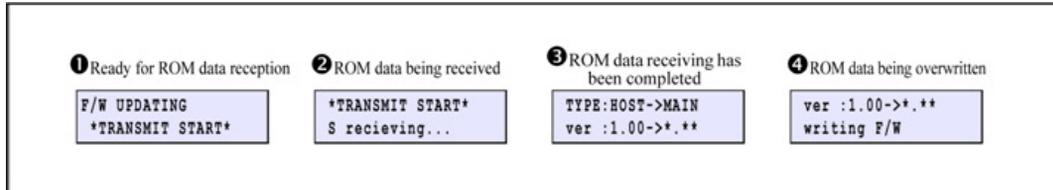
Service-related mode	How to enter	Remarks
Parameter UP/DOWNLOAD (LOG UPLOAD)	(While version information is displayed) Press [▲] + [▼]	<ul style="list-style-type: none"> <li>Uploads the parameters and log data from the machine to the host PC via USB2.0 I/F.</li> <li>Downloads the parameters and log data from the host PC to the machine via USEB2.0 I/F.</li> </ul>
System Parameter input	(While version information is displayed) Press [ENTER]+[END]	<ul style="list-style-type: none"> <li>Start the machine in [SYSTEM PARAM.] input mode of [#PARAMETER].</li> <li>When the machine cannot start because of a parameter hash error or the like, the parameters can be initialized in this mode.</li> <li>When the machine cannot be operated because of a system down error or the like, input the system parameter HASH 0 → 1 or 2 in this mode. Then the machine can be started for the purpose of checking for problem.</li> </ul>
	(While version information is displayed) Press [◀] + [▶]	
Service mode	(While version information is displayed) Press [REMOTE]+[FUNCTION]	Active until the power to the machine is turned off.
	System parameter SUPPORT 0 → 2 (3: English version)	Active until the value of the system parameter No. 122 SUPPORT is changed to 0.
When installing the device-specific F/W into new product maintenance PCB (common PCB)	(While version information is displayed) Press [TEST]	Install the device-specific F/W into new product maintenance PCB (common PCB).

## Service Mode

For maintenance work, start the machine in service mode. Then you can use the functions that are not available in normal mode. As for those functions, the "#" mark is added at the head of the function name.

# F/W Update

## Indication on LCD



w\_m1522112

## Outline

Using FW Version Upgrade function of FW Update Tool III, perform version upgrade of this machine. For FW Update Tool III, refer to "FW Update Tool III User's Manual".

## Update procedure

### ⚠ CAUTION

- Do not turn OFF the power supply during the program is being written into the memory.
- Once overwriting fails, the main PCB must be replaced with a new one for recovery.

### ↓ Note

- F/W update can be canceled by turning off the main power in the stage where the indication on the LCD is as shown at **1**.

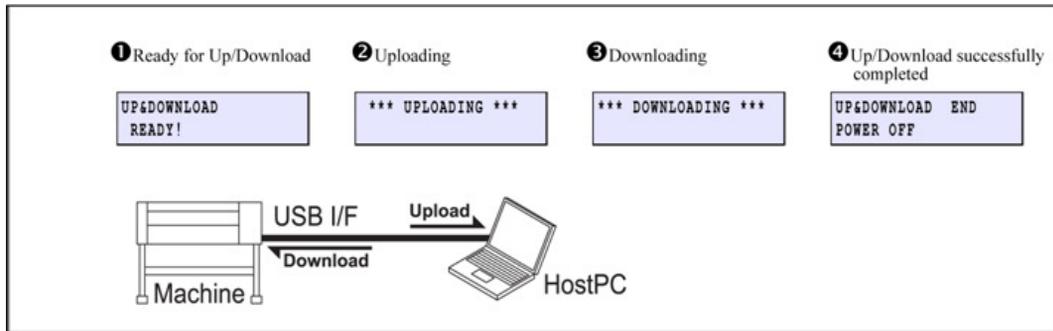
Step	Operation	Description	Indication on LCD
1	Operation power ON+[REMOTE]	<p>Machine starts in F/W update mode</p> <p><b>Note</b></p> <ul style="list-style-type: none"> <li>When replacing maintenance PCB, perform this first. The main circuit board described below is the common parts for several models. When such board is delivered, written firmware is not for specified model, but the common to each model.</li> <li>Part codes: E00001 Main PCB ASSY</li> </ul> <p><b>LCD indication after the startup</b></p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 5px auto;"> <p>EplMb Start-up Ver.x.xx</p> </div> <p style="text-align: center;">w_m1522710</p> <ul style="list-style-type: none"> <li>For the common F/W, this model F/W can be updated with operation power ON + [TEST/CLN].</li> </ul>	
		Ready for ROM data reception	<b>❶</b>
2	Version up file transmission	Using Version Upgrade function of FW Update Tool III, send the version up file.	
		Data being received	<b>❷</b>
		Data receiving has been completed. Press the [ENTER] key	<b>❸</b>
		The program is written into the memory.	<b>❹</b>
3	Main power OFF	Update work completed	

# Parameter Up/Download

RTB 8

Procedures added to this section

## Indication on LCD



w\_m1522113

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## Upload procedure (machine → host PC)

Step	Operation	Description	Indication on LCD
1	Operation power ON+ [▲] + [▼]	Machine starts in Parameter Up/Download mode.	
		Ready for Up/Download	<b>1</b>
2	Parameter upload	Uploads parameter data to the host PC.*	
		Uploading	<b>2</b>
		Up/Download completed	<b>4</b>
3	Operation power OFF	Parameter upload completed	

\* How to upload the LOG file:

LOG files can be uploaded by uploading the files on the "LCD**1**" screen with the [ENTER] key on the main unit operation panel pressed.

**Download procedure (host PC → machine)**

Step	Operation	Description	Indication on LCD
1	Operation power ON+ [▲] + [▼]	Machine starts in Parameter Up/Download mode.	
		Parameter Up/Download mode.	<b>1</b>
2	Parameter download	Downloads parameter data to the machine.	
		Downloading	<b>3</b>
		Up/Download completed	<b>4</b>
3	Operation power OFF	Parameter download completed	

# Parameter Function

## Outline

With the PARAMETER function, you can check and set parameters on the machine. (Available in service mode)

### CAUTION

- Be sure to upload parameters before changing them.
- There is a possibility that input errors may make recovery impossible.

## Parameter function items

No.	Item	Description	Change
1	SYSTEM PARAMETER	A group of parameters as a storage of adjusted values for each machine (printing)	Partially permitted
2	MAINTENANCE PARAMETER	A group of parameters for firmware debugging and assessment in the development stage	Partially permitted
3	SERVO PARAMETER	A group of parameters for XY motor control.	Disapprove
4	FEED PARAMETER	A group of parameters for feed control.	Disapprove
5	HEAD PARAMETER	A group of parameters to save the dot position correction and the head voltage (correction value)	Permitted
6	OPE PARAMETER	A group of parameters for operation control.	Disapprove
7	INK PARAMETER1	A group of parameters as a storage of the operation status of the machine	Partially permitted
8	INK PARAMETER2	Parameters for control of function related to ink system.	Disapprove
9	DEBUG PARAMETER	Parameters for evaluation of debug in development	Disapprove

No.	Item	Description	Change
10	SCAN PARAMETER	A group of parameters for scan control.	Disapprove
11	NOZZLE RECOVERY PARAMETER	Parameters to save nozzle numbers registered at nozzle recovery	Disapprove

# Important Parameter

## Outline

This section shows the parameters necessary in repair and verification work.

## Important parameters

### SYSTEM PARAMETER

No.	Display	Initial Value	Adjusted Value	Description	Unit	Input Range
007	FLSposY	0		Flushing Y position adjustment	0.1 mm	-200~200
008	CapPosY	0		Capping Y position adjustment	0.1 mm	-200~200
009	WipPosY	0		Wiping Y position adjustment	0.1 mm	-200~200
032	INK SET	0		Ink set 0: 4, 1: 6, 2: 6+W 3: 4+W	codes	0~255
109	AirVacY	0		Air vacuum Y position adjustment	Pulses	-200~200
117	MECASIZ	2		Mecha size 0: 107, 1: 130, 2: 160, 3: 180, 4: 260, 5: 320	codes	0~5
119	MODEL	0		Model 0: Lx, 4: SUV	codes	0~7
122	SUPPORT	0		Adjustment functionality expansion 2: Adjustment functionality expansion 3: Adjustment functionality expansion + English	codes	0~3
123	INKsup	0		Ink supply system 0, 1: Sub-tank, 2: Dumper	codes	0~3

No.	Display	Initial Value	Adjusted Value	Description	Unit	Input Range
124	INITIAL	0		Initialization 1: All parameters 10: Updates parameter of C/IO PCB with the backup data of main PCB (Use at C/IO replacement.) 21: Parameter saved in C/IO PCB (F/W Ver.2.20 and later) 31: Parameter saved in main PCB (F/W Ver.2.20 and later)	codes	0~255

## 5

**INK PARAMETER1**

No.	Display	Initial Value	Adjusted Value	Description	Unit	Input Range
000	INKSET	0x0000		Initial filling performing flag: Bit allocation ^0=Head 1 ~ ^7=8		0~255

**HEAD PARAMETER**

Drop position adjusting value has been saved.

For details, refer to the parameter list.

# F/W update procedure after the replacement of the main circuit board

## Outline

This section shows the procedure for F/W updating after the replacement of the main circuit board.

## Update procedure

Step	Operation	Description
1	Parameter upload	Refer to page 307 "Parameter Up/Download"
2	Replace the main PCB	Replace the main PCB
3	Power ON	Turn the power ON
4	F/W update	<p>Update F/M to the same version of F/W when uploading the parameter. Refer to page 305 "F/W Update"</p> <p><b>★ Important</b></p> <ul style="list-style-type: none"> <li>• If version upgrade of Epl Mb F/W (common F/W) is required, start the machine while pressing the [TEST] key, and then perform version upgrade. (As Epl Mb F/W (common PCB) is installed in the main PCB for maintenance, start with the [TEST] key, and perform version upgrade.)</li> <li>• When you start the machine with Epl Mb F/W installed in while pressing the [REMOTE] key, the machine will be in the unexpected status other than the specification. Therefore, be sure to start the machine while pressing the [TEST] key.</li> </ul>
5	Initial the SYSTEM PARAMETER	Input system parameter INITIAL= "1" for initializing all parameters.*
6	Parameter download	Download the parameter that is uploaded on the above step "1". Refer to page 307 "Parameter Up/Download"

\* Make sure all parameters are initialized

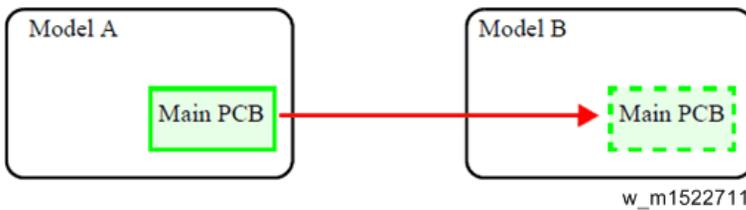
# F/W update procedure between different models

## Outline

This section shows the procedure for F/W updating between different models.

When the PCB for maintenance is not prepared, if the same circuit board is attached on the other model, such main PCB can be used as the substitute.

### Same main circuit board can be used on the different model



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## Procedure for removing the main PCB from the model A

Step	Operation	Description
1	Parameter upload	Refer to page 307 "Parameter Up/Download"
2	Update F/W to common firmware	<p>While pressing the [REMOTE] key, turn ON the power supply. Update F/W to "Epl Mb common firmware" *</p> <p><b>★ Important</b></p> <ul style="list-style-type: none"> <li>Make sure updating F/W to the common ones before removing the main circuit board. When the circuit board is removed from the different model, hardware and mechanical configurations may differ and it leads to the damage of the printer. Additionally, the hardware error may occur and the mode cannot be shifted to the update mode.</li> </ul>
3	Replace the main PCB	Replace the main PCB

\* Firmware for EPL main circuit board for maintenance parts

Refer to page 313 "F/W update procedure after the replacement of the main circuit board" for how to replace the model A with the model B.

# Parameter update procedure after the replacement of Central IO board

## Outline

This section shows the parameter update procedure after the replacement of Central IO board.

## Update procedure

Step	Operation	Description
1	Parameter upload	Refer to page 307 "Parameter Up/Download"
2	Replace the Central-IO PCB	Replace the Central-IO PCB
3	Startup the printer in System Parameter Input Mode	<p>How to start in System Parameter Input Mode: Turn on the operation switch and then press [END] + [ENTER] keys while the version number is displayed.</p> <p><b>★ Important</b></p> <ul style="list-style-type: none"> <li>• When the printer is started in other modes, turn off the main power switch once. Then start up the printer in System Parameter Input Mode.</li> <li>• When the printer is started up without System Parameter Input Mode: Do not turn off the printer by operation switch on the operation panel. In addition, do not change the parameter. Because the back up data on the main circuit board is rewritten and therefore the data will not be restored the same as before the replacement.</li> <li>• If the printer is turned off by the operation switch: Input the system parameter INITIAL= "2" and initialize all parameters then download the parameter that is uploaded on the above "Step 1". If the above procedure is taken, skip the "Step 4" described below.</li> </ul>

Step	Operation	Description
4	Change the system parameter	Input the system parameter INTIAL= "10" Transfer the data value on the main circuit board to the parameter of Central-IO PCB.



# 6. Troubleshooting

## Installation

### Ink Filling

When an ink filling problem occurs, refer to the following list of possible causes and remedies.

#### Filling does not start

No.	Cause	Remedy
1	Ink cartridge is not completely inserted.	Fully insert the cartridge and confirm that the green LED lights up.
2	The type of IC chip is different, or the IC chip is not fitted.	Fit the correct IC. If you forget to fit the IC, the contact substrate may be damaged; be careful when removing the cartridge.
3	Excessive waste liquid. * Ink filling after replacing a head	Clear the waste liquid on the local screen one time.

#### One or both sides of the damper are not filled with ink

Poor absorption

Basically this problem occurs due to a failure to maintain the airtightness of any one of the locations listed below.

The following steps allow you to check the condition of absorption without carrying out filling operations.

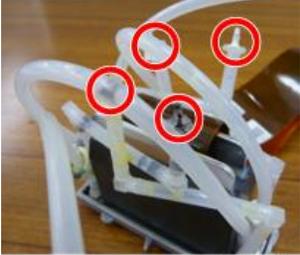
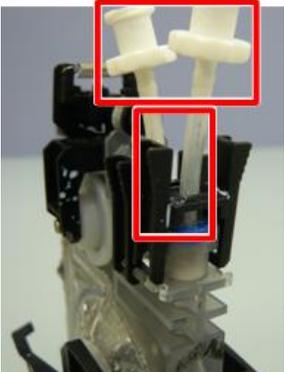
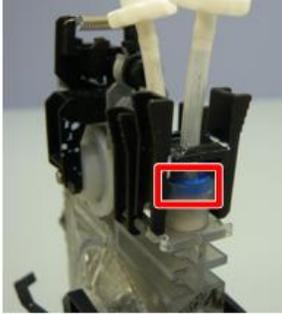
1. Remove the head cover.
2. Select [# TEST] > [AGING] > [PUMP MORTER].
3. Set values: [Cap] (ON) > Select Head > [Dir.] (Normal) > [SPEED] (750rpm) > [ACC] (600rpm) > [EXEC TIME] (1 min) > Ent ...
4. Check whether the damper blade closes during operation.
  - Blade closes: Probably not poor absorption. This could indicate poor liquid feeding.
  - Blade does not close: Poor absorption.

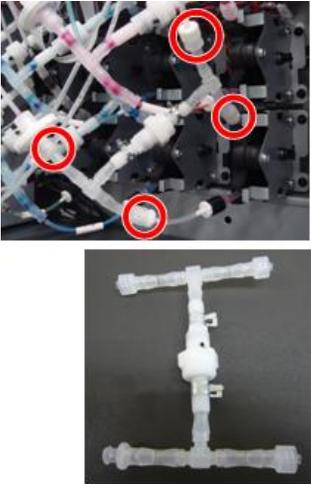
- Blade is closed, but opens quickly: Leakage within a path; there is a particularly high possibility of leakage on the path between the damper and head.

\* It is assumed that the suction pump is functioning. It is possible to check using the following procedure: In the above Pump Aging step, set (OFF) for Cap and supply cleaning liquid to the cap during operation.

**Specific locations that may cause poor absorption**

Location	Cause	Remedy
Between cap and head	When the cap rubber dries, adhesion of the head and the cap worsen and become poor in absorption.	Wet the cap with the maintenance cleaning liquid.
	The capping position is failure.	Select [# Adjust] > [CAPPING], and adjust the cap position. (page 264) * To change, check the head gap by L ↔H.  If the suction failure occurs also after adjusting the capping position, adjust the station height. (page 291) * To change, check the head gap by L ↔H.
Between damper and head:  Damper-adapter connection	Lack of a tight seal between the damper and adapter	<ul style="list-style-type: none"> <li>• Reassemble the adapter and damper.</li> <li>• Replace the seal rubber of the adapter.</li> </ul>  <p>m1522803</p>

Location	Cause	Remedy
<p>Between damper and head:</p> <p>Between adapter and head tube</p>	<p>Misalignment of fitting that is inserted into the adapter bottom.</p> <p>* This problem may occur when replacing the head.</p>	<p>Reassemble the adapter and head.</p> <p>* Replace the fitting if it is crushed.</p>  <p>m1522804</p>
<p>Between path and damper:</p> <p>Damper upper part -Path tube</p>	<p>A slack of the fitting of the upper damper.</p>	<ul style="list-style-type: none"> <li>• Reassemble the fitting of the upper damper.</li> <li>• Replace the routing tube and fitting.</li> </ul>  <p>m1522805</p>
	<p>Lack of a tight seal of the seal rubber</p>	<p>Replace the seal rubber of the damper.</p>  <p>m1522806</p>

Location	Cause	Remedy
<p>Between path and damper: Check valve-Filter section</p>	<p>A slack of the fitting of the filter and check valve.</p>	<ul style="list-style-type: none"> <li>• Reassemble the check valve, filter, fitting.</li> <li>• Replace the check valve, filter, fitting.</li> </ul> <p><b>Check valve</b></p>  <p>m1522807</p>

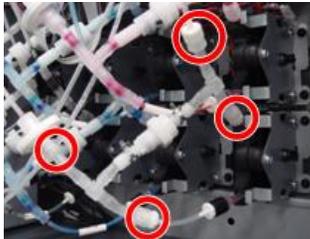
Poor liquid feeding

Check the following sections to confirm whether liquid feeding is carried out.

**⚠ CAUTION**

- If liquid feeding is not being carried out due to a clogged path, etc., and the liquid feeding operation is repeated, this may result in rupturing: please take great care.

### Specific locations that may cause poor liquid feeding

Location	Cause	Remedy
Liquid feed pump	<p>The tube within the liquid feed pump is damaged or clogged.</p> <ul style="list-style-type: none"> <li>These problems are likely to occur when the power is turned off without using the remote power supply and the printer is left to stand idle.</li> <li>Inflow-outflow connection error, e.g. when replacing the check valve.</li> </ul> <p>The above problems are very difficult to check and sometimes are only revealed when the connection is ruptured.</p>	<ul style="list-style-type: none"> <li>Replace the tube pump. (page 181)</li> <li>Replace the check valve.</li> </ul>   <p>m1522807</p>
Valve	Operation failure of the valve.	<p>Opening and closing operation check of the valve ASSY (cartridge valve). (Check # test "ACTION TEST")</p> <p>Even if the solenoid works, there is a case where the valve itself is not opened/ closed.</p>
Others	Air and ink/cleaning liquid are mixed in the feed path.	Remove the fitting of the upper damper, absorb an ink directly with syringes, etc and then manually fill the path to the front of the damper with an ink.

## Discharge

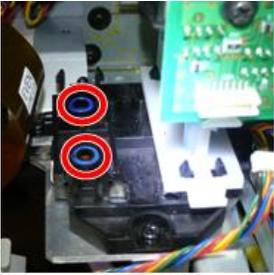
When confirming the discharge condition of a head after ink filling, etc., if any nozzles are missing, refer to the list below to solve the problem.

Missing nozzles

\* After ink filling, if two or three nozzles are missing per nozzle line, register nozzle recovery and use.

On the specifications within # ADJUST, a maximum of 16 nozzles can be registered; however, if such a large number of nozzles are missing, this could indicate poor filling or clogged nozzles.

### Timing of the nozzle missing

Timing	Cause	Remedy
Specific nozzles are missing after the initial filling	<ul style="list-style-type: none"> <li>• Filling failure</li> <li>• Interruption of the filling work and leaving in the state that ink is not completely filled with.</li> </ul>	<ul style="list-style-type: none"> <li>• Performing Head Cleaning</li> <li>• Re-performance of the initial filling * Filling work must be finished in one operation.</li> <li>• Performing air purge</li> </ul>
Nozzles are missing while printing a figure	Poor daily maintenance	<ul style="list-style-type: none"> <li>• Perform correct daily maintenance.</li> <li>• User guidance</li> </ul>
	The wiper failure	<ul style="list-style-type: none"> <li>• Clean the wiper.</li> <li>• Replace the wiper if its abrasion is outstanding.</li> </ul>
	Malfunction within the supply path <ul style="list-style-type: none"> <li>• Deterioration of the seal rubber that connect the damper and adapter.</li> <li>• The failure assembly between the head tube and adapter</li> </ul>	<ul style="list-style-type: none"> <li>• Replace the seal rubber of adapter.</li> </ul>  <p>m1522803</p>
	Condensation on the nozzle surface	<ul style="list-style-type: none"> <li>• Lower the platen temperature.</li> <li>• Squeeze the discharge.</li> <li>• Environmental improvement of the setting place.</li> </ul>

## State of the nozzle missing

State	Cause	Remedy
Intermittent: Specific locations	Nozzles are clogged.	<ul style="list-style-type: none"> <li>Perform the cleaning of the head nozzles.</li> <li>Wipe the nozzle surface with the cotton ciegal.</li> </ul> (Using the maintenance cleaning liquid)
Intermittent: Random 1 or 2 nozzles	Defective cleaning	Performing Head Cleaning
Intermittent: Whole area	Caused by dryness due to Cap (OFF), or printer left to stand idle after a media jam.	<ul style="list-style-type: none"> <li>Performing the cleaning of the head nozzles (Hard) multiple times</li> <li>Wipe the nozzle surface with the cotton ciegal.</li> </ul> (Using the maintenance cleaning liquid)
Large numbers of consecutive nozzles missing	Ink insufficient supply	Performing air purge
	Mixture of the air in the tube between the adapter and head by the leak	<ul style="list-style-type: none"> <li>Check the connection of the tube between the adapter and head.</li> <li>Performing air purge</li> </ul>
	Common flow path is clogged * Mainly at W If the main power is turned OFF or the printer is left to stand idle for a long time and the circulation is not functioning, the W common path may clog.	Clean the damper to the air purge port with the maintenance liquid 03.
	Coming into contact with the nozzle surface by floating of the absorber	Re-attach or replace the absorber.

# Heater Configuration for Media

## Printing Media

This model uses latex ink, allowing it to print on various materials such as the following:

Printing Media	Example Products	Genuine Media
PET Film	Films coated for use with inkjet printers and uncoated films	Transparent Illumination Film LX Transparent Adhesive Film LX (All uncoated products)
Paper	Paper coated for use with inkjet printers and paper coated for offset printing	Poster Paper LX
Synthetic Paper	PP, PET film, etc. (Synthetic paper coated for inkjet printing and uncoated synthetic paper)	Water-resistant Adhesive Paper LX
PVC (adhesive)	PVC sheets with adhesive	White PVC G (SPC-0706 series) White PVC M (SPC-0707 series) etc.
PVC (banner)	Tarpaulin, FF acrylic sheet, etc.	New line of products TBA
Textile (cloth)	Pongee, tropical polyester, toro mat, etc.	None

For best results, it is very important to adjust the heater configuration between media.

## Steps for Heater Configuration

The steps for configuring the heater are as follows.

The pre, print, post and fan heaters must all be configured.

### 1. Check the type of media

- Check the type of printing media to be used.

**2. Temporary heat settings**

- Set the heat to the standard outlined in the table on “Temporary Heat Settings”. (In the event there is a profile for the printing media, set the heat according to the profile.)

**3. Cockling settings**

- Confirm the cockling of the media on the platen, and adjust the pre and print heat.

**4. Check print and drying property**

- Check the ink drying for the printed item and adjust the post and fan heaters.

**5. Other points to check**

- If the media warps from heat, please lower the temperature of the post and fan heaters.
- In the event of blur, lower the printing speed or raise the number of passes.
- Finally, check the drying property of the ink once more.

**6. End of heater configuration**

- The heaters are now configured.

**Checking the Type of Media**

Check for additional information regarding media online.

Check	Note
Material	Find the corresponding information for the media you would like to use on the next page.
Thickness	As heat is difficult to transfer through thick (over 300 $\mu$ m) media, the ink may take more heat to dry. Unusually thin media may be difficult to load.
Coating	Some film and paper materials come with a coating for use with inkjet printers. Ink dry best on these types of media.
Printing side	Please check which side of the material should be printed on.
Backing paper	We do not recommend rough textured fabrics (such as pongee) as the ink will bleed and dirty the platen and machine. Please use media with backing paper.

**Temporary Heat Settings**

- If your printing media has a heat setting profile, set the heaters following that information.
- If your printing media does not have a setting profile, use the estimates in the table below to set the heaters.

- The heating conditions of the media will change depending on thickness, the presence of surface treatment or protective films, so adjust the settings with each media after consulting the following table.

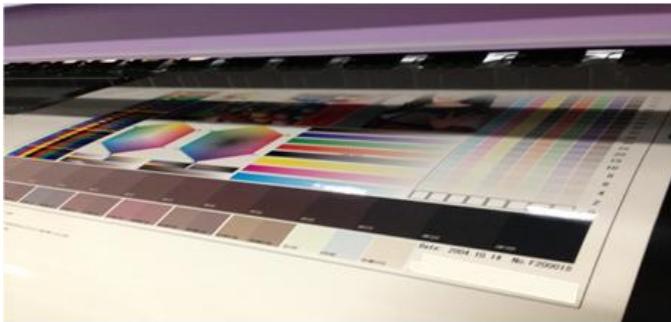
Media	Estimate for Heat Setting (°C)			
	Pre	Print	Post	Fan
PET Film	60	55	60	OFF - 20
Paper	50 - 55	50 - 55	60 - 65	10 - 20
Synthetic Paper (adhesive)	55 - 60	45 - 50	60 - 65	10 - 20
PVC (adhesive)	60 - 65	50 - 55	60 - 70	OFF - 10
PVC (banner)	70	55	65	10 - 20
Textile (cloth)	No Data			

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**Cockling Check (PRE & PRINT heater settings)**

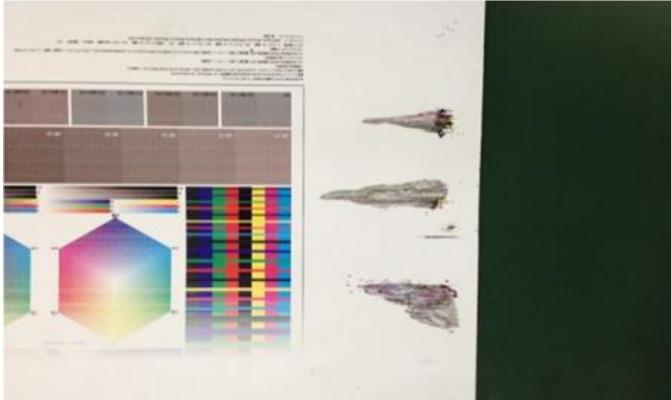
- Check the appearance of the media on the platen after setting the heat. (by pressing the key "HEATER", you can check the heat settings)
- If the media does not lay flat on the platen or begins to cockle, lower the pre and print heat settings.

**If there is no sign of cockling, please proceed to checking the drying properties.**



m1522797

In the event that there is a large amount of cockling, the media will jam. Lower the pre and print heat settings.



m1522798

#### ↓ Note

- Printing cockled paper will result in uneven color distribution, and in extreme cases, it will catch the print head and cause a jam.
- If the media is not set straight, cockling is more likely to occur. Consult chapter two of the manual, "Setting the Media", for the proper way to set the media.
- Exercise caution when using paper media as it is prone to cockling due to heat.
- Before printing, remove any wrapping film and let the media adjust to the ambient temperature of the printing area.

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### Check Print and Drying Properties (POST & fan heater settings)

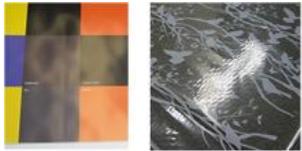
- Print using the heater settings determined in "Cockling Check (PRE & PRINT heater settings)". Then confirm the printed sample's drying property and rub fastness.
- After the fan heater passes, rub a finger against the printed surface to confirm that it is dried (be careful not to burn yourself on the heater).
- In the event that the drying is insufficient, raise the temperature of the post heater. The post heater can be set up to 70°C. If raising the temperature is not enough to dry the media, raise the number of passes or lower the printing speed.

#### ↓ Note

- Images that require large volumes of ink (solid images requiring 2+ ink colors, or two layers of color) are difficult to dry, so we recommend appropriate adjustments be made.
- On rare occasions, ink may transfer to the backside of the media when it is rolled up even after passing the rub test using a finger.
- When rubbed strongly and briskly with a nail or coin, ink may be shaved off.

### Other Points to Check

There is a possibility that problems aside from cockling and insufficient drying may occur. Please adjust your heat settings accordingly.

Problem		Solution
Media Warps 1	<p>After the heater passes, the media warps (in a uniform diamond pattern)</p>  <p>m1522799</p>	<ul style="list-style-type: none"> <li>Lower the post and fan heater temperatures.</li> </ul> <p><b>Note</b></p> <ul style="list-style-type: none"> <li>These affect ink drying, so check the ink's dryness.</li> <li>If the item contains adhesive, the warping may not be noticeable when the item is adhered.</li> </ul>
Media Warps 2	<p>After the heater passes, the media warps (item rolls up entirely)</p>	<ul style="list-style-type: none"> <li>Lower the post and fan heater temperatures.</li> <li>Do not roll up these media tightly.</li> </ul>
Printed Item Blurs	<p>Printed item blurs</p>	<ul style="list-style-type: none"> <li>Raise the pre and print heaters as much as possible without causing cockling (The print heater's max temp. is 55°C). This may affect ink release.</li> <li>Raise the number of passes or lower the printing speed.</li> </ul>

### Printing Issue

Problem	Remedy
<p>Cockling occurs when printing to paper media.</p>	<ul style="list-style-type: none"> <li>Remove any protective film before printing, and let the media adjust to the ambient temperature of the printing area.</li> <li>The absorbent nature of paper makes it susceptible to cockling in the event of temperature/humidity change as well as the heat of the heaters.</li> <li>If the media is not set properly, it is prone to cockling. Refer to "Setting a Media" of operation manual chapter 2.</li> </ul>

Problem	Remedy
<p>Color unevenness occurs when printing solid color. It occurs in the feed direction.</p>	<ul style="list-style-type: none"> <li>• Cockling is believed to be the cause. Try slightly reducing the temperature (by about 5°C) of the pre and print heaters. However, reducing the heat too much may cause blurring and insufficient drying.</li> <li>• If the media is not set properly, it is prone to cockling. Refer to "Setting a Media" of operation manual chapter 2.</li> </ul>
<p>When rolling up the printed item, ink transfers to the back side.</p>	<ul style="list-style-type: none"> <li>• The ink is not sufficiently dry. Raise the temperature of the post and fan heaters.</li> <li>• Increase the number of passes and lower the printing speed.</li> </ul>
<p>When laminating (hot melt type), the laminate does not stick well and peels. It peels from the ink.</p>  <p>m1522800</p>	<ul style="list-style-type: none"> <li>• The ink is not sufficiently dry. Raise the temperature of the post and fan heaters.</li> <li>• Increase the number of passes and lower the printing speed.</li> <li>• Waiting some time after printing will help the ink dry.</li> <li>• The cause is believed to be residual moisture from insufficient drying. Paper media may absorb ink and retain moisture, please check your media in advance.</li> </ul>

# Test Function

## CHECK PATTERN

- Outline

Following 12 “CHECK PATTERN” types are printable.

100%	50%	25%	6.25%
NOZZLE	V-LINE	H-LINE	SLANT
GRADATE	V-1B1W	H-1B1W	DROP CHECK*

- List of CHECK PATTERN

No	Operation	Selectable Values / Description
1	Select a pattern	Select a desired one among the check patterns listed above.
2	Select X resolution	300, 600, 900, 1200 dpi
3	Select Y resolution	300, 600, 900, 1200 dpi
4	Select scan direction and the number of divisions.	Direction : SiDir Divisions : 8 passes
5	Select the Linewidth	1 ~ 1500dots
6	Select the interval of the line.	1 ~ 9999dots
7	Select drawing size *2	X: 10 ~ 420 mm Y: 10 ~ 300 mm
8	Select drawing color	MCYKWR
9	Start drawing.	[ENTER]: Starts drawing. [REMOTE]: Selects nozzles and Switches between high speed scanning ON and OFF.
10	During drawing.	[END]: Stop the drawing.

\* Pattern of the [DROP CHECK] dose not have menu of the [Y resolution]-[Drawing color].

## SENSOR TEST

- Outline  
Each sensor is tested.
- List of SENSOR TEST

Name of Test	Function	LCD display
COVER	Displaying the status of the Cover Sensor. (The identification by the cover name is not possible. Because each cover sensor for series connection.)	OPEN/CLOSE
Y ORIGIN	Displaying the status of the Y-origin Sensor.	ON/OFF
LEVER	Displaying the status of the Clamp Lever.	ON/OFF
REAR PAPER	Displaying the status of the Rear Paper Sensor.	ON/OFF
WIPER	Displaying the status of the Wiper Origin Sensor.	ON/OFF
INK CARTRIDGE	Displaying the status of the Ink Cartridge Sensor.	1 to 8/_
INK END	Displaying the status of the Ink Near End Sensor.	1 to 8/_
WASH CARTRIDGE	Displaying the status of the Wash Cartridge Sensor.	ON/OFF
WASH CART. END	Displaying the status of the Wash Cartridge Near End Sensor.	ON/OFF
HEAD(UPSIDE)	Displaying the status of the Ink Head.	ON/OFF
HEAD(DOWNSIDE)	Displaying the status of the Ink Head.	ON/OFF
MEDIA JAM	Displaying the status of the Media Jam Sensor.	ON/OFF
CLEANER	Displaying the status of the Cleaner.	ON/OFF
Damper 1 to 8	Displaying the status of the damper.	A sensor name of "ON" is displayed /---

## MEMORY CHECK

- Outline  
Check each memory of the machine.

- Content

Item	Content
S-RAM check	Executes Read/Write check of S-RAM. <ul style="list-style-type: none"> <li>• When a DATA error occurs, "S-RAM D:xxxxxxx" is displayed.</li> <li>• When a Address error occurs, "S-RAM A:xxxxxxx" is displayed.</li> </ul>
F-ROM check	Executes hash check of F-ROM. <ul style="list-style-type: none"> <li>• When a check sum error occurs, "F-ROM SUM ERROR" is displayed.</li> </ul>
SDRAM check	Executes Read/Write check of SDRAM. <ul style="list-style-type: none"> <li>• When a DATA error occurs, "SDRAM D:xxxxxxx" is displayed.</li> <li>• When an Address error occurs, "SDRAM A:xxxxxxx" is displayed.</li> </ul>

## 6

## KEYBOARD TEST

- Outline

Tests the panel switches.

- Content

When the panel switch is pressed, the name of the switch is displayed on the LCD.

If none is pressed, "NONE" is displayed on the LCD.

When you press the [END] key, "Test end" is displayed and the keyboard test is completed.

## LCD TEST

- Outline

The characters are displayed on the LCD.

- Content

After LCD test starts, each character will be displayed repeatedly on the LCD.

When you press the [END] key, the LCD test is completed.

## CHECK TEMP.

- Outline

Temperature check of each part that monitors temperature is available.

- Content

The temperature in the table below is displayed.

Display	Content
ROOM	AIR Room temperature
HEAD1	Head temperature of head 1 EVEN side
HEAD2	Head temperature of head 1 ODD side
HDC	Temperature of HDC PCB

## CHECK INK IC

- Outline

Check the ink cartridge IC.

- Content

Check is performed by reading the IC chip data, and then displays the number of errors for each cartridge.

When an error occurs, "IC=1 ERR=1" is displayed.

## CARTRIDGE VALVE

- Function

Open/close of cartridge valve is checked.

Executes all OPEN/all CLOSE of valves by pressing [FUNCTION] key.

## CARTRIDGE SENSOR

- Function

Cartridge sensor and Ink end sensor, it is checked operating conditions.

## Maintenance Cartridge

- Function

Perform various operation checks of slot of the maintenance cartridge.

1. Checking cartridge sensor and ink near end sensor

2. Valve operation test
3. IC check

## AGING

- Outline
  - For the durability testing, continuous reciprocating operation is executed.
- List of AGING items

Name of Test	Function
XY SERVO*	Continuous reciprocating operation in X-axis and Y-axis
X SERVO	Continuous reciprocating operation in X-axis
Y SERVO*	Continuous reciprocating operation in Y-axis
PUMP MOTOR	Continuous operation of Ink-supplying Pump Motor (Max.72Hours)
WIPER MOTER	Continuous reciprocating operation of Wiper Motor (Max.9999Times)
WIPE HEAD	Continuous reciprocating operation of Wiping. (Max.9Times)
CAPPING	Continuous reciprocating operation of Capping.
CLEANING	Execution of cleaning operation by the designated times (Max.500Times)
FLASHING	Continuous reciprocating operation of Flashing.
X measure	Continuous operation of the X measure.
COM	For developmental debugging
INK SUPPLY	Operation of Ink-supplying Pump Motor.
AIR PUMP	Operation of Air-supplying Pump Motor.
CIRCURATION	Operation of Circulation Pump Motor.

\*It may cause ink leakage from the Head when executed in keeping the ink charged.

### ★ Important

- For the work, put down unused media or the like in advance since it may cause ink leakage when [Y SERVO] or [XY SERVO] is executed.

## CHECK ENCODER

- Outline

Check the operation of the linear encoder and the motor encoder by moving the slider.

- Content

"M: xxx E: xxx" is displayed on the lower row of the LCD. The coordinate value of the motor encoder is displayed in M, and that of the linear encoder is displayed in E in units of mm.

With [◀] [▶] key, you can move the slider to right and left.

## TEST HARDWARE

- Outline

Port test of the hardware

- Content

As this is a function for development, the details are not disclosed.

## PAPER SENSOR

- Function

The paper sensor is tested.

Remove the cap (move the station to its lowest point), and then display the paper sensor read value.

\*\*\* (@@@, \$\$\$) @@@: Sensor read value during SLOP-ON

\$\$\$: Sensor read value during SLOP-OFF

\*\*\*: Difference between @@@ and \$\$\$

The sensor read value is updated regularly (every 150 msec).

[◀] [▶]: Moves the head

[END]: After the cap is put back on, the paper sensor test is completed.

### ↓ Note

- Temperature is displayed with a unit selected in the [UNIT SETUP] of the [MACHINE SETUP] function.
- A/D conversion value is also displayed.

## HEATER

- Function

Temperature tests of the media heater, ON/OFF test of heater are executed.

- Operation Procedures of "TEMP."

Purpose:

Check that heater temperature control can operate normally.

Contents:

The operation is same when the HEATER key is pressed in LOCAL. However, the changed value is not saved.

Step	Item	Description	Remarks
1	Temperature setting	Sets temperature of Pre, Print, and Post Heater to control the heater.  Set value (Celsius): OFF, 20 – 50 °C (unit: 1 °C) Set value (Fahrenheit): OFF, 68 – 122 °F (Because conversion is used, the unit is not 1 °F)	
2	Temperature display	[ENTER]: Returns to temperature setting.	

- Operation Procedures of "SSR"

Purpose:

Check the heater operation and the A/D value.

Contents:

The ON heater temperature moves up. If it is left, it may exceed the upper limit of the setting value. Be careful about it.

Step	Item	Description	Remarks
1	ON/OFF setting	Designates ON/OFF of Pre, Print and Post Heater.	Temperature is not controlled.
2	ON/OFF display	[FUNCTION]: Returns to setting screen.	

## ACTION TEST

- Function

Check the operation of movable parts alone of the machine.

- List of test items

Item	Description
VACUUM	Description: Operation test of vacuum fan motor. Set value: LOW, MID, HIGH, OFF
CUTTER	Description: Operation test of media cutter. Set value: ON, OFF
WASH CART. VALVE	Description: Operation test of wash cartridge valve. Set value: ON, OFF
TAKE-UP MOTOR	Description: Operation test of take-up motor. Set value: ON, OFF
HDC FAN	Description: Operation test of HDC fan. Set value: ON, OFF
COOLING FAN	Description: Operation test of Carriage cooling fan. Set value: ON, OFF
CEILING FAN	Description: Operation test of ceiling fan. Set value: ON, OFF
OPTION HEATER FAN	Description: Operation test of fan heater. (option) Set value: ON, OFF
LED POINTER	Description: Operation test of LED pointer. Set value: ON, OFF
CIRCULATION VALVE	Description: Operation test of circulation valve. Set value: 1, 2
UISS VALVE	Description: Operation test of UISS valve. Set value: 1, 2, 3, 4

## LED

- Function  
ON/OFF test of the keyboard LEDs is executed.

The LEDs are controlled according to the ON/OFF designation.

- List of LEDs

LED	Kinds
HEAT LED	Pre, Print, and Post heat LEDs, Constant LED
ACTIVE LED	ACTIVE LED
Cartridge LED	RED x8 , GREEN x8

## SKEW CHECK

- Function
  - Skewing of media is checked.
  - Feed distance is designated to execute feeding.
  - Feed distance: 1–500 m (unit: 1 m)
  - [END]: Aborts feeding [ENTER]: Restarts feeding.

## VOLTAGE CHECK

- Outline
  - You can check the internal DC power supply voltage with LCD display.
  - The displayed value is the read value of AD conversion circuit.
- Content
  - For each DC power supply voltage setting value (design value), actual voltage value is displayed.

DC power supply name	Setting value (design value) [V]	Main use
V CORE	1.3310	CPU core voltage
12V	12.0	Internal circuit
V1	36.0	Motor drive Head drive etc.
V2	36.0	
3.3VB	3.3	Circuit for sleep functions

DC power supply name	Setting value (design value) [V]	Main use
3.3V	3.3	Internal circuit
2.5V	2.5	Internal circuit
1.8Vme	1.8	Internal circuit
1.5VB	1.5	Low voltage circuit
1.2V	1.2	Low voltage circuit

## VACUUM FAN

- Outline

As this is a function for development, the details are not disclosed.

## EXTERNAL HEATER

- Outline

Check the operation of the Drying Heater Assy "Heater" and "Fan".

- Content

When it is ON, the heater temperature moves up, and FAN operates.

Step	item	Description	Remarks
1	Heater SSR ON/ OFF setting	Specify ON/ OFF of the Drying Heater Assy "Heater". The ON heater temperature is raised. If it is left, it may exceed the upper limit of the setting value. Be careful about it.	Temperature control is not performed.
2	FAN ON/ OFF setting	Specify ON/ OFF of the Drying Heater Assy "FAN".	

## VOLTAGE SELECTOR

- Content

Check the voltage selector status.

Either of "110V" and "220V" is displayed.

---

## **EVENT LOG**

---

As this is a function for development, the details are not disclosed.

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## **CHECK MESSAGE**

---

As this is a function for development, the details are not disclosed.

# Details on Errors and Malfunctions

## Concerning Errors and Malfunctions

- Outline

This chapter describes the troubleshooting for this machine.

- Rough Identification of the Source of the Trouble

At the beginning of troubleshooting, it is necessary to identify roughly which functions the trouble relates to.

Problems can be roughly classified into those that relate to the printer itself and those that involve the connection between the printer and the host computer.

- Problems with the printer itself

The cause of the trouble can be identified by executing appropriate functions or using test functions.

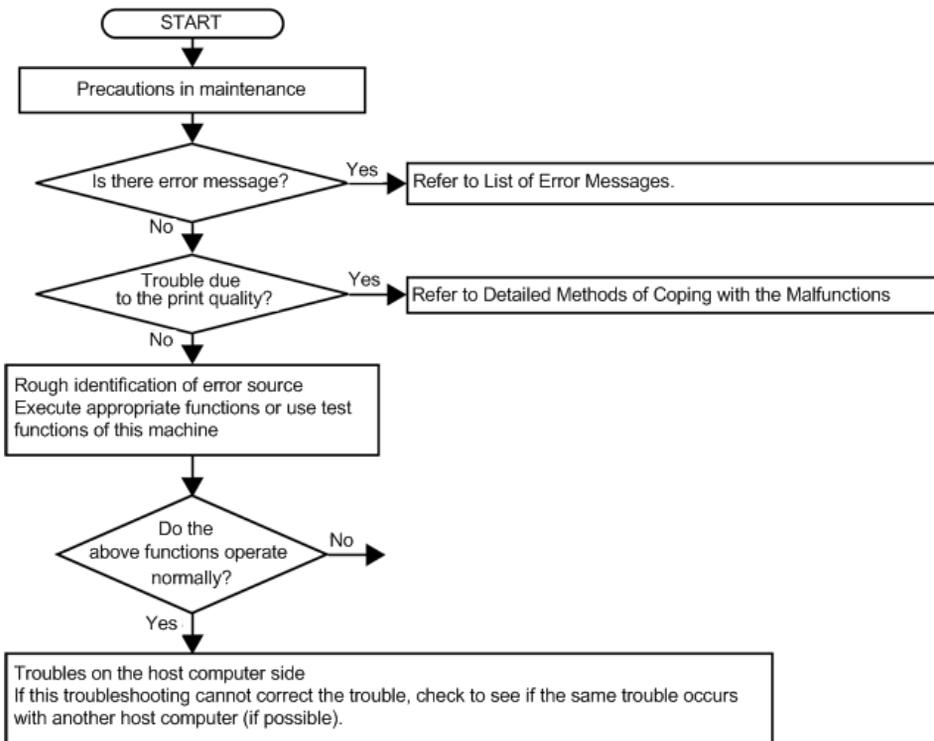
- Problems concerning the connection to the host computer

Hardware: Broken wire or faulty contact of cables

Software: Transmission by improper application setting

### Note

- In the standard setting of this machine, priority is given to the host computer.
- Check the settings on the host computer to see if there is any improper parameter setting.



w\_m1522150

- Checking Procedure

This section describes troubleshooting procedures for the problems for which error messages are displayed.

### 1. Identifying the error category

The causes of errors can be classified into the following categories:

- Handling error on the host computer side
- Trouble on the host computer side
- Trouble with the Interface Cable
- Printer handling error
- Printer mechanical trouble
- Printer hardware trouble
- Printer firmware trouble

### 2. Initial action

Refer to the error message, and judge whether the trouble lies on the host computer side or on the printer side.

- Have any of the interface conditions (printer model setting, command, communication conditions, etc.) been changed?

- Does the trouble occur under specific conditions?
- Does the same trouble occur repeatedly?

### 3. Failure on the printer side

Take the following steps to repair the printer.

- Uploading and checking of parameters
- Reinstalling of firmware
- Checking of FFC and cable connections
- Replace the defective part (sensor, etc.) or make the necessary adjustment.
- Replace the PCBs.

### 4. Repair at the factory

If the error recurs even after the corrective measures specified here are taken, return the printer to the factory of RICOH for repair.

## List of Error Messages

- List of Error Messages

No.	LCD	Cause	List of Countermeasures
1	ERROR 108 HD CONNECT[12345678]	Head connection error (Head connection can not be confirmed)	1. Check the setting of loading number of the head in the parameter.(System parameter No.41 HEAD NO=3)
2	ERROR 108 HD THERMIS[12345678]	Head thermistor (Head temperature can not be measured)	2. Check connection between the HDC PCB from the Print Head 3. Replace the HDC PCB with a new one. (Refer to page 212 "HDC PCB Assy") 4. Replace the Print Head with a new one. (Refer to page 166 "Head Unit")

No.	LCD	Cause	List of Countermeasures
3	ERROR 122 CHECK:SDRAM	PRAM size is not sufficient at FW upgrading (fw_updmmsg).	<ol style="list-style-type: none"> <li>1. Update F/W.</li> <li>2. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> <li>3. Replace the PRAM PCB with a new one. (Refer to page 220 "DDR2PRAM (1GB) Assy")</li> </ol>
4	ERROR 128 HDC FIFO OVER	<p>HDC FIFO OVER error (Data transmission speed is too fast Control PCB trouble)</p> <p>HDC FIFO OVERRUN is detected at the scan slider process (ScanSlider)</p>	<ol style="list-style-type: none"> <li>1. Check the parameter. (Is the scan parameter the default value?)</li> <li>2. Update F/W.</li> <li>3. Check if there is no data error from RIP.</li> </ol>
5	ERROR 128 HDC FIFO UNDER	<p>HDC FIFO UNDER error (Data transmission speed is too slow Control PCB trouble)</p> <p>HDC FIFO UNDERRUN is detected at the scan slider process (ScanSlider)</p>	<ol style="list-style-type: none"> <li>4. To make sure, repeat RIP.</li> <li>5. Disconnect and connect the FFC located between the MAIN PCB and the HDC PCB.</li> <li>6. Replace the FFC and cable located between the MAIN PCB and the HDC PCB.</li> <li>7. Replace the HDC PCB with a new one. (Refer to page 212 "HDC PCB Assy")</li> <li>8. Replace the MAIN PCB with a new one. (Refer to page 212 "HDC PCB Assy")</li> </ol>
6	ERROR 129 BATTERY EXCHANGE	<p>Battery dead (RTC battery dead is detected.)</p> <p>Proper information of Printer or Time (Dedicated IC) unusable on Printer initializing process (opinit).</p>	<ol style="list-style-type: none"> <li>1. Replace a battery equipped on the MAIN PCB with new one. (CR2032) <ul style="list-style-type: none"> <li>• The new battery should be the same product or the equivalent.</li> <li>• Discard the old battery according to the instruction from the maker.</li> </ul> </li> </ol>

No.	LCD	Cause	List of Countermeasures
7	ERROR 12e Head Failed[xxxx] (The details of [xxxx] are explained below this list.)	Abnormality of the Print head. Abnormality of the Driver of the Print head. COM over current (HDC STAT4 bit2) (We did not see the current status.)	<ol style="list-style-type: none"> <li>1. Update F/W.</li> <li>2. Initialize a parameter.</li> <li>3. Replace the Print Head with a new one. (Refer to page 166 "Head Unit")</li> <li>4. Replace the HDC PCB with a new one. (Refer to page 212 "HDC PCB Assy")</li> </ol>
8	ERROR 130 HD DATA SEQ	Head data transferring sequence error	<ol style="list-style-type: none"> <li>1. Disconnect and connect the FFC located between the HDC PCB and the MAIN PCB.</li> <li>2. Replace the FFC located between the HDC PCB and the MAIN PCB.</li> <li>3. Replace the HDC PCB with a new one. (Refer to page 212 "HDC PCB Assy")</li> <li>4. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>
9	ERROR 146 E-LOG SEQ	Sequential number abnormality of the event log	<ol style="list-style-type: none"> <li>1. Initialize an Event log.</li> <li>2. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>
10	ERROR 151 MAIN PCB V1R2	Main board 1.2V power supply is abnormal.	<ol style="list-style-type: none"> <li>1. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>
11	ERROR 152 MAIN PCB V2R5	Main board 2.5V power supply is abnormal.	<ol style="list-style-type: none"> <li>1. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>

No.	LCD	Cause	List of Countermeasures
12	ERROR 153 MAIN PCB V3R3	Main board 3.3V power supply is abnormal.	<ol style="list-style-type: none"> <li>1. Check the output pressure of the DC power supply (36V) and the DC power supply (5V).</li> <li>2. Replace the power supply above.</li> <li>3. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>
13	ERROR 154 MAIN PCB V05	Main board 5V power supply is abnormal.	
14	ERROR 155 MAIN PCB V35-1	Main board 35-1V power supply is abnormal.	
15	ERROR 156 MAIN PCB V5B	Main board 5VB power supply is abnormal.	
16	ERROR 157 MAIN PCB VTT	Main board VTT power supply is abnormal.	
17	ERROR 158 MAIN PCB V352	Main board 35-2V power supply is abnormal.	<ol style="list-style-type: none"> <li>1. Check the output pressure of the DC power supply (36V) and the DC power supply (5V).</li> <li>2. Replace the power supply above.</li> <li>3. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>
18	ERROR 16e MAIN PCB V3R3B	Main board 3.3VÇa power supply is abnormal.	
19	ERROR 15f HEAD DRIVE HOT	COM driver becomes the high temperature.	<ol style="list-style-type: none"> <li>1. Check the operation of the HDC PCB cooling fan.</li> <li>2. Disconnect and connect the FFC located between the HDC PCB and the MAIN PCB.</li> <li>3. Replace the HDC PCB with a new one. (Refer to page 212 "HDC PCB Assy")</li> <li>4. Replace the Print Head with a new one. (Refer to page 166 "Head Unit")</li> </ol>

No.	LCD	Cause	List of Countermeasures
20	ERROR 171 NEW HEAD CONNECT	New Print Head was recognized.  Compare S/N written in the head memory with S/N stored in the machine.	It is normal that an error occurs only at the time of the first start after having connected a new head.  It is abnormal that an error occurs at the time of start every time.  1. Check connection between the HDC PCB from the Print Head  2. Replace the HDC PCB with a new one. (Refer to page 212 "HDC PCB Assy")  3. Replace the Print Head with a new one. (Refer to page 166 "Head Unit")
21	ERROR 172 MAIN PCB Q6 Check	The MAIN PCB Q6 is disabled (short mode).  (Displayed only at startup in the maintenance open mode or other than SUPPORT=0.)	1. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")
22	ERROR 186 HDC OVERFLOW	Wave shape overflow  Wave shape data is abnormal.	
23	ERROR 186 HDC UNDERFLOW	Wave shape underflow  Wave shape data is abnormal.	
24	ERROR 187 HDC SLEW RATE	Wave shape slew rate error  Wave shape data is abnormal.	
25	ERROR 188 HDC MEMORY	Wave shape memory error  At wave shape memory writing, it cannot be written due to address conflict.	

No.	LCD	Cause	List of Countermeasures
26	ERROR 201 COMMAND	Command error Other data than commands is received	1. Check if the output set of the PC matches the set of the machine side?
27	ERROR 202 PARAMETER	Parameter error Parameter out of the numeral value range is received	2. Change the profile. 3. Check if there is no parameter error? 4. Check if there is no trouble on the USB Cable? 5. Replace the USB Cable. 6. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")
28	ERROR 203 Maintenance Command	Maintenance command Operation of a maintenance command fails *Non-disclosed command Parameter Up/Download and time setting (LcAeMent [M0xfe])	1. Check the PRM file. 2. Check the number of each parameter. (if PRM matches up to the machine.)
29	ERROR 304 USB INIT ERR	USB initialization error (Failures in initializing USB device)	1. Check if there is no parameter error? 2. Replace the USB Cable.
30	ERROR 305 USB TIME OUT	USB time-out (Occurrence of time-out error on USB device)	3. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")

No.	LCD	Cause	List of Countermeasures
31	ERROR 401 MOTOR X	X Servo error (Excessive load to the X-motor)	1. Check if there is no error on the print data. (Check if the same error occurs on other data?)
32	ERROR 403 X CURRENT	X-motor current (Over current error of X-motor is detected.)	2. Check if there is no trouble on the Timing Belt. 3. Check if there is no trouble on the Motor Cable. (disconnecting, burnout, or the like) 4. Check the FFC between each PCB and Short connectors connected on the PCB. 5. Replace the X-axis Motor with a new one. (Refer to page 190 "X-axis Motor Assy")
33	ERROR 402 MOTOR Y	Y Servo error (Excessive load to the Y-motor)	1. Check if there is no error on the print data. (Check if the same error occurs on other data?)
34	ERROR 404 Y CURRENT	Y-motor current (Over current error of Y-motor is detected.)	2. Check if it moves to the Y-direction smoothly in the power-off condition. 3. Check if there is no trouble on the Timing Belt. 4. Check if there is no trouble on the Motor Cable. (disconnecting, burnout, or the like) 5. Check the FFC between each PCB and Short connectors connected on the PCB. 6. Replace the Y-axis motor with a new one. (Refer to page 192 "Y-axis Motor")

No.	LCD	Cause	List of Countermeasures
35	ERROR 509 HDC POSCNT	HDC position counter error	<ol style="list-style-type: none"> <li>1. Execute and confirm [#TEST SENSOR TEST] -&gt; [Y-ORG]. (Confirm that the ON/OFF display is switched by moving the carriage left and right.)</li> <li>2. Execute [#TEST CHECK ENCODER].</li> <li>3. Check the assembly of Y-scale, and confirm that there is neither dirt nor scratch.</li> <li>4. Check in manual if the Head Assy. (carriage) moves left and right smoothly.</li> <li>5. Check the connector connection of Y-origin Sensor and Linear Encoder.</li> <li>6. Replace the Y-origin Sensor or Linear Encoder with a new one.</li> <li>7. Check the assembly and connector connection of Y-axis Motor.</li> </ol>

No.	LCD	Cause	List of Countermeasures
36	ERROR 50a Y ORIGIN	Y-origin error (Origin of Y-axis can not be detected)	<ol style="list-style-type: none"> <li>1. Execute and confirm [#TEST SENSOR TEST] -&gt; [Y-ORG]. (Confirm that the ON/OFF display is switched by moving the carriage left and right.)</li> <li>2. Execute [#TEST CHECK ENCODER].</li> <li>3. Check in manual if the Head Assy. (carriage) moves left and right smoothly.</li> <li>4. Check the connector connection of Y-origin Sensor and Linear Encoder.</li> <li>5. Replace the Y-origin Sensor or Linear Encoder with a new one.</li> <li>6. Check the assembly and connector connection of Y-axis Motor.</li> <li>7. Replace the Y-axis Motor with a new one. (Refer to page 192 "Y-axis Motor")</li> <li>8. Replace the HDC PCB with a new one. (Refer to page 212 "HDC PCB Assy")</li> <li>9. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>

No.	LCD	Cause	List of Countermeasures
37	ERROR 50f L-SCALE BLACK	Linear Scale error	<ol style="list-style-type: none"> <li>1. Check the assembly position of Linear Scale and Encoder PCB Assy.</li> <li>2. Check Linear Scale (scratches or dirtiness or so.)</li> <li>3. Replace the Linear Scale with a new one.</li> <li>4. Replace the Encoder PCB Assy. with a new one. (Refer to page 227 "150LPI Encoder PCB Assy")</li> </ol>
38	ERROR 50c MEDIA WIDTH SENSOR	The media width could not be read correctly.	<ol style="list-style-type: none"> <li>1. Check the media setting position.</li> <li>2. Perform cleaning of the media width sensor.</li> <li>3. Execute [#TEST PAPER SENSOR].</li> </ol>
39	ERROR 516 MEDIA SET POSITION L	The media is set outside the range.	<ol style="list-style-type: none"> <li>1. Check the media setting position.</li> <li>2. Perform cleaning of the media width sensor.</li> <li>3. Execute [#TEST PAPER SENSOR].</li> </ol>
40	ERROR 505 MEDIA JAM	The media jam sensor reacted.	<ol style="list-style-type: none"> <li>1. Remove the media that hit it, and reset the media.</li> <li>2. Execute [#TEST SENSOR] -&gt; [MEDIA JAM].</li> </ol>
41	ERROR 519 NEGATIVE P.SENSOR	An error of the negative pressure sensor has been detected.	<ol style="list-style-type: none"> <li>1. From [#TEST AGEING] -&gt; [AIR PUMP] -&gt; [: Negative Pressure], check the pressure value at SPEED [0] and VALVE [L].</li> <li>2. Replace the Negative pressure sensor PCB with a new one.</li> </ol>

No.	LCD	Cause	List of Countermeasures
42	ERROR 51a POSITIVE P.SENSOR	An error of the positive pressure sensor has been detected.	<ol style="list-style-type: none"> <li>1. From [#TEST AGEING] -&gt; [AIR PUMP] -&gt; [: Negative Pressure], check the pressure value at SPEED [0] and VALVE [ _ ].</li> <li>2. Replace the Positive pressure sensor PCB with a new one.</li> </ol>
43	ERROR 617 DAMPER SENSOR: 12345678	An error of the liquid level detection sensor of the damper has been detected.	<ol style="list-style-type: none"> <li>1. Check the connection of the liquid level detection sensor.</li> <li>2. From [#TEST SENSOR] -&gt; [DAMPER], check the detection status of the liquid level detection sensor.</li> <li>3. Replace the Liquid level detection sensor.</li> </ol> <p>*An error may occur if you bring magnetized items such as the tip of the driver close to the float sensor.</p>
44	ERROR 618 TANKlevelH:12345678	Even though a certain amount of ink has been consumed, there is no change in the liquid level detection sensor "High".	<ol style="list-style-type: none"> <li>1. Check the nozzle status. (If nozzle clogging is terrible, consumption difference may be generated.)</li> <li>2. From [#TEST SENSOR] -&gt; [DAMPER], check the detection status of the liquid level detection sensor. (Also, visually check the float position in the damper.) If there is an error, replace the liquid level detection sensor.</li> <li>3. Perform [MAINTENANCE DAMPER].</li> <li>4. Replace the damper.</li> </ol>

No.	LCD	Cause	List of Countermeasures
45	ERROR 619 TANKlevel:12345678	Even though a certain amount of ink has been consumed, there is no change in the liquid level detection sensor "Low".	<ol style="list-style-type: none"> <li>1. Check the nozzle status. (If nozzle clogging is terrible, consumption difference may be generated.)</li> <li>2. From [#TEST SENSOR] -&gt; [DAMPER], check the detection status of the liquid level detection sensor. (Also, visually check the float position in the damper.) If there is an error, replace the liquid level detection sensor.</li> <li>3. Perform [MAINTENANCE DAMPER].</li> <li>4. Replace the damper.</li> </ol>
46	ERROR 61a INK OVER FLOW: 12345678	Overflow from the damper has been detected.	<ol style="list-style-type: none"> <li>1. Check that ink did not flow into the air pressure path. If ink flowed into, filter replacement and path cleaning are required.</li> <li>2. Perform [MAINTENANCE DAMPER]. Check that it has been discharged to the middle status.</li> <li>3. With [#TEST SENSOR], check the detection status of the target sensor.</li> <li>4. Replace the Liquid level detection sensor.</li> <li>5. Replace the damper.</li> <li>6. Check that the cartridge valve is not open. (Because ink flows into the damper due to head difference.)</li> </ol>

No.	LCD	Cause	List of Countermeasures
47	ERROR 61b SUPPLY INK:12345678	Ink filling into the damper has failed.	<ol style="list-style-type: none"> <li>1. With [#TEST SENSOR], check the detection status of the target liquid level detection sensor.</li> <li>2. From [#TEST AGEING] -&gt; [PUMP MOTOR], discharge ink in the damper to the bottom. From [#TEST AGEING] -&gt; [INK SUPPLY], check that sending ink is performed.</li> </ol> <p>*If sending ink cannot be performed: The supply pump, the cartridge valve and the UISS valve shall be replaced.</p>
48	ERROR 61c NEGATIVE P.CONTROL	Negative control was not performed normally.	<ol style="list-style-type: none"> <li>1. From [#TEST AGEING] -&gt; [AIR PUMP] -&gt; [: Negative Pressure], check whether it is around -2.4kPa at SPEED [188] and VALVE [_].</li> <li>2. From [#TEST AGEING] -&gt; [AIR PUMP] -&gt; [: Negative Pressure], check whether it is around -2.4kPa at SPEED [188] and VALVE [1_]/ [_2].</li> </ol> <ul style="list-style-type: none"> <li>• When there is change in the pressure value at VALVE [_1], check leakage in the path connected with the damper at the left side seen from the front.</li> <li>• When there is change at VALVE [_2], check it at the right side seen from the front.</li> </ul> <ol style="list-style-type: none"> <li>1. Check leakage of the chamber.</li> <li>2. Replace the air filter.</li> </ol>

No.	LCD	Cause	List of Countermeasures
49	ERROR 61d NEGATIVE P.NotEnough	The negative pressure in the proper range cannot be maintained (at plus side).	<ol style="list-style-type: none"> <li>1. From [#TEST AGEING] -&gt; [AIR PUMP] -&gt; [: Negative Pressure], check whether it is around -2.4kPa at SPEED [188] and VALVE [ ].</li> <li>2. From [#TEST AGEING] -&gt; [AIR PUMP] -&gt; [: Negative Pressure], check whether it is around -2.4kPa at SPEED [188] and VALVE [1_]/ [2].</li> </ol> <ul style="list-style-type: none"> <li>• When there is change in the pressure value at VALVE [1_], check leakage in the path connected with the damper at the left side seen from the front.</li> <li>• When there is change at VALVE [2], check it at the right side seen from the front.</li> </ul> <ol style="list-style-type: none"> <li>1. Check leakage of the chamber.</li> </ol>

No.	LCD	Cause	List of Countermeasures
50	ERROR 61e NEGATIVE P.OVER	The negative pressure in the proper range cannot be maintained (at minus side).	<ol style="list-style-type: none"> <li>1. From [#TEST AGEING] -&gt; [AIR PUMP] -&gt; [: Negative Pressure], check whether it is around -2.4kPa at SPEED [188] and VALVE [_].</li> <li>2. From [#TEST AGEING] -&gt; [AIR PUMP] -&gt; [: Negative Pressure], check whether it is around -2.4kPa at SPEED [188] and VALVE [1_]/ [_2]. <ul style="list-style-type: none"> <li>•When there is change in the pressure value at VALVE [_1], check leakage in the path connected with the damper at the left side seen from the front.</li> <li>•When there is change at VALVE [_2], check it at the right side seen from the front.</li> </ul> </li> </ol>
51	ERROR 61f POSITIVE P.CONTROL	Positive pressure control could not be performed normally.	<ol style="list-style-type: none"> <li>1. From [#TEST AGEING] -&gt; [AIR PUMP] -&gt; [: Positive Pressure], check whether it is around 15.0kPa at SPEED [188] and VALVE [_].</li> <li>2. From [#TEST AGEING] -&gt; [AIR PUMP] -&gt; [: Positive Pressure], check whether it is around 15.0kPa at SPEED [188] and VALVE [1_]/ [_2]. <ul style="list-style-type: none"> <li>•When there is change in the pressure value at VALVE [_1], check leakage in the path connected with the damper at the left side seen from the front.</li> <li>•When there is change at VALVE [_2], check it at the right side seen from the front.</li> </ul> </li> </ol>

No.	LCD	Cause	List of Countermeasures
52	ERROR 620 POSITIVE P.NotEnough	The positive pressure in the proper range cannot be maintained (at minus side).	<ol style="list-style-type: none"> <li>1. From [#TEST AGEING] -&gt; [AIR PUMP] -&gt; [: Positive Pressure], check whether it is around 15.0kPa at SPEED [188] and VALVE [ _ ].</li> <li>2. From [#TEST AGEING] -&gt; [AIR PUMP] -&gt; [: Positive Pressure], check whether it is around 15.0kPa at SPEED [188] and VALVE [1_]/ [ _2]. <ul style="list-style-type: none"> <li>•When there is change in the pressure value at VALVE [ _1], check leakage in the path connected with the damper at the left side seen from the front.</li> <li>•When there is change at VALVE [ _2], check it at the right side seen from the front.</li> </ul> </li> </ol>
53	ERROR 621 POSITIVE P.OVER	The positive pressure in the proper range cannot be maintained (at plus side).	<ol style="list-style-type: none"> <li>1. From [#TEST AGEING] -&gt; [AIR PUMP] -&gt; [: Positive Pressure], check whether it is around 15.0kPa at SPEED [188] and VALVE [ _ ].</li> <li>2. From [#TEST AGEING] -&gt; [AIR PUMP] -&gt; [: Positive Pressure], check whether it is around 15.0kPa at SPEED [188] and VALVE [1_]/ [ _2]. <ul style="list-style-type: none"> <li>•When there is change in the pressure value at VALVE [ _1], check leakage in the path connected with the damper at the left side seen from the front.</li> <li>•When there is change at VALVE [ _2], check it at the right side seen from the front.</li> </ul> </li> </ol>

No.	LCD	Cause	List of Countermeasures
54	ERROR 627 INSERT CARTRIDGE	The cartridge has not been set for a certain amount of time.	Set the cartridge. 1. Check that the cartridge has been inserted correctly. 2. Check the sensor operation with [#TEST Cartridge sensor].
55	ERROR 702 THERMISTOR	Defective of the thermistor (disconnection or short)	1. Check each thermistor. 2. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")
56	ERROR 707 IHD HEATER BRK	Is the heater of the head disconnected? (The temperature does not rise after heating for over a certain period of time.)	1. Check the room temperature is not too low. 2. Replace the Print Head with a new one. (Refer to page 166 "Head Unit") 3. Replace the HDC PCB with a new one. (Refer to page 212 "HDC PCB Assy")
57	ERROR 902 DATA REMAIN	Drawing data is remaining.	(Carry out the followings if the error still occurs when data is cleared.) 1. Check errors in the parameter. 2. Remove USB cable from the printer and execute data clear. -> If solved, it is a problem on USB cable or PC. 3. Replace the USB Cable with a new one. 4. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")
58	ERROR 90d NO HEAD SELECT	Loaded number of the head is assumed zero.	Check the setting of loading number of the head in the parameter. (System parameter No.41 HEAD NO=3)

No.	LCD	Cause	List of Countermeasures
59	ERROR 910 ENVIRONMENT TEMP(LO)	The room temperature is low. It is possible that normal discharging cannot be performed.	Adjust the room temperature to the specified range (20 degrees C to 25 degrees C).
60	ERROR 911 ENVIRONMENT TEMP(HI)	The room temperature is high. It is possible that normal discharging cannot be performed.	Adjust the room temperature to the specified range (20 degrees C to 25 degrees C).
61	ERROR 04 PARAM ROM	Access Error of the PARAMETER ROM  1.The state that cannot access "FROM" on the MAIN PCB.  2.The state that cannot access "EEPROM" on the Central-IO PCB.	<ol style="list-style-type: none"> <li>1. Replace the FFC and cable located between the HDC PCB and the MAIN PCB.</li> <li>2. Replace the FFC and cable located between the HDC PCB and the MAIN PCB.</li> <li>3. Replace the Central-IO PCB with a new one. (Refer to page 225 "Central-IO PCB Assy")</li> <li>4. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>

### List of Warning Messages

- List of Warning Messages

No.	Message	Cause	Corrective Measures
List of Ink Error (Checking by guidance)			

No.	Message	Cause	Corrective Measures
1	<LOCAL> INK IC CAN'T READ	IC chip of Ink Cartridge unreadable properly	1. Check the attached status of the chip.
2	<LOCAL> WRONG INK IC	IC chip of Ink Cartridge unreadable properly	2. Perform #TEST/ Check the IC. 3. Replace the ID Contact PCB Assy. with a new one. (Refer to ID Contact PCB CN032 Assy)
3	<LOCAL> INK TYPE	Type of inserted Ink Cartridge is different.	1. Check the type of the ink cartridge.
4	<LOCAL> INK COLOR	The color of Ink Cartridge inserted is different from the color to be set.	1. Check the color of the ink cartridge.
5	<LOCAL> WRONG CARTRIDGE	An error occurred in the IC chip information of the ink cartridge.	The chip was used too much (exceeding the specified times). 1. Check whether the chip was also replaced when the pack was replaced. 2. Check the W ink nozzle clogging and resolve it. 3. Replace the chip.

No.	Message	Cause	Corrective Measures
6	<LOCAL> NO CARTRDG	o cartridge (Cartridge is not installed)	<p>(When the message is still displayed even after an Ink Cartridge is charged;)</p> <ol style="list-style-type: none"> <li>1. Execute and confirm [#TEST SENSOR] -&gt; [INK CARTRIDGE] (The number meets the cartridge No.).</li> <li>2. Check the peripheral and the assembly of the Presence Sensor.</li> <li>3. Check the connection of the Presence Sensor and the End Sensor</li> <li>4. .Replace the Cartridge with a new one</li> <li>5. Replace the Presence/Near End Sensor with a new one.</li> <li>6. Replace the Ink System PCB with a new one. (Refer to page 223 "INK SYSTEM PCB Assy")</li> <li>7. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>

No.	Message	Cause	Corrective Measures
7	<LOCAL> INK END	Ink end (No ink left)	<p>(When the message is still displayed even after a new Ink Cartridge or an empty Ink Cartridge is charged;)</p> <ol style="list-style-type: none"> <li>1. Execute and confirm [#TEST SENSOR] -&gt; [INK END] (The number meets the cartridge No.).</li> <li>2. Check the peripheral and the assembly of the End Sensor.</li> <li>3. Check the connection of the Presence Sensor and the Near End Sensor.</li> <li>4. Replace the Cartridge with a new one</li> <li>5. Replace the Presence/Near End Sensor with a new one.</li> <li>6. Replace the Ink System PCB with a new one. (Refer to page 223 "INK SYSTEM PCB Assy")</li> <li>7. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>

No.	Message	Cause	Corrective Measures
8	<LOCAL> INK NEAREND	Ink near end (A small amount of ink left)	<p>(When the message is still displayed even after a new Ink Cartridge or an empty Ink Cartridge is charged;)</p> <ol style="list-style-type: none"> <li>1. Execute and confirm [#TEST SENSOR] -&gt; [INK END] (The number meets the cartridge No.).</li> <li>2. Check the peripheral and the assembly of the End Sensor.</li> <li>3. Check the connection of the Presence Sensor and the Near End Sensor.</li> <li>4. Replace the Cartridge with a new one</li> <li>5. Replace the Presence/Near End Sensor with a new one.</li> <li>6. Replace the Ink System PCB with a new one. (Refer to page 223 "INK SYSTEM PCB Assy")</li> <li>7. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>
9	<LOCAL> CHECK INK PACK	Even if there is enough amount of ink, ink end was detected.	Check the ink pack setting status in the eco case.

No.	Message	Cause	Corrective Measures
10	<LOCAL> EXPIRATION	Some ink cartridges are expired.	<ol style="list-style-type: none"> <li>1. Check the expiration date of the ink. (If this message appears when a correct cartridge is set)</li> <li>2. Check the assembly of the ID Contact PCB and the shape of the contact plate, and execute the cleaning.</li> <li>3. Check the connection of the ID Contact PCB.</li> <li>4. Replace the Cartridge with a new one.</li> <li>5. Replace the ID Contact PCB Assy. with a new one. (Refer to page 229 "ID Contact PCB CN032 Assy")</li> <li>6. Replace the Ink System PCB with a new one. (Refer to page 223 "INK SYSTEM PCB Assy")</li> </ol>

No.	Message	Cause	Corrective Measures
11	<LOCAL> EXPIRATION(1MONTH)	Some ink cartridges are expired. (One month has passed after the expiration date.)	<ol style="list-style-type: none"> <li>1. Be careful that the expiration date is coming soon. You can use up to the next month. The red LED blinks. (If this message appears when a correct cartridge is set)</li> <li>2. Check the assembly of the ID Contact PCB and the shape of the contact plate, and execute the cleaning.</li> <li>3. Check the connection of the ID Contact PCB.</li> <li>4. Replace the Cartridge with a new one.</li> <li>5. Replace the ID Contact PCB Assy. with a new one. (Refer to page 229 "ID Contact PCB CN032 Assy")</li> <li>6. Replace the Ink System PCB with a new one. (Refer to page 223 "INK SYSTEM PCB Assy")</li> </ol>
12	<LOCAL> EXPIRATION(2MONTH)	Some ink cartridges are expired. (Two months have passed after the expiration date.)	Replace the cartridge with the warning.
Warning Messages (LOCAL)			
13	<LOCAL> Can'tPRINT/CART.[ENT]	Multiple ink errors (unusable inks) occurred. Ink supply (printing, cleaning, etc.) cannot be performed.	Press the [ENTER] key, and check the relevant cartridge and the error contents. Then replace it with a usable one.
14	<LOCAL> Check waste ink[MNT]	The count of the waste ink bottle exceeded the specified amount.	Check the waste ink bottle. Press the [MAINT] key, and correct the counter or reset it.

No.	Message	Cause	Corrective Measures
15	<LOCAL> Replace WIPER [MNT]	The count of the wiper exceeded the specified amount.	Press the [MAINT] key, and replace the wiper.
16	<LOCAL> ** NO MEDIA **	The media is not set. Or, the sensor has been broken.	1. Set the media. 2. Check the media sensor operation/ replace it.
17	<LOCAL> DATA REMAIN	Data has already been received.	Press the REMOTE key and perform printing. Or, perform data clear.
18	<LOCAL> NEGATIVE PRESSURE	The negative pressure sensor value is abnormal.	Same as ERROR61e and 61d.
19	<LOCAL> POSITIVE PRESSURE	The positive pressure sensor value is abnormal.	Same as ERROR61e and 61d.
20	<LOCAL> INK NEAR END [ENT]	Ink near end (A small amount of ink left)	Press the [ENTER] key and check the relevant cartridge. (Be careful that ink end is coming soon.)
21	<LOCAL> SUPPLY INK :MMCCYYKK	Ink filling into the damper has failed.	1. Perform [MAINTENANCE DAMPER]. 2. Also check the amount of remaining ink in the cartridge.
22	<LOCAL> DamperSens:MMCCYY KK	The liquid surface sensor abnormality of the damper has been detected.	1. Turn OFF the power supply once, and wait for a while. And then turn ON the power supply again (when it is displayed again). Same as ERROR617.
23	<LOCAL> InkOverflow:MMCCYYK	Overflow from the damper has been detected.	1. Perform [MAINTENANCE DAMPER] (when it is displayed again). Same as ERROR61a.

No.	Message	Cause	Corrective Measures
24	<LOCAL> TANKlevelH :MMCCYY KK	Even though a certain amount of ink has been consumed, there is no change in the liquid level detection sensor "High".	Perform [MAINTENANCE DAMPER] (when it is displayed again). Same as ERROR618, 619.
25	<LOCAL> TANKlevelL :MMCCYY K	Even though a certain amount of ink has been consumed, there is no change in the liquid level detection sensor "Low".	
Warning Messages (Operation)			
26	CAN'T OPERATE :MEDIA UNDETECTED	The media has not been detected.	
27	CAN'T OPERATE :MOTOR POWER OFF	The motor is OFF after the cover was opened etc.	
28	CAN'T OPERATE :INK ERROR	An ink error occurred.	
29	CAN'T OPERATE :COVER OPEN	The cover is opened.	
30	CAN'T OPERATE :DATA REMAIN	The data has been received.	

## List of SYSTEM HALT

- List of SYSTEM HALT

## RTB 13

## Corrections to this table

No.	LCD	Cause	Corrective Measures
1	SYSTEM HALT (*) 104 : +35V RECVR	35 V Power recovery error	<ol style="list-style-type: none"> <li>1. Replace the DC Power Supply (36V) PCB with a new one. (Refer to page 217 "DC Power Supply Assy (36V)")</li> <li>2. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>
2	SYSTEM HALT (*) 10e :FROM CLEAR	<p>F-ROM CLEAR error (F-ROM clear unable)</p> <p>F-ROM is not clearable on Parameter writing, FW down loading and Log clearing. (fls_secclr)</p>	<ol style="list-style-type: none"> <li>1. Execute the memory check (F-ROM) of [#TEST].</li> <li>2. Upload the parameter and initialize all parameters with [#PARAMETER].</li> <li>3. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>
3	SYSTEM HALT (*) 10f : FROM WRITE	<p>FROM WRITE error (F-ROM writing unable)</p> <p>F-ROM is not clearable on Parameter writing, FW down loading and Log clearing. (fls_secclr)</p>	<ol style="list-style-type: none"> <li>1. Execute the memory check (F-ROM) of [#TEST].</li> <li>2. Upload the parameter and initialize all parameters with [#PARAMETER].</li> <li>3. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>
4	SYSTEM HALT (*) 110 : PCB KEY	No Keyboard PCB	<ol style="list-style-type: none"> <li>1. Check the connections between the Keyboard PCB and the MAIN PCB and then disconnect and connect the FFCs.</li> <li>2. Replace the FFCs of the above routes.</li> <li>3. Replace the Keyboard PCB with a new one.</li> <li>4. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>

No.	LCD	Cause	Corrective Measures
5	SYSTEM HALT (*) 11f: PCB SLIDER	No Slider PCB.	
6	SYSTEM HALT (*) 120: LCD THERM.	LCD thermistor IC RW error	<ol style="list-style-type: none"> <li>1. Check the connections between the Keyboard PCB and the MAIN PCB, and then disconnect and connect the FFCs.</li> <li>2. Replace the FFCs and the cables of the above routes.</li> <li>3. Replace the Keyboard PCB with a new one.</li> <li>4. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> <li>5. Replace the DC Power Supply (5V) with a new one. (Refer to page 209 "DC Power Supply Assy (5V)")</li> </ol>
7	SYSTEM HALT (*) 122: PRAM NONE	No PRAM	<ol style="list-style-type: none"> <li>1. Update F/W.</li> <li>2. Replace the PRAM PCB with a new one. (Refer to page 220 "DDR2PRAM (1GB) Assy")</li> </ol>
8	SYSTEM HALT (*) 123: PRAM DATA	PRAM data error	<ol style="list-style-type: none"> <li>3. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>
9	SYSTEM HALT (*) 124: PRAM ADDR	PRAM address error	

No.	LCD	Cause	Corrective Measures
10	SYSTEM HALT (*) 125 : EEPROM READ	EEPROM read trouble CIO Register (EER:Address 74) bit6	<ol style="list-style-type: none"> <li>1. Update F/W.</li> <li>2. Upload the parameter and initialize parameter with #PARAMETER.</li> </ol>
11	SYSTEM HALT (*) 126 : EEPROM WR	EEPROM write trouble CIO Register (EER:Address 74) bit7	<ol style="list-style-type: none"> <li>3. Check the connection state between MAIN PCB - Central-IO PCB.</li> <li>4. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> <li>5. Replace the Central-IO PCB with a new one. (Refer to page 225)</li> </ol>
12	SYSTEM HALT (*) 127 : POWER OFF	Power OFF detection error (Not to OFF) Power OFF process is conducted in the Power ON/OFF control without pushing down the operation SW.	<ol style="list-style-type: none"> <li>1. Check the connection state between operation SW and Keyboard PCB.</li> <li>2. Check the connections between the Keyboard PCB and the MAIN PCB, and then disconnect and connect the FFCs.</li> <li>3. Check the connector connection of DC Power Supply (36V).</li> <li>4. Check if there is no error on the power path from the AC Inlet.</li> <li>5. Replace the DC Power Supply (36V) with a new one. (Refer to page 217 "DC Power Supply Assy (36V)")</li> <li>6. Replace the Keyboard PCB with a new one.</li> <li>7. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>

No.	LCD	Cause	Corrective Measures
13	SYSTEM HALT (*) 147 : DS-IC BUSY	DALLAS IC BUSY error	<ol style="list-style-type: none"> <li>1. Check connection of the ID Contact PCB connection cable and damage of the cable.</li> <li>2. Try to use a different cartridge.</li> <li>3. Replace the ID Contact PCB Assy. with a new one. (Refer to page 229 "ID Contact PCB CN032 Assy")</li> <li>4. Replace the INK SYSTEM PCB with a new one. (Refer to page 223 "INK SYSTEM PCB Assy")</li> </ol>
14	SYSTEM HALT (*) 15d : MAIN FPC-1	30pinFPC 1 of MAIN PCB connect error	<ol style="list-style-type: none"> <li>1. Check the connections between the HDC PCB and the MAIN PCB, and then disconnect and connect the FFCs.</li> <li>2. Replace the FFCs of the above routes.</li> <li>3. Replace the HDC PCB with a new one. (Refer to page 212 "HDC PCB Assy")</li> <li>4. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>

No.	LCD	Cause	Corrective Measures
15	SYSTEM HALT (*) 160 : PCB MAIN-F5	MAIN PCB fuse (F5) disconnected. PDC IPORT Register bit20 : ON	Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")  Before MAIN PCB replace, do the following checks.
16	SYSTEM HALT (*) 161 : PCB MAIN-F6	MAIN PCB fuse (F6) disconnected. PDC IPORT Register bit21 : ON	<ol style="list-style-type: none"> <li>1. Check the connections between the Central-IO PCB and the MAIN PCB, and then disconnect and connect the FFC and cable.</li> <li>2. Check short between 1 pin and 4 pin of CN1, and between 1 pin and 9 pin of CN11 of the Central-IO PCB. (If shorted out, replace also the Central-IO PCB.)</li> </ol>
17	SYSTEM HALT (*) 17e : PCB IIO1	No INK-IO1 PCB An error occurred at serial communication check after configuration.	<ol style="list-style-type: none"> <li>1. Check the connections between the INK SYSTEM PCB and the Central-IO PCB and then disconnect and connect the FFC.</li> <li>2. Replace the FFC of the above routes.</li> <li>3. Replace the INK SYSTEM PCB with a new one. (Refer to page 223 "INK SYSTEM PCB Assy")</li> <li>4. Replace the Central-IO PCB with a new one. (Refer to page 225 "Central-IO PCB Assy")</li> </ol>

No.	LCD	Cause	Corrective Measures
18	SYSTEM HALT (*) 181 : PCB H21	No HDC1 PCB An error occurred at serial communication check after configuration.	<ol style="list-style-type: none"> <li>1. Check the connections between the HDC PCB and the MAIN PCB and then disconnect and connect the FFC.</li> <li>2. Replace the FFC and cable of the above routes.</li> <li>3. Replace the HDC PCB with a new one. (Refer to page 212 "HDC PCB Assy")</li> <li>4. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>
19	SYSTEM HALT (*) 185 : PCB LED	No INK LED PCB	<ol style="list-style-type: none"> <li>1. Check the connections between the INK LED PCB and the INK SYSTEM PCB and then disconnect and connect the FFC.</li> <li>2. Replace the FFC of the above routes.</li> <li>3. Replace the INK LED PCB with a new one. (Refer to page 226 "INK LED PCB Assy")</li> <li>4. Replace the INK SYSTEM PCB with a new one. (Refer to page 223 "INK SYSTEM PCB Assy")</li> </ol>
20	SYSTEM HALT (*) 303 : PCB MAIN ET	MAIN PCB Ethernet IC trouble	<ol style="list-style-type: none"> <li>1. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>

No.	LCD	Cause	Corrective Measures
21	SYSTEM HALT (*) 406 : WIPER ORG	Wiper origin undetectable	<ol style="list-style-type: none"> <li>1. Execute and confirm [#TEST SENSOR TEST] -&gt; [WIPER-ORG]. (Confirm that the ON/OFF display is switched by moving the wiper back and forth.)</li> <li>2. Check that the wiper moves back and forth smoothly in manual.</li> <li>3. Check the assembly and connector connection of Wiper Origin Sensor.</li> <li>4. Check the connector connection of Y-origin Sensor</li> <li>5. Check the connections between the Central-IO PCB and the MAIN PCB, and then disconnect and connect the FFC.</li> <li>6. Replace the Wiper Back/ Forth Origin Sensor with a new one.</li> <li>7. Replace the Wiper Motor with a new one.</li> <li>8. Re place the e FFC located between the Central-IO PCB and the MAIN PCB.</li> <li>9. Replace the Central-IO PCB with a new one. (Refer to page 225 "Central-IO PCB Assy")</li> </ol>

No.	LCD	Cause	Corrective Measures
22	SYSTEM HALT (*) 40b : UN MAGNETIC	DC motor is driving without excited	<ol style="list-style-type: none"> <li>1. Update F/W.</li> <li>2. Upload the parameter and initialize parameter with #PARAMETER.</li> <li>3. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>
23	SYSTEM HALT (*) 502 : Y ORGIN	Y Origin Sensor error	<ol style="list-style-type: none"> <li>1. Execute and confirm [#TEST SENSOR TEST] -&gt; [Y-ORG]. (Confirm that the ON/OFF display is switched by moving the carriage left and right.)</li> <li>2. Check in manual if the carriage moves left and right smoothly.</li> <li>3. Check the connector connection of Y-origin Sensor and then disconnect and connect the cable.</li> <li>4. Replace the Y Origin Sensor with a new one.</li> <li>5. Check if there is no trouble on the Y Motor Cable. (disconnecting, burnout, or the like)</li> <li>6. Replace the Y-axis motor with a new one. (Refer to page 192 "Y-axis Motor")</li> <li>7. Replace the HDC PCB with a new one. (Refer to page 212 "HDC PCB Assy")</li> <li>8. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>

No.	LCD	Cause	Corrective Measures
24	SYSTEM HALT (*) 509 : HDC POSCNT	HDC position counter error	<ol style="list-style-type: none"> <li>1. [Execute and confirm [#TEST SENSOR TEST] -&gt; [Y-ORG]. (Confirm that the ON/OFF display is switched by moving the carriage left and right.)</li> <li>2. Execute [#TEST CHECK ENCODER].</li> <li>3. Check the assembly of Y-scale, and confirm that there is neither dirt nor scratch.</li> <li>4. Check in manual if the Head Assy. (carriage) moves left and right smoothly.</li> <li>5. Check the connector connection of Y-origin Sensor and Linear Encoder.</li> <li>6. Replace the Y-origin Sensor or Linear Encoder with a new one.</li> <li>7. Check the assembly and connector connection of Y-axes Motor.</li> <li>8. Replace the Y-axis Motor with a new one. (Refer to page 192 "Y-axis Motor")</li> <li>9. Replace the HDC PCB with a new one. (Refer to page 212 "HDC PCB Assy")</li> <li>10. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>

No.	LCD	Cause	Corrective Measures
25	SYSTEM HALT (*) 801 : (C)OPCODE	System error (CPU exception: OP code error)	<ol style="list-style-type: none"> <li>1. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> <li>2. Replace the DC Power Supply (5V) with a new one. (Refer to page 209 "DC Power Supply Assy (5V)")</li> </ol>
26	SYSTEM HALT (*) 802 : (C)SLOT	System error (CPU exception: Slot instruction error)	
27	SYSTEM HALT (*) 803 : (C)CPU ADDR	System error (CPU exception: CPU address error)	
28	SYSTEM HALT (*) 804 : (C)DMA ADDR	System error (CPU exception: DMA address error)	
29	SYSTEM HALT (*) 805 : (C)ZERO DIV	System error (CPU exception: Division by 0)	

No.	LCD	Cause	Corrective Measures
30	SYSTEM HALT (*) 806 : FW/SIO bit	FW error (Serial control F/W error (bit control))  The area where the registration data shall be cashed cannot be found. (It is not registered.)  The errors of 800s below are "FW error".	1. Update F/W. 2. Check and clear the parameter. 3. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")
31	SYSTEM HALT (*) 807 : FW/SIO wbsy	FW error (Serial control F/W error (WR BUSY))	
32	SYSTEM HALT (*) 808 : FW/STP-MTR	FW error (Step Motor stop waiting)	
33	SYSTEM HALT (*) 809 : FW/XY param	FW error (XY-axis Motor resolution conversion parameter error)	
34	SYSTEM HALT (*) 80a : FW/Y RANGE	FW error (Y movable range error)	

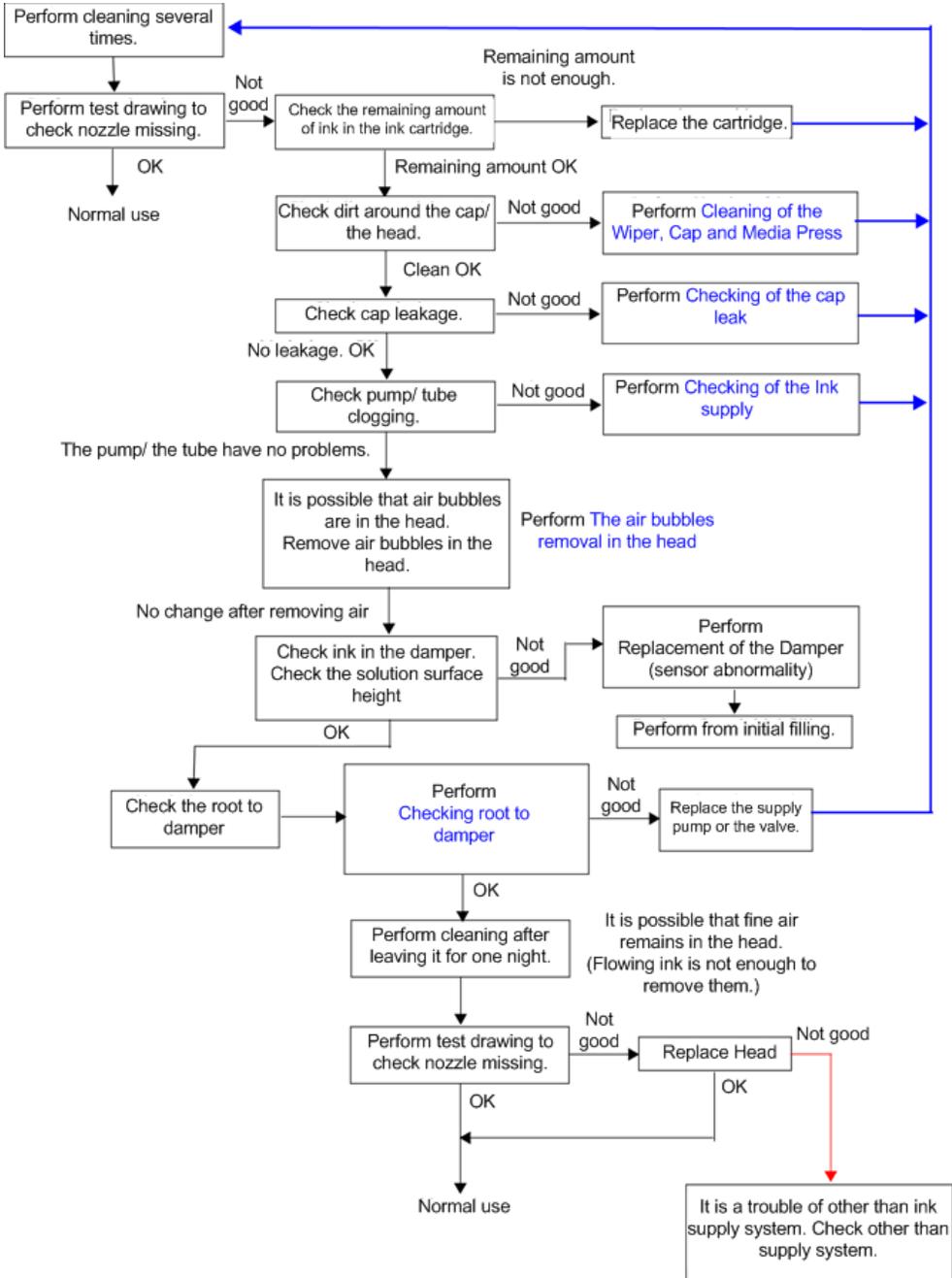
No.	LCD	Cause	Corrective Measures
35	SYSTEM HALT (*) 80b : FW/ctrltsk	FW error (Motor control task error)	<ol style="list-style-type: none"> <li>1. Update F/W.</li> <li>2. Check and clear the parameter.</li> <li>3. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>
36	SYSTEM HALT (*) 80c : FW/PUMP W	FW error (Suction Pump stop waiting time over at capping)	
37	SYSTEM HALT (*) 80d : FW/SERVO IT	FW error (Servo interruption error)	
38	SYSTEM HALT (*) 80e : FW/FROM prm	FW error (FROM PARAM error (F/W BUG))	
39	SYSTEM HALT (*) 80f : FW/SIO vch	FW error (Virtual serial CH setting error)	
40	SYSTEM HALT (*) 810 : FW/KEY RDI	FW error (No keyboard RDI)	

No.	LCD	Cause	Corrective Measures
41	SYSTEM HALT (*) 811 : FW/SIO read	FW error (Serial control F/W error (RD BUSY))	<ol style="list-style-type: none"> <li>1. Update F/W.</li> <li>2. Check and clear the parameter.</li> <li>3. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>
42	SYSTEM HALT (*) 812 : FW/CRTRG NO	FW error (Cartridge number error)	
43	SYSTEM HALT (*) 813 : FW/WIPER RN	FW error (Wiper operation range error)	
44	SYSTEM HALT (*) 814 : FW/drivinfm	FW error (drivinfm) information obtaining error	
45	SYSTEM HALT (*) 815 : FW/SIO rsrc	FW error (Serial control F/W error (material control))	
46	SYSTEM HALT (*) 816 : FW/FROM WRC	FW error (FROM write control error)	
47	SYSTEM HALT (*) 817 : FW/SaveArea	FW error (Save area error (size over))	
48	SYSTEM HALT (*) 818 : FW/EEP SIZE	FW error (EEPROM size over)	
49	SYSTEM HALT (*) 819 : FW/HROM SIZ	FW error (HDROM size over)	
50	SYSTEM HALT (*) 81a : FW/FROM SIZ	FW error (FROM size over)	
51	SYSTEM HALT (*) 81b : FW/STACK OV	FW error (STACK OVER)	<ol style="list-style-type: none"> <li>1. Update F/W.</li> <li>2. Check and clear the parameter.</li> <li>3. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li> </ol>

No.	LCD	Cause	Corrective Measures
52	SYSTEM HALT (*) 000 : UNNOWN ERR	Unnown error	<ol style="list-style-type: none"><li>1. Update F/W.</li><li>2. Check and clear the parameter.</li><li>3. Replace the MAIN PCB with a new one. (Refer to page 210 "Main PCB Assy")</li></ol>

# Detailed Methods of Coping with the Malfunctions

## Sorting process sheet of ink supply system's troubles



w\_m1522151

## Cleaning of the Wiper, Cap and Media Press

- Outline

If nozzle missing occurs, the nozzle surface may be dirty.

Dirt on the wiper, the cap or the media press may affect, therefore, cleaning method of each part is explained here.

- 1) If ink adheres to the wiper, it may damage the head.
- 2) If lip part of the cap has dirt, it may cause cap leakage.
- 3) If there are pieces of media adhering to the media press, the head may be stained.

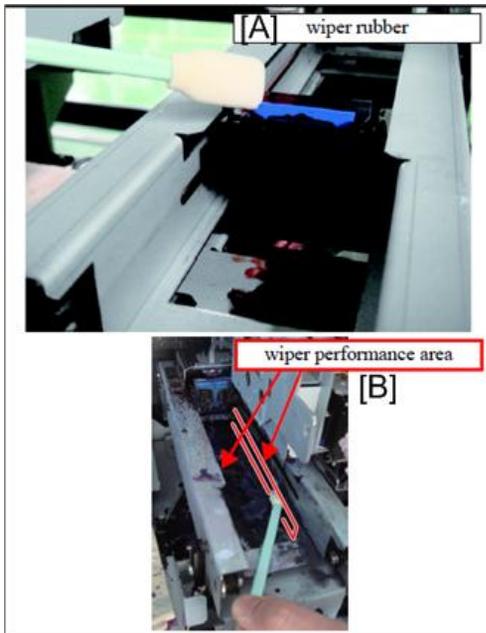
- Work procedures

### ★ Important

- Do not wipe the nozzle surface with “cleaning solution 01 (B type)” used here.

### Cleaning of the wiper

1. Immerse a clean stick in “cleaning solution 01 (B type)”, and clean the wiper rubber [A] and wiper performance area [B] (=groove, shown in left figure).
2. Wipe cleaning solution with a dry cloth.



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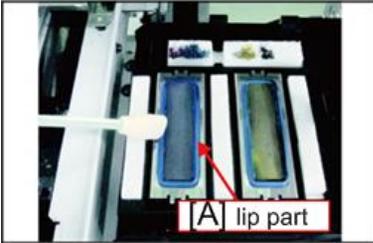
### ★ Important

- Fully wipe cleaning solution so that it may not adhere to the head.

### Cleaning of the cap

1. Immerse a clean stick in “cleaning solution 01 (B type)”, and clean the lip part [A] of the cap.
2. Wipe cleaning solution with a dry cloth.

□ Cleaning of the cap



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#### ★ Important

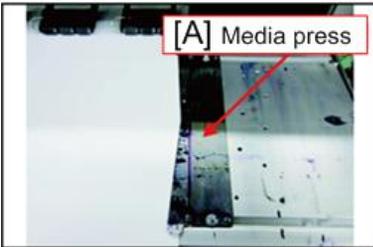
- Fully wipe cleaning solution so that it may not adhere to the head.

### Cleaning of Media press

1. Clean the media press [A] with an unwoven cloth etc.

Remove pieces of media and ink dirt.

□ Cleaning of Media press



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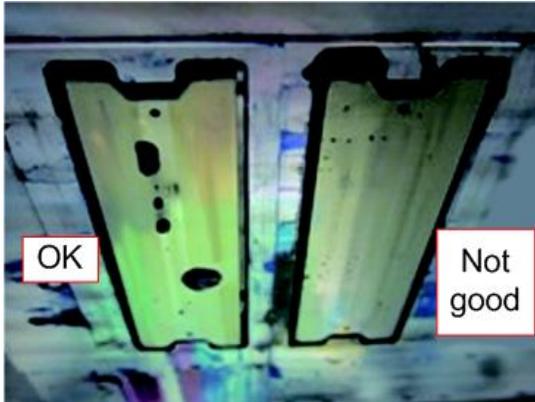
### Checking of the cap leak

- Outline  
Check whether air tightness of the cap is enough when nozzle missing occurs due to ink suction defect.
- Work procedures
  - How to see if suction defect occurs

**1. Perform cleaning by cap suction, and observe the head surface before wiping.**

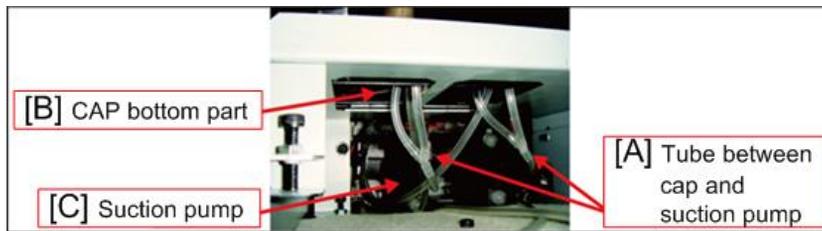
OK: If the head surface has ink drops, no cap leakage occurs.

Not good: If the head surface is clean, ink suction cannot be performed. Recheck leakage.



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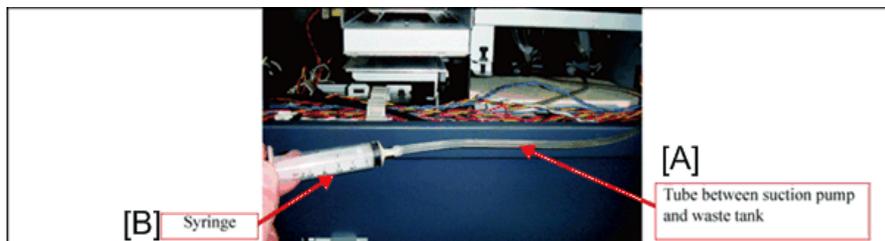
**2. Check that piping [A] between the cap [B] and the suction pump [C] is surely connected.**



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**3. Turn ON the power supply, and make the status capped.**

**4. Remove the top edge of the tube between the suction pump and the waste ink bottle [A], and connect the syringe [B].**



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**5. Pull out the connected syringe slowly. As a reference, pull out about one scale per one second.**

(If you pull out it swiftly, you cannot check leakage.)

**★ Important**

- **Do not push the syringe. It may push foreign object into the nozzle, and it may cause nozzle defect.**

If ink in the damper becomes less, fill ink into the damper with the solution sending pump.

- Criteria for judgment

OK: If you feel a good response when pulling the syringe (You can feel that you are pulled back.)

The cap is OK. Check other supply system.

Perform the work by following the “Sorting process sheet of ink supply system’s troubles”.

NG: If you do not feel a good response when pulling the syringe (You can pull easily.)

Cap leakage occurs. Check the cap and the cap position.

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## Checking of the Ink supply

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- Outline

The items to be checked when nozzle missing occurs due to ink supply abnormality (lack of ink supply) are described below.

Especially, you should check the abnormality of the ink supply pump.

- Items to be checked

- Check that there is no abnormality on the ink supply pump.

Even if ink remains in the cartridge, when the liquid surface sensor of the damper indicates “Low”, ink supply has not been performed normally.

In such a case, it is considered that the ink supply pump has an abnormality.

(However, it is assumed that there is no abnormality in the liquid surface sensor of the damper.)

- Measures

Change Ink supply pump.

Refer to Replacement of the Ink Supply Pump

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## The air bubbles removal in the head

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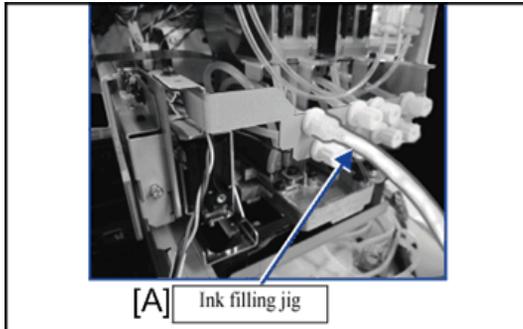
- Outline

If there are air bubbles in the head, it cannot recover by the normal cleaning in some cases.

Perform air purge with the procedures below:

- Work procedures

1. Remove the following covers.
  1. Right maintenance cover U
  2. Right maintenance cover C
  3. Head cover
2. Perform [#MAINTENANCE -> AIR PG].
3. According to a screen, connect the ink filling jig [A] to the air purge port of printing head.



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4. Perform air purge operation, and check that air comes into the ink filling jig.
5. Visually check that there is no air bubble in the path, and stop air purge operation.
6. Cleaning is carried out.

## Checking root to damper

- Outline
 

Check that the valve and the pump operate normally in the path between the cartridge and the damper.
- Work procedures
  1. Open the cartridge valve to release the pump.
 

If the cartridge is not inserted, or, the cartridge is empty, air bubbles occur in the path. Therefore, open the valve of the cartridge currently used.
  2. From the tube before the damper, pull with the syringe.
 

If you can pull it, the valve is normal.
  3. From the tube before the damper, perform pump solution sending.
 

If you can do it, the pump is normal.

## Maintenance check

- Outline

Because of dirt on the maintenance structure, maintenance of the head and the carriage may be not enough. It may cause ink drops in some cases.

The Items to be checked are as below:

- Checking items

- 1. First, check that wiping has been surely performed, and check that the head surface after cleaning has no dirt.**

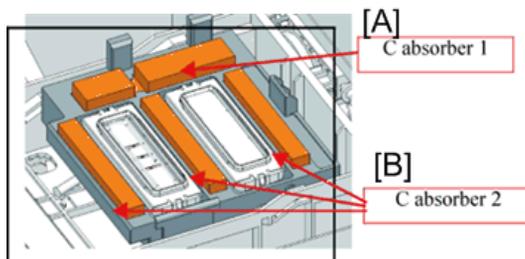
If wiping has not been performed properly, clean the wiper, the head and the cap, and check the capping position.

For details, refer to Cleaning of the Wiper, Cap and Media Press

- Large ink drops of mixed colors occur.

- 2. It is possible that blowing spatter of the wiper adheres to the carriage rear surface. Clean the carriage rear surface.**

- 3. Replace the C absorber1 [A] and the C absorber 2 [B].**



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Small ink drops of the specified color occur at the dark printing part.

- 4. Dust may adhere to the nozzle surface, the wiper and the cap. Clean them. (They may be invisible.)**

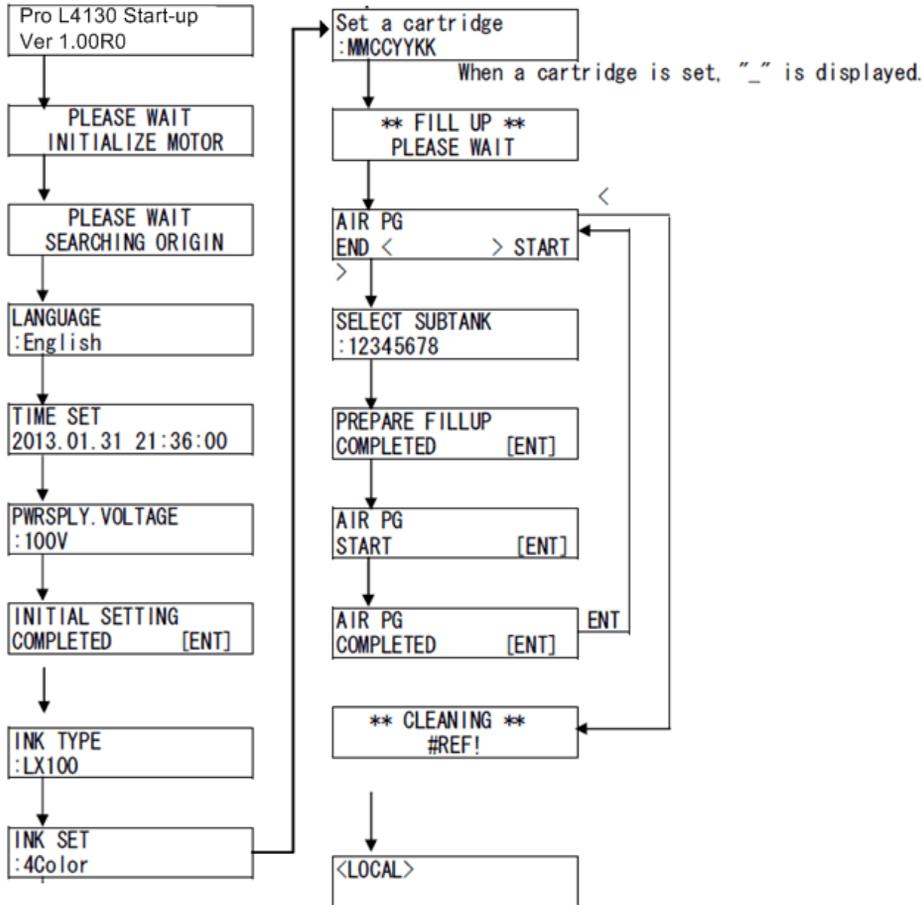
- 5. Clean the media press.**

Large ink drops of the specified color occur.

- 6. Check the damper. Replace the damper.**

# Basic Operation

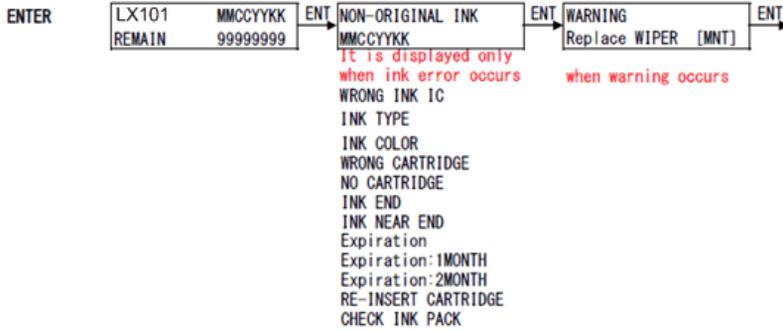
## Start Up



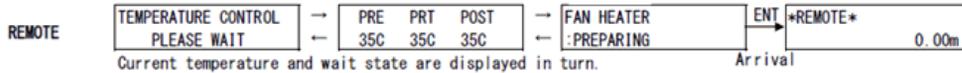
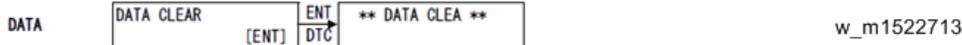
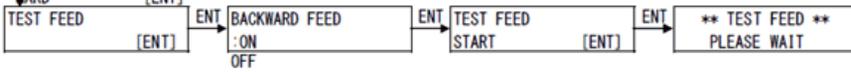
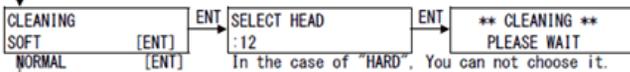
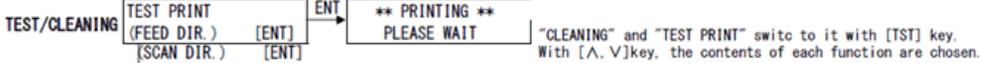
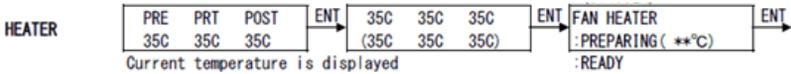
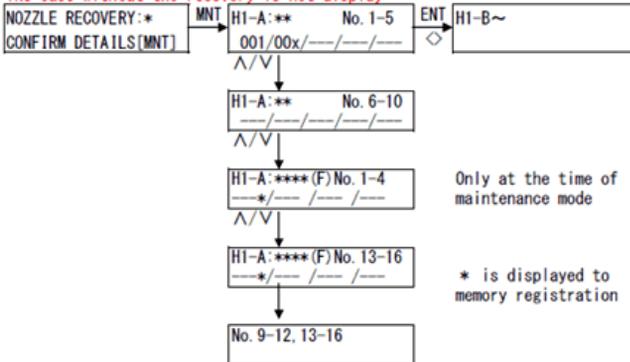
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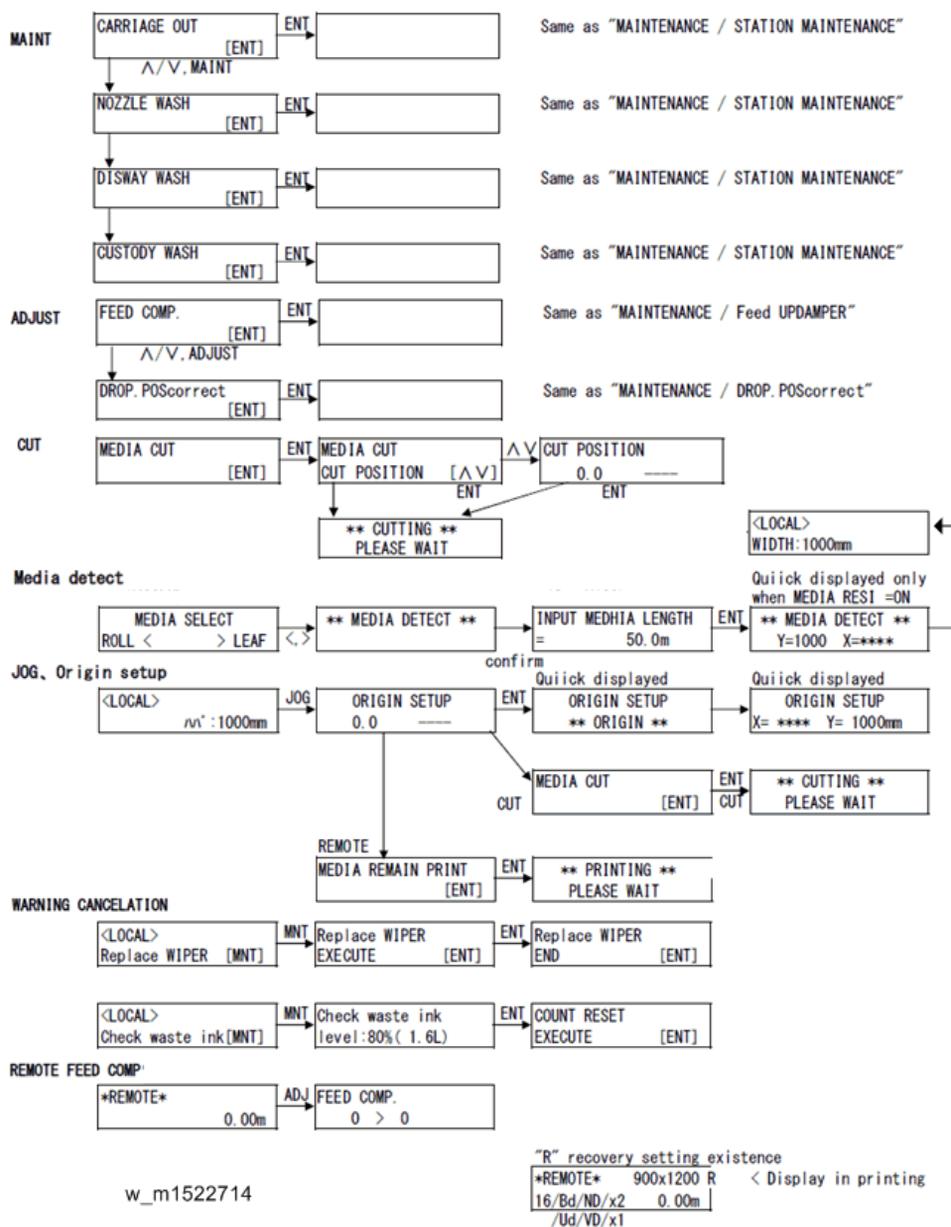
# Print Mode

## LOCAL



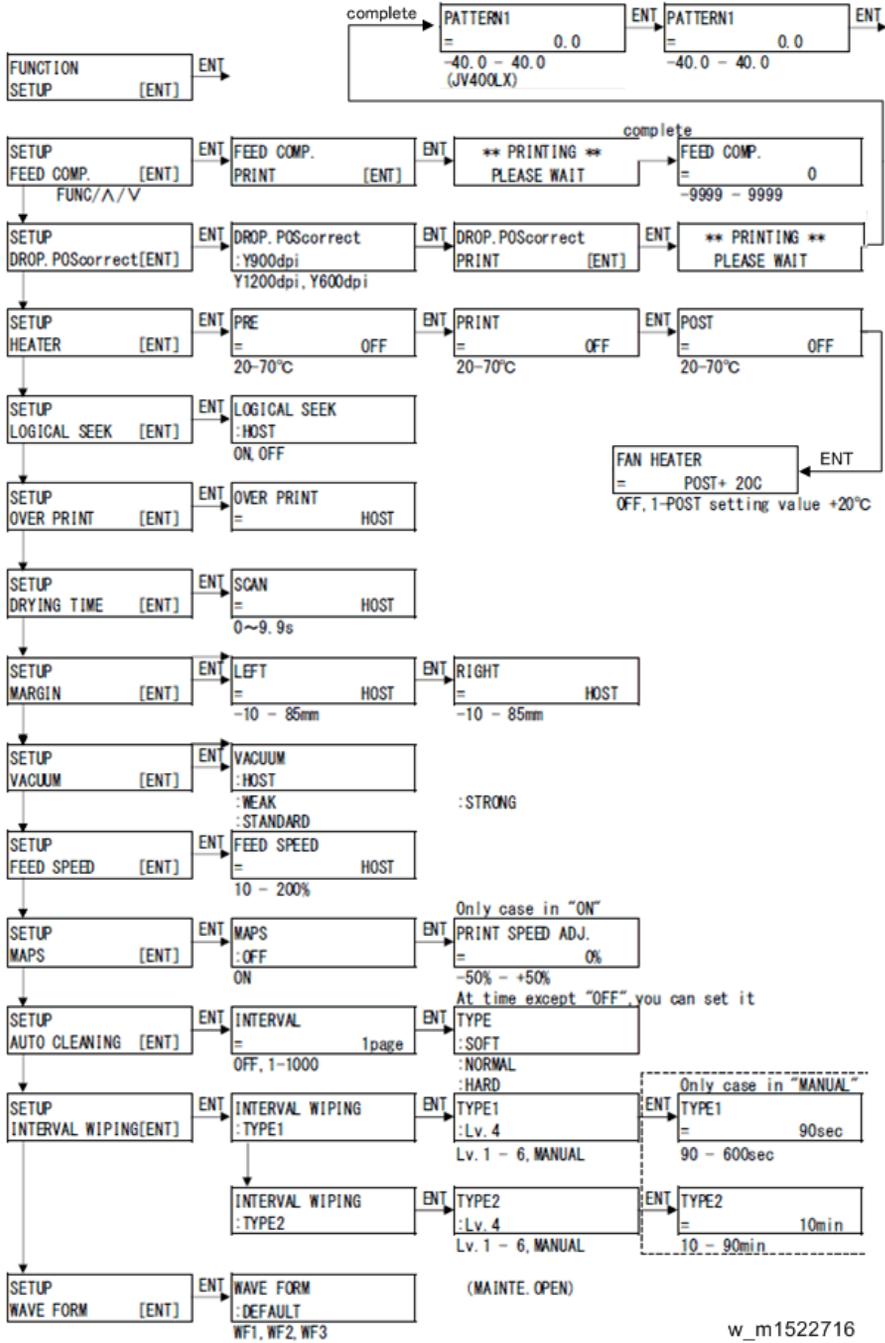
The case without the recovery is not display



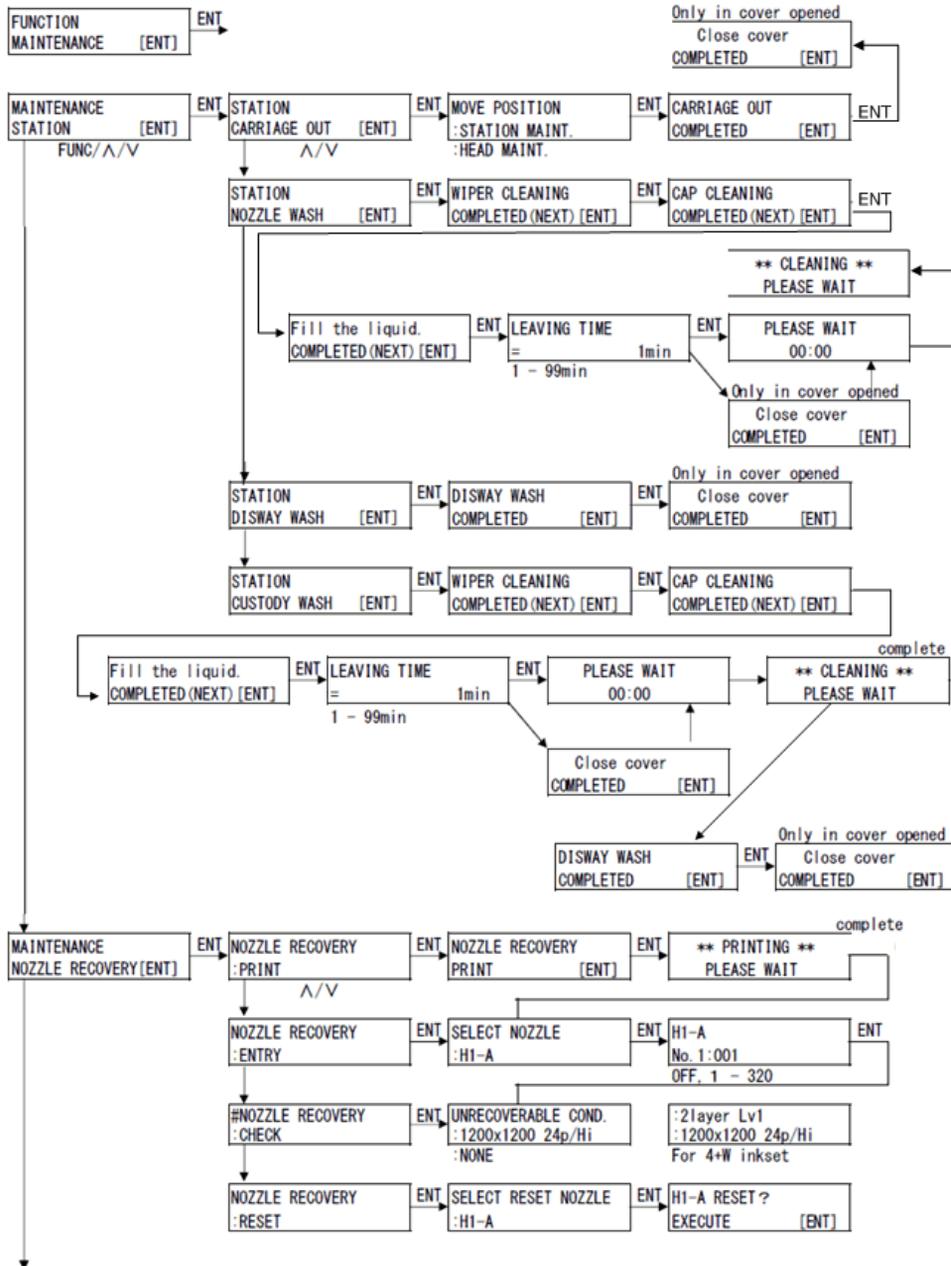


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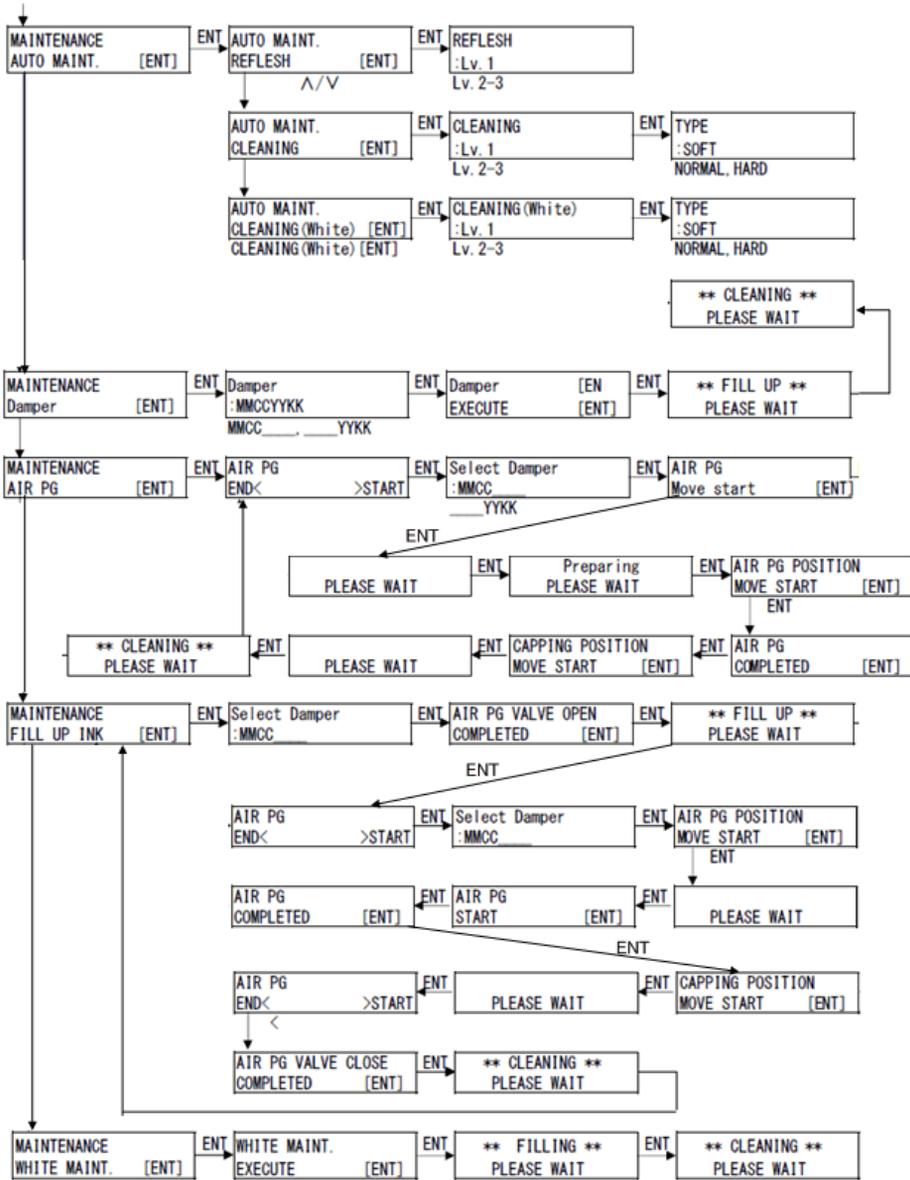
# SETUP



## MAINTENANCE

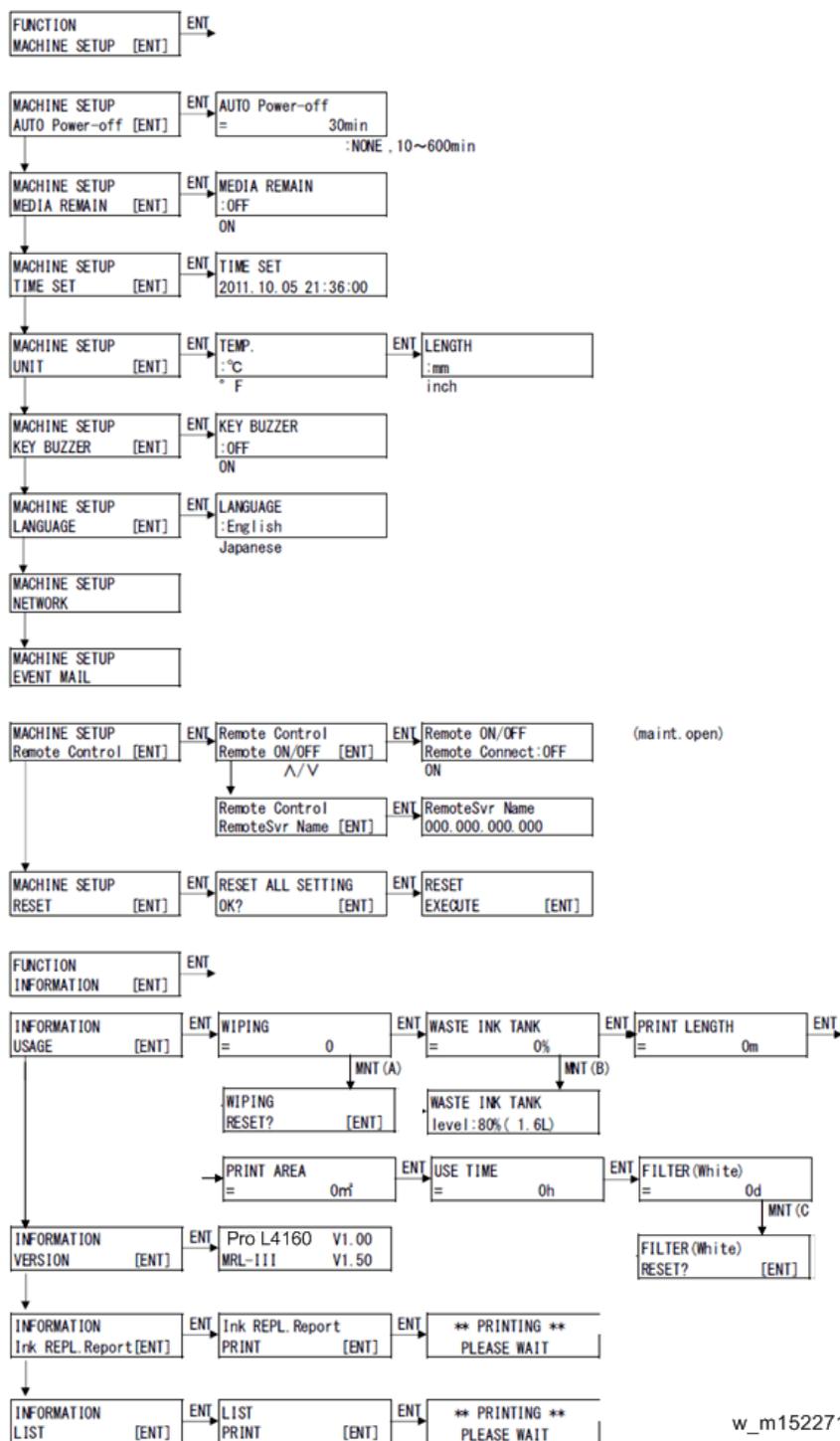


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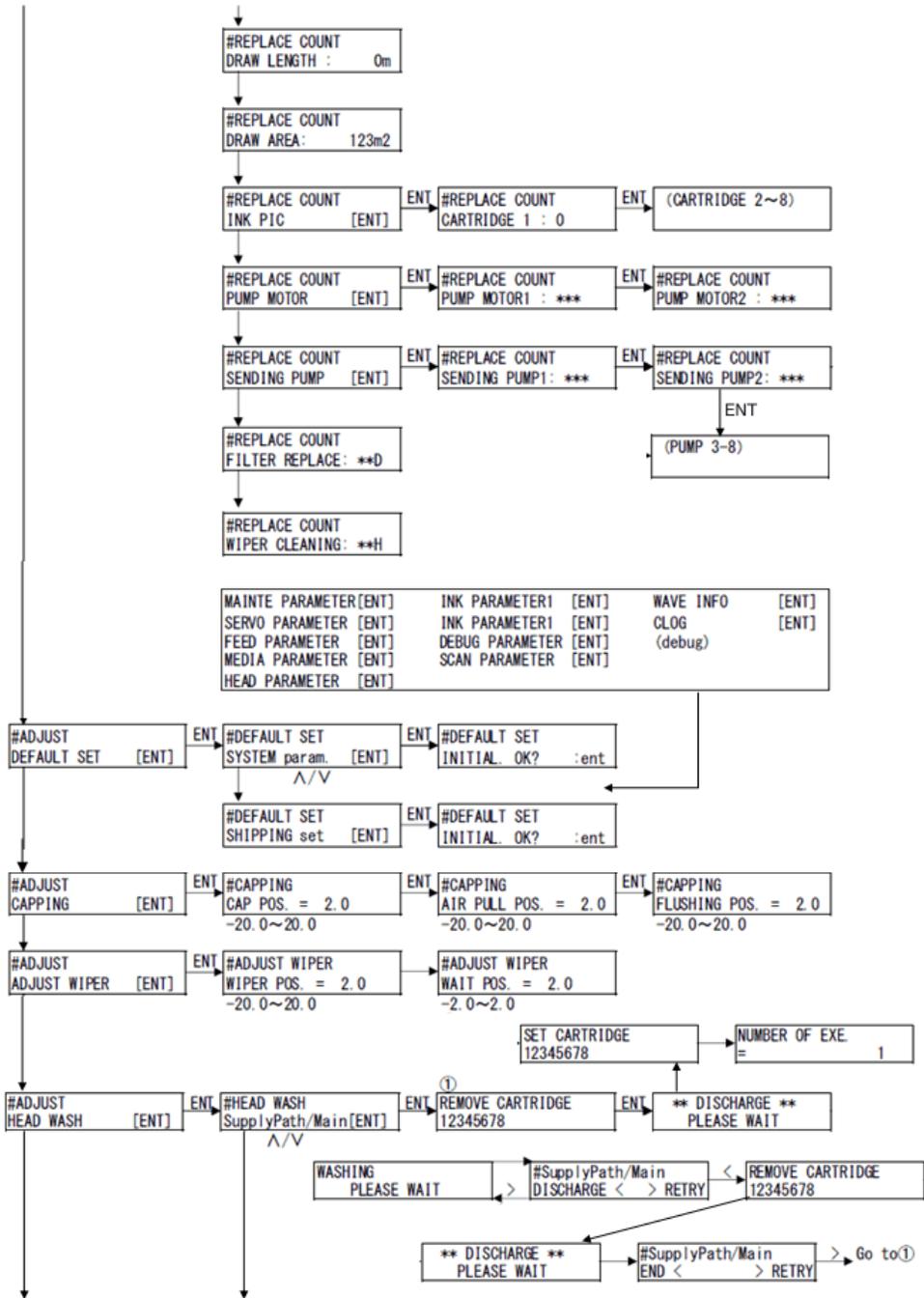
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## MACHINE SETUP

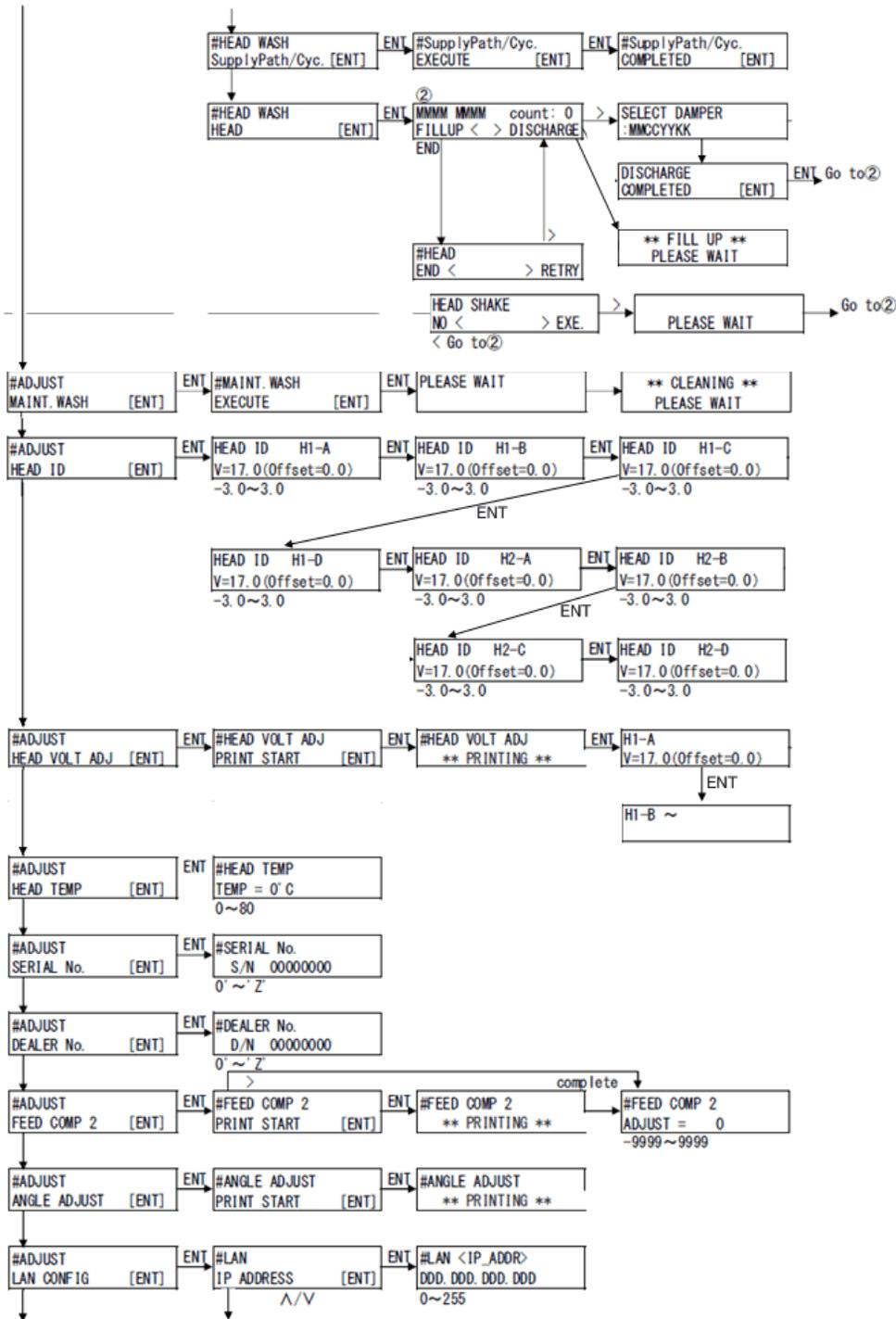


## Service Mode



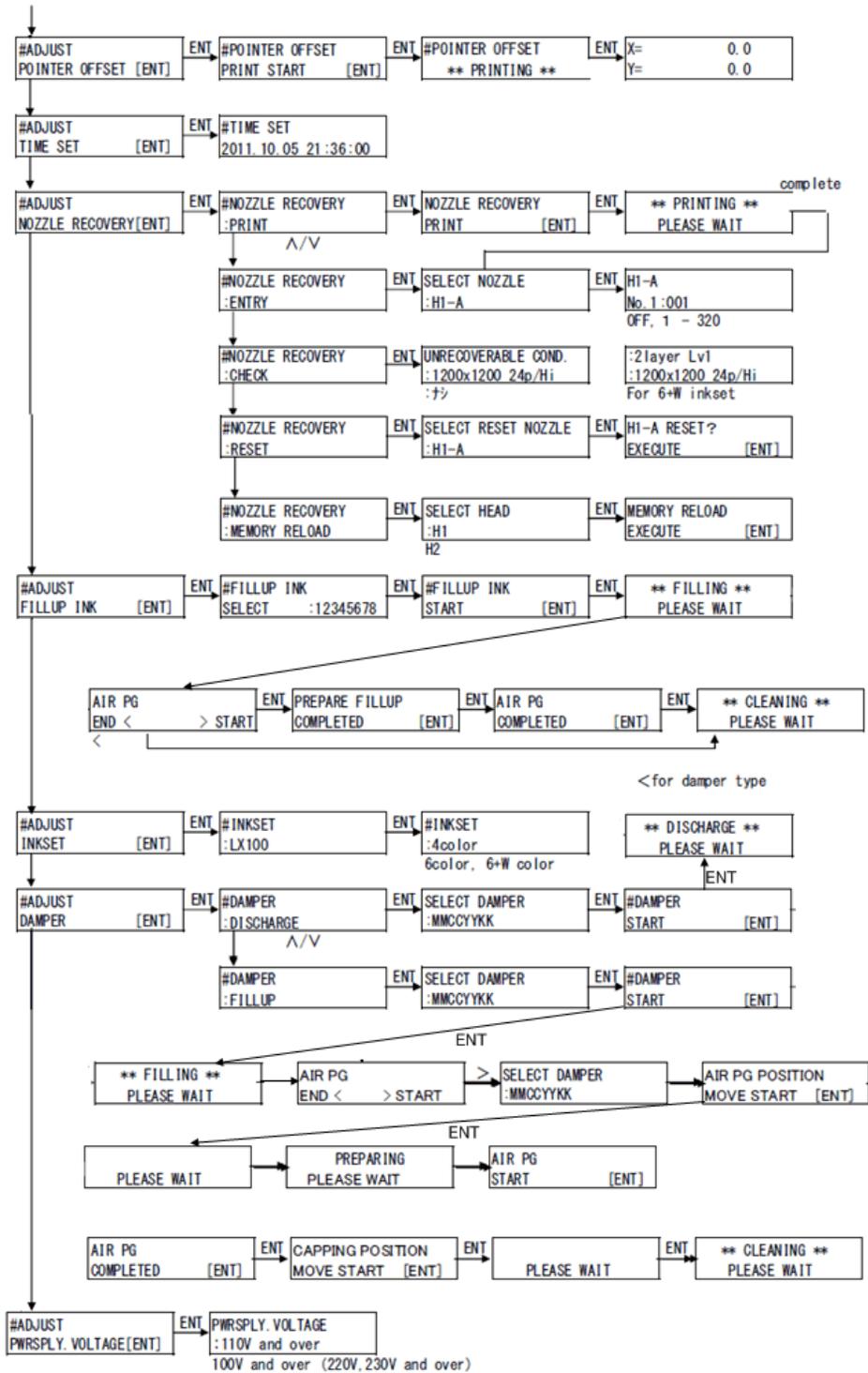


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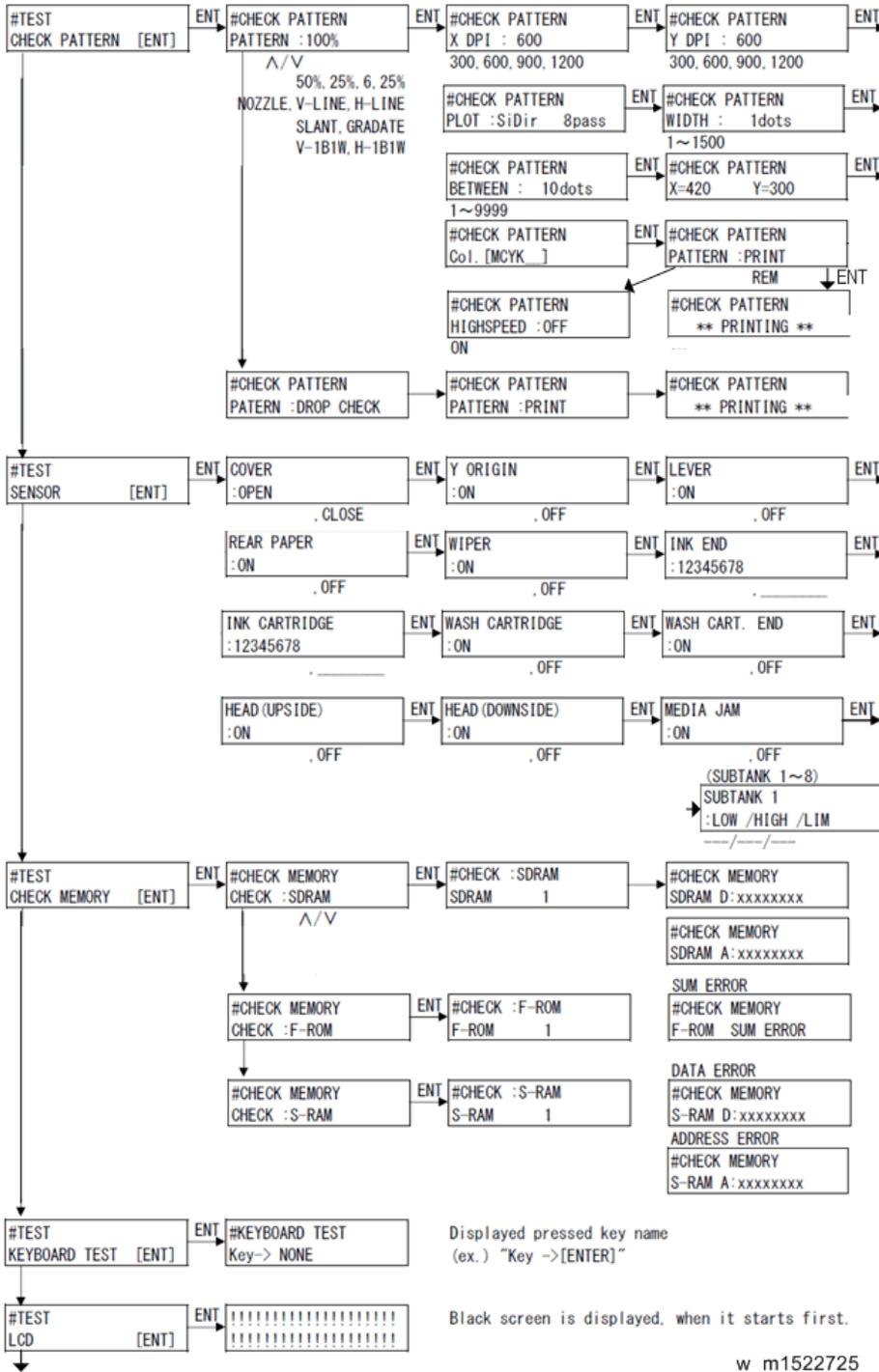
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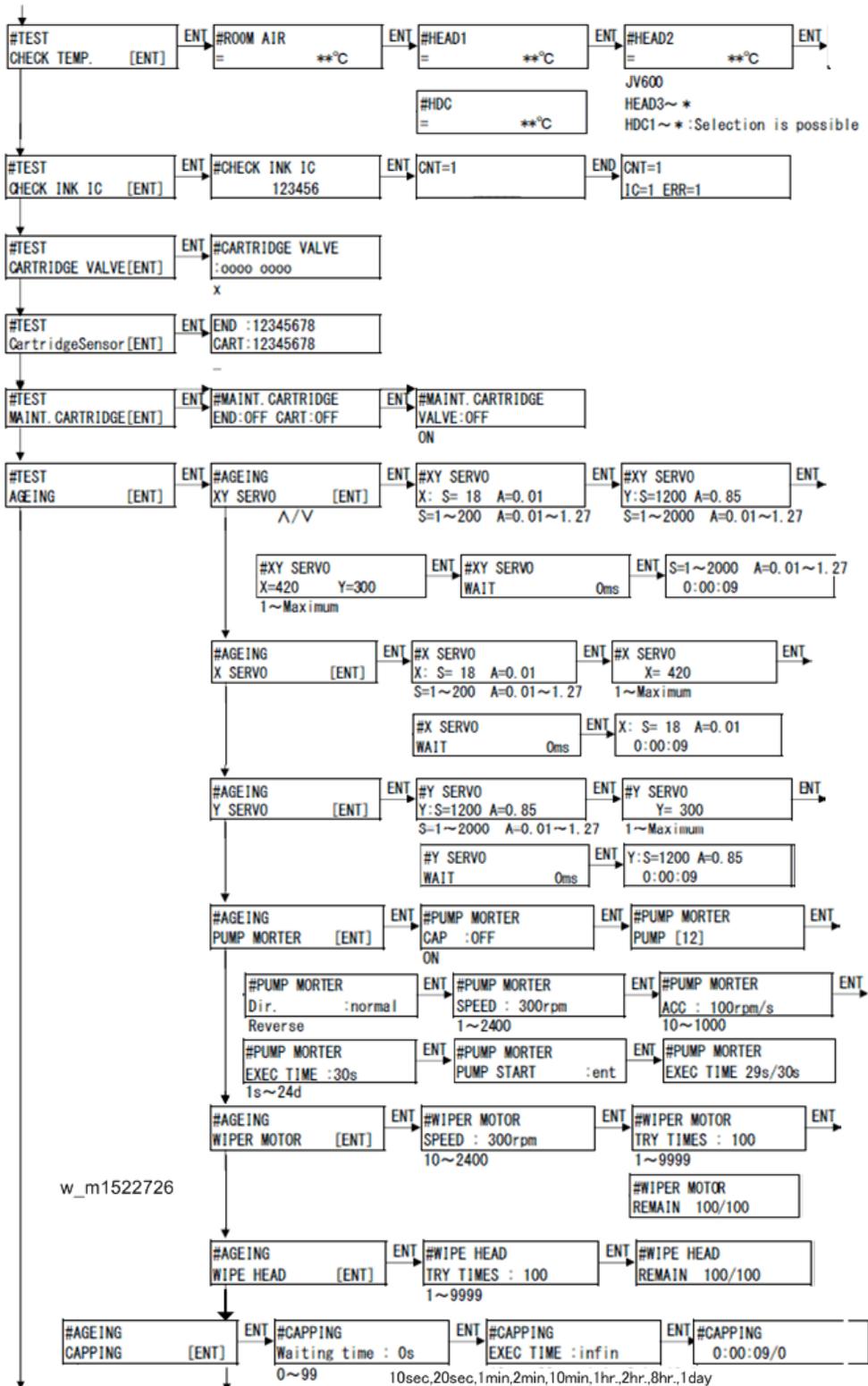


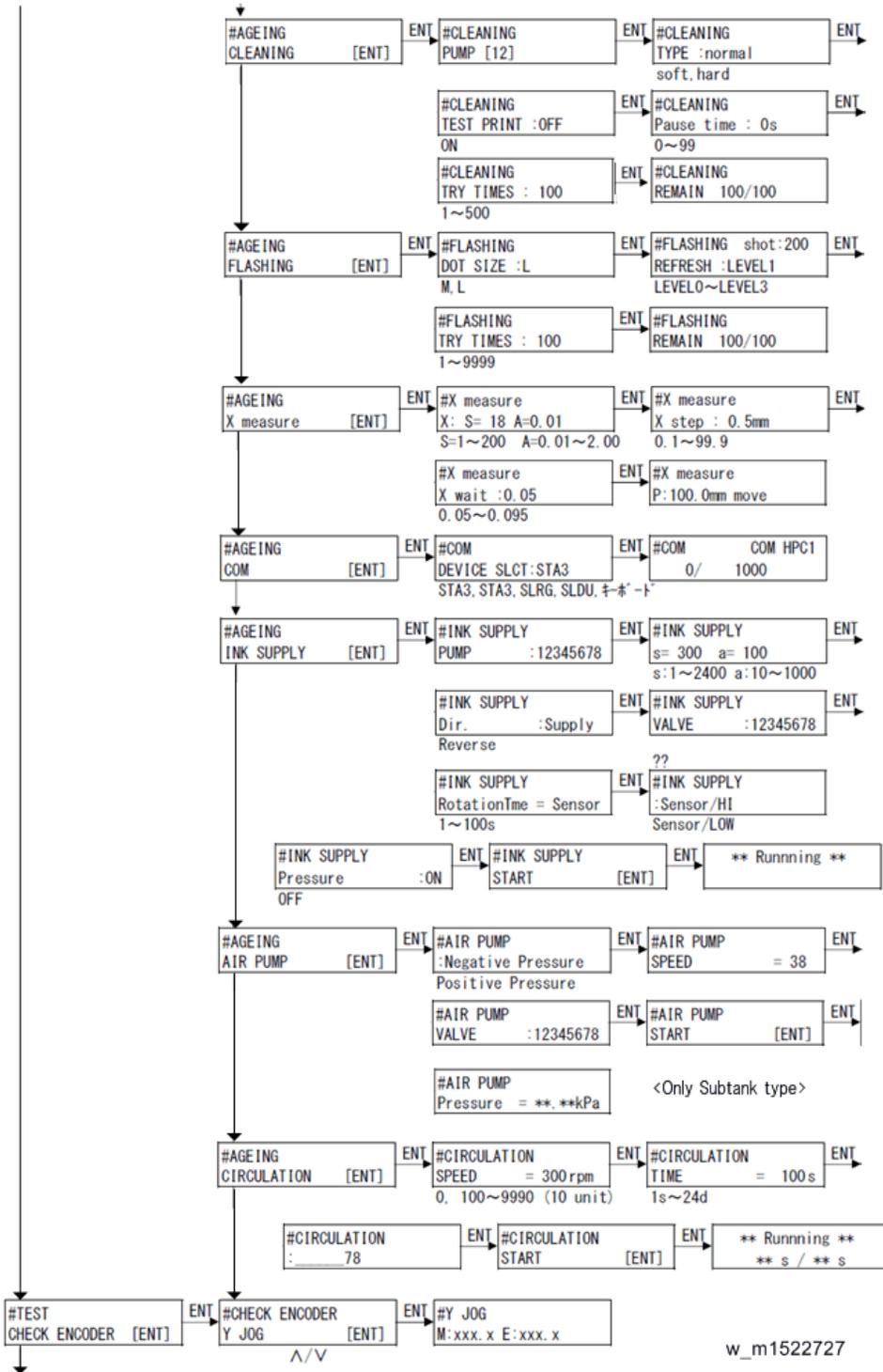


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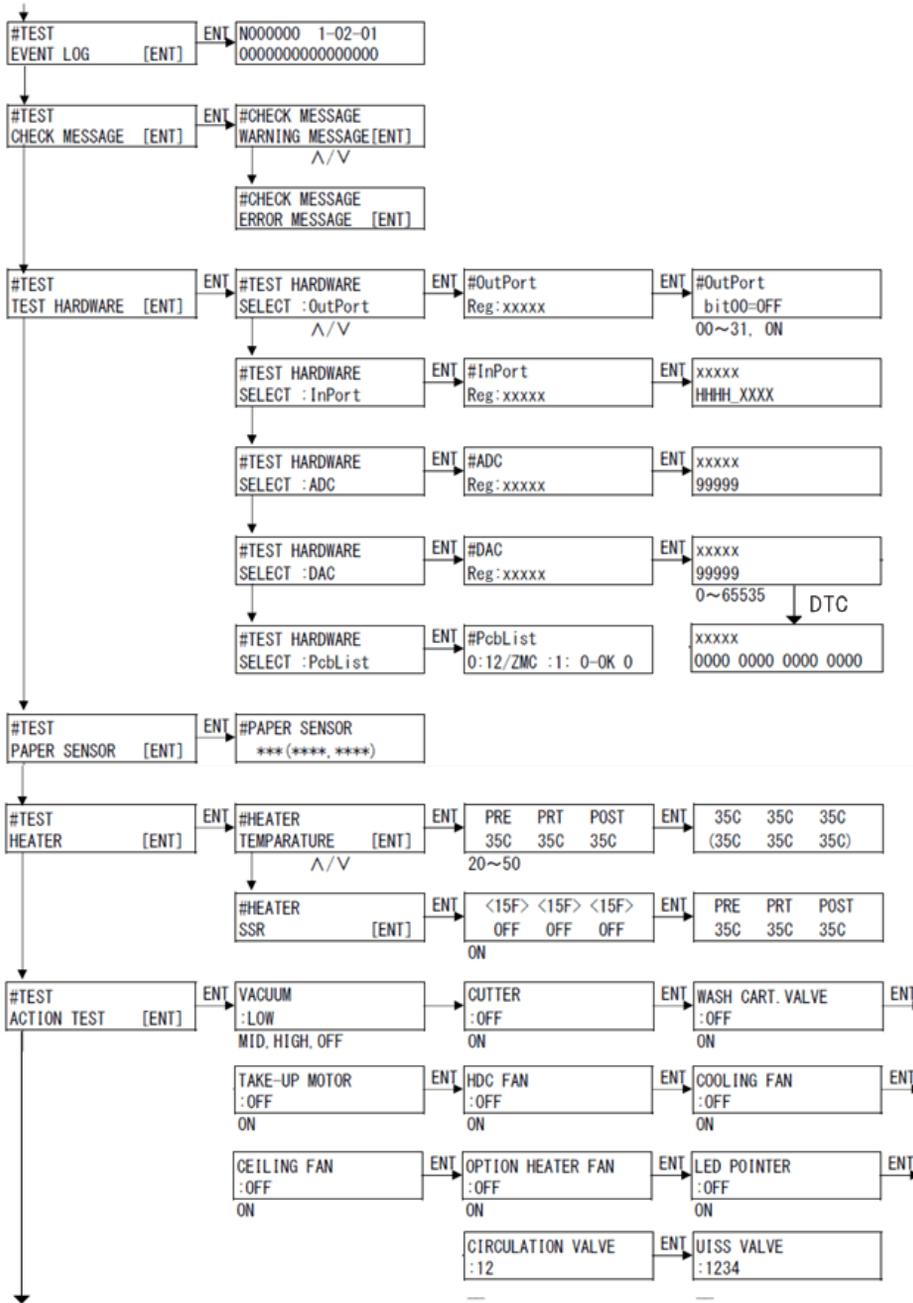
## #TEST



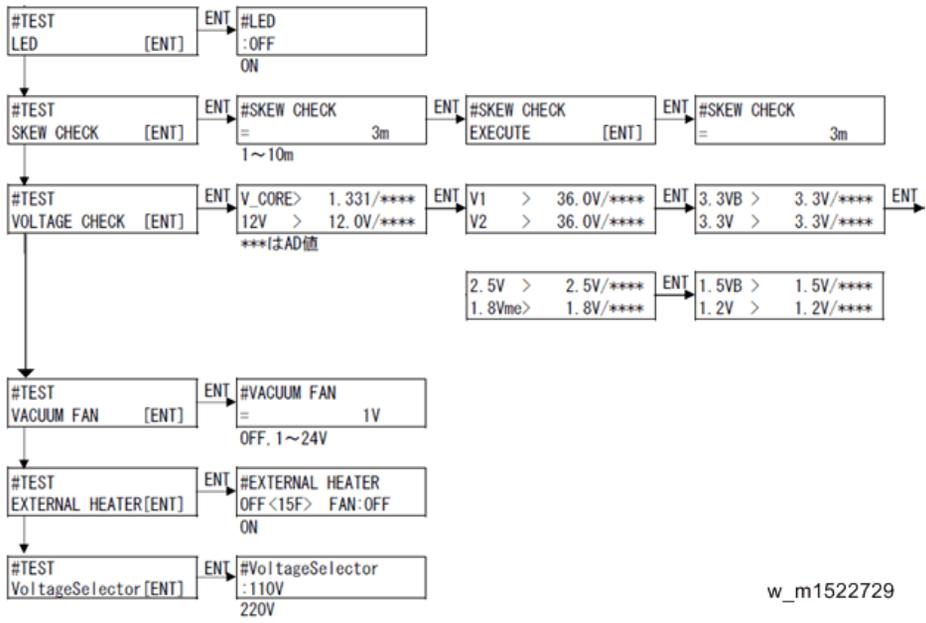




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