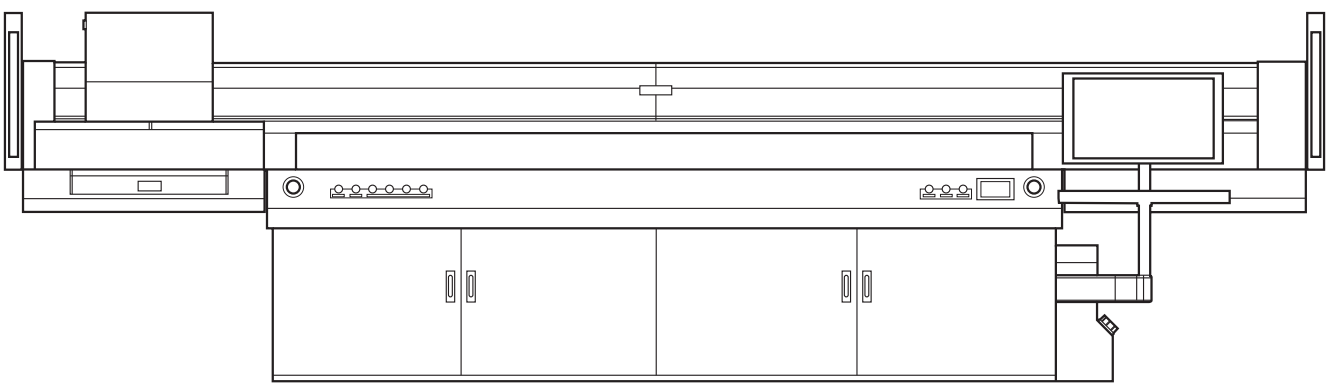
Roland

EU-1000MF

User's Manual



Thank you very much for purchasing this product.

- To ensure correct and safe usage with a full understanding of this product's performance, please be sure to read through this manual completely and store it in a safe location.
- Unauthorized copying or transferal, in whole or in part, of this manual is prohibited.
- The specifications of this product and the contents of this operation manual are subject to change without notice.
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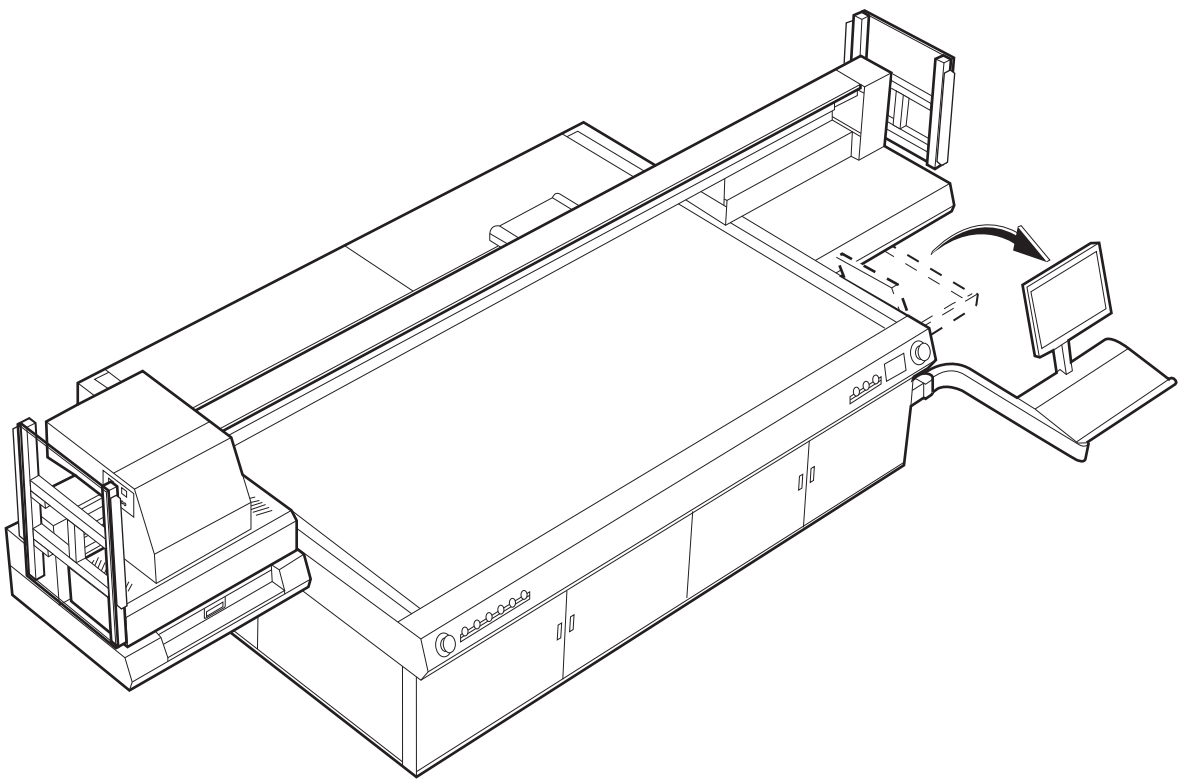
About this Manual

This document is the manual for the four-color and six-color EU-1000MF machines.
Unless otherwise noted, the six-color (cyan, magenta, yellow, black, white, and gloss) machine is used in procedures and illustrations. If you are using a four-color (cyan, magenta, yellow, and black) machine, information pertaining to white (Wh) and gloss (Gl) does not pertain to you. Refer only to information pertaining to cyan (C), magenta (M), yellow (Y), and black (K).

Precautions for operating the machine

Do not operate this machine with the computer holder folded in.
Doing so may lead to the gantry coming into contact with the computer holder, damaging the machine.



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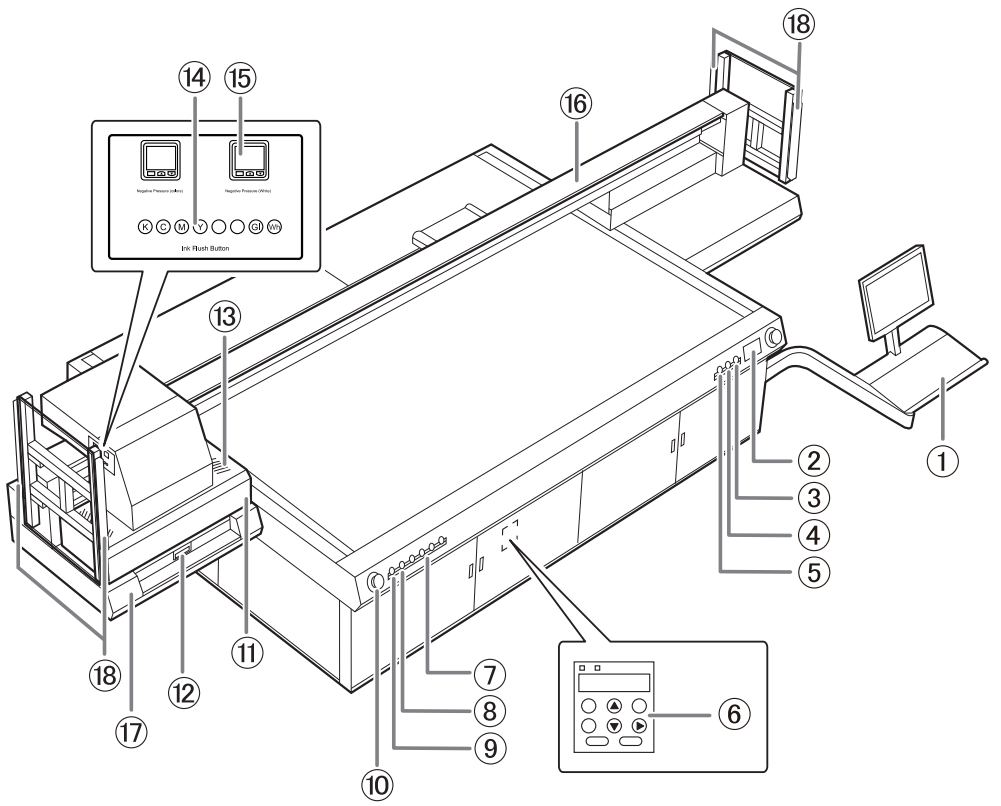
Part Names and Functions

Printer Unit

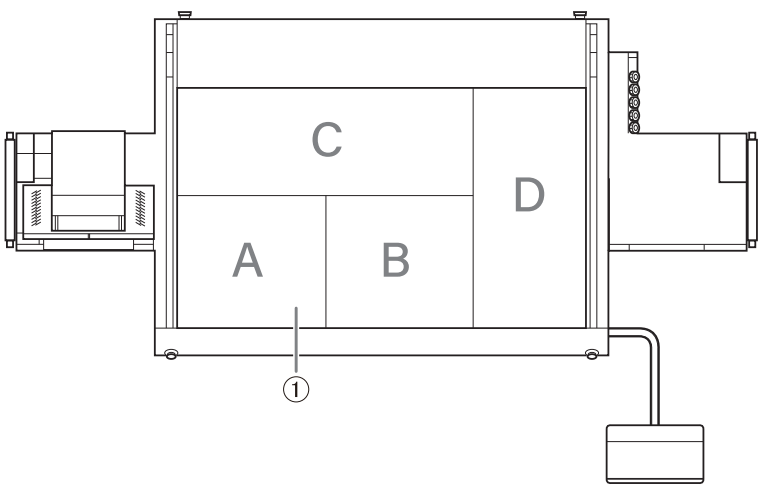
Front



No.	Name	Function overview
①	**Computer Holder**	Place a computer for operating this machine.
②	**Ink Tank & Alarm Display**	This displays the amount of ink remaining. A warning is displayed when the amount of ink remaining is low.
③	**[Reset] button**	Press this button to fill the sub-ink tank of the print head with ink. Usually, the sub-ink tank is filled automatically. An alarm sounds to signal if the tank is not filled with ink completely within a specified time. Press this button to complete ink filling and stop the alarm.
④	**[OFF] button**	Press this button to turn off the sub power of the machine.
⑤	**[ON] button**	Press this button to turn on the sub power of the machine.
⑥	**Vacuum Controller**	Press the [▲] or [▼] button to adjust the vacuum output.
⑦	**[Vacuum Area] button**	Press this button to select the area to turn on the flat table vacuum.
⑧	**[Main Power of Flatbed Vacuum] button**	The main power button of the flat table vacuum
⑨	**[Home Position] button**	Press this button to pop up the positioning pin.
⑩	**Emergency Switch**	This is an emergency stop button. There are four emergency stop buttons on the front and rear of the machine.
⑪	**Static Remover**	This is a device to remove static electricity. This device removes static electricity from objects to be printed on to stabilize printing quality.

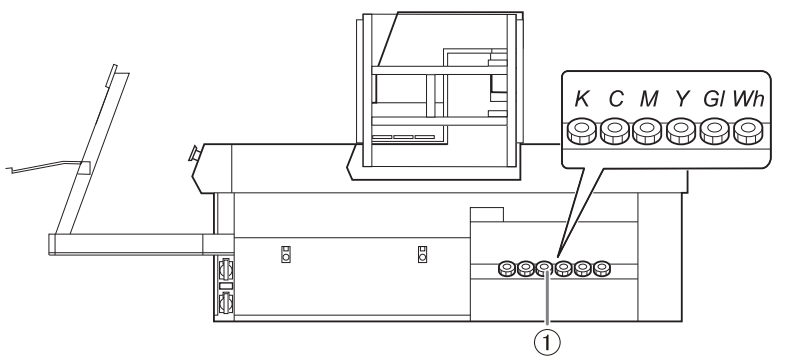
No.	Name	Function overview
⑫	**Ink Receiver**	A tray to receive fluid flushed from the print-head carriage.
⑬	**Crash Sensor**	This sensor prevents the print-head carriage from contacting objects to be printed on.
⑭	**Ink Flush button**	Press this button to flush ink. Ink is flushed while this button is held down.
⑮	**Negative Pressure Display**	This displays the negative pressures of the color ink (CMYK) print head and the spot color ink (Wh, Gl) print head.
⑯	**Guide**	This is the guide rail for print-head carriage movement.
⑰	**Maintenance Station**	This is where the print heads are cleaned. Purge ink and maintain the print heads here.
⑱	**Proximity Sensor**	This sensor detects intrusions into the movable range of the print-head carriage. When it detects an intrusion, safety protection is activated to stop the machine.

Flat table



No.	Name	Function overview
①	**Vacuum Area**	The vacuum area is segmented into four sections: A, B, C, and D. Use the [Vacuum Area] button to select the area to turn on vacuum.

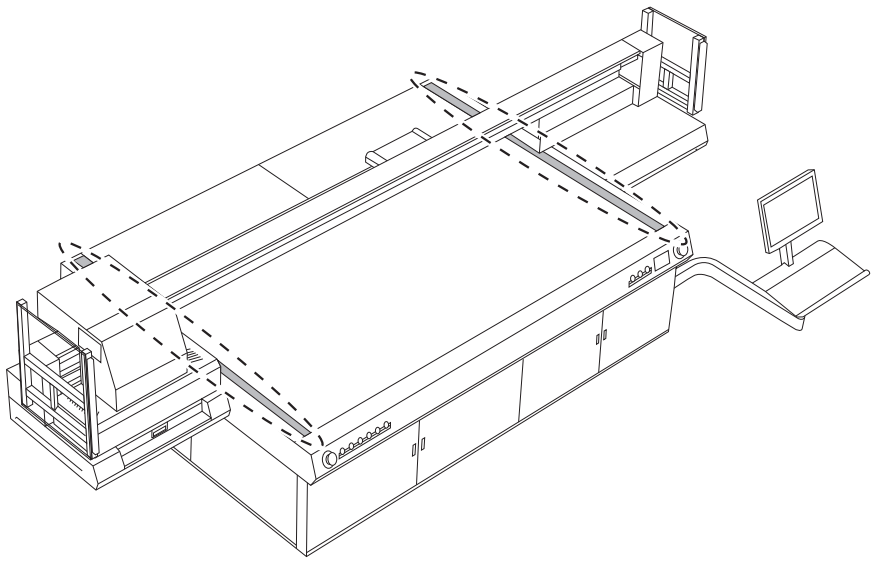
Right side



No.	Name	Function overview
①	**Ink Bottle**	The ink bottle for each color. When the amount of ink is low, fill with ink from the opening of this bottle.

Points That Must Be Observed

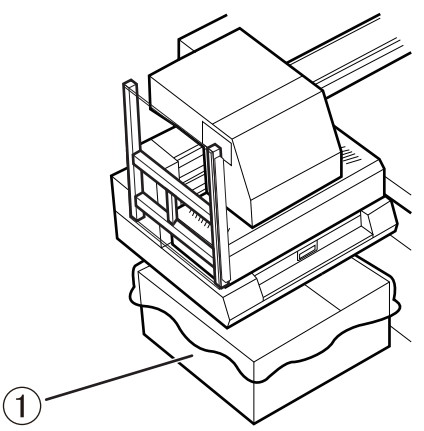
The flat table has grooves on both sides to contain the rails to move the gantry forward and backward.
Never drop trash or foreign materials into these grooves. Doing so may damage the machine.



Items to Be Prepared Separately

Container

Place a container (①) under the maintenance station to use for print head cleaning and maintenance.
The container should be made of polyethylene and be of a size equivalent to the maintenance station and a height of approximately 50 cm (19.69 in.).



For how to treat ink drained in the container, see P. 68 "Disposing of Drained Ink."

Object to Be Printed On

Conditions for Settable Objects to Be Printed On

The conditions for objects to be printed on that can be set in the machine are shown below.

Maximum size	Width	2,440 mm (96 in.)
	Length	1,220 mm (48 in.)
	Thickness	95 mm (3.74 in.)
Maximum weight		45 kg/m² (99 lb./m²)

IMPORTANT

- Objects to be printed on that carry an electrical charge may cause ink discharge problems or decrease printing quality.
- This printer cannot print on all materials. When selecting the object to be printed on, be sure to carry out testing in advance to make sure that satisfactory print quality can be obtained.
- The variation in the unevenness on the print surface needs to be within 1 mm (0.03 in.). Variation larger than 1 mm (0.03 in.) may decrease printing quality.
- Depending on the type of object to print on and the installation method, the height may not be set correctly. The machine may malfunction if printing is performed when an incorrect installation method is used or if printing is performed on an inappropriate material. Be careful when setting objects to print on that match the status or material shown below.

Objects that easily become loose	If the object to be printed on is not firmly held in place, the height cannot be detected correctly. Be sure to set the object to be printed on firmly in place. If the media becomes loose, you can use a substance such as commercially available adhesive tape to hold the media in place.
Objects made from soft material	The correct print head height cannot be automatically detected when printing on soft objects. In such cases, set the print head height manually. ☞ P. 45 "Setting the Print Head Height Manually"

Printable Area

Maximum printable area: Width 2,440 mm (96 in.) (①) × Length 1,120 mm (44 in.) (②) × Height 95 mm (3.74 in.) (③)
Fully understand the safety precautions before extending the length to the maximum value of 1,220 mm (48 in.) (② + ④). When the length is extended, the floor may be subjected directly to UV radiation, which increases the risk of exposure to this radiation.

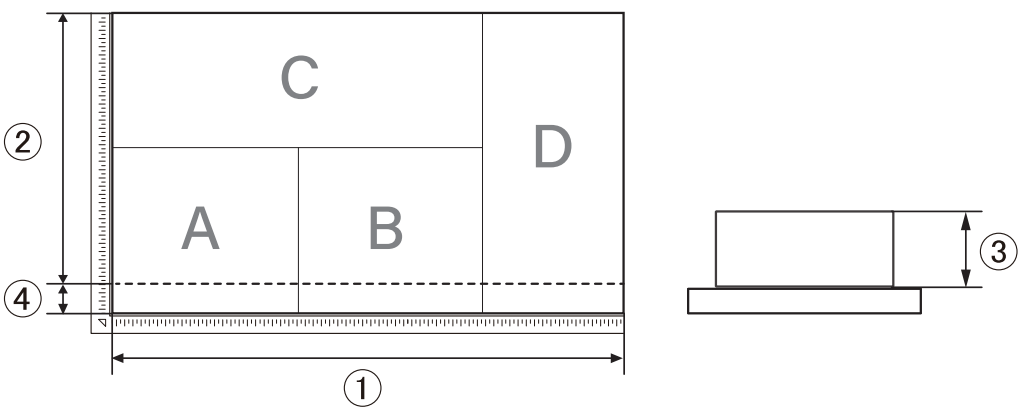
☞ EU-1000MF Read this first

⚠ **WARNING** **To prevent light from entering your eyes, do not lean over or look directly at the UV lamp.**

⚠ **WARNING** **Stay more than 1 m (39.37 in.) away from the UV lamp.**

MEMO

- The maximum printable area is different from the maximum size of the object to be printed on.
- The 1,120 mm (44 in.) (②) length is the range excluding 0 to 100 mm [0 to 3.93 in.] (④) on the scale on the flat table.



Print Exp Screen and Functions

Print Exp is an application that allows users to operate the machine from a computer screen. Various printing conditions can be set to output print data. The status and errors of the machine can also be displayed.

Tool Bar

IMPORTANT

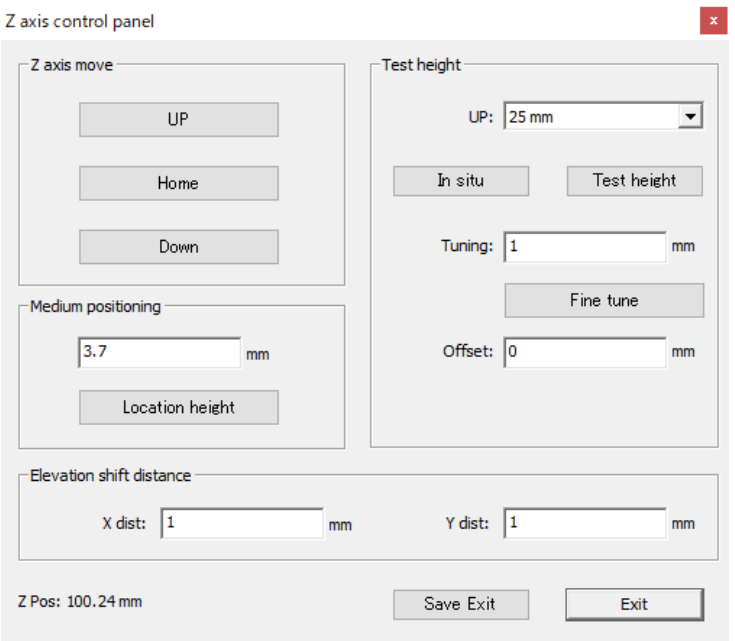
[Adjust], [Voltage], and [Advance] are used when this machine is installed. Do not change the settings.

The following table shows the menu in the [File] tab and explains each function.

Icon	Layout	Explanation	
	Print	This executes printing. Clicking this button displays the [Confirm before printing] window.	
		Start Printing	Printing starts.
		Cancel Print	This cancels printing.
		Z axis Debugging	This adjusts the head height again. Click this button to display the [Z axis control panel] window. ☞ P. 10 "[Z axis control panel] Window"
	Pause	Pauses printing.	
	Cancel	This cancels printing.	
	Check	This starts a test printing. Clicking this button displays the [Confirm before printing] window.	
		Start Printing	Printing starts.
		Cancel Print	This cancels printing.
		Z axis Debugging	This adjusts the head height again. Click this button to display the [Z axis control panel] window. ☞ P. 10 "[Z axis control panel] Window"
	Flush	This sets whether to flush ink automatically on a regular basis. When this button is clicked with ink flush enabled, "Tip: Ready to close flush?" is displayed, and when this button is clicked with ink flush disabled, "Tip: Ready to open flush?" is displayed. **Selection choices: OK/Cancel**	
	Margin	Click this button to set the current head position as the base point on the X axis (scan direction). Clicking this button displays the pop-up window asking "Tip: Set current pos to X margin?" **Selection choices: OK/Cancel**	
	Left/Right Ahead/Back	The print-head carriage moves while each button is held down.	
	X Reset/ Y Reset	These reset the printing start position on the X axis (scan direction) and Y axis (feed direction). Clicking these buttons will set the value of [Margin Setting] in the [Setting] tab to zero.	
	Z axis	This sets the Z axis (height). Click this button to display the [Z axis control panel] window. ☞ P. 10 "[Z axis control panel] Window"	

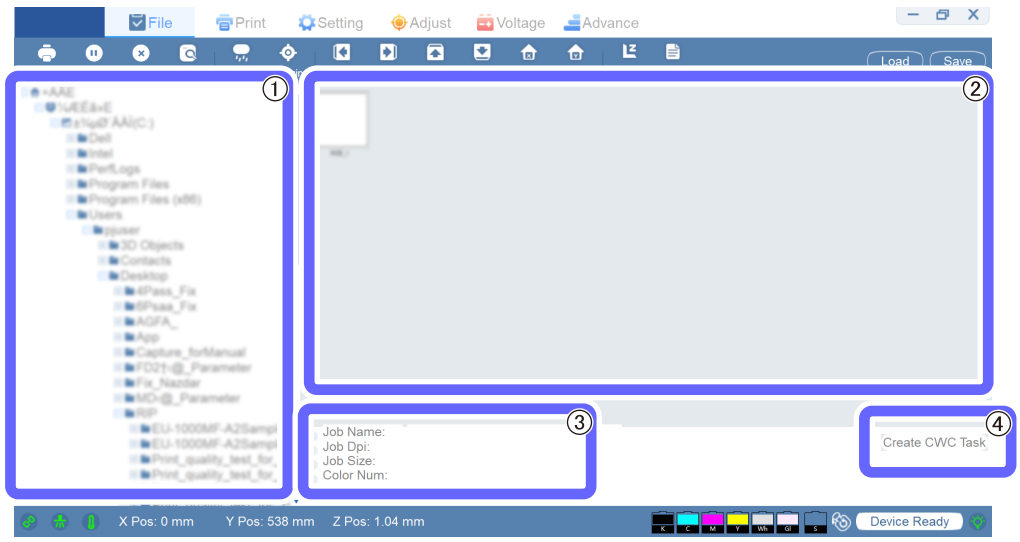
	Spot	This machine does not use this function.

[Z axis control panel] Window



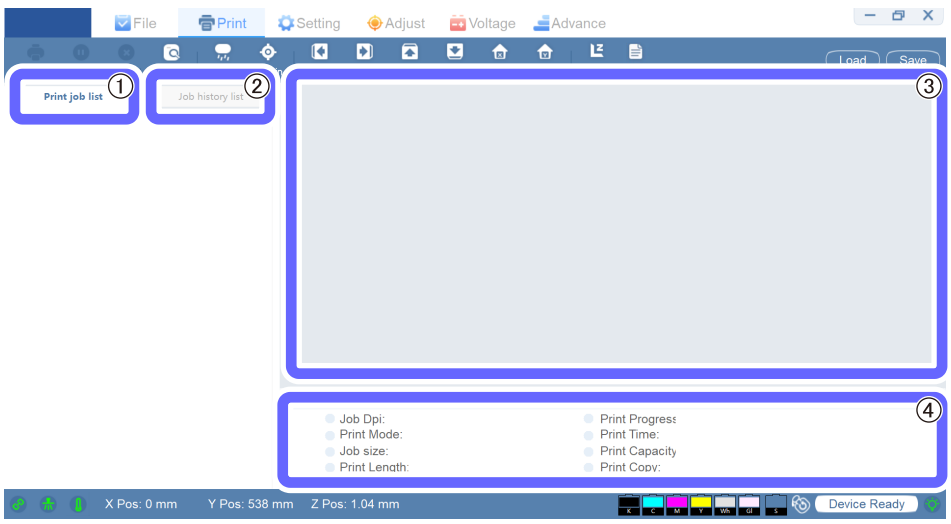
Layout	Explanation	
Z axis move	This moves the print-head carriage on the Z axis.	
	UP	Moves the print-head carriage upward.
	Home	Returns the print-head carriage to a specified value position.
	Down	Moves the print-head carriage downward.
Medium positioning	This moves the print-head carriage on the Z axis. Enter a value and click [Location height]. The print-head carriage moves to the height of the entered value.	
Test height	This detects the thickness of the object to be printed on and automatically adjusts the print-head carriage height.	
	In situ	This automatically adjusts the print-head carriage height after the carriage moves from the current position to a position specified with [UP]. When automatic adjustment is complete, the [Test height fine-tuning/Finishing] window is displayed. To change the automatically adjusted height, enter the desired value in [Tuning] and click [Fine tune]. The value entered in [Tuning] will be added to the print-head height that has automatically been adjusted, for fine tuning. The print-head carriage moves upward or downward by the value entered in [Tuning] every time [Fine tune] is clicked. To finish tuning, click [Test Height completed].
	Test height	This machine does not use this function.
	Fine tune	The print-head carriage moves upward/downward by the value entered in [Tuning]. The print-head carriage moves upward or downward by the value entered in [Tuning] every time [Fine tune] is clicked.
Elevation shift distance	This machine does not use this function.	
Z Pos	This displays the current height of the print-head carriage (the distance between the flat table and the bottom surface of the print-head carriage).	

[File] tab



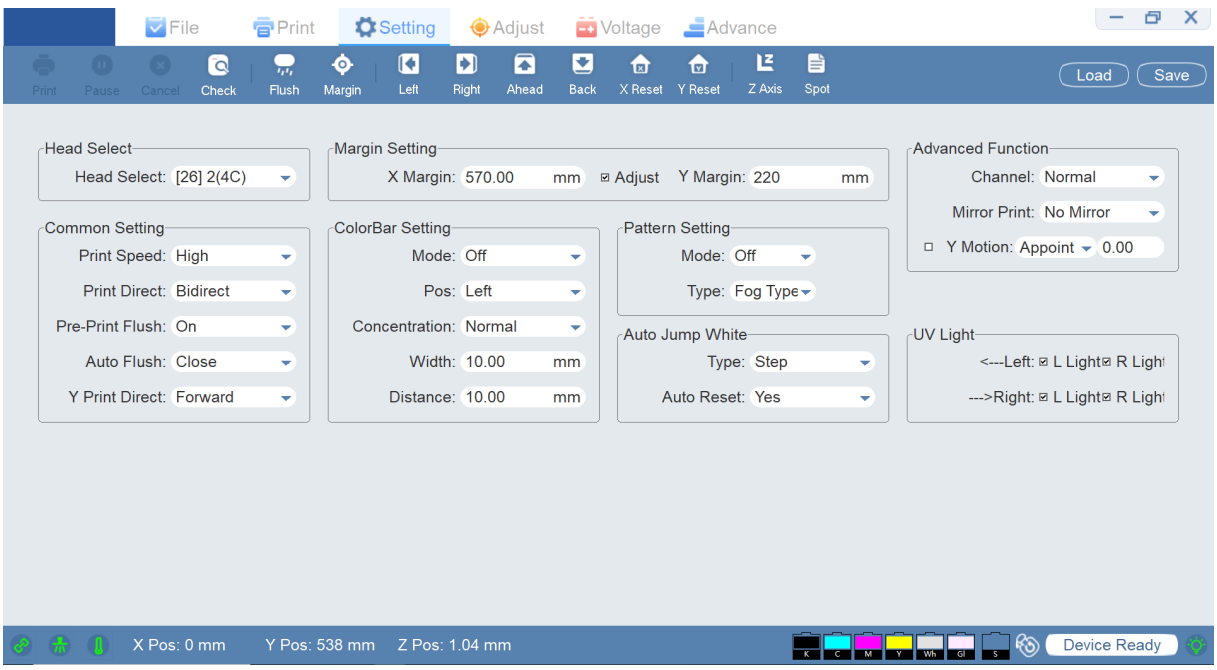
No.	Explanation
①	This indicates the place to save printing data.
②	This displays the preview image of the selected job.
③	This displays the properties of the selected job.
④	This sets printing in which two jobs are superimposed at the same position. This is used for printing on a transparent target that is expected to be viewed from both sides.

[Print] tab



No.	Layout	Explanation
①	**Print job list**	This displays jobs being printed or waiting to be printed.
②	**Job history list**	This displays the history of previously printed jobs.
③	This displays the preview image of the selected job.	
④	This displays the properties of the selected job.	

[Setting] tab



Layout	Explanation		
Head Select	This sets the printing mode.		
	Head Select	[26] 2(4C)	Select this to print data in CMYK only.
		[26] 4C + WV	Select this to print data including Wh or Gl.
Common Setting	**Print Speed**	This sets the printing speed. **Selection choices: Low/Middle/High**	
	Print Direct	This sets the printing direction: unidirectional printing (left to right, right to left) or bidirectional printing. **Selection choices: Left/Right/Bidirect**	
	Pre-Print Flush	This sets whether to flush ink before every printing. **Selection choices: Off/On**	
	Auto Flush	This machine does not use this function.	
	Y Print Direct	This sets the print feed direction on the Y axis.	
		Forward	This prints from the near side to far side.
		Reverse	This prints from the far side to near side.
Margin Setting	This sets the printing-start position.		
	X Margin	Enter the printing-start position on the X axis.	
	Y Margin	Enter the printing-start position on the Y axis.	

ColorBar Setting	This sets whether to print the color bar and status together with printing data. Printing the color bar and status stabilizes ink injection and maintains printing quality. *1		
	Mode	**Off**	This prints without color bar or status.
		Wetting	This prints the color bar. This injects ink from nozzles that are not used for printing, preventing the nozzles from clogging.
		Status	This prints a color bar using smaller amounts of ink than used when printing with [Wetting]. It is possible to check for nozzle drop-out that cannot be detected with the color bar printed by [Wetting].
		Wetting and stat	This prints the color bar and status.
	Pos	This sets the printing positions of the color bar and status. **Selection choices: Left/Right/Both**	
	Concentration	This sets the print density of the color bar. A higher density maintains quality more effectively but consumes more ink.	
		Weak	This prints lightly.
		Normal	This prints with moderate density.
		Strong	This prints using deep colors.
	Width	This specifies the printing width of the color bar.	
	Distance	This specifies the margins between printing data, color bar, and status.	
Pattern Setting	Use this function by selecting [Depth] for the mode and [Fog Type] for the type.		
Auto Jump White	This sets whether the print-head carriage skips margins with no data when it moves.		
	Type	**Off**	The print-head carriage does not skip margins.
		Step	The print-head carriage skips margins. With this setting, the print-head carriage skips at higher speed than [Together].
		Together	The print-head carriage skips margins.
	Auto Reset	This machine does not use this function.	

Advanced Function	This sets other functions.		
	Channel	This sets the inks to use in printing.	
		Normal	This prints with CMYK, white and gloss inks.
		Only Color	This prints with CMYK inks only.
		Only White	This prints with white ink only.
		Only Gloss	This prints with gloss ink only.
		Close White	This prints without white ink.
		Close Gloss	This prints without gloss ink.
	Mirror Print	This sets whether to invert printing data during printing.	
		No Mirror	This prints without inverting data.
		Horz Mirror	This inverts data horizontally for printing.
	Y Motion	This sets the position on the Y axis to which the print-head carriage returns after printing is complete.	
		Appoint	Enter a value. The Y axis moves to the specified position after printing is complete.
		Origin	The print-head carriage moves to the home position (Y-axis origin) after it completes printing.
		Current	The print-head carriage moves onto the maintenance station through the Y-axis position when it completes printing.
		Terminus	The print-head carriage moves to the end position on the Y axis after it completes printing.
UV Light	This sets whether to turn on or off the UV lamp in each printing direction. Unchecking the box turns off the UV lamp during printing.		

*1: The color bar and status are printed on the left or right side or both sides of printing data. To print the color bar and status together with printing data, it is necessary to reduce the width of the printing data or increase the width of the objects to be printed on.

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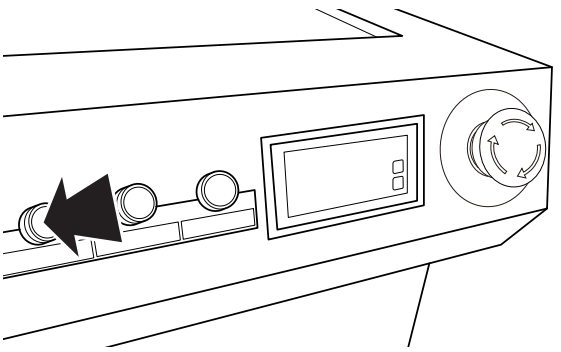
Power Supply Operations

Turning the Power On

Procedure

1. **Press the [ON] button on the front of the machine.**
   The power supply button is lit.



2. **Start Print Exp.**

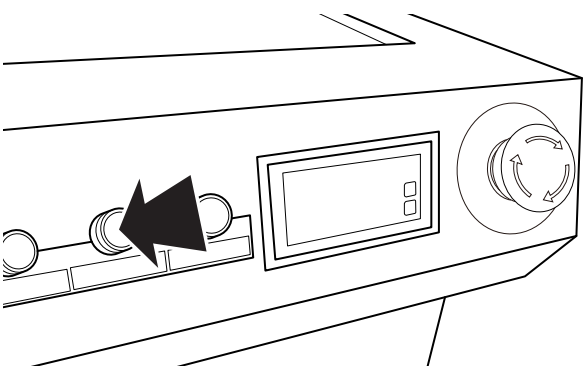
Turning the Power Off

Check the following before turning off the power.

- Printing has been completed.
- The print-head carriage is in the maintenance station.
- No error message is displayed.
- The [Vacuum Power] button is off.

Procedure

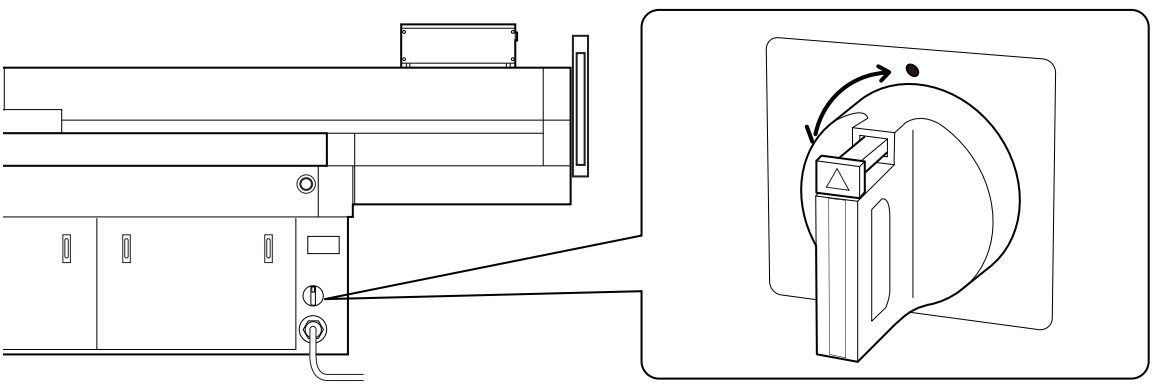
1. **Close Print Exp.**
2. **Press the [OFF] button on the front of the machine.**
   The power supply lamp is turned off.



Precautions for the Power Supply

IMPORTANT

Do not unplug the power cord. Do not turn off the main power.
While the main power is on with the power cord plugged in, the machine circulates and mixes white ink. To maintain the concentration of white ink, do not unplug the power cord even when the printer is not in use for prolonged periods, to keep the main power on.



Check that the print-head carriage has returned to the maintenance station before turning off the power.

Clear any errors before turning off the power.

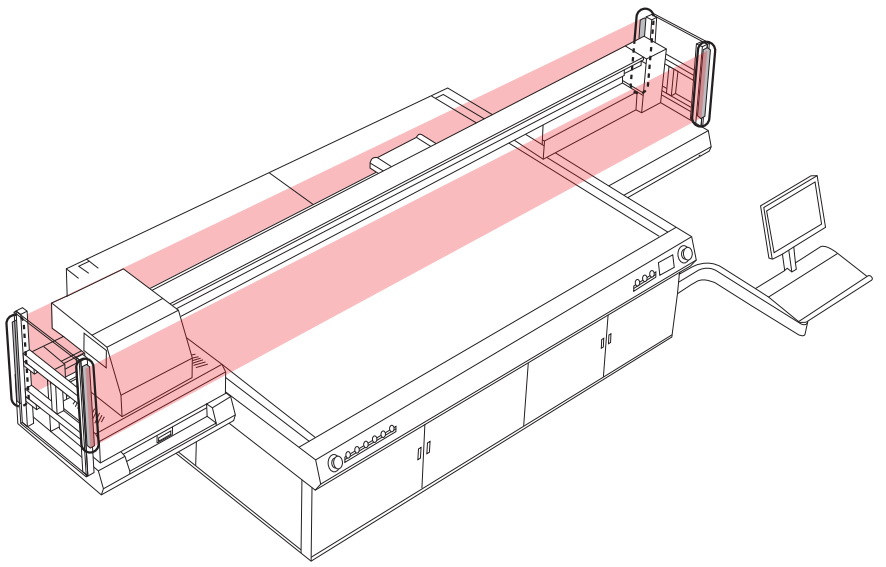
☞P. 99 "If an Error Message Appears"

Do not turn off the power during printing.
The print-head carriage may not return to the maintenance station.
If you have turned off the power, turn it back on.

Safety Protection

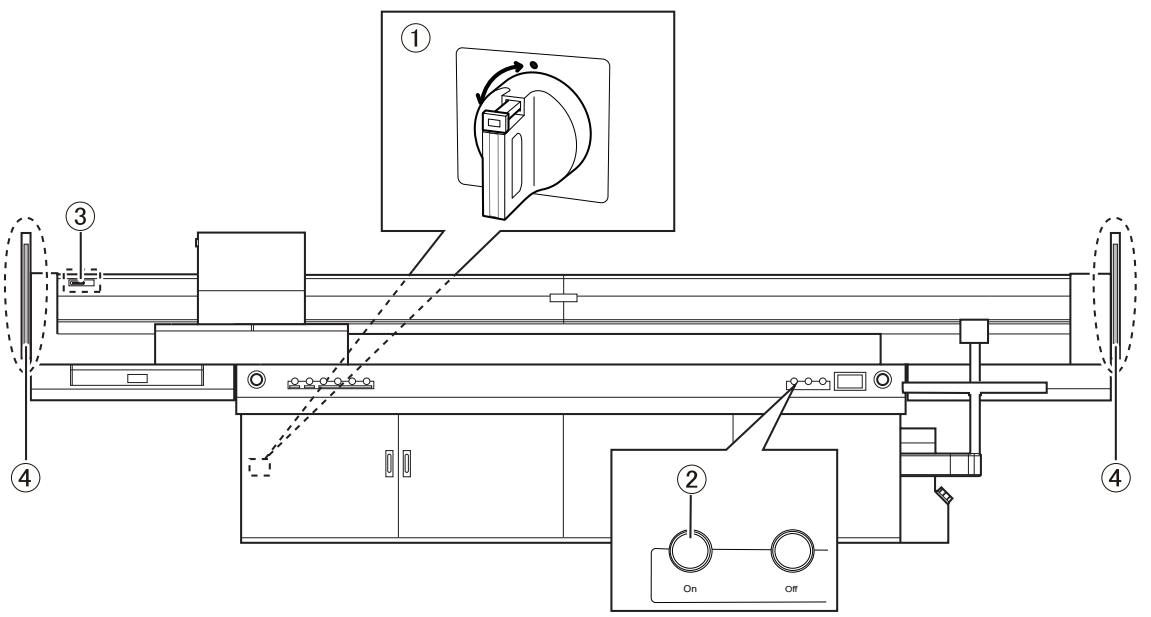
Safety Protection Function

The machine is equipped with a safety protection function. The machine stops if something is detected entering the movable range of the print-head carriage. This function prevents contact with this carriage, which moves at high speed during printing.



When all the following conditions are met, safety protection stops the machine.

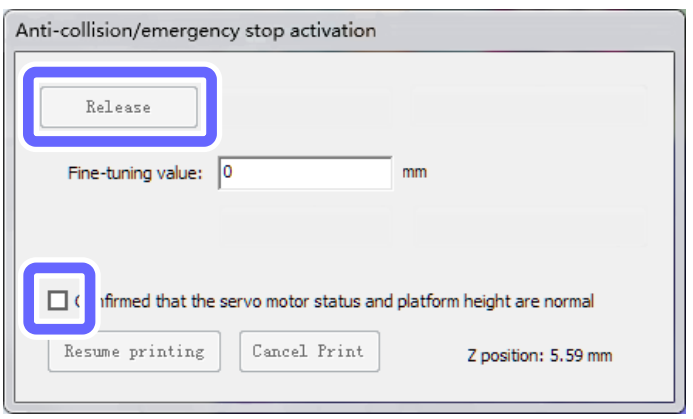
- The main power (①) is on.
- The sub power (②) is on.
- The Auto switch (③) is set to ON.
  (The print-head carriage is not positioned above the maintenance station.)
- Something enters the detection areas of the proximity sensors (④).



How to Clear Activated Safety Protection

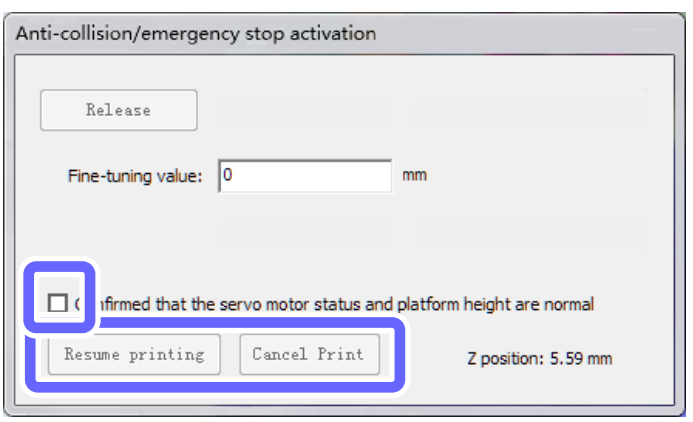
When safety protection is active, the Anti-collision/emergency stop activation window is displayed on the Print Exp screen.

When detected entering the movable range of the print-head carriage.
Check the box and click [Release].



When the safety protection activates during printing.

1. With the safety device active, have the proximity sensor detect intrusion into the area.
   Place your hand or something similar in the detection area of the proximity sensor for at least 3 seconds to trigger detection by the sensor.
2. Select the check box and click [Resume printing] or [Cancel Print].



Clear Anti-collision/emergency stop activation.

2. Output Method

1. Printing Operations

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Canceling Printing 44
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Printing method

Two Checks before Printing

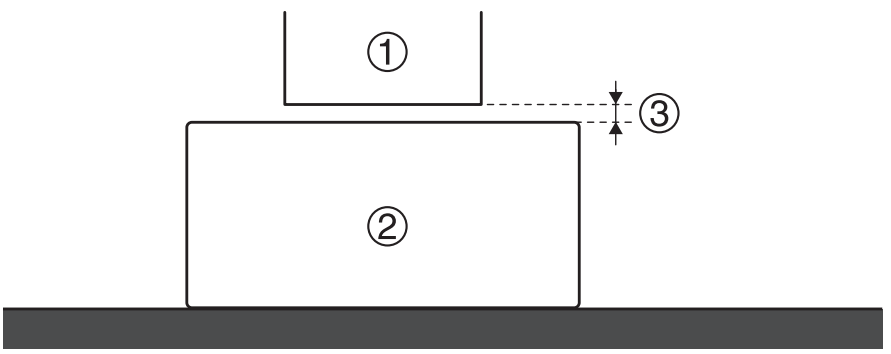
On this machine, ink affixed on the surface of the print heads might be cured by the reflection of the UV-LED lamp light and by ink mist (ink splashing during printing). If ink affixed on the surface of the print heads is cured, dot drop-outs may occur. Continued use of the product in this state may cause a failure that requires the replacement of the print heads.
While daily cleaning is important to prevent dot drop-outs, there are also two important points to check before printing.

1. Do not use objects that easily reflect light.

Materials that are likely to reflect the UV-LED lamp light, such as mirrors and stainless steel, promote the curing of the surface of the print heads and therefore cannot be used as the object to be printed on.

2. Shorten the distance to the print heads.

Ink mist scatters as the distance between the print head (①) and the surface of the object to be printed on (②) increases. The print head is more likely to contact the object to be printed on as the distance between them decreases. Set the print head height so that the distance between the object to be printed on and the print head (③) becomes 0.8 to 2.0 mm (0.04 to 0.07 in.). The distance is automatically set to 2.0 mm (0.08 in.).



Step 1: Preparing for the Start of Daily Operations

IMPORTANT

Be sure to perform head cleaning before the start of daily operations.
After head cleaning, carry out a printing test to ensure that no problems such as dot drop-out, dot displacement, and ink dropping occur. If dot drop-out, dot displacement, or ink dropping occurs during the printing test, perform cleaning again.

1. Clean the heads.

Head cleaning discharges a small amount of ink from the print head. Wipe off unwanted ink. Cleaning can remove unwanted ink and clear ink clogging.
Negative pressure is applied to the print heads to hold ink. Head cleaning also allows users to determine whether the negative pressure value needs to be adjusted. For details of negative pressure adjustment, see P. 87 "Adjusting Negative Pressure of the Print Heads."

⚠ WARNING **Be sure to wear gloves and goggles before starting operation. Ink may drop or scatter.**

IMPORTANT

- **Use new non-woven fabric when cleaning the bottom surface of the print-head carriage. When cleaning the surface, pay careful attention not to rub the nozzle surfaces.**
- **Use cleaning sticks when cleaning the print head nozzle surfaces. Cotton swabs or other lint-producing items may damage the print heads.**
- **Be sure to clean the print-head carriage on a daily basis to prevent its bottom surface from becoming dirty due to adhesion of ink and dust. If the bottom surface is dirty, the nozzles may be rubbed with foreign materials and coagulated ink during cleaning.**

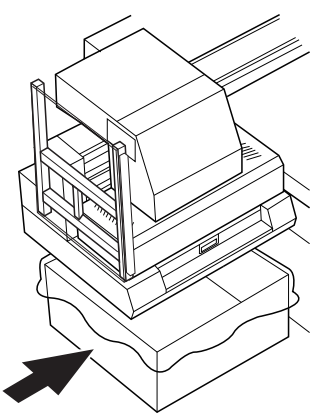
Procedure

MEMO

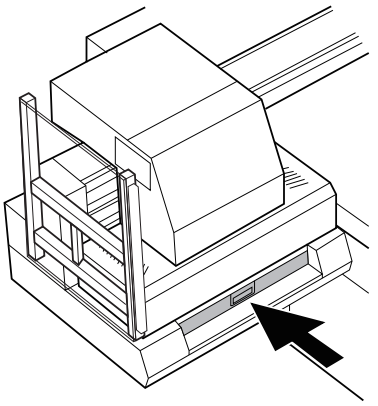
Check that the print-head carriage has returned to the maintenance station. If the machine detects an intrusion into the movable range of the print-head carriage while the carriage is not in the maintenance station, safety protection is activated to stop the machine.

☞P. 20 "How to Clear Activated Safety Protection"

1 **Place a container at the position shown in the figure below.**



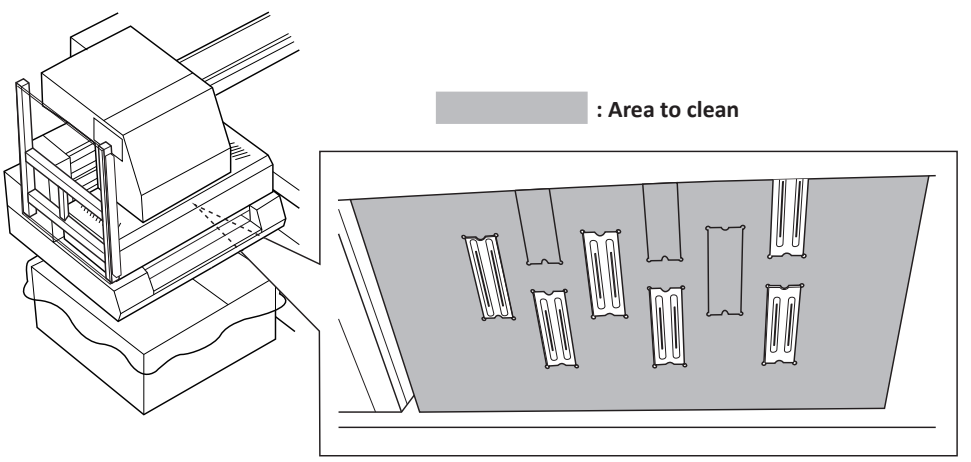
2 **Slowly insert the ink receiver all the way.**



3 **Clean the areas shown in the figure below using new non-woven fabric.**

IMPORTANT

- **Use dry non-woven fabric without using cleaning liquids.**
- **Do not touch the nozzle surfaces when cleaning the print heads and their surrounding areas.**
- **Clean the entire bottom surface and both side surfaces of the print-head carriage by removing adhering ink.**



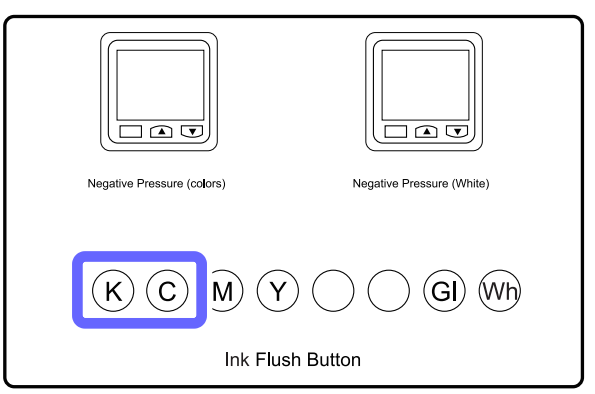
4 **Press the [Ink Flush] button on the left side of the print-head carriage to flush ink from the print heads.**

① **Hold down the [K] button for 10 seconds.**

② **Hold down the [C] button for 10 seconds.**

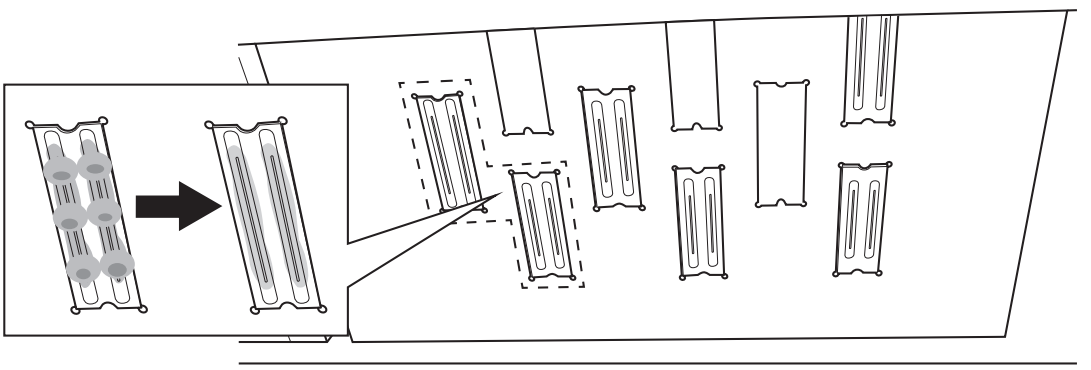
IMPORTANT

Do not hold down the buttons for more than 10 seconds.
The ink storage, which is located on the upper side of the print head, runs out of ink. This allows air to enter the ink tube, causing ink discharge failure or decreased printing quality.



Determine if the negative pressure value is set appropriately by checking the print head nozzle surfaces.
The negative pressure value is appropriate if flushed ink droplets are kept on the nozzle surfaces.
If the negative pressure value of the print head nozzle is too high, ink droplets on the nozzle surfaces are sucked into the nozzles. If this is the case, lower the negative pressure value of the print head nozzle.

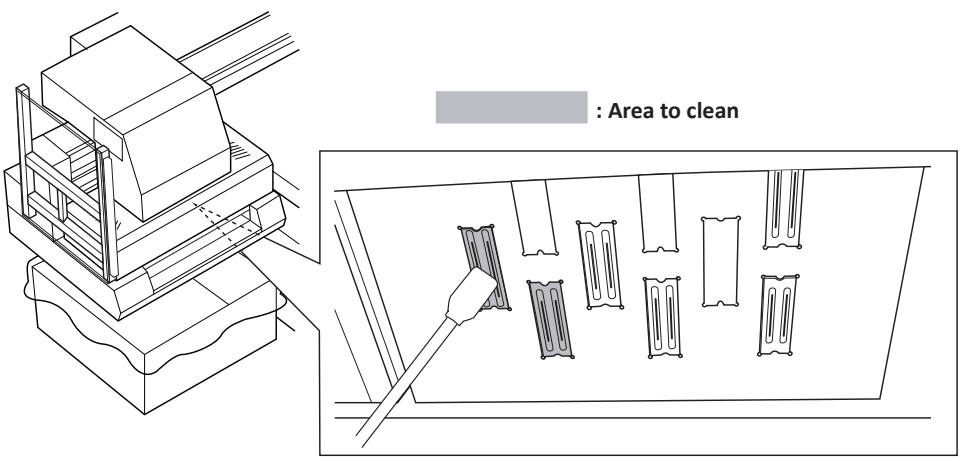
☞ P. 87 "Setting a Lower Negative Pressure Value"



5 Clean the K and C print head nozzle surfaces using new cleaning sticks.

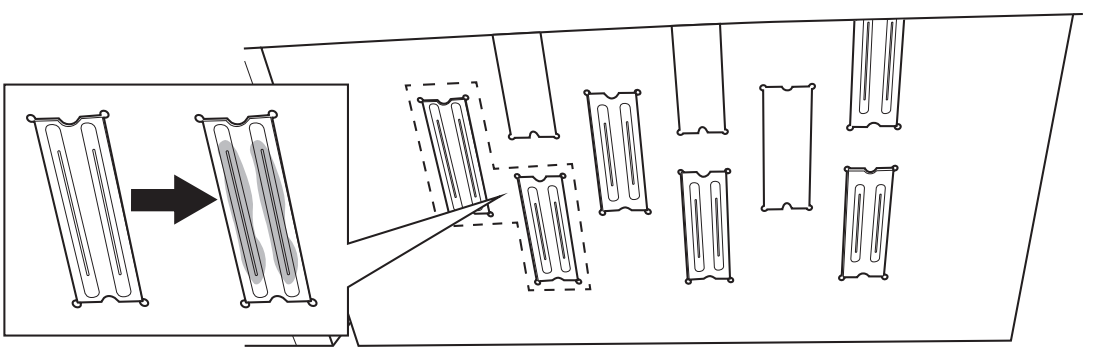
IMPORTANT

- **Use dry non-woven fabric without using cleaning liquids.**
- **Never rub the nozzle surfaces hard.**



After cleaning, determine if the negative pressure value is set appropriately by checking the print head nozzle surfaces.
If the nozzle surfaces maintain conditions immediately after cleaning, the negative pressure value is appropriate.
If the negative pressure value of the print head nozzle is too low, ink seeps from the nozzle surfaces. If this is the case, increase the negative pressure value of the print head nozzle.

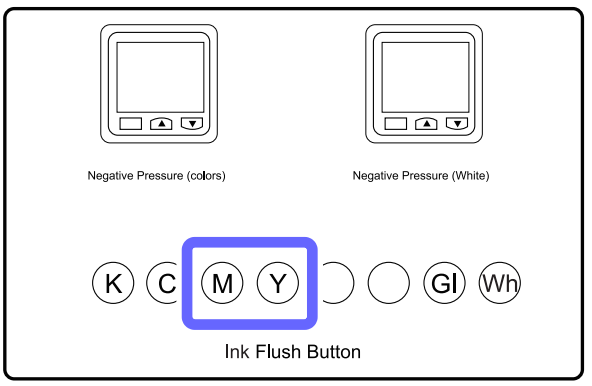
☞ P. 89 "Setting a Higher Negative Pressure Value"



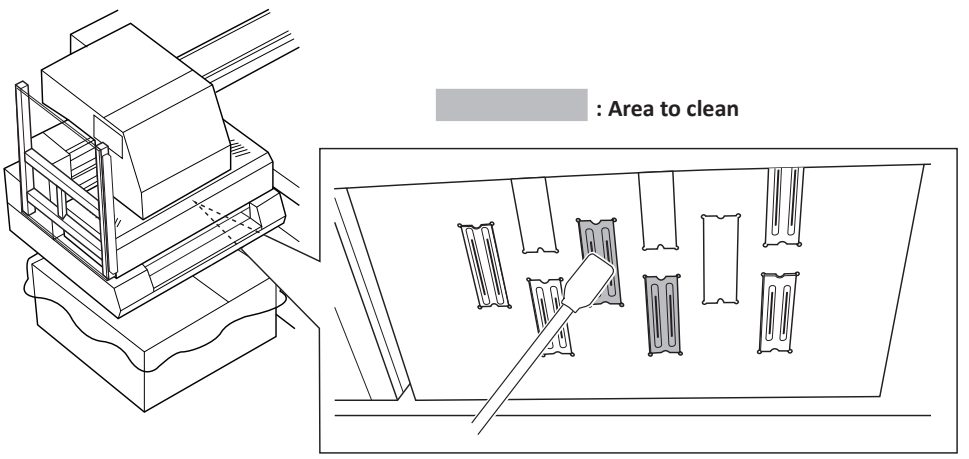
6 Repeat steps 4 and 5 to clean the print heads M and Y.

IMPORTANT

- **Do not hold down the buttons for more than 10 seconds.**
  The ink storage, which is located on the upper side of the print head, runs out of ink. This allows air to enter the ink tube, causing ink discharge failure or decreased printing quality.



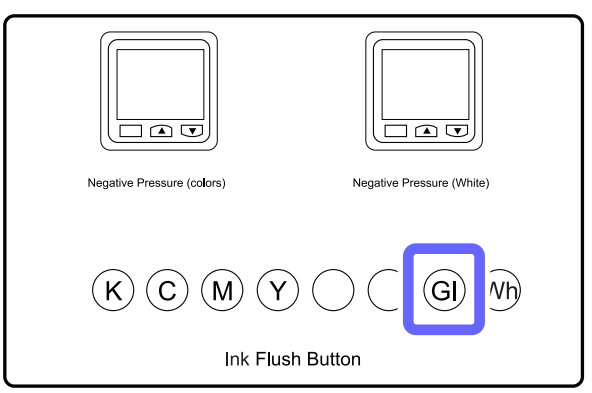
- **Use dry non-woven fabric without using cleaning liquids.**
- **Never rub the nozzle surfaces hard.**



7 Hold down the [Gl] button on the left side of the print-head carriage for 10 seconds to flush ink from the print head.

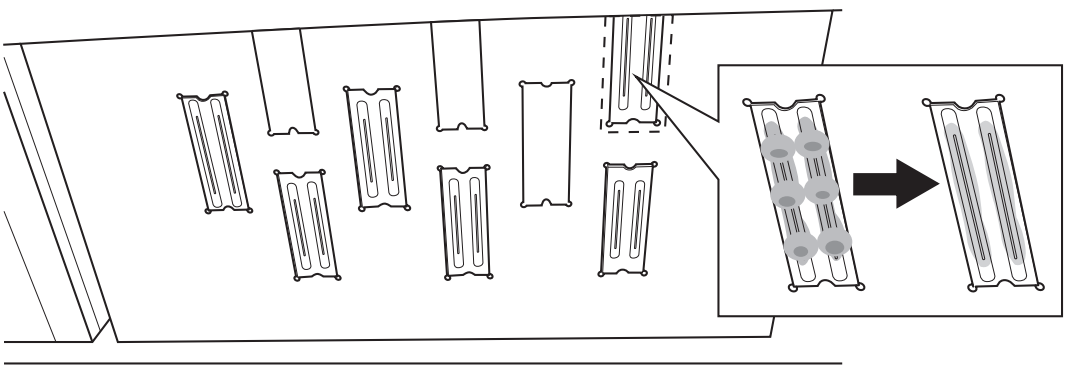
IMPORTANT

Do not hold down the buttons for more than 10 seconds.
The ink storage, which is located on the upper side of the print head, runs out of ink. This allows air to enter the ink tube, causing ink discharge failure or decreased printing quality.



Determine if the negative pressure value is set appropriately by checking the print head nozzle surfaces.
The negative pressure value is appropriate if flushed ink droplets are kept on the nozzle surfaces.
If the negative pressure value of the print head nozzle is too high, ink droplets on the nozzle surfaces are sucked into the nozzles. If this is the case, lower the negative pressure value of the print head nozzle.

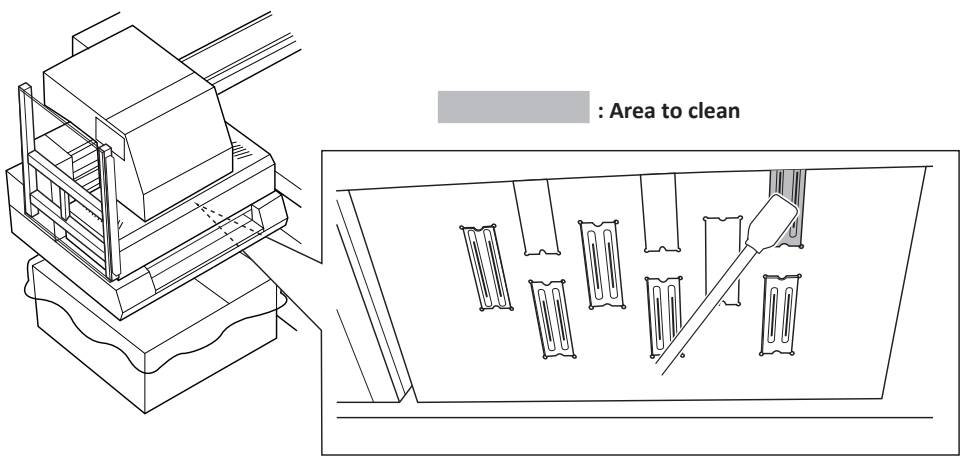
☞ P. 87 "Setting a Lower Negative Pressure Value"



8 Clean the GI print head nozzle surface using new cleaning sticks.

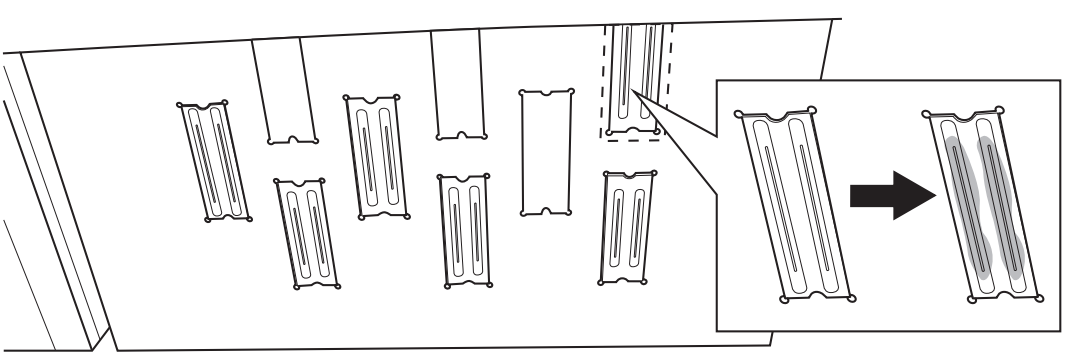
IMPORTANT

- **Use dry non-woven fabric without using cleaning liquids.**
- **Never rub the nozzle surfaces hard.**



After cleaning, determine if the negative pressure value is set appropriately by checking the print head nozzle surfaces.
If the nozzle surfaces maintain conditions immediately after cleaning, the negative pressure value is appropriate.
If the negative pressure value of the print head nozzle is too low, ink seeps from the nozzle surfaces. If this is the case, increase the negative pressure value of the print head nozzle.

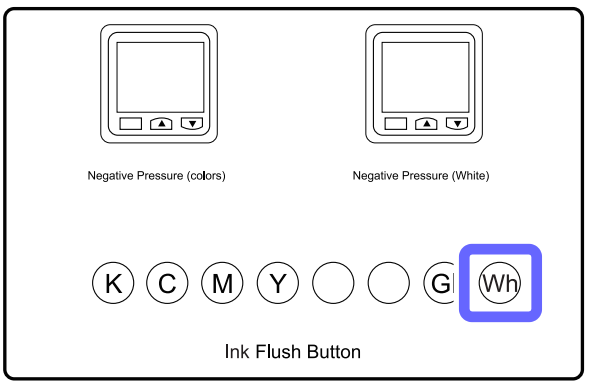
☞ P. 89 "Setting a Higher Negative Pressure Value"



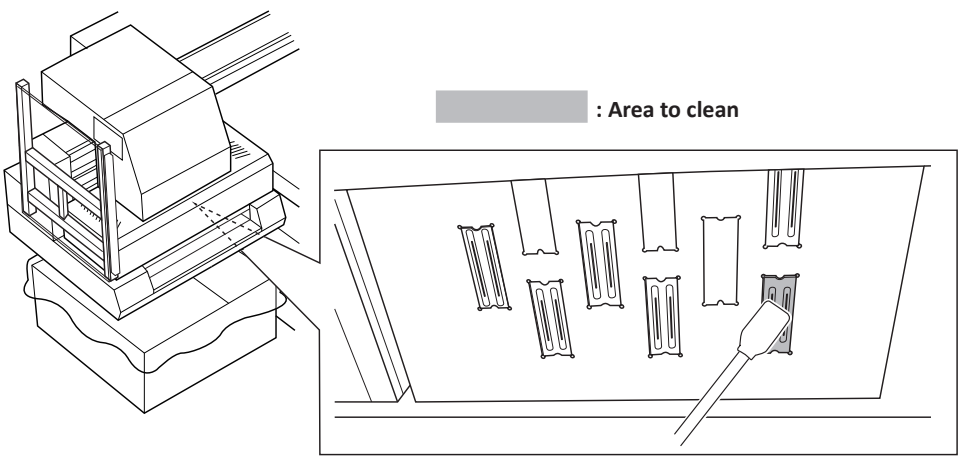
9 Repeat steps 7 and 8 to clean the print head Wh.

IMPORTANT

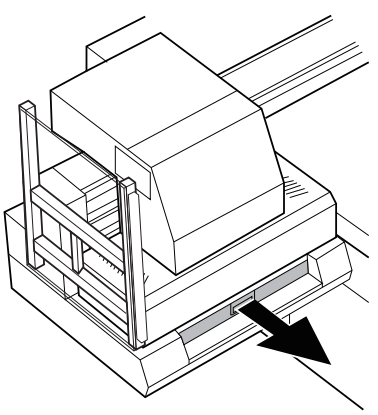
- **Do not hold down the buttons for more than 10 seconds.**
  The ink storage, which is located on the upper side of the print head, runs out of ink. This allows air to enter the ink tube, causing ink discharge failure or decreased printing quality.



- **Use dry non-woven fabric without using cleaning liquids.**
- **Always wipe off Wh ink because it easily adheres to the print head surface.**
- **Never rub the nozzle surfaces hard.**



10 Pull the ink receiver back.



2. Attach the object to be printed on for the printing test.

⚠ WARNING **Never climb on the table. Doing so may result in injury. It may also decrease the table accuracy.**

⚠ CAUTION **Wear protection such as safety shoes and gloves when handling heavy objects to be printed on. Failure to do this may cause injury.**

IMPORTANT

- If there are suction holes that are not covered with an object to be printed on in the suction area, cover them by placing thin sheets such as paper, film, and tape.
- Lower the suction pressure when setting a thin object to be printed on. Strong suction may leave marks of the suction holes.
- The edges of an object to be printed on may warp. Objects that warp may tear or damage the print heads when contacting the print-head carriage. Use adhesive tape to additionally secure these objects.
- To prevent the table from deforming, note the following points when setting objects to be printed on.
  - ➢ Do not drop heavy objects on the table.
  - ➢ Do not concentrate the weight of an object to be printed on.

Procedure

MEMO

Check that the print-head carriage has returned to the maintenance station. If the machine detects an intrusion into the movable range of the print-head carriage while the carriage is not in the maintenance station, safety protection is activated to stop the machine.

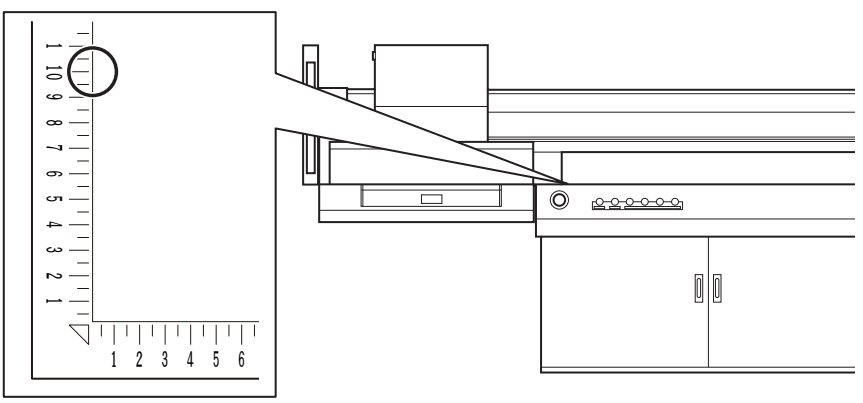
☞P. 20 "How to Clear Activated Safety Protection"

1 **Prepare an object for a printing test.**
Printing tests are used to check that no dot drop-out occurs. Use an object prepared for the printing test (width 200 mm (7.88 in.) × length 300 mm (11.82 in.) or larger), instead of using an actual object to be printed on.

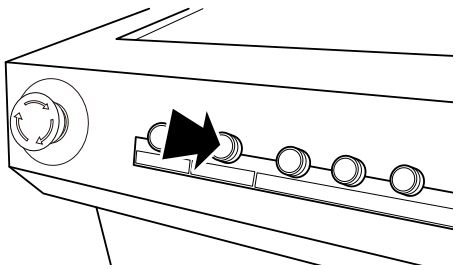
2 **Place the object on the flat table.**
Align the edges of the object to the X and Y axes of the flat table.

IMPORTANT

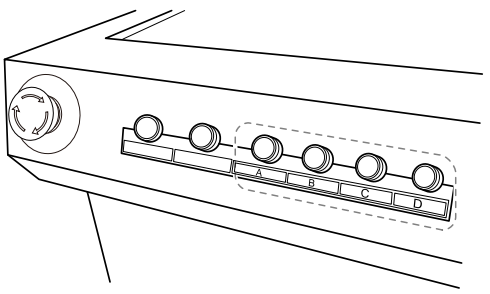
The print origin on the Y axis is set at 100 mm (3.94 in.) on the scale of the flat table.

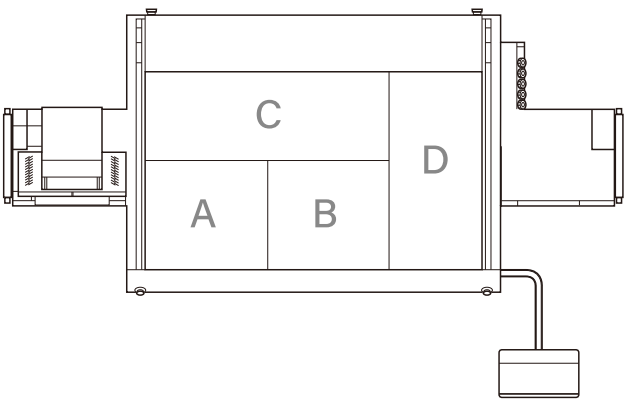


3 **Press the [Vacuum Power] button to turn on vacuum.**



4 **Press the [Vacuum Area] button to turn on the vacuum corresponding to the position the object to be printed on is in place.**

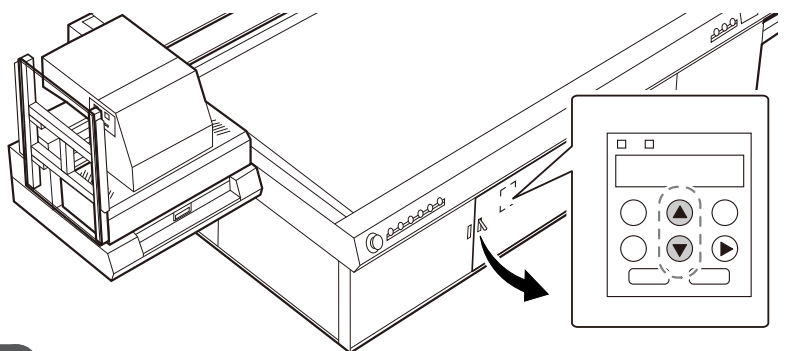




IMPORTANT

If more than one [Vacuum Area] button is pressed simultaneously, negative pressure temporarily may become insufficient, failing to secure the object to be printed on firmly. If this is the case, wait until negative pressure becomes stabilized or press the [Vacuum Area] buttons at intervals.

5 **Adjust the negative pressure applied to the object to be printed on by pressing the [▲] or [▼] button on the Vacuum Controller.**



MEMO

If the object to be printed on cannot be secured firmly, try the following.

- Change the areas to apply the negative pressure using the [Vacuum Area] buttons.
  ☞ P. 6 "Flat table"
- To increase the output, press the [▲] button on the Vacuum Controller.
  To decrease the output, press the [▼] button.

3. Adjust the print head height automatically.

The height of the object to be printed on is automatically detected, and the print heads are adjusted to the appropriate height for printing. If height of the object to be printed on is known, the print head height can be set manually.

☞P. 45 "Setting the Print Head Height Manually"

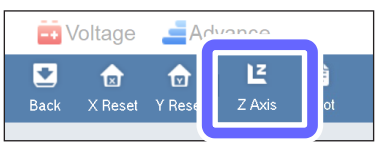
Procedure

MEMO

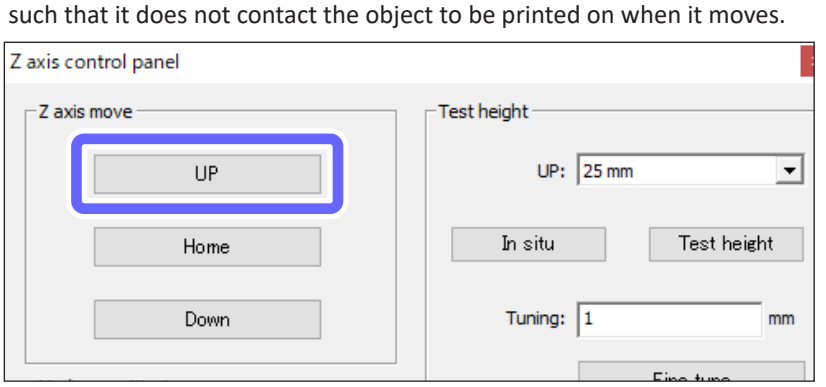
Check that the print-head carriage has returned to the maintenance station. If the machine detects an intrusion into the movable range of the print-head carriage while the carriage is not in the maintenance station, safety protection is activated to stop the machine.

☞P. 20 "How to Clear Activated Safety Protection"

1. **Measure the thickness of the object to be printed on using a measuring tape or vernier caliper.**
2. **Press [Z Axis] to display the [Z axis control panel] window.**



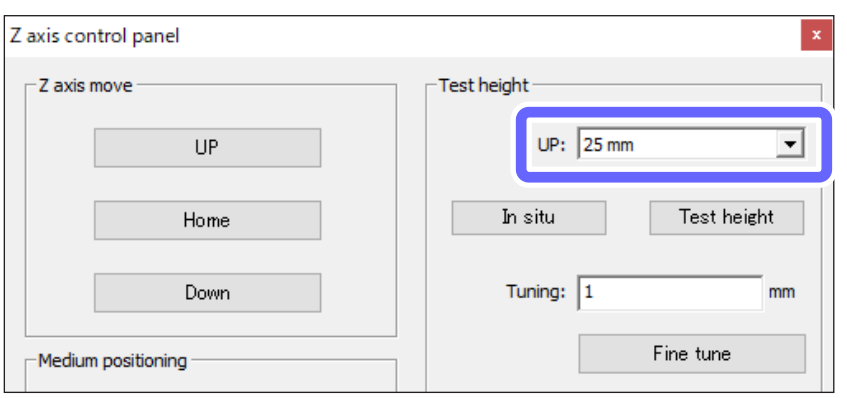
3. **Hold down [UP] in [Z axis move] until the print head height is larger than the thickness of the object to be printed on.**
The print head will be moved over the object to be printed on in step 6. Move the print head up to a height such that it does not contact the object to be printed on when it moves.



4. **Select the value for [UP] in [Test height].**
The value selected here will be the print head height at which height detection starts.

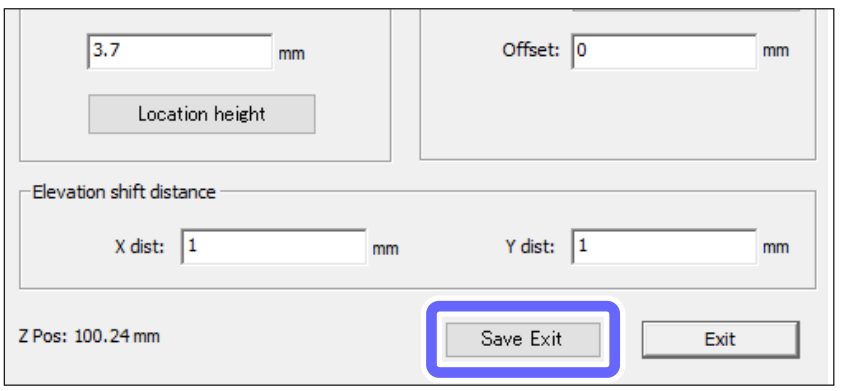
IMPORTANT

Select a value larger than the thickness of the measured object to be printed on.
Failure to do this may cause the print head to contact the object, damaging the print head.

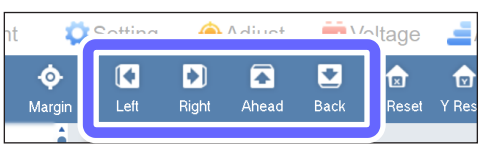


5 **Press [Save Exit].**

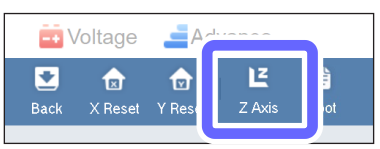
The setting is saved and the [Z axis control panel] window closes.



6 **Press [Left], [Right], [Ahead], and [Back] to move the print-head carriage over the object to be printed on.**



7 **Press [Z Axis] to display the [Z axis control panel] window.**

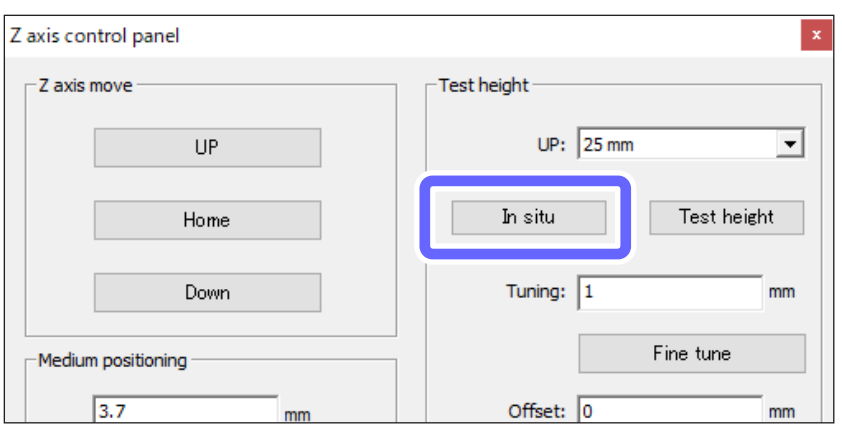


IMPORTANT

The height of the object to be printed on will be detected in the next step. Make sure that there is nothing on the flat table other than the object to be printed on.

8 **Press [In situ].**

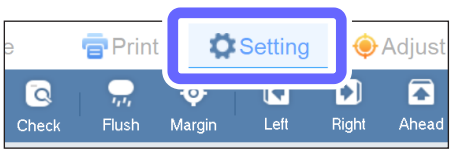
At the current position, the print-head carriage automatically detects the height of the object to be printed on.



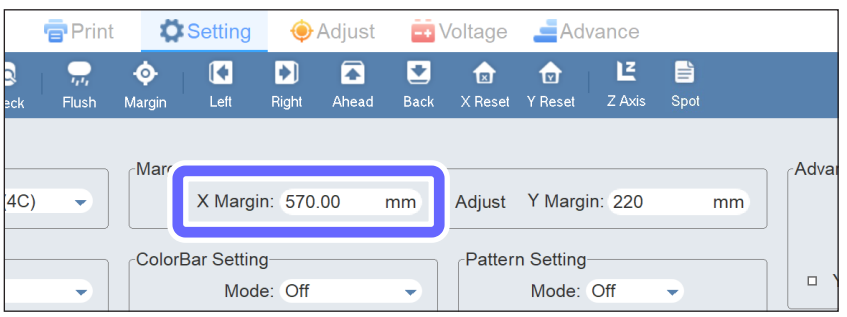
4. Configure the printing settings.

Procedure

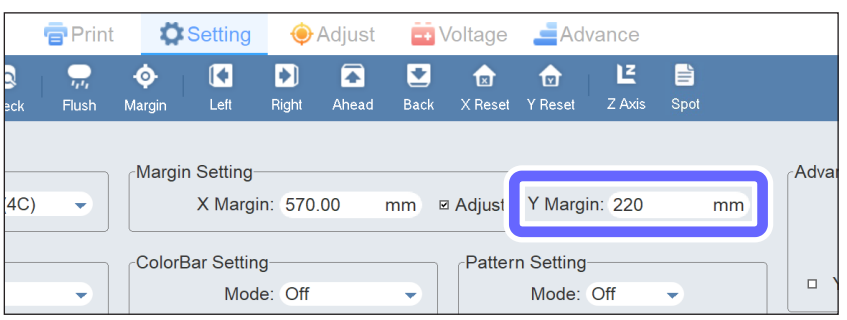
1 **Click the [Setting] tab.**



2 **Enter the printing-start position on the X axis to [X Margin] in [Margin Setting].**

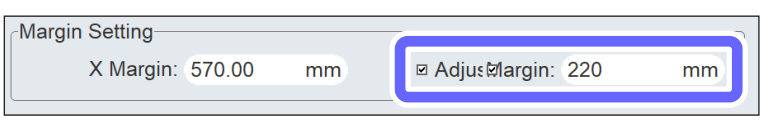


3 **Enter the printing-start position on the Y axis to [Y Margin] in [Margin Setting].**

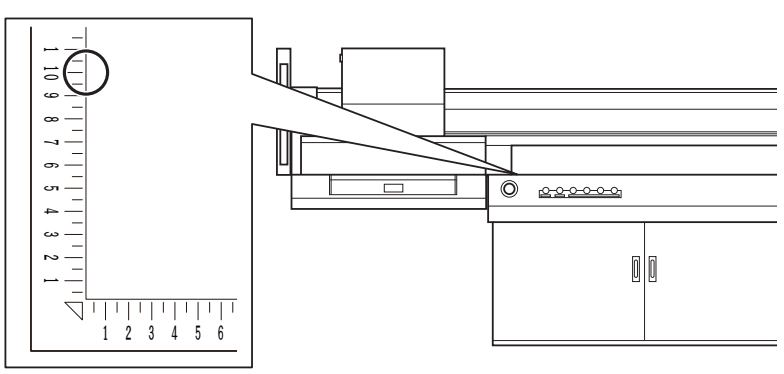


MEMO

- If [Y Margin] cannot be viewed due to letters overlapping on the screen, set the screen resolution to 1366 × 768.



- The print origin on the Y axis is set at 100 mm (3.94 in.) on the scale of the flat table. If 0 is entered in [Y Margin], printing starts at the print origin.



5. Perform a printing test.

Check the remaining ink amounts before starting printing. When the amount of ink becomes low, the machine will sound a warning beep. Refill the ink and resume operation.

☞P. 66 "Refilling Inks"

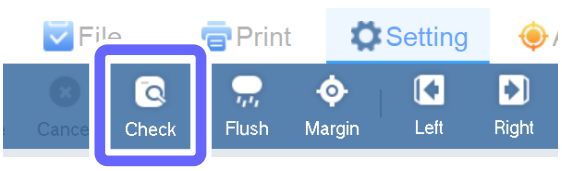
Procedure

MEMO

Check that the print-head carriage has returned to the maintenance station. If the machine detects an intrusion into the movable range of the print-head carriage while the carriage is not in the maintenance station, safety protection is activated to stop the machine.

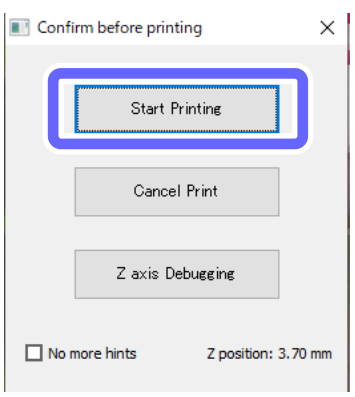
☞P. 20 "How to Clear Activated Safety Protection"

1 Click [Check].

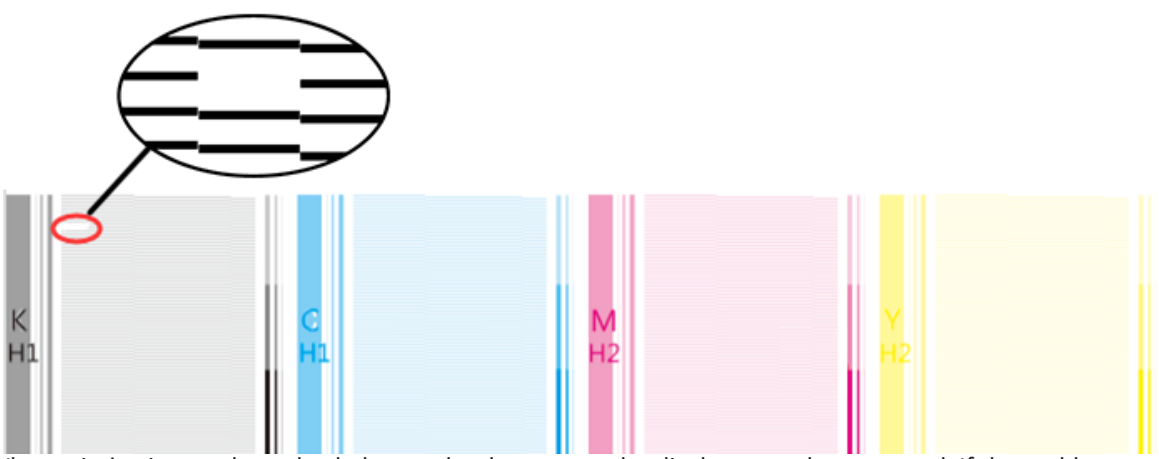


2 Click [Start Printing] on the [Confirm before printing] window.

The machine starts printing of a test pattern.



3 Check the printing result.



When printing is complete, check that no dot drop-out or dot displacement has occurred. If the problem persists, try performing head cleaning again. If the printer has been used for a long period, dot drop-outs may not be fixed even after performing head cleaning two or three times. If this is the case, perform liquid cleaning.

☞ P. 24 "1. Clean the heads."
☞ P. 82 "Liquid Cleaning"

Step 2: Printing

1. Attach the object to be printed on.

⚠ WARNING **Never climb on the table. Doing so may result in injury. It may also decrease the table accuracy.**

⚠ CAUTION **Wear protection such as safety shoes and gloves when handling heavy objects to be printed on. Failure to do this may cause injury.**

IMPORTANT

- If there are suction holes that are not covered with an object to be printed on in the suction area, cover them by placing thin sheets such as paper, film, and tape.
- Lower the suction pressure when setting a thin object to be printed on. Strong suction may leave marks of the suction holes.
- The edges of an object to be printed on may warp. Objects that warp may tear or damage the print heads when contacting the print-head carriage. Use adhesive tape to additionally secure these objects.
- To prevent the table from deforming, note the following points when setting objects to be printed on.
  - ➢ Do not drop heavy objects on the table.
  - ➢ Do not concentrate the weight of an object to be printed on.

Procedure

MEMO

Check that the print-head carriage has returned to the maintenance station. If the machine detects an intrusion into the movable range of the print-head carriage while the carriage is not in the maintenance station, safety protection is activated to stop the machine.

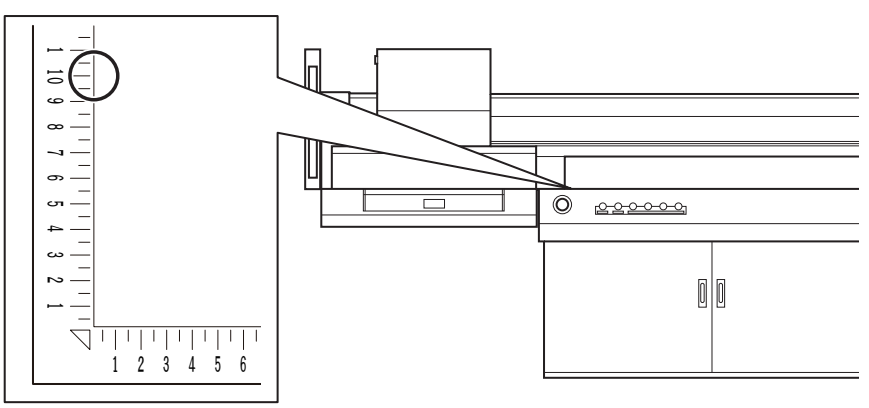
☞P. 20 "How to Clear Activated Safety Protection"

1 **Place the object on the flat table.**

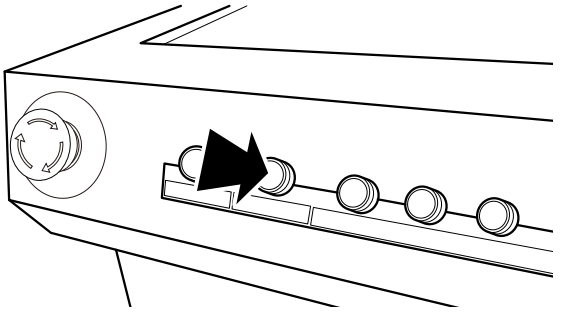
Align the edges of the object to the X and Y axes of the flat table.

IMPORTANT

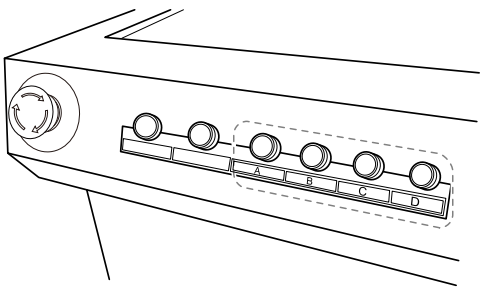
The print origin on the Y axis is set at 100 mm (3.94 in.) on the scale of the flat table.

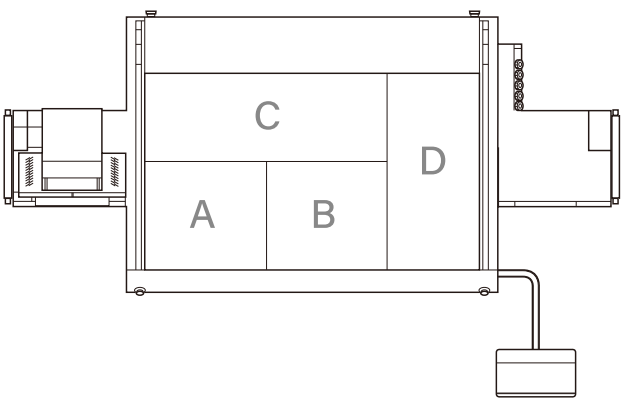


2 **Press the [Vacuum Power] button to turn on vacuum.**



3 **Press the [Vacuum Area] button to turn on the vacuum corresponding to the position the object to be printed on is in place.**

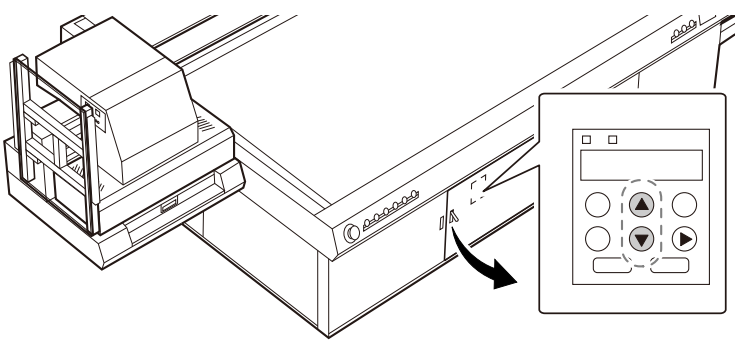




IMPORTANT

If more than one [Vacuum Area] button is pressed simultaneously, negative pressure temporarily may become insufficient, failing to secure the object to be printed on firmly. If this is the case, wait until negative pressure becomes stabilized or press the [Vacuum Area] buttons at intervals.

4 **Adjust the negative pressure applied to the object to be printed on by pressing the [▲] or [▼] button on the Vacuum Controller.**



MEMO

If the object to be printed on cannot be secured firmly, try the following.

- Change the areas to apply the negative pressure using the [Vacuum Area] buttons.
  ☞ P. 6 "Flat table"
- To increase the output, press the [▲] button on the Vacuum Controller.
  To decrease the output, press the [▼] button.

2. Adjust the print head height automatically.

The height of the object to be printed on is automatically detected, and the print heads are adjusted to the appropriate height for printing. If height of the object to be printed on is known, the print head height can be set manually.

☞P. 45 "Setting the Print Head Height Manually"

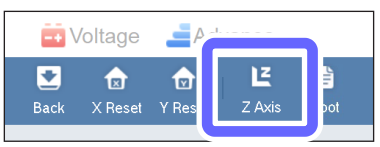
Procedure

MEMO

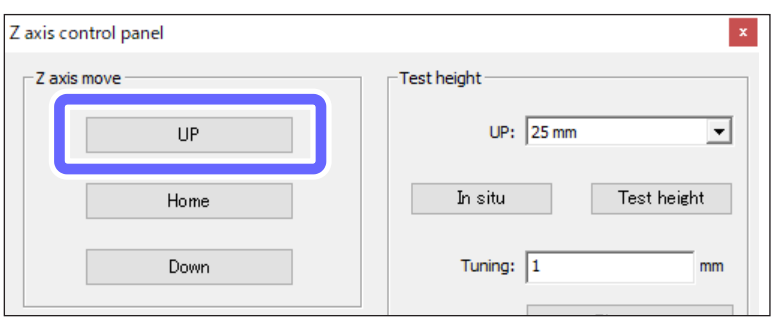
Check that the print-head carriage has returned to the maintenance station. If the machine detects an intrusion into the movable range of the print-head carriage while the carriage is not in the maintenance station, safety protection is activated to stop the machine.

☞P. 20 "How to Clear Activated Safety Protection"

1. **Measure the thickness of the object to be printed on using a measuring tape or vernier caliper.**
2. **Press [Z Axis] to display the [Z axis control panel] window.**



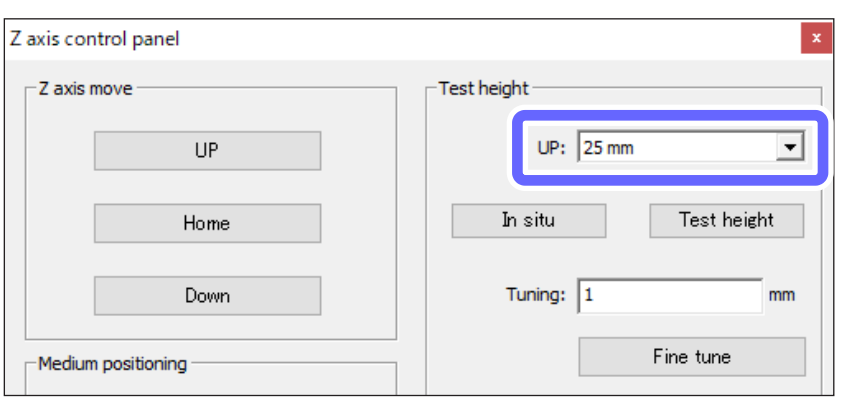
3. **Hold down [UP] in [Z axis move] until the print head height is larger than the thickness of the object to be printed on.**
The print head will be moved over the object to be printed on in step 6. Move the print head up to a height such that it does not contact the object to be printed on when it moves.



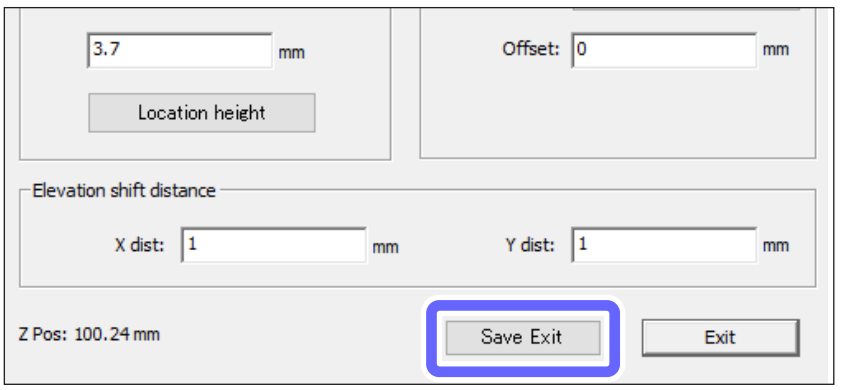
4. **Select the value for [UP] in [Test height].**
The value selected here will be the print head height at which height detection starts.

IMPORTANT

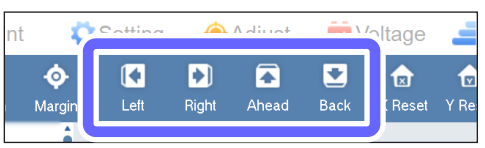
Select a value larger than the thickness of the measured object to be printed on.
Failure to do this may cause the print head to contact the object, damaging the print head.



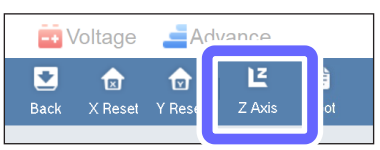
5 **Press [Save Exit].**
The setting is saved and the [Z axis control panel] window closes.



6 **Press [Left], [Right], [Ahead], and [Back] to move the print-head carriage over the object to be printed on.**



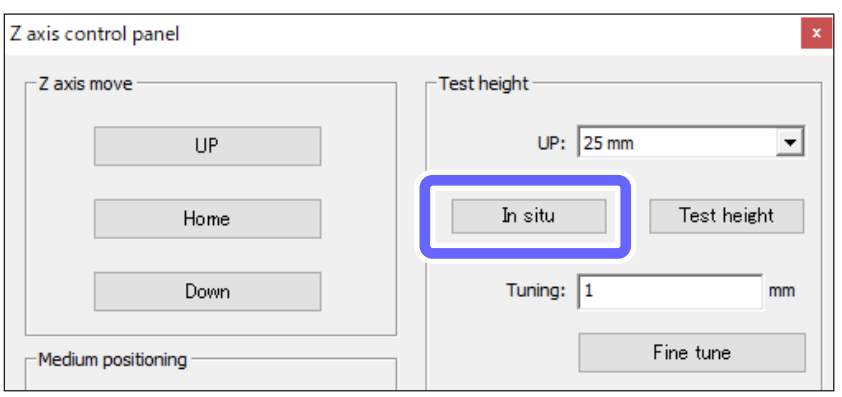
7 **Press [Z Axis] to display the [Z axis control panel] window.**



IMPORTANT

The height of the object to be printed on will be detected in the next step. Make sure that there is nothing on the flat table other than the object to be printed on.

8 **Press [In situ].**
At the current position, the print-head carriage automatically detects the height of the object to be printed on.



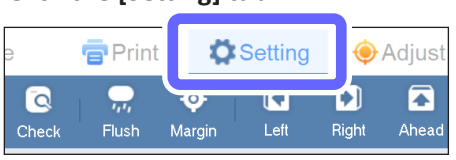
3. Configure the printing settings.

This step describes only those items that must be set before every printing. Set other items if necessary.

☞P. 13 "[Setting] tab"

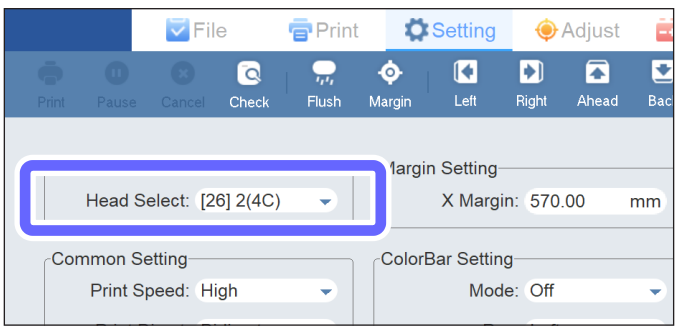
Procedure

1 **Click the [Setting] tab.**

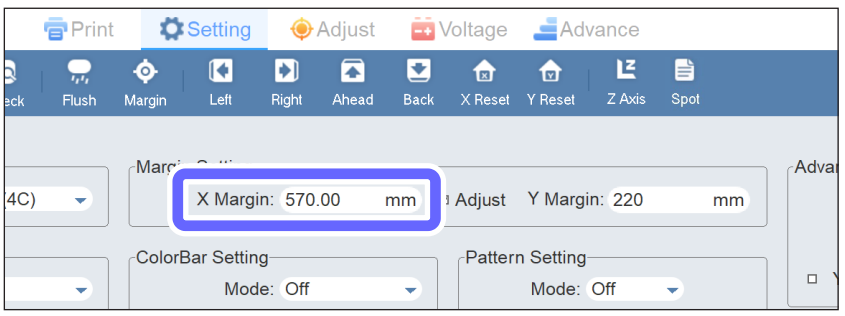


2 **Select the print heads of the colors to be used.**

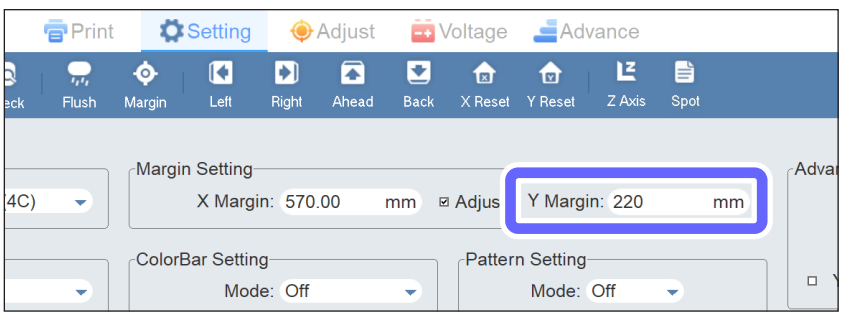
Select [26] 2 (4C) for print data using CMYK only and [26] 4 + WV for print data including Wh and Gl.



3 **Enter the printing-start position on the X axis to [X Margin] in [Margin Setting].**

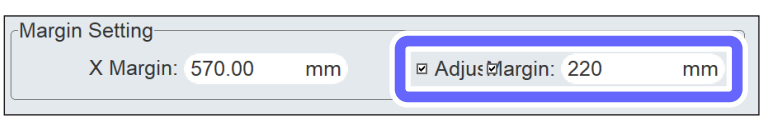


4 **Enter the printing-start position on the Y axis to [Y Margin] in [Margin Setting].**

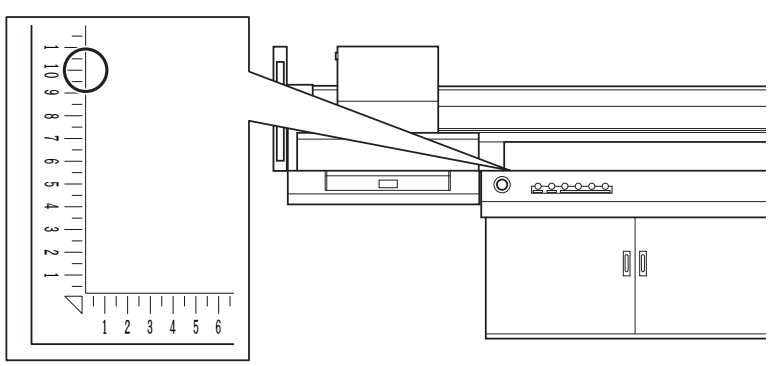


MEMO

- If [Y Margin] cannot be viewed due to letters overlapping on the screen, set the screen resolution to 1366 × 768.



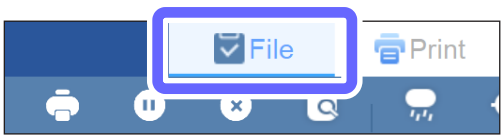
- The print origin on the Y axis is set at 100 mm (3.94 in.) on the scale of the flat table. If 0 is entered in [Y Margin], printing starts at the print origin.



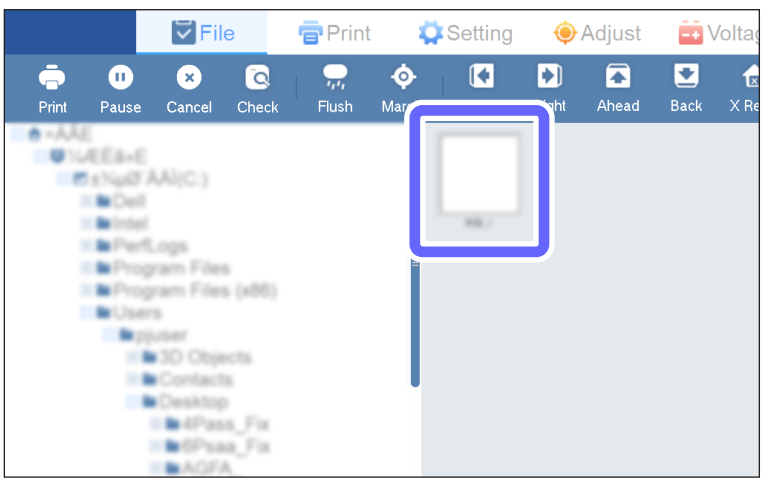
4. Add a job to [Print job list].

Procedure

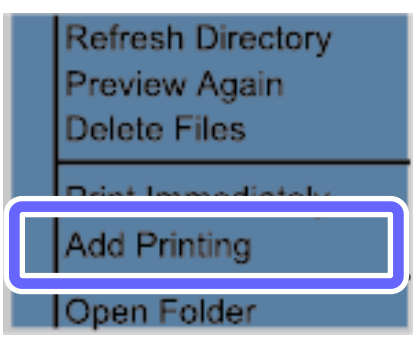
1 **Click the [File] tab.**



2 **Select the folder where the desired print data file is stored.**
The preview of the print data file in the selected folder is displayed.



3 **Right-click the print data file and select [Add Printing].**
The print data file will be added on [Print job list].



5. Perform printing.

Check the remaining ink amounts before starting printing. When the amount of ink becomes low, the machine will sound a warning beep. Refill the ink and resume operation.

☞P. 66 "Refilling Inks"

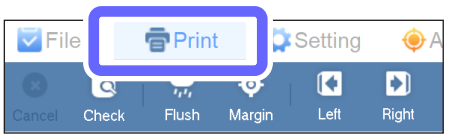
Procedure

MEMO

Check that the print-head carriage has returned to the maintenance station. If the machine detects an intrusion into the movable range of the print-head carriage while the carriage is not in the maintenance station, safety protection is activated to stop the machine.

☞P. 20 "How to Clear Activated Safety Protection"

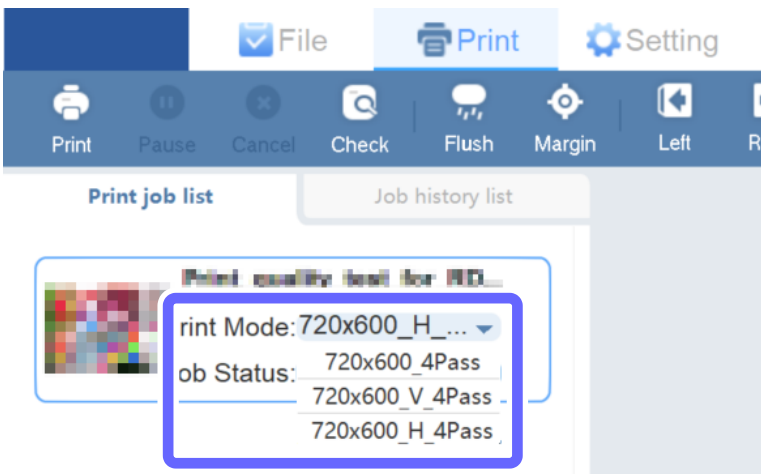
1 **Click the [Print] tab.**



2 **Check [Print Mode] of a job to print on [Print job list].**
[Print Mode] shows the resolution of the print data when it is RIPed.

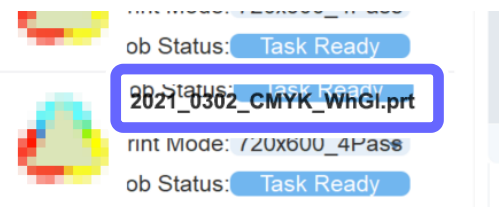
MEMO

When the print data is RIPed at 720 x 600 dpi
Select [720x600_H_4Pass] if [[26] 2(4C)] has been selected in [Head Select] on the [Setting] tab.
Select [720x600_4Pass] if [[26] 4C + WV] has been selected in [Head Select] on the [Setting] tab.

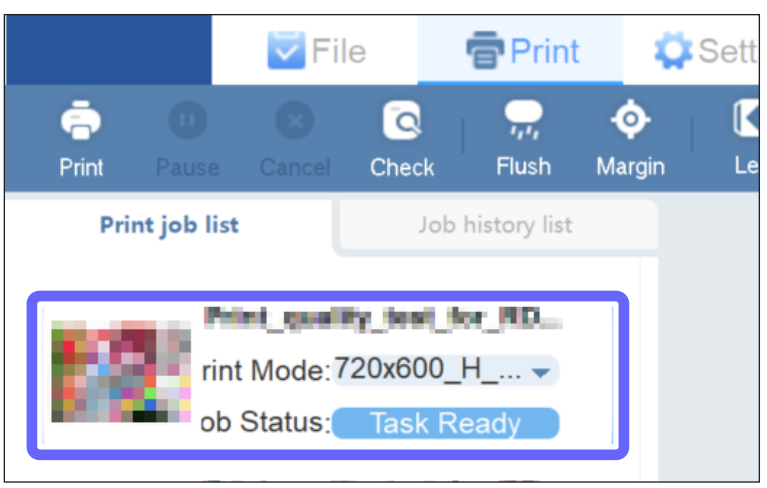


MEMO

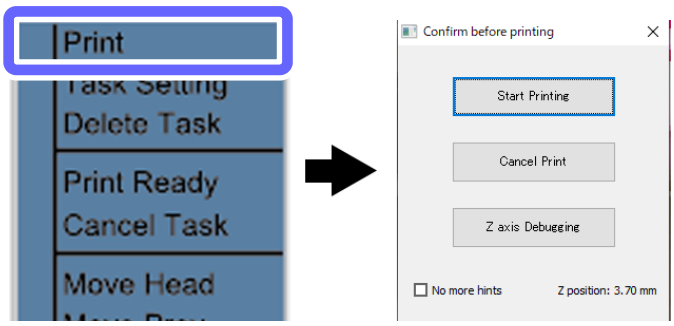
If letters are overlapping on the screen, click another job and click the job to print again.



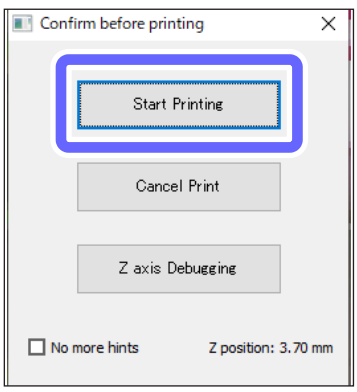
3 **Right-click a job to print on [Print job list].**



4 **Click [Print].**
The [Confirm before printing] window appears.



5 **Click [Start Printing].**
Printing starts.



Pausing and Canceling Printing

You can pause and cancel printing before it finishes.

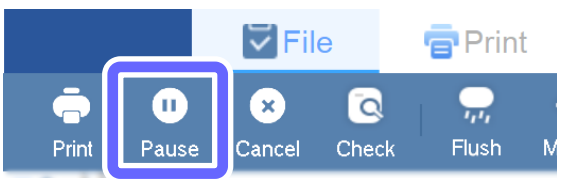
Pausing and Resuming Printing

IMPORTANT

We do not recommend resuming printing because horizontal stripes are produced at the place where printing was paused.

Procedure

1. **Press [Pause] before printing finishes.**
   Printing pauses.

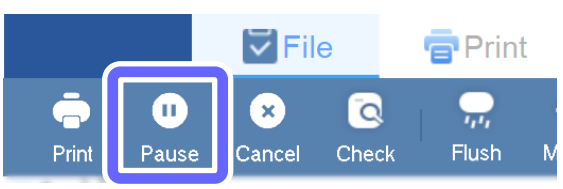


2. **Press [Pause] again.**
   Printing resumes.

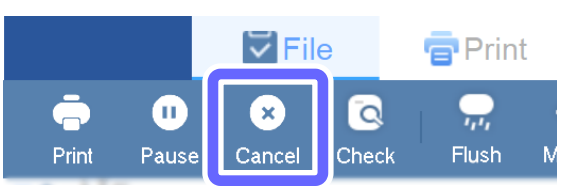
Canceling Printing

Procedure

1. **Press [Pause] before printing finishes.**
   Printing pauses.



2. **Press [Cancel].**
   This cancels printing operation.



Adjusting the Height

Setting the Print Head Height Manually

Set the print head height manually so that the distance between the print head and the object to be printed on is optimal. Manual setting is suitable for printing on soft objects and when you want to set a specific distance between the print head and the surface of the object to be printed on. Set the distance between the print head and the surface of the object to be printed on within the range from 0.8 to 2.0 mm (0.04 to 0.07 in.). A smaller value decreases ink mist but increases the risk that the print head will contact the object to be printed on.

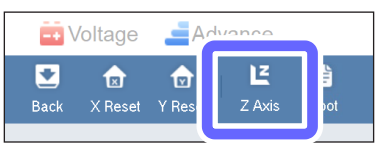
Procedure

MEMO

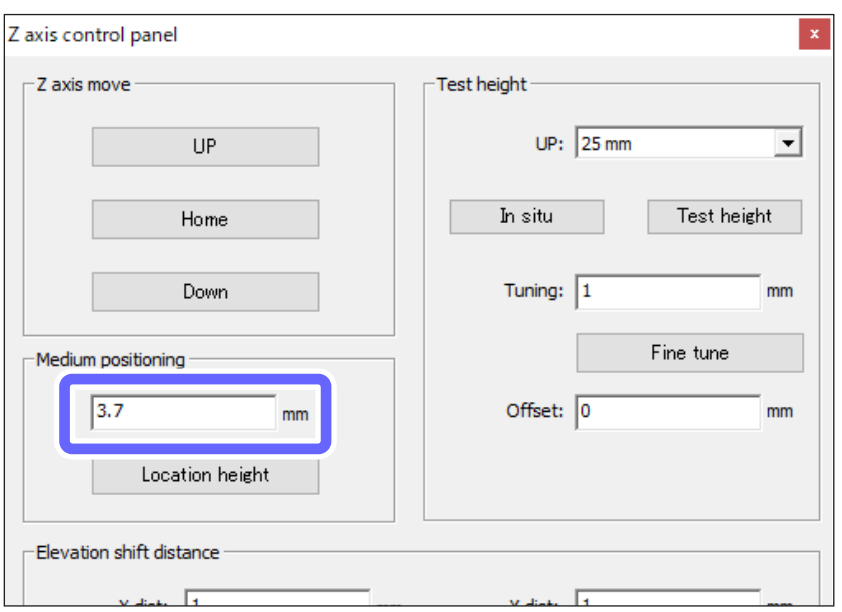
Check that the print-head carriage has returned to the maintenance station. If the machine detects an intrusion into the movable range of the print-head carriage while the carriage is not in the maintenance station, safety protection is activated to stop the machine.

☞P. 20 "How to Clear Activated Safety Protection"

1. **Measure the thickness of the object to be printed on using a measuring tape or vernier caliper.**
2. **Press [Z Axis] to display the [Z axis control panel] window.**

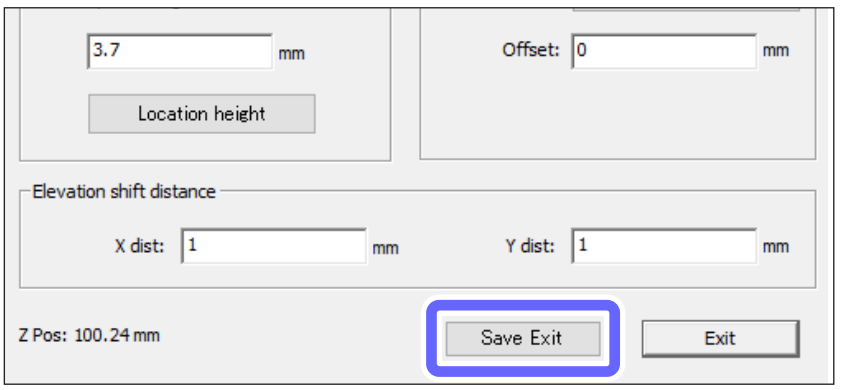


3. **Enter the print head height in [Medium positioning].**
Set the print head height according to the thickness of the object to be printed on. Set a value derived by adding 0.8 to 2.0 mm (0.04 to 0.07 in.) to the thickness of the object to be printed on.



4 Press [Save Exit].

The setting is saved and the [Z axis control panel] window closes.



3. Maintenance

1. Introduction

Important Notes on Handling and Use 49
Safety Precautions 49
Precautions for Operating Environment and Other Related Conditions 49
Basic Maintenance Knowledge 50
Types and Timing of Maintenance 50
Measures When the Printer Is Not in Use for a Prolonged Period 52

Important Notes on Handling and Use

This section explains safety precautions for maintenance of this machine.

Safety Precautions

⚠ DANGER	**Do not remove covers or parts from this machine. Doing so may result in electrical shock.**
⚠ WARNING	**Never climb on the table. Doing so may result in injury. It may also decrease the table accuracy.**
⚠ WARNING	**Clean the machine periodically. Debris or dust collecting on the parts in use may cause current leakage or deterioration of the insulation, resulting in fire and smoke hazards.**
⚠ WARNING	**Do not place vases, flowerpots, cups, cosmetics, chemicals, containers of water, or small metal objects on or near this machine. Water and metal objects entering the machine may result in fire and electrical shock.**
⚠ WARNING	**Do not touch the UV lamp. The UV lamp becomes very hot during operation. Touching it may cause injury or burns.**
⚠ WARNING	**Do not perform maintenance on the LED UV device before it cools completely. Failure to wait until the LED UV device cools completely may cause burns.**
⚠ WARNING	**Do not disassemble or modify the machine. Doing so may result in fire or electrical shock.**
⚠ CAUTION	**When cleaning the inside of the machine, be sure to contact your authorized Roland DG Corporation dealer. If the machine is not cleaned for a long time with dust accumulated inside of it, it may result in fire or malfunction.**
⚠ CAUTION	**This printer uses ultraviolet curable inks (UV inks). Be sure to wear gloves and goggles when performing maintenance.**
⚠ CAUTION	**Keep the print heads, their surrounding areas, and the nozzle surfaces away from water and alcohol. Inks may coagulate when mixed with water or alcohol.**
⚠ CAUTION	**Do not use chemicals containing benzine, thinner, or abrasives. Doing so may degrade or deform the cover surfaces.**
⚠ CAUTION	**Do not lubricate the inside of the machine. Doing so may cause the machine to malfunction.**
⚠ CAUTION	**Be sure to inspect the machine and replace specified parts periodically.**
⚠ CAUTION	**The machine contains components that may be damaged when touched. Do not touch components such as connectors, sensors, and LEDs. Doing so may result in breakdown.**

Precautions for Operating Environment and Other Related Conditions

Appropriate printing settings and maintenance frequencies differ according to the operating environment and objects to be printed on.
Please note the following points when operating the machine.

Operating environment	Points to consider
When the print head gap value is set high for reasons such as fabric sticking out of the object to be printed on.	• The nozzles may be exposed to UV light due to thick scattered mist. • Increase the frequency of all types of maintenance.
When the object to be printed on is highly reflective of UV light, such as glass and glossy metal.	
When the object to be printed on is easily charged with static electricity.	Take adequate measures such as installing a humidifier. Static electricity attracts mist and dust to printing areas, the print heads, and their surrounding areas.
When printing is performed in low-humidity environments.	

Basic Maintenance Knowledge

Types and Timing of Maintenance

This section explains how to clean and maintain this machine.

Maintenance Frequency

⚠ WARNING **Clean the machine periodically. Debris or dust collecting on the parts in use may cause current leakage or deterioration of the insulation, resulting in fire and smoke hazards.**

⚠ WARNING **Store maintenance cleaning liquids in a cold and dark place. Keep them out of the reach of children.**

⚠ CAUTION **This printer uses ultraviolet curable inks (UV inks). Be sure to wear gloves and goggles when performing maintenance.**

⚠ CAUTION **Be sure to inspect the machine and replace specified parts periodically.**

To use this machine under its optimal conditions, maintain it periodically. The print head nozzles, in particular, need to be maintained appropriately because the nozzles, which inject ink, can reduce printing quality when attached with dust and dirt.

Maintenance

These are the maintenance items that are required on a daily basis.

Maintenance frequency	Maintenance item	Reference
Before the start of daily operations	Cleaning the print heads	☞P. 54 "Cleaning the Print Heads" ☞P. 70 "Cleaning and Printing Test"
When printing is resumed		
After daily operations are finished		
When printing quality has decreased	Cleaning the print heads	☞P. 82 "Liquid Cleaning"
	Adjusting negative pressure of the print heads	☞P. 87 "Adjusting Negative Pressure of the Print Heads"
Maintenance to perform as needed	Cleaning the UV lamp	☞P. 62 "Cleaning the UV Lamp"
	Cleaning the table and outside of the machine	☞P. 59 "Cleaning the Table and Outside of the Machine"
	Cleaning the maintenance station and its surrounding areas	☞P. 60 "Cleaning the Maintenance Station and Its Surrounding Areas"
	Removing inks adhering to the table	☞P. 65 "Removing Inks Adhering to the Table"
	Refilling inks	☞P. 66 "Refilling Inks"
	Disposing of drained ink	☞P. 68 "Disposing of Drained Ink"

Tools required for maintenance

Wear UV protective eyewear and protective gloves during maintenance.
Prepare paper towels, non-woven fabric, alcohol cleaner, polyethylene gloves, and nitrile (rubber) gloves. Prepare new items instead of reusing them.

- Paper towels
  Use paper towels to remove dirt from the table and the machine exterior. Do not use them for the print heads and their surrounding areas.
- Non-woven fabric
  Use non-woven fabric to clean the print heads, their surrounding areas, and the maintenance station. Also use it for relatively large areas.
- Cleaning sticks
  Use cleaning sticks to clean the print head nozzle surfaces and the inside of the maintenance station. Also use them for relatively narrow spaces such as gaps and steps.
- Cleaning liquid
  Use cleaning liquid to remove tough dirt and hardened ink. For information about purchasing cleaning liquid, contact your authorized Roland DG Corporation dealer.
- Alcohol cleaner
  Use alcohol cleaner to remove tough dirt from the irradiation surfaces of the UV lamp and hardened ink. Use alcohol for cleaning.
- Polyethylene gloves
- Nitrile (rubber) gloves
- UV protective eyewear

MEMO

Wear three layers of gloves and put them on in the following order: nitrile (rubber) gloves, polyethylene gloves, nitrile (rubber) gloves.

Measures When the Printer Is Not in Use for a Prolonged Period

IMPORTANT

While the main power is on with the power cord plugged in, the machine mixes and circulates white ink. To maintain the concentration of white ink, do not unplug the power cord even when the printer is not in use for prolonged periods, to keep the main power on.

Operations to take when the printer will not be in use for a prolonged period

Perform the following operations before stopping the machine for a prolonged period.

- Cleaning the print heads
- Cleaning the irradiation surfaces of the UV lamp
- Cleaning the table and outside of the machine
- Disposing of drained ink

Operations to take before the printer resumes printing.

Before resuming printing, clean the machine and perform test printing to examine the results.
If the results are not satisfactory, clean the machine using cleaning liquid. Repeat cleaning until the machine outputs satisfactory results.

2. Maintenance

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- Cleaning the Print Heads 54
- Cleaning the Table and Outside of the Machine 59
- Cleaning the Maintenance Station and Its Surrounding Areas 60
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- Removing Inks Adhering to the Table 65
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- Liquid Cleaning 82
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Cleaning the Machine

Cleaning the Print Heads

Dirt on the print heads can affect print quality. Clean them before starting operations, when resuming operations, and after operations.

1. Clean the heads.

Head cleaning discharges a small amount of ink from the print head. Wipe off unwanted ink. Cleaning can remove unwanted ink and clear ink clogging.

⚠ WARNING **Be sure to wear gloves and goggles before starting operation. Ink may drop or scatter.**

IMPORTANT

- **Use new non-woven fabric when cleaning the bottom surface of the print-head carriage. When cleaning the surface, pay careful attention not to rub the nozzle surfaces.**
- **Use cleaning sticks when cleaning the print head nozzle surfaces. Cotton swabs or other lint-producing items may damage the print heads.**
- **Be sure to clean the print-head carriage on a daily basis to prevent its bottom surface from becoming dirty due to adhesion of ink and dust. If the bottom surface is dirty, the nozzles may be rubbed with foreign materials and coagulated ink during cleaning.**

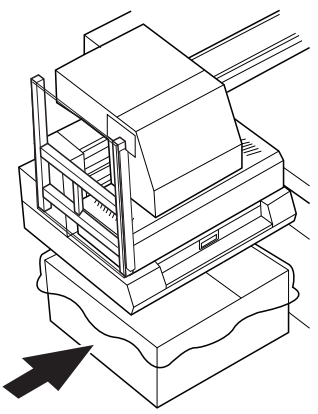
Procedure

MEMO

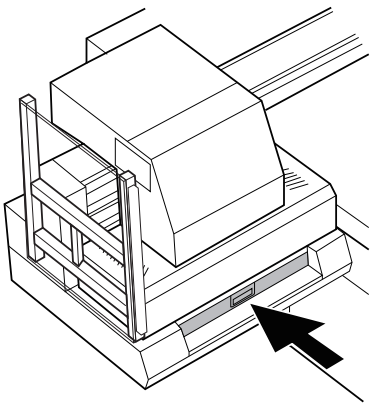
Check that the print-head carriage has returned to the maintenance station. If the machine detects an intrusion into the movable range of the print-head carriage while the carriage is not in the maintenance station, safety protection is activated to stop the machine.

☞ P. 20 "How to Clear Activated Safety Protection"

1 **Place a container at the position shown in the figure below.**



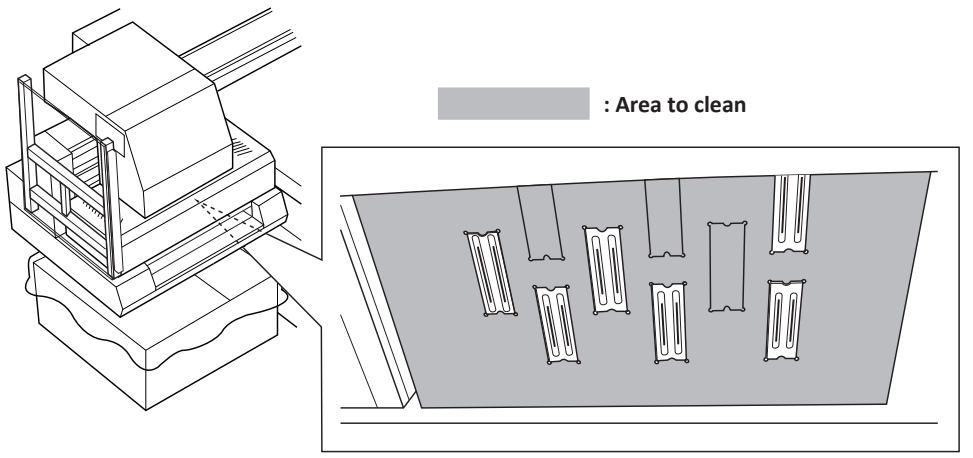
2 **Slowly insert the ink receiver all the way.**



3 **Clean the areas shown in the figure below using new non-woven fabric.**

IMPORTANT

- **Use dry non-woven fabric without using cleaning liquids.**
- **Do not touch the nozzle surfaces when cleaning the print heads and their surrounding areas.**
- **Clean the entire bottom surface and both side surfaces of the print-head carriage by removing adhering ink.**



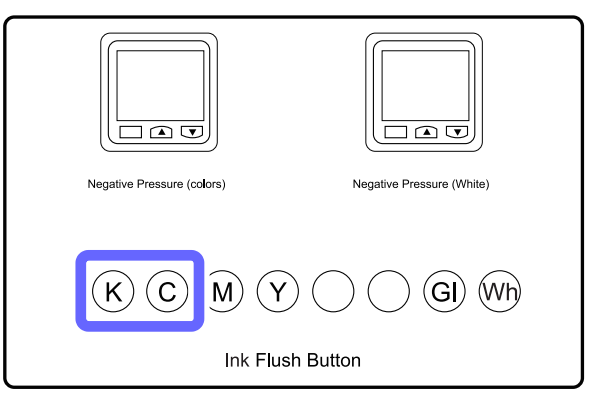
4 **Press the [Ink Flush button] on the left side of the print-head carriage to flush ink from the print heads.**

① **Hold down the [K] button for 10 seconds.**

② **Hold down the [C] button for 10 seconds.**

IMPORTANT

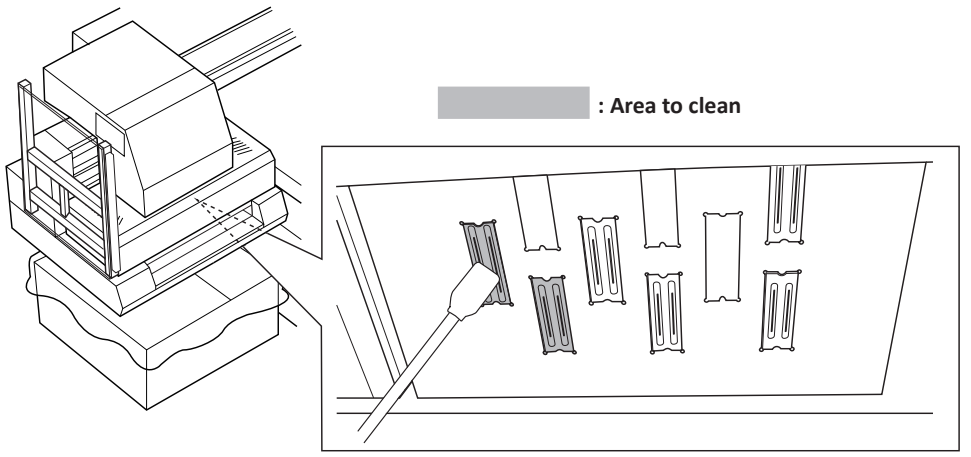
Do not hold down the buttons for more than 10 seconds.
The ink storage, which is located on the upper side of the print head, runs out of ink. This allows air to enter the ink tube, causing ink discharge failure or decreased printing quality.



5 Clean the K and C print head nozzle surfaces using new cleaning sticks.

IMPORTANT

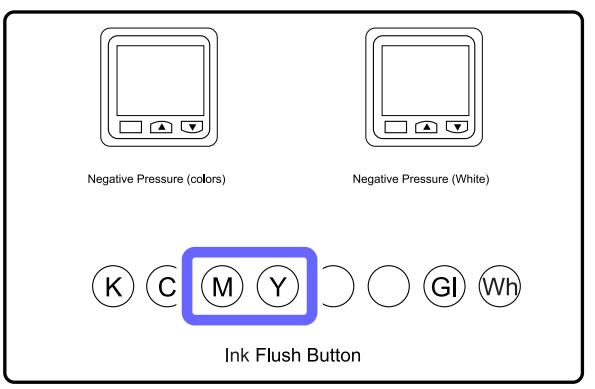
- **Use dry non-woven fabric without using cleaning liquids.**
- **Never rub the nozzle surfaces hard.**



6 Repeat steps 4 and 5 to clean the print heads M and Y.

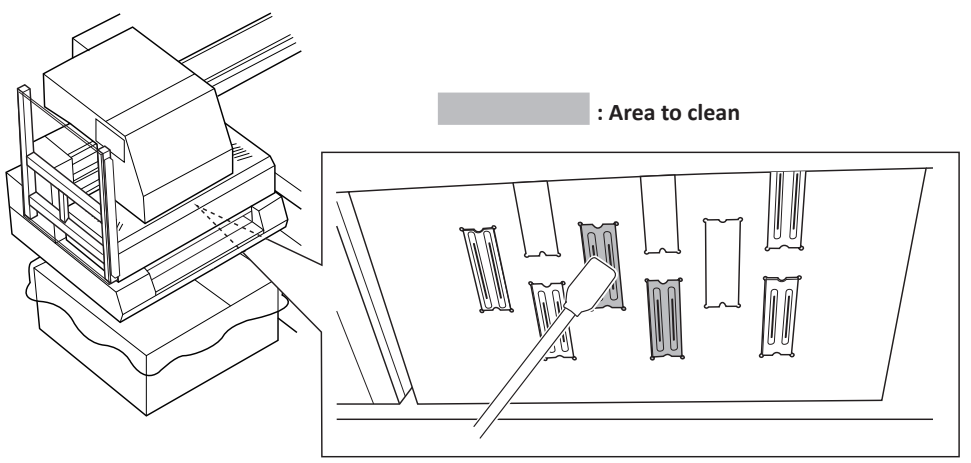
IMPORTANT

Do not hold down the buttons for more than 10 seconds.
The ink storage, which is located on the upper side of the print head, runs out of ink. This allows air to enter the ink tube, causing ink discharge failure or decreased printing quality.



IMPORTANT

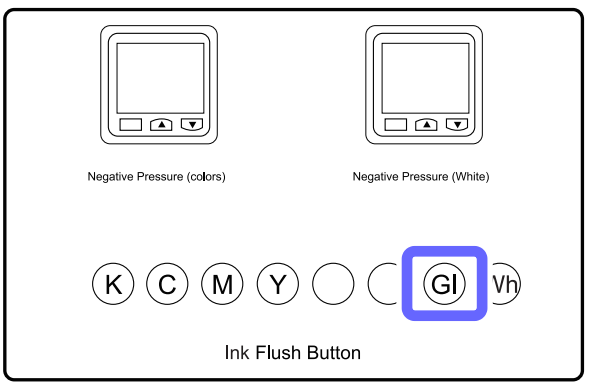
- **Use dry non-woven fabric without using cleaning liquids.**
- **Never rub the nozzle surfaces hard.**



7 **Hold down the [Gl] button on the left side of the print-head carriage for 10 seconds to flush ink from the print head.**

IMPORTANT

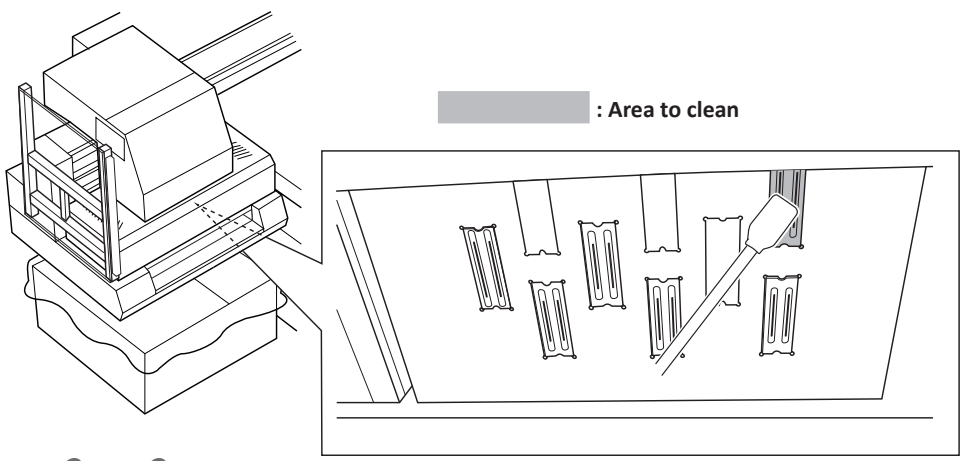
Do not hold down the buttons for more than 10 seconds.
The ink storage, which is located on the upper side of the print head, runs out of ink. This allows air to enter the ink tube, causing ink discharge failure or decreased printing quality.



8 **Clean the Gl print head nozzle surface using new cleaning sticks.**

IMPORTANT

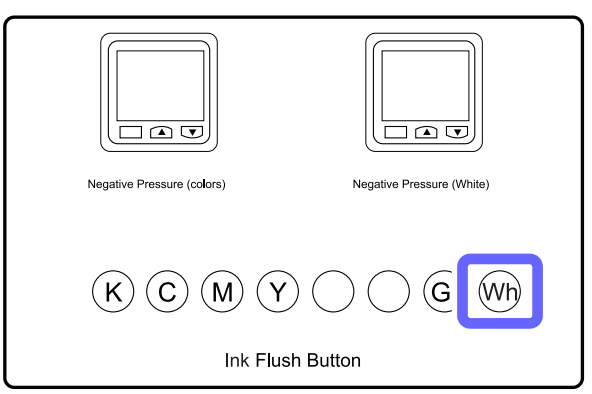
- **Use dry non-woven fabric without using cleaning liquids.**
- **Never rub the nozzle surfaces hard.**



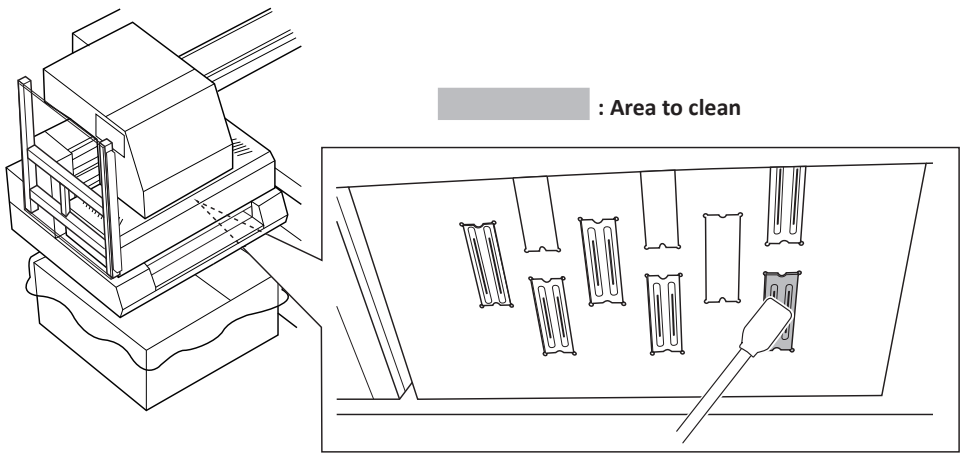
9 **Repeat steps 7 and 8 to clean the print head Wh.**

IMPORTANT

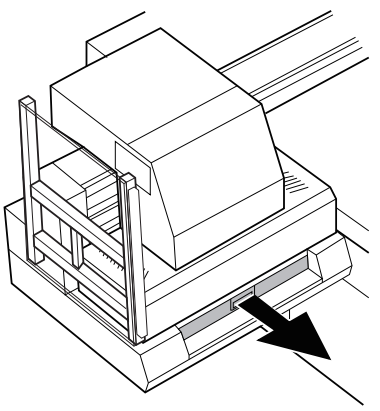
- **Do not hold down the buttons for more than 10 seconds.**
  The ink storage, which is located on the upper side of the print head, runs out of ink. This allows air to enter the ink tube, causing ink discharge failure or decreased printing quality.



- **Use dry non-woven fabric without using cleaning liquids.**
- **Always wipe off Wh ink because it easily adheres to the print head surface.**
- **Never rub the nozzle surfaces hard.**



⑩ Pull the ink receiver back.



Cleaning the Table and Outside of the Machine

To use this machine safely for a long time, maintain it periodically.

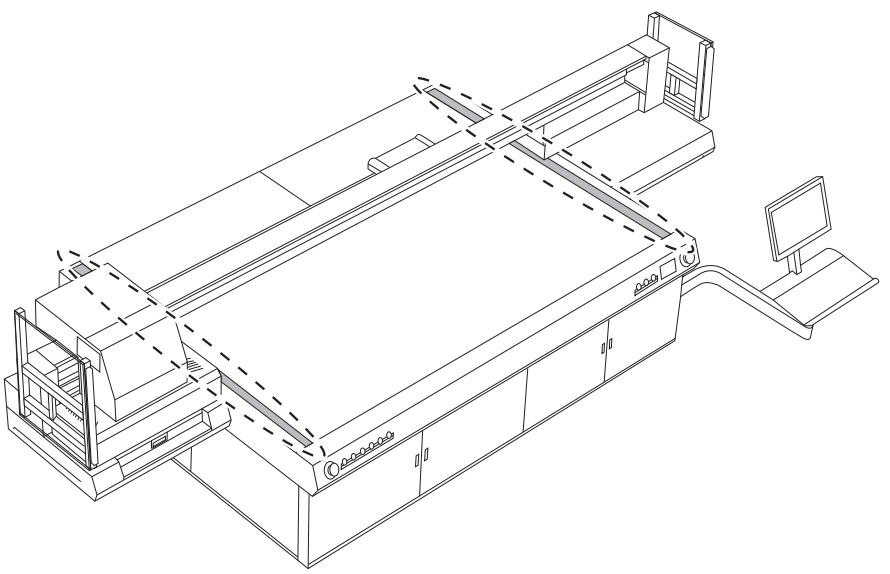
⚠ WARNING **Never climb on the table. Doing so may result in injury. It may also decrease the table accuracy.**

⚠ WARNING **Be sure to wear gloves and goggles before starting operation. Ink may drop or scatter.**

IMPORTANT

- **Set sufficient print margins to prevent ink from adhering to the table and put masking tape around the printing area on the object to be printed on.**
- **If printing is applied to the table by mistake, stop printing immediately and wipe the ink off with dry fabric.**

  ☞P. 65 "Removing Inks Adhering to the Table"
- **Maintain the warning labels on this machine to ensure that they are readable at any time. If the warning labels are dirty, always wipe the dirt off.**
- **To prevent cleaning tools and trash from dropping in the grooves (see the following figure), cover the grooves with plastic sheets or similar materials before starting operations.**



How to maintain

MEMO

Check that the print-head carriage has returned to the maintenance station. If the machine detects an intrusion into the movable range of the print-head carriage while the carriage is not in the maintenance station, safety protection is activated to stop the machine.

☞P. 20 "How to Clear Activated Safety Protection"

Wipe the table and machine exterior with a dry soft cloth. If this does not work, wipe with a cloth that has been wetted with water and then wrung out very well. After wiping with a wet cloth, wipe with a dry cloth to completely remove any moisture.

Cleaning the Maintenance Station and Its Surrounding Areas

Clean the maintenance station and its surrounding areas periodically. Ink may adhere to these areas.

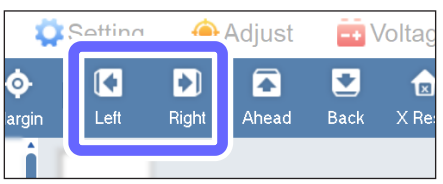
⚠ **WARNING** **Be sure to wear gloves and goggles before starting operation. Ink may drop or scatter.**

IMPORTANT

- **The print-head carriage needs to be moved during cleaning. Do not place anything on the table.**
- **It becomes difficult to remove dirt when it is completely hardened. Clean the maintenance station and its surrounding areas frequently if ink and dust are adhering to these areas.**

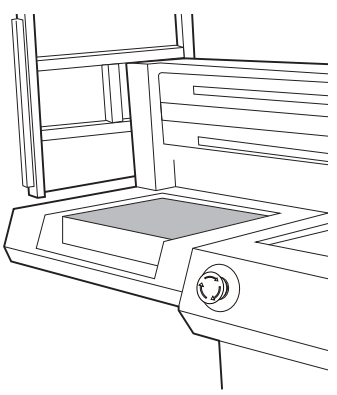
Procedure

1 **Move the print-head carriage onto the flat table by pressing [Left] and [Right] on Print Exp.**



2 **Clean the ink receiver with a non-woven fabric impregnated with cleaning liquid.**

: **Area to clean**

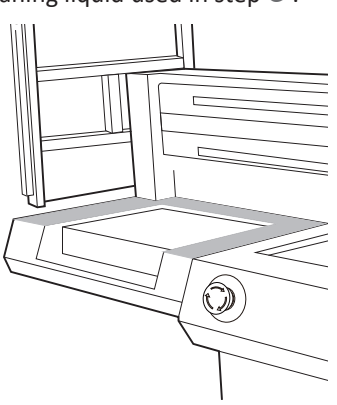


3 **Wipe the areas indicated in the following figure with a soft cloth.**
If this does not work, wipe with a cloth that has been wetted with water and then wrung out very well. After wiping with a wet cloth, wipe with a dry cloth to completely remove any moisture.

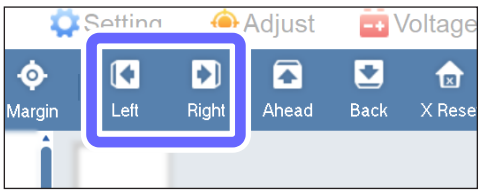
IMPORTANT

Do not use the non-woven fabric impregnated with cleaning liquid used in step **2**.

: **Area to clean**



4 **Move the print-head carriage onto the maintenance station by pressing [Left] and [Right] on Print Exp.**



5 **Clear the activated safety protection.**

☞ P. 20 "How to Clear Activated Safety Protection"

Cleaning the UV Lamp

Clean the irradiation surfaces of the UV lamp when it becomes dirty due to ink and dust.
If the irradiation surfaces are blocked with adhering dirt or ink, ink will not be appropriately hardened, resulting in uneven printing.

⚠ WARNING **Do not perform maintenance on the LED UV device before it cools completely. Failure to wait until the LED UV device cools completely may cause burns.**

⚠ WARNING **Be sure to wear gloves and goggles before starting operation. Ink may drop or scatter.**

IMPORTANT

- **The print-head carriage needs to be moved during cleaning. Do not place anything on the table.**
- **If the glass on the irradiation surface is damaged, the parts need to be replaced. If dirt cannot be removed or adhering ink is hardened, contact your authorized Roland DG Corporation dealer.**

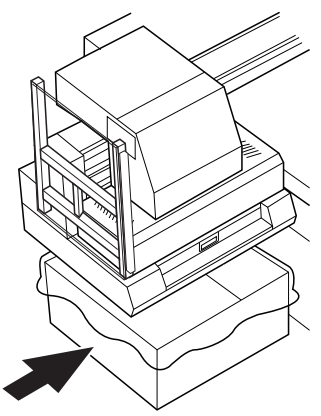
Procedure

MEMO

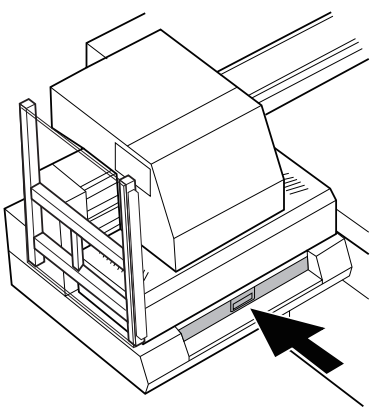
Check that the print-head carriage has returned to the maintenance station. If the machine detects an intrusion into the movable range of the print-head carriage while the carriage is not in the maintenance station, safety protection is activated to stop the machine.

☞ P. 20 "How to Clear Activated Safety Protection"

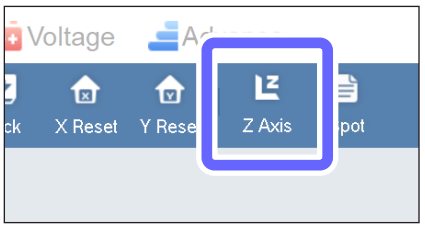
1 Place a container at the position shown in the figure below.



2 Slowly insert the ink receiver all the way.

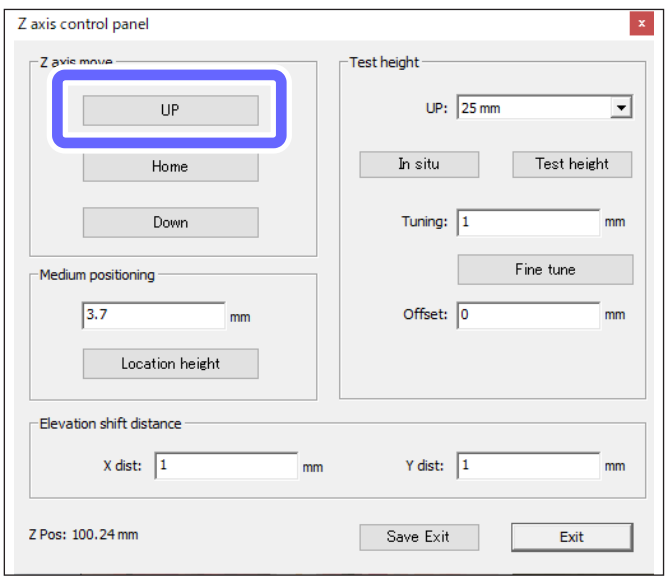


3 **Press [Z Axis] on Print Exp.**



4 **Press the [UP] button.**

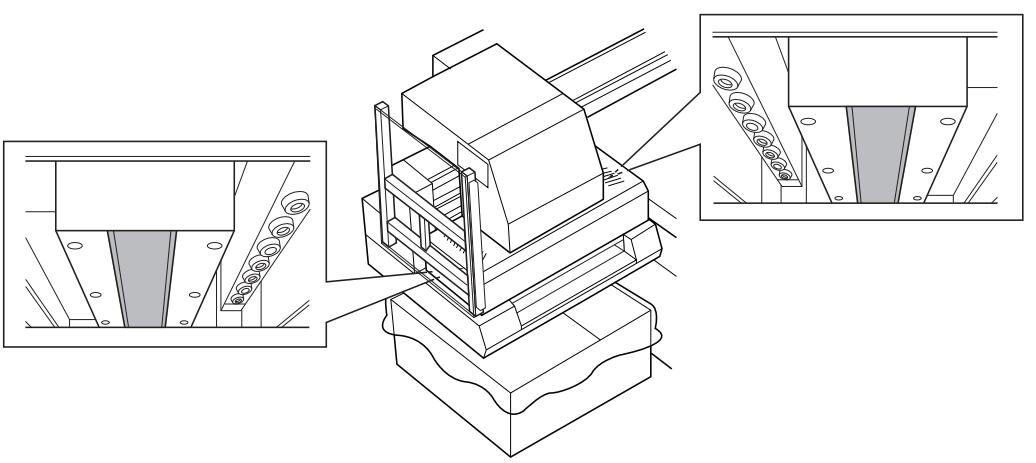
Move up the print-head carriage to check the irradiation surfaces of the UV lamp.



5 **Clean the irradiation surfaces of the UV lamp with a new non-woven fabric impregnated with cleaning alcohol.**

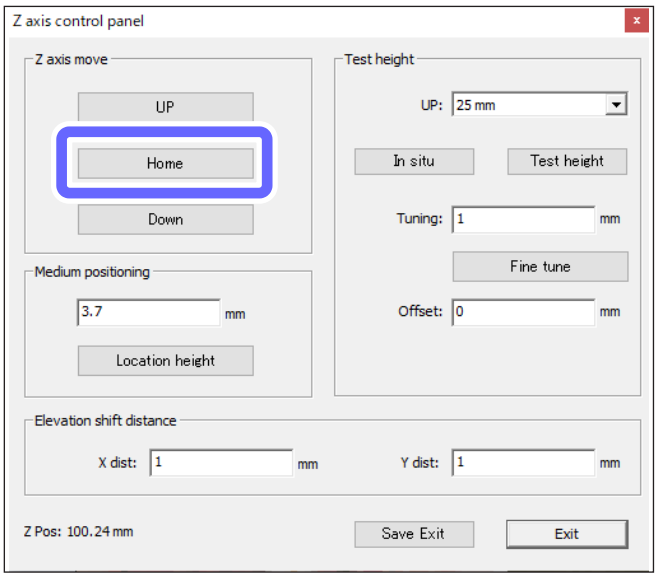
IMPORTANT

- Wipe alcohol off completely from the irradiation surfaces.
- Do not use force to tear off hardened ink adhering to the irradiation surfaces. If adhering ink cannot be removed, contact your authorized Roland DG Corporation dealer.

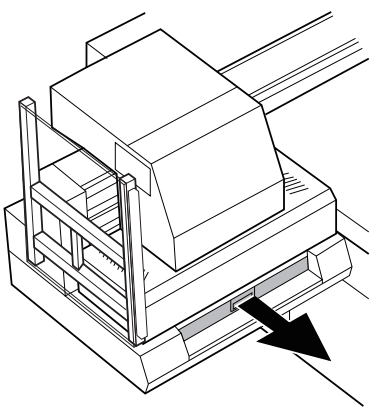


6 **Press [Home] on Print Exp.**

Move down the print-head carriage to the position where it was before moving up.



7 **Pull the ink receiver back.**



Removing Inks Adhering to the Table

IMPORTANT

The appropriate maintenance frequency differs according to the period of use and usage environment. Maintenance may also be required more frequently depending on the object to be printed on or the image being printed. Change the maintenance frequency according to your usage conditions.

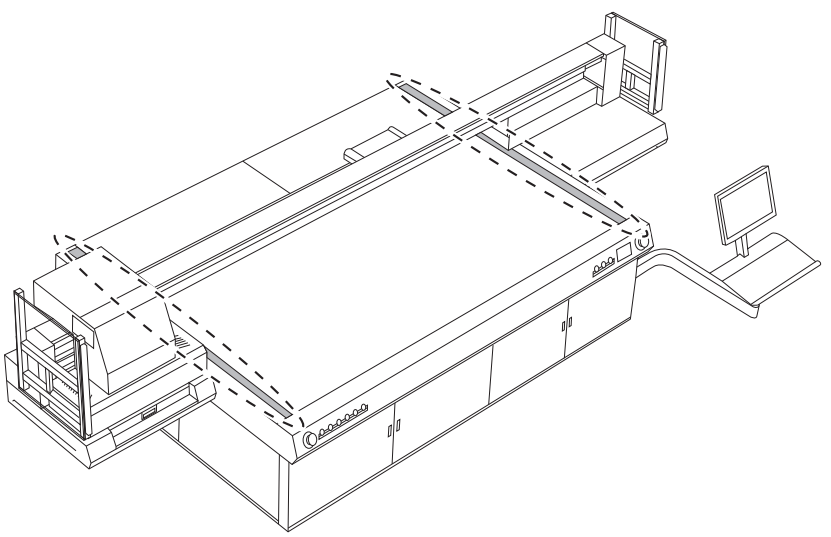
If printing is applied to the table by mistake, stop printing immediately and wipe the ink off with dry fabric. This section explains how to remove hardened ink adhering to the table that cannot be removed by wiping.

⚠ **WARNING** **Never climb on the table. Doing so may result in injury. It may also decrease the table accuracy.**

⚠ **WARNING** **Be sure to wear gloves and goggles before starting operation. Ink may drop or scatter.**

IMPORTANT

- **Pieces of hardened ink remaining on the table may deform objects to be printed on or cause insufficient suction. Remove all of them using a cleaner or similar tools.**
- **Do not push pieces of hardened ink into the suction holes during cleaning.**
- **Before starting operations, cover the print heads and their surrounding moving parts (see the following figure) with plastic sheets or similar materials to protect them from scattered pieces of removed ink.**



MEMO

Check that the print-head carriage has returned to the maintenance station. If the machine detects an intrusion into the movable range of the print-head carriage while the carriage is not in the maintenance station, safety protection is activated to stop the machine.

☞ P. 20 "How to Clear Activated Safety Protection"

Procedure

1. **Remove ink adhering to the tabletop plate.**
   If hardened ink adhering to the tabletop plate cannot be removed by wiping with a dry cloth, use a cloth that has been wetted with water and then wrung out very well. After wiping with a wet cloth, wipe with a dry cloth to completely remove any moisture.
2. **Remove ink adhering to the suction holes.**
   Scrape out ink hardened in the suction holes using a tool with a sharp point. Clear scraped pieces of ink. These pieces of ink can be cleared using adhesive tape such as duct tape.

Refilling Inks

A warning beep is sounded when the amount of ink remaining in the ink tank becomes low. Prepare an ink refill to refill the tank with ink.
The warning beep stops when the tank is refilled with ink or the [Stir] button is pressed.

⚠ WARNING **Do not mix ink with any materials for which mixing is prohibited.**

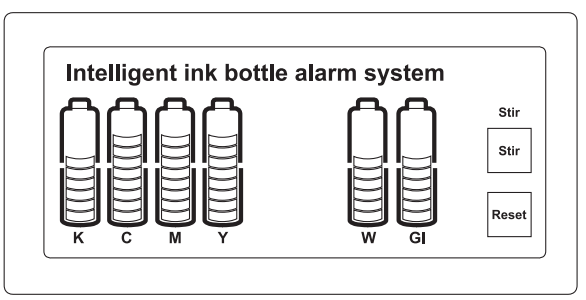
⚠ WARNING **Be careful not to spill ink. Prevent inks from draining to natural water systems and domestic wastewater. Inks are highly irritating or toxic.**

⚠ WARNING **Be sure to wear gloves and goggles before starting operation. Ink may drop or scatter.**

IMPORTANT

- **Do not refill the tank with ink during printing because the gantry may move and come into contact with the operator. Do not place caps or related items on the table.**
- **Use an industrial waste disposal service to dispose of used ink bottles.**

The remaining amounts of inks are indicated on the display on the front of the machine.
The graduations indicate the amount of ink. A large number of graduations shows a larger amount of remaining ink.
The displayed amount of remaining ink is just a guide. It may differ somewhat from the actual amount remaining.

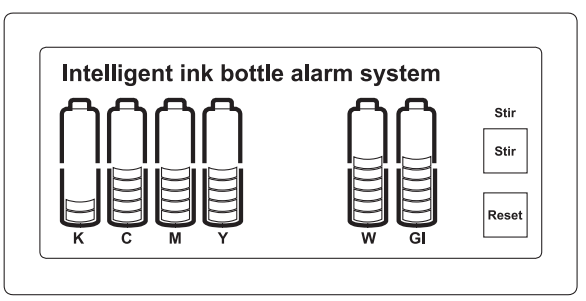


Graduation color	Amount of remaining ink (approximate)
Green	40 to 100%
Yellow	20 to 40%
Red	0 to 20%

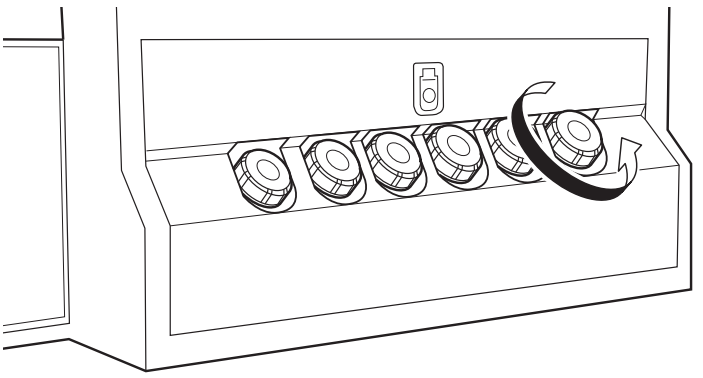
When the ink concentration becomes low, press the [Reset] button to circulate the ink.

Procedure

1 Check the ink tank and alarm display to find the inks that need to be refilled.



2 **Remove the cap from an ink tank that needs refilling.**

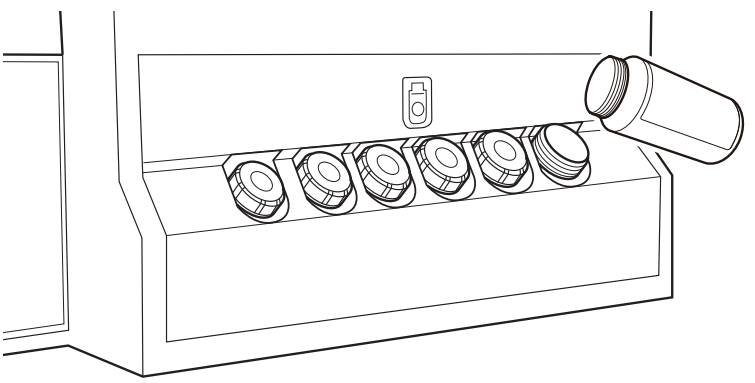


3 **After checking that the cap is tightened on the refill ink bottle, shake the bottle.**

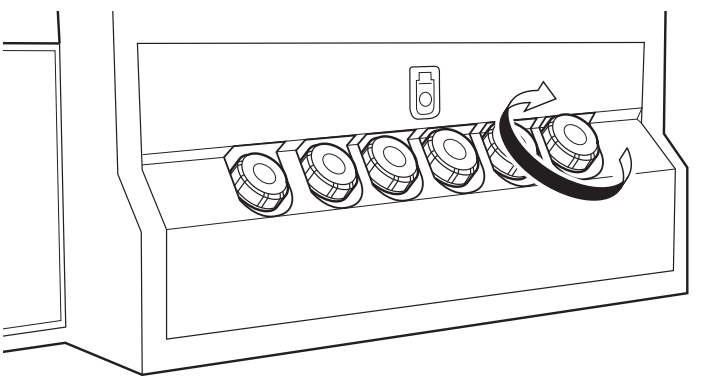
4 **Remove the cap from the refill ink bottle and refill the tank with the ink.**

MEMO

- Pour the ink without spilling it. If the ink is spilled, wipe it off immediately with a dry cloth.
- The warning beep stops when the tank is filled with the ink. Do not leave any ink in the refill ink bottle.



5 **Tighten the cap on the ink tank.**



Disposing of Drained Ink

To protect the print heads from drying and dirt, this machine periodically flushes ink from the print heads into the ink receiver when the main power is on. Flushed ink is accumulated in the ink receiver, which needs to be drained periodically.

⚠ WARNING **Do not mix ink with any materials for which mixing is prohibited.**

⚠ WARNING **Be careful not to spill ink. Prevent inks from draining to natural water systems and domestic wastewater. Inks are highly irritating or toxic.**

⚠ WARNING **Be sure to wear gloves and goggles before starting operation. Ink may drop or scatter.**

IMPORTANT

- **Do not drain flushed ink from the ink receiver during printing because the gantry moves.**
- **Use an industrial waste disposal service to dispose of drained inks.**
- **Some components, such as photo-initiators, are toxic to water creatures. Do not drain inks to natural water, such as rivers, or domestic wastewater, such as toilets or road drains.**
- **When disposing of drained ink, spread protections, such as paper, to prevent staining floors and other related materials with the drained ink.**

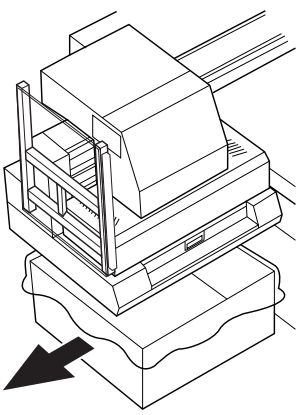
Procedure

MEMO

Check that the print-head carriage has returned to the maintenance station. If the machine detects an intrusion into the movable range of the print-head carriage while the carriage is not in the maintenance station, safety protection is activated to stop the machine.

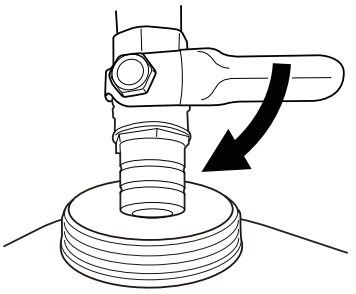
☞ P. 20 "How to Clear Activated Safety Protection"

1 Move the container out of the way of operations to drain flushed ink.

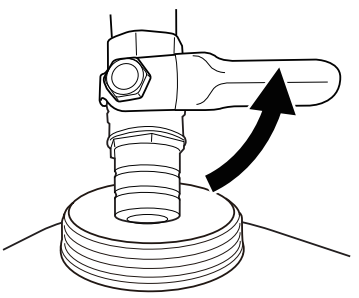


2 Prepare a container for storing drained ink.

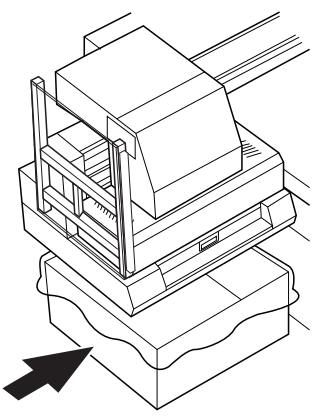
3 **Turn the drain cock on the bottom of the ink receiver in the direction indicated with the arrow, which is shown in the following figure, to drain ink flushed from the ink receiver into the container.**



4 **Turn the drain cock in the direction indicated with the arrow to close it.**
Wipe off ink adhering to the discharge spout completely with a cloth.



5 **Place the container under the ink receiver.**



Cleaning and Printing Test

Perform a printing test to ensure that dot drop-out, dot displacement, and ink dropping do not occur.

- Be sure to perform a printing test before daily operations.
- If dot drop-out, dot displacement, or ink dropping is present after a printing test, perform cleaning again.

1. Clean the heads.

Head cleaning discharges a small amount of ink from the print head. Wipe off unwanted ink. Cleaning can remove unwanted ink and clear ink clogging.
Negative pressure is applied to the print heads to hold ink. Head cleaning also allows users to determine whether the negative pressure value needs to be adjusted. For details of negative pressure adjustment, see P. 87 "Adjusting Negative Pressure of the Print Heads."

⚠ WARNING **Be sure to wear gloves and goggles before starting operation. Ink may drop or scatter.**

IMPORTANT

- **Use new non-woven fabric when cleaning the bottom surface of the print-head carriage. When cleaning the surface, pay careful attention not to rub the nozzle surfaces.**
- **Use cleaning sticks when cleaning the print head nozzle surfaces. Cotton swabs or other lint-producing items may damage the print heads.**
- **Be sure to clean the print-head carriage on a daily basis to prevent its bottom surface from becoming dirty due to adhesion of ink and dust. If the bottom surface is dirty, the nozzles may be rubbed with foreign materials and coagulated ink during cleaning.**

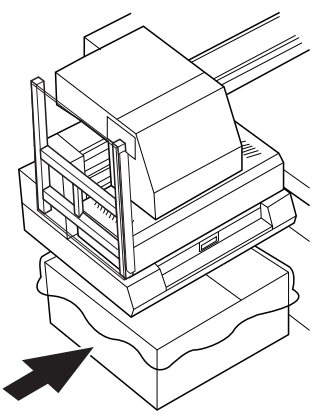
Procedure

MEMO

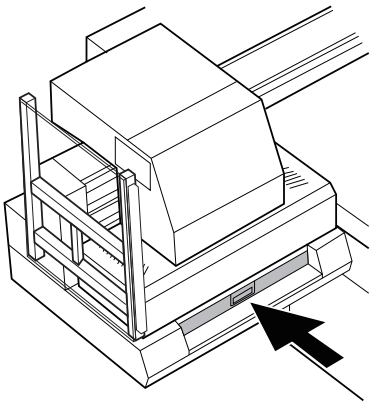
Check that the print-head carriage has returned to the maintenance station. If the machine detects an intrusion into the movable range of the print-head carriage while the carriage is not in the maintenance station, safety protection is activated to stop the machine.

☞ P. 20 "How to Clear Activated Safety Protection"

1 **Place a container at the position shown in the figure below.**



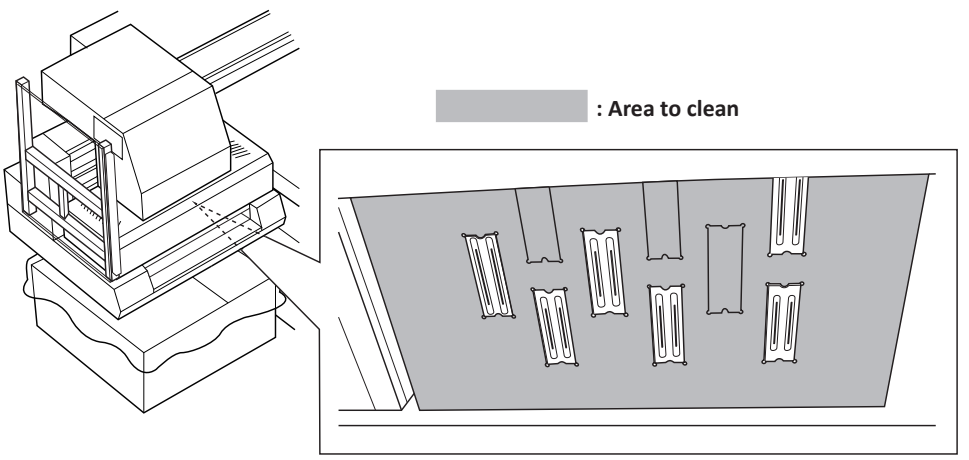
2 **Slowly insert the ink receiver all the way.**



3 **Clean the areas shown in the figure below using new non-woven fabric.**

IMPORTANT

- **Use dry non-woven fabric without using cleaning liquids.**
- **Do not touch the nozzle surfaces when cleaning the print heads and their surrounding areas.**
- **Clean the entire bottom surface and both side surfaces of the print-head carriage by removing adhering ink.**



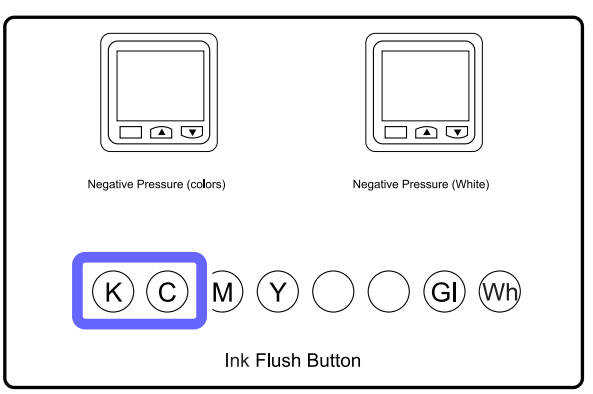
4 **Press the [Ink Flush button] on the left side of the print-head carriage to flush ink from the print heads.**

① **Hold down the [K] button for 10 seconds.**

② **Hold down the [C] button for 10 seconds.**

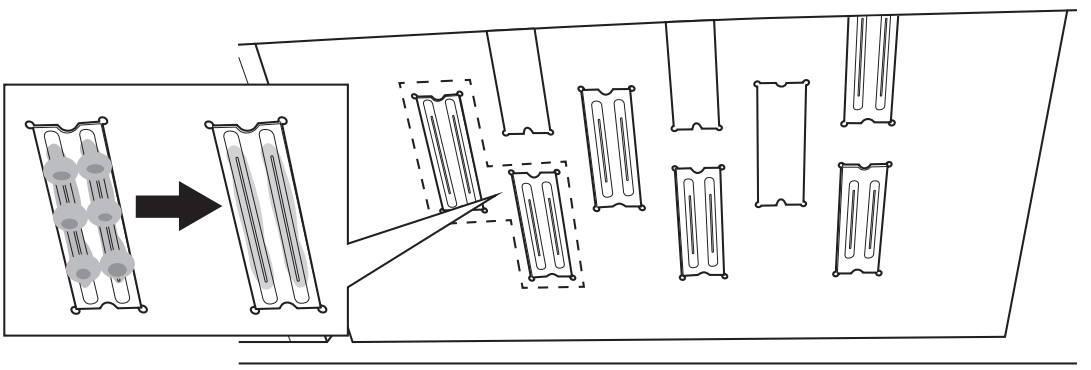
IMPORTANT

Do not hold down the buttons for more than 10 seconds.
The ink storage, which is located on the upper side of the print head, runs out of ink. This allows air to enter the ink tube, causing ink discharge failure or decreased printing quality.



Determine if the negative pressure value is set appropriately by checking the print head nozzle surfaces.
The negative pressure value is appropriate if flushed ink droplets are kept on the nozzle surfaces.
If the negative pressure value of the print head nozzle is too high, ink droplets on the nozzle surfaces are sucked into the nozzles. If this is the case, lower the negative pressure value of the print head nozzle.

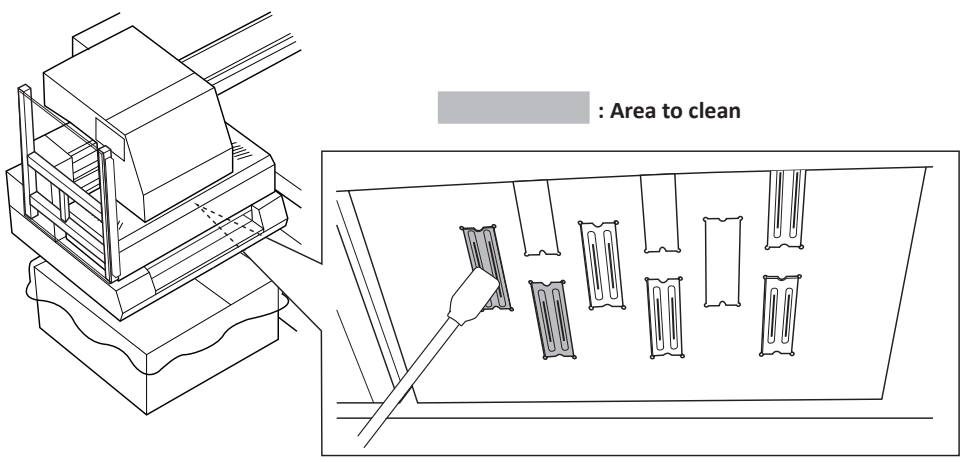
☞ P. 87 "Setting a Lower Negative Pressure Value"



5 Clean the K and C print head nozzle surfaces using new cleaning sticks.

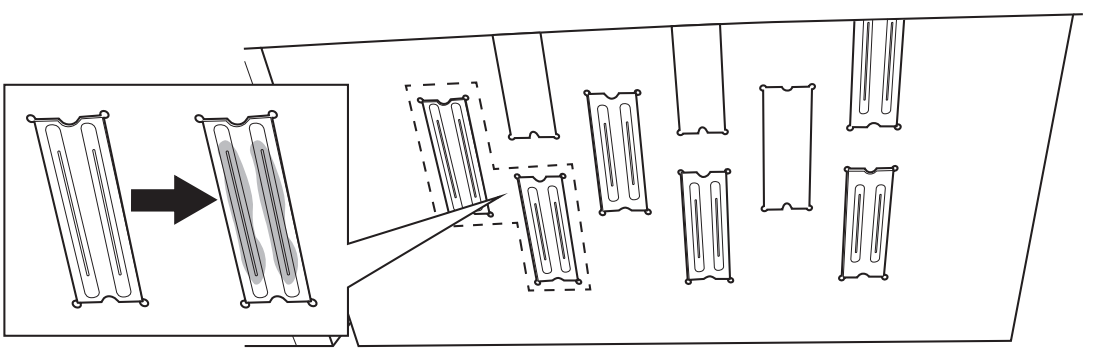
IMPORTANT

- **Use dry non-woven fabric without using cleaning liquids.**
- **Never rub the nozzle surfaces hard.**



After cleaning, determine if the negative pressure value is set appropriately by checking the print head nozzle surfaces.
If the nozzle surfaces maintain conditions immediately after cleaning, the negative pressure value is appropriate.
If the negative pressure value of the print head nozzle is too low, ink seeps from the nozzle surfaces. If this is the case, increase the negative pressure value of the print head nozzle.

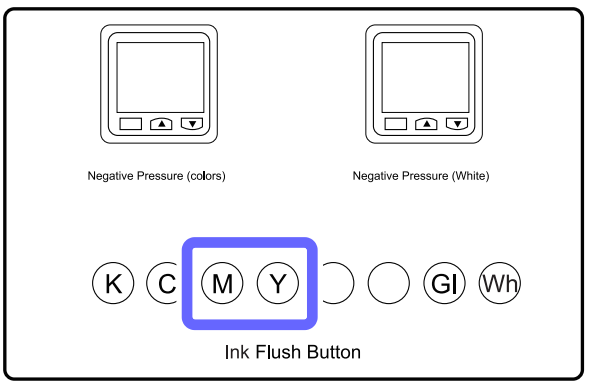
☞ P. 89 "Setting a Higher Negative Pressure Value"



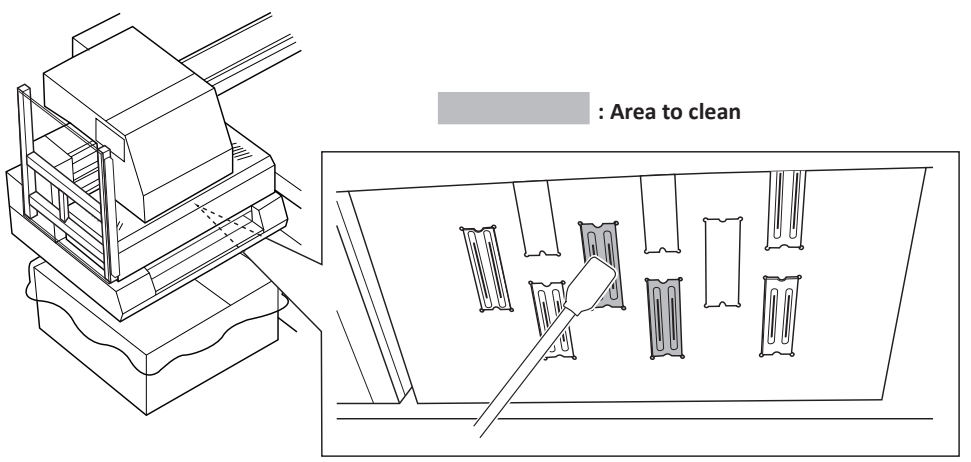
❻ Repeat steps ❹ and ❺ to clean the print heads M and Y.

IMPORTANT

- **Do not hold down the buttons for more than 10 seconds.**
  The ink storage, which is located on the upper side of the print head, runs out of ink. This allows air to enter the ink tube, causing ink discharge failure or decreased printing quality.



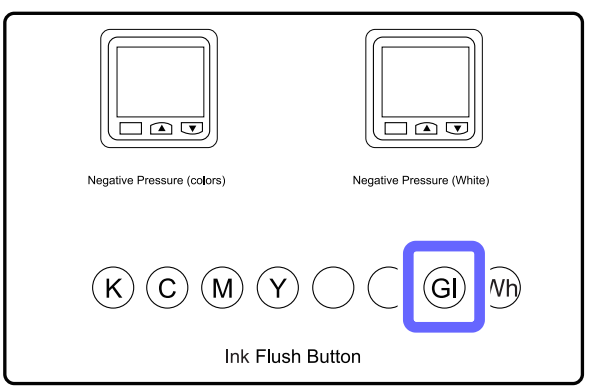
- **Use dry non-woven fabric without using cleaning liquids.**
- **Never rub the nozzle surfaces hard.**



❼ Hold down the [Gl] button on the left side of the print-head carriage for 10 seconds to flush ink from the print head.

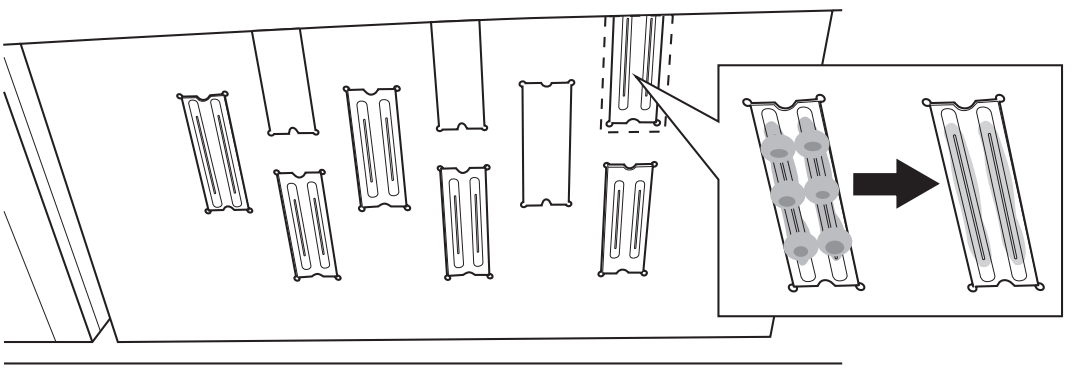
IMPORTANT

Do not hold down the buttons for more than 10 seconds.
The ink storage, which is located on the upper side of the print head, runs out of ink. This allows air to enter the ink tube, causing ink discharge failure or decreased printing quality.



Determine if the negative pressure value is set appropriately by checking the print head nozzle surfaces.
The negative pressure value is appropriate if flushed ink droplets are kept on the nozzle surfaces.
If the negative pressure value of the print head nozzle is too high, ink droplets on the nozzle surfaces are sucked into the nozzles. If this is the case, lower the negative pressure value of the print head nozzle.

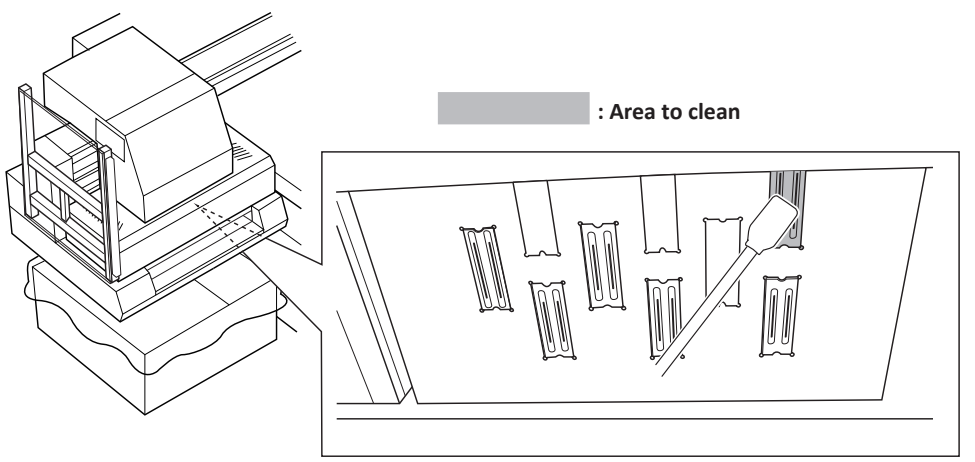
☞ P. 87 "Setting a Lower Negative Pressure Value"



8 Clean the GI print head nozzle surface using new cleaning sticks.

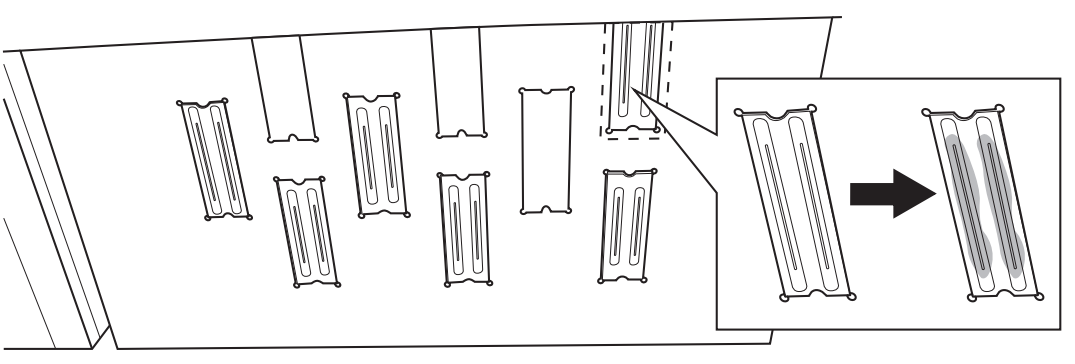
IMPORTANT

- **Use dry non-woven fabric without using cleaning liquids.**
- **Never rub the nozzle surfaces hard.**



After cleaning, determine if the negative pressure value is set appropriately by checking the print head nozzle surfaces.
If the nozzle surfaces maintain conditions immediately after cleaning, the negative pressure value is appropriate.
If the negative pressure value of the print head nozzle is too low, ink seeps from the nozzle surfaces. If this is the case, increase the negative pressure value of the print head nozzle.

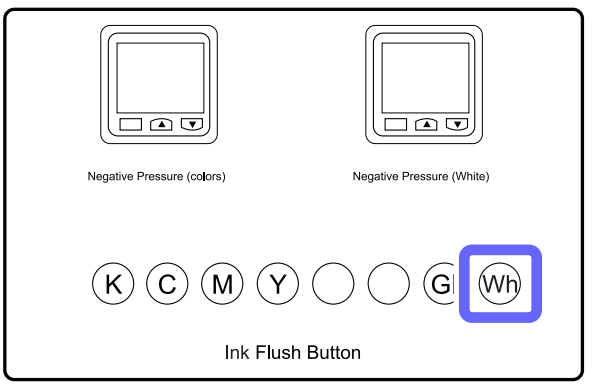
☞ P. 89 "Setting a Higher Negative Pressure Value"



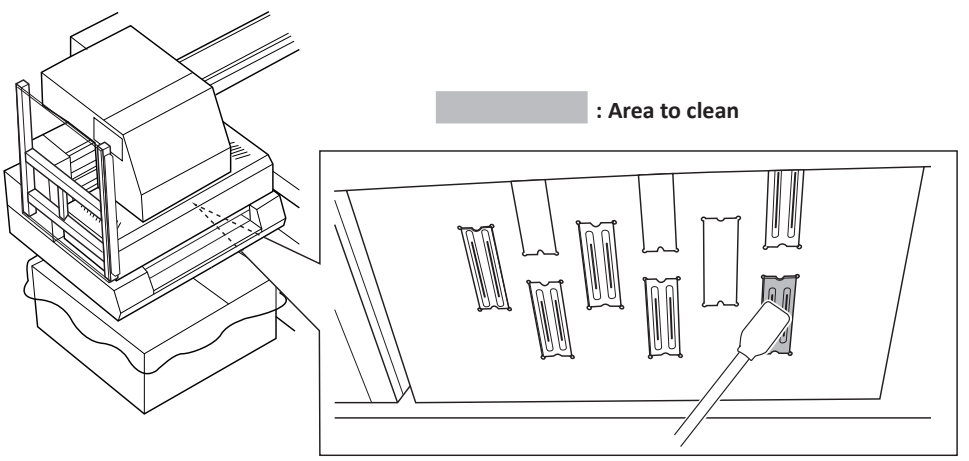
9 Repeat steps 7 and 8 to clean the print head Wh.

IMPORTANT

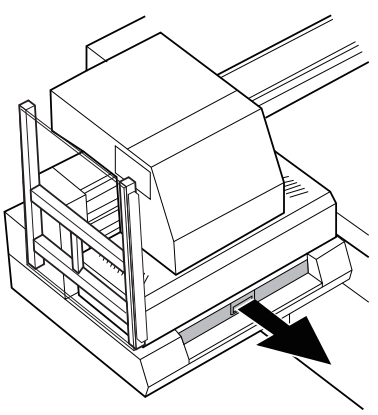
- **Do not hold down the buttons for more than 10 seconds.**
  The ink storage, which is located on the upper side of the print head, runs out of ink. This allows air to enter the ink tube, causing ink discharge failure or decreased printing quality.



- **Use dry non-woven fabric without using cleaning liquids.**
- **Always wipe off Wh ink because it easily adheres to the print head surface.**
- **Never rub the nozzle surfaces hard.**



10 Pull the ink receiver back.



2. Attach the object to be printed on for the printing test.

⚠ WARNING **Never climb on the table. Doing so may result in injury. It may also decrease the table accuracy.**

⚠ CAUTION **Wear protection such as safety shoes and gloves when handling heavy objects to be printed on. Failure to do this may cause injury.**

IMPORTANT

- If there are suction holes that are not covered with an object to be printed on in the suction area, cover them by placing thin sheets such as paper, film, and tape.
- Lower the suction pressure when setting a thin object to be printed on. Strong suction may leave marks of the suction holes.
- The edges of an object to be printed on may warp due to heat. Such objects may tear or damage the print heads when contacting the print heads during printing. Use adhesive tape to additionally secure these objects.
- To prevent the table from deforming, note the following points when setting objects to be printed on.
  - ➢ Do not drop heavy objects on the table.
  - ➢ Do not concentrate the weight of an object to be printed on.

Procedure

MEMO

Check that the print-head carriage has returned to the maintenance station. If the machine detects an intrusion into the movable range of the print-head carriage while the carriage is not in the maintenance station, safety protection is activated to stop the machine.

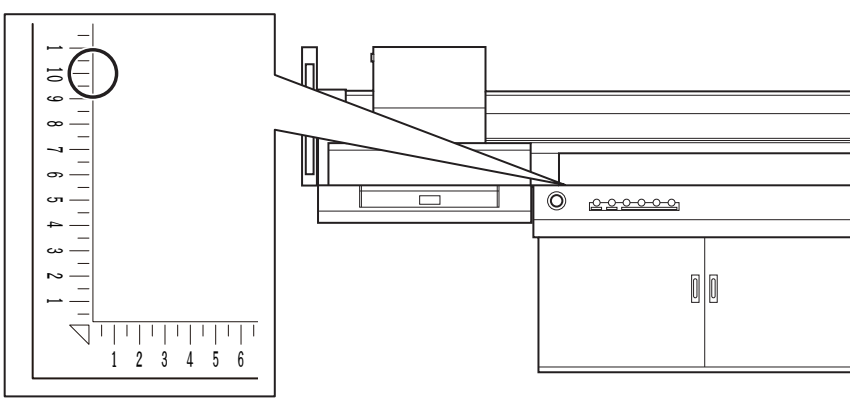
☞ P. 20 "How to Clear Activated Safety Protection"

1 **Prepare an object for a printing test.**
Printing tests are used to check that no dot drop-out occurs. Use an object prepared for the printing test (width 200 mm (7.88 in.) × length 300 mm (11.82 in.) or larger), instead of using an actual object to be printed on.

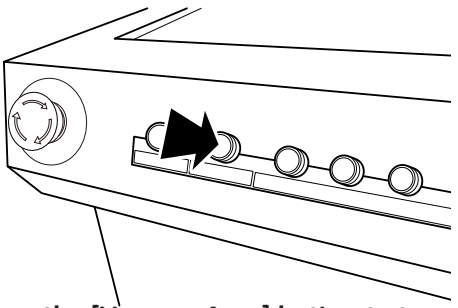
2 **Place the object on the flat table.**
Align the edges of the object to the X and Y axes of the flat table.

IMPORTANT

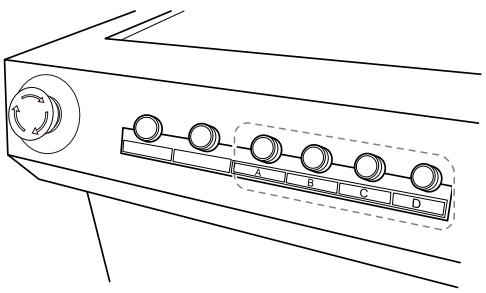
The print origin on the Y axis is set at 100 mm (3.94 in.) on the scale of the flat table.

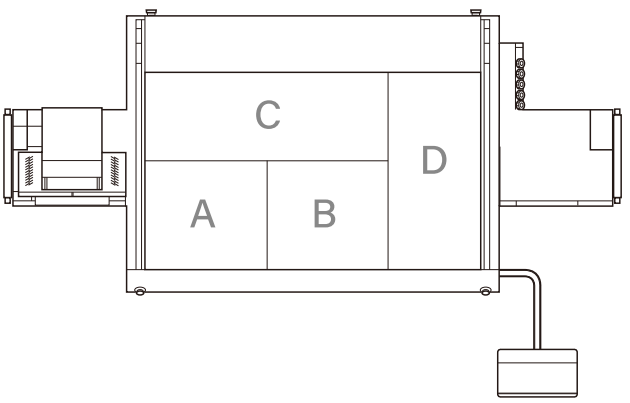


3 **Press the [Vacuum Power] button to turn on vacuum.**



4 **Press the [Vacuum Area] button to turn on the vacuum corresponding to the position the object to be printed on is in place.**

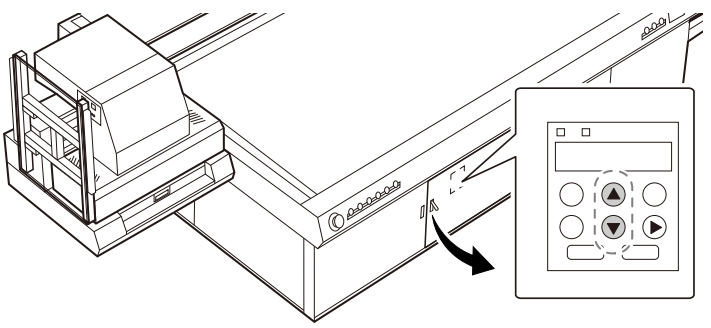




IMPORTANT

If more than one [Vacuum Area] button is pressed simultaneously, negative pressure temporarily may become insufficient, failing to secure the object to be printed on firmly. If this is the case, wait until negative pressure becomes stabilized or press the [Vacuum Area] buttons at intervals.

5 **Adjust the negative pressure applied to the object to be printed on by pressing the [▲] or [▼] button on the Vacuum Controller.**



MEMO

If the object to be printed on cannot be secured firmly, try the following.

- Change the areas to apply the negative pressure using the [Vacuum Area] buttons.
  ☞ P. 6 "Flat table"
- To increase the output, press the [▲] button on the Vacuum Controller.
  To decrease the output, press the [▼] button.

3. Adjust the print head height automatically.

The height of the object to be printed on is automatically detected, and the print heads are adjusted to the appropriate height for printing. If height of the object to be printed on is known, the print head height can be set manually.

☞ P. 45 "Setting the Print Head Height Manually"

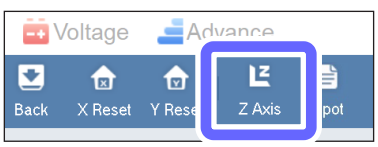
Procedure

MEMO

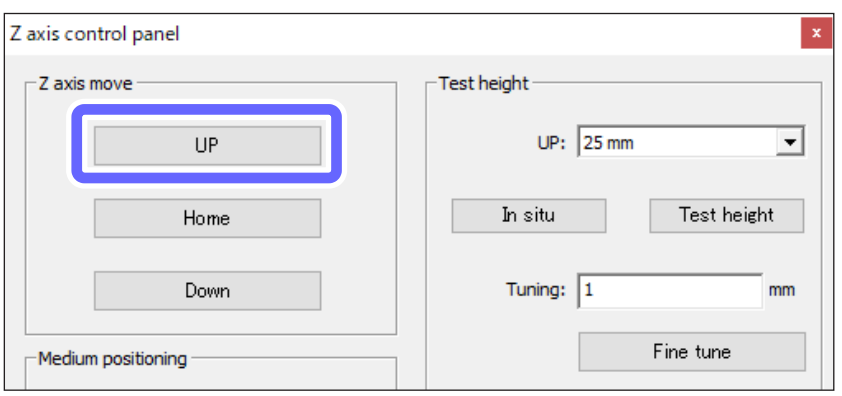
Check that the print-head carriage has returned to the maintenance station. If the machine detects an intrusion into the movable range of the print-head carriage while the carriage is not in the maintenance station, safety protection is activated to stop the machine.

☞ P. 20 "How to Clear Activated Safety Protection"

1. **Measure the thickness of the object to be printed on using a measuring tape or vernier caliper.**
2. **Press [Z Axis] to display the [Z axis control panel] window.**



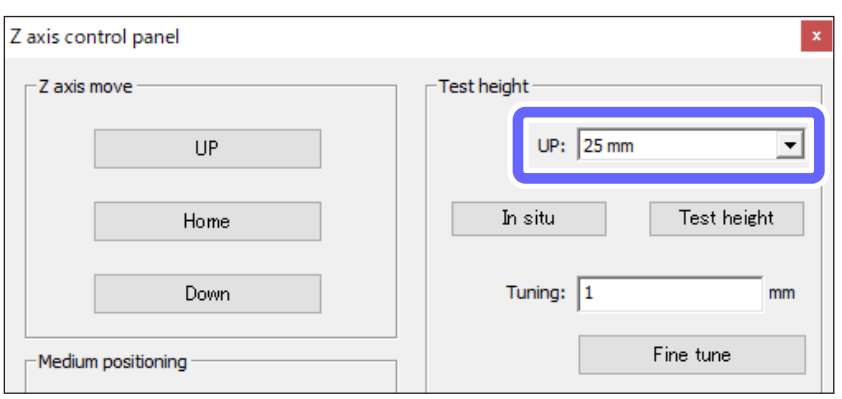
3. **Hold down [UP] in [Z axis move] until the print head height is larger than the thickness of the object to be printed on.**
The print head will be moved over the object to be printed on in step 6. Move the print head up to a height such that it does not contact the object to be printed on when it moves.



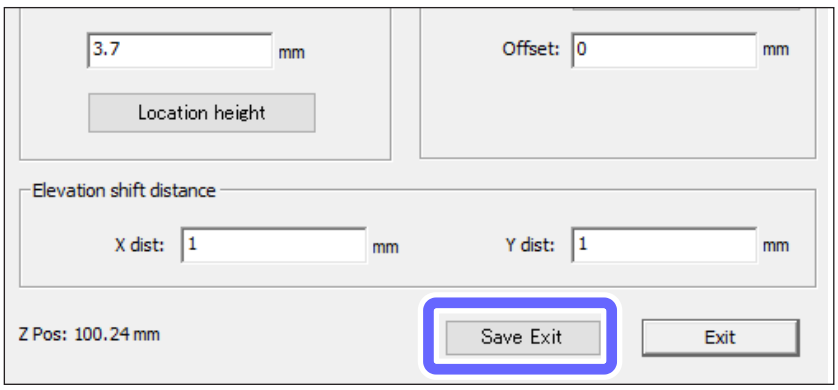
4. **Select the value for [UP] in [Test height].**
The value selected here will be the print head height at which height detection starts.

IMPORTANT

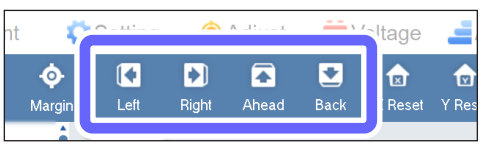
Select a value larger than the thickness of the measured object to be printed on.
Failure to do this may cause the print head to contact the object, damaging the print head.



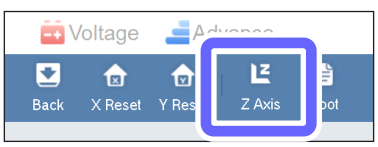
5 **Press [Save Exit].**
The setting is saved and the [Z axis control panel] window closes.



6 **Press [Left], [Right], [Ahead], and [Back] to move the print-head carriage over the object to be printed on.**



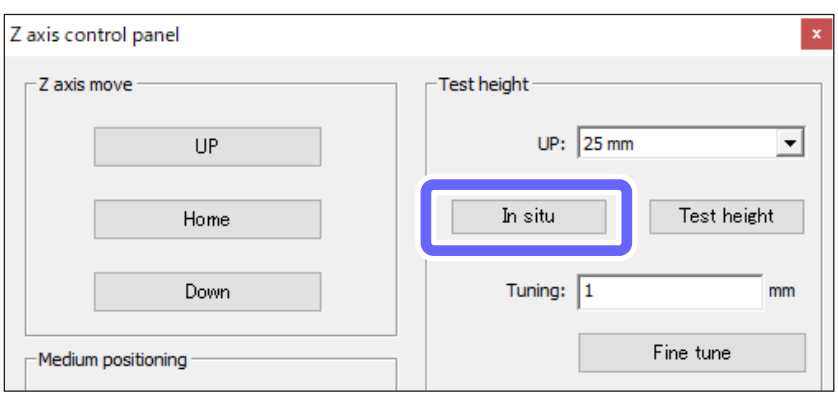
7 **Press [Z Axis] to display the [Z axis control panel] window.**



IMPORTANT

The height of the object to be printed on will be detected in the next step. Make sure that there is nothing on the flat table other than the object to be printed on.

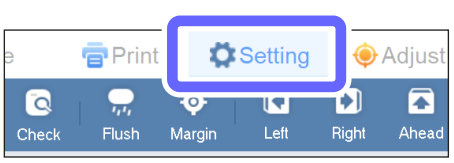
8 **Press [In situ].**
At the current position, the print-head carriage automatically detects the height of the object to be printed on.



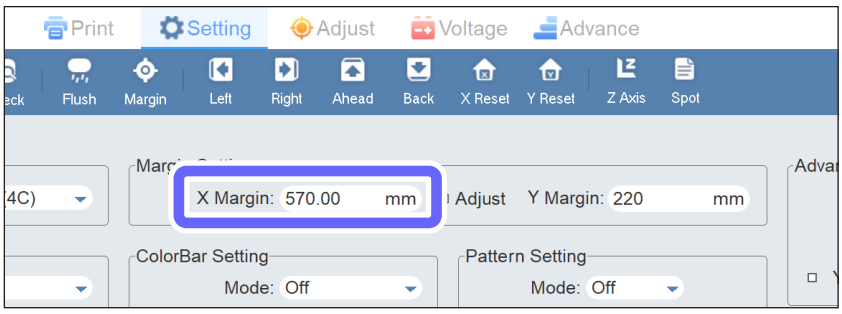
4. Configure the printing settings.

Procedure

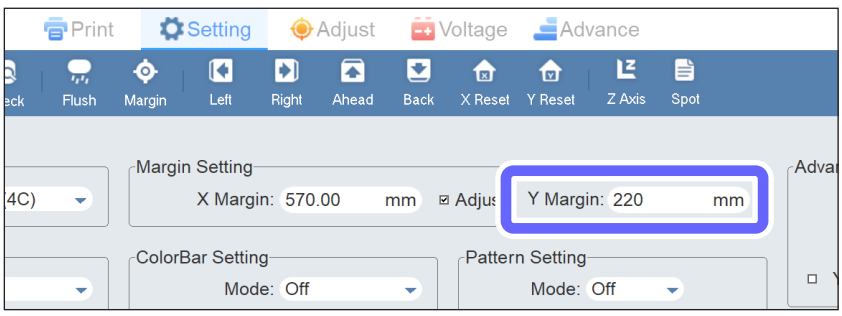
1 **Click the [Setting] tab.**



2 **Enter the printing-start position on the X axis to [X Margin] in [Margin Setting].**



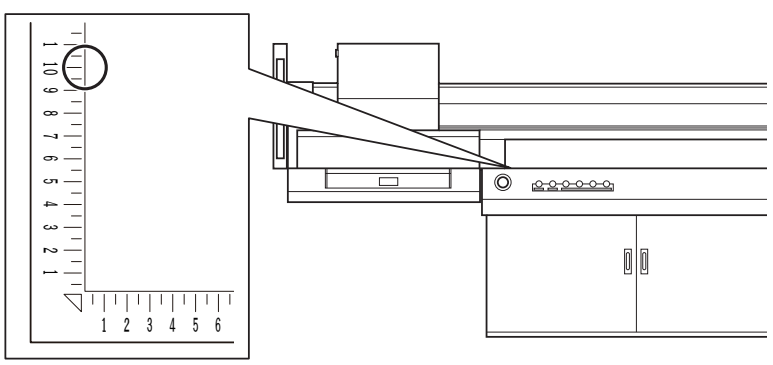
3 **Enter the printing-start position on the Y axis to [Y Margin] in [Margin Setting].**



MEMO

- If [Y Margin] cannot be viewed due to letters overlapping on the screen, set the screen resolution to 1366 × 768.

- The print origin on the Y axis is set at 100 mm (3.94 in.) on the scale of the flat table. If 0 is entered in [Y Margin], printing starts at the print origin.



5. Perform a printing test.

Check the amounts of remaining inks on the remaining ink panel before starting printing. When the amount of ink becomes low, the machine will sound a warning beep. Refill the ink and resume operation.

☞ P. 66 "Refilling Inks"

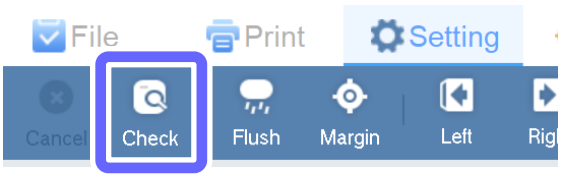
Procedure

MEMO

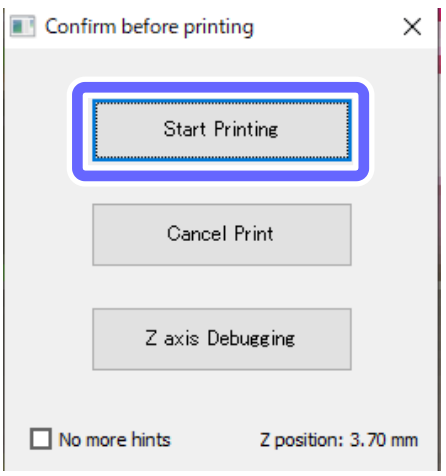
Check that the print-head carriage has returned to the maintenance station. If the machine detects an intrusion into the movable range of the print-head carriage while the carriage is not in the maintenance station, safety protection is activated to stop the machine.

☞ P. 20 "How to Clear Activated Safety Protection"

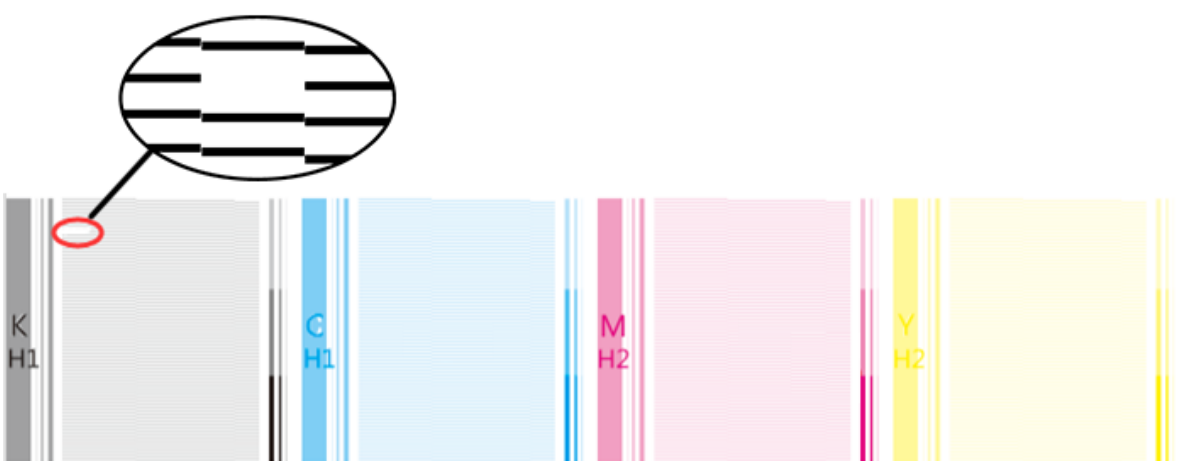
1 **Click [Check].**



2 **Click [Start Printing] on the [Confirm before printing] window.**
The machine starts printing of a test pattern.



3 **Check the printing result.**



When printing is complete, check that no dot drop-out or dot displacement has occurred. If the problem persists, try performing head cleaning again. If the printer has been used for a long period, dot drop-outs may not be fixed even after performing head cleaning two or three times. If this is the case, perform liquid cleaning.

☞ P. 70 "1. Clean the heads."
☞ P. 82 "Liquid Cleaning"

Liquid Cleaning

If dot drop-out or dot displacement persists even after cleaning, perform liquid cleaning.

⚠ WARNING **Be sure to wear gloves and goggles before starting operation. Ink may drop or scatter.**

IMPORTANT

- **For liquid cleaning, an optional cleaning liquid is required. Contact your authorized Roland DG Corporation dealer or visit our website (https://www.rolanddg.com/).**
- **Use new non-woven fabric when cleaning the bottom surface of the print-head carriage. When cleaning the surface, pay careful attention not to rub the nozzle surfaces.**
- **Use cleaning sticks when cleaning the print head nozzle surfaces. Cotton swabs or other lint-producing items may damage the print heads.**

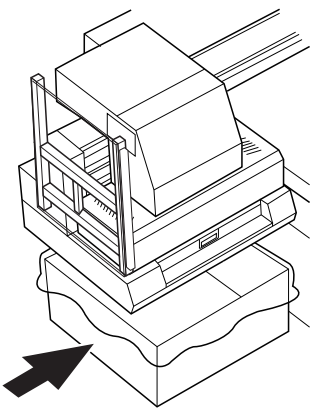
Procedure

MEMO

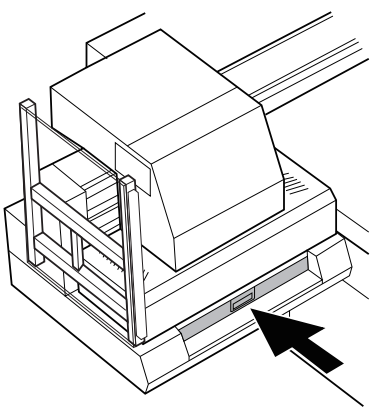
Check that the print-head carriage has returned to the maintenance station. If the machine detects an intrusion into the movable range of the print-head carriage while the carriage is not in the maintenance station, safety protection is activated to stop the machine.

☞ P. 20 "How to Clear Activated Safety Protection"

1 Place a container at the position shown in the figure below.



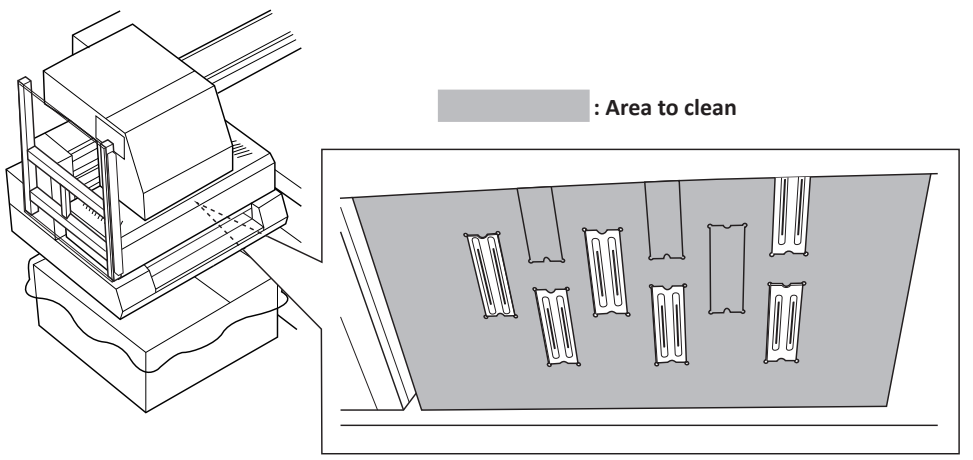
2 Slowly insert the ink receiver all the way.



3 **Clean the areas shown in the figure below using new non-woven fabric impregnated with cleaning liquid.**

IMPORTANT

- **Wipe off the cleaning liquid completely.**
- **Do not touch the nozzle surfaces when cleaning the print heads and their surrounding areas.**
- **Clean the entire bottom surface and both side surfaces of the print-head carriage by removing adhering ink.**



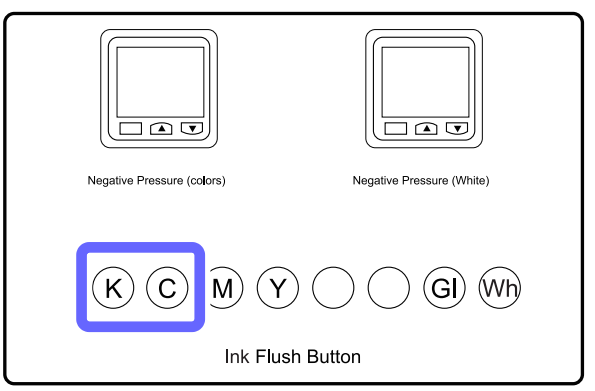
4 **Press the [Ink Flush button] on the left side of the print-head carriage to flush ink from the print heads.**

① **Hold down the [K] button for 10 seconds.**

② **Hold down the [C] button for 10 seconds.**

IMPORTANT

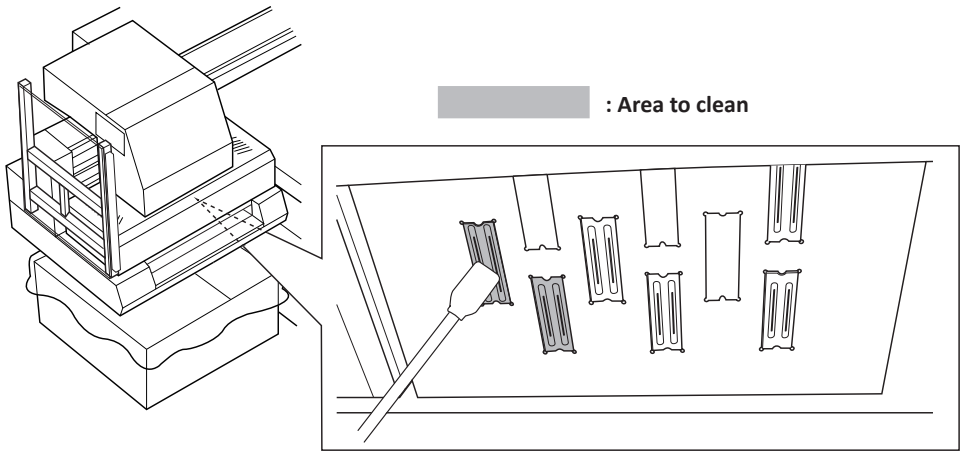
Do not hold down the buttons for more than 10 seconds.
The ink storage, which is located on the upper side of the print head, runs out of ink. This allows air to enter the ink tube, causing ink discharge failure or decreased printing quality.



5 **Clean the K and C print head nozzle surfaces using new cleaning sticks impregnated with cleaning liquid.**

IMPORTANT

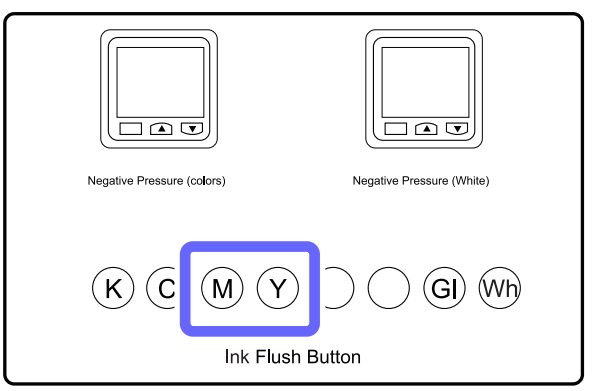
- **Wipe off the cleaning liquid completely.**
- **Never rub the nozzle surfaces hard.**



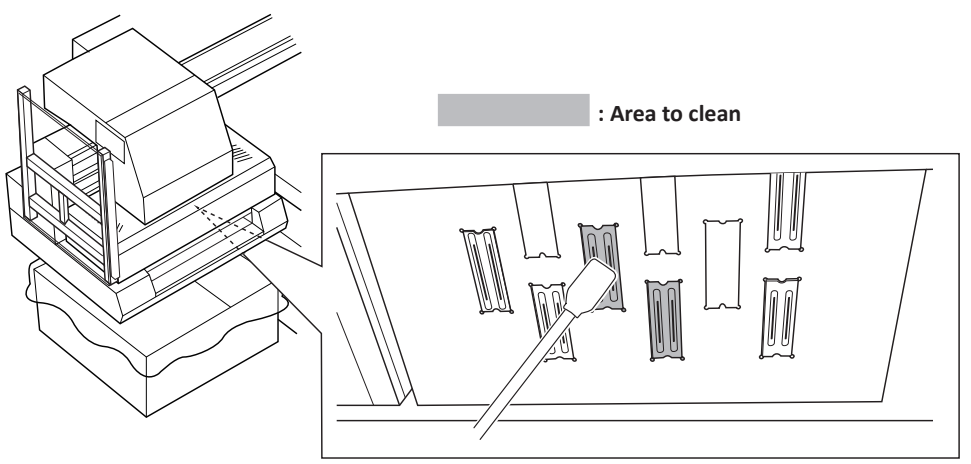
6 **Repeat steps 4 and 5 to clean the print heads M and Y.**

IMPORTANT

- **Do not hold down the buttons for more than 10 seconds.**
  The ink storage, which is located on the upper side of the print head, runs out of ink. This allows air to enter the ink tube, causing ink discharge failure or decreased printing quality.



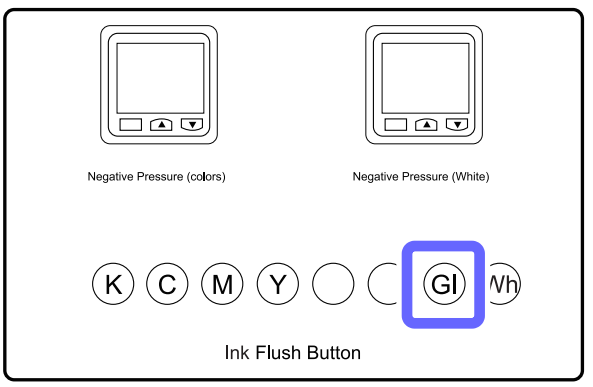
- **Wipe off the cleaning liquid completely.**
- **Never rub the nozzle surfaces hard.**



7 **Hold down the [GI] button on the left side of the print-head carriage for 10 seconds to flush ink from the print head.**

IMPORTANT

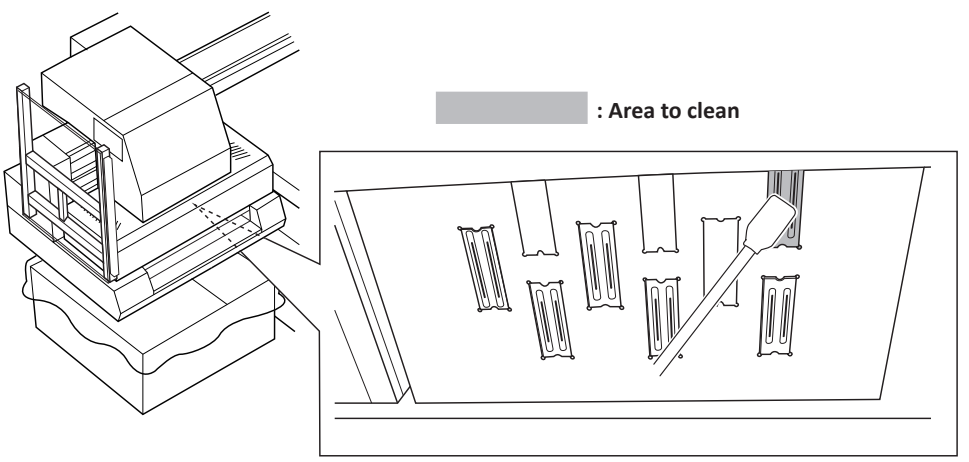
Do not hold down the buttons for more than 10 seconds.
The ink storage, which is located on the upper side of the print head, runs out of ink. This allows air to enter the ink tube, causing ink discharge failure or decreased printing quality.



8 **Clean the GI print head nozzle surface using new cleaning sticks impregnated with cleaning liquid.**

IMPORTANT

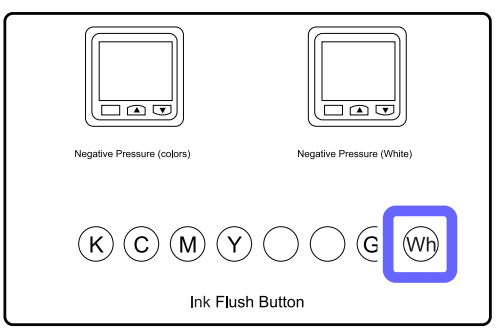
- **Wipe off the cleaning liquid completely.**
- **Never rub the nozzle surfaces hard.**



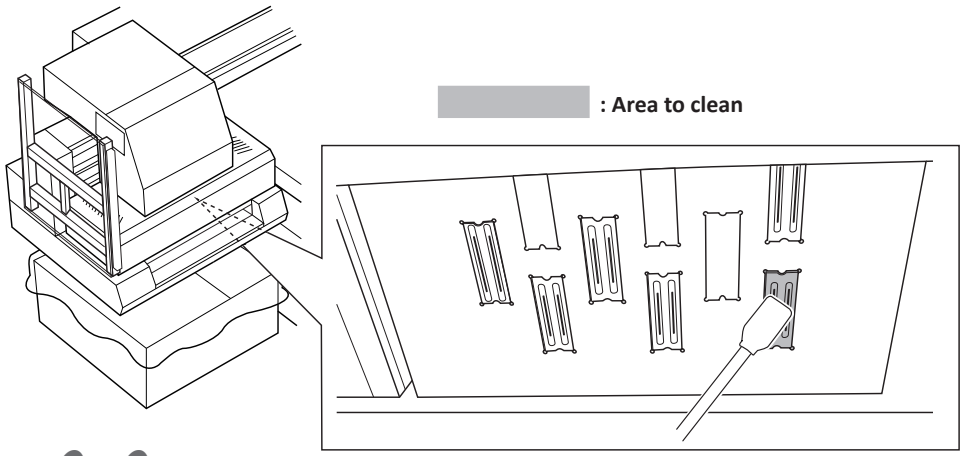
9 **Repeat steps 7 and 8 to clean the print head Wh.**

IMPORTANT

- **Do not hold down the buttons for more than 10 seconds.**
  The ink storage, which is located on the upper side of the print head, runs out of ink. This allows air to enter the ink tube, causing ink discharge failure or decreased printing quality.



- **Wipe off the cleaning liquid completely.**
- **Always wipe off Wh ink because it easily adheres to the print head surface.**
- **Never rub the nozzle surfaces hard.**

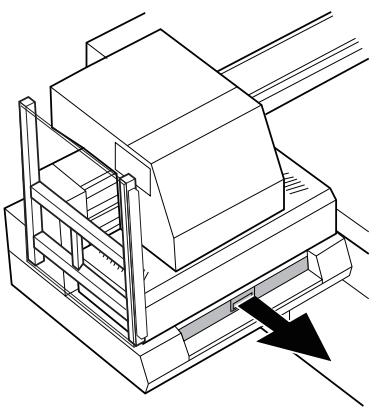


⑩ Repeat steps ④ to ⑨ to clean the print head nozzle surfaces using new cleaning sticks.

IMPORTANT

- **Do not hold down the button for more than 10 seconds.**
  The ink storage, which is located on the upper side of the print head, runs out of ink. This allows air to enter the ink tube, causing ink discharge failure or decreased printing quality.
- **Always wipe off Wh ink because it easily adheres to the print head surface.**
- **Use dry non-woven fabric without using cleaning liquids.**
- **Never rub the nozzle surfaces hard.**

⑪ Pull the ink receiver back.



Perform a printing test to ensure that no dot drop-out or dot displacement occurs. If dot drop-out or dot displacement persists, repeat liquid cleaning.

Adjusting Negative Pressure of the Print Heads

This machine injects inks from the print head nozzles to print on media. Negative pressure is applied to the print heads to prevent ink from leaking from the heads while the machine is waiting for printing. The negative pressures applied to the print heads are adjusted appropriately when the machine is installed. However, it needs to be adjusted if the usage environment changes, such as different humidity, temperature, or air pressure. An inappropriate negative pressure may cause dot displacement, dot drop-out, or ink dropping, resulting in deteriorated print quality.
If these problems persist even after repeated cleaning, check the negative pressure value by referring to the following.

Problem	Reference
Dot drop-out, dot displacement	☞ P. 87 "Setting a Lower Negative Pressure Value"
Ink dropping	☞ P. 89 "Setting a Higher Negative Pressure Value"

Setting a Lower Negative Pressure Value

Adjust the negative pressure value to be suitable for your usage environment. Dot drop-out and dot displacement occur when the negative pressure value is too high. In these cases, set a lower value.

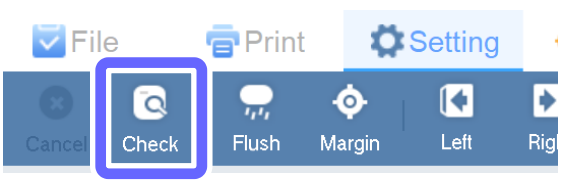
Procedure

MEMO

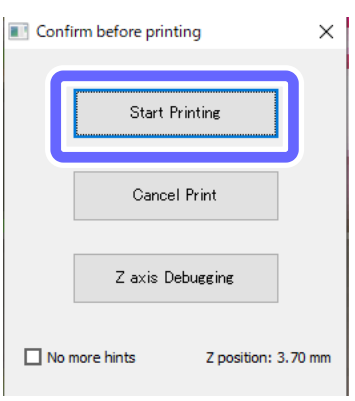
Check that the print-head carriage has returned to the maintenance station. If the machine detects an intrusion into the movable range of the print-head carriage while the carriage is not in the maintenance station, safety protection is activated to stop the machine.

☞ P. 20 "How to Clear Activated Safety Protection"

1 **Click [Check].**

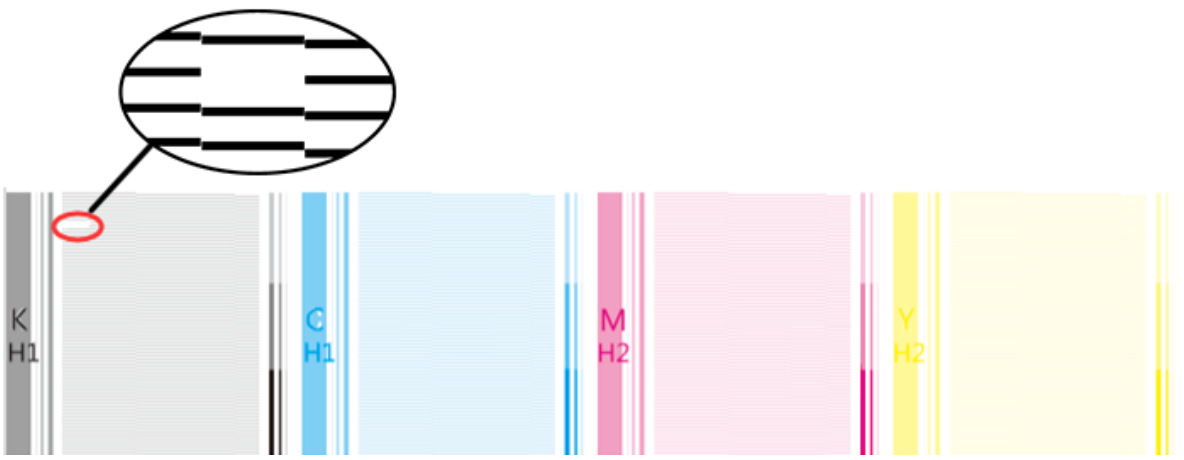


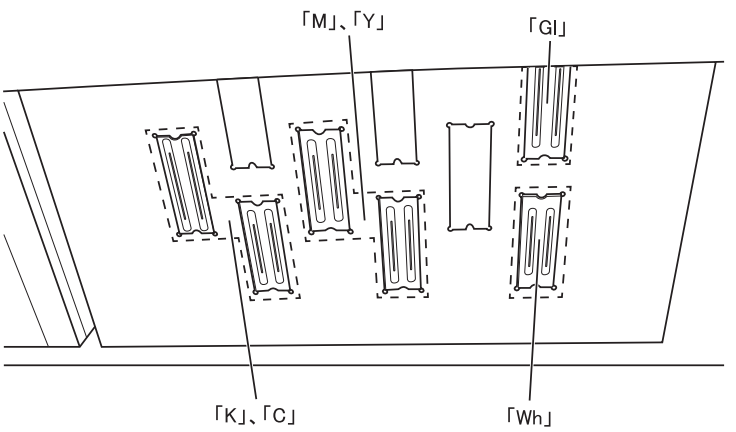
2 **Click [Start Printing] on the [Confirm before printing] window.**
The machine starts printing of a test pattern.



3 Check the printing result.

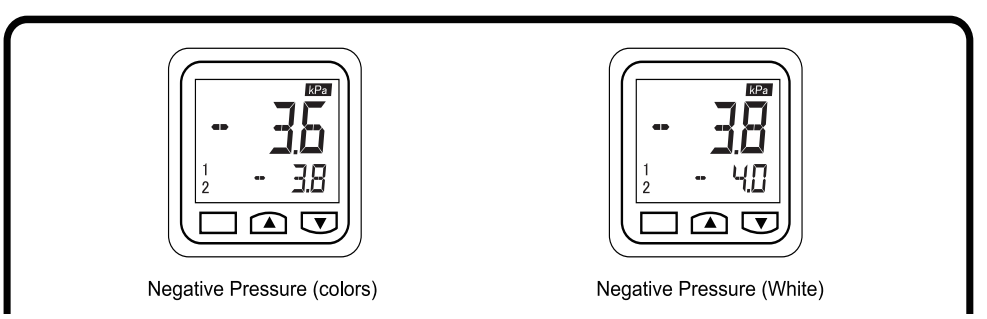
Check where dot drop-out or dot displacement occurs.





4 Adjust the negative pressure of the print head for which dot drop-out or dot displacement is occurring.

Adjust the negative pressure for the print heads K, C, Y, and M on [Negative Pressure (colors)] and for the print heads Gl and Wh on [Negative Pressure (White)].

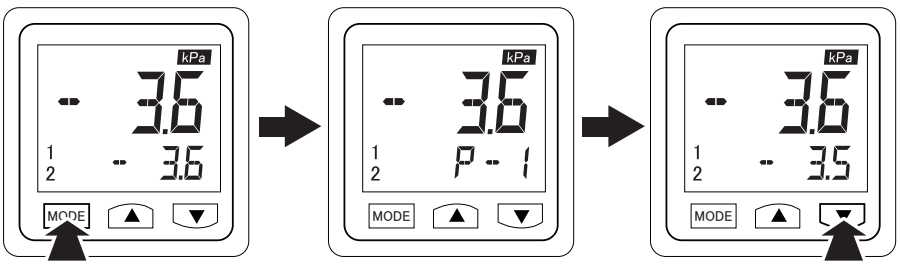


IMPORTANT

- **Make a note of the negative pressure values (P1 and P2) before starting adjustment.**
- **Adjust both negative pressures, P1 and P2, and be sure to set a larger value for P2 than P1.**
- **Change the value by 0.1 during adjustment.**

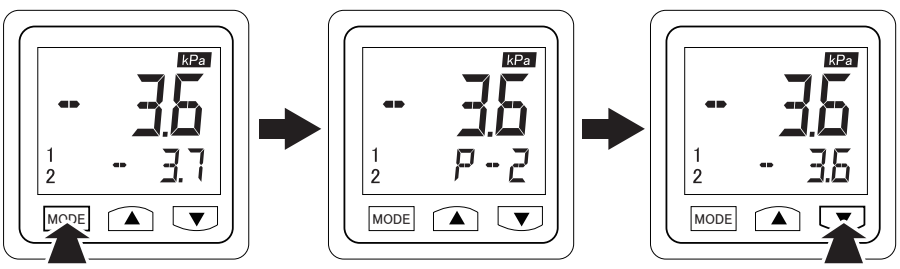
① **Press the [MODE] button to enter the P-1 adjustment mode.**

② **Press the [▼] button once.**



③ **Press the [MODE] button to enter the P-2 adjustment mode.**

④ **Press the [▼] button once.**



5 Perform a printing test to check if the problem has been resolved.
It the problem persists, repeat adjustment until it is resolved.

Setting a Higher Negative Pressure Value

Adjust the negative pressure to be suitable for your usage environment. Ink dropping occurs when the negative pressure value is too low. If this is the case, set a larger value.

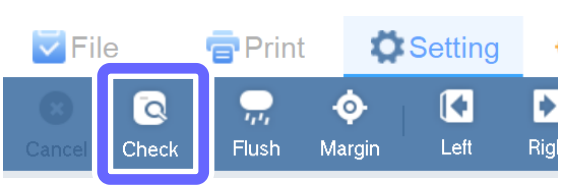
Procedure

MEMO

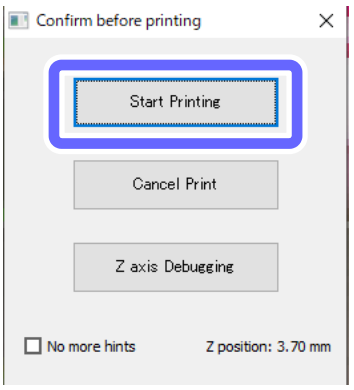
Check that the print-head carriage has returned to the maintenance station. If the machine detects an intrusion into the movable range of the print-head carriage while the carriage is not in the maintenance station, safety protection is activated to stop the machine.

☞ P. 20 "How to Clear Activated Safety Protection"

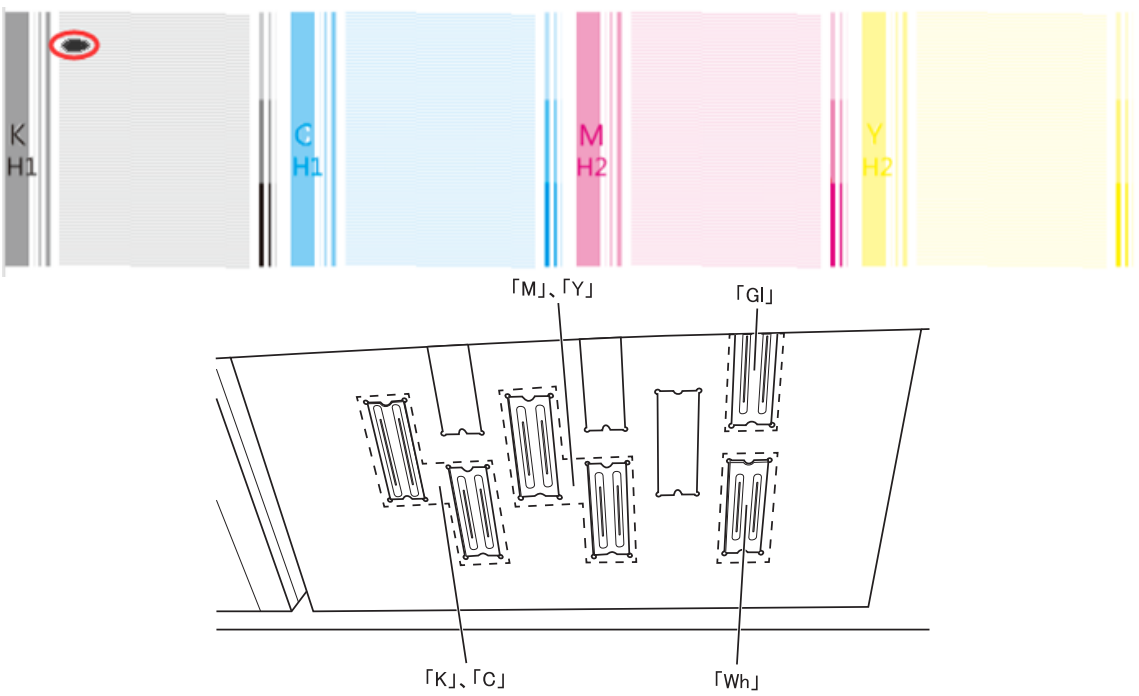
1 Click [Check].



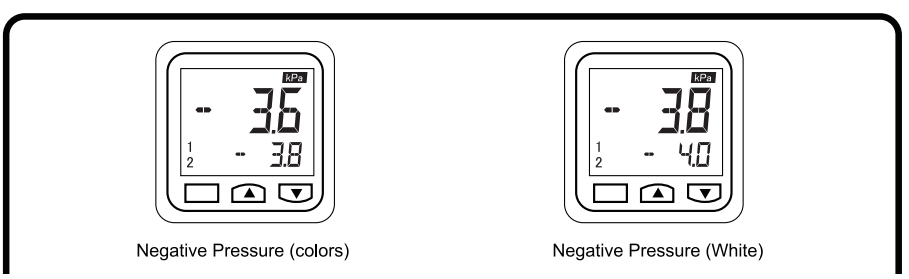
2 **Click [Start Printing] on the [Confirm before printing] window.**
The machine starts printing of a test pattern.



3 **Check the printing result.**
Check where dot drop-out or dot displacement occurs.



4 **Adjust the negative pressure of the print head for which ink dropping is occurring.**
Adjust the negative pressure for the print heads K, C, Y, and M on [Negative Pressure (colors)] and for the print heads Gl and Wh on [Negative Pressure (White)].



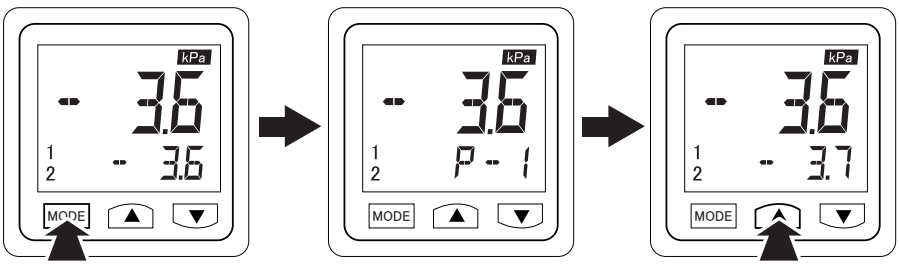
Negative Pressure (colors)　　Negative Pressure (White)

IMPORTANT

- **Make a note of the negative pressure values (P1 and P2) before starting adjustment.**
- **Adjust both negative pressures, P1 and P2, and be sure to set a larger value for P2 than P1.**
- **Change the value by 0.1 during adjustment.**

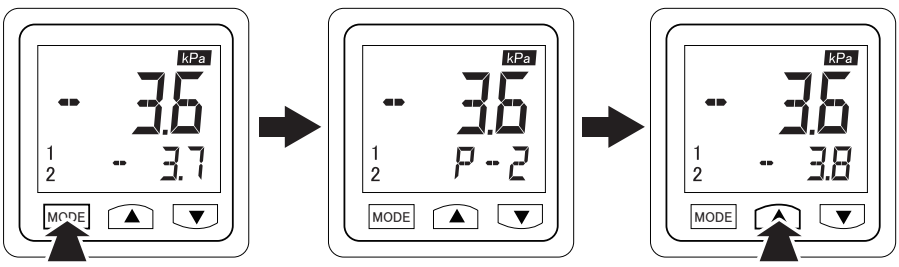
① **Press the [MODE] button to enter the P-1 adjustment mode.**

② **Press the [▲] button once.**



③ **Press the [MODE] button to enter the P-2 adjustment mode.**

④ **Press the [▲] button once.**



5 **Perform a printing test to check if the problem has been resolved.**
It the problem persists, repeat adjustment until it is resolved.

3. Replacing Consumable Parts and Products

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Items That Require Inquiries before Replacement.....93

Inquiries for Consumable Parts and Products

Items That You Can Purchase by Yourself

To purchase the following consumable products, contact your authorized Roland DG Corporation dealer or visit our website (https://www.rolanddg.com/).

Item	Related page
Cleaning sticks	☞P. 54 "Cleaning the Print Heads" ☞P. 70 "Cleaning and Printing Test" ☞P. 82 "Liquid Cleaning"
Cleaning liquid	☞P. 82 "Liquid Cleaning"

Items That Require Inquiries before Replacement

When replacing the following consumable parts, contact your authorized Roland DG Corporation dealer.

Item	Related page
Print heads	—

4. Troubleshooting Methods

1. What to Do If

The Printer Does not Run 96
- Is the power switched on? 96
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- Are the print heads dirty? 97
- Do the print heads cause dot drop-out or dot displacement? 97
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- Has the screen resolution been changed? 98
- Are there more than five jobs on the job list? 98

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The Printer Does not Run

Is the power switched on?

Press the [ON] button on the front of the machine to turn on the power. The power lamp is lit when the power is turned on.

RELATED LINKS

☞ P. 17 "Turning the Power On"

Is the emergency stop button activated?

After confirming the safety, clear the stop state.

RELATED LINKS

☞ EU-1000MF Read this first

Is safety protection activated?

If a human or object enters the movable range of the print-head carriage of the running machine, the safety protection is activated to stop the machine. After confirming the safety, clear the stop state.

RELATED LINKS

☞ P. 20 "How to Clear Activated Safety Protection"

Is the alarm sounding?

The alarm goes off if the sub-ink tank is not filled with ink completely within a specified time. Press the [Reset] button to complete ink filling and stop the alarm.

RELATED LINKS

☞ P. 5 "Printer Unit"

Is a message displayed on the screen?

Check the error message displayed on the screen and take necessary actions.

RELATED LINKS

☞ P. 99 "If an Error Message Appears"

Print Quality Is Unstable

Are the print heads dirty?

A dirty print head may cause ink to drip on the object to be printed on.
If the print head is dirty, clean it. After cleaning, perform a printing test to check that no ink drips on the object to be printed on.

RELATED LINKS

☞ P. 70 "Cleaning and Printing Test"

Do the print heads cause dot drop-out or dot displacement?

If dot drop-out or dot displacement is present, perform cleaning.
After cleaning, carry out a printing test and make sure that no dot drop-out or dot displacement occurs.

RELATED LINKS

☞ P. 70 "Cleaning and Printing Test"

Is the printer installed in a level and stable location?

Never install the machine in a location where it is tilted or where it may wobble or experience vibration. These factors may lead to dot drop-out or reduced printing quality.

Is the printer being used in a location subject to severe changes in the operating environment?

Large fluctuations in temperature or humidity while printing is in progress may cause the colors to change partway through the printing. When printing, use the machine in a location where the temperature and humidity are stable.

Print Exp Screen Display Overlapping

Has the screen resolution been changed?

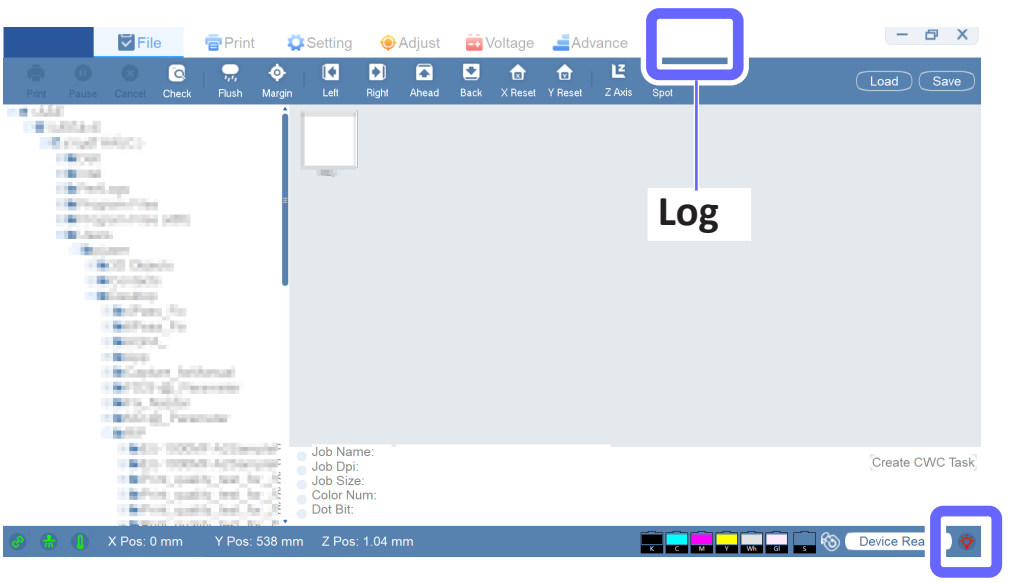
When the screen resolution is changed, letters being displayed may overlap.
If this occurs, set the screen resolution to 1366 × 768.

Are there more than five jobs on the job list?

If there are more than five jobs on the job list, some problems such as displayed letters overlapping may occur.
If the overlapping problem occurs, click one job and then click another job. The display is refreshed and the display overlapping is corrected.

If an Error Message Appears

If an error has occurred on this machine,  at the bottom right of the screen changes to  . Click  to display [Log] on the right side of the [Advance] tab. Open the tab to check possible error causes and measures. Take actions according to the instructions on the screen. If it is impossible to take the displayed actions or the error persists after carrying out the actions, contact your authorized Roland DG Corporation dealer immediately.



IMPORTANT

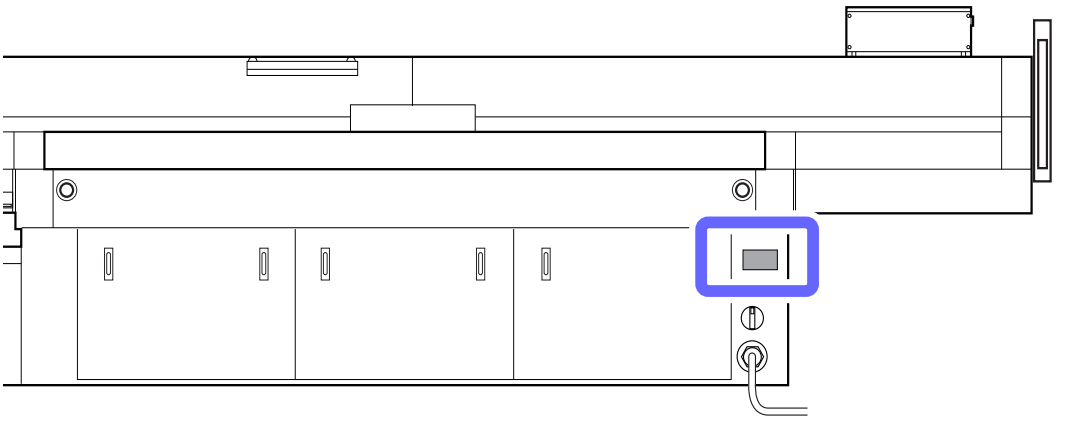
If you have any questions about the actions, contact your authorized Roland DG Corporation dealer immediately without taking any action.
Taking actions you are uncertain about may damage the machine.

5. Appendix

1. Main Specifications

Location of the Power Rating and Serial Number Label 102
Specifications 103
Supported Application Software 104

Location of the Power Rating and Serial Number Label



Serial number
This number is required when you seek maintenance, servicing, or support. Never remove the label.

Power rating
Use an electrical outlet that meets the requirements for voltage, frequency, and amperage given here.

Specifications

		EU-1000MF
Printing method		Piezo ink-jet method
Acceptable media	**Width**	Max. 2,440 mm (96 in.)
	Length	Max. 1,220 mm (48 in.)
	Thickness	Max. 95 mm (3.74 in.)
	Weight	Max. 45 kg/m² (99 lb./m²)
Maximum printing width/printing length (*1)		Max. 2,440 mm × 1,120 mm (96 in. × 44 in.)
Ink	**Type**	E-US
	Colors	Six colors (cyan, magenta, yellow, black, white, gloss) Four colors (cyan, magenta, yellow, black)
	Tank capacity	2.5 L
Ink-curing unit		Built-in UV-LED lamp
Printing resolution (dots per inch)		Max. 720 dpi × 1,200 dpi
Connectivity		Ethernet 1000BASE-T for control PC only
Power requirements		AC 220 V, 50/60 Hz, 32 A
Power consumption	**During operation**	Approx. 5,900 W
Acoustic noise level	**During operation**	80 dB (A) or less
Dimensions (Width × Depth × Height)		4,556 mm × 2,100 mm × 1,470 mm (180 in. × 83 in. × 58 in.)
Machine occupation dimensions		7,000 mm × 5,000 mm or more (276 in. × 197 in. or more)
Weight		1,300 kg (2,870 lb.)
Environment	**During operation**	Temperature: 18 to 25°C (64.4 to 77°F), humidity: 40 to 70%RH (no condensation)
Included items		Power cord, User's manual (to download), Software RIP (to download), Goggles, etc.

*1: The maximum printing area can be extended up to 2,440 mm × 1,220 mm (96 in. × 48 in.). For more information, refer to P. 8 "Printable Area."

Supported Application Software

Supported Application Software		Supported application, OS, etc.
Print Exp	OS	Windows 11/10 (64bit edition)
	Processor	Core i5-4590 or higher
	RAM	4 GB RAM
	HDD	120 GB SSD + 1 TB HDD